

MIL-E-52031D (ME)
5 September 1979
SUPERSEDING
MIL-E-52031C (ME)
7 February 1977

MILITARY SPECIFICATION

EXTINGUISHER, FIRE, VAPORIZING-LIQUID:

CF₃BR; 2-3/4-POUND, WITH BRACKET

This specification is approved for use by the Mobility Equipment Research and Development Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of the Defense.

1. SCOPE

1.1 Scope. This specification covers a one-time usage, nonrefillable, hand-fire extinguisher and replacement cylinders containing 2-3/4 pounds of CF BR (monobromotrifluoromethane).

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2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

BB-N-411	- Nitrogen, Technical.
QQ-S-781	- Strapping, Steel, and Seals.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-B-640	- Boxes, Fiberboard, Corrugated, Triple-Wall.

FSC 4210

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Mobility Equipment Research and Development Command, ATTN: DRDME-DS, Fort Belvoir, VA 22060 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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- MIL-T-704 - Treatment and Painting of Materiel.
- MIL-M-12218 - Monobromotrifluoromethane (Liquefied).

STANDARDS

FEDERAL

- FED-STD-1 - Standard for Laboratory Atmospheric Conditions for Testing.
- FED-STD-595 - Colors.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-130 - Identification Marking of US Military Property.
- MIL-STD-810 - Environmental Test Methods.
- MIL-STD-1188 - Commercial Packaging of Supplies and Equipment.

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

DEPARTMENT OF TRANSPORTATION (DOT)

DOT FEDERAL MOTOR CARRIER REGULATIONS (FMCSR)

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

UNDERWRITERS LABORATORY, Inc.

UL 299 - Dry Chemical 7

(Application for copies should be addressed to Underwriters Laboratories, Inc., 333 Phingstin Road, Northbrook, IL 60062).

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3. REQUIREMENTS

3.1 Design and construction. The extinguisher shall be designed and constructed so that no parts will work loose in service. The extinguisher shall be built to withstand the strain, jar, vibrations, and other conditions incident to shipping, storage, installation, and service. The extinguisher triggering mechanism shall be designed in such a manner that it may be operated by personnel wearing heavy work gloves or arctic mittens. All components shall be designed and so located with respect to each other that ease of handling is assured, and injury to operating personnel is not likely to occur. The complete fire extinguisher shall consist essentially of cylinder with siphon tube, cylinder seal, head assembly with valve, and bracket. The extinguisher shall be charged with 2 pounds, 11 ounces to 2 pounds, 14 ounces of monobromotrifluoromethane extinguishing agent conforming to MIL-M-12218 and shall be stabilized at a pressure of 380 psig at 68° F with nitrogen conforming to BB-N-411, Type I, Class 1 or 2, Grade B. The fully charged extinguisher shall weigh not more than 7 pounds, 11 ounces without the mounting bracket. The overall height of the complete extinguisher shall not exceed 13-1/2 inches \pm 1/2 inch. Unless otherwise specified a complete, charged extinguisher with bracket shall be furnished. When specified (see 6.2), only the fully charged cylinder without the bracket shall be furnished with the protective cap specified in 3.7. When only the charged cylinder and cap is specified, the cylinder shall be marked as required in 3.14. When furnishing the complete extinguisher NSN-4210-00-555-8837 shall appear on the nameplate; when only the charged cylinder and cap is specified NSN-4210-00-708-0031 shall appear on the nameplate.

3.2 First article (preproduction model). The contractor shall furnish an extinguisher for examination and tests within the time frame specified (see 6.2), to prove, prior to starting production, that his production methods and choice of design detail will produce extinguishers that comply with the requirements of this specification. Examination and tests shall be as specified in Section 4; and, unless otherwise specified herein, all examination and tests shall be conducted by the contractor subject to surveillance and approval by the Government (see 6.3). When specified (see 6.2), the Government will conduct all of the preproduction examination and tests as specified (see 6.2).

3.3 Initial production. When specified the contractor shall furnish to the Government three extinguishers for inspection as specified in 4.4.

3.4 Material. Material shall be as specified herein (see 6.4). Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification. Horns fabricated of rubber products shall not be subjected to the test specified in 4.6.2.8.1. Horns fabricated of plastic products shall not be subjected to the test specified in 4.6.2.8.4.

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3.5 Cylinder shell. The cylinder shall conform to DOT regulations, service pressure of 500 psig. The cylinder head connection shall be as shown in Figure 1. The cylinder with siphon tube installed shall have an internal volume of 80 cubic inches, plus 2 inches or minus 1 cubic inch, and shall have an external diameter of 3.50 inches plus or minus 0.06 inch.

3.5.1 Siphon tube. The extinguisher shall be fitted with a metal siphon tube so located that 90 percent of the full charge shall be discharged when the extinguisher is held 45 degrees to the horizontal with the valve and discharge horn assembly facing upward. The siphon tube shall be attached by threading, flaring, crimping, compression fitting or copper flaring. A soft-soldered (sweated) connection is not acceptable.

3.6 Cylinder-seal assembly. The cylinder-seal assembly shall be as shown in Figures 2, 3, and 4. The seal-disk assembly shall be tightened to 25 ft-lb plus or minus 1 ft-lb.

3.6.1 Seal disk. The seal disk shall burst under a pressure of 1050 psig plus or minus 100 psig. The seal disk shall be marked in the appropriate center of the disk with the letters "FR" not exceeding 3/32 inch in height.

3.6.2 Cylinder-seal washer. The cylinder-seal washer may be made from soft copper or may be made of nylon.

3.7 Cylinder-head assembly. The head assembly shall consist of a gasket, an internally threaded swivel nut for attaching the assembly head to the cylinder, a valve with puncture pin, safety pin lock, hand grip, swivel arm, orifice, and horn. When only charged cylinders are required (see 6.2), an internally threaded protective cap shall be furnished in lieu of the head assembly, provided with holes drilled through the sides at 180 degrees from one another to prevent recoil of the cylinder in the event of cylinder-seal failure.

