

INCH-POUND

MIL-T-22085E
20 DECEMBER 1994
SUPERSEDING
MIL-T-22085D
22 MAY 1984

MILITARY SPECIFICATION

TAPES, PRESSURE-SENSITIVE, ADHESIVE, PRESERVATION AND SEALING

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

1. SCOPE

1.1 Scope. This specification establishes the requirements for pressure-sensitive adhesive tapes designed for exterior preservation and sealing of military vehicles, aircraft, missiles and other related equipment during handling, shipment and storage.

1.2 Classification. The tapes shall be of the following types, as specified (see 6.2c):

Type II - For use with or without overcoating (see 6.1.1)

Type IV - For use without overcoating; for extended time periods (see 6.1.2).

1.2.1 Cross reference. Relationship of the types of tapes specified in previous revisions of this specification are detailed in 6.6.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Systems Standardization, Code 4.1.11B120-3, Naval Air Warfare Center Aircraft Division, Highway 547, Lakehurst, NJ 08733-5100, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 7510

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

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

SPECIFICATIONS

FEDERAL

- L-T-80 - Tape, Pressure-Sensitive Adhesive (Aluminum-Backed)
- QQ-A-250/5 - Aluminum Alloy Alclad 2024, Plate and Sheet
- PPP-T-680 - Tape, Pressure-Sensitive Adhesive, Packaging and Packing of

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- MIL-C-6799 - Coatings, Sprayable, Strippable, Protective, Water Emulsion
- MIL-A-8625 - Anodic Coatings, for Aluminum and Aluminum Alloys
- MIL-P-23377 - Primer Coatings, Epoxy, High Solids
- MIL-C-23760 - Coating, Sprayable, Strippable, Protective, for Packaging of Weapon Systems and Components, Application of
- MIL-C-83286 - Coating, Urethane, Aliphatic Isocyanate, for Aerospace Applications
- MIL-C-85285 - Coating: Polyurethane, High-solids

STANDARDS

FEDERAL

- FED-STD-595 - Colors Used in Government Procurement

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- MS20470 - Rivet, Solid-Universal Head, Aluminum Alloy and Titanium Columbian Alloy.

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

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM-D740 - Methyl Ethyl Ketone
- ASTM-D2860 - Tape, Pressure-Sensitive Tape, to Fiberboard at 90-Deg. Angle and Constant Stress, Adhesion of
- ASTM-D3330 - Tape, Pressure-Sensitive Tape at 180 Degree Angle, Peel Adhesion of
- ASTM-D3611 - Tapes, Pressure-Sensitive, Accelerated Aging of
- ASTM-D3654 - Tapes, Pressure-Sensitive, Holding Power of
- ASTM-D3715 - Tapes, Pressure-Sensitive, Quality Assurance of
- ASTM-D3759 - Tape, Pressure-Sensitive, Tensile Strength and Elongation of
- ASTM-D3811 - Tape, Pressure-Sensitive, Unwind Force of
- ASTM-D3816 - Tape, Pressure-Sensitive, Water Penetration Rate of
- ASTM-D3833 - Tape, Pressure-Sensitive, Water Vapor Transmission of

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

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

- SAE-AMS-4375 - Magnesium Alloy Sheet and Plate 3.0Al-1.0Zn (AZ 31B-0) Annealed and Recrystallized

(Application for copies should be addressed to the Customer Service Department, Publications Group, SAE, 400 Commonwealth Drive, Warrendale, PA 15096.)

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

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

3. REQUIREMENTS

* 3.1 Qualification. The tapes furnished under this specification shall

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be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time of award of contract (see 4.3 and 6.4).

3.2 Materials. The materials used in the construction of the pressure-sensitive adhesive tape shall be such as to assure performance of the tape over the temperature range of -54° to 52°C (-65° to 125°F) and shall conform to the requirements of this specification.

3.2.1 Adhesive. The adhesive for both type II and type IV tapes shall be pressure-sensitive, water-insoluble, homogeneous and coated in a smooth and evenly distributed layer on one side of the backing, and shall require no solvent, moisture, heat or other preparation prior to or after application to clean, dry surfaces.

3.2.2 Backing. Type II tape backing shall be black plastic of single ply construction. The type IV backing shall be a polyvinyl fluoride film with a minimum thickness of 0.002 inches.

3.3 Finished tape.

3.3.1 Rolls. The tape shall be furnished in evenly and uniformly wound rolls, adhesive side in, on cores made of paper fiber or non-fibrous plastic. The core shall have sufficient rigidity to prevent distortion of the roll under normal conditions of transportation, storage, and use. The inside diameter of the core shall be $3 +0.063, -0$ inches. The adhesive shall not be covered with a liner.

