Department of Consumer Affairs
Bureau of Automotive Repair

Smog Check OBD Reference Guide

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BAR Advisory Group
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Smog Check OBD Reference Guide

• OBD test pass/fail standards
• “Vehicles of Interest” tables for vehicles requiring OIS or BAR-97 inspection
• Replaces “Smog Check OBDII Reference (Testability Issues)”, formerly called Appendix J
• Location: www.smogcheck.ca.gov
  • Industry tab, Resources header, Training link
Identifying OBD Vehicles of Interest for OIS

• Source of Vehicles of Interest
  – BAR data analysis
    • vehicles with higher than average rate of failing
      – e.g., incomplete OBD readiness monitors
    • OBD data anomaly
      – Vehicle data not in proper format or inappropriate for vehicle per SAE OBD Specification
  – Escalated BAR Industry Help Desk tickets
  – Vehicles inspected at a State Referee facility
Vehicles of Interest - OIS

• Table 4 contains OIS tested vehicles with OBD issues
• Overview of contents:
  – **Issue**: no communication, incomplete monitor(s), no OBDII, MIL commanded on but not lit, etc.
  – **Cause**: broken vehicle, vehicle design, flex fuel, non OBDII, etc.
  – **Remedy**: fix, recall, run drive cycle to set monitors, etc.
  – **Instruction**: test normally, OIS skips a portion of inspection, fix first, verify if vehicle has OBDII (label), properly follow OIS prompts, etc.
Vehicles of Interest - OIS

• No communication example from Table 4
  – Issue: no communication between OIS (DAD) & vehicle
  – Cause: possible faulty ABS module
  – Instruction: diagnose, repair, and retest

<table>
<thead>
<tr>
<th>Make</th>
<th>Year</th>
<th>Model</th>
<th>Issue</th>
<th>Cause and Possible Remedy</th>
<th>Instruction to Inspector</th>
</tr>
</thead>
</table>
| Audi | 2000-2004 | A4 & A6 | Fail for no OBD communication | No response or Only Transmission Control Module responds to DADs requests. Possible faulty ABS Module. Sometimes the ABS light is on. Diagnose and repair ABS if necessary. | Test normally
Likely Broken Vehicle Repair and Retest
Audi/VW is aware of this issue. |
Vehicles of Interest - OIS

- Monitor readiness example from Table 4
  - Issue: readiness monitors will not set
  - Cause: monitors disabled when vehicle runs > E30 fuel
  - Instruction: Test normally, OIS ignores all monitors

<table>
<thead>
<tr>
<th>Make</th>
<th>Year</th>
<th>Model Engine(L) Fuel Type</th>
<th>Issue</th>
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<th>Instruction to Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrysler, Dodge, Plymouth</td>
<td>2000</td>
<td>Caravan, Town and Country, Voyager 3.3L V-6 (E-85)</td>
<td>Readiness monitors will not set on certain flex fuel models, VINs listed below. WCRXT03.32BP (VIN 8th digit: G)</td>
<td>All monitors disabled for operation &gt;E30 and ethanol fuel content learning.</td>
<td>Test normally</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>All 11 readiness monitors are ignored in OIS</td>
</tr>
</tbody>
</table>
Vehicles of Interest - OIS

- Monitor readiness example from Table 4
  - Issue: fail for monitor readiness
  - Cause: monitors difficult to set
  - Remedy: follow drive cycle in owner’s manual
  - Instruction: Test normally

<table>
<thead>
<tr>
<th>Make</th>
<th>Year</th>
<th>Model</th>
<th>Engine(L)</th>
<th>Fuel Type</th>
<th>Issue</th>
<th>Cause and Possible Remedy</th>
<th>Instruction to Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nissan</td>
<td>2000-2006</td>
<td>All models</td>
<td></td>
<td></td>
<td>Fail for monitor readiness</td>
<td>Some monitors are difficult to complete.</td>
<td>Follow owner’s manual drive cycle to achieve readiness. Test normally.</td>
</tr>
</tbody>
</table>
### Vehicles of Interest - OIS

- **Example of non-OBDII vehicles from Table 4**
  - **Issue:** OIS prompts “unable to confirm vehicle’s OBDII requirements…”
  - **Cause:** vehicle reports not OBDII (Mode $01$, PID $1C$)
  - **Remedy:** Federal vehicle may not have OBDII
  - **Instruction:** correctly enter certification type from vehicle label (CA or Federal), if not OBDII - OIS may require a BAR-97 inspection

### Table 4: OIS Vehicles of Interest (continued)

<table>
<thead>
<tr>
<th>Make</th>
<th>Year</th>
<th>Model (Engine(L) Fuel Type)</th>
<th>Issue</th>
<th>Cause and Possible Remedy</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Chevrolet</td>
<td>2000-2005</td>
<td>Suburban, Silverado, Express, Avalanche (gasoline)</td>
<td>Message appears during OIS OBD II test stating, “Unable to confirm this Vehicle’s OBD II requirements. Does this vehicle have OBD II?”</td>
<td>Federally certified vehicle may not be certified to OBD II standards.</td>
<td>Check under-hood emission label to determine OBD certification status. Enter correct result into OIS and follow OIS prompts. OIS may state a BAR-97 test is required on vehicles without OBDII.</td>
</tr>
</tbody>
</table>
Vehicles of Interest - OIS

- Example of non-OBDII diesel vehicles from Table 4
  - Issue: Vehicle not equipped with OBDII
  - Cause: vehicle design (Federal)
  - Instruction: follow OIS prompts (correctly enter certification type), OIS will skip the OBD functional test

