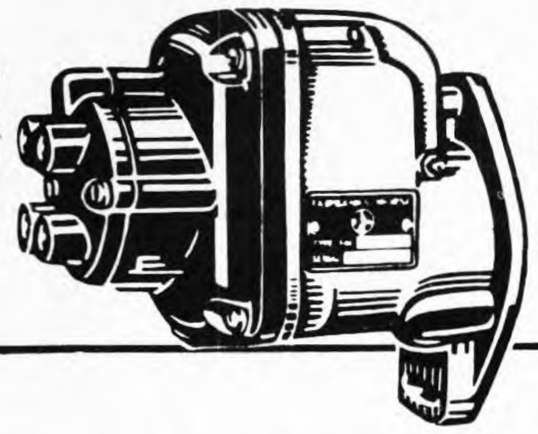
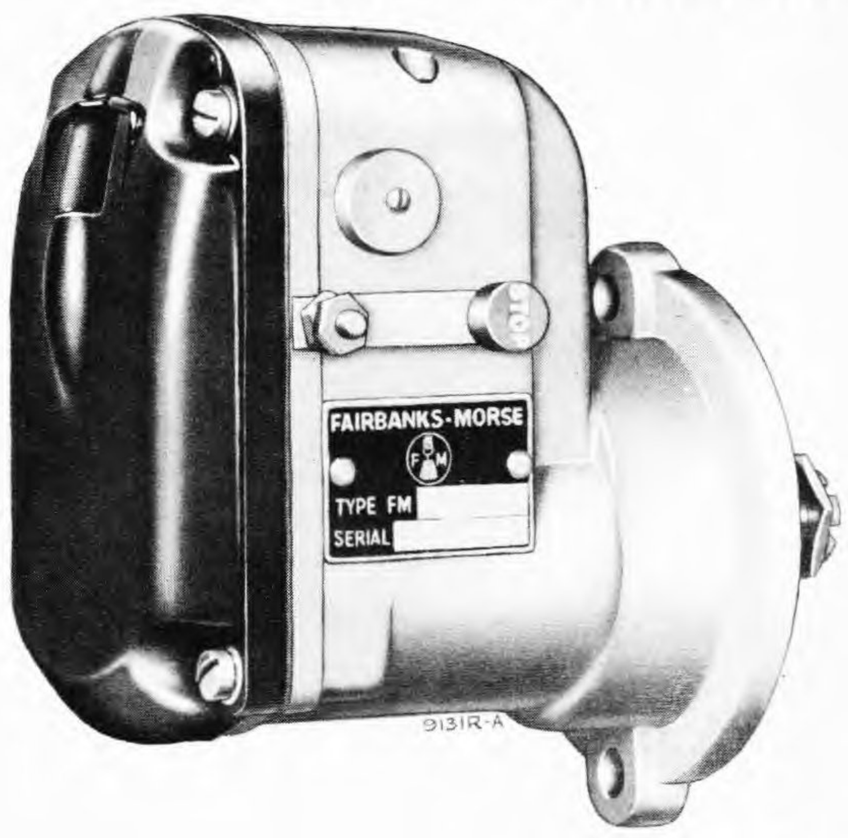
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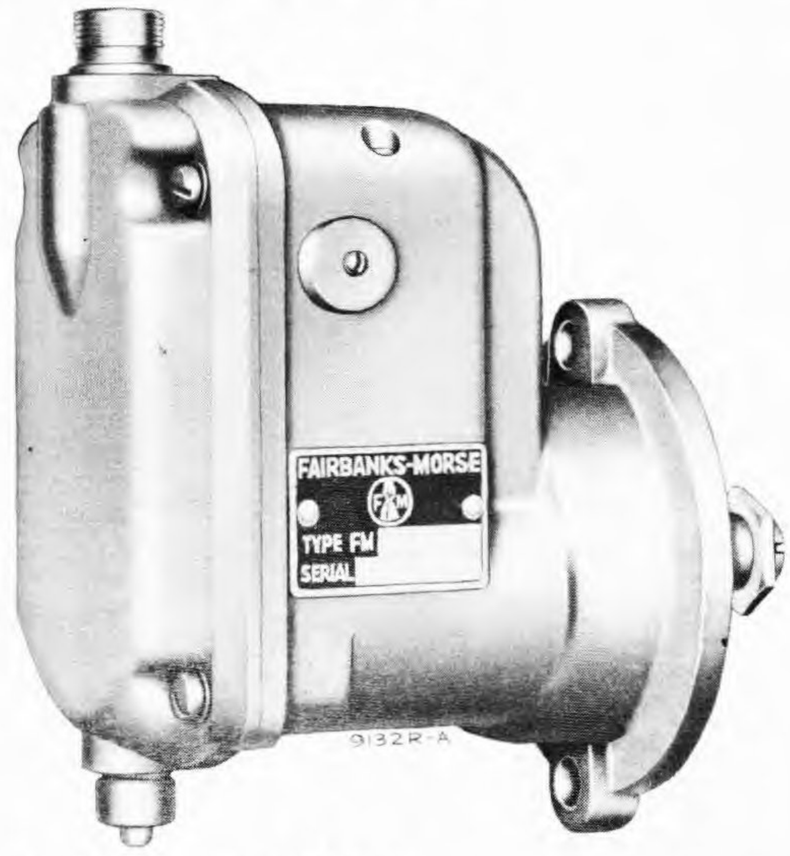
MAGNETO DIVISION
BELOIT, WISCONSIN



