

LUCAS

Quality

EQUIPMENT

VOLUME 2

WORKSHOP INSTRUCTIONS

MOTOR CYCLE MAGDYNOS

MODELS
MOIL and MN2L



JOSEPH LUCAS LTD · BIRMINGHAM 19 · ENGLAND

LUCAS WORKSHOP INSTRUCTIONS

MOTOR CYCLE MAGDYNOS

MODELS MOIL and MN2L

1. GENERAL

The magdyno is a base-fixed magneto-and-generator unit, the body of the magneto portion being arranged to carry a standard strap-fixed generator of the patterns described in Section L-2 Part A. A shock absorbing drive is arranged between the magneto and generator portions. Two magdyno models are produced, the magneto portion of each having a wound rotating armature and a high-energy magnet case integral with the body. These models are:

MOIL Magneto portion designed for use with single-cylinder engines. Contact breaker actuated by a tappet and face type cam. Magdyno includes generator model E3L.

MN2L Magneto portion designed for use with twin-cylinder engines. Contact breaker actuated by ring type cam. Generator as fitted to MOIL.

The shock absorbing drive is incorporated in the larger of the two gears which transmit the drive from the magneto shaft to the generator, and is shown exploded in Fig. 1. This drive, whilst permitting maximum generator output to be obtained, reduces peak shock loadings on the teeth of a bakelised fabric type gear to a minimum value. The drive is taken from metal gear centre A, keyed to the magneto shaft, to fabric gear rim B by means of pressure ring C and tension spring D. A peg projecting from gear centre A prevents relative movement of the gear centre and tension spring D. In the event of a back-fire or an electrical short-circuit, slip will occur between the contacting surfaces of fabric gear B and gear centre A.

2. ROUTINE MAINTENANCE

(a) LUBRICATION

To be carried out every 3,000 miles, see Section L-5, Part A, Para. 2(a).

(b) ADJUSTMENTS

Check every 3,000 miles, as described in Section L-5, Part A, Para. 2(b).

(c) CLEANING

To be carried out every 6,000 miles, see Section L-5, Part A, Para. 2(c).

(d) RENEWING HIGH TENSION CABLES

See Section L-5, Part A, Para. 2(d).

(e) RENEWING TIMING CONTROL CABLE

See Section L-5, Part A, Para. 2(e).

(f) CONTACT BREAKER SPRINGS

See Section L-5, Part A, Para. 2(f).

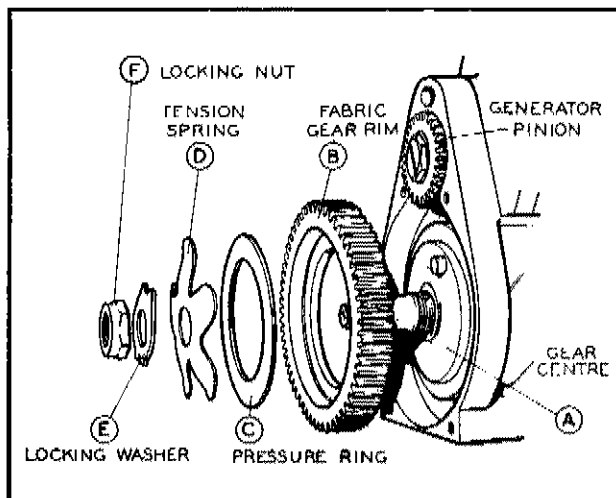


Fig. 1

Exploded view of generator drive



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3. SERVICING

(a) TESTING MAGDYNO IN POSITION ON ENGINE

To locate cause of misfiring or failure of ignition, check as described in Section L-5, Part A, Para. 3(a).

(b) DISMANTLING

Important:

The following dismantling, testing and reassembly procedures must be carried out while **working at a clean bench**.

- (i) The generator and magneto portions, can be separated by withdrawing the generator securing nut G and slackening band clip securing screws H, see Fig. 2.

