
Component Print Station Assembly Instructions



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To help us achieve our goal, we ask that you please document any product problems or enhancement requests, and return them to the VJ ElectroniX (SRT) Customer Care Center (CCC). The contact addresses are in the Preface of this manual.

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WARNINGS

- Do not remove covers. Potentially lethal voltages are present inside the system. Observe all warning markings on the equipment and warning notices in the manual. If servicing is necessary, it should be performed only by a qualified person familiar with the electrical shock hazards present inside the system.
- Grounding circuit continuity is vital for safe operation of the equipment. Never operate equipment with grounding conductor disconnected.
- Safeguard your hands and fingers while handling any fixture or other accessory. Be sure it is securely supported if you reach under it. If it is heavy, you must have another person help to move it.
- The symbol  IEC417 on equipment signifies that the manual contains information to prevent injury or equipment damage. Observe and heed all warning notices in the manuals and the equipment. warnings call attention to personnel safety information.
- Replace any fuse only with the same type and ratings as labeled on the equipment and/or listed in the manual.


MISES EN GARDE

- Ne pas enlever les couvercles. Les niveaux de tension se trouvant dans le système sont extrêmement dangereux. Respectez toutes les consignes de sécurité figurant sur l'équipement et les mises en garde données dans ce manuel. Seule une personne qualifiée, connaissant les risques de décharge électrique du système, est autorisée à effectuer les opérations de nettoyage ou de réparation du système.
- Le circuit doit être mis à la terre sans discontinuation pour garantir un fonctionnement sans danger de l'équipement. Ne jamais faire fonctionner l'équipement pendant que le raccord à la terre est déconnecté.
- Protégez-vous les mains et les doigts pendant le maniement de tout dispositif de serrage ou autre accessoire. Assurez-vous que ceux-ci soient bien solidement fixés en place, avant de vous pencher sous eux. Si l'accessoire en question est trop lourd, faites-vous aider pour le déplacer.
- Le symbole  IEC417 figurant sur l'équipement signifie que le manuel contient des informations permettant d'empêcher les accidents ou l'endommagement de l'équipement. Respectez toutes les consignes de mises en garde données dans le manuel et figurant sur l'équipement. Les mises en garde attirent l'attention sur la nécessité de se protéger.
- Ne remplacez les fusibles qu'avec des fusibles du même type et de la même valeur que ceux mentionnés sur l'équipement et figurant dans le manuel.


WARNHINWEISE

- Abdeckungen nicht entfernen. Potentiell lebensgefährliche Spannungsbedingungen innerhalb des Systems vorhanden. Alle auf der Einrichtung befindlichen warnmarkierungen und im Handbuch enthaltenen WARNHINWEISE beachten. Wartungsarbeiten dem qualifizierten Personal überlassen, das mit den innerhalb des Systems vorhandenen Gefahren eines elektrischen Schlags vertraut ist.
- Die Erdung des Schaltungsdurchgangs ist eine Grundvoraussetzung für den sicheren Betrieb der Einrichtung. Einrichtung niemals ohne Erdleiter betreiben.
- Hände und Finger bei der Handhabung einer Spannvorrichtung oder eines anderen Zubehörschutzes schützen. Sich vor der Platzierung der Hände unterhalb der Einrichtung vergewissern, daß die Einrichtung über ausreichenden Halt verfügt. Falls die Einrichtung schwer ist, sich von einer anderen Person beim Tragen helfen lassen.
- Das auf der Einrichtung befindliche Symbol  IEC417 bedeutet, daß das Handbuch Informationen zur Verhinderung von Körperverletzungen oder Sachschäden enthält. Alle in den Handbüchern enthaltenen und auf der Einrichtung befindlichen WARNHINWEISE beachten und befolgen. WARNHINWEISE sollen auf Informationen zur persönlichen Sicherheit aufmerksam machen.
- Sicherungen nur durch Sicherungen des gleichen Typs und der gleichen Nennleistung ersetzen. Auf der Einrichtung befindliche Etiketten und im Handbuch enthaltene Informationen zu Rate ziehen.

