



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 mm [$\pm .005$ in.] and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of SEC II, SEC II Power, and High Current Card Edge connectors onto printed circuit (pc) boards for use in computer and electronic equipment. The connectors are designed to connect a module pc board (daughter card) to a main pc board (motherboard). These connectors are available in vertical, right-angle, or straddle-mount configuration with through-hole, press-fit (compliant pin), or surface-mount contacts. Each connector has a double row of contact cavities with a centerline spacing of 2.54 mm [.100 in.]. The connectors are available with 6 through 140 positions. The connectors are available with or without a Pin 1 designation (an embossed triangle or square on the mating face of the connector). The connectors feature omitted contacts for polarization to the pc board. In addition, SEC II vertical and High Current Card Edge connectors are available with or without formed posts to retain the connector to the pc board during soldering. All connectors, except the straddle-mount configuration, feature standoffs to allow easy pc board cleaning after soldering.

Each connector features a housing with a card slot which accepts 1.37 through 1.78 mm [.054 through .070 in.] thick daughter card. The connectors are available with or without a molded key or inter-contact keying slots located in the card slot. Each inter-contact keying slot which accepts a key plug (available separately) and the molded key are used to ensure proper orientation with the mating daughter card-which must be slotted to accept a molded key or key plug(s).

These connectors are available with or without mounting ears that accept a metal retaining clip (available separately) to secure the daughter card in place, mounting ears that accept mounting hardware (customer supplied) to secure the connector to the pc board, or integrated latches to support and hold the daughter card in the mating position.

When corresponding with TE Connectivity Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

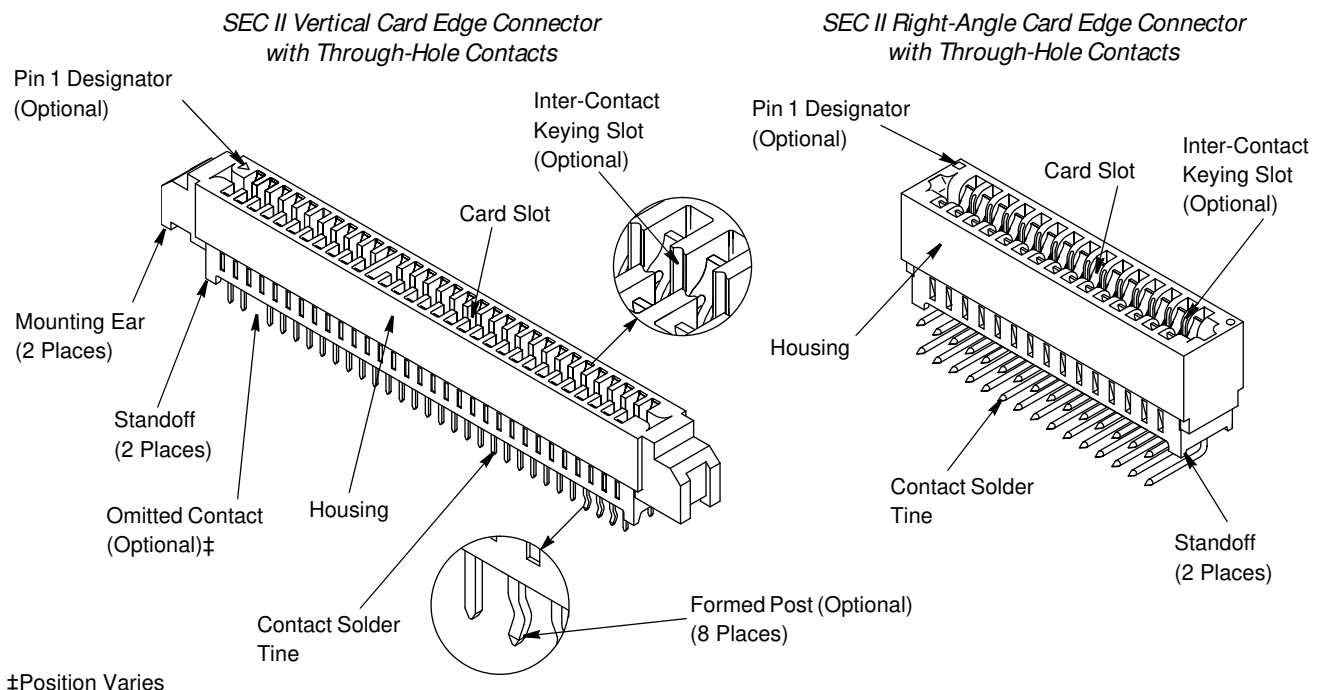
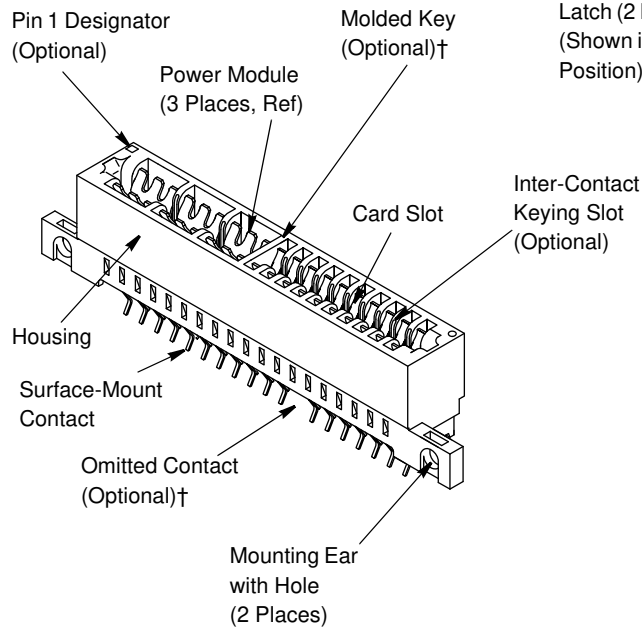


Figure 1 (Cont'd)

*SEC II Power Straddle-Mount Card Edge Connector
with Surface-Mount Contacts*



†Position Varies

*High Current Vertical Card Edge Connector
with Press-Fit Contacts*

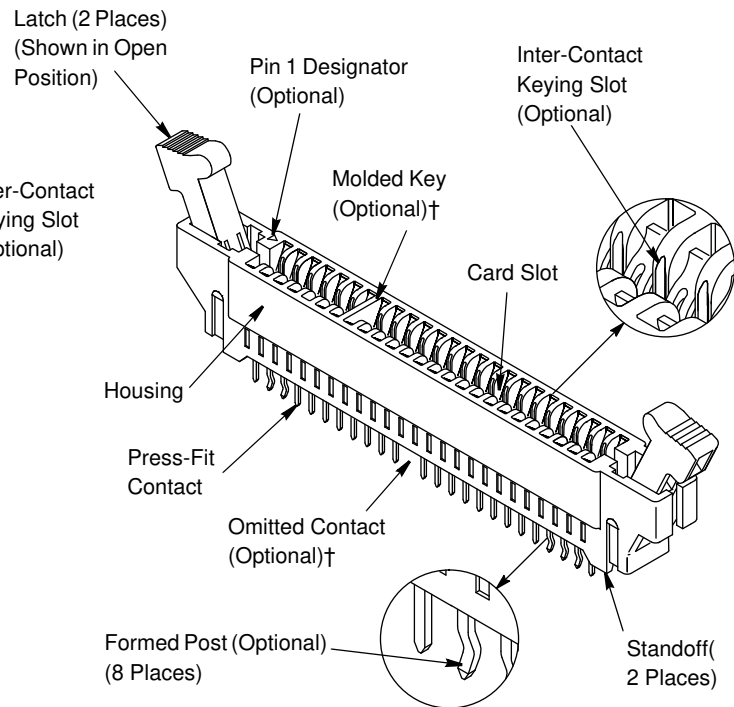


Figure 1 (End)

The connectors are supplied in soft tray form for manual placement, and hard tray form for automatic machine placement.

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated document to corporate requirements
- New logo

2.2. Customer Assistance

Reference Product Part Number 532600 (SEC II) and Product Code 2308, and Reference Product Part Numbers 1761500 (SEC II Power) and 1489165 (High Current) and Product Code H089 are representative of these connectors. Use of these numbers will identify the product line and help you to obtain product and tooling information. Such information can be obtained through a local TE Representative, by visiting our website at www.te.com, or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers at the bottom of page 1.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, call PRODUCT INFORMATION at the number at the bottom of page 1.

