

decided against including dimensional requirements for Type A air hose in FMVSS No. 106. The agency stated that the primary purpose of the dimensional requirements was to prevent mismatch between reusable end fittings and replacement brake hose. At that time, hose used with permanent end fittings were generally assembled by high volume manufacturers rather than repair operations in the field. The agency did not believe that there was a safety need to provide dimensional requirements for hose assemblies manufactured in such a manner. Accordingly, NHTSA found that including dimensional requirements for air brake hose used with permanent end fittings would amount to "a design restriction without corresponding safety benefit."

NHTSA no longer believes that only high-volume brake hose manufacturers are assembling air brake hoses with permanently attached fittings. A review of brake hose manufacturers that are registered with NHTSA indicates that many truck repair facilities are registered, and the agency tentatively concludes that many of these facilities may be capable of assembling brake hoses with permanently attached end fittings as replacement parts. NHTSA does not know the extent to which air brake hose that meets SAE J1402 dimensional requirements for Type A hose is used in such replacement assemblies, but tentatively concludes it is likely that most, if not all, such hose already comply with SAE J1402's dimensional requirements because § 393.45 requires that hoses used on commercial motor vehicles comply with SAE 1402.

NHTSA is not proposing to incorporate into FMVSS No. 106 the dimensional requirements for rubber hose used with permanently attached end fittings found in Table A of SAE J1402. In the case of $\frac{7}{16}$ -inch hose, which is not currently listed in Table III of FMVSS No. 106, NHTSA proposes to add this hose size to the dimensional tables for Type I and Type II hose, which would have the effect that as indicated in SAE J1402, $\frac{7}{16}$ -inch hose could be used with either permanent or reusable fittings, as is the case for $\frac{3}{8}$ -inch and $\frac{1}{2}$ -inch Special hose as currently included in Table III of FMVSS No. 106. Hose manufacturers would then be able to label $\frac{7}{16}$ -inch hose with a designation of "A," "AI," and/or "AII," as they deem appropriate. NHTSA welcomes public comments on this proposal, and also requests any dimensional and descriptive information for other sizes of air brake hose that manufacturers may be producing that is not covered under

SAE J1402. NHTSA also welcomes public comments on whether FMVSS No. 106 should include dimensional requirements for metric sized hose used with reusable end fittings as Standard No. 106 currently does not provide requirements for such hose. Note that Standard No. 106 does include references to metric sizes of air brake hose that presumably is used with permanently-attached end fittings.

2. Construction and Labeling

Paragraphs S7.1, *Construction*, and S7.2, *Labeling*, both contain references to air brake hoses constructed of synthetic or natural elastomeric rubber to differentiate those hose types from air brake tubing constructed from nylon (plastic), with both rubber hose and nylon tubing currently regulated as air brake hoses under paragraphs S7 and S8. The designation for synthetic or natural elastomeric rubber hoses was added to FMVSS No. 106 in a 1991 final rule (56 FR 7589) so that the dimensions for hoses used with reusable fittings in Table III would not apply to plastic tubing. NHTSA proposes, as discussed in another section below, that plastic air brake tubing be regulated in its own section in FMVSS No. 106 since it differs significantly in construction and material properties from elastomeric rubber hoses. Therefore, NHTSA proposes that any references to synthetic or natural elastomeric rubber be deleted from S7 of FMVSS No. 106 since it will no longer be necessary to differentiate rubber hoses from plastic tubing in S7 and S8. The proposed text in this notice also removes references to "outside diameter (OD)" from S7 and S8 of FMVSS No. 106 since OD measurements are generally only applicable to tubing, which NHTSA proposes to address in the new section for plastic tubing.

NHTSA also proposes to specify in S7.2.1(e) of FMVSS No. 106 the labeling scheme that is to be used for air brake hose that meet the dimensional requirements of more than one type of end fitting (A, AI, or AII). The proper labeling of such hose has been addressed in several of the agency's legal interpretation letters and inserting this language in FMVSS No. 106 would serve to minimize confusion on this issue. The proposed text also states that a hose intended for use with more than one type of end fitting may be labeled as such, but is not required to be so labeled. This provides flexibility for hose manufacturers to determine how they intend for their hoses to be used, and would not require them to label hoses for multiple end fitting designations unless they so desire.

3. Manufacturer Identification

While the labeling requirements in FMVSS No. 106 and SAE J1402 differ somewhat, both can be accommodated on a single brake hose. SAE J1402 requires each manufacturer to register the identification of its yarn scheme in accordance with SAE J1401, Appendix B and to label each hose with its manufacturer's identification number. Similarly, FMVSS No. 106 requires that hose manufacturers register with NHTSA and imprint their name or symbol on subject hoses and/or fittings. The agency does not propose to change FMVSS No. 106's manufacturer identification or labeling requirements.

4. Constriction

The constriction requirements relating to air brake hose are found in paragraph S7.3.1 of FMVSS No. 106. Standard No. 106 requires that every inside diameter of any section of each air brake hose assembly shall be not less than 66 percent of the nominal inside diameter of the hose, except for those portions of end fittings that do not contain hose. SAE J1402 also requires air brake hose assembly to meet a 66 percent of nominal inside diameter requirement but, unlike FMVSS No. 106, it does not exclude the portions of end fittings not containing hose. NHTSA proposes to eliminate the exclusion in S7.3.1 for those portions of end fittings which do not contain hose, as the agency does not believe that end fittings for air brake hose include restrictions designed into the fittings, nor are there complex shapes for end fittings as found with some hydraulic brake hoses. NHTSA welcomes public comments on this proposal. NHTSA also proposes that the same test method proposed for testing hydraulic brake hoses for constriction be specified for testing air brake hoses. In addition, noting that the title of paragraph S7.3.1 contains a typographical error, NHTSA proposes to change the title of S7.3.1 from "Construction" to "Constriction."

5. High Temperature Resistance

FMVSS No. 106 includes a test in which the hose is bent around a test cylinder, conditioned at 212 degrees F for 70 hours, then cooled and straightened. No charring, disintegration, or cracks are permitted. The high temperature test specifications for air brake hose contained in SAE J1402 are similar, but not identical, to those in FMVSS. First, the radii of the test cylinders specified for each hose size are significantly smaller in SAE J1402 than in FMVSS No. 106. Second, unlike FMVSS No. 106, SAE J1402 does