

**State of California
Office of Administrative Law**

In re:
Bureau of Automotive Repair

Regulatory Action:

Title 16, California Code of Regulations

Amend sections: 3311.1, 3340.45

NOTICE OF APPROVAL OF REGULATORY
ACTION

Government Code Section 11349.3

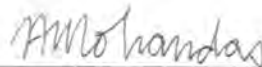
OAL Matter Number: 2026-0218-04

OAL Matter Type: Regular (S)

In this rulemaking action, the Bureau of Automotive Repair allows Smog Check and Vehicle Safety Systems Inspections stations to use new models of the Fujitsu FAT13FPS01 palm vein scanner sensor.

OAL approves this regulatory action pursuant to section 11349.3 of the Government Code. This regulatory action becomes effective on 7/1/2026.

Date: April 2, 2026



Ashita Mohandas
Attorney

For: Kenneth J. Pogue
Director

Original: Patrick Dorais, Chief
Copy: Holly Helsing

NOTICE PUBLICATION/REGULATIONS SUBMISSION

REGULAR

For use by Secretary of State only

STD. 400 (REV. 10/2019)

OAL FILE NUMBERS	NOTICE FILE NUMBER Z-2025-1013-04	REGULATORY ACTION NUMBER 2026-0218-045	EMERGENCY NUMBER
For use by Office of Administrative Law (OAL) only			
OFFICE OF ADMINISTRATIVE LAW		OFFICE OF ADMIN. LAW 2026 FEB 18 AM 11:12	
Electronic Submission			
RECVD DATE 10/13/2025	PUBLICATION DATE 10/24/2025		
NOTICE		REGULATIONS	

ENDORSED - FILED
in the office of the Secretary of State
of the State of California

APR 02 2026
NG 1:38 pm

AGENCY WITH RULEMAKING AUTHORITY
BUREAU OF AUTOMOTIVE REPAIR

AGENCY FILE NUMBER (If any)

A. PUBLICATION OF NOTICE (Complete for publication in Notice Register)

1. SUBJECT OF NOTICE Biometric Device Updates		TITLE(S) 16	FIRST SECTION AFFECTED 3311.1	2. REQUESTED PUBLICATION DATE 10/24/2025
3. NOTICE TYPE <input checked="" type="checkbox"/> Notice re Proposed Regulatory Action <input type="checkbox"/> Other		4. AGENCY CONTACT PERSON Holly Helsing	TELEPHONE NUMBER 916-970-8421	FAX NUMBER (Optional)
OAL USE ONLY	ACTION ON PROPOSED NOTICE <input type="checkbox"/> Approved as Submitted <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Disapproved/Withdrawn		NOTICE REGISTER NUMBER	PUBLICATION DATE

B. SUBMISSION OF REGULATIONS (Complete when submitting regulations)

1a. SUBJECT OF REGULATION(S) Biometric Device Updates	1b. ALL PREVIOUS RELATED OAL REGULATORY ACTION NUMBER(S)
2. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) (including title 26, if toxics related)	

SECTION(S) AFFECTED (List all section number(s) individually. Attach additional sheet if needed.)	ADOPT
	AMEND 3311.1 and 3340.45
	REPEAL
TITLE(S) 16	

3. TYPE OF FILING

<input checked="" type="checkbox"/> Regular Rulemaking (Gov. Code §11346)	<input type="checkbox"/> Certificate of Compliance: The agency officer named below certifies that this agency complied with the provisions of Gov. Code §§11346.2-11347.3 either before the emergency regulation was adopted or within the time period required by statute.	<input type="checkbox"/> Emergency Readopt (Gov. Code, §11346.1(h))	<input type="checkbox"/> Changes Without Regulatory Effect (Cal. Code Regs., title 1, §100)
<input type="checkbox"/> Resubmittal of disapproved or withdrawn nonemergency filing (Gov. Code §§11349.3, 11349.4)	<input type="checkbox"/> Resubmittal of disapproved or withdrawn emergency filing (Gov. Code, §11346.1)	<input type="checkbox"/> File & Print	<input type="checkbox"/> Print Only
<input type="checkbox"/> Emergency (Gov. Code, §11346.1(b))		<input type="checkbox"/> Other (Specify) _____	

4. ALL BEGINNING AND ENDING DATES OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE (Cal. Code Regs. title 1, §44 and Gov. Code §11347.1)

5. EFFECTIVE DATE OF CHANGES (Gov. Code, §§ 11343.4, 11346.1(d); Cal. Code Regs., title 1, §100)

Effective January 1, April 1, July 1, or October 1 (Gov. Code §11343.4(a)) Effective on filing with Secretary of State \$100 Changes Without Regulatory Effect Effective other (Specify) _____

6. CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY

Department of Finance (Form STD. 399) (SAM §6660) Fair Political Practices Commission State Fire Marshal

Other (Specify) Christine J. Lally, Acting Director, Department of Consumer Affairs *Christine Lally*

7. CONTACT PERSON Holly Helsing	TELEPHONE NUMBER (916) 970-8421	FAX NUMBER (Optional)	E-MAIL ADDRESS (Optional) holly.helsing@dca.ca.gov
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8. I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.

SIGNATURE OF AGENCY HEAD OR DESIGNEE <u>Patrick Dorais</u> <small>Patrick Dorais (File # 2025-1127-33 PST)</small>	DATE 02/09/2026
TYPED NAME AND TITLE OF SIGNATORY Patrick Dorais, Bureau Chief, Bureau of Automotive Repair	

For use by Office of Administrative Law (OAL) only

ENDORSED APPROVED

APR 02 2026

Office of Administrative Law

SMOG CHECK MANUAL

~~January 2021~~ April 2025

DEPARTMENT OF CONSUMER AFFAIRS

BAR

Bureau of Automotive Repair

PREFACE

This manual is incorporated by reference in Section 3340.45, Title 16, of the California Code of Regulations. It provides procedures for performing official Smog Check inspections. Licensed Smog Check stations and inspectors must follow these procedures, and the BAR-97 Emission Inspection System, OBD Inspection System (OIS), and Low Pressure Fuel Evaporative Test (LPFET) equipment prompts when conducting Smog Check inspections.

**Department of Consumer Affairs
Bureau of Automotive Repair
10949 North Mather Boulevard
Rancho Cordova, CA 95670**

Suggestions for improvement to this manual are welcomed. They should be directed to the Bureau of Automotive Repair, Smog Check Manual Author via email to bar.industryhelpdesk@dca.ca.gov.

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Pre-Inspection/Pre-Repair Check List

- Check for vehicle test restrictions. If test restrictions apply, inform the customer of those restrictions. For more information, see section 1.7.0.
 - If a station lacks the equipment, tools, or reference materials necessary to inspect or repair a particular vehicle, the station must reject the vehicle before starting an inspection or repair.
 - If, as a matter of policy, a test-and-repair station that does not repair certain types of vehicles or inspection failures, must reject the vehicle before starting an inspection or inform customer orally and in writing.
- Ensure the customer is provided an estimate in accordance with the Automotive Repair Act, Business and Professions Code section 9884.9, Health and Safety Code section 44033, and Title 16, California Code of Regulations section 3353. Be sure to determine the required test type prior to preparing the written estimate and obtaining customer authorization.
- Check that all required equipment is up-to-date, maintained and calibrated in accordance with the manufacturer standards and applicable BAR specifications.
- Ensure the vehicle is safe to test.

Test Requirements

Required Tests Tailpipe Inspections: (see section 1.2 for specifics)	BAR-97 Gasoline 1976-1995 ¹	BAR-97 Gasoline 1996-1999 ¹	OIS Hybrid 2000 and newer ²	OIS Diesel 1998 and newer ³	OIS Gasoline 2000 and newer ^{1,4}
Acceleration Simulation Mode (ASM) or Two Speed Idle (TSI) ⁵	√	√			

Required Tests Visual Inspection: (see section 1.3 for specifics)	BAR-97 Gasoline 1976-1995 ¹	BAR-97 Gasoline 1996-1999 ¹	OIS Hybrid 2000 and newer ²	OIS Diesel 1998 and newer ³	OIS Gasoline 2000 and newer ^{1,4}
Crankcase Emission 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)	√	√		√	√

Required Tests Functional Inspections: (see section 1.4 for specifics)	BAR-97 Gasoline 1976-1995 ¹	BAR-97 Gasoline 1996-1999 ¹	OIS Hybrid 2000 and newer ²	OIS Diesel 1998 and newer ³	OIS Gasoline 2000 and newer ^{1,4}
On-Board Diagnostics (OBD)		√	√	√	√
Malfunction Indicator Light (MIL)	√	√	√	√	√
Exhaust Gas Recirculation (EGR) ⁶	√				
Ignition Timing	√				
Fuel Cap Integrity	√				
Low Pressure Fuel Evaporative Test (LPFET)	√				

¹ Gasoline includes alternative fueled vehicles, e.g., ethanol, methanol, liquefied petroleum gas (LPG), compressed natural gas (CNG), etc. Dedicated propane and natural gas vehicles over 14,000 lbs. Gross Vehicle Weight Rating (GVWR) do not require a Smog Check inspection.

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 Exception: Some model-year 2000 and newer gasoline category vehicles will require a tailpipe test on the BAR-97 EIS. These include vehicles without OBDII systems, vehicles over 14,000 lbs. GVWR, and vehicles identified by BAR with problematic OBDII systems.

⁵ 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 Program areas.

⁶ The EGR functional inspection is only performed in conjunction with a TSI tailpipe test.

Vehicle Identification

1.1.0 Inspector Access

Entering an Inspector's license number and use of a biometric device, as specified in the Required Equipment/Materials table in Section 1.8.0, provides access into the BAR-97 Emissions Inspection System (EIS) or OBD Inspection System (OIS) Smog Check inspection menu, as applicable. Follow the EIS or OIS prompts to access the Smog Check inspection mode.

BAR or a BAR authorized representative shall use a biometric device to collect inspector biometric data and for purposes of authorizing access to perform inspections using the EIS or OIS, shall verify the identity using two forms of identification. One must be a valid, government-issued photo identification, other than a BAR issued license badge (e.g., driver license, passport, or military identification). The second identification must have the enrollee's signature and legal name (e.g., social security card or credit card).

An access code is assigned by BAR and is unique to each licensed inspector. If, at the time of enrollment, the biometric system is unable to collect sufficient data necessary to create a uniquely identifiable profile from both hands, BAR shall allow access to the BAR-97 EIS or BAR-OIS using a BAR assigned access code. In such cases, each inspector must maintain the security of his or her access code. Disclosure of one's access code or use of another inspector's access code or license information is prohibited and such conduct will result in disciplinary action. If the security of your access code has been compromised, or you suspect another person is using your access code, you must contact your local BAR field office immediately.

1.1.1 Vehicle Identification Information

Inspectors must follow the EIS or OIS prompts to input the vehicle identification number (VIN), license plate number, and odometer reading. Typically, the remaining vehicle information populates via the Vehicle Information Database (VID) and/or the EIS Vehicle Look-Up Table. The chart on the next page provides details for entering vehicle information.

No person shall enter any vehicle identification information for any vehicle other than the one being tested. Nor shall any person knowingly enter any false information about the vehicle being tested.

- The bar code scanner must be used as the first method of entry. Manual entry must only be used in cases where the vehicle is not equipped with a bar code or the bar code is illegible, and the registration documents are unavailable or do not include a bar code. In these cases, you may proceed with the inspection and manually enter the vehicle identification information, as needed.
- When using the vehicle registration documents to scan vehicle information, you must first verify the VIN shown on the registration document matches the VIN on the vehicle. If the VIN does **not** match, the inspector shall use the VIN affixed to the vehicle and inform the customer of the mismatch and that it may cause the Department of Motor Vehicles (DMV) not to accept the test results.
- If VID communication failure occurs on the EIS, the inspector must enter all applicable information. However, for a California registered vehicle, inspectors must first verify that the VIN and license plate entries are correct, and check that the EIS is properly connected to the VID. If VIN and plate entries are correct, and communication failure continues, complete the inspection as prompted by the EIS. In these cases, DMV may request a copy of the VIR as proof of certification. Advise the motorist to retain a copy of the VIR throughout the registration process.
- The EIS and OIS will not function without a continuous Internet connection to the VID. Anytime the OIS fails to communicate with the VID, the problem must be fixed before performing an inspection.

- When inspecting a government fleet vehicle, enter the “Government Fleet BAR file number.” Get this number from the government fleet.

Accuracy is critical to ensure the appropriate test sequences and standards are applied. For all inspections, inspectors must verify that all vehicle information is complete and correct. If not, inspectors must make the necessary corrections.

Each inspector is responsible for the accuracy of the test. Once a certificate is issued it is impossible to void that certificate.

BAR-97/OIS Entries
Vehicle Identification Number
License Plate Number (If no plate, enter “NONE”) ⁷
Current Odometer Reading ⁸
Exhaust Configuration, when prompted (Single or Dual) - <i>BAR-97 only</i>
Model-Year
Vehicle Type Code (PC, TRK, MH, GOV, PFR) - <i>BAR-97 only</i>
Government Fleet BAR File number
Gross Vehicle Weight Rating (See section 1.7.1 for more information)
Vehicle Make
Body Type - <i>BAR-97 only</i>
Vehicle Model Name
Number of Cylinders - <i>BAR-97 only</i>
Engine Size - <i>BAR-97 only</i>
Transmission Type - <i>BAR-97 only</i>
Certification Type; (CA, FED, Referee)
BAR Referee Label Number ⁹
Fuel Type ¹⁰
Engine Make (Motor Homes, Referee) - <i>BAR-97 only</i>
Engine Year (Motor Homes, Referee) - <i>BAR-97 only</i>

Note: Inspectors must verify all applicable entries are complete and accurate and, if not, make the necessary corrections. If an error is found after changes no longer can be made, abort the inspection and start over using the correct information.

⁷ For government vehicles do not enter “E” preceding the plate number; enter the last 7 digits.

⁸ Enter the odometer reading as displayed. Do not attempt to estimate vehicle mileage or convert from kilometers to miles. If the odometer is missing or illegible, enter “None.”

⁹ For the purposes of a Smog Check inspection, the BAR Referee Label provides the certification type and emission control requirements for kit cars – Specially Constructed (SPCNS) vehicles, grey market vehicles, and vehicles with engine changes. When inspecting a vehicle equipped with a Referee label, enter “R” for vehicle certification type. Do not inspect SPCNS, grey market vehicles or vehicles with an engine change unless equipped with a BAR Referee Label.

¹⁰ Inspect a dual/bi-fuel vehicle using the fuel in which the vehicle was operating on when it arrived at the station.

1.2.0 Before Test Conditions

Before the tailpipe emissions inspection an inspector must:

- Check that there are no obvious safety hazards. Inspectors may reject a vehicle from testing that is unsafe to test. For more information, see section 1.2.3.
- Verify the vehicle is warmed up to normal operating temperature. If the vehicle is not at normal operating temperature, the vehicle may either be idled (low idle) or driven normally as necessary to achieve normal operating temperature. Normal operating temperature may be confirmed in one of the following ways:
 - The coolant temperature gauge shows normal operating temperature;
 - The upper and lower radiator hoses are hot and appropriately pressurized; and/or
 - When applicable, the electric cooling fan cycles on at idle.

Once at normal operating temperature, continuously operate the engine at low idle for at least 3 minutes immediately prior to the tailpipe emissions inspection.

Inspectors shall not attempt to superheat the catalyst. Do not increase the engine RPM or load during the 3-minute idle period or during the tailpipe emissions inspection sequences except as necessary to perform the initial visible smoke snap test as described in Appendix A. Any methods used to artificially increase catalyst temperature are prohibited.

- Turn off all vehicle accessories.
- (TSI only) Place the transmission in neutral or park, with the parking brake on and/or wheel chocks in place.
- (ASM only) Verify the vehicle can be tested on a dynamometer. See section 1.2.1 for incompatible examples.
- (ASM only) Verify that the tires are dry, inflated to proper pressure, and in a safe condition. If necessary, complete the tire drying sequence as prompted by the EIS.
- (ASM only) Disable traction control, when applicable.
- (ASM only) To prevent damage, verify that the vehicle safely fits on the dynamometer, and is compatible for operation on a 2WD dynamometer. Place the vehicle's drive wheels on the dynamometer. Vehicles that do not fit into your building or testing area must be returned to the customer for inspection at another station.
- (ASM only) Verify that the vehicle is restrained in accordance with the EIS manufacturer standards, and wheel chocks are in place.

- (ASM only) Verify that the vehicle cooling fan is positioned correctly. The fan must be used when the ambient temperature reaches 72° or above.
- As prompted by the EIS, connect or place the RPM pick-up device.
- As prompted by the EIS, insert the sample probe in the tailpipe.
- (ASM only) Lower the vehicle hood during the emissions test.

1.2.1 Acceleration Simulation Mode (ASM) Emission Inspection

Vehicle model-years 1976 - 1999 that are registered in the Enhanced Program area require an ASM inspection; excluding motorhomes and heavy-duty vehicles meeting certain conditions. See examples below.

The ASM emission inspection includes two loaded mode sequences known as the 50/15 test and the 25/25 test.

Inspectors must ensure that all the applicable before-test-conditions specified in section 1.2.0 are met before beginning the ASM inspection. **Once the applicable before-test-conditions are met, follow the EIS prompts to conduct the ASM inspection.**

CAUTION! Be aware that some vehicle designs are incompatible with a two wheel drive (2WD) dynamometer. Any attempt to operate such vehicles on a 2WD dynamometer could cause injury and/or may damage the vehicle. If the vehicle is not compatible with the ASM inspection, then a TSI inspection shall be performed.

The following are examples of vehicle designs that are not compatible with the ASM test and therefore must receive the two-speed-idle test:

- Full-time all wheel or four wheel drive;
- Traction control that cannot be disabled;
- Body or chassis modifications made for business purposes that make the vehicle incompatible with loaded mode testing;
- Unable to safely fit on the dynamometer;
- Motorhomes as classified by the Department of Motor Vehicles over 8,500 GVWR;
- Heavy duty vehicles with GVWR between 8,501 and 9,999 and with an unloaded drive axle weight over 5,000 pounds.
- Heavy duty vehicles with GVWR over 9,999.

Notes: For the purposes of a Smog Check inspection, the term “unloaded” shall mean that the vehicle is not currently transporting loads for delivery or is not carrying items of a temporary nature (bricks, sand, lumber, etc.). The GVWR includes items that have been welded, bolted or otherwise permanently affixed to the vehicle, and tools, supplies, parts, hardware, equipment or devices of a similar nature that are routinely carried in or on the vehicle in the performance of the work for which the vehicle is primarily used. **To ensure the appropriate test and emission standards are applied, always follow the EIS prompts.**

ASM Gear Selection:

- **Automatic transmission** – Conduct the ASM test in the gear selector’s normal/default driving position. Do not use any alternative driving modes, e.g., “towing mode”, “low traction”, “performance”, or “sport.”
- **Manual transmission** – Conduct the ASM test for both modes of the test in second gear. Only select higher or lower gears to maintain the EIS specified RPM range.

1.2.2 Two Speed Idle Inspection (TSI)

The TSI inspection is only required in Basic and Change of Ownership Smog Check Program Areas and in Enhanced Smog Check Program Areas for vehicles that are incompatible with the ASM inspection.

The TSI inspection includes two test sequences; a 2500 RPM test and an idle test.

Inspectors must ensure that the applicable before-test-conditions specified in section 1.2.0 are met before beginning the TSI inspection. **Once the applicable before-test-conditions are met, follow the EIS prompts to conduct the TSI inspection.**

- The 2500 RPM test is first and runs for 30 seconds. Follow the EIS prompts to complete the 2500 RPM test.
- Upon completion of the 2500 RPM test, the EIS will transition to the idle test. Return the throttle to idle and complete the idle test as prompted by the EIS.
- The EIS may prompt special test sequences for vehicles with known test incompatibilities. These special test sequences accommodate unique vehicle designs and must be followed exactly. **Not following the sequence could result in vehicle damage.**
- Inspectors shall not artificially load the engine to achieve a testable idle RPM. This includes, but is not limited to, putting vehicle into gear and turning accessories on.

Note: If the vehicle fails the TSI emissions test, the EIS will automatically prompt for an additional conditioning procedure, and then transition to a second chance emissions test.

1.2.3 Emission Test Abort Conditions (ASM/TSI)

If an inspector determines the vehicle is unsafe, unfit, or incompatible with the tailpipe emissions inspection, they shall reject the vehicle from the inspection, or if the inspection has started, abort the inspection. Examples of unsafe, unfit, and incompatible conditions include, but are not limited to:

- Unsafe - gasoline leaks, large coolant leaks, faulty brakes, tire failure;
- Unfit - low oil pressure, overheating, idle RPM outside of required limits;
- Incompatible - traction control will not disengage.

