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VEHICLE SAFETY 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 (CCR), title 16, section 3311.1. It provides procedures related to the issuance of vehicle safety inspection certificates of compliance.

Licensed vehicle safety stations (stations) and licensed vehicle safety technicians (technicians) must follow these procedures and BAR Safety Inspection System software prompts when conducting an inspection.

No attempt has been made to relate the information contained in this publication 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 a thorough and accurate inspection on all vehicles accepted by the station for inspection. Each station must maintain access to current requirements and technical information relative to the types and designs of vehicle systems inspected and repaired by the station.

All vehicle safety inspections, must be performed in licensed stations, by licensed technicians, 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 Automotive Intelligence, Chilton, Mitchell, and Motor Information Systems.
4. The Bureau’s Vehicle Safety Inspection Manual (Safety Inspection Manual), (Revised INSERT REVISION DATE).

Moreover, technicians must be familiar with the Vehicle Code (VEH), Division 12, Chapters 2 (Lighting Equipment), 3 (Brakes), 4 (Windshield and Mirrors), and 5 (Other Equipment) as these laws dictate the requirements for the systems inspected as part of the vehicle safety inspection. Links may be found in section 1.4 of this Manual.

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

TABLE OF CONTENTS

CHAPTER 1: ACCESS, VEHICLE IDENTIFICATION, OVERVIEW, REFERENCE MATERIALS 1

- 1.1. Licensed Technician Access to BAR-Safety Inspection System..... 1
- 1.2. Vehicle Identification 1
- 1.3. Inspection Overview..... 2
- 1.4. Reference Materials 3

CHAPTER 2: LIGHTING 4

- 2.1. Lighting System Inspection Overview 4
- 2.2. Additional Lighting Systems and System Requirements..... 8
- 2.3. Light Mounting Inspection 10
- 2.4. Headlight Aim Inspection 10
- 2.5. Bulb Failure Warning Light Inspection 11

CHAPTER 3: PASSENGER COMPARTMENT 12

- 3.1. Passenger Compartment Inspection Overview..... 12
- 3.2. Mirror Inspection 12
- 3.3. Windshield and Rear Window Inspection..... 12
- 3.4. Windshield Wipers Inspection 13
- 3.5. Seat Inspection 13
- 3.6. Seatbelt Inspection..... 13
- 3.7. Child Seat LATCH System Inspection 13
- 3.8. Air Bag Inspection 14
- 3.9. SRS Warning Light Inspection 14

CHAPTER 4: TIRES AND WHEELS 15

- 4.1. Tire and Wheel Inspection Overview 15
- 4.2. Tire Inspection..... 15
- 4.3. Wheel Inspection..... 16
- 4.4. Tire Pressure Monitoring System Inspection 16
- 4.5. Temporary Spare Tire 17

CHAPTER 5: BRAKES 18

- 5.1. Brake System Inspection Overview 18
- 5.2. Brake Pedal Inspection 18
- 5.3. Power Braking Assistance Systems Inspection 19
- 5.4. Friction System Inspection 19
- 5.5. Hydraulic System Inspection..... 21
- 5.6. Electric Trailer Brake System Inspection 21

5.7. Air System Inspection 22

5.8. Parking (Emergency) Brake Inspection..... 22

5.9. Brake System Warning Lights and/or Warning Messages Inspection 22

CHAPTER 6: STEERING AND SUSPENSION 25

6.1. Steering and Suspension Systems Inspection..... 25

6.2. Physical Inspection 25

6.3. Visual Inspection 25

6.4. Steering and Suspension Warning Lights Inspection..... 26

CHAPTER 7: BODY STRUCTURE 27

7.1. Body Structure Inspection Overview 27

7.2. Passenger Vehicles Inspection 27

7.3. Motorcycle Inspection 28

7.4. Recreational Vehicles Inspection 28

7.5. Non-Recreational Vehicle Trailer Inspection..... 29

CHAPTER 8: ROAD TEST 31

8.1. Road Test Inspection Overview 31

8.2. Horn Inspection 31

8.3. Dashboard Warning Lights Inspection 31

8.4. Stopping Test..... 31

8.5. Vehicle Control..... 32

CHAPTER 9: REQUIRED EQUIPMENT 33

9.1. Required Equipment for Vehicle Safety Inspections 33

9.2. BAR-SIS Equipment..... 33

9.3. Lighting Inspection Tools, Equipment, and Reference Materials 33

9.4. Tire and Wheel Inspection Tools..... 34

9.5. Brake Inspection Tools, Equipment, and Reference Materials 34

9.6. Required Equipment Electronic Transmission 35

9.7. Required Equipment Location..... 35

APPENDICES..... 36

Appendix A: Setting Up a Lamp Aiming Screen..... 37

Appendix B: Positioning the Vehicle Correctly 38

Appendix C: How to Construct a Typical Aiming Screen 39

Appendix D: High Beam Headlights Proper Aim and Inspection Limits 40

Appendix E: Low Beam Headlights Proper Aim and Inspection Limits 41

CHAPTER 1: ACCESS, VEHICLE IDENTIFICATION, OVERVIEW, REFERENCE MATERIALS

1.1. Licensed Technician Access to BAR-Safety Inspection System

BAR or a BAR authorized representative shall verify the identity of the applicant or licensed technician and use a biometric device to enroll the applicant or technician for purposes of authorizing access to perform inspections using the BAR-Safety Inspection System (BAR-SIS).

BAR may allow an alternate means to access the BAR-SIS based upon a proven incompatibility of a technician with the biometric device. Alternate means may include the use of a unique username and 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 your access code has been compromised, or you suspect another person has used your access code, you must contact your local BAR field office immediately.

Entering a technician license number and using biometric authentication, or access code as permitted, will provide access to the BAR-SIS, as applicable. Follow the BAR-SIS prompts to access the vehicle safety inspection mode.

1.2. Vehicle Identification

A technician shall follow the BAR-SIS prompts to input the following 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 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 seven (7) digits. Handicap plates are entered by starting with the first character and no spaces are entered.
- **Name of Owner** - Enter the vehicle owner or operator's name as presented at the time of inspection. If the vehicle is in the possession of a dealer, enter the name of the dealer.
- **Vehicle Model-Year and Make** - Enter the vehicle model-year and make. (If the vehicle is a motorhome, enter the model-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 barcode scanner shall be used as the first method of entry. Manual entry must be used in cases where the vehicle is not equipped with a barcode or the barcode 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.

DMV may request a copy of the Vehicle Safety Report (VSR) as proof of certification of compliance. The customer shall be advised to retain a copy of the VSR throughout the registration process.

The BAR-SIS will not function without a continuous internet connection to the Vehicle Information Database (VID). Anytime the BAR-SIS fails to communicate with the VID, the problem must be fixed before performing a safety inspection.

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

Note: Accuracy is critical to ensure the appropriate test sequences and standards are applied. For all inspections, technicians must verify that all vehicle information is complete and correct. If not, 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 safety systems and enter the requested information accurately. **Each technician is responsible for the accuracy of the test. It is impossible to void a certificate of compliance once it is issued.**

1.3. Inspection Overview

Only a licensed technician working in a licensed station may perform a safety inspection and issue a certificate of compliance. When performing a safety inspection, the technician shall inspect the condition of all required 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 inspection to be addressed at the conclusion of the completed inspection.

If a station lacks the knowledge, equipment, tools, or reference information necessary 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 technician must reject the vehicle before starting an inspection by informing the customer orally and in writing.

