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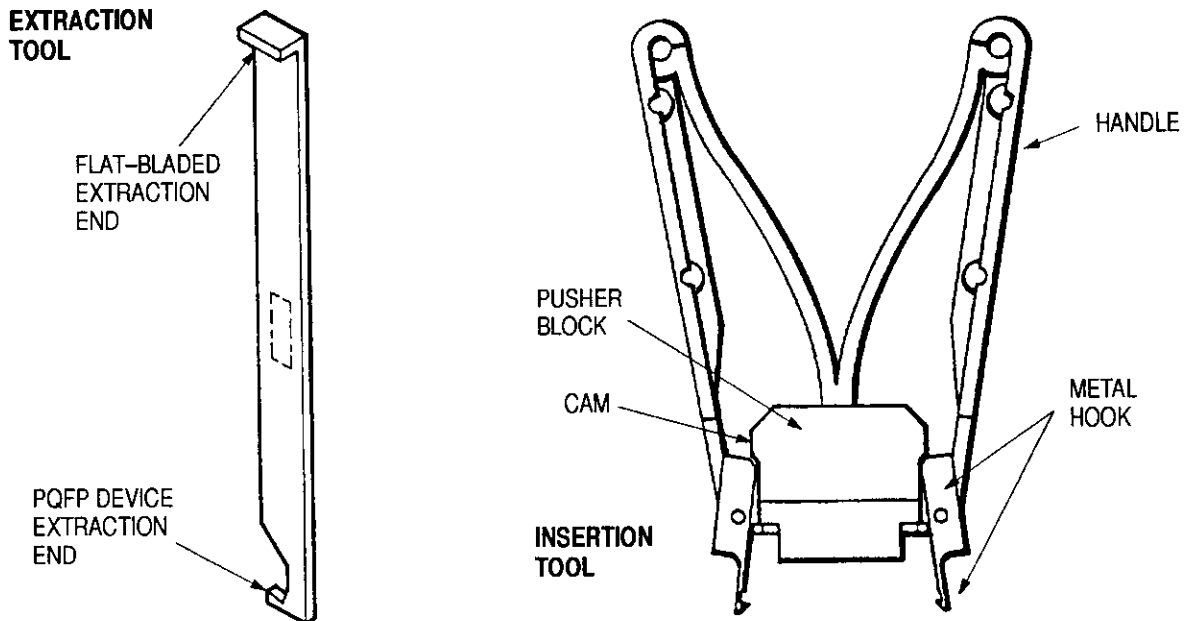
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| EXTRACTION TOOL | INSERTION TOOL | MICRO-PITCH SOCKET   |          |                         |
|-----------------|----------------|----------------------|----------|-------------------------|
|                 |                | HOUSING              | COVER    | SOCKET SIZE (Positions) |
| 822254-1        | 822253-1       | 821949-4<br>822064-4 | 821939-1 | 100                     |
|                 | 822253-2       | 821949-5<br>822064-5 | 821942-1 | 132                     |
|                 | 822253-3       | 822064-6             | 822111-1 | 164                     |
|                 | 822253-4       | 822114-3             | 822115-3 | 144                     |
|                 |                | 822114-4             | 822115-4 | 160                     |

Figure 1

92-187A

### 1. INTRODUCTION

This instruction sheet covers the use of AMP MICRO-PITCH socket hand tools listed in Figure 1. The tools insert and extract the Plastic Quad Flat Pack (PQFP) and cover components of the MICRO-PITCH socket assemblies listed in Figure 1.

**NOTE** All dimensions are in millimeters [with inch equivalents in brackets].

Refer to Paragraph 5, REVISION SUMMARY, for revision information.

### 2. DESCRIPTION

The insertion tool is designed to provide easy PQFP cover insertion onto the housing sub-assembly without producing adverse effects to the circuit board. Each insertion tool works on a specific socket size.

The insertion tool features two hooks, a handle, and a pusher block with an integral cam. The tool operates when the handle is squeezed, causing the hooks to pivot under the housing. After the hooks have grasped the housing, the pusher block presses the cover-and-PQFP assembly onto the housing.

The extraction tool is designed to remove the cover-and-PQFP sub-assembly from the MICRO-PITCH housing without producing adverse effects to the circuit board.

The extraction tool features a flat extraction blade and, at the other end, a mechanism which can be used for extracting the PQFP in the event it remains in the housing when the cover is removed. The tool operates when the flat blade is inserted into slots on the side of the housing, and then torqued. This action pries the cover-and-PQFP assembly from the housing.

