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 ±2°. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of the Next Generation ARINC 600 Connector. These connectors are designed to meet ARINC 600 performance requirements while providing a significant cost savings by utilizing a one-piece insert with stamped-and-formed size 22 signal contacts.

The socket contact is made from a high-performance Cu alloy with selectively plated Au contact tips. A stainless steel hood is attached to the contact body. The contact also incorporates an Eye-of-the-Needle (EON) press-fit tail which reduces printed circuit (pc) board assembly time for the customer (no soldering required).

The contacts are loaded into one-piece thermoplastic inserts, which are available in the standard ARINC insert configurations. The assembled receptacle connectors are designed to be fully intermateable with existing ARINC 600 plug assemblies. See Figure 1.

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.

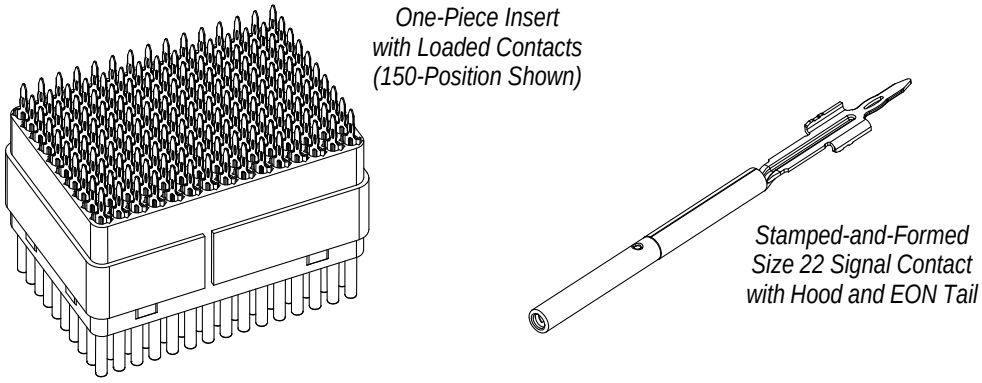

Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this instruction sheet include:

- Updated document to corporate requirements
- New logo

2.2. Customer Assistance

Reference Product Base Part Number 2101002 and Product Code L359 are representative of Next Generation ARINC 600 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 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 this page.

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, the Customer Drawing takes preference.

ARINC is a trademark.

2.4. Specifications

Refer to Specifications IEC 60352-5: Solderless Connections - Part 5 and ARINC 600 Air Transport Avionics Equipment Interfaces.

3. REQUIREMENTS

3.1. Safety

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

3.2. Storage

A. Shelf Life

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

B. Chemical Exposure

Do not store contacts 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

3.3. Box Level Design Considerations

The rear side of the ARINC shell has been modified to include six standoffs. These standoffs act as a stop for the pc board during the contact insertion, and also provide M3 threads to attach the pc board directly to the receptacle assembly.

In addition, the one-piece insert extends out further than standard ARINC inserts to provide added support for the EON tail. Refer to Figure 2 for details.

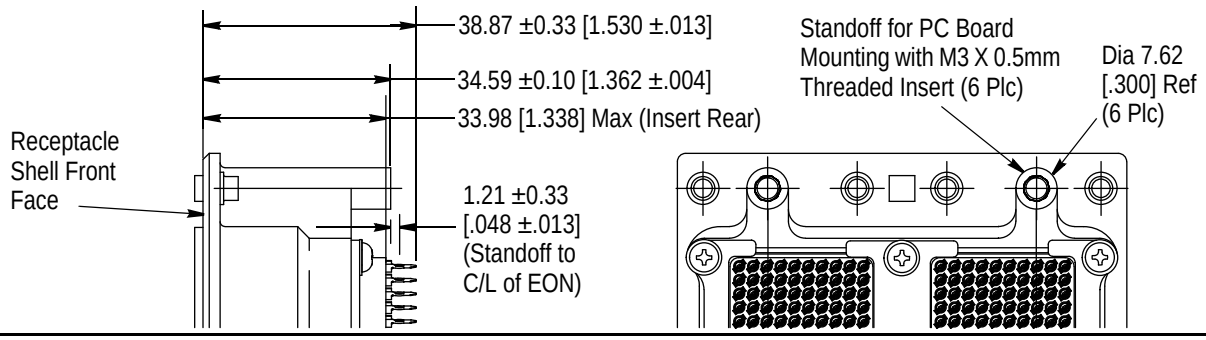

Figure 2

Furthermore, the application design shall pay careful attention to how the pc board is secured within the box level structure. By nature of the design, the EON contact, which is intended to be a repairable interface, will have a lower retention force than a typical posted contact soldered to a pc board, which is a permanent interface. Also, it is important to understand that the pc board is attached to both the shell via the standoffs, and to the contacts via the EON's. Therefore, the box design shall be such that it prevents any relative motion between the pc board and the shell.

