

INCH- POUND

MIL-E-24269B(SH)

14 June 1988

SUPERSEDING

MIL-E-24269A(SHIPS)

4 October 1968

(See 6.8)

MILITARY SPECIFICATION

EXTINGUISHER, FIRE, CARBON DIOXIDE, 15 POUND, PORTABLE, PERMANENT SHUTOFF, NAVY SHIPBOARD USE

This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for a 15-pound size, portable, permanent shutoff carbon dioxide (CO₂) fire extinguisher and shock proof mounting bracket.

1.2 Classification. Fire extinguishers covered by this specification shall be of the following classes, as specified (see 6.2.1):

- Class 1 - Magnetic, alloy steel
- Class 2 - Non-magnetic, aluminum
- Class 3 - Non-magnetic, stainless steel

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 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

FEDERAL

- BB-C-101 - Carbon Dioxide (CO₂): Technical and U.S.P.
- RR-C-901 - Cylinders, Compressed Gas: High Pressure, Steel DOT 3AA, and Aluminum Applications, General Specification for.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-F-320 - Fiberboard; Corrugated and Solid, Sheet Stock (Container Grade), and Cut Shapes.

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- MIL-P-116 - Preservation, Methods of.
- MIL-S-901 - Shock Tests, H.I. (High Impact); Shipboard Machinery, Equipment and Systems, Requirements for.
- MIL-C-16310 - Cylinder Compressed Gas (Compressed Air and Carbon Dioxide, Nonshatterable and Nonmagnetic).
- MIL-I-17214 - Indicator, Permeability; Low-Mu (Go-No Go).
- MIL-V-17360 - Valves, Cylinder, Gas, Carbon Dioxide Fire Extinguisher.
- MIL-L-19140 - Lumber and Plywood, Fire-Retardant Treated.

STANDARDS

FEDERAL

- FED-STD-H28 - Screw-Thread Standards for Federal Services.
- FED-STD-H28/2 - Screw-Thread Standards for Federal Services Section 2 Unified Inch Screw Threads - UN and UNR Thread Forms.
- FED-STD-313 - Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.
- FED-STD-595 - Colors.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-130 - Identification Marking of U.S. Military Property.
- MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited).
- MIL-STD-2073-1 - DoD Materiel Procedures for Development and Application of Packaging Requirements.

(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

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2.1.2 Other Government documents. The following other Government documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

DEPARTMENT OF TRANSPORTATION (DOT)
Code of Federal Regulations (CFR) Title 49,
Part 178.46 - Transportation

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DoDISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN IRON AND STEEL INSTITUTE (AISI)
Steel Products Manual

(Application for copies should be addressed to the American Iron and Steel Institute, 1000 16th Street, NW, Washington, DC 20036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
B 117 - Standard Method of Salt Spray (Fog) Testing.
(DoD adopted)
D 3951 - Standard Practice For Commercial Packaging.
(DoD adopted)

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

COMPRESSED GAS ASSOCIATION (CGA)
C-14 - Procedures for Fire Testing of DOT Cylinder Safety Relief
Device Systems

(Application for copies should be addressed to the Compressed Gas Association, Crystal Gateway 1, Suite 501, 1235 Jefferson Davis Highway, Arlington, VA 22202.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)
J517 - Hydraulic Hose. (DoD adopted)

(Application for copies should be addressed to the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.)

UNDERWRITER'S LABORATORIES, INC. (UL)
ANSI/UL 154 - Carbon Dioxide Fire Extinguishers.
ANSI/UL 711 - Fire Extinguishers, Rating and Fire Testing of.

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(Application for copies should be addressed to Underwriter's Laboratories, Inc., Publications Stock, 333 Pfingsten Road, Northbrook, IL 60062.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.4 and 6.3).

3.2 Standard product. Accessories and components furnished under this specification shall be in the same number of components and of the same quality as furnished commercially, except for deviations required to meet this specification.

3.3 Extinguisher. The extinguisher shall be a stored-pressure type with a rated capacity of 15 pounds of CO₂, grade B, in accordance with BB-C-101. The extinguishers shall have a minimum fire extinguishing rating of 10 B:C in accordance with ANSI/UL 711. The class 3 extinguishers shall be listed as marine type by ANSI/UL in accordance with ANSI/UL 154.

3.3.1 Materials. Material shall be as specified herein and, when not specified, shall be of the same quality as furnished commercially. Material shall be free from any chemical or physical defect which might effect the reliability and serviceability of the finished products. When class 2 or class 3 extinguishers are specified (see 6.2.1), materials shall be such that the magnetic permeability of the extinguisher assembly and mounting bracket shall be not greater than 2.0.

3.3.1.1 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and may 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 specifically specified.

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3.3.1.2 Material safety data sheet. The contracting activity shall be provided a material safety data sheet (MSDS) at the time of contract award. The MSDS is Form OSHA-20, found in and part of FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification (see 6.6).

3.3.2 Finish. The extinguisher shall be finished with an enamel or powder paint protective coating for identification and enhanced corrosion resistance. The coating shall be color no. 11105 red gloss in accordance with FED-STD-595.