3.7.1 Cylinder-head gasket. The gasket shall prevent leakage of the extinguisher contents between the head assembly and the cylinder after the seal disk has been punctured by the puncture pin with the head assembly attached to the cylinder. The gasket shall be such that no leakage will occur throughout the operating temperature range from minus 50° F to plus 120° F.

3.7.2 Threaded swivel nut. The swivel nut shall allow a full 360 degree rotation of the head assembly when attached to the cylinder head

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to allow orientation of the head relative to the cylinder before tightening. The method of attaching the swivel nut to the valve assembly shall be the threaded fastener type. Swagging or riveting is not acceptable.

3.7.3 Valve. The valve shall have a shutoff mechanism with a puncture pin. When the cylinder head assembly is secured on the cylinder, the puncture pin shall not puncture or make contact with the frangible safety disk when the safety pin is pulled and the upper portion of the valve handle is depressed to a point where the inner safety pin hole is completely blocked. To allow discharge in the event of seal disk rupture the shutoff valve shall be held in a semi-open position when the safety pin is installed. The valve-opening lever shall require an actuating force of not less than 8.25 pounds nor more than 11 pounds. The valve-opening lever shall be self closing. After puncture of the seal disk and with the valve mechanism released, the valve shall block the extinguisher discharge, and the assembly connections and seals shall not leak.

3.7.4 Safety pin. The safety pin shall be fitted with a seal conforming to UL 299 for visually indicating the removal of the safety pin. A chain attaching the safety pin to the head assembly shall be provided to prevent removal or detachment of the safety pin. The safety pin shall be chamfered and shall incorporate a ring pull for easy withdrawal. A self-locking seal affixed through the safety pin ring over and around the actuating lever shall be provided with each extinguisher. The safety pin shall not allow activation of the extinguisher when a 50 pound force is applied simultaneously against the outer ends of the valve-opening lever and the carrying handle. Blocks or spacers shall not be used in conjunction with the safety pin.

3.7.5 Swivel arm. The swivel arm shall be attached to the head assembly. The swivel arm shall have a vertical swivel of 180 degrees and shall not be capable of being raised vertically past the longitudinal axis of the extinguisher cylinder. A torque of not less than 1/4 ft-lb nor more than 2 ft-lb applied to the end of the assembly shall be required to produce angular displacement of the swivel arm. Jarring, vibration, or handling shall not detach the horn from the swivel arm. The swivel arm shall incorporate a 30 degree bend near the swivel (on the front face opposite the handle-hold). The sweep may be limited by the cylinder body when the head is attached to the cylinder body. When in the rest position, the swivel-arm and horn assembly shall not extend beyond the cylinder bottom.

3.7.6 Grip. When in the operating position, the grip shall be positioned at an angle of 60 degrees plus or minus 5 degrees with the cylinder longitudinal axis. The grip shall have a breadth of not less than 1 inch, and no sharp edges shall be exposed. Metal thickness shall be not less than .060 inch. The grip shall be provided with finger grip depressions.

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3.7.7 Discharge orifice bushing and horn. The discharge horn shall reduce the turbulence and direct the extinguishing agent discharge vapor stream. The discharge horn shall be not less than 3-1/2 inches long and shall be fabricated of tough, water- and heat-resistant material having a noncorrosive orifice bushing molded or securely built into the inlet of the horn. The horn material shall have dielectric strength to withstand for a period of 1 minute, without breakdown, a voltage of 5000 volts, 60-cycle ac. The horn shall withstand aging, weathering, and mechanical and thermal shock encountered by operation within climatic extremes without cracking, appreciable change in flexibility, or evidence of distortion or other damage. The horn shall be attached to the swivel arm so that no separation occurs during handling or operation of the extinguisher. The expanding orifice or primary point of expansion of the liquefied extinguishing agent shall be located in the discharge horn at the point where the horn connects to the swivel arm.

3.8 Performance. The discharge time for expelling the liquid contents of the extinguisher at 68° F shall be not less than 12 seconds and not more than 18 seconds. The discharge range shall be not less than 4 feet for the full time the extinguisher is discharging. The extinguisher shall show no signs of leakage when tested with a leak detector which will detect a leakage rate as low as 0.1 ounce or less per year. After the extinguisher has been removed from the bracket and the safety ring has been extracted, the extinguisher shall be operable by an operator using one hand.

3.9 Climatic extremes. The extinguisher shall operate at any air temperature from minus 50° F without benefit of solar radiation, to plus 120° F while exposed to a solar radiation intensity of 360 Btu/sq ft/hr and shall be capable of safe storage at temperatures from minus 80° F for a period of 72 hours to plus 155° F for a period of 4 hours daily.

3.10 Corrosion resistance. The fire extinguisher shall withstand a salt spray for 200 hours without evidence of corrosion sufficient to impair functioning of the extinguisher or to prevent manipulation of fittings and connections with regular servicing tools.

3.11 Drop resistance. The fully charged extinguisher shall be operable after being subjected to three drops from a height of 4 feet.

3.12 Vibration. The extinguisher mounted in the bracket shall withstand vibration forces in the vertical position at the rate of 60 cps at 1-1/4 g acceleration forces.

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3.13 Bracket. When specified (see 6.2), a mounting bracket shall be furnished with each extinguisher. The clamp with spring lock shall hold the extinguisher when subjected to the acceleration forces specified herein. The bracket shall permit quick, easy removal of the extinguisher from any position when the cam lock is released. Dimensions shall be as shown in Figure 5.

3.13.1 Static loading. The bracket shall hold the extinguisher against static loading of 200 pounds downward and 88 pounds upward along the axis of the extinguisher mounted vertically. The bracket shall also hold the extinguisher with a 200 pound outward loading applied to the extinguisher at a point midway between the strap and the bottom of the bracket. Each load shall be applied and then removed before adding the next load.

