

INCH-POUND

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MILITARY SPECIFICATION

SWEEPER, ROTARY, TOWED

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

1. SCOPE

1.1 Scope. This specification covers a commercial towed type, diesel or gasoline fuel powered engine rotary sweeper equipped with power driven brush, for use in cleaning roads and other reasonably smooth surfaces of debris and snow.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock Corner.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, GA 93043, 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 3825

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MIL-S-18141J

PPP-B-1055 Barrier Material, Waterproofed, Flexible.
PPP-P-40 Packaging and Packing of Hand Tools.
PPP-T-60 Tape, Packaging, Waterproof.
PPP-T-97 Reinstatement: Paint Styrene-Butadiene Solvent Type,
White (for Exterior Masonry).
TT-P-664 Primer Coating, Synthetic, Rust-Inhibiting,
Lacquer-Resisting.
UU-T-81 Tags, Shipping and Stock.

SPECIFICATIONS

MILITARY

MIL-P-116 Preservation, Methods of.
MIL-B-121 Barrier Material, Greaseproofed, Waterproofed
Flexible.
MIL-P-514 Plates, Identification, Instruction and Marking, Blank.
MIL-T-704 Treatment and Painting of Materiel.
MIL-L-2105 - Lubricating Oil, Gear, Multipurpose.
MIL-E-10062 - Engines: Preparation for Shipment and Storage of.
MIL-P-46093 - Primer Coating, Synthetic (for Brake Drums).
MIL-T-22085 - Tapes, Pressure-Sensitive, Adhesive, Preservation
and Sealing.

STANDARDS

FEDERAL

FED-STD-595 - Colors.

MILITARY

MIL-STD-129 Marking for Shipment and Storage.
MIL-STD-130 Identification Marking of U.S. Military Property.
MIL-STD-209 Slings and Tiedown Provisions for Lifting and
Tying Down Military Equipment.
MIL-STD-810 Environmental Test Methods.
MIL-STD-1400 Engines, Gasoline and Diesel, Methods of Test.
MIL-STD-1472 Human Engineering Design Criteria for Military
Systems, Equipment and Facilities.

(Unless (Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094.)

2.1.2 Other Government publications. The following other Government documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation (see 6.2).

DEPARTMENT OF LABOR (DoL)
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Occupational Safety and Health Standards.

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

DEPARTMENT OF TRANSPORTATION (DoT)

Federal Motor Vehicle Safety Standards and Regulations.
Federal Motor Carrier Safety Regulations.

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

U.S. ARMY ENGINEERING LABORATORIES

Standard S-1-63 Maximum Noise Level for Army Material Command Equipment.

(Application for copies should be addressed to the U.S. Army Human Engineering Laboratories, Aberdeen Proving Grounds, Aberdeen, MD 44156.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DODISS are the issues of the non-Government documents which are current on the date of the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3953 - Standard Specification for Strapping, Flat Steel and Seals.

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

TIRE AND RIM ASSOCIATION, INC. (TRA)

TRA Yearbook.

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

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

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

3. REQUIREMENTS

3.1 Description. The sweeper shall have a welded steel frame, adjustable power driven brush, diesel or gasoline engine, front wheel steer, tow bar, and other parts and accessories to make a complete and serviceable unit.

3.2 First article. When specified (see 6.2), the contractor shall furnish one complete sweeper for first article inspection (see 4.3 and 6.4).

3.2.1 Initial Production. When specified (see 6.2), the contractor shall furnish to the Government one or more sweepers for inspection as specified in 4.4.

3.3 Standard commercial product. The sweeper shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the sweeper being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.4 Lifting and tying down attachments. When specified (see 6.2), the sweeper shall be equipped with lifting and tying down attachments. Lifting and tying down attachments shall conform to MIL-STD-209, type III. Attachments shall be indicated by a transportation plate conforming to MIL-P-514, except tying down attachments may be identified by stenciling or other suitable marking on the sweeper. Tying down markings shall clearly indicate that the attachments are intended for tying down of the sweeper on the carrier when shipped.

3.4.1 Transport.

- (a) Road. The sweeper, with brush raised in travel position, shall be capable of being towed over highway and secondary roads without damage or permanent deformation. The sweeper shall be capable of being towed at 25 miles per hour (mph) without interference or failure to track the towing vehicle. The sweeper shall be capable of transport for 125 miles at convoy speed on paved and secondary roads and unload from a 25-ton low-bed trailer.
- (b) Rail. The overall dimensions of the sweeper with exhaust and air cleaner stacks removed shall meet Berne International dimensional requirements (figure 1) for rail shipment. When specified (see 6.2), the sweeper shall withstand rail impact when tested in accordance with MIL-STD-810, method 516, procedure VI.

