

NOTICE OF
VALIDATION

INCH-POUND

MIL-S-82068C
NOTICE 2
12 July 2006

DETAIL SPECIFICATION

Sprayers, Pesticide; Trailer-Mounted, Gasoline-Engine-Driven

MIL-S-82068C, dated 25 May 2000, remains inactive for new design; however, the document is valid for use.

Custodians:

Air Force - 99
DLA - GS7

Preparing Activity:

DLA - GS7

Reviewer Activities:

Air Force - 84

NOTE: The activities above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at assist.daps.dla.mil.

NOTICE OF INACTIVATION
FOR NEW DESIGN

INCH-POUND

MIL-S-82068C
NOTICE 1
25 May 2000

MILITARY SPECIFICATION

SPRAYERS, PESTICIDE; TRAILER-MOUNTED,
GASOLINE-ENGINE-DRIVEN

This notice should be filed in front of MIL-S-82068C, dated 26 October 1984.

MIL-S-82068C is inactive for new design and is no longer used, except for replacement purposes.

When acquisition of the product is no longer required, the specification will be canceled.

Custodian:
Air Force - 99

Preparing activity:
DLA - GS

(Project 3740-0006)

AMSC N/A

FSC 3740

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

MIL-S-82068C
26 October 1984
SUPERSEDING
MIL-S-82068B
28 March 1973 and
MIL-S-28526A(YD)
28 March 1973

MILITARY SPECIFICATION

SPRAYERS, PESTICIDE; TRAILER-MOUNTED, GASOLINE-ENGINE-DRIVEN

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

1. SCOPE

1.1 Scope. This specification covers complete, ready for use, trailer-mounted, pesticide sprayers with storage tank.

* 1.2 Classification. The pesticide sprayers shall be of the following sizes, as specified (see 6.2.1):

Size A - 400-gallon tank capacity, capable of 25 gallons per minute (gpm) at 700 pound-force per square inch (psi).

Size B - 500-gallon tank capacity, capable of 25 gpm at 700 psi.

Size C - 200-gallon tank capacity, capable of 10 gpm at 400 psi (see Table I).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified the following specifications, standards, and handbooks 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

MILITARY

MIL-S-12651 - Sprayers, Packaging of.

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, CA 93043, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-S-S2068C

STANDARD

MILITARY

MIL-STD-130 - Identification Marking of US Military Property.

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

2.1.2 Other Government documents, drawings, and publications. The following other Government documents form a part of this specification to the extent specified herein.

DEPARTMENT OF TRANSPORTATION (DoT)

Federal Motor Carrier Safety Regulations.

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

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 Department of Defense (DoD) adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D380 - Testing Rubber Hose.
- D622 - Methods of Testing Rubber Hose.

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

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

SAE Handbook.

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

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.)

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

MIL-S-82068C

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 sprayer shall consist of a gasoline engine, pesticide pump, a storage tank, work platform and railing, hose reel, spray gun, and refiller assembly, compactly mounted on or integral with a trailer.

3.2 First article. When specified (see 6.2.1), the contractor shall furnish a complete sprayer for first article inspection and approval (see 4.2.1 and 6.3).

3.3 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

3.3.1 System of measurement. The dimensions used in this specification are not intended to preclude the use of the metric system of measurement in the fabrication and production of the material, individual parts, and the finished product, provided form, fit, and function requirements are satisfied.

3.4. Standard commercial product. The sprayer 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 sprayer 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.

3.5 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification unless otherwise specified.

3.6 Performance.

* 3.6.1 Sprayer performance. The pump shall maintain a steady flow rate of pesticide or water at gpm as specified in Table I, at the manufacturer's recommended continuous operating pressure (hereafter referred to as the operating pressure). The operating pressure at the discharge outlet of the

MIL-S-82068C

pump shall be no less than specified in Table I under psi. The pressure in the high pressure section of distribution piping shall be easily determined from the gage reading. The pump, piping system, hose, fittings, connections, and valves shall be designed for the operating pressure of the unit as furnished, and for surges up to 125 percent of the operating pressure without leakage, seepage, or bursting. The spray gun discharge pattern shall be consistent and steady throughout the range from fine mist to a steady stream at the operating pressure. When the spray boom is required (see 3.7.10), it shall be easily adjusted for height. All spray boom nozzles shall discharge pesticide in an identical pattern. The agitation system shall maintain a homogeneous mixture of pesticide emulsion or suspension without signs of precipitation stratification at any point in the tank.

