

INCH-POUND

MIL-T-45169E(AL)
 17 January 1992
 SUPERSEDING
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MILITARY SPECIFICATION

TANK, PRESSURE, AIR, PORTABLE

This specification is approved for use within the US Army Armament Research, Development and Engineering Center, Department of Army and is available for use by all Departments and Agencies of the Department of Defense

1. SCOPE

1.1 Scope. This specification covers a portable air pressure tank for the retention, conveyance, and dispensing of compressed air.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

PPP-B-601	- Boxes, Wood, Cleated Plywood
PPP-B-621	- Box, Wood, Nailed and Lock Corner
PPP-B-636	- Boxes, Shipping, Fiberboard
PPP-C-843	- Cushioning Material, Cellulosic
PPP-F-320	- Fiberboard: Corrugated and Solid, Sheet Stock (Container Grade) and Cut Shapes
PPP-T-60	- Tape, Packaging, Waterproof

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Armament Research, Development and Engineering Center, ATTN: SMCAR-EST-S, Rock Island, IL 61299-7300 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4940

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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MILITARY

- MIL-P-116 - Preservation, Methods of
 MIL-C-5501 - Cap and Plug, Protective, Dust and Moisture Seal

STANDARDS

FEDERAL

- FED-STD-H28 - Screw-Thread Standards For Federal Services

MILITARY

- MIL-STD-129 - Marking For Shipment and Storage
 MIL-STD-130 - Identification Marking of US Military Property
 MIL-STD-889 - Dissimilar Metals
 MIL-STD-1186 - Cushioning, Anchoring, Bracing, Blocking and
 Waterproofing; With Appropriate Test Methods
 MIL-STD-1189 - Standard Department of Bar Code Symbology
 MIL-STD-1190 - Minimum Guidelines for Level C Preservation,
 Packing and Marking

2.2 Other Government documents and publications. The following other Government documents and publications 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.

US DEPARTMENT OF LABOR

- 29 Code of Federal Regulation (CFR), - Occupational Safety and
 Chapter XVII, Parts 1900 to 1910 Health Standards Act (OSHA)

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

2.3 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.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

- B40-1 - Gauges - Pressure Indicating Dial Type - Elastic Element

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(Application for copies should be addressed to the American Society of Mechanical Engineers, 29 West 39th Street, New York, New York 10018.)

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal Agencies.)

2.4 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection. (see 4.3 and 6.2.1).

3.2 Design. The tank shall be of the manufacturer's latest design meeting the performance requirements specified herein. The tank shall be a steel fabricated, cylindrically shaped, horizontal, portable, hand-carried tank that retains compressed air of a known pressure. Facilities shall be provided to fill the tank by the injection of compressed air from an air supply source and to dispense the air from the tank through an air hose and air chuck. All parts subject to wear, breakage, or distortion shall be accessible for adjustment, repair, or replacement.

3.2.1 Threads. The design, manufacture and configuration of threads shall be examined and inspected to conform with FED-STD-H28 and the applicable detailed standards referenced therein. No testing in FED-STD-H28 shall be required.

3.3 Material. Materials not specifically designated herein or in the contract shall be of a quality commensurate with best commercial practices, shall be suitable for the intended purpose in the design and fabrication of the Portable Air Pressure Tank, and shall meet all requirements specified herein. Materials shall be free from defects which would affect the performance, maintainability, reliability, durability, or longevity of the individual components or the Portable Air Pressure Tank itself. When dissimilar metals are used in contact with each other, suitable protection against galvanic corrosion shall be applied in accordance with MIL-STD-889.

3.4 Construction. The portable air pressure tank shall be constructed of parts which are new, without defects and free of repairs, sharp edges and burrs. The pressure tank shall withstand all forces encountered during operation in its intended environment, to the pressure tanks maximum rating and capacity, without deformation or degradation.

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3.4.1 Welding, brazing, and soldering. All welding, brazing and soldering shall be free of defects and of a quality which shall sustain all requirements of the welded, brazed or soldered parts. Defects shall include but are not limited to such things as bubbles, cracks, holes, insufficient material used, etc.. All flux or other such materials used during these operations shall be thoroughly removed (cleaned), from the part(s) immediately upon completion of the operation. These operations shall not be employed as repair measures for defective parts.

3.4.2 Fastening devices. All screws, pins, bolts, and similar parts shall be installed in the portable air pressure tank with means for preventing loss of tightness. All such parts, when subject to removal or adjustment, shall not be swaged, peened, staked, or otherwise permanently deformed.