(c) Air. The sweeper measurements shall conform to the dimensional and loading ramp limitations of a military C-130 aircraft (figure 2) without disassembly, except that disconnecting and subsequent reconnection can be performed by one man in 1 hour.

3.5 Winterization. When specified (see 6.2), the sweeper shall be winterized in accordance with instructions provided by the procuring activity.

3.6 Identical items. All units of the same classification furnished under a specific contract shall be physically and mechanically identical. Parts accessories, assemblies, and components are included in this requirement. Written approval for deviations must be obtained in advance from the contracting officer.

3.7 Safety and human factors.

3.7.1 Safety. The engine and all driving components that are so located as to be a hazard to the operator, shall be insulated or guarded. All safety systems provided for the operator shall be in accordance with DoL, OSHA standards.

3.7.2 Human factors. The characteristics of the sweeper shall provide for operation by personnel ranging from the small man (95th percentile), arctic clothed, in accordance with MIL-STD-1472. The noise level at a radius of 15 feet from the sweeper shall not exceed those specified in HEL-S-1-63.

3.8 Conditions of use. Sweeper shall withstand the extremely hard usage encountered in military service. Components shall be designed to facilitate maintenance and servicing operations by personnel wearing bulky clothing and without the use of special tools.

3.8.1 Reliability. The sweeper shall be so designed and constructed to insure operational reliability under all service conditions which meet or exceed the requirements of this specification. Successful completion of tests in 4.3 and 4.4 shall be considered satisfactory reliability.

3.8.2 Maintainability. The sweeper shall be so designed that normal adjustments, repairs, lubrication, and overhaul can be readily accomplished by the use of general purpose tools with a minimum removal of, or disturbance of other elements of the sweeper.

3.8.3 Foolproofness. Where improper installation of a component or assembly could cause malfunctioning of the component, the assembly or the system into which it is installed, shall be so designed that the item can only be installed in its proper operating position.

3.9 Performance. Sweeper shall sweep at least 90 percent of dirt, debris, and gravel from a pavement in one pass when tested in accordance with 4.3.2.1. Sweeper shall be constructed for angle sweeping on both sides. Brush movement shall allow an angle of not less than 30° right and left. Minimum turning radius of the sweeper shall be not more than 130 inches.

3.10 Operating and storage temperature. Sweeper shall operate satisfactorily when exposed to temperatures ranging from -25° Fahrenheit (F) to +120°F. Sweeper shall be capable of withstanding prolonged storage in temperatures ranging from -65°F to +160°F.

3.11 Components.

3.11.1 Frame. Sweeper frame shall be of welded structural or tubular steel construction, and shall be of sufficient strength to withstand permanent distortion or damage when tested in accordance with 4.3.3. Bolt-on provisions shall exist for the installation of the contractor's sprinkling system kit without any additional cutting, welding, or fabrication of parts by the user.

3.11.2 Brush and brush mounting. The brush shall be cylindrical shape, not less than 30 inches in diameter, and not less than 95 inches long. The brush shall be mounted on a full length shaft carried by self-aligning ball or roller bearings. The brush shall be reversible and refillable. Unless otherwise specified (see 6.2), the brush shall be filled with synthetic fiber held in place on a core by means of a spiral type coil fitted into steel channels on the core, or by individual brush sections, wafers, or rings which catch on the core, or by individual strips of brushes slid into longitudinal slots on the core, or by steel cable or wire rope at least 3/16-inch diameter. A flange shall be provided on each end of the brush to prevent entanglement of bristles in the drive mechanism. The brush mounting shall permit brush removal, reversal, and reinstallation by one man in not more than 30 minutes without the use of special tools. When specified (see 6.2), a core loader of brush manufacturer's standard design shall be furnished.

3.11.3 Brush operation. Brush operation shall be mechanical or hydraulic. The vertical brush movement shall be balanced by means of an adjustable spring or counterbalance weight, or shall be controlled by means of suitable adjustable load supporting casters. The vertical height of the brush shall remain at the preselected setting during operation, with means provided for adjusting the vertical height through the range required to compensate for brush bristle wear. A separate safety locking device shall be provided to hold the brush in the raised position.

3.11.3.1 Mechanical operation. The brush drive shall be by chain and sprockets or gears. Drive chains shall have provisions for tension adjustment. The machine cut gears and sprockets shall be of high strength alloy steel, renewable, and reversible whenever practicable. Brush lifting and lowering shall be accomplished by a hand lever operated hydraulic pump ram, and connecting lines. The vertical brush movement shall be balanced by springs, with provision to adjust the spring tension. A manually operated clutch shall be provided between engine and brush drive.

