

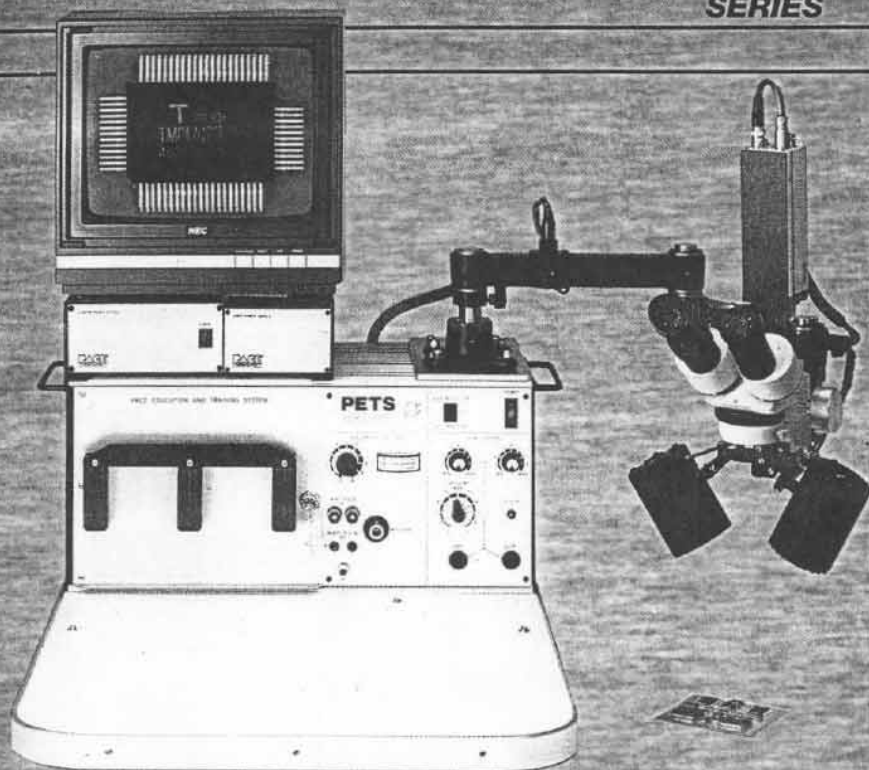
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INCORPORATED

PETS SYSTEMS

**PETS CENTER
STUDENT CONSOLE
SERIES**



**OPERATION &
MAINTENANCE
MANUAL**

**MANUAL NO. 5050-0203
REV. B**

GENERAL INFORMATION

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GENERAL INFORMATION

INTRODUCTION

The PETS systems provide the means for learning all the techniques and tasks required to perform the installation, removal and replacement of any type of component in any type of electronic modular assembly. Task capabilities include those used in Electronic Development, Production and Service areas within the Factory, Depot or Field.

Five PETS systems are available in either the 115 VAC (Domestic) version or 230 VAC (Export) version. Each system packages the PETS Center Student Console with a special selection of accessories and functional aids. These systems are as follows.

PETS 10A/AE BASIC SYSTEM—An excellent start-up package which may be added to by the instructor to increase training capability as needed.

PETS 20A/AE ADVANCED SYSTEM—Offers a package of accessories which allows the student to progress through all interconnection skills and into basic circuit board repair.

PETS 30A/AE PROFESSIONAL SYSTEM—Provides materials required for the student to progress through advanced circuit board soldering, rework and prototyping skills.

PETS 40A/AE SURFACE MOUNT TECHNOLOGY CENTER—Contains all accessories needed to teach installation, removal and replacement of a wide variety of surface mounted devices.

PETS 50A/AE MASTER INSTRUCTORS' WORK CENTER—An exhaustively outfitted instructors laboratory containing the maximum array of tools, accessories, skill kits, video programs, handbooks and workbooks.

The SR-2 "Safety Rated" designation on the front panel is your assurance that the PETS system meets or exceeds all applicable MIL-STD-2000 and WS6536 specifications as well as other PACE standards essential to high quality/high reliability electronic repair.

SPECIFICATIONS

Power Requirements:

PETS 30A, 20A, 10A —Utilizes PPS-30A Domestic system power source; operates on 115 VAC, 60 Hz, 330 Watt (max).

PETS 30AE, 20AE, 10AE— Utilizes PPS-30AE Export power source; operates on 230 VAC, 50 Hz, 330 Watt (max).

Physical Parameters: 19.9"W × 20"H × 30"D
(50.6cm × 50.8cm × 76.2cm)

Operating Temperature Range: 32-120°F (0-50°C)

GENERAL INFORMATION

PARTS IDENTIFICATION

1. MAIN POWER SWITCH—controls input power to system.
2. ELECTRO-PULSE/MOTOR SWITCH—allows selection for Foot Pedal operation of Electro-Pulse outputs or Motor Pump. Center off position disables Foot Pedal operation.
3. VARIABLE TEMPERATURE CONTROL (EXTR)—provides variable control for Extractor Handpiece tip temperature.
4. VARIABLE TEMPERATURE CONTROL (IRON)—provides variable control for Soldering Iron tip temperature.
5. OUTPUT POWER RECEPTACLE (EXTR)—connects power from the PETS systems to the Extractor Handpiece.
6. OUTPUT POWER RECEPTACLE (IRON)—connects power from the PETS systems to the Soldering Iron Handpiece.
7. PRESSURE CONTROL—"quick-connect" variable pressure control for hot-air jet mode.
8. VACUUM FITTING—"quick-connect" vacuum flow fitting for solder removal.
9. VARIABLE OUTPUT CONTROL—provides variable control, through Foot Pedal operation, of output power to Heat Pulse AC and Plate Pulse DC Outputs.
10. ELECTRO-PULSE INDICATOR—indicates power to Heat Pulse AC and Plate Pulse DC Outputs.
11. HEAT PULSE AC OUTPUTS—electrical power output, through Foot Pedal operation, for Functional Tool Cord controlled by Variable Output Control.
12. PLATE PULSE DC OUTPUTS—electrical power output for plating cables controlled by Variable Output Control.
13. EARTH GROUND TERMINAL—provides positive ground connection when required.
14. MINICHINE OUTPUT—high torque, low RPM output; "quick-connect" while in idle or running mode.
15. CONDUCTIVE WORK SURFACE—convenient anti-static work surface.
16. HOT CUBBY—holder and cleaning station for Functional Accessories.
17. LOCKING STORAGE COMPARTMENT—allows the user to secure work tools and accessories when not in use.

GENERAL INFORMATION

PARTS IDENTIFICATION CONT'D

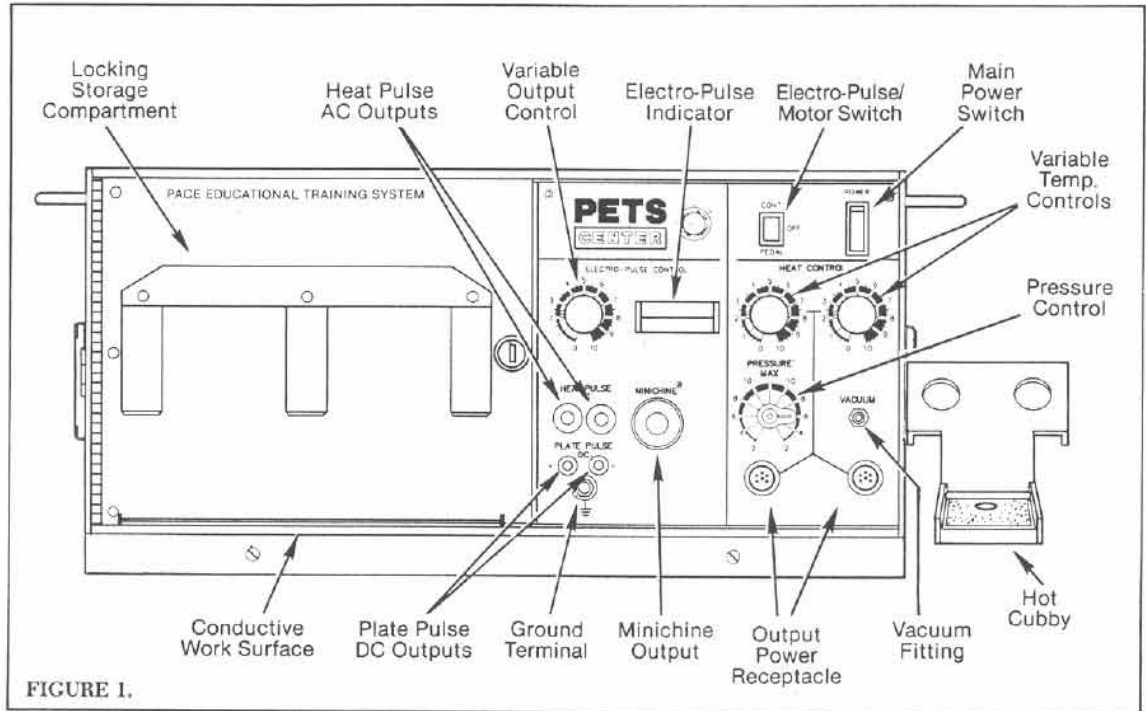


FIGURE 1.

PARTS IDENTIFICATION CONT'D

18. FOOT PEDAL—controls Motor Pump and Electro-Pulse output electrical functions.
19. POWER CORD—provides main power to system from AC outlet to AC Power Receptacle.
20. AC POWER RECEPTACLE—provides AC power to PETS system from AC outlet through Power Cord. Also houses Line Fuse F1.
21. FOOT PEDAL RECEPTACLE—input for Foot Pedal activation of system outputs.
22. LINE FUSE (F1)—provides overload protection for PETS system.
23. CONTROL POWER FUSE (F2)—provides overload protection for power transformer.
24. MOTOR PUMP FUSE (F3)—provides overload protection for motor pump controls.
25. LOW VOLTAGE OUTPUT FUSE (F4)—provides overload protection for Heat Pulse AC and Plate Pulse DC circuits.
26. CIRCUIT BREAKER—provides overload protection for Plate Pulse DC output.

GENERAL INFORMATION

PARTS IDENTIFICATION CONT'D

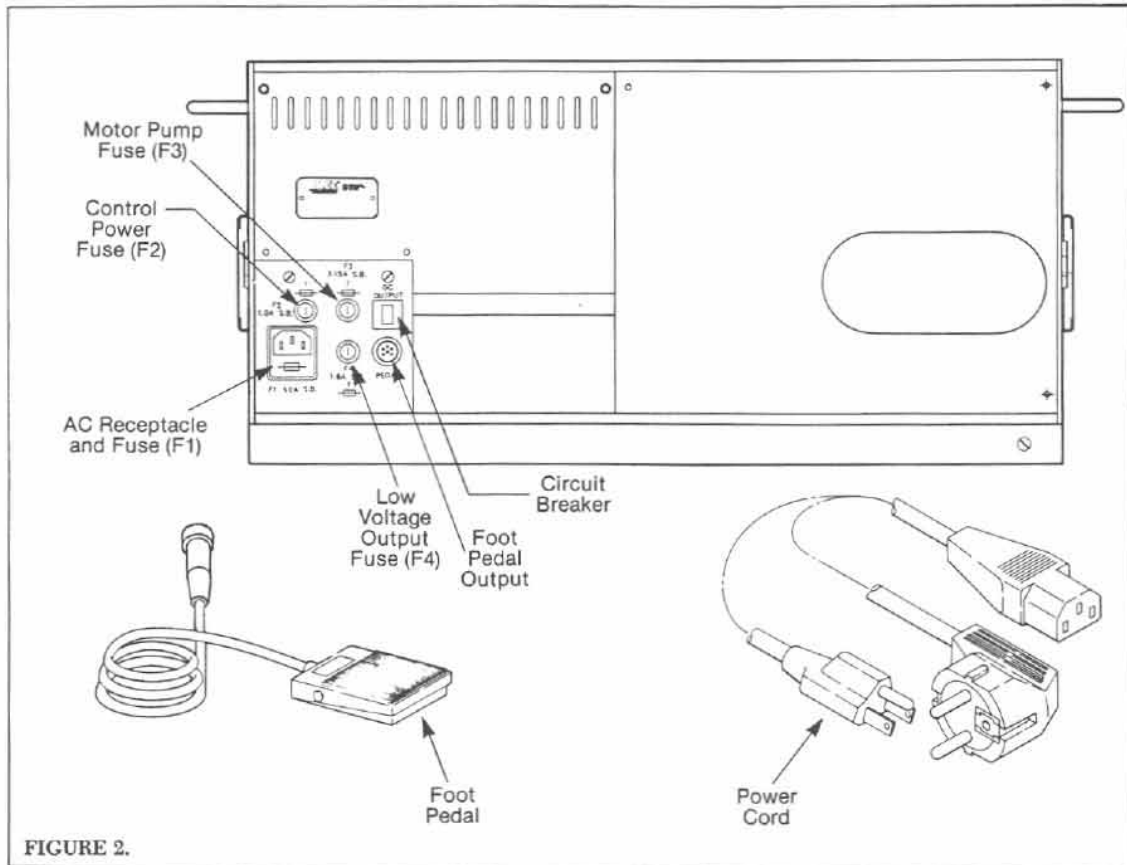


FIGURE 2.