2.4. Manuals

Manuals (402-series) can be used as a guide to soldering. These manuals provide information on various flux types and characteristics with the commercial designation, flux removal procedures, and a guide for information on soldering problems. Documents available which pertain to this product are:

- | | |
|----------|--|
| 402-40 | Solderability and Soldering |
| 402-58-1 | Lead-Free Soldering Guidelines for Wave Soldering Specific to Power Products |
| 402-58-2 | Lead-Free Soldering Guidelines for Reflow Soldering Specific to Power Products |

2.5. Specifications

Product Specifications (108-series) provide product performance and test information. Documents available which pertain to this product are:

108-2148	High Current Card Edge Connector Assembly
108-2202	SEC II Power Card Edge Connector
108-9039	Standard Edge Connector
108-9039-1	Standard Edge II Connector for VRM 8.5 and 9.0 Applications
108-9039-2	Standard Edge II Connector for VRM 9.1 Applications

Qualification Test Report (501-series) is a test report confirming successful qualification of the information in product specifications. Documents available which pertain to this product are:

501-227	Standard Edge Connector
501-227-1	Standard Edge II Connector for VRM 8.5 and 9.0 Applications
501-227-2	Standard Edge II Connector for VRM 9.1 Applications
501-569	High Current Card Edge Connector Assembly
501-608	SEC II Power Card Edge Connector

Test Specification 109-11 provides solderability requirements and evaluation methods, and Workmanship Specification 101-21 provides solder fillet requirements.

2.6. Instructional Material

Instruction Sheets (408-series) provide assembly instructions and Customer Manuals (409-series) provide machine setup and operation procedures. Documents available which pertain to this product are:

408-6923	Manual Arbor Frame Assembly 58024-1
408-9027	Adapter Kit for GREENERD Frame Assembly
408-8666	Seating Tool Assembly 1424555-[]
409-5626	SM-3 Machine 814700-2

3. REQUIREMENTS

3.1. Safety

Do not stack component packages so high that the shipping containers buckle or deform.

3.2. Limitations

These connectors are designed to operate in a temperature range of -55° to 105°C [-67° to 221°F].

3.3. Material

The connector housing is made of glass-filled polyester. The contacts are made of copper alloy plated with nickel; contact areas are plated with gold, and press-fit contact tines and solder tines are plated with tin or tin-lead.

3.4. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector material.

B. Shelf Life

The connectors should remain in the shipping containers until ready for use to prevent deformation to the contacts. The connectors should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

3.5. Chemical Exposure

Do not store connectors near any chemical listed below as they may cause stress corrosion cracking in the contacts.

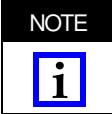
Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites		Tartrates

GREENERD is a trademark.

3.6. PC Board (Motherboard)

A. Material and Thickness

The pc board material shall be glass epoxy (FR-4 or G-10). The pc board thickness range shall be 1.37 through 1.78 mm [.054 through .070 in.] for connectors with surface-mount contacts, and a minimum of 1.37 mm [1.78 in.] for connectors with through-hole or press-fit contacts.



Contact **PRODUCT INFORMATION** at the number at the bottom of page 1 for suitability of other board materials and thicknesses.

B. Tolerance

Maximum allowable bow of the pc board shall be 0.03 mm [.001 in.] over the length of the connector.

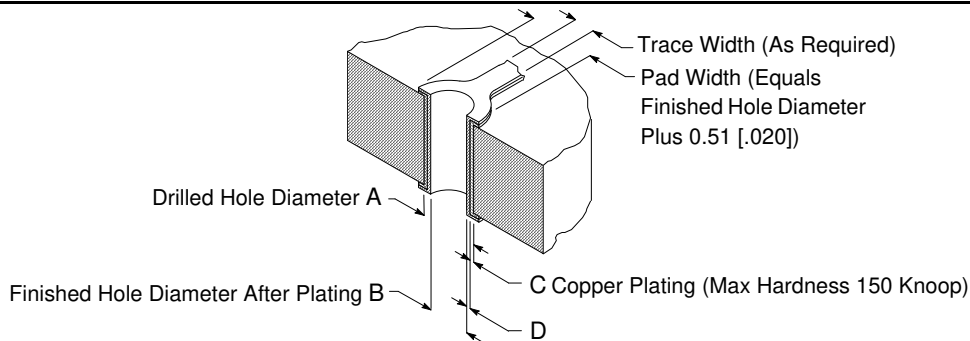
For connectors with press-fit contacts, maximum allowable recycle of the pc board holes shall be three times.

C. Pads

For connectors with surface-mount contacts, the pc board circuit pads must be solderable in accordance with Test Specification 109-11.

D. Hole Dimensions

The holes in the pc board for through-hole contacts, press-fit contacts, and formed posts must be drilled and plated through to specific dimensions. The plating type and thickness and finished hole size must be as stated to provide unrestricted insertion. See Figure 2.



CONNECTOR CONTACT TYPE	DIMENSION				
	A	B	C	D	
				SURFACE FINISH	THICKNESS
Through-Hole	1.15±0.03 [.0453 ±.001]	1.02 ±0.08 [.040 ±.003]	0.051 ±0.025 [.002 ±.001]	Tin-Lead (SnPb)	0.008 [.0003] (Min)
				Immersion Tin (Sn)	0.0005-0.004 [.00002-.0015]
				Organic Solderability Preservative (OSP)	0.0002-0.0005 [.000008-.00002]
				Immersion Gold (Au) Over Nickel (Ni) (ENIG)	0.0001-0.0005 [.000004-.00002] Au 0.004-0.0051 [.00015-.0002] Ni
				Immersion Silver (Ag)	0.0001-0.0005 [.000004-.000008]
Press-Fit	1.20 ±0.03 [.0472 ±.001]	1.07 ±.042 (Ref)	0.025 ±0.050 [.0001-.0002]	Hot Air Solder Leveling (HASL) Tin-Lead (SnPb)	0.004-0.010 [.00015-.00039]
				Immersion Tin (Sn)	0.0005-0.004 [.00002-.00015]
				Organic Solderability Preservative (OSP)	0.0002-0.0005 [.000008-.00002]
				Immersion Gold (Au) Over Nickel (Ni) (ENIG)	0.0001-0.0005 [.000004-.00002] Au 0.004-0.0051 [.00015-.0002] Ni
				Immersion Silver (Ag)	0.0001-0.0005 [.000004-.000008]

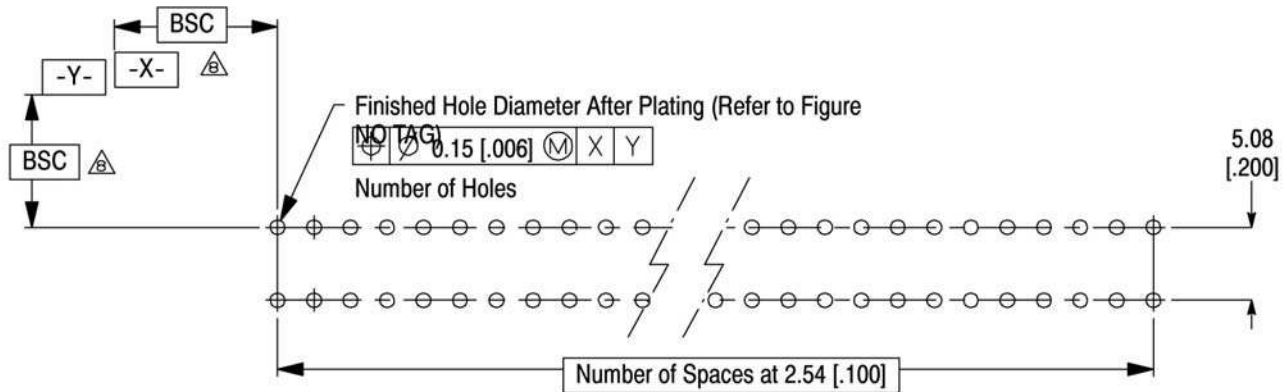
Figure 2

E. Layout

The holes (for through-hole contacts, press-fit contacts, and formed posts) or pads (for surface-mount contacts) on the pc board must be precisely located to ensure proper placement and optimum performance of the connector. The pc board layout must be designed using the dimensions provided on the customer drawing for the specific connector. A typical recommended pc board layout for each is shown in Figure 3.

