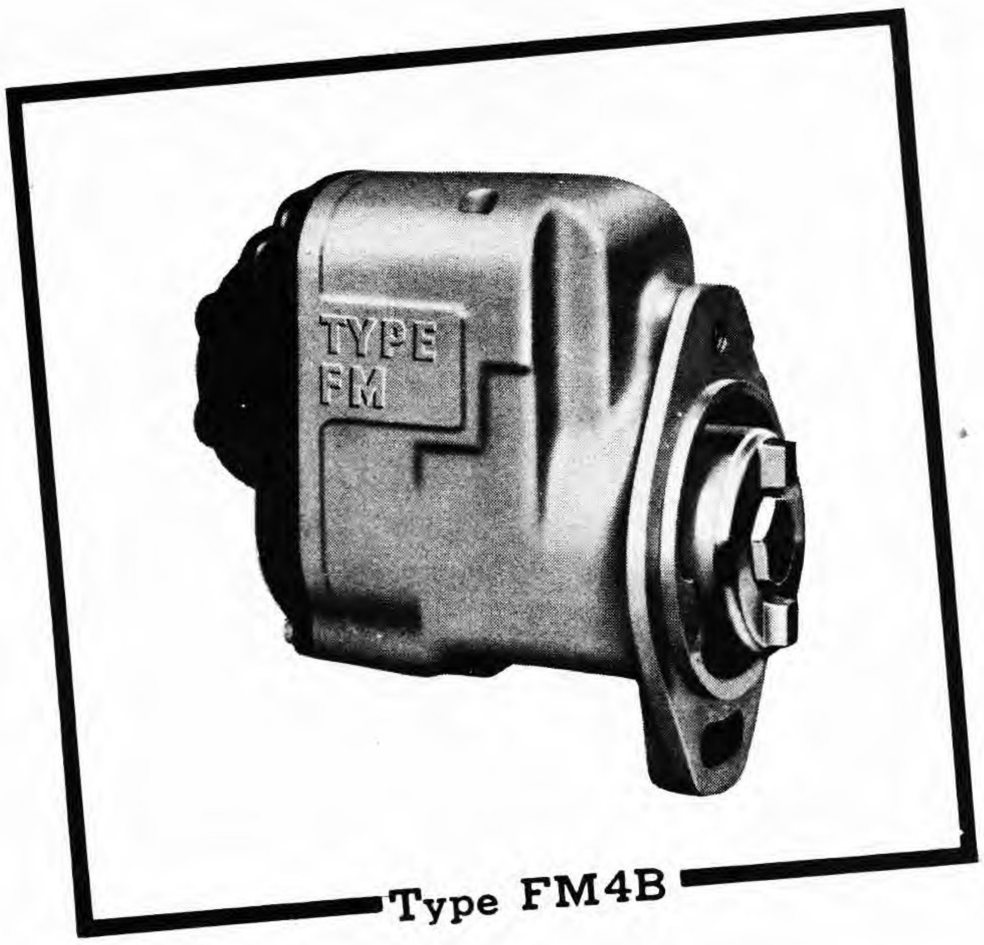
FAIRBANKS-MORSE

TYPES FM, FM-H, FMO & FM-OH MAGNETOS



Type FM4B



Type FM-OH6A

Field Service and Adjustment Information

General

Improper functioning of the magneto is often believed to be the cause of much engine trouble or starting difficulty arising from other sources. To prevent unnecessary and inadvisable adjustment of the magneto an arbitrary "service chart" has been prepared (Fig. 3) and it is recommended that the procedure suggested be carefully followed in the order shown. Investigation of engine trouble by this method results in simpler and more thorough service.

Testing the Magneto Spark

Remove all of the cable terminals from the magneto end cap sockets to eliminate the possibility of engine firing. Insert one end of a short piece of wire in one of the sockets and hold the other end about 1/8 inch from magneto frame. Turn the engine over slowly several times and watch closely for a spark between the wire and the frame. If a spark is observed, the testing arrangement should be moved to the next terminal and the procedure repeated. If a spark occurs at each terminal, it is very unlikely that the magneto is the source of the engine difficulty.

Magneto - Dismantling

When no spark is obtained from one or more of the magneto terminals, the distributor end cap should be taken off by removing the four end cap screws. The following details should then be checked:

(a) Inspect the carbon brushes. These brushes should move freely in their holders and should have a slight spring pressure; replace brushes which are worn or irregular.

(b) Clean the distributor disc with a clean cloth and carbon tetrachloride. Do not use sandpaper.

Service of Breaker Points

Carefully examine the breaker contact points for indications of pitting or pyramiding.

(a) If necessary, the contact points should be made smooth with a small tungsten file or fine stone. The entire breaker mechanism may be easily removed from the magneto for point resurfacing, eliminating the possibility of dropping filings in the magneto housing. Points must be adjusted after resurfacing.

