
* INCH-POUND *

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SUPERSEDING
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FEDERAL SPECIFICATION

AUGER, EARTH, PORTABLE; HAND-HELD
TWO-MAN GASOLINE ENGINE DRIVEN

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 Scope. This specification covers a commercial gasoline engine driven, hand-held, heavy-duty, two-man, portable-type earth auger.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 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 issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

PPP-B-636 - Boxes, Shipping, Fiberboard.

Beneficial comments (recommendations, additions, deletions) and any pertinent
*data which may be of use in improving this document should be addressed to: *
*Commanding Officer (Code 156), Naval Construction Battalion Center, Port *
*Hueneme, CA 93043-5000, 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 3820

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

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MILITARY

- MIL-P-116 - Preservation, Methods of.
- MIL-B-121 - Barrier Material, Greaseproof, Waterproof, Flexible.
- MIL-E-10062 - Engines: Preparation for Shipment and Storage of.

STANDARDS

MILITARY

- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized Unit Loads.
- MIL-STD-1186 - Cushioning, Anchoring, Bracing, Blocking, and Waterproofing with Appropriate Test Methods.
- MIL-STD-1474 - Noise Limits for Military Materiel.
- MIL-STD-2073/1A - DoD Material Procedures for Development and Application of Packaging Requirements.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DEPARTMENT OF LABOR (DoL)
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Occupational Safety and Health Standards.

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

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

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents which are current on the date of the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D698 - Moisture-Density Relations of Soils Using 5.5 pound (lb) (2.5-kg) Rammer and 12-inch (304-mm) Drop, Methods of Test for.

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

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

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The earth auger shall consist essentially of a gasoline engine, power transmission system, boring assembly, controls, and handlebar type device for two-man operation and transportation.

3.2 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification.

3.3 Standard commercial product. The earth auger shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the auger being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs or brochures, and represents the latest production model.

3.4 First article. When specified (see 6.2), the contractor shall furnish an earth auger for first article inspection and approval (see 4.2.1 and 6.3).

3.5 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

3.6 Safety. All rotating or reciprocating parts, and all parts subject to high operational temperatures, that are normally shielded to eliminate a hazard to the operating personnel shall be insulated, enclosed, or guarded to the extent necessary to eliminate the hazard. The earth auger shall comply with applicable OSHA regulations in effect at time of manufacture. Auger shall meet requirements of MIL-STD-1474 noise level of 85 db or less.

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3.7 Design. The earth auger design shall permit ready accessibility to all items requiring periodic maintenance service in the field, which will be accomplished with the use of conventional general-purpose tools associated with equipment of this nature. The replacement and adjustment of components shall be accomplished with minimum drainage requirements and minimum disturbance to other elements of the earth auger.

3.8 Performance. The earth auger, hand-held and operated by two men, shall be capable of boring holes up to 12 inches nominal diameter, to a depth of not less than 36 inches in soil having an in-place dry density of 115 lb per cubic foot when tested in accordance with ASTM D698. The depth of the hole shall be measured from the ground level to the top of the loose dirt at the bottom of the hole. The earth auger engine shall maintain the preselected drilling speed by means of a governor.

3.9 Components.

3.9.1 Engine. The earth auger engine shall be a four-cycle gasoline fueled engine having not less than five horsepower at manufacturer's rated speed. Torque and speed characteristics shall be sufficient to satisfactorily meet performance requirements specified herein.

3.9.1.1 Ignition system. A magneto ignition system shall be furnished for the engine. The ignition system shall develop and maintain voltage to fire the spark plug with the manual cranking system provided. The engine shall be furnished with a resistor-type spark plug. Means for shorting the ignition system to ground shall be provided for securing the engine.

3.9.1.2 Fuel system. Manufacturer's standard fuel system and fuel tank shall be provided. A dry-type air cleaner having treated paper or oil-foam type element shall be provided.

3.9.1.3 Exhaust system. The engine shall be equipped with spark-arresting muffler.

3.9.1.4 Cranking system. A manually operated cranking system shall be provided by means of an automatic rewind starter having a corrosion-resistant, steel, stranded wire or a nylon rope.

