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(54) IMPROVEMENTS IN OR RELATING TO IGNITION DISTRIBUTORS FOR INTERNAL COMBUSTION ENGINES

(71) We, FABBRICA ITALIANA MAGNETI MARELLI S.p.A., a Company organised under the laws of Italy, of Via Guastalla 2, 2, Milan, Italy, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to ignition distributors for internal combustion engines.

It is well known for ignition distributors provided with vacuum advance control to have a coil for a magnetic pulse generator or the breaker contacts carried by a plate rotatably mounted on a fixed portion of the distributor; the fixed portion may be a further plate, a pin or a guide bushing secured to the distributor body or casing.

Distributors of the above outlined type are relatively insensitive to vacuum changes due to friction torques occurring between the plate and fixed distributor portion on which said plate is rotatably mounted.

The present invention is aimed at improving the manner in which the rotating plate is mounted on the distributor shaft in order to overcome or minimise the aforesaid disadvantage.

According to the invention, we provide an ignition distributor for an internal combustion engine comprising:

a distributor shaft;

a support plate carrying (i) a coil for a magnetic pulse generator or (ii) breaker contacts; and

a support bushing fixedly secured to the support plate and directly rotatably mounted on said distributor shaft to be freely rotatable relative thereto.

Preferably the distributor comprises a guide bushing for rotatably mounting the distributor shaft, the support bushing being axially aligned with and spaced from an end of said guide bushing so that an end surface of the guide bushing faces an end surface of the support bushing.

A preferred embodiment includes lubrication means for lubricating the said guide bushing and the support bushing. Preferably the lubrication means comprises a felt washer surrounding the facing end surfaces of said guide bushing and said support bushing.

Thus, during angular displacement or movement of the support plate, the resulting friction will be negligible because it occurs between the surface of the bushing movable with the support plate and the rotating distributor shaft. As a result, the advance or retard curves do not exhibit the hysteresis phenomena between forward and rearward strokes.

The invention will now be described, by mere way of example, with reference to the accompanying drawing which is a longitudinal section of an example of an ignition distributor in accordance with the invention.

The drawing shows a plate 1 rotatably mounted on distributor shaft 2 and controlled in angular movements by a vacuum advance control (not shown) through pin 3.

The distributor is provided with a magnetic pulse generator comprising a gear wheel 4 and a coil 5 carried by a support 6. Gear wheel 4 is rotatably driven by a centrifugal automatic advance mechanism 7 through bush 8. Coil support 6 is secured to plate 1 with an intermediate permanent magnet 9 therebetween.

Plate 1 is fast with a bushing 10, which is directly rotatably mounted on the distributor shaft 2. This bushing 10 is axially aligned with and spaced from and end of guide bushing 11 for shaft 2.

The facing ends of bushings 10 and 11 are surrounded by a felt washer 12 for lubrication of the bushings.

Although the embodiment of a distributor described above incorporates a magnetic pulse generator, it will be apparent that the distributor may incorporate, instead, a contact breaker mechanism.

WHAT WE CLAIM IS:—

1. An ignition distributor for an internal combustion engine comprising:

a distributor shaft;

a support plate carrying (i) a coil for a magnetic pulse generator or (ii) breaker contacts; and

a support bushing fixedly secured to the support plate and directly rotatably mounted on said distributor shaft to be freely rotatable relative thereto.

2. An ignition distributor according to claim 1, comprising a guide bushing for rotatably mounting the distributor shaft, the support bushing being axially aligned with and spaced from an end of said guide bushing so that an end surface of the guide bushing faces an end surface of the support bushing.

3. An ignition distributor according to claim 2, including lubrication means for lubricating the said guide bushing and the support bushing.

4. An ignition distributor according to claim 3, in which the lubricating means comprises a felt washer surrounding the facing ends surfaces of said guide bushing and said support bushing.

5. An ignition distributor, substantially as described herein with reference to the drawing.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*