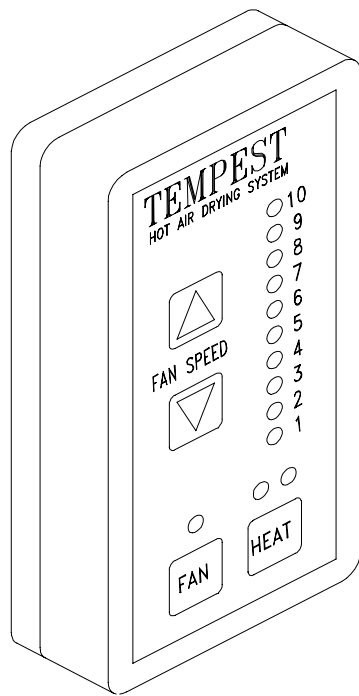


# Tempest<sup>®</sup> Hot Air Drying System

## Installation Instructions

Heidelberg QuickMaster



**ACCEL**  <sup>®</sup>  
Graphic Systems

## GENERAL INFORMATION

### ATTENTION TEMPEST® DRYER OWNER!

Accel Graphic Systems provides parts and service through its authorized distributors and dealers. Therefore, all requests for parts and service should be directed to your local dealer.

The philosophy of Accel Graphic Systems is to continually improve all of its products. Written notices of changes and improvements are sent to Accel Graphic Systems' Dealers.

If the operating characteristics or the appearance of your product differs from those described in this manual, please contact your local Accel Graphic Systems Dealer for updated information and assistance.

Always update your equipment when improvements are made available, especially those related to safety.

#### YOUR AUTHORIZED TEMPEST® DEALER IS:

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#### THE SERIAL NUMBER OF YOUR TEMPEST® HOT AIR DRYING SYSTEM IS:

CONTROL BOX \_\_\_\_\_

FAN UNIT \_\_\_\_\_

### TECHNICAL ASSISTANCE

For technical assistance during the installation, please contact:

**ACCEL GRAPHIC SYSTEMS**  
11103 Indian Trail  
Dallas, TX 75229  
PHONE (972) 484-6808  
FAX (800) 365-6510  
E-MAIL [accel@dallas.net](mailto:accel@dallas.net)  
WEB SITE [www.accelgraphicsystems.com](http://www.accelgraphicsystems.com)

## GENERAL INFORMATION

### ELECTRICAL REQUIREMENTS

220 VAC 50/60 HZ  
20 AMP DEDICATED LINE  
NEMA L620R RECEPTACLE

### IMPORTANT INFORMATION

The use of heat to accelerate drying may require more frequent lubrication and/or use of a high temperature lubricant in the delivery of the press. Please consult your press manufacturer for specific recommendations.

### SAFETY INFORMATION

The Tempest® Dryer contains high voltage and hot surfaces. Never attempt to service or work on the unit unless the power is shut off and the unit is cool.

Visually inspect the thermistors (triangular shaped objects arranged in a honeycombed pattern on the underside of the unit) weekly. If a thermistor is damaged or cracked, do not operate the dryer. Contact Accel immediately for a replacement part.

The fans should be turned on and set at the lowest speed ("0" on the dial when running just spray powder and no heat. This prevents spray powder from accumulating in the thermistors and housings.

### TERMINOLOGY

OPS = Operator's Side  
NOPS = Non Operator's Side

### TOOLS REQUIRED FOR INSTALLATION

1. 3mm Allen wrench
2. 4mm Allen wrench
3. 5mm Allen wrench
4. 8mm Allen wrench
5. 5/32 Allen wrench
6. 8mm socket driver or wrench
7. 10mm socket driver or wrench
8. Phillips screwdriver

## GENERAL INFORMATION

### **HOT AIR VS INFRARED: WHAT MAKES TEMPEST® WORK**

Although the technology behind the Tempest® dryer was significant enough to be awarded the GATF Intertech Award it is by no means new. In fact, thermistors have been in use for many years. They were originally used in motors and other devices as a heat controller and later used in refrigeration to turn compressors on and off. It is only in the last 10 years or so that thermistors have been used as a heater.

Heat is generated by the thermistor because of the difficulty of electricity travelling through it when it is a conductor. The thermistor acts as a conductor until it reaches its set temperature and then it becomes a resistor. A thermistor is basically a coated semiconductor designed to switch from a conductor to a resistor at an established temperature.

When a current is applied to the thermistor it initially uses a large amount of electricity and heats up very quickly until it reaches its maximum set temperature. At this point it should not use any more electricity. However, air that is passed through the holes in the thermistor causes it to cool. This activates the thermistor to start using more power again so it can get back to its set temperature. The thermistor is constantly regenerating itself to stay at a constant temperature. This process is called autostabilization.

Thermistors are also the key element that makes the Tempest® dryer safe. Because the set temperature of the thermistor is lower than the flash point of paper, you can place even the most easily burned substrate such as tissue paper, on top of the thermistor element without causing a fire. The tissue won't even char, let alone ignite. If you were to do the same with an IR element, a fire could be started in a matter of seconds. This is particularly important if a jam occurs in the delivery.

The objective of any drying system is to raise the pile temperature to accelerate the drying of the ink. However, heating the paper too much can aggravate problems such as blocking, setoff, mottle, loss of gloss, and loss of halftone definition. Too much heat can also cause the paper to shrink which can cause register problems in multiple pass work. The Tempest® dryer can keep the pile at a lower temperature than IR and still effectively set the ink film.

## GENERAL INFORMATION

IR dryers use very high temperatures and a fixed amount of electricity. The heat generated from an IR dryer can cause premature wear of press parts. Because the thermistors used in the Tempest® dryer use lower temperatures the chance of premature wear is reduced.

### HOW DRYING IS ACCOMPLISHED WITH TEMPEST®

Tempest® "sets" the surface of the ink to prevent setoff from one sheet to another and to minimize the use of powder.

Tempest® accelerates the final drying of oil based inks by raising the temperature of the delivery stack.

### KEY FACTORS TO REMEMBER ABOUT DRYERS FOR SMALL OFFSET PRESSES.

Do not expect a dryer to "instantly" dry the ink. Only UV inks and coating dry instantly. The technology and hazards of such systems make them cost prohibitive on small offset presses.

