DELCO-REMY TRANSISTORIZED

DESCRIPTION

This ignition system consists of a specially designed distributor, control unit, and a special coil. Other units in system are conventional design. In the distributor, a rotating pole piece, which replaces the conventional breaker cam, rotates inside a magnetic pickup assembly, which replaces the conventional breaker plate, contact point set, and condenser assembly. To provide vacuum and centrifugal advance, the magnetic pickup assembly is rotated by a vacuum control unit, while the timer core is made to rotate about the distributor shaft by conventional advance weights.

OPERATION

With ignition switch turned on, engine not running, current from battery flows through ballast resistor to control unit. Current then flows through transistors TR-1 and TR-2, resistors R-1, R-2 and R-5, and the coil primary winding and resistor R-8 to ground. *NOTE — Full current flows through coil primary winding, and condenser C-1 is charged with positive voltage towards transistor TR-2.* When engine is running, vanes on rotating pole piece (iron core) in distributor line up with internal teeth on pole piece, establishing a magnetic path through center of pickup coil, and inducing a voltage in pickup coil. This voltage causes transistor TR-3 to conduct, resulting in current flow as follows: Charged condenser C-1 causes transistor TR-2 to turn off which causes transistor TR-1 to turn off, interrupting the circuit to ignition coil primary winding. The high voltage required to fire the spark plug is induced in coil secondary winding.

PERIODIC SERVICE

None required. At time of engine overhaul, lubricate upper distributor bushing by removing plastic seal and adding SAE 20 engine oil to packing in cavity. Install a new plastic seal (old one destroyed during removal).

SPECIFICATIONS

IGNITION COIL

See appropriate article in TUNE-UP Section.

CENTRIFUGAL & VACUUM ADVANCE

See DISTRIBUTOR ADVANCE SPECIFICATIONS in this Section.

TESTING & TROUBLE SHOOTING

TESTING CAUTIONS: Observe the following to prevent severe damage to transistor ignition system:

1) Do not use 18 volt or 24 volt batteries to provide starting voltage.

2) Do not crank engine with coil high tension lead or more than 3 spark plug wires disconnected.

3) Do not short circuit between coil positive terminal and ground.

4) If engine being cranked without being started, always disconnect coil primary lead.

5) If necessary to replace control unit or ignition resistor, always make a complete charging system check as cause of failure may be high or uncontrolled charging rate.

DISTRIBUTOR

Pick-Up Coil — Separate harness connector and connect an ohmmeter across the coil. Resistance of coil should be 550-750 ohms. If reading is infinite, coil is open, and if reading is low, coil is shorted. To check coil for grounds, connect ohmmeter from either coil lead to distributor housing. The reading should be infinite. If not, coil is grounded.

Distributor Advance — Distributor centrifugal and vacuum advance may be tested on a testing machine or synchroscope designed to test this type of distributor as recommended by testing machine manufacturer.

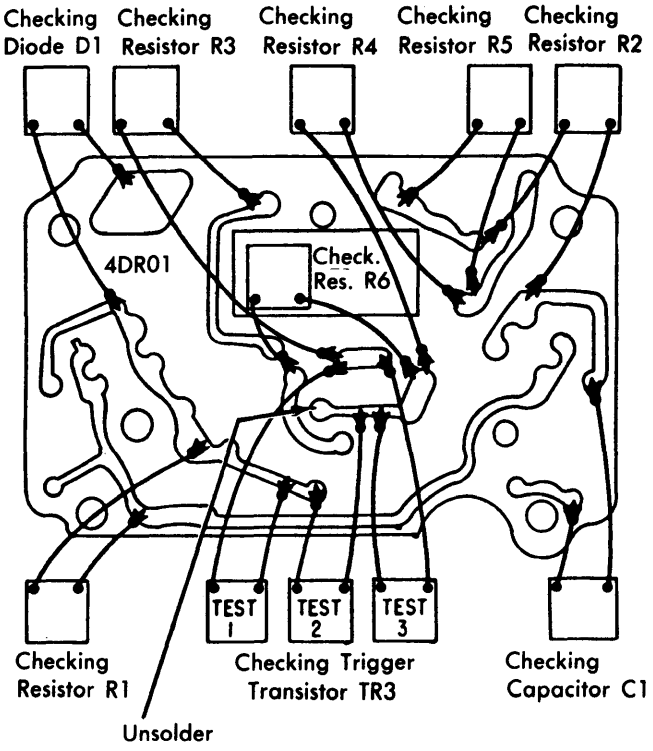
IGNITION COIL

CAUTION — Never install a condenser of any rating between coil positive terminal and ground (may damage power transistor in ignition amplifier unit).

