Vehicle Safety Systems Inspection Manual

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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 though 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 Requirements[1]

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 Rear	15 - 83 inches 15 - 83 inches	Front-Amber Rear-Red or Amber	2 or More 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 Rear	15 - 83 inches 15 - 83 inches	Front-Amber Rear-Red or Amber	2 or More 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 Side Near Rear	15 - 60 inches 15 - 60 inches	Front-Amber Rear-Red	1 Each Side 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 difficultly 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 Distance (Feet)
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 or newer 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

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 blow 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.

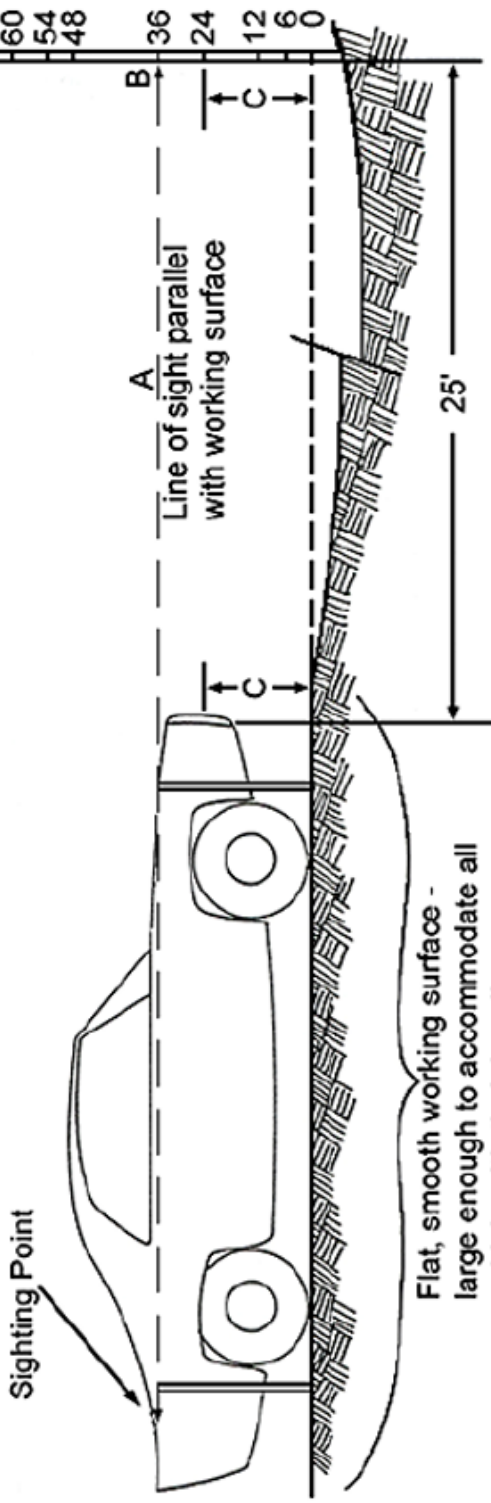


Figure 1

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:

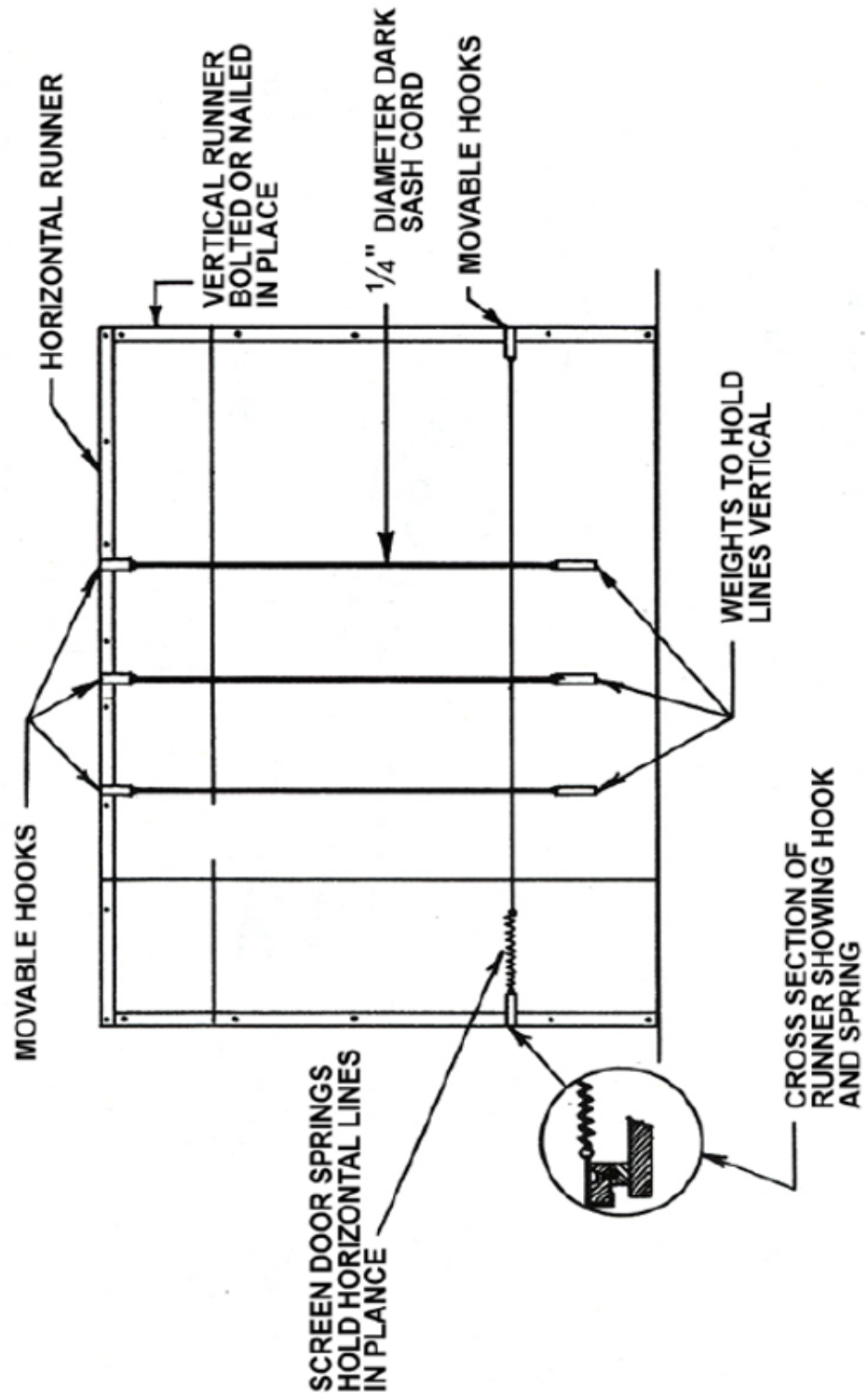
A. Measure across the engine hood and mark the center. A small magnet is a good marker; however, be careful not to scratch or damage the vehicle's paint.