INSTRUCTIONS 3059WA
SUPERSEDES INSTRUCTION 3059W
October 1957

TYPES FM-XD1B7S AND FM-XDE1B7S MAGNETOS
TYPES FM-XD1B7U and FM-XDE1B7U MAGNETOS
FOR WISCONSIN MOTOR CORPORATION
MODELS ACN, BKN, AEN AND AENL ENGINES





Service and Adjustment Information

GENERAL DESCRIPTION

The one cylinder magnetos whose parts are listed in this instruction sheet are built specifically for application on Wisconsin single cylinder engines listed above. The magnetic and electrical circuits of both units are identical, with a two pole magnetic rotor and a single lobe cam producing one ignition spark per revolution. These flange-mounting magnetos rotate clockwise when viewed from the drive end. All are fitted with dependable, single pawl impulse couplings which facilitate starting by providing an intensified and retarded ignition spark at low engine speeds.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources, such as a flooded carburetor, an obstructed air intake, defective ignition connections, or corroded spark plug points. Since a brief engine inspection will often locate the trouble before the magneto is reached, it prevents maladjustment of magneto parts in good condition. It is suggested that the magneto be opened only when it is certain that the ignition spark produced is unsatisfactory. This condition may be determined by simple tests which are easily made in the field.

TESTING THE IGNITION SPARK

With a properly adjusted spark plug in good condition, the ignition spark should be strong enough to bridge a short gap in addition to the actual spark plug discharge. This may be determined by holding the end of the ignition cable not more than 1/16 in. away from the spark plug terminal. The engine should not misfire when this is done. Ignition tests made while any part of the system is wet are useless.

TESTING THE MAGNETO SPARK

Remove the ignition cable from the end cap socket and insert a short piece of stiff wire. Bend this wire to within 1/8 in. of the engine block. Turn the engine over slowly and watch carefully for the spark which should occur at the instant the impulse coupling releases. If a strong spark is observed, it is recommended that the magneto be eliminated as the source of the difficulty and that the cable, terminals, and spark plug be thoroughly inspected.

