

that uses compressed air to transmit a force from the driver control to a hydraulic brake system to actuate the service brakes.

Electric brake system means a system that uses electric current to actuate the service brake.

Vacuum brake system means a system that uses a vacuum and atmospheric pressure for transmitting a force from the driver control to the service brake, but does not include a system that uses vacuum only to assist the driver in applying muscular force to hydraulic or mechanical components.

§ 570.55 Hydraulic brake system.

The following requirements apply to vehicles with hydraulic brake systems.

(a) *Brake system failure indicator.* The hydraulic brake system failure indicator lamp, if part of a vehicle's original equipment, shall be operable.

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

(b) *Brake system integrity.* The hydraulic brake system shall demonstrate integrity as indicated by no perceptible decrease in pedal height under a 125-pound force applied to the brake pedal and 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 tube, hose or other part.

(1) *Inspection procedure.* With the engine running in 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 additional decrease in pedal height after the initial decrease, and whether the brake system failure indicator lamp illuminates.

(c) *Brake pedal reserve.* When the brake pedal is depressed with a force of 50 pounds, 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. The brake pedal reserve test is not required for vehicles with brake systems designed by the

original vehicle, manufacturer to operate with greater than 80 percent pedal travel.

(1) *Inspection procedure.* Measure the distance (i) from the free pedal position to the floor board or other object that restricts brake pedal travel. Depress the brake pedal, and with the force applied measure the distance (ii) from the depressed pedal position to the floor board or other object that restricts pedal travel. Determine the pedal travel percentage as

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

The engine must be operating when power-assisted brakes are checked.

(d) *Brake hoses, master cylinder, tubes and tube assemblies.* Hydraulic brake hoses shall not be mounted so as to contact the vehicle body or chassis. Hoses shall not be cracked, chafed, or flattened. Brake tubes shall not be flattened or restricted. Brake hoses and tubes shall be attached or supported to prevent damage by vibration or abrasion. Master cylinder shall not show signs of leakage. Hose or tube protective rings or devices shall not be considered part of the hose or tubing.

(1) *Inspection procedure.* Examine visually brake master cylinder, hoses and tubes, including front brake hoses, through all wheel positions from full left turn to full right turn for conditions indicated.

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§ 570.56 Vacuum brake assist unit and vacuum brake system.

The following requirements apply to vehicles with vacuum brake assist units and vacuum brake systems.

(a) *Vacuum brake assist unit integrity.* The vacuum brake assist unit shall demonstrate integrity as indicated by a decrease in pedal height when the engine is started and a constant 50-pound force is maintained on the pedal.

(1) *Inspection procedure.* Stop the engine and apply service brake several times to destroy vacuum in system. Depress the brake pedal with 50 pounds of force and while maintaining that force, start the engine. If the brake pedal does not move slightly under force when the engine starts, there is a malfunction in the power assist unit.