Ensure the customer is provided an estimate for the inspection in accordance with the Automotive Repair Act, Business and Professions Code section 9884.9, 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.

Pass/Fail

To pass the inspection, the required safety systems shall have been inspected and found to be operating in accordance with vehicle and/or component manufacturer specifications, and in compliance with the California Vehicle Code, titles 13 and 16 of the California Code of Regulations, and Federal Motor Vehicle Safety Standard (FMVSS), and nationally recognized and industry-accepted standards. If any required safety system is found to be defective, the vehicle shall fail the inspection.

Technician's Certification

The licensed technician who performed the inspection shall enter their credentials to certify the completion of the inspection.

Certificate of Compliance

The BAR-SIS will issue a certificate of compliance only when a vehicle passes all applicable portions of the safety inspection.

Vehicle Fails Safety Inspection

A vehicle fails the safety inspection when any required safety system or system components are found to be missing or not operating as detailed in this manual. No certificate may be issued for a failed vehicle safety inspection.

Vehicle Safety Report (VSR)

The BAR-SIS will generate a VSR at the completion of a safety inspection. The licensed station must provide a copy of the VSR to the customer and keep a copy for the station's records for no less than three years from the date of the inspection.

1.4. Reference Materials

This handbook is intended to provide guidance to stations and technicians. This manual is not all inclusive; therefore, station owners and technicians must use all appropriate reference manuals and electronic media to obtain the necessary vehicle information required to complete the inspection. It is the station owner and technician's responsibility to know and follow applicable procedures and laws when performing a safety inspection and ultimately issue certificates of compliance. References station owners and technicians should use include:

- California Vehicle Code (VEH) (available at <https://leginfo.legislature.ca.gov/faces/codes.xhtml>)
- California Code of Regulations (CCR), titles 13 and 16 (available at <https://govt.westlaw.com/calregs/Search/Index>)
- BAR Laws and Regulations (available at www.bar.ca.gov)
- Code of Federal Regulations, Title 49, parts 500-571 (available at <https://www.govinfo.gov/app/collection/cfr>)

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, replacement, and/or customer added lights, and reflectors. Lighting equipment requirements are contained in VEH Division 12, Chapter 2 (commencing with Section 24250), and Title 13 of the California Code of Regulations (CCR), Division 2, Chapter 2 (commencing with Section 620). Refer to Table 1: General Lighting Requirements in this chapter for more information.

As applicable to the vehicle, the technician shall inspect the following lights and reflectors to ensure they are present, properly installed, properly adjusted, work as designed by the vehicle manufacturer and/or the component manufacturer, and in compliance with applicable laws and regulations:

- Headlights (e.g., low-beam, high-beam, daytime running lights, and high-beam indicator)
- Fog Lights
- Auxiliary Driving Lights
- Auxiliary Passing Lights
- Cornering Lights
- Running Lights
- Spotlights
- Taillights
- Stop Lights (including center high-mounted types)
- Signal Lights
- Back-up (Reverse) Lights
- License Plate Lights
- Parking Lights
- Clearance Lights
- Identification Lights
- Side Marker Lights
- Rear Red Fog Lights
- Rear-Facing Auxiliary Lights
- Supplemental Rear Turn Signal Lights
- Reflectors
- Conspicuity Systems (reflective sheeting)

Table 1: General Lighting Requirements¹

Vehicle Type	Lights/Reflectors	Location	Height ²	Color ³	Number
All Vehicles	Headlights Headlight assemblies must be labeled with "DOT" indicating they meet Federal Motor Vehicle Safety Standards (FMVSS).	Front	22" - 54"	White (Some DOT lights emit slight blue light)	2 or 4 or Integral Beam System
All Vehicles	Taillights	Rear	15" - 72"	Red	2 or More
All Vehicles	Rear Brake Lights Brake lights may flash up to four times within four seconds of application.	Rear	15" - 72"	Red (May be Amber pre-1979)	2 or More (at least 1 each side)
All Vehicles	Turn Signals Turn Signals shall flash 60-120 per minute	Front Rear	15" - 83" 15" - 83"	Front- Amber Rear- Red or Amber	2 or More 2 or More
All Vehicles	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" 15" - 83"	Front- Amber Rear- Red or Amber	2 or More 2 or More
All Vehicles	Parking Lights Vehicles less than 80" wide (not required on trailers).	Front	15" - 72"	Amber or White	2 or More
All Vehicles	Side Marker Lights	Side Near Front Side Near Rear	15" min. 15" min.	Front- Amber Rear- Red	1 Each Side 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 (CVC 24254).

3 Colors apply to the color of the light when illuminated

Vehicle Type	Lights/Reflectors	Location	Height ²	Color ³	Number
All Vehicles	Intermediate Marker Lights Required on vehicles 30' in length or more.	Side Near Center	15" min.	Amber	1 Each Side
All Vehicles	Back-up (Reverse) Lights Applies only to 1969 and newer vehicles. Not required on trailers.	Rear	N/A	White	1 or More
All Vehicles	License Plate Light	Rear	N/A	White	1 or More
All Vehicles	Rear Reflex Reflectors	Rear	15" - 60"	Red	2 or More
All Vehicles	Side Reflex Reflectors	Side Near Front Side Near Rear	15" - 60" 15" - 60"	Front-Amber Rear-Red	1 Each Side 1 Each Side
All Vehicles	Intermediate Side Reflectors Required on vehicles 30' in length or more	Side Near Center	15" - 60"	Amber	1 Each Side
Vehicles 80" or more in overall width ⁴	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
Vehicles 80" or more in overall width ⁴	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

⁴ Additional requirements for vehicle type

Vehicle Type	Lights/Reflectors	Location	Height ²	Color ³	Number
Truck Tractor ⁴	Conspicuity Systems Upper Rear (Retro reflective sheeting) Two white 12" long strips of retro reflective sheeting positioned horizontally and 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.	Rear Upper Corners	See Description	White	2 Pair Each Side
Truck Tractor ⁴	Conspicuity Systems Lower Rear Retro reflective sheeting and/or array of reflex reflectors positioned horizontally on the rear fenders, and/or mud flaps, and/or 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" or more in overall width and > 10,000 lbs. GVWR ⁴	Conspicuity Systems Upper Rear Two pairs of white 12" 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

Vehicle Type	Lights/Reflectors	Location	Height ²	Color ³	Number
Trailers 80" or more in overall width and > 10,000 lbs. GVWR ⁴	Conspicuity Systems Lower Sides and Rear Retroreflective sheeting and/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" of the edge of any required amber light. The white reflecting material may not be within 3" of any required amber or white light.	Side Lower Edge Rear Lower Edge	15"- 60"	Lower Sides and Rear-Red and White Upper Rear-White	Across Side, Rear, and Underride Protection Frame

Notes on Table 1: General Lighting Requirements

- These requirements are not intended to be all inclusive. As stated in the foreword of this publication, 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 requirements, technical information, and instructions 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.
- Refer to Federal Motor Carrier Safety Administration (FMCSA) publications and FMVSS108 for more information.

2.2. Additional Lighting Systems and System Requirements

Additional lighting systems and system requirements not listed above under "General Lighting Requirements" shall meet the requirements listed below. Technicians are not required to inspect off-road lighting systems. 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.

