

COPY

ROYAL CANADIAN AIR FORCE



HANDBOOK WITH PART LIST

MAGNETOS SB 9RN, SF 9LN & SF 9RN

This EO Replaces Interim Publication

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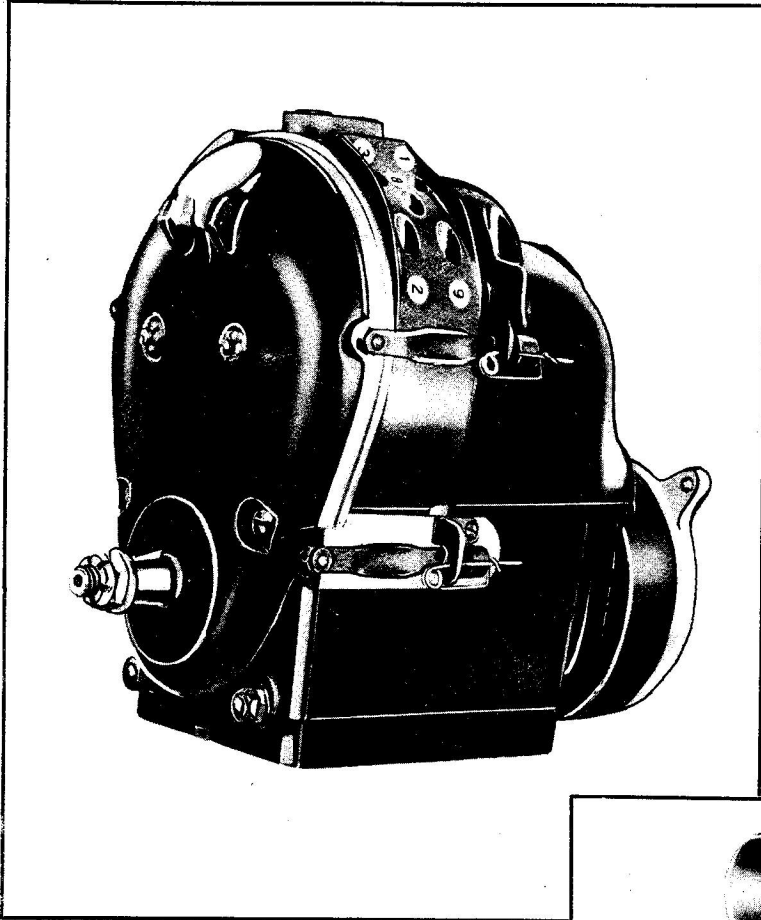


Figure 1—Type SB9RN Magneto

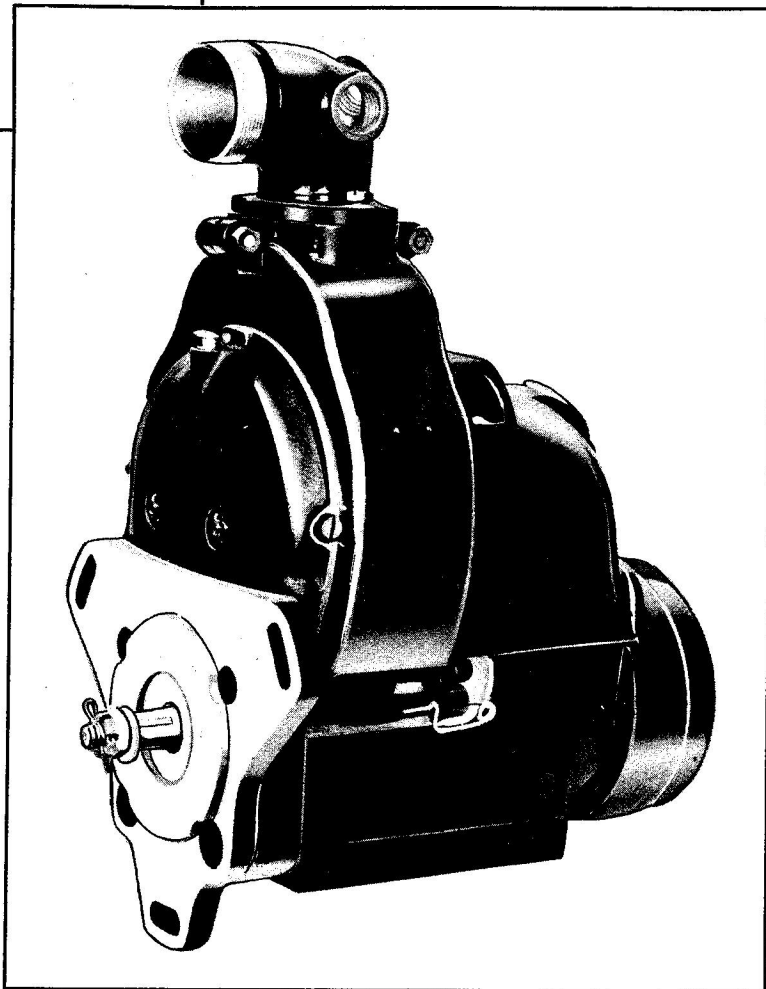


Figure 2—Types SF9LN and SF9RN Magnetos

SECTION I

INTRODUCTION

1. This Handbook is issued as the basic E0 Instruction for the equipment involved.
2. This Handbook contains service and overhaul instructions with parts catalog, for the SB9RN, SF9LN, and SF9RN magnetos, manufactured by Scintilla Magneto Division of the Bendix Aviation Corporation, Sidney, New York, on Contracts DA43-2294, W535-ac-27345, W535-ac-33183, and 43-27829AF.
3. The type designations of aircraft magnetos are set up according to AN specifications. The following detailed explanation of the meaning of the various letters and numbers appearing in a type of designation is given so that the subject type magnetos can be more readily identified.
 - a. "S" indicates single type ignition unit.
 - b. "F" indicates flange mounting.
 - c. "B" indicates base mounting.
 - d. Numbers (such as 9) indicate number of cylinders served.
 - e. "L" indicates left hand (anticlockwise) rotation as viewed from the drive end of the magneto.
 - f. "R" indicates right hand (clockwise) rotation, as viewed from the drive end of the magneto.
 - g. "N" indicates Scintilla manufacture. (This letter was assigned by the U.S. Government.)

b. Example.—The SB9RN magneto is a single, base mounted, 9 cylinder, right hand (clockwise) rotation magneto, manufactured by Scintilla.

SECTION II

DESCRIPTION

1. GENERAL DESCRIPTION.

- a. The general features of the internal construction of the SB9RN, SF9RN, and SF9LN magnetos are identical, however, they differ in the method of mounting the magneto to the engine and the direction of rotation.
- b. These magnetos are profiled for easy installation of radio shields, when required.

2. DETAILED DESCRIPTION.

(See Figure 3.)

a. ROTATING MAGNET.

(1) The rotating magnet is the four pole type, and turns at $1\frac{1}{8}$ engine crankshaft speed. It is made of cobalt steel and is mounted on two single row ball bearings. A four lobe cam is located on the magnet shaft extension and is secured with a Woodruff key, plain washer, lock washer, and a screw. A step is cut in the cam for timing purposes and the flanks adjacent to the lobes are provided with grooves to serve as a

lubricant reservoir and assist in keeping the breaker cam follower felt in a moist condition.

(2) The small distributor gear is pressed on the drive shaft end of the magnet and secured in position with a Woodruff key. Adjustment for end play is obtained by placing shim washers of proper thicknesses in back of the inner ball races on the rotating magnet shaft.

b. CONTACT BREAKER ASSEMBLY.

(1) The contact breaker assembly is secured to the adaptor and stud assembly with two hold-down springs. For fixed spark requirements, an added clamp assembly is used. Two engraved marks, "R" and "L" are stamped in the adaptor and stud assembly. For clockwise rotation, fixed spark, the clamp assembly screw is screwed into the hole "R" and for anticlockwise rotation, fixed spark, the clamp assembly screw is screwed into the hole marked "L." For variable spark requirements the holes "R" and "L" are not used.

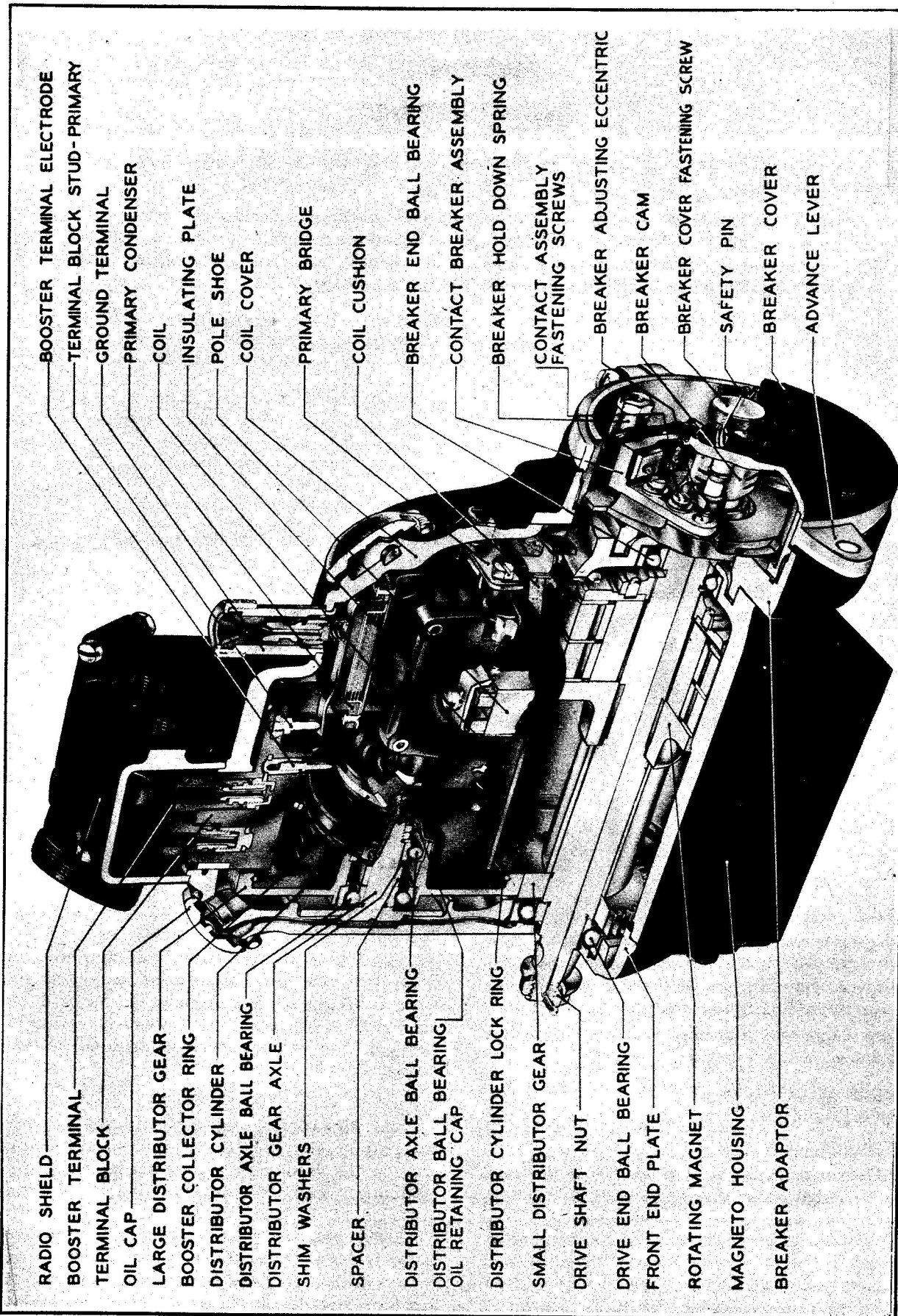


Figure 3—Three Quarter Cutaway View of the SB9RN Magneto

(2) The contact point assembly is secured to its mounting surface in the contact breaker housing with two screws, two plain washers, and two lock washers. An eccentric screw seats in the mounting surface and protrudes through the elongated slot provided in the contact point support. This eccentric screw is used to adjust the contacts for exact timing.

(3) The spark advance lever fits over the rim of the breaker housing. This lever is the split type and employs a clamp screw for securing it to the breaker housing.

(4) The breaker cover fits over the rim of the breaker housing and is located in its proper position with a small block riveted to the cover. This block engages a corresponding slot in the breaker cover housing. The breaker cover is secured to the breaker housing with a knurled head screw which engages a tapped hole provided. A safety pin is used to lock this screw.

c. FRONT END PLATE.

(1) The front end plate supports or carries the large distributor gear and axle, distributor cylinder, and the outside race of the drive shaft ball bearing. Two dowel pins in the front end of the magneto housing locate the position of the front end plate.

(2) The flange mounted magnetos employ a three bolt mounting flange that is integral with the front end plate.

(3) The front end plate is secured to the magneto housing with two screws, four nuts, and lock washers.

(4) The distributor gear and axle assembly is secured to the front end plate with two screws, two nuts, two plain washers, and two lock washers. The axle is provided with slots for the adjustment of the gears.

d. DISTRIBUTOR GEAR AND AXLE ASSEMBLY.

—The distributor gear axle is secured to the distributor gear and ball bearing assembly with two nuts and a plain washer. A spacer and shims provide for the adjustment of the end play. The gear should turn freely with the least possible end play between it and the distributor gear axle. Two dog screws are provided on the gear for locating the distributor cylinder after which it is secured with a lock ring.

e. COIL AND CONDENSER.

(1) The coil is commonly referred to as the "rubber encased coil." The flat type condenser is secured directly on the top of the coil. The primary and secondary windings are enclosed in a hard rubber case to protect them chiefly from moisture. The sealing compound and rubber casing protect the wires and insulating materials used in the construction of the coil.

(2) The coil primary contact brush assembly is secured at the breaker end of the coil with two screws and two ear lock washers. The high tension carbon brush and spring assembly is located at the front end of the coil.

(3) The coil is secured to the pole shoe extensions with two screws and washers and two clamps.

f. MAGNETO HOUSING.

(1) The pole shoes, which transmit the magnetic flux from the rotating magnet to the coil core are integral with the magneto housing. The adaptor and stud assembly for the contact breaker is secured to the housing with three screws and lock washers.

(2) The insulating plate located under the distributor cylinder section is secured to the housing with two screws which also secure the safety gap bridge.

(3) The adaptor and stud assembly supports the pivotless type contact breaker assembly and also the breaker primary brush contact segment. The breaker primary brush contact segment is secured to the adaptor and stud assembly with two screws, plain washers, and insulating washers.

g. MAIN COVER WITH BOOSTER AND GROUND TERMINAL BLOCK.

(1) The main cover is located by four dowel pins and is fastened to the magneto by two screws.

(2) The booster and ground terminal block is mounted in the extension of the main cover between the distributor blocks. It is secured by two screws.

(3) The booster and ground terminal block carries the ground terminal and the stud for the ground contact and also the booster terminal and the electrode for the booster current. The stud for the ground contact bears on a spring plate secured to the primary bridge on the coil. The electrode for the booster current is held directly over the collector ring for the booster current. There is a small air gap between the electrode and the collector ring.

