
* NOT MEASUREMENT *

* SENSITIVE *

KKK-T-631F

February 14, 1994

SUPERSEDING

KKK-T-631E

January 4, 1980

FEDERAL SPECIFICATION

TRACTOR, FULL-TRACKED, LOW SPEED (DIESEL-ENGINE-DRIVEN)

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 diesel-engine-driven, crawler type tractors, as defined in SAE J727. These tractors require one or more optional functions when specified herein such as: drawbar, blade, winch, backhoe and ripper operations.

1.2 Classification.

1.2.1 Sizes. The tractors shall be of the sizes specified in table I, (see 6.2).

*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, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the

*Standardization Document Improvement Proposal (DD Form 1426) appearing at

*the end of this document or by letter.

FSC 2410

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KKK-T-631F

TABLE I. Tractor minimum requirements.

* Tractor Size	* H.P. Net (kW) * Flywheel	* Pounds (kg) * Drawbar Pull * @ 1.2 mph 2/	* Length Track * Inches (mm) * 3/	* Track Gage * Inches (mm) * 4/	*
* T-1	* 38 (28)	* 6,000 (2720)	* 62 (1574)	* 48 (1219)	*
* T-2	* 50 (37)	* 8,000 (3620)	* 68 (1727)	* 52 (1320)	*
* T-3	* 60 (44)	* 9,600 (4350)	* 70 (1778)	* 52 (1320)	*
* T-4	* 90 (67)	* 15,000 (6800)	* 84 (2133)	* 61 (1549)	*
* T-5	* 105 (78)	* 17,000 (7710)	* 86 (2184)	* 68 (1727)	*
* T-6	* 125 (93)	* 21,000 (9525)	* 90 (2286)	* 74 (1879)	*
* T-7	* 140 (104)	* 23,000 (10432)	* 92 (2336)	* 74 (1879)	*
* T-8	* 170 (126)	* 28,000 (12700)	* 107 (2717)	* 78 (1981)	*
* T-9	* 195 (145)	* 32,000 (14510)	* 107 (2717)	* 78 (1981)	*
* T-10	* 250 (186)	* 45,000 (20410)	* 120 (3048)	* 78 (1981)	*
* T-11	* 300 (223)	* 50,000 (22680)	* 124 (3149)	* 84 (2133)	*
* T-12	* 370 (275)	* 63,000 (28570)	* 130 (3302)	* 84 (2133)	*
* T-13	* 410 (305)	* 68,000 (30840)	* 132 (3352)	* 90 (2286)	*
* T-14	* 520 (387)	* 85,000 (38550)	* 142 (3606)	* 100 (2540)	*
* T-15	* 700 (521)	* 102,000 (46260)	* 154 (3911)	* 114 (2895)	*

- 1/ Manufacturer's certified applied net horsepower (kilowatts (kW)) at flywheel and at rated governed rpm of fully equipped engine at SAE standard ambient temperature and barometric conditions.
- 2/ Drawbar pull available as specified in 3.17.1 at a minimum speed of 1.2 miles per hour (1.92 kilometers per hour (km/h)), verified by manufacturer's test or certified performance for tractors with powershift type drive.
- 3/ Minimum length (in inches (millimeters (mm))) of track from centerline of sprocket or rear idler to centerline of front idler.
- 4/ Minimum width between track centers in inches (mm).

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).

Federal Specification

W-B-131 - Battery, Storage (Vehicular, Ignition, Lighting and Starting)

Federal Standard

FED-STD-123 - Marking for Shipment (Civil Agencies)

KKK-T-631F

Commercial Item Description

A-A-393 - Extinguisher, Fire, Dry Chemical (Hand-Portable)

Military Specification

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

Military Standard

MIL-STD-129 - Marking For Shipment and Storage

(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.)

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

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.

Federal Regulations

29 CFR 1926.600 - Equipment
29 CFR 1926.602 - Material Handling Equipment
29 CFR 1926.604 - Site Clearing
29 CFR 1926.1000 - Rollover Protective Structure (ROPS)

(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.)