Remove the driving end cover I, by unscrewing the four countersunk securing screws, and bend back the tags of locking washer E.

Whilst slackening securing nut F, the spindle can be prevented from turning by using a special tool as shown in Fig. 3. The tool consists of a U-shaped length of $\frac{1}{2}$ in. dia. mild steel rod, the limbs being $\frac{3}{4}$ in. long and $3\frac{3}{8}$ in. between centres. Remove nut F, locking washer E, tension spring D, pressure ring C, and fabric driving gear B.

- (ii) On single-cylinder models, take off contact breaker cover J, spring arm K, and unscrew the contact breaker securing screw L. Withdraw contact breaker body M from the armature shaft. Spring out the wire ring N and lift out cam O and plunger P.

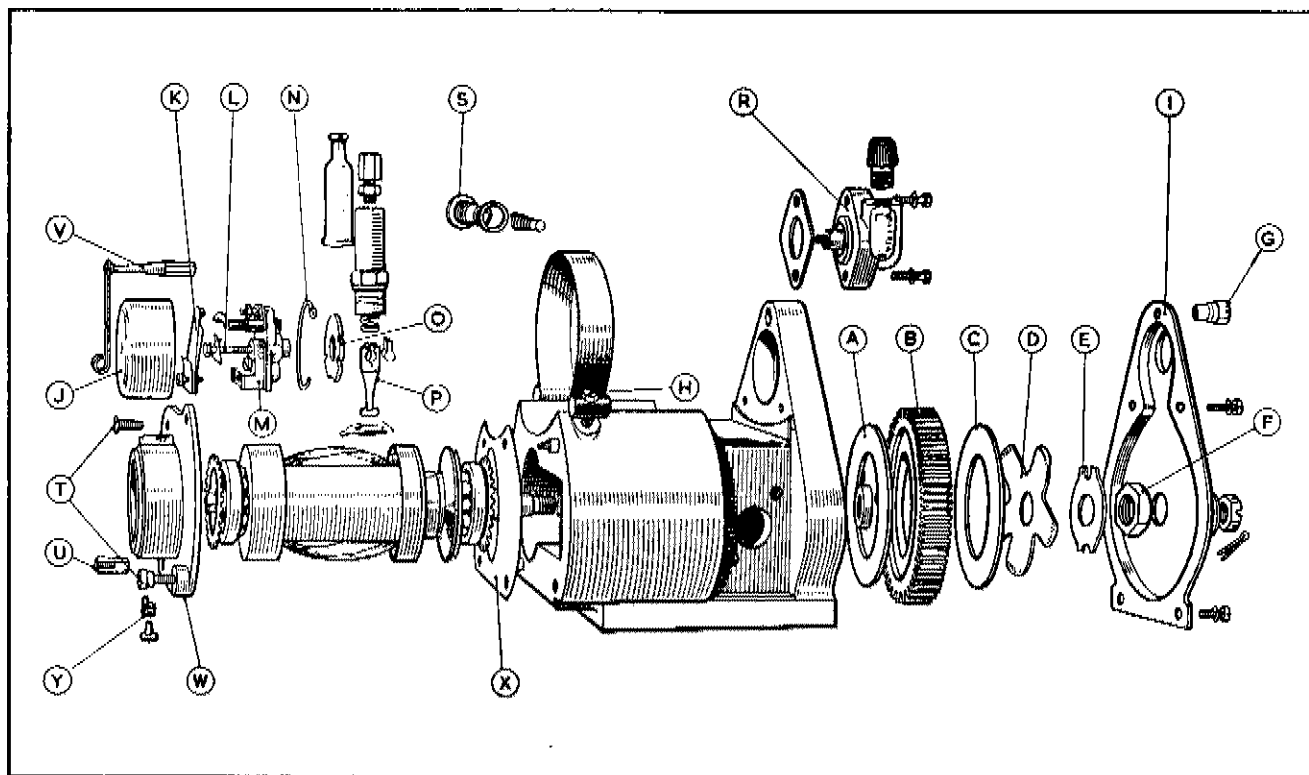


Fig. 2

Exploded view of typical single-cylinder magdyno



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On twin-cylinder models, unscrew the hexagon headed screw in the centre of the contact breaker and carefully prise the contact breaker off the