Typical Recommended PC Board (Motherboard) Layout

Connectors with Through-Hole or Press-Fit Contacts



Datums and Basic Dimensions Established by Customer

Connectors with Surface-Mount Contacts

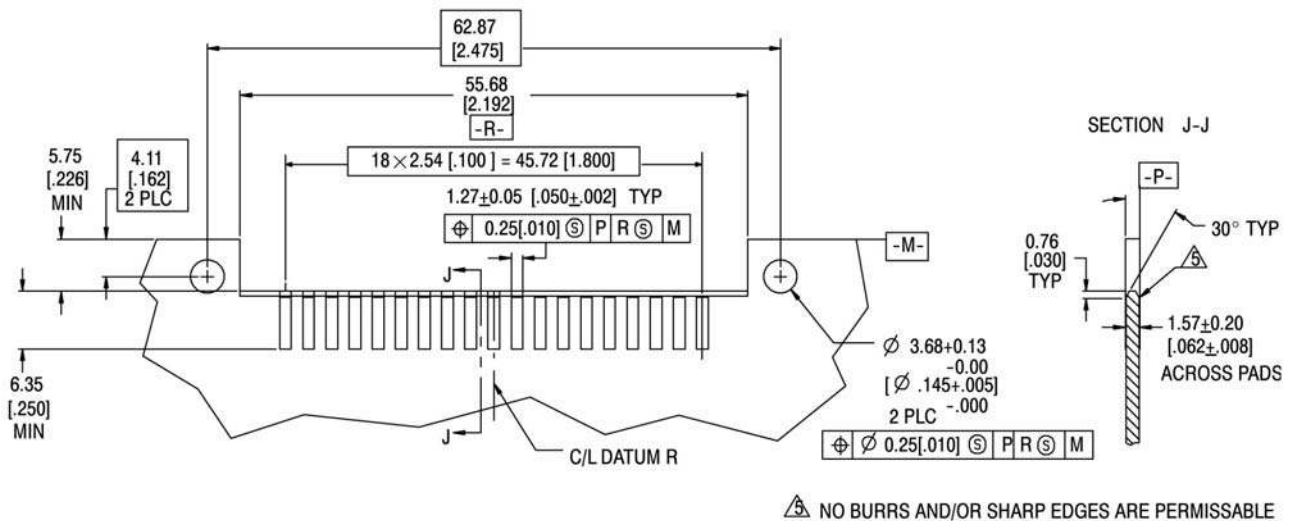


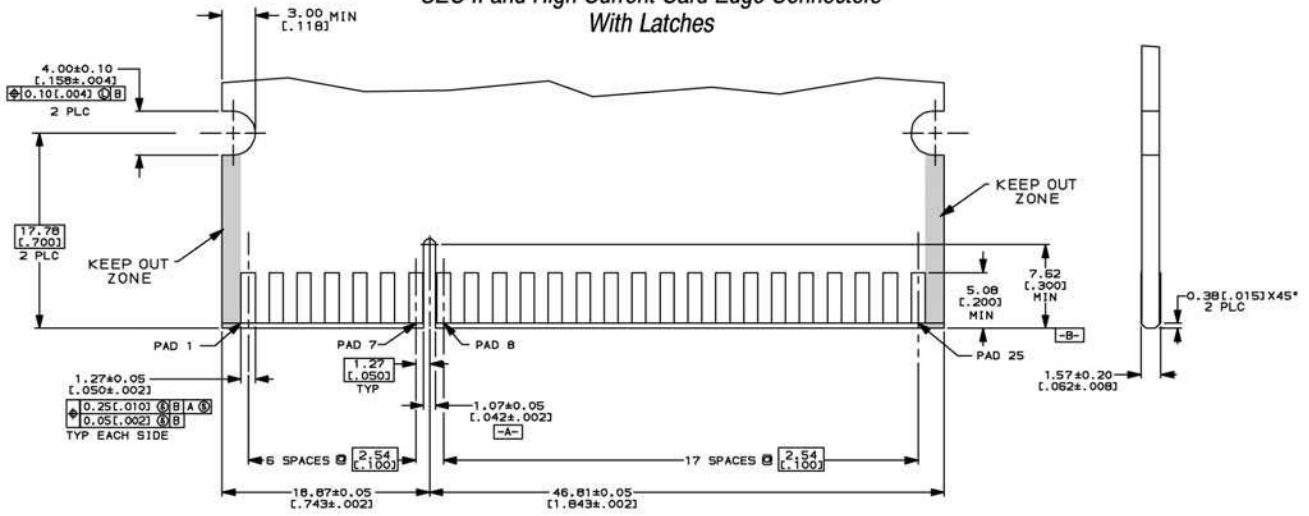
Figure 3

3.7. Daughter Card Configuration

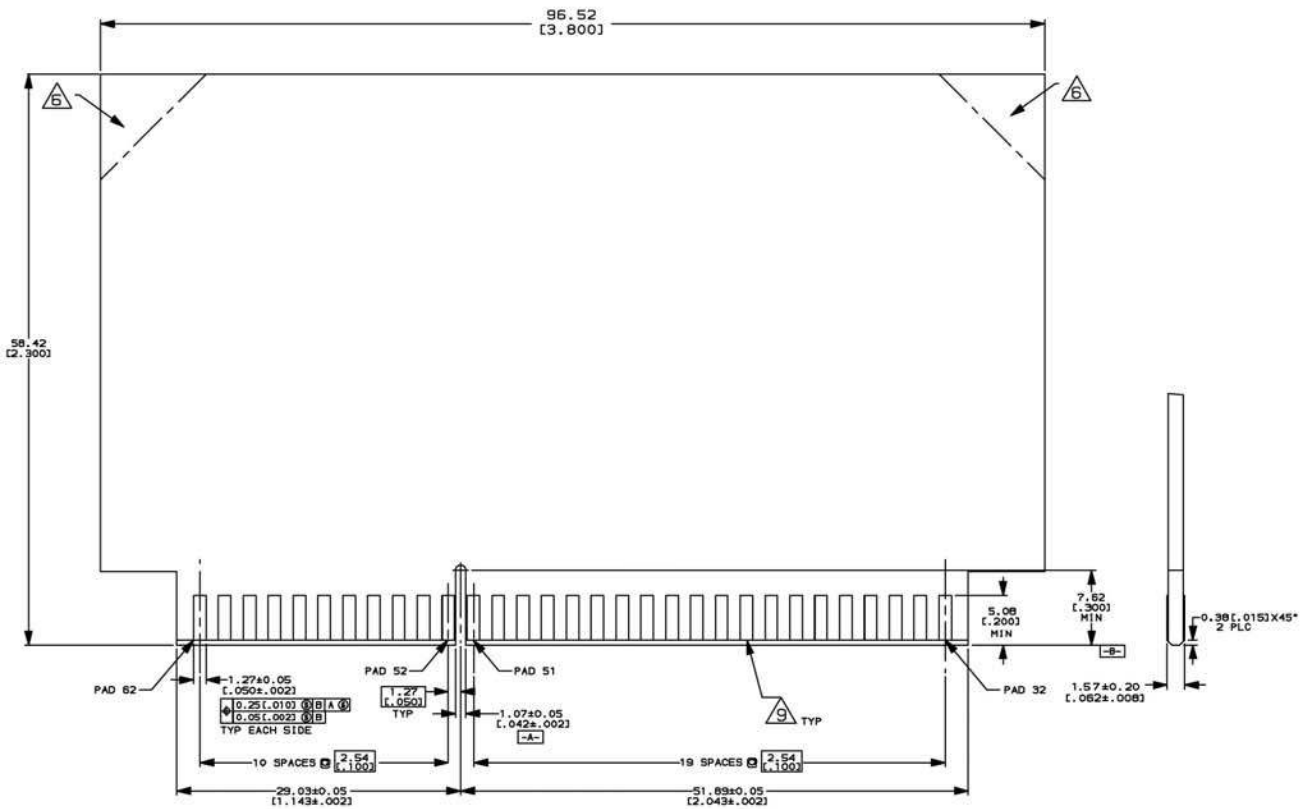
The mating daughter card configuration must be in accordance with the dimensions and tolerances provided on the customer drawing for the specific connector. Typical recommended daughter card configurations are shown in Figure 4.

Typical Recommended Daughter Card Configuration

SEC II and High Current Card Edge Connectors With Latches



SEC II and High Current Card Edge Connectors With Mounting Ears or Without Latches or Mounting Ears



⚠ Keep Out Zone Applies to Both Sides of the Daughter Card (Front and Back)

⚠ 0.113-kg [4-oz] Copper Required

Figure 4 (Cont'd)

