

INCH-POUND

MIL-DTL-83798C  
18 September 2000  
SUPERSEDING  
MIL-F-83798B  
15 November 1991

## DETAIL SPECIFICATION

### FITTING, RUBBER HOSE, 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 Scope. This specification covers the requirements for field attachable fluid fittings for use with a lightweight, medium pressure, rubber hose with operating limits of -65 to 250 °F and 200 to 1000 psi.

#### 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

##### 2.2.1 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center, Columbus, DSCC-VAI, 3990 East Broad Street, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4730

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### SPECIFICATIONS

MIL-H-5606	-	Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordinance
MIL-PRF-7808	-	Lubricating Oil, Aircraft Turbine Engine, Synthetic Base
MIL-A-8625	-	Anodic Coatings for Aluminum and Aluminum Alloys
MIL-PRF-83282	-	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Aircraft, NATO Code Number H-537
MIL-DTL-83796	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, General Specification for
MIL-DTL-83796/1A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flare to Flare
MIL-DTL-83796/2A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flare to Flare, with Lockwire Hole
MIL-DTL-83796/3A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flareless to Flareless
MIL-DTL-83796/4A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flareless to Flareless, with Lockwire Hole
MIL-DTL-83796/5A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flare to Flange
MIL-DTL-83796/6A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flare to Flange, with Lockwire Hole
MIL-DTL-83796/7A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flareless to Flange
MIL-DTL-83796/8A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flareless to Flange, with Lockwire Hole
MIL-DTL-83796/9A	-	Hose Assembly, Rubber, Lightweight, Medium Pressure, Field Attachable End Fittings, Flange to Flange
MIL-DTL-83797	-	Hose, Rubber, Lightweight, Medium Pressure, General Specification For

(See supplement 1 for list of associated detail specifications.)

### FEDERAL

QQ-P-416	-	Plating, Cadmium (Electrodeposited)
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### STANDARDS

#### DEPARTMENT OF DEFENSE

MIL-STD-130	-	Identification Marking of U.S. Military Property
MS20756	-	Flange, Swivel, Retaining
MS33786	-	Fitting Installation, Flared Tube and Hose, Swivel

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4/D, Philadelphia, PA 19111-5094.)

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2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/NCSL Z540.1 - Calibration Laboratories and Measuring and Test Equipment, General Requirements (DoD adopted)

(Application for copies should be addressed to the American National Standard Institute, 11 West 42nd Street, New York, NY 10036-8002).

## AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B46.1 - Surface Texture (Surface Roughness, Waviness and Lay) (DoD adopted)

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B633 - Electrodeposited Coatings of Zinc on Iron and Steel

(Application for copies of ASTM publications should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959).

## SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE AMS-H-6088 - Heat Treatment of Aluminum Alloys (DoD Adopted)  
 and SAE ARP908 - Torque Requirements Installation and Qualification Test, Hose  
 Tube Fittings (DoD Adopted)  
 SAE AS4395 - Fitting End-Flared Tube Connection, Design Standard (DoD Adopted)  
 SAE AS8879 - Screw Threads - UNJ Profile, Inch  
 SAE AS33514 - Fitting End, Standard Dimensions for Flareless Tube Connection and Gasket Seal (DoD Adopted)

(Application for copies should be addressed to the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15086).

2.4 Order of precedence. In the event of a conflict between this document and the references cited herein, (except for related associated specifications or specification sheets) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

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3.2 Qualification. The fittings furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable qualified products list before contract award (see 4.4 and 6.3).

3.3 Materials. Materials shall be as specified in MIL-F-83798/1 through MIL-F-83798/9, as applicable.

3.3.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.3.2 Hazardous substances. The use of hazardous substances, toxic chemicals, or Ozone Depleting Chemicals (ODCs) shall be avoided, whenever feasible.

3.4 Design and construction. The fitting shall be designed to meet the requirements specified herein and in the applicable specification sheet. The end fitting shall be suitable for use with hose conforming to MIL-DTL-83797 to form flexible assemblies which meet the performance requirements of MIL-DTL-83796.