The EIS will automatically abort the inspection for the following reasons:

- Test equipment failure;
- Test equipment power loss;
- The ASM test has been restarted more than twice; or
- Vehicle unable to achieve the required ASM speed.

In the case of an inspection abort, the EIS will display a list of abort codes. Select the code(s) that best describes cause of the inspection abort.

If “OTHER” is used as the reason for abort, the inspector must document the specific reason(s) for the aborted inspection on all copies of the Vehicle Inspection Report.

1.2.4 Exhaust Dilution/Sample Dilution

Sample dilution can be caused by an exhaust leak, but does not necessarily require exhaust system repair to inspect the vehicle.

- A Smog Check inspection is not intended to sell exhaust work on a testable vehicle. Of course, any time an inspector finds a potential safety hazard, such as an exhaust leak, the inspector should notify the customer and note the problem on all copies of the repair order.
- If there is an opening in the exhaust system that will allow the inspector to safely insert the probe properly without causing damage to the vehicle, the inspector may use it to obtain the sample **as long as the opening is downstream of all emission control components** (such as a catalytic converter).

Visual Inspection

1.3.0 Visual Inspection

Inspectors shall conduct the visual inspection in accordance with the inspection procedures described in this manual and as prompted by the EIS or OIS. No person shall enter any false emission control system information for the vehicle being tested. Nor shall any person enter any emission control information for any vehicle other than the one being tested. The visual inspection also includes a Liquid Fuel Leak inspection and Visible Smoke Test. (see sections 1.3.3 and 1.3.4.)

1.3.1 Visual Inspection Procedures

Vehicle Emission Control Requirements: Inspectors must use all available information necessary to determine the vehicle's emission control requirements, including but not limited to:

- the underhood emission control label (see section 1.3.2);
- a current emission control application guide;
- emission control repair manuals;
- emission component location guides;
- manufacturer emission control recalls;
- vacuum hose routing diagrams;
- California Air Resources Board (CARB) aftermarket parts listings;
- the aftermarket part label (see section 1.3.2);
- and any reliable vehicle manufacturer sources.

Note: Some diesel-powered vehicles are equipped with a second or additional emission control label affixed to the engine.

Pass/Fail Criteria: To pass inspection, the required emission control system(s) must be complete and installed in accordance with the vehicle manufacturer's original California or Federal certified configuration, or, when applicable, in accordance with a CARB aftermarket configuration. If any required emission control systems are found to be tampered or defective, the vehicle shall fail the inspection. For tampered and defective definitions, see section 1.3.5.

If a vehicle is equipped with parts that modify the original emission control configuration, inspectors must verify whether those parts are CARB approved or exempted. If the installed parts are not CARB approved or exempted, and the original emissions control configuration has been modified, the corresponding emission controls are considered "Modified" and the vehicle shall fail the inspection. For more information regarding verification of aftermarket parts, see Appendix C.

Not all aftermarket parts modify the original emission control configuration, and therefore do not require CARB approval. For more information, see the "Aftermarket Parts Verification Guidelines", located in Appendix C.

To verify CARB approval, inspectors must check the Aftermarket Parts Label affixed either directly to the part or near the part. This label contains a CARB Executive Order (EO) number that can be used to verify approval. Using the EO number, reference the CARB EO parts listings and/or part manufacturer catalog to verify approval. The CARB EO parts listings contain information about parts with CARB EO numbers, the part manufacturers and the applicable vehicles on which the parts can be installed. The CARB EO part listings and information about catalytic converters can be found on the CARB website: www.arb.ca.gov. Inspectors may also contact ARB at (800) 242-4450 if they need additional information. The CARB aftermarket parts listings may also provide information about modifications that are necessary and acceptable for installation of a particular part, kit or system.

Inspection: Inspectors must inspect all of the following emission control systems, as applicable to the vehicle being tested, and enter the inspection results as prompted by the EIS or OIS. Inspectors are prohibited from entering “Not Applicable” for an emission control system that is in fact required for the vehicle undergoing inspection.

Check that each system is complete and installed per the vehicle manufacturer’s original configuration or, when applicable, a CARB approved aftermarket configuration. The inspection shall include, but is not limited to any required: component, computer, hose, module, motor, pump, seal, sensor, solenoid, switch, servo, transducer, tube, valve, and wire.

Emission Control Systems
<p>Crankcase Emission Controls</p> <ul style="list-style-type: none"> ➤ Positive Crankcase Ventilation (PCV) – Gasoline/Diesel ➤ Crankcase Depression Regulator (CDR) – Diesel ➤ Crankcase Ventilation (CCV) – Diesel ➤ Any other crankcase control system
<p>Thermostatic Air Cleaner (TAC/ACL) – Gasoline</p>
<p>Fuel Evaporative System (EVAP) – Gasoline Inspectors are not required to perform disassembly of the vehicle to inspect the fuel evaporative system. Visual inspection of the fuel cap is considered part of the Fuel Cap Integrity Test detailed in Section 1.4.5, and therefore is not required on 1996 and newer model year vehicles.</p>
<p>Exhaust Gas After-Treatment System</p> <ul style="list-style-type: none"> ➤ Catalytic Converter(s) – Gasoline/Diesel ➤ Diesel Oxidation Catalyst (DOC or OC) – Diesel ➤ NOx Adsorber – Diesel ➤ Periodic Trap Oxidizer (PTOX) – Diesel ➤ Diesel Particulate Filter(s) (DPF) – Diesel ➤ Selective Catalytic Reduction (SCR) – Diesel ➤ Any other exhaust gas after-treatment system <p>Catalysts, filters and traps must be in original configuration with the same number of catalysts, filters and traps in place, unless changes are acceptable as part of a CARB EO approval/exemption.</p>

Emission Control Systems

Exhaust Gas Recirculation (EGR) – Gasoline/Diesel

Ignition Spark Controls (SPK) – Gasoline

Ignition spark controls are mechanical or electronic devices, mechanisms or systems that control ignition timing. All computer controlled vehicles are equipped with spark controls.

Fuel Metering System – Gasoline/Diesel

Carburetion and Fuel Injection

Inspection includes: Air Flow Meters, Injectors, Throttle Bodies, Throttle Positioners, Anti-“Dieseling” Solenoids, Early Fuel Evaporative, Choke Controls, Deceleration Controls, and Dashpots.

Air Injection System – Gasoline

Computers, Sensors, and Switches (Computer-controlled vehicles only) – Gasoline/Diesel

Examples include: pressure, temperature, and oxygen sensors.

Other Emission Related Components/System

The Other Emissions Related Components category encompasses emission control systems that are required by the vehicle manufacturer but not otherwise addressed in the visual inspection menu. Other Emission Related Components include, but are not limited to:

- *Add-On Aftermarket Parts*
- *Cylinder Heads*
- *Exhaust Manifolds*
- *Intake Manifolds*
- *Superchargers*
- *Thermal Reactors*
- *Timing Gears and Pulleys*
- *Turbochargers*
- *Ozone Reducing Radiators*

If a vehicle fails the Other Emissions Related Components category of the visual inspection, inspectors must document on the VIR what emissions system failed.

Note: For BAR-97 only the Other Emissions Related Components field is also used to capture failed test results for the Visible Smoke Test. For more information, see section 1.3.4.

1.3.2 Emission Control System Labels

Underhood Emission Control Label: Each vehicle's underhood emission control label serves as the primary source for emissions control requirements and to indicate the vehicle's certification type (California and Federal). It is important to review emission control components on this label, since emission control system technology changes and varies between vehicle manufacturers. A missing or illegible emission control label does not constitute an inspection failure. In cases where the emission control label is missing or illegible, the inspector may proceed with the inspection provided that the required emission controls can be determined using other sources as described in section 1.3.1. Note: Some diesel-powered vehicles are equipped with a second or additional emission control label affixed to the engine.

BAR Referee Label: When inspecting a SPCNS, grey market vehicle, vehicle with an engine change, or vehicle with a fuel conversion change look for a BAR Referee Label. The BAR Referee Label serves as the primary emission control information source for these vehicles. If a BAR Referee Label is not present, inform the customer to contact the BAR Referee for inspection information. When equipped with a BAR Referee Label, these vehicles may be inspected and certified by a licensed Smog Check station. Inspectors must inspect the vehicle using the emission control requirements listed on the BAR Referee label.

BAR Referee Labels are typically affixed to the driver's side door post or, in some cases, located under the hood. In some cases, the BAR Referee Label may provide special or additional instructions. An SPCN, gray market, or vehicle with an engine change without a BAR Referee Label must be first inspected at the Referee.

Aftermarket Parts Label: CARB approved or exempted parts are subject to CARB aftermarket parts labeling requirements. These requirements specify that Aftermarket Parts Labels (APL) must be affixed or stamped on approved/exempted parts or, if not practical, installed near the approved/exempted parts. The labels are required to contain an EO number that can be used to verify CARB approval or exemption, as outlined in section 1.3.1. Note: A missing or illegible APL does not constitute an inspection failure. In cases where the label is missing or illegible, the inspector may proceed with the inspection, provided the parts can be confirmed as CARB approved or exempted by comparing the part number marked on the part with the CARB EO parts listings or the parts manufacturer catalog.

1.3.3 Liquid Fuel Leak Inspection (Gasoline Only)

The liquid fuel leak inspection shall be conducted with the engine running. **Use extreme caution when working around moving parts and ensure the transmission is in "park" or "neutral" with the parking brake on.**

Definition: For the purpose of conducting this inspection, a "liquid fuel leak" is defined as any fuel coming from a vehicle's fuel delivery, metering, or evaporative systems, (1) in liquid form that has created a visible drop of fuel (or more) on a component of a vehicle's fuel delivery, metering or evaporative system, or (2) has created a fuel puddle on, around, or under a component of a vehicle's fuel delivery, metering, or evaporative system.

Inspection: With the engine running, the inspector shall visually inspect the following components of the vehicle, if they are exposed and visually accessible, for liquid fuel leaks:

- Gasoline fuel tanks
- Carburetors
- Fuel injectors
- Gasoline fill pipes – associated hoses, tanks, connections
- Gas caps
- Fuel pressure regulators
- External fuel pump
- Charcoal canisters
- Fuel delivery and return lines
- Any valves connected to any other fuel evaporative component
- Fuel vapor hoses
- Fuel Filters

For gasoline-powered hybrid vehicles and those vehicles with stop-start systems, the inspector shall visually inspect for liquid fuel leaks with the vehicle in the key on, engine off (KOEO) position or “Ready” state (so that the vehicle’s fuel system is at its operating pressure).

Pass/Fail Criteria: If no liquid leak is found, the vehicle shall pass inspection and the inspector shall enter “P” (pass) in the EIS or OIS “Fuel Leaks” prompt. If a liquid fuel leak is detected, the vehicle shall fail inspection and inspector shall enter “F” (defective) in the EIS or OIS “Fuel Leaks” prompt. Inspectors must indicate on the vehicle inspection report (VIR) the location of any liquid fuel leak.

The liquid fuel leak procedure is a visual inspection only. Inspectors are not required to perform disassembly of the vehicle to inspect for liquid fuel leaks. No special tools or equipment, other than a flashlight and mirror, are required and no raising, hoisting, or lifting of the vehicle is required.

An inspector shall refuse to inspect or abort an inspection if a liquid fuel leak presents a safety hazard.

The liquid fuel leak shall not apply to vehicles fueled exclusively by diesel, compressed natural gas (CNG), liquefied natural gas (LNG) or liquefied petroleum gas (LPG).

1.3.4 Visible Smoke Test

Gasoline and diesel vehicles, excluding hybrids, which are subject to a Smog Check inspection, must be tested for visible smoke. Other than the time when the snaps are performed and the EIS/ OIS data entry prompts, the Visible Smoke Test procedures are the same for gasoline and diesel vehicles. However, the pass/fail standards are different. The full procedures are located in Appendix A (Gasoline) and Appendix B (Diesel).

Summary of Test Procedures:

- Idle Test - Observe the tailpipe exhaust plume of the vehicle for 10 seconds.
- Crankcase Test - Observe the engine crankcase for 10 seconds.
- BAR Snap Test - Quickly push-and-release the accelerator pedal from idle position to between 2,000 and 3,000 RPM, then immediately allow the engine to return to idle.
- Enter the test result into the EIS or OIS.
- Document any failure on the Vehicle Inspection Report, and the customer’s invoice.

1.3.5 Visual Inspection Result Definitions

Tampered

An emissions control system or component that is missing, modified, or disconnected.

Reference: California Code of Regulations (CCR) § 3340.41.5

Missing

All or part of an emissions control system or component which has been removed from the vehicle or engine.

Reference: CCR § 3340.41.5 (a)

Modified

- An emission control system or component has been modified if:
- It has been disabled even though it is present and properly connected to the engine and/or vehicle;
- It has been replaced with a component not marketed by its manufacturer for street use on the vehicle;
- An emissions related component of the system has been changed such that there is no capacity for connection with or operation of other emissions control components or systems.

Reference: CCR § 3340.41.5 (b)

Disconnected

Any hose, wire, belt or component, which is required for the operation of the emission control system is present, but has been disconnected.

Reference: CCR § 3340.41.5 (c)

Defective

Any normal wear, deterioration, or unintentional disturbance that will affect the operation of an emissions control component or system. It is not a condition that occurs as a result of tampering. An unintentional disturbance includes, but is not limited to, a hose, wire, cap, or thermal valve or switch, disturbed and not reconnected or corrected when the vehicle was serviced.

Not Applicable

This entry may only be used when the vehicle is not originally equipped with the particular emissions control component being inspected, or when a particular test cannot be performed due to vehicle incompatibility with inspection equipment. For example, a vehicle did not originally come with an EGR valve from the factory, or a fuel cap adapter does not exist for the vehicle.

Emission Control Functional Tests

1.4.0 Functional Test Application

Inspectors shall complete the functional tests in accordance with the inspection procedures described in this manual and as prompted by the EIS or OIS. Inspectors shall not falsely enter “Not Applicable,” “No,” or otherwise skip a functional test required for the vehicle being tested.

All stations (including Test-Only stations) must follow the procedures specified by the vehicle manufacturer necessary to perform required Smog Check functional tests. Example: To check the base ignition timing, an underhood emission control label specifies that the engine speed must be set (raised) to 1000 RPM and then returned to 700 RPM upon completion.

1.4.2 Malfunction Indicator Light (OBD I and OBD II)

When applicable, the malfunction indicator light (MIL), or “Check Engine Light”, shall be checked on all vehicles equipped with either a first generation (OBD I) or second generation (OBD II) on-board diagnostics system. Enter “N” when not applicable.

To check MIL function, the inspector shall turn the ignition to the “key on engine off” (KOEO) position, observe the MIL operation and then start the engine “key on engine running” (KOER). The MIL should illuminate in the KOEO position and extinguish when the engine is started and in the KOER position. A brief period of illumination during start up is normal. Always follow the EIS or OIS prompts to enter test results.

Pass/Fail Criteria:

- A “Pass” entry indicates that the MIL properly operates, and service or repairs are not needed.
- A “Fail” entry indicates that the MIL does not illuminate at all in the KOEO position, or the MIL illuminates continuously or flashes with the engine running during the functional test of the MIL.

The KOEO/KOER procedures may vary for keyless ignition systems and some conventional key systems. In these cases, use the vehicle manufacturer procedure to complete the “KOEO/KOER” sequences.

Note: Maintenance reminders are not part of the Smog Check inspection. Do not confuse a maintenance reminder, based on time and mileage, with the MIL.

1.4.3 OBD II Functional Test

Vehicles without an OBD II system, as determined by the underhood emission control label, shall not receive an OBD II functional test. Most vehicles with a GVWR greater than 14,000 lbs. are not equipped with an OBD II system.

The OBD II functional test evaluates and reports the status and/or results of the readiness indicators, system faults, and MIL.

- Inspectors must use all available information necessary to determine the vehicle’s OBD II requirements, including but not limited to, the underhood emission control label (see section 1.3.2), a current emission control application guide, emission control repair manuals, emission component location guides, manufacturer emission control recalls, BAR OBD technical advisements, and any reliable vehicle manufacturer sources.

- Follow the EIS or OIS test prompts to connect the EIS or OIS test lead to the Diagnostic Link Connector (DLC).

DLC Location: Most DLCs are located on the dashboard between the driver's side of the instrument panel and the middle of the passenger side. Some manufacturers, however, chose other locations. If you are unable to find the DLC, refer to the appropriate electronic component location manual or emission control diagnostic and repair manual. The DLC provides an RPM signal that in most cases can be used during Smog Check emissions test sequences.

Pass/Fail Criteria: The EIS or OIS may include an assessment of the OBD II system's ability to communicate, the readiness of system monitors, diagnostic trouble codes, vehicle identification, existence of system modifications and the MIL command status.

1.4.4 Ignition Timing Test

The Ignition Timing Test applies to 1976 to 1995 model-year vehicles equipped with adjustable timing. If the underhood emissions control label, an emissions application guide, or other reliable manufacturer derived references indicates timing is not adjustable, then the Ignition Timing Test is not required.

Inspectors shall check the base ignition timing using the vehicle manufacturer procedures. Many underhood emission control labels provide procedures and specifications for checking the ignition timing. If the procedures are not on the label, refer to an emission control application guide or an appropriate service manual. If no manufacturer's engine speed tolerance is given for the timing check, the idle speed shall be within 100 RPM of the manufacturer's specified idle speed

Pass/Fail Criteria: To pass inspection, the base ignition timing must be within 3 degrees (± 3 degrees) of the manufacturer specification. If it is more than 3 degrees from manufacturer specification, the vehicle shall fail the functional test. Note: If the manufacturer specification provides a range, the 3 degree additional tolerance described above is not allowed.

Mechanical Defect(s): If the timing cannot be measured due to a mechanical defect, such as a slipped harmonic balancer, the vehicle shall fail the timing test. The EIS includes a provision to account for mechanical defect. Follow the EIS prompts and document the mechanical defect on the Vehicle Inspection Report.

1.4.5 EGR System Functional Test

All 1995 model-year and older vehicles equipped with EGR and subject to a two-speed idle test shall undergo the EGR functional test.

Inspectors must follow the functional test procedures prescribed by the vehicle manufacturer.

1.4.6 Fuel Cap Integrity Test

As prompted by EIS, perform the fuel cap integrity test on all 1976 to 1995 vehicles, equipped with evaporative controls that can operate on gasoline, including dual/bi-fueled vehicles.

The fuel cap integrity test is a two part test.

Visual inspection: As prompted by the EIS, inspect the fuel cap(s) for proper fit and installation. The inspection result entries are “P” for Pass, “F” for Fail and “S” for Missing. If the fuel cap threads are stripped or the fuel cap seal is missing or damaged, or the fuel cap is not designed for the vehicle, the fuel cap shall fail the visual inspection.

Functional check: This check applies only to vehicles equipped with evaporative emission control systems. Check the fuel cap tester application manual to determine the correct cap adapter. Following the EIS and cap tester prompts, attach the fuel cap(s) to the adapter and perform the test. The test results are automatically captured by the EIS. If no adapter is available from the tester manufacturer (for the vehicle being tested), enter “No adapter available” as prompted by the EIS. For vehicles newer than 1995 do not perform the functional test, enter “No Adapter is available” as prompted by the EIS.

Fill Pipe Restrictor Functional Test – REPEALED (MARCH 2015)

The fill pipe restrictor test no longer applies. The EIS may prompt for the fill pipe restrictor test for vehicles undergoing an initial Smog Check inspection. If so, enter “N” into the EIS fill pipe test prompt.

1.4.7 Low Pressure Fuel Evaporative Test

Test Application: The Low Pressure Fuel Evaporative Test (LPFET) shall be performed on all 1976-1995 model-year vehicles (based on chassis model year) with the exception of the following:

- Vehicles not originally equipped, and not required by state or federal law to be equipped, with a fuel evaporative control system;
- Vehicles with two or more fully operational fuel tanks;
- Vehicles powered exclusively by diesel, compressed natural gas (CNG), liquefied natural gas (LNG), or liquefied petroleum gas (LPG);
- Vehicles for which there are no fuel LPFET filler neck adapters;
- Vehicles in their original factory configuration, with a fuel evaporative canister and fuel vapor hoses that are not accessible or would require the partial dismantling of the vehicle in order to gain access to them for testing. The inspector shall note the vehicle’s canister location on the Vehicle Inspection Report for these vehicles.
- Vehicles with single fuel tanks greater than 50 gallon capacity.

Inspectors shall enter “N” at the EIS Fuel Evaporative Test prompt when inspecting any of the vehicles listed above.

