

**MILITARY
SPECIFICATION**

MIL-M-12575A(SigC)
10 November 1958
Superseding
MIL-M-12575(SigC)
26 March 1953

MOUNTINGS FOR STANDARDIZED SERIES EQUIPMENTS

1. SCOPE

1.1 This specification covers six types of mountings used to mount standardized radio equipment on vehicles. The mountings provide a support for the radio equipment and provide electrical facilities for connecting the radio to vehicular power sources of 12 or 24 volts.

1.2 The mountings are designated as follows: (See 6.3)

<u>Nomenclature</u>	<u>Description</u>
Mounting MT-297()/GR	9 Rail Mounting
Mounting MT-298()/GR	10 Rail Mounting
Mounting MT-299()/GR	5 Rail Mounting
Mounting MT-300()/GR	2 Rail Mounting
Mounting MT-327()/GR	7 Rail Mounting
Mounting MT-673()/JR	2 Rail Mounting

1.3 Only those mountings specified in the bid request and contract shall be furnished by the contractor.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids, form a part of this specification.

SPECIFICATIONS

FEDERAL

QQ-S-571

Solder: Lead alloy, Tin lead alloy, and Tin alloy; Flux cored ribbon and wire and solid form.

DDD-B-20

Bags, mailing, (cotton)

PPP-B-621

Boxes, wood, nailed and lock-corner

PPP-B-636

Boxes, fiber

PPP-T-76

Tape; pressure-resistant adhesive, paper, water-resistant

MILITARY

MIL-P-116

Preservation, Methods of Treatment, moisture- and fungus-resistant, of communications, electronic, and associated electrical equipment.

MIL-T-152

MIL-M-12575A(SigC)**MIL-V-173**

Varnish, moisture and fungus-resistant, for the treatment of communications, electronic, and associated electrical equipment.

MIL-S-901

Shockproof equipment, class HII(High Impact), Shipboard application, test for.

MIL-M-13231

Marking of electronic items.

MIL-F-14072

Finishes for Ground Signal Equipment.

STANDARDS**MILITARY****MIL-STD-105**

Sampling procedures and tables for inspection by attributes.

MIL-STD-129

Marking for shipment and storage

MIL-STD-169

Extreme-temperature cycle

MIL-STD-170

Moisture resistance test cycle for Ground Signal Equipment.

MIL-STD-252

Wired equipment, classification of visual and mechanical defects.

DRAWINGS**SIGNAL CORPS****SC-DL-40627**

Mounting MT-673()/UR

SC-DL-40691

Mounting MT-297()/GR

SC-DL-40692

Mounting MT-298()/GR

SC-DL-40693

Mounting MT-299()/GR

SC-DL-40694

Mounting MT-300()/GR

SC-DL-68854

Mounting MT-327()/GR

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer. Both the title and number or symbol should be stipulated when requesting copies.)

2.2 Other publications.- The following documents form a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

UNIFORM FREIGHT CLASSIFICATION NO.4

Uniform Freight Classification
202 Union Station
Chicago 6, Illinois

CONSOLIDATED FREIGHT CLASSIFICATION RULES NO.21

Consolidated Classification Committee
1 Park Avenue and 33rd Street
New York 16, New York

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NATIONAL MOTOR FREIGHT CLASSIFICATION NO.A-3 and No.14

American Trucking Association, Inc.
 1424 Sixteenth Street
 Washington 6, D.C.

3. REQUIREMENTS

3.1 Construction. - The equipment shall be constructed in accordance with the drawings listed in Section 2. However, if specified performance characteristics cannot be obtained by strict conformance with the drawings, the specified performance characteristics shall govern.

3.2 Soldering. -

3.2.1 Solder. - Solder used for electrical connections shall be composition Sn60 conforming to Specification QQ-S-571.

3.2.2 Flux and cleaning agents. - No acid or acid salts shall be used in preparation for or during soldering; however, exception is permitted for preliminary tinning of electrical connections and for tinning or soldering of mechanical joints not used to complete electrical circuits, but in no case shall acid or acid salts be used where they can come in contact with insulation material. Where acid or acid salts are used, as permitted above, they shall be completely neutralized and removed immediately after use. Flux for soldering of electrical connections shall be rosin, rosin and alcohol, or rosin and turpentine.

3.2.3 Process. - There shall be no sharp points or rough surfaces resulting from insufficient heating. The solder shall feather out to a thin edge, indicating proper flowing and wetting action, and shall not be crystallized, overheated, or underheated. The minimum necessary amount of flux and solder shall be used for electrical connections. Any means employed to remove an unavoidable excess of flux shall not incur the risk of loose particles of flux, brush bristles, or other foreign material remaining in the equipment; flux being spread over a larger area or damage to the equipment. Insulation material that has been subjected to heating during the soldering operation shall be undamaged and parts fastened thereto shall not have become loosened.

3.3 Cleaning. - Metal parts, after fabrication, shall be cleaned in accordance with good commercial practice, or as specified in an applicable document. Cleaning processes shall have no deleterious effect on the equipment. Corrosive material shall be removed completely before parts are assembled into the equipment. After assembly, components shall be cleaned thoroughly and shall be free from particles of solder, flux, and other foreign material. If necessary, such cleaning shall also be performed before final assembly of components.

3.4 Connections. - Before being soldered to terminal lugs or fixed terminals, wires shall be mechanically secured so that the connections are not dependent for strength on solder alone. Bared ends of wire leads to be terminated in solder-type terminal lugs shall be tinned, silver-plated, or lead-alloy coated. Electrical connections shall not be made by clamping between a metallic and a nonmetallic material. Fraying of textile ends of wires shall be prevented mechanically or by application of varnish conforming to Specification MIL-V-173. Except during overall tropicalization of the equipment, no varnish, lacquer, inspection paint, or other coating shall be applied to completed electrical connections.

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3.5 Tropicalization.-

3.5.1 Treatment of assembled equipment.- Assembled equipment shall be treated in accordance with Specification MIL-T-152 unless both of the following conditions are met:

(a) Each component part and subassembly meets one of the following:

(1) It is furnished under an individual, detailed Government document (specification, standard, drawing, etc) which is applicable on contract.

(2) It does not incorporate any material listed in 3.5.3 unless the material has been given the treatment specified herein or a treatment approved by the contracting officer.

