ORACLE

Global Cosmetics Quality and Workmanship Standards

Document Number and Revision: 923-2001 Rev 13

Overview

This document outlines the global definition of cosmetic surfaces and the relative grading system, categories, inspection criteria, as well as acceptability standards for both incoming and outgoing material for Oracle products. This document also provides all organizations with a common language for cosmetic surface identification.

Audience

- Designers use this document for specifying cosmetic requirements on part and assembly drawings.
- Production and Quality Assurance personnel use this document for inspection procedures.
- Inspection personnel use the defect tables in assisting in accept or reject decisions.
- All suppliers of material used in Oracle's products use this document for fabrication and inspection purposes.

Contents

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1 Cosmetic System

1.1 Cosmetic Categories

There are different levels of cosmetic importance defined by how the end user views the product thus, distinguishing between surfaces requiring strict cosmetic requirements and those of less importance in the final location of the assembly seen by the end user. *Section 4*, *Cosmetic Category Definitions*, on page 4, defines each category.

1.2 Cosmetic Inspection

This system provides cosmetic acceptance of parts viewed by the end user through visual inspection for a specified time at a specified distance (T&D). Refer to *Table 5-1*, *Time and Distance*, on page 5, for the inspection method.

Only the final appearance of a finished part surface must meet the specified cosmetic requirements.

Any preceding operations are prepared to enable compliance with the cosmetic requirements.

2 Designer Responsibility

2.1 Cosmetic Categories

The surface classification of a part is designated based on the categories shown in

Table **4-1**, *Cosmetic Categories*, on page 4. In the drawing, it is recommended that all surfaces are shown with cosmetic categories; however, encoded surfaces are a 'C' cosmetic code.

Add the following note to the part drawing: '**Cosmetic Requirements per Specification, 923-2001-xx**'. Do not include the revision letter.

2.2 Phantom Lines

In some cases, portions of a surface can have different cosmetic importance and are designated in the drawing by phantom lines. Phantom lines are located by reference dimensions and are not measured. Whenever possible, use natural dividing lines on the part, such as edges for this purpose.

3 Cosmetic Nomenclature and Grading

3.1 Cosmetic Grading

Grade cosmetic surfaces according to their final location on the part or assembly and how often the end user views the surface in its final locations in the assembly. Refer to

Table **4-1**, *Cosmetic Categories*, on page 4.

3.2 T&D Inspection Procedure

Use the T&D inspection procedure in *Table 5-1*, *Time and Distance*, on page 5, to determine the cosmetic acceptability of parts. All users of the T&D inspection procedure must be trained in category nomenclature in accordance with

Table **4-1**, *Cosmetic Categories*, on page 4, and in T&D in accordance with *Table 5-1*, *Time and Distance*, on page 5.

The T&D inspection procedure takes precedence over the objective evidence detailed in *Section 6*, *Cosmetic Reference Standards and Defect Tables*, on page 4. The defect tables support the T&D method. For example, defects noted when working close to the product must be verified using the T&D inspection procedure.

- The defects pass when they cannot be observed using the requirements and conditions specified herein.
- The defects fail when they can be observed and equal or exceed the allowable values defined in the defect tables.

In the case of defects considered marginal or compromised by an inspector's prior knowledge, it is recommended that an additional person (not having knowledge of the defect or the location) views the parts.

CAUTION: Under no circumstances can any defect compromise the coating, functionality, performance, or safety of the individual part, or the system where the part ultimately resides.

4 Cosmetic Category Definitions

Table **4-1**, *Cosmetic Categories*, below, shows the cosmetic changes.

Table 4-1 Cosmetic Categories

Category	***Part in Final Location in Assembly***	***How Often Viewed by End User (During Operations)***	***Surface in Assemblies (Examples)***
A1	Critical external	Always viewed for data	• Highly polished • Windows • Clear surfaces
A	Other external	Usually viewed	• Tops: under two meters from floor • Fronts • Sides: over one square meter
B	Other external	Seldom viewed	• Sides: under one square meter • Behind doors: seen by customer
C1	Other external	Rarely viewed	• Inside: rarely seen by customer • Large parts (over 508 mm or 20 inches in length) • When category B is too strict for the application and category C is too loose
C	Other external and all internal	Not visible during normal operation but can be seen during installation, maintenance, or behind access doors for peripheral device installation	• Back • Bottom • Inside: never seen by customer • Behind access doors: never seen by customer • Tops: over two meters from floor

NOTE 1: Use the appropriate category for piece parts within an assembly. For example, when an unassembled surface has A1 and A surfaces mated together, the

inspection for each individual surface category applies. Do not inspect the A as A1, or the A1 as A.

