

CHAPTER 5.1 (Added) MAGNETO PARTS KIT

Section I. GENERAL

127.1 Purpose

This changer of the manual covers installation of the magneto parts kit - 65909-934715 which services the Slick Electro Magneto, Model 445. The components of the parts kit are listed in table VI.

127.2 Instructions

a. Disassembly Instructions. The alphabetical order of the letters (A, B, and C) that appear on the illustrations are to be followed when performing the disassembly procedures.

b. Assembly Instructions. The assembly procedures should be performed by following the letters, that appear on the illustrations, in reverse order; e.g., C, B, and A. This method of reverse procedure will be used unless otherwise noted in the specific textual instructions.

127.3 Description and Data

a. Description. The Slick Electro Model 445 magneto (fig. 74.1) used on

the A0-53-1 engine is a waterproofed, vented, radio suppressed, four cylinder, two pole, flange mounted, inductor type. The magneto employs a rotating magnet or rotor. The frame is a one piece aluminum die casting with integral laminated iron pole pieces. The mounting flange has elongated mounting holes for accurate timing adjustment. Rotation of the magneto is counterclockwise when facing the drive end. Ignition timing is automatically advanced or retarded by an automatic flyweight advance assembly which also acts as a drive member. The Case Model 48 magneto used on the A0-53 engine is not covered in this chapter. Refer to TM 9-2920-205-35 for rebuild instructions.

127.4 Tabulated Data

Make _____ Slick Electro Inc.
 Model _____ 445
 Direction of rotation facing drive end _____ counterclockwise
 Firing order _____ 1-3-2-4
 Type of advance (automatic to 30 degrees at 2400 rpm) _____ centrifugal
 Breaker point gap _____ 0.008 to 0.012

Table VI. Components of Magneto Parts Kit

Reference		Identification	Willys Part Number	Ordnance Part Number
Key	Fig.			
B	74.9	Point Kit	65909-916427	
		Plate	No Number	
		Point Set	No Number	
B	74.9	Preformed Packing	65909-936318	
H	74.9	Housing Gasket	8369861	
K	74.9	Condenser Sealing Ring	65909-916405	
L	74.9	Condenser		7985068

Section II. INSTALLATION OF MAGNETO PARTS KIT

127.5 General

This section of the manual covers installation of the magneto parts kit. Only the necessary steps will be covered.

127.6 Disassembly

a. Removal of Magneto Housing. Remove magneto housing as follows:

- (1) Figure 74.1. Remove 90 degree elbow (A) from reducer bushing (B) and then remove reducer bushing from housing. Remove two No. 8 x 3/4 fillister head screws (C) securing magneto housing. Remove two No. 8 x 1-3/4 fillister head screws (D) securing magneto housing.

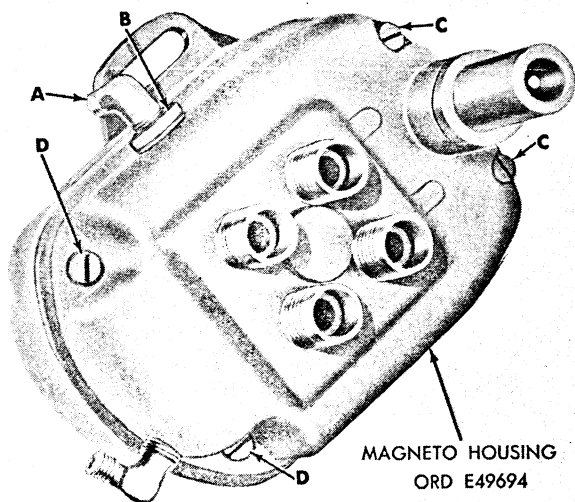


FIGURE 74.1 REMOVING OR INSTALLING MAGNETO HOUSING ATTACHING PARTS.

- (2) Figure 74.2. Insert a screwdriver through reducer bushing hole (A) in magneto housing placing the end of screwdriver against distributor disk and gear. Separate magneto housing (B) from magneto body.