*TABLE I Pump operating pressure.

	Tank Size	Capacity cap. gpm	Operating psi	Tank drain flow rate	Engine size Min brake hp	Trailer Max. net weight
A	600	25	700	25	12 hp electric start	2,300 lb
B	500	25	700	25	12 hp electric start	2,300 lb
C	200	10	400	10	5 hp manual start	1,200 lb

3.6.2 Trailer performance. The fully equipped and serviced trailer, complete with all attachments, accessories, and between 1/2 and 3/4 capacity liquid load, when towed by a towing vehicle at average speeds of 40 miles per hour (mph) over improved roads, and 20 mph over dry unimproved roads, shall develop no signs of damage, malfunction, or misalignment. Shifting of the liquid load shall not produce a noticeable tendency to upset.

* 3.7 Design and construction. The design shall be such as to prevent conditions which may be hazardous to personnel or deleterious to equipment. Particular attention shall be given to features contributing to long periods of service without interruption for adjustment and repair. The equipment design and accessory installation shall permit accessibility for maintenance and service in the field. The sprayer, trailer, attachments, and accessories shall be assembled as an integral operating unit, with a maximum of simplicity and compactness, and a minimum of weight consistent with the rugged performance requirements, but not greater than specified in Table I, fully equipped without liquid load. Calculated design loads shall be computed, using 8.3 pounds (lb) per gallon. The center of gravity of the trailer shall be forward of the axle. The load on the landing leg and hitch, with the sprayer loaded for operation, shall be not less than 200 lb and not more than 300 lb. Ground clearance shall be not less than 10 inches. Provisions shall be made for complete drainage of the tank and piping system without need for disassembly. Special tools, if required for service in the field, shall be furnished. Flexible connections, hose sections, inserts, and mountings shall be used in all places where vibration or shock might cause damage.

3.7.1 Sprayer arrangement. A level work platform with protective railing shall be provided. A hood with open sides, or other adequate weather protection over the engine, pump, pesticide pressure regulator, pressure gage,

MIL-S-82068C

and controls, shall be provided. The hose reel and hose gun rack assembly shall be mounted on the hood or atop the tank. When required (see 3.7.10), a spray boom shall be mounted on the rear of the trailer.

3.7.1.1 Engine and pump mounting. The engine and pump mountings shall be designed for easy removal and independent adjustment to insure proper alinement of drive mechanisms. Locking devices shall be designed to withstand vibration.

* 3.7.1.2 Work platform and railing. A single rear mounted platform or two side-mounted platforms shall be provided. Each platform shall be at least 18 by 40 inches of tread area with a nonslip tread surface, designed to support two 175-pound personnel engaged in spraying. Adequate drainage of the tread surface shall be provided. A protective railing not less than 32 inches high shall be provided around the outer edges of the work platform as required for safety in operation. The railing shall have no dangerous corners, sharp edges, or projections, and shall not interfere with the operation of the hose reel. The design of the railing shall permit easy access from the ground to the work platform.

3.7.1.3 Controls. All controls shall be suitably located for safe, effective spraying operations, and shall be provided with extensions, if necessary.

3.7.1.4 Spray boom mounting. When a spray boom is required (see 3.7.10), a spray boom mounting device shall be provided on the rear of the sprayer. The mounting frame shall be constructed so that the boom height from the ground can be adjusted between 18 and 30 inches. Means shall be provided for rigid attachment of the central section of the spray boom, and hinged support for the spray boom wings when hinges are not included as a part of the spray boom assembly.

3.7.2 Trailer. The trailer frame shall be of all-steel welded construction, designed to support the engine, pesticide storage tank, pump, control assembly, work platform, and hose reel assembly, as an integral operational unit. The trailer shall be provided with a single axle with a rating not less than the gross load imposed. Wheels shall be provided with roller bearings. The wheels shall be demountable at the hub or rim. Rim ratings shall conform to the TRA recommendations, for the type and size of tires furnished.

