

**SUMMARY OF REGULATION 19 VAC 30-70
PART III, Inspection Requirements for Passenger Vehicles and Vehicles up to 10,000
pounds.**

Reference to Glazing is changed to Glass and Glazing.

PART III
INSPECTION REQUIREMENTS FOR
PASSENGER VEHICLES AND
VEHICLES UP TO 10,000 POUNDS

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**SUMMARY OF REGULATION 19 VAC 30-70-50
Approval Stickers and Decals**

Page 3, paragraph L - is revised with additions and deletions making the language consistent with established regulations requiring white and pink receipts of rejection stickers to be removed from sticker books and placed in numerical order for submission to the Safety Division.

Page 3, paragraph N - is revised with addition making the language consistent with established regulations requiring yellow receipts be retained in the sticker books and maintained on file at the inspection station for a period of 24 months.

(Reference: Section § 46.2-1163 of the Code of Virginia.)

- A. If the vehicle meets all inspection requirements, the inspection sticker receipt shall be legibly filled out with a ball point pen in its entirety and signed by the authorized mechanic making the inspection. The inspection fee, the cost of the repairs relating to the inspection and the identification number must be included.
- B. Approval stickers and decals shall be issued according to the following schedule:

ANNUAL PROGRAM

Vehicles inspected in January	issued stickers bearing the Number "1"
Vehicles inspected in February	issued stickers bearing the Number "2"
Vehicles inspected in March	issued stickers bearing the Number "3"
Vehicles inspected in April	issued stickers bearing the Number "4"
Vehicles inspected in May	issued stickers bearing the Number "5"
Vehicles inspected in June	issued stickers bearing the Number "6"
Vehicles inspected in July	issued stickers bearing the Number "7"
Vehicles inspected in August	issued stickers bearing the Number "8"
Vehicles inspected in September	issued stickers bearing the Number "9"
Vehicles inspected in October	issued stickers bearing the Number "10"
Vehicles inspected in November	issued stickers bearing the Number "11"
Vehicles inspected in December	issued stickers bearing the Number "12"

All February annual inspection stickers and trailer/motorcycle decals (#2) due to expire at midnight, February 28 automatically will be valid through midnight February 29 each leap year.

C. The numeral decal indicating the month of expiration shall be inserted in the box identified as month and the numeral decal indicating the year of expiration shall be inserted in the box identified as year of the approval sticker and the trailer/cycle decal. Extreme care should be used by inspectors in applying these inserts. On all windshields, except school buses, the sticker is to be placed at the bottom of the windshield so that the inside or left edge of the sticker is one inch to the right of the vertical center of the windshield when looking through the windshield from inside the vehicle. (If the vehicle is normally operated from the right side, the sticker must be placed one inch to the left of the vertical center of the windshield.) On passenger vehicles not equipped with a windshield, the sticker shall be placed on or under the dash and protected in some manner from the weather.

The approval sticker on official yellow school buses is to be placed at the bottom and in the right corner of the windshield when looking through the windshield from inside the vehicle.

EXCEPTION: The approval sticker shall be placed one inch to the right of the vertical center of the windshield when looking through the windshield from the inside on all new flat-face cowl yellow school buses.

Stickers or decals used by counties, cities and towns in lieu of license plates affixed adjacent to the old approval sticker and which are affixed in the location where the new approval sticker is required to be placed will not be removed. In these cases, the approval sticker will be placed as close to one inch to the right of the vertical center of the windshield as it can be placed without removing or overlapping the county, city or town decal.

D. The Virginia statutes require that the inspection sticker be displayed on the windshield or at other designated places at all times. The inspection sticker cannot be transferred from one vehicle to another.

EXCEPTION: If the windshield in a vehicle is replaced, a valid sticker may be removed from the old windshield and placed on the new windshield.

E. The decal issued to a motorcycle shall be affixed to the front left side of the cycle on a flat surface or left front shock where it will be visible after mounting.

F. Trailer decals will be issued to all trailers and semitrailers required to be inspected. (No boat, utility, or travel trailer which is not equipped with brakes shall be required to be inspected.)

G. All trailers must display a trailer decal on that particular vehicle. These decals are to be placed on the left side of the trailer near the front corner. The decal must be affixed to the trailer body or frame. In those instances where a metal back container with a removable transparent cover has been permanently affixed to the trailer body, the decal may be glued to it. The container must be permanently mounted in such a manner that the decal must be destroyed to remove it.

H. In all other cases involving unusually designed trailers such as pole trailers, the inspecting mechanic is to exercise his own good judgment in placing the decal at a point where it will be as prominent as possible and visible for examination.

I. Decals shall be punched to indicate whether issued to a motorcycle or trailer. (The type vehicle being inspected shall be punched.)

The receipts are completed in the same manner as other inspection receipts.

J. Appointed stations will keep sufficient inspection supplies on hand to meet their needs. Requests for additional supplies are to be made to the Safety Division by telephone or in writing. Requests for supplies that are to be picked up at the Safety Division headquarters must be made at least 24 hours prior to pick up.

1. Do not make requests for stickers on inventory forms or slips of paper enclosed with returned supplies.
2. Packing slips mailed with inspection supplies will be kept on file at the station for at least 24 months.

K. All unused center inserts used to indicate the month that a sticker or decal expires, in possession of the inspection station at the end of each month shall be retained by the inspection station, properly safeguarded, and used in the inspection of vehicles for the particular month in the following year or be disposed of as directed by the Department of State Police.

All inspection supplies that are voided, damaged, disfigured or become unserviceable in any manner, will be returned to the Safety Division, Department of State Police and replacement supplies will be furnished the station. Expired stickers will be picked up by the station's supervising trooper.

L. ~~The white receipts shall be left in completely used books of approval stickers and decals for all approval stickers including trailer/motorcycle stickers, and pink copies for rejection stickers will be removed from sticker books and placed in numerical order for submission to the Safety Division by the fifth of the month following the month of inspection. (Staples or tape are not to be used to secure these receipts.)~~ Used white receipts shall be removed from all partly used books of approval stickers and decals at the end of each month and placed in numerical order. All receipts will be forwarded to the Safety Division by the fifth of the month following the month of inspection. **All voided approval stickers and decals, along with the white and pink receipts shall be marked void and returned to the Safety Division with the white receipts.**

M. The pink receipt copies of the approval stickers and decals shall be given to the owner or operator of the vehicle.

- N. All yellow receipt copies of approval stickers and decals will be retained in the books and shall be kept on file at the station for at least 24 months. They may be inspected by any law enforcement officer during normal business hours.
- O. Safety Division troopers may replace inspection stickers that have separated from the windshield of motor vehicles and become lost or damaged without conducting an inspection of the safety components of the vehicle. Such replacement of inspection stickers shall be made only in accordance with the following provisions:
1. A vehicle owner or operator complaining of the loss or damage to the inspection sticker on the windshield of their vehicle due to separation of the sticker from the windshield shall be directed to the nearest Safety Division Office or Safety Division trooper.
 2. Safety Division troopers, upon receipt of a complaint from a vehicle owner or operator that their inspection sticker has been stolen, lost or become damaged due to separation from the windshield will make arrangements to meet the person to effect the replacement of the sticker. A vehicle owner or operator alleging theft of the inspection sticker will furnish proof to the Safety Division trooper that such theft has been reported to proper law enforcement authority.
 3. The vehicle owner or operator must produce the original pink inspection receipt indicating a valid approval inspection sticker was issued to the vehicle within the past 11 months. (The vehicle must be reinspected if the expiration of the original inspection sticker is in the month the request is being made.)
 4. The Safety Division trooper will verify by the inspection receipt that the vehicle was issued an approval inspection sticker within the past 11 months and issue a replacement inspection sticker to the vehicle.
 5. The Safety Division trooper will complete the inspection sticker receipt for the approval sticker from information contained on the original receipt. The date the

replacement sticker is issued will be used in the date space. In the space for Inspection Related Charges, the trooper will insert the word "REPLACEMENT" and the sticker number from the original pink inspection receipt.

6. The Safety Division trooper will sign the receipt vertically in the O.K. column in the "Equipment Inspected" blocks. These blocks will not otherwise be completed.
7. The Safety Division trooper shall place month and year inserts on the inspection sticker to reflect the expiration as shown on the original approval inspection sticker and place the inspection sticker on the windshield in accordance with the requirements of subsection C of this section.
8. The Safety Division trooper will staple the original pink inspection receipt to the new white receipt. At the end of each week, the Safety Division trooper will forward all inspection receipts for replacement stickers issued by him/her to the Safety Division. The yellow receipts will be submitted to the area office and maintained on file for 24 months.

**SUMMARY OF REGULATION 19 VAC 30-70-110
Steering and Suspension**

First paragraph, new language is added.

New subsection 12 is added to include V-ribbed belts (serpentine).

Subsections 12 through 34 are renumbered to 13 through 35.

Subsection 18 is revised and amended to clarify suspension positioning parts affected.

Subsection 18, note added.

Subsection 25 is amended to add wording “front and rear”.

Subsection 25, new note d is added to require that the vehicle be hoisted so that wheels are independently suspended to check for play, deterioration or damage.

Subsection 26, new subsection c is added to require rejection if there is noticeable play in the rear ball joints.

Ball Joint Wear Tables, have been reformatted and revised to be in compliance with motor vehicle manufacturers’ recommendations.

(Reference: Section § 46.2-1063, § 46.2-1064 and § 46.2-1065 of the Code of Virginia.)

The steering and suspension systems ~~used~~ installed and utilized on motor vehicles have evolved to where many different suspension systems are being ~~used~~ designed, developed and employed on vehicles. ~~In order to~~ To properly inspect the steering and suspension on vehicles, it may be necessary for the inspection to be made in accordance with manufacturer's recommended procedures in addition to meeting any requirements outlined in this regulation.

INSPECT FOR AND REJECT IF:

1. Any modification has been made that affects normal functioning of the shock absorbers.
The inspector should operate the vehicle when in doubt. (If there is no evidence of the convolutions (coils) of the spring hitting one another, one pair (2) of nonmetallic coil spring stabilizers may be present in each of a vehicle's front coil springs, provided the installation of the stabilizers does not cause the springs to be higher than their original height.)
Shock absorbers in fully extended or compressed positions when the vehicle is stationary will not function normally.
2. The front end suspension has been modified by the use of lift blocks (a lift block is defined as any solid piece of wood, metal, or other material placed between and separating the vehicle's front axle and the springs.) This does not prohibit the use of shims that may be necessary to correct front end alignment.
3. Any modification has been made to the front end suspension which reduces turning radius, bypasses safety components of original steering mechanism or if there is any lateral movement between the axle and frame.
4. Any modification has been made to the suspension to cause the vehicle body or chassis to come in contact with the ground or expose the fuel tank to damage from collision.

Reject the vehicle if it has been modified by any means so as to raise its body more than three inches above the manufacturer's attachment points or the frame rail. (Exclude original manufacturer's spacers, washers or bushings when measuring.)

5. Any modification has been made to cause the wheels to come in contact with the body under normal operating conditions.
6. A motor vehicle has a repair kit or preventive maintenance kit installed on a tie rod end, idler arm, ball joint, or any other part of the vehicle's steering gear.

NOTE: The repair kit or preventive maintenance kit usually consists of a small coil spring and a plastic cap which is placed over the bolt stud of the component and held in place by a retaining nut. There is nothing in this paragraph which prohibits the replacement of parts or components of a motor vehicle's steering gear in order to correct deficiencies in the steering gear.

7. When checked visually, the wheels appear to be out of line or an axle is bent.
8. Any vehicle that shimmies or wanders up to the legal speed limit.
9. Rack and pinion steering bellows (boot) is defective or missing.
10. Power steering is defective and affects adequate steering of the vehicle or power steering fluid in reservoir is below operating level.

NOTE: If the vehicle is equipped with power steering, the engine must be operating during testing.

11. Power steering belts do not have sufficient tension or are worn, frayed or missing.
12. A section of rib breaks off a V-ribbed serpentine belt, or material is sheared off the undercord and builds up in the belt grooves, causing excess belt noise or belt vibration.
42. 13. Any modification has been made to any part of the steering or suspension system that affects proper steering or suspension or any part of the original suspension system has been disconnected.

NOTE: "All thread rod material" shall not be used as U-bolts in the suspension system.

Vehicles registered as street rods may substitute any part of the original suspension system provided the components are installed in accordance with the component manufacturers' specifications.

13. 14. Any modification or replacement has been made to the steering wheel which affects proper steering. The steering wheel shall be rejected if the outside diameter is less than 13 inches unless original factory equipment.
14. 15. Steering column has any absence or looseness of bolts or positioning parts, resulting in motion of the steering column from its normal position.
15. 16. A spring is broken, sagging or misaligned, shackles are worn or loose, or if air springs are collapsed.
16. 17. Vehicles designed for shock absorbers or cross stabilizer links if any are disconnected or broken, bent, loose or do not function properly.
17. 18. Any front or rear axle or suspension positioning parts are cracked, broken, loose, worn or missing or bent resulting in shifting of an axle from its normal position. ~~or any~~ Any control arm or suspension positioning part using bushings for control, support and normal functioning is missing, deteriorated or damaged. ~~bushing is missing.~~

NOTE: All rear suspension parts including but not limited to control arms (upper and lower), ball joints, radius or torque arms, stabilizer bars, and trailing arms shall not have any damage or noticeable play when checked with hand pressure.

18. 19. A MacPherson strut installed on a motor vehicle is broken, bent, loose or does not function properly.

Do not reject a shock absorber or MacPherson strut unless there is evidence of leakage which causes the device not to function properly.

49. **20. King Pin Play** - If vehicle is equipped with king pins, first eliminate all wheel bearing movement by applying service brake. With front end lifted as illustrated for inspecting wheel bearings, (Figure C on the next page) grasp the tire at the top and bottom and attempt to move in and out to detect looseness. 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 inches or less	- 1/4 inch
	17 to 18 inches	- 3/8 inch
	over 18 inches	- 1/2 inch

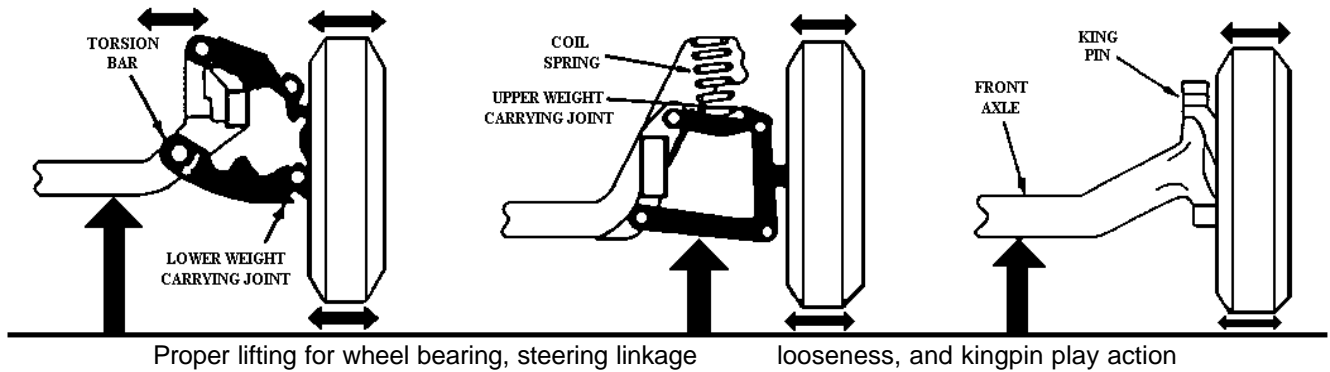


FIGURE
A

FIGURE
B

FIGURE
C

20. 21. WHEEL BEARING/STEERING LINKAGE

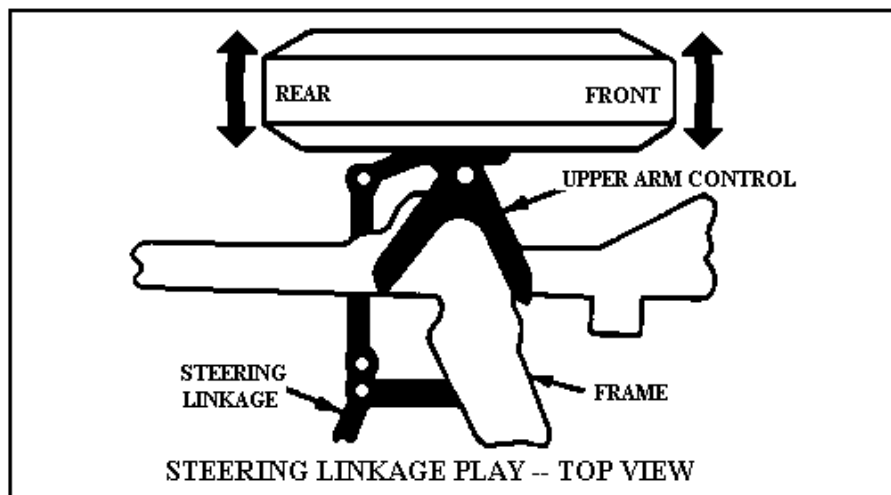
- a. Lifting techniques vary for measuring wheel bearing movement. On vehicles with coil spring or torsion bar on lower support arm - hoist at frame (Figure A). On vehicles with coil spring on upper support arm - hoist at lower support arm (Figure B). On front wheel drive vehicles, the inspector must consult manufacturer's lifting information.
- b. Front wheel bearings on rear wheel drive vehicles or rear wheel bearings on front wheel drive vehicles - 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 braking 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 1/8 inch measured at the outer circumference of the tire.

c. Reject vehicle if any wheel bearing is excessively worn or not properly adjusted; any cotter key or other locking device is missing or inoperative.