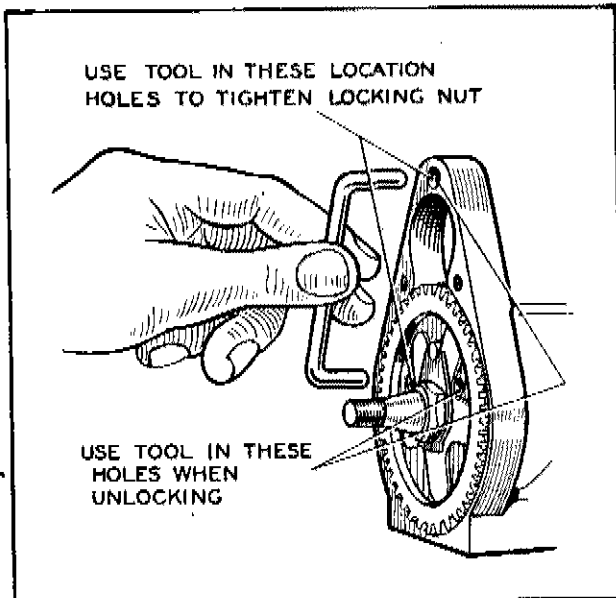


Fig. 3
Generator drive locking tool

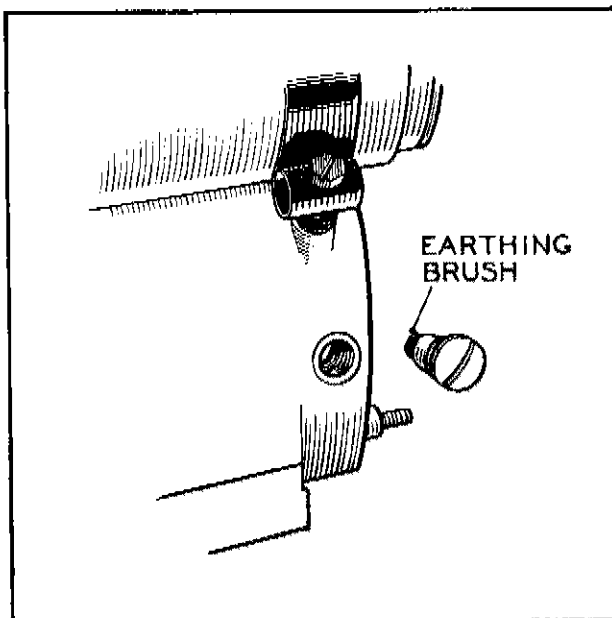


Fig. 4
Earthing brush withdrawn

tapered shaft on which it fits. Remove the cam ring which is a sliding fit in its housing.

- (iii) Remove the H.T. pick-up moulding or mouldings R, taking care to retain the gasket for use when reassembling. Unscrew and withdraw the earthing brush holder S, also shown in Fig. 4.

Release the contact breaker end plate W by withdrawing screws T, earthing terminal U and pillar V. The contact breaker end plate, together with shims X can now be removed.

- (iv) In order to detach the armature from gear centre A, tap the driving end of the shaft with a rawhide mallet. The armature can then be withdrawn from the magneto body. The high energy magnet in the latter does not need a keeper across it; although a very small amount of energy is lost at the first removal of the armature, subsequent removals do not affect it.

Do not place the magneto body or armature near to iron filings, always work on a clean bench.

- (v) Examine the armature, bearings and slip ring as described in Section L-5, Part A, Para. 3b. (vii-ix).

(c) TESTING THE ARMATURE

See Section L-5, Part A, Para. 3c (i-iv).

