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OO-D-2776  
November 12, 1992  
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SUPERSEDING  
MIL-D-21201F  
9 August 1984

FEDERAL SPECIFICATION

DRILL, PNEUMATIC DRIFTER, SELF-PROPELLED,  
CRAWLER MOUNTED (TRACK DRILL)

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

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers two types of self-propelled, crawler mounted, drifter drills (referred to hereinafter as "track drill"), having not less than a 4.75-inch cylinder bore.

1.2 Classification. The track drills covered by this specification are classified by the method utilized for rotation of the pneumatic drifter drill and are classified as follows (see 6.2 and 6.4):

- Type I - Rifle bar
- Type II - Independent air motor drive

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specification and standard 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).

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\*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, \*  
 \*621 Pleasant Valley Road, Port Hueneme, CA 93043-4300, by using the \*  
 \*Standardization Document Improvement Proposal (DD Form 1426) appearing at the\*  
 \*end of this document or by letter. \*  
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FSC 3820

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#### Federal Standard

##### FED-STD-H28 - Screw-Thread Standards for Federal Services

(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, U.S. Government Printing Office, Washington, DC 20402.)

(Single copies of this standard and other Federal specifications and standards 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, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; 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.)

#### Military Specification

MIL-T-3351 - Tractor, Full-Track, Low Speed; Tractor Wheeled, Agricultural; and Tractor Wheeled, Industrial; and Their Attachments, Packaging of

#### Military Standards

MIL-STD-209 - Slings and Tiedown Provisions for Lifting and Tying Down Military Equipment

MS51335 - Pintle Assembly, Towing, 18,000 Lbs. Capacity, Manual Release

(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.)

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

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE):

SAE J534 - Lubrication Fittings

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

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(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Description. The track drill shall consist of a crawler chassis with a pintle attachment for towing an air compressor, air motors, dust-suppression system, hydraulically operated swing type boom, chain-fed type drill retainer channel, and either an independent air motor or rifle bar rotation type pneumatic drifter drill. The track drill shall be provided with lubrication fittings, hoses, controls, crawler brakes or locks, and other necessary items to perform complete and efficient drilling operations. The track drill shall use compressed air from the towed air compressor as a power source for propulsion and drilling.

3.2 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.2.1, 6.2, and 6.4).

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

#### 3.4 Design and construction.

3.4.1 Standard commercial product. The track drill 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 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.

3.4.2 System of measurement. The dimensions used in this specification are not intended to preclude the use of the metric system of measurement in the fabrication and production of the material, individual parts, and finished product, provided form, fit, and function requirements are satisfied.

3.4.3 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

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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.

3.4.4 Safety. Except for the drill steel, feed chain, and crawler track assembly, all rotating or reciprocating parts that are hazardous to operating personnel shall be enclosed or guarded.

3.4.5 Noise warning plate. A warning plate made of corrosion-resistant material, which will last and remain legible for the life of the equipment, shall be securely affixed with screws or bolts of not less than 0.125 inch diameter to a location conspicuous from the control panel. The plate shall have a yellow background with black lettering inscribed as follows:

CAUTION  
EAR PROTECTION REQUIRED  
WHEN EQUIPMENT IS OPERATING

3.4.6 Ease of maintenance. All major assemblies and installed attachments shall be readily accessible for servicing, repair, or replacement. Drainage of lubricants and hydraulic fluid shall be to the ground without draining on or over any part of the track drill. When drain outlets are located over parts of the track drill, integral tubes or pipes shall convey the fluid from the drain to the ground. Drain outlets shall be accessible without the removal or adjustment of accessories or parts other than access opening covers.

3.4.7 Crawler chassis. The track drill shall be mounted on a self-propelled crawler chassis consisting of two oscillating crawler tracks. The crawler chassis shall have a ground clearance of not less than 10 inches. The crawler mounting shall permit tracks to rise over obstructions while maintaining a proportionately level platform when traveling or drilling. The vertical oscillation of the track frame shall be not less than 14 inches, measured at the center of the front idler. Suitable track rollers shall be provided to assure smooth track operation and maintain even ground pressure. Heavy-duty recoil springs shall be furnished for cushioning front idlers. Track rollers and the track rail shall be arranged to prevent damage to bearings or grease fittings when the track drill is operated through abrasive material or loose stone. The track drill shall be equipped with track adjusters for maintaining tension on the track. Track frames shall not be spliced. The track gage shall be not less than 70 inches from center to center of tracks and a ground bearing length of not less than 60 inches.