Inspection: Smog Check stations and Smog Check inspectors shall perform the low pressure test of a vehicle's fuel evaporative systems, using a BAR certified low pressure fuel evaporative tester (LPFET). The test shall be performed in accordance with the test procedures and specifications contained in the LPFET instruction manual provided by the tester manufacturer, and the following, as applicable:

- If components related to the vehicle's fuel evaporative system *tank side* are missing, modified, disconnected, or defective enter "N" (not applicable) at the EIS Low Pressure Fuel Evaporative Test prompt. If the vehicle's *tank side* fuel evaporative system components are not missing, modified, disconnected, or defective proceed with the test. *Tank side* means the portion of the fuel evaporative system between the canister pinch or seal point and the fuel tank filler neck. (*Tank side* visual inspection failures can affect the LPFET. Therefore, in cases where a *tank side* visual inspection failure exists, the LPFET does not apply). Note: Evaporative system visual inspection results must be entered at the EIS Evaporative System Visual Inspection prompt; see section 1.3.1.
- At the conclusion of the test, the LPFET displays a P (pass), enter P in the EIS at the Fuel Evaporative Test prompt.
- At the conclusion of the test, the LPFET displays an F (fail), perform a seal check in accordance with the procedures and specifications contained in the LPFET instruction manual provided by the tester manufacturers.
 - If, after completion of the appropriate seal check, the system is found to be properly sealed, enter F (fail) in the EIS at the Fuel Evaporative Test prompt.
 - If, after completion of the appropriate seal check, the system is found not to be properly sealed follow the applicable procedures and specifications contained in the LPFET instruction manual provided by the tester manufacturers to correct the leaks and effect proper seals.
- After all leaks have been corrected, a verification test shall be performed in accordance with the procedures and specifications contained in the LPFET instruction manual provided by the tester manufacturers.
 - If, at the conclusion of the verification test, the LPFET displays a P (pass), enter P in the EIS at the Fuel Evaporative Test prompt.
 - If, at the conclusion of the verification test the LPFET displays an F (fail), enter F in the EIS at the Fuel Evaporative Test prompt.

Depressurization: At the completion of the test and any necessary verification test, follow the procedures and specifications contained in the manufacturer's LPFET instruction manual, to depressurize the evaporative system, remove the tester and return the fuel evaporative system to its original configuration.

Nothing in the LPFET procedures shall excuse a station or an inspector from completing the Visual Inspection described in section 1.3.0 or the Liquid Fuel Leak inspection described in section 1.3.3.

Smog Check Inspection Results

1.5.0 Vehicle Inspection Report

Print at least two copies of the Vehicle Inspection Reports (VIR) for each Smog Check inspection. The licensed station shall give a copy of the VIR to the customer and keep a copy for the station's records. The VIR shall be attached to the customer's invoice.

- If the EIS or OIS does not print the VIR, the station will need to correct the malfunction and reprint the VIR.
- The licensed inspector must sign all copies of the VIR acknowledging that the inspection was conducted in accordance with all Smog Check requirements and that the information on the VIR is true and correct.
- When applicable, inspectors must document special circumstances on the VIR, including, but not limited to:
 - The location of a Liquid Fuel Leak
 - The emissions system or component that failed the "Other Emissions Related Component" category of the visual inspection
 - The reason for an "Other" inspection abort
 - The type of visible smoke test failure (tailpipe or crankcase)
 - CARB approved aftermarket parts and associated EO number

1.5.2 Vehicle Passes Smog Check

The EIS or OIS will issue a certificate of compliance when a vehicle passes all applicable portions of a Smog Check inspection. The certificate of compliance will electronically transmit to DMV and record in the VID.

Inform customers, whose vehicles pass their Smog Check inspection, that they must follow the instructions on the DMV paperwork they received to complete their registration renewal.

If the DMV paperwork has been lost or misplaced, inform the customer to contact the DMV Telephone Service Center at 1-800-777-0133.

1.5.3 Vehicle Fails Smog Check

A vehicle that fails any portion of the Smog Check inspection, but does not exceed the gross polluter emission standards, can be repaired and obtain a Smog Check certificate at any Test and Repair station. However, if the vehicle was originally *directed* (as shown on the DMV registration renewal notice), or exceeded the gross polluter standards, it may only receive after repair certification from a STAR Certified station or a BAR Referee.

Repair Data

1.6.0 Repair Information Entry

All repairs performed before, during, or after the Smog Check inspection at any station must be entered into the EIS or OIS, including any state subsidized repair, like the Consumer Assistance Program (CAP).

As applicable, inspectors shall enter accurate repair information as prompted by the EIS or OIS in either the Smog Check Inspection Mode or the Repair-Only Menu. If the retest is performed at your station, enter the repair information during the retest Smog Check inspection, as prompted. If the retest will not be conducted at your station, use the Repair-Only Menu to enter the repair information. Note: Accurate repair data provides a valuable source of information that can be used by other stations and that BAR uses for program evaluation.

Repair Costs

As prompted by the EIS or OIS, enter the repair parts and labor costs in whole dollars (no cents); round up or down to the nearest dollar.

For customer paid costs, enter all parts and labor charges, including any customer co-payments made for state subsidized repairs, tax and diagnosis costs.

For state subsidized repairs, enter all parts and labor costs to be paid by state, including tax and diagnosis costs.

Miscellaneous

1.7.0 Test Restrictions for Directed Vehicles

Directed Vehicles - Before conducting an inspection, stations not authorized to certify *directed* vehicles must check the DMV registration documents (when available) for a STAR station directed designation. If the vehicle is *directed*, the station/inspector shall inform the motorist of this certification restriction. *Directed vehicles* can only receive certification from a STAR certified Test-Only station, a STAR certified Test and Repair station, or BAR Referee station.

Gross Polluters - Vehicles found to exceed the gross polluter emission standards (*identified gross polluters*) are also restricted to certification from a STAR certified Test-Only station, a STAR certified Test and Repair station, or BAR Referee station. Stations not authorized to certify *identified gross polluters* shall inform the motorist of this certification restriction. Since the gross polluting vehicle certification restriction does not apply to government fleet vehicles, any station may inspect government fleet vehicles.

Note: When attempting to inspect a *directed vehicle* or an *identified gross polluter* at a station that is not authorized to certify *directed vehicles* or *identified gross polluters*, the EIS or OIS will prohibit the inspection, provided VID communication occurs. If VID communication does not occur, stations not authorized to certify *directed vehicles* or *identified gross polluters* must inform the customer that the vehicle could be *directed* or an *identified gross polluter* and, if so, a certificate issued by their station may be invalid.

When repairing *directed vehicles* or *identified gross polluters*, Test and Repair stations may use the EIS or OIS pre-inspection mode to verify repairs.

1.7.2 Gross Vehicle Weight Rating (GVWR) for Trucks and Motor Homes

When testing trucks and motor homes, the EIS or OIS will prompt the inspector to enter the gross vehicle weight rating (GVWR). Check the vehicle information label for the GVWR (label is typically found on driver door jamb). Note: Some labels list multiple "as equipped" GVWRs. In these cases, use the GVWR that corresponds to the vehicle as originally equipped by the vehicle manufacturer; e.g., Ford label on a Crown bus. If the GVWR cannot be determined, enter "NONE" and follow the EIS or OIS prompts to select a GVWR based on weight classification.

1.7.3 Pre-Inspection Mode

The pre-inspection mode provides an option to assess the vehicle's OBD, emission controls and tailpipe emissions before undergoing the official Smog Check inspection. The pre-inspection procedure is identical to the official Smog Check inspection except that no certificate is generated and the vehicle is not subject to the gross polluter requirements, regardless of the emissions results. Pre-inspection test results are transmitted to the vehicle information database (VID) but a certificate is not transmitted to the DMV. The station shall provide the customer a copy of the pre-inspection vehicle inspection report (VIR).

If a customer chooses to authorize a partial pre-inspection, the licensed inspector or an authorized representative of the licensed Smog Check station shall inform the motorist that the partial pre-inspection will not fully indicate the likelihood of the vehicle passing a subsequent official inspection. An example of a partial pre-inspection is using the analyzer in manual mode to check tailpipe emissions only. The limitations of a partial pre-inspection must be fully disclosed to the customer both orally and in writing on the estimate and invoice.

1.7.4 Pre-Inspection Repair

With customer authorization and an estimate provided, licensed technicians may perform repairs on vehicles before or during the Smog Check inspection. Any repair must be appropriately documented on the invoice and entered into the EIS or OIS when prompted.

Any repair conducted during the inspection shall be limited to the following: replacement of the fuel cap(s) (EIS provides a mid-inspection fuel cap replacement opportunity upon a failed cap test), minor repairs of components damaged by the station personnel during the inspection at the station, or minor repairs such as the reconnection of hoses or vacuum lines. Any repair performed during the inspection must be completed before starting the emissions test portions of the Smog Check inspection, aside from the EIS prompted fuel cap replacement provision.

1.7.5 Virtual Hands-On Inspection

BAR or its designee may remotely interrupt a BAR-97 EIS or BAR-OIS inspection and ask the user to permit access to the computer and web camera, as specified in the Required Equipment/Materials table in Section 1.8.0, to perform a virtual hands-on inspection for purposes of observing the inspection process. During the virtual hands-on inspection, BAR may record screen shots, still images, video, text chat, and audio.

Equipment and Reference Material Requirements

1.8.0 Equipment and Reference Materials

STAR certified stations must possess all inspection related equipment to inspect all vehicle types, including directed vehicles. These stations must also possess the tools, and reference materials for the types of vehicles being inspected and/or repaired.

Non-STAR stations are only required to possess the equipment, tools and reference materials for the types of vehicles being inspected and/or repaired at a particular station.

Inspection equipment example: If your station is not STAR certified and only inspects 2000 and newer model-year gasoline powered, diesel-powered, and/or hybrid powered vehicles, then only the OIS inspection equipment is required.

Repair equipment example: When repairing diesel vehicles, a tachometer/dwell meter, propane enrichment kit, an ignition analyzer and timing light are not required.

- A dynamometer and NOx cell / bench are required to inspect enhanced area vehicles requiring an ASM test. Stations that only inspect heavy duty vehicles or stations in Basic and Change of Ownership program areas are not required to have a dynamometer and NOx cell / bench.
- If a station lacks the equipment, tools, and reference materials necessary to inspect and/or repair a particular vehicle, the station must reject the vehicle before starting an inspection or repair.
- If, as a matter of policy, a station does not inspect certain types of vehicles and/or repair certain types of inspection failures, the station must reject the vehicle before starting an inspection or repair.
- All station types must possess equipment in accordance with the “Equipment and Reference Material Requirements” table. Additional equipment may be required to inspect and/or repair certain vehicles in accordance with accepted trade standards.
- Reference materials may be in electronic or hardcopy format and must be provided in hardcopy format to BAR upon request.

Required Equipment/Materials	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.	✓	11	✓	11	
OBID Inspection System (OIS) with hardware and software necessary to conduct OBD inspections.	✓	12	✓	12	
BAR Certified Equipment: Data Acquisition Device (DAD) with hardware and software necessary to conduct OIS inspections.	✓	12	✓	12	
BAR Certified Equipment: Low Pressure Fuel Evaporative Tester (LPFET) and Operator’s Manual.	✓	13	✓	13	

¹¹ Required when performing a tailpipe emission inspection on vehicles.

¹² Required when performing the OBD test on model-year 2000 and newer vehicles.

¹³ Required when inspecting 1976-1995 model-year vehicles with evaporative control systems.

Required Equipment/Materials	STAR Test Only	Test Only	STAR Test and Repair	Test and Repair	Repair Only
BAR Certified Equipment: Fuel cap, tester, adapters, and adapter guide.	✓	13	✓	13	
Web Camera: For every OIS and EIS, an external web camera hardwired to the OIS computer that meets the following requirements: autofocus, automatic light correction, built-in noise canceling microphone, USB 3.0 compliant, full HD (1920 x 1080 pixels) video recording and video calling at a minimum of 30 frames per second (FPS), H.264 video compression. Note: a single USB 3.0 extension cable is permitted to extend the camera's cable up to an additional 15 feet.	✓	✓	✓	✓	
Biometric Device: For every OIS and EIS, Fujitsu palm vein scanner sensor model FAT13FPS01 with 2 meter long USB 2.0 (A) Male to (B) Micro - USB Cable.	✓	✓	✓	✓	
Ignition Timing Light capable of measuring ignition advance.	✓	14	✓	14,15	15
Hand vacuum pump and gauge	✓	16	✓	✓	✓
Tire pressure gauge	✓	✓	✓	✓	✓
Tools necessary to inspect vehicle ignition, fuel delivery, and emission control systems.	✓	✓	✓	✓	
Smog Check Manual & Reference Guide	✓	✓	✓	✓	✓
BAR ET Blasts dated after January 1, 2012, relevant to any vehicle inspection procedures.	✓	✓	✓	✓	
Emission control application guides	✓	✓	✓	✓	
Vacuum routing and electronic component location guides.	✓	✓	✓	✓	✓
Technical Service Bulletins and manufacturer recall notices.	✓	✓	✓	✓	✓

¹⁴ Required when inspecting 1976-1995 model-year vehicles with adjustable timing.

¹⁵ Required when inspecting and repairing vehicles with spark ignition engines.

¹⁶ Required when inspecting 1976-1995 model-year vehicles.

Required Equipment/Materials	STAR Test Only	Test Only	STAR Test and Repair	Test and Repair	Repair Only
Diagnostic and repair information that may be printed or electronic form and may be nationally distributed and periodically updated references that contain repair and emissions procedures.			✓	✓	✓
Diagnostic and repair tools for ignition, fuel, emission control, computer engine control systems, and other related components for each vehicle type that the station diagnoses and repairs.			✓	✓	✓
Hand tools necessary to adjust maintain and repair vehicle ignition, fuel, and emission control systems			✓	✓	✓
Compression tester			✓	✓	✓
Tachometer/dwell meter			✓	✓	15
Fuel pressure gauge			✓	✓	✓
Propane enrichment kit			✓	✓	15
An ignition analyzer or ignition oscilloscope that displays at least: primary ignition system voltage and coil oscillations, and firing voltage and spark duration of the secondary ignition system. For distributor equipped vehicles, the device shall display this information for all cylinders at the same time.			✓	✓	15
A high impedance digital volt/ohm meter, and ammeter that measures amps and milliamps.			✓	✓	✓
A device capable of retrieving vehicle computer trouble codes, with its operating instructions. This device shall display and store live streaming OBD data, and shall have bi-directional capability. Hardware and software in the device shall be updated to the current available calendar year.			✓	✓	✓
An electronic device capable of graphically displaying electrical signals, with adjustable voltage and time scales. The device shall capture and display a high frequency abnormal signal, regardless of time scale or screen refresh rate.			✓	✓	✓
An electronic device capable of accessing the BAR's Web page for the purposes of entering repair data.			✓	✓	✓

1.8.1 Required Equipment Maintenance

All required equipment shall be up-to-date, maintained in good working condition, and calibrated in accordance with the manufacturer standards and applicable BAR specifications.

The BAR-97 Emissions Inspection System (EIS) shall be maintained and calibrated per the current BAR-97 EIS Specifications. The BAR-97 EIS shall be calibrated only with BAR approved gases from a BAR certified gas vendor.

The BAR-97 EIS and the OIS shall have the most current software and hardware updates required by BAR.

Only BAR authorized representatives or authorized manufacturer representatives shall have access to the locked areas of the BAR-97 EIS or to the components or software located within the OBD Data Acquisition Device (DAD) for service, inspection, or replacement, as necessary.

The LPFET shall be maintained and calibrated per the current LPFET Specification.

1.8.2 Required Equipment Electronic Transmission

Vehicle data and test results from the BAR-97 EIS and from the OIS shall be transmitted to the Vehicle Information Database (VID) via an Internet connection.

The OIS shall be connected to BAR's Web page through an Internet connection. The Internet connection may be shared with other devices, but must remain connected at all times.

1.8.3 Required Equipment Location

The BAR-97 EIS and the OIS shall be used within a building. The BAR-97 EIS and the OIS shall not be used in an environment that would subject them to excessive heat, cold, dust, or moisture.

The LPFET may be used either within or outside a building, but shall not be stored outdoors.

APPENDIX A

Visible Smoke Test Procedures for GASOLINE powered vehicles:

Step 1 - Vehicle Preparation

- Check that there are no obvious safety hazards (abnormal engine noise, overheating, leaking fluids, etc.). Inspectors may reject a vehicle that is unsafe to test.
- Place the transmission in “Neutral” or “Park,” with the parking brake on and/or wheel chocks in place.
- Turn off all accessories (including air conditioning).
- Ensure the vehicle is at normal operating temperature.
- Position the vehicle to ensure there are no drafts that can disturb the exhaust plume.
- Ensure there is nothing in the shop environment, such as equipment or tool boxes, which prevents the inspector from clearly observing the exhaust plume. In general, this will require clearing the line-of-sight as much as 15 feet from the tailpipe(s).

Step 2 - Test Preparation and Vehicle Familiarization

- Use any means necessary to enable observation of the vehicle’s exhaust plume, including but not limited to, adjusting the seat and mirror positions.
- Perform the first of three BAR Snap Tests:
 - **Gasoline:** If using the BAR-97 EIS, the first snap shall be performed at the beginning of the inspection when the EIS screen enables you to stabilize the RPM. If using the OIS, perform the first snap when prompted.
- Ensure the vehicle’s engine RPM falls between 2,000 and 3,000 while performing the first BAR Snap Test. If it does not, you can do one of the following:
 - Press-and-release the accelerator pedal more quickly or more slowly as needed to stay within the designated RPM range; or Quickly press the pedal only part way to the floor before releasing it.
 - Do not check for smoke during the first BAR Snap Test. Any visible smoke observed during the first BAR Snap Test shall not result in a failure.

Step 3 - Perform the Idle Test

- Have the engine running at idle and go to the vehicle’s tailpipe.
- Perform the Idle Test:
 - **Gasoline:** If using the BAR-97 EIS, the idle test shall be performed immediately after performing the ASM/TSI test, if these tests are performed. If using the OIS, perform the idle test when prompted.
- Observe the tailpipe(s) exhaust plume of the vehicle for 10 seconds.

Step 4 - Perform the Crankcase (PCV) Test

- After performing the Idle Test (Step 3), continue to leave the vehicle's engine running at idle and go to the vehicle engine compartment. Open the hood to the engine compartment and determine whether any smoke is coming from the crankcase (PCV) system.
- Observe the vehicle's crankcase system for 10 seconds.

Step 5 - Complete the BAR Snap Test

- Continue to leave the vehicle's engine running at idle.
- Perform the final two BAR Snap Tests just before starting the under-hood visual inspection.
- Perform the second BAR Snap Test while watching for visible smoke.
- Return the engine to idle and wait for at least 3 seconds to allow the engine to stabilize.
- Perform the third (and final) BAR Snap Test while watching for visible smoke.

Step 6 - PASS/FAIL Determination

- **PASS** the vehicle for the Visible Smoke Test portion of the Smog Check inspection if the vehicle does not emit smoke during the Idle Test, Crankcase Test, and both of the final two BAR Snap Tests.
- **FAIL** the vehicle if:
 - There is **any** visible smoke observed during the Idle Test;
 - **OR** there is **any** visible smoke coming from the crankcase (PCV) system;
 - **OR** there is:
 - **Gasoline - any** visible smoke observed between the tailpipe and 10 feet from the tailpipe(s) on either of the final two BAR Snap Tests.
 - Smoke from any area other than the vehicle's tailpipe(s) or crankcase (PCV) system, regardless of the cause, does not constitute a failure of the Visible Smoke Test.
 - No vehicle shall be failed for condensation or steam.

Step 7 – Enter the Test Results into the EIS or OIS

- Results must be entered in the visual inspection's "Other Emission Related Controls" category on the EIS or at the "Enter Result of the Exhaust System Smoke Check" and "Enter Result of the Crankcase System Smoke Check" OIS prompts.
- For vehicles that pass all portions of the Visible Smoke Test, enter "P" (Pass).
- For vehicles that fail any portion of the Visible Smoke Test, enter "F" (Defective).

The BAR-97 EIS currently allows only one entry for the visual inspection of all components covered under the “Other Emission Related Controls” category. Therefore, if the vehicle passes all portions of the Visible Smoke Test but fails a visual check of any other component covered under the “Other Emission Related Controls” category, enter the appropriate failure code. However, if the vehicle passes the visual inspection for components covered under the “Other Emission Related Controls” category, but fails any portion of the Visible Smoke Test, enter “F” (Defective) into the EIS.

Step 8 - Documentation Provided to the Customer

If the vehicle fails the Visible Smoke Test, the inspector shall:

- Document the failure on both the customer’s and station’s copy of the Vehicle Inspection Report (VIR) in the “Other Emission Related Components” section. Make a clear notation on the VIR, such as “Failed Visible Smoke Test”. Document what portion of the Visible Smoke Test the vehicle failed, such as “Crankcase Smoke,” “Idle Smoke,” and/or “BAR Snap Smoke.”
- Document the failure on the customer’s invoice with “Failed Visible Smoke Test”. Document what portion of the Visible Smoke Test the vehicle failed, such as “Crankcase Smoke,” “Idle Smoke,” or “BAR Snap Smoke.”

