

INCH-POUND

MIL-DTL-83796B
 11 August 2008
 SUPERSEDING
 MIL-DTL-83796A
 18 September 2000

DETAIL SPECIFICATION

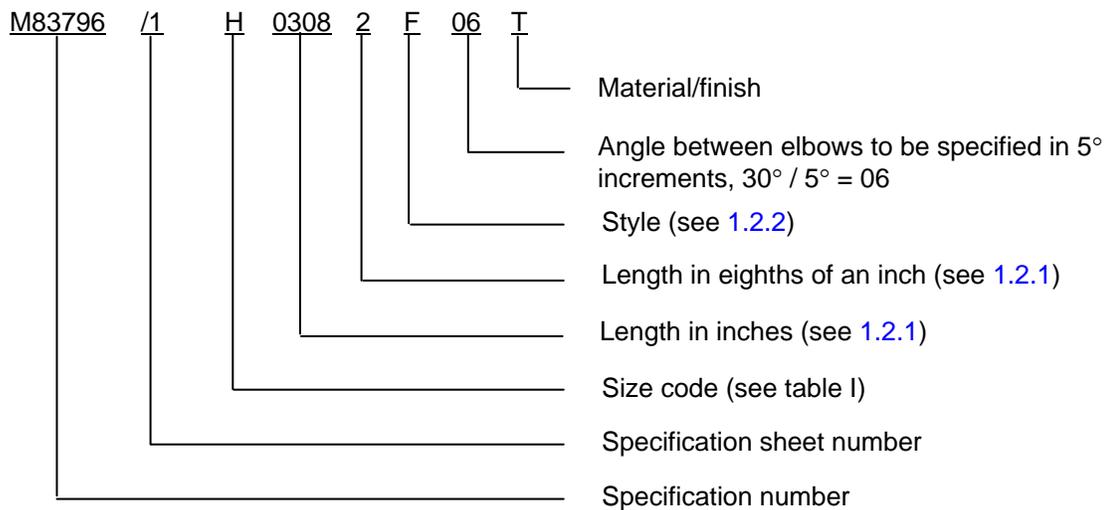
HOSE ASSEMBLY, RUBBER, LIGHTWEIGHT, MEDIUM PRESSURE,
 GENERAL SPECIFICATION FOR

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

1. SCOPE

1.1 Scope. This specification covers the requirements for hose assembly, rubber, lightweight, medium pressure. For use in fuel and lubricating oil systems operating at 200 to 1000 psi and at a temperature range -65°F to 250°F.

1.2 Part or Identifying Number (PIN). The PIN consists of the letter M, the basic specification number, a letter for fitting size, a two digit number for hose assembly length, a number for length in eighths of an inch, letter for style, a two digit number for angle between elbows, and a letter for material/finish.



Comments, suggestions, or questions on this document should be addressed to: Defense Supply Center, Columbus, Attn: DSCC-VAI, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to FluidFlow@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

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TABLE I. Size code. 1/ 2/

Dash number		-03	-04	-05	-06	-08	-10	-12	-16
Size code		B	E	F	G	H	J	K	M
Hose OD reference	Inches fraction	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
	Inches decimal	.188	.250	.313	.375	.500	.625	.750	1.000
	mm	4.78	6.35	7.95	9.53	12.70	15.88	19.05	25.40

Dash number		-20	-24	-32
Size code		N	P	R
Hose OD reference	Inches fraction	1 1/4	1 1/2	2
	Inches decimal	1.250	1.500	2.000
	mm	31.75	38.10	50.80

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

1.2.1 Lengths of hose. Lengths of hose are represented by inches (00 through 99) and fractions in 1/8 inch increments (0 thru 7).

1.2.2 Styles. Styles are shown in the individual specification sheets.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4 or 5 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, 4 or 5 of this specification, whether or not they are listed.

2.2 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 those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-5606	-	Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordinance
MIL-PRF-7808	-	Lubricating Oil, Aircraft Turbine Engine, Synthetic Base
MIL-PRF-87257	-	Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile
MIL-PRF-83282	-	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base Aircraft, Metric, NATO Code Number H-537
MIL-DTL-83797	-	Hose, Rubber, Lightweight, Medium Pressure, General Specification for
MIL-DTL-83798	-	Fitting, Rubber Hose, Lightweight, Medium Pressure, General Specification for

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(See supplement 1 for list of specification sheets.)

