Magneto Ignition Assemblies By Engine Model

MODEL	WIS. NO.	VENDOR NO.	OBSOLETE/ REPLACEMENT	DRIVE GEAR
AA, AB, AK	Y35	FMJ1B7	Y109S1	
ABN, AKN	Y57	XH1295	Y68AS1	
ABN, AKN	Y68A	XH1295D	Y109S5	
ABN, AKN	Y109	FMXD1B7S	obsolete	GD87C
ABN, AKN	Y73B	FMXD1B7	NLA; no replacement	GD113
ACN, BKN	Y35	FMJ1B7	Y109S1	
ACN, BKN	Y57	XH1295	Y68AS1	
ACN, BKN	Y68A	XH1295D	Y109S5	
ACN, BKN	Y109	FMXD1B7S	obsolete	GD87C
ACN, BKN	Y109A	FMXD1B7T	Y109S1	
ACN, BKN	Y109B	FMXD1B7S3	Y109S1	
ACN, BKN	Y110S1	FMPE1B7		Radio shielded
ACN, BKN	Y110A	FMPE1B7A	NLA; no replacement	
ACN, BKN	Y110B	FMPE1B7AE	NLA; no replacement	
ACN, BKN	Y110CS1	FMXDE1B7S1		Radio shielded
ACN, BKN	Y111	XH2477B	Y109S1	
ACN, BKN	Y135A	FMS1B7S1	Y109S4	GD87B
ACN, BKN	Y112A	FMXE2B7C1		Radio shielded
ACN, BKN	Y135	FMS1B7	Y109S1	GD87C
AEH, AEHS, AFH	Y34	FMJ1A7	Y72	
AEH, AEHS, AFH	Y58	XH150C	Y72	
AEH, AEHS, AFH	Y72	FMX1A7		Base mounted
AEH, AEHS, AFH	Y84	FMXE1A7F	NLA; no replacement	Base mounted
AFH, AGH, AHH	Y34	FMJ1A7	Y72	
AFH, AGH, AHH	Y58	XH150C	Y72	
AFH, AGH, AHH	Y72	FMX1A7		
AFH, AGH, AHH	Y84	FMXE1A7F	NLA; no replacement	
AEN, AENL	Y62	XH1995	NLA; no replacement	
AEN, AENL	Y73B	FMXD1B7	Y117S1	
AEN, AENL	Y76	FMX1B7E	Y117S1	
AEN, AENL	Y83A	FMXDE1B7P	Y119AS3	

Magneto Ignition Assemblies By Engine Model (cont.)

MODEL	WIS. NO.	VENDOR NO.	OBSOLETE/ REPLACEMENT	DRIVE GEAR
AEN, AENL	Y118	XH2504	Y117S1	
AEN, AENL	Y117	FMXD1B7U		GD113
AEN, AENL	Y117A	FMXD1B7U1	Y117S1	
AEN, AENL	Y117B	FMXD1B7U2	Y117S1	
AEN, AENL	Y117C	FMXD1B7U3	Y117S1	
AEN, AENL	Y117D	FMXD137U4	Y117S1	
AEN, AENL	Y119S1	FMXDE1B7U	Y119AS3	
AEN, AENL	Y119AS1	FMXDE1B7U2		
AEN, AENL	Y135B	FMS1B7SU	Y117S1	
AGND	Y107A	FMXD1B7R	NLA	GD125
AGND	Y107BS1	FMXD1B7R1		GD125
AGND	Y108B	XH2523B	Y107B	
AGND	Y121	FMPE1B7R	obsolete	Radio shielded
AGND	Y121A	FMPE1B7R1	obsolete	Radio shielded
MACND, MBKND	Y110S1	FMPE1B7		Radio shielded
MACND, MBKND	Y110A	FMPE1B7A	NLA	Radio shielded
MACND, MBKND	Y110B	FMPE1B7A3	NLA	Radio shielded
MACND, MBKND	Y110CS1	FMXDE1B7S1		Radio shielded
MACND, MBKND	Y112A	FMXE2B7C1		Radio shielded
MAENLD	Y119-1	FMXDE1B7U	Y119AS3	
MTHD	Y93CS1	FMPE1-2B7E2		Radio shielded
MVE4D, MVF4D	Y86	FMZVE4B7	NLA	Radio shielded
MVG4D	Y98CS1	FMXZE4B7-4		GD103-1
MVH4D	Y98CS2	FMXZE4B7-4		GD93C4
TE, TF	Y67	XH1961	Y80S1	
TE, TF	Y67A	XH1961C	Y80S1	GD93C1
TE, TF	Y80S1	FMX1-2B71		GD93C1
TH, THD	Y67	XH1961	Y80S1	
TH, THD	Y67A	XH1961C	Y80S1	
TH, THD	Y80S2	FMX1-2B7-1		GD93C3
TH, THD	Y93CS1	FMPE1-2B7E2		Radio shielded
TJD	Y79A	FMX2B7D	Y79B	
TJD	Y79BS1	FMX2B7E		
TJD	Y134	FMXE2B7E	Y136	
TJD	Y134A	FMXE2B7F	Y136	
TJD	Y136	FMXE2B7H		Radio shielded
VE4D, VF4D	Y54	XH1343B	Y106S1	

Magneto Ignition Assemblies By Engine Model (cont.)

MODEL	WIS. NO.	VENDOR NO.	OBSOLETE/ REPLACEMENT	DRIVE GEAR
VE4D, VF4D	Y79	FMX2B7A	Y79C	
VE4D, VF4D	Y86	FMZVE4B7	NLA	Radio shielded
VE4D, VF4D	Y106S1	FMZV4B7		GD93C5
VG4D	Y79	FMX2B7A	Y79CS1	
VG4D	Y95S1	XH2207	Y97S1	
VG4D	Y97S1	FMX4B7A		GD103-1
VG4D	Y98CS1	FMXZE4B7-4		GD103-1
VH4D	Y95S2	XH2207	Y97S2	
VH4D	Y97S2	FMX4B7A		GD93C4
VH4D	Y98CS2	FMXZE4B7-4		GD93C4
VP4D	Y54	XH1343B	Y106S1	
VP4D	Y106-1S1	FMZV4B7		GD103
VR4D	Y94	FMX4A7B	NLA	
V461D, V465D	Y127S1	FMXZF4B7C		GD103A
V461D, V465D	Y128S1	FMX4B71		GD103A
W2-880	Y79BS1	FMX2B7E		
W4-1770	Y97S2	FMX4B7A		GD93C4

Magneto Ignition Mounting And Hardware By Engine Model

MODEL	DESCRIPTION	PART NO.
TJD	Radio shielded magneto assembly	EYC104
TRA12D	Radio shielded magneto assembly	EYC134
V465D	Radio shielded magneto assembly	EYC137
VG4D	Magneto ignition assembly	EYC108
VG4D, VH4D	Radio shielded magneto assembly	EYC130
VH4D, W4-1770	Magneto ignition assembly	EYC109

Magneto Ignition Assemblies By Part Number

WIS. NO.	VENDOR NO.	STATUS	REPLACEMENT/ DRIVE GEAR	MODEL
Y34	FMJ1A7	Obsolete	Replacement Y72	AEH, AEHS, AFH, AGH, AHH
Y35	FMJ1B7	Obsolete	Replacement Y109S1	AA, AB, AK, ACN, BKN
Y54	XH1343B	Obsolete	Replacement Y106S1	VE4, VF4, VP4D
Y57	XH1295	Obsolete	Replacement Y68AS1	ABN, ACN, AKN, BKN
Y62	XH1995	Obsolete		AEN
Y68A	XH1295D	Obsolete	Replacement Y109S5	ACN, ABN, AKN, BKN
Y58	XH150C	Obsolete	Replacement Y72	ADH, AE, AEH, AFH, AGH, AHH
Y67	XH1961	Obsolete	Replacement Y80S1	TE, TF, TH
Y67A	XH1961C	Obsolete	Replacement Y80S1	TE, TF, TH
Y72	FMX1A7		Base mounted	AHH, AEH, AFH, AGH, ADH
Y73B	FMXD1B7	Obsolete	GD113 Drive gear Replacement Y117 (AENL)	ABN, AEN, AKN, AENL
Y76	FMX1B7E	Obsolete	Flange mounted Replacement Y117S1	AEN, AENL
Y83A	FMXDE1B7P	Obsolete	Replacement Y119AS3	AEN
Y84	FMXE1A7F	Obsolete	Base mounted	AHH, AEH, AFH, AGH
Y79	FMX2B7A	Obsolete	Replacement Y79C	VEF4, VG4D
Y79A	FMX2B7D	Obsolete	Replacement Y79B	TJD
Y79BS1	FMX2B7E		Flange mounted	TJD, W2-880
Y79C	FMX2B7F			
Y80S1	FMX1-2B7-1		Flange mounted GD93C1 Drive gear	TE, TF
Y80S2	FMX1-2B7-1		Flange mounted GD93C3 Drive gear	TH, THD
Y86	FMZVE4B7	Obsolete	Radio shielded	VE4D, VF4D, MVE4D, MVF4D
Y93CS1	FMPE1-2B7E2		Radio shielded	TH, THD, MTHD
Y94	FMX4A7B	Obsolete		VR4D
Y95S1	XH2207	Obsolete	GD103-1 Drive gear Replacement Y97S1	VG4D
Y95S2	XH2207	Obsolete	GD93C4 Drive gear Replacement Y97S2	VH4D
Y97S1	FMX4B7A		GD103-1 Drive gear	VG4D

Magneto Ignition Assemblies By Part Number (cont.)

WIS. NO.	VENDOR NO.	STATUS	REPLACEMENT/ DRIVE GEAR	MODEL
Y97S2	FMX4B7A		GD93C4 Drive gear	VH4D
Y98CS1	FMXZE4B7-4		GD103-1 Drive gear Radio shielded	VG4D, MVG4D
Y98CS2	FMXZE4B7-4		GD93C4 Drive gear Radio shielded	VH4D, MVH4D
Y106S1	FMZV4B7		GD93C5 Drive gear	VE4D, VF4D
Y106-1S1	FMZV4B7		GD103 Drive gear	VP4D
Y107AS1	FMXD1B7R	Obsolete	GD125 Drive gear	AGND
Y107BS1	FMXD1B7R1		GD125 Gear	AGND
Y108B	XH2523B	Obsolete	Replacement Y107B	AGND
Y118	XH2504	Obsolete	Replacement Y117S1	AENL
Y109	FMXD1B7S		GD87C Gear	ACN, BKN
Y109A	FMXD1B7T	Obsolete	Replacement Y109S1	ACN, BKN
Y109B	FMXD1B7S3	Obsolete	Replacement Y109S1	ACN, BKN
Y110S1	FMPE1B7		Radio shielded	ACN, BKN, MACN, MBKN
Y110A	FMPE1B7A	Obsolete		ACN, BKN, MACN, MBKN
Y110B	FMPE1B7A3	Obsolete		ACN, BKN, MACN, MBKN
Y110CS1	FMXDE1B7S1		Radio shielded	ACN, BKN, MACN, MBKN
Y111	XH2477B	Obsolete	Replacement Y109S1	ACN, BKN
Y112A	FMXE2B7C1		2-cylinders Radio shielded	ACND, BKND, MBKND
Y117	FMXD1B7U		GD113 Gear	AEN, AENL
Y117A	FMXD1B7U1	Obsolete	Replacement Y117S1	AENLDG
Y117B	FMXD1B7U2	Obsolete	Replacement Y117S1	AENL
Y117C	FMXD1B7U3	Obsolete	Replacement Y117S1	AENL
Y117D	FMXD1B7U4	Obsolete	Replacement Y117S1	AENL
Y119S1	FMXDE1B7U	Obsolete	Replacement Y119AS3	AENL
Y119-1	FMXDE1B7U	Obsolete	Replacement Y119AS3	MAENLD
Y119AS1	FMXDE1B7U2			AENL, MAENLD
Y121	FMPE1B7R	Obsolete	Radio shielded	AGND
Y121A	FMPE1B7R1	Obsolete	Radio shielded	AGND
Y121B	FMPE1B7R2	Obsolete	Radio shielded	AGND
Y127S1	FMXZF4B7C		GD103AGR Drive gear Radio shielded	V465D
Y128S1	FMX4B7D		GD103A Gear	V461D, V465D
Y134	FMXE2B7E		Radio shielded Replacement Y136	TJD

Magneto Ignition Assemblies By Part Number (cont.)

WIS. NO.	VENDOR NO.	STATUS	REPLACEMENT/ DRIVE GEAR	MODEL
Y134A	FMXE2B7F		Radio shielded ReplacesmentY136	TJD
Y135	FMS1B7		With GD87C Gear Replacement Y109S1	ACN, BKN (STD)
Y135A	FMS1B7S1	Obsolete	With GD87B Gear Replacement Y109S4	ACN, BKN (28° spark adv)
Y135B	FMS1B7SU	Obsolete	Replacement Y117	AENL
Y136	FMXE2B7H		Radio shielded	TJD

Magneto Ignition Mounting And Hardware By Part Number

PART NO.	DESCRIPTION	MODEL
EYC104	Radio shielded magneto assembly	TJD
EYC108	Magneto ignition assembly	VG4D
EYC109	Magneto ignition assembly	VH4D, W4-1770
EYC130	Radio shielded magneto assembly	VG4D, VH4D
EYC134	Radio shielded magneto assembly	TRA12D
EYC137	Radio shielded magneto assembly	V465D

Magnetos Reference Sheet

Y34, Y35 Series	(YF34) AEH, AEHS, AFH, AGH, AHH (YF35) ACN, BKN
Y54 Series	VE4, VF4, VP4D
Y57, Y62, Y68 Series	ABN, ACN, AKN, BKN, AEN
Y58 Series	ADH, AE, AEH, AFH, AGH, AHH
Y67 Series	TE, TF, TH
Y72, Y73, Y76, Y83, Y84 Series	ACN, BKN, AEN, AENL, AEH, AFH, AGH, AHH
Y79 Series	TJD, VEF4D
Y80, Y93 Series	TE, TF, TH, THD
Y86 Series	VE4D, VF4D, MVE4D, MVF4D
Y93 Series	TH, THD, MTHD
Y94 Series	VR4D
Y95 Series	VG4D, VH4D
Y97 Series	VG4D, VH4D
Y98 Series	VG4D, VH4D
Y106 Series	VE4D, VF4D, VP4D
Y107 Series	AGND
Y108, Y118 Series	AGN, AENL
Y109 Series	ACN, BKN
Y110 Series	MACND, MBKND
Y111 Series	ACN, BKN
Y112A Series	ACN, BKN, MBKND
Y117 Series	AENL
Y118 Series	AENL
Y119 Series	AENL, MAENLD
Y121 Series	AGND
Y127 Series	V465D
Y128 Series	V461D, V465D
Y134 Series	TJD
Y135 Series	ACN, BKN, AENL
Y136 Series	TJD

Y34 Fairbanks-Morse Magneto (Replaced By Y72) (Type FMJ1A7)

Fig. 1 - Type FM-J1B7 Magneto

Fig. 2 - Type FM-J1A7 Magneto

Field Service and Adjustment Information

1. General Description

Modern ignition systems are carefully engineered to provide quick, easy starting and maximum dependability of operation without adjustment or service. Through advanced design and sturdy, simple construction Fairbanks-Morse Type FM-J magnetos have become field performance leaders. Especially compact in assembly, the powerful Alnico magnetic rotor assures an intensely hot ignition spark under the most difficult of operating conditions. Field adjustment is rarely necessary and should only be undertaken according to the following directions.

2. Application

Fairbanks-Morse Types FM-J1A7 and FM-J1B7 magnetos are built specifically for application on Wisconsin single cylinder, air-cooled engines. The Type FM-J1A7 magneto (Figure 2) is of a special base mounting design with a shaft height of 35 mm., while the Type FM-J1B7 magneto (Figure 1) has a special mounting flange. The magnetic and electric circuits of the two units are identical, a two pole magnetic rotor with a single lobe cam producing one ignition spark per revolution. Rotation of the Type FM-J1A7 magneto is counterclockwise (from the drive end), while the Type FM-J1B7 turns clockwise. Both variations are equipped with dependable, single pawl impulse couplings which facilitate starting by providing an intensified and retarded ignition spark at low speeds.

3. Service Procedure

A logically arranged service outline to be followed when engines fail to start, are hard to start, or miss in operation is tabulated below. Since the use of this chart locates the engine trouble in many cases before the magneto is reached, it prevents too common misadjustment of parts in good condition. Type FM-J magnetos are built in sealed housings which should be opened only when it is certain that the ignition spark produced is unsatisfactory. This condition may be determined through ignition spark tests which are easily made in the field

4. 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 ignition cable end not more than 1/16" away from the spark plug terminal. The engine should not miss fire when this is done.

5. Testing The Magneto Spark

Pull the ignition cable out of the end cover socket and insert a short piece of stiff wire. Bend this wire to within 1/8" 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. It is highly recommended that, when a strong

TROUBLE	POSSIBLE CAUSE	SUGGESTED REMEDY
A. Flooding	Hot or cold engine; over-rich fuel mixture.	Dry out cylinder: crank engine slowly, fuel shut off; or let engine stand idle for short interval.
B. Insufficient Fuel or Air	Empty fuel tank; clogged fuel supply line; clogged air intake.	Replenish fuel; clean fuel supply system and check carburetor; clean air intake system.
C. Ignition Connections	Loose or corroded terminals; broken cable; short circuited switch.	Clean or replace cable terminals; inspect soldered or clamped joints, test and replace cable; check ignition switch.
D. Spark Plug	Corroded, worn or damaged points; cracked or carbonized insulator.	New plug; clean points and insulator, adjust points to recommended opening; never attempt to adjust center electrode.
E. Magneto	Points, impulse coupling.	See instructions beginning Paragraph #4.

ignition spark is observed, no dismantling of the magneto take place and that cable, terminals and spark plug be thoroughly inspected.

6. Adjustment of Breaker Points

Remove the magneto end cover and compare the arrangement of parts with the drawings of Figure 3. If the contact points are found pitted or pyramided upon examination, they should be resurfaced, using a small tungsten file or fine stone. Complete replacement, when necessary, can easily be made by removing the locking screw of the contact support bracket and the terminal screw, which frees the breaker arm. The breaker point gap must be adjusted after either resurfacing or replacement of the points. Loosen the locking screw and turn the eccentric head adjusting screw until the proper gap is obtained. This gap should be 0.020" at full separation. The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick.

7. Lubrication and Bearings

Lubrication of the Type FM-J magnetos in the field is unnecessary and inadvisable. When a complete overhaul of the magneto is made by an Authorized Fairbanks-Morse Service Station, the lubricants will be renewed. Long, continued use of the magneto will eventually necessitate the inexpensive replacement of the sleeve bearing in the breaker plate, at which time its oil reservoir supply should be replenished. The grease-packed ball bearing of the drive end controls rotor thrust and as the rotor is locked in this bearing, no attempt must ever be made to remove the rotor from the housing without specific, detailed instructions. Such work should always be done by trained service men.

8. Reassembly & Sealing

The Type FM-J1 magnetos are sealed at the factory against the entry of dust and moisture through the use of a varnish-coated gasket joint. Opening the magneto for breaker point adjustment or other service necessitates resealing the magneto when reassembly is made. A new gasket should be provided, the joint cleaned thoroughly and the new seal coated with Special FMC02 Sealing Varnish.

9. Impulse Couplings

The impulse coupling is used to facilitate starting of the engine and at the same time to automatically retard the ignition spark while starting. Through this device the rotor of the magneto is held back, while the engine is turned to its firing position, at which instant the pawl of the coupling releases and the rotor is snapped forward at high speed, thereby producing an intense, hot spark, automatically retarded to prevent backfiring. The magnetos furnished for one cylinder engines are equipped with single pawl couplings.

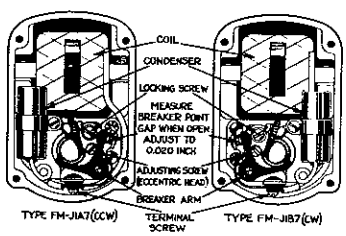


Figure 3 - End Views of Type FM-J1 Magneto.

10. Gear Drive

Flange mounting Type FM-J1B7 magnetos require a drive gear assembled 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 Figure 4. 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 Figure 4.

11. Radio-Shielded Units

Applications which require complete radio shielding of the ignition system are furnished with the Types FM-JE1A7 and FM-JE1B7 magnetos. These magnetos are similar to standard models except that the plastic end cap is replaced by an all-metal cover through which the high tension lead is conducted by means of a special insulated socket. Detailed information covering these units can be obtained upon inquiry to the factory.

12. Ground Switches

Magnetos for Wisconsin Motor Corporation one cylinder engines are furnished with either a push button or turn button 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.

13. Service Facilities

Authorized Magneto Service Stations, located throughout the U.S. and foreign countries, have been carefully selected by Fairbanks, Morse & Co. in order to assure highly efficient and complete repair and inspection service to owners of Fairbanks-Morse magnetos. These Service Stations have special equipment and training for magneto repair and close contact is maintained with the factory service and engineering departments. The Service Station Directory should be consulted to locate the Service Station most convenient.

14. Genuine Replacement Parts

Genuine Fairbanks-Morse magneto replacement parts are stocked by all Authorized Service Stations and should always be insisted upon for repairs. The use of spurious parts usually proves less satisfactory and less economical than the use of the manufacturer's original replacements, besides voiding the magneto guarantee.

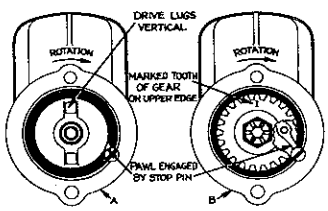
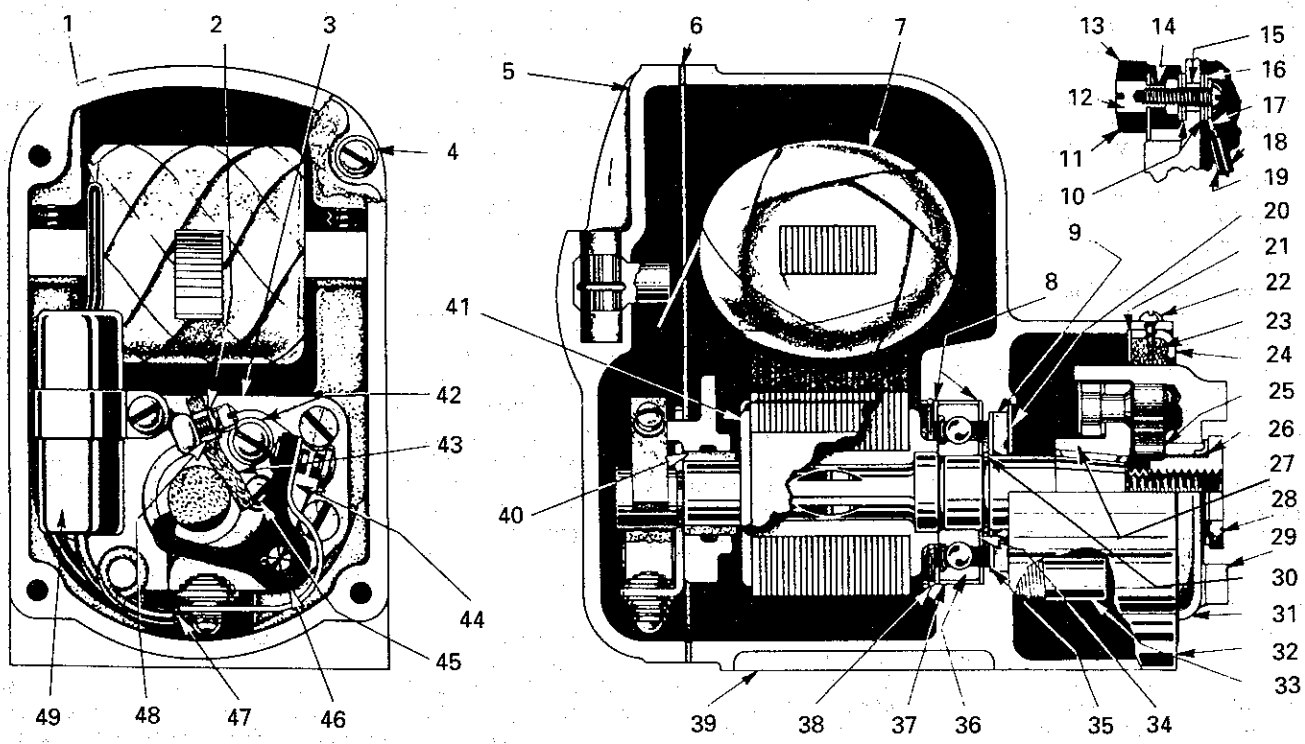


Figure 4 - Mounting Drive Gear

Y34 Fairbanks-Morse Magneto (Replaced By Y72) (Type FMJ1A7)

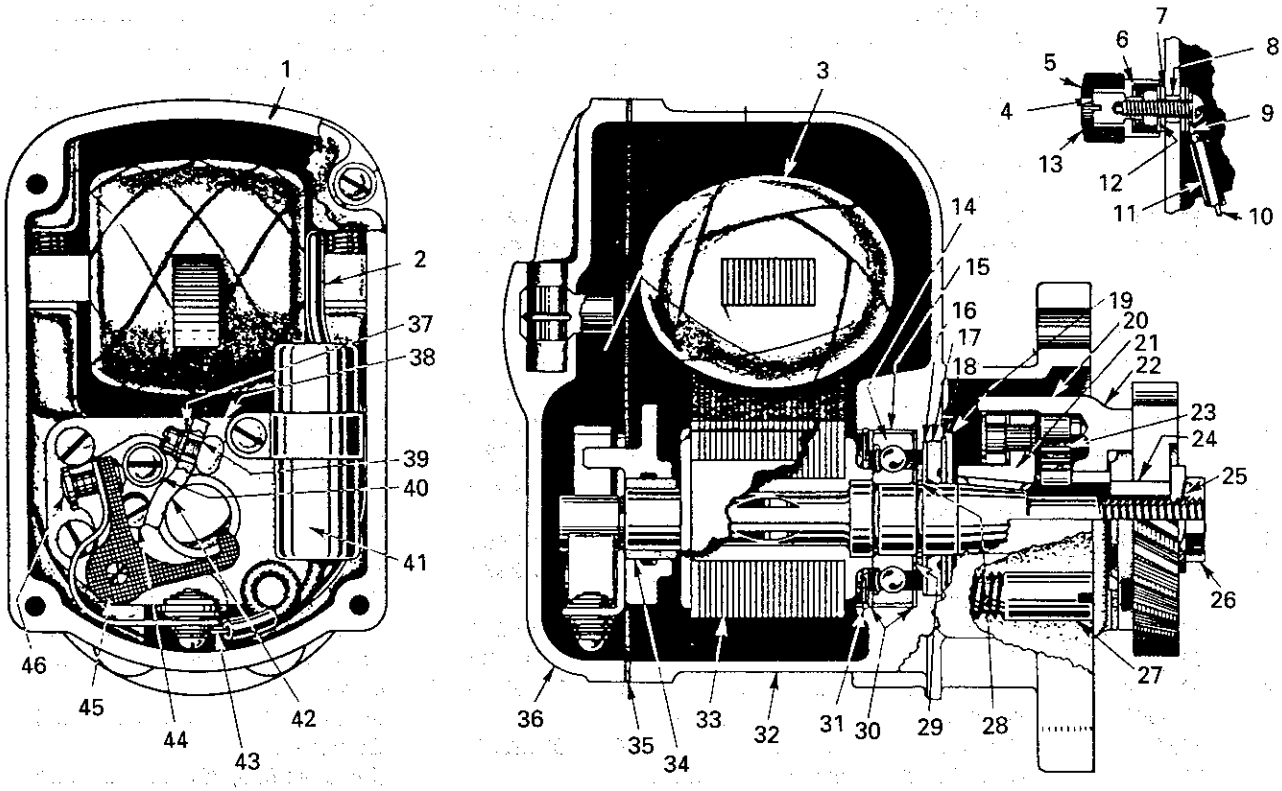


Y34 Fairbanks-Morse Magneto (Replaced By Y72)

USE WITH MODELS AEH, AEHS, AFH, AGH, AHH (see pg. 3)

ITEM	PART NO.	DESCRIPTION	QTY
1	31E2736	Primary lead wire tube	1
2	31C6503	Washer	1
3	31J4631	Bearing plate (includes 2, 40, 43, 48)	1
4	31B2276B	Washer	4
5	31BZ2430	End cap	1
6	31H2498	End cap to frame gasket	1
7	31L2477	Coil assembly (includes 1, 47)	1
8	31C2493	Washer	2
9	31G3861	Washer	1
10	31B6018	Washer	2
11	31F2514	Switch turn button	1
12	31B4466	Ground screw end nut	1
13	31A2514E	Switch group (includes 10-12, 14-17)	1
14	31A2513A	Switch button spring	1
15	31E2457A	Bushing	1
16	31D2458	Washer	2
17	31A4361A	Lead wire terminal, no. 6	1
18	31G2736B	Primary ground wire tube	1
19	31D2499A	Primary ground wire (includes 17, 18, 47)	1
20	31A2492A	Washer	1
21	31E2502	Washer	1
22	31B6222	Screw	2
23	31D5968	Washer	1
24	31E2428	Washer	1
25	31D2565	Coupling drive spring	1
26	31A5931B	Lock washer	1
27	31W2563	Coupling hub assembly	1
28	31K2570	Coupling nut	1
29	31R5957	Coupling shell	1
30	31B1498B	Snap ring	1
31	31W2563C	Complete coupling (includes 25-27, 29)	1
32	31D4591		
33	31F2568	Stop pin	1
34	31C2723	Thrust bearing shim	2
35	31A2492C	Washer	1
36	31C5949	Rotor ball bearing	1
37	31B2824	Insulating strip	1
38	31B1498D	Snap ring	1
39	31ZX2425	Frame	1
40	31B5950A	Rotor sleeve bearing	1
41	31GX2480	Magnetic rotor	1
42	31B5969	Washer	1
43	31E2788	Cam felt wick	1
44	31H2454	Stationary bracket and point	1
45	31C2455	Adjustment screw	1
46	31S2437	Breaker point set (includes 43, 44)	1
47	31A4361	Lead wire terminal, no. 8	3
48	31A2982	Cam felt wick spacer	1
49	31AXMR2433	Condenser (includes item 47)	1
50	31GK16	Gasket kit (includes 6, 9, 20)	1

Y35 Fairbanks-Morse Magneto (Replaced By Y109S1) (Type FMJ1B7)



Y35 Fairbanks-Morse Magneto (Replaced By Y109S1)

USE WITH MODELS ACN, BKN (see pg. 5)

ITEM	PART NO.	DESCRIPTION	QTY
1	31B2276B	Washer	4
2	31E2736	Primary lead wire tube	1
3	31L2477	Coil assembly (includes 2, 43)	1
4	31B4466	End nut	1
5	31A2514D	Switch group (includes 4, 6-9, 12, 13)	1
6	31A2513A	Switch button spring	1
7	31B6018	Washer	2
8	31E2457A	Bushing	1
9	31A4361A	Lead wire terminal, no. 6	1
10	31B2499A	Primary ground wire (includes 9, 11, 43)	1
11	31E2736B	Primary ground wire tube	1
12	31D2458	Washer	2
13	31E2514	Switch push button	1
14	31C5949	Rotor ball bearing	1
15	31B2824	Insulating strip	1
16	31A2492C	Inner retaining washer	1
17	31G3861	Rubber washer	1
18	31A2492A	Outer retaining washer	1
19	31E2303	Oil slinger disc, standard flange	1
20	31Z5957	Coupling shell	1
21	31V2563	Coupling hub assembly	1
22	31MX2563C30	Complete coupling (includes 20, 21, 23)	1
23	31D2565	Coupling drive spring	1
24	31F2572	Coupling gear bushing	1
25	31A5931A	Coupling nut lock wire	1
26	31M2570	Coupling nut	1
27	31K2568	Coupling pawl stop pin	1
28	31B1498D	Rotor shaft snap ring	1
29	31C2723	Thrust bearing shim	2
30	31C2493	Washer	2
31	31B1498B	Rotor bearing snap ring	1
32	31RX2425	Frame	1
33	31JX2480	Magnetic rotor	1
34	31B5950A	Rotor sleeve bearing	1
35	31H2498	End cap to frame gasket	1
36	31BZ2430	End cap	1
37	31C6503	Washer	1
38	31H4631	Bearing plate (includes 34, 37, 39, 42)	1
39	31A2982	Cam felt wick spacer	1
40	31B5969	Washer	1
41	31AXMR2433	Condenser (includes item 43)	1
42	31E2788	Cam felt wick	1
43	31A4361	Lead wire terminal, no. 8	3
44	31C2455	Adjustment screw	1
45	31R2437	Breaker point set (includes 42, 46)	1
46	31G2454	Stationary bracket and point	1
47	31GK16	Gasket kit (includes 17, 18, 35)	1

Y54 Magneto (Replaced By Y106S1)
(WICO Model XH4, No. XH1343B)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 18). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

DISTRIBUTOR CAP AND ARM

The distributor cap (Ref. No. 42) may be removed by loosening the three screws (Ref. No. 38) which hold it in place. The distributor arm (Ref. No. 29) can then be removed from the shaft. When replacing the distributor arm be sure that the flat inside of the arm is lined up with the flat on the cam.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 44) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 48), the breaker arm lock (Ref. No. 17) and washer (Ref. No. 13). Then lift the breaker arm from its pivot. Remove the spacing washer, 5717, and the two breaker plate clamp screws (Ref. No. 44). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 46).

After assembly the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 36) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 48), then remove the two condenser clamp screws (Ref. No. 20) and the condenser clamp (Ref. No. 30). When replacing the condenser make sure it is properly placed between the two locating bosses and that the clamp screws are securely tightened.

COIL AND COIL CORE

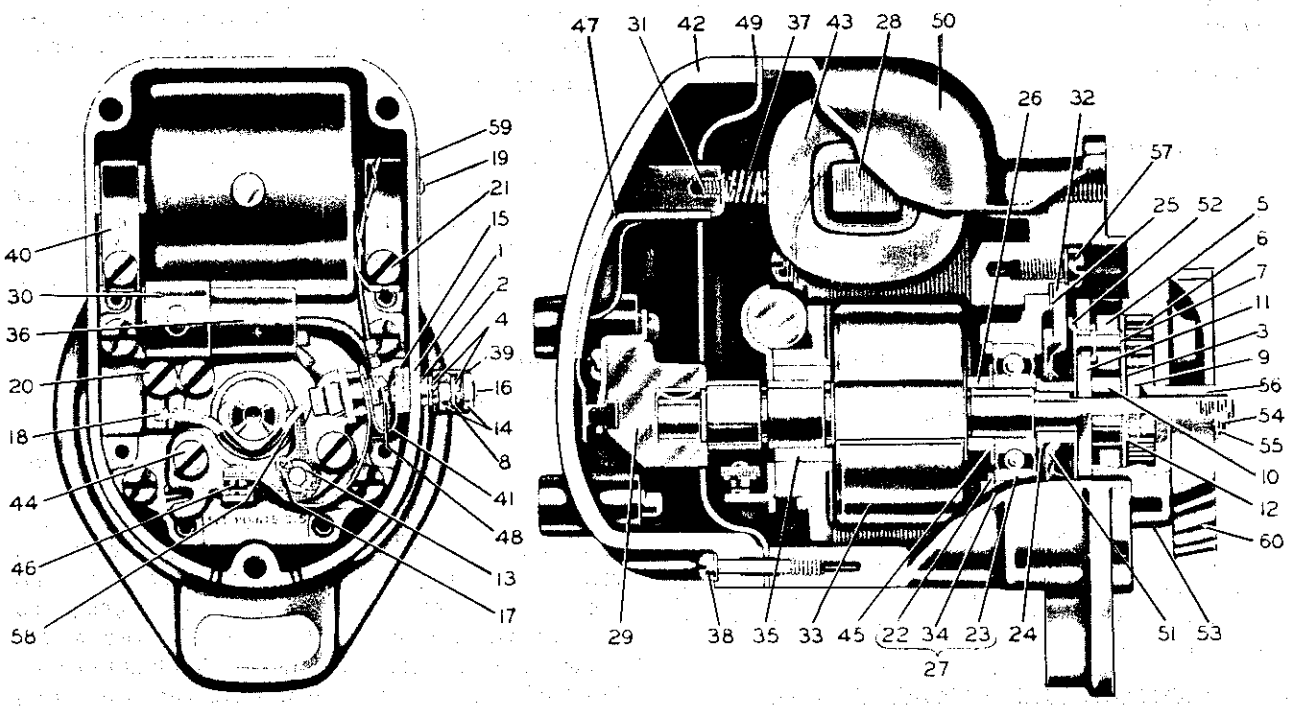
The coil and coil core must be removed from the magneto housing as a unit. After the distributor cap, distributor arm, and breaker shield have been removed and the primary wire disconnected from the breaker arm spring terminal by removing screw (Ref. No. 48), take out the two coil core clamp screws (Ref. No. 21) and remove the clamps (Ref. No. 40). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

REMOVAL OF COIL FROM CORE

The coil (Ref. No. 43) is held tight on the core (Ref. No. 28) by two wedges, 10383. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

When replacing the coil on the coil core, slide it on then press in the two coil wedges, one on each end, until they are flush with the primary of the coil.

Y54 Magneto (Replaced By Y106S1)
(WICO Model XH4, No. XH1343B)



Y54 Magneto (Replaced By Y106S1)

USE WITH MODELS VE4, VF4, VP4D (see pg. 8)

ITEM	PART NO.	DESCRIPTION	QTY
1	90M34X	Spacing washer	2
2	90M35X	Ground stud washer	1
3	90M42XA	Spacing washer	1
4	90M55XA	Lock washer	2
5	90FXH125A	Trip arm	2
6	90FXH55	Drive spring	1
7	90A243X	Snap ring	2
8	90IXA256	Washer	1
9	90IVA583	Spacing washer	1
10	90-2122	Spacer	1
11	90X2286	Driven flange group	1
12	90-2288	Drive spring retainer	1
13	90-3219	Pivot washer	1
14	90-3230	Ground stud nut	2
15	90-11874	Insulating lock	1
16	90-3945	Ground stud	1
17	90-4210	Breaker arm lock	1
18	90-5077	Cam wiper felt	1
19	90-5250	Screw	2
20	90-5411	Clamp screw	2
21	90-5411	Clamp screw	2
22	90-5516	Retaining ring	1
23	90-5517	Rotor bearing	1
24	90-5518	Impulse spacer	1
25	90X5259	Gasket	1
26	90-5520	Spacer	1
27	90FXH1007A	Bearing cage group	1
28	90FXH1611A	Coil core	1
29	90FXH1008	Distributor arm group	1
30	90-6924	Condenser clamp	1
31	90-5536	Coil contact screw	1
32	90FXH410S	Impulse stop group	1
33	90FXH1006A	Rotor	1
34	90-5567	Bearing cage	1
35	90FXH31	Bushing	1
36	90FXH2024	Condenser assembly	1
37	90-5620	Coil contact spring	1
38	90-53X5185	Screw	3
39	90FXH1019	Stop button group	1
40	90FXH223	Coil core clamp	2
41	FXH9	Ground connector	1
42	90FXH2002A2	Distributor cap unit	1
—	90FXH1009	Ground connection unit (includes 1, 2, 4, 8, 14-16, 41) (not illustrated)	1
43	90FXH2403	Coil group	1
—	90-5717	Aligning washer (not illustrated)	1
44	90-5900	Screw	2
45	90-5926	Ball bearing shield	1
46	90FXH2100A	Breaker contact set	1
47	90X6000	Secondary interlead group	1
48	90-6017	Clamp screw	1
49	90FXH262	Gasket	1
50	90X6150	Main housing replacement group	1
51	90XA1393	Oil seal (replaces A33X)	1
52	90FXH27	Oil slinger	1
53	90-6310	Drive cup (replaces 3870)	1
54	90-6424	Snap ring	1
55	90-6425	Thrust washer	1
56	90K6444	Impulse lock nut kit (replaces 6009 below serial no. 15431)	1
—	90K6445	Impulse lock nut kit (replaces 6227 above serial no. 15430)	1
—	90FXH3400E	Impulse coupling unit (includes 3, 5-7, 9-12, 53, 56) (not illustrated)	1
57	90-6465	Clamp screw	4
58	90-6468	Breaker arm felt	1
59	90-8792	Name plate	1
—	90-10383	Coil wedge (not illustrated)	1
—	90-10407	Aligning washer (not illustrated)	1
60	90GD93C5	Drive gear, 24 teeth (VE4D, VF4D)	1
—	90GD103	Drive gear, 27 teeth (VP4D)	1

Y57 (WICO Spec. No. 1295) (Obsolete), Y57C (WICO Spec. No. XH1295Y) (Obsolete), Y62 (WICO Spec. No. XH1995B, XH1995) (Obsolete), Y68 (WICO Spec. No. XH1295B) (Obsolete), Y68A (WICO Spec. No. XH1295D, XH1295C) (Replaced By Y109S5) Magnetos (WICO Model XH1)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 19). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

MAGNETO COVER

The magneto cover (Ref. No. 50), can be removed by loosening the four screws (Ref. No. 36) which hold it in place. When replacing the cover be sure that the cover gasket (Ref. No. 35) is in its proper place.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 40) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 43), the breaker arm lock and washer (Ref. No. 18) and (Ref. No. 14), then lift the breaker arm from its pivot. Remove the aligning washer, 5717, and the two fixed contact clamp screws (Ref. No. 40). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 42).

After assembly the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 34) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 43), then remove the two condenser clamp screws (Ref. No. 22) and the condenser clamp (Ref. No. 30). When replacing the condenser make sure it is properly placed between the two locating bosses and that the clamp screws are securely tightened.