APPENDIX B

Visible Smoke Test Procedures for DIESEL powered vehicles:

Step 1 - Vehicle Preparation

- Check that there are no obvious safety hazards (abnormal engine noise, overheating, leaking fluids, etc.). Inspectors may reject a vehicle that is unsafe to test.
- Place the transmission in “Neutral” or “Park,” with the parking brake on and/or wheel chocks in place.
- Turn off all accessories (including air conditioning).
- Ensure the vehicle is at normal operating temperature.
- Position the vehicle to ensure there are no drafts that can disturb the exhaust plume.
- Ensure there is nothing in the shop environment, such as equipment or tool boxes, which prevents the inspector from clearly observing the exhaust plume. In general, this will require clearing the line-of-sight as much as 15 feet from the tailpipe(s).

Step 2 - Test Preparation and Vehicle Familiarization

- Use any means necessary to enable observation of the vehicle’s exhaust plume, including but not limited to, adjusting the seat and mirror positions.
- **Do not** check for smoke during the first BAR Snap Test. Any visible smoke observed during the first BAR Snap Test shall not result in a failure.

Step 3 - Perform the Idle Test

- Have the engine running at idle and go to the vehicle’s tailpipe.
- Perform the Idle Test:
 - **Diesel** the idle test shall be performed at the appropriate OIS prompt.
- Observe the tailpipe(s) exhaust plume of the vehicle for 10 seconds.

Step 4 - Perform the Crankcase (PCV) Test

- After performing the Idle Test (Step 3), continue to leave the vehicle’s engine running at idle and go to the vehicle engine compartment. Open the hood to the engine compartment and determine whether any smoke is coming from the crankcase (PCV) system.
- Observe the vehicle’s crankcase system for 10 seconds.

Note: do not perform this test on vehicles originally equipped with an open crankcase.

Step 5 - Complete the BAR Snap Test

- Perform the first of three BAR Snap Tests:
- Ensure the vehicle's engine RPM falls between 2,000 and 3,000 while performing the first BAR Snap Test. If it does not, you can do one of the following:
 - Press-and-release the accelerator pedal more quickly or more slowly as needed to stay within the designated RPM range; or
 - Quickly press the pedal only part way to the floor before releasing it.
- Continue to leave the vehicle's engine running at idle.
- Perform the final two BAR Snap Tests.
- Perform the second BAR Snap Test while watching for visible smoke.
- Return the engine to idle and wait for at least 3 seconds to allow the engine to stabilize.
- Perform the third (and final) BAR Snap Test while watching for visible smoke.

Step 6 - PASS/FAIL Determination

- **PASS** the vehicle for the Visible Smoke Test portion of the Smog Check inspection if the vehicle does not emit smoke during the Idle Test, Crankcase Test, and both of the final two BAR Snap Tests.
- **FAIL** the vehicle if:
 - There is **any** visible smoke observed during the Idle Test;
 - **OR** there is **any** visible smoke coming from the crankcase (PCV) system;
 - **OR** there is:
 - **Diesel** - a visible smoke plume observed 5 to 15 feet from the tailpipe(s) that lingers for more than 3 seconds on either of the final two BAR Snap Tests.
 - Smoke from any area other than the vehicle's tailpipe(s) or crankcase (PCV) system, regardless of the cause, does not constitute a failure of the Visible Smoke Test.
 - No vehicle shall be failed for condensation or steam.

Step 7 – Enter the Test Results into the OIS

- Results must be entered at the "Enter Result of the Exhaust System Smoke Check" and "Enter Result of the Crankcase System Smoke Check" OIS prompts.
- For vehicles that pass a portion of the Visible Smoke Test, enter "P" (Pass) at the appropriate prompt.
- For vehicles that fail a portion of the Visible Smoke Test, enter "F" (Defective) at the appropriate prompt.

Step 8 - Documentation Provided to the Customer

If the vehicle fails the Visible Smoke Test, the inspector shall:

- Document the failure on both the customer's and station's copy of the Vehicle Inspection Report (VIR) in the "Other Emission Related Components" section. Make a clear notation on the VIR, such as "Failed Visible Smoke Test". Document what portion of the Visible Smoke Test the vehicle failed, such as "Crankcase Smoke," "Idle Smoke," and/or "BAR Snap Smoke."
- Document the failure on the customer's invoice with "Failed Visible Smoke Test". Document what portion of the Visible Smoke Test the vehicle failed, such as "Crankcase Smoke," "Idle Smoke," or "BAR Snap Smoke."

APPENDIX C

Aftermarket Parts Verification Requirements

As part of the Smog Check inspection, inspectors shall verify whether an exemption issued by the California Air Resources Board (ARB) is required for modified or add-on parts affecting emissions that have been installed on the vehicle undergoing inspection.

California Vehicle Code Section 27156, in part, prohibits modifications to emission control devices or systems without an exemption from ARB. This means aftermarket parts that modify or affect the original emission controls must be exempted through an ARB Executive Order (EO). In general, Modified Parts and Add-on Parts require an EO exemption, while Replacement Parts and Consolidated Parts do not require an exemption. For more information, see the definitions at the end of this appendix.

The Aftermarket Parts Verification table on the next page identifies which parts and emission control changes do and do not require verification of whether an applicable Executive Order is in effect. For the purpose of a Smog Check inspection, inspectors are only required to verify the EO as listed in this table. Any add-on or modified part not otherwise addressed on this table must have an EO and be verified during inspection. This document is not intended for manufacturers, distributors, or dealers of aftermarket parts.

Refer to any of the following for more information regarding ARB Executive Orders (EO):

- Part manufacturer's catalog
- ARB's Aftermarket Parts webpage, which can be found by searching ARB's website at <http://www.arb.ca.gov>.
- Call ARB at (800) 242-4450

Emission Control System	Aftermarket Parts Verification Add-on/Modified Part(s)/ECS Changes (Check marks in Gasoline/Diesel columns indicate verification of EO required during inspection)	Gasoline ¹	Diesel
Air Induction	Air Cleaner/Assembly – 1995 model-year and older without Thermostatic Air Cleaner. Changes are acceptable provided all required emission controls are connected.		
Air Induction	Air Cleaner/Assembly – 1996 model-year and newer and all years equipped with Thermostatic Air Cleaner.	✓	
Air Induction	Air Flow Sensor	✓	✓
Air Induction	Intake Manifold² – including diesel air horn or elbow		
Air Induction	Intercooler – Equipped with the original equipment turbocharger /supercharger.		✓
Air Induction	Turbocharger/Supercharger - Wastegate, pulleys, etc.	✓	✓

¹ Includes Hybrid Powered Vehicles.

² See Intake Manifolds in this Appendix for more information.

Emission Control System	Aftermarket Parts Verification Add-on/Modified Part(s)/ECS Changes (Check marks in Gasoline/Diesel columns indicate verification of EO required during inspection)	Gasoline ¹	Diesel
Computer Management	Variable or Alternate Tuning Devices – “Modules,” “Chips,” “PROMs” “Tuners,” “Pods,” or any device that modifies or conditions ECU inputs or outputs. Including but not limited to devices that plug into the ECU, wiring harness, or the OBD connector. (DLC plug-in telemetry or read-only devices are allowed without EO).	✓	✓
Exhaust	Air Injection rails – Minor configuration changes allowed		
Exhaust	EGR system modifications. (Aftermarket replacements do not require EO).	✓	✓
Exhaust	Diesel Engine Exhaust Brake		
Exhaust	After Treatment Control(s) – Catalyst ³ , Diesel Particulate filter (DPF), sensors (O ₂ , NO _x , pressure, temp.), Diesel Exhaust Fluid (DEF) system, etc.	✓	✓
Exhaust	Customized Exhaust on vehicles without after treatment components, or installed after last required “Cat-Back” – Crossover pipes, Oversized pipes, etc.		
Exhaust	Customized Exhaust before last required after treatment component – Header ⁴ Heat Risers, Oversized pipes, etc.	✓	✓
Fuel	Added or Alternative Fuel Kits – Nitrous, propane, methanol, hydrogen, natural gas Biodiesel ⁵ , etc.	✓	✓
Fuel	Carburetor – Changes not originally offered for the specific vehicle application, i.e. changing 2 to 4 barrel, 4 to 2 barrel, single to multiple carb, carb to fuel inj. Replacement carbs are okay when identified as such by the manufacturer.	✓	✓
Fuel	Carburetor Related – Choke Heat Stove for Headers, Under carburetor screen.		
Fuel	Fuel System – Adjustable fuel pressure regulators, Injectors, Injection pump.	✓	✓
Fuel	Fuel System – Diesel Lift Pump, Fuel Filters, Separators, fuel line magnets.		
Fuel	Fuel Tank(s) – Additional, Oversized.	✓	
Fuel	Water Injection – Vapor/Steam.		
Ignition (Gasoline)	Ignition Bridge		
Ignition (Gasoline)	Ignition System Modification – <i>Performance distributors, control modifications, etc.</i>	✓	
Other	Air Conditioner Cut Out		

³ See Catalytic Converters in this Appendix for more information.

⁴ Be aware that some vehicles are factory equipped with tubular exhaust manifolds that appear similar to aftermarket headers. Note: Any add on or modified part not otherwise addressed in this table must have an EO and be verified during inspection.

⁵ See Biodiesel in this Appendix for more information.

Emission Control System	Aftermarket Parts Verification Add-on/Modified Part(s)/ECS Changes (Check marks in Gasoline/Diesel columns indicate verification of EO required during inspection)	Gasoline ¹	Diesel
Other	Anti-theft System – Primary ignition changes including engine start / stop controls.		
Other	Camshaft – Performance camshafts, adjustable gears, etc.	✓	✓
Other	Engine Modifications – Performance kits, cylinder head swaps, etc.	✓	✓
Other	Governor		
Other	Hybrid Battery Enhancements – Plug-in charger kits, added batteries, etc.		
Other	Hose(s) – Minor configuration changes are acceptable. Universal replacement hose in place of performed hose, etc.		
Other	Oil Separator/Filter – Crankcase gas filter.		
Other	Throttle lockout system.		

Emission Systems Inspection Details

Bio Diesel Conversion Kits

For the purposes of a Smog Check inspection, biodiesel kits installed on 1998-2003 model year vehicles are acceptable without an ARB EO exemption. ARB EO exemption is required for 2004 and newer vehicles.

Catalytic Converters

Smog Check Inspectors must check that all required catalytic converters (CATs) are present and appear to be properly installed. This includes making sure there are the correct number of CATs, that they are installed in the original location(s), and that they have no tampers or defects. A change in the number of converters is only acceptable when it is allowed pursuant to an EO exemption.

Since January 1, 2009, ARB has required that all aftermarket catalytic converters installed in California bear an EO number. If an EO number is not present and/or the wrong converter(s) is installed, the vehicle shall fail the cataly visual inspection.

For OBDII Equipped Vehicles, inspectors shall use the EO number and corresponding part number to verify the part is approved for use on that specific vehicle configuration (e.g., year, make, model, engine, GVWR, fuel type, etc.). To conduct this verification, inspectors must check the ARB EO Aftermarket Catalytic Converter Database located on the ARB Web site. Each EO contains a catalog listing the applicable vehicles.

For Pre-OBDII Vehicles, inspectors shall use the EO number to verify the CAT falls within the correct vehicle category- PC-1, PC-2, T-1, T-2. Refer to ARB's Web site for a separate Pre-OBDII EO Listing containing the EO numbers and corresponding vehicle categories. Inspectors are not required to check specific vehicle application using the series or part numbers.

For older CATs without an EO label, use the general procedure described in the first paragraph above.

The ARB EO Aftermarket Catalytic Converter Database, Pre-OBDII EO Listing, and the ARB Installer's Checklist for New Aftermarket Catalytic Converters are located on ARB's Aftermarket Parts webpage, which can be found by searching ARB's website at <http://www.arb.ca.gov>.

The catalyst label format is as follows:

D-XXX-XX YYYYYY ZZZZ

D-XXX-XX: This is the ARB EO number.

YYYYYY: The manufacturer part number.

ZZZZ: The date of manufacture. The first two digits indicate the month, and the last two the year.

Intake Manifolds

For the purposes of a Smog Check inspection, an aftermarket intake manifold that includes provisions for the original equipment emission controls (EGR, TAC, fuel injection, carburetor, thermal switches, heat stove, exhaust cross-over etc.) is acceptable, provided the manufacturer markets the manifold as a replacement for the factory original. The replacement manifold may be made of a different material than the original, for example aluminum instead of cast iron.

ARB Definitions of Aftermarket Parts

“Add-on Part” means any aftermarket part which is not a modified part or a replacement part. (California Code of Regulations (CCR) Title 13 § 1900 (b) (1)).

- Some examples: Add-on supercharger, turbocharger and nitrous oxide kits.

“Consolidated Part” means a part which is designed to replace a group of original equipment parts and which is functionally identical to those original parts in all respects which in any way affect emissions (including durability). (CCR Title 13 § 1900 (b) (2)).

- Some examples: A parts manufacturer markets a replacement EGR assembly that consolidates the valve and backpressure transducer that were originally two separate components. (Note: A manufacturer may also consolidate part numbers to make the part application more universal).

“Modified Part” means any aftermarket part intended to replace an original equipment emission-related part and which is not functionally identical to the original equipment part in all respects which in any way affect emissions, excluding a consolidated part. (CCR Title 13 § 1900 (b) (14)).

- Some examples: Performance camshafts, adjustable camshaft gears, performance cylinder heads, performance engine kits, performance engine management components, and performance fuel injection components.

“Replacement Part” means any aftermarket part intended to replace an original equipment emissions-related part and which is functionally identical to the original equipment part in all respects which in any way affect emissions (including durability) or a consolidated part. (CCR Title 13 § 1900 (b) (20)).

- Some examples: Replacement air filter elements, spark plugs, spark plug wires, distributor caps, chromed valve covers, replacement EGR valves, and replacement carburetors. (Note: A replacement EGR valve or carburetor must be specified as replacement, by the part manufacturer, for the vehicle on which it is installed).

Vehicle Safety Systems Inspection Manual

September 2023 [~~NEW~~] April 2025

DEPARTMENT OF CONSUMER AFFAIRS

BAR

Bureau of Automotive Repair

Preface

This manual is incorporated by reference in the California Code of Regulations, Title 16, section 3311.1. It provides procedures for conducting vehicle safety systems inspections and issuing certificates of compliance.

Only a licensed vehicle safety systems technician (technician) working in a licensed vehicle safety systems inspection station (station) may perform a vehicle safety systems inspection and authorize the issuance of a certificate of compliance. Licensed stations and technicians must follow the procedures contained in the Vehicle Safety Systems Inspection Manual. This manual details the minimum inspection criteria and standards for specific safety systems and system components. No attempt has been made to relate the information contained in this manual to the specific design of a particular vehicle manufacturer, nor is this publication intended to be all inclusive of every vehicle safety system or system design.

Technicians must possess the knowledge, skills, and abilities necessary to conduct thorough and accurate inspections on all vehicles accepted by the station for inspection. Each station must maintain access to current manufacturer repair specifications and technical information relative to the types and designs of vehicle safety systems inspected and repaired by the station.

When using the BAR Safety Inspection System to perform a vehicle safety systems inspection, technicians shall follow the software prompts and input vehicle and inspection information as requested and required by the system.

Moreover, technicians shall consult the California Vehicle Code, California Code of Regulations, and Code of Federal Regulations to ensure minimum inspection standards for each of the systems detailed in this manual are met.

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CHAPTER 1 Overview, Access, Vehicle Identification, Reference Materials, Definitions

1.1 Overview

Only a licensed technician working in a licensed station may perform a vehicle safety systems inspection and authorize the issuance of a certificate of compliance. When performing a vehicle safety systems inspection, the technician shall inspect the condition of all required vehicle safety systems, in accordance with the applicable procedures in this manual. This will allow any/all condition(s) that result in the vehicle failing the safety systems inspection to be addressed at the conclusion of the completed inspection.

If a station lacks any of the equipment, tools included in Chapter 9 of this manual (Required Equipment), or reference materials included in Chapter 1.10 of this manual (Reference Materials) that are required to inspect a particular vehicle, the station shall not accept that vehicle for inspection.

If, as a matter of policy, a station does not inspect certain types of vehicles, the station or technician must reject the vehicle before starting an inspection and inform the customer. Additionally, if a station does not repair a certain type of vehicle, the station must notify the customer of that fact prior to performing an inspection.

All customers shall be provided a written estimate for the vehicle safety systems inspection in accordance with the Automotive Repair Act, Business and Professions Code section 9884.9, and Title 16, California Code of Regulations (CCR) section 3353. Customers can then authorize the inspection and any repairs, if applicable.

1.2 Licensed Technician Access to BAR-Safety Inspection System (BAR-SIS)

Pursuant to Title 16, CCR section 3314.2, BAR or a BAR-authorized representative shall verify the identity of the applicant or licensed technician and use a biometric device (as referenced in Chapter 9.2 of this manual) to enroll the applicant or technician for purposes of authorizing access to perform inspections using the BAR-SIS. The BAR-SIS is computer software owned and developed by BAR and housed within BAR's online inspection system (BAR-OIS), for use by licensees to report safety systems inspection findings. Once enrolled, the technician shall authenticate their identity, for the purposes of accessing the BAR-SIS, using a biometric device.

BAR may allow an alternate means to access the BAR-SIS if, at the time of enrollment, the biometric system is unable to collect sufficient data necessary to create a uniquely identifiable profile. Alternate means shall be a BAR-assigned access code. In such cases, each technician must maintain the security of their access code. Disclosure of one's access code or use of another licensed technician's access code or license information is prohibited, and such conduct may result in disciplinary action. If the security of the technician's access code has been compromised, or the technician suspects another person has used their access code, the technician must contact their local BAR field office immediately, BAR will delete the compromised access code and issue the technician a new access code.

1.3 Vehicle Identification

As part of a vehicle safety systems inspection, the technician shall input the following vehicle identifying information into the BAR-SIS:

- **Vehicle Identification Number (VIN).** Enter the VIN number (If the vehicle is a motorhome, enter the chassis VIN). The VIN must be permanently affixed to the vehicle. If the vehicle is not equipped with a VIN or the VIN appears to have been damaged or altered, do not conduct the inspection, and refer the customer to the California Department of Motor Vehicles (DMV).
- **Vehicle License Plate Number.** Enter the vehicle's license plate number or "NONE" if the vehicle does not have a license plate. For government vehicles, do not enter "E" preceding the plate number; enter the last 7 digits. Disabled plates are entered by starting with the first character and no spaces are entered.
- **Vehicle Model, Year, and Make.** Enter the vehicle model, year, and make. (If the vehicle is a motorhome, enter the model and year of the coach. Do not enter the engine or chassis year.)
- **Vehicle Odometer Reading.** Enter the odometer reading as displayed. Do not attempt to estimate vehicle mileage or convert from kilometers to miles. If the odometer is missing or illegible, enter "NONE."

The required bar code scanner (referenced in Chapter 9.2 of this manual) shall be used as the first method of data entry. Manual entry must be used in cases where the vehicle is not equipped with a bar code or the bar code is illegible, where there are no registration documents, or where registration documents do not contain a bar code.

If a technician is using vehicle registration documents to scan vehicle information, they shall first verify the VIN shown on the registration document matches the VIN on the vehicle. If the VIN does **not** match, the technician shall use the VIN affixed to the vehicle and inform the customer of the mismatch and that it may cause DMV not to accept the inspection results.

A technician shall not enter any vehicle identifying information other than that for the vehicle being inspected nor shall they enter any false information about the vehicle being inspected.

1.4 On-Board Diagnostic (OBD) Equipped Vehicles

Technicians shall inspect the OBD system for model year 2000 and newer vehicles, by plugging the BAR certified data acquisition device (DAD) (referenced in Chapter 9.2 of this manual) into the vehicle's data link connector, thereby allowing the BAR-SIS to communicate with the vehicle. The BAR-SIS shall access and obtain the VIN, communication protocol, and parameter identifications, as well as all information related to the vehicle safety systems as defined in Title 16, CCR section 3303(s). The technician shall only connect the DAD to the vehicle they identified in the BAR-SIS as receiving the vehicle safety systems inspection.

Stations must not have electronic devices or data sources known as OBD simulators on premises.

A vehicle's OBD system that does not communicate with the BAR-SIS shall fail the vehicle safety systems inspection.

1.5 Vehicle Safety Recalls

Based upon the vehicle identifying information entered by the technician, the BAR-SIS shall automatically check for any safety recalls identified by the National Highway Traffic Safety Administration (NHTSA) for the vehicle being inspected.

A vehicle with an unrepaired safety recall identified by the NHTSA shall fail the vehicle safety systems inspection.

