

NOTE

All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ± 0.13 [.005] and angles have a tolerance of $\pm 1^\circ$.

1. INTRODUCTION

This specification covers the requirements of AMP* MICRO-PITCH Printed Circuit (pc) board sockets. These sockets are for Plastic Quad Flat Pack (PQFP) devices and are available for metric and inch standards. Each socket consists of a housing subassembly and cover.

Sockets are available in various sizes. Both the housing and cover have a chamfered corner for proper orientation. Pin No. 1 of the PQFP device is oriented in the cover of the socket by the chamfered corner, or by an arrow on the cover, depending on the location of the device's pin No. 1 identifier. Each socket has a solder-tail alignment base which keeps the solder tails in true position and aids in preventing solder wicking and bridging.

When corresponding with AMP personnel, use the terminology provided on this specification to help facilitate your inquiry for information. Basic terms and features of components are provided in Figure 1.

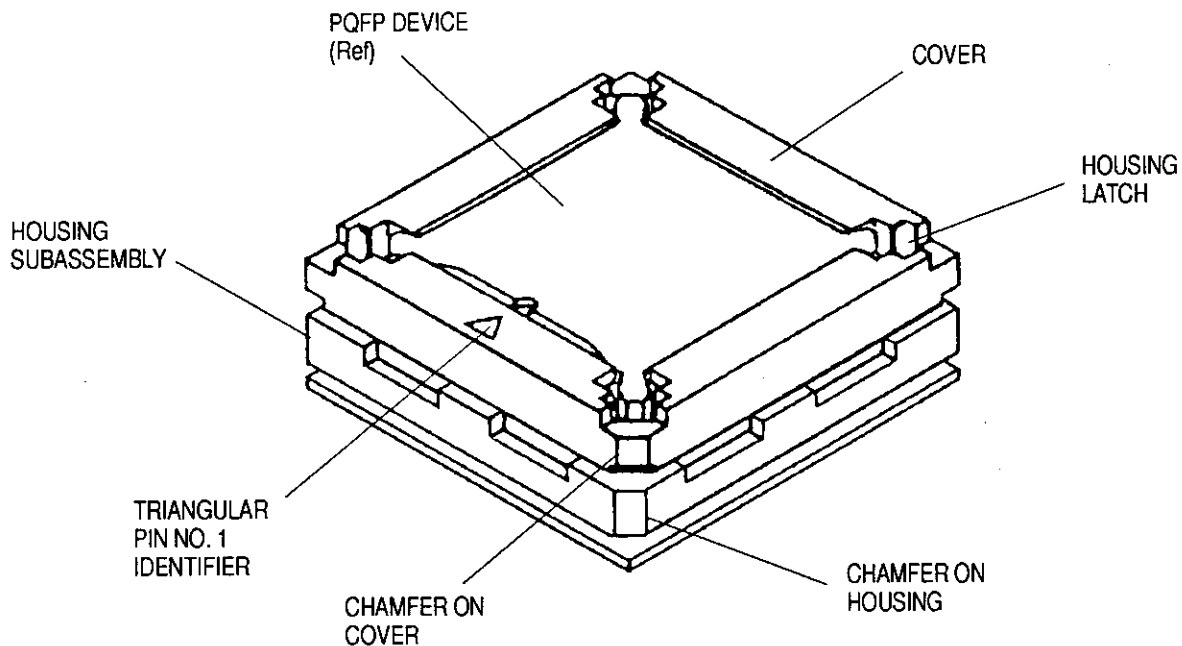


Figure 1

89-263A

2. REFERENCE MATERIAL**2.1. Revision Summary**

This paragraph is reserved for a revision summary of the most recent additions and changes made to this specification which include the following:

Per EC 0160-3972-94:

- Added metric PQFP (four chamfered corners) to cover assembly procedures and illustrations

2.2. Customer Assistance

Reference Part Number 821949 and Product Code 0341 are representative numbers of AMP MICRO-PITCH Sockets. Use of these numbers will identify the product line and expedite your inquiries through an AMP service network established to help you obtain product and tooling information. Such information can be obtained through a local AMP Representative (Field Sales Engineer, Field Applications Engineer, etc) or, after purchase, by calling the Technical Assistance Center or AMP FAX/Product Information number at the bottom of this page.