3.7.2.1 Tires and tubes. Tires shall be tube or tubeless type with highway tread. Tires shall be of rated capacity not less than the gross operating load imposed on each tire, measured at each wheel. Tires shall be of not less than 100 level quality. Manufacturer's current size of tires conforming to specified requirements may be furnished. When the tube type tires are furnished, inner tubes shall be of heavy-duty type, and shall be proper size for the tires furnished. Tube rim flaps shall be provided for tube type tires in accordance with TRA recommendations.

3.7.2.2 Drawbar, landing leg, and clevis type hitch. A drawbar, with retractable landing leg and clevis type hitch, shall be provided. The drawbar shall be a straight steel tube tongue or a steel channel modified A-frame bolted to the sprayer frame. The landing leg and its related parts shall

MIL-S-82068C

withstand, without permanent deformation, the fully loaded combined static and dynamic forces due to coupling and uncoupling operations. The landing leg shall operate freely and shall be protected from malfunctioning caused by foreign matter. When locked in travel position, the landing leg shall not be subject to accidental release.

3.7.2.3 Safety chains. Safety chains conforming to DoT Federal Motor Carrier Safety Regulations, section 393.70, shall be provided and installed for connection of the drawbar to the towing vehicle.

* 3.7.3 Pesticide storage tank, fittings, and agitator. The tank shall be constructed of fiberglass or corrosion-resistant alloy steel. When a steel tank is provided, it shall be not less than 0.1046-inch (U.S. revised standard gage No. 12) thickness. Exposure to pesticide for 100 hours shall not cause the coating to flake, peel, or blister or uncoated internal surfaces to show measurable corrosion, pitting, or deterioration. Fittings and attachments shall be compatible with the tank material and shall be resistant to the pesticides. The tank drain shall be provided with an intake of sufficient diameter and elevation above the tank bottom to prevent cavitation, at a flow rate as specified in Table I. The tank bottom shall be round or sloped with a sump effect, to provide for drainage without pockets or traps, and unrestricted pesticide circulation.

3.7.3.1 Filler opening. A filler opening, with a minimum area of 140 square inches with any dimension not less than 10 inches, and a quick clamping lid, shall be provided. The lid shall incorporate a noncorrosible, adjustable tension locking device for a nonleaking fit.

* 3.7.3.2 Agitator. The tank shall be provided with an agitation system designed to continuously maintain currents over the entire area of the tank bottom, effectively mixing all layers of pesticide solution or suspension. This system may be accomplished by means of:

- a. Replaceable rotating paddles, propellers, vanes, or
- b. Hydraulic agitation.

* 3.7.4 Engine. The pump shall be powered by an air-cooled industrial gasoline engine of a commercial design that has been proven satisfactory in extensive use, and for which repair parts are readily obtainable. The rated horsepower and speed shall be in excess of that required to meet the operational requirements of the sprayer. The engine furnished shall produce the required sprayer performance on unleaded or low-lead content gasoline. The engine shall be complete with the accessories normally furnished with the sprayer, including not less than the following:

- a. An engine housing (see 3.7.1).
- b. A fuel tank with capacity for a minimum of 2 hours continuous operation at rated speed.
- c. Fuel filter located between fuel tank and carburetor.
- d. Speed governing system, preset to maintain the manufacturer's recommended continuous operation speed.
- e. An air cleaner for the carburetor inlet.

MIL-S-82068C

* 3.7.4.1 Sizes A and B. Size A and size B shall be furnished with a 12-volt electrical system, including a starter; battery charging generator of not less than 5 ampere rating, regulator, ammeter; and a dry charged (less filling of electrolyte) or maintenance free battery as specified (see 6.2).

* 3.7.4.1.1 Size C. Size C shall be furnished with a magneto type ignition system, including manual cranking or pull rope starting capabilities.

3.7.4.2 Electromagnetic radiation suppression. When specified (see 6.2.1), electromagnetic radiation from the sprayer shall be suppressed to conform to the recommended limits of SAE J551.

