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Subpart A—Vehicles With GVWR of 10,000 Pounds or Less

SOURCE: 38 FR 23950, Sept. 5, 1973, unless otherwise noted.

§ 570.1 Scope.

This part specifies standards and procedures for inspection of hydraulic service brake systems, steering and suspension systems, and tire and wheel assemblies of motor vehicles in use.

§ 570.2 Purpose.

The purpose of this part is to establish criteria for the inspection of motor vehicles by State inspection systems, in order to reduce death and injuries attributable to failure or inadequate performance of motor vehicle systems.

§ 570.3 Applicability.

This part does not in itself impose requirements on any person. It is intended to be implemented by States through the highway safety program standards issued under the Highway Safety Act (23 U.S.C. 402) with respect to inspection of motor vehicles with gross vehicle weight rating of 10,000 pounds or less, except motorcycles or trailers.

§ 570.4 Definitions.

Unless otherwise indicated, all terms used in this part that are defined in 49 CFR part 571, Motor Vehicle Safety Standards, are used as defined in that part.

§ 570.5 Service brake system.

Unless otherwise noted, the force to be applied during inspection procedures to power-assisted and full-power brake systems is 25 lb, and to all other systems, 50 lb.

(a) *Failure indicator.* The brake system failure indicator lamp, if part of a vehicle's original equipment, shall be operable. (This lamp is required by Federal Motor Vehicle Safety Standard No. 105, 49 CFR 571.105, on every new passenger car manufactured on or after January 1, 1968, and on other types of motor vehicles manufactured on or after September 1, 1975.)

(1) *Inspection procedure.* Apply the parking brake and turn the ignition to start, or verify lamp operation by other means indicated by the vehicle manufacturer that the brake system failure indicator lamp is operable.

(b) *Brake system integrity.* The brake system shall demonstrate integrity as indicated by no perceptible decrease in pedal height under a 125 pound force applied to the brake pedal or by no illumination of the brake system failure indicator lamp. The brake system shall withstand the application of force to the pedal without failure of any line or other part.

(1) *Inspection procedures.* With the engine running on vehicles equipped with power brake systems, and the ignition turned to "on" in other vehicles, apply a force of 125 pounds to the brake pedal and hold for 10 seconds. Note any decrease in pedal height, and whether the lamp illuminates.

(c) *Brake pedal reserve.* When the brake pedal is fully depressed, the distance that the pedal has traveled from its free position shall be not greater than 80 percent of the total distance from its free position to the floorboard or other object that restricts pedal travel.

(1) *Inspection procedure.* Measure the distance (A) from the free pedal position to the floorboard or other object

that restricts brake pedal travel. Depress the brake pedal, and with the force applied measure the distance (B) from the depressed pedal position to the floorboard or other object that restricts pedal travel.

Determine the percentage as

$$[(A - B)/A] \times 100.$$

The engine must be operating when power-assisted brakes are checked. The pedal reserve check is not required for vehicles equipped with full power (central hydraulic) brake systems, or to vehicles with brake systems designed to operate with greater than 80 percent pedal travel.

(d) *Service brake performance.* Compliance with one of the following performance criteria will satisfy the requirements of this section. Verify that tire inflation pressure is within the limits recommended by vehicle manufacturer before conducting either of the following tests.

(1) *Roller-type or drive-on platform tests.* The force applied by the brake on a front wheel or a rear wheel shall not differ by more than 20 percent from the force applied by the brake on the other front wheel or the other rear wheel respectively.

(i) *Inspection procedure.* The vehicle shall be tested on a drive-on platform, or a roller-type brake analyzer with the capability of measuring equalization. The test shall be conducted in accordance with the test equipment manufacturer's specifications. Note the left to right brake force variance.

(2) *Road test.* The service brake system shall stop the vehicle in a distance of 25 feet or less from a speed of 20 miles per hour without leaving a 12-foot-wide lane.

(i) *Inspection procedure.* The road test shall be conducted on a level (not to exceed plus or minus one percent grade) dry, smooth, hard-surfaced road that is free from loose material, oil, or grease. The service brakes shall be applied at a vehicle speed of 20 miles per hour and the vehicle shall be brought to a stop as specified. Measure the distance required to stop.

(e) *Brake hoses and assemblies.* Brake hoses shall not be mounted so as to contact the vehicle body or chassis. Hoses shall not be cracked, chafed, or

flattened. Protective devices, such as "rub rings," shall not be considered part of the hose or tubing.

(1) *Inspection procedure.* Examine visually, inspecting front brake hoses through all wheel positions from full left to full right for conditions indicated.

NOTE: To inspect for paragraphs (f), (g), and (h) of this section, remove at a minimum one front wheel and one rear wheel.

