# OBD Inspection System & New Test Procedures

## BAR Advisory Group
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# Statute Change

- Chaptered in 2010, Assembly Bill 2289 requires inspection procedure changes for newer vehicles:

  – OBD in lieu of ASM / TSI on 2000+ model years

- Eight industry workshops held statewide in March – May on Smog Check program changes

# Proposed Regulations

- New Inspection Procedures and Equipment Requirements

- Smog Check Manual revised to include new inspection procedures and new equipment for stations

- Regulation text includes new OBD test failure criteria

- Available on Web site [www.smogcheck.ca.gov](www.smogcheck.ca.gov)

- Adoption expected July 1, 2013

# New Inspection Procedures

- Proposed Smog Check Manual
  - No tailpipe test on most 2000 and newer model years, except:
    - Over 14,000 GVWR
    - Vehicles without OBDII systems (e.g., kit cars)
  - Hybrid powered vehicles will also require a Smog Check inspection (OBDII and Visual tests only)

# Inspection Procedure - Functional Test Changes

- Fuel Cap test limited to 1995 and older
- Timing test limited to 1995 and older
- OBD readiness monitors revised
  - Gasoline:
    - One monitor allowed for 1996 to 1999
    - <u>Only</u> the evaporative monitor for 2000 and newer
  - Diesel:
    - Zero monitors allowed for 1998 to 2006
    - <u>Only</u> the exhaust after-treatment monitor (e.g., particulate filter) for 2007 and newer

# Proposed Smog Check Manual Required Tests

- Table shows which vehicles are inspected on BAR-97 EIS or on OIS equipment.

- Table summarizes which tests are required for each vehicle type

- Refer to text in Smog Check Manual for specific inspection instructions

| REQUIRED TESTS | BAR-97 | | | OBD Inspection System (OIS) | | |
|---|---|---|---|---|---|---|
| | Gasoline 1976 to 1995 | Gasoline 1996 to 1999 | Gasoline 2000 and newer exceptions (1) | Hybrid 2000 and newer (2) | Diesel 1998 and newer (3) | Gasoline 2000 and newer |
| **Tailpipe Inspections: (see section 1.2)** | | | | | | |
| Acceleration Simulation Mode (ASM) or Two Speed Idle (TSI) (4) | √ | √ | √ | | | |
| **Visual Inspections: (see section 1.3)** | | | | | | |
| Crankcase Emissions Controls | √ | √ | √ | √ | √ | √ |
| Thermostatic Air Cleaner | √ | √ | | | | |
| Fuel Evaporative System (EVAP) | √ | √ | √ | √ | | √ |
| Exhaust Gas After Treatment Systems | √ | √ | √ | √ | √ | √ |
| Exhaust Gas Recirculation (EGR) | √ | √ | √ | √ | √ | √ |
| Ignition Spark Controls | √ | √ | √ | √ | | √ |
| Fuel Metering Systems | √ | √ | √ | √ | √ | √ |
| Air Injection System | √ | √ | √ | √ | | √ |
| Computers, Sensors, and Switches | √ | √ | √ | √ | √ | √ |
| Other Emission Related Components | √ | √ | √ | √ | √ | √ |
| Liquid Fuel Leak (section 1.3.3) | √ | √ | √ | √ | | √ |
| Visible Smoke Test (section 1.3.4) | √ | √ | √ | | √ | √ |
| **Functional Inspections: (see section 1.5)** | | | | | | |
| On-Board Diagnostics (OBD) | | √ | √ | √ | √ | √ |
| Malfunction Indicator Light (MIL) | √ | √ | √ | √ | √ | √ |
| Exhaust Gas Recirculation (EGR) (5) | √ | | | | | |
| Ignition Timing | √ | | | | | |
| Fuel Cap Integrity | √ | | | | | |
| Low Pressure Fuel Evaporative Test (LPFET) | √ | | | | | |

(1) Some model-year 2000 and newer vehicles will require a tailpipe test on the BAR-97 EIS. These include vehicles with problem OBDII systems (as identified by BAR) or vehicles without OBDII; e.g., over 14,000 GVWR, some federally certified emissions.

(2) Hybrid vehicles are powered by both internal combustion and electric power sources.

(3) Diesel-powered vehicles with a GVWR greater than 14,000 lbs. are exempt from the Smog Check Program.

(4) ASM required for vehicles registered in Enhanced program areas, unless vehicle is incompatible with dynamometer test, then TSI shall be performed. TSI required in basic and change of ownership areas.

(5) The EGR functional inspection is only performed in conjunction with a TSI tailpipe test.

# Proposed Smog Check Manual Equipment Requirements

- Table lists requirements for each station type
  - Must have all equipment (both OIS and BAR-97)
    - STAR Test Only
    - STAR Test and Repair
  - May choose which equipment
    - Non-STAR Test Only
    - Non-STAR Test and Repair