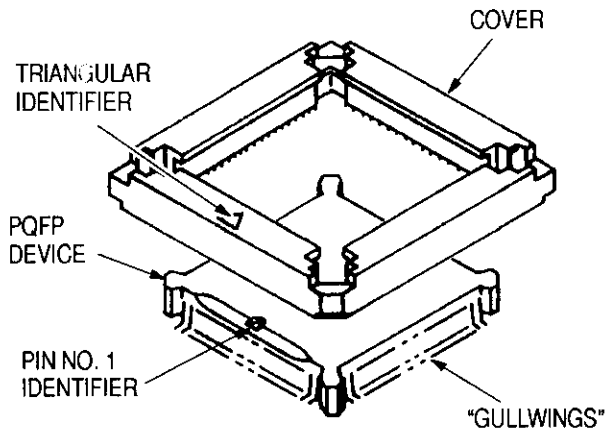


Figure 2

89-262

**3. PQFP TO COVER ASSEMBLY**

**3.1. Inch Standard Bumpered PQFP**

1. Place the PQFP on a flat surface, with the "gullwings" facing downward. Place the cover over the PQFP, making sure to align the triangular identifier on the cover with the pin number 1 identifier on the PQFP (see Figure 2).

2. Push the cover onto the PQFP until an audible "click" is heard. Turn the cover-and-PQFP assembly over and check to make sure that each lead is in appropriate channel.

**3.2. Metric Bumper-Less PQFP (One Chamfered Corner)**

1. Place the PQFP on a flat surface, with the "gullwings" facing downward. Align the chamfered corner of the cover with the corner of the PQFP having the pin number one identification. See Figure 3.

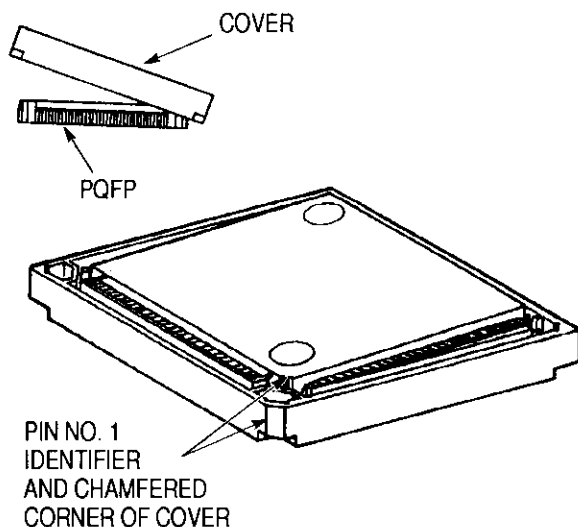


Figure 3

91-321A, 91-320A

2. Start chamfered corner and adjacent corner of cover onto device 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 the cover-and-PQFP assembly over and check that each lead is in appropriate channel.

**NOTE** *Some rotation of device may be necessary to assure alignment.*

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

**3.3. Metric Bumper-Less PQFP (Four Chamfered Corners)**

1. Place the PQFP on a flat surface, with the "gullwings" facing downward. Locate corner of device having pin number one identification. Align the chamfered corner of the cover with the chamfered corner of the PQFP (having pin number one identification). See Figure 4.

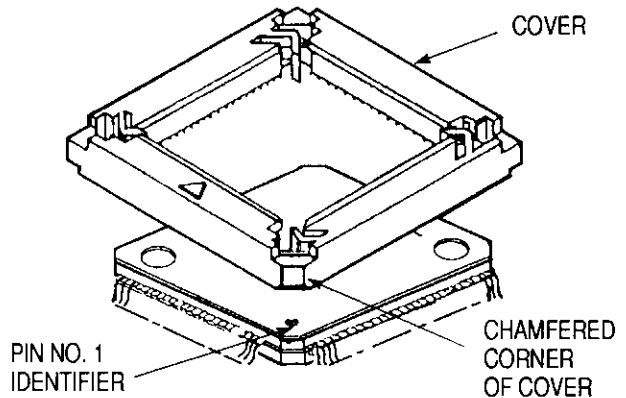


Figure 4

94-460

2. Push the cover onto the PQFP. Turn the 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.

**4. INSERTION PROCEDURE**

1. Turn the cover-and-PQFP assembly back over and place it onto the housing, making sure that the chamfer on the cover aligns with the chamfer on the housing (see Figure 5).

2. Place the insertion tool directly over both the housing and the cover-and-PQFP assembly. Make sure that both of the metal hooks lie squarely on the printed circuit board (see Figure 6).

