



Rpt. 4c.

REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 14756.

1951 NOV 21

Date of writing Report 6th September 1951 When handed in at Local Office 14th November 1951 Port of MANCHESTER Received at London Office 17 NOV 1951

No. in Survey held at ASHTON-UNDER-LYNE Date, First Survey 20.7.51 Last Survey 20.8.1951

Reg. Book. Single on the Twin Screw vessel M.V. 'CLUTHA RIVER' Number of Visits 8

Quadruple

built at Newcastle-U-Lyne By whom built Hawthorn Leslie & Co. Engine No. 4098 Tons { Gross 1323 Net 719

Yard No. When built

owners Houlder Line Ltd. Port belonging to

Engines made at Ashton-U-Lyne By whom made National Gas & O.E. Co. Ltd. Engine No. 80023 Contract No. 6097 When made 1951

Generators made at Bedford By whom made W.H. Allen & Co. Ltd. Generator No. E2-92173 Contract No. When made 1951

No. of Sets 1 Engine Brake Horse Power 111 M.N. as per Rule 28 Total Capacity of Generators 75 Kilowatts

Set intended for essential services Yes

OIL ENGINES, &c.—Type of Engines National R4A3 Heavy Oil 2 or 4 stroke cycle 4 Single or double acting Single

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

Mean indicated pressure 90 lbs/sq. inch Firing order in cylinders 1.3.2 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 10 1/2"

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, dia. of journals as per Rule Crank pin dia. 6.372" Crank Webs Mid. length breadth 7 3/4" Thickness parallel to axis

as fitted 6.622" with 3 1/8" dia. hole slightly Mid. length thickness 2 3/4" shrunk Thickness round eye hole

Wheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule General armature, moment of inertia (16 m² or Kg.-cm.²) 66820 lb² ins²

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 Water cooled

Working Water Pumps, No. 1 F.W. Cent. Type 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

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

Engining Air Pumps, No. Diameter Stroke Driven by

AIR RECEIVERS:—Have they been made under Survey Yes State No. of Report or Certificate C.15596

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Are 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

Pressure Air Receivers, No. Cubic capacity of each Internal diameter thickness

Is it less, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules

Engining Air Receivers, No. 1 Total cubic capacity 11 cu. ft. Internal diameter 1'-11" thickness 1/2"

Is it less, lap welded or riveted longitudinal joint Welded Material M.S. Range of tensile strength 26/32 Working pressure by Rules 350 lbs/sq. inch

ELECTRIC GENERATORS:—Type Open Type, drip proof, compound wound

Voltage of supply 110 volts. Full Load Current 680 Amperes. Direct or Alternating Current Direct

Is an alternating current system, state the periodicity Has the Automatic Governor been tested and found as per Rule when full load is suddenly thrown off Yes

Are the 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

Is it added that they cannot be accidentally earthed, short circuited, or touched Yes Are the lubricating arrangements of the generators as per Rule Yes

Do generators are under 100 kw. full load rating, have the makers supplied certificates of test Yes and do the results comply with the requirements Yes

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

Is there any other driven machinery other than generator

Are approved plans forwarded herewith for Shafting 10,8.50 Receivers Separate Tanks

(If not, state date of approval)

Torsional Vibration characteristics if applicable been approved 30.10.50 Armature shaft Drawing No. E/53274x

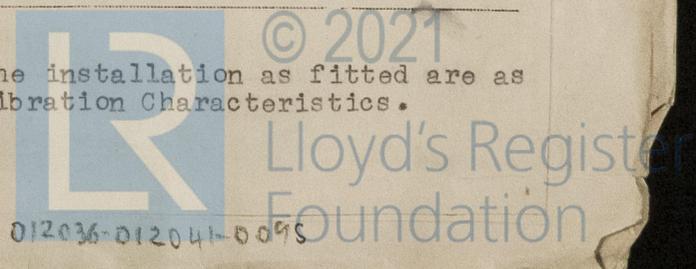
(state date of approval)

BE 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.

THE NATIONAL GAS AND OIL ENGINE Co. Ltd. Manufacturer.

[Signature]



012036-012041-0095

Dates of Survey while building: During progress of work in shops - 1951. July 16, 20, 24, 25. Aug. 2, 10, 17, 20.
 During erection on board vessel - Please see rpt 4th.
 Total No. of visits: Columns 24.7.51. Covers 2.8.51. Pistons 25.7.51. ~~25.7.51.~~ Liners 16.7.51.

Dates of Examination of principal parts: ~~24.7.51.~~ Crank and Flywheel shafts 24.7.51. Intermediate shafts
 Connecting rods 25.7.51.
 Crank shaft: Material S.M. Steel. Tensile strength 47.2 Tons/sq.inch.
 Identification Marks LLOYD'S LRW.162 S.7557.
 Elongation 24%. Identification Marks 28.6.51. G.A.
 Flywheel shaft, Material: Identification Marks
 Identification marks on Air Receivers: J.H. McLaren Ltd. No. 9136 - T.P. 700 lbs/sq.inch - W.P. 350 lbs/sq.inch. 2.3.51. R.McL.

Is this machinery duplicate of a previous case? If so, state name of vessel. The engine has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
 The materials and workmanship are good.
 On completion of erection, the engine mounted on its base and direct coupled to its electric generator was run under the following conditions of loading with satisfactory results:-
 4 Hours at 100% Load.
 1 Hour at 110% Load.

and governor tested and found satisfactory.
 Torsional vibration characteristics have been approved for a service speed of 500 R.P.M.
 The diesel generator set is, in my opinion, suitable to be installed in a vessel classed with the Society for the purpose intended.

Attached hereto extract from Sheffield Rpt. 6 No. 54184 and Generator Test Sheet 27993/4314, Air Receiver Certificate No. C.15596, together with Base-plate Cert. C.274.

SURVEY OF MACHINERY. NEWCASTLE-ON-TYNE.

This engine has been satisfactorily installed in M.V. "CLUTHA RIVER", tried under full working conditions and found efficient.

T. Shanno
 SURVEYOR TO LLOYD'S REGISTER.
 NEWCASTLE-ON-TYNE.

10.7.52

200,000 - (The Surveys are requested not to write on or below the space for Committee Minute.)

The amount of Fee ... £ 5 : 12 : 0. When applied for 14/11/1951 (RC).
 Travelling Expenses (if any) £ 1 : 8 : 0. When received 19.

J.M. Keesey
 Surveyor to Lloyd's Register of Shipping.

FRI. 1 AUG 1952

Assigned Su F.E. Melby. rpt.



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