SERVICE OF BREAKER POINTS

Remove the magneto end cap and compare the arrangement of parts with the drawings of Fig. 1. The breaker points should then be inspected for evidence of pitting or pyramiding. A small tungsten file or fine stone may be used to resurface the points. Badly worn or pitted points should be replaced. Removal of worn points may be accomplished by removing the fulcrum pin snap ring, the breaker arm terminal screw, and the contact support locking screws, Fig. 1. If it is necessary to resurface or replace the breaker points, it will also be necessary to adjust them to their proper clearance, which is .013 - .017 in. This adjustment is made in the following manner: Loosen the contact support locking screws, then move the contact support until the proper breaker point clearance is obtained. This is accomplished by means of a screwdriver inserted in the

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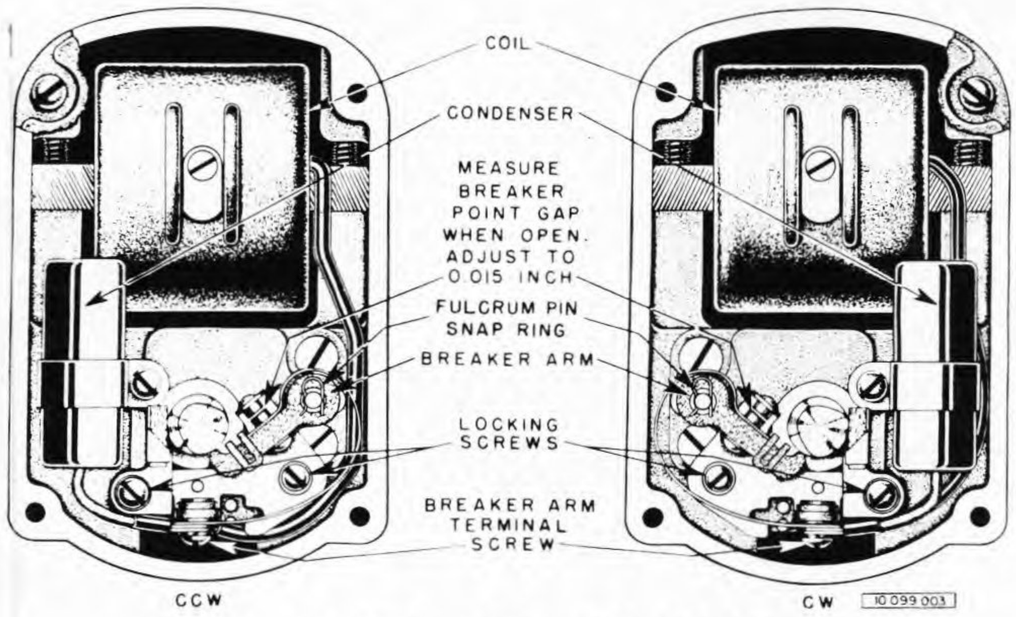


Fig. 1. End View Type FM-X Magnetos

horizontal slot at the bottom of the contact support and pivoted between the two small bosses on the bearing support. Lock the assembly in place by tightening the locking screws and make a final measurement of the breaker point gap after the locking screws are tightened.

SEALING MAGNETOS

Opening the magneto for breaker point adjustment or other service necessitates resealing the magneto upon reassembly. The surfaces between the magneto frame and the end cap should be thoroughly cleaned and a new gasket provided. Remove the vent hoods and clean the vent screens of all foreign material before final reassembly.

SPECIAL DRIVE GEAR

Flange mounting magnetos for Wisconsin motors require a drive gear fitted to the impulse coupling by means of an extended rotor shaft. To engage the slotted drive gear correctly with the drive lugs of the coupling, the magneto rotor should be turned by hand until the coupling pawl engages the stop pin in the flange, the coupling drive lugs then being in the position shown by A of Fig. 2. The drive gear should then be fitted to the coupling so that the marked tooth is on the upper edge of the gear as shown in B of Fig. 2. The tooth on gear GD-113, used on AENL and AEN engines, is marked with an X on the outer edge of the tooth and on gear GD-87-C, used on ACN and BKN engines, an I is stamped on the face of the tooth.

RADIO-SHIELDED MAGNETOS

Applications which require complete radio shielding of the ignition system are equipped with the Type FM-XDE magneto. These magnetos are similar to standard models except the plastic end cap is replaced by an all-metal cover thru which the high-tension lead is conducted by means of a special insulated socket. Detailed information covering these units can be obtained upon inquiry.

