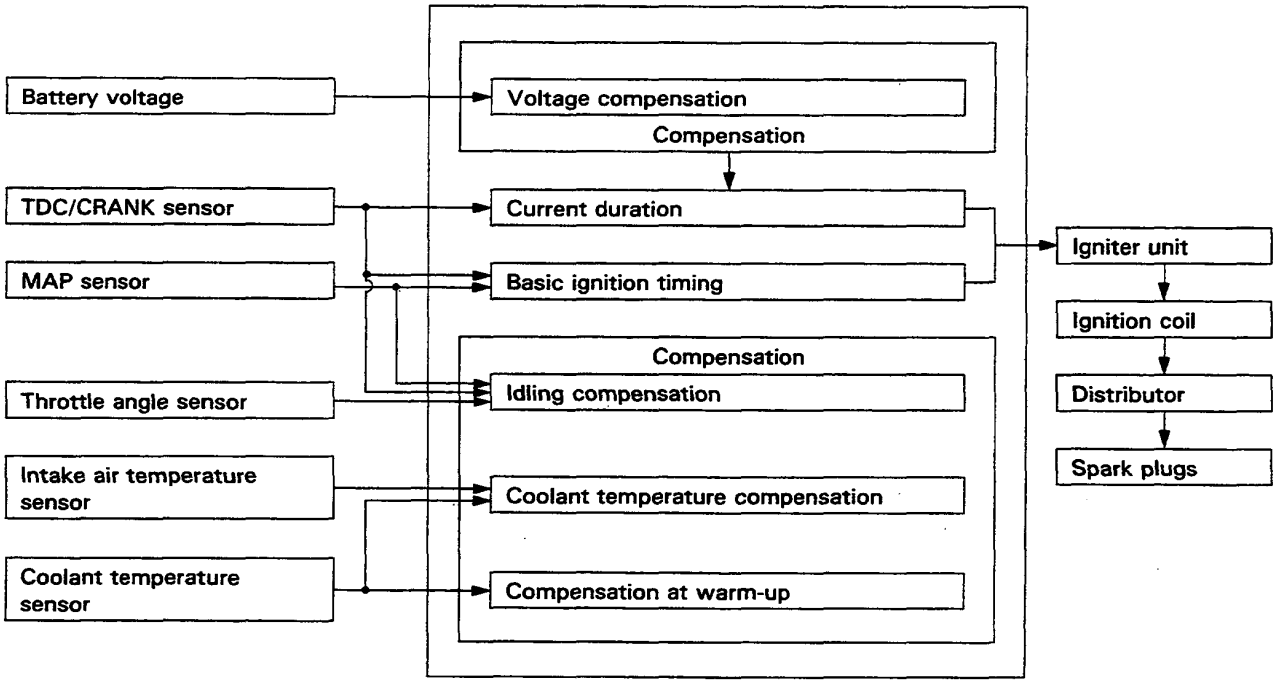
Ignition System (Fuel-Injected Engine)

Description

Ignition Timing Control:
The programmed ignition (PGM-IG) employed in this engine provides optimum control of ignition timing by determining the optimum timing using a microcomputer in response to engine speed and vacuum pressure in the intake manifold, which are transmitted by signals from TDC/CRANK sensor, throttle angle sensor, coolant temperature sensor and MAP sensor. This system, not dependent on a governor or vacuum diaphragm, is capable of setting lead angles with complicated characteristics which cannot be provided by conventional governors or diaphragms.



