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## MILITARY SPECIFICATION

### HOSE ASSEMBLY, RUBBER, AERIAL REFUELING

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

#### 1. SCOPE

1.1 Scope. This specification contains the design and test requirements of flexible hose assemblies for use in aerial refueling systems.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### Federal

QQ-W-428	Wire, Steel, Carbon (High Carbon, Round, for Mechanical Springs, General Purpose)
TT-S-735	Standard Test Fluids, Hydrocarbon
PPP-B-591	Boxes, Shipping, Fiberboard, Wood-Cleated

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to the Naval Air Engineering Center, Systems Engineering and Standardization Department (Code 93), Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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## SPECIFICATIONS (Continued)

Military

MIL-P-116	Preservation, Methods of
MIL-T-5624	Turbine Fuel, Aviation, Grades, JP-4 and JP-5
MIL-M-6002	Marking, Standard Hose, Aircraft

## STANDARDS

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109	Quality Assurance Terms and Definitions
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-143	Standards and Specifications, Order of Precedence for the Selection of
MIL-STD-831	Test Reports, Preparation of
MIL-STD-1523	Age Controls of Age-Sensitive Elastomeric Material
MS24358	Fitting, Hose End-Type MA-2, Flight Pressure Refueling, Reception Coupling, Outline Dimensions for (ASG)

Publications

MIL-BUL-544	List of Specifications and Standards (Book Form) Approved by the Naval Air Systems Command
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2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

American Society for Testing and Materials (ASTM)

ASTM D380	Rubber Hose Testing
ASTM D412	Rubber Properties in Tension
ASTM D413	Rubber Property - Adhesion to Flexible Substrate
ASTM D471	Rubber Property - Effect of Liquids

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(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

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

2.3 Order of precedence of specifications and standards. Should a conflict exist between any requirement in this specification and any requirement in the applicable documents referenced herein, the requirements of this specification shall take precedence over the referenced (applicable) document.

### 3. REQUIREMENTS

3.1 First article. The hose assembly furnished under this specification shall be a product which has been inspected and passed the first article inspection specified herein (see 4.3).

3.1.1 Materials. The hose shall be uniform in quality, free from defects in materials and conform to applicable specifications.

3.1.1.1 Recycled, virgin, and reclaimed materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and shall be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specified.

3.1.2 Selection of specifications, standards, and drawings. Specifications, standards, and drawings applicable to the design and construction of naval aircraft shall be in accordance with those documents listed in Military Bulletin 544, approved by the Naval Air Systems Command and takes precedence in accordance with MIL-STD-143.

### 3.2 Construction.

3.2.1 Hose. The hose shall consist of a seamless compounded inner tube, breaker fabric, a spiral of high tensile wire, synthetic rubber layer, a braid of high tensile steel wire, and compounded cover. The hose shall be suitable for transfer of fuels conforming to MIL-T-5624, grades JP-4 and JP-5, and for use in conditions where hydraulic fluids will be present, in atmospheric conditions of salt spray and prolonged high humidity.

3.2.2 Tube. The tube shall be a continuous extrusion or calendered lay-up of not less than two plies of a high aromatic aviation fuel-resistant synthetic rubber compounded with the necessary ingredients to meet the

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requirements of this specification. The bore shall be smooth, clean, free from pitting, and of a uniform thickness of not less than 0.045 inch.

3.2.2.1 Strength. The original tensile strength shall be not less than 1250 psi and elongation 250 percent. After aging test fluid in accordance with specification TT-S-735, Type III for 72 hours at 75°F, the tensile strength shall be not less than 600 psi and the elongation 150 percent.

3.2.2.2 Volume. The volume increase of the hose tube after 72 hours immersion in test fluid in accordance with specification TT-S-735, Type III at 75°F shall not exceed 30 percent.

3.2.3 Carcass. The carcass shall consist of a coated leno breaker fabric, helically wound galvanized wire, acrylonitrile build compound, and high tensile steel wire braid. This reinforcement shall be well, evenly, and firmly applied, shall be free from defects or irregularity, and shall be in keeping with best manufacturing standards.

3.2.3.1 Breaker fabric. The breaker fabric shall be maximum of 0.030 inch thick and shall consist of filament type nylon leno fiber cloth or equivalent fabric breaker material and shall be treated with RFL and coated with butadiene acrylonitrile.