(4) At the top of the main cover are provided numbers for locating the distributor blocks, an arrow showing the direction of rotation of the magneto, and two letters, "H" and "P" to mark the booster and ground terminals, respectively.

b. DISTRIBUTOR BLOCKS.—The distributor blocks are mounted so that they are held between the main cover and front end plate. Their lower ends rest upon the magneto housing while the upper ends fit against the top extension of the main cover. They are held in place by spring clamps and are designed as the right and left distributor block as viewed from the drive end.

SECTION III INSTALLATION

1. TIMING TO THE ENGINE.

Note

Before installing a magneto to an engine, make sure that it has been properly checked and inspected.

a. Turn the engine crankshaft in the direction of normal rotation to the full advance number one cylinder firing position on the compression stroke, in accordance with the engine manufacturer's instructions.

b. Remove the distributor blocks and place the breaker in the full advance firing position. Rotate the magneto drive shaft in the direction of magneto rotation until the timing marks "A" (figure 4) on the large distributor gear are approximately opposite the corresponding timing marks "B" on the inside of the front end plate when a straight edge such as "K" placed on the step cut in the cam coincides with the timing marks

"M" on the rim of the breaker cup. In this position the magneto will fire No. 1 cylinder. Mount the magneto on the engine in the above relation of timing marks.

c. When the exact timing is to be made, all adjustments must be made at the drive end and not by altering the adjustment of the contact points.

d. When base mounted magnetos are used, the exact timing of the magneto to the engine is obtained by means of the timing adjustment in the drive couplings. For flange mounted magnetos, the exact timing is obtained by turning the magnetos through the range provided in the slots of the mounting flange.

e. Adjust the timing so that the contact points just begin to open when a straight edge "K" placed on the step of the cam coincides with the timing marks "M" at the breaker end of the housing. (See figure 4.) It

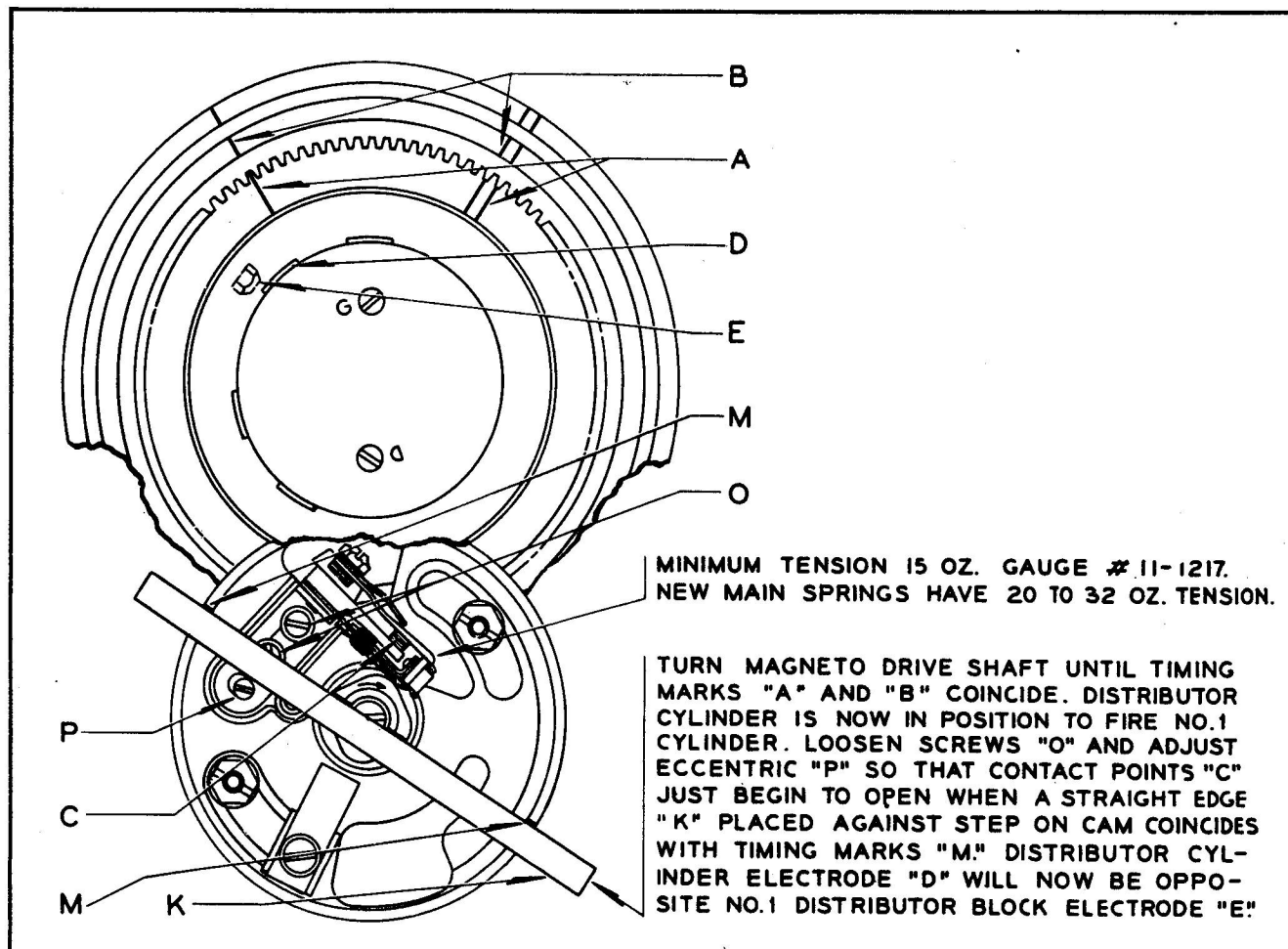


Figure 4—Magneto Timing

may be found that the timing mark "A" on the distributor finger is not exactly opposite the timing mark "B" on the inside of the front end plate after making the final adjustment by the straight edge "K" coinciding with the timing marks "M." However, a slight variance of the distributor finger timing mark "A" will not affect the operation of the magneto as this is merely used to locate the approximate firing position of the magneto for the No. 1 cylinder.

f. For synchronized spark requirements, the breaker contacts of both magnetos must open at the same instant within close limits. Use an approved timing light to determine the opening of the contacts. The use of shim stock or cellophane feeler strips invariably introduces a possibility of fouling the points, since oil and dirt are nearly always present on such feeler strips. If the strip is of soft material such as cellophane, brass, or foil, particles of the strip itself are likely to remain between the contacts, causing unsatisfactory magneto operation. Therefore, avoid the use of feeler strips between the contact points. When the synchronization has been made, secure the magneto firmly by tightening all cap screws or lock nuts.

g. For staggered spark requirements, one magneto will fire later than the other. Install and time one magneto in the same manner as explained for synchron-

ized sparks. Then turn the engine crankshaft until the piston is in the correct position to fire the magneto which is to fire later and install the other magneto in the same manner followed for the first magneto.

b. After the magnetos have been timed to the engine, insure that the mounting studs are tight and locked and install breaker cover in place.

2. WIRING.

a. Remove the cable piercing screws from the distributor blocks to avoid any possibility of the high tension cables not being fully seated in the base of the cable holes

b. Connect cable from the distributor block outlet marked "1" to No. 1 cylinder and then from outlet marked "2" to the second cylinder to fire, etc.

c. The numerals on the distributor blocks denote the serial firing order of the magneto and have no bearing whatsoever on the engine firing sequence.

d. Connect booster wire to terminal marked "H" on top of the main cover.

e. Connect ground wire from magneto switch to terminal marked "P" on top of the main cover.

f. The numbers on top of the main cover are for the purpose of locating the right and left distributor blocks in their correct position.

SECTION IV OPERATION

1. PRINCIPLES OF OPERATION.

(See figure 5.)

a. The poles of the rotating magnet are arranged in alternate polarity (see figure 5) so that the flux can pass from the north through the coil core and back to a south pole. As the magnet is turned, the polarity continually changes thereby producing flux reversals in the coil core. The number of flux reversals during one complete revolution of the magnet is equal to the number of poles on the magnet.

b. The flux reversals induce current in the primary winding when the contact points close. The flow of current in the primary winding stores energy which is released later by the opening of the contact points thereby producing high voltage in the secondary winding.

c. One end of the primary winding is connected to ground. The other end is connected to the insulated contact point. When the contact points are closed, the primary current passes to ground. The condenser is connected across the contact points.

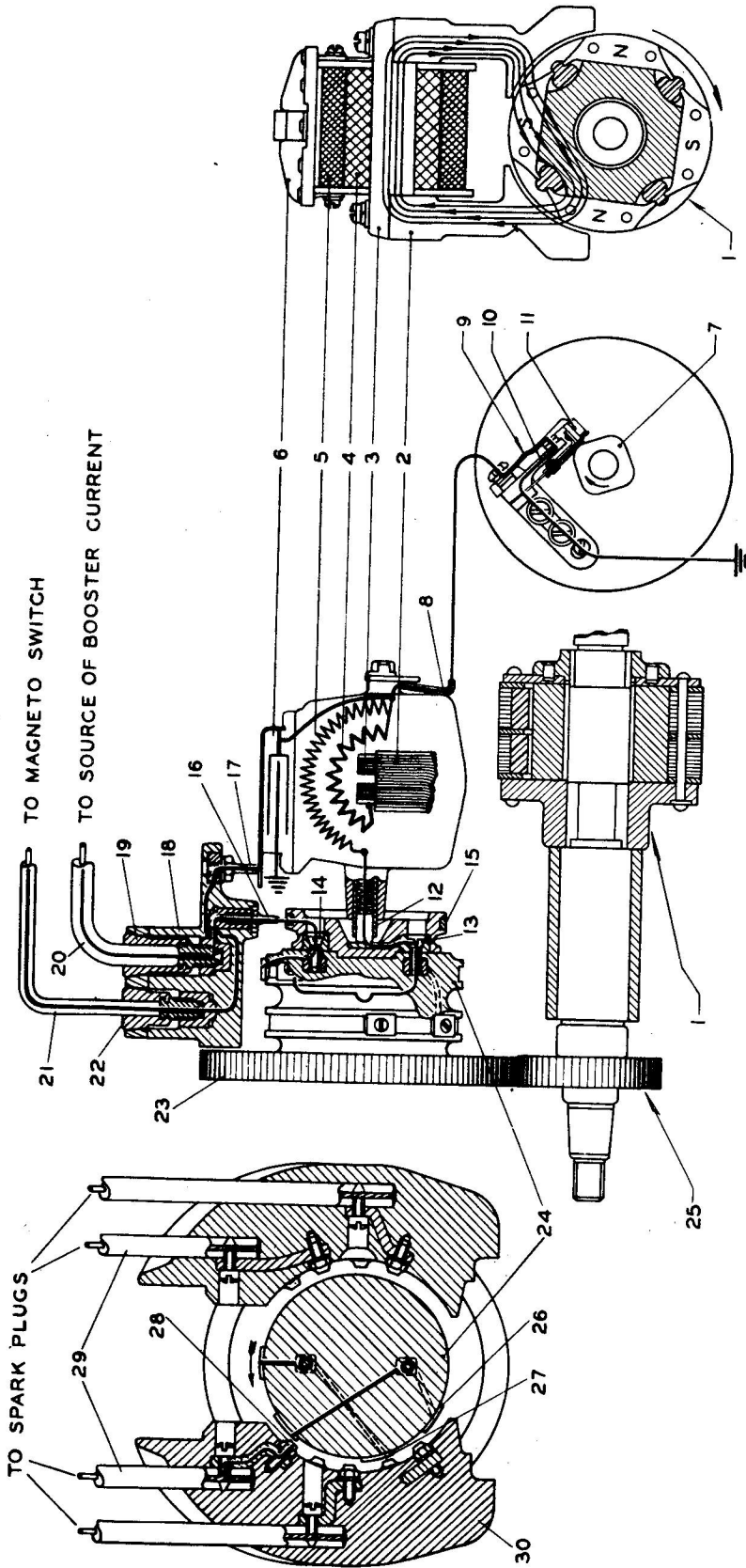
d. One end of the secondary winding is connected to

the insulated end of the primary winding. The other end terminates at the high tension insert on the coil. High tension current in the secondary winding is then conducted to the central insert of the distributor finger by means of a carbon brush. From here it is conducted to the high tension electrode on the distributor finger and across a small air gap to the electrodes of the distributor block. High tension cables then carry it to the spark plugs where the discharge or spark occurs for ignition purposes.

e. The booster electrode is located so that it trails the high tension electrode on the distributor finger to give a retarded spark for starting the engine.

2. OPERATION OF GROUND SWITCH.

The ground terminal on the magneto is electrically connected to the insulated contact point. A wire is connected between the ground terminal and the switch. When the switch is in the "OFF" position, this wire provides a direct path to ground for the primary current. This prevents the primary current being interrupted when the contact points open, and therefore high voltage is not produced in the secondary winding.



SCHEMATIC DIAGRAM OF ELECTRIC AND MAGNETIC CIRCUITS

- | | | | |
|----|---|----|--|
| 1 | ROTATING MAGNET | 23 | LARGE DISTRIBUTOR GEAR |
| 2 | POLE SHOES | 24 | DISTRIBUTOR CYLINDER |
| 3 | COIL CORE | 25 | SMALL DISTRIBUTOR GEAR |
| 4 | PRIMARY WINDING | 26 | SEGMENT IN DISTRIBUTOR CYLINDER CARRYING SECONDARY CURRENT |
| 5 | SECONDARY WINDING | 27 | SEGMENT IN DISTRIBUTOR CYLINDER CARRYING BOOSTER CURRENT |
| 6 | PRIMARY CONDENSER | 28 | ELECTRODE IN DISTRIBUTOR BLOCK |
| 7 | BREAKER CAM | 29 | IGNITION CABLES |
| 8 | PRIMARY CONTACT BRUSH ASSEMBLY | 30 | DISTRIBUTOR BLOCK |
| 9 | CONTACT BREAKER MAIN SPRING | | |
| 10 | CONTACT BREAKER SUPPORT | | |
| 11 | CAM FOLLOWER | | |
| 12 | HIGH TENSION CARBON BRUSH | | |
| 13 | FASTENING SCREW FOR COLLECTOR RING (IN SECONDARY CIRCUIT) | | |
| 14 | FASTENING SCREW FOR COLLECTOR RING (IN BOOSTER CIRCUIT) | | |
| 15 | COLLECTOR RING FOR BOOSTER CURRENT | | |
| 16 | ELECTRODE FOR BOOSTER CURRENT | | |
| 17 | STUD FOR GROUND CONTACT | | |
| 18 | BOOSTER AND GROUND TERMINAL BLOCK | | |
| 19 | BOOSTER TERMINAL CABLE SCREW | | |
| 20 | BOOSTER CABLE | | |
| 21 | GROUND WIRE | | |
| 22 | GROUND TERMINAL CABLE SCREW | | |

Figure 5—Electric Chart

SECTION V

SERVICE INSPECTION, MAINTENANCE, AND LUBRICATION

I. SERVICE INSPECTION

For routine maintenance and inspection see the maintenance schedule for the aircraft in which the engine is installed with this magneto.

IMPORTANT

The contact points of the pivotless breakers must always be adjusted to open at the proper position of the cam in relation to the timing marks at the breaker end of the magneto and not for any fixed clearance between the contact points.

