

MIL-S-464F(ME)
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SUPERSEDING
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MILITARY SPECIFICATION

SPREADER, AGGREGATE, TOWED-TYPE TRACTION-POWERED

This specification is approved for use by the USA Belvoir Research and Development Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers one type of towed, traction-powered, aggregate spreader.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATION

FEDERAL

QQ-S-781	- Strapping, Steel, and Seals.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-P-40	- Packaging and Packing of Hand Tools.

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MIL-P-116	- Preservation, Methods of.
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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: USA Belvoir Research and Development Center, ATTN: STRBE-DS, Fort Belvoir, VA 22060-5606 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 3895

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MIL-P-514	- Plates, Identification, Instruction and Marking, Blank.
MIL-T-704	- Treatment and Painting of Materiel.
MIL-F-3541	- Fittings, Lubrication".
MIL-G-3859	- Grease Guns, Hand, High Pressure, Lever Operated (15 and 21 Ounce Capacity).
MIL-W-5044	- Walking Compound; Nonslip, and Walking Matting, Nonslip.
MIL-W-5050	- Walking Coating and Matting, Nonslip, Application of.
MIL-G-10924	- Grease, Automotive and Artillery.
MIL-C-46168	- Coating, Aliphatic Polyurethane, Chemical Agent Resistant.

STANDARDS

FEDERAL

FED-STD-H28	- Screw Thread Standards for Federal Services.
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DOD-STD-100	- Engineering Drawing Practices.
MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-130	- Identification Marking of US Military Property.
MIL-STD-209	- Slinging Eyes and Attachments for Lifting and Tying Down Military Equipment.
MIL-STD-838	- Lubrication of Military Equipment.
MIL-STD-889	- Dissimilar Metals.
MIL-STD-1472	- Human Engineering Criteria for Military Systems, Equipment and Facilities.
MS35387	- Reflector, Indicating, Clearance.
MS51336	- Lunette-Coupler, Drawbar, Ring.

HANDBOOKS

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MIL-HDBK-113	- Guide for the Selection of Lubricants, Fluids, Preservatives and Speciality Products for Use in Ground Equipment Systems.
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2.1.2 Other Government documents, and publications. The following other Government documents, and publications form a part of this specification to the extent specified herein.

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DEPARTMENT OF TRANSPORTATION (DOT)

Federal Motor Carrier Safety Regulations (FMCSR).
Federal Motor Vehicle Safety Standards (FMVSS).

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

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

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging.

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

AMERICAN WELDING SOCIETY (AWS)

B2.1 - Standard for Welding Procedures and Performance Qualifications.

(Application for copies should be addressed to the American Welding Society, Inc., 2501 Northwest Seventh Street, Miami, FL 33125.)

SOCIETY OF AUTOMOTIVE ENGINEERS

SAE J 429 - Mechanical and Material Requirements for Externally Threaded Fasteners.

SAE J 492 - Rivets and Riveting.

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

TIRE AND RIM ASSOCIATION, INC. (TRA)

Tire and Rim Association Yearbook.

(Application for copies should be addressed to the Tire and Rim Association, Inc., 3200 West Market Street, Akron, OH 44313.)

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

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2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Description. The spreader shall consist of a receiving hopper with operators platform, a feed roll with drive mechanism, an adjustable discharge gate and control mechanism, rubber-tired support wheels, a coupling and truck hitch, and a removable transport assembly.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3). Any changes or deviations of the spreader from the approved first article during production will be subject to the approval of the contracting officer. Approval of the first article will not relieve the contractor of his obligation to furnish the spreader conforming to this specification.

3.3 Safety. All reciprocating, rotating, or moving parts of equipment shall be guarded when such parts are exposed to contact by personnel or otherwise create a hazard. All platforms, steps, and ladder rungs shall have antiskid surfaces. Spreader shall comply with all applicable FMCSR and FMVSS.

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

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

3.4.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

3.4.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and sub-components, and shall make information available, upon request, to the contracting officer or the designated representative (see 6.2).

3.4.1.3 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the spreader may be newly fabricated from recovered materials to the maximum extent practicable, provided the spreader produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the spreader,

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3.5 Interchangeability. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable. The drawing number requirements of DOD-STD-100 shall govern changes in the manufacturer's part number.

3.5.1 Common parts. Common hardware and fastening devices, such as bolts, nuts, screws, and similar items, shall be held to a minimum number of types and sizes and shall be threaded to the standards of FED-STD-H28.

3.6 Human factors engineering. The requirements described in MIL-STD-1472, 5.5 (labeling), 5.7.7 (ladders), 5.4 (controls), 5.13.2 (safety labels and placards), 5.13.5.4 (edge rounding), 5.13.6.2 (handrails, safety bars and chains) shall be incorporated in the design of the spreader, as applicable. The spreader shall be designed such that 5th percentile female through 95th percentile male soldiers (see MIL-STD-1472, 5.6 [anthropometry]) can operate and maintain this item.