3.7.5 Pesticide pump. The pump shall be a positive displacement piston type with not less than two ceramic or porcelain lined cylinders. Piston cups, O-rings, valve seats, disks, and cylinder wearing surfaces shall be capable of not less than 100 hours of pumping pesticide (see 4.3.2.3), without deterioration resulting in breakage or leakage. Valve cages, if required, and valve springs shall be stainless steel. Valve seats, disks, and or poppets shall be manufacturer's current design and capable of sustaining a minimum of 100 hours operating time. Bearings designed for a minimum of 2 years of service shall be used. Pressure lubricated bearing surface shall be protected from dust, dirt, and abrasive material.

3.7.6 Piping system. The piping system shall be designed for continuous circulation of pesticide from the pesticide storage tank through the pump suction strainer, pump, and pressure regulating valve assembly to the distribution piping, with surplus flow return to the tank. Discharge into the tank shall be designed to prevent entrainment of air. Takeoffs shall be made from the high pressure section of the piping system to supply the hose reel, the tank refiller assembly, and the spray boom connections. Points of connection for hose reel, refiller assembly, and spray boom shall be provided with means for individual disconnection. A pump suction line strainer with removable basket shall be installed in an accessible location.

3.7.6.1 Bypass pressure regulating valve assembly. A pressure regulation system designed to control pressure fluctuations to less than 50 psi shall be provided. The bypass pressure regulating valve assembly shall consist of an adjustable unloading type pressure regulator, or an adjustable bypass pressure regulating valve with a pressure reducing valve when required, and shall be provided for an inlet connection from the pump, a discharge connection to the high pressure section of the piping system, and a surplus pesticide overflow discharge connection to the storage tank. An easily adjustable pressure control shall be incorporated for maintaining the operating pressure of the high pressure piping section at any desired pressure over the operating pressure range of the equipment furnished. The control shall be self-locking, or shall be provided with a locking device to prevent movement caused by vibration.

3.7.6.2 Valves. All valves shall be of brass with ground metal seats or corrosion-resistant plastics capable of withstanding vibrations and useage in this application. Valves shall be of the type recommended by the manufacturer for the intended use.

MIL-S-82068C

3.7.6.3 Pressure gage. A pressure gage, not less than 2-1/4 inches in diameter, with clearly readable graduations in increments of not more than 50 psi, from 0 psi to not less than 200 psi over rated maximum pressures, shall be installed in the high pressure section of the piping system. The pressure gage shall indicate the effective operating pressure in the system. The pressure gage shall be dampened, or otherwise protected with an air chamber, to provide for a steady gage reading under all operating conditions.

3.7.7 Gaskets and washers. Gaskets and washers shall be smooth, seamless neoprene, buna-N nitrile, or similar compressible material relatively unaffected by pesticide.

3.7.8 Hose reel assembly. Hose reel assemblies, complete with frame, spray gun holding device, rewind crank or handwheel, adjustable tension control, brake, not less than 100 feet of hose, and a spray gun with flow control disks (see 3.7.8.2), shall be furnished with each hose reel assembly. Hose reel assemblies shall be furnished as follows:

- a. Size A and size B two hose reel assemblies.
- b. Size C one hose reel assembly.

* 3.7.8.1 Hose. Hose shall be commercial sprayer hose, not less than 1/2 inch in diameter, with following characteristics:

- a. High pressure:

Inner tube: Smooth seamless oil and chemical resistant.

Outer tube: Abrasion-, sunlight-, and weather-resistant.

Reinforcing: Two braids of textile cord.

Performance: Minimum burst - 4 times the operating pressure.

- b. Suction hose: Suction hose shall not collapse at a vacuum pressure of -22.7 feet of water (-20.0 inches of mercury).

* 3.7.8.2 Spray gun. The spray gun shall have a trigger-type spray shutoff, and a spray pattern adjustment. At least three hardened stainless steel orifice type flow control disks, which limit the delivery of pesticide through the spray gun nozzle, shall be provided with the spray gun. All flow control disks shall be interchangeable and clearly marked to identify the degree of flow control provided. When supplied with pesticide or water at the operating pressure, the flow control disks shall limit the discharge through the gun in a solid stream flow pattern as follows:

Size A and size B	Discharge gpm	
Control disk	Minimum	Maximum
Minimum flow	3	5
Intermediate flow	10	15
Maximum flow	20	25
Size C	Discharge gpm	
Control disk	Minimum	Maximum
Minimum flow	1	3
Intermediate flow	4	7
Maximum flow	8	11

MIL-S-82068C

The use of flow control disks shall not distort the effective flow pattern in any adjustment between mist and solid stream when the pesticide is supplied at the operating pressure.

