

## Computers and Control Systems: Symptom Related Diagnostic Procedures

### Rough/Unstable Idle or Stalls

**Symptom:** The engine runs unevenly at idle. If bad enough, the vehicle may shake. Also, the idle may vary in rpm (called "hunting"). Either condition may be severe enough to cause stalling. Engine idles at incorrect speed.

#### POSSIBLE CAUSE

#### ACTION

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#### CHARGING SYSTEM MALFUNCTION

- Check Battery voltage.
- Check Generator output voltage.

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#### IGNITION SYSTEM MALFUNCTION

- Scope check Ignition System. Check SECONDARY CIRCUIT firing Kv and spark duration. SEE **IGNITION SYSTEM/OSCILLOSCOPE PATTERNS**.
- Remove spark plugs and inspect for: cracks, excessive wear, improper gap, burned electrodes, and wet or heavy deposits. Replace as necessary.
- Inspect distributor cap, rotor and spark plug wires for proper plug wire routing, crossfire between spark plugs (in cap) or wires, wires shorting to ground and rotor shorting to distributor shaft.
- Check IGNITION TIMING for excessive spark advance or retard. SEE **Powertrain Management/Ignition System/Specifications**.

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#### ENGINE MECHANICAL MALFUNCTION

- Perform compression and cylinder leak down test, (look for sticking or leaking valves).
- Check for VACUUM LEAKS inspect intake manifold, gasket(s), and hoses.
- Check exhaust system for leaks, restriction, or damage.
- Check valve timing, (timing belt alignment).

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#### EMISSIONS COMPONENT MALFUNCTION

- Check EGR valve for binding or sticking in the open position.
- Check EGR Transducer operation.
- Check Evaporative control system.
- Check for plugged or contaminated Catalytic Converter.

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#### FUEL SYSTEM MALFUNCTION

- Check fuel pressure.
  - Check for lean Air-Fuel mixture, (O2S Sensor output).
  - Perform injector balance test.
  - Check for plugged or restricted Fuel Filter.
  - Check for plugged or restricted Air Filter.
  - Check fuel quality.
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