

16 June 1977

SUPERSEDING

MIL-S-40615C

12 November 1970

MILITARY SPECIFICATION

SHOE REPAIR SHOP, TRAILER MOUNTED

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 shoe repair shop for field use, stored in a cabinet permanently mounted on a 1-1/2 ton (1360 kg), 2W, M103A trailer chassis.

2. APPLICABLE DOCUMENTS

- * 2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

C-F-206	- Felt Sheet: Cloth, Felt, Wool, Pressed
H-B-491	- Brush, Paint, Sash and Trim
O-E-910	- Extinguisher, Fire, Carbon Dioxide (Hand and Wheeled Types)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Natick Research and Development Command (GL), Natick, MA 01760, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document.

FSC 3520

MIL-S-40615D

V-T-285	- Thread, Polyester
AA-C-291	- Chairs, Folding, (Steel)
OO-S-256/3	- Sewing Machines, Industrial, Cylinder Bed, Single-Needle (Detail Specification)
QQ-A-200/8	- Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded, 6061
QQ-A-200/9	- Aluminum Alloy Bar, Rod, Shapes, Tube, and Wire, Extruded, 6063
QQ-A-225/6	- Aluminum Alloy Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished, 2024
QQ-A-225/8	- Aluminum Alloy Bar, Rod, Wire, and Special Shapes; Rolled, Drawn, or Cold Finished, 6061
QQ-A-250/8	- Aluminum Alloy, 5052, Plate and Sheet
QQ-A-250/11	- Aluminum Alloy, 6061, Plate and Sheet
TT-P-664	- Primer Coating, Synthetic, Rust-Inhibiting, Lacquer-Resisting
TT-P-1757	- Primer Coating, Zinc Chromate, Low Moisture Sensitivity
GGG-A-891	- Awls
GGG-F-325	- File, Hand (American Pattern) and Rasp, Hand
GGG-H-86	- Hammer, Hand (Forged Steel Head)
GGG-K-481	- Knives; Craftsman's, (Hawkbill, Shoe, Chipping) Putty and Scraping
GGG-N-71	- Nail Set
GGG-N-350	- Nippers and Pincers
GGG-P-471	- Pliers; Pliers, Slipjoint
GGG-S-121	- Screwdriver and Screw Starter, Hand
GGG-W-631	- Wrenches, Adjustable; Open-End, Auto, and Monkey
GGG-W-636	- Wrenches (Box, Open End, and Combination)
PPP-P-40	- Packaging and Packing of Hand Tools
PPP-T-60	- Tape; Packaging, Waterproof

MILITARY

MIL-P-116	- Preservation, Methods of
MIL-C-496	- Clips, End, Strap
MIL-W-530	- Webbing, Textile, Cotton, General Purpose, Natural or in Colors
MIL-B-543	- Buckles, Tongueless and Web Strap
MIL-F-2312	- Felt, Hair or Wool: Mildew Resistant, And Moisture Resistant Treatment for
MIL-C-5541	- Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-W-13518	- Wood Preservative: Tetrachlorophenol and Pentachlorophenol, Surface Sealing Compound
MIL-P-17802	- Padlocks, and Padlock Sets, Low Security, Key Operated, Regular (Open) Shackle

MIL-C-45150 - Chassis, Trailer, 2-Wheel, Cart Type 1/4 to 3-1/2 Ton
MIL-E-52798 - Enamel, Alkyd, Camouflage

STANDARDS

FEDERAL

FED-STD-66 - Steel: Chemical Composition and Hardenability
FED-STD-751 - Stitches, Seams, and Stitchings

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-461 - Electromagnetic Interference Characteristics Requirements for Equipment
MIL-STD-462 - Electromagnetic Interference Characteristics, Measurement of

DRAWINGS

U.S. ARMY RESEARCH AND DEVELOPMENT COMMAND

6-1-1118 - Shoe Repair Shop, Trailer - Mounted; Trailer, 2-Wheel 1-1/2 Ton, M-103; Assembly, Complete
6-1-1139 - Shoe Repair Shop, Trailer - Mounted: Trailer, 2-Wheel 1-1/2 Ton, M-103; Sole Stitcher Assembly and Details
6-1-1140 - Sole Stitcher and Sole Stitcher Drive Details Sheet No. 1

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

LAWS AND REGULATIONS

49 CFR - Motor Carrier Safety Regulations

(The Code of Federal Regulations (CFR) and Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal Agency responsible for issuance thereof.)

- * 2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

MIL-S-40615D

UNITED STATES DEPARTMENT OF COMMERCE

PS 1 - Softwood Plywood - Construction and Industrial

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

AMERICAN WELDING SOCIETY

Standard Qualification Procedure of the American Welding Society

(Application for copies should be addressed to the American Welding Society, 345 East 47th Street, New York, NY 10017.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Welding Qualifications of the American Society of Mechanical Engineers

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip

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

NATIONAL FIRE PROTECTION ASSOCIATION, INTERNATIONAL

NFPA No. 70

(Application for copies should be addressed to the National Fire Protection Association, 60 Batterymarch St., Boston, MA 02110.)

NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION

Standard Publication No. MG1 - Motor and Generator

(Application for copies should be addressed to the National Electrical Manufacturer's Association, 155 East 44th Street, New York, NY 10017.)

ASSOCIATION OF AMERICAN RAILROADS

Rules Governing the Loading of Commodities on Open-Top Cars

(Application for copies should be addressed to the American Railway Engineering Association, 59 East Van Buren, Chicago, IL 60605.)

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

3. REQUIREMENTS

- * 3.1 Alternate components. Components offered as equivalent to components specified hereinafter and on the reference drawings as a specific manufacturer's part number or equal shall be functionally equal, of equal or better quality with the manufacturer's part number identified. The incorporation and inclusion of such a component in the design of the specified end product shall not require modification or change to any other specified component, and shall not reduce ease of maintenance to it or any other components, unless such modification or change is specifically approved by the contracting officer. Prior to manufacture of the preproduction first article, or if none is required, prior to commencing production, the contractor shall submit for the contracting officer's approval a list identifying each proposed alternate component, together with proof that each listed component complies with requirement specified herein. The contracting officer, at his option, may require a physical sample of the proposed substitution. Approval of the submitted listing, together with necessary supporting data, authorizes the commencement of manufacture of first article or production manufacture as applicable, and does not relieve the contractor of responsibility that these components perform in accordance with specified requirements when incorporated into the end product.
- * 3.2 First article. Unless otherwise specified (see 6.2), the contractor shall furnish a sample unit for first article inspection and approval (see 4.3 and 6.3).
- 3.3 Materials and components. Materials and components shall be as specified herein and on the applicable drawings. Materials and components not definitely specified shall be of the quality normally used by the manufacturer provided the completed item complies with all provisions of this specification.
- 3.3.1 Aluminum alloy. Aluminum alloy bar, rod, shapes, plate, and sheet or strip in the alloy number and temper designation specified on drawings shall conform to the following applicable specifications: QQ-A-200/8; QQ-A-200/9; QQ-A-225/6; QQ-A-225/8; QQ-A-250/8 and QQ-A-250/11.

MIL-S-40615D

3.3.2 Steel.

3.3.2.1 Carbon steel. Carbon steel in the steel numbers specified on drawings shall conform to the applicable chemical composition of FED-STD-66.

* 3.3.2.2 Corrosion-resisting steel. Corrosion-resisting steel in the class specified on drawings and of the condition, temper, and finish suitable for the purpose intended shall conform to ASTM A 167.

3.3.3 Clips, end. The end clips shall conform to type I, class 1, size 1-inch of MIL-C-496.

3.3.4 Buckles, tongueless. The tongueless buckle shall conform to type I, style 2, class 1 of MIL-B-543.

3.3.5 Motor, electric. Motors shall conform to the requirements of National Electric Manufacturers Association Standard No. MG1.

3.3.6 Felt, wool; pressed. Pressed wool felt shall conform to class 18R1, type I of C-F-206. The felt shall be moisture and mildew resistant treated in accordance with type III of MIL-F-2312.

3.3.7 Webbing, cotton. The cotton webbing shall conform to type III, class 4, 1-inch (25 mm) wide of MIL-W-530 and shall match olive drab shade No. 7.

3.3.8 Thread, polyester. Thread, polyester shall conform to type I or II, class 1, size FF of V-T-285. The color shall match olive drab shade S-1 (cable No. 66022).

3.3.9 Adhesive for bonding felt to steel and aluminum surfaces. The adhesive shall be a neoprene base solvent cement that shall withstand the test specified in 4.4.2.2 without failure, when applied as directed by the adhesive manufacturers.

3.3.10 Plywood. The 3/4 inch (19 mm) plywood shall conform to group I, exterior-type, grade A-C, sanded two sides, of PS 1.

3.3.11 Primer paint. Zinc-yellow paint primer shall conform to TT-P-1757.

3.3.12 Sealer. Sealer for wood surfaces shall conform to type II of MIL-W-13518.

* 3.3.13 Enamel, camouflage. The enamel shall conform to MIL-E-52798. The color shall be lusterless forest green.

3.3.14 Padlock, 1-1/2 inch (38 mm). The 1-1/2 inch (38 mm) padlocks shall conform to grade 1, style A, class 2 of MIL-P-17802.

3.3.15 Extinguisher, fire (with bracket). The fire extinguisher shall conform to type I, 5 pound (2.3 kg), standard charge, nonshatterable cylinder, permanent shut off valve and squeeze grip control of O-E-910, and shall be furnished with a closed bottom wall mounting bracket of the quick release type.