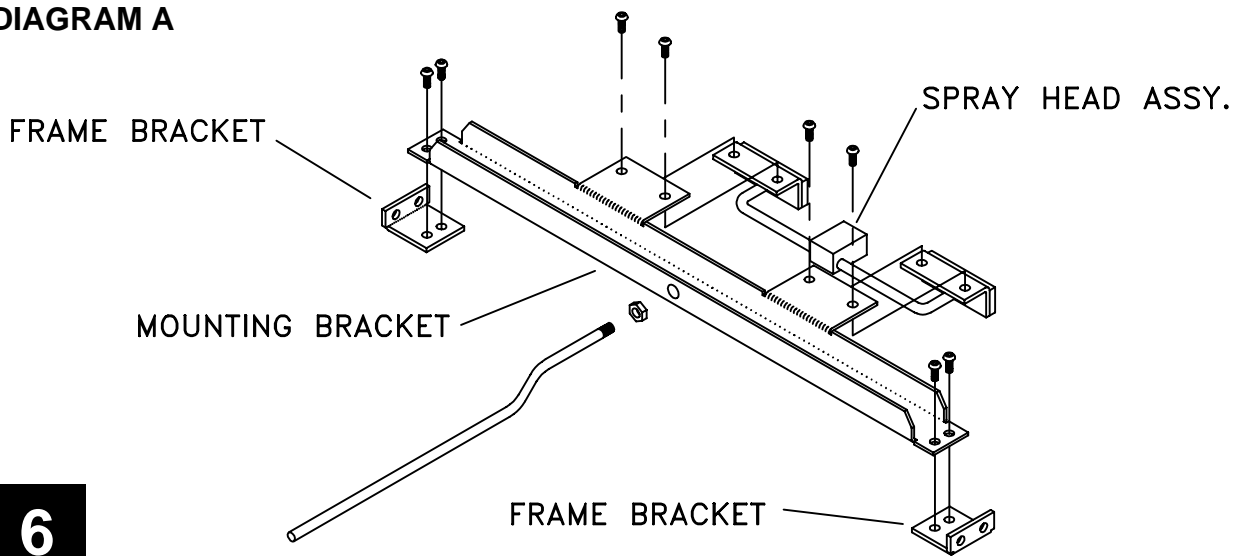
Some jobs may require spray powder. Because dryers for small offset presses do not dry ink instantly, powder will be required from time to time. However, you should expect to see a significant decrease in the amount of powder needed on a regular basis.

Drying time is dependent upon the press speed, paper stock, ink coverage, type of ink etc.

Do not expect a dryer to accelerate the drying of rubber based inks. These inks dry by absorption into the stock and heat does not accelerate this process.

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DIAGRAM A



# INSTALLATION

**1**

**INSTALLATION NOTE:** These instructions are written to accommodate the original powder spray system (Airtech). If Accel's PowderPro® spray system is being installed in conjunction with the Tempest® Dryer, disregard any references to the Airtech in the instructions and remove the entire original spray system.

Disconnect the electrical power to the press.

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**2**

Remove the NOPS side cover, the OPS delivery side cover, and the guard over the delivery.

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**3**

If the press is equipped with an Airtech powder sprayer you will need to remove the spray head assembly from the mounting bracket as shown in diagram A. Save the spray head assembly as it will be reinstalled in a later step using the original screws. Remove the mounting bracket from the frame brackets, and remove the frame brackets from the press frame. Save the white plastic blow down tube support bracket as it will be reinstalled in a later step.