Specifically, TE recommends that designers evaluate their box design by running a model analysis on their system, including all pc board mounting points and constraints. The modeling should confirm that the pc board is sufficiently supported such that there are no resonant frequencies within the frequency range which is expected in the environment of the application that would result in movement of the pc board in the pin field area.

3.4. PC Board Design and Layout Requirements

The minimum pc board thickness is 1.6 mm [.063 in.]. The pc board hole diameter shall be 0.90 mm [.035 in.] as defined in IEC 60352-5. The EON tail portion of the contact is available with either matte Sn finish (over Ni) or Au finish (over Ni). The recommended pc board plating is Sn.

A. Insert Cavities CL Dimensions and Standoff Holes

Figure 3 shows the reference center-line dimensions for the insert cavities for ARINC size 2 and size 3 receptacle shells. The pc board should also include thru-holes for M3 screws for attaching the pc board to the shell. Figure 3 also shows the locations for the standoffs.

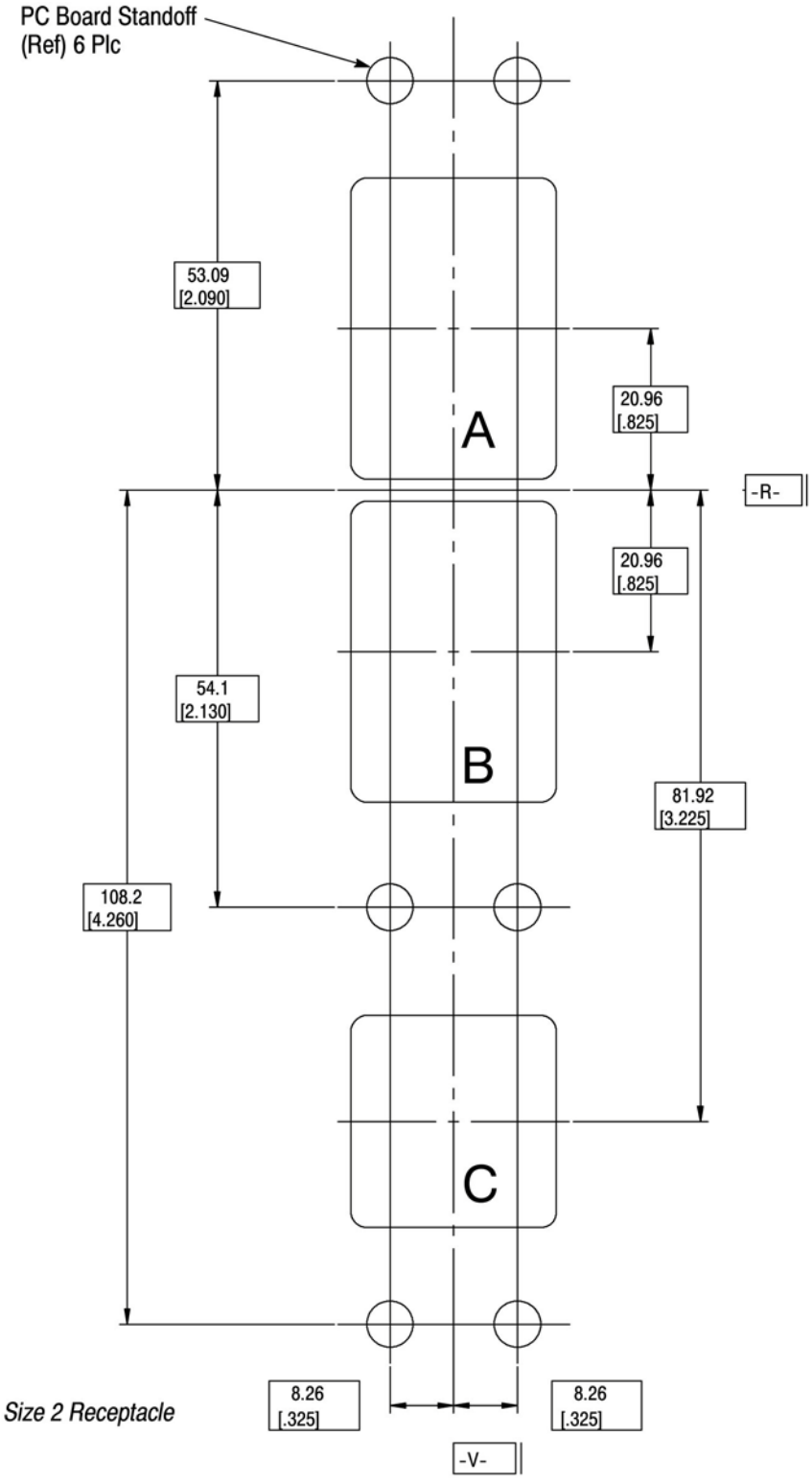

Figure 3 (Cont'd)

