CHRYSLER CORP. ELECTRONIC IGNITION

DESCRIPTION

System is comprised of a magnetic distributor, an electronic control unit, wire harness, coil, and a special dual ballast resistor.

The primary circuit consists of battery, ignition switch, compensating side of ballast resistor, primary winding of ignition coil, power switching transistor of control unit, and vehicle frame.

The secondary circuit consists of the coil secondary winding, distributor cap and rotor, spark plugs, and vehicle frame.

The compensating resistance serves the same purpose as in the contact type ignition, that is to maintain constant primary current with various engine speeds. During starting this resistance is by-passed applying full battery voltage to ignition coil. In addition to the two basic circuits there have been three other circuits added, they are the pickup circuit, control unit feed circuit, and auxiliary ballast circuit.

On some engine models a solenoid has been added to aid in starting. It receives power from the starter relay at the connector that sends power to the starter solenoid. When actuated it advances the spark 7.5°(engine).

OPERATION

The reluctor rotating with the distributor shaft produces a voltage pulse in the magnetic pickup each time a spark plug should be fired. This pulse is transmitted through the pickup coil to the power switching transistor in the control unit and causes the transistor to interupt the current flow through the primary circuit. This break in the primary circuit induces high voltage in the secondary circuit and fires a spark plug.

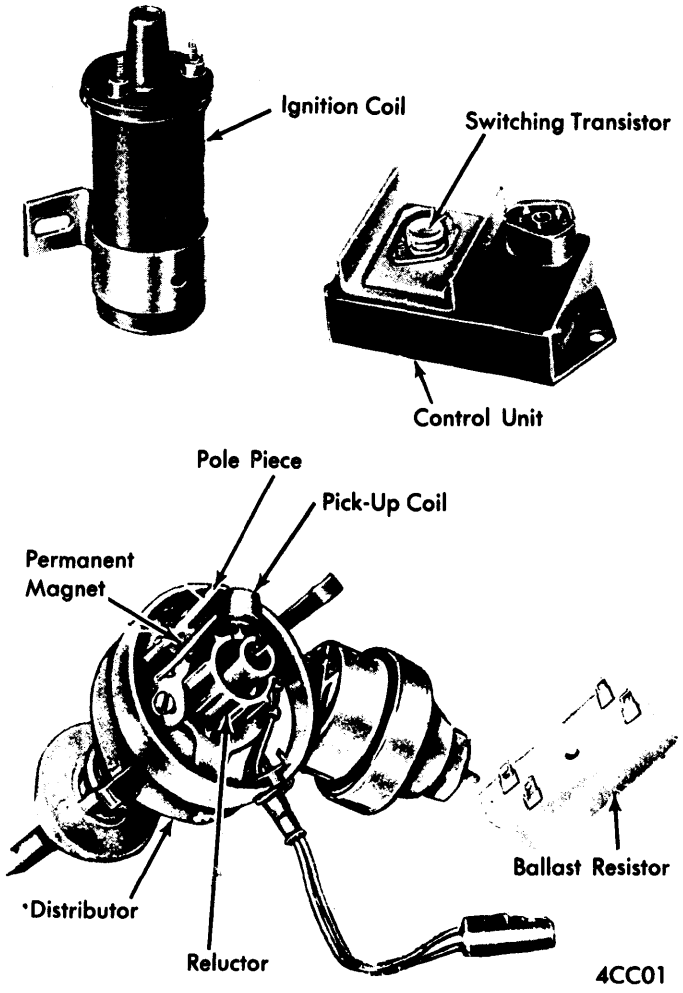
The length of time the switching transistor blocks current flow is determined by electronic circuitry in the control unit. This determines dwell. Dwell is not adjustable, changes are not necessary. The magnetic pickup and control unit have replaced the function of the contact points. These show no signs of wear and periodic checks of timing and dwell are not necessary.

SPECIFICATIONS

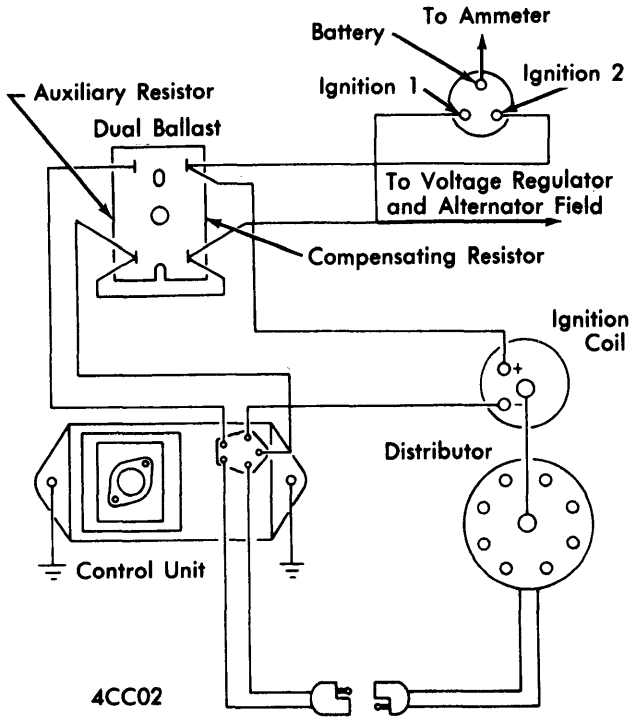
AIR GAP & CAM ANGLE
See appropriate article in TUNE-UP Section.