5 Cosmetic Inspection: T&D Definitions

Table 5-1, *Time and Distance*, below, shows the viewing T&D for each designated area or surface. Inspect parts and products under the following viewing conditions:

- Use uniform, non-directional illuminations between 80 and 150 footcandles (861 and 1615 lux).
- Avoid over inspection.
- Do not use magnification when inspecting for cosmetic defects, unless otherwise specified.
- View surfaces at approximately 90 degrees. For category A1 and A, view surfaces once at 90 degrees and once at 30 to 45 degrees.

Table 1 - Table 5-1 Time and Distance

Category	*Viewing Distance*	*Viewing Time*
A1	1 meter (3 feet)	10 seconds maximum for each square meter
A	1 meter (3 feet)	10 seconds maximum for each square meter
B	1 meter (3 feet)	7 seconds maximum for each square meter
C1	1 meter (3 feet)	7 seconds maximum for each square meter
C	1.5 meters (5 feet)	5 seconds maximum for each square meter

NOTE 2: **Refer to**

NOTE 3: ***Table* 4-1, *Cosmetic Categories*, on page 4, for examples of surfaces in each category type.**

6 Cosmetic Reference Standards and Defect Tables

6.1 Cosmetic Defect Definitions

The following defects are defined for clarification when determining if a surface meets the appropriate defect table standards:

- **Scratch:** a continuous scraped line
- **Scuff:** an area of light abrasion must be considered as a whole
- **Nick, dent, or gouge:** an area with distinct material movement, or leaving an indent in the base material
- **Discoloration:** an area of distinctly different color caused by finish or staining on the base material prior to finish and readily visible to the eye
- **Non-uniform machining marks:** a given area where the machining marks and/or patterns are visibly

different and it is visually obvious on a continuous surface area. Each distinct machined surface must be considered separately.

- **Gouge through to base material:** a gouge in a finished surface that causes the material to be displaced, creating a distinct burr or divot. Shiny areas on aluminum surface are not otherwise considered 'through to base material'.
- **Extrusion marks:** non-uniform surface that appears to be slightly cracked or checked

NOTE 4: Cosmetic flaws are acceptable but must not be so obvious or consistent as to suggest workmanship or processing problems.

6.2 Cosmetic Inspection Specification – Plastics

Table 6-1, Plastics – Maximum Allowable Defects, below, shows the cosmetic reference standard for plastic parts and assemblies.

Table 6-1 Plastics – Maximum Allowable Defects

Defect Code	*A1*	*A*	*B*	*C*
P01 – Scratches, cuts, nicks, and gouges	None	Three defects 0.3mm x 0.8mm (0.01"x0.03")	Three defects 0.5mm x 2.3mm (0.02"x0.09")	Six defects 0.5mm x 6.4mm (0.02"x0.25")
P02 – Sinks	None	None - unless design requires	None - unless design requires	None - unless design requires
P03 – Pits, specks, and contamination	None	Two defects 0.7mm/ 100mm diameter	Four defects 0.7mm/ 100mm diameter	Eight defects 1.5mm/ 100mm diameter
P04 – Discoloration, flow marks, and haze	None	Two defects 0.5mm (0.02")	Three defects 2.3mm (0.09")	Five defects 3.2mm (0.13")
P05 – Burns, protrusions, or blisters indicate processing problems	None	None	None	None
P06 – Weld lines and knit lines are visible at any openings	None	Accept according to part design	Accept according to part design	Accept according to part design
P07 – Flash	None	None	None	None
P08 – Gate (trimming must not compromise form, fit, or function)	Flush to below surface and cannot interfere with assembly	Flush to below surface and cannot interfere with assembly	Flush to below surface and cannot interfere with assembly	Flush to below surface and cannot interfere with assembly
P09 – Parting lines tool construction dictates parting line locations	According to sample tool design	According to sample tool design	According to sample tool design	According to sample tool design
P10 – Cracking	None	None	None	None
P11 – Warpage	0.025mm/ 25.4mm (0.001"/1")	0.025mm/ 25.4mm (0.001"/1")	0.025mm/ 25.4mm (0.001"/1")	0.025mm/ 25.4mm (0.001"/1")

Defect Code	*A1*	*A*	*B*	*C*
P12 – Grease transferred during assembly (must be cleaned off)	None	None	None	None
P13 – Color	According to color match sample	According to color match sample	According to color match sample	According to color match sample
P14 – Ejector marks	None external; allowed inside assembly in final use	None external; allowed inside assembly in final use	None external; allowed inside assembly in final use	None external; allowed inside assembly in final use

6.3 Cosmetic Inspection Specification – Sheet Metal

Table 6-2, Coated, Formed Sheet Metal – Maximum Allowable Defects, on page 7, shows the cosmetic reference standard for coated, formed sheet metal parts, and assemblies (painted, plated, anodized, phosphatizing, and chromate conversion).

