CHRYSLER CORP. (MITSUBISHI) ELECTRONIC IGNITION SYSTEM

Chrysler Corp.
Dodge 400 & LeBaron (2.6L Only)

DESCRIPTION

The Electronic Ignition System used with the 2.6L engine consists of a battery, ignition switch, ignition coil, IC ignitor (electronic control unit), spark plugs and wiring. See *Fig. 1*. The IC (integrated circuit) ignitor is built into the distributor.

The distributor consists of a power distributing section, a signal generator (reluctor and pick-up coil assembly), an IC ignitor, drive gear and both centrifugal and vacuum advance mechanisms.

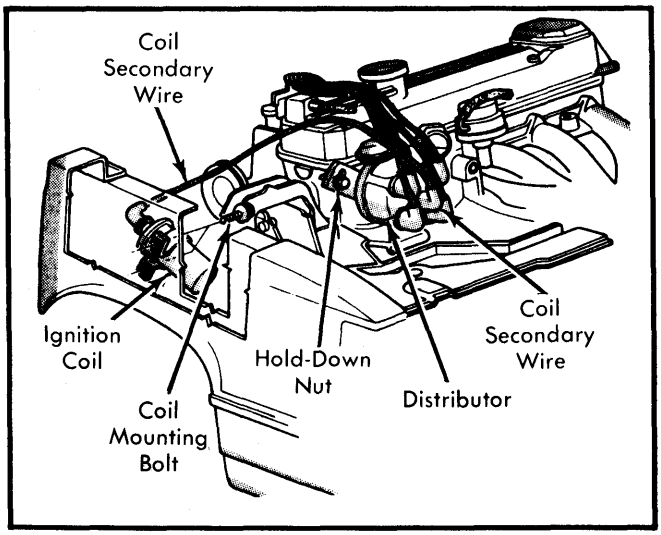

Fig. 1 Ignition System Components

OPERATION

As the distributor shaft turns, a reluctor rotates inside a pick-up coil assembly. As the reluctor teeth pass the pick-up coil, a signal is generated similarly to that produced by a small magneto generator.

The signal is produced in exact synchronization with distributor shaft rotation, four times per rotation and at equally spaced intervals.

The signal generated is sent to the IC ignitor, which then switches current on or off in the ignition coil primary circuit. As current is shut off, the magnetic field in the coil primary collapses. This results in a voltage surge in the secondary, firing the spark plugs.

The centrifugal advance mechanism is located below the rotor assembly. As engine speed increases, the weights move outward, causing the reluctor to rotate ahead of the distributor shaft, advancing timing.

The vacuum advance has a spring-loaded diaphragm connected to the breaker assembly. As engine vacuum increases, the diaphragm pivots the movable breaker assembly in a direction opposite to shaft rotation. This , too, advances ignition timing.

ADJUSTMENTS

NOTE – *No adjustments are required except spark plug gap.*

TESTING

SYSTEM TESTS

1) Remove secondary wire from distributor center tower. Hold end of wire approximately 3/8" from a good engine ground. Crank engine and check for a bright blue spark at gap. See *Fig. 2*.

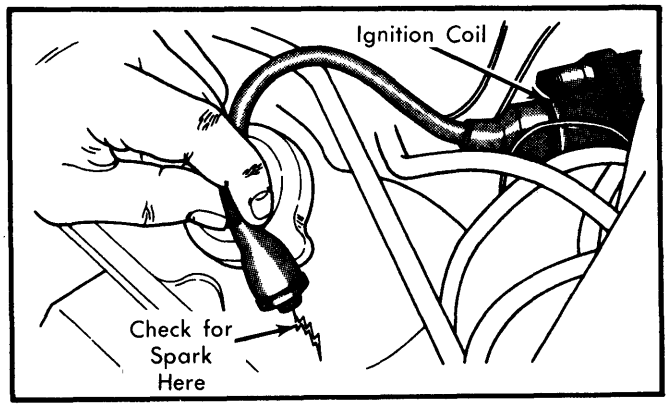

Fig. 2 Testing System for Ignition Spark

2) If spark occurs, slowly move secondary wire away from ground, checking for arcing at coil tower. If arcing occurs, replace ignition coil.