To check the adjustment, place a straight edge on the step cut in the cam. Then turn the crankshaft until this straight edge coincides with the timing marks on the rim of the breaker housing. At this position the contact points should just begin to open. A permissible service tolerance of 1/8 inch is allowed, that is, the distance between the straight edge and the timing marks "M" must not exceed 1/8 inch when the contact points open. If it is more than 1/8 inch adjustment is necessary.

When inspecting the contact points for any reason, do not raise the breaker main spring beyond a point giving 1/16 inch clearance between the contact points. Any further tension on the main spring caused by raising it beyond this point will weaken it thereby causing unsatisfactory magneto performance.

2. MAINTENANCE

a. If inspection shows that adjustment is necessary, loosen the two screws "O" (figure 4) which fasten the movable contact support to the breaker plate. Adjust the movable contact point by means of the eccentric screw "P" so that the points just begin to open when the straight edge "K" coincides with the timing marks "M". Tighten the screws "O" when the setting has been made and recheck the adjustment.

b. Use an Abbott-A-100 timing light to determine the position where the contacts open. The use of feeler strips for this purpose when adjusting the contact points may not only introduce a slight error in the internal timing of the magneto, but also in-

creases the possibility of fouling the points with foreign material.

c. If a timing light is not available, it may be necessary to resort to the use of feeler strips. If this is done, use a steel strip not exceeding .0015 inch in thickness and make sure it has no grease or oil on it. Place strip between contact points and pull against it lightly. Then adjust eccentric until feeler slips, at which time the points are just starting to open.

3. LUBRICATION

a. The ball bearings and all gears contain an adequate amount of grease and do not require lubrication between overhaul periods.

b. Examine the cam follower felt at the regular routine inspection periods to see that it is properly lubricated. If oil appears on its surface when the felt is squeezed with the fingers, do not add oil. However, if it is dry, moisten it with aircraft engine oil, SAE 60-3-GP-115. Do not apply too much oil as the excess will be thrown off during operation and will come between the contact points thereby causing pitting and burning.

c. Always keep the breaker compartment clean and free from excess oil.

4. SERVICE TROUBLES AND REMEDIES

a. GENERAL

(1) It should be borne in mind that ignition troubles frequently originate in the spark plugs or the ignition harness. Magnetos which are practically new or that have been overhauled should run for many service hours without trouble. These magnetos should not be tampered with unless it is absolutely necessary. In most cases the cleaning, inspection, and adjustment as outlined in paragraphs 1 and 2a., of this section will suffice.

(2) If no obvious faults are found in the magneto when inspected as above, it is recommended to check the spark plugs and ignition harness wiring

first. If trouble persists after a check has revealed that other ignition system components are in satisfactory condition the trouble is probably in the magneto.

(3) In general, the most satisfactory correction for troubles known to originate in the magneto is to install another magneto which is in good operating condition, and to turn the de-

fective unit over to overhaul shop for repair by personnel trained in this work. This recommendation is made because random adjustments and alterations by inexperienced personnel may do more harm than good. Under some circumstances, however, it may be impossible to follow this recommendation, and in such cases the following chart may be used as a guide in locating and correcting troubles in the magneto.

Trouble	Probable Cause	Remedy
ENGINE FAILS TO START.	<p>Moisture condensation in magneto distributor</p> <p>Condensation in spark plug wells or firing chambers.</p> <p>Moisture in ignition harness or leads.</p> <p>Booster system defective.</p>	<p>Thoroughly dry the dielectric surfaces of the distributor and treat with wax.</p> <p>Refer to engine handbook of service instructions.</p> <p>Refer to engine handbook of service instructions.</p> <p>Refer to engine or airplane handbook of service instructions.</p>
ENGINE IS ROUGH, OPERATES ERRATICALLY.	<p>Moisture condensation in magneto distributor.</p> <p>Condensation in spark plug wells or firing chambers.</p> <p>Magneto out of time internally.</p> <p>Moisture in magneto.</p>	<p>Thoroughly dry the dielectric surfaces of the distributor and treat with wax.</p> <p>Refer to engine handbook of service instructions.</p> <p>Check adjustment of contact points. Refer Par. 2, of this section.</p> <p>Dry all dielectric parts of magneto and treat with a thin coating of wax.</p>
DEAD MAGNETO.	<p>Contact points fouled with oil or foreign particles.</p> <p>Shorted primary circuit.</p>	<p>Replace contact point assembly or carefully clean point surfaces.</p> <p>Inspect connectors for defective insulation. Inspect ground wires and switch for defects.</p>

SECTION VI

DISASSEMBLY, INSPECTION, REPAIR, AND REASSEMBLY

I. OVERHAUL TOOLS REQUIRED.

a. The order of procedure given in this section is recommended to prevent any possibility of damage

when overhauling the magneto.

b. The following tools are required in connection with the work prescribed in this section.

<i>Present Tool No.</i>	<i>Former Tool No.</i>	<i>Tool Name</i>	<i>Application</i>
11-700	4-17011	Magneto Test Stand	For running test of magneto.
11-705	4-2510	Cutting Tool	To trim bearing insulating strip.
A-100-Abbott		Timing Light	To determine position where contacts open.
11-970	4-134	Pressing Tool	To install outer race of 15 mm. bearing.
11-976	4-136	Pressing Tool	To install outer race of 17 mm. bearing.
11-978	4-140	Template	To check height of distributor block electrodes.
11-980	4-145	Rotor Handle	To turn drive shaft by hand.
11-986	4-168	Socket Wrench	For drive shaft nut.
11-989	4-181	Socket Wrench	For distributor block electrodes.
11-992	4-218	Puller	To remove outer ball race 15 mm. bearing.
11-1002	4-222	Puller	To remove outer ball race 17 mm. bearing.
11-1005	4-224	Screw Driver Set (4)	For general use.
11-1024	4-225	Drift	To remove oil cover axle.
11-1029	4-226	Drift	To install oil cover axle.
11-1032	4-229	Pressing Tool	To install small gear and inner race of 17 mm. bearing.
11-1033	4-230	Socket Wrench	For primary grounding contact stud.
11-1036	4-232	Pressing Tool	To install inner race of 15 mm. bearing.
11-1037	4-233	Puller	To remove small gear.
11-1049	4-235	Puller	To remove inner race of 15 mm. bearing.
11-1060	4-241	Puller	To remove breaker cam.
11-1065	4-243	Puller	To remove inner race of 17 mm. bearing.
11-1072	4-1337	Socket Wrench	For front end plate stud nuts.
11-1079	4-2183	Template	To check height of distributor cylinder segments.
11-1080	4-2209	Wrench	To hold breaker cam.
11-1112	4-2580	Wrench	For spring clamps.
*11-1118	4-4295	Electrode Cutting Tool	For reducing distributor block electrodes to correct height.
11-1123	4-4390	Puller	To remove brass cap from large gear hub.
11-1124	4-4676Z	Ammeter	To check primary current.
11-1138	4-7823	End Play Gage	To check magnet end play.
**11-1157	4-8092	Milling Fixture	For milling distributor block electrode.
11-1221	4-9886	Indicator	To check gear backlash and cam eccentricity.
11-1225	4-9886-1	Locking Tool	To lock rotating magnet in position while checking gear backlash.
11-1248	4-12176	Contact Point Dressing Kit (Includes 11-1269 Stone)	For dressing contact point surfaces.
11-1269	4-12868	Stone	For replacement of stone furnished with 11-1248 tool.
11-1274	4-12933Y	Ohmmeter	To check coil secondary resistance.
11-1275	4-12967	Assembly Tool	To assemble contact point assembly.
***11-1301	4-14215	Magnet Charger (110 Volt D.C.)	To magnetize rotating magnet.
***11-1302	4-14215	Magnet Charger (36 Volt D.C.)	To magnetize rotating magnet.
11-1307	4-14325	Tap (3 mm. Loew)	For cleaning threads of distributor block electrode holes.
11-1435	4-237	Locking Tool Set (2)	For staking screws.
11-1681	None	Tension Wrench	To tighten contact assembly screw.
11-1767	None	Primary Condenser Tester	To check primary condenser.
11-1864	None	Gage	To check breaker main spring tension.
11-1871	None	Gage	To check the thickness of platinum on contact points.

*For machining block electrodes individually when No. 11-1157 Tool is not available.

**For machining block electrodes when a large volume of work makes individual machining with No. 11-1118 impractical.

***Order charger according to voltage source available.

2. DISASSEMBLY.

a. **DISTRIBUTOR BLOCKS.**—Remove the distributor blocks after having released their spring clamps.

b. **COIL AND BREAKER COVERS.**—Take out the two screws and lift off the magneto coil cover. Remove the safety pin and breaker cover fastening screw, after which the breaker cover can be removed.

c. **COIL AND CONDENSER.**

(1) Remove the two coil fastening screws and clamps, after which the coil can be removed. Care must be taken so as not to break or damage the high tension carbon brush when removing the coil. The felt pad under the coil can be taken out with the hand.

(2) The primary condenser may be removed from the coil by first removing the four securing screws.

d. **CONTACT BREAKER.**—Remove the breaker assembly after having taken out the two breaker hold down springs. On fixed spark magnetos, also remove the clamp assembly which secures the breaker cup to the housing.

e. **FRONT END PLATE.**—Remove the front end plate after having taken out its two securing screws and the four lock nuts. Use socket wrench No. 11-1072 for the lock nuts. Tap each side of the front end plate lightly with a rawhide mallet to remove it from the housing.

f. **DISTRIBUTOR CYLINDER AND GEARS.**

(1) Remove the distributor cylinder after prying out the lock ring with a small screw driver.

(2) Remove the cup from the end of the large distributor gear hub. Unscrew the lock nuts on the end of the distributor gear axle and lift off the distributor gear. **DO NOT** loosen the two screws which secure the distributor gear axle to the front end plate unless the axle is damaged and must be replaced. This will maintain the original adjustment for the gears. The top ball and cage assembly and the spacer with the shim washers will come out as loose parts when the distributor gear is lifted from the axle. Make sure that the same spacer and shim washers are used when reassembling as this will give, in the majority of cases, the correct adjustment between the axle and gear.

(3) If the bearings of the distributor gear axle need replacement, the outside race for the bearing which came out as a loose part and, also, the complete bearing and retainer at the other end of the gear hub, must be pressed out. To facilitate this, it is suggested that a small pressing disc of the size and shape shown in figure 6 be used. This disc can be placed inside of the gear hub with its flat face in contact with each outer race as indicated.

g. **ROTATING MAGNET.**

(1) Remove the rotating magnet from the housing and place it on a clean part of the bench to make sure that small chips or particles do not come in contact with it.

(2) Remove the insulating plate from the housing after having taken out its two securing screws which also hold the safety gap bridge.

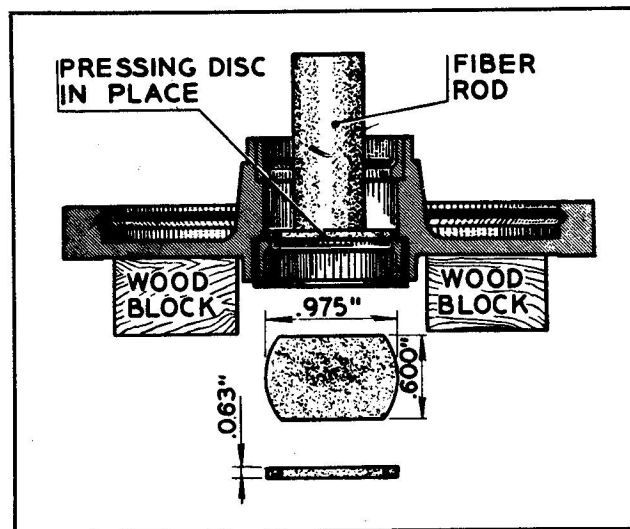


Figure 6—Removing Ball Bearing Outside Race from Distributor Gear Hub

3. INSPECTION AND REPAIR.*a.* **ROTATING MAGNET BALL BEARINGS.**

(1) Examine the ball bearings and races. Replace if worn or rough. If any one part of a ball bearing is defective and needs replacement, the **COMPLETE BEARING MUST BE REPLACED.**

(2) The outer ball races are insulated from the magneto by insulating strips and are also backed by washers of the same material as used in the insulating strips.

(3) Remove the outside race from the front end plate with puller No. 11-1002 and remove the inside race from the magnet with puller No. 11-1065.

(4) Remove the outside ball race from the housing with puller No. 11-992 and the inside race from the magnet with puller No. 11-1049. Before removing this inside race, the cam must be taken off with puller No. 11-1060.

(5) Before installing new races in the front end plate and housing, first put in the flat insulating washer in the bottom of the recess for the bearing so that the cut in it will line up with the oil recess. Then spread a few drops of oil evenly over one side of the insulating strip. Bend the strip in a circular form with the oiled side inside and overlap the ends enough to allow the strip to fit loosely into the recess for the outer race. When it is released, it will expand against the walls and the ends should overlap slightly in the recess cut for them. Press in the outside ball race for the front end plate with tool No. 11-976 and the outside ball race for the housing with tool No. 11-970.

(6) Press on the inside ball race for the drive shaft end bearing with tool No. 11-1032 which is also used

for pressing on the small distributor gear. Press on the inside ball race for the breaker end bearing with tool No. 11-1036.

b. **DISTRIBUTOR GEARS.**—Check the distributor gears for burrs or excessive wear of the teeth. If either gear shows excessive wear, replace both gears. The small distributor gear can be removed with puller No. 11-1037.

c. **MAGNETO HOUSING.**—See that the pole shoes, the adaptor and stud assembly, and all studs are tight in place. Examine the interior of the housing. If it is evident that the rotating magnet rubs, scrape out the housing slightly. Make sure that all threaded holes, particularly those in the pole shoe extensions for the coil securing screws, are clean and in good condition.

d. **COIL AND CONDENSER.**—Examine the rubber housing for cracks and make sure that all screws are staked or provided with lock washers. Make sure that the carbon brush is in good condition. For electrical test of the coil and condenser refer to section VII, paragraphs 6 and 7.

e. **FRONT END PLATE.**—See that the felt strips are in place, and that the oil cover closes tightly. Clean the oil tube which leads to the drive shaft ball bearing with compressed air. Examine the outer ball race of the drive shaft ball bearing. If it is found unsatisfactory for further service, the complete ball bearing assembly must be replaced.

f. **MAGNETO COVER.**—Clean out the oil tube which leads to the breaker end ball bearing, with compressed air. Examine the booster and ground terminal block for defects or cracks. Make sure that the felt strips are in good condition and tight in place.

g. **DISTRIBUTOR BLOCKS AND DISTRIBUTOR.**

(1) See that the electrodes are clean and tight in place. If new electrodes are installed, they must be checked with template No. 11-978 to insure that the required clearance between them and the distributor cylinder segments is maintained. (See figure 7.) Use tool No. 11-1157 for machining distributor block electrodes newly installed.

Note

Instructions for cleaning dielectric parts will be found in paragraph 5 this section.