NOTE 5: At defect code S07, defects that compromise the coating effectiveness are not acceptable. Therefore, if the defect affects the base metal, it is not acceptable.

Table 6-2 Coated, Formed Sheet Metal – Maximum Allowable Defects

Defect Code	*A*	*B*	*C1*	*C*
S01 – Water marks resultant of drying process	Acceptable	Acceptable	Acceptable	Acceptable
S02 – Peeling, blistering, cracking,and non-adhesion defects through to base metal rust	None	None	None	None
S03 – Oils	None	None	None	None
S04 – Discoloration, glossiness, and specks (black) in coating not through to base metal	None	Acceptable	Acceptable	Acceptable
S05 – Non-uniform coverage	Acceptable - must meet plating thickness at lowest reading	Acceptable - must meet plating thickness at lowest reading	Acceptable - must meet plating thickness at lowest reading	Acceptable - must meet plating thickness at lowest reading
S06 – Runs, stains on surface (defect is not through to base metal)	None	Four defects 3.2mm (0.13")	Eight defects 3.2mm (0.13")	Acceptable
S07 – Scratches and gouges in or under coating to the base metal	Three defects 0.1mm x 2.0mm (0.004"x0.078")	Four defects 0.2mm x 7.5mm (0.008"x0.3")	Eight defects 0.3mm x 7.5mm (0.01"x0.3")	Acceptable
S08 – Missing plating	None	None	None	None

Defect Code	A	B	C1	C
S09 – Contamination	None	None	None	None
S10 – Tool marks	None	Acceptable	Acceptable	Acceptable
S11 – Material mark	None	Acceptable	Acceptable	Acceptable
S12 – Weld appearance (rings, burns, form, fit or function are not to be compromised)	Do not weld on A surface	Do not weld on B surface	Small, uniform welds permitted	• Neat in appearance • Size-not to cause fit issues • Uniform color over weld

6.4 Cosmetic Inspection Specification – Printed Information, Product Names, and Logos

Table 6-3, Printed Information – Maximum Allowable Defects, below, shows the cosmetic reference standard for printed information, pad printing, screen printing, printed labels, nameplates and logos.

NOTE 6: At defect code I10, printed agency label, part number, and serial number labels must be read by a barcode reader and the naked eye.

Table 6-3 Printed Information – Maximum Allowable Defects

Defect Code	A	B	C
I01 – Inconsistency	None	None	None
I02 – Flow marks	None	None	Accept
I03 – Scratches	None	None	25 percent label size
I04 – Transparency	None	None	25 percent label size
I05 – Voids, specks, and fill-ins	None	None	25 percent label size
I06 – Bleeding	None	None	None
I07 – Haze	None	None	25 percent label size
I08 – Smearing	None	None	None
I09 – Color	According to color match sample	According to color match sample	According to color match sample
I10 – Printed letters and numbers			

6.5 Cosmetic Inspection Specification – Coated Machined Metal

At defect codes M02, M03, M06, and M07 defects that compromise the coating effectiveness are not acceptable. Therefore, if the defect affects the base metal, it is not acceptable.

Table 6-4, *Coated Machined Metal – Maximum Allowable Defects*, on page 9, shows the cosmetic reference standard for coated machine metal surfaces that received phosphate coating, chromate conversion, passivation, or are uncoated.

NOTE 7: At defect codes M02, M03, M06, and M07 defects that compromise the coating effectiveness are not acceptable. Therefore, if the defect affects the base metal, it is not acceptable.