(b) Points which cannot be reconditioned satisfactorily should be replaced by a complete new set.

TROUBLE	POSSIBLE CAUSE	SUGGESTED REMEDY
A. Flooding	Hot or cold engine; over-rich fuel mixture.	Dry out cylinders: 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 lines; clogged air intake.	Replenish fuel; clean fuel supply system and check carburetor; clean air intake system.
C. Ignition Connections	Loose or corroded terminals; broken cables; short circuited switch.	Clean or replace cable terminals; inspect soldered or clamped joints, test and replace cables; check ignition switch.
D. Spark Plug	Corroded, worn or damaged points; cracked or carbonized insulators.	New plugs; clean points and insulators; adjust point gap to recommended opening: never attempt to adjust center electrode.
E. Magneto	Brushes, points, impulse coupling.	See instructions beginning Paragraph #2.

Instructions No. 2822C
August 1, 1944

Adjustment of Breaker Points

The breaker point gap should measure .020 inch when fully open. To adjust the point gap the two locking screws (Fig. 4) of the stationary point bracket should be loosened, after which the eccentric head adjusting screw can be turned until the proper position has been obtained. The locking screws should be tightened before final measurement of the breaker point gap is made.

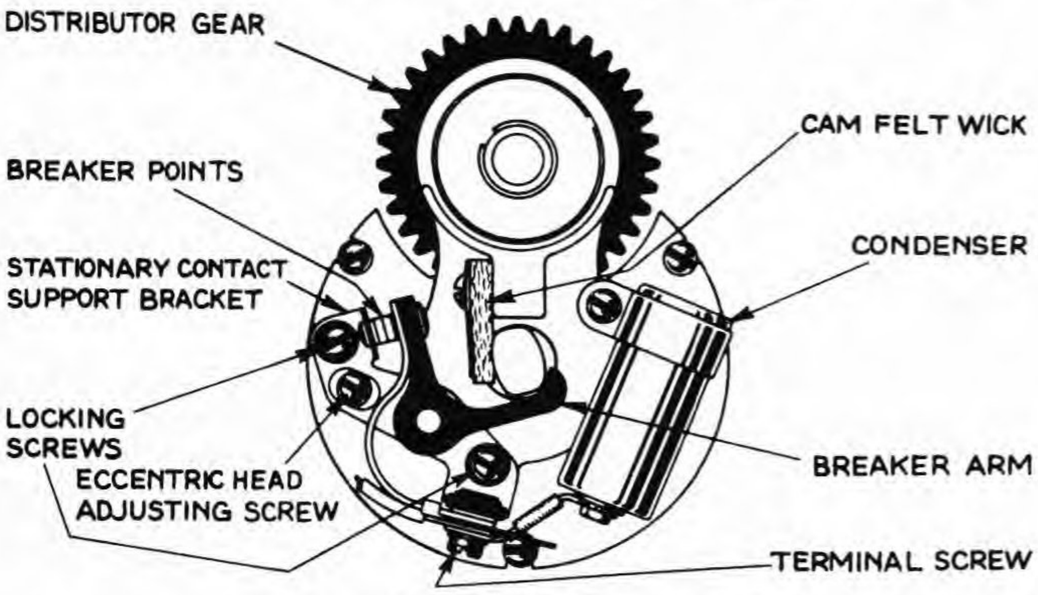


Fig. 4 - Breaker Plate Assembly

Lubrication of Magneto

Careful design and special factory preparation eliminates the necessity of field lubrication. Ball bearings are packed with the finest grade of high melting point grease (FMC03); the porous Oilite type sleeve bearings are mounted in bearing supports which provide reservoirs containing additional supplies of a particularly suitable grease (FMC04). Lubricants are to be renewed only during a complete overhaul of the magneto by an Authorized Service Station.

Reassembly, Sealing & Testing

To reseal the magneto according to factory standards all gasket surfaces should be thoroughly cleaned and a new gasket provided. A thin coat of the special FMC0 Gasket Sealing Varnish should be applied to the face of the distributor end cap and the gasket fixed in place. Mount the distributor end cap on the magneto frame and tighten the screws securely. Test the magneto again as outlined in Paragraph 2 and, if no spark occurs, remove and send the magneto to an Authorized Service Station.

Magneto to Engine Timing

If the magneto has been removed from the engine, replacement necessitates accurate retiming. Two methods are described below: (A) the advance spark position method and (B) the impulse coupling trip method.

(A) The advance spark position method consists of setting the magneto for advance spark position and the engine for advance firing position, both for #1 cylinder. Advance spark position for the magneto is obtained by turning the drive shaft in the direction opposite to the indicated rotation until the white mark on the edge of the distributor disc coincides with the center line of the end cap window. On some magnetos a screen has been used in place of the window, in which case it will be necessary to remove the end cap and turn the rotor shaft until the white mark of the distributor disc is directly above the rotor cam. Engine instructions usually describe how the engine may be set for advance firing position; if this is not known, it is recommended that method (B) be used.