3.14 Instructions and nameplate. The instructions and nameplate shall be as follows using aluminum as the basic plate material:

<u>Letter size (inch)</u>	<u>Data</u>	<u>Inscription system</u>
3/16	To operate.	Black on natural color metal.
5/32	1. Pull ring pin.	Black on natural color metal.
5/32	2. Point horn close to base of fire	Black on natural color metal.
5/32	3. Depress trigger for discharge and keep base of flames covered.	Black on natural color metal.
5/32	4. Avoid breathing of smoke.	Black on natural color metal.
5/32	5. Remove valve and horn assembly and discard used cylinder.	
1/8	Extinguisher, Fire, CF ₃ BR, 2-3/4 pounds.	Natural metal color on black.
7/64	For maintenance.	Natural metal color on black.
5/64	Replace with a new charged cylinder, NSN 4210-00-708-0031 immediately after using.	Natural metal color on black.
5/64	Weigh extinguisher cylinder every 6 months and replace if gross weight has decreased by 4 ounces or more; lubricate cylinder neck threads with one drop OE 30 before reassembly.	Natural metal color on black.
3/32	NSN 4210-00-555-8837	Natural metal color on black.

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3/32	FABRICATOR	Natural metal color on black.
3/32	CONTRACT NO.	Natural metal color on black.
3/32	GROSS WEIGHT	Natural metal color on black.
3/32	Weight of fully charged cylinder w/o head and horn.	Natural metal color on black.
3/32	$\frac{1b}{oz}$ Date of fabrication.	Natural metal color on black.
7/64 7/16	Property of U. S. Government Fabricator's trade mark, Optional name, address, etc.	Black on natural metal color.

The instructions and nameplate shall be attached to the cylinder.

3.15 Identification marking. The extinguisher shall be identified in accordance with MIL-STD-130.

3.15.1 Extinguisher cylinder. Each extinguisher cylinder shall be plainly and permanently marked in accordance with DOT regulations by stamping on the shoulder of the cylinder, starting near the neck and in sequence downward as follows:

One side - DOT specification and service pressure, and "SPUN" when spun cylinders are supplied, in characters not less than 3/16 inch high. The symbol of the Department of the Army "DA", and the manufacturer's serial number-letters in characters not less than 1/4 inch high.

The manufacturer's mark or symbol.

Third party inspection mark or Government inspector's stamp, when applicable.

Other side - (opposite the above marking, and as near the neck as possible).

Military specification number.

Original pressure test date (month and year).

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3.16 Treatment and painting. The portions of the extinguisher and its components and parts normally painted shall be treated and painted in accordance with MIL-T-704, Type A, Finish Color No. 11105. The fire extinguisher bracket shall be painted Finish Color No. 17178 of FED-STD-595.

3.17 Workmanship. All parts, components, and assemblies of the extinguisher shall be clean and free from sand, dirt, fins, pits, sprues, scale, flux, and other harmful extraneous material. All edges shall be rounded or beveled. All burrs and rough edges shall be removed.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 inspection requirements specified herein are classified as follows:

- (a) Preproduction inspection (see 4.3).
- (b) Initial production inspection (see 4.4).
- (c) Quality conformance inspection (see 4.5).
- (d) Inspection comparison (see 4.7).
- (e) Inspection of packaging (see 4.8).

4.2.1 Cylinder only. When replacement cylinders only are being procured, inspection shall be limited to the examination specified in 4.6.1 and the tests specified in 4.6.2.1, 4.6.2.2, and 4.6.2.4.

4.3 Preproduction inspection.

4.3.1 Examination. The extinguishers shall be examined as specified in 4.6.1. Presence of one or more defects shall be cause for rejection.

4.3.2 Tests. The extinguishers shall be tested as specified in 4.6.2. Failure to pass any test shall be cause for rejection.

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4.4 Initial production inspection. Three initial production extinguishers will be selected at random by the Government from extinguishers being produced from production tooling and will be examined as specified in 4.6.1 and tested as specified in 4.6.2 through 4.6.2.7 and 4.6.2.11 to determine conformance to the requirements of this specification. The inspection will be performed by the Government at a site selected by the Government. Acceptance of the initial production extinguishers shall not exclude the remaining extinguishers from the quality conformance inspection and acceptance provisions specified in Section 4.

4.4.1 Inspection failure. Failure of the initial production extinguishers to meet any requirement specified herein during and as a result of the examination and tests specified in 4.4 shall be cause for rejection of the initial production extinguishers and shall be cause for refusal by the Government to continue acceptance of production extinguishers until evidence has been provided by the contractor that corrective action has been taken to eliminate the deficiencies. Correction of such deficiencies shall be accomplished by the contractor at no cost to the Government on extinguishers previously accepted and produced under the contract. Any deficiencies found as a result of the initial production testing will be considered prima facie evidence that all extinguishers accepted prior to the completion of initial production testing are similarly deficient unless evidence to the contrary is furnished by the contractor and such evidence is acceptable to the contracting officer.

4.5 Quality conformance inspection.

4.5.1 Sampling. Sampling for examination shall be in accordance with MIL-STD-105, Inspection Level II. Sampling for tests shall be in accordance with MIL-STD-105, Level S-3.

4.5.2 Examination. Samples selected in accordance with 4.5.1 shall be examined for the major and minor characteristics for possible defects as specified in 4.6.1. AQL shall be 2.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.5.3 Test. Samples selected in accordance with 4.5.1 shall be tested as specified in 4.6.2.1, 4.6.2.2 and 4.6.2.11. AQL shall be 2.5 percent defective.