3.9.2 Output drive system.

3.9.2.1 Transmission. An enclosed constant ratio transmission shall be provided to transfer the rotation from the power source to the earth drill. Transmission gears shall be continuously lubricated.

3.9.2.2 Clutch. Power shall be transmitted from the engine to the transmission through a heat-treated metal, cam-type centrifugal clutch assembly.

3.9.3 Handlebar devices. The earth auger shall be provided with handlebar type devices for two-man operation and transportation. The handlebar assembly shall be of adequate construction to support the two operators while the vertical thrust is applied. The handlebar assembly shall be constructed of corrosion-resistant steel tubing and equipped with rubber or plastic handle grips.

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3.9.4 Controls. The earth auger shall be provided with the necessary controls. A twist-grip or spindle-type throttle control shall be furnished and built into the handlebar system for controlling operating speed. The auger shall be equipped with a kill switch that must be held while boring.

3.9.5 Earth boring drills. One each of manufacturer's augers capable of drilling a 6-inch, 9-inch, and 12-inch nominal size hole shall be provided. The earth boring drill assembly axle shall be equipped with full-length helicoidal conveyor flighting, spiraled for clockwise boring. Each drill shall be fitted with replaceable cutting blades and a fishtail pilot. Each auger shall be provided with two sets of standard blades, two sets of chipping blades, and two fishtail pilots.

3.10 Lubrication. Unless otherwise specified (see 6.2), means for lubrication shall be in accordance with the manufacturer's standard practice. The lubricating points shall be easily visible and accessible. All parts requiring lubrication shall be lubricated as specified in Section 5.

3.11 Warning and instruction labels. Instruction labels shall contain clear, concise instructions for the operation of all controls, and shall describe special procedures to be followed in servicing the earth auger. Warning labels shall advise of potential hazardous conditions. All labels shall be affixed to the earth auger in conspicuous places by the manufacturer's standard procedure.

3.12 Cleaning, treatment, and painting. Surfaces normally painted in good commercial practice shall be cleaned, treated, and painted as specified herein. The color of the finish coat shall be as specified (see 6.2). Surfaces to be painted shall be cleaned and dried to insure that they are free from contaminants such as oil, grease, welding slag and spatter, loose mill scale, water, dirt, corrosion product, or any other contaminating substances. As soon as practicable after cleaning, and before any corrosion product or other contamination can result, the surfaces shall be prepared or treated to insure the adhesion of the coating system. The painting shall consist of at least one coat of primer and one finish coat. The primer shall be applied to a clean, dry surface as soon as practicable after cleaning and treating. Painting shall be with manufacturer's current materials according to manufacturer's current processes and the total dry film thickness shall be not less than 2.5 mils over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects.

3.13 Workmanship.

3.13.1 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.13.2 Bolted connections. Boltholes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

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3.13.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

3.13.4 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.13.5 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the castings ability to perform its intended 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 (examinations and tests) 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 this document where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of Sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document 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.

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

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

4.2.1 First article inspection. The first article inspection shall be performed on one earth auger when a first article is required (see 3.4, 6.2 and 6.3). This inspection shall include the examination of 4.3 and the tests of 4.4.1. The first article may be a standard production item from the contractor's current inventory, provided the earth auger meets the requirements

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of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining earth auger to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.3, the tests of 4.4.2, and the packaging inspection of 4.5.

4.3 Examination. Each earth auger shall be examined for compliance with the requirements specified in Section 3 of this specification. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.4 Tests.

4.4.1 Performance test. The earth auger shall be completely assembled, properly adjusted, and serviced for operation. Engine shall be started and subjected to a warm-up period as recommended by the manufacturer. The engine shall be stopped and started as many times as necessary to determine ease of operation, effectiveness, and responsiveness; and that the engine, engine speed control, transmission, and centrifugal clutch operate promptly, without restriction or malfunction. The earth auger equipped with the size 12-inch earth boring drill, shall be operated by two men to bore 10 holes, each to a depth of not less than 36 inches in soil as specified in 3.8. The operational test shall be repeated utilizing the size 6-inch and 9-inch earth boring drills. Bearings and shafts shall be examined for excessive heating or abnormal operation insofar as is practicable and possible. Failure to meet the requirements of Section 3 and any evidence of damage or deformation shall be cause for rejection.