**7**

DIAGRAM B

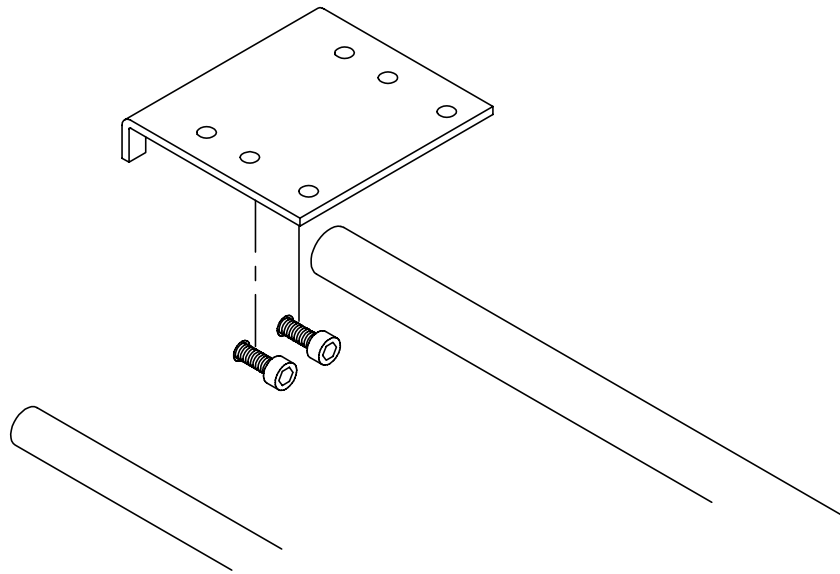


DIAGRAM C

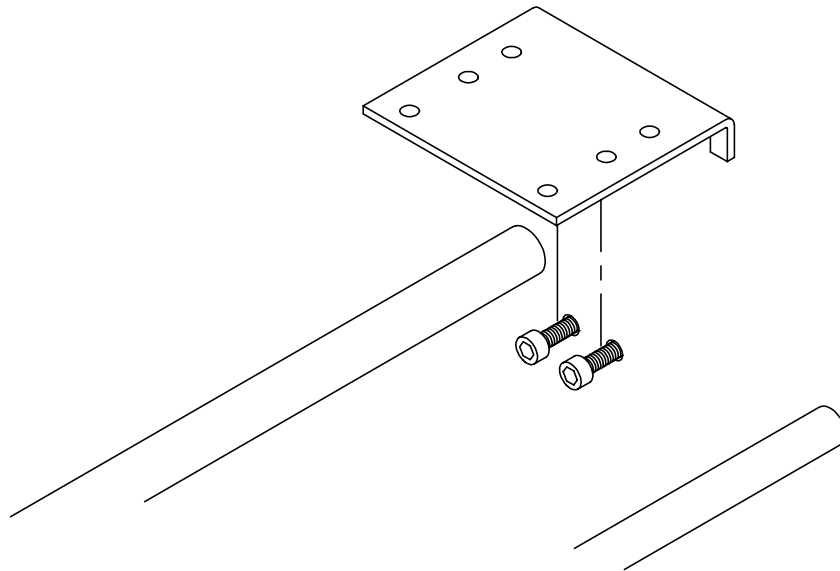
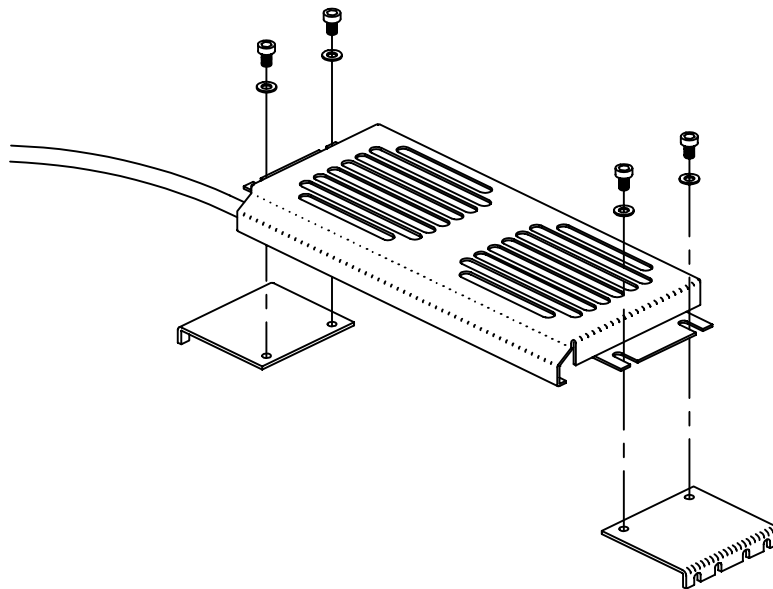


DIAGRAM D



## INSTALLATION

**4**

Using the provided hardware install the NOPS Tempest® mounting bracket as shown in diagram B. Start by loosely installing the bolts into the same holes in the frame that the Airtech frame brackets used. Slip the bracket over the bolts using the slots that are nearest to the feeder end of the press. Tighten the bolts.

---

**5**

Repeat the above procedure for the OPS Tempest® mounting bracket as shown in diagram C.

---

**6**

Set the dryer in the delivery with the cable exiting the dryer on the NOPS. Start the cable through the same hole in the press frame that the powder spray hoses go through. As you pull the cable through the hole you can set the dryer on the mounting brackets. Secure the dryer to the brackets using the provided hardware as shown in diagram D.

