



QAP
SUPPLIER COSMETIC SPECIFICATION,
INSPECTION, ACCEPTABILITY AND WORK
INSTRUCTION

819576

APPROVALS

APPROVALS DETERMINED BY APPROVAL MATRIX

REVISION RECORD

REVISION	BY	CHANGES	DATE
1	B MacDougall	Original Release	Mar 2009
2	J Headrick/ C Cunanan	Changed document title. Changed note at section 1.1 Added at section 2.3 the related document 800269, Purchase Order Quality Clauses, Added related documents MIL-A-8625F and 827593 on section 1.3. Additional Terms and Definitions. Minor word correction/ changes at section 3.10 Added section 3.6 Rework of Material that includes for modification to allow for the rework of anodized surfaces per mil-std MIL-A-8625F. Added/ changed pictures and descriptions for metalworks defects (caused by CW manufacturing processes and suppliers).	Apr 2014
3	M. Gauthier/C. Monette	Split document for external and internal inspection criteria. Update final finish requirements and add samples for Class A, B and C surfaces	July 2017
4	M. Gauthier	Update acceptance criteria for Class C surface, section 2.8, Table 2	June 2019
5	M. Gauthier	Correcting Footer	Sept 2019

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Section 1
SUPPLIER AND INCOMING INSPECTION
COSMETIC SPECIFICATION, FOR INSPECTION
ACCEPTABILITY AND WORK INSTRUCTION

1. INTRODUCTION

1.1 Purpose

The criteria provided relates to the appearance of parts. Of major importance are those surfaces that will be easily visible on exposed surfaces to the end customer; somewhat less stringent requirements are imposed in other areas.

Note:

Other than the pictured material defect rejections, text descriptions shall prevail over other pictures.

1.2 Scope

This inspection work instruction is applicable for CWCDs Ottawa, Ashburn, and Letchworth sites. It is flowdown to suppliers through Quality Clauses.

1.3 Related Documents

800200	Quality Manual (governing document)
800212	Customer Supplied Material and Equipment
800210	Control of Purchased Material & Services
800215	Control of Non-Conforming Material
800269	Purchase Order Quality Clauses
MIL-A-8625F	Anodic Coatings for Aluminum and Aluminum Alloys
827593	Mechanical Engineering Best Practices
ASTM-B733-04	Electroless Nickel Specification

1.4 Abbreviations

ADM	Advanced Development Model
CWCEC	Curtiss Wright controls Embedded Computing
QN	Quality Notification
ME	Manufacturing Engineering
MRB	Material Review Board
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
QE	Quality Engineering
RWS	Repair and Warranty Service

2.0 RESPONSIBILITIES

1.5 Procedure Owner

The Quality Assurance Manager is the designated procedure owner. Any comments or suggestions pertaining to this procedure should be referred to the owner.

1.6 Quality Engineering

Quality Engineering is responsible for:

- Ensuring this specification is current.
- MRB coordination.

1.7 Incoming Inspection

Incoming inspection is responsible for:

- Ensuring receiving inspection processes reduce the chance of cosmetic damage.

1.8 Purchasing

The Purchasing is responsible for:

- The inclusion of quality clauses per document 800269 for the procurement of raw material that complies with this specification.

2. ACTION/METHOD

2.1 Surface Classifications

Surfaces are grouped into three categories for inspection purposes:

2.1.1 Class A

- Any surface that is normally and immediately visible to the customer or end user while the product is being used in its normal operating condition
- These surfaces will be free of all major defects and reasonably free of any minor defects.
- **For these surfaces, uniform surface finish without visible machined tooling marks is required. Recommendation is that surfaces be buffed using fine scotch pad or equivalent process.**

2.1.2 Class B

- Internal, only visible when card is out of chassis. Examples include but are not limited to the top and sides of rack mount chassis and faceplates
- These surfaces may have some minor defects but will be free of all major defects.
- **For these surfaces, typical machining practiced, to meet the surface roughness on the drawing, provides the required finish to meet this specification. As required, typically for deep scratches/marks, sandpaper (150 grit) can be used, followed by a buffer with fine scotch pad.**

2.1.2 Class C

- Areas not visible without disassembly. Coatings are for corrosion protection only.
- **For these surfaces, typical machining practiced, to meet the surface roughness on the drawing, provides the required finish to meet this specification. As required, typically for deep scratches/marks, sandpaper (150 grit) can be used, followed by a buffer with fine scotch pad.**

Note: If classification is not identified on the drawing, this procedure shall take precedence.

2.2 Normal Viewing Condition (Aproximations)

- The normal viewing condition is defined as the view obtained when observing the assembled unit top, front, sides, and back exterior surfaces perpendicular to these surfaces.
- Viewing angle shall be 45 degrees to the surface. The part will not be rotated except to eliminate any glare from surrounding light.
- Inspection shall be conducted using the unaided eye

- Uniform, nondirectional illumination between 80 and 100 foot-candles.
- Viewing distance shall be 18” to 24” as specified by Table 1. **Enhanced magnification of any kind is not to be used when inspecting for cosmetic defects.**

2.3 Time and distance inspection

- "Viewing Time" indicates the duration of the observation.
- The more critical the cosmetic surface, the longer the inspection period.
- "Viewing Distance" indicates how far the inspector will be from the parts.
- The more critical the cosmetic surface, the closer the inspector will be to the parts.

2.4 Terms and Definitions

- Discoloration - Any change from original color or unintended inconsistent color.
- Burrs - Sharp edges around the part features, often caused by manufacturing processes like punching, shearing, milling or drilling.
- Glossiness - An area of excessive or deficient gloss or the luster or brightness of a smooth surface that differs from another part from the same lot/batch.
- Color Variation – various color appearances or marked patches or spots in different color
- Color Deviation – color difference from a standard set of colors.
- FOD - Any unintended foreign substance in the coating or on the surface.
- Marks - Pits, sanding or other marks on the base material that remain visible after coating.
- Blisters - Non adhesion. Lack of proper sticking of the coating to the surface.
- Non-uniform coverage - Areas that have an insufficient or excessive coating.
- Runs - Excessive coating that causes drips or non-uniform coverage.
- Scratches - Shallow grooves. Exposes bare metals or substrate surface. Would cause corrosion, etc.
- Bare spot – area without anodizing or coating due to contaminant or masking not removed during pre-cleaning process.
- Coverage voids – areas without coating or anodizing due to its location in the part. These are, but not limited to, edges and inside corners.
- Corrosion – deterioration of metal due to chemical reaction in the environment.

- Burns (Plating) – damaged plating area or part where excessive current was passed on to the termination.
- Rinse stains – detergent residue that are left-off after washing the product.
- Orange peel - the non-smooth, minute bumpy texture of coated surface resembles the surface of the skin of an orange fruit.
- Dents and Dings - Any small, measurable depression in a part surface, often produced by striking or pressing the surface.
- Tooling Marks - Any marks that appear on the surface of a part as the result of a manufacturing process, including, but not limited to: depressions, gouges, impressions, clamping marks, etc.

2.5 Accept/Reject

- When flaws are observed within the specified time and distance and the accept/reject decision is difficult to make, refer to Table 2 "Cosmetic Reference Standard".

2.6 Rework of Material

Note: This section applies to a final finish part. Any rework shall be compliant to Table 2.

2.6.1.1 Nickel plated material

- Nickel plated material with exposed base metal is not acceptable unless otherwise noted on the drawing.

2.6.1.2 Anodized Material and Finished Chem-Filmed-Only Metal Surfaces

- CLASS A surfaces – no rework is permitted.
- For Class B and C Anodized metalwork and finished chem-filmed-only metal surfaces can be reworked per the applicable drawing spec.

2.7 Table 1: Viewing Time and Distance

Cosmetic Class	A	B	C
Viewing distance	18" (400mm)	18" (460mm)	24" (610mm)
Viewing time	10 seconds	5 seconds	3 seconds

2.8 Table 2: Cosmetic Reference Standard

- Lists flaws typically found on coated parts.
- This table constitutes the reference standard of cosmetic acceptability.
- The total number of allowable mixed flaws shall not exceed the limit specified for the flaw with the largest allowable quantity limit.
- Table 2 is used to assist in making an accept/reject decision.

Cosmetic Class	A	B	C
Specs & discoloration	NONE	TWO .02" DIA	Per MIL-A-8625F (anything above FOUR places at .06" DIA is a process indicator and requires evidence of a supplier review)
Scratches & lint	NONE	TWO .01" x .03"	Per MIL-A-8625F Anything above FOUR places at .02" x .09" is a process indicator and requires evidence of a supplier review)
Runs & marks	NONE	TWO .06" DIA	Per MIL-A-8625F (Anything above FOUR places at .13" DIA is a process indicator and requires evidence of a supplier review)
Bare spots	NONE	TWO .09" DIA	Per MIL-A-8625F (Anything above FOUR places at .13" DIA is a process indicator and requires evidence of a supplier review)

2.9 Acceptance Criteria

- Three acceptance designations (below) are used in Table 3 to describe the criteria.

