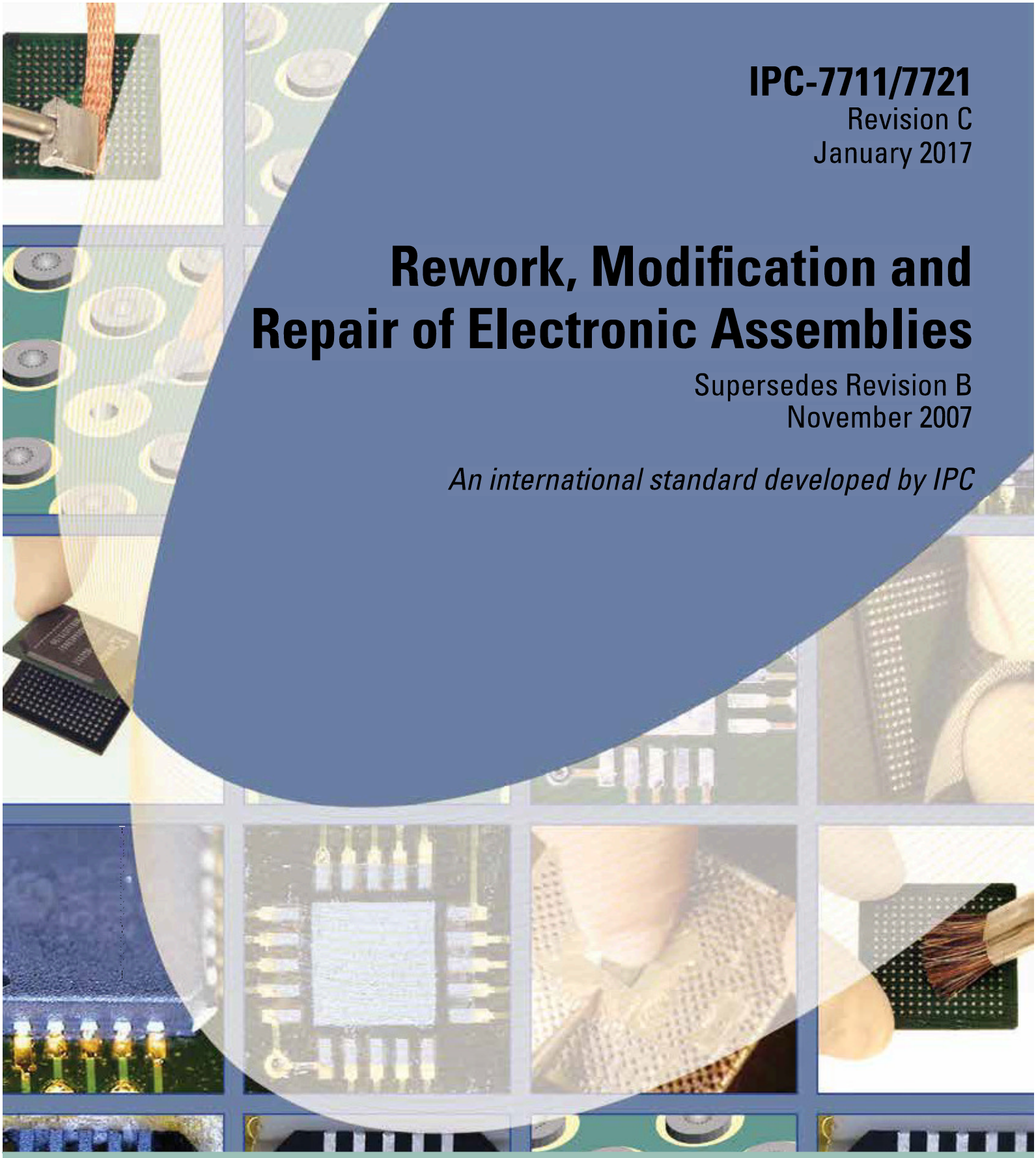
# IPC-7711/7721
Revision C
January 2017

# Rework, Modification and Repair of Electronic Assemblies

Supersedes Revision B
November 2007

*An international standard developed by IPC*



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- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

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- Increase time-to-market
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- Increase cycle time
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- Contain anything that cannot be defended with data

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**IPC-7711C/7721C**

# Rework, Modification and Repair of Electronic Assemblies

Developed by the Repairability Subcommittee (7-34) of the Product Assurance Committee (7-30) of IPC

***Supersedes:***
IPC-7711/7721 with
Changes 1 and 2
Revision B - November 2007
Change 1 - February 2013
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January 1988

Users of this publication are encouraged to participate in the development of future revisions.

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# Acknowledgment

Any document involving a complex technology draws material from a vast number of sources across many continents. While the principal members of the IPC Repairability Subcommittee (7-34) of the Product Assurance Committee (7-30) are shown below, it is not possible to include all of those who assisted in the evolution of this standard. To each of them, the members of the IPC extend their gratitude.