3.11.3.2 Hydraulic operation. The hydraulic operation system shall consist of a hydraulic pump driven by engine power takeoff, hydraulic motor for brush drive, oil reservoir, connecting lines, and control valve for raising, lowering, and operating the brush. The hydraulic system shall be of the closed type, with a full flow, 35 micron maximum particle size, return oil filter.

3.11.4 Hood. A full-length hood, with ends, shall be mounted over the brush. The hood shall cover at least 40 percent of the brush circumference.

3.11.5 Apron. When specified (see 6.2), an apron of heavy rubberized material shall be furnished and mounted in front of the brush to prevent excessive dirt and debris from being thrown at the front wheel(s) of the sweeper and the towing vehicle. This apron shall be mounted to suit the manufacturer's hood construction and shall not interfere with any sprinkling system.

3.11.6 Reflectors. Sweeper shall be provided with reflectors, mounted on rear and sides of sweeper, conforming to the requirements of DoT Federal Motor Carrier Safety Regulations, section 393.26.

3.11.7 Tow bar. The sweeper shall be equipped with a tow bar at least 5 feet long, designed for towing by a vehicle having a pintle height between 10 and 36 inches above the ground level. Safety chains shall be provided for securing the tow bar to the towing vehicle. The safety chains shall meet DoT Federal Motor Carrier Safety Regulations, section 393.70(d). The tow bar shall have a lunette type towing ring with a 3 inch inside diameter eye and be fabricated from 1-5/8 inch diameter round steel bar stock. The tow bar shall be constructed from material structurally adequate for the weight drawn.

3.11.8 Wheels and tires. Sweeper shall be mounted on three or four wheels of manufacturer's current standard type and size, the front wheel or wheels being steerable. The pneumatic type tires shall be the manufacturer's first line first grade. Tire capacities shall be not less than the individual wheel loadings imposed by the fully loaded sweeper. When tube type tires are furnished, inner tubes shall be of heavy-duty type, and shall be of proper size for tires. Tires, rims, and loadings shall be in accordance with Tire and Rim Association recommendations. When specified (see 6.2), tires shall be either tube or tubeless type, with nondirectional mud and snow tread (NDMS) or nondirectional cross-country tread (NDCC). Tire flaps shall be provided for tube type tires in accordance with TRA recommendations.

3.11.9 Water tank and spray bar. When specified (see 6.2), a horizontal leg- or skid-mounted galvanized or polyethylene water tank or tanks shall be provided and securely fastened to the sweeper. The total capacity shall be not less than 150 gallons. The tank shall be located so that there will be no loss in sweeping effectiveness while a full tank is being completely emptied. The tank shall be connected to an atomizing spray bar or nozzle arranged to cover the sweeping path ahead of the brush. Pressure shall be obtained by a pump with pressure control valve. A shutoff valve shall be provided. Means shall be provided to completely drain the water tank, spray bar, and water pump, and to disconnect pump drive when not in use. The water system shall have a water line filter (strainer) installed ahead of the pump.

3.11.10 Engine. When specified (see 6.2), the sweeper engine shall be a diesel or gasoline engine having horsepower, torque, and speed characteristics to satisfactorily meet all performance requirements specified herein. The gasoline engine shall produce rated horsepower on unleaded gasoline. Engine shall be furnished complete with all accessories required for satisfactory operation and shall include at least the following:

- (a) A fuel tank of sufficient capacity for 8 hours normal operation.
- (b) An engine housing.
- (c) An instrument panel with panel light.
- (d) A lubricating oil pressure gage.

- (e) A cooling liquid temperature indicator (for liquid cooled engines).
- (f) An hour meter.
- (g) A fuel gage.
- (h) A 12-volt starting and electrical charging system.
- (i) A dry charged battery.

3.11.11 Battery box. A weatherproof box made of steel or plastic shall be provided for the battery. Vents shall be provided in the box. The box shall be equipped with battery restraints. The box shall be located so that the battery will be easily accessible for servicing, routine maintenance, removal, and replacement. All interior surfaces of the steel box shall be treated with acid-resistant paint.

3.12 Lubrication. Lubrication means shall be provided for all parts of the equipment normally requiring lubrication. Where the use of high lubrication pressure will damage grease seals or other parts, fittings with pressure release shall be used.

3.13 Cleaning, treatment, and painting. Unless otherwise specified (see 6.2), surfaces normally painted in good commercial practice shall be cleaned, treated, and painted as specified herein. When specified (see 6.2), the unit shall be cleaned, treated, and painted in accordance with MIL-T-704, type A, or FED-STD-595. In either case, color of the finish coat shall be as specified (see 6.2). Surfaces to be painted shall be cleaned and dried to insure that they are free from contaminants such as oil, grease, welding slag and spatter, loose mill scale, water, dirt, corrosion product, or any other contaminating substances. As soon as practicable after cleaning, and before any corrosion product or other contamination can result, the surfaces shall be prepared or treated to insure the adhesion of the coating system. The painting shall consist of at least one coat of primer and one finish coat. The primer shall be applied to a clean, dry surface as soon as practicable after cleaning and treating. Painting shall be with manufacturer's current materials according to manufacturer's current processes and the total dry film thickness shall be not less than 2.5 mils over the entire surface. The paint shall be free from runs, sags, orange peel, or other defects.