3.6.1 Design for maintainability. The spreader and its associated components shall also be designed to incorporate MIL-STD-1472, 5.9 requirements, as applicable.

3.7 Performance. The spreader shall perform as specified herein when attached. The spreader shall uniformly distribute each type and size of material specified in table I when traveling in both the forward and reverse directions. The maximum spread width shall not be less than 8 feet. Block-off plates 1 foot in length shall be provided to reduce the width of spread from 8 feet to 4 feet in increments of 1 foot. No part of the spreader, (with the exception specified in 3.8), including the truck hitch, shall interfere with the operation of the dump truck body, including the tailgate.

TABLE I. Percent passing each sieve by weight.

Sieve designation	Col A	Col B
	Gravel or Crushed Stone	Crushed Stone
1 inch	100	
3/4 inch	90-100	
1/2 inch	20-55	100
3/8 inch	0-15	85-100
No. 4	0-5	10-30
No. 8		0-10
No. 16		0-5

3.8 Receiving hopper. The hopper shall have a capacity of not less than 1 cubic yard and shall receive the material from the truck without loss or spillage when the spreader is moving in forward and in reverse directions. The hopper shall be constructed so that aggregate dumped into the hopper from the dump truck will be fed by gravity to the feed roll and to the ground by the revolving feed roll. During spreading operations with the truck body in a fully

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elevated dumping position, the truck body shall not interfere with hopper (where overflow belting is provided, contact by the truck body with the belting will be permitted provided no permanent deformation or damage results). Two handles, one on each end of the hopper, shall be provided for manual movement of the spreader. The handles shall permit manual movement of the spreader without interference from the truck tires and shall not interfere with the truck tires during spreading operations.

3.8.1 Operator's platform. An operator's platform with safety rail (see 3.6) shall be provided. The platform shall be the full width of the hopper and shall attach to the hopper by hooks or other means to permit removal and storage. The safety rail shall incorporate an opening to permit personnel to mount and dismount from the operator's platform. The operator's platform shall have an antiskid surface which conforms with MIL-W-5044 applied in accordance with MIL-W-5050.

3.9 Feed roll. The spreader shall be provided with a feed roll that extends the full length of the receiving hopper. The feed roll shall be located in the back pocket of the receiving hopper and shall be driven by the support wheels through the drive mechanism.

3.9.1 Drive mechanism. A drive mechanism that synchronizes the speed of the drive with the speed of the support wheels shall be provided. Controls shall be provided on the feed-roll drive mechanism so that the feed roll may be set in the neutral position, set in the forward direction, or set in the reverse direction. These positions shall be labeled "Feed, Neutral, Forward, Reverse"; letter height for this label shall exceed 3/8 inch in accordance with 3.6. The controls may be either manual or automatic. If automatic control is used, it must be appropriately labeled if the control is manipulated by the operator. The drive mechanism shall include an automatic declutching device that shall prevent the feed roll from reversing direction when the direction of spread is reversed. If the clutch is manipulated by the operator, it shall be labeled "Clutch, Engaged, Disengaged" in 1/2-inch high letters and with a double ended arrow to show direction of movement in accordance with 3.6. All moving parts of the drive mechanism except the input and output shaft shall be enclosed in a dusttight housing.

3.10 Adjustable gate. The adjustable gate shall be constructed of steel, shall run the full length of the hopper, and shall be reinforced against sagging. The gate shall control the rate of discharge to produce coverage between 15 pounds and 75 pounds per square yard. The coverage shall be uniform within ± 10 percent by weight. The gate shall be operated by two positive-screw adjustments or two levers which can be locked in not less than six positions. All positions shall be labeled to indicate approximate feed rates in 1/2-inch high letters in accordance with 3.6. Each control mechanism shall be capable of independent manipulation to permit regulating the gate for either uniform or tapered spreads. The spreader shall have an indicator plate showing open and closed positions and identification of each opening of the gate. Required gate openings for desired application rates shall be established through trial runs.

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The plate shall be made from material as specified in 3.18. A positive cutoff shall be provided to prevent spill or dribble of aggregate when the spreader is not in operation.

3.11 Support wheels. While in operation, the spreader shall be entirely supported by not less than two sets of dual pneumatic-tired wheels which shall be located to insure ease of disassembly for replacing tires. The wheels shall be arranged so that when the dump truck to which the spreader is attached is moving in reverse gear, the wheels of the spreader shall not come in contact with the road surface being constructed until it is covered with aggregate from the spreader.

