MIL-H-83797 1 August 1974

MILITARY SPECIFICATION

HOSE, RUBBER, LIGHTWEIGHT, MEDIUM PRESSURE, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers the general requirements for lightweight, medium pressure, rubber hose suitable for aircraft fuel and oil systems within the limits specified herein.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

Military

:IIL-H-5606	Hydraulic Fluid, Petroleum Base;
	Aircraft, Missile, And Ordnance
MIL-T-5624	Curbine Fuel, Aviation Grades JP-4 And
	JP-5
1:IIL-L-7808	Lubrication 011, Aircraft Turbine
	Engine, Synthetic Base
MIL-H-83796/1	Hose Assembly, Pubber, Lightweight,
	Medium Pressure, Field Attachable,
	Flare To Flare
MIL-H-83796/2	Hose Assembly, Pubber, Lightweight,
~ 19	Medium Pressure, Field Attachable,
	Flare To Flare, With Lockwire Hole
MIL-E-83796/3	Hose Assembly, Pubber, Lightweight
	Medium Pressure, Field Attachable,
•	Flareless To Flareless
1911-H-83796/4	Hose Assembly, Pubber, Lightweight,
	Medium Pressure, Field Attachable,
	Flareless To Flareless, With Lockwire
	Hole
1:IL-H-83796/5	Hose Assembly, Rubber, Lightweight,
	Medium Pressure, Field Attachable,
	Flare To Flange
!:IL-H-83796/6	Hose Assembly, Pubber, Lightweight,
	Medium Pressure, Field Attachable,
•	Flare To Flange, With Lockwire Hole
	-

MIL-H-83796/7 Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable, Flareless To Flange MIL-H-83796/8 Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable, Flareless To Flange, With Lockwire Hole м11-н-83796/9 Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable, Flange To Flange MIL-H-83797/1 Hose, Rubber, Lightweight, Medium Pressure, Fuel And Oil Resistant MIL-F-83798 Fittings, Rubber Hose, Lightweight, Medium Pressure, General Specification For

STANDARDS

Military

MIL-STD-105	Sampling Procedures And Tables For
	Inspection By Attributes
MIL-STD-130	Idențification Marking Of US Military
	Property
MIL-STD-143	Standards And Specifications, Order Of
	Precedence For The Selection Of
MIL-STD-831	Test Reports, Preparation Of
MIL-STD-1523	Age Controls Of Age-Sensitive
	Elastomeric Materials
MS20756	Flange, Swivel, Retaining

PUBLICATIONS

Defense Supply Agency Cataloging Handbook

H4-1	Federal	Supply	Code	For	Manufacturers	-	Name
(SB 708-41)	To Code						

Federal Aviation Agency Technical Standard Order

TS0-C53a	"Fuel	And	011	System	Hose	Assemblies	

(Copies of specifications, standards, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

Society of Automotive Engineers

ARP611	Tetrafluoroethylene Hose Assembly Cleaning Methods
ARP1055	Fire Resistance And Fire Test Requirements For Fluid
	System Components

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 2 Pennsylvania Plaza, New York NY 19001.)

3. REQUIREMENTS

- 3.1 Qualification. The hose furnished under this specification shall be a product which has been tested, and passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable Qualified Products List.
- 3.2 <u>Materials</u>. Materials shall be limited to those specified on the applicable detail specification sheet.
- 3.3 Design and construction. The design and construction of the hose, including braid details, shall conform to MIL-H-83797/1.
- 3.3.1 <u>Hose</u>. Hose shall consist of seamless compounded inner tube of oil-resistant synthetic rubber, reinforced with 18-8 corrosion-resistant steel in a manner to meet the requirements of this specification and retain the specified end fittings without leakage or other malfunction when tested as specified herein.
- 3.3.1.1 <u>Lengths</u>. Unless otherwise specified, hose shall be furnished in minimum lengths of 20 feet; however, 10 percent of such orders may be furnished in random lengths over 10 feet, and an additional 10 percent in random lengths over 3 feet. When hose is ordered in specified lengths, a tolerance of ±1 percent of the length may be allowed.
- 3.3.1.2 <u>Dimensions</u>. Dimensions, tolerances, and finish shall be as shown on MIL-H-83797/1.
- 3.4 <u>Selection of specifications and standards</u>. Specifications and standards for parts, materials, procedures, and processes not specified herein shall be selected in accordance with ML-STD-143.
- 3.5 Performance of product. The product shall meet the appropriate requirements listed below and in Table I when submitted to the applicable tests in Section 4.

