WEST VIRGINIA STATE POLICE

OFFICIAL MOTOR VEHICLE INSPECTION MANUAL

TRAFFIC RECORDS SECTION
725 JEFFERSON ROAD
SOUTH CHARLESTON, WV 25309-1698
304-746-2191

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INSPECTION OF VEHICLES

West Virginia Code §17C-16-4 authorizes the Commissioner of Motor Vehicles to make necessary rules and regulations for the administration and enforcement of the Vehicle Inspection Laws of the State.

The 1999 edition of the Vehicle Inspection Handbook as prepared by the Automobile Manufacturers Association in cooperation with the American Association of Motor Vehicle Administrators was used extensively in preparing this manual, otherwise known as or referred to as the West Virginia State Police OFFICIAL MOTOR VEHICLE INSPECTION MANUAL. The Official Motor Vehicle Inspection Manual provides for the standard inspection procedures for motor vehicles, trailers and semi-trailers when operated on the public highways of West Virginia. After a careful study of this manual, it is the decision of the Commissioner of Motor Vehicles that the provisions and procedures outlined in the manual constitute the official rules of the Division of Motor Vehicles and Division of Public Safety (West Virginia State Police) governing the annual inspection of all vehicles that are subject to the vehicle inspection program. Division of Motor Vehicles Rule, Motor Vehicle Inspection Manual, 91 CSR 12 incorporates this Manual by reference. That rule which is a legitimate rule was approved by the Legislature and has the force and effect of law.

Items of Safety, which are not covered by this manual, that are required by the U.S. Federal Motor Vehicle Safety Standards in effect upon the date of the vehicle being inspected shall work in the prescribed manner.

In cases of practical difficulty or unnecessary hardship, the West Virginia State Police may grant exceptions from the literal requirements of the manual or permit the use of other devices or methods. Any such exception to be granted by the Director of the Traffic Records Section, West Virginia State Police or his/her designee.

TO ALL INSPECTION STATION

OWNERS AND/OR OPERATORS

OPERATORS AND EMPLOYEES FOR OFFICIAL INSPECTION STATIONS SHOULD BE COURTEOUS AND PATIENT IN EXPLAINING TO THE MOTORIST THAT THE REQUIREMENTS OF VEHICLE INSPECTION ARE DESIGNED TO PROMOTE SAFETY. ALL EMPLOYEES SHOULD CLEARLY UNDERSTAND THAT THE FUNCTION OF THE OFFICIAL INSPECTION STATION IS FOR THE ADVANCEMENT OF HIGHWAY SAFETY.

ALL PERSONNEL OF OFFICIAL INSPECTION STATIONS MUST KEEP IN MIND THAT ONE INSPECTION STICKER PLACED ON AN UNSAFE VEHICLE MAY BE THE CAUSE OF A SERIOUS ACCIDENT, AND THAT THEY OWE A DUTY TO THE THEMSELVES AND THEIR FAMILIES NOT TO JEOPARDIZE LIVES BY ERROR, CARELESSNESS OR INDIFFERENCE. IT SHOULD ALSO BE UNDERSTOOD THAT AN IMPROPER INSPECTION MAY RESULT IN CRIMINAL AND OR CIVIL LIABILITY.

REMEMBER…….
STATIONS WILL BE JUDGED BY THE CONDITION OF VEHICLES BEARING THEIR STICKERS.

FAILURE TO INSPECT VEHICLES IN ACCORDANCE WITH THESE INSTRUCTIONS MAY WELL RESULT IN SUSPENSION OF YOUR STATION

PROTECT STICKERS FROM THEFT

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WEST VIRGINIA STATE POLICE

AUTHORITY FOR INSPECTION RULES AND REGULATIONS

The rules and regulations contained in the following pages, of the Official Inspection Manual, are promulgated under the authority of Chapter 17-C, of the code of West Virginia as amended which reads in parts as follows:

Sec. 4. The Commissioner of Motor Vehicles shall, once each year, require that every motor vehicle, trailer, semi-trailer and pole trailer registered in this state be inspected and that an official certificate of inspection and approval be obtained for each such vehicle.

The Commissioner is hereby authorized to make necessary rules and regulations for the administration and enforcement of this section.

The Commissioner may suspend the registration of any vehicle which he/she determines is in an unsafe condition or which is not equipped as required by law or for which a required certificate of inspection and approval has not been obtained.

Sec. 5. The Superintendent of the West Virginia State Police shall be responsible for the inspection as provided in this article and shall prescribe requirements and qualifications for official inspection stations.

The Superintendent shall select and designate such stations and shall issue permits therefore. Applications for permits shall be made upon an official form prescribed by the Superintendent and permits shall be granted only when the Superintendent is satisfied that the station is properly equipped and has competent personnel to make such inspections and adjustments as required.

Sec. 6. No permit for an Official Inspection Station shall be assigned or transferred or used at any other location other than therein designated and every said permit shall be posted under glass in a conspicuous place at the station location as designated.

The person operating such a station shall issue a certificate of inspection and approval, upon an official form, to the owner of the vehicle upon inspecting such vehicle and determining that its equipment required hereunder is in good condition and proper adjustment.

FORWARD

TO INSPECTION STATION OPERATOR:

The procedure outlined herein should be carefully reviewed and studied by your entire organization. Be thoroughly familiar with all the provisions, regulations and laws contained herein. Full compliance will be required by all concerned.

Failure to comply with all the provisions, regulations and laws pertaining to vehicle inspection may result in a suspension of inspection certificate.

The statutes governing motor vehicle inspection prohibit the affixing of a certificate of approval (sticker) unless the vehicle has been inspected and approved by an official inspection station. The sale or gift of inspection sticker by the owner, operator or any individual is prohibited.

All valid inspection stickers will expire on the last day of the month of the numeral insert inserted, or the last day of the month punched when motorcycle/trailer stickers are used.

Station numbers should be placed on all correspondence pertaining to inspection stations and such communications should be addressed to:

The Superintendent
West Virginia State Police
Traffic Records Section
725 Jefferson Road
South Charleston, West Virginia 25309-1698

Phone (304) 746-2191

GENERAL INSPECTION REQUIREMENTS

All vehicles, (including motorcycles), trailers, semi-trailers and pole trailers registered in West Virginia or displaying thereon a temporary registration plate or marker, or required to be registered in West Virginia must be inspected and a valid certificate of inspection affixed to same before they may be operated on or over the public streets and/or highways of the State of West Virginia, except vehicles classified and registered as Class "R" (house trailer), Class "M" (special), Class "T" (trailers less than 2,000 lbs. GVWR), Antique vehicles as described in 17A -10-3a of the Code of West Virginia requiring that any Antique Vehicle qualifying for this exemption MUST be registered and operated as an Antique Vehicle, and further exception requiring inspection being granted to **NEW VEHICLE** dealers as stated in WV Code 17C-16-9.

1. The responsibility to ensure that a vehicle has current inspection certificate shall be the purchaser of the vehicle.

If a purchaser obtains the vehicle in the State of West Virginia, they have ten (10) days from the date of purchase to obtain a certificate of inspection. If a purchaser obtains the vehicle from outside the State of West Virginia, they have ten (10) days from the date of purchase to obtain a certificate of inspection.

Residents who have been out of the State of West Virginia for over thirty (30) days continuously, and their current certificate of inspection has expired while out of state, they have ten (10) days to obtain a current certificate of inspection upon their return.

The following states have reciprocity with West Virginia:

1. Utah
2. Texas
3. Louisiana
4. Mississippi
5. New Hampshire
6. Oklahoma
7. Missouri
8. New York

WARNING - This list is subject to change and you will be advised in writing of all additions or corrections to this list.

Any vehicle that has had the inspection certificate stolen, removed, mutilated or otherwise altered or destroyed must have a new inspection completed and a current certificate issued. There will not be any duplicate stickers issued.

2. Whenever a vehicle is presented for inspection, it must be either approved or rejected.

3. Each inspection shall be a complete inspection and shall include a check of all the items in these rules and regulations; except a re-inspection of a rejected vehicle by the same station within five (5) days of rejection need include only a check of the items previously found defective.

4. All inspections must be made at the place or places approved by the Superintendent of the West Virginia State Police.

5. No mechanic shall act in the capacity of an inspector mechanic until he/she has attended the Inspector Mechanic's Training Program; successfully passed the examination required by the West Virginia State Police and has been issued a card designating him as an inspector mechanic. An inspector mechanic may be re-tested at any time, upon notification by the West Virginia State Police.

The identification card will be made available for verification to members of the West Virginia State Police when so requested.

The identification card and the privilege to inspect may be suspended/revoked by the Superintendent of the West Virginia State Police for infractions or violations of the rules and regulations governing the inspection of vehicles.

6. A fee of no more than $12.66 may be charged for an inspection and the issuance of the certificate of inspection. An $11.00 fee for labor plus sales tax ($.66) for labor plus one dollar for the certificate (sticker) totals the $12.66. This fee excludes the cost incurred for any repairs that must be made to allow the vehicle to pass inspection. A receipt for the total charges, along with any repairs made, shall be provided to the customer.

7. When a vehicle is presented for annual inspection, the vehicle title, bill of origin, notarized bill of sale, valid certificate of registration, or valid temporary certificate of registration will be compared to the vehicle identification number found on the vehicle.

The inspector mechanic will also verify current insurance coverage. If these items are found to be proper, the appropriate information will be entered onto Form MVI-5 or MVI-5A (Approved Automobile Log Sheet or Approved Motorcycle/Trailer Log Sheet). The old approval sticker will be removed before further inspection will be made.

This card will be accepted, however, serial number will be checked in addition to name and address of registered owner and properly recorded on log sheet.

8. Official inspection stations shall be open for inspections at least eight (8) hours of each normal business day, with a certified inspector mechanic on duty. All official inspection stations shall be able to perform inspections twelve months of the year. A normal business day would be a day in a normal business week, Monday through Friday inclusive.

9. When a vehicle is rejected, only one rejection sticker shall be issued before vehicle is approved. On a vehicle that has been rejected and displays a rejection sticker, the sticker shall not be removed until the inspection is complete.

IF THE VEHICLE IS NOT APPROVED, THE SAME REJECTION STICKER WILL REMAIN ON THE VEHICLE.

10. The "Certificate of Appointment" will be framed under glass and posted at the point of inspection.

11. All inspection supplies (unused stickers, bulletins and other forms), must be safeguarded against loss. All losses of stickers must be reported at once to the area supervisor and the West Virginia State Police, Traffic Records Section, at South Charleston in writing. Every precaution against the loss of stickers must be taken. If the loss occurs through carelessness or neglect, a suspension of station certificate may result. No refund will be made for stickers lost or stolen.

12. Station supplies issued to an inspection station can be used only by that station and are not to be loaned or re-issued to any other station.

13. Appointed stations will keep sufficient inspection supplies on hand to meet their needs. This will include certificate of approval (stickers) for vehicle, trailer and motorcycle**. Request for additional supplies are to be made to the West Virginia State Police, Traffic Records Section, 725 Jefferson Road, South Charleston, West Virginia 25309-1698.**

14. Vehicles bearing out-of-state registration are exempt from inspection requirements, but may be inspected upon request of owner. Such vehicles inspected shall not be issued a certificate of approval (sticker) unless they meet West Virginia standards.

15. Fleet stations may inspect only vehicles registered in name of company or vehicles under lease to that particular company.

16. All vehicles operated under a dealer's permit must be inspected, approved and have affixed to the windshield thereof a valid West Virginia certificate of inspection (sticker) before being operated on the streets or highways, except those new vehicles expressly exempted by West Virginia Code, Chapter 17C, Article 16, Section 9.

17**. IMPORTANT** - Any change in ownership or in location of an official inspection station cancels the appointment of that station and the West Virginia State Police, Traffic Records Section and the area supervisor must be notified in writing.

18. Reports of violations of the inspection law of these rules and regulations will be investigated and, if found to be justified, will result in the suspension of the station inspection certificate.

19. Any vehicle that fails to meet the requirements for approval will be issued a rejection sticker by the inspector mechanic. Such rejections will be recorded on the MVI-5 (log sheet) or MVI-5A. **(IMPORTANT)** - Only one (1) rejection sticker can be issued to a vehicle no matter how many stations inspect a vehicle. If a station has issued a rejection sticker to a vehicle, and the vehicle is taken to another station for inspection, the rejection sticker will be removed only if the vehicle passes inspection.

20. When a station has been suspended or voluntarily cancelled, it must release to a member of the West Virginia State Police all inspection supplies, posters, inspection stickers and certificate of appointment.

21. Any vehicle that has been raised in altitude as described in WV Code 17C-15-48 must undergo a modified vehicle inspection**. Refer to Official Modified Vehicle Inspection Manual for these requirements.**

22. No more than 18 vehicle inspections may be conducted by any inspector mechanic in a calendar day.

23. As of July 15, 1994, the walk-in window at the West Virginia State Police Headquarters, 725 Jefferson Road, South Charleston, West Virginia, will be open only on Tuesdays and Thursdays between the hours of 10:00 a.m. and 1:00 p.m. to purchase inspection stickers**. NO OTHER TIME WILL BE ALLOTTED FOR WALK-IN PURCHASES.**

24. All parts and equipment used on any vehicle must meet or exceed original vehicle manufacturer specifications and be of an equivalent type to properly be approved for a valid West Virginia Inspection Certificate.

WEST VIRGINIA STATE POLICE

MINIMUM REQUIREMENTS FOR INSPECTION STATION

1. The facility must be a garage that offers to the public general automotive repair on those items covered by the inspection procedure and the owner must possess a valid West Virginia business license and the business must be registered with the West Virginia Workers' Compensation Program. The person making application to become a public station must provide a copy of a general liability insurance policy showing coverage for the garage area should a vehicle or person be injured or damaged while at the garage for the inspection procedure. Additionally this coverage must be maintained during the time the garage continues as an inspection station and a copy of the coverage shall be provided to the West Virginia State Police or its employees upon request of the agency.

Space - Minimum Requirements

1. One car inspection station - 12' x 25' - 300 square feet with approved headlight tester or approved screen.

2. Two car inspection 24' x 25' - 480 square feet with approved headlight tester or approved screen.

3. Three car inspection station - 36' x 25' - 900 square feet with approved headlight tester or approved screen.

4. Inspection lane must be level concrete floor space exclusive of grease pit, wash pit or other obstructions. (This space will be kept open and available for inspections.) Wooden floors are not permitted.

5. In addition to designated inspection lane or lanes, an additional 12' x 25' space must be available for maintenance and repairs.

6. Entrance - free access to streets or highways. Door height must be a minimum of eight (8) feet and must be at least eight (8) feet wide.

7. All stations licensed after January 1, 1985, must be equipped with rest room facilities that are heated and approved for public use.

8. All stations licensed after January 1, 1985, must have a working telephone.

Personnel

1. Inspections stations will be required to have at least one qualified inspector mechanic for each operated inspection lane.

2. Inspections will be made only by the designated licensed inspector mechanics.

Equipment and Tools

1. Following is a list of the minimum tools and equipment that must be available at the Official Inspection Station for use by the Official Inspector Mechanic:

1. Work Bench
2. Wheel Puller
3. Floor Jacks
4. Vise
5. Portable Lights
6. Bench Grinder
7. Socket Wrench Set
8. Pipe Wrenches
9. A device capable to measure the thickness of a disc or drum lining without removing the pads.
10. Soldering Iron
11. Light Bulbs - Assorted Types
12. Tread Depth Gauge
13. Insulated Wire, Assorted Sizes
14. Windshield Wipers, Blade and Arms Assortment
15. Measuring Tape and Rule
16. Window Tint Meter
17. Instrument Adequate in Measuring Ball Joint Tolerance
18. Punch (1/4") for Inspection Stickers and Scraper for Removing Sticker
19. Micrometer
20. Headlight aimer or screen

2. All tools and equipment must be kept in good operating condition at all times.

NOTE: If garage does not meet minimum requirements at time of investigation, application will not be considered for appointment as an official inspection station.

Minimum Requirements for Inspection Stations of Motorcycles Only

1. Must be an established garage. Will be required to meet the minimum requirements.

Space - Minimum Requirements

1. Two lanes 12' x 10' with approved head light tester - 240 square feet one lane.

2. Door length 7' x 10'.

Equipment and Tools

1. Following is a list of the minimum tools and equipment that must be available at the Official Inspection Station for use by the Official Inspector Mechanic:

1. Work Bench
2. Vise
3. Portable Lights
4. Bench Grinder
5. Socket Wrench Set
6. Pipe Wrenches
7. Soldering Iron
8. Light Bulbs - Assorted Types
9. Tread Depth Gauge
10. Insulated Wire - Assorted Sizes
11. Tail Light Lens - Assorted Makes
12. Mirrors
13. Measuring Tape or Rule
14. Punch
15. Micrometer
16. Floor jack

GENERAL PROVISIONS

It is important that every official inspection station properly instruct all employees in accordance with the instructions and procedures as set forth herein. The contents should be carefully studied and frequently reviewed by your entire organization. Continued supervision of all inspector mechanics should be maintained. If your appointment is withdrawn, it is because you or your employees have failed to follow instructions.

Change of Location or Ownership

Persons operating under a certificate of appointment, contemplating a change of location or ownership, must notify the West Virginia State Police, Traffic Records Section, 725 Jefferson Road, South Charleston, West Virginia 25309-1698, before such change is made.

A new application must be made for appointment of inspection privilege for the new location of ownership - this requires a new investigation by the West Virginia State Police. If the owner remains the same, the original station number will be reassigned to the new station.

To eliminate any period of non-operation, such application should be made at least thirty days in advance.

All inspection privileges will cease under the old certificate as of the date of issue of the new certificate of appointment. Persons operating under a certificate of appointment, who are not contemplating a change of location or ownership, but wanting to make a change in name only must fill out a new application showing the change in name.

Upon receiving this notarized application, the Superintendent will issue a new certificate of appointment; the old certificate must be returned to the Superintendent immediately.

Inspections may continue during the above transaction.

No inspections will be conducted on premises during the period of suspension.

Requirements for Appointment and Continuance Thereof

Application for appointment shall be made on Form WVSP MVI-1. This form may be secured by writing to the Superintendent, West Virginia State Police, Traffic Records Section, 725 Jefferson Road, South Charleston, West Virginia 25309-1698. The Superintendent will investigate all persons or firms filing applications. This investigation shall cover past business practices, criminal and civil history of the person or group making application as well as the general reputation of the station. Appointments will be made when a favorable report is received. At any time an Investigator for the West Virginia State Police discovers information that a station is not adhering to these standards the appointment may be suspended.

If a garage does not maintain normal business hours or is open for business and conducts inspections only in the evening, application for appointment as an official inspection station will not be approved.

An ordinary inspection station is required to remain open at least eight business hours each workday.

The appointment as an official inspection station could be suspended for not maintaining a clean garage and facilities, or not keeping proper tools and equipment.

Going Out of Business

Inspection station operator, upon going out of business, shall immediately return to the West Virginia State Police, Traffic Records Section, by way of area supervisor, the Certificate of Appointment and all unused inspection stickers, final reports of inspection and all other forms issued.

Change of Ownership (Exception)

In the event of death of the owner, the spouse, or a surviving member of the immediate family, shall submit a new application within sixty (60) days for a change of authority and continue operating, providing a qualified mechanic is employed to conduct the inspection.

Official Station Cancellations

Discontinuance of business even temporarily, or removal of an official inspection station from one location to another, automatically cancels authorization. Reports, stickers and all forms must be returned **immediately** to the West Virginia State Police by submitting above-mentioned materials **to the respective area supervisor**.

Responsibility of Station Owner or Operator

Upon accepting appointment as an official inspection station, the operator has obligated himself/herself to the following responsibilities:

1. Owner/operator will assume all responsibility regarding the inspection of all inspector mechanics in their employment and that improper conduct of the employees, regardless of the owner/operator's knowledge may result in suspension.

2. That he/she will see that the official inspection station instructions and supplements are available to each authorized inspector mechanic.

3. That he/she and his/her employees will conduct honest, thorough, and efficient inspections in compliance with the motor vehicle laws, rules and regulations governing such inspection.

4. To have available at all times in his/her inspection station all tools and equipment in good, working order, prescribed in the official inspection station rules and regulations.

5. To maintain a clean and orderly place of business and shop. (To be responsible for all employees in this respect).

6. Owner/operators will be required to maintain on file the inspector mechanic's license of all inspector mechanics in their employment.

7. Owners of public stations will make certain that the inspection of vehicles will be conducted without unreasonable delay.

8. To keep up-to-date inspection records at his/her station which will be available at all times for examination by the State Police. Duplicate copies of log sheets and sticker requisitions must be kept at the inspection station for a period of two years.

9. To conduct all inspections and affix all inspection stickers in the approved inspection area of the location designated by the State Police.

10. That he/she will keep on file and abide by the memorandums forwarded to official inspection stations by the West Virginia State Police.

11. To keep an adequate supply of inspection stickers, rejection stickers and numerical inserts on hand.

In accepting the appointment, the station owner or operator obligates himself/herself to make sure vehicles have been properly inspected. To submit the required inspection reports and log sheets to the West Virginia State Police immediately upon completion. This applies to both fleet and public stations.

Qualifications for an Inspector Mechanic

To qualify as a licensed inspector mechanic the applicant must meet the following qualifications:

1. Before any mechanic can inspect vehicles, he/she must attend the Inspector Mechanic Training Program and be examined and certified by a member of the West Virginia State Police. He/she must have a general knowledge of mechanical skills and completely familiar with the inspection program, its rules and regulations.

2. The mechanic must be at least 18 years of age and hold a valid driver's in the state that they reside. He/she must pass the examination with a grade of not less than 80 percent. **Any revocation or suspension of the driving privilege automatically revokes the license to inspect.**

3. Must allow for a criminal and/or driving record check to be conducted determining if the applicant is truthful and possesses a history which would indicate they will follow rules and procedures set forth by the Department. Should a licensed inspector mechanic be found to be operating a vehicle that clearly violates the Inspection Manual for their personal use they may be suspended from the program.

4. Must have been employed as an automobile mechanic during the previous one year prior to making application, or completed other training program which would be similar or like natural such as a training program by another state or federal agency (military, vocational rehabilitation, private school, etc.).

5. The inspector mechanic must notify in writing the area supervisor and the Traffic Records Section of the West Virginia State Police of any revocation or suspension of the inspector’s driver’s license and must cease the inspection of vehicles until the driver’s license is reinstated.

6. Upon the request of the inspection supervisor, the mechanic must demonstrate his/her ability to efficiently and correctly operate the various testing devices required in the inspection program.

7. Approved inspector mechanics are subject to re-examination at any time, to determine if they have full knowledge of current official inspection rules and regulations. If the examination discloses the inspector mechanic is not familiar with the inspection regulations, he/she will be suspended from making inspections until able to pass a re-examination.

8. A previously licensed mechanic who has been licensed and is currently certified as a mechanic as of the effective date of these revised regulations shall be exempt from these qualifications upon their successful completion of a recertification class and test.

Mechanic Failing to Pass the Examination

1. Upon failure of the examination, mechanics shall be required to repeat the inspector mechanic training program before re-testing.

2. Failure of the second examination or subsequent examination will cause a waiting period of ninety days.

Personal Liability of the Official Inspector Mechanic

It is the duty of the inspector mechanic of an official inspection station to always properly and thoroughly conduct the official inspection of vehicles presented for that purpose. It is a grave responsibility and should not be taken lightly.

In affixing a sticker to an approved vehicle, the employee is placing a "Certificate of Safety" on that vehicle indicating that the vehicle is safe for operation on the highway.

It is the responsibility of the employee to check that all equipment is of an approved type. That is the purpose of requiring approved devices in these regulations. The aiming of the headlights, fog lights, or auxiliary driving headlamps is an important must. An approved headlight tester must be used.

Fleet Inspection Stations

1. An applicant for a fleet station must meet all the requirements as prescribed for a public official inspection station in addition to the specific requirements that apply only to fleet station.

EXCEPTION: A fleet station may operate with only one inspector mechanic and will not be required to have an additional mechanic.

2. To be approved as a fleet station, ten (10) or more trucks, buses, tractors, trailers or passenger cars must be registered in the name of the company or owner signed on the application.

3. Fleet stations may inspect only vehicles they may have under lease in addition to the number of vehicles registered in their name. All inspections must be conducted and stickers affixed in the approved inspection area.

4. Fleet stations can only order stickers for the number of vehicles shown upon application and must immediately notify the West Virginia State Police, Traffic Records Section of any increase or decrease of vehicle registered or leased in their name. Fleet stations are permitted to obtain additional stickers as their fleet of vehicles increases.

5. Fleet stations must keep records and abide by the rules and regulations according to the instructions promulgated by the West Virginia State Police.

INSPECTION STICKERS - FORMS - SUPPLIES - RECORDS

STICKERS AND SUPPLIES

All forms necessary for inspection will be furnished by the West Virginia State Police, Traffic Records Section and will be delivered to inspection stations when certificate of appointment and approval is issued. It will be necessary for inspection stations to requisition additional forms when needed **(allow 10 -14 working days for delivery)**. When requesting supplies, give station number, name, address and zip code.

Inspection Sticker Order Procedure:

A. The self-duplicating requisition form MVI-4 (**revised 7/01**) must be used for the **purchase** of all inspection sticker types.

B. The necessary station information must be filled out in the left column of the form and must be complete for the requisition to be processed. The listed station information must appear **exactly** as listed on the respective station inspection license.

C. In the right column of the form, indicate the correct quantity of each type of inspection sticker requested in the appropriate, corresponding box. The type of issue must also be checked. **Note: If type of issue is not marked – current issue stickers will be sent.**

D. A fee of $1.00 will be charged for each motor vehicle and trailer/motorcycle stickers. A fee of $10.00 will be charged for each modified vehicle sticker.

E. The minimum order for a PUBLIC station requesting motor vehicle stickers for July 01 through April 30 is 100. During the months of May and June an inspection station may order less than 100 motor vehicle stickers to have enough until the sticker color changes July 01.

F. The total dollar amount of all stickers purchased must be included in **one** check or money order made payable to **The West Virginia State Police**. Additionally, each requisition form submitted must be accompanied by a remittance stub that is included with the station's requisition supplies. **FAILURE TO SUBMIT REMITTANCE STUB WILL RESULT IN THE REQUISITION FORM BEING RETURNED UNPROCESSED.**

G. Requisition forms must be mailed to:

The West Virginia State Police
STO/RPD
P.O. Box 1833
Charleston, WV 25327

Stations are not permitted to sell, loan or give stickers to other official inspection stations and must account for every sticker issued.

Stickers must be protected and kept in a safe place. The station operator is responsible for them. Copies of requisitions must be kept as part of station records.

REPLACEMENT AND REFUND OF STICKERS

1. Replacement of Unused Stickers

A. Replacement of unused stickers is acceptable August 1 through October 31 of each fiscal year. Unused stickers will be exchanged for the current sticker year.

B. **WARNING** - Not more than 100 total unused stickers will be replaced.

C**. Replacement stickers will be accepted only on WVSP/MVI-4a – Sticker Exchange Form.**

D. Attach unused stickers to requisition. List number of stickers and serial numbers. (Example: Five (5) stickers, serial number 100165 through and inclusive of 100169).

E. Copy of requisition will be returned with replacement stickers, which is to be kept on file.

F. Mail the completed MVI-4a Sticker Exchange Form and replacement stickers to:

The West Virginia State Police
Traffic Records Section
725 Jefferson Road
South Charleston, WV 25309

Do not send replacement request on the same requisition for stickers. (Example: Five (5) unused stickers to be replaced and you are ordering 50 stickers; do not submit a check for 45 stickers and the replacement for five (5) stickers.

NOTE: There will be no replacement of inspection stickers purchased by fleet stations.

2. Refund of Stickers

A. Refunds on unused stickers for cancelled or suspended stations will be accepted upon a written request from the owner or operator. Request must be made in a timely manner, (60 days)

B. Refunds for less than twenty stickers will not be granted.

C. The Federal Employee Identification Number must be submitted with the application for refund.

D. Refunds will not be made to suspended stations unless they agree to permanently withdrawal from the program.

3. Replacement of Defective Stickers

A. Stickers that are defective or disfigured are not to be attached to a vehicle. Hold any stickers of this nature for the inspection supervisor who will request replacement.

B. Stickers that are missing from shipment will be replaced on the approval of the inspection supervisor. List missing stickers on records as "Missing from Shipment." Check each sticker shipment before using any stickers to verify all stickers were received.

MARKING AND APPLICATION OF STICKERS

After vehicles have been inspected, either the approval or rejection sticker shall be marked and affixed in the following order:

1. **A. Approved:**
The year or month of expiration shall be punched in the appropriate box by the use of a 1/4" punch only. The correct numeral insert will then be attached if required.

B. Rejected:
The date of inspection/rejection shall be punched by a 1/4" punch only.

2. **IMPORTANT** - Under no circumstances will a substitute be used in place of a numerical insert provided by Traffic Records.

3. Fill in the required information on backside of sticker with a **ballpoint or indelible pen. Pencil will not be used.**

4. Stickers shall be affixed as follows:

A. Vehicle approval or rejection sticker will be attached in the lower left hand corner of the windshield and in all cases attached so that the sticker is visible from the front of the vehicle when viewed from the left front fender.

B. Trailer stickers - On the left front corner area or along the left side of the hitch, plainly visible easily assessable and visible for inspection enforcement officers.

C. Motorcycles - Attach certificates to a permanent, smooth, easily accessible part of the structure; along the left hand side or center line of the vehicle. Care is to be taken not to apply the sticker to a part that would be damaged when the sticker is removed. The usage of an attached inspection plate is permitted. Under no circumstances will any scraping be done on any paint surfaces and that care should be taken not damage any other area.

5. When applying stickers, follow these directions carefully:

   A. The area to which the sticker is applied must be thoroughly cleaned with a clean cloth.

   B. Follow instructions as furnished by manufacturer for application.

   C. Apply to glass evenly, and smooth down with blotter carefully, to remove all air bubbles. Sticker must lie absolutely flat for proper adhesion.

When an inspection is completed and the inspection sticker is issued, it is the responsibility of the inspector to affix the inspection sticker at the required location. Only an approved inspector mechanic may affix the inspection sticker. Under no circumstances are you permitted to inspect a vehicle and at a later time attach a sticker to that vehicle.

An inspector mechanic may inspect no more than eighteen vehicles in a 24 hours period.

RECORDS - INFORMATION REQUIRED ON LOG SHEETS

1. **Mechanic's Name -** Signature of inspector mechanic conducting the inspection. (First initial and last name).
   NOTE: Must be entered on the log by the inspector mechanic.

2. **Inspection Number**

   A. Must begin with number one (1) and continue in numerical order starting with each fiscal year (July 1).

   B. Do not use inspection station number.

3. **Date** - the date of inspection must be complete. (Day, month and year). Example: 7-1-05 or 07/01/05.

4. **Sticker Serial Number**

   A. Begin with the lowest sticker serial number and continue in numerical order. A sticker that has been destroyed, voided, or stolen will be recorded as "Destroyed", "Voided", or "Stolen" and logged in numerical sequence on the log sheet.
   B. Voided or destroyed stickers must be retained for review by the area supervisor.

5. **Vehicle License Number** - Enter license number (except a car dealer displaying dealer's plates of his/her own will indicate "new or used car" or "new or used truck".) When inspecting a vehicle owned by another dealer displaying dealer plates, indicate the number as usual. If inspection is done by bill of sale or title only, enter which was used.

6. Vehicle Serial Number

A. Enter the Vehicle Identification Number (VIN) on all vehicles inspected, using the VIN number on the registration card.

B. Temporary registration card issued by the Division of Motor Vehicles are accepted as valid proof of registration. VIN number will be taken from the vehicle. Obtain the owner's name and address and record on log sheet.

C. Check registration plate number against registration card.

7. Year, Make and Type of Body - Indicate as: "93 Ford SED", "94 Chev CPE", "90 Trk Int" or "95 Semi Tr".

8. Name of Owner - Record name as it appears on registration card.

9. City - If not West Virginia, show state.

10. Odometer Reading

A. Enter the odometer at the time of inspection. Tenths are not to be recorded.

B. If odometer is broken, reject vehicle unless odometer is repaired if vehicle is less than 10 years of age. If over 10 years, log in as broken.

11. Tires

A. Tires are to be recorded as "L" as legal.

B. A vehicle that is rejected due to a tire, record "I" under tire.

12. Equipment - Repairs or replacements are indicated by "R", adjustments shown by "A" vehicle rejected for any equipment, record "X" under the appropriate item except tires which "I" shows reason for rejection.

13. Wheels Pulled

A. Indicate wheel is pulled as follows: Right Front - RF; Left Front - LF; Right Rear - RR; Left Rear - LR. If all tires are pulled, indicate by all.

B. Wheels are not required to be pulled with an odometer reading of less than 10,000. Indicate by none.

14. Inspection Charges - The inspection charge will be $11.00 plus appropriate tax. This does not include price of sticker. There is no tax on the inspection sticker. If no charge is made for the inspection, indicate $1.00. Do not have space blank except on replacement of lost or stolen sticker, etc.

15. Total Charges

A. If no charge is made for inspection or rejection, on approved vehicle, this column will be not less than $1.00 (cost of sticker).

B. This column will show a total of charges made for inspection sticker and any repairs or adjustments necessary to approve vehicle. Do not show charges for wash jobs, motor works, etc., not required for inspection. There is no tax on the inspection sticker. (Tax on inspection and repairs to vehicle only.)

16. Approved - Indicate approved vehicle by an "X" mark in this column. Vehicles approved must have the inspection sticker attached by the inspector mechanic conducting the inspection.

17. Damaged, Voided, Disfigured, or Unusable Sticker - When a sticker is destroyed while attempting to apply to vehicle, list the sticker in its proper place according to numerical sequence and indicate, "VOID". The damaged, voided, disfigured, or unusable sticker will be kept for review by the area supervisor.

18. Rejected Vehicles

A. Vehicles inspected and rejected will be entered on the log sheet with an "X" in this column. The rejection sticker will be punched on the date issued, attached in the lower left corner of the windshield with the required information on the reverse side complete. Only one (1) rejection will be issued to a vehicle during the current inspection period.

B. When a rejection sticker is issued to a vehicle, explain to the owner his/her privilege of operating. This is printed on the reverse side of the rejection sticker.

C. If the vehicle is rejected for a part such as a brake lining or movement in steering parts, the inspector mechanic shall record the measurement along the left margin of the log sheet and indication what vehicle it goes to.

19. Salvage Vehicles – Salvage vehicles column marked by an “X” if appropriate.

20. IMPORTANT: Inspection station number must be stamped or written on top, right hand portion of log sheet upon completion and before mailing to the Traffic Records Section.

21. Forward completed log sheets to Traffic Records promptly**. DO NOT ACCUMULATE LOG SHEETS.**

CAUTION: Failure to properly record inspections and forward the record to the West Virginia State Police/Traffic Records Section or to keep records as required can result in the suspension of inspection privileges. False entry or deliberately misrepresenting an inspection will be sufficient cause to suspend privileges.

REJECTION PROCEDURE

1. If the inspection reveals deficiencies that need repair or adjustment to conform to regulations, but the owner will not agree to have such repairs or adjustments made, official inspection stations are required to affix a rejection sticker to vehicle.

   A vehicle will be rejected if the owner attempts to delay the inspection.

2. A complete inspection must be performed before issuing an approval or a rejection sticker. A rejection sticker is not to be removed unless the vehicle meets all the inspection requirements.

3. The owner of a vehicle rejected must be advised of the items that need corrected and give authorization for any repairs or adjustments before they are made.

4. Only the items rejected need be re-inspected if the rejected vehicle is returned to the inspection station that conducted the inspection within five (5) days from the date of the rejection. (If items rejected are in proper repair, the vehicle will be passed and approval sticker issued.)

   The rejected vehicle returned after five (5) days or later must be completely inspected and the owner may be charged for this inspection.

5. **IMPORTANT** - A rejection sticker issued to a vehicle that did bear a valid inspection sticker at the time of inspection shall not entitle such vehicle to legally operate on the public streets and highways. The vehicle must observe the following rules:

No person shall operate any vehicle after receiving a rejection sticker, except as may be necessary to return such vehicle to the residence or place of business of the owner or driver or to a garage, until said vehicle and its equipment has been placed in proper repair and adjustment. This vehicle must be re-inspected and approved by an official inspection station within five (5) days of the date rejected. Failure to comply may result in suspension of license.

SIGNS AND POSTERS

1. After application for an inspection station has been approved and inspection material received, the owner will prominently display an **"Official Inspection Station"** sign on the outside of the garage visible on both sides to the public. The sign must be of a type approved by the West Virginia State Police (fleet stations are exempt from this requirement). 24"x24" in size with number tab attached to bottom 4"x12" in size.

PENALTIES FOR NON-COMPLIANCE ON THE PART OF STATION OWNER, OPERATOR OR EMPLOYEE

The owner, operator and employees of an Official Inspection Station assume full responsibility, and, if proved through investigation by the State Police that the owner, operator or employee knowingly permitted improper inspections, or is guilty of improper conduct, such as selling stickers, placing them on unsafe vehicles, negligence in complying with the instructions, etc., suspension of the inspection privileges and/or prosecution shall result.

EXECUTIVE REVIEW

All rules and regulations of this manual are promulgated by the Commissioner of the Division of Motor Vehicles and the Superintendent of the West Virginia State Police for the convenience and safety of the public. The Superintendent, may at his/her discretion, after administrative hearing and review of the record so produced and after his/her determination that the public safety and convenience will be adequately served, reduce any penalty under these rules, or substitute a probationary period for any penalty, or design such alternate penalty as may better serve the circumstance of any grievance.

ARTICLE 16.

INSPECTION OF VEHICLES.

Sec.
17C-16-1. Vehicles not to operate without required equipment or in unsafe condition.
17C-16-2. Inspection by Division of Public Safety.
17C-16-3 Owners and drivers to comply with inspection laws.
17C-16-4. Commissioner to require periodical inspection; acceptance of certificate of inspection from another state; suspension of registration of unsafe vehicles.
17C-16-5. Permit for official inspection stations; fees for and certificate of inspection.
17C-16-6. Assignment, transfer and posting of official inspection station permit; issuance and record of certificate of inspection; inspection fee.
17C-16-7. Improper representation as official stations.
17C-16-8. False certificates.
17C-16-9. Operation without certificate or failure to produce certificate; penalty for misdemeanor.

17C-16-1. Vehicles not to operate without required equipment or in unsafe condition.

No person shall drive or move on any highway any motor vehicle, trailer, semi trailer, or pole trailer, or any combination thereof unless the equipment upon any and every said vehicle is in good working order and adjustment as required in this chapter and said vehicle is in such safe mechanical condition as not to endanger the driver or other occupant or any person upon any highway. (1951, c. 129.)

17C-16-2. Inspection by department of public safety [West Virginia state police].

(a) The Division of Public Safety may at any time upon reasonable cause to believe that a vehicle is unsafe or not equipped as required by law, or that its equipment is not in proper adjustment or repair, require the driver of such vehicle to stop and submit such vehicle to an inspection and such test with reference thereto as may be appropriate.

(b) In the event such vehicle and its equipment are found to be in safe condition and in full compliance with the law, the officer making such inspection shall issue to the driver an official certificate of inspection and approval of such vehicle specifying those parts or equipment so inspected and approved.

(c) In the event such vehicle is found to be in unsafe condition or any required part or equipment is not present or is not in proper repair and adjustment the officer shall give a written notice to the driver and shall send a copy to the department. Said notice shall require that such vehicle be placed in safe condition and its equipment in proper repair and adjustment specifying the particulars with reference thereto and that a certificate of inspection and approval be obtained within five days. (1951, c. 129.)

17C-16-3. Owners and drivers to comply with inspection laws.

(a) No person driving a vehicle shall refuse to submit such vehicle to an inspection and test when required to do so by the Division of Public Safety.

(b) Every owner or driver, upon receiving a notice as provided in section two [17C-16-2] of this article shall comply therewith and shall within five days secure an official certificate of inspection and approval which shall be issued in duplicate, one copy to be retained by the owner or driver and the other copy to be forwarded to the department. In lieu of compliance with this paragraph the vehicle shall not be operated, except as provided in the next succeeding paragraph.

(c) No person shall operate any vehicle after receiving a notice with reference thereto as above provided, except as may be necessary to return such vehicle to the residence or place of business of the owner or driver, or to a garage, until said vehicle and its equipment has been placed in proper repair and adjustment and otherwise made to conform to the requirements of this chapter and a certificate of inspection and approval shall be obtained as promptly as possible thereafter.

(d) In the event repair or adjustment of any vehicle or its equipment is found necessary upon inspection, the owner of said vehicle may obtain such repair or adjustment at any place he/she may choose, but in every event an official certificate of inspection and approval must be obtained otherwise such vehicle shall not be operated upon the highways of the State.

(e) "Inspection and test," as used in this article, shall mean inspections and tests as related to the actual mechanical and operating ability of such vehicle. (1951, c. 129; 1974, c 76.)

17C-16-4. Commissioner to require periodical inspection; acceptance of certificate of inspection from another state; suspension of registration of unsafe vehicles.

(a) The Commissioner of Motor Vehicles shall once each year require that every motor vehicle, trailer, semi trailer, and pole trailer registered in this State be inspected and that an official certificate of inspection and approval be obtained for each such vehicle.

Such inspections shall be made and such certificates obtained with respect to the mechanism, brakes, and equipment of every such vehicle as shall be designated by the commissioner.

The commissioner is hereby authorized to make necessary rules and regulations for the administration and enforcement of this section and to designate any period or periods of time during which owners of any vehicles, subject to this section, shall display upon such vehicle certificates of inspection and approval or shall produce the same upon demand of any officer of employee of the department designated by the commissioner or any police or peace officer when authorized by the commissioner.

(b) The commissioner may authorize the acceptance in this State of a certificate of inspection and approval issued in another state having an inspection law similar to this chapter and may extend the time within which a certificate shall be obtained by the resident owner of a vehicle which was not in this State during the time an inspection was required.

(c) The commissioner may suspend the registration of any vehicle which he/she determines is in such unsafe condition as to constitute a menace to safety or which after notice and demand is not equipped as required in this chapter or for which a required certificate has not been obtained. (1951, c. 129.)

17C-16-5. Permit for official inspection stations; fees for and certificate of inspection.

The superintendent of the Division of Public Safety shall be responsible for the inspection as provided in this article and shall prescribe requirements and qualifications for official inspection stations. He or she shall select and designate such stations and shall issue permits therefore and furnish instructions and all necessary forms thereto for the inspection of vehicles as herein required and the issuance of official certificates of inspection and approval. The certificate of inspection shall be a paper sticker or decal to be affixed to the windshield of a motor vehicle, shall be serially numbered and shall properly identify the official inspection station by which issued. A charge of one dollar per sticker shall be charged by the Division of Public Safety to the inspection station, and the funds so received shall be deposited into state treasury and credited to the account of the Division of Public Safety for application in the administration and enforcement of the provisions of this article. Any balance remaining in the fund on the last day of June of each fiscal year, not required for operating expenses, construction, repairs or alterations of police barracks for the ensuing fiscal year and for the administration and enforcement of the provisions of this article, shall be transferred to the state road fund. The superintendent is authorized to exchange stickers or to make refunds to official inspection stations for stickers on hand when permits are revoked or when, for any reason, the stickers become obsolete.

Application for permit shall be made upon an official form prescribed by the superintendent and permits shall be granted only when the superintendent is satisfied that the station is properly equipped, and has competent personnel to make such inspections and adjustments and that the inspections and adjustments will be properly conducted. The superintendent, before issuing a permit, may require the applicant to file a bond with surety approved by the superintendent, conditioned that such applicant, as a station operator, will make compensation for any damage to a vehicle during an inspection or adjustment due to negligence on the part of such station operator or employees thereof.

The superintendent shall properly supervise and cause inspections to be made of such stations. Upon finding that a station is not properly equipped or conducted, the superintendent may, upon a first violation, suspend the permit for a period of up to one year. Upon a second or subsequent finding that a station is not properly equipped or conducted, the superintendent shall permanently revoke and require the surrender of the permit. The superintendent may reinstate the permit of any person whose permit was permanently revoked prior to the effective date of this section upon a first finding that a station was not properly equipped or conducted, upon application, at any time after the expiration of six months from the time of revocation, and shall reinstate such permit, upon application, after the expiration of one year. He or she shall maintain and post at his/her office and at such other places as he or she may select lists of all stations holding permits and of those whose permits have been suspended or revoke. (1951, c. 129; 1955, c. 116; 1969, c. 85; 1987, c. 87; 1992, c. 143.)

17C-16-6. Assignment, transfer and posting of official inspection station permit; issuance and record of certificate of inspection; inspection fee.

No permit for an official inspection station shall be assigned or transferred or used at any location other than therein designated and every said permit shall be posted in a conspicuous place at the station location designated.

The person operating any such station shall issue a certificate of inspection and approval, upon an official form, to the owner of a vehicle upon inspecting such vehicle and determining that its equipment required hereunder is in good condition and proper adjustment, but otherwise no certificate shall be issued, except such as may be issued pursuant to section two [' 17C-16-2] of this article. When required by the superintendent, a record and report shall be made of every inspection and every certificate so issued.

A fee of not more than twelve dollars may be charged for inspection and any necessary headlight adjustment to proper focus, not including any replacement parts required, and the issuance of such certificate, but the imposition of such charge shall not be mandatory. (1951, c. 129; 1955, c. 116; 1969, c. 85; 1977, c. 130; 1987, c. 87.)

17C-16-7. Improper representation as official stations.

(a) No person shall in any manner represent any place as an official inspection station unless such station is operating under a valid permit issued by the Division.

(b) No person shall issue a certificate of inspection and approval unless then holding a valid permit hereunder. (1951, c. 129.)

17C-16-8. False certificates.

(a) No person shall make, issue, or knowingly use any imitation or counterfeit of an official certificate of inspection.

(b) No person shall display or cause or permit to be displayed upon a vehicle any certificate of inspection and approval knowing the same to be fictitious or issued for another vehicle or issued without an inspection having been made. (1951, c. 129.)

17C-16-9. Operation without certificate or failure to produce certificate; penalty for misdemeanor.

It is a misdemeanor for any owner or operator, or both owner and operator, of any vehicle required to be inspected under subsection (a), section four [' 17C-16-4(a)] of this article, to operate or permit to be operated such vehicle without having displayed thereon a current and valid certificate of inspection and approval or fail to produce same upon demand of any authorized person as designated under said subsection: Provided, That a dealer licensed to sell new vehicles under the provision of article six [17A-6-1 et seq.], chapter seventeen-a of this code shall not be required to display a certificate of inspection and approval upon any new vehicle if the vehicle is driven for an operational purpose including all activities associated with dealer preparation for sale of a motor vehicle belonging to such dealer when such vehicle has not been titled or delivered to a purchaser, and when such car is not to be used in the demonstrator fleet or otherwise routinely driven on the highways or roads of this state.

Unless another penalty is by the laws of this state provided, every person convicted of a misdemeanor for operating a vehicle without having displayed thereon a current and valid certificate of inspection and approval or for failure to produce such certificate upon demand of an authorized person shall be punished by a fine of not more than one hundred dollars: Provided, That any person who obtains an inspection and a current and valid certificate of inspection and who, within five days of the issuance of a citation for a violation of the provisions of this section, provides a receipt of inspection to and makes the vehicle so operated available for examination by a court of competent jurisdiction, shall not be guilty of a violation of the provisions of this section: Provided, however, That the misdemeanor penalty shall be imposed if the certificate of inspection has not been valid for a period exceeding three months prior to the date of the issuance of a citation. (1957, c. 121; 1987, c. 88; 1991, c. 109; 1992, c. 144.)

ARTICLE 18.

PENALTIES.

17C-18-1. Violations of chapter; penalties for misdemeanor.

(a) It is a misdemeanor for any person to violate any of the provisions of this chapter unless such violation is by this chapter or other law of this State declared to be a felony.

(b) Every person convicted of a misdemeanor for a violation of any of the provisions of this chapter for which another penalty is not provided shall for a first conviction thereof be punished by a fine of not more than one hundred dollars or by imprisonment for not more than ten days; for a second such conviction within one year thereafter such person shall be punished by a fine of not more than two hundred dollars or by imprisonment for not more than twenty days or by both such fine and imprisonment; upon a third or subsequent conviction such person shall be punished by a fine of not more than five hundred dollars or by imprisonment for not more than six months or both such fine and imprisonment. (1951, c. 129.)

PENALTIES FOR INSPECTION VIOLATIONS

1. **Sale or Gift of Sticker**.

   A. For the first offense, any owner, operator, or mechanic guilty of this offense (for the first offense) shall have his/her mechanic's license, or certificate of appointment suspended for a period of one year.

   B. For the second offense or subsequent offenses, the mechanic, the owner, or operator guilty of the offense shall have his/her inspector mechanic license or certificate of appointment cancelled permanently.

2. **Affixing Stickers without Proper Inspection and Approval**.

   A. Any owner, operator, or mechanic who, for the first offense, affixes a sticker to a vehicle with proper inspection may be suspended for a period of one (1) year.

   B. Any owner, operator or mechanic who, for the second or subsequent offense, affixes a sticker to a vehicle without proper inspection may be permanently suspended.

3. **Lack of Ability; Mental, Physical or Mechanical, or unsuccessful re-examination**
   Any Offense - Suspended until there is full compliance.

4. **Improper Records; Dirty or Inaccurate.**

   A. First Offense - Letter of Warning.

   B. Second or Subsequent Offense - Within two (2) years of first offense, may result in six (6) months suspension of station license.

   C. Third or Subsequent Offense - Within two (2) years of second or subsequent offense may result in a one (1) year suspension of station license.

5. **Fraudulent Entry on Log Sheets.**

   A. Any owner, operator, or mechanic making fraudulent entries on log sheets, for the first offense, may have his/her inspector mechanic's license or certificate of appointment suspended for one (1) year.

   B. Any owner, operator or mechanic, for the second offense within five (5) years of the first offense, shall have his/her inspector mechanic's license or certificate of appointment permanently suspended.

6. Dirty or Cluttered Garage.

A. First Offense - Letter of Warning.

B. Second or Subsequent Offense - Certificate of appointment may be suspended for a period not to exceed six (6) months.

C. Third or Subsequent Offense - Certificate of appointment may be permanently suspended.

7. Loss of Stickers.

A. First Offense - Letter of Warning.

B. Second Offense - Certificate of Appointment and/or Inspector Mechanic's License may be suspended for a period not to exceed one (1) year.

C. Third or Subsequent Offense - May result in a permanent suspension of Certificate of Appointment and/or Inspector Mechanic's License.

8. Permitting Unauthorized Personnel to Inspect Vehicle.

A. First Offense - Certificate of Appointment and/or Inspector Mechanic's License may be suspended not to exceed one (1) year.

B. Second or Subsequent Offense - May result in a permanent suspension of Certificate of Appointment and/or Inspector Mechanic's License.

9. Conducting Inspections at Locations Other Than Those Designated and Approved.

A. First Offense - Certificate of Appointment and/or Inspector Mechanic's License may be suspended for a period not to exceed one (1) year.

B. Second or Subsequent Offense - Certificate of Appointment and/or Inspector Mechanic's License may be permanently suspended.

10. Failure to Follow Official Inspection Procedure or Policy.

A. First Offense - Certificate of Appointment and/or Inspector Mechanic's License may be suspended for a period not to exceed six (6) months.

