INCH-POUND

MIL-DTL-29210D
9 May 2003
SUPERSEDING
MIL-DTL-29210C
7 November 1997

DETAIL SPECIFICATION

# HOSE ASSEMBLY, RUBBER, METAL LINED, WIRE REINFORCED, 250 PSIG, SATURATED STEAM SERVICE

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

## 1. SCOPE

1.1 Scope. This specification covers metal lined, wire reinforced, rubber-hose assemblies for conveyance of saturated steam. The working pressure of this hose is 250 pound-force per square inch gauge (psig) (1724 kilopascal (kPa (gauge)) at a temperature of 406°F (208°C).

1.2 Classification. Hose assemblies will be of the sizes and styles as specified in the Part or Identifying Number (PIN) or see 6.2.

1.2.1 PIN. The PIN consists of the following form:

| M29210 | 25 | 200 | MF |
|---|---|---|---|
| Specification number | Length in feet (see 3.3) | Hose size code number (see 1.2.2) | Hose end fitting code (see 1.2.3) |

1.2.2 Hose size. Hose size is designated by a three-digit code number (see table I).

TABLE I. Hose size code number.

| Hose size code number | 075 | 100 | 125 | 150 | 200 |
|---|---|---|---|---|---|
| Hose size, inside dimensions in inches (mm) | 0.75 (19) | 1.0 (25) | 1.25 (32) | 1.5 (38) | 2.0 (51) |

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 FSC 4720

1.2.3 Hose end fittings. Hose end fittings are designated by two code letters (see table II).

TABLE II. Hose end fittings.

| End fitting code letters | MF | FF | MM |
|---|---|---|---|
| End fitting arrangement | Male one end female other end | Female both ends | Male both ends |

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, standards, handbooks. The following specification, standards, and handbooks 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).

STANDARDS

FEDERAL

FED-STD-H28 - Screw-Thread Standards for Federal Services.
FED-STD-162 - Hose, Rubber, Visual Inspection Guide For.

DEPARTMENT OF DEFENSE

MIL-STD-104 - Limits for Electrical Insulation Color.

(Unless otherwise indicated, copies of the above standards are available from the Defense Printing Service Detachment Office, Building 4D, Customer Service, 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 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 SOCIETY OF MECHANICAL ENGINEERS

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

(Application for copies should be addressed to the American Society of Mechanical Engineers, 3 Park Avenue, New York, NY 10017.)

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ASQC-Z1.4 - Procedures, Sampling and Tables for Inspection by Attributes.

(Application for copies should be addressed to the American Society of Quality, 600 North Plankinton Avenue, Milwaukee, Wisconsin, 53203.)

ASTM INTERNATIONAL

| | | |
|---|---|---|
| ASTM A47 | - | Ferritic Malleable Iron Castings. |
| ASTM A48 | - | Gray Iron Castings. |
| ASTM A536 | - | Ductile Iron Castings. |
| ASTM D380 | - | Hose, Rubber. |
| ASTM D518 | - | Rubber Deterioration – Surface Cracking. |
| ASTM A751 | - | Practices, and Terminology for Chemical Analysis of Steel Products. |
| ASTM D1149 | - | Rubber Deterioration – Surface Ozone Cracking in a Chamber. |

(Application for copies should be addressed to the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, 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 First article. When specified (see 6.2), a complete sample steam hose shall be subjected to first article inspection (see 6.3) in accordance with 4.2.

3.2 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible 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. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.2.1 Wire reinforcement. Reinforcement wire shall be stainless steel, brass- or zinc-plated high tensile carbon steel wire, as specified (see 6.2).

3.2.2 Coupling components. Unless otherwise specified (see 6.2), all coupling components, except washers and contact surface inserts, shall be cold-rolled steel bar stock or malleable iron in accordance with ASTM A47, grade 32510, or ductile iron in accordance with ASTM A536, grade 60-40-18 or grade 65-45-12, and shall be protected with a corrosion-resisting coating. Gray iron castings in accordance with ASTM A48 shall not be acceptable.

3.3 Length. The hose shall be furnished in nominal 25- or 50-foot (7620 or 15240 mm) lengths, exclusive of the couplings, as specified (see 6.2). A tolerance of ±1 percent shall be permitted when tested as specified in 4.7.1.1.

3.4 Construction. The hose assembly shall be constructed as specified in tables I, II, III and IV, and 3.4.1 through 3.4.3.