24. 22. Steering Linkage Play - First eliminate all wheel bearing movement by applying service brake. With vehicle lifted as shown above 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 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)



a. Reject vehicle if there is noticeable play at any point in the steering mechanism (Except General Motors products.) On General Motors products, reject vehicle if play exceeds factory specifications.

- b. Reject vehicle if the steering mechanism is unusually tight or binding when turning the steering wheel completely to the left or right or the steering mechanism will not turn in both directions stop to stop.
- c. Reject vehicle if the steering stops have been removed or adjusted in so that steering radius is reduced.

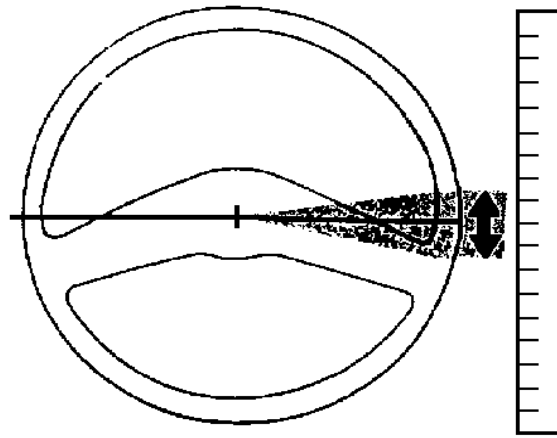
~~22.~~ 23. **Steering Lash/Travel** - For vehicles equipped with power steering, the engine must be running and the fluid level, belt tension and condition must be adequate before testing.

- a. 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 the 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 (see diagram below). Measure lash at steering wheel. Special lash-checking instruments may be used to measure free play in inches or degrees. Such instruments should always be mounted and used according to the manufacturer's instructions. Reject vehicle if steering wheel movement exceeds:

Power	- 2 inches
Manual	- 3 inches
Rack & Pinion - (Power or Manual)	- 0.4 inch - see note

- b. Reject vehicle if inspection reveals excessive wear and/or looseness in any ball stud, end assembly, pivot point, mechanical linkage and/or if steering gear box has any loose or missing bolts, or excessive wear, and/or looseness is found at any other location in the steering that adversely affects the steering of the vehicle.

NOTE: No play is permissible for Volkswagen and Audi vehicles - consult respective manufacturer's specifications.



STEERING LASH

23. 24. **Steering Lash/Travel - Trucks**

- a. 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 the fluid level, belt tension and condition must be adequate before testing.
- b. 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 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.

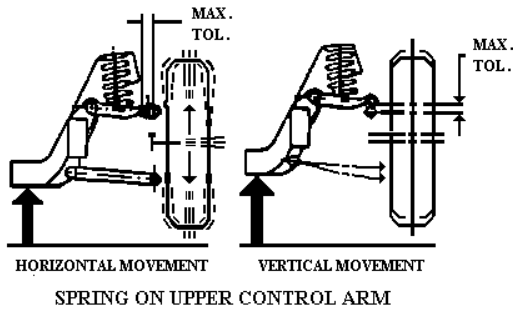
- c. Reject vehicle if steering wheel movement exceeds:

Steering Wheel Size and Lash

<u>Power Steering</u>		<u>Manual Steering</u>	
16 inches or less	- 4 1/2 inches(11.5cm)	16 inches or less	- 2 inches(5.1cm)
18 inches	- 4 3/4 inches(12.0cm)	18 inches	- 2 1/4 inches(5.4cm)
20 inches	- 5 1/4 inches(13.5cm)	20 inches	- 2 1/2 inches(6.4cm)
22 inches	- 5 3/4 inches(14.5cm)	22 inches	- 2 3/4 inches(7.0cm)

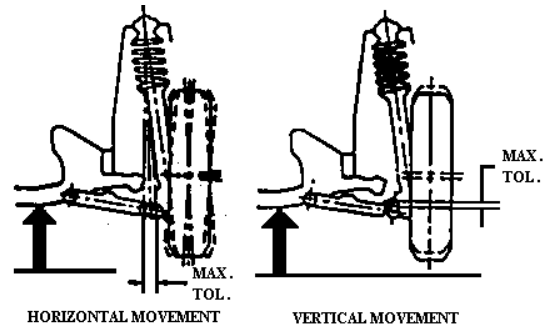
d. Reject vehicle if inspection reveals excessive wear and/or looseness in any ball stud, end assembly, pivot point, mechanical linkage and/or if steering gear box has any loose or missing bolts, or excessive wear, and/or looseness is found at any other location in the steering that adversely affects the steering of the vehicle.

24. 25. Ball Joint Wear (Front and Rear) - 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. Figures 1, 2, 3 and 4 illustrate the proper hoisting for checking ball joints.



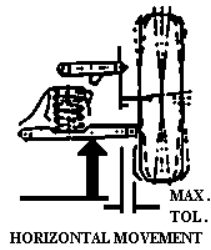
SPRING ON UPPER CONTROL ARM

FIGURE 1



MACPHERSON STRUT

FIGURE 2

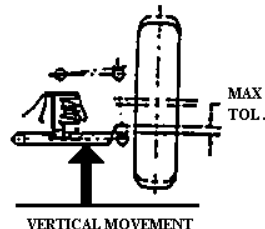


HORIZONTAL MOVEMENT

FIGURE 3

SPRING OR TORSION BAR ON LOWER CONTROL ARM

RAISING POSITIONS FOR SUSPENSION SYSTEMS



VERTICAL MOVEMENT

FIGURE 4

- a. NOTE: To check ball joint wear on vehicles when the spring is supported on the upper control arm or when the spring is a part of a MacPherson strut or wear in any other type suspension not using ball joints when the front wheels are suspended on a solid axle, the vehicle must be hoisted as shown in Figure 1 or 2.
- b. NOTE: Upper control arm must be stabilized in normal load carrying position by means of an upper control or other support tool to insure ball joint is in unloaded position.
- c. NOTE: To check ball joint wear on vehicles not listed in above referred to section and diagram or tables when the spring is supported on the lower control arm; and to check the king pin wear in any other type suspension not previously described when the wheels are independently suspended, the vehicle must be hoisted as shown in Figure 3 or 4.

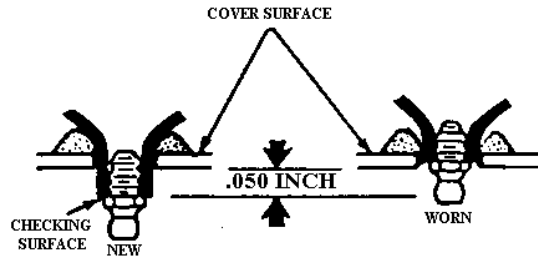
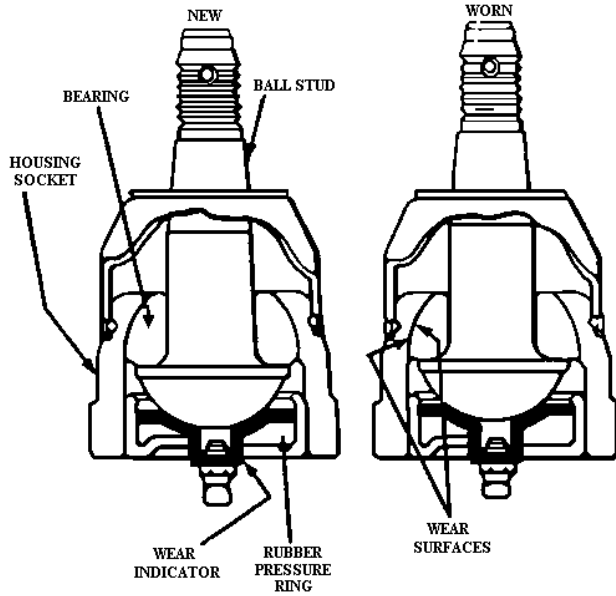
d. NOTE: To check rear ball joint wear the vehicle must be hoisted so that the wheels are independently suspended and so that the ball joint is in the “unloaded” position. Check for play, deterioration or damage.

25. 26. Ball Joints Without Wear Indicators (Front and Rear)

- a. Reject vehicle if there is noticeable play in the lower ball joint when hoisted as in Figures 1 or 2, or in the upper ball joint when hoisted as in Figures 3 or 4.
- b. Reject vehicle if there is lateral movement in either front wheel in excess of 1/4 inch measured at the outside of the tire up to and including a 16 inch wheel; or in excess of 3/8 inch when the wheel is over 16 inches. This check must be made by grasping the tire at the extreme top and bottom and moving the wheel laterally across the surface. If play is noted, accurate measurement must be made by using the block test or with an accurate measuring device. No rejection should be made unless the specified tolerances are exceeded.
- c. Reject the vehicle if there is any noticeable play in the rear ball joint or any damage or deterioration is noted.

26. 27. Ball Joints With Wear Indicators - 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.

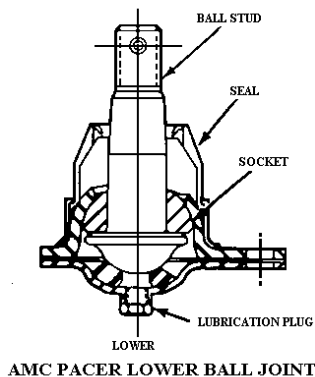


BALL JOINT WEAR INDICATOR

Wear is indicated by the protusion of the 1/2" diameter boss, (exaggerated for illustration) into which the grease fitting is threaded for greasable ball joints. This same boss exists and should be used to indicate wear in non-greasable ball joints. This round base projects .050" beyond the surface of the ball joint cover on a new, unworn joint.

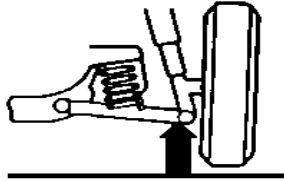
To inspect for wear, support vehicle by wheels so that the lower ball joints are in a loaded condition. Wipe the grease fitting or boss free of dirt and grease. Observe or scrape a scale, screwdriver or fingernail across the cover. If the grease fitting boss is flush or inside the cover surface, reject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

27. 28. American Motors Pacer (Only) - Position vehicle on level surface. Remove lubrication plug from lower ball joint. Check lower ball joint clearance by inserting stiff wire or thin rod into lubrication plug hole until it contacts ball stud. Accurately mark rod with knife or scribe where it aligned with outer edge of plug hole. Distance from ball stud to outer edge of plug hole is ball joint clearance. Measure distance from mark to end of rod. (Anything less than 7/16 inch is acceptable.)
Reject vehicle if distance measured is 7/16 inch or more.



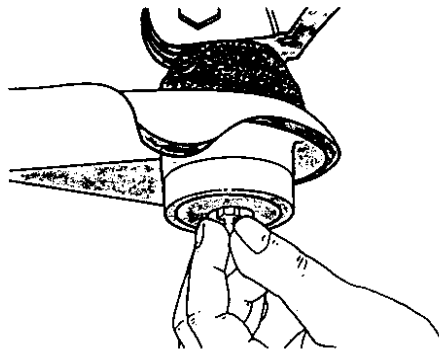
28. 29. Ford Motor Company - Fairmont & Zephyr (1978 - 1983), Mustang & Capri (1979 - Present), Lincoln & Mark (1980 - Present), Continental (1982 - Present), Granada (1981 -

1982), LTD & Marquis (1983 - Present) - 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 checking surface is inside the ball joint cover.



SELECTED FORD -- LOWER BALL JOINT

29. 30. **Chrysler Frontally Drive Vehicles (Lower Only)** - 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 if grease fitting shows any movement.



CHRYSLER FRONTWHEEL DRIVE -- LOWER BALL JOINT

30. 31. **Ball Joints - Light Trucks** - There is a trend among U.S. automobile manufacturers toward the use of "wear-indicating" ball joints on light trucks. Many vehicles on the road, however, do not have wear indicating ball joints. The inspection of both types will be discussed.

34. 32. **Ball Joint Wear - Light Trucks** - Figures 1, 2, 3 and 4 illustrate the proper hoisting for checking ball joints.

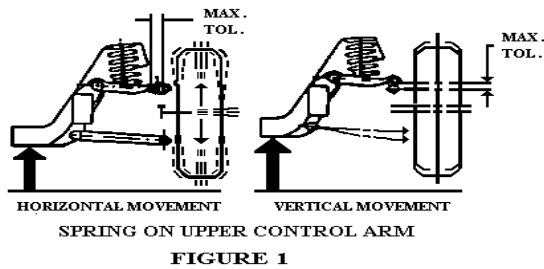


FIGURE 1

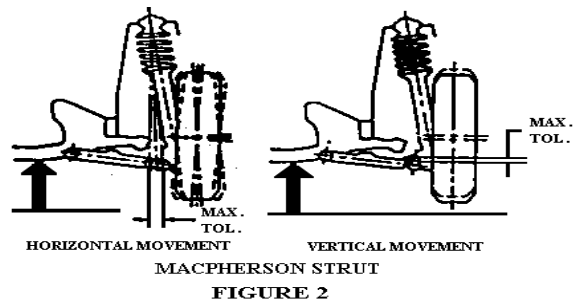


FIGURE 2

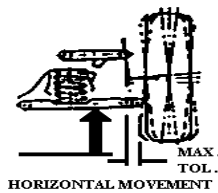


FIGURE 3

SPRING OR TORSION BAR ON LOWER CONTROL ARM
RAISING POSITIONS FOR SUSPENSION SYSTEMS

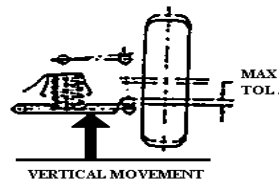


FIGURE 4

- a. **NOTE:** To check ball joint wear on vehicles when the spring is supported on the upper control arm or when the spring is a part of a MacPherson strut or wear in any other type suspension not using ball joints when the front wheels are suspended on a solid axle, the vehicle must be hoisted as shown in Figure 1 or 2.
- b. **NOTE:** Upper control arm must be stabilized in normal load carrying position by means of an upper control or other support tool to insure ball joint is in unloaded position.
- c. **NOTE:** To check ball joint wear on vehicles not listed in previously referred to sections, on and diagrams or tables when the spring is supported on the lower control arm; and to check the king pin wear in any other type suspension not previously described when the wheels are independently suspended, the vehicle must be hoisted as shown in Figure 3 or 4.

