



AN INNOVATIVE COMPANY

EAST/WEST INDUSTRIES, INC.

**EWI-FC-1000
REV AL**

JANUARY 11, 2018

**EAST/WEST
FINISH CODES**

CORINNE INCHIERCHIRO

PREPARED BY

01/11/2018

DATE

JEFF WALSH

PROJECT ENGINEER

01/12/2018

DATE

MIKE VETTER

ENGINEERING MANAGER

01/12/17

DATE

TABLE OF REVISIONS (1 of 4)

REV	DATE	PAGE	DESCRIPTION
-	11/20/85	All	Initial Release of Document
A	3/17/86	4-13	Remove pages 4-13. Insert 4 and 5 reflecting updated finish codes
B	11/03/86	1 4 5	Addition of item 1.3 Added E/W code A (BL) -2, -3, -4 color: MIL-STD-595 (was) FED-STD-595 (Added) -7 for urethane coating
C	9/04/87	ALL 3 4 5 7	Renumbered sheet - therefore page 1 is now page 3 page 4 is now page 6 page 5 is now page 7 In title for MIL-S-5002, changed "Metallic" to Inorganic" Changed title for MIL-F-7179 to agree with the wording of the title of specification Revision F. Added specifications MIL-F-18264, MIL-L-23398, MIL-C-26074, and MIL-L-46010. Added words "For Metal and Wood Surfaces" to title of MIL- HDBK-132. (Code -7) White #17886 (was) White #17857
D	12/11/87	4 5 6 8	Para. 2.1 Specifications, Federal, Added QQ-N-290 Nickel Plating (Electrodeposited). Deleted MIL-C-16173 and MIL-L-81352. Deleted, under Standards, MIL-STD-889. Item CD (B) remarks - changed "minimum of 23 hours" to "minimum of 3 hours".
E	03/20/89	6	Added 2.2 and EW34002
F	02/03/92	5 7 8	Added, MIL-C-85285 Polyurethane, High Solids Deleted, MIL-C-83286 Urethane, Aliphatic Isocyanate For A (GY) #35164 (was) #36231 Code -2: Added, Type I, Class 2 Codes -2, -3, -4 and -7: MIL-C-85285 (was) MIL-C-83286 Added, Code -8
G	11/21/96		Incorporated Amendments 1-5
H	1/14/97	5	Changed format for all nickel sealed anodize - No process change affected.
J	8/13/98	5 6	A (BK): 27040 (was) 37038 HA (BK): 27040 (was) 37038 CD (B): QQ-P-416 (was) 375 +/- 25 degrees F -1: In Remarks (Added) "...Aluminum..." -1A: (Added) (Added) Hardware Modification Codes

TABLE OF REVISIONS (2 of 4)

<u>REV</u>	<u>DATE</u>	<u>PAGE</u>	<u>DESCRIPTION</u>
K	6/18/2002	3	(Added) Codes -11, P(C) and MOD2 Incorporated EAI 1J and ECR 00-029
L	2/12/2003	4 5	CD (T) (Added) (Added) Code -12
M	7/8/2003	4	Code -1: (Added) "... or MIL-PRF-23377, TY I..."
N	4/1/2004	1 - 5 4 5	Updated all superseded specifications Codes CD, CD (B): added hardness requirements (Added) Codes -13, -14 & -15
P	9/6/2007	4	(Added) Code CC (B) Cad Plate – Clear Iridite
Q	9/17/08	4	Codes P & P(C): SAE AMS 2700 (was ASTM-A-967) Code CC (B): "... CL 1 ..." (was "... CL 2 ...")
R	4/7/2009	4 5 6	(Codes C, CH) MIL-DTL-5541 (was) MIL-C-5541 Code CD (B) Superseded by Code CD Code EN, MIL-DTL-32119 (was) AMS-C-26074 Codes P & P(C) (Added) pickling for 15-5PH and 17-4PH materials (Added) Code ZN Zinc/Nickel Plate (Added) Note 1 (Code -1) (ref. MIL-C-22751) (was) MIL-C-22751 (Codes -1, -3, -4, -7 thru -11) (Ref. MIL-F-18264) (was) MIL-F-18264 (Code -14) (Ref. MIL-P-9503) (was) MIL-P-9503 (Code MOD2) MIL-DTL-13924 (was) MIL-C-13924
S	5/27/2009	4	(Code P) AMS2700 TY II Copper Sulfate Test (WAS) AMS 2700 (High Humidity Test) (Code P(C)) Superseded by Code P (WAS) AMS 2700 (Copper Sulfate Test)
T	8/3/09	4	(Code P) Updated per ECR 09-030
U	3/15/2011	5	(Code -4) (Added) Suffix Code 'GY': Color: Gray # 26173
V	4/20/2011	5	(Code -12) (Added) Suffix Code 'GY': Color: Gray # 26173
W	3/26/12	4	CC (B3) (Added)
Y	5/8/12	5	Polyester, T61C TY I (Was) Duralon Nylon, TY II