DEPARTMENT OF DEFENSE STANDARDS

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

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

DEFENSE SUPPLY CENTER COLUMBUS (DSCC)

- 08001 - Hose Assembly, Internal Support Coil, For Vacuum and Suction Hoses

(Copies of these documents are available online at <http://www.dscclia.mil/programs/milspec/> or from the Defense Supply Center Columbus, ATTN: VAI, P.O. Box 3990, Columbus, Ohio 43218-3990.)

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 these documents are those cited in the solicitation or contract.

AEROSPACE INDUSTRIES ASSOCIATION (AIA)

- NAS847 - Caps and Plugs, Protective, Dust and Moisture Seal

(Copies of these documents are available online at <http://www.aia-aerospace.com> or from the Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3901.)

ASTM INTERNATIONAL

- ASTM A249/A249M - Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
- ASTM D380 - Standard Test Methods for Rubber Hose

(Copies of these documents are available online at <http://www.astm.org> or from the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

NCSL INTERNATIONAL

- NCSL Z540.3 - Requirements for the Calibration of Measuring and Test Equipment

(Copies of these documents are available online at <http://www.ncsli.org> or from NCSL International 2995 Wilderness Place, Suite 107 Boulder, Colorado 80301-5404)

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

- ISO 17025 - General requirements for the competence of testing and calibration laboratories

(Copies of these documents are available online at <http://www.iso.ch> or from the International Organization for Standardization American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.)

SAE INTERNATIONAL

- SAE-AS1055 - Fire Testing of Flexible Hose, Tube Assemblies, Coils, Fittings, and Similar System Components
- SAE-AS1072 - Sleeve, Hose Assembly, Fire Protection
- SAE-AS1933 - Age Controls for Hose Containing Age-Sensitive Elastomeric Material
- SAE-AS4395 - Fitting End-Flared Tube Connection, Design Standard
- SAE-AS33514 - Fitting End, Standard Dimensions for, Flareless Tube Connection and Gasket Seal

(Copies of these documents are available online at <http://www.sae.org> or from the SAE World Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between 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 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.

3.2 First article. When specified (see 6.2), samples shall be subjected to first article inspection in accordance with 4.4.

3.3 Materials. Hose assemblies shall comprise of hoses in accordance with MIL-DTL-83797 and fittings in accordance with MIL-DTL-83798, see 4.2.1.

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.

3.4 Design and construction. The hose assembly shall be formed from a hose (see 3.4.1) coupled with end fittings (see 3.4.2) to meet the requirements specified herein and in the applicable specification sheet.

3.4.1 Hose. The hose shall be qualified in accordance with MIL-DTL-83797.

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3.4.1.1 Firesleeve. When required for fire resistance, a sleeve in accordance with SAE-AS1072 shall be furnished on the outside of the hose. Firesleeve ends shall be "end dipped" to prevent fuel or oil from wicking into the fibers. The cover need not be bonded to the outer-most reinforcement ply, but shall not be free to slip or turn along the length of hose. The cover shall permit gas that may effuse from the inner tube to escape to the atmosphere. The firesleeve shall cover all the hose and more than 2/3 of the fitting. None of the rubber hose shall be exposed.

3.4.1.2 Firesleeve clamp. Firesleeve clamps shall be stainless steel in accordance with ASTM A249/A249M alloy UNS S30400 or UNS S31600.

3.4.1.3 Internal support coil. When required for suction or vacuum an internal support coil in accordance with DSCC drawing 08001 shall be used.

3.4.1.4 Internal coil length. The coils should be cut to overall assembly length minus the nipple intrusion.

3.4.2 Fittings. The fittings shall be qualified to MIL-DTL-83798. The flared fitting shall mate with SAE-AS4395; the flareless fittings shall mate with SAE-AS33514; and the flange fitting shall mate with the mounting pad as specified on MS33786.