4.6 Inspection procedure.

4.6.1 Examination. The sample extinguishers shall be examined as specified in 4.5.2 for the following characteristics for possible defects:

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<u>Major</u>	<u>Requirements Paragraph</u>
101. Design and construction not as specified.	3.1
102. Material not as specified.	3.4
103. Cylinder shell not as specified.	3.5
104. Siphon tube not as specified.	3.5.1
105. Cylinder-seal assembly not as specified.	3.6
106. Seal disk not as specified.	3.6.1
107. Cylinder-seal washer not as specified.	3.6.2
108. Cylinder-head assembly not as specified.	3.7
109. Cylinder-head gasket not as specified.	3.7.1
110. Threaded swivel not as specified.	3.7.2
111. Valve not as specified.	3.7.3
112. Safety pin not as specified.	3.7.4
113. Swivel arm not as specified.	3.7.5
114. Grip not as specified.	3.7.6
115. Discharge orifice bushing and horn not as specified.	3.7.7
116. Bracket not as specified.	3.13
117. Instructions and nameplate not as specified.	3.14
118. Weight not stamped on nameplate.	3.14
 <u>Minor</u>	
201. Identification marking not as specified.	3.15
202. Treatment and painting not as specified.	3.16
203. Workmanship not as specified.	3.17

4.6.2 Tests.

4.6.2.1 Seal torque. Secure the extinguisher in an upright position. Apply 25 ft-lb plus or minus 1 ft-lb of torque to the cylinder seal using a torque wrench. This test can be conducted at time of assembly. Movement or tightening of the cylinder seal during this application shall constitute failure of this test.

4.6.2.2 Leaks. A fully charged extinguisher shall be tested for leaks using a detector which will detect a leakage rate as low as 0.1 ounce or less per year. Any detection of leakage shall constitute failure of this test. The detector to be used shall be calibrated with a known value of gas prior to performing the test specified herein.

4.6.2.3 Vibration. Mount the fully charged extinguisher in its bracket in a horizontal position. Subject the mounted extinguisher to vibrations

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in the vertical direction at the rate of 60 cps at 1-1/4 g acceleration for a period of 1 hour. Rotate the extinguisher 90 degrees about the longitudinal axis, and continue the vibrations for a period of 1 hour. Breaking or loosening of components, inability of the bracket to hold, inability of the swivel arm to swivel 180 degrees, or discharge of the extinguisher in less than 12 seconds or more than 18 seconds shall constitute failure of this test.

4.6.2.4 Safety-disk burst. Insert the seal disk assembly into a hydraulic test rig. Apply hydrostatic pressure slowly until the disk bursts. A burst pressure of less than 950 psig or greater than 1150 psig shall constitute failure of this test.

4.6.2.5 Drop and discharge. Drop the fully charged extinguisher with head assembly from a height of 4 feet onto a solid concrete surface from each of the following positions:

- (a) Longitudinal axis parallel to the concrete surface.
- (b) Extinguisher bottom down.
- (c) Extinguisher head down.

Then use a leak detector to determine whether the extinguisher is leaking. Rotate the head assembly. Discharge the extinguisher completely. Any leakage, discharge of the extinguishing agent in less than 12 seconds or more than 18 seconds, discharge range of less than 4 feet, or inability the head assembly to rotate 360 degrees shall constitute failure of this test.

4.6.2.6 Performance. Weigh the fully charged extinguisher. The weight of the extinguishing agent shall be between 2 pounds, 11 ounces and 2 pounds, 14 ounces. Weight shall be determined at laboratory atmospheric conditions in accordance with FED-STD-1. Cool the extinguisher to a temperature of minus 50° F plus or minus 2° F and maintain at this temperature for not less than 12 hours. At the conclusion of this period, the extinguisher shall be immediately discharged. Sticking of the valve or clogging of the discharge orifices shall constitute failure of this test.

4.6.2.7 Corrosion. Subject the extinguisher to salt-spray action specified in MIL-STD-810, Method 509. Operate the extinguisher and manipulate the fittings and connections with regular servicing tools. Nonconformance to 3.10 shall constitute failure of this test.

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4.6.2.8 Horn.

4.6.2.8.1 Accelerated aging test for plastic materials. The horn shall be placed in a circulating air oven, heated to 194° F and held at this temperature for 94 hours. When removed from the oven the horn shall show no cracking or deterioration. The horn shall then be subjected to the impact test in 4.6.2.8.2.

4.6.2.8.2 Impact shock. Cool the horn to minus 5° F. Support the horn with a clamping mechanism at the handgrip so that the point of impact will be on the external surface approximately 2 inches from the open end of the horn. Immediately drop a 5-pound steel ball free and unguided from a height of 1 foot upon the horn. This test shall be repeated a total of four times. Fractures or cracks shall constitute failure of this test.

4.6.2.8.3 Thermal shock. Soak the horn in an ice-brine (CaCl₂) bath at minus 22° F for a period of 30 minutes. Remove the horn rapidly and immediately plunge into boiling water (212° F) for a period of 30 seconds. Fractures or cracks shall constitute failure of this test.

4.6.2.8.4 Accelerated aging. Place the horn in a pressure bomb pressurized with oxygen at 290 to 310 psig, and then place the pressure bomb in an oven. Heat to 160° F and hold at this temperature for 24 hours. Let the bomb and horn cool, then release the pressure slowly. Fractures or cracks shall constitute failure of this test.

4.6.2.8.5 Dielectric. Apply an ac test potential of 5000 volts to the horn for a period of 1 minute. Arcing or evidence of electrical breakdown shall constitute failure of this test.

4.6.2.9 Bracket loading. Apply a static load of 200 pounds downward and 88 pounds upward along the axis of the extinguisher mounted vertically. Apply 200 pounds force outward (90 degrees to longitudinal axis) at a point midway between the strap and the bottom of the bracket. Each load shall be applied and then removed before adding the next load. Structural failure and permanent deformation of the bracket or release of the fastening attachment (cam lock) shall constitute failure of this test.