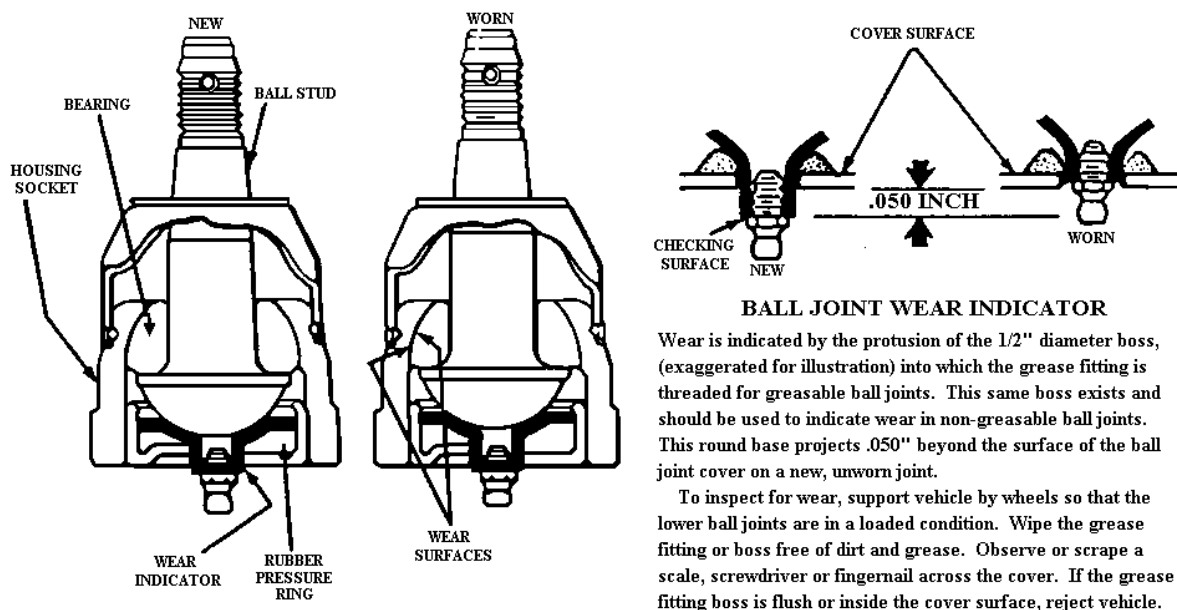
32. 33. Vehicles Without Wear Indicator Ball Joint - Light Trucks

- a. Reject vehicle if there is noticeable play in the lower ball joint when hoisted as in Figures 1 or 2, or in the upper ball joint when hoisted as in Figures 3 or 4 above.
- b. Reject vehicle if there is lateral movement in either front wheel in excess of 1/4 inch measured at the outside of the tire up to and including a 16 inch wheel; or in excess

of 3/8 inch when the wheel is over 16 inches. This check must be made by grasping the tire at the extreme top and bottom and moving the wheel laterally across the surface. If play is noted, accurate measurement must be made by using the block test or with an accurate measuring device. No rejection should be made unless the specified tolerances are exceeded.

33. 34. Ball Joints With Wear Indicators - Light Trucks - 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.



34. 35. Any vehicle inspected in accordance with the recommendation of the manufacturer of such vehicle and found to be within the specification contained in the following tables shall be deemed to meet inspection regulations.

BALL JOINT WEAR TABLES

DOMESTIC AND CAPTIVE IMPORTS*

Table 1: Manufacturer's Tolerance For Ball Joint Wear With Spring Or Torsion Bar on Lower Control Arm

Model	Year	Vertical Movement	Horizontal Movement
AMERICAN MOTORS			
Pacer	75-80	Wear Ind.(d)	(a)
BUICK			
All models except listed	57-60	.150"	(a)
	61-70	.100"	(a)
	71-72	.020"(b)	(a)
	73-82	Wear Ind.	(a)
	<u>82-92 93</u>	.000	.000
Apollo	1974	.0625"	(a)
Century	1981	.020"(b)	(a)
Century, Regal	1973	.020"(b)	(a)
	<u>97-98</u>	<u>.000</u>	<u>.000</u>
LeSabre, Wildcat, Electra, Park Avenue, Centurion	73-88	Wear Ind.	(a)
<u>LeSabre, Park Avenue</u>	<u>92-98</u>	<u>(c)</u>	<u>.000</u>
LeSabre, Electra Estate Wagon	88-92	(c)	.125"
Opel	74-75	.080"	(a)
Regal	74-91 <u>87</u>	Wear Ind.	.000
	<u>97-98</u>	<u>.000</u>	<u>.000</u>
Riviera	79-85	.125"(e)	(a)
Roadmaster Wagon	1991	Wear Ind.	.125"
	76-79	.040"	(a)
<u>Roadmaster</u>	<u>91-96</u>	<u>Wear Ind.</u>	<u>(a)</u>
Skylark	80-88	.000	(a)
Special	61-63	.080"	(a)
	64-68	.060"	(a)
Special, Skylark, GS, Sport Wagon	69-70	.070"	(a)
	71-72	.0625"	(a)
CADILLAC			
All models except listed	82-94 <u>96</u>	.000	.000
Brougham (RWD)	74-92 <u>96</u>	Wear Ind.	.125" (a)
Calais, DeVille (RWD),	57-73	.062"	(a)

Fleetwood (RWD)			
<u>Catera</u>	<u>97-98</u>	<u>.000</u>	<u>.000</u>
Eldorado	67-85	.125"(e)	(a)
	86- 92 <u>96</u>	(c)	.000
<u>Sedan DeVille, Concours</u>	<u>94-96</u>	<u>(c)</u>	<u>.000</u>

Model	Year	Vertical Movement	Horizontal Movement
Seville	76-80	Wear Ind.	(a)
	80-85	.125"(e)	(a)
	86-92	(c)	.000"

CHECKER

Marathon (A-12, (A-12E)	69-74	.065"	(a)
Taxicab (A-11, (A-11E), Marathon (A-12W)	69-81	.065"	(a)

CHEVROLET

All models except listed	55-63	.093"	.250"
	64-70	.060"	.250"
	71-72	.020"(b)	(a)
	73-81	Wear Ind.	(a)
	82- 92 <u>8</u>	.000	.000
Beretta	87-88	.000	.000
Biscayne, Bel Air, Impala, Caprice	73-95	Wear Ind.	(a)
Camaro	70-73	.020"(b)	(a)
	74- 92 <u>5</u>	Wear Ind.	(a)
	<u>97-98</u>	<u>.046</u>	<u>(a)</u>
Chevette	76-87	Wear Ind.	(a)
Citation	80- 85 <u>6</u>	.000	.000
Corsica	87-88	.000	.000
Corvair	60-63	.093"	(a)
	64-69	.060"	(a)
	Corvette	55-63	N/A
	71-82	.060"	(a)
	83- 92 <u>5</u>	Wear Ind.	(a)
	<u>97-98</u>	<u>.000</u>	<u>.000</u>
Deluxe, Malibu, Monte Carlo, Laguna	71-72	.0625"	(a)
	1973	.020"(b)	(a)
	74-84	Wear Ind.	(a)
<u>Lumina, Monte Carlo</u>	<u>97-98</u>	<u>.000</u>	<u>.000</u>
<u>Nova</u>	<u>74-84</u>	<u>Wear Ind.</u>	<u>(a)</u>
Nova	71-74	.0625"	(a)

Vega	71-74	.0625"	(a)
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CHRYSLER

All models except listed	57-64	.050"	(a&h)
	65-73	.070"	(a&h)
	74-76	.020"(b)	(a&h)
	77-88	.030"(b)	(a&h)
Imperial	57-66	.050"	(a&h)
	67-75	.020"(b)	(a&h)

Model	Year	Vertical Movement	Horizontal Movement
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DODGE

All Models except listed	57-67	.050"	(a&h)
	68-73	.070"	(a&h)
	74-76	.020"(b)	(a&h)
	77-87	.030"	(a&h)
Challenger	70-73	.070"	(a&h)
Dart	60-67	.050"	(a&h)
	68-76	.070"	(a&h)
Polara	1973	.070"	(a&h)

FORD

All models thru '79 except listed	54-79	(c)	.250" (6mm)
<u>Aspire</u>	<u>94-97</u>	<u>No Play</u>	<u>No Play</u>
<u>Contour</u>	<u>96-98</u>	<u>No Play</u>	<u>No Play</u>
Escort, Exp	81- 88 <u>98</u>	No Play	No Play
Fairmont	78-83	Wear Ind.	(a)
Festiva	88-92 <u>86-95</u>	No Play	No Play
Granada	81-82	Wear Ind	(a)
Ford Crown Victoria	79- 92 <u>93</u>	Wear Ind.	(a)
	<u>94-98</u>	(c)	<u>.015</u>
LTD	83-86	Wear Ind.	(a)
Mustang	79- 92 <u>93</u>	Wear Ind.	(a)
	<u>94-98</u>	(c)	<u>.015</u>
<u>Probe</u>	<u>94-97</u>	(c)	<u>No Play</u>
Taurus	86- 88 <u>93</u>	No Play	No Play
Tempo	<u>94-95</u>	(c)	<u>No Play</u>
	83-88	No Play	No Play

Thunderbird	80-88	Wear Ind.	(a)
	<u>89-92 93</u>	(c)	No Play
	<u>94-97</u>	(c)	<u>.015</u>

LINCOLN

All models thru '79 except listed	52-79	(c)	.250"(6mm)
Continental	82-87	Wear Ind.	(a)
Continental (FWD)	1988	No Play	No Play
Lincoln <u>Town Car</u>	<u>80-92 93</u>	Wear Ind.	(a)
	<u>94-98</u>	(c)	<u>.015</u>
Mark	80-92	Wear Ind.	(a)
	<u>93</u>	(c)	<u>No Play</u>
	<u>94-98</u>	(c)	<u>.015</u>

MERCURY

All models except listed	52-79	(c)	.250"(6mm)
Capri	79-86	Wear Ind.	(a)
	<u>1992-95</u>	No Play	No Play
Cougar	83-88	Wear Ind.	(a)
	<u>89-92 93</u>	(c)	No Play
	<u>94-97</u>	(c)	<u>.015</u>

Model	Year	Vertical Movement	Horizontal Movement
LN7	81-86	No Play	No Play
Lynx	81-87	No Play	No Play
Grand Marquis	<u>79-92 93</u>	Wear Ind.	(a)
	<u>94-98</u>	(c)	<u>.015</u>
Marquis	83-86	Wear Ind.	(a)
<u>Mystique</u>	<u>95-98</u>	<u>No Play</u>	<u>No Play</u>
Sable	86-88	No Play	No Play
Topaz	<u>83-88 93</u>	No Play	No Play
	<u>94-96</u>	(c)	<u>No Play</u>
Tracer	<u>89-92 98</u>	No Play	No Play
Zephyr	78-83	Wear Ind.	(a)
XY-7	80-82	Wear Ind.	(a)

MERKUR

Scorpio	1988 <u>89</u>	---	---
XR4Ti	86-88 <u>89</u>	---	---

OLDSMOBILE

All Models except listed	57-70	.125"	(a)
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	71-72	.020”(b)	(a)
	73-81	Wear Ind.	(a)
	82-88 <u>98</u>	.000	.000
Aurora	<u>96-98</u>	(c)	.000
Cutlass (FWD)	82-87 <u>95</u>	<u>.000</u>	<u>.000</u>
Cutlass (RWD), F85, Custom Cruiser	61-63	.090”	(a)
	64-70	.125”	(a)
	71-72	.0625”	(a)
	1973	.020”(b)	(a)
	74-88	Wear Ind.	(a)
<u>Custom Cruiser Wagon</u>	<u>1995</u>	<u>Wear Ind.</u>	<u>(a)</u>
Eighty-Eight	74-85	Wear Ind.	(a)
<u>Intrigue</u>	<u>1998</u>	<u>.000</u>	<u>.000</u>
Ninety-Eight (RWD)	74-84	Wear Ind.	(a)
Omega	73-74	.0625”	(a)
	80-84	.000	.000
Toronado	66-78	.125”	(a)
	79-85	.125”(e)	(a)

PLYMOUTH

All models except listed	57-67	.050”	(a&h)
	68-73	.070”	(a&h)
	74-76	.020”(b)	(a&h)
	77-86	.030”(b)	(a&h)
Barracuda, Duster, Valiant	60-67	.050”	(a&h)
	68-76	.070”	(a)
Caravelle	85-87	.020”(b)	See Table 2
Colt	71-72	.020”(b)	(a)

Model	Year	Vertical Movement	Horizontal Movement
Cricket	71-72	.070”	(a)
Fury	1973	See Table 2	(a&h)

PONTIAC

All Models except listed	58-64	.060”	(a)
	65-70	.050”	(a)
	71-72	.020”(b)	(a)
	73-81	Wear Ind.	(a)
	82-85 <u>96</u>	.000	.000
Bonneville, Parisienne	74-91	Wear Ind.	(a)
	<u>92-96</u>	(c)	<u>.000</u>
Fiero	86-88 (front)	Wear Ind.	(a)
	(rear)	.000	.000
Firebird	71-73	.020”(b)	(a)
	74- 91 <u>95</u>	Wear Ind.	(a)

	<u>97-98</u>	<u>.046</u>	<u>(a)</u>
Grand Am, Grand Prix, LeMans (Bonneville)	70-72	.0625"	(a)
	1973	.202"(b)	(a)
	<u>74-90 87</u>	Wear Ind.	(a)
<u>Grand Prix</u>	<u>97-98</u>	<u>.000</u>	<u>.000</u>
LeMans (Tempest)	65-69	.050"	(a)
Phoenix	82-85	.000	.000
Tempest	61-63	.093"	.250"
	1964	.060"	.250"
Ventura	71-74	.0625"	(a)
SATURN			
	91-95	.000"	.000"

Table 2: Manufacturer's Tolerance For Ball Joint Wear With Spring Or Torsion Bar On Upper Control Arm

Model	Year	Vertical Movement	Horizontal Movement
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AMERICAN MOTORS

All models except Pacer	62-69	No Upper	Ball Joint(g)
	70-80	.080"	.160"(f)
	81-88	(c) (g)	.160"(f)

CHEVROLET

Chevy II	62-63	.093"	(a)
	64-67	.060"	.250"

CHRYSLER

E-Class, LeBaron, Imperial, New Yorker	82- 92 93	.000	(a)
<u>Cirrus</u>	<u>96-98</u>	<u>(h)</u>	<u>(h)</u>
Concorde	<u>93-96</u>	<u>(m)</u>	<u>.000 (h)</u>

Model	Year	Vertical Movement	Horizontal Movement
-------	------	-------------------	---------------------

Laser	84-86	.000	(a)
<u>LeBaron</u>	<u>94-95</u>	<u>.000</u>	<u>(a)</u>
<u>New Yorker, LHS</u>	<u>94-97</u>	<u>(m)</u>	<u>.000 (h)</u>
Chrysler TC by Maserati	1991	.000	(a)

DODGE

Aries	1980	.050"	(a)
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Aries 400, 600	81-89	.000	(a)
Caravan	84-92	.000	(a)
Daytona	84-93	.000	(a)
Dynasty	88-93	.000	(a)
Lancer	85-89	.000	(a)
Monaco	91-92	.000	.000
<u>Neon</u>	<u>95-98</u>	<u>.000</u>	<u>(a)</u>
Omni	78-80	.050''	(a)
Omni, Charger	81-90	.000	(a)
Shadow	87-94	.000	(a)
Spirit	89-95	.000	(a)
<u>Stratus</u>	<u>95-98</u>	<u>(h)</u>	<u>(h)</u>
<u>Viper</u>	<u>92-98</u>	<u>(h)</u>	<u>(h)</u>

EAGLE

Medallion	1989	.000	.000
Premier	88-92	.000	.000
<u>Vision</u>	<u>93-97</u>	<u>(m)</u>	<u>.000 (h)</u>

FORD

Escort, EXP	<u>81-92 93</u>	No Play	No Play
Fairlane	62-70	(c)	.250''(6mm)
Falcon	60-70	(c)	.250''(6mm)
Granada	75-80	(c)	No Play
Maverick	68-77	(c)	.250''(6mm)
Mustang	65-78	(c)	.250''(6mm)
Probe	<u>89-92 93</u>	No Play	No Play
Taurus	<u>86-92 93</u>	No Play	No Play
	<u>94-98</u>	<u>(c)</u>	<u>No Play</u>
Tempo	83-93	No Play	No Play
	<u>94-95</u>	<u>(c)</u>	<u>No Play</u>
Thunderbird	61-66	(c)	.250''(6mm)
Torino	68-79	(c)	.250''(6mm)

LINCOLN

Continental (FWD)	<u>88-92 93</u>	No Play	No Play
	<u>95-98</u>	<u>(c)</u>	<u>No Play</u>
Versailles	77-79	(c)	No Play

MERCURY

Comet	60-74	(c)	.250''(6mm)
Cougar	67-79	(c)	.250''(6mm)
Meteor	62-66	(c)	.250''(6mm)

Model	Year	Vertical Movement	Horizontal Movement
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Monarch	75-80	(c)	No Play
Montego	68-71	(c)	.250"(6mm)
Sable	86-92 <u>93</u>	No Play	No Play
	<u>94-98</u>	(c)	<u>No Play</u>
Topaz	83- 92 <u>93</u>	No Play	No Play
	<u>94-95</u>	(c)	<u>No Play</u>