TABLE OF REVISIONS (3 of 4)

<u>REV</u>	<u>DATE</u>	<u>PAGE</u>	<u>DESCRIPTION</u>
Z	7/25/2012	5	Code -1 Suited Aluminum, Stainless, Cad Plate & Composite (WAS) Aluminum & Polymer Code -1A (Added) MIL-PRF-23377 MIL-DTL-53030 (WAS) MIL-P-53030 Suited for Bare Steel (WAS) Ferrous & Magnesium
AA	7/21/2014	10	Code -4: (Added) P/N with Suffix Code 'BK': Color: Black # 37038 per FED-STD-595
AB	10/03/2014	5 4	CODE EN: AMS2404 (WAS MIL-DTL-32119) (ADDED CODE) CR, CHROMIUM PLATE
AC	10/17/2014	4	Code CHR (WAS) CR (Note: CR is NGC code)
AD	10/24/2014	4	Code CHR: .0020 - .0025 (WAS) .0005 - .0007
		iii, 3-10	Put in table format.
		3-7	(ADDED) Northrop Grumman Finish Codes: CA14, CBS4, CH01, CM20,CN25,CN50,CP,CP01,CR,CT01,CW,CW10,CY18,CY47,E Y10,FP,GS-9031,M,NG. EWI Codes: OS MFG, OS SERVICE, OSSP MFG, OSSP SERVICE.
AE	06/23/2015	COVE R 3 7	(DELETED) ENGINEERING MANAGER (ADDED) CODE CC (B2) FINISH CODE P: 300 Series CRES, TYPE II (WAS) 300 Series CRES, TYPE VI
AF	12/18/2015	10	(ADDED) -16 POLYURETHAN COATING, HI-SOLIDS.
AG	12/19/16	10 8	(ADDED) -17 POLYURETHANE COATING, HI-SOLIDS. (ADDED) -1B PRIMER
AH	03/22/17	5	Code EN. .0008/.0012 thick unless otherwise specified. Thickness per AMS- 2404, ¶ 3.4.1. (.0005-.0015). HRC required (see note 3) (was) 0008/.0012 thick. Thickness per AMS-2404, ¶ 3.4.1. (.0005 - .0015) HRC Required (see Note 3)
		Cover	Updated letterhead to reflect new address.

TABLE OF REVISIONS (4 of 4)

<u>REV</u>	<u>DATE</u>	<u>PAGE</u>	<u>DESCRIPTION</u>
AJ	07/21/17	3	(ADDED) CODE A (CA) ANODIZE, CHROMIC ACID. (ADDED) CODE A (RD) ANODIZE (ADDED) NOTE TO CODE A(GY) & MODIFIED REMARKS.
AK	10/23/17	3 4 5 6 7	DELETED CODES: CA14 AND CBS4. DELETED CODES:CH01, CN25, CN50, CP, CP01, CR, CT01. CODE EN COMPLETELY RE-WRITTEN. AMS-C-26074 (WAS) AMS2404. DELETED CODES: CW, CW10, CY18, CY47, EY10, FP. DELETED CODES: M AND NG. CODE -6 (Now on page 8) APPLICABLE SPECIFICATIONS: MIL-L-23398, TY I OR II (WAS) MIL-L-22398. REMARKS: APPLICATION METHOD IS BY BRUSHING, DIPPING, OR BY SPRAYING: AIR CURE. (REF. .0002/.0005 THICK (WAS) SPRAY ON. .0002/.0005 THICK
AL	01/11/2018	5	(ADDED) CODE HA (BK)

1.0 SCOPE

1.1 The purpose of this specification is to present, in abbreviated form, the various finishes required to protect metals, used in East/West production, from corrosion or any other deterioration. Pages 5-7 of this document list the finishes and the military specification covering the use and application of the finishing materials.

