
 * NOT MEASUREMENT *
 * SENSITIVE *

OO-R-2853
 March 31, 1994

SUPERSEDING
 MIL-R-28567C
 8 March 1989

FEDERAL SPECIFICATION

ROLLER, MOTORIZED, VIBRATING DRUM, ARTICULATED, PNEUMATIC TIRE

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 motorized roller, equipped with a vibrating steel smooth drum and two pneumatic tires, mounted on an articulated frame, and powered by a diesel engine through a hydrostatic drive system.

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).

 *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. *

AMSC N/A

FSC 3895

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Federal Specification

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

Federal Standards

FED-STD-123 - Marking for Shipment (Civil Agencies)
FED-STD-595 - Colors Used in Government Procurement

Military Specification

MIL-R-3075 - Rollers, Motorized, Road, Diesel- or Gasoline-Engine-Driven,
Packaging of

Military Standards

MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-209 - Slings & Tiedown Provisions for Lifting & Tying Down
Military Equipment

(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.)

2.2 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.

ASTM

ASTM D 1557 - Laboratory Compaction Characteristics of Soil Using
Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 2487 - Soils for Engineering Purposes (Unified Soil Classification
System)

(Application for copies should be addressed to ASTM, 1916 Race Street,
Philadelphia, PA 19103.)

Society of Automotive Engineers, Inc. (SAE)

SAE J386 - Operator Restraint Systems for Off-Road Work Machines
SAE J534 - Lubrication Fittings
SAE J1040 - Performance Criteria for Rollover Protective Structures
(ROPS) for Construction, Earthmoving, Forestry and Mining
Machines
SAE J1136 - Braking Performance - Roller/Compactors, Recommended Practice
SAE J1472 - Braking Performance - Roller/Compactors, Standard

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

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Tire and Rim Association, Inc. (TRA)

TRA Yearbook

(Application for copies should be addressed to the Tire and Rim Association, Inc., 175 Montrose West Avenue, Suite 150, Copley, OH 44321.)

(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, 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 roller shall consist of a diesel engine and a hydrostatic propulsion system, including but not limited to: a single drum roller and two pneumatic tires, mounted and connected to a chassis which steers by means of articulation.

3.2 First article. The contractor shall furnish one complete unit for first article inspection and testing. The first article shall be identical to the production items in accordance with the terms of the contract. The first article shall be inspected and tested by the contractor, in the presence of government representatives, at the site selected by the contractor. Costs of testing including test scheduling, transportation, fuel, power, and materials shall be borne by the contractor. The contractor is not responsible for travel expenses incurred by Government representatives. Approval of the first article shall not relieve the contractor of the responsibility to furnish equipment in accordance with contract and specification requirements. No changes or deviation from the approved first article will be acceptable without prior written approval of the contracting officer. The first article, after testing and approval, shall be retained by the contractor at his manufacturing facility for use by the Government Inspector for comparative purposes in connection with the production units required to be delivered under this contract. In the event the contractor desires to deliver the test model as a contract item, it shall be delivered as the last item on the contract only after the contractor, at his own expense, shall have completely cleaned, reconditioned, and overhauled the unit, making such replacements and modification thereto as are required to make the unit acceptable as a contract item.

3.3 Standard commercial product. The roller 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 roller 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.

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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 Interchangeability. All rollers 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 Maintainability. The roller shall be designed so that components are readily accessible for repair or replacement, with minimum removal or disturbance of adjacent parts or components, using general purpose tools. Operating parts, accessories, and drain outlets shall be readily accessible for regular maintenance service.