3.4.7.1 Track chain. Track links and grouser shoes shall be heat-treated steel of drop-forged or roller construction, and all similar parts shall be interchangeable. The shoes shall be not less than 10 inches wide with provisions for affixing rubber crawler-tread pads. Track links shall be equipped with replaceable pins and bushings. The master pin shall be secured by a lock or a press fit and shall be identified.

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3.4.7.2 Trammings air motors. A trammings air motor using a gear drive train or chain drive, shall drive each track. Each motor shall have a spring-loaded deadman control for forward and reverse movement of the track. The motor and drive train shall be enclosed. Adequate vent plugs shall be provided to prevent air pressure build-up in track drive housing. The rated horsepower of the air motors at 90 pounds-force per square inch (psi) pressure shall be not less than that required to advance the track drill up a grade of not less than 20 percent for 100 yards, and over level ground at a speed of not less than 1.3 miles per hour (mph), while towing the air compressor unit weighing not less than 8,500 pounds (lb). The air motors shall have means for being disengaged from the crawler drive train without the use of tools to permit the track drill to be easily towed.

3.4.7.3 Brakes. Each track shall be provided with brakes or track locks to prevent movement of the track drill when on a 50 percent longitudinal slope. Track locks or brakes shall be operable when power is lost.

3.4.7.4 Platform. When specified (see 6.2), a platform shall be furnished for use by the track drill operator while manipulating the trammings controls during road travel.

3.4.7.5 Toolbox. A toolbox shall be provided to carry those tools and accessories required to operate the unit. The toolbox shall have a hinged lid and trunk drawbolt of a type that will keep the lid closed when the toolbox is subjected to vibration. The toolbox shall be securely fastened to the chassis in a protected and accessible location.

3.4.7.6 Pintle. A pintle assembly, conforming to MS51335, shall be attached to the chassis to receive the tongue of a 600 or 750 cubic feet per minute (cfm) air compressor.

3.4.8 Boom. The boom shall be hydraulically raised, lowered, and swung. Vertical movements of the boom shall be such that holes may be drilled anywhere within the range of from 2.50 to 8 feet (ft) above the ground surface of the tracks. Movement of the boom shall be such that holes may be drilled on a line not less than 12 inches outside of either track without repositioning the crawler. The pneumatic drifter drill of the track drill shall be capable of drilling regardless of the position of the boom and mast. Boom movement shall be so controlled that the boom can be stopped and fixed without creepage at all points in its range of vertical travel.

3.4.9 Mast. A mounting plate shall be used to secure the fabricated steel mast to the boom. The mounting plate shall be hydraulically operated and shall be capable of sliding on the mast for a distance of not less than 3 ft. A reversible air motor or hydraulic cylinder(s), secured to the mast, shall be used to drive the feed mechanism. The mast assembly shall include an adjustable feed chain, upper and lower feed chain idler sprockets, a pneumatic drifter drill mounting plate, a foot pad, and a drill steel centralizer. Feed chain and idler sprockets shall be arranged so that total travel of the pneumatic drifter drill shall allow the operator to change 12-foot sectional drill steel and couplings, by disengagement of the centralizer only. When operating at an air pressure of 90 psi, the air motor or hydraulic cylinder(s) shall drive the feed chain, and shall provide an effort of not less than 3,000 lb for crowding and retracting the pneumatic drifter drill. The mast assembly

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shall be capable of a hydraulic roll operation through an arc of not less than 70 degrees (o) from right to left. The vertical mast dump from a horizontal position shall have a travel of not less than 145o with not more than one mechanical pin change. The mast movement shall be controlled so that the mast can be stopped and fixed without creepage at all points in its range of travel. The mast shall be of such strength to support the pneumatic drifter drill and withstand the imposed loads.

