Hitachi Electronic Ignition

Honda: 1979 Accord, Prelude

DESCRIPTION

Honda electronic distributors consist of housing, rotor, and distributor cap. A reluctor, stator, magnet, and pulse generator (all mounted inside the distributor housing) combine to perform the functions of the breaker points and cam of a conventional distributor. Models may have either centrifugal advance or retard mechanisms.

OPERATION

The reluctor is mounted on the distributor rotor shaft and turns with the distributor shaft. *See Fig. 1.* It is secured to the shaft with a roll pin. As the reluctor turns, its 4 external teeth come in line with 4 internal teeth of the stator. This causes the pulse generator, located inside the distributor housing, to signal the igniter (control module).

Each time the reluctor teeth come in line and then pass the teeth of the stator, transistors inside the igniter are turned off and on. This results in a magnetic field building and collapsing in the primary circuit of the ignition coil.

When the magnetic field collapses, a surge results in the secondary circuit of the coil. When this occurs, a high voltage spark is fed from the coil through the distributor's rotor and ignition cables to the individual spark plugs.

SPECIFICATIONS

CENTRIFUGAL & VACUUM ADVANCE

See appropriate DISTRIBUTOR ADVANCE SPECIFICATIONS table in this section.

ADJUSTMENTS

RELUCTOR-TO-STATOR AIR GAP

Align teeth of reluctor with teeth of stator. There should be equal spacing between all 4 sets of teeth. If necessary, loosen 3 screws securing stator and reposition stator to make air gaps equal. Tighten screws.

TESTING

BASIC SYSTEM TEST

1) If engine will not start and starter will not crank engine, check battery, main fuse and electrical wiring. Check starter circuit wiring and ignition switch.
2) If engine will not start, but starter cranks engine, hold coil wire 1/4" from coil tower while cranking engine. If there is spark from coil, then hold spark plug wire terminal 1/4" from spark plug while cranking engine.
3) If there is no spark at plug, check spark plug wire condition, inspect distributor cap or rotor. If spark exists, check fuel system, spark plugs, ignition timing or valve timing.
4) If there was no spark at the coil in step **2)**, check voltage between coil primary winding positive terminal and ground with ignition on. Battery voltage should be found. If not, check wiring from ignition switch to ignition coil.
5) If battery voltage exists, check voltage between coil primary winding negative terminal and ground with ignition on. Again, battery voltage should exist. If not, check wiring from coil primary negative terminal to igniter. Also check coil primary resistance.
6) If battery voltage was present at negative terminal, check voltage between coil positive and negative terminals with engine cranking. Reading should be 1-3 volts. If within specifications, check primary and secondary coil resistance, as well as spark plug wire resistance.
7) If voltage in step **6)** was not 1-3 volts, disconnect igniter connector. *See Fig. 2.* Check voltage on coil side of connector between Black and Blue wires and Black and Black/Yellow wires. Battery voltage should exist with ignition on.

