

Fig. 1

## 1. INTRODUCTION

These instructions cover the installation procedures for polarizing keys (AMP\* part number 445282-1), and shells (AMP part numbers 445279-1 and 445585-1) used with AMP-HDI Series 6-Row plug connector 445269-1, and connector installation procedure for AMP connectors 445269-1 (plug) and 445270-1 (receptacle). Also covered is installation procedure for guide pins (AMP part number 445287-1) used with the connectors. The connectors are designed to be mounted onto a backplane/frame assembly (motherboard/daughtercard).

Read these instructions carefully before attempting to install any components in the connectors or installing connector assemblies onto their appropriate boards.

### NOTE

*All dimensions on this sheet are in inches.*

## 2. DESCRIPTION (Figure 1)

The plug connector assembly is designed to accept up to four keys, a two-part shell assembly, interfacial seals, and up to four fiber optic size 16 terminus contacts (MIL-T-29504/5). The receptacle assembly

is designed to accept up to four keys positioned to correspond to the keys in a mating plug connector assembly. Refer to AMP instruction sheet IS 9560 for information regarding installation and use of interfacial seals.

The keys are retained in connector housings with screws which thread into threaded inserts mounted on the side opposite the keys, or into the support plate with threaded holes. The octagonal shape of the keys permits their rotation in eight possible positions. A total of 4,096 different keying combinations is possible.

The guide pins are press-fit into the support plate in their respective locations on the motherboard assembly. The receptacle connector housing fits over the pins when installed onto the motherboard, and engages the plug connector housing when it is mated to the receptacle connector. The guide pins provide alignment for connectors when mating.

The two-part shell assembly is installed on the frame after the plug connector assembly is installed and soldered on the circuit boards. The shell assembly, which is retained by three captive screws and threaded inserts, provides pin and connector protection, grounding continuity for the board, and connector stability.

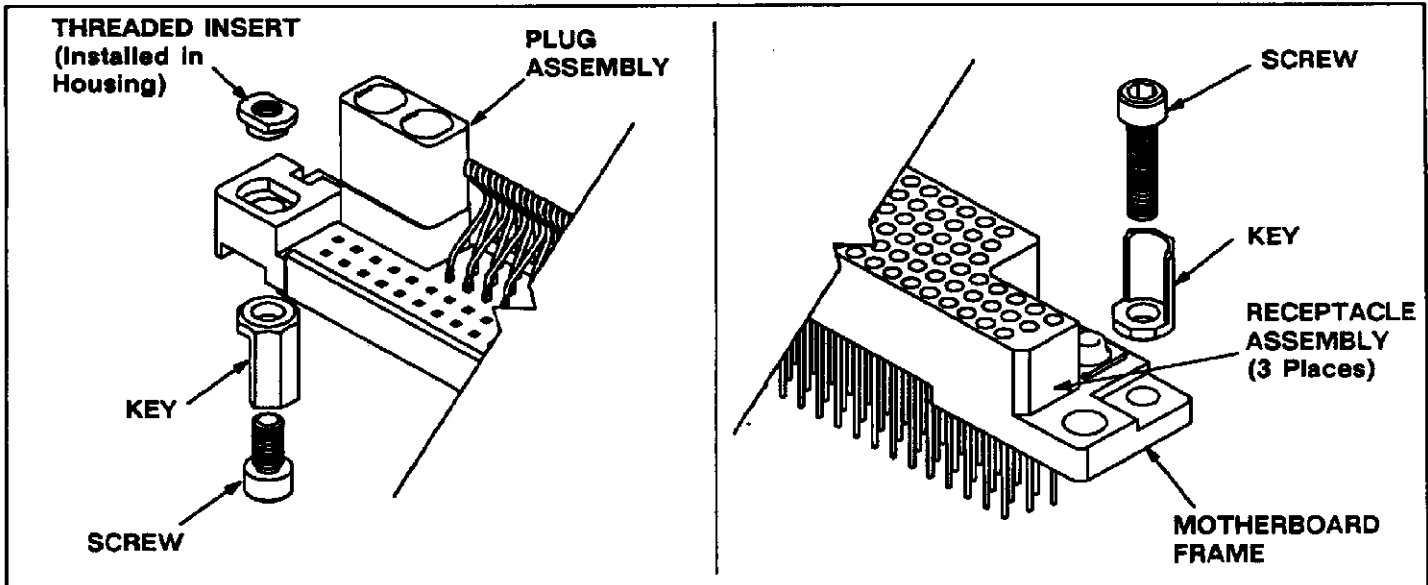


Fig. 2

### 3. KEY INSTALLATION (Figure 2)

Obtain a quantity of keys and screws sufficient to install the required number of keying positions on the connectors being prepared. Proceed as follows:

#### NOTE

*A customer-supplied fixture, which will not mar the connector housing or touch any portion of the contacts, may facilitate the installation of keys. Tweezers will also aid in positioning keys.*

#### A. Plug Connector

1. With the connector positioned so that the contact tails are in the uppermost position, note the location of the four threaded inserts in the connector housing (one at each end and two in the middle).
2. Now rotate the connector housing so that the contact pins are in the uppermost position and place the keys in the four keying positions.
3. Carefully place screws through the keys and thread them into the inserts. Do NOT tighten at this point.
4. Rotate the keys to the desired keying positions if this has not been done and, very carefully, tighten the screws of the keys with a screwdriver until snug. Do NOT overtighten. The recommended torque is four inch-lbs.

#### B. Receptacle Connector

1. With the connector positioned so that the contact tails are in the uppermost position, note the location of the single threaded insert in the center position of the receptacle assembly. The three remaining key positions are through-holes.
2. Rotate the connector housing so that the receptacle openings are in the uppermost position and place a key in the center keying position.
3. Rotate the installed key to correspond to the center keying position of the plug connector if this has not been done and, very carefully, tighten the screw of the key with a screwdriver until snug. Recommended torque is four inch-lbs.
4. Do NOT put the three remaining keys in the receptacle connector at this point. They are retained through threaded holes in the motherboard (see Paragraph 6, RECEPTACLE-TO-MOTHERBOARD INSTALLATION, for installation procedure).

### 4. GUIDE PIN INSTALLATION

The support plate of the motherboard must be cut out and drilled to the dimensions shown in Figure 3. The guide pins are installed as follows:

1. Make certain that holes are clean and free of any burrs or drilled material.
2. Using a customer-supplied insertion fixture (such as an arbor press capable of applying 250 lbs of pressure), press the guide/ground pins straight (perpendicular within  $\pm .002$  from center) into the indicated holes (see Figure 3) of the motherboard until the larger diameter of the pin is bottomed on the board surface.