COIL AND COIL CORE

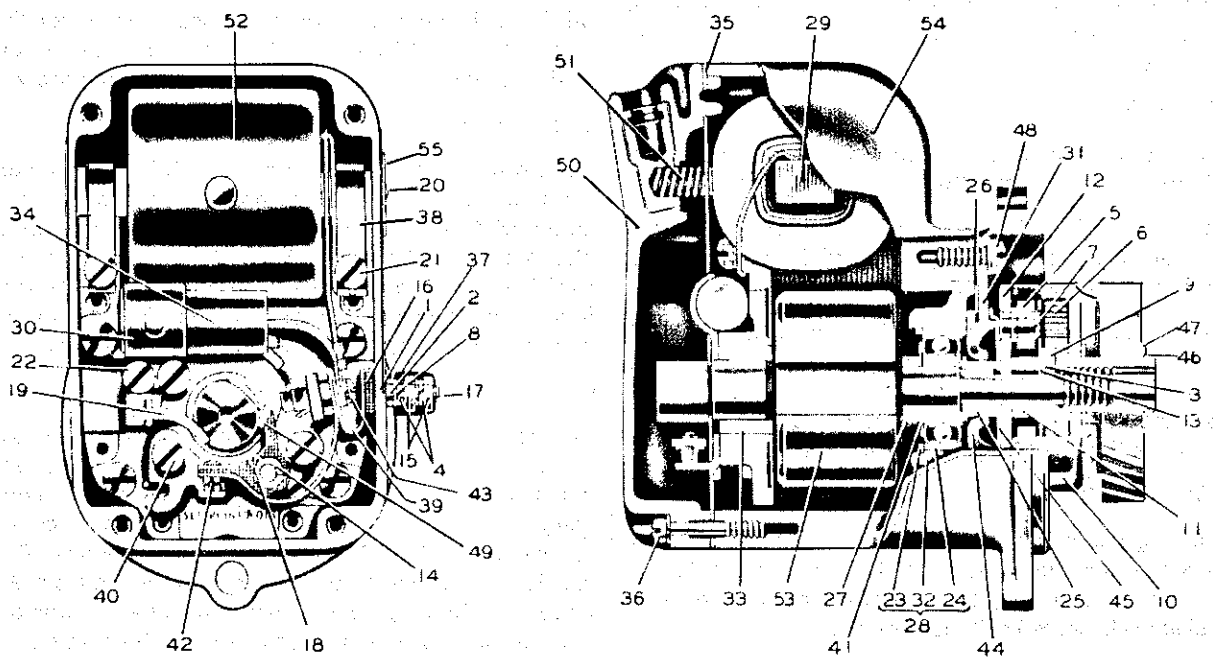
The coil and coil core must be removed from the magneto housing as a unit. Disconnect the primary wire from the breaker arm spring terminal by removing screw (Ref. No. 43), take out the two coil core clamp screws (Ref. No. 21) and remove the clamps (Ref. No. 38). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

REMOVAL OF COIL FROM CORE

The coil (Ref. No. 52) is held tight on the core (Ref. No. 29) by two wedges, 10383. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

When replacing the coil on the coil core, slide it on then press in the two coil wedges, one on each end, until they are flush with the primary of the coil.

Y57 (WICO Spec. No. 1295) (Obsolete), Y57C (WICO Spec. No. XH1295Y) (Obsolete), Y62 (WICO Spec. No. XH1995B, XH1995) (Obsolete), Y68 (WICO Spec. No. XH1295B) (Obsolete), Y68A (WICO Spec. No. XH1295D, XH1295C) (Replaced By Y109S5) Magnetos (WICO Model XH1)



Y57 (Obsolete), Y57C (Obsolete), Y62 (Obsolete), Y68 (Obsolete), Y68A (Replaced By Y109S5) Magnetos

USE WITH MODELS ABN, ACN, AKN, BKN (see pg. 11)

ITEM	PART NO.	DESCRIPTION	QTY
1	90M34X	Spacing washer	2
2	90M35X	Washer	1
3	90M42XA	Spacing washer	1
4	90M55XA	Lock washer	2
5	90FXH125A	Trip arm	1
6	90FXH55	Drive spring	1
7	90A243X	Snap ring	1
8	90IXA256	Washer	1
9	90IVA583	Spacing washer	1
10	90-2040	Drive cup	1
11	90-2122	Driven flange spacer	1
12	90X2286	Driven flange group	1
13	90-2288	Retainer	1
14	90-3219	Pivot washer	1
15	90-3230	Nut	2
16	90-3539	Insulating lock	2
17	90-3945	Ground stud	1
18	90-4210	Breaker arm lock	1
19	90-5077	Cam wiper felt	1
20	90-5250	Screw	2
21	90-5411	Clamp screw	2
22	90-5411	Clamp screw	2
23	90-5516	Retaining ring	1
24	90-5517	Rotor bearing	1
25	90-5518	Impulse spacer	1
26	90X5259	Gasket	1
27	90-5520	Spacer	1
28	90FXH1007A	Bearing cage group	1
29	90FXH1611A	Coil core group	1
30	90-6924	Condenser clamp (XH1295D, XH1995B)	1
—	90-5532	Condenser clamp (XH1295, XX1295B, XH1295C, XH1295Y, XH1995)	1
31	90X5549	Impulse stop group	1
32	90-5567	Bearing cage	1
33	90FXH31	Bushing	1
34	90FXH2024	Condenser assembly (XH1295D, XH1995B)	1
—	90FXH2224	Condenser (XH1295, XH1295B, XH1295C, XH1295Y, XH1995)	1
35	90FXH162	Cover gasket	1
36	90-53X5185	Screw	4
37	90FXH1019	Stop button group	1
38	90FXH223	Coil core clamp	2
39	90FXH9	Ground connector (all XH1295)	1
—	90X5757	Ground lead group (all XH1995)	1
—	90X5654	Ground connection unit (all XH1295) (includes 1, 2, 4, 8, 15-17, 39) (not illustrated)	1
—	90X5750	Ground connection unit (all XH1995) (includes 1, 2, 4, 8, 15-17, 39) (not illustrated)	1
—	90-5717	Aligning washer (not illustrated)	1
40	90-5900	Clamp screw	2
41	90-5926	Ball bearing shield	1
42	90FXH2100B	Breaker contact set	1
43	90-6017	Clamp screw	1
44	90XA1393	Oil seal	1
45	90FXH27	Oil slinger (NLA)	1
46	90X5261	Impulse lock ring	1
47	90-6425	Thrust washer	1
—	90K6445	Impulse lock nut kit (includes 46, 47; includes nut) (not illustrated)	1
—	90X6459	Impulse coupling unit (includes 3, 5-7, 9-13, 46, 47; includes nut) (not illustrated)	1
48	90-6465	Clamp screw	4
49	90-6468	Breaker arm felt	1
50	90FXH2312A2	Cover unit (XH1295, XH1295B, XH1295C, XH1295D, XH1995, XH1995B)	1
—	90X7114	Cover unit (XH1295Y)	1
51	90-6732	Coil contact spring	1

(continued on page 13)

Y57 (Obsolete), Y57C (Obsolete), Y62 (Obsolete), Y68 (Obsolete), Y68A (Replaced By Y109S5) Magnetos (Cont.)

USE WITH MODELS ABN, ACN, AKN, BKN (see pg. 11)

ITEM	PART NO.	DESCRIPTION	QTY
52	90FXH2403	Coil group (XH1295, XH1295Y)	1
—	90X6762	Coil group (XH1295B, XH1295C, XH1295D, XH1995, XH1995B)	1
53	90Y7569	Rotor (XH1295D, XH1995B)	1
— †	90Y7054	Rotor (XH1295C, XH1995)	1
—	90Y6606B	Rotor (XH1295B)	1
—	90Y6606	Rotor (XH1295, XH1295Y)	1
54	90FXH3501	Main housing group (XH1295C, XH1295D, XH1995, XH1995B) (NLA)	1
—	90X6174	Main housing group (XH1295, XH1295B, XH1295Y)	1
55	90-8792	Name plate	1
—	90-10407	Washer (not illustrated)	1

† Y7569 rotor can be used in place of Y7054, but new condenser X6916 and clamp 6924 must also be used.

Y58 Magneto (Replaced By Y72) (WICO Model XH1; WICO Spec. No. XH150C, Replaces XH150, XH150B)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 22). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

MAGNETO COVER

The magneto cover (Ref. No. 52), can be removed by loosening the four screws (Ref. No. 40) which hold it in place. When replacing the cover be sure that the cover gasket (Ref. No. 39) is in its proper place.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 44) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 47), the breaker arm lock (Ref. No. 20) and washer (Ref. No. 18) and then lift the breaker arm from its pivot. Remove the aligning washer, 5717, and the two fixed contact clamp screws (Ref. No. 44). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 46).

After assembly, the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 38) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 47), then remove the two condenser clamp screws (Ref. No. 26) and the condenser clamp (Ref. No. 34). When replacing the condenser make sure it is properly placed between the two locating bosses and that the clamp screws are securely tightened.

COIL AND COIL CORE

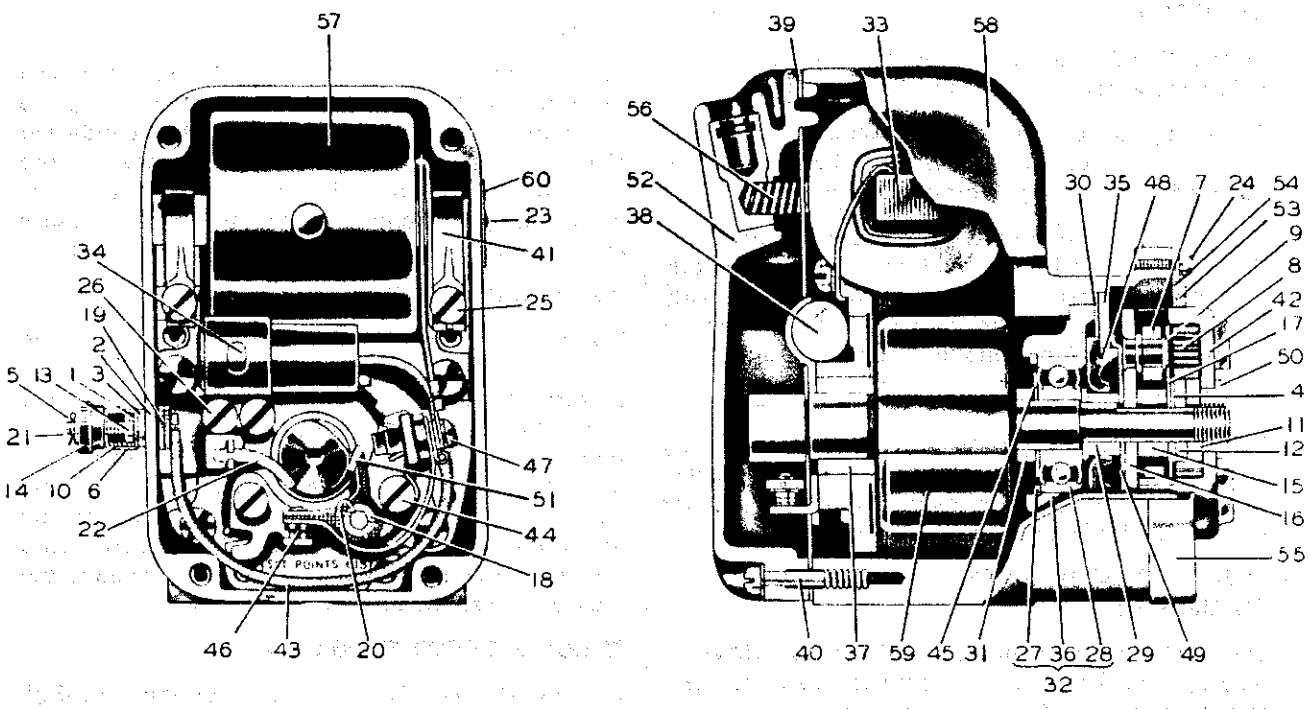
The coil and coil core must be removed from the magneto housing as a unit. Disconnect the primary wire from the breaker arm spring terminal by removing screw (Ref. No. 47), take out the two coil core clamp screws (Ref. No. 25) and remove the clamps (Ref. No. 41). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

REMOVAL OF COIL FROM CORE

The coil (Ref. No. 57) is held tight on the core (Ref. No. 33) by two wedges, 10383. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

When replacing the coil on the coil core, slide it on then press in the two coil wedges, one on each end, until they are flush with the primary of the coil.

Y58 Magneto (Replaced By Y72) (WICO Model XH1; WICO Spec. No. XH150C, Replaces XH150, XH150B)



Y58 Magneto (Replaced By Y72)

USE WITH MODELS ADH, AE, AEH, AFH, AGH, AHH (see pg. 15)

ITEM	PART NO.	DESCRIPTION	QTY
1	90M33X	Washer	1
2	90M34X	Washer	2
3	90M35X	Washer	1
4	90M42XA	Spacing washer	1
5	90M95X	Cotter pin	1
6	90A170X	Grounding sleeve	1
7	90FXH125A	Trip arm	1
8	90FXH55	Drive spring	1
9	90A243X	Snap ring	1
10	90-16-369	Spring	1
11	90-16-583	Spacing washer	1
12	90IVA583	Spacing washer	1
13	90-1991	Nut	1
14	90-1992B	Stop nut	1
15	90-2122	Spacer	1
16	90X2287	Driven flange group	1
17	90-2288	Retainer	1
18	90-3219	Pivot washer	1
19	90-3539	Insulating lock	2
20	90-4210	Breaker arm lock	1
21	90-4631	Ground stud	1
22	90-5077	Cam wiper felt	1
23	90-5250	Screw	2
24	90-5411	Screw	1
25	90-5411	Clamp screw	2
26	90-5411	Clamp screw	2
27	90-5516	Retaining ring	1
28	90-5517	Rotor bearing	1
29	90FXH162	Impulse spacer	1
30	90X5259	Gasket	1
31	90-5520	Spacer	1
32	90FXH1007A	Bearing cage group	1
33	90FXH1611A	Coil core group	1
34	90-6924	Condenser clamp (XH150C)	1
—	90-5532	Condenser clamp (XH150B, XH150)	1
35	90X5549	Impulse stop group	1
36	90-5567	Bearing cage	1
37	90FXH31	Bushing	1
38	90FXH2024	Condenser assembly (XH150C)	1
—	90FXH2224	Condenser assembly (XH150, XH150B)	1
39	90FXH162	Gasket	1
40	90-53X5185	Screw	4
41	90FXH223	Coil core clamp	2
42	90-5671	Drive cup	1
—	90-5717	Aligning washer (not illustrated)	1
—	90X5747	Impulse coupling unit (includes 4, 7-9, 11, 12, 15-17, 42, 50) (not illustrated)	1
43	90X5757	Ground lead group	1
—	90X5766	Ground connection unit (includes 1-3, 5, 6, 10, 13, 14, 19, 21, 43) (not illustrated)	1
44	90-5900	Clamp screw	2
45	90-5926	Ball bearing shield	1
46	90FXH2100B	Breaker contact set	1
47	90-6017	Clamp screw	1
48	90XA1393	Oil seal	1
49	90FXH27	Oil slinger (NLA)	1
50	90-6230	Impulse lock nut	1
—	90-6465	Clamp screw (not illustrated)	4
51	90-6468	Breaker arm felt	1
52	90FXH2312A2	Cover unit	1
53	90FXH130	Gasket	1
54	90-6694	Ring	1
55	90-6695	Impulse dust cover	1
56	90-6732	Coil contact spring	1
57	90X6762	Coil group (XH150C, XH150B)	1
—	90FXH2403	Coil group (XH150)	1
—	90X6768	Dust cover unit (includes 53-55) (not illustrated)	1
58	90X7257	Main housing group (XH150C, XH150B)	1
—	90X6195	Main housing group (XH150)	1
59	90FXH2106B	Rotor (XH150C)	1
—	† 90Y7267	Rotor (XH150B)	1
—	90Y6605	Rotor (XH150)	1
60	90-8792	Name plate	1
—	90-10383	Coil wedge (not illustrated)	2
—	90-10407	Aligning washer (not illustrated)	1

† Y8538 rotor can be used in place of Y7267, but new condenser X6916 and clamp 6924 must also be used.

Y67 Magneto (Replaced By Y80) (WICO Model XH2D; WICO Spec. No. XH1961C, Replaces XH1961), Y67A Magneto (Replaced By Y80S1) (WICO Model XH2D; WICO Spec. No. XH2531C, Replaces XH2531, XH1961C)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 17). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

MAGNETO COVER

The magneto cover (Ref. No. 53), can be removed by loosening the four screws (Ref. No. 33) which hold it in place. When replacing the cover be sure that the cover gasket (Ref. No. 32) is in its proper place.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 37) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 40), the breaker arm lock (Ref. No. 16) and washer (Ref. No. 12). Then lift the breaker arm from its pivot. Remove the aligning washer, 5717, and the two fixed contact clamp screws (Ref. No. 37). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 39).

After assembly, the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

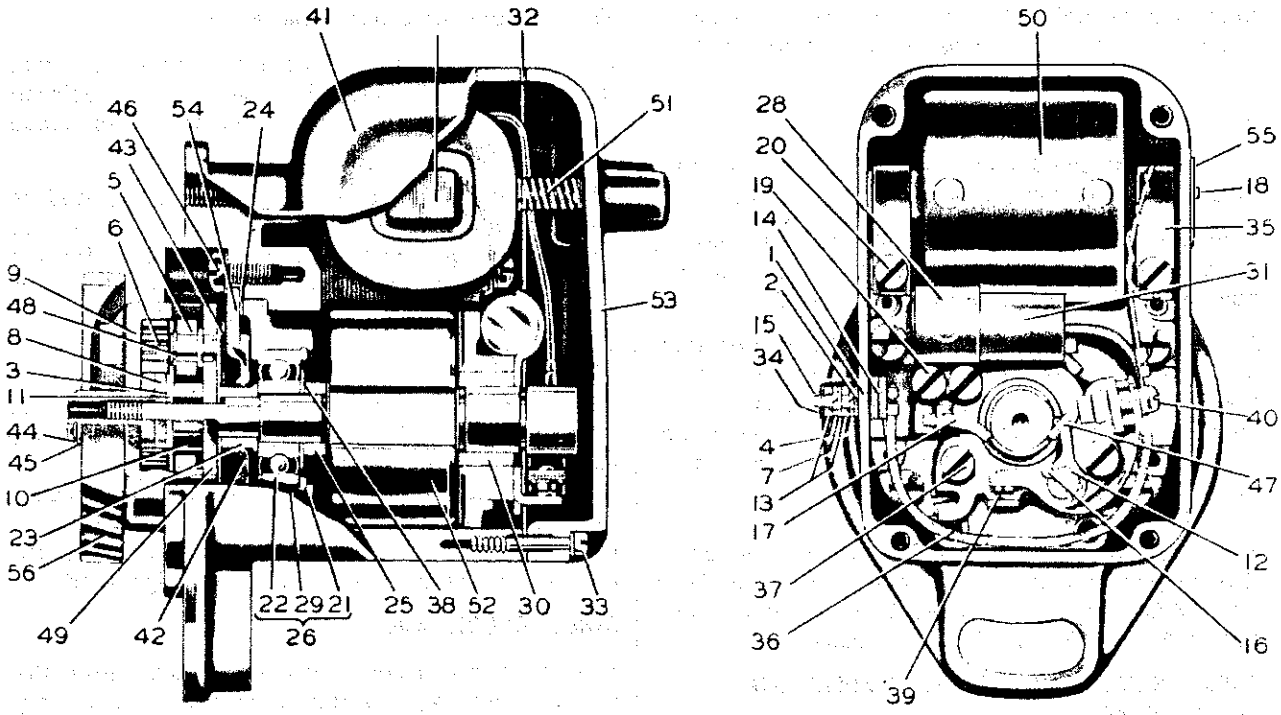
CONDENSER

To remove the condenser (Ref. No. 31) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 40), then remove the two condenser clamp screws (Ref. No. 19) and the condenser clamp (Ref. No. 28). When replacing the condenser make sure it is properly placed between the two locating bosses and that the clamp screws are securely tightened.

COIL AND COIL CORE

The coil and coil core must be removed from the magneto housing as a unit. Disconnect the primary wire from the breaker arm spring terminal by removing screw (Ref. No. 40), take out the two coil core clamp screws (Ref. No. 20) and remove the clamps (Ref. No. 35). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

Y67 Magneto (Replaced By Y80) (WICO Model XH2D; WICO Spec. No. XH1961C, Replaces XH1961), Y67A Magneto (Replaced By Y80S1) (WICO Model XH2D; WICO Spec. No. XH2531C, Replaces XH2531, XH1961C)



Y67 Magneto (Replaced By Y80), Y67A Magneto (Replaced By Y80S1)

USE WITH MODELS TE, TF, TH (see pg. 18)

ITEM	PART NO.	DESCRIPTION	QTY
1	90-11874	Insulating washer	2
2	90-11874	Insulating washer	1
3	90X42XA	Spacing washer	1
4	90M55XA	Lock washer	2
5	90FXH125A	Trip arm	1
6	90FXH55	Drive spring	1
7	90IXA256	Washer	1
8	90IVA583	Spacing washer	1
9	90-2061A	Drive cup	1
10	90-2122	Driven flange spacer	1
11	90-2288	Drive spring retainer	1
12	90-3219	Pivot washer	1
13	90-3230	Nut	2
14	90-9820	Insulating lock	2
15	90-3945	Ground stud	1
16	90-4210	Breaker arm lock	1
—	90-4589	Nut (XH1961, XH1961C, XH2531) (not illustrated)	1
17	90-5077	Cam wiper felt	1
18	90-5250	Name plate screw	2
19	90-5411	Clamp screw	2
20	90-5411	Clamp screw	2
21	90-5516	Retaining ring	1
22	90-5517	Rotor bearing	1
23	90-5518	Impulse spacer	1
24	90X5259	Gasket	1
25	90-5520	Spacer	1
26	90FXH1007A	Bearing cage group (includes 21, 22, 29)	1
28	90-6924	Condenser clamp (XH1961C, XH2531, XH2531C)	1
—	90-5532	Condenser clamp (XH1961)	1
29	90-5567	Bearing cage	1
30	90FXH31	Bushing	1
31	90FXH2024	Condenser assembly (XH1961C, XH2531, XH2531C)	1
—	90FXH2224	Condenser assembly (XH1961)	1
32	90FXH162	Cover gasket	1
33	90-53X5185	Cover screw	4
34	90FXH1019	Stop button group	1
35	90FXH223	Coil core clamp	2
—	90-5717	Aligning washer (not illustrated)	1
—	90X5750	Ground connection unit (includes 1, 2, 4, 7, 13-15, 36) (not illustrated)	1
36	90X5757	Ground lead group	1
37	90-5900	Clamp screw	2
38	90-5926	Ball bearing shield	1
39	90FXH2100B	Breaker contact set	1
40	90-5431	Clamp screw	1
41	90X7262	Main housing replacement assembly (XH2531C)	1
—	90X8553	Main housing replacement assembly (XH1961, XH1961C, XH2531)	1
42	90XA1393	Oil seal	1
43	90FXH27	Oil slinger (NLA)	1
44	90X5261	Impulse lock ring	1
45	90-6425	Thrust washer	1
—	90-6412	Impulse lock nut (not illustrated)	1
46	90-6465	Clamp screw	4
47	90-7644	Breaker arm felt	1
48	90FXH642	Trip arm spring	1

(continued on page 20)

Y67 Magneto (Replaced By Y80), Y67A Magneto (Replaced By Y80S1) (Cont.)

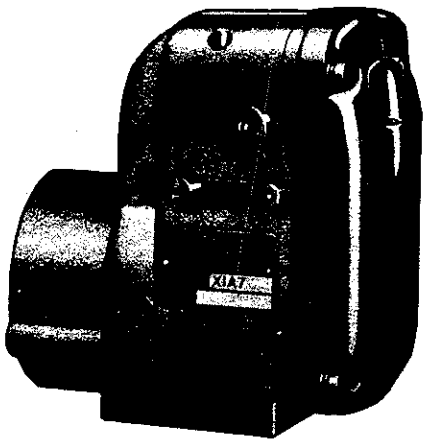
USE WITH MODELS TE, TF, TH (see pg. 18)

ITEM	PART NO.	DESCRIPTION	QTY
49	90X6586	Driven flange group	1
50	90FXH2203	Coil group	1
51	90-6882	Coil contact spring	1
52	90Y7569	Rotor (XH1961C, XH2531, XH2531C)	1
—	† 90Y7054	Rotor (XH1961)	1
53	90FXH2212-2	Cover unit (includes 32, 33, 51)	1
—	90FHX3300A	Impulse coupling unit (includes 3, 5, 6, 8-11, 44, 45, 48, 49) (not illustrated)	1
—	90-8511	Impulse set screw (XH1961, XH1961C, XH2531) (not illustrated)	1
54	90X8555	Impulse stop group (XH1961, XH1961C, XH2531)	1
—	90X5549	Impulse stop group (XH2531C)	1
55	90-8792	Name plate	1
—	90-10407	Aligning washer (not illustrated)	1
56	* — — —	Drive gear (Wis. motor no. GD93C1) (TE, TF)	1
—	* — — —	Drive gear (Wis. motor no. GD93C3) (TH)	1

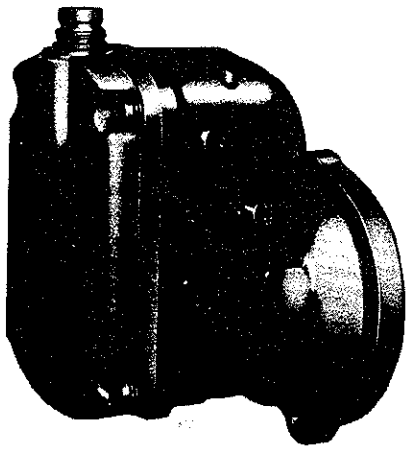
* Not serviced separately.

† Y7569 rotor can be used in place of Y7054, but new condenser X6916 and clamp 6924 must also be used.

Y72, Y73B (Replaced By Y117), Y76, Y83A1 (Replaced By Y119), Y84 Fairbanks-Morse Magnetos (One-Cylinder)



BASE MOUNTING



FLANGE MOUNTING

Service and Adjustment Information

GENERAL DESCRIPTION

The one cylinder magnetos whose parts are listed in this instruction sheet were built specifically for application on Wisconsin single cylinder engines. The variations of the Type FM-X1A7 magneto are all of a special base mounting design with a shaft height of 35 mm., and the modifications of the Type FM-X1B7 unit have a special mounting flange. The magnetic and electrical circuits of all units are identical, with a two pole magnetic rotor and a single lobe cam producing one ignition spark per revolution. Rotation of the base-mounting types is counterclockwise when viewed from the drive end, while the flange-mounting magnetos rotate clockwise. 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 much 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, except in the case

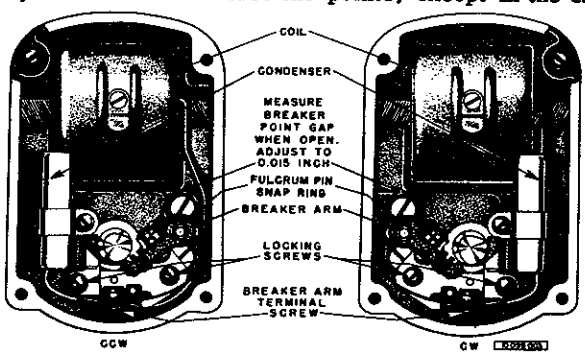


Fig. 1. End View of Type FM-X Magneto

of badly worn or pitted points, which 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, all of which are identified in 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 0.015 in. at full separation. 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 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 MAGNETO

Type FM-X magnetos are sealed at the factory against the entry of dust and moisture through the use of a varnish-coated gasket joint. Opening the magneto for breaker point adjustment or other service necessitates resealing of the magneto upon reassembly. The surfaces between the magneto frame and the end cap should be cleaned thoroughly, a new gasket should be provided, and the joint should be sealed with a coating of FMCO2 Gasket Sealing Varnish.

SPECIAL DRIVE GEAR

Flange mounting magnetos for Wisconsin motors require a drive gear fitted to the impulse coupling by means of an extended drive 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 on ACN, BKN and AEN engines the marked tooth of the Wisconsin Motor Magneto gear is

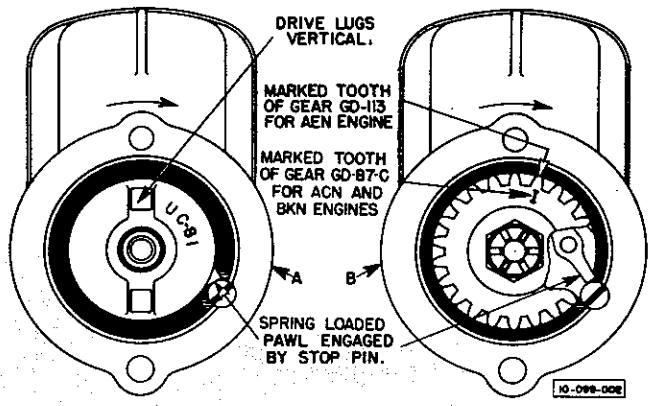


Fig. 2. Mounting Drive Gear

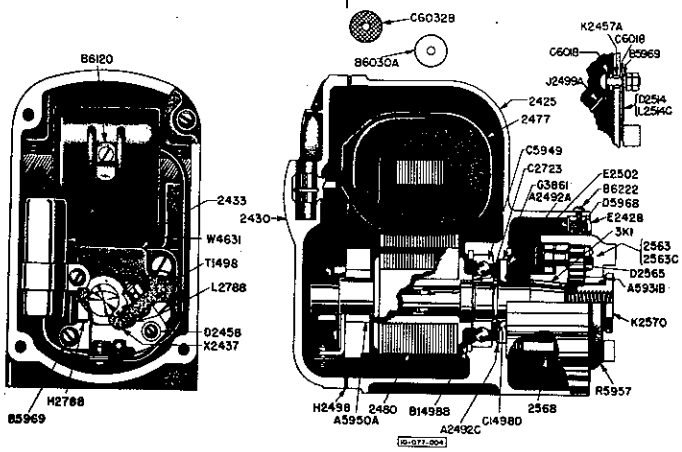
just to the right of the uppermost tooth on the gear. See drawing B of Fig. 2. The tooth on gear GD-113, used on AEN engines, is marked with an X on the outer edge of the tooth and on gear GD-87-C for ACN and BKN engines an I is stamped on the face of the tooth.

RADIO-SHIELDED MAGNETOS

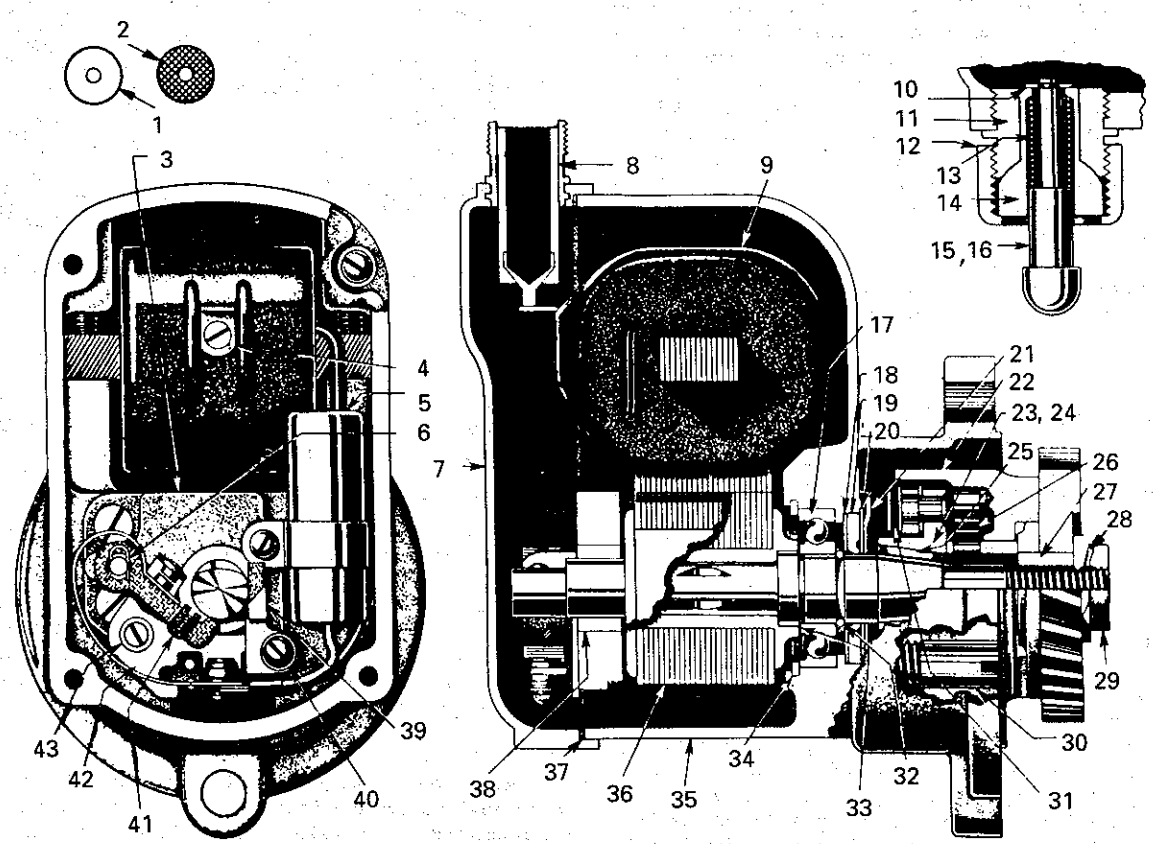
Applications which require complete radio shielding of the ignition system are equipped with a Type FM-XE or a Type FM-XDE magneto. These magnetos are similar to standard models except that the plastic end cap is replaced by an all-metal cover through which the high-tension lead is conducted by means 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 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.



Y72, Y73B (Replaced By Y117), Y76, Y83A1 (Replaced By Y119), Y84 Fairbanks-Morse Magnetos (One-Cylinder)



Y72, Y73B (Replaced By Y117), Y76, Y83A1 (Replaced By Y119), Y84 Fairbanks-Morse Magnetos (One-Cylinder)

USE WITH MODELS ACN, BKN, AEN, AENL, AEH, AFH, AGH, AHH (see pg. 23)

ITEM	PART NO.	DESCRIPTION	AHH AEH AFH AGH Y72 FMX1A7	AHH AEH AFH AGH Y84 FMXE1A7F	AEN AENS Y76 FMX1B7E	AEN ABN AKN AENL Y117 (Replaces Y73B) FMXD1B7	AEN Y119 (Replaces Y83A1) FMXDE1B7P
1	31B6030A	Vent cover	2	2	2	2	2
2	31C6032B	Vent screen	2	2	2	2	2
3	31V4631	Bearing support - CW	-	-	1	1	1
—	31W4631	Bearing support - CW	1	1	-	-	-
4	31D6120	Coil clip	-	1	-	-	1
—	31B6120	Coil clip	1	-	1	1	-
5	31-2433						
6	31B1498D	Fulcrum pin snap ring	1	1	1	1	1
7	31AX2430	End cap	1	-	-	-	-
—	31BZ2430	End cap	-	-	1	1	-
—	31J2430A	End cap	-	1	-	-	1
8	31P2474	Cable outlet	-	1	-	-	1
9	31-2477						
10	31V1498	Ground switch snap ring	-	1	-	-	1
11	31C2744	Ground switch bushing	-	1	-	-	1
12	31B2735A	Cable outlet nut	-	1	-	-	1
13	31C2513A	Ground switch button spring	-	1	-	-	1
—	31D2514	Ground switch insulated lever	1	-	1	1	-
14	31D4373	Ground switch bushing	-	1	-	-	1
15	31S2514	Ground switch button	-	1	-	-	1
—	31L2514C	Primary ground switch	1	-	1	1	-
16	31CX2514C	Push button ground switch	-	1	-	-	1
17	31C5949	Rotor drive end bearing	1	1	1	1	1
18	31A2492C	Rotor drive end seal inner washer	1	1	1	1	1
19	31G3861	Rotor shaft seal	1	1	1	1	1
20	31A2492A	Rotor drive end seal outer washer	1	1	1	1	1
21	31E2303	Oil slinger baffle disc	-	-	1	1	1
22	31Z5957	Impulse coupling shell - CW	-	-	1	1	1
—	31R5957	Impulse coupling shell - CCW	1	1	-	-	-
23	31W2563	Coupling hub assembly	1	-	-	-	-
—	31LX2563	Coupling hub assembly	-	-	-	-	1
—	31YX2563	Coupling hub assembly	-	1	-	-	-
—	31ZX2563	Coupling hub assembly	-	-	1	1	-

(continued on page 25)

Y72, Y73B (Replaced By Y117), Y76, Y83A1 (Replaced By Y119), Y84 Fairbanks-Morse Magnetos (One-Cylinder) (Cont.)

USE WITH MODELS ACN, BKN, AEN, AENL, AEH, AFH, AGH, AHH (see pg. 23)

ITEM	PART NO.	DESCRIPTION	AHH AEH AFH AGH Y72 FMX1A7	AHH AEH AFH AGH Y84 FMXE1A7F	AEN AENS Y76 FMX1B7E	AEN ABN AKN AENL Y117 (Replaces Y73B) FMXD1B7	AEN Y119 (Replaces Y83A1) FMXDE1B7P
24	31W2563C	Impulse coupling complete - Type UCL-1 - CCW	1	-	-	1	-
—	31MX2563C30	Impulse coupling complete - Type UC-8 - CW	-	-	1	-	-
—	31EY2563C	Impulse coupling complete - Type UC-1 - CW	-	-	-	-	1
—	31WY2563C	Impulse coupling complete - Type UCL-1 - CCW	-	1	-	-	-
25	31-3K1	Key - rotor shaft to impulse coupling	1	1	1	1	1
26	31D2565	Impulse coupling drive spring	1	1	1	1	1
27	31F2572	Impulse coupling bushing	-	-	1	1	1
28	31A5931A	Impulse coupling nut lock wire	-	-	1	1	1
—	31A5931B	Impulse coupling nut lock washer	1	1	-	-	-
29	31M2570	Impulse coupling nut	-	-	1	1	1
—	31K2570	Impulse coupling nut	1	1	-	-	-
30	31F2568	Impulse coupling pawl stop pin	1	1	-	-	-
—	31S2568	Impulse coupling pawl stop pin	-	-	1	1	1
31	31D5963	Impulse coupling pawl spring	-	1	-	-	1
32	31C1498D	Rotor drive end shaft snap ring	1	1	1	1	1
33	31C2723	Rotor thrust bearing shim	2	2	2	2	2
34	31B1498B	Rotor drive end bearing snap ring	1	1	1	1	1
35	31RX2425	Frame	-	-	1	1	1
—	31ZX2425	Frame	1	1	-	-	-
36	31DW2480	Magnetic rotor	-	-	-	1	1
—	31JZ2480	Magnetic rotor	1	1	-	-	-
—	31KZ2480	Magnetic rotor	-	-	1	-	-
37	31K2498	End cap to frame gasket	-	1	-	-	1
—	31H2498	End cap to frame gasket	1	-	1	1	-
38	31A5950A	Rotor cam end bearing	1	1	1	1	1

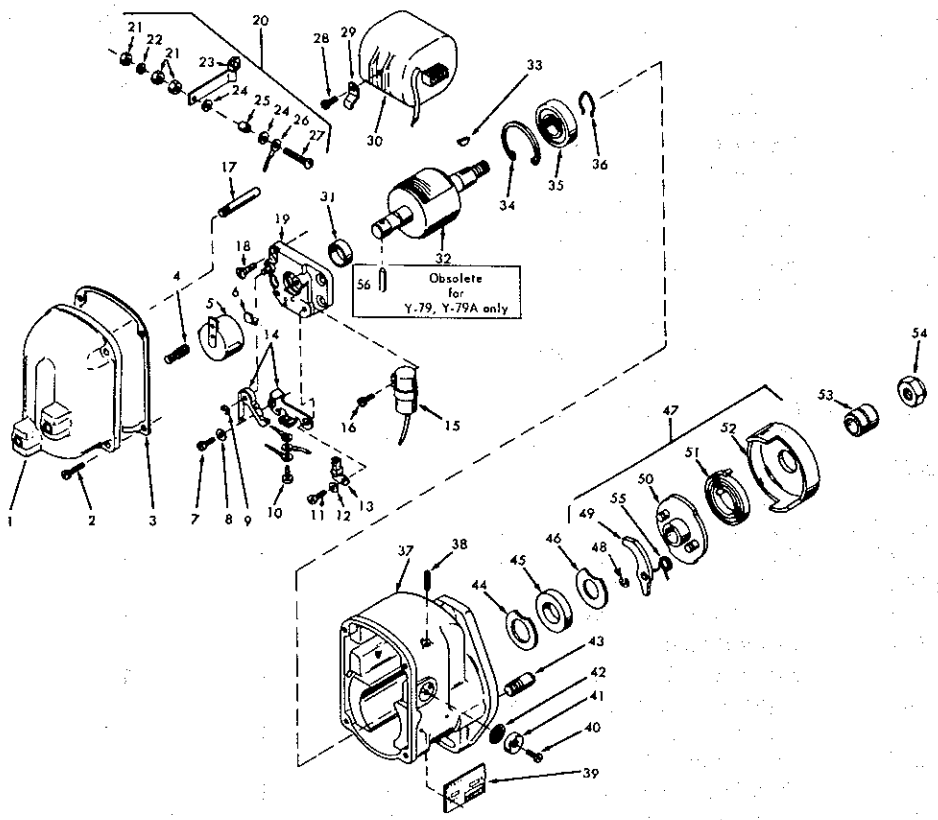
(continued on page 26)

Y72, Y73B (Replaced By Y117), Y76, Y83A1 (Replaced By Y119), Y84 Fairbanks-Morse Magnetos (One-Cylinder) (Cont.)

