

MIL-T-43218D

11 April 1986

SUPERSEDING

MIL-T-43218C

7 September 1977

MILITARY SPECIFICATION

TRUCKS, HAND, PLATFORM, FOUR WHEELED, TILT AND NON-TILT,

SOLID RUBBER TIRES OR PLASTIC TIRES

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers hand platform trucks, with solid rubber tire or plastic tire wheels.

1.2 Classification. Trucks shall be of the following types, classes, and sizes as specified:

Type I - Non-tilt.

Class 1 - Steel platform

Size 1 - 42 inches long by 24 inches wide by 8 inches high; 600-pound capacity.

Size 2 - 39 inches long by 19 inches wide by 5 inches high; 800-pound capacity.

Size 3 - 48 inches long by 24 inches wide by 14 inches high; 1000-pound capacity.

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, Development and Engineering Center, ATTN: STRBE-TSE, 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.

AMSC N/A

FSC 3920

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MIL-T-43218D

Class 2 - Wood platform

Size 1 - 60 inches long by 30 inches wide by 14 inches high; 2500-pound capacity.

Size 2 - 72 inches long by 36 inches wide by 14 inches high; 2500-pound capacity.

Class 3 - Aluminum platform

Size 1 - 72 inches long by 36 inches wide by 14 inches high; 2500-pound capacity.

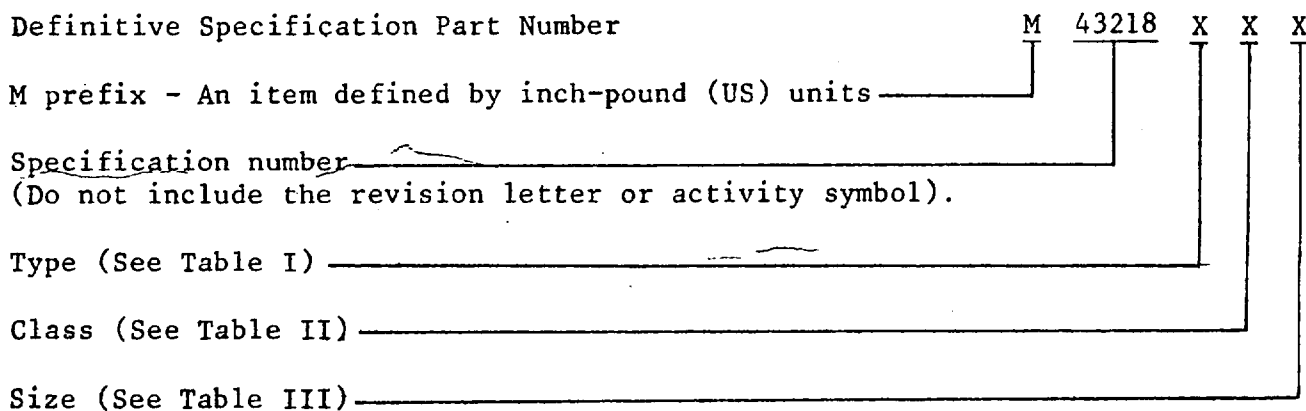
Type II - Tilt

Class 2 - Wood platform

Size 1 - 72 inches long by 36 inches wide by 14 inches high; 2500-pound capacity.

1.3 Specification definitive part number. The specification part number is definitive and formatted to identify each item covered by this specification. The part number is formatted by selecting from the requirement options available in this specification as follows (see 3.7):

Definitive Specification Part Number



Example: M43218A2B - An Non-tilt, Wood Platform, size 72 X 36 X 14 in 2500lb capacity hand truck.

1.3.1 Type of hand truck designator. A one-position alpha field used to designate the type of hand truck required (see Table I).

TABLE I

DASH NO.	TYPE	DESCRIPTION
A	I	Non-Tilt
B	II	Tilt

MIL-T-43218D

1.3.2 Class of hand truck designator. A one-position numeric field used to designate the class of hand truck required (see Table II).

TABLE II

DASH NO.	CLASS	DESCRIPTION
1	1	Steel Platform
2	2	Wood Platform
3	3	Aluminum Platform

1.3.3 Size of hand truck designator. A one-position alpha field used to designate the size of hand truck required (see Table III).

TABLE III

DASH NO.	TYPE	CLASS	SIZE	DESCRIPTION
A	I	1	1	42" long by 24" wide by 8" high; 600-pound capacity
B			2	39" long by 19" wide by 5" high; 800-pound capacity
C			3	48" long by 24" wide by 14" high; 1000-pound capacity
D		2	1	60" long by 30" wide by 14" high; 2500-pound capacity
E			2	72" long by 36" wide by 14" high; 2500-pound capacity
E		3	1	72" long by 36" wide by 14" high; 2500-pound capacity
E	II	2	1	72" long by 36" wide by 14" high; 2500-pound capacity

MIL-T-43218D

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, 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.