* 3.7.9 Refiller assembly. When specified (see 6.2.1), the refiller assembly shall consist of a venturi type mixer discharge nozzle incorporating a clip or hook designed to hold the nozzle in position for continuous discharge into the tank opening, a suitable length of high pressure supply hose fitting with a quick-disconnect fitting for the pesticide supply connection on the sprayer, and a suction hose assembly not less than 15 feet long fitted with a deep well type intake strainer. The refiller assembly shall deliver into the sprayer tank not less than 80 percent of pump rated capacity, from a source of pesticide or water, at a lift of not less than 10 feet.

3.7.10 Spray boom. When specified (see 6.2.1), a spray boom, complete with all parts, supports, and guides as necessary for mounting and operation when attached to the mounting device (see 7.7.1.4) on the trailer, shall be furnished. The spray boom shall be constructed in three sections, with adjustable supports to maintain the free ends in the desired positions during spraying. Provision shall be made to automatically return the free ends to the desired spraying position should they be deflected when encountering obstacles while traveling in either direction. The overall length shall be not less than 20 feet with not less than thirteen nozzles evenly spaced along the boom. The spray nozzles shall be brass body with a hardened stainless steel tip equipped with a stainless steel nozzle, and shall produce a flat, fan-shaped spray in a 65 degree angle at the tip. The discharge from each nozzle shall be approximately 0.67 gpm when supplied with pesticide at 50 psi. Each section of piping shall be provided with not less than one cleanout and drain plug. Nozzles shall be threaded, or provided with a leakproof fastening.

3.7.11 Service kit. When specified (see 6.2.1), a service kit shall be provided with each sprayer. The kit shall contain adequate parts for two complete changes of all field replaceable nonmetallic seals. As a minimum, the service kit shall provide parts to replace the following:

- a. Pump piston seals.
- b. Pump check valve disks.
- c. Pressure regulator seals.
- d. Agitator shaft packing.
- e. Cover gaskets.
- f. V-belts.

3.7.12 Toolbox. When specified (see 6.2.1), a toolbox shall be provided. The toolbox shall be large enough to store all tools required for field service or maintenance, but shall not have external closed dimensions less than 14 inches in length, 6 inches in width, and 6 inches in height. The toolbox shall be a nominal n.0747-inch (U.S. revised standard gage No. 14) thick steel with a hinged lid and a trunk drawbolt to keep the lid secure when vibrated. The toolbox shall be mounted in a protected, accessible location.

* 3.8 Cleaning, treatment, and painting. Surfaces normally painted in good commercial practice shall be cleaned, treated, and painted as specified herein. The color of the finish coat shall be as specified (see 6.2.1).

MIL-S-82068C

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.

3.9 Identification and instructions. All marking shall be in accordance with MIL-STD-130.

3.9.1 Identification plate. The contracting officer will furnish to the Government inspector the required identification plates (6.2.1). The contractor will be required to stamp the necessary data in the blank spaces thereon and securely affix said plates in a conspicuous place on each unit, assembly or subassembly, and parts as directed by the Government inspector. Nonferrous screws, rivets, or bolts of not less than 1/8 inch in diameter shall be used to affix the plates.

* 3.9.2 Instruction plates. The unit shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. The recommended standard operating pressure and maximum operating pressure shall be included. plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be of the same material, and attached in the same manner, as the nameplate (see 3.9.1).

3.10 Lubrication. Unless otherwise specified means for lubrication shall be in accordance with the manufacturer's standard practice. The lubricating points shall be easily visible and accessible. Hydraulic lubrication fittings shall be in accordance with SAE J534. Where use of high pressure lubricating equipment, 1,000 psi or higher, will damage grease seals or other parts, a suitable warning shall be affixed to the equipment in a conspicuous location.