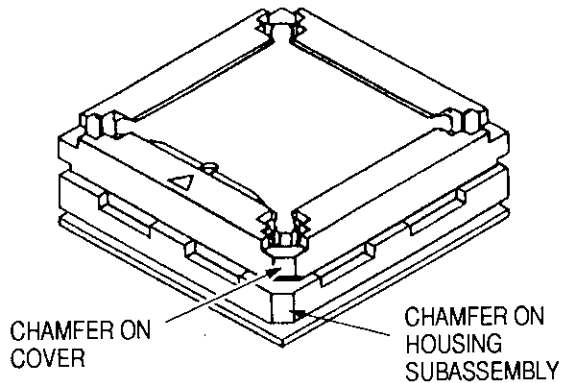


Figure 5

89-263A

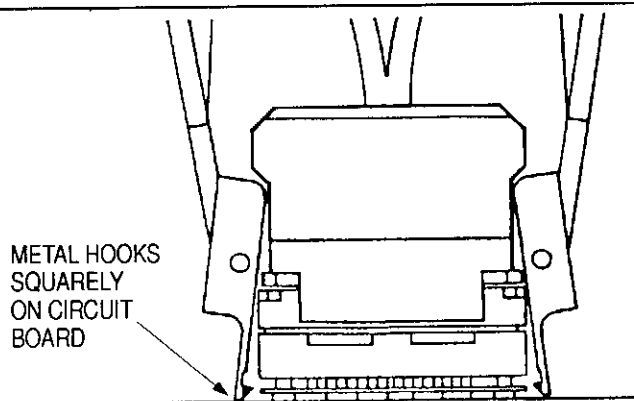


Figure 6

89-266A

3. While squeezing the tool handle, apply a light pressure in the direction of the printed circuit board. The tool should engage the assembly as shown in Figure 7.

4. When the pusher block reaches the bottom of its stroke, the cover-and-PQFP assembly should be fully inserted into the housing. Release the handle and remove the tool.

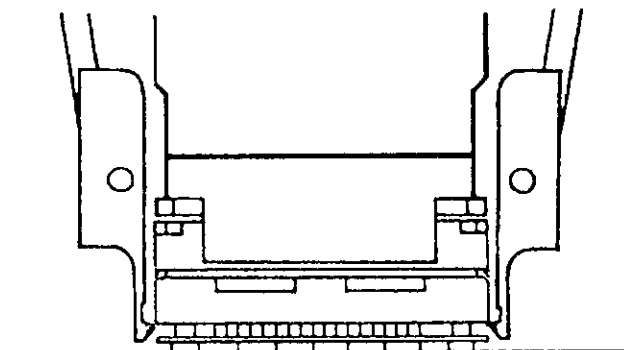


Figure 7

89-267B

**NOTE**

When the tool is fully engaged, the cover shall meet the housing sub-assembly.

5. Make sure that the cover is fully and evenly seated by inspecting each of the housing latches. Make sure that all four of the housing latches are clearly snapped over the cover as shown in Figure 8. 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 around the socket assembly.

**NOTE**

If the cover does not fully seat, remove the cover-and-PQFP assembly as described below. Make sure that the leads are not damaged and that they are properly aligned in their alignment channels. Then repeat the insertion procedure.

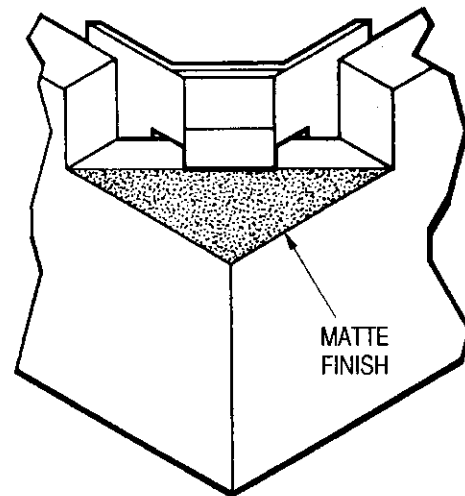


Figure 8

92-188

**5. EXTRACTION PROCEDURE**

There are two methods that may be used to remove the cover-and-PQFP assembly from the housing. Both methods involve unlatching each housing latch individually (one side at a time). It is recommended that the first method be used if possible.

**A. Method One**

1. Look for the four slightly raised rectangular pads on the top surface of the cover. These pads have no matte finish in order to make it easy to locate them. The purpose of these pads is to locate the extraction slots in the side of the housing which can be found directly below each pad.

2. Starting with the slot located under the pad next to the chamfer side of the socket, insert the flat blade head of the extraction tool as shown in Figure 9.