**9**

DIAGRAM E

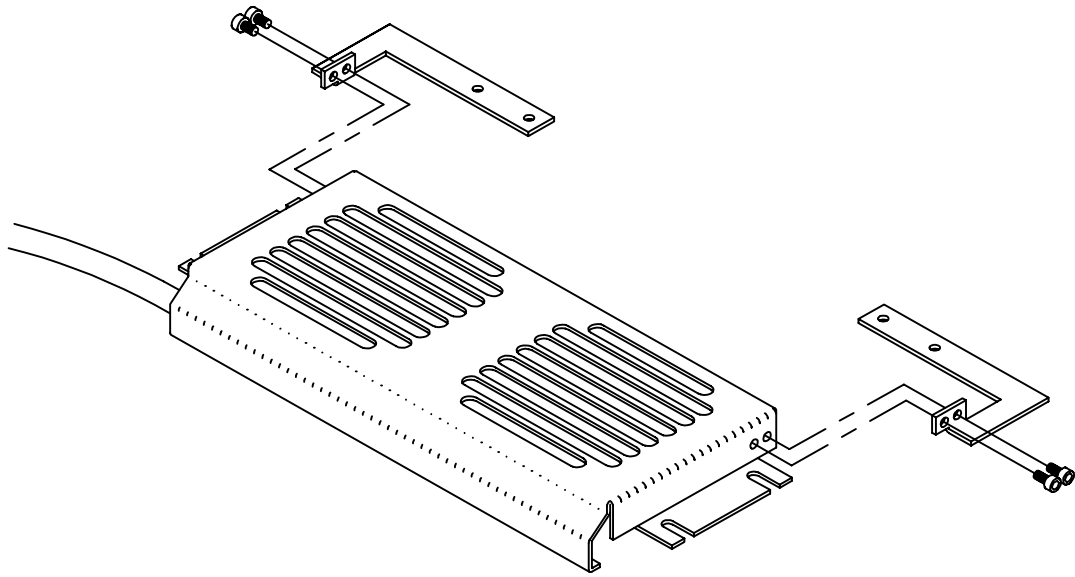


DIAGRAM F

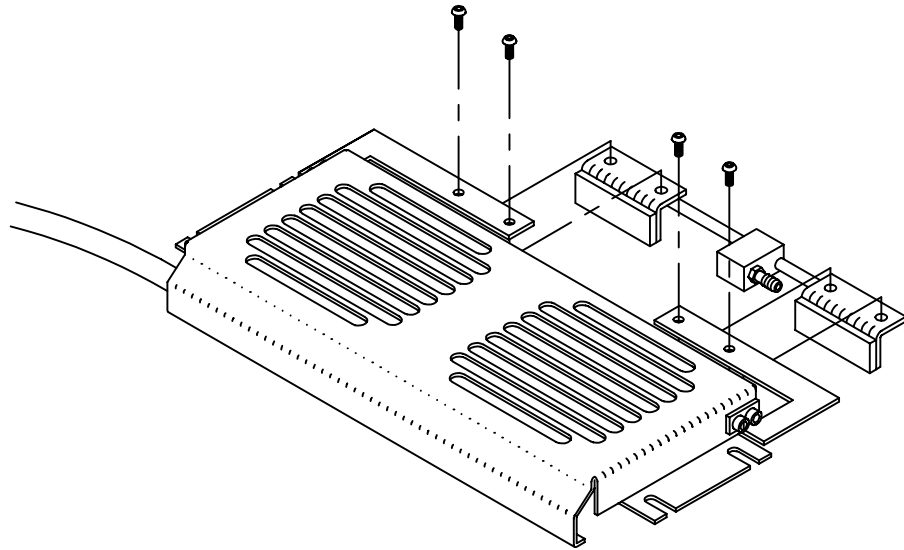
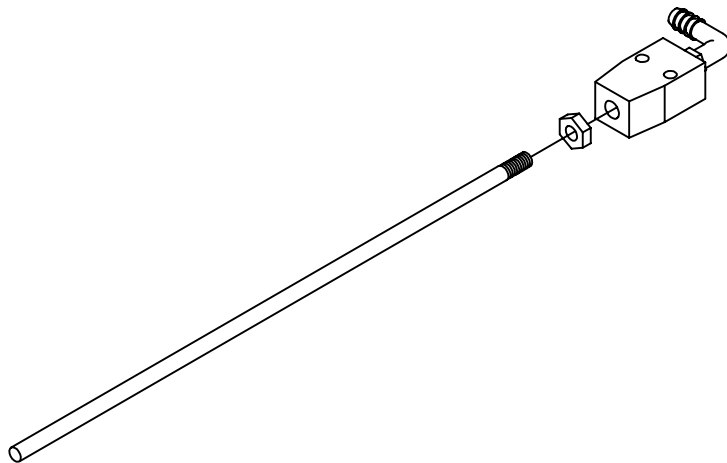


DIAGRAM G



## INSTALLATION

7

If the press is equipped with an Airtech sprayer, attach the provided spray head mounting brackets to the dryer unit using the provided hardware as shown in diagram E.

8

Attach the original spray head assembly to the brackets installed in the previous step as shown in diagram F. Note that the diagram shows the spray head installed opposite of the way it was originally installed. Use the provided barbed union connector and short hose to connect the spray head to the original powder supply hose (black). Use the provided tie wraps to secure the hose as necessary to prevent contact with any moving parts in the delivery.

9

**Note: If you are installing a PowderPro® sprayer in conjunction with the Tempest® skip this step.**

Attach the provided blow down tube to the distribution block on the underside of the dryer, locking it in place with the supplied jam nut (See diagram G). Transfer the shut-off rings from the Airtech blow down tube to the new one. Install the blow down tube end support block saved from the original sprayer.

11

DIAGRAM H

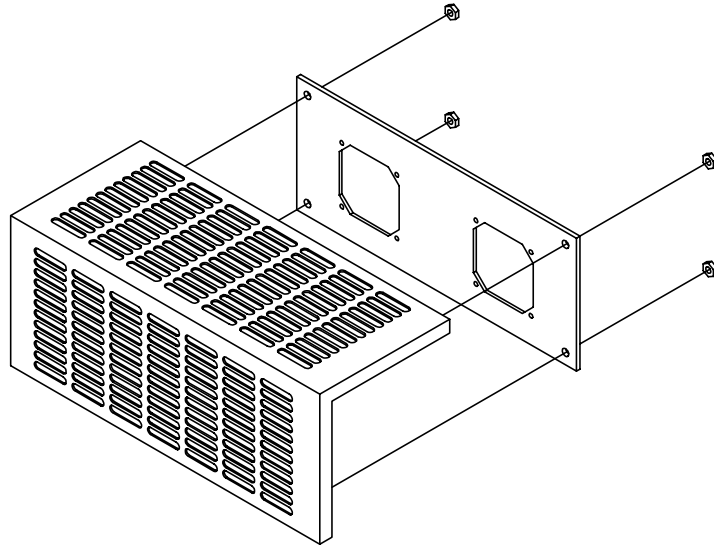
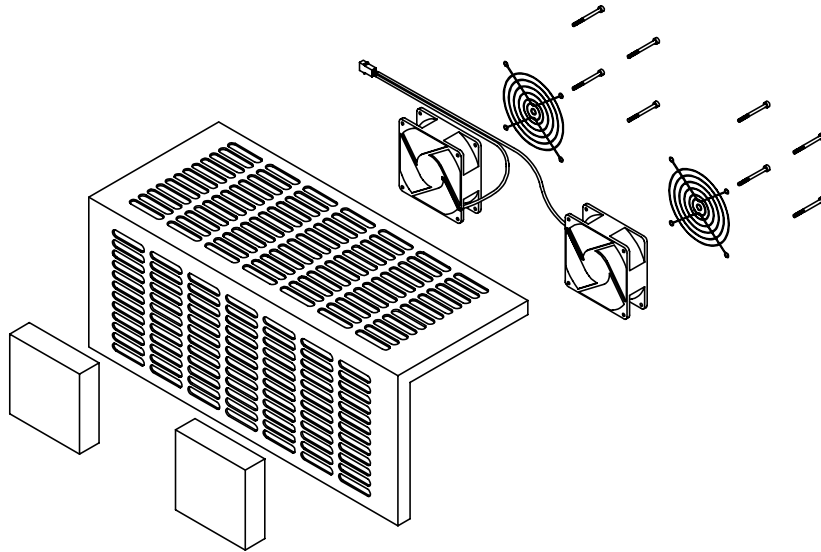


DIAGRAM I



## INSTALLATION

**10**

Remove the clear plastic insert from the end of the delivery guard and replace it with the new one provided as shown in diagram H. Make sure that the side of the plastic guard that has the counter sinks on the mounting holes goes up against the delivery guard.

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**11**

Install the exhaust fan assembly to the guard as shown in diagram I. Make sure that the air flow directional arrows on the fans are pointing through the guard away from the press. Use one of the provided stick-on zip-tie mounts to secure the cable up against the inside of the press guard. Replace the guard on the press.

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**12**

Locate wire no.'s 5 & 8 in the X42 connector on the SVK2 circuit board in the press electrical cabinet. Attach the provided t-tap splice connectors to these wires.