Table 6-4 Coated Machined Metal – Maximum Allowable Defects

Defect Code	*A*	*B*	*C1*	*C*
M01 – Porosity	None	None	None	None
M02 – Scratches in raw material	Two defects 0.1x.0.8mm (0.004"x0.03")	Four defects 0.2x12mm (0.008"x0.5")	Four defects 0.6x12mm (0.02"x0.5")	Acceptable
M03 – Scratches on surface	Two defects 0.1x.0.8mm (0.004"x0.03")	Four defects 0.2x12mm (0.008"x0.5")	Four defects 0.6x12mm (0.02"x0.5")	Acceptable
M04 – Contaminants	None	None	None	None
M05 – Discoloration	Two defects 0.5mm (0.02")	Two defects 2.3mm (0.09")	Three defects 5x5mm (0.2"x0.2") maximum	Acceptable
M06 – Nicks, dents, and gouges	One defect 0.5mm (0.02")	Two defects 0.8mm (0.03")	Six defects 1.3x1mm (0.05"x0.04")	Acceptable
M07 – Non-uniform machine marks	None	90 percent uniform max. height (ht.) 0.1mm (0.004")	Min. 80 percent uniform max. ht. 0.1mm (0.004")	Acceptable
M08 – Scuffs	None	None	Eight defects 10x10mm (0.39"x0.39") maximum	Acceptable
M09 – Pits	Two defects 0.7mm/100mm diameter	Four defects 0.7mm/100mm diameter	Six defects 1.0mm/100mm diameter	Eight defects 1.5mm/100mm diameter

6.6 Cosmetic Inspection Specification – Pre-Plated Metal

Table 6-5, Pre-Plated Metal – Maximum Allowable Defects, on page 10, shows the cosmetic reference standard for pre-plated metal parts and assemblies.

NOTE 8: At defect code PR02, defects that compromise the coating effectiveness are not acceptable. If the defect affects the base metal, it is not acceptable.

NOTE 9: At defect code PR07, category C, oxidation must not be more than a fine layer and there must be no loose particles. Plating must not be compromised by, for example, flakes, peels, cracks, and so on.

Table 6-5 Pre-Plated Metal – Maximum Allowable Defects

Defect Code	*A1*	*A*	*B*	*C*
PR01 – Grease and oil	*Do not* use pre-plate metal	None	None	None
PR02 – Scratches and gouges	*Do not* use pre-plate metal	Three defects 0.1x2.0mm (0.04"x0.078")	Four defects 0.2x7.5mm (0.08"x0.3")	Acceptable
PR03 – Finger prints	*Do not* use pre-plate metal	None	None	Acceptable
PR04 – Burrs	*Do not* use pre-plate metal	None	None	Acceptable
PR05 – Discoloration and non-uniform color	*Do not* use pre-plate metal	Not acceptable	Acceptable	Acceptable
PR06 – White corrosion	*Do not* use pre-plate metal	Not acceptable	Not acceptable	Acceptable
PR07 – Red corrosion	*Do not* use pre-plate metal	Not acceptable	Not acceptable	Not acceptable, except on cut edges
PR08 – Staining	*Do not* use pre-plate metal	None	Four defects 3.2mm (0.13")	Acceptable
PR09 – Cracking	*Do not* use pre-plate metal	None	None	None
PR10 – Weld location and/or corrosion	*Do not* use pre-plate metal	*Do not* weld on category A surfaces	*Do not* weld on category B surfaces	Allowed according to sample - must not cause fit issue

WARNING: Do not weld on Triumph-TM-pre-plates because they are an environmental hazard to operators without proper ventilation.

6.7 Cosmetic Inspection Specification – Cast and Powder Metal

Table 6-6, Cast and Powder Metal – Maximum Allowable Defects, on page 11, shows the cosmetic reference standard for cast and powder metal parts and assemblies (coated, painted, plated, anodized, phosphatizing, chromate conversion, and uncoated).

Table 6-6 Cast and Powder Metal – Maximum Allowable Defects

Defect Code	*A1*	*A*	*B*	*C*
C01 – Scratches,cuts, nicks, and gouges	None	Three defects 0.3x0.8mm (0.01"x0.03")	Three defects 0.5x2.3mm (0.02"x0.09")	Six defects 0.5x6.4mm (0.02"x0.25")
C02 – Sinks	None	None - except when design requires	None - except when design requires	None - except when design requires
C03 – Pits, specks, and contamination	None	Two defects 0.7mm / 100mm diameter	Four defects 0.7mm / 100mm diameter	Eight defects 1.5mm / 100mm diameter
C04 – Discoloration, flow marks, and haze	None	Two defects 0.5mm (0.02")	Three defects 2.3mm (0.09")	Five defects 3.2mm (0.13")
C05 – Protrusions or blisters indicating process problems	None	None	None	None
C06 – Weld lines and knit lines visible at any openings	None	None	Accept according to part design	Accept according to part design
C07 – Material dressing	Flush to below surface and cannot interfere with the assembly	Flush to below surface and cannot interfere with the assembly	Flush to below surface and cannot interfere with the assembly	Flush to below surface and cannot interfere with the assembly
C08 – Parting lines. (tool construction dictates parting line locations)	According to sample tool design	According to sample tool design	According to sample tool design	According to sample tool design
C09 – Cracking	None	None	None	None
C10 – Warpage	0.015mm / 25.4mm (0.0005" / 1")	0.015mm / 25.4mm (0.0005" / 1")	0.015mm / 25.4mm (0.0005" / 1")	0.015mm / 25.4mm (0.0005" / 1")
C11 – Grease and oil	None	None	None	None
C12 – Color	According to color match sample	According to color match sample	According to color match sample	According to color match sample
C13 – Porosity	None	None	Four defects 0.7mm / 100mm diameter	Eight defects 1.5mm / 100mm diameter