(3) It does not comply with (1) or (2) above but its use has been approved by the contracting officer for the particular application.

(b) The finish of the interior of the equipment meets the requirements of Specification MIL-F-14072.

3.5.2 Treatment of materials.-

3.5.2.1 Treating materials.- Treating materials containing a mercury-bearing fungicide shall not be used. The contractor shall determine that the treating material is compatible with the material or surface to be treated. Selection of treating materials shall be such that any increase in flammability of treated material is held to the practical minimum.

3.5.2.2 Toxicity.- Treatment of materials shall cause no skin irritation or other injury to personnel handling the treated material either during fabrication of the equipment or when carrying, operating, or maintaining the equipment, or in use of the finished items when used for the purpose intended.

3.5.2.3 Flexibility.- Treatment shall not affect flexibility of treated materials, to the extent that the equipment may fail to meet specified requirements when subjected to specified service conditions.

3.5.2.4 Statement of treatment.- The contractor shall submit, to the contracting officer for approval, a statement describing in detail the materials to be treated and the treating materials and processes that he proposes to use. When assembled equipment is treated in accordance with Specification MIL-T-152, the above statement shall be incorporated in the statement of treatment required by that specification.

3.5.3 Materials not resistant to moisture and fungi.- The following materials are considered not resistant to moisture and fungi:

- (a) Cellulose, regenerated.
- (b) Cotton.
- (c) Cork.
- (d) Felt, hair or wool.
- (e) Jute.
- (f) Leather.
- (g) Linen.
- (h) Paper, paperboard, cardboard, organic fiberboard, vulcanized fiber, etc.
- (i) Thermosetting plastic materials using cotton, linen, or wood-flour as a filler or base.

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3.6 Finish, protective.- Units shall be given protective finish in accordance with Specification MIL-F-14072. This includes finish of hardware, such as handles, hinges, screws, etc, and necessary touch up after mounting. The final paint film on type I surfaces shall be green color (olive drab), semigloss enamel matching a color chip provided by the procuring agency. (See 6.9.)

3.7 Marking.-

3.7.1 General.- Marking shall conform to Specification MIL-M-13231.

3.7.2 Visibility.- Wherever practicable, parts and assemblies shall be so mounted that their identification markings will be readily visible with minimum disassembly of the equipment.

3.7.3 Serial numbers.- Serial numbers under Specification MIL-M-13231 are not required.

3.8 Air-seal test, provision for.- The equipment enclosures (except for Mounting MT-673()/UR) shall provide means for enabling performance of the air seal test.

3.9 Electrical requirements.-

3.9.1 Dielectric test.- The equipment shall withstand voltages of 400 volts, or two times the maximum peak voltage, whichever is greater without breakdown of insulation or dielectric.

3.9.2 Continuity.- The mountings shall be wired in accordance with the applicable drawings.

3.9.3 Remote power control.- The relay in the main power circuit shall close and the indicator lamp shall glow.

3.10 Service conditions.- The equipment shall meet the following service conditions:

3.10.1 Non-operational conditions.- The equipment shall meet the requirements of 3.10.2 after subjection to any of the following non-operating conditions successively, or in combinations encountered during world wide short-term storage and transit.

(a) Temperature.- Continuous exposure for 72 hours at 160°F and 72 hours at -60°F at any orientation.

(b) Relative humidity.- Relative humidity up to 97 percent, for an indefinite period of time; and exposure at 100 percent relative humidity, with condensation, for 4 hours.

(c) Immersion.- Three feet of water for two hours.

(d) Vibration, bounce and shock.- See 3.11.

3.10.2 Operational conditions.- The equipment shall meet the requirements of this specification while subjected to any of the following conditions successively or in combinations likely to be encountered during world wide operations.

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(a) Temperature.- Ambient temperature in the range of +150°F to -40°F. (The 150°F temperature includes the effect of sun load.)

(b) Relative humidity.- Relative humidity up to 97 percent; and exposure at 100 percent relative humidity, with condensation for 4 hours.

3.11 Vibration, bounce and shock.-

3.11.1 Vibration with shock mounts blocked.- Except for internal resonance of specified parts and subassemblies, the equipment shall have no mechanical resonances below 55 cycles per second when shock mounts, if any, are blocked or removed.

3.11.2 Vibration of shock mount system.- The shock mount system, when loaded with equipment, shall have its vertical natural frequency between the range of 25 to 35 cps. No other natural frequencies shall be below 25 cps.

Table I. - Bounce and shock

<u>Requirement</u>	<u>Inspection Paragraph</u>	<u>Performance after inspection</u>
Bounce	4.8.2	Full specification performance. No physical damage except surface abrasion.
Shock, ballistic	4.8.3	The equipment shall be operable. Minor mechanical damage is permitted.

3.12 Interchangeability.- Corresponding units and replaceable assemblies, sub-assemblies, and parts on contract shall be physically and functionally interchangeable as complete items without modification thereof or of other articles with which the items are used. (See 4.9). When dimensions, ratings, characteristics, etc, are not specified, the manufacturer's design limits shall be used to determine compliance with the foregoing. If the contractor is in doubt as to whether a particular assembly, subassembly, or part is to be considered replaceable, the contracting officer shall be consulted.

3.13 Preconditioning.- The equipment shall be capable of meeting the inspection of Section 4, without subsequent processing, after subjection to the bounce preconditioning of 4.4 (Also see 4.3(A).)

3.14 Preproduction samples.- The contractor shall furnish preproduction samples for approval as required by the invitation for bids and contract (See 6.2(e)(1).)

3.15 Technical literature, tools, and running spare parts.- Technical literature, tools, and running spare parts shall be furnished as specified in the contract. Running spare parts shall be identical to corresponding parts in the items furnished on the order (See 6.2.)

3.16 Workmanship.- The items shall be manufactured and assembled in accordance with the applicable portions of the following paragraphs herein:

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- 3.1 Construction
- 3.2 Soldering
- 3.3 Cleaning
- 3.4 Connections

- 3.5 Tropicalization
- 3.6 Finish
- 3.7 Marking

4. QUALITY ASSURANCE PROVISIONS

4.1 Inspection; Responsibility and Classification.-

4.1.1 Contractor responsibility.- Unless otherwise specified herein the supplier is responsible for the performance of all inspection requirements prior to submission for Government inspection and acceptance. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order.