3.14 Identification of product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.14.1 Shipping data plate. Each end item or independent component assemblage thereof, shall have a shipping data plate attached as near as practicable to the nameplate. They shall be permanently and legibly marked with the following information:

- (a) Length - inches.
- (b) Height - inches.
- (c) Width - inches.
- (d) Cube - cubic feet.
- (e) Gross vehicle weight - pounds.
- (f) Center of gravity - location, inches.

3.14.2 Stenciling. The gross weight and location of the center of gravity on each end item shall be stenciled on each unit in a manner easily discernible to personnel handling the equipment.

3.15 Instruction plates. The sweeper shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be securely affixed to the equipment with nonferrous screws or bolts of not less than 1/8-inch diameter.

3.16 Servicing and adjusting. Prior to acceptance of the sweeper by the Government inspector, contractor shall service and adjust each sweeper and its mounted equipment for operational use, including at least the following: Adjustment of engine electrical system, inflation of all tires, and complete lubrication of engine, running gear, and mounted equipment, with grades of lubricants recommended for the ambient air temperature at the delivery point

3.17 Workmanship).

3.17.1 Steel fabrication. The steel in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. All bends shall be made by controlled means to insure uniformity of size and shape.

3.17.2 Bolted connections. Boltholes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, butts, and screws shall be tight.

3.17.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

3.17.4 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Examination. Each sweeper shall be examined for compliance with the requirements specified in section 3 of this specification. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.2.1 First article inspection. The first article inspection shall be performed on the first production item when a first article is required (see 3.2 and 6.2). This inspection shall include the examination of 4.2 and the tests of 4.3. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining sweepers to be furnished under the contract.

4.3 First article tests. When first article is required, the first article shall be tested as specified in 4.3.1 through 4.3.10, as applicable. Failure to pass any phase of the required tests shall be cause for the Government to refuse acceptance of all sweepers until corrective action has been taken.

4.3.1 Operational tests. Engine shall be serviced and observed for loose connections, leaks, and free action of all moving parts, started and stopped several times and, with the brush engaged, operated for not less than 1 hour at maximum continuous duty speed. All sweeper movements and controls shall be operated at least five times. Brush angle to right and left shall be verified. With the tow bar hitch attached to a towing vehicle and located at the extreme low pintle height specified in 3.11.7, the sweeper, with the brush raised and locked, shall be towed over straight courses and at the minimum turning radii in both directions to determine conformance to 3.9 and tracking ability. Test shall be repeated with the hitch at the high position. The tow bar shall then be released from the towing vehicle while in motion to determine the adequacy of the safety chain to control the sweeper until motion is arrested.

4.3.2 Performance tests.

4.3.2.1 Dirt and debris. A rectangular paved area, 6-1/2 feet wide and 100-feet long, shall be evenly covered with 1,000 pounds of dry dirt. In addition, approximately 300 pounds of miscellaneous sized debris, including pieces of cardboard, half bricks, and pieces of 1\2-inch thick boards, shall be

spread on the area at irregular spacing. The sweeper, with the brush to ground contact set, brush angled 30°, and rotating at supplier's recommended speed, shall be towed over the surface at a speed of 5 mph. Upon completion, the surface shall be examined to determine conformance to 3.9. When an apron is furnished, the effectiveness of the apron shall be observed to determine conformance to 3.11.5.

4.3.2.2 Gravel. A rectangular paved area, 6-1/2 feet wide and 25-feet long, shall be evenly covered with 1,500 pounds of 1/2-inch size gravel. The sweeper, with brush to ground contact set, brush angled 30° opposite to that used in 4.3.2.1, and rotating at supplier's recommended speed, shall be towed over the surface at a speed of 5 mph. The surface shall be examined for conformance to 3.9.

4.3.3 Load test. The sweeper, complete and ready for operation, shall be loaded with 2,500 pounds of ballast. With the brush lifted free from the pavement, the sweeper shall be towed 1 mile on smooth pavement at a speed of 20 mph. After completion of the load test, the sweeper shall be examined for visible damage or measurable distortion. When sprinkler system is furnished, the water tank shall be filled with water during this test.