3.4.10 Pneumatic drifter drill. The pneumatic drifter drill shall have a bore size of not less than 4.75 inches, shall operate on a rated air pressure of 90 psi, and shall be automatically valved to provide not less than 1,500 blows per minute to the chucked drill shank. The pneumatic drifter drill for the Type I track drill shall weigh not less than 160 lb and shall be of the long stroke hammer type. The pneumatic drifter drill for the Type II track drill shall weigh not less than 280 lb and shall be of the high speed, short stroke type with independent rotation. The chuck shall be designed to prevent the shank from leaving the pneumatic drifter drill, and shall contain parts of high wearing quality. The chuck shall accommodate a four spline drill shank with rope thread. Unless otherwise specified (see 6.2), the pneumatic drifter drill shall be furnished with five drill shanks. The pneumatic drifter drill shall also provide for control of clockwise, neutral, and counterclockwise rotation of the drill rod. The pneumatic drifter drill for the Type II track drill shall also provide drill rod rotation independent of hammer control. The pneumatic drifter drill shall be designed for wet or dry drilling, and to allow water or air to pass through the unit and the attached drill rod for flushing or blowing purposes. A lubricator shall be provided in the air line and have an oil reservoir of sufficient capacity for not less than 8 hours of operation. The reservoir shall be equipped with a filler opening with a removable strainer. The cap or reservoir immediately adjacent to the filler cap shall be plainly marked to indicate "Rock Drill Oil." The lubricator shall give thorough and positive lubrication to the pneumatic drifter drill and feed motor at all times regardless of the position of the pneumatic drifter drill.

3.4.11 Hydraulic system. The hydraulic system shall be protected against the entrance of dirt or other foreign materials and shall be complete with all operating accessories, including a pump, hydraulic cylinders, reservoir, pressure relief valve, and an oil filter or oil strainer accessible for cleaning. The pump shall be of the gear or vane type driven by an air motor. The pump shall supply a continuous flow of hydraulic fluid, and shall have sufficient capacity to energize all hydraulically powered components. Hydraulic cylinders shall be of the double-acting type having lock-type check valves. Hydraulic valves shall control retracting speed of all hydraulic cylinders, or an internal flow restriction or bypass shall be provided at each end of the cylinders. A wiper shall be provided at each end of the cylinders. A wiper shall be provided on the cylinders, adjacent to the piston rod seal, to prevent dirt and abrasives from damaging the seal or entering the cylinder.

3.4.12 Controls. All controls shall be clearly marked as to use and function. The crawler, boom, and mast controls shall be grouped for safe operation and ease of operation when positioning the crawler, boom, and mast preparatory to drilling. The drilling controls shall be grouped for safe operation and shall be accessible to the operator when drilling at any position. Drilling controls shall operate the functions of the pneumatic drifter drill, including the rotation, feed, and flushing operations.

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3.4.13 Hoses. The quantity of interconnecting hose lines shall be held to a minimum, consistent with complete operation and shall be provided with nonleak connections. Hoses shall be free from pits, blisters, checks, or other defects and shall be of uniform thickness. Hoses shall be designed for not less than 200 psi working pressure and shall pass a 600 psi hydrostatic test pressure. Pneumatic hose shall have an oil resistant inner tube and scuff resistant outer cover. Pneumatic hose shall be supported, where practicable, to prevent kinking. One connection shall be provided to receive the supply hose line from the compressor and shall be 2 inches with 11.50 threads per inch National Taper Pipe (thread), external thread as specified in FED-STD-H28.

3.4.14 Dust-suppression system. Unless otherwise specified (see 6.2), a dust-suppression system shall be provided. The dust-suppression system shall be protected against the entrance of dirt or other foreign materials. It shall be complete with all operating accessories, including a suitable steel reservoir, automatic air operated valve that turns on liquid flow when blowing air is turned on, adjustable fine control, a filler-opening cap, and hoses. The steel reservoir shall be of sufficient size to hold the quantity of detergent water solution necessary to insure 8 hours of operation of the equipment without being refilled. There shall be no leakage of fluid when the system is operated.

3.4.15 Lifting and tiedown attachments. When specified (see 6.2), the track drill shall be equipped with lifting and tiedown attachments. Lifting and tiedown attachments shall conform to type II or type III of MIL-STD-209. A nonferrous transportation plate shall be provided and mechanically attached to the track drill. Transportation plates shall be inscribed with a diagram showing the lifting attachments and lifting slings, the capacity of each attachment, and the required length and size of each sling cable. A silhouette of the item furnished showing the center of gravity shall be provided on the transportation plate. Tiedown attachments may be identified by stenciling or other suitable marking. Tiedown marking shall clearly indicate that the attachments are intended for the tiedown of the track drill on the carrier when shipped.

3.4.16 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 ensure 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.