3.2.3.2 Helical wire. The helical wire shall be a continuous spiral round steel wire per specification QQ-W-428, Type II, Class I, galvanized or copperized.

3.2.3.3 Build compound. The build compound shall consist of spiraled layers of butadiene acrylonitrile.

3.2.3.4 Wire braid. The wire braid shall be 0.012 inch diameter carbon steel wire with a tensile range of 350,000 to 400,000 psi and shall have a brass, copperized or chemical finish.

3.2.4 Cover. The cover shall be constructed of a weather and fluid resistant rubber compounded to meet the requirements of this specification. It shall be smooth, free from pitting, and of a uniform thickness of not less than 3/64 inch.

3.2.4.1 Strength. After aging in test fluid in accordance with specification TT-S-735, Type III for 72 hours at 75°F, the tensile strength shall be not less than 400 psi and shall not have been reduced more than 55 percent of the original strength.

3.2.4.2 Elongation. The original ultimate elongation shall be not less than 200 percent. After immersion in test fluid conforming to specification TT-S-735, Type III for 72 hours at 75°F, the ultimate elongation shall be not less than 100 percent.

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3.2.4.3 Volume. The volume increase of the cover after 72 hours immersion in test fluid conforming to specification TT-S-735, Type III at 75°F shall not exceed 60 percent.

3.2.5 Design.

3.2.5.1 Electrical continuity. The hose shall be electrically continuous throughout its full length. The wire braid or helical wire shall be used to demonstrate the hose continuity; however, continuity must also be demonstrated through the end fittings when attached.

3.2.5.2 Adhesion. The original adhesion of the hose tube and outer cover shall be at least 12 pounds per inch when tested in accordance with ASTM D380. After 72 hours immersion in test fluid TT-S-735 Type III at 75 ± 5°F, the adhesion of the tube to outer cover shall be not less than 5 pounds per inch, when tested within 5 minutes after removal from the test fluid.

3.2.5.3 Crush resistance. The outside diameter of the hose shall not be compressed more than 10 percent when subjected to a weight of 1500 pounds distributed evenly over a one foot longitudinal section.

3.2.5.4 Flexibility. The hose shall be capable of being wound on a drum diameter which is six times the nominal inside diameter of the hose or 12 inches, whichever is greater, without cross-sectional deformation at a load of 1200 pounds.

3.2.5.4.1 Low temperature flexibility. The hose shall be capable of being repeatedly wound about a drum of a diameter equal to that determined in the preceding paragraph after soaking at -65°F for 24 hours. The cold soak must start with the hose bent on the drum. The hose shall develop no cracks and shall meet the applicable pressure requirements.

3.2.5.5 Diameter. The nominal inside diameter shall be as required to meet the requirements of the aerial refueling system. The minimum inside diameter shall be 1-1/2 inches and shall increase in increments of 1/8 inch. The outside diameter shall be the minimum to meet requirements of this specification and the intended aerial refueling system. The diameters of the hose shall be established during qualification of the refueling system and shall be controlled for all future production.

3.2.5.6 Length. The length of the hose assembly shall be as required by the intended aerial refueling system and shall include end fittings. The hose shall have no splices or joints over the continuous length. Tolerances shall be such that replacement of a hose in the aerial refueling system will not affect the operation of the system nor require readjustment of the system. The length shall be measured from the extreme ends of the fittings.

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3.2.5.7 Weight. The weight per foot of the hose shall be the minimum required to meet the requirements of this specification and the intended aerial refueling system. The actual weight of the hose shall be established during qualification of the refueling system and shall be tightly controlled for all future productions.

3.2.5.8 End fittings. The hose end fittings shall be of the permanently swaged type. The end fittings shall be installed in such a manner as to make the hose assembly electrically continuous. The end fitting which is to mate with the aerial refueling reception coupling shall be in accordance with MS24358. The end fitting connecting to the tanker hose stowage system shall be as specified by the acquiring activity. The end fittings shall be of corrosion-resistant steel. Cements, sealants, or adhesives shall not be used in the installation of end fittings. The end fittings shall have a smooth bore. The fitting shall be so constructed as to insure a tight grip on the hose. The outer body shall have a rounded outer edge to prevent cutting of the hose during installation or upon sharp bending. The inner sleeve shall also be free of sharp edges to prevent cutting of the hose during installation or upon sharp bending.