TABLE III. Physical requirements for hoses without liner.

| Size, inside diameter in inches (mm) | 0.75 (19) | 1.0 (25) | 1.25 (32) | 1.5 (38) | 2.0 (51) |
|---|---|---|---|---|---|
| Tolerance, inside diameter, plus or minus inch (mm) | +0.039 (+ 1) -0.016 (-0.41) | +0.047 (+1) -0.016 (-0.41) | +0.063 (+2) -0.016 (-0.41) | +0.063 (+2) -0.016 (-0.41) | +0.063 (+2) -0.016 (-0.41) |
| Outside diameter, minimum inches (mm) | 1.28 (33) | 1.56 (40) | 1.84 (47) | 2.06 (52) | 2.63 (67) |
| Weight per foot, maximum pound (kilogram/meter (kg/m) | 0.80 (1.119) | 1.0 (1.49) | 1.32 (1.96) | 1.80 (2.69) | 2.10 (3.13) |

TABLE IV. Physical requirements for metal liner.

| Hose size, inside diameter in inches (mm) | Metal liner, inside diameter minimum in inches (mm) | Metal liner, thickness, minimum in inches (mm) |
|---|---|---|
| 0.75 (19) | 0.56 (14) | 0.010 (0.25) |
| 1.00 (25) | 0.81 (21) | 0.010 (0.25) |
| 1.25 (32) | 1.00 (25) | 0.010 (0.25) |
| 1.50 (38) | 1.25 (32) | 0.013 (0.33) |
| 2.00 (51) | 1.75 (44) | 0.015 (0.38) |

3.4.1 Hose body. The hose shall consist of the following:

a. A heat-resistant inner tube, properly compounded to resist saturated steam that shall not blister, pit, flake, peel, or popcorn when tested as specified in 4.7.2.4.

b. The hose shall be reinforced by two or more stainless steel, brass- or zinc-plated high tensile carbon steel wire braids or spirals with a layer of rubber between each braid or spiral.

c. A heat-resistant, abrasion-resistant, and ozone-resistant rubber cover. The cover on the hoses shall be perforated after cure with not less than 260 holes per 36-inch (914 mm) hose length, e.g. in four rows radially spaced at 90 degrees around the periphery.

3.4.2 Metal liner. The stainless steel metal inner liner shall be unpacked, fully interlocked, four-wall, flexible tubing. There shall be no sharp edges or burrs on the ends of the metal liner to cause damage to the tube during assembly or in service. The liner shall be allowed to float free within the hose. The physical requirements for the liner shall be as specified in table IV (see 6.4). The liner shall extend along the entire length of the assembly. The metal liner shall be type 302, 304, 316, or 321 stainless steel.

3.4.3 End fittings. Unless otherwise specified (see 6.2), each length of hose shall have a male hose fitting on one end and a female hose fitting on the other end. The hose fittings shall be of the long shank, interlocking clamp type, having fingers or lugs on each half of the clamp to grip the collar on the stem. The fittings shall prevent the stem shank from being pulled forward in relation to the clamp. Each clamp half shall interlock with the other half. Coupling components shall consist of a serrated stem with a raised continuous collar, a swivel nut and spud (for female section). Coupling components shall also consist of a two-part interlocking type clamp with two bolts for the 0.75-inch (19 mm) size hose and four bolts for the larger size hoses. The seating surface of the female stem shall be round to fit the beveled copper insert or polymer insert in the female spud, as specified (see 6.2). There shall be no sharp edges on the nipples or the clamps to cause damage to the tube or cover. When assembled, there shall be provisions for additional takeup of clamps in service.

3.4.3.1 Special stem design. The male and female stems shall be designed with rib type right hand spirals at the end of the stem to screw into the stainless steel liners providing positive gripping and retention. The pitch of the rib type spirals shall be 0.312-inch (8 mm) for the 1.5-inch (38 mm) and 2-inch (51 mm) hose fittings and 0.25-inch (6 mm) for the 0.75-inch (19 mm), 1-inch (25 mm), and 1.25-inch (32 mm) hose fittings. The spiral on the male and female stems shall be of sufficient length to ensure that part of the metal liner is always under the clamp which provides additional gripping and retention when the clamps are torqued over the hose (see 6.5).