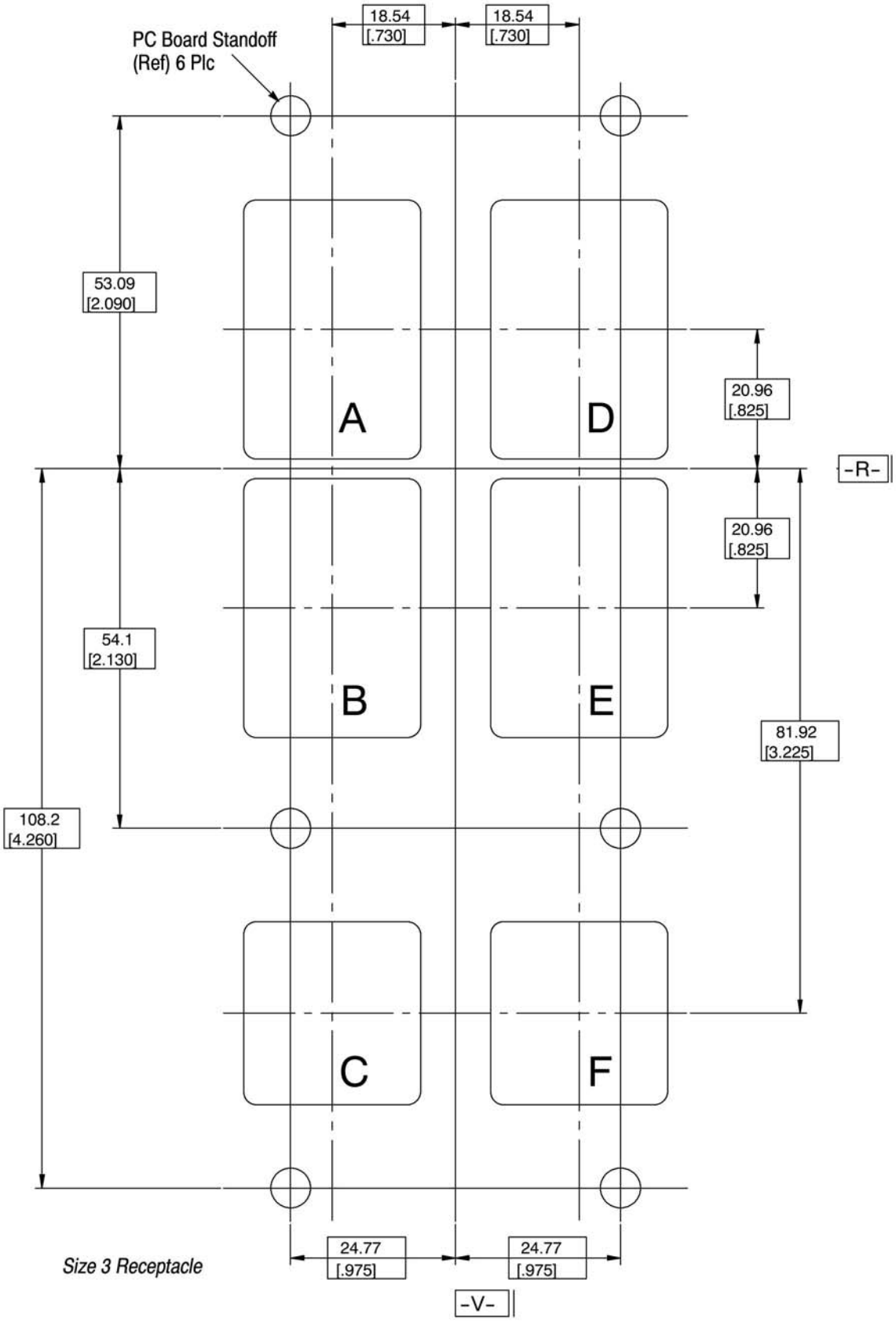
PC Board Standoff
(Ref) 6 Plc
18.54
[.730]
18.54
[.730]
53.09
[2.090]
20.96
[.825]
A
D
-R-
20.96
[.825]
54.1
[2.130]
B
E
81.92
[3.225]
108.2
[4.260]
C
F
24.77
[.975]
24.77
[.975]
-V-
Size 3 Receptacle

Figure 3 (End)

B. PC Board Hole Layouts

Refer to Figure 4 for the specific pc board hole layouts for available inserts.