3.3.1.1 Marking of rolls. Each roll of tape shall be marked in or on the edge of the core with numerals or letters indicating the month and year of manufacture. In addition, the manufacturer's name and designation of the product and the specification number shall appear in the core.

3.3.2 Length. Unless otherwise specified in the contract or order, type II tape shall be furnished in 36 yard rolls and type IV tape shall be furnished in 72 yard rolls (see 6.2g). Each roll shall consist of a single length of tape, except that any roll may contain not more than three splices. The splices shall be made in such a manner that they will not separate when the roll is being unwound for inspection, or during application.

3.3.3 Width. The width of the rolls shall be 1, 2, 3, or 4 inches, or other commercially available widths, as specified, in the contract or purchase order (see 6.2e). A tolerance of plus or minus 0.031 inch shall be allowed in each width.

3.3.4 Color. The color of type II tape shall be black. Unless otherwise specified in the contract (see 6.2h), type IV tape shall be any color chosen by the manufacturer, except black.

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TABLE I. Physical properties.

Inspection	Requirement		Method
	Type II	Type IV	
Tensile Strength, min. (lbs./in. width)	10	16	4.6.1
Elongation, min. (%)	300	100	4.6.1
Unrolling (lbs./in. width)			
Initial - max.	5.0	7.0	4.6.1
After aging - max.	5.0	7.0	4.6.1
Accelerated Aging			
Roll distortion (inches)			
Radius - max.	0.5	0.5	4.6.4
Width - max.	0.5	0.5	4.6.4
Water Penetration Rate - max. (g./100 sq. in./24 hrs.)	0.5	1.0	4.6.1
Water Vapor Transmission Rate - max. (g./100 sq. in./24 hrs.)	0.5	1.0	4.6.1
Holding Power (in./24 hrs.)			
Lo Temp. Slippage - max.	0.25	0.125	4.6.6.1
Hi Temp. Slippage - max.	0.25	0.125	4.6.6.2
Adhesion - oz/in. width, min			
Peel - to steel	17	30	4.6.3
- to backing	9	17	4.6.3
- to MIL-C-6799 coating	12	17	4.6.3
- to Polyurethane gloss coating	12	17	4.6.3
Constant stress at 90° (minutes)	200	4000	4.6.5
Removability at low temp.	No breaking, tearing, adhesive mass transfer or delamination	No breaking or tearing	4.6.7
Compatibility with overcoating materials	No lifting or adhesive mass transfer; backing shall not soften or become brittle	N/A	4.6.3

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TABLE I. - Physical Properties - Continued.

Inspection	Requirement		Method
	Type II	Type IV	
Accelerated Outdoor Exposure	No tearing or cracking; no excessive edge lifting or shrinkage; no adhesive mass transfer.	No tearing or cracking; no excessive shrinkage or lifting.	4.6.9
Rolling ball tack (inches) Stopping distance - max @ 70°F	4.0	N/A	4.6.10
@ 45°F	5.0	N/A	4.6.10

* 3.4 Performance.

* 3.4.1 Visual examination. When visually examined as specified, the tape shall conform to the requirements of 3.2 and 3.3 of this specification.

* 3.4.2 Physical properties. The tape shall comply with the physical property requirements listed in table I, when tested as specified herein.

* 3.4.3 Service (type II and type IV). When required by the qualifying activity, the tape shall be tested as specified in 4.6.11 and shall show satisfactory performance under service conditions.

3.5 Workmanship. The tape shall be free from foreign matter and defects that may impair its serviceability or appearance. The adhesive shall be a smooth uniform coating, covering the entire area of one side of the backing. The edges of the tape shall be straight, true and unbroken.

4. QUALITY ASSURANCE PROVISIONS

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

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

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

- a. Qualification inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 Qualification inspection. Qualification inspection shall consist of examinations and tests for all the requirements of this specification.

4.3.1 Qualification sampling instructions. Qualification inspection samples shall consist of at least two rolls each of 1 inch and 2 inch wide tape of the type for which qualification is desired. The samples shall be accompanied by a certified test report prepared either by the manufacturer or an independent laboratory approved by the Government. The test report shall include the test results of all tests as required by 4.3. In addition, the panels that had been exposed to accelerated outdoor exposure, with the applied tape, shall be forwarded along with the test report from the accelerated outdoor exposure facility. Information such as a brief description of the components or raw materials used in the manufacture of the tape and the address(es) of the plant(s) of manufacture shall be furnished. The samples, the test report and the test panels shall be forwarded to: Commanding Officer, Naval Air Warfare Center, Code 4.3.4.1, Box 5152, Warminster, PA 18974-0591, plainly identified by attached markings with the following information:

Samples for Qualification tests
 TAPES, PRESSURE-SENSITIVE, ADHESIVE, PRESERVATION AND SEALING
 Manufacturer's Name
 Manufacturer's Code No.
 Type
 Date of manufacture (month and year)
 Submitted by (name) (date) for Qualification in accordance with the requirements of MIL-T-22085E Under Authorization (Reference Authorization Letter)

4.3.2 Retention of qualification. In order to retain qualification of products approved for listing on the qualified products list (QPL), the manufacturer shall verify by certification to the qualifying activity that his

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product complies with the requirements of this specification. The time of periodic verification by certification shall be in two year intervals and shall be initiated by the Government. The Government reserves the right to re-examine the qualified product whenever deemed necessary to determine that the product continues to meet any or all of the specification requirements.

* 4.4 Quality conformance inspection. Quality conformance inspection shall consist of the examinations and tests specified in table II.

TABLE II. Quality conformance inspection.

Inspection	Requirement	Method
Visual examination	3.4.1	4.6.2
Tensile strength	Table I	4.6.1
Elongation	Table I	4.6.1
Unrolling	Table I	4.6.1
Holding power	Table I	4.6.6
Adhesion, peel to steel and to backing	Table I	4.6.3
Constant stress @ 90°	Table I	4.6.5

4.4.1 Tape examination. Lot formations, sampling, examinations, and accept/fail criteria shall be as specified in Section 6.3 of ASTM D3715.

4.4.2 Tape testing. Lot formation, sampling and tests for quality conformance inspection in table II shall be as specified in Section 6.4 of ASTM D3715. There shall be no defects.

4.4.3 Report. Upon completion of the quality conformance inspection, the Government activity responsible for conducting the inspection program (see 6.2i) shall report the results of tests with recommendations to the contracting officer.

* 4.5 Testing conditions. Conditioning and testing of the rolls of tape shall be in accordance with the applicable test method.

4.6 Test methods.

4.6.1 ASTM test methods. ASTM test methods, without exceptions, shall be used for test methods specified in table III.

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TABLE III. ASTM test methods.

Test	ASTM Method
Tensile strength	ASTM-D3759
Elongation	ASTM-D3759
Unrolling	ASTM-D3811
Water penetration rate	ASTM-D3816
Water vapor transmission rate	ASTM-D3833

4.6.2 Visual examination. The rolls of tape shall be visually examined for conformance to 3.2 and 3.3.

4.6.3 Adhesion peel. Adhesion peel shall be determined in accordance with ASTM-D3330 except the test panels shall be coated as follows:

- a. Test panel-bare, not coated.
- b. Covered with tape to expose backing as the test substrate.
- c. Coated with MIL-C-6799 material applied in accordance with MIL-C-23760.
- d. Coated with epoxy-polyamide primer/polyurethane topcoat, color number 17925 of FED-STD-595, in accordance with 4.6.9.1.

4.6.4 Accelerated aging. This test shall be performed in accordance with ASTM-D3611. At the conclusion of the aging, samples shall be examined for roll distortion as follows: Make the evaluation of roll distortion through a comparison of the two principle dimensions of the sample rolls of tape before and after accelerated aging. Place the roll flat on a sheet of paper, trace the circumference (periphery), and measure the greatest radius to the nearest 0.031 of an inch (distance from the center to the farthest point on the outline). Determine the width of the roll to the same accuracy by placing the roll flat on the side and measuring the vertical distance between the base and the top of the uppermost ply of the tape. Age the rolls, and again make the same measurements described above. Average and report, to the nearest 0.031 of an inch, individual roll distortions of the radius and width.

4.6.5 Adhesion at constant rate of stress at 90°. The adhesion at constant rate of stress at 90° shall be conducted in accordance with ASTM-D2860, Procedure B, except that the test surface shall be clad aluminum conforming to QQ-A-250/5 and the weight shall be 100 grams.

4.6.6 Holding power.

4.6.6.1 Low temperature hold. The test shall be conducted in accordance with ASTM-D3654 with the following exceptions:

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- a. Condition all applicable materials at 0°C (32°F) for one hour before applying the specimen to the test panel at 0°C (32°F).
- b. Prior to application of the 500 gram load, lower the test chamber temperature to $-54^{\circ} \pm 2^{\circ}\text{C}$ ($-65^{\circ} \pm 4^{\circ}\text{F}$) within 90 minutes and then apply the load. Maintain at this temperature for 24 hours.
- c. The width of the specimen shall be 1 ± 0.03 inches.

