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FEDERAL SPECIFICATION

DISPENSING PUMP, HAND DRIVEN, DRUM, 1 QUART OIL, (FOR 15-TO 55-GALLON DRUMS)

"This Specification was approved by the Assistant Administrator, Federal Supply and Services, General Services Administration, for the use of all Federal Agencies."

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers a hand-operated pump, (hereafter called "pump unit") for dispensing 1 quart of oil per cycle from 15- to 55-gallon drums.

1.1.1 Federal specification coverage. Federal specifications do not include all types and grades of the commodities indicated by the title of the specifications, but cover only those most generally used by the Federal Government.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research and Development Center, ATTN: STPBE-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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2. APPLICABLE DOCUMENTS

2.1 Government publications. The issues of the following documents, in effect on date of invitation for bids or solicitation for offers, form a part of this specification to the extent specified herein.

Federal Specifications:

FF-P-101	- Padlocks.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-B-640	- Boxes, Fiberboard, Corrugated, Triple-Wall.

Federal Standards:

Fed. Std. No. H28/7	- Screw-Thread Standards for Federal Services, Section 7, American Standard Pipe Threads (Except Dry Seal and Hose Coupling - Types).
Fed. Std. No. 123	- Marking for Shipment (Civil Agencies).
Fed. Std. No. 595	- Colors.

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions, as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, US Government Printing office, Washington, DC 20402.

(Single copies of this specification, other Federal Specifications, and Commercial Item Descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston, New York; Philadelphia; Washington, DC; Atlanta; Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal Standardization documents and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.)

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Military Specifications:

MIL-P-116	- Preservation, Methods of.
MIL-T-704	- Treatment and Painting of Materiel.
MIL-L-21260	- Lubricating Oil, Internal Combustion Engine, Preservation and Break-In.
MIL-P-15024/6	- Plates, Identification, Equipment.
MIL-G-20241	- Gasket Material, Wool Felt, Impregnated, Adhesive, Pressure-Sensitive.
MIL-P-23377	- Primer Coatings: Epoxy-Polyamide, Chemical and Solvent Resistant.
MIL-STD-81733	- Sealing and Coating Compound, Corrosion Inhibitive.

Military Standards:

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-889	- Dissimilar Metals.
MIL-STD-1188	- Commercial Packaging of Supplies and Equipment.

(Copies of Military 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.)

Federal Regulations:

41 CFR 1-1.25	- Recovered Materials.
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(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

3. REQUIREMENTS

3.1 Description. The pump shall be a self-contained hand-pumping unit with a sealed plunger within a cylinder for dispensing not less than 1 quart, liquid measure, of SAE lubricating oil per cycle of the piston.

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3.2 First article. When specified (see 6.2.1), a sample shall be subjected to first article inspection (see 4.3. and 6.3).

3.3 Material. Material shall be as specified herein. Material not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Regulatory requirements. The offeror/contractor is encouraged to use recovered materials in accordance with Public Law 94-580 (41 CFR 1-1.25) to the maximum extent practical.

3.3.2 Material deterioration and control. The pump shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable storage and operating environment to which the item may be exposed.

3.3.2.1 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall be electrically insulated from one another to minimize or prevent galvanic corrosion. Insulation may be provided by an insulating barrier such as a coat of epoxy primer conforming to MIL-P-23377, or corrosion inhibiting sealant conforming to MIL-S-81733 or chromate tape conforming to MIL-G-20241. Protection against any galvanic corrosion could also be obtained by exclusion of the electrolyte if feasible.

3.3.2.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and sub-components, and shall make information available, upon request, to the contracting officer or designated representative.

3.4 Screw threads. All screw threads shall conform to Fed. Std. No. H28/7.

3.5 Environmental requirements.

3.5.1 Operating temperature. The pump unit shall perform as specified herein in any ambient temperature from minus 25°F to plus 110°F.

3.5.2 Storage temperature. The pump unit shall not be damaged when stored in any temperature from minus 30°F to plus 160°F.

3.6 Construction.

3.6.1 Cylinder base and head. The base of the pump unit shall be either malleable or cast iron and provide not less than 1/2 NPT female threads to accommodate the suction pipe. The

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base shall be provided with a threaded portion suitable for installation in 2-inch NPT bung openings. The cylinder head shall be either malleable cast iron or aluminum and shall have a rack and pinion drive. The riser may either be cast integral with the cylinder head or consist of pipe with a 90 degree elbow at the top. In either case, the overall height shall be not greater than 22 inches. The elbow shall be tapped with not less than 1/2-inch, nor more than 3/4-inch NPT threads. The head and base castings shall secure the cylinder barrel in place by the use of long bolts.