(B) The impulse coupling trip method consists of setting the magneto for actual spark discharge and the engine piston at top dead center, both for #1 cylinder. To set the magneto the cable from #1 terminal should be replaced by a short wire, holding the opposite end close to the magneto frame. The impulse coupling should then be turned in the indicated direction until a spark is observed between the wire and the frame. To set the engine remove the spark plug of #1 cylinder and turn the crankshaft until the piston reaches top dead center on the compression stroke.

Magneto to Engine Connection

Without disturbing either magneto or engine settings as determined by methods (A) or (B) of Paragraph 8, the magneto should be connected as explained below:

(A) Flange Mounting Magnetos - Simply engage the drive lugs of the impulse coupling with the driving slots of the engine drive member (a slight movement of the magneto may be necessary). Tighten capscrews and nuts securely.

(B) Base Mounting Magnetos - If no change has been made in the position of the drive member, it is only necessary to engage the drive lugs of the impulse coupling with the driving slots of the float disc; be certain that the shaft assembly is aligned before securing the base mounting screws.

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 (Fig. 5) can be loosened to permit movement of the engine drive shaft in collar K, being certain the key is in place. The drive member slots J can then be

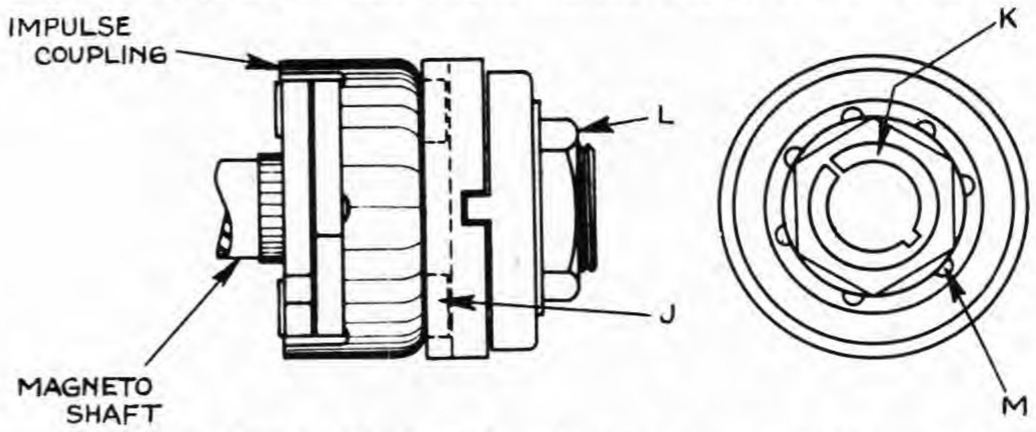


Fig. 5 - Drive Member for Base Mounting Magnetos

turned to line up 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 facilitates starting by holding back the magnetic rotor until the engine is in firing position, at which instant the rotor is snapped forward at high speed to produce an intense, hot spark, automatically retarded to prevent backfiring. The impulse feature disengages as soon as the engine has picked up speed. Absence of the characteristic snap at low speeds indicates that the coupling is not functioning properly and it should be sent together with the magneto to an Authorized Service Station.

Service Facilities

Authorized Service Stations, located throughout the U.S. and foreign countries, have been carefully selected by Fairbanks, Morse & Co. to assure highly efficient and complete repair and inspection service to owners of Fairbanks-Morse magnetos. These service stations are equipped with special tools and have had special training for magneto repair and, in addition, have the advantage of close contact with the factory service and engineering departments.