2.9.1 None Allowed

- No occurrences of the characteristic are permissible.
- Items with this acceptance designation are typically non-functional in nature but will result in product degradation.
- These characteristics are not subject to Viewing Time and Distance in Table 1.

2.9.2 Not Apparent

- Characteristic is not discernible in the final application of the part. Characteristic with this designation are aesthetic in nature.

- Minimum viewing distance should be three feet.
- The intention of the aesthetic inspection is to avoid usage of parts which detract from the appearance of the final product.
- Inspection time is limited to that which is necessary to scan (cursory inspection) all areas of the part.

2.9.3 Acceptable

- Aesthetic in nature; will have no effect on the function of the part and will not detract from the appearance of aesthetic viewpoint.
- Some flaws may have acceptable as well as not-acceptable attributes, e.g. a scratch which does not break the surface of the coating may be acceptable (depending on the class of surface), whereas if the coating is broken, there is a coverage void (Not Acceptable).

2.10 Table 3 Metalworks Characteristics for Class A, B and C Surfaces

Characteristic	Class A	Class B	Class C
Scratches	None Allowed	Not Apparent	Acceptable*
Machined Tooling Marks	Refer to Section 2.1.1	Acceptable	Acceptable
Rack tooling mount	None Allowed	Allowed per Table 2	Acceptable
Corrosion	None Allowed	None Allowed	None Allowed**
Coverage Voids	None Allowed	None Allowed	None Allowed**
Non-Adhesion	None Allowed	None Allowed	None Allowed
Blisters	None Allowed	None Allowed	None Allowed**
Burns (Plating)	None Allowed	None Allowed	Acceptable
Color Variation***	None Allowed	Acceptable	Acceptable
Color Deviation	Not Apparent	Not Apparent	Acceptable (paint coatings)
Rinse Stains	None Allowed	Not Apparent	Acceptable
Finger Printing	None Allowed	Not Apparent	Acceptable
Orange Peel	None Allowed	Not Apparent	Acceptable
Paint Runs	None Allowed	Not Apparent	Acceptable
Paint Masking	See figure 1	See figure1	See figure1

* Any apparent scratches after plating will not be allowed.

** Acceptable if repaired, per drawing requirements.

*** For gold chromate coatings color variation will be acceptable as long as it is in conformance to MIL-DTL-5541



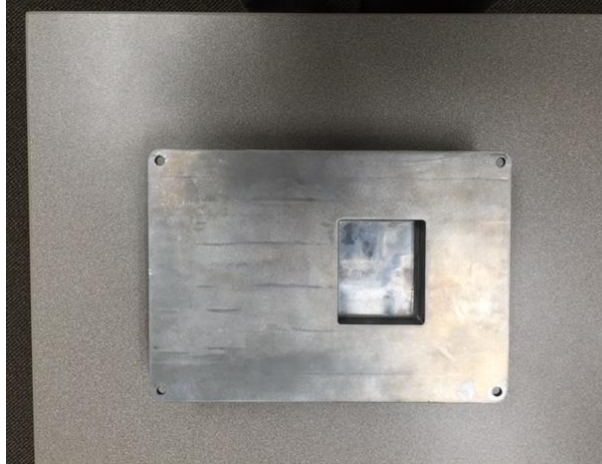

2.11 Acceptance Criteria

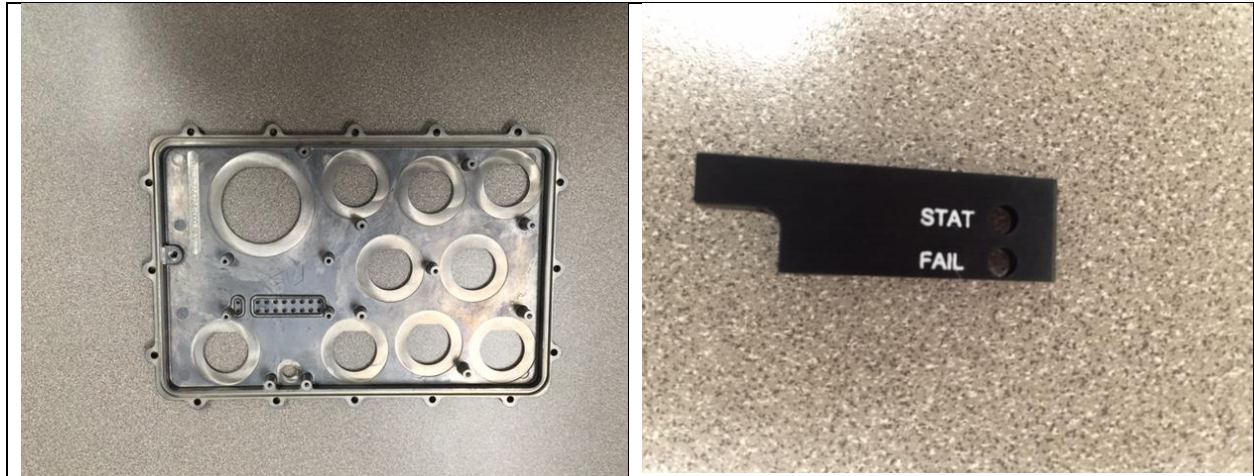
Visual Inspection




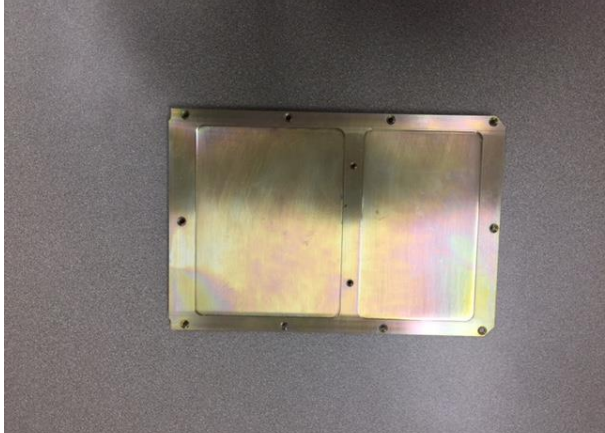
- Verify the workmanship of special characteristics, such as: finishes free of dings/dents, runs, blemishes, fish eyes, orange peel, contamination, etc.

- The part must be free from any indications of damage or repair which was not documented

2.12 Examples of Classification

<p>Chassis Base Side View “A” Class</p>	<p>Chassis Base “C” Class (Interior of Chassis)</p>
	