4.6.2.10 Puncture. Secure the cylinder-head assembly onto the extinguisher cylinder. When the swivel nut is tightened, remove the safety pin, and depress the upper portion of the valve to a point where the

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inner holes for the safety pin are not visible. Then release the valve and remove the cylinder-head assembly from the extinguisher cylinder. Puncture of the frangible safety disk before the hole is completely blocked or any indication of contact between the puncture pin and the frangible safety disk after the cylinder-head assembly has been removed shall constitute failure of this test.

4.6.2.11 Safety pin. Secure the cylinder-head assembly to the extinguisher. With the swivel nut tightened, the safety pin in place, apply a 50 pound force to the outer ends of the actuating lever, and lower carrying handle. Remove the cylinder-head assembly from the extinguisher. Any indication of contact between the puncture pin and the frangible safety disk or any deformation of cylinder head assembly, the carry handle, carrying handle attaching pins, or actuating lever shall constitute failure of this test.

4.7 Inspection comparison. The Government may select extinguishers at any time during the contract production period and subject these extinguishers to the examination specified in 4.6.1 and the tests specified in 4.6.2 through 4.6.2.7; 4.6.2.10 and 4.6.2.11 to determine that the quality of the selected extinguishers is equal to the quality standards established during initial production testing. The inspection shall be performed by the Government at a site selected by the Government. Extinguishers will be selected at random from those which have been accepted by the Government and will not include the previously inspected preproduction model(s) and initial production extinguishers.

4.7.1 Inspection failure. Failure of any extinguishers when inspected as specified in 4.7 may be considered cause for refusal by the Government to continue acceptance of extinguishers until objective evidence furnished by the contractor reveals that corrective action has been taken to eliminate the condition which caused the rejection.

4.8 Inspection of packaging

4.8.1 Quality conformance inspection of pack.

4.8.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.8.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.8.1.3 Examination. Samples selected in accordance with 4.8.1.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

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- 119. Materials or containers not as specified. Each incorrect material or container shall be considered one defect.
- 120. Box closure not Method V as specified.
- 121. Strapping not as specified.
- 122. Marking illegible, incorrect, incomplete or missing.

5. PACKAGING

5.1 Preservation. Preservation shall be Level A or Commercial as specified (see 6.2).

5.1.1 Level A. Each fire extinguisher with bracket or cylinder assemblies shall be preserved in a close-fitting box conforming to PPP-B-636, W6c. The fire extinguisher with bracket or cylinder assemblies shall be blocked within the box in a manner that will prevent damage to the handle and horn during handling. Box closure shall be in accordance with the appendix to the box specification, Method V.

5.1.2 Commercial. Each fire extinguisher with bracket or cylinder assemblies and instruction cards shall be preserved in accordance with MIL-STD-1188.

5.2 Packing. Packing shall be Level A, Level B or Commercial as specified (see 6.2).

5.2.1 Level A. The fire extinguishers or cylinder assemblies preserved as specified in 5.1 shall be packed together in close-fitting boxes conforming to PPP-B-601, Overseas Type, style optional. Strapping shall conform to QQ-S-781, Class 1, Type I or IV, size as applicable. Unless otherwise specified (see 6.2), strapping shall be Finish B. When specified (see 6.2), strapping shall be Finish A.

5.2.2 Level B. The fire extinguishers or cylinder assemblies preserved as specified in 5.1 shall be packed in close-fitting, Class Weather Resistant, style optional, fiberboard boxes conforming to PPP-B-636 or PPP-B-640 or in Domestic Type, style optional, wood boxes conforming to PPP-B-601. Closure and strapping shall be in accordance with the applicable box specification.

5.2.3 Commercial. The fire extinguishers or cylinder assemblies preserved as specified in 5.1 shall be packed in accordance with MIL-STD-1188.

5.3 Marking.

5.3.1 Military packaging. Marking shall be in accordance with MIL-STD-129.

5.3.2 Commercial packaging. Marking shall be in accordance with MIL-STD-1188.

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6. NOTES

6.1 Intended use. The hand fire extinguisher is intended to be used to combat incipient petroleum electric fires.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Time frame required for submission of the preproduction model (see 3.2).
- (c) When initial production testing is not required (see 3.3).
- (d) When only charged cylinders are required (see 3.1 and 3.7).
- (e) When a mounting bracket is required (see 3.13).
- (f) Degree of preservation and degree of packing required (see 5.1 and 5.2).
- (g) When other than Finish B strapping is required (see 5.2.1).
- (h) When the Government will conduct any or all of the preproduction model examination and tests. When the Government will conduct some but not all of the preproduction examination and tests, the contracting officer should specify which examination and tests will be conducted by the Government and which examination and tests shall be conducted by the contractor (see 3.2).

6.3 Preproduction model. Any changes or deviations of production extinguishers from the approved preproduction model during production will be subject to the approval of the contracting officer. Approval of the preproduction model will not relieve the contractor of his obligation to furnish extinguishers conforming to this specification.

6.4 Recycled material. The use of recycled materials which meet the requirements of the specification is encouraged (see 3.4).