		Paragraph
a.	Examination of product	4.4.3.1
ъ.	Reduction in diameter	4.4.3.2
c.	Field attachability	4.4.3.3
d.	Coupling	1:.4.3.4
e.	Proof pressure	4.4.3.5
ſ.	Elongation and contraction	4.4.3.6
g.	Bending and vacuum	4.4.3.7
h.	Fuel immersion	4.4.3.8
i.	Oil immersion	4.4.3.9
.1.	Cold temperature deflection	h.L.3.10
k.	Oil circulation	4.4.3.11
1.	Leakage	4.4.3.12
m.	Corrosion	4.4.3.13
n.	Burst pressure	4.4.3.14
٥.	Fire resistance	4.4.3.15

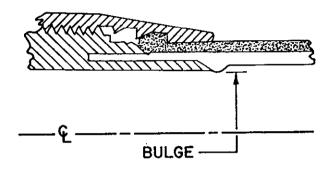
TABLE I HOSE TEST SCHEDULE - QUALIFICATION AND QUALITY CONFORMANCE

			QUALIF	QUALIFICATION			

gample No.	1,2	3, 4	5,6	7,8	9, 10		13, 14
	3 inches	18 inches	18 inches	18 inches	*See column 1	*See column l	18 inches
	Exem. 4.3.3.1	Exem. 4.4.3.1		^		1	\uparrow
Dash Assy.	Rden in dia.	Field Atch			1	1	^
		Proof	^	1	1	^	\uparrow
15 10 " 15 15 15 15 15 15 15 15 15 15 15 15 15		Coupling 4.4.3.4	^	Elong-contr Bend-vac 4.4.3.6 4.4.3.7	Bend-vac 4.4.3.7	Cold def1 4.4.3.10	011 circltn 4.4.3.11
		Fuel 1mrs 4.4.4.3.8	011 1mrs 4.4.3.9	Leakage 4.4.3.12			
10 18"				Corresion 4.4.3.13			
-16 24" -20 28"			11 gl	Burst 4.4.3.14			
		-					
í			QUALITY O	QUALITY CONFORMANCE			
	8	Sampling (lot.size 20,000 ft. or less)	.size 20,000	ft. or less) (See 4.5.2)		
				As above except omit	As above		
	Peri	lodic control	(lot size l	00,000 ft. o	Periodic control (lot size 100,000 ft. or less) (See 4.5.2)	.5.2)	
	As above	As above	As above			As above	As above