4.1.2 Classification of inspection.- Inspection shall be classified as follows:

(a) Preproduction inspection (does not include preparation for delivery). (See 4.2.)

(b) Procurement inspection. (Procurement inspection shall be the inspection performed by the contractor and by the Government, as specified by 4.3 and 4.10.)

(1) Procurement inspection of items before preparation for delivery. (See 4.3.)

(2) Procurement inspection of preparation for delivery. (See 4.10 and section 5.)

4.2 Preproduction inspection.- This inspection will be performed by the Government unless otherwise specified in the contract. It shall consist of the preproduction inspection specified in table II and the group A, group B, and group C inspection specified in tables III, IV, and V, respectively. Other nondestructive tests on preproduction samples may be performed to determine compliance with specified requirements. The preproduction inspection will normally be performed in this order: (1) vibration, (2) bounce, (3) shock, ballistic and (4) immersion; other preproduction inspection may precede, follow, or be interspersed between the foregoing.

Table II - Preproduction inspection

Inspection	Requirement Paragraph	Test Paragraph
Bounce test	3.10.1(d)	4.8.2
Shock, ballistic	3.10.1(d)	4.8.3
Moisture-resistance	3.10.1(b)	4.8.4
Vibration	3.11.1, 3.11.2	4.8.1

4.3 Procurement inspection before preparation for delivery.- The contractor shall perform the inspection specified by (a) through (d) below, to demonstrate compliance with specified requirements. However, this does not relieve the contractor of responsibility for performing any additional inspection which is necessary to control the quality of the product and to assure compliance with all specification requirements.

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The Government will review and evaluate the contractor's inspection procedures and examine the contractor's inspection records. In addition, the Government--at its discretion--may perform all or any part of the inspection specified in (a), to verify the contractor's compliance with specified requirements. (The amount of such verification inspection will depend on the extent to which the contractor's inspection procedures and records insure that the equipment on contract meets the specified procurement inspection. (Also see 6.8).

(a) Procurement inspection shall consist of group A, group B, and group C inspection as specified in 4.3.1 through 4.3.3.2.

(b) When Standard MIL-STD-105 specifies actions by the Government, the Government may authorize the contractor to perform any of such actions except that responsibility for acceptance rests with the Government.

(c) Group B inspection shall normally be performed on inspection lots that have passed group A inspection and on samples selected from units that have been subjected to and met the group A inspection. In addition, group C inspection shall normally be performed on sample units that have been subjected to and met group B inspection. However, the order may be varied when it is considered more practical to select separate samples for group B or group C inspection, or both.

(d) Each unit which will be subjected to group A, group B, or group C inspection shall be preconditioned after final assembly. (See 3.14.)

4.3.1 Group A inspection.- This inspection (including sampling) shall conform to table III and Standard MIL-STD-105. Unless otherwise specified, normal inspection shall be performed in any order except that the air seal test (4.5) shall be next to last and the continuity test (4.7.2) shall be last. (See 6.4.)

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Table III . - Group A inspection

Inspection	Rqt. Par.	Insp. Par.	AQL	
			Major	Minor
<u>MT-297,298</u>				
Mechanical and visual of rack assembly	3.16	4.6	1.5 dphu	6.5 dphu
Mechanical and visual of horseshoe assembly	3.16	4.6		
Mechanical and visual of assembled rack and horseshoe assemblies	3.16	4.6		
Horseshoe assembly electrical tests.				
Dielectric	3.9.1	4.7.1		
Continuity	3.9.2	4.7.2	1%	
Remote power control	3.9.3	4.7.3		
<u>MT-299,300,327</u>				
Mechanical and visual of rack assembly	3.16	4.6	10 dphu	
Mechanical and visual of junction box assembly	3.16	4.6		4.0
Mechanical and visual of assembled rack and junction box assemblies	3.16	4.6		
Junction box electrical tests				
Dielectric	3.9.1	4.7.1	1%	
Continuity	3.9.2	4.7.2		
<u>MT-673</u>				
Mechanical and visual	3.16	4.6	1%	4.0
Air seal (all mounts except MT-673)	3.8	4.5	1%	
Interchangeability (all mounts)	3.12	4.9	1%	

4.3.2 Group B inspection.- This inspection (including sampling) shall conform to table IV and "Sampling for Expensive Testing by Attributes" in Standard MIL-STD-105. Unless otherwise specified herein, normal inspection shall be used at the start of the contract. The reduced inspection procedure shall be R-1. Disposition of nonconforming product (sample units and inspection lots) shall be in accordance with 4.3.5 and the requirements of Standard MIL-STD-105 for disposition of rejected product.

4.3.2.1 Group B sampling plans.- The group B sampling plan, for the AQL listed in table IV, shall be as follows:

AQL	Inspection level for normal and tightened inspection	Inspection level for reduced inspection
6.5%	L-7	L-5

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Table IV Group B inspection

Inspection	Requirement Paragraph	Inspection Paragraph
Immersion	3.10.1 (c)	4.8.6

4.3.3 Group C inspection.- This inspection shall be listed in table V.

4.3.3.1 Sampling for inspection of equipment.- Two mounts for each group C inspection shall be selected each month, without regard to their quality, except that the units inspected at the start of the contract shall be selected from the first units produced.

4.3.3.2 Noncompliance.- If a sample unit fails group C inspection, the contractor shall immediately investigate the cause of failure and shall report to the Government inspector the results thereof and details of the corrective action taken on the process and all units of product which were manufactured with the same conditions, materials, processes, etc. If the Government inspector does not consider that the corrective action will enable the product to meet specified requirements, or if the contractor cannot determine the cause of failure, the matter shall be referred to the contracting officer. (See 6.5.)

Table V - Group C inspection

Inspection	Rqt. Par.	Insp. Par.
Temperature	3.10.1(a) 3.10.2(a)	4.8.4

4.3.4 Reinspection of conforming group B and group C sample units.- Unless otherwise specified, sample units which have been subjected to and passed group B or group C inspection, or both, may be accepted on contract, provided that they are resubjected to and pass group A inspection after repair of all visible damage.

4.3.5 Disposition of nonconforming product.- The following shall be suitably tagged or identified by equivalent means to indicate the cause of failure and means employed to correct the fault:

Sample units found defective during group A, B, or C inspection.

Inspection lots which failed during group A or B inspection.

