

MIL-STD-171D
CHANGE NOTICE 2
27 September 1985

MILITARY STANDARD
FINISHING OF METAL AND WOOD SURFACES

To all holders of MIL-STD-171D.

1. Make pen and ink changes or add new paragraphs to the following pages:

Page v

Title is missing. Insert "CONTENTS" as the central heading.

Page 2

Section 2, paragraph 2.1, line 1: delete "REFERENCED DOCUMENTS" and substitute "Issue of documents". Also, delete specifications and standards and substitute "documents".

Pages 2, 3 and 5

Section 2, paragraph 2.1, delete the following specifications:

- QQ-Z-325 - Zinc Coating, Electrodeposited, Requirements for
- TT-W-571 - Wood Preservative; Recommended Treating Practice
- TT-W-572 - Wood Preservative; Water-Repellent
- VV-L-800 - Lubricating Oil, General Purpose, Preservative (Water Displacing, Low Temperature)
- MIL-P-52926 - Lacquer, Camouflage, Lusterless, Hot Spray, Forest Green

Pages 3, 5 and 6

Section 2, paragraph 2.1, add the following specifications:

- MIL-L-3150 - Lubricating Oil, Preservative, Medium
- MIL-P-53022 - Primer, Epoxy Coating, Corrosion Inhibiting, Lead and Chromate Free
- MIL-P-53030 - Primer Coating, Epoxy, Water Reducible, Lead and Chromate Free
- MIL-C-53039 - Coating, Aliphatic Polyurethane, Single Component, Chemical Agent Resistant

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MIL-STD-171D

Page 6

Section 2, paragraph 2.2, add the following specifications:

- ASTM A386 - Zinc Coating (Hot Dip) On Assembled Steel Products
- ASTM B633 - Zinc On Iron and Steel, Electrodeposited Coatings of

Pages 2, 3, 4 and 5

Section 2, paragraph 2.1 requires some editorial corrections. The corrected versions of the documents should read as follows:

- TT-C-520 - Coating Compound, Bituminous, Solvent Type, Underbody, (For Motor Vehicles)
- TT-E-1593 - Enamel, Silicone Alkyd Copolymer, Glass (For Exterior And Interior Use)
- TT-P-659 - Primer Coating & Surfacer Synthetic, Tints and White, (For Metal & Wood Surface)
- MIL-R-3043 - Resin Coating, Unpigmented, For Engine Components and Metal Parts
- MIL-M-3171 - Magnesium Alloy, Processes For Pretreatment and Prevention of Corrosion on
- MIL-C-5541 - Chemical Conversion Coatings on Aluminum Alloys
- MIL-C-10578 - Corrosion Removing and Metal Conditioning Compound (Phosphoric Acid Base)
- MIL-C-14538 - Chromium Plating, Black (Electrodeposited)
- MIL-E-16400 - Electronic, Interior Communication and Navigation Equipment, Naval Ship and Shore, General Specification for
- MIL-F-18264 - Finishes, Organic, Weapons System, Application and Control of
- MIL-D-23003 - Deck Covering Compound, Nonslip, Rollable
- DOD-P-23236 - Paint Coating Systems, Steel Ship Tank, Fuel and Salt Water Ballast (Metric)
- MIL-C-26074 - Coating, Electroless Nickel, Requirements for
- FED-STD-141 - Paint, Varnish, Lacquer and Related Materials, Methods of Inspection, Sampling and Testing
- FED-STD-595 - Color (Requirements for Individual Color Chips)

Page 14

Table II, finish 1.2.4 delete the "-P-" from the MIL document identification number and substitute "-C-"; corrected version should read "MIL-C-14538."

Page 15

Table II, finish 1.9.1, 1.9.2, and 1.9.3: delete "QQ-Z-325" and substitute "ASTM B633".

Page 20

Table V, finish 5.3.1.1, class 1 - Delete the class 1 description and substitute the following: "class 1, supplementary preservative treatment or coating, as specified".