2.3. Drawings

AMP Customer Drawings for each product part number are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by AMP Incorporated.

2.4. Specifications

AMP Product Specification 108-1223 provides product performance requirements and test information for inch-standard MICRO-PITCH sockets.

Product Specification 108-1348 provides product performance requirements and test information for metric-standard MICRO-PITCH sockets.

2.5. Instructional Material

AMP instruction sheet 408-3289 provides insertion and extraction procedures for the manual MICRO-PITCH hand tools (insertion-only tool and extraction-only tool). Instruction sheet 408-9772 provides insertion procedures for the pneumatic MICRO-PITCH insertion-only tool.

AMP Video Training Tape No. 2076 illustrates insertion and extraction methods for both the pneumatic and manual MICRO-PITCH hand tools. The video includes both metric-standard and inch-standard assembly procedures. The video includes instructions on how to inspect the socket for proper assembly.

AMP Corporate Bulletin No. 401-52 is available upon request and can be used as a guide in soldering. This bulletin provides information on various flux types and characteristics along with commercial designation and flux removal procedures. A checklist is attached to the bulletin as a guide for information on soldering problems.

3. REQUIREMENTS

3.1. Storage

Sockets should remain in the shipping containers until ready for use to prevent deformation to the solder tails and or damage to the housings. When handling the sockets, pick them up by the housing only.

3.2. Special Assembly Procedures

A. Inch Standard Bumpered PQFP

1. Place PQFP on a flat surface, with "gullwings" facing downward.
2. Place cover over PQFP, aligning triangular identifier on cover with "pin No. 1" identifier on PQFP. See Figure 2.
3. Push cover down onto PQFP until an audible "click" is heard.
4. Turn cover-and-PQFP assembly over and inspect that PQFP leads are located in their own alignment channels.

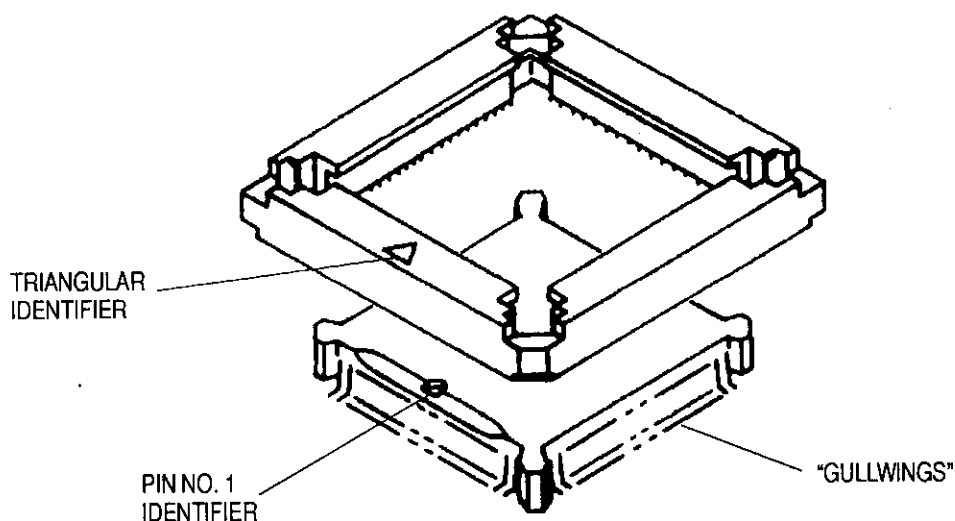


Figure 2

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B. Inch Ceramic Quad Flat Pack (CQFP) Using Converter

1. Place CQFP converter on a flat surface.
2. Place CQFP device over converter with "gullwings" hanging down toward flat surface (see Figure 3).
3. Follow procedures in Steps 2 through 4 in Paragraph 3.2.A.