USE WITH MODELS ACN, BKN, AEN, AENL, AEH, AFH, AGH, AHH **(see pg. 23)**

ITEM	PART NO.	DESCRIPTION	QTY	AHH AEH AFH AGH Y72 FMX1A7	AHH AEH AFH AGH Y84 FMXE1A7F	AEN AENS Y76 FMX1B7E	AEN ABN AKN AENL Y117 (Replaces Y73B) FMXD1B7	AEN Y119 (Replaces Y83A1) FMXDE1B7P
39	31G2788	Cam wick and holder	-	-	1	1	1
—	31H2788	Cam wick and holder	1	1	-	-	-
40	31B5969	Contact support locking screw plate washer	1	1	1	1	1
41	31L2788	Breaker arm wick	1	1	1	1	1
42	31A2437A	Breaker arm	-	-	1	1	1
—	31B2437A	Breaker arm	1	1	-	-	-
43	31D2458	Contact support locking screw plate washer, no. 6	1	1	1	1	1
—	31E2428	Impulse coupling housing cupped washer	1	1	-	-	-
—	31AXMR2433	Condenser - bracket in "R" position	1	1	1	1	1
—	31K2457A	Ground switch insulating bushing	1	-	1	1	-
—	31QS2477C	Coil	-	-	-	1	1
—	31T2477C	Coil	1	1	1	-	-
—	31-25SS14A	Coil bridge set screw - 1/4"-20 thread x 7/8" long	1	1	1	1	1
—	31L2514C	Ground switch wire assembly	1	-	1	1	-
—	31E2502	Impulse coupling outer shell plate washer	1	1	-	-	-
—	31D5968	Impulse coupling outer shell felt washer	1	1	-	-	-
—	31B5969	Ground switch plate washer	1	-	1	1	-
—	31C6018	Ground switch insulating washer	1	-	1	1	-
—	31B6222	Impulse coupling cupped washer screw	2	2	-	-	-

Y79 Series Magneto (Type FMX2B7)



Y79 Series Magneto

USE WITH MODELS TJD, VEF4 (see pg. 27)

ITEM	PART NO.	DESCRIPTION	W2-880 TJD Y72 FMX1A7	W2-880 TJD Y79B (Replaces Y79A) FMX2B7D	Schramm Y76 FMX1B7E	Schramm Y79C (Replaces Y79) FMX2B7A
1	31WZ2430	Cap (replaces FZ2430)	1	1	-	-
—	31LX2430	Cap	-	-	-	1
—	31LX2430A	Cap	-	-	1	-
2	31-10S14D	Screw, no. 10-24 thread x 7-8" long	4	4	4	4
3	31H2498	Gasket	1	1	1	1
4	31E2460B	Brush and spring	1	1	1	1
5	31FY2765	Rotor	1	-	1	-
—	31R2765	Rotor	-	1	-	1
6	31A2766	Clip	1	-	1	-
7	31-6S6U	Screw, no. 6-32 thread x 3/8" long	1	1	1	1
8	31D2458	Washer, no. 6	1	1	1	1
9	31C1498G	Snap ring	1	1	1	1
10	31-6S6Z	Screw, no. 6-32 thread x 3/8" long	1	1	1	1
11	31-8S6U	Screw, no. 8-32 thread x 3/8" long	1	1	1	1
12	31B5969	Washer, no. 8	1	1	1	1
13	31G2788	Wick and holder	1	1	1	1
14	31A2437A	Point set	1	1	1	1
15	31AXMR2433	Condenser	-	-	-	1
—	31SXY2433	Condenser	1	1	1	-
16	31-8S5NA	Screw, no. 8-32 thread x 5/8" long	1	1	1	1
17	31JX983A	Rod	1	1	1	1
18	31-8S6G	Screw, no. 8-32 thread x 3/8" long	4	4	4	4
19	31V4631	Support	1	1	1	1
20	31L2514C	Switch	1	1	1	1
21	31-8N1	Nut	3	3	3	3
22	31-8LW5	Lock washer	1	1	1	1
23	31M2514	Lever	1	1	1	1
24	31C6018	Washer	2	2	1	2
25	31K2457A	Bushing	1	1	1	1
26	31L2514C	Wire assembly	1	1	1	1
27	31-8S14N	Screw, no. 8-32 thread x 7/8" long	1	1	1	1
28	31-6S4U	Screw, no. 6-32 thread x 1/4" long	1	1	1	1
29	31D6120	Clip	1	1	1	1
30	31R2477C	Coil	1	1	1	1
31	31A5950A	Bearing	1	1	1	1
32	31PP2480	Magnetic rotor	-	1	-	1
—	31M2765	Magnetic rotor	1	-	1	-

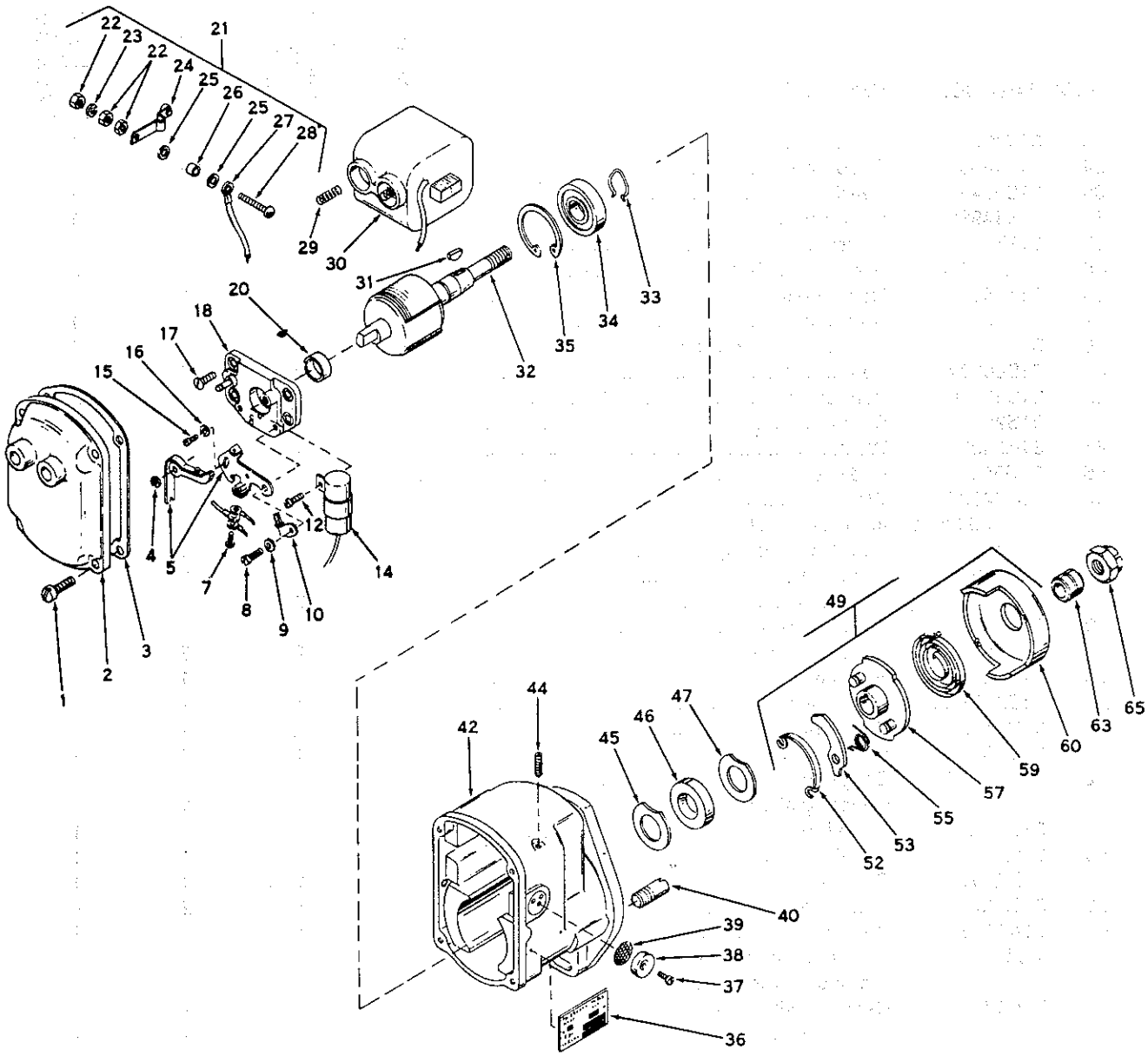
(continued on page 29)

Y79 Series Magneto (Cont.)

USE WITH MODELS TJD, VEF4 (see pg. 27)

ITEM	PART NO.	DESCRIPTION	W2-880 TJD Y72 FMX1A7	W2-880 TJD Y79B (Replaces Y79A) FMX2B7D	Schramm Y76 FMX1B7E	Schramm Y79C (Replaces Y79) FMX2B7A
33	31-3K1	Key	1	1	1	1
34	31B1498B	Snap ring	1	1	1	
35	31C5949	Bearing	1	1	1	1
36	31B1498D	Snap ring	1	1	1	1
37	31TZ2425	Housing	1	1	1	1
38	31-31SS14A	Screw, 5/16-24 thread x 7/8" long	2	2	2	2
39	31N195	Name plate	1	1	1	-
—	31A195	Name plate	-	-	-	1
40	31-6S4U	Screw, no. 6-32 thread x 1/4" long	2	2	2	2
41	31B6030A	Vent cover	2	2	2	2
42	31C6032B	Vent screen	2	2	2	2
43	31S2568	Stop pin	1	1	1	1
44	31A2492C	Washer	1	1	1	1
45	31G3861	End seal	1	1	1	1
46	31A2492A	Washer	1	1	1	1
47	31AR2563C15	Impulse coupling	1	1	-	-
—	31BW2563C30	Impulse coupling	-	-	1	1
48	31A1498J	Pawl lock	-	-	1	-
—	31D1498J	Pawl lock	2	2	-	1
49	31H2566	Coupling pawl	-	-	-	1
—	31Q2566	Coupling pawl	2	2	2	-
50	31-2563-30	Hub assembly	-	-	1	1
—	31S2563-15	Hub assembly	1	1	-	-
51	31D2565	Drive spring	1	-	-	1
—	31E2565	Drive spring	-	1	1	-
52	31GW5957	Coupling shell	1	1	-	-
—	31Y5957	Coupling shell	-	-	1	-
—	31Z5957	Coupling shell	-	-	-	1
53	31F2572	Bushing	1	1	1	1
54	31M2570	Coupling nut	1	1	1	1
55	31T5963	Pawl spring	2	2	2	-
56	31A2669	Rotor pin	-	1	-	1
—	YQ18	Points and condenser kit (not illustrated)	1	1	-	-
—	YQ17A	Overhaul kit (not illustrated)	1	-	-	-
—	YQ17	Overhaul kit (not illustrated)	-	1	-	-

Y80S1, Y80S2 Magnetos (Type FMX1-2B7-1)



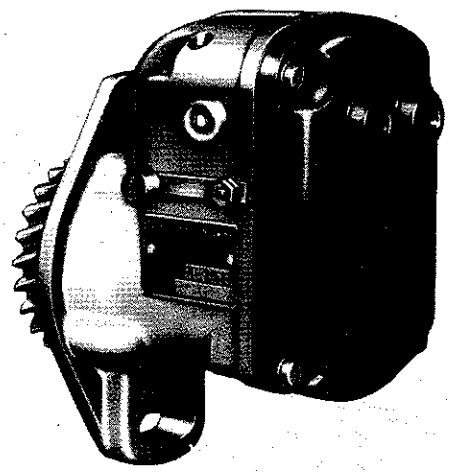
Y80S1, Y80S2 Magnetos

USE MODELS TE, TF WITH GD93C1 DRIVE GEAR, TH, THD WITH GD93C3 DRIVE GEAR **(see pg. 30)**

ITEM	PART NO.	DESCRIPTION	QTY
1	31-10S12D	Screw, no. 10-24 thread x 3/4" long	4
2	31BY2430	End cap	1
3	31H2498	Gasket	1
4	31C1498G	Snap ring	1
5	31A2437A	Point set	1
7	31-6S6Z	Screw, no. 6-32 thread x 3/8" long	1
8	31-8S6U	Screw, no. 8-32 thread x 3/8" long	1
9	31B5969	Washer	1
10	31G2788	Cam wick	1
12	31-8S4U	Screw, no. 8-32 thread x 1/4" long	1
14	31SXY2433	Condenser	1
15	31-6S6U	Screw, no. 6-32 thread x 3/8" long	1
16	31D2458	Washer, no. 6	1
17	31-8S6G	Screw, no. 8-32 thread x 3/8" long	4
18	31V4631	Bearing support	1
20	31A5950A	Bearing	1
21	31L2514C	Switch assembly	1
22	31BN1	Screw nut	3
23	31BLW5	Screw lock washer	1
24	31M2514	Lever	1
25	31C6018	Insulating washer	2
26	31K2457A	Switch bushing	1
27	31L2514C	Wire assembly	1
28	31-8S14N	Screw, no. 8-32 thread x 7/8" long	1
29	31B3967	Spring	2
30	31Q2477C	Coil	1
31	31-3K1	Key	1
32	31FV2480	Rotor	1
33	31B1498D	Snap ring	1
34	31C5949	Bearing	1
35	31B1498B	Snap ring	1
36	31A195	Name plate	1
37	31-6S4U	Vent screw, no. 6-32 thread x 1/4" long	2
38	31B6030A	Vent cover	2
39	31C6032B	Vent screen	2
40	31S2568	Stop pin	1
42	31DY2425	Housing	1
44	31-31SS14A	Set screw, no. 5/16-24 thread x 7/8" long	2
45	31A2492C	Washer	1
46	31G3861	Shaft seal	1
47	31A2492A	Washer	1
49	31ZV2563C20	Coupling	1
52	31A1498J	Lock spring	1
53	31Q2566	Coupling pawl	1
55	31T5963	Pawl spring	1
57	31GY2563-30	Hub assembly	1
59	31D2565	Coupling spring	1
60	31AZ5957	Coupling shell	1
63	31F2572	Coupling bushing	1
65	31M2570	Coupling nut	1
—	YQ6	Points and condenser kit (not illustrated)	1
—	YQ3	Overhaul kit (not illustrated)	1

Y80S1, Y80S2 Magnetos (Type FMX1-2B7-1)

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

Type FM-X1-2B7-1 magneto is adapted to Models TE, TF TH and THD engines manufactured by Wisconsin Motor Corporation. The magneto is of a split-coil design in that there isn't any distributor, but instead two sparks are provided simultaneously every 360° of rotation. The magneto is flange mounted, clockwise in rotation, and has a lag angle of 20° provided by a special impulse coupling.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine difficulty arising from other sources, such as a flooded carburetor, insufficient fuel or air, loose ignition connections, or a defective spark plug. A brief engine inspection will often locate the trouble before the magneto is reached, and prevent maladjustment of parts in good condition. The magneto should be opened only when it is certain that the ignition spark produced is unsatisfactory. This condition may be determined by an ignition spark test, as explained in engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 0.015 inch at full separation.

The adjustment of breaker points is made in the following manner: Lightly loosen the two contact support **locking screws,** identified in Fig. 1. Then, with the points at full separation, move the contact support until the proper breaker point clearance is obtained. This is accomplished by means of a screwdriver inserted in the slot at the bottom of the contact support and pivoted between the two small bosses on the bearing support. Lock assembly in place by tightening locking screws, and take a final measurement of breaker point gap after the locking screws are tightened.

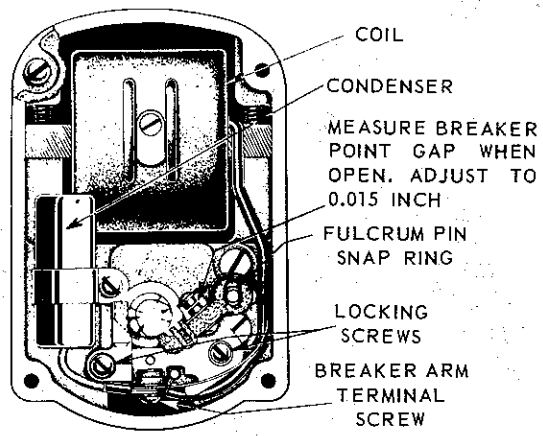


Fig. 1 END VIEW OF MAGNETO.

SEALING MAGNETO

Before replacing end cap on the magneto frame, clean the contact surfaces between cap and frame. Then coat the end cap contact surface with Fairbanks-Morse FMCO2 Gasket Varnish, place a new cork gasket in the joint, mount the end cap on the frame, and tighten the four screws securely.

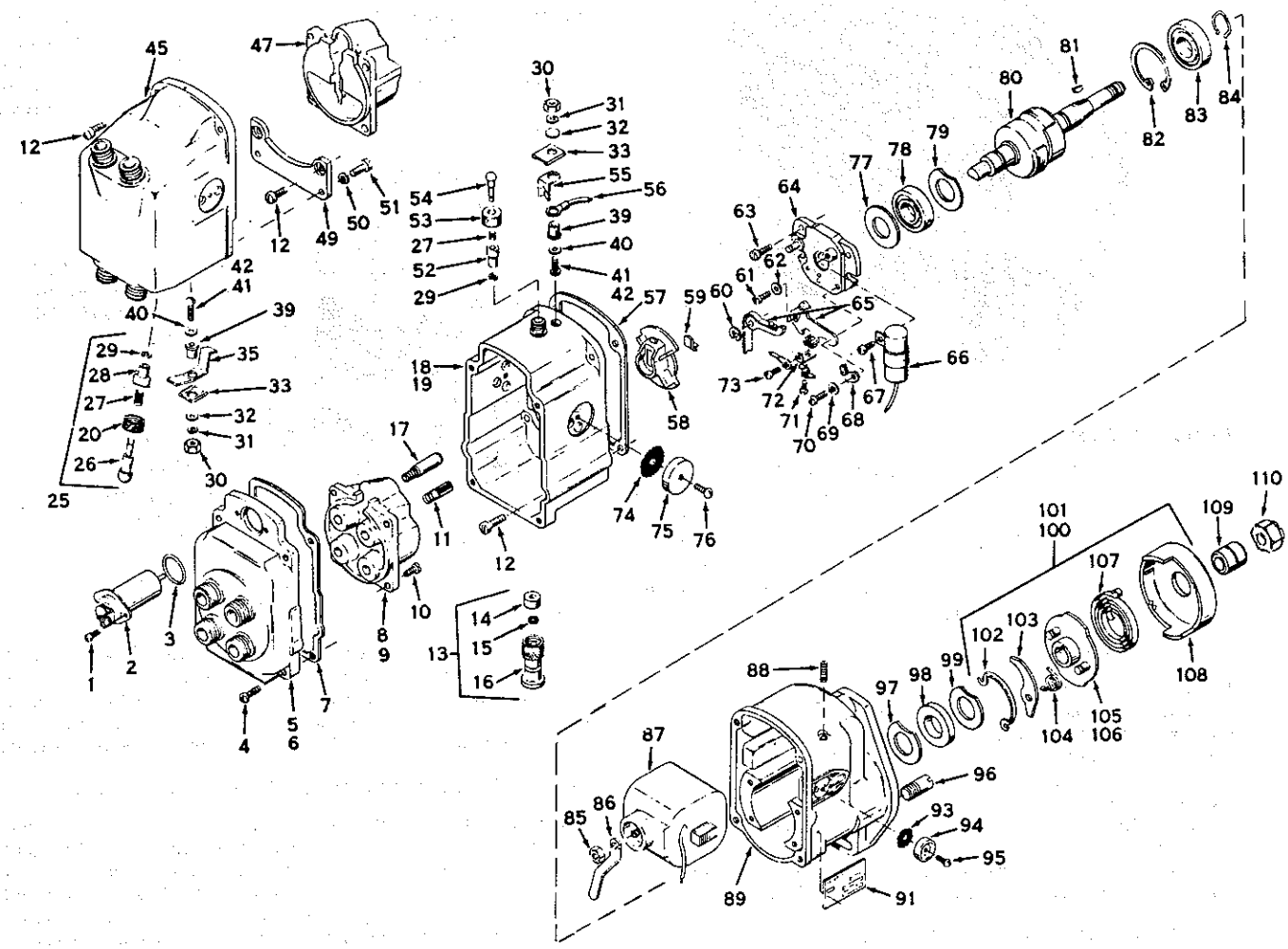
FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, magneto does not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Magneto Service Center. Coil and condenser replacements, while simple, are not recommended unless test equipment is available.

TIMING MAGNETO TO ENGINE

Ignition timing is accomplished by correctly mounting magneto to the crankcase. Refer to **'MAGNETO TIMING'** in engine INSTRUCTION MANUAL for assembly procedure.

Y86A, Y86B, Y86C, Y86D Magnetos (Type FMZVE4B7) (Obsolete)



Y86A, Y86B, Y86C, Y86D Magnetos (Obsolete)

USE WITH MODELS VE4D, VF4D, MVE4D, MVF4D

(Drive Gear Part Numbers GD93C2 for Military Engines, GD93C5 for Commercial Engines) **(see pg. 33)**

ITEM	PART NO.	DESCRIPTION	Y86D FMZVE4B7-4	Y86C FMZVE4B7-2	Y86B FMZVE4B7G	Y86A FMZVE4B7
1	31-6S6D	Condenser screw, no. 6-32 thread x 3/8" long	2	2	-	2
2	31EX2433	Condenser feed thru	1	1	-	1
3	31P2473	Condenser "O" ring seal	1	1	-	1
4	31-8S10D	Cover screw, no. 8-32 thread x 5/8" long	4	4	-	4
5	31E800A	End cap cover	-	1	-	1
6	31L800A	End cap cover	1	-	-	-
7	31E682A	Cover gasket	1	1	-	1
8	31L2474E	Distributor block	1	-	-	-
9	31G2474E	Distributor block	-	1	-	1
10	31-8S8D	Block screw, no. 8-32 thread x 1/2" long	4	4	4	4
11	31E2460B	Brush and spring	1	1	1	1
12	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	4	4	4	4
13	31KX2514C	Switch complete	1	-	-	-
14	31F4373	"O" ring seal	1	-	-	-
15	31E2513A	Button spring	1	-	-	-
16	31FW2514	Plunger and nut assembly	1	-	-	-
17	31A983B	Lead road	1	1	1	1
18	31P2430C	End cap	-	1	-	1
19	31AA2430C	End cap	1	-	-	-
20	31B2735A	Ground switch nut	-	-	1	-
25	31CX2514C	Switch complete	-	-	1	-
26	31S2514	Switch push button	-	-	1	-
27	31C2513A	Switch spring	-	1	1	1
28	31D4373	"O" ring seal	-	-	1	-
29	31V1498	Switch snap ring	-	1	1	1
30	31-6N1	Screw nut	1	1	1	1
31	31-6LW1	Screw lock washer	-	-	1	1
32	31D2458	Ground strip washer, no. 6	1	1	1	1
33	31B1355	Strip guide	1	1	1	1
35	31R2514	Ground strip	-	-	1	-
39	31H2457A	Switch screw bushing	1	1	1	1
40	31C6503	Terminal washer	1	1	1	1
41	31-6S9N	Switch screw, no. 6-32 thread x 9/16" long	-	1	-	1
42	31-6S8N	Switch screw, no. 6-32 thread x 1/2" long	1	-	1	-

(continued on page 35)

Y86A, Y86B, Y86C, Y86D Magnetos (Obsolete) (Cont.)

USE WITH MODELS VE4D, VF4D, MVE4D, MVF4D
(Drive Gear Part Numbers GD93C2 for Military Engines, GD93C5 for Commercial Engines) (see pg. 33)

ITEM	PART NO.	DESCRIPTION	Y86D FMZVE4B7-4	Y86C FMZVE4B7-2	Y86B FMZVE4B7G	Y86A FMZVE4B7
45	31C2430A	End cap	-	-	1	-
47	31C2474E	Distributor block	-	-	1	-
49	31A2636	End cap plate	-	-	1	-
50	31-10LW2	Screw lock washer	-	-	2	-
51	31-10S6G	Plate screw, no. 10-24 thread x 3/8" long	-	-	2	-
52	31C4373	Switch bushing	-	1	-	1
53	31A2735A	Cable outlet nut	-	1	-	1
54	31M2514C	Switch complete	-	1	-	1
55	31K2513	Condenser contact	1	1	-	1
56	31H2499A	Wire assembly	1	1	-	1
57	31K2498	End cap gasket	1	1	1	1
58	31M2765	Distributor rotor	1	1	1	1
59	31A2766	Rotor spring clip	1	1	1	1
60	31C1498G	Fulcrum pin snap ring	1	1	1	1
61	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1	1	1	1
62	31D2458	Support screw washer, no. 6	1	1	1	1
63	31-8S6D	Support screw, no. 8-32 thread x 3/8" long	4	4	4	4
64	31SX4631	Bearing support	1	1	1	1
65	31A2437A	Point set	1	1	1	1
66	31SXY2433	Condenser	-	-	1	-
67	31-8S6D	Condenser screw, no. 8-32 thread x 3/8" long	-	-	1	-
68	31G2788	Cam wick	1	1	1	1
69	31B5969	Support screw washer, no. 8	1	1	1	1
70	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1	1	1	1
71	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1	1	-	1
72	31A6804	Lead wire clip	1	1	-	1
73	31-6S4D	Clip screw, no. 6-32 thread x 1/4" long	-	1	-	-
74	31A6032A	Vent screen	2	2	-	2
75	31A1232	Vent cover	2	2	2	2
76	31-6S6N	Cover screw, no. 6-32 thread x 3/8" long	2	2	2	2
77	31E2493	Outer grease retaining washer	1	1	1	1
78	31D5949A	Cam end bearing	1	1	1	1
79	31A2492C	Inner grease retaining washer	1	1	1	1
80	31RT2480	Rotor	1	1	1	1
81	31-3K1	Key	1	1	1	1

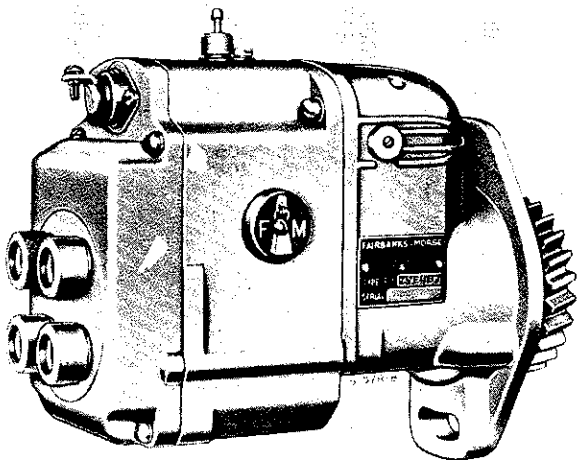
(continued on page 36)

Y86A, Y86B, Y86C, Y86D Magnetos (Obsolete) (Cont.)

USE WITH MODELS VE4D, VF4D, MVE4D, MVF4D
(Drive Gear Part Numbers GD93C2 for Military Engines, GD93C5 for Commercial Engines) **(see pg. 33)**

ITEM	PART NO.	DESCRIPTION	Y86D FMZVE4B7-4	Y86C FMZVE4B7-2	Y86B FMZVE4B7G	Y86A FMZVE4B7
82	31B1498B	Bearing snap ring	1	1	1	1
83	31C5949	Drive end bearing	1	1	1	1
84	31B1498D	Shaft snap ring	1	1	1	1
85	31-8N1	Clip nut	1	1	1	1
86	31K6120	Coil clip	1	1	1	1
87	31QS2477C	Coil	1	1	1	1
88	31SS14A	Screw, 5/16"-20 thread x 7/8" long	2	2	2	2
89	31GW2425	Housing	1	1	1	1
91	31N195	Name plate	1	1	1	1
93	31C6032B	Vent screen	2	2	2	2
94	31B6030A	Vent cover	2	2	2	2
95	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2	2	2	2
96	31S2568	Pawl stop pin	2	2	2	2
97	31A2492C	Seal inner washer	1	1	1	1
98	31G3861	Shaft seal	1	1	1	1
99	31A2492A	Seal outer washer	1	1	1	1
100	31TU2563C	Coupling complete	1	-	-	-
101	31GX2563C	Coupling complete	-	1	1	1
102	31A1498J	Pawl lock spring	1	1	1	1
103	31Q2566	Coupling pawl	2	2	2	2
104	31T5963	Pawl spring	-	2	2	2
105	31EX2563	Hub assembly	-	1	1	1
106	31WZ2563	Hub assembly	1	-	-	-
107	31E2565	Coupling spring	1	1	1	1
108	31Y5957	Coupling shell	1	1	1	1
109	31F2572	Gear bushing	1	1	1	1
110	31M2570	Coupling nut	1	1	1	1

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

This radio shielded magneto is built specifically for installation on Wisconsin Motor Corporation military engine model MVF4D and commercial models VE4D, VF4D requiring radio shielded ignition. These engines have a firing interval of 180°-270°-180°-90°. The magneto, having a four pole rotor and a four lobe cam, meets this requirement by producing four sparks per revolution of the rotor, running at crankshaft speed. In a complete cycle of two engine revolutions, four sparks are used for ignition and four fire in the exhaust.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent 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 an ignition spark test. See engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 0.015 inch at full separation. Refer to engine INSTRUCTION MANUAL for breaker point adjustment procedure.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Center. Coil and condenser replacements are not recommended, unless test equipment is available.

SEALING MAGNETO

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

SPECIAL DRIVE GEAR

The magneto is equipped with a special drive gear mounted directly to the impulse coupling. If it is necessary at any time to remove the drive gear, special care must be exercised in reassembly. Remove the end cap and turn the rotor until the contact segment is in firing position for No. 1 cylinder as shown in Fig. 1. With the distributor rotor in this position, fit gear to the impulse coupling lugs so that the punch mark on the face, and "X" mark on the outer edge of the gear tooth, are located as shown. Securely tighten coupling locknut.

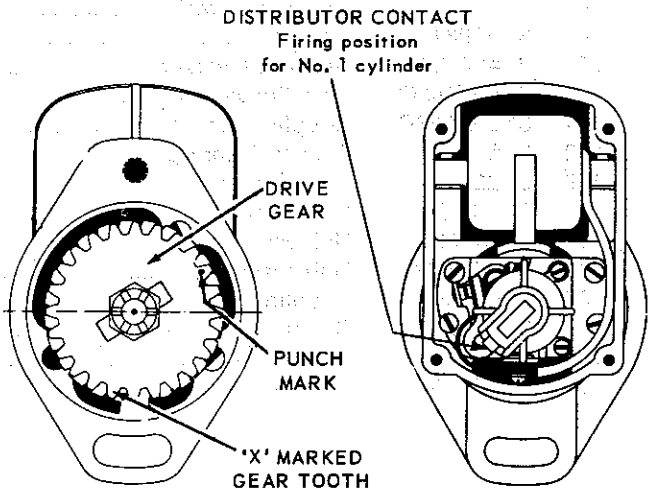
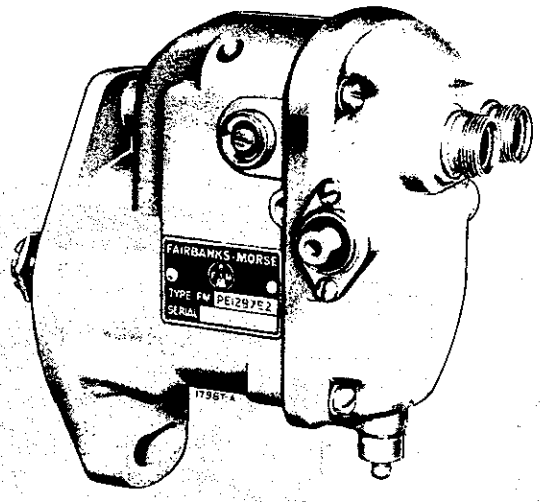


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Refer to Magneto Timing instructions in the front section of ENGINE INSTRUCTION MANUAL, for proper method of mounting magneto to engine in order to obtain correct ignition timing.

Y93C Magneto (Type FMPE1-2B7E2)



SERVICE AND ADJUSTMENT INFORMATION

GENERAL DESCRIPTION

The Type FM-PE1-2B7E-2 radio shielded magneto, whose parts are listed on page 2 of this instruction, is built specifically for application on Wisconsin Motor Corp. Models TH and MTHD spark ignited engines. These magnetos rotate clockwise and are fitted with a single pawl impulse coupling which facilitates starting by intensifying and retarding the ignition spark at low engine speeds. This magneto is special in design in that it has no distributor but produces two (2) ignition sparks every 360° of rotation.

SERVICE PROCEDURE

Field adjustments should be made only if malfunction of the engine occurs during the starting or operating cycle. When it is certain the magneto is the cause of poor engine performance, we only recommend servicing of the breaker points. The operator should clean or redress the point surfaces, adjust the contact points or replace the point set complete. If after the above work has been done on the points and the engine still does not function properly, the magneto should be taken complete to an authorized Fairbanks-Morse Service Account.

The following point setting should be used when checking or adjusting the contact points - Types FM-PE1-2B7E-2 - 0.015" $\pm$ .002.

Since these magnetos do not require field lubrication, no attempt should be made to oil or grease the magneto bearings. They should be repacked at a regular overhaul period. However, if the cam wick is dry and hard, it should be replaced with a new factory impregnated wick. Further field service is not recommended.

TIMING THE MAGNETO TO THE ENGINE

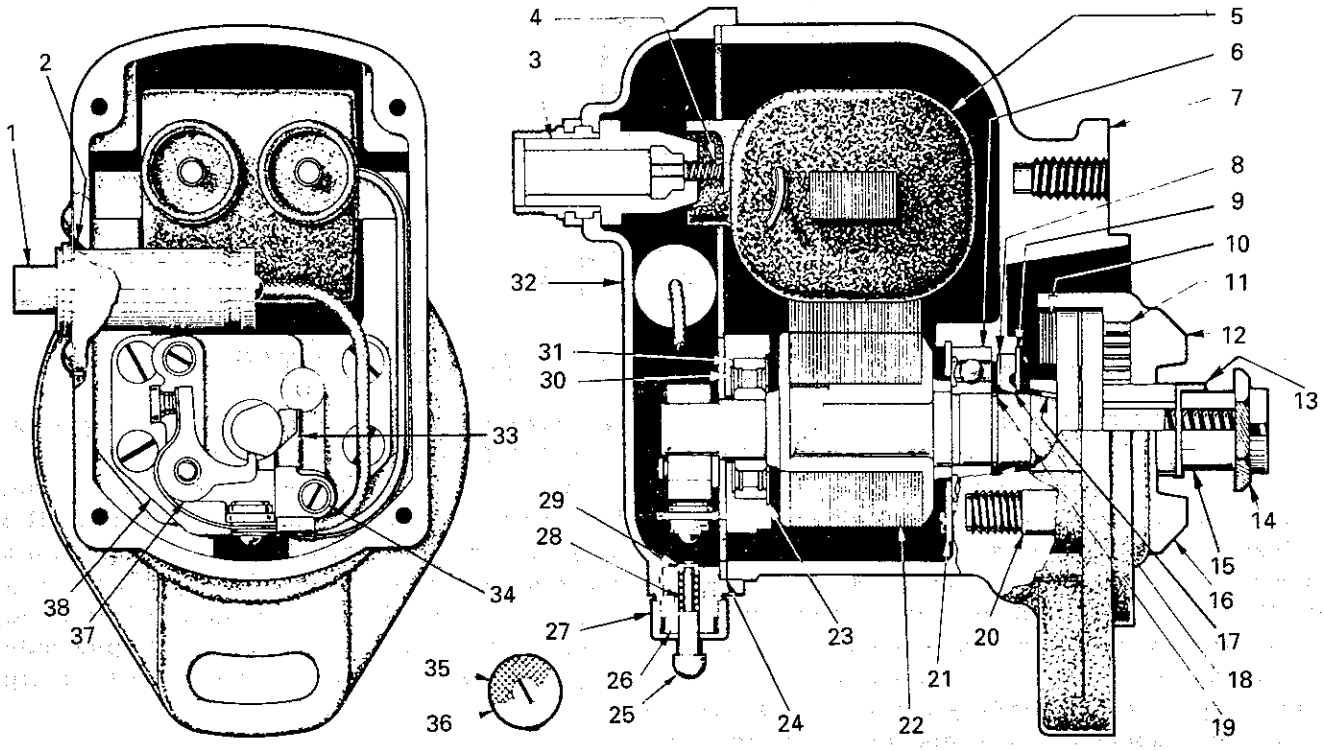
If the magneto has been removed from the engine for servicing, the operator must carefully follow the engine manufacturer's instruction for timing the magneto to the engine. When installing the magneto on the engine, be sure the magneto is properly attached and that the magneto housing to engine gasket is in good condition.

MAGNETO SERVICE FACILITIES

Fairbanks-Morse Magneto Service Accounts are located throughout the country and have the trained personnel and necessary equipment to insure efficient repair service to all owners of Fairbanks-Morse magnetos.

Refer to Bulletin FM-18, latest state, directory of Service Accounts, to locate the nearest service station.

Y93C Magneto (Type FMPE1-2B7E2)

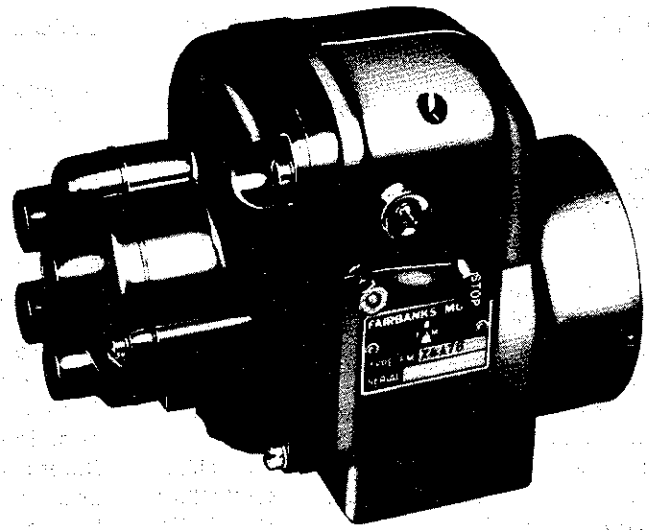


Y93C Magneto

USE WITH MODELS TH, THD, MTHD (see pg. 39)

ITEM	PART NO.	DESCRIPTION	QTY
1	31QX2433	Feed-thru condenser	1
–	31-6S6D	Condenser mounting screw, no. 6-32 thread x 3/8" long	2
2	31P2473	Condenser "O" ring seal	1
3	31U2474	Cable outlet	2
4	31B3967	Coil lead spring	2
5	1QT2477C	Coil	1
—	31SS12B	Coil bridge set screw, 5/16"-24 thread x 3/4" long	2
6	31C5949	Rotor drive end bearing	1
7	31EV2425	Housing	1
8	31A2492C	Rotor drive end seal inner washer	1
9	31A2492A	Rotor drive end seal outer washer	1
10	31C5963	Impulse coupling pawl spring	1
11	31E2565	Impulse coupling drive spring	1
12	31WY2563	Coupling hub assembly	1
—	31ZV2563C	Impulse coupling complete	1
13	31B2665K	Coupling plate washer	1
14	31M2570	Impulse coupling nut	1
15	31F2572	Coupling drive gear bushing	1
16	31AZ5957	Impulse coupling shell	1
17	31-3K1	Key - rotor shaft to impulse coupling	1
18	31G3861	Rotor drive end seal	1
19	31B1498D	Rotor drive end shaft snap ring	1
20	31A2568	Impulse coupling pawl stop pin	1
21	31A2492D	Rotor drive end bearing retaining washer	1
—	31-8S7K	Retaining washer screw, no. 8-32 thread x 7/16" long	1
—	31-8LW6	Retaining washer screw lock washer	1
22	31XS2480	Magnetic rotor	1
23	31A2492C	Inner bearing support grease retaining washer	1
24	31K2498	End cap to housing gasket	1
25	31S2514	Ground switch button	1
—	31CX2514C	Push button ground switch complete	1
26	31C4373	Ground switch bushing	1
27	31B2735A	Ground switch nut, 1/2"	1
28	31C2513A	Ground switch spring	1
29	31V1498	Ground switch snap ring	1
30	31E2493	Outer bearing support grease retaining washer	1
31	31D5949A	Rotor cam end bearing	1
32	31FY2430A	End cap	1
—	31-10S10D	End cap screw, no. 10-24 thread x 5/8" long	4
33	31G2788	Cam wick and holder	1
34	31B5969	Contact support locking screw plate washer, no. 8	1
35	31C6032B	Vent screen	2
36	31B6030A	Vent cover	2
—	31-6S4L	Vent cover screw, no. 6-32 thread x 1/4" long	2
37	31Q2437A	Breaker arm, support bracket and points	1
—	31-6S6U	Breaker arm terminal screw and lock washer, no. 6-32 thread x 3/8" long	1
—	31-8S5NA	Contact support locking screw and lock washer, no. 8-32 thread x 5/16" long	2
38	31BY4631	Bearing support	1
—	31-8S6G	Bearing support screw, no. 8-32 thread x 3/16" long	4
—	31A195	Name plate (not illustrated)	1

Y94 Fairbanks-Morse Magneto (Type FMX4A7B) (Obsolete)



Service and Adjustment Information

GENERAL DESCRIPTION

Modern ignition systems are carefully designed to provide quick, easy starting and maximum dependability of operation with minimum adjustment and service. Due to advanced engineering and sturdy construction, the Fairbanks-Morse magnetos have become field performance leaders. The compact powerful Alnico rotor assures an intensely hot spark even under the most difficult operating conditions. Field adjustments are rarely necessary and, although simple, they should be made only in accordance with the following instructions.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine difficulty arising from other sources, such as a flooded carburetor, insufficient fuel or air, loose ignition connections, or a defective spark plug. A brief engine inspection will usually localize the trouble before the magneto is reached, and often prevents maladjustment of parts in good condition Type FM-X4 magnetos are built in vented frames which should be opened only when it is certain that the ignition spark is unsatisfactory. This condition may be determined by ignition spark tests which are easily made in the field.

TESTING THE IGNITION SPARK

With spark plugs properly adjusted and 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 each ignition cable 1/16 in. away from the spark plug terminal while the engine is running. 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

Tag the ignition cables to insure their proper replacement in the end cap cover, then remove all the ignition cables from their respective sockets and insert a short, stiff wire in one of the sockets. Bend this wire to within 1/8 in. of the engine block. Turn the engine over slowly two complete revolutions and watch carefully for the spark discharge which should occur once during the cycle at the instant the impulse coupling releases. Repeat this test with the wire in each of the other sockets. If a strong spark is observed with the wire in each socket, it is recommended that the magneto be eliminated as the source of difficulty and that the cables, terminals, and spark plugs be thoroughly cleaned and inspected. If no spark occurs, the ignition switch should be examined to make certain it has not accidentally become closed.

END CAP COVER REMOVAL

If no spark is obtained from one or more of the magneto terminals, remove the end cap cover. Be careful not to damage the gasket. Remove the distributor rotor and clean the distributor compartment thoroughly, observing whether the air passages are open or clogged. IT IS IMPORTANT THAT THESE AIR PASSAGES BE KEPT FREE OF DIRT AND OTHER FOREIGN MATTER. If these passages are obstructed for any appreciable length of time, all metal parts within the end cap will become corroded. Examine the high-tension lead brush and replace it if noticeably worn or damaged. This brush should move freely in its holder and should be under slight spring pressure.