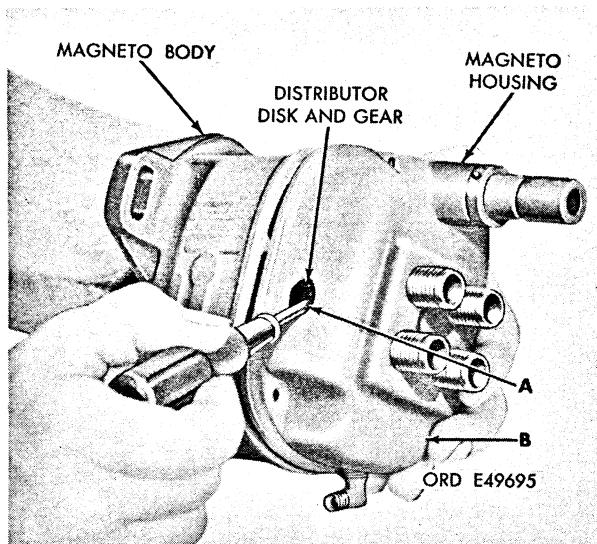


FIGURE 74.2 REMOVING MAGNETO HOUSING.

- (3) Figure 74.3. Disconnect the condenser lead wire (A) from point set. Remove magneto housing (B).

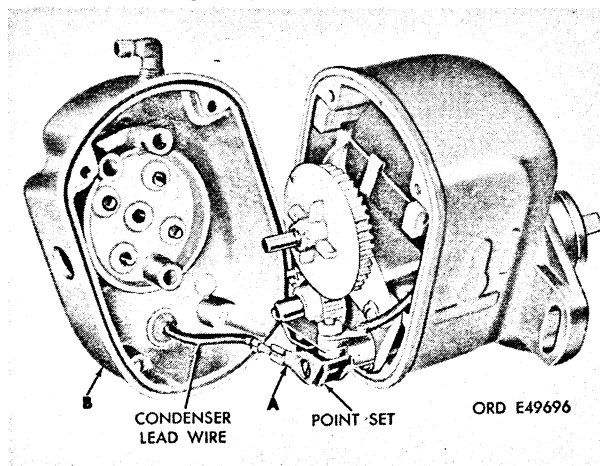
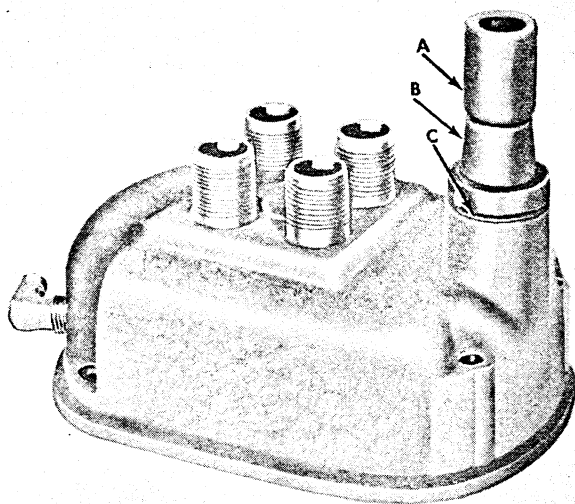


FIGURE 74.3 DISCONNECTING OR CONNECTING CONDENSER LEAD WIRE.

b. Removal of Condenser. Figure 74.4. Remove waterproof shell (A) by unscrewing it from condenser contact post. Remove condenser (B). Remove and discard condenser sealing gasket (C).

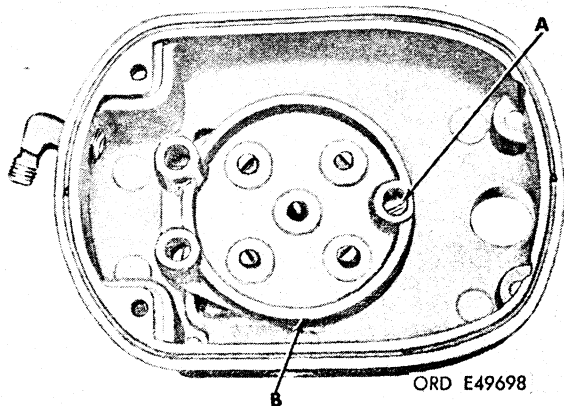


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FIGURE 74.4 REMOVING OR INSTALLING CONDENSER.