PLYMOUTH

Acclaim	<u>89-95</u>	<u>.000</u>	(a)
<u>Breeze</u>	<u>96-98</u>	(h)	(h)
Horizon	78-80	.050"	(a)
Horizon, Turismo	81-90	.000	(a)
<u>Neon</u>	<u>95-98</u>	<u>.000</u>	(a)
<u>Prowler</u>	<u>97</u>	(h)	(h)
Reliant	1980	.050"	(a)
	81-89	.000	(a)
Sundance	87- 92 <u>94</u>	.000	(a)
Voyager	84-92	.000	(a)

IMPORTS

Table 3: Manufacturer's Tolerance For Ball Joint Wear With Spring Or Torsion Bar On Lower Control Arm

Model	Year	Vertical Movement	Horizontal Movement
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ACURA

All models	86-89	Do Not Test	Do Not Test
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ALFA ROMEO

All models	57-86	.060"	Do Not Test
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BMW

All models except indicated	75-89	1.4mm	Do Not Test
318i i	84-85	1.0mm	Do Not Test
325i i	84-89	1.0mm	Do Not Test
735i i, 750i i	87-89	1.0mm	Do Not Test

HONDA

Civic & CRX	84-89	Do Not Test	Do Not Test
Accord	86-89	Do Not Test	Do Not Test
Prelude	83-89	Do Not Test	Do Not Test

INFINITI

All models except as listed	90-91 <u>98</u>	.000	None
M30	90-91 <u>92</u>	.050	None

Model	Year	Vertical Movement	Horizontal Movement
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ISUZU

"I Mark" (RWD)	81-85	.040"	Do Not Test
Impulse	83-86	.040"	Do Not Test
Impulse, Stylus	90-92	.040"	Do Not Test

JAGUAR

All models	72-87	.060"	.040"
All models	1988	.006	.007

MITSUBISHI

Montero	Thru 88 <u>99</u>	.020" Do Not Test	Do Not Test
Van/Wagon	1988 Thru <u>99</u>	None Do Not Test	None Do Not Test
Truck	1988 Thru <u>99</u>	.02" Do Not Test	Do Not Test

RENAULT

R-5/LeCar	76-77	.200"	.200"
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ROLLS ROYCE

All models	67-88	None	None
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TOYOTA

Tercel	Thru 87	None	None
Corolla (FWD)	Thru 87	None	None
MR 2	Thru 87	None	None
Supra	Thru 89	.012	None
Truck & 4 Runner	Thru 89	(lower) .091	None
		(w/o load)	
Celica	86-87	None	None
Camry	86-87	None	None
Starlet	81-84	None	None

VOLVO (J) (I)

All models except indicated	Thru 88	3mm	Do Not Test
140, 164, (with spring joint)	Thru 88	5mm	Do Not Test

Table 4: Manufacturer's Tolerances For Ball Joint Wear With MacPherson Strut On Lower Control Arm

Model	Year	Vertical Movement	Horizontal Movement
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AUDI

<u>All models</u>	<u>Thru 99</u>	<u>None</u>	<u>None</u>
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DATSUN/NISSAN (H) (i)

All models except indicated	<u>68-89 88</u>	.040"	None
	<u>89-98</u>	<u>.000</u>	<u>None</u>
B210	<u>74-78</u>	.012"	None

Model	Year	Vertical Movement	Horizontal Movement
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F10, 310, Sentra, Pulsar	76-86	.060"	None
Sentra	86-87	.050	None
	88	<u>.000 .100</u>	None
Stanza (except Wagon)	82-86	.080"	None
Maxima, Stanza, Stanza	1988	.100	None
Wagon, 200/240SX, 300ZX, Pulsar/NX.			
300ZX	1989	.100	None
Sentra, Pulsar/NX, 200/240SX, Maxima.	89-91	.000	None
<u>Stanza</u>	<u>89</u>	<u>.040</u>	<u>None</u>
Stanza, 300ZX	90-91	.000	None
Van	87-90	.060	None
Axxess	1990	.000	None

HONDA

Civic	Thru 83	.020"	Do Not Test
Accord	Thru 85	.020"	Do Not Test
Prelude	Thru 82	.020"	Do Not Test

ISUZU

I-Mark (FWD)	85-89	.040"	Do Not Test
<u>Impulse, Stylus</u>	<u>90-93</u>	<u>.040</u>	<u>Do Not Test</u>

MAZDA

All models	81-88	(h) (i)	(h) (i)
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MITSUBISHI

Starion	Thru 88	None <u>Do Not Test</u>	None <u>Do Not Test</u>
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Galant	Thru 88 99	None <u>Do Not Test</u>	None <u>Do Not Test</u>
Mirage	Thru 88 99	None <u>Do Not Test</u>	None <u>Do Not Test</u>
Cordia/Tredia	Thru 88	None <u>Do Not Test</u>	None <u>Do Not Test</u>

PEUGEOT

All models	66-88	None	None
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ROVER

3500	1981	None	None
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SAAB

9000	86-88	None	None
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SABARU

All models	73-84	Do Not Test	Do Not Test
All models (except Justy)	85-89	.012"	Do Not Test
Justy	87-89	.016"	Do Not Test

TOYOTA (J) (L)

Celica	Thru 89	None	None
Corolia (RWD)	Thru 87	.098"	None

Model	Year	Vertical Movement	Horizontal Movement
Corolia (FWD)	Thru 89	None	None
Cressida	Thru 89	.098"	None
Tercel	Thru 89	None	None
MR 2	Thru 89	None	None
Cressida	Thru 89	.098"	None
Tercel	Thru 89	None	None
MR 2	Thru 89	None	None
Camry	Thru 89	None	None
Starlet	81-84	None	None
Supra	Thru 87	.100"	None

TRIUMPH

TR7, TR8	1981	Imm	None
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VOLKSWAGEN (L) (K)

All models	74-92 <u>Thru 99</u>	Do Not Test <u>None</u>	Do Not Test <u>None</u>
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VOLVO (L) (K)

240, 260, 760	Thru 88	3mm	Do Not Test
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Table 5: Manufacturer's Tolerances For Ball Joint Wear With Spring Or Torsion Bar On Upper Arm

Model	Year	Vertical Movement	Horizontal Movement
CITROEN			
All models	Thru 85	None	None
MAZDA (J) (I)			
B2000	Thru 85	(J) (i)	(i)
RENAULT			
Gordini, R-12, 15, 17	Thru 77	.200	.200
Gordini	78-79	.040	.040
SAAB			
99, 900	Thru 88	None	None
TOYOTA			
Van	Thru 89	.091 (w/o load)	None

Table 6: Manufacturer's Tolerances For Ball Joint Wear With Spring Or Torsion Bar On Lower Arm

Model	Year	Vertical Movement	Horizontal Movement
CHEVROLET			
10, 20, 30	60-84	.094"	.250"
S-Series	82-84	Wear Ind.	(a)
GMC			
1500, 2500, 3500	60-84	.094"	.250"
S Series	82-84	Wear Ind.	(a)
DODGE			

B1, B2, B3, D1, D2, D3, D15, D25, D35, W2, W3, W15, W25, W35, RD2, WM3, MB3, CB3, AD1, AW1, Ramcharger	71-84	.020”(b)	(a)
Rampage	82-84	.000	.000

PLYMOUTH

PB1, PB2, PB3, PD1, PW1, Trail Duster	74-84	.020”(b)	(a)
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INTERNATIONAL

100, 150, 200	74-80	.095”	(a)
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LIGHT DUTY TRUCK BALL JOINT WEAR TABLE

GENERAL MOTORS DOMESTIC AND CAPTIVE IMPORTS

Table 1: Maximum Tolerance for ball joint wear. All Suspensions included.

Model	Year	Horizontal Movement	Ball Joint Vertical Movement	
			Lower	Upper

CHEVROLET

Astro 2WD	85-93	.125”	Wear Ind.	No Play
Astro All WD	90-93	N/A	.080”	No Play
Beauville Van	1993	.125”	Wear Ind.	No Play
	71-92	.125”	.094”	No Play
Blazer 4x4	92-93	N/A	.080”	No Play
	71-91	N/A	.040”	No Play
Chevy Van	1993	.125”	Wear Ind.	No Play
	71-92	.125”	.094”	No Play
Crew Cab 2WD	92-93	N/A	.080”	No Play
	71-91	.125”	.094”	No Play
Crew Cab 4x4	92-93	N/A	.080”	No Play
	71-91	N/A	.040”	No Play
El Camino	71-85	.125”	.063”	No Play

Model	Year	Horizontal Movement	Ball Joint Vertical Movement	
			Lower	Upper

Hi-Cube Van	71-93	.125”	.094”	No Play
Lumina APV	90-93	N/A	No Play	None
Luv	72-82	---	.060”	No Play
Motor Home	72-93	.125”	.094”	No Play
Pickup 2WD	87-93	N/A	.080”	No Play

	71-86	.125"	.094"	No Play
Pickup 4x4	87-93	N/A	.080"	No Play
	71-86	N/A	.040"	No Play
Sport Van	1993	.125"	Wear Ind.	No Play
	71-92	.125"	.094"	No Play
Step Van	72-93	.125"	.094"	No Play
Suburban 2WD	92-93	N/A	.080"	No Play
	71-91	.125"	.094"	No Play
Suburban 4x4	92-93	N/A	.080"	No Play
	71-91	N/A	.040"	No Play
S-10 Blazer 2WD	82-93	.125"	Wear Ind.	No Play
S-10 Pickup 2WD	83-93	.125"	.125"	No Play
S-10 Blazer 4x4	82-93	.125"	Wear Ind.	No Play
S-10 Pickup 4x4	83-93	.125"	.125"	No Play
Tracker	89-93	N/A	No Play	None

GMC

Bonus Cab 2WD	93-93	N/A	.080"	No Play
	71-91	.125"	.094"	No Play
Bonus Cab 4WD	92-93	N/A	.080"	No Play
	71-91	N/A	.040"	No Play
Caballero	78-85	.125"	.063"	No Play
Hi-Cube Van	71-93	.125"	.094"	No Play
Jimmy 4x4	71-91	N/A	.040	No Play
Magna Van	71-92	.125"	.094"	No Play
Pickup 2 WD	1993	.125"	Wear Ind.	No Play
Pickup 4x4	87-93	N/A	.080"	No Play
	71-86	N/A	.040"	No Play
Rally Van	71-92	.125"	.094"	No Play
	1993	.125"	Wear Ind.	No Play
Safari 2WD	85-93	.125"	Wear Ind.	No Play
Safari All WD	90-93	N/A	.080"	No Play
Sprint	71-77	.125"	.063"	No Play
Suburban 2WD	92-93	N/A	.080"	No Play
	71-91	.125"	.094"	No Play
Suburban 4x4	92-93	N/A	.080"	No Play
	71-91	N/A	.040"	No Play
S-15 Blazer 2WD	82-93	.125"	Wear Ind.	No Play
S-15 Blazer 4WD	82-93	.125"	Wear Ind.	No Play
S-15 Pickup 2WD	83-93	.125"	.125"	No Play
S-15 Pickup 4x4	83-93	.125"	.125"	No Play
Value Van	72-93	.125"	.094"	No Play
Vandura	1993	.125"	.094"	No Play
Vandura	71-92	.125"	Wear Ind.	No Play
Model	Year	Horizontal Movement	Ball Joint Vertical Movement	
			Lower	Upper

Yukon 4x4	92-93	N/A	.080"	No Play
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OLDSMOBILE

Bravada	91-93	.125"	.125"	No Play
Silhouette	90-93	N/A	No Play	None

PONTIAC

Trans Sport	90-93	N/A	No Play	None
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N/A - Do not test ball joints by horizontal movement.

Table 2: Manufacturer's Tolerances for Ball Joint Wear - Light Trucks & MVP's

<u>Model</u>	<u>Year</u>	<u>Vertical Movement</u>	<u>Horizontal Movement</u>
<u>CHRYSLER/PLYMOUTH</u>			
<u>DODGE</u>			
Ram Wagon/Van	94-98	.030	(a)
Ram 1500	94-98	.030	(a)
Ram 2500	94-98	.030	(a)
Ram 3500	94-98	.030	(a)
Caravan	84-98	.000	(a)
Dakota	94-96	.020	(a)
	97-98	.060"	(a)
Durango	1998	.060"	(a)
Town & County	94-98	.000	(a)
Voyager	84-98	.000	(a)
<u>FORD/MERCURY</u>			
F-150, F-250, F-350	94-98	(m)	.031
F Super Duty Body	94-98	(m)	.031
Aerostar	94-97	(m)	.031
Bronco	94-96	(m)	.031
Econoline (all series)	94-98	(m)	.031
Explorer	94-98	(m)	.031
Ranger	94-98	(m)	.031
Villager	94-96	No Play	(a)
Windstar	95-96	(m)	No Play
<u>GENERAL MOTORS</u>			
<u>CHEVROLET</u>			
<u>OLDSMOBILE</u>			
<u>PONTIAC</u>			
Astro, Safari	94-98	Wear Ind. (n)	.125

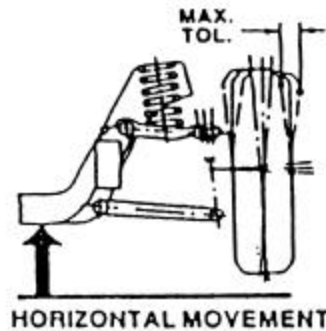
GLC Wagon	81-86	0.88 lbs.or more	*2
RX-7	81-85	0.88 lbs.or more	*2
	86-88	4.4 - 7.7 lbs.	*3
323	86-88	1.8 - 3.1 N'm	*3
626	83-88	4.4 - 7.7 lbs.	*3
929	1988	1.1 - 2.6 lbs.	*3
B2000	86-87	40 lbs. or less	*3
B2200	87-88	4.4 - 7.7 lbs	*3
B2600	87-88	4.4 - 7.7 lbs.	*3

*1: Measure the turning force at the end of the ball joint arm by using a pull scale.

*2: Measure the turning force at the end of knuckle arm by using a pull scale.

*3: Install the Mazda special tool to the ball stud, and then measure by using a pull scale.

- (j) Check vertical ball joint movement with ball joints fully loaded. With vehicle resting on all wheels, use a pry bar or similar leverage to apply vertical force to lower control arm at ball joint and observe play on properly attached dial indicator.
- (k) To be measured at ball joint. Use .090" maximum tolerance if measured at tire sidewall (includes wheel bearing clearance).
- (l) Ball joints with damaged boots shall be replaced.
- (m) Do not test balljoints by vertical movement.
- (n) Vertical movement is checked by sight. Wear is indicated by the position of the housing into which the grease fitting is threaded. This round housing projects 1.27 mm (0.050) beyond the surface of the ball joint cover on a new, unworn joint. Normal wear will result in the surface of the housing retreating very slowly inward.
- (o) Do not pry between the lower control arm and the drive axle seal or in such a manner that the ball joint seal is contacted. Damage to the seal will result (4wd).



Information for Foreign manufacturers was furnished by Automotive Importers of America, Inc. (AIA) and is limited to models represented by their membership.

SUMMARY OF REGULATION 19 VAC 30-70-160

Auxiliary Lamps: backup; cornering; driving; fog; spot and warning.

Subsection I, paragraph 8, b is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection I, paragraph 9, b is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection I, paragraph 10, f is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection I, paragraph 11, e is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection I, paragraph 12, e is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

(Reference: Sections § 46.2-1019, § 46.2-1020, § 46.2-1021, § 46.2-1022, § 46.2-1023, § 46.2-1024, § 46.2-1025, § 46.2-1026, § 46.2-1027, § 46.2-1028, § 46.2-1029, § 46.2-1029.1, § 46.2-1030 and § 46.2-1090.1 of the Code of Virginia.)

Reference Code of Virginia

Sections 46.2-1019, 46.2-1020, 46.2-1021, 46.2-1022, 46.2-1023, 46.2-1024, 46.2-1025, 46.2-1026, 46.2-1027, 46.2-1028, 46.2-1029, 46.2-1029.1, 46.2-1030 and 46.2-1090.1

§ 19 VAC 30-70-160

Auxiliary Lamps -
Backup-Cornering
Driving-Fog-Spot
and Warning

A. Auxiliary lamps on a vehicle consist of seven general types:

Backup lamps, cornering lamps, driving lamps, fog lamps with an amber or clear lens, spot lamps and warning lamps, and daytime running lamps.