NOTE 10: Cast and powdered metal cannot go through secondary machining or deburr operations after the final application of the chemical film.

7 Board Workmanship Standards

The following viewing distances and times must be adhered to when inspecting products and/or components when no other approved specification is referenced.

Category	*Viewing Distance*	*Viewing Time*	*Surface(s)*
Socket	20.32cm (8.0")	Five seconds	All
Thermal Pad	20.32cm (8.0")	Five seconds	All
Bolster Plate	20.32cm (8.0")	Five seconds	All
Heatsink	20.32cm (8.0")	Five seconds	All
DIMM	20.32cm (8.0")	Two and a half seconds	All
Processor	20.32cm (8.0")	Five seconds	All
Board • Backside • Springfinger • DIMM area • Gold pad area • Remaining	20.32cm (8.0") for all listed	• 10 seconds • 3 seconds • 10 seconds • 10 seconds • 10 seconds	• Back • Top • Top • Top • Top

NOTE 11: Sockets, processor components, and the gold pad areas of the boards must be viewed with a magnifying glass of 1.75x magnification. Components must be held 15 cm (6 inches) below the glass.

7.1 Sockets

	Description	*Accept*	*Reject*
1	Contacts:		
	a. Damaged		X
	b. Missing buttons		X
2	Contamination and/or debris		X
3	Damage to housing or frame; broken latch		X
4	Loose wires		X

7.2 Processor

	Description	*Accept*	*Reject*
1	Gold pads:		
	a. Scratches down to metal		X
	b. Dull discoloration		X
	c. Appears non-gold color		X

	Description	Accept	Reject
2	Chipped corners		X
3	Contamination and/or debris:		
	a. Removable with air gun	X	
	b. Not removable with air gun		X

7.3 DIMMs

	Description	Accept	Reject
1	Labeling:		
	a. Part number mismatch		X
	b. Non-scannable		X
	c. Not readable		X
2	Missing components		X
3	Contamination and/or debris:		
	a. Removable with air gun	X	
	b. Not removable with air gun		X

7.4 Boards

	Description	Accept	Reject
1	Gold pads:		
	a. Scratches down to metal		X
	b. Dull discoloration		X
	c. Appears non-gold color		X
2	DIMM sockets:		
	a. Bent pins		X
	b. Damaged ejector pins		X
	c. Damage to connectors		X
3	Damaged or missing screws		X
4	Heatsinks:		
	a. Loose		X
	b. Missing		X
5	EMI Springfingers:		
	a. Damaged		X

	Description	Accept	Reject
	b. Missing		X
	c. Incomplete coverage		X
	NOTE 12: Any deviation from the criteria above must be subject to design approval.		
6	Labeling:		
	a. Part number mismatch		X
	b. Non-scannable		X
	c. Not readable		X
7	Contamination and/or debris:		
	a. Removable with air gun		X
	b. Not removable with air gun		X
8	Rails or metal mechanicals:		
	a. Small and shallow scratches (machine or processing marks)	X	
	b. Damage that prevents design function		X
9	Sides or edges; board de-lamination		X

7.5 Centerplane Connectors – Chassis

NOTE 13: Do not use the viewing T&D criteria specified in *Table 5-1, Time and Distance*, on page 5.

	Description	Accept	Reject
1	Damage to power connector housing		X
2	Damage to connector wall		X
3	Damage to connector shield		X
4	Damage to connector pins; bent or deformed		X
5	Modules:		
	a. Damage, leaning		X
	b. Missing		X
6	Contamination is unacceptable.		X
	NOTE 14: On-site rework is acceptable if the contamination can be removed without damaging the centerplane (for example, removing fluff or dust using a vacuum cleaner).		

8 Miscellaneous Workmanship Standards

8.1 Screws

The criteria listed refer to the visible head of an installed screw.

A “stripped” screw head is defined as having any damage to the outside edges, or inset drive portion of the screw head. This includes burrs, deformed metal, gouges and/or any damage to the visible finish.