<p>Chassis Base Bottom View “B” Class</p>	<p>Chassis Lid A”A Class</p>
	
<p>Chassis Lid “C” C Class</p>	<p>Ejector Handle “A” Class</p>



Ejector Handle Side view "B" Class	Ejector Handle Side view "B" Class
	
Ejector Rear View "B" Class	Back Cover "B" Class
	
Back Cover "C" Class	Frame Front Viwe "A" Class



Frame Side View "B" Class



Frame "B" Class

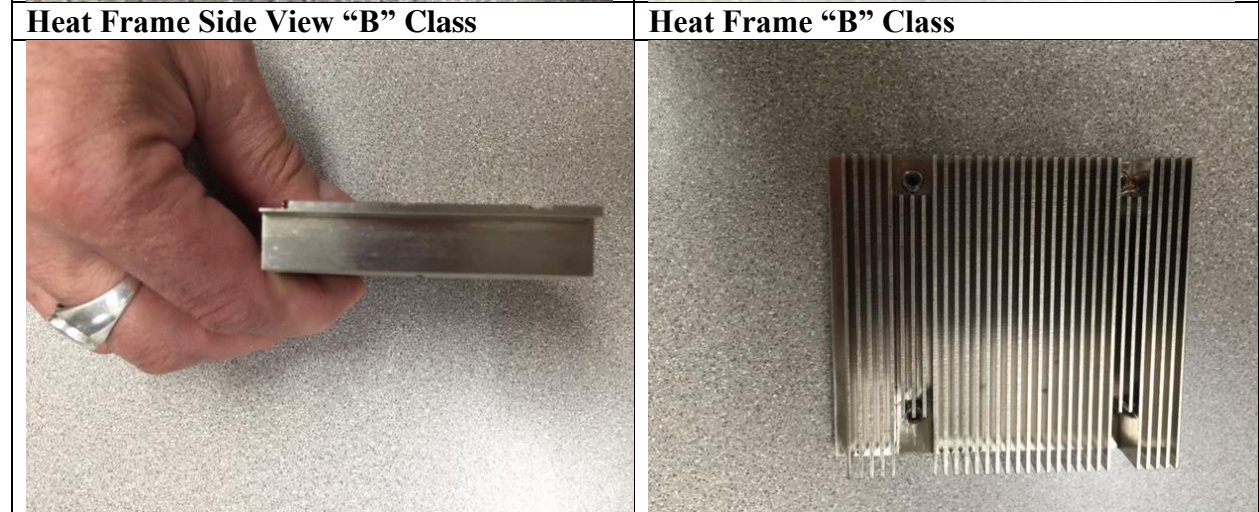
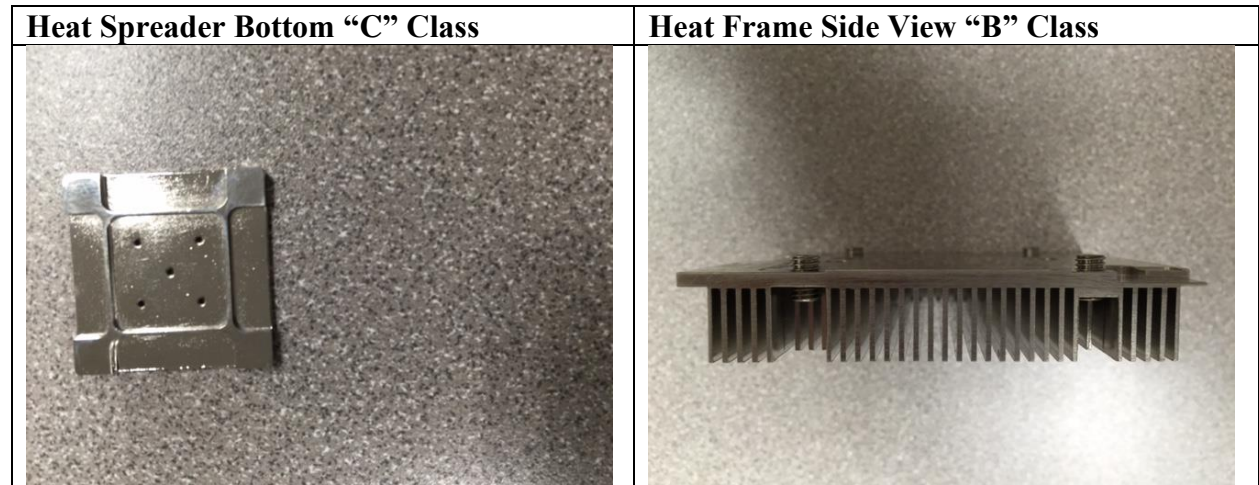
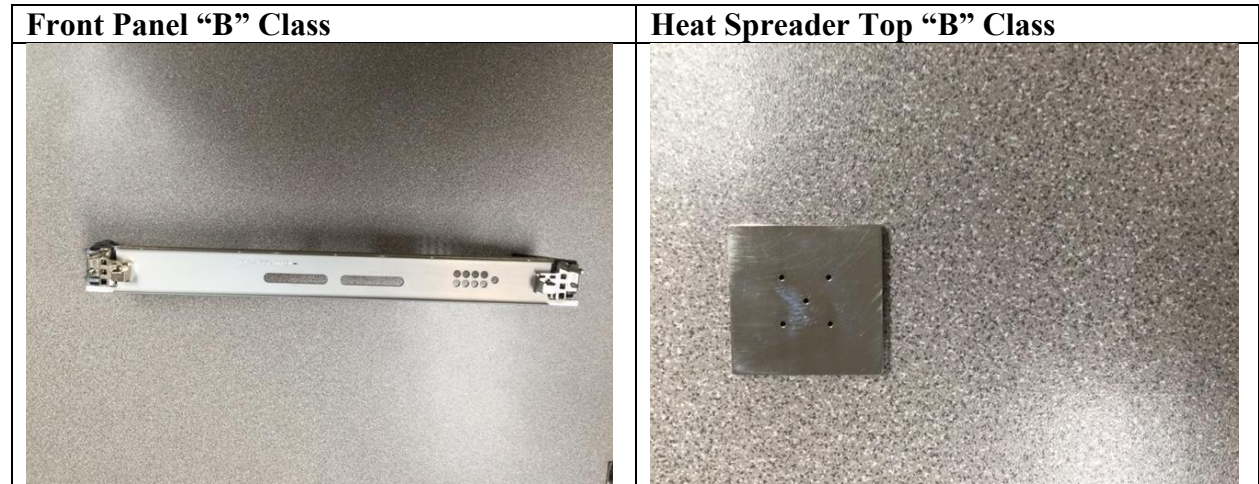


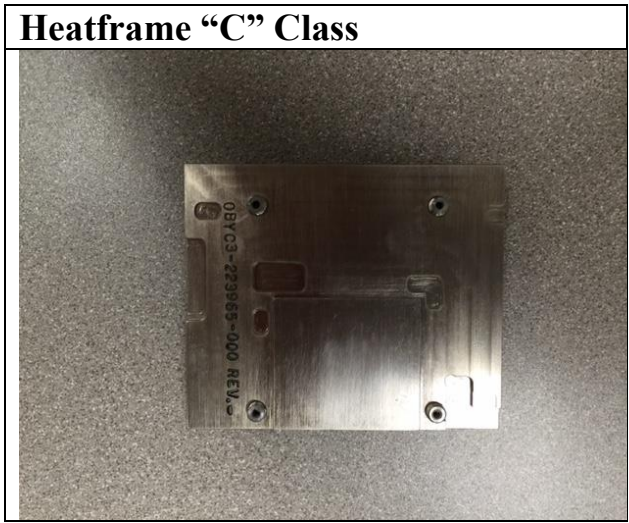
Frame "C" Class



Front Panel "A" Class

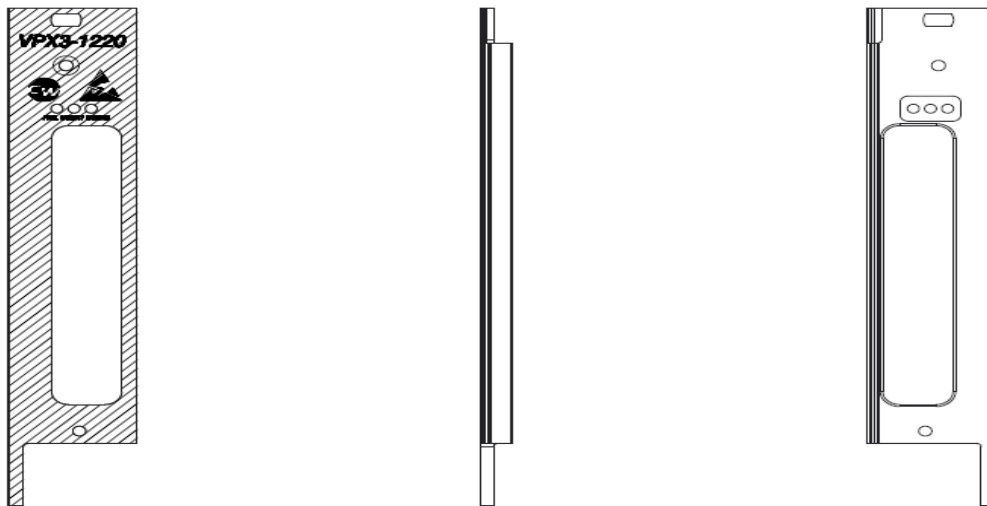




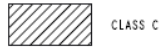


Drawing Examples of Classifications

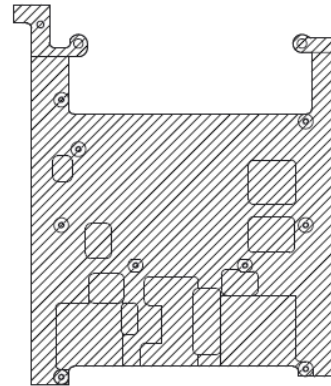
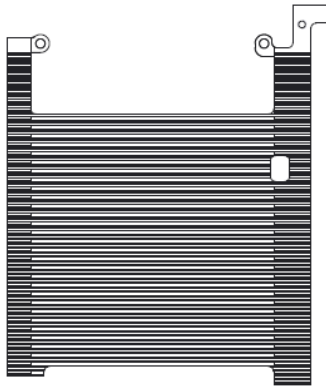
Example 1