3.11.1 Tires. Tires shall be of the industrial type, size 6.90 x 9, not less than 6 ply rating. Tire inflation pressures, recommended by the Tire and Rim Association Yearbook, shall be stenciled in 1 inch high letters near each tire. Tires furnished under this specification shall be not more than 12 months old on the date of shipment by the manufacturer.

3.11.2 Tubes. Tubes shall be compatible with the tires provided.

3.12 Transport assembly. The spreader shall be furnished with a removable transport mounting assembly equipped with pneumatic-tired wheels and a drawbar for attachment to the dump truck. The transport mounting shall raise the spreader to provide not less than a 20 degree angle of departure from the horizontal. The transport assembly shall permit the spreader to be towed at speeds up to 35 mph over smooth surfaced roads without damage to any component. The transport wheels shall be mounted perpendicular to the supporting wheels and shall be located so that the load imposed on the pintle of the prime mover shall be not less than 150 pounds nor more than 300 pounds. The drawbar for the transport assembly shall be fitted with a lunette conforming to MS51336. Provisions shall be made for vertical adjustment of the drawbar so that the spreader will remain essentially level when attached to vehicles with pintle heights between 30 and 36 inches. Where the transport assembly is bolted to the spreader, self-locking nuts or lock washers shall be provided to prevent loosening due to vibration. The spreader shall be equipped with adjustable landing legs to support the spreader when it is stored while mounted on the transport assembly. The operator's platform, the truck hitch assembly, and the block-off plates shall be stored in the hopper during transport. As an option, the block-off plates may be stored in the toolbox. Anchors shall be provided to keep each item in place in the hopper during transport. The weight imposed on the pintle shall be determined with the above items in the hopper. Two red reflectors conforming to MS35387-1 shall be mounted on the rear end of the hopper as far apart as practicable. Two safety chains shall comply with all applicable FMCSR and FMVSS regulations and shall be attached to the drawbar. Each chain shall extend between 36 and 42 inches beyond the lunette eye and shall be equipped with a safety hook. The hook shall pass through a 2-inch diameter opening.

3.12.1 Wheels. Transport wheels shall be of the single type.

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3.12.2 Wheel hubs. Wheel hubs shall be fitted with antifriction bearings to suit the application. The bearings shall be located so as to prevent vibration of the hub. A positive means of making minor adjustments to the bearings shall be provided.

3.12.3 Tires. Tires shall be size 9.00 x 16, 8-ply rating.

3.12.4 Tubes. Tubes shall be compatible with the tires provided.

3.12.5 Transport assembly mounting. The spreader shall be mounted to the transport assembly by use of an appropriate lifting device such as a crane, wrecker, etc. A step by step procedure for mounting and dismounting the spreader to and from the transport assembly shall be included in the technical manual furnished with the spreader. Use of bumper jacks for this operation shall not be permitted.

3.13 Coupling. A coupling that is compatible with the truck hitch (see 3.14), shall be provided with each spreader. The coupling shall permit vertical adjustment to the height required for connecting to the truck and also for providing a means for keeping the receiving hopper adjusted to the operating level while spreading. The coupling shall have ample swivel movement to permit the spreader to follow road contours. The vertical adjustment control and the control used to unlock the coupling from the truck hitch shall be located so there will be no interference with the truck tires and so they can be operated by personnel standing at the control side of the spreader. The controls shall permit adjustment to the extreme upper and lower position without evidence of binding.

3.14 Truck hitch. A truck hitch shall be provided with each spreader for installation on rear cross members of the dump truck(s) specified (see 6.2). The hitch shall have a vertical-height-range adjustment. The vertical-range adjustment shall permit spreaders to be adjusted to a level position when coupled to loaded trucks.

3.15 Lubrication. All surfaces that require lubrication shall be provided with a means for lubricating.

3.15.1 Lubricants. The procedure for the selection of lubricants shall be in accordance with section 5 of MIL-STD-838. Lubricants selected shall be in accordance with chapter 2 of MIL-HDBK-113. When the specification of the lubricant selected includes a requirement for a qualified products list (QPL), the lubricant supplied shall be from a source that is listed on the applicable QPL .

3.15.2 Lubrication fittings. Lubrication fittings shall conform to MIL-F-3541, type I, II, or III. Fittings shall be located in a protected position and shall be accessible to a hand-operated grease gun conforming to MIL-G-3859 equipped with a 10-inch flexible extension. Accessibility to fittings shall be provided without the removal or adjustment of accessories or parts. Where holes are cut in covers, plates, etc., to provide accessibility to

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fittings, spring-loaded covers shall be provided. Panels and plates equipped with hand-operable, quick-disconnect fasteners may be removed to provide accessibility.

