

ELECTRICAL EQUIPMENT

NOTE—Before fitting a new porous bronze bearing bush it must be completely immersed for 24 hours in clean thin engine oil. In cases of extreme urgency this period may be shortened by heating the oil to 100°C., when the time of immersion may be reduced to 2 hours.

(i) Re-assembly

The re-assembly of the starting motor is a reversal of the dismantling procedure.

STARTING MOTOR DRIVE

I. GENERAL

The drive embodies a combination of rubber torsion member and friction clutch in order to control the torque transmitted from the starter to the engine flywheel and to dissipate the energy in the rotating armature of the starter at the moment when the pinion engages with the flywheel.

It also embodies an overload release mechanism which functions in the event of extreme stress, such as may occur in the event of a very heavy backfire, or if the starter is inadvertently meshed into a flywheel, rotating in the reverse direction.

When the starter is energised, the torque is transmitted by two paths, one via the outer sleeve of the rubber coupling and through the friction washer to the screwed sleeve, while the other path is from the outer to the inner sleeve through the rubber coupling and then directly to the screwed sleeve.

The torque through the rubber limits the total torque which the drive transmits and since the rubber is bonded to the inner sleeve, under overload conditions slipping will occur between the rubber bush and the outer sleeve of the coupling. Slipping does not take place under normal engagement conditions, when the rubber acts merely as a spring with a limiting relative twist on the two members of approximately 30°.

Under conditions of unduly severe overload which might cause damage to the drive or its mounting, however, the rubber slips in its housing so that a definite upper limit is set to the torque transmitted and to the stresses which may occur.

2. ROUTINE MAINTENANCE

If any difficulty is experienced with the starting motor not meshing correctly with the flywheel, it may be that the drive requires cleaning. The pinion should move freely on the screwed sleeve; if there is any dirt or other foreign matter on the sleeve it must be washed off with paraffin.

In the event of the pinion becoming jammed in mesh with the flywheel, it can usually be freed by turning the starter motor armature by means of a spanner applied to the shaft extension at the commutator end. This is accessible by removing the cap which is a push fit.

3. CONSTRUCTION

The construction of the drive will be clear from the illustration. The pinion is carried on a barrel type assembly which is mounted on a screwed sleeve.

The screwed sleeve is secured to the armature shaft by means of a location nut and is also keyed to the inner sleeve of the rubber coupling by a centre coupling plate. A friction washer is fitted between the coupling plate and rubber assembly and the outer sleeve of the rubber coupling is keyed at the armature end of the starter by means of a transmission plate.

A pinion restraining spring is fitted in the barrel assembly to prevent the pinion vibrating into mesh when the engine is running.

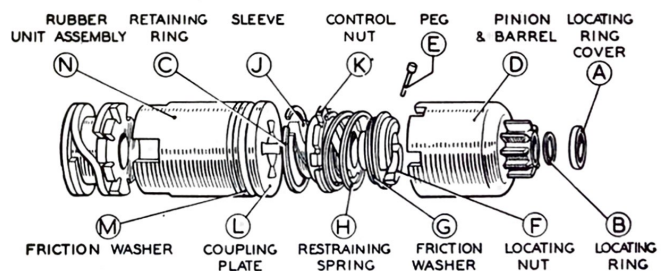


Fig. 19 Exploded view of Starter Motor Drive Assembly.

4. DISMANTLING

Having removed the armature as described in the section dealing with starting motors, the drive can be dismantled as follows:— Remove the locating cover (A) and then withdraw the locating ring (B) from the starter shaft at the end of the starter drive.

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Remove the retaining ring (C) from inside the end of the pinion and barrel assembly (D) and then withdraw the pinion and barrel assembly.

Take out the peg (E) securing the locating nut (F) to the shaft, hold the squared starter shaft extension at the commutator end by means of a spanner and unscrew the locating nut.

Withdraw the friction washer (G), restraining spring (H). Slide the sleeve (J) and control nut (K) off the splined shaft.

Finally remove coupling plate (L), friction washer (M) and rubber unit assembly (N).

NOTE : On some models the locating nut is secured by caulking the nut into the keyway provided in the shaft and therefore no peg (E) is fitted. When re-assembling it will be necessary to fit a new locating nut.

5. RE-ASSEMBLY

The re-assembly of the drive is a reversal of the dismantling procedure.

DISTRIBUTOR—Model DM2

1. GENERAL

Mounted on the distributor driving shaft, immediately beneath the contact breaker, is a centrifugally operated timing control mechanism. It consists of a pair of spring-loaded governor weights, linked by lever action to the contact breaker cam. Under the centrifugal force imparted by increasing engine speed, the governor weights swing out against the spring pressure to advance the contact breaker cam and thereby the spark, to suit engine conditions at the greater speed.

A built-in vacuum-operated timing control is also included, designed to give additional advance under part-throttle conditions. The inlet manifold of the engine is in direct communication with one side of a spring-loaded diaphragm. This diaphragm acts through a lever mechanism to rotate the heel of the contact breaker about the cam, thus advancing the spark for part-throttle operating conditions. There is also a micrometer adjustment by means of which fine alterations in timing can be made to allow for changes in running conditions, *e.g.*, state of carbonisation, change of fuel, etc.

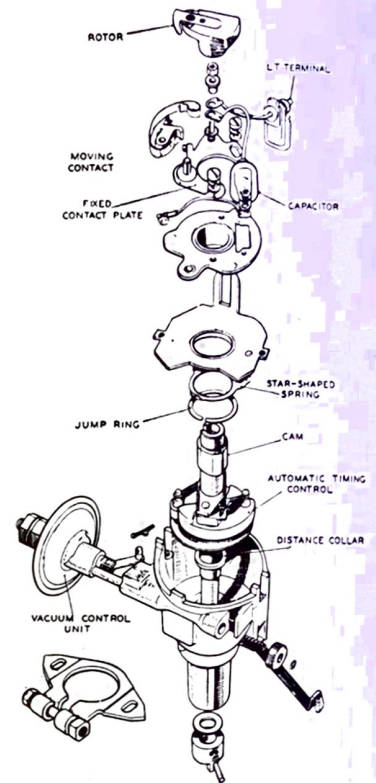


Fig. 20 Exploded View of Distributor.

A completely sealed metallised paper capacitor is utilised. This has the property of being self-healing; should the capacitor break down, the metallic film around the point of rupture is vaporised away by the heat of the spark, so preventing a permanent short circuit. Capacitor failure will be found to be most infrequent.

The H.T. pick-up brush is of a composite construction, the top portion consisting of a resistive compound and the lower of softer carbon to prevent wear taking place on the rotor electrode. The resistive portion of this carbon brush which is in circuit between the coil and the distributor gives a measure of radio interference suppression. Under no circumstances must a short non-resistive brush be used as a replacement for one of these longer resistive brushes.

2. ROUTINE MAINTENANCE

In general, lubrication and cleaning constitute normal maintenance procedure.

(a) Lubrication—every 3,000 miles

Take great care to prevent oil or grease from getting on or near the contacts.