MIL-STD-171D

Table V, finish 5.3.1.2, class 1 - Delete class 1 and the class 1 description and substitute the following: "Class 2, supplementary treatment with lubricating oil conforming to MIL-L-3150".

Table V, finish 5.3.2.1 and class 1 - Delete the class 1 description and substitute the following: "Class 1, supplementary preservative treatment or coating, as specified."

Table V, finish 5.3.2.2, class 1 - Delete class 1 and the class 1 description and substitute the following: "Class 2, supplementary treatment with preservative conforming to MIL-C-16173, grade 1 or MIL-L-3150 (as alternate for very small parts)".

Page 32

Table XIII, finish 20.19, 20.20, 20.21, 20.23: add MIL-P-23377 as an alternate primer for aluminum surfaces under footnote 3/.

Table XIII, finish 20.22: delete outlined finish and insert, "Discontinued, use finish 20.21".

Table XIII, finish 20.24 shall include alternative choices. Add the following alternates for finish 20.24:

<u>Finish No.</u>	<u>First Coat</u>	<u>Topcoat(s)</u>	<u>Remarks</u>
20.24	MIL-P-52192 ^{5/} or MIL-P-53022 or MIL-P-53030	MIL-C-46168 or MIL-C-53039	Chemical agent resistant camouflage
20.24.1	MIL-P-52192 ^{5/}	MIL-C-46168	
20.24.2	MIL-P-52192 ^{5/}	MIL-C-53039	
20.24.3	MIL-P-53022 ^{6/}	MIL-C-46168	
20.24.4	MIL-P-53022 ^{6/}	MIL-C-53039	
20.24.5	MIL-P-53030 ^{6/}	MIL-C-46168	
20.24.6	MIL-P-53030 ^{6/}	MIL-C-53039	

5/ MIL-P-23377 (Type I) shall be used on aluminum and nonferrous surfaces or when both ferrous and nonferrous materials are present.

6/ MIL P-53022 or MIL-P-53030 may be used on either ferrous or non-ferrous materials. MIL-P-23377 (Type I), MIL-P-53022 and MIL-P-53030 shall be used when both ferrous and nonferrous materials are present in the same assembly

Page 36

Table XVI, finish 24.15: delete "MIL" from the document identification number and substitute "DOD"; corrected version should read "DOD-P-23236".

MIL-STD-171D

Table XVI, finish 24.17 shall include alternative choices. Add the following alternates for finish 24.17:

<u>Finish No.</u>	<u>Description of Coating</u>	<u>Remarks</u>
24.17	MIL-P-23377 ^{5/} , MIL-C-22750	For protection of areas exposed to chemicals and solvents or for internal surfaces where chemical agent resistant coating is required.

^{5/} MIL-P-23377 (type I) shall be used on aluminum and nonferrous surfaces or when both ferrous and nonferrous materials are present. MIL-P-52192 is the preferred primer for assemblies with only ferrous material. Alternative Coatings of MIL-P-53022 or MIL-P-53030 may also be used on both ferrous and nonferrous materials or when both materials are present in the same assembly.

5.4 Preservative Treatments for Wood

Delete the first and second sentences and replace them with the following three new sentences:

"Preservative treatments are often required for both painted and unpainted material and must be used when specified. A nonpentachlorophenol preservative should be used for this purpose. Caution must be exercised in the use of preservative materials as some water based preservatives might cause objectionable swelling and/or a raised - grain in a high quality end use. When a preservative treatment is specified, the wood surface shall be dry and free from grease and other foreign matter before it is treated."

Delete the sixth and seventh sentences and substitute the following:

"Table XVII lists two treatments"

Add new subparagraph as follows:

"5.4.1 Preservative identification. The letters "PA" shall be annotated on all wood products subjected to the PQ56 (copper-S-quinolinolate) preservative treatment in accordance with Table XVII. The letters "PB" shall be annotated on all wood products subjected to the M-GARD W550 (zinc naphthenate emulsifiable) preservative treatment in accordance with Table XVII."