3.6.2 Suction pipe. Each pump unit shall be equipped with an adjustable telescopic type suction pipe. The suction pipe shall be made from not less than a 1/2 inch standard weight NPS galvanized steel pipe or aluminum tubing. The suction pipe shall be approximately 21 inches long in the fully retracted position and approximately 40 inches long in the fully extended position. The suction pipe end that contacts the bottom of the oil containers shall allow full flow with a minimum of resistance.

3.6.3 Screen. A readily removable 30 mesh metal screen shall be installed in the inlet port of the pump. The screen shall be 30 mesh of corrosion-resistant metal wire with an effective flow area of not less than two times the inlet port area.

3.6.4 Bung adapter. The bung adapter shall be either cast iron, malleable iron, bronze, or die-cast zinc base alloy. The bung adapter may be part of the pump body and of the same material. The bung adapter shall be threaded for use on a 2-inch standard straight pipe thread bung opening.

3.6.5 Discharge assembly. Each pump unit shall be equipped with an iron discharge pipe not more than 6 inches long and not less than 1/2 inch in size. The pipe shall be threaded at both ends with NPT threads. The discharge pipe of each pump unit shall be provided with an antidrip iron faucet or nozzle. The faucet or nozzle shall be so designed that liquid remains in the discharge pipe at all times. The discharge end of the faucet or nozzle shall have an inside diameter of not less than 1/4 inch.

3.6.6 Handcrank. The handcrank shall be of malleable iron, cast iron, or steel and shall withstand rough usage. The handcrank shall have a wooden or plastic handgrip. The handcrank shall be easily replaceable. When specified (see 6.2.1), the handcrank shall be provided with a padlock conforming to FF-P-101, type EW with a chain as specified in FF-P-101, to lock the handcrank when the pump unit is not in use. When tested in accordance with 4.5.2 3, the maximum force required to operate the handcrank shall not exceed 25 pounds.

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3.6.7 Gaskets and packing. When tested as specified in 4.5.2.3, the pump unit shall be equipped with gaskets and packing that will insure against leakage.

3.6.8 Plunger. The plunger assembly shall consist of a plastic or leather ring suitably supported with valve or valve action, and shall be securely attached to the pinion rack.

3.6.9 Rack and pinion drive. A suitable rack shall be employed to operate the plunger. The rack shall be a commercial design and shall be tapped or threaded to receive the plunger rod or piston assembly. The teeth shall be of such construction and hardness to assure strength to handle the necessary load. The pinion gear shall be either machined to slide over the pinion shaft or shall be constructed integral with the shaft. The ends of this shaft shall be squared or suitably arranged to receive the crankhandle. The pinion gear shaft shall be removable from the head casting. A suitable packing box or other sealing means shall be employed to insure that no leaks develop around the pinion shaft on the outside of the head casting.

3.7 Detailing of technical requirements.

3.7.1 Priming. The pump unit shall be self-priming. The crank shall be of such design that it may be stopped anywhere on the up or down stroke.

3.7.2 Drip control. The pump unit shall be equipped with a spring-loaded return drip tube which is easily turned aside and which shall return automatically to position under the filler spout or the pump shall be equipped with a return drain pan with a hinged cover to protect the liquid from foreign material or a nondrip shut-off spout with an internal drain back device to allow the pump handle to be returned to a vertical position (see 6.2.1).

3.7.3 Capacity. The pump shall be provided with an adjustment screw with locking device to regulate the capacity by varying the length of stroke. When tested as specified in 4.5.2.3, the pump shall be capable of delivering not less than 2 gallons per minute of SAE 30 lubricating oil when operating the pump 8 cycles per minute. A cycle shall consist of one complete downstroke and one complete upstroke of the piston.

3.7.4 Air leakage. When tested as specified in 4.5.2.4, the pump shall show no evidence of air leakage.

3.7.5 Weight. The complete pump unit, including the intake fittings discharge pipe, faucet, suction pipe, handle and all accessories, shall weigh not more than 40 pounds.

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3.8 Identification marking.

3.8.1 Military agencies. The pump shall be identified in accordance with MIL-STD-130. The marking shall be applied to the pump unit on plates conforming to MIL-P-15024/6, type B, style III. Plates shall be attached by screws, bolts, or rivets in a conspicuous protected location.

3.8.2 Civil agencies. The pump unit shall have the contractor's standard commercial identification marking.

3.9 Treatment and painting. The portions of the pump unit normally painted shall be cleaned, treated, and painted in accordance with MIL-T-704, type A. Unless otherwise specified (see 6.2.1), the color shall be in accordance-with Fed. Std. No. 595, color No. 24087.