3.3.16 Chair, folding. The folding chair shall be gray conforming to type I, style A, class 1, of AA-C-291.

* 3.3.17 Patcher sewing machine and accessories. The patcher sewing machine and accessories shall conform to class 5, 12-1/4 inch (311 mm) work space, for foot power operation of OO-S-256/3.

3.3.18 Sealing compound. Sealing compound for waterproofing joints for door lock flanges shall be Minnesota Mining and Manufacturing Co., type EC-1798 (polysulfide base). Sealing compound for water proofing all other joints and for separating dissimilar metals shall be Minnesota Mining and Manufacturing EG-1718 or 1724 (polybutane base) or equal.

3.4 Design and construction. Design and construction of the shoe repair shop shall be as specified herein and as shown on the drawings referenced in 2.1. The completely fabricated repair shop shall not reveal any evidence of structural, mechanical, or electrical failure at the conclusion of the performance and rain tests specified herein (see 4.5.1 and 4.5.3).

3.4.1 Absorbers, shock. Shock absorbers made of the felt specified in 3.3.6 shall be of the thickness, size and location specified on the drawings. The absorbers shall be bonded with adhesive specified in 3.3.9. Steel and aluminum surfaces to which the felt is to be bonded, shall be clean at the time of the bonding operation. The bonded felt shall show no separations in the glue lines when tested as specified in 4.4.2.2.

3.4.2 Sole stitcher. The sole stitcher identified as item No. 10 on Drawing 6-1-1118 shall be modified as specified and shown on Drawings 6-1-1139 and 6-1-1140 and shall have a handwheel. The wheel shall be located for left-hand operation of the machine. The stitcher shall be set so that the speed shall not exceed 350 revolutions per minute. The stitcher shall be furnished with a work light and lamp designed to illuminate the front working area of the stitcher. The stitcher shall be provided with a means of keeping two wound bobbins warm and ready for use. One set of commercial tools and wrenches shall be furnished with each stitcher to operate and adjust the machine.

MIL-S-40615D

- * 3.4.3 Stitching, machine. Machine stitching shall be done with thread specified in 3.3.8. The stitching shall be 5 to 7 stitches per inch (2 to 3 stitches per cm) conforming to type 301 of FED-STD-751.

3.4.4 Setting of end clips. Webbing shall be inserted full depth of the end clips and shall lie flat in the end clip at the point of entry in the end clip, without tearing, cutting, or fraying of the webbing.

- * 3.4.5 Electromagnetic compatibility. When specified (see 6.2), equipment shall be designed and equipped for electromagnetic compatibility in accordance with class IIB, of MIL-STD-461 (see 4.5.2).

3.4.6 Calking. All dissimilar metal connections, door lock flanges, and riveted joints shall be calked with the applicable compound specified in 3.3.18. Application shall be as recommended by the manufacturer. All excess compound shall be removed.

3.5 Finish.

3.5.1 Metal surface preparation.

3.5.1.1 Aluminum. All aluminum surfaces to be painted shall, prior to painting, be cleaned and prepared for painting in accordance with MIL-C-5541.

3.5.1.2 Steel fasteners. Unless otherwise specified on drawings, all steel fasteners such as screws, bolts, nuts, washers, and cotter pins shall be cadmium plated.

3.5.1.3 Metal other than aluminum. All metal parts, other than aluminum, to be painted, shall first be cleaned free of grease, oil, dirt, and other foreign matter.

3.5.2 Primer. After surface preparation, all metal surfaces specified in 3.5.1.1 and 3.5.1.3 shall be coated with primer specified in 3.3.11.

3.5.3 Enamel. After priming, all exterior and interior surfaces of the repair shop, (except equipment and parts of the chassis which are already painted) metal parts of utility tables, the exterior surfaces of tool and supply boxes shall be painted with two coats of the enamel specified in 3.3.13.

3.5.4 Plywood surfaces. The edges and top and bottom surfaces of the utility table tops shall be coated with sealer specified in 3.3.12.

3.6 Marking and registration.

- * 3.6.1 Marking for identification. For army procurements (see 6.2) the contractor shall stencil or paint on each cabinet black Gothic style lettering "U.S. ARMY", 2 inches (51 mm) high, approximately centered on the outside of the two sides and the rear wall and directly under same "SHOE REPAIR SHOP", 1 inch (25 mm) high.

3.6.2 Registration number. For army procurements (see 6.2), the contractor shall stencil or paint on each cabinet a U.S. Army registration number furnished by the contracting officer. The numerals shall be Gothic style, 2 inches (51 mm) high, and centered below the marking in 3.6.1.

3.7 Performance.

* 3.7.1 Road and terrain. The trailer mounted shoe repair shop shall show no damage to the cabinet or cabinet components when tested as specified in 4.5.1.