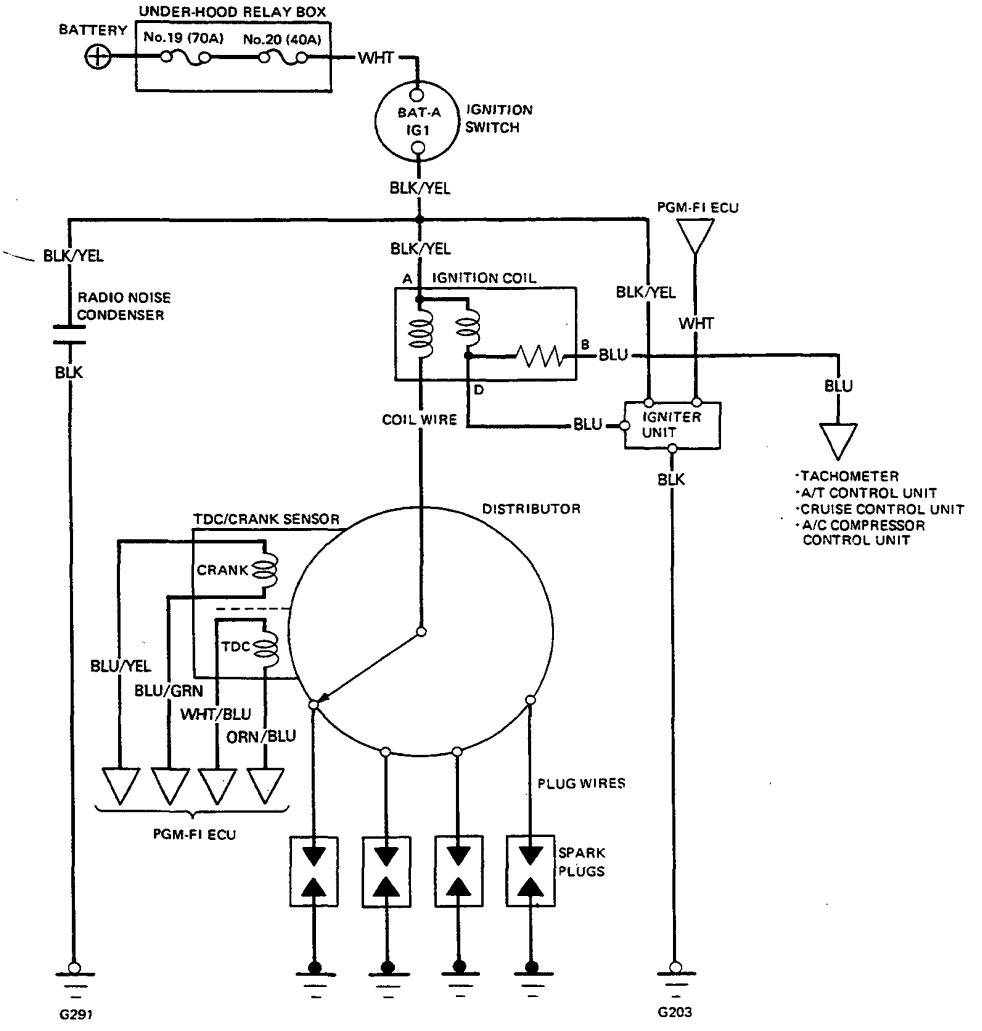
Basic Control
Determination of ignition timing/current duration:
The control unit has stored within it the optimum basic ignition timing for operating conditions based upon engine speed and intake manifold pressure. With compensation by signals from sensors, the system determines optimum timing for ambient conditions and sends voltage pulses to the igniter unit.

Compensation of ignition timing:

Compensation Item	Related Sensor and Information	Description
Idling	TDC/CRANK sensor MAP sensor Throttle angle sensor	Ignition timing is controlled to the target speed with compensation according to the idling speed.
Compensation at warm-up	Coolant temperature sensor	Lag angle is adjusted in accordance with the warming up conditions to bring about a good balance between operating performance and exhaust gas level.
Coolant temperature compensation	Coolant temperature sensor Intake air temperature sensor	Compensation for lead angle at a low coolant temperature and lag angle at high coolant temperature.

Control at Start
Ignition timing is fixed at BTDC 10° for cranking. The cranking is detected by the TDC/CRANK sensor (cranking revolution) and starter signal.