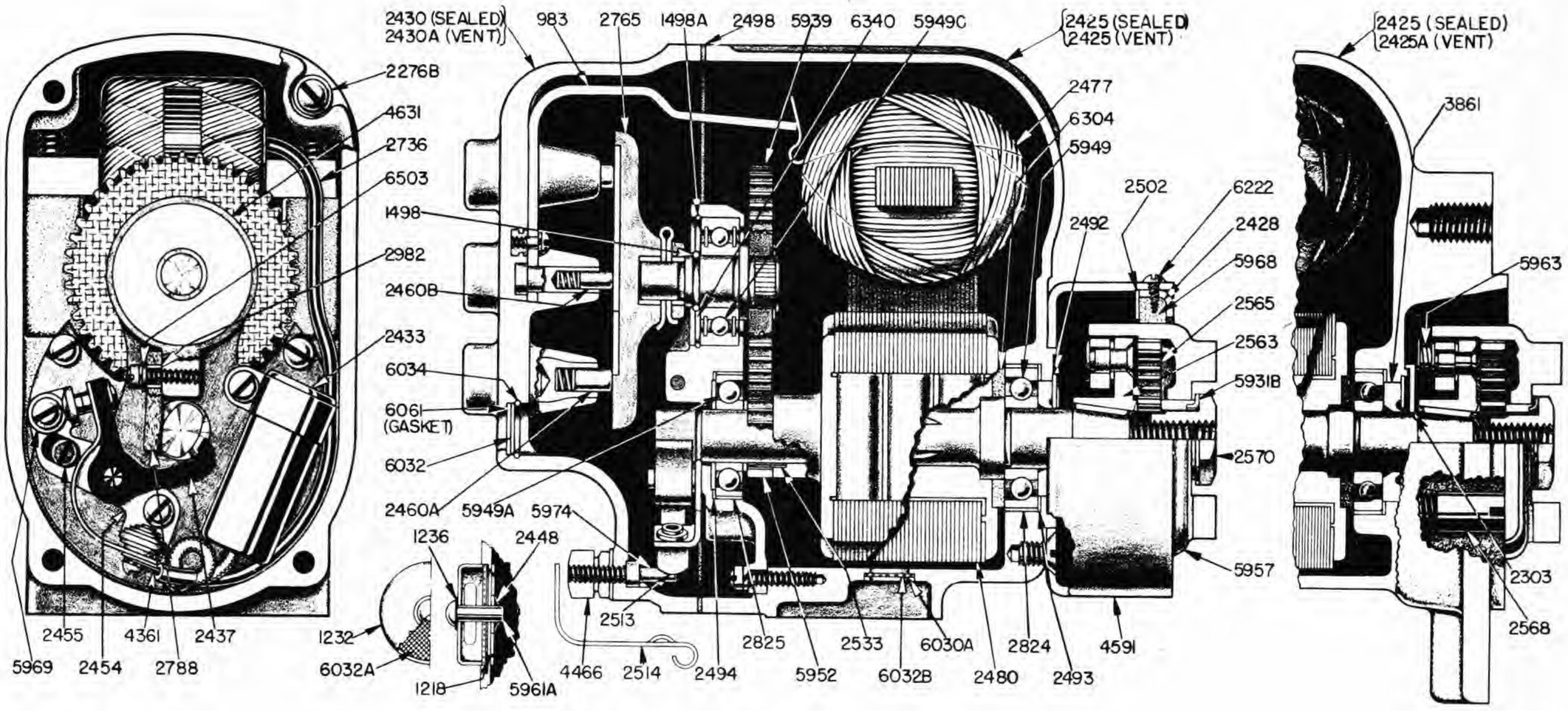
Genuine Fairbanks-Morse magneto replacement parts, which may be obtained from all Authorized Service Stations, should always be insisted upon for repairs. A complete directory of Authorized Fairbanks-Morse Magneto Service Stations is available upon request.

FAIRBANKS, MORSE & CO.
Manufacturers

Executive Offices:
Chicago, Illinois

Magneto Sales & Factory:
Beloit, Wisconsin

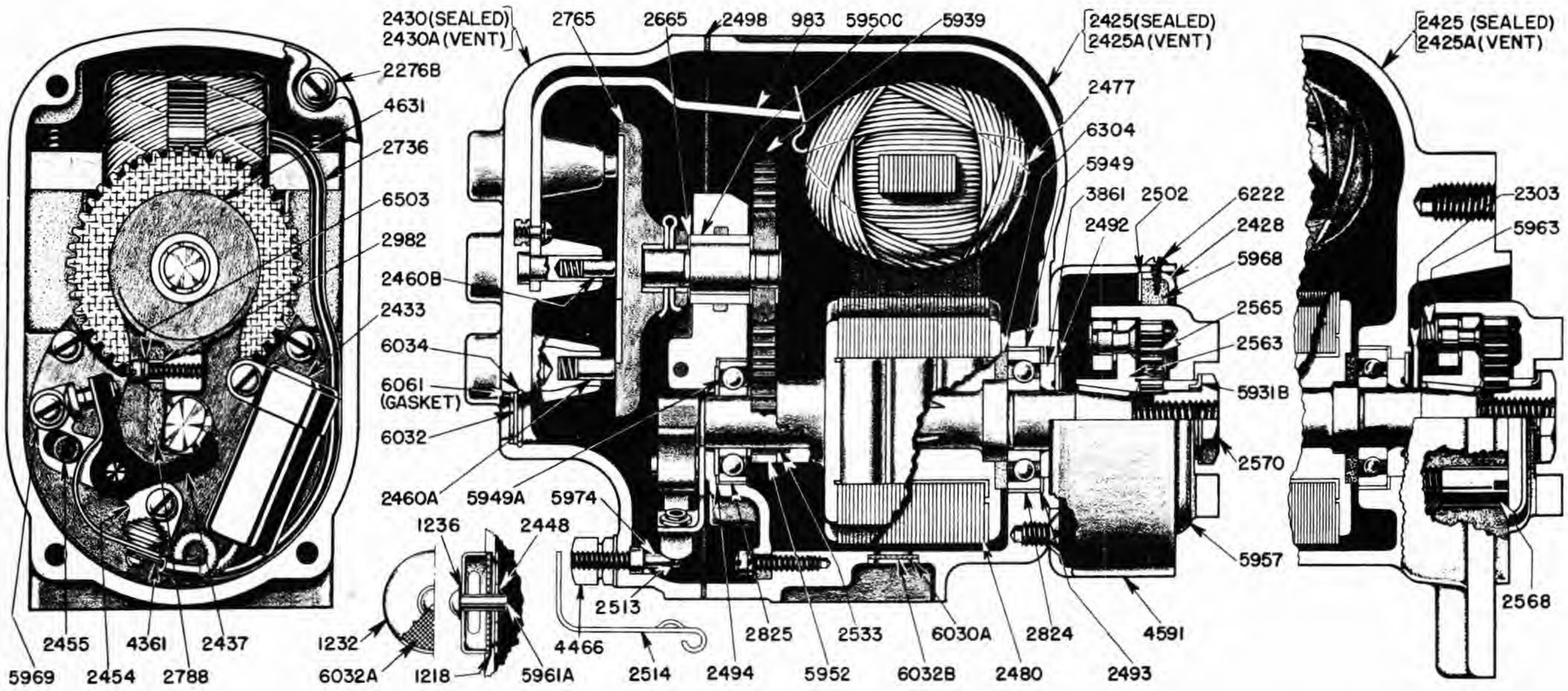
Repair Chart & List- Types FM & FMO Magnetos