SPECIFICATIONS

FEDERAL

- | | |
|-------------|--|
| FF-C-77 | - Casters, Rigid and Swivel (Institutional Duty). |
| FF-C-88 | - Casters, Rigid and Swivel, Industrial Duty. |
| QQ-A-200/8 | - Aluminum Alloy 6061, Bar, Rod, Shapes, Tube and Wire, Extruded. |
| QQ-A-225/8 | - Aluminum Alloy 6061, Bar, Wire, and Special Shapes; Rolled, Drawn, or Cold Finished. |
| QQ-A-250 | - Aluminum and Aluminum Alloy Plate and Sheet; General Specification for. |
| QQ-A-250/11 | - Aluminum Alloy 6061, Plate and Sheet. |
| QQ-S-781 | - Strapping, Steel, and Seals. |
| TT-E-489 | - Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces). |

MILITARY

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| MIL-P-514 | - Plates, Identification, Instruction and Marking, Blank. |
| MIL-T-704 | - Treatment and Painting of Materiel. |

STANDARDS

FEDERAL

- | | |
|-------------|--|
| FED-STD-H28 | - Screw-Thread Standards for Federal Services. |
| FED-STD-595 | - Colors. |

MIL-T-43218D

MILITARY

- | | |
|-------------|--|
| 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-838 | - Lubrication of Military Equipment |
| MIL-STD-889 | - Dissimilar Metals. |

HANDBOOKS

MILITARY

- | | |
|--------------|---|
| MIL-HDBK-113 | - Guide for the Selection of Lubricants, Fluids, Preservatives and Speciality Products for Use in Ground Equipment Systems. |
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(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this 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 2016 - Moisture Content of Wood.
- D 2240 - Indentation Hardness of Rubber and Plastics by Means of a Durometer.
- 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).

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE Handbook - SAE J534 Lubricating Fittings

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

MIL-T-43218D

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

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

3. REQUIREMENTS

3.1 Description. Platform hand trucks (hereinafter called "trucks"), shall generally consist of a metal frame and metal or wood deck, push bars, end racks, swivel and rigid casters, axles and axle brackets, and rubber tired wheels.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

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

3.3.1 Materiel deterioration prevention and control. The trucks shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operation and storage environment to which the trucks may be exposed.

3.3.2 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.

3.3.3 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and subcomponents, and shall make the information available, upon request, to the contracting officer or designated representative.

3.3.4 Wood boards. The wood for the boards shall be of any of the following species: White Ash, Beech, Birch, Hackberry, Hickory, Hard Maple, Oak, or Rock Elm.

3.3.4.1 Moisture content. At the time of fabrication of the truck, the moisture content of the lumber for the wood boards shall be not less than 12 percent nor more than 18 percent. Tests for moisture content shall be as specified in 4.4.4.

MIL-T-43218D

3.3.4.2 Quality. The boards shall be free from warp, decay, loose knots or holes, shakes, splits, larvae channels, brashness and slope of grain exceeding 1 inch in 10 inches; except that tight knots with a diameter not greater than one-third of the board width, surface checks not more than 4 inches long, pinholes not more than 0.0625 inch in diameter, gum spots, and pitch pockets shall be permitted.

3.3.5 Aluminum. Material for aluminum alloy floor plate shall be in accordance with QQ-A-250/11, type T-6 tread plate with safety tread pattern B. Material for aluminum frame shall be in accordance with QQ-A-200/8 or QQ-A-250. Material for the underside structural members shall be in accordance with QQ-A-225/8 or QQ-A-200/8.

3.3.6 Strip bumper. The strip bumper shall be molded from commercial type nonmarking gray rubber compound having a shore A durometer hardness reading of 70 plus or minus 5. The strip bumper shall be reinforced by a steel insert. Nonmarking and hardness requirements of the molded rubber shall be determined by the tests specified in 4.5.2.5 and 4.5.2.6, respectively.

3.3.7 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 trucks may be newly fabricated from recovered materials to the maximum extent practicable, provided the trucks produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the trucks.

3.4 Design and construction. Trucks shall be designed and constructed as specified herein. The size and load capacity of the trucks shall be as specified in table IV.

MIL-T-43218D

TABLE IV. Physical characteristics of trucks.

Type	Class	Size	Rated capacity (lbs. min.)	Overall truck dimensions (inches)			
				At platform (+ 0.500 inch)			At rack or push bar (+ 1 in.) Height
				Length	Width	Height	
I	1	1	600	42	24	8	36
		2	800	39	19	5	37
		3	1000	48	24	14	47
	2	1	2500	60	30	14	47
		2	2500	72	36	14	47
	3	1	2500	72	36	14	47
II	2	1	2500	72	36	14	47

3.4.1 Type I, class 1, size 1 truck. Type I, class 1, size 1, truck shall consist of a frame and deck, four push bar sockets, caster supports, two rigid casters, two swivel casters and two push bars. The casters shall be assembled to the underside of the deck such that an equally distributed load on the deck equal to the rated capacity of the truck will load each caster equally within plus or minus 25 pounds (see 4.5.2.7).