4.4.2 Production tests. The contractor's testing system shall, as a minimum, assure that each earth auger conforms to the physical and dimensional requirements, and is capable of meeting the performance requirements specified herein.

4.5 Packaging inspection. The preservation, packing, and marking of the earth augers shall be inspected to verify conformance to the requirements of Section 5.

5. PACKAGING

5.1 Preservation. Preservation shall be level A, B, and C as specified (see 6.2).

5.1.1 Level A.

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5.1.1.1 Methods of preservation. Cleaning processes, drying procedures, preservations, and methods of preservation specified in the following paragraphs are listed in MIL-P-116 and shall conform to the requirements of MIL-P-116 and any applicable specifications.

5.1.1.2 Disassembly. Disassembly shall be the minimum necessary to protect parts subject to damage or loss, and to accomplish reduction in cube. Removed bolts, nuts, pins, screws, and washers shall be reinstalled in mating parts and secured to prevent their loss.

5.1.1.3 Cleaning and drying. Prior to the application of preservative compounds or paint, surfaces shall be cleaned by process C-1 and dried by any applicable procedure of MIL-P-116.

5.1.1.4 Unit protection. The complete earth auger shall be preserved method IIa. Openings in the equipment shall not be sealed, so that desiccated air may circulate.

5.1.1.5 Unprotected surfaces. Unprotected exterior metal surfaces requiring the application of a contact preservative in accordance with MIL-P-116 and not specifically provided for herein shall be preserved as follows:

5.1.1.5.1 Unfinished (not machined) surfaces. Unfinished exterior metal surfaces shall be coated with type P-1 preservative.

5.1.1.5.2 Machined surfaces. Exposed machined surfaces shall be coated with type P-6 or P-11 preservative and wrapped or covered, as applicable, with barrier material conforming to MIL-B-121, type I, grade A, class 2. The material shall be secured in place with waterproof tape.

5.1.1.6 Engines. Engines, engine components, and accessories shall be preserved in accordance with the level A requirements of MIL-E-10062, type I, method I.

5.1.1.7 Enclosed gears. Enclosed gears shall be filled to the operating level with the approved lubricant required for operation (see 3.10).

5.1.1.8 Technical publications. Technical publications for each piece of equipment shall be preserved method IC-1 or IC-3.

5.1.1.9 Consolidation. Disassembled components and publications for each auger shall be consolidated in containers conforming to PPP-B-636, class weather-resistant. Contents shall be cushioned, blocked, and braced to prevent movement in accordance with MIL-STD-1186.

5.1.2 Level B. Level B shall be the same as Level A with the following modifications:

5.1.2.1 Unit protection. The complete auger shall be preserved method I.

5.1.2.2 Engines. Engines, engine components, and accessories shall be preserved in accordance with the level A requirements of MIL-E-10062, type II, method I.

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5.1.3 Level C. The equipment shall be preserved in accordance with the contractor's standard practice in a manner to prevent deterioration and damage.

5.2 Packing. Packing shall be level A, B, and C, as specified (see 6.2).

5.2.1 Levels A and B. Packing shall be in accordance with MIL-STD-2073. Containers shall be selected from table VII for the appropriate level.

5.2.2 Level C. The equipment shall be prepared for shipment in a manner which will insure arrival at destination in a satisfactory condition. Preparation for delivery shall comply with applicable carrier rules and regulations.

5.3 Palletization. Material shall be palletized in accordance with MIL-STD-147 when the following criteria are met:

- a. Load to consist of four or more unskidded containers.
- b. Load shall utilize a minimum of 80 percent of the pallet base.

5.4 Marking. Marking shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The earth auger is intended for use in areas inaccessible to truck-mounted hole diggers, and for light maintenance usage at military installations.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Specifications, standards, and handbooks (see 2.1.1).
- c. When first article is required for inspection and approval (see 3.4, 4.2.1, and 6.3).
- d. When other means for lubrication are required (see 3.10).
- e. Color of finish coat required (see 3.12).
- f. Level of preservation and packing required (see 5.1 and 5.2).

6.3 First article. When a first article inspection is required (see 3.4, and 6.2), the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one unit. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

Custodian:
Navy - YD

Preparing Activity:
Navy - YD

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other documents referenced herein.