c. Removal of Distributor Block. Remove distributor block as follows:

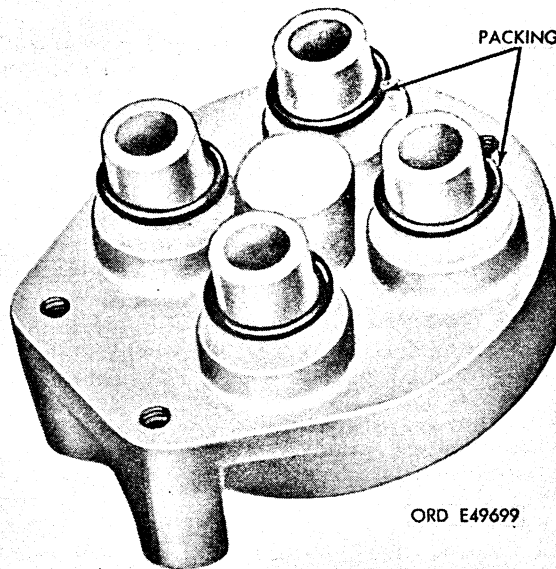
- (1) Figure 74.5. Remove three No. 8 x 3/8 fillister head screws and No. 8 lock washers (A) attaching distributor block to housing. Remove distributor block (B) from housing.



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FIGURE 74.5 REMOVING OR INSTALLING DISTRIBUTOR BLOCK.

- (2) Figure 74.6. Remove and discard distributor block preformed packings.

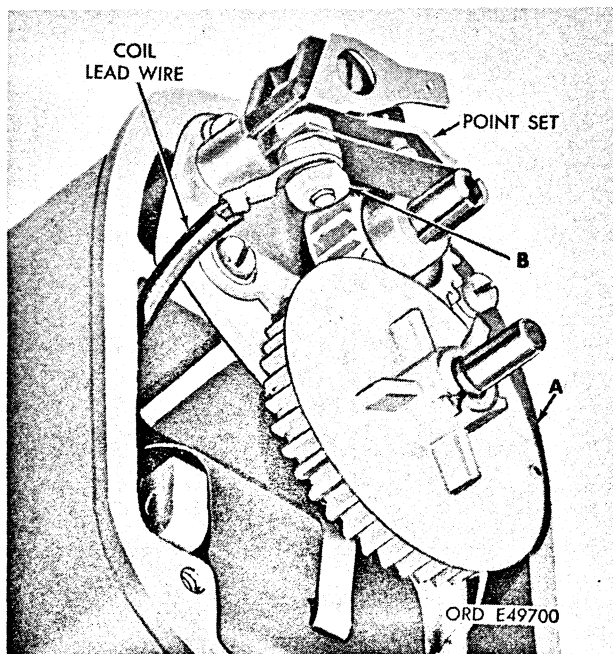


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FIGURE 74.6 REMOVING OR INSTALLING DISTRIBUTOR BLOCK PREFORMED PACKINGS.

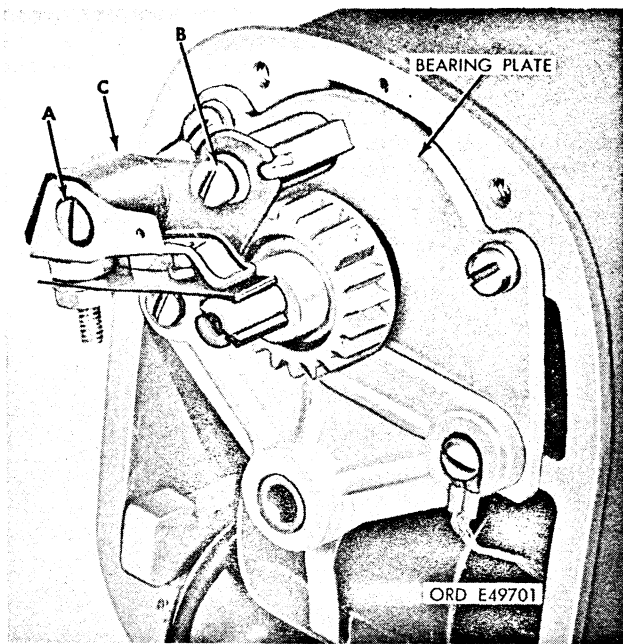
d. Removal of Point Set and Plate. Remove point set and plate as follows:

- (1) Figure 74.7. Remove distributor disk and gear (A). Remove No. 8 hex nut and No. 8 lock washer (B) securing coil lead wire to point set.