3.4.1.1 Frame and deck. The frame and deck may be fabricated from one steel sheet; cut, formed and welded at the corners to form a one piece construction deck and channel frame; or, the frame and deck may consist of a one piece steel sheet welded atop a welded frame assembly. The frame assembly shall consist of an outer frame fabricated from formed or structural steel shapes and similar shaped reinforcing steel members, if required. The frame and deck shall be a level rigid unit. The frame corners shall be rounded.

3.4.1.2 Sockets. Sockets for push-bar legs shall be fabricated from iron or steel and shall be permanently affixed, one each, at or near each corner of the deck. The sockets may be located outside or inside of the channel frame. The sockets shall be designed to provide a stop and support for the push-bar legs. The socket hole shall be between 0.020 and 0.080 inch larger than the outside diameter of the push-bar legs to provide for a snug fit.

3.4.1.3 Caster support. Caster supports shall consist of steel shapes and bars. The supports shall be rigidly attached to the underside of the deck.

MIL-T-43218D

3.4.1.4 Running gear. Running gear shall consist of two swivel casters and two rigid casters and shall be bolted to the caster supports. The casters shall conform to type I and type II, class B, style A or B, polyurethane type, mounting plate of FF-C-77.

3.4.1.5 Push bar. Push bar shall be fabricated from iron pipe or steel tubing. The push bar shall be U-shaped. The push-bar legs shall be assembled widthwise across the deck to fit into a pair of sockets.

3.4.2 Type I, class 1, size 2 truck. Type I, class 1, size 2 truck shall consist of a frame and deck, four push-bar sockets, caster supports, two rigid casters, two swivel casters, two push bars, and a rubber bumper. The casters shall be assembled to the underside of the deck such that an equally distributed load on the deck, equal to the rated capacity of the truck, will load each caster equally within plus or minus 25 pounds (see 4.5.2.7).

3.4.2.1 Frame and deck. The frame and deck shall be as specified in 3.4.1.1.

3.4.2.2 Sockets. Sockets shall be as specified in 3.4.1.2.

3.4.2.3 Caster supports. Caster supports shall be as specified in 3.4.1.3.

3.4.2.4 Running gear. Running gear shall consist of two swivel casters and two rigid casters and shall be bolted to the caster supports. The caster shall conform to group A, type I and type II, class 2, style 4 or style 6, 3.500 inch nominal diameter of FF-C-88.

3.4.2.5 Push bar. Push bar shall be as specified in 3.4.1.5.

3.4.2.6 Bumper assembly. Bumper assembly may be rigidly fastened directly to the outside of the truck frame or indirectly by means of steel brackets. The bumper assembly shall consist of a strip rubber bumper as specified in 3.3.6 assembled to a standard 0.125 by 0.500 by 1.250 inches commercially rolled channel iron frame. The bumper assembly shall completely encircle the truck frame, including the sockets. The uppermost surface of the bumper assembly shall be below the top surface of the deck. The bumper assembly shall be attached to the frame or brackets by means of bolts, self-locking nuts and flat washers.

3.4.3 Type I, class 1, size 3 trucks. Type I, class 1, size 3 trucks shall consist of a frame and deck or a steel sheet deck welded atop a frame assembly, four push-bar sockets, caster bolsters, axle brackets, axle, two swivel casters and two load wheels, and two push bars. The running gear shall be assembled to the underside of the deck so that an equally distributed load on the deck will divide the load proportionally as follows: swivel casters will carry approximately one-third of the rated capacity and the load wheels will carry two-thirds of the rated capacity within plus or minus 25 pounds on the load wheels (see 4.5.2.7).

MIL-T-43218D

3.4.3.1 Frame and deck. The frame and deck shall be as specified in 3.4.1.1.

3.4.3.2 Sockets. Sockets shall be as specified in 3.4.1.2.

3.4.3.3 Caster bolsters and axle brackets. Caster bolsters shall be fabricated from structural or formed steel shapes. Axle brackets shall be fabricated from steel forging, low carbon steel casting or structural steel shapes. Bolsters and brackets shall be rigidly attached to the underside of the frame assembly.

3.4.3.4 Running gear. Running gear shall consist of two swivel casters and two axle-mounted load wheels. Swivel casters shall be bolted to the caster supports. Load wheels shall be mounted on the axle near the ends. Swivel casters shall, unless otherwise specified, conform to type II, class 3, style 7 or 8, 5-inch nominal diameter of FF-C-88. When specified (see 6.2), the caster wheel shall be style 1, plastic wheel with hard tread, of FF-C-88. Load wheels with tires shall be 12-inch nominal diameter by 2-inch thread width, minimum. Each load wheel shall have a minimum load rating of 500 pounds. The load wheels shall, unless otherwise specified, be metal spoke or disk with pressed-on or molded-on rubber tires. When specified (see 6.2), wheels shall be plastic. The material for the tires and plastic wheels shall be the same as that described above for swivel casters. Wheel bearings for load wheels shall be of the roller type with hardened outer and inner races (or hardened spanner bushing).

