Esse of cranking indicates lack of compression in one or more cylinders. Check for leaky valves or rings by removing exhaust fitting at engine. Lister to exhaust while cranking the engine. A hissing ncise indicates that air is escaping or that valves or rings need checking. Above tests indicate poor compression. Consult Engine Trouble Chart, paragraph 15, for causes and remedies.

(7) CHECK VALVE CLEARANCE. Procedure for checking and adjusting valve clearance is explained in paragraph 21. Be sure to make adjustments while engine is still hot. Proper clearance is 0.006 inches to 0.008 inches on intake and exhaust valves.

(8) CHECK FUEL STRAINER. Clean or replace filter bowl screen, if clogged.

(9) INSPECT COMMUTATOR AND COLLECTOR RINGS. If cleaned and properly adjusted, these parts should have a polished mahogany appearance. Wipe them with a clean, dry cloth, or if necessary with No. 00 sandpaper. If commutator becomes gummy or sticky, clean it with a rag dipped in dry cleaning solvent. If commutator bars wear down to the mica, undercut the mica 1/32 inch below surface of bars, so brushes can ride on bars without interference.

CAUTION: Never use emery cloth or paper to dress the commutator.

(10) CHECK MAGNETO AND IGNITION SYSTEM. Follow instructions in paragraph 12*a* below. Inspect cables and replace any that are oil soaked or have broken insulation.

(11) CHECK COOLING SYSTEM. Drain radiator, flush with clear water, and refill. Examine all fittings and hose connections. Replace worn hose. Lubricate fan assembly bearing according to instructions in paragraph 14.

(12) INSPECT AIR CLEANER. Clean thoroughly every 256 operating hours. Change oil every 64 hours.

d. Moistureproofing and Fungiproofing. See Moistureproofing and Fungiproofing of Signal Corps Equipment, TB SIG 13, for general instructions applicable to this equipment.

12. ENGINE.

a. Ignition System. Test ignition system in the following manner:

(1) TEST IGNITION SPARK. Remove top half of spark plug shield and hold ignition cable about 3/8 inch away from spark plug terminal. Crank engine. Spark should jump gap.

(2) TEST MAGNETO SPARK. To test magneto spark, proceed as follows:

(*a*) Remove ignition cables from distributor block sockets.

(*b*) Insert a short piece of insulated wire into one of the sockets. Be sure wire touches brass insert at bottom of socket.

(*c*) Bend this wire to within 3/8 inch of engine or magneto frame.

(*d*) Crank engine. Spark should jump the gap.

(*e*) Test each of the remaining three sockets in the distributor block in the same manner.

(3) CHECK DISTRIBUTOR. Remove the ignition cables from the distributor block and remove distributor end cap assembly from generator frame (held on by four cap screws).

(*a*) Examine carbon brush for wear or damage. It should move freely in its socket and have light spring pressure when depressed.

(*b*) Clean screens covering ventilating ports.

(*c*) Inspect breaker points for pitting. Resurface points with a small tungsten file. Points can be replaced by removing locking and terminal screws. Use dry cleaning solvent to remove oil film from points.

(*d*) On the Fairbanks-Morse magneto, adjust breaker points after resurfacing or replacement, by loosening locking screw and turning the eccentric head adjustment screw until 0.018-0.020-inch gap is obtained at full separation. Use feeler gauge in tool kit to check gap.

(4) MAGNETO DISASSEMBLY AND TIMING. See paragraph 23 for instructions on disassembling magneto and timing magneto to engine.

b. Fuel System.

(1) DEFECTIVE CARBURETION. Dirt in gasoline will clog the carburetor jet aperture and cause defective carburetion. This will result in sluggish engine operation. The carburetor is not adjustable, and jet must be changed to change gasoline mixture.

(2) DIRTY CARBURETOR. If engine speed is unsteady, and causes change in output voltage, particularly on light loads, the carburetor jets need cleaning. To remove jets, take out the brass hexagonal nuts under the carburetor. Wash carburetor in gasoline and clean jets with an air hose. If carburetor still fails to operate, replace it. Carburetor parts are illustrated in figure 9.

(3) FUEL PUMP AND FUEL STRAINER. If fuel pump fails to operate, disassemble it and replace worn parts after installing a new pump on the engine. Fuel pump is shown completely disassembled in figure 10.