Custodian:
Army - ME

Preparing activity:
Army - ME

Review activities:
Army - AT, MI
DSA - CS

Project 4210-A154

User activity:
Army - AV

X-3902A

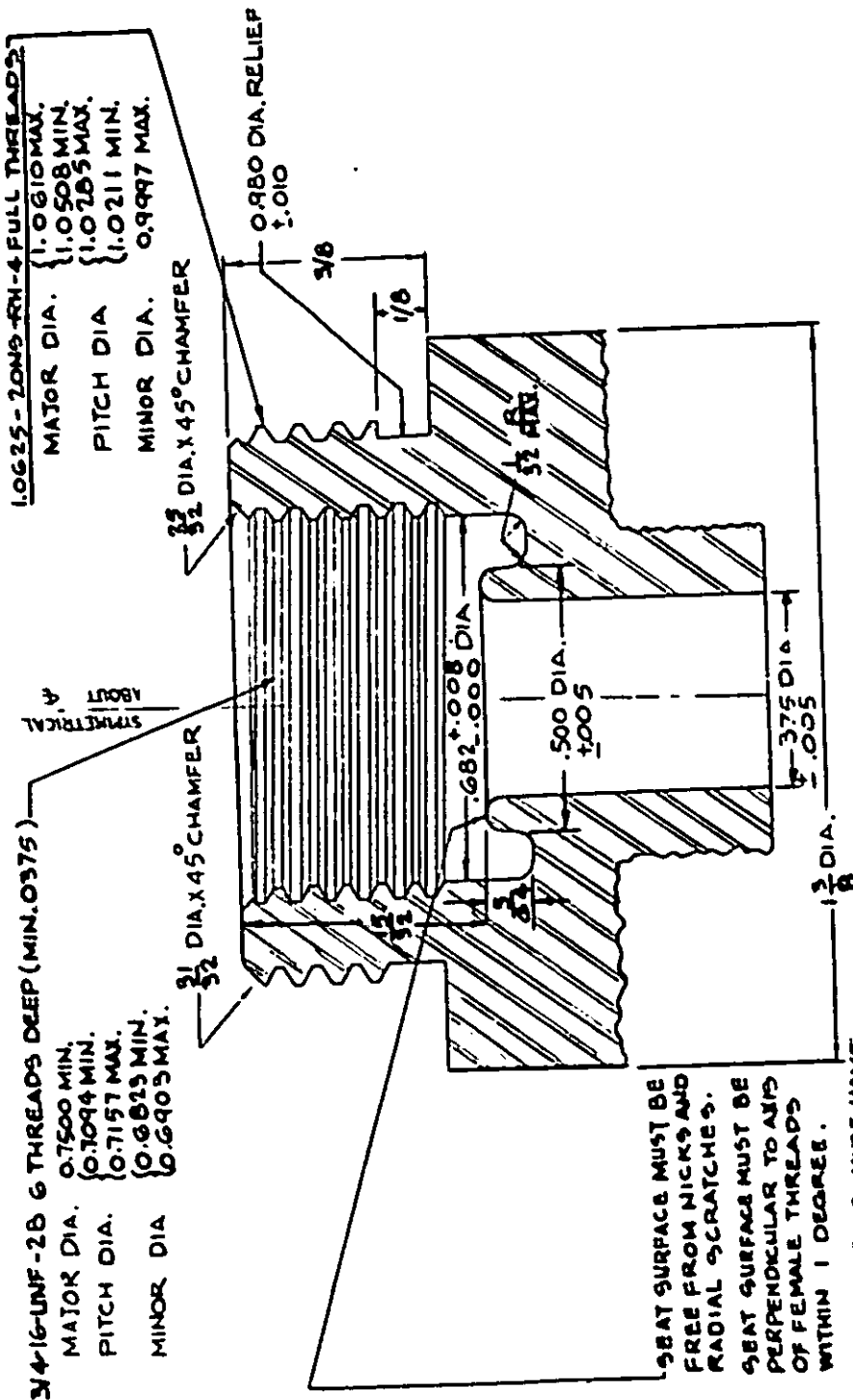


FIGURE 1. Cylinder head connection.

MIL-E-52031D(MF)

NOTE: TEST 2 OF EVERY 3000 ASSEMBLIES FOR RUPTURE.
REQUIRED RUPTURE PRESSURE 950-1150 PSI.

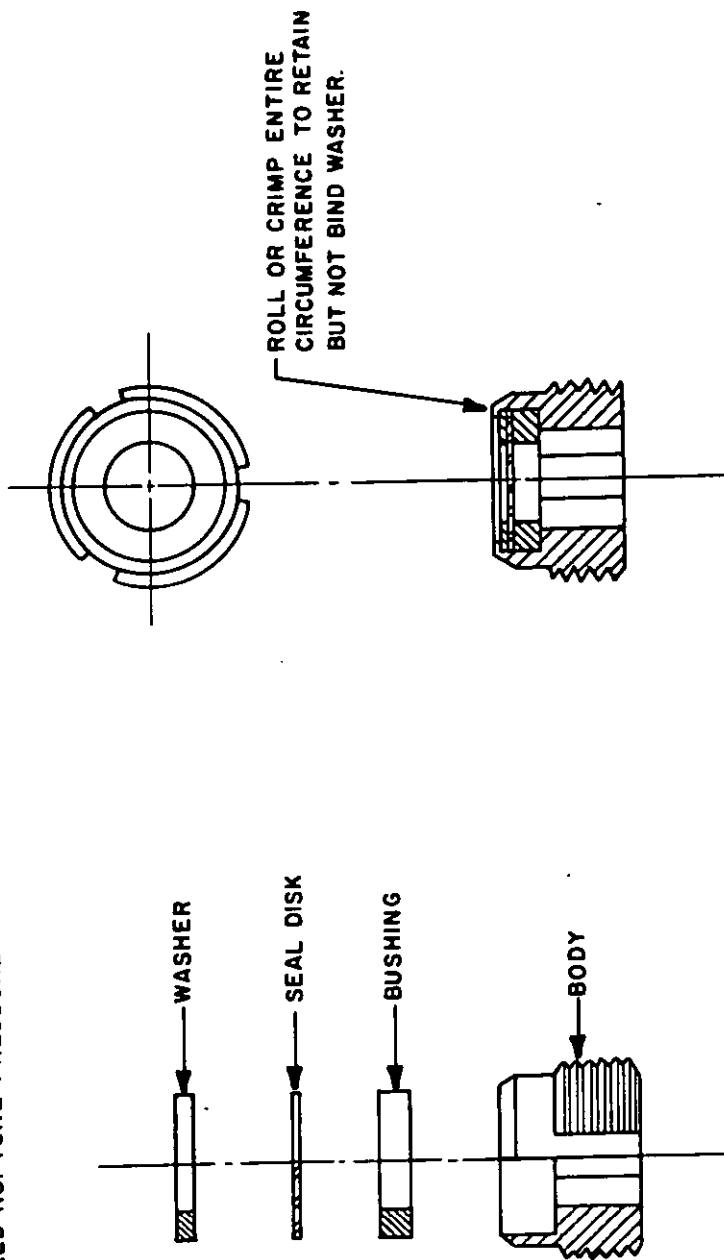


FIGURE 2. Cylinder seal assembly.

