

Fig. 1

## 1. INTRODUCTION

This instruction sheet (IS) covers the installation, keying, and repair of the AMP 501 Series Mini-Box Connectors shown in Figure 1. Read this material thoroughly before using the connectors.

**NOTE**

*All dimensions on this instruction sheet are in inches.*

## 2. DESCRIPTION (Figure 1)

Mini-Box Connectors have been assigned the series designator of 501 which relates to their in-row .050-in. contact centerline spacing. They are available as pin header and receptacle connectors for mother/daughter-type printed circuit (pc) applications.

Each connector features a polarized housing with preloaded contacts and octagonal key holes. Acces-

sory features include octagonal keys which provide additional polarization (preventing improper mating when several connectors of the same size are used in the same area).

Connectors are featured in four types. The differences among the connectors are in the contact configuration, mounting flanges, and pin protection. Style I and II headers have pre-tinned contact tails which are preformed for mounting to the edge of a 1/16-in.-thk (nom) pc board.

Style III headers have contact tails which are bent 90° for mounting through the surface of a 1/16-in.-thk through 3/32-in.-thk pc board.

Receptacle connectors will mate with all styles of pin header connectors. Receptacle connectors are designed to be vertically mounted and wave-soldered to a 1/16-in.-thk through 1/4-in.-thk pc board.

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### 3. POLARIZING WITH OCTAGONAL KEY 530721

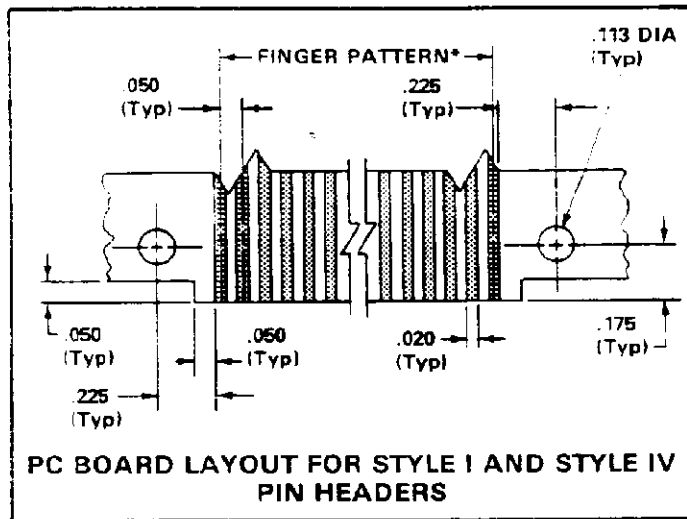
When keying is specified, install keys before attaching the connector to a pc board. Eight different polarizing positions can be achieved with keys in one end of an assembly, and 64 different polarized positions can be achieved with keys in both ends of an assembly.

Use AMP Clinching Tool 91117-2 for installing external keys into the Mini-Box Connectors. Refer to AMP Instruction Sheet IS 7894 for specific instructions for using the tool.

### 4. INSTALLING CONNECTORS (Figure 2)

#### CAUTION

Careless handling of the connectors could cause irreparable damage to the contact tails.



\* NUMBER OF CONTACT POSITIONS IN THE CONNECTOR, TIMES .050, MINUS .050.

Fig. 2

#### A. Style I and Style II Pin Headers

These headers are designed to be mounted to the edge of a 1/16-in.-thk pc board. Proceed as follows:

1. Make a layout on the pc board using the dimensions shown in Figure 2.
2. Install keys if required. Refer to Paragraph 3.
3. Ensure a good solder joint by removing surface films from pc board and contact tails using a suitable cleaning solution.
4. Align the contact tails with the pc board circuit pads, then slide the header onto the pc board. Make sure the mounting holes are aligned with the mounting holes in the pc board, and secure the header to the board with bolts or rivets.
5. Partially mate a receptacle connector to the pin header.

### AMP 501 SERIES MINI-BOX CONNECTORS

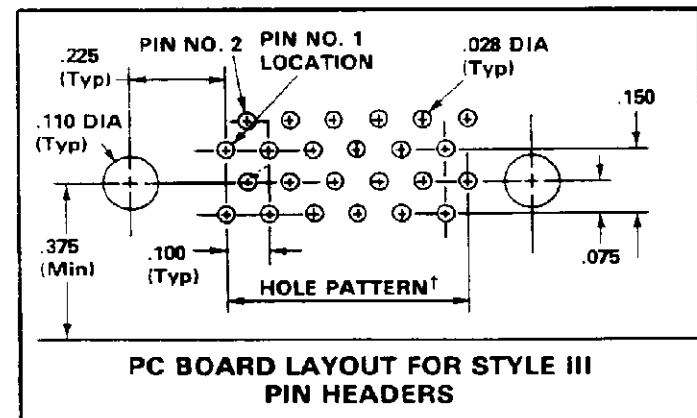
6. Apply a mildly activated flux onto the area to be soldered, then solder the contacts to the pc board using standard reflow soldering techniques.
7. Clean the assembly using a good commercial solvent.