AVISOS

- Não remova as tampas. Há voltagens potencialmente fatais presentes na parte interna do sistema. Observe todas as marcações de AVISOS no equipamento e descrições de AVISOS no manual. Se for necessário fazer manutenção, esta deve ser feita somente por uma pessoa qualificada familiarizada com os perigos de choques elétricos presentes na parte interna do sistema.
- A continuidade do circuito de aterramento é vital para a operação segura do equipamento. Nunca opere o equipamento com o cabo de aterramento desligado.
- Proteja as suas mãos e dedos ao operar qualquer dispositivo ou outro acessório. Certifique-se que ele esteja suportado com segurança se você tiver que alcançar algo debaixo dele. Se for pesado, você deve ter a ajuda de uma outra pessoa para movê-lo.
- O símbolo  IEC417 no equipamento significa que o manual contém informações para prevenir ferimentos ou danos ao equipamento. Observe e preste atenção a todos os AVISOS nos manuais e no equipamento. Os AVISOS chamam a atenção a informações sobre a segurança pessoal.
- Substitua qualquer fusível somente com um do mesmo tipo e da mesma capacidade nominal como marcado no equipamento e listado no manual.

ADVERTENCIAS

- No quitar las tapas. En el interno del sistema hay voltajes potencialmente mortales. Obsérvense todos los rótulos de ADVERTENCIA presentes en el equipo, así como la descripción de las notas de ADVERTENCIA presentadas en el manual. De ser necesario, el servicio de mantenimiento deberá ser efectuado únicamente por personal calificado que esté familiarizado con los peligros de choque eléctrico presentes en el sistema.
- La continuidad del circuito de puesta a tierra es de vital importancia para el funcionamiento seguro del equipo. Nunca se debe usar el equipo con el conductor de puesta a tierra desconectado.
- Protéjense las manos y los dedos toda vez que sea necesario manipular un dispositivo u accesorio. Cerciorarse de que el mismo esté firmemente sujetado antes de proceder a trabajar debajo de él. Si el aparato u accesorio fuera pesado, pedir la ayuda de otra persona para moverlo.
- El símbolo  IEC417 que aparece en el equipo significa que el manual contiene informaciones para evitar lesiones personales o daños al equipo. Obsérvense y préstese atención a toda las notas de ADVERTENCIA presentes en los manuales y en el equipo. Las ADVERTENCIAS sirven para llamar la atención sobre informaciones de seguridad para el personal.
- Reemplazar los fusibles únicamente con otros del mismo tipo y capacidad, según lo indique el rótulo en el equipo y la descripción en el manual.

CAUTIONS

- Observe and heed all CAUTION notices in the manuals and on the equipment. CAUTIONS call attention to information about safeguarding *equipment* from damage.



HANDLING PRECAUTIONS FOR ELECTRONIC DEVICES SUBJECT TO DAMAGE BY STATIC ELECTRICITY

Place instrument or module to be serviced, spare parts in conductive (anti-static) envelopes or carriers, hand tools etc. on a work surface defined as follows. The work surface must be conductive and reliably connected to earth ground through a safety resistance of approximately 250 kilohms. The surface must **NOT** be metal. (A resistivity of 30 to 300 kilohms per square inch is suggested.) Avoid placing tools or electrical parts on insulators.

Ground the frame of any line-powered equipment, test instruments, lamps, soldering irons, etc., directly to earth ground. To avoid shorting out the safety resistance, be sure that grounded equipment has rubber feet or other means of insulation from the work surface. The module being serviced should be insulated while grounded through the power-cord ground wire, but must be connected to the work surface before, during and after any disassembly or other procedure in which the line cord is disconnected.

Exclude any hand tools (such as non-conductive plunger-type solder suckers) that can generate a static charge.

Ground yourself reliably, through a resistance, to the work surface; use, for example, a conductive strap or cable with a wrist cuff. The cuff must make electrical contact directly with your skin; do **NOT** wear it over clothing. (Resistance between skin contact and work surface through a commercially available personnel grounding device is typically 250 kilohms to 1 megohm.)

If any circuit or IC packages are to be stored or transported, enclose them in conductive envelopes or carriers. Remove them only with the above precautions; handle IC packages without touching the contact pins.