GROUND SWITCHES

Magnetos for Wisconsin Motor Corporation one cylinder engines are furnished with either a push button or an insulated lever ground switch. Both designs function to ground the primary circuit of the magneto when the engine is to be stopped. The switch must be kept closed until the engine is completely at a standstill.

SPECIAL INSTRUCTIONS

The FM-XD1B7S and FM-XDE1B7S units are provided with a special impulse coupling with a 13° lag angle and a spring loaded coupling pawl for a 400-500 rpm throwout. The FM-XD1B7S and FM-XDE1B7S magnetos will replace previous FM-XD1B7 (Wisconsin Motor Y-73-B) and FM-XDE1B7P (Wisconsin Motor Y-83-A) magnetos on Wisconsin Motor engine models ACN and BKN, except those engines using a cylinder head with offset spark plug position. The FM-XD1B7 and FM-XDE1B7P magnetos must still be used on models ABN and AKN engines with the spark plug in the offset position.

The FM-XD1B7U and FM-XDE1B7U units are provided with an impulse coupling with a 20° lag angle and a spring loaded coupling pawl for a 400-500 rpm throwout. The FM-XD1B7U and FM-XDE1B7U magnetos are used on Wisconsin Motor models AEN and AENL engines. The FM-XD1B7U magneto replaces the FM-X1B7E (Wisconsin Motor Y-76) and the FM-XDE1B7U magneto replaces the FM-XDE1B7P (Wisconsin Motor Y-83-A).