SERVICE OF BREAKER POINTS

Before examining the breaker points, it is first necessary to remove the end cap, which is sealed to the metal frame by a gasket joint. The breaker points should

then be inspected for evidence of pitting or pyramiding. A tungsten file or fine stone may be used to resurface the the points. Badly worn or pitted points should be replaced. If it is necessary to resurface or replace the breaker points, it will also be necessary to readjust them to their proper clearance of 0.015 in. at full separation. This adjustment is made in the following manner: Loosen slightly the two contact support locking screws, Fig. 1. Then move the contact support until the proper breaker point clearance is obtained. This is accomplished by means of a screwdriver inserted in the 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 take a final measurement of the breaker point gap after the locking screws are tightened.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory impregnated wick. Other than this, Type FM-X magnetos do not require field lubrication. Any attempt to oil or grease the bearings is inadvisable. The lubricant should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Magneto Service Station.

INTERNAL TIMING

If the distributor gear has been removed for any reason, the teeth must be properly meshed with those of the magnetic rotor gear upon reassembly. The gear teeth are marked to facilitate timing of the magneto. Since the Type FM-X4A and FM-X4B magnetos are of clockwise rotation, mesh the single marked tooth of the rotor gear between the two teeth of the distributor gear designated by the letter C.

REASSEMBLY AND SEALING

Before replacing the end cap on the magneto frame, clean the contact surfaces between the cap and the frame. Then coat both contact surfaces completely with Fairbanks-Morse FMCO2 Gasket Varnish, place a new gasket in the joint, and mount the end cap on the frame, tightening the four screws securely.

TIMING MAGNETO TO ENGINE

Proper timing of the magneto to the engine produces an ignition spark in each cylinder at the exact instant that the fuel mixture should be ignited for best engine performance. This instant, which is accurately determined by the engine designers, is usually designated as a given number of degrees of angular travel of the crankshaft before the piston reaches inner dead center during the compression stroke.

Retiming the magneto to the engine can be done by either (1), the advance spark position method, or (2), the impulse coupling trip method. Whichever method is used, the breaker points must first be accurately adjusted to secure proper timing of the ignition spark.

(1) Advance Spark Position Method

A. Magneto

Set the magneto for advance spark position in the No. 1 cylinder. This is done by turning the rotor from the coupling end in the direction OPPOSITE to that of normal operation until the distributor contact lines up exactly with the timing boss as indicated by the dotted lines in the timing diagram shown in Fig. 2. The magneto is now timed for advance spark position in the No. 1 cylinder and should be held exactly in this position until it is coupled to the engine.

B. Engine

Engine builders indicate by marks on the flywheel and flywheel housing the position of the engine for advance spark timing. Refer to the engine instruction book for details concerning the timing marks of your particular engine. Then rotate the crankshaft until the timing marks coincide, indicating that the No. 1 cylinder is in advance-spark firing position. Be sure that the piston is on its compression stroke.

(2) Impulse Coupling Trip Method

A. Magneto

Remount the end cap cover on the end cap, following the same procedure used in sealing the joint between the end cap and the magneto frame. Next, set the magneto for spark discharge to the No. 1 terminal. This may be accomplished by use of a short, stiff piece of wire placed in the No. 1 socket and bent to within 1/8 in. of the magneto frame. Then turn the magneto rotor from the impulse coupling end in its normal direction of rotation until a spark is observed between the wire and the frame. Hold the coupling in the position in which the trip occurred.

B. Engine

Remove the spark plug, or otherwise determine inner dead center for the piston in the No. 1 cylinder. Then turn the engine over until this position is reached, being certain that the piston is just at the end of its compression stroke.

COUPLING MAGNETO TO ENGINE

Without disturbing the setting of either magneto or engine as determined by method (1) or (2) above, couple the magneto to the engine by engaging the teeth of the magneto drive gear with those of the engine drive gear. A slight rotation of the engine flywheel may be necessary

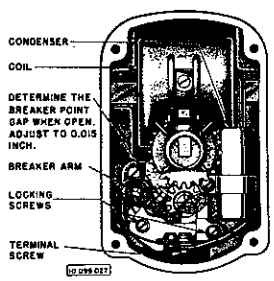


Fig. 1. End View of Type FMX4 Magnetos

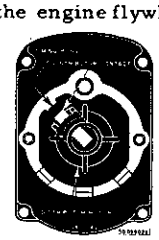


Fig. 2. Timing Diagram

to secure accurate alignment of the gear teeth.

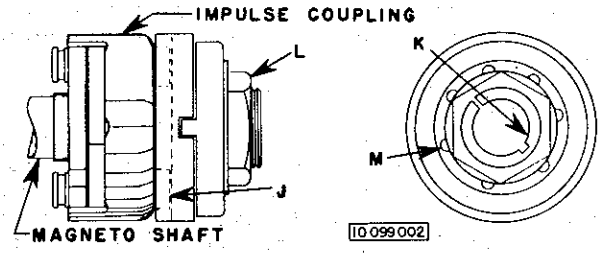


Fig. 3. Drive Member for Base Mounting Magnetos

ADJUSTABLE DRIVE MEMBERS

Most engines using base mounting magnetos are equipped with adjustable drive members. Ordinarily the position of the drive member is not altered when removing the magneto but when necessary, the drive collar nut L (See Fig. 3) can be loosened to permit relative movement of the engine drive shaft. The drive member slots J can then be turned for alignment with the impulse coupling lugs, after which the nut L should be tightened. The locking lugs M of the washer should be turned up around the nut to prevent loosening of the nut.

IMPULSE COUPLING

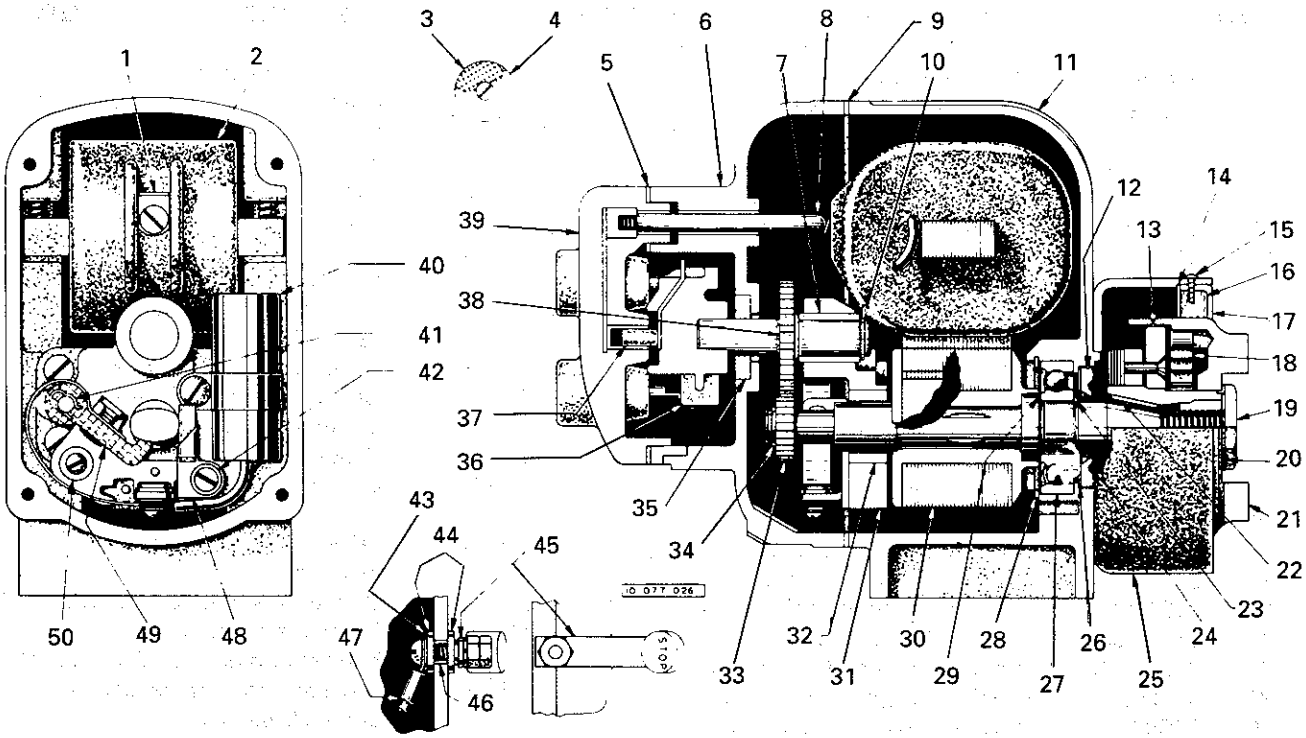
The impulse coupling is used to facilitate starting of the engine by automatically retarding the ignition spark during the starting operation. At the same time, it produces an intense, hot spark which would otherwise be impossible at very low engine speeds. By means of this device, the rotor of the magneto is prevented from turning during the starting operation until the piston in the engine is approximately at top dead center. At the instant the rotor is snapped forward at high speed, it produces an intense spark which is automatically retarded to prevent backfiring. The impulse feature disengages as soon as the engine develops speed, after which the coupling serves as a conventional drive member. A characteristic snap as the impulse coupling releases usually indicates that it is functioning satisfactorily. The coupling may be cleaned in kerosene and lubricated with a medium engine oil, but if functioning improperly, it should be taken, together with the magneto, to an Authorized Fairbanks-Morse Magneto Service Station.

MAGNETO SERVICE FACILITIES

Authorized Fairbanks-Morse Magneto Service Stations, located throughout the United States and foreign countries, have been carefully selected by Fairbanks, Morse & Co. to insure highly efficient and complete repair service to owners of Fairbanks-Morse magnetos. These service stations, which are specially equipped for magneto repair and manned by highly-trained personnel, maintain close contact with the factory service and engineering departments. The station most convenient may be located by use of Bulletin FM18D, which is available upon request.

Y94 Fairbanks-Morse Magneto (Type FMX4A7B) (Obsolete)

USE WITH MODEL VR4D



ITEM	PART NO.	DESCRIPTION	QTY
1	31D6120	Coil clip	1
—	31-6S3W	Coil clip screw, no. 6-32 thread x 3/16" long	1
2	31R2477C	Coil	1
—	31-25SS14A	Coil bridge set screw, 1/4"-20 thread x 7/8" long	2
3	31C6032B	Vent screen	2
4	31B6030A	Vent cover	2
—	31-6S5N	Vent cover screw, no. 6-32 thread x 5/16" long	2
5	31B682	End cap cover gasket	1
6	31VX2430	End cap	1
—	31-10S14D	End cap screw, no. 10-24 thread x 7/8" long	4
7	31D5950C	Distributor bearing	1
8	31J983A	High tension lead assembly	1
9	31H2498	End cap to frame gasket	1
10	31D1498	Distributor shaft snap ring	1
11	31QX2425	Frame	1
12	31G3861	Rotor drive end seal	1
13	31Q2563	Coupling hub assembly	1

ITEM	PART NO.	DESCRIPTION	QTY
14	31D2502	Coupling outer shell flat washer	1
15	31B6222	Outer shell screw - Parker - Kalen	2
16	31C5968	Coupling outer shell felt washer	1
17	31D2428	Coupling outer shell cupped washer	1
18	31D2565	Impulse coupling drive spring	1
19	31K2570	Impulse coupling nut	1
20	31A5931B	Impulse coupling nut lock washer	1
21	31Q5957	Impulse coupling shell	1
—	31T2563	Impulse coupling complete	1
22	31-3K1	Key - rotor shaft to impulse coupling	1
23	31C1498D	Rotor drive end shaft snap ring	1
24	31A2492A	Rotor drive end seal outer washer	1

(continued on page 45)

Y94 Fairbanks-Morse Magneto (Type FMX4A7B) (Obsolete) (Cont.)

USE WITH MODEL VR4D (see pg. 44)

ITEM	PART NO.	DESCRIPTION	QTY
25	31C4591	Coupling outer shell	1
—	31-25S6G	Coupling outer shell screw, 1/4"-20 thread x 3/8" long	4
26	31A2492C	Rotor drive end seal inner washer	1
27	31C5949	Rotor drive end bearing	1
28	31B1498B	Rotor drive end bearing snap ring	1
29	31C2723	Rotor drive end bearing shim	2
30	31XY2480	Magnetic rotor	1
31	31X4631	Bearing support	1
—	31-8S6G	Bearing support screw, no. 8-32 thread x 3/8" long	4
32	31A5950A	Rotor cam end bearing	1
33	31F5952	Rotor gear	1
—	31F2533	Rotor gear pin	1
34	31D1498	Rotor gear snap ring	1
35	31E2501	Distributor shaft seal	1
36	31M2765	Distributor rotor	1
37	31E2460B	Center brush and spring	1
38	31Y5939	Distributor gear	1
39	31C800	End cap cover	1
—	31-8S9D	End cap cover screw, no. 8-32 thread x 9/16" long	2
40	31AXMR2433	Condenser - bracket in "R" position	1
—	31-8S4U	Condenser mounting screw, no. 8-32 thread x 1/4" long	1
41	31C1498D	Fulcrum snap ring	1
42	31B5969	Contact support locking screw plate washer, no. 8	1
43	31B5969	Ground switch plate washer	1
44	31C6018	Ground switch insulating washer	1
45	31D2514	Ground switch insulated lever	1
—	31L2514C	Primary ground switch assembly	1
—	31-8S12N	Ground switch screw, no. 8-32 thread x 3/4" long	1
—	31-8LW5	Ground switch lock washer	1
—	31-8LW6	Ground switch lock washer - shakeproof	1
—	31-8N1	Ground switch nut	2
46	31K2457A	Ground switch insulating bushing	1
47	31L2514C	Primary terminal wire assembly	1
48	31G2788	Cam wick and holder	1
49	31A2437A	Breaker arm, support bracket and points - CW	1
—	31-6S6U	Breaker arm terminal screw and lock washer, no. 6-32 thread x 3/8" long	1
—	31-6S6U	Contact support locking screw and lock washer, no. 6-32 thread x 3/8" long	1
—	31-8S6U	Contact support locking screw and lock washer, no. 8-32 thread x 3/8" long	1
50	31D2458	Contact support locking screw plate washer, no. 6	1

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 19). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

DISTRIBUTOR CAP AND ARM

The distributor cap (Ref. No. 43) may be removed by loosening the 4 screws, 5622, which hold it in place.

After the cap has been removed the distributor arm (Ref. No. 57), may be pulled off the bridge. When replacing the arm make sure the timing marks on the distributor arm and thepinion gear are in line.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 44) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 48), the breaker arm lock and washer (Ref. No. 14) and (Ref. No. 18), then lift the breaker arm from its pivot. Remove the spacing washer, 5717, and the two breaker plate clamp screws (Ref. No. 44). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 46).

After assembly, the contacts should be adjusted as described in Breaker Contacts paragraph. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 35), first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 48), then remove the two condenser clamp screws (Ref. No. 22) and the condenser clamp (Ref. No. 30). When replacing the condenser make sure it is properly placed between the two locating bosses and that the clamp screws are securely tightened.

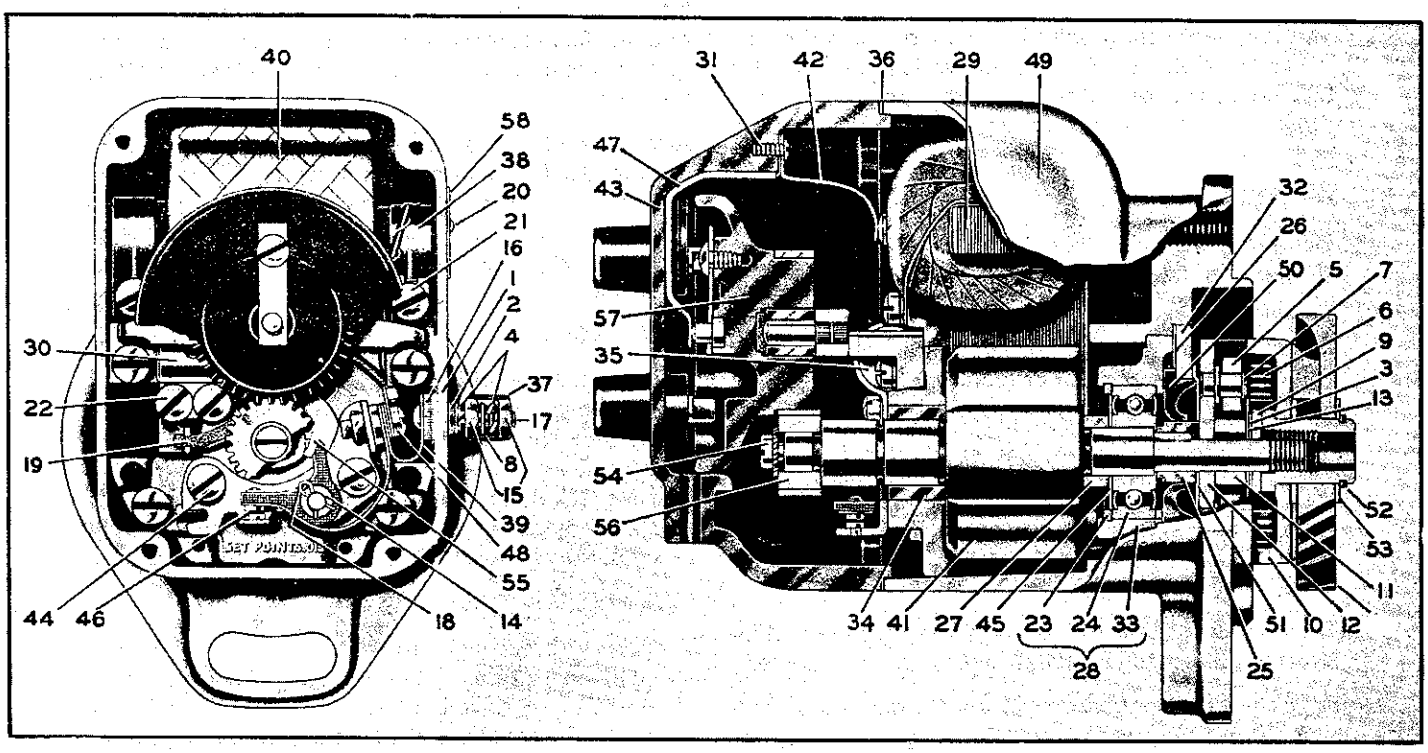
COIL AND COIL CORE

The coil and coil core must be removed from the magneto housing as a unit. After the distributor cap, distributor arm, have been removed and the primary wire disconnected from the breaker arm spring terminal by removing screw (Ref. No. 48), take out the two coil core clamp screws (Ref. No. 21) and remove the clamps (Ref. No. 38). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

REMOVAL OF COIL FROM CORE

The coil (Ref. No. 40) is held tight on the core (Ref. No. 29) by a spring wedge. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

Y95S1, Y95S2 Magnetos (WICO Model XGH4, No. XH2207)



Y95S1, Y95S2 Magnetos

USE MODEL VG4D WITH GD103-1 DRIVE GEAR, VH4D WITH GD93C4 DRIVE GEAR (see pg. 47)

ITEM	PART NO.	DESCRIPTION	QTY
1	90M34X	Spacing washer	2
2	90M35X	Washer	1
3	90M42XA	Spacing washer	1
4	90M55XA	Ground stud	2
5	90FXH125A	Trip arm	2
6	90FXH55	Drive spring	1
7	90A243X	Snap ring	2
8	90IXA256	Washer	1
9	90IVA583	Spacing washer	1
10	90-9352	Drive cup	1
11	90-2122	Driven flange spacer	1
12	90X2286	Driven flange group	1
13	90-2288	Retainer	1
14	90-3219	Pivot washer	1
15	90-3230	Nut	2
16	90-3539	Insulating lock	2
17	90-3945	Ground stud	1
18	90-4210	Breaker arm lock	1
19	90-5077	Cam wiper felt	1
20	90-5250	Name plate screw	2
21	90-5411	Clamp screw	2
22	90-5411	Clamp screw	2
23	90-5516	Retaining ring	1
24	90-5517	Rotor bearing	1
25	90-5518	Impulse spacer	1
26	90X5259	Impulse stop gasket	1
27	90-5520	Spacer	1
28	90FXH1007A	Bearing cage group	1
29	90FXH1611A	Coil core group	1
30	90-5532	Condenser clamp	1
31	90-5536	Coil contact screw	1
—	90-5536	Screw (not illustrated)	2
32	90X5549	Impulse stop group	1
33	90-5567	Bearing cage	1
34	90FXH31	Breaker plate bushing	1
35	90FXH2224	Condenser assembly	1
36	90FXH162	Gasket	1
—	90-53X5185	Screw (not illustrated)	4
37	90FXH1019	Stop button group	1
38	90FXH223	Coil core clamp	2
39	90FXH9	Ground connector	1
—	90FXH1009	Ground connection unit (includes 1, 2, 4, 8, 15-17, 39) (not illustrated)	1
40	90FXH2403	Coil group	1
41	90FXG1106A	Rotor	1
—	90-5717	Aligning washer (not illustrated)	1
—	90-5719	Gasket (not illustrated)	1
—	90-5753	Window (not illustrated)	1
42	90-5773	Coil contact spring	1
43	90FXG2002A2	Distributor cap unit	1
—	90-5895	Clamp plate (not illustrated)	1
44	90-5900	Clamp screw	2
45	90-5926	Ball bearing shield	1
46	90FXH2100B	Breaker contact set	1
47	90X6001	Secondary interlead group	1
48	90-5431	Clamp screw	1
49	90X6195	Main housing assembly	1
50	90XA1393	Oil seal	1
51	90FXH27	Oil slinger	1
52	90-6424	Impulse lock ring	1
53	90-6425	Thrust washer	1
—	90K6445	Impulse lock nut kit (includes 52, 53; includes nut) (not illustrated)	1
—	90-6465	Clamp screw	4
54	90-6466	Distributor gear screw	1
55	90-6468	Breaker arm felt	1
—	90X9366	Impulse coupling unit (includes 3, 5-7, 9-13, 52, 53) (not illustrated) (NLA)	1
56	90FXG38	Distributor gear	1
57	90FXG1008	Distributor arm group	1
58	90-8792	Name plate	1
—	90-10407	Aligning washer (not illustrated)	1
—	YQ5	Points and condenser kit (not illustrated)	1
—	YQ2	Overhaul kit (not illustrated)	1

Y97S1, Y97S2 Magnetos (Type FMX4B7A)

GENERAL DESCRIPTION

Fairbanks-Morse Type FM-X4B7A Magneto is designed and engineered to provide quick easy starting and maximum dependability of operation with minimum service. The compact alnico magnetic rotor assures an intensely hot spark under most operating conditions.

SERVICE PROCEDURE

The first step in magneto field servicing is to examine the magneto for corroded high tension towers, broken wires, or high tension wires not pushed far enough into the magneto tower to make good contact.

Then test the ignition spark while engine is being cranked. If a strong spark is observed, the magneto is not the cause of engine malfunction. If no spark is seen, proceed with servicing magneto.

SERVICING BREAKER POINTS, FIG. 1

Remove the end cap cover, distributor rotor and the end cap. Then inspect the breaker points for pitting, oxidation and shorting. If points are worn or shorted, they should be replaced.

To remove the point set, take out the breaker arm terminal screw releasing the breaker arm spring, coil lead and condenser lead. Remove the fulcrum pin snap ring and slide the breaker arm off the fulcrum pin. Remove the contact support locking screws and lift off the contact support.

The installation of new points is the reverse of the removal. After the points have been installed, they should be adjusted to the correct clearance of **0.015 inch** at high point of cam. Be sure the points are clean and bright before adjusting them. Insert a screwdriver in the slot of the support bracket and pivot it between the two small bosses on the bearing support until the desired clearance is obtained. Then clean the points again before sealing the magneto.

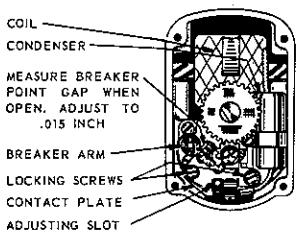


Fig. 1, BREAKER POINT ADJUSTMENT

FIELD SERVICE NOT RECOMMENDED

The cam wick, if dry or hard, should be replaced with a new factory impregnated wick. Other than this the magneto does not require field lubrication. No attempt should be made to oil or grease the magneto bearings. The magneto lubricant should be replaced only during the overhaul of the magneto by a Fairbanks-Morse authorized service station using recommended lubricant and factory engineered parts.

Coil and condenser replacement while simple are not recommended unless adequate test equipment is available. No attempt should be made to remove magnetic rotor from housing unless specific instructions for releasing the shaft are available.

INTERNAL TIMING, FIG. 2

If, for any reason, the magneto has been dismantled to the extent that the **distributor gear** has been removed the teeth must be properly meshed with those of the **magnetic rotor gear** upon reassembly. The gear teeth are marked to facilitate internal timing. The single marked tooth of the rotor gear must mesh between the two teeth of the distributor gear designated by the letter C.

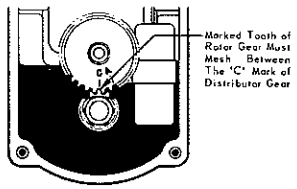


Fig. 2, INTERNAL TIMING GEARS

TIMING THE MAGNETO TO THE ENGINE

If the magneto has been removed from the engine for servicing, the operator must follow the engine manufacturer's instructions for timing the magneto to the engine. Refer to **'Magneto Timing'** in engine instruction manual. When installing the magneto on the engine, be sure the magneto is properly attached and that the housing to engine gasket is in good condition.

SPECIAL DRIVE GEAR, FIG. 3

The magneto is equipped with a special drive gear mounted directly on the impulse coupling. If it is necessary to replace the drive gear, special care must be exercised in reassembly. It is possible to be off 180° in timing if gear is improperly mounted.

Assemble gear as follows: Remove magneto end cap cover and turn distributor rotor until it is in firing position for No. 1 cylinder. Retain rotor in this position and fit the drive gear to the impulse coupling lugs so that the prick punch mark on front of gear is located as shown.

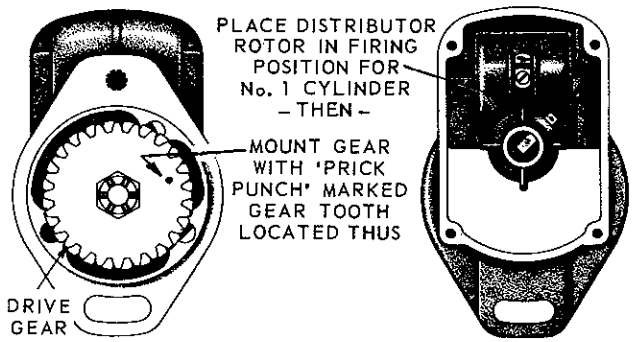
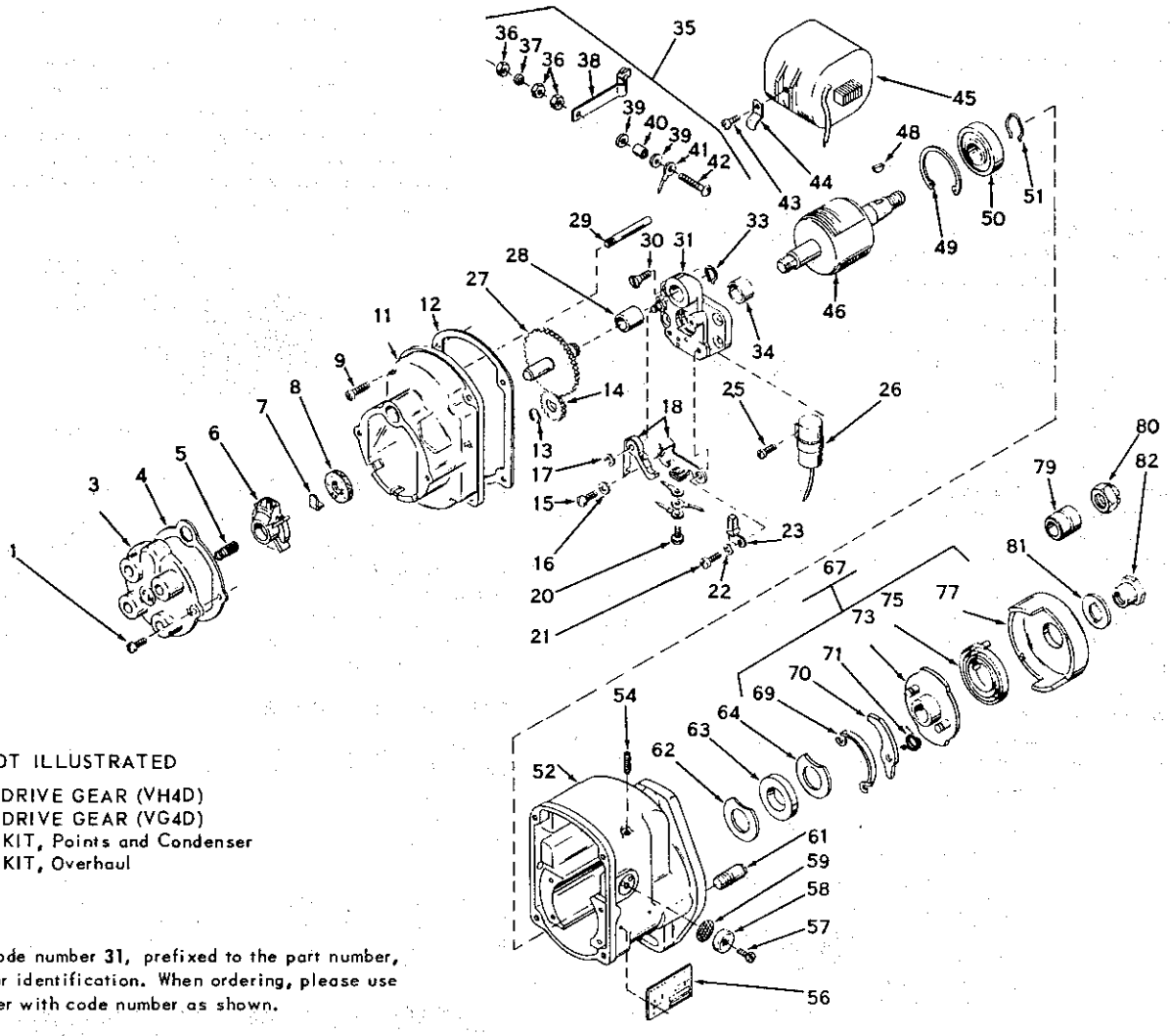


Fig. 3, DRIVE GEAR MARKING AND ASSEMBLY

Y97S1, Y97S2 Magnetos (Type FMX4B7A)



NOT ILLUSTRATED

GD-93C-4 DRIVE GEAR (VH4D)
GD-103-1 DRIVE GEAR (VG4D)
YQ-8 KIT, Points and Condenser
YQ-9 KIT, Overhaul

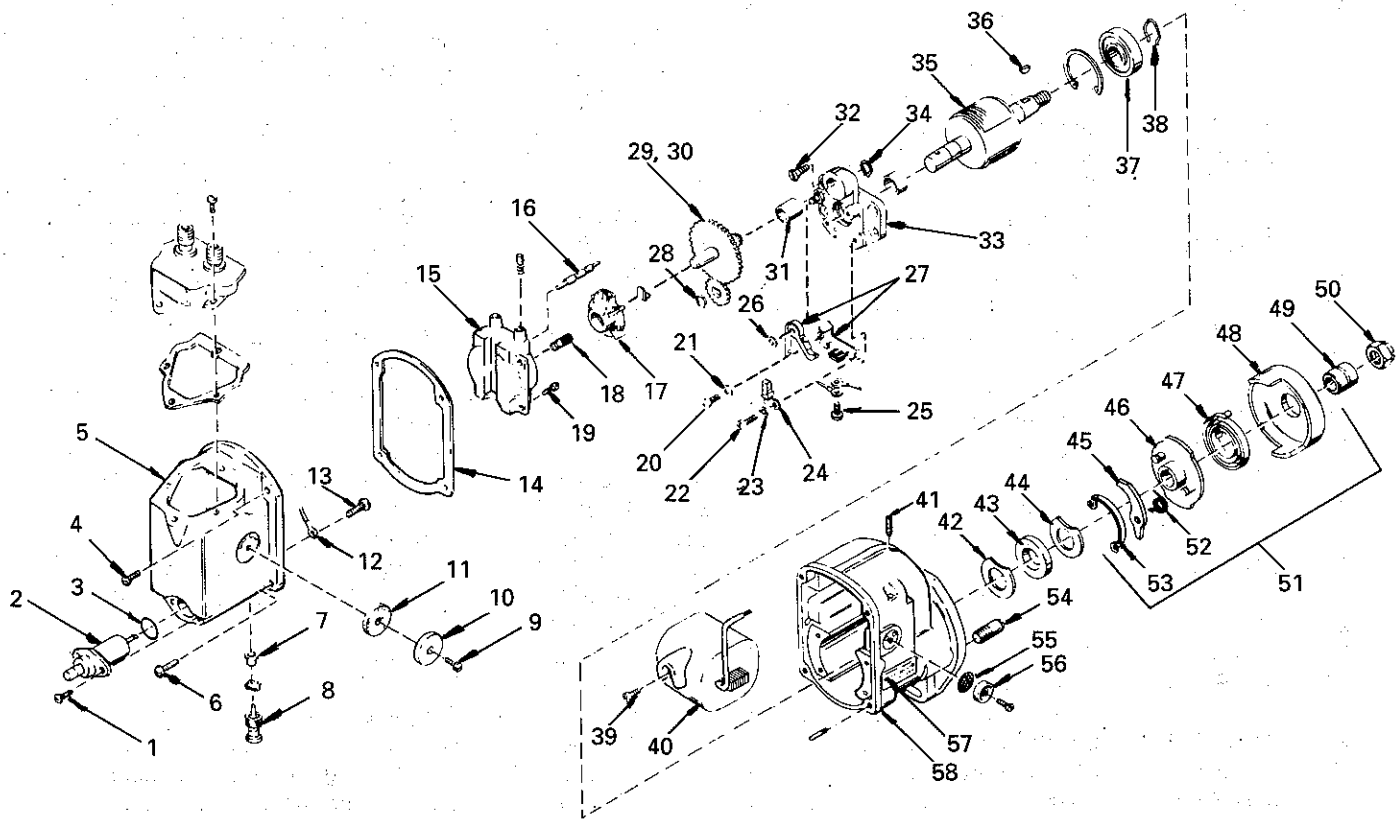
NOTE: Code number **31**, prefixed to the part number, is a vendor identification. When ordering, please use part number with code number as shown.

Y97S1, Y97S2 Magnetos

USE WITH MODELS VG4D, VH4D, W4-1770 (see pg. 50)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-8S9D	Screw, no. 8-32 thread x 9/16" long	2
3	31W800	Cover	1
4	31B682	Gasket	13
5	31E2460B	Brush and spring	1
6	31M2765	Distributor rotor	1
7	31A2766	Spring clip	1
8	31G2501	Seal	1
9	31-10S14D	Screw, no. 10-24 thread x 7/8" long	4
11	31AZ2430	End cap	1
12	31H2498	Gasket	1
13	31D1498	Snap ring	1
14	31Q5952	Rotor gear	1
15	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
16	31D2458	Washer, no. 6	1
17	31C1498G	Snap ring	1
18	31A2437A	Point set	1
20	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
21	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1
22	31B5969	Washer, no. 8	1
23	31G2788	Cam wick	1
25	31-8S5NA	Screw, no. 8-32 thread x 5/16" long	1
26	31AXMR2433	Condenser	1
27	31Y5939	Shaft and gear	1
28	31D5950C	Bearing	1
29	31J983A	Lead rod	1
30	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	1
31	31X4631	Support	1
33	31D1498	Snap ring	1
34	31A5950A	Bearing	1
35	31L2514C	Switch	1
36	31-8N1	Nut	3
37	31-8LW5	Lock washer	1
38	31M2514	Insulated lever	1
39	31C6018	Insulating washer	2
40	31K2457A	Insulating bushing	1
41	31L2514C	Wire	1
42	31-8S14N	Screw, no. 8-32 thread x 7/8" long	1
43	31-6S4U	Screw, no. 6-32 thread x 1/4" long	1
44	31D6120	Coil clip	1
45	31R2477C	Coil	1
46	31HW2480	Magnetic rotor	1
48	31-3K1	Key	1
49	31B1498B	Snap ring	1
50	31C5949	Bearing	1
51	31B1498D	Snap ring	1
52	31TZ2425	Housing	1
54	31-31SS14A	Set screw, coil - 5/16"-24 thread x 7/8" long	2
56	31N195	Name plate	1
57	31-6S4U	Screw, no. 6-32 thread x 1/4" long	2
58	31B6030A	Vent cover	2
59	31C6032B	Vent screen	2
61	31S2568	Stop pin	1
62	31A2492C	Washer	1
63	31G3861	Shaft seal	1
64	31A2492A	Washer	1
67	31BW2563C28	Coupling, 27° lag angle	1
69	31A1498J	Lock spring	1
70	31Q2566	Coupling pawl	2
71	31S5963	Pawl spring	2
73	31S2563-27	Hub, 27° lag angle	1
75	31E2565	Coupling spring	1
77	31Y5957	Coupling shell	1
79	31F2572	Gear bushing	1
80	31M2570	Coupling nut	1
—	YQ8	Points and condenser kit (not illustrated)	1
—	YQ9	Overhaul kit (not illustrated)	1
—	GD93C4	Drive gear (VH4D) (not illustrated)	1
—	GD103-1	Drive gear (VG4D) (not illustrated)	1

Y98CS1, Y98CS2 Fairbanks-Morse Magnetos (Type FMXZE4B7-4)



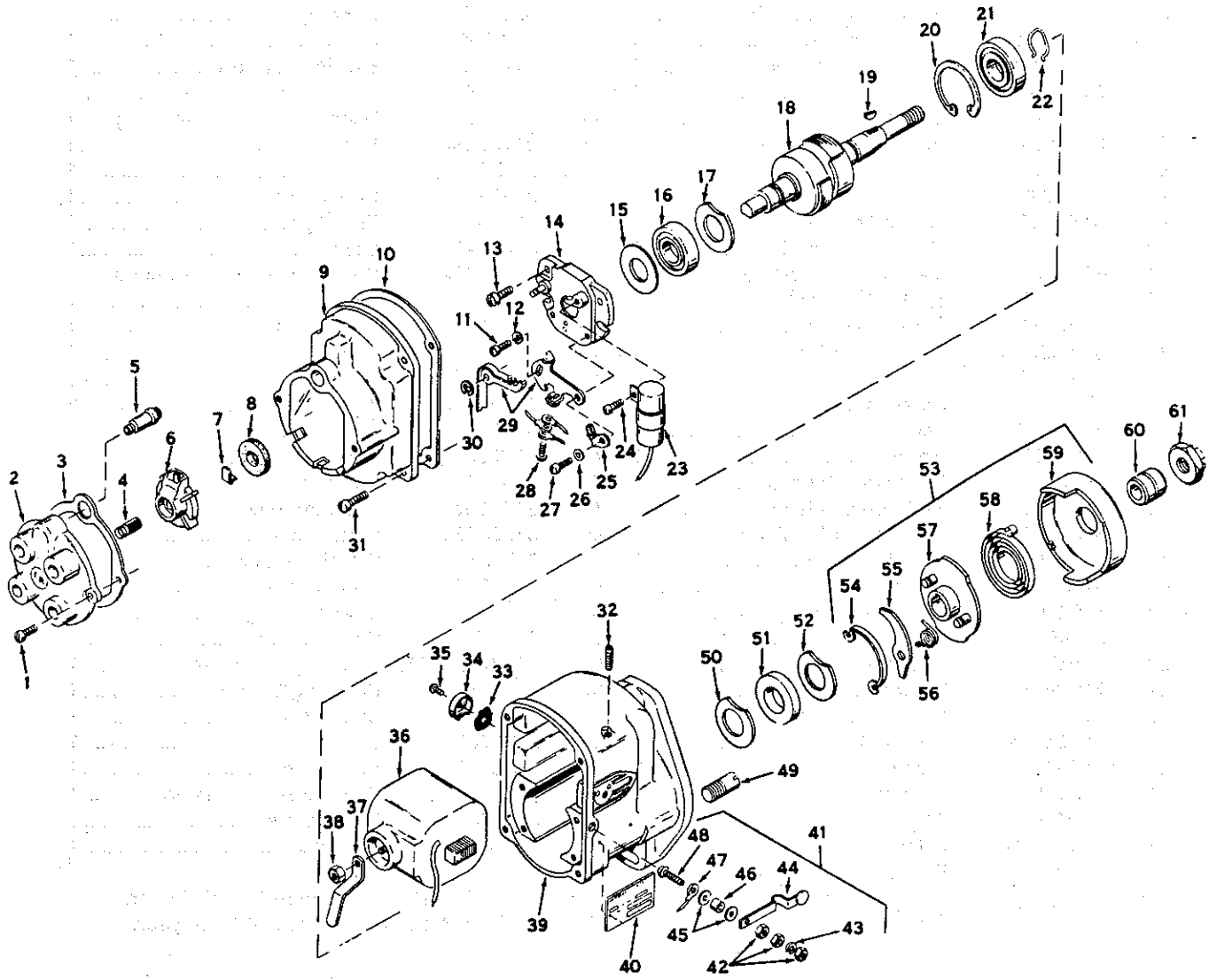
Y98CS1, Y98CS2 Fairbanks-Morse Magnetos

USE WITH MODELS VG4D, VH4D (see pg. 52)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-6S6D	Condenser mounting screw	1
2	31AXMR2433	Condenser	1
3	31H2473	Seal, condenser "O" ring	1
4	31-10S10D	End cap screw	1
5	31LY2430A	End cap assembly	1
6	31-10S18D	End cap screw	1
7	31F4373	Spacer	1
8	31HW2514	Plunger and nut assembly	1
9	31-6S6N	Vent cover screw	1
—	31A1233	Vent cover copper wool	1
—	31B1355	Ground strip guide	1
10	31A1232	Vent cover - end cap	1
11	31A6032A	Vent screen - end cap	1
12	31L2514C	Switch assembly	1
—	31H2514	Terminal strip	1
13	31-688N	Screw, terminal	1
—	31-6LW1	Lock washer	1
—	31-6N1	Screw nut	1
—	31W2514	Lever	1
14	31K2498	Gasket	1
15	31L2474E	Distributor block	1
16	31F983B	High tension lead	1
—	31D1182	Suppressor insulator	1
17	31M2765	Distributor rotor	1
—	31A2766	Spring clip	1
18	31E2460B	Brush and spring	1
19	31-8S8D	Screw	1
20	31-6S6U	Support screw	1
21	31D2458	Washer	1
22	31-8S6U	Support screw	1
—	31G2457A	Bushing	1
23	31B5969	Washer	1
24	31G2788	Cam wick	1
25	31-6S6Z	Terminal screw	1
26	31C1498G	Fulcrum pin snap ring	1
27	31A2437A	Points set	1
28	31B1498B	Rotor drive end bearing snap ring	1
29	31Q5952	Rotor gear	1
30	31Q5939	Distributor shaft and gear	1
31	31D5950C	Bearing	1
32	31-8S6G	Screw	1
33	31X4631	Bearing support	1
34	31D1498	Rotor gear snap ring	1
—	31G1498	Distributor shaft snap ring	1
35	31TS2480	Rotor	1
36	31-3K1	Key	1
—	31SK90	Service kit	1
37	31C5949	Bearing	1
—	31D5949A	Bearing	1
38	31B1498D	Rotor drive end shaft snap ring	1
39	31-6S4U	Cover screw	1
40	31RS2477C	Coil	1
41	31SS14A	Coil set screw	1
42	31A2492C	Washer	2
—	31E2493	Washer	1
43	31G3861	Shaft seal	1
44	31A2492A	Washer	1
45	31Q2566	Coupling pawl	1
46	31CZ2563	Coupling	1
47	31E2565	Coupling spring	1
48	31Y5957	Coupling shell	1
49	31F2572	Gear bushing	1
50	31M2570	Coupling nut	1
51	31BW2563C30	Coupling complete	1
52	31S5963	Coupling spring	1
53	31-29-45	Snap ring	1
54	31S2568	Stop pin	1
55	31B6030A	Vent cover	1
56	31C6032B	Vent screen - housing	1
57	31A195	Name plate	1
58	31WW2425	Housing	1

Y98CS1 For VG4D, MVG4D with GD103-1 gear.
Y98CS2 For VH4D, MVH4D with GD93C4 gear.