3.15.3 Filling, draining, and checking provisions. Gear cases, transmissions, etc., that contain fluid lubricants shall be labeled in accordance with 3.6 and shall be equipped with dipsticks, check plugs not less than 1/2-inch pipe size, or sight gages to determine the level of lubricant, filling and draining provisions. The drain outlet shall be fitted with a magnetic and drainplug. The drain outlet shall be located so that removal of the plug will result in complete drainage of the lubricant from the enclosure. Drains shall be located such that draining lubricants can be drained into a vessel when the spreader is in its normal position. Accessibility to the drainplug, the filling means, and the lubricant-level checking device shall be provided.

3.15.4 Grease lubrication. All grease lubrication, including lubrication of sealed bearings, shall be with military grease conforming to MIL-G-10924. The spreader shall be assembled, run-in, tested, and delivered with these greases. The bearings shall be cleaned before lubrication, because military greases are not always compatible with other greases. A tag shall be attached in a conspicuous place to indicate which military grease has been used.

3.15.5 Oil lubrication. Unless otherwise specified herein, all components shall be filled to the operating level with winter grades of military oils designated for use in the temperature range specified herein. A tag shall be attached in a conspicuous place to indicate the temperature range and grade of lubricants used.

3.16 Lifting provisions. Permanently affixed provisions that enable the spreader to be lifted in its normal travel position shall be provided and shall conform to MIL-STD-209, for type II equipment, class 1 and 3 provisions, Lifting provisions may also be used as tiedown provisions when such provisions meet the requirements specified in 3.17.

3.17 Tiedown provisions. Permanently affixed provisions that permit fastening the spreader to the floor or deck of a transportation medium shall be provided. Tiedown provisions shall meet the requirements specified in MIL-STD-209, for type II equipment, class 2 or 3 provisions. All lift/tiedown points shall be labeled "Lift, Tiedown, or Lift-Tiedown", as appropriate in 1 inch high letters.

3.18 Identification marking/labels. The spreader shall be identified in accordance with MIL-STD-130. All marking/labels shall be applied to the spreader on plates conforming to MIL-P-514, type I, style 1, composition C of type 1, grade A, class 1 material. Plates shall be attached by screws, bolts, or rivets in a conspicuous protected location.

3.19 Control identification. Each control shall be identified with a plate indicating the intended function of the control (see 3.6). The material for the

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plates shall conform to MIL-P-514, type III, composition C of type I, grade A, class 1 material. The plates shall be attached to the spreader by screws, bolts, or rivets.

3.20 Shipping data plate. Shipping data plate shall conform to MIL-P-514, type III, composition C, of type I, grade A, class 1 material and in addition, shall show the silhouette of the spreader in transport position indicating the center of gravity and the location and capacity of the lifting and the tiedown attachments. The plates shall be attached by screws, bolts, or rivets in a conspicuous protected location.

3.21 Stenciling. The weight of the spreader shall be stenciled on each side so as to be discernible. Stenciling shall conform to MIL-T-704.

3.22 Repair parts and maintenance tools. Such repair parts and maintenance tools as specified shall be furnished (see 3.24).

3.23 Toolbox. A toolbox shall be provided and shall be attached to the spreader and shall be of a size to hold those tools and accessories required to operate the spreader. The toolbox shall be made of steel 0.0747 inch in nominal thickness, and shall include provisions for drainage in its mounted position. The toolbox shall have a hinged lid with a continuous hinge extending the full length of one edge, and shall be provided with not less than two lockable fasteners that will keep the lid closed when the toolbox is subjected to vibration. The toolbox lid shall have an overlapping lip to prevent entry of rain and dirt. The toolbox shall be securely mounted in a protected and accessible location permitting the lid to be opened through an arc of not less than 90 degrees. The lid shall remain in the fully open position by the weight of the lid or by holding devices.

3.24 Items to be furnished with the spreader. No shipment of spreaders shall be made unless repair parts, maintenance tools, and accessories are included with the shipment or unless approval for shipment of the spreader without such items has been received from the contracting officer (see 6.2).

3.25 Workmanship. The spreader shall be free from defects such as incomplete welds, rust, cracks, and other defects that could impair the operation of the spreader. Metal used in fabrication shall be free from kinks and sharp bends. The straightening of material shall be done by methods that will not cause injury to the material. Corners shall be square and true. Flame cutting, using tips suitable for the thickness of the steel, may be employed instead of shearing and sawing. All bends shall be made with controlled means to insure uniformity of size and shape. Precaution shall be taken to avoid overheating. Heated steel shall be allowed to cool slowly. External surfaces shall be free of burrs, sharp edges, and corners, except when sharp edges or corners are required or where they are not detrimental to safety.

