



AN INNOVATIVE COMPANY

EAST/WEST INDUSTRIES, INC.

**EWI-FC-1000
REV AJ**

JULY 21, 2017

**EAST/WEST
FINISH CODES**

CORINNE INCHIERCHIRO

PREPARED BY

07/21/2017

DATE

ANTHONY SQUILLANTE

PROJECT ENGINEER

7/24/2017

DATE

MICHAEL VETTER

ENGINEERING MANAGER

7/27/2017

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

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<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	CODE EN: AMS2404 (WAS MIL-DTL-32119)
		4	(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, EY10, FP, GS-9031, M, NG. EWI Codes: OS MFG, OS SERVICE, OSSP MFG, OSSP SERVICE.
AE	06/23/2015	COVER	(DELETED) ENGINEERING MANAGER
		3	(ADDED) CODE CC (B2)
		7	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	(ADDED) -17 POLYURETHANE COATING, HI-SOLIDS.
		8	(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.

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<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.

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 also 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

SPECIFICATIONS

Military

MIL-S-5002 (S/S by ASTM-A-967)	Surface Treatments and Inorganic Coating for Metal Surfaces of Weapons Systems
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
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
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

Color

Military
MIL-STD-171

Finishing of Metal and Wood Surfaces

2.2 Non-Government

SAE

AMS-2403
(AMS-QQ-N-290)
AMS-QQ-P-416
AMS 2417

Nickel Plating, General Purpose
Nickel Plating, Electrodeposited (S/S by AMS-2403)
Plating, Cadmium (Electrodeposited)
Zinc/Nickel Plate

ASTM

ASTM-A-967

Chemical Passivation Treatment for Stainless Steel Parts

East West Ind.

EW34002
EW32011

Solid Film Lubricant
MOD 1 Hardware Finish Code

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")
CA14	Cadmium Plate, Clear Iridite	Northrop Grumman Code per GP20A (CW)	
CBS4	Welding	Northrop Grumman Code per GP20A (WDN)	
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)
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)

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS								
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></p> <p>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								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center; vertical-align: middle;">CHR</td> <td style="width: 30%; padding: 5px;">Chromium Plate</td> <td style="width: 30%; padding: 5px;">SAE-AMS-2460, CL II</td> <td style="width: 30%; padding: 5px;">Thickness: .0020-.0025 HRC required (see Note 2)</td> </tr> <tr> <td colspan="4" style="padding: 5px;"> <p>Note 2: <u>Code CHR (SAE-AMS-2460)</u></p> <p>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> </td> </tr> </table>				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></p> <p>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>			
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></p> <p>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>											

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
CH01	Heat Treat	Northrop Grumman Code per GP20A (ALH)	
CM20	Passivate	Northrop Grumman Code per GP20A (PS)	
CN25	Penetrant Inspection	Northrop Grumman Code per GP20A (FP)	
CN50	Magnaflux	Northrop Grumman Code per GP20A (M)	
CP	Heat Teat	Northrop Grumman Code per GP20A	
CP01	Thermoforming	Northrop Grumman Code per GP20A (AL)	
CR	Heat Teat	Northrop Grumman Code per GP20A	
CT01	Thread Spec	Northrop Grumman Code per GP20A (T)	
CW	Heat Teat	Northrop Grumman Code per GP20A	
CW10	Welding	Northrop Grumman Code per GP20A (AW)	
CY18	Heat Teat	Northrop Grumman Code per GP20A (BT)	
CY47	Heat Treat	Northrop Grumman Code per GP20A (BW)	
EN	Electroless Nickel Plate	AMS 2404, CL 2, GR B (MIL-DTL-26074) (MIL-DTL-32119)	.0008/.0012 thick unless otherwise specified. Thickness per AMS-2404, ¶3.4.1. (.0005 - .0015) HRC required (see note 3)
	<p>Note 3: <u>Nickel Plate: Codes EN</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) 		
EY10	Heat treat	Northrop Grumman Code per GP20A	
FP	Penetrant inspection	Northrop Grumman Code per GP20A	
GS-9031	Anodize, Hard Coat	Northrop Grumman Code per GP20A	

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
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	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
M	Mag Particle Inspect	Northrop Grumman Code per GP20A	
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)
NG	Heat Treat	Northrop Grumman Code per GP20A	

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
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: precede passivation with pickling procedure
P (C)	Superseded by Code P		

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
P1	General & Sheet metal		
P2	Machining		
P3	Assembly		
P4	Finish		
P5	Heat treat, Mag Particle, Shot Peen		
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 CLASS N (Preferred)	If class N is used, 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

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
-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
-6	Solid Film Lubricant	MIL-L-23398	Spray On .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

CODE	FINISH	APPLICABLE SPECIFICATIONS	REMARKS
-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