Y106S1, Y106-1S1 Fairbanks-Morse Magnetos (Type FMZV4B7)



Y106S1, Y106-1S1 Fairbanks-Morse Magnetos

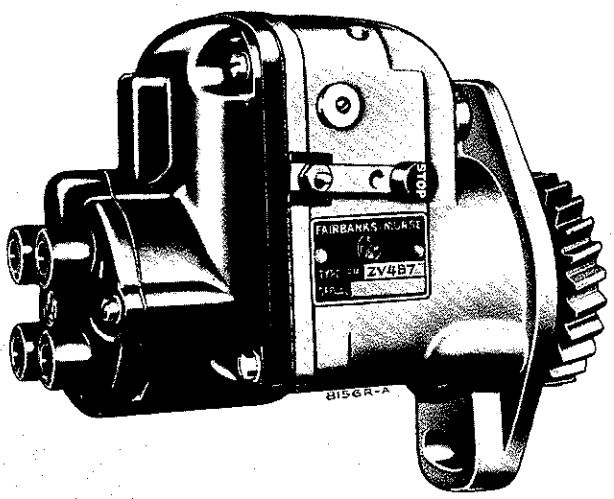
USE WITH MODELS VE4D, VF4D, VP4D (see pg. 54)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-8S9D	Screw, no. 8-32 thread x 9/16" long	2
2	31G800	Cover	1
3	31B682	Gasket	1
4	31E2460B	Brush and spring	1
5	31DX983A	Lead rod	1
6	31M2765	Distributor rotor	1
7	31A2766	Spring clip	1
8	31G2501	Seal	1
9	31TY2430	End cap	1
10	31H2498	Gasket	1
11	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
12	31D2458	Washer, no. 6	1
13	31-8S6D	Support screw, no. 8-32 thread x 3/8" long	4
14	31SX4631	Bearing support	1
15	31E2493	Washer	1
16	31D5949A	Bearing	1
17	31A2492C	Washer	1
18	31RT2480	Rotor	1
19	31-3K1	Key	1
20	31B1498B	Snap ring	1
21	31C5949	Bearing	1
22	31B1498D	Snap ring	1
23	31SXY2433	Condenser	1
24	31-8S6U	Condenser screw, no. 8-32 thread x 3/8" long	1
25	31G2788	Cam wick	1
26	31B5969	Washer, no. 8	1
27	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1
28	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
29	31A437A	Point set	1
30	31C1498G	Snap ring	1
31	31-10S12D	Screw, no. 10-24 thread x 3/4" long	4
32	31-31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2
33	31C6032B	Vent screen	2
34	31B6030A	Vent cover	2
35	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2
36	31QS2477C	Coil	1
37	31C6120	Coil clip	1
38	31-8N1	Clip nut	1
39	31GW2425	Housing	1
40	31A195	Name plate	1
41	31L2514C	Ground switch	1
42	31-8N1	Screw nut	3
43	31-8LW5	Lock washer	1
44	31M2514	Lever	1
45	31C6018	Insulating washer	2
46	31K2457A	Switch bushing	1
47	31L2514C	Wire assembly	1
48	31-8S14N	Switch screw, no. 8-32 thread x 7/8" long	1
49	31S2568	Pin	2
50	31A2492C	Washer	1
51	31G3861	Shaft seal	1
52	31A2492A	Washer	1
53	31GX2563C30	Coupling, 30° lag angle	1
54	31A1498J	Lock spring	1
55	31Q2566	Coupling pawl	2
56	31T5963	Pawl spring	2
57	31EX2563-30	Hub assembly, 30° lag angle	1
58	31E2565	Coupling spring	1
59	31Y5957	Coupling shell	1
60	31F2572	Gear bushing	1
61	31M2570	Coupling nut	1
—	YQ6	Points and condenser kit (not illustrated)	1
—	YQ3	Overhaul kit (not illustrated)	1

Y106S1 For VE4D, VF4D with GD93C5 gear.
Y106-1S1 For VP4D with GD103 gear.

Y106S1, Y106-1S1 Fairbanks-Morse Magnetos (Type FMZV4B7)

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

This magneto is a special unit designed and built for use on engine models VE4D, VF4D and VP4D, manufactured by the Wisconsin Motor Corporation. These engines have a firing interval of 180°-270°-180°-90°. The magneto, having a four pole rotor and a four lobe cam, meets this requirement by producing four sparks per revolution of the rotor, running at crankshaft speed. In a complete cycle of two engine revolutions, four sparks are used for ignition and four fire in the exhaust.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent maladjustment of magneto parts in good condition. It is suggested that the magneto be opened only when it is certain that the magneto spark is unsatisfactory. This condition may be determined by a simple ignition spark check, as outlined in engine INSTRUCTION MANUAL.

END CAP COVER REMOVAL

If no spark is obtained from one or more of the magneto terminals, remove the end cap cover, taking care not to damage the gasket. Remove the distributor rotor and clean the distributor compartment thoroughly, observing whether the air passages are open or clogged. IT IS EXTREMELY IMPORTANT THAT THESE AIR PASSAGES BE KEPT FREE OF DIRT AND OTHER FOREIGN MATTER. Examine the high-tension lead brush and replace it if noticeably worn or damaged. This brush should move freely in its holder and should be under slight spring pressure.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 **0.015 inch** at full separation. Refer to engine INSTRUCTION MANUAL for **breaker point adjustment** procedure.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Center. Coil and condenser replacements are not recommended, unless test equipment is available.

SEALING MAGNETO

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

SPECIAL DRIVE GEAR

The magneto is equipped with a special drive gear mounted directly to the impulse coupling. If it is necessary at any time to remove the drive gear, special care must be exercised in reassembly. Remove the entire end cap and turn the rotor until the contact segment is in firing position for No. 1 cylinder as shown in **Fig. 1.** With the distributor rotor in this position, fit gear to the impulse coupling lugs so that the **punch mark** on the face, and **"X" mark** on the outer edge of the gear tooth, are located as shown. Securely tighten coupling locknut.

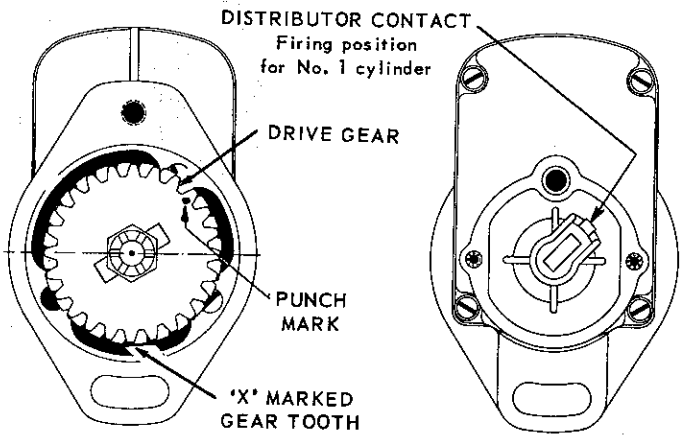
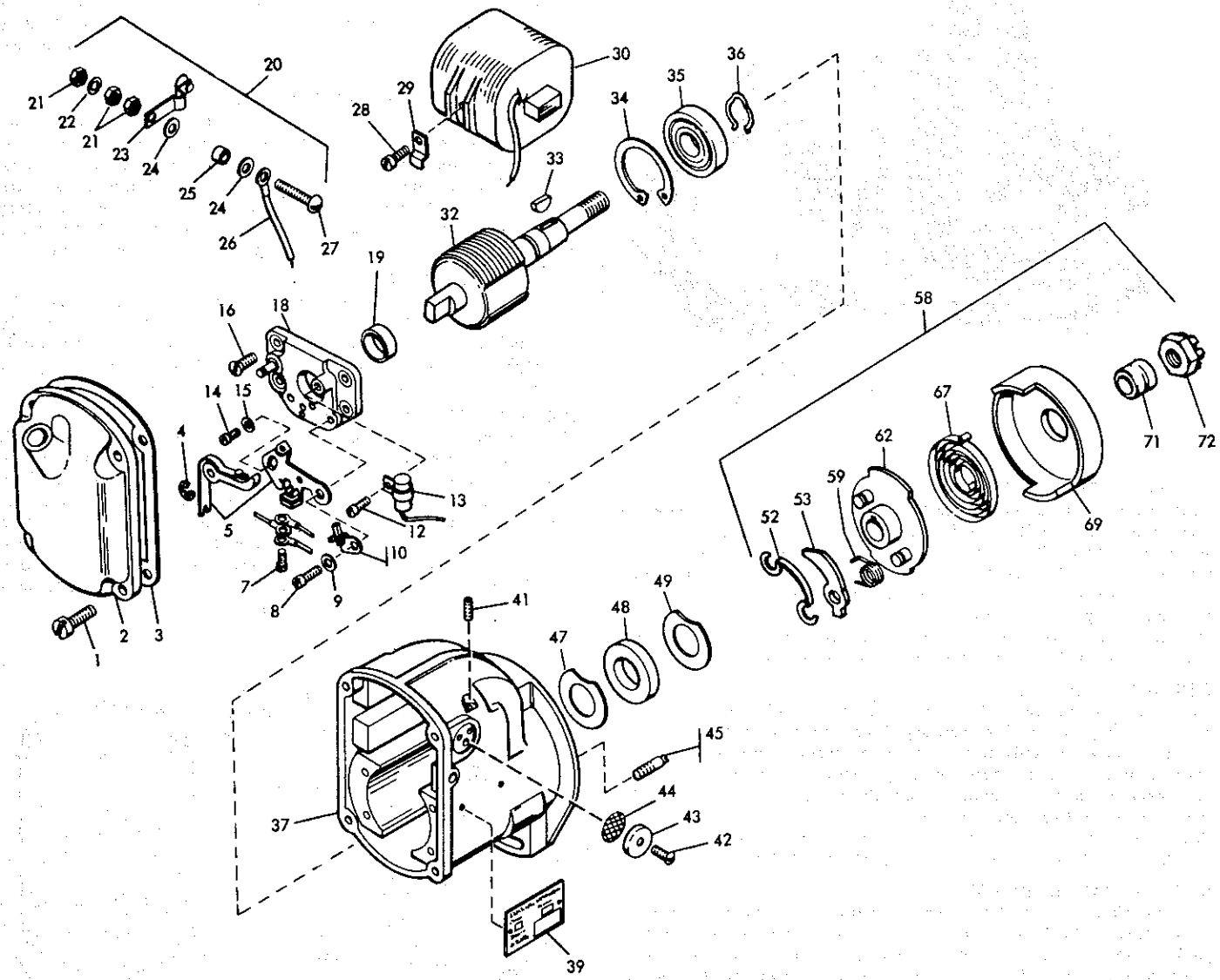


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Refer to **magneto timing** in the front section of ENGINE INSTRUCTION MANUAL, for proper method of mounting magneto to engine in order to obtain correct ignition timing.

Y107AS1, Y107BS1 Magnetos (Type FMXD1B7R)



Y107AS1 Magneto

USE WITH MODEL AGND (see pg. 57)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-10S10D	Screw, no. 10-24 thread	4
2	31SX2430	End cap	1
3	31H2498	Gasket	1
4	31C1488D	Snap ring	1
5	31B2437A	Point set - CCW	1
7	31-6S6U	Terminal screw, no. 6-32 thread x 3/8" long	1
8	31-8S6G	Support screw, no. 10-32 thread x 3/8" long	1
9	31B5969	Washer, no. 8	1
10	31H2788	Cam wick	1
12	31-8S4U	Screw, no. 8-32 thread	1
13	31AXMR2433	Condenser	1
14	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
15	31D2458	Washer, no. 6	1
16	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
18	31W4631	Bearing support	1
19	31A5950A	Bearing	1
20	31N2514C	Switch assembly	1
21	31-8N1	Nut	3
22	31-8LW5	Lock washer	1
23	31M2514	Insulated lever	1
24	31C6018	Insulating washer	2
25	31K2457A	Insulating bushing	1
26	31L2514C	Wire assembly	1
27	31-8S16N	Screw, no. 8-32 thread	1
28	31-6S3W	Screw, no. 6-32 thread	1
29	31B6120	Coil clip	1
30	31T2477C	Coil	1
32	31GS2480	Rotor	1
33	31-3K1	No. 3 Woodruff key	1
34	31B1498B	Snap ring	1
35	31C5949	Bearing	1
36	31C1498D	Snap ring	1
37	31TW2425	Housing	1
39	31N195	Name plate	1
41	31-25SS14A	Set screw	2
42	31-6S4U	Screw, no. 6-32 thread x 1/4" long	2
43	31B6030A	Vent cover	2
44	31C6032B	Vent screen	2
45	31B2568	Pin	1
47	31A2492C	Washer	1
48	31G3861	Shaft seal	1
49	31A2492A	Washer	1
58	31QV2563C15	Coupling, 15° lag angle	1
59	31N5963	Pawl spring (NLA)	1
62	31EY2563-15	Hub assembly, 15° lag angle	1
67	31D2565	Coupling spring	1
69	31XY5957	Coupling shell	1
71	31F2572	Gear bushing	1
72	31M2570	Coupling nut	1
—	GD125	Drive gear (not illustrated)	1
—	YQ4	Overhaul kit (not illustrated)	1
—	YQ7	Points and condenser kit (not illustrated)	1

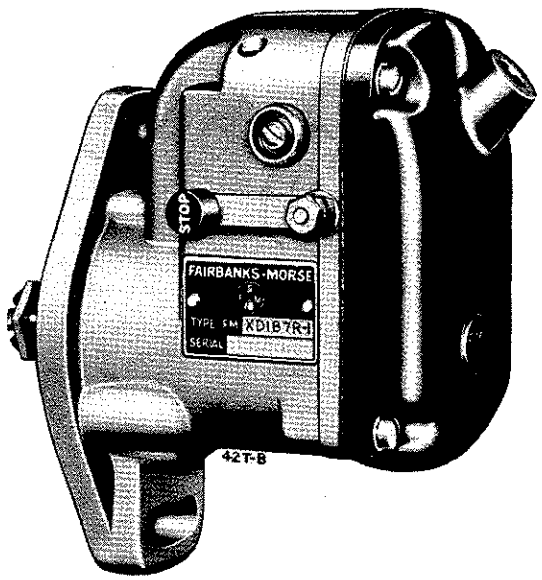
Y107BS1 Magneto

USE WITH MODEL AGND (see pg. 57)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-10S12D	Screw, no. 10-24 thread	4
2	31BZ2430	End cap	1
3	31H2498	Gasket	1
4	31C1498G	Snap ring	1
5	31B2437A	Point set - CCW	1
7	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
8	31-8S6U	Support screw, no. 10-32 thread x 3/8" long	1
9	31B5969	Washer, no. 8	1
10	31H2788	Cam wick	1
12	31-8S5NA	Screw, no. 8-32 thread	1
13	31AXMR2433	Condenser	1
14	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
15	31D2458	Washer, no. 6	1
16	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
18	31W4631	Bearing support	1
19	31A5950A	Bearing	1
20	31N2514C	Switch assembly	1
21	31-8N1	Nut	3
22	31-8LW5	Lock washer	1
23	31M2514	Insulated lever	1
24	31C6018	Insulating washer	2
25	31K2457A	Insulating bushing	1
26	31L2514C	Wire assembly	1
27	31-8S14N	Screw, no. 8-32 thread	1
28	31-6S4U	Screw, no. 6-32 thread	1
29	31B6120	Coil clip	1
30	31T2477C	Coil	1
32	31GS2480	Rotor	1
33	31-3K1	No. 3 Woodruff key	1
34	31B1498B	Snap ring	1
35	31C5949	Bearing	1
36	31B1498D	Snap ring	1
37	31TW2425	Housing	1
39	31N195	Name plate	1
41	31-31SS14A	Set screw	2
42	31-6S4U	Screw, no. 6-32 thread x 1/4" long	2
43	31B6030A	Vent cover	2
44	31C6032B	Vent screen	2
45	31F2568	Pin	1
47	31A2492C	Washer	1
48	31G3861	Shaft seal	1
49	31A2492A	Washer	1
52	31A1498J	Spring	1
53	31Q2566	Coupling pawl	1
58	31XV2563C15	Coupling, 15° lag angle	1
59	31N5963	Pawl spring (NLA)	1
62	31EY2563-15	Hub assembly, 15° lag angle	1
67	31E2565	Coupling spring	1
69	31ZY5957	Coupling shell	1
71	31F2572	Gear bushing	1
72	31M2570	Coupling nut	1
—	GD125	Drive gear (not illustrated)	1
—	YQ4	Overhaul kit (not illustrated)	1
—	YQ7	Points and condenser kit (not illustrated)	1

Y107BS1 Magneto (Type FMXD1B7R1)

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

The magneto gear rotates counter-clockwise, when viewed from the drive end, and is fitted with a dependable single pawl impulse coupling, which facilitates starting by providing an intensified and retarded ignition spark at low engine speeds. A two pole magnetic rotor and a single lobe cam produce one ignition spark per revolution.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine difficulty arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent 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 an **ignition spark** test. See engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 **0.015 in.** at full separation. Refer to engine INSTRUCTION MANUAL for **breaker point adjustment** procedure.

SEALING THE MAGNETO

Opening the magneto for breaker point adjustment or any other service, necessitates resealing the magneto upon reassembly. Clean the surface between the magneto frame and end cap and install a new gasket. Remove the vent hoods and clean the vent screens before final assembly.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

To engage the slotted drive gear correctly with the drive lugs of the coupling, the rotor should be turned until the coupling pawl engages the stop pin. The coupling drive lugs will then be in a vertical position as shown by **A** of Fig. 1. Mount drive gear to the coupling so that the **marked tooth** is at the upper right hand, or approximate 1 o'clock position, as illustrated in view **B.**

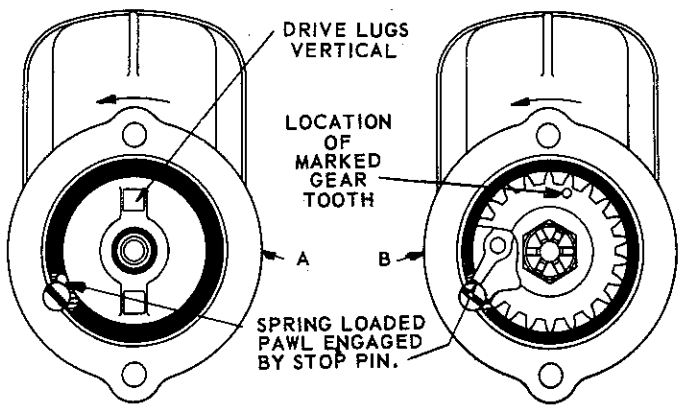


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Refer to **'MAGNETO TIMING'** paragraphs in front section of engine 'INSTRUCTION MANUAL' for proper mounting of magneto to crankcase, in order to obtain correct ignition timing.

Y108B (Replaced By Y107BS1) (WICO Spec. No. XH2523B), Y118 (Replaced By Y117S1) (WICO Spec. No. XH2504) Magnetos (Y108A, WICO Spec. No. XH2523, Replaced By Y108B For Engine Model AGN)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 19). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

MAGNETO COVER

The magneto cover (Ref. No. 50), can be removed by loosening the four screws (Ref. No. 36) which hold it in place. When replacing the cover be sure that the cover gasket (Ref. No. 35) is in its proper place.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 40) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 43), the breaker arm lock and washer (Ref. No. 18) and (Ref. No. 14), then lift the breaker arm from its pivot. Remove the aligning washer, 5717, and the two fixed contact clamp screws (Ref. No. 40). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 42).

After assembly, the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 34) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 43), then remove the two condenser clamp screws (Ref. No. 22) and the condenser clamp (Ref. No. 30). When replacing the condenser make sure it is properly placed and that the clamp screws are securely tightened.

COIL AND COIL CORE

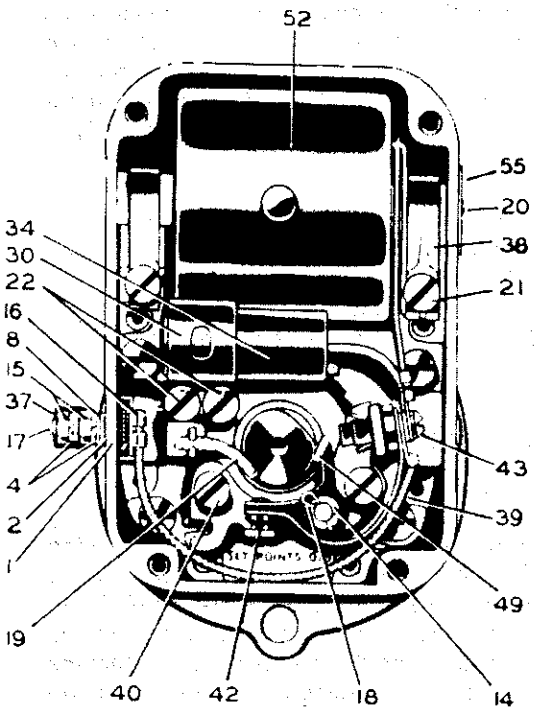
The coil and coil core must be removed from the magneto housing as a unit. Disconnect the primary wire from the breaker arm spring terminal by removing screw (Ref. No. 43), take out the two coil core clamp screws (Ref. No. 21) and remove the clamps (Ref. No. 38). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

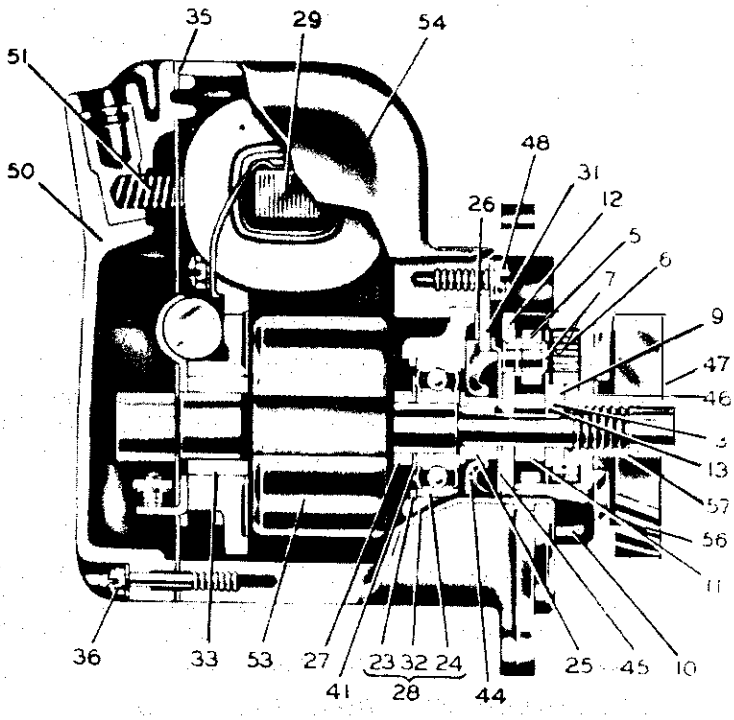
REMOVAL OF COIL FROM CORE

The coil (Ref. No. 52) is held tight on the core (Ref. No. 29) by two wedges, 10383. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

When replacing the coil on the coil core, slide it on then press in the two coil wedges, one on each end, until they are flush with the primary of the coil.

Y108B (Replaced By Y107BS1) (WICO Spec. No. XH2523B), Y118 (Replaced By Y117S1) (WICO Spec. No. XH2504) Magnetos (Y108A, WICO Spec. No. XH2523, Replaced By Y108B For Engine Model AGN)





Y108B (Replaced By Y107BS1), Y118 (Replaced By Y117S1) Magnetos

USE WITH MODEL AGND (Y107BS1), AENL (Y117S1) (see pg. 62)

ITEM	PART NO.	DESCRIPTION	QTY
2	YD316	Insulator	1
3	90M42XA	Spacing washer	1
4	90M55XA	Lock washer	2
5	90-11312	Trip arm (Y118)	1
—	90FXH125A	Trip arm (Y108A, Y108B)	1
6	90FXH55	Drive spring	1
7	90FXH642	Trip arm spring (Y118)	1
—	90-6587	Trip arm spring (Y108A, Y108B)	1
8	90IXA256	Washer	1
9	90IVA583	Spacing washer	1
10	90-11472	Drive cup (Y118)	1
—	90-11641	Drive cup (Y108A, Y108B)	1
11	90-2122	Driven flange spacer	1
12	90FXH1025C	Driven flange group (Y118)	1
—	90X6588	Driven flange group (Y108A, Y108B)	1
13	90-2288	Retainer	1
14	90-3219	Pivot washer	1
15	90-3230	Nut	2
16	YD324	Insulating washer	2
17	90-3945	Ground stud	1
18	90-4210	Breaker arm lock	1
19	90-5077	Cam wiper felt	1
20	90-5250	Screw	2
21	90-5411	Clamp screw	2
22	90-5411	Clamp screw	2
23	90-5516	Retaining ring	1
24	90-5517	Rotor bearing	1
25	90-5518	Impulse spacer	1
26	90X5259	Gasket	1
27	90-5520	Spacer	1
28	90FXH1007A	Bearing cage group	1
29	90FXH1611A	Coil core group	1
30	90-6924	Condenser clamp	1
31	90X5549	Impulse stop group	1
32	90-5567	Bearing cage	1
33	90FXH31	Bushing	1
34	90FXH1019	Condenser assembly	1
35	90FXH162	Cover gasket	1
36	90-53X5185	Screw	4
37	90FXH1019	Stop button group	1
38	90FXH223	Coil core group	2
39	90X5757	Ground lead group	1
—	90FXH2009	Ground connection unit (includes 2, 4, 8, 15-17, 39) (not illustrated)	1
—	90-5717	Aligning washer (not illustrated)	1
40	90-5900	Clamp screw	2
41	90-5926	Ball bearing shield	1
42	90FXH2100B	Breaker contact set	1
43	90-5431	Clamp screw	1
44	90XA1393	Oil seal	1
45	90FXH27	Oil slinger (NLA)	1
46	90X5261	Impulse lock ring	1
47	90-6425	Thrust washer	1
—	90X11473	Impulse coupling unit (includes 3, 5-7, 9-13, 46, 47, 57) (Y118) (not illustrated)	1
—	90X11572	Impulse coupling unit (Y108A, Y108B) (not illustrated)	1
48	90-6465	Clamp screw	4
49	90-6468	Breaker arm felt	1
50	90FXH2312A2	Cover unit	1
51	90-6732	Coil contact spring	1
52	90FXH2403	Coil group (replaces X6762)	1
—	90-10383	Coil wedge (not illustrated)	2
53	90Y7569	Rotor (Y118)	1
—	90FXH2106B	Rotor (Y108A, Y108B)	1
54	90FXH3501	Main housing group (Y118) (NLA)	1

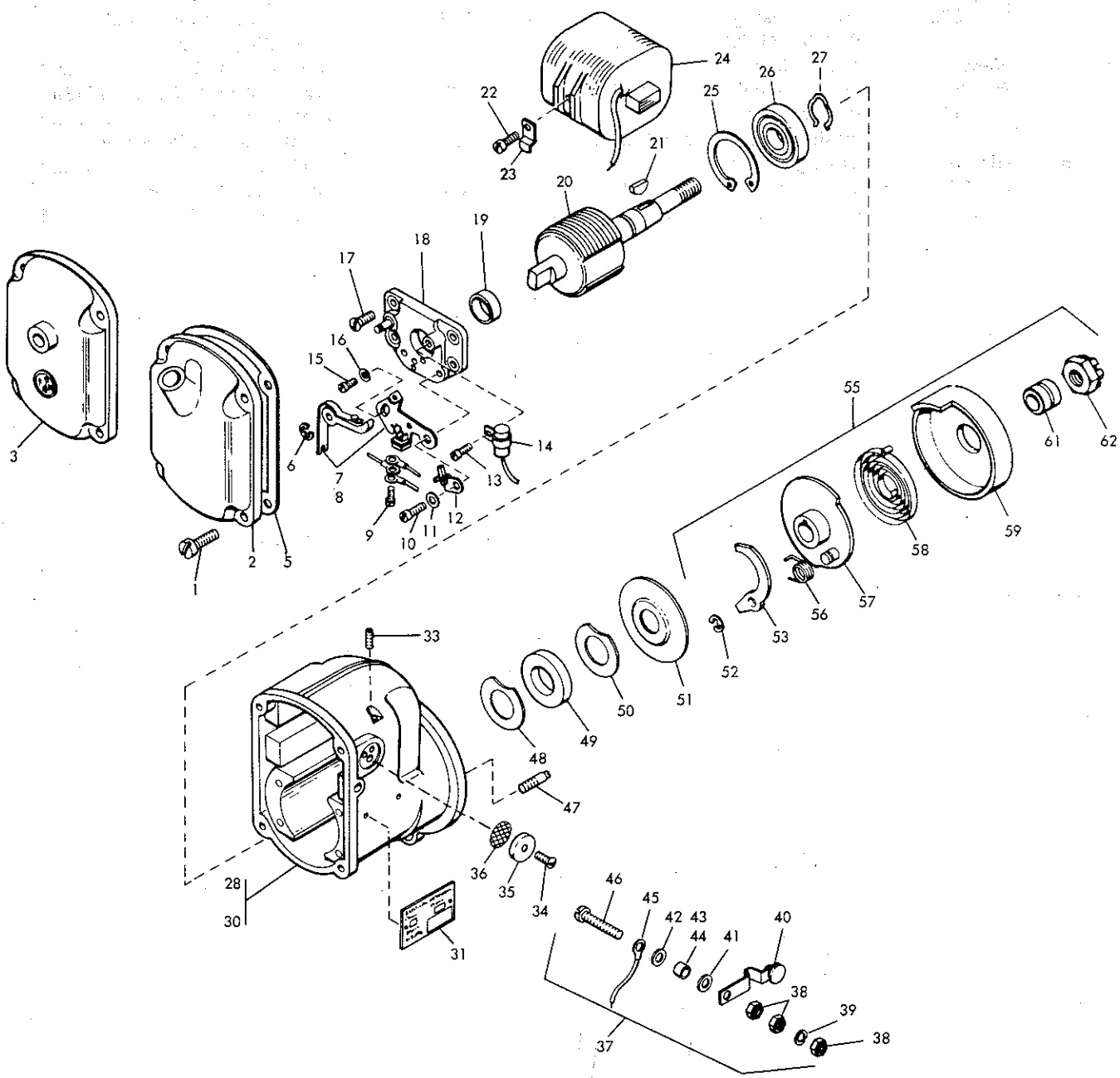
(continued on page 64)

Y108B (Replaced By Y107BS1), Y118 (Replaced By Y117S1) Magnetos (Cont.)

USE WITH MODEL AGND (Y107BS1), AENL (Y117S1) (see pg. 62)

ITEM	PART NO.	DESCRIPTION	QTY
—	90X7262	Main housing group (Y108A, Y108B)	1
55	90-5543	Name plate (Y118)	1
—	90-8792	Name plate (Y108A, Y108B)	1
—	90-10407	Breaker point aligning washer (not illustrated)	1
56	GD113	Drive gear (Y118)	1
—	GD125	Drive gear (Y108A, Y108B)	1
57	90-6412	Impulse lock nut	1
—	YQ5	Points and condenser kit (Y108BS1, Y118) (not illustrated)	1
—	YQ2	Overhaul kit (Y108BS1, Y118) (not illustrated)	1
—	YQ7	Points and condenser kit (Y107BS1) (not illustrated)	1
—	YQ4	Overhaul kit (Y107BS1) (not illustrated)	1

Y109S1, Y109AS1, Y109BS1, Y109CS1 Fairbanks-Morse Magnetos (Type FMXD1B7)



Y109S1, Y109AS1, Y109BS1, Y109CS1 Fairbanks-Morse Magnetos

USE WITH MODELS ACN, BKN (see pg. 65)

ITEM	PART NO.	DESCRIPTION	Y109S1 FMXD1B7S	Y109AS1 FMXD1B7T	Y109BS1 FMXD1B7S3	Y109CS1 FMXD1B7S1
1	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	4	4	4	4
2	31BZ2430	End cap	1	1	-	1
3	31SX2430	End cap	-	-	1	-
5	31H2498	End cap gasket	1	1	1	1
6	31C1498G	Fulcrum pin snap ring	1	1	1	1
7	31A2437A	Point set	1	-	1	1
8	31A2437AX	Point set	-	1	-	-
9	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1	1	1	1
10	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1	1	1	1
11	31B5969	Support screw washer, no. 8	1	1	1	1
12	31G2788	Cam wick	1	1	1	1
13	31-8S5NA	Condenser screw, no. 8-32 thread x 5/16" long	1	1	1	1
14	31AXMR2433	Condenser	1	1	1	1
15	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1	1	1	1
16	31D2458	Support screw washer, no. 6	1	1	1	1
17	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4	4	4	4
18	31V4631	Bearing support	-	1	1	1
19	31A5950A	Cam end bearing	-	1	1	1
20	31DW2480	Rotor	1	1	1	1
21	31-3K1	No. 3 Woodruff key	1	1	1	1
22	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1	1	1	1
23	31B6120	Coil clip	1	1	1	1
24	31T2477C	Coil	1	1	1	1
25	31B1498B	Bearing snap ring	1	1	1	1
26	31C5949	Drive end bearing	1	1	1	1
27	31B1498D	Shaft snap ring	1	1	1	1
28	31JV2425	Housing	-	-	-	1
30	31RX2425	Housing	1	1	1	-
31	31N195	Name plate	1	1	1	1
33	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2	2	2	2
34	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2	2	2	2

(continued on page 67)

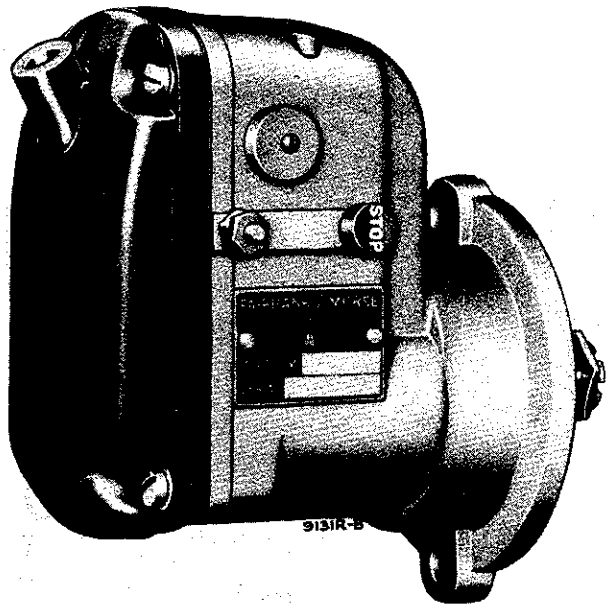
Y109S1, Y109AS1, Y109BS1, Y109CS1 Fairbanks-Morse Magnetos (Cont.)

USE WITH MODELS ACN, BKN (see pg. 65)

ITEM	PART NO.	DESCRIPTION	Y109S1 FMXD1B7S	Y109AS1 FMXD1B7T	Y109BS1 FMXD1B7S3	Y109CS1 FMXD1B7S1
35	31B6030A	Vent cover	2	2	2	2
36	31C6032B	Vent screen	2	2	2	2
37	31N2514C	Switch assembly	1	1	1	1
38	31-8N1	Screw nut, no. 8-32 thread	3	3	3	3
39	31-8LW5	Screw lock washer, no. 8	1	1	1	1
40	31M2514	Insulated lever	1	1	1	1
41	31C6018X	Insulating washer	-	1	-	-
42	31C6018	Insulating washer	2	-	1	1
43	31K2457AX	Insulating bushing	-	1	-	-
44	31K2457A	Insulating bushing	1	-	1	1
45	31L2514C	Wire assembly	1	1	1	1
46	31-8S14N	Switch screw, no. 8-32 thread x 7/8" long	1	1	1	1
47	31S2568	Pawl stop pin	1	1	1	1
48	31A2492C	Seal inner washer	1	1	1	1
49	31G3861	Shaft seal	1	1	1	1
50	31A2492A	Seal outer washer	1	1	1	1
51	31E2303	Oil slinger	1	1	1	1
52	31-29-45	Pawl snap ring	1	1	1	1
53	31H2566	Coupling pawl	1	1	1	1
55	31LV2563C13	Coupling complete	1	1	1	1
56	31S5963	Pawl spring	1	1	1	1
57	31SZ2563	Hub assembly	1	1	1	1
58	31D2565	Coupling spring	1	1	1	1
59	31WY5957	Coupling shell	1	1	1	1
61	31F2572	Gear bushing	1	1	1	1
62	31M2570	Coupling nut	1	1	1	1
—	YQ5	Points and condenser kit (not illustrated)	1	1	1	1
—	YQ2	Overhaul kit (not illustrated)	1	1	1	1

Y109S1, Y109AS1, Y109BS1, Y109CS1 Fairbanks-Morse Magnetos (Type FMXD1B7)

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

The magneto gear rotates clockwise, when viewed from the drive end, and is fitted with a dependable single pawl impulse coupling, which facilitates 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 difficulty arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent 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 an ignition spark test. See engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 0.015 in. at full separation. Refer to engine INSTRUCTION MANUAL for breaker point adjustment procedure.

SEALING THE MAGNETO

Opening the magneto for breaker point adjustment or any other service, necessitates resealing the magneto upon reassembly. Clean the surface between the magneto frame and end cap and install a new gasket. Remove the vent hoods and clean the vent screens before final assembly.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

To engage the slotted drive gear correctly with the drive lugs of the coupling, the rotor should be turned until the coupling pawl engages the stop pin. The coupling drive lugs will then be as shown by A of Fig. 1. Mount drive gear to the coupling so that the marked tooth is in an approximate 12 o'clock location, as illustrated in view B.

TIMING MAGNETO TO ENGINE

Refer to 'MAGNETO TIMING' paragraphs in front section of engine 'INSTRUCTION MANUAL' for proper mounting of magneto to crankcase, in order to obtain correct ignition timing.