3.7 Safety. All reciprocating, rotating, or moving parts of equipment shall be guarded when such parts are exposed to contact by personnel or otherwise might create a hazard, including exhaust pipes and other lines which may be subject to high temperatures. Fuel tanks shall be located in a manner which will not allow spills or overflows to run onto the engine, exhaust, or electrical equipment. Exhaust or discharges from equipment shall be directed so that they do not endanger personnel or obstruct the view of the operator. All points requiring lubrication during operation shall have fittings located or guarded so as to be accessible without hazardous exposure to personnel performing these operations. Nonfunctional sharp edges, projecting points, and excessive length of fastening devices shall be avoided. When noise level in the area of the operator's location exceeds 85 decibels (dB), the manufacturer shall install a warning decal or plate that reads: "CAUTION" - HEARING PROTECTION REQUIRED", or similar statement. Exterior noise shall not exceed 88 dB. The roller shall be furnished with a backup alarm which operates automatically when traveling in the reverse direction. The alarm may be of the limited duration design as commonly used on compaction equipment.

3.8 Performance. When the roller is furnished with a tamping foot drum (see 3.12), it shall be capable of compacting fine and coarse grained soils as classified in accordance with ASTM D 2487 to a density of 90 percent modified proctor as determined in accordance with ASTM D 1557. When the roller is furnished with a smooth drum (see 3.12), it shall be capable of compacting hot or cold mixed asphaltic concrete, of not less than 3 inches (75 millimeters (mm)) $\pm 1/2$ -inch (12 mm) loose depth, to a smooth compacted surface in not more than five passes. The roller shall withstand the strain imposed upon it without any damage or deformation when operated at maximum speeds and functions as specified herein.

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3.9 Operating weight and dimensions. The roller equipped with the specified drum (see 3.12), and without added ballast shall not be less than 20,000 pounds (lb) (9070 kilograms (kg)) operating weight. The roller shall conform to the dimensions as specified in table I.

TABLE I. Roller dimensions.

*	*	DIMENSIONS		*
*	ITEM	*	MINIMUM	* MAXIMUM

*	Overall dimensions:	*	*	
*	length	*	-	* 260 in (6600 mm)
*	width	*	-	* 106 in (2690 mm)
*	Drum dimensions:	*	*	
*	length	*	80 in (2030 mm)	* 90 in (2280 mm)
*	diameter	*	54 in (1370 mm)	* -
*	head thickness	*	3/4 in (19 mm)	* -
*	Wheel base	*	-	* 130 in (3300 mm)
*	Outside turning radius	*	-	* 360 in (9140 mm)
*	Curb clearance	*	15 in (382 mm)	* -

3.10 Frame and auxiliary systems. The frame shall be articulated to facilitate steering. The hinge point shall be located at or near the center of the roller and on the longitudinal axis of the frame. The roller design shall allow the vibrating drum to oscillate not less than 8 degrees above and below the drum's longitudinal axis. The frame shall be mounted on two drive wheels on the rear and a single vibrating drum on the front. The manufacturer shall provide a lockout device to preclude the frame from articulating during servicing or when loaded on a carrier for transport. The articulation lockout device shall not require hand or power tools to install or remove.

3.10.1 Rims, tires, and tubes. Tire and rim sizes shall conform to the Tire and Rim Association's recommendations for the type and size of the tires furnished. Unless otherwise specified (see 6.2), the roller shall be furnished with non-directional traction type tread design tires. Tires shall have a rated capacity at least equal to the load measured at each wheel at the ground. If tube type tires are furnished, tubes shall be of the heavy-duty type and of mating size with the tires. Tires and tubes shall be equipped with air/water valves.

3.10.2 Brakes. The service braking system, secondary stopping system, and the parking system shall conform to the performance requirements of either SAE J1136 or SAE J1472.

3.10.3 Lighting system. The roller shall be furnished with a complete lighting system, including but not limited to two floodlight type lights at each end, located so as to illuminate areas where roller may operate in either direction. All wiring shall be protected against wearing and weathering and shall be so secured that no section exceeding 3 feet (910 mm) in length is unsupported. Grommets shall be used where wiring passes through structural steel sections and sheet metal to prevent chafing of the cable.