3.4.3.5 Axle. The axle shall be one piece and shall be fabricated from cold-rolled steel. The axle with load wheels shall be assembled to the axle brackets. The load wheels shall not extend beyond the width of the deck. The axle shall not rotate with the wheel.

3.4.3.6 Push bar. Push bar shall be fabricated from iron pipe or steel tubing. The push bar shall be U-shaped. In addition, the top portion or handle end of both push bars shall be bent outward from the vertical 3.500 to 4 inches. The push bar shall be assembled widthwise across the deck to fit into a pair of sockets.

3.4.4 Type I, class 2, size 1 and size 2 trucks. Type I, class 2, size 1 and size 2 trucks shall consist of a steel frame assembly, wood deck, four sockets, two end racks, caster bolsters, two swivel casters and two rigid casters or two load wheels, axle brackets and axle (if load wheels in lieu of rigid casters are used). The running gear shall be assembled to the underside of the deck such that the load wheels or rigid casters will carry two-thirds of the rated load within plus or minus 25 pounds when load is equally distributed on the entire load surface (see 4.5.2.7).

MIL-T-43218D

3.4.4.1 Frame assembly. The frame assembly, consisting of an outer frame and reinforcing members, shall be fabricated from formed or structural steel shapes and shall be of welded construction to form a level rigid unit. The frame corners shall be rounded.

3.4.4.2 Deck. The deck shall be fabricated from boards of the material specified in 3.3.4. Boards shall be 0.8125 inch minimum finished thickness and 0.875 inch maximum finished thickness and shall be dressed on at least one surface. Board widths shall be not less than 3 inches, nor more than 9 inches, and shall average between 5 to 7 inches for each deck. Joint spacings between board edges shall not exceed 0.125 inch. Where required, boards shall be cut and shaped to accommodate rack legs. The deck boards shall be rigidly assembled to the outer frame with the dressed surface up, but shall be removable for replacement. The top surface of the deck boards shall be flush with top of outer frame or top surface of steel deck band, if used, and the board ends shall be fully protected by the outer frame.

3.4.4.3 Sockets. Sockets shall be as specified in 3.4.1.2.

3.4.4.4 Racks. Unless otherwise specified (see 6.2), two end racks shall be provided for each truck. The racks shall be fabricated from steel tubing or iron pipe and shall be reinforced by at least three equally spaced steel crossmembers. The outer frame of the racks shall be U-shaped. The top portion or handle end of one rack shall be bent outward from the vertical 3.500 to 4 inches. The racks shall be assembled to the rack sockets.

3.4.4.5 Caster bolsters and axle brackets. Caster bolsters and axle brackets shall be as specified in 3.4.3.3.

3.4.4.6 Running gear. Running gear shall consist of two swivel casters and two rigid casters or two load wheels. Casters shall be bolted to the caster supports. Load wheels shall be mounted on the axle (near the ends). Swivel casters shall conform to type II, class 4, style 2, 8-inch nominal diameter of FF-C-88. Rigid casters shall conform to type I, class 5, 10 inch nominal diameter of FF-C-88, except with a nominal tread width of 3 inches rated at not less than 1000 pounds. Load wheels shall be fabricated from steel, malleable iron or cast iron. Load wheels shall be metal spoke with pressed-on or molded-on solid rubber tires. Physical properties of the rubber tread shall conform to the applicable requirements of FF-C-88. The load wheel, with tire, shall be 12-inch nominal outside diameter by 2.500 inch minimum tread width rated at not less than 900 pounds per wheel. Wheel bearings for load wheels shall be of the roller type with hardened outer and inner races (or hardened spanner bushing).

MIL-T-43218D

3.4.4.7 Axle. The axle shall be as specified in 3.4.3.5.

3.4.5 Type I, class 3, size 1 truck. Type I, class 3, size 1 trucks shall consist of a aluminum frame assembly, aluminum deck, four sockets, two end racks, caster bolsters, two swivel casters and two rigid casters or two load wheels, axle brackets and axle (if load wheels in lieu of rigid casters are used). The running gear shall be assembled to the underside of the deck such that the load wheels or rigid casters will carry two-thirds of the rated load within plus or minus 25 pounds when load is equally distributed on the entire load surface (see 4.5.2.7).

3.4.5.1 Frame and deck. The frame and deck, consisting of an outer frame and reinforcing members, shall be fabricated from aluminum material as specified in 3.3.5 and shall be of welded construction to form a level rigid unit. The frame corners shall be rounded.