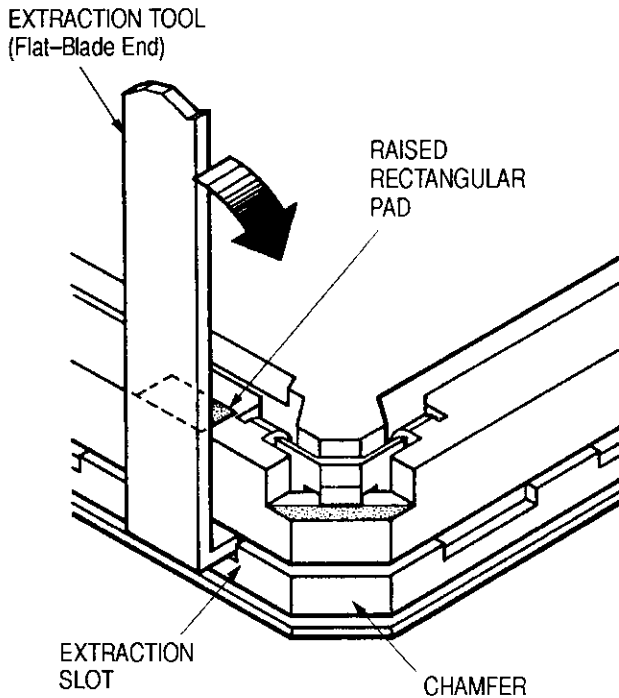


Figure 9

92-189

3. Keeping the tool at a right angle to the circuit board (parallel to the side of the socket), and while applying a firm pressure on the tool in the direction of the socket, rotate the tool toward the corner nearest the slot. Make sure the tool does not slip out of the slot during rotation and only rotate the tool far enough to unlatch the corner. The corner of the cover with the chamfer should now be unlatched. **Do not press down on the cover while prying it from the housing!**

4. Locate the slot on the next side of the socket as shown. Follow the directions in Step 3, making sure to rotate the tool in the direction of the socket corner nearest the slot. After this corner is unlatched, proceed to the third slot as shown and repeat the above steps.

5. Locate the last slot as shown. While lightly gripping the sides of the cover, rotate the tool in the direction away from the nearest socket corner. The cover-and-PQFP assembly should now be released from the housing. In the event that the PQFP device remains lodged in the housing, go on to Step 6.

6. Using the other end of the tool, insert the hook into the space beside the housing latch and underneath the PQFP device (as shown in Figure 10). In a prying motion, lift and dislodge the PQFP from the housing. Repeat these steps in as many corners as necessary to fully disengage the device. Use a suction cup or other handling device to lift the PQFP from the housing.

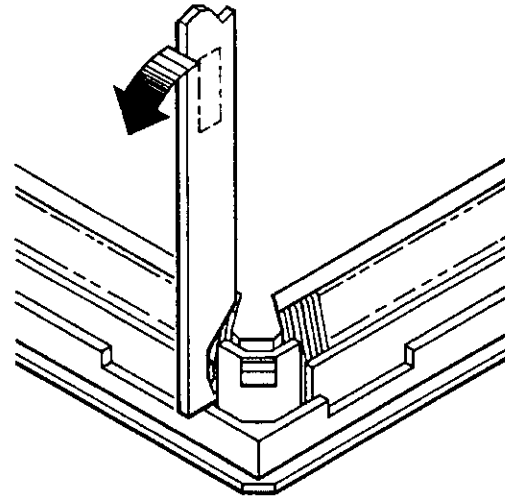


Figure 10

92-207

## B. Method Two

1. Insert a small, flat-blade screwdriver in the first slot as described in Method One.
2. Turn the blade clockwise (in the direction of the chamfered corner), just far enough to disengage the latch. Be sure not to press down on the cover while prying it from the housing. See Figure 11.

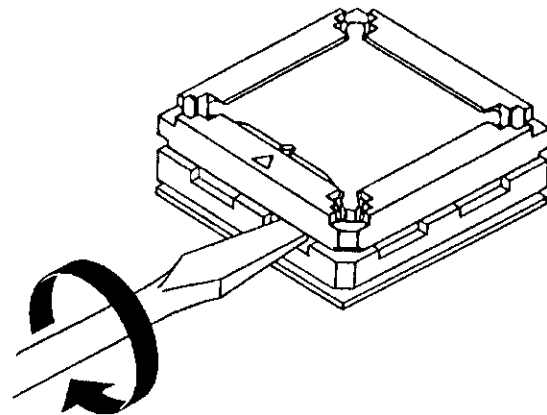


Figure 11

89-265B

3. Follow Steps four and five of Method One to release the remaining three corners.

## 6. REVISION SUMMARY

Revisions to this document include:

Per EC 0160-3972-94:

- Added metric PQFP to cover assembly procedures and illustrations
- Separated cover assembly and insertion procedures