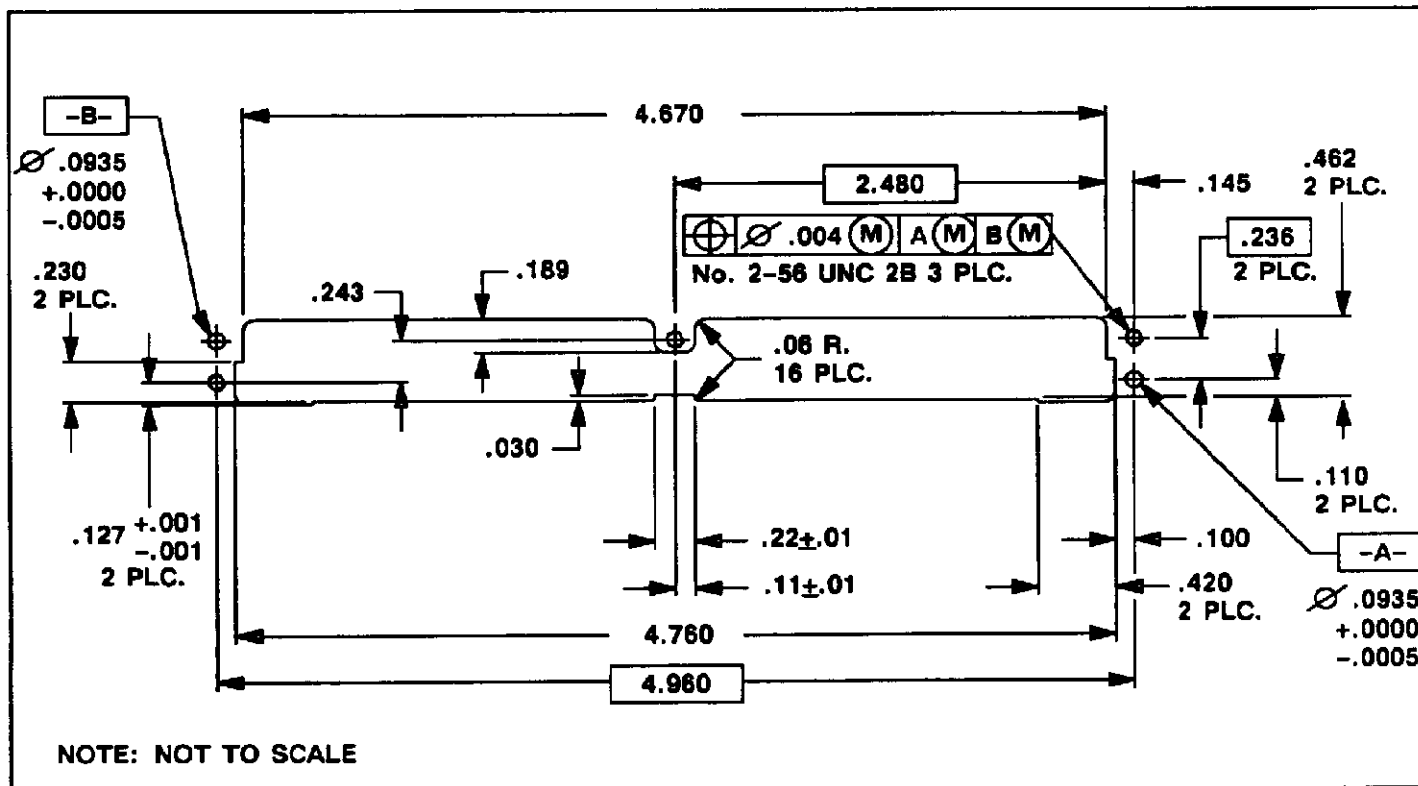


Fig. 3

**NOTE**

*In the event that a guide pin becomes damaged and has to be removed from the motherboard, or the board hole diameter is slightly oversize (thereby not allowing a press-fit of the pin, a replacement pin (445287-2) is available. The -2 pin has a tapped hole which allows the installation of a 0-80 UNC screw from the bottom side of the motherboard to secure the pin.*

Side "B", visually identified by three threaded inserts, has the numbers "139" and "306" printed on its outer face and is used on the side opposite the side of the plug connector with the "F1", "F2", "F3" and "F4" markings.

Assembly is as follows:

1. Using AMP Contact Alignment Tool Kit 445506-1, align and then solder the daughter card contact pads to the contact tails of the plug connector. Refer to AMP Instruction Sheet IS 9599 for alignment procedure and use of alignment tool.
2. Place the soldered connector/daughterboard assembly on a clean, level surface, taking care to support the assembly so that it does not fall over and damage the board components or contacts.
3. Place Side "A" of the shell assembly against the appropriate side of the connector with the captive screws in the uppermost position and allow the raised flanges on the edge of the connector housing to fit into the channel of Side "A" where the AMP part number, AMP logo, FSCM No., and date code are printed.
4. Place Side "B" of the shell assembly against the opposite side of the connector and allow the raised flanges on the edge of the housing to fit into the channel of Side "B" where the AMP logo, FSCM No., and date code are printed.

## 5. SHELL ASSEMBLY

The shell assembly consists of two halves which are secured over the soldered plug connector assembly to form a stabilizer, pin protection, and to provide .010-in. float for the board. The shell halves (designated as Side "A" and Side "B" in Figure 4) are designed to be placed over specific sides of the plug connector.

Side "A", visually identified by three captive screws, has the numbers "1" and "138" printed on its outer face and is used on the side of the plug connector assembly with the markings "F1", "F2", "F3" and "F4" stamped upon it.