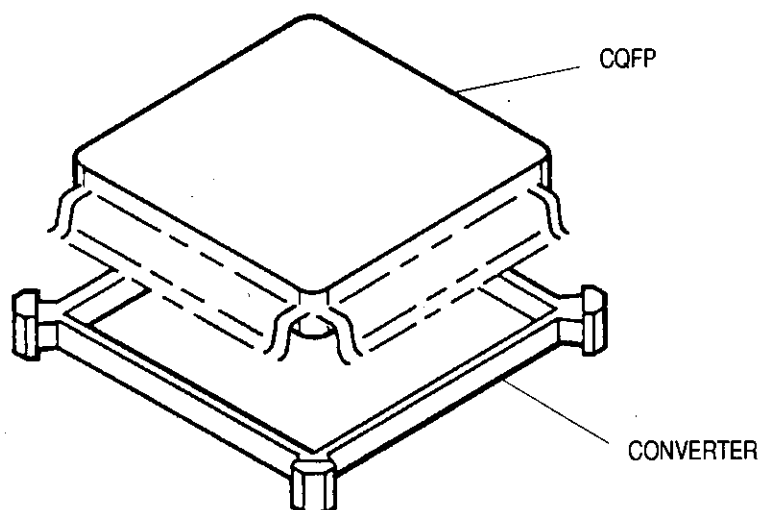


Figure 3

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C. Metric Bumper-Less PQFP (One Chamfered Corner)

1. Place PQFP on a flat surface, with "gullwings" facing downward. Align chamfered corner of the cover with the corner of PQFP having the pin No. 1 identification. See Figure 4.
2. Start chamfered corner and adjacent corner onto devices at an angle. Rotate cover onto other corners.

NOTE

The positioning latches on the cover must hold the device on the outside of the three square corners.

3. Turn cover-and-PQFP assembly over and check that each lead is in appropriate channel.

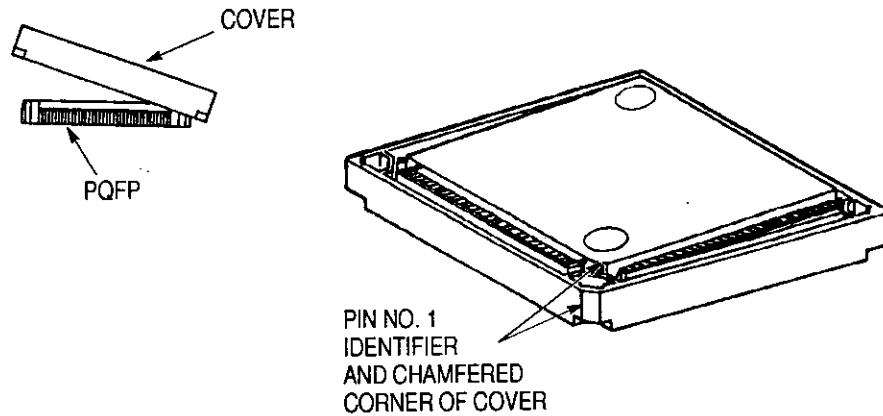


Figure 4

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NOTE Some rotation of device may be necessary to ensure alignment.

4. Press down lightly on bottom of PQFP to make sure it is fully inserted into the cover.

D. Metric Bumper-Less PQFP (Four Chamfered Corners)

1. Place PQFP on a flat surface, with "gullwings" facing downward. Locate corner of device having pin No. 1 identification. Align chamfered corner of cover with chamfered corner of PQFP (having pin No. 1 identification). See Figure 5.
2. Push cover onto PQFP. Turn cover-and-PQFP assembly over and check that each lead is in appropriate channel.
3. Press down lightly on bottom of PQFP to make sure it is fully inserted into the cover. Check to be sure positioning latches on cover are resting on chamfered corners of device.

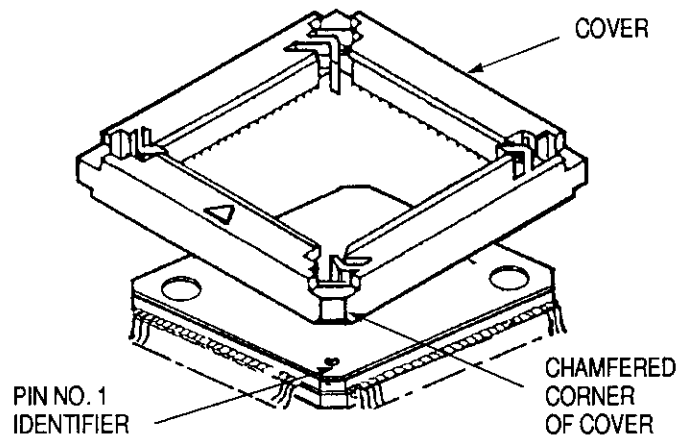


Figure 5

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E. Seating Cover-And-PQFP Device onto Housing Assembly

Refer to instruction material 408-3289 for insertion information.