Example 2



ALL OTHER SURFACES ARE CLASS B

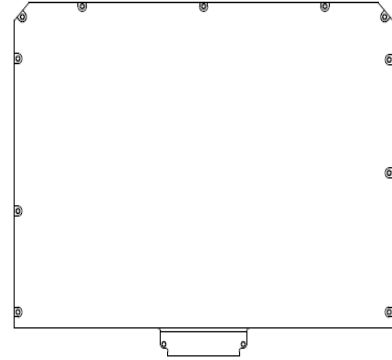
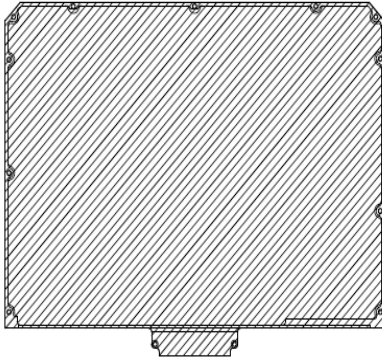


Example 3

SURFACE CLASSIFICATIONS PER 819576



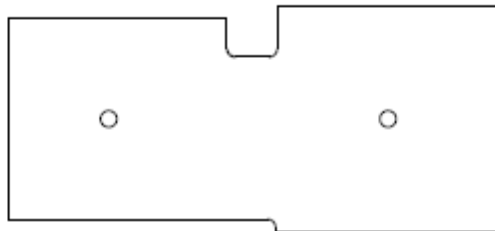
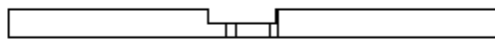
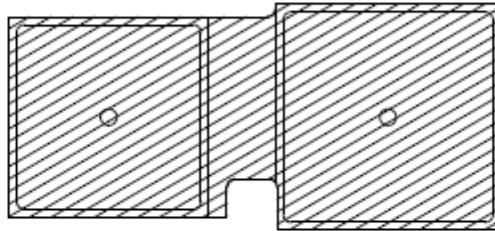
ALL OTHER SURFACES ARE CLASS B



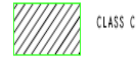
Example 4



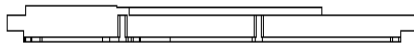
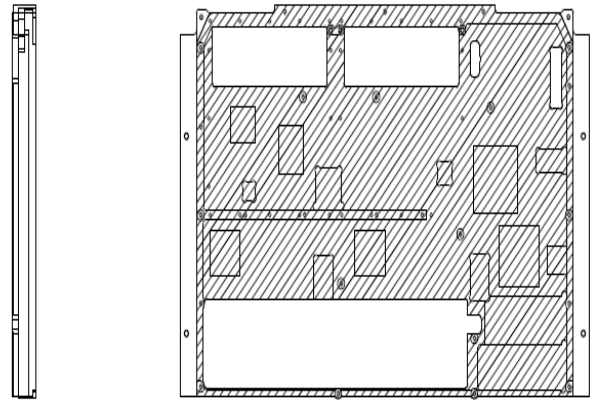
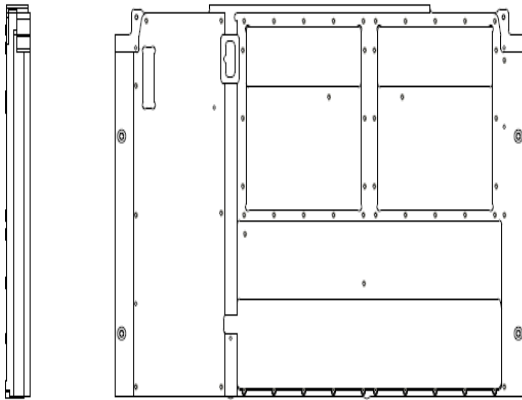
ALL OTHER SURFACES ARE CLASS B



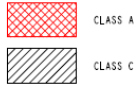
Example 5



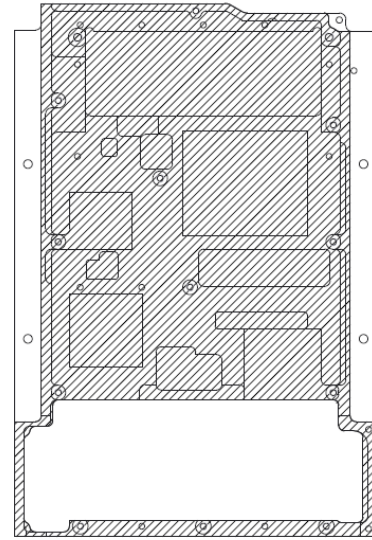
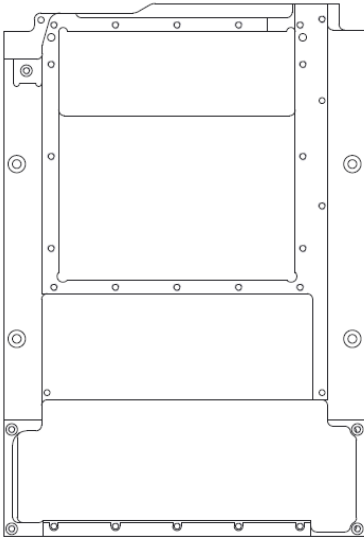
ALL OTHER SURFACES ARE CLASS B



Example 6











ALL OTHER SURFACES ARE CLASS B



SURFACE CLASSIFICATIONS PER 819576

Examples of rejected finishes

<p>Fish Eye</p>  <p><small>Paint Flaw On Part Surface, 10X Mag</small></p>	<p>Orange Peel</p> 
<p>Nicks, dings on Threads</p> 	<p>Gouges in paint</p> 
<p>Pitting</p>  <p><small>Source: Hydro Aluminum, Kamey, Ltd</small></p>	<p>Blister</p> 
<p>Burr</p> 	<p>FOD</p> 
<p>Paint Run</p>	<p>Scratch/Abbrasions</p>

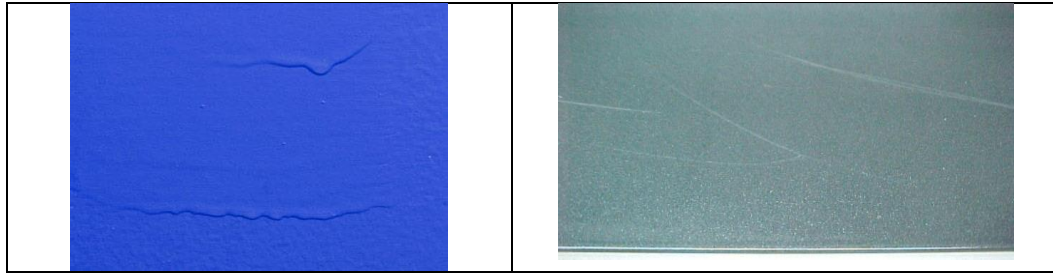
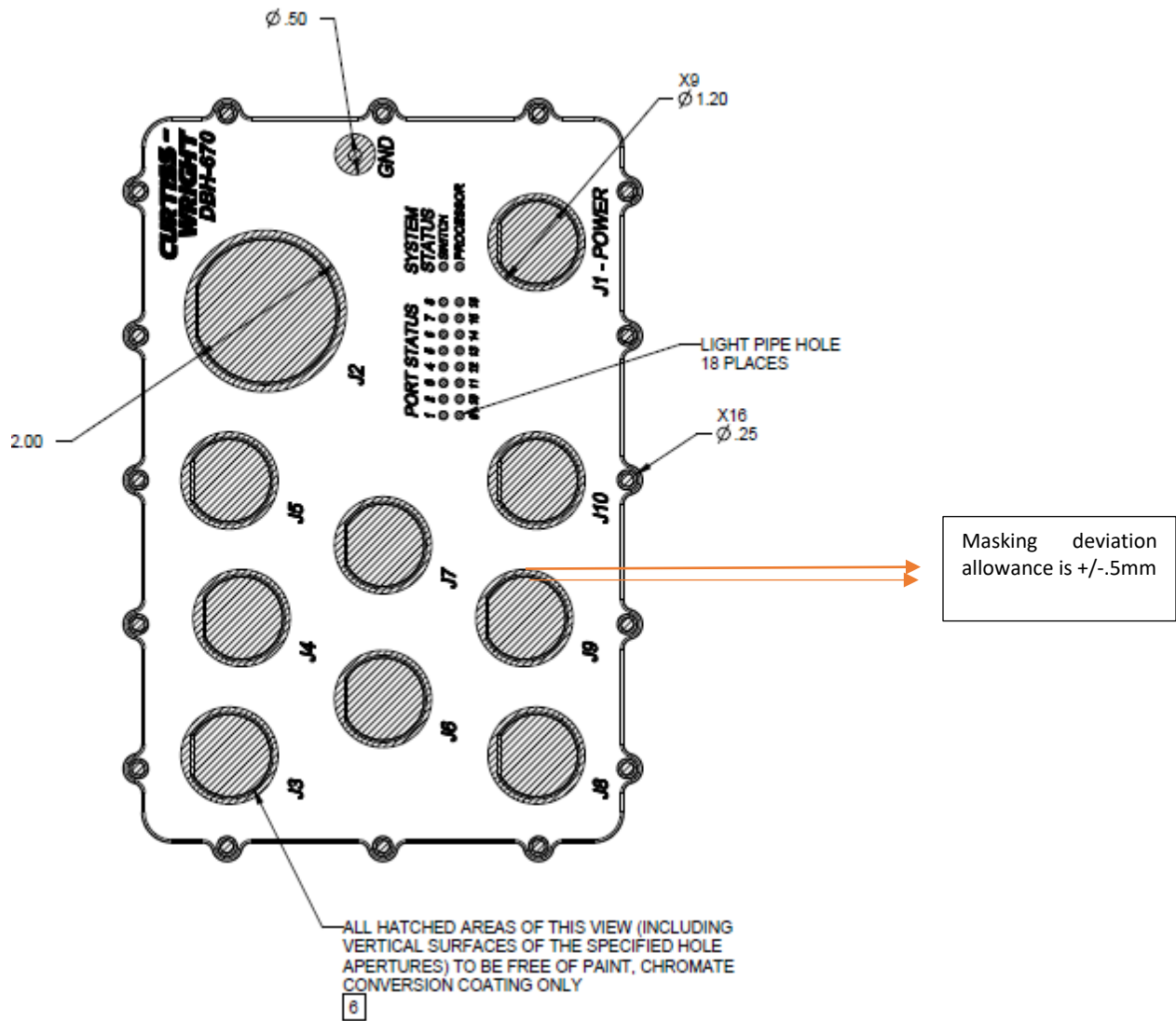