B. School buses may be equipped with an eight-lamp warning system of two red and two amber warning lamps of an approved type on the front and rear of such vehicle.

1. School buses may also be equipped with roof mounted flashing white or amber warning lamps of an approved type.

2. In addition to required warning lamps, school buses may be equipped with a stop signal arm consisting of an octagonal sign which meets FMVSS specifications (Federal Motor Vehicle Safety Standards, 49 CFR 571 et seq.) The stop signal arm shall be reflectorized or be equipped with two red warning lamps of an approved type.

C. There is no limit on the number of backup lamps that a vehicle may have so long as they are of an approved type.

D. No more than four lamps, including two headlamps may be lighted at any time to provide general illumination ahead of the vehicle.

E. Approved type blue or blue and red lights are permitted on any law enforcement vehicle.

Approved type red warning lights or red and white lights showing to the front are permitted on fire department vehicles, including publicly owned state forest warden vehicles, ambulances, any rescue vehicle used for emergency calls, animal warden vehicles, school buses and vehicles used by security personnel at the Newport News Shipbuilding and Drydock Company, Bassett-Walker, Incorporated, or the Tultex Corporation. No more than two flashing or steady-burning red lights or red and white

combination lights of an approved type may be installed on one vehicle owned by any member of a fire company, volunteer fire company or volunteer rescue squad.

- F. Vehicles mentioned in subsection E of this section permitted to be equipped with flashing, blinking or alternating red, red and white, blue, or blue and red emergency lights (except vehicles owned by any member of a fire company, volunteer fire company, volunteer rescue squad or any ambulance driver employed by a privately owned ambulance service) may be equipped with the means to flash their headlamps when their emergency warning lamps are activated provided:
1. The headlamps are wired to allow either the upper beam or lower beam to flash but not both and;
 2. The headlamp system includes a switch or device which prevents flashing of headlamps when headlamps are required to be lighted pursuant to current statute.
- G. Any fire vehicle used exclusively for fire fighting, any ambulance or rescue or lifesaving vehicle used for the principal purpose of emergency relief or any wrecker used for the principal purpose of towing disabled vehicles may be equipped with clear auxiliary lamps which shall be used exclusively for lighting emergency scenes. Such lamps shall be of a type permitted by the Superintendent. Any government-owned police vehicle may be equipped with clear auxiliary lamps of a type approved by the Superintendent.
- H. Approved type amber flashing, blinking or alternating lights are permitted on vehicles used for the principal purpose of towing or servicing disabled vehicles or in constructing, maintaining and repairing highways or utilities on or along public highways and vehicles used for the principal purpose of removing hazardous or polluting substances from the state waters or drainage areas on or along public highways. Such lamps are permitted on vehicles used for servicing automatic teller machines, refuse collection vehicles, hi-rail vehicles and on vehicles used for towing or escorting over-dimensional materials, equipment, boats, or manufactured housing units by authority of highway hauling permit.

1. Approved type amber flashing, blinking or alternating lights are permitted on fire apparatus, ambulances, and rescue and life-saving vehicles, provided the amber lights are mounted or installed on the rear of the vehicles.
2. Approved type amber flashing, blinking or alternating lights are permitted on vehicles owned and used by businesses providing security services and vehicles used to collect and deliver the United States mail, vehicles used by law enforcement personnel in the enforcement of laws governing motor vehicle parking, government owned law enforcement vehicles provided the lights are used for giving directional warning and vehicles used to provide escort for funeral processions.
3. An approved type amber flashing, blinking or alternating light may be mounted on the rear of any vehicle used to transport petroleum products. The light must be wired through the reverse gear circuit and activate in conjunction with the back-up lights and audible alarm.

I. INSPECT FOR AND REJECT IF:

1. Vehicle has an auxiliary lamp being used for a purpose other than for which it was approved;

EXCEPTION: Any lighting device which is both covered and not illuminated, other than lamps required, shall not be considered for inspection. Fog and driving lamps mounted below the level of the regular headlamps must be checked for aim as outlined in subdivisions I 10 i and 11 g of this section if not covered.

2. A vehicle has installed on it a warning lamp that is not of an approved type or has been altered.

Reject if the vehicle has wire, unapproved plastic covers, any other materials which are not original equipment or any colored material placed on or in front of any auxiliary lamps: backup, cornering, driving, fog, spot, or warning lamps.

3. Vehicle is equipped with a combination of auxiliary lamps which include more than two fog lamps, or more than two spot lamps, or more than two driving lamps. Reject a vehicle equipped with a headlamp mounted or used as an auxiliary lamp.

NOTE: Vehicles equipped, from the factory, with two driving lamps should not be rejected.

4. Vehicle is equipped with an auxiliary lamp that does not function properly. (If an auxiliary lamp has been modified by removing the wiring, bulb and socket, the unit will be considered an ornament and not a lamp and will not be considered in inspection.)
5. Vehicle is equipped with a lighted advertising sign. Except commercial motor vehicles, buses operated as public carriers, taxicabs, and privately-owned passenger cars used for home delivery of commercially prepared food. Commercial motor vehicles, buses operated as public carriers, and taxicabs may be equipped with vacant and destination signs and one steady burning white light for illumination of external advertising. Privately-owned passenger cars used for home delivery of commercially prepared food may be equipped with one steady burning white light for the nighttime illumination of a sign identifying the business delivering the food. Do not reject approved identification lights.
6. Any lamp is not of an approved type or if lamps to be burned together as a pair do not emit the same color light.
7. The lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
8. Backup lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Lamps are not of an approved type or a lamp has been altered;
- b. Wiring or electrical connections are defective or filaments do not burn;

- c. The lens has a piece broken from it. The lens may have one or more cracks provided in off-color light does not project through the crack or cracks;
 - d. Lens is other than clear;
 - e. Lamps are not wired into the reverse gear or an independent circuit;
9. Cornering lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Lamps are not of an approved type or a lamp has been altered;
 - b. Wiring or electrical connections are defective or filaments do not burn;
 - c. The lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks;
 - d. The color of the light is other than clear or amber;
 - e. The lamps do not burn in conjunction with the turn signals;
10. Driving lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Driving lamps are installed on vehicles equipped with the four headlamp system, except the "F" type headlamp system;
- b. A vehicle is equipped with more than two driving lamps;
- c. Driving lamps are not of an approved type or have been altered;
- d. The color of the lamp is other than white;
- e. The lens has a piece broken from it or is rotated away from its proper position. The lens may have one or more cracks provided an off-color light does not project through the crack or crack;
- f. Wiring or electrical connections are defective or filaments do not burn;

- g. Any driving lamp is mounted above the level of the regular headlamps, or is not mounted firmly to prevent excessive vibration;
- h. Driving lamps are not wired so that they will burn only when the high beams of the regular headlamps are activated;
- i. Driving lamps are not aimed so that the center of the hot spot drops three inches in 25 feet so that the hot spot is directly ahead of the lamp;

NOTE: Driving lamps must be aimed using the optical headlight aimer.

- j. A tolerance of four inches in 25 feet is allowed in both the horizontal and the vertical adjustment.

11. Fog lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. A vehicle is equipped with more than two fog lamps;
- b. Lamps are not of an approved type or a lamp has been altered;
- c. The lens is other than clear or amber. Fog lamps may have black-end bulbs or small metal caps over the end of the bulb;
- d. The lens has a piece broken from it or is rotated away from its proper position. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks;
- e. Wiring or electrical connections are defective or filaments do not burn;
- f. Any fog lamp is mounted above the level of the regular headlamps, or is not mounted firmly;
- g. Lamps are not wired and aimed according to the following instructions:
 - (1) Fog lamps are general illumination lamps as covered in subsection D of this section. They must burn through the tail light circuit even if on a separate

switch. If installed on a vehicle with a four-headlamp system, or a vehicle equipped with driving lamps, they must be wired into the low beam circuit.

- (2) Fog lamps must be aimed so that the top edge of the high intensity zone is set at the horizontal centerline and the left edge of the high intensity zone is set at the vertical centerline. (Same as low beam headlights.)

NOTE: Fog lamps must be aimed using the optical headlight aimer.

- (3) A tolerance of four inches in 25 feet is allowed in both the horizontal and the vertical adjustment.

12. Spot Lamp-Spot lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Vehicle is equipped with more than two spot lamps;
- b. Lamps are not of an approved type or a lamp has been altered;
- c. The lens in any spot lamp is other than clear;
- d. The lens has a piece broken from it or is rotated away from its proper position.
The lens may have one or more cracks provided an off-color light does not project through the crack or cracks;
- e. Wiring or electrical connections are defective or filaments do not burn;

13. Daytime Running Lamps (DRLs) are not required. However, if installed they must operate and be inspected. DRLs must be installed in pairs.

NOTE: DRLs may or may not be wired into the tail light circuit.

INSPECT FOR AND REJECT IF:

- a. Any lamp, except headlamps, used as DRLs is not marked "DRL;"
- b. Fog lamps or parking lamps are used as DRLs;
- c. More than one pair of lamps are used and or designated as DRLs;
- d. A DRL is mounted higher than 34 inches measured to the center of the lamp;

- e. The color is other than white to amber;
- f. DRLs do not deactivate when the headlamps are in any "on" position.

Any DRL optically combined with a turn signal or hazard lamp must deactivate when the turn signal or hazard lamp is activated and then reactivate when the turn signal or hazard lamp deactivates.

SUMMARY OF REGULATION 19 VAC 30-70-190

Signal Device (Intention to stop or turn), Hazard Lights, Stop Lamp.

Subsection D, 9 is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

(Reference: Sections § 46.2-1014, § 46.2-1038, § 46.2-1039 and § 46.2-1040§ of the Code of Virginia.)

Reference Code of Virginia
Sections 46.2-1014, 46.2-1038,
46.2-1039 and 46.2-1040

§ 19 VAC 30-70-190
Signal Device
(Intention to stop or turn),
Hazard Lights, Stop Lamp

A. Any motor vehicle may be equipped with a switch which will permit all turn signal lamps to flash simultaneously.

B. Supplemental turn signals, properly wired into the turn signal circuit may be installed. These may be either approved type turn signals or clearance lamps.

C. Single face lamps are permissible on the front except tractor units shall be equipped with two-faced lamps mounted on the front fenders or on or near the front of the vehicle.

D. INSPECT FOR AND REJECT IF:

1. Motor vehicle, or trailer, except an antique vehicle not originally equipped with a stop lamp, is not equipped with at least one stop lamp of an approved type which automatically exhibits a red or amber light to the rear when the brake pedal is actuated;

2. Any 1986 or subsequent year model passenger car or any 1994 or subsequent year model multipurpose vehicle is not equipped with a supplemental center high mount stop lamp of an approved type mounted at the vertical centerline of the vehicle which functions only in cooperation with the vehicle's stop lamps. Any other vehicle on which a supplemental center high mount stop lamp is mounted shall have the lamp mounted at the vertical center line of the vehicle. The lamps shall be of an approved type and shall function only in conjunction with the stop lamps. **NOTE: Multipurpose passenger vehicles with an overall width of 80 or more inches or GVWR of 10,000 pounds or more are not required to be equipped with a center high mount stop light;**

No sticker or other foreign material shall be affixed to the vehicle in such a manner so as to obscure the center high mount stop lamp;

3. Proper signals do not go on with each throw of the switch or if stop signals do not go on with slightest pressure on the brake pedal. Turn signals may flash-stop signals may not flash except when the vehicle is equipped with a brake warning system or device which will cause the brake lights to flash when the vehicle is in motion but committed to an emergency or panic stop;
4. Motor vehicle was manufactured after January 1, 1955, and is not equipped with approved signaling devices;
5. Vehicle is not equipped with a turn signal if such signal is not working properly or does not continue to function in the same manner as when it was originally manufactured. (The turn signal switch shall lock in place when positioned for a left turn or a right turn, and the turn signal indicators must function. Do not reject a vehicle if the self-canceling mechanism in the switch does not function when the steering wheel is rotated.);
6. Switch is not convenient to the driver and not of an approved type;
7. Any vehicle so constructed so as to prevent the operator from making a hand and arm signal, if such vehicle is not equipped with an approved type signaling device;
8. Turn signal lens is not clear or amber to the front, or red or amber to the rear. Lens or bulb color has been altered or modified;
9. Wiring or electrical connections are defective or filaments do not burn;
10. Lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks;
11. Hazard warning devices are inoperative;
12. Device is not mounted near the rear for rear signals, or near the front for front signals (except supplemental turn signals) or if the signal is hidden by a bolster or other part of body chassis;

13. All "Class A" signals are not mounted at least 3 feet apart. (This does not apply to the combination rear signal device.) However, signal lamps that are mounted as far apart as practical inside and at the rear of the frame so as to be properly visible will meet inspection requirements;
14. Any vehicle has unapproved lens or plastic covers, any other materials which are not original equipment or any colored material placed on or in front of the signal device (intention to stop or turn), hazard lights or stop lamp.

SUMMARY OF REGULATION 19 VAC 30-70-210

Glazing

Footer on each page of section adds language to include glass.

Subsection B, 8 language added specifying point of measure for windshield.

Subsection B, 9 size of approved stickers is changed from 2 1/2 inches in width and 4 inches in length to 3 inches in width and 8 inches in length.

(Reference: Sections § 33.1-252, § 46.2-1002, § 46.2-1052, § 46.2-1053, § 46.2-1054, § 46.2-1056, § 46.2-1057 and § 46.2-1058 of the Code of Virginia.)

Reference Code of Virginia
Sections 33.1-252, 46.2-1002, 46.2-1052, 46.2-1053,
46.2-1054, 46.2-1056, 46.2-1057 and 46.2-1058

§ 19 VAC 30-70-210
Glass and Glazing

A. Motor vehicles may be inspected without windshields, side glasses, or any kind of glazing except that any motor vehicle other than a motorcycle which was manufactured, assembled, or reconstructed after July 1, 1970, must be equipped with a windshield. If glass or other glazing is installed, it must be inspected. If no windshield is installed, see 19 VAC 30-70-50, subsection C, for location of the sticker.

B. INSPECT FOR AND REJECT IF:

1. Any motor vehicle manufactured or assembled after January 1, 1936, or any bus, taxicab or school bus manufactured or assembled after January 1, 1935, is not equipped throughout with safety glass, or other safety glazing material. (This requirement includes slide-in campers used on pickups or trucks, caps, or covers used on pickup trucks, motor homes, and vans.)
2. Any safety glass or glazing used in a motor vehicle is not of an approved type and properly identified. (Replacement safety glass installed in any part of a vehicle other than the windshield need not bear a trademark or name, provided the glass consists of two or more sheets of glass separated by a glazing material, and provided the glass is cut from a piece of approved safety glass, and provided the edge of the glass can be observed.)
3. Any glass at any location where glass is used is cracked or broken so that it is likely to cut or injure a person in the vehicle.
4. Windshield has any cloudiness more than 3 inches above the bottom, 1 inch inward from the outer borders, 1 inch down from the top, or 1 inch inward from the center strip. The bottom of the windshield shall be defined as the point where the top of the dash contacts the windshield.
5. Any distortion or obstruction that interferes with a driver's vision.

Any alteration has been made to a vehicle that obstructs the driver's clear view through the windshield.

- a. Any hood scoop installed on any motor vehicle manufactured for the year 1990 or earlier model year cannot exceed 2 1/4 inches high at its highest point measured from the junction of the dashboard and the windshield.
 - b. Any hood scoop installed on any motor vehicle manufactured for the 1991 or subsequent model year cannot exceed 1 1/8 inches high at its highest point measured from the junction of the dashboard and the windshield.
6. Windshield glass, on the driver's side, has any scratch more than 1/4 inch in width and 6 inches long within the area covered by the windshield wiper blade, excluding the 3 inches above the bottom of the windshield.

EXCEPTION: Do not reject safety grooves designed to clean wiper blades if the grooves do not extend upward from the bottom of the windshield more than 6 inches at the highest point.