3.25.1 Welding. The surfaces of parts to be welded shall be free from rust, scale, paint, grease, mill scale that can be removed by chipping, wire brushing, and other foreign matter. Welds shall transmit stress without permanent defor-

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mation or failure when the parts connected by the welds are subjected to proof and service loading. Parent materials, weld filler metals, and fabrication techniques shall be as required to enable the spreader to conform to the examination and test requirements specified in section 4. Parts to be joined by fillet welds shall be brought into as close contact as possible and in no event shall be separated by more than 3/16 inch, unless appropriate bridging techniques are used. Unless otherwise specified, the welding process used in fabrication of the spreader shall be at the option of the contractor (see 6.2).

3.25.1.1 Welder certification. Welders shall be certified according to AWS B2.1, Standard for Welding Procedures and Performance Qualifications.

3.25.2 Bolted connections. Boltholes shall be accurately formed and shall have the burrs removed. Washers or lockwashers shall be provided where necessary. Matching thread areas securing bolts conforming to SAE J429 or capscrews shall be of sufficient strength to withstand the tensile strength of the bolt. All fasteners shall be correctly torqued and shall have full thread engagement.

3.2.5.3 Riveted connections. Rivets shall fill the holes completely. The upset rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member, and shall be in accordance with SAE J492.

3.26 Government-loaned property. Unless otherwise specified, the following property as applicable in the quantities indicated will be loaned by the Government (see 6.5):

<u>Item</u>	<u>Description</u>	<u>Identification</u>	<u>Quantity</u>
1	Truck, dump, 5-ton, 6 X 6, M929	NSN 2320-01-047-8756	1
		or	
2	Truck, dump, 5-ton 6 X 6, M930	NSN 2320-01-047-8755	1
3	Pattern drawings	Camouflage Patterns	As Required

3.27 Treatment and painting. The portions of the spreader normally painted internally and externally shall be cleaned, treated, and painted in accordance with MIL-T-704, type F or G, as applicable. Unless otherwise specified (see 6.2) top coat color shall be camouflage green 383 conforming to MIL-C-46168. The spreader shall then be overcoated in accordance with the Government furnished camouflage patterns with MIL-C-46168 top coat of the colors specified in the camouflage patterns, with the exception that the first article may be camouflage green 383.

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3.28 Data for camouflage patterns. The contractor shall generate the following data (see 6.2).

- a. Eight by ten color photos that mirror each of the views listed under 3.28.1.
- b. Original illustrations of each of the views listed under 3.28.1. The illustrations shall be to 1/8 scale on D size paper. Each illustration shall include length, width, and height dimensions relative to each other and shall be clearly detailed to the extent that all discontinuities of the spreader that cover one square inch or more of area, are clearly delineated to scale.

3.28.1 Camouflage pattern views.

- a. Back
- b. Front
- c. Left side
- d. Right side
- e. Top
- f. Hidden views that would result in a change of a finished pattern.

Note: Hidden views are those areas requiring camouflage coloration that are not apparent from the other views. Included are variations in the appearance of the spreader that result when the deployed spreader is taken from a stand-by condition and placed into a ready-for-use condition.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Responsibility for compliance. All items must meet all section 3 and 5 requirements. The inspections in section 4 are the minimum to be used to demonstrate compliance. Sampling in quality conformance inspection does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

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4.3 First article inspection.

4.3.1 Examination. The spreader shall be examined for the defects as specified in 4.5.1. Presence of one or more defects shall be cause for rejection

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

4.4. Quality conformance inspection

4.4.1 Examination. Each spreader shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.4.2 Quality conformance test. Each spreader shall be operated without aggregate to demonstrate performance of the controls.

4.4.2.1 Failure criteria. Leakage of lubricants or malfunction of any control shall be cause for rejection.

4.5 Inspection procedures

4.5.1 Examination. Each spreader shall be examined for the following defects:

101.	Parts or components missing.	3.1
102.	Safety not as specified.	3.3
103.	Material not as specified.	3.4
104.	Materials are not resistant to corrosion or deterioration or treated to be made resistant to corrosion or deterioration for the applicable storage and operating environment.	3.4.1
105.	Dissimilar metals as defined in MIL-STD-889 are not effectively insulated from each other.	3.4.1.1
106.	Contractor does not have documentation available for identification of material, material finishes or treatments.	3.4.1.2
107.	Used, rebuilt or remanufactured components, pieces and parts incorporated in the spreader.	3.4.1.3
108.	Interchangeability not as specified.	3.5
109.	Threaded parts not in accordance with FED-STD-H28.	3.5.1
110.	Design for human factors not as specified.	3.6 and 3.6.1
111.	Receiving hopper not as specified or interference occurs between the truck body and the hopper during spreading operations with the truck body in a fully elevated dumping position or interference occurs between the handles on each end of the hopper and the truck tires during spreading operations.	3.8
112.	Operator platform or safety rail not as specified.	3.8.1
113.	Feed roll not as specified.	3.9
114.	Drive mechanism not as specified.	3.9.1

