§ 393.49 Control valves for brakes.

(a) General rule. Except as provided in paragraphs (b) and (c) of this section, every motor vehicle manufactured after June 30, 1953, which is equipped with power brakes, must have the braking system so arranged that one application valve must when activated cause all of the service brakes on the motor vehicle or combination motor vehicle to operate. This requirement must not be construed to prohibit motor vehicles from being equipped with an additional valve to be used to operate the brakes on a trailer or trailers or as required for buses in §393.44.

(b) Driveaway-Towaway Exception. This section is not applicable to driveaway-towaway operations unless the brakes on such operations are designed to be operated by a single valve.

(c) Surge brake exception. This requirement is not applicable to trailers equipped with surge brakes that satisfy the conditions specified in §393.48(d).

§ 393.50 Reservoirs required.

(a) Reservoir capacity for air-braked power units manufactured on or after March 1, 1975, and air-braked trailers manufactured on or after January 1, 1975. Buses, trucks, and truck-tractors manufactured on or after March 1, 1975, and air-braked trailers manufactured on or after January 1, 1975, must meet the reservoir requirements of FMVSS No. 121, S5.1.2, in effect on the date of manufacture.

(b) Reservoir capacity for air-braked vehicles not subject to FMVSS No. 121 on the date of manufacture and all vacuum braked vehicles. Each motor vehicle using air or vacuum braking must have either reserve capacity, or a reservoir, that would enable the driver to make a full service brake application with the engine stopped without depleting the air pressure or vacuum below 70 percent of that indicated by the air or vacuum gauge immediately before the
brake application is made. For the purposes of this paragraph, a full service brake application means depressing the brake pedal or treadle valve to the limit of its travel.

(c) Safeguarding of air and vacuum. Each service reservoir system on a motor vehicle shall be protected against a loss of air pressure or vacuum due to a failure or leakage in the system between the service reservoir and the source of air pressure or vacuum, by check valves or equivalent devices whose proper functioning can be checked without disconnecting any air or vacuum line, or fitting.

(d) Drain valves for air braked vehicles. Each reservoir must have a condensate drain valve that can be manually operated. Automatic condensate drain valves may be used provided (1) they may be operated manually, or (2) a manual means of draining the reservoirs is retained.

§ 393.51 Warning signals, air pressure and vacuum gauges.

(a) General Rule. Every bus, truck and truck tractor, except as provided in paragraph (f), must be equipped with a signal that provides a warning to the driver when a failure occurs in the vehicle’s service brake system. The warning signal must meet the applicable requirements of paragraphs (b), (c), (d) or (e) of this section.

(b) Hydraulic brakes. Vehicles manufactured on or after September 1, 1975, must meet the brake system indicator lamp requirements of FMVSS No. 571.105 (§5.3) applicable to the vehicle on the date of manufacture. Vehicles manufactured on or after March 1, 1975, must, at a minimum, have a pressure gauge and a warning signal. Trucks, truck tractors, and buses manufactured on or after March 1, 1975, must, at a minimum, have a pressure gauge and a warning signal which meets the requirements of FMVSS No. 121 (§5.1.4 for the pressure gauge and §5.1.5 for the warning signal) applicable to the vehicle on the date of manufacture of the vehicle. Power units to which FMVSS No. 571.121 was not applicable on the date of manufacture of the vehicle must be equipped with—

(1) A pressure gauge, visible to a person seated in the normal driving position, which indicates the air pressure (in kilopascals (kPa) or pounds per square inch (psi)) available for braking; and

(2) A warning signal that is audible or visible to a person in the normal driving position and provides a continuous warning to the driver whenever the air pressure in the service reservoir system is at 379 kPa (55 psi) and below, or one-half of the compressor governor cutout pressure, whichever is less.

(d) Vacuum brakes. A commercial motor vehicle (regardless of the date it was manufactured) having service brakes activated by vacuum or a vehicle towing a vehicle having service brakes activated by vacuum must be equipped with—

(1) A vacuum gauge, visible to a person seated in the normal driving position, which indicates the vacuum (in millimeters or inches of mercury) available for braking; and

(2) A warning signal that is audible or visible to a person in the normal