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 (SAE):

SAE J88 - Sound Measurement - Earthmoving Machinery - Exterior
SAE J534 - Lubrication Fittings
SAE J551 - Performance Levels and Methods of Measurement of Electromagnetic Radiation from Vehicles and Devices (30 to 1000 MHz)
SAE J727 - Nomenclature - Crawler Tractor

KKK-T-631F

- SAE J872 - Drawbar Test Procedure for Construction, Forestry, and Industrial Machines
- SAE J919 - Sound Measurement - Earthmoving Machinery - Operator - Singular Type
- SAE J1029 - Lighting and Marking of Construction and Industrial Machinery
- SAE J1349 - Engine Power Test Code - Spark Ignition and Compression Ignition - Net Power Rating

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

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), 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 General. This specification covers diesel-engine-driven, commercial crawler type tractors.

3.2 Description. The tractors shall be diesel-engine-driven, commercial crawler type. The tractor, in addition to basic tractor function, shall be capable of performing such functions as: drawbar, blade, winch, ripper, and backhoe work when specified by the procuring activity.

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

3.4 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 is allowed under this specification.

3.5 Temperature conditions. The tractor shall perform satisfactorily in any ambient temperature from -10 up to +120 degrees Fahrenheit (oF) (-23 up to +49o Celsius (C)).

3.6 Safety. All exposed parts subject to high operating temperatures or which are energized electrically shall be located, insulated, fully enclosed, or guarded so as to prevent hazards to operating personnel. All moving parts which are of such nature or so located as to be a hazard to operating personnel shall be enclosed or guarded. Protective devices shall not impair the operating functions. The tractor shall comply with 29 CFR 1926.602 (seat belts, brakes,

KKK-T-631F

and horn), 1926.604 (rollover guards, overhead, and rear canopy guard), and 1926.1000 (ROPS).

3.6.1 Sound level. The exterior sound level of the tractor shall not exceed 88 dB(A) when measured in accordance with SAE J88. If the sound level in the area occupied by the operator exceeds 85 dB(A) when measured in accordance with SAE J919, a warning plate containing the following shall be permanently affixed to the tractor in a conspicuous protected location: "CAUTION: EAR PROTECTION REQUIRED WHEN TRACTOR IS OPERATING". The plate shall have a yellow background with black lettering and shall be of corrosion-resistant material.

3.7 Performance.

3.7.1 Engine horsepower. For specified tractor size (see 6.2), the tractor shall meet the minimum SAE J1349 values shown in table I.

3.7.2 Gradeability. The tractor without attachments shall negotiate 30 percent side slopes and 100 percent longitudinal slopes or any combination thereof without the tractor losing contact with the ground. Engine and other pressure lubricating components shall maintain constant operating oil pressure and operate without malfunction.

3.7.3 Dozer blade. When specified (see 3.22.2), the manufacturer shall install all necessary components on the tractor to provide dozer blade capabilities.

3.7.4 Backhoe. When specified (see 3.22.2), the manufacturer shall install all necessary components on the tractor to provide backhoe capabilities.

3.7.5 Winch. When specified (see 3.22.2), the manufacturer shall install all necessary components on the tractor to provide winch capabilities.

3.7.6 Ripper. When specified (see 3.22.2), the manufacturer shall install all necessary components on the tractor to provide ripper capabilities.

3.7.7 Functional performance. The tractor with specified optional equipment shall be capable of performing any of the functions as specified in 3.2.

3.7.8 Hydraulic system. When specified (see 6.2), the hydraulic system shall be the manufacturer's standard for the tractor supplied and shall be compatible with the optional accessories. All components shall be located in a protected location to prevent damage from objects encountered in normal operation. All optional components and materials shall be compatible with the hydraulic system. The complete system shall operate from a temperature range of -25 to +120 oF (-32 to +49oC). The reservoir shall be either pressurized or nonpressurized. If a nonpressurized reservoir is furnished, a breather filter shall be furnished. Means of checking the oil level in the reservoir shall be provided.

3.8 Ease of maintenance. The design of the tractor(s) shall permit ready accessibility for servicing, replacement, and adjustment of component parts and accessories with minimum disturbance.

KKK-T-631F

3.9 Frame. The frame shall be designed to withstand maximum stresses under normal operating conditions and, in addition, provide adequate support for attaching any optional accessory device(s) approved by the tractor manufacturer for use in combination with the tractor.

3.10 Engine. The engine shall be manufacturer's standard design for the size tractor furnished. The engine shall not be modified to meet horsepower requirements of this specification.

3.10.1 Engine starting system. Unless otherwise specified (see 6.2), the manufacturer's standard 12 or 24 volt direct current electrical starting system shall be furnished.