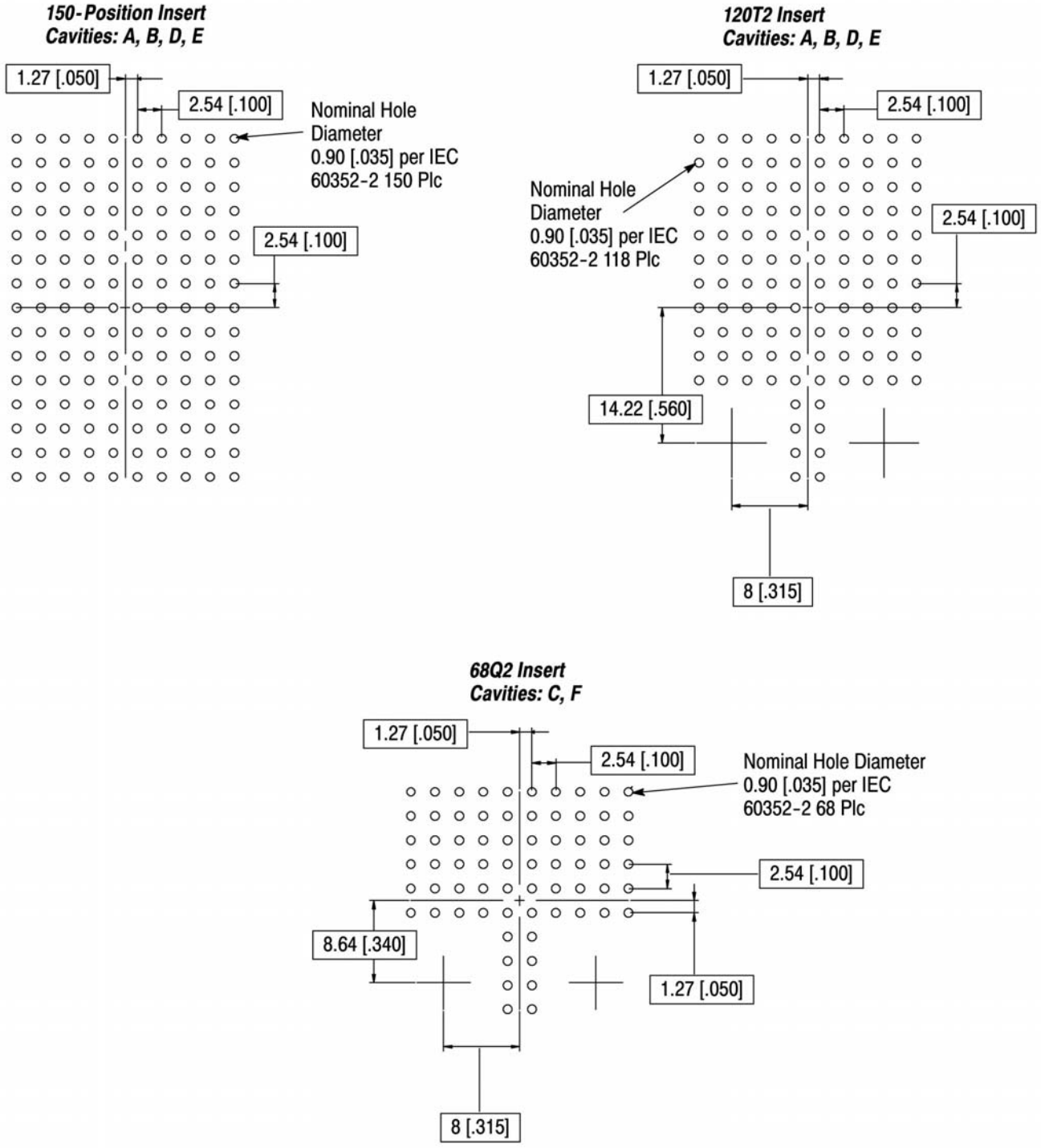

Figure 4

3.5. Assembly Process Requirements (Figure 5)

1. The pc board shall be placed on the pc board support fixture; alignment will be aided by including alignment pins on the fixture that correspond to holes on the pc board.

2. The connector can be initially located onto the pc board by hand, utilizing the pre-insertion tip of the contact.

3. The seating tool shall be carefully installed on the mating side of the receptacle such that it will apply a load onto the top surface of the insert.

4. Apply the insertion force to the seating tool until the receptacle standoffs make contact to the pc board. The insertion force is 36 N [8 lb] max average per contact.

NOTE
The contact is captured between the pc board and the insert, and as such, cannot be removed or replaced without first removing the pc board.