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3.4.17 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. Hydraulic lubrication fittings shall be in accordance with SAE J534. Where use of high-pressure lubricating equipment, 1,000 psi or higher, will damage grease seals or other parts, a suitable warning shall be affixed to the equipment in a conspicuous location. The unit shall be lubricated prior to delivery with type of lubricant specified in the operator's manual and grade of lubricant recommended for ambient temperature at the delivery point. The unit shall be conspicuously tagged to identify the lubricants and their temperature range.

3.4.18 Identification plate. An identification plate will be furnished by the contracting officer for each track drill. The contractor shall stamp all necessary data in the blank spaces of the plate provided for that purpose, and securely affix a plate to each track drill in a conspicuous place with nonferrous screws, rivets, or bolts not less than 0.125-inch in diameter. The applicable nomenclature contained in the contract item description shall be placed in the top blank.

3.4.19 Instruction plates. The track drill shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be securely affixed to the equipment with nonferrous screws or bolts of not less than 0.125-inch diameter. A warning plate shall be conspicuously affixed to the unit immediately adjacent to the reservoir filler cap of the air line lubricator. The plate shall be inscribed as follows:

WARNING

Under normal operation, the line oiler system is pressurized to 90 psi. Do not open filler cap until air pressure has been completely eliminated from the air system.

3.4.20 Transportability. When specified (see 6.2), the track drill shall withstand impact forces encountered in rail transport and semitrailer transport without damage or permanent deformation.

3.5 Performance.

3.5.1 Drilling. The pneumatic drifter drill, employing a tungsten carbide button type bit, operating at 90 psi rated air pressure and using air at a rate not greater than 600 cfm for Type I track drill and 750 cfm for Type II track drill, shall drill a 3.50-inch diameter hole, 12 inches deep in not less than 1.0 minute when operating in Barre granite or equal with a crushing strength of 17,000 psi. When crushing strength of the granite is other than 17,000 psi, the penetration required shall be inversely proportional to the penetration required at a crushing strength of 17,000 psi. The pneumatic drifter drill shall drill 30-foot deep holes in homogeneous rock with an average specific gravity of not less than 2.6, with the boom and mast at various angles and positions for 50 hours of throttle time without replacement of parts other than drill steel and bits.



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3.5.2 Stability. The track drill shall operate on 35 percent side slopes, or 50 percent longitudinal slopes, or any combination thereof without either track losing all contact with the ground.

### 3.6 Workmanship.

3.6.1 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 ensure uniformity of size and shape.

3.6.2 Bolted connections. Bolt holes 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.

3.6.3 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 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.

3.6.4 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.

3.6.5 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the casting's 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

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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.

4.1.2 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

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 track drill when a first article is required (see 3.2 and 6.2). This inspection shall include the examination of 4.3, the tests of 4.4, and when specified, the preproduction pack inspection of 4.5 (see 6.2). The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items 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, and the packaging inspection of 4.5.

4.3 Examination. Each track drill shall be examined for compliance with the requirements specified in section 3 of this document. 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 requirement or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.4 Tests. The first article shall be subjected to the tests 4.4.1 through 4.4.3. Unless otherwise specified (see 6.2), production track drills shall be subjected to the test of 4.4.1. Where drilling ability is being tested, all drilled holes shall be made with 3.50-inch bits and all drilling shall be performed using 12-foot drill rods. Failure to pass any phase of the following tests shall be cause for rejection.

4.4.1 Pre-performance test. Each track drill produced in fulfillment of a Government contract shall be completely assembled, adjusted, lubricated, or otherwise serviced for operation. The air motors shall be started and subjected to a warm-up period as recommended by the manufacturer. The track drill shall be given a run-in test and all controls operated a sufficient number of times to ascertain that the components and mechanisms actuated by the controls operate promptly, fully, and without restriction or malfunction. The hydraulic system,

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including hoses, fittings, and seals shall be examined for evidence of leakage or rupture. Gear case bearings, shafts, and other moving parts shall be examined for evidence of improper lubrication, fitting, or binding which would result in excessive heating or abnormal operation insofar as is practicable. Failure to pass any phase of this test shall be cause for rejection.

4.4.2 Performance tests. Failure of the track drill to meet the performance tests specified herein shall be cause for rejection.

4.4.2.1 Trammig motor test. The track drill shall tow an air compressor unit weighing not less than 8,500 lb under the following conditions:

- a. When maintaining a travel speed of not less than 1.3 mph over a level one mile measured course.
- b. When negotiating not less than a 20 percent incline for not less than 100 yards.