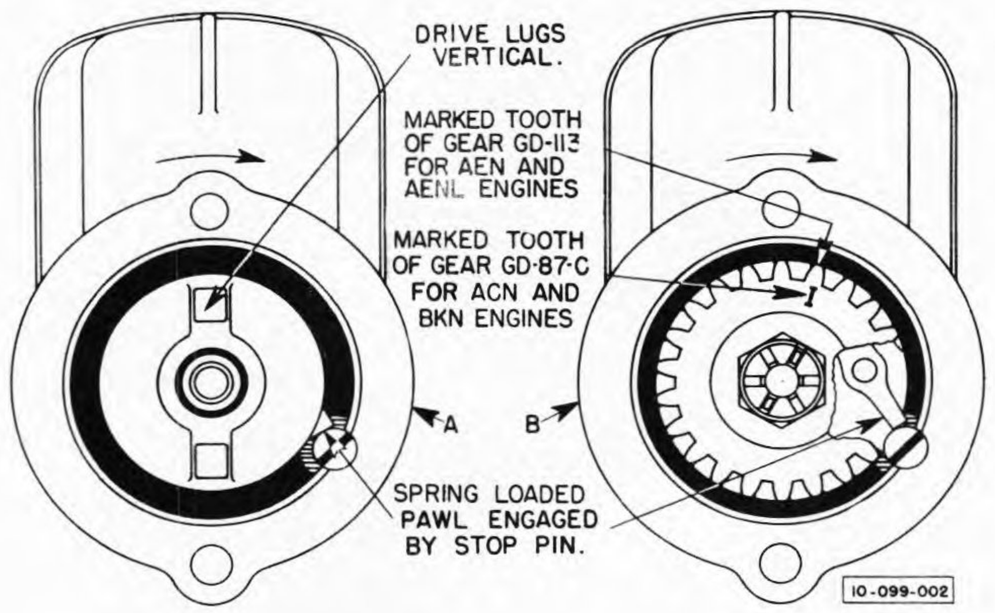
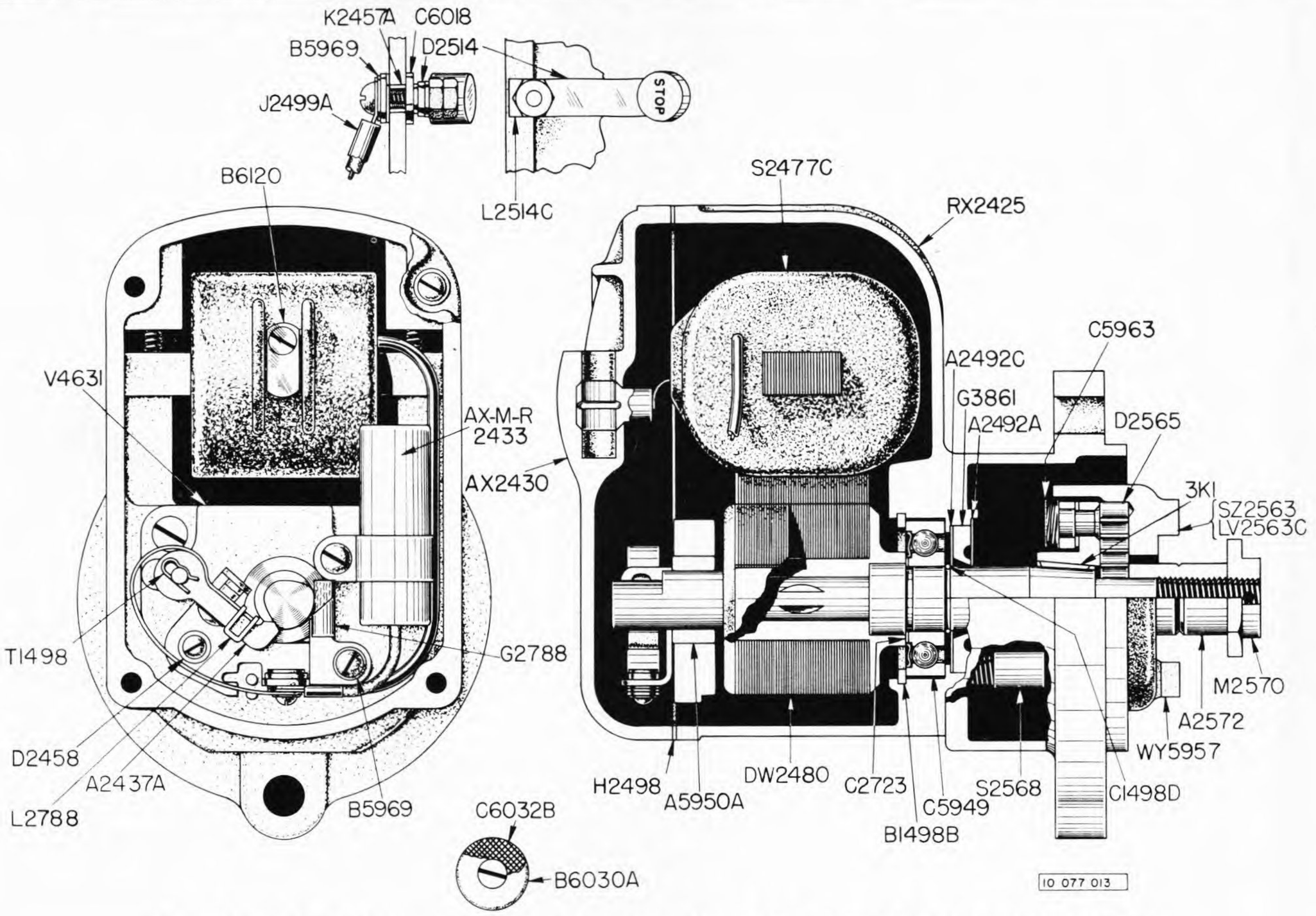