CENTRIFUGAL & VACUUM ADVANCE
See DISTRIBUTOR ADVANCE SPECIFICATIONS in this Section.

IGNITION COIL & BALLAST RESISTOR
See appropriate article in TUNE-UP Section.



BASIC ELECTRONIC IGNITION SYSTEM COMPONENTS



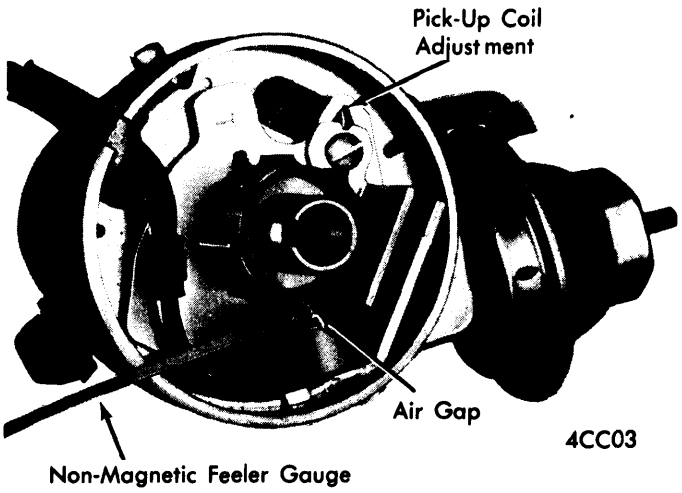
BASIC ELECTRONIC IGNITION SYSTEM WIRING DIAGRAM

CHRYSLER CORP. ELECTRONIC IGNITION (Cont.)

ADJUSTMENT

PICKUP COIL AIR GAP

To set air gap, loosen pickup hold down screw and align one reluctor blade with pickup pole. Insert a .008" non-magnetic feeler gauge between reluctor blade and pickup pole (see illustration). Move pickup until contact is made between pickup, feeler gauge, and reluctor blade. Tighten pickup hold down screw. Check gap for a no-go fit with a .010" feeler gauge. DO NOT force feeler gauge into gap. Apply vacuum to vacuum unit and rotate governor shaft. Pickup pole should not hit reluctor teeth. Readjust gap if contact is made and check for a bent shaft if contact occurs on only one side of reluctor.



CHECKING AIR GAP

TESTING

CENTRIFUGAL ADVANCE CURVE

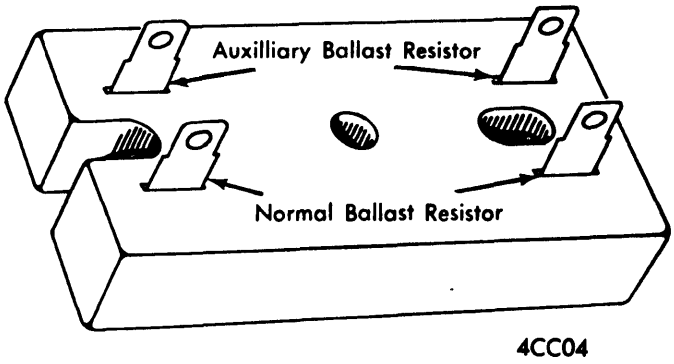
Install distributor in test stand. It is important that the appropriate adapter for checking electronic type distributors be used. Adjust tester speed control to operate distributor at speeds called for in distributor tables. If advance is not according to specifications, replace distributor shaft assembly (shaft, reluctor sleeve, governor weights).

IGNITION COIL

Coil is designed to operate with an external ballast resistor. When testing coil for output, include resistor in tests, also inspect coil for external leaks and arcing. Test coil according to coil tester instruction. Replace coil or ballast resistor that does not meet specifications.

DUAL BALLAST RESISTOR

Normal side of dual ballast resistor is a compensating resistance in ignition primary circuit. During low speed operation, current is maintained in this side of ballast resistor for a longer period of time, causing it to heat up, and resistance to increase. This action reduces voltage in ignition primary circuit, thus protecting coil (do not replace ballast resistor for this heated condition). As engine speed increases the amount of time current is maintained in this side of the resistor is shorted, causing it to cool off, and resistance to decrease. This action raises voltage in primary circuit which is required for high speed operation. The auxiliary side limits voltage to control unit thus protecting it.



DUAL BALLAST RESISTOR

OVERHAUL

DISASSEMBLY

Remove distributor. Remove rotor. Remove vacuum control unit. Remove reluctor, some reluctors may be pulled off with fingers. If this is not possible, pry up from the bottom with two screwdrivers. Be careful not to damage or distort teeth on reluctor. Remove screws attaching lower plate to housing and lift out lower plate, upper plate, and pickup coil as an assembly. Do not attempt to remove distributor cap clamp springs. Remove distributor shaft retaining pin, and slide retainer off end of shaft. Use a file to clean burrs from around pin hole in shaft and remove lower thrust washer. Push shaft up and remove shaft through top of distributor body.