3.7.2 Rain. Each cabinet shall be rainproof when tested as specified in 4.5.3.

3.8 Operational. The shoe repair equipment of the completely assembled repair shop shall be operated as specified in 4.5.4 and there shall be no evidence of overheating or mechanical malfunction.

* 3.9 Contract data requirements. The contract data requirements shall be as specified (see 6.2 and 6.2.1).

3.10 Government furnished and loaned property.

3.10.1 Trailer, cargo, 1-1/2 ton (1.4 t), 2 wheel. The trailer chassis will be Government furnished property conforming to Model M103A (see 6.2).

* 3.10.2 Government loaned property. The Government will loan a generator set(s) for first article when required (see 6.2 and 6.4) and for end item testing (see 4.4.3.3).

3.11 Workmanship. The finished repair shop shall have its painted and varnished surfaces smooth, uniformly coated, free of runs, wrinkles, orange peel, grit, or areas of no film.

3.11.1 Metal fabrication. All rough and sharp edges shall be removed. Surface finish of machined parts shall not adversely affect proper alignment of mating parts. All like bends shall be of uniform radius and, unless otherwise shown on the drawings, bend radii shall be as small as practicable in relation to sheet metal thickness.

3.11.2 Riveting. Holes for rivets shall be accurately punched or drilled and any burrs that would prevent proper seating of rivets shall be removed. Rivets, when driven shall have the heads in full contact with the surface of the metal.

3.11.3 Welders and welding.

MIL-S-40615D

3.11.3.1 Welders. Before assigning any welder to work covered by this specification, the contractor shall provide the contracting officer, or his authorized representative, with names of welders to be employed in the work together with certification that each of these welders has passed qualification tests as prescribed by either of the following listed codes:

Standard Qualification Procedure of the American Welding Society.
Welding Qualification of the American Society of Mechanical Engineers.

3.11.3.2 Welding. The surfaces of parts to be welded shall be free from oxide, scale, paint, grease, and other foreign matter. Welds shall be continuous, sound, smooth, and free from porosity, cracks, incomplete fusion, and deformation of material. All scale and flux deposits (when flux is used) shall be removed from the finished welds and rough edges and projections shall be dressed smooth.

3.11.4 Wiring. All wiring shall be accomplished in accordance with the applicable provisions of the NFPA No. 70.

3.12 Tools and accessories. The contractor shall furnish and pack as specified in 5.1.1.3.7 with each shoe repair shop the following accessories and tools. When specified (see 6.2) the tools and accessories shall be Government furnished. Items, where applicable, shall be compatible with the machines furnished.

TABLE I. Accessories and tools

Item	Description	Quantity
<u>Accessories</u>		
1	Nail dish, shoe, revolving with 8 cups, 4 inch (102 mm) sides, wide base (commercial)	6
<u>Tools</u>		
2	Awl, saddlers sewing, 2-3/4 inch (102 mm) w/chuck wrench, type IV, class B of GGG-A-891	2
3	Brush, paint, sash, No. 2, 1 by 5/8 inch (25 by 16 mm) type I, class 2 of H-B-491	3
4	Hammer, Hand, shoemakers, rough face, 18 oz. (.51 kg), type VII, class 1 of GGG-H-86	6
5	Heel remover, shoe repair, hand, with flat screwdriver end or flat curved end (commercial)	6

TABLE I. Accessories and tools (cont'd)

Item	Description	Quantity
<u>Tools</u> (cont'd)		
6	Knife, craftsman, shoe, 5/8 inch (16 mm) wide, straight, square point, 3-1/2 inch (89 mm) length blade, type II, class 1 style 1 of GGG-K-481	6
7	Knife, craftsman, shoe, type II, class 3 of GGG-K-481	2
8	Knife, craftsman, shoe, type II, class 2 of GGG-K-481	6
9	Nail set, 4/32 inch (3 mm) point diameter, 4-inch (102 mm) long of GGG-N-71	6
10	Needle, saddlers sewing awl, curved, 3-inch (76 mm) length (commercial)	4
11	Nippers, end cutting, 6-inch (152 mm) length type I, class 2, style A of GGG-N-350	6
12	Nippers, end cutting, 12-inch (304 mm) length, type I, class 2, style A of GGG-N-350	1
13	Oiler, hand, push bottom, steel, 4-inch (102 mm), rigid spout, 1/2-pint (0.24 l) (commercial)	2
14	Pincers, carpenters, 8-inch (203 mm) length, type II, class 2 of GGG-N-350	6
15	Pliers, slip joint, straight nose, w/cutter, 8-inch (203 mm), length, type II, class 2, style A of GGG-P-471	1
16	Claw, tack, shoe, 6-inch (152 mm) w/claw one end and handle opposite end. For removing headless nails and tacks (formerly called puller) (commercial)	6
17	Rasp, shoe, half round, 9-inch (229 mm) length, one end rasp and other end file cut, type XXVI of GGG-F-325	2
18	Screwdriver, flat tip, straight side, 3-inch (76 mm) blade length, type I, class 1 of GGG-S-121	1
19	Screwdriver, flat tip, wood handle, 3-inch (76 mm) blade length, type I, class 5, design A of GGG-S-121	1

