3. Section 571.105 is amended by revising S3 to read as follows:

§ 571.105 Standard No. 105: Hydraulic brake systems.

S3. *Application.* This standard applies to multipurpose passenger vehicles, trucks, and buses with hydraulic brake systems, and to passenger cars manufactured before September 1, 2000, with hydraulic brake systems. At the option of the manufacturer, passenger cars manufactured before September 1, 2000 may comply with the requirements of Federal Motor Vehicle Safety Standard No. 135, *Passenger Car Brake Systems*, instead of the requirements of this standard.

4. A new § 571.135 is added to read as follows:

§ 571.135 Standard No. 135: Passenger car brake systems.

S1. *Scope*. This standard specifies requirements for service brake and associated parking brake systems.

S2. *Purpose.* The purpose of this standard is to ensure safe braking performance under normal and emergency driving conditions.

S3. Application. This standard applies to passenger cars manufactured on or after September 1, 2000. In addition, passenger cars manufactured before September 1, 2000, may, at the option of the manufacturer, meet the requirements of this standard instead of Federal Motor Vehicle Safety Standard No. 105, Hydraulic Brake Systems.

S4. Definitions.

Adhesion utilization curves means curves showing, for specified load conditions, the adhesion utilized by each axle of a vehicle plotted against the braking ratio of the vehicle.

Antilock brake system or ABS means a portion of a service brake system that automatically controls the degree of rotational wheel slip during braking by:

(1) Sensing the rate of angular rotation of the wheels;

(2) Transmitting signals regarding the rate of wheel angular rotation to one or more controlling devices which interpret those signals and generate responsive controlling output signals; and

(3) Transmitting those controlling signals to one or more modulator devices which adjust brake actuating forces in response to those signals.

Backup system means a portion of a service brake system, such as a pump, that automatically supplies energy in the event of a primary brake power source failure.

Brake factor means the slope of the linear least squares regression equation

best representing the measured torque output of a brake as a function of the measured applied line pressure during a given brake application for which no wheel lockup occurs.

Brake hold-off pressure means the maximum applied line pressure for which no brake torque is developed, as predicted by the pressure axis intercept of the linear least squares regression equation best representing the measured torque output of a brake as a function of the measured applied line pressure during a given brake application.

Brake power assist unit means a device installed in a hydraulic brake system that reduces the amount of muscular force that a driver must apply to actuate the system, and that, if inoperative, does not prevent the driver from braking the vehicle by a continued application of muscular force on the service brake control.

Brake power unit means a device installed in a brake system that provides the energy required to actuate the brakes, either directly or indirectly through an auxiliary device, with driver action consisting only of modulating the energy application level.

Braking ratio means the deceleration of the vehicle divided by the gravitational acceleration constant.

Functional failure means a failure of a component (either electrical or mechanical in nature) which renders the system totally or partially inoperative yet the structural integrity of the system is maintained.

Hydraulic brake system means a system that uses hydraulic fluid as a medium for transmitting force from a service brake control to the service brake and that may incorporate a brake power assist unit, or a brake power unit.

Initial brake temperature or *IBT* means the average temperature of the service brakes on the hottest axle of the vehicle 0.32 km (0.2 miles) before any brake application.

Lightly loaded vehicle weight or LLVW means unloaded vehicle weight plus the weight of a mass of 180 kg (396 pounds), including driver and instrumentation.

Maximum speed of a vehicle or Vmax means the highest speed attainable by accelerating at a maximum rate from a standing start for a distance of 3.2 km (2 miles) on a level surface, with the vehicle at its lightly loaded weight.

Objective brake factor means the arithmetic average of all the brake factors measured over the twenty brake applications defined in S7.4, for all wheel positions having a given brake configuration.

Peak friction coefficient or *PFC* means the ratio of the maximum value of braking test wheel longitudinal force to the simultaneous vertical force occurring prior to wheel lockup, as the braking torque is progressively increased.

Pressure component means a brake system component that contains the brake system fluid and controls or senses the fluid pressure.

Snub means the braking deceleration of a vehicle from a higher reference speed to a lower reference speed that is greater than zero.

Split service brake system means a brake system consisting of two or more subsystems actuated by a single control designed so that a leakage-type failure of a pressure component in a single subsystem (except structural failure of a housing that is common to two or more subsystems) does not impair the operation of any other subsystem.

Stopping distance means the distance traveled by a vehicle from the point of application of force to the brake control to the point at which the vehicle reaches a full stop.

Variable brake proportioning system means a system that has one or more proportioning devices which automatically change the brake pressure ratio between any two or more wheels to compensate for changes in wheel loading due to static load changes and/ or dynamic weight transfer, or due to deceleration.

Wheel lockup means 100 percent wheel slip.

S5. *Equipment requirements.* S5.1. *Service brake system.* Each vehicle shall be equipped with a service

brake system acting on all wheels. S5.1.1. *Wear adjustment.* Wear of the service brakes shall be compensated for by means of a system of automatic adjustment.

Š5.1.2. *Wear status*. The wear condition of all service brakes shall be indicated by either:

(a) Acoustic or optical devices warning the driver at his or her driving position when lining replacement is necessary, or

(b) A means of visually checking the degree of brake lining wear, from the outside or underside of the vehicle, utilizing only the tools or equipment normally supplied with the vehicle. The removal of wheels is permitted for this purpose.

S5.2. *Parking brake system*. Each vehicle shall be equipped with a parking brake system of a friction type with solely mechanical means to retain engagement.

Š5.3. Controls.

S5.3.1. The service brakes shall be activated by means of a foot control. The control of the parking brake shall be independent of the service brake