Product which has been reworked as a result of failure during group C inspection.

The required information shall be presented to the Government when the product is submitted and shall become the property of the Government.

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4.4 Bounce preconditioning.- The unit, with shock mounts (if any) removed or blocked, shall be placed in its normal operation position on the table of the Package Tester as made by the L.A.B. Corporation, Skaneateles, New York, or equal. The package tester, shafts in phase, shall have a speed such that it is just possible to insert a 1/32-inch-thick strip of material under one corner or edge of the unit to a distance of 3 inches as the unit bounces. The unit shall be subjected to this preconditioning for 1 minute. After bounce preconditioning, the unit shall not be repaired, aligned, cleaned, or otherwise changed prior to subsection to procurement inspection.

4.5 Air-seal test.- The equipment shall be opened and closed again in such manner as to break and remake the seal. Immediately thereafter, the equipment as field transported shall be subjected to a vacuum of 1 pound per square inch (1 pound per square inch less than the atmospheric pressure surrounding the equipment) applied to the interior of the transit case or to the interior of the equipment inclosure when no transit case is provided. The vacuum then shall be valved-off and the interior pressure measured during the ensuing period of 1 minute. During this 1-minute period the decrease in vacuum shall not exceed .01 pound. The gage used for measurement of the vacuum shall be of such accuracy that a difference of .01 pound can be determined readily. This test shall not apply to MT-673.

4.6 Visual and mechanical inspection.- The equipment shall be examined for the defects listed in Standard MIL-STD-252 and for compliance with 3.16.

4.7 Electrical tests.-

4.7.1 Dielectric test.- The dielectric strength of all circuits on each equipment, except MT-673()/UR, shall be tested with 400 volts or two times the maximum peak operating voltage, whichever is greater. The test voltage shall be d-c or peak a-c of the value, and shall be applied for 10 seconds between wiring and adjacent non-conductors and ground.

4.7.2 Continuity.- A check for proper circuit continuity shall be made on each mounting except MT-673()/UR. The test shall be made with the power switch in each position.

4.7.3 Remote power control; Mounting MT-297()/GR and MT-298()/GRT.- A dummy test plug, with remote control pin short-circuited to ground, shall be used to test the remote power control facilities of the mounting. The switch on the mounting shall be in the "Remote" position. A 12 volt d.c. source shall be connected to the input power terminals.

4.8 Service condition tests.- The vibration, bounce and shock tests shall be conducted with the mountings loaded. Loading shall consist of 32 pound, two-rail units, 7 1/4 inches wide, 9 inches high, 13 inches deep and 38 pound three-rail units of similar height and depth. As many of these loading units shall be placed on a mounting, as mounting space permits. Mountings MT-297()/GR and MT-298()/GR shall be loaded, in addition to the above, with an 8 1/2 pound loading representative of Control C-435()/GRC installed in the front compartment of the mounting.

4.8.1 Vibration.-

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4.8.1.1 Vibration test.- The equipment shall be tested for resonant frequencies below 55 cycles per second, to determine compliance with 3.11.1 as follows:

(a) The equipment shall be fastened in its normal mounting position on a vibration table that can be controlled within 10 percent of the specified amplitude. Equipment shock mounts, if any, shall be blocked. The vibration table shall provide approximately sinusoidal vibration. (See 4.8.1.1(d))

(b) The equipment shall be vibrated successively in three mutually perpendicular directions that are parallel respectively to the edges of the equipment, over a frequency range of 10 to 55 cycles per second, in 1-cycle-per-second steps. The total excursion shall be constant at $1/64$ inch.

(c) Mechanical resonance, if any, of the complete structure, of sub-assemblies, and of component parts shall be determined visually by means of a Strobotac, as made by the General Radio Corporation, Cambridge, Massachusetts, or equal, or by energizing the equipment and detecting mechanical vibration through electrical output indications.

(d) If it is not practical to determine completely any mechanical resonances on the assembled equipment unit because the unit weighs more than 250 pounds or because of its compactness or the inaccessibility of its subassemblies or component parts, the unit shall be broken down into logical subassemblies for the above vibration test. Such subassemblies shall be secured to the vibration table in the same manner as they are secured in the equipment unit.

4.8.1.2 Vibration, shock mounts.- The loaded mounts, with shock mounts unblocked, shall be vibrated in a direction vertical to its normal position over the range of 10 to 50 cps. with a double amplitude (total excursion) of 0.030. The change in the forcing frequency shall be in discrete frequency intervals of 1cps. and maintained at each frequency for 10 seconds. The various natural frequencies of the mount system shall be determined by observing the maximum increases in deflection between the top and bottom of the shock isolators.

4.8.2 Bounce test.- The equipment, on its shock mounts (if any), shall be secured to the Vehicular Adapter Plate and placed on the table of the Package Tester, both as made by the L.A.B. Corporation, Skaneateles, New York or equal. The Plate shall be constrained from horizontal motion of more than 2 inches by suitable wooden fences. The package tester, shafts in phase, shall be operated at a speed of 285 revolutions per minute, ± 1 percent, for a total of 3 hours. The adapter plate shall be rotated through 90 degrees, in the same direction, at the end of each 45 minute period.

4.8.3 Shock; ballistic.- The test shall be conducted on the "Shock Testing Machine for Light Weight Equipment" as shown in Specification MIL-S-901. The equipment, including shock mounts (if any), shall be secured in its normal operating position to the steel plate by means of the same fasteners used for vehicular installation of the equipment. The test shall consist of a total of 9 blows: one each 1-foot blow, 3-foot blow, and 5-foot blow on the back, side, and top of the test plate. As an alternative to reorienting the test plate for the blows on the side of the plate, equivalent rotation of the equipment under test is permissible.

4.8.4 Temperature.- The equipment shall be subjected to the temperature cycle shown on Standard MIL-STD-169. The test of 4.7.1 shall be made at step 3 and step 8.

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4.8.5 Moisture-resistance test for equipment.**4.8.5.1 Test conditions.**

- (a) Do not move components from the humidity chamber for measurements.
- (b) Start measurements not more than 5 minutes after power is applied to the components. Complete measurements as rapidly as possible. Do not leave power on after measurements have been completed.
- (c) Test sealed components with the seal intact except during last two cycles. Bring out leads for electrical measurements through a hole in the case and seal against entrance of moisture. Perform last two cycles with sealed case removed.