MIL-S-40615D

TABLE I. Accessories and tools (cont'd)

Item	Description	Quantity
<u>Tools</u> (cont'd)		
20	Stone, sharpening, knife, 9-inch (229 mm) length w/5-inch (127 mm) wood handle (commercial)	6
21	Wire, threading needle	2
22	Wrench, adjustable, crescent type single, open end, jaw opening 0 to 1.135 inches (29 mm), 10-inch (254 mm) length, type I, class 1 of GGG-W-631	1
23	Wrench, open end, fixed, double head type, 15°, 3/8 x 7/16 inch (10 by 11 mm), type IV of GGG-W-636	1
24	Wrench, open end, fixed, double head type, 15°, 1/2 x 9/16 inch (13 by 14 mm), type IV of GGG-W-636	1
25	Wrench, open end, fixed, double head type, 15°, 5/8 x 3/4 inch (16 by 19 mm), type IV of GGG-W-636	1
26	Wrench, socket, looper binder screw	1
27	Wrench, socket, needle and awl clamp	1
28	Wrench, special, socket, needle guide screw	1
29	Wrench, socket, presser foot	1
30	Awl, curved, stitching, machine, size No. 22-47 or 47, width .060	50
31	Awl, curved, stitching, machine, size No. 23-45 or 45, width .065	50
32	Awl, curved, stitching, machine, size No. 24-43 or 43, width .070	50
33	Bobbin, patcher, bed shuttle	10
34	Bobbin, stitcher	10
35	Needle, sewing machine, patcher, 29 x 4, size 2	50
36	Needle, sewing machine, patcher, 29 x 4, size 3	50

TABLE I. Accessories and tools (cont'd)

Item	Description	Quantity
<u>Tools</u> (cont'd)		
37	Needle, sewing machine, stitcher, size 22	50
38	Needle, sewing machine, stitcher, size 23	50
39	Needle, sewing machine, stitcher, size 24	50

4. QUALITY ASSURANCE PROVISIONS

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

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

1. First article inspection (see 4.3)
2. Quality conformance inspection (see 4.4)

- * 4.3 First article inspection. When a first article is required, it shall be a completely fabricated repair shop and shall be examined as specified in 4.4.3.1, 4.4.3.2 and tested as specified in 4.5.1.1, 4.5.2, 4.5.3, and 4.5.4. The operational test (4.5.4), shall be performed before and after the road test (4.5.1.1). The presence of any visual defect, dimensions not within specified requirements or failure to pass the tests shall be cause for rejection of the first article.

- * 4.4 Quality conformance inspection. Except as otherwise specified herein, sampling for inspection shall be performed in accordance with the provisions set forth in MIL-STD-105.

- * 4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced specifications, drawings, and standards, unless otherwise excluded, amended, modified or qualified in this specification.

MIL-S-40615D

* 4.4.2 In-process inspection.

4.4.2.1. In-process examination. Examination shall be made at appropriate stages of the manufacturing process to determine that the operations and processes in table II are accomplished as specified. Whenever nonconformance is noted, correction shall be made to affected items and processes.

TABLE II. In process examination

<u>Operation</u>	<u>Requirement paragraph</u>
Calking	3.4.6
Location of rivet holes and removal of burrs	3.11.2
Metal surface preparation:	
Aluminum	3.5.1.1
Metal other than aluminum	3.5.1.3
Application of primer	3.5.2
Application of enamel (2 coats)	3.5.3
Application of sealer to plywood	3.5.4
Setting of end clip	3.4.4

* 4.4.2.2 Adhesive test. Felt, specified in 3.3.6 shall be bonded to clean surfaces of one each of steel, wood, and aluminum components using adhesive specified in 3.3.9 applied as directed by the adhesive manufacturer. When tested 3 days after application, the adhesive bond shall be sufficiently strong to withstand attempts to peel the felt away by thumb, without separation in the glue line (see 3.4.1). Any nonconformance shall be cause for rejection of the adhesive.

* 4.4.3 End item inspection. The sample unit for this inspection shall be one completely fabricated shoe repair shop. The lot shall be all completely fabricated shoe repair shops offered for inspection at one time.