- 3.6 <u>Identification of products</u>. Products shall be identified in accordance with MIL-STD-130. In addition, a band shall be attached near the end of each hose length, and for hose more than 10 feet long, an additional band shall be attached near the center, with the following information:
 - a. Manufacturer's Federal Supply Code in accordance with Handbook H4-1.
 - b. Part number of the hose, including dash size (see MIL-H-83797/1).
 - c. Date of manufacture in quarter of year and year.
- 3.7 Age control. Bulk hose shall not exceed the age limits established in MIL-STD-1523.
- 3.8 <u>Workmanship</u>. Workmanship shall be of the quality necessary to produce hose and hose assemblies free from all defects which affect proper functioning in service. All products shall be free from oil, grease, dirt, or other foreign material both internally and externally consistent with good manufacturing practices. Cleaning shall be in accordance with class 0 of ARP611.
- 4. QUALITY ASSURANCE PROVISIONS
- 4.1 Responsibility for inspection. Unless otherwise specified in the contract or ourchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- 4.2 <u>Classification of inspections</u>. The inspection requirements specified herein are classified as follows:
 - a. Qualification inspection (see 4.4).
 - b. Quality conformance inspection (see 4.5).
- 4.3 Test conditions.
- 4.3.1 Test fluids. Test fluids for each test shall be as specified in 4.4.3.
- 4.3.2 Oil aging. When a test specifies an oil-aged sample, it shall be produced by immersing in oil conforming to MIL-L-7808 at 250° Fahrenheit (F), t2°F for 168 hours. All air shall be excluded from the bore of the hose during this aging. For qualification tests, a new batch of oil shall be used for each group of test samples. For quality conformance tests, a new batch of oil shall be used for each 10 or fewer tests.
- 4.4 Qualification tests. Qualification tests shall be in accordance with the following: (see 6.3)
- 4.4.1 <u>Samples</u>. The length of test samples, the minimum quantity of test samples, and the schedule for conducting the tests, shall be as shown in Table I.

- 4.4.1.1 Hose. Each size of hose shall meet the tests in Table I. The fittings for the test samples shall be obtained from all the fitting manufacturers listed or approved for listing on the applicable QPL. Each end of the test samples may have a fitting from a different manufacturer. When there are more than four approved fitting manufacturers, the quantity of test samples shall be increased accordingly. Unless otherwise specified, fittings for the test samples may be straight, 45 degrees, 90 degrees, flared, flareless, or flanged.
- 4.4.2 <u>Test report</u>. For qualification tests, three copies of the test report in accordance with MIL-STD-831 shall be submitted to the contracting officer for approval by the preparing activity of this specification, prior to shipment of the product.
- 4.4.3 <u>Test methods</u>. The qualification tests required by 3.1 shall consist of all the tests in Table I, and as specified below. At the option of the preparing activity, the qualification tests may be supplemented by tests under actual service conditions (see 6.2c).
- 4.4.3.1 Examination of product. All hose shall be examined to determine conformance with this specification in regard to the following as applicable:
 - a. Size
 - b. Materials (3.2)
 - c. Finish (3.3.1.2)
 - d. Dimensions (3.3.1.2)
 - e. Identification (3.6)
 - f. Workmanship (3.8)
 - g. Cleaning (3.8)
- 4.4.3.2 Reduction in diameter. The lengths of hose in Table I under samples No. 1 and 2 shall be oil-aged in accordance with 4.3.2, and measured at least 1/2-inch inside the hose from the end. The inside diameter (ID) of the hose shall not decrease to less than 90 percent of the minimum ID specified in MIL-H-83797/1 for all sizes excert size 3, for which the ID of the hose shall not decrease to less than 75 percent.
- w.k.3.3 Field attachability. The hose lengths shall be cut, using the groove on the socket to establish the cutoff factor. The hose shall be inserted into the socket to the depth of the groove on the socket. The fitting shall be attached to the hose with standard common tools. The nipple shall be tightened to meet the gap specified in the requirements paragraph titled "Field attachability" of MIL-F-83798. The hose lengths shall then meet the tolerance specified in MIL-H-83796/1 thru MIL-H-83796/9. If assemblies fabricated as specified herein fail in any of the tests required by Table I, then the assembly shall be considered to have also failed this field attachability test.
- 4.4.3.4 <u>Coupling</u>. The measurement of the bulging of hose inner tubes caused by attachment of the fitting shall be made with a ball-end type gage. The diameter of the ball shall be within 0.001-inch of the minimum bulge diameter specified on Figure 1. The weight of each gage in ounces shall be equal to the dash number of the fitting being tested. In taking the measurement, the gage shall be placed inside the end of the assembly without lubrication, and without pushing through. The gage shall fall through the bulge under its own weight. This test shall be made only on straight fittings.