3.10 Workmanship.

3.10.1 Castings and forging. All parts, components, and assemblies of the pump unit which include castings and forgings shall be clean of harmful extraneous material such as sand, dirt, sprues, scale, and flux. Rework shall be limited to procedures which do not reduce strength or affect function.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards.

4.2 Classification of inspections. Inspections shall be classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Examination of preparation for delivery (see 4.6).

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4.3 First article inspection.

4.3.1 Examination. The first article pump unit shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.3.2 Tests. The first article pump unit shall be tested as specified in 4.5.2. Failure of any test shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Sampling. Sampling for examination and tests shall be in accordance with MIL-STD-105.

4.4.2 Examination.

4.4.2.1 Samples. Samples selected in accordance with 4.4.1 shall be examined for the major and minor defects specified in 4.5.1. AQL shall be 2.5 percent defective for major defects and 6.5 percent defective for minor defects.

4.4.3 Tests.

4.4.3.1 Samples. Samples selected in accordance with 4.4.1 shall be tested as specified in 4.5.2.2 through 4.5.2.4. AQL shall be 6.5 percent defective.

4.5 Inspection procedure.

4.5.1 Examination. The pump unit shall be examined as specified herein for the following defects:

Major

- 101. Materials not as specified.
- 102. Materials are not-corrosion resistant or treated to be made corrosion resistant for the applicable storage and operating environment.
- 103. Dissimilar metals as defined in MIL-STD-889, are not effectively insulated from each other.
- 104. Contractor does not have documentation available for identification of material, material finishes or treatments.
- 105. Cylinder base and head not as specified.
- 106. Suction pipe not as specified.
- 107. Screen not as specified.
- 108. Bung adapter not as specified.

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- 109. Discharge assembly not as specified.
- 110. Handcrank not as specified.
- 111. Gaskets and packing not as specified.
- 112. Plunger not as specified.
- 113. Rack and pinion drive not as specified.

Minor

- 201. Identification marking, incomplete, or illegible.
- 202. Treatment and painting not as specified.
- 203. Workmanship not as specified.

4.5.2 Tests.4.5.2.1 Environmental.

4.5.2.1.1 High temperature. When specified (see 6.2.1), the pump unit shall be tested as specified in MIL-STD-810, test method 501.1, procedure 1. The storage temperature shall be plus 160°F and the operating temperature shall be plus 110°F. Nonconformance to 3.5 shall constitute failure of this test.

4.5.2.1.2 Low temperature. When specified (see 6.2.1), the pump unit shall be tested as specified in MIL-STD-810, test method 502.1, procedure I. The storage temperature shall be minus 30°F and the operating temperature shall be minus 25°F. Nonconformance to 3.5 shall constitute failure of this test.

4.5.2.2 Priming. The pump housing shall be dried by air and shall be mounted on a standard 55-gallon drum containing SAE 30 oil with the suction pipe in the fully extended position and the pump operated. Nonconformance to 3.7.1 shall constitute failure of this test.

4.5.2.3 Capacity. Each pump unit tested shall be subjected to a 5-minute break-in run pumping light oil (SAE 10). During this break-in run the pump unit shall be checked for leakage in order to determine compliance with requirements specified in 3.6.7. After this break-in run the pump unit shall be operated at full capacity for 5 minutes using SAE 30 oil. The oil discharged during this 5-minute period shall be caught in a marked container to determine compliance with the requirements specified in 3.7, as applicable. Mechanical devices may be used to operate the pump and measure the handcrank force. Nonconformance to 3.6.6, 3.6.7 and 3.7 shall constitute failure of this test.

4.5.2.4 Air leakage. An internal air pressure of 10 pound-force per square inch gage (psig) shall be applied to any outlet or intake, with all other outlets and intakes suitably plugged. The pump unit shall then be submerged in water and examined for air leakage as evidenced by bubbles. Evidence of bubbles shall constitute failure of this test.

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4.6 Examination of preparation for delivery.4.6.1 Quality conformance inspection of pack.

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

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

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects. AQL shall be 2.5 percent defective:

- 114. Materials, methods, and containers not as specified for level A or B. Each incorrect material, method, or container shall be considered one defect.
- 115. Disassembly not as specified for level A.
- 116. Pump not preserved and openings sealed as specified for level A.
- 117. Unit packaging not as specified for level A.
- 118. Packing not as specified for level A or B.
- 119. Quantities packed together exceed the limitations of the applicable box for level A or B.
- 120. Marking missing, illegible, incorrect, or incomplete for level A, B, or commercial.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A, or commercial as specified (see 6.2.1).

5.1.1 Level A.

5.1.1.1 Disassembly. The pump unit shall be disassembled the minimum amount to provide economy in-packaging. Specifically the suction pipe and the handcrank shall be removed.