1.6 Vehicle Safety Systems Inspection Entries and Results

A. Inspection Findings

The BAR-SIS requires the technician to indicate if the individual safety systems, as identified in Chapters 2 - 8 of this manual, have passed or failed the inspection.

If a safety system passes inspection, the technician shall record the system as passing and follow the BAR-SIS prompts to enter additional system information specific to the vehicle.

If a safety system fails the inspection, the technician shall record the system as failing and follow the BAR-SIS prompts to enter information about the cause of the failure using drop down menus. To accommodate numerous component failure scenarios, the drop-down menus include the term "other" as a cause of failure. The technician shall only select "other" when the alternative drop-down options do not accurately describe the cause of failure. If the technician selects "other", they shall record the cause of the failure in the provided text box in such a manner that the customer can understand why the component failed.

B. Pass/Fail

To pass the inspection, the required vehicle safety systems and system components are found to be present and operational in accordance with the inspection criteria and standards detailed in this manual. If any one of the required safety systems or safety components is found to be defective, the vehicle shall fail the inspection.

C. Technician's Certification

The licensed technician who performed the inspection shall certify under penalty of perjury, under the laws of the State of California, that they performed the vehicle safety systems inspection in accordance with inspection criteria and standards detailed in this manual. That certification shall be made by biometric authentication, or BAR-assigned access code.

D. Vehicle Safety Systems Certificate of Compliance

When a vehicle passes the vehicle safety systems inspection, the BAR-SIS will issue a certificate of compliance.

E. Vehicle Fails Safety Inspection

A vehicle fails the vehicle safety systems inspection when any required safety system or system component is found to be missing or not operating in accordance with the inspection criteria and standards as detailed in the “Do Not Certify” sections at the end of each chapter in this manual. No certificate shall be issued for a failed vehicle safety systems inspection.

1.7 Remote Access to BAR-SIS

When prompted by the BAR-SIS software, the station or technician shall permit BAR or a BAR designee remote access to view and record audio, video, pictures, and text relating to vehicle safety systems inspections.

1.8 Vehicle Safety Report (VSR)

The BAR-SIS will generate a VSR at the completion of a vehicle safety systems inspection. The licensed station must provide a printed copy of the VSR to the customer at the completion of the inspection and keep a copy for the station’s records for no less than three years from the date of the inspection. The VSR shall be attached to the customer’s invoice.

DMV may request a copy of the VSR. The customer shall be advised to retain a copy of the VSR throughout the registration process.

1.9 Purchasing Vehicle Safety Systems Certificates of Compliance

Vehicle Safety Systems Certificates of Compliance may be ordered through the BAR-SIS or purchased by mail. To order certificates through the BAR-SIS, the station shall sign up with the BAR authorized electronic transmission (ET) contractor to obtain an Automated Clearing House (ACH) electronic debit account. The ACH debit transaction is the banking process that allows the station to authorize a debit of the station’s bank account to purchase certificates electronically through the BAR-SIS.

For more information, contact the ET contractor at (888) 229-9389, or find additional contact information on BAR’s website at <https://bar.ca.gov> under the “Licensees” header.

For stations that do not elect to purchase certificates electronically using the ACH, certificates can be purchased by mail. An order form is available at <https://bar.ca.gov/resources> (under “Information”, “Resources and Forms”, “Industry Forms”, “Licensure and Business Operations”).

1.10 Reference Materials

No attempt has been made to relate the information contained in this manual to the specific design of a particular vehicle manufacturer nor is this publication intended to be all inclusive of every vehicle safety system or system design; therefore, station owners and technicians must use reference manuals and electronic media to obtain the necessary vehicle information required to complete the vehicle safety systems inspection. Each station shall maintain access to current manufacturer repair specifications and technical information relative to the types and designs of vehicle safety systems inspected and repaired by the station.

All vehicle safety systems inspections must be performed in accordance with the following, as applicable:

1. Vehicle manufacturer current standards, specifications, bulletins, recalls, and recommended procedures, as published in the manufacturer vehicle service and repair manuals.
2. Current standards, specifications, procedures, directives, manuals, bulletins, and instructions issued by equipment or device manufacturers.
3. Standards, specifications, bulletins, recalls, and recommended procedures found in current industry-accepted standard reference manuals and periodicals published by nationally recognized repair information providers. As used in this manual, "nationally recognized and industry-accepted" means reference material supplied by a publisher of automotive repair specifications and procedures that is periodically updated and nationally distributed, e.g., Alldata, Chilton, Mitchell, and Motor Information Systems.
4. The Bureau's Vehicle Safety Systems Inspection Manual (Safety Systems Inspection Manual), dated September 2023 (New).

It is the station owner and technician's responsibility to know and follow these procedures and applicable laws when performing a vehicle safety systems inspection and ultimately issue certificates of compliance. Station owners and technicians shall consult the laws and regulations as referenced in the inspection overview of each chapter of this manual to ensure minimum inspection standards for each of the systems detailed in this manual are met.

1.11 Electronic Transmission Blasts

Electronic Transmission Blasts (ET Blasts) are electronic communications sent by BAR to stations through the BAR-SIS regarding inspection procedures, equipment issues, and general program information and updates. Stations shall maintain digital or paper copies of ET Blasts specific to any inspection procedures for a period of not less than five years.

1.12 Definitions

As used in this manual, these terms shall mean the following:

“Securely fastened” means a part or component that is present, attached in the correct location as designed by the vehicle or component manufacturer, and is firmly affixed with the appropriate fasteners.

“Damaged” means a part or component that is not working as intended and is not in the condition produced by the part manufacturer, thereby impairing its usefulness.

“Worn” means a part or component that has reached the end of its service life and is no longer working as intended by the part manufacturer.

Note: For all inspections, technicians must verify that all vehicle information is complete and correct. If the information is not complete and correct, it is the responsibility of the technician to make the necessary corrections. Follow the BAR-SIS prompts regarding the inspection information for each of the required vehicle safety systems and enter the requested information accurately. **Each technician is responsible for the accuracy of the vehicle safety systems inspection. It is impossible to void a certificate of compliance once it is issued.**

CHAPTER 2 Lighting

2.1 Lighting System Inspection Overview

The inspection of the lighting system shall consist of checking the condition and operation of original equipment, any replacement and customer added lights, and reflectors. Licensed technicians shall consult Chapter 2 of Division 12 (commencing with section 24250) of the Vehicle Code (VC), and Chapter 2 of Division 2 of Title 13 of the CCR (commencing with section 620) to ensure minimum inspection standards for each lighting system are met.

As applicable to the vehicle, the technician shall inspect the following lights and reflectors to ensure they are present, properly installed, properly adjusted, and work as designed by the vehicle manufacturer and component manufacturer:

- a. Headlights (e.g., low-beam, high-beam, daytime running lights, and high-beam indicator)
- b. Fog Lights
- c. Auxiliary Driving Lights
- d. Auxiliary Passing Lights
- e. Cornering Lights
- f. Running Lights
- g. Spotlights
- h. Taillights
- i. Stop Lights (including center high-mounted types)
- j. Signal Lights
- k. Back-up (Reverse) Lights
- l. License Plate Lights
- m. Parking Lights
- n. Clearance Lights
- o. Identification Lights
- p. Side Marker Lights
- q. Rear Red Fog Lights
- r. Rear-Facing Auxiliary Lights

- s. Supplemental Rear Turn Signal Lights
- t. Reflectors
- u. Conspicuity Systems (reflective sheeting)
- v. Dash High Beam Indicator Light

L.1 General Lighting Requirements¹

All Vehicles

Lights/Reflectors	Location	Height ²	Color ³	Number
Headlights Headlight assemblies must be labeled with "DOT", indicating they meet Federal Motor Vehicle Safety Standards (FMVSS).	Front	22 - 54 inches	White (Some DOT lights emit slight blue light)	2 or 4 or Integral Beam System
Taillights	Rear	15 - 72 inches	Red	2 or More
Rear Brake Lights Brake lights may flash up to four times within four seconds of application	Rear	15 - 72 inches	Red (May be Amber pre-1979)	2 or More (at least 1 each side)
Turn Signals Turn Signals shall flash 60-120 times per minute	Front	15 - 83 inches	Front-Amber	2 or More
	Rear	15 - 83 inches	Rear-Red or Amber	2 or More
Hazard/Four-way Flasher Applies only to 1966 and newer vehicles. Must operate without turning on the ignition switch or other equivalent.	Front	15 - 83 inches	Front-Amber	2 or More
	Rear	15 - 83 inches	Rear-Red or Amber	2 or More
Parking Lights Vehicles less than 80 inches wide (not required on trailers).	Front	15- 72 inches	Amber or White	2 or More
Side Marker Lights	Side Near Front	15 inches min.	Front-Amber	1 Each Side

¹ Excludes Motorcycles

² The heights shall be measured in inches from the center of the light to the level surface on which the vehicle stands (California VC section 24254).

³ Colors apply to the color of the light when illuminated.

Lights/Reflectors	Location	Height ²	Color ³	Number
	Side Near Rear	15 inches min.	Rear-Red	1 Each Side
Intermediate Marker Lights Required on vehicles 30 feet in length or more.	Side Near Center	15 inches min.	Amber	1 Each Side
Back-up (Reverse) Lights Applies only to 1969 and newer vehicles. Not required on trailers.	Rear	N/A	White	1 or More
License Plate Light	Rear	N/A	White	1 or More
Rear Reflex Reflectors	Rear	15 - 60 inches	Red	2 or More
Side Reflex Reflectors	Side Near Front	15 - 60 inches	Front-Amber	1 Each Side
	Side Near Rear	15 - 60 inches	Rear-Red	1 Each Side
Intermediate Side Reflectors Required on vehicles 30 feet in length or more.	Side Near Center	15 - 60 inches	Amber	1 Each Side

In addition to items above:

VEHICLES 80 INCHES OR MORE IN OVERALL WIDTH

Lights/Reflectors	Location	Height ²	Color ³	Number
Identification Lights Not required on trailers or on rear of truck tractor.	Front and Rear-High as Practical	N/A	Front-Amber Rear-Red	3 Front and Rear
Clearance Lights Not required on rear of truck tractor.	Front and Rear-Widest Point to Indicate Vehicle Width. May be Mounted in Other Areas	N/A	Front-Amber Rear-Red	2 Front and Rear

TRUCK TRACTORS

Lights/Reflectors	Location	Height ²	Color ³	Number
Conspicuity Systems Upper Rear (Retro reflective sheeting) Two white 12 inch long strips of retro reflective sheeting positioned horizontally and	Rear Upper Corners	See Description	White	2 Pair Each Side

Lights/Reflectors	Location	Height ²	Color ³	Number
vertically on the right and left upper corners of the rear of the body, as close to the top as practicable, and as far apart as practicable.				
Conspicuity Systems Lower Rear Any retro reflective sheeting or array of reflex reflectors positioned horizontally on the rear fenders, and any mud flaps, and any mud flap brackets, if no mud flaps, on brackets behind or above tires. Reflex reflectors are not required for vehicles equipped with conspicuity systems.	Rear Fenders, Mud Flaps	N/A	White and Red	2 Each Side

TRAILERS 80 INCHES OR MORE IN OVERALL WIDTH AND >10,000 lbs. GVWR ³

Lights/Reflectors	Location	Height ²	Color ³	Number
Conspicuity Systems Upper Rear Two pairs of white 12 inch long strips of retroreflective sheeting must be positioned horizontally and vertically on the right and left upper corners of the rear of the trailer body, as close as practicable to the top of the trailer and as far apart as practicable.	Rear Upper Corners	See Description	White	2 Pair Each Side
Conspicuity Systems Lower Sides and Rear Any retro reflective sheeting or array of reflex reflectors must be affixed horizontally on the side or rear of the trailer. The sheeting shall begin and end as close to the front, rear, and sides of the trailer as practical. The rear must also have sheeting across the length of the underride guard. The edge of the red reflecting material may not be within 3 inches of the edge of any required amber	Side Lower Edge Rear Lower Edge	15- 60 inches	Lower Sides and Rear- Red and White Upper Rear- White	Across Side, Rear, and Underride Protection Frame

Lights/Reflectors	Location	Height ²	Color ³	Number
light. The white reflecting material may not be within 3 inches of any required amber or white light.				

Notes on L.1 General Lighting Requirements:

- These requirements are not intended to be all inclusive. As stated in Chapter 1.10 of this manual, technicians shall possess the knowledge, skills, and abilities necessary to conduct a complete and accurate inspection for all vehicles accepted for inspection. Each station must maintain access to current manufacturer requirements, manufacturer specifications, and manufacturer publications relative to the vehicles inspected by the station.
- All heights are measured from a level road surface to the center of the light or reflector.
- Any unlighted color is acceptable, provided it meets requirements when illuminated.
- If further information is needed, the licensed station or technician shall refer to the Code of Federal Regulations (C.F.R.), specifically Title 49 C.F.R. 571.108 – Standard 108; Lamps, reflective devices, and associated equipment.

2.2 Additional Lighting Systems and System Requirements

In addition to the inspection listed in Chapter 2.1 of this manual, the technician shall inspect the following additional lights and reflectors specified below to confirm that they meet the following minimum standards set forth below. Technicians are not required to inspect off-road lighting systems, such as aftermarket light bars, spotlights, and flood lights intended for use when the vehicle is being operated off-road in varied terrain. However, do not issue a certificate if a vehicle has off-road lighting that is installed to operate in conjunction with or as a substitute for required on-road lighting.

Front Facing Lights

A. **Maximum Number of Lights:** No more than four lights of the type listed below may project from the front of the vehicle in any combination at one time. For example, two headlights and two fog lights.

- Headlights
- Driving Lights
- Passing Lights
- Fog Lights

B. **Motorcycle Headlight(s):** Motorcycles shall be equipped with at least one and not more

than two headlights. If a motorcycle is equipped with a headlight with a means of high/low beam modulation, that modulation shall occur at a rate of 200-280 flashes per minute during daytime use.

- C. **Driving Lights:** Driving lights shall not exceed two and shall only operate to supplement the high-beam headlights; they shall not operate with the low-beams. Add-on driving lights shall be mounted no lower than 16 inches and no higher than 42 inches from the ground.
- D. **Passing Lights:** Passing lights shall not exceed two and shall be designed to temporarily supplement the headlights for the purpose of passing another vehicle. Add-on passing lights shall be mounted no lower than 24 inches and no higher than 42 inches from the ground.
- E. **Fog Lights:** Fog lights shall not exceed two and may be used together with the headlights but shall not be used as a substitute for the headlights. The headlights must remain on when the fog lights are illuminated. Add-on fog lights shall be mounted no lower than 12 inches and no higher than 30 inches from the ground with the top edge of the lenses no higher than the top edge of the low-beam headlight lenses.
- F. **Diffused Lights:** Diffused or non-glaring lighting (colored lights mounted in the fender wells, under the vehicle, etc.) shall not resemble any original equipment manufacturer lighting. Diffused lights shall not project red light from the front of the vehicle, nor shall they be installed within 12 inches of any required lighting.
- G. **Color of Lights and Reflectors:** Light projected and reflected from the front of the vehicle must be white or amber/yellow, with headlights projecting white. Any unlighted color is acceptable if it meets the requirements when illuminated.

Rear and Side Facing Lights

- A. **Additional Lights:** When more than one additional light is mounted on the rear of the vehicle, the lights shall be at the same height and equally spaced from the vertical centerline of the vehicle.
- B. **Continuous Illumination:** Add-on lighting, except for stop lights and lights on emergency vehicles, must project a continuous light.
- C. **Flashing Brake Lights:** Flashing brake lights shall not flash more than four times and shall only flash within the first four seconds of application.
- D. **Cargo Lights:** Auxiliary lights used for cargo transfer must project downward and not illuminate more than 50 feet from the back of the vehicle.
- E. **Diffused Lights:** Diffused or non-glaring lighting (colored lights mounted in the fender wells, under the vehicle, etc.) shall not resemble any original equipment manufacturer lighting. Diffused lights shall not be installed within 12 inches of any required lighting.
- F. **Color of Lights and Reflectors:** Light projected and reflected from the rear of the vehicle must be white, amber/yellow, or red colored. Any unlighted color is acceptable, provided it meets requirements when illuminated.

2.3 Light Mounting Inspection

The technician shall inspect taillights, stop lights, turn signals, and reflex reflectors to ensure they are securely fastened so the axis of the light beam is parallel to the longitudinal axis of the vehicle. The mounting of lights and reflectors directly on curved or sloping surfaces is not acceptable, unless they have been designed by the manufacturer to be installed at the angle in which they are installed.

When two or more lights or reflectors are required on the front or back of the vehicle, they must be installed symmetrically (same on both sides).

2.4 Headlight Aim Inspection

Licensed stations shall have the required lighting inspection tools, as recorded in this manual in Chapter 9.3 “Lighting Inspection Tools, Equipment” and Reference Materials.

Technicians shall inspect headlights and, as applicable, auxiliary driving lights, passing lights, and fog lights to verify correct headlight alignment/aim using one of the following methods:

- **Aiming screen type** headlight aiming equipment that may be used for all headlights and auxiliary lights. Provisions shall be made so that the screen is shaded from any background light that could affect aiming functions. (See Appendix A, figures 1 – 7 for additional screen set-up and aiming information.)
- **Optical type** headlight aiming equipment that may be used for all headlights and auxiliary lights. Technicians shall follow the equipment manufacturers’ instructions to determine light applications and, as applicable, proper aim. This includes proper use, calibration, and floor slope compensation.
- **Mechanical type** headlight aiming equipment that shall only be used for lights manufactured with corresponding aiming pads on the lens. Technicians shall follow the equipment manufacturers’ instructions to establish proper aim. This includes proper use, calibration, and floor slope compensation. If the aiming pads are damaged or broken, use one of the other aiming methods listed above.

2.5 Bulb Failure Warning System Inspection

If the vehicle is equipped with a bulb failure warning system, the technician shall verify that the dashboard warning system:

- A. Illuminates when the key is turned to the ignition on - engine off position. This “system-check” allows for verification that the system is functional, but the indicator should turn off after the engine is started.
- B. Does not stay illuminated after the system-check. If the light stays illuminated after the system-check, that is an indication of a system malfunction.

Do Not Certify when:

- Any lights are adjusted outside of the vehicle manufacturer or component manufacturer specifications.
- Any required lighting is missing, malfunctioning, or inoperative.
- There are any missing, damaged, contaminated (including moisture), or discolored or deteriorated lights, reflectors, or lenses; or any colored tapes or other temporary materials covering or in place of any missing, damaged, discolored, or deteriorated lenses.
- Any auxiliary screens, tints, films, covers, substances, or alteration reducing the amount of projected or reflected light or reducing the original area of illumination.
- Any headlight is without the Department of Transportation (DOT) symbol as required by 49 C.F.R. section 571.108 S6.5.1.
- Any off-road lighting is not operated by a separate switch.
- Any lights or reflectors are not installed in accordance with manufacturer or component manufacturer specifications.
- The wrong color light is projected or reflected in accordance with this manual Chapter. Any unlighted color is acceptable, provided it meets the requirements in this manual Chapter for the light when illuminated.
- The bulb failure warning system does not “bulb-check” or stays illuminated.
- The High Beam indicator light is inoperative.

CHAPTER 3 Passenger Compartment

3.1 Passenger Compartment Inspection Overview

The inspection of the vehicle's passenger compartment shall consist of separate inspections of items located in or on the passenger compartment to ensure they are functioning as designed by the manufacturer. Those items, when equipped, include the windshield, windshield wiper(s), mirrors, seats, seatbelts, child seat lower anchors and tethers (LATCH) system, rear window, and a visual inspection of the Supplemental Restraint System (SRS). Licensed technicians shall consult Chapter 4 of Division 12 (Windshields and Mirrors, commencing at section 26700) and Article 3 of Chapter 5 of Division 12 (Safety Belts and Inflatable Restraint Systems, commencing at section 27302) of the VC, sections 571.205 and 571.212 of Title 49 of the CFR (Glazing Materials and Windshield Mounting, respectively, in the Federal Motor Vehicle Safety Standards), and specific vehicle manufacturer specifications to ensure minimum inspection standards for the windshield, mirrors, safety belts, and the inflatable restraint system are met.

3.2 Mirror Inspection

Every motor vehicle, including motorcycles, shall have mirrors installed on the vehicle as originally equipped by the manufacturer. When inspecting the mirrors, the technician shall ensure:

- A. The vehicle or motorcycle's mirrors are properly mounted in accordance with the manufacturer's specifications.
- B. There are no objects, materials, damage, or deterioration of the mirror's surface obstructing the driver's view to the rear of the vehicle or motorcycle.
- C. All vehicle or motorcycle mirrors maintain a fixed position when adjusted.