4.6.6.2 High temperature hold. The test shall be conducted in accordance with ASTM-D3654 with the following exceptions:

- a. Use 500 gram load.
- b. Conduct the test at $52^{\circ} \pm 1^{\circ}\text{C}$ ($125^{\circ} \pm 2^{\circ}\text{F}$).
- c. Maintain at $52^{\circ} \pm 1^{\circ}\text{C}$ ($125^{\circ} \pm 2^{\circ}\text{F}$) for 24 hours.
- d. The width of the specimen shall be 1 ± 0.03 inches.

4.6.7 Removability at low temperature.

4.6.7.1 Preparation of panel. A 2 by 5 inch steel panel as described in ASTM-D3330 shall be prepared, except add a hole at one end. The hole in the panel and the size of the hook used to hold the panel must permit the panel to swing freely during the test. Using procedure described in Method A of ASTM-D3330, apply a test specimen 1 inch wide and of sufficient length to allow insertion into the slot of the revolving drum on figure 1.

4.6.7.2 Procedure. The prepared test panel shall be suspended on the cross bar of the support stand during the conditioning period in the test chamber. The motor driven removal device illustrated in figure 1, or an equivalent device, shall be placed in the test chamber. In lieu of the test chamber a walk-in cold room may be utilized. The motor driven device must move the tape at a speed of 12 inches per minute. The test chamber shall be closed and reduce the temperature to $-18^{\circ} \pm 1^{\circ}\text{C}$ ($0^{\circ} \pm 2^{\circ}\text{F}$). The test panels shall be kept at this temperature for a minimum of 4 hours before removing the tape. The relative humidity in the test chamber shall be maintained below the point which would cause ice formation at the test temperature. Gloves shall be worn to prevent warming of the test components while handling. The test panel shall be hung on the hook and the free end of the tape inserted into the slot on the drum. The drum shall be revolved until the tape is completely removed from the panel. The specimen shall be examined for breaking and tearing of the backing, adhesive mass transfer and delamination.

4.6.8 Compatibility with overcoating materials (type II only).

4.6.8.1 Preparation of panels. Panels 16 by 5 by 0.040 inches, fabricated from QQ-A-250/5 aluminum shall be used. The panels shall be cleaned according to section 10.1 of ASTM-D3330. Three pieces of 1 inch wide tape shall be placed lengthwise on the panel. The edge of the first strip shall be placed 0.5 inch from either edge of the panel. There shall then be a 0.5 inch interval between the location of the remaining two strips. The tape strips shall be 17 inches long and centered so that there is a 0.5 inch overhang at each end of the panel. Finger pressure shall be used to apply the

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tape. With the test panel tilted lengthwise to a 45° angle and starting at the top of the panel, apply overcoating material conforming to MIL-C-6799 Type II Class 1 and Class 5 across the three rows of tape in accordance with MIL-C-23760.

4.6.8.2 Procedure. After 24 hours the panel shall be examined for lifting of the tape. The overcoating material shall then be removed and the tape backing examined for delamination, softening or embrittlement. The tape shall then be removed and the covered area examined for adhesive mass transfer.

4.6.9 Accelerated outdoor exposure.

4.6.9.1 Test panels. Two accelerated outdoor exposure panels of the type shown on figure 2 shall be anodized in accordance with MIL-A-8625. In testing type II tape, spray the side with attached cleats with one coat of epoxy-polyamide primer conforming to MIL-P-23377 to dry film thickness of 0.6 to 0.9 mil and air dry for one hour. A thin coat of polyurethane conforming to MIL-C-83286 or MIL-C-85285, color number 17925 of FED-STD-595, shall be applied, air dried for fifteen minutes, before applying a wet coat of the polyurethane to a total dry film thickness of 1.0 to 1.5 mil of topcoat. Air dry for one week before using for tests. Before conducting the test for type II tape, the side opposite the cleats shall be completely sealed with pressure-sensitive aluminum foil tape conforming to L-T-80. In testing type IV tape, the coated panels shall be prepared as above but on the side opposite the cleats. Before conducting the test for type IV tape, the side with attached cleats shall be completely sealed with pressure-sensitive aluminum foil tape conforming to L-T-80.

CAUTION - Exercise extreme care when preparing test panels. Materials conforming to MIL-P-23377, MIL-C-83286 and MIL-C-85285 are flammable and toxic to the eyes, skin and respiratory tract.

