

(1) Designs do not resemble traffic control signs, lights, or devices, except that straight edge striping resembling a barricade pattern may be used.

(2) Designs do not tend to distort the length and/or width of the motor vehicle.

(3) Such surfaces shall be at least 3 inches from any required lamp or reflector unless of the same color as such lamp or reflector.

(4) No red color shall be used on the front of any motor vehicle, except for display of markings or placards required by § 177.823 of this title.

(5) Retroreflective license plates required by State or local authorities may be used.

[33 FR 19735, Dec. 25, 1968, as amended at 35 FR 3167, Feb. 19, 1970; 53 FR 49397, Dec. 7, 1988; 70 FR 48047, Aug. 15, 2005]

**§ 393.27 [Reserved]**

**§ 393.28 Wiring systems.**

Electrical wiring shall be installed and maintained to conform to SAE J1292—Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring, October 1981, except the jumper cable plug and receptacle need not conform to SAE J560. The reference to SAE J1292 shall not be construed to require circuit protection on trailers. (See § 393.7(b) for information on the incorporation by reference and availability of this document.)

[70 FR 48047, Aug. 15, 2005]

**§ 393.29 [Reserved]**

**§ 393.30 Battery installation.**

Every storage battery on every vehicle, unless located in the engine compartment, shall be covered by a fixed part of the motor vehicle or protected by a removable cover or enclosure. Removable covers or enclosures shall be substantial and shall be securely latched or fastened. The storage battery compartment and adjacent metal parts which might corrode by reason of battery leakage shall be painted or coated with an acid-resisting paint or coating and shall have openings to provide ample battery ventilation and drainage. Wherever the cable to the starting motor passes through a metal compartment, the cable shall be pro-

tected against grounding by an acid and waterproof insulating bushing. Wherever a battery and a fuel tank are both placed under the driver's seat, they shall be partitioned from each other, and each compartment shall be provided with an independent cover, ventilation, and drainage.

**§§ 393.31–393.33 [Reserved]**

**Subpart C—Brakes**

**§ 393.40 Required brake systems.**

(a) Each commercial motor vehicle must have brakes adequate to stop and hold the vehicle or combination of motor vehicles. Each commercial motor vehicle must meet the applicable service, parking, and emergency brake system requirements provided in this section.

(b) *Service brakes*—(1) *Hydraulic brake systems*. Motor vehicles equipped with hydraulic brake systems and manufactured on or after September 2, 1983, must, at a minimum, have a service brake system that meets the requirements of FMVSS No. 105 in effect on the date of manufacture. Motor vehicles which were not subject to FMVSS No. 105 on the date of manufacture must have a service brake system that meets the applicable requirements of §§ 393.42, 393.48, 393.49, 393.51, and 393.52 of this subpart.

(2) *Air brake systems*. Buses, trucks and truck-tractors equipped with air brake systems and manufactured on or after March 1, 1975, and trailers manufactured on or after January 1, 1975, must, at a minimum, have a service brake system that meets the requirements of FMVSS No. 121 in effect on the date of manufacture. Motor vehicles which were not subject to FMVSS No. 121 on the date of manufacture must have a service brake system that meets the applicable requirements of §§ 393.42, 393.48, 393.49, 393.51, and 393.52 of this subpart.

(3) *Vacuum brake systems*. Motor vehicles equipped with vacuum brake systems must have a service brake system that meets the applicable requirements of §§ 393.42, 393.48, 393.49, 393.51, and 393.52 of this subpart.

## § 393.41

(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 minimum, 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

## 49 CFR Ch. III (10–1–10 Edition)

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