(4) *Electric brake systems.* Motor vehicles equipped with electric brake systems must have a service brake system that meets the applicable requirements of §§ 393.42, 393.48, 393.49 and 393.52 of this subpart.

(5) *Surge brake systems.* Motor vehicles equipped with surge brake systems must have a service brake system that meets the applicable requirements of §§ 393.42, 393.48, 393.49, and 393.52 of this subpart.

(c) *Parking brakes.* Each commercial motor vehicle must be equipped with a parking brake system that meets the applicable requirements of § 393.41.

(d) *Emergency brakes—partial failure of service brakes*—(1) *Hydraulic brake systems.* Motor vehicles manufactured on or after September 2, 1983, and equipped with a split service brake system must, at a minimum, meet the partial failure requirements of FMVSS No. 105 in effect on the date of manufacture.

(2) *Air brake systems.* Buses, trucks and truck tractors manufactured on or after March 1, 1975, and trailers manufactured on or after January 1, 1975, must be equipped with an emergency brake system which, at a minumum, meets the requirements of FMVSS No. 121 in effect on the date of manufacture.

(3) *Vehicles not subject to FMVSS Nos. 105 and 121 on the date of manufacture.* Buses, trucks and truck tractors not subject to FMVSS Nos. 105 or 121 on the date of manufacture must meet the requirements of § 393.40(e). Trailers not subject to FMVSS No. 121 at the time of manufacture must meet the requirements of § 393.43.

(e) *Emergency brakes, vehicles manufactured on or after July 1, 1973.* (1) A bus, truck, truck tractor, or a combination of motor vehicles manufactured on or after July 1, 1973, and not covered under paragraphs (d)(1) or (d)(2) of this section, must have an emergency brake system which consists of emergency features of the service brake system or an emergency system separate from the service brake system. The emergency brake system must meet the applicable requirements of §§ 393.43 and 393.52.

(2) A control by which the driver applies the emergency brake system must be located so that the driver can operate it from the normal seating position while restrained by any seat belts with which the vehicle is equipped. The emergency brake control may be combined with either the service brake control or the parking brake control. However, all three controls may not be combined.

(f) *Interconnected systems.* (1) If the brake systems required by § 393.40(a) are interconnected in any way, they must be designed, constructed, and maintained so that in the event of a failure of any part of the operating mechanism of one or more of the systems (except the service brake actuation pedal or valve), the motor vehicle will have operative brakes and, for vehicles manufactured on or after July 1, 1973, be capable of meeting the requirements of § 393.52(b).

(2) A motor vehicle to which the requirements of FMVSS No. 105 (S5.1.2), dealing with partial failure of the service brake, applied at the time of manufacture meets the requirements of § 393.40(f)(1) if the motor vehicle is maintained in conformity with FMVSS No. 105 and the motor vehicle is capable of meeting the requirements of § 393.52(b), except in the case of a structural failure of the brake master cylinder body.

(3) A bus is considered to meet the requirements of § 393.40(f)(1) if it meets the requirements of § 393.44 and § 393.52(b).

[70 FR 48048, Aug. 15, 2005, as amended at 72 FR 9870, Mar. 6, 2007]

§ 393.41 Parking brake system.

(a) *Hydraulic-braked vehicles manufactured on or after September 2, 1983.* Each truck and bus (other than a school bus) with a GVWR of 4,536 kg (10,000 pounds) or less which is subject to this part and school buses with a GVWR greater than 4,536 kg (10,000 pounds) shall be equipped with a parking brake system as required by FMVSS No. 571.105 (S5.2) in effect at the time of manufacture. The parking brake shall be capable of holding the vehicle or combination of vehicles stationary under any condition of loading in which it is found on a public road (free of ice and snow). Hydraulic-braked vehicles which were not

subject to the parking brake requirements of FMVSS No. 571.105 (S5.2) must be equipped with a parking brake system that meets the requirements of paragraph (c) of this section.

(b) *Air-braked power units manufactured on or after March 1, 1975, and air-braked trailers manufactured on or after January 1, 1975.* Each air-braked bus, truck and truck tractor manufactured on and after March 1, 1975, and each air-braked trailer except an agricultural commodity trailer, converter dolly, heavy hauler trailer or pulpwood trailer, shall be equipped with a parking brake system as required by FMVSS No. 121 (S5.6) in effect at the time of manufacture. The parking brake shall be capable of holding the vehicle or combination of vehicles stationary under any condition of loading in which it is found on a public road (free of ice and snow). An agricultural commodity trailer, heavy hauler or pulpwood trailer shall carry sufficient chocking blocks to prevent movement when parked.

(c) *Vehicles not subject to FMVSS Nos. 105 and 121 on the date of manufacture.* (1) Each singly driven motor vehicle not subject to parking brake requirements of FMVSS Nos. 105 or 121 at the time of manufacturer, and every combination of motor vehicles must be equipped with a parking brake system adequate to hold the vehicle or combination on any grade on which it is operated, under any condition of loading in which it is found on a public road (free of ice and snow).

(2) The parking brake system shall, at all times, be capable of being applied by either the driver's muscular effort or by spring action. If other energy is used to apply the parking brake, there must be an accumulation of that energy isolated from any common source and used exclusively for the operation of the parking brake.

Exception: This paragraph shall not be applicable to air-applied, mechanically-held parking brake systems which meet the parking brake requirements of FMVSS No. 121 (S5.6).

(3) 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 not be capable of being released unless adequate energy is available to immediately reapply the parking brake with the required effectiveness.

[70 FR 48048, Aug. 15, 2005]

§ 393.42 Brakes required on all wheels.

(a) Every commercial motor vehicle shall be equipped with brakes acting on all wheels. This requirement also applies to certain motor vehicles being towed in a driveaway-towaway operation, as follows:

(1) Any motor vehicle towed by means of a tow-bar when another motor vehicle is full-mounted on the towed vehicle; and

(2) Any saddlemount configuration with a fullmount.

(b) *Exception.* (1) Trucks or truck tractors having three or more axles and manufactured before July 25, 1980, are not required to have brakes on the front wheels. However, these vehicles must meet the requirements of § 393.52.

(2) Motor vehicles being towed in a driveaway-towaway operation (including the last truck of triple saddlemount combinations (see § 393.71(a)(3)) are not required to have operative brakes provided the combination of vehicles meets the requirements of § 393.52.

(3) Any semitrailer or pole trailer (laden or unladen) with a gross weight of 1,361 kg (3,000 pounds) or less which is subject to this part is not required to be equipped with brakes if the axle weight of the towed vehicle does not exceed 40 percent of the sum of the axle weights of the towing vehicle.

(4) Any full trailer or four-wheel pole trailer (laden or unladen) with a gross weight of 1,361 kg (3,000 pounds) or less which is subject to this part is not required to be equipped with brakes if the sum of the axle weights of the towed vehicle does not exceed 40 percent of the sum of the axle weights of the towing vehicle.

(5) Brakes are not required on the steering axle of a three-axle dolly which is steered by a co-driver.

(6) Loaded housemoving dollies, specialized trailers and dollies used to transport industrial furnaces, reactors,