3.3.3 Threads. Threads shall be in accordance with FED-STD-H28 and FED-STD-H28/2.

3.4 Weight. The weight of the fully charged extinguisher shall not exceed the following:

- Class 1 - 54 pounds
- Class 2 - 38 pounds
- Class 3 - 64 pounds

The weight of mounting bracket shall not exceed 15 pounds.

3.5 Extinguisher components. The extinguisher shall contain the following major components:

- (a) Cylinder (see 3.5.1).
- (b) Discharge valve assembly (see 3.5.2).
- (c) Discharge hose and horn assembly (see 3.5.3).
- (d) Nameplate band (see 3.5.4).
- (e) Mounting bracket (see 3.5.5).

3.5.1 Cylinder.

3.5.1.1 Cylinder (for class 1). The cylinder for class 1 extinguisher shall be in accordance with RR-C-901 with the following dimensions:

- Outside diameter: - 6-9/16 \pm 3/8 inches.
- Length: - 27 inches, maximum.
- Capacity: - 615 cubic inches, minimum.
- Valve connection: - 1 - 11-1/2 NGT internal.

3.5.1.2 Cylinder (for class 2). The cylinder for a class 2 extinguisher shall be in accordance with CFR 49, 178.46. The cylinder shall be as follows:

- Material: - 6351-T6 or 6061-T6 (aluminum association alloy designation number).
- Outside diameter: - 6-15/16 \pm 1/4 inches.
- Length: - 27 inches, maximum.
- Capacity: - 612 cubic inches, minimum.
- Valve connection: - 1-1/8 - 12 UNF 2B internal.

3.5.1.3 Cylinder (for class 3). The cylinder for a class 3 extinguisher shall be in accordance with MIL-C-16310, size A.

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3.5.2 Discharge valve assembly.

3.5.2.1 Discharge valve assembly (for class 1 and class 3). The discharge valve for class 1 and class 3 extinguisher shall be a class b valve, in accordance with MIL-V-17360 with the following features:

- (a) Valve body
- (b) Syphon tube
- (c) Operating lever and carrying handle
- (d) Pressure relief device
- (e) Pull pin and retainer chain

3.5.2.2 Discharge valve assembly (for class 2). The discharge valve for class 2 extinguisher shall be a pressure-seated, squeeze-grip type specified in ANSI/UL 154 with the following features:

- (a) Valve body
- (b) Syphon tube
- (c) Operating lever and carrying handle
- (d) Pressure relief device
- (e) Pull pin and retainer chain

3.5.2.2.1 Valve body (for class 2). The valve body shall be any non-magnetic metallic material, except aluminum. The valve connection to the cylinder shall be externally threaded with 1-1/8-12 UNF-2A. The connection to discharge hose shall be 3/8-18 NPT pipe threads. An O-ring shall be used to seal the valve body to the cylinder.

3.5.2.2.1.1 Hanger lug (for class 2 valve body). The valve body shall have an integral hanger lug for a hook type bulkhead bracket. The center of the 0.5-inch diameter lug hole shall be 1-3/8 inches from the center of the valve and located 90 degrees in a counter-clockwise direction from the valve handle when viewed from the top of the valve.

3.5.2.2.1.2 Identification marking (for class 2, valve body). Each valve shall be marked in a permanent manner with the name or trademark of the manufacturer. In addition, the following marking shall be stamped or cast on the opposite side of the body:

"Full _____ pounds
Empty _____ pounds"

3.5.2.2.2 Syphon tube (for class 2). A nonferrous metallic syphon tube shall be drilled and tapped to the valve body. The syphon tube shall be notched, scarfed or otherwise prevented from restricting discharge when the tip of the tube is resting on the bottom of the cylinder.

3.5.2.2.3 Operating lever and carrying handle (for class 2). The operating lever and carrying handle shall be any non-magnetic metallic material, except aluminum. The lever and handle shall be attached to the valve body by pins or rivets. Pins or rivets shall be spun over or otherwise closed on both ends.

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3.5.2.2.4 Pressure relief device (for class 2). The valve shall be fitted with a rupture disk type pressure relief device. The device shall consist of a rupture disk, rupture disk washer, and rupture disk nut or rupture nut assembly. The pressure relief devices shall be actuated at a pressure of not less than 2650 pounds per square inch (lb/in²) gauge and not higher than 3000 lb/in² gauge.

3.5.2.2.5 Pull-pin and retainer chain (for class 2). The discharge valve shall have a safety pin that prevents inadvertent operation. The pin shall pass through the valve operating lever in such a way that the valve will not operate with the pin in place. The pin shall be held captive to the extinguisher by a short stainless steel or nonferrous metallic retainer chain or lanyard, so that it will not be lost during operation of the unit. A visual mechanical tamper seal shall be used to hold the pull pin in the safe position such that use of, or tampering with the extinguisher will break the seal. The seal shall be field-replaceable.

3.5.3 Discharge hose and horn assembly. The overall length of the discharge hose and horn shall be 37 ± 2 inches.

3.5.3.1 Discharge hose (for class 1 and class 3). The hose shall be in accordance with SAE J517, 100R1-5 series hydraulic hose, type AT, nominal hose inside diameter (id) 5/16 inch. The ends of the hose shall be fitted with brass connections to allow hose removal and replacement and shall be internally threaded in accordance with FED-STD-H28 and FED-STD-H28/2 as follows:

Valve discharge connection: 1/4-18 NPSM internal.
Horn connection: 1/4-18 NPSM internal.