- * 4.4.3.1 Visual examination. Visual examination of the completely fabricated end item shall be made for completeness of assembly, presence and adequacy of components and marking, and quality of workmanship to assure that the end item is manufactured in accordance with specified requirements. The inspection level shall be II and the AQL shall be 6.5 expressed in defects per hundred units.
- * 4.4.3.2 Dimensional examination. The shoe repair shop trailer shall be examined for compliance with dimensions specified. Any dimension not within the specification tolerance shall be a defect. The inspection level shall be II and the AQL shall be 6.5 expressed in terms of defects per hundred units.
- * 4.4.3.3 End item testing. When a preproduction sample is not required, the initial production unit shall be tested in accordance with 4.5.2. Each end item, including the initial production unit shall be tested in accordance with 4.5.1.2 thru 4.5.1.2.2 and 4.4.4. The operational test (4.5.4) shall be performed before and after the road test (4.5.1.2). Any nonconformance shall be cause for rejection of the item. Representative samples of the end item drawn from each lot offered for inspection shall be tested in accordance with 4.5.3. The inspection level shall be II, and any nonconformance shall be cause for rejection of the lot.
- * 4.4.4 Packaging inspection. An examination shall be made of each end item to determine that all preservation-packaging, packing, and marking requirements of section 5 of this specification are complied with, in addition to the applicable requirements of MIL-P-116, MIL-C-45150, MIL-E-10062 and PPP-P-40.

4.5 Tests methods.

4.5.1 Performance. The following tests shall be performed to determine compliance with 3.4 and 3.7.1. Any evidence of damage to cabinet or cabinet components, mechanical or electrical failure shall constitute failure of this test.

- * 4.5.1.1 500 mile (805 km) road and terrain test. The end item test shall consist of the following:
 - (a) 125 miles (201 km) over gravel roads at speeds averaging 35 (56 km) miles per hour (m.p.h.)
 - (b) 125 miles (201 km) over hilly cross-country at speeds averaging 5 m.p.h. (8 km/h)
 - (c) 125 miles (201 km) over level cross-country at speeds averaging 5 m.p.h. (8 km/h)
 - (d) 125 miles (201 km) over paved roads at speeds up to 50 m.p.h. (81 km/h) as road and weather conditions permit.

Fifty percent of all cross-country driving shall be under muddy conditions. Paved road driving conditions includes incidental mileage between courses and travel to other test locations.

MIL-S-40615D

- * 4.5.1.2 15 mile (24 km) road and terrain test. The end item shall be towed fully loaded over not less than 5 miles (8 km) of paved roads at speeds up to 50 m.p.h. (81 km/h): over not less than 5 miles (8 km) of gravel roads at speeds up to 35 m.p.h. (56 km/h): and over not less than 5 miles (8 km) of open terrain and cross-country at speeds averaging 5 m.p.h. (8 km/h).
- 4.5.1.2.1 Paved and graveled roads. The paved and graveled road tests shall each include not less than 20 quick starts and stops on grades of not less than 5 percent or greater than 10 percent. Fifty percent of the starts and stops shall be made on ascending grades and fifty percent on descending grades.
- * 4.5.1.2.2 Open terrain and cross-country. The open terrain and cross-country course shall have surface irregularities, such as pot holes (averaging not less than 4 inches (101 mm) in depth), mounds, rocks, and brush, randomly spaced not more than 10 feet (37 m) apart. The test drive shall include 10 abrupt stops; 10 abrupt starts; 10 sharp left hand turns: and 10 sharp right hand turns.
- * 4.5.2 Electromagnetic compatibility. When electromagnetic compatability is required, the first article or initial unit of production, as applicable, shall be tested by the contractor in accordance with test methods CE03 and RE02 of MIL-STD-462. The Government reserves the right to witness tests performed by the contractor or an independent testing agency. The contractor shall furnish the contracting officer written certification that the Interference Control Plan, the EMI/EMC Test Plan, the Electromagnetic Test Report and the requirements meet MIL-STD-461.
- * 4.5.3 Rain test. Upon completion of the applicable road and terrain test, the end item shall be exposed to simulated rainfall at the rate of 3 inches (76 mm), plus or minus 1 inch (25.4 mm), per hour as measured at the surface of the equipment by a U.S. Weather Bureau type gage. The direction of rainfall shall vary from vertical to 45 degrees from vertical. The rainfall shall be dispersed uniformly over the test area within rainfall limits specified above. Each of the four sides shall be exposed to the rainfall for not less than 15 minutes, for a total duration of not less than 1 hour. Each side exposure shall include exposure of the top. Examination shall be made to determine compliance with 3.7.2. Any evidence of liquid precipitation within the cabinet shall constitute failure of this test.

- * 4.5.4 Operation test. The shoe repair shop shall be setup for operation as follows to determine compliance with 3.8.

- (a) All of the side doors shall be opened and the two back doors shall be removed.
- (b) The main power cable shall be plugged into main breaker box and connected to the government loaned generator set located on the ground near the trailer.
- (c) The trailer shall be grounded.
- (d) The patcher shall be setup on the ground near the trailer and the patcher work light connected to the electrical outlet near the main breaker box.
- (e) The workbenches shall be lowered and all of the work lights shall be plugged into their proper electrical outlets.
- (f) The leveling jacks shall be lowered and the trailer bed leveled.
- (g) The stitcher foot controls shall be properly connected to operate the stitcher.
- (h) The finisher shall be placed in an operating position.
- (i) Place all electrical switches in their OFF position.