Hose Size	Minimum Bulge Diameter	Hose Size	Minimum Bulge Diameter
-3	.094	-10	.469
-4	.141	-12	.563
-5	.203	-16	.750
-6	.266	-20	1.000
-8	.344	-24	1.250
		-32	1.625

FIGURE I. Coupling Bulge

- 4.4.3.5 <u>Proof pressure</u>. The hose assemblies, lengths of hose, or the brazed, welded, or mechanically attached fittings, as applicable, shall be subjected to the proof pressure of Table II for not less than 30 seconds and not more than 5 minutes, using oil conforming to MIL-L-7808 or hydraulic fluid conforming to MIL-H-5606, or water. There shall be no evidence of leakage.
- 4.4.3.6 Elongation and contraction. The hose assemblies shall be placed in a straight unpressurized position and a standard 10-inch length marked off on the hose. The hose assemblies shall then be pressurized to the applicable operating pressure specified in Table II, using MIL-L-7808 oil, MIL-H-5606 hydraulic fluid, or water. While still pressurized, the standard length shall be remeasured and the change in length computed as a percent of the original length. The standard length shall not increase more than 2 percent or decrease more than 4 percent.
- 4.4.3.7 Bending and vacuum. The bending and vacuum test shall be made at room temperature. A steel ball of the applicable diameter, as specified in Table III shall be installed within the hose assemblies. The assemblies shall then be bent over a form to the applicable minimum bend radius specified in Table II. All size assemblies shall not flatten or otherwise deform at any section more than 10 percent of the outside diameter (OD). While bent in this radius, a vacuum of 27 inches Hg shall be applied to dash sizes -3 through -12, and 22 inches Hg to dash sizes -16 through -32, and held for 5 minutes. Application of vacuum shall not flatten or otherwise deform the hose an additional 10 percent of the OD for dash sizes -3 through -24, and an additional 25 percent of the OD for dash size -32. With the vacuum still applied, the assemblies shall be straightened and held in a horizontal position, then gradually tilted 30 degrees in each direction. Failure of the ball to roll through the assemblies shall be cause for rejection. After release of the vacuum, one assembly shall be dissected longitudinally and examined for evidence of ply separation, blistering, collapse, or other causes for rejection.
- 4.4.3.8 <u>Fuel immersion</u>. The uncapped hose assemblies shall be immersed in fuel conforming to type JP-4 of MIL-T-5624 for 48 hours at a temperature of 250°F. After immersion, the assemblies shall be removed and, at room temperature, shall pass the proof pressure test of 4.4.3.5 for 5 minutes, with oil conforming to MIL-L-7808. The assemblies shall then pass the coupling test of 4.4.3.4. The hose shall then be dissected longitudinally, and any indication of disintegration, solubility of component parts, porosity, blistering, or collapse shall be considered failure to meet the test.
- 4.4.3.9 Oil immersion. The uncapped hose assemblies shall be immersed in oil conforming to MIL-L-7808 at a temperature of 250°F for a period of 168 hours. After 24 hours, 96 hours, and 168 hours, the assemblies shall be removed, cooled to room temperature, and shall pass the proof pressure test of 4.4.3.5 for 5 minutes, using MIL-L-7808 oil. The assemblies shall then pass the coupling test of 4.4.3.4. The hose shall then be dissected longitudinally, and any indication of disintegration, solubility of component parts, porosity, blistering, or collapse shall be considered failure to meet the test.

TABLE II

::

PHYSICAL REQUIREMENTS OF HOSE, FITTINGS, AND HOSE ASSEMBLIES

Operating Temperature (fluid or ambient)	-65°F to +250°F	-65°P to +250°F	-65°F to +250°F	-65°F to +250°F							
Bend Radius Inches (min)	1.75	2.00	2.25	2.50	3.50	00.4	14.50	5.50	8.00	00.6	12.50
Burst Pressure psi (min)	000*9	6,000	000,9	000*9	5,000	5,000	νοος η	3,000	2,000	1,750	1,200
Proof Pressure psi	3,000	3,000	3,000	3,000	2,500	2,500	2,000	1,500	1,300	800	909
Operating Pressure psi (max)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	750	500	250	200
Hose Size	۳-	7-	.5.	9-	జ	-10	-12	-16	-20	. 42−	-32

1/ Assemblies having aluminum flange fittings shall be pressure tested at the rated proof pressure or 1,500 psf, whichever is less (see MS20756).