Identification	Order By Part No.	Name of Part-Unless otherwise specified, part is for base or flange, CW or CCW magnetos.	No.Used FM04	No.Used FM06	Symbols for factory use only
983	B983	Dist. Lead Bar Assembly	. .	1	983Z6RD4
983A	A983A	Dist. Lead Rod	1	. .	Z4RD983B1
1218	A1218	Ventilator Hood Gasket	2	2	Z4RD1218A
1232	A1232	Ventilator Hood	2	2	Z4RD1232A
1236	A1236	Ventilator Hood Rivet Gasket	2	2	Z4RD1236A
1498	C1498	Dist. Shaft Snap Ring	1	1	Z4RD1498A1
1498A	A1498A	Dist. Bearing Snap Ring	1	1	Z4RD1498B
2276B	B2276B	End Cap Screw Washer	4	4	ZRB2276A1
2303	E2303	Oil Slinger Baffle Disc	1	1	Z4RD2303E1
2425	M2425	Frame-Sealed-Flange	1	1	Z4RD2425D10
2425	P2425	Frame-Sealed-SAE Base	1	1	Z4RD2425C9
2425A	M2425A	Frame-Vent.-Flange (Inc.A6032EC, A6030A, A6032B)	1	1	Z4RD2425P
2425A	P2425A	Frame-Vent.-SAE Base(Inc. A6032EC,A6030A,A6032B)	1	1	Z4RD2425L3
2428	D2428	Cplg.Hsg.Cupped Washer-Base	1	1	Z4RD2428C
2430	M2430	Dist. End Cap - Sealed(Inc. A983A, B6032,A6034,C6061)	1	. .	2430Z4RD-B
2430	R2430	Dist. End Cap-Sealed (Inc. B983, B6032,A6034,C6061)	. .	1	2430Z6RD-A
2430B	M2430B	Dist. End Cap-Vent.(Inc.A983A, A6030A, A6032B)	1	. .	2430Z4RD-C
2430B	R2430B	Dist. End Cap-Vent.(Inc.B983, A6030A,A6032B)	. .	1	2430Z6RD-B
2433	L2433	Condenser (Inc.A4361)	1	1	2433Z4RD3
2437	P2437	Brkr.Point Set-CW(Inc.E2454)	1	1	2437Z4RD4
2437	Q2437	Brkr.Point Set-CCW(Inc.F2454)	1	1	2437Z4RD4
2448	A2448	Vent. Screen Rivet Lockwasher	2	2	ZRD2448A
2454	E2454	Sta. Point & Support - CW	1	1	2453Z4RD2
2454	F2454	Sta. Point & Support - CCW	1	1	2453Z4RD1
2455	C2455	Breaker Pt. Adj. Screw	1	1	Z4RD2455A3
2460A	D2460A	Dist. Brush & Spring	4	6	Z4RB2267C1
2460B	E2460B	Coil Lead Brush & Spring	1	1	Z4RD2267A3
2477	C2477	Coil Assembly(Inc.E2736,A4361)	. .	1-FM6	4051Z4RD6
2477	K2477	Coil Assembly(Inc.E2736,A4361)	1	1-FM06	4051Z4RD12
2480	Y2480	Magnetic Rotor(Inc.C2533,D5952)	1	. .	2475Z4RD11
2480	Q2480	Magnetic Rotor(Inc.D2533,E5952)	. .	1-FM6	2475Z6RD3
2480	Z2480	Magnetic Rotor(Inc.D2533,E5952)	. .	1-FM06	2475Z6RD5
2492	A2492	Dust Seal Flat Washer	1	1	ZRA2492A1
2493	C2493	Brg. Insulating Washer	1	1	ZRB2493A
2494	B2494	Brg. Insulating Washer	1	1	ZRB2494A
2498	F2498	End Cap to Frame Gasket	1	1	Z4RD2498A1
2502	D2502	Cplg. Washer - Base	1	1	Z4RD2502B1
2513	B2513	Primary Ground Contact	1	1	Z4RD2513B1
2514	C2514	Ground Switch - Flange	1	1	Z4RD2514B1
2514C	B2514C	Ground Switch Group(Inc.C2514, B2513,A5974,A4466)	1	1	2514Z4RD
2533	C2533	Rotor Gear Pin	1	. .	Z4RD2533A
2533	D2533	Rotor Gear Pin	. .	1	Z6RD2533A