Before starting the operation test, the finisher and stitcher shall be properly lubricated. The shoe repair shop shall be operationally tested in an ambient temperature of not less than 60 F (16 C) as follows:

- (a) The government loaned generator shall be started and adjusted for 208 volts, 60 Hz, three phase, electrical output.
- (b) After the generator has warmed up, the main breaker shall be placed in the ON position.
- (c) All work lights, including patcher light, shall be turned on.
- (d) The finisher and stitcher motor shall be started and allowed to run continuously for at least one hour.
- (e) With wax in the stitcher wax pot, turn the stitcher temperature control to the proper heat position for 30 minutes before operating the stitcher.
- (f) All bearings on the finisher shaft and the blower drive shaft shall be checked periodically during test run for overheating or mechanical malfunction.
- (g) Before operating stitcher with power, turn the handwheel slowly. The stitcher should turn smoothly without binding in the camshaft bearings or the cam races. As the wheel turns, check the position of the awl and needle and check to see that the relative positions of the needle, looper, lifter, and presserfoot are correct.
- (h) After the machine is set up and heated as described above, the following procedure shall be followed:

MIL-S-40615D

- (1) Hold the two pieces of thread (regular and bobbin) and depress the treadle enough to unlock the machine.
 - (2) Turn the handwheel approximately 1/16 of a turn, remove foot from the treadle and continue turning handwheel until the machine comes to a stop position.
 - (3) Repeat the above three times.
 - (4) After completion of turning the machine by hand, hold the two pieces of thread (see 1 above) and depress the treadle for 30 seconds. Remove foot quickly. The machine shall return to the stop position automatically with the awl lowered and the needle and presserfoot raised. This shall be repeated ten times.
- (i) After run-in test, check the stitcher again. Adjust the machine for stitching. Stitch at least two pairs of shoes to determine that the stitcher is operating properly.
 - (j) Sanding operation on finisher shall be performed on two pair of shoes to determine that the finisher is operating properly.

Any evidence of overheating or mechanical or electrical malfunction or improper operation of any unit shall constitute failure of this test.

5. PACKAGING

5.1 Preservation-packaging. Preservation-packaging shall be level A or C as specified, (see 6.2).

* 5.1.1 Level A.

5.1.1.1 Trailer chassis. The trailer chassis of each shoe repair shop shall be preserved and packaged in accordance with the level A requirements of MIL-C-45150.

5.1.1.3 Remaining components. The remaining components of the shoe repair shop shall be preserved and packaged in accordance with the method and material requirements of MIL-P-116, as hereinafter specified.

5.1.1.3.1 Cleaning and drying. All exposed uncoated ferrous metal surfaces of each shoe repair shop shall be cleaned process C-1 and thoroughly dried.

5.1.1.3.2 Application of preservative. Surfaces cleaned as specified shall be coated with a preservative. Preservative for noncontacting surfaces (surfaces that do not contact other surfaces in operation) shall be type P-2. Preservative for contacting surfaces (surfaces that contact other surfaces in operation) shall be type P-6.

5.1.1.3.3 Sealing of openings. Openings into electric motors, switches, switch boxes, receptacles, and terminals shall be sealed with tape conforming to class 1, color optional, of PPP-T-60.

5.1.1.3.4 Belts and pulleys. All removable belts shall be removed from the pulleys and secured to the appropriate machinery. Uncoated ferrous metal surfaces of pulleys shall be coated with a primer conforming to TT-P-664.

5.1.1.3.5 Securing. Components of the shoe repair shop, such as the patcher sewing machine head, folding chair, folding table, workbench, foot pedal, cabinet drawers, lamps, shoe jacks, and chassis leveling jacks shall be secured by means provided. The shoe lasts shall be placed in the cabinet drawers and secured in a manner to prevent movement while in transit. Parts of machinery that are free to move shall be securely fastened in a fixed position to prevent movement or vibration while in transit. The stitcher control rods shall be removed from the stitcher and secured by means provided.

5.1.1.3.6 Trailer body. The doors of the trailer body shall be secured in the closed position and padlocks locked in place. Padlock keys shall be securely wire-tied to the lock or lock staple with minimum 0.057 inch (1.45 mm) annealed wire.

5.1.1.3.7 Tools and accessories. Unless otherwise specified in the applicable item specification, tools and accessories shall be preserved and packaged in accordance with PPP-P-40 except that items not covered therein shall be individually packaged in sealed clear polyethylene film bags and shall be protected in accordance with method III of MIL-P-116. The quantities per package shall be as listed in 3.12. The packaged tools and accessories shall be placed in the appropriate drawers in the trailer.