Figure 1

Masking tolerance



Section 2
CW Internal Cosmetic Specification, for
Inspection, Acceptability of
Machined/finished parts

3. INTRODUCTION

3.1 Purpose

The criteria provided relates to the visual appearance of parts. Of major importance are those surfaces that will be easily visible on exposed surfaces; somewhat less stringent requirements are imposed in other areas.

3.2 Scope

This inspection work instruction is applicable for CWCDs Ottawa, Ashburn, and Letchworth sites.

4. RESPONSIBILITIES

4.1 Quality Engineering

Quality Engineering is responsible for:

- Ensuring this specification is current with the addition of picture examples as a result of any MRB decisions.
- MRB coordination.

4.2 Manufacturing/Test Engineering

Manufacturing/Test Engineering is responsible for:

- Ensuring manufacturing processes reduce the chance of cosmetic damage to assemblies and piece parts.

5. ACTION/METHOD

5.1 Surface Classifications

Surfaces are grouped into three categories for inspection purposes:

5.1.1 Class A

- Any surface that is normally and immediately visible to the customer or end user while the product is being used in its normal operating condition
- These surfaces will be free of all major defects and reasonably free of any minor defects.
- Note: Slight imperfections characteristic of individual process capabilities may be visible on Class A surfaces. Acceptance of these slight imperfections shall be judged according to applicable assembly procedure.

5.1.2 Class B

- Internal, only visible when card is out of chassis
- These surfaces may have some minor defects but will be free of all major defects.

5.1.3 Class C

- Areas not visible without disassembly. Coatings are for corrosion protection only.
- Class C surfaces may have any or all minor defects and some major defects. These major defects may be subject to review by the MRB Board.
- Interior surfaces or areas to be covered by labels or other panels are examples of “C” surfaces.

5.2 Normal Viewing Condition

- The normal viewing condition is defined as the view obtained when observing the assembled unit top, front, sides, and back exterior surfaces perpendicular to these surfaces.
- Viewing angle shall be 45 degrees to the surface. The part will not be rotated except to eliminate any glare from surrounding light
- Inspection shall be conducted using the unaided eye
- Uniform, nondirectional illumination between 80 and 100 foot-candles.
- Viewing distance shall be 18” to 24” as specified by Table 1. Magnification is not to be used when inspecting for cosmetic defects.

5.3 Time and distance inspection

- "Viewing Time" indicates the duration of the observation.
- The more critical the cosmetic surface, the longer the inspection period.
- "Viewing Distance" indicates how far the inspector will be from the parts.
- The more critical the cosmetic surface, the closer the inspector will be to the parts.

5.4 Terms and Definitions

- Discoloration - Any change from original color or unintended inconsistent color. Tends to fade out or blend in with surrounding surface.
- Glossiness - An area of excessive or deficient gloss or the luster or brightness of a smooth surface.
- Color Variation – various color appearances or marked patches or spots in different color
- Color Deviation – color difference from a standard set of colors.
- FOD - Any unintended foreign substance in the coating or on the surface.
- Marks - Pits, sanding or other marks on the base material that remain visible after coating.
- Blisters - Non adhesion. Lack of proper sticking of the coating to the surface.
- Non-uniform coverage - Areas that have an insufficient or excessive coating.
- Runs - Excessive coating that causes drips or non-uniform coverage.
- Scratches - Shallow grooves. Exposes bare metals or substrate surface. Would cause corrosion, etc.
- Bare spot – area without anodizing or coating due to contaminant or masking not removed during pre-cleaning process.
- Coverage voids – areas without coating or anodizing due to its location in the part. These are, but not limited to, edges and inside corners.
- Corrosion – deterioration of metal due to chemical reaction in the environment.
- Burns (Plating) – damaged plating area or part where excessive current was passed on to the termination.
- Rinse stains – detergent residue that are left-off after washing the product.
- Orange peel - the non-smooth, minute bumpy texture of coated surface resembles the surface of the skin of an orange fruit.

- Dents and Dings - Any small, measurable depression in a part surface, often produced by striking or pressing the surface.
- Tooling Marks - Any marks that appear on the surface of a part as the result of a manufacturing process, including, but not limited to: depressions, gouges, impressions, clamping marks, etc.
-

5.5 Accept/Reject

- When flaws are observed within the specified time and distance and the accept/reject decision is difficult to make, refer to Table 2 "Cosmetic Reference Standard".

5.6 Rework of Material

Note: This section applies to a final finish part. Any rework shall be compliant to Table 2.

5.6.1 Nickel plated material

- Nickel plated material with exposed base metal cannot be reworked per drawing. Any indication for handling damage on these surfaces the material is to be submitted to MRB and be processed per Control of Non-conforming Material Procedure document 800215.

5.6.2 Anodized Material and Finished Chem-Filmed-Only Metal Surfaces

Note:
Rework instructions described below are only allowed on Curtiss-Wright process caused defect.

- CLASS A surfaces – no rework is permitted. Defective material should be submitted to MRB and be processed per Control of Non-conforming Material Procedure document 800215.
- Clear anodized metalwork and finished chem-filmed-only metal surfaces can be reworked per MIL-A-8625F paragraph 3.3.4 by touch-up application following Usage Instructions of part number 190539-503 (Alodine 871, MIL-DTL-5541F, Type II, Class 1A, ROHS Compliant).
- Black anodized metalwork can be reworked per MIL-A-8625F paragraph 3.3.4.
 - For CLASS B Surfaces mechanical damage and contact marks can be repaired:

- Apply by touch-up following Usage Instructions on container, the part number 190539-503 (Alodine 871, MIL-DTL-5541F, Type II, Class 1A, ROHS Compliant)
- Black epoxy ink is to be added to the area after the Alodine (190539-503) has dried. Two part epoxy ink is composed of part numbers 190339-503 and 190340-503 and needs to be applied per Usage Instruction on container. After application the surface must be smooth and continuous, no ridges or elevated areas sensitive to touch.
- For CLASS C Surfaces mechanical damage marks can be repaired:
 - Apply by touch-up following Usage Instructions on container, the part number 190539-503 (Alodine 871, MIL-DTL-5541F, Type II, Class 1A, ROHS Compliant)

5.7 Repetitive inspection

- A flaw that occurs repeatedly in the same surface location becomes more easily noticed.

5.8 Table 1: Viewing Time and Distance

Cosmetic Class	A	B	C
Viewing distance	18" (400mm)	18" (460mm)	24" (610mm)
Viewing time	10 seconds	5 seconds	3 seconds

5.9 Table 2: Cosmetic Reference Standard

- Lists flaws typically found on coated parts.
- This table constitutes the reference standard of cosmetic acceptability.
- The total number of allowable mixed flaws shall not exceed the limit specified for the flaw with the largest allowable quantity limit.
- Table 2 is used to assist in making an accept/reject decision.