3.10.1.1 Electrical system. Manufacturer's standard battery(s) shall be provided. Mounting of battery(s) shall permit ready accessibility for servicing, removal, and replacement. When specified (see 6.2), the battery(s) shall be dry charged and shall meet the requirements of W-B-131, with caps sealed to prevent intrusion of moisture. When dry charged battery(s) are specified, manufacturer shall provide the tractor(s) with activated battery(s) installed for mobility of the tractor. Dry charged battery(s) shall be packaged and shipped with each tractor.

3.10.1.2 Lights and circuits. As a minimum, the following lights shall be provided: two headlights, one rear light and one dash light. When specified (see 6.2), two rear lights shall be furnished. The front and rear lights shall conform to SAE J1029. When practical, lights shall be guarded or mounted in a protected location.

3.10.2 Engine cooling system. The manufacturer's heaviest duty cooling system available, either as standard or optional, shall be furnished.

3.11 Fuel tank. Manufacturer's standard fuel tank, with a minimum capacity for 8 hours of continuous operation, shall be provided. The tank shall be equipped with a means for draining water and sediment from the bottom of the tank.

3.12 Engine drive system. The engine drive system for the tractor shall be manufacturer's standard design.

3.13 Speed controls. The tractor shall be furnished with a hand throttle and an accelerator/decelerator (except full hydrostatic drive design).

3.13.1 Drive input torque capacity. The drive input torque capacity shall be greater than the maximum gross torque developed by the engine in hydrostatic drive tractors and by the engine plus the torque converter in tractors with torque converter type drive.

3.13.2 Transmission. Unless otherwise specified (see 6.2), the transmission shall be either a full power shift design or full hydrostatic drive design. The full power shift design shall offer not less than three speeds in either direction, and provide the operator full selective shift under full power application. The power shift design shall include a power assisted steering system providing selective control of either track assembly. The full hydrostatic design shall provide infinite speed control from the full stop

KKK-T-631F

through maximum speed capability. The hydrostatic drive system shall provide full selective control of speed and direction of either track assembly. When specified (see 6.2), the manual shift type transmission shall be the manufacturer's standard product for the size tractor furnished, and shall include all components required for operation.

3.14 Steering devices. Manufacturer's standard full power assisted steering devices shall be provided.

3.15 Final drive units. The final drive units shall be housed and adequately sealed against mud, dust, and water.

3.16 Track assembly. Track links, pins, and bushings shall be of heat treated steel, and shall be replaceable and interchangeable. Recoil mechanism shall be provided for cushioning the front idlers. Except for size T-1, the track roller bearings shall be sealed and permanently lubricated. Hydraulic track adjusters shall be furnished. For size T-5 and larger units the track assemblies shall be equipped with oscillating track frames.

3.16.1 Track shoes and grousers. Track shoes and grousers shall be heat treated steel offering a maximum resistance to wear and abrasion. Unless otherwise specified (see 6.2), the shoe and grouser widths shall be the manufacturer's standard production.

3.16.2 Track gage. Unless otherwise specified (see 6.2), the tractors furnished shall have gage widths not less than shown in table I.

3.16.3 Track length on ground. Unless otherwise specified (see 6.2), the length of track from centerline of sprocket or rear idler, to centerline of front idler shall be not less than shown in table I.

3.17 Drawbar horsepower and drawbar pull.

3.17.1 Drawbar horsepower and pull. The tractor shall deliver not less than drawbar horsepower shown in table I for the specified size tractor. Horsepower shall be the reserved tractive horsepower as defined in SAE J872. Tractors specified shall deliver not less than the applicable minimum pounds (kg) drawbar pull shown in table I at a speed of not less than 1.2 mph (1.92 km/h).

3.18 Operator's compartment.

3.18.1 Seat. The manufacturer's standard commercial operator's seat shall be provided. For size T-5 and larger units a full suspension seat with arm rest is required.

3.18.2 Instruments and gages. The following minimum instruments, gages and/or electronic indicators with video/audio warning indicators shall be provided and shall be located on the instrument panel, except the hourmeter and air filter restriction indicator which may be remotely mounted.

- a. Engine lubricating oil pressure gage.
- b. Engine cooling liquid temperature gage.
- c. Hourmeter.
- d. Torque converter temperature gage (when applicable).

KKK-T-631F

- e. Air filter service or air restriction gage.
- f. Ammeter, voltmeter, or battery charging indicator.

3.19 Tools. Tools normally furnished with the tractor by the manufacturer shall be provided together with the manufacturer's standard tool storage box or compartment.