4.6.9.2 Application to panel.

4.6.9.2.1 Type II. A two inch wide tape sample shall be centered over the bottom set of rivets starting at the bottom of the panel and extending approximately 8 inches. A second two inch wide tape sample shall overlap the first by one inch, be centered over the second set of rivets and the hole, and the first by one inch, be centered over the second set of rivets and the hole, and extend to the top of the panel. The top tape sample shall be approximately 10 inches. Using finger pressure, firmly press the tape to the painted surface and around the rivets, making sure a complete seal is made and the tape itself is not distorted or ripped. After application the tape shall be over-coated with a strippable organic coating conforming to MIL-C-6799, Type II, Class 1 (black) and Class 5 (white) in accordance with MIL-C-23760.

4.6.9.2.2 Type IV. Type IV tape shall be applied as outlined in 4.6.9.2.1 (without the overcoating) except on the side opposite the cleats.

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4.6.9.3 Exposure. Panels prepared in accordance with 4.6.9.2 shall be exposed in accelerated outdoor weathering machine (see 6.7). Panels with type II tape shall be exposed for 200,000 Langleys and panels with type IV tape shall be exposed for 400,000 Langleys. One panel will be exposed to an Equatorial Mount with Mirrors for Acceleration (EMMA) and one panel to an Equatorial Mount with Mirrors for Acceleration with water (EMMAQUA). All panels must be aligned during exposure so that the exposed edge of the overlap is pointed down to produce a "Shingle" effect for water runoff. After exposure the tape (and coating if type II) shall be removed and the panels examined for conformance to the requirements of Accelerated Outdoor Exposure in table I.

* 4.6.10 Rolling ball tack.

4.6.10.1 Rolling ball tack apparatus. An adhesion test apparatus, similar to the one shown on figure 3, with a 30-degree incline shall be used. The apparatus shall be carefully leveled prior to the start of the test. The incline shall be cleaned by wiping with a tissue dampened with methyl ethyl ketone, conforming to ASTM-D740, then wiping again with a second tissue dampened with n-heptane. The balls shall be a 0.50 inch diameter chrome alloy steel ball. Prior to each roll of the ball, thoroughly clean the ball by wiping first with methyl ethyl ketone then n-heptane to remove all adhesive residues. After cleaning, do not touch either the incline or the ball with the fingers.

4.6.10.2 Specimen preparation. The tape specimens shall be 2.0 inches in width and 8.0 inches in length. Place the specimen on the flat surface of the apparatus, adhesive side up with one end at the foot of the incline. Do not touch the adhesive surface in the area over which the ball will roll. The specimen shall be free of any wrinkles, creases or splices.

4.6.10.3 Procedure. Using clean, dry tongs, place the ball at a point 5.0 inches up the incline. Release the ball and allow it to roll to a stop on the adhesive. Measure the distance from the foot of the incline to the point of contact of the specimen with the ball. Repeat the test 5 times using a fresh specimen each time. When conducting the rolling ball test at 45°F, use the same apparatus, preparation and procedures with the following exceptions:

- (1) condition the apparatus and specimens for at least one hour in a chamber at 45°F
- (2) conduct the test in the same chamber but release the ball from a point 2.0 inches up the incline.

4.6.11 Service test (type II and type IV). The service test, performed by the military unit designated by the activity responsible for qualification, shall consist of field evaluation of the service test sample (a maximum of 48 rolls of 2-inch tape) under service conditions and conducted in accordance with the standard operating procedures on various aircraft to determine the suitability of the tape for military use. The service test shall be performed after the tape has met all the requirements in Section 3.

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5. PACKAGING

5.1 Preservation and packing. Preservation and packing shall be in accordance with the requirements of PPP-T-680 as specified for the applicable levels (see 6.2f).

5.2 Marking. Containers of the tape shall be marked in accordance with the requirements of PPP-T-680.

6. NOTES

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

6.1 Intended use.

6.1.1 Type II. Type II tape is intended for use in the preservation and sealing of military vehicles, airplanes, missiles and other related equipment. The tape may be used without overcoating for handling, shipping and short term protected storage where exposure to direct outdoor elements is not expected. The tape shall be used with overcoating when unprotected outdoor storage is anticipated.

6.1.2 Type IV. Type IV tape shall be used where extended periods of unprotected outdoor storage are expected.

6.1.2.1 Adhesive cleaner source. Upon removing type IV tape, adhesive mass transfer may occur. The adhesive may be removed with 3M Brand General Purpose Adhesive Cleaner or equal which will not damage the paint of the substrate. Adhesive cleaners are readily available in automotive supply stores.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number and date of this specification.
- b. Issue of DODISS to be cited in the solicitation and if required the specific issue of individual documents referenced. (See 2.1 & 2.2).
- c. Type of tape required (see 1.2).
- d. Number of rolls of tape required.
- e. Width of tape required (see 3.3.3).
- f. Levels of preservation and packing (see 5.1).
- g. Length if other than specified in see 3.3.2.
- h. Color of tape (type IV only) (see 3.3.4).
- i. Name and address of the quality conformance inspection facility (see 4.4.3).
- j. Items of data required (see 6.5).