3.4.3 Hose assembly tolerances.

3.4.3.1 Length tolerances. Tolerances on hose assembly lengths shall be as follows:

- ±1/8 inch for lengths under 18 inches
- ±1/4 inch for lengths from 18 inches to 36 inches
- ±1/2 inch for lengths over 36 inches to 50 inches
- ±1 percent for lengths over 50 inches

3.4.3.2 Angular alignment tolerance. The angular alignment tolerance for the hose assembly elbow fitting shall be $\pm 5^\circ$ on hose lengths up to 36 inches (91.4 cm) and $\pm 10^\circ$ on hose lengths over 36 inches (91.4 cm).

3.5 Performance.

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

3.5.1.1 Cleanliness. The end fittings of the hose assemblies shall be capped or plugged and shall be free of all foreign materials, 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 hose assembly shall be within the tolerances specified herein and on the applicable drawing when examined as specified in 4.7.1.2.

3.5.2 Inner tube bulge, straight fitting. The gage shall fall freely through the bulge under its own weight without lubrication, when tested as specified in 4.7.2.

3.5.3 Proof pressure. The hose assemblies shall not show any evidence of leakage, damage, or permanent deformation of the hose or end fittings, when tested as specified in 4.7.3.

3.5.4 Leakage. The hose assemblies shall not show any evidence of leakage through the hose or around the fittings, when tested as specified in 4.7.4.

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3.5.5 Burst pressure. The hose shall not burst; the end fittings shall not become loose or separate from the hose and there shall not be any leakage from the hose or end fitting, below the specified burst pressure, when tested as specified in 4.7.5.

3.5.6 Fire resistant. When specified (see 6.2), the hose assembly shall not rupture or leak when tested as specified in 4.7.6.

3.6 Identification of product. The hose assembly shall be identified in accordance with MIL-STD-130. In addition the hose assembly shall have a permanently snug-fitting aluminum or stainless steel band around the hose near the end fitting. The band shall be designed to remain tight on the hose to prevent relative movement and resultant chafing. Where the hose assembly exceeds 4 feet in length, a band shall be attached near each end fitting of the assembly. The metal band shall be marked in raised, etched, or stamped lettering with the following information appropriately identified:

- a. Specification number and hose size.
- b. Date of assembly in month and year.
- c. The rated working pressure in psi.
- d. Manufacturer's name, trademark, or Commercial and Government Entity (CAGE) number.
- e. Manufacturer's PIN.
- f. Hose manufacturer's CAGE number if different from hose assembly manufacturer.
- g. Hose cure date, quarter and year.
- h. Fire resistant (when applicable).

3.7 Age control. Hose assemblies shall not exceed the age limits specified in SAE-AS1933. Chlorinated Polyethylene (CPE) base hose may extend the SAE-AS1933 limits and is acceptable to 12 years (48 quarters).

3.8 Cleanliness.

3.8.1 Clean. All hose lengths shall be free of oil, grease, dirt, moisture, cleaning solvents and foreign materials both internally and externally.

3.8.2 Closures. The end fittings of the hose assembly ends shall be sealed with caps or plugs conforming to NAS847 to prevent the entrance of foreign contaminants. The caps or plugs shall be securely attached and shall withstand normal strains, jarring and vibrations encountered during shipping, storage and handling. Hose lengths with uncovered ends shall be rejected and considered as failure.

3.9 Workmanship. The hose assembly, including all parts, shall be constructed and finished in a thoroughly workmanlike manner. All surfaces shall be free from burrs and sealing surfaces shall be smooth.

4. VERIFICATION

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

- a. First article inspection (see 4.4).
- b. Conformance inspection (see 4.5).

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4.2 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 used. The establishment and the maintenance of a calibration system to control the accuracy of all test and measuring equipment shall be in accordance with ISO 17025 and NCSL Z540.3, as applicable.

4.2.1 QPL manufacturers. When the hose assembly manufacturer is also listed on the QPL for the hose (MIL-DTL-83797) and fittings (MIL-DTL-83798) used for the hose assembly, first article inspection shall be waived, except for fire resistance if required, see 4.7.6.

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

4.4 First article. First article inspection shall be performed at a laboratory acceptable to the Government on sample units produced with equipment and procedures used in production.