(2) Examine the dielectric material for defects or cracks. Check the height of the distributor cylinder segments in gage No. 11-1133. Segments should be replaced when they have burned away .015 inch as indicated on the gage.

b. **CONTACT BREAKER ASSEMBLY.**

(1) When inspecting the contact points, the breaker main spring should not be raised beyond the point giving 1/16 inch clearance between the movable and stationary contact points. Further tension of the

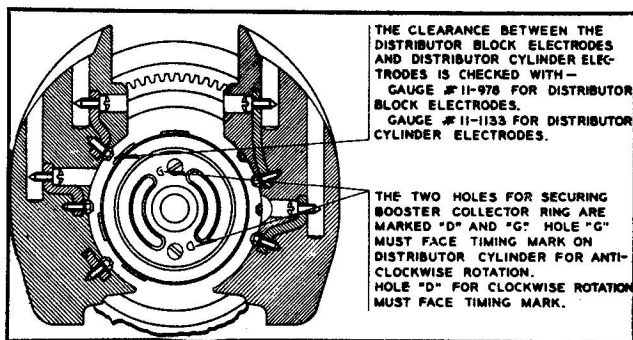


Figure 7—Cross Section View of Distributor Cylinder and Distributor Blocks

main spring caused by raising it beyond this point will result in the weakening of the main spring.

(2) Check the tension of the breaker main spring with gage No. 11-1864. When making this check, be sure that the hook of the gage is applied under the main spring adjacent to the contact point "E" as shown in figure 8. If the tension of a main spring that has been operated is 15 ounces or more, it is satisfactory for further service. If it is necessary to install a new main spring, its tension should be from 20 to 32 ounces.

(3) The No. 10-3768 shims (figure 8) are used primarily to line up the contacts squarely to obtain maximum contact surface between the points. The number of No. 10-3768 shims also affects the main spring tension. Main spring tension is decreased by the addition of No. 10-3768 shims and increased by the removal of shims.

(4) Examine the contact points. If the wear seems to be excessive or if the surfaces are rough or pitted, the contact points should be cleaned and polished. To accomplish this, disassemble the contact assembly and use the contact point dressing kit No. 11-1248.

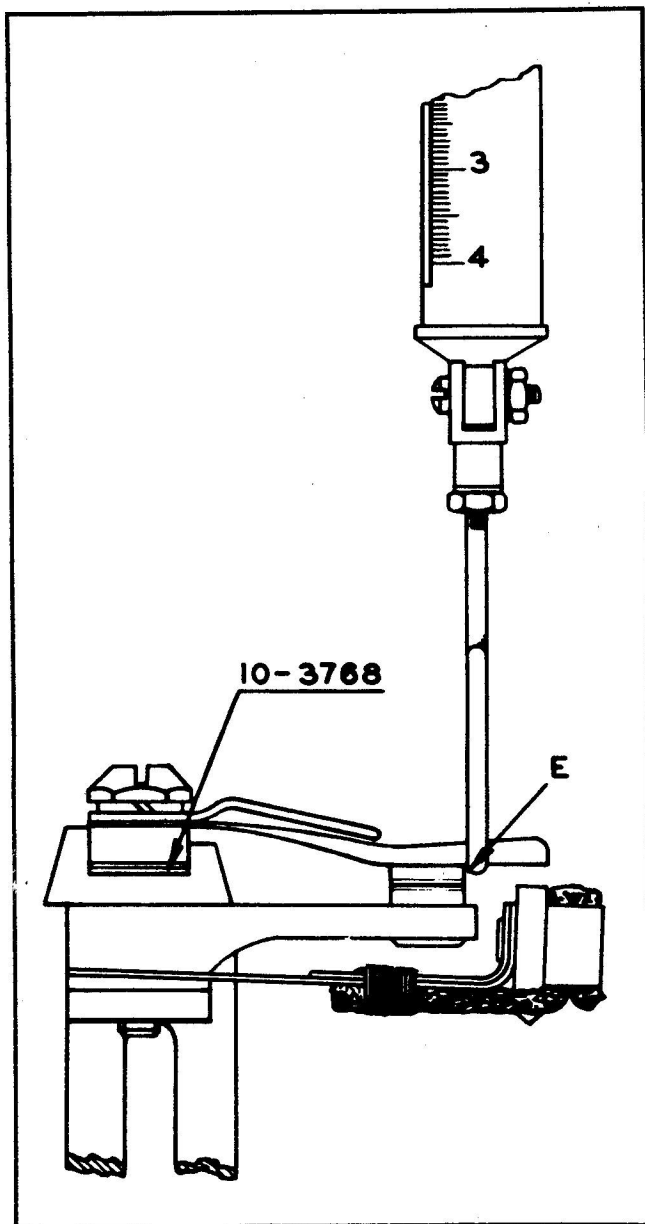
(5) Normal operation of the magneto causes a certain amount of wear to take place on the top of the cam follower. This wear is indicated by a small depression worn in the top of the cam follower at the point where it lifts against the main spring. The distance between the lowest point of this depression and the top of the spring on which the cam follower is riveted should be checked at each overhaul. The distance should be 1/32 inch or over. If it is less than 1/32 inch a new cam follower should be installed. (See figure 9.)

(6) Use the No. 11-1275 assembly tool when assembling the component parts of the contact point assembly. The assembly screw must be tightened to a torque value of 15 to 20 inch pounds, as measured with the No. 11-1681 tension wrench.

4. **REASSEMBLY.**

Note

Before reassembling, make sure that all parts are clean and free from chips or foreign particles.



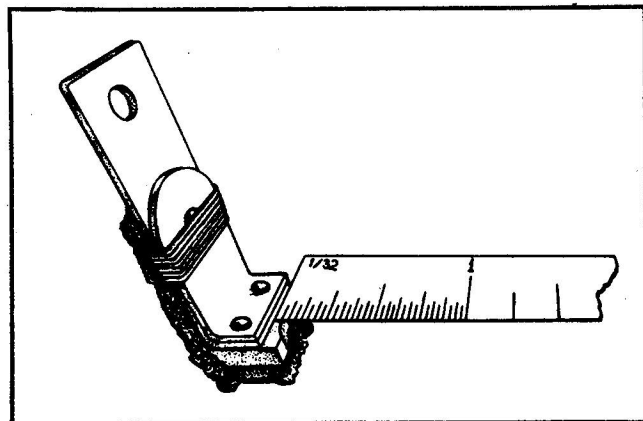
**Figure 8—Checking Contact Breaker
Main Spring Tension**

a. FRONT END PLATE.

(1) Clean the distributor gear bearings thoroughly and then allow them to dry. Press the complete bearing and retainer into the side of the distributor gear hub nearest the front end plate side and also press in the outside race of the other bearing into the other side of the gear hub. Place the gear on the axle and install the original spacer and shim washers and also the remaining cage and ball assembly. Secure gear with its plain washer and lock nuts. Do NOT grease the bearings at this time as it is necessary to test the gear for end play. This is done by pressing on the outside diameter of the gear with the thumbs, first applying pressure on one side and then the other. If the end play

is too great remove shim washers next to the spacer. The gear must turn freely with the least possible end play.

(2) After the correct adjustment for end play has been made, remove the two lock nuts and take out the first cage and ball assembly. Pack grease, High Melting Point 3-GP-690 the hub of the gear around the axle. Reinstall the cage and ball assembly after packing it with grease High Melting Point 3-GP-690. Reinstall the two lock nuts and then press on the brass cup after having placed a small amount of grease in it.



**Figure 9—Measuring the Wear on Top
of the Cam Follower**

(3) Moisten all felt strips with oil.

b. ROTATING MAGNET.

(1) There are two breaker cam keyways located on the cam pilot and two engraved marks on the rotating magnet back bearing plate, namely, "D" and "G." Place the cam key in the keyway opposite "D" for clockwise rotation and opposite "G" for anticlockwise rotation. Place the cam in position and secure it with its screw, lock washer, and plain washer.

(2) Charge the magnet in magnet charger No. 11-1301 or 11-1302. The 11-1301 magnet charger operates on 110-volt D.C. and the 11-1302 operates on 36-volt D.C. Pack the ball bearings with grease, High Melting Point 3-GP-960. Make sure that all chips or foreign particles have been removed from the magnetic and the inside of the magneto housing. Place a light-coating of oil on the pole pieces of the rotating magnet and insert the rotating magnet into the housing.

**c. FRONT END PLATE, ROTATING MAGNET,
AND HOUSING.**

(1) Mesh the chamfered tooth of the small distributor gear (figure 10) with the tooth on the large distributor gear marked "D" for clockwise rotation or "G" for anticlockwise rotation.

(2) Secure the front end plate to the housing with its two screws and four lock nuts and washers.

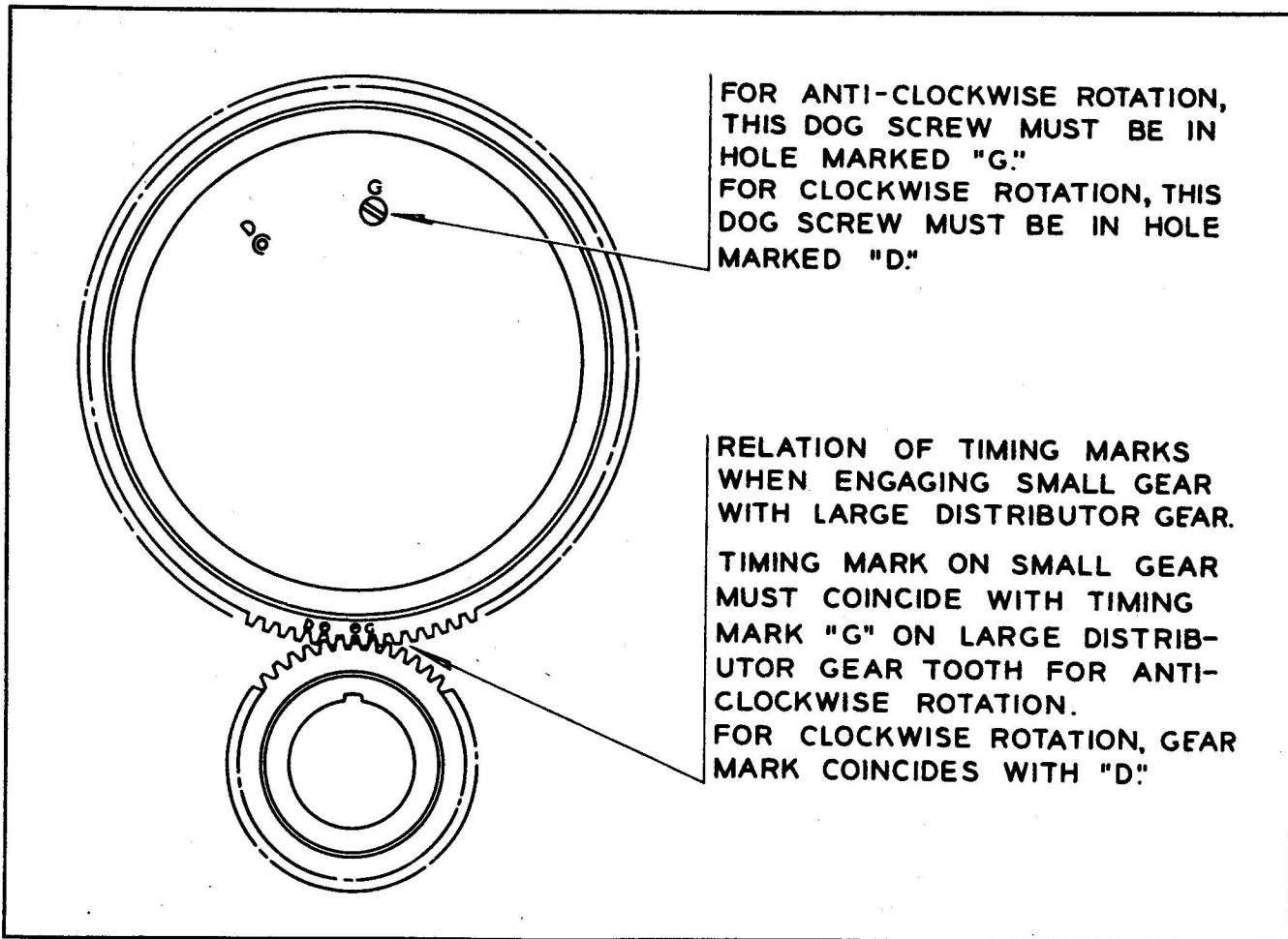


Figure 10—Meshing Distributor Gears Correctly

d. ADJUSTMENT OF ROTATING MAGNET BEARINGS.

(1) Adjustment of end play is obtained by placing steel spacing washers back of the inner ball races of the magnet shaft. These washers are available in thicknesses of .0025 inch, .004 inch, .005 inch, .008 inch, .010 inch, and .012 inch. If the inner races are removed, always keep the spacing washers which are already installed in the same position.

(2) If the original spacing washers are kept in place, it will be rarely necessary to adjust the rotating magnet bearings. If either or both of the bearings have been removed or replaced they should be adjusted following the procedure as given below.

(3) Remove one of the inside bearing races and remove about one-half of the steel spacing washers. Replace the race and install the rotating magnet in the housing and front end plate. Determine the amount of end play by using tool No. 11-1138. Install steel spacing washers equal to the amount of end play plus .001 inch. (For example, rotating magnet end play .004 inch plus .001 inch equals .005 inch or amount of steel spacing washers to be added in back of the inner bearing race.)

This adjustment gives the bearings the correct amount of preload.

(4) Check the clearance between the rotating magnet and the pole shoes. The clearance should not be less than .0015 inch when checked with a thickness gage.

e. ADJUSTING MESH OF DISTRIBUTOR GEARS.

(1) It will be rarely necessary to adjust the mesh of the gears if the position of the distributor gear axle has not been changed. If new gears are installed, however, it will be necessary to adjust the mesh of the gears as given in the following paragraph.

(2) This is obtained by loosening the two screws and lock nuts which hold the distributor gear axle to the front end plate. Turn the large gear until the round hole in the distributor gear axle flange can be seen through one of the holes in the face of the gear. Place a drift in the hole on the axle flange and turn the flange slightly to the right to raise the large gear (loosen mesh) or to the left to lower large gear (tighten mesh). After adjustment is made, tighten and lock the two screws and nuts holding the distributor gear axle

and apply grease, High Melting Paint 3-GP-690 evenly in the teeth of the large distributor gear.

f. DISTRIBUTOR CYLINDER AND INSULATING PLATE.

(1) Make sure that the dog screw is tightened and locked in the hole located in the face of the large distributor gear marked "D" for clockwise rotation, and "G" for anticlockwise rotation. The booster collector ring is secured to the distributor cylinder with two screws. One screw hole is marked "D" and the other "G". The hole marked "D" must face toward the straight line or timing mark on the distributor cylinder for clockwise rotation the hole marked "G" must face towards the straight line or timing mark. (See figure 7.)

(2) Place the distributor cylinder in position on the large distributor gear having the dog screw in the face of the gear engage a corresponding hole located on the flat surface of the distributor cylinder and then install the lock ring.

(3) Install the insulating plate and the safety gap bridge to the magneto housing with their two securing screws. These screws must be staked after they have been tightened.

g. COIL AND CONDENSER

(1) The coil and condenser should be tested before they are reinstalled in the magneto. Refer to section VII, paragraphs 6 and 7.