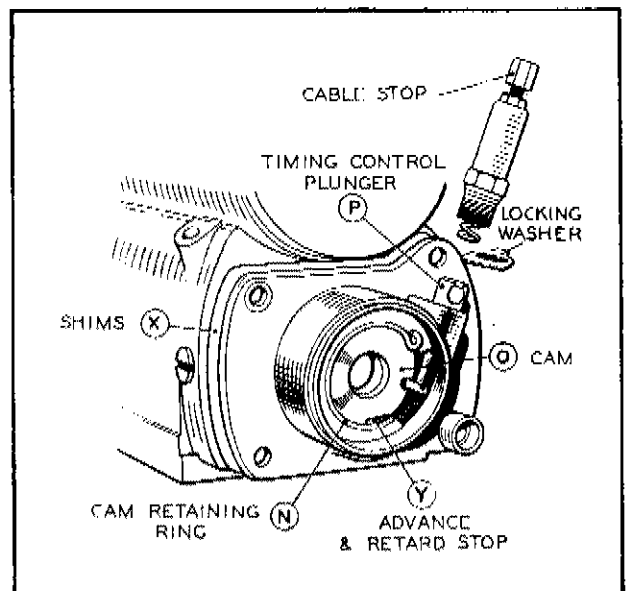


Fig. 5
Contact breaker end plate and timing control mechanism



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(d) REASSEMBLY

- (i) See Section L-5, Part A, Para. 3(d), noting that safety gap screws and oil seals are normally not fitted to magdynos.

An exception to the above rule will be found in the case of magdynos MN2 Part Nos. 46021 and 46027. These two models were fitted with a special drive end plate incorporating an oil seal. See para. 3 (e) for details of the special reassembly procedure to be followed when refitting these end plates.

- (ii) Assemble the drive, keying gear centre A on to the spindle and refitting fabric gear rim B, pressure ring C, tension spring D, locking washer E and locking nut F.
- (iii) Check the drive slip-setting, as shown in Fig. 6. With the gear locked, the drive should slip when a torque of 4-10 lb.-ft. is applied through a 12in.

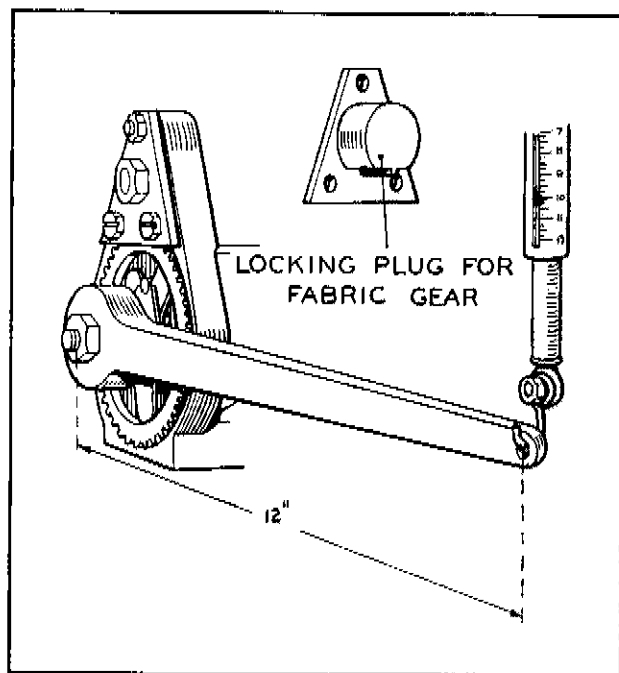


Fig. 6
Method of checking generator drive

horizontal lever secured to the magneto spindle. If slipping occurs below 4 lbs. or above 10 lbs., a new tension spring must be fitted.

- (iv) **Remagnetisation.** Normally, remagnetisation will not be necessary but, should it be considered so, full instructions will be found in Section D-6 of the Lucas Workshop Manual.

- (v) Carry out the tests and inspections specified below. In the event of a magdyno failing to perform satisfactorily any of these tests, it must be returned to the Works for examination.