3) If spark was good and there was no arcing at coil tower, secondary voltage is good. Check distributor rotor and cap for damage, as well as, secondary wires and spark plugs. If all components are okay, check fuel system or check for mechanical damage to engine components.

4) If in step **2)** spark was weak, not constant, or there was no sparking, turn ignition switch on. Connect voltmeter positive lead to ignition coil negative terminal. Connect negative lead to a good ground. Voltage reading should be within 1 volt of battery voltage. If reading is less than 3 volts, the distributor is defective. If there is no voltage indicated, check for open circuit in ignition coil or wiring harnesses.

5) If battery voltage was indicated in step **4)**, hold coil secondary wire about 3/8" from a good ground. See *Fig. 3*. Using a special jumper wire assembly, momentarily touch ignition coil negative terminal to ground. A spark should result.

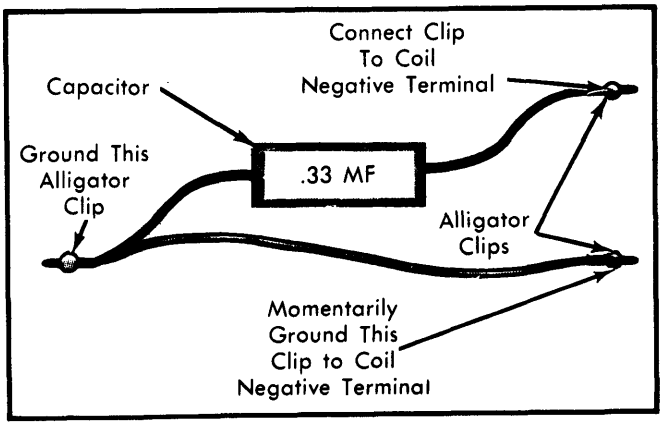

Fig. 3 Special Jumper Wire Assembly

CHRYSLER CORP. (MITSUBISHI) ELECTRONIC IGNITION SYSTEM (Cont.)

6) If there was no spark, check for voltage at positive terminal of ignition coil with ignition switch on (voltmeter positive lead to positive terminal, negative lead to ground). Reading should be at least 12 volts. If proper voltage is read, ignition coil is defective and must be replaced. If voltage was not to specifications, check wiring back to battery.

7) If in step **5)** a spark was produced, but vehicle will not start, replace distributor.

COMPONENT TESTS

IC Ignitor – 1) To check the IC ignitor, connect one lead of 12-volt, 3-30 watt test lamp to output side of IC ignitor. Attach battery positive terminal to IC ignitor battery terminal, and the negative terminal to IC ignitor base. Other test lamp lead should be attached to positive battery wire, as shown in *Fig. 4*.

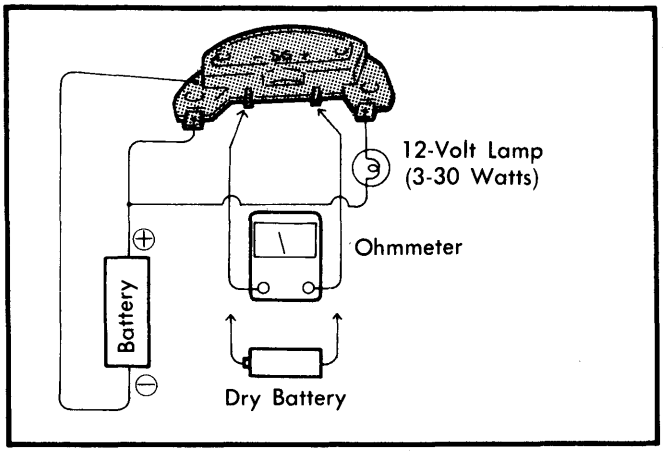

Fig. 4 Testing IC Ignitor Operation

2) Using a dry battery or ohmmeter, apply small voltage to signal input terminals of IC ignitor. Test lamp should light when signal voltage is applied and go out when it is removed. If not, replace IC ignitor.