(2) Place the felt pad between the pole shoe extensions in under the coil. Place coil in position and secure with its two screws, clamps, and washers. Make sure the high tension carbon brush is not broken or damaged while installing the coil.

h. CONTACT BREAKER ASSEMBLY

(1) On the inside of the adaptor and stud assembly are two tapped holes, one marked "R" for clockwise rotation, fixed spark, and the other "L" for anticlockwise rotation, fixed spark. These holes are not used for variable spark requirements.

(2) The contact point assembly is secured to the breaker cup with two screws, plain washers, and lock washers. The eccentric screw protrudes through the

slot provided in the support of the contact point assembly.

(3) Install contact breaker assembly into the adaptor and stud assembly and secure with the two breaker hold down springs. Place breaker assembly in the full advance position by turning it as far as possible against the direction of normal rotation of the magneto. For fixed spark requirements, install clamp assembly or the collect which was used in earlier execution magnetos, in the hole located inside the adaptor and stud assembly marked "R" for clockwise rotation and "L" for anticlockwise rotation.

IMPORTANT

Scintilla pivotless type contact breakers as used in this series magnetos must always be adjusted so that the contacts open at the proper position of the breaker cam in relation to the timing marks in the rim of the breaker cup and not for any fixed clearance between the contacts.

(4) Place a straight edge such as a steel scale "K" (figure 4) on the step of the cam. Turn drive shaft slightly until the scale coincides with the timing marks "M" on the rim of the breaker cup. Holding magnet at this exact position, loosen screws "O" and adjust eccentric "P" until contacts are just starting to open, as determined with a timing light. After making this adjustment recheck to make sure the points are just opening when the scale coincides with the timing marks.

(5) Apply a few drops of standard grade oil, aircraft engine oil, SAE 60 3-GP-115 on the cam follower felt. Do NOT give it all it will hold as excess oil will reach the contact points and cause interference with magneto operation. Secure breaker cover with its screw and safety pin.

i. MAIN COVER AND DISTRIBUTOR BLOCKS

— Secure the main cover with its two screws and install distributor blocks. Number discs are provided on top of the main cover in order that the distributor blocks can be installed on the correct side. All felt strips on the main cover and front end plate should be made moist with oil.

I. GENERAL

a. Mount the magneto on the No. 11-700 or equivalent test stand which incorporates an adjustable test gap panel.

b. Connect the high tension cables to the spark rack set with 7 mm. gasps. (See figure 11.) Run the magneto at normal speeds for two or three minutes to observe mechanical operation.

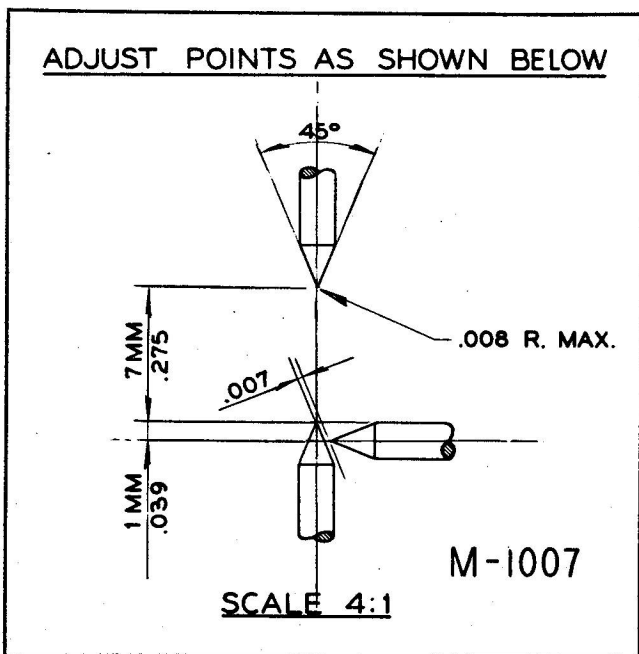


Figure 11—Correct Setting of Standard 7 mm., 3 Point Spark Gap

2. COMING-IN SPEED

a. Check the coming-in speed, which is the lowest speed at which the rotating magnet must be turned to produce consistent sparking at all of the gaps. The magneto should spark consistently at 135 rpm. If variable spark is used, the magneto should also spark consistently at 250 rpm. at the full retard position. If the coming-in speed is above the speeds (drive shaft speed) given, the probable causes are as follows:-

- (1) Coil.
- (2) Contact point adjustment.
- (3) Distributor block electrode clearance.
- (4) Defective condenser. (If contacts are excessive.)

3. RUNNING TEST

a. Run the magneto at 3000 rpm. (drive shaft speed). Observe sparks closely. If skipping occurs, check coil and internal timing.

b. Check the ground or switch terminal. When the magneto is short-circuited through this terminal, sparks should not occur at the spark panel.

4. BOOSTER TEST

On those magnetos incorporating provision for a

booster cable, connect the cable from the source of booster current to the booster terminal on the top of the front end plate. Run the magneto at 150 rpm. and observe to make sure the booster current is being distributed to the spark gaps. The booster spark always trails the secondary spark.

5. ROTATING MAGNET TEST

The magnetic strength of the rotating magnet is checked by measuring the primary current output. Operate the magneto for about five minutes at 2500 rpm. During this run, short-circuit the magneto through the ground or switch terminal several times. Then reduce the speed to 400 rpm. (drive shaft speed—must not vary more than 10 rpm. when measuring primary current output). Hold the contact points open by hand and connect the ammeter No. 11-1124 across the points. The reading at 400 rpm. should be 1.7 amperes or over. If it is below, recharge the magnet and make another test before rejecting the magnet.

6. COIL

a. Before installing the coil in the magneto, a preliminary check can be made by measuring the resistance of the secondary winding with the No. 11-1274 ohmmeter. The reading must be from 4000-7000 ohms.

b. The final test of the coil must be made an actual running test of the magneto on the test bench. When the magneto has operated approximately 30 minutes during the test run, the spark gaps should be increased by means of the adjustable panel from 7 mm to 9 mm. At 2,000 rpm, the coil must spark consistently at this spark gap. Increase the gaps to 10 mm. The coil should spark fairly consistently at this gap. However, intermittent missing with the 10 mm gap is not cause to reject the coil.

7. PRIMARY CIRCUIT CONDENSER

The condenser should be tested before it is installed on the magneto. At locations where 110-volt, 60-cycle, alternating current is available, use the No. 11-1767 primary condenser tester, in accordance with the instructions furnished with this tool. For other locations use No. 11-1400 megger, if available. The condenser must be heated to 88 degrees C. (190 degrees F.) for the megger test, if used. If the reading of the megger is less than 50,000 ohms when the condenser is tested at 88 degrees C. (190 degrees F.) the condenser is not fit for further service and should be replaced.

PARTS CATALOG

SECTION I INTRODUCTION

1. This catalog refers only to the SB9RN, SF9RN, and SF9LN types of aircraft magnetos manufactured by the Scintilla Magneto Division, Bendix Aviation Corporation.
2. The Group Assembly Parts List, Section II, consists of a break-down of the complete accessory in serviceable subassemblies and detailed parts. Each subassembly listed is directly followed by its component parts properly indented to show their relationship to the subassembly. The quantities specified are those used at the location shown and not necessarily the total used per unit.
3. The Numerical Parts List, Section III, lists part numbers numerically, exclusive of standard parts which are shown in section IV. The column headed "Group List Page No." refers to pages of the Group Assembly Parts List. The column headed "Total Quantity" indicates total number used per accessory.
4. The Standard Parts List, Section IV, lists AN parts and total quantity.
5. The basic magneto assemblies covered in this parts catalog are designated by a part number. Variations of the basic assembly due to the difference in engines on which these magnetos are installed are indicated by a suffix number separated from the basic assembly number by a dash—i.e.: 10-00000-0. When ordering spare parts, the variations under the installation numbers should be consulted to insure that the correct parts are being ordered. The installation number should correspond with the manufacturer's drawing number given on the magneto identification plate.

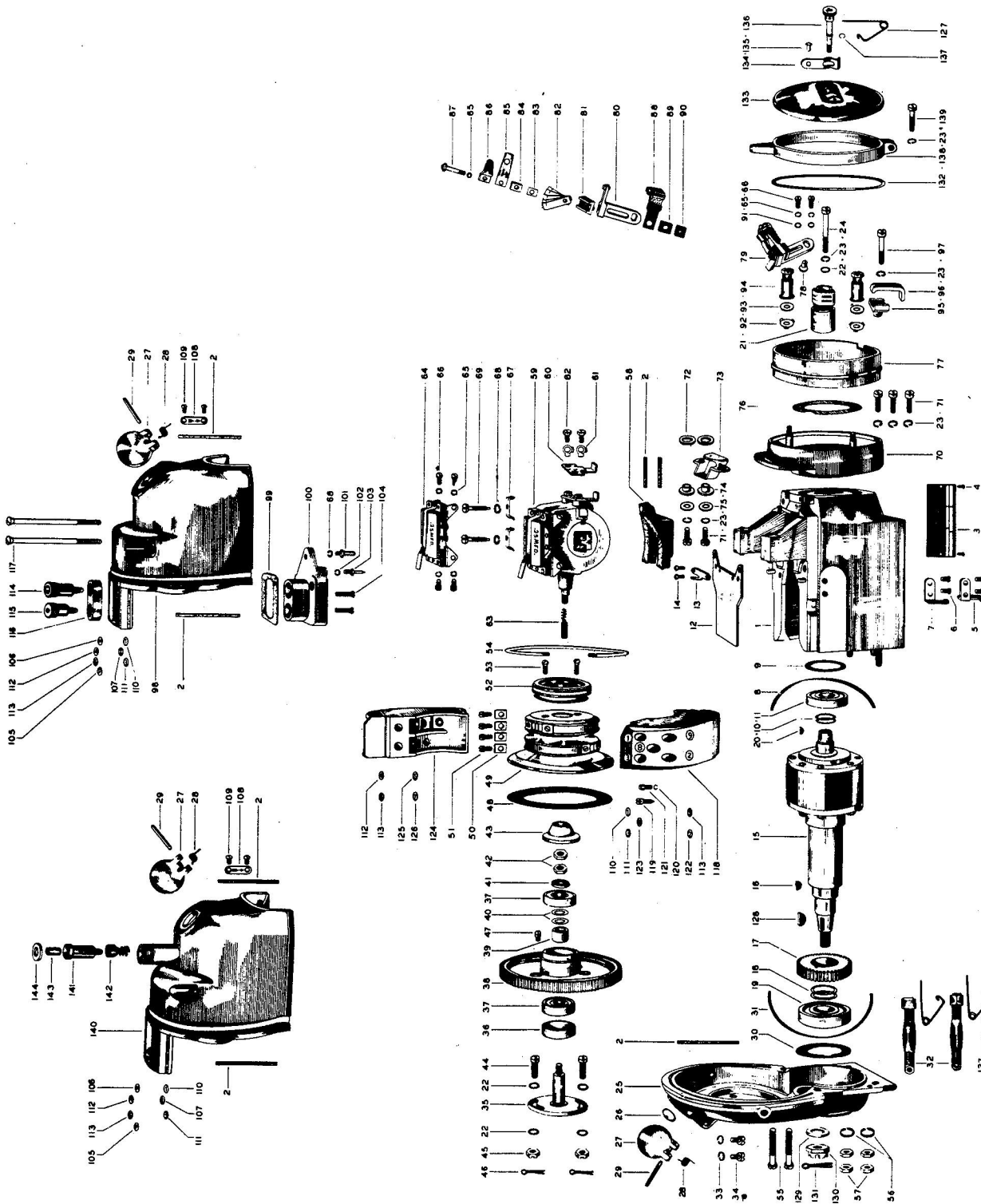


Figure 12—Exploded View of Detailed Parts—SB9RN Magneto

SECTION II

GROUP ASSEMBLY PARTS LIST

Fig. No.	Index No.	Part No.	Nomenclature	Units Per Ass'y	Property Classification		
					U. S. Army	British	
			1 2 3 4 5 6				
		2-953	Basic Magneto Assembly—Type SB9RN	1	03-H	137A	
		2-834W	Housing—Magneto	As req	03-H	137A	
12	1	2-274	Strip—Felt	1	03-H	137A	
12	2	2-782Z	Plate—Magneto identification	2	29	128	
12	3	AN535-0-3	Drive Screw—Identification plate	1	03-H	137A	
12	4	10-1464	Hook—Radio shield clamp RH	2	03-H	137A	
12	5	10-1465	Screw—Clamp hook fastening	1	03-H	137A	
12	6	10-1476	Hook—Radio shield clamp LH	2	03-H	137A	
12	7	10-1465	Screw—Clamp hook fastening	As req	03-H	137A	
12	6	2-141-1	Strip—.007 inch thick	As req	03-H	137A	
12	8	2-141-2	Strip—.008 inch thick	As req	03-H	137A	
12	8	2-141-3	Strip—.009 inch thick	As req	03-H	137A	
12	8	2-141-4	Strip—.010 inch thick	As req	03-H	137A	
12	8	2-141-5	Strip—.011 inch thick	As req	03-H	137A	
12	8	2-141-6	Strip—.012 inch thick	1	03-H	137A	
12	8	2-140	Gasket—Magneto bearing outer race	As req	03-H	137A	
12	9	2-161-1	Washer—Shim, .0025 inch thick	As req	03-H	137A	
12	10	2-161-2	Washer—Shim, .004 inch thick	As req	03-H	137A	
12	10	2-161-3	Washer—Shim, .005 inch thick	As req	03-H	137A	
12	10	2-161-4	Washer—Shim, .008 inch thick	As req	03-H	137A	
12	10	2-161-5	Washer—Shim, .010 inch thick	As req	03-H	137A	
12	10	2-161-6	Washer—Shim, .012 inch thick	1	03-H	137A	
12	10	ND15X	Bearing—Ball, New Departure (2-462)	1	30-H	137A	
12	11	2-148	Plate—Insulating	1	03-H	137A	
12	12	2-453	Bridge—Coil safety gap	2	03-H	137A	
12	13	2-187	Screw—Safety gap bridge fastening	1	03-H	137A	
12	14	2-792Y	Magnet—Rotating	1	03-H	137A	
12	15	2-181	Key—Woodruff	1	03-H	137A	
12	16	2-292Z	Gear—Small distributor	As req	03-H	137A	
12	17	2-189-1	Washer—Shim, .0025 inch thick	As req	03-H	137A	
12	18	2-189-2	Washer—Shim, .004 inch thick	As req	03-H	137A	
12	18	2-189-3	Washer—Shim, .005 inch thick	As req	03-H	137A	
12	18	2-189-4	Washer—Shim, .008 inch thick	As req	03-H	137A	
12	18	2-189-5	Washer—Shim, .010 inch thick	As req	03-H	137A	
12	18	2-189-6	Washer—Shim, .012 inch thick	1	03-H	137A	
12	18	ND17EX	Bearing—Ball, New Departure (2-463)	1	03-H	137A	
12	19	2-182	Key—Woodruff	1	03-H	137A	
12	20	2-621	Cam—Breaker	1	03-H	137A	
12	21	2-160	Washer—Plain, cam screw	1	29	128	
12	22	AN935-10	Washer—Lock, cam screw	1	03-H	137A	
12	23	10-2560	Screw—Cam fastening	1	03-H	137A	
12	24	2-129Y	Plate—Front end	As req	03-H	137A	
12	25	2-274	Strip—Felt	1	03-H	137A	
12	2	2-280	Window—Timing	1	03-H	137A	
12	26	2-272Y	Cap—End plate oil	1	03-H	137A	
12	27	2-137	Spring—End plate oil cap	1	03-H	137A	
12	28	2-157	Pin—End plate oil cap	1	03-H	137A	
12	29	2-138	Gasket—Magnet bearing outer race	1	03-H	137A	
12	30						