3.3 Windshield and Rear Window Inspection

Windshields provide structural support to the passenger compartment of a motor vehicle in the event of a front-end collision or vehicle roll-over. Every passenger vehicle, other than a motorcycle, shall be equipped with a windshield that meets or may exceed Federal Motor Vehicle Safety Standards (49 C.F.R. section 571.205 and 49 C.F.R. section 571.212). It is unlawful to operate any motor vehicle when the windshield or rear window is in such defective condition that it impairs the driver's vision either to the front or rear of the vehicle. When inspecting the windshield and rear window, the technician shall ensure:

- A. There are no cracks in the windshield.
- B. The driver's view of the road through the windshield and rear window is not impaired by:
 - Delamination of the windshield
 - Damage to or deterioration of the glass surface

- Any objects or materials placed, displayed, installed, applied, or affixed to the glass surface, unless permitted by VC section 26708.
- C. If a motorcycle is equipped with a front windshield that extends into the rider's field of vision, the technician shall inspect it to ensure the rider's view of the road is not impaired by damage to or deterioration of the windshield surface.

3.4 Windshield Wiper System Inspection

Every motor vehicle, except motorcycles, equipped with a windshield shall also be equipped with a self-operating windshield wiper system. When inspecting the windshield wipers and rear window wipers (if equipped), the technician shall ensure:

- A. Every wiper activates and operates as designed by the vehicle manufacturer.
- B. Every wiper blade is properly installed and free of any visible defects.

3.5 Seat Inspection

The technician shall verify that every seat is securely fastened to the vehicle, all necessary mounting hardware is present for each seat, and both the upper and lower portions of each seat maintain a fixed position when adjusted.

3.6 Seatbelt Inspection

All passenger vehicles built after January 1, 1968, except motorcycles, shall have a seatbelt for each seating position, including seating positions for wheelchairs when equipped with a wheelchair tie-down and occupant restraint system. If a motorcycle is equipped with seatbelts, those seatbelts must meet the inspection criteria. When inspecting the seatbelts, the technician shall verify each seatbelt has the minimum number of attachment points stated in the manufacturer's specifications, and manually operate each seatbelt to ensure that:

- A. Neither the seatbelt fabric webbing nor the stitching is cut, frayed, or torn.
- B. The seatbelt buckle easily buckles to and unbuckles from the seatbelt latch, and stays buckled when the webbing is pulled outward from the buckle.
- C. If applicable, 3-point (lap and shoulder) and 2-point (lap) seatbelts with automatic retracting mechanisms smoothly extend and fully retract to and from the spool.
- D. Seatbelt spools with a locking mechanism lock when the seatbelt webbing is suddenly pulled outward from the spool.

If the vehicle is equipped with any seatbelt warning lights or seatbelt alarms, every seatbelt light or seatbelt alarm in the vehicle must be functioning as designed by the manufacturer.

3.7 Child Seat LATCH System Inspection

When a vehicle is equipped with a LATCH system, the technician shall inspect each bracket and anchor to ensure that the system components are present, undamaged, and securely fastened.

3.8 Supplemental Restraint System (SRS) Component Visual Inspection

In an SRS equipped vehicle, the technician shall visually inspect SRS components that can be seen from inside the passenger compartment, without any disassembly, to ensure the air bags and seat belt/retractor pre-tensioners are present and properly installed. The technician shall inspect:

- A. The air bag covers for tears, unevenness, inconsistent appearance, and evidence of refinishing, which would indicate the air bag was previously deployed and repaired.
- B. The housings of all seat belt/retractor pre-tensioner assemblies for melting, breaks, and chemical discharge stains, as these indicate the pre-tensioner was previously deployed and not replaced.

3.9 SRS Warning Light Inspection

If the vehicle is equipped with SRS, the technician shall verify that the dashboard warning light:

- A. Illuminates when the key is turned to the ignition on - engine off position. This “bulb-check” allows for verification that the bulb is functional, but the bulb should turn off after the engine is started.
- B. Does not stay illuminated after the bulb-check. If the light stays illuminated after the bulb-check, that is an indication of a system malfunction.

Do Not Certify when:

- Any of the vehicle mirrors, as originally equipped by the vehicle manufacturer, are missing, damaged, are not mounted in accordance with the manufacturer’s specifications, or have a damaged or deteriorated surface that obstructs the driver’s view to the rear of the vehicle.
- Any vehicle mirrors will not maintain a fixed position when adjusted.
- There are any chips in, obstructions of, or surface deteriorations of the windshield or rear window glass that obstructs the driver’s field of vision or view of the road.
- The windshield on a motor vehicle is cracked.
- The windshield does not meet the Federal Motor Vehicle Safety Standards in 49 C.F.R. section 571.205 and 49 C.F.R. section 571.212.

- Any windshield or rear window wipers are inoperative or do not operate as designed by the manufacturer, or any of the wiper blades are found to have visible defects.
- Any seatbelt:
 - Does not have the minimum number of attachment points stated in the manufacturer's specifications.
 - Required for a seating position is missing.
 - Does not fully extend, fully retract, or lock as designed by the manufacturer.
 - Fabric webbing or stitching is damaged.
 - Cannot be buckled or unbuckled.
 - Warning lights or alarms are not functioning properly.
- Any seat installed in the vehicle is not securely fastened to the vehicle, or the upper or lower portions of the seat do not maintain a fixed position.
- Any LATCH system bracket or anchors are missing, damaged, or not securely fastened.
- Any air bag, inspected visually (as detailed in Chapter 3.8 of this manual) and without disassembly, appears to have been previously deployed.
- Any seat belt/retractor pre-tensioner, inspected visually (as detailed in Chapter 3.8 of this manual) and without disassembly, appears to have been previously deployed.
- The SRS warning light does not "bulb-check" or stays illuminated.

CHAPTER 4 Tires and Wheels

4.1 Tire and Wheel Inspection Overview

The inspection of the vehicle's tires and wheels is intended to ensure the tires are safe, the wheels are free of cracks and bends that would cause them to be unsafe, and the Tire Pressure Monitoring System (TPMS), if equipped, is functioning. Licensed technicians shall consult Article 4 of Chapter 5 of Division 12 (commencing with section 27450) of the VC to ensure minimum inspection standards for the tires and wheels are met.

4.2 Tire Inspection

When inspecting the tires, the technician shall:

A. Visually inspect the tires for all of the following:

1. Damage exposing the reinforcing plies of the tire through cuts, cracks, punctures, scrapes, or wear.
2. Repair in the tread shoulder or belt edge area.
3. Repair or damage to the sidewall or bead area.
4. A puncture repair or damage larger than one-fourth of one inch.
5. Any unrepaired road hazard damage to the tire (e.g., nail, screw).
6. Indication of internal separation, such as bulges or local areas of irregular treadwear, indicating a distortion in the tread area, when compared to other areas of the tread, or belt separation.
7. Sidewall cracks or "dry-rot" due to age.
8. Cracks or leaks in the valve stems.
9. Defaced or removed United States Department of Transportation (DOT) tire identification number.
10. That tires on the same axle are the same size, and directional tires are located on the correct side of the vehicle.
11. Retread or regrooved tires installed on the front axle of heavy-duty vehicles listed in section 34500 of the VC.

B. Measure the tire tread

The thickness of the tire tread on each tire shall be measured in multiple locations on the wheel circumference to ensure that no part of the tread is worn to less than:

- 2/32 inch in tread depth in adjacent tire grooves for passenger cars and light-duty trucks.
- 5/32 inch in tread depth in all major grooves of tires installed on the steering axle, and 3/32 inch in tread depth in all major grooves for all other tires, for heavy-duty vehicles.

C. Check the tire pressures

The vehicle tires shall be inspected to verify they are properly inflated. The vehicle manufacturer tire inflation specification is normally recorded on a label located inside the driver's door jamb. If that label is missing, some other reference source, such as a service manual or vehicle's owner manual, that contains information on the tire inflation specifications shall be used. If a tire has low pressure, and no leak has been found, inflate the tire to specification.

4.3 Wheel Inspection

The purpose for visual inspection of the vehicle's wheels is to identify any stress cracks, fractures, damage, or bends in the wheels severe enough to make the wheel unsafe for driving.

A. When performing the visual inspection of the wheels, the technician shall ensure:

1. The wheel's surface is clean enough to allow for visual inspection of the surface, and shall wipe down the surface if necessary.
2. There is sufficient light to inspect the surface; a flashlight shall be used to perform the inspection if there is insufficient light.

B. The inspection of the wheels shall include an inspection of the following areas for any stress cracks, fractures, damage, and severe bends:

1. The periphery, which includes the wheel's rim, outer lip, and inboard and outboard flanges.
2. The mounting area and center disc, including the center bore and lug holes.
3. The barrel.
4. Inside and outside of the spokes, or center section.

Additionally, the technician shall confirm that wheels on the same axle are the same size.

4.4 Tire Pressure Monitoring System (TPMS) Inspection

If the vehicle is equipped with TPMS, the technician shall verify the dashboard warning light:

- A. Illuminates when the key is turned to the ignition on - engine off position. This “bulb-check” allows for verification that the bulb is functional, but the bulb should turn off after the engine is started.
- B. Does not stay illuminated after the bulb-check. If the light stays illuminated after the bulb-check, that is an indication of a system malfunction.

4.5 Temporary Spare Tire Inspection

If the vehicle arrives at the station equipped with a spare tire, the technician shall ensure the tire is properly inflated, the tire is free of damage, punctures, and leaks, and the rim is free of stress cracks, fractures, damage, and bends.

A vehicle shall not pass a vehicle safety systems inspection if a temporary spare is installed on a vehicle axle and in use at the time of inspection.

Do Not Certify when:

- Any damage, puncture, leak, cracks or “dry-rot”, defaced or missing DOT identification number, or improper repair of any of the tires was found during the visual inspection.
- The tread depth of any tire, other than a temporary spare, is found to be less than:
 - 2/32 inch in depth on a passenger car or light truck.
 - 5/32 inch in depth on the steering axle, or 3/32 inch in depth for all other tires, on a heavy-duty vehicle.
- Any retread or regrooved tires are mounted on the front axle of any heavy-duty vehicle listed in section 34500 of the VC.
- Any wheel has any stress cracks, fractures, damage, or is bent in a manner indicating damage to the structure of the wheel or causing difficulty in steering or controlling the vehicle.
- For any axle, there are different size wheels or tires on the same axle.
- The TPMS light does not “bulb-check” or stays illuminated.
- The temporary spare tire is installed and in use at the time of the inspection.

CHAPTER 5 Brakes

5.1 Brake System Inspection Overview

The inspection of the brake system shall consist of checking the condition of the vehicle's brakes to ensure that the component parts and systems are functioning properly and comply with manufacturer and component manufacturer specifications. Licensed technicians shall consult Division 12, Chapter 3 (commencing with section 26301) of the VC, and 49 C.F.R. section 571.121 to ensure minimum inspection standards for performance and equipment requirements of the brake system are met.

A. Safety Precautions

Some of the components of a vehicle's brake system may constitute a safety hazard if proper procedures are not followed when disassembling them for inspection. Technicians must follow manufacturer recommended procedures when working on any component in a brake system to avoid personal injury and damage to the system.

5.2 Brake Pedal Inspection

When checking the brake pedal, the technician shall repeatedly depress the brake pedal, alternating between firm and soft applications, to ensure the pedal:

- A. Is securely fastened in the pedal assembly and to the vehicle.
- B. Linkage to the brake actuating device (i.e., master cylinder, brake/treadle valve) is not binding.
- C. Reaches a stopping point with a reserve.
- D. Does not continue to sink to the floorboard after reaching the stopping point, which would indicate a hydraulic or air system malfunction.
- E. Returns to its original position after being depressed.

5.3 Power Braking Assistance Systems Inspection

- A. When checking **vacuum-assist** braking, the technician shall:
 - 1. Perform a functional test of the vacuum booster by stopping the engine, depressing the brake pedal several times to eliminate the vacuum reserve, then while depressing the pedal and holding pressure, restart the engine. If the vacuum booster is working, the pedal should drop under foot pressure.
 - 2. Visually inspect the vacuum booster to ensure there is no external damage, and all required tubing and hose connections are present, intact, and not collapsing, and that electrical connectors, sensors, and switches are present and intact.

- B. When checking **hydraulic-assist (hydro-boost)** braking, the technician shall:
1. Perform a functional test of the hydraulic booster by stopping the engine, depressing the brake pedal several times to eliminate the hydraulic assist, then while depressing the pedal and holding pressure, restart the engine. If the hydraulic booster is working, the pedal should initially drop under foot pressure but rise as the system builds pressure.
 2. Visually inspect the hydraulic booster to ensure there is no external damage, that there are no power steering fluid leaks, and that all required tubing, hose connections, electrical connectors, sensors, and switches are present and intact.
- C. When checking **electric-assist** braking, the technician shall visually inspect to ensure the electric-assist motor's connectors, sensors, and switches are present, connected, and intact.

5.4 Friction System Inspection

All wheels must be removed from the vehicle to perform a thorough and complete brake inspection, except in the case of a motorcycle when the disc brake(s) can be inspected without removing the wheel. While removing the wheel, the technician shall inspect for any and all missing, broken, or damaged wheel studs and any and all missing, cross-threaded, or incorrect lug nuts.

- A. **Disc Brake Inspection:** When inspecting disc brakes, the technician shall inspect the following items:
1. **Toothed ring, sensor, and wiring** for broken, bent, or missing teeth on any externally accessible toothed ring, and inspect the sensors, electrical connectors, wire routing, and general condition.
 2. **Mounting bolts** for looseness or damage.
 3. **Splash shield** for damage or looseness.
 4. **Brake pad linings** for proper thickness. The thickness of the brake lining (friction material) must be greater than or equal to that specified by the manufacturer's service limits, or if not available, the lining must be greater than or equal to 1/32 inch thick for bonded linings or 1/64 inch above rivet heads on riveted linings.
 5. **Check condition of linings** for contamination with grease, oil, brake fluid, or other material, as well as for cracking, evidence of overheating, and secure mounting of the friction material to the metal backing.
 6. **Each rotor** for each of the following: thickness, parallelism (thickness variation), lateral run-out, excessive ridges, grooves, corrosion, or cracks. Each brake rotor's measured thickness must not be less than the minimum thickness specification.

NOTE: The rotor inspection must be performed last since any defects in the foregoing checks could limit free rotation of the rotor.

- B. **Drum Brake Inspection:** When inspecting drum brakes, the technician shall inspect the following items:
1. **Brake shoe linings** for proper thickness and correct installation. The thickness of the brake lining (friction material) must be greater than or equal to that specified by the manufacturer's service limits, or if that information is not available, the lining must be greater than or equal to 1/32 inch thick for bonded linings or 1/64 inch above rivet heads on riveted linings.
 2. **Check condition of linings** for contamination with grease, oil, brake fluid, or other material, as well as for cracking, evidence of overheating, and secure mounting of the friction material to the metal backing.
 3. **Each drum for any** grooves, corrosion, or cracks, including on the drum's mating surface. Each brake drum's measured inner diameter must not be greater than the maximum diameter specification.
 4. **Check S-type cam** on air brake equipped vehicles, including checking that the slack-adjuster, push rod, cam, and shoe rollers are present, undamaged, and securely fastened.
 5. **Actuating arm** on a trailer equipped with an electrical brake system to ensure the arm is securely fastened, moves without binding, and activates the brake shoes.
 6. **Check springs and hold-downs (brake hardware).** Inspect for missing or damaged return springs, hold-downs, and automatic adjusters.
 7. **Check backing plates and anchors** for any loose, bent, or distorted backing plates and galled anchors.
 8. **Condition of wheel/axle/hub bearings and grease seals** by checking for any and all evidence of looseness or leakage.

When reinstalling the wheels on the vehicle, the lug nuts must be torqued to the manufacturer's specifications.

5.5 Hydraulic System Inspection

When inspecting the brake's hydraulic system, the technician shall inspect the following:

- A. **Brake Fluid Level** to ensure it is within the range specified by the manufacturer.
- B. **Master Cylinder** to ensure there are no external leaks at the hydraulic line connections, sensors, or push rod seal; that any electrical connectors, sensors, and switches are present, connected, and intact; the reservoir cover vent is unrestricted, and the reservoir diaphragm/seal is not damaged, torn, or swollen due to brake fluid contamination.

- C. **Electrical Pumps, Motors, and Hydraulic Modulators** to ensure the hydraulic lines are properly connected and free of leaks, and the electrical connectors, sensors, and switches are present, connected, and intact.
- D. **Calipers** to ensure there are no external leaks, damage, elongated or worn guide pins or mounting holes, cracks in the casting, worn mounting surfaces, or missing hardware, and that floating type calipers slide freely.
- E. **Wheel Cylinders** to ensure they are securely fastened and there are no external leaks.
- F. **Hydraulic System Lines, Valves, and Components** by visually inspecting the brake lines from the master cylinder to the calipers or wheel cylinders, including any valves (e.g., proportioning, metering, combination), tubes, and hoses for any indication of leaks, stains, dampness, dents, kinks, splices other than a threaded flare-type fitting, or damaged fittings or hold-down clips.
- G. **Trailer Surge Brakes** to ensure that, in addition to the other items in this section, the trailer tongue and hydraulic actuating device housing is free of all cracks, damage, and deformation that will impact the device during activation, a lock-out system (whether mechanical or electrical) is present allowing the trailer to reverse without brake engagement, and that a break-away mechanism is present, intact, and functioning as designed.

5.6 Electric Trailer Brake System Inspection

When inspecting an electric trailer brake system, the technician shall inspect the following:

- A. **Wheel Magnets** are present, attached, and under sufficient coil spring pressure to cause the magnet to contact the inside surface of the drum, and that the wear indicators (dots) are still present.
- B. **Wiring, Switches, and Connectors** by visually inspecting the wires, electrical connections, and switches to ensure they are securely fastened, and that there is no damage to the wiring.
- C. **Break-Away System** to ensure the break-away cable is present and attached to the break-away switch, that the battery is wired to the system and is securely fastened, and that the system is functioning as designed by the manufacturer.

5.7 Air System Inspection

When inspecting an air brake system, the technician shall perform a functional inspection of the system to ensure that it builds air pressure, manages air pressure through governor function, and maintains air pressure with the brakes released and applied in accordance with manufacturer and component manufacturer specifications. This inspection will also include a functional inspection of the vehicle's air pressure gauge(s) and low-pressure warning device.

Additionally, the technician shall inspect the following:

- A. **Air compressor** when belt driven, check the belt for tightness and observe the belt condition.
- B. **Air reservoir tank(s)** to ensure it is securely fastened, and to check the safety valve is not stuck.
- C. **Brake chambers** to ensure they are securely fastened, that there are no air leaks, and that the spring is not broken.
- D. **Air System Lines, Valves, and Components** by visually inspecting the air lines for air leaks and each of the following: restricted, abraded, collapsed, or broken hoses or tubes.
- E. **Trailer Air Brakes** to ensure that, in addition to the other items in this section, the trailer parking/emergency brake system applies and sets when air pressure falls below 20 to 45 psi.

5.8 Parking (Emergency) Brake Inspection

The Parking (Emergency) Brake Inspection is a functional inspection of the parking brake system. When inspecting the parking brake, the technician shall engage the parking brake to verify the following:

1. The parking brake holds the vehicle or combination of vehicles stationary under all conditions of loading on a surface free from snow, ice, and loose material.
2. The dashboard parking brake light is illuminating when the parking brake is applied and turns off when the parking brake is disengaged.

5.9 Brake System Warning Lights/Messages Inspection

There can be several different warning lights or messages related to operation of the brake system, including lights or messages related to brake fluid level, friction material (lining) wear, or anti-lock brake system (ABS) operation. It is the technician's responsibility to know what warning lights or messages the vehicle is equipped with according to the vehicle manufacturer's specifications.

- A. **Check operation.** The technician shall follow manufacturer procedures to verify the operation of every brake system related warning light and warning message(s) with which the vehicle is equipped.
- B. **Dashboard warning lights.** When inspecting the brake system warning light(s), the technician shall verify the light(s):
 1. Illuminate(s) when the key is turned to the ignition on - engine off position. This "bulb-check" allows the technician to verify the bulb is functional, but the bulb should turn off after the engine is started.

2. Does not stay illuminated after the bulb-check. If the light stays illuminated after the “bulb-check”, that indicates a system malfunction.