3.20 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 ensure 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 of manufacturer's current materials. 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 (.0635 mm) over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects.

3.21 Identification marking. Identification shall be permanently and legibly marked directly on the tractor or on a corrosion-resisting metal plate securely attached to the tractor at the source of manufacture. Identification shall include the manufacturer's model and serial number, name and trademark to be readily identifiable to the manufacturer.

3.22 Optional accessories and allied equipment. When optional accessories and allied equipment are specified and furnished, such equipment shall be of current models so designed and constructed as to be readily adaptable without modification, and shall operate efficiently with the tractors so equipped.

3.22.1 Optional accessories. When specified (see 6.2), tractors shall be furnished with any of the following or other accessories as specified by the procuring agency:

- a. Foot operated decelerator is required unless a hydrostatic transmission is provided.
- b. Spark arrestor (if engine is not turbocharged).
- c. Exhaust rain cap or manufacturer's standard curved exhaust pipe.
- d. Track roller guards.
- e. Sprocket rock guards (if tractor does not have drum type (enclosed) sprockets, except elevated sprocket designs).
- f. Front idler rock guards (if tractor does not have drum type idlers).
- g. Front pull hook(s), eyes or pin type attachments.
- h. Fire extinguisher conforming to A-A-393, size 2-1/2, mounted inside the cab.
- i. Crankcase guard, unless frame design provides protection. Adequate provisions shall be made for access through the guard to provide to any point requiring periodic service.
- j. Radiator guard(s). Guards shall provide ready access for cleaning debris from the front of the radiator.

KKK-T-631F

- k. Cab, fully enclosed type. The cab shall be the manufacturer's standard production type, enclosing the operator's seat and all controls. Power operated windshield wipers shall be provided; minimum one front and one rear. If the cab has a separated or split windshield, not less than two power operated front wipers shall be provided. All glass shall conform to 29 CFR 1926.600 and the cab shall conform to 29 CFR 1926.1000 for rollover protection.
- l. Personnel heater, defroster, or defroster fan. Installed in fully enclosed cab specified in 3.22.1(k) or 3.22.1(m).
- m. The manufacturer's air-conditioned cab shall be provided. This cab shall meet all requirements for the fully enclosed cab specified in 3.22.1(k), any exterior air-conditioning components shall be protected from brush environment.
- n. Reversible fan.
- o. Tractor shall meet the requirements of 29 CFR 1926.604.
- p. Brush deflectors (forward sweeps) for ROPS.
- q. 24 volt electrical system, for T-5 size and larger (cranking, charging, and lights).
- r. Vandalism protection kit (as offered commercially by the tractor manufacturer).
- s. Engine enclosures (side panels).

3.22.2 Optional allied equipment. When specified (see 6.2), tractors shall be furnished with any of the following or other allied equipment as specified by the procuring agency.

- a. Angle blade; hydraulically raised and lowered with either manual or hydraulic tilt and angle or a combination thereof.
- b. Straight or semi "U" blade; hydraulically raised and lowered with tilt and pitch adjustment. These adjustments may be either manual or hydraulic or a combination thereof.
- c. Full "U" blade; hydraulically raised and lowered.
- d. Hydraulic control unit(s) to control all hydraulic mounted and towed equipment procured with the tractor.
- e. Ripper, rear mounted, hydraulically operated, parallelogram type (for Size T-1 thru T-4 tractors, pivot type rippers are acceptable).
Ripper shall be furnished with maximum number of ripper shanks.
- f. Drawbar. (Not applicable when winch or ripper is specified.)
- g. Rear retrieval hitch. (Not applicable when winch or ripper is specified.)
- h. Winch, shall be of the towing-type, rear mounted, single drum, over wind position, power in and out, free spooling with control, with self-energizing brake and bare drum line speed capacity. The winch shall be equipped with cable and hook and a fairlead with rollers.
- i. Manufacturer's standard hydraulically operated backhoe.

3.23 Special requirements.

3.23.1 Winterization. When specified (see 6.2), the tractor shall be winterized as per manufacturer's standard procedure.

3.23.2 Radio interference suppression. When specified (see 6.2), the tractor shall be suppressed to limit electromagnetic radiation in accordance with SAE J551.

KKK-T-631F

3.24 Lubrication. 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 pound force per square inch or higher (6996 kilopascals (kPa)), will damage grease seals or other parts, a suitable warning shall be affixed to the equipment in a conspicuous location.

3.25 Workmanship.

3.25.1 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.