3.2.5.8.1 Bulge. The installation of the hose end fittings shall not cause the hose inner tube to bulge or reduce the inside diameter of the hose to less than the inside diameter of the end fitting.

3.2.5.8.2 Gages. Necessary gages to properly measure the critical dimensions of the end fittings to assure conformance to the specified contours shall be made available to the Government Inspector. The accuracy of these gages shall be certified in a manner satisfactory to the Government Inspector.

3.2.5.9 Strength. The hose assembly shall not break nor shall its end fittings pull loose when subjected to the ultimate loads. The design limit loads shall be determined by the maximum aerodynamic drag of the hose, reception coupling and drogue of the system at the maximum design carriage speed for the store or 1500 pounds for up to 2 inches I.D. and 2000 pounds over 2 inches I.D., whichever is higher. The proof load shall be 1-1/2 times the design limit load. The ultimate load shall be 2-1/2 times the design limit load.

3.2.5.10 Concentricity. A ball with a diameter of 94.6 percent of the hose nominal inside diameter shall be able to pass freely through the hose while subjected to a vacuum of 20 inches of mercury.

3.2.5.11 Elongation. The elongation when subjected to the proof tensile load shall not exceed 4.0 percent. The elongation or permanent elongation shall have no effect on the aerial refueling system cooperation. The designer of the aerial refueling system must specify any stricter requirements if needed for the system operation.

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3.2.5.11.1 Permanent elongation. The permanent elongation shall not exceed the following values at the conditions specified:

- a. 1.5 percent of total length when subjected to proof load for a period of one hour.
- b. 2.0 percent of total length when subjected to proof load for 10 second duration repeated 500 times.

3.2.5.12 Pressure. The design operating pressure shall be 120 psig or higher if specified by the aerial refueling system designer. The proof pressure shall be two times the operating pressure, and the burst pressure shall be three times the operating pressure. The hose assembly shall be satisfactory for surge pressures generated by a 0.2 second closing (constant rate) gate valve closing against full flow at 50 psig at a distance of 5 feet from the outlet end of the hose.

3.2.5.12.1 Alternate pressure. As an alternate to the above, the proof pressure may be a hydrostatic pressure test of 500 psig for 5 minutes and an ultimate hydrostatic pressure of 1000 psig for 1 minute without showing any sign of failure or leakage.

3.2.5.13 Pressure drop. The pressure drop shall be the minimum consistent with quality hose manufacture. The maximum allowable pressure drop shall be specified for the specific aerial refueling system. The actual pressure drop shall be determined for the rated flow of the system and shall be recorded as psi per foot of length based on JP-5 in accordance with MIL-T-5624 at a specific gravity of 0.845.

### 3.3 Marking.

3.3.1 Hose identification. Each length of hose shall have a continuous red marking strip, resistant to fuel in accordance with MIL-M-6002, and approximately 3/8 inch wide running the entire length of hose. The cure date, serial number, part number, and manufacturer's code identification number shall be indicated by permanent type marking at three locations (the center of each length and 4 feet from each end).

3.3.2 Cure date. The cure date shall be indicated in quarters of year and year; i.e., 3/81 which indicates July through September 1981.

3.3.3 Color and markings. The hose shall be black in color with white weather-resistant neoprene rubber bands vulcanized into the hose at the following intervals: every 10 feet  $\pm 6$  inches a 12 inch band for the full length of the hose, the first of which shall be 11 feet from the reception coupling end fitting; throughout the nominal fuel flowing range between each 12 inch wide band there shall be 4 bands 3 inches wide spaced at 2 foot  $\pm 1$  inch intervals from the center of the wide bands.



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3.4 Age. Age controls for the hose shall be in accordance with MIL-STD-1523.

3.5 Workmanship. The workmanship displayed in fabrication and assembly of the hose assemblies shall be such as to assure, within design limitations, the ability of the hose assemblies to meet their performance requirements under all applicable environmental conditions specified herein. The standards of workmanship exhibited in the approved first article sample, subject to any qualification stated in the Government's notice of approval, shall be determinative of the requirements of the contract relative to workmanship.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of inspections. The inspections of the hose assemblies shall be classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. The first article test unit shall be produced to production drawings, utilizing production manufacturing techniques and production tooling and equipment. The first article test unit shall be manufactured with an extended 7-1/2 foot length. The first article inspection shall consist of all inspections indicated in Table I in the order listed. The first article inspection report format shall be in accordance with MIL-STD-831 (see 6.3).

