

assembly shall be not less than 64 percent of the nominal inside diameter of the brake hose. (S6.12)

S5.3.2 Expansion and burst strength. The maximum expansion of a hydraulic brake hose assembly at 1,000 psi and 1,500 psi shall not exceed the values specified in Table I (S6.1). The hydraulic brake hose assembly shall then withstand water pressure of 4,000 psi for 2 minutes without rupture, and shall not rupture at less than 7,000 psi for a $\frac{1}{8}$ inch, 3 mm, or smaller diameter hose, or at less than 5,000 psi for a $\frac{3}{16}$ inch, 4 mm, or larger diameter hose (S6.2).

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S5.3.4 Tensile strength. A hydraulic brake hose assembly shall withstand a pull of 325 pounds without separation of the hose from its end fittings during a slow pull test, and shall withstand a pull of 370 pounds without separation of the hose from its end fittings during a fast pull test (S6.4).

S5.3.5 Water absorption and tensile strength. A hydraulic brake hose assembly, after immersion in water for 70 hours (S6.5), shall withstand a pull of 325 pounds without separation of the hose from its end fittings during a slow pull test, and shall withstand a pull of 370 pounds without separation of the hose from its end fittings during a fast pull test (S6.4).

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S5.3.9 Brake fluid compatibility, constriction, and burst strength. Except for brake hose assemblies designed for use with mineral or petroleum-based brake fluids, a hydraulic brake hose assembly shall meet the constriction requirement of S5.3.1 after having been subjected to a temperature of 248 °F for 70 hours while filled with SAE RM-66-05 Compatibility Fluid, as described in

Appendix B of SAE Standard J1703 JAN 1995, "Motor Vehicle Brake Fluid." It shall then withstand water pressure of 4,000 psi for 2 minutes and thereafter shall not rupture at less than 5,000 psi (S6.2).

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S5.3.11 Dynamic ozone test. A hydraulic brake hose shall not show cracks visible without magnification after having been subjected to a 48-hour dynamic ozone test (S6.9).

S5.3.12 High temperature impulse test. A brake hose assembly tested under the conditions in S6.10:

(a) shall withstand pressure cycling for 150 cycles, at 295 °F without leakage;

(b) shall not leak during a 2-minute, 4,000 psi pressure hold test, and;

(c) shall not burst at a pressure less than 5,000 psi.

S5.3.13 End fitting corrosion resistance. After 24 hours of exposure to salt spray, a hydraulic brake hose end fitting shall show no base metal corrosion on the end fitting surface except where crimping or the application of labeling information has caused displacement of the protective coating (S6.11).

S6. Test procedures—Hydraulic brake hose, brake hose assemblies, and brake hose end fittings.

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S6.2 Burst strength test. (a) * * *

(c) After 2 minutes at 4,000 psi, increase the pressure at the rate of 15,000 psi per minute until the pressure exceeds 5,000 psi for a hose of $\frac{3}{16}$, 4 mm, or larger diameter, or 7,000 psi for a hose of $\frac{1}{8}$ inch, 3 mm, or smaller diameter.

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S6.4 Tensile strength test. Utilize a tension testing machine conforming to

the requirements of American Society for Testing and Materials (ASTM) Standard Practices for Force Verification of Testing Machines, Designation E4-99, and provided with a recording device to give the total pull in pounds.

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S6.4.2 Operation.

(a) Conduct the slow pull test by applying tension at a rate of 1 inch per minute travel of the moving head until separation occurs.

(b) Conduct the fast pull test by applying tension at a rate of 2 inches per minute travel of the moving head until separation occurs.

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S6.8.2 Exposure to ozone. (a) * * *

(b) Immediately thereafter, condition the hose on the cylinder for 70 hours in an exposure chamber having an ambient air temperature of 104 °F during the test and containing air mixed with ozone in the proportion of 100 parts of ozone per 100 million parts of air by volume.

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S6.9 Dynamic Ozone Test.

S6.9.1 Apparatus. Utilize a test apparatus shown in Figure 3 which is constructed so that:

(a) It has a fixed pin with a vertical orientation over which one end of the brake hose is installed.

(b) It has a movable pin that is oriented 30 degrees from vertical, with the top of the movable pin angled towards the fixed pin. The moveable pin maintains its orientation to the fixed pin throughout its travel in the horizontal plane. The other end of the brake hose is installed on the movable pin.

Figure 3. Dynamic Ozone Test Apparatus