1.2 Reference should be made to MIL-STD-171, Finishing of Metal and Wood Surfaces and to MIL-HDBK-132, Protective Finishes for Metal and Wood Surfaces. These two documents provide a guide to selection of suitable finishing materials, procedures for the application of such materials, and the various methods of cleaning surfaces prior to any application of a finish coating. Use of these two reference documents along with the finishing code index will ensure that the correct finish has been applied in the proper manner to a properly prepared surface.

1.3 Dimensions are after finishes except as noted by applicable drawings.

2.0 APPLICABLE DOCUMENTS

The following documents, of exact issue shown, form a part of this specification to the extent specified herein. In the event of conflict between documents referenced here and detail contents of other sections of this specification, the detail requirements of this specification shall prevail.

2.1 Government Documents

MIL-HDBK-132	Protective Finishes for Metal and Wood Surfaces
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SPECIFICATIONS

Military

MIL-S-5002	Surface Treatments and Inorganic Coating for Metal Surfaces of Weapons Systems (S/S by ASTM-A-967)
MIL-DTL-5541	Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-P-9503	Paint, Rubber, Air Supported Radome
MIL-F-18264	Finishes, Organic, Weapons Systems, Application and Control of
MIL-C-22751	Coating System, Epoxy Polyamide, Chemical and Solvent Resistant, Process for Application of (Cancelled, No superseding document, ref. Code -1)
MIL-L-23398	Lubricant, Solid Film, Air cured, Corrosion Inhibiting

MIL-P-53030	Primer Coating, Epoxy, Water Reducible, Lead and Chromate Free
MIL-DTL-13924	Coating, Oxide, Black, for Ferrous Metals
MIL-DTL-26074	Coatings, Electroless Nickel, Requirements for (S/S by MIL-DTL-32119)
MIL-DTL-32119	Coatings, Electroless Nickel, Special Applications (Was MIL-DTL-26074, S/S by AMS 2404)
MIL-PRF-23377	Primer Coating, Epoxy, High Solids
MIL-PRF-85285	Coating: Polyurethane, High Solids
MIL-PRF-85582	Primer, Epoxy, Waterborne

STANDARDS**Federal**

FED-STD-595	Colors
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Military

MIL-STD-171	Finishing of Metal and Wood Surfaces
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2.2 Non-Government**SAE**

AMS-2403	Nickel Plating, General Purpose (Was AMS-QQ-N-290)
AMS 2404	Nickel, Electroless, Plating (Was MIL-DTL-32119, S/S by AMS -C-26074)
AMS 2417	Plating, Zinc-Nickel Alloy
AMS 2460	Plating, Chromium
AMS 2700	Steels, Passivation of Corrosion Resistant (Was ASTM-A-967)
AMS-C-26074	Electroless Nickel Coatings (Was AMS 2404)
AMS-QQ-N-290	Nickel Plating, Electrodeposited (S/S by AMS-2403)
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)

ASTM

ASTM-A-967

Chemical Passivation Treatment for Stainless Steel Parts (S/S by SAE AMS 2700)

East West Ind.