2563	*2563	Coupling Hub Assembly(Inc.5963)	1	1	. . . . .
2563C	*2563C	Cplg.Complete(Inc.2563,2565,5957)	1	1	. . . . .
2565	D2565	Coupling Spring - Series U	1	1	Z4RD6012A
2568	C2568	Pawl Stop Pin-CW-Flange	1	1	Z2RB2568B2
2568	D2568	Pawl Stop Pin-CCW-Flange	1	1	Z2RB2568A3
2570	G2570	Coupling Nut - Series U	1	1	Z4RD2570A2
2736	E2736	Primary Lead Wire Tube	1	1	Z4RD2736A
2765	H2765	Distributor Disc	1	. .	Z4RD2765C4
2765	J2765	Distributor Disc	. .	1	Z6RD2765A
2788	D2788	Cam Felt Wick	1	1	Z4RD2788A4
2824	A2824	Brg. Insulating Strip	1	1	Z4RD2824B
2825	A2825	Brg. Insulating Strip	1	1	ZRB2825A
2982	A2982	Cam Felt Wick Spacer	1	1	Z4RD2982A
3861	D3861	Brg. Seal Rubber Washer	1	1	Z4RD3861E
4361	A4361	Lead Wire Terminal	2	2	ZRB4361A
4466	A4466	Ground Screw Nut	1	1	Z6RB4466A1
4591	A4591	Coupling Housing - Base	1	1	4591Z4RD4
4631	A4631	Bearing Plate-CW(Inc. D2788, A2982, C6503)	1	1	Z4RD4631H
4631	B4631	Bearing Plate-CCW(Inc. D2788, A2982, C6503)	1	1	Z4RD4631J
5931A	A5931A	Coupling Nut Lockwire	1	1	Z2RA5931A
5931B	A5931B	Coupling Nut Lockwasher	1	1	Z4RD5931B
5939	J5939	Dist. Shaft & Gear	1	. .	5943Z4RD2
5939	K5939	Dist. Shaft & Gear	. .	1	5943Z6RD1
5949	B5949	Ball Bearing - Drive End	1	. .	E15 Norma
5949A	A5949A	Ball Bearing - Opp. Drive End	. .	1	Z6RD5950A
5949A	C5949A	Ball Bearing - Opp. Drive End	1	. .	E13 Norma
5949C	A5949C	Ball Bearing - Distributor	1	. .	16FM34U
5952	D5952	Rotor Gear	1	. .	Z4RD5952B2
5952	E5952	Rotor Gear	. .	1	Z6RD5952A
5957	M5957	Cplg. Shell - CCW - Type UB	1	1	Z4RD5957H4
5957	N5957	Cplg. Shell - CW - Types UB,UB1	1	1	Z4RD5957G5
5957	P5957	Cplg. Shell - CCW - Type UA	1	1	Z4RD5957P1
5957	Q5957	Cplg. Shell - CW - Type UA	1	1	Z4RD5957N1
5961A	A5961A	Ventilator Screen Rivet	2	2	Z4RD5961D
5963	B5963	Pawl Spring - Type UB1	2	. .	Z4RB5963B1
5968	C5968	Cplg. Hsg. Felt Washer - Base	1	1	Z4RD5968C
5969	B5969	Stationary Contact Washer	1	1	Z4RD5969A
5974	A5974	Primary Ground Post	1	1	Z4RD5974A
6030	A6030	Ventilator Screen Washer	2	2	Z4RD6030A1
6030A	A6030A	Ventilator Screen Washer	2	2	Z4RD2665F1
6032	B6032	Timing Window	1	1	Z4RD6032A1
6032A	A6032A	Ventilator Screen	2	2	Z4RD6032F
6032B	A6032B	Ventilator Screen	2	2	Z4RD6032D
6032EC	A6032EC	Hooded Vent.Group(Inc.A6032A,A6030, A5961A,A2448,A1218,A1232,A1236)	2	2	. . . . .
6034	A6034	Window Snap Lock	1	1	Z4RD6034A
6061	C6061	Window Gasket	1	1	Z4RD6061A
6222	B6222	Cplg. Hsg. Screw - Base	2	2	Z4RD6222A1
6304	A6304	Brg. Seal Washer	1	1	Z2RB6304A2
6340	A6340	Dist. Brg. Felt Seal	1	1	Z4RD6340A
6503	C6503	Cam Felt Wick Holder	1	1	ZRA2458A