Page 37-A

5.4.2 Presence of Preservative.

5.4.2.1 Presence of PQ56 (copper-S-quinolinolate) preservative. When treated with PQ56, the box shall show evidence of discoloration when tested as specified in 5.4.4.1 and inspected in accordance with 5.4.3.1.

MIL-STD-171D

5.4.2.2 Presence of M-GARD W550 (zinc naphthenate emulsifiable) preservative. When treated with M-GARD W550, the box shall show evidence of discoloration when tested as specified in 5.4.4.2 and inspected in accordance with 5.4.3.2.

Add new paragraphs as follows"

"5.4.3 Inspection for presence of preservation.

5.4.3.1 Presence of PQ56 (copper-8-quinolinolate) preservative. (See 5.4.2.1) Major defect. A sample of 15 boxes shall be selected at random, from each lot, for this test. Four individual boards shall be tested from each box; each board from a different side of the box. The boards shall be tested in accordance with 5.4.4.1. If one board fails to meet the applicable requirement, an additional board may be tested from the box. The failure of two boards to meet the requirements shall constitute the rejection of the box and the lot.

5.4.3.2 Presence of M-GARD W550 (zinc naphthenate emulsifiable) preservative. (See 5.4.2.2), Major defect. A sample of 15 boxes shall be selected at random, from each lot, for this test. Four individual boards shall be tested from each box; each board from a different side. The boards shall be tested in accordance with 5.4.4.2. If one board fails to meet the applicable requirement an additional board may be tested from the box. The failure of two boards to meet the requirements shall constitute the rejection of the box and the lot."

Add new paragraphs as follows:

"5.4.4

5.4.4.1 Presence of PQ56 (copper-8-quinolinolate) preservative.

5.4.4.1.1 Primary method.

5.4.4.1.1 .1 Materials and equipment. The material and equipment required are as follows:

a. PA Check (indicator): The formulation contains 10 parts by weight, of sodium diethyldithiocarbamate trihydrate (see 5.4.7) and 90 parts by weight of distilled water.

b. Dropper: An ordinary glass tube eyedropper may be used.

5.4.4.1.1.2 Test procedure. Two drops of PQ Check (indicator) shall be applied to the wood surface at both ends of the board and the middle. An immediate dark brown coloration and the spreading of the drops shall indicate PQ56 treatment.

5.4.4.1.2 Alternate method.

MIL-STD-171D

Page 37B

5.4.4.1.2.1 Materials and equipment. The material and equipment required are as follows:

a. Reagent. Dissolve 0.5 grams chrome azurol S concentrate (see 5.4.8) and 5.0 grams sodium acetate in 80 ml of distilled water and then dilute further to 500 mL total with distilled water.

b. Sprayer. A common manual (fly) sprayer type applicator shall be used.

5.4.4.1.2.2 Test procedure. Spray solution over surface of dried wood. A deep blue color reveals the presence of copper (from the copper-8-quinolinolate)."

5.4.4.2 Presence of M-GARD W550 (zinc naphthenate emulsifiable preservative).

5.4.4.2.1 Primary method.

5.4.4.2.1.1 Materials and equipment. The materials and equipment required are as follows:

a. Reagent. Dissolve 0.1 grams of dithizone (diphenylthiocarbazone) (see 5.4.9) in 100 mL of chloroform (Note: Solutions should be made up daily).

Sprayer. A common manual (fly) sprayer type applicator shall be used.

5.4.4.2.1.2 Test procedure. Spray solution evenly over dried wood. The indicator will turn pink when zinc (M-GARD W550) is present. The pink color fades with light.

5.4.4.2.2 Alternate method.

5.4.4.2.2.1 Materials and equipment. The materials and equipment required are as follows:

a. Reagent. (stock solutions).

(1) 1 gram of potassium ferricyanide dissolved in 100 mL of distilled water.

(2) 1 gram of potassium iodide dissolved in 100 mL of distilled water.