3.4.3 Safety and health requirements. Safety devices shall be provided for all parts presenting safety hazards which can be guarded without substantial interference to operation of the tank. All guards shall be removable to provide easy access to guarded parts. Except as otherwise specified by the procuring activity, the tank shall comply with the standards promulgated under Title 29, Code of Federal Regulations (CFR); applicable to the tank itself. Exceptions and additional requirements for safety and health shall be as specified (see 6.2.1 and 6.4).

3.4.4 Mercury restriction. The tank shall not contain mercury or mercury compounds nor be exposed to free mercury during manufacture.

3.4.5 Asbestos restriction. Asbestos and materials containing asbestos shall not be used on or in the tank.

3.5 Performance and product characteristics.

3.5.1 Functional requirements. The tank shall be a horizontal portable unit capable of being conveyed by one operator. The tank shall retain compressed air at the working pressure specified in 3.5.2 and shall include standard means for filling the tank and for dispensing the compressed air from the tank.

3.5.2 Pressure. The tank shall operate at a working pressure of 125 pound force per square inch gage (psig).

3.5.3 Safety factor requirement. The portable air pressure tank with filler valve and safety valve holes plugged, shall be able to withstand a proof pressure of 375 psig for a period of not less than one (1) minute without damage such as chuck or coupling separation, leakage, splitting, busting, deformation, or degradation.

3.5.4 Capacity. The tank shall have a volumetric capacity of not less than 8.5 gallons.

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3.5.5 Diameter, length and weight. The tank itself shall have an outside diameter (OD) of not more than twelve (12) inches and a length of not more than 35 inches. The weight of the tank assembly complete with hose, gauges, fittings, chucks, and handle(s) shall not exceed 42 pounds.

3.6 Details of components.

3.6.1 Air tank. The air tank shall be cylindrical in shape, and fabricated from steel not less than Manufacturers Standard Gage Number 14. The cylindrical axis of the tank shall remain in a stable, horizontal position when placed on a level surface, and shall have a carrying handle(s) providing a full handgrip for lifting and moving the complete air tank assembly.

3.6.2 Filler valve. The tank shall be fitted with a filler valve to permit injection of compressed air into the tank from the air source. The valve shall permit filling the tank utilizing an air chuck of the size specified in 3.6.4. The valve shall be depressed when subjected to the air chuck to permit free passage of air into the tank. Upon removal of the chuck, the valve shall automatically close. The valve shall withstand, at a minimum, a pressure of 140 psig.

3.6.3 Air pressure gage. The air pressure gage, conforming to ASME B40-1, indicating the air pressure within the tank, and positioned so the pressure can be observed during filling, shall be provided on the tank. The gage shall be a bourdon tube dial type, grade B, not less than 2 inches in diameter, and a pressure range 0 - 200 psi. Dial scale increments shall be not more than 5 PSI, with numerical markings not exceeding 25 PSI intervals, extending over an arc of not less than 270 degrees. The gage dial background and indications shall be in contrasting colors. The gage crystal shall be either glass or clear plastic with a minimum thickness of one-sixteenth (1/16) inch.

3.6.4 Air hose and air chuck. The tank shall include an air hose not less than 4 feet in length with 1/4 inch minimum and 3/8 inch maximum inside diameter and shall be oil and grease resistant. The discharge hose shall be fitted to the tank with a male tapered pipe thread coupling. The free end of the discharge hose shall be fitted with a ball foot chuck compatible with tire valves employing standard threads (0.305-32). The chuck shall fit over the tire valve mouth with the chuck deflator pin tripping (depressing) the valve core and permitting a flow of air from the tank into the tire. Upon removal of the chuck from the tire valve, the chuck shall automatically close, stopping the flow of air from the tank. The coupling and chuck shall be made of corrosion resistant metal. The complete hose with all couplings and chucks shall be able to withstand 375 psig proof pressure without damage such as bulging, coupling, or chuck separation, leakage, splitting, bursting, or deformation.

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3.6.5 Safety valve. The tank shall be fitted with a safety pressure relief valve. The safety pressure relief valve shall release the pressure in the tank, when the tank reaches a pressure in the range of 127 to 140 psig. the safety pressure relief valve shall automatically reset itself at a pressure of not less than 125 psig.

3.7 Painting. Painting and finishing of the tank shall be in accordance with the best commercial practice in the industry. Before painting, all surfaces shall be clean and free of all foreign matter detrimental to painting.

3.8 Product identification. The tank shall be marked for product identification in accordance with MIL-STD-130 and, unless otherwise specified (see 6.2.1), shall include the National Stock Number.

3.9 Safety precaution decal. A decal, permanently and legibly marked with safety precautions and basic operating restrictions, shall be securely affixed to the tank near the air pressure gage.