A. Front Facing Lights

1. **Maximum Number of Lights** - No more than four lights of the type listed below may project from the front of the vehicle at any one time. For example, two headlights and two fog lights.
 - a. Headlights
 - b. Driving Lights
 - c. Passing Lights
 - d. Fog Lights
2. **Motorcycle Headlight(s)** - Motorcycles shall be equipped with at least one and not more than two headlights. Motorcycle headlights may be equipped with a means of high beam/low beam modulation of 200-280 flashes per minute during daytime use.
3. **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" and no higher than 42" from the ground.
4. **Passing Lights** - Passing lights shall not exceed two and shall be designed to temporarily supplement the low-beam headlights for the purpose of passing another vehicle. However, passing lights may operate with the high-beam headlights. Add-on passing lights shall be mounted no lower than 24" and no higher than 42" from the ground.
5. **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" and no higher than 30" from the ground with the top edge of the lenses no higher than the top edge of the low-beam headlight lenses.
6. **Diffused Lights** - Diffused or non-glaring lighting (colored lights mounted in the fender wells, under the vehicle, etc.) shall not resemble any original lighting and shall not project red light from the front of the vehicle nor be installed within 12" of or in a position that interferes with the visibility or effectiveness of required lighting.
7. **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. Exceptions apply to diffused lights. Any unlighted color is acceptable if it meets the requirements when illuminated.

B. Rear and Side Facing Lights

1. **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.

2. **Continuous Illumination** - Add-on lighting, except for stop lights and lights on emergency vehicles, must project a continuous light.
3. **Flashing Brake Lights** - Flashing brake lights shall not flash more than four times and shall only flash within the first four seconds of application.
4. **Cargo Lights** - Auxiliary lights used for cargo transfer must project downward and not illuminate more than 50 feet from the back of the vehicle.
5. **Diffused Lights** - Diffused or non-glaring lighting (colored lights mounted in the fender wells, under the vehicle, etc.) shall not resemble any original lighting and shall not project red from the front nor be installed within 12" of or in a position that interferes with the visibility or effectiveness of required lighting.
6. **Color of Lights and Reflectors** - Light projected and reflected from the rear of the vehicle must be white, amber/yellow, or red colored. Exceptions apply for diffused non-glaring lighting. 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 mounted 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) and as far apart as practicable.

2.4. Headlight Aim Inspection

Licensed stations are required to have either a headlight aiming screen or optical aimer. However, mechanical aiming devices may be used on vehicles where the headlight lenses are equipped with aiming pads.

Technicians shall inspect headlights and, as applicable, auxiliary driving lights, passing lights, and fog lights. Acceptable methods to verify correct headlight alignment/aim are as follows:

- **Aiming screen type** - Aiming screen type headlight aiming equipment 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 Appendices for additional screen set-up and aiming information.)
- **Optical type** - Optical type headlight aiming equipment 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** - Mechanical type headlight aiming equipment 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, but is not limited to, proper use, calibration, and floor slope compensation. If the aiming pads are damaged or broken, use another aiming method.

2.5. Bulb Failure Warning Light Inspection

If the vehicle is equipped with a bulb failure warning light, 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:

- Required lighting is adjusted outside of the vehicle manufacturer and/or the component manufacturer specifications or is not in compliance with applicable laws and regulations.
- Required lighting is missing, malfunctioning, or inoperative.
- There are missing, damaged, contaminated (including moisture), or severely discolored or deteriorated lights, and/or reflectors or lenses; or colored tapes or other temporary materials covering or in place of missing, damaged, discolored, or deteriorated lenses.
- Any auxiliary screens, tints, films, covers, substances, or any other alteration that reduces the amount of projected or reflected light or reduces the original area of illumination.
- Any headlight is without the Department of Transportation (DOT) symbol, or any other required lighting that does not meet the DOT/FMVSS, installed in place of original equipment.
- Off-road lighting not operated by a separate switch or not covered with an opaque hood or cover.
- There is an improperly installed light(s) and/or reflector(s).
- The wrong color light is projected or reflected. Any unlighted color is acceptable, provided it meets the requirements when illuminated.
- The bulb failure warning light does not "bulb-check" or stays illuminated.

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 properly and not creating a safety hazard. Those items, when equipped, include the windshield, windshield wipers, mirrors, seats, seatbelts, child seat LATCH (Lower Anchors and Tethers for Children) system, rear window, and a visual inspection of the supplementary restraint system (SRS). Requirements for these items are contained in VEH Division 12, Chapter 4 (Windshields and Mirrors), and Chapter 5, Article 3 (Safety Belts and Inflatable Restraint Systems).

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 mirrors are properly mounted.
- 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.
- C. All mirrors maintain a set adjustment when adjusted.

3.3. Windshield and Rear Window Inspection

Every passenger vehicle, other than a motorcycle, shall be equipped with a windshield that meets or exceeds Federal Motor Vehicle Safety Standards (49 C.F.R. 571.205 and 49 C.F.R. 571.212).

When inspecting the windshield and rear window the technician shall ensure that the driver's view of the road is not impaired by damage to or deterioration of the glass surface, or any other obstruction.

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 glass surface, or any other obstruction.

3.4. Windshield Wipers Inspection

Every motor vehicle, except motorcycles, equipped with a windshield shall also be equipped with self-operating windshield wiper. When inspecting the windshield wipers, the technician shall ensure:

- A. The wipers activate and operate as designed by the vehicle manufacturer.
- B. The wiper blades are properly installed and free of any visual defects.

3.5. Seat Inspection

The technician shall verify that all the seat(s) installed in the vehicle are securely fastened to the vehicle with all necessary mounting hardware and both the upper and lower portions of the 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. When inspecting the seatbelts, the technician shall verify each seatbelt has the minimum number of factory attachment points, and manually operate each seatbelt to ensure that:

- A. The seatbelt fabric webbing is not cut, frayed, or torn.
- B. The seatbelt buckle easily buckles and unbuckles to and from the seatbelt latch and stays buckled when the webbing is pulled outward from the buckle.
- C. 3-point (lap and shoulder), and 2-point (lap) seatbelts with automatic retracting mechanisms smoothly extend and retract from the spool.
- D. Seatbelt spools with locking mechanism lock when the seatbelt webbing is suddenly pulled outward from the spool.

If equipped with a seatbelt warning light and/or seatbelt alarm, the light and/or alarm must be functioning as designed.

3.7. Child Seat LATCH System Inspection

When a vehicle is equipped with a LATCH system the technician shall inspect the brackets and/or anchors to ensure that the system components are present, undamaged, and securely fastened.

3.8. Air Bag Inspection

In a Supplemental Restraint System (SRS) equipped vehicle, the technician shall visually inspect the air bags that can be seen from inside the passenger compartment without any disassembly, to ensure, to the best of their ability, that air bags have not been previously deployed or are missing.

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 required mirrors are missing, damaged, improperly mounted, or are not providing the driver with a clear view to the rear of the vehicle.
- The mirrors will not maintain a fixed position when adjusted.
- There are any cracks, chips, obstruction, or surface deterioration in the windshield or rear glass that impairs the driver’s view of the road.
- The windshield does not meet the Federal Motor Vehicle Safety Standards.
- The windshield wipers are inoperative, do not operate as designed, or the wiper blades are found to be defective.
- Any seatbelt:
 - Does not have the minimum number of factory attachment points
 - Required for a seating position is missing
 - Does not extend, retract, and/or lock as designed
 - Fabric webbing is damaged
 - Cannot be buckled or unbuckled
- Warning light and/or alarm are not function properly
- Any seat(s) installed in the vehicle is not securely fastened to the vehicle, and/or the upper and lower portions of the seat do not maintain a fixed position.
- The LATCH system bracket and/or anchors are missing, not securely fastened, or damaged.
- Any air bag, that can be inspected 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 and within applicable safety standards; 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. Tire requirements are contained in VEH Division 12, Chapter 5, Article 4 (commencing with Section 27450).