5.1.2 Level C.

* 5.1.2.1 Preservation. The trailer chassis, finishing sole stitching, patcher sewing, skiving and beveling machines shall be preserved to afford adequate protection against corrosion and deterioration during shipment from the supply source to the first receiving activity. The contractor may use his standard practice when it meets this requirement.

5.1.2.2 Packaging.

5.1.2.2.1 Securing (commercial). Components of the shoe repair shop, such as the patcher sewing machine head, folding chair, folding table, workbench, foot pedal, cabinet drawers, lamps, shoe jacks, and chassis leveling jacks shall be secured by means provided. The canvas cover shall be installed in position over the generator sets. The shoe lasts shall be placed in the cabinet drawers and secured in a manner to prevent movement or vibration while in transit. Parts of machinery that are free to move shall be securely fastened in a fixed position to prevent movement or vibration while in transit. The stitcher control rods shall be removed from the stitcher and secured by means provided.

MIL-S-40615D

5.1.2.2.2 Trailer body (commercial). The doors of the trailer body shall be secured in the closed position and padlocks locked in place. Padlock keys shall be securely wire-tied to the lock or lock staple with minimum 0.057 inch (1.45 mm) annealed wire.

5.2 Packing. Packing shall be level A.

5.2.1 Level A.

5.2.1.1 Railway shipment. Loading of vehicles on open top cars shall be in accordance with the Association of American Railroads rules governing the loading of commodities on open top cars, section 6. Tire pressure shall be increased ten pounds (69 kPa) over the required running pressure. Parking brake shall be set and locked and the levers wired or blocked in position.

5.2.1.2 Highway haulaway shipment. The shoe repair shop shall be placed on bed or rails of haulaway vehicles so that the load is evenly distributed and secured. Loading of units for haulaway shall be in accordance with the Department of Transportation Motor Carrier Safety Regulations. Tire pressure shall be increased ten pounds (69 kPa) over the required running pressure. Parking brake shall be set and locked and the levers wired or blocked in position.

5.2.1.3 Highway towaway shipment. Towaway rules for shipment by drive-away shall be in accordance with the Department of Transportation Motor Carriers Safety Regulations. No processing of the chassis running gear shall be performed prior to highway shipment that would impair necessary operation or safety while in transit. Processing of the chassis running gear, not accomplished prior to highway shipment, shall be performed at intermediate destination when vehicles are to be placed in storage or shipped overseas. Tire pressure shall be the required running pressure.

5.3 Marking. In addition to any special marking, the shoe repair shop, tools and accessories (see 5.1.1.3.7) shall be marked in accordance with MIL-STD-129. Special requirements applicable to unpacked vehicles shall apply.

* 5.3.1 Additional marking. Shoe repair shops, preserved and packaged level A, shall be provided with a tag including a warning to the effect that all tape must be removed from motors prior to operation.

5.3.2 Humping precautions. A large sign containing the words "DO NOT HUMP" shall be secured in a conspicuous place on each side of railroad cars used to ship shoe repair shops.

6. NOTES

6.1 Intended use. The trailer mounted shoe repair shop is intended for repairing shoes for troops in the field.

* 6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) First article (see 3.2, 4.3 and 6.3).
- (c) When electromagnetic compatibility is required (see 3.4.5).
- (d) Marking and registration when procurement is for army (see 3.6.1 and 3.6.2).
- (e) Contract data requirements (see 3.9 and 6.2.1).
- (f) Source and delivery of Government and loaned property, as applicable (see 3.10 and 3.12).
- (g) Selection of applicable levels of preservation-packaging (see 5.1).

6.2.1 Contract data requirements. Any data items to be delivered under any contract covered by this specification shall be specifically called for in the contract in accordance with applicable regulation of the procurement agency (see 3.9 and 6.2).

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of ASPR 7-104.55. The first article should be a preproduction sample, initial production item or other specific item described under the definition of a first article in the ASPR. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in all procurement instruments regarding arrangements for inspection and approval of the first article.

* 6.4 Government loaned property. The contracting officer should arrange to loan the generator set(s), 3 kilowatt (NSN 6115-00-017-7237) listed in 3.10.2.

* 6.5 Government furnished property. The contracting officer should arrange to furnish the property listed in 3.10.1 and when applicable 3.1.2.

6.6 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from previous issue were made. This has been 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 as written irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - GL
Air Force - 99

Preparing activity:

Army - GL

Review activity:

Project No. 3520-0029

DLA - GS

☆ U. S. GOVERNMENT PRINTING OFFICE: 1977-703-020/3675

FOLD

DEPARTMENT OF THE ARMY
US ARMY NATICK RESEARCH and DEVELOPMENT COMMAND
NATICK, MASSACHUSETTS 01760
OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
DRXNM-TDG

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD - 314



Commander
US Army Natick Research and Development Command
ATTN: DRXNM-TDG
Natick, MA 01760

NATICK OP 1 Apr 76
FOLD