4.3.4 Brush removal. Brush shall be removed, reversed end for end, and reinstalled to determine conformance to 3.11.2.

4.3.5 Spray test (sweeper with spray equipment). Two-hundred pounds of finely powdered dry loam soil shall be spread evenly over a level concrete pavement area 6-1/2 feet wide and 25-feet long. The sweeper, with the brush to ground contact set, spray in operation, brush angle, and rotating speed as recommended by supplier, shall be towed over the area at a speed of 3 mph. The area shall be swept clean in two passes. The spray coverage shall be observed to determine effectiveness and uniformity of dust control. The test shall be performed twice, first with the tank filled and the other with the tank nearly empty, to verify that the sweeping effectiveness conforms to 3.11.9. When an apron is furnished, any interference by the apron to the sprinkling action shall be observed to determine conformance to 3.11.5.

4.3.6 Winterization. When winterization is required, the sweeper shall be exposed to an ambient temperature of -65°F for 36 hours or until stabilization is reached. Then winterization equipment shall be operated and engine started to determine conformance to 3.5.

4.3.7 Lifting and tying down attachment tests. When required, the lifting and tying down attachments shall be tested to conform to 3.4.

4.3.8 Road test. The sweeper, with the brush raised free from the pavement, shall be towed 100 miles over highway and secondary roads at a speed of 25 mph. Inability to comply with 3.4.1 shall constitute failure of this test.

4.3.9 Transportability. Place the sweeper in position for shipment. Measure sweeper, compare dimensions with clearance diagrams, and figures 1 and 2. When required, perform a rail impact test in accordance with MIL-STD-810, method 516, procedure VI. Load sweeper on M172A1 or equivalent commercial semitrailer and haul for 125 miles on paved and secondary roads.

4.3.10 Sound level. Measure steady-state noise levels in accordance with MIL-STD-1472. Observe and record noise level reading from idle through no-load governed speed and power in each octave band limit. Nonconformance to 3.7.2 shall constitute failure of this test.

4.3.11 Engine Performance. When specified (see 6.2), prior to examination and tests of the sweeper, the engine to be installed in the sweeper shall be tested and sealed in accordance with test method series 2000 of MIL-STD-1400. Failure to meet the requirements of MIL-STD-1400 shall constitute failure of this test.

4.4 Initial Production inspection. When specified (see 3.2.1), one or more initial production sweepers will be selected at random by the Government from sweeper being produced from production tooling and will be examined as specified in 4.2 and tests as specified in 4.3.1 through 4.3.10 and 4.3.11, when specified, to determine conformance to the requirements of this specification. The inspection will be performed by the Government at a site or sites selected by the Government. Acceptance of an initial production sweeper shall not exclude the remaining sweepers from the quality conformance inspection and acceptance provision specified in section 4.

4.4.1 Inspection failure. Failure of an initial production sweeper to meet any requirement specified herein during and as a result of the examination and tests specified in 4.4, shall be cause for rejection of the initial production sweeper and shall be cause for refusal by the Government to continue acceptance of production sweepers until evidence has been provided by the supplier that corrective action has been taken to eliminate deficiencies. Correction of such deficiencies shall be accomplished by the supplier at no cost to the Government on sweepers previously accepted and produced under the contract. Any deficiencies found as a result of the initial production inspection will be considered prima facie evidence that all sweepers accepted prior to the completion of initial production inspection are similarly deficient unless evidence to the contrary is furnished by the supplier and such evidence is acceptable to the contracting officer.

4.5 Production unit tests. Operate each sweeper for a run-in period of not less than 15 minutes. Demonstrate operation of all sweeper movements and controls and make adjustments. Malfunction of any component that cannot be corrected by adjustment shall constitute failure of this test.

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

5. PACKAGING

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

5.1.1 Level A.

5.1.1.1 Disassemble and packaging. Disassembly shall be the minimum necessary to safeguard parts known to be subject to damage or loss, and to accomplish reduction in cube. Bolts, nuts, screws, pins, and washers removed shall be reinstalled in one of the mating parts and secured to prevent their loss. When necessary, to facilitate reassembly, parts removed and mating parts shall be matchmarked. Matchmaking shall be made on tags conforming to UU-T-81.

5.1.1.2 Preservatives. Preservatives shall conform to the applicable specification listed in, and shall be applied in accordance with MIL-P-116.

5.1.1.3 Unpainted surfaces. Unpainted exterior surfaces, including threaded surfaces and surfaces exposed by disassembly, shall be coated with type P-1 preservative.

5.1.1.4 Engines. Engines, component parts, and accessories shall be preserved in accordance with MIL-E-10062, level A, type I.

5.1.1.5 Winterization components. Unpainted exterior ferrous metal surfaces of heaters, burners, and other components shall be coated with type P-1 preservative. Interior surfaces of hand operated priming pumps and heater fuel tanks shall be coated with type P-10 preservative. Openings into burners, electric motors, or other components shall be sealed with waterproof tape conforming to PPP-T-60.