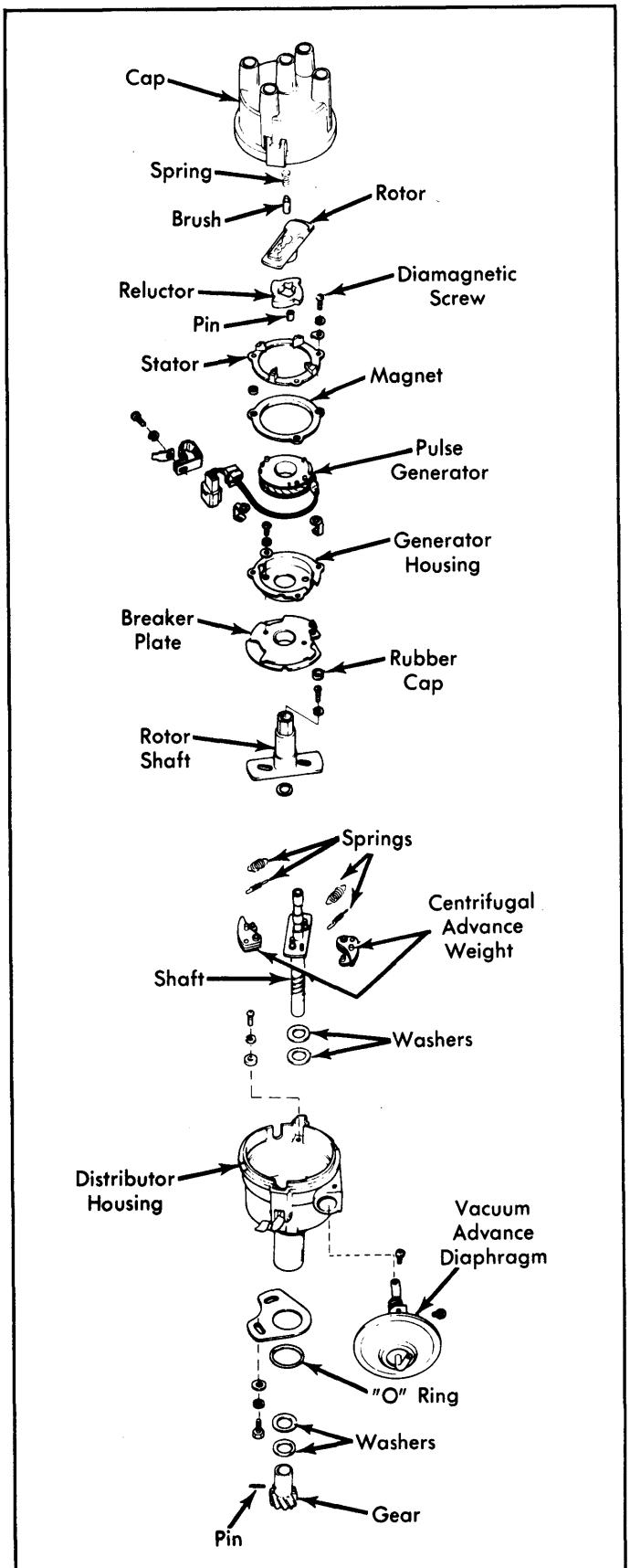

Fig. 1: Exploded View of Distributor

1974-79 DISTRIBUTORS & IGNITION SYSTEMS
Hitachi Electronic Ignition (Cont.)

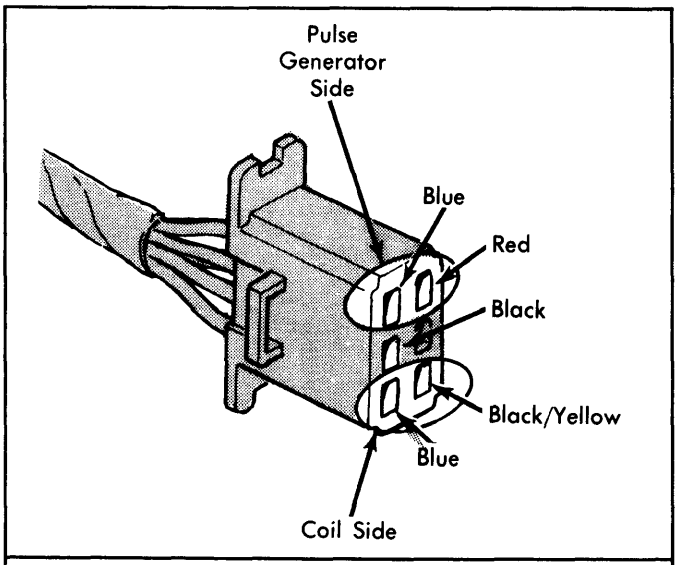

Fig. 2: Checking Voltage At Igniter Connector

8) If not, check wiring from ignition coil to igniter. If battery voltage is present, disconnect connectors from igniter and pulse generator. Check continuity of both Red and Blue wires between igniter and pulse generator.
9) If continuity exists, check resistance of pulse generator. Resistance should be 600-800 ohms. If within specifications, replace igniter and repeat spark test.

IGNITION COIL

Primary Resistance Test - Turn ignition off. Remove positive and negative wires from coil. Connect an ohmmeter probe to each primary terminal. Resistance should be 1.78-2.08 ohms at 70°F (21°C).
Secondary Resistance Test - Turn ignition off. Move probe from negative terminal to secondary terminal (center tower). Resistance should be 8,800-13,200 ohms at 70°F (21°C).
Condenser Capacity Test - Using a condenser tester, check for 0.38-0.56 microfarads.

PULSE GENERATOR

Resistance Test - Disconnect connector from distributor. Connect ohmmeter probes across Blue and Pink wire terminals. Resistance should be 600-800 ohms.

SPARK PLUG WIRES

Resistance Test - Remove ignition wires by pulling on rubber boots. Do not bend wire. Clean terminals and connect ohmmeter probes to each end of wire. Resistance should not exceed 25,000 ohms.