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3.10.4 Hydraulic system. The hydraulic system shall be complete with all operating accessories, including pumps, reservoir, hydraulic cylinders, valves, pressure relief valves, filters, hoses, piping, and fittings. A wiper shall be provided on all cylinders adjacent to the piston rod seal to prevent dirt and abrasives from damaging the seal or entering the cylinders. The hydraulic system shall be equipped with a full flow, 10 micrometer (minimum) oil filter accessible for cleaning. Vents shall be equipped with filter elements to prevent dirt from entering the reservoir with the air. The suction pickup shall be above the reservoir bottom. The return line shall terminate below the minimum oil level of the reservoir. The drain plug shall be located at the lowest point in the tank and shall be of the magnetic type. All high-pressure hydraulic hoses and fittings shall be capable of withstanding a bursting test pressure of not less than four times the working pressure, and a maximum operating pressure no less than two times the working pressure. Hydraulic oil shall be of the noncorrosive type, with characteristics to withstand any system temperature created by the machine operating in any ambient temperature range between -20 and +120 degrees Fahrenheit (oF) (-29 to +49 degrees Celsius (oC)).

3.11 Power transmission system. The roller shall be diesel-engine-driven, with a full hydrostatic or combination hydrostatic and mechanical drive system, which will provide an operational range meeting requirements as described throughout this specification.

3.11.1 Engine. The roller shall be powered by a diesel engine having horsepower, torque, and speed characteristics to meet all roller performance requirements specified herein. The diesel engine shall operate in any ambient temperatures from -20 to +120oF (-29 to +49oC). The engine shall be ready for full load operation in less than 15 minutes. When an ether priming system is furnished, it shall be of the measured shot type with storage capacity of not less than 12 fluid ounces (355 milliliters (mL)). The engine shall have an exhaust system with muffler. The roller shall be furnished with the following accessories as a minimum:

- a. Manufacturer's standard instrument panel design, which may be of visual or electronic audio/visual indicators for high coolant temperature, low engine lube oil pressure, restricted hydraulic filtering system, and failure of battery charging system.
- b. Fuel tank with capacity for not less than 8 hours operation. Fuel level indicator or gage.
- c. Frequency meter.
- d. Key operated ignition switch.
- e. Two-stage air cleaner with flow restriction indicator, mounted visible to the operator.
- f. Battery charging system of not less than 35 amperes capacity.
- g. Corrosion-resistant battery mounting location.
- h. When specified (see 6.2), battery(s) shall be dry charged in accordance with W-B-131. When dry charged battery(s) are required, manufacturer may furnish roller with activated battery(s) installed for convenience, and dry charged replacement battery(s) will be packaged and shipped with roller for installation at its final destination.
- i. Operator's selective, speed, directional and control devices.
- j. Hour meter with totalizing mechanism of not less than 9999 hours.
- k. Safety shutdown device, when two-cycle engine is furnished.

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1. Vertical ending exhaust stack(s) when furnished, shall be provided with rain cap(s) or curved end(s) providing protection from water entry.

3.11.2 Transmission. The roller shall be driven by fully hydrostatic or combination of hydrostatic and mechanical drive systems, providing power to both the drum and the wheels simultaneously. The roller, with full hydrostatic drive system, shall perform at any speed in either direction. A combination hydrostatic and mechanical system shall provide not less than two speeds forward and two reverse speeds. The roller shall be capable of operation at any speed up to not less than 6 miles per hour (mph) (9.6 kilometers per hour (km/h)), while traveling on a level paved surface. The roller, while in the travel-only mode, shall be capable of negotiating a slope of not less than 17 percent, in a straight vertical line.

3.12 Drum. Unless otherwise specified (see 6.2), the roller shall be furnished with a smooth drum (see 3.12.1). The drum shall be fully self-contained with vibratory mechanism, axle(s) and drive mounting devices. Manufacturer shall ensure minimum disturbance to the hydraulic system during conversion from smooth drum to tamping foot drum. The drum shall be fully interchangeable on any roller furnished on single contract for the same type of roller, and shall be designed so as to require not more than 4 hours labor time, utilizing normal hand and power tools as contained in the average mechanic's toolbox for this type of equipment, not including lifting and blocking devices as may be required. Drum designed with internal vibrating features shall be furnished as a complete assembly.