4.4 Quality conformance inspection. Quality conformance inspection shall consist of the following inspections:

- a. Individual inspections (see 4.4.1).
- b. Sampling inspections (see 4.4.2).

4.4.1 Individual inspections. Individual inspections are those inspections conducted on each hose assembly. Individual inspections shall consist of the inspections in Table II in the order listed. Failure to pass any of these inspections shall be cause for rejection of the hose assembly.



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TABLE I. First article and sampling inspections.

Tests	Test paragraph	Inspection	
		First article	Sampling
<u>Full Length Specimen</u>			
Examination of Product	4.6.1	X	X
Concentricity/Bulge	4.6.3, 4.6.4	X	X
Proof Pressure	4.6.2	X	X
Electrical Continuity	4.6.5	X	X
Pressure Drop	4.6.6	X	
Elongation	4.6.7	X	X
Permanent Elongation	4.6.7.1	X	X
Strength	4.7	X	X
<u>7-1/2 Foot Section</u>			
Flexibility	4.8, 4.8.1	X	
Crush Resistance	4.9	X	
Adhesion	4.10	X	

TABLE II. Individual inspections.

Tests	Test paragraph
Examination of Product	4.6.1
Concentricity	4.6.3
Proof Pressure	4.6.2
Strength (proof load)	4.7
Elongation	4.6.7
Electrical Continuity	4.6.5

4.4.2 Sampling inspections. The contractor shall furnish samples from each lot for inspections indicated in Table I in the order listed. The hoses shall be selected by the Government Inspector without preliminary inspection or repair. For the purpose of this paragraph, the lot size shall be set by the contractor, consistent with production and test capabilities, which will meet the contract delivery schedule and be in accordance with MIL-STD-105 inspection level S-1, acceptance number zero, Acceptance Quality Level 6.5. Sample hoses shall be in addition to the contract quantity. The contractor shall manufacture all hoses in each lot prior to the selection of the sample hoses to be tested and hoses in that lot shall not be shipped until satisfactory completion of the tests. Failure of a hose to pass all sampling tests shall be cause for rejection of all hoses in that lot. Sampling inspection report format shall be in accordance with MIL-STD-831 (see 6.3).

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4.5 Test conditions.

4.5.1 Atmospheric conditions. Unless otherwise specified, all tests shall be at an atmospheric pressure of 28 to 32 inches of mercury at a temperature of  $25 \pm 10^{\circ}\text{C}$  and a relative humidity of 90 percent or less.

4.5.2 Temperature stabilization. All parts of the item shall be completely stabilized at the specified temperature prior to conducting any tests.

4.5.3 Test measurements. All measurements shall be made with instruments on which accuracy has been verified on a current basis by methods or test agencies acceptable to the acquiring activity.

4.5.4 Test fluids. Test fluids conforming to TT-S-735, Type III may be used in lieu of JP-4/5.

4.6 Test methods.

4.6.1 Examination of product. The hoses shall be examined to determine conformance with all requirements of the specification with respect to materials, workmanship, design, construction, finishes, markings, and applicable drawings. Each predesignated length of hose shall be of sufficient additional length to provide test samples to accomplish the testing described in paragraphs "a" through "c" below. The examinations described in paragraphs "d" through "i" below shall be accomplished on each length of hose that is to be delivered on the contract.

- a. Physical properties of tube stock per 3.2.2, 3.2.2.1, and 3.2.2.2.
- b. Physical properties of cover stock per 3.2.4, 3.2.4.1, 3.2.4.2, and 3.2.4.3.
- c. Adhesion between tube and cover per 3.2.5.2.
- d. Diameter per 3.2.5.5.
- e. Length per 3.2.5.6.
- f. Weight per 3.2.5.7.
- g. Marking per 3.3.1 through 3.3.3.
- h. Any indication of splices or joints (hose to be continuous length).
- i. Bulge or flat spots.

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4.6.2 Proof pressure. The hose shall be tested to the proof pressure specified in 3.2.5.12 or 3.2.5.12.1 in accordance with ASTM D380. This pressure may be applied by any convenient hydrostatic means and shall be maintained for 5 minutes  $\pm$  15 seconds. There shall be no sign of failure, leakage, or excessive deformation.