3.25.2 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.

3.25.3 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.

3.25.4 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.

3.25.5 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.

KKK-T-631F

4.1.1 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 a tractor when a first article is required (see 3.3 and 6.2). This inspection shall include the examination of 4.3 and the tests of 4.4. 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 tractor 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 First article test. When first article is required, the first article shall be tested as specified in 4.4.1 through 4.4.6. The first article tests shall be performed by the contractor. Failure to pass any phase of the required test shall be cause for the Government to refuse acceptance of the tractor until corrective action has been made.

4.4.1 Gradeability. Place the tractor on level soil. With an approach distance of at least 5 feet (ft) (1.52 m), and not more than 15 ft (4.57 m), run the tractor (without attachments) towards a slope of at least 45 degrees, consisting of dry compacted soil. The tractor must climb without losing traction or exceeding recommended oil pressure. The tractor shall then be placed on a 30 degree slope and run at least 100 ft (30 m) in each direction along the side of the slope. The tractor must remain in full contact with the soil. Nonconformance to 3.7.2 shall constitute failure of this test.

4.4.2 Sound level. The sound level of the tractor while operating shall be measured in accordance with SAE J88 and J919. An exterior reading exceeding 88 dB(A) or an operator's area grading exceeding 85 dB(A) shall constitute grounds for failure. Nonconformance to 3.6.1 shall constitute failure of this test.

KKK-T-631F

4.4.3 Engine horsepower. For specified tractor size (see 6.2), the tractor shall meet the minimum SAE J1349. Nonconformance to 3.7.1 shall constitute failure of this test.

4.4.4 Dozer blade. Perform 8 hours of dozing by pushing of soil, gravel, or stone. The dozing distance shall be a minimum of 50 ft (15.2 m) from the point of origin. Nonconformance to 3.7.3 shall constitute failure of this test.

4.4.5 Backhoe. Perform 8 hours of backhoe operation by digging at least five rectangular ditches in virgin or recompact soil. Each ditch shall be at least 20 ft (6.09 m) long, 2 ft (0.61 m) wide, and 2 ft (0.61 m) deep. Nonconformance to 3.7.4 shall constitute failure of this test.

4.4.6 Functional. The tractor, without specified optional accessories, shall be operated for a minimum of 8 hours. This operation shall consist of engine, road, brake, steering, and electrical functions. Nonconformance to 3.7.7 shall constitute failure of this test.

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

5. PREPARATION FOR DELIVERY

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

5.2 Marking.

5.2.1 Military agencies. Shipments to military agencies shall be marked in accordance with MIL-STD-129.

5.2.2 Civil agencies. Shipments to civil agencies shall be marked in accordance with FED-STD-123.

6. NOTES

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

6.1 Intended use. The tractor is intended for dozing, backhoe, drawbar and winch operations.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification
- b. Size required (see 1.2.1, table I, 3.7.1, and 4.4.3)
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2)
- d. When first article is required for inspection and approval (see 3.3 and 4.2.1)
- e. When a hydraulic system is required (see 3.7.8)

KKK-T-631F

- f. When other than 12 or 24 volt direct current system is specified (see 3.10.1)
- g. When dry charged battery(s) are specified (see 3.10.1.1)
- h. When two rear lights are required (see 3.10.1.2)
- i. When manual shift transmission is specified (see 3.13.2)
- j. When shoe and grouser widths are different (see 3.16.1)
- k. When track gage is different (see 3.16.2 and table I)
- l. When track length is different (see table I and 3.16.3)
- m. When finish color coat is specified (see 3.20)
- n. When optional accessories are required (see 3.22.1)
- o. When optional allied equipment is required (see 3.22.2)
- p. When winterization is required (see 3.23.1)
- q. When radio interference suppression is required (see 3.23.2)
- r. Level of preservation, packaging, and packing required (see 5.1)

6.3 First article inspection. The first article inspection shall be performed on one unit when a first article is required. 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.

6.4 Subject term (key word) listing.

Clearing
Construction
Drawbar
Forestry

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

MILITARY INTERESTS:
ACTIVITIES:

Custodians

Army - ME
Navy - YD1
Air Force - 99

Review activities

Army - AT
Navy - MC
DLA - CS

CIVIL AGENCY COORDINATING

DOT - FAA
GSA - FSS
INT - BLM
USDA - AFS

PREPARING ACTIVITY:

Navy - YD1
(Project 2410-0047)