Section II
Group Assembly Parts List

EO 15-5CB-2

Fig. No.	Index No.	Part No.	Nomenclature	Units Per Ass'y						Property Classification U. S.		
				1	2	3	4	5	6	Army	British	
12	31	2-139-1	Strip—.007 inch thick							As req	03-H	137A
12	31	2-139-2	Strip—.008 inch thick							As req	03-H	137A
12	31	2-139-3	Strip—.009 inch thick							As req	03-H	137A
12	31	2-139-4	Strip—.010 inch thick							As req	03-H	137A
12	31	2-139-5	Strip—.011 inch thick							As req	03-H	137A
12	31	2-139-6	Strip—.012 inch thick							As req	03-H	137A
12	32	2-80	Clamp—Distr. block and radio shield							2	03-H	137A
12	33	2-339	Washer—Lock, plugging screw							2	03-H	137A
12	34	10-1477	Screw—Shield clamp hole plugging							2	03-H	137A
12	35	2-217	Axle—Large gear							1	03-H	137A
12	36	2-215	Retainer—Large gear bearing							1	03-H	137A
12	37	ND10X	Bearing—Ball, New Departure (2-202)							2	03-H	137A
12	38	2-204Y	Gear—Large distributor							1	03-H	137A
12	39	2-219	Spacer—Large gear bearing							1	03-H	137A
12	40	2-199-1	Washer—Shim, .0025 inch thick							As req	03-H	137A
12	40	2-199-2	Washer—Shim, .004 inch thick							As req	03-H	137A
12	40	2-199-3	Washer—Shim, .005 inch thick							As req	03-H	137A
12	40	2-199-4	Washer—Shim, .008 inch thick							As req	03-H	137A
12	40	2-199-5	Washer—Shim, .010 inch thick							As req	03-H	137A
12	40	2-199-6	Washer—Shim, .012 inch thick							As req	03-H	137A
12	41	2-218	Washer—Plain, large gear axle							1	03-H	137A
12	42	2-222	Nut—Large gear axle							2	03-H	137A
12	43	2-216Z	Cap—Oil retaining							1	03-H	137A
12	22	2-160	Washer—Plain, large gear axle screw							4	03-H	137A
12	44	2-340	Screw—Large gear axle fastening							2	03-H	137A
12	45	2-338	Nut—Large gear axle screw							2	03-H	137A
12	46	2-461	Cotter Pin—Large gear axle screw							2	03-H	137A
12	47	2-198Z	Screw—Cylinder to gear locating							1	03-H	137A
12	48	2-126	Gasket—Distributor cylinder							1	03-H	137A
12	49	2-696Z	Cylinder—Distributor							1	03-H	137A
12	50	2-693	Electrode—Distributor cylinder							4	03-H	137A
12	51	2-786	Screw—Electrode fastening							4	03-H	137A
12	52	2-231Z	Ring—Booster collector							1	03-H	137A
12	53	2-180	Screw—Collector ring fastening							2	03-H	137A
12	54	2-279	Lock Ring—Distributor cylinder							1	03-H	137A
12	55	2-158	Screw—End plate fastening							2	03-H	137A
12	56	2-281	Washer—Lock, end plate nut							2	03-H	137A
12	57	2-164	Nut—End plate mounting stud							4	03-H	137A
12	58	2-1053	Cushion—Coil							1	03-H	137A
12	59	2-751	Coil Assembly							1	03-H	137A
		2-752	Coil							1	03-H	137A
12	60	2-764	Brush—Primary contact							1	03-H	137A
12	61	10-7308	Washer—2 Ear lock							2	03-H	137A
12	62	10-4874	Screw—Contact brush fastening							2	03-H	137A
12	63	2-311	Carbon brush							1	03-H	137A
12	64	2-755Z	Condenser							1	03-H	137A
12	65	2-194	Lock Washer—Condenser screw							4	03-H	137A
12	66	10-528Z	Screw—Condenser fastening							4	03-H	137A
12	67	2-819	Clamp—Coil core							2	03-H	137A
12	68	2-220	Washer—Lock, coil core screw							2	03-H	137A
12	69	2-177	Screw—Coil core fastening							2	03-H	137A
12	70	2-997	Adaptor—Breaker housing							1	03-H	137A
12	23	AN935-10	Washer—Lock, adaptor screw							3	29	128
12	71	2-622	Screw—Adaptor fastening							3	03-H	137A
12	72	10-2637	Washer—Insulating							2	03-H	137A
12	73	10-3473	Segment—Primary contact							1	03-H	137A
12	74	10-2636	Bushing—Insulating							2	03-H	137A
12	75	10-598	Washer—Plain, contact segment screw							2	03-H	137A
12	23	AN935-10	Washer—Lock, contact segment screw							2	29	128
12	71	2-622	Screw—Contact segment fastening							2	03-H	137A
12	76	10-8510	Gasket—Breaker housing							1	03-H	137A
12	77	10-3297Z	Housing—Breaker							1	03-H	137A
12	78	10-532Z	Eccentric—Adjusting							1	03-H	137A
12	79	10-546V	Contact Assembly							1	03-H	137A

Fig. No.	Index No.	Part No.	Nomenclature	Units						Property Classification		
				Per Ass'y	U. S. Army	British	1	2	3	4	5	6
12	80	10-2976	Support—Contact assembly	1	03-H	137A						
12	81	10-3263	Bushing—Insulating	1	03-H	137A						
12	82	10-3425Z	Brush Assembly—Primary	1	03-H	137A						
12	83	10-3768-1	Shim—.008 inch thick	As req	03-H	137A						
12	83	10-3768-2	Shim—.004 inch thick	As req	03-H	137A						
12	84	10-3423Z	Plate—Main spring	1	03-H	137A						
12	85	10-2977	Spring—Main	1	03-H	137A						
12	86	10-15676	Stop—Main spring	1	03-H	137A						
12	65	2-194	Washer—Lock, assembly screw	1	03-H	137A						
12	87	10-3845Y	Screw—Contact assembly	1	03-H	137A						
12	88	10-3429	Follower—Cam	1	03-H	137A						
12	89	10-3424	Plate—Insulating	1	03-H	137A						
12	90	10-3846	Nut—Assembly screw	1	03-H	137A						
12	91	2-171Z	Washer—Plain, assembly fastening screw	2	03-H	137A						
12	65	2-194	Washer—Lock, assembly fastening screw	2	03-H	137A						
12	66	10-528Z	Screw—Contact assembly fastening	2	03-H	137A						
12	92	2-995	Washer—3 Ear lock	2	03-H	137A						
12	93	10-12961	Washer—Plain, hold down spring	2	03-H	137A						
12	94	10-7643	Spring—Breaker hold down	2	03-H	137A						
12	95	2-867	Block—Breaker housing clamp	1	03-H	137A						
12	96	2-866	Clamp—Breaker housing	1	03-H	137A						
12	23	AN935-10	Washer—Lock, clamp fastening screw	1	29	128						
12	97	2-865	Screw—Housing clamp fastening	1	03-H	137A						
12	98	2-536V	Cover—Coil	1	03-H	137A						
12	2	2-274	Strip—Felt	As req	03-H	137A						
12	27	2-272Y	Cap—Coil cover oil	1	03-H	137A						
12	28	2-137	Spring—Coil cover oil cap	1	03-H	137A						
12	29	2-157	Pin—Coil cover oil cap	1	03-H	137A						
12	99	2-529	Gasket—Terminal block	1	03-H	137A						
12	100	2-530	Terminal Block—Booster and ground	1	03-H	137A						
12	68	2-220	Washer—Lock, ground terminal stud	1	03-H	137A						
12	101	2-191Z	Stud—Ground terminal	1	03-H	137A						
12	102	2-541	Washer—Lock, booster electrode	1	03-H	137A						
12	103	2-197	Electrode—Booster	1	03-H	137A						
12	104	2-188	Screw—Terminal block fastening	2	03-H	137A						
12	105	2-317	Disc—P	1	03-H	137A						
12	106	2-318	Disc—H	1	03-H	137A						
12	107	2-319	Disc—Rotation direction	1	03-H	137A						
12	108	10-1108	Plate—Rotation direction	1	03-H	137A						
12	109	10-566	Screw—Direction plate fastening	2	03-H	137A						
12	110	2-321	Disc—No. 1	1	03-H	137A						
12	111	2-323	Disc—No. 3	1	03-H	137A						
12	112	2-324	Disc—No. 4	1	03-H	137A						
12	113	2-326	Disc—No. 6 and No. 9	1	03-H	137A						
12	114	2-247Y	Terminal Screw—Booster	1	03-H	137A						
12	115	2-422Z	Terminal Screw—Ground	1	03-H	137A						
12	116	2-681	Lock—Rubber	1	03-H	137A						
12	117	2-184	Screw—Coil cover fastening	2	03-H	137A						
12	118	2-460	Distributor Block—Clw. RHS	1	03-H	137A						
12	119	2-185	Screw—Cable piercing	5	03-H	137A						
12	120	2-679	Washer—Lock, distr. block electrode	5	03-H	137A						
12	121	2-392X	Electrode—Distributor block	5	03-H	137A						
12	110	2-321	Disc—No. 1	1	03-H	137A						
12	122	2-322	Disc—No. 2	1	03-H	137A						
12	111	2-323	Disc—No. 3	1	03-H	137A						
12	123	2-328	Disc—No. 8	1	03-H	137A						
12	113	2-326	Disc—No. 9	1	03-K	137A						
12	124	2-459	Distributor Block—Clw. LHS	1	03-H	137A						
12	119	2-185	Screw—Cable piercing	4	03-H	137A						
12	120	2-679	Washer—Lock, distr. block electrode	4	03-H	137A						
12	121	2-392X	Electrode—Distributor block	4	03-H	137A						
12	112	2-324	Disc—No. 4	1	03-H	137A						
12	125	2-325	Disc—No. 5	1	03-H	137A						
12	113	2-326	Disc—No. 6	1	03-H	137A						

Section II
Group Assembly Parts List

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Fig. No.	Index No.	Part No.	Nomenclature	Units Per Ass'y						Property Classification				
				1	2	3	4	5	6	U. S. Army	British			
12	126	2-327	Disc—No. 7							1				
12	127	2-152Z	Safety Pin—Radio shield clamp							2	03-H		137A	
12	128	AN280-H404	Key—Woodruff							1	29		137A	
12	129	2-965	Washer—Plain, drive shaft nut							1	03-H		137A	
12	130	10-4092	Nut—Drive shaft							1	03-H		137A	
12	131	*AN380C3-3	Cotter Pin—Drive shaft nut							1	29		128	
12	132	10-8509	Gasket—Breaker cover							2	03-H		137A	
12	133	2-1001Z	Cover—Breaker							1	03-H		137A	
12	134	10-3039	Spring—Breaker cover screw							1	03-H		137A	
12	135	10-146	Rivet—Cover screw spring							1	03-H		137A	
12	136	10-3040	Screw—Breaker cover fastening							1	03-H		137A	
12	137	10-2633	Lock Ring—Cover screw							1	03-H		137A	
12	127	2-152Z	Safety Pin—Cover screw							1	03-H		137A	
*Used only on magnets with .094 inch dia. cotter pin hole. On magnets having .086 inch dia. cotter pin hole use 2-393 cotter pin.														
2-953-1 Installation—Magneto, type SB9RN														
Same as Basic Magneto Assembly, Type SB9RN No. 2-953														
With No Exceptions														
2-953-3 Installation—Magneto, type SB9RN														
Same as Basic Magneto Assembly, Type SB9RN No. 2-953														
Except:														
Omit:														
12	133	2-1001Z	Cover—Breaker							1				
Add:														
12	134	2-1000Z	Cover—Breaker							1	03-H		137A	
12	135	10-3039	Spring—Breaker cover							1	03-H		137A	
12	138	10-146	Rivet—Cover screw spring							1	03-H		137A	
12	138	10-30394	Lever—Breaker advance and retard							1	03-H		137A	
12	23	AN935-10	Washer—Lock, advance lever screw							1	29		128	
12	139	10-2250	Screw—Advance lever							1	03-H		137A	
2-988-1 Installation—Magneto, Type SB9RN														
Same as Basic Magneto Assembly, Type SB9RN No. 2-953														
Except:														
Omit:														
12	98	2-536V	Cover—Coil							1				
12	133	2-1001Z	Cover—Breaker							1				
Add:														
12	140	2-750Z	Cover—Coil							1	03-H		137A	
12	2	2-274	Strip—Felt							As req	03-H		137A	
12	134	2-1000Z	Cover—Breaker							1	03-H		137A	
12	135	10-3039	Spring—Breaker cover screw							1	03-H		137A	
12	138	10-146	Rivet—Cover screw spring							1	03-H		137A	
12	138	10-30394	Lever—Breaker advance and retard							1	03-H		137A	
12	23	AN935-10	Washer—Lock, advance lever screw							1	29		128	
12	139	10-2250	Screw—Advance lever							1	03-H		137A	
12	141	AN3105-3	Terminal Screw—Auxiliary ground							1	03-H		105K	
12	142	AN3105-2	Contact—Ground terminal screw							1	03-H		105K	
12	143	AN3105-4	Tube—Insulating							1	03-H		105K	
12	144	AN3105-5	Washer—Plain							1	03-H		105K	
2-988-5 Installation—Magneto, Type SB9RN														
Same as Basic Magneto Assembly, Type SB9RN No. 2-953														
Except:														
Omit:														
12	98	2-536V	Cover—Coil							1				
12	27	2-272Y	Cap—Coil cover oil							1				
12	28	2-137	Spring—Coil cover oil cap							1				
12	29	2-157	Pin—Coil cover oil cap							1				
12	108	10-1108	Plate—Rotation direction							1				
12	109	10-566	Screw—Direction plate fastening							2				
12	133	2-1001Z	Cover—Breaker							1				
Add:-														
12	2	10-14401	Cover—Coil							1	03-H		137A	
12	2	2-274	Strip—Felt							As req	03-H		137A	
12	2	10-14402	Hood—Airblast							1	03-H		137A	