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

* 3.11.2 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, nuts, and screws shall be tight.

* 3.11.3 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

MIL-S-82068C

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.

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

* 3.11.5 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the castings ability to perform its intended function.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements 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 there such inspections are deemed necessary to assure Supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

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

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

4.2.1 First article inspection. The first article inspection shall be performed on one sprayer when a first article is required (see 3.2, 4.2.1 and 6.3). This inspection shall include the examination of 4.3, the tests of 4.4, and, when specified, the preproduction pack inspection of 4.5 (see 4.5 and 6.2.1). The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.3, the tests of 4.4, and the packaging inspection of 4.5.

MIL-S-82068C

4.3 Examination. Each sprayer 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.

4.4 Tests. The first article shall receive the tests of 4.4.1 through 4.4.8. Each production unit shall receive the test of 4.4.8. Failure to pass any test shall constitute cause for rejection.

4.4.1 Trailer test. The Sprayer, with between 1/2 and 3/4 capacity load of water, shall be attached to a suitable towing vehicle, and towed for not less than 1 hour, 1/2 hour of which shall be over improved roads at an average speed of 40 mph, and the remaining 1/2 hour shall be over dry unimproved roads at an average speed of 20 mph, to determine conformance to the performance requirements specified in 3.6.2. Signs of damage or malfunction, developed during or after the trailer tests and the sprayer performance tests (see 4.3.2.3), shall be cause for rejection. Instability due to shift of the liquid load shall be cause for rejection.

4.4.2 Testing solution. An emulsion prepared by mixing one gallon of 60 percent Naled (dibrom) emulsifiable concentrate with 99 gallons of water shall be used as a typical pesticide for test purposes.

4.4.3 Sprayer or spray gun test. No less than 100 gallons of pesticide, composed as specified in 4.3.2.2, shall be placed in the tank. The engine, pump, and agitator shall be set in operation and shall be operated for a total of not less than 100 hours, without overheating the pesticide, during which not less than the following procedures shall be performed:

- a. Insert the maximum capacity flow control disk in the hose nozzle, and discharge into the tank filler opening in solid stream adjustment until all air is exhausted from the hose.
- b. Set the pressure control valve so that the pressure gage indicates at least 90 percent of the operating pressure (see 3.6.1), and discharge not less than three spray patterns, in adjustments between solid stream and fine mist, into the tank opening to determine consistency of spray pattern and control.
- c. Using the maximum capacity flow control disk at the operating pressure, measure the discharge from the spray gun in solid stream pattern, to determine a flow rate in conformance to 3.7.8.2.
- d. While maintaining pressure at a minimum of 90 percent of operating pressure (see 3.6.1), and with the spray gun shut off, unwind the hose to maximum reach, open and close the spray gun, and rewind the hose to determine leaks in hose or at connections, operation of hose reel brake, tension control, operation of rewind crank or handwheel, tendency toward hose twist, and ease of handling. Make observations also for leaks at valves, packing about the pump, strainer, and elsewhere in the piping system.

MIL-S-R2068C

- e. With the gun closed, observe indications on the pressure gage at not less than 5 different settings between 50 psi and the operating pressure (see 3.6.1), to determine steadiness of pressure control. Readable variations in excess of 50 psi not due to change in setting shall be cause for rejection of the pressure regulating valve assembly.
- f. Attach the spray gun over the tank opening in a position suitable for continuous discharge into the tank, and using an intermediate capacity flow control disk, operate the sprayer at the operating pressure (see 3.6.1), for the remaining time in the test.
- g. On completion of 100 hours of operation with pesticide, the tank bottom, the suction strainer basket, and all accessible surfaces which were continually exposed for 100 hours to the insecticide solution, shall be examined for signs of flake, peel, blister, and dissolution of the tank coating.
- h. The sprayer shall be completely drained, after inspection for leaks, and shall be examined for signs of stoppage, sediment accumulation, traps, and air lock conditions. Pump cylinders, piston cups, and O-rings shall be disassembled and examined for breakage, tolerance of fit, and wear.

