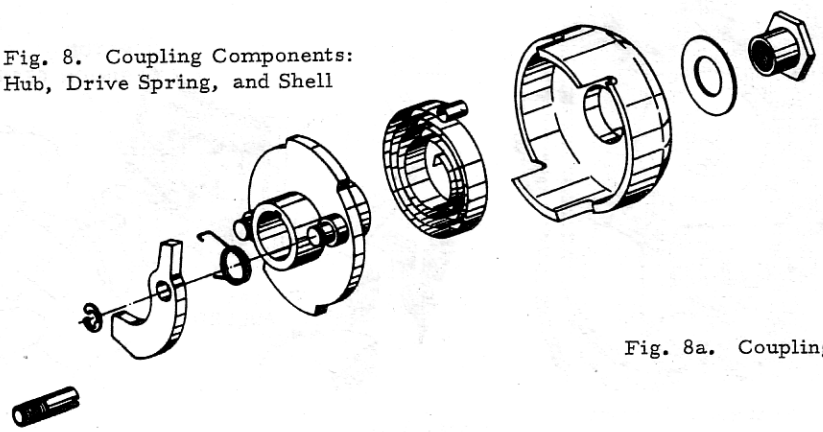
Fig. 8. Coupling Components: Hub, Drive Spring, and Shell



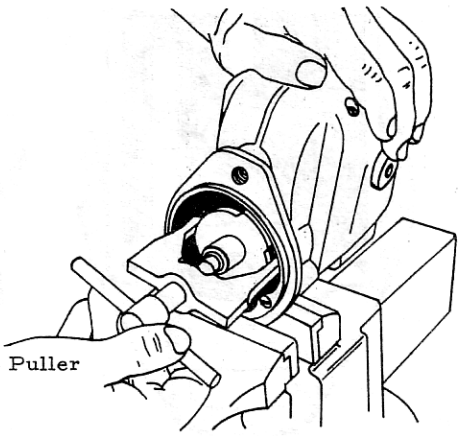


Fig. 8a. Coupling Hub Puller

When the engine is operating at slow speed, the pawl in the coupling hub engages the stop pin in the magneto housing, which prevents further movement of the magnetic rotor. As the engine continues to operate the shell winds up the drive spring. At the point in the engine cycle when the fuel mixture should be ignited, the pawl is released by movement of the coupling shell, and snaps the magnetic rotor forward at high speed through its firing cycle. As the engine speed increases, centrifugal force withdraws the pawls to a position where they no longer engage the stop pin.

In applications where the magneto operates in other than a horizontal position, the force of gravity cannot act upon the coupling pawls during the starting period. To cause the necessary engagement action, small wire springs are attached to each coupling pawl.

To remove the complete impulse coupling, take out the impulse coupling nut lockwire or turn down the lugs of the impulse coupling nut lockwasher; remove the impulse coupling nut and lockwasher. In the base mounted magnetos, remove the impulse outer shell screws, lift out the outer shell cupped washer and the outer shell felt washer.

Remove the complete impulse coupling from the magneto by using the OMT8 puller. If the tension applied by the puller does not loosen the coupling, tap the puller screw with a hammer, which will jar the coupling loose from the rotor shaft. When the coupling is removed, lift out the coupling outer shell flat washer used on base mounting magnetos. The coupling should be disassembled only by an experienced service station. In the event the shell comes loose from the hub when the coupling nut is taken off, care must be exercised in reassembly.

Place the coiled end of the coupling spring in the slot in the shell in the correct rotation for the magneto: clockwise for CW rotation, counterclockwise for CCW rotation viewed when the coupling shell is turned up. Engage the straight end of the spring in the longer slot in the coupling hub and turn the hub one full turn, then push the assembly together and install it onto the magneto.

Distributor Gear Assembly

There are three types of distributor bearings used in FM-X magnetos. An oilite sleeve bearing or a needle bearing may be used in types FM-X4, FM-XE, FM-XF2 FM-XYE and FM-XZE magnetos. To remove the distributor rotor gear, remove the distributor shaft snap ring and slide the shaft and gear from the bearing support, Fig. 9.

Ball bearings are used in the FM-E, FM-XR, and FM-XOR magnetos. To remove the distributor bearing from these magnetos, take out the distributor shaft snap ring. Place a piece of soft lead on the bench, turn the bearing support over so the distributor shaft points downward, grip the bottom of the bearing support with both hands, and strike the end of the distributor shaft on the lead a few times to jar the shaft loose from the bearing.

Distributor sleeve bearings may be pressed out of their respective bearing supports by means of the hand screw press 370TD, and the distributor bearing tool TD2252A. To remove the distributor ball bearing, take off the distributor bearing snap ring and press the bearing out of its support.

Magnetic Rotor Types FM-X, FM-XV

There are three types of magnetic rotors used in the series X magnetos: a two-pole rotor with block magnets; a two-pole rotor with bar magnets perpendicular to the rotor axis; a four-pole rotor with a cylindrical magnet, Fig. 10.

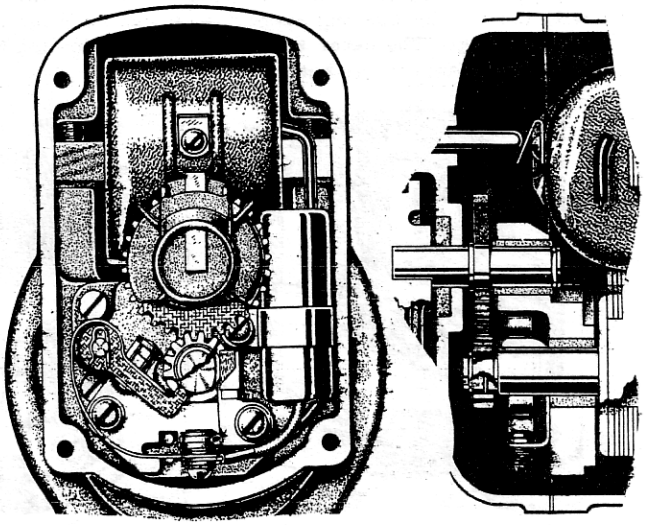


Fig. 9. Bearing Support with Distributor Gear Assembly and Distributor Rotor