Cosmetic Class	A	B	C
Specs & discoloration	NONE	TWO .02" DIA	Per MIL-A-8625F (anything above FOUR places at .06" DIA is a process indicator and requires evidence of a supplier review)

Scratches & lint	NONE	TWO .01" x .03"	Per MIL-A-8625F Anything above FOUR places at .02" x .09" is a process indicator and requires evidence of a supplier review)
Runs & marks	NONE	TWO .06" DIA	Per MIL-A-8625F (Anything above FOUR places at .13" DIA is a process indicator and requires evidence of a supplier review)
Blisters & bare spots	NONE	TWO .09" DIA	Per MIL-A-8625F (Anything above FOUR places at .13" DIA is a process indicator and requires evidence of a supplier review)

5.10 Acceptance Criteria

- Three acceptance designations (below) are used in Table 3 to describe the criteria.

5.10.1 None Allowed

- No occurrences of the characteristic are permissible.
- Items with this acceptance designation are typically functional in nature but will result in product degradation.
- These characteristics are not subject to Viewing Time and Distance in Table 1.

5.10.2 Not Apparent

- Characteristic is not discernible in the final application of the part. Characteristic with this designation are aesthetic in nature.
- Visual inspection for aesthetics is to be conducted in a manner which best duplicates the end use of the part.
- The preferred viewing angle and distance being that which would exist if the part was installed in its final location, and the inspector is standing where the operator would stand while using or accessing the equipment.
- Minimum viewing distance should be three feet.
- The intention of the aesthetic inspection is to avoid usage of parts which detract from the appearance of the final product.
- Inspection time is limited to that which is necessary to scan (cursory inspection) all areas of the part.

5.10.3 Acceptable

- Aesthetic in nature; will have no effect on the function of the part and will not detract from the appearance of aesthetic viewpoint.
- Some flaws may have acceptable as well as not-acceptable attributes, e.g. a scratch which does not break the surface of the coating may be acceptable (depending on the class of surface), whereas if the coating is broken, there is a coverage void (Not Acceptable).

5.11 Table 3 Metalworks Characteristics for Class A, B and C Surfaces

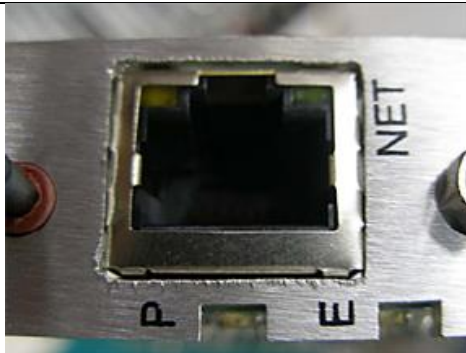
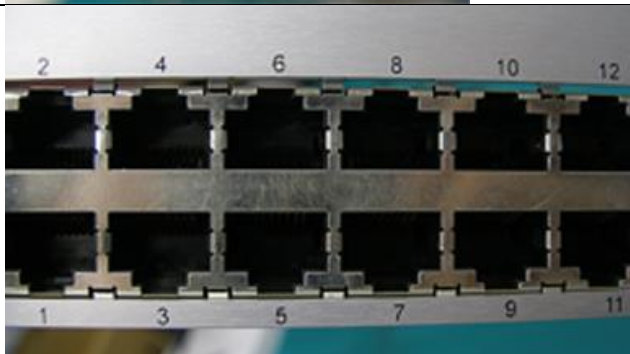
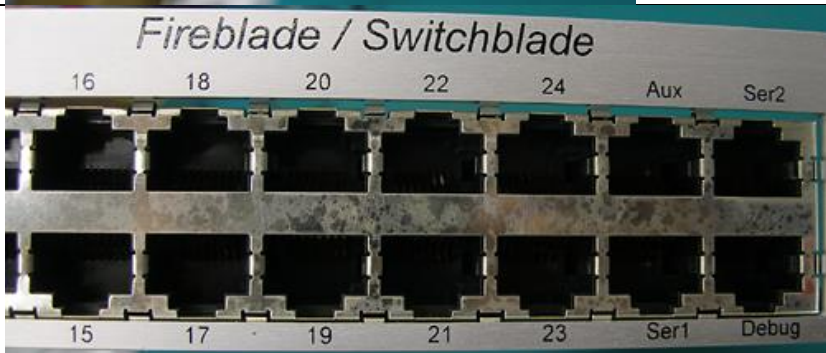
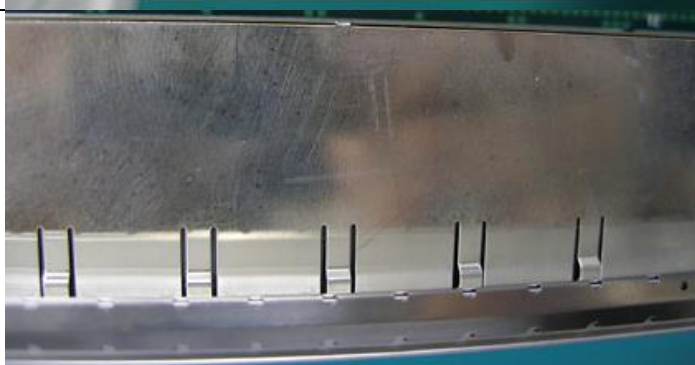
Characteristic	Class A	Class B	Class C
Scratches	None Allowed	Not Apparent	Acceptable*
Tooling Marks	Refer to section 2.1.1	Acceptable	Acceptable
Rack Tooling Mount	None Allowed	Allowed per Table 2	Acceptable
Corrosion	None Allowed	None Allowed	None Allowed**
Coverage Voids	None Allowed	None Allowed	None Allowed**
Non-Adhesion	None Allowed	None Allowed	None Allowed
Blisters	None Allowed	None Allowed	None Allowed**
Burns (Plating)	None Allowed	None Allowed	Acceptable
Color Variegation***	None Allowed	Acceptable	Acceptable
Color Deviation	Not Apparent	Not Apparent	Acceptable (paint coatings)
Rinse Stains	None Allowed	Not Apparent	Acceptable
Finger Printing	None Allowed	Not Apparent	Acceptable
Orange Peel	None Allowed	Not Apparent	Acceptable
Paint/CC Runs	None Allowed	Not Apparent	Acceptable

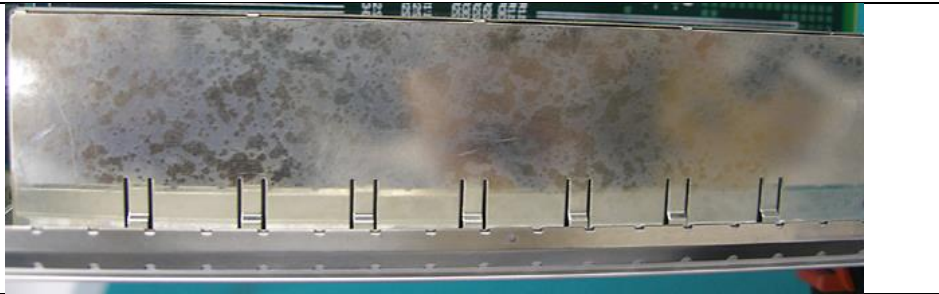
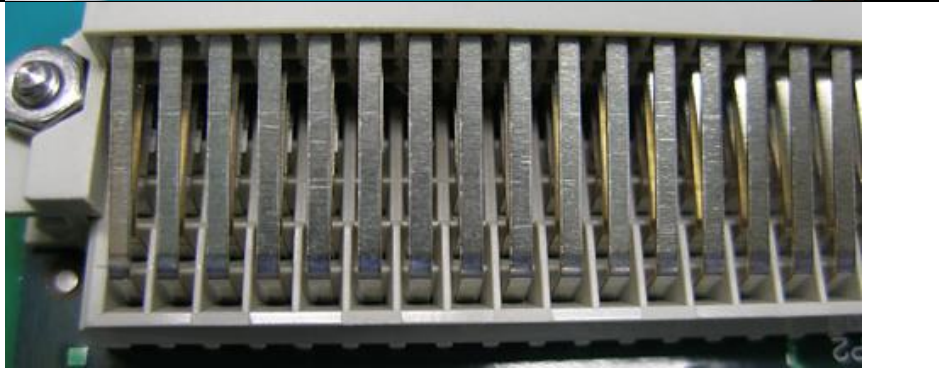
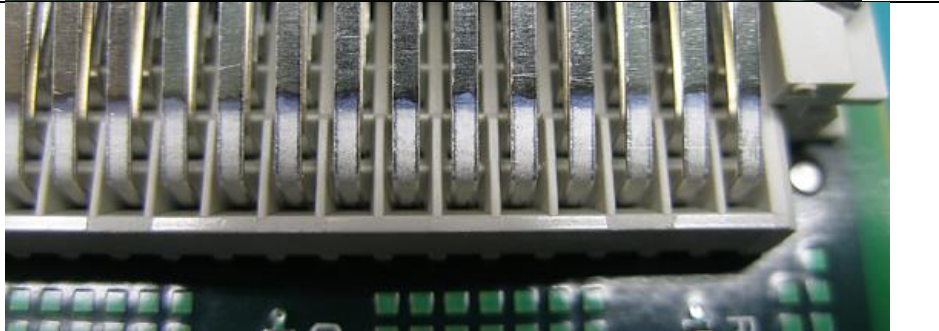


* Any apparent scratches after plating will not be allowed. For scratches that are not apparent there cannot be removed metal and the scratches may not be detected by feel.