B. Second Offense - Certificate of Appointment and/or Inspector Mechanic's License may be suspended for a period not to exceed one (1) year.

C. Third or Subsequent Offense - May result in a permanent suspension of Certificate of Appointment and/or Inspector Mechanic's License.

11. Unnecessary Repairs.

A. First Offense - Any owner, operator, or mechanic who proposes or does any unnecessary repairs to any vehicle shall have his/her Certificate of Approval and/or Inspector Mechanic's License suspended for a period of one (1) year.

B. Second Offense or Subsequent Offense - Any owner, operator, mechanic who for the second or subsequent offense proposes or does any unnecessary repairs to any vehicle may have his/her Certificate of Appointment and/or Inspector Mechanic's License permanently suspended.

12. Owner/Operator Responsibility.

Upon appointment as an official inspection station, the owner and/or operator will have assumed full responsibility for following the procedures of the inspection manual. The owner and/or operator will be responsible for the actions of his/her employees in the adherence to all rules and regulations pertaining to inspection procedures. In accepting this responsibility, the owner and/or operator may be subject to suspensions for a like period of time in regard to violations committed by one of his/her employees.

13. Refusal to Inspect.

A. First Offense - Any owner, operator or mechanic who, for the first offense, refuses to inspect any vehicle without proper cause may have his/her Inspector Mechanic's License and/or Certificate of Appointment suspended for one (1) year.

B. Second or Subsequent Offense - Any owner, operator or mechanic who, for the second or subsequent offense, refuses to inspect any vehicle without proper cause within two (2) years of first offense may have his/her Inspector Mechanic's License and/or Certificate of Appointment permanently suspended.

14. Going Out of Business.

Any owner who changes locations of his/her business or cancels the appointment of his/her business and fails to notify the area supervisor and the Traffic Records Section immediately in writing for the first offense may lose his/her Certificate of Appointment for future consideration permanently.

15. Failure to Have Adequate Supply of Stickers.

It is the responsibility of the owner and/or operator to make certain that an ample supply of stickers be on hand at all times. This includes motorcycle/trailer stickers and motor vehicle stickers.

1. Any owner, operator or mechanic who places a sticker on a vehicle and that sticker is non-current for the year or month punched shall, for the first offense, receive a suspension of three (3) months. Second or subsequent offense - two (2) years suspension.

2. Any owner and/or operator who fail to have proper stickers on hand because of his/her negligence in placing an order to the Traffic Records Section shall, for the first offense, receive a letter of warning. Second or subsequent offense - six (6) months suspension.

16. Any Official Inspection Station that has been placed on Administrative Probation for any reason shall be suspended for up to one year or permanently, whichever applies, for any violation of the Official Motor Vehicle Inspection Manual, policy or procedures.

PROCEDURE FOR APPEAL FROM SUSPENSION

When any official inspection station and/or inspector mechanic's license are suspended for any infraction of the rules and regulations promulgated in the Official Inspection Manual, that station and/or mechanic shall have the right to appeal.

To appeal the suspension of an inspection station, the owner/operator must within the first thirty (30) days, request said appeal in writing. Further, said appeal must be addressed to the Superintendent, West Virginia State Police, 725 Jefferson Road, South Charleston, West Virginia, 25309.

To appeal the suspension of an inspector mechanic's license, the inspector mechanic must within the first thirty (30) days, request said appeal in writing. Further, said appeal must be addressed to the Superintendent, West Virginia State Police, 725 Jefferson Road, South Charleston, West Virginia, 25309.

MOTOR VEHICLE INSPECTION HEARING PROCEDURES

I. Purpose

The purpose of these internal regulations is to provide guidelines for motor vehicle inspection hearing procedures. They are not intended to be published as administrative regulations and as such, do not have the force of law. Rather, they are intended to assist those who have hearings before the Board.

II. Definitions

A. "State" is defined as the West Virginia State Police or other official state agency as represented by counsel or other.

B. "Board" is defined as a group of three (3) members of the West Virginia State Police of the rank of Section Commander, Support Specialist V, or above, who will decide the case.

III. Transcripts

Formal transcripts shall not be made of the proceedings. A defendant may, however, at his/her or her own cost, provide a court reporter to record the proceedings. The Board shall record all proceedings on a tape recorder or other such mechanical sound recording device, and this recording, along with any documentary evidence introduced during the hearing shall constitute the official record of said proceedings.

IV. Procedure

A. Rules of Evidence and Civil Procedure.

The formal rules of evidence and civil procedure do not apply before the Board. The Board may, however, in its discretion, exclude evidence which is immaterial, irrelevant, prejudicial, unduly repetitious, or which would not otherwise assist the Board in reaching a determination as to the merits of the case. The Board will, upon proper objection or notice, exclude all evidence that is legally privileged.

B. Motions

Any motion on which a ruling is desired prior to commencement of the hearing must be made at lest five (5) working days prior to the hearing and must be accompanied by a certificate of service verifying that said motion was served on both the Board and the other party or parties.

C. Scope of Hearing

The hearing shall be limited to consideration of whether sanctions were properly assessed against the defendant. The severity of such sanctions shall not be an issue in the hearing.

D. Purpose of Hearing

The hearing shall commence with a short statement by the Board as to why the hearing is being conducted.

E. Opening Statement

Opening statement shall begin with the state followed by an opening statement by the defense. The defense may reserve its opening statement until after the presentation of the state's case in chief. In that event, the defense's opening statement shall be limited to discussing evidence that the defense intends to introduce as if the defense had made its opening statement immediately subsequent to the state's opening statement. Opening statements shall, except for good cause shown, be limited to ten (10) minutes for the state and ten (10) for the defense. Either party may waive opening statement.

F. Presentation of Evidence

The state shall present its case in chief followed by the defense case in chief, if any and the state's rebuttal evidence, if any. The state shall have the burden of proving, by a preponderance of the evidence, that the defendant was appropriately subjected to sanctions. In no event shall the defense be required to present a case in chief. Each party shall be limited, except for good cause shown, to the calling of three (3) witnesses. If a party intends to call more than three (3) witnesses, it must give notice to the Board and to the other party at least five (5) working days prior to the hearing. The Board will rule on a motion to present more than three (3) witnesses prior to opening statements. After each party has had the opportunity to examine witnesses, the Board members shall have the right to examine witnesses. If the Board exercises this right, the parties shall have the opportunity to reexamine any witness so examined by the Board. There shall be no limit on documentary evidence.

G. Closing Arguments

The state shall present its closing argument followed by the defense's closing argument and the state's rebuttal, if any. Closing argument shall be limited to fifteen (15) minutes. The state may reserve a portion of its time for rebuttal but must reserve this time prior to beginning closing argument. Either party may waive closing argument.

V. Decision by the Board

After closing arguments, the parties shall leave the room and the Board shall render a decision. Within thirty (30) working days after the hearing, the Board shall issue, in writing, a clear and concise reason for issuing said decision. Such writing shall not be required to be in the form of formal findings of fact and conclusions of law, but may be in narrative form. However, each party is encouraged to submit proposed findings of fact and conclusions of law to the Board prior to commencement of the hearing.

OFFICIAL INSPECTION PROCEDURE

NOTE: The owner of a vehicle is under no obligation to have disclosed defects corrected by the inspection station. He/she may have the necessary work done where he/she desires or he/she may do it himself/herself. The inspection alone is all that is required, being approved or rejected. The owner or operator of the vehicle should always be informed if any parts, although still in passing condition, may be worn or become dangerous before the next inspection is required. Owner or operator may request all worn or replaced parts be returned to him.

Foreign make, as well as American make motor vehicles, must comply with all the inspection requirements, including approved safety glass and lighting equipment.

ITEMS TO BE INSPECTED

The following items must be thoroughly examined, according to the regulations to constitute an official inspection. Failure to comply will be regarded as a faulty inspection.

1. Verify legal registration.
2. Check certificate of insurance.
3. Remove old sticker.
4. Check safety glass.
5. Check sheet metal, bumpers, fenders and frame.
6. Check horn, rearview mirror, windshield wipers and plate mounting.
7. Check brake system, i.e., service and emergency brake, brake linings, brake pedal and all hoses.
8. Check front end and steering components.
9. Check exhaust system and fuel system.
10. Check tires and wheels.
11. Check lights, safety devices and seat belts.
12. Affix sticker.
13. Record inspection on MVI Form 5 or 5-A.

VERIFY LEGAL REGISTRATION

Check registration card with registration plate, or temporary plate, except Class "D" as to the registration number on each being identical. Also, check registration card as to the name of owner and vehicle serial number. If the number or name does not coincide, do not issue inspection sticker. Notify, in writing, West Virginia State Police, Traffic Records Section, (MVI) 725 Jefferson Road, South Charleston, West Virginia, 25309-1698.

Owner's registration card, title, certificate of transfer, temporary registration card, or notarized bill of sale is satisfactory proof of ownership. If registration number and serial number correspond and name of owner is correct, remove old approval sticker and proceed with the inspection. (Do not remove a rejection sticker until the inspection is complete, and then only if approved.)

IMPORTANT: Do not place rejection sticker on vehicles that cannot produce proof of ownership documents.

PLATE MOUNTING

Inspect license plate to see that it is securely mounted, clean and clearly visible and that the registration validation decal is affixed to the lower right corner of the plate. Plate shall be mounted as required by State Code, at least twelve inches off the roadway and in a horizontal position to the rear of the vehicle .Reject vehicle if plate is hanging loosely from its mounting brackets, is not mounted in a horizontal fashion, is covered by anything other than a clear protective cover or is obscured so that characters cannot be identified. Protective covers cannot be tinted, faded, cracked, reflective or weathered. License plate frames are permissible if they do not obscure any identification information listed on the plate (Characters, state and registration validation decal) and that the registration validation decal must be fully visible and not obstructed by any portion of the frame. Lighted license plate frames are prohibited. No emblems, decals, stickers, other than the registration validation decal, or foreign materials may be attached or affixed to any portion of a plate or cover.

VERIFY CERTIFICATE OF INSURANCE

Each inspector mechanic will verify proof of insurance along with proof of ownership before proceeding with an inspection of any vehicle. Proof of insurance means a certificate of insurance, an insurance policy, a mechanically reproduced copy of an insurance policy, or a certificate of self-insurance.

Government vehicles and vehicles operated with dealer plates do not have to carry proof of insurance.

Commercial carriers that are controlled by the Public Service Commission of the State of West Virginia do not have to carry proof of insurance, i.e., taxies, wreckers, buses.

Salvage vehicles when operated on a valid One-Trip Permit must have proof of insurance.
Should the vehicle be towed or hauled the insurance for the towing the vehicle shall be provided.

IMPORTANT: Do not place rejection sticker on vehicles that cannot produce proof of insurance. Do not proceed with inspection if proper documentation is not presented.

SECTION II

PASSENGER VEHICLES

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SAFETY GLASS - WINDSHIELD AND WINDOWS

WINDSHIELD

Chapter 17-C, Article 15, Sections 36 and 38, Motor Vehicle Law.

Inspect For and Reject If:

- Vehicle is not equipped with approved safety glass wherever glass is used. Windshield must be "AS" 1 and all other glass must be "AS" 2. "AS" 10 (bullet resistant glass) may be used in the windshield area.
- Areas of discoloration and diffusion are greater than specification permits. (See Chart on Next Page.)
- Glass is broken or shattered or has any exposed sharp or jagged edge or any other condition that impairs the vision of the driver.
- Any posters, stickers, or other non-transparent materials except those required by law, located on the windshield that would obstruct the driver's view.
- Any star, bulls eye or half moon cracks and breakage greater than one and one-half inches in the critical area. No mark of any kind permitted in the acute area.
- Left window glass will not allow hand signal.
- All glass must be present if vehicle was designed for glass by manufacturer.
- Reject vehicle for ANY repairs made in the acute area.
- Reject vehicle for any repair made in the critical area larger than 3" in length or 1 1/2" in diameter.
- Reject vehicle for any repair made in the non-critical area larger than 6" or 1 1/2" in diameter.
- Reject the vehicle if the windshield has visible damage that has not been repaired according to the above listed criteria. If the windshield is not repairable then it must be replaced prior to approval.

(SEE PAGE 45 FOR DEFINITIONS OF WINDSHIELD AREAS)

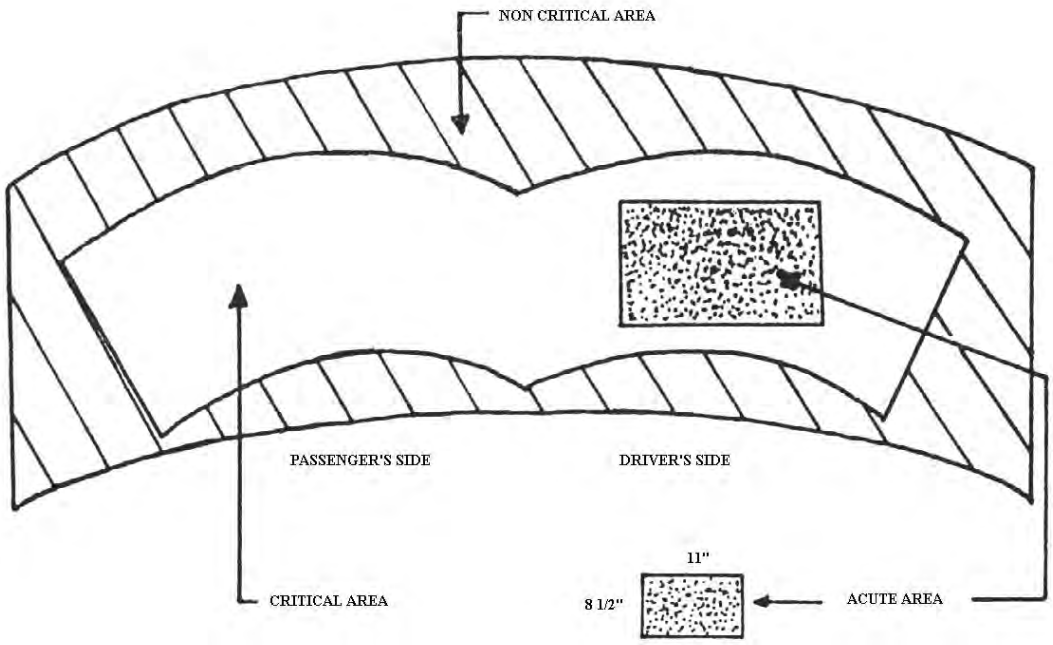
SIGN, POSTER OR OTHER NON-TRANSPARENT MATERIAL

Any sign, poster or other non-transparent material is displayed upon the front windshield, side wings, or side or rear windows of the vehicle being inspected that obstructs the driver’s clear view of the highway or any intersecting highway.

Provided However: That vehicles operated in interstate commerce shall be exempted from the foregoing prohibitions and limitations, which vehicles displaying upon the front windshield, side wings, or side or rear windows of same, valid signs, posters, stickers, decals or other non-transparent materials issued by a foreign state, jurisdiction or any agency of the United States Government and required by such foreign state, jurisdiction or any agency of the United States Government for vehicles operated in interstate commerce in accordance with its statutes, laws, or rules and/or regulations provided further, and the exemptions here in above immediately set out relative to vehicles operated in interstate commerce shall not in any way be deemed or interpreted to waive the provisions of Chapter 17-C, Article 15, Section 36(a), Official Code of West Virginia, 1931, as amended by Acts of the Legislature, regular session, 1991.

Provided However: A vehicle may have one (1) sticker, decal, non-transparent sign, poster or other non-transparent material affixed to the windshield in a non-critical area with the exception of those issued by another governmental agency or the approved motor vehicle inspection sticker, but in no instance shall it be greater than (4) inches in diameter if circular, 3 x 5 inches if rectangular, nor 4 inches square, persons may attach additional stickers the area above the "AS" 1 line, or from the top of the windshield 5 inches downward or whichever is closer to the top of the windshield. In all cases, this additional sticker must be affixed in the non-critical area as defined on page 33. In addition, one (1) sticker, decal, non-transparent sign, poster, or other non-transparent material of the same dimensions as above will be permitted on the rear glass.

WINDSHIELD



ACUTE AREA: **Directly in the driver's line of vision in the center of driver's critical area. (8 ½ X 11 inches, size of standard typing paper).**

CRITICAL AREA: **The area cleaned by the normal sweep of windshield wiper blades, other than the acute area. NOTE: Blade size cannot be reduced when replacing.**

NON-CRITICAL AREA: **All other windshield area.**

SUN SCREENING DEVICES

Effective June 9, 1991, the requirements for sun screening devices shall be as follows. These paragraphs are excerpts from Senate Bill 90, which was passed March 9, 1991.

No person may operate a motor vehicle that is registered or required to be registered in the state on any public highway, road or street that has a sun screening device on the windshield, the front side wings and side windows adjacent to the right and left of the driver and windows adjacent to the rear of the driver that do not meet the requirements of this section.

A sun-screening device when used in conjunction with the windshield must be nonreflective and may not be red, yellow or amber in color. A sun screening device may be used only along the top of the windshield and may not extend downward beyond the AS-1 line or more than five (5) inches from the top of the windshield whichever is closer to the top of the windshield.

A sun screening device when used in conjunction with the automotive safety glazing materials of the side wings or side windows located at the immediate right and left of the driver shall be a nonreflective type with the reflectivity of not more than twenty percent (20%) and have a light transmission of not less than thirty-five percent (35%). The side windows behind the driver and the rear most windows may have a sun screening device that is designed to be used on automotive safety glazing materials that has a light transmission of not less than thirty-five percent and a reflectivity of not more than twenty percent. If a sun-screening device is used on glazing behind the driver, one right and one left outside rearview mirror is required.

Provide a label not to exceed one and one-half square inches in size, with a means for the permanent and legible installations between the sun screening material and each glazing surface to which it is applied that contains the manufacturer's name and its percentage of light transmission.

Include instructions with the product or material for proper installation, including the affixing of the label specified in this section. The labeling or marking must be placed in the left, lower corner of each glazing surface when facing the vehicle from the outside

The provisions of this section do not apply to a motor vehicle registered in this state in the name of a person, or the person's legal guardian, who has an affidavit signed by a physician or an optometrist licensed to practice in this state that states that the person has a physical condition that makes it necessary to equip the motor vehicle with sun screening material which would be of a light transmittance or luminous reflectance in violation of this section. The affidavit must be in the possession of the person so afflicted, or the person's legal guardian, at all times while being transported in the motor vehicle.

The light transmittance requirement of this section does not apply to windows behind the driver on trucks, buses, trailers, mobile homes and multi-purpose passenger vehicles.

Any person violating the provisions of this section is guilty of a misdemeanor; and upon conviction thereof, may be fined not more than two hundred dollars or be imprisoned for not more than thirty days.

ANY VEHICLE FOUND TO BE IN VIOLATION
OF THE AFOREMENTIONED PARAGRAPHS SHALL BE REJECTED

Inspect For and Reject If:

1. A vehicle has a sun-screening device when used in conjunction with the windshield that is not nonreflective or is red, yellow or amber in color.

2. A vehicle with a sun screening device on the windshield that is in any area of the windshield other than from the top of the windshield down to the AS-1 line, or from the top of the windshield 5 inches downward or whichever is closer to the top of the windshield.

3. A vehicle with a sun screening device when used in conjunction with the automotive safety glazing materials of the side wings or side windows that are immediately to the right and left of the driver is not of a nonreflective type and has a reflectivity of more than 20% and light transmission of less than 35%.

4. A passenger vehicle with sun screening device on the rear most side windows behind the driver designed to be used on automotive safety glazing materials has a light transmission of less than 35% and a reflectivity of more than 20%.

5. A vehicle with sun screening device used on automotive glazing materials behind the driver does not have one right and one left outside rearview mirror.

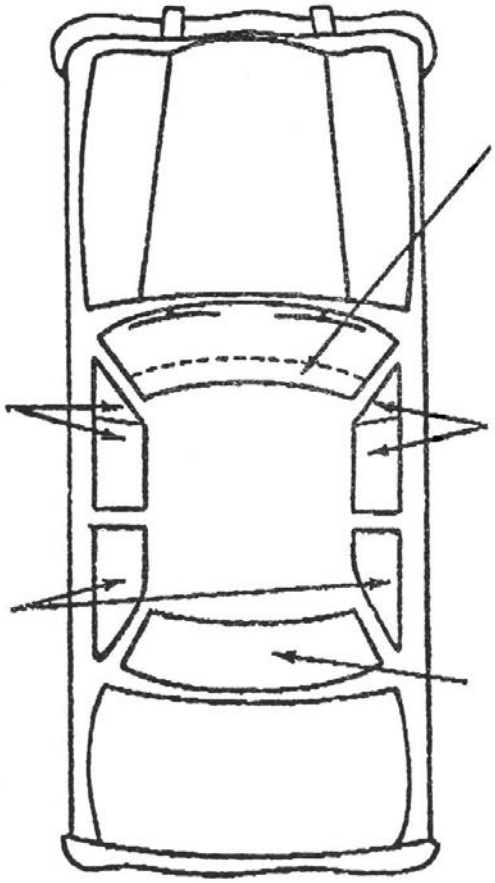
6. A vehicle does not have a label not exceeding 1 1/2 square inches in size with a means of permanent and legible installation between the sun screening material and the glazing surface which it is applied and located in the lower left hand corner of said glazing surface while facing the vehicle from the outside containing the manufacturer's name and percentage of light transmission.

7. Sun screening devices will be gauged by use of the current approved method.

NOTE: Any person or the person's legal guardian who has a signed affidavit from a physician or optometrist licensed to practice in the State of West Virginia that certifies the person has a physical condition which would make it necessary to equip a motor vehicle with a sun screening device that does not meet the light transmittance or luminous reflectance requirements of these regulations WILL NOT BE CAUSE FOR REJECTION.

NOTE: Multi-purpose vehicles with a sun screening device applied to windows behind the driver that do not meet the light transmittance requirements of these regulations, i.e., trucks, buses, trailers, mobile homes, and multi-purpose passenger vehicles WILL NOT BE CAUSE FOR REJECTION.

STATE INSPECTION GUIDELINES
FOR
AUTOMOTIVE WINDOW TINTING



May not extend downward beyond the AS-1 line or 5 inches, whichever is closer to top of windshield. (May not be red, yellow or amber in color.)

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission.

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission.

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission. One right and one left outside rearview mirror is required if any window behind the driver is tinted. (Factory tinting of 70% or higher is exempt.)

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission. One right and one left outside rearview mirror is required if any window behind the driver is tinted. (Factory tinting of 70% or higher is exempt.)

- The requirements of the windshield and all windows right and left of the driver on trucks, buses, trailers, mobile homes and multipurpose passenger vehicles are the same as passenger cars.
- The tinting on all windows behind the driver is exempt on trucks, buses, trailers, mobile homes and multipurpose passenger vehicles
- Tinting of windows in vehicles registered to a person with a medical exemption affidavit is exempt.

VEHICLE GLAZING

Automotive safety glazing is marked with the manufacturer's trademark and the letters "AS" followed by a number from 1 through 11. Only AS1 (or AS10 - Bullet Resistant) may be used in the windshield. Safety glazing for 1966 and later models also has a glass manufacturer's model number or a DOT code number. See Additional Information (page 51) for numerical position markings and discoloration areas.

Proper Markings

Procedure: Inspect glass for proper markings.

Reject Vehicle If:

- Improper or unmarked glazing materials are used for specific positions.
- Non-transparent materials such as plywood, etc., are used to replace glass.

Left Front Window

Procedure: Inspect operation of window at driver's left. Window must open readily even though the vehicle has approved turn signals.

Stickers, Tinting

Procedure: Inspect all glass for unauthorized material or conditions that obscure driver's vision.

Reject Vehicle If:

- Glazed surfaces contain any stickers not permitted by law or regulation.
- Surfaces contain an unauthorized tinting material that limits vision.

Cracks, Chips and Discoloration

Procedure: Inspect windshield and all windows for hazardous cracks, chips, sharp edges and discoloration of the glazing.

Advise Driver: If there are signs of the beginning of glazing discoloration. "Discoloration" in this case means anything that impairs the transparency of the glazing.

Reject Vehicle If:

- There are cracks, discoloration or scratches to the front, right, left or rear of the driver which interfere with his/her vision.
- Any windows are broken or have exposed sharp edges.
- The rear window is discolored so that the driver does not have a clear view 200 feet to the rear of the vehicle.

NOTES:

Remarks about special glazing positions.

Windshield -

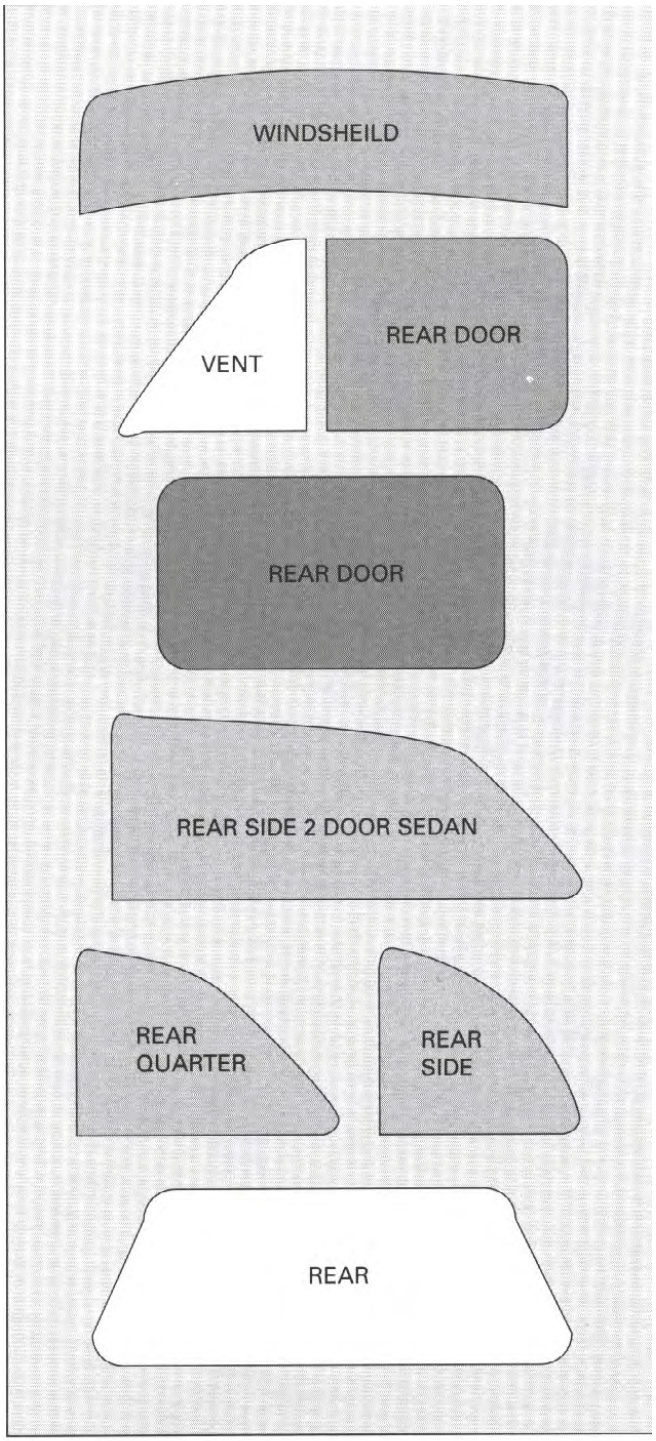
Star Chips (stone nicks) larger than 1 1/2 inches in diameter at any location in the unshaded portion of the diagram should not be permitted.

Windshield, Vent, Front Door -

Discoloration permitted as shaded diagram indicates. Any crack or separation that allows one piece of glass to be moved should not be permitted.

Rear -

Vision must be clear at least 200 feet to rear of vehicle.



Glazing Positions Diagram

VEHICLE GLAZING - ADDITIONAL INFORMATION

Glazing Material Position Markings

The numbers on the chart on the following page indicate the numerical markings following the letters AS, which should be found on glazing materials in the positions indicated. These numbers come from American National Standards Institute (ANSI) Glazing Standard Z26.1 (1977) and the meaning of each item as follows:

Position Number	Description
1.	Safety Glazing Material for use anywhere in motor vehicle.
2.	Safety Glazing Material for use anywhere in motor vehicle except windshields.
3.	Safety Glazing Material for use anywhere in a motor vehicle except windshields and certain specified locations.
4.	Safety Glazing Materials for use in motor vehicles only in the following specific locations.
5.	Safety Glazing Materials for use in motor vehicles only in the following specific locations at levels not requisite for driving visibility.
6.	Safety Glazing Material for use only in House-or Property-Carrying Trailers, in the rear windows of convertible passenger car tops, in windscreens for motorcycles, in flexible curtains or readily removable windows, or in ventilators used in conjunction with readily removable windows.
7.	Safety Glazing Material for use only in House-or Property-Carrying Trailers and at levels not requisite for driving visibility in the rear window of convertible passenger car tops, in windscreens for motorcycles, in flexible curtains or readily removable windows, or in ventilators used in conjunction with readily removable windows.
10.	Bullet Resistant Glass for use anywhere in motor vehicle.
11.	Bullet Resistant Glass for use anywhere in motor vehicles except windshields.

GLAZING POSITION MARKINGS FOR PASSENGER CARS			
(THIS CHART EXCERPTED FROM ANSI STANDARD Z26.1 TABLE A1)		GLAZING MATERIAL APPLICABLE WHEN MARKED WITH "AS" DESIGNATION INDICATED BELOW	
		AT LEVELS REQUISITE FOR DRIVING VISIBILITY	AT LEVELS NOT REQUISITE DRIVING VISIBILITY*
PASSENGER CARS	WINDSHIELDS	1, 10	1*, 10*
	INTERIOR PARTITIONS, AUXILIARY WIND DEFLECTORS	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11
	FLEXIBLE CURTAINS, READILY REMOVABLE WINDOWS, VENTILATORS USED IN CONJUNCTION WTIH READILY REMOVABLE WINDOWS, REAR WINDOWS IN TOPS OF CONVERTIBLE CARS	1, 2, 4, 6, 10, 11	1, 2, 3, 4, 5, 6, 7, 10, 11
	OPENINGS IN ROOFS NOT REQUIRED FOR DRIVING VISIBILITY	———	1, 2, 3, 4, 5, 10, 11
TAXI CABS	ALL OTHER GLAZING EXCEPT AS LISTED ABOVE	1, 2, 10, 11	1, 2, 3, 10, 11
	WINDSHIELDS	1, 10	1*, 10*
	INTERIOR PARTITIONS, AUXILIARY WIND DEFLECTORS, WINDOWS IN REAR DOORS	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11
	OPENINGS IN ROOFS NOT REQUIRED FOR DRIVING VISIBILITY	———	1, 2, 3, 4, 5, 10, 11
	FLEXIBLE CURTAINS, READILY REMOVABLE WINDOWS, VENTILATORS USED IN CONJUNCTION WITH READILY REMOVABLE WINDOWS	1, 2, 4, 6, 10, 11	1, 2, 3, 4, 5, 6, 7, 10, 11
	ALL OTHER GLAZING EXCEPT AS LISTED ABOVE	1, 2, 10, 11, 14	1, 2, 3, 10, 11

* GLAZING MATERIAL WHICH IS INTENTIONALLY MADE SO THAT ONLY A PORTION OF A SINGLE SHEET HAS A LUMINOUS TRANSMITTANCE OF NOT LESS THAN 70% WILL BE MARKED AT THE EDGE OF THE SHEET TO SHOW LIMITS OF THE AREA THAT MAY BE USED AT LEVELS REQUISITE FOR DRIVING VISIBILITY. THE MARKS A↓S1 OR A↑S2 ETC. WILL BE USED WITH THE ARROW POINTING TO THE PORTION OF THE SHEET HAVING A LUMINOUS TRANSMITTANCE OF NOT LESS THAN 70%, AND THE NUMBER INDICATING THE ITEM WITH WHICH THAT PORTION OF THE SHEET COMPLIES.

BODY AND SHEET METAL

In general, body exterior elements and sheet metal are subject to rejection if a condition is present which is hazardous to occupants, pedestrians or other vehicles.

Specifically, the following constitutes reasons for rejection until the hazardous conditions have been corrected.

1. Bumpers, fenders, exterior sheet metal and moldings have broken, sharp edges, or abnormal protrusions extending beyond normal vehicle extremities that would be hazardous to any person likely to come in contact.

2. Front or rear fenders that have been removed on account of being hazardous or unserviceable must be replaced. If replacement of a front or rear fender removes a required lighting device, reinstallation or replacement of such device must be provided.

3. Inspect the door latches, locks, hinges, and handles for proper operation, fastening door adjustment, broken or missing components. Missing doors must be replaced. Door latches must be working in the manner designed and meet the U.S. Federal Motor Vehicle Safety Standard in place at time of manufacture.
4. Hood latch operation - manually attempt to open fully closed hood without disengaging catch. Open hood to safety catch and inspect for full and proper engagement. Close hood with minimum force necessary to give apparent full closure from a visual inspection, and then manually check again to determine whether hood can be opened without disengaging catch.

5. Windshield wiper - inoperative, missing arm or blades, wiper blades excessively worn, deteriorated or otherwise incapable of clearing a reasonable arc on windshield.

6. Floor pans rusted through so as to present a hazard to occupants, or which permit passage of exhaust gases into cab or body.

7. Frame - Check for overall condition on all vehicles inspected.

8. Surface rust **alone** is **not** cause for rejection.

Inspect For and Reject If:

- Bumpers, fenders, exterior sheet metal and moldings have broken, sharp edges, or abnormal protrusions extending beyond normal vehicle body that would be hazardous to any person likely to come in contact.

- Bumpers must be present if equipped or designed to be equipped from the manufacturer. If replaced, must be of original equipment and operate in an equivalent manner or a replica thereof. Bumpers on passenger vehicle that have been replaced must meet the US Federal Motor Vehicle Standard for the year of the manufacture and must allow the passenger restraint systems to function properly. Bumpers which are replaced, altered or have added equipment and are not covered by the US Federal Motor Vehicle Safety Standards must be at least 3” in vertical height, be centered on the vehicle centerline and extend horizontally no less than the wheel track distance and allow the passenger restraint device to function properly if so equipped. Wooden bumpers are not accepted.

- Body parts that have been replace with custom made parts such as truck beds must be of good quality and protect the public and working parts of the vehicle from damage to the fuel cells, drive line and brake lines and cover the wheel as would the original fenders. Additionally any light or reflector present on the original apart has to be replaced with lighting or reflectors to serve the same function.

- Any aftermarket part placed on the vehicle shall not obstruct the front or side vision of the operator. Aftermarket hood scoops shall not be taller than three inches.

- No item shall be placed on the vehicle that obstructs the viewing of any sticker or decal issued by a governmental agency.

. Any missing body part.

. If the doors or lift gates or their parts are missing, broken, or misaligned so that they cannot close tightly.

. Inoperative hood latch.

. Obstructions forward of the windshield can extend no more than 3" upward into the horizontally projected vision area of the windshield except for wiper components.

. If the floor pan or inner panels have openings sufficient to cause a hazard to an occupant, or if exhaust gas can enter either the occupant compartment or trunk.

Frame is cracked, broken, rusted through, bent buckled, or has poor quality welds. No more than two (2) Frame repairs permitted.

FUEL SYSTEM

The fuel system includes the fuel tank and necessary components to carry the fuel from the tank to the engine and back to the tank, and also, fuel vapor lines from tank to canister.

Procedure: Visually examine the fuel tank, fuel tank support straps, filler tube (rubber, plastic, metal), tube clamps, fuel tank vent hoses or tubes, filler housing drain, overflow tubes, filler cap, fuel system supply, return and vent lines (rubber, plastic, metal), and fuel rail assembly, including injectors.

Reject Vehicle If:

- Any part of system is not securely fastened.
- There is vapor or liquid fuel leakage.
- Fuel tank filler cap is missing.
- Fuel hoses or tubes are contacting moving components.
- Fuel hoses and pipes are routed close enough to exhaust components or extreme heat areas to create the possibility of deterioration.
- If fuel tank is not manufactured to be a fuel tank, i.e., no converted beer kegs, etc.

NOTE: Vehicles with pressurized fuel systems fuel systems (e.g. most vehicles equipped with fuel injection systems) should be examined with the engine running.

MIRRORS

Chapter 17-C, Article 15, Section 35

Exterior Rearview Mirror (Left Hand)

Procedure: From the driver's position, visually inspect exterior mirror on driver's side for a clear and reasonably unobstructed view to the rear. Look for correct location, stable mounting, cracks, sharp edges, unnecessary protrusion, and east of proper adjustment.

Reject Vehicle If:

- Mirror is loose enough that rear vision could be impaired or will not hold adjustment.
- Mirror cracked, pitted or clouded to the extent that the rear vision is obscured.
- Mirror obscured by an unwiped portion of windshield. Applies to vehicles built after January 1, 1968 only.
- Mirror mounted so that it cannot be adjusted from driver's seat position. Applies to vehicle built after January 1, 1968 only.

Interior Rearview Mirror

Procedure: From the driver's position, visually inspect interior mirror for proper mounting, location, cracks, sharp edges and ease of proper adjustment.

Reject Vehicle If:

- Mirror is loose enough that rear vision is impaired.
- Mirror does not provide a clear view of highway at least 200 feet to rear.
- Mirror is cracked, broken, has sharp edges or cannot be cleaned - such that rear vision is obscured.
- Mirror cannot be adjusted or will not maintain a set adjustment.

WINDSHIELD WIPER, WASHER, DEFROSTER, VISORS AND SEATS

Chapter 17-C, Article 15, Section 36, Motor Vehicle Law
Chapter 17-C, Article 15, Section 1, Motor Vehicle Law

Windshield Wiper Operation

Procedure: Inspect for satisfactory operation. Windshield and blade rubber element must be free of insects, oil film or other foreign matter and must be continuously wet when tested.

Reject Vehicle If:

- Wipers do not operate at a minimum speed of 20 cycles per minute.
- System does not park when turned off.
- System does not function at high/low speed.

Damaged Blades

Procedure: Inspect for cracked, torn or hardened rubber elements of blades.

Reject Vehicle If:

- Blades show signs of physical break down of rubber wiping element.
- Blades smear or severely streak windshield after 5 cycles.
- Blades are replaced with a size smaller than original.

Damaged Metal Parts

Procedure: Inspect for damaged metal parts of wiper blades or arms.

Reject Vehicle If:

- Parts of blades or arms are missing, bent, broken, or loose.

Blade and Windshield Contact

Equipment: Contact pressure-measuring device. (Recommended only).

Procedure: Inspect for proper contact of blades with windshield. Raise arm away from windshield and release. Arm should return and wiper blade should contact the windshield firmly.

Advise Driver: Recommended replacement if arm fails to meet recommended pressure of one and one (1 1/2) ounces per inch of blade length by more than 20 percent.

Reject Vehicle If:

- The blade fails to contact the windshield firmly and fully throughout the cycling of the system.

Windshield Washer System

Procedure: Inspect for proper operation of hand or foot control and an effective amount of fluid delivered to the outside of the windshield opposite each outboard front seating position.

Advise Driver: If fluid level is low.

Reject Vehicle If:

- System fails to function.

- System does not clean an effective wash area within 10 wiper cycles.

NOTE: System must function when temperature is both above and below the freezing point of water.

Windshield Defroster

Equipment: Ribbons may be used for checking air movement.

Procedure: Turn on windshield defroster fan switch to "high" blower speed and inspect for heated air blowing over the inside of the windshield, covering areas directly in front of the driver and front seat passenger. (Engine must be warm and all elements of the defroster system must be "on".)

Reject Vehicle If:

- Defroster fan fails to function.

- Fan functions, but a stream of air cannot be "felt" blowing against the proper area of the windshield.

Primary Sun Visors

Procedure: Inspect sun visors for broken, bent or loose parts that prevent the visors from being positioned; or for visors that will not stay in a set position.

Advise Driver If:

- Visor cannot be positioned to protect driver's eyes from sun.
- Vibration from running engine causes visors to move from set position.

Reject Vehicle If:

- Driver visor is missing.

Seats

Procedure: Inspect seats for proper operation of adjusting mechanism to see that seats are securely anchored to floor pan.

Reject Vehicle If:

- Any seat anchor bolts are not securely fastened to floor or are missing.
- Seat adjusting mechanism slips out of set position, both seat tracks and recliners.

OCCUPANT RESTRAINT SYSTEMS

Chapter 17C, Article 15, Section 43
Chapter 17C, Article 15, Section 1

Safety Belts (Manual)

Procedure: Inspect safety belts for frayed, split or torn webbing; malfunctioning buckles or retractors; loose or damaged anchorages or floor pan.

NOTE: If a vehicle was originally equipped with seat safety belts they must be present and operable to pass inspection.

Advise Driver If:

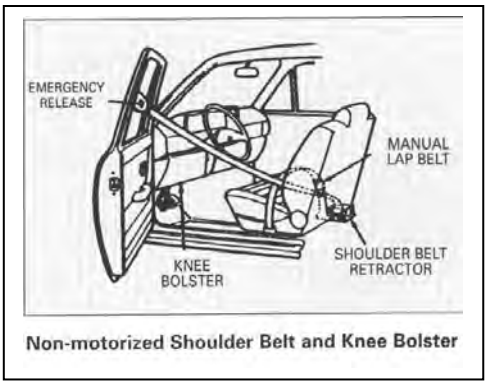
- Belt warning system (chimes, buzzer, etc.) is inoperative.
- Safety belts are on floor or are obviously not being used.

Reject Vehicle If:

- Safety belt webbing is frayed, split or torn.
- Belt buckles or retractors do not operate properly.
- Belt anchorages are loose, badly corroded, missing or not fastened to belt.
- Belt mounting surfaces are badly deformed, damaged or corroded.
- Safety belts have been removed.

Automatic Safety Belts (Non-Motorized)

Procedure: The lap and shoulder belts are connected to the door. Slide in behind the belts and close the door. The belts should move into position automatically. In some models, the lap belt must be secured manually.



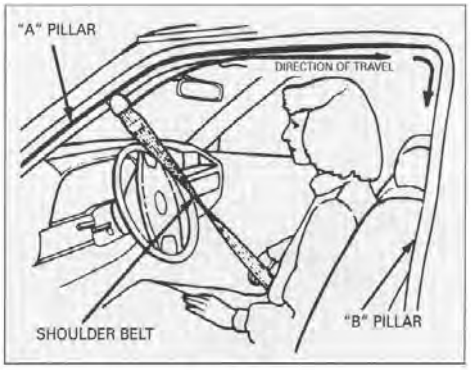
Non-motorized Shoulder Belt and Knee Bolster

Reject Vehicle If:

- The safety belts do not move or the audible signal and warning light continues.

Safety Belts (Motorized)

Procedure: Enter the vehicle and close the door. Insert the key into the ignition and turn to the on position. A motor causes the shoulder belt to slide along a track (Figure 1) starting at the front body "A" pillar and moving rearward to its locked position at the "B" pillar. The shoulder belt warning indicator lamp should illuminate from four to eight seconds. When the ignition is turned to the off position and the door is opened, the shoulder belt moves forward to the "A" pillar.



Motorized Safety Belt System

Reject Vehicle If:

- The seat belts do not move or the indicator lamp stays on.
- System has been made or is inoperable.

Air Bag Readiness Light

Procedure: Turn the ignition key to the on position. The air bag readiness light will indicate normal system operation by lighting for 6-8 seconds, and then turn off. A system malfunction is indicated by the flashing or continuous illumination of the readiness light or failure of the light to turn on, or if five sets of five "beeps" are heard (concurrent with indicator failing to light).

Reject Vehicle If:

- The air bag indicator fails to light, or continuously flashes, or if five sets of five "beeps" are heard (concurrent with indicator failing to light).

General Motors Vehicles
Air Bag Readiness Light

Procedure: Turn the ignition key to the on position. The air bag readiness light will indicate normal system operation by blinking 7-9 times, then turn off. The continuous flashing or illumination of the readiness light or failure of the light to turn on indicates a system malfunction.

Reject Vehicle If:

- The air bag indicator fails to light or continuously flashes or illuminates.

- An air bag is not operable, has been deflated, or is missing from a vehicle that was originally equipped.

TIRES AND WHEELS

Chapter 17C, Article 15, Section 1
Chapter 17C, Article 15, Section 37
Chapter 17C, Article 15, Section 48

It is suggested that:

- Radial ply tires should not be used with other construction (bias or belted).
- Tires of different size or type, such as one snow tire and one regular tire, should not be used on the same axle.

Measure Tire Pressure

Equipment: Pressure gauge.

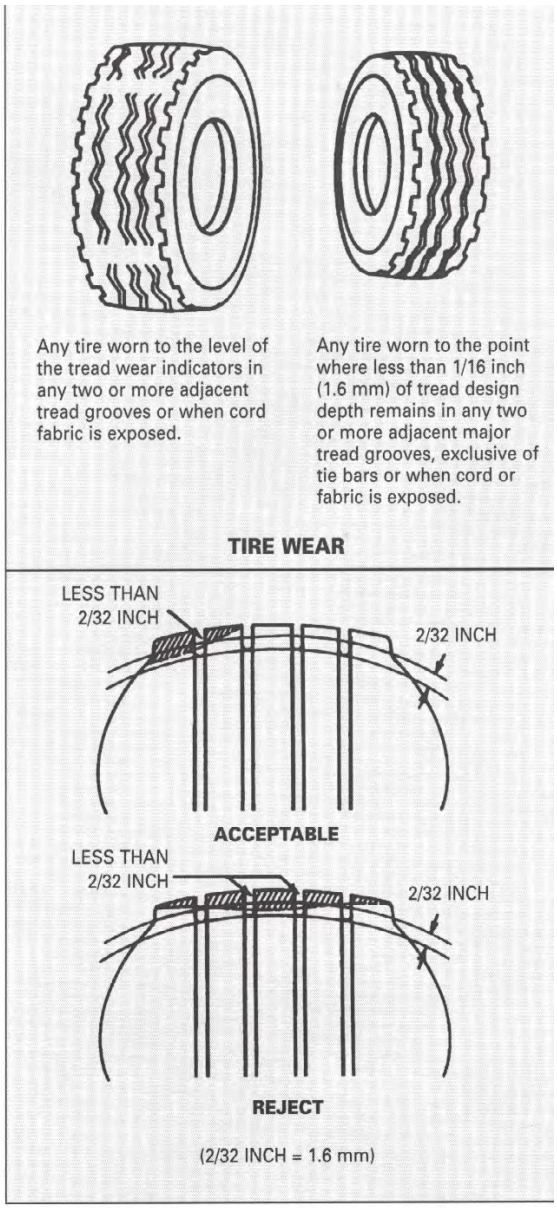
Advise Driver If:

- Inflation pressures, including spare tire, if so equipped, are significantly above or below those recommended on the vehicle placard.
  DO NOT REJECT VEHICLE.

Inspect For Tire Damage

Reject Vehicle If:

- Tire has tread cuts, snags or sidewall cracks in excess of one inch (25mm) in any direction and deep enough to expose cords. If tire has visible bumps, bulges (not including sidewall ply splice undulations) or knots indicating partial failure or separation of tire structure.
- Temporarily repaired by use of blowout patches and boots.
- The tire has an audible air leak.



Tire Tread Depth

Inspect For Cord Exposure

Reject Vehicle If:

- If tire is worn so that cord is exposed through the tread.

Inspect For Tire Wear

With Tread Wear Indicator

Reject Vehicle If:

- If tire is worn so that the tread wear indicators contact the road in any two adjacent grooves at three locations spaced approximately equally around the outside of the tire.

Without Tread Wear Indicators

Reject Vehicle If:

- If the tire is worn so that less than 2/32 inch (1.6mm) tread remains when measured in any two adjacent major grooves at three locations spaced approximately equally around the outside of tire.

Inspect For Regrooved or Recut Tires

Reject Vehicle If:

- A tire has been regrooved or recut below original groove depth, except special tires that have undertread rubber for this purpose and can be identified as such.

Inspect For Tire Size or Mismatching

Reject Vehicle If:

- Tires on the same axle are not the same type construction, (i.e., radial, bias ply).

- Any tire is of a smaller size than original or smaller than optional equipment.

- Any tire is more than two sizes larger than optional equipment on that particular vehicle. (If greater than two sizes inspect as a modified vehicle.)

- The outermost edge of thread area shall not extend laterally beyond the wheel enclosure including flared fender openings when viewed from above.

- Maximum width of fender flares is three (3) inches as measured from the outside edge of the original fender to the outermost edge of the flare.

Any change in original tires and wheels or optional tires and wheels or any combinations of tires and wheels that raise the altitude of the vehicle from manufacturers' specifications requires a modified inspection.

Inspect Wheels

Reject Vehicle If:

- Wheel bolts, nuts, studs or lugs are loose, missing or damaged; or if any part of the wheel is bent cracked, rewelded, damaged or has elongated bolt holes, so as to affect safe operation of the vehicle.

- Road wheels on the same axle have different rim diameters or widths.

Inspect Valve Stem

Reject Vehicle If:

- Valve stem has cracks or is chafed from contact with the rim.

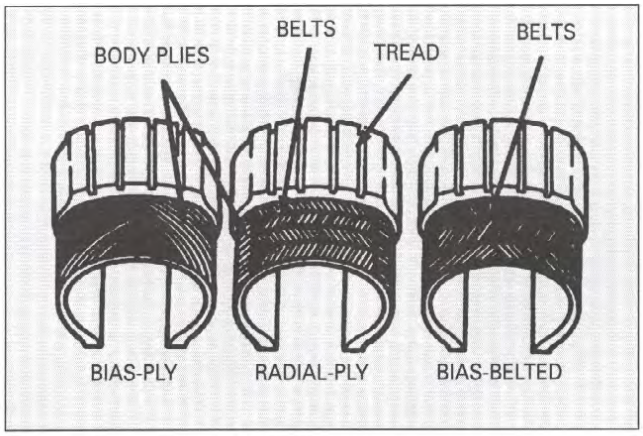
- Valve stem is inaccessible for taking pressure readings.

Inspect For Restricted Usage Markings On Tires. (Reclassified Tires)

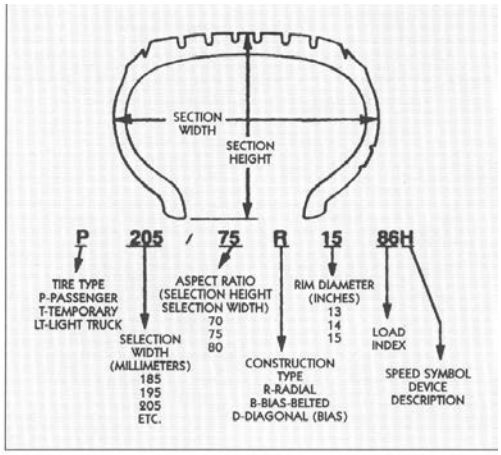
Reject Vehicle If:

- If tire is marked "For Farm Use Only", "Off-Highway Use Only", or "For Racing Only", etc.