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Isuzu</td>
<td>1998 - 2005</td>
<td>NPR [GVWR 10,001 - 14,000] (diesel) [federal certification]</td>
<td>Vehicle is not equipped with OBD II</td>
<td>Vehicle design</td>
<td>Follow OIS prompts. OIS programmed to skip the OBD functional test</td>
</tr>
</tbody>
</table>
Vehicles of Interest - OIS

- Example of California vs. Federal from Table 4
  - Issue: certain monitor(s) will not run
  - Cause: vehicle design
  - Instruction: enter correct certification type, OIS ignores certain monitors, advise motorist of free reflash on CA models

<table>
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<tbody>
<tr>
<td>Dodge</td>
<td>2004-2005 built after 12/7/2003</td>
<td>Ram Truck 5.9L (Cummins diesel) [California certified]</td>
<td>Comprehensive component monitor will not complete.</td>
<td>Vehicle design anomaly&lt;br&gt;Re-flash available per TSB 18-030-10 with lifetime warranty per TSB 18-003-11</td>
<td>Test normally&lt;br&gt;OIS ignores comprehensive component monitor readiness.&lt;br&gt;Advise motorist of fix with lifetime warranty per TSB 18-003-11</td>
</tr>
<tr>
<td>Dodge</td>
<td>2005</td>
<td>Ram Truck 5.9L (Cummins diesel) [Federal certified]</td>
<td>Misfire and Comprehensive Components monitors will not complete.</td>
<td>Vehicle design anomaly</td>
<td>Test normally&lt;br&gt;OIS ignores misfire and comprehensive component monitor readiness.</td>
</tr>
</tbody>
</table>
How to ID Federal or California?

Federally Certified Dodge (Cummins engine label)

California Certified Dodge (Cummins engine label)
Vehicles of Interest - OIS

• Example of vehicle repair required from Table 4
  – Issue: vehicle fails to set certain monitors
  – Remedy: wiring modification / computer reflash
  – Instruction: test normally if only O₂ heater unset / repair vehicle

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<tbody>
<tr>
<td>Jeep</td>
<td>2005-2006</td>
<td>Wrangler</td>
<td>O₂ sensor, O₂ heater, catalyst readiness monitors may indicate not ready.</td>
<td>Vehicle design anomaly. TSB #25-005-13 Rev. A contains wiring modification to make vehicle ready.</td>
<td>Test normally if only O₂ heater monitor not set, otherwise repair vehicle. OIS allows incomplete O₂ heater monitor.</td>
</tr>
<tr>
<td>Jeep</td>
<td>2010-2011 built pre-9/02/10</td>
<td>Wrangler 3.8</td>
<td>Fail for monitor readiness. Downstream oxygen sensor monitor may not set to ready.</td>
<td>Reflash per TSB #18-027-10</td>
<td>Repair Vehicle</td>
</tr>
</tbody>
</table>
Vehicles of Interest - OIS

- Example of MIL on during inspection from Table 4
  - Issue: MIL lights during OIS inspection
  - Cause: vehicle sensitive to OBD scan tool connect / disconnect
  - Remedy: see service bulletin to clear light and codes if occurs
  - Instruction: only connect / disconnect DAD when prompted by OIS

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</thead>
<tbody>
<tr>
<td>Mazda</td>
<td>2003-2005</td>
<td>2003-2004 Mazda 6</td>
<td>2005 Mazda 6 with 2.3 only</td>
<td>Some vehicles may have a false MIL illumination during inspection with multiple U-code DTCs during OBDII test. The following OBD Codes may be set. (U1900-ABS, U2516-ABS, U1900-FF-IC,U2516-FF-IC,U0073-FF-PCM,U0073-FF-TCM, U0100-FF-TCM)</td>
<td>PCM sensitive to OBD tool connect or disconnect to DLC with ignition in the &quot;On&quot; position, or when the engine is running. See Mazda Service Bulleting 01-002/05 Dated 01/13/2005. Erase trouble codes, disconnect tool when ignition switch off. Reset monitors.</td>
<td>Follow OIS prompts - connect/disconnect DAD to vehicle only when key off.</td>
</tr>
</tbody>
</table>

Table 4: OIS Vehicles of Interest (continued)
Other Information in the OBD Reference Guide

- OBD Test Pass/Fail Standards
  - Table 1: number of incomplete OBD monitors allowed
    - Exceptions listed in Vehicles of Interest Tables 4 & 5
  - Table 2: Malfunction Indicator Lamp (MIL) standards
    - MIL bulb check / MIL illuminated when engine running
  - Table 3: Communication with vehicle’s OBD system
    - OIS currently requires minimal communication with vehicle
    - BAR preparing OIS to validate core data is retrieved from vehicle; if not, inspector prompted to retry
Next Version of OBD Reference Guide

- Adding EIS Vehicles of Interest via Table 5
  - Contents updated to match current BAR-97 EIS Vehicle Lookup Table

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Table 5: EIS Vehicles of Interest (OBD)

<table>
<thead>
<tr>
<th>Make</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BMW</td>
<td>1996</td>
<td>7-Series, 8-Series 5.0L, 5.4L</td>
<td>Monitors difficult to complete.</td>
<td>Recall campaign #678 applies to California certified vehicles originally sold in California.</td>
<td>EIS ignores readiness status.</td>
</tr>
<tr>
<td>Chrysler</td>
<td>1996</td>
<td>Cirrus, Concord, LHS Sebring Convertible</td>
<td>All monitors reset to incomplete upon every ignition key-off.</td>
<td>TSB #18-005-01 (with lifetime warranty) applies to federal certified and California certified originally sold in northeast states.</td>
<td>Comply with recall, then test as normal.</td>
</tr>
</tbody>
</table>
Questions and Comments

Submit additional questions and/or comments to:

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