* Note:When coupling complete (2563C) or coupling hub (2563) is ordered, lag angle, type and rotation must be specified.

Repair Chart & List - Types FM-H & FM-OH Magnetos



Identification	Order By Part Number	Name of Part - Unless otherwise specified, part is for base or flange, CW or CCW magnetos.	No.Used FM-OH4	No.Used FMH6 FMOH6	Symbols (for factory use only)
983	B983	Dist. Lead Bar Assembly . . .	. .	1	983Z6RD4
983A	A983A	Dist. Lead Rod	1	. .	Z4RD983B1
1218	A1218	Ventilator Hood Gasket	2	2	Z4RD1218A
1232	A1232	Ventilator Hood	2	2	Z4RD1232A
1236	A1236	Ventilator Hood Rivet Gasket .	2	2	Z4RD1236A
2276B	B2276B	End Cap Screw Washer	4	4	ZRB2276A1
2303	E2303	Oil Slinger Baffle Disc . . .	1	1	Z4RD2303E1
2425	M2425	Frame-Sealed-Flange	1	1	Z4RD2425D10
2425	P2425	Frame-Sealed-SAE Base	1	1	Z4RD2425C9
2425A	M2425A	Frame-Vent.-Flange(Inc.A6032EC A6030A, A6032B)	1	1	Z4RD2425P
2425A	P2425A	Frame-Vent-SAE Base (Inc. A6032EC,A6030A,A6032B). . . .	1	1	Z4RD2425L3
2428	D2428	Cplg. Hsg.Cupped Washer - Base	1	1	Z4RD2428C
2430	M2430	Dist. End Cap - Sealed (Inc. A983A,B6032,A6034,C6061) . .	1	. .	2430Z4RD-B
2430	R2430	Dist. End Cap-Sealed (Inc. B983, B6032, A6034, C6060) .	. .	1	2430Z6RD-A
2430B	M2430B	Dist. End Cap-Vent.(Inc. A983A A6030A, A6032B)	1	. .	2430Z4RD-C
2430B	R2430B	Dist. End Cap-Vent.(Inc. B983, A6030A, A6032B)	. .	1	2430Z6RD-B
2433	L2433	Condenser (Inc: A4361)	1	1	2433Z4RD3
2437	P2437	Brkr.Point Set-CW(Inc.E2454).	1	1	2437Z4RD4
2437	Q2437	Brkr.Point Set-CCW(Inc.F2454)	1	1	2437Z4RD4
2448	A2448	Vent.Screen Rivet Lock Washer	2	2	ZRD2448A
2454	E2454	Sta'y Point & Support - CW .	1	1	2453Z4RD2
2454	F2454	Sta'y Point & Support - CCW .	1	1	2453Z4RD1
2455	C2455	Breaker Pt. Adjustment Screw.	1	1	Z4RD2455A3
2460A	D2460A	Distributor Brush & Spring. .	4	6	Z4RB2267C1
2460B	E2460B	Coil Lead Brush & Spring. . .	1	1	Z4RD2267A3
2477	C2477	Coil Assembly(Inc.E2736,A4361)	1-FMH6		4051Z4RD6
2477	K2477	Coil Assembly(Inc.E2736,A4361)	1-FMOH6		4051Z4RD12
2480	Y2480	Magnetic Rotor(Inc.C2533,D5952)	1	. .	2475Z4RD11
2480	Q2480	Magnetic Rotor(Inc.D2533,E5952)	1-FMH6		2475Z6RD3
2480	Z2480	Magnetic Rotor(Inc.D2533,E5952)	1-FMOH6		2475Z6RD5
2492	A2492	Dust Seal Flat Washer	1	1	ZRA2492A1
2493	C2493	Bearing Insulating Washer . .	1	1	ZRB2493A
2494	B2494	Bearing Insulating Washer . .	1	1	ZRB2494A
2498	F2498	End Cap to Frame Gasket . . .	1	1	Z4RD2498A1
2502	D2502	Coupling Washer - Base. . . .	1	1	Z4RD2502B1
2513	B2513	Primary Ground Contact. . . .	1	1	Z4RD2513B1
2514	C2514	Ground Switch - Flange. . . .	1	1	Z4RD2514B1
2514C	B2514C	Grd.Switch Group(Inc.C2514, B2513,A5974,A4466)	1	1	2514Z4RD
2533	C2533	Rotor Gear Pin.	1	. .	Z4RD2533A
2533	D2533	Rotor Gear Pin.	. .	1	Z6RD2533A