(f) *Disc and drum condition.* If the drum is embossed with a maximum safe diameter dimension or the rotor is embossed with a minimum safety thickness dimension, the drum or disc shall be within the appropriate specifications. These dimensions will be found on motor vehicles manufactured since January 1, 1971, and may be found on vehicles manufactured for several years prior to that time. If the drums and discs are not embossed, the drums and discs shall be within the manufacturer's specifications.

(1) *Inspection procedure.* Examine visually for condition indicated, measuring as necessary.

(g) *Friction materials.* On each brake the thickness of the lining or pad shall not be less than one thirty-second of an inch over the rivet heads, or the brake shoe on bonded linings or pads. Brake linings and pads shall not have cracks or breaks that extend to rivet holes except minor cracks that do not impair attachment. Drum brake linings shall be securely attached to brake shoes. Disc brake pads shall be securely attached to shoe plates.

(1) *Inspection procedure.* Examine visually for conditions indicated, and measure height of rubbing surface of lining over rivet heads. Measure bonded lining thickness over shoe surface at the thinnest point on the lining or pad.

(h) *Structural and mechanical parts.* Backing plates and caliper assemblies shall not be deformed or cracked. System parts shall not be broken, misaligned, missing, binding, or show evidence of severe wear. Automatic adjusters and other parts shall be assembled and installed correctly.

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(1) *Inspection procedure.* Examine visually for conditions indicated.

[38 FR 23950, Sept. 5, 1973; 38 FR 25685, Sept. 14, 1973, as amended at 39 FR 12868, Apr. 9, 1974; 39 FR 17321, May 15, 1974]

§ 570.6 Brake power unit.

(a) Vacuum hoses shall not be collapsed, abraded, broken, improperly mounted, or audibly leaking. With residual vacuum exhausted and a constant 25 pound force on the brake pedal, the pedal shall fall slightly when the engine is started, demonstrating integrity of the power assist system. This test is not applicable to vehicles equipped with full power brake system as the service brake performance test shall be considered adequate test of system performance.

(1) *Inspection procedure.* With engine running, examine hoses visually and aurally for conditions indicated. Stop engine and apply service brakes several times to destroy vacuum in system. Depress brake pedal with 25 pounds of force and while maintaining that force, start the engine. If brake pedal does not fall slightly under force when the engine starts, there is a malfunction in the power assist system.

§ 570.7 Steering systems.

(a) *System play.* Lash or free play in the steering system shall not exceed values shown in Table 1.

(1) *Inspection procedure.* With the engine on and the wheels in the straight ahead position, turn the steering wheel in one direction until there is a perceptible movement of a front wheel. If a point on the steering wheel rim moves more than the value shown in Table 1 before perceptible return movement of the wheel under observation, there is excessive lash or free play in the steering system.

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TABLE 1—STEERING SYSTEM FREE PLAY VALUES

Steering wheel diameter (inches)	Lash (inches)
16 or less	2
18	2¼
20	2½
22	2¾

(b) *Linkage play.* Free play in the steering linkage shall not exceed one-quarter of an inch.

(1) *Inspection procedure.* Elevate the front end of the vehicle to load the ball joints. Insure that wheel bearings are correctly adjusted. Grasp the front and rear of a tire and attempt to turn the tire and wheel assembly left and right. If the free movement at the front or rear tread of the tire exceeds one-quarter inch there is excessive steering linkage play.

(c) *Free turning.* Steering wheels shall turn freely through the limit of travel in both directions.

(1) *Inspection procedure.* Turn off steering wheel through the limit of travel in both directions. Feel for binding or jamming in the steering gear mechanism.

(d) *Alignment.* Toe-in and toe-out measurements shall not be greater than 1.5 times the value listed in the vehicle manufacturer's service specification for alignment setting.

(1) *Inspection procedure.* Verify that toe-in or toe-out is not greater than 1.5 times the values listed in the vehicle manufacturer's service specification for alignment settings as measured by a bar-type scuff gauge or other toe-in measuring device. Values to convert toe-in readings in inches to scuff gauge readings in ft/mi side-slip for different wheel sizes are provided in Table I. Tire diameters used in computing scuff gauge readings are based on the average maximum tire dimensions of grown tires in service for typical wheel and tire assemblies.

TABLE I—TOE-IN SETTINGS FROM VEHICLE MFR'S SERVICE SPECIFICATIONS

Wheel size (inches)	Nominal tire diameter (inches)	Readings in feet per mile sideslip								
		¼ in	⅜ in	½ in	¾ in	1 in	1 ¼ in	1 ½ in	1 ¾ in	2 in
13	25.2	13.1	26.2	39.3	52.4	65.5	78.6	91.7	104.8	117.9
14	26.4	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5
15	28.5	11.5	23.0	34.5	46.0	57.5	69.0	80.5	92.0	103.5