**13**



## INSTALLATION

**13**

Find a suitable location for the main Tempest® electrical box on the NOPS of the press. Route the exhaust fan cable into the delivery and connect it to the exhaust fans installed in Step 13. Route the impression signal cable through the press and connect it to the t-tap connector installed in Step 14. Use the provided tie-wraps to secure the cables as necessary.

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**14**

Remove the cover from the main Tempest® electrical box and insert the dryer cable through the strain relief on the bottom of the box. Remove the twelve position connector (only six positions are numbered) from the board and insert the wires into the connector by matching the numbered tabs on the wires to the matching position on the connector. Secure the ground wire to the stud on the inside of the box. Replace the connector on the board and tighten the strain relief. Replace the cover on the box.

---

**15**

Reinstall the NOPS cover on the press. Route the dryer cable and the impression signal cable out of the notch located in the bottom of the delivery portion of this cover. Replace the OPS delivery side cover.

**15**

## OPERATION & MAINTENANCE

### HOW DRYING IS ACCELERATED WITH TEMPEST®

Tempest® creates a two step drying process when used with oil base inks. These steps are:

1. Skinning the surface of the ink with the initial blast of hot air to prevent set off .
2. Accelerating the final drying process approximately 20°F over the cold stack temperature in the feeder. Heat accelerates the drying process, called oxidation and reduction, of oil based inks.

In general, dryers, including infrared, do not work well with rubber or acrylic-based inks. These inks should be avoided when maximum results are desired.

### HOW TEMPEST® WORKS

1. When voltage is applied to the thermistors (triangular shaped objects arranged in a honeycomb pattern), the thermistors begin to heat. (Thermistors are coated semiconductors.)
2. Thermistors heat to a predetermined temperature, in this case about 400°F, and remain at that temperature. This is known as autostabilization.
3. The fans blow air down towards and through the thermistors, creating a flow of hot air to the sheet.
4. Drying of the ink occurs in the two step process as described above.

No dryer totally eliminates the need for spray powder. There may be some jobs, for example a heavy solid on a high gloss sheet, where powder is required. Overall, Tempest® should reduce your spray powder usage significantly, leaving you with a better printed product and cleaner working environment.

### TEMPEST® OPERATION

#### NORMAL OPERATION

Pressing the HEAT switch will illuminate both the green and yellow LEDs on the remote control unit. The green LED indicates that the fans (both dryer and exhaust fans if so equipped) are running while the yellow LED indicates that the dryer is armed and the heat will come on automatically when the press goes on impression. When the press does go on impression, the red LED will illuminate indicating that the heat is on. Pressing the heat button again will disarm the heat mode but the fans will continue to run. To turn the unit OFF press the FAN switch at any time.

#### FAN ONLY OPERATION

To operate only the fans, press the FAN switch. The green LED will illuminate and the fans will come on (both the dryer and exhaust fans if so equipped). The heat mode of the dryer is not armed and will not come on with impression. To turn the fans OFF press the FAN switch again.

## OPERATION & MAINTENANCE

### FAN SPEED CONTROL

To adjust the fan to a higher setting, press the up arrow on the remote control unit. To decrease the fan speed press the down arrow on the remote. The fans will automatically go to the minimum speed setting for a few seconds when the press goes on impression and then they return to the previous setting. This reduction in fan speed allows the dryer to heat up more quickly.

### INITIAL SETTINGS

Try running Tempest® with the fan speed at "4" with the switch on "HEAT". After about 1" of paper stacked in the delivery, insert the thermometer into the center of the stack. Allow the thermometer to stabilize. It should be approximately 20°F above the initial pile temperature.

If the temperature is below that, **decrease the fan speed** slightly. If the temperature is above that, **increase the fan speed** slightly.

### FACTORS THAT EFFECT DRYING

1. Speed of the press.
2. Amount of ink coverage and color.
3. Type of stock being printed.
4. Initial temperature of paper.

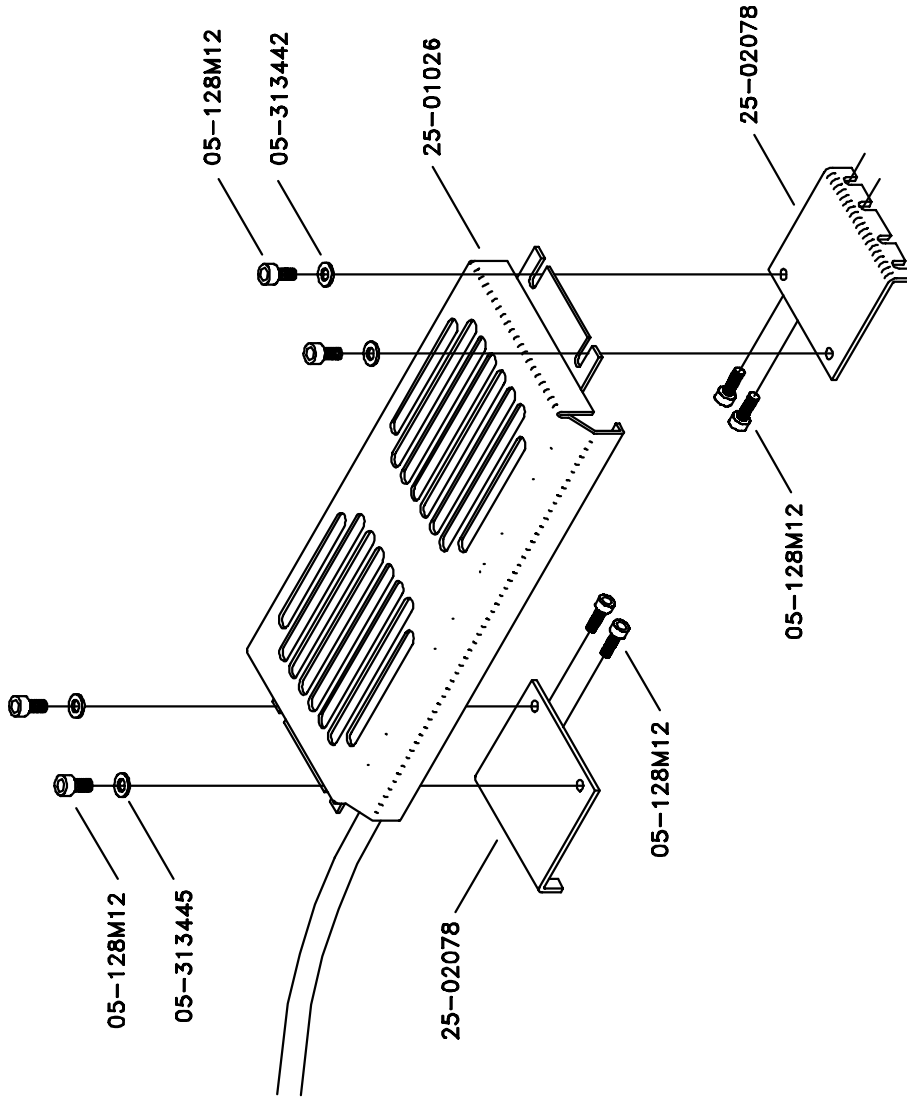
In time and with practice you will learn which settings are best for your particular shop.

