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NEWCASTLE-ON-TYNE, No. 106731.

838

Rpt. 4c.
N.D.O.

REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 13716.

Date of writing Report 23rd June 49. When handed in at Local Office 20th July 49. Port of MANCHESTER. Received at London Office 17 NOV 1949
24 JUL 1949
 No. in Survey held at HAZELGROVE, STOCKPORT. Date, First Survey 1st September, 1948. Last Survey 31st March, 1949.
 Reg. Book. 35288 on the Single Triple Quadruple Screw vessel. Classed Vessel (No. 327). M.V. LEXA NAERSK. Number of Visits 20.
 Built at Sunderland. By whom built Bartrams. Yard No. 327. When built 1949.
 Owners A/S D/S SPENBERG & D/S af 1912 A/S. Port belonging to COPENHAGEN.
 Oil Engines made at Hazelgrove. By whom made Mirrlees, Bickerton & Day Ltd. Engine 31031-2-3. When made 1949.
 Generators made at Bedford. By whom made W. H. Allen, Sons & Co. Ltd. Generator E2/67207/1-2-3. When made 1949.
 No. of Sets 3. Engine Brake Horse Power 810. Total 202.5. M.N. as per Rule 202.5. Total Capacity of Generators 450. Kilowatts.
 Is Set intended for essential services Yes.

OIL ENGINES, &c.—Type of Engines Vertical Airless Injection Heavy Oil. 2 or 4 stroke cycle 4. Single or double acting Single.
 Maximum pressure in cylinders 800 lbs per sq. inch. Diameter of cylinders 8.5". Length of stroke 13". No. of cylinders 6. No. of cranks 6.
 Mean indicated pressure 122 lbs/sq. inch. Firing order in cylinders 1,3,5,6,4,2. 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 m² or Kg.-cm.²) 932,000. Revolutions per minute 500.
 Flywheel dia. 31 - 6". Weight 1150 lbs. Means of ignition Compression. Kind of fuel used Diesel.
 Crank Shaft, dia. of journals As approved. Crank pin dia. 5.9/16". Crank Webs Mid. length breadth 9 1/2". Thickness parallel to axis -.
 as fitted 5 3/4" dia. hole. 3 1/4" dia. hole. Mid. length thickness 2.15/32" shrunk. Thickness round eye hole -.
 Flywheel Shaft, diameter Fitted to the end. Intermediate Shafts, diameter as per Rule. General armature, moment of inertia 176,500 lbs.in².
 as fitted as fitted.

Are means provided to prevent racing of the engine when declutched Yes. Means of lubrication Forced. Kind of damper if fitted None.
 Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Yes.
 Cooling Water Pumps, No. -. Is the sea suction provided with an efficient strainer which can be cleared within the vessel -.
 Lubricating Oil Pumps, No. and size One Gear Type Engine Driven: Capacity 666 galls/hr.

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.7994, C.7995
C.8446.

Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes.
 Can the internal surfaces of the receivers be examined Yes. What means are provided for cleaning their inner surfaces Cleaning Doors.
 Is there a drain arrangement fitted at the lowest part of each receiver Yes.

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. Three. Total cubic capacity 15 cu. ft.. Internal diameter 1' - 6". thickness 5/16".
 Circumferentially welded M.S.. Range of tensile strength 26-30 tons/sq.in.. Working pressure by Rules 395 lbs.
 Seamless, lap welded or riveted longitudinal joint welded. Material -. Range of tensile strength -. Working pressure by Rules per sq. in..

ELECTRIC GENERATORS:—Type Open Type. Drip proof. Compound Wound.
 Pressure of supply 220 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 -. 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.