3.12.1 Smooth drum. The length and diameter of the drum shall be as specified in table I. The drum shall have a smooth surface that is concentric within 1/2 inch (12 mm) over the entire surface.

3.12.1.1 Sprinkler system. Unless otherwise specified (see 6.2), the roller shall be equipped with manufacturer's standard water sprinkler system for wetting the full width of the drum and the full width of the rear. The sprinkler system shall as an minimum include: piping, fittings (nonferrous material), controls, and water tank(s) to complete the system. Separate controls shall be provided for the drum and the rear tires. The tank(s) shall have a total capacity of not less than 150 gallons (560 liters (L)). The tank(s) shall be equipped with vents and drain plugs that shall allow complete drainage of water.

3.12.2 Tamping foot drum. When specified (see 6.2), the roller shall be furnished with a tamping foot drum. The tamping foot drum shall have length and diameter as specified in table I, when measured from the floor level, to maximum surface of compaction pads. The quantity and type of tamping feet provided on the drum shall be the manufacturer's standard design.

3.12.3 Drum cleaner. Replaceable and adjustable drum cleaners shall be provided. The cleaners shall extend over the full length of the drum for smooth drums and between feet for the tamping foot drums. Drum cleaners shall prevent accumulation of material on the drum when the roller is propelled in either the forward or reverse direction.

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3.12.4 Vibrating mechanism. A variable frequency vibrating mechanism, providing not less than two speeds or two amplitude selections, shall be provided. The vibrating mechanism shall provide a frequency of not less than 1400 vibrations per minute (vpm). When operating at the manufacturer's recommended maximum continuous frequency, the centrifugal force (CF) generated by the vibrating mechanism shall be not less than 23,000 lb (10 432 kg). The following formula shall be used to compute CF requirement specified herein:

$$CF = 0.0000284 \text{ wrn}^2$$

where,

CF = centrifugal force
 w = weight of eccentric revolving body in lb
 r = mean radius in inches
 n = number of revolutions per minute (rpm)

All rotating shafts shall be mounted on heavy-duty antifriction type bearings. The vibrating mechanism shall be driven by hydraulic power furnished by the roller's engine. Controls for all functions of vibratory modes shall be located in the operator's station.

3.13 Operator's station. The roller shall be provided with an operator's station, furnished with all controls and applicable accessories/instruments (see 3.11.1). The roller shall be furnished with a ROPS with canopy, conforming to SAE J1040, and a padded operator's seat with a restraint system conforming to SAE J386. All instruments shall be visible from the normal operating position. All controls shall be within reach of the operator when in the normal operating position. Steps or ladder rungs and handholds shall be furnished as necessary to provide safe and easy access for the operator to the station. The station deck and steps shall have an antiskid surface. The station shall be isolated from the vibrations generated by the vibrating mechanism.

3.14 Toolbox. A tool storage box or compartment of sufficient size to hold any tools as required to perform daily operations shall be furnished with each roller. When daily operation of roller may be completed without tools, a toolbox is not required.

3.15 Lifting and tiedown attachments. When specified (see 6.2), the roller shall be equipped with lifting and tiedown attachments. Lifting and tiedown attachments shall conform to type II or type III of MIL-STD-209. Lifting attachments shall be designed to preclude the use of spreader bars. A nonferrous transportation plate shall be provided and mechanically attached to the roller. 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 roller on the carrier when shipped.