4.8.5.2 Test procedure. - The components will be tested as follows:

- (a) Dry at $130^{\circ} \pm 5^{\circ}\text{F.}$ for 24 hours.
- (b) Condition at $77^{\circ} \pm 5^{\circ}\text{F.}$ and 40 to 50 percent relative humidity for 24 hours.
- (c) Take measurements as specified in 4.8.5.3.
- (d) Subject to continuous cycling for five 48-hour cycles. Temperature, relative humidity, and period of time for each portion of the cycle shall conform to Standard MIL-STD-170. The measurements specified in 4.8.5.3 shall be made during the periods shown on the drawing and shall comply with 4.8.5.3.
- (e) After cycling has been completed, condition the components for 24 hours at $77^{\circ} \pm 5^{\circ}\text{F.}$ and 40 to 60 percent relative humidity. No repair or replacement of parts shall be made. The components shall meet full specification requirements for those measurements specified in 4.8.5.3

4.8.5.3 Performance. - The equipment shall meet the test of 4.7.1 after completion of the humidity test.

4.8.5.4 Failure. - If the component fails to meet 4.8.5.3 or fails subsequently during cycling, it does not pass the test. In addition, if the component fails to meet full specification requirements as specified in 4.8.5.2(e) it does not pass the test.

4.8.6 Immersion. - With all covers and dummy plugs in position and fastened securely, the equipment (except Mounting MT-673()/UR) shall be immersed to a minimum depth of 3 feet of fresh water for 2 hours. Immediately prior to immersion, the temperature of the equipment shall be approximately 40°F above the temperature of the water. The tank in which the equipment is immersed shall be of sufficient capacity to maintain the water at approximately its initial temperature or the temperature of the water shall be maintained constant by other means. After completion of the 2 hour period of immersion, the equipment shall be removed from the water and wiped dry on exterior surfaces. There shall be no evidence of leakage. The insulation resistance between pins and between pins and the ground of the connectors shall be measured and shall be greater than 1 megohm for the 26 pin connector.

4.9 Inspection for interchangeability. - The dimensions listed below shall be

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gaged or measured when applicable to determine compliance with the physical interchangeability requirements of 3.12. When a listed dimension is not within specified or design limits, it shall be considered a major defect.

- (a) Baseplate mounting holes.
- (b) Location of spacing plates.
- (c) Location of channels.
- (d) Position of locking strips.
- (e) Location of socket in relation to rails.
- (f) Width of rails.
- (g) Location of rails.
- (h) Strikes and positioning means for top-mounted units.

4.10 Procurement inspection of preparation for delivery.- The minimum inspection performed by the contractor shall be as specified in 4.10.1 and 4.10.2. The Government will review and evaluate the contractor's inspection procedures and examine the contractor's records. In addition, the Government - at its discretion- will verify, by product inspection, the contractor's compliance with specified requirements. (See 6.8.) Such verification shall not exceed the amount of inspection required herein of the contractor. When Standard MIL-STD-105 specifies actions by the Government, the Government may authorize the contractor to perform any of such actions except that responsibility for acceptance rests with the Government.

4.10.1 Preservation and packaging.- Inspection of preservation and packaging shall be as specified in Specification MIL-P-116. Classification of defects shall be as shown on table VI.

TABLE VI

PRESERVATION, AND PACKAGING AND MARKING THEREOF

<u>MAJOR</u>	<u>MINOR</u>
1. Use of improper or defective material.	1. Item not properly blocked or braced within the unit package to prevent movement.
2. Quantity in unit package not as specified.	
3. Incorrect packaging method applied.	2. Packaging material damaged.
4. Cushioning or padding omitted.	3. Any item of marking information other than 6 thru 8 omitted, incorrect, or illegible.
5. Cushioning inadequate for the physical and mechanical protection of the item.	
6. Stock number omitted, incorrect, or illegible.	
7. Nomenclature omitted, incorrect, or illegible.	
8. Marking of quantity of items in package omitted, incorrect or illegible.	
9. Different stock numbered items in the same unit package.	

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4.10.2 Packing and marking of exterior containers.- Packing and marking of exterior containers shall be given visual inspection for the defects listed below and to determine conformance with the approved process sheet furnished by the contractor as required by the contract. This inspection shall conform to the Appendix to Standard MIL-STD-105. Inspection level L-8 shall be used for normal inspection and L-6 for reduced inspection. Unless otherwise specified herein, normal inspection shall be used at the start of the contract. The reduced inspection procedure shall be R-1. The AQL for major defects shall be four percent and the AQL for minor defects shall be ten percent. Classification of defects shall be as shown on table VII.

TABLE VIIPACKING, AND MARKING THEREOF

<u>MAJOR</u>	<u>MINOR</u>
1. Use of improper or defective material.	1. Unsealed carton.
2. Gross weight in excess of specified amount.	2.. Defective taping or sealing of carton.
3. Box closure not as specified.	3. Any other box defect which may be considered minor by definition of Standard MIL-STD-105.
4. Type, grade, class, and style of the shipping container not as specified.	4. Any item of required marking information other than 8 thru 14 listed under major defects omitted, incorrect, or illegible
5. Strapping omitted.	
6. Strapping inadequate or incorrectly applied.	
7. Shipping documents or packing list omitted.	
8. Stock number omitted, incorrect, or illegible.	
9. Nomenclature omitted, incorrect, or illegible.	
10. Marking of quantity of items in pack omitted, incorrect, or illegible.	
11. Destination marking omitted, incorrect, or illegible.	
12. Service designation (color marking) omitted.	
13. Specified special marking and labeling such as MAP labels, shipment digit markings, etc., omitted, incorrect, or illegible.	
14. Overseas code marking omitted, incorrect, or illegible.	

4.10.2.1 Inspection lot.- A lot for visual inspection of the pack shall be all completed packs which are identical and will be submitted for acceptance at one time.

4.10.2.2 Disposition of nonconforming product.- Disposition of nonconforming product (sample units and inspection lots) shall be in accordance with the requirements

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of Standard MIL-STD-105 for disposition of rejected product. When submitted for acceptance, such product shall be suitably tagged or identified by equivalent means to indicate the cause of failure and means employed to correct the fault. The required information shall be presented to the Government when the product is submitted and shall become the property of the Government.