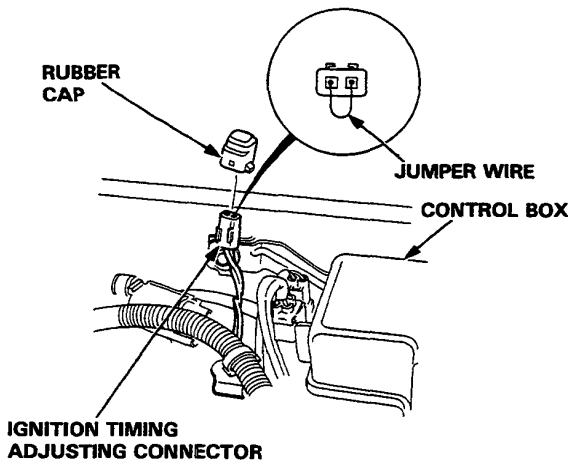
Circuit Diagram



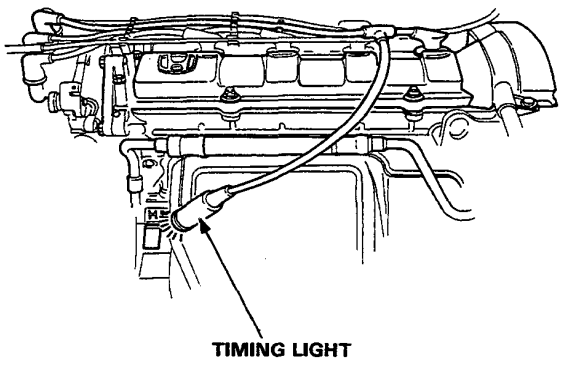
Ignition System (Fuel-Injected Engine)

Ignition Timing Inspection and Setting

1. Remove the rubber cap from the inspection window of the cylinder block.
2. Start the engine and allow it to warm up (cooling fan comes on).
3. Remove the rubber cap (BLK) from the ignition timing adjusting connector located behind the ignition coil and connect the BRN and GRN/WHT terminals with a jumper wire.



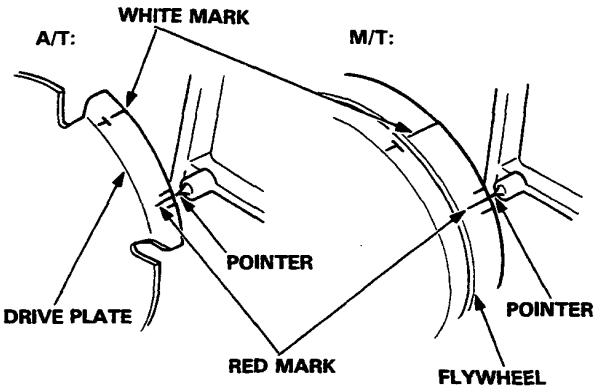
4. Connect a timing light to the engine; while the engine idles, point the light toward the pointer on the flywheel (for M/T), or on the drive plate (for A/T).



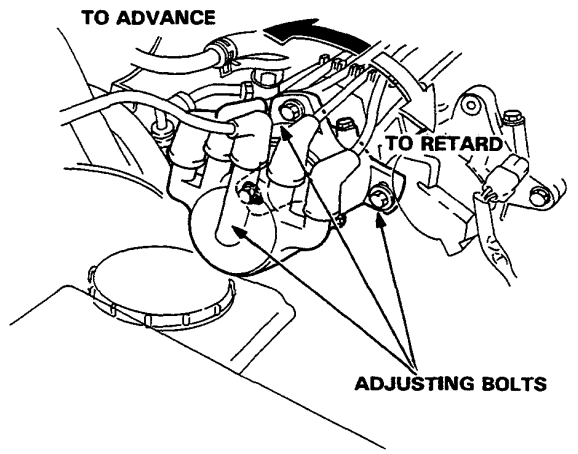
5. Adjust ignition timing, if necessary, to the following specifications:

Ignition Timing

- **Manual:** **All models:**
  15 ±2° BTDC (RED)
  at 750 ±50 min^{-1} (rpm) in neutral
- **Automatic:** **All models:**
  15 ±2° BTDC (RED)
  at 750 ±50 min^{-1} (rpm) in neutral



6. Adjust as necessary by loosening the distributor adjusting bolts, and turn the distributor housing counterclockwise to advance the timing, or clockwise to retard the timing.



7. Tighten the adjusting bolts and recheck the timing.
8. Remove the jumper wire and install the rubber caps to the inspection window and adjusting connector.