4.2. Tire Inspection

When inspecting the tires, the technician shall:

A. Visually inspect the tires for 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 of damage larger than one-fourth of one inch.
5. 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.
6. Sidewall cracks or "dry-rot" due to age.
7. Valve stems for cracks or leaks.
8. Defaced or removed United States Department of Transportation (DOT) tire identification number.
9. That tires on the same axle are the same size, and directional tires are located on the correct side of the vehicle.

- 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" in tread depth.

- C. **Check the tire pressures** - The 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, the inflation specification on the tire, which typically indicates the tire's maximum pressure recommendation, may be used, or some other reference source that contains information on tire inflation specifications. If a tire has low pressure, and no leak has been found, inflate it to the specification. The technician must record the tire pressure readings as prompted by the BAR-SIS.

4.3. Wheel Inspection

The purpose for visual inspection of the wheel is to identify stress cracks, fractures, damage, or bends severe enough to make the wheel unsafe.

- 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, wipe down the surface if necessary.
 - 2. There is sufficient light to inspect the surface, a flashlight may be needed if there is insufficient light.
 - 3. The technician is close enough to the wheel's surface to allow for identification of small stress cracks, and fractures.
- B. **The inspection of the wheels shall include an inspection of the following areas for any stress cracks, fractures, damage, and/or severe bends:**
 - 1. The periphery which includes the wheel's rim, outer lip and inboard and outboard flanges.
 - 2. The mounting area or 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 ensure that wheels on the same axle are the same size.

4.4. Tire Pressure Monitoring System Inspection

If the vehicle is equipped with a Tire Pressure Monitoring System (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

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

A temporary spare shall not be 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” in depth.
- Any wheel has stress cracks, fractures, damage and/or is severely bent.
- 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, are in compliance with manufacturer and/or component manufacturer specification, and in compliance with applicable laws. Brake system requirements are contained in VEH Division 12, Chapter 3 (commencing with Section 26301), FMVSS, and Code of Federal Regulations (CFR), Title 49, Section 571.121 which establishes performance and equipment requirements for brake systems on vehicles equipped with air brake systems.

Use of Manufacturer Manuals

When all components are considered, the brake system of a modern vehicle is a complex system. A thorough understanding of the operation of each component and subsystem is essential to perform a thorough and complete inspection. Reference material from the vehicle manufacturer or from a nationally recognized and industry-accepted supplier of such material that generally contains detailed descriptions of the components or subsystems that comprise the vehicle's brake system. These manuals must be used as guides to understand the operation and inspection of the various components and subsystems.

Safety Precautions

Some of the components of a vehicle's brake system may present a safety hazard if proper procedures are not practiced when they are disassembled for inspection. Technicians must follow manufacturer recommended procedures when working on any component in a brake system to avoid personal injury or 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 mounted 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 sufficient reserve.
- D. Does not continue to sink to the floorboard after reaching the stopping point, indicating 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, 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, no power steering fluid leaks, and 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 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 missing, broken, or damaged wheel studs and/or any 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 sensors, electrical connectors, wire routing, and condition.
 2. Mounting bolts for loose or damaged mounting bolts.
 3. Splash shield for damage or looseness.
 4. Brake pad linings for proper thickness. The thickness of the brake lining (friction material) should be greater than or equal to that specified by the manufacturer's service limits, or if not available, the lining should be greater than or equal to 1/32" thick for bonded linings or 1/64" above rivet heads on riveted linings.

5. Check condition of linings for contamination with grease, oil, brake fluid, or other material, cracking, evidence of overheating, and secure mounting of the friction material to the metal backing.
6. Each rotor for 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. The technician must record the measured thickness of each brake rotor as prompted by the BAR-SIS.

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) should be greater than or equal to that specified by the manufacturer's service limits, or if not available, the lining should be greater than or equal to 1/32" thick for bonded linings or 1/64" above rivet heads on riveted linings.
2. Check condition of linings for contamination with grease, oil, brake fluid or other material, cracking, evidence of overheating, and secure mounting of the friction material to the metal backing.
3. Each drum for grooves, corrosion, or cracks including on an armature surface. Each brake drum's measured inner diameter must not be greater than the maximum diameter specification. The licensed technician must record the measured diameter of each brake drum as prompted by the BAR-SIS.
4. Check S-type cam on air brake equipped vehicles including the slack- adjuster, push rod, cam and shoe rollers are presented, undamaged, and securely mounted.
5. Actuating arm on a trailer equipped with an electrical brake system to ensure the arm is securely attached, 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, automatic adjusters, and other visible abnormalities.
7. Check backing plates and anchors for loose, bent, or distorted backing plates and galled anchors.
8. Condition of wheel/axle/hub bearings and grease seals by checking for evidence of looseness and/or leakage that could render the brake system unsafe.
9. 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 is 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 is not damaged or torn.
- C. **Electrical Pumps and 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 is no external leaks, damage, elongated or worn guide pins and mounting holes, cracks in the casting, worn mounting surfaces, missing hardware, and that floating type calipers slide freely.
- E. **Wheel Cylinders** to ensure they are securely mounted 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 tubes and hoses for indications of leaks, stains and dampness, dents, kinks, any splices other than a threaded flare-type fitting, and damaged fittings and/or hold-down clips.
- G. **Trailer Surge Brakes** to ensure that, in addition to the other items in section 5.5, the trailer tongue and hydraulic actuating device housing is free from any cracks, damage, or deformation that will impact device 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, under sufficient coil spring pressure to cause the magnet to contact the armature surface of the drum, and that the wear indicators (dots) are still present.
- B. **Wiring, Switches, and Connectors** by visually inspecting the wires are present, properly and securely routed, ensuring there is no damage to the wiring, and that electrical connections and switches are properly attached and installed.
- 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 securely installed, and that the system is functioning as designed.

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/or 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 to check the belt for tightness and observe the belt condition.
- B. **Air reservoir tank(s)** to ensure it is securely mounted, and to check the safety valve for freedom of action.
- C. **Brake chambers** to ensure they are securely mounted, there are no air leaks, and that the spring is unbroken.
- D. **Air System Lines, Valves, and Components** by visually inspecting the air lines for restricted, abraded, collapsed, improperly supported, broken hoses and tubes, and air leaks.
- E. **Trailer Air Brakes** to ensure that, in addition to the other items in section 5.6, the trailer parking/emergency brake system applies when air pressure falls below 20 to 45 psi.

5.8. Parking (Emergency) Brake Inspection

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:

- A. The parking brake holds the vehicle or combination of vehicles stationary under all conditions of loading on a surface free from snow, ice, or loose material.
- B. 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 and/or Warning Messages Inspection

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

- A. **Check operation** - The technician shall follow manufacturer procedures to verify the operation of any brake system related warning lights and/or systems displaying brake system related 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 for verification that 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 is an indication of a system malfunction.