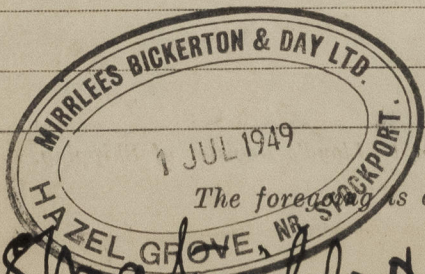
If the generators are under 100 kw. full load rating, have the makers supplied certificates of test - and do the results comply with the requirements -.
 If the generators are 100 kw. or over have they been built and tested under survey Yes.

Details of driven machinery other than generator -.

PLANS.—Are approved plans forwarded herewith for Shafting 13.1.48. Receivers Standard Type. Separate Tanks -.
 (If not, state date of approval)

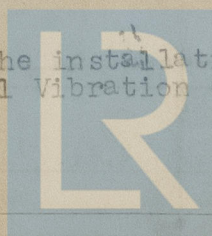
Have Torsional Vibration characteristics if applicable been approved Yes. 13th January, 1948. Armature shaft Drawing No. E.52834X.
 (state date of approval)

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.

Manufacturer.



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Lloyd's Register
Foundation

N1639-0227

Dates of Survey while building { During progress of work in shops - - 1948. Sept. 1, 20, 22, 30. Oct. 8, 22, 27, 29. Nov. 1, 2, 4, 5, 8, 11, 12, 26. Dec. 3. 1949. March 29, 30, 31. During erection on board vessel - - - - - Total No. of visits - - - - -

Dates of Examination of principal parts - Cylinders - - - - - Oct. 48. 22.9.48. 30.3.49. 8.22.27.29. 27.10.48. 31.3.49. Covers - - - - - Nov. 48. 1.2.8.11. Pistons - - - - - 27.10.48. Crank and Flywheel shafts - - - - - 1.20.30/9/48. Intermediate shafts - - - - -

Connecting rods - - - - - Crank shaft { Material O.H. Steel. Tensile strength 43.6 Tons per sq. inch. 46.0 Tons per sq. inch. 40.6 Tons per sq. inch. Elongation 26.0% on 2 1/2" : Identification Marks Lloyd's Lloyd's Lloyd's 81/470047. 81/470047. 81/470047. 921. 939. 765.

Flywheel shaft, Material - - - - - Lloyd's Test Lloyd's Test Lloyd's Test Identification Marks R.J.Y. 20.9.48. R.J.Y. 30.9.48. W.J.I. 30.9.48. H.T. 790 lbs. H.T. 790 lbs. H.T. 790 lbs. W.P. 395 lbs. W.P. 395 lbs. W.P. 395 lbs. 21.2.49. 3.1.49. 3.1.49. H. 54. S. 20321. S. 20320. M.B. D. M.B. D. M.B. D. 4320. 4277. 4276. W.P. 395 lbs. W.P. 395 lbs. W.P. 395 lbs. 20.4.49. 20.4.49. 20.4.49. W.J.I. W.J.I. W.J.I.

Identification marks on Air Receivers - - - - - 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 and Generators have been constructed under special survey of tested materials and in accordance with the Secretary's letters, approved plans and Rule requirements. The materials and workmanship are good. The engines, direct coupled to their respective electric generators were found satisfactory when tested at the Builders' Works, under the following conditions of loading.

6 hours 100% Load = 150 K.W.
1 hour 120% Load = 180 K.W.

Torsional vibration characteristics have been approved for a service speed of 500 R.P.M. In our opinion, these Generator sets are suitable to be installed in a vessel classed with the Society for the purpose intended.

Attached herewith are copies of the following certificates.
Crankshaft forging.
Starting air receiver.

The generators have been satisfactorily installed on board, examined under working conditions & left in good working order

J.A. Orle
Newcastle-on-Tyne
1st November 1949

The amount of Fee ... £ 40 : 12 : 0 When applied for 19
Travelling Expenses (if any) £ 6 : 0 : 0 When received 19

Committee's Minute - - - - - FRI/ 9 DEC 1949
Assigned - - - - - In witness see J.E. Rife