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6.3 Storage. The tape should be stored in the original container, preferably in a cool location. It should not be stored in close proximity to steam pipes, radiators or other sources of heat. Storage conditions of approximately 21°C (70°F) and 40 to 50 percent relative humidity are considered optimum.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List (QPL-22085) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Air Systems Command, Department of the Navy, Washington, DC 20361; however, information pertaining to qualification of products and letter of authorization for submittal of sample may be obtained from the Naval Air Warfare Center Aircraft Division, Code 4.3.4.1, P.O. Box 5152, Warminster, PA 18974-0591.

6.5 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 227.405-70 exempts the requirement for a DOD Form 1423.

<u>Reference Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
4.4.3	DI-NDTI-80809	Test/inspection Report	Use contractor format

The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.6 Cross reference. The relationship between the classification of materials in earlier issues of this specification and this specification is as follows:

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1/ Type II 2/ 3/ Type IV	1/ Type II Type III ---	1/ Type II Type III ---	Type I Type II --- ---

- 1/ Type I of MIL-T-22085A(WEPS) is cancelled.
 2/ Type II of MIL-T-22085E is now to be used with or without overcoating.
 3/ Type III of MIL-T-22085B(AS) and MIL-T-22085C is cancelled.

6.7 Test facilities. Accelerated outdoor exposure (EMMA and EMMAQUA) facilities are available through Desert Sunshine Exposure Testing, Box 185, Black Canyon Stage, Phoenix, Arizona 85120.

* 6.8 Subject term (key word) listing.

Closure
 Methyl Ethyl Ketone
 Outdoor exposure
 Outdoor protection
 Preserve
 Protected storage
 Storage, military vehicles
 Urethane

6.9 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and 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.

Custodians:
 Army - GL
 Navy - AS
 Air Force - 69

Preparing Activity:
 Navy - AS
 (Project No. 7510-0381)