**SEC II Power Connector
With Surface-Mount Contacts**

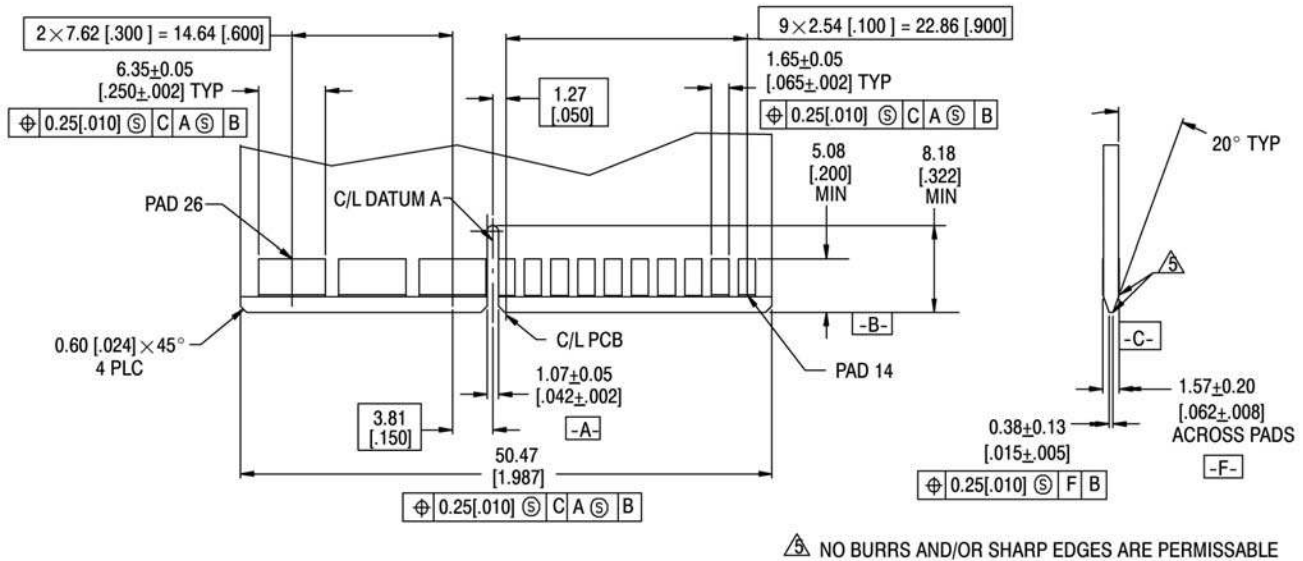


Figure 4 (End)

3.8. Soldering

A. Connector with Through-Hole Contacts - Tin-Lead Plated

Observe guidelines and procedures when soldering contacts. All solder joints should conform to those specified in Workmanship Specification 101-21 and all other requirements specified in this document. Solder, clean, and dry all wire leads to contacts according to the following:

1. Flux Selection

Contact solder tines must be fluxed prior to soldering with a mildly active, rosin base flux. Selection of the flux will depend on the type of pc board and other components mounted on the board. Additionally, the flux must be compatible with the wave solder line, manufacturing, health, and safety requirements. Call PRODUCT INFORMATION at the number at the bottom of page 1 for consideration of other types of flux. Flux that is compatible with these connectors are provided in Figure 5.

FLUX TYPE	ACTIVITY	RESIDUE	COMMERCIAL DESIGNATION	
			KESTER	ALPHA
RMA	Mild	Noncorrosive	186	611

Figure 5

2. Process

The connectors can be soldered using wave soldering or equivalent soldering techniques. It is recommended using SN60, SN62, or tin solder for these connectors. The temperatures and exposure time shall be as specified in Figure 6.

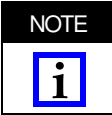
SOLDERING PROCESS	TEMPERATURE	TIME (At Max Temperature)
Wave	265°C [509°F] (Wave Temperature)	5 Seconds

Figure 6

3. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. Cleaners must be free of dissolved flux and other contaminants. It is recommended that cleaning takes place with the pc board on its edge. The following is a list of common cleaning solvents that will not the affect connectors for the time and temperature specified. See Figure 7.

KESTER and ALPHA are trademarks of their respective owners.



Even when using “no clean” solder paste, it is imperative that the contact interface be kept clean of flux and residue, since it acts as an insulator. Flux may migrate under certain conditions with elevated temperatures and, therefore, cleaning is necessary.

CLEANER		TIME (Minutes)	TEMPERATURE (Maximum)
NAME	TYPE		
ALPHA 2110	Aqueous	1	132°C [270°F]
BIOACT EC-7	Solvent	5	100°C [212°F]
Butyl CARBITOL	Solvent	1	Ambient Room
Isopropyl Alcohol	Solvent	5	100°C [212°F]
KESTER 5778	Aqueous		
KESTER 5779	Aqueous		
LONCOTERGE 520	Aqueous		
LONCOTERGE 530	Aqueous		
Terpene	Solvent		

Figure 7



If a particular solvent is not listed, contact PRODUCT INFORMATION at the number at the bottom of page 1 for recommendation.



Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Refer to the manufacturer’s Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners. It is recommended to not use Trichloroethylene and Methylene Chloride because of harmful occupational and environmental effects. Both are carcinogenic (cancer-causing).

4. Drying

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

B. Connector with Through-Hole Contacts - Tin Plated

Refer to 402-58-1.

C. Connector with Surface-Mount Contacts - Tin-Lead Plated

1. Solder Paste Characteristics

- a. Alloy type shall be 63 Sn/37 Pb, 60 Sn/40 Pb, or 62 Sn/36 Pb/2 Ag.
- b. Flux incorporated in the paste shall be rosin, mildly active (RMA) type.
- c. Paste will be at least 80% solids by volume.
- d. Mesh designation -200 to +325 (74 to 44 square micron openings, respectively).
- e. Minimum viscosity of screen print shall be 5x10% cp (centipoise).
- f. Minimum viscosity of stencil print shall be 7.5x10% cp (centipoise).

2. Solder Volume

Minimum solder volume (V) (before curing) for each circuit pad is calculated by multiplying the pad length (L) by the pad width (W) by the stencil thickness (T):

$$0.00(L) \times 0.00(W) \times 0.00(T) = 0.15 \text{ mm}^3 \text{ (V)}$$

Solder volume for each connector must be 0.11 mm³ per contact solder tine.



Solder volume may vary depending on solder paste composition.

ALPHA, BIOACT, CARBITOL, LONCOTERGE, and KESTER are trademarks of their respective owners.

3. Solder Past Thickness

Solder paste thickness for the solder tines shall be 0.20 mm.

4. Screen (or Stencil)

Recommended screen (or stencil) thickness is 0.76 mm with 0.51 mm diameter openings.



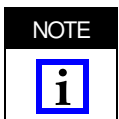
All traces must be covered by solder mask in the solder deposit area. Exposed traces could cause bridging and create a short, or wick solder away from the solder tines, producing a weak solder joint.

D. Connector with Surface-Mount Contacts - Tin Plated

Refer to 402-58-2.

3.9. Connector Spacing

Care must be used to avoid interference between adjacent connectors and other components. The minimum allowable distance between connectors to ensure proper mating is provided in Figure 8.



This requirement is for manual placement of connectors. If robotic equipment is used, other space allowances will be required for the grippers.

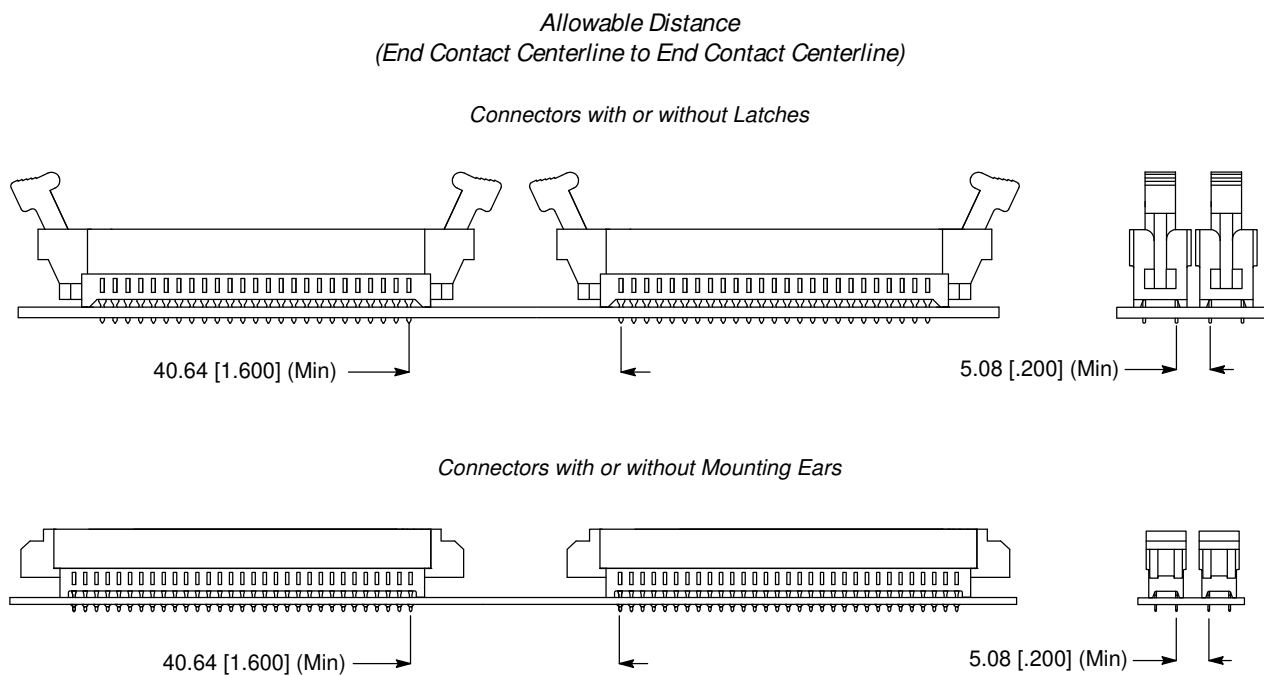


Figure 8

3.10. Connector Placement



Connectors should be handled only by the housing to avoid deformation, contamination, or damage to the contacts.