TABLE III

Ball Size for Bending and Vacuum Test

Dash No.	Dia. plus .001-inch	Dash No.	Dia. plus .001-inch
-3 -4 -5 -6 -8	.070 .125 .188 .250 .312	-10 -12 -16 -20 -24 -32	.406 .500 .656 .875 1.125 1.594

4.4.3.10 Cold temperature deflection test. One of two hose assembly samples (see Table I) shall be oil-aged in accordance with 4.3.2, and the other not aged. The hose assemblies shall then be installed in the apparatus shown on Figure 2 and subjected to the cold temperature deflection test. One assembly shall be filled with MIL-L-7808 oil, and one assembly with type JP-4 MIL-T-5624 fuel. These assemblies shall be placed in a cold chamber, the temperature of which shall be controlled at -67°F, t2°F, and maintained at this temperature for 2 hours. After this time, and while at the specified temperature, the assemblies shall be subjected to the operating pressure specified in Table II. The hose assemblies shall also be subjected to a deflection of plus or minus 1/2-inch at a rate of 15 cycles a minute for a 15-minute period. Then the hose assemblies shall be raised to room temperature, and shall pass the proof pressure test of 4.4.3.5.

4.4.3.11 <u>Oil circulation test</u>. The hose assemblies shall be installed in a test set-up similar to that shown on Figure 3. The test fluid shall be oil conforming to MIL-L-7808. The sequence of the test procedure, as shown on Figure 4 follows:

- a. Soak the assemblies with no pressure in a cold chamber, the temperature of which shall be controlled at -65° F, $\pm 2^{\circ}$ F, and maintained at this temperature for 1 hour.
- b. Pressure-test the assemblies to the operating pressure specified in Table II for 30 seconds. There shall be no evidence of leakage.
- c. Circulate the test fluid at 70 pounds per square inch (psi) and at a flow rate not to exceed 15 feet a second. While circulating the fluid, increase the temperature of the test fluid to 250°F ±10°F, and increase the ambient temperature to 200°F ±10°F.
- d. Continue circulation for 20 hours. During the last hour of the 20-hour period, increase the test fluid temperature to 375°F ±10°F. Maintain this fluid temperature a minimum of 15 minutes.