3.4.5.2 Sockets. Sockets shall be as specified in 3.4.1.2.

3.4.5.3 Racks. Racks shall be as specified in 3.4.4.4.

3.4.5.4 Caster bolsters and axle brackets. Caster bolsters and axle brackets shall be as specified in 3.4.3.3.

3.4.5.5 Running gear. Running gear shall be as specified in 3.4.4.6.

3.4.5.6 Axle. The axle shall be as specified in 3.4.3.5.

3.4.6 Type II, class 2, size 1 truck. Type II, class 2, size 1 truck shall consist of a steel frame assembly, wood deck, four rack sockets, two end racks, caster bolsters, axle brackets, two swivel casters and two load wheels and axle. The wheel-axle assembly shall be assembled to the axle brackets. The axle brackets shall be rigidly joined and positioned to the underside of the deck so that the axle lies in a vertical (to deck) plane passing widthwise through the center of the deck.

3.4.6.1 Frame assembly. The frame assembly shall be as specified in 3.4.4.1.

3.4.6.2 Deck. The deck shall be as specified in 3.4.4.2.

3.4.6.3 Sockets. Sockets shall be as specified in 3.4.1.2.

3.4.6.4 Racks. Racks shall be as specified in 3.4.4.4.

3.4.6.5 Caster bolsters and axle brackets. Caster bolsters and axle brackets shall be as specified in 3.4.3.3.

MIL-T-43218D

3.4.6.6 Running gear. Running gear shall consist of two load wheels (axle mounted) to be located widthwise across the center of the truck and two swivel casters to be located one at or near each end of the longitudinal centerline of the truck. Swivel casters shall conform to type II, class 4, style 2, 6-inch nominal diameter of FF-C-88. Load wheels, including wheel bearings, shall be as specified in 3.4.4.6, except that tread width shall be 3 inches, minimum, and each load wheel shall be rated at not less than 1300 pounds.

3.4.6.7 Axle. The axle shall be as specified in 3.4.3.5.

3.4.7 Bearings. Bearing load capacity shall be sufficient to withstand the maximum design loadings and tests of section 4 without exceeding the manufacturer's recommended rating. Bearings shall be provided with seals and shields to retain grease in bearing, but to allow purging of used grease under pressure.

3.4.8 Fastening devices. Fastening devices such as bolts, nuts, capscrews, washers, locknuts, cotter pin, and similar parts shall be fabricated from steel. Threads for threaded fasteners shall be in accordance with FED-STD-H28.

3.4.9 Lubrication fittings. Grease lube fittings shall conform to SAE J534 and shall be of the threaded types. The casters and load wheels shall be grease packed with a lubricant containing a rust inhibitor (see 3.4.10 and 6.4).

3.4.10 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.

3.4.11 Repair and maintenance. Provisions shall be made in the design of the truck to provide for replacement of wood boards, racks, push bars, axles, caster wheels and load wheels.

3.5 Performance.

3.5.1 Maximum static loads. The completely assembled truck including casters, wheels, and axles, shall be capable of withstanding without failure and permanent deformation, a static load equal to 300 percent of the rated capacity of the truck with load uniformly distributed over the entire deck surface. This requirement shall be determined by the test specified in 4.5.2.1.

MIL-T-43218D

3.5.2 Rolling resistance. Truck, with rated load, shall be capable of being towed with a force not exceeding 40 pounds for type I, class 1, sizes 1, 2, and 3 trucks and 2 percent of the gross weight of the truck for type I, class 2, sizes 1 and 2, class 3 and type II trucks. This requirement shall be determined by the test specified in 4.5.2.2. The gross weight of the truck shall include the rated load and truck under test.

3.5.3 Dynamic load. Type I truck and type II truck shall be capable of being pushed off a 3-inch step to a 1-inch step to the ground, at a minimum speed of 2 mph, when loaded uniformly with a load equal to 150 percent of truck capacity, without any evidence of failure or damage to any part of the truck. This capability shall be determined by the test specified in 4.5.2.3.

3.5.4 Rack and push-bar strength. The racks and push bars including sockets, shall be capable of withstanding without failure or permanent deformation, a minimum horizontal (with the floor surface) force applied at the midpoint of the handle end of the push bar as specified in table V. This requirement shall be determined by the test specified in 4.5.2.4.

TABLE V. Rack and push bar applied force.

Type	Class	Size	Applied Force (Lb)
I	1	1	175
		2	175
		3	175
	2	1	250
		2	250
	3	1	250
II	2	1	250

3.6 Treatment and painting. Unless otherwise specified (see 6.2), the frame and deck of the truck shall be cleaned, treated and painted in accordance with MIL-T-704, type A, except that the finish coat shall conform to TT-E-489 enamel, gloss yellow, color number 13538 of FED-STD-595.