### KEYS TO REMEMBER

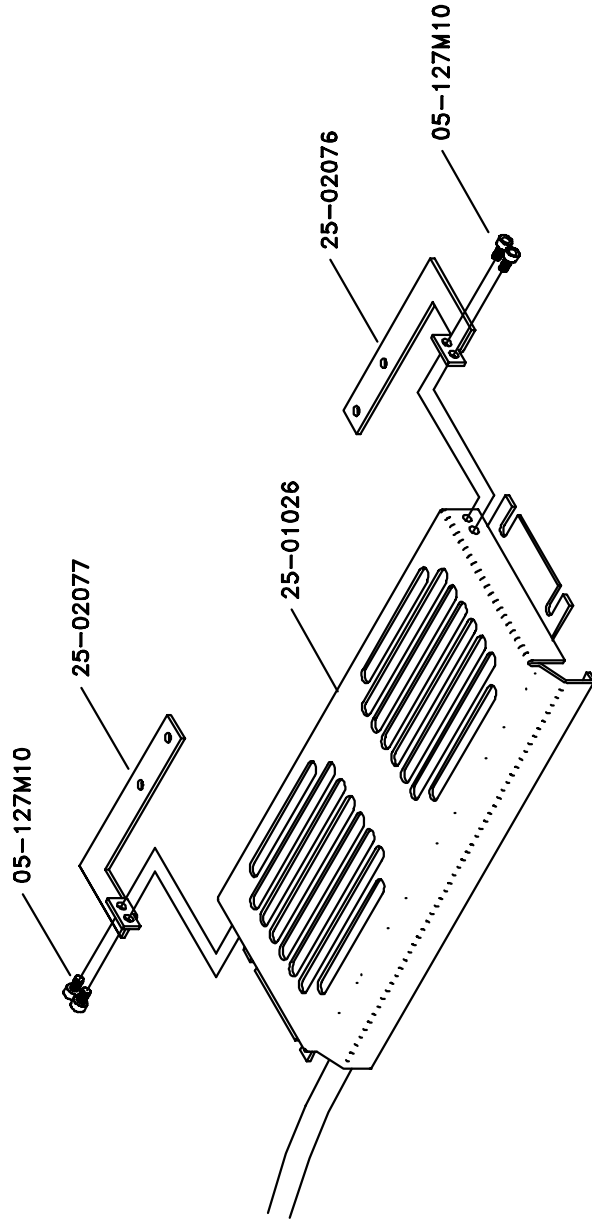
1. The Tempest® takes about 12 sheets to come up to full power. The dryer remains on as long as paper is being fed. It does not cycle like an infrared dryer.
2. The pile temperature should be approximately 20°F above the initial pile temperature for optimum drying.
3. Use spray powder only when absolutely necessary. A little spray powder goes a long way. Use it sparingly.
4. Inspect the Tempest® weekly.

### MAINTENANCE

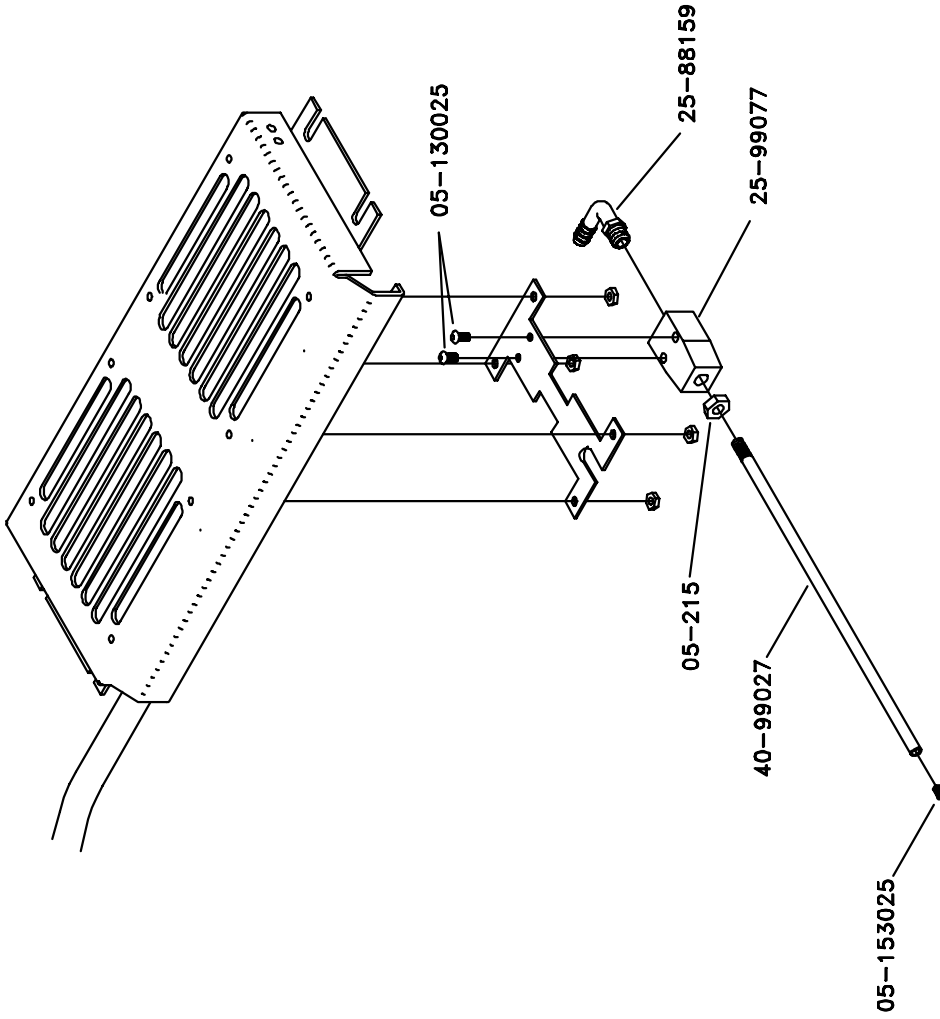
1. Inspect the dryer weekly. If the thermistors are cracked or have been damaged, do not operate the dryer. Call Accel immediately.
2. Never squirt cleaning solvents, water or any other liquids into the dryer. This may damage electrical components.
3. Any spray powder that accumulates in the dryer should be vacuumed out, not blown out.
4. Make sure all heat shields and guards are in place before operating the dryer or printing press.