Primary Winding — Connect an ohmmeter across the two primary terminals. An infinite reading indicates primary is open.

Secondary Winding — Connect an ohmmeter from high tension center tower to either primary teminal. *NOTE — To obtain a reliable reading, a scale on the ohmmeter having the 20,000 ohm value within, or nearly within, the middle third of the scale must be used.* If reading is infinite, secondary winding is open.

ENGINE SURGE NOTE — This condition may be due to the two distributor leads being reversed in harness connector body, or may be due to an intermittent open circuit in distributor pick-up coil. When properly assembled, distributor white lead should be on longest side of connector body.



TEST PROBE LOCATIONS (EXCEPT TRANSISTORS 1 & 2)

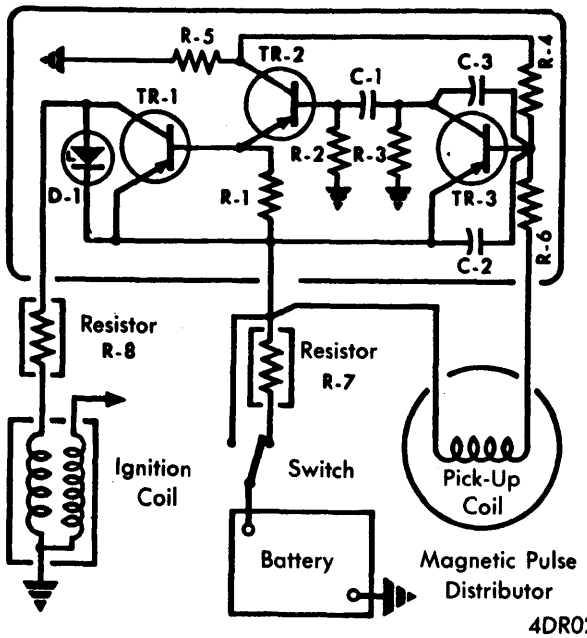
DELCO-REMY TRANSISTORIZED (Cont.)

AMPLIFIER UNIT

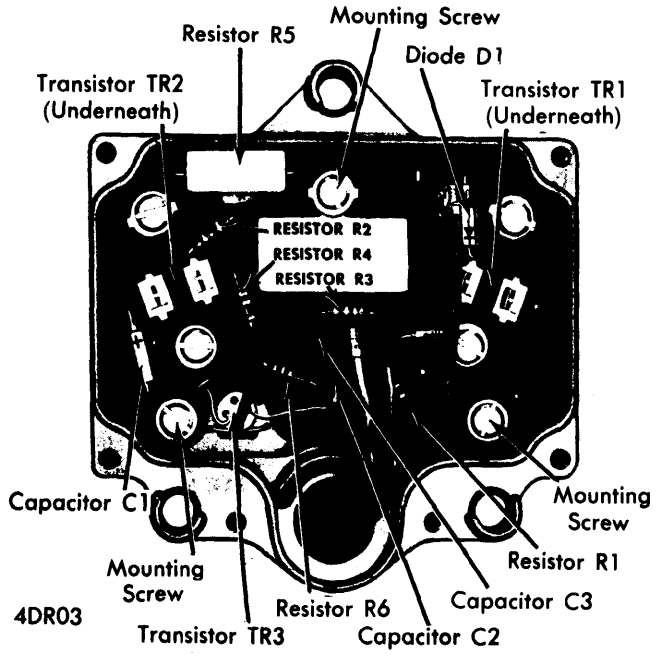
Disassembly – *NOTE – Before disassembling amplifier, be sure to note wire colors and locations; markings and location of transistors 1 and 2 on panel board and heat sink assembly; locations of insulators between heat sink and transistors and panel board.* Remove bottom plate from amplifier, panel board attaching screws, then lift assembly from housing. Remove transistor attaching screws, then separate No. 1 and 2 transistors and heat sink from panel board.