EW34002

Solid Film Lubricant

EW32011

MOD 1 Hardware Finish Code

3.0 FINISH CODES

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
A	Anodize, Sulphuric Acid	MIL-A-8625, Type II CL 1 (Dichromate Seal)	
A (BK)	Anodize, Sulphuric Acid	MIL-A-8625, Type II, CL 2 Nickel Acetate Seal	Color: Black #27040 per FED-STD-595
A (BL)	Anodize, Sulphuric Acid	MIL-A-8625, Type II, CL 2 Nickel Acetate Seal	Color: Blue #15090 per FED-STD-595
A (CA)	Anodize, Chromic Acid	MIL-A-8625 Type I, CL I	102C372-11
A (GN)	Anodize, Sulphuric Acid	MIL-A-8625, Type II, CL 2 Nickel Acetate Seal	Color: O ₂ Green per EWI-STD-AGN
	Note: Tru-Tone and EWI-QA department has sample EWI-STD-AGN. All other vendors shall use color #34090 per FED-STD-595.		
A (GY)	Anodize, Sulphuric Acid	MIL-A-8625, Type II, CL 2 Nickel Acetate Seal	Color: Tru-Tone Gray 4A per EWI-STD-AGN
	Note: Tru-Tone and EWI-QA department has sample EWI-STD-AGN. All other vendors shall use color #36320 per FED-STD-595.		
A (RD)	Anodize, Sulphuric Acid	MIL-A-8625, Type II, CL 2 Nickel Acetate Seal	Color: Red #31302 per FED-STD-595
C	Chemical Film	MIL-DTL-5541, CL 1A	Immersion Treatment (Alternate "CH")
CC (B)	Cadmium Plate, Clear Iridite	SAE AMS QQ-P-416 Type II, CL 1, Clear Iridite	Thickness: .0005-.0009 HRC required (see Note 1)
CC (B2)	Cadmium Plate, Clear Iridite	SAE AMS QQ-P-416 TYPE II, CL 2 (Toggles 269C853, 102C303)	Thickness: .0005-.0009 HRC required (see Note 1)

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
CC (B3)	Cadmium Plate, Clear Iridite	SAE AMS QQ-P-416 Type II, CL 3, Clear Iridite	Thickness: .0002 Minimum HRC required (see Note 1)
CD	Cadmium Plate	SAE AMS QQ-P-416 Type II, CL 1	Thickness: .0005-.0009 HRC required (see Note 1)
CD (B)	Superseded by Finish Code CD		
CD (T)	Cadmium Plate	SAE AMS QQ-P-416 Type I, CL 1	Thickness: .0005-.0009 HRC required (see Note 1)
<p>Note 1: <u>Cadmium Plate: Codes CC(B), CC(B2), CC(B3), CD, CD(B), CD(T)</u> Material Hardness (HRC) and Stress and/or Embrittlement Relief requirements (see below) shall be noted on the accompanying documents (B/P, Op Sheet, Green Card, P.O., MFV, C of C)</p> <ul style="list-style-type: none"> • (For HRC < 33), No Stress or Embrittlement Relief required • (For 33 ≤ HRC < 55), (@ 375°F) Prior to plating, stress relieve steel parts that are formed or machined after heat treat. After plating, Hydrogen Embrittlement Relief required. • (For 55 ≤ HRC), (@ 275°F) Prior to plating, stress relieve steel parts that are formed or machined after heat treat. After Plating, Hydrogen Embrittlement Relief required. 			
CH	Chemical Film	MIL-DTL-5541, CL 1A	Hand Applied
CHR	Chromium Plate	SAE-AMS-2460, CL II	Thickness: .0020-.0025 HRC required (see Note 2)
	<p>Note 2: <u>Code CHR (SAE-AMS-2460)</u> Material Hardness (HRC) and Stress and/or Embrittlement Relief requirements (see below) shall be noted on the accompanying documents (B/P, Op Sheet, Green Card, P.O., MFV, C of C)</p> <ul style="list-style-type: none"> • (For HRC < 36) No Stress or Embrittlement Relief required. <p>(For HRC ≥ 36) (@375°) Prior to plating, stress relieve steel parts that are formed or machined after heat treat. After Plating, Hydrogen Embrittlement Relief per AMS-2759/9 required.</p>		
CM20	Passivate	Northrop Grumman Code per GP20A (PS)	