3.4.1 Mating. The fittings shall mate with adapter ends designed in accordance with SAE AS33514, SAE AS4395 or with MS33786 connection, as applicable.

3.4.2 Finish. Aluminum parts shall be anodized in accordance with MIL-A-8625. Carbon steel parts shall be cadmium plated in accordance with QQ-P-416, type and class optional or in accordance with ASTM B633 Type II Fe/Zn 12. Aluminum swivel nuts shall be dyed blue on flared and yellow on flareless. Swivel flanges shall be dyed blue.

3.4.3 Surface roughness. Surface roughness of machined parts shall not exceed 125 microinches arithmetical average (AA), except for the sealing surfaces of fittings which shall not have annular tool marks in excess of 100 AA. AA values shall be interpreted in accordance with ASME B46.1.

3.4.4 Heat treatment. Aluminum parts shall be supplied in the final temper shown on the applicable specification sheet. Process control shall be in accordance with SAE AMS-H-6088.

3.4.5 Dimensions. Dimensions and tolerances shall be as shown on the applicable specification sheet.

3.4.6 Screw threads. Threads for the swivel nut shall be in accordance with SAE AS8879.

3.4.7 Field attachability. The fittings shall be capable of being attached to the hose with common standard tools such as vise and wrench. The method of determining proper tightening of the socket shall be by measurement of the gap between the socket and the nipple/elbow with a feeler gage. The maximum allowable gap shall be 0.041 inch (in) for sizes -3, -4, and -5; 0.031 in. for size -6 and larger.

3.4.8 Hose insertion gage. The socket of the fitting shall contain a groove no wider than 0.035 in. around its circumference on the edges of the hexagon. The distance from the center of the groove to the unthreaded end of socket shall be equal to the recommended depth of insertion of the hose into the socket at the time of assembly.

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3.5 Performance.

3.5.1 Examination of product. The fitting shall conform to the requirements of this specification and applicable specification sheet, when visually examined as specified in 4.7.1.

3.5.1.1 Cleanliness. The fittings shall be free of all foreign material, both internally and externally, which could adversely affect performance and reliability when examined as specified in 4.7.1.1.

3.5.1.2 Dimensions. The fitting shall conform to the dimensions specified herein in and on the applicable drawing when examined as specified in 4.7.1.2.

3.5.2 Field attachability. The hose assembly fittings shall not separate from the hose or show any evidence of leakage around the fitting, when tested as specified in 4.7.2.

3.5.3 Torque. The end fitting of the hose assembly shall not show any evidence of material failure, thread damage, deformation or difficulty in turning the swivel nut on the nipple by hand, when tested as specified in 4.7.3.

3.5.4 Inner tube bulge, straight fitting. The gage shall fall through the bulge under the fitting of its own weight, when tested as specified in 4.7.4.

3.5.5 Proof pressure. The hose shall show no evidence of leakage or deterioration, when tested as specified in 4.7.5.

3.5.6 Oil circulation. The hose assembly shall show no evidence of leakage or deterioration, when tested as specified in 4.7.6.

3.5.7 Leakage. The hose assembly shall show no evidence of leakage from the fitting, seepage through the hose or other malfunction, when tested as specified in 4.7.7.

3.5.8 Corrosion. The hose assembly shall show no evidence of leakage, when tested as specified in 4.7.8.

3.5.9 Burst pressure. The hose assembly shall show no leakage, burst, or a fitting blow-off below the minimum burst pressure specified in table 1, when tested as specified in 4.7.9.

3.6 Identification of product. Fittings shall be identified in accordance with MIL-STD-130. In addition, the fittings shall be permanently marked with:

- a. Manufacturer's identification or trademark.
- b. Part number of the fitting, including dash size (see MIL-DTL-83798/1 through MIL-DTL-83798/9).
- c. Date of manufacture, quarter and year.

3.7 Cleanliness. All fittings shall be free of contaminants both internally and externally.

3.8 Workmanship. Fittings shall be free from burrs and tool marks. All sealing surfaces shall be smooth.

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## 4. VERIFICATION

4.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment (i.e. Industry Standard, Military Standard, etc ) shall be in accordance with ANSI/NCCL Z540-1 or equivalent.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).
  - 1. Sampling tests (see 4.5.3)
  - 2. Periodic control tests (see 4.5.4)

4.3 Inspection conditions. Unless otherwise specified all inspections shall be performed in accordance with the test conditions specified in 4.6.

4.4 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the qualifying activity on sample units produced with equipment and procedures actually used in production.

4.4.1 Samples for qualification. Samples for qualification shall be representative of the products proposed to be furnished to the Government. Samples, consisting of 4 fittings and 12 hose assemblies of each size and of the lengths specified in table II, shall be subjected to qualification testing.

4.4.2 Qualification inspection schedule. The sample(s) for qualification inspections shall be tested as specified in table II. Each size of fitting shall meet the tests specified in table I. The tests shall be performed on MIL-DTL-83798/1 straight type swivel end fittings, except samples No. 9 and 10 shall have a MIL-DTL-83798/3 and MIL-DTL-83798/7 through MIL-DTL-83798/9 in the sizes tested. Two additional assemblies having MIL-DTL-83798/4 flareless style fitting ends of the sizes to be tested shall be examined as specified in 4.7.1 and tested as specified in 4.7.5, 4.7.10, and 4.7.12. Satisfactory test results on these fittings shall constitute approval of fittings MIL-DTL-83798/4 through MIL-DTL-83798/6 in the sizes inspected. The hose for the test samples shall be obtained from two hose manufacturers listed or approved for listing in the applicable Qualified Products List (QPL). The hose of each manufacturer shall be on 50 percent of the samples in table II. When there is only one qualified hose manufacturer, the total quantity of samples in table II shall be on the hose of one manufacturer.

4.4.3 Acceptance of qualification data. For identical requirements and test procedures, using an identical fitting, qualification test data from MIL-DTL-83797, hose and the first article test data from MIL-DTL-83796 hose assemblies may be accepted as qualification test data for MIL-DTL-83798 providing that documented approval has been obtained from the qualifying activity. Unless otherwise approved by the qualifying activity, qualification test data from one manufacturer shall not be accepted for another.

4.4.4 Failures. One or more failures shall be cause for refusal to grant qualification approval.

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TABLE I. Inspection requirements.

Inspection or test	Requirement	Test Method	Qualification	Quality conformance inspection		
				Sampling tests	Periodic control tests	
					1	2
Examination of product	3.5.1	4.7.1	X	X		
Cleanliness	3.5.1.1	4.7.1.1	X	X		
Dimensions	3.5.1.2	4.7.1.2	X	X		
Field attachability	3.5.2	4.7.2	X			
Torque <u>1/</u>	3.5.3	4.7.3	X			X
Inner tube bulge	3.5.4	4.7.4	X			
Proof pressure	3.5.5	4.7.5	X		X	
Oil circulation	3.5.6	4.7.6	X			
Leakage <u>1/</u>	3.5.7	4.7.7	X		X	
Corrosion	3.5.8	4.7.8	X			
Burst pressure <u>1/</u>	3.5.9	4.7.9	X		X	

1/ These are destructive tests.

TABLE II. Qualification samples and inspection schedule.

Inspection Requirements	Sample Number and Sample Hose Length					
	Fitting	Hose Assembly				
	1, 2, 3, 4 <u>1/</u>	5, 6 18 in.	7, 8 <u>2/</u> 18 in.	9, 10	11, 12 18 in.	13, 14 <u>3/</u> 18 in.
Examination of product	X	X	X	X	X	X
Cleanliness	X	X	X	X	X	X
Dimensions	X	X	X	X	X	X
Field attachability		X	X	X	X	X
Torque	X					
Inner tube bulge		X				
Proof pressure		X	X	X	X	X
Oil circulation					X	
Leakage			X			X
Corrosion			X			
Burst pressure			X			X

1/ Two flared type fitting samples and two flareless type fittings.

2/ Samples shall have a 90° elbow fitting on one end of the hose assembly.

3/ These samples are flareless type fittings.

4.4.5 Retention of qualification. To retain qualification, the contractor shall forward a report at 12-month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting date. Each report shall contain a summary of the results obtained from both the sampling tests and the periodic control tests performed during the 12-month interval. The number of lots and quantities of fittings that have passed and failed shall be included. All reworked sampling lots shall be accounted for and identified.

4.4.5.1 Nonconformance of qualification. If the summary of test results indicates nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products list (QPL).

4.4.5.2 Periodic qualification report. Failure to submit a report within 30 days after the end of each 12-month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the contractor shall immediately notify the qualifying activity at any time during the

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12-month period that the inspection data indicated failure of the qualified product to meet the requirements of this specification. In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to product the item. If during two consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit his qualified products to testing in accordance with the qualification inspection requirements.

#### 4.5 Quality conformance inspection.

4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of sampling tests.

4.5.2 Sampling tests. Fittings randomly selected from a production lot (see 4.5.2.1) to form an inspection sample (see 4.5.2.2) shall be subjected to the sampling tests specified in table I.

4.5.2.1 Production lot. A production lot shall consist of fittings manufactured on the same production line(s) by means of the same production technique, materials, controls, and design during the same continuous production run.

4.5.2.2 Inspection sample. The inspection sample shall be product selected at random from the production lot without regard to quality. The sample size shall be as specified in table III.

TABLE III. Inspection sample.

Production lot size	Accept on zero sample size
1 to 8	All
9 to 90	8
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	35
3,201 to 10,000	38
10,001 to 35,000	46

4.5.2.3 Nonconformance of sampling tests. If one or more defects are found in the inspection sample, both the qualifying and inspection activities shall be immediately notified and the production lot shall be rejected and not be supplied to this specification. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the qualifying activity, has been taken. The corrective measures shall be performed on the materials or processes, or both, as warranted, and on all products considered subjected to the same failure. Once the corrective action has been completed, either the specific sampling test in which the original sample failed or all sampling tests may be required to be repeated on additional samples, at the option of the qualifying activity. However, final acceptance shall be withheld until testing has shown that the corrective action was successful. In the event of a failure after re-inspection, information concerning the failure and the corrective action taken shall be furnished to both the qualifying and inspection activities.



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4.5.3 Periodic control tests. Required periodic control tests at the fitting level that were already performed at the hose assembly or bulk hose level may be eliminated if documented approval has been obtained from the qualifying activity.

4.5.3.1 Periodic tests (1). Periodic test (1) as specified in table I shall be performed on three assemblies (six fittings) for each size at least once per year regardless of the total number of fittings produced. At least three of the six fittings, used for testing, shall be flared fittings with the greatest bend angle. If no flared fittings were produced, flareless fittings shall be used. The six fittings selected shall be as representative as possible of those produced during the period in terms of fitting material and joint configuration. If there has been no production for a particular size, during the past year, periodic testing (1) is not required for that size.

4.5.3.2 Periodic tests (2). Periodic tests (2) as specified in table I shall be performed on two fittings at least once per year regardless of the total number of fittings produced. The fittings shall be of any bend angle and joint configuration. The two fittings selected shall be as representative as possible of those produced during the period, in terms of material used for the threaded parts. The size of the two fittings shall be determined based on the fitting size that is most likely to fail if there was a defect. If there has been no production during the past year, periodic testing (2) is not required.

4.5.3.3 Nonconformance of periodic control tests. If a sample fails a periodic control test, both the qualifying and inspection activities shall be immediately notified of such failure. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the qualifying activity, has been taken. The corrective measures shall be performed on the materials or processes, or both, as warranted, and on all products considered subjected to the same failure. Once the corrective action has been completed, either the specific periodic control test in which the original sample failed or all periodic control tests may be required to be repeated on additional samples, at the option of the qualifying activity. Furthermore, the sampling tests may be re-instituted in addition to the periodic control tests if deemed applicable by the qualifying activity. However, final acceptance shall be withheld until testing have shown that the corrective action was successful. In the event of failure after re-inspection, information concerning the failure and the corrective action taken shall be furnished to both the qualifying and inspection activities.

4.5.4 Disposition of test specimens. Test specimens which have been subjected to periodic control tests shall not be delivered on a contract or purchase order.

4.5.5 Acceptance of conformance inspection data. For identical requirements and test procedures, using an identical fitting, conformance inspection data from MIL-DTL-83796 or MIL-DTL-83797 may be accepted as conformance inspection data for MIL-DTL-83798 providing that documented approval has been obtained from the qualifying activity.

#### 4.6 Test conditions.

4.6.1 Test fluids. Unless otherwise specified in the test, the test fluid shall be oil conforming to MIL-PRF-7808, hydraulic fluid conforming to MIL-H-5606 or MIL-PRF-83282 or water.

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## WARNING!!!!

SOME OF THE PETROLEUM AND SYNTHETIC TYPE HYDRAULIC OILS/FLUIDS OFTEN CONTAIN TRICRESYL PHOSPHATE (TCP) AS ADDITIVES, WHICH IS READILY ABSORBED BY THE SKIN AND IS TOXIC. ANY PORTION OF THE BODY THAT COMES IN CONTACT WITH THESE OILS/FLUIDS SHOULD BE CLEANED AS SOON AS POSSIBLE. IF SKIN OR EYE CONTACT CAN BE ANTICIPATED, APPROPRIATE PROTECTIVE EQUIPMENT WILL BE WORN.

4.6.2 Fitting and hose assemblies. Unless otherwise specified, fittings to be tested shall be attached to each end of a hose in accordance with MIL-DTL-83797. The hose assembly shall be fabricated as specified in MIL-DTL-83796 and MIL-DTL-83796/1 through MIL-DTL-83796/9. 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 tools. The maximum allowable gap between the socket and the nipple/elbow is 0.041 inch for fitting sizes -3, -4, and -5 and 0.031 inch for sizes -6 and larger.

#### 4.7 Test methods.

4.7.1 Examination of product. The fitting shall be examined for identification markings and workmanship. Conformance shall be as specified in 3.5.1.

4.7.1 Cleanliness. The fitting shall be visually examined internally and externally for conformance to the requirements specified in 3.5.1.1.

4.7.1.2 Dimensions. The fitting shall be checked dimensionally to determine conformance to the dimensions specified herein and on the applicable drawing. Conformance shall be as specified in 3.5.1.2.

4.7.2 Field attachability. The field attachability of the fitting to the hose shall be a requirement of the tests of this specification where test procedure requires a hose assembly. A fitting shall be attached to each end of a length of bulk hose as specified in 4.6.2. The hose assembly length shall be specified in table II. These hose assemblies shall be used for performing the tests of this specification. Conformance shall be as specified in 3.5.2.

4.7.3 Torque. The flared and flareless type fittings shall be installed on mating adapter ends (SAE AS4395 or SAE AS33514 as applicable) in accordance with SAE ARP908. Conformance shall be as specified in 3.5.3.

4.7.4 Inner tube bulge, straight fitting. The measurement of the bulging of hose inner tubes caused by attachment of the fitting shall be made only on straight fittings using a ball-end type gage or gage ball. The diameter of the ball shall be within .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. Conformance shall be as specified in 3.5.4.

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4.7.5 Proof pressure. The hose assemblies, consisting of lengths of hose with attached fittings, shall be subject to the proof pressure of table IV using MIL-PRF-7808 oil, MIL-H-5606 or MIL-PRF-83282 hydraulic fluid or water for not less than 30 seconds and not more than 5 minutes. Conformance shall be as specified in 3.5.5.

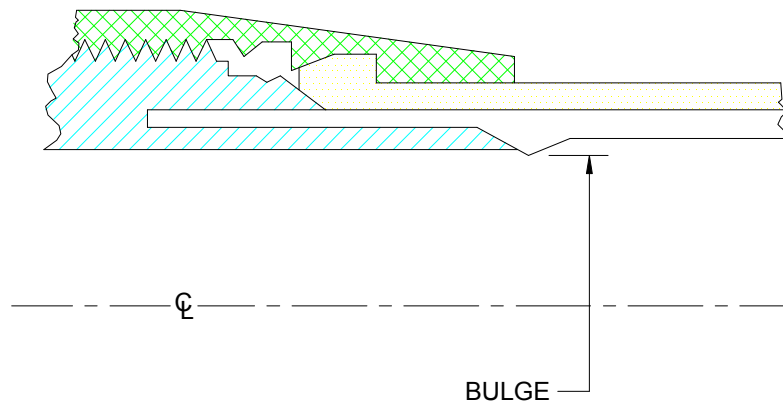
**“CAUTION:** Use safety precautions, fuel and oil under pressure and at high temperature may self ignite or explode.

TABLE IV. Physical requirements of fittings and hose assemblies.

Hose Size	Operating Pressure psi (Max)	Proof Pressure psi	Burst Pressure psi (min)	Bend Radius Inches (min)	Operating Temperature (fluid or ambient)
-03	1,000	3,000	6,000	1.75	-65 °F to +250 °F
-04	1,000	3,000	6,000	2.00	-65 °F to +250 °F
-05	1,000	3,000	6,000	2.25	-65 °F to +250 °F
-06	1,000	3,000	6,000	2.50	-65 °F to +250 °F
-08	1,000	2,500	5,000	3.50	-65 °F to +250 °F
-10	1,000	2,500	5,000	4.00	-65 °F to +250 °F
-12	1,000	2,000	3,750	4.50	-65 °F to +250 °F
-16	750	1,500	2,500	5.50	-65 °F to +250 °F
-20	500	1,300	2,000	8.00	-65 °F to +250 °F
-24	250	800	1,750	9.00	-65 °F to +250 °F
-32	200	600	1,200	12.50	-65 °F to +250 °F

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

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Hose size	Minimum bulge diameter (inch)	Hose size	Minimum bulge diameter (inch)
-03	0.094	-10	0.496
-04	0.141	-12	0.563
-05	0.203	-16	0.750
-06	0.266	-20	1.000
-08	0.344	-24	1.250
		-32	1.625

Figure 1. Inner tube bulge.

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4.7.6 Oil circulation. The hose assemblies shall be installed in a test set-up similar to that shown on figure 2. The test fluid shall be oil conforming to MIL-PRF-7808. The following test sequence procedure, see figure 3, shall be performed.

a. Soak the assemblies with no pressure in a cold chamber, the temperature of which shall be controlled at  $-65 \pm 2$  °F, and maintained at this temperature for 1 hour.

b. Pressure-test the assemblies to the operating pressure specified in table IV for 30 seconds.

c. Circulate the test fluid at a pressure of 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  $250 \pm 10$  °F, and increase the ambient temperature of  $200 \pm 10$  °F.

d. Continue circulation for 20 hours. During the last hour of the 20-hour period, increase the test fluid temperature to  $375 \pm 10$  °F. Maintain this fluid temperature a minimum of 15 minutes.

**“CAUTION:** Use safety precautions, fuel and oil under pressure and at high temperature may self ignite or explode.”

e. Upon completion of above procedures, reduce the fluid and ambient temperature to room temperature, and test the assembly to the applicable operating pressure a minimum of 30 seconds.

f. The test sequence procedures (a) through (e) above constitute one cycle. Complete 10 cycles. Upon completion of the 10 cycles, pressure-test the hose assemblies at the applicable operating pressure for a minimum of three minutes. Conformance shall be as specified in 3.5.6.

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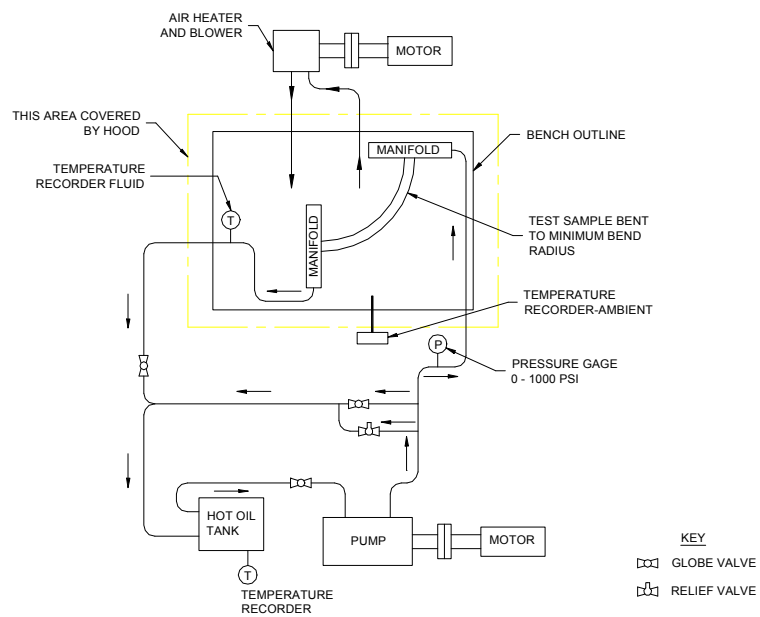


Figure 2. Oil circulation test schematic.

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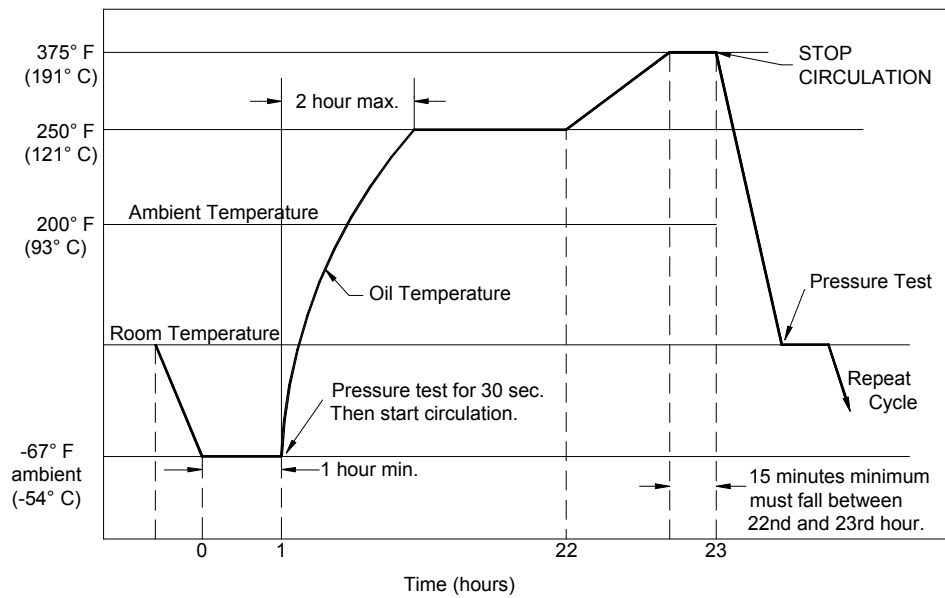


Figure 3. Oil circulation (time and temperature schedule).

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4.7.7 Leakage. The hose assemblies shall be subjected to 70 percent of the minimum burst pressure specified in table IV for 5 minutes, using oil conforming to MIL-PRF-7808. The pressure shall then be released to 0 psi and then re-applied to 70 percent of minimum burst pressure and held for an additional 5 minutes. Conformance shall be as specified in 3.5.7.

4.7.8 Corrosion. The hose assemblies shall be immersed in a vertical position with the ends capped, into a 2.5 percent solution of sodium chloride for a minimum of five minutes. The samples shall then be air dried for 25 minutes at a temperature of  $140 \pm 5$  °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 the burst pressure test. Conformance shall be as specified in 3.5.8.

4.7.9 Burst pressure. Within 24 hours after assembly, the hose assemblies shall be pressurized until destruction occurs, using MIL-PRF-7808 oil, MIL-H-5606 or MIL-PRF-83282 hydraulic fluid, or water. The rate of pressure rise shall be 25,000 psi, +0 psi, -10,000 psi per minute. Conformance shall be as specified in 3.4.9. The type of failure and pressure at which failure occurred shall be recorded.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). when actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory).

6.1 Intended use. The fittings covered by this specification are intended for military unique hose assemblies used in military aircraft lubricating and fuel systems requiring interoperability and compatibility with associated components and equipment. These systems are required to withstand temperatures between -65 °F to +250 °F and operate at pressures up to 1000 psi. The interoperability and compatibility has been assured through strict adherence to the military detail specification requirements. Manufacturer of these items and users place great reliance on the detailed technical requirements to ensure the products meet the interoperability and compatibility requirements while encountering rapid ambient temperature fluctuations. This fitting is not recommended for vacuum or hydraulic impulse applications.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification, including amendments.
- b. Applicable part number.



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c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).

d. Packaging requirements (see 5.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List QPL 83798 whether or not such products have actually been so listed by that date. The attention of the contractors 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. Information pertaining to qualification of products may be obtained from Commander, Defense Supply Center, Columbus, DSCC-VQP, 3990 East Broad Street, Columbus, OH 43216-5000.

6.3.1 Qualification certification. An assessment of each manufacturer intending to qualify product to this specification shall be conducted by the qualifying activity prior to initial qualification and periodically thereafter to assure compliance with specification requirements. This assessment will review the manufacturer's quality system, including production and testing, to ensure that adequate controls are in place to provide compliant product on a recurring basis. This assessment may include a facility survey as determined necessary by the qualifying activity.

6.4 Subject term (key word) listing.

Field attachability  
Flanged type  
Flared type  
Flareless type  
Fuel systems  
Oil systems

6.5 International system of units (SI). The FED-STD-376, Preferred Metric Units For General Use by the Federal Government - A Guide to the Use of SI, the International System of Units, can be used for the conversion to SI units in this document. The following conversion factors are applicable to this specification.

Pounds per square inch (psi) X 6.894	= Kilopascals (kPa)
Degrees Fahrenheit (°F)	= Degrees Celcius (°C) X 1.8 + 32
Inches X 25.4	= Millimetres (mm)

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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Custodians:

Army - AV  
Air Force - 99  
Navy - AS  
DLA - CC

Preparing activity:

DLA-CC

Project 4730-0734

Review activities:

Army - AT  
Air Force - 11, 82  
Navy - SA

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

## I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
MIL-DTL-83798C

2. DOCUMENT DATE (YYMMDD)  
00/09/18

### 3. DOCUMENT TITLE

Fittings, Rubber Hose, Lightweight, Medium Pressure, General Specification For

### 4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

### 5. REASON FOR RECOMMENDATION

### 6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

DD Form 1426, OCT 8  
198/290

*Previous editions are obsolete*

d. TELEPHONE  
(Include Area Code)

(1) Commercial:

(2) DSN:  
(If Applicable)

7. DATE SUBMITTED  
(YYMMDD)

8. PREPARING ACTIVITY DLA-CC

a. NAME  
COMMANDER  
DEFENSE SUPPLY CENTER  
COLUMBUS

b. TELEPHONE NUMBER (Include Area Code)  
(1) Commercial (614) 692-0538 (2) DSN  
Fax: (614) 692-6939

c. ADDRESS (Include Zip Code)

CODE DSCC-VAI  
3990 EAST BROAD STREET  
COLUMBUS, OH 43216-5000

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Defense Standardization Program Office, Attn: DLSC-LM  
8725 John J. Kingman Road, Suite 1655 Fort Belvoir, VA 22060-6221  
Telephone (703) 767-6888 DSN 427-6888