Do not certify when:

- The brake pedal is not securely mounted, 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 missing, broken, or damaged wheel studs and/or lug nuts.
- Any brake rotor or brake drum does not meet manufacturer’s specifications, is corroded, or damaged.
- Any brake pad or shoes does not meet within manufacturer’s service limits, is contaminated, or is damaged.
- The drum brake shoes are installed incorrectly.
- The drum brake hardware (including a 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.
- Any caliper is leaking, damaged, has missing and/or worn hardware or components, or is damaged.
- Any wheel cylinder is leaking, not securely fastened, or is damaged.
- Any brake fluid or air system leak is found.
- Any wheel magnet is not securely fastened, not under sufficient spring pressure, and/or is worn to the point the wear indicators (dots) are no longer present.
- The electric trailer brake wiring, connectors, switches, and battery are missing, damaged, and/or not properly and securely routed and attached.
- Any component of the air brake system fails the functional inspection.
- Any component of the air brake system is not securely fastened, missing, or damaged.
- The brake chamber spring is broken.
- Air brake system is not capable of providing full brake application.

- Parking brake does not hold the vehicle under all load conditions.
- The vehicle (except motorcycle) is not equipped with both a brake system and a parking brake system.
- Brakes are configured improperly for vehicle type.
- The trailer break-away system is missing, has missing components, is damaged, and/or fails to operate correctly.
- The brake system warning lights and/or warning messages do not “bulb-check” or stay illuminated.

CHAPTER 6: STEERING AND SUSPENSION

6.1. Steering and Suspension Systems Inspection

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

6.2. Physical Inspection

The technician shall:

- A. Inspect the steering column to ensure that it is securely mounted, the bearings securely support the steering shaft inside the column and turn freely without binding, and that the steering wheel is securely mounted 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 loose inner and outer tie rod ends, loose wheel bearings, control arm bushings, loose or worn steering gear/rack & pinion mounts, or other defective steering and suspension items. Any looseness should be noted, and the defective part identified.

For the purposes of the physical inspection, “loose” means a part worn to a point where the wear can be felt and visually observed when performing the required wheel/tire check.

6.3. Visual Inspection

The technician shall:

- A. Inspect the power steering system for fluid level and leaks.
- B. Inspect the rack & pinion assembly for secure mounting, bent tie rods, proper hose routing, sensors, switches, wiring, and any fluid leak.
- C. Inspect steering gear box systems for secure mounting, damaged frame mounting location, u-joints, excessive play in ball sockets, bent steering linkage and any fluid leak that may contact a hot surface (i.e., exhaust).
- D. Inspect all visible steering and suspension related sensors, switches, and wiring for damage and proper routing.
- E. Inspect for damaged control arms, radius arms, strut rods, sway bar, subframes, trailing arms, and any other suspension components.

- F. Inspect solid axles for shifted position and cause of shift.
- G. Inspect all bushings and bearings for signs of deterioration, damage, and/or if worn.
- H. Inspect struts, shocks, and their mounts for physical damage or leaking.
- I. Inspect for a visible difference in ride height from side-to-side or front-to-rear. This may indicate a sagging or broken spring or a defective air spring.
- J. Inspect all springs (air, coil, leaf, and torsion bar).

For the purposes of the visual inspection, “worn” means a part that is worn to a point where the wear can be visually observed.

A vehicle safety station that recommends the replacement of any ball joint shall follow the procedures in CCR 3360.2.

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 road surface in slippery or dangerous conditions, the warning lights for those systems shall be inspected. Examples of these types of suspension and steering traction warning lights are “Traction Control System”, “Vehicle Stability Control”, “Electronic Stability Program”, “Dynamic Stability Control”, etc. 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 leak(s).
- Damaged, worn, or loosely mounted steering components.
- Damaged, worn, or loosely mounted suspension components.
- Loose ball-type socket, or ball joint.
- Loose steering column mounting or bearings.
- Damaged or worn wheel bearings.
- Inoperative power assist system.
- Broken springs (air, coil, leaf, or torsion bar).
- A solid axle position has shifted.
- Any steering or suspension warning light does not “bulb-check” or stays illuminated.

CHAPTER 7: BODY STRUCTURE

7.1. Body Structure Inspection Overview

A vehicle requiring a safety 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 and/or unibody. The body structure inspection is visual inspection of the vehicle panels, frame/unibody, fuel system, and other components to identify vehicles that are not structurally sound.

Requirements for body structure components are contained in VEH and CFR; specifically, VEH section 27154 (sealing of the cab from gases or fumes), VEH section 27600 (body panel requirements), and VEH section 28071 and Title 49 of the CFR (front and rear bumpers).

7.2. Passenger Vehicles 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, free of damage or defects affecting functionality, and operate as designed without binding or jamming:

- A. **Hood** - The hood must not obstruct the driver's view and 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.
- B. **Doors** - The doors of most vehicles are critical components of the body structure and protect occupants from being ejected during an accident. 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.
- C. **Trunk/Liftgate/Hatchback** - As with the doors and hood of the vehicle the trunk/liftgate/hatchback can play a critical role in the overall safety of the vehicle. It must be free from major damage preventing the operation of the latch mechanism.

The technician shall inspect the following items to ensure they are securely fastened and free of damage or defects affecting functionality:

- A. **Fenders** - Fenders are used as the covering of the wheels to minimize the spray of water and mud towards the rear of the vehicle and on certain vehicles the mounting location for side marker or turn signal lights. Inspect the vehicle to determine the appropriate fenders or wheel coverings are securely fastened and provide adequate coverage of the wheel.

- B. **Bumpers** - The bumpers on passenger vehicles offer protection in low-speed collisions. Inspect the vehicle to verify the vehicle has the appropriate bumpers and that they are securely fastened.
- C. **Frame** - The frame plays an important role in safety and uses crumple zones designed to absorb energy in accidents. When inspecting vehicles equipped with a frame, inspect the frame for collision damage, defects, improper repairs, and structural rust that affects the proper mounting of body, suspension, and steering components.
- D. **Body/Unibody** - The unibody design combines the frame and body into one unit and utilizes crumple zones to absorb energy in accidents. Inspect the body/unibody for collision damage, structural rust, and gaps or holes that could allow penetration of gases or fumes from the engine or exhaust into the passenger compartment.
- E. **Fuel System** - Vehicles involved in a collision may have sustained significant damage compromising the fuel system. Inspect the visible areas of the fuel tank and fuel lines for damage or leaks.
- F. **Trailer Hitch** - If a vehicle is equipped with a trailer hitch, inspect for secure mounting or damage.

7.3. Motorcycle Inspection

Motorcycles shall be inspected for any visible signs of severe 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 various systems included in the safety inspection such as steering and suspension, brakes, and lighting. Operator controls should be fully functional to allow proper operation of vehicle.

7.4. Recreational Vehicles Inspection

Recreational vehicles (RV) vary in design and construction. For the purpose of this inspection, RVs include motor homes and travel trailers. Motor homes are large motor vehicles equipped with living quarters. Travel trailers are a trailer drawn especially by an automobile and equipped for use (as while traveling) as a dwelling. When inspecting a recreational vehicle, the technician shall:

- A. **Motor Homes** - Inspect the hood, doors, frame, and body for damage, structural rust, or holes as specified in section 7.2 of this manual. The housing structure of a motorhome should be inspected for securely fastened panels, doors, and components. Inspect to ensure that any externally mounted propane tanks are securely fastened and any visible propane lines for damage or leaks.
- B. **Travel Trailers** - Inspect for any cracks, damage, or deformations of the frame, tongue, gooseneck, and 5th wheel attachment point of the trailer. Verify that safety chains are present and undamaged. Inspect travel trailers for securely fastened panels, doors, and components. Inspect to ensure that any externally mounted propane tanks are securely fastened and any visible propane lines for damage or leaks.