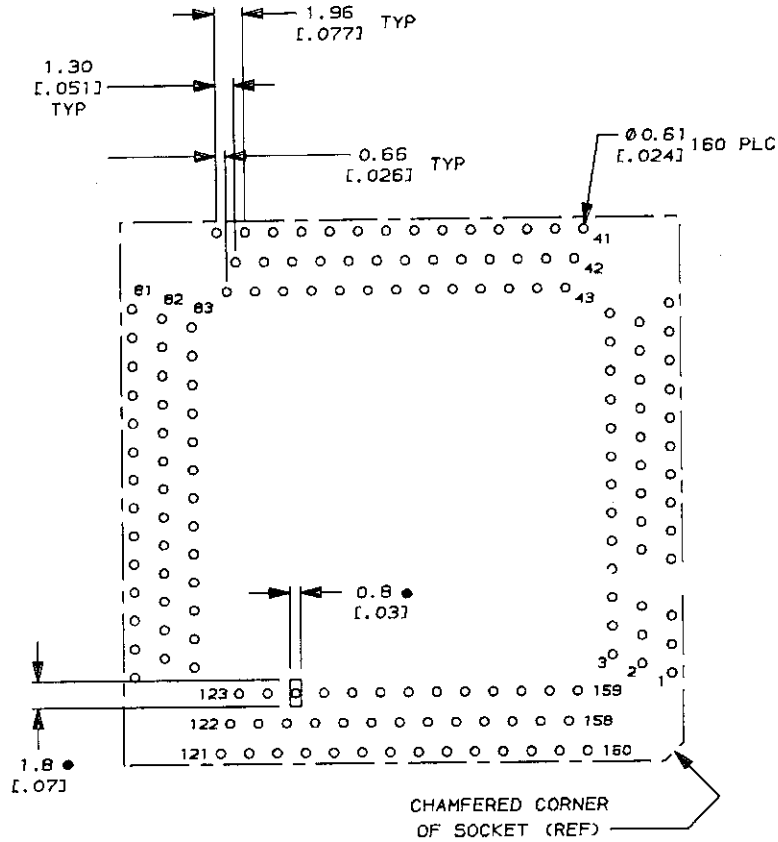
CAUTION It is critical that one of the tooling methods described in Section 5, TOOLING, be used for assembly. Do NOT assemble by hand.

3.3. PC Board Layouts (Figure 6)

NOTE

The layouts that are provided cover the basic socket designs that are readily available. Other sockets can be designed to meet your needs. Use the AMP Customer Drawings for socket layouts that are not included on this specification.