SET-UP

If the PETS Drawer (Option A) or Drawer/Pedestal (Option B) has been supplied with the system, perform the applicable "Drawer Installation" and "Pedestal Installation" procedure(s). If neither option was supplied, proceed to the "System Installation" procedure.

DRAWER INSTALLATION

For installation of your PETS Drawer Assembly, refer to the following instructions and figure 3, page 11.

1. Using the parts list below, make certain that all parts are accounted for prior to assembly.

QUANTITY	DESCRIPTION	PAGE PART NUMBER
1	Drawer	4018-0031
2	Base Extrusion	2320-0019
1	Rear Cover Plate	1313-0105
10	Flat Washer, 1/4"	1415-0021
6	Self Tapping Screws, #8-32-3/8"	1405-0571
6	Socket Head Screw, 1/4"-20-1"	1405-0580
8	Split Lockwasher, 1/4"	1348-0195
2	Internal Tooth Star Lockwasher, 1/4"	1415-0006
2	Binder Head Screw, 1/4"-20-1"	1405-0093
1	Lock Striker Plate	1257-0118
2	Plate, Nuts	1335-0061
1	Support Plate	1335-0085
2	Screw, 1/4"-20 x 1/2" Hex Hd. Cap.	1405-0552

2. Attach Base Extrusions using Socket Head Screw/Lockwasher/Flat Washer assemblies into T-nuts inserted in bottom of Work Surface. Add Support Plate using plate nuts and 1/2" hex head screw.
3. Attach Rear Cover Plate to Base Extrusions. NOTE: If you are installing the optional Pedestal, DO NOT attach Rear Cover Plate until Drawer Assembly is mounted to Pedestal assembly.
4. Attach Drawer Lock Striker Plate to bottom of Work Surface in same manner as Base Extrusions.
5. Slide Drawer into Drawer Frame. NOTE: If you are installing the optional Pedestal, DO NOT insert Drawer until Drawer Assembly is mounted to Pedestal assembly.

DRAWER INSTALLATION CONT'D

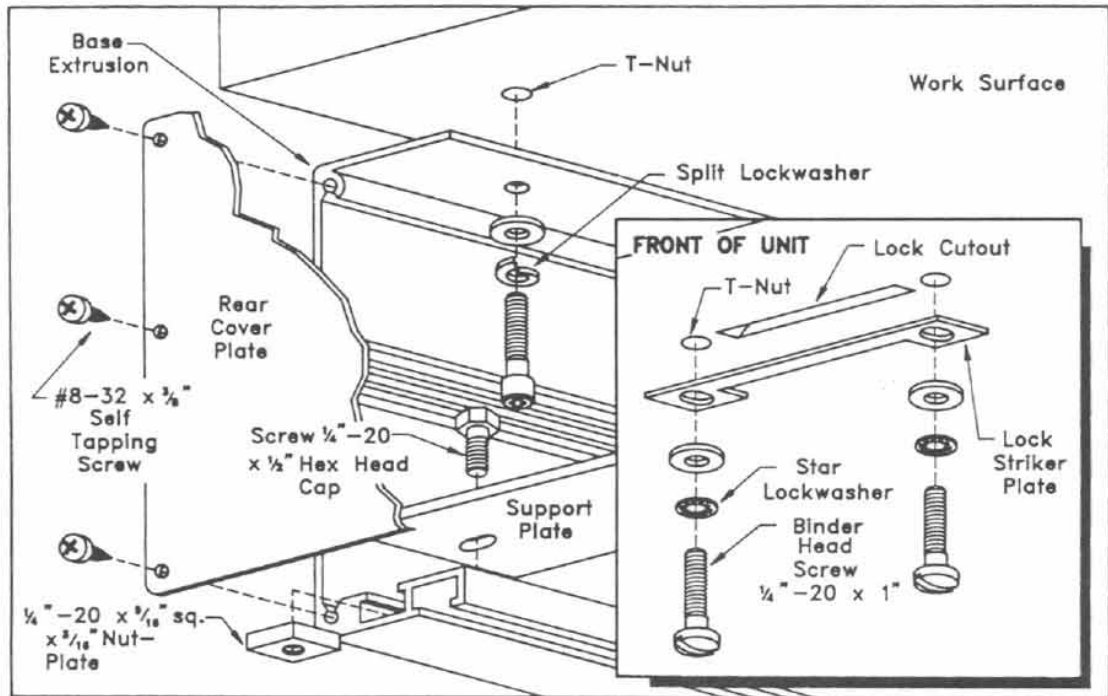


FIGURE 3. INSTALLATION OF THE DRAWER ASSEMBLY

SET-UP

PEDESTAL INSTALLATION

For installation of your Pedestal Assembly, refer to the following instructions and figure 4.

1. Using the parts list shown below, insure that all necessary parts are accounted for prior to assembly.

QUANTITY	DESCRIPTION	PACE PART NUMBER
1	Drawer/Pedestal-Assembly	6018-0038
4	Nut Plate	1335-0061
4	Bolt, 1/4-20 UNC x 1/2"L.	1405-0552
4	Split Lockwasher, 1/4"	1348-0195
4	Flat Washer, 1/4"	1415-0021

2. Place a Split Lockwasher and a Flat Washer on each Bolt.
3. Insert a Bolt/Washer Assembly into each of the four (4) Pedestal Bracket holes.
4. Attach a Nut Plate to each Bolt.
5. Align the rear of the Drawer Assembly Base Extrusions with the two (2) Nut Plates on the front of the Pedestal. Slide the Drawer Assembly (with attached PETS system) onto the Pedestal. NOTE: Insure that the Nut Plates engage with the Base Extrusion as shown.
6. Align the rear of the Drawer Assembly flush with the rear of the Pedestal.
7. Tighten the four (4) Bolts to secure Drawer Assembly and System in place.
8. Attach Rear Cover Plate from Drawer Assembly.
9. Install the Drawer into the Base Extrusions.

PEDESTAL INSTALLATION CONT'D

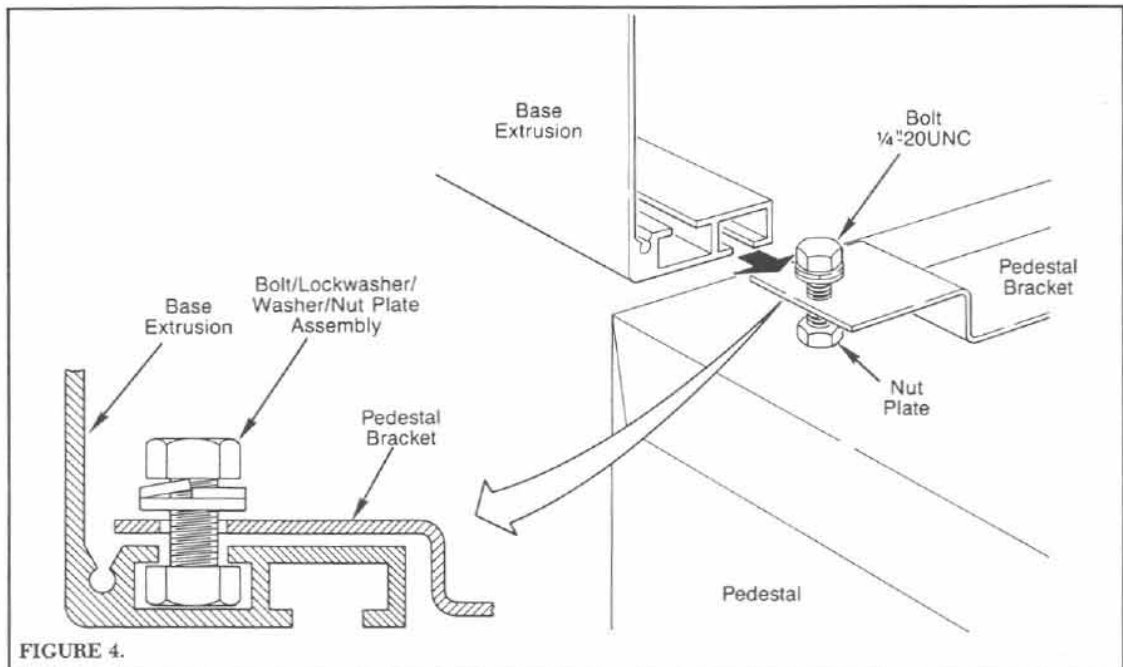


FIGURE 4.

SET-UP

SYSTEM INSTALLATION

Using figure 1, page 7 and figure 2, page 9, set up the PETS system using the following steps.

1. Place all Front Panel switches in the "Off" or "0" position.
2. Position the system on a convenient bench (if Pedestal option was not supplied) and in a well ventilated area.
3. Plug the Power Cord into AC Power Receptacle at the Rear Panel of the system.

IMPORTANT

The AC supply receptacle must be checked to insure proper grounding before initial system operation.

4. Plug the prong end of the Power Cord into a convenient three wire grounded outlet.
5. Assemble and attach Hot Cubby to the PETS Power Source. Assembly instructions are enclosed with the Hot Cubby.
6. Place the Solder Extractor and Soldering Iron into the Hot Cubby.
7. Attach 2" Vacuum Hose to VisiFilter; push and turn on Hose to seat properly.
8. Attach Extractor Vacuum Hose to VisiFilter. Push and turn on Hose to seat properly.
9. Attach 2" Vacuum Hose to Vacuum Fitting. Push and turn on Hose to set properly.

IMPORTANT

When removing any Vacuum Hose, pull and turn to remove. DO NOT attempt to pull Hose directly off. Damage to or breakage of Vacuum Fitting or VisiFilter may occur.

SYSTEM INSTALLATION CONT'D

10. Attach plastic Hose Clips supplied with Extractor to Vacuum Hose and Extractor power cord.
11. Attach Extractor Power Connector to Output Power Receptacle (EXTR). Push and turn to lock in place.
12. Attach Soldering Iron Power Connector to Output Power Receptacle (IRON). Push and turn to lock in place.
13. Adjust the Variable Temperature Controls to a setting of "7" for Extractor and Soldering Iron use.
14. Plug the Foot Pedal plug into the "Pedal" receptacle on the rear panel and position for operator convenience.
15. Turn the Main Power Switch to the "On" position.

NOTE: On initial power up the heater assemblies on the Extractor and Soldering Iron handpieces will smoke for a short period of time. The smoke is not a health hazard. Insure that the system is located in a well ventilated area. See step 2.

The system is now set up and ready for operation. Refer to the "Operation" section of this manual for operation of specific system features.

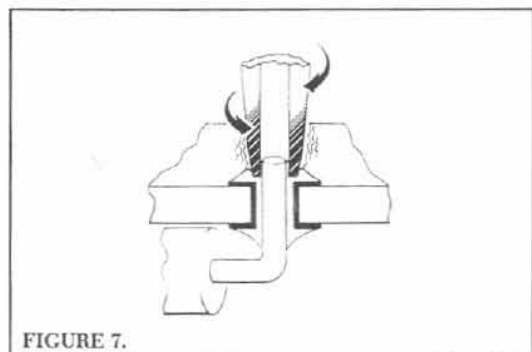
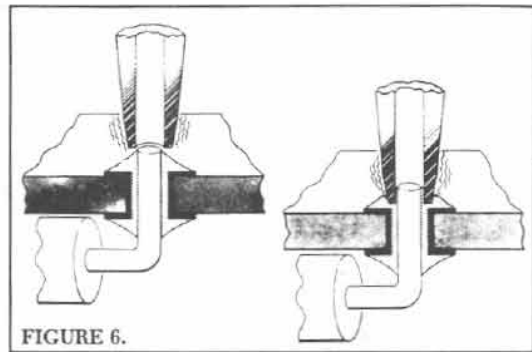
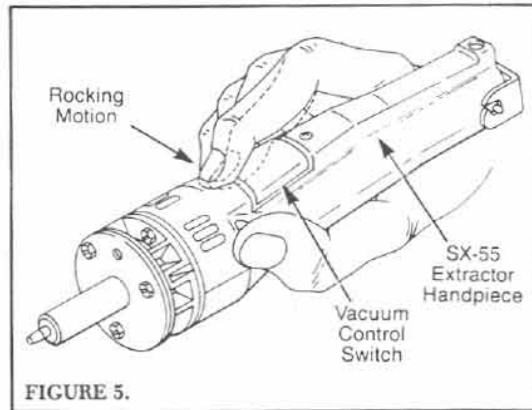
OPERATION

EXTRACTOR

To insure optimum results, perform the following procedure when using your PACE Extractor Handpiece.

SOLDER EXTRACTION

1. Grasp the Extractor Handpiece in the same manner as you would a pencil or pen. For better control of the Extractor, your hand or arm should be resting on a flat work surface.
2. Position your index finger just to the front of the Vacuum Control Switch. With a rocking motion, the finger will make contact to activate the switch (refer to figure 5).
3. Position the Tip over the lead to be desoldered and making contact with the solder joint. As the solder melts, allow the Tip to gently rest on the film of molten solder.
4. Free movement of the lead indicates complete solder melt. Move Tip with a stirring motion; dwelling until the lead moves freely within the lead hole.