#### B. Style III Pin Headers

These headers are designed to be mounted through the surface of 1/16-in.-thk through 3/32-in.-thk pc boards. Each row of solder tails is .075-in. longer than the previous row to ease contact insertion into the pc board.

#### NOTE

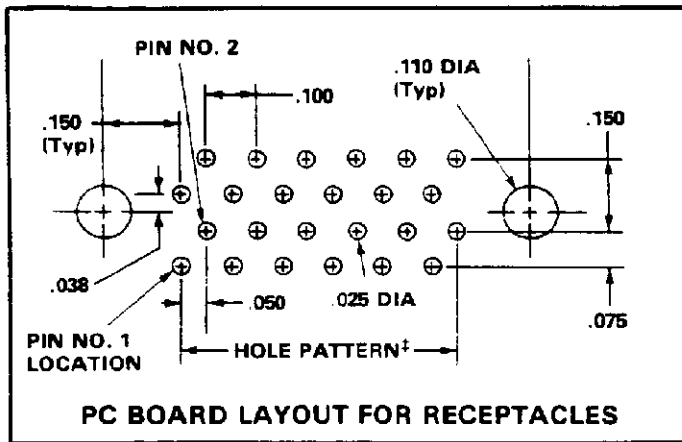
Contact alignment can be maintained during insertion by using AMP Mini-Box Alignment Tool 58107-1. Refer to AMP Instruction Sheet IS 6859, which is packaged with the tool, for complete instructions in using the tool.



† NUMBER OF CONTACT POSITIONS IN THE CONNECTOR, DIVIDED BY TWO, TIMES .050, MINUS .050.

Fig. 3

1. Make a layout on the pc board using the dimensions shown in Figure 3.
2. Install keys if required. See Paragraph 3.
3. Ensure a good solder joint by removing surface films from the pc board and contact tails using a suitable cleaning solution.
4. Position the header at a slight angle to the pc board and start one row of contacts into the pc board holes.
5. Rotate the connector until the next row of contacts are aligned with the holes in the pc board, then start the contacts into the pc board holes.
6. Repeat Step 5 until all four rows of contacts are started, then bottom the header on the pc board.
7. Secure the header to the pc board with bolts or rivets.



<sup>‡</sup> NUMBER OF CONTACT POSITIONS IN THE CONNECTOR, DIVIDED BY TWO, TIMES  $.050$ , MINUS  $.050$ .

Fig. 4

8. Partially mate a receptacle connector to the pin header.
9. Apply a mildly activated flux onto the area to be soldered, and then solder using standard wave soldering techniques.
10. Clean the soldered assembly with a good commercial solvent.
11. Trim solder tails to the desired length.

### C. Receptacle Connectors

The receptacle connectors are designed to be vertically mounted through the surface of 1/16-in.-thk through 1/4-in.-thk pc boards.

**NOTE**

Contact alignment can be maintained during insertion by using AMP Mini-Box Alignment Tool 58107-1. Refer to AMP Instruction

Sheet IS 6859, which is packaged with the tool, for complete instructions in using the tool.

1. Make a layout on the pc board using the dimensions shown in Figure 4.
2. Install keys if required. See Paragraph 3.
3. Ensure a good solder joint by removing surface films from the pc board and contact tails using a suitable cleaning solution.
4. Position the receptacle at a slight angle to the pc board and start one row of contacts into the pc board holes.
5. Rotate the connector until the next row of contacts are aligned with the holes in the pc board, then start the contacts into the holes.
6. Repeat Step 5 until all four rows of contacts are started, then bottom the receptacle connector on the pc board.
7. If keys were used, secure the receptacle to the pc board using two No. 2-56 screws. If keys were NOT used, bolts or rivets can be used to secure the connector to the pc board.
8. Mate the receptacle with a pin header of the same size.
9. Apply a mildly activated flux onto the area to be soldered, and then solder using standard wave soldering techniques.
10. Clean the soldered assembly with a good commercial solvent.