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115.1	Adjustable gate not as specified,	3.10
116.	Support wheels not as specified.	3.11
117.	Tires and tubes not as specified.	3.11.1 and 3.11.2
118.	Transport assembly, wheels, wheel hubs, tires, tubes, and transport assembly mounting not as specified.	3.12, 3.12.1, 3.12.2, 3.12.3, 3.12.4, and 3.12.5
119.	Coupling not as specified.	3.13
120.	Truck hitch not as specified.	3.14
121.	Lubrication, lubricants, lubrication fittings, filling, draining and checking provisions, and grease and oil lubrication not as specified.	3.15, 3.15.1, 3.15.2, 3.15.3, 3.15.4 and 3.15.5
122.	Lifting provisions not as specified.	3.16
123.	Tiedown provisions not as specified.	3.17
124.	Identification markings and labels not as specified.	3.18
125.	Control identification not as specified.	3.19
126.	Shipping data plate not as specified.	3.20
127.	Stenciling not as specified.	3.21
128.	Toolbox not as specified.	3.23
129.	Repair parts, maintenance tools, and accessories not included with shipment of spreaders.	3.22 and 3.24
130.	Workmanship not as specified.	3.25
131.	Welding not as specified.	3.25.1
132.	Welders not certified according to AWS 132.1.	3.25.1.1
133.	Bolted connections, washers and lockwashers, matching thread areas, capscrews, and fasteners not as specified.	3.25,2
134.	Riveted connections not as specified.	3.25.3
135.	Treatment and painting not as specified.	3.27
136.	Paint color not as specified.	3.27
137.	Camouflage pattern data not as specified.	3.28
138.	Camouflage patterns not as specified.	3.28

4.5.2 Tests.

4.5.2.1 Test conditions. Unless otherwise specified in a tests tests shall be performed without shelter and at the climatic conditions existing at the place of test. The spreader shall operate as specified herein without maintenance other than the contractor's recommended normal scheduled maintenance as established by a maintenance schedule prepared and submitted by the contractor prior to test. The Government will loan the dump truck to perform these tests (see 6.5).

4.5.2.2 Spreading accuracy. Operate the spreader at speeds between 1 and 5 mph, to cover a strip not less than 80 feet long at the maximum spreading width. One strip using each aggregate specified in table 1 shall be laid. The rate of application shall be:

- a. Gravel (column A, table I) - in the reverse direction, at 30 pounds per square yard.

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- b. Crushed stone (column B, table I) - in the reverse direction at 75 pounds per square yard.

Determine the rate of each spread by weighing aggregate from three samples that have been collected at random. Each sample shall be weighed separately to determine spreading accuracy. A sample shall consist of the aggregate from an area 1 yard square.

4.52.2.1 Failure criteria. Inability to spread each size aggregate within +10 percent by weight, coverage not uniform or width of spread less than 8 feet shall constitute failure of this test.

4.5.2.2.2 Spreading width reduction. Reduce the spreading width to 6 feet and operate the spreader to distribute any size aggregate in table I. Reduce the spreading width to 4 feet and repeat the operation.

4.5.2.2.2.1 Failure criteria, Inability to install the block-off -plates, a spreading width that is not within 2 inches of the set width, or coverage not uniform shall constitute failure of this test.

4.5.2.3 Operational. Operate the spreader to distribute any size aggregate specified in table I for a period of not less than 8 hours. Only actual spreading time shall be counted toward the 8-hour requirement.

4.5.2.3.1 Failure criteria. Any malfunction of any control, difficulty in operating any control, or any permanent deformation or damage to any part of the spreader shall constitute failure of this test.

4.5.2.4 Dump body clearance, With the spreader attached to the truck for spreading operations, raise the dump body to its maximum height (see 3.7).

4.5.2.4.1 Failure criteria. Interference between the body and any part of the spreader shall constitute failure of this test. Where overflow belting is provided, contact between the belting and the truck shall be permitted provided no permanent deformation or damage to the belting results.

4.5.2.5 Transportability. Using the procedure specified in 3.12.5, assemble the spreader, for transport and attach the spreader to the truck. Anchor the items-specified in 3.12-in the hopper and tow the spreader over smooth surfaced roads not less than 100 miles at an average speed of not less than 25 miles per hour including speeds up to 35 mph.

4.5.2.5.1 Failure criteria. Difficulty in attaching the spreader to the pintle of the truck; inability to complete 100 miles of specified testing because of damage to any part of the spreader or transport assembly; items not remaining anchored in place in the hopper; a pintle load less than 150 pounds or more than 300 pounds; or inability to attain a speed of 35 mph without damage to the spreader shall constitute failure of this test.

4.5.2.6 Lifting provisions.

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4.5.2.6.1 Test Procedures.