EXTRACTOR CONT'D

5. Apply vacuum and continue stirring action during vacuum application.
CAUTION: DO NOT press tip against solder joint. Pressure can damage or lift the solder pad.

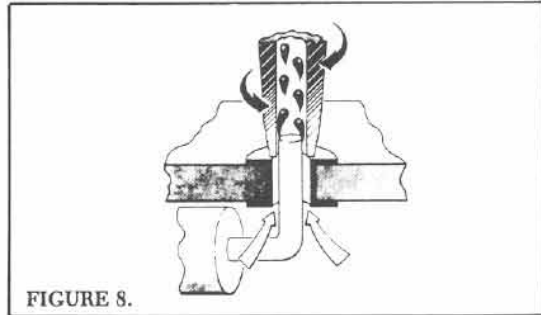


FIGURE 8.

6. Continue stirring action and vacuum flow to cool solder joint area.

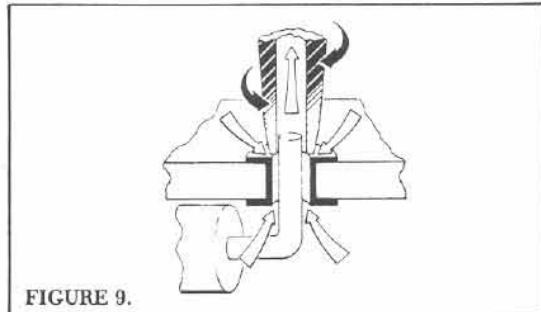


FIGURE 9.

7. Lift Tip from solder joint area and continue vacuum flow for an additional two seconds to insure complete transfer of the extracted solder to the solder collection chamber in the Handpiece.

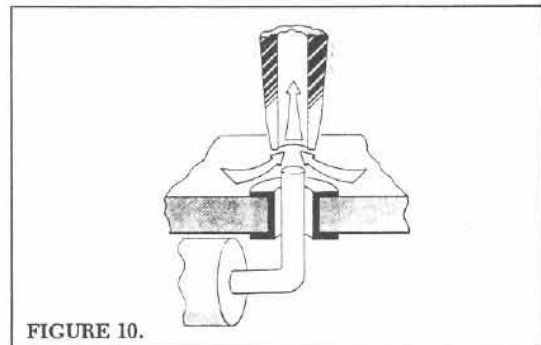


FIGURE 10.

8. Check your work. Allow the hole area to cool down. If any solder remains in a plated thru hole after extraction, resolder and extract again.

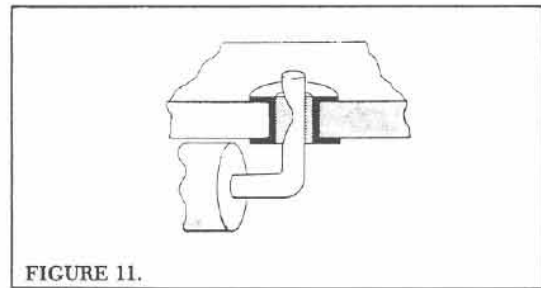


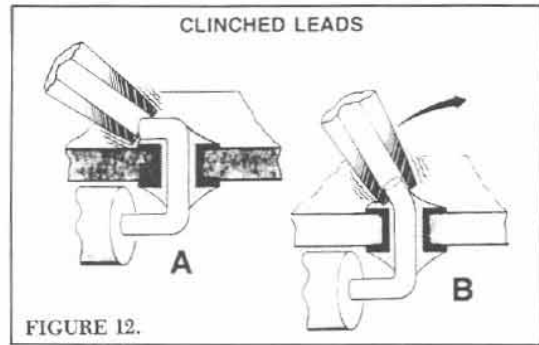
FIGURE 11.

OPERATION

EXTRACTOR CONT'D

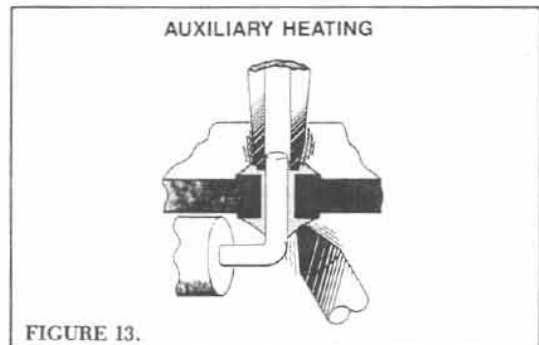
SOLDER EXTRACTION/ CLINCHED LEADS

1. To unclinch leads, place Tip on lead until solder melts.
2. Move Tip to end of lead and lift to straighten. CAUTION: Lift, don't pry.
3. Extract solder as described in "Solder Extraction" procedure.



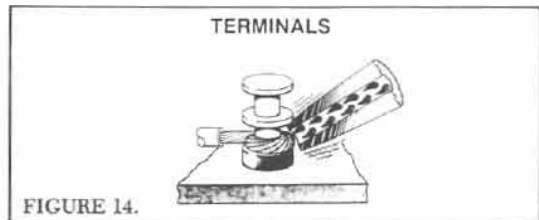
SOLDER EXTRACTION/ AUXILIARY HEATING

Solder extraction on multilayer boards may require application of a second heat source at the joint. Use a PACE conductive heating system or a hot soldering iron tip for auxiliary heat.



SOLDER EXTRACTION/TERMINALS

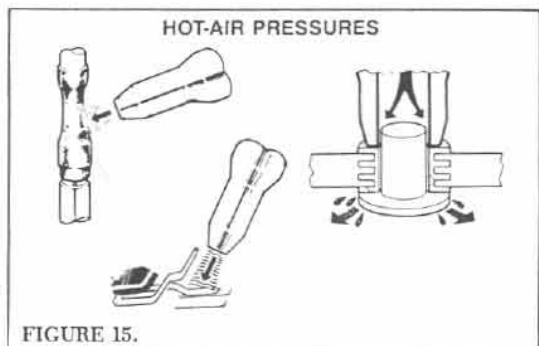
1. Increase heat setting.
2. Place Tip in contact with wire and solder. Watch for complete melt.
3. Wiggle wire and apply vacuum to extract solder. Keep wire moving during cool down.



HOT AIR PRESSURE

Hot Air Pressure may be used to melt solder joints and shrink tubing.

1. Set Pressure Control to level 2.
2. Remove Vacuum Hose from VisiFilter and plug onto Pressure Control.
3. Activate Handpiece Vacuum Control Switch. Heated air will flow out of Tip.



SOLDERING IRON

The PACE Soldering Iron should be used in the same manner as any other similar Iron. Listed below are some hints to assist the operator in obtaining optimum results.

1. Insure that the lead and solder pad area are free of any contamination by cleaning using any cleaning solvent approved for use within your company.
2. Insure that the Soldering Iron Tip is clean and in good condition.
3. DO NOT exert force on the solder pad during the soldering operation. Damaged or lifted pads may result.
4. Maximize the tip to solder pad heat transfer by melting a small amount of solder on the Tip before contact is made.
5. If solder joint is not complete within 2 seconds, the Tip should be removed to prevent pad damage. A higher tip temperature or auxiliary heating may be required to obtain proper results. CAUTION: High Tip temperature can cause damage. Auxiliary heating is recommended if Tip temperatures in excess of 800°F (427°C) are required.

MINICHINE

The Minichine feature may be utilized for abrading, milling or drilling functions. Follow the procedure listed below to insure optimum results.

1. Place the Motor/Pump switch in the "Pedal" position.
2. The Minichine Output has a double detent to provide both a standby mode (first position) and a run mode (second position).
3. Insert the Minichine flex shaft into the second detent of the Minichine Output on the front panel of the PETS Power Source.
4. Tap Foot Pedal to rotate drive for easy engagement.
5. The Minichine can now be operated using the Foot Pedal activation with the Motor/Pump Switch in the "Pedal" position or can be run continuously in the "Cont" position.
6. Pull the Minichine flex shaft out to the first detent (standby mode) position to disengage drive.



FIGURE 16.

OPERATION

HEAT PULSE AC OUTPUTS

The Heat Pulse AC Outputs may be used to power a variety of PACE Functional Accessories including the PACE ConducTweez, ResisTweez, StripTweez and LapFlo Handpieces. Follow the procedure listed below to insure optimum results.

1. Place the Electro-Pulse/Motor Switch in the "Off" position. NOTE: No vacuum or air pressure when operating PETS Power Source in this position (except from Extractor handpiece switch).

2. Attach the Universal Cord to the Heat Pulse AC Outputs.

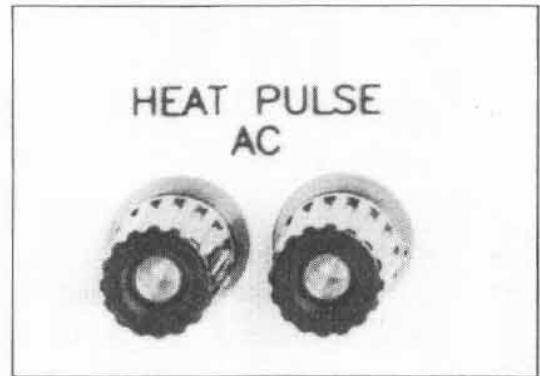


FIGURE 17.

3. Attach the desired functional Accessory to "Quick-connect" plug of the Universal Cord.



FIGURE 18.

4. Set the Variable Output Control to the desired power level for the particular Accessory and Tip. Start at the lowest setting; depress the Foot Pedal and increase Control slowly to the desired level. CAUTION: Place Variable Output Control in the "Off" position when work is complete.

PLATE PULSE DC OUTPUTS

The Plate Pulse DC outputs provide the means of attachment for the Pace SwaPlating system to control replating of damaged or worn edge connectors, contacts and the like. Follow the procedure listed below to insure optimum results.

1. Place the Electro-Pulse/Motor Switch in the "Electro-Pulse" position.

2. Attach the plating cables to the Black and the Red DC Outputs; matching cable color with output color. NOTE: For reversed polarity, connect Black to Red and Red to Black.

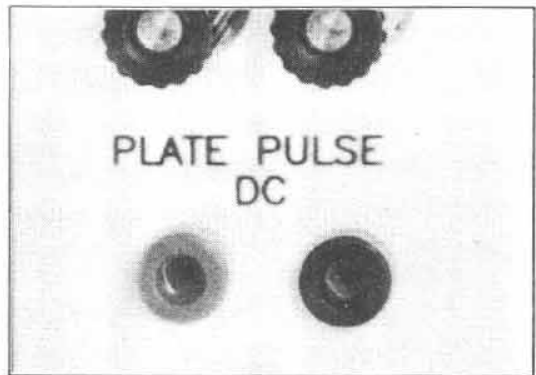


FIGURE 19.

3. Install the Cables to the SwaPlating system as described in the enclosed instructions.
4. Set the Variable Output Control to the desired power level for the application. Start at the lowest setting; depress the Foot Pedal and increase Control slowly to the desired level. CAUTION: Place Variable Output Control in the "Off" position when work is complete.

MAINTENANCE

EXTRACTOR/SOLDERING IRON TIP REPLACEMENT

Replacement of Handpiece tips at regular intervals are essential for maintaining optimum performance from your PACE system. Procedures for maintaining a Tip-to-ground impedance of less than 2 ohms must be instituted to insure a high quality, high reliability repair.

With power applied to the Handpiece, the temperature generated by the Heater Assembly will create a buildup of oxides between the bore of the Heater Assembly and the installed Tip. The rate of accumulation of these oxides will increase as the Tip begins to deteriorate from usage. Follow the procedure and figure 20 to avoid the possibility of these oxides increasing the Tip-to-ground impedance to greater than 2 ohms.

IMPORTANT

Perform the following procedure after each 8 hours of operation and at the start of each work day.

1. Place the Main Power Switch in the "ON" position.
2. Rotate the Variable Temperature Control Knob fully counter-clockwise (minimum temperature setting) and allow three minutes for warm-up.
3. Using the Tip Tool, loosen the Heater Assembly set screw ($\frac{1}{4}$ turn).
4. Remove and discard old Tip.

MAINTENANCE

EXTRACTOR/SOLDERING IRON TIP REPLACEMENT CONT'D

5. Place the Main Power Switch in the "OFF" position.
6. Insure that the Solder Collection Chamber is installed in the Handpiece.
7. Thoroughly clean the bore of the Heater Assembly using the small wire brush supplied in the Accessory Kit.

CAUTION

To prevent injury to personnel, insure that the Handpiece is held with the Heater body pointing up, allowing all dislodged material to fall into the Solder Collection Chamber.

8. Using the Tip Tool, insert new Tip into Heater Assembly. NOTE: Tip should protrude $\frac{3}{8}$ inch beyond the Heater body.
9. Tighten set screw using Tip Tool. NOTE: Be careful not to overtighten.
10. Place Main Power Switch in the "ON" position. Allow 5 minutes for warm-up.
11. Retighten set screw to insure minimum tip-to-ground impedance.

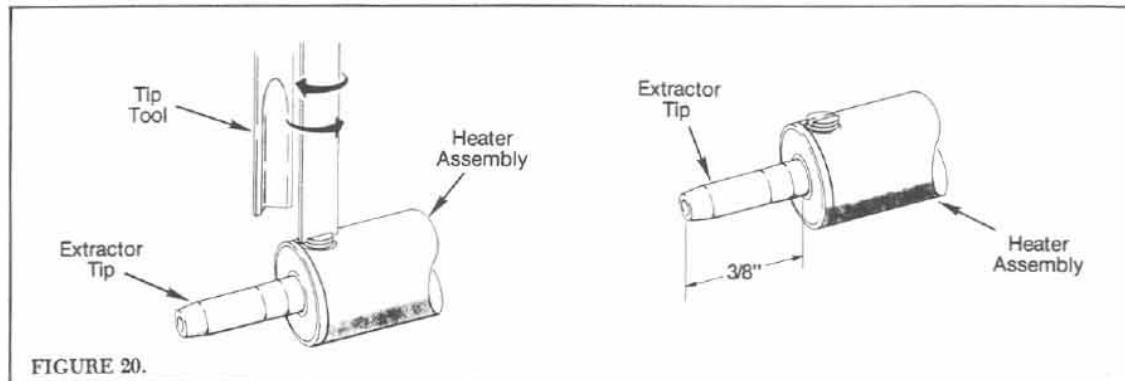


FIGURE 20.

CLEANING SOLDER COLLECTION CHAMBER

As the Extractor Handpiece is used, solder and flux buildup within the Solder Collection Chamber will begin to impede air flow and decrease performance of the system. The Solder Collection Chamber (Glass Chamber) must be cleaned at regular intervals to prevent buildup of this solder and flux residue.

Perform the following procedure step by step, in sequence, to insure proper operation.

1. With the Extractor Handpiece held Tip up in a vertical position, remove End Cap Assembly from rear of Extractor Handpiece. Push rear of Assembly toward the Extractor Handpiece and turn to unlock. Glass Chamber is attached to the End Cap Assembly and pulls out of the Extractor Handpiece as the Assembly is removed.

If the Glass Chamber remains attached to the Front Heater Seal inside the Handpiece, insert a small flat blade screwdriver into the Handpiece as shown in Figure 21 and gently push the front end of the Chamber off the Seal.

WARNING

DO NOT ATTEMPT TO REMOVE THE SOLDER COLLECTION CHAMBER (GLASS CHAMBER) FROM THE EXTRACTOR HANDPIECE USING PLIERS OR ANY LIKE TOOL. USE OF SUCH TOOLS WILL CAUSE THE CHAMBER TO SHATTER.

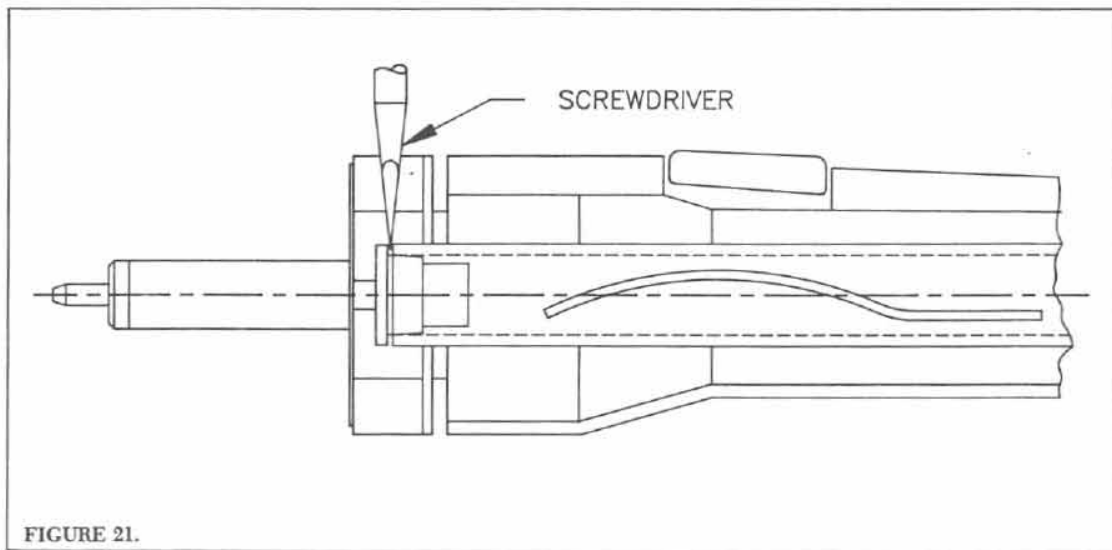


FIGURE 21.

MAINTENANCE

CLEANING SOLDER COLLECTION CHAMBER CONT'D

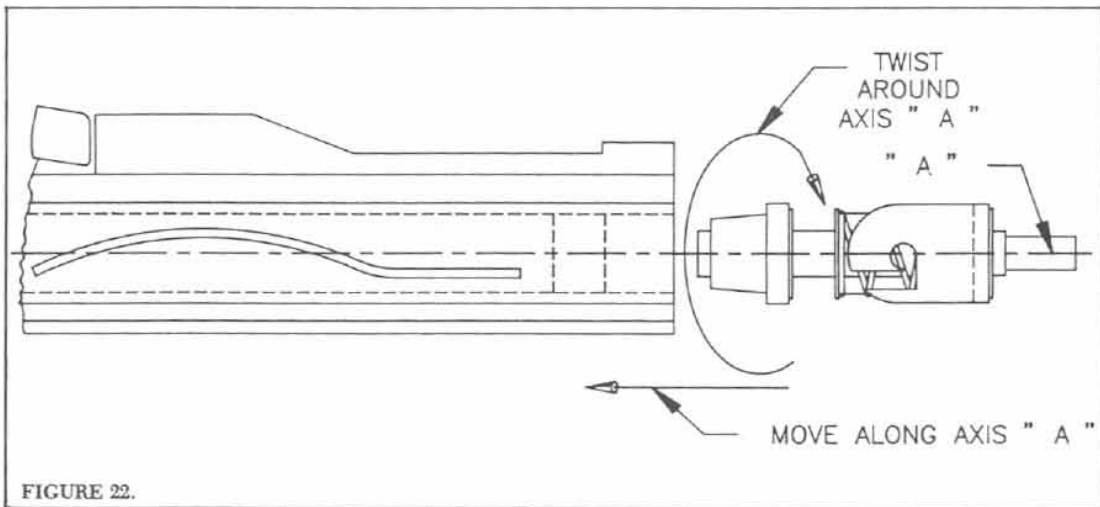
2. Remove Glass Chamber from End Cap Assembly.
3. Remove "S" Baffle and SODR-X-TRACTOR Filter from Chamber.
4. Clean Chamber and "S" Baffle with large nylon bristle brush. Wet brush with solvent to remove heavy flux residue from Chamber. Apply mineral oil to brush and lightly coat inside of Chamber and "S" Baffle.
5. Replace SODR-X-TRACTOR Filter when brown coloration becomes noticeable. This insures maximum air flow and keeps contaminants from reaching the vacuum source.
6. Reassemble "S" Baffle and filter into Glass Chamber as shown in Figure 1. The filter must line up with the markings on the Glass Chamber and the front of the Baffle must be positioned at least 1 inch from the Front Seal (see Figure 1).

IMPORTANT

THE "S" BAFFLE SHOULD HAVE ENOUGH TENSION TO MAINTAIN A CONSTANT POSITION WITHIN THE CHAMBER. ADJUST BAFFLE BY BENDING SLIGHTLY AT THE CENTER. DO NOT ATTEMPT TO BEND THE BAFFLE WHILE IN THE CHAMBER.

CLEANING SOLDER COLLECTION CHAMBER CONT'D

7. To insure that the Chamber will remain attached to the End Cap Assembly when removed for future cleaning, push End Cap Assembly into filter end of Chamber and twist to secure in place. See Figure 22.
8. Hold the Extractor Handpiece with the Vacuum Control Switch in the upright position.
9. Insert Glass Chamber into Extractor Handpiece. Slide Chamber along the bottom inside surface of the Handpiece and onto the Front Heater Seal.
10. Inspect for proper seating of Glass Chamber on the front seal. NOTE: Loss of vacuum will result if Chamber is not properly seated.
11. Attach End Cap Assembly to Extractor Handpiece by pushing rear of assembly forward and turning to lock in place as shown in figure 22.



VISIFILTER REPLACEMENT

Replace the VisiFilter when it becomes clogged or discolored. To replace the VisiFilter, follow the procedure listed below.

1. Disconnect the Extractor Vacuum Hose by gently pulling and turning the Hose while holding the VisiFilter.
2. Disconnect VisiFilter from 2" Hose by gently pulling and turning the VisiFilter while holding the 2" Hose.

IMPORTANT

When removing any Vacuum Hose, pull and turn to remove. **DO NOT** attempt to pull Hose directly off. Damage to or breakage of VisiFilter may occur.

3. Discard old or discolored VisiFilter.
4. Gently push and turn 2" Hose onto new VisiFilter.
5. Reinstall Extractor Vacuum Hose by gently pushing and turning onto VisiFilter.

EXTRACTOR HEATER REPLACEMENT

Refer to the "Heater Assembly Checkout Procedure", page 31, table 1 prior to replacement of the Heater Assembly. When replacement becomes necessary, follow the procedure listed below and figure x, to insure optimum results.

1. Disconnect Extractor Power Connector from Output Power Receptacle (EXTR).
2. Remove End Cap Assembly and Glass Chamber.
3. Remove the three Heater Assembly Screws. Allow the Heater Assembly to hang loose. DO NOT pull Heater Assembly from handpiece at this time.
4. Using the Tip Tool or needle nose pliers, disconnect the three (3) leads plugged into the Vacuum Control Switch Board. Remove defective Heater Assembly from handpiece.
5. Using the Tip Tool or needle nose pliers, carefully plug the three (3) color coded leads of the replacement Heater Assembly into matching color coded receptacles of the Vacuum Control Switch Board.
6. Attach the replacement Heater Assembly using the three (3) Heater Assembly screws removed in step 3. NOTE: Visually inspect the three (3) leads to insure that they are laying against the Extractor Handpiece sides.
7. Replace Glass Chamber and End Cap Assembly, sliding Chamber along the bottom edge of the Extractor Handpiece. Ramps inside the Handpiece will align the Chamber with the front heater seal and seat properly in place.
8. Visually inspect Glass Chamber for proper seating. NOTE: Loss of vacuum will occur if Chamber is not properly seated.

NOTE: Insure that the system is located in a well ventilated area. On initial power up, the heater assembly will smoke for a short period of time. The smoke is not a health hazard.

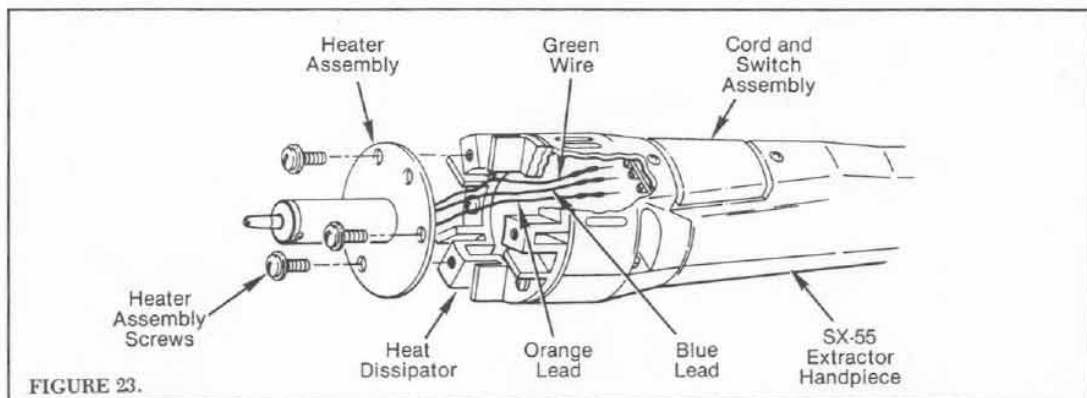


FIGURE 23.

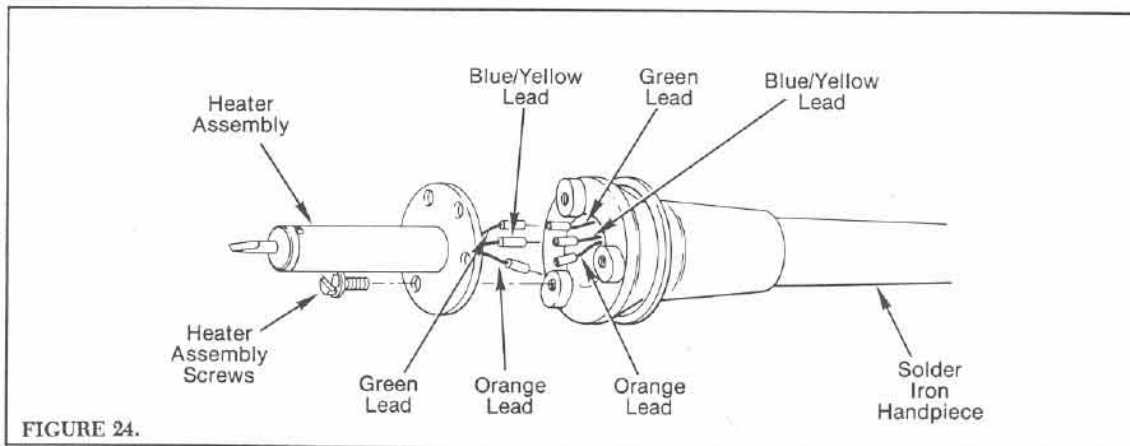
MAINTENANCE

SOLDERING IRON HEATER REPLACEMENT

Refer to the "Heater Assembly Checkout Procedure", page 32, table 2 prior to replacement of the Heater Assembly. When replacement becomes necessary, follow the procedure listed below and figure 24, to insure optimum results.

1. Disconnect Soldering Iron Power Connector from Output Power Receptacle (IRON).
2. Remove the three Heater Assembly Screws. Allow the Heater Assembly to hang loose. DO NOT pull Heater Assembly from handpiece at this time.
3. Gently push Power Cord through handpiece to expose Heater lead to Power Cord connections.
4. Using the Tip Tool or needle nose pliers, disconnect the three (3) leads plugged into the Power Cord. Remove defective Heater Assembly from handpiece.
5. Using the Tip Tool or needle nose pliers, carefully plug the three (3) color coded leads (Orange, Blue & Green) of the replacement Heater Assembly into matching color coded Power Cord leads.
6. Gently pull Power Cord back through handpiece. A strain relief attached to the Power Cord will stop movement when the proper Cord position is reached.
7. Attach the replacement Heater Assembly using the three (3) Heater Assembly screws removed in step 2.

NOTE: Insure that the system is located in a well ventilated area. On initial power up, the heater assembly will smoke for a short period of time. The smoke is not a health hazard.



CORRECTIVE MAINTENANCE

POWER SOURCE

Most malfunctions are simple and easy to clear. Refer to the table shown below to clear these malfunctions.

TABLE 1. POWER SOURCE CORRECTIVE MAINTENANCE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
1. No power to system		
a. Main Power switch not lit.	Line fuse (F1) blown.	Replace fuse F1 located in AC power receptacle on rear of power source.
b. Main Power switch lit but motor/pump, iron, extractor, and low voltage tools do not operate.	Control power fuse (F2) blown.	Replace fuse F2 located directly above AC power receptacle on rear of power source.
c. Main Power switch lit, only motor/pump doesn't operate.	Motor/pump fuse (F3) blown.	Replace fuse F3 located to immediate left of circuit breaker on rear of power source.
d. Main Power switch lit, Heat Pulse AC and Plate Pulse DC outputs don't operate.	Low-voltage output fuse (F4) blown.	Replace fuse F4 located to immediate left of foot pedal connector on rear of power source.
e. Main Power switch lit, Pulse DC circuits don't operate.	DC Output circuit breaker tripped.	Reset circuit breaker located above foot pedal connector on rear of power source.

CORRECTIVE MAINTENANCE

HANDPIECES

Use Table 2 and Figure 25 to determine the condition of your Extractor and/or Soldering Iron Assembly. Disconnect the Handpiece(s) from the PETS Power Source. Use a voltmeter to check resistance across the Handpiece connector plug pins as outlined in the "Checkout Procedure" column.

TABLE 2. HEATER ASSEMBLY CHECKOUT PROCEDURES

SYMPTOM	CHECKOUT PROCEDURE	CAUSE	SOLUTION
No heat	Check resistance—Pin 2 to Pin 5. Resistance should be 12 ohms. If not →	Open Heater	Replace Heater Assembly.
Fuse F2 blows when unit is turned on.	Check resistance—Pin 2 to Pin 5. Resistance should be 12 ohms. If not →	Shorted Heater	Replace Heater Assembly.
Motor does not run when Handpiece Switch is activated.	Check resistance—Pin 1 to Pin 3 with Handpiece Switch Assembly.	Defective Cord and Switch Assembly.	Replace Cord and Switch Assembly.
No Ground on Tip.	Check resistance—Pin 4 to Tip. Resistance should be less than 1 ohm. If not →	Defective Cord and Switch Assembly.	Replace Cord and Switch Assembly.
		Defective Heater.	Replace Heater Assembly.

CORRECTIVE MAINTENANCE

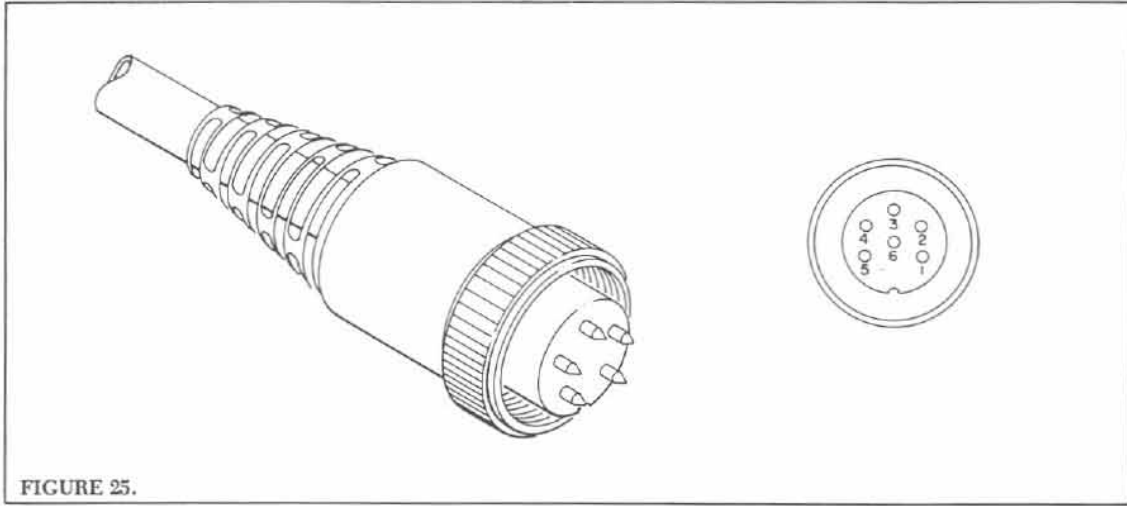
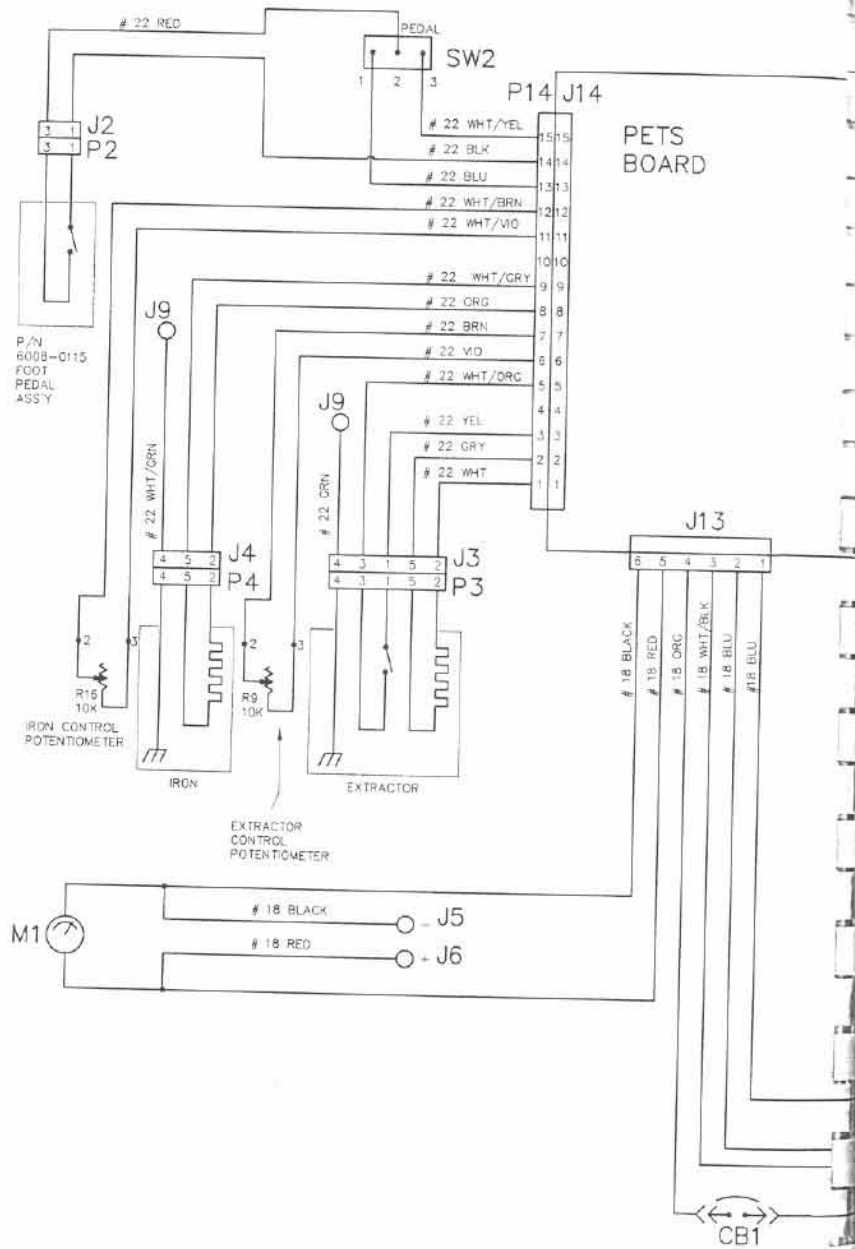
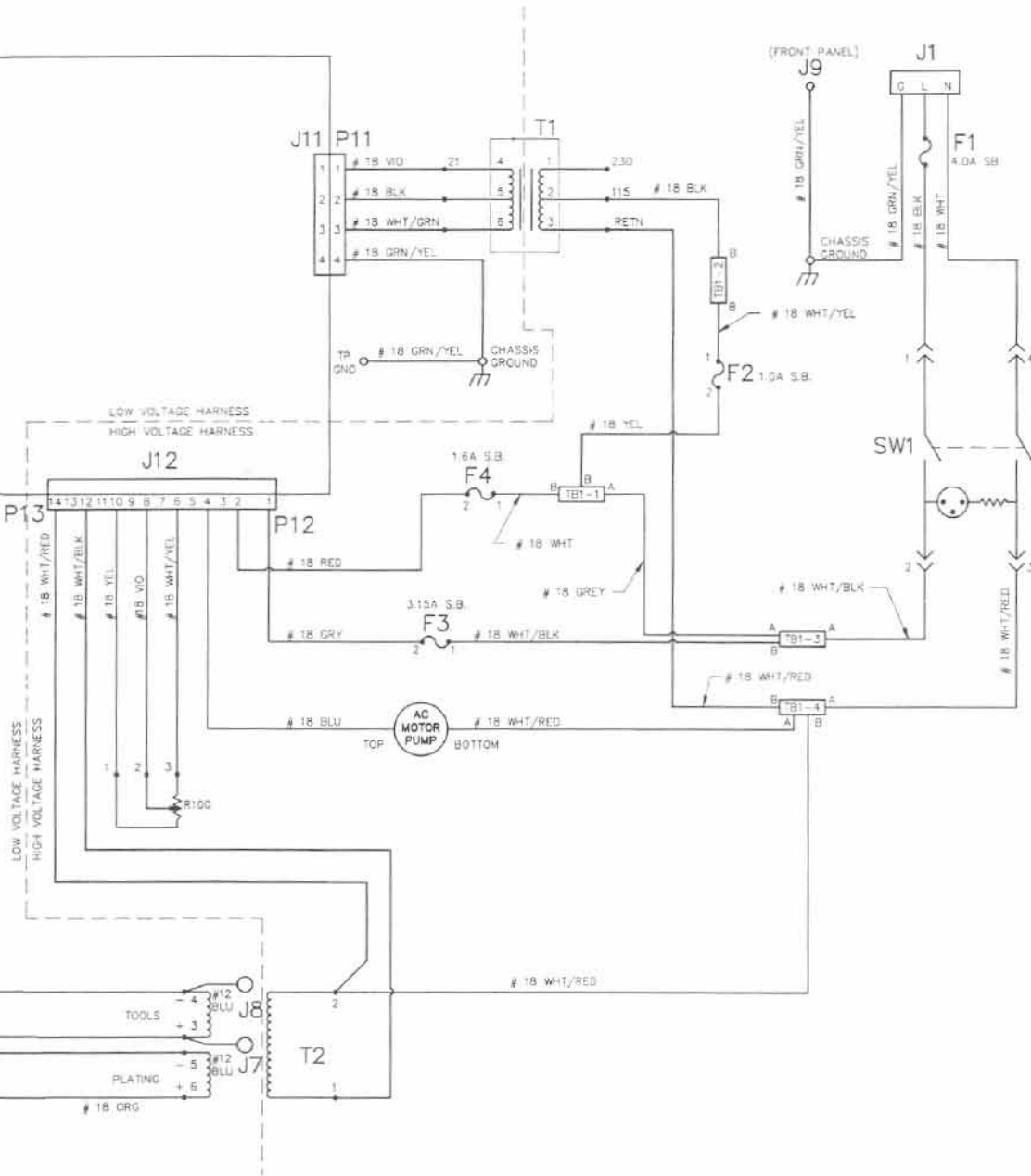


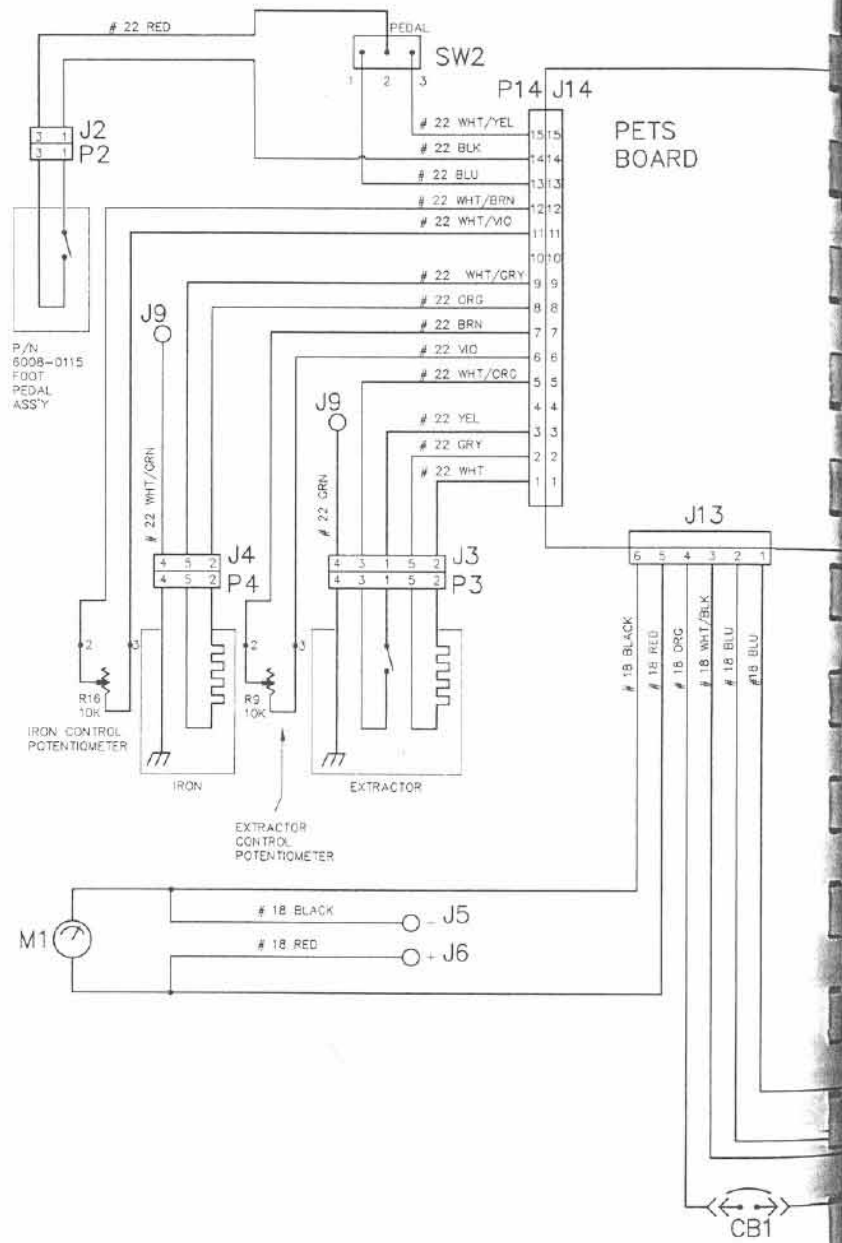
FIGURE 25.

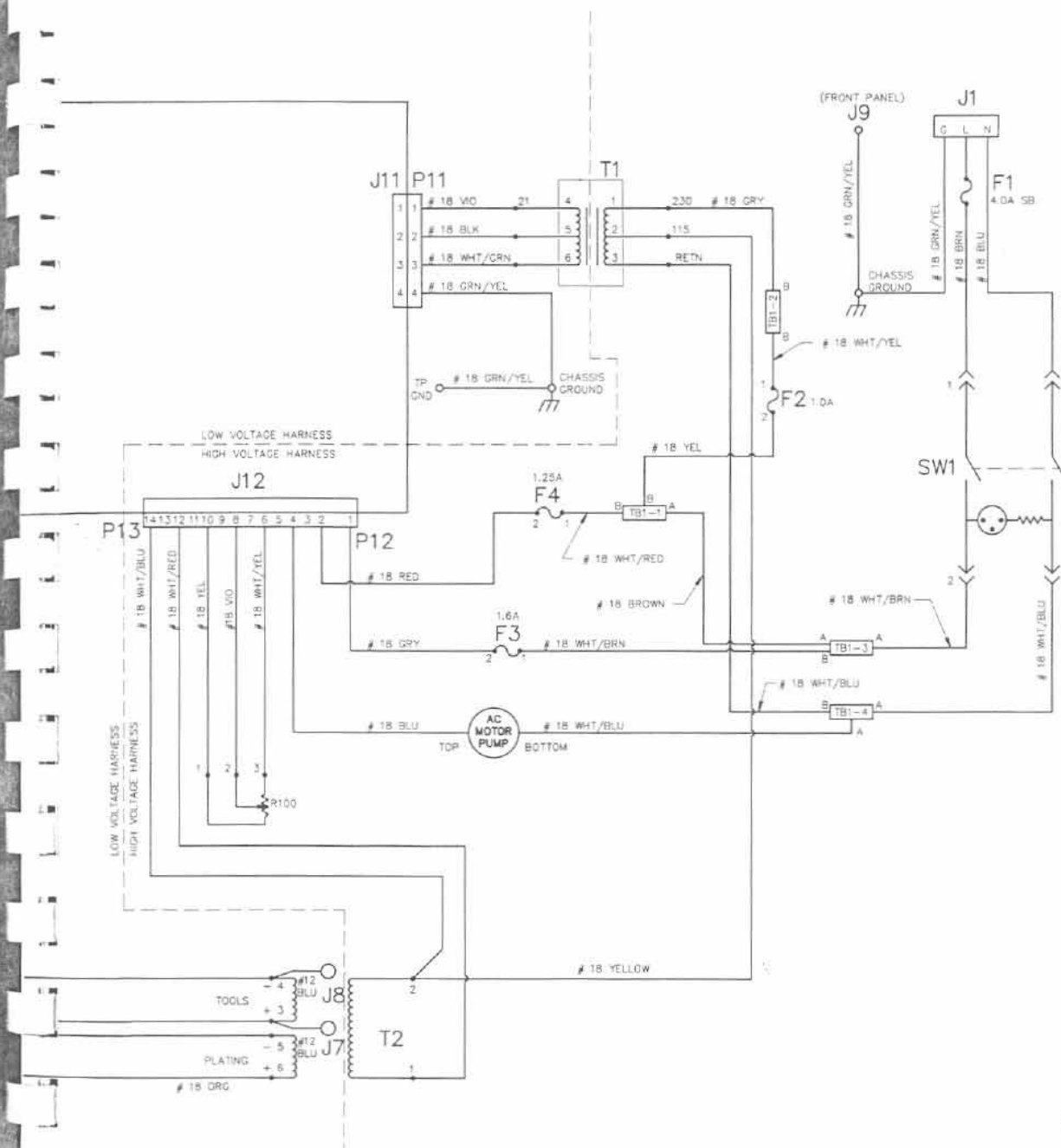


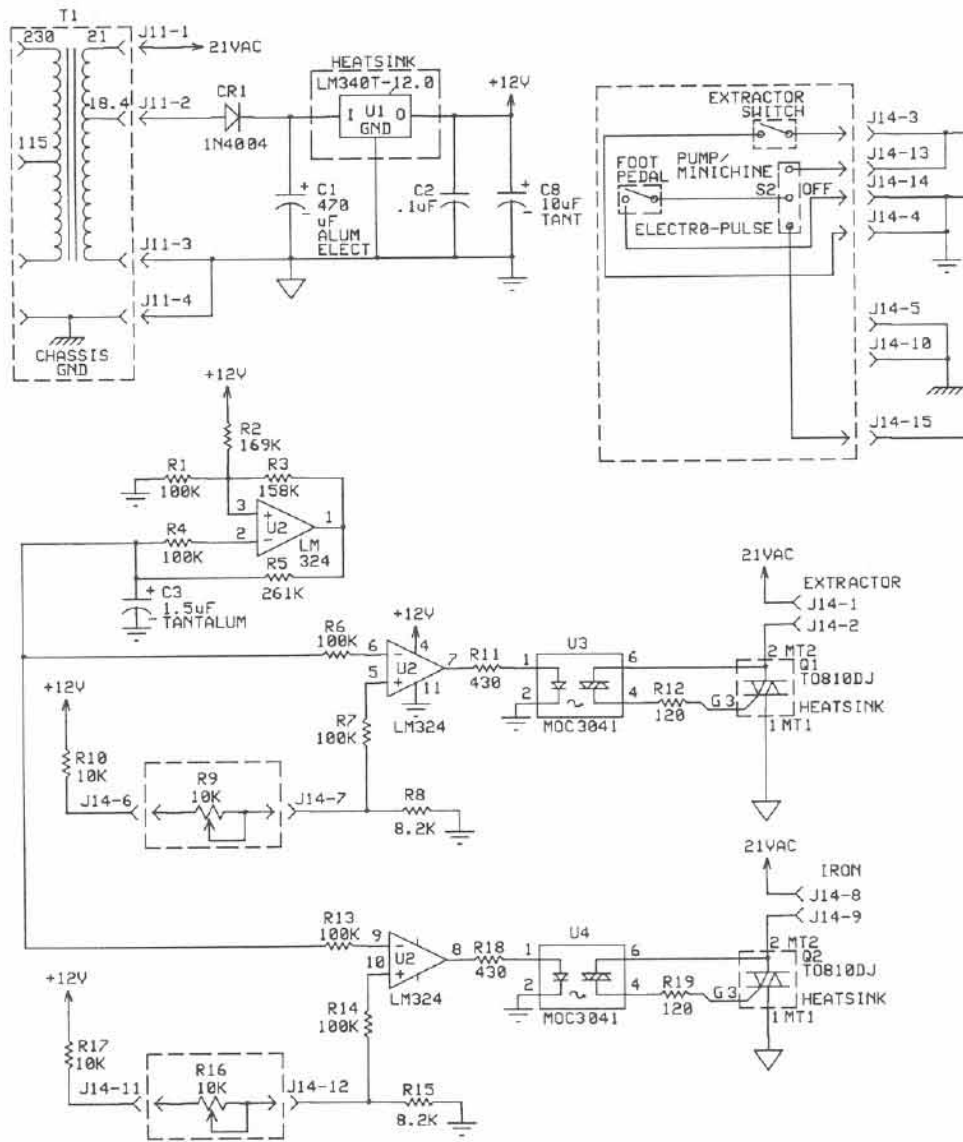
WIRING DIAGRAMS

PPS-330A



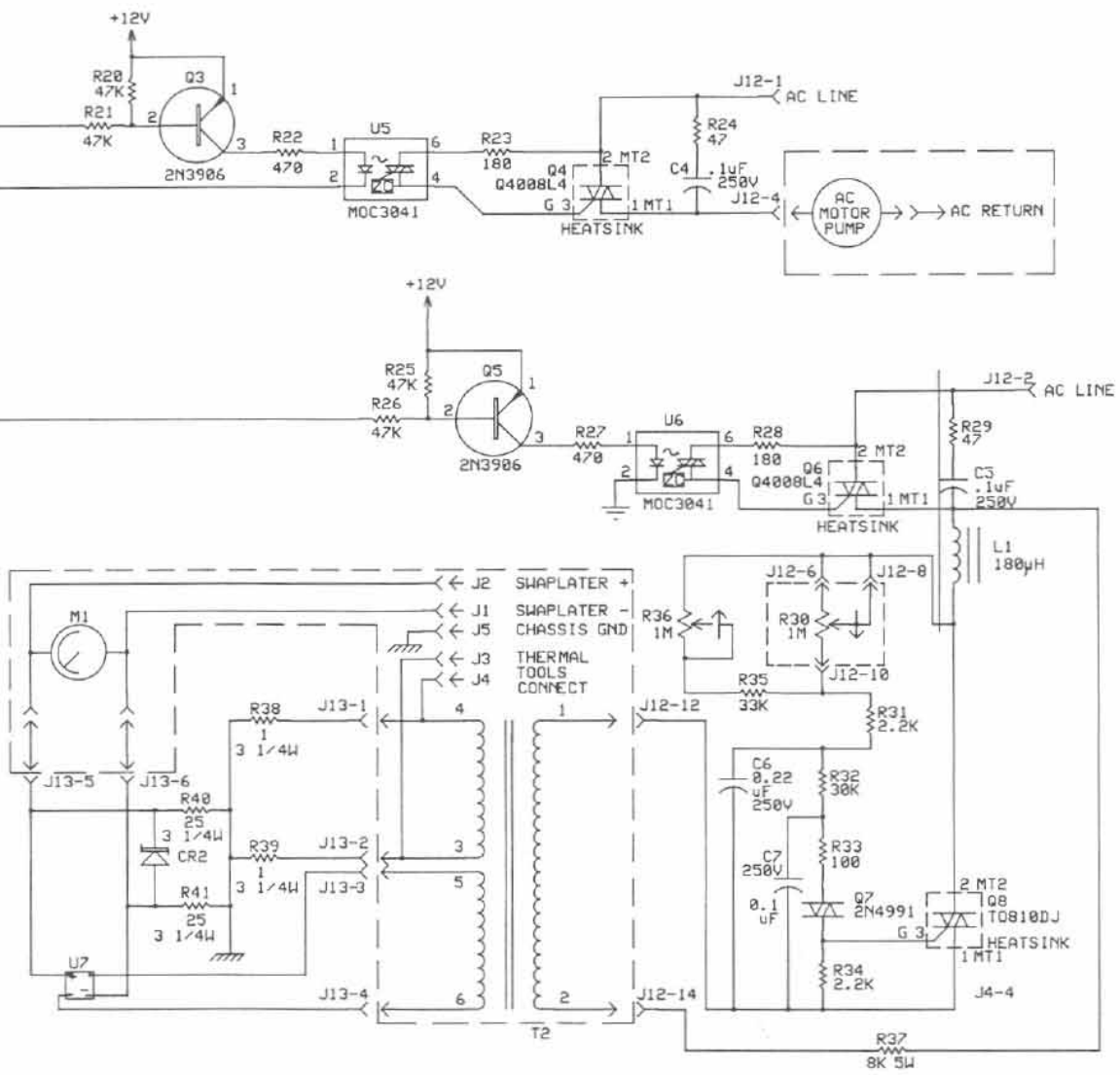






SCHEMATIC

MAIN PCB



REPLACEMENT PARTS

Refer to Table 3 when ordering accessory or optional parts for PACE PETS Domestic (115 VAC) systems and to Table 4 for Export (230 VAC) systems. Items which are shipped with each system are listed as "STD". Optional items which may be ordered, are listed as "OPT". Additional specialized systems packages (i.e., PETS 40A/AE, PETS 50A/AE) are also available. Contact your local authorized PACE dealer for details.

ACCESSORIES/OPTIONAL ITEMS, DOMESTIC SYSTEMS

TABLE 3

ITEM #	DESCRIPTION	PACE PART NUMBER	PETS 10A	PETS 20A	PETS 30A
1	Console/Power Source Assy.	7018-0044	STD	STD	STD
2	Hot Cubby	6019-0025	STD	STD	STD
3	Solder Extractor	6010-0071	STD	STD	STD
4	Soldering Iron	6025-0010	STD	STD	STD
5	Foot Pedal	6008-0115	STD	STD	STD
6	Ground Wire	1100-0055	STD	STD	STD
7	Master Cir Kit	6993-0082	OPT	STD	STD
8	Tray #1 (See Table X)	6993-0106	OPT	STD	STD
9	Tray #2 (See Table X)	6993-0107	OPT	OPT	STD
10	Tray #3 (See Table X)	6993-0108	OPT	OPT	STD
11	Tray #4 (See Table X)	6993-0109	OPT	OPT	STD
12	Optical Lighting Assembly	6007-0013	OPT	OPT	STD
13	Work Positioner Assembly	6015-0028	OPT	OPT	STD
14	MTG-3 Mounting Kit	6000-0141	OPT	OPT	STD
15	Spares Kit	6993-0132	OPT	OPT	STD
16	PE210 Gold Plating System	7003-0002	OPT	OPT	STD
17	Wrist Strap	1100-0054	STD	STD	STD
18	Conform I	6016-0003	STD	STD	STD
19	Drawer Assembly (Option A)	4018-0031	OPT	OPT	OPT
20	Drawer/Pedestal Assembly	6018-0038	OPT	OPT	OPT
21	Accessory Kit	7900-0011	STD	STD	STD
22	Optics Kit; Microscope	6018-0069	OPT	OPT	OPT
23	CCTV Video Kit	6018-0067	OPT	OPT	OPT

REPLACEMENT PARTS

ACCESSORIES/OPTIONAL ITEMS, EXPORT SYSTEMS

TABLE 4

ITEM #	DESCRIPTION	PACE PART NUMBER	PETS 10AE	PETS 20AE	PETS 30AE
1	Console/Power Source Assy.	7018-0040	STD	STD	STD
2	Hot Cubby	6019-0025	STD	STD	STD
3	Solder Extractor	6010-0071	STD	STD	STD
4	Soldering Iron	6025-0010	STD	STD	STD
5	Foot Pedal	6008-0115	STD	STD	STD
6	Ground Wire	1100-0055	STD	STD	STD
7	Master Cir Kit	6993-0082	OPT	STD	STD
8	Tray #1	6993-0106	OPT	STD	STD
9	Tray #2	6993-0107	OPT	OPT	STD
10	Tray #3	6993-0108	OPT	OPT	STD
11	Tray #4	6993-0109	OPT	OPT	STD
12	Optical Lighting Assembly	6007-0013	OPT	OPT	STD
13	Work Positioner Assembly	6015-0028	OPT	OPT	STD
14	MTG-3 Mounting Kit	6000-0141	OPT	OPT	STD
15	Spares Kit	6993-0132	OPT	OPT	STD
16	PE210 Gold Plating System	7003-0002	OPT	OPT	STD
17	Wrist Strap	1100-0054	STD	STD	STD
18	Conform I	6016-0003	STD	STD	STD
19	Drawer Assembly (Option A)	4018-0031	OPT	OPT	OPT
20	Drawer/Pedestal Assembly	6018-0038	OPT	OPT	OPT
21	Accessory Kit	7900-0012	STD	STD	STD
22	Optics Kit; Microscope	6018-0070	OPT	OPT	OPT
23	CCTV Video Kit	6018-0068	OPT	OPT	OPT

REPLACEMENT PARTS

POWER SOURCE

Refer to Table 5 when ordering replacement parts for your PACE PETS Power Source. Use Figure 29, Page 43 as a guide.

TABLE 5

ITEM #	DESCRIPTION	PACE PART NUMBER	
		DOMESTIC SYS.	EXPORT SYS.
1	Console/Power Source Assembly, PPS 30A, AE	7018-0044	7018-0040
2	Power Switch	1157-0027	1157-0028
3	Switch, SPDT-Center Off	1157-0030	1157-0030
4	Heat Control Knob (2)	1222-0006	1222-0006
5	Variable Output Control Knob	1222-0075	1222-0075
6	Meter	1198-0011	1198-0011
7	Pressure Control Valve Assembly	1285-0033	1285-0033
8	Vacuum Valve Stem	1263-0021	1263-0021
9	AC Power Receptacle	1207-0151	1207-0151
10	Circuit Breaker, 3 Amp	1159-0240	1159-0240
11	Fuse Holder	1161-0008	1161-0008
12	Fuse (F1), 5.0 Amp S.B., Domestic 2.5 Amp S.B., Export	1159-0253	1159-0220
13	Fuse (F2), 1.0 Amp S.B., Domestic 0.5 Amp S.B., Export	1159-0254	1159-0255
14	Fuse (F3), 3.15 Amp S.B., Domestic	1159-0249	
15	Fuse (F4 Domestic, F3 Export), 1.6 Amp. S.B.	1159-0235	1159-0218
16	Fuse (F4 Export), 1.25 Amp S.B.		1159-0217
17	PCB Assembly	6020-0060	6020-0060
18	Transformer, Power	1192-0064	1192-0064
19	Transformer, Low Voltage Tools	1192-0040	1192-0040
20	Motor Pump Assembly	1336-0020	1336-0018
21	Power Cord	1332-0094	1332-0093

REPLACEMENT PARTS

POWER SOURCE

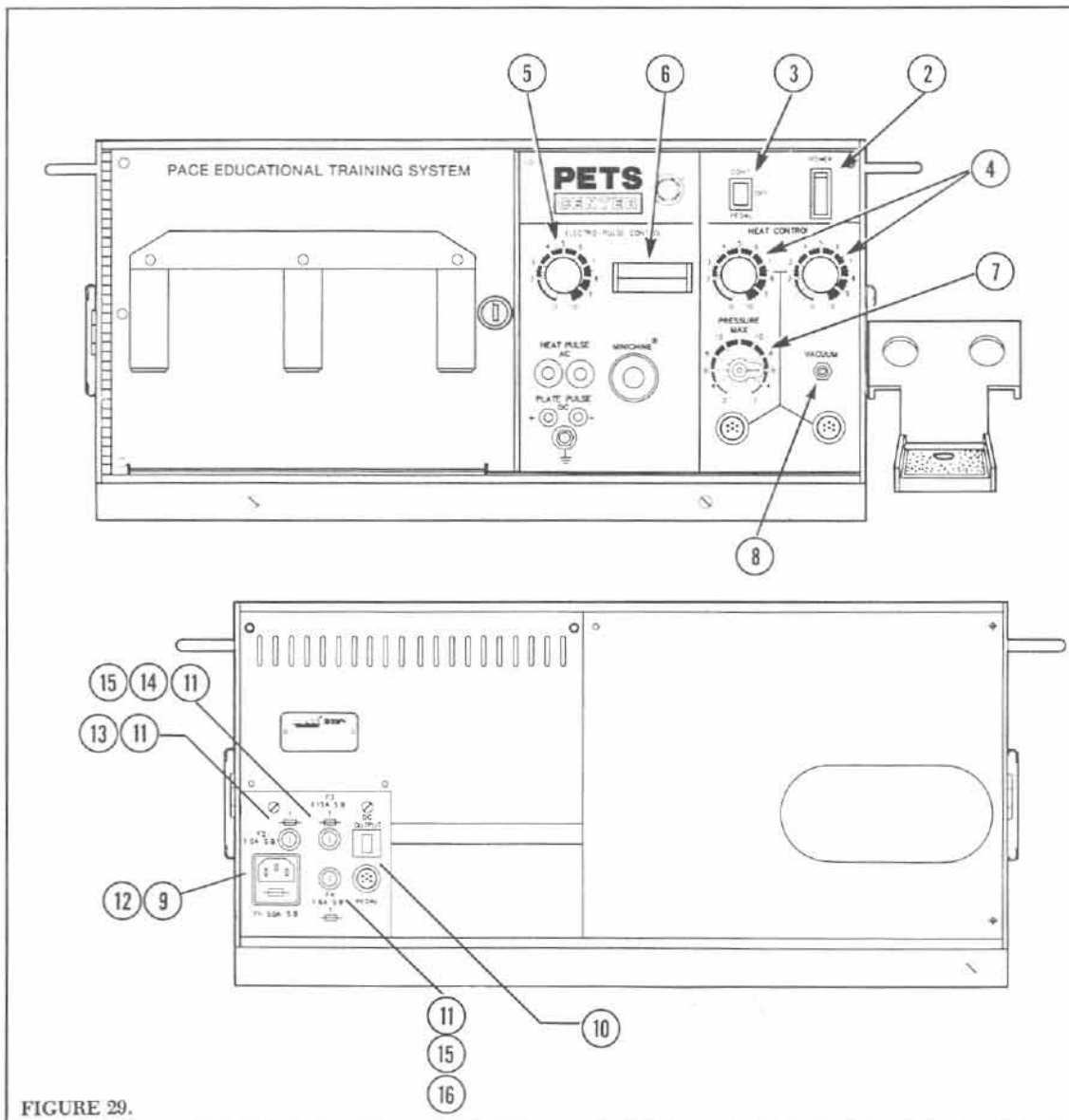


FIGURE 29.

REPLACEMENT PARTS

TRAYS

TABLE 6

NO.	DESCRIPTION	PACE PART NO.
TRAY #1		
1	TW-15 ResisTweez Handpiece	7009-0005
2	TS-15 StripTweez Handpiece	7012-0002
3	CT-15 ConducTweez Handpiece	7020-0001
4	TP-15-02 LapFlo Handpiece	7013-0004-02
5	Deluxe Tool Kit, Complete	6005-0013
6	Wrist Strap	1100-0054
7	Minichine	6005-0012
8	Chuck Wrench	1100-0201
9	Conform I	6016-0003
10	Universal Power Cord	7000-0023
TRAY #2		
11	Diagonal Cutter Pliers	1100-0203
12	Round Nose Pliers	1100-0001
13	Long Nose Pliers	1100-0204
14	Screwdriver, Flat Blade	1100-0205
15	Flat nose Pliers	1100-0002

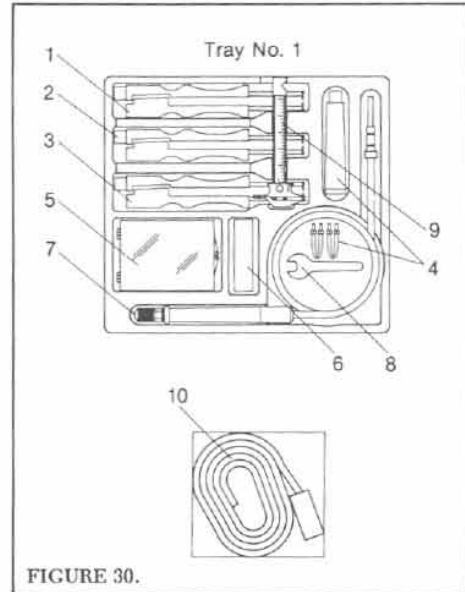


FIGURE 30.

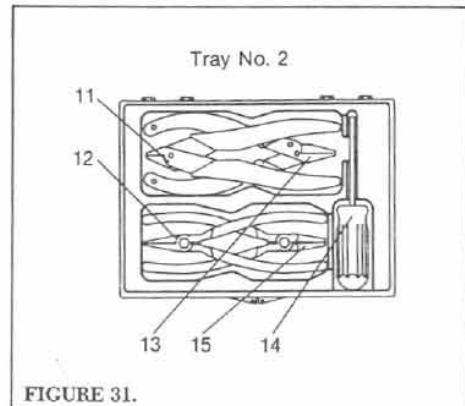


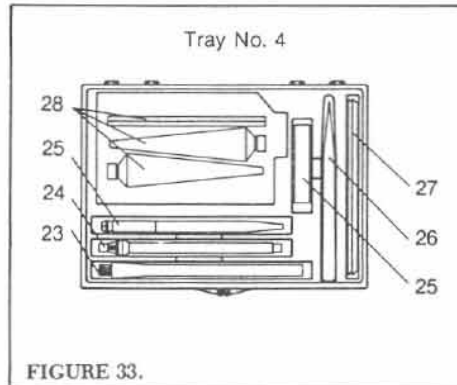
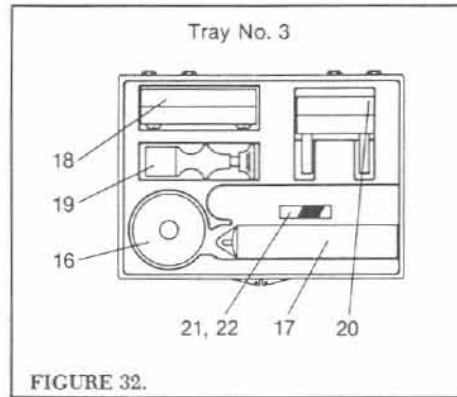
FIGURE 31.

REPLACEMENT PARTS

TRAYS CONT'D

TABLE 6 CONT'D

NO.	DESCRIPTION	PACE PART NO.
TRAY #3		
16	Solder Wick, .075	6993-0108
17	Solder Dispenser Pak, 22 AWG	1100-0210
18	Terminal Holding Block	6996-0001
19	IC Insertion Tool	6016-0017
20	Flat Pack Forming Tool	1100-0208
21	Solder Roll, 32 AWG	6016-0012
22	Tube Paper	1243-0003
TRAY #4		
23	Acid Brush	1342-0010
24	Acid Brush	6993-0109
25	Abrasive Stick	1127-0004
26	Pro/Vise, With Blades	1129-0014
27	Tweezer, Serrated	7016-0003-P1
28	Orange Sticks	1100-0041
29	Epoxy, Part 1 & 2	1100-0209
30	Epoxy, Part 1 & 2	1233-0004-P1



REPLACEMENT PARTS

SX-55A EXTRACTOR ASSEMBLY

TABLE 7

ITEM #	DESCRIPTION	PAGE PART NO.
1	Extractor Assembly	6010-0071
2	Extractor Tip (refer to Table 7, page 46)	—
3	Heat Dissipator Washer	1213-0034
4	Glass Chamber	1265-0009
5	Filter	1309-0018
6	Holder, Tube to Wire (Qty. 6)	1321-0085-01
7	Vacuum Hose, 54" Length	1342-0001-13
8	Heat Dissipator	1360-0005
9	Screw, #4-40 × ¼" (Qty. 3)	1405-0395
10	Screw, #4-40 × ⅜" (Qty. 3)	1405-0534
11	"S" Baffle	4010-0033
12	Heater Assembly	6010-0072
13	Rear Seal Assembly	4010-0082
14	Set Screw, 8-32	1348-0547
15	Cord and Switch Assembly	4010-0081

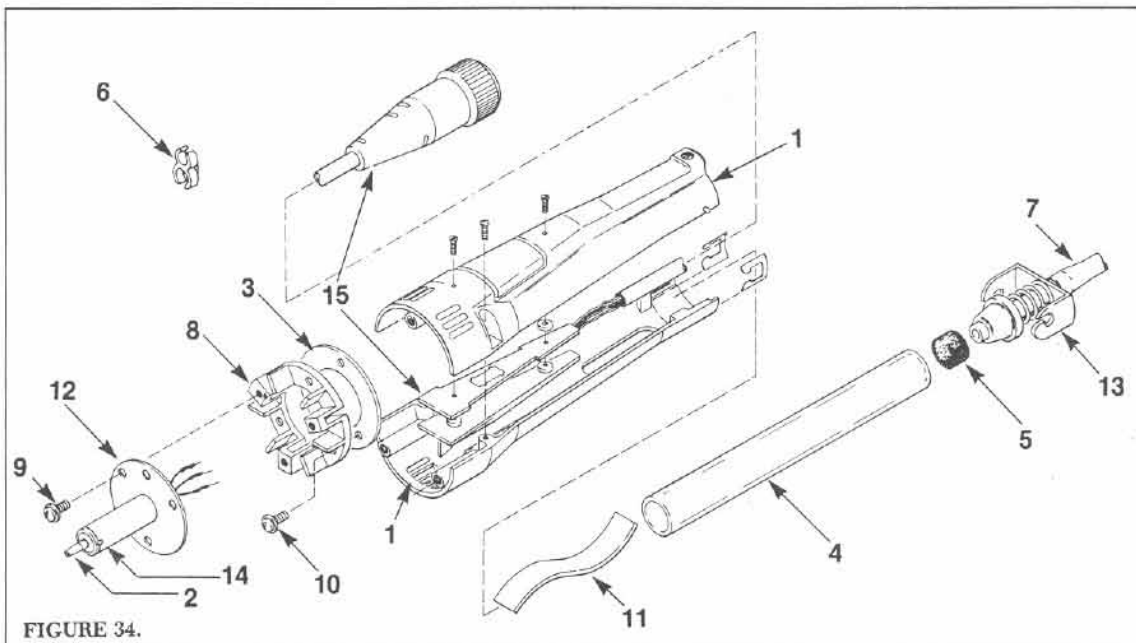


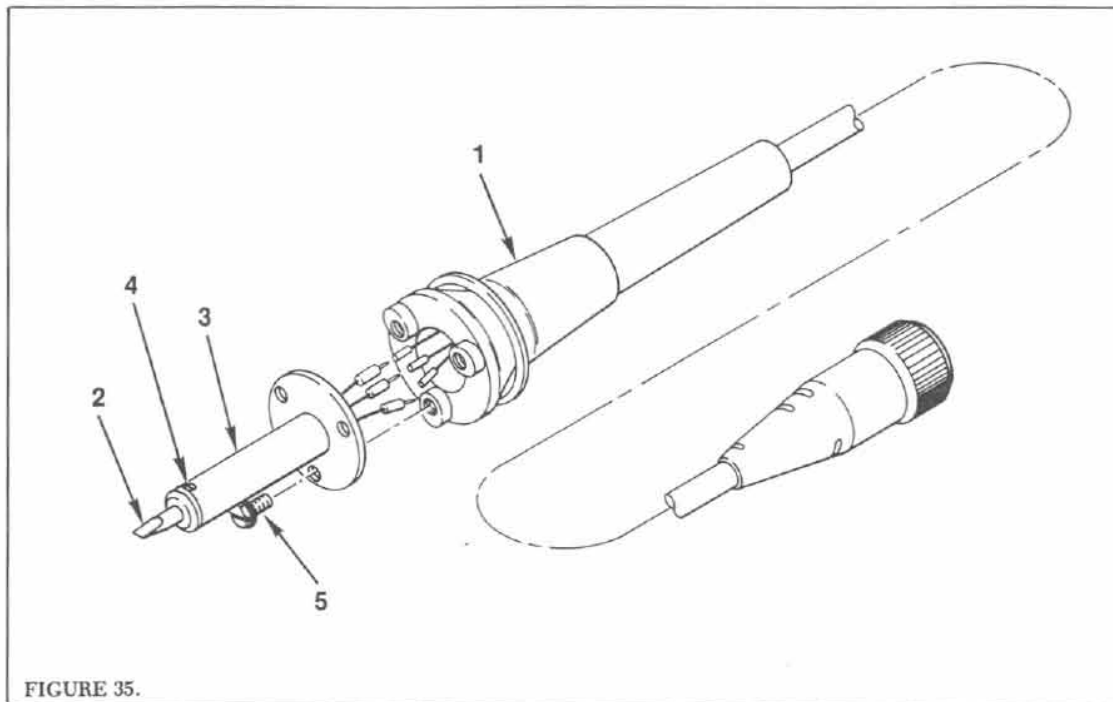
FIGURE 34.

REPLACEMENT PARTS

IR-55A SOLDERING IRON ASSEMBLY

TABLE 8

ITEM #	DESCRIPTION	PAGE PART NO.
1	Soldering Iron Assembly	6025-0010
	Soldering Iron Tip, $\frac{1}{8}$ " Chisel	1121-0130
2	Soldering Iron Tip, $\frac{1}{16}$ " Chisel	1121-0131
	Soldering Iron Tip, Needle Tip	1121-0132
3	Heater Assembly	6010-0075
4	Set Screw, 8-32	1348-0547
5	Screw, 4-40 \times $\frac{1}{4}$ "	1405-0395



REPLACEMENT PARTS

ACCESSORY KIT

TABLE 9

ITEM #	DESCRIPTION	PACE PART NUMBER	
		DOMESTIC SYS.	EXPORT SYS.
	Accessory Kit	7900-0011	7900-0012
1	Tip Tool	1100-0206	1100-0206
2	Micro Tip, .030 I.D.	1121-0253	1121-0253
3	Micro Tip, .040 I.D.	1121-0254	1121-0254
4	Micro Tip, .060 I.D.	1121-0255	1121-0255
5	Tip, Chisel	1121-0131	1121-0131
6	Filter	1309-0018	1309-0018
7	Holder, Tube To Wire, P6 (pkg. of 6)	1321-0085-01-P6	1321-0085-01-P6
8	Tubing, PVC, Clear, 2" Length	1342-0001-01	1342-0001-01
9	Fuse, 1.6 A. S.B. (F4 Domestic, F3 Export)	1159-0235	1159-0218
10	Fuse, 1.0 A. S.B. (F2)	1159-0246	1159-0216
11	Fuse, 3.15 A. S.B. (F3 Domestic)	1159-0249	
12	Fuse, 4.0 A. S.B. (F1)	1159-0250	1159-0222
13	Fuse, 1.25 A. S.B. (F4, Export)		1159-0217
14	Brush, Wire	1127-0006-02	1127-0006-02

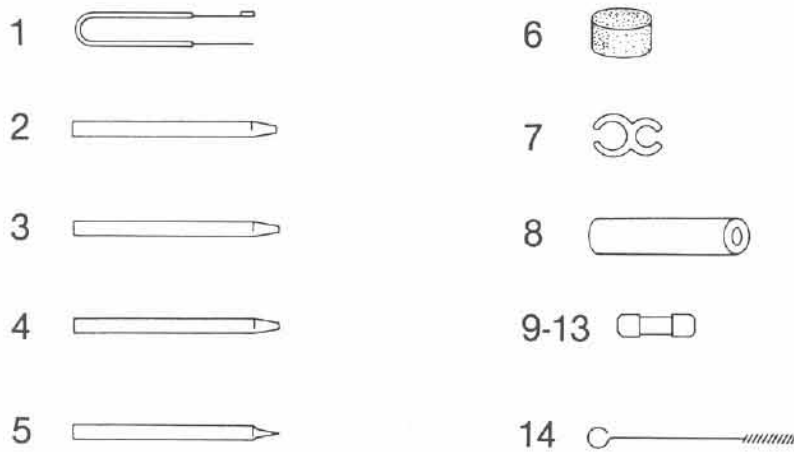


FIGURE 36.