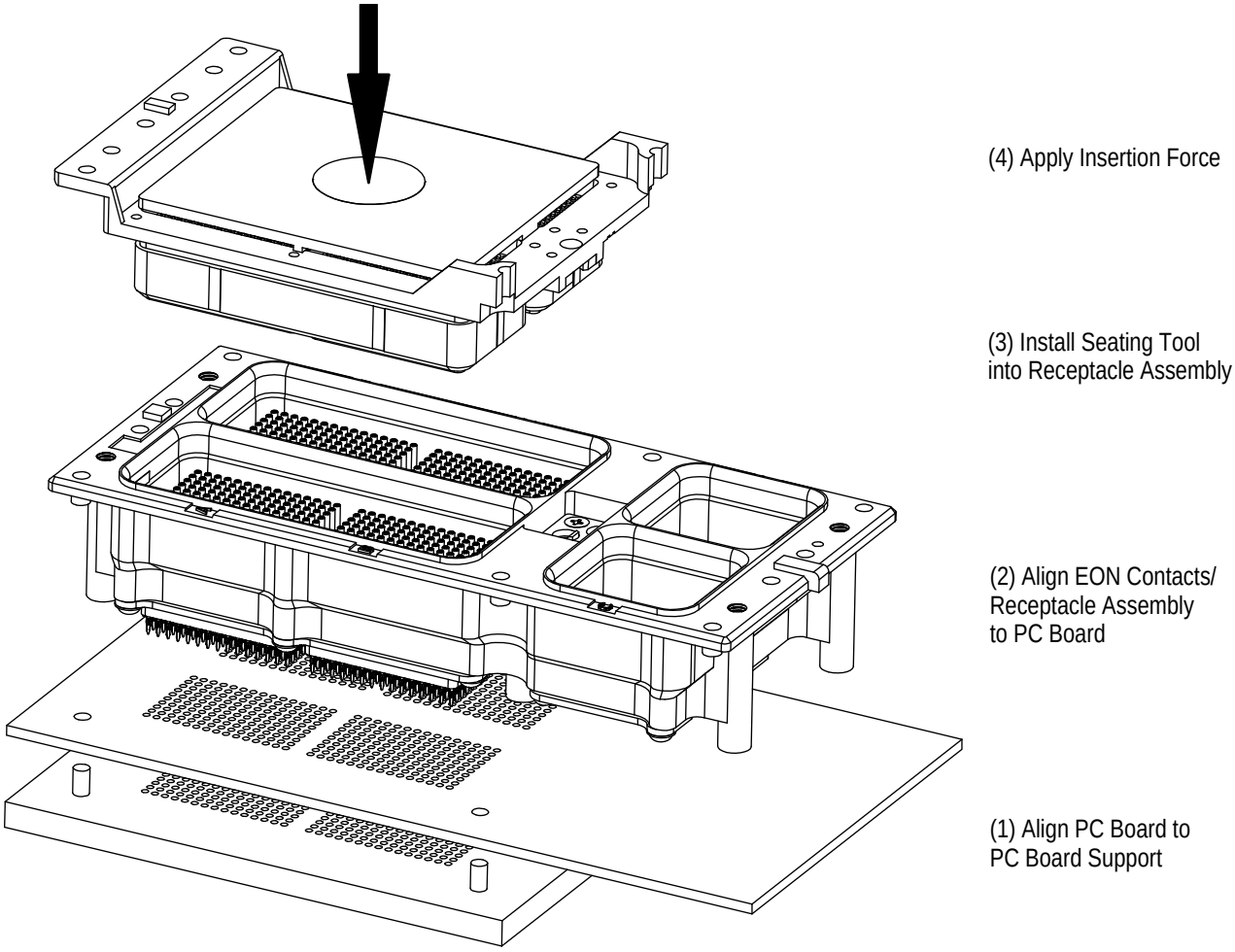

Figure 5

4. QUALIFICATIONS

The Next Generation ARINC 600 Connector design has completed Design Validation Testing (DVT) and the results are documented in TE Engineering Report 502-1263.

5. TOOLING

5.1. Seating Tool

The seating tool shall be designed to fit over the individual contact hoods, and apply a force on the insert body from the mating side of the connector. The tool shall not apply any load to the hood of the contact. The seating tool also needs to extend above the top surface of the responsible shell such that there is no interference with the shell during the seating process. See Figure 6 for recommended design for a seating tool for a 150-position insert.

NOTE

A mating plug shell may be modified to act as a holder for standard plug inserts and be used as the seating tool. Contact the Tooling Assistance Center number at the bottom of page 1 for additional design information.