7.5. Non-Recreational Vehicle Trailer Inspection

For the purposes of this inspection, a non-recreational vehicle trailer (trailer) is a nonautomotive vehicle designed to be hauled by road to transport something. Trailers must be inspected for cracks or structural rust on the frame, tongue, gooseneck, or 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:

- Hood, doors, or trunk/liftgate are missing, significantly damaged, do not latch, or bind when opening or closing.
- Fenders, panels, or bumpers are missing, significantly damaged, or not securely fastened.
- There is unrepaired or improperly repaired frame damage or structural rust that affects the proper mounting and/or operation of suspension, and/or steering.
- There are signs of previous unrepaired collision damage or structural rust that significantly alter the shape and/or structure of the unibody.
- The body or cab of the vehicle is not sealed against the penetration of gases and fumes from the engine or exhaust system.
- Any visible fuel leaks are found.
- Hitch is not securely fastened.

Do not certify motorcycles when:

- The handlebars, forks, frame, or swing arm have damage that inhibits normal operation of components.

Do not certify motor homes when:

- There are damaged, missing, or unsecured panels that pose a hazard to other vehicles.
- The externally mounted propane tank is not securely mounted and/or the propane lines are damaged and/or leaking.

Do not certify travel trailers when:

- There are damaged, missing, or unsecured panels that pose a hazard to other vehicles.
- There are cracks, damage, or deformation to the frame, tongue, gooseneck, or fifth wheel attachment that would prevent safe attachment to a tow vehicle.
- The safety chains are missing or damaged.
- The externally mounted propane tank is not securely mounted and/or the propane lines are damaged and/or leaking.

Do not certify non-recreational trailers when:

- There are cracks, damage, or deformation to the frame, tongue, gooseneck, or 5th wheel attachment that would prevent safe attachment to a tow vehicle, or if any components are not securely fastened.

CHAPTER 8: ROAD TEST

8.1. Road Test Inspection Overview

A road test is the last portion of the vehicle safety inspection. If, during the inspection of the required systems, the vehicle is found to be unsafe, a technician may choose not to perform the road test. A technician shall not certify a vehicle without the vehicle passing the road test inspection.

A road test may reveal problems or defects that are not readily apparent during the static inspections. The road test inspection shall consist of a stopping test, a visual and functional inspection of the instrument cluster and/or controls, and an evaluation of the control and stability of the vehicle at speed. 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 sufficient distance 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 adequate to stop and hold such 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 2 - Stopping Test Distances.

Table 2: 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. in combination with 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

The technician shall drive the vehicle at a sustained speed of no less than 30 mph and observe for excessive pulling, drift, and/or vibration. The steering wheel should be relatively straight while the vehicle is traveling in a straight line on a level roadway and require minimal steering correction. The technician should be able to maintain safe and effective control of the vehicle at speed. Alignment and stability issues indicate underlying steering, suspension, frame damage or other defects.

Do not certify when:

- The vehicle's horn does not activate or cannot be heard.
- Any warning light for the SRS (as specified in 3.8), the brake system (as specified in 5.2A), the steering and suspension system (as specified in 6.3), or any other safety related fault messages illuminate during or after the test drive.
- The vehicle fails to come to a straight, smooth and completed stop within the required distance when moving at the specified speed.
- The vehicle has an underlying issue(s) making it difficult to maintain safe and effective control.

CHAPTER 9: REQUIRED EQUIPMENT

9.1. Required Equipment for Vehicle Safety Inspections

This chapter outlines the required equipment for vehicle safety stations. All equipment shall be up to date, maintained in good working condition, and calibrated in accordance with manufacturer standards and applicable BAR specifications.

9.2. BAR-SIS Equipment

- BAR-SIS with hardware and software necessary to conduct safety inspections.
- A BAR certified data acquisition device (DAD) capable of retrieving on-board diagnostic (OBD) information from the vehicle being inspected with its operating instructions.
- Biometric Device: Fujitsu palm vein scanner sensor model FAT13FPS01 with 2-meter-long USB 2.0 (A) Male to (B) Micro - USB Cable.

9.3. Lighting Inspection Tools, Equipment, and Reference Materials

- **Aiming Equipment** - Equipment for aiming headlights and auxiliary lights shall meet those requirements as stated by vehicle manufacturers for vehicles that 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.
- BAR's Vehicle Safety Inspection Manual.
- 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" of tread depth in 1/32" 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 tire pressure measurement and inflation to the required 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 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 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.
- BAR's Vehicle Safety Inspection Manual.
- 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.
- An airbrake pressure test gauge accurate to +/- 1 psi with glad hand adapter.

9.6. Required Equipment Electronic Transmission

Vehicle data and inspection results from the BAR-SIS shall be transmitted to the 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 remain connected at all times.

9.7. Required Equipment Location

The BAR-SIS should be used within a building. The BAR-SIS should not be used in an environment that would subject it to excessive heat, cold, dust, or moisture

APPENDICES

Appendix B: 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.

