

CHAPTER 7

GENERAL ELECTRICAL EQUIPMENT

Section I. IGNITION COILS

113. Description

(fig. 213)

a. An ignition coil has two windings, one the primary winding which consists of a comparatively few turns of heavy wire and the secondary winding which consists of many turns of very fine wire. The secondary winding is wound on a soft iron coil while the primary winding is wound around the outside of the secondary winding. A soft iron shell encloses the outside of both windings and serves to complete the magnetic circuit.

b. The function of an ignition coil is to transform the low voltage energy supplied by the battery into the high voltage energy necessary to jump the spark plug gap. Whenever current is built up and broken in the primary winding, a voltage is induced in the secondary winding. The design of a coil is such that the induced voltage will be sufficiently high to produce a spark at the spark plug.

c. Ignition coils are marked with the rated primary voltage and have the part number stamped either on the coil bracket or on the bottom plate.

114. Repair and Rebuild Standards and Test Data

Table XVIII contains the repair and rebuild standards and test data for all ignition coils covered in this manual.

115. Trouble Shooting

a. Inspection.

- (1) Inspect for dents and cracks and replace coil if cracked or if terminals are badly corroded.
- (2) On lock type coils unclinch ears holding coil bottom to coil. Remove primary cable screw and take lock and cable off coil. Inspect lock to make sure key operates satisfactorily.

b. Test Set-Up.

- (1) Connect battery of rated voltage (table XVIII) and variable resistance in series with two coil primary terminals. Connect voltmeter across primary terminals. On CM-, CO-, and

Table XVIII. Ignition Coil Repair and Rebuild Standards and Test Data

Type coil	Rated volts	Current draw				Resistance unit ohms
		Cold ¹		Flash ²		
		Volts	Amps	Volts	Amps	
CE-----	6	6. 3	5. 2	6. 3	5. 4	None
CF-----	12	12. 0	2. 4	12. 0	2. 5	None
CM-----	12	12. 5	2. 3	12. 5	3. 0	1.0-1.1
CO-----	24	24. 0	2. 7	24. 0	3. 0	5.3-5.5
CP-----	12	12. 0	2. 5	12. 0	3. 0	1.0-1.1
CR-----	6	6. 3	4. 9	6. 3	5. 5	None
CT-----	24	25. 0	1. 9	25. 0	2. 1	None
IG-----	6	6. 3	4. 8	6. 3	5. 5	None

¹ After one-half minute at specified voltage with coil at room temperature.² After cold reading open then close primary circuit to obtain flash reading.

CP-type coils include resistance unit in circuit. Adjust voltage to specified cold current draw value (table XVIII) and allow current to flow for one-half minute; then take reading. Open, then close battery switch; adjust voltage to value specified for flash reading and read ammeter.

- (2) Connect ammeter, variable resistance and 6-volt battery in series with "AM" terminal on lock switch and coil primary cable. Connect voltmeter from "AM" terminal to cable terminal. Turn "Ign" switch on, adjust variable resistance to give 5 amperes current, and read voltmeter. Change connections so test is made from "AM" terminal to "GA" terminal and again read voltage drop in switch.
- (3) With coil tester, compare coil to standard coil. Make comparison test both hot and cold by measuring length of spark gap. Heat ignition coil and standard coil by connecting to battery of rated voltage for 5 minutes.

c. Primary Current Not Within Specifications. Rebuild CO- or CP-type coils or replace other types.

d. Switch Voltage Drop Above 0.05 Volt. Replace lock switch and cable assembly.

e. Weak or Inoperative Coil. Replace coil if comparison test shows coil is faulty.

116. Disassembly (CO- and CP-Type Only)

a. Remove Resistance Unit. Remove two screws, lock washers, and plain washers. Remove nut and washer from primary terminal and disconnect cable. Pull cover and resistor from coil.