An end fitting as shown on figure 1 is required at the valve discharge end to prevent any interference of CO₂ discharge by the end fitting.

3.5.3.2 Discharge hose (for class 2). The discharge hose and end fittings shall be in accordance with ANSI/UL 154 and the hose shall have a nominal id of 1/4 to 5/16 inch. The ends of the hose shall be fitted with any non-magnetic metallic material couplings to allow hose removal and replacement and shall be internally threaded in accordance with FED-STD-H28 and FED-STD-H28/2 as follows:

Valve discharge connection: 3/8-18 NPT internal.
Horn connection: 1/4-18 NPT internal.

3.5.3.3 Discharge horn and handle (for class 1, 2 and 3). The discharge horn shall be conical, cylindrical, or any other commercially acceptable shape. The discharge horn shall be fabricated of temperature, electric, and water-resistant material having 1/4-18 NPSM (for class 1 and class 3) or 1/4-18 NPT (for class 2) external thread bronze or brass connection molded or otherwise secured to the horn for attaching the handle. Where metal fasteners are used for attaching the insert, the handle assembly shall incorporate a tight fitting sleeve of dielectric material to completely cover such fasteners. The method of attaching the handle to the horn tube shall be permanent and shall allow no separation when the extinguisher is handled or discharged. The handle shall be not less than 6 inches long. Handles may be either plastic or rubber.

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3.5.4 Nameplate band. Each extinguisher shall be provided with a nameplate band. The nameplate band shall include a horn clip to hold the discharge horn when not in use. The horn clip shall be secured to the nameplate band assembly by bolting, riveting, or another attachment method such that the horn clip may be removed without damaging the nameplate band and shall not pose a hazard to the operator. The nameplate including the horn clip shall be a nonferrous metal clip with the following features:

Material: Stainless steel, AISI 302 or 316 in accordance with
Steel Products Manual
Thickness: 0.036 inch minimum

3.5.5 Mounting bracket. Unless otherwise specified (see 6.2.1), a mounting bracket shall be provided. The mounting bracket shall be a heavy duty vehicle type. It shall have a bottom plate which extends beyond the base of the extinguisher. The mounting bracket, when closed shall securely hold the cylinder and discharge hose and horn assembly. The bracket shall also be adjustable to retain cylinders at the diameter range specified in 3.5.1.

3.6 Performance.

3.6.1 Discharge characteristic. The extinguisher shall discharge a minimum of 90 percent (by weight) of rated agent capacity (see 4.7.1). The extinguisher shall also permit the continuous discharge to gaspoint of the contents of a nominal 15-pound charge of CO₂ in not less than 8 seconds nor more than 35 seconds. The term "gaspoint" as used herein, is defined as the time when the combined snow and gas discharge change into a purely gaseous condition.

3.6.2 Fire extinguishment. The extinguisher shall successfully extinguish the fire specified (see 4.7.2).

3.6.2.1 Equivalency. The requirement of 3.6.2 shall be considered to have been met if the extinguisher has UL classification rating of 10B:C in accordance with ANSI/UL 711.

3.6.3 Shock resistance. The extinguisher and mounting bracket shall pass the high-impact shock test (see 4.7.3). Retention of the discharge hose and horn by the horn bracket is not required.

3.6.4 Corrosion resistance. The extinguisher and mounting bracket shall be operable after the salt-spray test (see 4.7.4).

3.6.5 Vibration resistance. The extinguisher and mounting bracket shall pass the vibration test (see 4.7.5).

3.6.6 Nonshatterability (for class 2 only). The cylinder for class 2 extinguishers shall pass the gun-fire test (see 4.7.6).

3.6.7 Magnetic permeability (for class 2 and class 3). The class 2 and class 3 extinguisher and bracket shall have a magnetic permeability not to exceed 2.0 (see 4.7.7).

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3.6.8 Drop resistance. The extinguisher shall pass the drop test specified (see 4.7.8).

3.6.8.1 Equivalency. The requirement of 3.6.8 shall be considered to have been met if the extinguisher is listed by UL in accordance with ANSI/UL 154.

3.6.9 Horn resistance. The discharge horn of extinguisher shall pass the horn tests specified (see 4.7.9).

3.6.9.1 Equivalency. The requirement of 3.6.9 shall be considered to have been met if the extinguisher is listed by UL in accordance with ANSI/UL 154.

3.6.10 Operation of mounting bracket. The mounting bracket of extinguisher shall securely hold the extinguisher (see 4.7.10).

3.6.11 Horn clip resistance. The discharge horn bracket shall operate as specified after being subjected to the horn bracket test (see 4.7.11).

3.6.12 Pressure relief device. When tested, the extinguishers shall pass the acceptance criteria of CGA C-14 as specified (see 4.7.12).