2563	2563*	Cplg.Hub Assembly(Inc.B5963).	1	1	. . . . .
2563C	2563C*	Impl.Cplg.Complete(Inc.2563, 2565,5957)	1	1	. . . . .
2565	D2565	Coupling Spring-Series U . . .	1	1	Z4RD6012A
2568	C2568	Pawl Stop Pin-CW-Flange. . . .	1	1	Z2RB2568B2
2568	D2568	Pawl Stop Pin-CCW-Flange . . .	1	1	Z2RB2568A3
2570	G2570	Coupling Nut-Series U.	1	1	Z4RD2570A2
2665	A2665	Dist.Shaft Flat Washer	1	1	Z4RD2665C
2736	E2736	Primary Lead Wire Tube	1	1	Z4RD2736A
2765	H2765	Distributor Disc	1	. .	Z4RD2765C4
2765	J2765	Distributor Disc	. .	1	Z6RD2765A
2788	D2788	Cam Felt Wick.	1	1	Z4RD2788A4
2824	A2824	Bearing Insulating Strip . . .	1	1	Z4RD2824B
2825	A2825	Bearing Insulating Strip . . .	1	1	ZRB2825A
2982	A2982	Cam Felt Wick Spacer	1	1	Z4RD2982A
3861	D3861	Bearing Seal Rubber Washer . .	1	1	Z4RD3861E
4361	A4361	Lead Wire Terminal	2	2	ZRB4361A
4466	A4466	Ground Screw Nut	1	1	Z6RB4466A1
4591	A4591	Coupling Housing - Base. . . .	1	1	4591Z4RD4
4631	P4631	Brg.& Brkr.Plate-CW(Inc.A5950C, D2788,A2982,C6503).	1	1	4631Z6RD-A
4631	Q4631	Brg.& Brkr.Plate-CCW(Inc.A5950C, D2788,A2982,C6503).	1	1	4631Z6RD-B
5931B	A5931B	Coupling Nut Lockwasher. . . .	1	1	Z4RD5931B
5939	L5939	Dist.Shaft & Gear Assembly . .	1	. .	5943Z4RD5
5939	M5939	Dist.Shaft & Gear Assembly . .	. .	1	5943Z6RD4
5949	B5949	Ball Bearing - Drive End . . .	1	1	E15 Norma
5949A	A5949A	Ball Bearing-Opp.Drive End . .	. .	1	Z6RD5950A
5949A	C5949A	Ball Bearing-Opp.Drive End . .	1	. .	ZRB5950A
5950C	A5950C	Sleeve Bearing-Dist.-Oilite. .	1	1	Z4RD2663A
5952	D5952	Rotor Gear	1	. .	Z4RD5952B2
5952	E5952	Rotor Gear	. .	1	Z6RD5952A
5957	M5957	Cplg.Shell-CCW-Type UB	1	1	Z4RD5957H4
5957	N5957	Cplg.Shell-CW-Types UB,UB1 . .	1	1	Z4RD5957G5
5957	P5957	Cplg.Shell-CCW-Type UA	1	1	Z4RD5957P1
5957	Q5957	Cplg.Shell-CW-Type UA.	1	1	Z4RD5957N1
5961A	A5961A	Ventilator Screen Rivet. . . .	2	2	Z4RD5961D
5963	B5963	Pawl Spring-Type UB1	2	. .	Z4RB5963B1
5968	C5968	Cplg.Hsg.Felt Washer-Base. . .	1	1	Z4RD5968C
5969	B5969	Sta'y Contact Washer	1	1	Z4RD5969A
5974	A5974	Primary Ground Post.	1	1	Z4RD5974A
6030	A6030	Ventilator Screen Washer . . .	2	2	Z4RD6030A1
6030A	A6030A	Ventilator Screen Washer . . .	2	2	Z4RD2665F1
6032	B6032	Timing Window.	1	1	Z4RD6032A1
6032A	A6032A	Ventilator Screen.	2	2	Z4RD6032F
6032B	A6032B	Ventilator Screen.	2	2	Z4RD6032D
6032EC	A6032EC	Hooded Vent.Group(Inc.A6032A,A6030, A5961A,A2448,A1218,A1232,A1236)	2	2	. . . . .
6034	A6034	Window Snap Lock	1	1	Z4RD6034A
6061	C6061	Window Gasket.	1	1	Z4RD6061A
6222	B6222	Cplg.Housing Screw - Base. . .	2	2	Z4RD6222A1
6304	A6304	Bearing Seal Washer.	1	1	Z2RB6304A2
6503	C6503	Cam Felt Wick Holder	1	1	ZRA2458A

* Note: When coupling complete (2563C) or coupling hub (2563) is ordered, lag angle, type and rotation must be specified.