Endurance Test

With the contact breaker cover in place, run the magdyno for one hour at 1,600 — 1,800 r.p.m. with the H.T. cable or cables connected to an 8 k.v. annular spark gap.

Inspection

As Section L-5, Part A, Para. 3d (xi).

High Speed Test

See Section L-5, Part A, Para. 3d (xi).

No missing should occur (when the control is advanced or retarded) at 3,000 r.p.m.

Low Speed Test

Connect the H.T. cable or cables to a 3-point spark gap set to 5.5 mm.

Use independent spark gaps in the case of twin-cylinder magdynos. Not more than 5 per cent missing must occur at the following speeds:—

Advanced	Retarded
110 r.p.m.	160 r.p.m.

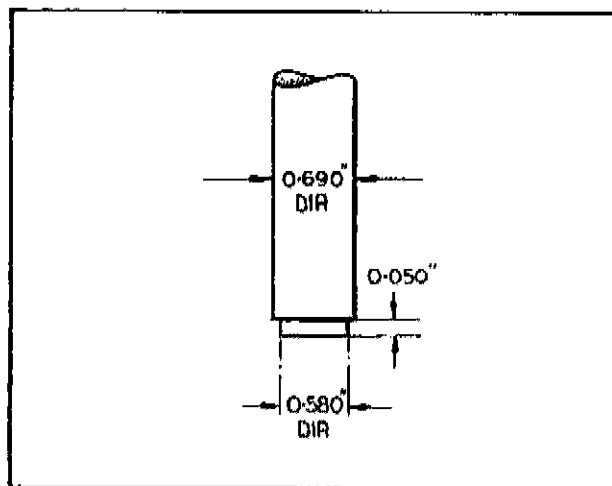


Fig. 7
Mandrel to expand oil seal



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(e) REFITTING DRIVE END PLATES INCORPORATING AN OIL SEAL

The internal diameter of the oil seal is less than the diameter of the driving sprocket boss. The oil seal must therefore be expanded, by the use of the mandrel shown in Fig. 7, before refitting the sprocket.

To refit the sprocket, proceed as follows:

Remove the drive end plate from the magdyno, and insert the mandrel from the armature side, as shown in Fig. 8. The main shank of the mandrel is of the same diameter as the external diameter of the sprocket boss. The end of the mandrel, however, has a reduced diameter, and locates with the inside of the boss. The mandrel will therefore open the oil seal and allow the sprocket to be pressed into position in the end plate without damage to the seal.

Remove the mandrel, and refit the drive end plate to the magdyno.

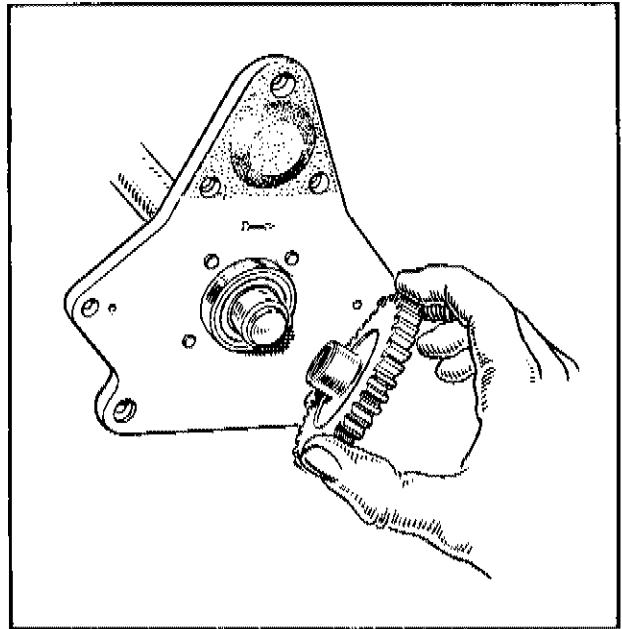


Fig. 8

Replacing driving sprocket with mandrel in position