MIL-T-43218D

3.7 Product identification.

3.7.1 Specification part number. Definitive specification part numbers for items described in this specification shall be formatted as shown in 1.3 and shall be used in product identification.

3.7.2 Identification marking. The truck shall be identified in accordance with MIL-STD-130, and shall include the manufacturer's name or trademark, manufacturer's part number, specification part number (see 1.3), and the load capacity of the truck. The marking shall be applied to the truck on plates conforming to MIL-P-514, type I, style 1, composition C of type I, grade A, class 1 material. Plates shall be attached by screws, bolts, or rivets in a conspicuous protected location.

3.8 Workmanship. All parts, components, and assemblies of the truck including castings, forgings, molded parts, stampings, bearings, seals, machined surfaces, and welded parts shall be clean and free from sand, dirt, fins, pits, sprues, scale, flux, and other harmful extraneous material. External surfaces shall be free from burrs and sharp edges. No parts shall be damaged or impaired in any way and parts shall show no evidence of rust or corrosion.

3.8.1 Steel fabrication. Steel used in the fabrication of the truck shall provide original quality surface finish and shall be free from kinks and sharp bends. Steel having an eroded surface is not acceptable. The forming of material shall be done by methods that will not cause damage to the metal. Shearing and chipping shall be done neatly and accurately. Corners shall be square and true. Burned surfaces of flame-cut material shall be free of slag. Precautions shall be taken to avoid overheating, and heated metals should be allowed to cool slowly except where heat treatment is required. All bends of a major character shall be made with metal dies or fixtures to insure uniformity of size and shape.

3.8.2 Welding. The surfaces of parts to be welded shall be free from rust, scale, paint, grease, and other foreign matter. Welds shall transmit stress without permanent deformation or failure when the parts connected by the welds are subjected to proof and service loading.

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

MIL-T-43218D

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.

4.1.2 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined and tested in accordance with referenced specifications and standards as applicable.

4.1.3 Nonmarking and hardness (rubber bumper). Nonmarking (see 4.5.2.5) and hardness (see 4.5.2.6), tests shall be performed on each lot of rubber bumpers offered for inspection at one time. The sample unit is one rubber bumper. Inspection level shall be S-2 with an AQL of 4.0 defects per hundred units.

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).

4.3 First article inspection.

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

4.3.2 Tests. The first article truck shall be subjected to the tests marked "X" in column 1 of table VI in the order indicated in the table. Failure of any test shall be cause for rejection of the first article.

MIL-T-43218D

TABLE VI. Test schedule.

First article	Quality conformance	Test	Requirement paragraph	Test paragraph
1	2	3	4	5
X	X	Nonmarking (rubber bumper)	3.3.4	4.5.2.5
X		Hardness (rubber bumper)	3.3.4	4.5.2.6
X		Load distribution	3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5	4.5.2.7
X	X	Maximum static load	3.5.1	4.5.2.1
X	X	Rolling resistance	3.5.2	4.5.2.2
X		Dynamic load	3.5.3	4.5.2.3
X	X	Rack and push bar strength	3.5.4	4.5.2.4

4.4 Quality conformance inspection.

4.4.1 Sampling. Sampling for examination and tests shall be in accordance with MIL-STD-105. A lot shall consist of all trucks offered for acceptance at one time. The sample unit for this inspection shall be one fully assembled truck.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined as specified in 4.5.1. AQL shall be 1.0 percent defective for major defects and 6.5 percent defective for minor defects.

4.4.3 Tests. Samples selected in accordance with 4.4.1 shall be subjected to the tests marked "X" in column 2 of table VI in the order indicated. Failure of any test shall be cause for rejection.

4.4.4 Moisture content; wood. Tests shall be performed on each lot of lumber (pieces) offered for acceptance at time of fabrication for moisture content for compliance with 3.3.2. The sample unit shall be one piece of lumber. Three determinations shall be taken on each sample unit, and results shall be the average of the three determinations. Determination of moisture content of wood shall be made by using the electric moisture meter method of ASTM D 2016. Inspection level shall be S-2 with an AQL of 2.5 defects per hundred units.

