

AMPHENOL CORPORATION

Aerospace Operations 40-60 Delaware St.  Sidney, NY 13838-1395	<b>BONDING, POTTING, WELDING</b>	Manufacturing Layout Part No. <b>PR303</b>
Quality Approval:	Quality Standards  <b>- INDEX-</b>	Operation No.  Revision: 5/17/05

This Quality Standard applies unless otherwise specified by drawing or specification.

PAGE 1 : INDEX

PAGE 2 : DEFINITIONS

PAGE 3 : DEFINITIONS (con't )

PAGE 4 : POTTING, CONNECTOR ASSEMBLY, FILTER

PAGE 5 : RTV BACKFILL

PAGE 6 : BACKFILL; HIGH SPEED CONTACT ASSEMBLIES.

PAGE 7 : SOLDERWELL ORIENTATION, CONNECTOR ASSEMBLIES

PAGE 8 : BRAZING

PAGE 9 : WELDING

PAGE 10 : WELD SPLATTER

PAGE 11: WELDING VISUAL STANDARDS

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Aerospace Operations 40-60 Delaware St. Sidney, NY 13838-1395		BONDING, POTTING, WELDING		Manufacturing Layd
Quality Approval:	Quality Standards		PART NO. LO-6000	
	<b>Definitions</b>		Operation No. IP - 500 - 4  Revision: Original	

**Blisters/Pimples**

A condition that is the result of internal gas release or air pockets evidenced by the appearance of a bump.

**Chips**

Small nicks along edges of part or small pieces broken off from the edge.

**Closed Knit Line**

A visible material flow line having no perceptible depth.

**Color Uniformity**

Surface color varying in uniformity resulting in spots, blotches and striations of different color.

**Contamination**

An inclusion of foreign material detectable on the surface of the part.

**Cracks**

A fracture passing completely through the thickness or section of a part.

**Crazing**

Fine surface cracks appearing as a network of interconnecting hairline cracks on the surface.

**Cut**

Material severed or damaged as a result of piercing or slicing action with a sharp instrument or tool.

**Deformed**

A departure from the normal shape greater than the dimensional tolerance. Parts often deform out of round, out of square, twisted, warped, bent or flattened.

**Dent**

A depression with no removal of material or change in surface texture.

**Dry Spot**

An area on the surface of the part where reinforcement has not been wetted with resin, usually distinguished by the presence of loose fibers.

**Flash**

Excess material adhering to part.

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	<b>Definitions</b>	Revision Original

### **Gouges**

The result of scooping out of material by another object.

### **Mutilation**

May consist of any combination of a gouge, cut, nick, tear, porosity and other abnormal material conditions that result in the part exhibiting a non uniform appearance.

### **Nicks**

Sharp surface indentation caused by impact of a foreign object. Parent material is normally displaced, seldom separated.

### **Non-fill / Void**

An incomplete part due to insufficient material.

### **Pit / Pinhole**

A small sharply defined hole in the surface of the part.

### **Porosity**

Multiple pits or pin holes

### **Scuff**

A mark caused by an abrasion which changes the surface smoothness or texture.

### **Sink Marks**

A dimple like depression in surface of part.

### **Surface Cracks**

A fracture on surface of part that does not go completely through thickness of part.

### **Surface Discoloration**

An apparent surface inconsistency in material evidenced by the appearance of light to dark streaks.

### **Tear**

Separation of material due to mechanical stress.

### **Wire Marks**

Visible marks caused by the part having rested against the curing trays.

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	POTTING, CONNECTOR ASSEMBLY, FILTER	Revision: Original

## Acceptable Imperfections

1. For Filter connectors containing size 16 and / or size 20 contacts, air bubbles having a maximum dimension of 1/32 inch shall be allowed in the surface of the rear potting.
2. For size 22 contacts the maximum allowable dimension for a surface bubble shall be 1/64 inch.
3. All surfaces of the bubble must be visible to assure the maximum allowable dimension is not exceeded.
4. If any portion of any ceramic capacitor is exposed, the filter connector shall be rejected until the exposure is sealed with epoxy potting material.