3.7 Identification.

3.7.1 Nameplate band. The nameplate band shall be identified as part of the extinguisher's components (see 3.5). The markings on nameplates shall be in accordance with figure 2 and the following:

3.7.1.1 Operating instruction. The operating instructions on the nameplates shall be in the form of numerically sequenced pictographs. A single pictograph may include two instructions. The sequence of pictographs shall illustrate, with both pictures and words, the recommended actions necessary for intended operation of the extinguisher. The sequence shall be as follows:

- (a) Ready the extinguisher by disengaging the tamper seal.
- (b) Aiming the extinguisher at the base of the fire, including the recommended distance from the fire at which to begin discharge, and indicating the intended operating attitude of the extinguisher.
- (c) Taking whatever action is necessary to initiate intended discharge of the extinguisher.
- (d) Describing the intended method of applying the extinguisher agent on the fire.

3.7.1.2 Military identification. The following Military information shall be provided on the nameplate in accordance with MIL-STD-130:

- (a) Manufacturer name and address
- (b) Manufacturer CAGE
- (c) Manufacturer part number
- (d) Military specification number, 1 class
- (e) National stock number (if provided (see 6.2.1))
- (f) Contract number (if provided (see 6.2.1))

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A separate label may be used to show any of the above information which is not contained on the primary extinguisher nameplate.

3.7.2 Hydrostatic test date. The date on which the cylinder was hydrostatically tested shall be stamped on the top portion (curvature surface area) of cylinder with 1/4 inch minimum height letters.

3.8 Instruction cards. In addition to the nameplate band required, the contractor shall furnish with each extinguisher a set of instructions for operating and recharging the extinguisher. Instruction cards shall be approved by the contracting activity. In addition, each extinguisher shall be equipped with two cards for recording weight and recharging information.

3.9 Drawings. When specified in the contract or order, drawings shall be prepared (see 6.2.2).

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.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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

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

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in 4.6 through 4.7.12.

4.4 First article inspection. Except where otherwise specified, two extinguishers of each class shall be examined and tested as specified in table I. If any sample extinguisher fails any of first article inspection, the

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extinguishers represented for first article inspection shall be rejected. When specified in the contract or order, a first article inspection procedure and report shall be prepared (see 6.2.2).

TABLE I. First article and quality conformance inspections.

Inspection	Requirement	First article inspection	Quality conformance inspection
Visual examination (4.6)	3.3, 3.4, 3.5, 3.7 and 3.8	X	X
Discharge test (4.7.1)	3.6.1	X	
Fire extinguishing test (4.7.2)	3.6.2	X	
Shock test (4.7.3)	3.6.3	X	
Corrosion test (4.7.4)	3.6.4	X	
Vibration test (4.7.5)	3.6.5	X	
Gunfire test - class 2 only (4.7.6)	3.6.6	X	
Magnetic permeability test - class 2 and 3 (4.7.7)	3.6.7	X	X
Drop test (4.7.8)	3.6.8	X	
Horn test (4.7.9)	3.6.9	X	
Mounting bracket test (4.7.10)	3.6.10	X	
Horn clip test (4.7.11)	3.6.11	X	
Pressure relief device test (4.7.12)	3.6.12	X	

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4.5 Quality conformance inspection. The sample extinguishers selected in accordance with 4.5.2 shall be subjected to the quality conformance inspections specified in table I. Any sample which fails any quality conformance inspection shall be rejected and if the rejection number of defectives exceeds the acceptance number of defectives, the lot represented by the sample shall be rejected.

4.5.1 Inspection lot. For the purpose of quality conformance inspection those extinguishers of the same class and size offered by same manufacturer for delivery at the same time shall be considered a lot.

4.5.2 Sampling for quality conformance. Sampling for quality conformance inspection shall be in accordance with general inspection level II of MIL-STD-105.

4.5.3 Quality conformance inspection report. When specified in the contract or order, a quality conformance inspection report shall be prepared (see 6.2.2).

4.6 Visual examination. Each sample extinguisher shall be visually and dimensionally examined to verify conformance to the requirements of this specification. The sample shall also be examined for defects as specified in table II.

TABLE II. Classification of defects.

Categories	Defects
<u>Critical:</u>	None defined.
<u>Major:</u>	
101	Missing UL label or lack of other evidence of conforming to UL requirements.
102	Material and components not as specified.
103	Finish of exterior surfaces not as specified.
104	Weight not as specified.
105	Dimensions not as specified.
106	Marking, operational, or maintenance instruction not as specified.
107	Damaged components or evidence that the extinguisher is inoperable.
108	Workmanship not as specified.

4.7 Tests. The tests as specified in 4.7.1 through 4.7.12 except 4.7.6, shall be conducted with the extinguisher filled to the rated capacity with CO₂.

4.7.1 Discharge. The extinguisher shall be discharged at ambient temperature of 70 ± 5 degrees Fahrenheit (°F). The valve shall be fully and continuously opened until the agent stops flowing. Failure to meet the discharge duration criteria of 3.6.1 shall constitute failure of the test.

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4.7.2 Fire extinguishing. The test fire shall be made in a 25-square foot steel pan, open at the top, with a 5-inch freeboard. The pan shall be fueled with a 2-inch layer of heptane floated on not less than 1 inch of water in the pan and ignited. After 60 seconds preburn, agent discharge shall be started with the extinguisher aimed to the fire area above the flammable liquid at a horizontal distance of about 10 feet. The operator shall move toward the fire from the side or from the corner of the pan, moving the horn from side to side as necessary to extinguish the fire. The test fire shall be considered to be extinguished if it is not subject to self-reignition under the specified test conditions.