160 POSITION METRIC



• Recommended Solder Pad Size

100 POSITION WITH CORNER LOCATED NO. 1 IDENTIFIER

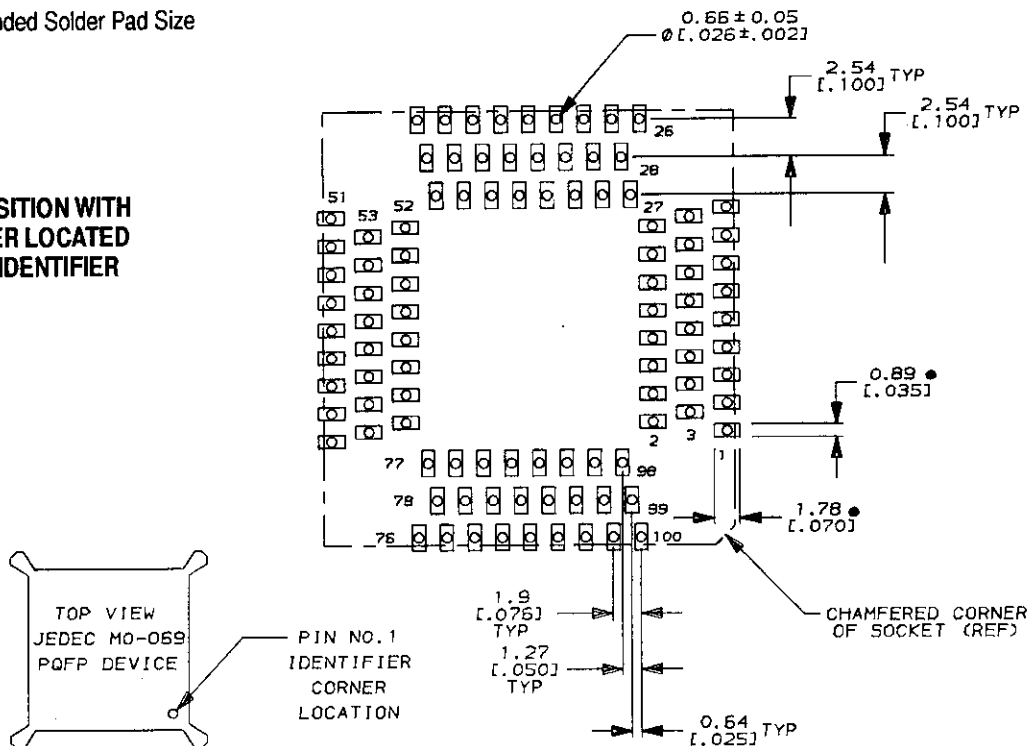
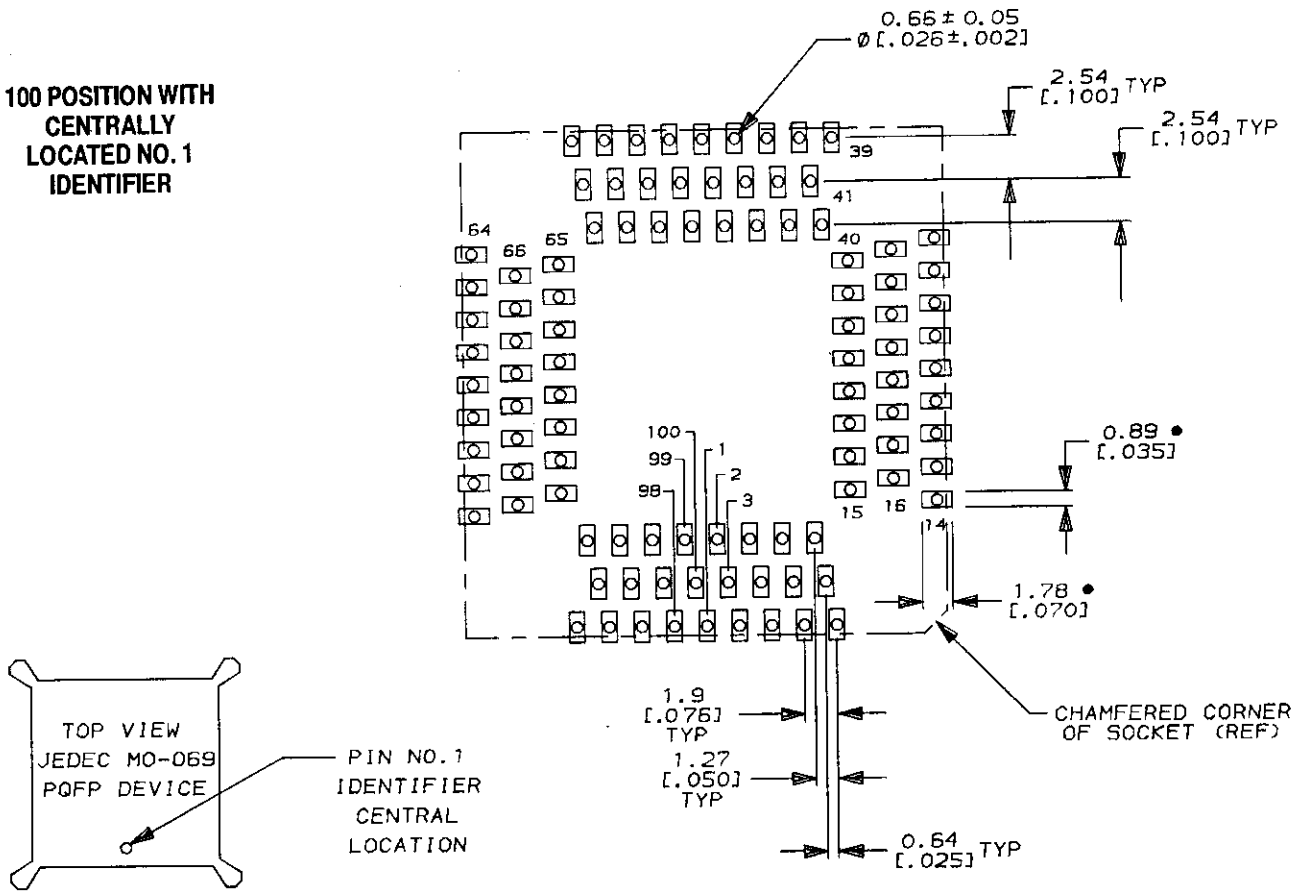