4.4.1 Samples for first article. Unless otherwise specified, after award of the contract or order, the manufacturer shall forward three hose assemblies, 24 ± 6 inches (61 ± 15 cm) long, fabricated from random samples of the bulk hose and end fittings. The sample for the burst pressure test may be reduced to a 12 inch (30.5 cm) length to accommodate test equipment, if necessary. The samples shall be representative of the construction, workmanship, components, and materials to be used during production. When a manufacturer is in continuous production of the hose assemblies from one contract to another or has demonstrated within the past 2 years the capability to meet the requirements of this specification, inspection of additional first article samples for a new contract may be waived at the discretion of the acquiring activity (see 6.2). Approval of the first article samples or the waiving of first article inspection does not preclude the requirements for performing conformance inspection. First article samples shall be furnished to the Government as directed by the contracting officer (see 6.2).

4.4.2 Inspection routine. The sample(s) shall be subjected to the first article inspections specified in table II and in the specified sequence.

4.4.3 Failures. One or more failures shall be cause for refusal to grant first article approval.

TABLE II. First article inspections.

Inspection	Requirement paragraph	Test method paragraph
Examination of hose assembly	3.5.1	4.7.1
Cleanliness	3.5.1.1	4.7.1.1
Dimensions	3.5.1.2	4.7.1.2
Inner tube bulge	3.5.2	4.7.2
Proof pressure	3.5.3	4.7.3
Leakage <u>1/</u>	3.5.4	4.7.4
Burst pressure <u>1/</u>	3.5.5	4.7.5
Fire resistance <u>2/</u>	3.5.6	4.7.6

1/ These are destructive tests.

2/ This test shall be performed when specified by the acquiring activity (see 6.2).

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4.5 Conformance inspection.

4.5.1 Individual tests. Inspection of the product for delivery shall consist of subjecting each hose assembly to the individual tests specified in table III. Any item failing to meet the requirements of the individual tests shall be immediately removed from the lot.

TABLE III. Individual inspection. ^{1/}

Inspection	Requirement paragraph	Test method paragraph
Examination of hose assembly	3.5.1	4.7.1
Proof pressure	3.5.3	4.7.3

^{1/} 100% inspection required on all hose assemblies supplied to this specification.

4.5.2 Sampling tests. Hose assemblies, selected to form an inspection sample (see 4.5.2.1), shall be subjected to the sampling tests specified in table IV.

TABLE IV. Sampling inspection.

Inspection	Requirement paragraph	Test method paragraph
Cleanliness	3.5.1.1	4.7.1.1
Dimensions	3.5.1.2	4.7.1.2

4.5.2.1 Inspection sample. An inspection sample shall consist of hose assemblies, of one inner diameter size, randomly selected without regard to quality. Eight samples from a lot size of 3,000 hose assemblies or one sample from each smaller lot size of 375 hose assemblies shall be subjected to the sampling tests. If there has been some production but the number of hose assemblies produced has not reached 375 for a specific size within 3 years, the manufacturer shall perform sampling tests on one hose assembly of that size unless documented approval has been obtained from the acquiring activity.

4.5.2.2 Nonconformance of sampling tests. If one or more defects are found in the inspection sample, the acquiring activity 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 acquiring 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 specified 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 acquiring 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 the acquiring activity.

4.5.3 Periodic control tests plan. For each size manufactured under essentially the same conditions, periodic control testing shall be performed on either 4 samples from every 10,000 hose assembly's produced or 1 sample from every 2,500 hose assemblies. If there has been some production but the number of hose assemblies produced has not reached 2,500 for a specific size within 3 years, the manufacturer shall perform periodic control tests on 1 hose assembly of that size unless documented approval has been obtained from the acquiring activity.

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4.5.3.1 Periodic control inspection. Periodic control inspection shall be specified in table V.

TABLE V. Periodic inspection.

Inspection	Requirement paragraph	Test method paragraph
Inner tube bulge	3.5.2	4.7.2
Leakage ^{1/}	3.5.4	4.7.4
Burst pressure ^{1/}	3.5.5	4.7.5

^{1/} These are destructive tests.

4.5.3.2 Nonconformance of periodic control tests. If a sample fails a periodic control test, the acquiring activity shall be immediately notified of such failure. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the acquiring 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 acquiring activity. Furthermore, the sampling tests may be reinstated in addition to the periodic control tests if deemed applicable by the acquiring 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 the acquiring activity.