Reassembly – Reverse disassembly procedure and coat both sides of flat insulators used between transistors and heat sink, and transistor mounting side of heat sink with silicone grease.

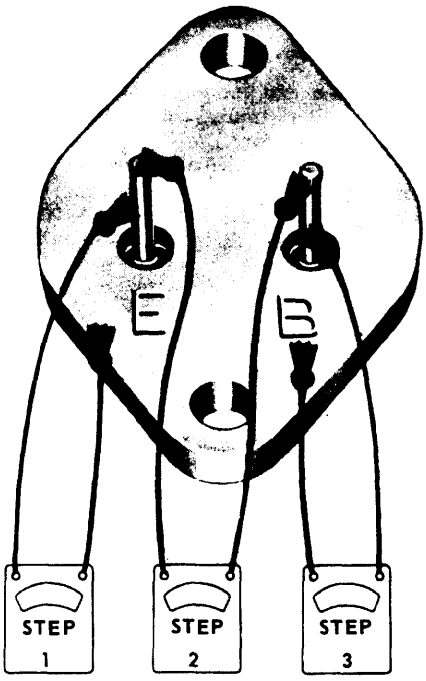
Ignition Pulse Amplifier



TRANSISTOR IGNITION AMPLIFIER CIRCUIT



AMPLIFIER COMPONENT LOCATION



TRANSISTORS 1 & 2 TEST PROBE LOCATION

TESTING

NOTE – No. 1 and 2 transistors must be removed from assembly before testing. Use a 1½ volt ohmmeter on low range (except where noted otherwise); use 60% tin 40% lead solder; and unsolder capacitors C2 and C3. In all tests, connect test leads as shown in illustration, then test with test leads reversed from location shown in illustration.

Transistors No. 1, 2, 3 – If both readings in Step 1 are zero, transistor is shorted. If both readings in Step 2 are zero, transistor is shorted; if both readings in Step 2 are infinite, transistor is open. If both readings in Step 3 are zero, transistor is shorted; if both readings in Step 3 are infinite, transistor is open.

Diode D1 – If both readings are zero, diode is shorted; if both readings are infinite, diode is open.

Capacitor C1 – If both readings are zero, capacitor is shorted.

Capacitors C2 & C3 – Connect ohmmeter across each capacitor. If both readings are zero, capacitor is shorted.