Figure 6 (cont'd)

100 POSITION WITH
CENTRALLY
LOCATED NO. 1
IDENTIFIER



• Recommended Solder Pad Size

Figure 6 (end)

3.4. Socket Polarization

The housing subassembly is NOT polarized in “fool proof” terms regarding orientation with the holes in the pc board. It is important that the housing chamfered corner be used as the orientation feature.

3.5. Clinching Solder Tails

The solder tails can be alternately clinched once to help hold the socket to the pc board during handling and during the soldering process.

CAUTION When placing the socket onto the pc board, the base must not be removed. The base will slide up the solder tail until fully seated.

CAUTION Clinching a solder tail more than once could result in breakage and/or malfunction of the contact. Care must be taken to avoid raising the housing from the board when applying clinching pressure.

3.6. Soldering

A. Flux Selection

The solder tails and attaching hardware (if applicable) must be fluxed prior to soldering with a rosin base flux. Selection of the proper flux will depend on the type of printed circuit board and other components mounted on the board. Additionally, the flux will have to be compatible with the wave solder line, manufacturing, and safety requirements.

B. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. The following list of common cleaning solvents will not affect the connectors for a period of 5 minutes at 105°C [221°F].

Trichloroethane

Prelete●

Allied Genesolv DFX■

Alpha 2110†

Bioact FC-7††

Isopropyl Alcohol

Terpene Solvent

● Trademark of London Chemical Co., Inc.

■ Trademark of Allied-Signal, Inc.

† Product of Fry's Metals, Inc.

†† Product of Petroferm, Inc.

DANGER

Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Trichloroethylene and Methylene Chloride can be used with no harmful affect to the connectors; however, AMP does not recommend them because of the harmful occupational and environmental effects. Both are carcinogenic (cancer-causing) and Trichloroethylene is harmful to the earth's ozone layer.

NOTE

If you have a particular solvent that is not listed, contact AMP Engineering by calling the Technical Assistance Center number at the bottom of page 1.

C. Drying

When drying cleaned assemblies and printed circuit boards, make certain that temperature limitations of -55°C to 105°C [-67°F to 221°F] are not exceeded. Excessive temperatures may cause housing degradation.

D. Soldering Guidelines

Refer to Paragraph 2.4 for instructional material that is available for establishing soldering guidelines.

4. QUALIFICATION SUPPORT

MICRO-PITCH sockets are UL (Underwriters' Laboratories, Inc.) recognized and CSA (Canadian Standards Association) certified.

4.1. Joint Electronic Device Engineering Council (JEDEC)

MICRO-PITCH sockets are designed in accordance with the JEDEC Specifications for both inch-standard and metric-standard PQFP devices.