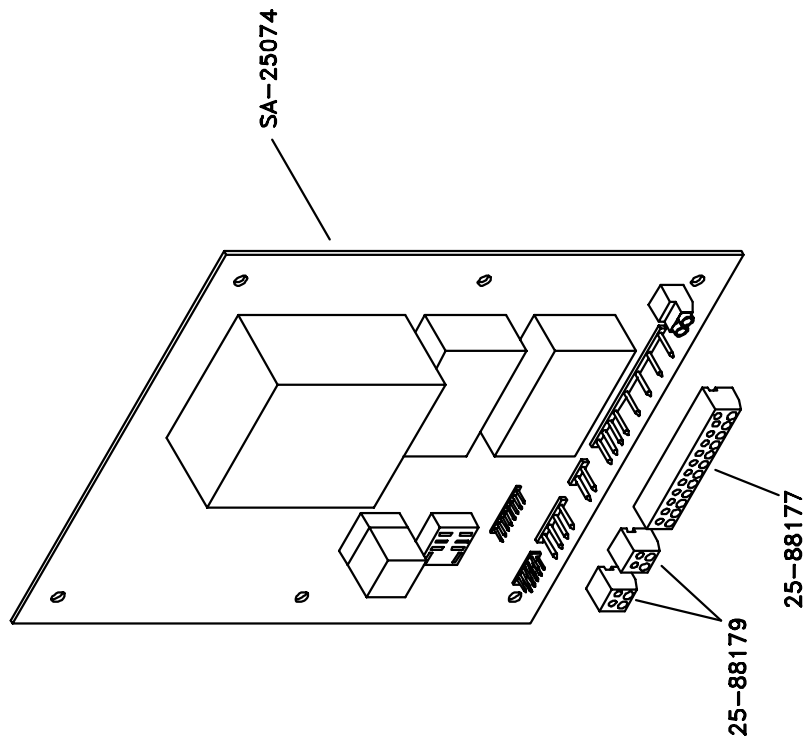
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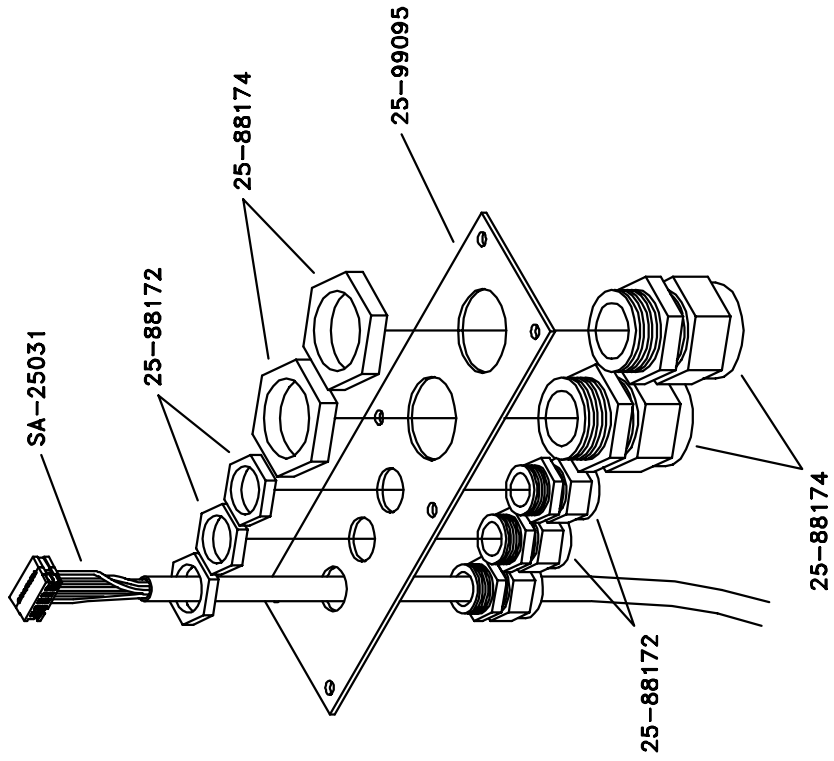
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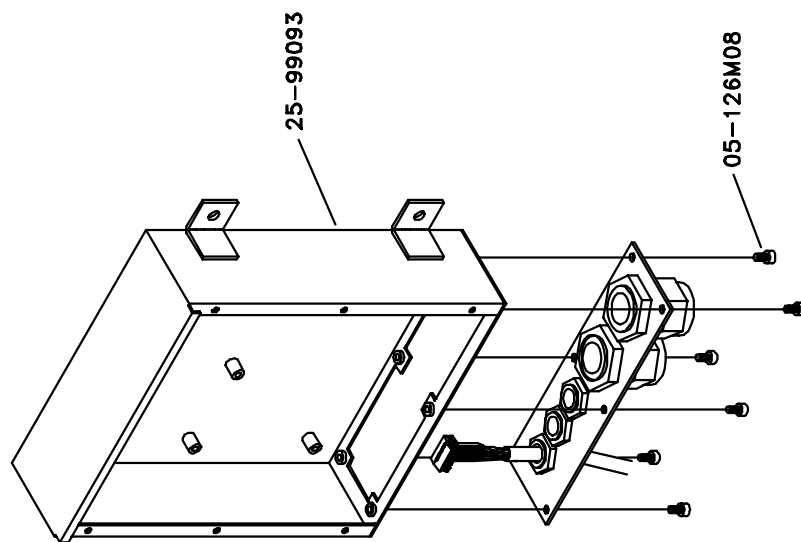
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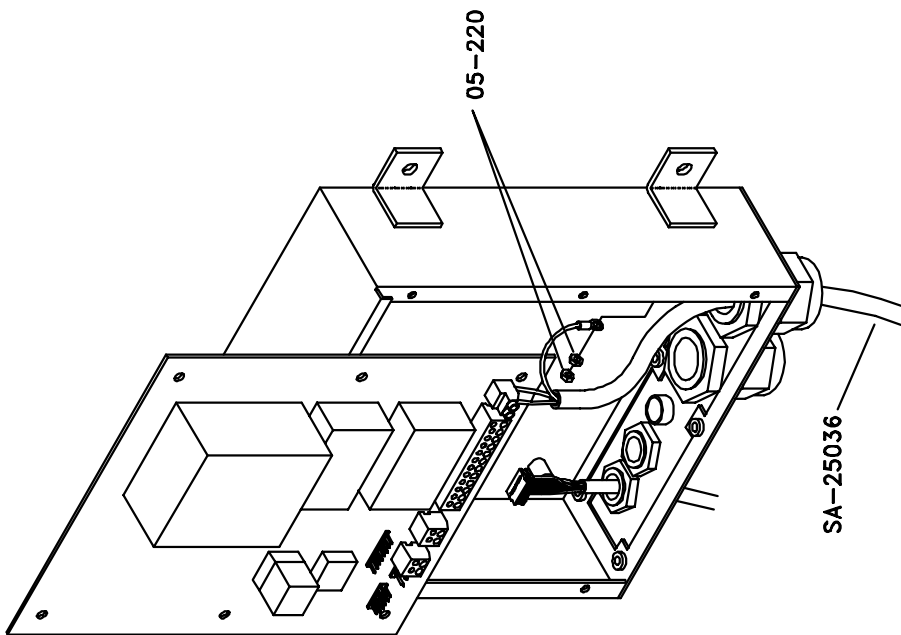