4.6.3 Concentricity. The concentricity of the hose shall be tested for compliance with 3.2.5.10 prior to installation of the end fittings. The hose shall be subjected to a vacuum of 20 inches of mercury during this test. The steel ball must travel through the entire hose length without hesitation or stopping.

4.6.4 Bulge. After attachment of the end fittings, the hose shall be checked for compliance with 3.2.5.8.1 by means of an inside caliper or other appropriate means. The bulge of the inner tube at the inside edge of the coupling shall not have an inside diameter less than the inside diameter of the end fitting.

4.6.5 Electrical continuity. The electrical continuity shall be checked by means of a volt-ohm meter. With a meter lead attached to each end fitting and the meter set to the ohms scale, the meter shall indicate a resistance of less than 0.02 ohms per foot of hose length.

4.6.6 Pressure drop. The test setup shall be capable of providing continuous flow at the flow rate of the refueling system. The contractor shall demonstrate compliance with system requirements for pressure drop.

4.6.7 Elongation. The proof tensile load shall be applied and held for 10 minutes. The elongation shall not exceed 4 percent of the original length of the hose measured under 4.6.1.

4.6.7.1 Permanent elongation. The proof tensile load shall be applied and held for one hour and then released. The length shall be measured within 3 minutes of release of the tension load and the elongation shall not exceed 1.5 percent of the original length of the hose measured under 4.6.1. The proof tensile load shall then be applied at 10 second intervals and held for 10 seconds for a total of 500 applications of the load. The length shall be measured within 3 minutes of releasing the last load application and the elongation shall not exceed 2.0 percent of the original length of the hose measured under 4.6.1. If the aerial refueling system has stricter requirements to assure proper system operation, then those requirements must be met.

4.7 Strength. The test setup shall be such that both end fittings are subjected to the tension loads through connections similar to the intended service use; i.e., through threads or flanges or other as appropriate. The tensile load shall be applied at the rate of one inch per minute. The hose and

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fittings shall withstand the ultimate loads without breaking or end fittings pulling loose. The hose shall then be loaded until failure and the mode of failure and load shall be recorded.

4.8 Flexibility. A 5 foot section of hose is cut from the 7-1/2 foot section of hose. The 5 foot section of hose shall be wrapped around a drum having a diameter of six times the nominal hose inside diameter or 12 inches, whichever is greater. A tensile load of 1200 pounds shall be applied to the hose while wrapped on the drum and no cross-sectional deformation of the hose shall occur.

4.8.1 Low temperature flexibility. The 5 foot section of hose shall be bent into a U shape about a drum having the same diameter as in the above flexibility test in such a manner that the arms of the U are parallel. The hose, after stabilizing at -65°F for 24 ±2 hours, shall be straightened to a 90 degree angle within one minute by any convenient measurable means, and the force in pounds required shall be recorded and shall not exceed 70 pounds. This shall be repeated 5 times while maintaining the -65°F temperature. The hose shall then be straightened to a 180 degree angle and be subjected to the burst pressure of 3.2.5.12 without leaks. The hose shall then be split longitudinally at the most critical flex point and any signs of cracking shall be cause for rejection.

4.9 Crush resistance. The crush resistance shall be determined by centering a 2-1/2 foot length of hose between two firm 12 inch metal plates. The plates shall be brought together at a rate of 1 inch per minute until a load of 1500 pounds has been applied and the load shall be held for 3 minutes. The distance of the plates when just touching the hose and zero load applied shall be recorded as  $D_1$ . The distance between the plates after 3 minutes of the full load shall be recorded as  $D_2$ . The percent compression shall not exceed 10 percent when calculated as follows:

$$\frac{D_1 - D_2}{D_1} \times 100 = \text{percent compression}$$

4.10 Adhesion. Strip specimens of the original hose shall be tested for adhesion between the tube and cover in accordance with ASTM D413 machine method. The adhesion shall not be less than 12 pounds per inch when the jaws are separated at 2 inches per minute. The test shall also be conducted on strip specimens from a hose section that has been immersed in test fluid TT-S-735 Type III for 72 hours at 75 ±5°F. The test specimens shall be cut from the hose within 30 minutes after removal from the test fluid. The adhesion shall be the same as that for the original hose.