4.5.4 Disposition of test specimens. Samples that have been subjected to periodic inspection, see table V, are considered damaged and shall not be delivered as part of a contract or purchase order.

4.5.5 Discontinuation and resumption of production. If there has been no production of a specific size for a period of 3 years or more, three samples shall be randomly selected from the first lot produced when production of that size has been resumed. One of the samples shall be subjected to the sampling tests, see table IV, and the remaining two shall be subjected to the periodic control tests (see table V).

4.5.6 Acceptance of conformance inspection data. For identical requirements and test procedures, using an identical fitting, conformance inspection data in accordance with MIL-DTL-83797 or MIL-DTL-83798 may be accepted as conformance inspection data for MIL-DTL-83796, providing that documented approval has been obtained for the acquiring activity. When conformance inspection data in accordance with MIL-DTL-83797 or MIL-DTL-82798 is to be accepted as conformance inspection data for MIL-DTL-83796, two feet of bulk hose shall be considered to be the equivalent of one hose assembly.

4.6 Test conditions.

4.6.1 Temperature and pressure. Unless otherwise specified, tests shall be conducted at local ambient temperature and barometric pressure.

4.6.2 Test fluid. Unless otherwise specified, the test fluid used in testing the hose assemblies shall be water, or oil in accordance with MIL-PRF-7808, or hydraulic fluid in accordance with MIL-PRF-5606, MIL-PRF-83282, or MIL-PRF-87257.

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4.7 Test methods.

4.7.1 Examination of product. The hose assembly shall be examined for identification markings, workmanship, and whether both ends are firmly sealed with a protective device. With documented approval from the acquiring activity, statistical quality control may be used for marking and workmanship examination. Requirements shall be as specified in [3.5.1](#).

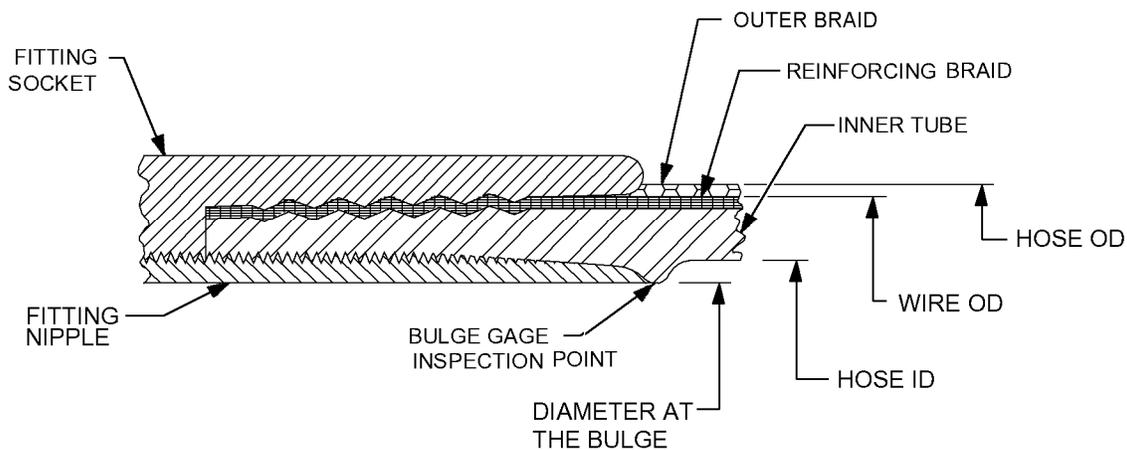
4.7.1.1 Cleanliness. The hose assembly shall be visually examined without magnification both internally and externally for conformance to the requirements specified in [3.5.1.1](#).

4.7.1.2 Dimensions. The hose assembly shall be checked dimensionally to determine conformance to the tolerances specified herein and on the applicable drawings. Conformance shall be as specified in [3.5.1.2](#).