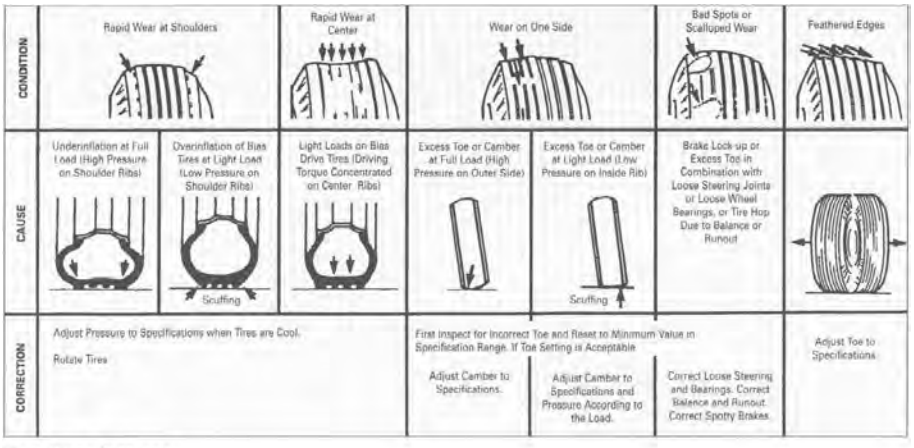
NOTE: As a general rule, do not mix different size tires on the same axle. However, it may be permissible to mount tires having different size nomenclatures (U.S. standard-metric) on the same axle when construction, dimensions and load capacity are compatible. Consult tire manufacturer for specific permissible practice.



Tire Construction Diagram



Metric Tire Size Diagram



Tire Wear Patterns

BRAKES

Chapter 17C, Article 15, Section 31

HYDRAULIC BRAKE SYSTEM

If wheels are removed for brake inspection, it is recommended that at least one front and one opposite rear wheel be removed. Never allow dirt to mix with fluid in the brake reservoir. If wheel is removed for brake inspection do not disturb dust boot. Always remove wheel if there is evidence of grease, oil or hydraulic brake fluid on the wheel or tire. (See typical brake configuration on page 71)

At least two (2) brakes, one each axle, must be examined by removing wheels on vehicles having mileage in excess of 10,000 miles.

Brake Warning Light

Procedure: Inspect as follows:

- Apply the parking brake and turn the ignition to "on" position.
- Start the engine. The warning light should illuminate in the "on" or "start" position.
- Release the handbrake. The warning light should turn itself off unless it is an anti-lock brake system and the hydraulic pump has not reached its minimum pressure.

Reject Vehicle If:

- The brake system failure indicator light or warning light does not illuminate.
- The brake system failure indicator light or warning light remains illuminated after the engine is started and the parking brake released. (Except for anti-lock systems.)

Pedal Reserve

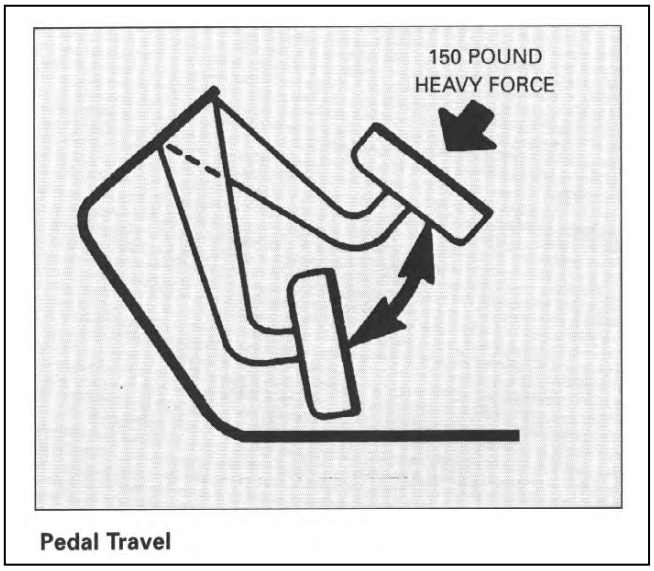
Equipment: Force gauge calibrated in pounds.

Procedure: While vehicle is stopped and the engine running on vehicles with power brakes, apply 150 lbs. (68 kgs.) force to brake pedal.

Reject Vehicle If:

- Brake warning light illuminates or the brake pedal falls away under pressure and/or contacts some object that prohibits brake pedal travel.

NOTE: Most passenger vehicles will illuminate the brake warning light to indicate that parking brake is applied. If the light illuminates during these checks, make sure parking brake is not applied.



Pedal Travel

Hydraulic Leaks

Equipment: Force gauge calibrated in pounds.

Procedure: Engine must be running on vehicles with power brakes. While vehicle is stopped, apply 150 lbs. (68 kgs.) force to brake pedal and hold for 10 seconds. Observe if pedal moves slowly downward.

Reject Vehicle If:

- Pedal height cannot be maintained for 10 seconds or the brake failure warning light illuminates.

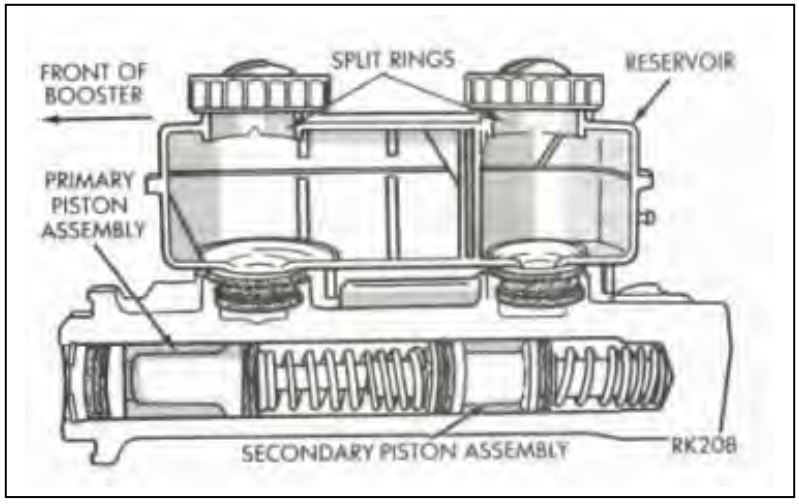
Master Cylinder

Procedure: Look for leakage. Thoroughly clean the area and then remove cover and check fluid level. Be sure that cover gasket is serviceable and that no dirt gets in reservoir when cover is removed. It is not necessary to remove the cover if the fluid level is visible through the reservoir body.

Reject Vehicle If:

- Master cylinder leaks.
- The fluid level is more than 1/2 inch below the lowest edge of the filler opening in either reservoir chamber or is below the minimum level indicated by manufacturer on the reservoir.
- The gasket is torn, damaged or swollen (swollen gasket may indicate oil in system).

NOTE: Low fluid in master cylinder reservoir chambers may be due to normal wear of the front and/or rear linings.



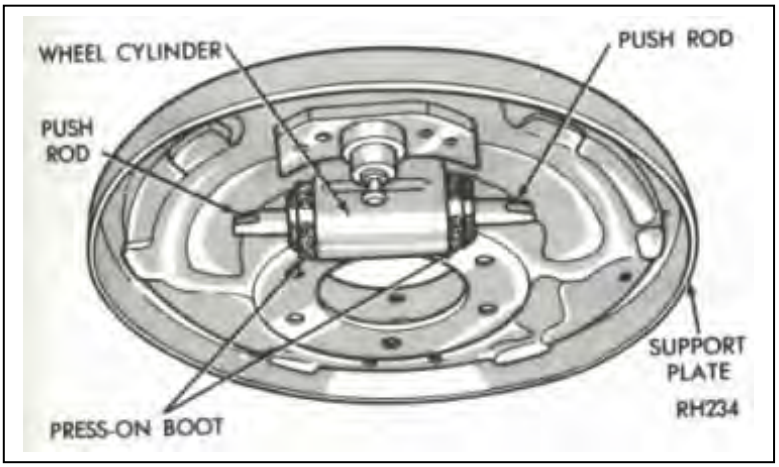
Wheel Cylinder - Drum Brake

Procedure: When drum is removed, check the wheel cylinder for leakage, damaged or loose parts, missing parts, and retention.

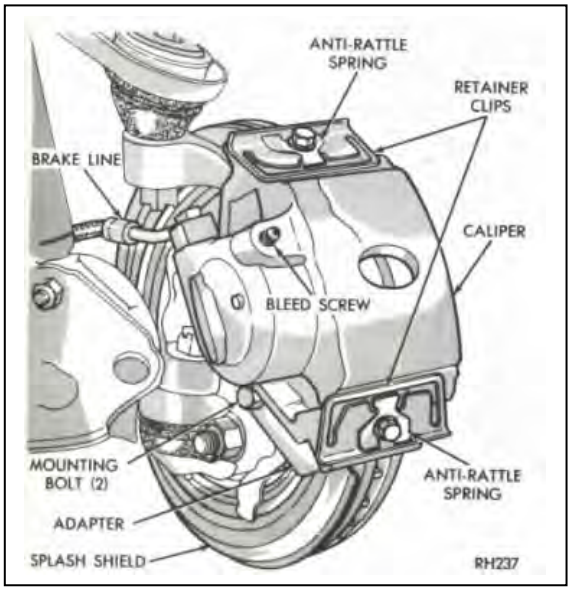
Reject Vehicle If:

- Fluid is leaking from the wheel cylinder, or if parts are damaged, loose or missing, or improperly retained.

NOTE: DO NOT PRY UNDER, OR OTHERWISE DISTURB DUST BOOT. This will destroy a very important seal that may soon result in wheel cylinder damage. If there is leakage at the wheel cylinder, it will find its way around the dust boot.



Caliper - Disc Brake



Procedure: Check the caliper assembly for leakage, missing parts, and retention.

Reject Vehicle If:

- Fluid is leaking from caliper assembly, parts are damaged or improperly retained.

Height Sensing Brake Proportioning Valve (HSBPV), If so Equipped

The HSBPV is used on some light trucks & MPV's to provide optimum brake balance and efficiency. Vehicle braking force is distributed to the front and rear wheels as defined by light or heavy payload conditions. Mounted on the frame, the HSBPV responds to changes in vehicle trim height as related to rear axle load.

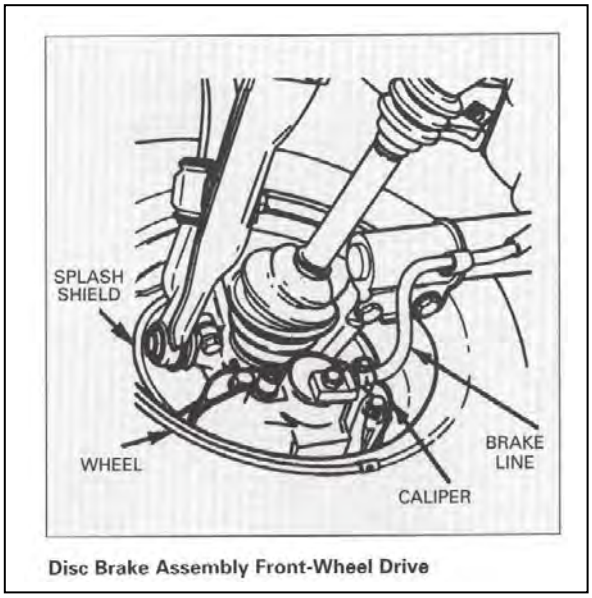
Procedure: Visual

Reject Vehicle If:

- Link to axle is disconnected, broken, etc.

Caution:

Adding any suspension accessories or other equipment (such as load leveling kits, air shocks, suspension kits, additional spring leafs, etc.) or making any modification that will change the distance between the axle and the frame without changing the load, will provide a false reading to the HSBPV. Such false reading could result in unsatisfactory brake performance.



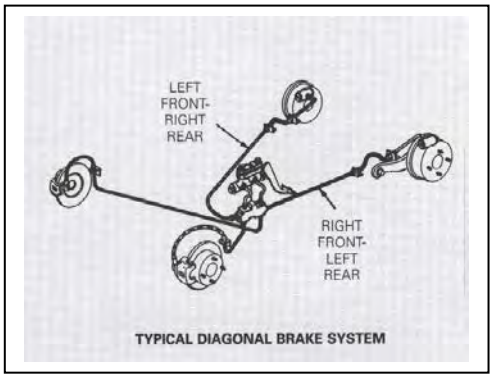
Disc Brake Assembly Front-Wheel Drive

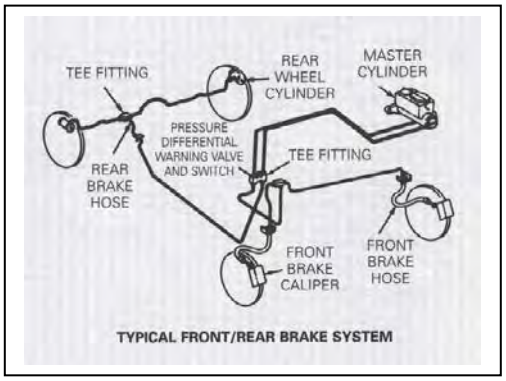
Hydraulic Parts

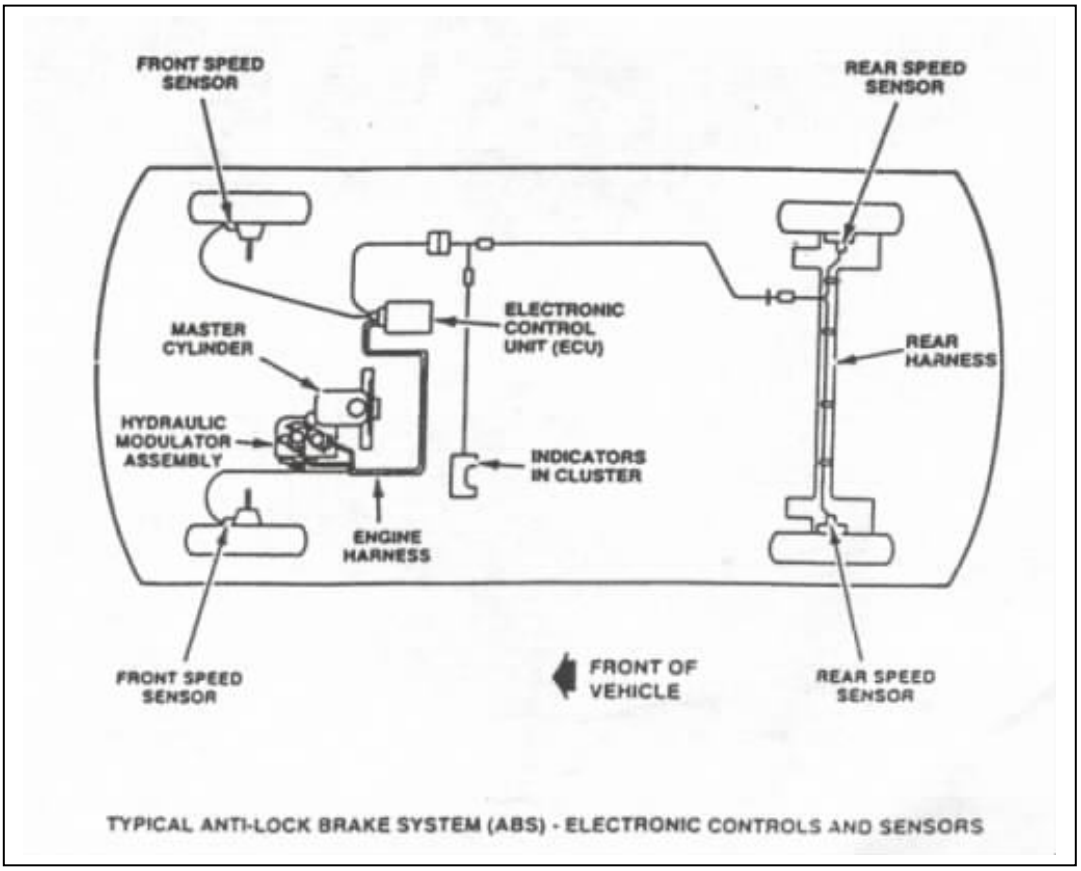
Procedure: Visually check hydraulic hoses and tubes for leaks, cracks, chafing, flattened or restricted sections, or improper retention.

Reject Vehicle If:

- Hoses or tubing leak, are cracked, chafed, flattened, restricted, insecurely fastened, or improperly retained.





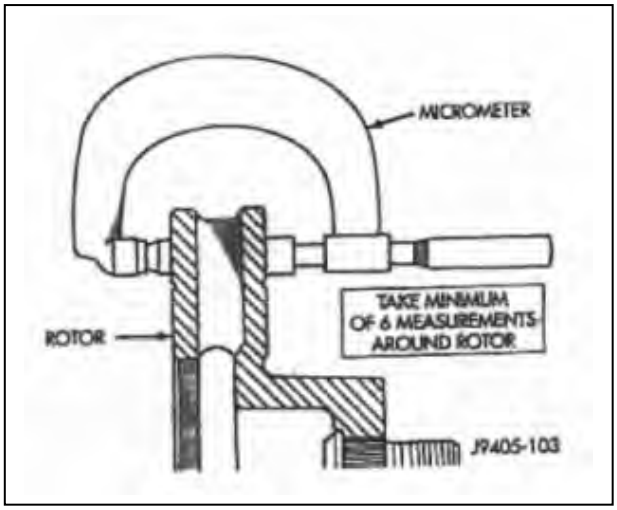


DRUMS AND ROTORS

All current passenger vehicles have a combination of disc brakes on front wheels and drum or disc brakes on the rear. Maximum allowable drum diameters and minimum allowable rotor thicknesses are cast into the parts on all vehicles built since 1971, and some before that.

Brake Rotors

Procedure: Inspect rotors for mechanical damage and cracks extending to edges or excessive drag. The "drag" felt when turning a disc brake is not excessive it can be turned readily with both hands. Do not distort splash shield while measuring disc.

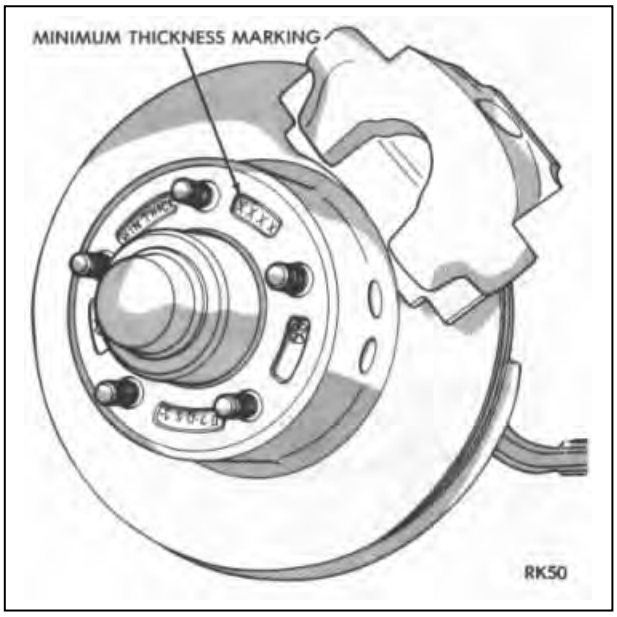


Reject Vehicle If:

- Rotor is broken or has cracks on the friction surface extending to the open edge or evidence of mechanical damage.
- There is evidence of mechanical damage or if the friction surface is contaminated with grease or oil.

MEASURE THICKNESS OF ROTOR

Equipment: Micrometer.



Reject Vehicle If:

- Rotor thickness is equal to or less than minimum stamped or cast on assembly.

Brake Drums

Procedure:

- Check friction surface for cracks extending to open edge of drum.
- Inspect for mechanical damage and contaminated friction surface.

Reject Vehicle If:

- Drum has cracks on friction surface extending to the open edge or on outside of drum particularly at the drum mounting area.
- There is evidence of mechanical damage or if the friction surface is contaminated with grease or oil.
- The mounting holes are elongated.



Measure Inside Diameter of Brake Drum

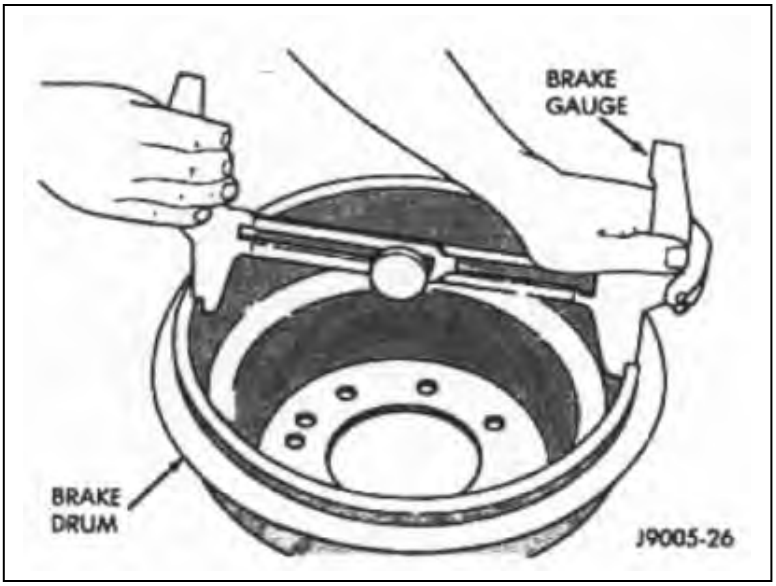
Equipment: Drum measuring gauge.

Reject Vehicle If:

- Diameter is equal to or greater than maximum diameter stamped on the drum or greater than .060 inch (1.5mm) over the original drum diameter for unmarked drums.

ADVISE DRIVER:

- To repair or replace drums if hard spots appear on them. This can cause chatter from uneven friction.



LININGS/PADS & MECHANICAL COMPONENTS

If wheels are removed for inspection, it is recommended that at least one front and one rear wheel and drum assembly be removed.

Condition of Mechanical Components

- Look for worn pins and missing or defective cotter pins, broken or missing springs, worn cables, clevises, couplings, rods and anchor pins.

- Inspect for "frozen", rusted or inoperative adjuster screw or connections, missing spring clips and defective grease retainers. Look for restricted shoe movement at backing plate and for bind between shoes and an anchor pins. Automatic adjuster mechanism must be free.

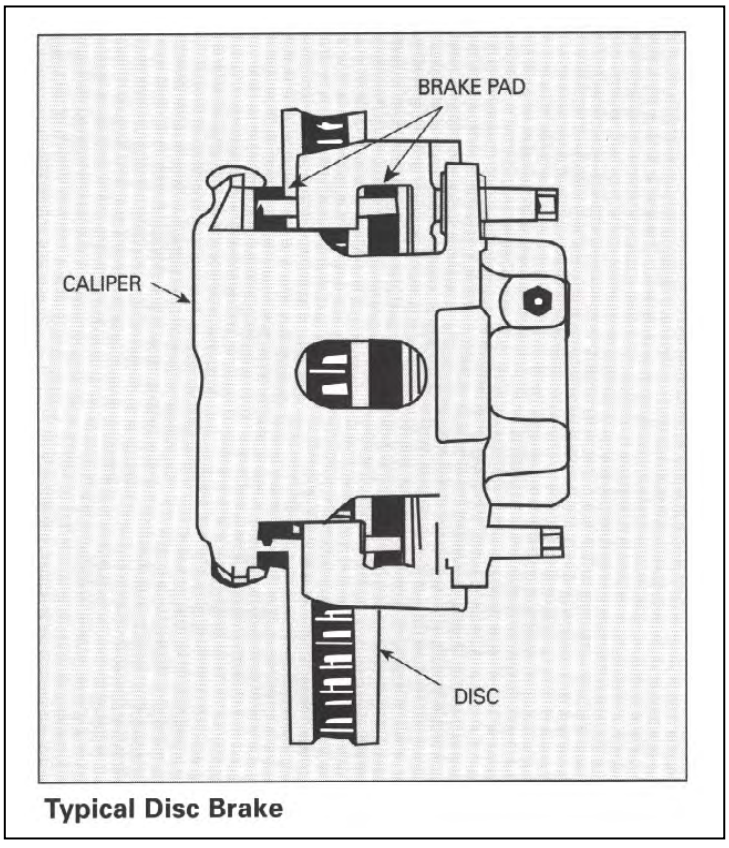
- Inspect pedal shaft for high friction, wear and misalignment.

- Insure that the brake pedal to master cylinder booster push rod retaining device is in place and secure.

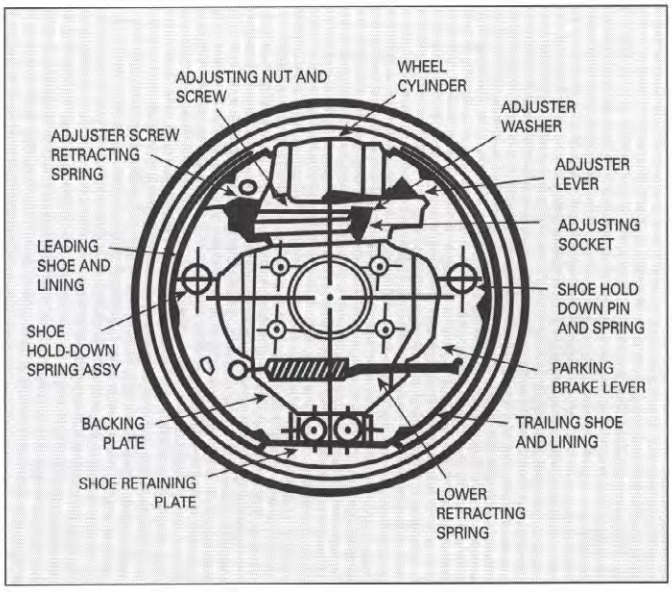
Reject Vehicle If:

- Mechanical parts are missing, broken, binding or badly worn.

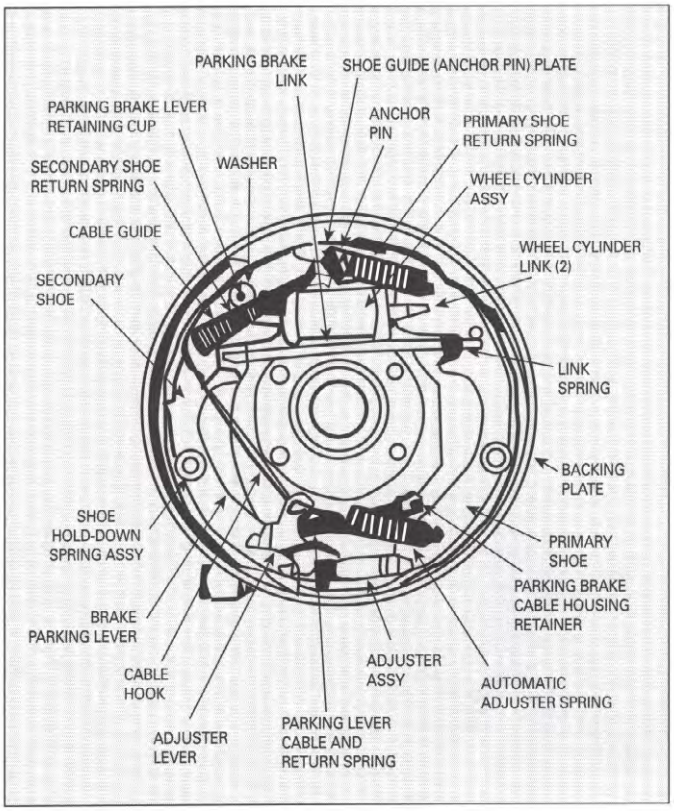
- There is excessive friction in pedal, linkage or components or if pedal levers are misaligned or improperly positioned.



Typical Disc Brake



Typical Non-Servo Drum Brake



Typical Servo Drum Brake

Brake Lining and Pad Wear

Equipment: Measuring device, steel scale or gauge.

Reject Vehicle If:

- Bonded linings are less than 2mm at thinnest point.
- Riveted linings are less than 2mm above rivet head at thinnest point.
- Wear sensor (if equipped) is contacting drum or rotor.

Condition of Linings

Procedure: Visual inspection.

Reject Vehicle If:

- Lining is broken, not firmly attached to shoe, contaminated with oil or grease or if wear is extremely uneven.

HYDRAULIC & VACUUM BOOSTERS

Some motor vehicles, beginning with 1976 models, have a hydraulic power system that service both the power assisted brakes and power assisted steering system. Some vehicles, beginning with 1985 models, have an integrated hydraulic actuation and anti-lock brake unit using only brake fluid.

Hydraulic System Operation (Vacuum Assisted)

Procedure:

. Stop engine, then depress brake pedal several times to eliminate all pressure.

. Depress pedal with a light foot-force (Approximately 30 lbs. or 13.5 kgs.)

. While maintaining the force on the pedal, start engine and observe if pedal moves slightly downward when engine starts.

Reject Vehicle If:

. If pedal does not move slightly downward as engine is started while force is on brake pedal.

Condition of Hydraulic Booster Power Brake System

Procedure:

. Inspect system for fluid level and leaks.

Reject Vehicle If:

. There is insufficient fluid in the master cylinder reservoir.

. There are broken, kinked or restricted fluid lines or hoses.

. There is any leakage of fluid at the master cylinder, or brake booster, or any of the lines or hoses in the system.

. Belts are frayed, cracked, or excessively worn.

Integrated Hydraulic Booster/
Anti-Lock System Operation

Procedure:

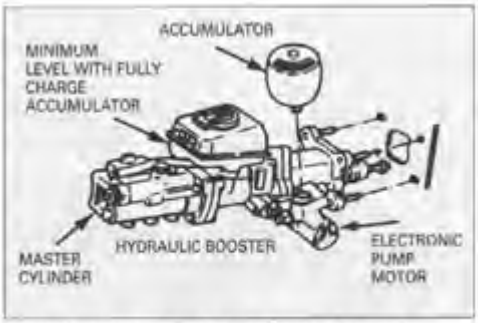
With the ignition key in the off position, depress brake pedal a minimum of 25 times (50 times on Jeep vehicles with anti-lock brakes) to deplete all residual stored pressure in the accumulator. Depress pedal with a light foot-force (approximately 25 lbs. or 11.5 kgs.) Applies to system with high-pressure accumulator only.

Place ignition key in the on position and allow 60 seconds for the brake and anti-lock warning lights to go out indicating the electric pump has fully charged the accumulator and shut off.

Reject Vehicle If:

Brake pedal does not move down slightly as the pump builds pressure (not applicable to Chrysler vehicles).

The brake and anti-lock warning lights remain on longer than 60 seconds.



Typical Integrated Hydraulic Booster Anti-lock System

Condition of Integrated Hydraulic Booster/Anti-Lock System with Electric Pump

Procedure: With the system fully charged, inspect system for fluid level and leaks.

Reject Vehicle If:

There is insufficient fluid in the reservoir.

There is broken, kinked or restricted fluid lines or hoses.

There is any leakage of fluid at the pump or brake booster, or any of the lines or hoses in the system.

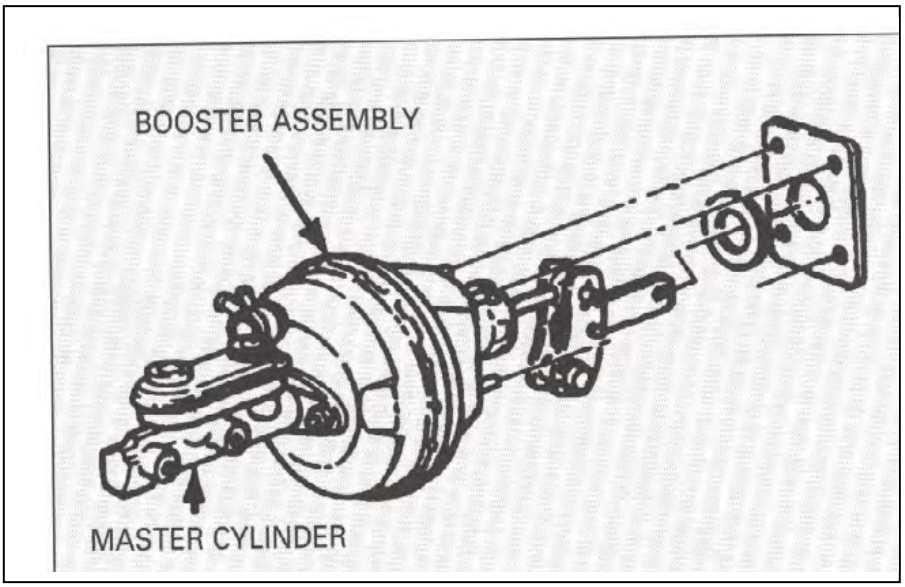
Vacuum System Operation

Procedure:

- Stop engine then depress brake pedal several times to eliminate all vacuum in system.
- Depress pedal with a light foot-force (approximately 25 lbs. or 11.5 kgs.).
- While maintaining this force on the pedal, start engine and observe if pedal moves down slightly when engine starts.

Reject Vehicle If:

- Pedal does not move down slightly as engine is started while force is on brake pedal.



Condition of Vacuum Booster Power Brake System

Procedure: Visual inspection.

Reject Vehicle If:

- There are collapsed, cracked, broken, badly chafed or improperly supported hoses and tubes, loose or broken hose clamps.

PARKING BRAKE
Chapter 17C, Article 15, Section 31

The parking brake system is a brake system used to hold and maintain a vehicle in a stationary position when the vehicle is unattended.

Parking Brake Operations

Procedure: Inspect parking brake function for setting and release. With vehicle transmission in neutral, set the parking brake firmly. **NOTE:** Remove foot pressure from service brake pedal after setting the parking brake.

Reject Vehicle If:

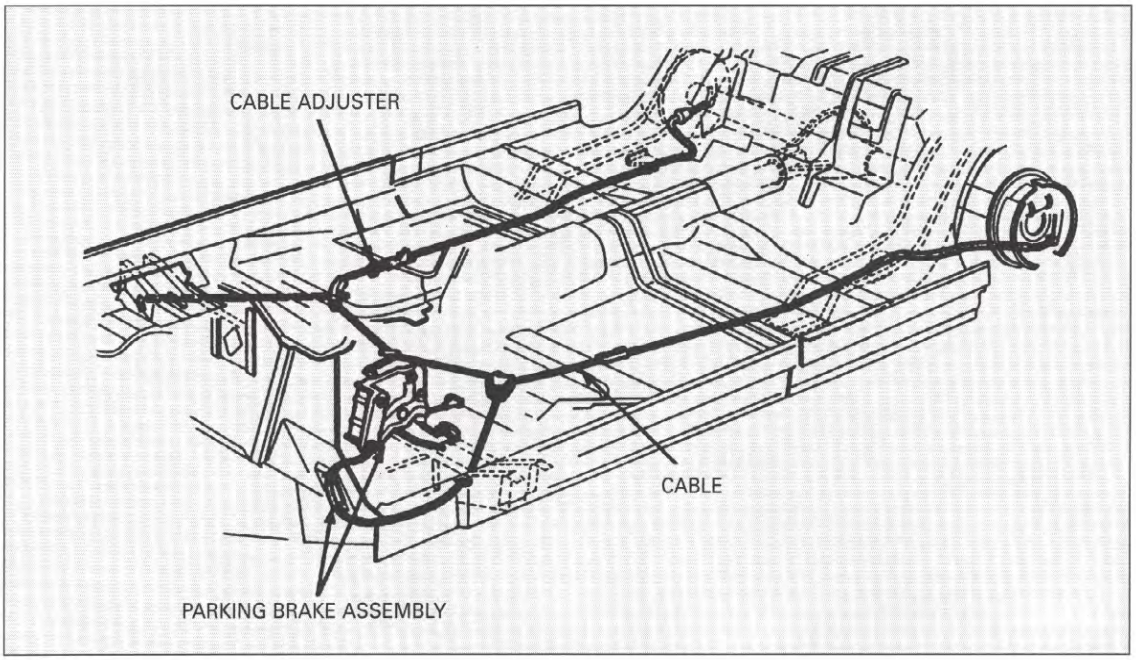
- The parking brake will not hold the vehicle stationary with the engine running at slightly accelerated speed with shift lever in drive position for automatic transmission or shift lever in low gear with clutch engaged for standard shift transmission. (**NOTE:** Certain makes of vehicles will automatically release the brake when placed into drive. If this occurs, attempt same test by using reverse.)

Condition of Mechanical Components

Procedure: Inspect for worn pins, missing or defective cotter pins, broken or missing springs, worn or frozen cables, clevises, couplings, rods and anchor pins.

Reject Vehicle If:

- Mechanical parts are missing, frozen, broken or badly worn.



A Parking Brake System

STEERING LINKAGE LASH/TRAVEL

Lifting techniques vary for measuring steering linkage play. On vehicles with coil spring or torsion bar on lower support arm - hoist at frame. On vehicle with coil spring and upper support arm - hoist at lower support arm. On front wheel drive vehicles, the inspector must **consult manufacturer's lifting information.**

Steering Linkage Play

Procedure: (On vehicles with power steering, engine must be running.)

- First eliminate all wheel bearing movement by applying service brake.
- With vehicle lifted as shown below and wheels in straight ahead position, grasp front and rear of tire and attempt to move assembly right and left without moving the steering gear.

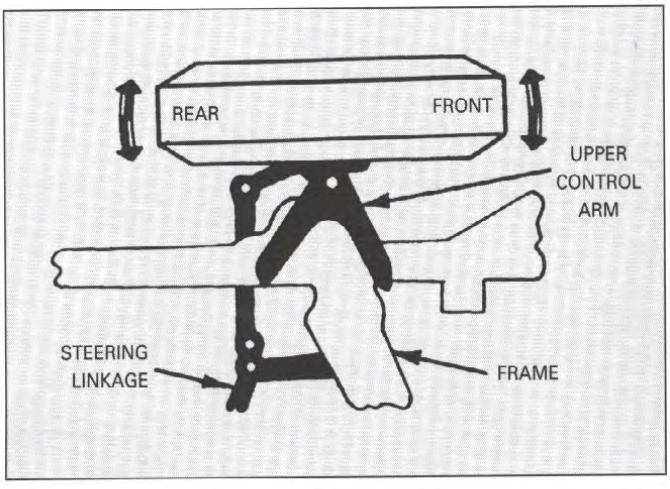
  Reject the vehicle if the steering wheel cannot easily turn because of obstructions and/or attachments to the wheel or in the area of the hands. Does not apply to attachment of devices for the American Disabilities Act.

Reject Vehicle If:

- Measured movement at front or rear of tire is greater than:

  Wheel Size: 16 inches or less - 1/4 inch (6.5mm)
  17 to 18 inches - 3/8 inch (9.5mm)
  Over 18 inches - 1/2 inch (13mm)

- Not equipped with a circular steering wheel at least thirteen (13) inches in diameter.
- Wear in king pins and bushings and looseness in wheel bearings.
- Any vehicle that is subject to shimmy or has steering so tight as to make it difficult to steer.
- Any vehicle that has defective or leaking CV boots.



Steering Linkage Play—Top View

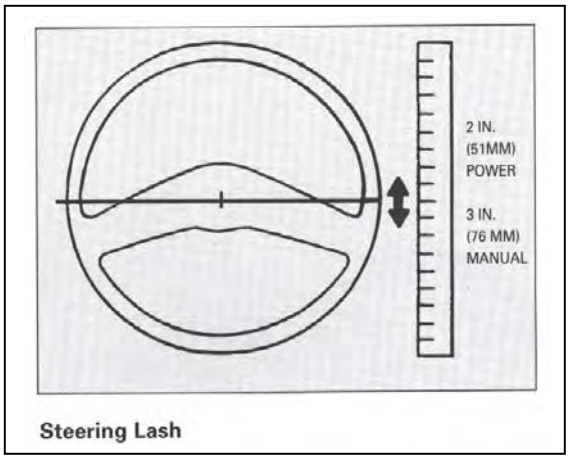
Lash or Free Play

Equipment: Ruler, scale or lash checking instrument.

Procedure: With road wheels in straight ahead position, turn steering wheel until motion can be detected at the front road wheels. Align a reference mark on steering wheel with a mark on a ruler and slowly turn steering wheel in the opposite direction until motion can again be detected at the front road wheel. Measure lash at steering wheel. Special lash-checking instruments are also available, measuring free play in inches or degrees. Such instruments should always be mounted and used according to the manufacturer's instructions.

Reject Vehicle If:

- Power - 2 inches (51mm)
- Manual - 3 inches (76mm)
- Power/Manual-Light trucks and MPV's-3 inches (76mm)



Steering Lash

Power Steering

Procedure: Check fluid level and belt tension on power steering pump.

Advise Driver: To bring fluid to proper level and make certain that belts are properly tensioned before proceeding and if any leaks are detected in the power steering system.

Steering System Travel

Procedure: Turn steering wheel through a full right and left turn.

Reject Vehicle If:

- Front wheels are incapable of being turn to the right and left steering stops without binding or interference.
- Rack and pinion systems do not meet manufacturer's recommendation and/or the standards of the American Automobile Manufacturer's Association.

FRONT WHEEL ALIGNMENT

FRONT WHEEL ALIGNMENT: There are five basic factors which are the foundation of front wheel alignment: Caster, Camber, Toe, Thrust Angle and Steering Axis Inclination. The first four are usually mechanically adjustable and the last is a part of the vehicle design and not adjustable. Caster and Camber are difficult to determine without sophisticated equipment and are not critical to safety unless excessively out of adjustment or damaged. Overall front wheel alignment can be determined in a somewhat general manner by measuring the toe angle. If the vehicle has excessive toe-in or toe-out, it may be assumed that a complete check may be necessary of all front wheel alignment factors.

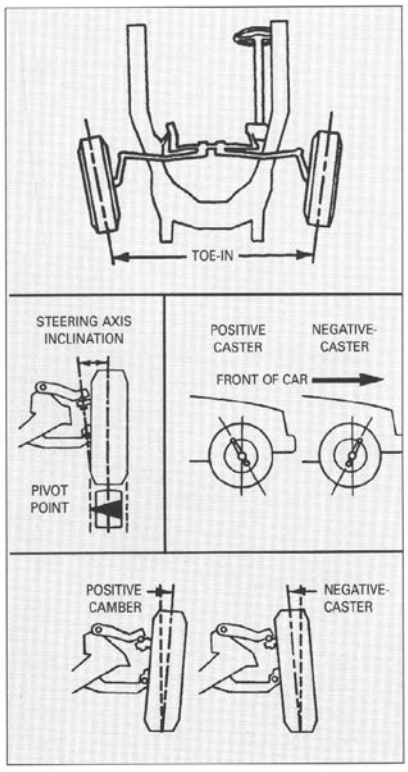
Vehicles equipped with an independent suspension system require four-wheel alignment check. Solid rear axle vehicles need only a two-wheel alignment check.

Front Wheel Toe:

Equipment: Approved portable, stationary, or dynamic (roller) type alignment equipment.

Procedure: With wheels in "straight ahead" position and with "hands off" steering wheel momentarily, drive vehicle slowly over toe measuring device.

Advise Driver: If excessive toe (in or out) exists the vehicle should be given an alignment check. **(Accelerated tire wear can result from toe misalignment.)**



Wheel Alignment Factors

NOTES: It is seldom necessary to reject vehicle for misalignment. If rejection is required it will usually be for some other reason such as tire wear, linkage looseness, or suspension damage.

With some vehicles, front wheel caster and camber angles are permanently set during manufacture and **are not adjustable**. If the caster angle or the camber angle at either wheel is incorrect, the suspension or steering component that is causing the applicable angle(s) to be incorrect must be repaired (if possible) or replaced.

The cross-relationship between the left and the right wheel caster angles and, also, the left and the right wheel camber angles is critical. A wheel-to-wheel caster or camber angle variation of more than one degree can result in a strong "pull" on one side of the vehicle and/or rapid front tire tread wear.

The front and rear vehicle ride heights must be correct before accurate front wheel alignment angles can be obtained from measurement.

TORSION BARS, SPRINGS, SHOCK ABSORBERS/STRUTS

Visually Inspect Springs and Torsion Bars

Equipment: Hoist or hydraulic jack, safety stand and trouble light.

Procedure: With unloaded vehicle on a level surface, visually inspect the heights of the four corners of the vehicle. If necessary, use measuring device and determine differences from side to side. Visually inspect for broken leaf springs, coil springs, air springs or torsion bar damage. Inspect spring shackles, bushings and "U" bolts. **CAUTION:** If air suspension vehicles are hoisted via body support area, air spring damage may occur if the air suspension switch is not turned off.

Reject Vehicle If:

- Vehicle height is not within the manufacturers' recommended specifications.
- Springs or torsion bars are broken. Shackles or "U" bolts worn or loose.
- Air springs are collapsed.
- Front and rear wheels do not noticeably track in the same path.

Inspect Shock Absorbers/Shock Struts

Equipment: Hoist or hydraulic jack and safety stand, scale, trouble light.

Procedure: With vehicle on a level surface, push down on one corner of vehicle and release. With vehicle on a hoist or jacked up, visually inspect shock absorbers for excessive leakage, looseness of mounting brackets and bolts.

Reject Vehicle If:

- Vehicle continues free rocking motion after release, indicating loss of shock absorber function.
- Severe leakage (not slight dampness) is evident.
- Mounting bolts or mounts are loose or broken.

Inspect For Bumper Height

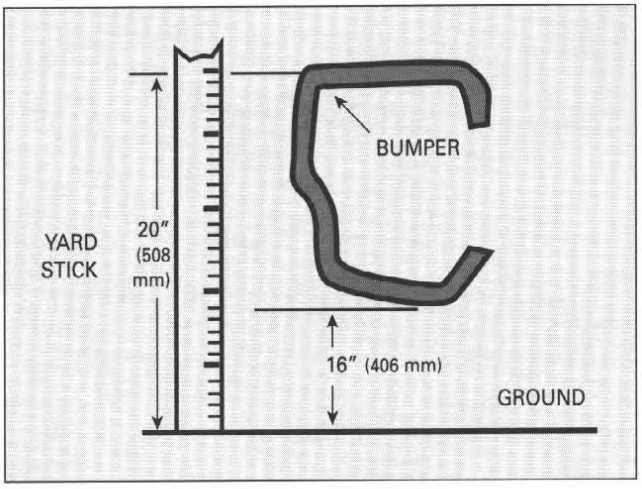
Equipment: Yardstick or equivalent.

Procedure: With vehicle on a level surface, measure the height of front and rear bumpers to top and bottom of horizontal bumper bars.

NOTE: On vehicles equipped with air suspension systems the automatic level control must be activated to obtain accurate bumper height.

Reject Vehicle If:

- If the bottom of the horizontal bumper bar does not fall within 6 inches to 31 inches above the level ground surface.



Bumper Height Measurements

The above measurements are to the bottom of the bumper.

NOTE: Any vehicle operated upon a highway with a gross vehicle weight rating of less than 10,000 pounds which has been raised in altitude from the original manufacturer's specifications or configuration must undergo a modified vehicle inspection.

Fifth Wheel and Other Towing Devices

Procedure: Visually inspect integrity.

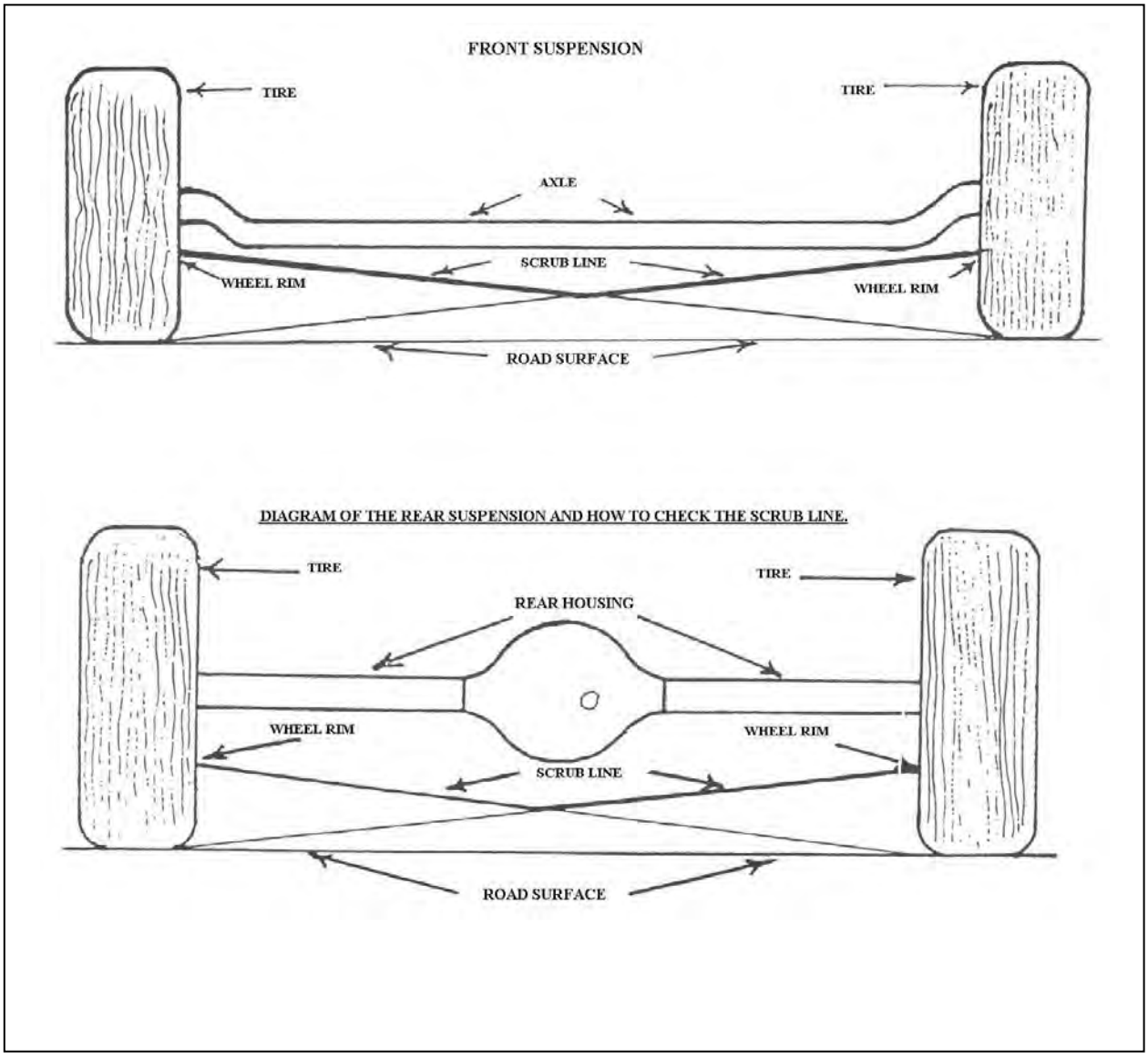
Reject Vehicle If:

- There are either cracked, broken, loose mountings or cracked, broken, missing connecting fasteners that may degrade either safe operation of the vehicle or its handling characteristics.

SCRUB LINE
MOTOR VEHICLES

A scrub line is an imaginary surface created if lines were drawn from bottom of wheel rim on one side to the bottom of the wheel rim on the other side. When lines are drawn from both sides an "X" under the vehicle suspension is created. No suspension or chassis component shall be below top portion of this imaginary "X".

. If the vehicle's suspension has been altered in a way that should the new component fails, that the vehicle parts would far below the scrub line, see



BALL JOINT WEAR

There is a trend among U.S. automobile manufacturers toward the use of "wear-indicating" ball joints. Many vehicles on the road, however, do not have wear indicating ball joints. The inspection of both types will be discussed. **NOTE:** Vehicle manufacturers do not recommend injection of materials into ball joints or suspension/steering components to fill voids caused by wear.

Ball Joint without Wear Indicators

Equipment: Dial indicator, swivel and clamp. Floor jack or hoist, safety stand and pry bar.