3.4.3.2 Threads. Unless otherwise specified (see 6.2), female threads on spud and male connections shall be American Standard Taper Pipe (NPT) meeting the requirements of FED-STD-H28. The female threads on the swivel shall be American Standard Straight Pipe (NPSM).

3.5 Strength.

3.5.1 Hydrostatic proof pressure. The hose assembly, complete with metal liner and couplings, shall withstand a proof pressure of 1250 psig (8618 kPa (gauge)) without leakage or other indication of weakness when tested in accordance with 4.7.1.2.

3.5.2 Hydrostatic burst pressure. The hose, without liner, shall not burst at a pressure less than 2500 psig (17237 kPa (gauge)) when tested in accordance with 4.7.2.5.

3.6 Ozone resistance. The rubber cover shall show no visible cracking under 7X magnification after testing in accordance with 4.7.2.3.

3.7 Steam resistance. The hose shall reveal no flaws, such as blistering, cracking, flaking, or popcorning of the tube or cover when tested as specified in 4.7.2.4. When tested as specified in 4.7.2.4, there shall be no delamination of body components, cracks through the cover exposing reinforcement, or weakness of the fittings.

3.8 Identification marking. Each length of hose shall be marked in a color that contrasts with the color of the hose cover. Marking shall be non-removable except by mechanical means. The marking shall consist of the manufacturer's name or trademark, the quarter and year of manufacture, "MIL-PRF-29210C", "250 psig (1724 kPa (gauge))," and the word "steam". Letters shall be not less than 0.25-inch (6 mm) high.

3.8.1 Marking tag. A marking tag shall be wired near each end fitting (two tags per length of hose), advising users of all safety precautions to be followed in the use of the hose. The following shall be included on the tag:

a. Hose clamps shall be checked for proper application and shall be re-tightened, as necessary, prior to being placed into service. Be sure that clamps are interlocked over the collar on the nipple and that each clamp half interlocks with the other.

b. Hose clamps shall be tightened after the first several hours of steaming of the hose and periodically thereafter.

c. The importance of taking up evenly on all bolts to prevent cocking of the hose clamps shall be emphasized.

d. Other operational and maintenance suggestions considered necessary by the hose and end fitting manufacturers.

4. VERIFICATION

4.1 Classification of inspections. Inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.2).

b. Conformance inspection (see 4.3).

4.2 First article inspection. The first article inspection shall be performed on one hose assembly when a first article is required (see 3.1, 6.2, and 6.3). This inspection shall include the examination of 4.6 and the tests of 4.7. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract. In addition to the first article, an additional 8-foot (2438 mm) length of steam hose without metal liner for the tests of 4.7.2 and a 6-foot (1829 mm) length of metal liner for the tests of 4.7.3 shall be submitted.

4.3 Conformance inspection. The quality conformance inspection shall include the examination of 4.6 and the tests of 4.7. This inspection shall be performed on the samples selected in accordance with 4.5.

4.4 Material inspection. The contractor is responsible for ensuring that supplies and materials are inspected for compliance with all the requirements specified herein and in applicable referenced documents.

4.5 Sampling. Sampling and inspection procedures shall be in accordance with ASQC-Z1.4. The unit of product shall be one hose assembly. All hose assemblies offered for delivery at one time shall be considered a lot for the purpose of inspection.

4.5.1 Sampling for examination. Guidance for inspection level and an Acceptable Quality Level (AQL) is provided in 6.6.1.

4.5.2 Sampling for test.

4.5.2.1 Sampling for length measurement test. Guidance for inspection level and an AQL is provided in 6.6.2.

4.5.2.2 Sampling for hose without metal liner tests. Unless otherwise specified (see 6.2), an additional 8-foot (2438 mm) length hose, without liner, shall be provided for the tests on the hose without metal liner (see 4.7.2). This additional length of hose shall be manufactured of the same materials and under the same conditions as the hoses in the lot.

4.5.2.3 Sampling for metal liner tests. A 6-foot (1829 mm) length of metal liner shall be provided for the tests on the metal liner (see 4.7.3). This length of metal liner shall be taken from the same lot of liner used in the manufacture of the hose.

4.6 Examination. Each hose length selected shall be visually and dimensionally examined to determine conformance to the requirements of this specification not involving tests. The classification of defects in FED-STD-162 shall be used to determine and evaluate defects through visual inspection.

