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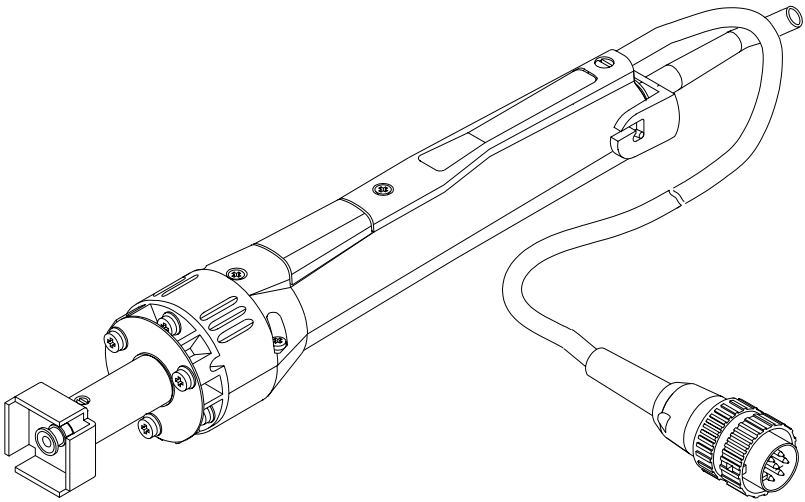
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PAGE®

TP-65



TP-65 THERMOPIK HANDPIECE

OPERATION & MAINTENANCE INSTRUCTIONS

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TP-65
THERMOPIK HANDPIECE
PACE P/N 7024-0001
OPERATION & MAINTENANCE
INSTRUCTIONS
MANUAL NUMBER 5050-0335
REV. C

INTRODUCTION

The TP-65 ThermoPik handpiece provides safe, one-handed removal of a wide variety of FlatPacks (FPs) and Plastic Quad Flat Packs (PQFPs) in a matter c seconds. The ThermoPik is a member of the PACE SensaTemp family of advanced SMT/Thru-Hole handpieces.

The TP-65 uses a conductive heat transfer process which is very efficient and which typically allows component removal at temperatures in the 316 - 343°C (600 - 650°F) range. PACE recommends the use of a 316°C (600°F) tip temperature setting for initial use in most applications. You should determine the lowest possible removal temperature to work with on your board and component types. A low temperature extends tip life.

NOTE

Always use this handpiece in a well ventilated area to avoid the inhalation of fumes created by the heating of solder flux.

Remember that the ThermoPik is a component removal tool and is not intended for installation of components. Other SensaTemp handpieces are designed for component installation.

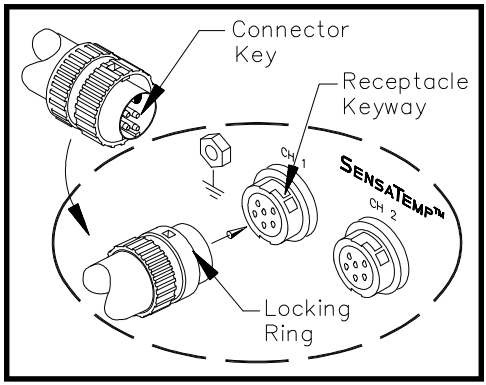
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HANDPIECE SETUP

Use the following procedures to set up your handpiece.

Power Receptacle Connection

Connect the handpiece power cable plug to one of the power receptacles on your PACE power source. PACE recommends that air handpieces utilize the power receptacles closest to the **AUTO SNAP-VAC** (or **SNAP-VAC**) and Controllable **PRESSURE** Ports to minimize cord tangles. Refer to the Operation & Maintenance Manual included with your power source for details.



Air Hose Connection

There are two methods of attaching the air hose from the PACE power source to the TP-65. Select the method which best suits your needs. The Quick Connect Method is best suited for SensaTemp handpiece configurations where multiple air handpieces may be in use. The Traditional Method is best suited for single air handpiece configurations.

CAUTION

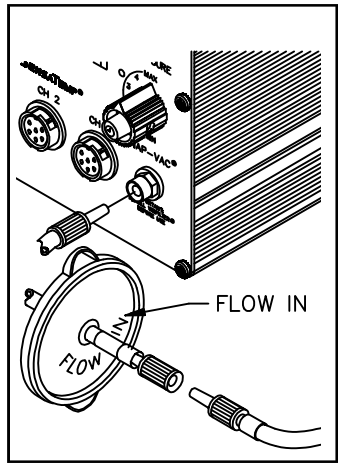
Regardless of connection method, ensure that only one air hose is connected to the power source **AUTO SNAP-VAC** (or **SNAP-VAC**) or Controllable **PRESSURE** Port at one time. Attachment to both ports simultaneously will cause a deterioration of performance.

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QUICK CONNECT METHOD

To set up your TP-65 for the quick connect operation, perform the following steps

1. Attach a 2.5cm length (1 inch) of clear pvc air hose (P/N 1325-0003-07) to the metal tube in the back of the handpiece.
2. To the other end of the 2.5cm length (1 inch) clear pvc air hose attach a female quick connect hose mount fitting (P/N 1259-0086).
3. Prepare a quick connect air hose by inserting a male quick connect hose mount fitting (P/N 1259-0087) into each end of a 137cm (54 inch) length of air hose. (You may already have this piece if you have other quick disconnect handpieces configured.)
4. Prepare a VisiFilter in the following manner:
   a) Connect a 2.5cm (1 inch) length of air hose to each side of the VisiFilter.
   b) To the free end of the 2.5cm (1 inch) air hose connected to the FLOW IN side of the VisiFilter, insert a female quick connect hose mount fitting (P/N 1259-0086).
   b) To the free end of the 2.5cm (1 inch) air hose connected to the FLOW OUT side of the VisiFilter, insert a male quick connect hose mount fitting (P/N 1259-0087).
   c) Insert the end of the male quick connect hose mount fitting (on VisiFilter FLOW OUT side) into the power source **AUTO SNAP-VAC** (or **SNAP-VAC**) Port.



5. Connect the male fitting of the 137cm (54 inch) length of air hose to the female quick connect hose mount fitting on 2.5cm (1 inch) air hose (connected to VisiFilter) for desoldering, or into the Controllable **PRESSURE** Port for hot air jet operation.

NOTE

When removing any air hose, turn and pull. Do not attempt to pull hose directly off. Damage to or breakage of fitting or VisiFilter may occur. Use your TP-65 ThermoPik with a clean VisiFilter element . Otherwise a deterioration in performance or damage to the unit may occur.

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TRADITIONAL METHOD

1. Connect the 137cm (54 inch) length of air hose to the metal tube in the back of the handpiece.
2. Insert a male quick connect hose mount fitting (P/N 1259-0087) to the free end of the 137cm (54 inch) length of air hose.
3. Secure the air hose to the handpiece power cable with cable clips (P/N 1321-0085-01).
4. Prepare a VisiFilter in the same manner as in steps 4 & 5 of the "Quick Connect Method".

TIP SELECTION

Selection of the proper tip is essential for effective operation. Attempts to use an improperly sized tip will result in unsatisfactory handpiece operation and may result in lifted lands or board damage.

Table I details a partial listing of available tips. Contact your local authorized PACE dealer for the latest Tips & Accessories Catalogue which details all available tips.

TIP INSTALLATION

1. Carefully remove any installed vacuum cup from the TP-65 using the tip tool and set aside.
2. Select the proper tip for your application. Refer to Table I.
3. Insert the tip shaft fully into the heater bore.
4. Using the tip tool, tighten the heater assembly set screw for a snug fit. Do not over tighten.
5. Install the vacuum cup set aside in step #1 onto the vacuum pickup rod. Utilize the tip tool to install the vacuum cup if the tip is hot.

NOTE

The TP-65 tips must be kept properly tinned and free of oxidation to ensure that optimum heat transfer will take place. Refer to the "Tip Preparation" portion of this manual.

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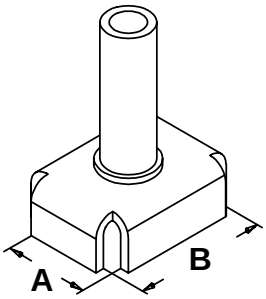
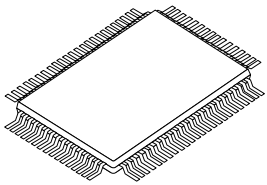
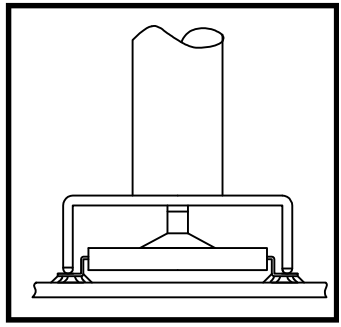
TIP	DESCRIPTION	TIP SIZE A X B	PART NUMBER
 APPLICATION 	FlatPack Tip	15.5 x 21.6mm (0.61 x 0.85")	1121-0322-001
	FlatPack Tip	16.8 x 22.9mm) (0.66 x 0.90")	1121-0322-002
	PQFP-68 Tip (bumper pack)	15.7 x 15.7mm (0.62 x 0.62")	1121-0323
	PQFP-64/80 Tip (non-bumper pack)	15.7 x 15.7mm (0.62 x 0.62")	1121-0484
	PQFP-84 Tip	18.3 x 18.3mm (0.72 x 0.72")	1121-0324
	PQFP-100 Tip	20.8 x 20.8mm (0.82 x 0.82")	1121-0325
	PQFP-132 Tip	25.9 x 25.9mm (1.02 x 1.02")	1121-0326
	PQFP-144	29.2 x 29.2mm (1.15 x 1.15")	1121-0456
	PQFP-208	30.0 x 30.0mm (1.18 x 1.18")	1121-0544
	PQFP-160 Tip PQFP-208 Tip	31.0 x 31.0mm (1.22 x 1.22")	1121-0351
	PQFP-196 Tip	36.3 x 36.3mm (1.43 x 1.43")	1121-0483
	NOTE: All dimensions are nominal, inside diameters. Consult your authorized PACE Distributor for sizes not listed		

Table I. ThermoPik Tip Selection Guide

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TIP AND PICK ALIGNMENT

For the TP-65 to operate at its maximum efficiency (maximum heater to tip heat transfer), the tip must be fully inserted into the heater bore and properly secured. Due to large physical size and tip mass, the TP-65 has Tip Offset Constants that range from 34°C (62°F) to 112°C (201°F).



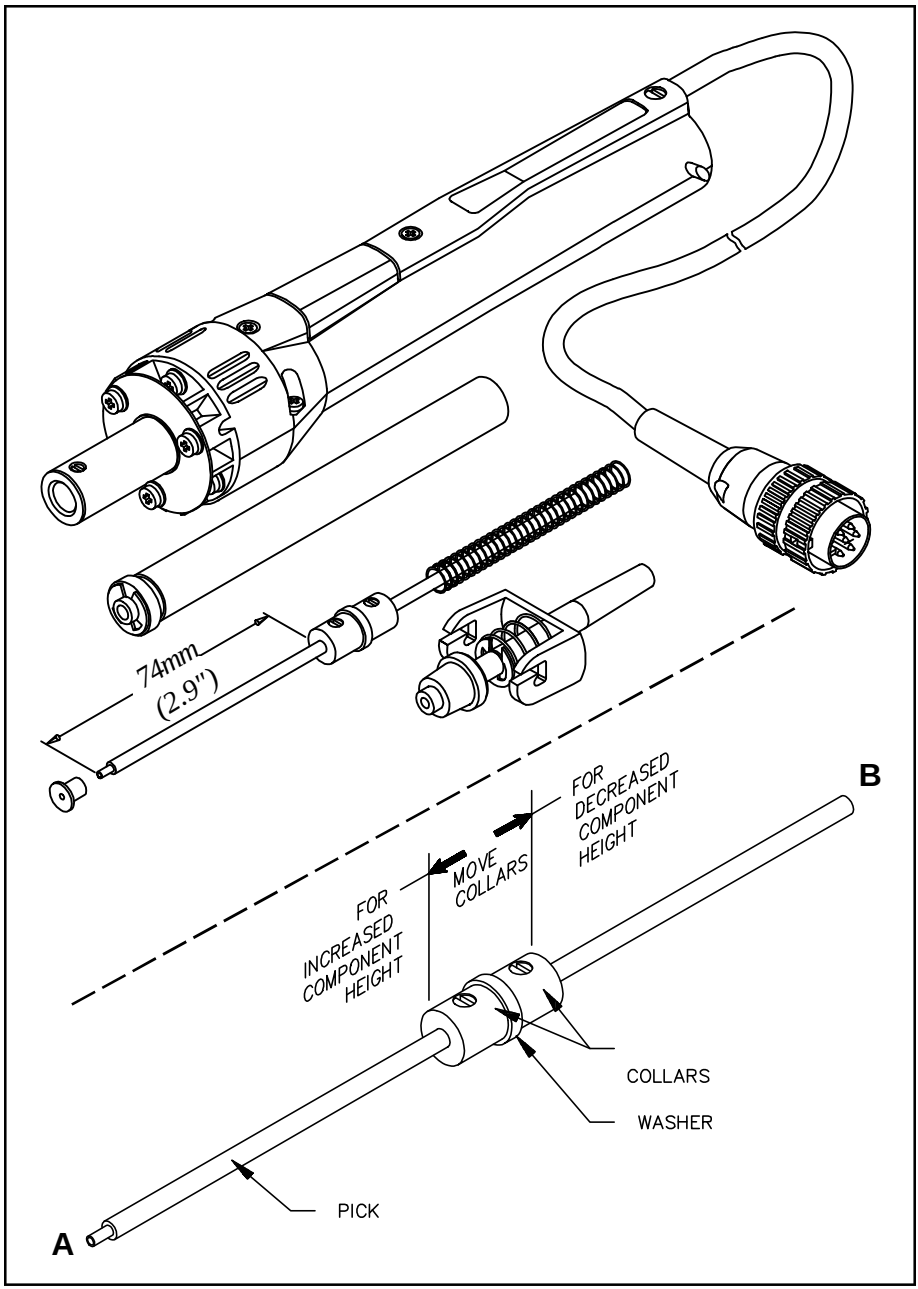
The vacuum pick assembly within the TP-65 handpiece comes factory adjusted for most QFP components. A vacuum pick setting where the vacuum cup makes contact with the component body as the tip makes contact with the component leads is the recommended starting point. A good vacuum must be maintained to quickly remove the component. Use the following procedure and accompanying illustrations if adjustment is necessary.

NOTE

The factory setting of the collars on the vacuum pick is 74mm (2.9inches) from the end of the pick rod to the front edge of the first collar. This setting is correct for removal of most components.

1. Using the tip tool, remove the vacuum cup and set aside.
2. Remove the handpiece rear seal and compression spring and set aside.
3. Slide out the vacuum tube assembly and locate the two Collars.
4. Adjust the Collars in the following manner:
   a) Loosen the set screw in the Collar closest to point "A" to adjust for increased component height or the Collar closest to point "B" for decreased component height. Adjust the Pick position for your component. Tighten set screw to secure in position.
   b) Loosen the set screw of the second Collar and adjust collar so that the Washer is snug between the two collars yet free to rotate. Tighten set screw to secure in position.
5. Reassemble the vacuum pick in reverse order.

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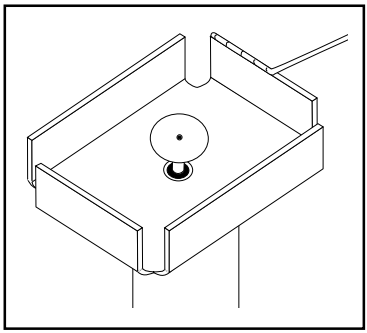
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TIP PREPARATION

The TP-65 tips must be kept properly tinned and free of oxidation to ensure that optimum heat transfer will take place at all times. Tips must be kept properly tinned and free of oxidation to ensure that optimum heat transfer will take place.

Tin the tip using the following procedure.

1. Clean all bottom edges of the installed tip using the PACE fiber cleaning tool.
2. Shock the bottom edges of the installed tip using a moist PACE sponge tool.
3. Apply a continuous bead of solder along the bottom edges of the installed tip.



TIP TEMPERATURE

PACE recommends the use of a 316°C (600°F) tip temperature setting for initial use in most applications. A low temperature extends tip life. You should determine the lowest removal temperature to work with on your board and component types.

Refer to the Tip & Temperature Selection System Chart (P/N 5050-0251 booklet) for your particular handpiece/tip combination. For all Dial/Display systems, the booklet will indicate the correct Dial/Display setting for the True Tip Temperature desired. On systems incorporating a Digital Readout, set the desired operating temperature and Tip Offset Constant for the TP-65 handpiece/tip combination.

PCB/COMPONENT PREPARATION

Proper preparation is the key to successful component removal. Use the following procedure to obtain optimum results.

PCB Preparation

1. Clean the component leads and PCB land areas using an approved solvent or cleaner.
2. Ensure that the PCB is free of moisture.
3. Preheat the PCB as necessary. PCBs consisting of heat sinking materials (e.g., ceramic, polyamide, etc.) or those with an exceptionally heavy ground or power planes may require the use of a preheater such as the PACE Heat Wave.

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Component Preparation

1. Remove any protective coatings and clean the component leads and land areas using an approved solvent or cleaner.

2. Ensure that the PCB is free of moisture.

3. Preheat the PCB as necessary. PCBs consisting of heat sinking materials (e.g., ceramic, polyamide, etc.) or those with an exceptionally heavy ground or power planes may require the use of a preheating system such as the PACE Heat Wave.

4. In order to maximize heat transfer from the handpiece tip to PQFP component lead/land connections, PACE recommends adding

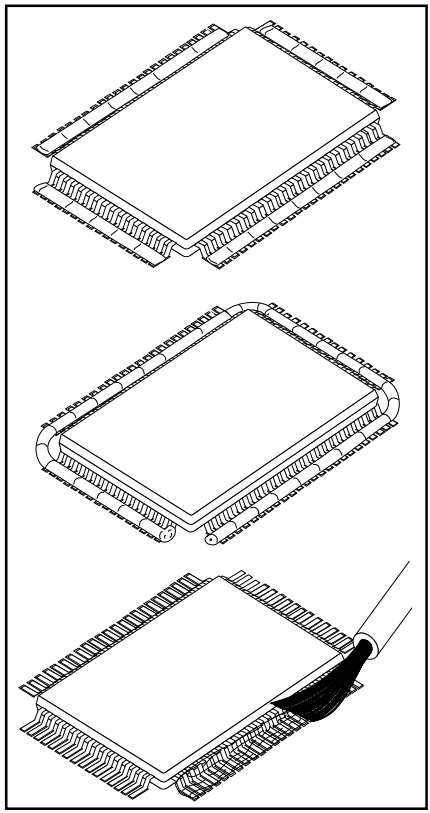
bridgefill .....

solder wrap .....

or

flux .....

to maximize heat transfer across all connections.

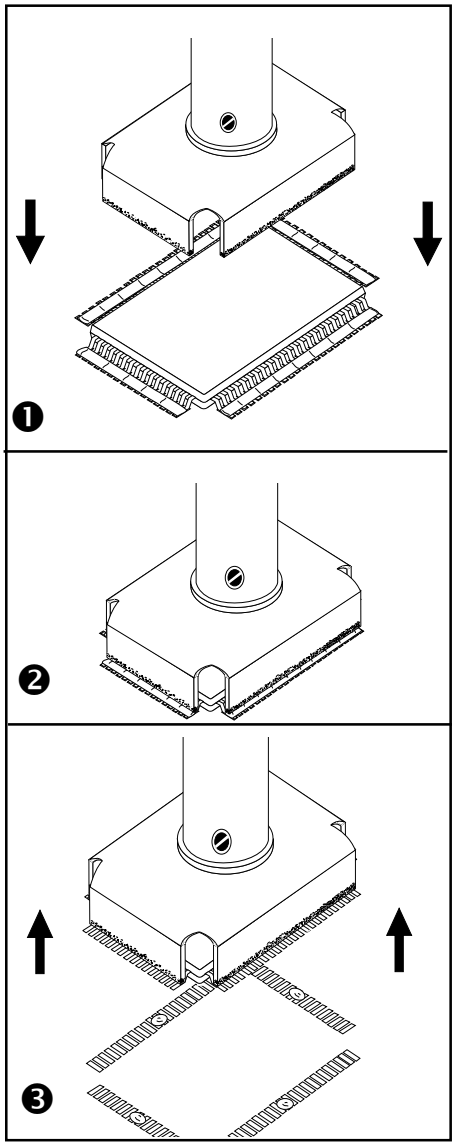


COMPONENT REMOVAL

Use the following procedure to remove the component. Ensure that the component and board have been properly prepared (see "Board/Component Preparation") before removing component. The technique shown is the Bridgefill Method.

PROCEDURE

1. Ensure that all Board/ Component Preparation has been performed.
2. Start with a tip temperature of 315°C (600°F) and adjust as necessary.
3. Enter Tip Offset Constant for the selected tip.
4. Install QFP Removal Tip into ThermoPik using Tip Tool.
5. Install vacuum cup onto vacuum pick tube using Tip Tool.
6. Remove old solder from tip with sponge. Tin inside and bottom edges of tip with solder.
7. Lower tip over component contacting **ALL** leads with tip (see ❶&❷).
8. Confirm solder melt of **ALL** joints, apply vacuum and lift component from PCB (see ❷&❸).



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9. Release component onto a heat resistant surface.

10. Re-tin tip with solder and return ThermoPik to its Tip & Tool Stand.

11. Prepare lands for component replacement.

Use the SX-80 Sodr-X-Tractor handpiece to remove the old solder from the PCB and to prepare the lands for accepting a new part. Refer to one of the SX-80 Sodr-X-Tractor manuals for suggested solder removal techniques.

SPECIAL APPLICATIONS

If you require assistance in the use of this handpiece or require assistance with a special application, contact PACE Product Management at:

Telephone: (301) 490 - 9860
Fax: (301) 604 - 8782

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CORRECTIVE MAINTENANCE

Your TP-65 requires no special maintenance other than being kept clean. The heater bore and the heater assembly set screw which secures the tip must be kept free of oxidation and debris in order to maintain the proper tip to ground resistance. Periodically inspect the power cable, connector and handpiece itself for evidence of physical damage. Do not use a handpiece with a damaged power cable. Refer to Table II and the illustration following for information on troubleshooting most handpiece problems. Table III lists the common handpiece parts.

Use Table II and the Connector Plug illustration to determine the condition of your TP-65 ThermoPik handpiece. Disconnect the handpiece from the PACE power source. Use a voltmeter to check the resistance across the handpiece Connector Plug pins as outlined in the “Checkout Procedure” column.

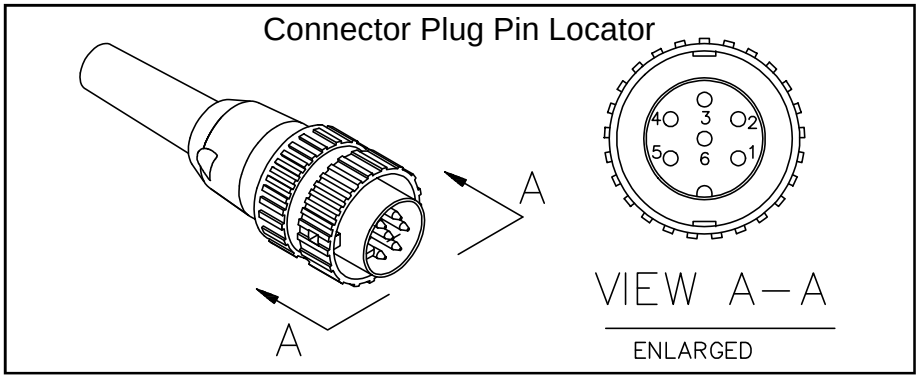
NOTE

The handpiece Heater Assembly must be at room temperature (22° C or 72°F) before performing "Heater Assembly Checkout Procedures".

SYMPTOM	CHECKOUT PROCEDURE	CAUSE	SOLUTION
No heat	Check resistance - Pin 2 to Pin 5. Resistance should be 10 ohms. If not - -	Open Heater	Replace Heater Assembly
	Check resistance - Pin 3 to Pin 6. If circuit reads open - -	Open Sensor	Replace Heater Assembly
Handpiece overheating	Check resistance - Pin 3 to Pin 6. Resistance should be 110 ohms. If circuit reads less than 105 ohms - -	Shorted Sensor	Replace Heater Assembly
Fuse blows when unit is turned on	Check resistance - Pin 2 to Pin 5. Resistance should be 10 ohms. If not - -	Shorted Heater	Replace Heater Assembly
No Ground on Tip	Check resistance - Pin 4 to a NEW Tip. Resistance should be less than 2 ohms. If not - -	Oxidation buildup in Heater Bore	Clean Heater Bore using appropriate wire brush
		Defective Heater	Replace Heater Assembly

Table II. Heater Assembly Checkout Procedures

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REPLACEMENT PARTS

DESCRIPTION	PART NUMBER
Replacement Handle	6993-0140
Heater Assembly	6010-0081-P1
Cord/Switch Assembly	4010-0098-P1
Rear Seal Assembly	4010-0101-P1
Tip (and Vacuum Cup) Tool	1100-0239
Heater Set Screw	1348-0547-P10
Vacuum Cups	- - - - - - - -
4.4 mm (0.175") O.D.	1121-0382-P5
7.6mm (0.300") O.D.	1121-0383-P5
12.7mm(0.500") O.D.	1121-0384-P5
Kit (with 3 cups, 1 each size)	6993-0153-P1
SX Tip & Tool Stand	6019-0044-P1
Tip Redi-Rak	6021-0007-P1
Tip Maintenance Station	6993-0138

Table III. TP-65 Replacement Parts

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