control, and may be either a hand or foot control.

S5.3.2. For vehicles equipped with ABS, a control to manually disable the ABS, either fully or partially, is prohibited.

S5.4. Reservoirs.

S5.4.1. *Master cylinder reservoirs.* A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment.

S5.4.2. Reservoir capacity. Reservoirs, whether for master cylinders or other type systems, shall have a total minimum capacity equivalent to the fluid displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoirs move from a new lining, fully retracted position (as adjusted initially to the manufacturer's recommended setting) to a fully worn, fully applied position, as determined in accordance with S7.17(c) of this standard. Reservoirs shall have completely separate compartments for each subsystem except that in reservoir systems utilizing a portion of the reservoir for a common supply to two or more subsystems, individual partial compartments shall each have a minimum volume of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem, during a full stroke of the piston. Each brake power unit reservoir servicing only the brake system shall have a minimum capacity equivalent to the fluid displacement required to charge the system piston(s) or accumulator(s) to normal operating pressure plus the displacement resulting when all the wheel cylinders or caliper pistons serviced by the reservoir or accumulator(s) move from a new lining, fully retracted position (as adjusted initially to the manufacturer's recommended setting) to a fully worn, fully applied position.

S5.4.3. *Reservoir labeling.* Each vehicle shall have a brake fluid warning statement that reads as follows, in letters at least 3.2 mm (<sup>1</sup>/<sub>8</sub> inch) high: "WARNING: Clean filler cap before removing. Use only \_\_\_\_\_\_ fluid from a sealed container." (Inserting the recommended type of brake fluid as specified in 49 CFR 571.116, *e.g.*, "DOT 3.") The lettering shall be:

(a) Permanently affixed, engraved or embossed;

(b) Located so as to be visible by direct view, either on or within 100 mm (3.94 inches) of the brake fluid reservoir filler plug or cap; and (c) Of a color that contrasts with its background, if it is not engraved or embossed.

S5.4.4. *Fluid level indication.* Brake fluid reservoirs shall be so constructed that the level of fluid can be checked without need for the reservoir to be opened. This requirement is deemed to have been met if the vehicle is equipped with a transparent brake fluid reservoir or a brake fluid level indicator meeting the requirements of S5.5.1(a)(1).

S5.5. Brake system warning indicator. Each vehicle shall have one or more visual brake system warning indicators, mounted in front of and in clear view of the driver, which meet the requirements of S5.5.1 through S5.5.5. In addition, a vehicle manufactured without a split service brake system shall be equipped with an audible warning signal that activates under the conditions specified in S5.5.1(a).

S5.5.1. *Activation.* An indicator shall be activated when the ignition (start) switch is in the "on" ("run") position and whenever any of conditions (a), (b), (c) or (d) occur:

(a) A gross loss of fluid or fluid pressure (such as caused by rupture of a brake line but not by a structural failure of a housing that is common to two or more subsystems) as indicated by one of the following conditions (chosen at the option of the manufacturer):

(1) A drop in the level of the brake fluid in any master cylinder reservoir compartment to less than the recommended safe level specified by the manufacturer or to one-fourth of the fluid capacity of that reservoir compartment, whichever is greater.

(2) For vehicles equipped with a split service brake system, a differential pressure of 1.5 MPa (218 psi) between the intact and failed brake subsystems measured at a master cylinder outlet or a slave cylinder outlet.

(3) A drop in the supply pressure in a brake power unit to one-half of the normal system pressure.

(b) Any electrical functional failure in an antilock or variable brake proportioning system.

(c) Application of the parking brake. (d) Brake lining wear-out, if the manufacturer has elected to use an electrical device to provide an optical warning to meet the requirements of S5.1.2(a).

S5.5.2. Function check.

(a) All indicators shall be activated as a check function by either:

(1) Automatic activation when the ignition (start) switch is turned to the "on" ("run") position when the engine is not running, or when the ignition ("start") switch is in a position between "on" ("run") and "start" that is

designated by the manufacturer as a check position, or

(2) A single manual action by the driver, such as momentary activation of a test button or switch mounted on the instrument panel in front of and in clear view of the driver, or, in the case of an indicator for application of the parking brake, by applying the parking brake when the ignition is in the "on" ("run") position.

(b) In the case of a vehicle that has an interlock device that prevents the engine from being started under one or more conditions, check functions meeting the requirements of S5.5.2(a) need not be operational under any condition in which the engine cannot be started.

(c) The manufacturer shall explain the brake check function test procedure in the owner's manual.

S5.5.3. *Duration.* Each indicator activated due to a condition specified in S5.5.1 shall remain activated as long as the condition exists, whenever the ignition ("start") switch is in the "on" ("run") position, whether or not the engine is running.

S5.5.4. *Function*. When a visual warning indicator is activated, it may be continuous or flashing, except that the visual warning indicator on a vehicle not equipped with a split service brake system shall be flashing. The audible warning required for a vehicle manufactured without a split service brake system may be continuous or intermittent.

S5.5.5. Labeling.

(a) Each visual indicator shall display a word or words in accordance with the requirements of Standard No. 101 (49 CFR 571.101) and this section, which shall be legible to the driver under all daytime and nighttime conditions when activated. Unless otherwise specified, the words shall have letters not less than 3.2 mm (<sup>1</sup>/<sub>8</sub> inch) high and the letters and background shall be of contrasting colors, one of which is red. Words or symbols in addition to those required by Standard No. 101 and this section may be provided for purposes of clarity.

(b) Vehicles manufactured with a split service brake system may use a common brake warning indicator to indicate two or more of the functions described in S5.5.1(a) through S5.5.1(d). If a common indicator is used, it shall display the word "Brake."

(c) A vehicle manufactured without a split service brake system shall use a separate indicator to indicate the failure condition in S5.5.1(a). This indicator shall display the words "STOP—BRAKE FAILURE" in block capital letters not less than 6.4 mm (<sup>1</sup>/<sub>4</sub> inch) in height.