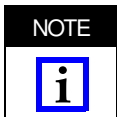
A. Connector with Press-Fit Contacts

When placing connectors on the pc board, contacts must be aligned and started into the matching holes before seating the connector onto the board. The force required to seat the connector onto the board can be calculated by:

Number of connector positions maximum seating force per contact N [lb] = connector seating force N [lb]
 The maximum amount of seating force per contact is given in Figure 9.

CONNECTOR TYPE	MAXIMUM SEATING FORCE PER CONTACT (N [lb])
Press-Fit (Low Force)	35.6 [8]
Press-Fit (High Force)	53.4 [12]

Figure 9



A specific seating tool is required to seat connectors with the high force press-fit contacts. Refer to Paragraph 5.6.

B. Connector with Surface-Mount Contacts

Optimally, the contact solder tines should be centered on the pads; however, slight misalignment is permissible as long as the entire solder tine is on the pad. Refer to Figure 10.

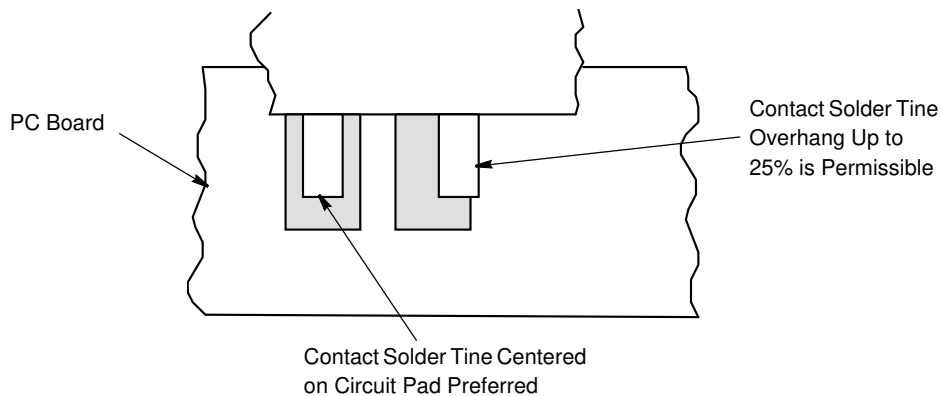
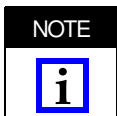


Figure 10

3.11. Polarization

A connector can be polarized to the pc board if it has omitted contacts. This ensures that the connector is placed onto the intended pc board and that the connector is properly oriented to the pc board.

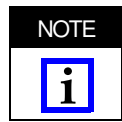


The corresponding hole on the pc board must be omitted.

A connector can be polarized to the mating daughter card if the daughter card is slotted to accept the molded key. This prevents the daughter card from being incorrectly inserted into the connector.

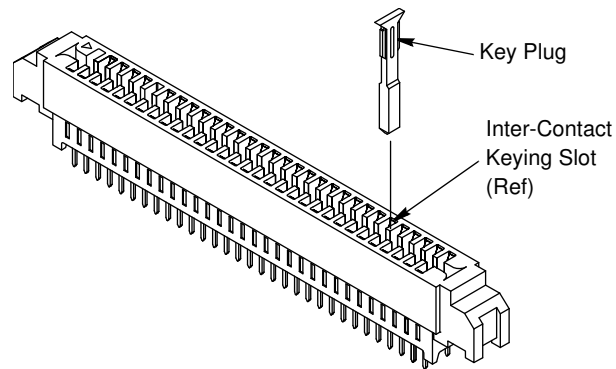
3.12. Keying

A connector can be keyed to prevent the daughter card from being incorrectly inserted into the connector if the connector contains inter-contact keying slots. A key plug is available to insert into any of the inter-contact keying slots. The daughter card must be slotted to accept the key plug. The key plug must be inserted into the inter-contact keying slot with the flat end facing up, then fully seated. Keying can be done before or after the connector is installed onto the pc board. See Figure 11.



Key Plug 650025-2 is available for these connectors.

Installing Key Plug



NOTE: SEC II Card Edge vertical connector shown.

Figure 11

3.13. Checking Installed Connector

A. Connector with Press-Fit Contacts

The widest section of each press-fit contact must be inside its intended pc board hole. The connector standoffs must be seated on the pc board not exceeding the dimension shown in Figure 12.

B. Connector with Through-Hole Contacts

All solder joints should conform to those specified in Workmanship Specification 101-21 and all other requirements specified in this document. Each contact solder tine must be fully inserted into the pc board hole, and the solder fillet must be 360° around the solder tine with no skips or voids. The connector standoffs must be seated on the pc board not exceeding the dimension shown in Figure 12.

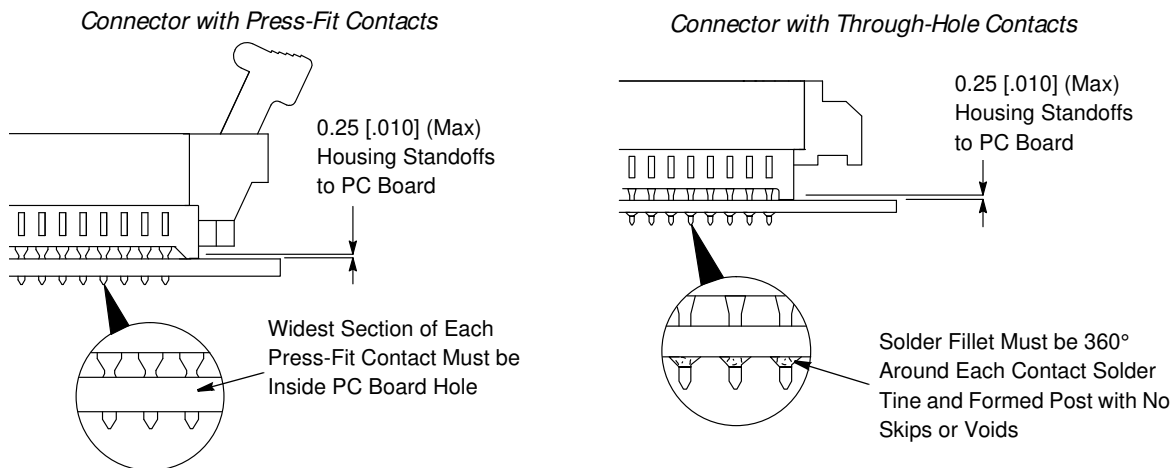


Figure 12

C. Connector with Surface-Mount Contacts

It is imperative that the contact solder tines are sufficiently pressed into the solder paste. The mounting hardware must be secure.

3.14. Daughter Card Mating and Unmating



When mating or unmating the daughter card, care should be taken to prevent longitudinal rocking of the daughter card with respect to the connector. Angles greater than 3° could cause damage to the housing or misregistration of the contacts and daughter card circuit pads.

A. Connector with Press-Fit Contacts

The daughter card must be mated to the connector according to the following requirements:

1. The connector locking latches must be in the open position (each latch is designed to rotate only 25° from the end of the connector). Refer to Figure 13, Detail A.
2. If the connector contains inter-contact keying slots or molded key, the keying slot of the daughter card must be aligned with the molded key or key plug(s) (if used) of the connector.
3. The daughter card must be inserted straight into the connector card slot until the card is seated. The connector locking latches must be against the daughter card, but not fully engaging the notches of the card. Refer to Figure 13, Detail B.
4. The card must be further inserted to allow the latches to move to the closed position. The latches must fully engage the notches in the daughter card. Refer to Figure 14, Detail C.

The daughter card must be removed from the connector according to the following requirements:

1. The connector locking latches must be simultaneously rotated away from the daughter card to the open position (each latch is designed to rotate only 25° from the connector). The latches must not be forced beyond the open position.



The locking latches are designed for retention purpose only. The latches MUST NOT be used to fully eject the daughter card from the connector; otherwise, damage to the latches or connector will occur.

2. The daughter card must be carefully pulled straight out of the connector card slot.

B. Connector with Through-Hole Contacts

The daughter card must be mated to the connector according to the following requirements:

1. If the connector contains inter-contact keying slots or molded key, the keying slot of the daughter card must be aligned with the molded key or key plug(s) (if used) of the connector. Refer to Figure 14, Detail A.
2. The daughter card must be inserted straight into the connector card slot until the card is seated.