7. There is a pit, chip, or star crack larger than 1 1/2 inches in diameter at any location in the windshield above the 3 inch line at the bottom.
8. At any location in the windshield above the 3 inch line at the bottom (as measured from the junction of the dash board and the windshield) there is more than one crack from the same point if at least one of the cracks is more than 1 & one half; inches in length. There is any crack that weakens the windshield so that one piece may be moved in relation to the other. (If there is more than one crack running from a star crack that extends above the 3 inch line, the windshield shall be rejected.)
9. Any sticker is on the windshield other than an official one required by law, or permitted by the superintendent. Authorization is hereby granted to stickers measuring not more than ~~2-1/2~~ 3 inches in width and ~~4~~ 8 inches in length to be placed in the blind spot behind the rear view mirror. Department of Defense decals

measuring no more than ~~2-1/2~~ 3 inches in width and ~~4~~ 8 inches in length may be affixed to the upper edge of the center of the windshield. Any sticker required by law must be placed adjacent to the official inspection sticker and must not extend upward more than 3 inches from the bottom of the windshield; except, on vehicles operating in interstate commerce, under rules and regulations of ICC, stickers required by law must not extend upward more than 4 1/2 inches from the bottom of the windshield.

Any sticker required by the laws of any other state or District of Columbia and displayed upon the windshield of a vehicle submitted for inspection in this state is permitted by the superintendent, provided the vehicle is currently registered in that jurisdiction, the sticker is displayed in a manner designated by the issuing authority and has not expired. This includes vehicles with dual registration; i.e., Virginia and the District of Columbia.

10. Stickers or decals used by counties, cities and towns in lieu of license plates may be placed on the windshield without further authority. Except on privately owned yellow school buses, the sticker or decal shall be placed on the windshield adjacent to the right side of the official inspection sticker. The top edge of the sticker or decal shall not extend upward more than 3 inches from the bottom of the windshield. The left side edge adjacent to the official inspection sticker shall not be more than 1/4 inch from the right edge of the official inspection sticker when looking through the windshield from inside the vehicle. However, at the option of the motor vehicle owner, the sticker or decal may be affixed to the upper edge of the center of the windshield. (Any expired sticker or decal present on the windshield at the time of inspection shall be removed, excluding a rejection sticker.) On privately owned yellow school buses, the sticker or decal shall be placed on the windshield adjacent to the left side of the official inspection sticker, and not more than 1/4 inch from the left edge of the official inspection sticker when looking through the windshield from inside the vehicle. The

top edge of the sticker shall not extend upward more than 3 inches from the bottom of the windshield.

11. Sunshading material attached to the windshield extends more than 3 inches downward from the top of the windshield, unless authorized by a medical waiver certificate.

NOTE: Sunshading material on windshield displaying words, lettering, numbers or pictures is not approved and is not permitted.

12. Any sunscreening material is scratched, distorted, wrinkled or obscures or distorts clear vision through the glazing.

13. Front side windows have cloudiness above 3 inches from the bottom of the glass, or other defects that affect the driver's vision or one or more cracks which permit one part of the glass to be moved in relation to another part. Wind silencers, breezes or other ventilator adaptors are not made of clear transparent material.

EXCEPTION: Colored or tinted ventvisors that do not exceed more than two inches from the forward door post into the driver's viewing area are permitted.

14. Glass in the left front door cannot be raised or lowered easily so a hand signal can be given. (This does not apply to vehicles which were not designed and/or manufactured for the left front glass to be lowered, provided the vehicle is equipped with approved turn signals.) If either front door has the glass removed and material inserted in place of the glass which could obstruct the driver's vision.

EXCEPTION: Sunscreening material is permissible if the vehicle is equipped with a mirror on each side.

15. Any sticker or other obstruction is on either front side window, rear side windows, or rear windows. (The price label, fuel economy label and the buyer's guide required by federal statute and regulations to be affixed to new/used vehicles by the manufacturer shall normally be affixed to one of the rear side windows.) If a vehicle only has two

door windows, the labels may be affixed to one of these windows. If a vehicle does not have any door or side windows the labels may be temporarily affixed to the right side of the windshield until the vehicle is sold to the first purchaser.

NOTE: A single sticker no larger than 20 square inches in area, if such sticker is totally contained within the lower 5 inches of the glass in the rear window or a single sticker or decal no larger than 10 square inches located in an area not more than 3 inches above the bottom and not more than 8 inches from the rearmost edge of either front side window, is permissible and should not be rejected.

A single sticker issued by the Department of Transportation to identify a physically challenged driver, no larger than 2 inches X 2 inches, located not more than 1 inch to the rear of the front door post, or 1 inch to the rear of the front ventilator glass, if equipped with a ventilator glass, and no higher than 1 inch from the bottom of the window opening, is permitted on the front driver's side window on a vehicle specially equipped for the physically challenged.

16. Rear window is clouded or distorted so that the driver does not have a view 200 feet to the rear.

EXCEPTIONS: The following are permissible if the vehicle is equipped with a mirror on each side:

- a. There is attached to one rear window of such motor vehicle one optically grooved clear plastic right angle rear view lens, not exceeding 18 inches in diameter in the case of a circular lens or not exceeding 11 inches by 14 inches in the case of a rectangular lens, which enables the operator of the motor vehicle to view below the line of sight as viewed through the rear window.
- b. There is affixed to the rear side windows, rear window or windows of such motor vehicle any sticker or stickers, regardless of size.

- c. There is affixed to the rear side windows, rear window or windows of such motor vehicle a single layer of sunshading material.
- d. Rear side windows, rear window or windows is clouded or distorted.

SUMMARY OF REGULATION 19 VAC 30-70-290

Seat Belts

Subsection C, paragraph 12, wording “indicator fails to light or” is deleted and “readiness light” is inserted. Exception is added concerning condition of air bag and air bag warning light.

(Reference: Sections § 46.2-1092 and § 46.2-1093 of the Code of Virginia.)

"Bus" means a motor vehicle with motive power designed to carry more than 10 persons.

"Designated Seating Position" means any plan view (looking down from the top) location intended by the manufacturer to provide seating accommodations while the vehicle is in motion, except auxiliary seating accommodations as temporary or folding jump seats.

"Front Outboard Designated Seating Positions" means those designated seating positions for the driver and outside front seat passenger (except for trucks which have the passenger seat nearest the passenger side door separated from the door by a passageway used to access the cargo area.)

"GVWR" means Gross Vehicle Weight Rating as specified by the manufacturer (loaded weight of a single vehicle.)

"Multi-purpose Passenger Vehicle" means a motor vehicle with motive power designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation. This shall include a mini-van.

"Open-Body Type Vehicle" means a vehicle having no occupant compartment top or an occupant compartment top that can be installed or removed by the user at his convenience.

"Passenger Car" means a motor vehicle with motive power except a multipurpose passenger vehicle or motorcycle designed for carrying 10 persons or less.

"Rear Outboard Front Facing Designated Seating Positions" means those designated seating positions for passengers in outside front facing seats behind the driver and front passenger seat, except any designated seating position adjacent to a walk-way, that is located between the seat and the near side of the vehicle and is designated to allow access to more rearward seating positions.

"Truck" means a motor vehicle with motive power designed primarily for the transportation of property or special purpose equipment.

Passive Restraint System

- A. Inflatable occupant restraint (commonly known as air bags.)
- B. Passive belt system (automatic deployment around the occupant after the occupant enters the vehicle and closes the door.)

C. INSPECT FOR AND REJECT IF:

- 1. Not of an approved type;
- 2. Installation not in compliance as follows:
 - a. All motor vehicle seat belt anchorages and attachment hardware must meet the standards and specifications set forth by the Society of Automotive Engineers, Inc., and Federal Motor Vehicle Safety Standard Number 209, for such anchorages and attachment hardware;
 - b. Any questions concerning the proper installation of seat belt assemblies should be directed to the nearest Safety Division office.
- 3. Any 1963 and subsequent model vehicle, designed and licensed primarily for private passenger use, is not equipped with adult safety lap belts for at least two front seats or a combination of lap belts and shoulder straps or harnesses.
- 4. Any passenger car manufactured on or after January 1, 1968, not equipped with lap/shoulder or harness seat belt assemblies located at the front outboard designated seating positions (except in convertibles) and lap seat belt assemblies located at all other designated seating positions.

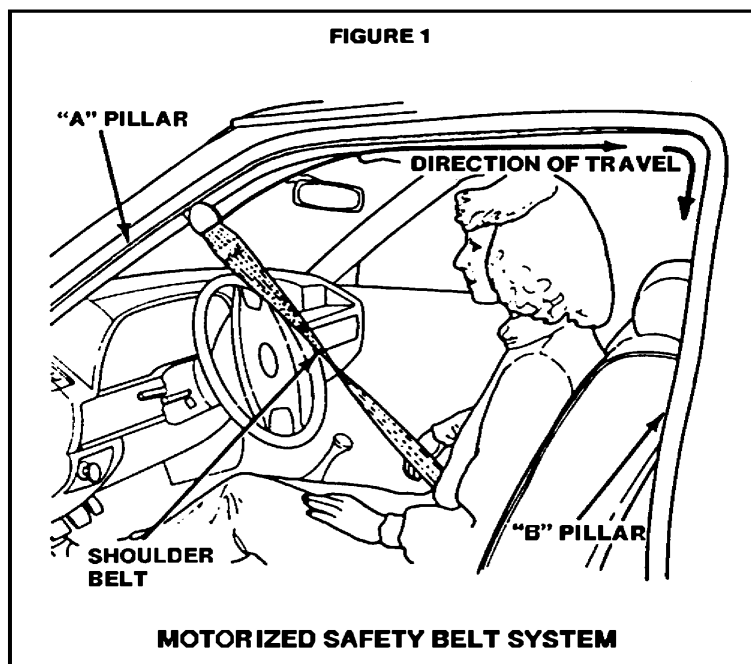
Any convertible passenger car manufactured on or after January 1, 1968, not having a lap seat belt assembly for each designated seating position.

5. Any passenger car manufactured on or after December 11, 1989, (except convertibles) not equipped with lap/shoulder seat belt assemblies located at all forward facing rear outboard designated seating positions.
 - a. Any passenger car manufactured on or after September 1, 1991, (including convertibles) is not equipped with a lap/shoulder seatbelt assembly located at all forward facing rear outboard designated seating positions.
 - b. Any truck, multipurpose vehicle, or bus (except school buses and motor homes) with a gross vehicle weight rating (GVWR) of 10,000 pounds or less, manufactured on or after September 1, 1991, is not equipped with a lap/shoulder seatbelt assembly at all forward facing rear outboard designated seating positions.
 - c. Any of the heretofore described vehicles manufactured on or after September 1, 1992, are not equipped with lap/shoulder seatbelt assembly located at all forward facing rear outboard designated seating positions on a readily removable seat.
6. Any of the following motor vehicles manufactured on or after July 1, 1971, not having a lap seat belt assembly for each designated seating position:
 - a. Open-body type vehicles;
 - b. Walk-in van type trucks;
 - c. Trucks (GVWR in excess of 10,000 pounds);
 - d. Multi-purpose passenger vehicles (GVWR in excess of 10,000 pounds).
7. Any buses manufactured on or after July 1, 1971, not having a lap seat belt assembly for the driver's seating position.
8. All other motor vehicles manufactured on or after January 1, 1976, except those for which requirements are specified in subdivisions 3 and 4, not having lap/shoulder or harness seat belt assemblies installed for each front outboard designated seating position. Those vehicles originally equipped and sold by the manufacturer with only a

lap belt installed for each designated seating position, in compliance with Federal Motor Vehicle Safety Standards, will be deemed to be in compliance with this section.

9. Any seat belt buckle, webbing, or mounting is cut, torn, frayed or no longer operates properly.
10. Any seat belt anchorage is loose, badly corroded, missing or not fastened to belt.
11. Safety Belts (Motorized). 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 seat belt warning indicator lamp should illuminate with the lap belt unbuckled. When the ignition is turned to the off position and the door is opened, the shoulder belt moves forward to the "A" pillar.

NOTE: Reject vehicle if the seat belt system does not operate as outlined above.



12. Air Bag Readiness Light

Turn the ignition key to the on position, the air bag readiness light will indicate normal system operation by lighting for six to eight seconds, then turning off. A system malfunction is indicated by the flashing or continuous illumination of the readiness light or failure of the light to turn on.

NOTE: Reject vehicle if the air bag indicator readiness fails to light or stays on continuously or flashes.

Exceptions: Do not reject if the air bag has been deployed or removed, and if the air bag warning light has been disabled.

SUMMARY OF REGULATION 19 VAC 30-70-360

Motorcycle lights: headlamp, rear, signal, warning.

Subsection A, paragraph 5 , wording in second sentence is deleted and is revised with additions making language consistent with established regulations requiring all filaments or bulbs to burn.

Subsection D, paragraph 4, d is revised with additions making language consistent with established regulations requiring all filaments in light devices to burn.

(Reference : Sections § 46.2-1012, § 46.2-1013, § 46.2-1014, § 46.2-1038, § 46.2-1039, and § 46.2-1040 of the Code of Virginia.)

Reference Code of Virginia
Sections 46.2-1012, 46.2-1013,
46.2-1014, 46.2-1038, 46.2-1039,
and 46.2-1040

§ 19 VAC 30-70-360
Motorcycle lights:
headlamps, rear,
signal, warning.

A. INSPECT FOR AND REJECT IF:

1. Motorcycle is not equipped with at least one motorcycle headlamp.
2. Any motorcycle headlamp is not of an approved type. A motorcycle may have one or two headlamps, but not more than two. In addition to the headlamp or lamps, a motorcycle may be equipped with not more than two auxiliary headlamps of a type approved by the superintendent and identified as "auxiliary front lamps."
3. Lens and reflector do not match except in sealed units, or if the lens is cracked, broken or rotated, or if the lens and reflector are not clean or bright.

Any motorcycle lights-headlamp, rear lamp, signal or warning lamp have any wire, unapproved lens or plastic covers, any other materials which are not original equipment or any colored material placed on or in front of lamp or lens.
4. Motorcycles may be equipped with means of modulating the high beam of their headlights between high and low beam at a rate of 200 to 280 flashes per minute, provided they are equipped with a switch or device which prevents flashing of headlights when headlights are required to be lighted.
5. Lamp is not focused. ~~Look for sagged filament in prefocused bulb.~~ or any filament or bulb fails to burn.
6. The center of the hot spot is set more than four inches up or down from the horizontal centerline or more than four inches to the left or right from the vertical centerline.
7. Lamp is not mounted securely or if switch does not operate properly.

NOTE: Inspection is to be performed with lamp on high beam.

B. Aiming the Headlamp. All headlamps that do not comply with subdivision A 6 of this section shall be aimed straight ahead. (Zero inches up or down and zero inches to the right or left.)

C. Rear Lamp

INSPECT FOR AND REJECT IF:

1. The high beam indicator does not burn when the high or "country" beam is on or does not go off when the low beam is on.
2. Motorcycle is not equipped with a rear lamp of approved type.
3. Lamp is not mounted near rear of vehicle, or is not mounted securely, or if lamp does not make a good electrical connection.
4. Lenses are not red to the rear and clear or amber to the front or any lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
5. Filaments in all lamps do not burn when headlamp switch is turned on to any position.
6. The rear license plate is not illuminated by an approved license plate lamp.

D. Signal Device (Intention to stop or turn).

1. Signal devices are not required on motorcycles; however, if installed they must operate and be inspected.
2. Signal lamps installed on the front of the motorcycle must project an amber light and be located on each side of the vertical centerline of the motorcycle and as far apart as practicable and not closer than nine inches, measured from the optical centerline of the lamps, and to be located on the same level and not less than 20 inches above the ground plate. The optical centerline of the lamp shall not be less than four inches from the retaining ring of the headlamp unit.
3. Signal lamps installed on the rear of the motorcycle shall be red or amber and shall be located on each side of the vertical centerline of the motorcycle as far apart as

practicable but not closer than nine inches, measured from the optical centerline of the lens, and to be located on the same level and not less than 20 inches above the ground level.

4. INSPECT FOR AND REJECT IF:

- a. Motorcycle, except an antique vehicle not originally equipped with a stop lamp, is not equipped with at least one stop lamp of an approved type which automatically exhibits a red or amber light to the rear when the brake control foot pedal or hand grip brake control device is activated. (On motorcycles manufactured prior to January 1, 1972, the activation of the front wheel brake control device is not required to activate the stop lamp.)
- b. The signal lamp is not of an approved type or does not flash.
- c. Lens in brake lamp or signal lamp has a piece broken from it. (Lens in brake lamp or signal lamp may have one or more cracks provided an off-color light does not project through the crack or cracks.)
- d. Wiring or electrical connections are defective or any filaments do not burn.
- e. Switch is not convenient to the driver and not of an approved type.
- f. Signal devices are not installed as provided in subdivisions D 1 and 2 of this section.