4.7.2 Inner tube bulge, straight coupling (see [3.5.2](#)). Hoses when subjected to the bulge resistance test shall meet the requirements of [3.5.2](#). The four samples shall be checked for bulging of the inner tube and reduction of fitting nipple inner diameter caused by the attachment of end fittings. The following details shall apply:

- a. Steel ball gages shall be .001 inch (0.03 mm) of the minimum size specified on figure 1 for the applicable hose size.
- b. Without using force or lubrication, the ball shall be placed inside the samples at the bulge gage inspection point specified on figure 1.
- c. Holding the hose in a vertical orientation, the gage is inserted into the end of the hose assembly at the bulge inspection point C specified on figure 1.
- d. The ball gage shall fall through the section at the end of the adapter in the hose under its own weight without lubrication and without forcing the ball gage through the adapter-to-hose interfacing section.

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Hose size	Minimum bulge diameter inches (mm)	Hose size	Minimum bulge diameter inches (mm)
-03	.094 (2.39)	-12	.563 (14.30)
-04	.141 (3.58)	-16	.750 (19.05)
-05	.203 (5.16)	-20	1.000 (25.40)
-06	.266 (6.76)	-24	1.250 (31.75)
-08	.344 (8.74)	-32	1.625 (41.28)
-10	.469 (11.91)		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.

FIGURE 1. Inner tube.

4.7.3 Proof pressure (see 3.5.3). The hose assemblies, consisting of lengths of hose with attached fittings when subjected to proof pressure testing in accordance with ASTM D380 shall meet the requirements of 3.5.3. The following details shall apply:

- a. Proof pressure shall be specified in table VI.
- b. Test fluid shall be water or hydraulic fluid in accordance with MIL-PRF-5606, MIL-PRF-87257, or MIL-PRF-83282.

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TABLE VI. Pressure requirements of hose assemblies. 1/ 2/

Hose size	Operating pressure max psi (MPa)	Proof pressure psi (MPa)	Burst pressure (min) psi (MPa)	Operating temperature (fluid or ambient)
-03	1,000	3,000 (20.7)	6,000 (41.4)	-65°F to +250°F (-54°C to 121°C)
-04	1,000	3,000 (20.7)	6,000 (41.4)	
-05	1,000	3,000 (20.7)	6,000 (41.4)	
-06	1,000	3,000 (20.7)	6,000 (41.4)	
-08	1,000	2,500 (17.2)	5,000 (34.5)	
-10	1,000	2,500 (17.2)	5,000 (34.5)	
-12	1,000	2,000 (13.8)	4,000 (27.6)	
-16	750	1,500 (10.3)	3,000 (20.7)	
-20	500	1,300 (9.0)	2,000 (20.7)	
-24	250	800 (5.5)	1,750 (12.1)	
-32	200	600 (4.1)	1,200 (8.3)	

1/ Metric equivalents are given for information only.

2/ Assemblies having aluminum flange fittings shall be pressure tested at the rated proof pressure or 1,500 psi (10.3 MPa), whichever is less (see MS20756).

4.7.4 Leakage (see 3.5.4). Hoses when subjected to the leakage test shall meet the requirements of 3.5.4. Leakage shall be tested in accordance with ASTM D380. The following details shall apply:

- a. Two unaged samples shall be tested.
- b. Test fluid shall be water or oil in accordance with MIL-PRF-7808, or hydraulic fluid in accordance with MIL-PRF-5606, MIL-PRF-87257, or MIL-PRF-83282.
- d. Samples shall be subjected to 70% of the burst pressure, in psi, specified in table VI and held for 5 minutes.
- e. After 5 minutes, the pressure shall be released and reduced to zero psi.
- f. Then the pressure shall be raised again to 70% of the burst pressure, in psi, and held for another 5 minutes.
- g. The adjacent outer cover shall be carefully inspected during this period for any wicking or leakage of the test fluid.

4.7.5 Burst pressure (see 3.5.5). Hoses when subjected to the burst pressure test shall meet the requirements of 3.5.5. Burst shall be tested in accordance with ASTM D380. The following details shall apply:

- a. Two unaged hose assembly samples shall be subjected to the burst pressure specified in table VI.
- b. Length: In accordance with ASTM D380.
- c. Test fluid shall be water or oil in accordance with MIL-PRF-7808, or hydraulic fluid in accordance with MIL-PRF-5606, MIL-PRF-87257, or MIL-PRF-83282.
- d. The rate of pressure rise shall be 25,000 psi +0/-10,000 psi (17.2 MPa +0/-6.9 MPa) per minute.
- e. The type of failure and pressure at which the samples burst or otherwise fail shall be recorded.