If using the retaining clip, the clip must be installed according to the following requirements:

1. One fastener of the retaining clip must fully engage one mounting ear of the connector with the top corner of the card through the slit in the clip. The clip must be fitted around the edge of the daughter card. Refer to Figure 14, Detail B.
2. The remaining fastener of the clip must fully engage the remaining mounting ear of the connector. The sides of the fasteners must be flat against the sides of the mounting ears. Refer to Figure 14, Detail B.

If the optional retaining clip was used, the clip must be removed according to the following requirements:

1. Slight pressure must be applied to the top of one side of the retaining clip. The fastener must be released from the connector mounting ear, and while maintaining pressure, the fastener must be pulled away from the mounting ear.
2. The remaining fastener of the clip must be released from the remaining mounting ear of the connector.

To remove the daughter card from the connector, the daughter card must be pulled straight out of the connector card slot.

Mating Daughter Card with Connector with Press-Fit Contacts

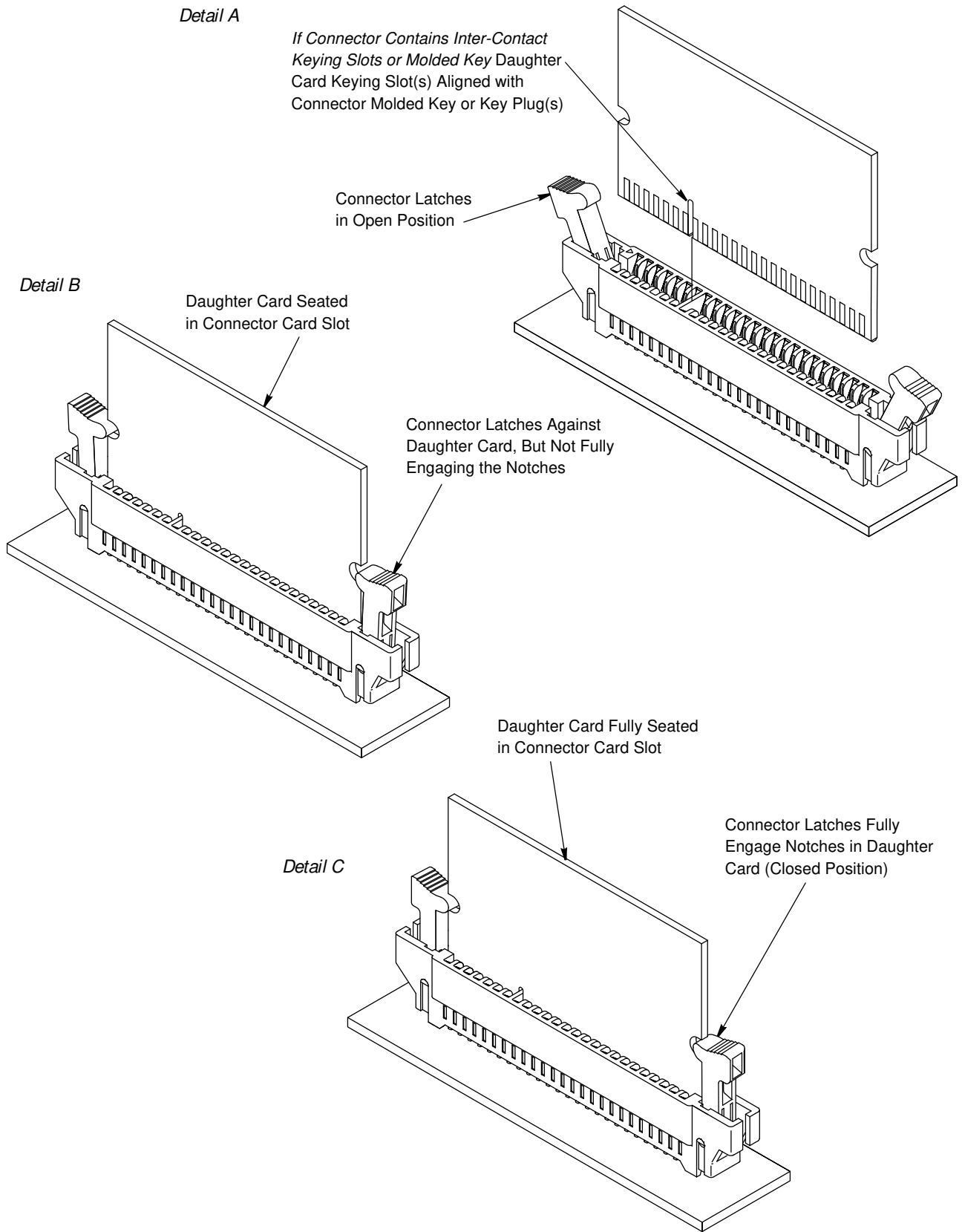


Figure 13

Mating Daughter Card with Connector with Through-Hole Contacts

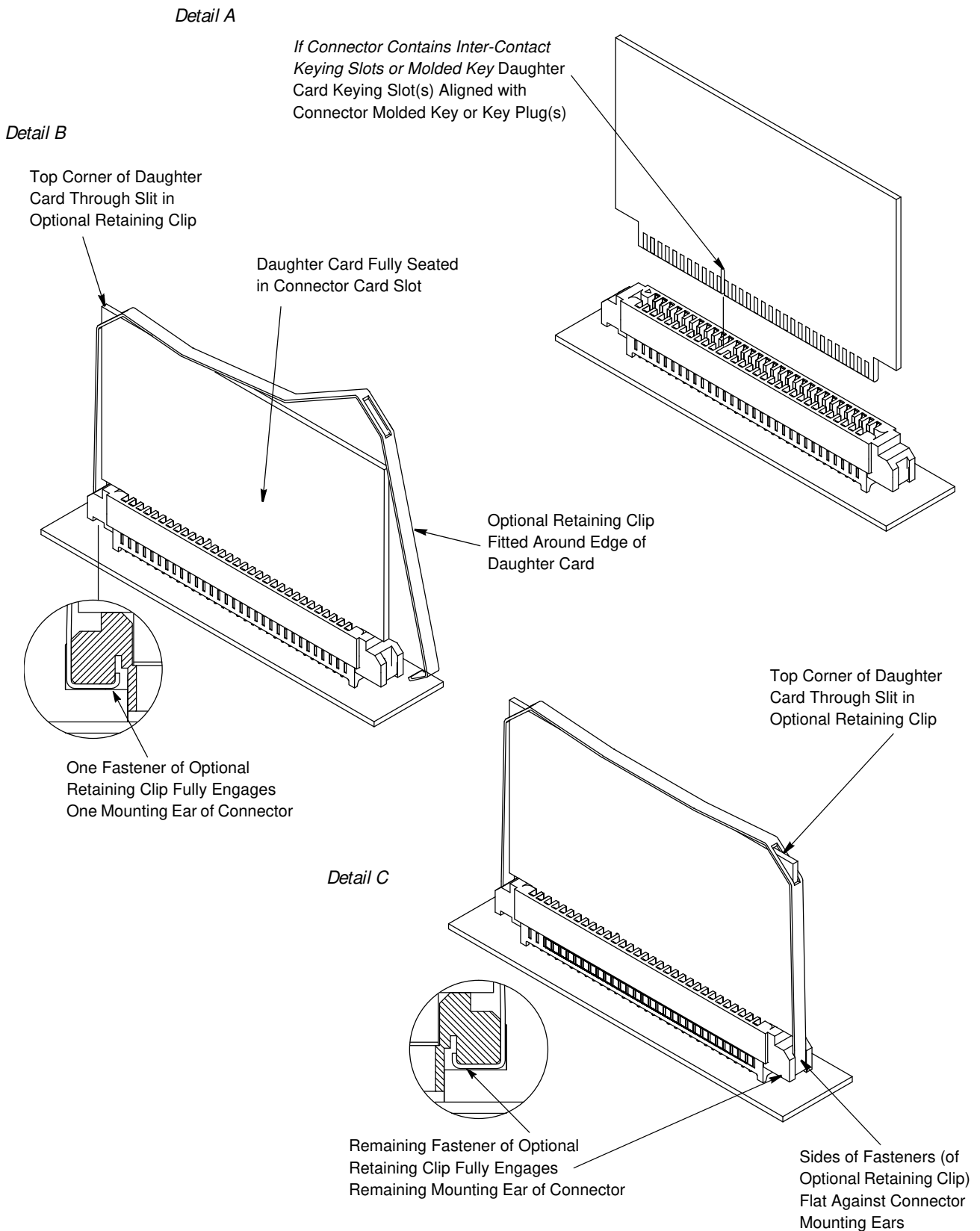


Figure 14

C. Connector with Surface-Mount Contacts

The daughter card must be mated to the straddle-mount connector according to the following requirements:

1. If the connector contains inter-contact keying slots or molded key, the keying slot of the daughter card must be aligned with the molded key or key plug(s) (if used) of the connector. Refer to Figure 15, Detail A.
2. The daughter card must be inserted straight into the connector card slot until the card is seated. Refer to Figure 15, Detail B.