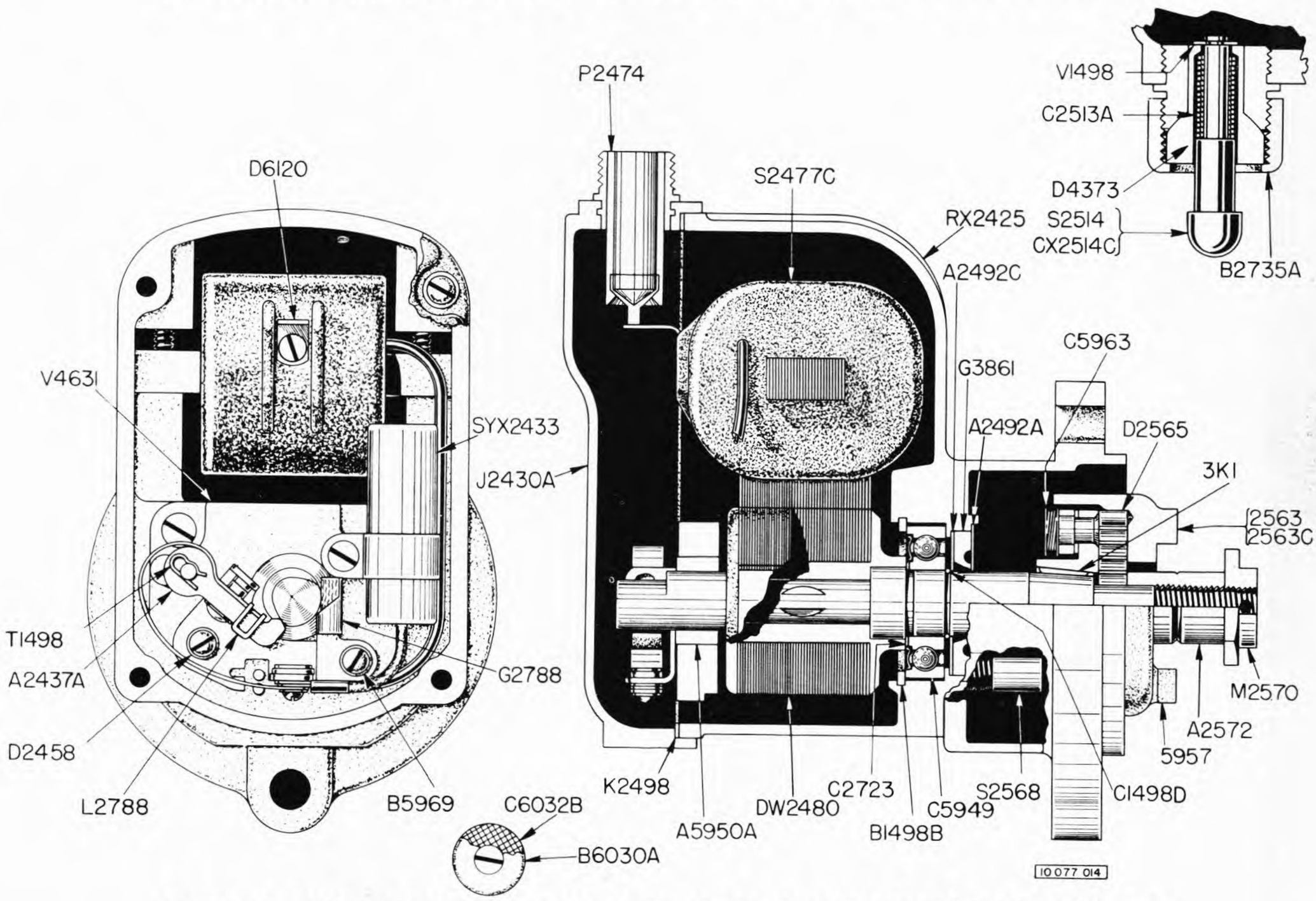