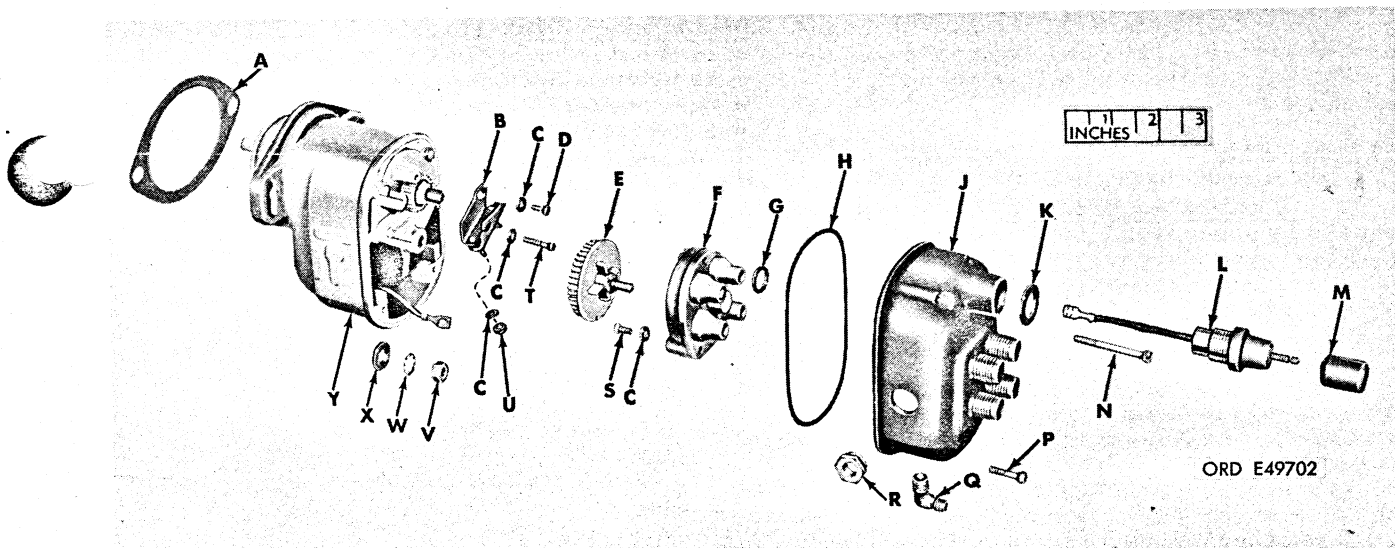
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FIGURE 74.7 REMOVING DISTRIBUTOR DISK AND DISCONNECTING COIL LEAD WIRE.



- (2) Figure 74.8. Remove No. 8 x 3/4 fillister head screw and No. 8 lock washer (A) securing point set to bearing plate. Remove No. 8 x 3/8 fillister head screw and No. 8 lock washer (B) securing point set and plate to bearing plate. Remove point set and plate (C).

FIGURE 74.8 REMOVING OR INSTALLING POINT SET AND PLATE.