NOTE – *If lamp does not operate as stated, IC ignitor is defective. However, if lamp does operate properly, IC ignitor still could be faulty. Part substitution is recommended as a final test in such cases.*

Pick-Up Coil Resistance – Connect an ohmmeter to terminals shown in *Fig. 5*. With ignition switch off, resistance should read 920-1120 ohms. If not, replace pick-up coil assembly.

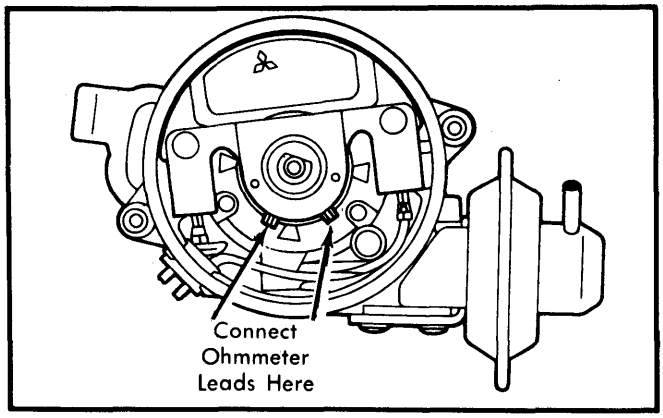

Fig. 5 Measuring Pick-Up Coil Resistance

Ignition Coil Resistance – 1) Connect ohmmeter leads to positive and negative terminals of ignition coil. Ignition switch should be off and coil positive terminal wire removed to isolate it from system. Primary resistance should be 0.70-0.85 ohm.

2) With ignition switch still off, connect ohmmeter leads to coil negative terminal and coil tower terminal. Secondary resistance should read 9,000-11,000 ohms.

3) If either reading is not to specification, replace ignition coil.

Secondary Wire Resistance – To check coil-to-distributor wire and spark plug wires, connect an ohmmeter to each end of wire. Resistance should be less than 22,000 ohms per wire. If not, replace wires.

CAUTION – *Do not pull on wires when removing. Grasp wire's rubber cap. Do not bend wires as this could break the conductor.*

Centrifugal Advance Mechanism – 1) Run engine at idle speed and remove vacuum hose (non-striped) from vacuum controller. Slowly increase engine speed and check for advance.

2) If advance is excessive, check for deteriorated governor spring. A broken spring will result in abrupt advance. If advance is insufficient, check governor weights and cam for faulty operation.

Vacuum Advance Mechanism – 1) Set engine speed at 2500 RPM. Check for advance by disconnecting and connecting distributor vacuum hose.

2) If available, connect a vacuum pump after removing distributor vacuum hose. Run engine at idle and slowly apply vacuum pressure to check for advance.

3) If advance is excessive, check for deteriorated or sagging vacuum controller. If advance is insufficient or there is no advance, breaker plate is not operating properly or vacuum diaphragm is damaged.

OVERHAUL

Disassembly – 1) Remove distributor cap and rotor. See *Fig. 6*. Remove centrifugal advance components as an assembly by removing screw in top of shaft. A socket or box wrench should be used for this purpose.

2) If governor assembly is further disassembled, be sure 2 different springs are properly identified for correct reassembly. Remove wire clamp screw and clamp. Remove 2 screws securing pick-up coil assembly and IC ignitor and remove them as an assembly.

3) Remove 2 screws securing vacuum diaphragm assembly. Disengage vacuum diaphragm from breaker assembly. Remove 2 screws retaining breaker assembly, and lift assembly from distributor housing.

4) Remove 2 screws for bearing retainer plate. Lift out plate. Mark location of drive gear on distributor shaft for later reassembly alignment. Drive out roll pin and remove drive gear. Lift distributor shaft and bearing assembly from housing. Remove housing seal.

Reassembly – Reassemble in reverse order of disassembly. Check distributor cap for cracks, flashover, damage to carbon button, and burned or worn terminals. Remove light scaling from terminals. Be sure that grease on back side of IC ignitor is not removed, as it is necessary for heat dissipation. Also, apply grease to all sliding surfaces.