	Description	***Accept***	***Reject***
1	Damage:		
	a. Screw head drive inset is slightly rounded but not stripped. Screw can be torqued and untorqued without excessive pressure being applied to the screw	X	
	b. Screw head is rounded and screw cannot be torqued and untorqued		X
	c. Screw heads are partially or completely stripped. Visible damage to the edges of the head or the inset drive portion.		X
2	Missing screws		X
3	Screws torqued incorrectly		X

8.2 Honeycomb Electromagnetic Interface (EMI) Gaskets

	Description	***Accept***	***Reject***
1	Damage:		
	a. Honeycomb edge is flattened or dented – minor damage, three or less occurrences	X	
	b. Honeycomb edge is flattened or dented – minor damage, more than three occurrences		X
2	Compressed:		
	a. Honeycomb is compressed – one occurrence only	X	
	b. Honeycomb is compressed – more than one occurrence		X
3	Honeycomb is split or torn		X

9 Hard Disk Drive Bracket Cosmetic Specification

This section outlines an agreed upon definition of cosmetic surfaces and the relative grading system, categories, inspection criteria, as well as acceptability standards for both incoming and outgoing material for Hard Disk Drive Brackets differing from other Oracle products and assemblies.

9.1 Cosmetic Inspection Specification – Hard Disk Drive Bracket Plastics

Table 9.1-1 Category Definitions

Location/Assembly	*Category*	*Comment*
Bezel (front) – LED, Button, Lever	A	HDD LED/button area, HDD eject lever painted surface.
Top, Bottom, Sides, Behind Lever	B	External surface, minor cosmetic defects allowed
Rails	B	Surface, minor cosmetic defects allowed

Table 9.1-2, *Plastics – Maximum Allowable Defects*

This table provides the cosmetic reference standard for Hard Disk Drive Bracket plastic parts.

Defect Code	*A*	*B*
P01 – Scratches, cuts, nicks, and gouges	Three defects 0.3mm x 0.8mm (0.01"x0.03")	Three defects 0.5mm x 2.3mm (0.02"x0.09")
P02 – Sinks	None - unless design requires	None - unless design requires
P03 – Pits, specks, and contamination	Two defects 0.7mm/ 100mm diameter	Four defects 0.7mm/ 100mm diameter
P04 – Discoloration, flow marks, and haze	Two defects 0.5mm (0.02")	Three defects 2.3mm (0.09")
P05 – Burns, protrusions, or blisters indicate processing problems	None	None
P06 – Weld lines and knit lines are visible at any openings	Accept according to part design	Accept according to part design
P07 – Flash	None	None
P08 – Gate (trimming must not compromise form, fit, or function)	Flush to below surface and cannot interfere with assembly	Flush to below surface and cannot interfere with assembly
P09 – Parting lines tool construction dictates parting line locations	According to sample tool design	According to sample tool design
P10 – Cracking	None	None
P11 – Warpage	0.025mm/ 25.4mm (0.001"/1")	0.025mm/ 25.4mm (0.001"/1")
P12 – Grease transferred during assembly (must be cleaned off)	None	None
P13 – Color	According to color match sample	According to color match sample
P14 – Ejector marks	None external; allowed inside assembly in final use	None external; allowed inside assembly in final use

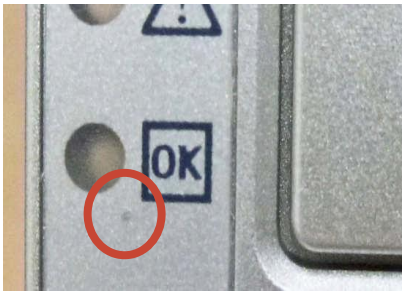
9.2 Hard Disk Drive Bracket Cosmetic Inspection Instructions

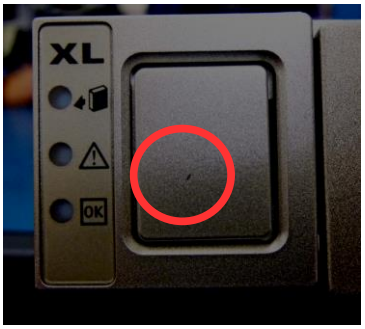
a) Holding bracket at arms-length and eye level
b) Hold the bracket in a fixed position, not rotating
c) Total visual inspection time of all sides of the bracket is 10 seconds
d) Bracket front surface required to meet cosmetic Category 'A'