4.11 Rough handling test (preparation for delivery).-- When rough handling test is required by the contract (see 6.2. (e)), the following functional tests shall be conducted to determine freedom from operational malfunction caused by the rough handling-. Rough handling test method shall be per Specification MIL-P-116.

3.8 Air seal test

3.9.2 Continuity

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.--

5.1.1 Level A.-- Mountings for Standardized Series Equipments shall be preserved, packaged and tested in accordance with the procedures specified for the designated methods, as prescribed in Specification MIL-P-116 and as described herein.

5.1.1.1 Mountings with hardware.-- Each mounting, with hardware, shall be packaged Method IC-5, as follows: Place the hardware within the cotton cloth draw-string bag, conforming to Specification DDD-B-20. Secure the bag closure and place the bag within a mounting void. Cushion each mounting with cells or pads or both, fabricated of fiberboard, having water resistance and dry bursting strength equal to the box in which they are placed. Cells and pads shall be designed to absorb the shock of impact encountered in handling and transit. (See Figures 1 thru 3). Place each cushioned item within a close-fitting, style RSC, type CF, class 2, W5c, fiber box, conforming to Specification PPP-B-636. Seal all joints and seams with waterproof, pressure-sensitive tape, conforming to Specification PPP-T-76.

5.1.2 Level C.-- Mountings for Standardized Series Equipments shall be packaged in accordance with commercial practice and in a manner that will afford protection against corrosion, deterioration and physical damage, during direct shipment to the first receiving activity.

5.2 Packing.--

5.2.1 Level A.-- Mountings for standardized series equipment, bearing the same stock number and of a like description, shall be packed within class 2, style 4, nailed, wood boxes, conforming to Specification PPP-B-621. Fabricate the boxes to fit the contents snugly. When more than one unit is packed within a shipping container, the gross weight shall not exceed approximately 200 pounds. Box closure shall be in accordance with the box specification.

5.2.1.1 Metal strapping.-- Shipping containers shall be strapped, with flat steel strapping, in conformance with the requirements of the appendix of the box specification, only for direct shipment to ports.

5.2.2 Level B.-- Mountings for Standardized Series Equipments shall be packed as specified in 5.2.1, except class I, style 4, boxes, conforming to Specification PPP-B-621, shall be required. No metal strapping is required.

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5.2.3 Level C.- Mountings for Standardized Series Equipments shall be packed for shipment in a manner conforming to the requirements of Uniform Freight Classification No.4 and Consolidated Freight Classification Rules 21 for rail shipment, National Motor Freight Classification No.A-3 and No.14 for truck shipment, Parcel Post Regulations and the regulations of other carriers as applicable to the mode of transportation employed, at the lowest transportation rate.

5.3 Marking.- Interior packages and exterior shipping containers shall be marked in accordance with the applicable provisions of Standard MIL-STD-129.

6. NOTES

6.1 Intended use.- The mountings covered by this specification are intended for use with the standardized series of FM Radio Sets (AN/GRC-3() through AN/GRC-8()), AN/VRQ-1, 2, 3, etc).

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

- (a) Title, number, and date of this specification and any amendment thereto.
- (b) Type required.
- (c) Level of packaging and level of packing required for shipment.
(Level A, level B, or level C.)
- (d) The specific paragraphs of section 5 which are applicable to the particular procurement.
- (e) Preproduction inspection:

(1) Two samples of each item cited in section 1 are generally required so that lengthy environmental tests can be completed on one sample while complete performance measurements can be made on the second sample.

(2) Preproduction pack(s) as follows:

- a. Makeup of pack(s).
- b. Number of each kind of pack to be submitted.
- c. Inspection to be performed thereon--including rough handling test, which will not be performed as procurement inspection.
- d. Five copies of process sheet, using format shown on Drawing SC-C-33073 and accompanied by such drawings, sketches, and other data as may be necessary to completely describe the procedure followed in fabrication of the preproduction pack(s) and to identify the items therein. These data should be submitted to the contracting officer with the preproduction pack.
- e. A packaging technician from the procuring agency will evaluate the preproduction pack(s).

- (f) Marking and shipping of samples.
- (g) Place of final inspection.
- (h) Technical literature required. (See 3.15.)
- (i) Quantity of tools and running spare parts required. (See 3.15.)
- (j) Submission of the statement of treatment referenced in 3.5, as soon as possible after award of contract. This statement should be submitted to the contracting officer.

6.3 Nomenclature.- The parentheses in the nomenclature will be deleted or replaced by a letter identifying the particular design; for example: MT-300W/GR. The

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contractor should apply for nomenclature in accordance with the applicable clause in the contract. (See 1.1.)

6.4 Location of air-seal test.- It is desirable that the air-seal test (4.5) be performed at a location that will minimize handling (which might cause damage to the equipment) after this inspection is completed. Any preparation for shipment which would require breaking of the equipment seal should be accomplished prior to the air-seal test so that the seal may remain intact thereafter. It is recommended that the entire lot (including all previously inspected sample units) be sampled and inspected immediately prior to packaging.

6.5 Group C inspection.- Approval to ship may be withheld, at the discretion of the Government, pending the decision from the contracting officer on the adequacy of corrective action. (See 4.3.3.2.)

6.6 Definition of level B.- Level B packaging requirements detailed herein are designed to furnish protection against corrosion, deterioration, and physical damage during domestic shipments; covered storage for a period of three years or less; and distribution within the continental limits of the United States.

6.7 Inspection.- Inspection is the examination or testing, or both, of supplies to determine compliance with applicable requirements. Sampling is an element of inspection.

6.7.1 Examination.- Examination consists of simple, generally nondestructive determinations of compliance, without use of special testing equipment.

6.7.2. Testing.- Testing consists of determinations of compliance, using technical means.

6.8 Verification inspection.- Verification by the Government will be limited to the amount deemed necessary to determine compliance with the contract and will be limited in severity to the definitive quality assurance provisions established in this specification and the contract. The amount of verification inspection by the Government will be adjusted to make maximum utilization of the contractor's quality control system and the quality history of the product, and will normally be identified by the categories listed below:

(a) Type A--The total of that inspection set forth in the Quality Assurance Provisions of this specification or the contract. Included in this category is that amount of inspection referred to as normal and tightened inspection by Military Standard 105.