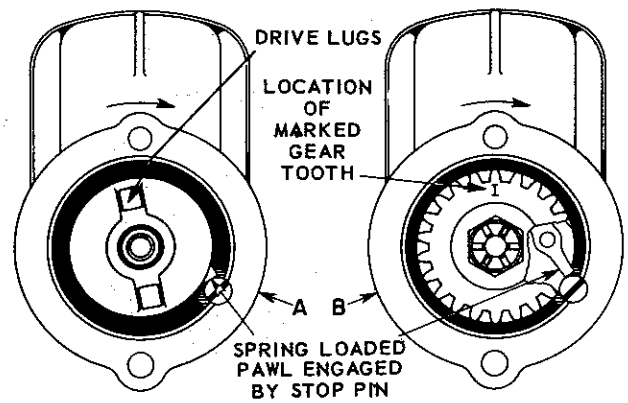
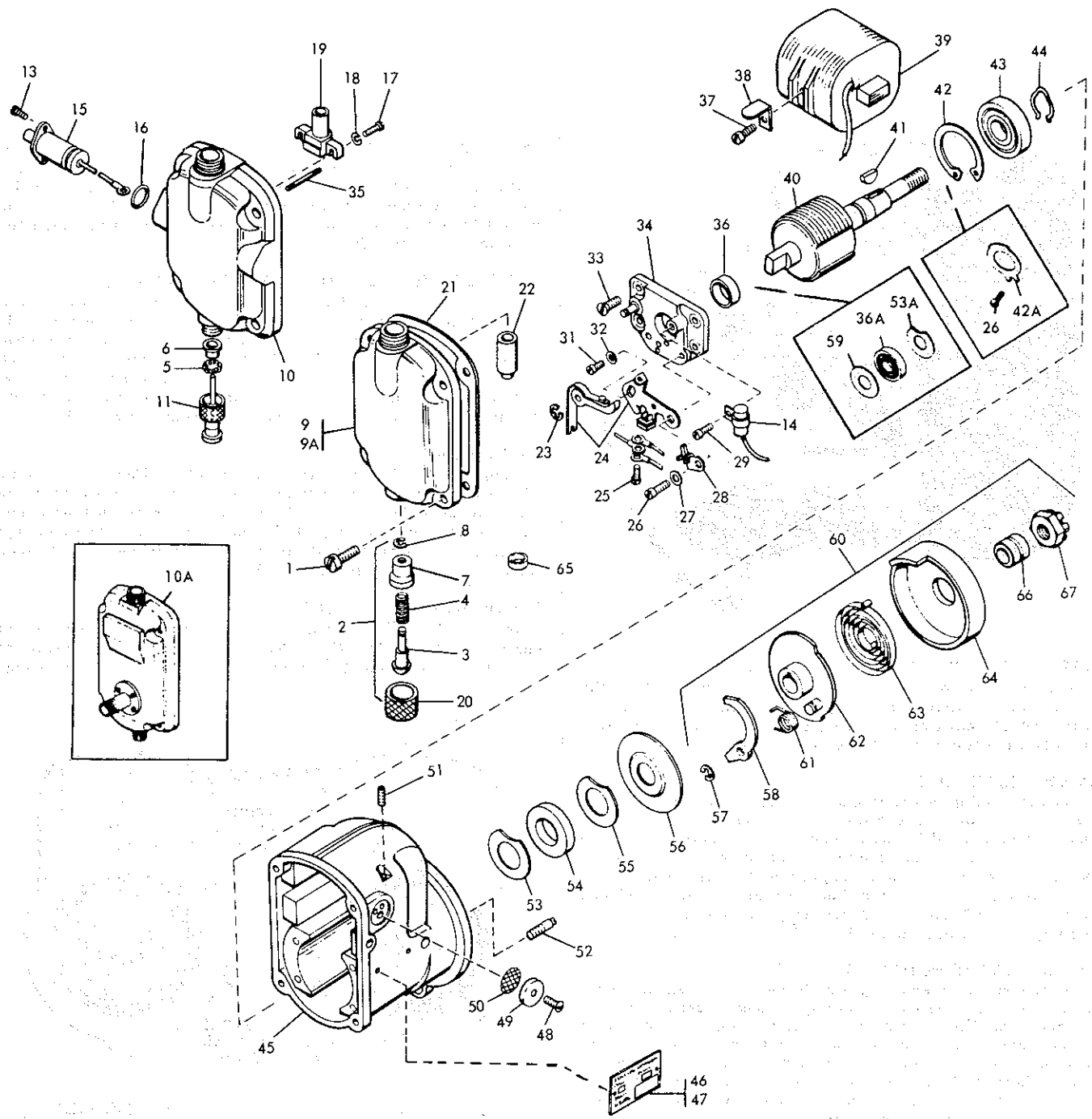


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

Y110S1, Y110AS1 (Obsolete), Y110BS1 (Obsolete), Y110CS1 Fairbanks-Morse Magnetos (Types FMPE1B7, FMXDE1B7)



Y110S1, Y110AS1 (Obsolete), Y110BS1 (Obsolete), Y110CS1 Fairbanks-Morse Magnetos

USE WITH MODELS MACND, MBKND (see pg. 69)

ITEM	PART NO.	DESCRIPTION	Y110S1 FMPE1B7	Y110AS1 FMPE1B7A (Obsolete)	Y110BS1 FMPE1B7A3 (Obsolete)	Y110CS1 FMXDE1B7S1
1	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	4	4	4	4
2	31CX2514C	Ground switch complete	1	-	-	-
—	31GX2514C	Ground switch complete	-	1	1	-
3	31S2514	Switch button	1	1	1	-
4	31C2513A	Ground switch spring	1	1	1	-
5	31E2513A	Ground switch spring	-	-	-	1
6	31F4373	Ground switch bushing	-	-	-	1
7	31D4373	Ground switch bushing	1	-	-	-
—	31E4373	Ground switch bushing	-	1	1	-
8	31V1498	Ground switch snap ring	1	1	1	-
9	31J2430A	End cap	1	-	-	-
9A	31CY2430A	End cap	-	1	-	-
10	31MY2430A	End cap	-	-	-	1
10A	31KY2430A	End cap	-	-	1	-
11	31GW2514	Switch plunger assembly	-	-	-	1
13	31-6S6D	Condenser screw, no. 6-32 thread x 3/8" long	-	-	-	2
14	31SXY2433	Condenser	1	-	-	-
—	31PX2433	Condenser	-	1	1	-
15	31QX2433	Condenser	-	-	-	1
16	31P2473	Condenser "O" ring	-	-	-	1
17	31-8S8N	Outlet screw, no. 8-32 thread x 1/2" long	-	-	-	2
18	31-8LW6	Outlet screw lock washer	-	-	-	2
19	31AX2474	Cable outlet	-	-	-	1
20	31B2735A	Cable nut	1	-	-	-
—	31C2735A	Cable nut	-	1	1	-
21	31K2498	End cap gasket	1	1	1	1
22	31P2474	Cable outlet	1	1	1	-
23	31C1498G	Fulcrum pin snap ring	1	-	-	1
24	31A2437A	Point set	-	-	-	1
—	31Q2437A	Point set	1	1	1	-
25	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1	1	1	1
26	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	2	2	2	1

(continued on page 71)

Y110S1, Y110AS1 (Obsolete), Y110BS1 (Obsolete), Y110CS1 Fairbanks-Morse Magnetos (Cont.)

USE WITH MODELS MACND, MBKND (see pg. 69)

ITEM	PART NO.	DESCRIPTION	Y110S1 FMPE1B7	Y110AS1 FMPE1B7A (Obsolete)	Y110BS1 FMPE1B7A3 (Obsolete)	Y110CS1 FMXDE1B7S1
27	31B5969	Support screw washer	1	1	1	1
28	31G2788	Cam wick	1	1	1	1
29	31-8S5NA	Condenser screw, no. 8-32 thread x 5/16" long	1	1	1	1
31	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	-	-	-	1
32	31D2458	Support screw washer	-	-	-	1
33	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4	4	4	4
34	31V4631	Bearing support	-	-	-	1
—	31BY4631	Bearing support	1	1	1	-
35	31P983	Lead rod	-	-	-	1
36	31A5950A	Cam end bearing	-	-	-	1
36A	31D5949A	Cam end bearing	1	1	1	-
37	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1	1	1	1
38	31D6120	Coil clip	1	1	1	1
39	31T2477C	Coil	1	1	1	1
40	31DW2480	Rotor	-	-	-	1
—	31BP2480	Rotor	-	-	1	-
—	31US2480	Rotor	1	1	-	-
41	31-3K1	No. 3 Woodruff key	1	1	1	1
42	31B1498B	Bearing snap ring	-	-	-	1
42A	31A2492D	Bearing retaining washer	1	1	1	-
43	31C5949	Drive end bearing	1	1	1	1
44	31B1498D	Shaft snap ring	1	1	1	1
45	31RX2425	Housing	1	1	1	1
46	31N195	Name plate	-	-	-	1
47	31A195	Name plate	1	1	1	-
48	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2	2	2	2
49	31B6030A	Vent cover	2	2	2	2
50	31C6032B	Vent screen	2	2	2	2
51	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2	2	2	2
52	31S2568	Pawl stop pin	1	1	1	1
53	31A2492C	Seal inner washer	1	1	1	1
53A	31A2492C	Grease retaining washer	1	1	1	-
54	31G3861	Shaft seal	1	1	1	1
55	31A2492A	Seal outer washer	1	1	1	1

(continued on page 72)

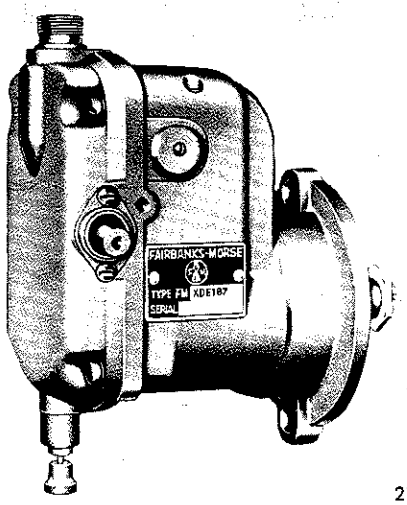
Y110S1, Y110AS1 (Obsolete), Y110BS1 (Obsolete), Y110CS1 Fairbanks-Morse Magnetos (Cont.)

USE WITH MODELS MACND, MBKND (see pg. 69)

ITEM	PART NO.	DESCRIPTION	Y110S1 FMPE1B7	Y110AS1 FMPE1B7A (Obsolete)	Y110BS1 FMPE1B7A3 (Obsolete)	Y110CS1 FMXDE1B7S1
56	31E2303	Oil slinger	-	-	-	1
57	31-29-45	Pawl snap ring	1	1	1	1
58	31H2566	Coupling pawl	1	1	1	1
59	31E2493	Grease retaining washer	1	1	1	-
60	31LV2563C13	Coupling complete	1	1	1	1
61	31S5963	Pawl spring	1	1	1	1
62	31SZ2563	Hub assembly	1	1	1	1
63	31D2565	Coupling spring	1	1	1	1
64	31WY5957	Coupling shell	1	1	1	1
65	31M6018	Ground spacer	-	1	1	-
66	31F2572	Gear bushing	1	1	1	1
67	31M2570	Coupling nut	1	1	1	1

Y110S1, Y110AS1 (Obsolete), Y110BS1 (Obsolete), Y110CS1 Fairbanks-Morse Magnetos (Types FMPE1B7, FMXDE1B7)

FIELD SERVICE AND ADJUSTMENT



272709C

GENERAL DESCRIPTION

This radio shielded magneto is built specifically for installation on Wisconsin Motor Corporation single cylinder engine models MACND and MBKND. The drive gear rotates clockwise, when viewed from drive end, and is fitted to a dependable single pawl impulse coupling, which facilitates starting by providing an intensified and retarded ignition spark at low engine speed. The magneto is designed to operate at minus 65° F.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent maladjustment of magneto parts in good condition. It is suggested that the magneto be opened only when it is certain that the magneto spark produced is unsatisfactory. This condition may be determined by a simple **ignition spark** check, as explained in engine INSTRUCTION MANUAL.

SERVICING OF THE BREAKER POINTS

Remove magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. Use a small tungsten file or fine stone to resurface the points. Points that are badly worn or pitted should be replaced. If it is necessary to resurface or replace the breaker points, it will also be necessary to adjust them to their proper clearance of **0.015 inch.** Refer to engine INSTRUCTION MANUAL for **breaker point adjustment** procedure.

SEALING MAGNETO

Opening the magneto for breaker point adjustment or other service, necessitates resealing the magneto upon reassembly. The surfaces between the magneto housing and the end cap should be thoroughly cleaned and a new lead gasket installed. Remove vent hoods and clean the vent screens.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

To engage the slotted drive gear correctly with the drive lugs of the coupling, the rotor should be turned until the coupling pawl engages the stop pin. The coupling drive lugs will then be as shown by **A** of Fig. 1. Mount drive gear to the coupling so that the **marked tooth** is in an approximate 12 o'clock location as illustrated in view **B.**

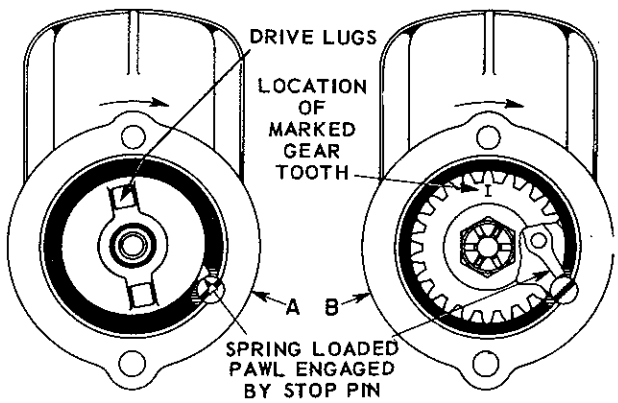


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Ignition timing is accomplished by correctly mounting magneto to the crankcase. Refer to **'MAGNETO TIMING'** in engine INSTRUCTION MANUAL for assembly procedure.

Y111 Magneto (Replaced By Y109S1) (WICO Model XH1, WICO Spec. No. XH2477B)

TIMING

The magneto is properly timed to the engine at the factory. If it becomes necessary to retime the magneto to the engine, refer to the diagram and instructions in the engine instruction book.

LUBRICATION

The only lubricating point in the magneto is the cam wiper felt (Ref. No. 19). This felt, which lubricates the breaker arm at point of contact with the cam, should be replaced whenever it is necessary to replace the breaker contacts.

IMPORTANT

Incorrectly adjusted spark plug gaps cause magneto failure more frequently than any other condition.

Spark plugs should be inspected at frequent intervals, the size of the gap should be carefully checked and adjusted and the plugs thoroughly cleaned.

All oil, grease, and dirt should frequently be wiped off the magneto, lead wires, and spark plug insulators. Keeping these parts clean and the spark plugs properly adjusted will improve the engine performance and at the same time will prolong the life of the magneto.

MAGNETO COVER

The magneto cover (Ref. No. 50), can be removed by loosening the four screws (Ref. No. 36) which hold it in place. When replacing the cover be sure that the cover gasket (Ref. No. 35) is in its proper place.

BREAKER CONTACTS – REPLACEMENT AND ADJUSTMENT

The breaker contacts should be adjusted to .015" when fully opened. To adjust the contacts, loosen the two clamp screws (Ref. No. 40) enough so that the contact plate can be moved.

Insert the end of a small screwdriver in the adjusting slot and open or close the contacts by moving the plate until the opening is .015", measuring with a feeler gauge of that thickness, tighten the two clamp screws.

To replace the contacts remove the breaker spring clamp screw (Ref. No. 43), the breaker arm lock and washer (Ref. No. 18) and (Ref. No. 14), then lift the breaker arm from its pivot. Remove the aligning washer, 5717, and the two fixed contact clamp screws (Ref. No. 40). The breaker plate can then be removed.

If the contacts need replacing it is recommended that both the fixed contact and the breaker arm be replaced at the same time, using replacement breaker set X5996 (Ref. No. 42).

After assembly, the contacts should be adjusted as described above. The contacts should be kept clean at all times. Lacquer thinner is an ideal cleaner for this purpose. Use **WICO** tool S5449, to adjust the alignment of the contacts so that both surfaces meet squarely.

CONDENSER

To remove the condenser (Ref. No. 34) first disconnect the condenser lead by removing the breaker arm spring screw (Ref. No. 43), then remove the two condenser clamp screws (Ref. No. 22) and the condenser clamp (Ref. No. 30). When replacing the condenser make sure it is properly placed and that the clamp screws are securely tightened.

COIL AND COIL CORE

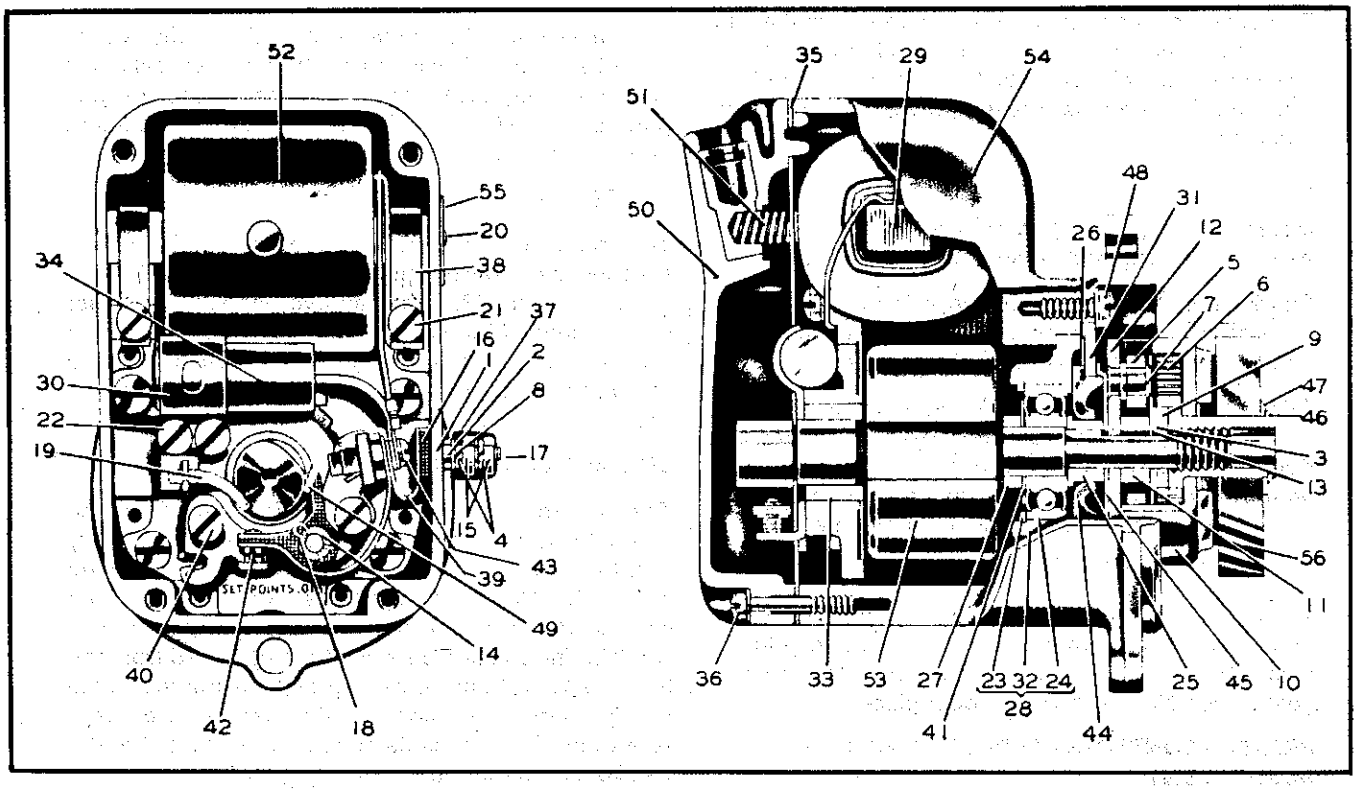
The coil and coil core must be removed from the magneto housing as a unit. Disconnect the primary wire from the breaker arm spring terminal by removing screw (Ref. No. 43), take out the two coil core clamp screws (Ref. No. 21) and remove the clamps (Ref. No. 38). The coil and core can then be pulled from the housing. When replacing this group make sure that the bare primary wire is connected under the core clamp screw and that the insulated wire is connected to the breaker arm spring terminal.

REMOVAL OF COIL FROM CORE

The coil (Ref. No. 52) is held tight on the core (Ref. No. 29) by two wedges, 10383. It will be necessary to press against the coil core with considerable force to remove it from the coil. The coil should be supported in such a way that there is no danger of the primary of the coil being pushed out of the secondary.

When replacing the coil on the coil core, slide it on then press in the two coil wedges, one on each end, until they are flush with the primary of the coil.

Y111 Magneto (Replaced By Y109S1)
(WICO Model XH1, WICO Spec. No. XH2477B)

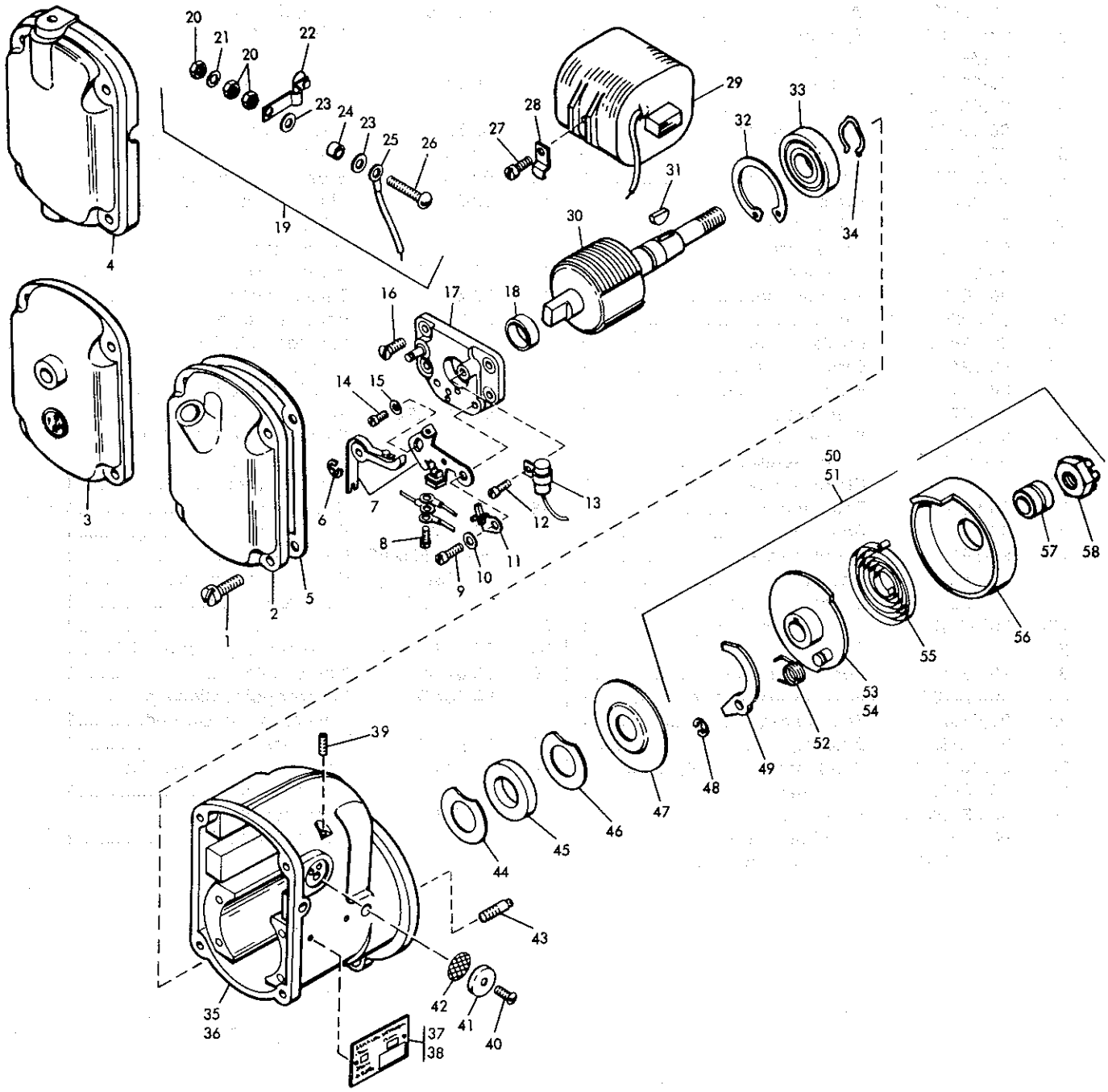


Y111 Magneto (Replaced By Y109S1)

USE WITH MODELS ACN, BKN (see pg. 75)

ITEM	PART NO.	DESCRIPTION	QTY
1	90M34X	Spacing washer	2
2	90M35X	Washer	1
3	90M42XA	Spacing washer	1
4	90M55XA	Lock washer	2
5	90-11312	Trip arm	1
6	90FXH55	Drive spring	1
7	90FXH642	Trip arm spring	1
8	90IXA256	Washer	1
9	90IVA583	Spacing washer	1
10	90-2040	Drive cup	1
11	90-2122	Driven flange spacer	1
12	90FXH1025C	Driven flange group	1
13	90-2288	Retainer	1
14	90-3219	Pivot washer	2
15	90-3230	Nut	2
16	90-11874	Insulating lock	2
17	90-3945	Ground stud	1
18	90-4210	Breaker arm lock	1
19	90-5077	Cam wiper felt	1
20	90-5250	Screw	2
21	90-5411	Clamp screw	2
22	90-5411	Clamp screw	2
23	90-5516	Retaining ring	1
24	90-5517	Rotor bearing	1
25	90-5518	Impulse spacer	1
26	90X5259	Gasket	1
27	90-5520	Spacer	1
28	90FXH1007A	Bearing cage group	1
29	90FXH1611A	Coil core group	1
30	90-6924	Condenser clamp	1
31	90X11128	Impulse stop group	1
32	90-5567	Bearing cage	1
33	90FXH31	Bushing	1
34	90FXH1019	Condenser assembly	1
35	90FXH162	Cover gasket	1
36	90-53X5185	Screw	4
37	90FXH1019	Stop button group	1
38	90FXH223	Coil core clamp	1
39	90FXH9	Ground connector	1
—	90X5654	Ground connection unit (includes 1, 2, 4, 8, 15-17, 39) (not illustrated)	1
—	90-5717	Aligning washer (not illustrated)	1
40	90-5900	Clamp screw	2
41	90-5926	Ball bearing shield	1
42	90FXH2100B	Breaker contact set	1
43	90-5431	Clamp screw	1
44	90XA1393	Oil seal	1
45	90FXH27	Oil slinger (NLA)	1
46	90X5261	Impulse lock ring	1
47	90-6425	Thrust washer	1
—	90K6445	Impulse lock nut kit (includes 46, 47; includes nut) (not illustrated)	1
—	90X11129B	Impulse coupling unit (includes 3, 5-7, 9-13, 46, 47; includes nut) (not illustrated)	1
48	90-6465	Clamp screw	4
49	90-7644	Breaker arm felt	1
50	90FXH2312A2	Cover unit	1
51	90-6732	Coil contact spring	1
—	90FXH2403	Coil group	1
53	90Y7569	Rotor	1
54	90FXH3501	Main housing group (NLA)	1
55	90-8792	Name plate	1
—	90-10407	Breaker point aligning washer (not illustrated)	1
56	90GD87B	Drive gear	1
—	90YQ5	Points and condenser kit (not illustrated)	1
—	90YQ2	Overhaul kit (not illustrated)	1

Y117S1, Y117AS1 (Obsolete), Y117BS1 (Obsolete), Y117CS1 (Obsolete), Y117DS1 (Obsolete) Magnetos (Type FMXD1B7U)



Y117S1, Y117AS1 (Obsolete), Y177BS1 (Obsolete), Y117CS1 (Obsolete), Y117DS1 (Obsolete) Magnetos

USE WITH MODEL AENL (see pg. 77)

ITEM	PART NO.	DESCRIPTION	Y117S1 FMXD1B7U	Y117AS1 FMXD1B7U1 (Obsolete)	Y117BS1 FMXD1B7U2 (Obsolete)	Y117CS1 FMXD1B7U3 (Obsolete)	Y117DS1 FMXD1B7U (Obsolete)
1	31-10S12D	Screw	4	4	4	4	4
2	31BZ2430	End cap	1	1	-	-	1
3	31SX2430	End cap	-	-	1	-	-
4	31WX2430	End cap	-	-	-	1	-
5	31H2498	Gasket	1	1	1	1	1
6	31C1498G	Snap ring	1	1	1	1	1
7	31A2437A	Point set	1	1	1	1	1
8	31GS6Z	Terminal screw	1	1	1	1	1
9	31-8S6U	Support screw	1	1	1	1	1
10	31B5969	Washer	1	1	1	1	1
11	31G2788	Cam wick	1	1	1	1	1
12	31-8S5NA	Screw	1	1	1	1	1
13	31AMXR2433	Condenser	1	1	1	1	1
14	31-6S6U	Screw	1	1	1	1	1
15	31D2458	Washer	1	1	1	1	1
16	31-8S6G	Screw	4	4	4	4	4
17	31V4631	Support	1	1	1	1	1
18	31A5950A	Bearing	1	1	1	1	1
19	31N2514C	Switch assembly	1	1	1	1	1
20	31-8N1	Nut	3	3	3	3	3
21	31-8LW5	Lock washer	1	1	1	1	1
22	31M2514	Lever	1	1	1	1	1
23	31C6018	Washer	2	2	2	2	2
24	31K2457A	Bushing	1	1	1	1	1
25	31L2514C	Wire assembly	1	1	1	1	1
26	31-8S14N	Screw	1	1	1	1	1
27	31-6S4U	Screw	1	1	1	1	1
28	31B6120	Coil clip	1	1	1	1	1
29	31T2477C	Coil	1	1	1	1	1
30	31DW2480	Rotor	1	1	1	1	1
31	31-3K1	No. 3 Woodruff key	1	1	1	1	1
32	31B1498B	Snap ring	1	1	1	1	1
33	31C5949	Bearing	1	1	1	1	1
34	31B1498D	Snap ring	1	1	1	1	1
35	31KV2425	Housing	-	-	-	-	1
36	31RX2425	Housing	1	1	1	1	-
37	31N195	Name plate	1	-	1	1	1
38	31A195	Name plate	-	1	-	-	-
39	31-31SS14A	Set screw	2	2	2	2	2
40	31-6S4U	Screw	2	2	2	2	2

(continued on page 79)

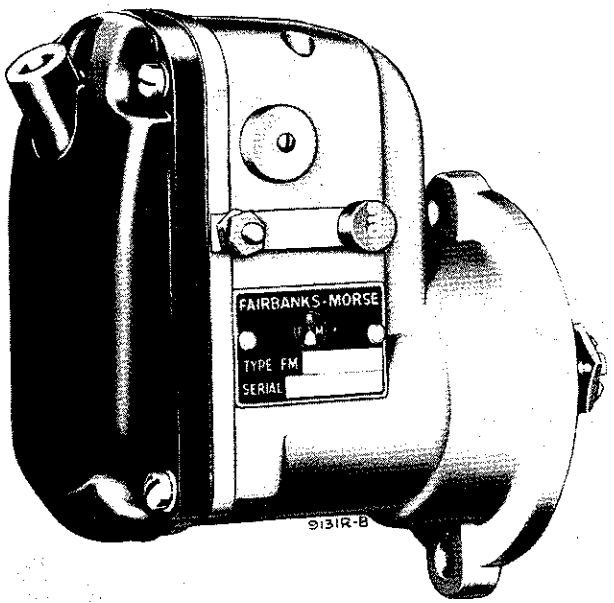
Y117S1, Y117AS1 (Obsolete), Y117BS1 (Obsolete), Y117CS1 (Obsolete), Y117DS1 (Obsolete) Magnetos (Cont.)

USE WITH MODEL AENL (see pg. 77)

ITEM	PART NO.	DESCRIPTION	Y117S1 FMXD1B7U	Y117AS1 FMXD1B7U1 (Obsolete)	Y117BS1 FMXD1B7U2 (Obsolete)	Y117CS1 FMXD1B7U3 (Obsolete)	Y117DS1 FMXD1B7U (Obsolete)
41	31B6030A	Vent cover	2	2	2	2	2
42	31C6032B	Vent screen	2	2	2	2	2
43	31S2568	Pin	1	1	1	1	1
44	31A2492C	Washer	1	1	1	1	1
45	31G3861	Seal	1	1	1	1	1
46	31A2492A	Washer	1	1	1	1	1
47	31E2303	Oil slinger	1	1	1	1	1
48	31-29-45	Snap ring	1	1	1	1	1
49	31H2566	Coupling pawl	1	1	1	1	1
50	31SV2563C20	Coupling	1	-	1	1	1
51	31LV2563C13	Coupling	-	1	-	-	-
52	31S5963	Pawl spring	1	-	1	1	1
53	31SZ2563	Hub assembly	1	-	1	1	1
54	31ZX2563	Hub assembly	-	1	-	-	-
55	31D2565	Spring	1	1	1	1	1
56	31ZX5957	Shell	1	1	1	1	1
57	31F2572	Bushing	1	1	1	1	1
58	31M2570	Nut	1	1	1	1	1
—	GD113	Drive gear (not illustrated)	1	1	1	1	1
—	YQ8	Points and condenser kit (not illustrated)	1	1	1	1	1
—	YQ9	Overhaul kit (not illustrated)	1	1	1	1	1

Y117S1, Y117AS1 (Obsolete), Y117BS1 (Obsolete), Y117CS1 (Obsolete), Y117DS1 (Obsolete) Magnetos (Type FMXD1B7U)

FIELD SERVICE AND ADJUSTMENT



TYPICAL FMXD1B7U MAGNETO, EXCEPT GROUND SWITCH ON OPPOSITE SIDE

GENERAL DESCRIPTION

The magneto gear rotates clockwise, when viewed from the drive end, and is fitted with a dependable single pawl impluse coupling, which facilitates 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. A brief engine inspection will often locate the trouble before the magneto is reached and prevent 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 an ignition spark test. See engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points 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. 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 0.015 inch at full separation. Refer to engine INSTRUCTION MANUAL for breaker point adjustment procedure.

SEALING MAGNETO

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.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

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 will then be in the position shown by A of Fig. 1. Mount drive gear to coupling shell so that the 'X' mark on the outer edge of the gear tooth is located as shown in view B.

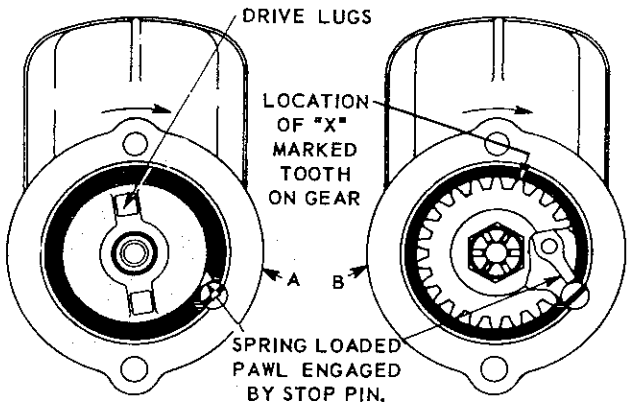
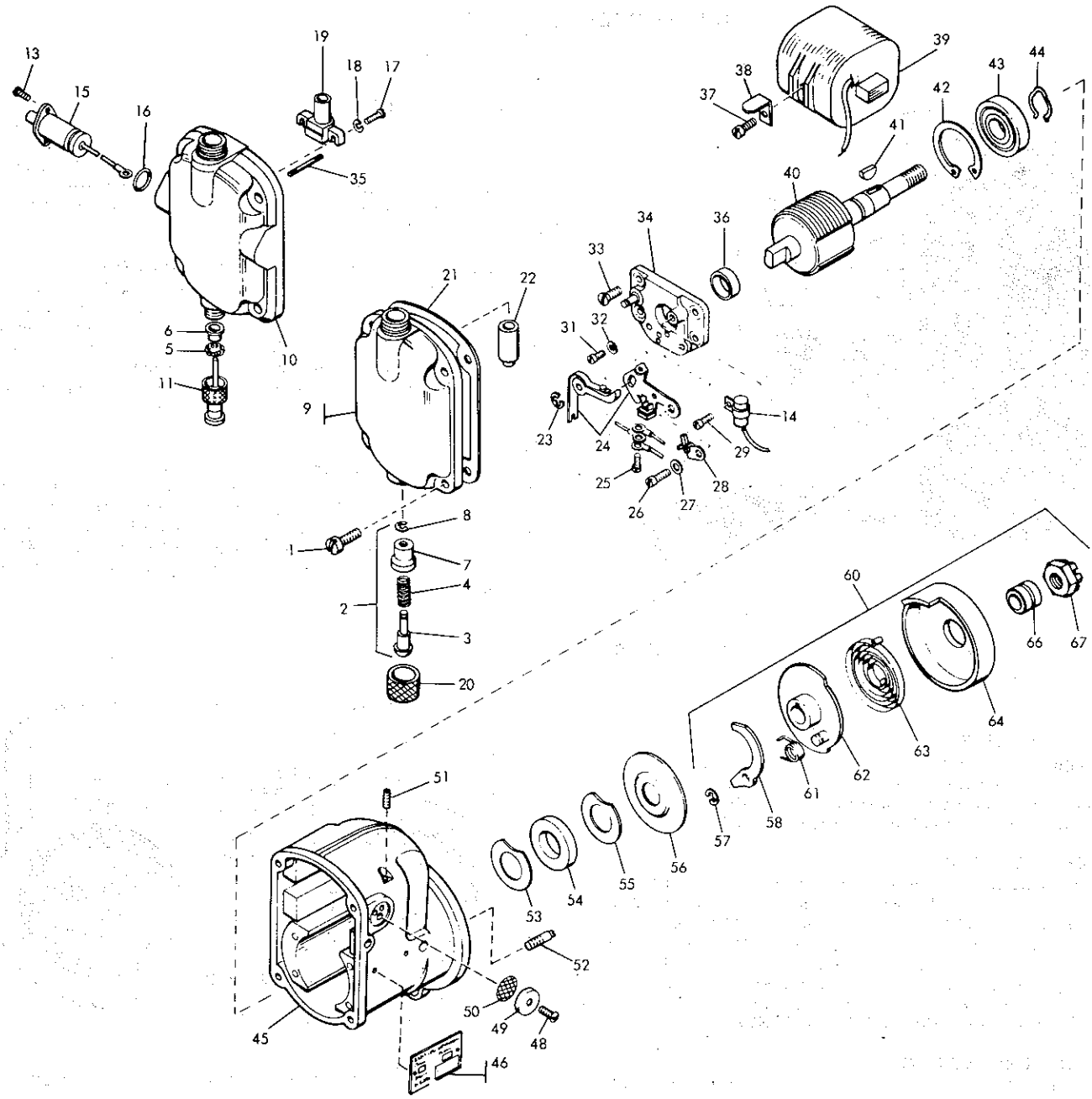


Fig. 1 DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Refer to Magneto Timing instructions in the front section of ENGINE INSTRUCTION MANUAL, for proper mounting of magneto to crankcase, in order to obtain correct ignition timing.

Y119, Y119-1 (Replaced By Y119AS3), Y119AS1 Fairbanks-Morse Magnetos (Type FMXDE1B7U)



Y119 (Y119S1 includes GD122A drive gear for R. S. commercial engine) (AENL).
Y119-1 (Use Y119S2, includes GD122A drive gear for military engine) (MAENLD).

Y119, Y119-1 (Replaced By Y119AS3), Y119AS1 Fairbanks-Morse Magnetos

USE WITH MODELS AENL, MAENLD **(see pg. 81)**

ITEM	PART NO.	DESCRIPTION	Y119AS3 (Replaces Y119, Y119-1) FMXDE1B7U	Y119AS1 FMXDE1B7U2
1	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	4	4
2	31CX2514C	Switch complete	1	-
3	31S2514	Switch button	1	-
4	31C2513A	Switch spring	1	-
5	31E2513A	Switch spring	-	1
6	31F4373	Switch bushing	-	1
7	31D4373	Switch bushing	1	-
8	31V1498	Switch snap ring	1	-
9	31J2430A	End cap	1	-
10	31JY2430A	End cap	-	1
11	31GW2514	Switch plunger assembly	-	1
13	31-6S6D	Condenser screw, no. 6-32 thread x 3/8" long	-	2
14	31SXY2433	Condenser	1	-
15	31QX2433	Condenser	-	1
16	31P2473	Condenser "O" ring	-	1
17	31-8S8N	Outlet screw, no. 8-32 thread x 1/2" long	-	2
18	31-8LW6	Outlet screw lock washer, no. 8	-	2
19	31AX2474	Cable outlet	-	1
20	31B2735A	Cable nut	1	-
21	31K2498	End cap gasket	1	1
22	31P2474	Cable outlet	1	-
23	31C1498G	Fulcrum pin snap ring	1	1
24	31A2437A	Point set	1	1
25	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1	1
26	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1	1
27	31B5969	Support screw washer	1	1
28	31G2788	Cam wick	1	1
29	31-8S5NA	Condenser screw, no. 8-32 thread x 5/16" long	1	-
31	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1	1
32	31D2458	Support screw washer	1	1
33	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4	4
34	31V4631	Bearing support	1	1
35	31P983	Lead rod	-	1
36	31A5950A	Cam end bearing	1	1
37	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1	1
38	31D6120	Coil clip	1	1
39	31T2477C	Coil	1	1
40	31DW2480	Rotor	1	1
41	31-3K1	No. 3 Woodruff key	1	1

(continued on page 83)

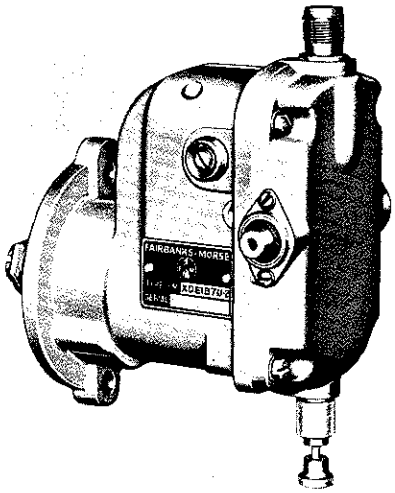
Y119, Y119-1 (Replaced By Y119AS3), Y119AS1 Fairbanks-Morse Magnetos (Cont.)

USE WITH MODELS AENL, MAENLD **(see pg. 81)**

ITEM	PART NO.	DESCRIPTION	Y119AS3 (Replaces Y119, Y119-1) FMXDE1B7U	Y119AS1 FMXDE1B7U2
42	31B1498B	Bearing snap ring	1	1
43	31C5949	Drive end bearing	1	1
44	31B1498D	Shaft snap ring	1	1
45	31RX2425	Housing	1	1
46	31N195	Name plate	1	1
48	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2	2
49	31B6030A	Vent cover	2	2
50	31C6032B	Vent screen	2	2
51	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2	2
52	31S2568	Pawl stop pin	1	1
53	31A2492C	Seal inner washer	1	1
54	31G3861	Shaft seal	1	1
55	31A2492A	Seal outer washer	1	1
56	31E2303	Oil slinger	1	1
57	31-29-45	Pawl snap ring	1	1
58	31H2566	Coupling pawl	1	1
60	31SV2563C20	Coupling complete	1	1
61	31S5963	Pawl spring	1	1
62	31SZ2563	Hub assembly	1	1
63	31D2565	Coupling spring	1	1
64	31ZX5957	Coupling shell	1	1
66	31F2572	Gear bushing	1	1
67	31M2570	Coupling nut	1	1

Y119, Y119-1 (Replaced By Y119AS3), Y119AS1 Fairbanks-Morse Magnetos (Type FMXDE1B7U)

FIELD SERVICE AND ADJUSTMENT



266643C

GENERAL DESCRIPTION

This radio shielded magneto is built specifically for installation on Wisconsin Motor Corporation Model MAENLD single cylinder engine. The drive gear rotates clockwise, when viewed from the drive end, and is fitted with a dependable single pawl impulse coupling which facilitates starting by providing an intensified and retarded ignition spark at low engine speeds. The magneto is designed to operate at minus 65°F.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent maladjustment of magneto parts in good condition. It is suggested that the magneto be opened only when it is certain that the magneto spark produced is unsatisfactory. This condition may be determined by a simple **ignition spark** check, as explained in engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 **0.015 inch** at full separation. Refer to engine INSTRUCTION MANUAL for **breaker point adjustment** procedure.