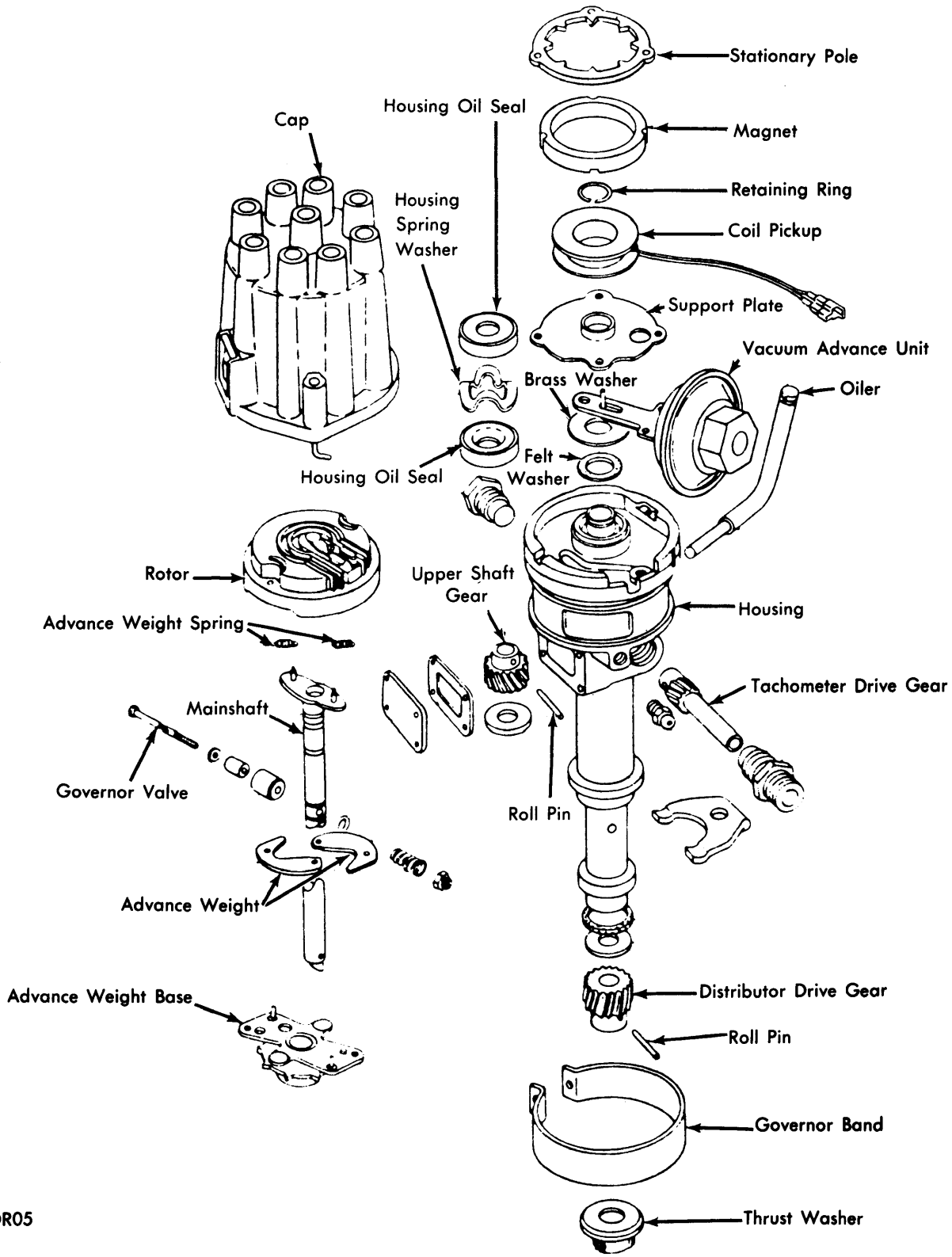
Resistor R1 – If both readings are infinite, resistor is open.

Resitor R2 – Use ohmmeter scale on which 1800 ohm value is within or close to middle third of scale. If both readings are infinite, resistor is open.

Resistor R3 – Use ohmmeter scale on which 680 ohm value is within or close to middle third of scale. If both readings are infinite, resistor is open.

Resistor R4 – Use ohmmeter scale on which 15000 ohm value is within or close to the middle third of scale. If EITHER reading is infinite, resistor is open.

DELCO-REMY TRANSISTORIZED (Cont.)



DELCO-REMY TRANSISTOR IGNITION DISTRIBUTOR

DELCO-REMY TRANSISTORIZED (Cont.)

Resistor R5 – Use lowest range ohmmeter scale. If EITHER reading is infinite, resistor is open. *NOTE – Some cars may have resistor R5 in vehicle wiring harness, not on panel board.*

Resistor R6 – Use ohmmeter scale on which 150 ohm value is within or close to middle third of scale. If both readings are infinite, resistor is open.

OVERHAUL

DISASSEMBLY

Remove rotor, centrifugal advance weights and weight springs. Remove tachometer drive gear if so equipped. Remove distributor shaft drive gear roll pin and slide drive gear and thrust washer from shaft. *NOTE – Support drive gear shoulder when driving out roll pin to prevent damage to drive gear.* Remove governor band from distributor housing and disassemble governor valve. Remove mainshaft from distributor housing and remove advance weight base and pole piece from mainshaft. Remove complete magnetic pickup assembly. *NOTE – It may be necessary to first remove vacuum advance unit mounting screws.* Remove vacuum advance unit, brass and felt washers and any damaged oil seals.

REASSEMBLY

Reverse disassembly procedure being sure to replace upper bushing oil seal.