

other end of the hose to a source of vacuum.

(b) Subject the hose to a vacuum of 25 inches of Hg for five minutes. With the vacuum still applied to the hose, bend the hose 180 degrees around a test cylinder of the size specified in Table IV for the hose being tested. At the location of this bend, bend the hose 180 degrees around the test cylinder in the opposite direction.

(c) With the vacuum still applied to the hose, return the hose to a straight position. Attempt to roll the ball inside the hose using gravity from one end of the hose to the other end.

S8.14 Ozone test. Conduct the test in S6.8 on an air brake hose assembly except use the test cylinder radius specified in Table IV for the size of hose tested.

S8.15 Constriction test.

(a) Utilize a plug gauge as shown in Figure 4. Diameter "A" shall be equal to 66 percent of the nominal inside diameter of the air brake hose being tested.

(b) Air 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.

(c) Hold the 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.

S9. Requirements—Vacuum brake hose, brake hose assemblies, and brake hose end fittings.

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S9.2 Test requirements. Each vacuum brake hose assembly or appropriate part thereof shall be capable of meeting any of the requirements set forth under this heading, when tested under the conditions of S13 and the applicable procedures of S10. However, a particular hose assembly or appropriate part thereof need not meet further requirements after having met the constriction requirement (S9.2.1) and then having been subjected to any one of the requirements specified in S9.2.2 through S9.2.10.

S9.2.1 Constriction. Except for that part of an end fitting which does not contain hose, every inside diameter of any section of a vacuum brake hose assembly shall be not less than 75 percent of the nominal inside diameter of the hose if for heavy duty, or 70 percent of the nominal inside diameter of hose if for light duty. (S10.10)

S9.2.2 High temperature resistance. A vacuum brake hose tested under the conditions specified in S10.1:

(a) shall not have collapse of the outside diameter exceeding 10 percent of the initial outside diameter for a heavy-duty vacuum brake hose, or exceeding 15 percent of the initial outside diameter for a light-duty vacuum brake hose;

(b) shall not show external cracks, charring, or disintegration visible without magnification, and;

(c) shall not leak when subjected to a hydrostatic pressure test.

S9.2.3 Low temperature resistance. A vacuum brake hose tested under the conditions specified in S10.2 shall

(a) not show cracks visible without magnification after conditioning at minus 40 °F for 70 hours when bent around a cylinder having the radius specified in Table V for the size hose tested, and;

(b) not leak when subjected to a hydrostatic pressure test.

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S9.2.7 Bend. The collapse of the outside diameter of a vacuum brake hose, other than a preformed vacuum brake hose, at the middle point of the test length when bent until the ends touch shall not exceed the values given in Table V for the size of hose tested. (S10.6).

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S9.2.8 Swell and Adhesion.

Following exposure to Reference Fuel B, every inside diameter of any section of a vacuum brake hose shall not be less than 75 percent of the nominal inside diameter of the hose if for heavy duty, or 70 percent of the nominal inside diameter of the hose if for light duty. The vacuum brake hose shall show no leakage in a vacuum test of 26 inches of Hg for 10 minutes. A vacuum hose that is constructed of two or more layers shall withstand a force of 8 pounds per inch of length before separation of adjacent layers. (S10.7).

S9.2.9 Deformation. A vacuum brake hose shall return to 90 percent of its original outside diameter within 60 seconds after five applications of force as specified in S10.9, except that a wire-reinforced hose need only return to 85 percent of its original outside diameter. In the case of heavy duty hose, the first

application of force shall not exceed a peak value of 70 pounds, and the fifth application of force shall reach a peak value of at least 40 pounds. In the case of light duty hose the first application of force shall not exceed a peak value of 50 pounds, and the fifth application of force shall reach a peak value of at least 20 pounds (S10.9).

S9.2.10 End fitting corrosion resistance. After 24 hours of exposure to salt spray, vacuum brake hose end fittings shall show no base metal corrosion of the end fitting surface except where crimping or the application of labeling information has caused displacement of the protective coating.

S10. Test procedures—Vacuum brake hose, brake hose assemblies, and brake hose end fittings.

S10.1 High temperature resistance test.

(a) Measure the initial outside diameter of the hose.

(b) Subject the hose to an internal vacuum of 26 inches of Hg at an ambient temperature of 257 °F for a period of 96 hours. Remove the hose to room temperature and atmospheric pressure.

(c) Within 5 minutes of completion of the test in (b), measure the outside diameter at the point of greatest collapse and calculate the percentage collapse based on the initial outside diameter.

(d) Cool the hose at room temperature for 5 hours. Bend the hose around a mandrel with a diameter equal to five times the initial outside diameter of the hose. Examine the exterior of the hose for cracks, charring, or disintegration visible without magnification. Remove the hose from the mandrel.

(e) Fill the hose assembly with water, allowing all gases to escape. Apply water pressure in the hose of 175 psi within 10 seconds. Maintain an internal hydrostatic pressure of 175 psi for one minute and examine the hose for visible leakage.

S10.2 Low temperature resistance test.

(a) Conduct the test specified in S8.2 using vacuum brake hose with the cylinder radius specified in Table V for the size of hose tested. Visually inspect the exterior of the hose for cracks without magnification.

(b) Remove the hose from the test cylinder, warm the hose at room temperature for 5 hours, and conduct the hydrostatic pressure test in 10.1(e).

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S10.6 Bend test.

(a) Bend a vacuum brake hose, of the length prescribed in Table V, in the direction of its normal curvature until