SEALING MAGNETO

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

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

To engage the slotted drive gear correctly with the drive lugs of the coupling, the magneto rotor should be turned until the coupling pawl engages the stop pin in the flange. The coupling drive lugs will then be in the position shown by **A** of Fig. 1. The drive gear should then be fitted to the coupling so that the **"X" mark**, on the outer edge of the gear tooth is located as shown in view **B**.

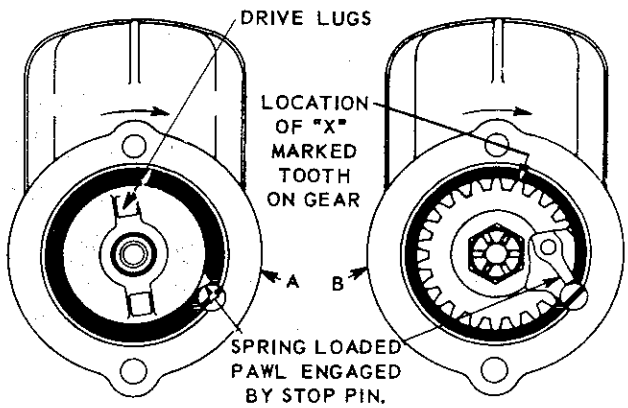
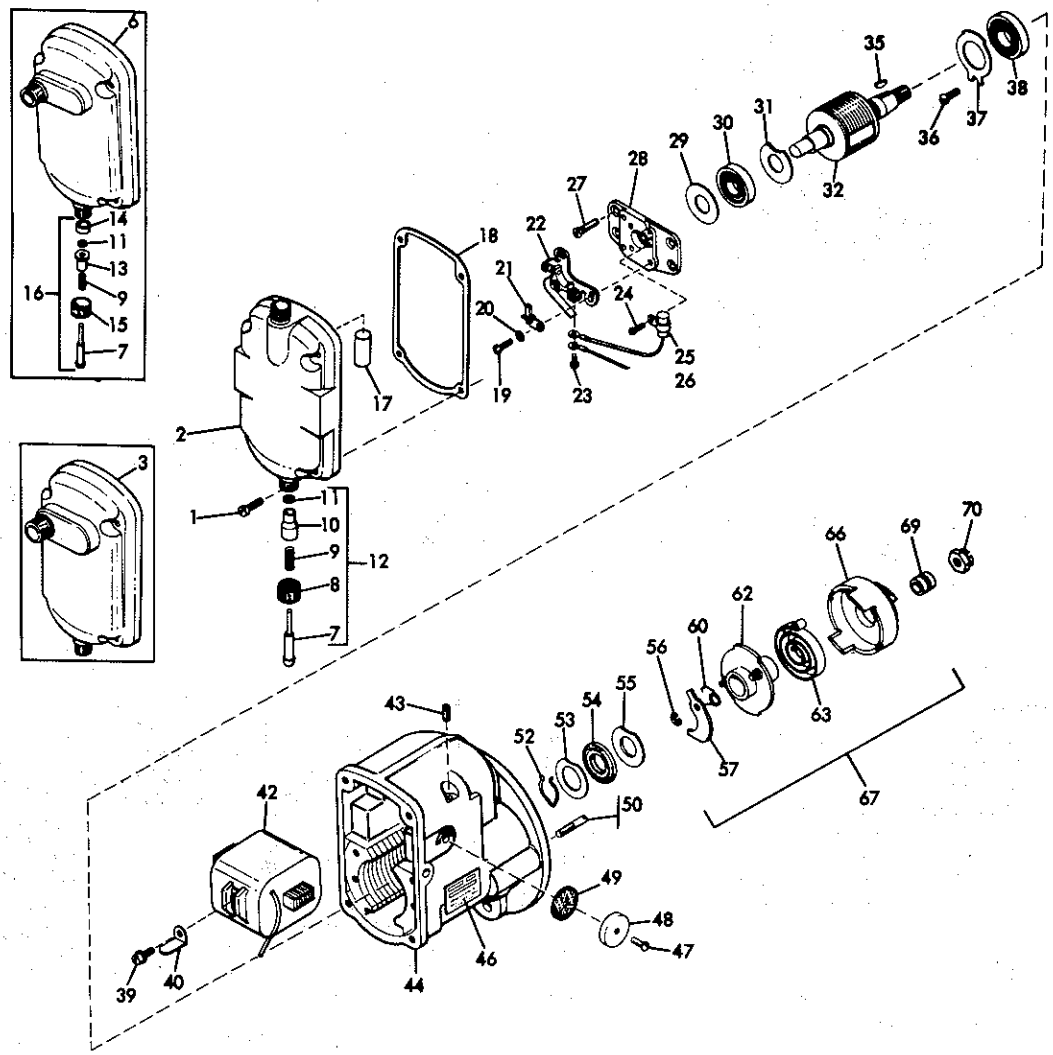


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Refer to **Magneto Timing** instructions in the front section of ENGINE INSTRUCTION MANUAL, for proper mounting of magneto to crankcase in order to obtain correct ignition timing.

Y121S1, Y121AS1, Y121BS1 Fairbanks-Morse Magnetos
(Type FMPE1B7R) (Obsolete)



Y121S1, Y121AS1, Y121BS1 Fairbanks-Morse Magnetos (Obsolete)

USE WITH MODEL AGND (RADIO SHIELDED) **(see pg. 85)**

ITEM	PART NO.	DESCRIPTION	Y121AS1 FMPE1B7R1	Y121BS1 FMPE1B7R2	Y121S1 FMPE1B7R
1	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	4	4	-
—	31-10S10D	End cap screw, no. 10-24 thread x 5/8" long	-	-	4
3	31TX2430A	End cap	1	-	1
6	31XY2430A	End cap	-	1	-
7	31S2514	Ground switch button	1	1	-
8	31B2735A	Cable nut	1	-	1
9	31C2513A	Ground switch button spring	1	1	1
10	31D4373	Ground switch bushing	1	-	1
11	31V1498	Ground switch snap ring	1	1	1
12	31CX2514C	Ground switch complete	1	-	1
13	31E4373	Ground switch bushing	-	1	-
14	31M6018	Ground spacer	-	1	-
15	31C2735A	Cable nut	-	1	-
16	31GX2514C	Ground switch complete	-	1	-
17	31P2474	Cable outlet	1	1	-
—	31P2474X	Cable outlet	-	-	1
18	31K2498	End cap gasket	1	1	-
—	31K2498	End cap gasket	-	-	1
19	31-8S5NA	Support screw, no. 8-32 thread x 5/16" long	2	2	-
—	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	-	-	2
20	31B5969	Support screw washer	2	2	2
21	31G2788	Cam wick	1	1	1
22	31Q2437A	Breaker points	1	1	-
—	31Q2437AX	Breaker points	-	-	1
23	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1	1	-
24	31-8S4U	Mounting screw, no. 8-32 thread x 1/4" long	1	1	1
25	31PX2433	Condenser	-	1	-
26	31SXY2433	Condenser	1	-	1
27	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4	4	4
28	31BY4631	Bearing support	1	1	1
29	31E2493	Grease retaining washer	1	1	-
30	31D5949A	Cam end bearing	1	1	1
31	31A2492C	Grease retaining washer	1	1	1
32	31XS2480	Magnetic rotor	1	1	1
35	31-3K1	No. 3 Woodruff key	1	1	1
36	31-8S6U	Retaining washer screw	1	1	-
—	31-8S5X	Retaining washer screw	-	-	1
37	31A2492D	Bearing retaining washer	1	1	1
38	31C5949	Drive end bearing	1	1	1

(continued on page 87)

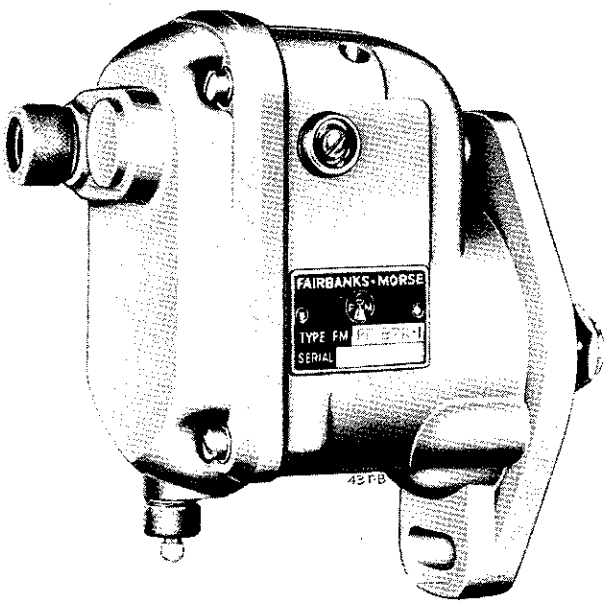
Y121S1, Y121AS1, Y121BS1
Fairbanks-Morse Magnetos (Obsolete) (Cont.)

USE WITH MODEL AGND (RADIO SHIELDED) **(see pg. 85)**

ITEM	PART NO.	DESCRIPTION	Y121AS1 FMPE1B7R1	Y121BS1 FMPE1B7R2	Y121S1 FMPE1B7R
39	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1	1	-
—	31-6S3W	Clip screw, no. 6-32 thread x 3/16" long	-	-	1
40	31N6120	Coil clip	1	1	1
42	31T2477C	Coil	1	1	1
43	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2	2	-
—	31-25SS14A	Coil set screw, 1/4"-20 thread x 7/8" long	-	-	2
44	31-MU2425	Housing	1	1	-
—	31TW2425	Housing	-	-	1
46	31A195	Name plate	1	1	1
47	31-6S4U	Cover screw	2	2	2
48	31B6030A	Vent cover	2	2	2
49	31C6032B	Vent screen	2	2	2
50	31F2568	Pawl stop pin	1	1	-
—	31B2568	Pawl stop pin	-	-	1
52	31B1498D	Shaft snap ring	1	1	-
53	31A2492C	Seal inner washer	1	1	1
54	31G3861	Shaft seal	1	1	1
55	31A2492A	Seal outer washer	1	1	1
56	31-29-45	Pawl snap ring	1	1	-
57	31Q2566	Coupling pawl	1	1	-
60	31R5963	Pawl spring	1	1	-
—	31N5963	Pawl spring	-	-	1
62	31EY2563	Hub assembly	1	1	1
63	31E2565	Drive spring	1	1	-
—	31D2565	Drive spring	-	-	1
66	31ZY5957	Coupling shell	1	1	-
—	31XY5957	Coupling shell	-	-	1
67	31XV2563C15	Coupling complete	1	1	-
—	31QV2563C	Coupling complete	-	-	1
69	31F2572	Drive gear bushing	1	1	-
—	31F2572	Drive gear bushing	-	-	1
70	31M2570	Coupling nut	1	1	1

Y121S1, Y121AS1, Y121BS1 Fairbanks-Morse Magnetos (Type FMPE1B7R) (Obsolete)

FIELD SERVICE AND ADJUSTMENT



GENERAL DESCRIPTION

This radio shielded magneto is built specifically for installation on Wisconsin Motor Corporation single cylinder engine model AGND. The drive gear rotates counter-clockwise, when viewed from drive end, and is fitted to a dependable single pawl impulse coupling, which facilitates starting by providing an intensified and retarded ignition spark at low engine speed. A two pole magnetic rotor and a single lobe cam produce one ignition spark per revolution.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine trouble arising from other sources. A brief engine inspection will often locate the trouble before the magneto is reached and prevent maladjustment of magneto parts in good condition. It is suggested that the magneto be opened only when it is certain that the magneto spark produced is unsatisfactory. This condition may be determined by a simple ignition spark check, as explained in engine INSTRUCTION MANUAL.

SERVICING OF THE BREAKER POINTS

Remove magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. Use a small tungsten file or fine stone to resurface the points. Points that are badly worn or pitted should be replaced. If it is necessary to resurface or replace the breaker points, it will also be necessary to adjust them to their proper clearance of 0.015 inch. Refer to engine INSTRUCTION MANUAL for breaker point adjustment procedure.

SEALING MAGNETO

Opening the magneto for breaker point adjustment or other service, necessitates resealing the magneto upon reassembly. The surfaces between the magneto housing and the end cap should be thoroughly cleaned and a new lead gasket installed. Remove vent hoods and clean the vent screens.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam felt wick, if dry or hard, should be replaced by a new factory-impregnated wick. Other than this, these magnetos do not require field lubrication and any attempt to oil or grease the bearings is inadvisable. The lubricants should be renewed only during a complete overhaul of the magneto by a Factory-Authorized Service Station. Coil and condenser replacements are not recommended, unless test equipment is available.

DRIVE GEAR

To engage the slotted drive gear correctly with the drive lugs of the coupling, the rotor should be turned until the coupling pawl engages the stop pin. The coupling drive lugs will then be in a vertical position as shown by **A** of Fig. 1. Mount drive gear to the coupling so that the marked tooth is at the upper right hand, or approximate 1 o'clock position, as illustrated in view **B**.

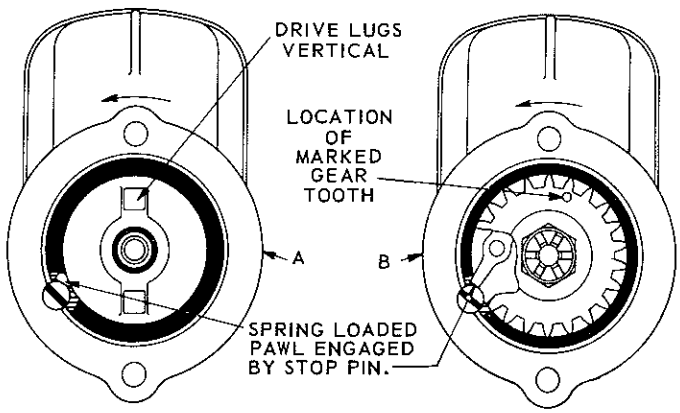


Fig. 1, DRIVE GEAR TIMING MARK ASSEMBLY

TIMING MAGNETO TO ENGINE

Ignition timing is accomplished by correctly mounting magneto to the crankcase. Refer to 'MAGNETO TIMING' in engine INSTRUCTION MANUAL for assembly procedure.

Y128S1 Magneto (Type FMX4B7D)

GENERAL DESCRIPTION

Fairbanks-Morse Type FM-X4B7D Magneto is designed and engineered to provide quick easy starting and maximum dependability of operation with minimum service. The compact alnico magnetic rotor assures an intensely hot spark under most operating conditions.

SERVICE PROCEDURE

The first step in magneto field servicing is to examine the magneto for corroded high tension towers, broken wires, or high tension wires not pushed far enough into the magneto tower to make good contact.

Then test the ignition spark while the engine is being cranked. Hold the ignition wire 1/4 in. away from the engine block. If a strong spark is observed, the magneto is not the cause of the engine malfunction. If no spark is seen, proceed with servicing the magneto.

SERVICING BREAKER POINTS

Remove the end cap cover, distributor rotor and the end cap. Then inspect the breaker points for pitting, oxidation and shorting. If points are worn or shorted, they should be replaced.

To remove the point set, take out the breaker arm terminal screw releasing the breaker arm spring, coil lead and condenser lead. Remove the fulcrum pin snap ring and slide the breaker arm off the fulcrum pin. Remove the contact support locking screws and lift off the contact support.

The installation of new points is the reverse of the removal. After the points have been installed, they should be adjusted to the correct clearance of ***0.015 inch*** at high point of cam. Be sure the points are clean and bright before adjusting them. Insert a screwdriver in the slot of the support bracket and pivot it between the two small bosses on the bearing support until the desired clearance is obtained. Then clean the points again before sealing the magneto.

FIELD SERVICE NOT RECOMMENDED

The cam wick, if dry or hard, should be replaced with a new factory impregnated wick. Other than this the Type FM-X4B7D Magneto does not require field lubrication. No attempt should be made to oil or grease the magneto bearings. The magneto lubricant should be replaced only during the overhaul of the magneto by a Fairbanks-Morse authorized service station using recommended lubricant and factory engineered parts.

Coil and condenser replacement while simple are not recommended unless adequate test equipment is available. Under no circumstances should any attempt be made to remove the magnetic rotor from the housing unless specific instructions for releasing the shaft are available.

TIMING THE MAGNETO TO THE ENGINE

If the magneto has been removed from the engine for servicing, the operator must follow the engine manufacturer's instructions for timing the magneto to the engine. Refer to *'Magneto Timing'* in engine instruction manual. When installing the magneto on the engine, be sure the magneto is properly attached and that the housing to engine gasket is in good condition.

SPECIAL DRIVE GEAR

The magneto is equipped with a special drive gear mounted directly on the impulse coupling. If it is necessary at any time to remove the drive gear, special care must be exercised in reassembly. It is possible to be off 180° in mounting the gear, with relation to the correct location of the timing mark on the gear.

Assemble gear as follows: Remove magneto end cap cover and turn distributor rotor until it is in firing position for No. 1 cylinder, as illustrated in ***Fig. A.*** Retain rotor in this position and fit the drive gear to the impulse coupling lugs so that the prick punch mark on front of gear is located as shown.

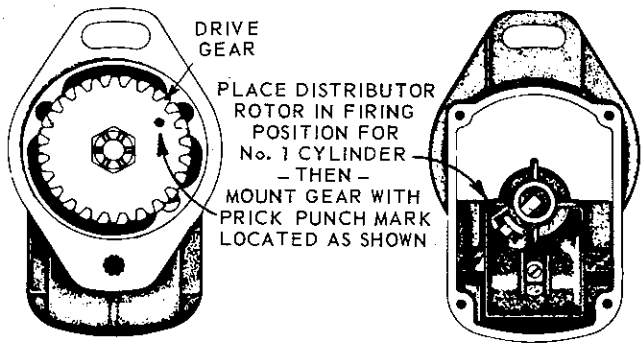
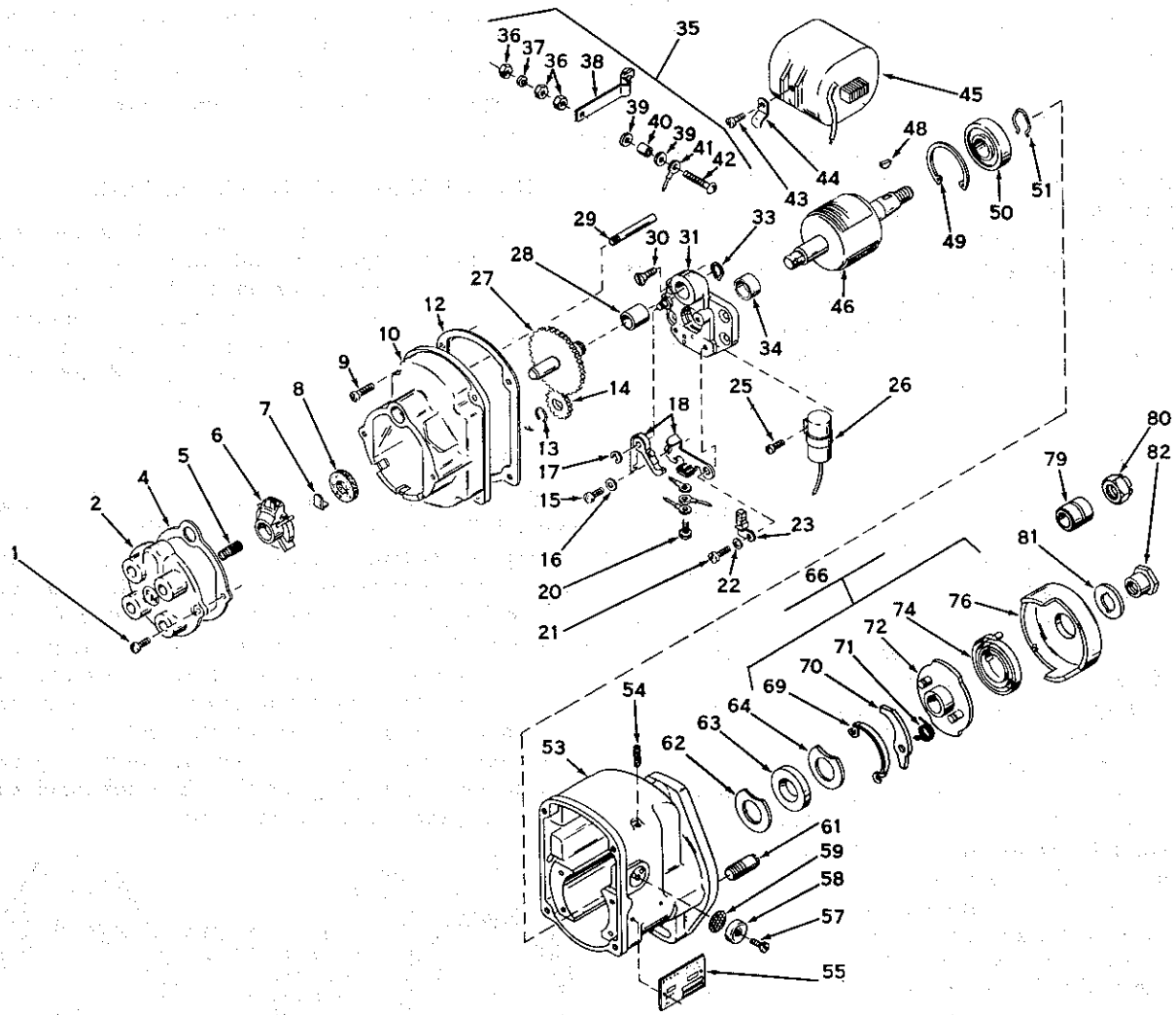


Fig. A, DRIVE GEAR MARKING AND ASSEMBLY

Y128S1 Magneto (Type FMX4B7D)



Y128S1 Magneto (Type FMX4B7D)

USE WITH MODELS V461D, V465D (see pg. 90)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-8S9D	Screw, no. 8-32 thread x 9/16" long	2
2	31W800	Cover	1
4	31B682	Gasket	1
5	31E2460B	Brush and spring	1
6	31M2765	Distributor rotor	1
7	31A2766	Spring clip	1
8	31G2501	Seal	1
9	31-10814D	Screw, no. 10-24 thread x 7/8" long	4
10	31GY2430	End cap	1
12	31H2498	Gasket	1
13	31D1498	Snap ring	1
14	31Q5952	Rotor gear	1
15	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
16	31D2458	Washer, no. 6	1
17	31C1498G	Snap ring	1
18	31A2437A	Point set	1
20	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
21	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1
22	31B5969	Washer, no. 8	1
23	31G2788	Cam wick	1
25	31-8S5NA	Screw, no. 8-32 thread x 5/16" long	1
26	31AXMR2433	Condenser	1
27	31Y5939	Shaft and gear	1
28	31D5950C	Bearing	1
29	31J983A	Lead rod	1
30	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
31	31X4631	Support	1
33	31D1498	Snap ring	1
34	31A5950A	Bearing	1
35	31-12514C	Switch assembly	1
36	31-8N1	Nut	3
37	31-8LW5	Lock washer	1
38	31M2514	Insulated lever	1
39	31C6018	Insulating washer	2
40	31K2457A	Insulating bushing	1
41	31L2514C	Wire assembly	1
42	31-8S14N	Screw, no. 8-32 thread x 7/8" long	1
43	31-6S4U	Screw, no. 6-32 thread x 1/4" long	1
44	31D6120	Coil clip	1
45	31R2477C	Coil	1
46	31PZ2480	Magnetic rotor	1
48	31-3K1	Key	1
49	31B1498B	Snap ring	1
50	31C5949	Bearing	1
51	31B1498D	Snap ring	1
53	31XU2425	Housing	1
54	31-31SS14A	Set screw, 5/16"-24 thread x 7/8" long	2
55	31A195	Name plate	1
57	31-6S4U	Screw, no. 6-32 thread x 1/4" long	2
58	31B6030A	Vent cover	2
59	31C6032B	Vent screen	2
61	31S2568	Stop pin	1
62	31A2492C	Washer	1
63	31G3861	Shaft seal	1
64	31A2492A	Washer	1
66	31UU2563C18	Coupling, 18° lag angle	1
69	31A1498J	Lock spring	1
70	31Q2566	Coupling pawl	2
71	31S5963	Pawl spring	2
72	31S2563-27	Hub assembly, 18° lag angle	1
74	31E2565	Coupling spring	1
76	31AZ5957	Coupling shell	1
79	31F2572	Gear bushing	1
80	31M2570	Coupling nut	1
—	GD103A	Drive gear (not illustrated)	1
—	YQ8	Points and condenser kit (not illustrated)	1
—	YQ9	Overhaul kit (not illustrated)	1

Y134S1 Magneto (Replaced By Y134AS1, FMXE2B7F) (FMXE2B7E)

GENERAL DESCRIPTION

The type FMXE2B7 radio shielded magneto is adapted to the model TJD engines manufactured by Wisconsin Motor Corporation. This magneto is flange mounted clockwise in rotation and has a lag angle of 15°provided by an impulse coupling.

SERVICE PROCEDURE

Improper functioning of the magneto is often believed to be the cause of engine difficulty arising from other sources, such as a flooded carburetor, insufficient fuel or air, loose ignition connections, or a defective spark plug. A brief engine inspection will often locate the trouble before the magneto is reached, and prevent maladjustment of parts in good condition. The magneto should be opened only when it is certain that the ignition spark produced is unsatisfactory. This condition may be determined by an ignition spark test, as explained in engine INSTRUCTION MANUAL.

SERVICING BREAKER POINTS, Fig. 1

Remove the magneto end cap and inspect the breaker points for evidence of pitting or pyramiding. A small tungsten file or fine stone should be used to resurface the points. Badly worn or pitted points should be replaced. 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 **0.015 inch** at full separation.

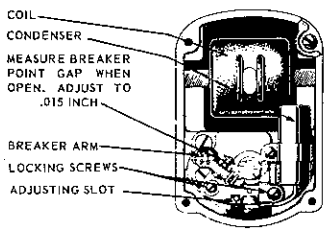


Fig. 1, BREAKER POINT ADJUSTMENT

The adjustment of breaker points is made in the following manner: Lightly loosen the two contact support locking screws, identified in Fig. 1. Then, with the points at full separation, move the contact support until the proper breaker point clearance is obtained. This is accomplished by means of a screw driver inserted in the slot at the bottom of the contact support and pivoted between the two small bosses on the bearing support. Lock assembly in place by tightening locking screws, and take a final measurement of breaker point gap after the locking screws are tightened. Finally clean the points with a piece of hard cardboard.

SEALING THE MAGNETO

Before replacing end cap on magneto frame, clean the contact surfaces between the end cap and frame. Place a new gasket on frame, mount end cap plate and end cap, and securely tighten mounting screws.

FURTHER FIELD SERVICE NOT RECOMMENDED

The cam wick, if dry or hard, should be replaced by a new, factory impregnated, wick. Other than this the magneto does not require field lubrication and any attempt to oil or to grease the bearings is inadvisable. The lubricant should be renewed only during a complete overhaul of the magneto. Coil and condenser replacement, can be done if adequate test equipment is available.

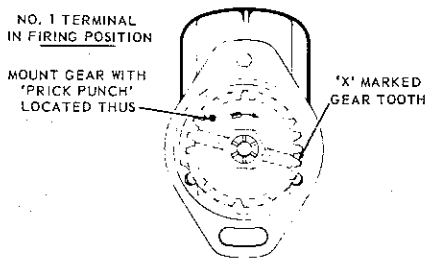


Fig. 2, DRIVE GEAR MARKING AND ASSEMBLY

DRIVE GEAR MOUNTING, Fig. 2

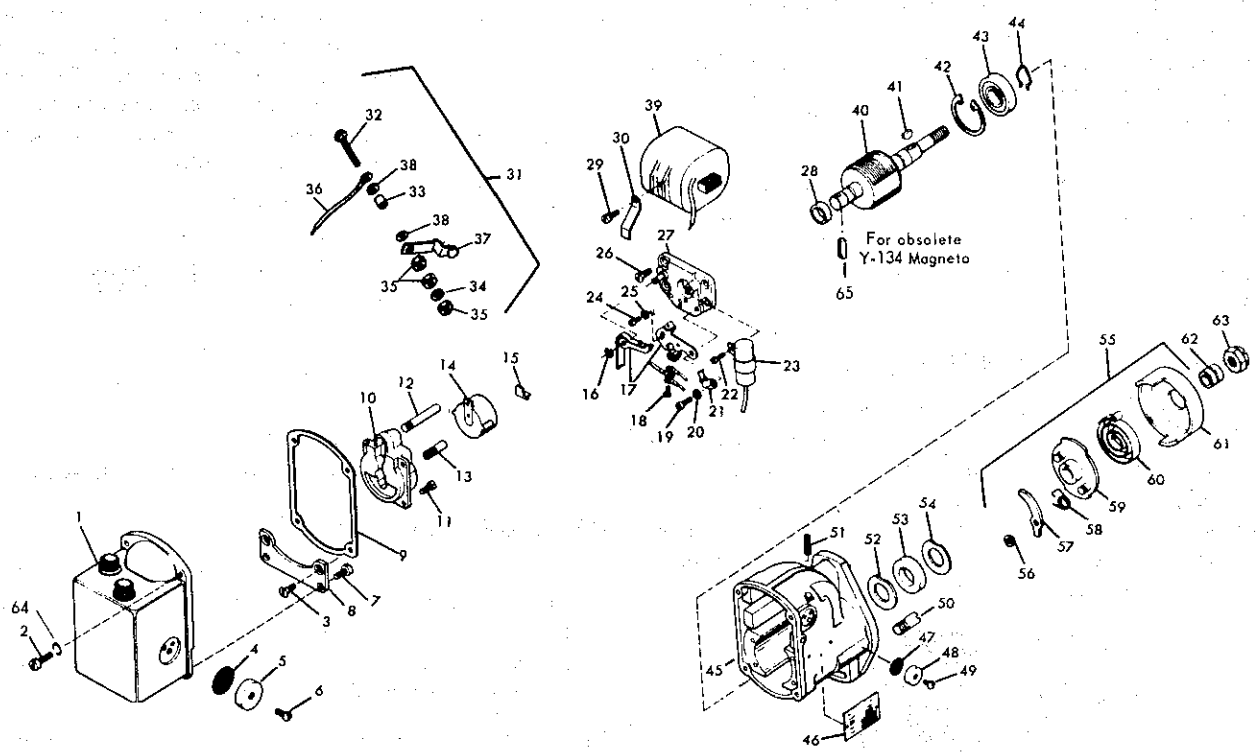
The magneto is equipped with a special drive gear mounted directly on the impulse coupling. If it is necessary to replace the drive gear, special care must be exercised in reassembly. It is possible to be off 180° in timing if gear is improperly mounted.

Set magneto for spark discharge to the No. 1 terminal, (tower closest to engine). This is accomplished by inserting a short stiff length of wire into the No. 1 terminal socket and bend to within 1/8 inch of the magneto frame. Then turn the impulse coupling in a clockwise rotation, tripping the impulse, intil a spark is observed between the wire and frame. Retain coupling in this position and mount gear with drive lugs in slot, and **prick punch** mark on gear face located as illustrated. The **'X'** marked gear tooth will be located so as to be seen through gear cover inspection hole when magneto is mounted.

TIMING MAGNETO TO ENGINE

Ignition timing is accomplished by correctly mounting magneto to the gear cover. Refer to "MAGNETO TIMING" in engine INSTRUCTION MANUAL for assembly procedure.

Y134 Fairbanks-Morse Magneto (Replaced By Y136) (Type FMXE2B7)



Y134 Fairbanks-Morse Magneto (Replaced By Y136)

USE WITH MODEL TJD (RADIO SHIELDED) (see pg. 93)

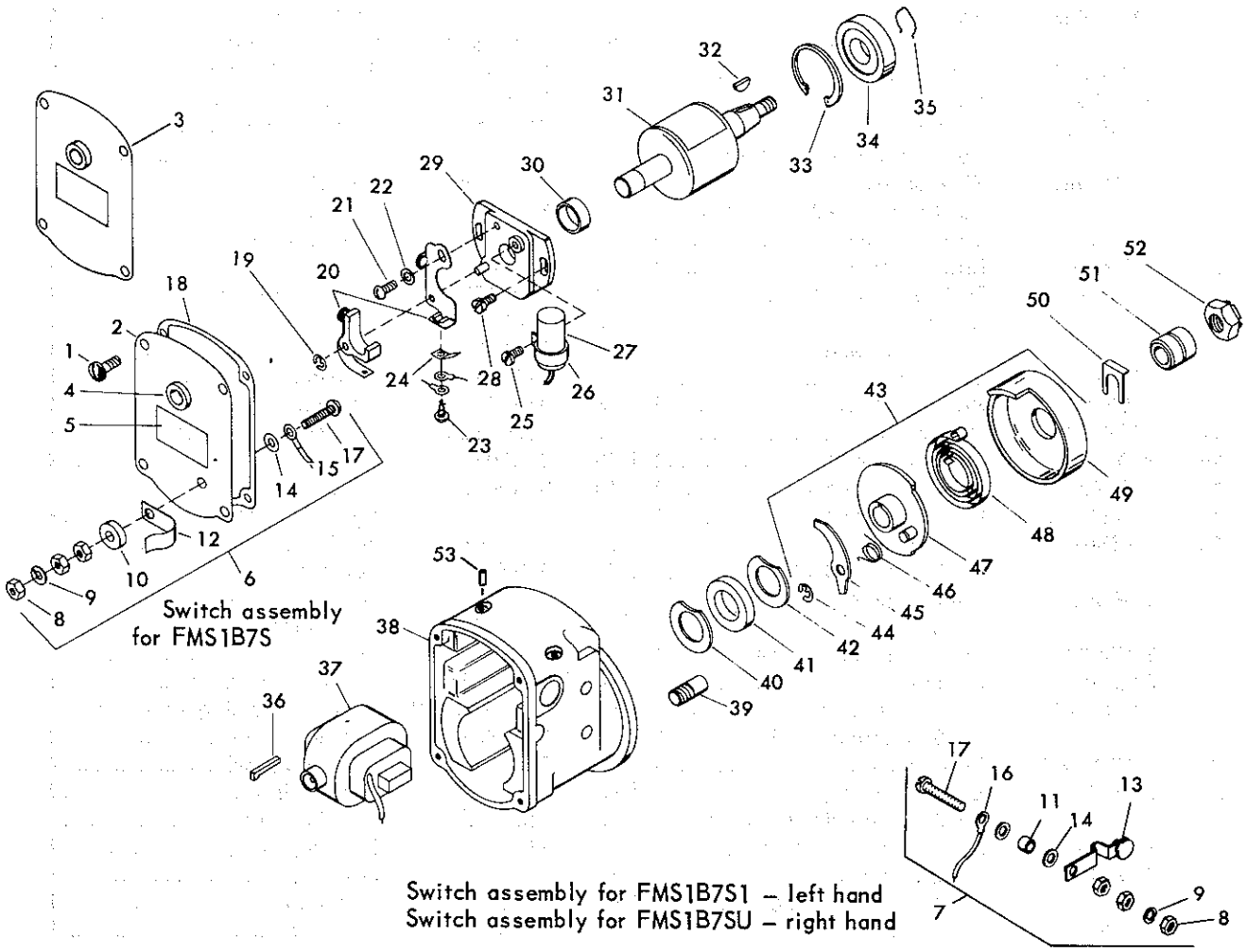
ITEM	PART NO.	DESCRIPTION	QTY
1	31CZ2430A	End cap	1
2	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	2
3	31-10S8D	End cap screw, no. 10-24 thread x 1/2" long	2
4	31A6032A	Vent screen	1
5	31A1232	Vent cover	1
6	31-6S6N	Vent screw, no. 6-32 thread x 3/8" long	1
7	31-10S6G	Plate screw, no. 10-24 thread x 3/8" long	2
8	31A2636	End cap plate	1
9	31K2498	End cap gasket	1
10	31D2474E	Distributor block	1
11	31-8S8D	Block screw, no. 8-32 thread x 1/2" long	4
12	31A983B	Lead rod	1
13	31E2460B	Brush and spring	1
14	31R2765	Distributor rotor	1
16	31C1498G	Fulcrum pin snap ring	1
17	31A2437A	Breaker point set	1
18	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
19	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1
20	31B5969	Support screw washer	1
21	31G2788	Cam wick	1
22	31-8S5NA	Condenser screw, no. 8-32 thread x 3/8" long	1
23	31SXY2433	Condenser	1
24	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
25	31D2458	Support screw lock washer	1
26	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
27	31V4631	Bearing support	1
28	31A5950A	Cam end bearing	1
29	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1
30	31E6120	Coil clip	1
31	31N2514C	Switch	1
32	31-8S14N	Switch screw, no. 8-32 thread x 7/8" long	1
33	31K2457A	Screw bushing	1
34	31-8LW5	Screw lock washer	1
35	31-8N1	Screw nut	1
36	31L2514C	Terminal wire assembly	1
37	31M2514	Switch lever	1
38	31C6018	Insulated washer	1
39	31R2477C	Coil	1
40	31PP2480	Magnetic rotor	1
41	31-3K1	Key	1
42	31B1498B	Bearing snap ring	1
43	31C5949	Drive end bearing	1
44	31B1498D	Shaft snap ring	1
45	31TZ2425	Housing	1
46	31N195	Name plate	1
47	31C6032B	Vent screen - housing	2
48	31B6030A	Vent cover - housing	2
49	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2
50	31S2568	Pawl stop pin	1
51	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2
52	31A2492C	Seal inner washer	1
53	31G3861	Shaft seal	1
54	31A2492A	Seal outer washer	1
55	31AR2563C15	Impulse coupling, complete	1
56	31D1498J	Pawl snap ring	2
57	31Q2566	Coupling pawl	2
58	31T5963	Pawl spring	2
59	31S2563	Coupling hub	1
60	31E2565	Coupling spring	1
61	31GW5957	Coupling shell	1
62	31F2572	Coupling bushing	1
63	31M2570	Coupling nut	1
64	31-10LW2	Screw, lock washer	1
65	31A2669	Distributor rotor pin	1

Y134A Fairbanks-Morse Magneto (Replaced By Y136A)

USE WITH MODEL TJD (RADIO SHIELDED) (see pg. 93)

ITEM	PART NO.	DESCRIPTION	QTY
1	31CZ2430A	End cap	1
2	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long	2
3	31-10S8D	End cap screw, no. 10-24 thread x 1/2" long	2
4	31A6032A	Vent screen	1
5	31A1232	Vent cover	1
6	31-6S6N	Vent screw, no. 6-32 thread x 3/8" long	1
7	31-10S6G	Plate screw, no. 10-24 thread x 3/8" long	2
8	31A2636	End cap plate	1
9	31K2498	End cap gasket	1
10	31D2474E	Distributor block	1
11	31-8S8D	Block screw, no. 8-32 thread x 1/2" long	4
12	31A983B	Lead rod	1
13	31E2460B	Brush and spring	1
14	31FY2765	Distributor rotor	1
15	31A2766	Rotor spring clip	1
16	31C1498G	Fulcrum pin snap ring	1
17	31A2437A	Breaker point set	1
18	31-6S6Z	Terminal screw, no. 6-32 thread x 3/8" long	1
19	31-8S6U	Support screw, no. 8-32 thread x 3/8" long	1
20	31B5969	Support screw washer	1
21	31G2788	Cam wick	1
22	31-8S5NA	Condenser screw, no. 8-32 thread x 3/8" long	1
23	31SXY2433	Condenser	1
24	31-6S6U	Support screw, no. 6-32 thread x 3/8" long	1
25	31D2458	Support screw lock washer	1
26	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
27	31V4631	Bearing support	1
28	31A5950A	Cam end bearing	1
29	31-6S4U	Clip screw, no. 6-32 thread x 1/4" long	1
30	31E6120	Coil clip	1
31	31N2514C	Switch	1
32	31-8S14N	Switch screw, no. 8-32 thread x 7/8" long	1
33	31K2457A	Screw bushing	1
34	31-8LW5	Screw lock washer	1
35	31-8N1	Screw nut	1
36	31L2514C	Terminal wire assembly	1
37	31M2514	Switch lever	1
38	31C6018	Insulated washer	1
39	31R2477C	Coil	1
40	31M2765	Magnetic rotor	1
41	31-3K1	Key	1
42	31B1498B	Bearing snap ring	1
43	31C5949	Drive end bearing	1
44	31B1498D	Shaft snap ring	1
45	31TZ2425	Housing	1
46	31N195	Name plate	1
47	31C6032B	Vent screen - housing	2
48	31B6030A	Vent cover - housing	2
49	31-6S4U	Cover screw, no. 6-32 thread x 1/4" long	2
50	31S2568	Pawl stop pin	1
51	31SS14A	Coil set screw, 5/16"-24 thread x 7/8" long	2
52	31A2492C	Seal inner washer	1
53	31G3861	Shaft seal	1
54	31A2492A	Seal outer washer	1
55	31AR2563C15	Impulse coupling, complete	1
56	31D1498J	Pawl snap ring	2
57	31A2566	Coupling pawl	2
58	31T5963	Pawl spring	2
59	31S2563	Coupling hub	1
60	31D2565	Coupling spring	1
61	31GW5957	Coupling shell	1
62	31F2572	Coupling bushing	1
63	31M2570	Coupling nut	1

Y135S1 (Replaced By Y135AS1, FMS1B7S1) (Type FMS1B7S), Y135S5 (Replaced By Y135AS3, FMS1B7S1) (Type FMS1B7S), Y135S3 (Replaced By Y135BS1, FMS1B7SU) (Type FMS1B7S) Magnetos



Y135S1 for Std. ACN, BKN engines - with GD87C drive gear.
Y135S5 for 28° spark adv. ACN, BKN engines - with GD87B drive gear.
Y135S3 for AENL engines - with GD145 drive gear.