Fig. 2. Drive Mounting Gear



REPAIR CHART FOR FM-XD1B7S AND FM-XD1B7U MAGNETOS



REPAIR CHART FOR FM-XDE1B7S AND FM-XDE17U MAGNETOS

Order by Part Number	Name of Part	No. Used			
		FM XD1B7S	FM XDE1B7S	FM XD1B7U	FM XDE1B7U
T1498	Fulcrum Pin Snap Ring	1	1	1	1
V1498	Ground Switch Snap Ring	-	1	-	1
B1498B	Rotor Drive End Bearing Snap Ring	1	1	1	1
C1498D	Rotor Drive End Shaft Snap Ring	1	1	1	1
RX2425	Frame	1	1	1	1
AX2430	End Cap	1	-	1	-
J2430A	End Cap Assembly	-	1	-	1
10S10D	End Cap Screw - #10-24x5/8"	4	4	4	4
AX-M-R2433	Condenser - Bracket in "R" position	1	-	1	-
SXY2433	Condenser	-	1	-	1
8S4U	Condenser Mounting Screw - #8-32x1/4"	1	1	1	1
A2437A	Breaker Arm, Support Bracket and Points	1	1*	1	1*
6S6U	Breaker Arm Terminal Screw and Lockwasher - #6-32x3/8"	1	1	1	1
6S6U	Contact Support Locking Screw and Lockwasher - #6-32x3/8"	1	1	1	1
8S6U	Contact Support Locking Screw and Lockwasher - #8-32x3/8"	1	1	1	1
K2457A	Ground Switch Bushing	1	-	1	-
D2458	Contact Support Locking Screw Plate Washer - #6	1	1	1	1
P2474	High Tension Cable Outlet	-	1*	-	1*
S2477C	Coil	1	1	1	1
25SS14A	Coil Bridge Setscrew - 1/4-20x7/8"	2	2	2	2
DW2480	Magnetic Rotor	1	1	1	1
A2492A	Rotor Drive End Seal Outer Washer	1	1	1	1
A2492C	Rotor Drive End Seal Inner Washer	1	1	1	1
H2498	End Cap to Frame Gasket	1	-	1	-
K2498	End Cap to Frame Gasket - Lead	-	1	-	1
J2499A	Primary Terminal Wire Assembly	1	-	1	-
C2513A	Ground Switch Button Spring	-	1	-	1
D2514	Ground Switch Insulated Lever	1	-	1	-
S2514	Ground Switch Button	-	1	-	1
L2514C	Ground Switch Complete - Lever Type	1	-	1	-
CX2514C	Ground Switch Complete - Push Button Type	-	1	-	1
8S12N	Ground Switch Screw - #8-32x3/4"	1	-	1	-
8LW5	Ground Switch Lockwasher	1	-	1	-
8LW6	Ground Switch Shakeproof Lockwasher	1	-	1	-
8N1	Ground Switch Nut	2	-	2	-
SZ2563	Coupling Hub Assembly	1	1	1	1
L-V2563C	Impulse Coupling Complete	1	1	1	-
SV2563C	Impulse Coupling Complete	-	-	-	1
D2565	Impulse Coupling Drive Spring	1	1	1	1
S2568	Impulse Coupling Pawl Stop Pin	1	1	1	1
M2570	Impulse Coupling Nut	1	1	1	1
A2572	Impulse Coupling Bushing	1	1	1	1
C2723	Rotor Drive End Bearing Shim	2	2	2	2
B2735A	Ground Cable Outlet Nut	-	1	-	1
G2788	Cam Wick and Holder	1	1	1	1
L2788	Breaker Arm Wick	1	1	1	1
G3861	Rotor Drive End Seal	1	1	1	1
D4373	Ground Switch Bushing	-	1	-	1
V4631	Bearing Support	1	1	1	1
8S6G	Bearing Support Screw - #8-32x3/8"	4	4	4	4
C5949	Rotor Drive End Bearing	1	1	1	1
A5950A	Rotor Cam End Bearing	1	1	1	1
ZX5957	Impulse Coupling Shell	-	-	-	1
WY5957	Impulse Coupling Shell	1	1	1	-
C5963	Impulse Coupling Pawl Spring	1	1	1	1
B5969	Ground Switch Plate Washer - #8	1	1	1	1
B5969	Contact Support Locking Screw Plate Washer - #8	1	1	1	1
C6018	Ground Switch Insulating Bushing	2	-	2	-
B6030A	Vent Cover	2	2	2	2
6S5N	Vent Cover Screw - #6-32x5/16"	2	2	2	2
C6032B	Vent Screen	2	2	2	2
B6120	Coil Clip	1	-	1	-
D6120	Coil Clip	-	1	-	1
6S3W	Coil Clip Screw	1	1	1	1
3K1	Key - Rotor Shaft to Impulse Coupling	1	1	1	1

*Indicates fungus treated part.

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