4.7.3 Shock. Each extinguisher shall be weighed and locked into the mounting bracket. The assembly shall then be subjected to shock testing for grade A, class 1, type A, lightweight equipment, as specified in MIL-S-901. At the conclusion of the shock test, the extinguisher shall stand for a minimum of 10 minutes and then be weighed to determine if any leakage has occurred. It shall then be discharged completely as evidence of proper operation. The discharge shall be interrupted at least once by use of the discharge valve. Discharge of less than 90 percent (by weight) of the rated agent capacity or any change in physical configuration after the test shall be cause for failure. The extinguisher shall be securely retained by the mounting bracket.

4.7.4 Corrosion. Each extinguisher shall be locked in its mounting bracket and placed upright in a salt spray solution in accordance with ASTM B 117 for 480 hours. Any signs of corrosion or change in condition which would affect the operation of the extinguisher shall be cause for failure.

4.7.5 Vibration. Each extinguisher shall be locked in the mounting bracket and then subjected to the type I vibration test specified in MIL-STD-167-1 for shipboard equipment. Discharge of less than 90 percent (by weight) of the rated agent capacity or any sign of leakage at the end of the test shall be cause for failure. The extinguisher shall be securely retained by the mounting bracket.

4.7.6 Gunfire (for class 2 only). The charged extinguisher with non-liquified gas shall withstand the impact of a 50 caliber armor piercing projectile as specified in RR-C-901 without shattering or fragmenting the body. If a cylinder breaks into more than two pieces, the cylinder shall be considered as having failed this test.

4.7.7 Magnetic permeability (for class 2 and 3). The magnetic permeability of each item or assembly shall be determined by means of a permeability indicator of the go-no go type conforming to or equal to that specified in MIL-I-17214. A magnetic permeability greater than 2.0 shall be cause for failure.

4.7.8 Drop test. Each extinguisher shall be held in an upright position, with the bottommost part of the extinguisher 2 feet above a concrete surface, and dropped onto the concrete two times. The extinguisher shall then be held in a horizontal position 2 feet above the concrete surface and dropped onto the concrete surface two times. The discharge mechanism shall then be examined for visible damage and the valve shall be opened and closed to determine whether the valve is mechanically functional. Inoperable discharge mechanism, failure of the valve to function, or any sign of leakage shall constitute failure of this test.

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4.7.9 Horn.

4.7.9.1 Horn impact. Each test horn shall be firmly supported by a clamping mechanism at the handle so that the point of impact will be on the external surface 2 inches from the end of the horn. The horn shall be tested in a horizontal position. The horn shall be connected to a fully charged extinguisher and the extinguisher shall then be completely discharged. A 5-pound steel ball shall immediately be dropped, free and unguided, on the horn from a height of 2 feet. This test shall be repeated a total of four times. Any signs of cracks, distortion, or other physical damage after the test shall be cause for failure.

4.7.9.2 Horn thermal. Each test horn shall be soaked in an ice brine bath at minus 25°F for 30 minutes, then removed rapidly and plunged into boiling water for 30 seconds. Fractures or cracks shall be cause for failure.

4.7.10 Mounting bracket. Each extinguisher shall be held in the mounting bracket arrangement and shall be subject to a static load of five times the extinguisher weight when fully charged but not less than 100 pounds, without being displaced. The static load shall be applied vertically downward on the top of the extinguisher. Then the mounting bracket shall be opened and closed for 100 cycles within 30 minutes. Malfunction of the bracket shall be cause for failure.

4.7.11 Horn clip. Using a spring scale, the clip type discharge horn bracket shall withstand a 15-pound opening force at each end of the clip applied where the horn enters the clip. The force shall be held for 3 seconds and then removed. The horn clip shall return to its original shape and operate as intended. This test shall be repeated 10 times. Failure to securely retain the horn shall be cause for failure.

4.7.12 Pressure relief device test. Three extinguishers shall be tested in accordance with CGA C-14.

4.8 Inspection of packaging. Sample packages and packs, and the inspection of the preservation, packing and marking for shipment, stowage, and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition. For the extent of applicability of the packaging requirements of referenced documents listed in section 2, see 6.5.)

5.1 General.5.1.1 Navy fire-retardant requirements.

5.1.1.1 Lumber and plywood. Unless otherwise specified (see 6.2.1), all lumber and plywood including laminated veneer material used in shipping container and pallet construction, members, blocking, bracing, and reinforcing shall be fire-retardant treated material conforming to MIL-L-19140 as follows:

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- Level A and B - Type II - weather resistant.
Category 1 - general use.
- Level C - Type I - non-weather resistant.
Category 1 - general use.

5.1.2 Fiberboard. Fiberboard used in the construction of class-domestic, non-weather resistant fiberboard, and cleated fiberboard boxes shall meet the flammability and smoke requirements of PPP-F-320 and amendments thereto.

5.2 Preservation. Preservation shall be level A, C, or commercial as specified (see 6.2.1).

5.2.1 Level A. Fire extinguishers shall be individually unit protected in accordance with method III of MIL-P-116. The unit containers shall conform to PPP-B-636, class weather resistant, type SF with style optional to the contractor. Containers shall be closed in accordance with method V of the appendix to the container specification.

5.2.2 Level C. Fire extinguishers shall be individually unit protected as specified for level A except that unit containers may be of the domestic class. Closure shall conform to method I using pressure sensitive tape in accordance with the appendix to the container specification.

5.2.3 Commercial. Preservation shall be in accordance with ASTM D 3951.

5.3 Packing. Packing shall be level A, B, C or commercial, as specified (see 6.2.1).

5.3.1 Level A, B and C containers. Fire extinguishers preserved as specified (see 5.2) shall be packed in shipping containers, for the level specified (see 6.2.1) in accordance with the exterior shipping container tables of MIL-STD-2073-1, appendix C and herein. Unless otherwise specified (see 6.2.1), container selection shall be at the contractor's option.

5.3.1.1 Caseliners, closure, and gross weight.

5.3.1.1.1 Caseliners. Unless otherwise specified (see 6.2.1), level A shipping containers with fire extinguishers preserved level C or commercial shall be provided with waterproof caseliners in accordance with MIL-STD-2073-1.

5.3.1.1.2 Closure. Container closure, reinforcing, or banding shall be in accordance with the applicable container specification or appendix thereto except that weather-resistant fiberboard boxes shall be closed in accordance with method V and reinforced with non-metallic or tape banding and domestic fiberboard boxes shall be closed in accordance with method I using pressure sensitive tape.

5.3.1.1.3 Weight. Wood, plywood, and cleated type containers exceeding 200 pounds gross weight shall be modified by the addition of skids in accordance with MIL-STD-2073-1 and the applicable container specification or appendix thereto.

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5.3.2 Commercial. Fire extinguishers preserved as specified (see 5.2) shall be packed for shipment in accordance with ASTM D 3951 and herein.

5.3.2.1 Container modification. Shipping containers exceeding 200 pounds gross weight shall be provided with a minimum of two, 3- by 4-inch nominal wood skids laid flat, or a skid- or sill-type base which will support the material and facilitate handling by mechanical handling equipment during shipment, storage, and stowage.

5.4 Palletized unit loads. When specified (see 6.2.1), shipping containers shall be palletized in accordance with MIL-STD-2073-1.

5.5 Marking. In addition to any special marking required (see 6.2.1) and herein, interior (unit) packs, exterior shipping containers and palletized loads shall be marked for shipment, stowage and storage in accordance with MIL-STD-2073-1 and appendix F thereto. Marking shall include bar coding.

5.5.1 Caution tag. Unless otherwise specified (see 6.2.1) the extinguishers covered by this specification shall be shipped in a charged condition. If the fire extinguishers are specified to be uncharged when shipped, a caution tag shall be attached to each fire extinguisher prior to packaging in the unit container with the following information:

"CAUTION

This fire extinguisher is not charged. Follow instructions
on the extinguisher for charging."

6. NOTES

6.1 Intended use. Portable CO₂ fire extinguishers are intended for use in locations where class B and class C fires are anticipated; that is, where there is a fire hazard involving oils, greases, flammable volatile liquids, or energized electrical equipment (the gas from CO₂ extinguishers combats vaporphase combustion and is a nonconductor of electricity).

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Class required (see 1.2 and 3.3.1).
- (c) When first article inspection is required (see 3.1).
- (d) When mounting brackets are not required (see 3.5.5).
- (e) National stock number and contract number, if required (see 3.7.1.2).
- (f) When fire-retardant requirements are not required (see 5.1.1.1).
- (g) Level of preservation and packing required (see 5.2 and 5.3).
- (h) Container selection, if other than contractor's option (see 5.3.1).

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- (i) When caseliners are not required (5.3.1.1.1).
- (j) When palletization is required (see 5.4).
- (k) Special marking required (see 5.5).
- (l) When extinguishers are to be shipped not charged (see 5.5.1).

6.2.2 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DoD FAR Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification are cited in the following paragraphs.

<u>Paragraph no.</u>	<u>Data requirement title</u>	<u>Applicable DID no.</u>	<u>Option</u>
3.9	Drawings, engineering and associated lists	DI-E-7031	Level 3
4.4	First article inspection procedure	DI-T-4901	----
4.4	First article inspection report	DI-T-4902	----
4.5.3	Inspection and test reports	DI-T-5329	----

(Data item descriptions related to this specification, and identified in section 6 will be approved and listed as such in DoD 5010.12-L., AMSDL. Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.2.2.1 The data requirements of 6.2.2 and any task in sections 3, 4, or 5 of this specification required to be performed to meet a data requirement may be waived by the contracting/acquisition activity upon certification by the offeror that identical data were submitted by the offeror and accepted by the Government under a previous contract for identical item acquired to this specification. This does not apply to specific data which may be required for each contract regardless of whether an identical item has been supplied previously (for example, test reports).

6.3 First article. When a first article inspection is required, the items should be a first article sample. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results and disposition of first articles. 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.

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6.4 Provisioning. Provisioning Technical Documentation (PTD), spare parts, and repair parts should be furnished as specified in the contract.

6.4.1 When ordering spare parts or repair parts for the equipment covered by this specification, the contract should state that such spare parts and repair parts should meet the same requirements and quality assurance provisions as the parts used in the manufacture of the equipment. Packaging for such parts should also be specified.

6.5 Sub-contracted material and parts. The packaging requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.6 Material safety data sheets (MSDS). Contracting officers will identify those activities requiring copies of completed material safety data sheets prepared in accordance with FED-STD-313. The pertinent government mailing addresses for submission of data are listed in FED-STD-313. In order to obtain MSDS, FAR clause 52.223-3 must be in the contract.

6.7 Subject term (key word) listing.

Cylinder, compressed gas
Horn, discharge
Hose, discharge
Magnetic, alloy steel
Non-magnetic, aluminum
Non-magnetic, stainless steel

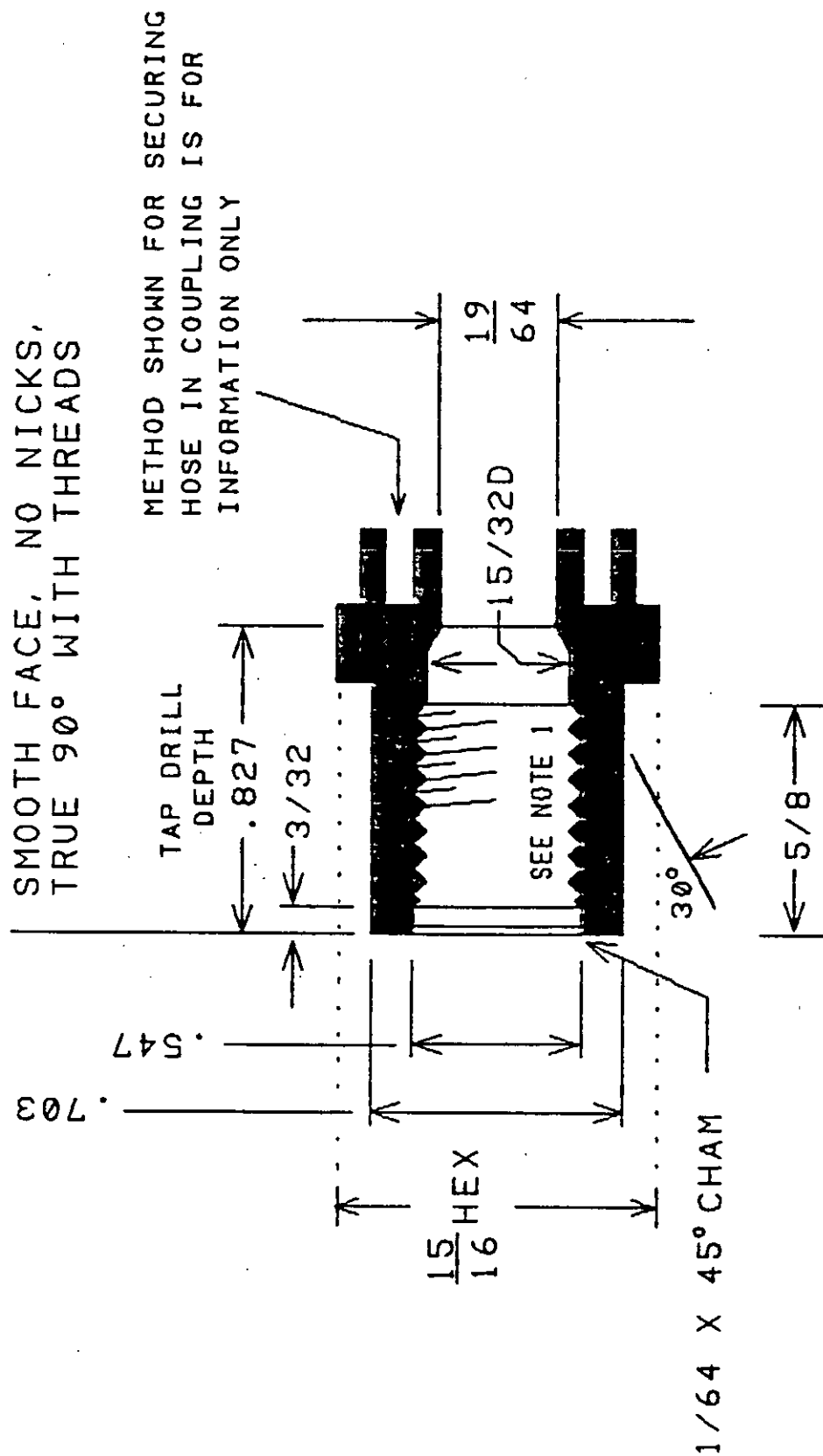
6.8 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 4210-N222)

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NOTES:

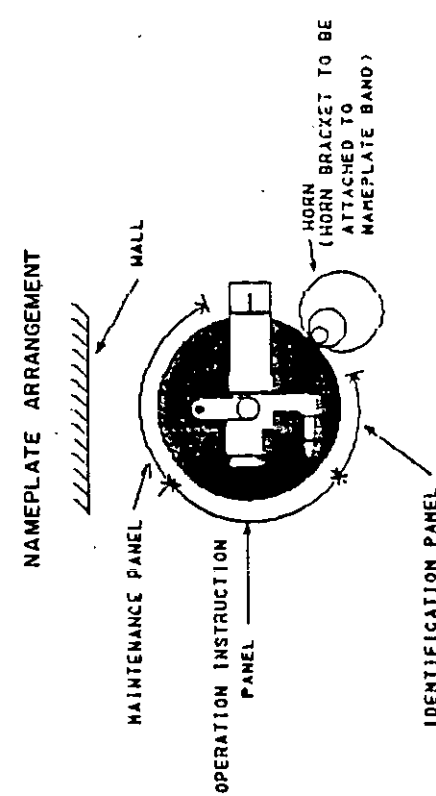
1. THREADS 1/4 - 18 NPSM
2. ALL DIMENSIONS IN INCHES



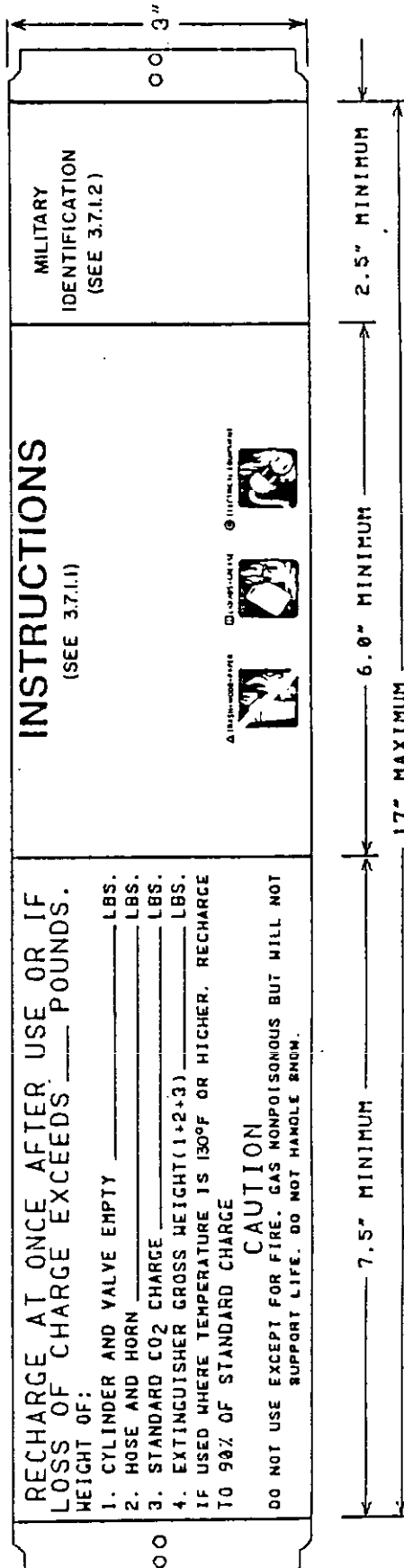
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FIGURE 1. Hose fitting.

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**Notes:****General**

1. Material - Steel, Corrosion Resisting
 2. Thickness - 0.030 inches, minimum
 3. Dimensions - required dimensions as shown
 4. Length and type of fastening shown are descriptive only and may vary depending on diameter of the cylinder and method of fastening strap.
 5. Inscription color background - Aluminum, natural
 6. The letters shall be deep etched and filled with black enamel. Polish and apply one coat of clear laquer after letters have been filled in.
 7. General arrangement of nameplate and horn clip on Military CO2 extinguishers as indicated.
- Maintenance Panel and Identification Panel**
8. Letters shall be of two sizes, 1/8 inch and 3/16 inch high, as shown.
- Operation Instruction Panel**
9. "INSTRUCTIONS" size shall be a minimum of 1/4 inch high.
 10. Verbal instruction above the pictographs shall be a minimum of 1/8 inch high.
 11. Pictographs shall have a minimum height of 3/4 inch.
 12. The use code symbols shall have white figures with a black background.
 13. The verbal description for each use code symbol shall be a minimum of 3/64 inch.
 14. The use code symbols shall be not less than 5/8 by 5/8 inch.



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FIGURE 2. Nameplate band.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL*(See Instructions - Reverse Side)***1. DOCUMENT NUMBER**
MIL-E-24269B(SH)**2. DOCUMENT TITLE** EXTINGUISHER, FIRE, CARBON DIOXIDE, 15 POUND,
PORTABLE, PERMANENT SHUTOFF, NAVY SHIPBOARD USE**3a. NAME OF SUBMITTING ORGANIZATION****4. TYPE OF ORGANIZATION (Mark one)**☐ **VENDOR**☐ **USER**☐ **MANUFACTURER**☐ **OTHER (Specify):** _____**b. ADDRESS (Street, City, State, ZIP Code)****5. PROBLEM AREAS****a. Paragraph Number and Wording:****b. Recommended Wording:****c. Reason/Rationale for Recommendation:****6. REMARKS****7a. NAME OF SUBMITTER (Last, First, MI) - Optional****b. WORK TELEPHONE NUMBER (Include Area Code) - Optional****c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional****8. DATE OF SUBMISSION (YYMMDD)**

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)