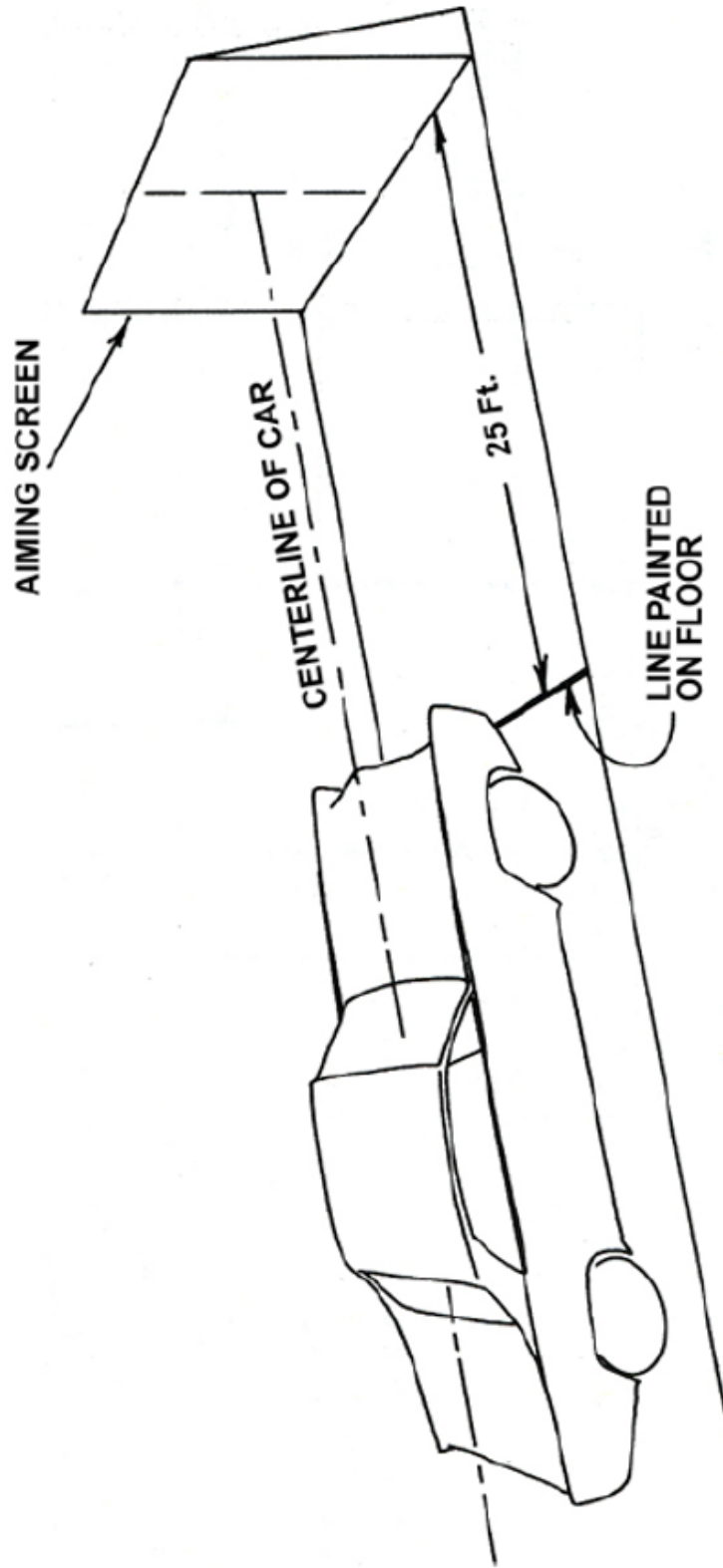


Figure 2

Appendix C: How to Construct a Typical Aiming Screen

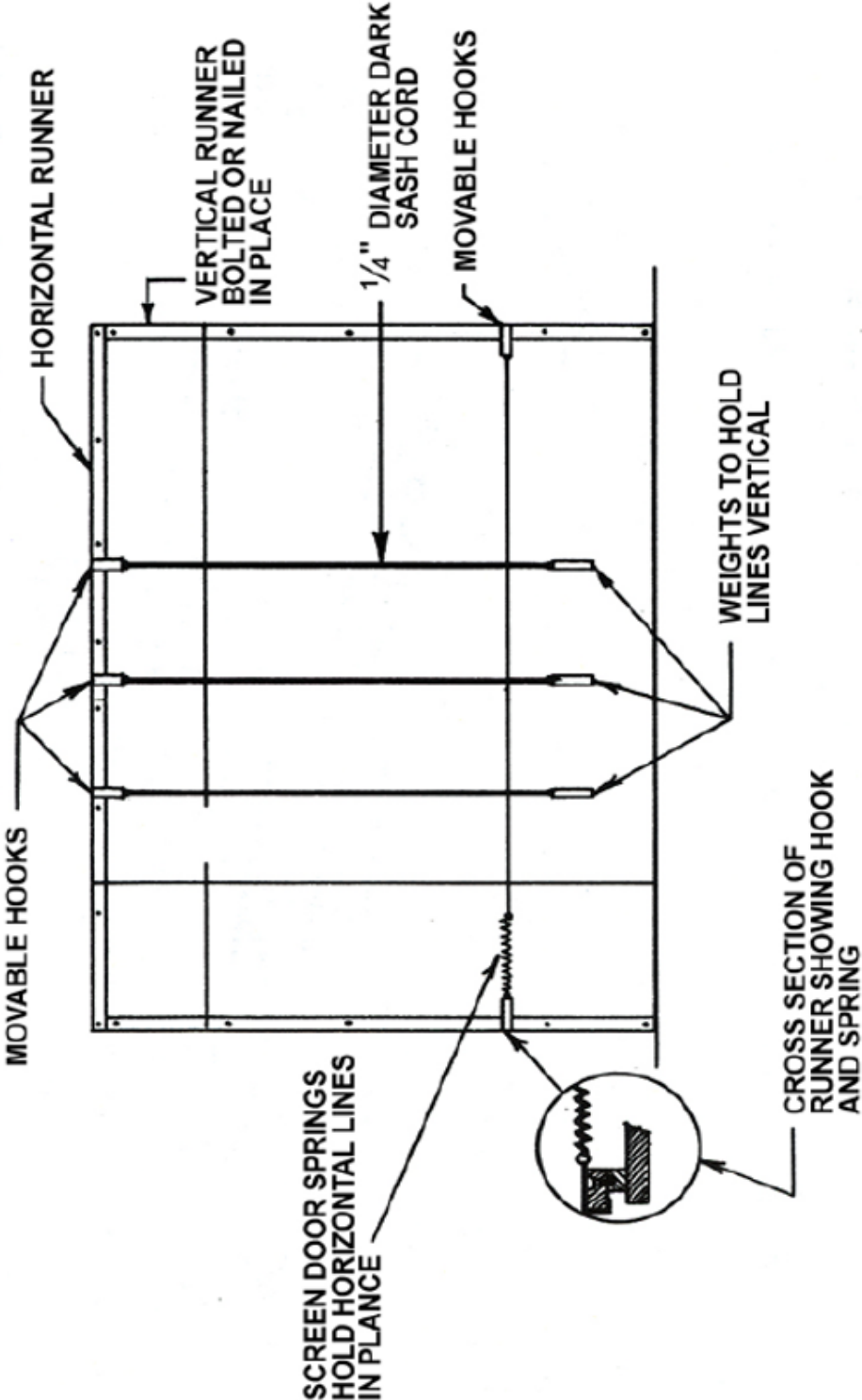


Figure 3

Appendix D: High Beam Headlights Proper Aim and Inspection Limits

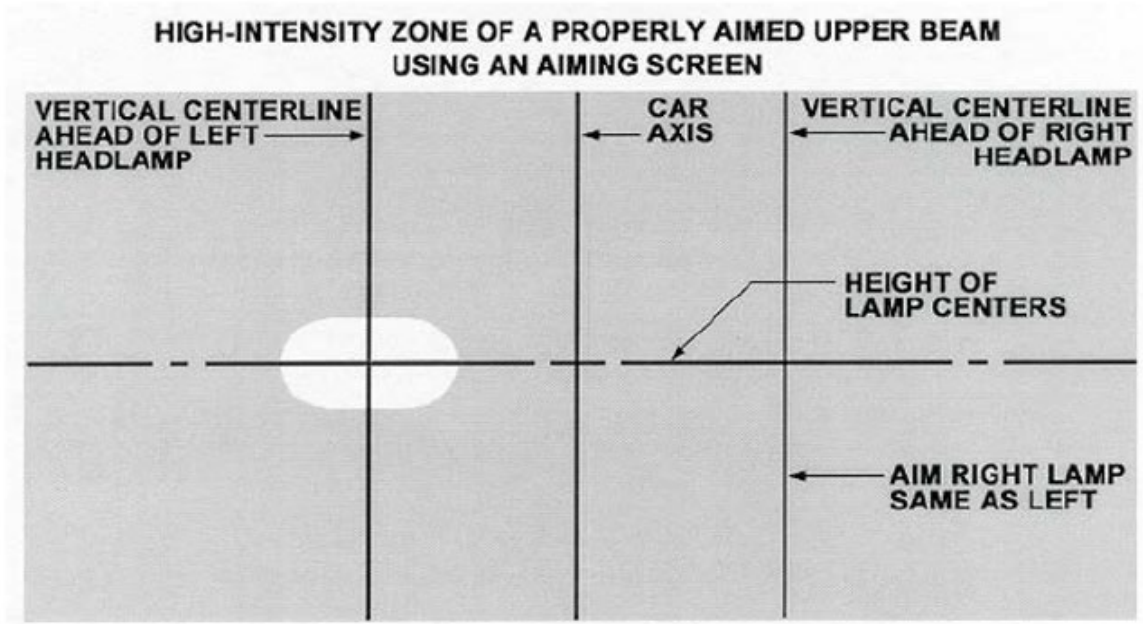


Figure 4

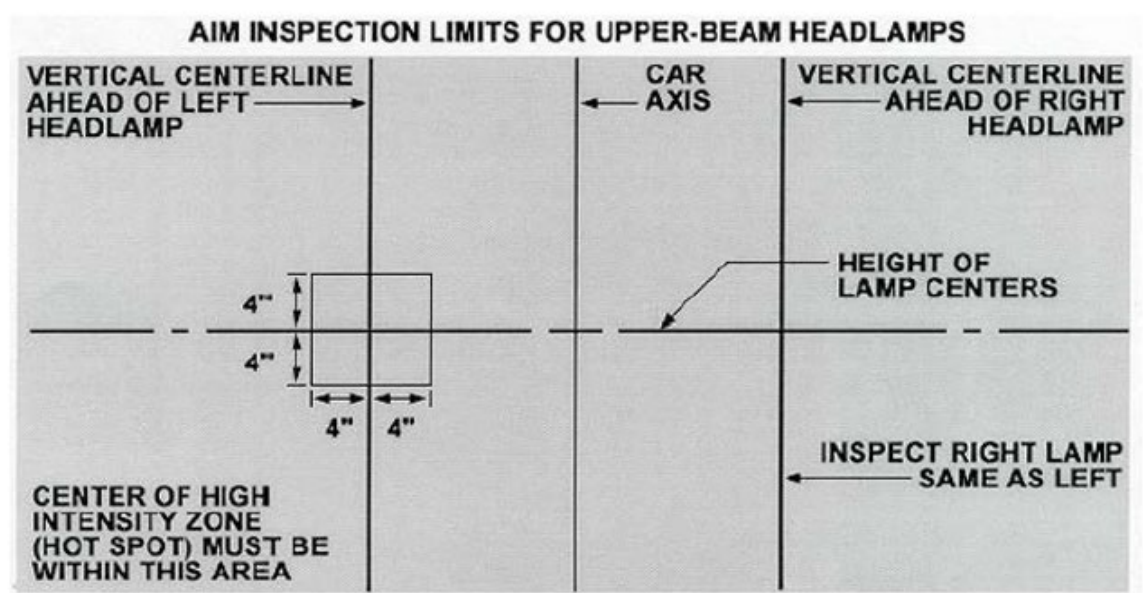


Figure 5

Appendix E: Low Beam Headlights Proper Aim and Inspection Limits

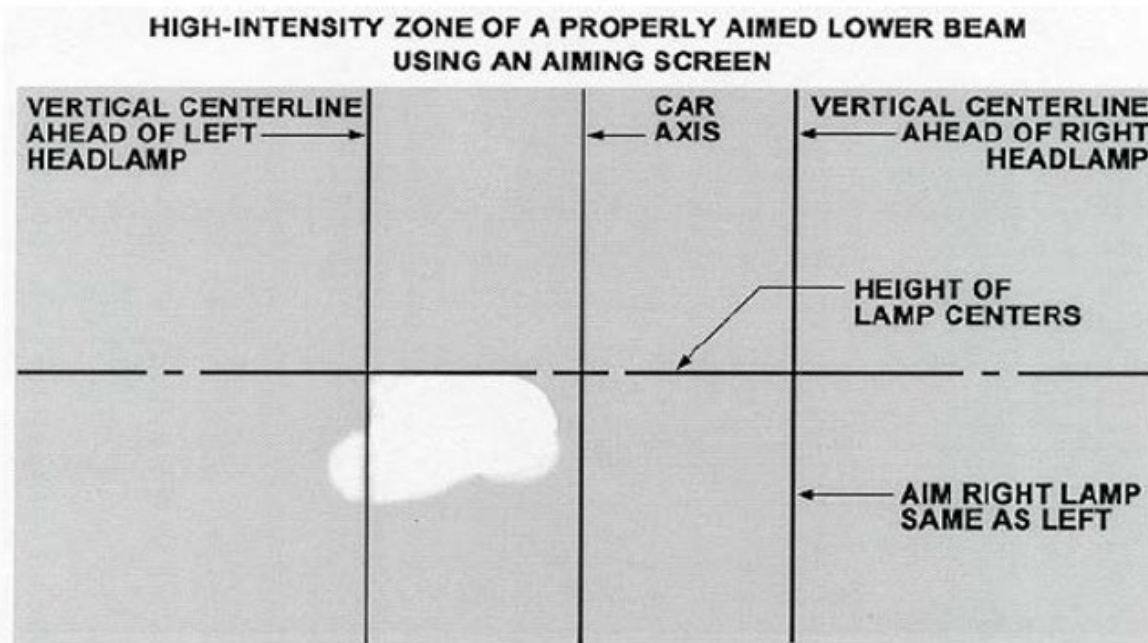
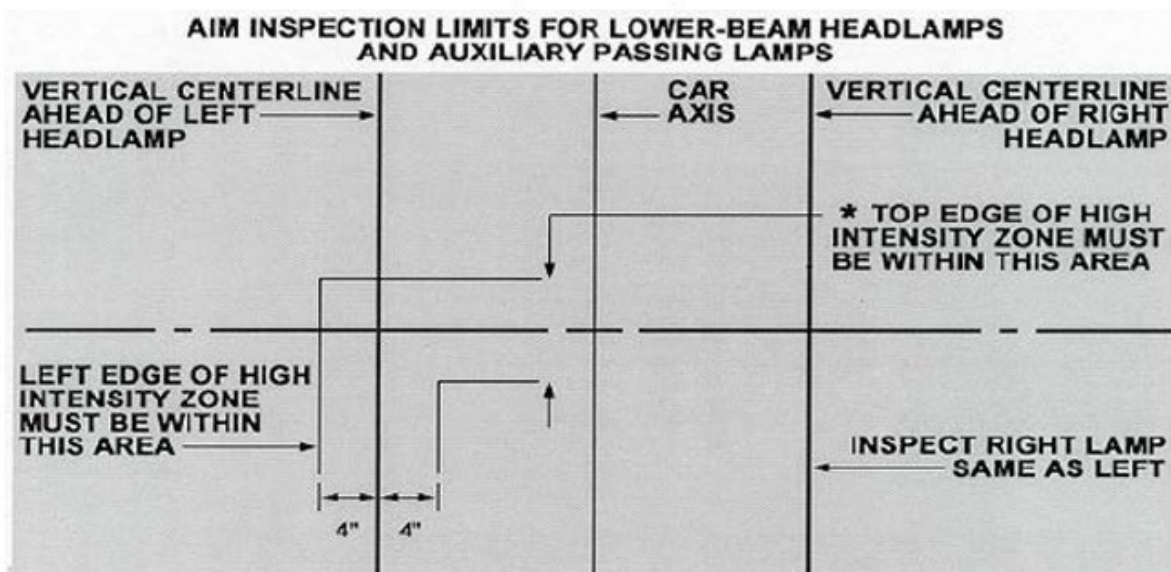


Figure 6



* 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