CENTRIFUGAL ADVANCE

Disconnect vacuum advance hoses from distributor. Connect timing light and start engine. Increase engine speed. Timing mark (T) should appear to move past pointer toward firewall, indicating an increase in ignition advance. If not, check centrifugal advance mechanism for sticking or binding.

VACUUM ADVANCE

Remove distributor cap. Disconnect vacuum hoses from distributor advance/retard diaphragm. Connect vacuum pump to diaphragm. Gradually draw a vacuum while watching breaker plate movement. Check for smooth operation without binding. If pump indicates a loss of vacuum, replace diaphragm unit. Turn breaker plate right and left to check for free movement.

OVERHAUL

DISASSEMBLY

1) Carefully pry upward on reluctor by using 2 screwdrivers, cushioned with rags to prevent damage to distributor housing. *See Fig. 3.* Use care not to damage reluctor or stator.
2) On California and High Altitude automatic transmission equipped models, remove advance/retard diaphragm mount screw. Pull out on diaphragm arm, while pushing arm downward.
3) Drive roll pin from distributor shaft. Remove shaft and gear from housing. Inspect and replace parts as necessary.

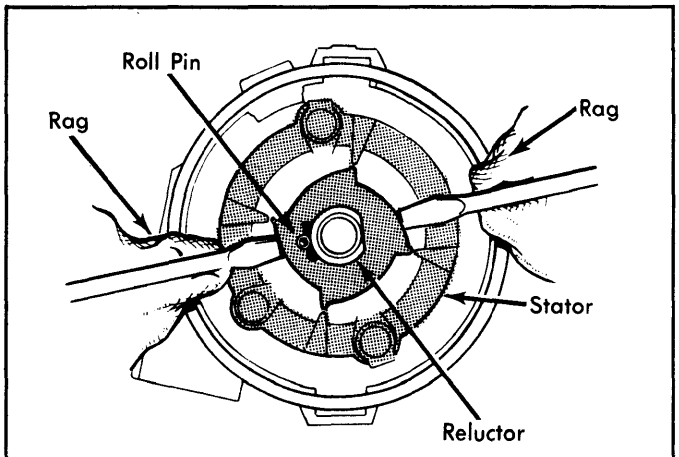

Fig. 3: Removing Reluctor From Shaft

REASSEMBLY

1) Install centrifugal advance weights and 2 washers on shaft. Grease shaft and install in housing. Put 2 washers and gear on lower end of shaft. Line up holes in gear shoulder with hole in shaft and drive in new roll pin.
2) Rotate gear until mark on gear shoulder lines up with mark on housing. Hold gear in line with mark and install rotor shaft on top of main shaft. Flat surface should face vacuum advance side of housing.
3) Be sure holes in rotor shaft arms fit over pins in centrifugal advance weights. Install screw with lock washer in top of shaft.
4) Align breaker plate in distributor housing. *See Fig. 4.* Check that upper plate moves freely. Be sure diaphragm arm attachment hole or pin does not rotate past end of slot in lower plate.
5) If such condition exists, adjust range of free travel by forcibly rotating plate past its limit in opposite direction. Recheck hole and pin positions.
6) When installing reluctor, drive roll pin in place with its gap away from distributor shaft. Check reluctor-to-stator air gap and rotor-to-terminal surfaces. Install diaphragm assembly.

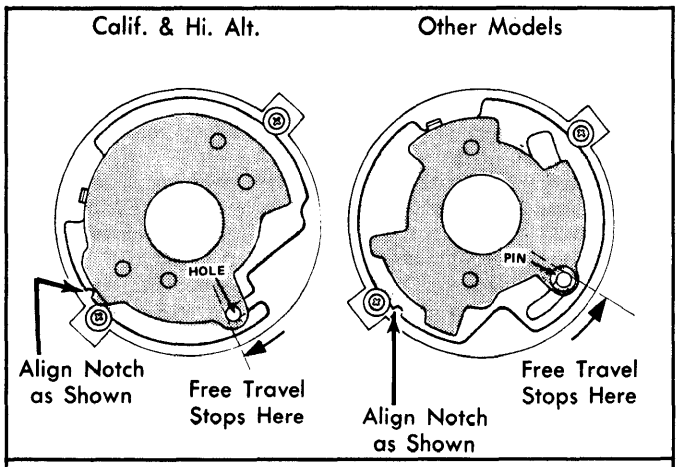

Fig. 4: Aligning Breaker Plate in Housing