(b) Type B--That inspection set forth in the Quality Assurance Provisions of this specification or the contract reduced in amount under the reduced inspection provisions of Military Standard 105.

(c) Type C--A reduced inspection procedure resulting in a material reduction in the amount of inspection set forth in the Quality Assurance Provisions of this specification. The amount of inspection is less than that provided for in type B and is based upon a consistently acceptable product resulting from a planned quality control system voluntarily employed by the contractor in the production of the product.

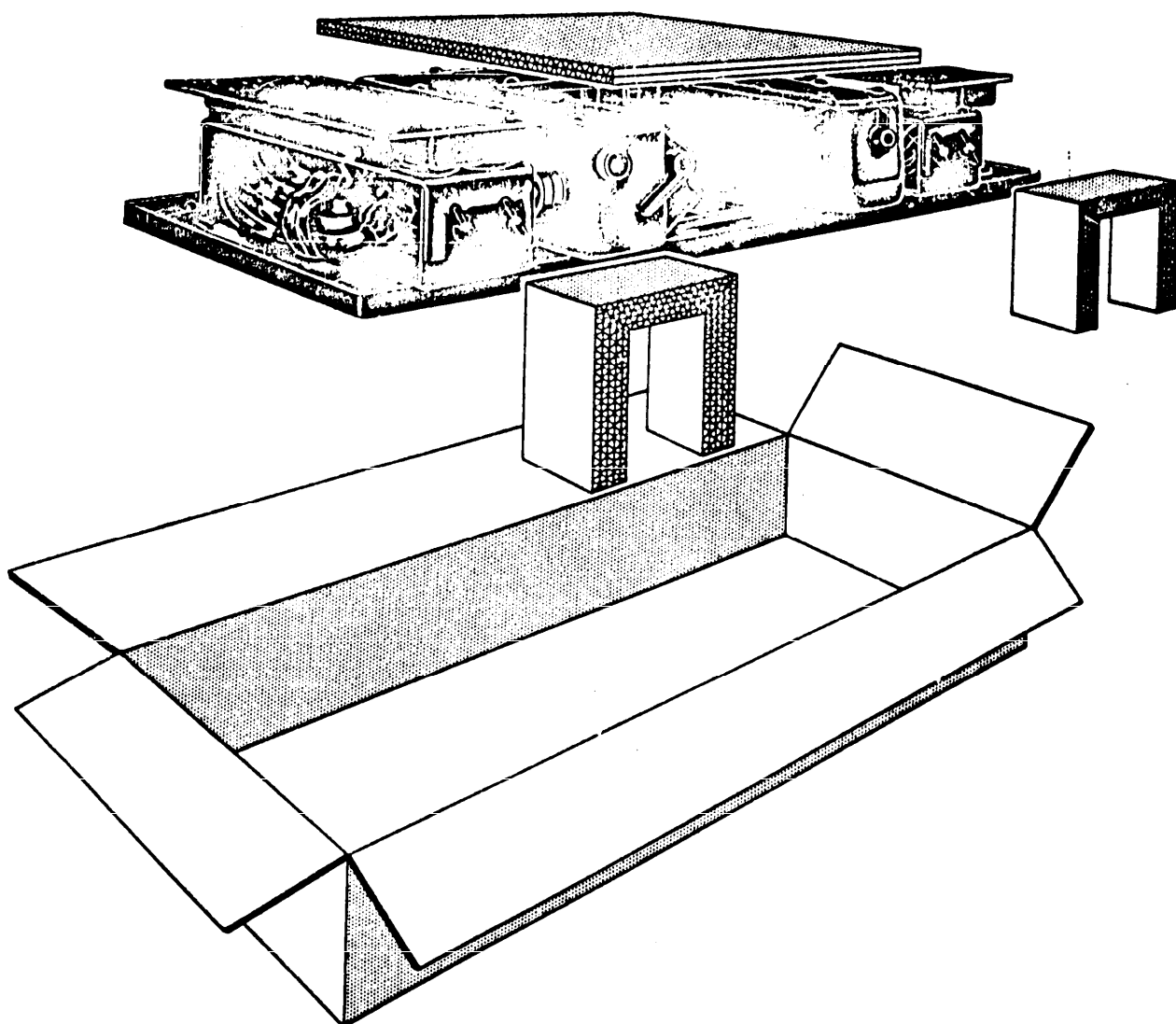
6.9 Color.- The color chip furnished by the procuring agency will match color chip No. 2430 of superseded Specification TT-C-595, and may be obtained upon request

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to Commanding Officer, U. S. Army Signal Supply Agency, 225 South Eighteenth Street, Philadelphia 3, Pennsylvania, ATTN: SIGSU-J4b. This color chip does not match any color chip of Federal Standard Number 595.