Do Not Certify when:

- The brake pedal is not securely fastened, is binding, or fails to return to its original position.
- The power brake assistance system fails to provide braking assistance, is damaged, or is leaking.
- There are any missing, broken, or damaged wheel studs or lug nuts.
- Any brake rotor or brake drum does not meet the manufacturer’s specifications, is corroded, or is damaged.
- Any brake pad or shoe does not meet the manufacturer’s service limits, is contaminated, or is damaged.
- Any drum brake shoe is installed incorrectly.
- Any drum brake hardware (including an S-type cam or actuating arm), anchors, or backplate is missing or damaged.
- Any axle bearing/grease seal is found to have failed.
- The master cylinder is damaged, leaking, or internally bypassing, or there is evidence of brake fluid contamination.
- Any valve (e.g., proportioning, metering, combination) is leaking or damaged.
- Any caliper is leaking or damaged, or has any missing or worn hardware or components.
- Any wheel cylinder is leaking, damaged, or not securely fastened.
- Any brake fluid or air system leak is found.
- Any wheel magnet is not securely fastened, is not under sufficient spring pressure, or is worn to the point the wear indicators (dots) are no longer present.
- Any electric trailer brake wiring, connector, or switch, or the electric trailer brake battery, is missing, damaged, or not securely fastened.
- Any of the air brake system components fails the inspection detailed in Chapter 5.7 of this manual.
- Any of the air brake system components are not securely fastened, or are missing or damaged.
- The brake chamber spring is broken.

- The air brake system is not capable of providing full brake application.
- The parking brake does not hold the vehicle under all load conditions.
- The vehicle (except motorcycles) is not equipped with both a brake system and a parking/emergency brake system.
- Any portion of the brake system is configured improperly according to vehicle or component manufacturer specifications.
- The trailer break-away system is missing, has any missing components, is damaged, or fails to operate correctly.
- Any brake system warning lights or warning messages do not “bulb-check” or they stay illuminated.

CHAPTER 6 Steering and Suspension

6.1 Steering and Suspension Systems Inspection Overview

The inspection of the steering and suspension systems is a physical and visual inspection that will include any and all bushings, bearings, ball-type socket joints, arms, rods, struts, bars, subframes, belts, power assist fluids, steering gears, steering columns, shocks, springs, linkages, and steering and suspension related sensors, switches, and wiring.

6.2 Physical Inspection

The technician shall:

- A. Inspect the steering column to ensure that it is securely fastened, the bearings securely support the steering shaft inside the column, turn freely without binding, and the steering wheel is securely fastened to the steering shaft.
- B. If equipped with power assistance (hydraulic/electrical), rotate the steering wheel from the left to the right while the power assistance system is functioning to verify that the power assistance is operational.
- C. Before removing tires, wiggle the wheel/tire assemblies side-to-side and top-to-bottom to check for worn inner or outer tie rod ends, worn wheel bearings, control arm bushings, worn steering gear/rack and pinion mounts, or other defective steering and suspension items. Any wear should be noted, and the defective part identified. If wear is identified in the upper or lower ball joints during this inspection, the technician must follow the procedures in Title 16, CCR section 3360.2 prior to condemning the ball-joint or recommending the replacement.

6.3 Visual Inspection

The technician shall:

- A. Inspect the power steering system for fluid level and leaks, inspect the power steering pump drive belt for proper adjustment, and observe the belt condition.
- B. Inspect the rack and pinion assembly: check for bent tie rods, sensors, switches, and wiring, check for fluid leaks, and ensure the rack and pinion assembly is securely fastened.
- C. Inspect steering gear box systems for secure mounting, damaged frame mounting location, excessive play in ball-type socket joints, and bent steering linkage.
- D. Inspect all visible steering and suspension related sensors, switches, actuators, and wiring for damage and proper routing.

- E. Inspect all suspension components for damage, including (but not limited to) the control arms, radius arms, strut rods, sway bar, subframes, and trailing arms.
- F. Inspect all bushings for signs of deterioration, damage, and wear.
- G. Inspect struts and shocks, and their mounts, for damage and leaks.
- H. Inspect springs (air, coil, leaf, and torsion bar) for the following: wear, damage, and breaks.

6.4 Steering and Suspension Warning Lights Inspection

When a vehicle is equipped with an active safety feature that keeps traction between the vehicle's tires and the road's surface in slippery or dangerous conditions, as specified in the manufacturer's specifications for the vehicle, the warning lights for those systems shall be inspected. These types of suspension and steering traction warning lights are often referred to as "Traction Control System", "Vehicle Stability Control", "Electronic Stability Program", "Dynamic Stability Control" (though this list is not exhaustive). When inspecting the steering and suspension warning lights, the technician shall verify the dashboard warning light(s):

- A. Illuminate(s) when the key is turned to the ignition on - engine off position. This "bulb-check" allows for verification that the bulb is functional, but the bulb should turn off after the engine is started.
- B. Does not stay illuminated after the "bulb-check". If the light stays illuminated after the "bulb-check", that is an indication of a system malfunction.

Do Not Certify when there is/are:

- Power steering fluid leaks.
- Damaged or worn steering components.
- Damaged or worn suspension components.
- Damaged or worn ball-type socket joints.
- Damaged or worn ball joints.
- Worn steering column mounting or bearings.
- Malfunctioning, damaged, or worn wheel bearings.
- Malfunctioning or inoperative power assist system.
- Broken, damaged, or worn springs (air, coil, leaf, or torsion bar).
- Any steering or suspension warning lights that do not "bulb-check" or that stay illuminated.

CHAPTER 7 Body Structure

7.1 Body Structure Inspection Overview

A vehicle requiring a vehicle safety systems inspection may have been deemed a total-loss due to severe accident damage, which could have severely altered the shape and structure of the frame or unibody. The body structure inspection is a visual inspection of the vehicle panels, frame/unibody, fuel system, and other components. Licensed technicians shall consult sections 27154 (sealing the cab from gases or fumes), 27600 (body panel requirements for specified vehicles), and 28071 (bumpers) of Division 12, Chapter 5 of the VC to ensure minimum inspection standards for the body structure inspection are met.

7.2 Passenger Vehicle Inspection

The body structure and adjoining components are designed to work together in an accident. Damage to one section of a vehicle may compromise the overall structure of the vehicle. When inspecting the vehicle's body structure, the technician shall inspect the following items, as applicable, to ensure they are securely fastened, are free of damage affecting functionality, and operate as designed without binding or jamming:

- A. **Hood:** The hood must securely latch when shut. The hood latch on most vehicles is a two-stage latch design. The main latch, normally located inside the vehicle, is operated by pulling the hood release lever. The secondary safety latch is operated from the exterior of the vehicle and accessible once the main latch is released. This two-stage latch is designed to prevent the hood from opening while the vehicle is in motion. The main latch and secondary safety latch must operate as designed by the manufacturer.
- B. **Doors:** Most vehicle doors have a two-stage latch design and both stages of the latch are operated from either the inside or the outside door handles. If the vehicle is equipped with a two-stage latch mechanism, both stages of the latch must be operational, and work as designed by the manufacturer. Additionally, doors must open and close as designed by the manufacturer when using the interior and exterior door handles.
- C. **Trunk/Liftgate/Hatchback:** The technician shall inspect the hinged body part at the rear of the vehicle to ensure it operates as designed without binding or jamming.

The technician shall inspect the following items to ensure they are securely fastened and free of damage or defects that prevent the item from operating as intended by the manufacturer:

- A. **Fenders:** Fenders are used as the covering of the wheels to minimize the spray of water, mud, and road debris onto the rear of the vehicle and, on certain vehicles, the mounting location for side marker or turn signal lights. Inspect the vehicle to verify all fender and wheel coverings are securely fastened and provide adequate coverage of the wheels.
- B. **Bumpers:** The bumpers on passenger vehicles offer protection in low-speed collisions. Inspect the vehicle to verify the vehicle has bumpers (as equipped by the manufacturer) and that all bumpers are securely fastened.

- C. **Frame:** The frame plays an important role in ensuring the safety of a vehicle and has crumple/crush zones designed to absorb energy in accidents. When inspecting vehicles equipped with a frame, inspect the frame for collision damage, repairs that were not performed in accordance with the manufacturer's specifications, and structural rust. As used in this manual, "structural rust" is corrosion that has penetrated the underlying metal, damaging the structural integrity of the part.
- D. **Body/Unibody:** The unibody design combines the frame and body into one unit and utilizes crumple/crush zones to absorb energy in accidents. Inspect the body/unibody for any collision damage, structural rust, gaps, and holes that could allow gases or fumes from the engine or exhaust to penetrate the passenger compartment when the engine is running.
- E. **Fuel System:** Inspect the visible areas of the fuel tank and fuel lines for damage and leaks.
- F. **Trailer Hitch:** If a vehicle is equipped with a trailer hitch, inspect to ensure the hitch is securely fastened and not damaged.

7.3 Motorcycle Inspection

Motorcycles shall be inspected for any visible signs of misalignment of wheels, handlebars, forks, and rear swing arm. The structural components of the motorcycle should be in a condition that allows for the proper mounting and operation of the various systems included in the vehicle safety systems inspection.

7.4 Recreational Vehicles (RV) Inspection

RVs vary in design and construction. For the purposes of this inspection, RVs include motor homes and travel trailers. Motor homes are large motor vehicles equipped with living quarters. Travel trailers are trailers drawn specifically by automobiles and equipped for use (while traveling) as dwellings. When inspecting an RV, the technician shall:

- A. **Motor Homes:** Inspect the hood, doors, frame, and body for damage, structural rust, and holes in accordance with the criteria for inspecting passenger vehicles, set forth in Chapter 7.2 of this manual. The housing structure of a motor home should be inspected for securely fastened exterior panels, doors, and components. Inspect to ensure that any externally mounted propane tanks are securely fastened, and that any visible propane lines are free of damage and leaks.
- B. **Travel Trailers:** Inspect for cracks and damage to the frame, tongue, gooseneck, and fifth wheel attachment point of the trailer. Verify safety chains are present and in good condition for installation when they are needed. Inspect travel trailers for securely fastened panels, doors, ramps, and components. Inspect to ensure that any externally mounted propane tanks are securely fastened, and inspect any visible propane lines for damage and leaks.

7.5 Non-Recreational Vehicle Trailer Inspection

For the purposes of this inspection, a non-recreational vehicle trailer (trailer) is a non-automotive vehicle designed to be hauled to transport something. Verify safety chains are present and in good condition for installation when they are needed. Trailers must be inspected for cracks and structural rust on the frame, tongue, gooseneck, and fifth wheel attachment point. Inspect enclosed trailers, trailers equipped with ramps, and utility trailers to ensure all components are securely fastened.

Do Not Certify when:

- The hood, any of the doors, or the trunk/liftgate are missing, damaged, do not latch, or bind when opening or closing.
- Any fenders, panels, or bumpers are missing, damaged, or not securely fastened.
- There is any unrepaired or poorly repaired frame damage or structural rust.
- There are any signs of unrepaired collision damage or structural rust that significantly alter the shape or structure of the unibody.
- The body or cab of the vehicle is not sealed against the penetration of gases or fumes from the engine or exhaust system.
- There are any visible fuel leaks.
- The hitch is damaged or not securely fastened.

In addition to items listed above:

- **Do Not Certify Motorcycles when:**
 - The handlebars, forks, frame, or swing arm have damage that inhibits normal operation of the vehicle as designed and intended by the manufacturer.
- **Do Not Certify Motor Homes when:**
 - There are any damaged, missing, or unsecured panels that pose a hazard to the vehicle occupants, or other vehicles on the road, when the motor home is being driven.
 - The externally mounted propane tank is damaged, leaking, or not securely fastened, or the propane lines are damaged or leaking.

- **Do Not Certify Travel Trailers when:**

- There are any damaged, missing, or unsecured panels.
- There are any cracks or damage to the frame, tongue, gooseneck, or fifth wheel attachment that would prevent it from being safely attached to a tow vehicle.
- The safety chains are missing.
- The externally mounted propane tank is damaged, leaking, or not securely fastened, or the propane lines are damaged or leaking.

- **Do Not Certify Non-Recreational Trailers when:**

- There are any cracks or damage to the frame, tongue, gooseneck, or fifth wheel attachment that would prevent it from being safely attached to a tow vehicle, or if any components are not securely fastened.
- The safety chains are missing.

CHAPTER 8 Road Test

8.1 Road Test Inspection Overview

A road test is the last portion of the vehicle safety systems inspection. If, during the inspections required in Chapters 2 through 7 of this manual, the vehicle fails to meet any of the inspection standards, a technician may choose not to perform the road test. A technician shall not certify a vehicle without the vehicle passing the road test.

A road test may reveal problems or defects that are not readily apparent during the static inspections. The road test shall consist of a stopping test, a visual inspection of the instrument cluster and any controls, and an evaluation of the control and stability of the vehicle at speed according to the requirements of this chapter. When performing a road test, the vehicle must be driven at a sustained speed of no less than 30 miles per hour (mph) for a distance long enough to assess all the systems covered in this chapter.

8.2 Horn Inspection

With the vehicle parked, and prior to entering any roadway, the technician shall activate the vehicle's horn to ensure that it activates and can be heard.

8.3 Dashboard Warning Lights Inspection

While driving the vehicle, warning lights for the brake system (including ABS), steering and suspension system, and SRS may illuminate. The technician shall observe the instrument cluster at various times while driving for warning lights or safety related messages.

8.4 Stopping Test

The brakes of every motor vehicle or combination of vehicles must be able to stop and hold the vehicle or combination of vehicles under all conditions of loading on any grade on which it is operated.

The stopping test must be performed on a level, dry, smooth, hard, surfaced road, free of any loose material.

At a speed of 20 mph, apply the brake pedal firmly, without causing the tires to skid or ABS to activate. The vehicle must come to a straight, smooth, and complete stop within the distance specified in Table R.1.

Table R.1 - Stopping Test Distances

Vehicle Type	Maximum Stopping
Any passenger vehicle (including motorcycles).	25
Any single vehicle with a manufacturer gross vehicle weight rating (GVWR) of less than 10,000 lbs.	30
Any combination of vehicles with a manufacturer GVWR of less than 10,000 lbs. and any trailer, semitrailer, or trailer coach.	40
Any single vehicle with a manufacturer GVWR of 10,000 lbs. or more, or any bus.	40
All other combinations of vehicles.	50

8.5 Vehicle Control Inspection

The technician shall drive the vehicle at a sustained speed of no less than 30 mph and observe for any and all pulling, drifting, and vibration that make the vehicle difficult to control. The steering wheel should remain as straight as possible while the vehicle is traveling in a straight line on a level roadway and require minimal steering correction. The technician shall be able to maintain control of the vehicle at speed. Alignment and stability issues indicate underlying steering, suspension, frame or unibody structure damage, or other defects, and the vehicle shall not pass the inspection.

Do Not Certify when:

- The vehicle's horn does not activate or cannot be heard.
- Any warning light for the SRS (as referenced in Chapter 3.8 of this manual), the brake system (as referenced in Chapter 5.9 of this manual), the steering and suspension system (as referenced in Chapter 6.4 of this manual), or any other safety related fault messages illuminates during or after the road test.
- The vehicle fails to come to a straight, smooth, and complete stop within the required distance, specified in this chapter, when moving at the specified speed.
- The vehicle has any underlying issue that makes it difficult to control.

CHAPTER 9 Required Equipment

9.1 Required Equipment for Vehicle Safety Systems Inspections

This Chapter outlines the required equipment, tools, and reference materials that licensed stations shall maintain on premises, including this Safety Systems Inspection Manual. All equipment shall be maintained and calibrated in accordance with manufacturer standards, and fully usable and operable as intended by the manufacturer.

9.2 BAR-SIS Equipment

The BAR-SIS shall consist of a computer with an attached bar code scanner, printer, biometric device, web camera, and BAR Certified DAD. These separate components may be assembled by the safety systems inspection stations, may be provided as a unit by various vendors, or could be an all-in-one solution, such as an integrated tablet. All licensed stations shall maintain the following:

- **Computer:** Running a BAR tested and approved version of Microsoft Windows operating system software. The operating system software version shall be supported by Microsoft. When no longer supported, the operating system software shall be updated to a supported version.
- **Bar Code Scanner:** May be wired or wireless but must be capable of connecting to the computer (e.g., through USB connection, Bluetooth), compatible with the Microsoft Windows operating system, and able to at least scan 1-d (linear type) bar codes. Optionally, a 2-d (square type) bar code scanner may be used for late model-year vehicles.
- **Printer:** May be any technology (laser, ink, etc.), compatible with the Microsoft Windows operating system used, and use 8½ inch by 11-inch plain paper. The printer may have a wired or wireless connection to the BAR-SIS computer.
- **Biometric Device:** Fujitsu palm vein scanner sensor model FAT13FPS01 with 2-meter-long USB 2.0 (A) Male to (B) Micro - USB Cable.
- **Web Camera:** Hardwired to the BAR-SIS computer, and is equipped with/meets the following requirements: autofocus, automatic light correction, built-in noise canceling microphone, USB 3.0 compliant, full HD (1920 x 1080 pixels) video recording and video calling at a minimum of 30 frames per second (FPS), and H.264 video compression. Note: a single USB 3.0 extension cable is permitted to extend the camera's cable up to an additional 15 feet.
- **BAR Certified DAD:** Capable of retrieving OBD information from the vehicle being inspected, as specified in BAR's OBD Inspection System Data Acquisition Device Specification (October 22, 2012; incorporated by reference in Title 16, CCR section 3340.17(b)).

9.3 Lighting Inspection Tools, Equipment, and Reference Materials

- **Aiming Equipment** - Equipment for aiming headlights and auxiliary lights shall meet the vehicle manufacturer requirements for each vehicle the station accepts for certification or work related to certification.
 - **Option 1** - Aiming screens may be used for all headlights and auxiliary lights. Provisions shall be made so that the screen can be shaded sufficiently from both direct and ambient light during all hours of operation to adequately perform aiming functions.
 - **Option 2** - Optical type headlight aiming equipment may be used for all headlights and auxiliary lights.
 - **Option 3** - Mechanical type headlights aiming equipment shall be used only for lights manufactured with three aiming pads on the headlight lens.
- Suitable hand tools for performing the lighting inspections.
- All appropriate and current lighting specifications, manuals, bulletins, and instructions, in accordance with Original Equipment Manufacturer (OEM) service specifications, or nationally recognized and industry-accepted service specifications, including electronic forms.
- Service manuals and operating instructions issued by the manufacturers for all lighting inspection tools, instruments, headlight aimers, machines, devices, and equipment used by the station.

9.4 Tire and Wheel Inspection Tools

- A tire tread depth gauge capable of measuring up to 1 inch of tread depth in 1/32 inch increments.
- A tire pressure gauge or gauges capable of measuring from 10 to 120 pounds per square inch (psi) in increments of 1 psi.
- A tire inflator capable of inflating a tire up to 120 psi.

The required tire pressure gauge and tire inflator may also be a singular combined dual-purpose tool capable of measuring tire pressure and inflating the tire to any vehicle and tire manufacturer specifications.

9.5 Brake Inspection Tools, Equipment, and Reference Materials

- Hand tools necessary for performing brake inspections and tests performed by that station.
- A brake drum diameter gauge capable of measuring in increments of 0.005 inch (0.125 millimeter (mm)) or smaller.
- A disc brake rotor thickness gauge capable of measuring in increments of 0.001 inch (or 0.01 mm).
- A disc brake rotor runout gauge (dial indicator) capable of measuring in increments of 0.001 inch (or 0.01 mm) with magnetic or clamp type stand.
- Brake lining gauges capable of measuring thickness of remaining usable brake lining either in fractions of an inch or mm.
- Torque wrenches capable of measuring torque in accordance with vehicle manufacturer's installation and adjustment specifications.
- All appropriate and current brake specifications, manuals, bulletins, and instructions, in accordance with Original Equipment Manufacturer (OEM) service specifications, or nationally recognized and industry-accepted service specifications that are accepted by the industry, including electronic forms.
- Service manuals and operating instructions issued by the manufacturers for all brake inspection tools, instruments, machines, devices, and equipment used by the station and its technicians.

9.6 Required Equipment Electronic Transmission

Vehicle data and inspection results from the BAR-SIS shall be transmitted to the Vehicle Information Database (VID) via an internet connection. The BAR-SIS shall be connected to BAR's web page through an internet connection. The internet connection may be shared with other devices but must always remain connected. The BAR-SIS will not function without a continuous internet connection to the VID. Anytime the BAR-SIS fails to communicate with the VID, the problem must be fixed before performing a vehicle safety systems inspection.