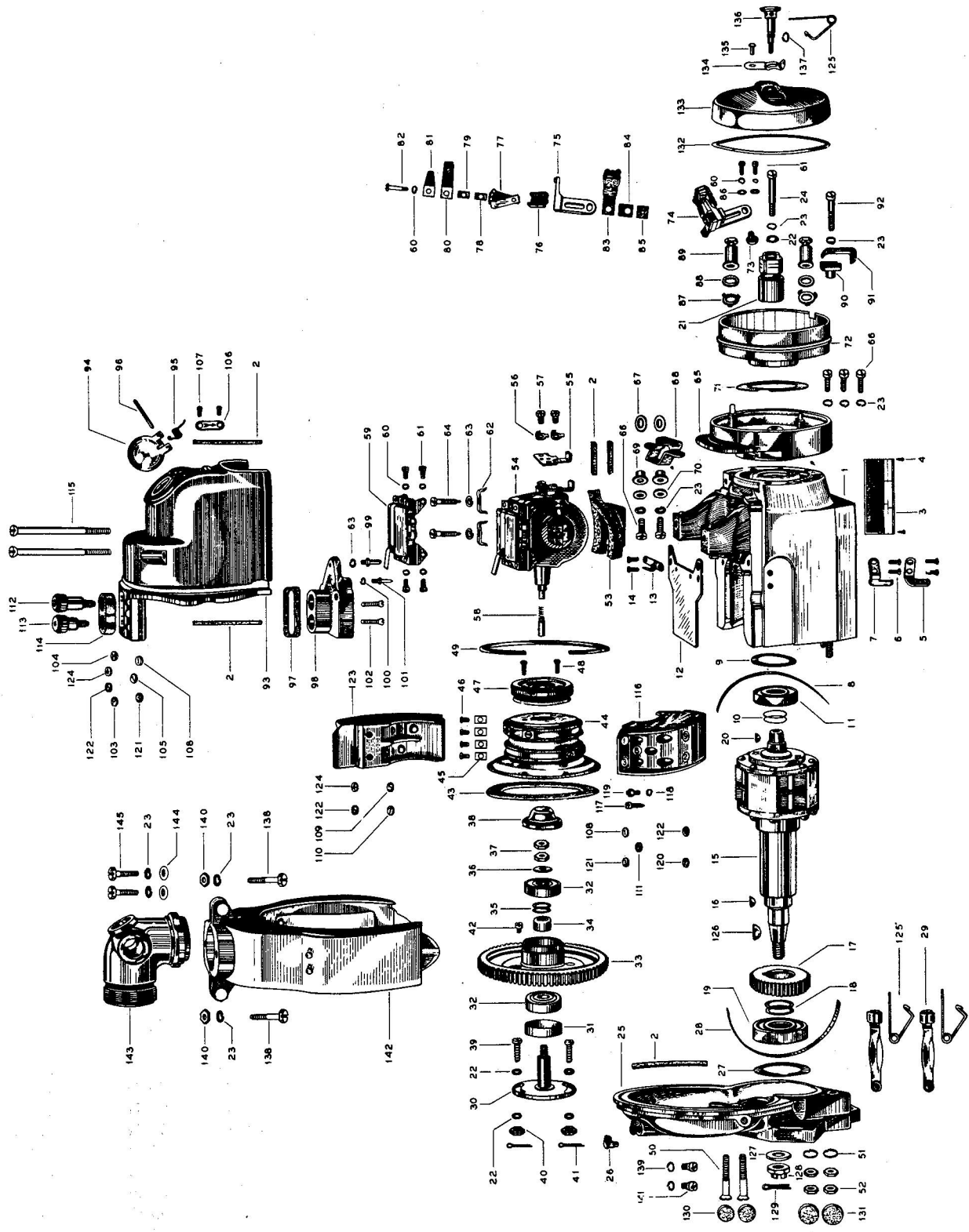


Figure 13 Exploded View of Detailed Parts—SF9LN and SF9RN Magnetos

Section II
Group Assembly Parts List

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Fig. No.	Index No.	Part No.	Nomenclature						Units Per Ass'y	Property Classification		
			1	2	3	4	5	6		U. S.	Army	British
		10-2494										
		10-960						4		03-H		137A
		2-1000Z						4		03-H		137A
12	134	10-3039						1		03-H		137A
12	135	10-146						1		03-H		137A
12	138	10-3300						1		03-H		137A
12	23	AN935-10						1		03-H		137A
12	139	10-2250						1		29		128
12	141	AN3105-3						1		03-H		137A
12	142	AN3105-2						1		03-H		105K
12	143	AN3105-4						1		03-H		105K
12	144	AN3105-5						1		03-H		105K

MAGNETO ASSEMBLY—TYPE SF9LN

Fig. No.	Index No.	Part No.	Nomenclature						Units Per Ass'y	Property Classification		
			1	2	3	4	5	6		U. S.	Army	British
		2-954										
13	1	2-1134Y										
13	2	2-274						1		03-H		137A
13	3	2-782Z						As req		03-H		137A
13	4	AN535-0-3						1		03-H		137A
13	5	10-1464						2		29		128
13	6	10-1465						1		03-H		137A
13	7	10-1476						2		03-H		137A
13	6	10-1465						1		03-H		137A
13	8	2-141-1						2		03-H		137A
13	8	2-141-2						As req		03-H		137A
13	8	2-141-3						As req		03-H		137A
13	8	2-141-4						As req		03-H		137A
13	8	2-141-5						As req		03-H		137A
13	8	2-141-6						As req		03-H		137A
13	9	2-140						As req		03-H		137A
13	10	2-161-1						1		03-H		137A
13	10	2-161-2						As req		03-H		137A
13	10	2-161-3						As req		03-H		137A
13	10	2-161-4						As req		03-H		137A
13	10	2-161-5						As req		03-H		137A
13	10	2-161-6						As req		03-H		137A
13	11	ND15X						As req		03-H		137A
13	12	2-148						1		03-H		137A
13	13	2-453						1		03-H		137A
13	14	2-187						1		03-H		137A
13	15	2-792Y						2		03-H		137A
13	16	2-181						1		03-H		137A
13	17	2-292Z						1		03-H		137A
13	18	2-189-1						1		03-H		137A
13	18	2-189-2						As req		03-H		137A
13	18	2-189-3						As req		03-H		137A
13	18	2-189-4						As req		03-H		137A
13	18	2-189-5						As req		03-H		137A
13	18	2-189-6						As req		03-H		137A
13	19	ND17EX						As req		03-H		137A
13	20	2-182						1		03-H		137A
13	21	2-633						1		03-H		137A
13	22	2-160						1		03-H		137A
13	23	AN935-10						1		03-H		137A
13	24	10-2560						1		29		128
13	25	2-629Y						1		03-H		137A
13	26	2-628						1		03-H		137A
13	2	2-274						1		03-H		137A
13	27	2-138						As req		03-H		137A

Fig. No.	Index No.	Part No.	Nomenclature	Units Per Ass'y	Property Classification		
					U. S. Army	British	
			1 2 3 4 5 6				
13	28	2-139-1	Strip—.007 inch thick	As req	03-H	137A	
13	28	2-139-2	Strip—.008 inch thick	As req	03-H	137A	
13	28	2-139-3	Strip—.009 inch thick	As req	03-H	137A	
13	28	2-139-4	Strip—.010 inch thick	As req	03-H	137A	
13	28	2-139-5	Strip—.011 inch thick	As req	03-H	137A	
13	28	2-139-6	Strip—.012 inch thick	As req	03-H	137A	
13	29	2-80	Clamp—Distr. block and radio shield	4	03-H	137A	
13	30	2-217	Axle—Large gear	1	03-H	137A	
13	31	2-215	Retainer—Large gear bearing	1	03-H	137A	
13	32	ND10X	Bearing—Ball, New Departure (2-202)	2	03-H	137A	
13	33	2-204Y	Gear—Large distributor	1	03-H	137A	
13	34	2-219	Spacer—Large gear bearing	1	03-H	137A	
13	35	2-199-1	Washer—Shim, .0025 inch thick	As req	03-H	137A	
13	35	2-199-2	Washer—Shim, .004 inch thick	As req	03-H	137A	
13	35	2-199-3	Washer—Shim, .005 inch thick	As req	03-H	137A	
13	35	2-199-4	Washer—Shim, .008 inch thick	As req	03-H	137A	
13	35	2-199-5	Washer—Shim, .010 inch thick	As req	03-H	137A	
13	35	2-199-6	Washer—Shim, .012 inch thick	As req	03-H	137A	
13	36	2-218	Washer—Plain, large gear axle	1	03-H	137A	
13	37	2-222	Nut—Large gear axle	2	03-H	137A	
13	38	2-216Z	Cap—Oil retaining	1	03-H	137A	
13	22	2-160	Washer—Plain, large gear axle screw	4	03-H	137A	
13	39	2-626	Screw—Large gear axle fastening	2	03-H	137A	
13	40	2-338	Nut—Large gear axle screw	2	03-H	137A	
13	41	2-461	Cotter Pin—Large gear axle screw	2	03-H	137A	
13	42	2-198Z	Screw—Cylinder to gear locating	1	03-H	137A	
13	43	2-126	Gasket—Distributor cylinder	1	03-H	137A	
13	44	2-696Z	Cylinder—Distributor	1	03-H	137A	
13	45	2-693	Electrode—Distributor cylinder	4	03-H	137A	
13	46	2-786	Screw—Electrode fastening	4	03-H	137A	
13	47	2-231Z	Ring—Booster collector	1	03-H	137A	
13	48	2-180	Screw—Collector ring fastening	2	03-H	137A	
13	49	2-279	Lock Ring—Distributor cylinder	1	03-H	137A	
13	50	2-158	Screw—End plate fastening	2	03-H	137A	
13	51	2-281	Washer—Lock, end plate nut	2	03-H	137A	
13	52	2-164	Nut—End plate mounting stud	4	03-H	137A	
13	53	2-1053	Cushion—Coil	1	03-H	137A	
13	54	2-751	Coil Assembly	1	03-H	137A	
		2-752	Coil	1	03-H	137A	
13	55	2-764	Brush—Primary contact	1	03-H	137A	
13	56	10-7308	Washer—2 Ear lock	2	03-H	137A	
13	57	10-4874	Screw—Contact brush fastening	2	03-H	137A	
13	58	2-311	Carbon Brush	1	03-H	137A	
13	59	2-755Z	Condenser	1	03-H	137A	
13	60	2-194	Washer—Lock, condenser screw	4	03-H	137A	
13	61	10-528Z	Screw—Condenser fastening	4	03-H	137A	
13	62	2-819	Clamp—Coil core	2	03-H	137A	
13	63	2-220	Washer—Lock, coil core screw	2	03-H	137A	
13	64	2-177	Screw—Coil core fastening	2	03-H	137A	
13	65	2-997	Adaptor—Breaker housing	1	03-H	137A	
13	23	AN935-10	Washer—Lock, adaptor screw	3	29	128	
13	66	2-622	Screw—Adaptor fastening	3	03-H	137A	
13	67	10-2637	Washer—Insulating	2	03-H	137A	
13	68	10-3473	Segment—Primary contact	1	03-H	137A	
13	69	10-2636	Bushing—Insulating	2	03-H	137A	
13	70	10-598	Washer—Plain, contact segment screw	2	03-H	137A	
13	23	AN935-10	Washer—Lock, contact segment screw	2	29	128	
13	66	2-622	Screw—Contact segment fastening	2	03-H	137A	
13	71	10-8510	Gasket—Breaker housing	1	03-H	137A	
13	72	10-3297Z	Housing—Breaker	1	03-H	137A	
13	73	10-532Z	Eccentric—Adjusting	1	03-H	137A	
13	74	10-546V	Contact Assembly	1	03-H	137A	
13	75	10-2976	Support—Contact assembly	1	03-H	137A	
13	76	10-3263	Bushing—Insulating	1	03-H	137A	

Section II
Group Assembly Parts List

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Fig. No.	Index No.	Part No.	Nomenclature						Units Per Ass'y	Property Classification		
			1	2	3	4	5	6		U. S. Army	British	
13	77	10-3425Z							1	03-H	137A	
13	78	10-3768-1							As req	03-H	137A	
13	78	10-3768-2							As req	03-H	137A	
13	79	10-3423Z							1	03-H	137A	
13	80	10-2977							1	03-H	137A	
13	81	10-15676							1	03-H	137A	
13	60	2-194							1	03-H	137A	
13	82	10-3845Y							1	03-H	137A	
13	83	10-3429							1	03-H	137A	
13	84	10-3424							1	03-H	137A	
13	85	10-3846							1	03-H	137A	
13	86	2-171Z							1	03-H	137A	
13	60	2-194							2	03-H	137A	
13	61	10-528Z							2	03-H	137A	
13	87	2-995							2	03-H	137A	
13	88	10-12961							2	03-H	137A	
13	89	10-7643							2	03-H	137A	
13	90	2-867							2	03-H	137A	
13	91	2-866							1	03-H	137A	
13	23	AN935-10							1	03-H	137A	
13	92	2-865							1	29	128	
13	93	2-536V							1	03-H	137A	
13	2	2-274							1	03-H	137A	
		2-314Z							As req	03-H	137A	
		10-1704							2	03-H	137A	
13	60	2-194							4	03-H	137A	
		10-1703							4	03-H	137A	
13	94	2-272Y							4	03-H	137A	
13	95	2-137							1	03-H	137A	
13	96	2-157							1	03-H	137A	
13	97	2-529							1	03-H	137A	
13	98	2-530							1	03-H	137A	
13	63	2-220							1	03-H	137A	
13	99	2-191Z							1	03-H	137A	
13	100	2-541							1	03-H	137A	
13	101	2-197							1	03-H	137A	
13	102	2-188							1	03-H	137A	
13	103	2-317							2	03-H	137A	
13	104	2-318							1	03-H	137A	
13	105	2-319							1	03-H	137A	
13	106	10-1108							1	03-H	137A	
13	107	10-566							1	03-H	137A	
13	108	2-321							2	03-H	137A	
13	109	2-325							1	03-H	137A	
13	110	2-327							1	03-H	137A	
13	111	2-328							1	03-H	137A	
13	112	2-247Y							1	03-H	137A	
13	113	2-422Z							1	03-H	137A	
13	114	2-681							1	03-H	137A	
13	115	2-184							1	03-H	137A	
13	116	2-333							2	03-H	137A	
13	117	2-185							1	03-H	137A	
13	118	2-679							5	03-H	137A	
13	119	2-392X							5	03-H	137A	
13	108	2-321							5	03-H	137A	
13	120	2-322							1	03-H	137A	
13	121	2-323							1	03-H	137A	
13	111	2-328							1	03-H	137A	
13	122	2-326							1	03-H	137A	
13	123	2-334							1	03-H	137A	
13	117	2-185							1	03-H	137A	
13	118	2-679							4	03-H	137A	
13	119	2-392X							4	03-H	137A	
13	124	2-324							4	03-H	137A	
									1	03-H	137A	