9.3 Hard Disk Drive Bezel/Bracket Defects – Not Acceptable Examples

9.3.1 Category A, Bezel Front – Not Acceptable Examples

9.3.1.1 Defects in LED or Button area – Not Acceptable



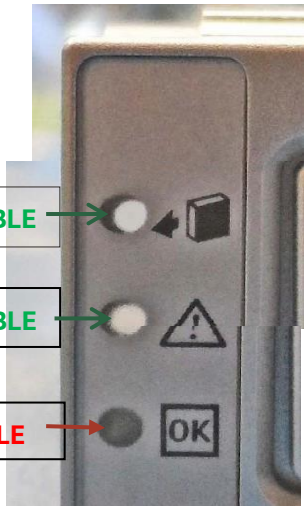


9.3.1.2 Missing or Misaligned Light Pipe

ACCEPTABLE Light Pipe = Able to see light emitting from end of light pipe

UNACCEPTABLE
Missing Light Pipe

ACCEPTABLE
Light Pipe
Alignment

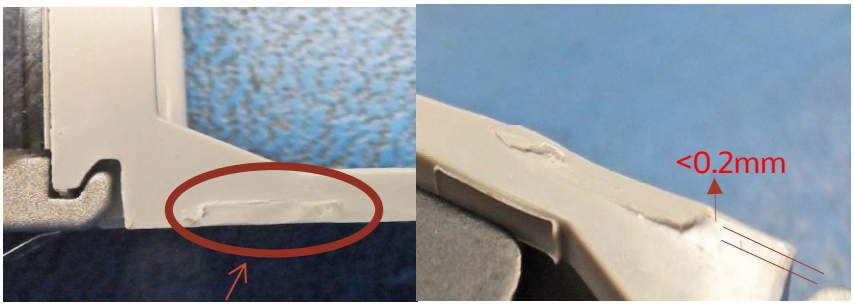


NOTE 15: Visually inspect clarity and orientation of LED icons

9.3.2 Category B, Bracket Top, Bottom, Sides, Rails – Not Acceptable Examples

9.3.2.1 Tooling or grinding marks – Not Acceptable

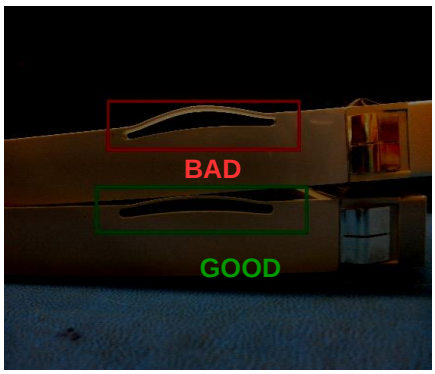
UNACCEPTABLE Flaking



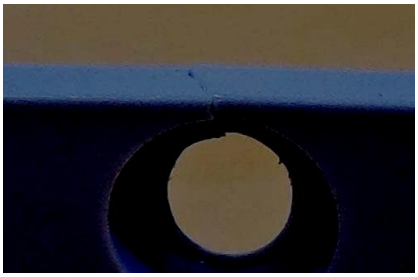
Gate area cosmetic height not to exceed 0.2mm.

9.3.2.2 Missing, Damaged or Discolored Paint – Not Acceptable

9.3.2.3 Distorted or Deformed



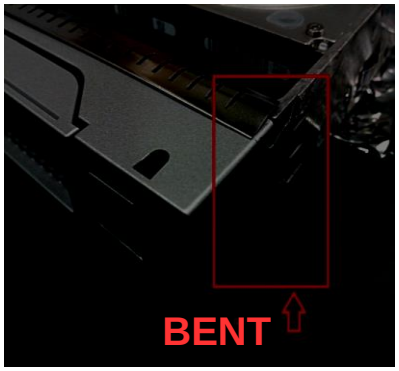
9.3.2.4 Cracked or Stressed – Not Acceptable