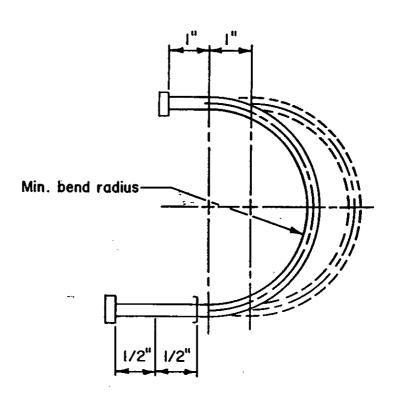


FIGURE 2. Cold Temperature Deflection Test Diagram

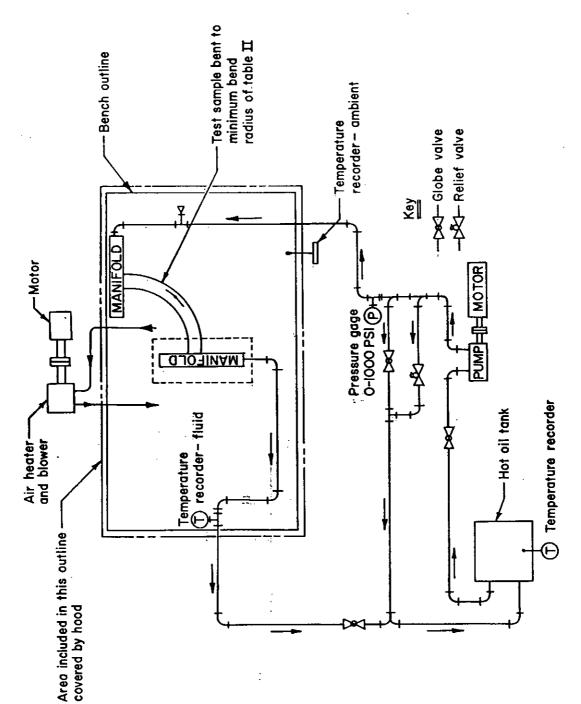


FIGURE 3. Oil Circulation Test Schematic

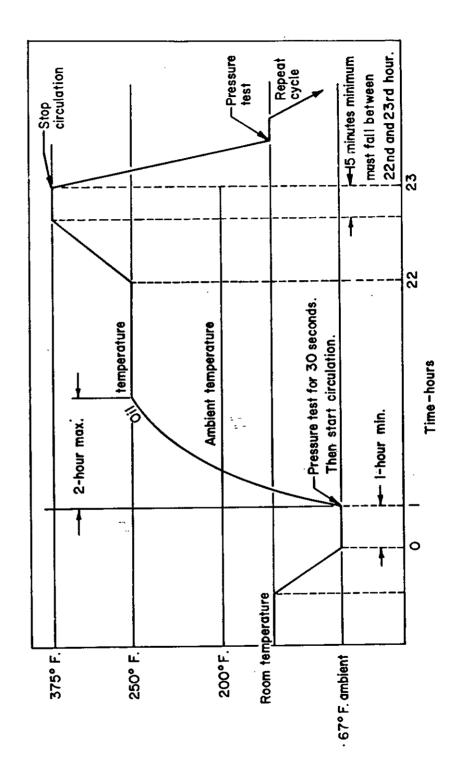


FIGURE 4. Oil Circulation (Time and Temperature Schedule)

- e. Upon completion of above-mentioned tests, reduce the fluid and ambient temperature to room temperature, and test the assembly to the applicable operating pressure a minimum of 30 seconds. There shall be no evidence of leakage.
- f. The tests described in a through e above constitute one cycle. Complete 10 such cycles. Upon completion of the 10 cycles, pressure-test the hose assemblies at the applicable operating pressure for a minimum of 5 minutes. There shall be no evidence of leakage or other malfunction.
- 4.4.3.12 <u>Leakage</u>. The hose asserblies shall be subjected to 70 percent of the minimum burst pressure specified in Table II for 5 minutes, using oil conforming to MIL-L-7808. The pressure shall then be released to 0 psi and then reapplied to 70 percent of minimum burst pressure and held for an additional 5 minutes. There shall be no leakage from the fitting, no seepage through the hose, or other malfunction.
- 4.4.3.13 <u>Corrosion</u>. The hose assemblies shall be immersed, in a vertical position with the ends capped, into a 2-1/2 percent solution of sodium chloride for a 5-minute period. The samples shall then be air dried for 25 minutes at a temperature of 140°F. This immersion and drying cycle shall be repeated for a total of 168 hours. Upon completion of this test, the hose assemblies shall be subjected to and meet the burst requirements of 4.4.3.14.
- 4.4.3.14 <u>Burst pressure</u>. Within 24 hours after assembly, the hose assemblies shall be pressurized until failure, using MIL-L-7808 oil, MIL-H-5606 hydraulic fluid, or water. The rate of pressure rise shall be 25,000 psi, +0 psi, -10,000 psi per minute. There shall be no leakage, burst, or fitting blow-off below minimum burst pressure specified in Table II. The type failure and pressure at which failure occurred shall be recorded in the test report (see 4.4.2).
- 4.4.3.15 Fire resistance. When fire-resistance supplemental tests are required (see 6.2b), the hose assemblies shall be tested and shall meet the requirement of ARP 1055, Type 1, class A. Hose assemblies approved to the fire test requirements of TSO-C53a prior to the date of this specification will be considered in compliance with this requirement. A protective sleeve over the hose or fitting may be required to facilitate compliance with this requirement.
- 4.5 Quality conformance tests. Quality conformance tests shall consist of the following:
 - a. Individual (see 4.5.1).
 - b. Sampling and periodic control (see 4.5.2).
- 4.5.1 Individual. Individual tests shall consist of the following:
- 4.5.1.1 Examination of product (see 4.4.3.1). All hose shall be examined to determine conformance with this specification with respect to size and workmanship. The products shall be inspected in accordance with "IL-STD-105, inspection level I, with an acceptable quality level (AGL) of 1.0 for materials, finish, dimensions, and identification. The lot size for this inspection shall be as specified in 4.5.2.3.
- 4.5.1.2 Proof pressure (see 4.4.3.5). Proof-pressure tests shall be performed on each piece of hose.