5.1.1.2 Pump. The pump interior shall be coated with lubricating oil conforming to MIL-L-21260, grade 30. Coating shall be accomplished by pumping the oil through the pump and then draining.. The inlet and outlet openings shall be sealed with plastic or metal plugs.

5.1.1.3 Padlock, keys, and chain. Interior surfaces of the padlock shall be coated with powdered graphite and the padlock, keys, and chain preserved together in accordance with MIL-P-116, method IC-1 or IC-3.

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5.1.1.4 Instructional material. Instructional material shall be preserved together in accordance with MIL-P-116, method IC-1 or IC-3.

5.1.1.5 Unit packaging. Components comprising one complete pump unit shall be packaged together in a close-fitting box conforming to PPP-B-636, W5c, style optional. The contents shall be immobilized within the container by the use of fiberboard inserts, pads, or cushions, fabricated from the same material as the box. The box shall be closed and sealed with tape as specified for method V in the appendix to the box specification.

5.1.2 Commercial. Each complete pump unit shall be preserved and packaged in accordance with MIL-STD-1188.

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

5.2.1 Level A. Pump units, preserved and packaged as specified in 5.1, shall be packed together in a close-fitting box conforming to PPP-B-601, overseas type, style optional, in quantities not to exceed the weight limitation of the box. Box closure and strapping shall be in accordance with the appendix to the box specification.

5.2.2 Level B.

5.2.2.1 Military agencies. Pump units, preserved and packaged as specified in 5.1, shall be packed together as specified in 5.2.1, except boxes shall be domestic type. As an alternate the pumps may be packed in a close-fitting box, conforming to PPP-B-640, class 2, style optional or PPP-B-636, V3c, V11c, V13c, or V15c, style optional. The gross weight or size of each box shall not exceed the limitations of the applicable box specification. Box closure and strapping shall be in accordance with the appendix to the box specification.

5.2.2.2 Civil agencies. Each complete pump unit preserved and packaged in accordance with 5.1.1.1 through 5.1.1.4 shall be packed in a close-fitting box conforming to PPP-B-636, class domestic, style optional. The contents shall be immobilized within the box by the use of fiberboard inserts, pads, or cushioning material made from the same material as the box. Closure shall be in accordance with method II of the appendix to PPP-B-636.

5.2.3 Commercial. Pump units, preserved and packaged as specified in 5.1, shall be packed in accordance with MIL-STD-1188.

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5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking required by the contract or purchase order (see 6.2.1), interior packages and shipping containers shall be marked in accordance with FED. STD. No. 123.

5.3.2 Military agencies. In addition to any special marking required by the contract or purchase order (see 6.2), interior packages and shipping containers shall be marked in accordance with MIL-STD-129 for level A or B and in accordance with MIL-STD-1188 for commercial packaging.

6. NOTES

6.1 Intended use. The pump unit is intended primarily for pumping lightweight or medium weight oil from 15- to 55-gallon drums in 1 quart measured quantities.

6.2 Ordering data.

6.2.1 Procurement documents. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents.

- a. Title, number, and date of this specification.
- b. When a first article is required for inspection and approval and number of units required (see 3.2).
- c. When lock and chain are required (see 3.6.6).
- d. Type of spout required (see 3.7.2).
- e. Color required if other than as specified (see 3.9).
- f. When high temperature test is required (see 4.5.2.1.1).
- g. When low temperature test is required (see 4.5.2.1.2).
- h. Level of preservation and packaging and level of packing required (see 5.1 and 5.2).
- i. Special marking required (see 5.3.1 and 5.3.2).

6.2.2 Data requirements. When this specification is used in a procurement which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the DAR, the data requirements will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of DAR 7-104.9(n) are not invoked, the data shall be delivered in accordance with the contract requirements.

6.3 First article. When a first article is required, it will be tested and approved under the appropriate provisions of paragraph 7-104.55 of the Defense Acquisition Regulation (DAR). The first article may be a standard production item from the contractor's current inventory as specified

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in 4.3. The first article should consist of the number of units specified (see 6.2). The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for examinations, test and approval of the first article.

6.4 Data requirements. The contracting officer Should include requirements for such data as technical publications, instructional materials, illustrated parts lists, and contractor's maintenance and operation manual to be furnished with each pump unit.

6.5 Provisioning. The contracting officer should include provisioning requirements for repair and maintenance tools as necessary (including any special tools), and instructions on shipment of pump units.

MILITARY INTERESTS:

CIVIL AGENCY COORDINATING ACTIVITY:

Custodians

GSA-FSS

Army - ME
Air Force - 82

Project 4930-0301

Review activity

DLA - CS

User activities

Navy - CG, MC

PREPARING ACTIVITY:

ARMY - ME