To remove the daughter card from the straddle-mount connector, the daughter card must be pulled straight out of the connector card slot.

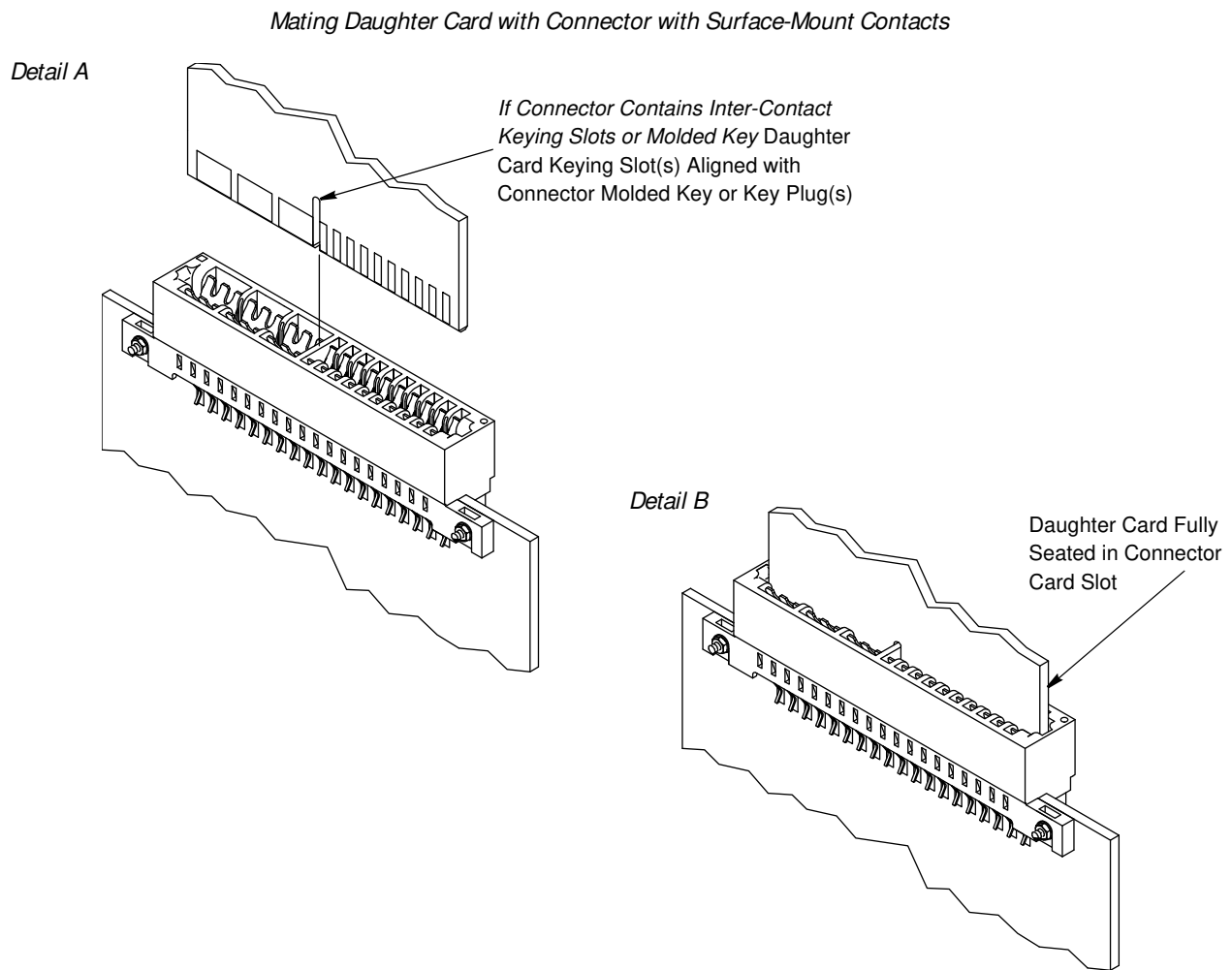


Figure 15

3.15. Connector Removal

A. Connector with Press-Fit Contacts

These connectors must be removed from the pc board using a push bar (or flat rock) covering all pins protruding through the board. A housing support and pc board support must also be used during removal.

The force required to remove the connector from the pc board can be calculated by:

$$\text{Number of connector positions} \times \text{minimum extraction force per contact } N \text{ [lb]} = \text{connector extraction force } N \text{ [lb]}$$

The minimum amount of extraction force per contact is given in Figure 16.

CONNECTOR TYPE	MINIMUM EXTRACTION FORCE PER CONTACT (N [lb])
Press-Fit (Low Force)	8.9 [2]
Press-Fit (High Force)	17.8 [4]

Figure 16

B. Connector with Through-Hole or Surface-Mount Contacts

These connectors must be removed from the pc board using standard de-soldering methods, then removed from the pc board using a push bar (or flat rock) covering all contacts protruding through the board. A housing support and pc board support must also be used during removal.

3.16. Repair

These connectors are not repairable. Damaged connectors must be removed, discarded, and replaced with new ones. DO NOT re-use connectors after being removed from the pc board.

4. QUALIFICATION

These connectors are Recognized in the Component Program of Underwriters Laboratories Inc. (UL) in File E28476 and Certified by CSA International in File LR 7189.

5. TOOLING

No tooling is required for manual placement of the connectors onto the pc board. Manually-operated tools, and automatic and semi-automatic machines for power assisted application of the connectors are available. The application tooling must provide sufficient amount of downward force to insert the contacts into the pc board holes. Tooling part numbers and instructional material packaged with the tooling are shown in Figure 17.

5.1. Manual Tools

For low-volume production, commercial hand-operated arbor presses are available. For seating connectors with press-fit contacts, the Greenerd manual frame assembly must be fitted with an adapter kit. The adapter kit includes a board support plate.

5.2. Power Units

Power units are designed for high-volume production. SM-3 machine is a pneumatic bench-mounted power unit controlled manually with pc board sensing or pressure sensing operation.

5.3. Robotic Equipment

Robotic equipment must have a true position accuracy tolerance of 0.25 mm [.010 in.] to feed, pick up, and place the connectors on the pc board. This includes gripper and fixture tolerances as well as equipment repeatability.

5.4. Housing Support

A housing support with sides and ends as close as possible to the connector housing is recommended when removing connectors with press-fit contacts from the pc board. The support protects the housing from damage.

5.5. PC Board Support (Customer Supplied)

When using application tooling, a pc board support must be used to provide proper support for the pc board and to protect the pc board and connector from damage. It is also recommended using the pc board support when removing connectors with press-fit contacts from the board. The board support fixture must be designed for specific needs using the following recommendations:

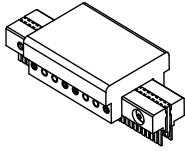
- it should be at least 25.4 mm [1.0 in.] wider than the pc board
- it should have a flat surface with a cutout or holes to allow adequate clearance for the contacts

5.6. Seating Tool

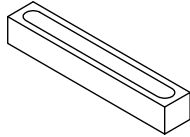
This seating tool is required to seat connectors with high force press-fit contacts onto the pc board. Each seating tool is specifically designed for the number of contact positions and molded key position in the connector. Power for the seating tool must be provided by application tooling (with a ram) capable of supplying a downward force of 67 Newtons (N) [15 lb] per contact.

5.7. Push Bar (Flat Rock)

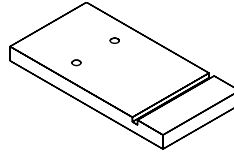
Commercially available bar stock with a flat surface large enough to cover all contacts can be used to seat connectors with low force press-fit contacts. The push bar must be used with application tooling. The push bar is also used to remove a connector with high force or low force press-fit contacts from the pc board.