- 4.5.2 <u>Sampling and periodic control</u>. The tests to be performed for sampling and periodic control are identified in Table I. The samples shall meet all the tests.
- 4.5.2.1 Quantity. The quantity of samples for each test shall be the same as for qualification tests shown in Table I.
- 4.5.2.2 <u>Schedule</u>. The test schedules shall be the same as for qualification tests shown in Table I.
- 4.5.2.3 Lot size. Samples shall be selected at random from the lot size shown in Table I. A lot is defined as products of the same dash size, manufactured under essentially the same conditions, and at essentially the same time.
- 4.5.3 <u>Rejection and retest</u>. When an item selected from a production run fails to meet the specification, no items still on hand or later produced shall be accepted until the extent and cause of failure have been determined and corrected. The contractor shall explain to the Government representative the cause of failure and the action taken to preclude recurrence. After correction, all of the quality conformance tests shall be repeated.
- 4.5.3.1 <u>Individual tests may continue</u>. For production reasons, individual tests or other quality conformance tests may be continued pending the investigation of the test which failed. Final acceptance of items on hand or produced later shall not be made until it is determined that all items meet all the requirements of this specification.
- 4.5.4 <u>Defects in items already accepted</u>. If the investigation of quality conformance test failure indicates that defects may exist in items already accepted, the contractor shall fully advise the procuring activity of all defects liable to be found and the method of correcting them.
- 4.6 Inspection of preparation for delivery. The preservation, packaging, packing, and marking of hose, fittings, and hose assemblies shall be examined to determine conformance with Section 5 of this specification.
- 5. PREPARATION FOR DELIVERY
- 5.1 <u>Preservation</u>, packaging, packing, and marking. Preservation, packaging, packing, and marking shall be in accordance with the applicable packaging standard or packaging data sheet for the desired level of protection specified by the procuring activity (see 6.2).
- 6. NOTES
- 6.1 <u>Intended use</u>. The hose is intended for use in aircraft fuel and oil systems at the pressures and temperatures specified in Table II herein. The products are not recommended for vacuum or hydraulic impulse applications.
- 6.2 Ordering data. Procurement documents should specify the following:
- a. Title, number, and date of this specification and applicable specification sheet.
 - b. Whether supplemental tests are required (see 4.4.3).

- c. Selection of applicable level and packaging standard or packaging data sheet (see 5.1).
- 6.3 Qualification. With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in the applicable qualified products list, whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the qualified products list is the San Antonio Air Logistics Center, Service Engineering Division, Attn: MT, Kelly AFB, Texas 78241, and information pertaining to qualification of products may be obtained from that activity.

Custodian:

Army - AV Air Force - 82

Review Activities: Army - AT, NE

User Activity:
Air Force - 11

Preparing Activity:
Air Force - 82

Project No. 4720-0361

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