- a. Lift the spreader and hold in suspension in its normal travel position using slings that converge not more than 24 feet above the lowest extremity of the spreader. Determine the forward angles of application for each provision. Measure the clearance between each sling and the spreader. Measure eye opening and clearance dimensions of the provision. Measure the load carried by each provision.
- b. Restrain the spreader by anchoring the main frame and subject each provision to a force equal to the load factor specified in MIL-STD-209, for type II equipment, class 1 and 3 provisions times the load it carried in a. above. An alternate method of test is to lift the spreader as in a. above and add weights to the main frame until the required force is obtained. Hold the spreader under either of the above loading conditions for at least 90 seconds.

4.5.2.6.1.1 Failure criteria. Weld failure or permanent deformation caused by lifting or failure to meet the requirements of MIL-STD-209, for type II equipment, class 1 and 3 provisions shall constitute failure of this test.

4.5.2.7 Tiedown provisions.

4.5.2.7.1 Test procedure. With the spreader anchored by means other than the attachment being tested, apply the proportion of the static loads as specified in MIL-STD-209, for type II equipment, class 2 and 3 provisions to each attachment. Measure dimensions of the tiedowns.

4.5.2.7.1.1 Failure criteria. Failure to meet the requirements of MIL-STD-209, for type II equipment, class 2 or 3 provisions as specified in 3.17 shall constitute failure of this test.

4.6 Inspection of packaging.4.6.1 Quality conformance inspection of pack.

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

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

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

139. Disassembly not as specified for level A.
140. Unprotected surfaces not preserved as specified for level A.
141. Tires not inflated as specified for level A.
142. Technical publications, if furnished, not preserved as specified for level A.
143. Maintenance tools not preserved in accordance with the referenced document as specified for level A.

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144. Repair parts not preserved in accordance with the referenced document as specified in level A.
145. Consolidation not as specified for level A.
146. Strapping not as specified for level A.
147. Preservation not in accordance with the referenced document specified for commercial.
148. Marking missing, illegible, incorrect or incomplete for level A or commercial.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or commercial as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Disassembly. The operator's platform, truck hitch assembly and block-off plates shall be removed. Further disassembly shall be only to the extent necessary to safeguard parts vulnerable to damage, pilferage or loss. Removed bolts, nuts, pins, washers, etc., shall be reinstalled in-mating parts to prevent their loss.

5.1.1.2 Unprotected surfaces. Unpainted exterior metal surfaces of items, components, and assemblies, such as bolts, nuts, washers, roller, levers, hitch, block-off plates, cutoff shoes, chains, and any other exterior metal surface requiring a contact preservative in accordance with MIL-P-116 shall be coated with type P-1 preservative. The preservative shall conform to the applicable specification listed in and shall be applied in accordance with MIL-P-116.

5.1.1.3 Tires. Preservative shall not be applied to the tires. Transport tires shall be inflated to 10 percent above the specified pressure; other tires shall be inflated to two-thirds of the specified pressure.

5.1.1.4 Technical publications. Technical publications, if furnished, shall be preserved in accordance with MIL-P-116, method IC-1 or IC-3.

5.1.1.5 Maintenance tools. Maintenance tools shall be preserved in accordance with the level A requirements of PPP-P-40, and placed in the toolbox.

5.1.1.6 Repair parts. The preservative application criteria and applicable method(s) of preservation of MIL-P-116 shall be used to preserve the repair parts. The repair parts shall be placed in the toolbox as space permits.

5.1.1.7 Consolidation. The operator's platform and the truck hitch assembly shall be placed and secured in the hopper. The repair parts, maintenance tools, technical-publications, block-off plates and any other loose or removed components shall be placed in the toolbox as space permits. Items that will not fit in the toolbox shall be consolidated in a close fitting box conforming to PPP-B-601, overseas type, style optional. Box strapping is not required. The box shall be secured in the hopper or in any other location convenient for securing that will not increase cubage or interfere with lifting or towing of

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the spreader. Securing shall be accomplished by the use of strapping conforming to QQ-S-781, class 1, type I or IV, finish B, size as applicable or class 2, type VI, finish B, grade 2.

5.1.1.8 Commercial. Each complete spreader shall be preserved in accordance with ASTM D 3951.

5.2 Packing (see 6.6). Each complete spreader, preserved as specified in 5.1, shall be prepared for mobile shipment in accordance with carrier rules and regulations.

5.3 Marking.

5.3.1 Military. Marking for level A shall be in accordance with MIL-STD-129.

5.3.2 Commercial. Marking for commercial packaging shall be in accordance with ASTM D 3951. In addition to the marking required, the cube and weight shall also be indicated.