Avoid circumstances that are likely to produce static charges, such as wearing clothes of synthetic material, sitting on a plastic-covered stool (particularly while wearing wool), combing your hair, or making extensive erasures. *These circumstances are most significant when the air is dry.*

When testing static sensitive devices, be sure DC power is on before, during, and after application of test signals. Be sure all pertinent voltages have been switched off while boards or components are removed or inserted.

Using This Manual

This chapter introduces the purpose and use of this document. It also includes information on contacting V.J. ElectroniX, Inc., a division of V.J. Technologies, support groups. Information in this document is subject to change without notice. For additional information, contact the V.J. ElectroniX (SRT) Customer Care Center, as described in this chapter.

Overview

This document describes procedures and other information related to the assembly and an introduction to the general use of the Component Print Station.

After assembly, this manual should be kept with other system documentation. Refer to this manual when any changes to the hardware configuration or site are contemplated.

Audience

This manual benefits:





- Site Managers
- Field Service Personnel

Assumptions

Users of this manual should have a comprehensive understanding of solder and solder paste application on ball grid array components.

Document Conventions

The following document conventions are used throughout the documentation set.

Convention	Indicates
Bold monospace text	command text that you enter
Bold text	commands, keys, buttons, prompts, menu options, icons, and literals within text
<code>Courier text</code>	command, syntax, or error message
<i>Italic monospace text</i>	replace the <i>term</i> with a valid entry
<i>Italic text</i>	guide title, chapter title, or section title
P/N or PN	part number
[<i>text, text</i>]	field within the brackets is optional
{ <i>text, text</i> }	select one or more choices within the braces
 CAUTION	potential harm to the system or equipment as a result of this action
 NOTE	specialized information that may benefit you
 NEXT	informational options that direct you to the next chapter or step
 WARNING	potential harm to you as a result of this action
... and :	the omission of undetermined information

Customer Care Center

V.J. ElectroniX, Inc. (SRT) offers customer support through the SRT Customer Care Center (CCC). You can contact the Customer Care Center for assistance at any time if you are unable to solve a problem through the use of on-line help or product documentation. If the Customer Care Center is closed when you call, you can leave a voice mail message.

Before contacting the Customer Care Center, please have the following information available:

- Your site number
- Hardware system type
- System serial number
- Software version number

You can contact the Customer Care Center by:

Phone	978-425-9446
Fax	978-425-9648
E-mail	ElectronixSales@vjt.com ElectronixService@vjt.com
Mail	SRT/VJ ElectroniX 1000 Mount Laurel Circle Shirley, MA 01464
World Wide Web	http://www.vjelectronix.com

If you have comments or suggestions about this document, please send e-mail, including the document part number shown on the front cover, to the SRT Customer Care Center at: ElectronixService@vjt.com.

Access to up-to-date information on products, technologies, and programs is available on the World Wide Web site, www.vjelectronix.com.

Chapter 1

Option Overview

This chapter introduces the option parts and the overall system requirements. If you require assembly assistance, contact the SRT Customer Care Center. Refer to *Using This Manual* for more information about contacting the SRT Customer Care Center.

The Component Print Station is a mechanical aid for manually applying solder paste to the solder balls or leads on a component, for use in processes that use solder paste when placing components onto boards during rework. After the paste has been applied, the Component Print Station can be mounted directly onto the Summit rework system over the alignment pins at the Pick Location, with the component still inside. The component can then be picked directly from the Component Print Station.

The Station holds the component against a *Stencil*, a customer-supplied plate containing an array of apertures that match the solder balls or leads of the component. The Station also holds the component within a *Nest*, a customer-supplied plate used for rough alignment of the component to the Stencil. The Stencil and the Nest are designed to match specific components. For information on specifying Stencils and Nests, see *Stencil and Nest Dimensions*, on page 1-2.

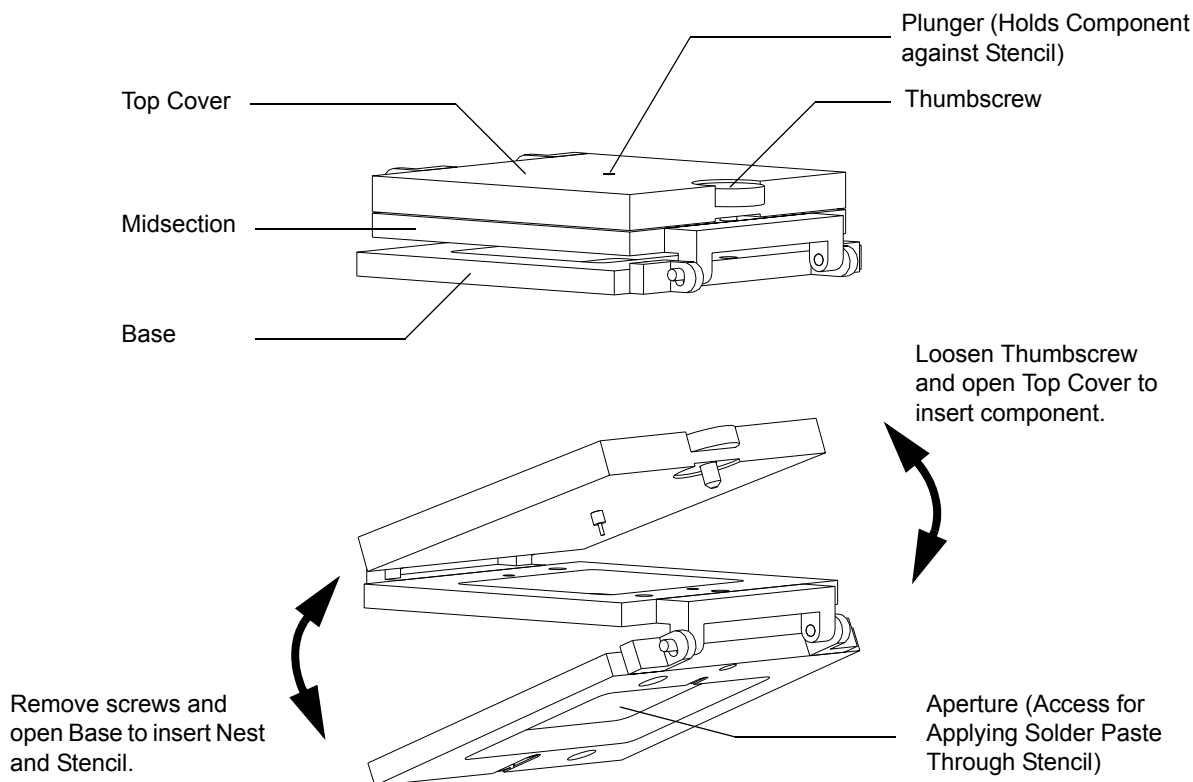
Major Parts

The major parts of the Component Print Station are shown assembled in Figure 1-1 on page 1-2.

- The Top Cover lifts to allow placement of the component and provides a mount for a spring plunger that holds the component against the Stencil. It is removable to allow the component to be picked from the Station.
- The Midsection provides a hinge mount for the Top Cover and the Base, and alignment for the Stencil and Nest.
- The Base lifts to allow placement of the Nest and the Stencil. It contains a large aperture, through which the solder paste is applied, and alignment holes for mounting the Station at the Pick Location on the system.

Delivery Routing

The Component Print Station is a hand-held assembly. The solder paste application process is performed separately from the system. The component pick process is performed by placing the Component Print Station over alignment pins that are factory-installed on the system.

Figure 1-1 Component Print Station Assembled

Stencil and Nest Dimensions

A completed Stencil and Nest are shown in Figure 2-1 on page 2-2. Layout dimensions are shown in Figure 1-2 on page 1-3. Dimensions are inches, with millimeter equivalents shown in parentheses.

The central aperture in the Nest must conform tightly to the outline of the component. The array of solder paste apertures in the Stencil must match the layout of the solder balls or leads of the component.

In addition to the component and solder paste apertures, Stencils and Nests must have four to six interior through holes to fit into the Component Print Station. The two 0.129 in. (3.3mm) Alignment Holes are required to fit over pins in the Midsection of the Component Print Station. These align the Stencil and Nest to the Component Print Station.

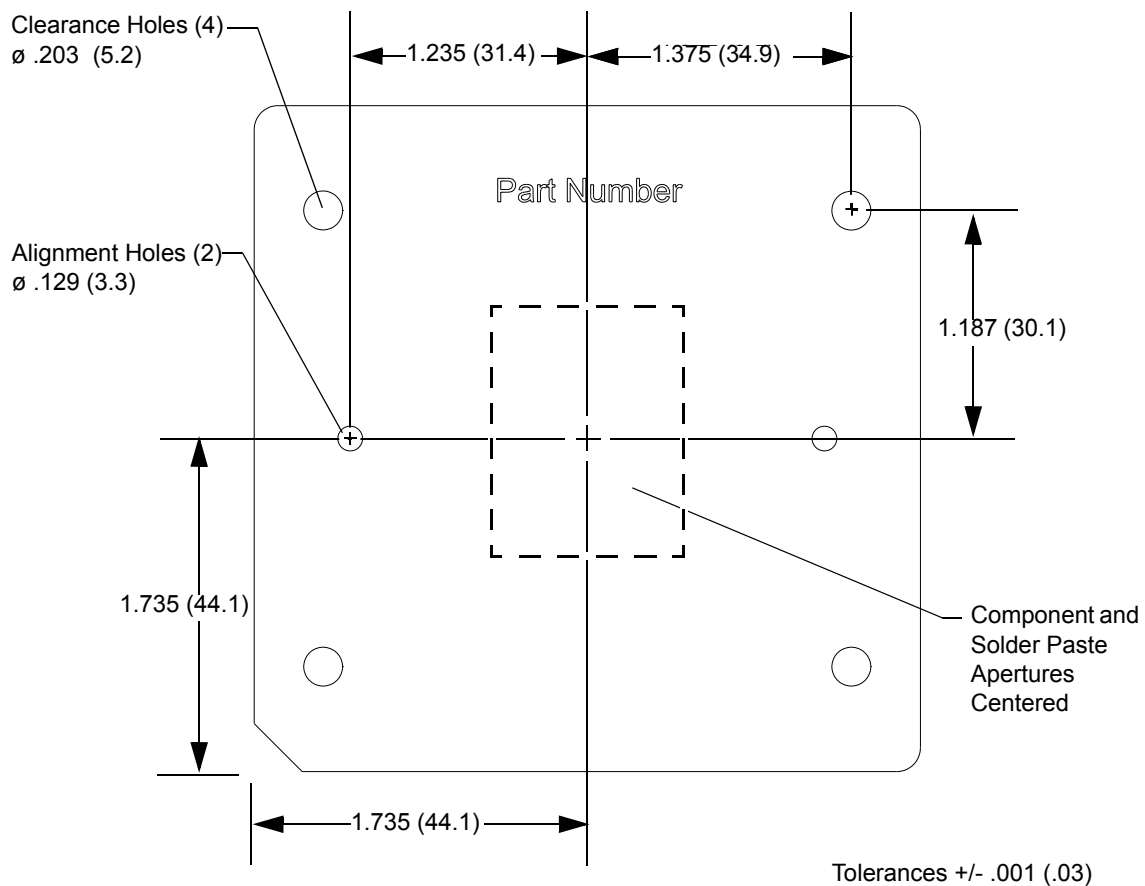
The 0.203 in. (5.5mm) Clearance Holes are required to accommodate the two screws that fasten the Base of the Component Print Station to the Midsection (clamping the Stencil and Nest between). At least two Clearance holes are required, diagonal to each other to match the screw holes, as shown in Figure 2-1 on page 2-2. If four Clearance holes are used, the Stencil and Nest can be mounted in two orientations, 180° opposed to each other.

The exterior dimensions of the Stencils and Nests must lie within the dimensions shown in Figure 1-2 on page 1-3. An optional chamfer can be added to the Stencil and Nest as an aid to matching them to each other. The corners can be square or rounded.

The Stencil thickness varies according to the procedures, solder paste aperture design, and the materials used in your process. The thickness of the Nest is typically 0.050 in. (1.27mm) to 0.060 in. (1.52mm). The Component Print Station has elongated hinges, accommodating Stencils and Nests of various thicknesses.

A text inscription can be added for identification and also as an aid to mating the correct sides of the Stencil and Nest to each other. If the inscription is greater than 0.375 in. (10mm) inward from the edge, it can be viewed through the large aperture in the Base of the Component Print Station, as a further aid to alignment and identification.

Figure 1-2 Stencil and Nest Profile Layout



Chapter 2

Assembly Procedure

The following procedures are provided as good faith guidance for system installation under normal conditions. Actual use requires adherence to local health, safety, environmental, and building codes, and practices, and these procedures should be modified to accommodate local conditions and the environment in the installation area.

The Component Print Station is assembled at the factory. These instructions describe how to open the Station, and insert and clamp components, Nests, and Stencils. They also describe how to remove the Top Cover and mount the Station on the system for Pick operations.

Required Items

The following tools are required to handle the Component Print Station:

- Component Print Station (P/N 9001-0884-00)
- 0.035 in. Allen Wrench
- 5/32 in. Allen Wrench

To use the Component Print Station, the following customer-supplied items are required:

- Component
- Solder Paste Stencil (matched to component)
- Nest (matched to component)
- Process-related items, such as solder paste, paste spreaders, and so forth

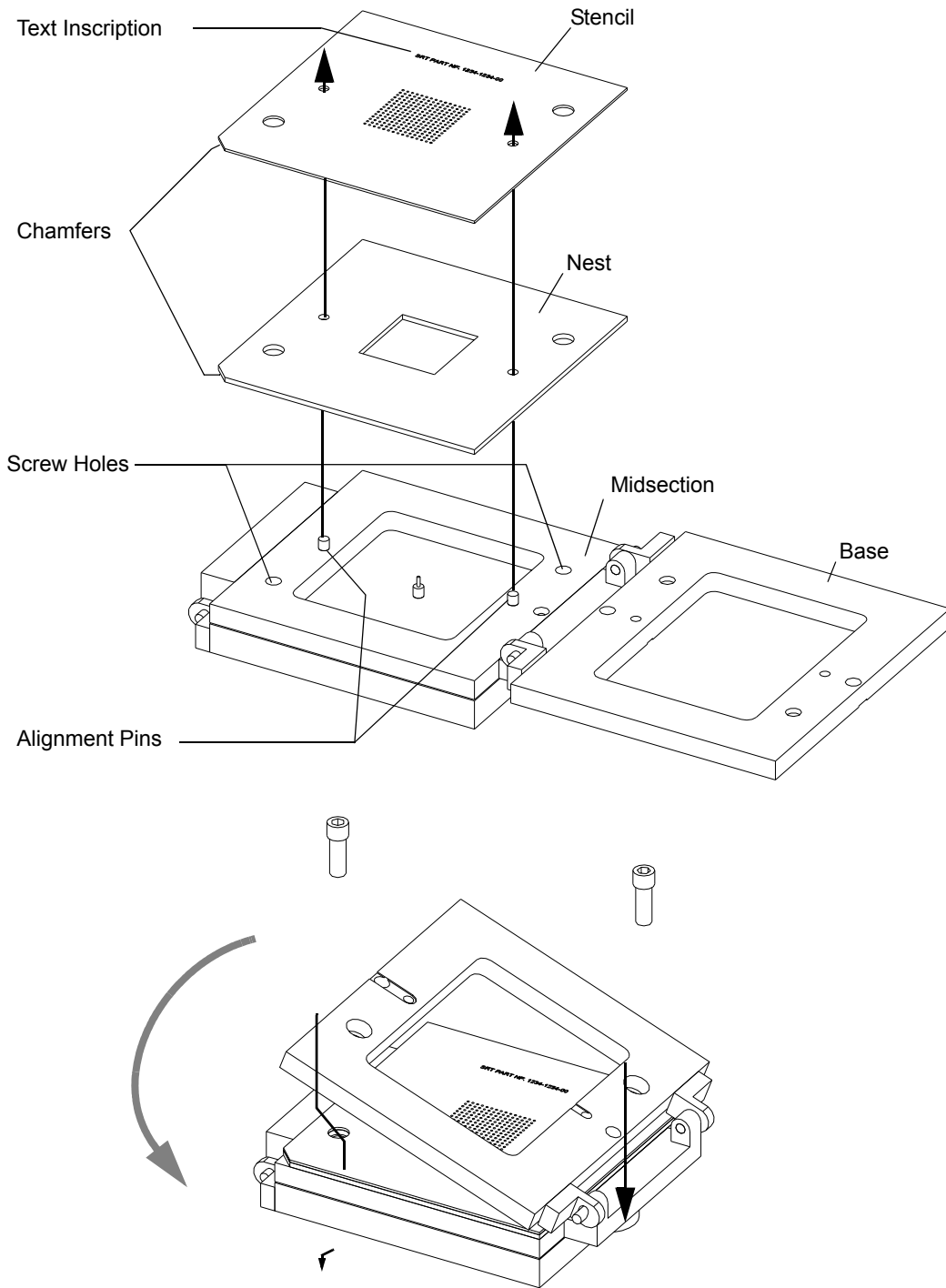
For information on specifying Stencils and Nests, see *Stencil and Nest Dimensions*, on page 1-2.

Nest and Stencil Assembly Procedure

This section describes assembling the Nest and Stencil into the Component Print Station. Use Figure 2-1 on page 2-2 for reference.

- 1 Place the Station on its Top Cover.
- 2 Use the 5/32 Allen Wrench to remove the two 10-32 x 3/8 in. sockethead screws in the Base.
- 3 Swing the Base away from the Midsection.

Figure 2-1 Assembling the Nest and Stencil



- 4 Place the Nest over the Alignment Pins in the Midsection.

Note the location of the chamfered corner, if present. Use this corner as a reference so that the component is properly aligned to the system when using the system Pickup Tube to pick the component from the Station.

- 5 Place the Stencil over the Nest, using the same Alignment Pins.

The chamfered corner of the Stencil (if present) must be on the same corner of the Station as the chamfered corner of the Nest.

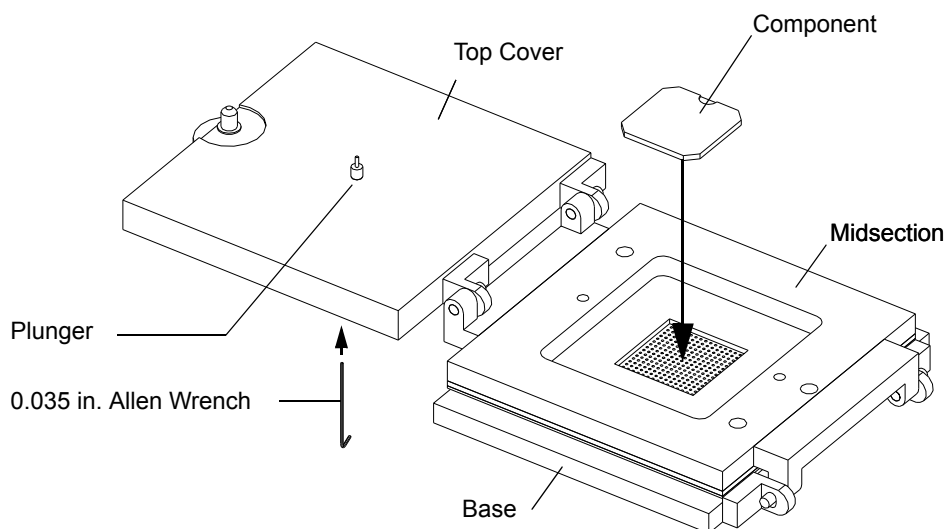
The stamped text inscription on the Stencil (if present) must be exposed (faces the Base when assembled).

- 6 Swing the Base back into position.
- 7 Replace the two sockethead screws and tighten them using the 5/32 Allen wrench.

Component Assembly Procedure

This section describes placing the component into the Component Print Station. After the Nest and Stencil have been assembled into the Station, the assembly can be used multiple times for components of the same type. Use Figure 2-2 for reference.

Figure 2-2 Assembling the Component



- 1 Place the Station on its Base.
- 2 Loosen the Thumbscrew on the Top Cover.
- 3 Swing the Top Cover away from the Midsection.

The Nest and Stencil are exposed to view.

- 4 Orient the component with its solder balls or leads toward the Stencil, and oriented correctly relative to the chamfers on Nest and Stencil.
- 5 Place the component inside of the Nest.
- 6 Gently close the Top Cover and note the contact of the Plunger with the component.

- 7 Extend or retract the Plunger by inserting the 0.035 in. Allen Wrench into the Plunger from the outside of the Top Cover and turning the Plunger.

The Plunger must exert enough force through its spring-loaded tip to keep the component firmly against the Stencil while solder paste is being applied.

- 8 Tighten the Thumbscrew.

The Station is ready for use in applying solder paste to the component. Apply solder paste through the large opening in the Base.

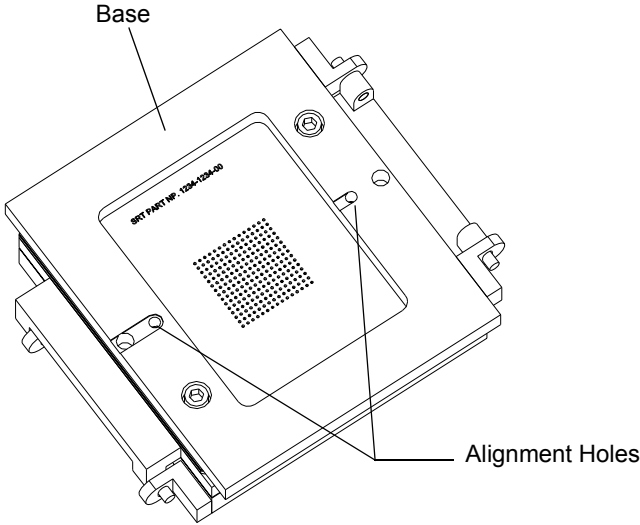
Mounting Procedure

This section describes mounting the Component Print Station on the system for Pick operations. After the solder paste is applied to the component, the component can be left in the Station and the Station mounted at the Pick Location on the system. Use Figure 2-3 on page 2-5 for reference.

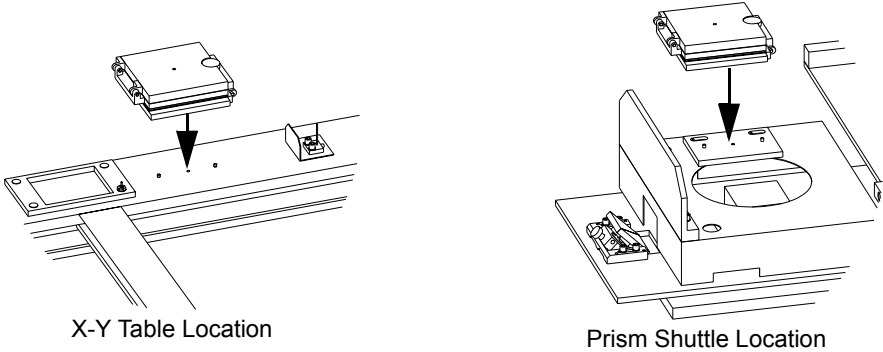
- 1 On the underside of the Base, note the orientation of the Alignment Holes.
- 2 Place the Station over the Alignment Pins at the Pick Location.
- 3 Loosen the Thumbscrew on the Top Cover.
- 4 Open the Top Cover enough so that the Plunger is above the side of the Midsection and away from the component, and then slide the Top Cover off of the hinge pins and remove it.

The component is exposed, and ready for picking by the Pickup Tube.

Figure 2-3 Mounting at Pick Location



(1) Place Component Print Station over Alignment Pins at the Pick Location.



(2) Loosen Thumbscrew and then lift and slide Top Cover sideways off of hinge pins.