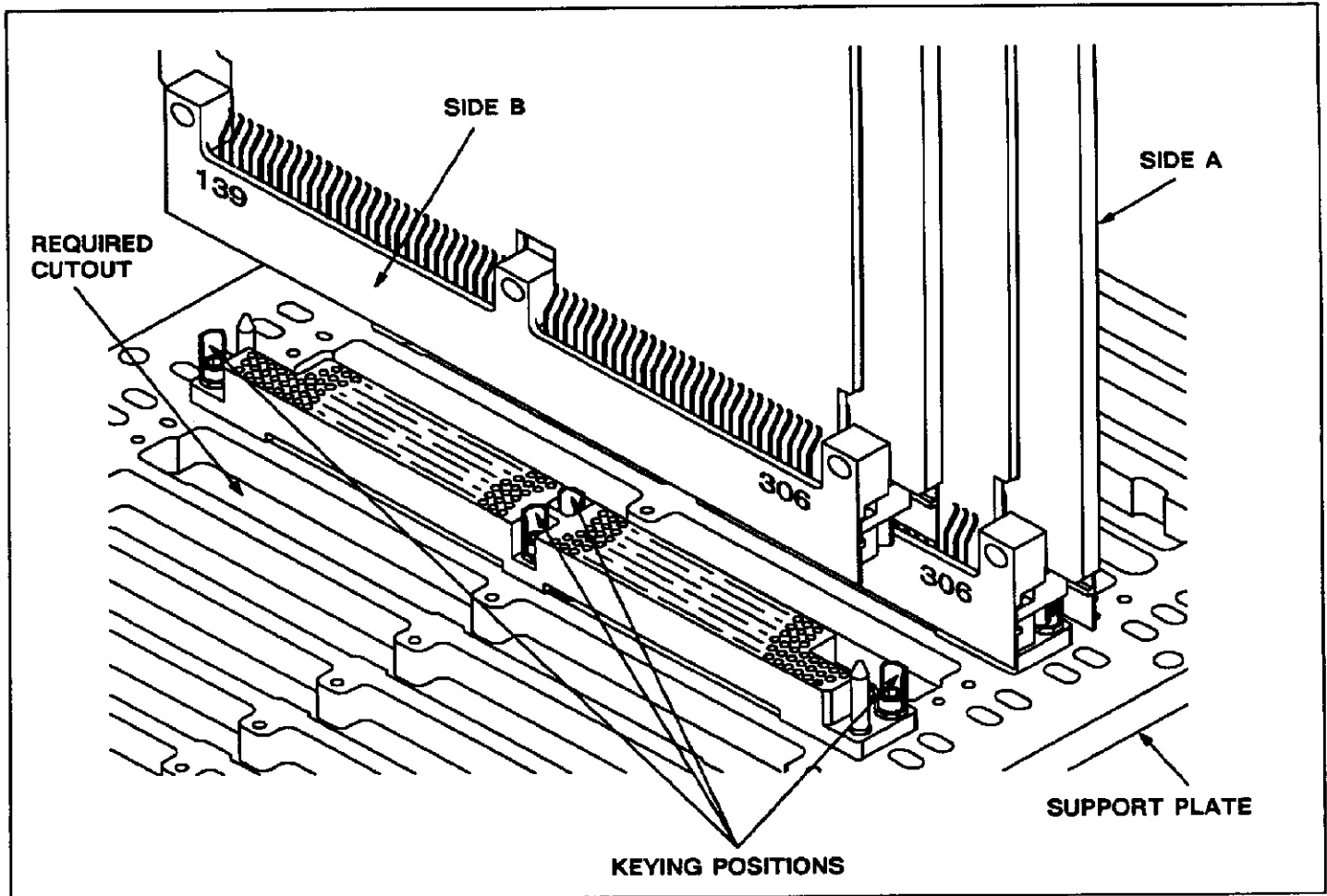


Fig. 4

5. Carefully place screws through holes in the frame and thread them into the threaded holes in Side "B" shell. Do NOT tighten at this point.

6. Carefully check that the raised flanges on both sides of the housing are within the channels of the shells and then tighten the screws.

**CAUTION**

*It is extremely important that the raised flanges on the edges of the connector housing are fitted into their respective channels in the shell halves at this point. They may be held in position with the fingers when performing Steps 5 and 6 of this procedure.*

## 6. RECEPTACLE-TO-MOTHERBOARD INSTALLATION

The receptacle features an alignment wafer which is critical to maintaining the alignment of contact tails in the receptacle. The wafer remains on the contact tails during the insertion procedure and becomes an integral part of the connector assembly on the mother-

board. Receptacle-to-motherboard installation is as follows:

1. Install a key in the center position of the receptacle which corresponds to the mating key position of the plug connector, if this has not been done previously (see Paragraph 3, KEY INSTALLATION, Section B, Receptacle Connector, for procedure).

2. Position the receptacle over the guide pins of the motherboard and carefully begin to insert the receptacle contact tails through the support plate cutout (see Figure 4 for orientation) and into their appropriate pc board holes. As the alignment wafer contacts the support plate, it will begin to move toward the connector housing.

3. Continue insertion of the receptacle until the housing has bottomed against the support plate of the motherboard.

4. Install keys and hardware in the remaining key positions by placing the keys in their required orientation and securing them with screws through the key and into their appropriate threaded holes in the support plate.