

NO.14 POOR FUEL ECONOMY [ZJ, Z6]

B3E010318881W47

| 14 | POOR FUEL ECONOMY |
|----------------|--|
| DESCRIPTION | Fuel economy is unsatisfactory. |
| POSSIBLE CAUSE | <ul style="list-style-type: none"> • Contaminated air cleaner element • Variable intake-air control malfunction • Engine cooling system malfunction • Improper ATF level (ATX) • Weak spark • Poor fuel quality • Erratic or no signal from CMP sensor • Clutch slippage (MTX) • Variable tumble control malfunction • Improper variable valve timing control system operation • Improper coolant level • Inadequate fuel pressure • Spark plug malfunction • PCV valve malfunction • Brake dragging • Improper valve timing due to jumping out of timing belt • Contaminated MAF sensor • Improper engine compression • Exhaust system clogging |
| | <p>Warning</p> <p>The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before performing the fuel system services:</p> <ul style="list-style-type: none"> • Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel. • Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described in this manual. (See BEFORE SERVICE PRECAUTION [ZJ, Z6, LF].) (See AFTER SERVICE PRECAUTION [ZJ, Z6, LF].) <p>Caution</p> <ul style="list-style-type: none"> • If there is foreign material on the connecting area of the quick release connector, it might damage the connector or fuel pipe. To prevent this, disconnect the connector and clean the connecting area before connecting. |

Diagnostic procedure

| STEP | INSPECTION | RESULTS | ACTION |
|------|---|---------|---|
| 1 | Inspect for following: • Air cleaner element for contamination • ATF level • Fuel quality • Coolant level • Brake dragging • Clutch slippage Are all items normal? | Yes | Go to the next step. |
| | | No | Service if necessary. Repeat Step 1. |

| | | | |
|----|---|-----|--|
| 2 | Connect the WDS or equivalent to the DLC-2. Retrieve any continuous memory, KOEO and KOER DTCs using WDS or equivalent. Are there any DTCs displayed? | Yes | DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [ZJ, Z6] .) |
| | | No | No DTC is displayed: Go to the next step. |
| 3 | Access ECT PID. Drive vehicle while monitoring PID. (See PCM INSPECTION [ZJ, Z6] .) Is PID within specification? | Yes | Go to the next step. |
| | | No | Inspect for coolant leakage, cooling fan operations or thermostat operation. |
| 4 | Perform the spark test. (See Spark Test .) Is strong blue spark visible at each cylinder? | Yes | Go to the next step. |
| | | No | Repair or replace the malfunctioning part according to spark test results. |
| 5 | Install fuel pressure gauge between the fuel pipe and the fuel distributor. Start the engine and idle it. Measure fuel line pressure during idle. Is fuel line pressure correct during idle? (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF] .) | Yes | Go to the next step. |
| | | No | Low: Inspect for clogged fuel line. • If normal, replace fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .) High: Replace fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .) |
| 6 | Inspect for variable tumble control operation. (See Variable Tumble Control Operation Inspection .) Does variable tumble control function properly? | Yes | Go to the next step. |
| | | No | Repair or replace the malfunctioning part. |
| 7 | Inspect for variable valve timing control system operation. (See Variable Valve Timing Control System Operation Inspection .) Does the variable valve timing control system function properly? | Yes | Go to the next step. |
| | | No | Repair or replace the malfunctioning part. |
| 8 | Inspect for variable intake-air control operation. (See Variable Intake-air Control Operation Inspection .) Does the variable control function properly? | Yes | Go to the next step. |
| | | No | Repair or replace the malfunctioning part. |
| 9 | Remove and shake the PCV valve. Does the PCV valve rattle? | Yes | Go to the next step. |
| | | No | Replace the PCV valve. |
| 10 | Visually inspect the exhaust system part. Is there any deformed exhaust system part? | Yes | Replace the suspected part. |
| | | No | Go to the next step. |
| 11 | Inspect for contaminated the MAF sensor. Is there any contamination? | Yes | Go to the next step. |
| | | No | Inspect for cause. |
| 12 | Inspect the MAF sensor for contamination. Is there any contamination? | Yes | Replace the MAF sensor. |
| | | No | Go to the next step. |
| | Is engine compression correct? | Yes | Inspect valve timing. |

| | | | |
|----|--|----|--|
| 13 | (See COMPRESSION INSPECTION [ZJ, Z6] .) | | (See Timing Chain Installation Note.) |
| | | No | Inspect for cause. |
| 14 | <p>Verify test results.</p> <ul style="list-style-type: none"> • If normal, return to diagnostic index to service any additional symptoms. <p>(See ENGINE SYMPTOM TROUBLESHOOTING [ZJ, Z6].)</p> <ul style="list-style-type: none"> • If malfunction remains, inspect related Service information perform repair or diagnosis. <ul style="list-style-type: none"> - If vehicle repaired, troubleshooting completed. - If vehicle not repaired or additional diagnostic information not available, replace the PCM. <p>(See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [ZJ, Z6].)</p> | | |