E. Warning Lights.

INSPECT FOR AND REJECT IF:

1. Warning lamps are not of an approved type or have been altered.
2. Any lighted advertising sign.

**SUMMARY OF REGULATION 19 VAC 30-70-410
Motorcycle windscreen/glazing.**

Reference to Motorcycle Glazing is changed to Motorcycle Windscreen/Glazing in heading and footer.

(Reference: Section § 46.2-1052, § 46.2-1056 and § 46.2-1058 of the Code of Virginia.)

Reference Code of Virginia
Sections 46.2-1052, 46.2-1056,
and 46.2-1058

§ 19 VAC 30-70-410
Motorcycle
windscreen/glazing

INSPECT FOR AND REJECT IF:

1. Any windscreen not of an approved type.
2. Any windscreen that obstructs the driver's vision.
3. Any support or installation component that interferes with the driver's vision.

SUMMARY OF REGULATION 19 VAC 30-70-410
Part IV, Inspection Requirements for Motorcycles.

Reference to Motorcycle glazing is changed to Motorcycle windscreen/glazing.

PART IV
INSPECTION REQUIREMENTS
FOR MOTORCYCLES

19 VAC 30-70-330	Motorcycle inspection	330-1
19 VAC 30-70-340	Motorcycle brakes	340-1
19 VAC 30-70-350	Motorcycle seat, steering and suspension	350-1
19 VAC 30-70-360	Motorcycle lights	360-1
19 VAC 30-70-370	Motorcycle mirror	370-1
19 VAC 30-70-380	Motorcycle horn	380-1
19 VAC 30-70-390	Motorcycle muffler and exhaust system	390-1
19 VAC 30-70-400	Motorcycle tires - wheels - rims	400-1
19 VAC 30-70-410	Motorcycle <u>windscreen</u> /glazing	410-1
19 VAC 30-70-420	Motorcycle fuel system	420-1

**SUMMARY OF REGULATION 19 VAC 30-70
Part V, Inspection Requirements for Vehicles over 10,000 pounds.**

Reference to Glazing is changed to Glass and Glazing.

PART V
INSPECTION REQUIREMENTS
FOR VEHICLES OVER 10,000 POUNDS

19 VAC 30-70-430	Inspection procedure - heavy vehicles	430-1
19 VAC 30-70-440	Service brakes	440-1
19 VAC 30-70-450	Brakes	450-1
19 VAC 30-70-460	Brakes: trailer (GVWR 10,000 pounds or more)	460-1
19 VAC 30-70-470	Steering	470-1
19 VAC 30-70-480	Suspension	480-1
19 VAC 30-70-490	Frame, engine mounts, coupling devices and emergency chains	490-1
19 VAC 30-70-500	Tires, wheels, rims	500-1
19 VAC 30-70-510	Headlamps	510-1
19 VAC 30-70-520	Rear lamps	520-1
19 VAC 30-70-530	Auxiliary lamps	530-1
19 VAC 30-70-540	Parking lamps	540-1
19 VAC 30-70-550	Clearance lamps and reflectors	550-1
19 VAC 30-70-560	Signal device (intention to stop or turn), hazard lights, stop lamps	560-1
19 VAC 30-70-570	Permissible lighting equipment	570-1
19 VAC 30-70-580	<u>Glass and Glazing</u>	580-1
19 VAC 30-70-590	Mirrors	590-1
19 VAC 30-70-600	Windshield wiper/defroster	600-1
19 VAC 30-70-610	Horns and other warning devices	610-1
19 VAC 30-70-620	Doors	620-1
19 VAC 30-70-630	Hood latch system	630-1
19 VAC 30-70-640	Floor pan	640-1

19 VAC 30-70-650	Seat	650-1
19 VAC 30-70-660	Seat belts	660-1
19 VAC 30-70-670	Muffler, exhaust system, and trailer venting	670-1
19 VAC 30-70-680	Fuel system	680-1

SUMMARY OF REGULATION 19 VAC 30-520

Rear Lamps: tail lamps; license plate lamps and rear lamp combinations.

Subsection 9, is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

(Reference: Section § 46.2-1013 of the Code of Virginia.)

INSPECT FOR AND REJECT IF:

1. Vehicle is not equipped with a rear (tail lamp) or rear lamp combination of an approved type.
2. The vehicle is equipped with more than one rear lamp, if all are not in operating condition.
3. The vehicle is not equipped with a license plate lamp of an approved type which emits a white light. The license plate lamp may be a separate lamp or part of a combination rear lamp. (A road tractor or tractor-truck which does not have a rear license plate is not required to have a license plate lamp.)
4. Lens for license plate lamp is not clear.
5. Lens on rear lamps, or lens area in combination rear lamps (tail lamps) are not red or contain a dot of another color.
6. Lens has piece broken from it or does not fit properly. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
7. Filament in all rear (tail) lamps does not burn when headlamp switch is turned on to any position, or if lamps do not provide a red light visible to the rear.
8. Rear (tail) lamp is not mounted near extreme rear of vehicle. Dump trucks and other specially constructed vehicles may mount the rear lamp at a point other than on the extreme rear, provided such rear lamp is clearly visible from the rear, and further provided that a red reflector of an approved type is mounted on the extreme rear. In unusual cases, the rear lamp may be mounted on the cab. Reject if the lamp is hidden by a bolster or other part of the body or frame, is not mounted securely, or if the lamp does not make a good electrical contact.
9. Wiring or electrical connections are defective or filaments do not burn.

10. Any vehicle has unapproved lens or plastic covers, any other materials which are not original equipment or any colored material placed on or in front of rear lamps, tail lamps, license plate lamps or rear lamp combinations.

SUMMARY OF REGULATION 19 VAC 30-530

Auxiliary Lamps: backup; cornering; driving; fog; spot and warning.

Subsection A, paragraph 2, Exception is revised with additional language.

Subsection H, paragraph 8, b is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection H, paragraph 9, b is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection H, paragraph 10, f is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

Subsection H, paragraph 12, e is revised with additional language making it consistent with existing established regulations requiring all filaments in lighting devices to burn.

(Reference: Section § 46.2-1019, § 46.2-1020, § 46.2-1021, § 46.2-1022, § 46.2-1023, § 46.2-1024, § 46.2-1025, § 46.2-1026, § 46.2-1027, § 46.2-1028, § 46.2-1029, § 46.2-1030 and § 46.2-1090.1 of the Code of Virginia.)

Reference Code of Virginia

§ 19 VAC 30-70-530

Sections 46.2-1019, 46.2-1020, 46.2-1021, 46.2-1022, 46.2-1023, 46.2-1024, 46.2-1025, 46.2-1026, 46.2-1027, 46.2-1028, 46.2-1029, 46.2-1030 and 46.2-1090.1

Auxiliary Lamps -
backup - cornering-
driving - fog - spot
and warning

A. Auxiliary lamps on a vehicle consist of seven general types: backup lamps, cornering lamps, driving lamps, fog lamps with an amber or clear lens, spot lamps, warning lamps and daytime running lamps (DRLs).

1. School buses may be equipped with an eight lamp warning system of two red and two amber warning lamps of an approved type on the front and rear of such vehicle.

a. In addition to required warning lamps, school buses may be equipped with a stop signal arm consisting of an octagonal sign which meets FMVSS specifications (Federal Motor Vehicle Safety Standards). The stop signal arm shall be reflectorized or be equipped with two red warning lamps of an approved type.

b. School buses may also be equipped with roof mounted flashing white or amber warning lamps of an approved type.

2. Reject if the vehicle has wire, unapproved plastic covers, any other materials which are not original equipment or any colored material placed on or in front of any auxiliary lamps-backup, cornering, driving, fog, spot or warning lamps.

EXCEPTION: Any lighting device which is both covered and not illuminated, other than lamps required or permitted by this manual, shall not be considered for inspection. Fog and driving lamps mounted below the level of the regular headlights must be checked for aim as outlined in paragraphs K9 and L7a of this section, if not covered.

B. There is no limit on the number of backup lamps that a vehicle may have so long as they are of an approved type.

- C. No more than four lamps, including two headlamps may be lighted at any time to provide general illumination ahead of the vehicle.
- D. Approved type blue or blue and red lights are permitted on Department of Corrections vehicles designated by the Director of the Department of Corrections and any law-enforcement vehicle. Approved type red warning lights or red and white lights are permitted on fire department vehicles, including publicly owned state forest warden vehicles, ambulances, any rescue vehicle used for emergency calls, vehicles of the Department of Emergency Services, animal warden vehicles, and vehicles used by security personnel at the Newport News Shipbuilding and Drydock Company, Bassett-Walker, Incorporated, or the Tultex Corporation. No more than two flashing or steady-burning red or combination red and white lights of an approved type may be installed on one vehicle owned by any member of a fire company, volunteer fire company, volunteer rescue squad or any ambulance driver employed by a privately owned ambulance service
- E. Vehicles mentioned in subsection D permitted to be equipped with flashing, blinking or alternating red, red and white, blue, or blue and red emergency lights (except vehicles owned by any member of a fire company, volunteer fire company, volunteer rescue squad or an ambulance driver employed by a privately owned ambulance service) may be equipped with the means to flash their headlamps when their emergency warning lamps are activated provided:
 - 1. The headlamps are wired to allow either the upper beam or lower beam to flash but not both and;
 - 2. The headlamp system includes a sensor which prevents flashing of headlamps when headlamps are required to be lighted pursuant to current statute.
- F. Any fire vehicle used exclusively for fire fighting, any ambulance or rescue or lifesaving vehicle used for the principal purpose of emergency relief or any wrecker used for the principal purpose of towing disabled vehicles may be equipped with clear auxiliary lamps

which shall be used exclusively for lighting emergency scenes. Such lamps shall be of a type permitted by the Superintendent. Any government owned police vehicle may be equipped with clear auxiliary lamps of a type approved by the Superintendent.

G. Approved type amber flashing, blinking or alternating lights are permitted on vehicles used for the principal purpose of towing or servicing disabled vehicles or in constructing, maintaining and repairing highways or utilities on or along public highways and vehicles used for the principal purpose of removing hazardous or polluting substances from the State waters or drainage areas on or along public highways. Such lamps are permitted on vehicles used for servicing automatic teller machines, refuse collection vehicles, hi-rail vehicles and on vehicles used for towing or escorting over-dimensional materials, equipment, boats, or manufactured housing units by authority of highway hauling permit.

1. Approved type amber flashing, blinking or alternating lights are permitted on fire apparatus, ambulances, and rescue and life-saving vehicles, providing the amber lights are mounted or installed on the rear of the vehicles.

2. Approved type amber flashing, blinking or alternating lights are permitted on vehicles owned and used by businesses providing security services and vehicles used to collect and deliver the United States mail.

3. An approved type amber flashing, blinking or alternating light may be mounted on the rear of any vehicle used to transport petroleum products. The light must be wired through the reverse gear circuit and activate in conjunction with the backup lights and audible alarm.

H. INSPECT FOR AND REJECT IF:

1. Vehicle has an auxiliary lamp being used for a purpose other than for which it was approved.

Do not reject tractor trucks equipped with cargo lights of an approved type which are mounted on the rear of the tractor cab and wired through an independent switch used to illuminate brake connectors and fifth-wheels for nighttime hookups.

2. A vehicle has installed on it a warning lamp that is not of an approved type or has been altered.
3. Vehicle is equipped with a combination of auxiliary lamps which include more than two fog lamps, or more than two spot lamps, or more than two driving lamps. Reject a vehicle equipped with a headlamp mounted or used as an auxiliary lamp.

NOTE: Vehicles equipped from the factory, with two driving lamps should not be rejected

4. Vehicle is equipped with an auxiliary lamp that does not function properly. (If an auxiliary lamp has been modified by removing the wiring, bulb and socket, the unit will be considered an ornament and not a lamp and will not be considered in inspection.)
5. Vehicle is equipped with a lighted advertising sign. Except commercial motor vehicles, and buses operated as public carriers. These vehicles may be equipped with vacant and destination signs and one steady burning white light for illumination of external advertising. Do not reject approved identification lights.
6. Any lamp is not of an approved type or if lamps to be burned together as a pair do not emit the same color light.
7. The lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
8. Backup lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Lamps are not of an approved type or a lamp has been altered.
- b. Wiring or electrical connections are defective or filaments do not burn.

- c. The lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
 - d. Lens is other than clear.
 - e. Lamps are not wired into the reverse gear or an independent circuit.
9. Cornering lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Lamps are not of an approved type or a lamp has been altered.
 - b. Wiring or electrical connections are defective or filaments do not burn.
 - c. The lens has a piece broken from it. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
 - d. The color of the light is other than clear or amber.
 - e. The lamps do not burn in conjunction with the turn signals.
10. Driving lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Driving lamps are installed on vehicles equipped with the four headlamp system, except the "F" type headlamp system.
- b. A vehicle is equipped with more than two driving lamps.
- c. Driving lamps are not of an approved type or have been altered.
- d. The color of the lamp is other than white.
- e. The lens has a piece broken from it or is rotated away from its proper position. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
- f. Wiring or electrical connections are defective or filaments do not burn.

- g. Any driving lamp is mounted above the level of the regular headlamps, or is not mounted firmly to prevent excessive vibration.
- h. Driving lamps are not wired so that they will burn only when the high beams of the regular headlamps are activated.
- i. Driving lamps are not aimed so that the center of the hot spot drops three inches in 25 feet so that the hot spot is directly ahead of the lamp.

NOTE: Driving lamps must be aimed using the optical headlight aimer.

- j. A tolerance of four inches in 25 feet is allowed in both the horizontal and the vertical adjustment.
11. Fog lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. A vehicle is equipped with more than two fog lamps.
- b. Lamps are not of an approved type or a lamp has been altered.
- c. The lens is other than clear or amber. (Fog lamps may have black end bulbs or small metal caps over the end of the bulb.)
- d. The lens has a piece broken from it or is rotated away from its proper position. The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
- e. Wiring or electrical connections are defective or filaments do not burn.
- f. Any fog lamp is mounted above the level of the regular headlamps, or is not mounted firmly.
- g. Lamps are not wired and aimed according to the following instructions:
 - (1) Fog lamps are general illumination lamps as covered in 19 VAC 30-70-160 C. They must burn through the tail light circuit even if on a separate switch. If

installed on a vehicle with a four-headlamp system or a vehicle equipped with driving lamps, they must be wired into the low beam circuit.

- (2) Fog lamps must be aimed so that the top edge of the high intensity zone is set at the horizontal centerline and the left edge of the high intensity zone is set at the vertical centerline. (Same as low beam headlights.)

NOTE: Fog lamps must be aimed using the optical headlight aimer.

- (3) A tolerance of four inches in 25 feet is allowed in both the horizontal and the vertical adjustment.

12. Spot lamps are not required. However, if installed they must operate and be inspected.

INSPECT FOR AND REJECT IF:

- a. Vehicle is equipped with more than two spot lamps.
- b. Lamps are not of an approved type or a lamp has been altered.
- c. The lens in any spot lamp is other than clear.
- d. The lens has a piece broken from it or is rotated away from its proper position.
The lens may have one or more cracks provided an off-color light does not project through the crack or cracks.
- e. Wiring or electrical connections are defective or filaments do not burn.

13. Daytime Running Lamps (DRLs) are not required. However, if installed they must operate and be inspected. DRLs must be installed in pairs.

NOTE: DRLs may or may not be wired into the tail light circuit.

INSPECT FOR AND REJECT IF:

- a. Any lamp, except headlamps, used as DRLs is not marked "DRL."
- b. Fog lamps or parking lamps are used as DRLs.
- c. More than one pair of lamps are used and or designated as DRLs.
- d. A DRL is mounted higher than 34 inches measured to the center of the lamp.

- e. The color is other than white to amber.
- f. DRLs do not deactivate when the headlamps are in any "on" position.

Any DRL optically combined with a turn signal or hazard lamp must deactivate when the turn signal or hazard lamp is activated and then reactivate when the turn signal or hazard lamp deactivates.

SUMMARY OF REGULATION 19 VAC 30-70-550

Clearance lamps and reflectors

Subsection 2, new section added concerning retroreflective surfaces other than required reflectors.

(Reference: Section § 46.2-1017 and § 46.2-1018 of the Code of Virginia.)

INSPECT FOR AND REJECT IF:

1. Any motor vehicle, trailer, semitrailer or other vehicle is not equipped with clearance lamps if the vehicle is over seven feet wide or if any portion extends four inches or more outside the front fender line.

