

the ends just touch as shown in Figure 6.

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S10.7 Swell and adhesion test.

(a) Fill a specimen of vacuum brake hose 12 inches long with ASTM Reference Fuel B as described in ASTM D471–98e1 Standard Test Method for Rubber Property B Effect of Liquids.

(b) Maintain reference fuel in the hose under atmospheric pressure at room temperature for 48 hours.

(c) Remove fuel and determine that every inside diameter of any section of the brake hose is not less than 75 percent of the nominal inside diameter of the hose for heavy-duty hose and 70 percent of the nominal inside diameter of the hose for light-duty hose.

(d) Attach the hose to a source of vacuum and subject it to a vacuum of 26 inches of Hg for 10 minutes. Remove the hose from the vacuum source.

(e) For a vacuum brake hose constructed of two or more layers, conduct the test specified in S8.6 using the vacuum brake hose.

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S10.8.2 * * *

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(b) Apply gradually increasing force to the test specimen to compress its

inside diameter to that specified in Table VI (dimension D of Figure 7) for the size of hose tested.

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S10.10 Constriction test.

(a) Utilize a plug gauge as shown in Figure 4. Diameter AA" shall be equal to 75 percent of the nominal inside diameter of the vacuum brake hose being tested if it is heavy duty, or 70 percent of the nominal inside diameter of the vacuum brake hose being tested if it is light duty.

(b) Vacuum brake hose assemblies that are to be used for additional testing have constriction testing only at each end fitting. Other hose assemblies may be cut into three inch lengths to permit constriction testing of the entire assembly. Hose assemblies with end fittings that do not permit entry of the gauge (e.g., restrictive orifice) are cut three inches from the point at which the hose terminates in the end fitting and then tested from the cut end.

(c) Hold the vacuum brake hose in a straight position and vertical orientation.

(d) Place the spherical end of the plug gauge just inside the hose or end fitting. If the spherical end will not enter the hose or end fitting using no more force

than gravity acting on the plug gauge, this constitutes failure of the constriction test.

(e) Release the plug gauge. Within three seconds, the plug gauge shall fall under the force of gravity alone up to the handle of the gauge. If the plug gauge does not fully enter the hose up to the handle of the gauge within three seconds, this constitutes failure of the constriction test.

S11. Requirements—Plastic air brake tubing, plastic air brake tubing assemblies, and plastic air brake tubing end fittings.

11.1 *Construction.* Each plastic air brake tubing assembly shall be equipped with permanently attached brake hose end fittings or reusable brake hose end fittings. Plastic air brake tubing that is constructed of one layer of material shall be designated as Type A tubing and plastic air brake tubing that is constructed of two layers of material with a reinforcing braid between the layers shall be designated as Type B tubing. Plastic air brake tubing shall conform to the dimensional requirements specified in Table VII. (S12.1)

TABLE VII.—PLASTIC AIR BRAKE TUBING DIMENSIONS

Type	Nominal tubing OD	Maximum outside diameter		Minimum outside diameter		Nominal inside diameter		Nominal wall thickness		Wall thickness tolerance	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	1/8 inch	3.25	0.128	3.10	0.122	2.01	0.079	0.58	0.023	±0.08	±0.003
A	5/32 inch	4.04	0.159	3.89	0.153	2.34	0.092	0.81	0.032	±0.08	±0.003
A	3/16 inch	4.83	0.190	4.67	0.184	2.97	0.117	0.89	0.035	±0.08	±0.003
A	1/4 inch	6.43	0.253	6.27	0.247	4.32	0.170	1.02	0.040	±0.08	±0.003
A	5/16 inch	8.03	0.316	7.82	0.308	5.89	0.232	1.02	0.040	±0.10	±0.004
B	3/8 inch	9.69	0.379	9.42	0.371	6.38	0.251	1.57	0.062	±0.10	±0.004
B	1/2 inch	12.83	0.505	12.57	0.495	9.55	0.376	1.57	0.062	±0.10	±0.004
B	5/8 inch	16.00	0.630	15.75	0.620	11.20	0.441	2.34	0.092	±0.13	±0.005
B	3/4 inch	19.18	0.755	18.92	0.745	14.38	0.566	2.34	0.092	±0.13	±0.005
A	6 mm	6.10	0.240	5.90	0.232	4.00	0.157	1.00	0.039	±0.10	±0.004
A	8 mm	8.10	0.319	7.90	0.311	6.00	0.236	1.00	0.039	±0.10	±0.004
B	10 mm	10.15	0.399	9.85	0.387	7.00	0.275	1.50	0.059	±0.15	±0.006
B	12 mm	12.15	0.478	11.85	0.466	9.00	0.354	1.50	0.059	±0.15	±0.006
B	16 mm	16.15	0.635	15.85	0.623	12.00	0.472	2.00	0.079	±0.15	±0.006

S11.2 Labeling.

S11.2.1 Plastic Air Brake Tubing.

Plastic air brake tubing shall be labeled, or cut from bulk tubing that is labeled, at intervals of not more than 6 inches, measured from the end of one legend to the beginning of the next, in block capital letters and numerals at least one-eighth of an inch high, with the information listed in paragraphs (a) through (e) of this section. The information need not be present on tubing that is sold as part of a motor vehicle.

(a) The symbol DOT, constituting a certification by the hose manufacturer that the hose conforms to all applicable motor vehicle safety standards.

(b) A designation that identifies the manufacturer of the tubing, which shall be filed in writing with: Office of Vehicle Safety Compliance, Equipment Division NVS–222, National Highway Traffic Safety Administration, 400 Seventh St. S.W., Washington, DC 20590. The designation may consist of block capital letters, numerals, or a symbol.

(c) The month, day, and year, or the month and year, of manufacture, expressed in numerals. For example, 10/1/96 means October 1, 1996.

(d) The nominal outside diameter expressed in inches or fractions of inches or in millimeters followed by the letters OD. The abbreviation "mm" shall follow tubing sizes that are expressed in millimeters. (Examples: 3/8 OD, 6 mm OD.)

(e) The letter "A" shall indicate intended use in air brake systems.

S11.2.2 *End Fittings.* Except for an end fitting that is attached by