# What Does My Station Need?
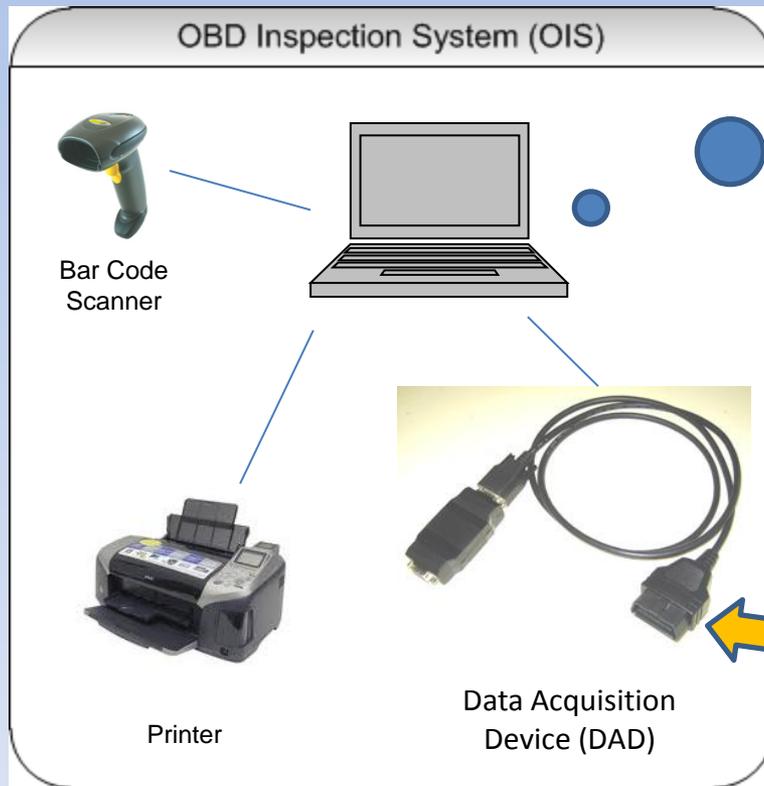
## EQUIPMENT AND MATERIALS REQUIREMENTS

| EQUIPMENT / MATERIALS | | STATION TYPE | | | | |
|---|---|---|---|---|---|---|
| | | STAR Test Only | Test Only | STAR Test and Repair | Test and Repair | Repair Only |
| BAR Certified Equipment | BAR-97 Emissions Inspection System (EIS) with most current hardware and software | √ | (1) | √ | (1) | |
| | OBD Inspection System (OIS) with hardware and software necessary to conduct OBD inspections | √ | (2) | √ | (2) | |
| | Low Pressure Fuel Evaporative Tester (LPFET) and Operator's Manual | √ | (3) | √ | (3) | |
| | Fuel cap tester, adapters, and adapter guide | √ | (3) | √ | (3) | |
| | Ignition Timing Light capable of measuring ignition advance | √ | (4) | √ | (4, 5) | (5) |

(1) Required when performing a tailpipe emission inspection on vehicles.
(2) Required when performing the OBD test on model-year 2000 and newer vehicles.
(3) Required when inspecting 1976-1995 model-year vehicles with evaporative control systems.
(4) Required when inspecting and / or repairing 1976-1995 model-year vehicles with adjustable timing.
(5) Required when inspecting and / or repairing vehicles with spark ignition engines.

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# OBD Inspection System (OIS)

- Data Acquisition Device (DAD) hardware
  - BAR Certified device from equipment manufacturer
- Ancillary equipment (computer, barcode scanner, printer)
  - Off-the-shelf equipment that meets minimum performance standards (e.g., Windows 7 w/ 32 bit, etc.)
- Web-based inspections
  - Continuous Internet connection required
- State owned software
  - Program changes at no cost to industry

# OBD Inspection System (OIS) Conceptual Design

Web-based Software

California BAR-OIS

| Smog Check | BAR Web |
| Station Manager | Status |

Internet Connection

## OBD Inspection System (OIS)

Bar Code Scanner

Printer

Data Acquisition Device (DAD)

DAD from BAR certified vendors.
Other equipment off-the-shelf or from other vendors.

# Common OIS Questions

- Is the DAD separate from the BAR-97?
  - Yes. It operates independently from the BAR-97.
- What does the OIS cost?
  - Cost set by DAD vendors. BAR does not control cost.
- What does the inspection software cost?
  - There is no cost to access the Web page.
- Is there still an Electronic Transfer Fee?
  - Yes. To pay BAR's contractor for the OIS software and central database operation.
- Will the BAR-97 prevent inspection of OIS vehicles?
  - No. It is illegal to violate the Smog Check Manual.
  - The OIS will not issue certificates on 1999 and older vehicles.

- More on [www.smogcheck.ca.gov](http://www.smogcheck.ca.gov) – "New Equipment and Inspection Procedures" link

# OIS Project Schedule

- 2/1/2013 - DAD vendors testing equipment in preparation for BAR certification
- 7/1/2013 – Regulation adoption
- 7/2/2013 – Start BAR Lab Testing of DADs
- 11/7/2013 – Start DAD Testing of vehicles at Beta Stations
- Early 2014 – Statewide deployment of DADs
  - Start using proposed Smog Check Manual
    - Quit tailpipe test on 2000 and newer model year OBDII equipped vehicles
    - More stringent OBDII test failure criteria

# Inspection Volume by Equipment Type

| Model Years | Test Equipment | Percent of Inspections Calendar Year 2011 | Percent of Inspections Calendar Year 2012 |
|---|---|---|---|
| 1976 – 1999 | BAR-97 | 42% | 36% |
| 2000 and newer | OIS | 58% | 64% |

# Additional Information

- BAR Website



- Questions to BAR Help Desk
  - Email: bar.industryhelpdesk@dca.ca.gov
  - Phone: 1-866-860-8509