- | | |
|---|--|
| A - Magneto mounting gasket - 8698458 | N - No. 8 x 1-3/4 special screw - 09033-034-46 |
| B - Point kit - 65909-916427 | P - No. 8 x 3/4 special screw - 09033-033-46 |
| C - No. 8 lock washer - 96906-15795-7 | Q - 90 degree elbow - 140304 |
| D - No. 8 x 3/8 fillister head screw - 131963 | R - Reducer bushing - 8764725 |
| E - Distributor disk and gear - 09033-M-1144 | S - No. 8 x 3/8 fillister head screw - 131963 |
| F - Distributor block - 09033-M-1297 | T - No. 8 x 3/4 fillister head screw - 09033-0369-JM |
| G - Preformed packing - 65909-936318 | U - No. 8 hex nut - 7045549 |
| H - Housing gasket - 8379861 | V - 5/16 plain nut - 96906-35690-525 |
| J - Housing - 8744217 | W - 5/16 internal-teeth lock washer - 96906-35333-24 |
| K - Condenser sealing ring - 65909-916405 | X - 5/16 flat washer - 7966571 |
| L - Condenser - 09033-M-1193 | Y - Magneto body - No Number |
| M - Waterproof shell - 09033-M-1196 | |

FIGURE 74.9 AO-53-1 ENGINE MAGNETO PARTS KIT AND ASSOCIATED PARTS - EXPLODED VIEW.

127.7 Cleaning, Inspection and Repair

Note. The key letters shown below in parentheses refer to figure 74.9.

a. Cleaning. Wipe inside of magneto housing (J) with a clean, lint free cloth dampened with dry-cleaning solvent or mineral spirits paint thinner. Clean contact surfaces of distributor disk and gear (E) with an ink eraser. Never use sandpaper or emery cloth. Clean distributor block (F) with a small brush dipped in dry-cleaning solvent.

b. Inspection. Inspect magneto housing (J) for cracks, stripped threads in condenser hole and on conduit connection post. Replace complete magneto assembly when housing is found unserviceable. Replace complete magneto assembly when distributor disk and gear (E), distributor block (F) or when any component of magneto body (Y) are defective.

c. Repair. Repairs to the magneto are limited to removal of raised metal surfaces on gasket or preformed packing mounting surfaces. Remove raised metal surfaces using a fine mill file. When any component part of the magneto body reveals damage replace complete magneto assembly.

127.8 Assembly

a. Assembly Procedures. Usually the magneto is assembled by reversing the disassembly procedures. When the instructions under disassembly call for removing and discarding a gasket or preformed packing, it is to be understood that during assembly, a new gasket or preformed packing be installed. All instructions will be a step-by-step or figure-by-figure reversal of disassembly sequence. For example, using the letters C, B, and A on the illustration in this order is reversing the disassembly instructions A, B, and C. This method of reverse procedures will be used throughout the magneto assembly procedures unless otherwise indicated by additional instructions and illustrations.

b. Installation of Point Set and Plate. Refer to paragraph 127.6d(2) and reverse the sequence of instructions to install the point set and plate. Do not tighten screw (B), until point gap is adjusted.

c. Adjust Point Gap. Adjust point gap as follows (figure 74.10):

- (1) Rotate drive gear (A) until one of the two cams contacts the point set.
- (2) Move point plate (B) as necessary until a point opening of 0.008 to 0.012 is obtained.
- (3) Tighten screw (C) securely when point gap is satisfactory.

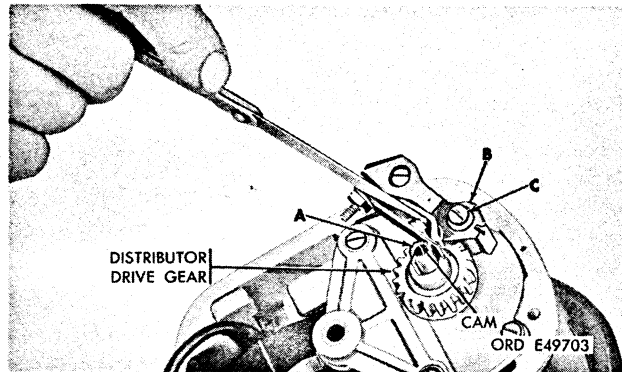


FIGURE 74.10 CHECKING POINT GAP.

d. Connect Coil Lead Wire and Install Distributor Disk (figure 74.11). Connect coil lead wire (A) to connector post on point set. Secure wire with No. 8 lock washer and No. 8 hex nut. Turn drive gear (B) until red mark on the gear is in a downward position. Install distributor disk (C) so that red dot or hole in disk aligns with mark on drive gear.