4.11 Physical properties.

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4.11.1 Tensile strength and elongation. The tube and cover test specimens used for obtaining these properties shall be dumbbell specimens, die C as described in ASTM D412. The tube specimens shall be buffed to a thickness which is not less than 0.050 inches. The specimens shall be tested in accordance with with ASTM D412 before and after immersion in test fluid conforming to TT-S-735 Type III for 72 hours at  $75 \pm 5^\circ\text{F}$ . The post-immersion tests shall be conducted within 5 minutes after removal from the test fluid, and the tensile strength calculation shall be based on the thickness of the test specimen before immersion. The tube strength and elongation shall meet the requirements of 3.2.2.1. The cover strength and elongation shall meet the requirements of 3.2.4.1 and 3.2.4.2.

4.11.2 Volume. Specimens of the hose tube and cover shall be tested for volume change due to immersion in fluid conforming to TT-S-735 Type III in accordance with ASTM D471. Specimens shall be immersed for 72 hours at  $75 \pm 5^\circ\text{F}$ . The tube and cover shall meet the requirements of 3.2.2.2 and 3.2.4.3, respectively.

4.12 Inspection of packaging. The inspection of preservation and packaging shall be in accordance with the document requirements of those specified in Section 5.

## 5. PACKAGING

5.1 Preservation. Each hose shall be preserved in accordance with MIL-P-116, Method IC-4.

5.2 Packaging. Each hose shall be packed in a container in accordance with PPP-B-591.

5.3 Marking. Marking for shipment and storage shall be in accordance with MIL-STD-129.

5.4 Shipping. Shipment of hoses shall be within 2 quarters of cure date.

## 6. NOTES

6.1 Intended use. The hose assembly covered by this specification is intended to be used in the aerial refueling of aircraft.

6.2 Ordering data. Acquisition documents shall specify the following.

6.2.1 Acquisition requirements.

- a. Title, number, and date of this specification.
- b. Inside diameter (see 3.2.5.5).

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- c. Length (see 3.2.5.6).
- d. End fittings (see 3.2.5.8).
- e. Strength (see 3.2.5.9).
- f. Pressure drop (see 3.2.5.13).
- g. Color and markings (see 3.3.3).
- h. Samples subjected to sampling inspection shall not be considered or accepted as part of the contract (see 4.4.2).
- i. Name and location of Government representative responsible for random selection of inspection samples (see 4.4.2).
- j. Selection of applicable levels of preservation, packaging, and packing required (see 5.1 and 5.2).
- k. Items of data required (see 6.3).

6.2.2 Contract provision. Contracts shall specify the following provision for first article inspection.

6.2.2.1 First article inspection. When a first article is required for inspection and approval (see 3.1, 4.3, 6.2, and 6.3), the contract shall specify the following provision for first article inspection. When a contractor is in continuous production of hose assemblies from contract to contract, consideration should be given to waive the first article inspections. If inspection is required, indicate:

- a. If first article inspections are conducted at the contractor's plant or a Government approved laboratory, an inspection report shall be forwarded to the acquiring activity for verification.
- b. That the approval of first article samples or the waiving of the first article inspection shall not relieve the contractor of his obligation to fulfill all other requirements of the specification and contract.

6.3 Contract data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423 and invokes the provisions of 7-104.9(n) of the Armed Services Procurement Regulations, the data requirements identified below will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (DD Form 1423) incorporated into the

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contract. When the provisions of ASPR-7-104.9(n) are not invoked, the data specified below will be delivered by the contractor in accordance with the contract requirements. Deliverable data required by this specification is cited in the following paragraphs:

<u>Paragraph</u>	<u>Data Requirement</u>	<u>Applicable DID</u>
4.3	First Article Inspection Reports	DI-T-5329 - Inspection Test Reports
4.4	Quality Conformance Inspection Reports	DI-T-5329 - Inspection Test Reports

(Copies of Data Item Descriptions required by the contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

6.4 Quality assurance definitions. Definitions for quality assurance terms are in accordance with MIL-STD-109.

Custodians:  
Navy - AS  
Air Force - 99

Preparing activity  
Navy - AS  
Project No. 4720-0689

Review activities:  
Air Force - 11  
DLA - CS



**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification 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.

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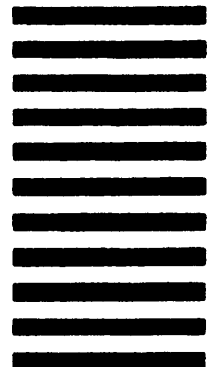
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1. DOCUMENT NUMBER		2. DOCUMENT TITLE	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
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5. PROBLEM AREAS			
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