5.1.1.6 Dry type clutches. All surfaces of dry type clutch assemblies, except composition facings, shall be coated with a thin film of primer conforming to TT-P-664 or MIL-P-46093. The clutches shall be completely disengaged.

5.1.1.7 Enclosed gears. Gear housing containing lubricant conforming to the applicable lubrication order, or to MIL-L-2105, shall be checked for proper operating level and the gears actuated to insure coating of all interior parts of surfaces. Gear housings not containing these lubricants shall be drained, and refilled to the operating level with lubricant conforming to the applicable lubrication order and actuated as stated above.

5.1.1.8 Exposed drive chains. Drive chains shall be coated with enough type P-21 or P-9 preservative to assure penetration of the preservative to the inner surfaces of the rollers, pins, and bushings. After the excess preservative has drained, the chains and sprockets shall be coated with type P-1 preservative.

5.1.1.9 Hydraulic systems. The hydraulic fluid supply tank shall be filled to the operating level with approved hydraulic fluid. Where practicable, pistons shall be in their fully retracted position, with any remaining unpainted surfaces coated with type P-1 preservative. Where pistons cannot be fully retracted, exposed areas of normally retractable surfaces shall be coated with type P-6 preservative. The type P-6 preservative coated surfaces shall be spirally wrapped with barrier material conforming to MIL-B-121, type I, grade A, class 2. The wraps shall be secured in place with MIL-T-22085 tape, or PPP-T-60 waterproof tape. Openings, ends of hose, and connections shall be sealed with PPP-T-60 tape. All assemblies actuated by the hydraulic system shall be secured to prevent movement.

5.1.1.10 Water spraving system. Interior surfaces of the water spraying system, such as pumps, piping, valves, spray bar, and nozzles shall be coated with type P-21 preservative. Openings shall be sealed with caps, plugs, or PPP-T-60 waterproof tape.

5.1.1.11 Instruments. The dial glass of instruments not protected by a metal housing shall be covered individually or in groups with fitted piece of plywood secured with PPP-T-97 filament reinforced tape or PPP-T-60 waterproof tape.

5.1.1.12 Rubber tires. Tires shall be inflated to 10 pounds above the specified operating pressure.

5.1.1.13 Radiator fronts and engine housing. When specified (see 6.2), radiator fronts and any large openings in engine housings shall be covered with waterproofed barrier conforming to PPP-B-1055, class E-2 or H-1. The barrier shall be secured with waterproof tape. All other small openings in housings, such as vents and louvers, shall also be sealed with waterproof tape which conforms to PPP-T-60.

5.1.1.14 Maintenance tools. Maintenance tools shall be preserved and packaged in accordance with level A of PPP-P-40.

5.1.1.15 Technical publications. Technical publications for each sweeper shall be preserved in accordance with MIL-P-116, method IC-3.

5.1.2 Commercial. The complete sweeper shall be preserved and packaged in accordance with the contractor's standard practice.

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

5.2.1 Level A. The sweeper shall be shipped uncrated. Disassembled components for each sweeper, requiring additional protection from mechanical damage, shall be packed in close-fitting boxes conforming to PPP-B-621, class 2; or PPP-B-601, overseas type. The contents shall be cushioned, blocked, and braced to prevent movement within the boxes. The tools and publications for each sweeper shall be packed separately in a container as specified for disassembled components. Where practicable, the disassembled components, tools, and publications shall be positioned and secured to the sweeper by bolting or with steel strapping conforming to ASTM D 3953, in such a manner as not to interfere with towing or lifting the sweeper with slings.

5.2.2 Commercial. The complete sweeper shall be packed in a manner which will insure arrival at destination in satisfactory condition. Packing shall comply with applicable carrier rules and regulations.