4.5 Inspection procedure.

4.5.1 Examination. The trucks shall be examined as specified herein for the following defects:

MIL-T-43218D

Major

<u>Defect No.</u>	<u>Defect</u>	<u>Requirement Paragraph</u>
101.	Material not as specified.	3.3
102.	Materials are not resistant to corrosion and deterioration or treated to be resistant to corrosion and deterioration for the applicable storage and operating environments.	3.3.1
103.	Dissimilar metals as defined in MIL-STD-889 are not effectively insulated from each other.	3.3.2
104.	Contractor does not have documentation available for identification of material, finishes or treatment.	3.3.3
105.	Wood for the boards not as specified.	3.3.4
106.	Quality (condition) of the boards not as specified.	3.3.4.2
107.	Aluminum alloy not as specified.	3.3.5
108.	Strip bumper not as specified.	3.3.6
109.	Used, rebuilt or remanufactured components, pieces or parts incorporated in the trucks.	3.3.7
110.	Type I, class 1, size 1 truck does not consist of parts as specified.	3.4.1
111.	Frame and deck not as specified.	3.4.1.1
112.	Sockets not as specified.	3.4.1.2
113.	Caster support not as specified.	3.4.1.3
114.	Running gear not as specified.	3.4.1.4
115.	Push bar not as specified.	3.4.1.5
116.	Type I, class 1, size 2 truck does not consist of parts as specified.	3.4.2
117.	Frame and deck not as specified.	3.4.2.1
118.	Sockets not as specified.	3.4.2.2
119.	Caster support not as specified.	3.4.2.3
120.	Running gear not as specified.	3.4.2.4
121.	Push bar not as specified.	3.4.2.5
122.	Bumper assembly not as specified.	3.4.2.6
123.	Type I, class 1, size 3 truck does not consist of parts as specified.	3.4.3
124.	Frame and deck not as specified.	3.4.3.1
125.	Sockets not as specified.	3.4.3.2
126.	Caster bolsters and axle brackets not as specified.	3.4.3.3
127.	Running gear not as specified.	3.4.3.4
128.	Axle not as specified.	3.4.3.5
129.	Push bar not as specified.	3.4.3.6
130.	Type I, class 2, size 1, and size 2 trucks do not consist of parts as specified.	3.4.4

MIL-T-43218D

131.	Frame assembly not as specified.	3.4.4.1
132.	Deck not as specified.	3.4.4.2
133.	Sockets not as specified.	3.4.4.3
134.	Racks not as specified.	3.4.4.4
135.	Caster bolsters and axle brackets not as specified.	3.4.4.5
136.	Running gear not as specified.	3.4.4.6
137.	Axle not as specified.	3.4.4.7
138.	Type I, class 3, size 1 truck does not consist of parts as specified.	3.4.5
139.	Frame and deck not as specified.	3.4.5.1
140.	Sockets not as specified.	3.4.5.2
141.	Racks not as specified.	3.4.5.3
142.	Caster bolsters and axle brackets not as specified.	3.4.5.4
143.	Running gear not as specified.	3.4.5.5
144.	Axle not as specified.	3.4.5.6
145.	Type II, class 2, size 1 truck does not consist of parts as specified.	3.4.6
146.	Frame assembly not as specified.	3.4.6.1
147.	Deck not as specified.	3.4.6.2
148.	Sockets not as specified.	3.4.6.3
149.	Racks not as specified.	3.4.6.4
150.	Caster bolsters and axle brackets not as specified.	3.4.6.5
151.	Running gear not as specified.	3.4.6.6
152.	Axle not as specified.	3.4.6.7
153.	Fastening devices not as specified.	3.4.8
154.	Lubrication fittings not as specified.	3.4.9
155.	Workmanship not as specified.	3.8
156.	Steel fabrication not as specified.	3.8.1
157.	Welding not as specified.	3.8.2

Minor

201.	Lubricants not as specified.	3.4.10
202.	Repair and maintenance not as specified.	3.4.11
203.	Treatment and painting not as specified.	3.6
204.	Identification marking not as specified.	3.7

MIL-T-43218D

4.5.2 Tests.

4.5.2.1 Maximum static load. The truck shall be placed on a dry, smooth, level, concrete surface. A load equal to three times the rated capacity of the truck shall be uniformly distributed over the entire deck surface. The load shall remain on the deck for a period of 1 hour after which the load shall be removed and the truck shall be inspected to determine conformance to the requirement of 3.5.1. Nonconformance shall constitute failure of this test.

4.5.2.2 Rolling resistance. The truck shall be placed on a dry, smooth, level concrete surface. The truck shall be loaded with a uniform load equal to the rated capacity of the truck and the load shall be distributed equally on the deck. The truck, with load, shall then be accelerated by means of a suitable towing device employing a (tension) dynamometer. After the truck has attained a minimum speed of 2 mph, the maximum gage reading of the dynamometer shall be determined in an interval of 25 feet of truck travel to determine conformance to the requirements of 3.5.2. Nonconformance shall constitute failure of this test.

4.5.2.3 Dynamic load. The truck shall be placed on a 3-inch-high platform. A load equal to 150 percent of rated capacity of the truck shall be uniformly distributed on the entire platform. The loaded truck shall be pushed off the 3-inch-high step onto a 1-inch-high step onto the floor as follows: (1) ten times perpendicular to the platform edge and (2) ten times at a 45-degree angle to the platform edge. After completion of the test, remove the load and examine the truck. The lower and upper surface forming the steps shall be smooth, level and hard (concrete or steel) and the edges shall be parallel. Evidence of failure or damage shall constitute failure of this test.