CODE	FINISH		APPLICABLE SPECIFICATIONS			REMARKS
EN	Electroless Nickel Plate		AMS-C-26074 Class & Grade depend upon basis metal and hardness			see the following categories, EN (1) thru EN (5), and Note 3
	Basis Metal	Shot Peen	Stress Relief	Plating Class	Grade (Thickness)	Embrittlement Relief
EN (1)	Steel, Cres (<40 HRC)	See Note 3a	No	CL 1	Grade C .0015 (min)	Yes, 375 °F
EN (2)	Steel, Cres (≥ 40, ≤ 53 HRC)		Yes	CL 2	Grade C .0015 (min)	Yes, 550 °F
EN (3)	Steel (>5 HRC)		Yes	CL 2	Grade C .0015 (min)	Yes, 550 °F
EN (4)	Aluminum Alloy		No	CL 4	Grade A .001 (min)	No
EN (5)	Other Alloys		No	CL 1	Grade B .0005 (min)	No
Note 3: for code EN, Electroless Nickel Plating						
<p><u>Purchase order must state the following:</u></p> <ol style="list-style-type: none"> 1. Quantity to be plated. 2. Basis metal to be plated. a) Tensile strength or hardness. 3. Pre-plating treatment. a) Peening requirements (See below note to Designer) b) Stress relief. (see table above) 4. Plating per AMS-C-26074 a) Class. (see table above) b) Grade (thickness) see drawing requirements: if noted on drawing (see table above)) 5. Post plating treatment. a) Hydrogen Embrittlement relief. (see table above) 						
<p>Note 3a, Shot Peen: Add the following note to drawing for parts designed for unlimited fatigue life. Shot peen prior to plating in accordance with AMS2430, AMS2432, AMS2546, or AMS-R-81841. (See AMS2404 paragraph 8.12)</p>						
GS-9031	Anodize, Hard Coat		Northrop Grumman Code per GP20A			
HA	Anodize, Hard Coat		MIL-A-8625, Type III, CL 1		Thickness: .002/.003 Unless otherwise specified	
HA (BK)	Anodize, Hard Coat		MIL-A-8625, Type III, CL 2		Color: Black #27040 per FED-STD-595	
HA (GN)	Anodize, Hard Coat		MIL-A-8625, Type III, CL 2		Color: O ₂ Green #34090 per FED-STD-595	
HA (GY)	Anodize, Hard Coat		MIL-A-8625, Type III, CL 2		Color: Gray #36231 per FED-STD-595	

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
MOD1	HARDWARE MODIFICATION PREFIX Prime & Paint	EW32011	Color: Same as Code -4
MOD2	HARDWARE MODIFICATION PREFIX Oxide Coating	MIL-DTL-13924	Color: Black (Ref. 389C736)
NL	Nickel Plate	SAE AMS 2403, CL 1, GR C, Form SD (S/S AMS-QQ-N-290)	.001 thick copper under nickel coating HRC required (see Note 4)
	<p>Note 4: <u>Nickel Plate: Codes NL</u> Material Hardness (HRC) and Stress and/or Embrittlement Relief requirements (see below) shall be noted on the accompanying documents (B/P, Op Sheet, Green Card, P.O., MFV, C of C)</p> <ul style="list-style-type: none"> • (For HRC < 40), No Stress or Embrittlement Relief required • (For HRC ≥ 40) <ul style="list-style-type: none"> ○ Prior to plating, stress relieve steel parts that are formed or machined after heat treat. <ul style="list-style-type: none"> ▪ (For 40 ≤ HRC < 55), Bake at 375°F) ▪ (For 55 ≥ HRC), Bake at 275°F) <p>After plating, Hydrogen Embrittlement Relief per AMS 2759/9 required</p>		
OS MFG	Outside Manufacturing		
OS SERVICE	Outside Service		
OSSP MFG	Outside Manufacturing Special Process		
OSSP SERVICE	Outside Service Special Process		
P	Passivate	SAE AMS 2700 Copper Sulfate Test	300 Series CRES, TYPE II 400 Series CRES, TYPE II 15-5PH & 17-4PH, TYPE II Castings: may precede passivation with pickling
P (C)	Passivate	Superseded by Code P	