4.7 Tests. Sample hose sections and metal liner selected shall be subjected to the applicable tests specified in 4.7.1 through 4.7.3.

4.7.1 Complete hose assembly tests.

4.7.1.1 Hose length measurement. Each hose selected shall be measured for length in accordance with ASTM D380 to determine conformance to 3.3.

4.7.1.2 Proof pressure. Each hose assembly in accordance with ASQC-Z1.4 shall be subjected to the 1250 psig (1724 kPa (gauge)) hydrostatic proof test pressure specified in 3.5.1 in accordance with ASTM D380. A vertical (hanging) hydrostatic proof pressure test shall be performed when specified (see 6.2). Water shall be used as the test media. The proof pressure shall be held for 15 minutes and the hose and fittings examined for leakage or other evidence of weakness. Individual hose assemblies shall be rejected if they fail to meet the requirements of 3.5.1.

4.7.2 Hose without metal liner tests.

4.7.2.1 Hose size. Hose selected shall have the inside and outside diameter measured in accordance with ASTM D380 to determine conformance to 3.4.

4.7.2.2 Unit weight. The unit weight of hose selected shall be determined by weighing the hose without couplings. The readings shall be accurate to the closest tenth of a pound (kg). The weight of the hose shall be divided by its length to determine conformance to 3.4.

4.7.2.3 Ozone resistance test. Specimens of the cover, prepared as described in method B of ASTM D518, shall be tested in accordance with ASTM D1149. After conditioning for 24 hours in an ozone-free atmosphere, the looped specimens shall be exposed for 336 ± 1.0 hours at 104°F ± 2°F (40°C ± 1°C) to an ozone concentration of 100 ± 10 parts of ozone per hundred million parts of air by volume (pphm).

4.7.2.4 Steam resistance test. A 3-foot (914 mm) hose length sample removed from the additional 8-foot (2438 mm) hose length submitted with the first article shall be used for the following steam test:

a. The outer surface of the hose shall be visually examined for imperfections. The inner surface of the hose shall be examined for surface imperfections by use of a source of light which shall be held at one end while the hose is looked through from the other end. The condition of the tube surface shall be recorded.

b. A steam trap shall be installed at the outlet end of the test sample. The trap shall be designed to keep the pressure at 190 psig min - 210 psig max (1310 kPa (gauge) min - 1448 kPa (gauge)) max and the temperature at 369°F min - 406°F max (187°C min - 208°C max). In addition, “V” steam strainer shall be installed at end of test manifold to trap rubber particles that may separate from the hose tube. Clamp separate from the hose tube. Clamp test hose horizontally between two steam manifolds and subject it to steam at 200 psig (1379 kPa (gauge)), 388°F (198°C) for periods of 23.5 hours, until a total time of 1,500 hours has elapsed.

c. At the end of each steaming period (not more than 23.5 hours), the pressure shall be released in order that pressure be returned to atmospheric conditions within a time of 1 minute or less. Care shall be taken to ensure that condensation will not be drained from the hose. The hose shall remain at atmospheric conditions for not less than 30 minutes, after which the steam pressure shall again be raised to 200 psig (1379 kPa (gauge)) and held another 23.5 hours during the steaming period. The above cycle shall be repeated until the hose has been subjected to 1,500 hours of steam pressure.

d. Upon completion of 1,500 hours of steaming, the hose shall be removed from the test apparatus and the outer and inner tube surfaces shall be examined (see 4.7.2.4a.) for signs of damage. Except for indentation resulting from clamping, any flaking, peeling, blistering, cracking, or popcorning of the cover or tube shall be cause for rejection.

e. If the hose passes the above visual examination, the hose shall be cooled to 70°F ± 5°F (21°C ± 3°C). The hose shall then be bent in a 180-degree arc around a 20-inch (508 mm) mandrel. The outer cover of the hose shall have no visual signs of cracking.

f. The length of hose shall be subjected to the burst test specified in 4.7.2.5.

4.7.2.5 Burst pressure. The hose sample shall be subjected to the hydrostatic straight bursting test of ASTM D380. Water shall be used as the test media. Any suitable coupling other than those specified in 3.4.3 may be used for this test. Failure of the hose at a pressure below the 2500 psig (17237 kPa(gauge)) burst pressure specified in 3.5.2 shall be cause for rejection.

