MILITARY SPECIFICATION

HOSE ASSEMBLY, METAL, CRYOGENIC LIQUID, AIRCRAFT SERVICING

This amendment forms a part of Military Specification MIL-H-83772A (USAF) dated 1 November 1983, and approved for use by the Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

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3.1.1.c "The outer diameter of the outer covering shall be 1.25 inches maximum, and it shall be designed such that no sharp or frayed portions of metal are exposed."

3.1.1.d "The weight of the hose assembly shall not exceed 7.20 pounds."

3.1.1.e Add the following sentence after thread pitch of 1/11.5 - "Both end fittings shall have hexagonal type outer surface".

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4.5.2.c Change to read: "Outer diameter of outer covering of not more than 1.25 inches.

4.5.2.d Total weight of 7.20 pounds or less.

4.5.2.e Add the following sentence after 1 inch NPT Standard male metal fitting, with a thread pitch 1/11.5 at the other end, "both end fittings shall have a hexagonal type outer surface".

4.5.3 Proof Pressure Test: Change to read as follows: "The hose assembly shall be pneumatically pressurized to 150 ± 5 psig. The pressure source shall then be isolated from the hose assembly, and the hose assembly with a pressure gage shall maintain the 150 ± 5 psig pressure for 1 (one) minute. Any pressure drop below 145 psig during this 1 (one) minute test or any physical damage evident as a result of pressurization shall be cause for rejection. This test applies to inner and end fittings only."

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4.5.4 Bend Radius Test: The hose assembly shall be set up as shown in Figure 1, and operated 45 minutes - 15 minutes at each of three different heights "H" of 1, 3, and 6 feet. The liquid nitrogen flow rate shall be at least 1 (one) GPM and the hose shall not rupture or leak as a result of this test or develop sharp or frayed edges which could injure operating personnel. The intregity of the hose shall be verified by pneumatically pressurizing the hose to 150 ± 5 psig and then submerging the hose in water after the test. Any leakage from the hose or its end fittings shall be evidence of having failed to meet the bend radius test requirement.

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4.5.4.1 Alternate Bend Radius Test: When specified in the contract, order, as an alternate to the Bend Radius Test, or paragraph 4.5.4 the hose assembly shall be attached to a solid support, stretched out straight, and shall have liquid nitrogen pumped through it at a rate of one (1) gallon per minute for 15 minutes. After the 15 minutes, the flow of liquid nitrogen shall be turned off.

(a) Within two (2) minutes the hose shall be completely coiled around a 10 inch square mandrel and then it shall be uncoiled and straightened out.

(b) Liquid nitrogen shall be pumped through the hose at a rate of one (1) gallon per minute for at least one (1) minute.

After this minute, turn off the liquid nitrogen source. Repeat Steps (a) and (b) above, a total of 100 times; 50 times coiling clockwise; then 50 times coiling counterclockwise alternatively. Following the completion of the 100 coils, the hose assembly shall be verified by pneumatically pressurizing the hose to 150 $\pm$ 5 psig, and then submerging the hose in water after the test. Any leakage from the hose or its end fitting, or any cracks or splitting of the outer hose covering shall be evidence of having failed to meet the Bend Radius requirement.

4.5.5.2 Change to read as follows: "Without a break in the flow of liquid nitrogen, per paragraph 4.5.5.1 above, a flow of one (1) gallon per minute shall continue for an additional 20 minutes. Immediately following these 20 minutes, and just after the flow is stopped, a tensile force of 300 pounds shall be applied at the free end of the hose. This pulling and stretching force shall remain for one (1) minute. The hose shall then be proof pressure tested per the requirement of paragraph 4.5.3 above. Any leakage from the hose assembly shall be cause of rejection".

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4.6 Acceptance Tests: Change to read as follows: "Prior to acceptance by the government, the hose assemblies shall be subjected to and pass tests presented in paragraphs 4.6.1, 4.6.2, and 4.6.3 below. Any hose assembly not meeting the test requirements of paragraph 4.6.1 or 4.6.2 shall be rejected. Any sample size of a selected lot of a hose assembly not meeting the requirements of paragraph 4.6.3, shall be retested or rejected in accordance to paragraph 4.6.3.3. All acceptance tests shall be run at an ambient temperature of 70 + 30°F - 15°F".

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5.1.2 Change line 4, word "resistance", to "resistant".

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