Appendix A

Figure 1. Setting Up a Lamp Aiming Screen

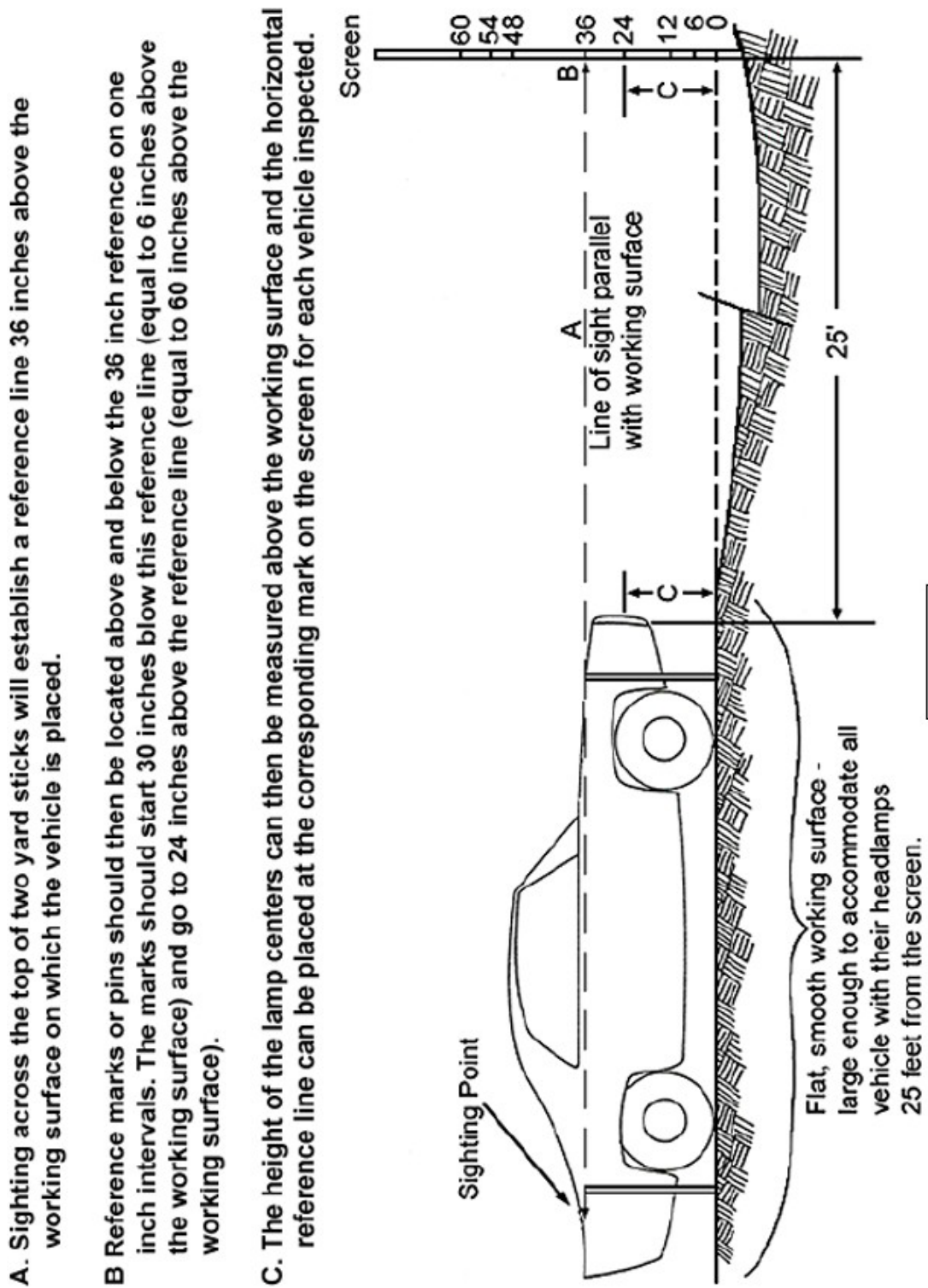


Figure 1

A. Sighting across the top of two yard sticks will establish a reference line 36 inches above the working surface on which the vehicle is placed.

B. Reference marks or pins should then be located above and below the 36 inch reference on one inch intervals. The marks should start 30 inches below this reference line (equal to 6 inches above the working surface) and go to 24 inches above the reference line (equal to 60 inches above the working surface).

C. The height of the lamp centers can then be measured above the working surface and the horizontal reference line can be placed at the corresponding mark on the screen for each vehicle inspected.

Figure 2. Positioning The Vehicle Correctly

When a vehicle does not have an identifying feature to establish a centerline, the following procedure may be used to find center:

- A. Measure across the engine hood and mark the center. A small magnet is a good marker; however, be careful not to scratch or damage the vehicle's paint.
- B. Follow the same procedure on the rear deck of the vehicle.
- C. Position the vertical reference line on the aiming screen using the objects as sights.

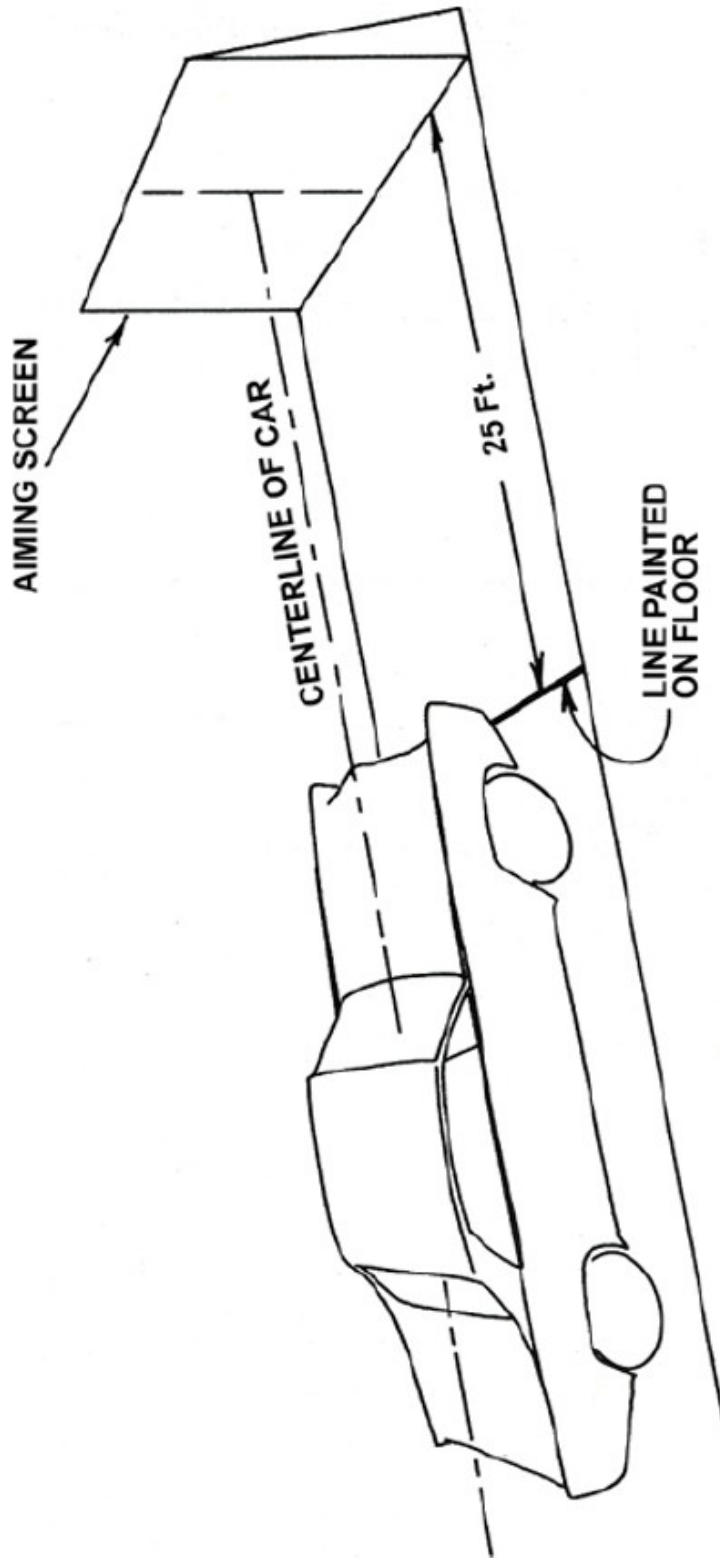


Figure 2

Figure 3. How to Construct a Typical Aiming Screen

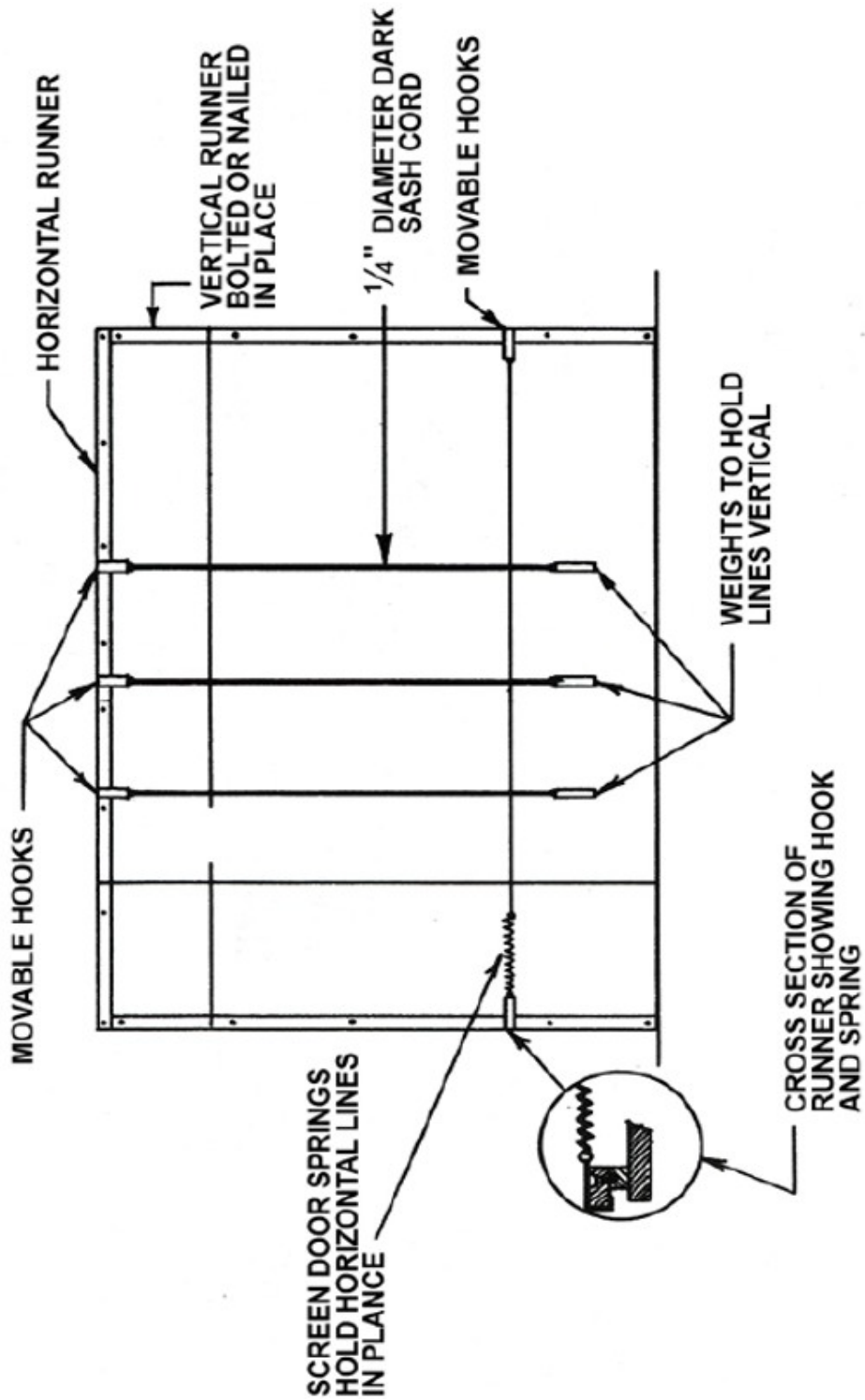


Figure 3

Figures 4 and 5. High Beam Headlights - Proper Aim and Inspection Limits

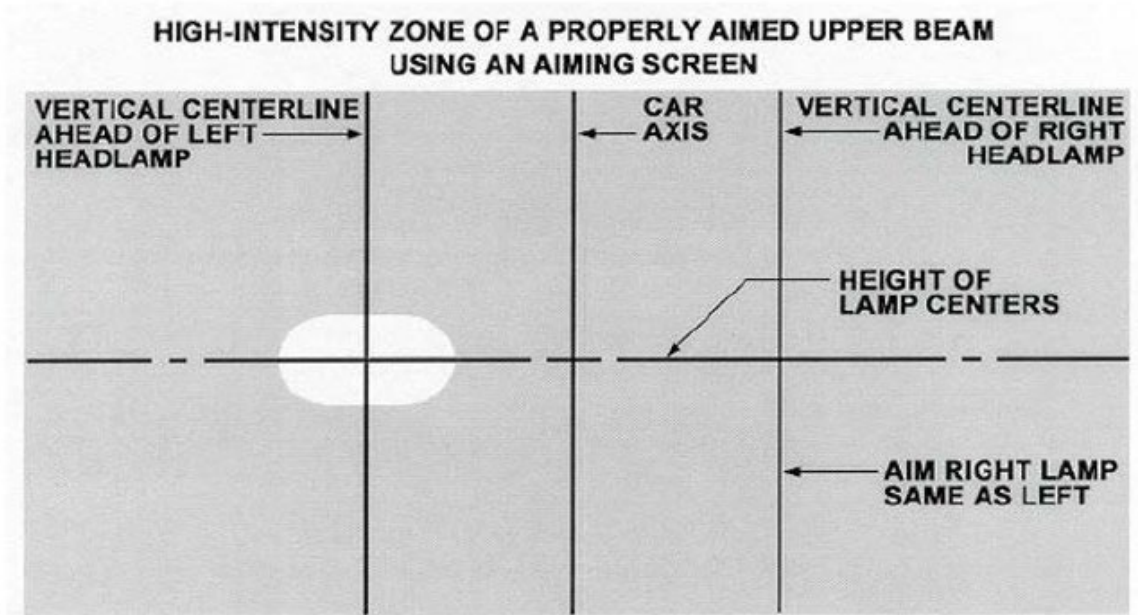


Figure 4

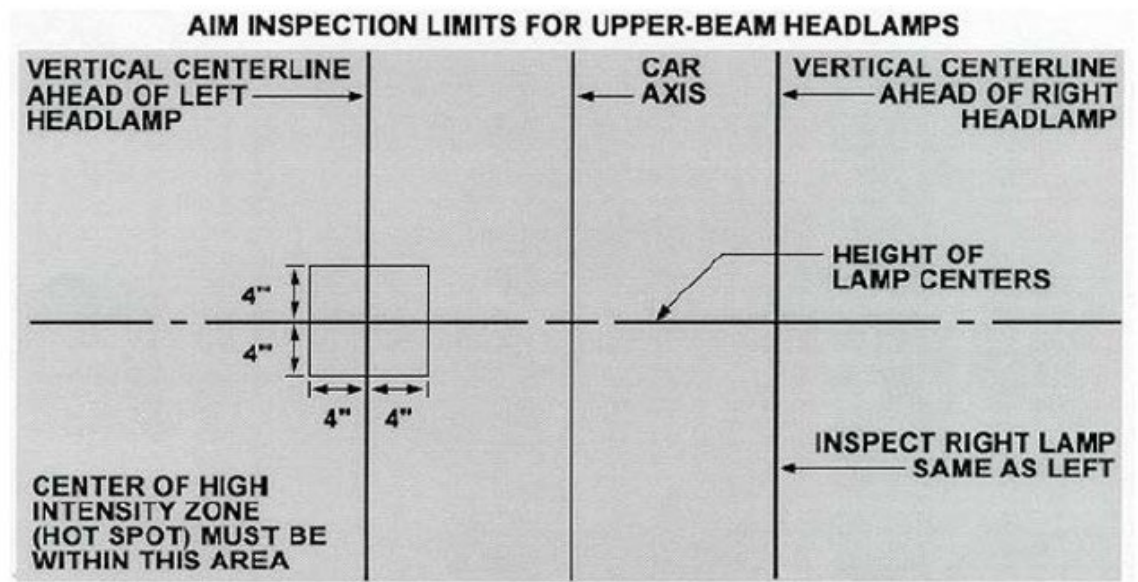


Figure 5

Figures 6 and 7. Low Beam Headlights - Proper Aim and Inspection Limits

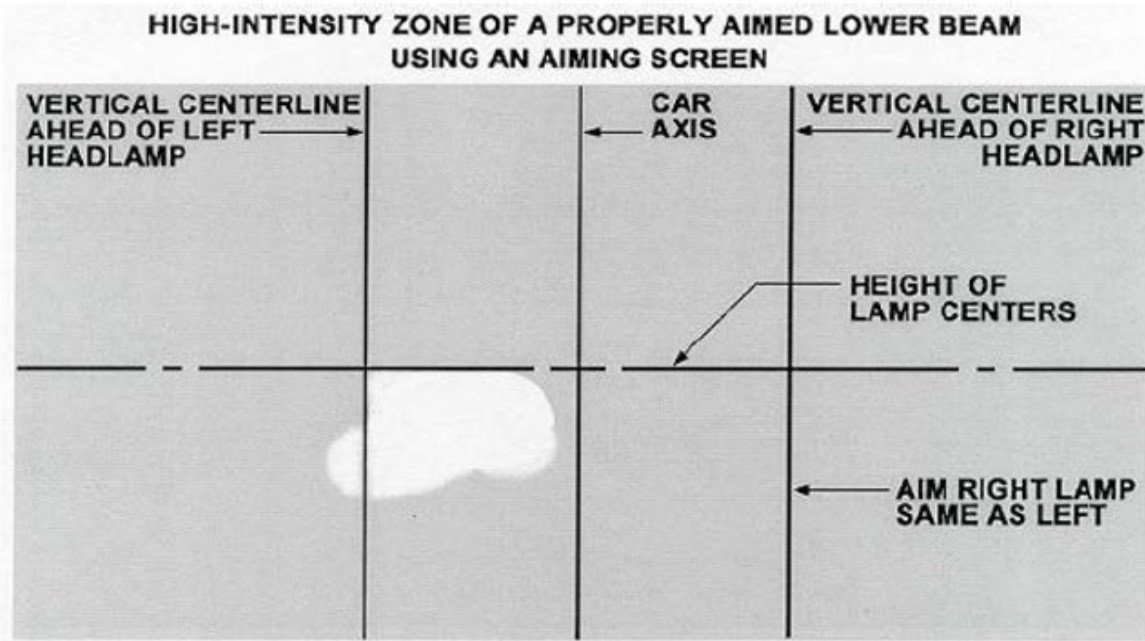
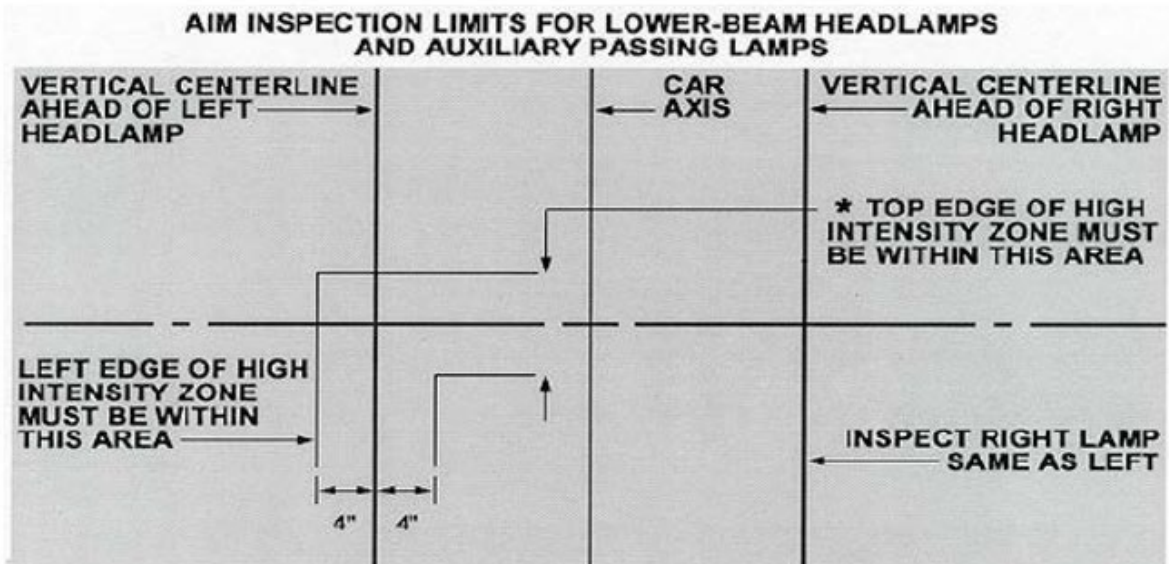


Figure 6



* Headlamp (centerline) Mounting Height	Nominal Vertical Aim	Aim Inspection Limits for Vertical Aim
22 to 36 in (56 to 90 cm)	0 Vertical	4 in (10 cm) Up to 4 in (10 cm) Down
36 to 48 in (90 to 120 cm)	2 in (5 cm) Down	2 in (5 cm) Up to 6 in (15 cm) Down
48 to 54 in (120 to 140 cm)	4 in (6.4 cm) Down	1.5 in (4 cm) Up to 6.5 in (16.5 cm) Down

Figure 7