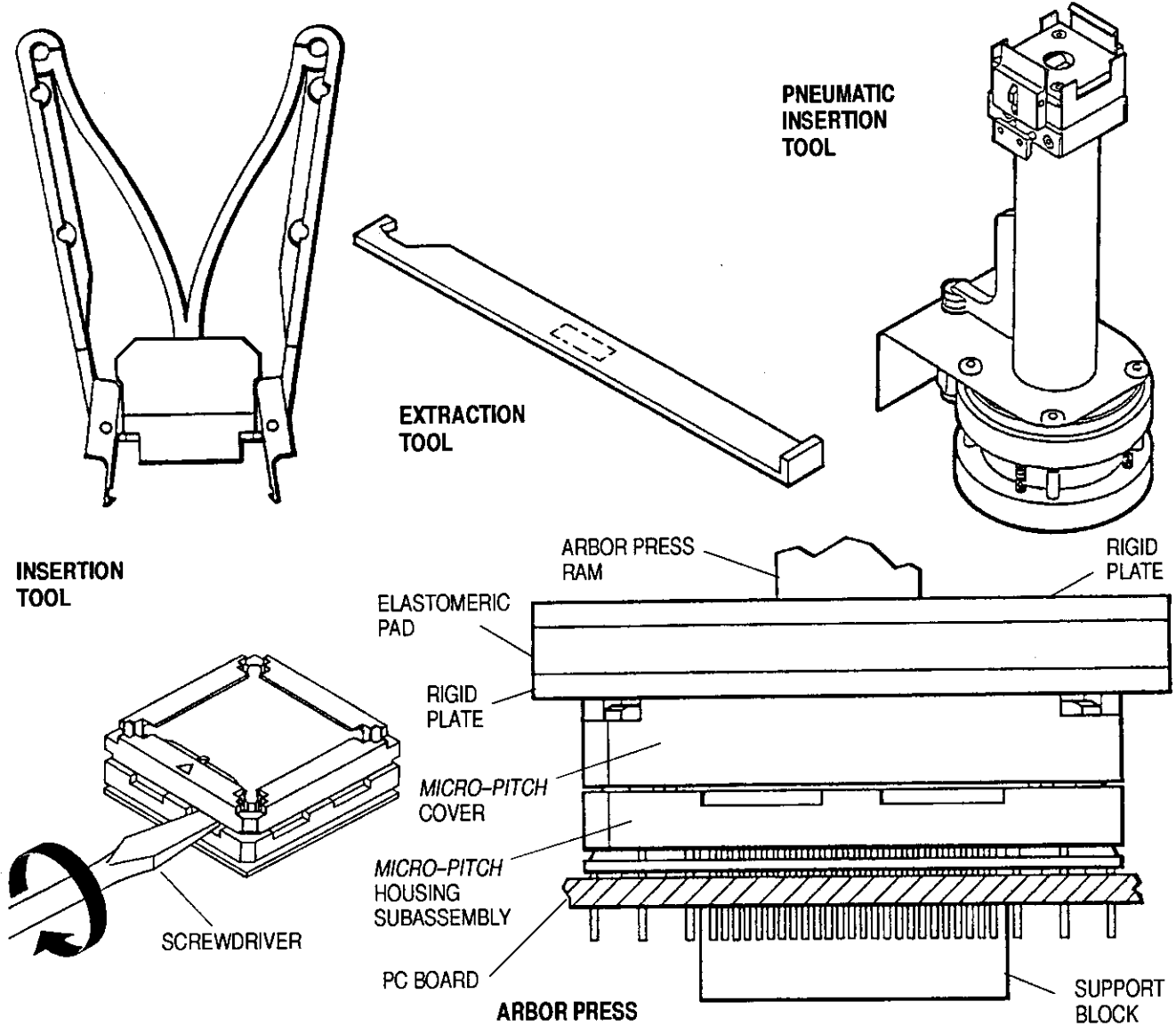
4.2. Underwriters' Laboratories, Inc. (UL)

MICRO-PITCH sockets are listed under UL File Number E28476.

4.3. Canadian Standards Association (CSA)

MICRO-PITCH sockets are certified under CSA File Number LR7189A-97.

5. TOOLING (Figure 7)



MICRO-PITCH TOOLING

DESCRIPTION	PART NUMBER
Pneumatic Insertion Tool	768420■ 768421 768422
Manual Insertion-Only Tool	100 Posn - 822253-1, 132 Posn - 822253-2, 164 Posn - 822253-3, 144 and 160 Posn - 822253-4
Manual Extraction-Only Tool	822254-1
Screw Driver	—
Arbor Press with PC Board Support	▲
Robotics Equipment (For Production Line Operation)	—

■ Not available for 164 position socket but can be designed.
▲ Recommended only for low volume production.

