terminals which conform to the SAE Standard[1] for ''Cable Terminals'' or by cable terminals which are mechanically and electrically at least equal to such terminals. The number of wires attached to any post shall be limited to the number which such post was designed to accommodate. The presence of bare, loose, dangling, chafing, or poorly connected wires is prohibited.

Subpart C—Brakes

§ 393.40 Required brake systems.

(a) *General.* A bus, truck, truck tractor, or a combination of motor vehicles must have brakes adequate to control the movement of, and to stop and hold, the vehicle or combination of vehicles.

(b) *Specific systems required.* (1) A bus, truck, truck tractor, or combination of motor vehicles must have—

(i) A service brake system that conforms to the requirements of § 393.52; and

(ii) A parking brake system that conforms to the requirements of § 393.41.

(2) A bus, truck, truck tractor, or a combination of motor vehicles manufactured on or after July 1, 1973, must have an emergency brake system that conforms to the requirements of § 393.52(b) and consists of either—

(i) Emergency features of the service brake system; or

(ii) A system separate from the service brake system.

A control by which the driver applies the emergency brake system must be located so that the driver can readily operate it when he/she is properly restrained by any seat belt assembly provided for his/her use. The control for applying the emergency brake system may be combined with either the control for applying the service brake system or the control for applying the parking brake system. However, all three controls may not be combined.

(c) *Interconnected systems.* (1) If the brake systems specified in paragraph (b) of this section are interconnected in any way, they must be designed, constructed, and maintained so that, upon the failure of any part of the operating mechanism of one or more of the systems (except the service brake actuation pedal or valve)—

(i) The vehicle will have operative brakes; and

(ii) In the case of a vehicle manufactured on or after July 1, 1973, the vehicle will have operative brakes capable of performing as specified in § 393.52(b).

(2) A motor vehicle to which the emergency brake system requirements of Federal Motor Vehicle Safety Standard No. 105 (§ 571.105 of this title) applied at the time of its manufacture conforms to the requirements of paragraph (c)(1) of this section if—

(i) It is maintained in conformity with the emergency brake requirements of Standard No. 105 in effect on the date of its manufacture; and

(ii) It is capable of performing as specified in § 393.52(b), except upon structural failure of its brake master cylinder body or effectiveness indicator body.

(3) A bus conforms to the requirements of paragraph (c)(1) of this section if it meets the requirements of § 393.44 and is capable of performing as specified in § 393.52(b).

[36 FR 20297, Oct. 20, 1971, as amended at 37 FR 5251, Mar. 11, 1972]

§ 393.41 Parking brake system.

(a) Every commercial motor vehicle manufactured on and after March 7, 1990, except an agricultural commodity trailer, converter dolly, heavy hauler or pulpwood trailer, shall at all times be equipped with a parking brake system adequate to hold the vehicle or combination under any condition of loading as required by FMVSS 571.121. An agricultural commodity trailer, heavy hauler or pulpwood trailer shall carry sufficient chocking blocks to prevent movement when parked.

(b) The parking brake system shall at all times be capable of being applied in conformance with the requirements of paragraph (a) of the section by either the driver's muscular effort, or by spring action, or by other energy, provided, that if such other energy is depended on for application of the parking brake, then an accumulation of such energy shall be isolated from any common source and used exclusively for the operation of the parking brake.

[1] See footnote 1 to § 393.24(c).

(c) The parking brake system shall be held in the applied position by energy other than fluid pressure, air pressure, or electric energy. The parking brake system shall be such that it cannot be released unless adequate energy is available upon release of the parking brake to make immediate further application with the required effectiveness.

[34 FR 15418, Oct. 3, 1969, as amended at 53 FR 49398, Dec. 7, 1988]

§ 393.42 Brakes required on all wheels.

(a) Every commercial motor vehicle shall be equipped with brakes acting on all wheels.

(b) *Exception.* (1) Trucks or truck tractors having three or more axles—

(i) Need not have brakes on the front wheels if the vehicle was manufactured before July 25, 1980; or

(ii) Manufactured between July 24, 1980, and October 27, 1986, must be retrofitted to meet the requirements of this section within one year from February 26, 1987, if the brake components have been removed.

(2) Any motor vehicle being towed in a driveaway-towaway operation must have operative brakes as may be necessary to ensure compliance with the performance requirements of § 393.52. This paragraph is not applicable to any motor vehicle towed by means of a tow-bar when any other vehicle is full-mounted on such towed motor vehicle or any combination of motor vehicles utilizing three or more saddle-mounts. (See § 393.71(a)(3).)

(3) Any full trailer, any semitrailer, or any pole trailer having a GVWR of 3,000 pounds or less must be equipped with brakes if the weight of the towed vehicle resting on the towing vehicle exceeds 40 percent of the GVWR of the towing vehicle.