3.10 Workmanship. Standards of workmanship shall assure that the air pressure tank shall have the safety, stability, and efficient operating characteristics found in standard commercial units and as specified in Section 3 herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the supplier 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 specifications 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 inspections set forth in this specification shall become 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 of 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.

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

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

4.3 First article inspection. When specified in the contract or purchase order, first article inspection shall be applied to the preproduction model or initial production item (see 3.1). Unless otherwise specified (see 6.2.1), first article inspection shall consist of the examinations in 4.5 and all tests under 4.6. Failure of the first article to pass an examination or any of the tests shall be cause for rejection.

4.4 Quality conformance inspection. Quality conformance inspection shall be applied to production units being offered for acceptance under the contract. The inspection shall consist of a through f as follows and failure of any unit to pass these inspections or tests shall be cause for rejection of the unit.

- a. Product examination (see 4.5)
- b. Safety factor requirement test (see 4.6.2)
- c. Pressure gage accuracy test (see 4.6.3)
- d. Safety pressure relief valve test (see 4.6.4)
- e. Performance test (see 4.6.6)
- f. Packaging inspection (see 4.7)

4.4.1 Sampling. Sampling for quality conformance inspection shall be performed as listed with all samples selected randomly.

<u>Inspection or Test</u>	<u>Lot or Batch Size</u>	<u>Sampler Size</u>
a. Product examination	1-150	13
b. Safety factor requirement test	1-150	2
c. Pressure gage accuracy test	1-150	13
d. Safety pressure relief valve test	1-150	13
e. Performance Test	1-150	13
f. Packaging inspection	1-150	5

The lots shall not exceed the maximum sizes indicated above. If lot size is less than or equal to sample size, 100% inspection is required. Each lot shall be accepted with no defects and rejected if one or more defects are found.

4.5 Product examination. Visually, dimensionally, and manually examine the air tank to determine conformance with the requirements of 3.2 through 3.4.5, 3.5.5 through 3.6.4, and 3.7 through 3.10. Visual examination shall include verification of completeness of manufacture and assembly, conformance

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to specified standards, adequacy of markings, proper cleaning, and freedom from the identified defects. Dimensional examination includes measuring dimensions as specified. Manual examinations shall include the operation of movable parts by hand to assure proper functioning. The examination provisions may be applied at the earliest practical point in manufacturing at which it is feasible to inspect for acceptance without risk of change in the characteristic by subsequent operation. Failure of the contractor to provide objective evidence that the air tank and its components have passed the examinations prescribed for them by the contractor's inspection system shall be cause for rejection.

4.6 Tests.

4.6.1 Order of testing. The safety factor requirement test (4.6.2), shall be performed before installing the pressure gage and safety valve. The pressure gage accuracy test (4.6.3), and the safety valve test (4.6.4), shall be performed after these items are installed. The air hose pressure test (4.6.5), shall only be performed during first article. The performance test (4.6.6) shall be the last test conducted.

4.6.2 Safety factor requirement test. The pressure gage and safety valve holes shall be plugged for this test. The tank shall be subjected to an internal proof pressure of not less than 375 psig for a period of not less than one (1) minute. Any damage such as chuck or coupling separation, leakage, splitting, bursting, deformation, or degradation shall be cause for rejection (see 3.5.3).

4.6.3 Pressure gage accuracy test. The air pressure gage shall be tested for accuracy in accordance with ANSI/AMSE B 40-1, section 6, entitled PRESSURE GAGE TESTING. Per B40.1 for a grade B gage, a minimum of three test points shall be used. The note in B 40.1, paragraph 6.2.3.1, which states:

NOTE: The test points shall be distributed over the dial range and shall include points within 10% of the ends of the dial range.

shall be modified to:

NOTE: The test points shall be distributed over the air tanks' operating range and shall include points within 10% of the ends of the air tanks' operating range.

Failure of the gage to indicate the correct pressure within 3.0 percent of span (6 psig) for the test point in the lower quarter of the scale, or within 2.0 percent of span (4 psig) for the two reading in the middle half of the scale shall be cause for rejection (see B40.1 Table 1).

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4.6.4 Safety pressure relief valve test. This test shall be performed on each unit offered for acceptance. A measuring device having an accuracy within 0.3 psig of the value being measured shall be used as reference for this test. The air pressure in the tank shall be gradually increased until the safety pressure relief valve releases. Air flow into the tank shall then be stopped. The pressure at which the safety pressure relief valve opens and closes shall be noted. Failure of the safety pressure relief valve to open in the range of 127 to 140 psig, or failure to close at no less than 125 psig shall be cause for rejection (see 3.6.5).