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



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

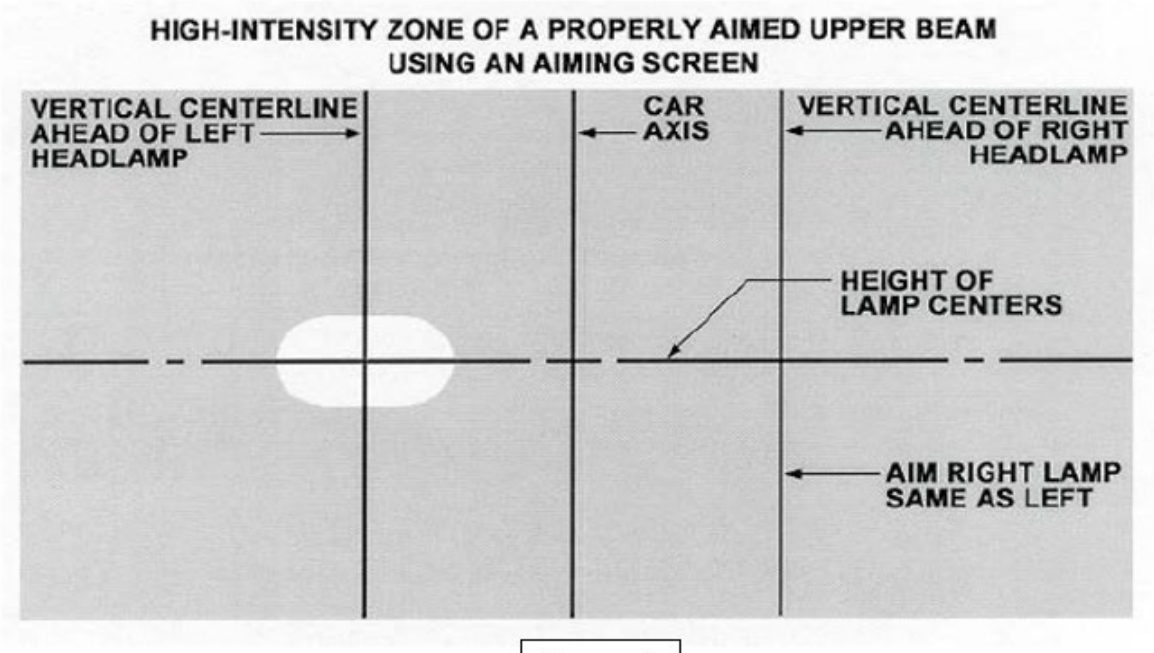


Figure 4

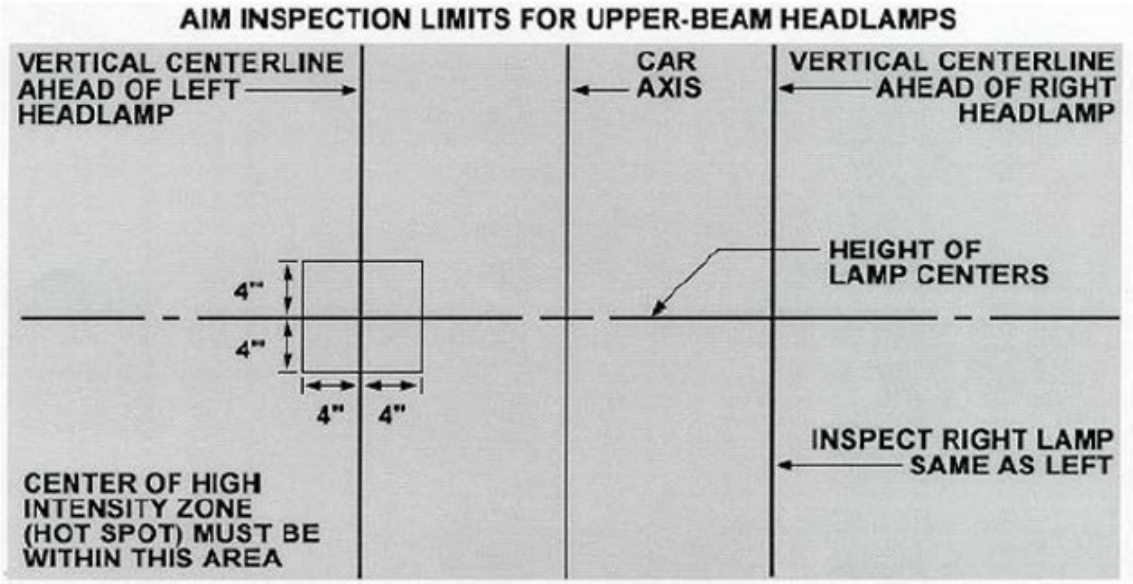


Figure 5