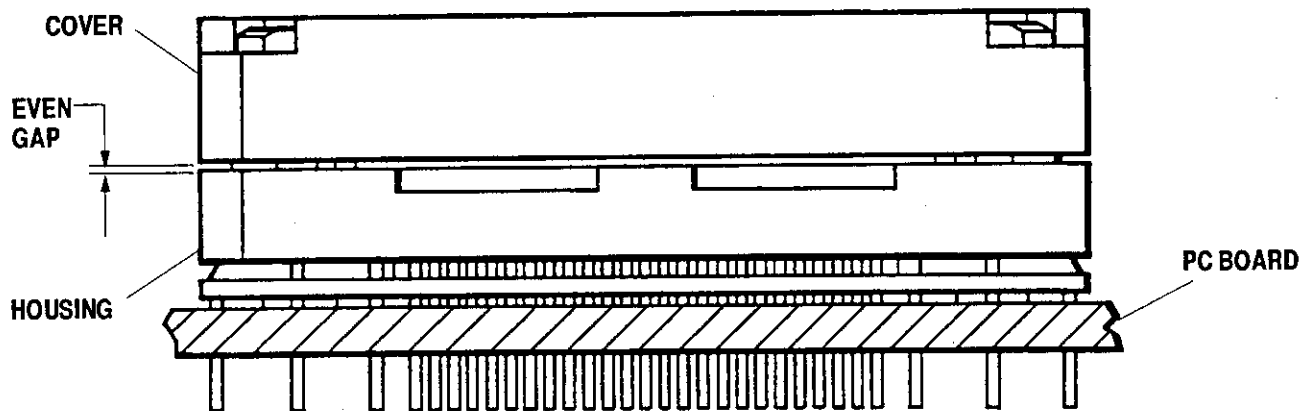
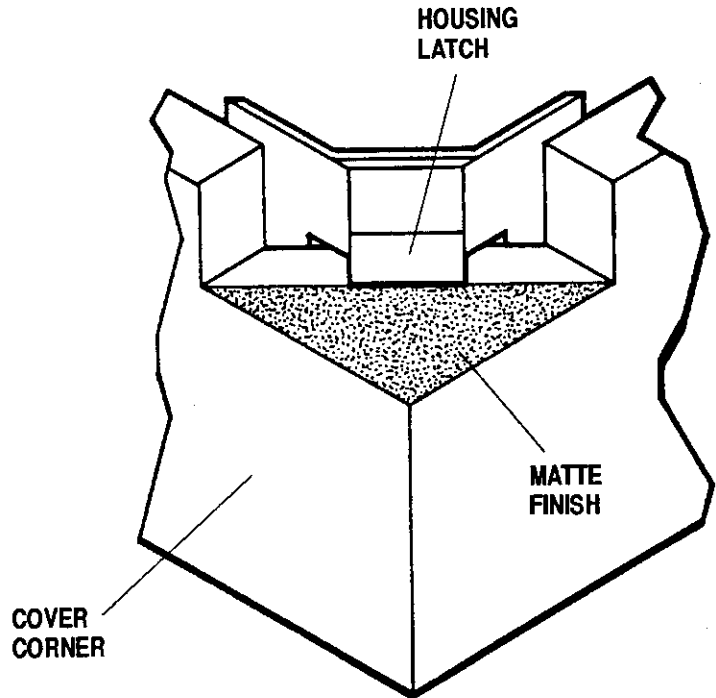
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Figure 7

6. VISUAL AID

The following illustrations are to be used by production personnel to ensure properly applied product. The views suggest requirements for good terminations. For dimensional inspection, refer to the details in preceding pages of this specification.

MAKE SURE THAT THE COVER IS FULLY AND EVENLY SEATED BY INSPECTING EACH OF THE HOUSING LATCHES. MAKE SURE THAT ALL FOUR LATCHES ARE CLEARLY SNAPPED OVER THE COVER AS SHOWN. THE TIP OF EACH LATCH SHOULD EXTEND AT LEAST TO THE LINE WHERE THE MATTE FINISH BEGINS FOR THE COVER TO BE PROPERLY SEATED. ALSO, MAKE SURE THAT THE GAP BETWEEN THE HOUSING AND COVER IS EVEN ALL THE WAY AROUND THE SOCKET ASSEMBLY.

**FIGURE 8. VISUAL AID**

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