REASSEMBLY

Test operation of governor weights and inspect weight springs for distortion. Lubricate governor weights. Inspect all bearing surfaces and pivot pins for roughness, binding, or looseness. Lubricate and install upper thrust washer on shaft and slide shaft into distributor body. Install distributor shaft retainer and pin. Install lower plate, upper plate, and pickup coil assembly. Attach vacuum advance unit. Position reluctor keeper pin into place on reluctor sleeve. Slide reluctor down reluctor sleeve and press firmly into place. Install reluctor so that the two arrows are on top.

In a clockwise distributor, the arrow at the keeper pin that holds the reluctor in place should point clockwise. In a counterclockwise distributor the arrow should point counterclockwise. If the arrow at the distributor pin does not point in the direction of distributor rotation, remove reluctor, turn it 180° and reinstall it, be careful not to lose keeper pin. Lubricate felt pad in top of reluctor sleeve with a drop of light oil and install rotor.

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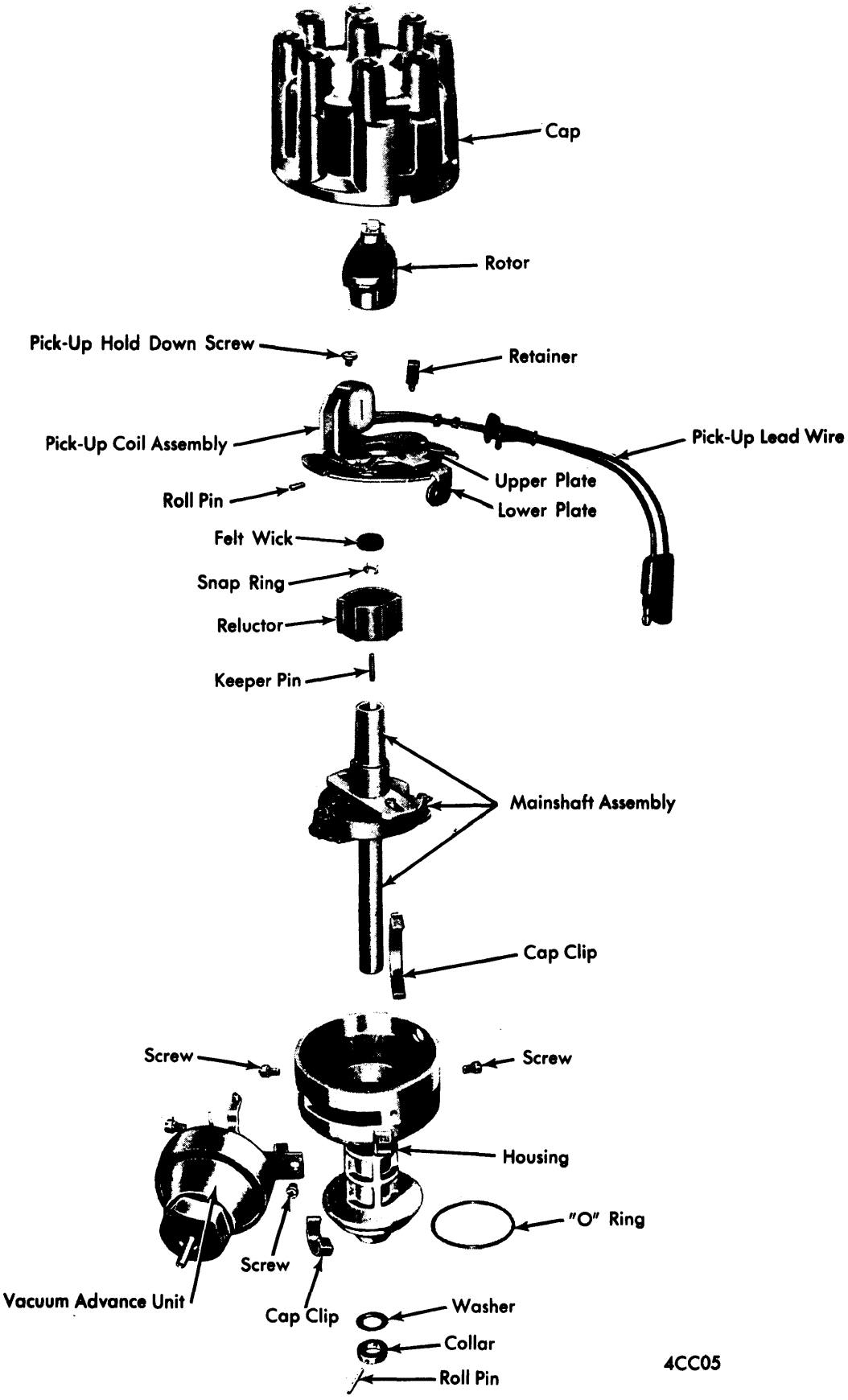

ELECTRONIC IGNITION DISTRIBUTOR – EXPLODED VIEW