Review activities:
 Army - MR, SM, EA, GL, ME
 Air Force - 43, 99

MIL-T-22085E

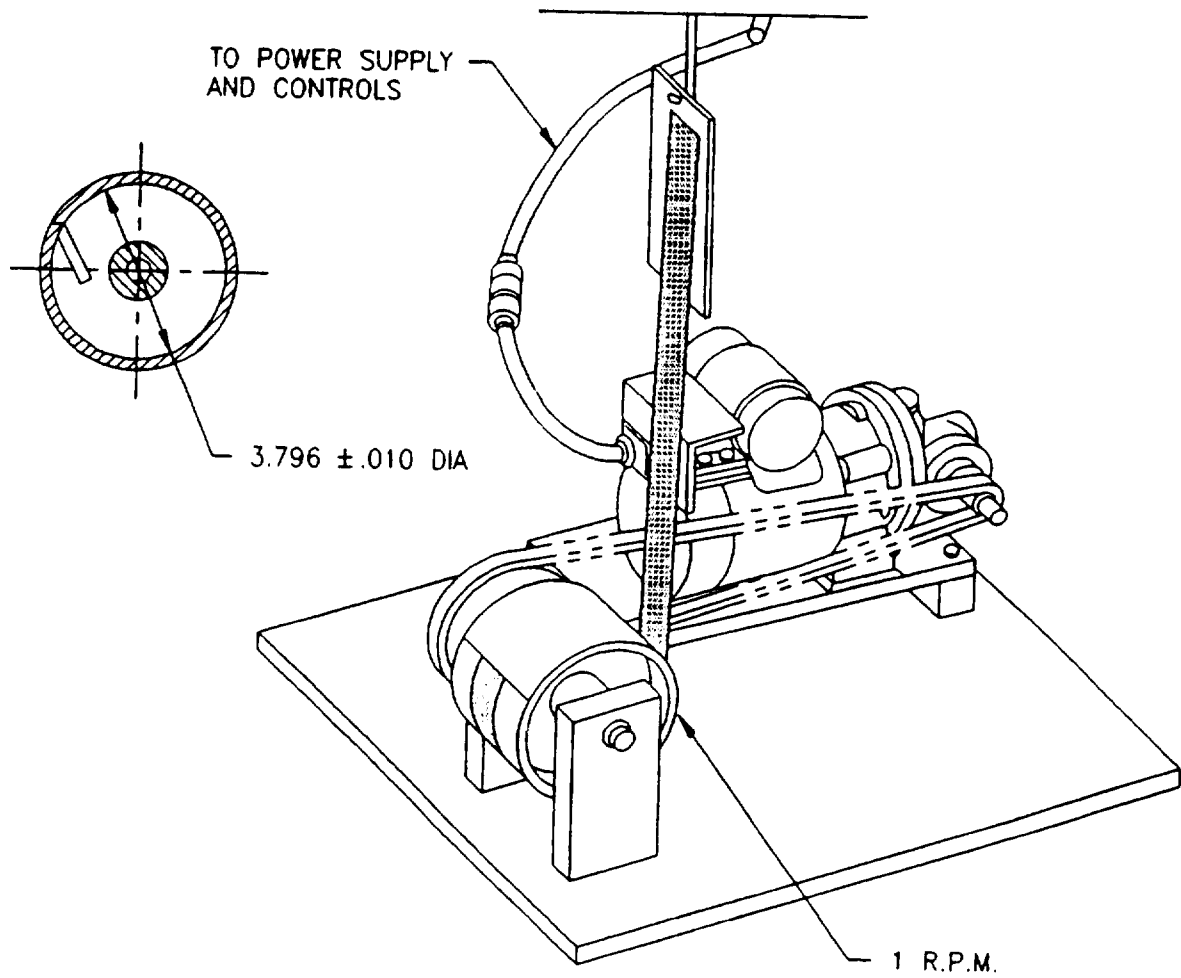


Figure 1. Low temperature motor driven removability device.

