

INCH-POUND

MIL-DTL-8795E  
22 September 2000  
 SUPERSEDING  
 MIL-H-8795D  
 14 October 1985

## DETAIL SPECIFICATION

### HOSE ASSEMBLIES, ELASTOMERIC -HYDRAULIC FLUID, FUEL, AND OIL RESISTANT, 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 medium pressure elastomeric (see 6.3) hose assemblies for use in hydraulic, fuel, and oil systems (see 6.1).

1.2 Classification. Hose assemblies will be of the sizes and styles as specified on the applicable specification sheets (see 3.1 and 6.2).

#### 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 Government documents.

2.2.1 Specifications. The following specifications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those 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).

## SPECIFICATIONS

### DEPARTMENT OF DEFENSE

- |              |   |  |
|--------------|---|--|
| MIL-DTL-5070 | - | Adapter, Hose to Tube, Pipe and Flange, Reusable - Hydraulic, Fuel, and Oil Lines, General Specification for |
| MIL-H-5606   | - | Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance   |

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be of use in improving this document should be addressed to: Defense Logistics Agency, Defense Supply Center, Columbus (DSCC-VAI), P.O. Box 3990, 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  
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FSC 4720

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- MIL-DTL-8794 - Hose, Elastomeric -Hydraulic Fluid, Fuel, and Oil Resistant
- MIL-PRF-83282 - Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-737

(Unless otherwise indicated, copies of the above specifications are available from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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 that 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D380 - Standard Test Methods for Rubber Hose (DoD adopted)

(Application for copies should be addressed to the American Society for Testing and Materials, 1800 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

### NATIONAL CONFERENCE OF STANDARDS LABORATORIES (NCSL)

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

(Application for copies should be addressed to the National Conference of Standards Laboratories, 1800 - 30th Street, Suite 305B, Boulder, CO 80301-1032.)

### SAE INTERNATIONAL (SAE)

- SAE AS1933 - Age Controls for Hose Containing Age-Sensitive Elastomeric Material (DoD adopted)

(Application for copies should be addressed to SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related 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 hose assembly requirements shall be as specified herein and in accordance with the applicable specification sheets cited in the solicitation by the procuring activity (see 6.2). In the event of any conflict between the requirements of this specification and the specification sheets, the latter shall govern. (See 4.6.1.)

3.2 Materials. Hose assemblies shall comprise hose conforming to MIL-DTL-8794 and adapters conforming to MIL-DTL-5070 (see 6.5). (See 4.6.1.)

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3.3 Performance.

3.3.1 Operating pressure. Hose assemblies shall be capable of operating at the operating pressures specified in table I. (See 4.6.2.)

TABLE I. Physical requirements of hose assemblies comprising MIL-DTL-8794 hose and MIL-DTL-5070 adapters.

Dash number (Size)	Length of hose assemblies for all tests (inches)	Minimum bend radius at inside of hose bend (inches)	Hydraulic		Fuel		Oil			Burst pressure (psi)
			Operating pressure (psi)	Proof pressure (psi)	Operating pressure (psi)	Proof Pressure (psi)	Operating pressure (psi)	Surge pressure (psi)	Proof pressure (psi)	
-3 <sup>1/</sup>	14	3	N/A <sup>1/</sup>	N/A <sup>1/</sup>	1,000	1,500	50	400	600	4,000
-4	14	3	3,000	6,000	1,000	1,500	50	400	600	12,000
-5	16	3.375	3,000	5,000	1,000	1,500	50	400	600	10,000
-6	18	4	2,000	4,500	1,000	1,500	50	400	600	9,000
-8	21	4.625	2,000	4,000	1,000	1,500	50	400	600	8,000
-10	23.5	5.5	1,750	3,500	1,000	1,500	50	400	600	7,000
-12	27.5	6.5	1,500	3,000	1,000	1,500	50	400	600	6,000
-16	18	7.375	800	1,600	750	1,000	50	400	600	3,200
-20	18	9	600	1,250	500	750	50	400	600	2,500
-24	18	11	500	1,000	250	375	50	400	600	2,000
-32	18	13.25	350	700	200	300	50	400	600	1,400
-40	18	24	N/A	N/A	200	300	N/A	N/A	N/A	1,000
-48	18	33	N/A	N/A	200	300	N/A	N/A	N/A	800

Notes:

<sup>1/</sup> Size -3 hose assemblies shall not be used in hydraulic applications.