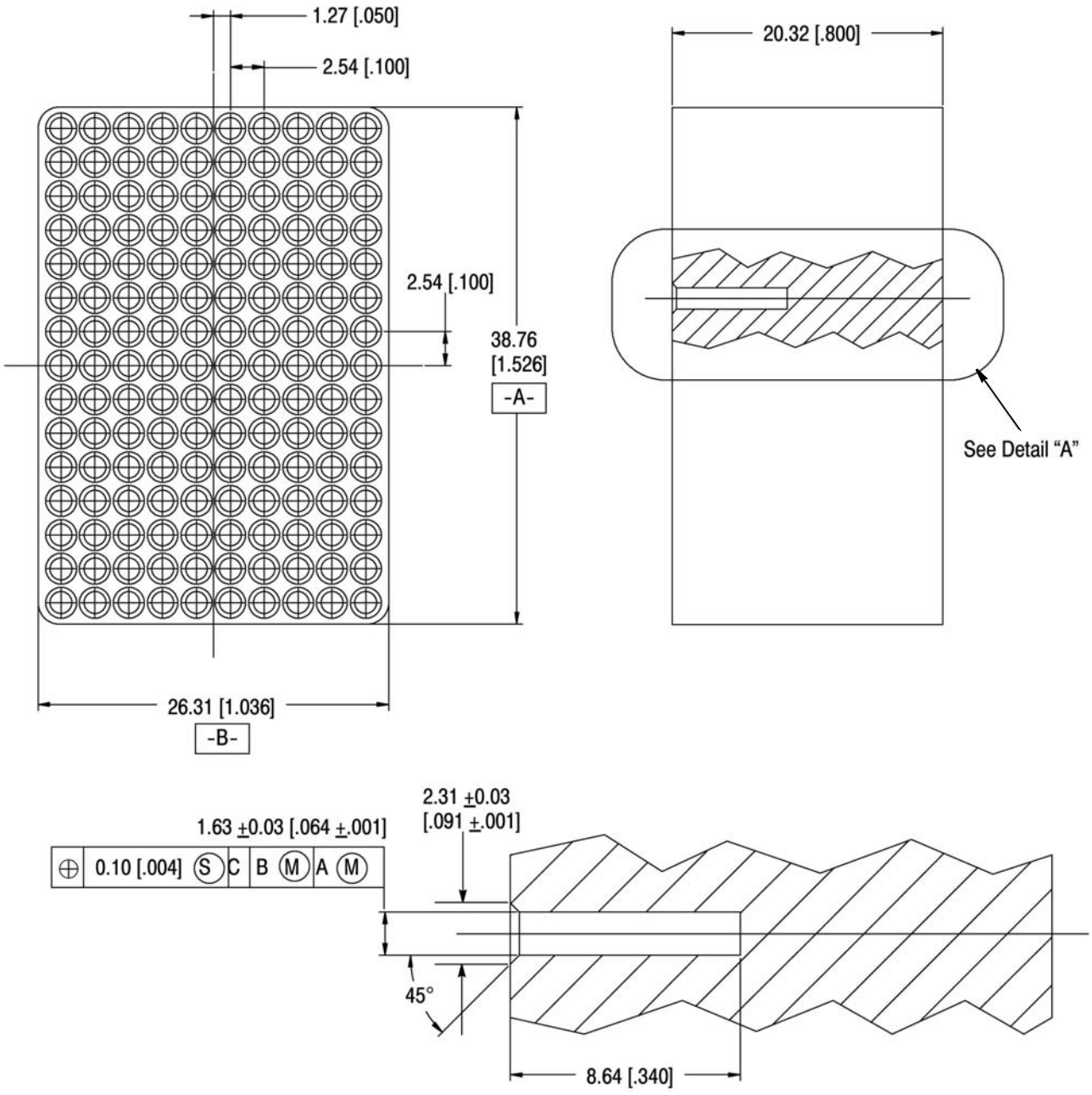

Figure 6

5.2. PC Board Support

A pc board support shall be used to prevent bowing of the pc board during seating of the connector onto the pc board. It should have a flat surface with holes or a channel wide and deep enough to receive the contact tails as they protrude below the pc board surface during the seating of the connector.

The recommended thickness for the pc board support is 6.35 mm [.250 in.]; the recommended hole diameter for contact tail clearance for the size 22 contact is 1.60 mm [.063 in.].

Refer to Figure 7 for other recommended dimensions for the pc board support. The length (refer to dimension "L") and width (refer to dimension "M") should be at least 25.4 mm [1.00 in.] longer than the length and width of the customer's pc board.

It is recommended that the customer include alignment holes on the pc board that correspond to alignment pins on the pc board support to aid in locating the pc board, and align the pc board thru-holes to the clearance holes. The pin diameter "N" is machined to suit the datum hole in the pc board. The pin dimension "P" is machined to suit the datum hole or slot in the pc board. Dimension "E" in Figure 7 represents the location of Datum "B" in the "X" direction, and is at the fabricator's discretion. Dimension "F" represents the location of Datum "B" in the "Y" direction and is also at the fabricator's discretion. Basic dimensions "K" and "U" represent the distance from the datum to the first row of holes; these dimensions correspond to the design of the pc board.

