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**Component Lead Preparation Procedure**

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## **Preface**

Revision A was the Initial Release of 99-03003.

Revision B issued a General Revision on 03/03/06.

Revision C issued a new format and general editorial update on 07/16/14.

## 1.0 **Scope**

This drawing describes methods used to prepare electronic components for soldering into printed circuit boards.

## 2.0 **Precautions**

### 2.1 **Tinning Precautions**

Many Parts are susceptible to damage, due to static discharge, prior to installation and termination into P.C. boards; therefore, care must be taken in handling while tinning. Refer to MKI specification 99-01003.

### 2.2 **Soldering Precautions**

Solder with a gold content of greater than 3% can cause a problem. Solder with a gold content of 5% or greater causes gold embrittlement which reduces the ductility of the solder. Tinning of leads which have been gold plated, with a soldering iron, generally does not remove enough gold to prevent embrittlement. Solder pots contain a relatively large volume of solder compared to the amount of gold on leads, thus reducing the percentage of gold in the solder. This in turn, will maintain the ductility of the solder. Therefore, all leads which have been gold plated must be tinned in a solder pot.

### 2.3 **Gold Buildup**

The solder in the solder pot used for tinning of leads should be changed frequently to prevent gold buildup in the solder.

## 3.0 **Requirements**

- Equipment and supplies to be used are specified in and used per IPC-J-STD-001ES.
- Soldering irons, solder pots, solder, flux, lead-cleaning tools, solvents and wipes

## 4.0 **Procedures**

1. Discrete components (tin plated) R's, C's, CR's.
2. Equipment.
3. .

### 4.1 **Discrete Components**

Discrete components (tin plated) R's, C's, CR's.

- Equipment: specified-solder pot or solder iron
- Remove lead oxidation with braid lead cleaner. Remove debris with kimwipe and ethyl alcohol. Tin leads using either solder pot or solder iron; Temperature  $600 \pm 35F$ . Leads which show evidence of gold plating must be tinned in a solder pot. Clean flux off leads with kimwipe and ethyl alcohol

### 4.2 **Dip IC's**

Clean with kimwipe and ethyl alcohol ONLY.

### 4.3 **Gold Plated Lead Devices**

Gold plated lead devices. Discretes, Q's, CR's, relays, OP amps.

- Equipment: Solder pot only.
- Remove lead oxidation, where possible, with braid cleaner; otherwise clean leads with Q-tip and ethyl alcohol. Remove debris with kimwipes and ethyl alcohol. Tin discrete leads with solder pot or solder iron unless leads were gold plated. Such devices must be tinned in a solder pot; Temperature  $600 \pm 35F$ . Remove tinning with dri wick. Repeat tinning and removal process for a total of three (3) times if tinning with soldering iron; two (2) times if tinning in a solder pot. Clean flux off leads with kimwipe (or Q-tip) and ethyl alcohol.

### 4.4 **Gold Plated Devices**

- Gold plated devices. Pin grid arrays and flat packs.
- Equipment: Solder pot only.
- Precautions: Insure anti-static handling.
- MIT QA verify: Solder pot within specification. Workstation must be properly grounded. Personnel voltage monitor should be used if available. Technician must be properly attired: Anti-static lab coat and wrist strap.
- Clean lead with Q-tip and ethyl alcohol. Tin leas with solder pot. Temperature  $600 \pm 35F$ . Repeat tinning and removal process for a total of two (2) times. Clean off flux with Q-tip and ethyl alcohol.

### 5.0 **Q.A. Provisions**

MIT QA to inspect and sign off on A.W.O. on all tinned leads. MIT QA to verify anti-static handling in step 4.4

### 6.0 **Packing**

Timed devices are to be replaced in anti-static foam (kit) for the next assembly step.