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

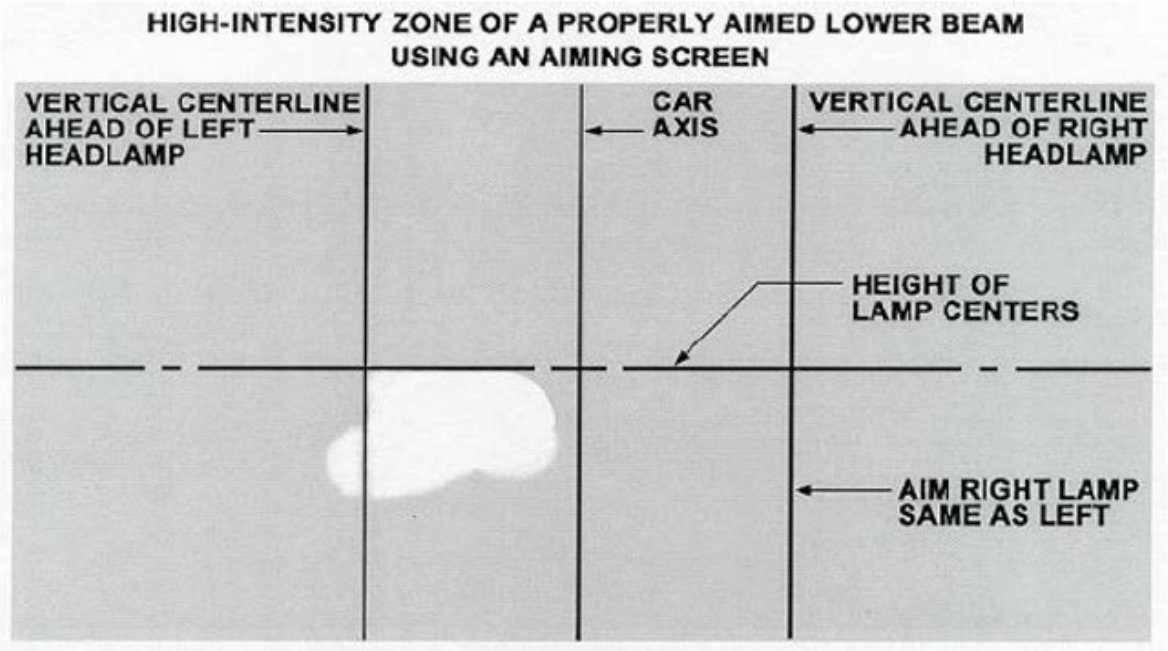
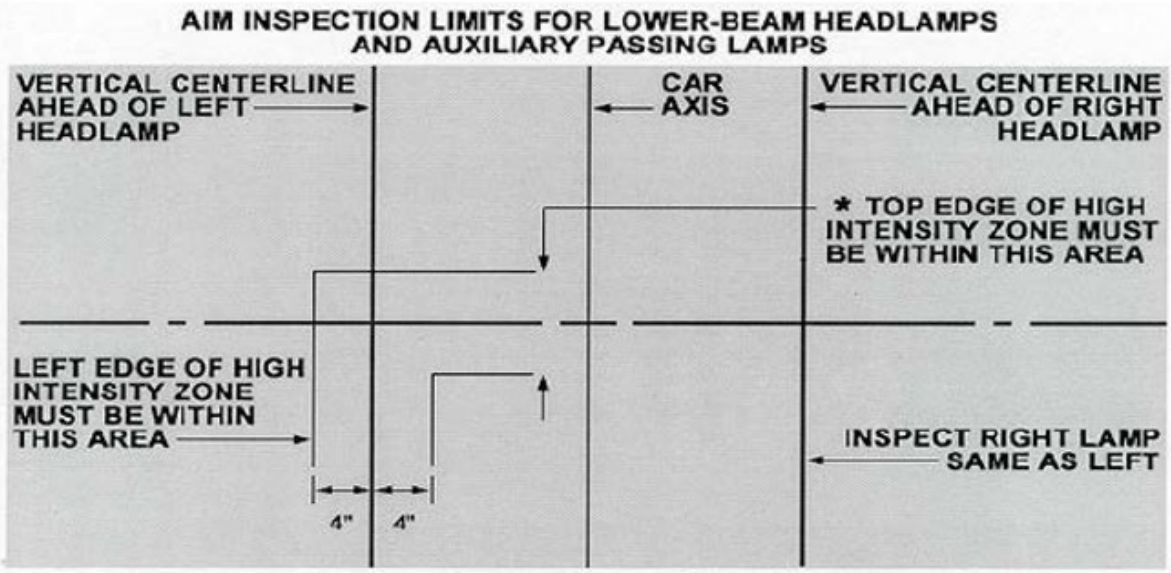


Figure 6



* Headlamp (centerline) Mounting Height	Nominal Verical 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