MIL-T-22085E

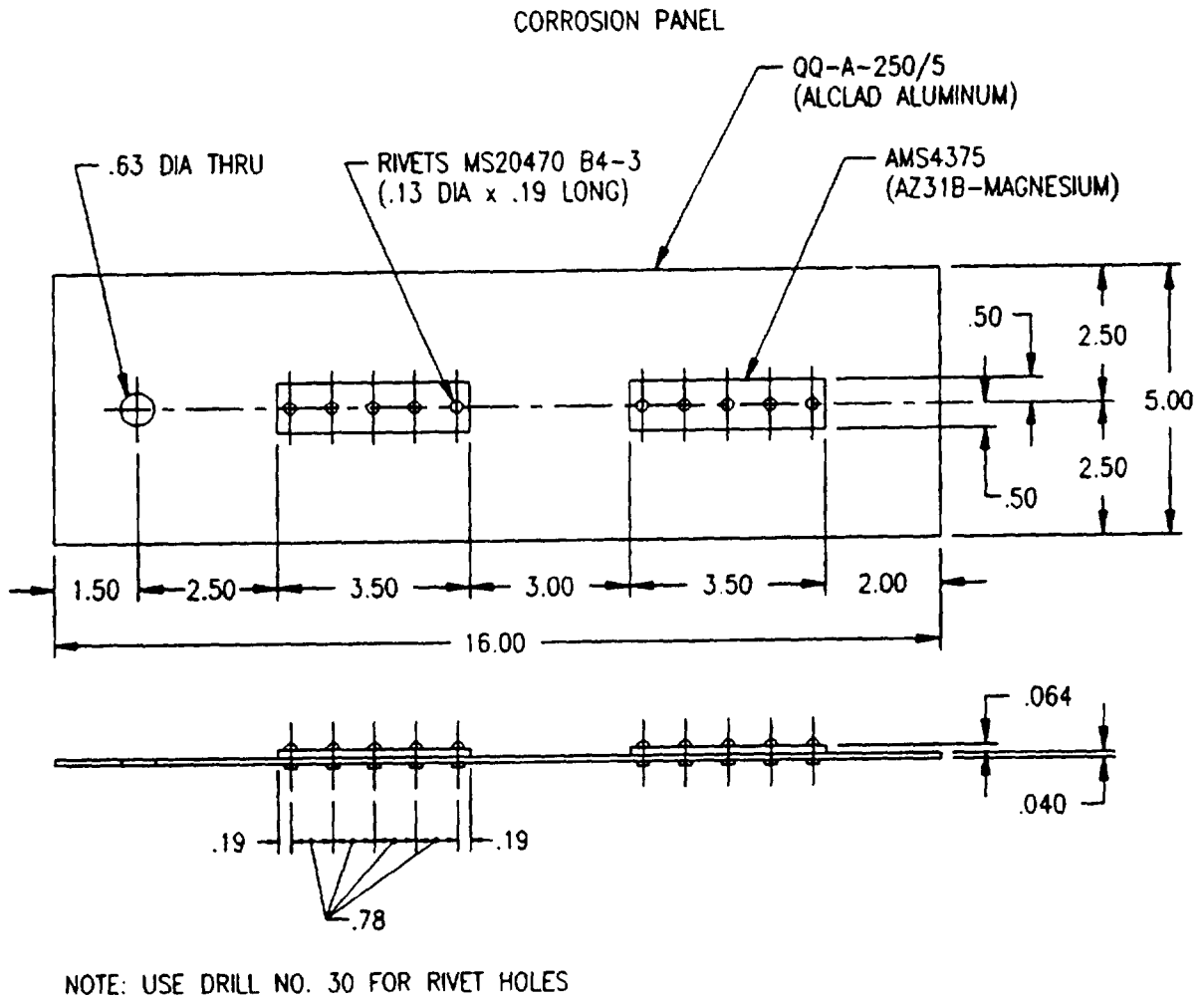


Figure 2. Accelerated outdoor exposure panel.

MIL-T-22085E

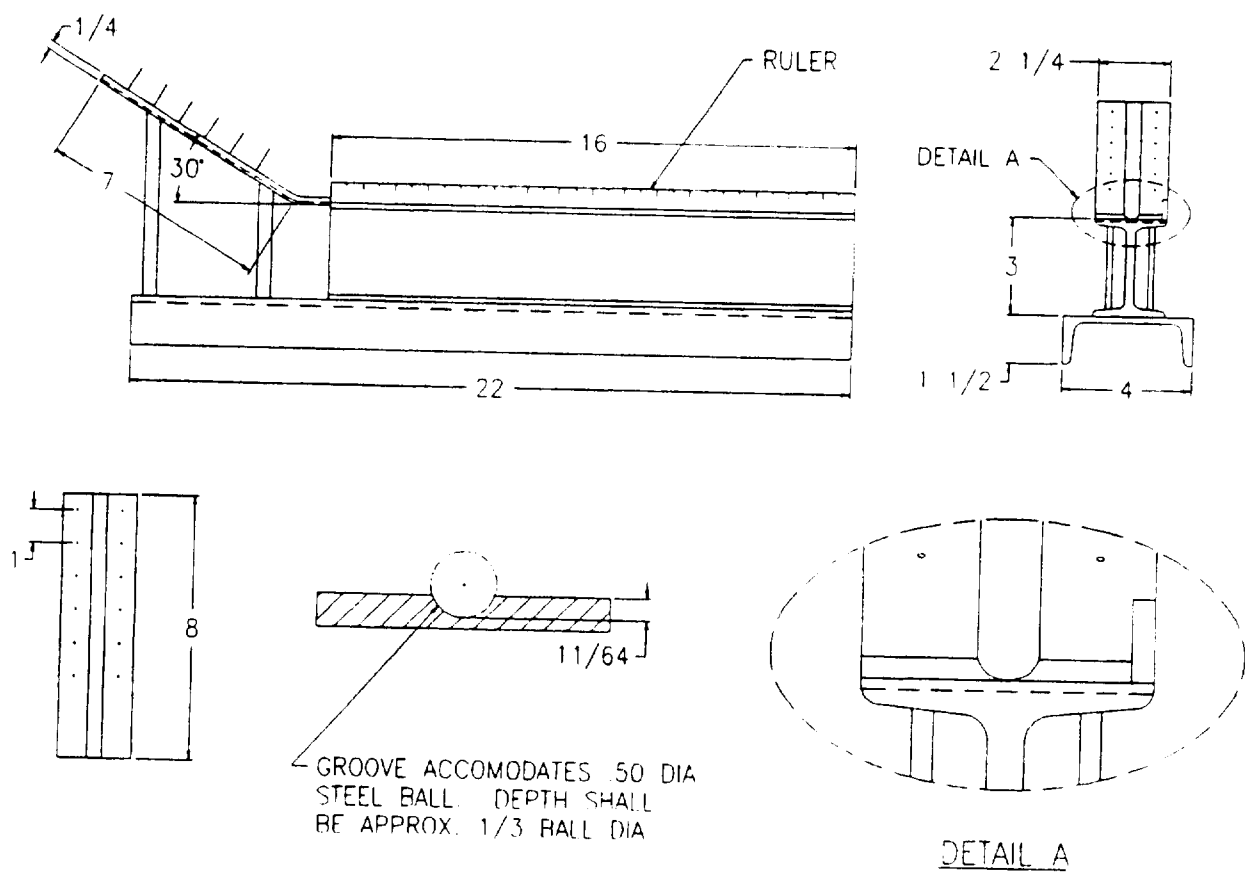


FIGURE 3. Rolling ball track apparatus.

COMMANDER
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MIL-T-22085E

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