4.5.2.4 Rack and push bar strength. The truck, with racks or push bars assembled to the sockets shall be placed on a hard, level surface. The wheels shall be blocked for this test. A horizontal force shall be applied at the center of the handle end of the rack or push bar through a (tension) dynamometer. The applied force shall be in accordance with table V and shall be applied for a period of 5 minutes. After removal of the applied force, the racks or push bars and sockets shall be inspected to determine conformance to the requirements of 3.5.4. Nonconformance shall constitute failure of this test.

4.5.2.5 Nonmarking (rubber bumper). The rubber bumper shall be drawn across a sheet of white bond paper using moderate pressure to determine conformance to 3.3.6. If only a slight mark is made which is easily rubbed off with the (dry) fingers, the rubber shall be classified as nonmarking. Otherwise nonconformance shall constitute failure of this test.

MIL-T-43218D

4.5.2.6 Hardness (rubber bumper). The durometer hardness of the rubber bumper shall be tested in accordance with ASTM D 2240 to determine conformance to the hardness requirements specified in 3.3.6. Nonconformance shall constitute failure of this test.

4.5.2.7 Load distribution. The empty truck shall be weighed on a level floor scale and the weight recorded. Next, the empty truck shall be rolled off the scale so that only one pair of wheels or casters rest on the scale. A reading on the scale shall then be taken and recorded. Next, rated load shall be distributed equally on the entire loading surface of the deck and the reading on the scale shall be taken and recorded. Calculations shall then be performed utilizing the above data (weights) to determine conformance to the load distribution on the casters and wheels specified in 3.4.1, 3.4.2, 3.4.3, 3.4.4, and 3.4.5, as applicable. Nonconformance shall constitute failure of the 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. The AQL shall be 1.0 percent defective.

<u>No.</u>	<u>Defect</u>	<u>Paragraph</u>
158.	Trucks not nested in pairs in the manner specified for level A.	5.1.1
159.	Racks, when furnished, not positioned as specified for level A.	5.1.1
160.	Racks and swivel casters not secured with wire as specified for level A.	5.1.1
161.	Clearance between the nested trucks not provided as specified for level A.	5.1.1
162.	Nested trucks not strapped together as specified for level A.	5.1.1
163.	Metal edge protectors not positioned under strapping as specified for level A.	5.1.1
164.	Commercial packing not as specified.	5.1.2
165.	Marking not as specified.	5.2

MIL-T-43218D

5. PACKAGING

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

5.1.1 Level A. Two trucks shall be nested together in the most compact manner, wheels to wheels. Racks, when furnished, shall be placed between the trucks. The racks and swivel casters shall be secured to prevent movement with soft annealed wire. Dunnage lumber shall be used to provide a 0.500 inch minimum clearance between the tread of the wheels and the under surface of the opposing truck. The two nested trucks shall then be strapped together with three flat steel straps conforming to QQ-S-781, type I or IV, class B, size 1.250 inches wide by 0.035 inch thick, finish B. Two straps shall be placed widthwise equally spaced and one centered lengthwise. Metal edge protectors shall be provided where strapping passes over the edge of the trucks.

5.1.2 Commercial. The trucks shall be packed in accordance with the requirements of ASTM D 3951.

5.2 Marking.

5.2.1 Level A. In addition to any special or other markings required by the contract or order, bundled trucks (see 5.1.1) shall be marked in accordance with MIL-STD-129. The specification part number (see 1.3) shall be applied to each truck and each shipping container.

5.2.2 Commercial. Commercial marking shall be in accordance with ASTM D 3951. Additionally, each shipping unit shall be marked with the cube and gross weight. The specification part number (see 1.3) shall be applied to each truck and each shipping container.

6. NOTES

6.1 Intended use. Trucks described herein are intended for carrying light items over short distances. Type I, class 1, size 1 is intended for very light general purpose work. Type I, class 1, size 2 is intended for laundry work; and type I, class 1, size 3 is intended for use in military bakeries as a carrier for empty bakery pans. Type I, class 2, class 3, and type II trucks are intended for use in warehouses or other medium heavy duty work. Type I, class 3 is also intended for use in commissaries.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Specification part number (see 1.3).

MIL-T-43218D

- c. When a first article is required for inspection and approval and the number of units required (see 3.2, 4.3 and 6.3).
- d. When plastic swivel casters and load wheels are required (see 3.4.3.4).
- e. Whether less than two or no racks are required (see 3.4.4.4).
- f. Treatment and painting if other than specified (see 3.6).
- g. The degree of packing required (see 5.1).
- h. Any special marking required (see 5.2).

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 or more units. 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 documents first articles.

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 and Engineering 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.

Custodians:

Army - ME
Navy - SA
Air Force - 99

Preparing activity:

Army - ME
Project 3920-0164

Review activities:

DLA - GS
Army - AT
Air Force - 84

User activities:

Navy - MC, SH

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