4.4.2.2 Brake test. Place the track drill facing downhill on a 50 percent slope and apply the brakes or track locks. Keep the brakes applied and remove power. The track drill shall hold its position while the brakes are applied during both tests.

4.4.2.3 Stability test. With the right side of the track drill downhill, drive the track drill forward 50 ft on a 35 percent side slope. Repeat this procedure with the left side of the track drill downhill with no change in the position of the mast or boom. Then drive the track drill forward down a 50 percent longitudinal slope. Inability of either track to maintain ground contact shall constitute failure of this test.

4.4.2.4 Drilling tests. During the drilling tests, the required drilling speed of 1,500 blows per minute to the chucked drill shank must be maintained and the air consumption shall be not greater than 600 cfm for the Type I track drill and not greater than 750 cfm for the Type II track drill at 90 psi pressure. The performance of the track drill shall show no significant difference during the tests. When a dust-suppression system is required (see 3.4.14), all drilling tests shall be performed wet. The track drill shall be examined for any evidence of damage upon completion of the following tests:

- a. The track drill shall drill 30-foot deep holes at various angles and positions through 50 hours of operation. Normal maintenance will be permitted, but no adjustments to the track drill or its component parts shall be allowed. The track drill towing the compressor shall move approximately 10 ft between each hole.
- b. Drill five holes 30 inches deep in Barre granite, or other rock of similar hardness and uniform density, at an average drilling speed as specified in 3.5.1.

4.4.2.4.1 Boom and mast positioning test. With the mast vertical, drill holes one foot deep on a line not less than 12 inches outside of each track. With the mast horizontal, drill two face holes, each hole one foot deep, one

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at a height of 2.50 ft and the other at a height of 8 ft measured from the ground surface of the track to the center of the holes.

4.4.3 Lifting and tiedown attachments test. The track drill, when equipped with lifting and tiedown attachments, shall be tested to verify that the attachments conform to the requirements specified in 3.4.15.

4.5 Packaging inspection. The inspection of the preservation, packing, and marking shall be in accordance with the requirements of section 4 of MIL-T-3351. The inspection shall consist of the quality conformance inspection; and, when specified (see 6.2), a preproduction pack shall be furnished for examination and test within the timeframe required (see 6.2).

## 5. PACKAGING

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be in accordance with the requirements of MIL-T-3351 with the level of preservation and the level of packing as specified (see 6.2).

## 6. NOTES

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

6.1 Intended use. This self-propelled, crawler mounted track drill, when completely equipped for drilling, is intended to be used for horizontal and vertical drilling to define crevice lines, to drill blast holes, and to accomplish other miscellaneous drilling jobs under universal military operating conditions.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type required (see 1.2).
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1).
- d. When first article is required for inspection and approval (see 3.2 and 4.2.1).
- e. When an operator's platform is required (see 3.4.7.4).
- f. Number of drill shanks required, if other than five (see 3.4.10).
- g. When a dust-suppression system is not required (see 3.4.14).
- h. When lifting and tiedown attachments are required (see 3.4.15).
- i. Color of finish coat required (see 3.4.16).
- j. Means of lubrication, if other than as specified (see 3.4.17).
- k. When transportability requirements are required (see 3.4.20).
- l. When a preproduction pack inspection is required and timeframe required for submission (see 4.2.1 and 4.5).
- m. Tests for production track drills, if other than as specified (see 4.4).
- n. Level of preservation and level of packing required (see 5.1).

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6.3 Supersession data. This specification replaces military specification MIL-D-21201F dated 9 August 1984.

6.4 Classification cross reference. Classifications used in this specification (see 1.2) are identical to those found in the superseded military specification, MIL-D-21201F.

6.5 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DOD Federal Acquisition Regulations (FAR) Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data should be delivered by the contractor in accordance with the contract or purchase order requirements.

6.6 First article. When a first article inspection is required, 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.

6.7 Subject term (key word) listing.

- Boom
- Controls
- Dust suppression system
- Hydraulic system
- Instruction plates
- Mast
- Noise warning plate
- Tramming air motors

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MILITARY INTERESTS:

CIVIL AGENCY COORDINATING ACTIVITIES:

Military Coordinating Activity

GSA-FSS

Navy - YD

PREPARING ACTIVITY:

Custodians

Navy - YD

Army - ME

(Project 3820-0197)

Navy - YD

Air Force - 99

Review Activities

Army - AT

Navy - MC

Air Force - 84

DLA - CS

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