4.4.4 Refiller assembly test. The flow rate capability of the refiller assembly (see 3.7.9), shall be determined by timing the change of level of water in a source container calibrated in gallons. The replenishment source shall be at least 10 feet below the pump inlet. Set the pressure control for the operating pressure level and determine the rate of delivery of water into the sprayer tank using the refiller hose.

4.4.5 Spray boom test. When a spray boom is provided, the boom shall be operated at a pressure of 50 psi, to determine uniformity of distribution (see 3.7.10), and the capability of the spray boom wings to return to operating position without damage after deflection. The shape of the spray shall be visually determined. The flow rate through each nozzle shall be determined by timing the flow into a calibrated container.

4.4.6 Sprayer hose test. Hose shall be tested in accordance with the standard methods of ASTM D380 and D622, or certified by the hose manufacturer that the hose meets the requirements of 3.7.8.1. Hose tested and accepted during fabrication need not be retested.

4.4.7 Electromagnetic radiation test. When electromagnetic radiation suppression is required, the sprayer shall be tested to determine conformance to 3.7.4.2. In lieu of test to determine compliance with SAE J551, the manufacturer may furnish a certification that the sprayer meets the requirements, together with a list of the suppression devices installed. The list shall be sufficiently detailed to allow visual determination that the specified devices are installed.

4.4.8 Production tests. Each complete production sprayer shall be functionally tested for proper operation and fit of all moving and assembled parts. Every unit shall be operated continuously for at least 15 minutes while pumping water at the rated maximum pump discharge pressure. Immediately after the 15 minute test period, the engine shall be rotated by hand. Any

MIL-S-R2068C

indication of seizing of the bearings or pistons or external leakage shall be cause for rejection. Failure of any sprayer, accessory, or attachment to pass all applicable tests shall be cause for rejection.

4.5 Packaging inspection. The inspection of the preservation, packing, and marking shall be in accordance with the requirements of section 4 of MIL-S-12651. Inspection shall consist of the quality conformance inspection; and, when specified (see 6.2.1), a preproduction pack shall be furnished for examination and test within the time frame required (see 6.2.1).

5. PACKAGING

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be in accordance with the requirements of MIL-S-12651 with the level of preservation and the level of packing as specified (see 6.2.1).

6. NOTES

6.1 Intended use. The trailer-mounted sprayer with accessories is used for the direct application and distribution of liquid pesticides, decontaminants, defoliators, and water to outdoor plant growth.

6.2 Ordering data. Acquisition documents should specify:

6.2.1 Acquisition requirements.

- a. Title, number, and date of this specification.
- b. Size of sprayer required (see 1.2).
- c. When a first article is required for inspection and approval (see 3.2, 4.7.1, and 6.3).
- d. Type battery required (see 3.7.4.1).
- e. When electromagnetic radiation suppression is required (see 3.7.4.2).
- f. When refiller assembly is required (see 3.7.9).
- g. When spray boom and mounting is required (see 3.7.10).
- h. When a service kit is required (see 3.7.11).
- i. When a toolbox is required (see 3.7.12).
- j. When finish coat color is specified (see 3.8).
- k. When identification plates will not be furnished (see 3.9.1).
- l. When a preproduction pack inspection is required; and, time frame required for submission (see 4.2.1 and 4.5).
- m. Level of preservation and level of packing required (see 5.1).

* 6.2 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 DD Form 1664, Data Item Description (DID), and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of paragraph 52.227-7031 of the Defense Acquisition Regulations 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 purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs:

MIL-S-82068C

Paragraph No.	Data requirements title	Applicable DID No.	Option
4.4.6 and 4.4.7	Certificate of Compliance	UDI-E-24007	

(DIDs related to this specification, and identified in section 6 will be approved and listed as such in DoD 5000.19L, Vol. II, Acquisition Management Systems and Data Requirements Control List. Copies of DIDs required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

* 6.3 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one complete sprayer. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.4 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

* Title change. The title of this document was changed from "Sprayers, Insecticide; Trailer-Mounted, Gasoline-Engine Driven" to "Sprayers, Pesticide; Trailer-Mounted, Gasoline-Engine-Driven".

Custodians:

Army - ME
Navy - YD
Air Force - 99

Preparing activity:

Navy - YD
(Project 7760-0095)

Review Activities:

Air Force - 84
DLA - CS