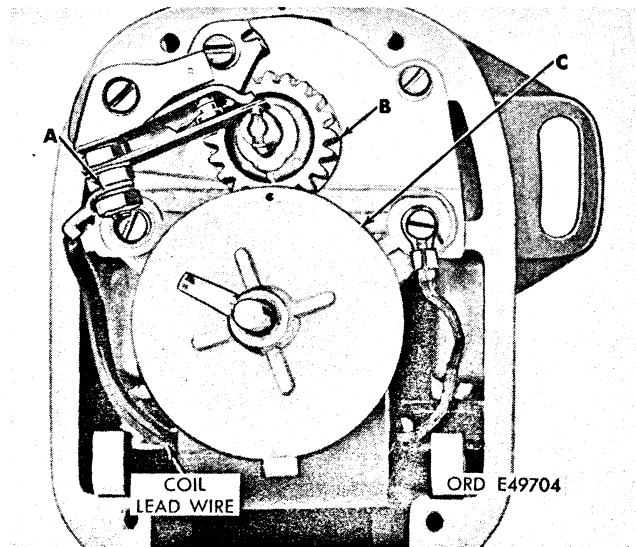


FIGURE 74.11 POSITIONING DISTRIBUTOR DISK AND CONNECTING COIL LEAD WIRE.

e. Installation of Distributor Block. Refer to paragraph 127.6c and reverse the sequence of illustrations and instructions to install the distributor block.

f. Installation of Condenser. Refer to paragraph 127.6b and reverse the sequence of instructions to install the condenser.

g. Installation of Magneto Housing. Refer to paragraph 127.6a and reverse the sequence of illustrations and instructions to install the magneto housing. Do not install the reducer bushing (B, fig. 74.1) or the 90 degree elbow (A, fig. 74.1) until after number on firing position is found as shown in figure 74.13. It is not necessary to hold distributor disk and gear during installation of magneto housing (fig. 74.2).

h. Locating Number 1 Cylinder Firing Position. Locate Number 1 cylinder firing position following sequence of instructions which accompany figure 74.12.

i. Check Operation of Magneto Assembly. This simple test will determine if magneto is capable of producing sufficient current for starting the engine. To thoroughly test the magneto, it should be mounted on a synchroscope and tested for performance, regularity and spark intensity at cranking, idle, and high operating speeds. If this test equipment is available, test operation of magneto. When test reveals that magneto is faulty, replace magneto assembly. Check operation of magneto assembly as follows:

(1) Figure 74.13. Connect spark plug lead and conduit assembly (A) to connector on magneto housing marked number one.

(2) Figure 74.13. Rotate magneto coupler and advance assembly (B) counterclockwise and check for spark jump from end of conduit to magneto housing. Spark should be blue in color and must jump across a gap of approximately 1/8-inch. When spark does not jump between conduit and housing remove housing and replace condenser and point set. If magneto still fails to operate after second kit is installed, replace magneto assembly.

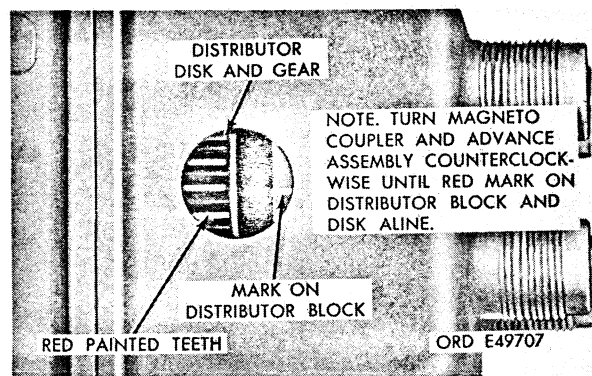


FIGURE 74.12 LOCATING NUMBER ONE CYLINDER FIRING POSITION.

j. Timing Magneto for Installation on Engine. Refer to TM 9-8034-20.