CHRYSLER CORP. (MITSUBISHI) ELECTRONIC IGNITION SYSTEM (Cont.)

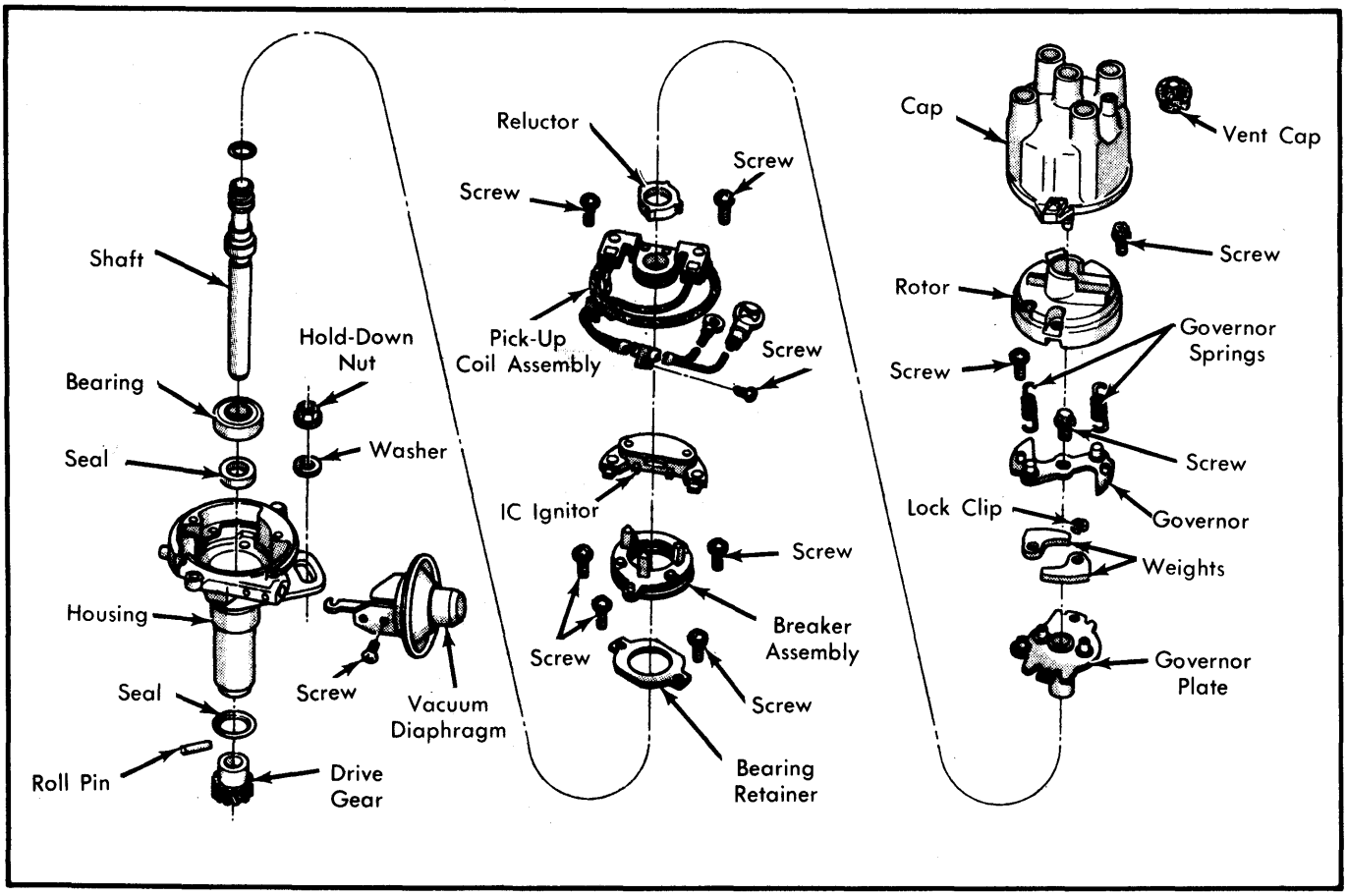

Fig. 6 Distributor Used on 2.6L Engines