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
ZN	Zinc/Nickel Plate	SAE AMS 2417, TY 2	Thickness: 0004-.0007 HRC required (see Note 5)
	<p>Note 5: <u>Zinc/Nickel Plate: Code ZN</u> Material Hardness (HRC) and Stress and/or Embrittlement Relief requirements (see below) shall be noted on the accompanying documents (B/P, Op Sheet, Green Card, P.O., MFV, C of C)</p> <ul style="list-style-type: none"> • (For HRC < 40), No Stress or Embrittlement Relief required • (For HRC ≥ 40) <ul style="list-style-type: none"> ○ Prior to plating, stress relieve steel parts that are formed or machined after heat treat. <ul style="list-style-type: none"> ▪ (For 40 ≤ HRC < 55), Bake at 375°F) ▪ (For 55 ≥ HRC), Bake at 275°F) <p>After plating, Hydrogen Embrittlement Relief per AMS 2759/9 required</p>		
-1	Epoxy-Polyamide Primer	MIL-PRF-85582, TY I -OR- MIL-PRF-23377, TY I (ref. MIL-STD-7179)	Suited for Aluminum, Stainless, Cad Plate and Composite
-1A	Primer	MIL-PRF-23377, TY I -OR- MIL-DTL-53030 (ref MIL-STD-7179)	Suited for Bare Steel approved for Proj. 389 & 400
-1B	Primer	MIL-PRF-23377, TY I, CL N (Preferred)	Only acceptable class N is PPG Aerospace's Deft 02-GN-084.
-2	Polyurethane Coating, Hi-Solids	MIL-PRF-85285 (ref. MIL-F-18264)	Color: Black #37038 per FED-STD-595
-3	Polyurethane Coating, Hi-Solids	MIL- PRF -85285 (ref. MIL-F-18264)	Color: Green #34090 per FED-STD-595
-4	Coating, Hi-Solids	MIL- PRF -85285 (ref. MIL-F-18264)	Color depends up P/N suffix
	P/N with No Suffix Code: Color: Green # 24052 per FED-STD-595		
	P/N with Suffix Code 'GY': Color: Gray # 26173 per FED-STD-595		
	P/N with Suffix Code 'BK': Color: Black # 37038 per FED-STD-595		
-5	Solid Film Lubricant	EW34002	Bake On .0002/.0005 thick

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
-6	Solid Film Lubricant	MIL-L-23398, TY I OR II.	Application method is by brushing, dipping or by spraying: air cure. (ref. .0002/.0005 thick)
-7	Polyurethane Coating, Hi-Solids	MIL- PRF -85285 (ref. MIL-F-18264)	Color: White #17925 per FED-STD-595
-8	Polyurethane Coating Hi-Solids	MIL-PRF-85285	Color: O ₂ Gloss Green #14187 per FED/STD-595
-9	Polyurethane Coating, Hi-Solids	MIL-PRF-85285, TY 1 (ref. MIL-F-18264)	Color: Black #17038 per FED-STD-595
-10	Polyurethane Coating, Hi-Solids	MIL-PRF-85285 (ref. MIL-F-18264)	Color: Flat Green (W11341) #34097 per FED-STD-595
-11	Polyurethane Coating, Hi-Solids	MIL-PRF-85285 (ref. MIL-F-18264)	Color: ACES II Grey #36231 per FED-STD-595
-12	Powder Coating, Polyester T61C Type 1	N/A	Color depends up P/N suffix Thickness of coating shall be as thin as possible with coverage overspray permissible
			P/N with No Suffix Code: Color: Green # 24052 per FED-STD-595
			P/N with Suffix Code 'GY': Color: Gray # 26173 per FED-STD-595
-13	Lacquer Stick	LA-CO Industries, Inc. 1201 Pratt Blvd. Elk Grove Village, IL 60007	Color: White
-14	Paint, Rubber	(REF. MIL-P-9503)	Color: Olive Drab (Survival Kits) #34128 per FED-STD-595
-15	Coating, Acrylic	(Krylon)	Color: Clear (For Labels)
-16	Polyurethane Coating. Hi-Solids	MIL-PRF-85285 (REF MIL-F-18264)	Color: OSHA Safety Yellow # 13655 per FED-STD-595
-17	Polyurethane Coating. Hi-Solids	MIL-PRF-85285 (REF MIL-F-18264)	Color: Dark Grey # 36320 per Fed-STD-595