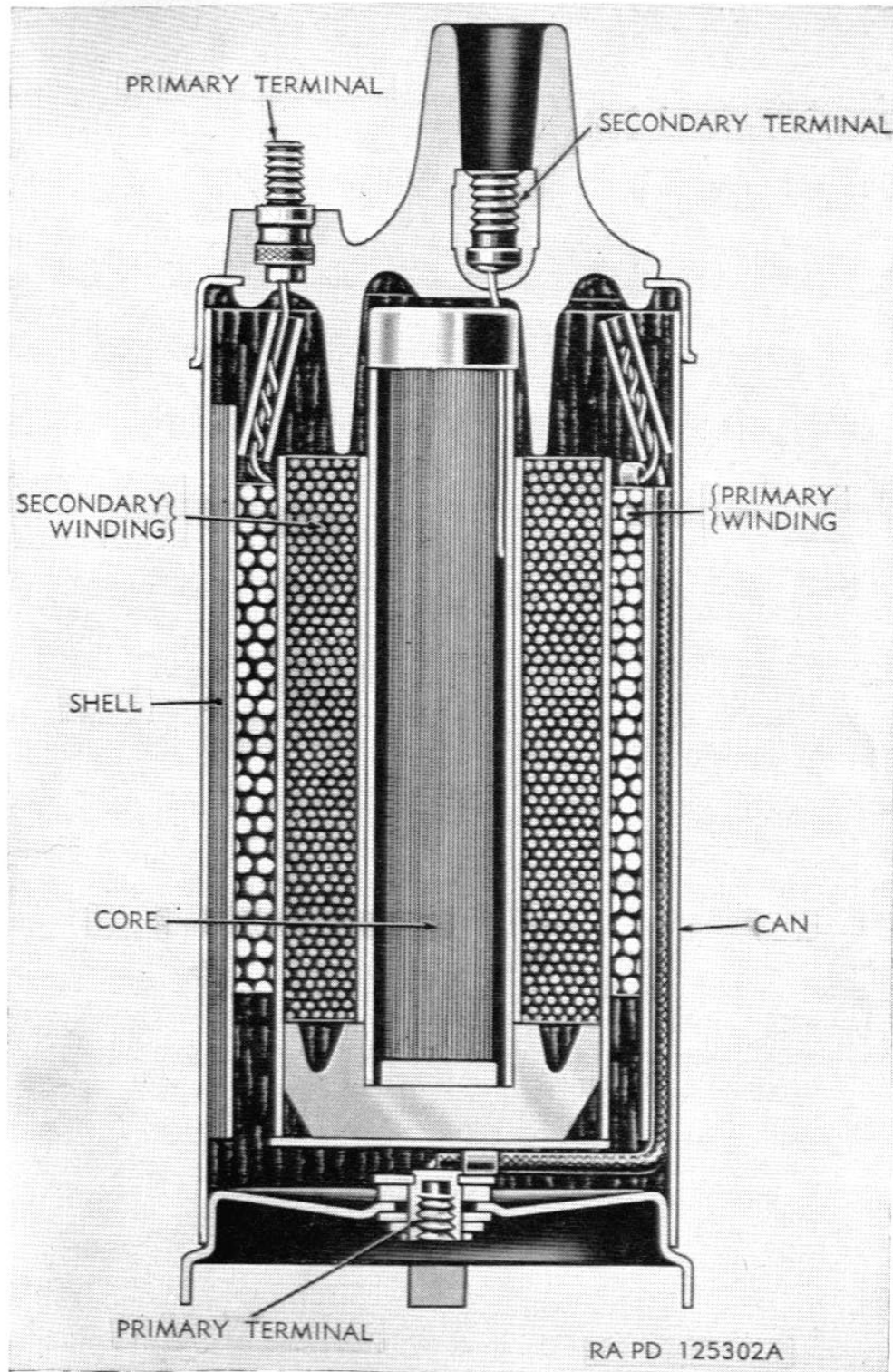


Figure 213. Sectional drawing of ignition coil.

b. Remove High Tension Terminal. Take off coil knob and rubber grommet.

117. Cleaning, Inspection, and Repair

a. Cleaning. Clean coil knob, cover, resistor assembly, screws, and washers in volatile mineral spirits or dry-cleaning solvent. Clean terminals with 2/0 flint paper. Clean bushings and grommets with soft rag.

b. Inspection.

- (1) Inspect terminals and cable for looseness, corrosion, and pitted condition. Install new terminals if not in good condition. Discard resistor assembly if cable is broken or frayed or if terminals are loose. Discard grommets or bushings if ragged or torn.
- (2) Measure resistance of resistor unit. Install new resistance unit ((c) below) if resistance is not within specifications (table XVIII).

c. Repair. Remove resistor mounting nut and washers. Cut resistor cable and pull resistor assembly from cover. Mount new resistor on cover. Install plain wash, lock washer, and nut on screw and tighten. Thread cable through grommet in side of cover. Clinch and solder terminal to cable.

118. Assembly (CO- and CP-Type Only)

a. Install Resistor. Place cover and resistor on coil and install two screws, lock washers, and plain washers. Connect resistor cable to positive primary terminal and install terminal lock washer and nut.

b. Assemble High Tension Terminal. Install grommet and coil knob.

119. Test

Refer to paragraph 115b.

Section II. GROUP 1—MANUAL SWITCHES

120. Description

a. SW-2677A and SW-2813 switches (fig. 214) are mounted on the starter and open and close the starting circuit. The switch is operated by pedal action through the clutch yoke lever and linkage. One of the contacts is mounted on the starter terminal stud while the second contact and the switch blade are inside the switch. Both contacts