

INCH-POUND

MIL-DTL-45169F

1 April 2019

SUPERSEDING

MIL-T-45169E(AL)

17 January 1992

MILITARY SPECIFICATION

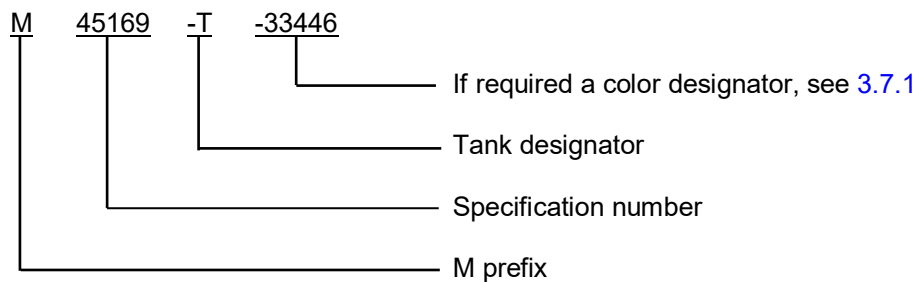
TANK, PRESSURE, AIR, PORTABLE, 8.5 GALLONS

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

1. SCOPE

1.1 Scope. This specification covers a tank, pressure, air, portable, 8.5 gallons for the retention, conveyance, and dispensing of compressed air.

1.2 Part or Identifying Number (PIN). The PIN consists of the letter "M" followed by the basic specification number a dash, type and size code and the strainer material designator.



PIN examples: M45169-T-3346 describes a tank tan 686-camo color.

M45169-T describes a tank color manufacturer's discretion.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort had been made to ensure the completeness of the list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 or 4 of this specification, whether or not they are listed.

2.2 Government documents.

Comments, suggestions, or questions on this document should be addressed to: DLA Land and Maritime, Columbus, Attn: DSCC-VAI, P. O. Box 3990, Columbus OH 43218-3990, or emailed to FluidFlow@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.



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2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

STANDARDS

FEDERAL

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

MILITARY

MIL-STD-130 - Identification Marking of US Military Property

MIL-STD-889 - Dissimilar Metals

(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

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

US DEPARTMENT OF LABOR

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

(Copies of this document are available online at https://www.dol.gov/general/cfr/title_29.)

2.3 Non-Government Publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B40-100 - Gauges – Pressure Indicating Dial Type – Elastic Element

(Copies of these documents are available online at <https://www.asme.org>.)

SAE INTERNATIONAL

SAE AMS-STD-595 - Colors Used in Government Procurement

(Copies of this document is available online at <https://www.sae.org>.)

2.4 Order of precedence. Unless otherwise noted here in or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained. this specification shall take precedence.

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3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

3.2 Material. Materials shall be as required in this specification and shall conform to all applicable Government specifications and drawings, except as otherwise specified herein. Materials which are not covered by specifications, or which are not specifically described herein, shall be of the quality appropriate for the purpose intended (see 6.1).

3.3 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.3.1 Recovered materials. The term "recovered materials" means materials, which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.3.2 Used, rebuilt, or remanufactured components. No used, rebuilt, or remanufactured components, pieces, or parts shall be incorporated in the portable air tanks.

3.3.3 Ozone depleting substances (ODS). Class I and II ozone depleting substances (ODS) shall not be used in MIL-DTL-45169 or any referenced procedures.

3.4 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 adjustable, repair, or replacement.

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

3.4.2 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.

3.4.3 Construction. The portable air pressure tank shall be constructed of parts, which are new, without defects, 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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3.4.3.1 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.

3.4.3.2 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.

3.4.3.3 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 [6.4](#)).

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

3.4.3.5 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 standards 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.

3.5.5 Diameter, length and weight. The tank itself shall have an outside diameter (CID) 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.

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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 B40-100, indicating the air pressure within the tank, and positioned so the pressure can be observed during filling, shall be provided on the tank, the following details shall apply:

- a. 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.
- b. 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.
- b. The gage dial background and indications shall be in contrasting colors.
- c. 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 and air chuck, the following details shall apply:

- a. The air hose shall be not less than 4 feet in length with ¼ inch minimum and 3/8 inch maximum inside diameter and shall be oil and grease resistant.
- b. The discharge hose shall be fitted to the tank with a male tapered pipe thread coupling.
- c. 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).
- d. 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.
- e. Upon removal of the chuck from the tire valve, the chuck shall automatically close, stopping the flow of air from the tank.
- f. The coupling and chuck shall be made of corrosion resistant metal.
- g. 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.

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 135 to 165 psig. The safety pressure relief valve shall automatically reset itself at a pressure of not less than 75 psig.