Procedure:

- Depending on the construction of the suspension system, unload the ball joints by properly raising the vehicle. **CAUTION:** Unloading front air spring suspension at incorrect location may result in damaged air spring. Deactivate air suspension system if vehicle is equipped with a manual shut-off device (switch).

- Attach dial indicator to control arm to measure movement accurately between ball joint and its socket.

- To check vertical movement, position a pry bar under the front tire and with a lifting motion sufficient to overcome the weight of the wheel assembly, move wheel up and down and observe movement shown on dial indicator.

- To check horizontal movement, grasp the tire and wheel assembly at the top and bottom. Move in and out to detect looseness. (More horizontal movement is allowable because of the nature of most ball joint construction. Some manufacturers do not accept horizontal movement as being indicative of ball joint wear).

Reject Vehicle If:

- Ball joint movement is in excess of manufacturers' service specifications shown in Table 1 through 5.

Pre-Loaded Ball Joints

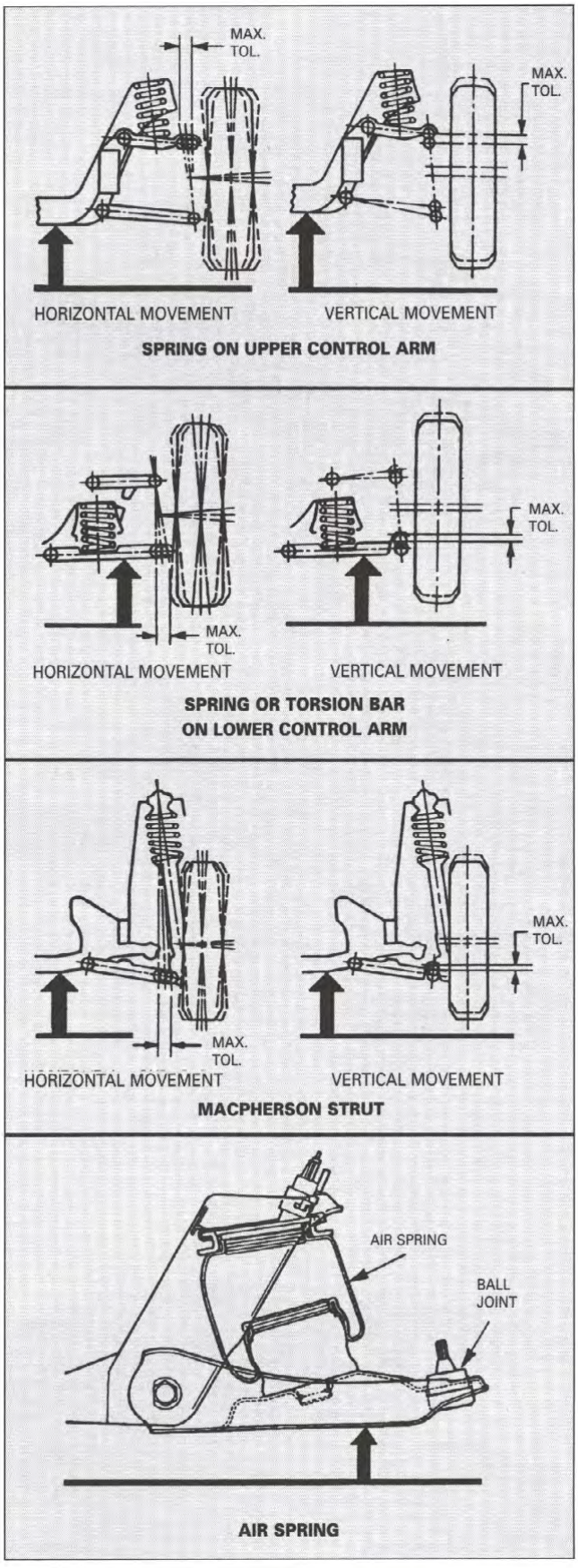
Equipment: Dial indicator, swivel and clamp. Floor jack safety stand and pry bar.

Procedure: Using the same procedure as above, inspect for ball joint movement relative to its socket. The ball joints (marked "(b)" in Table 1 and 2, are preloaded by rubber or springs under load (or compression), and should have very little movement in a vertical direction - no more than specified in tables.

Reject Vehicle If:

- If vertical movement exceeds values specified in Tables 1 and 2.

NOTE: In checking for vertical motion of ball joints, keep in mind that the load carrying joint is unloaded, and that a pry bar pressure sufficient only to lift the weight of the wheel assembly is required. If the inspector uses the "leverage" of a pry bar to exert excessive pressure, he/she can easily "force" an apparent ball joint movement and get a false reading. This may result in expensive replacement of perfectly good joints.



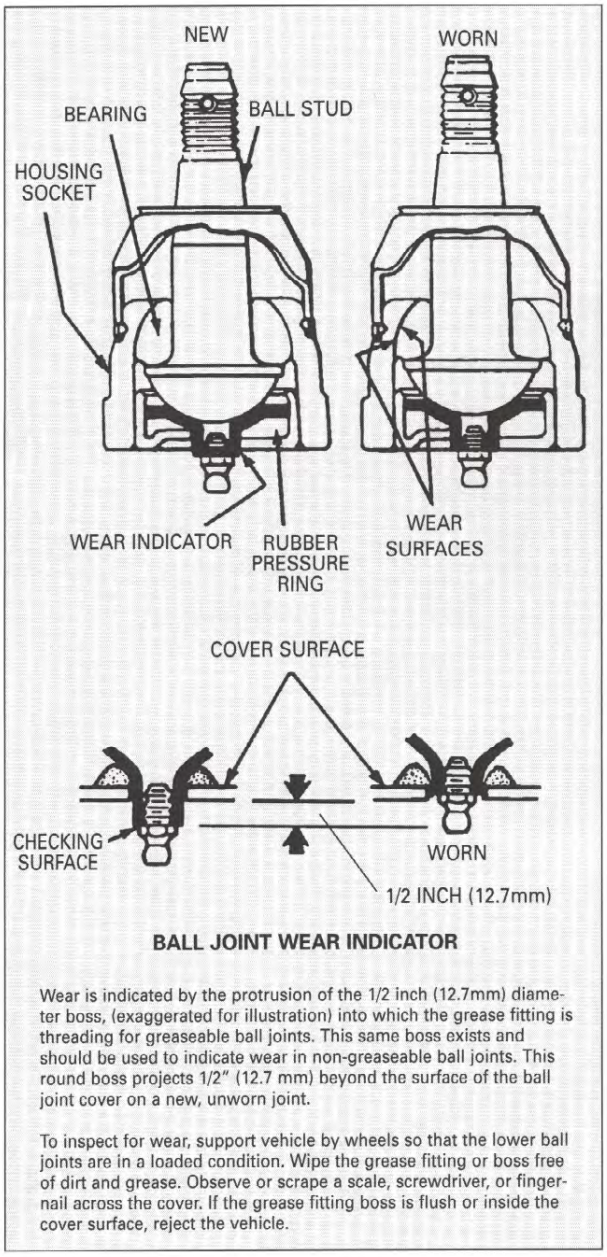
Raising Positions for Suspension Systems

Ball Joints with Wear Indicators

Procedure: Support vehicle with ball joints loaded (in normal driving attitude). Wipe grease fitting and checking surface free of dirt and grease. Determine if checking surface extends beyond the surface of the ball joint cover.

Reject Vehicle If:

- Checking surface is flush with or inside the over surface.



BALL JOINT WEAR INDICATOR

Wear is indicated by the protrusion of the 1/2 inch (12.7mm) diameter boss, (exaggerated for illustration) into which the grease fitting is threading for greaseable ball joints. This same boss exists and should be used to indicate wear in non-greaseable ball joints. This round boss projects 1/2" (12.7 mm) beyond the surface of the ball joint cover on a new, unworn joint.

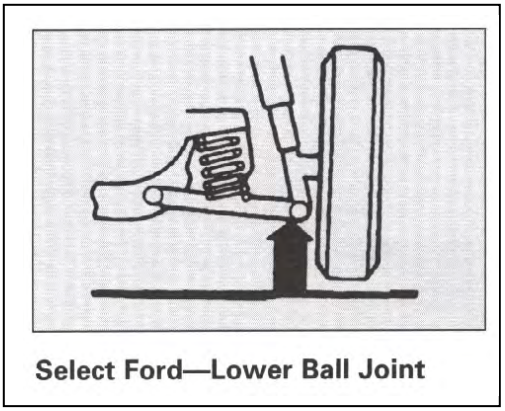
To inspect for wear, support vehicle by wheels so that the lower ball joints are in a loaded condition. Wipe the grease fitting or boss free of dirt and grease. Observe or scrape a scale, screwdriver, or fingernail across the cover. If the grease fitting boss is flush or inside the cover surface, reject the vehicle.

Ford Motor Company
Capri (1979-1994)
Fairmont & Zephyr (1978-1983)
Mustang (1979-1993)
Lincoln (1980-1993)
Continental (1982-1987)
Granada (1981-1982)
LTD & Marquis (1983-Present)
Mark (1980-1992)

Procedure: These models have a new wear-indicating single lower ball joint system. Support the vehicle in normal driving position, with both ball joints loaded. Inspect using same procedure as ball joints with wear indicators.

Reject Vehicle If:

- If checking surface is inside the ball joint cover.



Select Ford—Lower Ball Joint

GM Transverse Engine Front Wheel Drive Vehicles

Equipment: Floor jack or hoist, and jack stand.

Procedure:

- Support the vehicle positioning lift or jack under cradle.

- Grasp wheel at top and bottom and shake top of wheel in an "in and out" motion. Observe for any movement of the steering knuckle relative to the control arm. This visual observation is necessary to avoid confusion with other conditions such as loose wheel bearings.

Reject Vehicle If:

- Ball joint shows any movement.

NOTE: Ball joint is internally spring loaded.

Cadillac Eldorado, Buick Riviera and Oldsmobile Toronado (1979-1985)
Cadillac Seville (1980-1985)

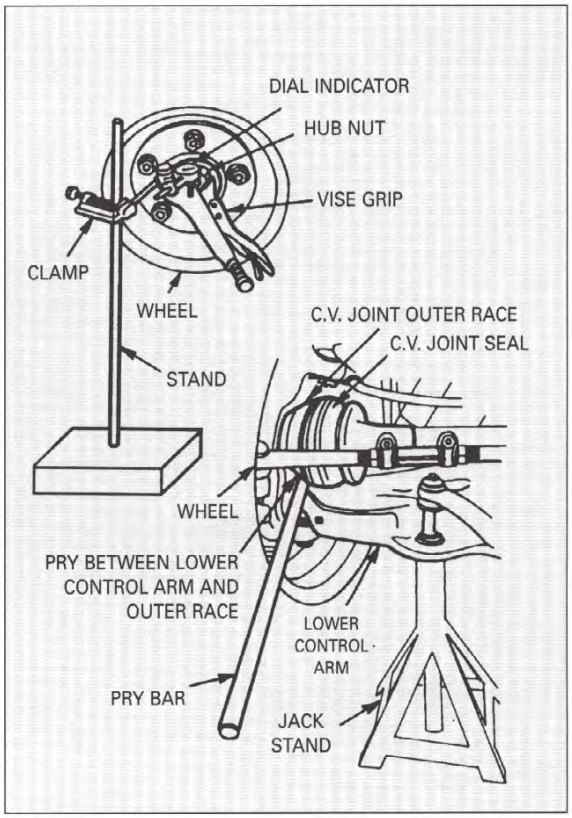
Equipment: Dial indicator, swivel, clamp, and stand. Floor jack or hoist, jack stand, pry bar, and vise grips.

Procedure:

- Support the vehicle under the lower control arm to unload the lower ball joint.
- Attach and lock vise grips to the hub nut and position the dial indicator on its stand with the dial indicator plunger tip against the vise grip.
- Position a pry bar on the top of the lower control arm with the bar tip under the outer race of the constant velocity joint and attempt to raise and lower the hub assembly. (Caution should be used so boot is not damaged).
- Observe the movement between the lower control arm and the outer race on the dial indicator.

Reject Vehicle If:

- Vertical movement exceeds .125 inch (3.2mm).



GM—El Dorado, Riviera, Seville, and Toronto Lower Ball Joints

Chrysler Front Wheel Drive Vehicles
(Lower Only) Concorde, Intrepid, and Vision

Procedure: Raise front wheels using a frame contact hoist, until front suspension is in full rebound and tires are not in contact with the ground. Grasp tire at the top and bottom, and apply an in and out force on the wheel and tire. While applying force, look for any movement between the lower ball joint and lower control arm.

Reject Vehicle If:

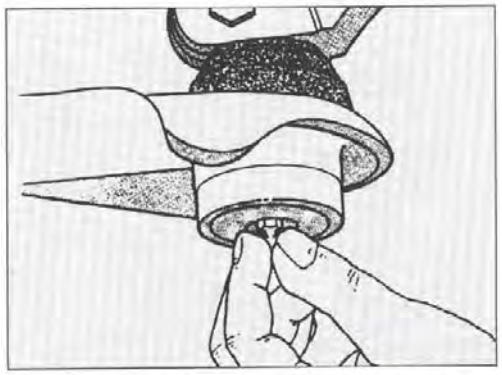
- Any movement is evident.

Chrysler Front Wheel Drive
Vehicles (Lower Only), All Others

Procedure: With the weight of the vehicle resting on the road wheels, grasp the grease fitting as shown below and attempt to move fitting. No mechanical assistance or added force is necessary.

Reject Vehicle:

- Grease fitting shows any movement.



Chrysler Front-Wheel Drive Lower Ball Joint

Chrysler Front Wheel Drive Vehicles
(Lower Only), Stratus and Cirrus

Procedure: Raise the vehicle on jack stand or center on a frame contact hoist. Install a dial indicator so it is contacting the top surface of the steering knuckle near the lower ball joint stud castle nut. Grab the wheel and tire assembly and push it up and down firmly. Record the amount of up and down movement.

Reject Vehicle If:

- The movement exceeds .059 inches (1.5 mm).

Chrysler - Upper Ball Joint

Procedure:

- Position jack under the lower control arm and raise wheel clear of floor.
- Lower jack to allow tire to lightly contact floor (most of vehicle weight relieved from the tire). It is important that the tire have contact with the floor.
- Grasp the top of the tire and apply force, in and outward. While this force is being applied, an observer checks for any movement at the ball joints between the upper control arm and the knuckle.

Reject Vehicle If:

- Any lateral movement is evident

Ball Joint Tolerance Tables

For ball joint tolerances - check respective manufacturers suggested minimum standards.

WHEEL BEARINGS

Lifting techniques vary for measuring wheel bearing-movement. On vehicles with coil spring or torsion bar on lower support arm - hoist at frame. On vehicles with coil spring and upper support arm - hoist at lower support arm. On front wheel drive vehicles, the inspector must consult manufacturer's lifting information.

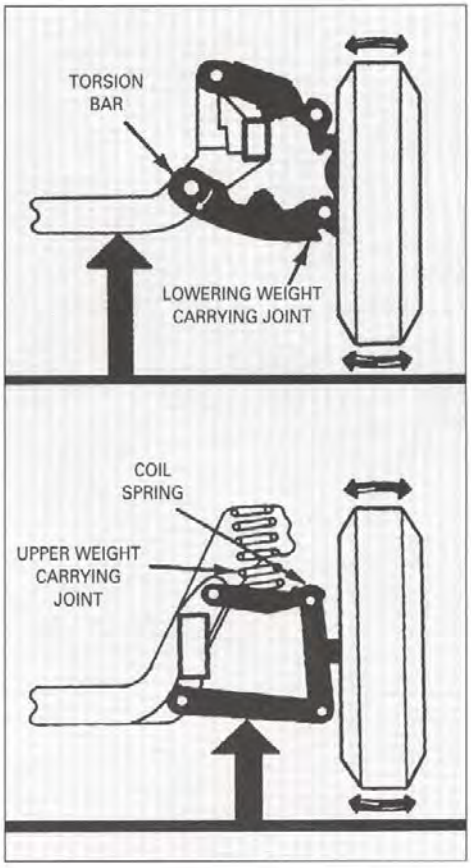
Front Wheel Bearings on Rear Wheel Driver Vehicles
Or Rear Wheel Bearings on Front Wheel Drive Vehicles

Equipment: Floor jack or hoist, rule or gauge.

Procedure: With vehicle lifted properly, grasp tire at top and bottom, rock in and out and record movement. Wheel bearing looseness is detected by the relative movement between the brake drum or disc and the backing plate or splash shield. **CAUTION:** If air suspension vehicles are hoisted via body support area, air spring damage may occur if the air suspension switch is not turned off.

Reject Vehicle If:

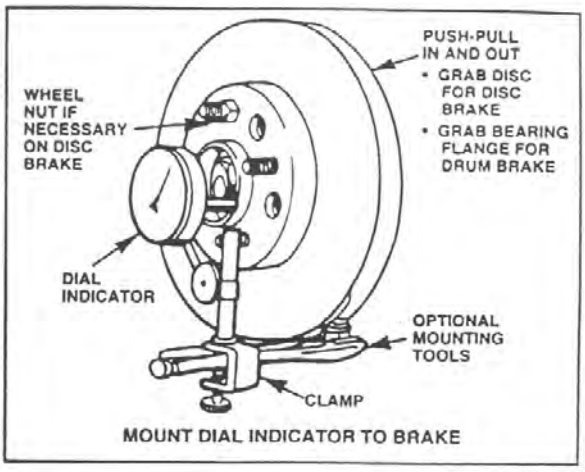
- Relative movement between drum and backing plate (disc and splash shield) is more than .125 inch (3mm) and measured at the outer circumference of the tire.



Proper Lifting for Wheel Bearing and Steering Linkage Looseness (Check ball joints in loaded position.)

General Motors Vehicles - Front/Rear Wheel Bearings on Front Wheel Driver Vehicles

Procedure: Properly jack or hoist wheels off ground. Remove tire and wheel assembly (if necessary reinstall 2 wheel nuts to secure disc to hub on disc brakes). Attach dial indicator as shown. Grab disc for disc brake, or bearing flange for drum brake at top and bottom and push-pull in and out.



MOUNT DIAL INDICATOR TO BRAKE

Reject Vehicle If:

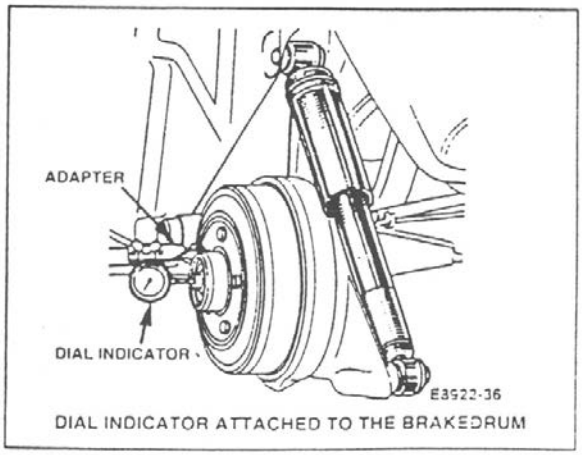
- Looseness exceeds .005 inches (.127mm).

Reject (Saturn) Vehicle If:

- Rear wheel bearing looseness exceeds .001 inches (.025mm).

Chrysler Eagle Premier/Dodge Monaco

Procedure: Properly jack or hoist wheels off ground. Remove the plastic cap from the wheel hub by prying it off with a small pry bar. Position the stylus of a dial indicator on the end of the axle shaft. Attach the dial indicator to the brake drum with an appropriate adapter device (specific dealer available tool) and a lug nut. Rotate the wheel hub and measure the wheel bearing axial play at the end of the axle shaft.



DIAL INDICATOR ATTACHED TO THE BRAKEDRUM

Reject Vehicle If:

- Looseness exceeds .001 inches (.025mm).

ELECTRICAL SYSTEM

To save time, the inspector should develop a plan or sequence for checking miscellaneous electrical items, many of which can be inspected while looking at other items. This comes with practice.

Horn

Chapter 17-C, Article 15, Section 33, Motor Vehicle Law

Procedure: Horn should be securely fastened and work properly.

Reject Vehicle If:

- Horn is loose or fails to function.

Electrical Switches

Procedure: All switches should function properly.

Reject Vehicle If:

- Switches fail to function or turn signal switch fails to cancel, (if so designed).

Electrical Wiring

Procedure: Check to make sure all wiring is well insulated and wires are not broken.

Reject Vehicle If:

- Wiring insulation is worn, wire broken, rubbed bare, or shows any evidence of burning or short circuiting.

Electrical Connections

Procedure: All connectors should be tight and secure.

Reject Vehicle If Connections:

- Show signs of excessive corrosion.
- Terminals have backed out of plastic connector housing.
- Used for trailer towing are not made through properly indexed and oriented matched connectors, or if permanent connection, wires are not properly spliced and insulated.

Automatic Transmissions Only

Procedure: Check neutral starting system to determine that starter operates only with gear selector in "P" and "N". Set parking brake, place wheel blocks and with foot brake applied turn on ignition switch.

Reject Vehicle If:

- Starter operates with gear selector in any gear other than "P" and "N".

Procedure: Check neutral starting system to determine that starter operates only with gear.

Odometer:

If the odometer is broken, reject vehicle unless odometer is repaired.
Not required for vehicles 10 years old or older.

PREPARATION & LIGHTING, GENERAL

Chapter 17C, Article 15, Section 1
Chapter 17C, Article 15, Section 3
Chapter 17C, Article 15, Section 4
Chapter 17C, Article 15, Section 5
Chapter 17C, Article 15, Section 6
Chapter 17C, Article 15, Section 7
Chapter 17C, Article 15, Section 9
Chapter 17C, Article 15, Section 10
Chapter 17C, Article 15, Section 11
Chapter 17C, Article 15, Section 12
Chapter 17C, Article 15, Section 13
Chapter 17C, Article 15, Section 17
Chapter 17C, Article 15, Section 18
Chapter 17C, Article 15, Section 19
Chapter 17C, Article 15, Section 20
Chapter 17C, Article 15, Section 22
Chapter 17C, Article 15, Section 23
Chapter 17C, Article 15, Section 24
Chapter 17C, Article 15, Section 25
Chapter 17C, Article 15, Section 26
Chapter 17C, Article 15, Section 27
Chapter 17C, Article 15, Section 28

Prior to a general lighting inspection, six preparatory steps should be taken, the first four of which should be the responsibility of the driver. (Refer to Page 200 for the 6 preparatory steps) If these are not accomplished to a reasonable degree, the inspector should refuse the vehicle until the preparation is satisfactory.

Advise Driver: That the operator of the vehicle should be responsible for the first four items. If the lamp is not a sealed beam headlamp and moisture is visible, advise driver that if condition continues for more than a few days, the lamp is not venting properly and the venting should be fixed or the headlamp replaced.

Check Lamp Function Visually

Procedure: Turn on the night driving lights and check the following:

- Actuate turn signal lever right and left and observe function of turn signal lights and indicator lamps and the front cornering lamps (if so equipped).
- Place vehicle in reverse gear and check backup lamps.
- Actuate the following and observe.

Fog lamps (if so equipped)
Hazard warning lamps
Indicator lamps
Stop lamps
Headlamps - upper and lower beam
Tail lamps
Parking lamps
Side marker lamps
Reflex reflectors
Clearance lamps
Identification lamps
Emergency-warning lamps
License plate lamp(s)
All others

Reject Vehicle If:

- Any required lamp is missing.
- Any bulb or sealed beam unit fails to light. If the vehicle is equipped with LED lighting 75% of the LEDS must illuminate.
- Turn signals do not properly indicate right and left when so switched.
- Back-up light system does not turn off automatically when vehicle goes forward.
- Lamp shows color contrary to law.
- Lamp fails to light the proper filament indicated at switch position.
- Any lamp or reflector does not direct light properly.
- Auxiliary equipment is placed on, in, or in front of any lamp (except original equipped headlamps with transparent covers).
- Lamp assembly improperly fastened.
- Lamp has a cracked, broken, or missing lens or visible moisture on interior.
- Any headlamp fails to have the letters "DOT" horizontally or vertically on the lens.
- Any headlamp that has the word "motorcycle" on the lens.
- Any white lights are mounted in a position greater than 54 inches from ground or above the original manufacturer's headlamps. (Except for approved snow removal equipment lighting.)
- More than one spotlight. (Except utility and emergency equipment.)
- More than six white lights to front.
- More than two fog lamps **or** fog lamps mounted less than 12 inches or more than 30 inches.
- More than one auxiliary passing lamp **or** mounted less than 24 inches or more than 42 inches.
- More than one auxiliary driving lamp **or** mounted less than 16 inches or more than 42 inches.

Provided, that no vehicle may be rejected because of the presence of any roof mounted off road light bar lighting device labeled by the manufacturer as being for off road use only, and installed and aimed by or at the direction of the manufacturer, and which conform to or exceed the standards and specifications of the Society of Automotive Engineers applicable to such equipment and approved by AAMVA and which are both covered with an **opaque** covering that prohibits any light from being emitted and not illuminated when the vehicle is being operated on the roads or highways of this state.

WARNING: Avoid touching or contacting the inner bulb in halogen headlamps, halogen driving lamps, or the replaceable halogen headlamp bulb. Severe burns and damage to the bulb could result.

HEADLAMP AIMING - MECHANICAL METHOD

Vehicle must be located on a level area and loaded as it is normally driver with driver behind wheel. To ensure proper vehicle height for vehicle with active (load leveling) suspension systems, activate the air suspension system by operating the engine during the aiming inspection/adjustment and keep doors closed. U.S. headlamps are either "sealed beam", "replaceable bulb" types, or "integral beam" headlamps equipped with the on-board aim device (Vehicle Headlamp Aim Device - V.H.A.D.). Vehicles with V.H.A.D. do not require separate mechanical aim device as this aim function may be performed without mechanical aimers. See V.H.A.D. aiming procedure.

Sealed Beam Headlamps

1. 177mm diameter, 2D1 both upper & lower beam.
2. 146mm diameter, 1C1 upper, 2C1 lower beam.
3. 142 x 200mm rectangular, 2B1 both upper and lower beam.
4. 100 x 165mm rectangular, 1A1 and 1G1 upper beam, 2A1 and 2G1 lower beam and 2E1 and 2H1 both upper and lower beam.
5. 92 x 150mm rectangular, UF upper beam, LF lower beam.

Integral Beam Headlamps

These lamps are similar to sealed beam units, but they have no regulated shape or dimensions.

Replaceable Bulb Headlamp

1. 9004, 9007 Replaceable Bulb, upper and lower beam.
2. 9005 and 9006 together, upper and lower beam.
3. 9005 and 9006 in separate headlamps, upper and lower beam, respectively.

NOTE: Lamps with 9004 bulbs may or may not be marked with "HB1" on lens. Lamps with "H4" bulb are marked with "HB2" on lens. Lamps with 9005 are marked "HB3" on lens, lamps with 9006 are marked "HB4" on lens, and lamps with 9007 are marked with "HB5" on lens.

Upper Beam (Type 1, UF) or
Replaceable Bulb Type 9005 (HB3)

Equipment: Approved set of mechanical aimers. Calibrate mechanical aimer to "O" for vertical aim. Consult aimer instruction manual for procedure. (See page for Headlamp Aiming Information.)

Procedure: Attach mechanical aimer to headlamp in accordance with instructions. Take readings.

Reject Vehicle If:

Horizontal aim is more than:

- 4 inches to the LEFT or 4 inches to the RIGHT.

Vertical aim is:

- higher than 0 inches UP or lower than 4 inches DOWN.

Low Beam Type 2, LF, or Replaceable Bulb Type 9004 (HB1) Or 9006 (HB4)

Equipment: Approved set of mechanical aimers. Calibrate mechanical aimer to "O" for vertical aim. Consult aimer instruction manual for procedure.

Procedure: Attach mechanical aimer to headlamp in accordance with instructions. Take readings.

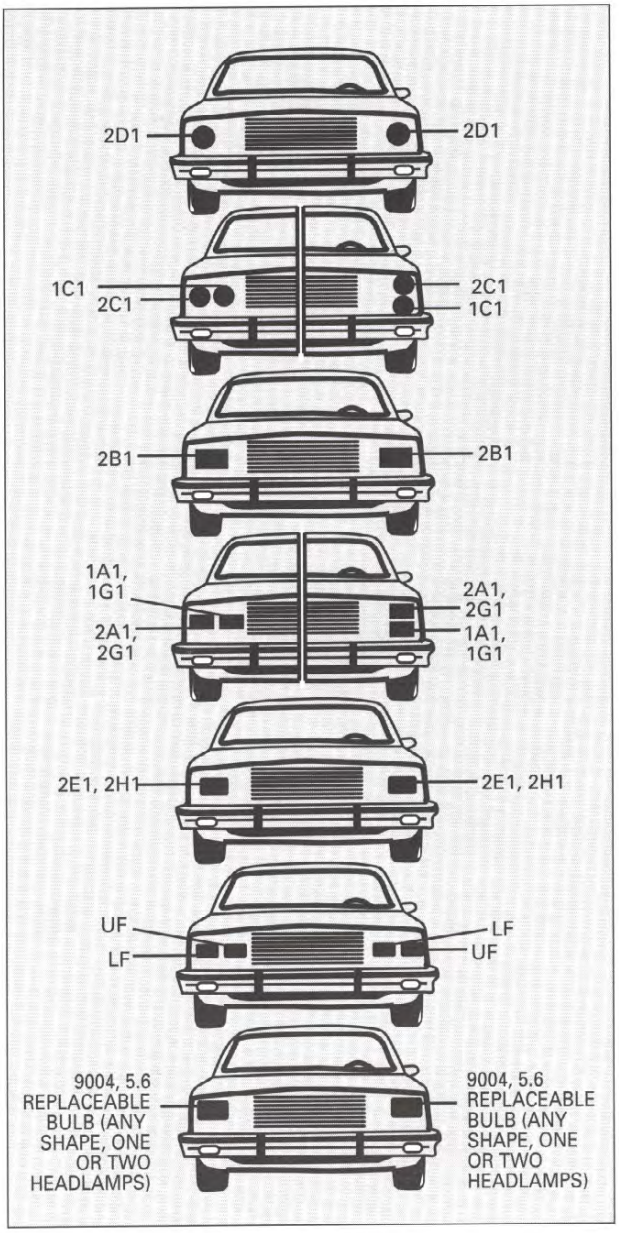
Reject Vehicle If:

Horizontal aim is more than:

- 4 inches to the LEFT or 4 inches to the RIGHT.

Vertical aim is:

- higher than 0 inches UP or lower than 4 inches DOWN.



Type 1, Type 2, LF/UF Replacement Bulb Headlamps and Integral Beam Units may mount to any of the above locations.

NOTE: All equipment for testing headlamps must comply with the Society of Automotive Engineers Recommended Practice For Headlamp Inspection Equipment. If a mechanical aimer is used, it should be in good repair and adjustment, and should be used according to the manufacturer's instructions and must be calibrated to the slope of the floor on which the vehicle stands.

HEADLAMP AIMING - ON-BOARD DEVICE

On vehicles equipped with V.H.A.D., aiming and aim checks may be performed on the vehicle if the vehicle is placed on a level surface. The level surface may be four level pads that the vehicle tires rest on. Preparation of the vehicle is similar to other aiming methods as far as loading and physical condition of vehicle.

Vehicle Headlamp Aiming Device Method (V.H.A.D.)

Equipment: Level floor surface.

Procedure: With the vehicle properly located and loaded, check horizontal indicator and position of vertical aim bubble relative to the scale. Correct aim is "O" for horizontal and "O" for vertical.

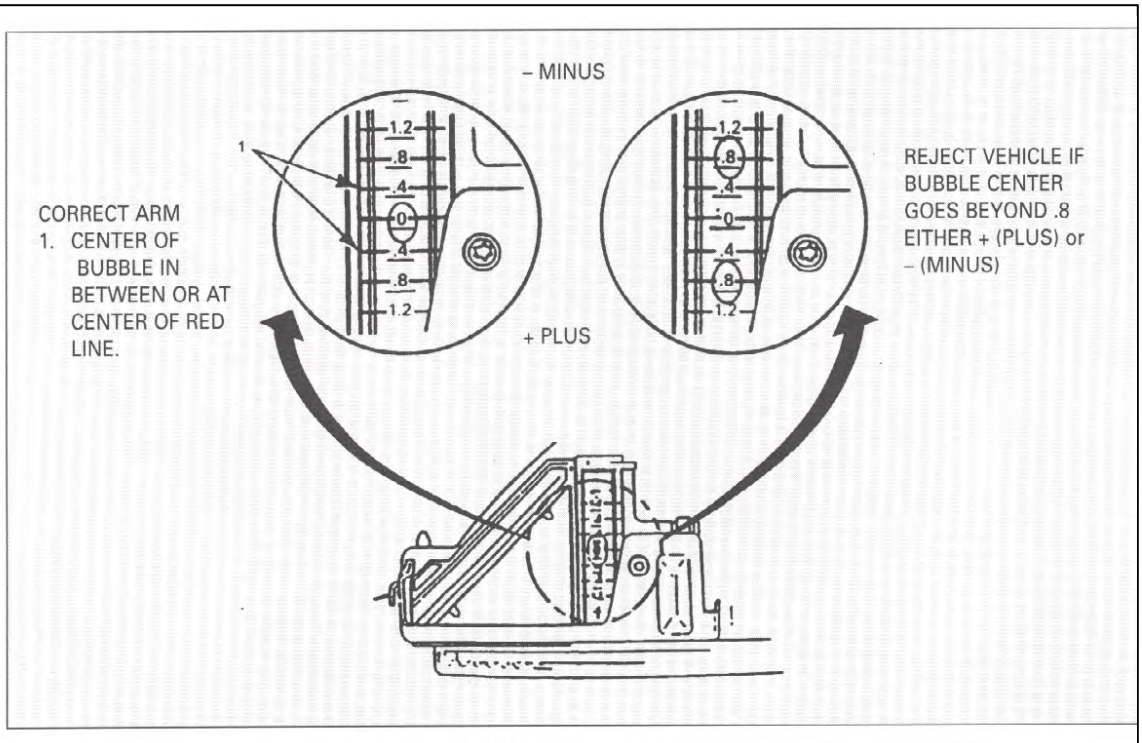
Reject Vehicle If:

Horizontal indicator shows:

- More than 0.8 degrees LEFT or
- More than 0.8 degrees RIGHT

Or, if vertical aim bubble shows:

- More than 0.8 degrees UP or
- More than 0.8 degrees DOWN



Vehicle Headlamp Aiming Device (VHAD)—Vertical Aim

HEADLAMP AIMING - SCREEN METHOD

Headlamp aiming by the screen method requires a level floor (or leveling pads) area in a darkened location, sufficient for the vehicle and an additional 25 feet from lamps to screen. The vehicle **MUST** be located accurately in front of the screen. Study HEADLAMP AIMING INFORMATION on page, for details about setting up this test properly. Preparation of the vehicle is similar to Headlamp Aiming Mechanical Method.

Upper Beam (Type 1 or UF, Integral Beam Or Replacement Bulb Type 9005 (HB3) Used Above Used In A Separate Adjustable Reflector Assembly

Equipment: Marked screen and adequate test area.

Procedure: With the vehicle properly located and loaded, switch headlamps to upper beam and observe center of high intensity zone on the screen.

Reject Vehicle If:

Center if horizontally:

- More than 4 inches RIGHT.
- More than 4 inches LEFT of straight ahead.

Center is vertically:

- More than 0 inches ABOVE or
- More than 4 inches BELOW the horizontal line.

Low Beam (Type 2, LF, Integral Beam Or Replaceable Bulb, Type 9004 (HB1) or Type 9005 (HB3) and Type 9006 (HB4) Together

Equipment: Marked screen and adequate test area.

Procedure: With vehicle properly located and loaded, switch headlamps to low beam and observe left and top edges of high intensity zone on the screen.

Reject Vehicle If:

Left edge is horizontally more than:

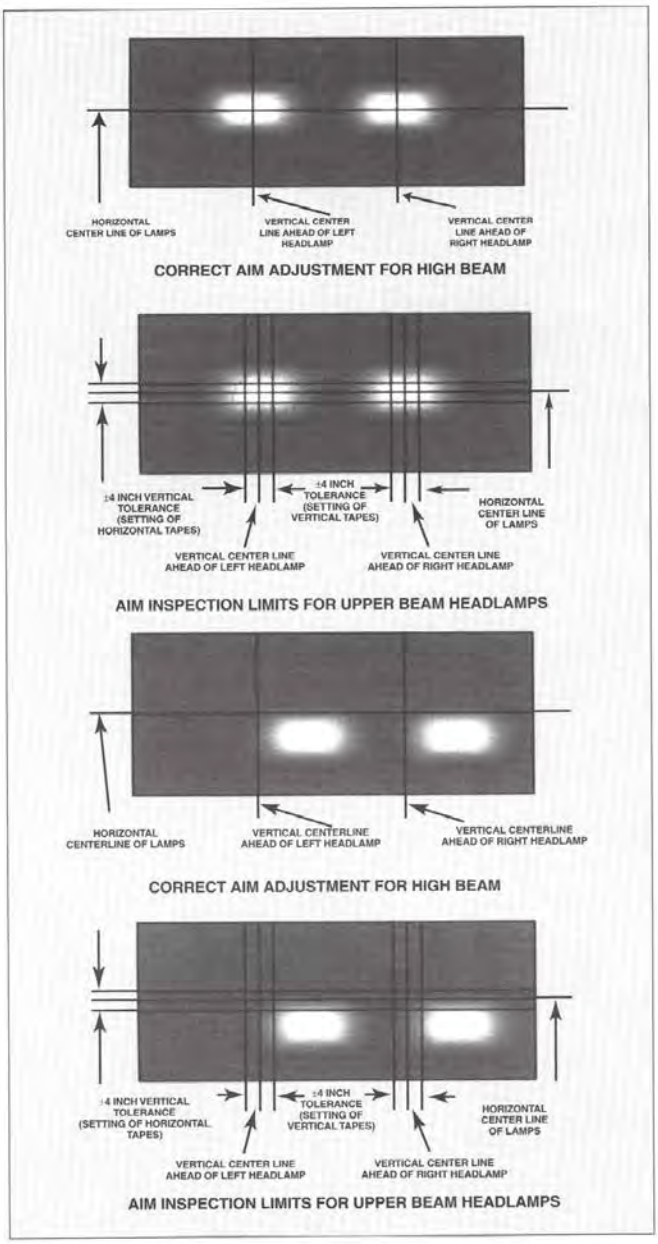
- 4 inches LEFT or
- 4 inches RIGHT of straight ahead

Top edge is vertically more than:

- 0 inches ABOVE or
- 4 inches BELOW the horizontal line.

NOTE:
ALWAYS inspect the following sealed beam, replaceable bulb, and integral beam headlamps on LOW BEAM only:

- 5 3/4 inch, marked 2, 2C or 2C1
- 7 inch, marked 2, 2D, or 2D1
- 100 x 165mm rectangular, marked 2A, 2A1, 2E1, 2G1 or 2H1.
- 200 x 142mm rectangular, marked 2B or 2B1
- Replaceable Bulb Headlamps
- 92 x 150mm rectangular, marked LF
- Replaceable bulb headlamps with 9006 (HB4) alone or in combination with 9005 (HB3).
- 55 x 135mm rectangular, marked L
- Integral beam headlamp when high and low beam reflectors move together



FOG LAMP AIMING - SCREEN METHOD

If a vehicle is equipped with fog lamps, they should be properly aimed. The movable horizontal and vertical lines on the aiming screen should be located so they cross at the "straight ahead" positions of the centerline of each fog lamp, whether symmetrical or non-symmetrical.

Fog Lamp Inspection

Procedure: With vehicle properly located and loaded (the same as for headlamp aim inspection) switch on the fog lamps and observe the location of the high intensity zone on the screen.

Symmetrical Beam

Procedure: When properly aimed, the top edge of the high intensity zone is set 4 inches below horizontal centerline of fog lamp, and the center of the high intensity zone is set on the vertical centerline (see illustration).

Reject Vehicle If:

Center of high intensity zone is more than:

Horizontally -

- 0 inches LEFT or
- 8 inches RIGHT of straight ahead line, and

Top edge is -

- Vertically ABOVE centerline level.

Non-Symmetrical Beam

Procedure: When properly aimed, the top edge of the high intensity zone is set at the horizontal centerline of the fog lamp, and the left edge of the high intensity zone is set at the vertical centerline (Same as low-beam-Type 2 headlamps).

Reject Vehicle If:

Left edge of high intensity zone is:

- 0 inches LEFT of, or
- 8 inches RIGHT of straight ahead line.

Top Edge is:
Vertically more than:

- 0 inches ABOVE, or 4 inches BELOW the horizontal line.

ALTERNATIVE HEADLAMP and FOGLAMP AIMING TOLERANCE
High Mounted Headlamps/Fog lamps
(Light Trucks)

The following vertical aim corrections are recommended for jurisdictional use to relieve some of the direct glare and rear glare experienced from vehicles with "higher" mounted headlamps and fog lamps. This correction is accomplished so that the seeing distance is approximately the same for all mounting heights and the "seeing distance" is equivalent to the normal passenger car.

CORRECTIVE AIM CHART

Headlamp/Fog lamp Mounting Height	Correct Screen Aim
22 inches - 36 inches	0.0
36 inches - 48 inches	-2.0 inches
48 inches - 54 inches	-2.5 inches

SAE Technical Report J599 provides the bases for establishing headlamp inspection procedures.

HEADLAMP AIMING - INFORMATION

All equipment for testing headlamps must comply with the Society of Automotive Engineers Recommended Practice for Headlamps Inspection Equipment.

Mechanical Aimer - If mechanical aimer is used, it shall be in good repair and adjustment, and shall be used according to the manufacturer's instructions and must be calibrated to the slope of the floor on which the vehicle stands.

Headlamp Testing Machine - If a headlamp testing machine is used, it shall give results equivalent to those obtained using the screen procedure shown below. It shall be in good repair and adjustment, and shall be used in accordance with the manufacturer's instructions. The machine using a photoelectric cell or cells to determine aim should also have a visual screen upon which the beam pattern is projected proportional to its appearance and aim on a screen at 25 feet. Such visual screen shall be plainly visible to the operator and should have horizontal and vertical reference lines to permit visual appraisal of the lamp beam.

Headlamp Aiming by the Screen Method - First locate the vehicle so that it is square with the screen and with the front of the headlamps directly over a reference line that has been painted on the floor.

Next locate the centerline on the aiming screen so that it is in line with the center of the vehicle. This can be done as shown below by sighting through the center of the rear window of the vehicle and over the hood ornament - have vehicle moved, until it is in alignment with these two points. If there is no center hood ornament, mark the center of the front and rear windows with narrow strips of masking tape. Use these "sights" to locate the centerline of the aiming screen directly in line with the vehicle axis.

Aiming Area Required - It is desirable to have a specific aiming area in a darkened location. This should be sufficient for the vehicle and an additional 25 feet measured from face of lamps to the front of the visual screen.

The floor on which the car rests must be flat with the bottom of the screen. If the floor is not level, compensate.

Aiming Screen - If a screen is used, it should be 5' high x 12' wide with a matte white surface well shaded from extraneous light, and properly adjusted to the floor on which the vehicle stands. Provisions may be made for moving the screen so that it can be aligned parallel with the rear axle and so that a horizontal line drawn perpendicularly from the center line of the screen will pass an equal distance midway between the two headlamps.

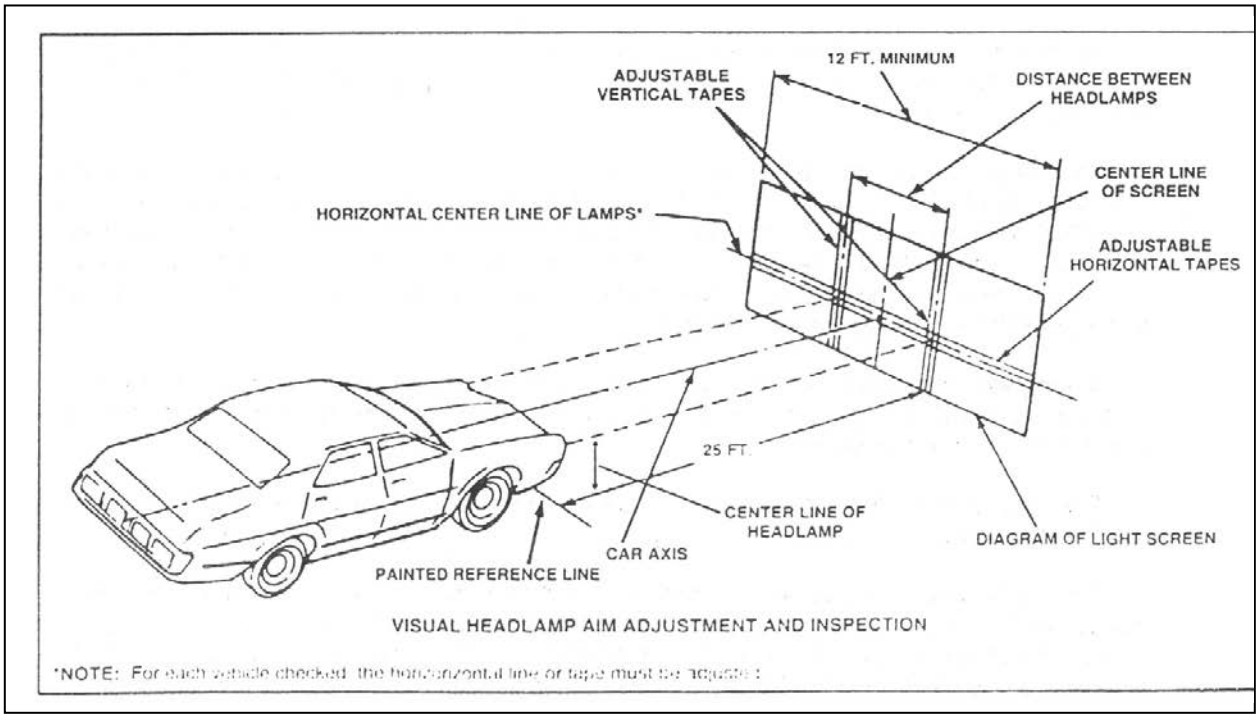
The screen shall be provided with a vertical centerline, two laterally adjustable vertical tapes and one vertically adjustable horizontal tape.

If a regular commercial aiming screen is not available, the screen may consist of a vertical wall having a clear uninterrupted area approximately 6 feet high and 12 feet wide.

The surface should be finished with washable non-gloss white paint.

After the aiming screen has been set up in its permanent location, it is necessary to paint a reference line on the floor directly under the lens of the lamps to indicate the proper location of the headlamps when they are being aimed.

NOTE: There is no charge for headlamp adjustments per Chapter 17C, Article 16, Section 6.



Rear Lamps and Rear Lamp Combinations

Chapter 17-C, Article 15, Section 5, Motor Vehicle Law

Inspect For and Reject If:

- Lamps are not of approved type.
- Bulbs are blackened or discolored.
- Lenses are not red (except registration light, back-up light "white" and stop light which may be red or yellow.)
- Lamps are not mounted according to law.
- Filament in all rear lamps does not burn when headlamp switch is turned on to any position or if lamps do not provide a red indication visible 500 feet to the rear (back-up lights excepted.)
- Rear license plate is not illuminated by white light as to be legible at a distance of fifty feet.
- Any darkened, faded or weathered tail lamp/brake lamp lens that does not meet manufacturer's specifications.
- Any flashing running lamps that surround the license plate.
- Auxiliary equipment is placed on, in, or in front of any lamp.

Reject any vehicle that is not equipped with rear lamp or rear lamp combination of an approved type.

As approved by
2003 Legislature

AUXILIARY LAMPS

(Driving, Passing, and Fog Lamps)

Chapter 17-C, Article 15, Section 17, Motor Vehicle Law.

Inspect for and Reject If:

- Not approved type.
- Bulbs are blackened or discolored.
- Lens cracked, broken or rotated away from the proper position.
- Wiring is frayed, with poor electrical connections.
- Driving and passing lamps are not wired to burn only with corresponding headlamp circuits.
- Lamps not aimed in accordance with requirements.
- Any lamp is mounted above the level of the regular headlamps, or is not mounted firmly to prevent vibration.
- Any lamp mounted in such a way to illuminate the ground or roadway from beneath the vehicle.

Provided, that no vehicle may be rejected because of the presence of any roof mounted off road light bar lighting device labeled by the manufacturer as being for off road use only, and installed and aimed by or at the direction of the manufacturer, and which conform to or exceed the standards and specifications of the Society of Automotive Engineers applicable to such equipment and approved by AAMVA and which are both covered with an **opaque** covering that prohibits any light from being emitted and not illuminated when the vehicle is being operated on the roads or highways of this state.

Mounting

- Driving lamps mounted on front at a height not less than 16 inches or more than 42 inches above the level surface upon which vehicle stands.
- Passing lamp mounted on front at a height not less than 24 inches or more than 42 inches above level surface upon which vehicle stands.

No person shall drive or move any vehicle or equipment upon any highway with any lamp or device thereon displaying a red light visible from directly in front of the center thereof. This shall not apply to any vehicle upon which a red light visible from the front is expressly authorized or required.

Reject any vehicle equipped with a combination of auxiliary lamps that includes more than two fog lamps, more than one driving lamp, more than one passing lamp.

SPOTLAMPS (INNER CONTROLLED)

Any vehicle may be equipped with not to exceed one spot lamp and every light spot lamp shall be so aimed and used upon approaching another vehicle that no part of the high-intensity portion of the beam will be directed to the left of the prolongation of the extreme left side of the vehicle not more than one hundred feet ahead of the vehicle. A second spot lamp housing with bulb and wiring removed is permitted.

Inspect For and Reject If:

- Not approved type.
- Aiming movement.
- Color of lens.
- More than one spot lamp. (Except for utility or emergency equipment.)

SIGNAL DEVICE

(Intention to Stop or Turn)

Chapter 17-C, Article 15, Section 18, Motor Vehicle Law.

Inspect For and Reject If:

- Not approved type.
- Bulbs discolored. Projects a glaring or dazzling light.
- Lens cracked or broken.
- Defective wiring or poor electrical connection.
- Not functioning properly.
- Not mounted according to law.
- Turn signals do not properly indicate right and left when so switched.

BEAM INDICATOR LIGHTS

Every motor vehicle which has multiple beam road lighting equipment must be equipped with a beam indicator which shall be lighted whenever the high beam of light from the headlamp are in use, and shall not otherwise be lighted. The indicator shall be located within the operator's compartment so that when lighted it will be readily visible without glare to the driver of the vehicle and must not be independent of the headlight switch.

Every motor vehicle must be equipped with a dimmer switch located in such a position as to be operated by the driver of the motor vehicle. Automatic dimming devices may be used, but a manual switch must be present.

- The only exception will be where properly approved hand controls have been installed for legally licensed disabled persons.

HEADLAMP

Chapter 17-C, Article 15, Section 23, Motor Vehicle Law.

Inspect For and Reject If:

- Not an approved type of motorcycle lamp. (A motorcycle or motor-driven cycle may have one or two headlamps, but not more than two.)
- Lens are cracked or broken. Reflectors not clean and bright.
- Bulbs are blackened.
- Lamp is not focused.
- Lamp is not properly aimed.
- Lamp not mounted securely to prevent excessive vibration, or if wiring is not good with good ground, or if switch does not operate properly and make good contact.
- Light output is not sufficient to make persons and objects visible at 200 feet.
- Not equipped with lamp or headlamps.

Reject any vehicle, except a trailer, semi-trailer, pole trailer, or motorcycle that is not equipped with two headlamps of an approved type.

PARKING LAMPS

Chapter 17-C, Article 15, Section 15, Motor Vehicle Law.

Inspect For and Reject If:

- Not proper color.
- Proper illumination as required by law.
- Any vehicle equipped with inoperative parking lamps.

CLEARANCE LAMPS AND REFLECTORS

Chapter 17-C, Article 15, Section 12, Motor Vehicle Law.

Clearance lamps and reflectors and side marker lamps may be used in combination.

Inspect For and Reject If:

- Lamps or reflectors not approved type.
- Lens and reflectors not proper condition and color.
- Wiring is defective or poor electrical connections.
- All filaments do not burn or lamps are not visible for a distance of 500 feet.
- Lamps and reflectors not mounted according to law.
- Any vehicle not equipped with clearance lamps or reflectors as required by law. (Refer to light chart.)

PROHIBITED LIGHTING EQUIPMENT

Reject any vehicle if equipped with:

- A lamp showing red or blue to the front, except authorized emergency vehicles. (Chapter 17-C, Article 15, Section 26, Motor Vehicle Law.)
- Any lamp mounted in such a way to illuminate the ground or roadway from beneath the vehicle.
- An amber lens in a headlamp or spot lamp.
- An unapproved lighting device.
- Any lighted flashing advertising sign.
- Any flashing stop signal.
- Any flashing or running lights surrounding the license plate.

PERMISSIBLE ADDITIONAL LIGHTING EQUIPMENT

Chapter 17-C, Article 15, Section 19, Motor Vehicle Law.

Any vehicle may be equipped with:

- Not more than two side cowl fender lamps (which shall emit an amber or white light without glare.)
- Not more than one running board courtesy lamp, one each side (which shall emit an amber or white light without glare.)
- Not more than two back-up lamps (either separately or in combination with other lamps, shall not be lighted when vehicle is in forward motion.)
- Any equipment that is not permissible must be removed.

A flashing or rotating amber/yellow light to warm motorists of their presence and the presence and the presence of persons working along or on the roadway such as mail carriers, highway workers, wide load
vehicles, etc.

Funeral Directors have flashing or rotating purple lamps to warn motorists.

ORNAMENTAL LIGHTS

- Electrically illuminated ornamental lights are not permitted on the front, rear, or underneath of a vehicle.

- All unauthorized lights must be removed before vehicle can be passed for inspection.

OBSTRUCTION OF LIGHTING DEVICES

- Screens, bars or any device placed in front of, or over, any lighting device or is **strictly** prohibited If it alters or changes the illumination of the lamp or prohibits the light or reflector to work in the designed manner.

LIGHTING CODES & DEFINITIONS

SAE Identifying Code for Lights and Signaling Devices

Device	SAE Identification Code Designation
Reflex Reflectors	A
Motorcycle Auxiliary Front Lamps	C
Motor Cycle and Motor Driven Cycle Turn Signal Lamps	D
Side Turn Signal Lamps - Vehicles 9.1m More in Length	E
Side Turn Signal Lamps - Vehicles Less than 9.1m in Length	E2
Front Fog Lamps	F
Sealed Beam Headlamps (Marking Applies to Housing or Unit)	H
Sealed Beam Headlamp Housing	HH
Replaceable Bulb Headlamp	HR
Turn Signal Lamps	I
Turn Signal Lamps - Spaced Less Than 100mm From Headlamp	I2
(I-3 thru I-8) See SAE J759 Oct. 8 for update	
Turn Signal Flasher	J590
Hazard Warning Signal Flasher	J945
Warning Lamp Alternating Flasher	J1054
Front Cornering Lamps	K
Rear Cornering Lamps	K2
License Plate Lamps	L
Spot Lamps	O
Parking Lamps	P
Clearance or Side Marker or Identification Lamps	P2
Combination Clearance and Side Marker Lamps	PC
Turn Signal Operating Units - Class A	Q
Turn Signal Operating Units - Class B	QB
Vehicular Hazard Warning Signal Operating Unit	QC
Backup Lamps	R
Stop Lamps	S
Truck Stop Lamps	S2
Tail Lamps	T
Supplemental Dual High Mounted Stop and Turn Signal Lamps	U
Supplemental Center High Mounted Stop Lamps for Trucks	U2
Center High Mounted Stop Lamps	U3
Warning Lamps for Emergency Maintenance and Service Vehicles	W
Warning Lamps for School Buses	W2
360 Deg. Emergency Warning Lamps	W3
Emergency Warning Device	W4
Driving Lamps	Y
Auxiliary Low Beam Lamps	Z

Lighting Terms and Definitions

Asymmetrical Beam (non-symmetrical) - An asymmetrical beam is one in which both sides are not symmetrical with respect to the medial vertical plane of the beam. All lower beams are asymmetrical.

Back Up Lamps - Back up lamps are lamps used to provide illumination behind the vehicle, and to provide a warning signal when the vehicle is in reverse gear.

Cornering Lamps - Cornering lamps are steadily burning lamps used when the turn signal system is operating to supplement the headlamps by providing additional road illumination in the direction of the turn, mounted on side at front and also may be mounted on side at rear.

Driving Lamp - An auxiliary lamp or lamps that may be used to supplement the upper beam of the regular headlamps.

Emergency Warning Lamps - Emergency warning lamps are lamps that provide a flashing light to identify an authorized vehicle on an emergency mission. The emergency signal may be either a rotating beacon or pairs of alternately or simultaneously flashing lamps.

Fog Lamps - Fog lamps are lamps that may be used with or in lieu of the lower beam headlights to provide illumination under conditions of rain, snow, dust or fog.

Halogen Sealed Beam Unit - An integral and hermetically sealed optical assembly containing a halogen inner bulb.

Headlamp Lower Beam - A distribution of light so directed as to avoid glare in the eyes of oncoming drivers while providing illumination ahead of the vehicle and intended for use in congested areas and on highways when meeting other vehicles within a distance of 500 feet.

Headlamp Upper Beam - A distribution of light intended primarily for distance illumination and for use on the open highway when not meeting other vehicles.

Hazard Warning Lamps - Hazard warning lamps are turn signal lamps that flash simultaneously to warn of the presence of a vehicular hazard.

Indicator Lamps - Indicator lamps are lamps visible to the operator of a vehicle that indicate:
1. Appropriate electrical circuits are in operation.
2. Malfunction of vehicle performance, and
3. Requirement for remedial action by the operator of the vehicle.

Lane Changer - A lane changer is a device, usually incorporated in the turn signal switch that will actuate the turn signal lamps when held by the driver. It is intended for momentary use for signaling a lane change. When released by the operator, it will return to neutral and deactivate the signal lamp.

Operating Units or Switches - Operating units or switches are devices by which the functioning of lamps is controlled.

Parking Lamps - Parking lamps are lamps used to designate the front of a parked vehicle.

Passing Lamp - (Auxiliary Low Beam) - An auxiliary lamp or lamps that may be used to supplement the low beam of a standard headlamp system. It is not intended for winding roads or congested city areas.

Replaceable Bulb Headlamp - A headlamp unit comprising of one or two replaceable standard light sources (bulb and a housing lens/reflector unit).

SAE Lighting Identification Code - The SAE lighting identification code is a series of standardized markings for lighting devices which a manufacturer or supplier may use to mark his/her product to indicate the SAE Lighting Standard or Standards to which the device is designated to conform. The code is not intended to limit the manufacturer or supplier in applying other markings to the devices.

Sealed Beam Headlamp Assembly - A sealed beam headlamp assembly is a major lighting device used to provide general illumination ahead of the vehicle. It consists of the following:

1. One or more sealed beam units (bulb assembly).
2. Means for mounting securely to the vehicle.
3. Means to permit required aim adjustment.

Sealed Beam Unit - An integral and hermetically sealed optical assembly with the name "Sealed Beam" molded in the lens.

Sealed Beam Unit 5 3/4 Inch Type 1, 1C, or 1C1 - A sealed unit 146mm in diameter having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 5 3/4 Inch Type 2, 2C or 2C1 - A sealed unit 146mm in diameter having two filaments, one filament providing the lower beam and one filament providing fill-in light for the upper beam. It is aimed on the lower beam.

Sealed Beam Unit 7-Inch Type 2, 2D, or 2D1 - A sealed unit 177mm in diameter providing an upper and a lower beam. Two similar units are used on a vehicle. This unit is aimed on the lower beam.

Sealed Beam Unit 7-Inch (no identifying number on lens) - A sealed unit 177mm in diameter providing an upper and lower beam. Two similar units are used on a vehicle. This is an obsolete unit no longer being installed in production. It should be aimed in the upper beam.

Sealed Beam Unit 100 x 165mm Rectangular Type 1A or 1A1 or 1G1 - A sealed unit 100 x 165mm rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 100 x 165mm Rectangular Type 2A or 2A1 or 2G1 - A sealed unit 100 x 165mm rectangular headlamp having two filaments, one filament providing the lower beam and one filament providing fill-in light for the upper beam. It is aimed on the lower beam.

Sealed Beam Unit 100 x 165mm Rectangular Type 2E or 2H1 - A sealed unit 100 x 165mm rectangular has two filaments, one providing the lower beam and one providing the upper beam. It is aimed on lower beam.

Sealed Beam Unit 142 x 200mm Rectangular Type 2B or 2B1 - A sealed unit 142 x 200mm rectangular headlamp having two filaments, one filament for the lower beam and one filament for the upper beam.

Sealed Beam Unit 92 x 150mm Rectangular Type LF - A sealed unit rectangular headlamp having a single filament and providing only a lower beam distribution of light.

Integral Beam Unit 55 x 135mm Rectangular Type L - A sealed unit rectangular headlamp having a single filament and providing lower beam distribution of light and fill-in for upper beam.

Integral Beam Unit 55 x 135mm Rectangular Type U - A sealed unit rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 92 x 150mm Rectangular Type UF - A sealed unit rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Side Marker Lamps - Side marker lamps are lamps on the left and right sides, beamed to the side. They are located near the front and rear on each side and, for vehicles over 30 feet in length, are also located at the midpoint (intermediate side marker).

Standard Replaceable Light Source - An assembly of a headlamp halogen bulb and base for use with replaceable bulb headlamps. The bulb may have one or two filaments providing lower beam, upper beam, or both, depending on application.

Stop Lamps - Stop lamps are lamps giving a steady warning light to the rear of a vehicle, to indicate the intention of the operator of the vehicle to reduce speed or stop.

Symmetrical Beam - A symmetrical beam is one in which both sides are symmetrical with respect to the median vertical plane of the beam. Lamps having symmetrical beams are:

- 5 3/4 inch Type 1, 1C, or 1C1
- 5 3/4 inch Type 2, 2C, or 2C1 (upper beam filament)
- 100 x 165mm Type 1A or 1A1
- 100 x 165mm Type 2A or 2A1 or 2G1 (upper beam filament)
- 100 x 165mm Type 2E1 or 2H1 (upper beam filament)
- All 7 inch sealed beam unit (upper beam filament)
- 92 x 150mm Type UF
- Type 2B or 2B1 (upper beam filament)
- Replaceable bulb headlamp (upper beam filament)

Tail Lamps - Tail lamps are lamps used to designate the rear of a vehicle.

Turn Signal Lamps - Turn signal lamps are lamps that provide a flashing warning light to indicate the intended direction of the turn.

TELEVISION SETS

Chapter 17-C, Article 15, Section 42, Motor Vehicle Law.

Any type of television set or equipment, whereby the video screen of such television set is within the view of the operator of such vehicle, is prohibited.

EXHAUST SYSTEM

Chapter 17C, Article 15, Section 34

The exhaust system is a series of mechanical devices for the purpose of receiving exhaust gas from an internal combustion engine before expelling it into the atmosphere, thereby effectively reducing engine noise emissions. The exhaust system may include exhaust pipes, catalytic converter, mufflers, resonators, and tail piping in varying combinations.

Exhaust System

Procedure:

- Visually examine, as applicable, mufflers, resonators, tail pipes, exhaust pipes, catalytic converters (air hoses), heat shields and supporting hardware while vehicle is on a hoist or over a pit.
- Rusted or corroded surfaces should be given particular attention.

NOTE: Holes in the system made by the manufacturer for drainage are not cause for rejection.

Advise Driver: If there is excessive rust or corrosion.

Reject Vehicle If:

- Vehicle is not equipped with proper exhaust system, i.e., original equipment or original replacement equipment (mufflers, catalytic converters, resonators, etc.).
- There are loose or leaking joints.
- There are holes caused by corrosion, leaking seams, or patches on mechanical devices.
- Tail pipe end is pinched or damaged.
- Elements of system are not securely fastened.
- There is an exhaust system cut-out or similar device that allows excessive noise.
- Any part of system passes through occupant compartment or trunk.
- If vehicle has straight exhaust, gutted, or altered muffler.
- Welding together of exhaust components is not permitted except by original manufacturer or to replace defective parts with new parts that were originally welded.

- Loose or leaking joints in the exhaust system, holes, leaking seams, missing or loose interior baffles, and patches on the muffler.
- Excessive fumes or smoke.
- Vehicle has a straight exhaust, gutted or altered muffler.
- Excessive vibration in exhaust line.
- A part of exhaust system passing through the body or trunk of a motor vehicle.
- A muffler that does not contain baffle plates or similar material will not be approved.

Exhaust Gas Caution

Procedure: Inspect for openings in body (especially open tailgate windows and doors in station wagon models), caused by accident damage, rubber seal damage or failure, deck lid latch or lock failure, or simply running with these items open. **THIS CAN CAUSE EXHAUST GASES TO ENTER THE PASSENGER COMPARTMENT**. **THESE GASES CONTAIN CARBON MONOXIDE AND CAN CAUSE SICKNESS OR UNCONSCIOUSNESS AND CAN EVEN BE LETHAL.** This can also happen under conditions of extended idling when the vehicle is standing.

Advise Driver: If a station wagon is seen with the rear tailgate window open. If vehicle is being driven with the deck lid not fully closed.

Reject Vehicle If:

- Vehicle is damaged so that rear doors, windows, deck lids, etc. cannot be fully closed properly sealed.
- There are excessive fumes or smoke.
- There is leakage of gasses at manifold or any joint or junction of system.

MECHANICS: AN IMPORTANT LAW THAT AFFECTS YOU

DON'T TAMPER WITH EMISSIONS CONTROLS!

Federal Law

The federal tampering prohibition is contained in section 203 (a) (3) of the Clean Air Act (Act), 42 U.S.C. 7522 (a) (3). Section 203 (a) (3) (A) of the Act prohibits any person from removing or rendering inoperative any emission control device or element of design installed on or in a motor vehicle or motor vehicle engine prior to its sale and delivery to an ultimate purchaser and prohibits any person from knowingly removing or rendering inoperative any such device or element of design after such sale and delivery, and the causing thereof. The maximum civil penalty for a violation of this section by a manufacturer or dealer is $25,000; for any other person, $2,500.

Section 203 (a) (3) (B) of the Act prohibits any person from manufacturing or selling, or offering to sell, or installing, a part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine where a principal effect of the part or component is to bypass, defeat, or render inoperative a device or element of design installed on or in a motor vehicle or motor vehicle engine, and where the person knows or should know that such part or component is being offered for sale or is being installed for such use. The maximum civil penalty for a violation of this section is $2,500.

IMPORTANT

Beginning in 1975, catalytic converters were installed as standard equipment. If a question arises whether or not a catalytic converter was standard equipment on a particular vehicle the appropriate manufacturer should be contacted.

WHAT IS TAMPERING?

You are tampering if you remove, bypass, defeat, disconnect damage or in any way render ineffective any emission control device or element of design that has been installed on a motor vehicle or a motor vehicle engine, or have someone else do it for you.

Tampering includes:

- Removing such devices as the catalytic converter, air pump and EGR valve, or doing anything to them to keep them from working properly.

- Disconnecting vacuum lines and electrical or mechanical parts of the pollution control system, such as electrical solenoids, sensors or vacuum activated valves.

- Adjusting any element of a truck's emission control design so that it no longer meets the manufacturer's specifications.

- Installing a replacement part that is not the same in design and function as the part that was originally on the vehicle, such as an incorrect exhaust part.

- Adding a part that was not originally certified on the car, such as installing a turbocharger.

You can avoid making innocent mistakes that could be tampering, if you simply make all adjustments according to the manufacturer's specifications, and install parts designed to properly replace the original parts

MOTORCYCLES
AND
TRAILERS

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MOTORCYCLES OR MOTOR-DRIVEN CYCLES

BRAKES

Chapter 17-C, Article 15, Section 32, Motor Vehicle Law.

Inspect For and Reject If:

- Rods are bent, cotter keys or lock nuts are missing, or cables frayed or broken.
- Not able to stop within 30 feet from 20 miles per hour or decelerate 14 feet per second.
- Levers (foot and hand) do not have at least one-third of their travel as reserve after brakes are fully applied.
- Not equipped with brakes, or with a disconnected brake.

HEADLAMP

Chapter 17-C, Article 15, Section 23, Motor Vehicle Law.

Inspect For and Reject If:

- Headlamps must be approved for highway usage and meet the requirements of the U.S. Federal Safety Standards. The usage of approved modulating headlamps are permitted (A motorcycle or motor-driven cycle may have one or two headlamps, but not more than two.)
- Lens are cracked or broken. Reflectors not clean and bright.
- Bulbs are blackened.
- Lamp is not focused.
- Lamp is not properly aimed.
- Lamp not mounted securely to prevent excessive vibration, or if wiring is not good with good ground, or if switch does not operate properly and make good contact.
- Light output is not sufficient to make persons and objects visible at 200 feet.
- Not equipped with lamp or headlamps.

REAR LAMP, SIDECAR LAMP AND TURN SIGNALS

Chapter 17-C, Article 15, Section 5, Motor Vehicle Law.

Inspect For and Reject If:

- Lamps are not of approved type. (White light to illuminate license plate.)
- Bulbs blackened or discolored.
- Lens cracked or broken, or not proper color.
- Lamp not properly mounted to prevent vibration or does not make a good electrical ground.
- Filaments in all lamps do not burn when headlamp switch is turned on to any position or if rear lamps are not visible at 500 feet.
- The rear license plate is not properly illuminated.
- Not equipped with proper lighting equipment Motorcycles manufactured after January 1, 1973 for sale in the United States are required to have turn signals.

PROHIBITED LIGHTING EQUIPMENT

Chapter 17-C, Article 15, Section 26, Motor Vehicle Law.

- Any lamp showing red to the front, except police vehicles.
- Any auxiliary lamp except approved type.
- Any flashing lighted advertising sign.

HANDLEBARS

Chapter 17-C, Article 15 Section 44c Motor Vehicle Law.

Inspect and reject if the handlebars or handles of the motorcycle are more than fifteen inches higher than the uppermost part of the operator's seat when the seat is not depressed in any manner.

MIRROR

Chapter 17-C, Article 15, Section 35, Motor Vehicle Law.

Inspect For and Reject If:

. Reflector tarnished or peeling.

. Not mounted securely.

. Operator does not have a view of the road 200 feet to the rear.

. Not equipped with a mirror.

ODOMETER

- Inspect for presence of the odometer and reject if not present.
-

If the odometer is broken reject vehicle unless odometer is repaired.

- Not required for vehicles 10 years old or older.

HORN

Chapter 17-C, Article 15, Section 33, Motor Vehicle Law.

Inspect For and Reject If:

. No approved type.

. Siren or exhaust whistles on any motorcycle or motor-driven cycle not a police or fire department vehicle.

. Not mounted securely, or if wiring is not good, or if control button is not operating properly.

. Sound not audible for 200 feet.

TAG MOUNTING

Chapter 17-C, Article 3, Section 15, Motor Vehicle Law.

Inspect For and Reject If:

- Not securely fastened in a horizontal position to the vehicle for which issued.
- Not properly illuminated as required by law.
- Tags are not placed so as to be clearly visible from rear.

Vertical tags are permitted if the tag is designed to be vertically mounted, reading from top to bottom.

MUFFLER AND EXHAUST SYSTEM

Chapter 17-C, Article 15, Section 34, Motor Vehicle Law.

Inspect For and Reject If:

- Has no exhaust line and muffler. Tail pipe if system is designed for same.
- Vehicle a straight exhaust, gutted or altered muffler.

  Vehicle has a muffler cut out.
- There is excessive vibration of exhaust line.
- Leakage of gasses is noted at:

  A. Manifold gaskets

  B. Manifold and exhaust gasket

  C. Muffler and muffler connections

  D. Any point in exhaust line
- Tail pipe opening is mashed or pinched.
- Tail pipe discharge is not directly parallel with the ground or upward has a straight exhaust, gutted or altered muffler.

- Vehicle has a muffler cut out.
- There is excessive vibration of exhaust line.
- Leakage of gasses is noted at:

  A. Manifold gaskets

  B. Manifold and exhaust gasket

  C. Muffler and muffler connections

  D. Any point in exhaust line
- Tail pipe opening is mashed or pinched.
- Tail pipe discharge is not directly parallel with the ground or upward.

WHEELS AND TIRES

Inspect For and Reject If:

- Any tire worn to the point where little or no tread design remains or where any part of the ply or cord construction is exposed.
- Any tire which has any bump, bulge or knot.
- Temporarily repaired tire by the use of blowout patches and boots.
- Tire with tread cuts or snags in excess of one inch in any direction that is deep enough to damage the body cords.
- Any deflated tire or any having an audible leak.
- Any tire of a smaller size designation than those recommended by the manufacturer as standard or optional equipment.
- If the wheel is bent, loose, cracked or has a defective rim or wheel flanges so as to effect the safe operation of the vehicle.
- Wheels having defective spokes, bolts, nuts, or lugs.

TRAILERS

EXTERIOR PARTS & SHEET METAL

Body exterior components and sheet metal parts if damaged and/or dislocated so that they protrude from the vehicle to present a safety hazard to occupants, pedestrians and other vehicles, may be cause for rejection of the vehicle.

Protruding Metal

Procedure: Inspect for torn metal parts, moldings, etc., which may protrude from vehicle.

Reject Vehicle If:

- Torn metal, glass, or other loose or dislocated parts protrude from the surface of the vehicle causing a safety hazard to pedestrians or cyclists.

Bumpers

Procedure: Inspect bumpers for hazardous condition or unsafe mounting.

Reject Vehicle If:

- The bumper is missing, badly displaced, loosely attached, or a broken or torn portion is protruding, creating a hazard.

Doors

Procedure: Inspect door latches, locks, hinges and handles for proper operation, fastening, adjustment, broken or missing components. (Operate all doors and locks.)

Reject Vehicle If:

- Doors or door parts are missing, broken, or sagging so that the door cannot be tightly closed.

Floor Pan and Inner Panels

Procedure: Inspect floor pan and inner panels in cargo areas and rusted-out areas that would create a hazard.

Reject Vehicle If:

- Floor pan or inner panels have rusted areas or openings sufficient to cause a hazard to an occupant, or so that exhaust gases can enter either the occupant compartment or cargo areas open to the occupant compartment.

TAG MOUNTING

Chapter 17-C, Article 3, Section 15, Motor Vehicle Law.

Inspect For and Reject If:

- Not securely fastened in a horizontal position to the vehicle for which issued.
- Not properly illuminated as required by law.
- Tags are not placed so as to be clearly visible from the rear.

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SPRINGS, SHOCK ABSORBERS, AIR SUSPENSION & CHASSIS

Visually Inspect Springs

Equipment: Hoist or hydraulic jack, safety stand and trouble light.

Procedure: Visually inspect for broken leaf springs or coil springs damage. Inspect spring shackles, bushings, "U" bolts, spring center bolts, and remaining suspension members.

Reject Vehicle If:

- Springs or other suspension members are broken of shifted.
- Shackles or "U" bolts worn or loose or spring center bolt is broken or sheared.

Inspect Shock Absorbers

Equipment: Hoist or hydraulic jack and safety stand, scale, trouble light.

Procedure: With vehicle on a hoist or jacked up, visually inspect shock absorbers for excessive leakage, looseness of mounting brackets and bolts.

Reject Vehicle If:

- Severe leakage (not slight dampness) is evident.
- Mounting bolts or mounts are loose or broken.
- Rubber bushings are destroyed, damaged, deteriorated or missing.

Visually Inspect Chassis

Procedure: Visually examine the chassis frame member.

Reject Vehicle If:

- There are cracks, or loose or missing connecting fasteners that may degrade the safety of the trailer or compromise its handling characteristics.

Fifth Wheel and Other Towing Devices

Procedure: Visually inspect integrity, landing gear and components.

Reject Vehicle If:

- There are either cracked, broken, loose mountings or cracked, broken, missing connecting fasteners that may degrade either safe operation of the vehicle or its handling characteristics.
- Landing gear and components are not functional.
- Hand crank for landing gear does not have serviceable bracket.

Air Suspension

Procedure:

- With the entire system drained of air following the manufacturer's recommended procedures, start the engine and observe the air pressure at which air begins to flow into the suspension system and lift the vehicle.
- With the system fully charged, inspect for any audible leakage at the bellows, connections, or hoses.

Reject Vehicle If:

- Air begins to flow into the suspension system below 55 psi.
- There is any audible leakage in the air suspension system.
- Refer to visually inspect springs, torsion bars and torque bars.

CAUTION: Inspector should not use a creeper or otherwise lie underneath vehicle because there may not be enough room when air is drained from the bellows. Vehicle should be properly jacked or positioned over a pit.

ELECTRICAL SYSTEM

To save time, the inspector should develop his/her own plan or sequence for checking miscellaneous electrical items, many of which can be inspected while looking at other items. This comes with practice. It should be noted that many trailers have electric brakes.

Electrical Wiring

Procedure: Check to make sure all wiring is not chafed, bare or contacting sharp objects.

Reject Vehicle If:

- Wiring insulation is worn, rubbed bare, or shows any evidence of burning or short circuiting.

Electrical Connections

Procedure: All connectors should be tight and secure.

Reject Vehicle If Connections:

- Show signs of excessive corrosion.
- Used for trailer towing is not made through properly indexed and oriented matched connectors, or if permanent connection, wires are not soldered and taped.

PARKING LAMPS

Chapter 17-C, Article 15, Section 15, Motor Vehicle Law

Inspect For and Reject If:

- Not proper color.
- Proper illumination as required by law.
- Any vehicle equipped with inoperative parking lamps.

CLEARANCE LAMPS AND REFLECTORS

Chapter 17-C, Article 15, Section 12, Motor Vehicle Law.

Clearance lamps and reflectors and side marker lamps may be used in combination.

Inspect For and Reject If:

- Lamps or reflectors not approved type.
- Lens and reflectors not proper condition or color.
- Wiring is defective or poor electrical connections.
- All filaments do not burn or lamps are not visible for a distance of 500 feet.
- Lamps and reflectors not mounted according to law.
- Any vehicle not equipped with clearance lamps or reflectors as required by law. (Refer to light chart.)

PROHIBITED LIGHTING EQUIPMENT

Chapter 17-C, Article 15, Section, Motor Vehicle Law.

Reject any vehicle if equipped with:

- A lamp showing red or blue to the front, except authorized emergency vehicles.

- Any lamp mounted in such a way to illuminate the ground or roadway from beneath the vehicle.
- An amber lens in a headlamp or spot lamp.
- An unapproved lighting device.
- Any lighted flashing advertising sign.
- Any flashing stop signal.
- Any flashing or running lights surrounding the license plate.

PERMISSIBLE ADDITIONAL LIGHTING EQUIPMENT

Chapter 17-C, Article 15, Section 19, Motor Vehicle Law.

Any vehicle may be equipped with:

- Not more than two side cowl fender lamps (which shall emit an amber or white light without glare.)
- Not more than one running board courtesy lamp, one each side (which shall emit an amber or white light without glare.)
- Not more than two back-up lamps (either separately or in combination with other lamps, shall not be lighted when vehicle is in forward motion.)
- Any additional permissible lighting equipment must be in operating condition or removed.

ORNAMENTAL LIGHTS

- Electrically illuminated ornamental lights are not permitted on the front, rear, or underneath of a vehicle.

- All unauthorized lights must be removed before vehicle can be passed for inspection.

OBSTRUCTION OF LIGHTING DEVICES

- Screens, bars or any device placed in front of, or over, any lighting device is **strictly** prohibited. It is not the intent of this regulation for these types of ornamental devices to be removed only during the inspection process but that taillights may not be covered or obstructed at any time.

SIGNAL DEVICE

(Intention to Stop or Turn)

Chapter 17-C, Article 15, Section 18, Motor Vehicle Law.

Inspect For and Reject If:

- Not approved type.
- Bulbs discolored. Projects a glaring or dazzling light.
- Lens cracked or broken.
- Defective wiring or poor electrical connection.
- Not functioning properly.
- Not mounted according to law.
- Turn signals do not properly indicate right and left when so switched.

REAR LAMPS AND REAR LAMP COMBINATIONS

Chapter 17-C, Article 15, Section 5, Motor Vehicle Law.

Inspect For and Reject If:

- Lamps are not of approved type.
- Bulbs are blackened or discolored.
- Lenses are not red (except registration light, back-up light "white" and stop light which may be red or yellow.)
- Lamps are not mounted according to law.
- Filament in all rear lamps does not burn when headlamp switch is turned on to any position or if lamps do not provide a red indication visible 500 feet to the rear (back-up lights excepted.)
- Rear license plate is not illuminated as to be legible at a distance of fifty feet.

- Any darkened tail lamp/brake lamp cover that would inhibit the illumination of those lamps of 500 feet to the rear.
- Any flashing running lamps that surround the license plate.
- Auxiliary equipment is placed on, in, or in front of any lamp.

Reject any vehicle that is not equipped with rear lamp or rear lamp combination of an Approved type.

LIGHTING, GENERAL

Prior to a general lighting inspection, six preparatory steps should be taken, the first four of which should be the responsibility of the driver. If these are not accomplished to a reasonable degree, the inspector should refuse the vehicle until the preparation is satisfactory.

Prior to Preparation:

- Remove excessive ice and/or mud from under the trailer.
- Inflate tires to specified pressures.
- See that the vehicle contains no load.
- Be sure the lenses are clean; check for burned out bulbs.
- Check suspension. See that the vehicle does not lean to one side or the other. Rock the vehicle sideways to free and equalize suspension.

Advise Driver: That the operator of the vehicle should be responsible for the first four items.

Check Lamp Function Visually

Procedure: Turn on night driving lights and check the following:

- Actuate turn signal lever right and left and observe function of turn signal lights.
- Actuate the following and observe.

  Hazard warning lamps
  Stop lamps
  Tail lamps
  Parking lamps
  Side marker lamps
  Reflex reflectors
  Clearance lamps
  Identification lamps
  Emergency warning lamps
  License plate lamp(s)
  All others

Reject Vehicle If:

- Any required lamp is missing.
- Any bulb fails to light.
- Turn signals do not properly indicate right and left when so switched.
- Lamp shows color contrary to law.
- Lamp fails to light the proper filament indicated at switch position.
- Any lamp or reflector does not direct light properly.
- Auxiliary equipment is placed on, in, or in front of any lamp.
- Lamp assembly improperly fastened.
- Lamp has a cracked, broken, or missing lens or visible moisture on interior.

BRAKE SYSTEMS

As per West Virginia Code 17C-15-31(3) every trailer with a GVWR of 3000 pounds or more shall be equipped with brakes adequate to control the movement of and to stop and hold such vehicle.

Air Pressure Leakage

Equipment: Clock or watch calibrated in seconds.

Procedure:

- With the air system fully charged and trailer lines connected, stop the engine and with brakes released, observe the pressure drop in one minute.

- After determining the pressure loss with the brakes released, make a full brake application and observe the pressure drop for one minute while the brakes are fully applied (engine off).

Reject Vehicle If:

- The trailer is not equipped with a device that automatically applied the brakes in the event of an accidental breakaway. (Breakaway switch)

- Leakage rate with brakes released in one to five minutes exceeds: *

  - 3 psi minute for combination vehicles (additional 2 psi/minute drop allowed for each additional towed vehicle).

- Leakage rate with full brake application in 1 to 5 minutes exceeds: *

  - 4 psi/minute for combination vehicles (additional 2 psi/minute drop allowed for each additional towed vehicle).

***NOTE:** It will be necessary to record the pressure over a time interval corresponding to the test gauge increments for accuracy.

Air Brake Adjustment

Equipment: Steel scale and feeler gauge or equivalent.

Procedure:

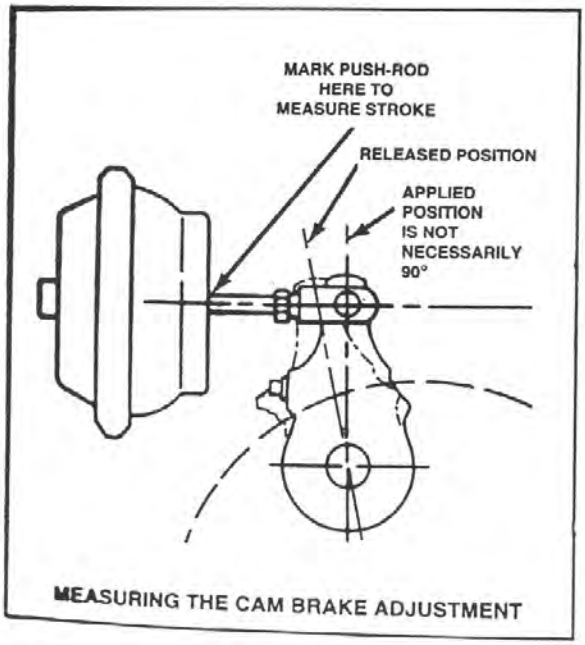
- On vehicles equipped with Cam brakes, mark each brake chamber push rod at the face of the brake chamber with the brakes released. Apply the air brakes fully, minimum air pressure of 85 psi, and measure the distance the push rod travels from the face of the chamber to the mark previously made when the brakes were released. This measurement is the push-rod stroke (See Table).

- On vehicles equipped with wedge brakes, remove the inspection hole cover at each dust

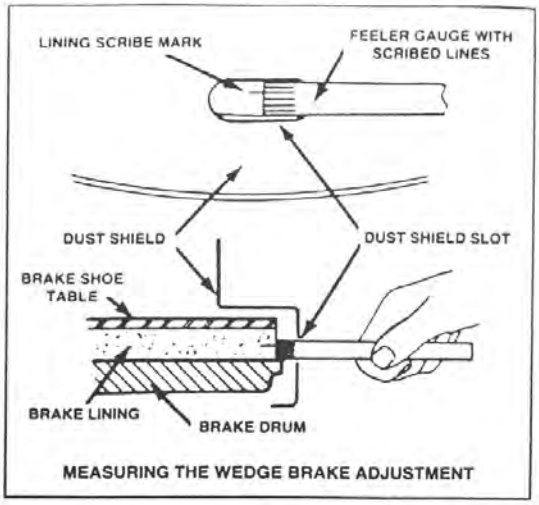
shield and with the brakes released, scribe a line on the edge of the brake lining. Apply the air brakes fully and measure the distance the brake lining travels.

Reject Vehicle If:

- For Cam brakes, the push-rod travel exceeds the maximum stroke listed in Table.
- For wedge brakes, there is more than 1/16" brake shoe travel.



MEASURING THE CAM BRAKE ADJUSTMENT



MEASURING THE WEDGE BRAKE ADJUSTMENT

(Dimensions in Inches)

Type	Effective Area (Sq. In.)	Outside Diameter* Inches	Maximum Stroke Inches**
BOLT TYPE BRAKE CHAMBER DATA			
A	12	6 15/16	1 3/8
B	24	9 3/16	1 3/4
C	16	8 1/16	1 3/4
D	6	5 1/4	1 1/4
E	9	6 3/16	1 3/8
F	36	11	2 1/4
G	30	9 7/8	2
ROTOCHAMBER DATA			
9	9	4 9/32	1 1/2
12	12	4 13/16	1 1/2
16	16	5 13/32	2
20	20	5 15/16	2
24	24	6 13/32	2
30	30	7 1/16	2 1/4
36	36	7 5/8	2 3/4
50	50	8 7/8	3
CLAMP TYPE BRAKE CHAMBER DATA			
6	6	4 1/2	1 1/4
9	9	5 1/4	1 3/8
12	12	5 11/16	1 3/8
16	16	6 3/8	1 3/4
20	20	6 25/32	1 3/4
24	24	7 7/32	1 3/4(1)
30	30	8 3/32	2
36	36	9	2 1/4
BENDIX WESTINGHOUSE			
DD2			2
DD3			2

* Dimensions listed do not include capscrew head projections for rotochambers and bolt clamp projections for clamp type brake chambers.

** The same limits that apply to manual adjustors apply to automatic adjustors.

(1) 2" for long stroke design

CAM BRAKES – PUSH-ROD TRAVEL LIMITS

Brake Parts

Procedure:

- Inspect the air tank(s) mounting.
- Inspect all flexible brake hoses for cracks, cuts, burns, chafing, brittleness, improper splices or swelling.
- Inspect all brake lines for cracks, breaks, crimps, flattened or restricted sections, chafing, or improper retention.
- With the brakes applied, inspect for any audible leakage at the air tanks(s), valves, trailer connecting hoses, fittings, and chambers.

Reject Vehicle If:

- Air tank(s) mounting device such as straps, brackets, or other hardware is broken, missing, or loose.
- Flexible brake hoses are cracked, cut, burned, chafed, swollen in size, or hardened so that they crack or break when bent.
- Rigid brake lines are cracked, broken, crimped, flattened or restricted, chafed, or improperly retained.
- There is any audible leakage in the air brake system.
- Two hoses are improperly jointed (e.g. a splice made by sliding the hose ends over a piece of tubing and clamping the hose to the tube).
- Reservoir drain cocks are inoperative.
- Brake chambers are not rigidly mounted.

DRUMS

Maximum allowable drum diameters and minimum allowable disc thicknesses are cast into some drums and discs.

Brake Drums

Procedure:

- Check friction surface for cracks extending to open edge of drum.
- Inspect for mechanical damage and contaminated friction surface.

Reject Vehicle If:

- Drum has cracks on friction surface extending to the open edge or on outside of drum particularly at the drum mounting area.
- There is evidence of mechanical damage other than wear, or if the friction surface is contaminated with grease or oil.
- The mounting holes are elongated.

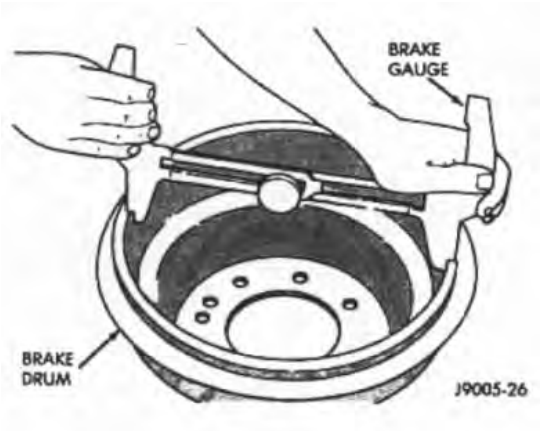
Advise Driver: If "Hard Spots" appear on drums that can cause chatter from uneven friction. Should be repaired or replaced.

Measure inside Diameter of Brake Drum

Equipment: Drum measuring gauge.

Reject Vehicle If:

- Diameter is greater than maximum diameter stamped on the drum. For unmarked drums, maximum diameter is .090" (2.3mm) greater than original drum diameter for 14.13" (358.9mm) and smaller drums. For larger drums, the maximum diameter cannot be greater than .120" (3.0mm) over the original diameter.



LINING & LINKAGE

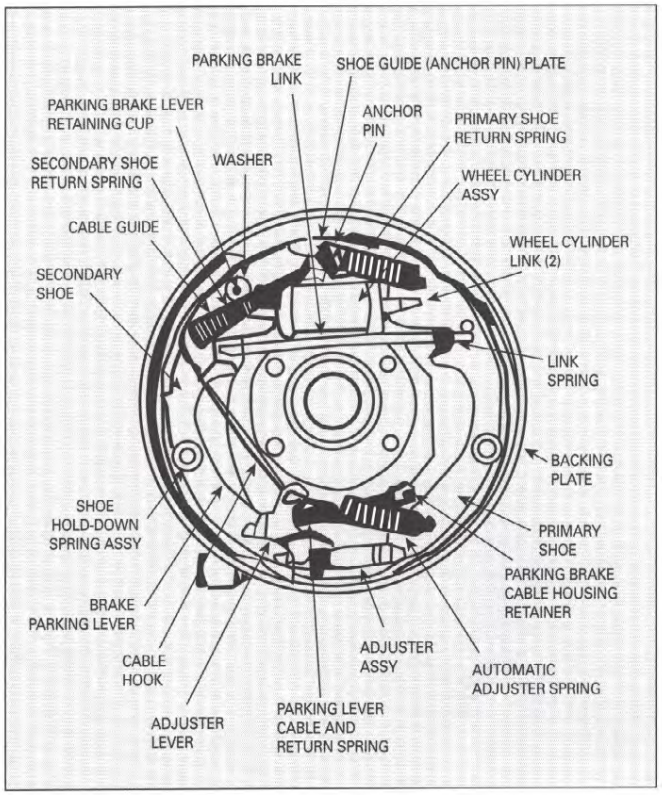
Condition of Mechanical Components

Procedure

- Inspect for "frozen", rusted or inoperative adjuster screw or connections, missing spring clips and defective grease retainers. Look for restricted shoe movement at backing plate and for bind between shoes and anchor pins.
- Inspect for wear along shoe support rest or guides.

Reject Vehicle If:

- Mechanical parts are missing, broken, binding, or badly worn.
- There is excessive friction in linkage or components, or improperly positioned.



Typical Servo Drum Brake

Brake Lining

Equipment: Measuring device, steel scale or gauge.

Reject Vehicle If:

Axle Brakes

An air braked commercial motor vehicle shall not be operated with brake lining/thickness less than 6.4mm(1/4 inch) or to the wear indicator if the lining is so mark (measured at the shoe center for drum brakes) or less than 3.2 mm (1/8 Inch) for disc brakes. Hydraulic or electric braked commercial motor vehicles shall not be operated with a lining/pad less than 2mm for disc or drum brakes.

Riveted linings are less than 2 mm about rivet head at thinnest point.

Bolted linings are less than 5/16in (.8mm) total thickness at center of shoe.

Wire in wire-tacked linings is visible on friction surface.

Condition of Linings

Procedure: Visual inspection.

Reject Vehicle If:

- Lining is broken, not firmly attached to shoe or plate, contaminated with oil or grease.
- Wear is extremely uneven.
- Lining has cracks or breaks that extend from edge through rivet or bolt holes that are deeper than half of lining thickness. (Ignore minor cracks that do not impair attachment.)

It is suggested that:

- For best performance, all tires should be either "conventional" or "radial" and not mixed.
- Radial ply tires should not be used on the same axle with a conventional (bias or belted bias) tire not mixed on tandem drive positions even though mounted on different axles.
- Tires significantly different size or type, such as one snow tire and one regular tire, should not be used on the same axle.
- Tires must be covered by a fender or mudflap.

Measure Tire Pressure

Equipment: Pressure gauge.

Advise Driver If:

- Inflation pressures are significantly above or below those recommended for tire size and load range or on duals where the inflation pressure is not within 10 psi of each other. Correct pressure immediately. **DO NOT REJECT VEHICLE.**

Inspect for Tire Damage

Reject Vehicle If:

- Tire has tread cuts, snags or sidewall cracks in excess of one inch (25mm) in any direction and deep enough to expose cords. If tire has visible bumps, bulges or knots indicating partial failure or separation of tire structure.

Inspect for Cord Exposure

Reject Vehicle If:

- Tire is worn so that cord is exposed through the tread.

Inspect for Regrooved or Recut Tires

Reject Vehicle If:

- A tire has been regrooved or recut below original groove depth, except special tires that have undertread rubber for this purpose and are identified as such. No regrooved tires should be allowed on front wheels.

Tubes & Flaps

Reject Vehicle If:

- Radial tube type tires do not have radial tubes. (Either bias or radial tubes and flaps may be used in bias tires.)
- In mounted tires, radial tubes can be identified by red paint or a red ring on the valve stem, or by the word "RADIAL" on the valve stem.

Inspect Tire Cord

Reject Vehicle If:

- Tire is worn or regrooved so that cord is exposed.
- Sidewall has damaged or exposed body cords.
- Tire has unrepaired fabric break or has been repaired with a blowout patch or has a visible bulge.
- Improper or temporary repair.
- When damage is done to radial tire cords and a section repair is made to reinforce the damaged sidewall or shoulder. The contour change must not project more than 3/8 inch (10mm) above the surrounding sidewall area.

Inspect for Tire Wear

Equipment: Tread depth gauge or scale.

. **With Tread Wear Indicator**

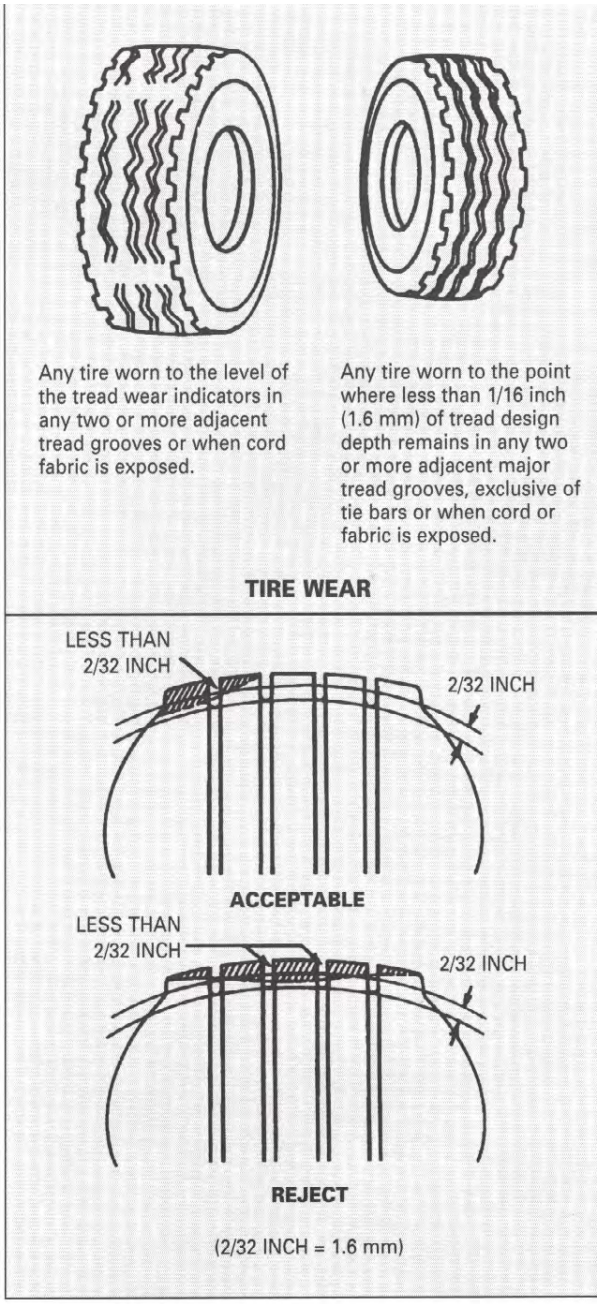
Reject Vehicle If:

. Tire is worn so that the tread wear indicators contact the road in any two adjacent grooves at three locations spaced approximately equally around the outside of the tire. (See Note).

. **Without Tread Wear Indicators**

Reject Vehicle If:

. The tire is worn so that less than 2/32 inch (1.6mm) tread remains when measured in any two adjacent major grooves at three locations spaced approximately equally around the outside of the tire. (See Note).

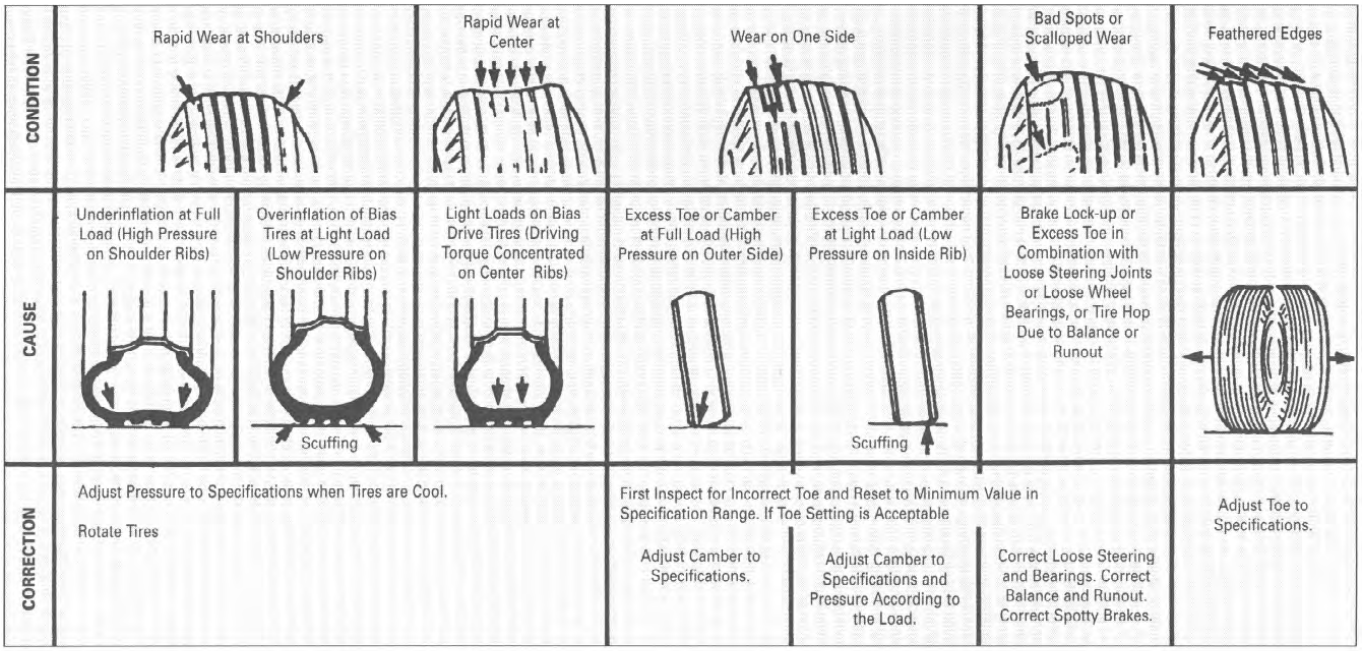


Tire Tread Depth

Inspect For Restricted Usage Markings On Tires. (Reclassified Tires)

Reject Vehicle If:

- Tire is marked "For farm use only", "Off highway use only", or "For racing only", etc., or if the tire size is followed by the letters "NHS" or "SL".



Tire Wear Patterns

Inspect Valve Stem

Reject Vehicle If:

- Valve stem has cracks or is chafed from contact with the spider or rim.
- Valve contacts the brake drum.
- Valve stem is inaccessible for taking pressure readings.

Inspect Wheels, Rims & Spiders

Reject Vehicle If:

- Wheel bolts, nuts, studs, or lugs are broken, missing, damaged, or loose.
- Stud, bolt or lug is recessed in the nut without any nut threads showing beyond the end of the stud, bolt or lug when wheel nuts are used to retain wheel rim.
- Lock ring is mismatched with rim, cracked, bent, sprung, or otherwise damaged.
- Wheel, rim, or spider is cracked, bent, has elongated bolt holes, shows signs of in-service rewelding, or otherwise damaged.
- Rim shows evidence of slippage on spider.