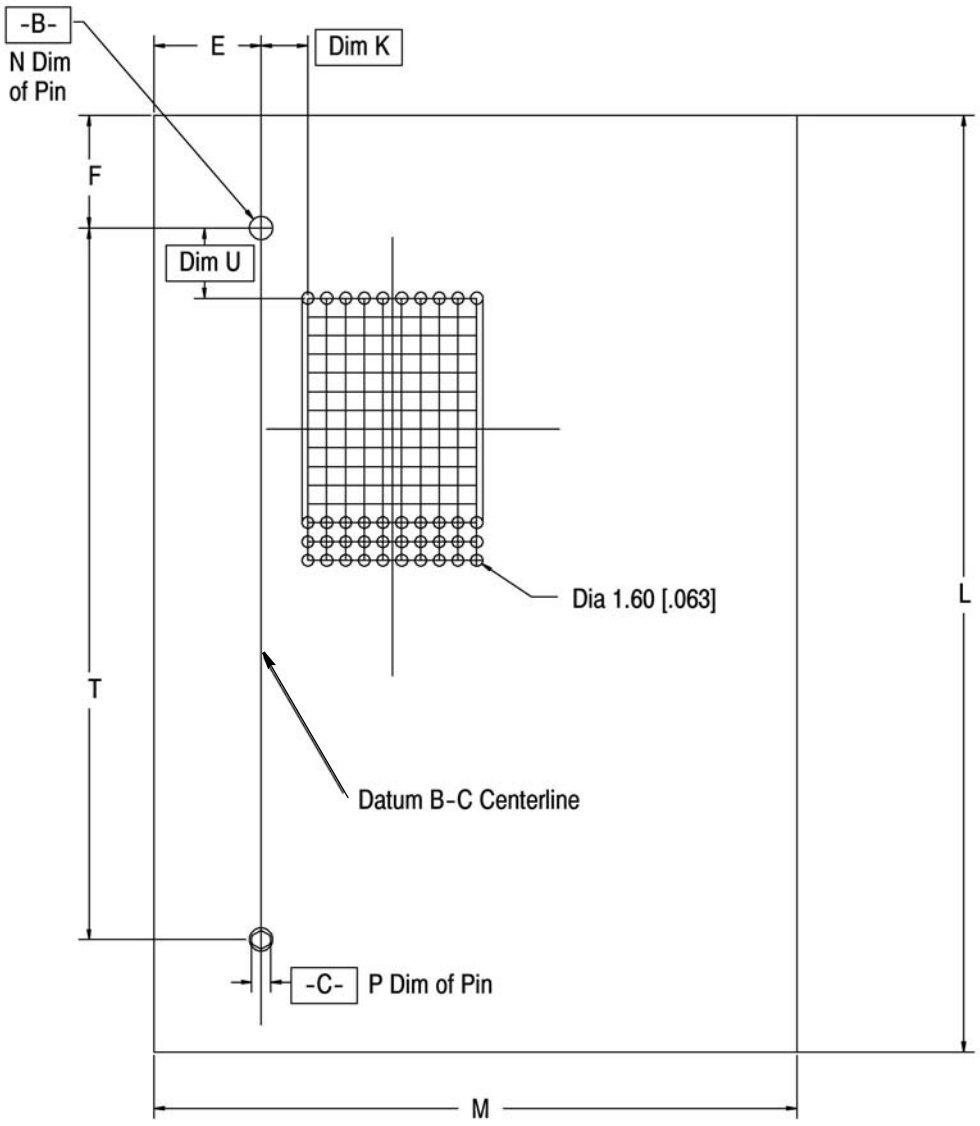

Figure 7

5.3. Power Units (Figure 8)

Power units are automatic or semi-automatic machines used to assist in the application of a product. These power units supply the necessary force onto a seating tool used to seat the connector onto the pc board. Contact TE for available power units.

5.4. Arbor Frame Assembly (Figure 8)

Manual arbor frame assemblies are used to exert a downward force onto a seating tool used to seat the connector onto the pc board. Contact TE for available arbor frame assemblies.

