used to operate the brakes on the towed vehicles in emergencies. Such second control shall be independent of brake air, hydraulic, and other pressure, and independent of other controls, unless the braking system be so arranged that failure of the pressure on which the second control depends will cause the towed vehicle brakes to be applied automatically. The second control is not required by this rule to provide modulated or graduated braking.

(d) Every trailer required to be equipped with brakes shall be equipped with brakes of such character as to be applied automatically and promptly upon breakaway from the towing vehicle, and means shall be provided to maintain application of the brakes on the trailer in such case for at least 15 minutes.

(e) Air brake systems installed on towed vehicles shall be so designed, by the use of ''no-bleed-back'' relay emergency valves or equivalent devices, that the supply reservoir used to provide air for brakes shall be safeguarded against backflow of air to the towing vehicle upon reduction of the towing vehicle air pressure.

(f) The requirements of paragraphs (b), (c), and (d) of this section shall not be applicable to motor vehicles in driveaway-towaway operations.

§ 393.44 Front brake lines, protection.

On every bus, if equipped with air brakes, the braking system shall be so constructed that in the event any brake line to any of the front wheels is broken, the driver can apply the brakes on the rear wheels despite such breakage. The means used to apply the brakes may be located forward of the driver's seat as long as it can be operated manually by the driver when the driver is properly restrained by any seat belt assembly provided for use. Every bus shall meet this requirement or comply with the regulations in effect at the time of its manufacture.

[53 FR 49400, Dec. 7, 1988]

§ 393.45 Brake tubing and hose, adequacy.

(a) *General requirements.* Brake tubing and brake hose must—

(1) Be designed and constructed in a manner that insures proper, adequate, and continued functioning of the tubing or hose;

(2) Be installed in a manner that insures proper continued functioning of the tubing or hose;

(3) Be long and flexible enough to accommodate without damage all normal motions of the parts to which it is attached;

(4) Be suitably secured against chafing, kinking, or other mechanical damage;

(5) Be installed in a manner that prevents it from contacting the vehicle's exhaust system or any other source of high temperatures; and

(6) Conform to the applicable requirements of paragraph (b) or (c) of this section. In addition, all hose installed on and after January 1, 1981, must conform to those applicable subsections of FMVSS 106 (49 CFR 571.106).

(b) *Special requirements for metallic brake tubing, nonmetallic brake tubing, coiled nonmetallic brake tubing and brake hose.* (1) Metallic brake tubing, nonmetallic brake tubing, coiled nonmetallic brake tubing, and brake hose installed on a commercial motor vehicle on and after March 7, 1989, must meet or exceed one of the following specifications set forth in the SAE Handbook, 1985 edition:

(i) Metallic Air Brake Tubing—SAE Recommended Practice J1149—Metallic Air Brake System Tubing and Pipe—July 76.

(ii) Nonmetallic Air Brake Tubing—SAE Recommended Practice J844—Nonmetallic Air Brake System Type B—OCT 80.

(iii) Air Brake Hose—SAE Recommended Practice J1402—Automotive Air Brake Hose and Hose Assemblies—JUN 85.

(iv) Hydraulic Brake Hose—SAE Recommended Practice J1401 Road Vehicle-Hydraulic Brake Hose Assemblies for Use with Non-Petroleum Base Hydraulic Fluid JUN 85.

(v) Vacuum Brake Hose—SAE Recommended Practice J1403 Vacuum Brake Hose JUN 85.

(2) Except as provided in paragraph (c) of this section, brake hose and brake tubing installed on a motor vehicle before March 7, 1989, must conform to 49 CFR 393.45 effective October 31, 1983.