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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.

3.7.1 Color. Tank color is manufacturer's discretion unless otherwise specified. If a special tank color is required, the color shall be as specified in SAE AMS-STD-595. The slash sheet color shall be specified at the end of the PIN. Example: M45169-T-34094 (green 383 camo).

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), shall include the National Stock Number (NSN) 4320-00-508-6354.

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. VERIFICATION

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

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

4.2 Responsibility for compliance. All items shall meet all requirements of sections 3 and 4. 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.3.1 Lot records. Manufacturers shall keep lot records for 3 years minimum. Manufacturers shall monitor for compliance to the prescribed procedures, and observe that satisfactory manufacturing conditions and records on lots are maintained for these strainers. The records, including as a minimum, an attributes summary of all quality conformance inspections conducted on each lot, shall be available to review by customers at all times.

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4.3.2 First article inspection. First article inspection shall be performed at a laboratory acceptable to the procuring activity on sample units produced with equipment and procedures used in production.

4.3.3 Samples for first article. Samples for first article shall be representative of the products proposed to be furnished to this specification. Sampling for tanks shall be in accordance with 4.4.3.

4.4 First article inspection routine. All samples shall be subjected to first article testing in accordance with table I.

4.4.1 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.

4.4.2 Lot. For the purpose of inspection, a lot shall consist of all portable air tanks offered for delivery at one time.

4.4.3 Sampling. Sampling for examination shall be 1 tank.

TABLE I. First article inspections.

Examination	Requirement Paragraph	Test paragraph
Visual examination	3.2 through 3.4.3.3, 3.5.5 through 3.6.4, and 3.7 through 3.10	4.6.1
Safety factor requirement test	3.5.3	4.6.2
Pressure gage accuracy test	3.6.3	4.6.3
Safety pressure relief valve test	3.6.5	4.6.4
Air hose pressure test	3.6.4	4.6.5
Capacity and weight test	3.5.4	4.6.7
Performance test	3.5.1 through 3.6.4	4.6.6

4.4.4 Failures. All samples must meet all of the contract requirements. Failure of a sample unit to pass any test shall be cause for rejection of the entire lot and to grant first article approval.

4.4.5 Disposition of samples. First article samples shall be furnished to the Government as directed by the contracting officer (see 6.2). Unless otherwise specified, after award of the contract or order, the manufacturer shall forward, from randomly selected samples, 1 tank. The sample shall be representative of the construction, workmanship, components, and materials to be used during production.

4.4.6 First article information. Upon completion of first article inspection, the Government activity responsible for conducting the inspection program (see 6.2), shall report the results of the inspection, with appropriate recommendation, to the contracting officer. Approval of the first article samples or the waiving of first article inspection does not preclude the requirements for performing conformance inspection.

4.4.7 Waivers or deviations to specification requirements. All waivers or deviations to specification requirements shall be coordinated through the preparing activity: DLA Land and Maritime, Attn: VAI, P.O. Box 3990, Columbus, Ohio 43218-3990 or e-mailed to FluidFlow@dla.mil.

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4.5 Conformance inspection.

4.5.1 Conformance inspection. For manufacturers that have successfully passed first article inspections and are continuously producing portable air tanks to this specification on going inspections shall consist of individual inspections see [table II](#). If first article is waived due to prior successful first article inspection, the individual inspections shall be the manufactures in house inspection procedures.

4.5.2 Inspection of product for delivery. Inspection of product for delivery shall consist of individual inspections in [table II](#).

TABLE II. Individual inspections.

Examination	Requirement Paragraph	Test paragraph
Visual examination	3.2 through 3.4.3.3 , 3.5.5 through 3.6.4 , and 3.7 through 3.10	4.6.1
Safety pressure relief valve test	3.6.5	4.6.4

4.5.3 Sampling for individual inspections. Portable air tanks for sampling shall be selected from a production lot (see [4.5.3.1](#)) and shall be subjected to the individual inspections. The sampling size shall be as specified in [4.5.3.2](#).

4.5.3.1 Production lot. A production lot shall consist of all portable air tanks of the same part number, which have been manufactured under the same conditions and on the same continuous run.

4.5.3.2 Inspection sample. The inspection sample shall be product selected at random from the production lot without regard to quality and shall be the sample size specified in [table III](#).

TABLE III. Inspection sample.

Production lot size	Sample size
1 to 8	All
9 to 90	8
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	35
3,201 to 10,000	38
10,001 to 35,000	46

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4.5.4 Nonconformance of sampling tests. If one or more defects are identified, then the entire production lot shall be screened for that defect and all defects shall be removed. A second inspection sample shall then be selected and the sampling tests shall be performed again. If one or more defects are identified from the second inspection lot, then the entire production lot shall be rejected and not supplied to this specification.