When a motor vehicle with a trailer attached is presented, the combination may be considered as one unit in meeting this requirement. If presented separately, the individual unit must meet these requirements except that any tractor-truck need not be equipped with rear red dimension or marker lamps.

2. Lamps and reflectors are not of an approved type or a lamp has been altered.

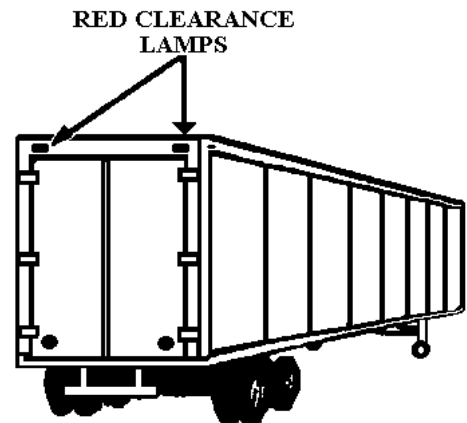
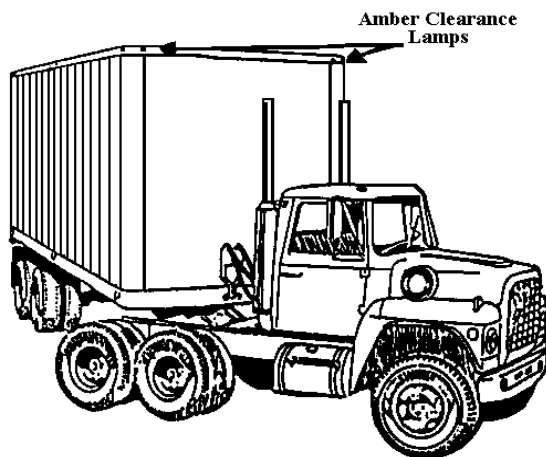
Reject if the lamps or reflectors have unapproved plastic covers, any other materials which are not original equipment or any colored material placed on or in front of lamps or reflectors.

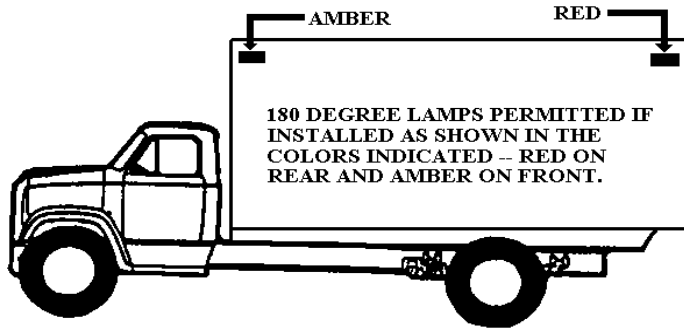
Retroreflective surfaces. Retroreflective surfaces other than required reflectors may be used, provided:

- A. Designs do not resemble traffic control signs, lights, or devices, except that straight edge striping resembling a barricade pattern may be used.
 - B. Designs do not tend to distort the length and/or width of the motor vehicle.
 - C. Such surfaces shall be at least 3 inches from any required lamp or reflector unless of the same color as such lamp or reflector.
 - D. No red color shall be used on the front of any motor vehicle, except for display of markings or placards required by law.
3. Lenses on lamps on the front are not yellow or amber and lenses on lamps on the rear are not red or if a lens has a piece broken from it. A lens may have one or more cracks provided an off-color light does not project through the crack or cracks.

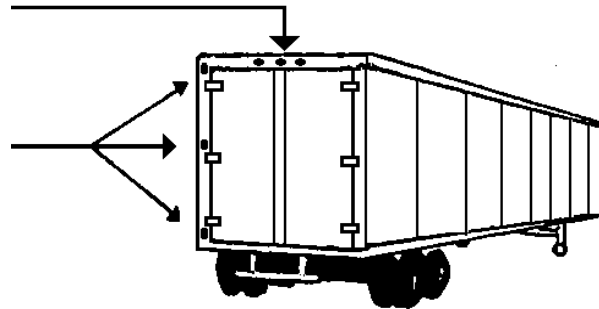
4. Wiring or electrical connections are defective, all filaments do not burn.
5. Two amber lamps are not mounted on the front and two red lamps on the rear, so as to indicate the extreme width of the body, and as high on the permanent body as practical, except that approved 180 degree lamps with yellow or amber lens may be mounted on the side of the vehicle at or as near the front as possible, or if the front is not the widest portion, the lamps may be installed on the side and as near that point as possible. And with the further exception that 180 degree lamps with red lens may be mounted on the side of the vehicle at or as near the rear as possible or if the rear is not the widest portion of the vehicle, the lamps may be installed on the side as near that point as possible.
6. Any vehicle equipped with three red identification lamps with the lamp centers spaced not less than six inches or more than 12 inches apart and installed as close as practicable to the top of the vehicle and as close as practicable to the vertical centerline of the vehicle may have the rear dimension or marker lamps required by paragraph 5 above mounted at any height but indicate as nearly as practicable the extreme width of the vehicle.
7. Dump trucks with a high lift body, concrete mixer trucks and other specially constructed vehicles may be equipped with the required clearance lamps not mounted on the extreme rear, provided such red lamps are clearly visible from the rear and provided further that two red reflectors of an approved type are mounted on the extreme rear. In unusual cases the rear lamp may be mounted on the cab and another red reflex reflector placed on the extreme rear.
8. In addition to the required clearance lamps showing to the front and to the rear, a vehicle may be equipped with clearance lamps on the side of the vehicle. When such an installation is used, all of the clearance lamps on the side except the one at or near the rear must have an amber lens. The clearance lamps on the side at or near the rear must have a red lens.

9. Any vehicle covered by subdivision 1 of this section, except school buses, is not equipped with amber reflectors on the sides as near the front as practical, and red reflectors on the rear. The reflectors must be at least 15 inches and not more than 60 inches from the ground. No reflector can have a piece broken from its reflective surface, but may have one or more cracks.
10. Any combination of vehicles whose actual length exceeds 35 feet if the vehicles are not wide enough to have clearance lights, if the vehicle is not equipped with reflex reflectors of a type approved by the superintendent and mounted on the widest part of the towed vehicle so as to be visible from the front and sides of the vehicle. No reflector can have a piece broken from its reflective surface, but may have one or more cracks.
11. Any passenger vehicle is equipped with clearance lamps, unless such lamps are used to mark the extreme width of the vehicle or used as taxicab identification, or used as supplemental turn signals. (See 19 VAC 30-70-190 B.)
12. Vehicles so constructed as to make compliance with the requirements of subdivisions` 1, 5, 7, 9 and 10 of this section impractical will be equipped with clearance lamps and reflectors at the most practical location to provide maximum visibility.



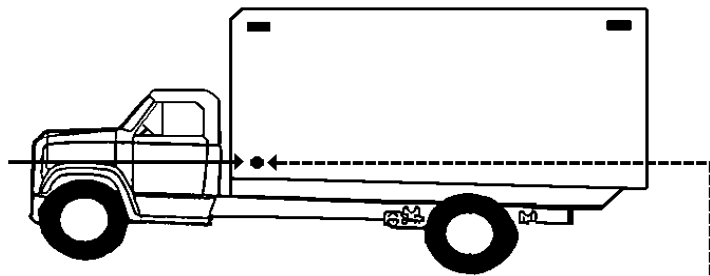


If equipped with three red identification lamps, the required clearance lamps may be mounted at any height so long as they indicate, as nearly as practicable, the extreme width of the vehicle.

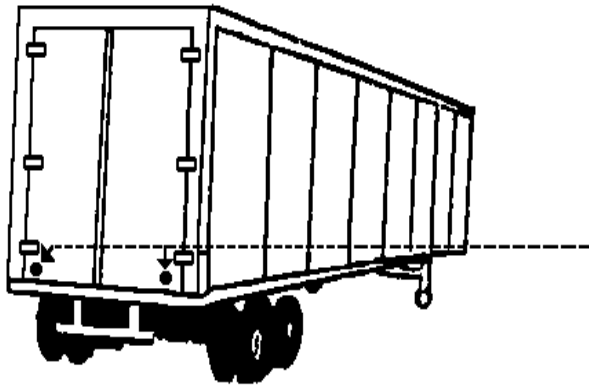


ILLUSTRATIONS FOR PROPER INSTALLATION OF REFLECTORS

Amber Reflector



At least 15 inches and not more than 60 inches from the ground



Red ----- At least 15 inches
Reflectors and not more than
60 inches from the
ground

SUMMARY OF REGULATION 19 VAC 30-70-580
Glazing

Wording added to index to include glass.

Footer on each page of section adds language to include glass.

(Reference: Section § 46.2-1002, § 46.2-1052, § 46.2-1053, § 46.2-1054, § 46.2-1056, § 46.2-1057 and § 46.2-1058 of the Code of Virginia.)

Reference Code of Virginia

§ 19 VAC 30-70-580

Sections 46.2-1002, 46.2-1052, 46.2-1053,
46.2-1054, 46.2-1056, 46.2-1057 and
46.2-1058

Glass and Glazing

- A. Motor vehicles may be inspected without windshields, side glasses, or any kind of glazing except that any motor vehicle other than a motorcycle which was manufactured, assembled, or reconstructed after July 1, 1970, must be equipped with a windshield. If glass or other glazing is installed, it must be inspected. If no windshield is installed, see 19 VAC 30-70-50, C, for location of the sticker.
- B. INSPECT FOR AND REJECT IF:
1. Any motor vehicle manufactured or assembled after January 1, 1936, or any bus or school bus manufactured or assembled after January 1, 1935, is not equipped throughout with safety glass, or other safety glazing material. (This requirement includes slide-in campers used on pickups or trucks, caps, or covers used on pickup trucks, motor homes, and vans.)
 2. Any safety glass or glazing used in a motor vehicle is not of an approved type and properly identified. (Replacement safety glass installed in any part of a vehicle other than the windshield need not bear a trademark or name, provided the glass consists of two or more sheets of glass separated by a glazing material, and provided the glass is cut from a piece of approved safety glass, and provided the edge of the glass can be observed.)
 3. Any glass at any location where glass is used is cracked or broken so that it is likely to cut or injure a person in the vehicle.
 4. Windshield has any cloudiness more than three inches above the bottom, one inch inward from the outer borders, one inch down from the top, or one inch inward from

the center strip. The bottom of the windshield shall be defined as the point where the top of the dash contacts the windshield.

5. Any distortion or obstruction that interferes with a driver's vision.
 - a. Any hood scoop installed on any motor vehicle manufactured for 1990 or earlier model year cannot exceed 2 1/4 inches high at its highest point measured from the junction of the dashboard and the windshield.
 - b. Any hood scoop installed on any motor vehicle manufactured for the year 1991 or subsequent model year cannot exceed 1 1/8 inches high at its highest point measured from the junction of the dashboard and the windshield.

6. Windshield glass, on the driver's side, has any scratch more than 1/4 inch in width and six inches long within the area covered by the windshield wiper blade, excluding the three inches above the bottom of the windshield.

EXCEPTION: Do not reject safety grooves designed to clean wiper blades if the grooves do not extend upward from the bottom of the windshield more than six inches at the highest point.

7. There is a pit, chip, or star crack larger than 3/4 inch in diameter at any location in the windshield above the topmost portion of the steering wheel except the two-inch border at each side.
8. At any location above the topmost portion of the steering wheel excluding a two-inch border at the top and one-inch border at the sides there is:
 - a. Any crack over 1/4 inch in width.
 - b. Any crack 1/4 inch or less in width intersected by another crack.
 - c. Any damage area 3/4 inch or less in diameter if within three inches of any other damage area.
9. Any sticker is on the windshield other than an official one required by law, or permitted by the Superintendent. Authorization is hereby granted to stickers

measuring not more than 2 1/2 inches in width and four inches in length to be placed in the blind spot behind the rear view mirror. Any sticker required by law must be placed adjacent to the official inspection sticker and must not extend upward more than three inches from the bottom of the windshield; except, on vehicles operating in interstate commerce, under rules and regulations of ICC, stickers required by law must not extend upward more than 4 1/2 inches from the bottom of the windshield. A valid Commercial Vehicle Safety Alliance or motor carrier inspection sticker issued by certified law-enforcement agencies not exceeding three inches in height and two inches in width may be placed at the lower right corner of the windshield on trucks and tractor-trucks having a GVWR of 26,001 pounds or more.

Any sticker required by the laws of any other state or District of Columbia and displayed upon the windshield of a vehicle submitted for inspection in this state is permitted by the Superintendent, provided the vehicle is currently registered in that jurisdiction, the sticker is displayed in a manner designated by the issuing authority and has not expired. This includes vehicles with dual registration, i.e., Virginia and the District of Columbia.

10. Stickers or decals used by counties, cities and towns in lieu of license plates may be placed on the windshield without further authority. Except on privately owned yellow school buses, the sticker or decal shall be placed on the windshield adjacent to the right side of the official inspection sticker. The top edge of the sticker or decal shall not extend upwards more than three inches from the bottom of the windshield. The left side edge adjacent to the official inspection sticker shall not be more than 1/4 inch from the right edge of the official inspection sticker when looking through the windshield from inside the vehicle. However, at the option of the motor vehicle owner, the sticker or decal may be affixed to the upper edge of the center of the windshield. (Any expired sticker or decal present on the windshield at the time of inspection shall

be removed, excluding a rejection sticker.) On privately owned yellow school buses, the sticker or decal shall be placed on the windshield adjacent to the left side of the official inspection sticker, and not more than 1/4 inch from the official inspection sticker when looking through the windshield from inside the vehicle. The top edge of the sticker shall not extend upward more than three inches from the bottom of the windshield.

11. Any material attached to the windshield, unless authorized by a medical waiver certificate, or replacement of the sunshield in the uppermost area as installed by the manufacturer of the vehicle.

NOTE: Any material on windshield displaying words, lettering, numbers or pictures is not approved and is not permitted.

12. Any sunscreening material is scratched, distorted, wrinkled or obscures or distorts clear vision through the glazing.
13. Front side windows have cloudiness above three inches from the bottom of the glass, or other defects that affect the driver's vision or one or more cracks which permit one part of the glass to be moved in relation to another part. Wind silencers, breezes or other ventilator adaptors are not made of clear transparent material.
14. Glass in the left front door cannot be raised or lowered easily so a hand signal can be given. (This does not apply to vehicle equipped with approved turn signals which were not designed and/or manufactured for left front glass to be lowered.) If either front door has the glass removed and material inserted in place of the glass which could obstruct the driver's vision.

Exception: Sunscreening material is permissible if the vehicle is equipped with a mirror on each side.

15. Any sticker or other obstruction is on either front side window, rear side windows, or rear windows. (The price label, fuel economy label and the buyer's guide required by

federal statute and regulations to be affixed to new/used vehicles by the manufacturer shall normally be affixed to one of the rear side windows.) If a vehicle only has two door windows, the labels may be affixed to one of these windows. If a vehicle does not have any door or side windows the labels may be temporarily affixed to the right side of the windshield until the vehicle is sold to the first purchaser.

NOTE: A single sticker no larger than 20 square inches in area, if such sticker is totally contained within the lower five inches of the glass in the rear window or a single sticker or decal no larger than 10 square inches located in an area not more than three inches above the bottom and not more than eight inches from the rearmost edge of either front side window, is permissible and should not be rejected.

Do not reject a tractor truck having a gross vehicle weight rating of 26,001 pounds or more equipped with one optically grooved clear plastic wide angle lens affixed to the right front side window. Such wide angle lens shall not extend upward from the bottom of the window opening more than six inches or backward from the front of the window opening more than eight inches.

16. Rear window is clouded or distorted so that the driver does not have a view 200 feet to the rear.

EXCEPTIONS: The following are permissible if the vehicle is equipped with a mirror on each side:

- a. There is attached to one rear window of such motor vehicle one optically grooved clear plastic right angle rear view lens, not exceeding 18 inches in diameter in the case of a circular lens or not exceeding 11 inches by 14 inches in the case of a rectangular lens, which enables the operator of the motor vehicle to view below the line of sight as viewed through the rear window.

- b. There is affixed to the rear side windows, rear window or windows of such motor vehicle any sticker or stickers, regardless of size.
- c. There is affixed to the rear side windows, rear window or windows of such motor vehicle a single layer of sunshading material.
- d. Rear side windows, rear window or windows is clouded or distorted.