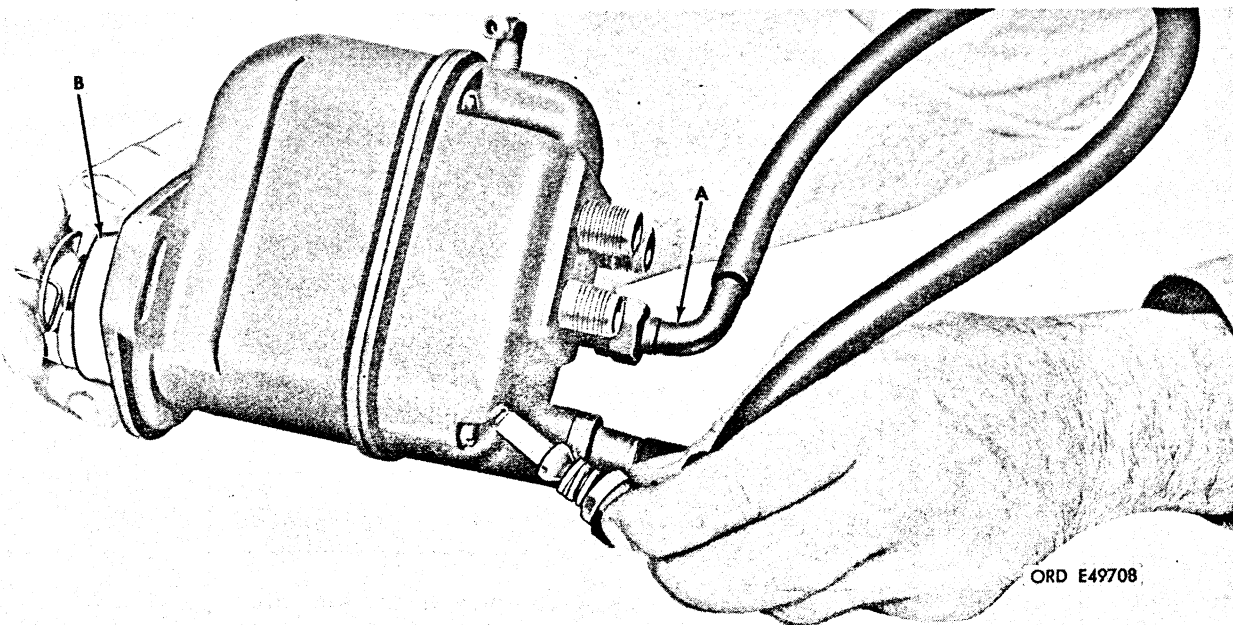


FIGURE 74.13 CHECKING OPERATION OF MAGNETO ASSEMBLY.

8. Idler Pulley and Shaft

Note. (Added) Although the configuration of the idler pulley and shaft for the AO-53-1 engine is different from the AO-53 engine the repair and rebuild standards for the comparable parts are the same.

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145. (Superseded) Torque Wrench Specifications

Fig. No.	Ref. letter	Location	Torque	
			in-lb	ft-lb
76	F	Crankshaft-to-camshaft drive sprocket nut		100-125
76	L	Camshaft-to-camshaft driven-sprocket nut		30-40
76	G	Accessory drive housing-to-cylinder block 5/16 hex nut -----		12-17
76	H	Accessory drive housing-to-cylinder block 1/4 hex nut -----	96-132	
77	K	Flywheel to crankshaft screw -----		14-19
80	B	Connecting rod cap bolt and nut -----	130-140	
81	C	Cylinder head to cylinder nut -----	96-132	
85	K	Accessory drive bracket to accessory drive housing nut -----	96-132	
86	A	Impeller pulley nut -----		45-55
86	F	Cooling fan to impeller shaft screw -----	96-132	
87	E	Idler pulley bracket to accessory drive bracket screw -----		14-19
87	F	Idler pulley shaft to bracket nut -----		60-75
90	E	Oil pan to cylinder block screw -----	50-70	
92	A	Crankshaft adapter to cylinder block nut		12-17
92	B	Flywheel housing to cylinder block nut --		25-33
93	A	Intake manifold to cylinder block bolts -	50-70	
93	B	Intake tube flange to cylinder head nut -	96-132	
14	E	Oil pump body to accessory drive housing nut -----	96-132	
94	A	Oil cooler support bracket to accessory drive housing nut -----		14-19
95	A	Exhaust pipe flange to cylinder head nut	96-132	