Inspect for Tire Size or Mismatching

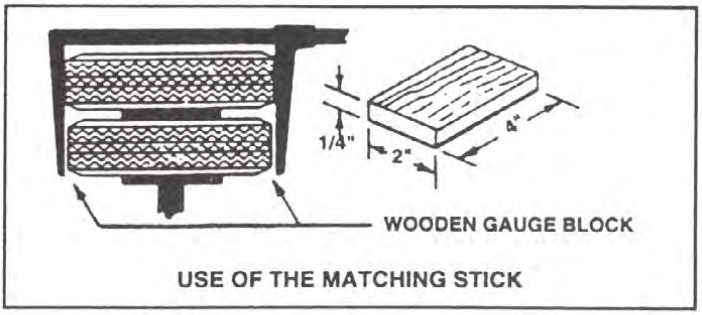
Equipment: Caliper or dual "matching stick" and 1/4 inch (6.3mm) and 1/8 inch (3.1mm) gauge blocks.

Procedure:

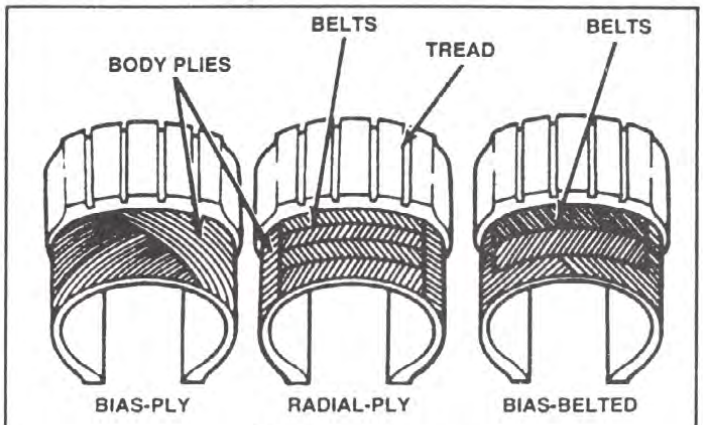
- Inspect the size and type of construction (bias, bias-belted, radial) on each axle.
- Inspect for retreaded, recapped or regrooved tires on the steering axles.
- For Dual tires, measure the difference between the outside diameters of each tire.

Reject Vehicle If:

- Tires are not the same size or type construction on any given axle.
- Diameter of one of the duals is not within 1/4 inch (6.3mm) of the other on 8.25-20 and smaller or 1/2 inch (12.7mm) on 9.00-20 and larger.



USE OF THE MATCHING STICK



TIRE CONSTRUCTION

WHEEL TRACKING

Wheel Tracking

Procedure: Observe whether trailer wheels follow powered wheel tracks in "straight ahead" travel.

Alternate Method: Using a tape measure, determine the distance between the centerline of the front wheel spindle and the centerline of the rear axle drive shaft and compare from side to side. ***** (Front wheels must be in a straight-ahead position).

Reject Vehicle If:

- Rear wheel does not follow the powered wheel track in "straight ahead" travel.
- The wheelbase on one side is different from the wheelbase on the other side by more than one inch. *****
- Rear axle is obviously misaligned.

NOTE: Do not reject if vehicle is designed with different tread widths - front and rear.

***** Not applicable if vehicle specifications indicate different left and right wheelbase dimensions as designed.

SECTION IV
TRUCK/BUS/SCHOOL BUS

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IMPORTANT SCHOOL BUS INFORMATION

The inspection of school buses should include all applicable sections of the heavy truck and bus inspection **plus** certain special items that may apply only to a school bus. An inspection program for any vehicle attempts to delineate the items to be inspected, and to set minimal conditions for each, beyond which the vehicle is considered unserviceable and should not be operated. When inspecting school buses, however, those responsible may desire to include items which would be impractical when commercial or private vehicles are considered; and at the same time to raise the threshold of acceptance for minimal conditions in consideration of the very nature of school bus cargo.

In view of this, AAMA suggests that the following special items be included in the inspection of school buses:

- Review of the preventive maintenance program.
- Special check of condition of the exhaust system.
- Increased emphasis on wheel removal for the inspection of wheel and interior brake components.
- Special check of emergency doors and windows.
- Special markings, light, reflectors and signals.
- Special safety items and kits carried in the school bus.

Practicality

A thorough brake inspection would probably include looking at the inside of the brake assembly, which is relatively easy when checking passenger vehicles. The removal of wheel hubs and drums from large commercial vehicles, however, is another matter and usually is impractical at an inspection station. A sensible approach would, therefore, probably not include the removal of a hub and drum from the axle unless strong evidence was present indicating an unsafe condition inside the brake. A thorough check of hydraulic, vacuum, or air systems can normally give him a fair idea of the general condition of the braking system, especially when augmented by a practical performance demonstration. Wheel removal from large vehicles are not only difficult because of size and weight problems, but is further complicated by the lack of assurance that they can be properly returned to the axle. The "pulling" of wheels for brake inspection on heavy vehicles is, therefore, **not** recommended except when considered mandatory and they only by a highly qualified mechanic.

REGISTRATION, MAINTENANCE AND RECORDS

Agreement among Papers

Inspect for agreement among vehicle registration certificate, vehicle identification number (VIN), license plates, etc. Verify insurance coverage where applicable.

Advise Driver: If any disagreements are obviously accidental or clerical in nature.

Reject Vehicle: If VIN, certificate and license plate numbers do not agree.

Advise Driver: To return with correct items.

Plate Mounting

Inspect license plates to see that they are securely mounted and are clean and clearly visible.

Reject Vehicle If:

- Plates are hanging loosely from their mounting brackets or are obscured so that numbers cannot be identified.

HYDRAULIC SYSTEM

Wheel Cylinder - Drum Brakes

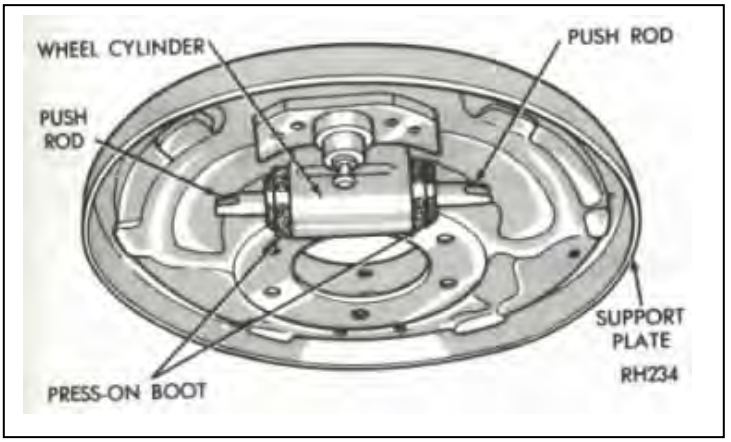
Procedure:

. When drum is removed, check the cylinder for leakage, damaged or loose parts, missing parts, and retention and dust boot condition.

Reject Vehicle If:

. Fluid is leaking from the cylinder, or if parts are damaged, loose or missing, or improper retention or dust boot is cracked.

NOTE: DO NOT PRY UNDER, OR OTHERWISE DISTURB DUST BOOT. This will destroy a very important seal that may soon result in wheel cylinder damage. If there is leakage at the wheel cylinder, it will find its way around the dust boot.

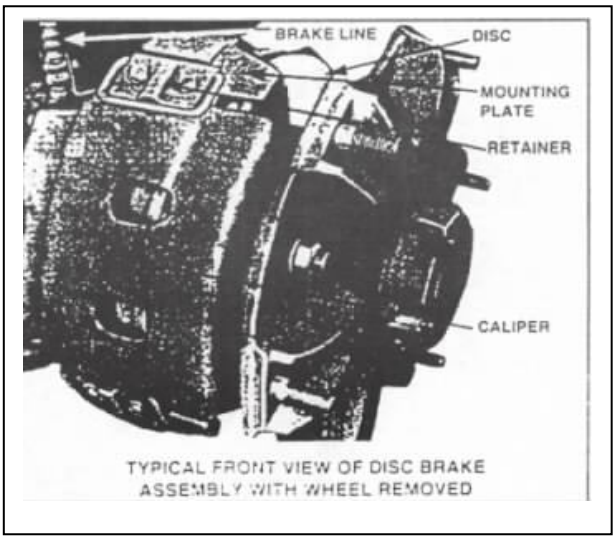


Caliper - Disc Brake

Procedure: Check the caliper assembly for leakage, missing parts, excessive wear along caliper support surfaces, and retention.

Reject Vehicle If:

. Fluid is leaking from caliper assembly, parts are damaged or improperly retained.



TYPICAL FRONT VIEW OF DISC BRAKE ASSEMBLY WITH WHEEL REMOVED

Dual Circuit Brake Warning Light

Procedure: If original equipment, inspect as follows:

- Apply the parking brake.
- Start the engine. The warning light should illuminate in the "on" or "start" position. **See Reject Vehicle (A).**
- Release the handbrake. The warning light should no longer be illuminated. **See Reject Vehicle (B).**

Reject Vehicle If:

- (a) The brake system failure indicator light or warning light does not illuminate with ignition switch in "on" or "start" position prior to starting engine.
- (b) The brake system failure indicator light or warning light remains illuminated after the engine is started and the parking brake released.

NOTE: Some imported vehicles use a press-to-test indicator as a brake warning light. The procedure for testing this brake warning light is to press the light itself, which serves a button. If the warning light is functioning normally, it will illuminate upon being pressed.

Height Sensing Brake Proportioning Valve (HSBPV), If so Equipped

The HSBPV is used on some pickup trucks to provide optimum brake balance and efficiency. Vehicle braking force is distributed to the front and rear wheels as defined by light or heavy payload conditions. Mounted on the frame, the HSBPV responds to changes in vehicle trim height as related to rear axle load.

Procedure: Visual.

Reject Vehicle If:

- Link to axle is disconnected, broken, etc.

CAUTION:

Adding any suspension accessories or other equipment (such as load leveling kits, air shocks, suspension kits, additional spring leafs, etc.) or making any modification that will change the distance between the axle and the frame without changing the load, will provide a false reading to the HSBPV. Such false reading could result in unsatisfactory brake performance.

AIR BRAKE SYSTEM

Air Pressure Governor

Procedure: With the trailer(s) lines uncoupled (if applicable) and tires chocked, fully charge the system to its maximum capacity, observe the gauge pressure, and determine if the governor has "cut-out". With the engine running, make a series of brake applications and observe the gauge pressure when the governor "cuts-in".

Reject Vehicle If:

- Governor does not "cut-out" pressure released at pressure relief valve).
- Governor "cut-out" pressure is higher than 135 psi.
- Governor "cut-in" pressure is lower than 80 psi.

Air Pressure Buildup Time

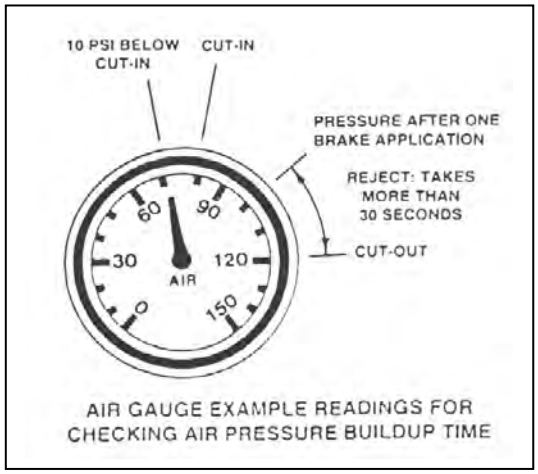
Equipment: Clock or watch calibrated in seconds.

Procedure:

- With the trailer(s) uncoupled (if applicable) and tires chocked, fully charge the system to governor cut-out pressure. Make one full brake application and note air pressure reading on gauge. Continue to reduce the air pressure by moderate brake applications to at least 10 psi below the governor cut-in pressure. Release the brake and run the engine at the manufacturer's maximum recommended rpm and determine the time required to increase the air pressure from the level achieved after one brake application to the governor cut-out pressure.

Reject Vehicle If:

- The time required to buildup pressure from the level after one brake application to governor cut-out pressure is more than 30 seconds.



AIR GAUGE EXAMPLE READINGS FOR CHECKING AIR PRESSURE BUILDUP TIME

Air Pressure Warning Devices

Procedure:

- With the air system fully charged, reduce the air pressure by moderate brake application or by opening the drain cocks on the system. Observe the pressure at which the visual or audible warning device comes on.

Reject Vehicle If:

- Vehicle air pressure gauge or gauges do not function properly.
- Air pressure warning device or devices do not activate before pressure is lowered to 60 psi.
- Air pressure warning device or devices do not continuously operate below activation pressure.

Air Pressure Leakage

Equipment: Clock or watch calibrated in seconds.

Procedure:

- With the air system fully charged and trailer lines connected (if applicable), stop the engine and with the brakes released, observe the pressure drop in one minute.
- After determining the pressure loss with the brakes released, make a full brake application and observe the pressure drop for one minute while the brakes are fully applied (engine off).

Reject Vehicle If:

- Leakage rate with brakes released in one to five minutes exceeds: *****

  -2 psi/minute for single vehicles
  -3 psi/minute for combination vehicles (additional 2 psi/minute drop allowed for each additional towed vehicle).

- Leakage rate with full brake application in 1 to 5 minutes exceeds: *****

  -3 psi/minute for single vehicles
  -4 psi/minute for combination vehicles (additional 2 psi/minute drop allowed for each additional towed vehicle).

***NOTE:** It will be necessary to record the pressure over a time interval corresponding to the test gauge increments for accuracy.

Air Pressure Reserve

Procedure:

- With the air system fully charged and trailer lines connected (if applicable), stop the engine and note the air pressure. Make one full brake application and observe the pressure drop.

Reject Vehicle If:

- Pressure drop is more than 20%.

Air Brake Adjustment

Equipment: Steel scale and feeler gauge or equivalent.

Procedure:

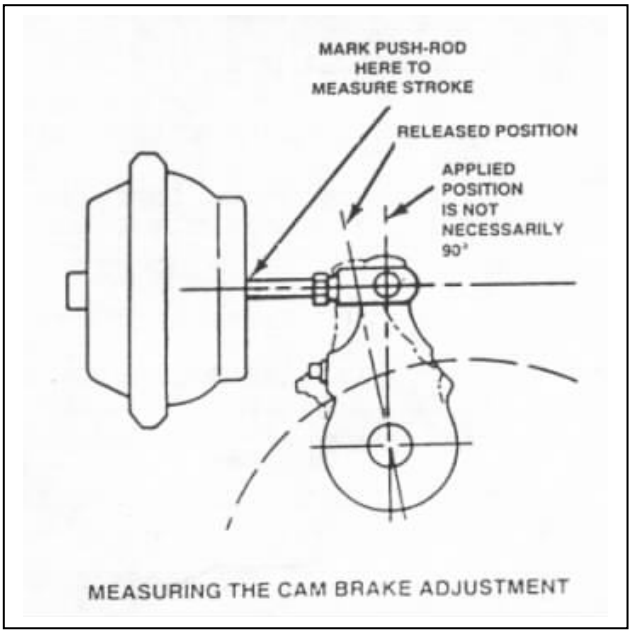
- On vehicles equipped with Cam brakes, mark each brake chamber push rod at the face of the brake chamber with the brakes released. Apply the air brakes fully, minimum air pressure of 85 psi, and measure the distance the push rod travels from the face of the chamber to the mark previously made when the brakes were released. This measurement is the push-rod stroke (see table next page).

- On vehicles equipped with wedge brakes, remove the inspection hole cover at each dust shield and with the brakes released, scribe a line on the edge of the brake lining. Apply the air brakes fully and measure the distance the brake lining travels (see figures next page).

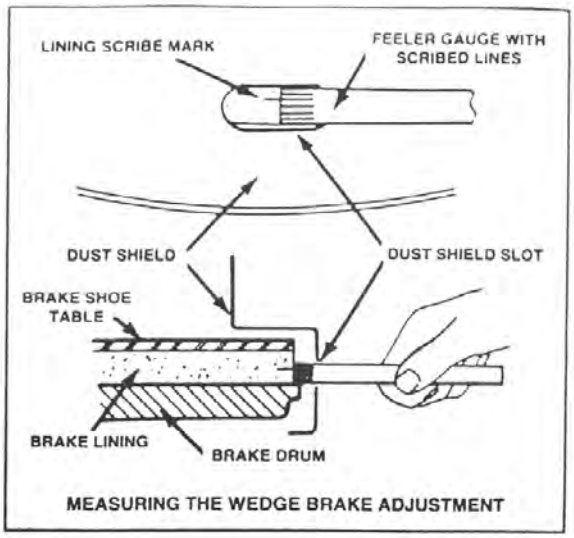
Reject Vehicle If:

- For Cam brakes, the push-rod travel exceeds the maximum stroke listed in Table (next page).

- For wedge brakes, there is more than 1/16" brake shoe travel.



MEASURING THE CAM BRAKE ADJUSTMENT



MEASURING THE WEDGE BRAKE ADJUSTMENT

(Dimensions in Inches)

Type	Effective Area (Sq. In.)	Outside Diameter* Inches	Maximum Stroke Inches**
BOLT TYPE BRAKE CHAMBER DATA			
A	12	6 15/16	1 3/8
B	24	9 3/16	1 3/4
C	16	8 1/16	1 3/4
D	6	5 1/4	1 1/4
E	9	6 3/16	1 3/8
F	36	11	2 1/4
G	30	9 7/8	2
ROTOCHAMBER DATA			
9	9	4 9/32	1 1/2
12	12	4 13/16	1 1/2
16	16	5 13/32	2
20	20	5 15/16	2
24	24	6 13/32	2
30	30	7 1/16	2 1/4
36	36	7 5/8	2 3/4
50	50	8 7/8	3
CLAMP TYPE BRAKE CHAMBER DATA			
6	6	4 1/2	1 1/4
9	9	5 1/4	1 3/8
12	12	5 11/16	1 3/8
16	16	6 3/8	1 3/4
20	20	6 25/32	1 3/4
24	24	7 7/32	1 3/4(1)
30	30	8 3/32	2
36	36	9	2 1/4

* Dimensions listed do not include capscrew head projections for rotochambers and bolt clamp projections for clamp type brake chambers.

** The same limits that apply to manual adjustors apply to automatic adjustors.

(1) 2" for long stroke design.

BENDIX WESTINGHOUSE	
DD2	2
DD3	2

CAM BRAKES – PUSH-ROD TRAVEL LIMITS

Air Brake Parts

Procedure:

- Visually inspect the air compressor mounting, air intake cleaner, and belts/pulleys (if belt driven).
- Inspect the air tank(s) mounting.
- Inspect all flexible brake hoses for cracks, cuts, burns, chafing, brittleness, improper splices or swelling.
- Inspect all brake lines for cracks, breaks, crimps, flattened or restricted sections, chafing, or improper retention.
- With the brakes applied, inspect for any audible leakage at the air tank(s), valves, chambers, fittings, lines, flexible hoses, and trailer connecting hoses and fittings.

Reject Vehicle If:

- Air compressor mounting has loose, broken, or missing bolts or other attaching parts.
- Air tank(s) mounting device such as straps, brackets, or other hardware is broken, missing, or loose.
- Flexible brake hoses are cracked, cut, burned, chafed, swollen in size, or hardened so that they crack or break when bent.
- Rigid brake lines are cracked, broken, crimped, flattened or restricted, chafed, or improperly retained.
- Any brake line or hose is in contact with any part of the exhaust system.
- There is any audible leakage in the air brake system.
- Air intake cleaner (for compressor) is clogged enough to prevent proper air intake.
- Air compressor drive belts are worn, frayed, or loose.
- Air compressor pulleys are bent or damaged so as to cause belt loss.

- Two hoses are improperly joined (e.g. a splice made by sliding the hose ends over a piece of tubing and clamping the hose to the tube).
- Reservoir drain cocks are inoperative.
- Brake chambers are not rigidly mounted.
- Absence of effective braking action upon application of the service brakes, (such as brake lining failing to move or contact brake drum or rotor surface upon application).
- Missing or broken mechanical components including brake shoes, linings, pads, springs, anchor pins, spiders, cam rollers push rods, and air chamber mounting bolts.
- Missing brake on any axle required to have brakes.

DRUMS & ROTORS

Maximum allowable drum diameters and minimum allowable disc thicknesses are cast into some drums and discs.

BRAKE ROTORS

Procedure: Inspect rotors for mechanical damage and cracks extending to edges.

Reject Vehicle If:

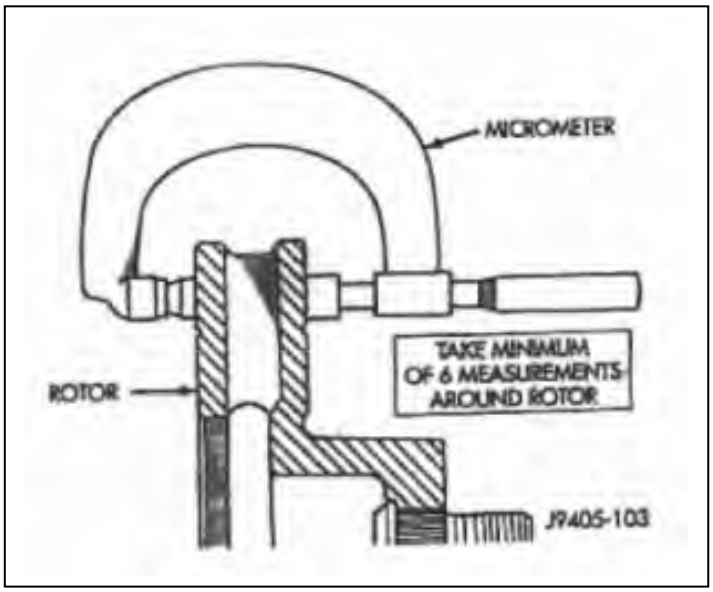
- Rotors are broken or have cracks on the friction surface extending to the open edge or if mounting holes are elongated.

Measure Thickness of Rotors

Reject Vehicle If:

- Rotor Thickness is less than minimum measurement stamped on assembly. Also check for excessive runout or endplay in the assembly.

NOTE: Do not distort or remove splash shield.



Brake Drums

Procedure:

- Check friction surface for cracks extending to open edge of drum.
- Inspect for mechanical damage and contaminated friction surface.

Reject Vehicle If:

- Drum has cracks on friction surface extending to the open edge or on outside of drum particularly at the drum mounting area.
- There is evidence of mechanical damage other than wear, or if the friction surface is contaminated with grease or oil.
- The mounting holes are elongated.

Advise Driver:

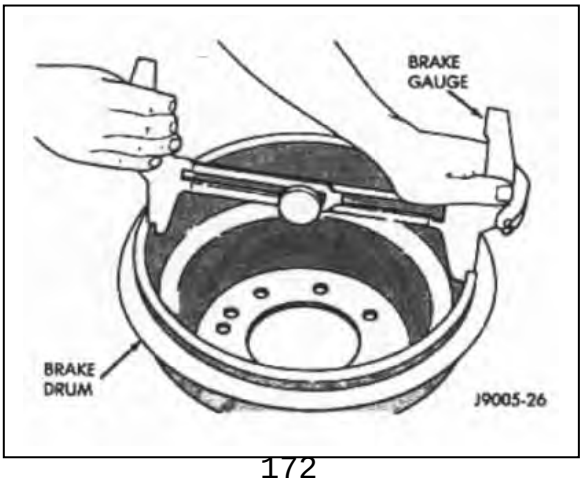
If "Hard Spots" appear on drums which can cause chatter from uneven friction. Should be repaired or replaced.

Measure Inside Diameter of Brake Drum

Equipment: Drum measuring gauge.

Reject Vehicle If:

- Diameter is greater than maximum diameter stamped on the drum. For unmarked drums, maximum diameter is .090" (2.3mm) greater than original drum diameter for 14.13: (358.9mm) and smaller drums. For larger drums, the maximum diameter cannot be greater than .120" (3.0mm) over the original diameter.



LINING PADS & LINKAGE

Condition of Mechanical Components

Procedure:

- Look for worn pins and missing or defective cotter pins or caliper support key, broken or missing springs, worn cables, clevises, couplings, rods and anchor pins.
- Inspect for "frozen", rusted or inoperative adjuster screw or connections, missing spring clips and defective grease retainers. Look for restricted shoe movement at backing plate and for bind between shoes and anchor pins.
- Inspect pedal shaft and bearings for high friction, wear, and misalignment.
- Ensure that the brake pedal to master cylinder booster push rod retaining device is in place and secure.
- Inspect for wear along shoe support rest or guides.

Reject Vehicle If:

- Mechanical parts are missing, broken, binding, or badly worn.
- There is excessive friction in pedal, linkage, or components or if pad levers are misaligned or improperly positioned.

Brake Lining and Pad Wear

Equipment: Measuring device, steel scale or gauge.

Reject Vehicle If:

Steering axle brakes-The brake lining/pad on the steering axle shall not be less than 4.8mm(3/16 inch) at the shoe center for a shoe with a continuous strip of lining; less the 6.4mm (1/4th inch) at the shoe center for a shoe with two pad;. Or worn to the wear indicator if the lining is so marked, for air drum brakes. The steering axle brake lining/pad thickness shall not be less than 3.2mm (1/8 inch) for air disc brakes or 2mm or less for hydraulic disc, drum and electric brakes

Non-steering axle brakes- An air braked commercial motor vehicle shall not be operated with brake lining/thickness less than 6.4mm (1/4 inch) or to the wear indicator if the lining is so mark (measured at the shoe center for drum brakes); or less than 3.2 mm (1/8 inch) for disc brakes. Hydraulic or electric braked commercial motor vehicles shall not be operated with a lining/pad less than 2mm for disc or drum brakes.

- Riveted linings are less than 2mm above rivet head at thinnest point.
- Bolted linings are less than 5/16 inch (.8mm) total thickness at center of shoe.

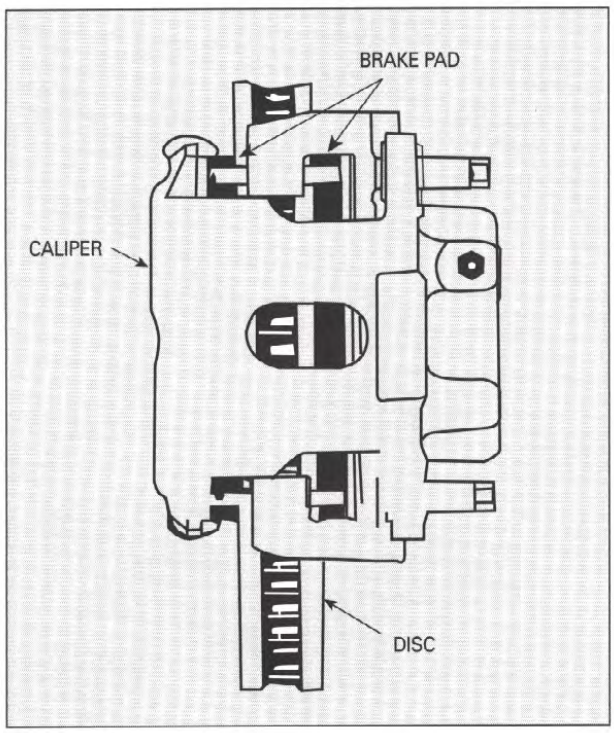
- Wire in wire-tacked linings is visible on friction surface.

Condition of Linings

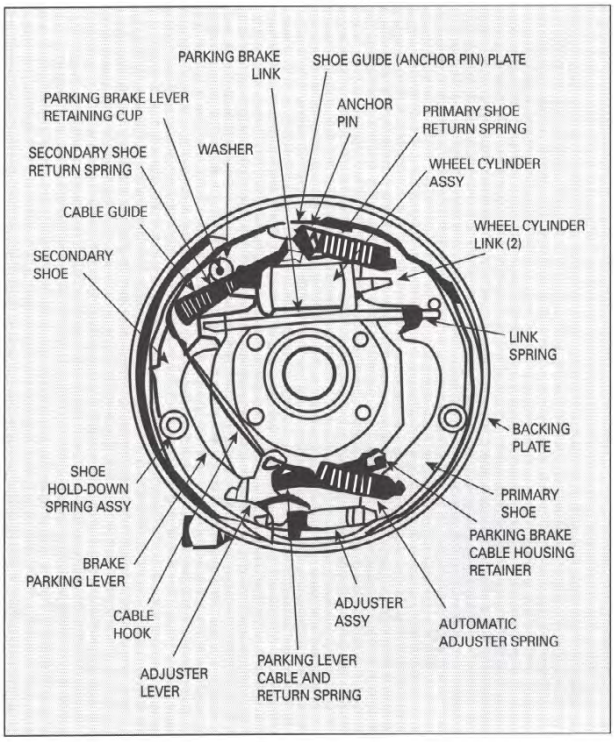
Procedure: Visual inspection.

Reject Vehicle If:

- Lining is broken, not firmly attached to shoe or plate, contaminated with oil or grease.
- Wear is extremely uneven.
- Lining has cracks or breaks that extend from edge through rivet or bolt holes which are deeper than half of lining thickness. (Ignore minor cracks which do not impair attachment.)



Typical Disc Brake



Typical Servo Drum Brake

HYDRAULIC & VACUUM BOOSTERS

Condition of Hydraulic Booster
Power Brake System

Procedure: Inspect system for fluid level and leaks.

Reject Vehicle If:

- There is insufficient fluid in the pump reservoir.
- There are broken, kinked, or restricted fluid lines or hoses.
- There is any leakage (except from common wetting or weep) of fluid at the pump or brake booster, or any of the lines or hoses in the system.
- Belts are frayed, cracked, or excessively worn.

Hydraulic Booster System
Operation

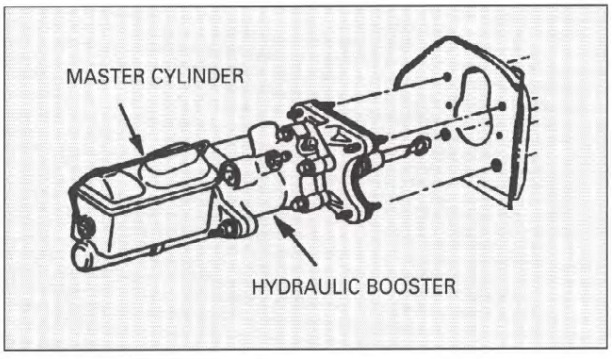
Procedure:

- Stop engine, and then depress brake pedal several times to eliminate all pressure.
- Depress pedal with a 25-30 lb. foot-force.
- While maintaining this force on the pedal, start engine and sense or feel slight movement of pedal when engine starts.

Reject Vehicle If:

- Pedal does not move slightly as engine is started while force is on brake pedal.

NOTE: Leaks or leakage is more than common wetting or weeping. Source of leak should be obvious.



Typical Hydraulic Booster Assembly

Condition of Vacuum Booster
Power Brake System

Procedure: Visual inspection.

Reject Vehicle If:

- There are collapsed, broken, badly chafed, or improperly supported hoses and tubes, or loose or broken hose clamps.

Vacuum Reserve

Procedure:

- Run engine to build full vacuum and with the engine shut off and the ignition switch off, make one full brake application.

Reject Vehicle If:

- There is insufficient vacuum reserve to permit one full brake application after engine shutoff.
- On vehicles with low vacuum indicators, the low vacuum indicator is activated after one full brake application after engine shutoff.

Operation of Low-Vacuum Indicator

Procedure:

- On vehicle equipped with low-vacuum indicator, build full vacuum and shutoff the engine. Make a series of moderate brake applications.

Reject Vehicle If:

- Low-vacuum indicator fails to activate at a reading of at most 8 inches Hg.

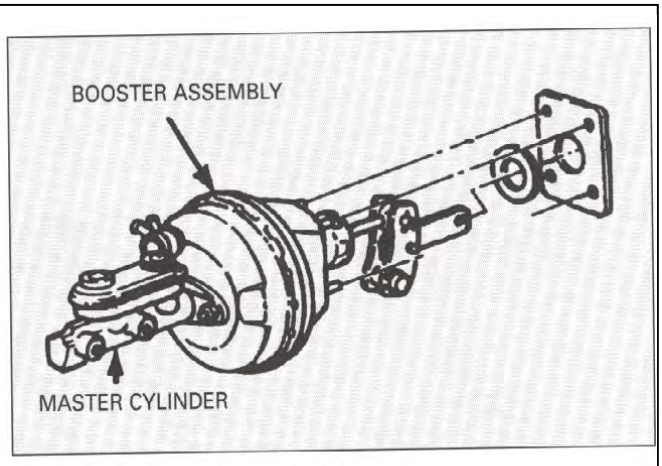
Operation of Vacuum Booster System

Procedure:

- Stop engine then depress brake pedal several times to eliminate all vacuum in system.
- Depress pedal with a 25-30 lb. foot-force.
- While maintaining this force on the pedal, start engine and sense or feel slight movement of pedal when engine starts.

Reject Vehicle If:

- Pedal does not move slightly as engine is started while force is on brake pedal.



Typical Vacuum Booster Assembly

Condition of Combination Vacuum/
Hydraulic Booster Power Brake System

Procedure:

- Inspect system for hydraulic fluid level and leakage.
- Run the engine to build full vacuum and with the engine shut off and ignition switch off make one full brake application.

Reject Vehicle If:

Vacuum Segment of System

- There are collapsed, broken, badly chafed or improperly supported hoses and tubes, or loose or broken hose clamps.
- There is insufficient vacuum reserve to permit one full brake application after engine shutoff.
- On vehicles with low vacuum indicators, the low vacuum indicator is activated after one full brake application after engine shutoff.

Hydraulic Segment of System

- There is insufficient fluid in the hydraulic (power steering) pump reservoir.
- There are broken, kinked, or restricted fluid lines or hoses.
- There is any leakage of fluid (except for common wetting or weep) at the pump and steering gear hydraulic fluid circuit, brake booster, or any of the lines or hoses in the system.
- Belts are frayed, cracked or excessively worn.

**Operation of Combination Vacuum/
Hydraulic Booster System**

Procedure:

- Stop engine then depress brake pedal several times to eliminate all vacuum in system.
- Turn ignition (start) switch to "on" position. The brake warning light should illuminate.
- Depress pedal with a 25 lb. foot-force.
- While maintaining this force on the pedal, start engine and sense or feel slight movement of pedal when engine starts. The brake warning light should no longer be illuminated.

Reject Vehicle If:

- Brake warning lamp is not illuminated with ignition (start) switch in "on" position prior to starting engine.
- Pedal does not move slightly as engine is started while force is on brake pedal.
- Brake warning light remains illuminated after engine is started.

**Condition of Combination
Electric Hydraulic Booster
Power Brake System**

Procedure: Inspect system for fluid level and leaks.

Reject Vehicle If:

- There is insufficient fluid in the hydraulic (power steering) pump reservoir.
- There are broken, kinked, or restricted fluid lines or hoses.
- There is any leakage of fluid (except for common wetting or weep) at the pump and steering gear hydraulic fluid circuit, brake booster, or any of the lines or hoses in the system.
- Belts are frayed, cracked, or excessively worn.

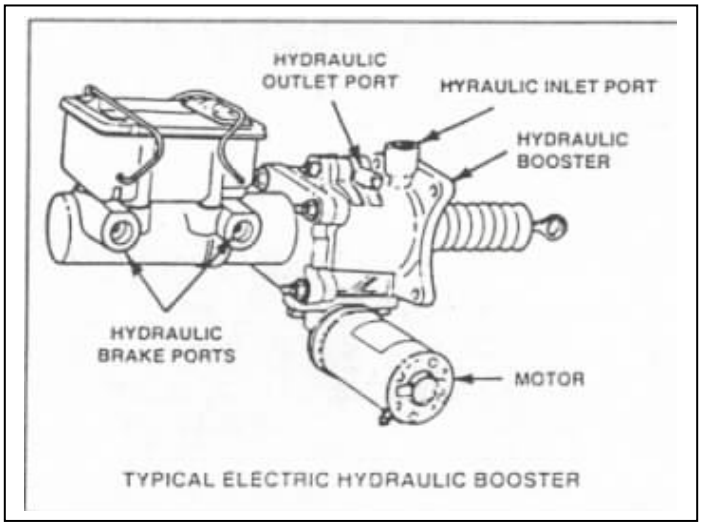
Operation of Combination Electric Hydraulic Booster System

Procedure:

- Depress brake pedal. Operation of electric motor should be audible.
- Turn ignition (start) switch to "on" position. Brake warning light should illuminate.
- Depress pedal with a light foot-force (30 lbs.).
- While maintaining this force on the pedal, start engine and sense or feel slight movement of pedal when engine starts.
- The warning light should no longer be illuminated.

Reject Vehicle If:

- Electric motor does not operate.
- The brake warning light is not illuminated with the ignition (start) switch in "on" position prior to starting engine.
- Pedal does not move slightly as engine is started while force is on brake pedal.
- Brake warning light remains illuminated after engine is started.



TYPICAL ELECTRIC HYDRAULIC BOOSTER

PARKING BRAKE & ANTILOCK

The parking brake system is a brake system used to hold and maintain a vehicle in a stationary position.

Parking Brake

Procedure:

- Turn ignition (key) switch to "on" position from the driver's seated position, operate the control for the parking brake and check for application and release. With the parking brake firmly applied, determine the approximate travel reserve of the hand lever or foot pedal.

Reject Vehicle If:

- Parking brake control cannot be reached from the driver's seated position.
- Operating mechanism fails to hold brakes in applied position without manual effort.
- For mechanically activated parking brakes, the operating control "bottoms" before brakes are fully applied (See Note).
- Parking brakes do not fully apply and release when driver control is operated.
- Parking brake warning light (if so equipped) fails to illuminate.

NOTE: If a spring type parking air brake system is utilized, inspect only for setting and release and not for travel reserve of the hand lever or foot pedal.

Operation of Parking Brake for Vehicle Built After May 23, 1970

Equipment:

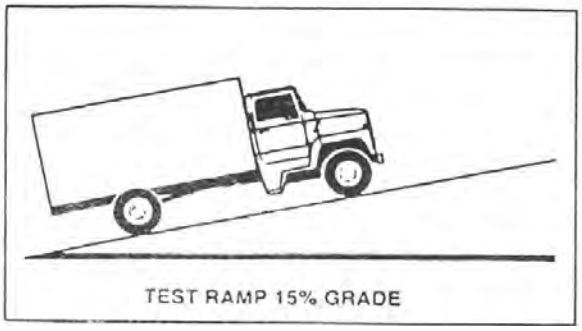
- Test ramp of 15% grade with surface of Portland cement or equivalent.

Procedure:

- All vehicles manufactured after May 23, 1970 must have a parking brake that will hold the vehicle to the limit of traction on a 15% grade.

Reject Vehicle If:

- Vehicle fails to hold on a 15% grade, either facing forward or rearward on the ramp, with vehicle in "neutral" or parking pawl disengaged.



Trailer or Semi-trailer Parking Brake (Air Brakes Only)
For Trailers Built After January 1, 1975

The vast majority of trailers produced prior to January 1, 1975 were not equipped with spring operated parking brakes.

Procedure:

- With full air pressure, apply and release the control for the trailer parking brake system and check for trailer brake application.
- With parking brake released, make a series of brake applications and observe the pressure at which the trailer brakes automatically apply.
- With full air pressure, disconnect the trailer connecting hoses and check for automatic application of the trailer brakes.
- Place thumbs on opened trailer hoses to detect any pressure buildup.

Reject Vehicle If:

- Trailer brakes do not fully apply and release when the driver control is operated.
- Trailer brakes do not automatically apply when the air pressure is below 45 psi.
- Trailer brakes automatically apply at a pressure above 45 psi.
- Trailer brakes do not automatically apply when trailer-connecting hoses are disconnected.
- There is any detectable leakage, back thru trailer connecting hoses after disconnection.

Antilock System (If So Equipped)

Procedure:

. For vehicles equipped with antilock brakes, turn the ignition to "on" and observe the antilock warning device. Start the engine and run for several minutes while observing the antilock warning device.

Advise Driver:

. If the antilock warning device does not glow momentarily with the ignition "on" or during cranking or if it stays on for more than one minute after starting.

NOTE: On some heavy trucks, the warning light will go off after the vehicle reaches a speed of between 5 and 7 mph.

TIRES AND WHEELS

It is suggested that:

- For best performance, all tires should be either "conventional" or "radial" and not mixed.
- Radial ply tires **cannot** be used on the same axle with a conventional (bias or belted bias) tire nor mixed on tandem drive positions even though mounted on different axles.
- Tires of significantly different size or type, such as one snow tire and one regular tire, should not be used on the same axle.

Measure Tire Pressure

Equipment: Pressure gauge.

Advise Driver:

- If inflation pressures are significantly above or below those recommended for tire size and load range or on duals where the inflation pressure is not within 10 psi of each other. Correct pressure immediately. **DO NOT REJECT VEHICLE.**

Inspect for Tire Damage

Reject Vehicle If:

- Tire has tread cuts, snags or sidewall cracks in excess of one inch (25mm) in any direction and deep enough to expose cords. If tire has visible bumps, bulges or knots indicating partial failure or separation of tire structure.

Inspect for Cord Exposure

Reject Vehicle If: Tire is worn so that cord is exposed through tread.

Inspect for Regrooved or Recut Tires

Reject Vehicle If:

- A tire has been regrooved or recut below original groove depth, except special tires that have undertread rubber for this purpose and are identified as such. No regrooved tires should be allowed on front wheels.

Tubes & Flaps

Reject Vehicle If:

- Radial tube type tires do not have radial tubes. (Either bias or radial tubes and flaps may be used in bias tires.)

In mounted tires, radial tubes can be identified by red paint or a red ring on the valve stem, or by the word "RADIAL" on the valve stem.

Inspect Tire Cord

Reject Vehicle If:

- Tire is worn or regrooved so that cord is exposed.
- Sidewall has damaged or exposed body cords.
- Tire has unrepaired fabric break or has been repaired with a blowout patch or has a visible bulge.
- For vehicles over 10,000 lbs. GVWR, steering axle tire has a reinforcement repair to cord body.
- Improper or temporary repair.
- When damage is done to radial tire cords and a section repair is made to reinforce the damaged sidewall or shoulder. The contour change must not project more than 3/8 inch (10mm) above the surrounding sidewall area.

Inspect for Tire Wear

Equipment: Tread depth gauge or scale.

With Tread Wear Indicator

Reject Vehicle If:

- Tire is worn so that the tread wear indicators contact the road in any two adjacent grooves at three locations spaced approximately equally around the outside of the tire. (See Note).

Without Tread Wear Indicators

Reject Vehicle If:

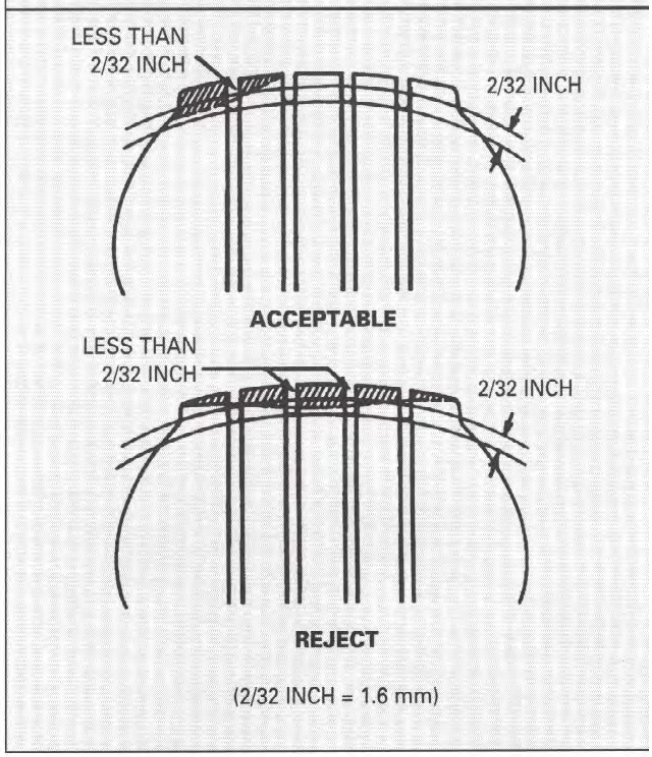
- The tire is worn so that less than 2/32 inch (1.6mm) tread remains when measured in any two adjacent major grooves.

NOTE:

For any bus, truck or truck tractor over 10,000 lbs. GVWR, reject vehicle **if steering axle tires are worn** so that less than 4/32 inch (3.2mm) tread remains when measured in any two adjacent major grooves.

All tires inspect as above.



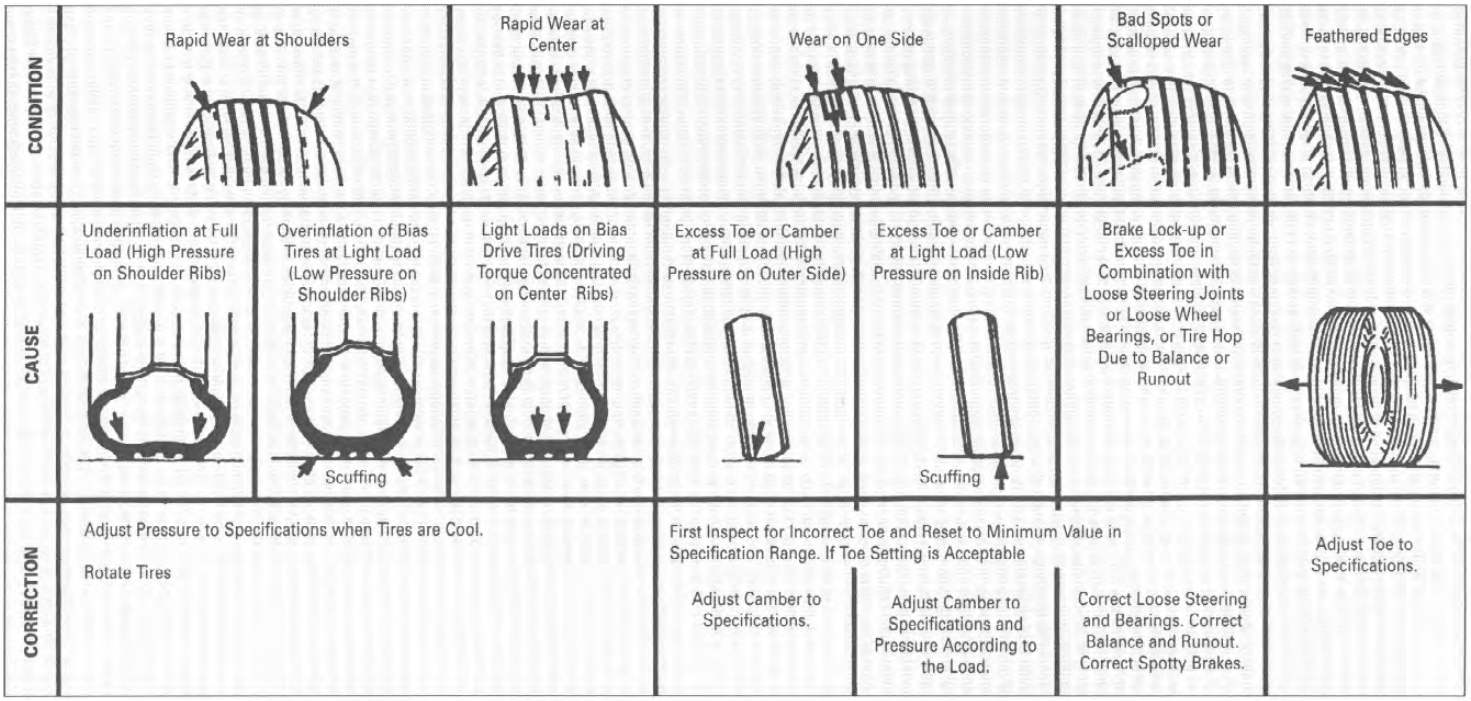


Tire Tread Depth

Inspect For Restricted Usage Markings on Tires. (Reclassified Tires)

Reject Vehicle If:

- Tire is marked "For farm use only", "Off highway use only" or "For racing only", etc., or if the tire size is followed by the letters "NHS" or "SL".



Tire Wear Patterns

Inspect Valve Stem

Reject Vehicle If:

- Valve stem has cracks or is chafed from contact with the spider or rim.
- Valve contacts the brake drum.
- Valve stem is inaccessible for taking pressure readings.

Inspect Wheels, Rims & Spiders

Reject Vehicle If:

- Wheel bolts, nuts, studs or lugs are broken, missing, damaged, or loose.
- Stud, bolt or lug is recessed in the nut without any nut threads showing beyond the end of the stud, bolt or lug when wheel nuts are used to retain wheel rim.
- Lock ring is mismatched with rim, cracked, bent, sprung, or otherwise damaged.
- Wheel, rim, or spider is cracked, bent, has elongated bolt holes, shows signs of in-service rewelding otherwise damaged.
- Rim shows evidence of slippage on spider.

Inspect For Tire Size or Mismatching

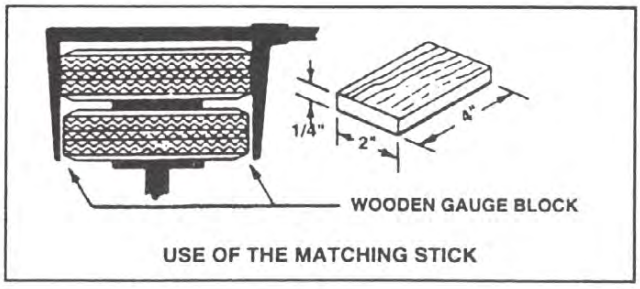
Equipment: Caliper or dual "matching stick" and 1/4 inch (6.3mm) and 1/8 inch (3.1mm) gauge blocks.

Procedure:

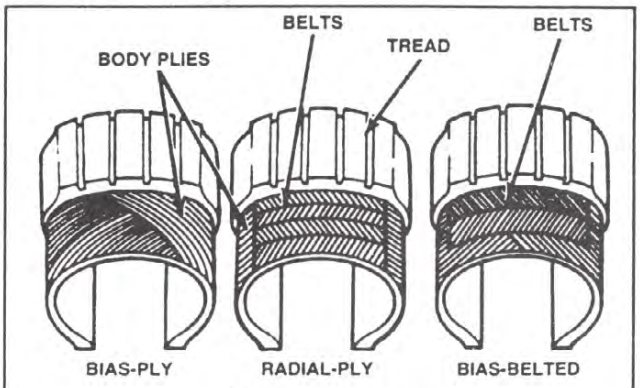
- Inspect the size and type of construction (bias, bias belted, radial) on each axle.
- Inspect for retreaded, recapped or regrooved tires on the steering axles.
- For dual tires, measure the difference between the outside diameters of each line.

Reject Vehicle If:

- Tires are not the same size or type construction on any given axle.
- Bus or truck have retreaded or regrooved tire on steering axle.
- Diameter of one of the duals is not within 1/4 inch *6.3mm) of the other on 8.25-20 and smaller or 1/2 inch (12.7mm) on 9.00-20 and larger.
- Any tire is flat or has noticeable leak.
- Any tire is so mounted or inflated that it comes in contact with any part of the vehicle.