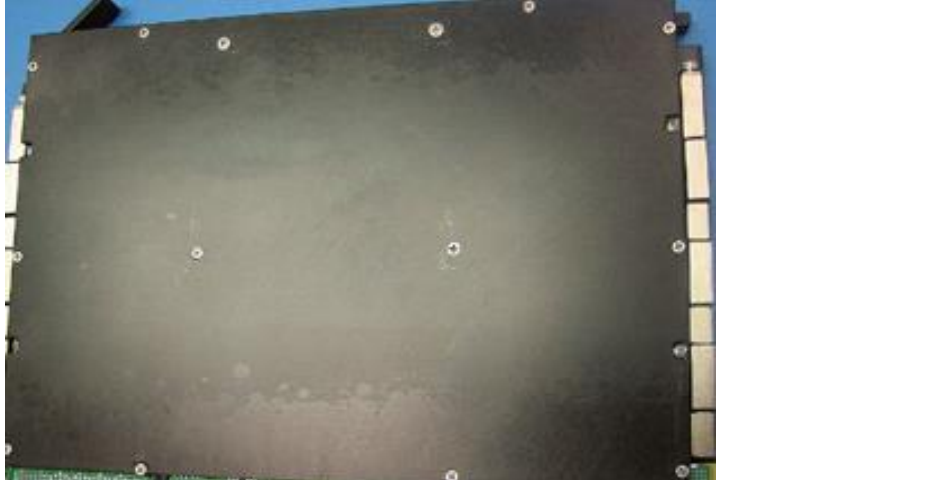

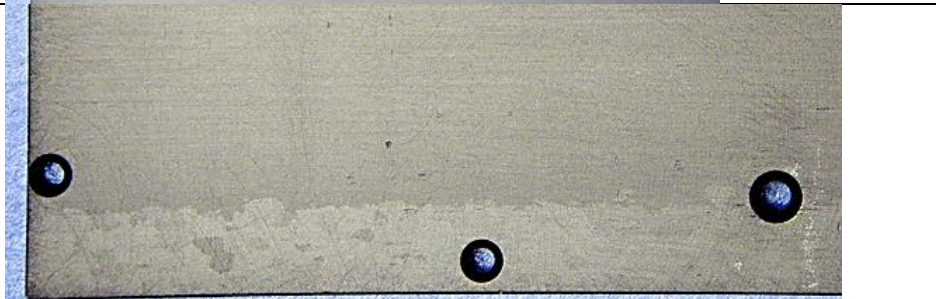
** Acceptable if repaired, providing that corrosion is removed prior to repair, area void of coating is supplemented with paint, and that the defect is not merely a symptom of further problems with the coating.

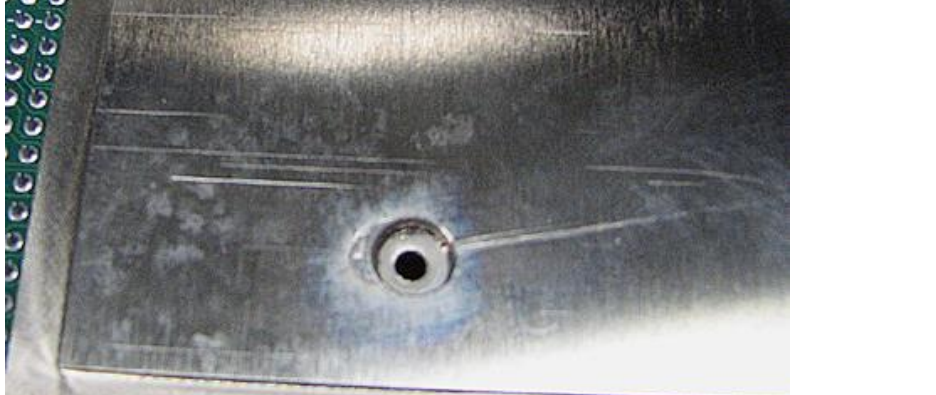

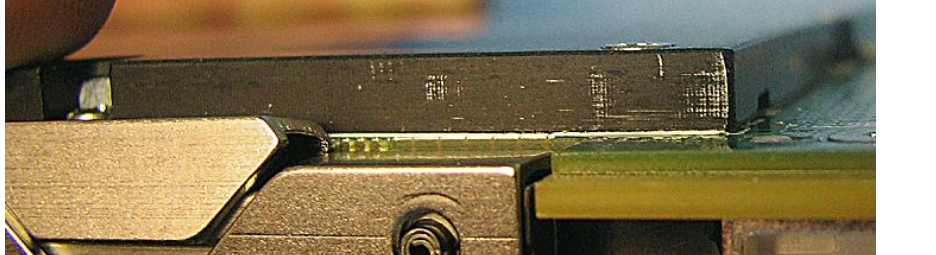
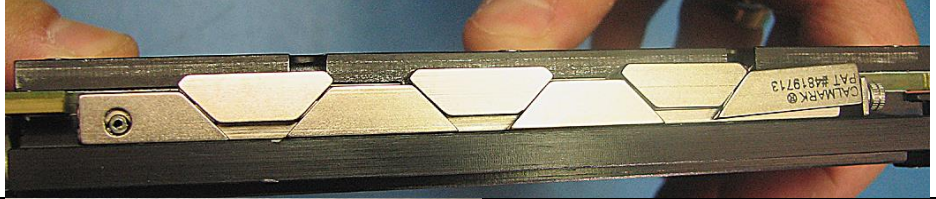

*** For gold chromate coatings color variegation will be acceptable as long as it is in conformance to MIL-DTL-5541.

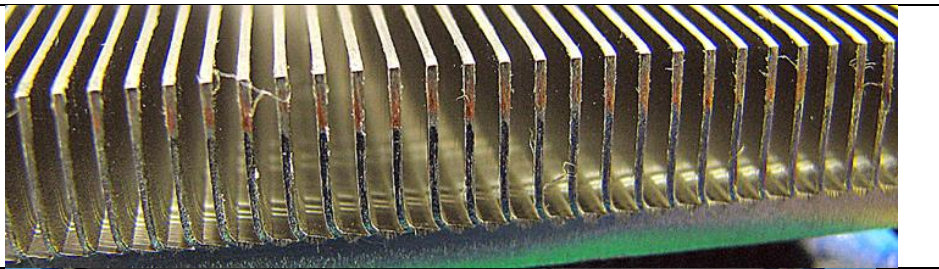
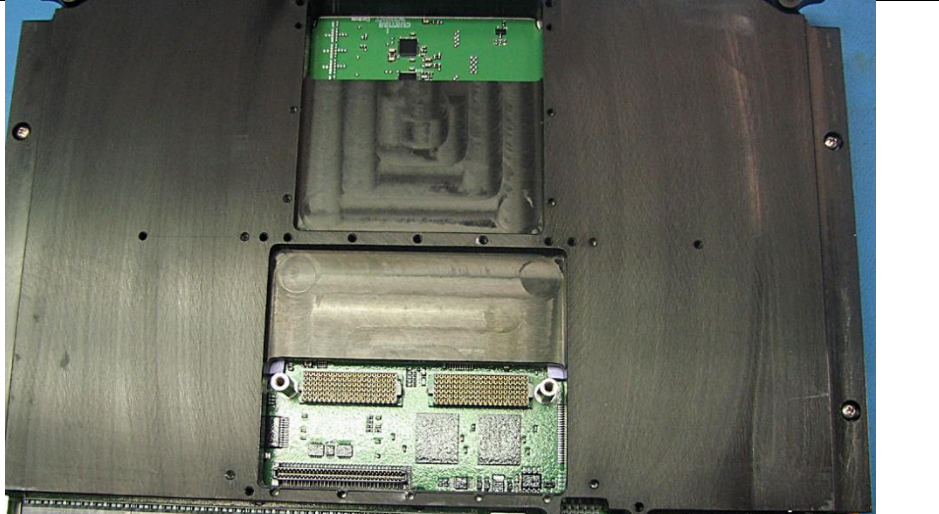
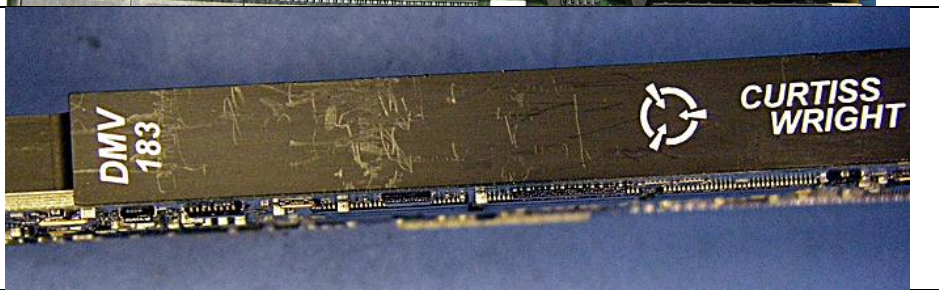