X-3903A

MIL-E-52031D(ME)

X-3904A

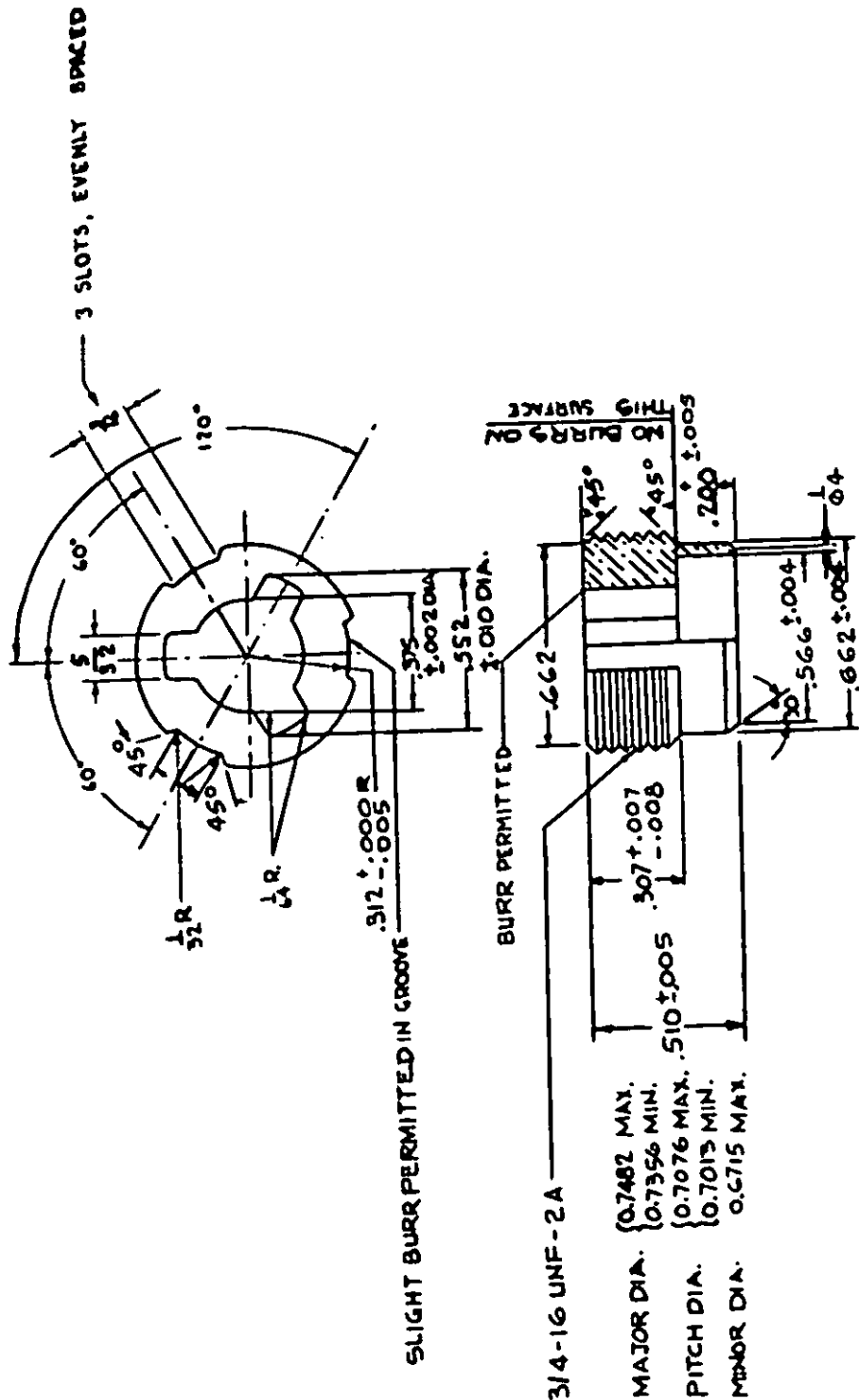


FIGURE 3. Cylinder seal details - body.

MTL-E-520310(ME)