5.3 Marking. The sweeper, interior packages, and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

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

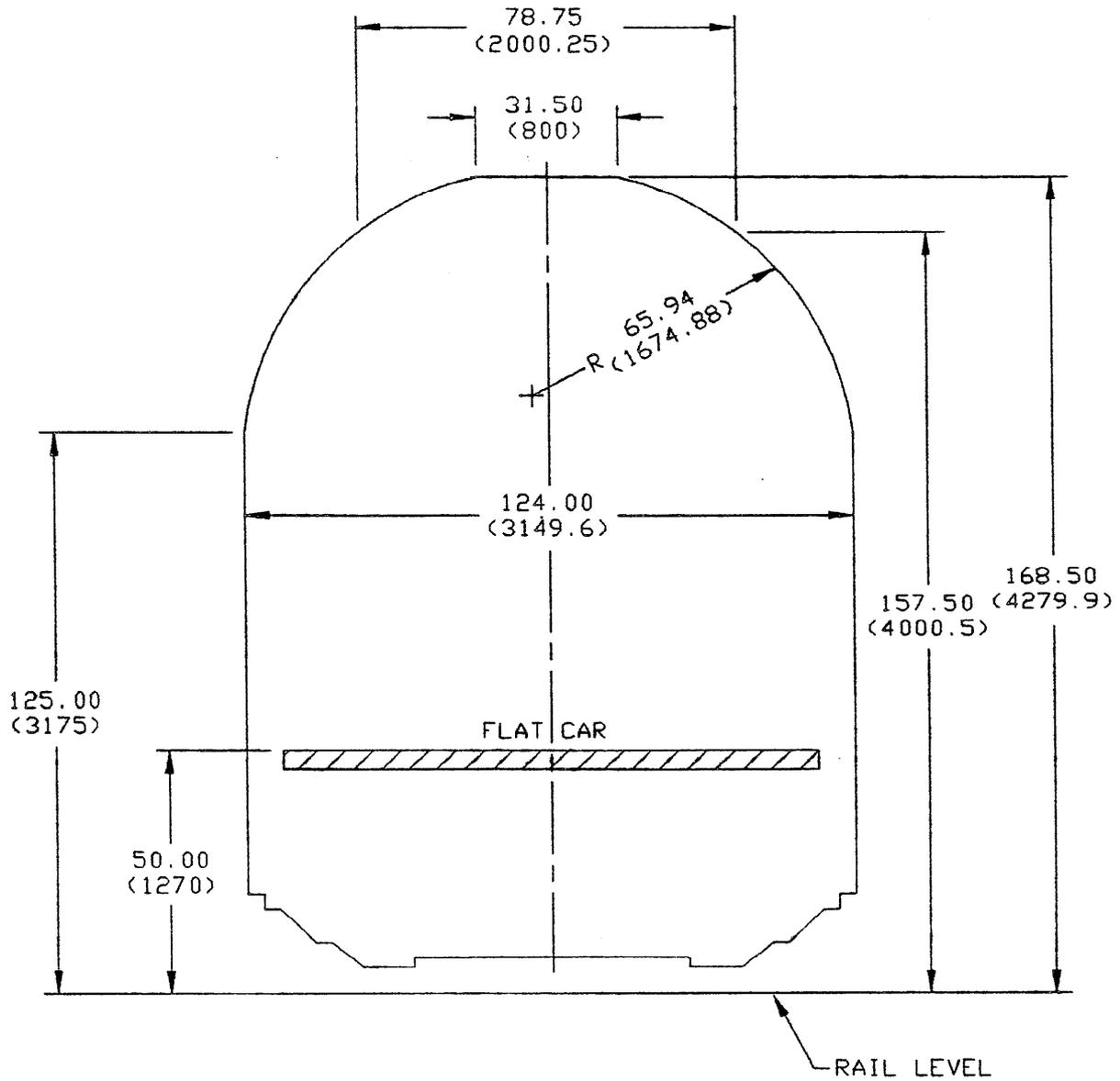
6.1 Intended use. Sweeper covered by this specification is intended primarily for use in sweeping paved surfaces.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1, 2.1.2 and 2.2).
- (c) When a first article sample is required for inspection and approval (see 3.2, 4.2.1, and 6.4).
- (d) When one or more initial production sweepers will be required for examination and tests (see 3.2.1 and 4.4).
- (e) When lifting and tying down attachments are required (see 3.4).
- (f) When rail impact test shall be performed (see 3.4.1).
- (g) Winterization characteristics, when required (see 3.5).
- (h) Type of bristles if not as specified (see 3.11.2).
- (i) When a core loader is required (see 3.11.2). 5.1 and 5.2).
- (j) When apron is required (see 3.11.5).
- (k) When tires required are other than specified (see 3.11.8).
- (l) When water tank or tanks and spray bar are required (see 3.11.9).
- (m) When sweeper engine shall be a diesel or gasoline engine (see 3.11.10).
- (n) When conformance to MIL-T-704, type A cleaning, treatment, and painting is required (see 3.13).
- (o) Color of the finish coat required (see 3.13).
- (p) When engine shall be tested and sealed in accordance with MIL-STD-1400 (see 4.3.11).
- (q) Level of preservation and packaging and level of packing required (see 5.1 and 5.2).
- (r) When radiator fronts are to be covered and engine housing openings sealed (see 5.1.1.13).

6.3 Contract data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Defense Acquisition Regulations (DAR), the data requirements will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of DAR 7-104.9(n) are not invoked, the data shall be delivered in accordance with the contract requirements.