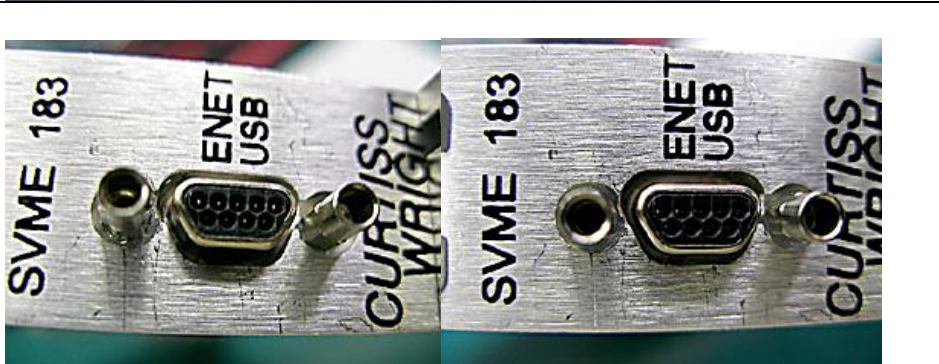
Appendix:






<p>Rough edges Not Acceptable</p>	 A close-up photograph of a network port on a metal chassis. The port is labeled 'NET' on the right side. The edges of the port's metal housing are visibly rough and uneven.
<p>Acceptable</p>	 A photograph showing two rows of network ports on a metal chassis. The ports are numbered 1 through 12. The edges of the ports are smooth and uniform.
<p>Not Acceptable</p>	 A photograph of network ports on a metal chassis labeled 'Fireblade / Switchblade'. The ports are numbered 15 through 24, with additional labels 'Aux', 'Ser2', 'Ser1', and 'Debug'. The metal surface shows significant corrosion and rough edges.
<p>Acceptable</p>	 A photograph showing a smooth, brushed metal surface, likely a part of a chassis or cover, with several vertical slots or cutouts.




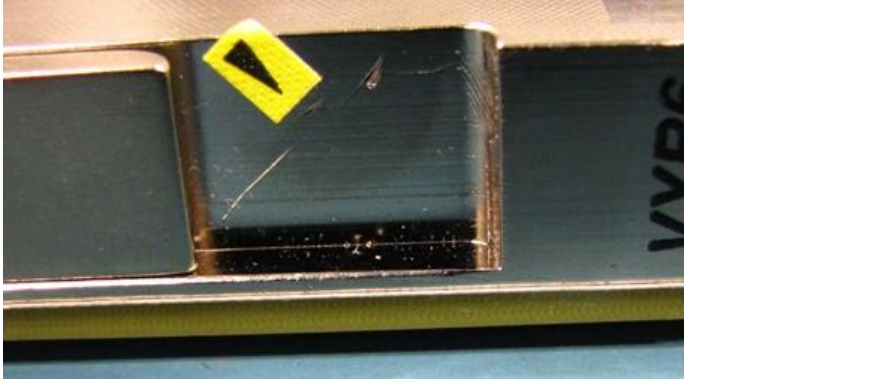

Not Acceptable	
Acceptable	
Acceptable	
Damaged Heatsink Not Acceptable	
Not Acceptable	

<p>Not Acceptable</p>	
<p>Not Acceptable</p>	
<p>Not Acceptable</p>	
<p>Not Acceptable</p>	

<p>Not Acceptable</p>	
<p>Not Acceptable</p>	
<p>Not Acceptable (Scratches on rear cover)</p>	
<p>Not Acceptable(Scratches along edge of rear cover)</p>	
<p>Not Acceptable</p>	

<p>Not Acceptable (Exposed copper and FOD)</p>	
<p>Not Acceptable (Cleaning marks)</p>	
<p>Not Acceptable</p>	
<p>Not Acceptable</p>	
<p>Not Acceptable (Scratches)</p>	

<p>Not Acceptable - Finger Prints</p>		
<p>Not Acceptable – (Excess Loctite)</p>		
<p>Not Acceptable – (Chem.-film residue).</p>		
<p>Not Acceptable – FOD all over Class C surface (bottom surface of frame)</p>		
<p>Not Acceptable – (Exposed copper between fins of heatsink)</p>		

<p>Not Acceptable – Uncleanable epoxy stain on Class A surface</p>	
<p>Not Acceptable – Protruding thread inserts (Helicoils)</p>	
<p>Not Acceptable – Sharp edge and corner</p>	
<p>Not Acceptable – Deep scratch on Class A surface</p>	
<p>Not Acceptable – Smudged silkscreening</p>	







<p>Acceptable – handling tool marks at anodizing shop</p>	
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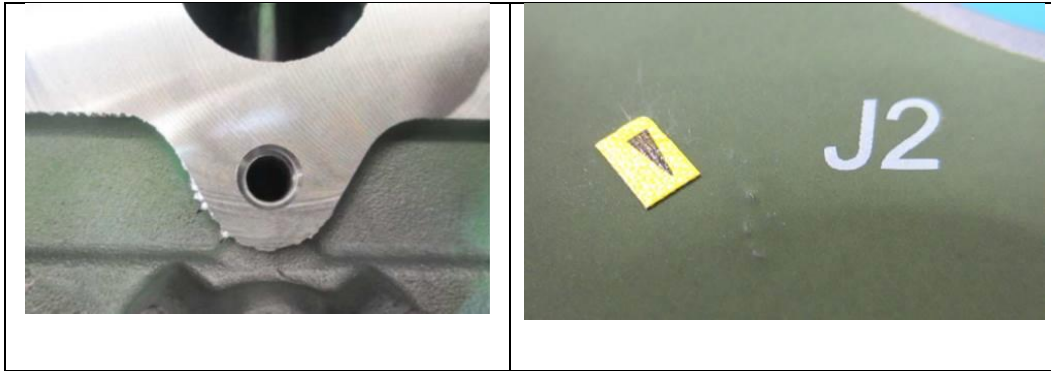
5.12 Acceptance Criteria


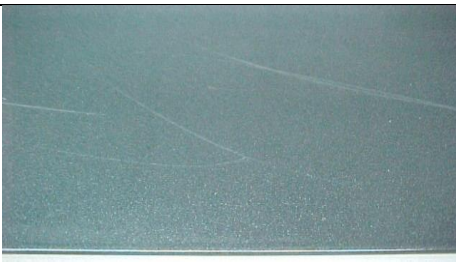
Visual Inspection

- Verify the workmanship of special characteristics, such as: finishes free of dings/dents, runs, blemishes, fish eyes, orange peel, contamination, etc.
- The part must be free from any indications of damage or repair which was not documented

Examples of rejected finishes

<p>Fish Eye</p>  <p><small>Part Flaw On Part Surface, 10X Mag</small></p>	<p>Orange Peel</p> 
<p>Nicks, dings on Threads</p> 	<p>Gouges in paint</p> 
<p>Pitting</p>  <p><small>Source: Hydro Aluminum, Kamey, Ltd</small></p>	<p>Blister</p> 
<p>Burr</p>	<p>FOD</p>



Paint Run	Scratch/Abbrasions
	

6.0 Training

6.1 Personal requiring training on this procedure

- Quality Control Inspection
- Quality Engineering
- Mechanical Engineering
- Manufacturing Engineering
- Supply Chain

6.2 Method of Training

- In class training to be provided by Quality, Supply Chain and Mechanical Engineering
- Any change in revision or new team members added to each discipline mentioned in section 6.1 will require training

6.3 Method of Assesment

- Attendance to a training session is mandatory. No other testing is required