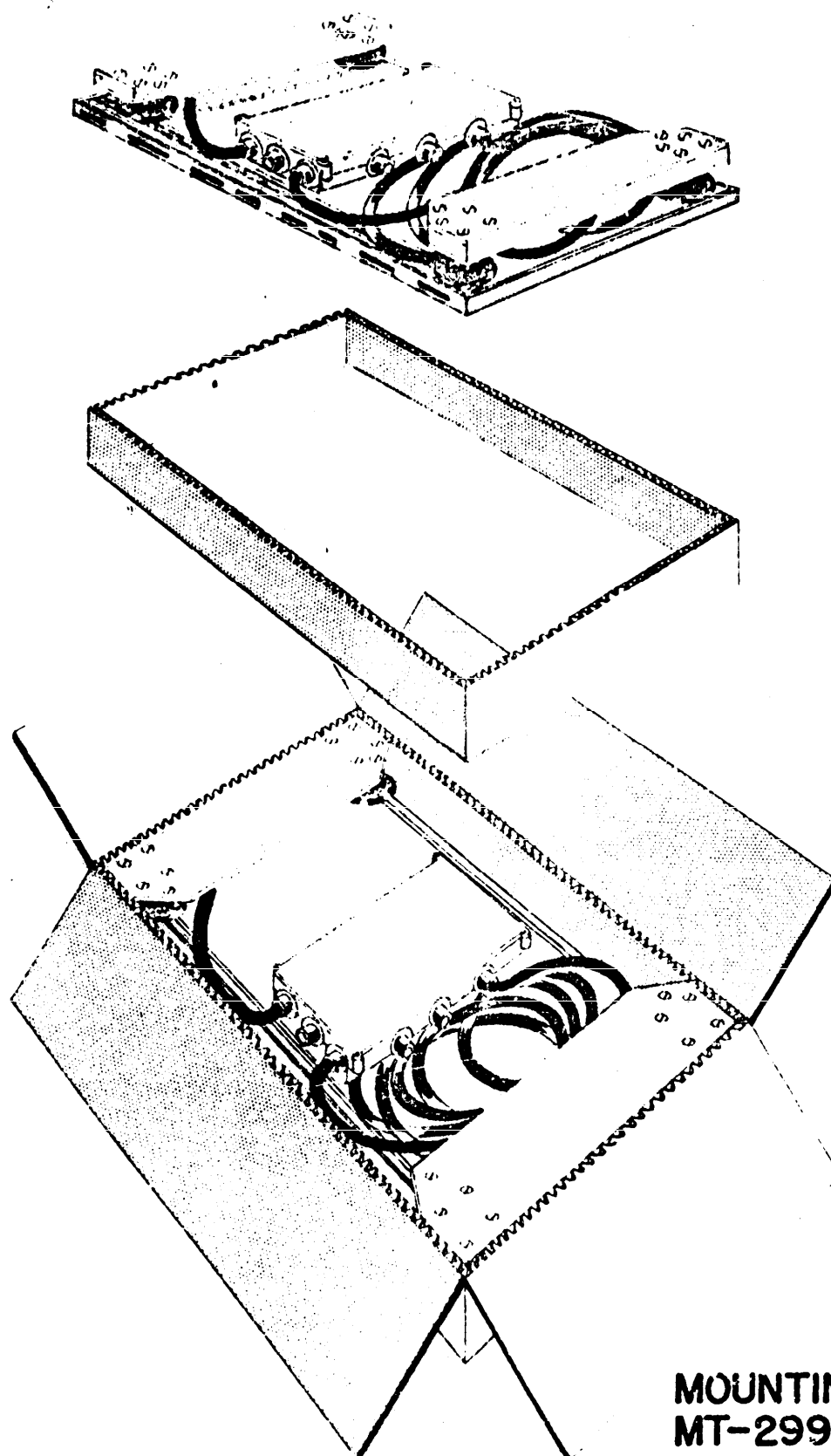
NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

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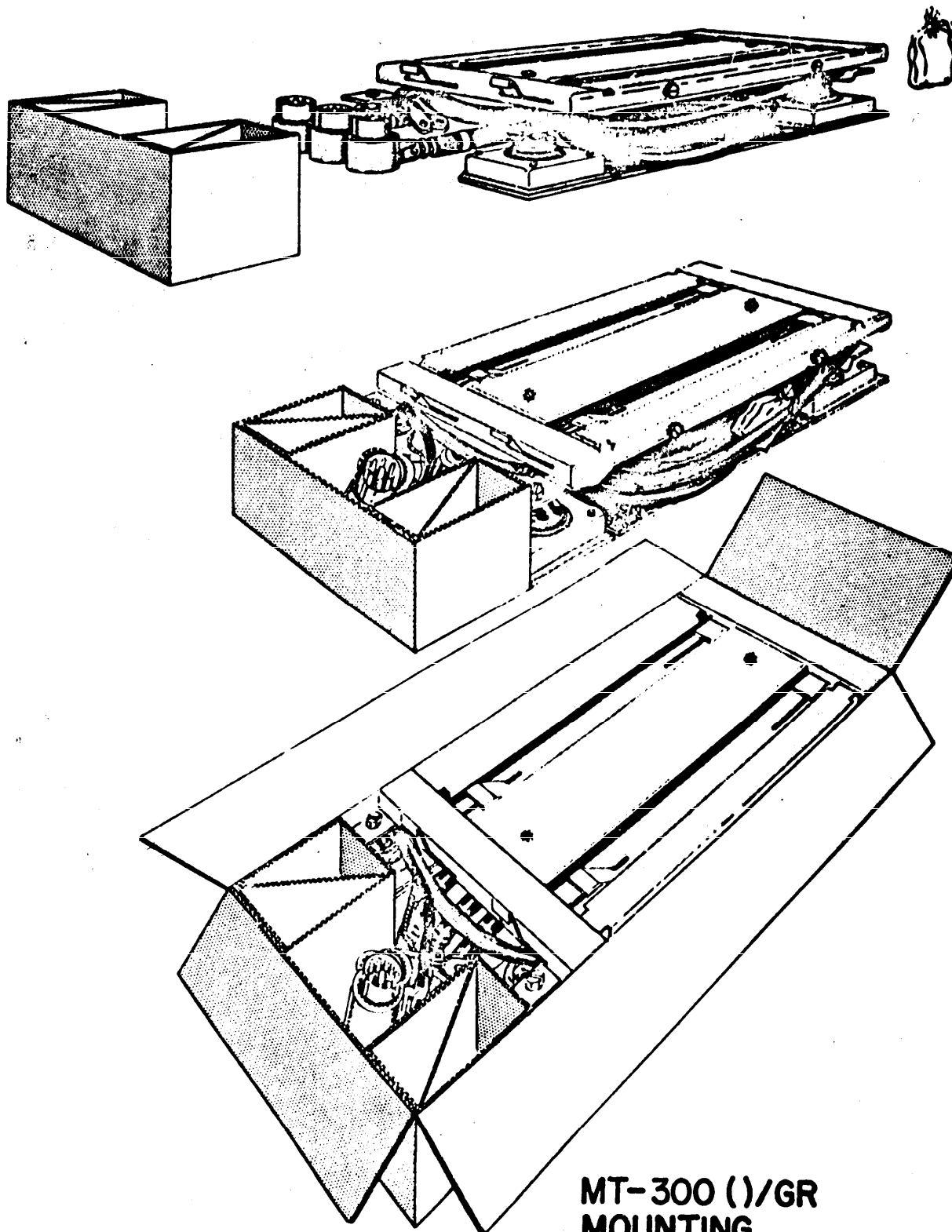
MOUNTING MT 297()/GR
PACKAGING OF
FIGURE 1

MIL-M-12575A(81gC)



MOUNTING
MT-299()/GR
FIGURE 2

MIL-M-12575A(818C)



MT-300 ()/GR
MOUNTING

FIGURE 3