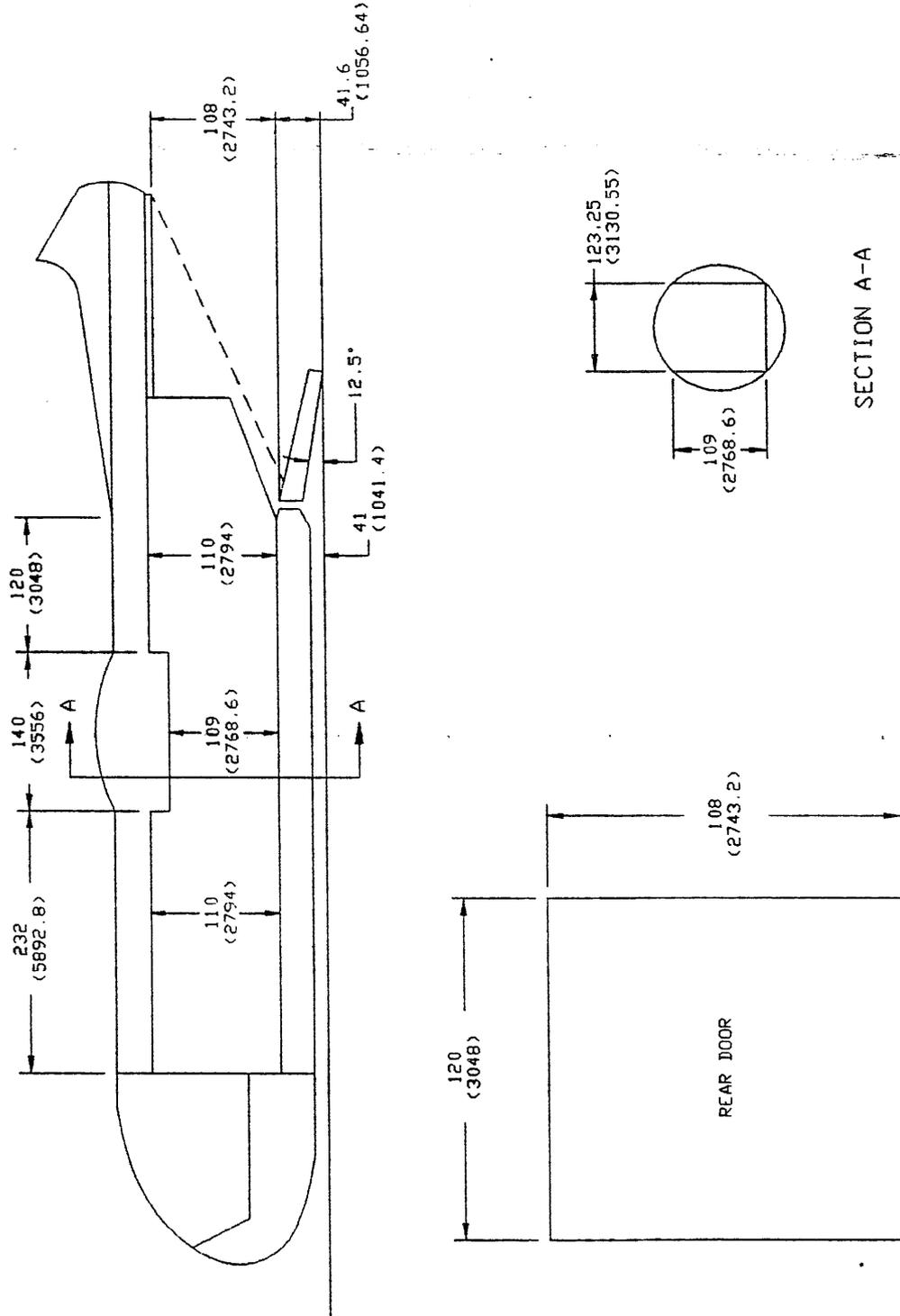
6.4 First article. When a first article is required, it shall be tested and approved under the appropriate provisions of paragraph 7-104.55 of the DAR. The first article should be a first production item consisting of one complete sweeper or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The contracting officer should include specific instructions in all acquisition instruments regarding arrangement for examinations, tests, and approval of the first article.



Note:

1. Unless otherwise specified all dimensions in inches (millimeters).

FIGURE 1. Passe-partout International (PPI) gauge.



Note:

1. Unless otherwise specified all dimensions are in inches (millimeters).

FIGURE 2. Cargo compartment profile (C-130).

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-S-18141J	2. DOCUMENT DATE (YYMMDD) 910926
3. DOCUMENT TITLE SWEEPER, ROTARY, TOWED			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME (Last, First, Middle Initial)		b. ORGANIZATION	
c. ADDRESS (Include Zip Code)		d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)
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