Fig. No.	Index No.	Part No.	Nomenclature	Units Per Ass'y	Property Classification	
					U. S. Army	British
			1 2 3 4 5 6			
13	109	2-325	Disc—No. 5	1	03-H	137A
13	122	2-326	Disc—No. 6	1	03-H	137A
13	110	2-327	Disc—No. 7	1	03-H	137A
13	125	2-152Z	Safety Pin—Radio shield clamp	4	03-H	137A
13	126	2-828Z	Key—Woodruff	1	03-H	137A
13	127	2-965	Washer—Plain, drive shaft nut	1	03-H	137A
13	128	10-4092	Nut—Drive shaft	1	29	128
13	129	*AN380C3-3	Cotter Pin—Drive shaft nut	1	03-H	137A
13	130	2-649	Plug—Leather	2	03-H	137A
13	131	2-648	Plug—Leather	2	03-H	137A
13	132	10-8509	Gasket—Breaker Cover	2	03-H	137A
13	133	2-1001Z	Cover—Breaker	1	03-H	137A
13	134	10-3039	Spring—Breaker cover screw	1	03-H	137A
13	135	10-146	Rivet—Cover screw spring	1	03-H	137A
13	136	10-3040	Screw—Breaker cover fastening	1	03-H	137A
13	137	10-2633	Lock Ring—Cover screw	1	03-H	137A
13	125	2-152Z	Safety Pin—Cover screw	1	03-H	137A
*Used only on magnets with .094 inch dia. cotter pin hole. On magnets having .086 inch dia. cotter pin hole use 2-393 cotter pin.						
2-954-1 Installation—Magneto, Type SF9LN Same as Basic Magneto Assembly, Type SF9LN, No. 2-954 With No Exceptions						
2-996-1 Installation—Magneto, Type SF9RN Same as Basic Magneto Assembly, Type SF9LN, No. 2-954 Except: Omit:						
13	29	2-80	Clamp—Distr. block and radio shield	2		
13	125	2-152Z	Safety Pin	2		
		2-314Z	Hook—Clamp	2		
		10-1704	Screw—Hook fastening	4		
13	60	2-194	Washer—Lock, hook screw	4		
		10-1703	Nut	4		
13	21	2-633	Cam—Breaker	1		
13	109	2-325	Disc—No. 5	1		
13	110	2-327	Disc—No. 7	1		
13	111	2-328	Disc—No. 8	1		
13	116	2-333	Distributor Block—Anti.-clw. RHS	1		
13	123	2-334	Distributor Block—Anti.-clw. LHS	1		
Add:						
		2-621	Cam—Breaker	1	03-H	137A
13	121	2-323	Disc—No. 3	1	03-H	137A
13	124	2-324	Disc—No. 4	1	03-H	137A
13	122	2-326	Disc—No. 6 and No. 9	1	03-H	137A
		2-460	Distributor Block—Clw. RHS	1	03-H	137A
13	117	2-185	Screw—Cable piercing	5	03-H	137A
13	118	2-679	Washer—Lock, distr. block electrode	5	03-H	137A
13	119	2-392X	Electrode—Distributor block	5	03-H	137A
13	108	2-321	Disc—No. 1	1	03-H	137A
13	120	2-322	Disc—No. 2	1	03-H	137A
13	121	2-323	Disc—No. 3	1	03-H	137A
13	111	2-328	Disc—No. 8	1	03-H	137A
13	122	2-326	Disc—No. 9	1	03-H	137A
		2-459	Distributor Block—Clw. LHS	1	03-H	137A
13	117	2-185	Screw—Cable piercing	4	03-H	137A
13	118	2-679	Washer—Lock, distr. block electrode	4	03-H	137A
13	119	2-392X	Electrode—Distributor block	4	03-H	137A
13	124	2-324	Disc—No. 4	1	03-H	137A
13	109	2-325	Disc—No. 5	1	03-H	137A
13	122	2-326	Disc—No. 6	1	03-H	137A
13	110	2-327	Disc—No. 7	1	03-H	137A
		10-1529	Shield—Radio	1	03-H	137A
		10-3164	Screw—Outlet adaptor locking	1	03-H	137A
13	23	AN935-10	Washer—Lock, adaptor locking screw	1	29	128
13	138	10-1525	Screw—Shield clamping	2	03-H	137A

Section II
Group Assembly Parts List

EO 15-5CB-2

Fig. No.	Index No.	Part No.	Nomenclature					Units Per Ass'y	Property Classification	
			1	2	3	4	5		U. S.	British
13	139	2-339								
13	140	10-1467					2	03-H	137A	
13	139	2-339					2	03-H	137A	
13	141	10-1477					2	03-H	137A	
		2-996-3					2	03-H	137A	
		Installation—Magneto, Type SF9RN								
		Same as Basic Magneto Assembly, Type SF9LN No. 2-954								
		Except:								
		Omit:								
13	29	2-80								
13	125	2-152Z					2			
		2-314Z					2			
		10-1704					2			
13	60	2-194					4			
		10-1703					4			
							4			
13	21	2-633					1			
13	109	2-325					1			
13	110	2-327					1			
13	111	2-328					1			
13	116	2-333					1			
13	123	2-334					1			
		Add:								
		2-621					1			
13	121	2-323					1	03-H	137A	
13	124	2-324					1	03-H	137A	
13	122	2-326					1	03-H	137A	
		2-460					1	03-H	137A	
13	117	2-185					1	03-H	137A	
13	118	2-679					5	03-H	137A	
13	119	2-392X					5	03-H	137A	
13	108	2-321					5	03-H	137A	
13	120	2-322					1	03-H	137A	
13	121	2-323					1	03-H	137A	
13	111	2-328					1	03-H	137A	
13	122	2-326					1	03-H	137A	
		2-459					1	03-H	137A	
13	117	2-185					1	03-H	137A	
13	118	2-679					4	03-H	137A	
13	119	2-392X					4	03-H	137A	
13	124	2-324					4	03-H	137A	
13	109	2-325					1	03-H	137A	
13	122	2-326					1	03-H	137A	
13	110	2-327					1	03-H	137A	
		2-1069Y					1	03-H	137A	
13	142	2-1068Y					1	03-H	137A	
13	138	10-1525					1	03-H	137A	
13	23	AN935-10					2	03-H	137A	
13	140	10-1467					2	29	128	
13	143	10-12846W					2	03-H	137A	
13	144	10-13190					1	03-H	137A	
13	23	AN935-10					2	03-H	137A	
13	145	10-9915					2	29	128	
13	139	2-339					2	03-H	137A	
13	141	10-1477					2	03-H	137A	

SECTION III

NUMERICAL PARTS LIST

SB9RN MAGNETO

<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>	<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>	<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>
2-80	20	2	2-199-1	20	As req.	2-622	20	5
2-126	20	1	2-199-2	20	As req.	2-679	21	9
2-129Y	19	1	2-199-3	20	As req.	2-681	21	1
2-137	19, 21, 22	2	2-199-4	20	As req.	2-693	20	4
2-138	19	1	2-199-5	20	As req.	2-696Z	20	1
2-139-1	20	As req.	2-199-6	20	As req.	2-750Z	22	1
2-139-2	20	As req.	2-204Y	20	1	2-751	20	1
2-139-3	20	As req.	2-215	20	1	2-752	20	1
2-139-4	20	As req.	2-216Z	20	1	2-755Z	20	1
2-139-5	20	As req.	2-217	20	1	2-764	20	1
2-139-6	20	As req.	2-218	20	1	2-782Z	19	1
2-140	19	1	2-219	20	1	2-786	20	4
2-141-1	19	As req.	2-220	20, 21	3	2-792Y	19	1
2-141-2	19	As req.	2-222	20	2	2-819	20	2
2-141-3	19	As req.	2-231Z	20	1	2-834W	19	1
2-141-4	19	As req.	2-247Y	21	1	2-865	21	1
2-141-5	19	As req.	2-272Y	19, 21, 22	3	2-866	21	1
2-141-6	19	As req.	2-274	19, 21, 22	As req.	2-867	21	1
2-148	19	1				2-965	22	1
2-152Z	22	3	2-279	20	1	2-995	21	2
2-157	19, 21, 22	2	2-280	19	1	2-997	20	1
2-158	20	2	2-281	20	2	2-1000Z	22	1
2-160	19, 20	5	2-292Z	19	1	2-1001Z	22	1
2-161-1	19	As req.	2-311	20	1	2-1053	20	1
2-161-2	19	As req.	2-317	21	1	10-146	22	1
2-161-3	19	As req.	2-318	21	1	10-528Z	20, 21	6
2-161-4	19	As req.	2-319	21	1	10-532Z	20	1
2-161-5	19	As req.	2-321	21	2	10-546V	20	1
2-161-6	19	As req.	2-322	21	1	10-566	21, 22	2
2-164	20	4	2-323	21	2	10-598	20	2
2-171Z	21	2	2-324	21	2	10-960	24	4
2-177	20	2	2-325	21	1	10-1108	21, 22	1
2-180	20	2	2-326	21	3	10-1464	19	1
2-181	19	1	2-327	22	1	10-1465	19	4
2-182	19	1	2-328	21	1	10-1476	19	1
2-184	21	2	2-338	20	2	10-1477	20	2
2-185	21	9	2-339	20	2	10-2250	22	1
2-187	19	2	2-340	20	2	10-2494	24	4
2-188	21	2	2-392X	21	9	10-2560	19	1
2-189-1	19	As req.	2-422Z	21	1	10-2633	22	1
2-189-2	19	As req.	2-453	19	1	10-2636	20	2
2-189-3	19	As req.	2-459	21	1	10-2637	20	2
2-189-4	19	As req.	2-460	21	1	10-2976	21	1
2-189-5	19	As req.	2-461	20	2	10-2977	21	1
2-189-6	19	As req.	2-529	21	1	10-3039	22	1
2-191Z	21	1	2-530	21	1	10-3040	22	1
2-194	20, 21	7	2-536V	21, 22	1	10-3263	21	1
2-197	21	1	2-541	21	1	10-3297Z	20	1
2-198Z	20	1	2-621	19	1	10-3300	24	1

**Section III
Numerical Parts List**

EO 15-5CB-2

Part Number	Group List Page Numbers	Total Quantity
10-3423Z	21	1
10-3424	21	1
10-3425Z	21	1
10-3429	21	1
10-3473	20	1
10-3768-1	21	As req.
10-3768-2	21	As req.
10-3845Y	21	1

Part Number	Group List Page Numbers	Total Quantity
10-3846	21	1
10-4092	22	1
10-4874	20	2
10-7308	20	2
10-7643	21	2
10-8509	22	2
10-8510	20	1
10-12961	21	2

Part Number	Group List Page Numbers	Total Quantity
10-14401	22	1
10-14402	22	1
10-15676	21	1
10-30394	22	1
ND10X	20	2
ND15X	19	1
ND17EX	19	1

SF9LN & SF9RN MAGNETOS

Part Number	Group List Page Numbers	Total Quantity
2-80	25, 27, 28	4
2-126	25	1
2-137	26	1
2-138	24	1
2-139-1	25	As req.
2-139-2	25	As req.
2-139-3	25	As req.
2-139-4	25	As req.
2-139-5	25	As req.
2-139-6	25	As req.
2-140	24	1
2-141-1	24	As req.
2-141-2	24	As req.
2-141-3	24	As req.
2-141-4	24	As req.
2-141-5	24	As req.
2-141-6	24	As req.
2-148	24	1
2-152Z	27, 28	5
2-157	26	1
2-158	25	2
2-160	24, 25	5
2-161-1	24	As req.
2-161-2	24	As req.
2-161-3	24	As req.
2-161-4	24	As req.
2-161-5	24	As req.
2-161-6	24	As req.
2-164	25	4
2-171Z	26	2
2-177	25	2
2-180	25	2
2-181	24	1
2-182	24	1
2-184	26	2
2-185	26, 27, 28	9
2-187	24	2
2-188	26	2
2-189-1	24	As req.
2-189-2	24	As req.
2-189-3	24	As req.
2-189-4	24	As req.
2-189-5	24	As req.
2-189-6	24	As req.
2-191Z	26	1
2-194	25, 26, 27, 28	11
2-197	26	1
2-198Z	25	1
2-199-1	25	As req.

Part Number	Group List Page Numbers	Total Quantity
2-199-2	25	As req.
2-199-3	25	As req.
2-199-4	25	As req.
2-199-5	25	As req.
2-199-6	25	As req.
2-204Y	25	1
2-215	25	1
2-216Z	25	1
2-217	25	1
2-218	25	1
2-219	25	1
2-220	25, 26	3
2-222	25	2
2-231Z	25	1
2-247Y	26	1
2-272Y	26	1
2-274	24, 26	As req.
2-279	25	1
2-281	25	2
2-292Z	24	1
2-311	25	1
2-314Z	26, 27, 28	2
2-317	26	1
2-318	26	1
2-319	26	1
2-321	26, 27, 28	2
2-322	26, 27, 28	1
2-323	26, 27, 28	2
2-324	26, 27, 28	2
2-325	26, 27, 28	2
2-326	26, 27, 28	3
2-327	26, 27, 28	2
2-328	26, 27, 28	2
2-333	26, 27, 28	1
2-334	26, 27, 28	1
2-338	25	2
2-339	28	4
2-392X	26, 27, 28	9
2-422Z	26	1
2-453	24	1
2-459	27, 28	1
2-460	27, 28	1
2-461	25	2
2-529	26	1
2-530	26	1
2-536V	26	1
2-541	26	1
2-621	27, 28	1
2-622	25	5

Part Number	Group List Page Numbers	Total Quantity
2-626	25	2
2-628	24	1
2-629Y	24	1
2-633	24, 27, 28	1
2-648	27	2
2-649	27	2
2-679	26, 27, 28	9
2-681	26	1
2-693	25	4
2-696Z	25	1
2-751	25	1
2-752	25	1
2-755Z	25	1
2-764	25	1
2-782Z	24	1
2-786	25	4
2-792Y	24	1
2-819	25	2
2-828Z	27	1
2-865	26	1
2-866	26	1
2-867	26	1
2-965	27	1
2-995	26	2
2-997	25	1
2-1001Z	27	1
2-1053	25	1
2-1068Y	28	1
2-1069Y	28	1
2-1134Y	24	1
10-146	27	1
10-528Z	25, 26	6
10-532Z	25	1
10-546V	25	1
10-566	26	2
10-598	25	2
10-1108	26	1
10-1464	24	1
10-1465	24	4
10-1467	28	2
10-1476	24	1
10-1477	28	2
10-1525	27	2
10-1529	27	1
10-1703	26, 27, 28	4
10-1704	26, 27, 28	4
10-2560	24	1
10-2633	27	1
10-2636	25	2

<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>	<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>	<i>Part Number</i>	<i>Group List Page Numbers</i>	<i>Total Quantity</i>
10-2637	25	2	10-3429	26	1	10-8510	25	1
10-2976	25	1	10-3473	25	1	10-9915	28	2
10-2977	26	1	10-3768-1	26	As req.	10-12846		1
10-3039	27	1	10-3768-2	26	As req.	10-12961	26	2
10-3040	27	1	10-3845Y	26	1	10-13190	28	2
10-3164	27	1	10-3846	26	1	10-15676	26	1
10-3263	25	1	10-4092	27	1	ND10X	25	2
10-3297Z	25	1	10-4874	25	2	ND15X	24	1
10-3423Z	26	1	10-7308	25	2	ND17EX	24	1
10-3424	26	1	10-7643	26	2			
10-3425Z	26	1	10-8509	27	2			

SECTION IV
STANDARD PARTS LIST

SB9RN MAGNETO

<i>Part Number</i>	<i>Nomenclature</i>	<i>Total Quantity</i>
AN280-H404	Key, Woodruff	1
AN380C3-3	Cotter Pin	1
AN535-0-3	Drive Screw	2
AN935-10	Washer—Lock	8
AN3105-2	Contact	1
AN3105-3	Terminal Screw	1
AN3105-4	Tube	1
AN3105-5	Washer	1

SF9RN & SF9LN MAGNETOS

<i>Part Number</i>	<i>Nomenclature</i>	<i>Total Quantity</i>
AN380C3-3	Cotter Pin	1
AN935-0-3	Drive Screw	2
AN935-10	Washer—Lock	11