(3) Starch indicator solution. Make a paste of 1 gram of soluble starch in about 5 mL of distilled water, add 100 mL of distilled water and boil for 1 minute with constant stirring. Cool. Note: This solution is subject to biodegradation and therefore should not be used longer than 3 days before a new batch is prepared.

b. Sprayer. A DeVilbiss No. 30 atomizer or equivalent.

MIL-STD-171D

5.4.4.2.2.2 Test procedure. Mix 10 mL each of the three stock solutions and pour into the atomizer (sprayer). Spray mixture evenly over surface of dried wood. The solution will cause the treated wood to turn a deep blue instantly while the untreated part will retain its original color."

Add new paragraphs as follows:

"5.4.5 PQ56. Preservative for the 1.8 percent copper-8-quinolinolate solution, may be obtained from the Chapman Chemical Company, P.O.Box 9158, Memphis, TN 38019 or equivalent facility.

5.4.6 M-GARD W550 (zinc hydronap). Preservative for the 3 percent zinc as metal solution, may be obtained from the Mooney Chemicals, Inc., 2301 Scranton Road, Cleveland, OH 44113-9988 or equivalent facility.

5.4.7 Sodium diethylthiocarbamate trihydrate. This reagent may be obtained from J. T. Baker Chemical Co., Phillipsburg, NJ 08865 or equivalent facility.

5.4.8 Chrome axurol "s". This reagent may be obtained from Eastman Chemical Co., Rochester, NY or equivalent facility.

5.4.9 Dithizone (diphenylthiocarbazon). This reagent may be obtained from Matheson, Coleman and Bell Co., Cincinnati, OH or equivalent facility."

Page 38

Table XVII. Wood preservative treatments.

Finish No. 25.1 Vacuum-pressure or vacuum-soak treatment.

Delete in its entirety:

Finish No. 25.2 Change as follows:

"25.1 Immersion treatment. Dress the wood part to correct cross sectional dimensions. When specified the wood item of the finished wood parts thereof shall be completely immersed for a minimum of one minute in a solution of wood preservative PQ56 reduced with water down to 1.8 percent copper-8-quinolinolate solution (see 5.4.5) or an emulsion of wood preservative M-GARD W550 (zinc naphthlenate) reduced with water down to 3 percent zinc as metal (see 5.4.6). Alternatively, the wood items or the finished wood parts thereof shall be completely flooded for a minimum of one minute in PQ56 or M-GARD W550 emulsion as to inundate all interior and exterior surfaces (shen finished wood parts are dipped). Care shall be exercised to assure complete coverage of all surfaces of the board. After the dip treatment, the items must be air dried (or dried for an appropriate time in a kiln or oven) for a period of 24 hours minimum in a well ventilated area allowing full air circulation around all surfaces of the wood. The wood items must be dried prior to shipment.

The treater/manufacturer will be required to obtain and provide all available safety, health and environmental data e.g., Material Safety Data Sheets.

MIL-STD-171D

25.3 Surface treatment. Change as follows:

"25.2 Surface treatment. Dress the wood part to correct cross sectional dimensions. Apply one liberal coat of preservative solution. Where practical, apply the solution by immersion for not less than one minute. Otherwise brushing or flooding is acceptable. Allow the treated wood to air-dry or kiln-dry before it is painted."

Page 40

Table XIX Miscellaneous paint finishes for wood.

Finish No. 29.5 Preservative-shellac-varnish, first sentence - Change to "Apply finish 25.1 or 25.2."

Page 44

Review interest, Army - Add "MD".

2. Retain this NOTICE and insert before Table of Contents.

3. Holders of MIL-STD-171 will verify that page changes indicated herein have been entered. This notice will be retained as a check sheet. This issuance is a separate publication. Each notice is to be retained by stocking points until the Military Standard is completely revised or canceled.

Custodians:

Army -- XR
Navy -- SH
Air Force -- 20

Preparing activity:

Army -- MR

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Review interest:

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Air Force -- 70, 99

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