

1975-79 DISTRIBUTORS & IGNITION SYSTEMS 4-33

Prestolite Electronic Breakerless Ignition

1979 International Harvester

DESCRIPTION

Ignition system uses an external ignition coil and an Electronic Control Unit (ECU) mounted inside the distributor with a trigger wheel. The ECU is completely solid state, permanently sealed and controls the ignition primary circuit in response to rotation of the trigger wheel.

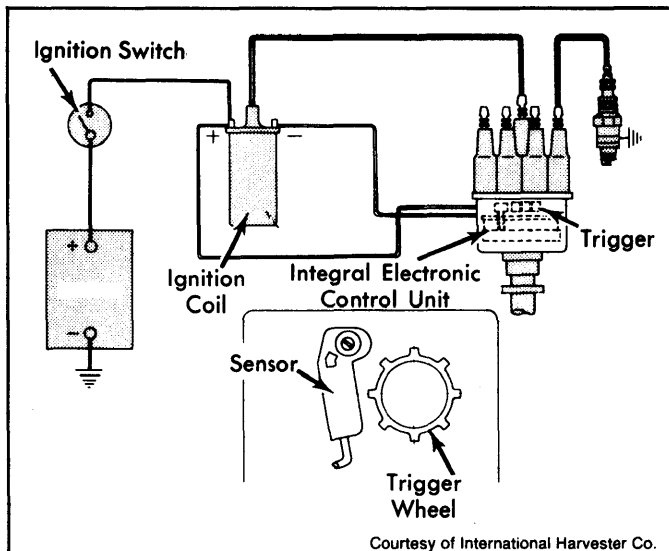


Fig. 1: Ignition System Schematic

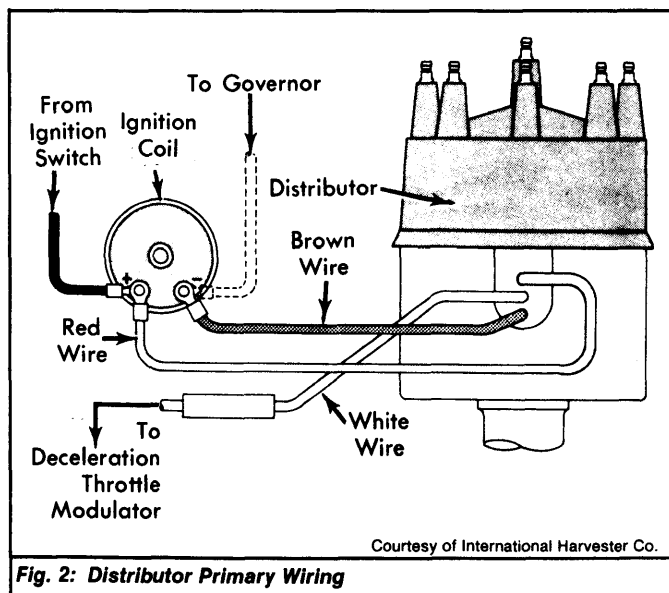


Fig. 2: Distributor Primary Wiring

OPERATION

When a trigger tooth enters the sensor field, the oscillation signal is reduced and detected by the ECU. This induces high voltage in the secondary circuit to fire the spark plug. Dwell angle is determined by the angle between adjacent teeth of the trigger wheel and by the air gap between ends of the trigger wheel teeth and sensor. Dwell remains constant.

Centrifugal advance consists of 2 flyweights controlled by springs which allow the flyweights to change position in accordance with engine speed. Vacuum advance is controlled by a vacuum diaphragm unit which changes the position of the sensor plate in response to changes in carburetor ported vacuum.

TESTING

1) To check bushing wear, secure distributor in a vise and remove rotor and dielectric shield. Attach a dial indicator to housing with indicator plunger resting against trigger wheel. Secure wire loops as shown. See Fig. 3. If movement exceeds .006", replace distributor shaft bushings.

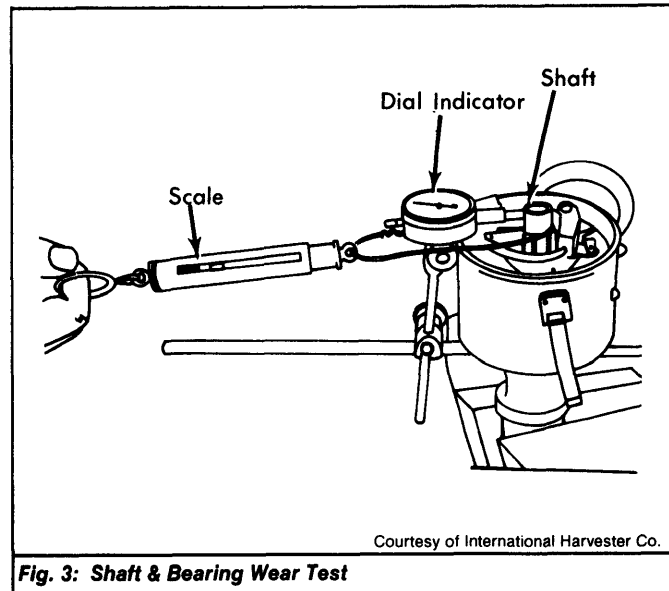


Fig. 3: Shaft & Bearing Wear Test

- 2) With distributor mounted on a test stand, operate distributor at 300 RPM with a 12-13 volt input. Dwell reading should be 28-34 degrees for 4-cylinder or 26-32 degrees for V8 engines.
- 3) The trigger wheel tooth accuracy must be within ± 2 degrees at 45 degree intervals on V8 engines or at 90 degree intervals on 4-cylinder engines. If variance is beyond this limit, check trigger wheel for burrs. Check for worn bushings.
- 4) Centrifugal and vacuum spark advance work in conjunction with each other to provide optimum performance. If performance does not meet specifications, check for sticking flyweights, binding trigger wheel, sticking vacuum diaphragm assembly or bad vacuum hose.
- 5) Primary voltage tests require sensor coil to be between two trigger wheel teeth. Connect voltmeter between coil negative (-) terminal and ground. With ignition switch on, observe voltage. A reading of 5-8 volts is normal. A reading of 12-13 volts indicates defective ECU or ground circuit. A reading of 0-5 volts indicates a defective ECU or coil.

OVERHAUL

DISTRIBUTOR

Disassembly & Reassembly - 1) Remove distributor cap, rotor, dust cover, vacuum advance diaphragm rod and vacuum diaphragm. Remove distributor plate mounting screws and remove control unit. Check end play. End play should be (.035-.040"). Replace thrust washers if end play exceeds specifications.

2) Disassemble centrifugal advance system, inspect for wear and if not worn lubricate and replace. If worn, replace weights and springs. To reassemble, reverse disassembly procedure. Lubricate all moving parts and washers.