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Quality Approval:	Quality Standards	Operation No. IP - 500 - 4
	<b>RTV BACKFILL</b>	Revision Original

This Quality Standard is applicable to all connector assemblies which are backfilled with RTV compound.

Inspection shall be a visual examination of the backfill material with magnification in accordance with the routine.

Depth of backfill shall only be checked with the appropriate sight gage for the depth specified in the assembly specification when visual inspection leaves doubt of the lowest area of backfill in the connector.

### Acceptable Imperfections:

1. Voids and bubbles are permissible provided they are completely covered by a continuous film of RTV backfill material.
2. Thin traces of RTV material on the sides of the projecting portion of the grommet and on the serrations are permissible.

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Aerospace Operations 40-60 Delaware St. Sidney, NY 13838-1395		Manufacturing Layout Part No. LO-6000
Quality Approval:	Quality Standards	Operation No. IP - 500 - 4
	Backfill, High Speed Contact Assemblies	Revision: Original: 9/17/2004

## General Information:

The purpose of the backfill is to hold the contact components in place and seal the contact assembly from moisture contamination.

## Acceptable Imperfections

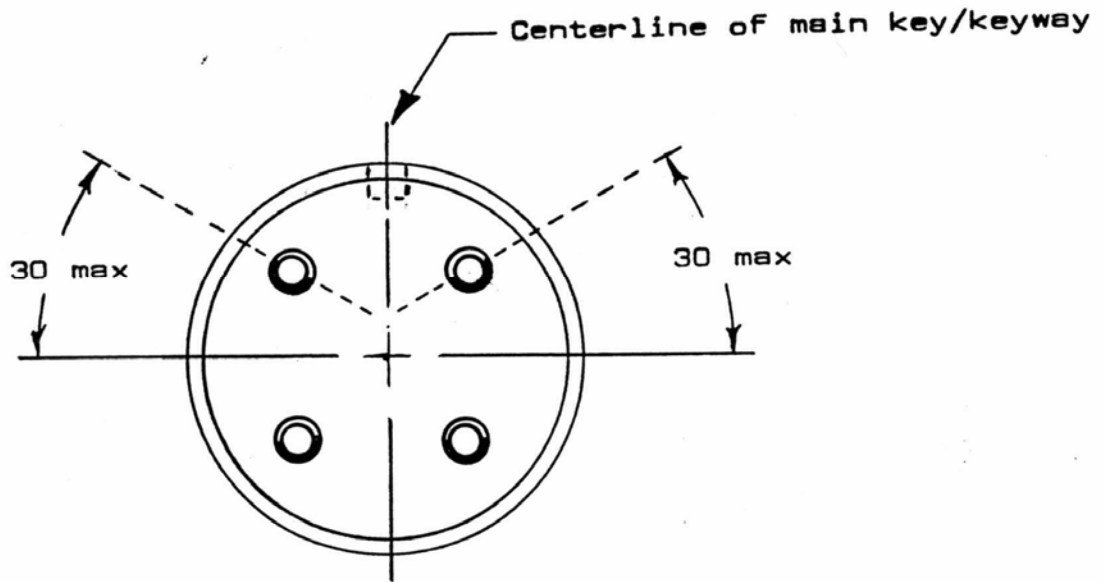
Air bubbles and voids are acceptable if the following conditions are met:

1. The backfilled components are firmly held in place.
2. No part of the insulator (normally white) can be seen.
3. The base of any inner component is completely covered.
4. You must be able to see the bottom of the void to verify above conditions.

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Aerospace Operations 40-60 Delaware St. Sidney, NY 13838-1395		Manufacturing Layout Part No. LO-6000
Quality Approval:	Quality Standards	Operation No. IP - 500 - 4
	<b>SOLDER WELL ORIENTATION CONNECTOR ASSEMBLIES</b>	Revision : Original

Unless otherwise specified by drawing and / or specification, solder wells may be misaligned a maximum of 30 either side of the direction facing the main key / key way of the connector shell.



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		Part No. LO-6000
Quality Approval:	Quality Standards	Operation No. IP - 500 - 4
	<b>BRAZING</b>	Revision Original

This Quality Standard applies to braze joints of 10-587191 through 10-587194 strain relief backshells and other parts where the drawing requires brazing per MIL-B-7883, Type 5, Grade B joints.