Y135S1 (Replaced By Y135AS1), Y135S5 (Replaced By Y135AS3), Y135S3 (Replaced By Y135BS1) Magnetos

USE MODELS ACN, BKN WITH GD87C, GD87B, AENL WITH GD145 DRIVE GEAR (see pg. 96)

ITEM	PART NO.	DESCRIPTION	QTY
1	— — —	Screw	4
2	— — —	End cap (FMS1B7S)	1
3	— — —	End cap (FMS1B7S1, FMS1B7SU)	1
4	PH597	Grommet	1
5	— — —	Name plate	1
6	— — —	Switch assembly (FMS1B7S)	1
7	— — —	Switch assembly (FMS1B7S1, FMS1B7SU)	1
8	— — —	Nut, no. 8-32 thread	3
9	— — —	Lock washer, no. 8	1
10	— — —	Insulating bushing (FMS1B7S)	1
11	— — —	Insulating bushing (FMS1B7S1, FMS1B7SU)	1
12	— — —	Ground spring (FMS1B7S)	1
13	— — —	Insulated lever (FMS1B7S1, FMS1B7SU)	1
14	— — —	Insulating washer (1 used for FMS1B7S; 2 used for FMS1B7S1, FMS1B7SU)	
15	— — —	Wire assembly (FMS1B7S)	1
16	— — —	Wire assembly (FMS1B7S1, FMS1B7SU)	1
17	— — —	Screw, no. 8-32 thread x 7/8" long	1
18	QD852	Gasket	1
19	— — —	Snap ring	1
20	— — —	Point set	1
21	— — —	Support screw	1
22	— — —	Washer	1
23	— — —	Terminal screw	1
24	— — —	Tab (FMS1B7S)	1
25	— — —	Condenser screw, no. 8-32 thread x 3/8" long	1
26	— — —	Condenser clamp	1
27	— — —	Condenser	1
28	— — —	Screw, no. 8-32 thread x 1/2" long	2
29	— — —	Bearing support assembly	1
30	— — —	Bearing	1
31	YM4	Rotor assembly (NLA)	1
32	PL21	Woodruff key	1
33	— — —	Snap ring	1
34	31C5949	Bearing	1
35	— — —	Snap ring	1
36	— — —	Coil wedge (FMS1B7S)	2
37	YM5	Coil	1
38	— — —	Housing	1
39	— — —	Stop pin	1
40	— — —	Washer	1
41	31G3861	Seal	1
42	— — —	Washer	1
43	YM6	Coupling, 13° lag angle	1
44	— — —	Snap ring	1
45		Pawl	1
46	— — —	Spring	1
47	— — —	Hub assembly, 13° lag angle	1
48	— — —	Impulse spring	1
49	— — —	Impulse shell	1
50	— — —	Washer	1
51	— — —	Coupling bushing	1
52	— — —	Impulse nut	1
53	— — —	Screw (FMS1B7S1, FMS1B7SU)	2
—	YQ19	Points and condenser kit (includes 20, 23, 26, 27)	1
—	YQ20	Repair kit (includes 1, 18-21, 23, 26, 27 30, 33, 35)	1

Y135S1 (Replaced By Y135AS1, FMS1B7S1) (Type FMS1B7S), Y135S5 (Replaced By Y135AS3, FMS1B7S1) (Type FMS1B7S), Y135S3 (Replaced By Y135BS1, FMS1B7SU) (Type FMS1B7S) Magnetos

Service and Adjustment

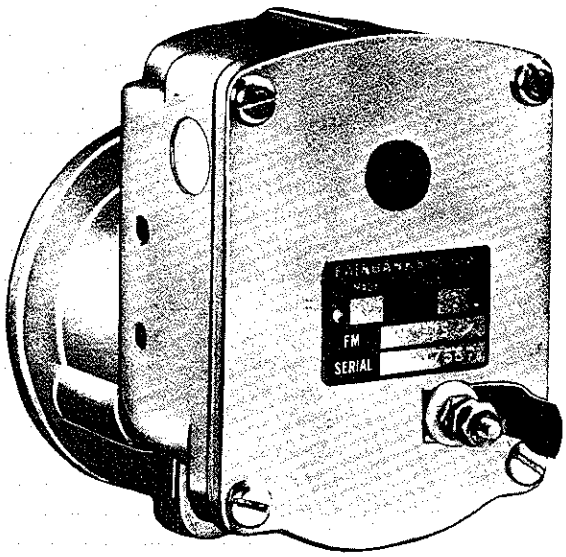


Fig. 1

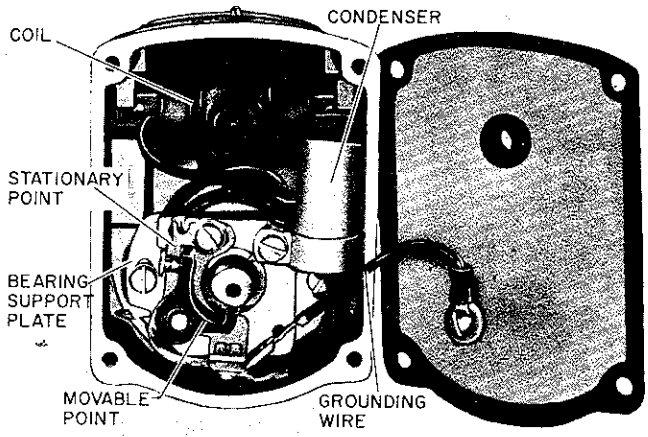


Fig. 2

GENERAL DESCRIPTION

This one-cylinder magneto, built specifically for application on Wisconsin single cylinder engines, has a two-pole magnetic rotor and a single lobe cam, producing one ignition spark per revolution. It is fitted with a dependable, single-pawl impulse coupling which facilitates 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 much 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.

DISASSEMBLY

END CAP

Remove the magneto end cap. The ground wire is attached to the end cap and the breaker points. Move the end cap to the side to gain access to the wire assembly at the points. This wire assembly has a

Y135S1 (Replaced By Y135AS1, FMS1B7S1) (Type FMS1B7S), Y135S5 (Replaced By Y135AS3, FMS1B7S1) (Type FMS1B7S), Y135S3 (Replaced By Y135BS1, FMS1B7SU) (Type FMS1B7S) Magnetos (Cont.)

push-on type connector and may be pulled apart to disconnect the ground wire. Remove the terminal screw, releasing the coil ground contact (the coil wire on the condenser side of the magneto), the condenser lead, the grounding wire tab, and the breaker arm spring. Pull the connectors, not the wires, to prevent damage. See Fig. 2

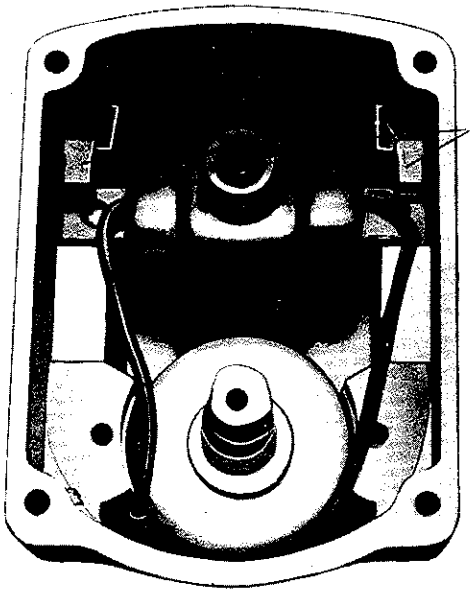


Fig. 3

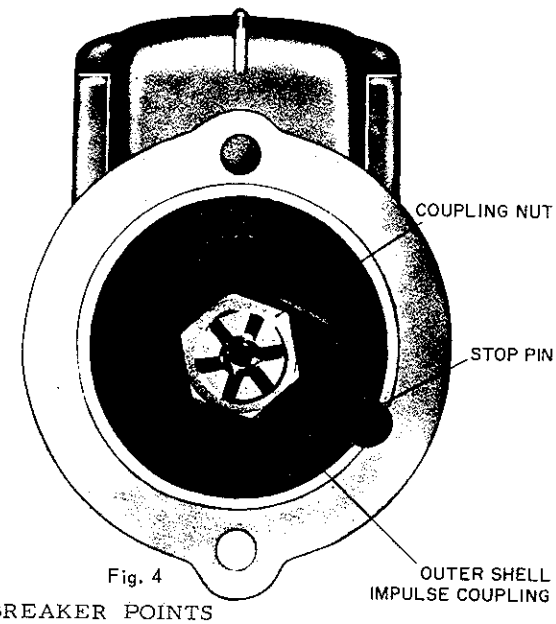


Fig. 4

BREAKER POINTS

Remove the fulcrum pin snap ring; lift the point set from the bearing plate. Inspect the points for pitting, oxidation or shorting. If the points are badly worn they should be replaced.

CONDENSER

Remove the condenser screw, which will also release the coil wire. Lift out the condenser and test for leakage, high resistance and correct capacity.

BEARING SUPPORT

Scribe a line to mark position of bearing plate in housing. The bearing support is the mounting plate for the breaker points and the condenser. Remove the two bearing support mounting screws and lift out the bearing support plate. Inspect the bearing for excessive wear.

COIL (Fig. 3)

With the bearing support removed, take out the two coil locking wedges with a blade type screw driver. Lift out the coil assembly. Test the coil for resistance in the primary and shorted secondary windings.

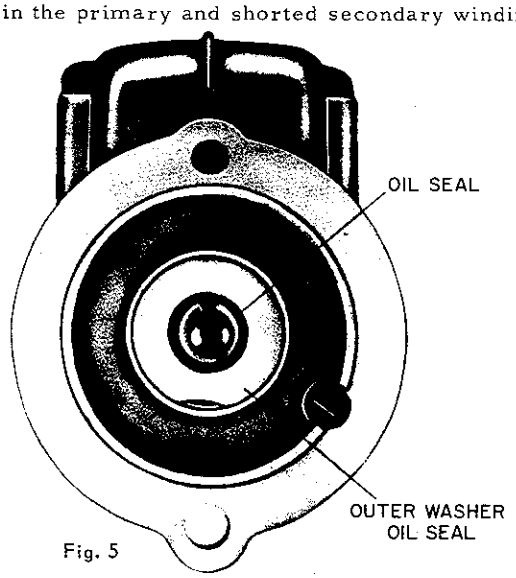


Fig. 5

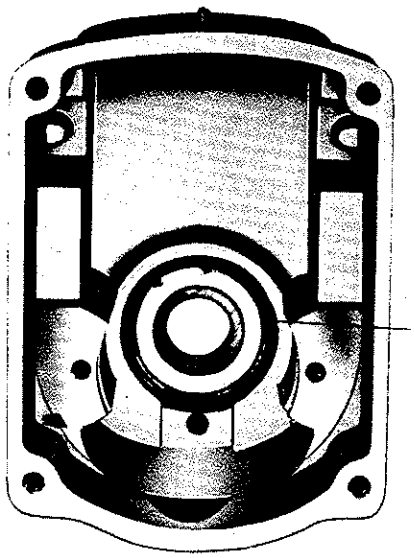


Fig. 6

Y135S1 (Replaced By Y135AS1, FMS1B7S1) (Type FMS1B7S), Y135S5 (Replaced By Y135AS3, FMS1B7S1) (Type FMS1B7S), Y135S3 (Replaced By Y135BS1, FMS1B7SU) (Type FMS1B7S) Magnetos (Cont.)

IMPULSE COUPLING (Fig. 4)
Remove the coupling nut, bushing, plate washer, outer shell and spring assembly. Remove the coupling hub with a suitable puller. Inspect coupling pawls for excessive wear. Replace if necessary. Also remove stop pin with screwdriver and inspect for wear. Replace if necessary.

MAGNETIC ROTOR (Fig. 5)
Using a narrow screwdriver, remove the outer washer, oil seal, inner washer, and the shaft snap ring. Press the rotor out of the housing. Remove staking ridges from housing.

BEARING - DRIVE END (Fig. 6)
Remove the bearing snap ring. Using a socket or other suitable tool, press out the bearing; inspect the bearing for wear and rough operation. Replace if necessary.

BEARING SUPPORT ASSEMBLY BEARING
Place the bearing support assembly on the open jaws of a vise. Be sure the vise jaws are open only as far as is needed to allow the bearing to pass through. Using a flat punch, drive out the bearing.

REASSEMBLY

Before reassembly clean and inspect all parts. Replace all worn or defective parts.

BEARING - DRIVE END
If original bearing is being reused, pack bearing with IC9 bearing grease.

Using a socket or other suitable tool press the bearing into the housing until the bearing seats against the shoulder in the housing. Install the bearing snap ring.

BEARING SUPPORT ASSEMBLY BEARING
Place the bearing support assembly on a firm flat surface. Using a socket for support, press the cam end bearing, carefully centered, into the support plate.

MAGNETIC ROTOR
The rotor magnets used in this magneto are made of a stable alnico material which retains its charge for long periods of time under normal conditions; therefore recharging should not be required.

Press the rotor into the drive end bearing until it seats against the bearing. Install shaft snap ring, new inner washer, new oil seal and new outer washer. Stake in place.

IMPULSE COUPLING
Key the coupling assembly onto the rotor shaft. Replace the plate washer, bushing and coupling nut.

COIL
Position the coil in the housing with the coil leads and hi-tension connector outward. Install the coil wedges and seat by lightly tapping into place with a lightweight hammer.

BEARING SUPPORT PLATE
Position the bearing support plate, matching the lines which were scribed at disassembly. Tighten screws.

CONDENSER
Install the condenser with the ground wire from the coil; tighten the screw securely.

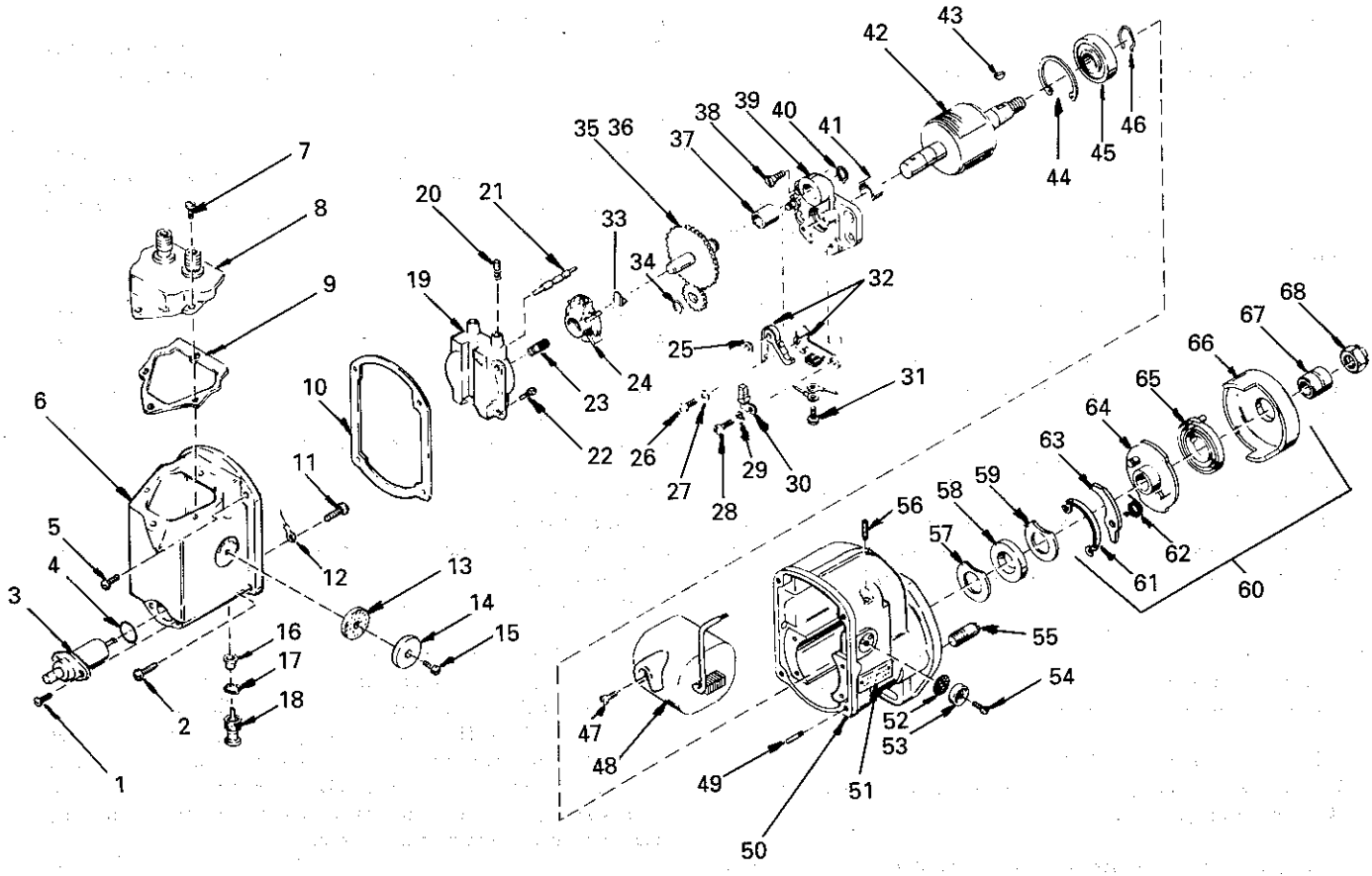
BREAKER POINTS
Connect the coil ground contact, condenser lead, shutdown wire, and the breaker arm spring to the stationary point with the terminal screw. Do not tighten at this time. Install the stationary and movable points over the fulcrum pin and onto the bearing support plate. Be sure the stationary point is correctly positioned to lay flat on the bearing support plate. Install the support screw into the bearing support plate. Install the fulcrum pin snap ring. Do not lubricate the fulcrum pin. Position the coil wire, condenser lead, shutdown wire tab and the breaker arm spring so they do not contact any metal parts, and tighten the terminal screw.

To adjust the points for correct clearance turn the rotor so that the highest point of the cam is under the rubbing block and the points are being held at their widest opening. Adjust this opening by moving the stationary point until a clearance of .015 if obtained. Tighten all screws securely. Rotate the cam several revolutions and recheck point opening. Lubricate the cam with a very light film of IC9 bearing grease. Avoid excessive greasing.

END CAP
Connect shutdown wire from end cap to tab at point assembly. Be sure not to contact any metal parts. The end cap gasket is all the seal required on this magneto. Install end cap and tighten the four screws.

Check operation of magneto on a magneto test bench following manufacturer's procedure.

Y136 Magneto (Type FMXE2B7H)



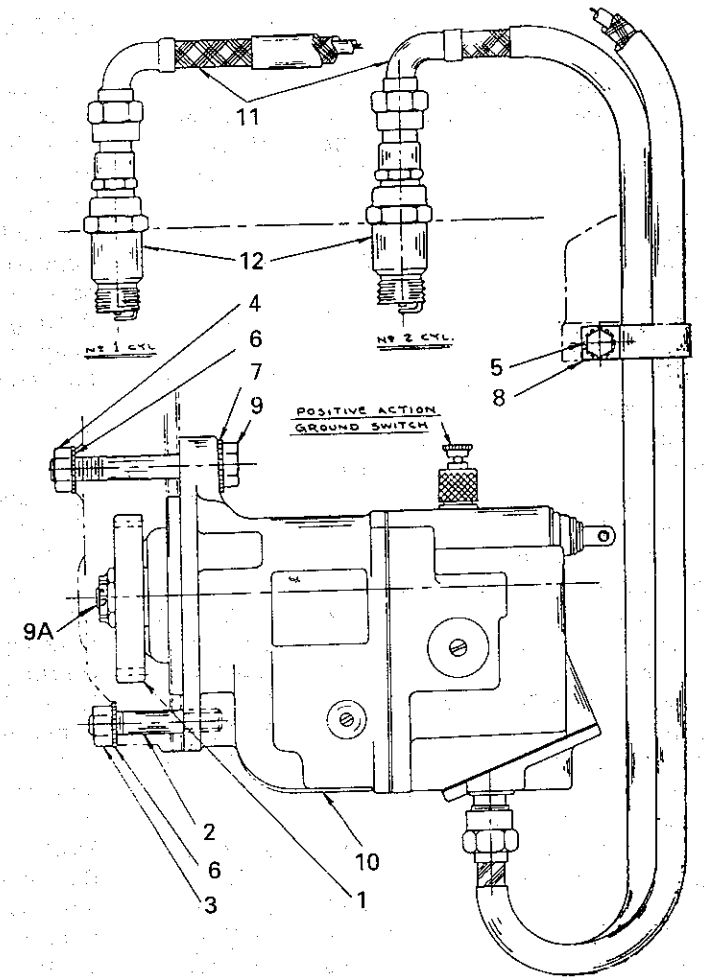
Y136 Magneto

USE WITH MODEL TJD (RADIO SHIELDED) (see pg. 101)

ITEM	PART NO.	DESCRIPTION	QTY
1	31-6S4U	Condenser mounting screw, no. 6-32 thread x 1/4" long	2
2	31-10S20D	End cap screw, no. 10-24 thread x 1-1/4" long filister head	2
3	31WX2433	Condenser	1
4	31P2473	"O" ring	1
5	31-10S12D	End cap screw, no. 10-24 thread x 3/4" long filister head	2
6	31EB2430A	End cap	1
7	31-8S8D	Cover screw, no. 8-32 thread x 1/2" long	4
8	31A800W	End cap cover	1
9	31B682A	Cover gasket	1
10	31K2498	End cap gasket	1
11	31-8S5NA	Wire assembly screw	1
12	31T2499A	Wire assembly	1
13	31A6032A	Vent screen	1
14	31A1232	Vent cover	1
15	31-6S6N	Cover screw, no. 6-32 thread x 3/8" long	1
16	31F4373	Ground switch bushing	1
17	31E2513A	Ground switch spring	1
18	31GW2514	Plunger and nut assembly	1
19	31DX2474	Distributor block	1
20	31B3969	Grounding spring	2
21	31F983B	Suppressor assembly	1
22	31-8S8D	Distributor screw, no. 8-32 thread x 1/2" long	4
23	31E2460B	Brush and spring	1
24	31X2765	Distributor rotor	1
25	31C1498G	Snap ring	1
26	31-6S6U	Screw, no. 6-32 thread x 3/8" long	1
27	31D2458	Washer, no. 6	1
28	31-8S6U	Support screw	1
29	31B5969	Support washer	2
30	31G2788	Cam wick	1
31	31-6S6Z	Screw, no. 6-20 thread x 3/8" long, round head	1
32	31A2437A	Point set	1
33	31A2766	Spring clip	1
34	31B1498B	Snap ring	1
35	31Q5952	Rotor gear	1
36	31Q5939	Distributor shaft and gear	1
37	31D5950C	Distributor bearing	1
38	31-8S6G	Support screw, no. 8-32 thread x 3/8" long	4
39	31X4631	Bearing support	1
40	31G1498	Snap ring	1
41	31A5950A	Cam end bearing	1
42	31KW2480	Rotor	1
43	31-3K1	Key	1
44	31B1498B	Snap ring	1
45	31C5949	Drive end bearing	1
46	31B1498B	Shaft snap ring	1
47	31-6S4U	Contact screw, no. 6-32 thread x 1/4" long	1
48	31RS2477C	Coil	1
49	31G2533	Housing dowel	1
50	31GR2425	Housing	1
51	31N195	Name plate	1
52	31C6032B	Vent screen	2
53	31B6030A	Vent cover	2
54	31-6S4U	Vent screw, no. 6-32 thread x 1/4" long	2
55	31S2568	Pawl stop pin	1
56	31SS14A	Coil set screw	2
57	31A2492C	Inner seal	1
58	31G3861	Shaft seal	1
59	31A2492A	Outer seal	1
60	31AR3563C	Coupling complete	1
61	31D1498J	Pawl snap ring	2
62	31T5963	Pawl spring	2
63	31Q2566	Coupling pawl	2
64	31S2563-27	Hub assembly	1
65	31D2565	Coupling spring	1
66	31GW5957	Coupling shell	1
67	31F2572	Gear bushing	1
68	31M2570	Coupling nut	1

EYC104 Magneto

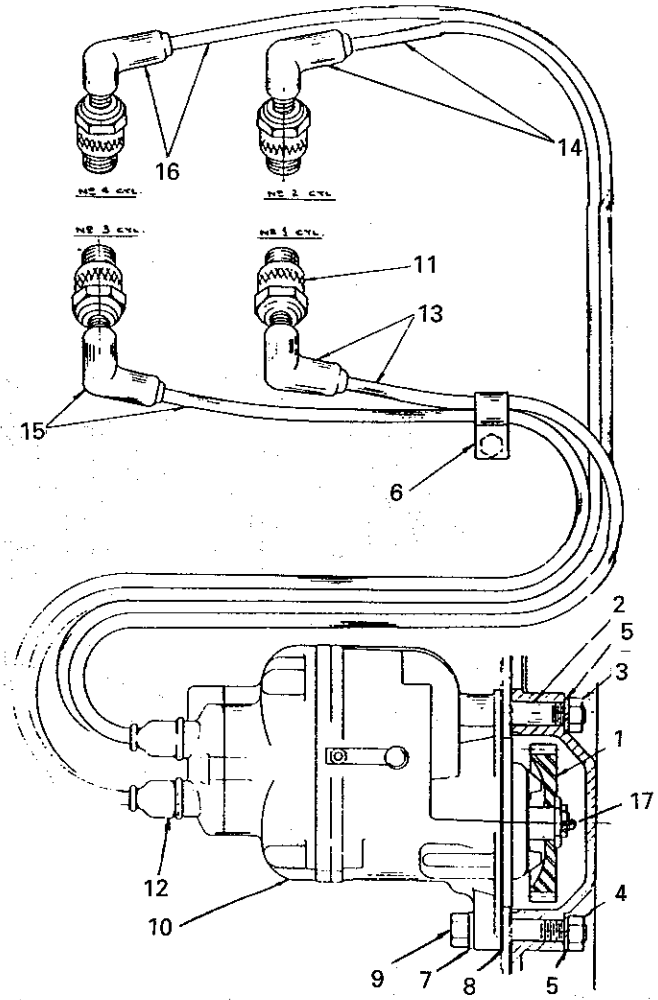
USE WITH MODEL THD (RADIO SHIELDED)



ITEM	PART NO.	DESCRIPTION	QTY
1	GD93C3	Gear	1
2	PC110	Stud	1
3	PD11	Nut	1
4	PD79	Nut	1
5	PE34A	Lock washer	1
6	PE56A	Lock washer	2
7	PE76A	Lock washer	1
8	PG559	Clip	1
9	XD113	Screw	1
9A	XI34	Pin	1
10	Y136	Magneto (Fairbanks-Morse no. FMXE2B7H)	1
11	YD300-32	Ignition wire assembly	2
12	YD311	Spark plug	2

EYC108 Magneto

USE WITH MODEL VG4D

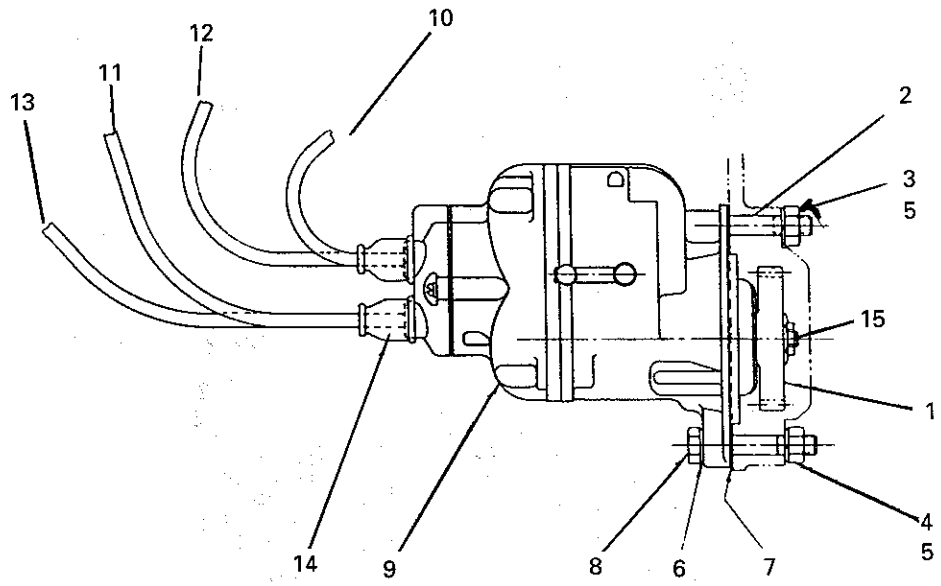


ITEM	PART NO.	DESCRIPTION	QTY
1	GD103-1	Gear	1
2	PC429	Stud	1
3	PD11	Nut, 3/8" x 24 thread	1
4	PD79	Nut, 3/8" x 16 thread	1
5	PE5	Lock washer, 3/8"	2
6	PG314	Clip	2
7	PH22A	Washer, 3/8"	1
8	QD616	Gasket	1
9	XD33	Screw, 3/8"-16 thread x 2-1/4" long	1
10	Y97S1	Magneto (Fairbanks-Morse no. FMX4B7A) (replaces Y95S1)	1

ITEM	PART NO.	DESCRIPTION	QTY
—	YQ8	Points and condenser kit	1
—	YQ9	Overhaul kit	1
11	YD6S1	Spark plug, 18 mm (D16J)	4
12	YD20	Nipple	4
13	YL339-32	Ignition wire, no. 1 cylinder	1
14	YL339-38	Ignition wire, no. 2 cylinder	1
15	YL339-34	Ignition wire, no. 3 cylinder	1
16	YL339-42	Ignition wire, no. 4 cylinder	1
17	XI34	Cotter pin	1

EYC109 Magneto

USE WITH MODEL W4-1770

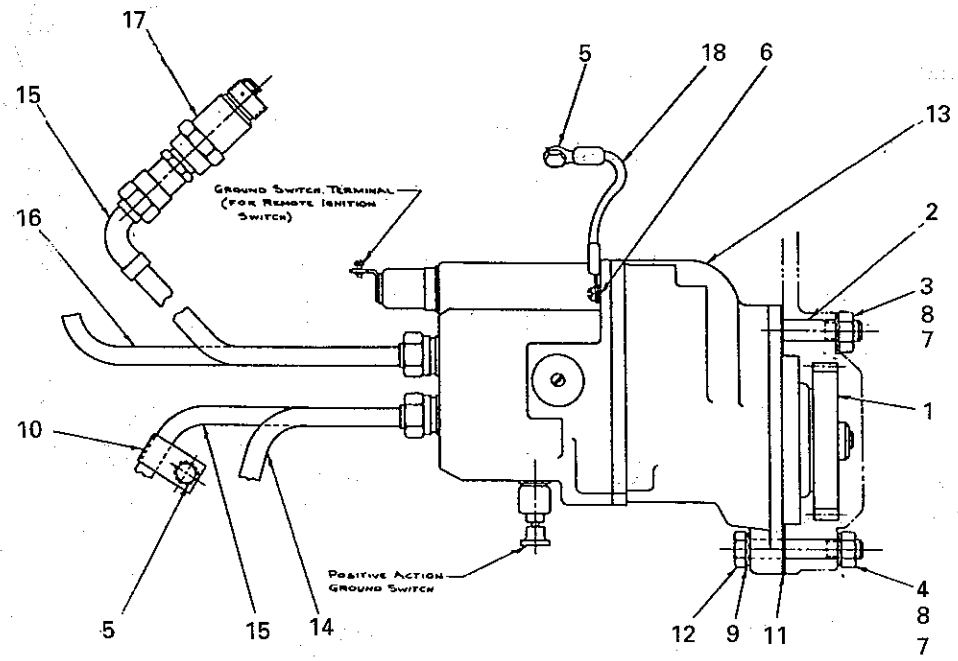


ITEM	PART NO.	DESCRIPTION	QTY
1	GD93C4	Gear	1
2	PC110	Stud	1
3	PD11	Nut, 3/8"-24 thread	1
4	PD79	Nut, 3/8"-16 thread	1
5	PE5	Lock washer	2
6	PH22A	Washer	1
7	QD616	Gasket	1
8	XD33	Screw, 3/8"-16 thread x 2-1/4" long	1
9	Y97S2	Magneto (Fairbanks-Morse no. FMX4B7A)	1
—	YQ8	Points and condenser kit	1
—	YQ9	Overhaul kit	1
—	Y95S2	Magneto (WICO no. XHG4) (optional)	1

ITEM	PART NO.	DESCRIPTION	QTY
—	YQ5	Points and condenser kit	1
—	YQ2	Overhaul kit	1
10	YL339-26	Ignition cable, no. 1 cylinder	1
11	YL339-32	Ignition cable, no. 3 cylinder	1
12	YL339-34	Ignition cable, no. 2 cylinder	1
13	YL339-40	Ignition cable, no. 4 cylinder	1
14	YD20	Terminal protector	4
15	XI34	Cotter pin	1

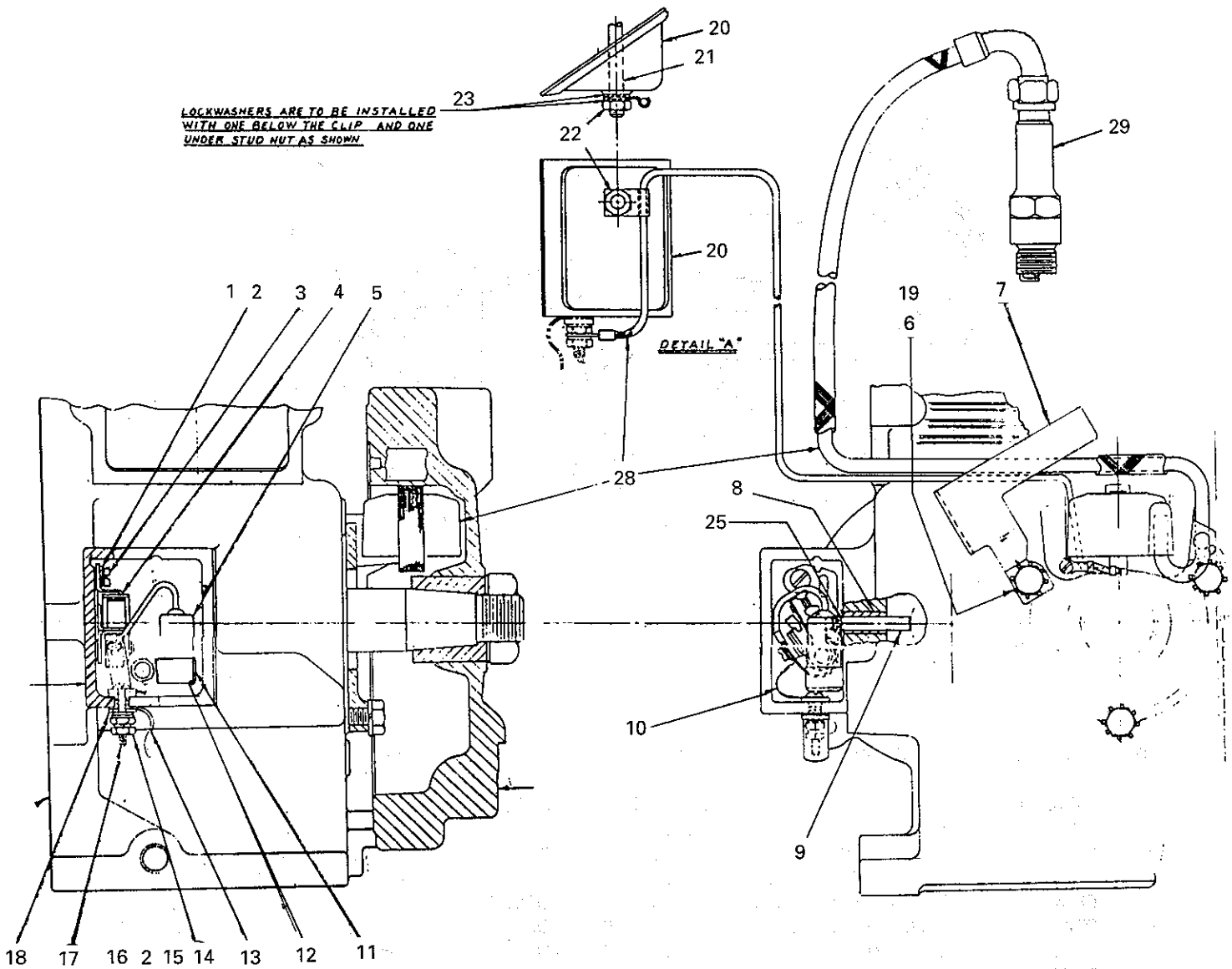
EYC130 Magneto

USE WITH MODELS VG4D, VH4D (RADIO SHIELDED)



ITEM	PART NO.	DESCRIPTION	QTY
1	GD103-1	Gear	1
2	PC429	Stud	1
3	PD11	Nut, 3/8"-24 thread	1
4	PD79	Nut, 3/8"-16 thread	1
5	PE34A	Lock washer	5
6	PE45	Lock washer	1
7	PE46A	Lock washer	6
8	PE56A	Lock washer	4
9	PE76A	Lock washer	1
10	PG558	Clip	4
11	QD616	Gasket	1
12	XD33	Screw, 3/8"-16 thread x 2-1/4" long	1
13	Y98CS1	Magneto (VG4D) (includes 1, 11)	1
—	Y98CS2	Magneto (VH4D) (includes GD93C4)	1
14	YD300-23	Lead	1
15	YD300-32	Lead	2
16	YD300-40	Lead	1
17	YD311	Spark plug	4
18	YL355-5	Strap	1
—	XI34	Cotter pin (not illustrated)	1

EYC134 Magneto



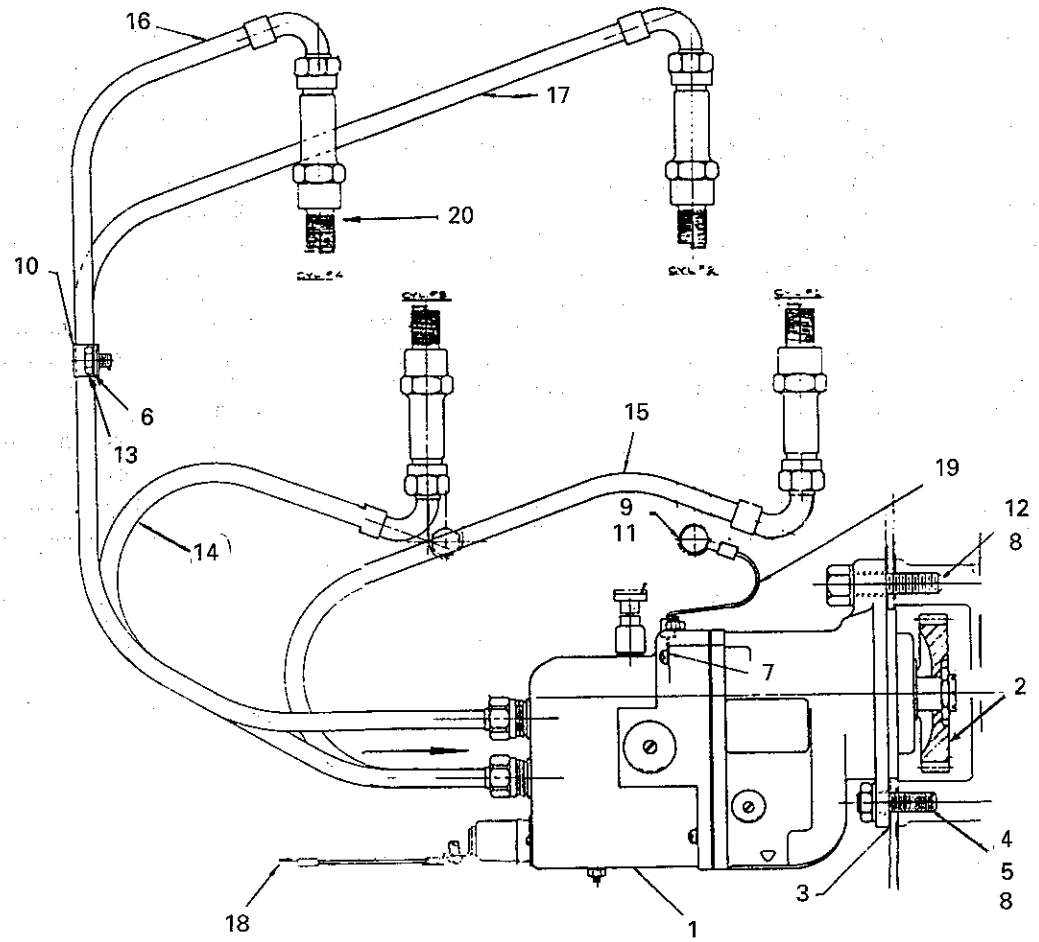
EYC134 Magneto

USE WITH MODEL TRA12D (RADIO SHIELDED) (see pg. 109)

ITEM	PART NO.	DESCRIPTION	QTY
1	PH236	Plain washer	1
2	PE89	Lock washer	2
3	XA4	Screw, no. 8-32 thread x 3/8" long	2
—	XD140	Cap screw (not illustrated)	1
4	YD314A	Contact set	1
5	YD315	Condenser	1
6	PE75	Lock washer	3
7	PG1144A	Clip	1
8	PF157	Bushing	1
9	PA428LS1	Push pin (includes PM221)	1
10	YD326	Terminal strip	1
11	YD325	Clip	1
12	YD324	Insulated washer	1
13	PG1132	Grounding clip	1
14	PD153-2	Nut, no. 8-32 thread	2
15	PE72	Interior washer	1
16	PH86B	Plain washer	1
17	YD321	Connection stud	1
18	YD316	Insulated washer	1
19	XD177	Cap screw, 5/16"-18 thread x 1" long	3
20	SA130A	Cover	1
21	PC590	Stud	1
22	PD77	Nut	1
23	PE74	Lock washer	2
28	Y130A1S1	Stator assembly, WICO Magneto (includes ME170-1, PH529, 90-11409; includes coil assembly)	1
29	YD311	Spark plug	1

EYC137 Magneto

USE WITH MODEL V465D (RADIO SHIELDED)



ITEM	PART NO.	DESCRIPTION	QTY
1	Y127S1	Magneto assembly (includes 2, 3; includes XI34)	1
2	GD103A	Gear	1
3	QD616	Gasket	1
—	XI34	Cotter pin (not illustrated)	1
4	PC604	Stud, 3/8" thread x 7/16" long	1
5	PD83	Nut, 3/8"-24 thread	1
6	PE34A	Lock washer, 1/4"	1
7	PE45	No. 10 external tooth washer	1
8	PE56A	Lock washer, 3/8"	2
9	PE75	Lock washer, 5/16"	1
10	PG559	Clip	1
11	PH77A	Washer, 11/32" I.D.	1
12	XD30	Screw, 3/8"-16 thread x 1-1/2"	1
13	XD4	Screw, 1/4"-20 thread x 1/2" long	1
14	YD300-14	Shielding assembly, no. 3 cylinder	1
15	YD300-17	Shielding assembly, no. 1 cylinder	1
16	YD300-32	Shielding assembly, no. 4 cylinder	1
17	YD300-40	Shielding assembly, no. 2 cylinder	1
18	YL352-30	Wire assembly	1
19	YL353-5	Wire assembly	1
20	YD302	Spark plug	4