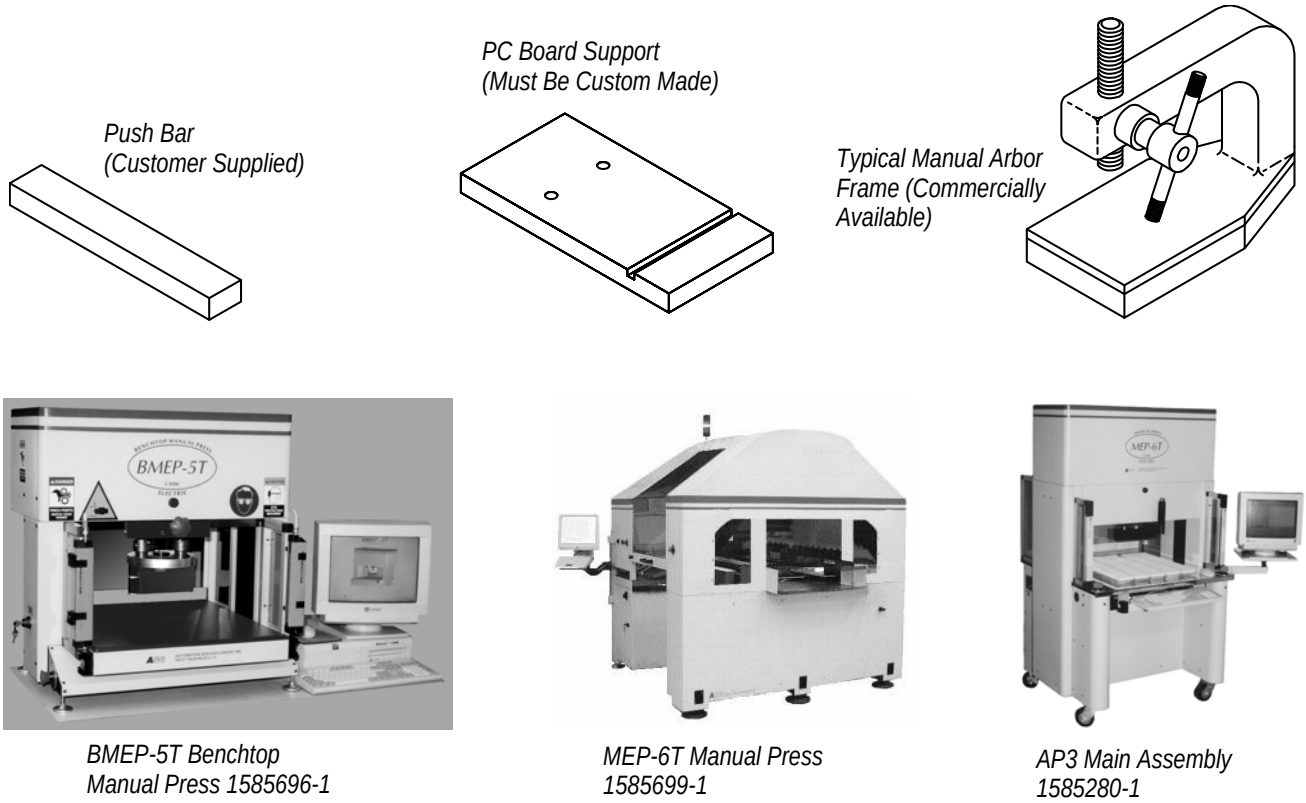

Figure 8

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.

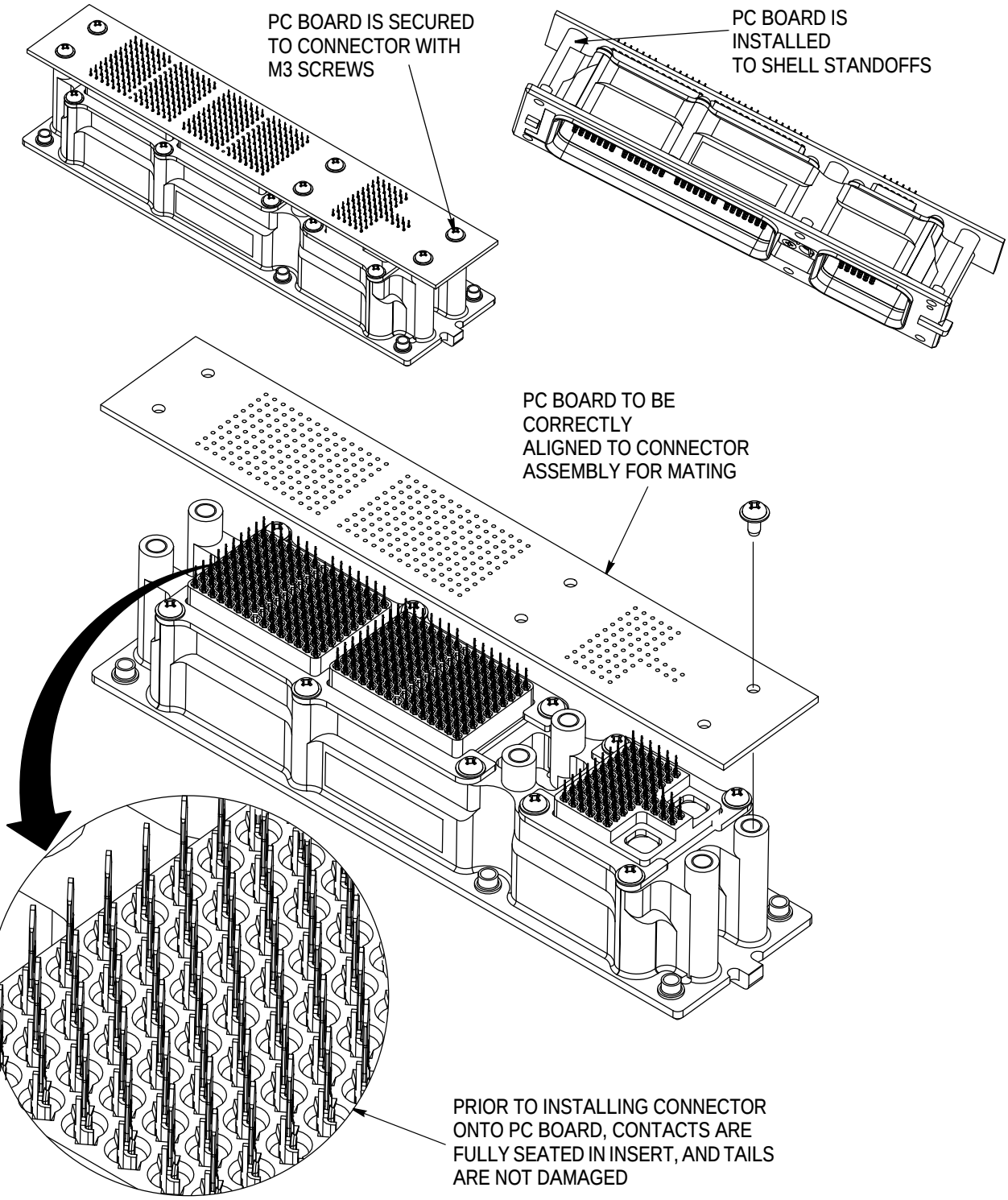

FIGURE 9. VISUAL AID