USE OF THE MATCHING STICK



TIRE CONSTRUCTION

WHEEL BEARINGS
STEERING LINKAGE

Loose Wheel Bearings

Equipment: Floor jack or hoist, rule or gauge.

Procedure:

- With front end of vehicle lifted properly, push pads away from rotor on disc brakes, and grab front tire at top and bottom, rock vigorously in and out and record movement. Wheel bearing looseness is detected by the relative movement between the brake drum or disc and the backing plate or splash shield.

Reject Vehicle If:

- Relative movement between drum and backing plate (disc and splash shield) is more than 1/8 inch (3mm) measured at the outer circumference of the tire for vehicles 10,000 lbs. GVWR or less or 1/4 inch (6.4mm) for vehicles more than 10,000 lbs. GVWR.

Steering Linkage Play

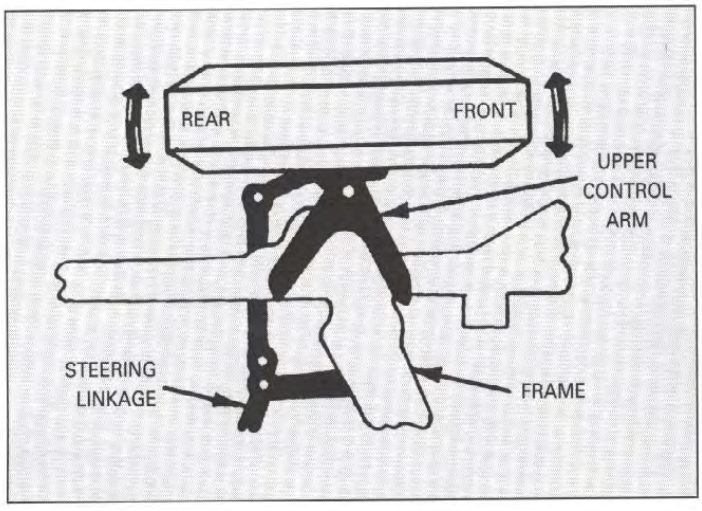
Procedure:

- First eliminate all wheel bearing movement by applying service brake.
- With vehicle lifted as shown, and wheels in straight ahead position, grasp front and rear of tire and attempt to move assembly right and left without moving the pitman arm.

Reject Vehicle If:

- Measured total movement at front or rear of tire is greater than:

  Wheel Size:
  16" or less - 1/4" (6.5mm)
  17" to 18" - 3/8" (9.5mm)
  Over 18" - 1/2" (13mm)



Steering Linkage Play—Top View

Kingpin Play

Procedure:

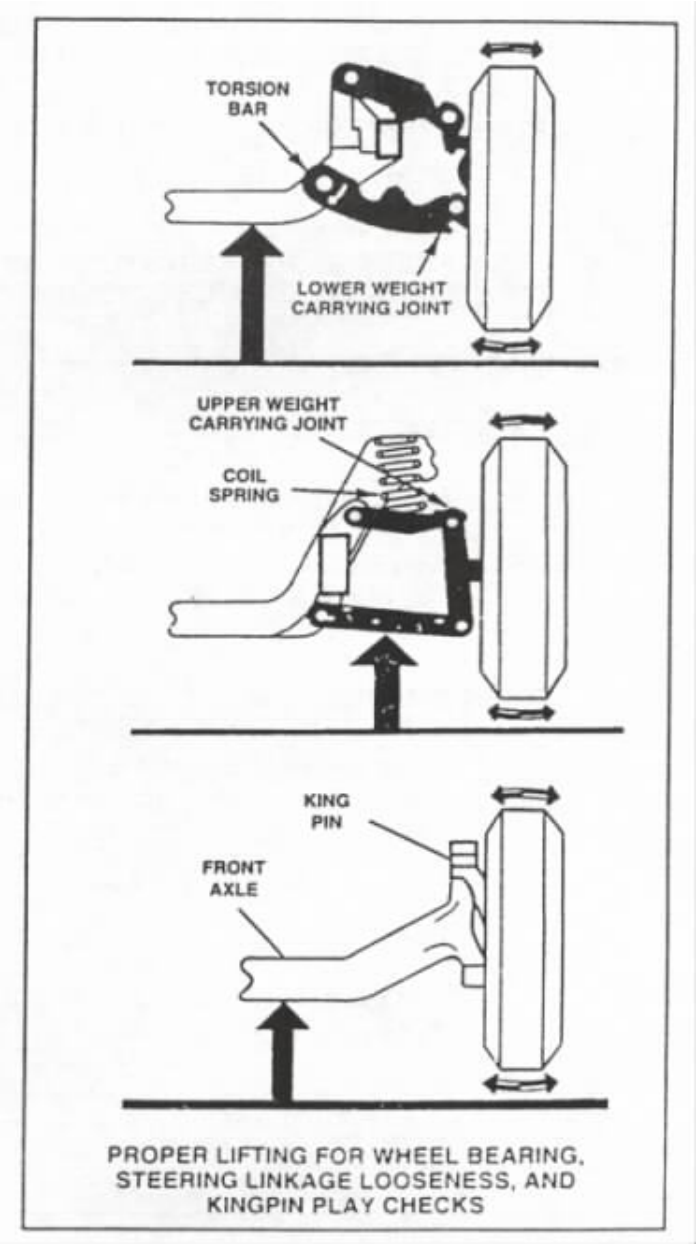
- First eliminate all wheel bearing movement by applying service brake.
- With front end lifted as illustrated for inspecting wheel bearings, grasp the tire at the top and bottom and attempt to move in an out to detect looseness. A pry bar may be necessary on heavy wheels.
- Measure the movement at the top or bottom of the tire at the outer circumference.

Reject Vehicle If:

- Measured movement at top or bottom of tire is greater than:

  Wheel Size:

  16" or less - 1/4" (6.5mm)
  17 to 18" - 3/8" (9.5mm)
  Over 18" - 1/2" (13mm)



PROPER LIFTING FOR WHEEL BEARING, STEERING LINKAGE LOOSENESS, AND KINGPIN PLAY CHECKS

STEERING LASH/TRAVEL

Before inspection the vehicle must be placed on a smooth, dry, level surface. For vehicles equipped with power steering, the engine must be running; and fluid at the proper level; belt tension and condition must be adequate before testing.

Lash or Free Play

Equipment: Ruler, scale, or lash-checking instrument, jack or hoist, and safety stand.

Procedure:

. With road wheels in straight-ahead position, turn steering wheel until motion can be detected at the front road wheels. Align a reference mark on steering wheel with a mark on a ruler and slowly turn steering wheel in the opposite direction until motion can again be detected at the front road wheel. Measure lash at steering wheel. Special lash-checking instruments are also available, measuring free play in inches or degrees. Such instruments should always be mounted and used according to the manufacturer's instructions. With vehicle raised, visually inspect steering linkage, ball studs, tie rod end socket assemblies and all pivot points.

NOTE: On vehicles with power steering, engine must be running.

Reject Vehicle If: Steering wheel movement exceeds:

Steering Wheel Size and Lash:

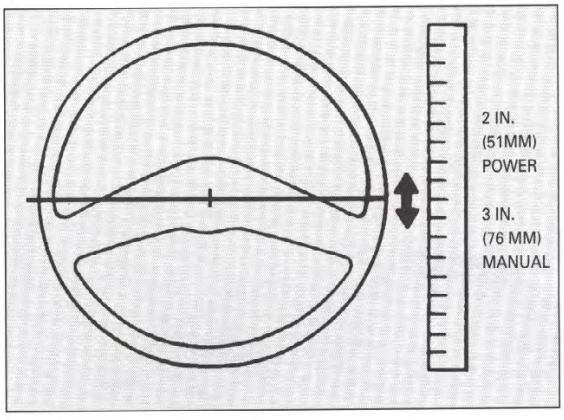
Power Steering

16 inches or less - 4 1/2 inches (11.5cm)
18 inches - 4 3/4 inches (12.0cm)
20 inches - 5 1/4 inches (13.5cm)
22 inches - 5 3/4 inches (14.5cm)

Manual Steering

16 inches or less - 2 inches (5.1cm)
18 inches - 2 1/4 inches (5.4cm)
20 inches - 2 1/2 inches (6.4cm)
22 inches - 2 3/4 inches (7.0cm)

. If visual inspection reveals excessive wear and/or looseness in any ball stud, end assembly, pivot point or mechanical linkage.



Steering Lash

Power Steering

Procedure: Check fluid level and belt tension on power steering pump.

Advise Driver: To bring fluid to proper level and make certain that belts are properly tensioned before proceeding.

Steering System Travel

Procedure:

- Turn steering wheel through a full right and left turn. (On vehicles without power steering, it may be desirable to unload front wheels slightly by raising wheels off the surface. Vehicles loaded to maximum GVWR may not meet this requirement unless the vehicle is allowed to roll).

Reject Vehicle If:

- Front wheels are incapable of being turned to the right and left steering stops without binding or interference.

NOTE: Certain vehicles may have power steering gears with pressure unloading valves that reduce system hydraulic pressure just prior to contact with the steering stops. An increase in effort to complete the turn is **normal** with that system.

WHEEL ALIGNMENT AND TRACKING

FRONT WHEEL ALIGNMENT: There are five basic factors which are the foundation of front wheel alignment: Caster, Camber, Toe and Steering Axis Inclination and Toe-Out on Turns. The first three are usually mechanically adjustable and the last two are a part of the vehicle design and not adjustable. On trucks with "I" beam front axles, the camber cannot be adjusted. Overall front wheel alignment can be determined in a somewhat general manner by measuring front wheel toes. If the vehicle has excessive toe-in or toe-out, it is an indication that a complete professional check should be made of all front wheel alignment factors.

REAR WHEEL TRACKING

Procedure: Observe whether rear wheels follow front wheel tracks in "straight ahead" travel.

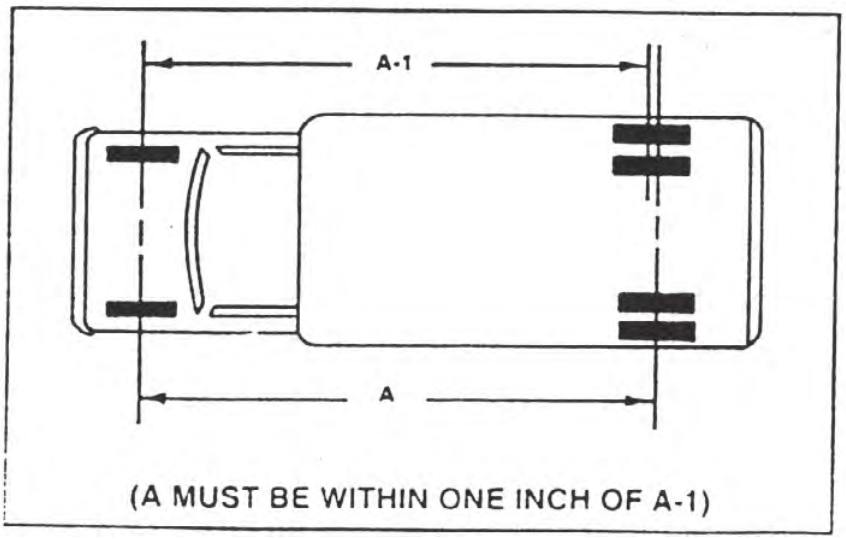
Alternate Method: Using a tape measure, determine the distance between the centerline of the front wheel spindle and the centerline of the rear axle drive shaft and compare from side to side. ***** (Front wheels must be in a straight-ahead position).

Reject Vehicle If:

- Rear wheel does not follow the front wheel track in "straight ahead" travel.
- The wheelbase on one side is different from the wheelbase on the other side by more than one inch. *****
- Rear axle is obviously misaligned.

NOTE: Do not reject if vehicle is designed with different tread widths - front and rear.

*****Not applicable if vehicle specifications indicate different left and right wheelbase dimensions as designed.



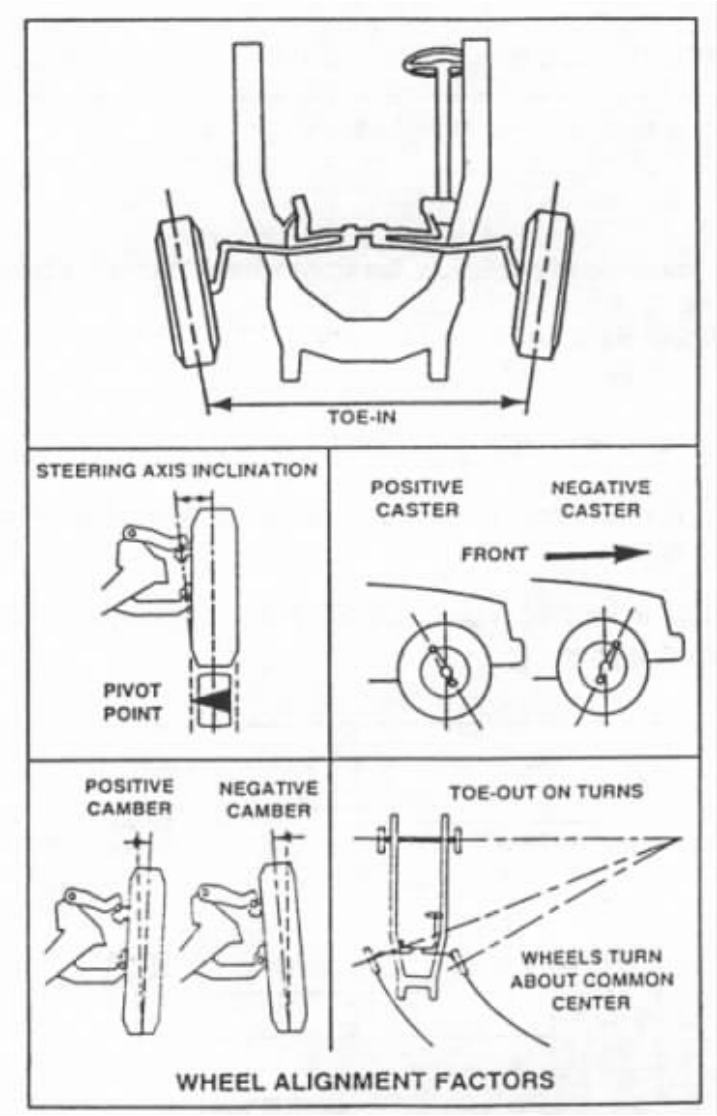
Front Wheel Toe

Equipment: Approved portable, stationary, or dynamic (roller) type alignment equipment.

Procedure: With wheels in "straight ahead" position and with "hands off" steering wheel momentarily, drive vehicle slowly over toe measuring device.

Advise Driver: If excessive toe (in or out) exists the vehicle should be given a professional alignment check. Accelerated tire wear can result from toe misalignment.

NOTE: It is seldom necessary to reject vehicle for misalignment. If rejection is required it will usually be for some other reason such as tire wear, linkage, looseness, or suspension damage.



TORSION BARS, SPRINGS, SHOCK ABSORBERS, AIR SUSPENSION AND CHASSIS

Visually Inspect Springs, Torsion Bars and Torque Rods

Equipment: Hoist or hydraulic jack, safety stand and trouble light.

Procedure: Visually inspect for broken leaf springs, coil springs, torque rod, or torsion bar damage. Inspect spring shackles, bushings, "U" bolts, spring center bolts, and remaining suspension members.

Reject Vehicle If:

- Springs, torque rods, torsion bars or other suspension members are broken or shifted.
- Shackles or "U" bolts worn or loose or spring center bolt is broken or sheared.
- Rubber spring is deflated or missing.

Inspect Shock Absorbers

Equipment: Hoist or hydraulic jack and safety stand, scale, trouble light.

Procedure: With vehicle on a hoist or jacked up, visually inspect shock absorbers for excessive leakage, looseness of mounting brackets and bolts.

Advise Driver If:

- Severe leakage (not slight dampness) is evident.
- Mounting bolts or mounts are loose or broken.
- Rubber bushings are destroyed, damaged, deteriorated or missing.

Visually Inspect Chassis

Procedure: Visually examine the chassis frame member or structural member of a unitized body.

Reject Vehicle If:

- There are cracks, or loose or missing connecting fasteners that may degrade the safety of the vehicle or compromise its handling characteristics.

Fifth Wheel and Other Towing Devices

Procedure: Visually inspect integrity.

Reject Vehicle If:

- There are either cracked, broken, loose mountings or cracked, broken, missing connecting fasteners that may degrade either safe operation of the vehicle or its handling characteristics.

Air Suspension

Procedure:

- With the entire system drained of air following the manufacturer's recommended procedures, start the engine and observe the air pressure at which air begins to flow into the suspension system and lift the vehicle.
- With the system fully charged, inspect for any audible leakage at the bellows, connections, or hoses.

Reject Vehicle If:

- Air begins to flow into the suspension system below 55 psi.
- There is any audible leakage in the air suspension system.
- Refer to visually inspect springs, torsion bars and torque bars.
- Deflated air suspension, i.e., system failure.

CAUTION: Inspector should not use a creeper or otherwise lie underneath vehicle because there may not be enough room when air is drained from the bellows. Vehicle should be properly jacked or positioned over a pit.

BALL JOINT WEAR

Some light trucks are equipped with ball joints and there is a trend toward the use of "wear-indicating" ball joints. The inspection of both ball joints with and without wear indicators will be discussed.

Ball Joints without Wear Indicators

Equipment: Dial indicator, swivel and clamp. Floor jack or hoist, safety stand and pry bar.

Procedure:

- Depending on the construction of the suspension system, unload the ball joints by properly raising the vehicle.
- Attach dial indicator to control arm to measure movement accurately between ball joint and its socket.
- To check vertical movement, position a pry bar under the font tire and with a lifting motion sufficient to overcome the weight of the wheel assembly, move wheel up and down and observe movement shown on dial indicator.
- To check horizontal movement, grasp the tire and wheel assembly at the top and bottom. Move in and out to detect looseness. (More horizontal movement is allowable because of the nature of most ball joint construction. Some manufacturers do not accept horizontal movement as being indicative of ball joint wear).

Reject Vehicle If:

- Ball joint movement is in excess of manufacturers' published service specifications.

Pre-Loaded Ball Joints

Equipment: Dial indicator, swivel and clamp. Floor jack safety stand and pry bar.

Procedure:

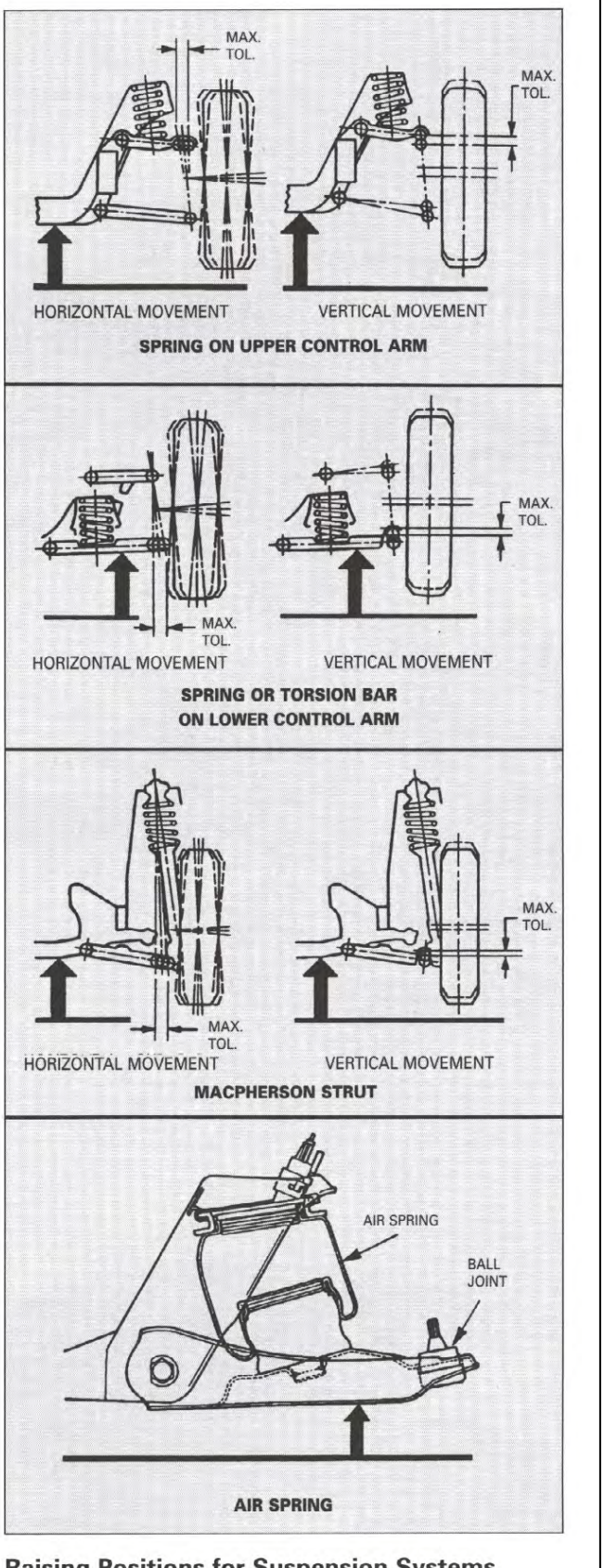
. Using the same method as above, inspect for ball joint movement relative to its socket. These ball joints are preloaded by rubber or springs under load (or compression), and should have very little movement in a vertical direction - no more than specified in tables.

Reject Vehicle If:

. Vertical movement exceeds values specified in table.

NOTE:

In checking for vertical motion of ball joints, keep in mind that the load carrying joint is unloaded, and that a pry bar pressure sufficient only to lift the weight of the wheel assembly is required. If the inspector uses the "leverage" of a pry bar to exert excessive pressure, he/she can easily "force" an apparent ball joint movement and get a false reading. This may result in expensive replacement of perfectly good joints.



Raising Positions for Suspension Systems

Ball Joints with Wear Indicators

Procedure:

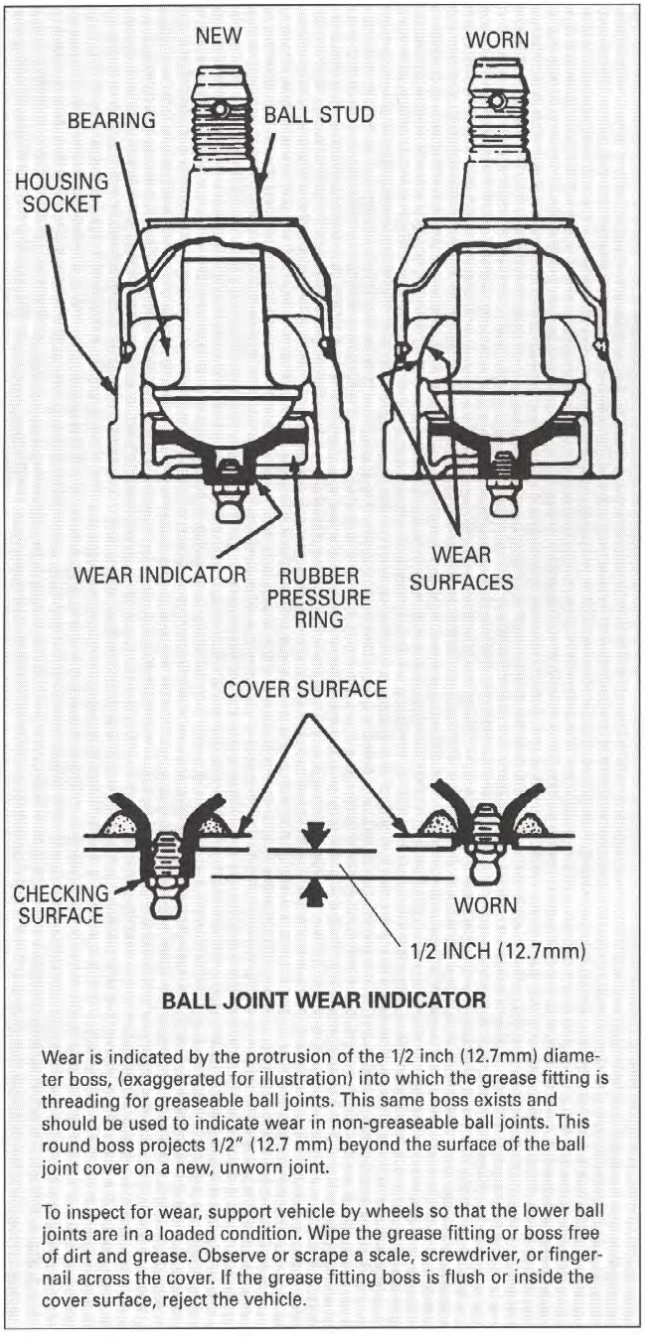
- Support vehicle with ball joints loaded (in normal driving attitude). Wipe grease fitting and checking surface free of dirt and grease. Determine if checking surface extends beyond the surface of the ball joint cover.

Reject Vehicle If:

- Checking surface is flush with or inside the cover surface.

NOTE:

Vehicles with wear indicating ball joints - inspect with ball joints loaded.



BALL JOINT WEAR INDICATOR

Wear is indicated by the protrusion of the 1/2 inch (12.7mm) diameter boss, (exaggerated for illustration) into which the grease fitting is threading for greaseable ball joints. This same boss exists and should be used to indicate wear in non-greaseable ball joints. This round boss projects 1/2" (12.7 mm) beyond the surface of the ball joint cover on a new, unworn joint.

To inspect for wear, support vehicle by wheels so that the lower ball joints are in a loaded condition. Wipe the grease fitting or boss free of dirt and grease. Observe or scrape a scale, screwdriver, or fingernail across the cover. If the grease fitting boss is flush or inside the cover surface, reject the vehicle.

PREPARATION & LIGHTING, GENERAL

Prior to inspection, six preparatory steps should be taken, the first four of which should be the responsibility of the driver. If these are not accomplished to a reasonable degree, the inspector should refuse the vehicle until the preparation is satisfactory.

Prior to Preparation

1. Remove excessive ice and/or mud from under the fenders.
2. Inflate tires to specified pressures.
3. See that the vehicle contains no load other than the driver in his/her normal position.
4. Be sure the lenses are clean; check for burned out bulbs and proper beam switching. Headlamps with cracked or broken aiming pads, lenses, or visible moisture on interior should be replaced.
5. See that there is no faulty wheel alignment or improper tracking of the rear axle.
6. Check suspension. See that the vehicle does not lean to one side or the other. Rock the vehicle sideways to free and equalize suspension.

Advise Driver: That the operator of the vehicle should be responsible for the first four items.

Check Lamp Function Visually

Procedure: Turn on night driving lights and check the following:

- Actuate turn signal lever right and left and observe function of turn signal lights and indicator lamps and cornering lamps (if so equipped).

- Place vehicle in reverse gear and check backup lamps (if vehicle is so equipped).

- Actuate the following and observe lamps.

Hazard warning lamps	Reflex reflectors
Indicator lamps	Clearance lamps
Stop lamps	Identification lamps
Headlamps - upper & lower beam	Emergency-warning lamps
Tail lamps	License plate lamp(s)
Parking lamps	High beam indicator light
Side marker lamps	All others

- Additionally for school buses, observe the function of:

Red flasher lamps (7 inch)	Stepwell lamp
Amber flasher lamps (optional)	Stop arm lamps (optional)
Flasher lamp indicators	All interior lamps

- Verify presence and operation of auxiliary lighting on vehicles equipped with snowplow brackets.

Reject Vehicle If:

- Any bulb or sealed beam unit fails to light.
  If the vehicle is equipped with LED lighting 75% of the LEDS must illuminate.

- Turn signals do not properly indicate right and left when so switched.
- Back-up lamp system does not turn off automatically when vehicle goes forward.
- Lamp shows color contrary to applicable law.
- Lamp fails to light the proper filament indicated at switch position.
- Any lamp or reflector does not direct light properly.
- Auxiliary equipment is placed on, in, or in front of any lamp.
- Lamp assembly improperly fastened.
- Lamp has a cracked, broken, or missing lens or visible moisture on interior.

(Additionally for school buses)

- Stop arm does not swing out to reveal its lamps.
- 7 inch red or amber flasher lamps do not alternate properly.
- Any required lamp is missing.
- Any headlamp fails to have the letters "DOT" horizontally or vertically on the lens.
- Any headlamp that has the word "motorcycle" on the lens.
- Auxiliary lamps not present and operational on vehicles with snowplow brackets.

WARNING: Avoid touching or contacting the inner bulb in halogen headlamps or halogen driving lamps. Severe burns could result.

The following lighting equipment are permitted.

A flashing or rotating amber/yellow light to warn motorist of their presence and the presence of persons working along or on the roadway such as mail carriers, highway workers, wide load vehicles, etc.

- Funeral directors and employees have flashing or rotating purple lamps to warn motorist

ELECTRICAL SYSTEM

To save time, the inspector should develop his/her own plan or sequence for checking miscellaneous electrical items, many of which can be inspected while looking at other items. This comes with practice.

Horn

Procedure: Horn should be securely fastened and work properly.

Electrical Switches

Procedure: All switches should function properly.

Reject Vehicle If:

- Switches fail to function or turn signal switch fails to cancel, if so designed.

Electrical Wiring

Procedure: Check to make sure all wiring is not chafed, bare or contacting sharp objects.

Reject Vehicle If Connections:

- Show signs of excessive corrosion.
- Used for trailer towing is not made through properly indexed and oriented matched connectors, or if permanent connection, wires are not soldered and taped.

Automatic Transmissions Only

Procedure:

- Check neutral starting system to determine that starter operates only with gear selector in "P" and "N". Set parking brake, place wheel blocks and with foot brake applied turn on ignition switch.

Reject Vehicle If:

- If starter operates with gear selector in any gear other than "P" and "N".

Odometer

Check and obtain the mileage from the odometer. If odometer is broken reject unless odometer is repaired. Not required for vehicles 10 years old or older.

HEADLAMP AIMING INFORMATION

NOTE:

Per Chapter 17C, Article 16, Section 6 of the motor vehicle law, a station **cannot** charge a customer for "adjusting headlamps". This is included in the inspection of the vehicle.

All equipment for testing headlamps must comply with the Society of Automotive Engineers Recommended Practice for Headlamps Inspection Equipment.

Mechanical Aimer - If mechanical aimer is used, it shall be in good repair and adjustment, and shall be used according to the manufacturer's instructions and must be calibrated to the slope of the floor on which the vehicle stands.

Headlamp Testing Machine - If a headlamp testing machine is used, it shall give results equivalent to those obtained using the screen procedure shown below. It shall be in good repair and adjustment, and shall be used in accordance with the manufacturer's instructions. The machine using a photoelectric cell or cells to determine aim should also have a visual screen upon which the beam pattern is projected proportional to its appearance and aim on a screen at 25 feet. Such visual screen shall be plainly visible to the operator and should have horizontal and vertical reference lines to permit visual appraisal of the lamp beam.

Headlamp Aiming by the Screen Method - First locate the vehicle so that it is square with the screen and with the front of the headlamps directly over a reference line that has been painted on the floor.

Next, locate the centerline on the aiming screen so that it is in line with the center of the vehicle. This can be done as shown below by sighting through the center of the rear window of the vehicle and over the hood ornament - have vehicle moved until it is in alignment with these two points. If there is no center hood ornament, mark the center of the front and rear windows with narrow strips of masking tape. Use these "sights" to locate the centerline of the aiming screen directly in line with the vehicle axis.

Aiming Area Required - It is desirable to have a specific aiming area in a darkened location. This should be sufficient for the vehicle and an additional 25 feet measured from face of lamps to the front of visual screen.

The floor on which the car rests must be flat, and level with the bottom of the screen. If the floor is not level, compensate.

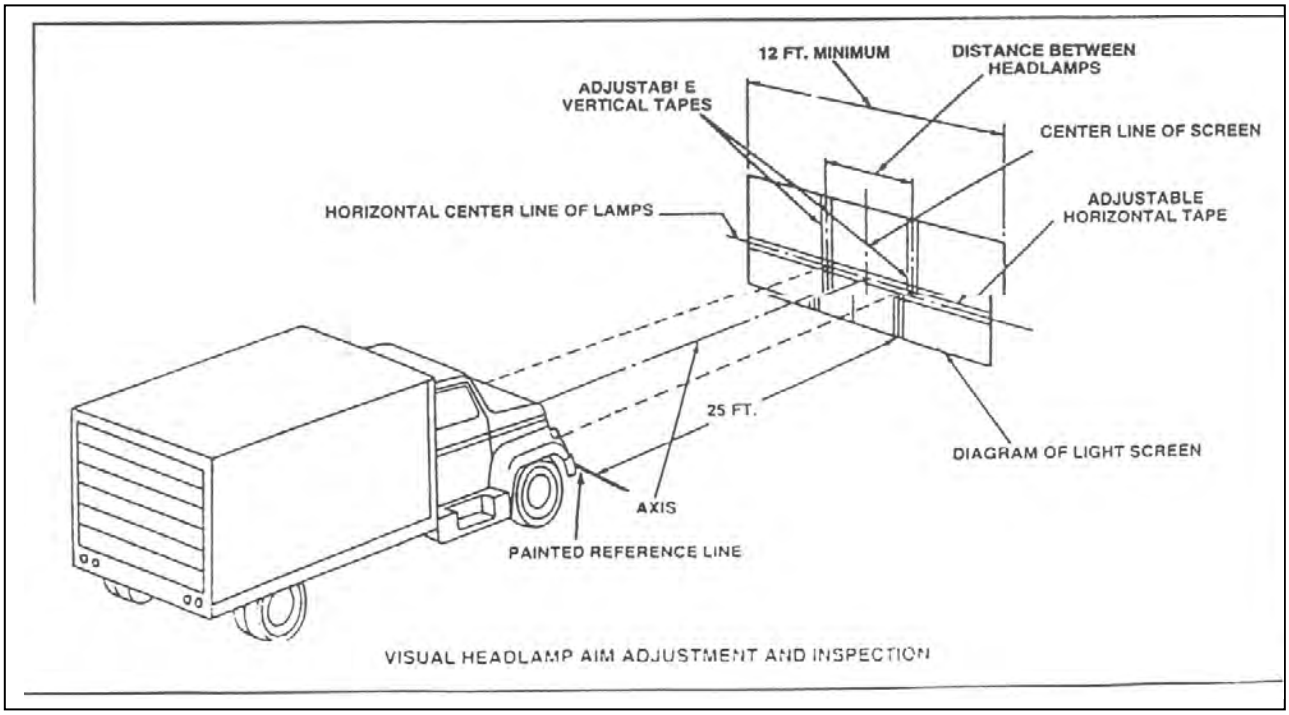
Aiming Screen - If a screen is used, it should be 5' high x 12' wide with a matte white surface well shaded from extraneous light, and properly adjusted to the floor on which the vehicle stands. Provisions may be made for moving the screen so that it can be aligned parallel with the rear axle and so that a horizontal line drawn perpendicularly from the center line of the screen will pass an equal distance midway between the two headlamps.

The screen shall be provided with a fixed vertical centerline, two laterally adjustable vertical tapes and one vertically adjustable horizontal tape.

If a regular commercial aiming screen is not available, the screen may consist of a vertical wall having a clear uninterrupted area approximately 6 feet high and 12 feet wide.

The surface should be finished with washable non-gloss white paint.

After the aiming screen has been set up in its permanent location, it is necessary to paint a reference line on the floor directly under the lens of the lamps to indicate the proper location of the headlamps when they are being aimed.



VISUAL HEADLAMP AIM ADJUSTMENT AND INSPECTION

HEADLAMP AIMING - MECHANICAL METHOD

Vehicle must be located on a level area and loaded as it is normally driven with driver behind wheel. ALWAYS ADJUST LIGHTS TO A SETTING OF 0-0 WHEN USING A MECHANICAL AIMER. U.S. headlamps are either "sealed beam" or "replaceable bulb" types.

Sealed Beam Headlamps

1. 177mm diameter, 2D1 both upper & lower beam.
2. 146mm diameter, 1C1 upper, 2C1 lower beam.
3. 142 x 200mm rectangular, 2B1 both upper and lower beam.
4. 100 x 165mm rectangular, 1A1 and 1G1 upper beam, 2A1 and 2G1 lower beam and 2E1 and 2H1 both upper and lower beam.

Replaceable Bulb Headlamp

1. 9004, 5, 6 Replaceable Bulb, both upper and lower beam (lamp lens may be marked with "HB1" to designate use of 9004 bulb).
2. 9005 and 9006 together, both upper and lower beam.
3. 9005 and 9006 in separate headlamps, upper and lower beam, respectively.

NOTE: Lamps with 9005 are marked "HB3" on lens, and lamps with 9006 are marked with "HB4" on lens.

High Beam (Type 1 or UF) or Replaceable Bulb Type 9005 (HB1) Used Alone

Equipment: Approved set of mechanical aimers. Calibrate mechanical aimer to "O" for vertical aim. Consult aimer instruction manual for procedure.

Procedure: Attach mechanical aimer to Type 1 in accordance with instructions. Take readings.

Reject Vehicle If:

Horizontal Aim Is More Than:

- 4 inches to the LEFT or
- 4 inches to the RIGHT

Vertical Aim Is:

- Higher than 0 inches UP or
- Lower than 4 inches DOWN

Low Beam Type 2, Type 9004 (HB1) or Type 9005 (HB3) and 9006 (HB4) Together

Equipment: Approved set of mechanical aimers. Calibrate mechanical aimer to "O" for vertical aim. Consult aimer instruction manual for procedure.

Procedure: Attach mechanical aimer to Type 2 units (with the Figure "2" molded at the top of the lens) in accordance with instructions. Take readings.

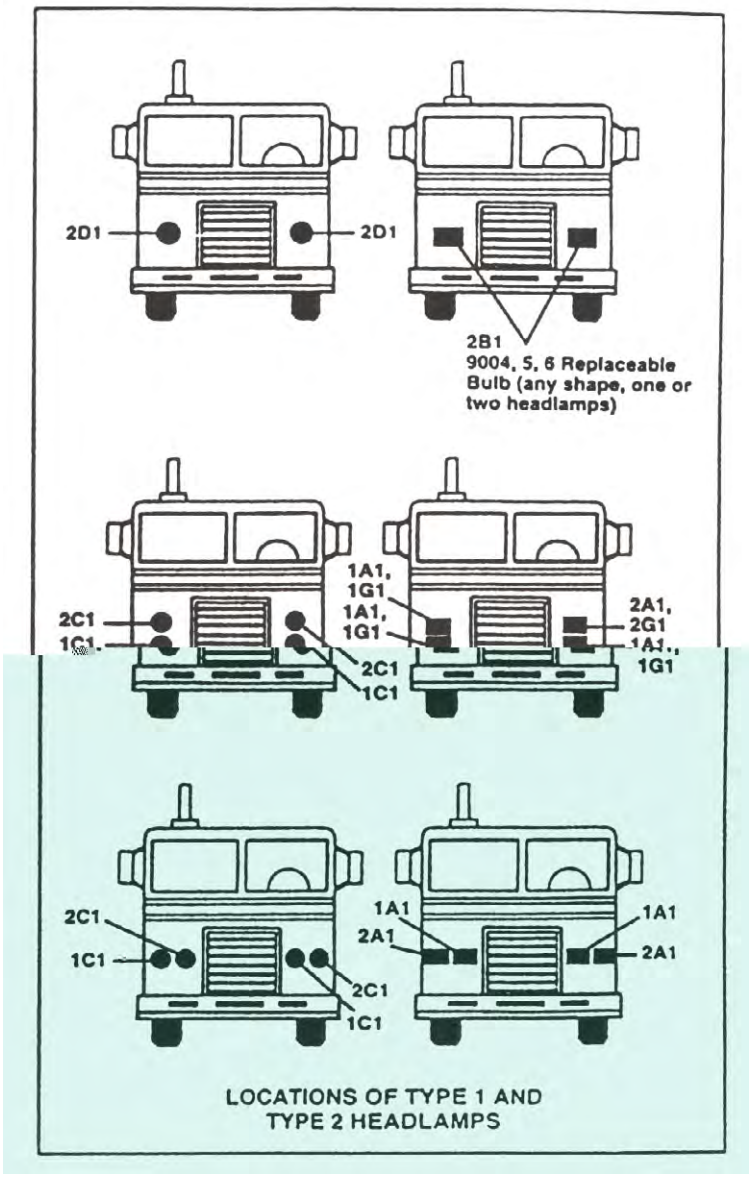
Reject Vehicle If:

Horizontal Aim Is More Than:

- 4 inches to the LEFT or
- 4 inches to the RIGHT

Vertical Aim Is:

- Higher than 0 inches UP or
- Lower than 4 inches DOWN



LOCATIONS OF TYPE 1 AND TYPE 2 HEADLAMPS

NOTE: All equipment for testing headlamps must comply with the Society of Automotive Engineers Recommended Practice for Headlamp Inspection Equipment. If a mechanical aimer is used, it shall be in good repair and adjustment, and should be used according to the manufacturer's instructions and must be calibrated to the slope of the floor on which the vehicle stands.

HEADLAMP AIMING - SCREEN METHOD

Headlamp aiming by the screen method requires a level area in a darkened location, sufficient for the vehicle and an additional 25' from lamps to screen. The vehicle **MUST** be located accurately in front of the screen.

High Beam (Type 1)

Equipment: Approved marked screen and adequate test area.

Procedure: With the vehicle properly located and loaded, switch headlamps to high beam and observe center of high intensity zone on the screen.

Reject Vehicle If:

Center Horizontally:

- More than 4 inches RIGHT
- More than 4 inches LEFT of straight ahead

Center is Vertically:

- More than 0 inches ABOVE or
- More than 4 inches BELOW the horizontal line.

Low Beam (Type 2 or Replaceable Bulb)

Equipment: Marked screen and adequate test area.

Procedure: With vehicle properly located and loaded, switch headlamps to low beam and observe left and top edges of high intensity zone on the screen.

Reject Vehicle If:
left edge is Horizontally more than:

- 4 inches LEFT or
- 4 inches RIGHT of straight ahead

Top edge is Vertically more than:

- 0 inches ABOVE or
- 4 inches BELOW the horizontal line.

NOTE:

ALWAYS inspect the following seal beam and replaceable bulb headlamps on **LOW BEAM** only:

- 5 3/4 inch, marked Type 2 or 2C1
- 7 inch, marked Type 2 or 2D1
- 6 1/2 x 4 1/4 inch rectangular, marked Type 2A or 2A1
- 200 x 142 mm rectangular, marked Type 2B or 2B1

FOG LAMP AIMING - SCREEN METHOD

If a vehicle is equipped with fog lamps, they should be properly aimed. The movable horizontal and vertical lines on the aiming screen should be located so they cross at the "straight ahead" positions of the centerline of each flog lamp, whether symmetrical or non-symmetrical.

Fog Lamp Inspection

Procedure: With vehicle properly located and loaded (the same as for headlamp aim inspection) switch on the fog lamps and observe the location of the high intensity zone on the screen.

Symmetrical Beam

Procedure: When properly aimed, the top edge of the high intensity zone is set 4" below horizontal centerline of fog lamp and the center of the high intensity zone are set on the vertical centerline.

Reject Vehicle If:

Center of high intensity zone is more than:

Horizontally:

- 4 inches LEFT or
- 4 inches RIGHT of straight ahead line

Top edge is:

- Vertically ABOVE centerline level.

Non-Symmetrical Beam

Procedure: When properly aimed, the top edge of the high intensity zone is set at the horizontal centerline of the fog lamp, and the left edge of the high intensity zone is set at the vertical centerline. (Same as low beam - Type 2 headlamps).

Reject Vehicle If:

Horizontally more than:

- 4 inches LEFT of, or
- 4 inches RIGHT of straight ahead line.

Top edge is:
Vertically more than:

- 4 inches ABOVE, or
- 4 inches BELOW the horizontal line.

ALTERNATIVE HEADLAMP AND FOGLAMP AIMING TOLERANCE
High Mounted Headlamps/Fog lamps
(Light Trucks, Medium/Heavy Trucks)

The following vertical aim corrections are recommended for jurisdictional use to relieve some of the direct glare and rear glare experienced from vehicle with "higher" mounted headlamps and fog lamps. This correction is accomplished so that the seeing distance is approximately the same for all mounting heights and the "seeing distance" is equivalent to the normal passenger car.

CORRECTIVE AIM CHART

Headlamp/Fog lamp Mounting Height	Correct Screen Aim
22 inches - 36 inches	0.0
36 inches - 48 inches	-2.0 inches
48 inches - 54 inches	-2.5 inches

SAE Technical Report J599 provides the bases for establishing headlamp inspection procedures.

West Virginia Motor Vehicle Code Chapter 17C, Article 15, Section 17

Fog lamps cannot be mounted higher than 30 inches or lower than 12 inches.

Auxiliary Passing Light:

- Allowed only one.
- Not less than 24 inches or greater than 42 inches.

Auxiliary Driving Lamp:

- Not more than one.
- Not less than 16 inches or more than 42 inches.

LIGHTING CODES & DEFINITIONS

SAE Identifying Code for Lights and Signaling Devices

Device	SAE Identification Code Designation
Reflex Reflectors	A
Motorcycle Auxiliary Front Lamps	C
Motor Cycle and Motor Driven Cycle Turn Signal Lamps	D
Side Turn Signal Lamps - Vehicles 9.1m More in Length	E
Side Turn Signal Lamps - Vehicles Less than 9.1m in Length	E2
Front Fog Lamps	F
Sealed Beam Headlamps (Marking Applies to Housing or Unit)	H
Sealed Beam Headlamp Housing	HH
Replaceable Bulb Headlamp	HR
Turn Signal Lamps	I
Turn Signal Lamps - Spaced Less Than 100mm From Headlamp	I2
(I-3 thru I-8) See SAE J759 Oct. 8 for update	
Turn Signal Flasher	J590
Hazard Warning Signal Flasher	J945
Warning Lamp Alternating Flasher	J1054
Front Cornering Lamps	K
Rear Cornering Lamps	K2
License Plate Lamps	L
Spot Lamps	O
Parking Lamps	P
Clearance or Side Marker or Identification Lamps	P2
Combination Clearance and Side Marker Lamps	PC
Turn Signal Operating Units - Class A	Q
Turn Signal Operating Units - Class B	QB
Vehicular Hazard Warning Signal Operating Unit	QC
Backup Lamps	R
Stop Lamps	S
Truck Stop Lamps	S2
Tail Lamps	T
Supplemental Dual High Mounted Stop and Turn Signal Lamps	U
Supplemental Center High Mounted Stop Lamps for Trucks	U2
Center High Mounted Stop Lamps	U3
Warning Lamps for Emergency Maintenance and Service Vehicles	W
Warning Lamps for School Buses	W2
360 Deg. Emergency Warning Lamps	W3
Emergency Warning Device	W4
Driving Lamps	Y
Auxiliary Low Beam Lamps	Z

Lighting Terms and Definitions

Asymmetrical Beam (non-symmetrical) - An asymmetrical beam is one in which both sides are not symmetrical with respect to the medial vertical plane of the beam. All lower beams are asymmetrical.

Back Up Lamps - Back up lamps are lamps used to provide illumination behind the vehicle, and to provide illumination behind the vehicle, and to provide a warning signal when the vehicle is in reverse gear.

Cornering Lamps - Cornering lamps are steadily burning lamps used when the turn signal system is operating to supplement the headlamps by providing additional road illumination in the direction of the turn, mounted on side at front and also may be mounted on side at rear.

Driving Lamp - An auxiliary lamp or lamps that may be used to supplement the upper beam of the regular headlamps.

Emergency Warning Lamps - Emergency warning lamps are lamps that provide a flashing light to identify an authorized vehicle on an emergency mission. The emergency signal may be either a rotating beacon or pairs of alternately or simultaneously flashing lamps.

Fog Lamps - Fog lamps are lamps that may be used with or in lieu of the lower beam headlights to provide illumination under conditions of rain, snow, dust or fog.

Halogen Sealed Beam Unit - An integral and hermetically sealed optical assembly containing a halogen inner bulb.

Headlamp Lower Beam - A distribution of light so directed as to avoid glare in the eyes of oncoming drivers while providing illumination ahead of the vehicle and intended for use in congested areas and on highways when meeting other vehicles within a distance of 500 feet.

Headlamp Upper Beam - A distribution of light intended primarily for distance illumination and for use on the open highway when not meeting other vehicles.

Hazard Warning Lamps - Hazard warning lamps are turn signal lamps that flash simultaneously to warn of the presence of a vehicular hazard.

Indicator Lamps - Indicator lamps are lamps visible to the operator of a vehicle that indicate:
1. Appropriate electrical circuits are in operation.
2. Malfunction of vehicle performance, and
3. Requirement for remedial action by the operator of the vehicle.

Lane Changer - A lane changer is a device, usually incorporated in the turn signal switch that will actuate the turn signal lamps when held by the driver. It is intended for momentary use for signaling a lane change. When released by the operator, it will return to neutral and deactivate the signal lamp.

Operating Units or Switches - Operating units or switches are devices by which the functioning of lamps is controlled.

Parking Lamps - Parking lamps are lamps used to designate the front of a parked vehicle.

Passing Lamp - (Auxiliary Low Beam) - An auxiliary lamp or lamps that may be used to supplement the low beam of a standard headlamp system. It is not intended for winding roads or congested city areas.

Replaceable Bulb Headlamp - A headlamp unit comprising of one or two replaceable standard light sources (bulb and a housing lens/reflector unit).

SAE Lighting Identification Code - The SAE lighting identification code is a series of standardized markings for lighting devices which a manufacturer or supplier may use to mark his/her product to indicate the SAE Lighting Standard or Standards to which the device is designated to conform. The code is not intended to limit the manufacturer or supplier in applying other markings to the devices.

Sealed Beam Headlamp Assembly - A sealed beam headlamp assembly is a major lighting device used to provide general illumination ahead of the vehicle. It consists of the following:

- One or more sealed beam units (bulb assembly).
- Means for mounting securely to the vehicle.
- Means to permit required aim adjustment.

Sealed Beam Unit - An integral and hermetically sealed optical assembly with the name "Sealed Beam" molded in the lens.

Sealed Beam Unit 5 3/4 Inch Type 1, 1C, or 1C1 - A sealed unit 146mm in diameter having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 5 3/4 Inch Type 2, 2C or 2C1 - A sealed unit 146mm in diameter having two filaments, one filament providing the lower beam and one filament providing fill-in light for the upper beam. It is aimed on the lower beam.

Sealed Beam Unit 7-Inch Type 2, 2D, or 2D1 - A sealed unit 177mm in diameter providing an upper and a lower beam. Two similar units are used on a vehicle. This unit is aimed on the lower beam.

Sealed Beam Unit 7-Inch (no identifying number on lens) - A sealed unit 177mm in diameter providing an upper and lower beam. Two similar units are used on a vehicle. This is an obsolete unit no longer being installed in production. It should be aimed in the upper beam.

Sealed Beam Unit 100 x 165mm Rectangular Type 1A or 1A1 or 1G1 - A sealed unit 100 x 165mm rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 100 x 165mm Rectangular Type 2A or 2A1 or 2G1 - A sealed unit 100 x 165mm rectangular headlamp having two filaments, one filament providing the lower beam and one filament providing fill-in light for the upper beam. It is aimed on the lower beam.

Sealed Beam Unit 100 x 165mm Rectangular Type 2E or 2H1 - A sealed unit 100 x 165mm rectangular has two filaments, one providing the lower beam and one providing the upper beam. It is aimed on lower beam.