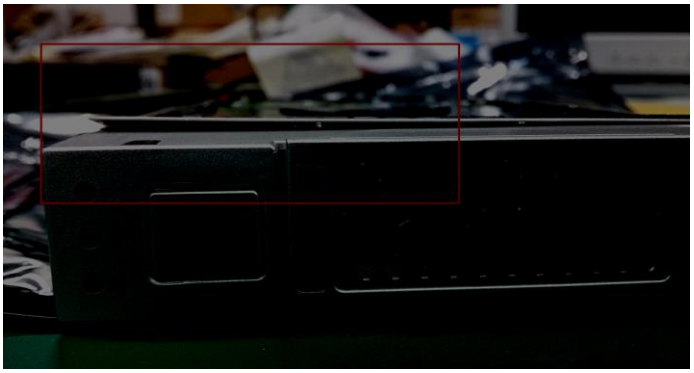


Gently press spring 3 times, to test flexibility

9.3.3 Other Hard Disk Drive Bracket Defects – Not Acceptable

9.3.3.1 Bent/Deformed EMI Gasket – Not Acceptable



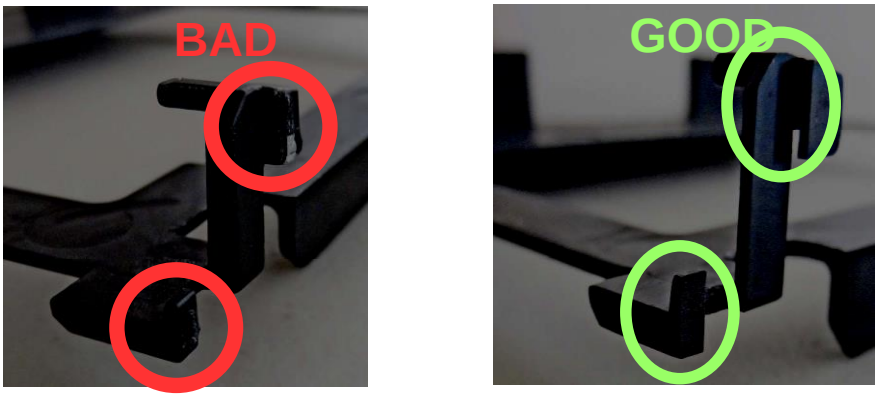


9.3.3.2 Mechanical Lever Malfunction

NOTE 16: Validate the HDD bracket lever functions correctly

9.4 HDD Dory Adapter Bracket Defects – Not Acceptable

9.4.1 Excessive Material, Incomplete Machining



Reference *Table 6-6, Cast and Powder Metal – Maximum Allowable Defects,* on page 11, for the standards of acceptability applicable to the Dory adapter bracket and other die-cast or powdered-metal (sintered) drive brackets.

Related Information

Reference Documents and Records

Document Title	*Number*	*ESO Controlled*		*Quality Record*	
		Yes	*No*	*Yes*	*No*
SCO Global Manufacturing Operations: HLS - Site Execution Map	924-0303-xx		x		x

Document History and Approvals

Dash	*Rev*	*Date*	*Description of Change*	*Originator*
01	A	13 Dec 1996	Initial release. ECR05492	NA
02	A	02 Oct 1997	Converted to template and revised table footing information.	N/A
03	A	05 Nov 2003	Converted to StarOffice and revised. Included information from 913-3254-xx. Removed reference to 950-2925-xx. Added reference to 913-3485-xx.	N/A
04	A	23 Apr 2007	Converted to latest StarOffice template, updated title, updated section 6.6, added new Appendix A, and removed reference to obsolete doc 913-3341-xx.	N/A
04	B	08 Oct 2008	Updated tables in Sections 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 8.1, 8.2, and 8.3.	N/A

05	B	24 Feb 2011	Updated to Oracle template.	N/A
05	C	12 Aug 2011	Updated to latest Oracle template.	N/A
06	A	16 Aug 2012	Added reference to the Oracle Product Color workspace and 924-0303-xx.	N/A
Agile History				
Rev		***Date***	***Description of Change***	***Originator***
07		29 Jan 2013	Added "Product Names, and Logos" to the heading of Section 6.4, and added nameplates and logos to list of applicable items. Removed reference link to Webview Tool.	N/A
08		26 Feb 2014	Added Section 9, Hard Drive Bracket Cosmetic Specification. Updated Section 7 - removed reference to an internal link (Cosmetic Webview Tool) which provided photos of defects as examples.	N/A
09		30 May 2014	In Section 9.3 - Added photos of missing or misaligned Light Pipe for both Coral and Marlin (Section 9.3.1.2), photos of a plastic gate on the Marlin bracket (Section 9.3.2.1), and an example of a broken rail spring press (Section 9.3.2.4). Removed the Cosmetic Webview Tool link (Section 7).	N/A
Fusion History				
10		05 Sept 2019	Section 8.1 – screws: added note to clarify the definition of "Stripped Screw" for the purposes of acceptance and rejection in manufacturing and quality control. Section 8.3, removed. Saddle bags no longer used on racked products.	N/A
11		02 Mar 2022	Remove Appendix A. Reformat to Redwood Template	N/A
12		24 Apr 2023	Building the document structure for the 924-0303.	N/A
13		27 Apr 2023	Bringing document in sync with Revision. Removed from the 924-0303 document structure. No Content Changes.	N/A

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