4.7.3 Metal liner tests. Metal liner selected shall be subjected to the tests specified in 4.7.3.1 through 4.7.3.3 to determine conformance to 3.2.1 and 3.4.2.

4.7.3.1 Inside diameter. The inside diameter of the metal liner shall be measured in accordance with ASTM D380.

4.7.3.2 Thickness. The thickness of the metal liner shall be measured in accordance with ASTM D380.

4.7.3.3 Chemical composition. The chemical composition of the metal liner shall be determined in accordance with ASTM A751. Failure to comply with the applicable composition specified in 3.4.2 shall be cause for rejection of the lot.

## 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. Hose covered by this specification is intended for heavy-duty, high-pressure steam applications, such as temporary service from docks or barges to ships.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Size and style of hose required (see 1.2.1 and 1.2.2).
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. When first article is required for inspection and approval (see 3.1, 4.2, and 6.3).
e. When reinforcement wire shall be stainless steel, brass- or zinc-plated (see 3.2.2).
f. When different coupling arrangement is required, whether the insert in the female spud should be copper or polymer; or if different couplings are required (see 3.2.2, 3.4.3, and 6.5).
g. Length of hose required (see 3.3).
h. When end fittings are to be other than specified (see 3.4.3).
i. When different thread connections are required (see 3.4.3.2).
j. When hose without metal liner tests should be performed on other than additional length of hose (see 4.5.2.2).
k. Packaging requirements (see 5.1).
l. Part or Identifying Number (PIN) (see 6.6).

6.3 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2. The first article should consist of one hose assembly. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.4. Metal liner. The stainless steel interlocked, flexible tubing specified in 3.4.2 should be equal to stainless steel interlocked, flexible tubing available from Able Metal Hose, Addison, IL, with the designation “Type UI Floppy Tubing” or from Federal Hose Manufacturing Corporation, Painesville, OH, with the designation “Flexible Hose Stainless Steel.”

6.5 End fittings. The end fittings with the special stem design specified in 3.4.3 should be equal to end fittings with special stem design available from Dixon Valve and Coupling Company, Chestertown, MD. The male fitting should be “Easy Boss Style GM-28” and the female fitting should be either “Easy Boss Style GB-28C” using copper insert in the female spud or “Easy Boss Style GM-28C” using polymer insert in the female spud.

6.5.1 Patent notice. The end fittings are covered by the following patent: U.S. patent number 4,603,888; expiration date August 5, 2003. The Government does not have a royalty-free license.

6.6 Sampling procedures.

6.6.1 Sampling for examination. Recommended inspection level is II and AQL is zero percent defective for major and 0.15 for minor defects (see 4.5.1).

6.6.2 Sampling for tests. Recommended inspection level is S-3 and AQL is zero percent defective (see 4.5.2).

6.7 Subject term (keyword) listing.

Hydrostatic tests

6.8 Supersession data. This specification replaces Military Specification MIL-DTL-29210C dated 7 November 1997.

CONCLUDING MATERIAL

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

Review activities:
Air Force - 71
Navy - MC, SA

Preparing activity:
DLA - CC

(Project 4720-0363-000)

# 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.

| I RECOMMEND A CHANGE: | 1. DOCUMENT NUMBER | 2. DOCUMENT DATE *(YYYYMMDD)* |
|---|---|---|
| | MIL-DTL-29210C | 19971107 |

**3. DOCUMENT TITLE**

**Hose Assembly, Rubber, Metal Lined, Wire Reinforced, 250 PSIG, Saturated Steam Service**

**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)* | d. TELEPHONE *(Include Area Code)*<br>(1) Commercial<br>(2) DSN *(if applicable)* | 7. DATE SUBMITTED *(YYYYMMDD)* |

**8. PREPARING ACTIVITY**

| a. NAME | b. TELEPHONE *(Include Area Code)* |
|---|---|
| Defense Logistics Agency<br>Defense Supply Center, Columbus | (1) Commercial 614-692-0538<br>(2) DSN 850-0538 |
| c. ADDRESS *(Include Zip Code)*<br>DSCC-VAI<br>P.O. Box 3990<br>Columbus, Ohio 43216-5000 | **IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:**<br>**Defense Standardization Program Office (DLSC-LM)**<br>**8725 John J. Kingman Road, Suite 2533**<br>**Fort Belvoir, Virginia 22060-6621**<br>**Telephone 703 767-6888 DSN 427-6888** |