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4.7.6 Fire resistance (3.5.6). When specified (see 6.2), the hose assembly shall be tested for fire resistance in accordance with SAE-AS1055, type Ia, class A. The hose assembly shall meet the requirements specified in 3.5.6. A firesleeve, see 3.4.1.1, over the hose may be used to comply with this requirement.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the Military Service's System Commands. 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 items covered by this specification are 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. The first article process ensures the items will meet the proof pressure and burst pressure requirements.

6.1.1 Military unique rationale. The hose assemblies covered by this specification are military unique hose assemblies that are made with hoses in accordance with MIL-DTL-83797 and fittings in accordance with MIL-DTL-83798. The military unique hose assemblies are intended to be used in medium pressure, -65 F to +250 F (-54°C to 121°C) hydraulic systems requiring interoperability and compatibility with associated components and equipment. The hose assemblies are required to withstand an operating pressure of 200 to 1000 psi (1.4 to 6.9 MPa). The interoperability and compatibility has been assured through strict adherence to the military detail specification requirements. Manufacturers 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.

6.1.2 Fire resistance. For aircraft hose assemblies that are partially or totally in "fire zones" must be firesleeved.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification and applicable specification sheet.
- b. PIN (see 1.2).
- c. Whether fire resistance is required (see 3.4.1.1 and 4.7.6).
- d. If first article is required (see 3.2).
- e. Name and address of the first article inspection test facility to which first article samples are to be forwarded (see 4.4.1) and the name and address of the Government activity responsible for conducting the first article inspection program (see 6.3).
- f. Packaging requirements (see 5).
- g. Shelf life requirements (see 6.2.1).

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6.2.1 Shelf life. This specification covers items where the assignment of a Federal shelf-life code is a consideration. Specific shelf-life requirements should be specified in the contract or purchase order, and should include, as a minimum, shelf-life code, shelf-life code, shelf-life package markings in accordance with MIL-STD-129 or FED-STD-123, preparation of a materiel quality storage standard for type II (extendible) shelf-life items, and a minimum of 85 percent shelf-life remaining at time of receipt by the Government. These and other requirements, if necessary, are in DoD4140.27-M, *Shelf-life Management Manual*. The shelf-life codes are in the Federal Logistics Information System Total Item Record. Additive information for shelf-life management may be obtained from DoD 4140.27-M, or the designated shelf-life Points of Contact (POC). The POC should be contacted in the following order: (1) the Inventor Control Points that manage the item and (2) the DoD Service and Agency administrators for the DoD Shelf-Life Program. Appropriate POCs for the DoD Shelf-Life Program can be contacted through the DoD Shelf-Life Management website: <http://www.shelflife.hq.dla.mil/>.

6.3 First article. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first article samples. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.3.1 Defense Logistics Agency (DLA) waiver of first article test. A waiver of a first article testing will only be considered by DLA when the contractor has delivered the same item within the last 3 years, has no unfavorable quality history, has not changed processes, or changed any subcontractors. DLA will not accept first article testing results outside the stated requirements.

6.4 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmentally Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals is available on their website at <http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm>. Further information is available at the following EPA site: <http://www.epa.gov/epaoswer/hazwaste/minimize/>. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of the materials on the list should be minimized or eliminated unless needed to meet the requirements specified herein (see section 3).

6.5 Guidance on use of alternative parts with less hazardous or nonhazardous materials. This specification provides for a number of alternative plating materials via the PIN. Users should select the PIN with the least hazardous material that meets the form, fit and function requirements of their application.

6.6 Subject term (key word) listing.

- Abrasion resistant
- Fire resistant
- Fuel systems
- Lubricating oil systems
- Oil resistant
- Oil systems
- Safety wire
- Suction

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6.7 Changes from previous issues. 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 - AV
Navy - AS
Air Force - 99
DLA - CC

Preparing activity:

DLA - CC

(Project 4720-2007-068)

Review activities:

Army - AT
Navy - MC, SA
Air Force - 71, 85

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>.