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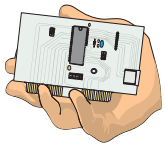
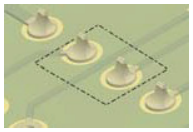
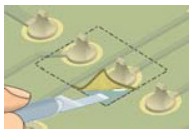
## PART 1 General Information and Common Procedures

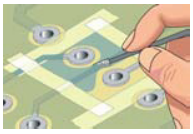
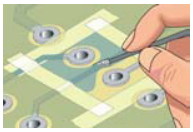
**Handling/Cleaning**

| Procedure | Description | | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.1 | Handling Electronic Assemblies |  | N/A | N/A | N/A |
| 2.2 | Cleaning |  | N/A | N/A | N/A |

**Coating Removal**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.3.1 | Coating Removal, Identification of Conformal Coating |  | R, F, W, C | Advanced | High |
| 2.3.2 | Coating Removal, Solvent Method |  | R, F, W, C | Advanced | High |
| 2.3.3 | Coating Removal, Peeling Method |  | R, F, W, C | Advanced | High |
| 2.3.4 | Coating Removal, Thermal Method |  | R, F, W, C | Advanced | High |
| 2.3.5 | Coating Removal, Grinding/Scraping Method |  | R, F, W, C | Advanced | High |
| 2.3.6 | Coating Removal, Micro Blasting Method |  | R, F, W, C | Advanced | High |

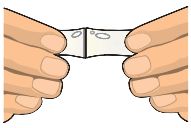
**Coating Replacement**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.4.1 | Coating Replacement, Solder Resist |  | R, F, W, C | Intermediate | High |
| 2.4.2 | Coating Replacement, Conformal Coatings/Encapsulants |  | R, F, W, C | Intermediate | High |

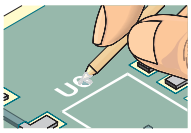
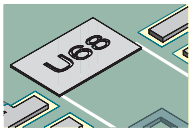
**Conditioning**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.5 | Baking and Preheating |  | R, F, W, C | Intermediate | High |

**Epoxy Mixing and Handling**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.6 | Epoxy Mixing and Handling |  | R, F, W, C | Intermediate | High |

**Legends/Markings**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.7.1 | Legend/Marking, Stamping Method |  | R, F, W, C | Intermediate | High |
| 2.7.2 | Legend/Marking, Hand Lettering Method |  | R, F, W, C | Intermediate | High |
| 2.7.3 | Legend/Marking, Stencil Method |  | R, F, W, C | Intermediate | High |

**Tip Care and Maintenance**

| Procedure | Description | Illustration | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|---|
| 2.8 | Tip Care and Maintenance | | N/A | N/A | N/A |

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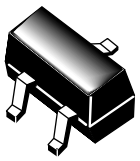
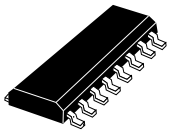
## PART 2 Rework

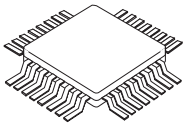
### 3.5 SOT Removal

| Procedure | Description  | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|
| 3.5.1 | Flux Application Method | R,F,W,C | Intermediate | High |
| 3.5.2 | Flux Application Method - Tweezer | R,F,W,C | Intermediate | High |
| 3.5.3 | Hot Air Pencil | R,F,W,C | Intermediate | High |

### 3.6 Gull Wing Removal (two-sided)

| Procedure | Description  | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|
| 3.6.1 | Bridge Fill Method | R,F,W,C | Intermediate | High |
| 3.6.2 | Solder Wrap Method | R,F,W,C | Intermediate | High |
| 3.6.3 | Flux Application Method | R,F,W,C | Intermediate | High |
| 3.6.4 | Bridge Fill Method - Tweezer | R,F,W,C | Advanced | High |
| 3.6.5 | Solder Wrap Method - Tweezer | R,F,W,C | Advanced | High |
| 3.6.6 | Flux Application Method - Tweezer | R,F,W,C | Advanced | High |

### 3.7 Gull Wing Removal (four-sided)

| Procedure | Description  | Board Type | Skill Level | Level of Conformance |
|---|---|---|---|---|
| 3.7.1 | Bridge Fill Method - Vacuum Cup | R,F,W,C | Advanced | High |
| 3.7.1.1 | Bridge Fill Method - Surface Tension | R,F,W,C | Intermediate | High |
| 3.7.2 | Solder Wrap Method - Vacuum Cup | R,F,W,C | Advanced | High |
| 3.7.2.1 | Solder Wrap Method - Surface Tension | R,F,W,C | Intermediate | High |
| 3.7.3 | Flux Application Method - Vacuum Cup | R,F,W,C | Advanced | High |
| 3.7.3.1 | Flux Application Method - Surface Tension | R,F,W,C | Intermediate | High |
| 3.7.4 | Bridge Fill Method - Tweezer | R,F,W,C | Advanced | High |
| 3.7.5 | Solder Wrap Method - Tweezer | R,F,W,C | Advanced | High |
| 3.7.6 | Flux Application Method - Tweezer | R,F,W,C | Advanced | High |
| 3.7.7 | Hot Gas (Air) Reflow Method | R,F,W,C | Advanced | High |