4.6 Test methods.

4.6.1 Visual examination. Visually, dimensionally, and manually examine the air tank to determine conformance with the requirements of 3.2 through 3.4.3.3, 3.5.5 through 3.6.4, and 3.7 through 3.10, the following details shall apply:

- a. Visual examination shall include verification of completeness of manufacture and assembly, conformance to specified standards, adequacy of markings, proper cleaning, and freedom from the identified defects.
- b. Dimensional examination includes measuring dimensions as specified.
- c. Manual examinations shall include the operation of movable parts by hand to assure proper functioning.
- d. 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.
- e. 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.

4.6.2 Safety factor requirement test. Safety factor requirement test the following details shall apply:

- a. The pressure gage and safety valve holes shall be plugged for this test.
- b. 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.
- c. 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 AMSE B 40-100, section 6, entitled Gauges: Pressure Indicating Dial Type - Elastic per B40.1 for a grade B gage, a minimum of 3 test points shall be used. Failure of the gage to indicate the correct pressure within 2.0 percent of span (4 psig) of the scale shall be cause for rejection.

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.

4.6.4 Safety pressure relief valve test. Safety pressure relief valve test shall be performed on each lot offered for acceptance, the following details shall apply:

- a. A measuring device having an accuracy within 0.3 psig of the value being measured shall be used as reference for this test.
- b. 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.
- c. The pressure at which the safety pressure relief valve opens and closes shall be noted.

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- d. Failure of the safety pressure relief valve to open in the range of 135 to 165 psig, or failure to close at no less than 75 psig shall be cause for rejection (see 3.6.5).

4.6.5 Air hose pressure test. Air hose pressure testing shall be performed only during first article testing, the following details shall apply:

- a. 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.
- b. The hose shall be observed during the test.
- c. 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 following details shall apply:

- a. The tank shall be filled with air to a pressure of 125 ± 3 psig.
- b. The tank and its hose shall be used to inflate a fully deflated tire having a valve stem with standard thread (0.305-32).
- c. Failure is defined as follows:
 - (1) Leakage of air from the tank, hose, or connections during the filling or inflating operation
 - (2) Instability of the tank while on a level surface
 - (3) Inability of the operator to read the pressure gage while inflating the tire
 - (3) 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 (see paragraphs 3.5.1 through 3.6.4).

4.6.7 Capacity and weight test. Capacity and weight testing shall be performed only during first article testing, the following details shall apply:

- a. Completely fill the interior of the tank with water through the most convenient opening.
- b. Empty the water from the tank and measure the full content of the fluid.
- c. The fluid content shall measure at least 8.5 gallons.
- d. Weigh the tank assembly complete with hose, gauges, fittings, chucks, and handles.
- e. The weight of the tank assembly shall not exceed 42 pounds.
- f. The weight scale shall be accurate within 1 percent.
- g. Failure of the tank capacity to measure at least 8.5 gallons or meet the weight requirements of 42 pounds or less shall be cause for rejection.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the Military Service's System Commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contracting the responsible packaging activity.

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6. NOTES

(This section contains information of a general or explanatory nature, which may be helpful but is not mandatory.)

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. This item is military unique in that it has to fit in a required space on the vehicle, commercial versions may not fit in the required envelope.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. PIN (see 1.2)
- c. If first article is required, (see 3.2 and 6.3).
- d. Name and address of the Government activity responsible for conducting the first article inspection program (see 4.4.6 and 6.3).
- e. Name and address of the first article inspection test facility to which first article samples are to be forwarded (see 4.4.5) and the name.
- f. Special color (see 3.7.1)
- g. Marking requirements (see 3.9).
- h. Other contract requirements (see 6.2.2)
- i. Packing requirements (see 5.1).

6.3 First article. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first article samples. 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.

6.3.1 Defense Logistics Agency (DLA) waiver of first article test. A waiver of a first article testing will only be considered by DLA when the contractor has delivered the same item within the last 3 years, has no unfavorable quality history, has not changed processes, or changed any subcontractors. DLA will not accept first article testing results outside the stated requirements.

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 1664, should be specified on a DD Form 1423 incorporated in the contract.

6.3 Subject term (key word) listing.

Chuck
Coupling
Filler valve
Gage
Hose
Safety valve
Tire valve

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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 6.2.2).

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodian:

Army - AL

DLA - CC

Preparing activity:

DLA - CC

(Project 4940-2018-002)

Review activity:

Army - ME, SM

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of this information above using the ASSIST Online database at <https://assist.dla.mil>.