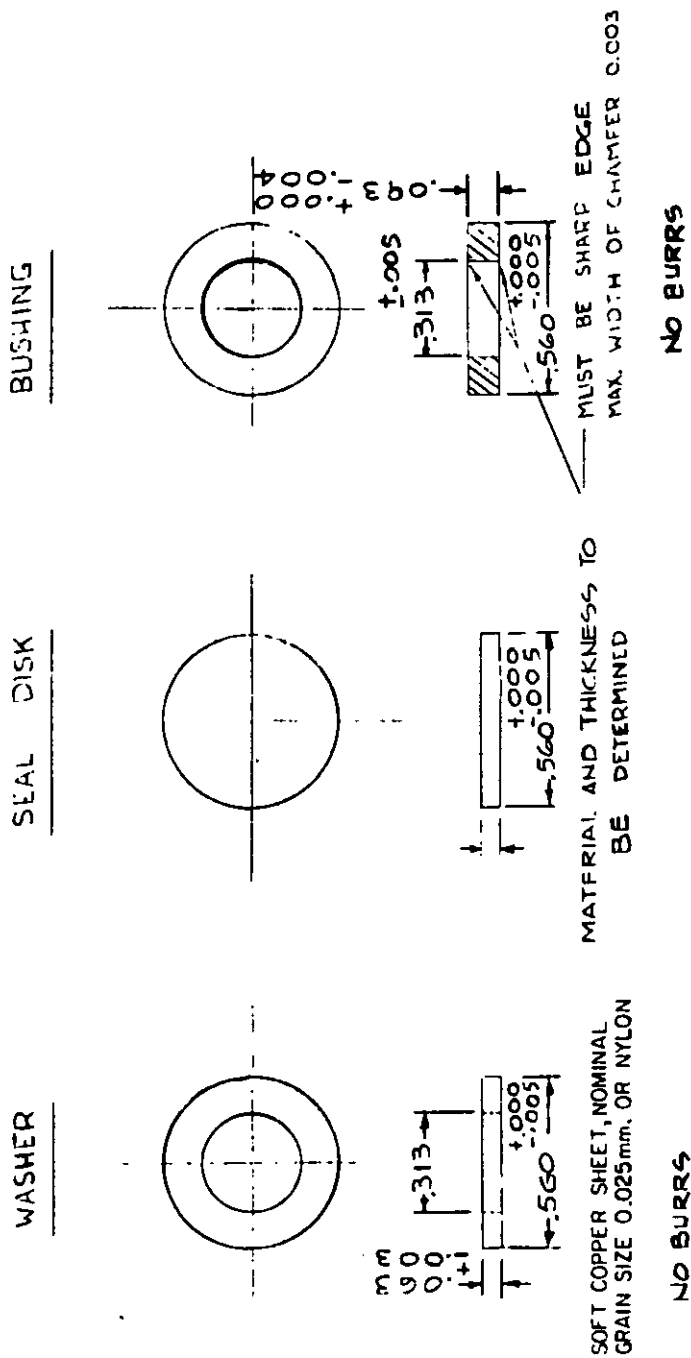


FIGURE 4. Cylinder seal details - washer, seal disk, bushing.

X-3905A

MIL-E-52011D(ME)

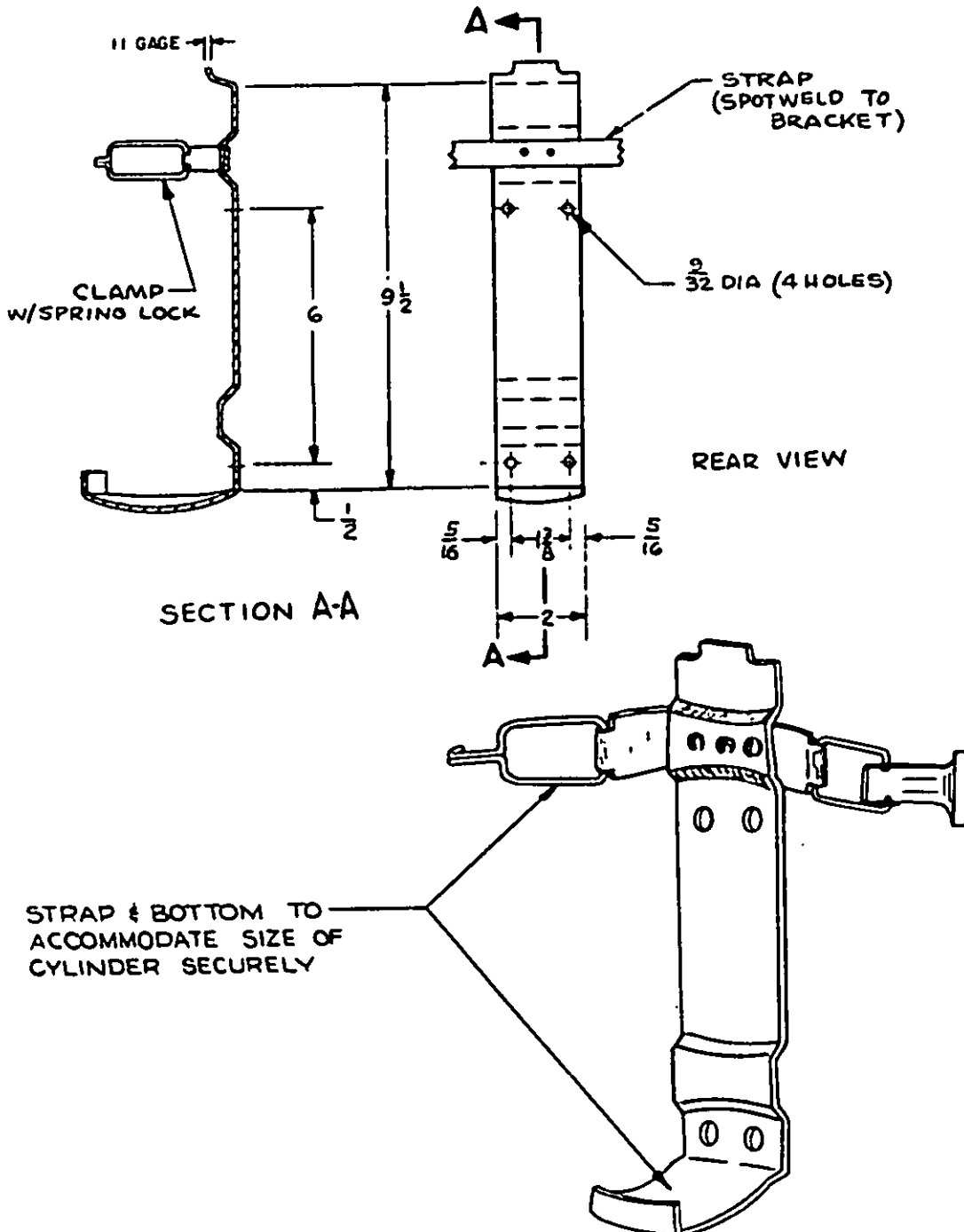


FIGURE 5. Bracket for 2-3/4 lb monobromotrifluoromethane fire extinguisher.

X - 3906

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. 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. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE MIL-E-52031D(ME) Extinguisher, Fire, Vaporizing-Liquid: CF, BR; 2-3/4-Pound, with Bracket

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

DIRECT GOVERNMENT CONTRACT SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?

YES NO (If "Yes", in what way?)

4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE