KEY FEATURES OF THE 988:

- ENERGY SAVER: After the station has been idle for more than 15 minutes, this new feature will automatically kick in. When the "Pause" LED is lit, the energy saver feature has engaged, decreasing tip temperature by 1/3 which cuts power consumption and extends tip life.
- DELAYED SUCTION: To eliminate the problem of solder clogging up the tip, a delayed switch feature has been incorporated which allows the pump to continue sucking for 1.5 seconds after the actuator switch is released.
- EXTERNAL CALIBRATION PORT: For quick and convenient precision temperature adjustments. Turn clockwise for temperature increase and vice-versa.
- LIGHTWEIGHT SOLDERING IRON: Ergonomic mini handle that stays cool and prevents operator fatigue.
- OPTIONAL TWEEZERS: This additional feature is specially designed for SMD chips, SOT, Flat pack ICs' etc. rework. Tweezers TWZ60 is equipped with 24V/30W x 2 ceramic heaters which can be interchangeable with soldering iron 107ESD as an option.

PRODUCT DESCRIPTION

The Soldering/Desoldering Station 988 has a self-contained vacuum pump which is electronically controlled, eliminating the need for additional shop air. The 988's diaphragm vacuum pump requires no oil, is maintenance free, quiet running and will not overload with continuous use. The vacuum pump provides up to 60 cm/Hg (23 in/Hg) suction power, activated by a push button switching circuit located on the desolder iron housing. Internal solder collector in handpiece is quickly and easily removed for cleaning. The inside mesh aluminum cooling strip has better solder chip adherence. Also the ventilation slots makes for a cooler handle, improving operator comfort.

The 988 incorporates electronic circuitry which enables the user to fine tune soldering tip temperature from 200°C (400°F) through 480°C (900°F) and desoldering tip temperature from 300°C (580°F) through 450°C (850°F) without changing tips or heating elements. The soldering iron incorporates a highly insulated Japanese made Ceramic heating element and desoldering iron is a precision wound Nichrome heater. The soldering iron 107ESD has an optional fume extraction kit which can be equipped easily.

The temperature is maintained within ±3°C (±6°F) of its operating temperature by a PTC sensor (for ceramic heater of soldering iron) and a thermocouple sensor (for nichrome heater of desoldering iron) to ensure maximum temperature as close to the working surface of the tip as possible. This results in both a rapid heat-up, fast recovery and exacting temperature control with minimal overshoot. The ergonomic and slender soldering iron design with a comfortable silicone rubber grip prevents operator fatigue.

The revolutionary "Zero Voltage" electronic switching design also protects voltage and current sensitive components (CMOS devices, etc.) against damaging current and transient voltage spikes commonly produced by less efficient, mechanically switched stations. The power unit is isolated from the A.C. line by a transformer and allows only 24VAC to drive all the heating elements. Both soldering and desoldering are constructed with an individual calibration port locating under the potential meters on the face of the unit for quick and convenient precision temperature adjustments.

The 988 soldering/desoldering station has been developed to meet the present and future needs of the electronic production industry and is ideal for use at any AC outlet. Engineered to meet the demanding needs of the hobbyist, service & repair technician as well as production people alike.

WORKING TEMPERATURE

SOLDERING

The most common solder alloys used in the electronic industry are 60% tin and 40% lead (60/40). The working temperature of solder is detailed below and can vary from manufacture to manufacture.

Melting point	215°C	(419°F)
Normal operation	270°C-320°C	(518°F-608°F)
Production line operation	320°C-380°C	(608°F-716°F)

When the iron's working temperature is set within the parameters suitable for the type of solder being used, a good joint is assured. Too low of a temperature will slow the rate of solder flow while a high temperature setting might burn the flux in the solder and emit a heavy, white smoke resulting in a dry joint or permanent damage to the printed circuit board (p.c.b.).

DESOLDERING

Recommended tip working temperatures are detailed below and can vary from joint to joint.

Operation for small joint	320°C-360°C	(608°F-680°F)
Operation for larger joint	370°C-400°C	(698°F-752°F)

Too low of a temperature will slow the flow rate of solder and may clog the tip, too a high temperature may burn the p.c.b.

OPERATING INSTRUCTIONS

- Ensure that the working voltage matches your power supply before beginning use.
- Check carefully for any damage during transportation.
- This unit contains:
  A. DIA60A: Desoldering iron assembly with tip.
  B. 107ESD: Soldering iron assembly with tip.
  C. Two iron holders for soldering and desoldering.
  D. AC power cord with plug.
- Accessories included:
  A. Two sponges
  B. One cleaning brush
  C. One cooling strip
  D. One 0.7 ø probe
  E. 10 pcs of filters
- Optional parts:
  A. TWZ60: 24V/60W tweezers can be interchangeable with 107ESD soldering iron.
  B. Fume extraction kit: For Soldering iron only.
  C. Tip adaptor with various SMD tips.

OPERATING PROCEDURES:

1. Ensure that the base unit's power switch is in the "OFF" position.
2. Plug in "Solder and Desolder" handpiece, connect "Vacuum tube" to "VAC".
3. Connect AC power cord to mains "In-Let".
4. Set "Temperature control knobs" to "MIN".
5. Switch "Mains power switch" to "ON" position, then switch both "SOLDER & DESOLDER" switches to "ON" position, both pilot lamps will be "ON".
6. Tin the surface of both soldering and desoldering tips by applying a new covering of solder to protect it.
7. Set both "Temperature control knobs" to the desired temperature about 3 minutes after being warmed. The unit will be ready for use once it reaches preset temperature - indicated by the pilot light going off.

PLEASE NOTE:

1. Both soldering, desoldering irons can be used at same time.
2. If 988 is idle for more than 15 minutes, an energy saving feature will automatically engage (evident by the green "PAUSE" indicator light), reducing idle temperature by 1/3 and extending your tip life. Activating the red suction button on the desolder handle will disengage the power saving feature and the unit will immediately ramp up to the preset temperature.

CAUTION: Do not touch any of the irons at any time while the unit is on or while it's cooling as they will still be hot.

SMD TWEEZER OPERATION

For optional TWZ60 SMD Tweezer Operation:

1. Disconnect the 107ESD soldering iron and change to TWZ60 Tweezer. Be sure the solder controlling switch is "OFF" before proceeding this operation to avoid any damage.
2. Throw the solder switch to "ON" position once the TWZ60 is connected properly. Tweezer is ready for use.
- Note: The Tweezer temperature will be lower about 50°C than the soldering iron temperature.
3. Use only the appropriately designed tips for the job to avoid unnecessary component damage.
4. Gently pick up and remove components while ensuring that a vertical pick up and pull out motion is maintained.
5. Use the same procedure when reconnecting the solder wand.

FIG. 1

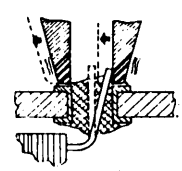
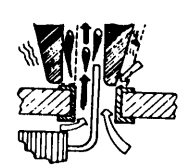


FIG. 2



IMPORTANT

DESOLDERING

1. Only activate the vacuum after the solder has completely melted. Melting is accomplished by moving the hot tip around the lead leaving visible melted solder on the component side of the P.C.B. See Fig. 1 & 2.
2. Release the vacuum switch only after the solder on the tip has been removed, otherwise the tip may clog.
3. Add solder to the joint of the component and allow the solder to melt completely for improved desoldering.
4. Remove the solder collector and clean it after no more than 200 applications. However, daily cleaning is strongly recommended.
5. Replace the cotton pad in the solder collector and the in-line filter when they begin to turn yellow.
6. If there is insufficient vacuum, use the spring wire included to clean the tip and also check the in-line filters.
7. Be sure that all filters are in place during operation or damage to the vacuum pump may occur.
8. Follow the steps outlined in the OPERATING PROCEDURE section of this manual if a new tip is to be installed.

SOLDERING

1. Temperature above 410°C (770°F) should not be used for normal soldering purposes. However, irons can be used for short periods of time when occasion demands, but should be used with caution.
2. See the OPERATING PROCEDURES section of this manual for tip replacement.

COMMON CAUSES FOR TIP FAILURES

1. Tip temperatures higher than 410°C (770°F).
2. The tip working surfaces are not tinned while the iron idling.
3. Lack of flux in soldering, wicking, repair, and touch-up operations.
4. Wiping the tip on a high sulfur content, dirty or dry sponge.
5. Contact with organic substances such as plastic, resin, silicone, grease and other chemicals.
6. Impurities in the solder and/or low tin content.

CARE OF TIPS

CAUTION: The soldering, desoldering irons can reach very high temperatures. Be sure to turn the unit off prior to carrying out any maintenance or trouble shooting steps listed below!

IMPORTANT:

Remove the tip and clean after each moderate to heavy use or daily for light usage. Remove any loose build up in the tip retaining assembly to prevent tip freezing.

Both solder, desolder tips supplied are iron clad copper and if used properly should maintain optimum life.

1. Always tin the tip before returning it to the holder, turning off the station, or storing it for long periods of time. Wipe the tip on a wet sponge or our tip cleaner 460 prior to use.
2. Keeping the iron set at high temperatures (more than 400°C or 750°F) will shorten tip life.
3. Do not use excessive pressure on the tip or rub the joint with the tip while soldering and/or desoldering, it does not improve the heat transfer and may damage the tip.
4. Never clean the tip with a file or abrasive materials.
5. Do not use fluxes which contain chloride or acid. Use only rosin or resin activated fluxes.
6. If an oxide film forms, it can be removed by careful buffing with a 600-800 grit emery cloth, isopropyl alcohol or equivalent and then wrapping rosin core solder around the newly exposed surfaces. Coat the tinned areas with rosin-core solder after the resin-core has melted.

NEW TIPS

Applying the following steps give the tip optimum life.

1. Set both temperature to min. then turn the main power switch to the "ON" position.
2. Set soldering tip temperature to 250°C (500°F approx.) and desoldering tip temperature to min. Coat the tinned surfaces with rosin-core solder after reaching 250°C.
3. Set to the desired temperature about 3 minutes after being warmed that the station will be ready for use once it reaches preset temperature.

IMPORTANT: Remove and clean the tip daily. If a new tip is installed, remove any loose build up in the tip and barrel assembly, otherwise the tip may fuse to the heating element or retaining barrel.

METHOD TO CHECK FOR LOSS OF SUCTION

The following procedures should be used on the 988 to check whether loss of suction is due to the tip, solder collector, tube or in-line filter.

CAUTION: THE DESOLDER SWITCH MUST BE "OFF" AND ALLOW THE IRON TO COOL BEFORE ATTEMPTING THE FOLLOWING PROCEDURES:

1. Disconnect vacuum tube from the fitting on the front panel, place finger over the hole of the fitting, depress vacuum switch and you should have a strong vacuum. If not, send back to your nearest service center for pump repair.
2. Disconnect the in-line filter from the iron assembly, depress vacuum switch, replace filling of the in-line filter if there is little vacuum pressure or the filters are discolored.
3. Remove solder collector from desolder iron assembly, place finger over the hole of the collector, depress vacuum switch. There is little suction, clean or replace the collector tube.
4. Depress vacuum switch, clean the tip tube with spring wire provided if there is no suction per the "Procedure for Cleaning Clogged Tip" section below.

MAINTENANCE

DESOLDER TIP REPLACEMENT AND DRESSING

Desolder tips can be changed or replaced simply by unscrewing the barrel nut assembly. The station must be turned off and allowed to cool before this operation. If the system is left on without a tip in place, damage to the iron assembly may occur!

After removing the tip, blow out any oxide dust that may have formed in the tip receptacle. Be careful not to get dust in your eyes. Replace the tip according to figures 3-8 and hand tighten the securing screw for the barrel nut assembly. Pliers can be used to avoid contact with hot surfaces BUT SHOULD BE USED WITH CAUTION because over tightening may cause damage to the element or fuse the tip to the element.

PROCEDURE FOR CLEANING CLOGGED TIPS

CAUTION: BE CAREFUL TO AVOID BURNING YOUR FINGERS DURING THIS OPERATION.

1. Be sure that the spring wire (included) will not go through the nozzle of the desolder tip.
2. Adjust the heating element to a higher temperature allowing the clogged solder to melt. Clean the tip by sliding the spring wire up and down until the passage is clear (see fig. 3).

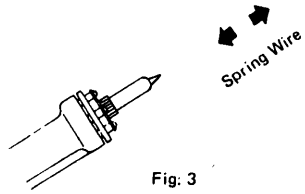


Fig: 3

Clean the stainless steel tube by moving spring wire up and down.

3. Unscrew the barrel nut assembly as in figures 4 & 5.

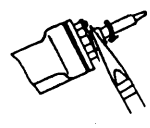


FIG-4

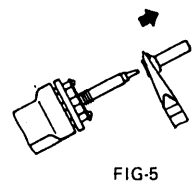


FIG-5

4. Remove the tip by using a pliers as in figures 6 & 7.

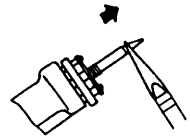


FIG-6

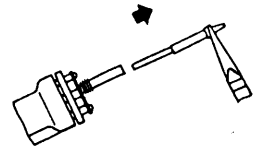


FIG-7

5. Insert the stainless tube of the tip back in the barrel to melt the solder in around 5 seconds as in figure 8.

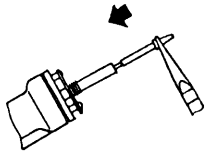


FIG-8

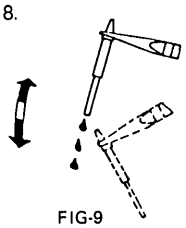


FIG-9

6. Remove again and shake out any loose melten solder in the tip per figure 9, the tip should now be unclogged. Replace the tip and screw back the retaining barrel nut assembly but care should be taken not to over tighten!

PROCEDURES FOR CLEANING THE SOLDER COLLECTOR

CAUTION: The desolder switch must be turned "OFF" and the iron allowed to cool before this operation.

1. Hold iron as in figure 10. Press and turn the red knob at the butt of the iron.

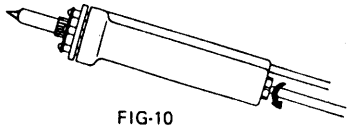


FIG-10

2. Slide out the solder collector as in figure 11. (CAUTION: The solder collector is glass and thus retains heat, handle with care!)

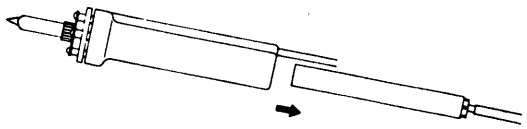


FIG-11

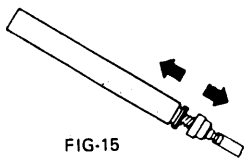


FIG-15

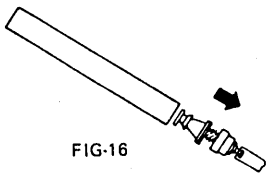


FIG-16

5. Remove old cotton filter and replace (see Figures 17 & 18).

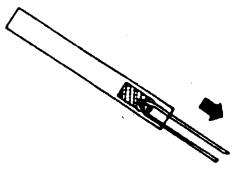


FIG-17

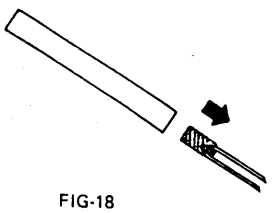
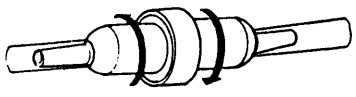


FIG-18

IN LINE FILTERS

1. Unscrew in line filter (see Figure 19) and then pull apart (Figure 20).

FIG-19



3. Point the collector down while shaking slightly (see figure 12) and the waste solder will fall out. This task must be carried out periodically for proper operation of the station.

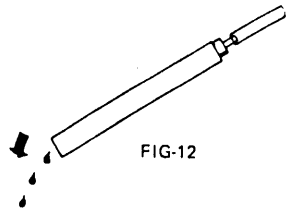


FIG-12

4. Remove cooling strip with a pair of pliers (see Figures 13 & 14).

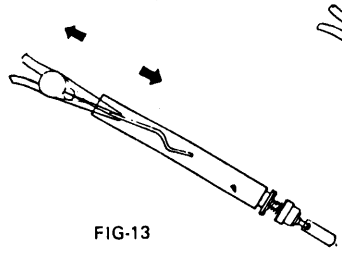


FIG-13

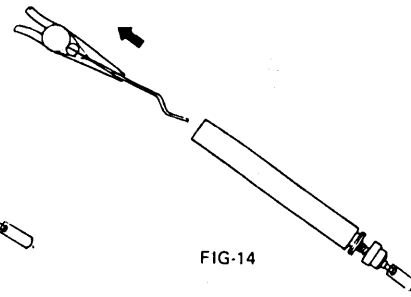


FIG-14

5. Clean the cooling strip and glass collector with wire brush (included).

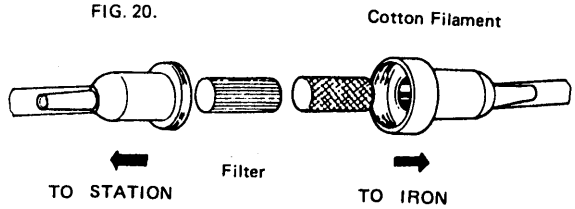
PROCEDURE FOR REPLACING FILTERS

SOLDER COLLECTOR FILTERS

1. Be sure the iron/filter assembly have cooled.
2. Hold iron as in Figure 10, press/turn red knob on butt of iron.
3. Remove solder collector (see Figure 11).
4. Disassemble the solder collector into 2 parts (see Figures 15 & 16).

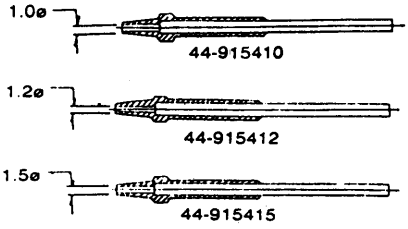
2. Replace the filter (lined portion) and cotton filament (shaded portion) as in Figure 20.

FIG. 20.

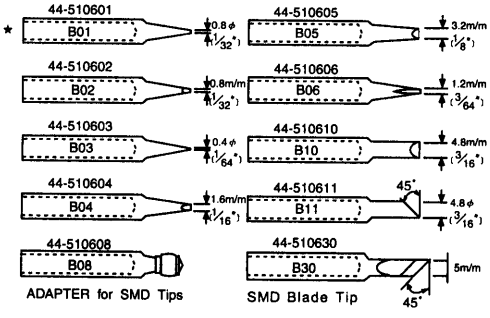


INTERCHANGEABLE TIPS

Desoldering Tip



Soldering Tip



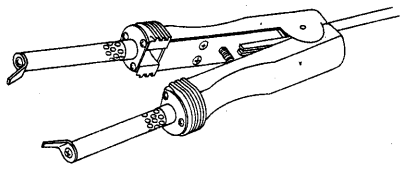
* Denotes standard tip

SMD TWEEZERS OPERATION

For TWZ60 SMD Tweezers Operation:

* Disconnect the Soldering Iron 107ESD and replace by SMD Tweezers.
* Use only the appropriately designed tip(s) for the job to avoid unnecessary component damage.
* Gently pick up and remove components while ensuring that a vertical pick up and pull out motion is maintained.

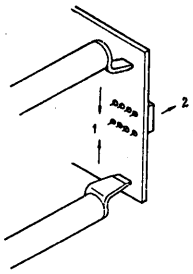
TWZ60-SMD TWEEZERS

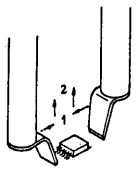


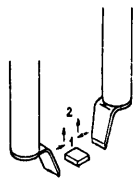
Heater type		Ceramic
Heater operation voltage	V.ac	24Vac
Heater power consumption	Watt	60W (30W×2)
Tweezer (with tip)		TWZ60
Temperature range	℃	150-430℃
	℉	300-800℉
Standard tip	*	46-060102

SMD TIPS FOR TWZ60

TIP TYPES	SUITABLE COMPONENTS
 46-060102 (2mm)  46-060103 (3mm)  46-060105 (5mm)	* Chip resistors * Chip capacitors * SOT
 46-060110 (10mm)  46-060115 (15mm)  46-060120 (20mm)  46-060130 (30mm)	* Flat pack IC's * Small outlet 8-24 pins * Flat package tunnel types * Dip IC's







107ESD SMD SOLDERING/DESOLDERING OPERATIONS

* Replace the soldering tip with the SMD tip adaptor by unscrewing the knurled barrel nut assembly (set Fig.1–3).
* Hand tightening is preferred, but be sure that the heating element is cool before attempting this procedure, otherwise use a pair of pliers to avoid burning your fingers. Care should be taken not to overtighten the nut.
* Choose the suitable SMD tip(s) and screw it on the tip adaptor tightly by hand.

FIG 1.

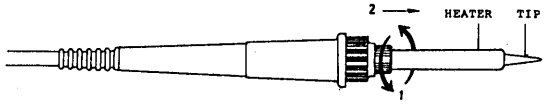


FIG 2.

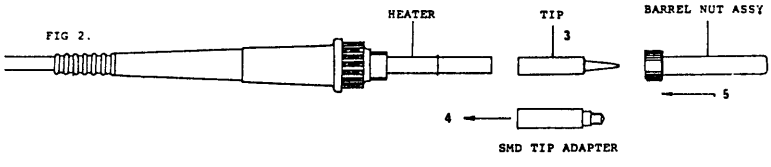
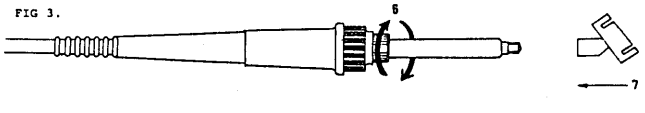
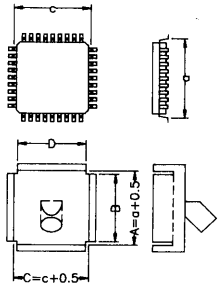


FIG 3.



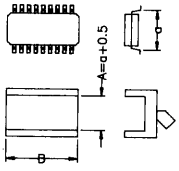
SMD Tip chart for XYTRONIC's stations

988, 136, 136ESD, 137ESD, XY9-60D, XY9-60A, 168-3C



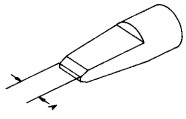
FLAT PACK BOX TYPE

PART NO.	A	B	C	D
46-010001	8.5	6.5	8.5	6.5
46-010002	14.0	9.5	14.0	9.5
46-010003	23.0	20.0	23.0	20.0
46-010004	20.0	17.0	20.0	17.0
46-010005	17.0	14.0	17.0	14.0
46-010006	16.3	13.3	16.3	13.3
46-010007	15.5	12.5	15.5	12.5
46-010008	12.5	9.5	12.5	9.5
46-010009	23.0	20.0	17.0	14.0



FLAT PACK TUNNEL TYPE

PART NO.	A	B
46-020001	9.0	15.0
46-020002	9.0	15.2
46-020003	7.0	12.5
46-020004	6.0	10.0
46-020005	6.0	5.0

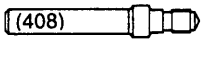


FLAT PACK SOLDERING TIP

PART NO.	A
46-040002	10

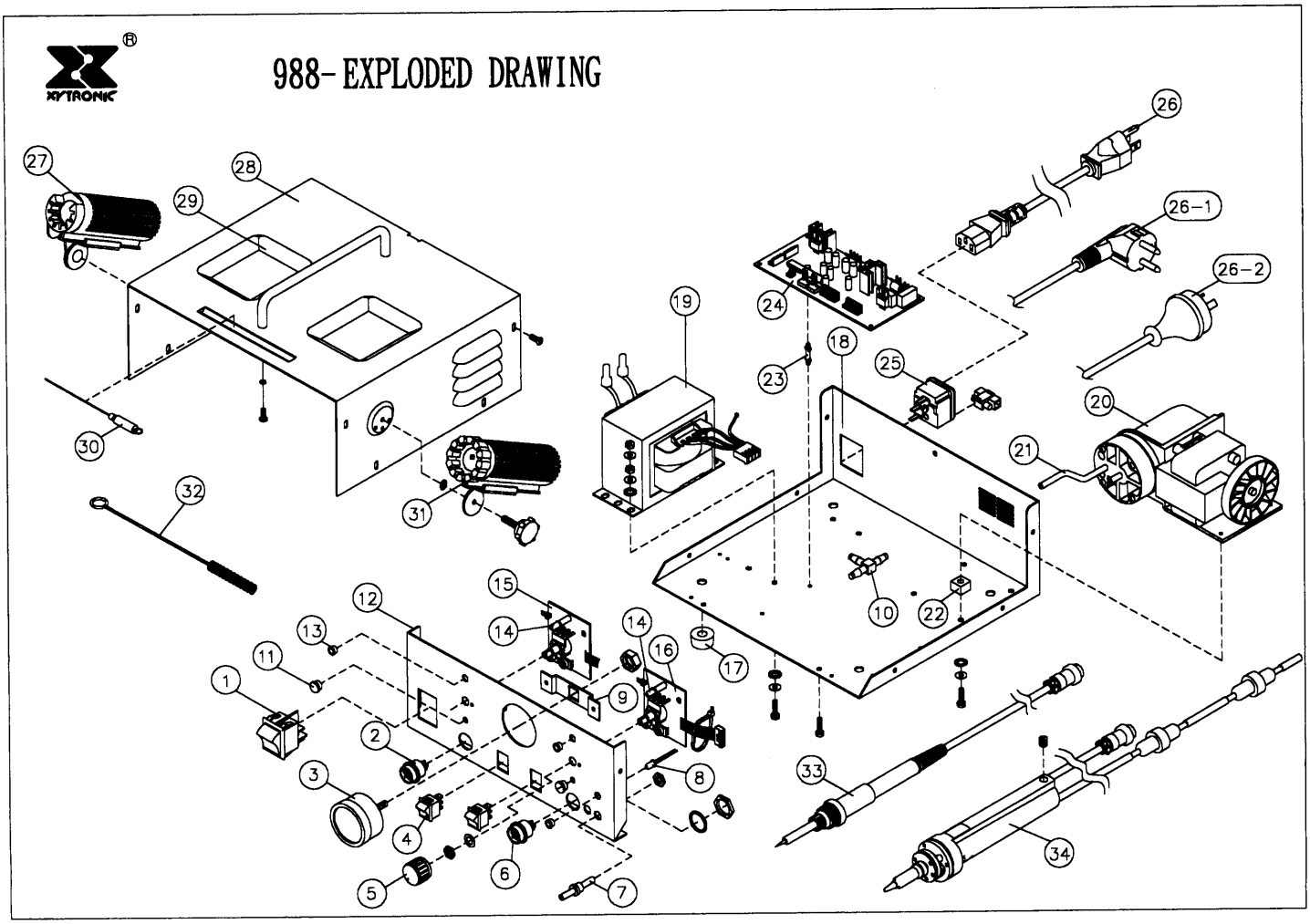
SMD TIP ADAPTER

44-415408 for SIA60, 207, 207ESD



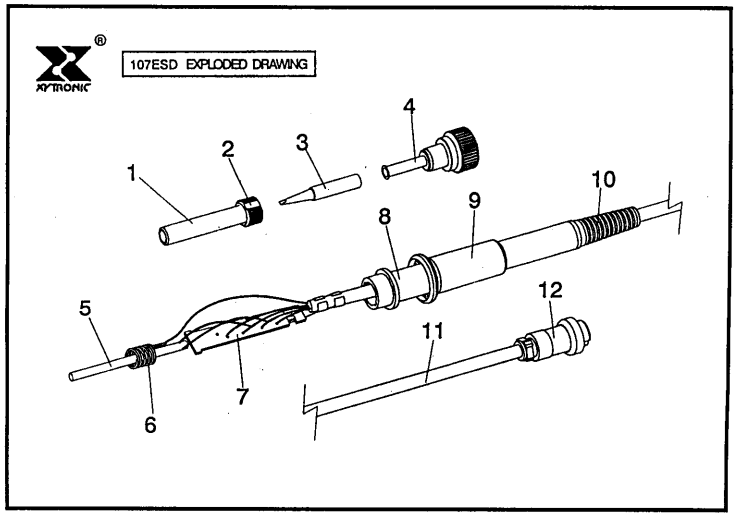
44-510608 for 107, 107ESD

988- EXPLODED DRAWING



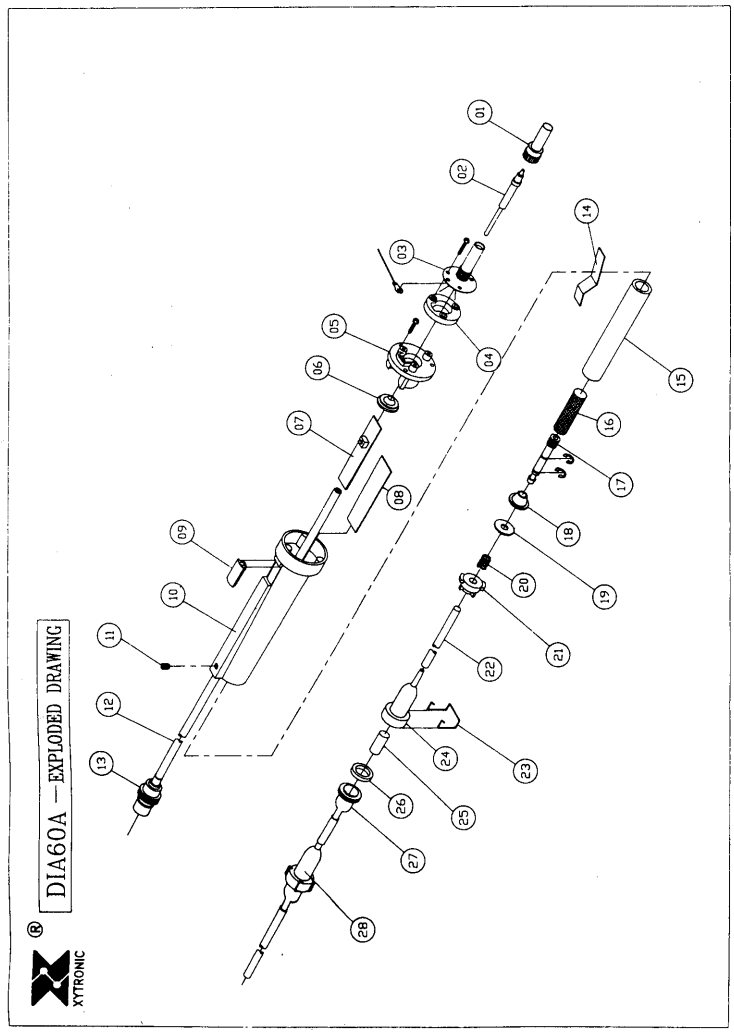
988 SPARE PARTS LIST

ITEM	PART NO.	DESCRIPTIONS
1	53-042241	DPDT ILLUMINATED ROCKER SWITCH, 4PIN
2	60-120611	6-PIN CABLE CONNECTOR, MALE
3	74-104001	VACUUM GAUGE
4	53-021142	SPST ROCKER SWITCH, 2 PIN
5	42-010100	TEMPERATURE CONTROL KNOB, ϕ 20×15MM
6	60-120711	7-PIN CABLE CONNECTOR, MALE
7	42-040023	SILICONE TUBE FITTING
8	09-150871G	5ϕ LED, GREEN
9	28-010052	GAUGE MOUNTING BRACKET
10	26-040042	T FITTING
11	52-020037	RUBBER STOPPER FOR CALIBRATION PORT
12	28-010238	FRONT PANEL
13	26-050043	L. E. D. MOUNTING GROMMET
14	09-150871R	5ϕ L. E. D., RED
15	66A213099-22	MAIN CIRCUIT BOARD ASS'Y FOR SOLDERING
16	66A213099-22A	MAIN CIRCUIT BOARD ASS'Y FOR DESOLDERING
17	52-020034	RUBBER FOOT FF-018
18	28-010239	BOTTOM ENCLOSURE
19	61-121609	POWER TRANSFORMER, 120VAC
19-1	61-241609	POWER TRANSFORMER, 230VAC
19-2	61-251609	POWER TRANSFORMER, 250VAC
20	73-311104	VACUUM PUMP 115V
20-1	73-311404	VACUUM PUMP 230V
20-2	73-11151	VACUUM PUMP 240V
21	37-061030	SILICONE RUBBER TUBE
22	52-030007	RUBBER SPACER FOR VACUUM PUMP
23	26-050170	CIRCUIT BOARD SPACER (SUPPORT)
24	66A213100	POWER AND DRIVE PCB
25	58-3030221	AC MAINS IN-LET WITH FUSE
26	33-120318	UL AC POWER CORD W/PLUG, SVT TYPE
26-1	33-330519	VDE AC POWER CORD W/PLUG, H03W-F
26-2	33-940726	SAA AC POWER CORD W/PLUG, 250V/10A
27	26A011 2041	SOLDERING IRON HOLDER ASSEMBLY
28	28-010240	TOP ENCLOSURE
29	78-465715	SPONGE
30	50-100730	PROBE 0.7ϕ
31	26A010179	DESOLDERING IRON HOLDER ASSEMBLY
32	91-040004	CLEANING BRUSH
33	107ESD	SOLDERING IRON ASSEMBLY 24V/60W
34	DIA60A	DESOLDERING IRON ASSEMBLY 24/60W



107ESD SPARE PART LIST

ITEM	PART NO.	DESCRIPTIONS
1	28-020225	BARREL
2	42-030102	NUT
3	44-510600	TIP FORM B01(44-510601)THRU B06, B10, B11
	44-510608	TIP ADAPTOR B08
4	26A140172SF	HEATER HOLDER ASSY, ESD SAFE
5	79A024060P	CERAMIC HEATER 24V/60W
6	50-210531	SPIRAL SPRING FOR GROUNDING
7	66A213094	HEATER PCB WITH CABLE FIXING CLIP
8	26-060173SF	PLASTIC HANDLE, ESD SAFE
9	52-070039	SILICONE RUBBER COLLAR, ESD SAFE
10	52-020040SF	BENDING GUARD
11	34-052071	5-WIRE SILICONE RUBBER CABLE, ESD SAFE
12	60-130611	6-PIN CABLE CONNECTOR (FEMALE)



DIA60A SPARE PARTS LIST

ITEM	PART NO.	DESCRIPTIONS
01	77A100325	BARREL NUT ASS'Y
02	44-915400 series	DESOLDERING TIP 410 (1.0φ), D12 (1.2φ), D15 (1.5φ), 44-915412 AS STANDARD
03	79-024060	24V/60W DESOLDER HEATER
3-7	79B024060D	DESOLDER HEATER ASS'Y
04	27-020010	RATIATOR SPACER
05	27-020008	BAKELITE HEATER HOLDER
06	52-010013	VACUUM SEAL
07	66A213059	HEATER P. C. B. ASS'Y
08	38-011003	INSULATION PARTITION
09	26-020038	PUSH BUTTON
10	26-100037	DESOLDERING PLASTIC HANDLE
11	26-030091	PLASTIC SET SCREW M6 × 5
12	34-072041	7-WIRE SILICONE RUBBER CABLE
13	60-130711	7-PIN CABLE CONNECTOR (FEMALE)
14	29-010016	COOLING STRIP
15	75-160110	GLASS SOLDER COLLSCTOR
16	76-1411030	COTTON FILAMENT
17	42-040024	FUME REDUCER
18	52-010010	VACUUM SEAL "A"
19	45-106016	VACUUM SEALING STOPPER
20	50-207708	TENSION SPRING
21	26-020039	LOCK
22	37-061030	SILICONE RUBBER TUBE 1.5 METER
23	50-101012	CLIP
24	26-040040	FILTER CAP "A"
25	78-151500	FILTER
26	52-020011	SEAL O-RING
27	26-040041	FILTER CAP "B"
28	26A04004AB	FILTER CAP ASS'Y

SOLDERING/DESOLDERING STATION

988

ESD Safe

INSTRUCTION MANUAL

Congratulations on selecting Xytronic's – the best solution for all your soldering/desoldering equipment needs! We believe you will be more than satisfied with the many features and the versatility of your new soldering/desoldering station. Xytronic's products have been serving the electronics industry for over 15 years and with its many special features has proven to be the ultimate in a soldering/desoldering instrument.

Please carefully read the instruction manual to maximize the advantages of using your new 988 soldering/desoldering station.