6. NOTES

6.1 Intended use. The aggregate, spreader is intended to be used for uniformly distributing aggregate in connection with the construction and maintenance of bituminous surfaces.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Date of issue of DoDISS applicable and exceptions thereto (see 2.1.1).
- c. When a first article inspection is required, the item should be a preproduction model (see 3.2).
- d. When the identification of materials and finishes are required (see 3.4.1.2).
- e. The dump truck with which the spreader is to be used (see 3.7, 3.14 and 3.26).
- f. Applicable list of repair parts, maintenance tools and accessories (see 3.22 and 3.24).
- g. When a welding process other than as specified is required (see 3.25.1).
- h. Degree of preservation required (see 5.1).
- i. Color required when other than as specified (see 3.27).
- j. Time frame when camouflage pattern data is required (see 3.28).

6.2.1 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved Data Stem Description (DD Form 1644) and delivered in accordance with the approved CDRL incorporated into the contract. when the provisions of DAR 7-104.9 (n) (2) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or

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purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs.

Paragraph No.	Data requirements	Applicable DID NO.
a. 3.28	Camouflage Pattern Photos	UDI-V-24003/M (see figure 1)
b. 3.28	Camouflage Pattern. Illustrations	DI-M-30420/M (see figure 2)

6.3 First article, When a first article inspection is required, the items should be a preproduction model. The first article should consist of one spreader. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, tests and approval of the first article test results and disposition of the first article documents.

6.4 Lubricants. MIL-STD-838, Lubrication of Military Equipment, prescribes the policy for using specification-type products wherever possible and provides specific requirements for potential use of non-standard proprietary products. MIL-STD-838 is implemented by MIL-HDBK-113, Guide for the Selection of Lubricants, Fluids, Preservatives and Specialty Products for Use in Ground Equipment Systems. The contracting officer should note that unless otherwise authorized by the US Army Belvoir Research & Development Center (ATTN: STRBE-VF), lubricants, fluids, and greases for ground equipment systems must be restricted to those listed under chapter 2 of MIL-HDBK-113.

6.5 Government-loaned property. The contracting officer should arrange to loan the dump truck specified in 3.7 and 4.5.2.1, and to furnish the property listed in 3.28.

6.6 Degrees of packing have not been specified as the packing specified is applicable for all degrees of packing. For purposes of preservation/packing level marking the marking shall be level A.

Custodian:
Army - ME

Preparing activity:
Army - ME

Review activities:
Army - AT
DIA - CS

Project 3895-A222

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DATA ITEM DESCRIPTION	2. IDENTIFICATION NO(S).	
	AGENCY	NUMBER
1. TITLE PHOTOGRAPHIC PRINTS AND SLIDES	NAVY-YD	UDI-V-24003B/M
3. DESCRIPTION/PURPOSE This data consists of photographic prints and/or slides which provide a pictorial medium for exchange of technical information between developing Agency and users and becomes a permanent historical and legal record by recording configuration during the course of program development.	4. APPROVAL DATE 13 June 1972	
	5. OFFICE OF PRIMARY RESPONSIBILITY NAVFAC 0434	
	6. DDC REQUIRED	
	8. APPROVAL LIMITATION	
7. APPLICATION/INTERRELATIONSHIP 7.1 Deliverable data covered by this DID and specified in block 16 of the CDRL, is required as a visual record of equipment procured under contract.	9. REFERENCES (Mandatory as cited in block 10)	
	MCSL NUMBER(S)	
10. PREPARATION INSTRUCTIONS 10.1 These photographs shall be standard 8x10 inch prints and furnished in 2x2 inch cardboard frames; and unless otherwise specified on the DD Form 1423. Views shall include, but not be limited to, a front, side, and rear view. Background of photographs shall be void of unrelated objects. 10.2 Interior views shall be in sufficient quantity to show arrangement and layout of installed equipment. 10.3 Photographic prints shall show excellent detail and shall be color suitable for reproduction.		

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FIGURE 1. Camouflage pattern photos.

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DATA ITEM DESCRIPTION		2. IDENTIFICATION NO(S).	
1. TITLE		AGENCY	NUMBER
3. DESCRIPTION/PURPOSE		USAF	DI-M-30420/M
7. APPLICATION/INTERRELATIONSHIP		4. APPROVAL DATE 29 Oct 1976	
		5. OFFICE OF PRIMARY RESPONSIBILITY AFSC	
		6. DDC REQUIRED	
		8. APPROVAL LIMITATION	
10. PREPARATION INSTRUCTIONS		9. REFERENCES (Mandatory as cited in block 10)	
		MCSL NUMBER(S)	
Technical Illustrations and Graphs		Replaces (U)M-177/ESD	
Data will encompass plotting, drafting and artistic creative illustrations of apparatus and devices. The work may include three-dimensional pictorial representations. Completed reproducible art work must be of sufficiently high quality to be used for publication in technical journals and for visual aids at conferences, reviews and briefings.			

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FIGURE 2. Camouflage pattern illustrations.

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