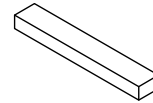
*Seating Tool Assembly
1424555-[] (408-8666)*



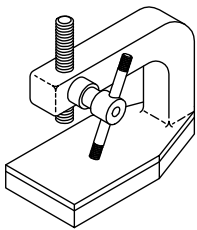
*Housing Support
(Customer Supplied)*



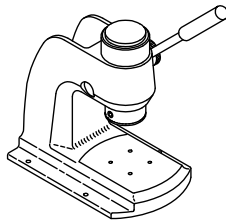
*PC Board Support
(Customer Supplied)*



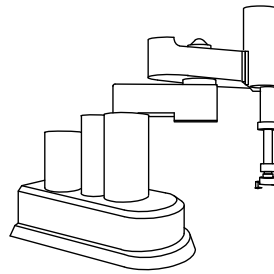
*Push Bar (Flat Rock)
(Customer Supplied)*



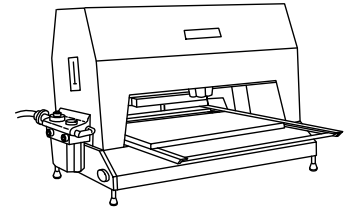
*Greenerd 3A or 3B Manual
Frame Assembly
(Commercially Available)
Used with Adapter Kit
(Refer to 408-9027)*



*Manual Arbor Frame
Assembly 58024-1
(408-6923)*



Robotic Equipment



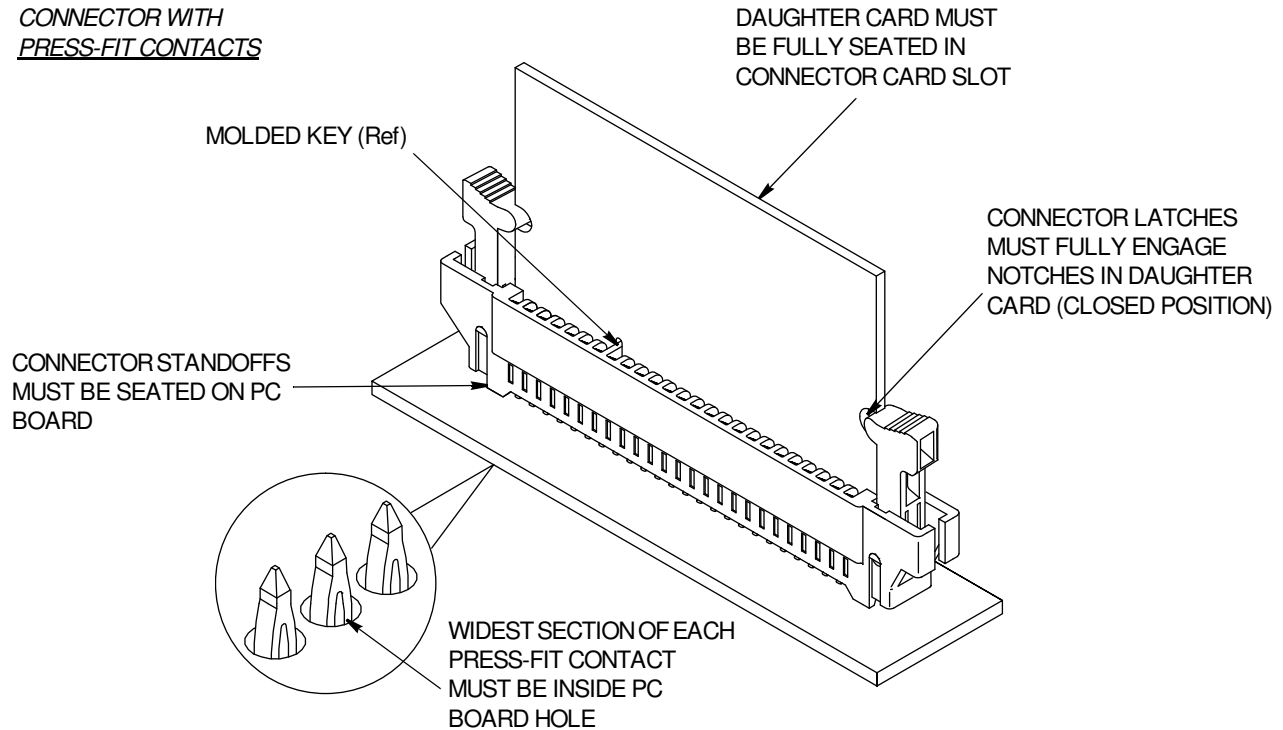
*SM-3 Machine
814700-2 (409-5626)*

Figure 17

6. VISUAL AID

The illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

CONNECTOR WITH PRESS-FIT CONTACTS



CONNECTOR WITH THROUGH-HOLE CONTACTS

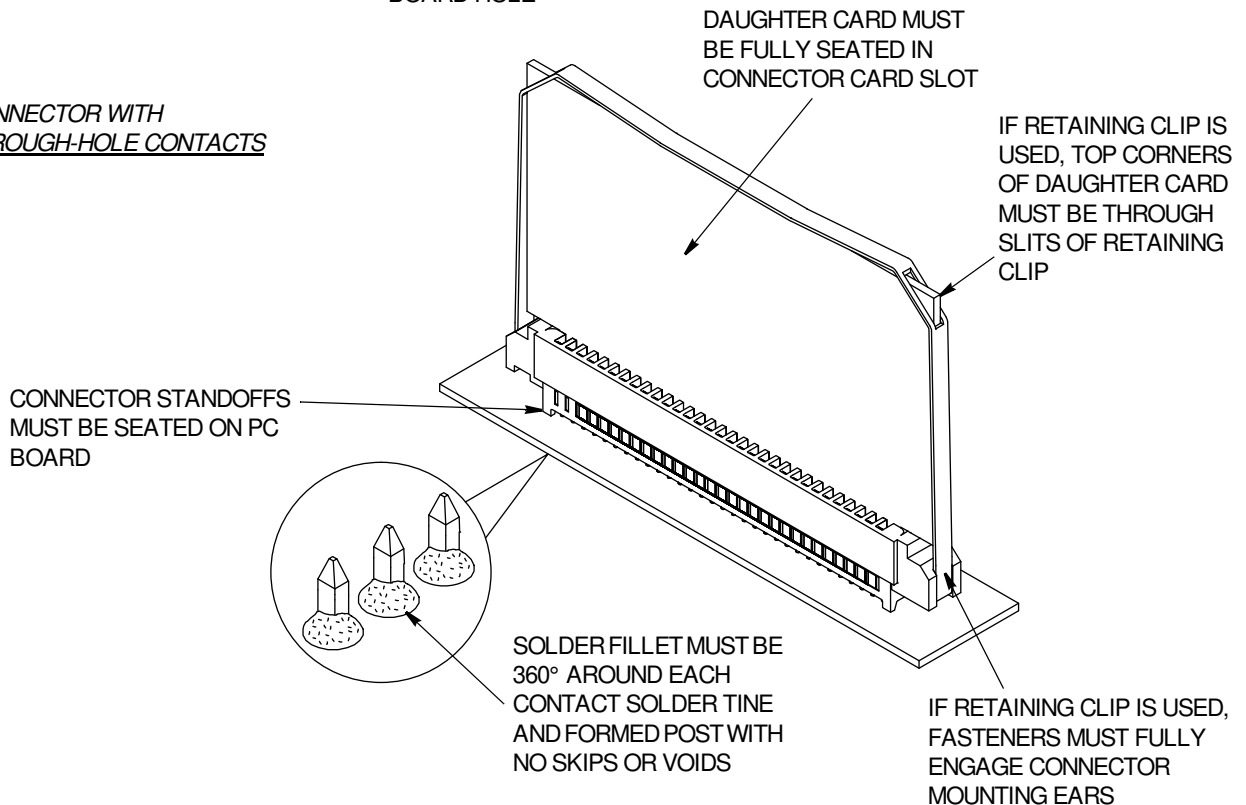


FIGURE 18. VISUAL AID (CONT'D)

CONNECTOR WITH
SURFACE-MOUNT CONTACTS

DAUGHTER CARD MUST
BE FULLY SEATED IN
CONNECTOR CARD SLOT

MOLDED KEY (Ref)

MOUNTING HARDWARE
MUST BE SECURE

CONTACT SOLDER TINES
MUST BE SUFFICIENTLY
PRESSED INTO SOLDER
PASTE

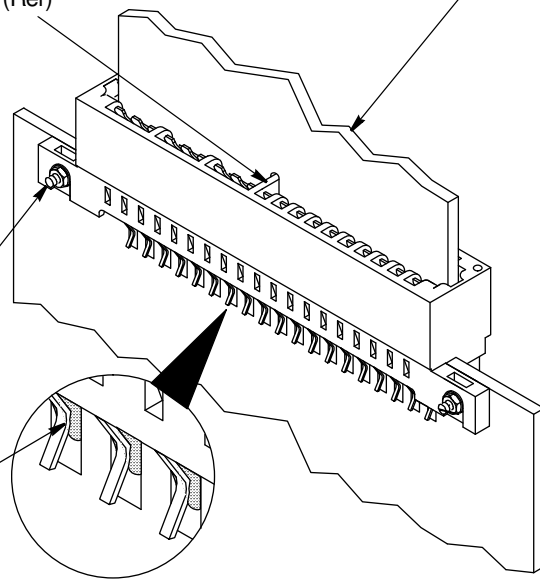


FIGURE 18. VISUAL AID (END)