3.15.1 Air transportability - construction equipment. When specified (see 6.2), the roller shall meet the air transportability dimensions and weight limits with a half tank of fuel. If necessary, dimension and weight limits may

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be achieved with the equipment in a reduced configuration. Width of the equipment shall not exceed 105 inches (2660 mm). Height of wheeled equipment shall not exceed 102 inches (2590 mm). Weight of wheeled equipment shall not exceed 13,000 lb (5890 kg) per single axle. Achieving a reduced configuration shall be limited to the removal or relocation of mechanical attached (non-welded) components and shall not affect the transportability of the item, including the ability to negotiate without interference, a 15-foot (4570 mm) ramp at an angle of 17 degrees between two horizontal surfaces. If self-powered, the item shall be transportable under its own power with the operator in the standard seat provided. Removal/relocation or reinstallation time of all components required to achieve the reduced configuration shall not exceed 4 man-hours. For components which require removal or relocation, the reinstallation process shall be described in the equipment manual(s) delivered. When delivered to the Government, the item(s) shall not be in the reduced configuration.

3.16 Instruction decals or plates. The roller shall be equipped with instruction decals or plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Decals or plates shall be of a material which will last and remain legible for the life of the equipment.

3.17 Identification plate. As specified in general requirements, 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 roller in a conspicuous place with nonferrous screws, rivets, or bolts not less than 1/8-inch (3.2 mm) in diameter. The applicable nomenclature contained in the contract item description shall be placed in the top blank.

3.18 Servicing and adjusting. Prior to acceptance of the roller by the Government, the contractor shall service and adjust the roller for immediate operational use as required in the operator's manual. The servicing and adjusting shall include at least the following:

- a. Inflation of all tires.
- b. Adjustment of brakes (when required).
- c. Proper functioning of all lighting and electrical systems.
- d. Adjustment of engine to include tune-up (when required).
- e. Complete lubrication with grades of lubricants recommended for ambient temperature at the delivery point.
- f. Cooling system filled to capacity with a clean solution of equal parts by volume of water and antifreeze (ethylene glycol).

3.19 Cleaning, treatment, and painting. Surfaces normally painted in good commercial practice shall be cleaned, treated, and painted as specified herein. Unless otherwise specified, the color of the finish coat shall be green, Number 14064, conforming to FED-STD-595 (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 of acrylic based enamel. The primer shall be applied to a clean,

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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 (0.0635 mm) over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects. All allied equipment and attachments shall be the same color.

3.20 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 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.

3.21 Workmanship.

3.21.1 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.

3.21.2 Bolted connections. Bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers, lockwashers or other locking devices shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

3.21.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the 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.

3.21.4 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 transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.22 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 the finished product, provided form, fit, and function requirements are satisfied.

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

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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 specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance 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 one roller. The first article produced under the contract shall be inspected by the contractor at his plant under the direction and in the presence of Government representatives. This inspection shall include the examination of 4.3 and the tests of 4.4. The purpose of the inspection shall be to determine conformity with the requirements of the contract. Acceptance of the first article shall not constitute a waiver by the Government of its right under the provisions of 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 production operational tests of 4.5.

4.3 Examination. Each roller 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.

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4.4 Performance tests. The first article shall receive the tests of 4.4.1, 4.4.2, and 4.4.3. Failure to pass any test shall constitute cause for rejection.

4.4.1 Operational tests. The first article roller shall be operated upon a relatively level area of not less than 200 feet in length, and of sufficient width to permit the roller to make U-turns without stopping. The surface shall include dips, humps and troughs high and deep enough to require maximum oscillation of the roller. The roller shall be operated throughout full range of speed capabilities for not less 16 hours, and include the following timed functions:

- a. Six (6) hours operation on graded dirt surfaces.
- b. Six (6) hours operation on graded composition fill material (includes uncrushed material of up to 2 inches (50 mm) in diameter).
- c. Four (4) hours operation on fresh spread asphalt (hot or cold) material surfaces.
- d. Two (2) hours ascending and descending a minimum 7 percent incline (4.5o), of not less than 10 times the roller length, during which the roller shall stop and restart not less than five times in each direction. Speed of roller shall be verified during this test. Demonstration of machine maneuverability shall include figure-eight turns, forward and reverse operations.

The roller shall be operated not less than 8 hours at maximum speed and vibration frequency, within safe operational limits. Throughout these functions the roller shall be observed to verify conformance to the requirements specified in 3.10, 3.10.3, 3.11.2 and 3.12.4.

4.4.2 Brake system test. The brake system shall be tested to determine functionability and conformance to the requirements specified in 3.10.2.

4.4.3 Sprinkler test. The roller shall be tested to determine conformance to the requirements specified in 3.12.1.1. The water tank(s) shall be filled to capacity. The roller shall then be driven on a bituminous or asphalt paved surface throughout the test. The sprinkler shall be operated for not less than 30 minutes while the roller is traveling at not less than 5 mph (8 km/h). All controls shall be operated as many times as necessary to determine ease of operation, effectiveness, and responsiveness. Upon completion of the test, remaining water shall be drained from the tank(s).

4.4.4 Lifting and tying down attachments test. When required (see 6.2), the roller shall be tested to verify that the attachments conform to the requirements specified in 3.15.

4.4.4.1 Air transportability conformance tests. When specified (see 6.2), conformance to 3.15.1 air transportability requirements shall be verified by either actual demonstration and weighing or by submission of certified engineering calculations to the procuring activity not less than 30 days prior to the first article test, for review and acceptance in lieu of physical test functions. Contractor will be notified within 15 days as to acceptance/rejection of calculations in lieu of actual demonstration.

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4.4.5 Production sample. Upon acceptance of the first article, the first article shall remain at the manufacturing facility as a production sample, and shall be the last roller delivered on the contract. The first article shall be reconditioned prior to delivery, including replacement of abnormally worn parts and paint touchup or repainting, to enable it to be accepted as a contract item. The contractor shall maintain the first article in a serviceable condition for the duration of the contract.

4.5 Production operational tests. Each production roller shall be operated for 1 hour at speeds between 1 mph (1 km/h) and top speed at applicable vibrating frequency for the roller being tested. All controls shall be operated as many times as necessary to determine ease of operation, effectiveness, responsiveness, and that the mechanisms actuated by the controls operate promptly, fully and without restriction, malfunction, or excessive vibration. The hydraulic system, including hoses, fittings, and seals shall be examined for evidence of leakage or failure. Gear cases, bearings, shafts, and other moving parts shall be factually examined for excessive heating or abnormal operation insofar as is practicable. Failure to pass any phase of this test shall be cause for rejection.

4.6 Preparation for delivery inspection. The inspection of the preservation, packaging, packing, and marking shall be in accordance with the requirements of section 4 of MIL-R-3075. 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. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, and packing. Preservation, packaging, and packing shall be in accordance with the requirements of MIL-R-3075 with the level of preservation, packaging and 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 roller is intended for compacting aggregate and earth as well as hot and cold laid bituminous materials.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in acquisition documents:

- a. Title, number and date of this specification

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- b. 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)
- c. When other than non-directional type tires are required (see 3.10.1)
- d. When dry charged battery(s) are required (see 3.11.1 (h))
- e. When other than smooth drum is required (see 3.12)
- f. When sprinkler system is not required (3.12.1.1)
- g. When tamping foot drum is required (see 3.12.2)
- h. When lifting and tiedown attachments are required (see 3.15 and 4.4.4)
- i. When air transportability is required (see 3.15.1 and 4.4.4.1)
- j. When other than green finish color coat is specified (see 3.19)
- k. When a preproduction pack is to be furnished for inspection and timeframe required (see 4.6)
- l. Level of preservation and level of packing required (see 5.1)

6.3 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 (DD Form 1423) incorporated into the contract. When the provisions of DoD Federal Acquisition Regulations (FAR) Supplement, Part 27, Sub-Part 227.405-70 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.

6.4 Subject term (key word) listing.

Compactor, bituminous pavement
Compactor, earth

6.5 Supersession data. This specification replaces military specification MIL-R-28567C dated 8 March 1989.

MILITARY INTERESTS:

Custodian

Navy - YD1

Review activity

DLA - CS

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

PREPARING ACTIVITY:

Navy - YD1

(Project 3895-0362)