4.6.5 Air hose pressure test. This test shall be performed only during first article testing. The air hose, complete with its coupling and air chuck, shall be subjected for a minimum of five seconds, to a proof pressure test of not less than 375 psig. The hose shall be observed during the test. Failure of the test as evidenced by leakage, bulging, splitting, bursting, deformation, or coupling or chuck separation, shall be cause for rejection (3.6.4).

4.6.6 Performance test. The tank shall be filled with air to a pressure of 125 plus/minus 3 psig. The tank and its hose shall be used to inflate a fully deflated tire having a valve stem with standard thread (0.305-32). Leakage of air from the tank, hose, or connections during the filling or inflating operation; instability of the tank while on a level surface; inability of the operator to read the pressure gage while inflating the tire; or failure of the chuck valve to completely stop the flow of air when the chuck is removed from the tire, shall be cause for rejection (3.5.1 through 3.6.4).

4.7 Packaging inspection. The items shall be inspected before and after packaging to determine compliance with the preservation, packaging, packing, and marking requirements specified in Section 5.

5. PACKAGING.

5.1 Preservation. Preservation shall be Level A or Level C, as specified (see 6.2.1).

5.1.1 Level A.

5.1.1.1 Cleaning and drying. Components and the complete tank shall be cleaned and dried in accordance with the procedures of MIL-P-116.

5.1.1.2 Preservative application. Immediately after cleaning and drying, apply a coat of type P-1 or P-19 preservative to all exterior ferrous metal surfaces of the tank that have not been painted or plated. The interior surface of the pressure tank shall be fogged with preservative oil P-10, grade 30, of MIL-P-116.

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5.1.1.3 Unit packs. The unit method of protection for the basic tank shall conform to method I of MIL-P-116. The gage crystal shall be covered with a piece of fiberboard conforming to PPP-F-320, type CF, class weather-resistant, variety SW, grade optional. Secure the fiberboard in place with tape conforming to PPP-T-60, type optional. The pressure gage, filler valve, air hose, and safety valve shall be disassembled from the basic unit. Wrap each disassembled part with cushioning material conforming to PPP-C-843, type II and individually package in accordance with method IC-1 of MIL-P-116. Place the packaged components in a box conforming to PPP-B-636, class weather-resistant. Seal all openings in the pressure tank with tape or plastic cap-plugs conforming to PPP-T-60, type IV, or MIL-C-5501, respectively. Place the tank and packaged components in a fiberboard box conforming to PPP-B-636, class weather-resistant. The tank shall be braced inside the unit container with fiberboard of PPP-F-320 formed into pads or cut shapes. Any technical publications furnished shall be packaged in accordance with method IC-1 and placed inside the unit container.

5.1.2 Level C. Level C preservation and packaging shall be as specified in MIL-STD-1190.

5.2 Packing. Packing shall be Level A, B or C, as specified (see 6.2.1).

5.2.1 Level A. Pressure tanks shall be packed in exterior shipping containers conforming to PPP-B-621, class 2, or PPP-B-601, overseas type. The weight of each shipping container shall not exceed the weight limitations of the applicable box specification. As far as practicable, containers shall be uniform in size and contain like quantities. Blocking, bracing, anchoring and cushioning shall be in accordance with MIL-STD-1186.

5.5.2 Level B. Level B packing shall be the same as Level A except that domestic containers shall be used in lieu of overseas containers.

5.2.3 Level C. Level C packing shall be as specified in MIL-STD-1190.

5.3 Marking. All interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129. Bar code markings are required and shall be applied in accordance with MIL-STD-129 and MIL-STD-1189.

6. NOTES

6.1 Intended use. The portable air pressure tank covered by this specification is intended to be used by a single operator for inflating vehicle tires.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

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- a. Title, number, and date of this specification.
- b. First article when required (see 3.1).
- c. Special safety devices, when required (see 3.4.3 and 6.4).
- d. Painting if different (see 3.7).
- e. First article, if different (see 4.3).
- f. Identification marking if different (see 3.8).
- g. Preservation, packing, and marking as required (see 5.1, 5.2, and 5.3 respectively).

6.2.2 Contract data requirements. Required technical data such as operator's manuals, parts lists, and other instructions for operations and maintenance, as identified on a numbered DD Form 1564, should be specified on a DD Form 1423 incorporated in the contract.

6.3 Subject term (key word) listing.

AMSC number
 Design
 First article
 First article inspection
 Materials
 Ordering data
 Performance
 Protective finish
 Scope

6.4 Safety and health determination. In order that equipment integrated into the user's operational environment will comply with OSHA limitation and control of noise levels, radiation electromagnetic emission, noxious vapors, heat, etc., as applicable, specific requirements concerning guarding the point(s) of operation, and other safety and health requirements should be specified by the user/requisitioner (see 6.2.1).

6.5 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 changes.

Custodian:
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Review activity:
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