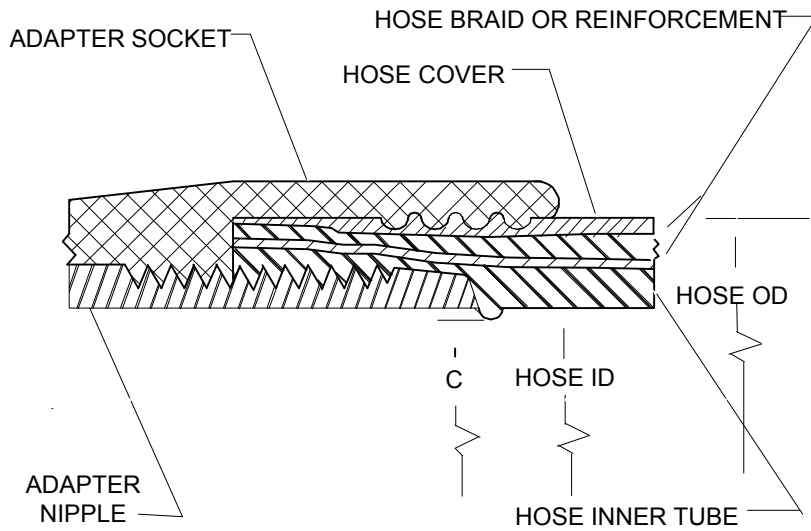
3.3.2 Proof pressure. Hose assemblies shall withstand the applicable hydraulic proof pressure specified in table I without separation at the hose-to-adapter interface or leakage, or without showing evidence of imperfections. (See 4.6.2.)

3.3.3 Bulge. The bulge of the elastomeric tube of the hose when assembled with adapters shall not reduce the inside diameter (ID) of the hose to less than the C dimension shown on figure 1. (See 4.6.3.)

3.3.4 Leakage. Hose assemblies shall withstand 70 percent of the burst pressure specified in table I without leakage, deformation, or adapter movement relative to the hose. (See 4.6.4.)

3.3.5 Burst pressure. Hose assemblies shall not burst, separate at the hose-to-adapter interface, or leak at any pressure up to the burst pressure specified in table I. (See 4.6.5.)

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Adapter Size Number	Hose size number	C <sup>1/</sup> diameter (in.), minimum
-3	-3	.080
-4	-4	.132
-5	-5	.200
-6	-6	.260
-8	-8	.350
-10	-10	.450
-12	-12	.575
-16	-16	.781
-20	-20	1.015
-24	-24	1.250
-32	-32	1.719
-40	-40	2.178
-48	-48	2.803

## Notes:

- <sup>1/</sup> C diameter indicates maximum permissible bulge of inner tube when hose is assembled with adapters.

FIGURE 1. Minimum diameter of hose inner tube when adapters are assembled with hose conforming to MIL-DTL-8794.

3.4 Age limitation. The age of the hose in hose assemblies shall not exceed the age limitation specified in SAE AS1933. (See 4.6.1.)

3.5 Identification of product. Each hose assembly shall be identified with a durable permanently attached tag plainly marked with (a) the hose assembly Part or Identifying Number (PIN) from the applicable specification sheet complete with the hose size and hose assembly length (in inches) (see 6.2), (b) the date of assembly (in quarter of year and year), and (c) the Commercial and Government Entity (CAGE) Code of the assembler. Length shall be specified by four digits, with the last digit to indicate fractions in eighths of an inch. (See 4.6.1.)

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3.6 Workmanship. Hose assemblies shall be free from oil, grease, dirt, or other foreign materials, both internally and externally, and shall be free of irregularities or defects that could adversely affect performance. Components of the hose assembly shall not be degraded from their individual performance capability as the result of assembly. (See 4.6.1.)

## 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 shall be in accordance with ANSI/NCSL Z540-1 or equivalent.

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

- a. Individual inspection (see 4.4).
- b. Periodic sampling inspection (see 4.5).

4.2.1 Rejection and retest. If a hose assembly fails to meet the test requirements specified herein, no assemblies on hand or later produced shall be accepted until the extent and cause of failure are determined and corrected. Full particulars concerning the cause of previous rejection and the action taken to correct the defects in the lot shall be available for review before the lot may be resubmitted for testing.

4.2.2 Lot. A lot is defined as 500 hose assemblies, or fraction thereof, of a given size.

4.2.3 Disposition of samples. Hose assemblies, or parts thereof, subjected to leakage or burst testing shall not be delivered as part of any order.

4.3 Inspection Conditions. Unless otherwise specified, all inspections shall be conducted in accordance with the test conditions specified in the applicable paragraph of this specification.

4.3.1 Test fluid. The test fluid shall be water or hydraulic fluid conforming to either MIL-H-5606 or MIL-PRF-83282. If water is used, the test article must be thoroughly dried before use in further testing or prior to delivery.

4.4 Individual inspection. Each hose assembly shall be subjected to the individual inspection consisting of the following:

- a. Examination of product (see 4.6.1).
- b. Proof pressure test (see 4.6.2).

4.5 Periodic sampling inspection. Periodic sampling inspection shall consist of individual inspection of 4.4 and the following tests performed on a sample of hose assemblies. At least one hose assembly shall be selected at random from each lot.

- a. Bulge test (see 4.6.3).
- b. Leakage test (see 4.6.4).
- c. Burst pressure test (see 4.6.5).

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#### 4.6 Examinations and tests.

4.6.1 Examination of product. Each hose assembly and its related manufacturing records shall be examined for compliance with the requirements specified herein with respect to dimensions, materials used, age limitations, identification of product, and workmanship. (See 3.1, 3.2, 3.4, 3.5, and 3.6.)

4.6.2 Proof pressure test. Each hose assembly shall be subjected to the hydraulic proof pressure (except -3 to fuel proof pressure) specified in table I for a period of not less than 30 seconds nor more than 5 minutes. The test shall be conducted in accordance with the Proof Pressure Tests of ASTM D380. There shall be no evidence of leakage or damage to the hose or adapters. (See 3.3.1 and 3.3.2.)

4.6.3 Bulge test. Hose assemblies shall be measured for bulging of the hose inner tube caused by the attachment of the hose to the adapter. A ball-type gauge is recommended for the bulge measurement. The diameter of the ball gauge shall be within .001 inch of the C diameter shown in figure 1. Holding the hose in a vertical position, the gauge is inserted into the end of the hose assembly at the bulge inspection point C shown in figure 1. The gauge shall fall through the section at the end of the adapter in the hose under its own weight without lubrication and without forcing the gauge through the adapter-to-hose interfacing section. The weight of the gauge is equal in ounces to the dash number of the hose for which designed. (See 3.3.3.)

4.6.4 Leakage test. The hose assembly shall be subjected to 70 percent of the burst pressure specified in table I for 5 minutes. The pressure shall then be reduced to 0 pounds per square inch (psi), after which it shall be raised to 70 percent of the specified burst pressure for a final 5-minute check. There shall be no evidence of leaking of the hose or the hose to adapter interface, deformation or damage to the hose or adapters, or adapter movement relative to the hose. (See 3.3.4.)

4.6.5 Burst pressure test. The hose assembly shall be subjected to the burst pressure specified in table I within 45 days after assembly of the adapters to the hose. The burst pressure test shall be conducted in accordance with the Straight Bursting Test of ASTM D380, except that pressure shall be applied at a rate between 15,000 and 25,000 psi per minute. During this test, one end of the test article shall be free. The hose assembly shall not burst, and there shall be no evidence of leaking or separation of the hose from adapter, at pressures up to the burst pressure of table I. (See 3.3.5.)

#### 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 materiel 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 packaging activity within the Military Department or Defense Agency, or within the Military Department's Systems Command. Packaging data retrieval is available from the managing Military Department or Defense Agency 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 that may be helpful, but is not mandatory.)

6.1 Intended use. This specification is being retained as a military detail specification because of the unique military requirements for use in hydraulic, fuel, and oil systems operating in an environment from -65 to 160 °F, and in oil systems sizes -3 through -12 operating in an environment from -65 to 250 °F (see MIL-DTL-8794). The hose assemblies covered by this specification are intended for use in medium pressure applications in hydraulic, fuel, and oil systems of aircraft. Size 3 hose assemblies are

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not to be used in hydraulic applications (see table I).

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Classification (style and size of adapter, and size of hose and length) of hose assemblies to be acquired, lot size, and applicable specification sheet (see 1.2, 3.1, and 3.5).
- 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, including end-caps for hose assemblies, if required (see 5.1).

6.3 Definitions.

Elastomer. A material that possesses elastic properties similar to those of natural rubber in the vulcanized state. At room temperature, an elastomer can be stretched repeatedly to at least twice its original length and will, upon release of stress, return to its approximate original length.  
(Source: SAE AS1933)

6.4 Subject term (key word) listing.

Adapter  
Fitting

6.5 Use of qualified hose and adapters in hose assemblies. Only hose conforming to MIL-DTL-8794 and adapters conforming to MIL-DTL-5070 may be used in manufacturing hose assemblies procured under this specification (see 3.2). Contractors are advised that both hose and adapters are required to be tested as hose assemblies under both MIL-DTL-8794 and MIL-DTL-5070, and each must have passed those tests in order to be listed on their respective Qualified Products List (QPL).

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 extent of the changes.

CONCLUDING MATERIAL

Custodians:  
Army - AT  
Navy - AS  
Air Force - 99  
DLA - CC

Preparing activity:  
DLA - CC  
  
(Project 4720-0145)

Review activities:  
Army - AV, MI  
Navy - MC, SA  
Air Force - 11, 82

## 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, and send to preparing activity.
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.

<b>I RECOMMEND A CHANGE:</b>	1. <b>DOCUMENT NUMBER</b> <b>MIL-DTL-8795E</b>	2. <b>DOCUMENT DATE (YYYYMMDD)</b> <b>20000922</b>
3. <b>DOCUMENT TITLE</b> <b>Hose Assemblies, Elastomeric - Hydraulic, Fuel, and Oil Resistant, General Specification for</b>		
4. <b>NATURE OF CHANGE</b> ( <i>Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.</i> )		
5. <b>REASON FOR RECOMMENDATION</b>		
6. <b>SUBMITTER</b>		
a. <b>NAME</b> ( <i>Last, First, Middle Initial</i> )		b. <b>ORGANIZATION</b>
c. <b>ADDRESS</b> ( <i>Include zip code</i> )	d. <b>TELEPHONE</b> ( <i>Include Area Code</i> ) (1) Commercial (2) DSN ( <i>if applicable</i> )	7. <b>DATE SUBMITTED</b> (YYYYMMDD)
8. <b>PREPARING ACTIVITY</b>		
a. <b>NAME</b> <b>Defense Logistics Agency</b> <b>Defense Supply Center, Columbus</b>		b. <b>TELEPHONE</b> ( <i>Include Area Code</i> ) (1) <b>Commercial 614 692-0538</b> (2) <b>DSN 850-0538</b>
c. <b>ADDRESS</b> ( <i>Include Zip Code</i> ) <b>DSCC-VAI</b> <b>P.O. Box 3990</b> <b>Columbus, Ohio 43216-5000</b>		<b>IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:</b> <b>Defense Standardization Program Office (DLSC-LM)</b> <b>8725 John J. Kingman Road, Suite 2533</b> <b>Fort Belvoir, Virginia 22060-6621</b> <b>Telephone 703 767-6888      DSN 427-6888</b>