A 10X microscope shall be used for the following visual inspection.

### Acceptable Imperfections

1. Surface porosity is acceptable if the bottom of the porosity is visible and has complete plating coverage. Surface porosity is round, smooth surfaced pinholes or pockets that are confined to the fillet of a braze joint.
2. Excess braze material is acceptable provided it does not interfere with the function of the part.
3. Reduced material on the outside surface of the part adjacent to the braze joint is acceptable if no more than 5% of the part wall thickness and no more than 15% of the length of the braze joint.

### Unacceptable Imperfections

1. External voids are unacceptable. An external void is an interruption in the braze material which extends through the cross sectional area of the two pieces being joined.
2. Cracks in the braze joint are unacceptable.
3. Blisters adjacent to the braze joint due to overheating are unacceptable.
4. Unmelted braze material in a joint is unacceptable.
5. Any residual flux on the part or braze joint is unacceptable.
6. Foreign material in the braze joint is unacceptable.



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Quality Approval:	Quality Standards	Part No. LO-6000
	<b>WELDING</b>	Operation No. IP - 500 - 4  Revision Original

This Quality Standard applies to weld joints of 10-587191 through 10-587194 strain relief backshells and other parts where the drawing requires welding per MIL-W-8604, Class B joints.

10X microscope shall be used for the following visual inspection.

### A. Acceptable Imperfections

1. Mismatch of the two parts being welded is acceptable if no more than 20% of the part wall thickness or 0.180 inch, whichever is smaller.
2. Porosity open to the surface is acceptable if no more than 2 per inch and 1/4 inch minimum spacing. Maximum size must be 0.100 inch or 30% of the part wall thickness, whichever is smaller. Porosity must have bottom visible and complete plating coverage.
3. Undercut is acceptable if no more than 10% of the part wall thickness or 0.050 inch, whichever is smaller, and is no more than 3 times the part wall thickness in length. Undercut is defined as narrow valleys or grooves parallel to the weld at the junction of the weld metal and part metal.
4. Overlap is acceptable if length is no more than the part wall thickness. Overlap is defined as protrusion of weld metal beyond the limits of fusion at the junction of the weld metal and part metal.
5. Concavity or craters (depressions) are acceptable if no more than 20% of the part wall thickness or 0.050 inch, whichever is smaller, and if length is no more than the part wall thickness.

### B. Unacceptable Imperfections

1. Cracks in the weld joint and in the heat affected zone of the base metal are unacceptable.
2. Defects beyond the limits stated in A above are unacceptable.
3. Any two defects (porosity, undercut, overlap, concavity and craters) that have less than six times the part wall thickness between them are unacceptable.

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Quality Approval:	Quality Standards	Part No. LO-6000
	<b>WELD SPLATTER</b>	Operation No. IP - 500 - 4  Revision Original

## Unacceptable Conditions

1. Weld splatter is not allowed in Keyways.
2. Weld Splatter is not allowed on ID of Shell body.

## Acceptable Conditions

1. Weld Splatter is allowed on the back face of the Gasket undercut, (OD).
2. Weld Splatter is allowed within the following criteria on the Gasket Seat.
  - 2a. Must be smooth, NO sharp edges.
  - 2b. .005 maximum height.
3. All allowable Weld Splatter must be firmly attached.

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	WELDING, GENERAL VISUALS	Revision Original (9/14/99))

Visual Quality Standards for welding operations. Visuals done without use of microscope.

Inspect for following visual defects, as applicable to type of welding being performed.

- Porosity
- Contamination
- Craters
- Non-fill/ Voids
- Excessive/ Insufficient penetration
- Weld splatter
- Excessive undercut
- Projections, rough welds, splits or burrs in ID
- Correct angle
- Mutilations, dents, toolmarks
- Missed operations
- Arc scratches
- Cracks, shrinkage
- Weld length correct
- Weld pitch correct
- Correct assembly, forming
- Deformation at weld termination
- Correct/ Excess filler material
- Correct parts.