Sealed Beam Unit 142 x 200mm Rectangular Type 2B or 2B1 - A sealed unit 142 x 200mm rectangular headlamp having two filaments, one filament for the lower beam and one filament for the upper beam.

Sealed Beam Unit 92 x 150mm Rectangular Type LF - A sealed unit rectangular headlamp having a single filament and providing only a lower beam distribution of light.

Integral Beam Unit 55 x 135mm Rectangular Type L - A sealed unit rectangular headlamp having a single filament and providing lower beam distribution of light and fill-in for upper beam.

Integral Beam Unit 55 x 135mm Rectangular Type U - A sealed unit rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Sealed Beam Unit 92 x 150mm Rectangular Type UF - A sealed unit rectangular headlamp having a single filament and providing only an upper beam distribution of light.

Side Marker Lamps - Side marker lamps are lamps on the left and right sides, beamed to the side. They are located near the front and rear on each side an, for vehicles over 30 feet in length, are also located at the midpoint (intermediate side marker).

Standard Replaceable Light Source - An assembly of a headlamp halogen bulb and base for use with replaceable bulb headlamps. The bulb may have one or two filaments providing lower beam, upper beam, or both, depending on application.

Stop Lamps - Stop lamps are lamps giving a steady warning light to the rear of a vehicle, to indicate the intention of the operator of the vehicle to reduce speed or stop.

Symmetrical Beam - A symmetrical beam is one in which both sides are symmetrical with respect to the median vertical plane of the beam. Lamps having symmetrical beams are:

- 5 3/4 inch Type 1, 1C, or 1C1
- 5 3/4 inch Type 2, 2C, or 2C1 (upper beam filament)
- 100 x 165mm Type 1A or 1A1
- 100 x 165mm Type 2A or 2A1 or 2G1 (upper beam filament)
- 100 x 165mm Type 2E1 or 2H1 (upper beam filament)
- All 7 inch sealed beam unit (upper beam filament)
- 92 x 150mm Type UF
- Type 2B or 2B1 (upper beam filament)
- Replaceable bulb headlamp (upper beam filament)

Tail Lamps - Tail lamps are lamps used to designate the rear of a vehicle.

Turn Signal Lamps - Turn signal lamps are lamps that provide a flashing warning light to indicate the intended direction of the turn.

VEHICLE GLAZING

Automotive safety glazing is marked with the manufacturer's trademark and the letters "AS" followed by a number from 1 through 11. Only AS1 (or AS10 - Bullet Resistant) may be used in the windshield. Safety glazing 1966 and later models also has a glass manufacturer's model number or a DOT code number.

Proper Markings

Procedure: Inspect glass for proper markings.

Reject Vehicle If:

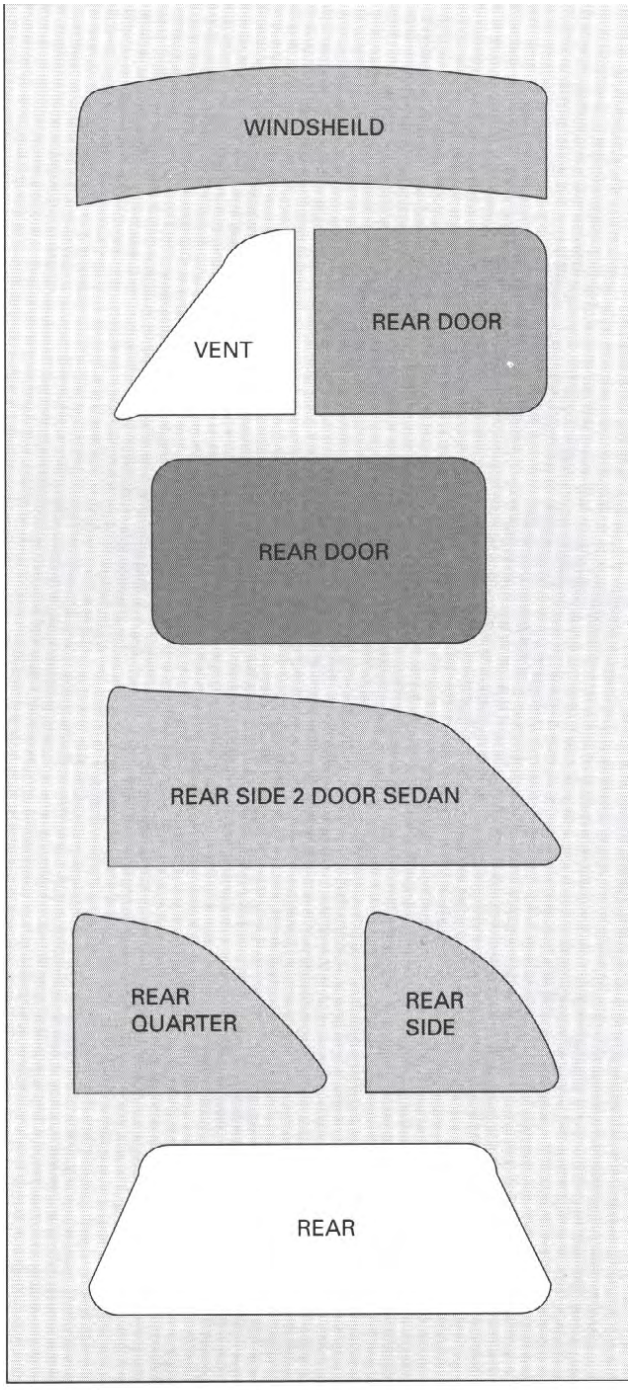
- Improper or unmarked glazing materials are used for specific positions.
- Any materials other than specified materials are used.

Left Front Window

Procedure: Inspect operation of window at driver's left. Window must open readily even though the vehicle has approved turn signals...

Reject Vehicle If:

- Window at driver's left cannot be readily opened to permit arm signals.



Glazing Positions Diagram

Cracks, Chips and Discoloration

Procedure: Inspect windshield and all windows for hazardous cracks, chips, sharp edges and discoloration of the glazing.

Advise Driver: If there are signs of the beginning of glazing discoloration. "Discoloration" in this case means anything that impairs the transparency of the glazing.

Reject Vehicle If:

- There are cracks, discoloration or scratches to the front, right, left or rear of the driver that interferes with his/her vision.
- Any windows are broken, have exposed sharp edges, or are cracked or separated allowing one piece of glass to be moved relative to another.
- The windshield has star chips (stone nicks) larger than 1 1/2 inches in diameter at any location in the unshaded portion of the diagram.
- The windshield, vent, or front door has discoloration at any location in the unshaded portion of the diagrams.
- The rear window is discolored so that the driver does not have a clear view 200 feet to the rear of the vehicle unless all rear vision is accomplished with outside rearview mirrors.
- Reject vehicle for **ANY** repairs made in the acute area, in the critical area larger than 3" in length or 1 1/2" in diameter or in the non-critical area larger than 6" or 1 1/2" in diameter.

Stickers, Tinting

Procedure: Inspect all glass for unauthorized material or conditions that obscure driver's vision.

Reject Vehicle If:

- Glazed surfaces contain any stickers not permitted by law or regulation.
- Surfaces contain unauthorized tinting materials that limit vision.

Side Windows (School Bus Only)

Procedure: Inspect the operation of all full side windows.

Reject Vehicle If:

- Any full side window cannot be readily opened.
- Any side window does not close properly.

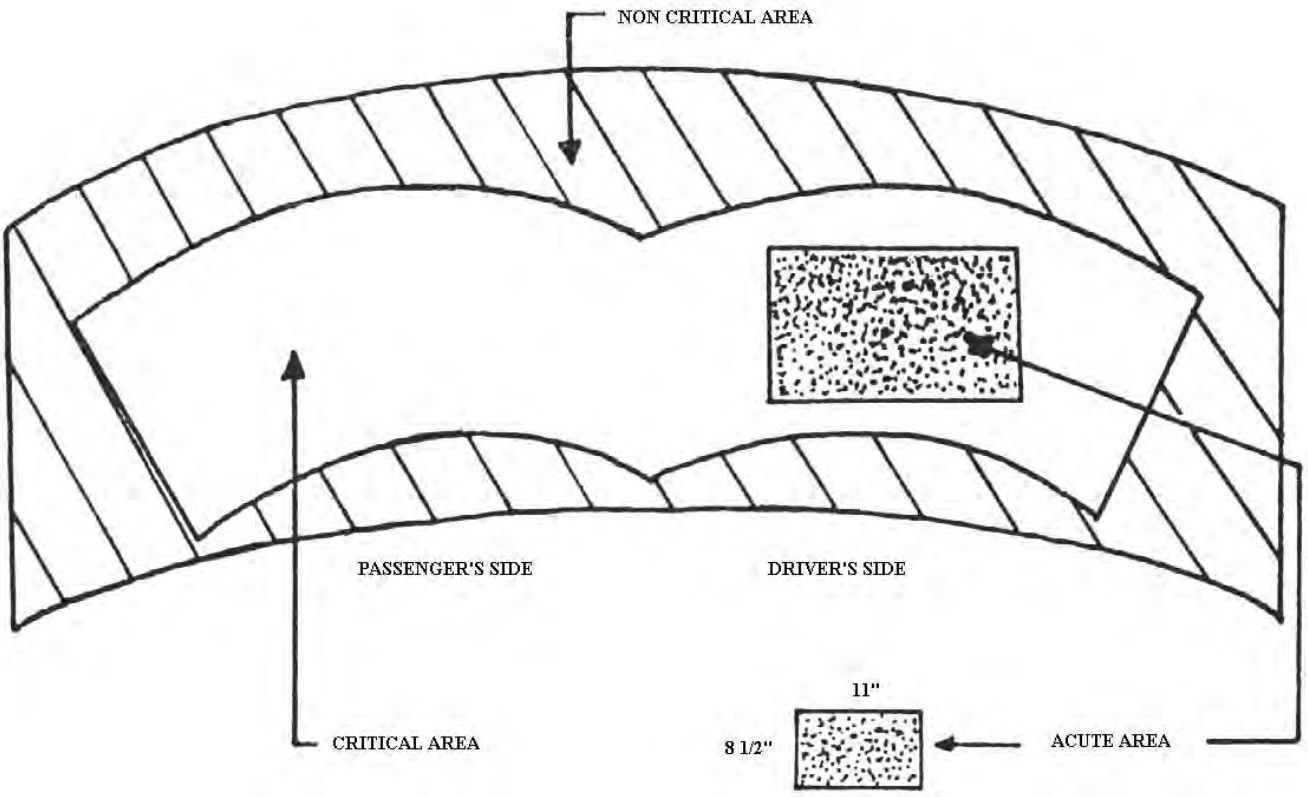
Edging (School Bus Only)

Procedure: Inspect for unbanded exposed edges of glass.

Reject Vehicle If:

- Banding is missing, loose or broken.

WINDSHIELD



ACUTE AREA: Directly in the driver's line of vision in the center of driver's critical area. (8 1/2 X 11 inches, size of standard typing paper.)

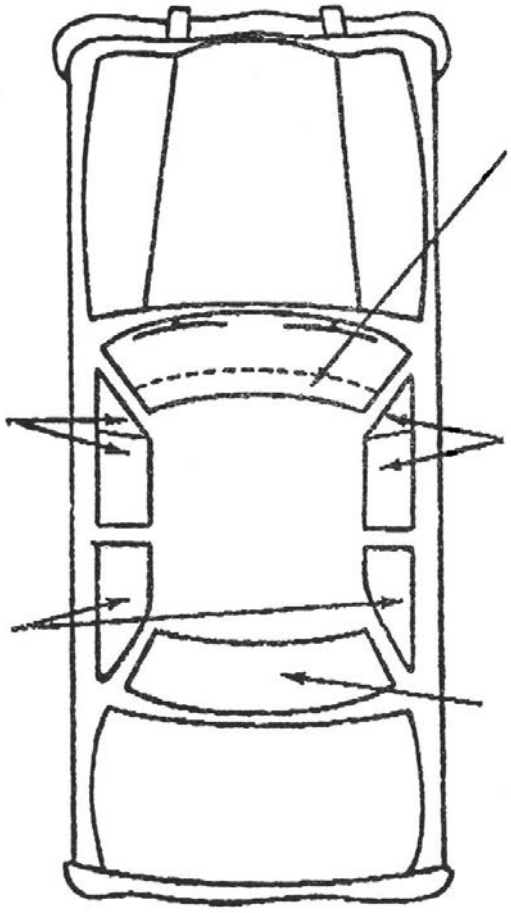
CRITICAL AREA: The area cleaned by the normal sweep of windshield wiper blades, other than the acute area.
NOTE: Blade size cannot be reduced when replacing.

NON-CRITICAL AREA: All other windshield area.

Reject Vehicle If:

- Any posters, stickers or other nontransparent materials except those required by law, located on the windshield that would obstruct the drivers view.
- No mark of any kind in the acute area.
- The windshield has star chips (stone nicks) and breakage larger than 1 1/2 inches in diameter in the critical area.

STATE INSPECTION GUIDELINES
FOR
AUTOMOTIVE WINDOW TINTING



May not extend downward beyond the AS-1 line or inches whichever is closer to top of windshield. (May not be red, yellow or amber in color.)

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission.

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission.

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission. One right and one left outside rearview mirror is required if any window behind the driver is tinted. (Factory tinting of 70% or higher is exempt.)

Non-reflective type film on factory tinted glass shall not be less than 35% total light transmission. One right and one left outside rearview mirror is required if any window behind the driver is tinted. (Factory tinting of 70% or higher is exempt.)

- The requirements of the windshield and all windows right and left of the driver on trucks, buses, trailers, mobile homes and multipurpose passenger vehicles are the same as passenger cars.
- The tinting on all windows behind the driver is exempt on trucks, buses, trailers, mobile homes and multipurpose passenger vehicles
- Tinting of windows in vehicles registered to a person with a medical exemption affidavit is exempt.

VEHICLE GLAZING - ADDITIONAL INFORMATION

Glazing Material Position Markings

The numbers on the chart on the following page indicate the numerical markings following the letters AS, which should be found on glazing materials in the positions indicated. These numbers come from American National Standards Institute (ANSI) Glazing Standard Z26.1 (1977) and the meaning of each item as follows:

Position Number	Description
1.	Safety Glazing Material for use anywhere in motor vehicle.
2.	Safety Glazing Material for use anywhere in motor vehicle except windshields.
3.	Safety Glazing Material for use anywhere in a motor vehicle except windshields and certain specified locations.
4.	Safety Glazing Materials for use in motor vehicles only in the following specific locations.
5.	Safety Glazing Materials for use in motor vehicles only in the following specific locations at levels not requisite for driving visibility.
6.	Safety Glazing Material for use only in House-or Property-Carrying Trailers, in the rear windows of convertible passenger car tops, in windscreens for motorcycles, in flexible curtains or readily removable windows, or in ventilators used in conjunction with readily removable windows.
7.	Safety Glazing Material for use only in House-or Property-Carrying Trailers and at levels not requisite for driving visibility in the rear window of convertible passenger car tops, in windscreens for motorcycles, in flexible curtains or readily removable windows, or in ventilators used in conjunction with readily removable windows.
8.	Bullet Resistant Glass for use anywhere in motor vehicle.
9.	Bullet Resistant Glass for use anywhere in motor vehicles except windshields.

GLAZING POSITION MARKINGS FOR PASSENGER CARS

(THIS CHART EXCERPTED FROM ANSI STANDARD Z26.1 TABLE A1)		GLAZING MATERIAL APPLICABLE WHEN MARKED WITH "AS" DESIGNATION INDICATED BELOW	
		AT LEVELS REQUISITE FOR DRIVING VISIBILITY	AT LEVELS NOT REQUISITE DRIVING VISIBILITY*
PASSENGER CARS	WINDSHIELDS	1, 10	1*, 10*
	INTERIOR PARTITIONS, AUXILIARY WIND DEFLECTORS	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11
	FLEXIBLE CURTAINS, READILY REMOVABLE WINDOWS, VENTILATORS USED IN CONJUNCTION WTIH READILY REMOVABLE WINDOWS, REAR WINDOWS IN TOPS OF CONVERTIBLE CARS	1, 2, 4, 6, 10, 11	1, 2, 3, 4, 5, 6, 7, 10, 11
	OPENINGS IN ROOFS NOT REQUIRED FOR DRIVING VISIBILITY	———	1, 2, 3, 4, 5, 10, 11
TAXI CABS	ALL OTHER GLAZING EXCEPT AS LISTED ABOVE	1, 2, 10, 11	1, 2, 3, 10, 11
	WINDSHIELDS	1, 10	1*, 10*
	INTERIOR PARTITIONS, AUXILIARY WIND DEFLECTORS, WINDOWS IN REAR DOORS	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11
	OPENINGS IN ROOFS NOT REQUIRED FOR DRIVING VISIBILITY	———	1, 2, 3, 4, 5, 10, 11
	FLEXIBLE CURTAINS, READILY REMOVABLE WINDOWS, VENTILATORS USED IN CONJUNCTION WITH READILY REMOVABLE WINDOWS	1, 2, 4, 6, 10, 11	1, 2, 3, 4, 5, 6, 7, 10, 11
	ALL OTHER GLAZING EXCEPT AS LISTED ABOVE	1, 2, 10, 11, 14	1, 2, 3, 10, 11

* GLAZING MATERIAL WHICH IS INTENTIONALLY MADE SO THAT ONLY A PORTION OF A SINGLE SHEET HAS A LUMINOUS TRANSMITTANCE OF NOT LESS THAN 70% WILL BE MARKED AT THE EDGE OF THE SHEET TO SHOW LIMITS OF THE AREA THAT MAY BE USED AT LEVELS REQUISITE FOR DRIVING VISIBILITY. THE MARKS A↓S1 OR A↑S2 ETC. WILL BE USED WITH THE ARROW POINTING TO THE PORTION OF THE SHEET HAVING A LUMINOUS TRANSMITTANCE OF NOT LESS THAN 70%, AND THE NUMBER INDICATING THE ITEM WITH WHICH THAT PORTION OF THE SHEET COMPLIES.

MIRRORS

All vehicles manufactured after January 1, 1968, were equipped at the factory with a left-hand exterior rearview mirror.

Exterior Rearview Mirror(s)

Procedure: From the driver's position, visually inspect exterior mirror(s) for a clear and reasonable unobstructed view to the rear. Look for stable mounting, cracks, sharp edges, unnecessary protrusion, and ease of proper adjustment.

Reject Vehicle If:

- Right or left exterior mirror is missing.
- Mirror is very difficult to adjust or will not maintain a set adjustment.
- Mirror(s) protrudes an unnecessary amount beyond line offering satisfactory rear vision. Allowance should be made for truck tractors inspected without a trailer attached and the extra width the mirrors protrude to provide rearward visibility around the trailer.
- Mirror is cracked, has sharp edges, pitted or clouded to the extent that the rear vision is obscured.

Interior Rearview Mirror

Procedure: From the driver's position, visually inspect interior mirror for proper mounting, location, cracks, sharp edges and ease of proper adjustment.

Reject Vehicle If:

- Interior mirror is missing.
- Mirror is loosely mounted.
- Mirror does not provide a clear view of highway at least 200 feet to rear.
- Mirror is cracked, broken, has sharp edges or cannot be cleaned - such that rear vision is obscured.
- Mirror is very difficult to adjust or will not maintain a set adjustment.

NOTE: This applies only to trucks and commercial vehicles that utilize an interior mirror for rear vision. It does not apply to vehicles with trailers, etc., which depend solely upon exterior mirrors for rear vision.

Exterior Cross View Mirror
(School Bus Only)

Procedure: From the driver's position, visually inspect the convex cross view mirror for a clear view of the front bumper and area in front of the bus. Inspect for stable mounting, cracks, and sharp edges.

Reject Vehicle If:

- Exterior cross view mirror is missing.
- Mirror is loosely mounted.
- Mirror will not maintain a set adjustment.
- Mirror is cracked, broken, has sharp edges, pitted or clouded to the extent that vision is obscured.

WINDSHIELD WIPERS & WASHERS

U.S. vehicles produced after January 1, 1968, must be equipped with a windshield wiper system capable of operating at two or more speeds, and a windshield washer system. A CYCLE shall consist of blade movement from one extreme of the wiper pattern to the other and return.

Windshield Wiper Operation

Procedure: Inspect for satisfactory operation. (If vacuum operated, engine must be idling and control full on). Windshield must be free of insects, oil film or other foreign matter, and must be continuously wet when tested.

Reject Vehicle If:

- Wipers do not operate at a minimum speed of 45 cycles per minute.
- If vehicles produced after January 1, 1968, do not have two or more speed systems.

Damaged Blades

Procedure: Inspect for damaged, torn or hardened rubber elements of blades.

Reject Vehicle If:

- Blades show signs of physical break down of rubber wiping element.
- Blades smear or severely streak windshield after 5 cycles.

Damaged Metal Parts

Procedure: Inspect for damaged metal parts of wiper blades or arms.

Reject Vehicle If:

- Parts of blades or arms are missing or are damaged.

Blade and Windshield Contact

Procedure: Inspect for proper contact of blades with windshield. Raise arm away from windshield and release. Arm should return to original position and wiper blade should contact the windshield firmly.

Reject Vehicle If:

- Arm fails to return to original position or the blade fails to contact the windshield firmly and fully throughout the cycling of the system.

Windshield Washer System

Procedure: Inspect for proper operation of hand or foot control and an effective amount of fluid delivered to the outside of the windshield opposite each outboard front seating position.

Advise Driver: If fluid level is low.

Reject Vehicle If:

- Systems fail to function.
- System not capable of cleaning an effective wash area within 10 wiper cycles.

NOTE:

System must function when temperature is both above and below the freezing point of water.

DEFROSTER, VISORS, SEATS & BELTS

WINDSHIELD DEFROSTER - It is very important that the defroster be given a minimum check as shown below. Vehicles produced after January 1, 1968, must be equipped with windshield defroster systems.

Windshield Defroster

Equipment: Ribbons may be used for checking air movement.

Procedure: Turn on windshield defroster fan switch to "high" blower speed and inspect for heated air blowing over the inside of the windshield, covering areas directly in front of the driver and the front seat passenger. (Engine must be warm and all elements of the defroster system must be "on").

Reject Vehicle If:

- Defroster fan fails to function.
- Fan functions but a stream of air cannot be "felt" blowing against the proper area of the windshield.

Seats and Safety Belts

Procedure:

- Inspect seats for proper operation of adjusting mechanism to see that seats are securely anchored.
- Inspect safety belts for frayed, split or torn webbing; malfunctioning buckles; loose or damaged anchorages of floor pan.
- Inspect safety belt retractors for proper function (when so equipped).

Advise Driver:

If a retractor fails to maintain the restrained occupant belt length or fails to roll the belt onto the retractor when buckle is disconnected.

Reject Vehicle If:

- All seat anchor bolts are not securely fastened to floor or are missing.
- Seat adjusting mechanism slips out of set position.
- Safety belt webbing is frayed, split or torn.
- Belt buckles do not operate properly.
- Belt anchorages are loose, badly corroded, missing or not fastened to belt.
- Belt mounting surfaces are badly deformed, damaged or corroded.

(School Bus Only)

- Any seat cover material is torn or seat springs exposed which may present a hazard to pupils.
- Any seat back padding torn, badly damaged or missing to expose rigid seat back that may present a hazard to occupants.
- Seat belt is not installed for driver.

Sun Visors

Procedure: Inspect sun visors for broken, bent of loose parts that prevent the visors from being positioned; or for visors which will not stay in a set position.

Advise Driver If:

- Visor cannot be positioned to protect driver's eyes from sun.
- Vibration from running engine causes visors to move from set position.

Reject Vehicle If:

- Driver visor is missing.

FIRE EXTINGUISHER FIRST AID KIT

Fire Extinguisher

Procedure: Inspect for the presence of, location, and readiness of a fire extinguisher.

Reject Vehicle If:

- Extinguisher is missing.
- Extinguisher is not properly filled.
- Visual determination of charge cannot be made.
- Extinguisher is not readily accessible to the driver.
- For school buses, it is not a dry chemical-type with a rating of at least 10 B: C.
- For commercial trucks and buses, it does not meet Federal Motor Carrier Safety Regulations set forth in paragraph 393.95.

First Aid Kit

Procedure: Inspect for the presence and general condition of a first aid kit approved by the local jurisdiction.

Reject Vehicle If:

- The first aid kit is missing or it does not contain all the required items in good condition.

BUS BODY INTERIOR & DOORS

Several interior bus items should be inspected to ensure the safety of its passengers. Tripping hazards, loose handrails, etc. can cause significant injuries and inoperative or inaccessible emergency exits are potentially disastrous.

Stepwell/Floor Covering

Procedure: Inspect the stepwell and floor covering for any condition that presents a tripping hazard such as loose, curled, or worn floor covering or cluttering of the stepwell or aisles.

Reject Vehicle If:

- The stepwell or floor is cluttered or worn to present a tripping hazard.

Stanchions and Guard Rails

Procedure: Inspect all stanchions, guard rails, grab rails, etc., for tightness.

Reject Vehicle If:

- There is any looseness or the fastening parts are missing.

Heating/Ventilation System

Procedure: With engine at operating temperature, check the function of the heater and ventilation systems at their maximum settings. Inspect the general condition of these systems and for any leakage from the system.

Reject Vehicle If:

- There is any leakage or malfunction of the heating system.
- Ventilation system fails to furnish fresh air under operating conditions.

NOTE: Heaters may not be required in some areas.

Service Door(s)

Procedure: From the driver's seated position, operate the opening and closing mechanism to check its function. Inspect the condition of the flexible material on the vertical closing edges.

Reject Vehicle If:

- Opening and closing mechanism shows evidence of binding, jamming, excessive wear, or malfunction.
- Flexible material on vertical closing edges is excessively loose, torn or missing.

**Emergency Door(s) and Windows -
Commercial Bus**

Procedure:

- Inspect for clear passageway to emergency exits.
- Check the operation of the emergency door warning signal indicating the door is not fully closed.
- Inspect for function of the push-out windows.
- Check the emergency exit instruction decals.

Reject Vehicle If:

- Any emergency exit is not easily accessible.
- Inside or outside quick-release mechanism fails to function positively or opens accidentally or too easily.
- Emergency door warning signal fails to operate when door is slightly opened.
- Push-out windows do not function properly.
- Emergency exit instruction decals are missing or not legible.

Emergency Doors, Windows and Roof Hatch - School Bus

Procedure:

- Inspect for clear passageway to emergency exits.
- Inspect inside and outside quick-release mechanism.
- Check the length of stroke on the slide bar/cam operated lock (if so equipped).
- Check the operation of emergency exits warning signals indicating the exits are not fully closed.

Reject Vehicle If:

- Passageway to emergency exit is blocked or restricted in any way.
- Inside or outside quick-release mechanism fails to function positively or opens accidentally or too easily.
- Slide bar has less than one-inch stroke length.
- Emergency exit warning signal fails to operate when release mechanism is operated.

EXTERIOR PARTS & SHEET METAL

Body exterior components and sheet metal parts if damaged and/or dislocated so that they protrude from the vehicle to present a safety hazard to occupants, pedestrians and other vehicles, may be cause for rejection of the vehicle.

Protruding Metal

Procedure: Inspect for torn metal parts, moldings, etc., which may protrude from vehicle.

Reject Vehicle If:

- Torn metal, glass, or other loose or dislocated parts protrude from the surface of the vehicle causing a safety hazard to pedestrians or cyclists.

Bumpers

Procedure: Inspect bumpers for hazardous condition or unsafe mounting.

Reject Vehicle If:

- The bumper is missing, badly displaced, loosely attached, or a broken or torn portion is protruding, creating a hazard.

Hood

Procedure: Open hood and inspect safety catch for proper operation. Close hood and inspect for proper full closure. Manually inspect latch or remote control for proper operation.

Reject Vehicle If:

- Hood latch does not securely hold hood in its proper fully closed position.
- Secondary or safety catch does not function properly.
- Latch release mechanism or its parts are broken, missing or badly adjusted so that the hood cannot be opened and closed properly.

Door

Procedure: Inspect door latches, locks, hinges and handles for proper operation, fastening, adjustment, broken or missing components. (Operate all doors and locks.)

Reject Vehicle If:

- Doors or door parts are missing, broke, or sagging so that the door cannot be tightly closed.

Fenders

Procedure: Inspect for removal of front or rear fenders or mud flaps where required.

Reject Vehicle If:

- Any fender or required mud flap is missing.

Floor Pan and Inner Panels

Procedure: Inspect floor pan and inner panels in both occupant compartment and cargo areas open to the occupant compartment for rusted-out areas or openings which could permit entry of exhaust gases, or which would not support occupants adequately.

Reject Vehicle If:

- Floor pan or inner panels have rusted areas or openings sufficient to cause a hazard to an occupant, or so that exhaust gases can enter either the occupant compartment or cargo areas open to the occupant compartment.

FUEL & EXHAUST SYSTEM

The exhaust system is a series of mechanical devices for the purpose of receiving exhaust gas from an internal combustion engine before expelling it into the atmosphere, thereby effectively reducing engine noise emissions. The exhaust system may include exhaust pipes, exhaust stacks, catalytic converters, mufflers, resonators, and tail piping in varying combinations. The fuel system includes the fuel tank, fuel pump and necessary piping to carry the fuel from the tank to the engine.

Exhaust System

Procedure:

- Visually examine, as applicable, mufflers, catalytic converters, resonators, tail pipes, exhaust pipes, exhaust stacks, heat shields and supporting hardware while vehicle is on a hoist or over a pit.
- Rusted or corroded surfaces should be given particular attention.
- (Holes in the system made by the manufacturer for drainage are not cause for rejection.)

Advise Driver:

- If there is excessive rust or corrosion.
- Exhaust stacks are so located than an individual may be burned on entering or leaving.

Reject Vehicle If:

- Vehicle is not equipped with proper exhaust system.
- There are loose or leaking joints.
- There are holes, leaking seams, or patches on mechanical devices.
- Tail pipe end is pinched or damaged.
- Elements of system are not securely fastened.
- There is an exhaust system cut-out or similar device that allows excessive noise.
- Any part of system passes through occupant compartment.
- Exhaust pipe does not extend out from under vehicle on school buses.

NOTE: All exhaust system checks must be made on a free flow condition. Blocking or obstructing the tail pipe is not permitted.

Fuel System

Procedure: Visually examine the fuel tank, fuel tank support straps, filler tube (rubber, plastic, metal) tube clamps, fuel tank vent hoses or tubes, filler housing drain, overflow tubes, and filler cap.

Reject Vehicle If:

- Any part of system is not securely fastened.
- There is vapor or liquid fuel leakage caused by deterioration, at any point in the system.
- Fuel tank filler cap is missing.
- There is excessive physical damage caused by heat, aging or chafing.
- Fuel hoses or tubes are contacting moving components.
- Fuel supply and return lines shall be routed in such a manner that heat sources (E.g. manifold) do not impair fuel delivery or return.

NOTE: Vehicles with pressurized fuel systems (e.g. most vehicles equipped with fuel injection systems) should be examined with the engine running.

SECTION V

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VEHICLE EQUIPMENT SAFETY COMMISSION

REGULATION VESC-12

MINIMUM REQUIREMENTS FOR CONSTRUCTION AND EQUIPMENT OF SPECIAL MOTOR VEHICLES

VESC-12
MINIMUM REQUIREMENTS FOR CONSTRUCTION
AND
EQUIPMENT OF SPECIAL MOTOR VEHICLES

1. PURPOSE:

1.1 To establish equipment requirements for the manufacture of special motor vehicle, or the assembly and construction of vehicles from new or used parts or kits, or the alteration of a motor vehicle which places it in the category of a special motor vehicle, for the purpose of reducing the danger of death and injury to the operators and passengers of the vehicles subject to this regulation and to other users of the public highways.

1.2 To establish minimum construction and performance requirements that are technically feasible and based on sound engineering to achieve operational safety and to furnish state administrators with a guide for registration eligibility and in-use conformity for vehicles in this category.

2. SCOPE:

2.1 This regulation sets forth performance and equipment requirements necessary for the safe operation of special motor vehicles upon the public highways. Vehicles constructed, reconstructed or modified after the effective date of this regulation shall comply with all provisions unless specifically accepted.

2.2 A jurisdiction may grant exceptions from the requirements of this regulation or permit the use of other equipment or devices.

2.3 This regulation does not apply to vehicles modified for the handicapped.

3. DEFINITIONS:

3.1 **Special motor vehicles* -** passenger vehicles and trucks with an unladen weight of 6,000 pounds or less equipped with two or more axles having at least two wheels per axle and which are intended for use on public highways. The term "special motor vehicle" shall include the following types: ***** An antique vehicle or vehicle restored to the original configuration and specifications of a recognized manufacturer is not considered to be a "special" vehicle and is not covered by this standard since most states have regulations for the antique category.

Type I - vehicles that are restored to their original body configuration with changes made to the steering, brake, power train, or suspension systems.

Type II - vehicles changed from the recognized vehicle manufacturer's original body configuration but which retain the general appearance, including changes to the body chassis or engine of the original vehicle. This type may also include changes and modifications to engine, chassis, brake system, power train, steering, and suspension systems.

Type III - all special motor vehicles except Type I and Type II vehicles, those vehicles custom built with fabricated parts or parts taken from existing vehicles.

3.2 **Recognized Manufacturer** - a person engaged in the manufacture, assembly or importation of special motor vehicles intended for use on the public highways or for distribution and sale in interstate commerce (person means every natural person, firm, co-partnership, association, or corporation).

3.3 **S.A.E.** - Society of Automotive Engineers, Inc.

3.4 **F.M.V.S.S.** - Federal Motor Vehicle Safety Standards

3.5 **A.N.S.I.** - American National Standards Institute, Inc.

3.6 **S.E.M.A.** - Specialty Equipment Manufacturers Association

4. MANUFACTURER'S CERTIFICATION

4.1 The manufacturer or assembler of special vehicle (Types I, II, or III) shall provide a certification of fact that the vehicle is designed and manufactured for use on the public highway and complies with the performance and equipment requirements of this regulation. Nothing contained herein shall preclude the administrator from requiring a certificate of inspection to insure compliance with the regulation.

BODY REQUIREMENTS

5. DEFROSTER AND DEFOGGING DEVICE:

5.1 Every closed special motor vehicle shall be equipped with a device capable of defogging or defrosting the windshield area.

6. DOOR LATCHES:

6.1 Every special motor vehicle equipped with side doors leading directly into a compartment that contains one or more seating accommodations shall be equipped with mechanically actuated door latches which firmly and automatically secure the door when pushed closed and which allow each door to be opened both from the inside and outside by the actuation of a convenient lever, handle or other suitable device.

7. ENCLOSED PASSENGER COMPARTMENT:

7.1 A special motor vehicle with an enclosed passenger compartment and powered by an internal combustion engine shall be constructed to prevent the entry of exhaust fumes through the floor pan and firewall.

8. FLOOR PAN:

8.1 A special motor vehicle shall be equipped with a floor pan under the entire passenger compartment. The floor pan shall be capable of supporting the weight of the number of occupants that the vehicle is designed to carry.

9. GLAZING:

9.1 Windshields - a special motor vehicle shall be equipped with a laminated safety glass windshield that complies with the provisions appearing in the current ANSI Z26.1 Standard. The windshield shall be framed and in such a position that it affords continuous horizontal frontal protection to the driver and front seat occupants. The minimum vertical height of the unobstructed windshield glass shall be 6 inches or as originally equipped by a recognized manufacturer.

9.2 Side and Rear Glass - these items are not required, but if they are present, they must comply with the provisions of the current ANSI Z26.1 Standard.

10. DRIVER VISIBILITY:

10.1 The vehicle shall be provided with a windshield and side windows or openings which allow the driver a minimum outward horizontal vision capability, 90E each side of a vertical plane passing through the fore and aft centerline of the vehicle. This range of vision may be interrupted by window framing not exceeding two inches in width each and windshield-door post support areas not exceeding four inches in width at each side location.

10.2 A special motor vehicle shall have no obstruction forward of the windshield which extends more than two inches upward into the horizontally forward projected vision area of the windshield with the exception of windshield wiper components.

11. HOOD LATCHES:

11.1 A front opening hood shall be equipped with a primary and a secondary latching system to hold the hood in a closed position.

12. INSTRUMENTATION:

12.1 Speedometer - a special motor vehicle shall be equipped with an operating speedometer calibrated to indicate "miles per hour."

12.2 Odometer - a special motor vehicle shall be equipped with an operating odometer calibrated to indicate "total miles driven."

13. REAR VIEW MIRROR:

13.1 A special motor vehicle shall be equipped with two rear view mirrors each having substantially uniform magnification. One shall be mounted on the inside of the vehicle in such a position that it affords the driver a clear view at least two hundred (200) feet to the rear. The other shall be mounted on the outside of the vehicle on the driver's side in such a position that it affords the driver a clear view to the rear. When an inside mirror would not give a clear view of the rear, a right-hand outside mirror shall be required in place of the inside mirror. The mirror mounting shall provide for mirror adjustment by tilting in both horizontal and vertical directions. Each mirror shall have a minimum of 10 square inches of reflective surface.

14. SEAT BELTS:

14.1 Seat belt requirements for the three types of special motor vehicles defined under Section 3.1 are as follows:

Type I and Type II Special Motor Vehicles - shall be equipped with at least a Type I seat belt (lap belt), in compliance with FMVSS 209, for each occupant seating position.

Type III Special Motor Vehicles - shall be equipped with a Type II seat belt system (lap belt plus upper torso restraint belt), in compliance with FMVSS 209, for the driver and right front seat occupant. Type I seat belts (lap belts) should be provided at all other designated seating positions.

14.2 All seat belts shall be anchored in compliance with FMVSS 210.

15. WINDSHIELD WIPERS:

15.1 A special motor vehicle shall be equipped with at least one windshield wiper that effectively clears a projected windshield area of no less than 50 square inches directly in front of the driver. The operation of the windshield wiper(s) shall be controlled by the driver from within the vehicle.

CHASSIS REQUIREMENTS:

16. ACCELERATOR CONTROL SYSTEMS:

16.1 A special motor vehicle shall be equipped with an accelerator control system that returns the engine throttle to an idle position when the driver removes the actuating force from the accelerator control and the geometry of the throttle linkage shall be so designed that the throttle will not lock in an open position.

17. BRAKES:

17.1 **Service Brakes** - a special motor vehicle shall be equipped with brakes acting on all wheels. The service brakes, upon application, must be capable of stopping the vehicle within a 12 foot lane and:

(a) Developing an average tire to road braking or retardation force of not less than 62.2% of the gross vehicle weight;

(b) Decelerating the vehicle at a rate of not less than 20 feet per second; or

(c) Stopping the vehicle within a distance of 48.4 feet from a speed of 30 MPH.

Tests shall be made on a level, dry, concrete or asphalt surface free from loose material.

17.2 **Parking Brake** - a special motor vehicle shall be equipped with a parking brake operating on at least two wheels on the same axle which, when applied, shall be capable of holding the vehicle on any grade on which the vehicle is operated. Parking brakes must be separately actuated so that failure of any part of the service brake actuation system would not diminish the vehicle's parking brake holding capability.

18. BUMPERS:

18.1 A special motor vehicle shall be equipped with a bumper on both the front and the rear of the vehicle with the exception of Type I and Type II special motor vehicles where the original or predominant body configuration, provided by a recognized manufacturer, did not include such bumper or bumpers in the design of the vehicle. Type I and Type II special motor vehicles shall be equipped with horizontal load bearing bumpers of customized bumpers or grill bars of a sturdy construction which have a least an evenly distributed portion of their horizontal load bearing width between 14 inches and 22 inches above a level road surface, and which extend no less than the width of their respective wheel track distances. The horizontal bumper or customized bumper or grill bar structure shall be at least 3 inches in vertical height and centered on the vehicle's centerline, and attached to the vehicle frame to effectively transfer impact when engaged.

19. EXHAUST SYSTEM:

19.1 A special motor vehicle shall be equipped with an exhaust system that is of leak proof design including the exhaust manifold(s), headers, the piping leading from the flange of the exhaust manifold(s), the muffler(s), and the tail piping.

19.2 Exhaust systems on property-carrying vehicles shall discharge the exhaust fumes to the rear of that part of the vehicle designed and normally used for carrying the driver and passengers.

19.3 Exhaust systems on passenger vehicles shall discharge the exhaust fumes at a location to the rear of the vehicle body or direct the exhaust fumes outward from the side of the vehicle body at a location rearward of any operable side windows.

19.4 No part of the exhaust system shall pass through any area of the vehicle that is used neither as a passenger compartment, nor in close proximity to the fuel system without being properly shielded. No part of the exhaust system may contain a muffler cut-out or by-pass.

20. FENDERS:

20.1 All wheels of a special motor vehicle shall be equipped with fenders designed to cover the entire tire tread width that comes in contact with the road surface. Coverage of the tire tread circumference shall be from at least 15E in front and to at least 75E to the rear of the vertical centerline at each wheel measured form the center of wheel rotation. At no time shall the tire come in contact with the body, fender, chassis, or suspension of the vehicle.

21. FRAME:

21.1 A special motor vehicle shall be equipped with a frame. If an existing frame from a recognized manufacturer is not used and a special frame is fabricated, it shall be constructed of wall box tubing, wall channel or unitized construction capable of supporting the vehicle, its load and the torque produced by the power source under all conditions of operation. Specially fabricated frames shall meet the SEMA "Recommended Practice for Chassis Construction of Special Motor Vehicles."

22. FUEL SYSTEM:

22.1 A special motor vehicle shall have all fuel components securely fastened to the vehicle so as not to interfere with the vehicle operation. The components (tank, tubing, hoses, pump, etc.) shall be of leak proof design and be securely attached with fasteners designed for the purpose.

22.2 Fuel lines shall be positioned so as not be in contact with high temperature surfaces or moving components.

23. STEERING AND SUSPENSION:

23.1 Steering Wheel - A special motor vehicle shall be equipped with a circular steering wheel having an outside diameter of not less than 13 inches.

23.2 The steering wheel shall move not less than two turns or more than six turn, and the steering system shall remain unobstructed when turning from stop to stop.

23.3 The steering box mount shall be securely welded or bolted to the vehicle frame.

23.4 While the vehicle is in a sharp turn at a speed of between 5 and 15 MPH, release of the steering wheel shall result in a distinct tendency for the vehicle to increase its turning radius. *****

23.5 A special motor vehicle shall have steering capability for negotiating right and left turns of 28 feet radius or less measured from the center of the turn circle to the outside front wheel track.

23.6 With the engine on and the wheels in the straight-ahead position, turn the steering wheel in one direction until there is a perceptible movement of a front wheel. If a point on the steering wheel rim moves more than the value shown in Table I before perceptible return movement of the wheel under observation, there is excessive lash or free play in the steering system.

*****Stability tests shall be performed on a dry, level concrete or asphalt road having no loose surface contaminant, and the vehicle tires shall be inflated to the recommended pressure in accordance with the tire load per FMVSS 109. The vehicle shall contain a front seat passenger or simulated equivalent 150 lbs. weight secured to the seat in addition to the driver.

TABLE 1
STEERING SYSTEM FREE PLAY VALUES

Steering wheel diameter (inches)	**Lash (inches)**
16 or less	**2**
18	**2 1/4**
20	**2 1/2**
22	**2 3/4**

23.7 The ground clearance for a special motor vehicle shall be such that the vehicle shall be able to be in motion on its four rims on a flat surface with no other parts of the vehicle touching that surface.

23.8 The spring mounts and shackles shall be properly aligned and of sufficient strength so as to support the gross weight of the vehicle and provide free travel in an up and down movement under all conditions of operation. Coil spring suspension systems shall incorporate anti-sway devices to prevent lateral movement.

23.9 A special motor vehicle shall have a suspension system that allows movement between the unsprung axles and wheels and the chassis body and shall be equipped with a damping device at each wheel location. The suspension shall provide a minimum relative motion of plus and minus 2 inches. When any corner of the vehicle is depressed and released, the damping device shall stop vertical body motion within 2 cycles.

23.10 There shall be no heating or welding of coil springs, leaf springs, or torsion bars.

23.11 No special motor vehicle shall be constructed or loaded so that the weight on the wheels of any axle is less than 30% of the gross weight of the vehicle.

23.12 A special motor vehicle shall be capable of stable, controlled operation while traversing a slalom-type path passing alternately to the left and right of at least four cones or markers arranged in a straight line and spaced 60 feet apart at a minimum velocity of 25 MPH.

24. TIRES:

24.1 The tires on special motor vehicles shall comply with FMVSS 119, V-1, and VESC-7 as applicable. Front tires must measure a minimum of 60% of the tread width of the rear tires.

ELECTRICAL SYSTEM REQUIREMENTS

25. DIMMER SWITCH:

25.1 The headlamp circuit shall be equipped with a driver-controlled high and low beam selector switch.

26. HAZARD WARNING SWITCH:

26.1 A Type III special motor vehicle shall be equipped with a hazard warning switch which shall cause all turn signal lamps to flash simultaneously.

27. HEADLAMP SWITCH:

27.1 The headlamp switch must activate the headlamps, tail lamps, license plate lamp, parking lamps, and instrument panel illumination lamp(s).

28. HEADLAMP SYSTEM:

28.1 A special motor vehicle shall be equipped with two 7-inch round Type 2 or rectangular Type 2B headlamp units or two pairs of 5 3/4 inch round Type 1 and Type 2 units or two pairs of rectangular Type 1A and Type 2A units, in compliance with SAE Standards J566, J579a or c, J580a, and J1132a as applicable. The Type 1 (or 1A) headlamp units shall be mounted at the same height, one each equidistant on each side of the vertical centerline, and as far apart as practical. Type 2 (or 2A or 2B) headlamps shall be mounted above or outboard of Type 1 or 1A units. The headlamps shall be mounted on the front forward of the windshield in a plane that is perpendicular to a vehicle plane through the longitudinal centerline of the vertical. The headlamps shall be mounted not less than 24 inches nor more than 54 inches above the road surface when measured to the headlamp center. Lamp sub-body (ies) shall be constructed with adequate adjustment to afford proper aiming of the headlamp(s) in compliance with SAE J580b. Alternative headlamp systems must comply with FMVSS 108.

29. HIGH BEAM INDICATOR:

29.1 An indicator shall be provided to show the driver when the upper beam of the headlamp system is energized. The indicator shall emit a light other than white plainly visible to the driver under normal driving conditions.

30. HORN:

30.1 A special motor vehicle shall be equipped with an operable horn capable of emitting sound audible under normal conditions from a distance of not less than 200 feet, but no horn or other warning device shall emit an unreasonably loud or harsh sound or whistle. The device used to actuate the horn shall be easily accessible to the driver when operating the vehicle.

31. LICENSE PLATE LAMP:

31.1 At least one white lamp shall be provided at the rear license plate to illuminate the plate.

32. NEUTRAL SAFETY SWITCH:

32.1 A special motor vehicle if equipped with an automatic transmission shall be equipped with a neutral safety switch that prevents the starter motor from being actuated except when the gear selector is in the neutral or park position.

33. PARKING LAMPS:

33.1 Two white or yellow (amber) parking position lamps in compliance with SA J222a shall be mounted on the front, one on each side and equidistant from the vertical centerline, at the same height, and as far apart as practical. The parking lamps shall be mounted not less than 15 inches nor more than 72 inches above the roadway.

34. REFLEX REFLECTORS: *

34.1 Two red Class A reflectors in compliance with SA J594d shall be mounted on the rear symmetrically disposed about the vertical centerline. The reflex reflectors shall be mounted not less than 15 inches nor more than 60 inches above the roadway.

35. STOP LAMPS: *

35.1 Two red stop lamps in compliance with SA J586d shall be mounted on the rear, one on each side equidistant from the vertical centerline of the vehicle, at the same height, and as far apart as practical. The stop lamps shall be mounted not less than 15 inches nor more than 72 inches above the roadway. Type I vehicles, which were originally equipped with only one stop lamp (may be amber), need not be equipped with two lamps providing the original lamp is located in accordance with the original design configuration.

36. TAIL LAMP SYSTEM: *

36.1 Two red lamps in compliance with SA J585d shall be mounted on the rear, one on each side equidistant from the vertical centerline, at the same height, and as far apart as practical. The tail lamps shall be mounted not less than 15 inches nor more than 72 inches above the roadway. Type I vehicles, which were originally equipped with only one tail lamp, need not be equipped with two tail lamps providing the original lamp is located in accordance with the original design configuration.

37. TURN SIGNAL INDICATOR:

37.1 If the front signal lamp(s) are not readily visible to the driver, there shall be an illumination indicator to give the operator a clear unmistakable indication that the turn signal system is turned on. The illumination shall consist of one or more bright lights flashing at the same frequency as the signal lamps, and it shall emit a light other than white.

38. TURN SIGNAL LAMPS: *

38.1 Two Class A red or yellow (amber) turn signal lamps and two Class A yellow (amber) turn signal lamps in compliance with SAE J588e shall be mounted as follows: At or near the front, one yellow (amber) lamps on each side equidistant from the vertical centerline, at the same height, and as far apart as practical. On the rear, one red or yellow (amber) lamp on each side equidistant from the vertical centerline, at the same height, and as far apart as practical. All turn signal lamps shall be mounted not less than 15 inches nor more than 83 inches above the roadway. Type I vehicles which were originally equipped with only one tail lamp need not be equipped with two tail lamps providing the original lamp is located in accordance with the original design configuration. Type I vehicles are exempt from turn signal requirements if not originally equipped.

39. TURN SIGNAL SWITCH:

39.1 A special motor vehicle (if equipped with turn signals) shall be equipped with a switch controlled by the operator of the vehicle that shall cause the turn signal lamps to function. The switch shall be self-canceling and capable of cancellation by a manually operated control.

***Combination lighting devices are acceptable.

REFERENCE MATERIAL

ANSI - American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018

ANSI - Z26.1 - "Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways"

FMVSS - Federal Motor Vehicle Safety Standards, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

FMVSS 108 - "Lamps, Reflective Devices, and Associated Equipment"

FMVSS 109 - "New Pneumatic Tires"

FMVSS 119 - "New Pneumatic Tires for Vehicles Other than Passenger Cars"

FMVSS 205 - "Glazing Materials"

FMVSS 209 - "Seat Belt Assemblies"

FMVSS 210 - "Seat Belt Assembly Anchorages"

SAE - Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 15096

J222a - "Parking Lamps (Position Lamps)"

J566 - "Headlamp Mountings"

J571d - "Dimensional Specifications for Sealed Beam Headlamp Units"

J579c - "Sealed Beam Headlamp Units for Motor Vehicles"

J580b - "Sealed Beam Headlamp Assembly"

J585c - "Tail Lamps (Rear Position Lamps)"

J586d - "Stop Lamps"

J588e - "Turn Signal Lamps"

J594d - "Reflex Reflectors"

J1132 - "142mm x 200mm Sealed Beam Headlamp Units"

SEMA - Specialty Equipment Manufacturers Association, 11001 East Valley Mall, Suite 200, El Monte, California 91731

"SEMA Recommended Practice for Chassis Construction of Special Motor Vehicles"

VESC - Vehicle Equipment Safety Commission, 1030-15th Street, N.W., Suite 908, Washington, D.C. 20005

V-1 - "Minimum Performance Requirements and Uniform Test Procedures for New Tires for Passenger Cars and Station Wagons"

VESC-7 - "Safe Operating Condition of Tires Including Tire Tread Depth Requirements (Passenger Car Type Tires)"