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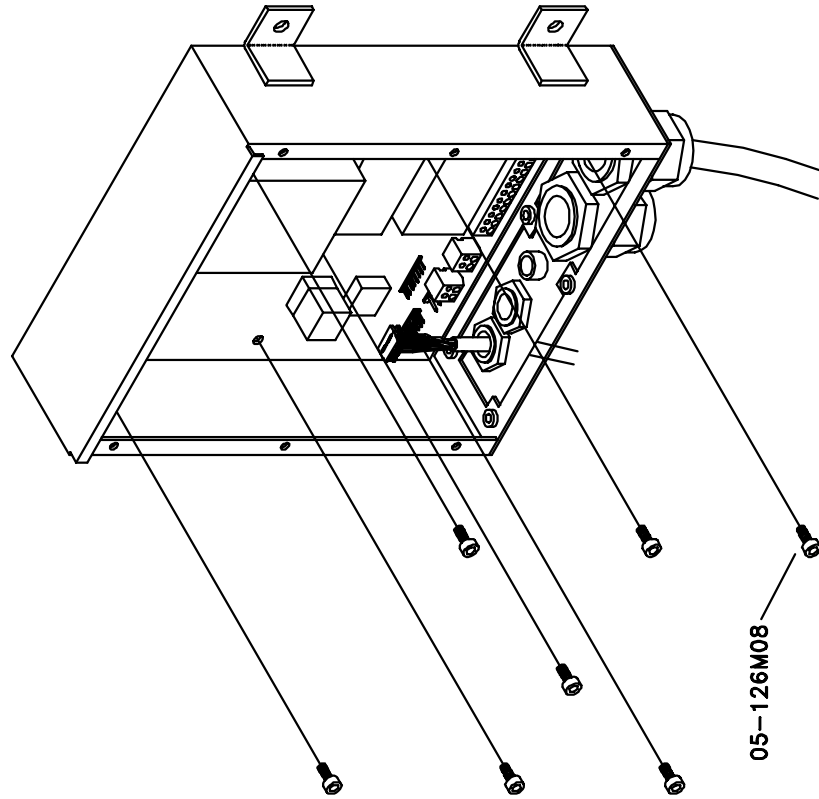
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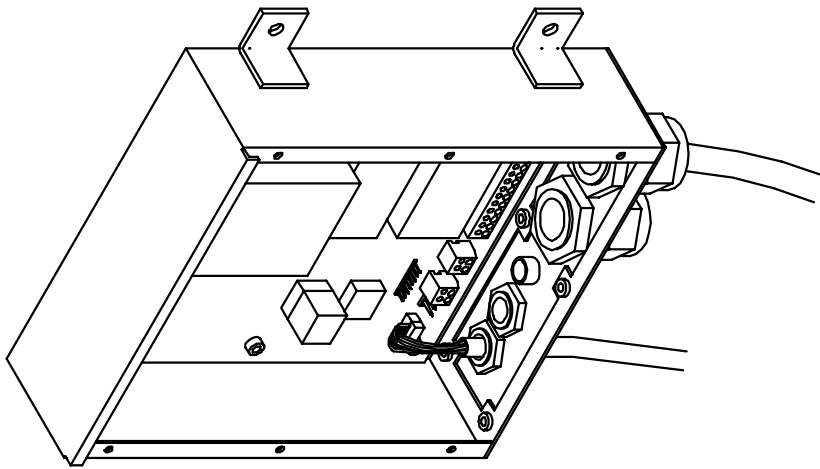
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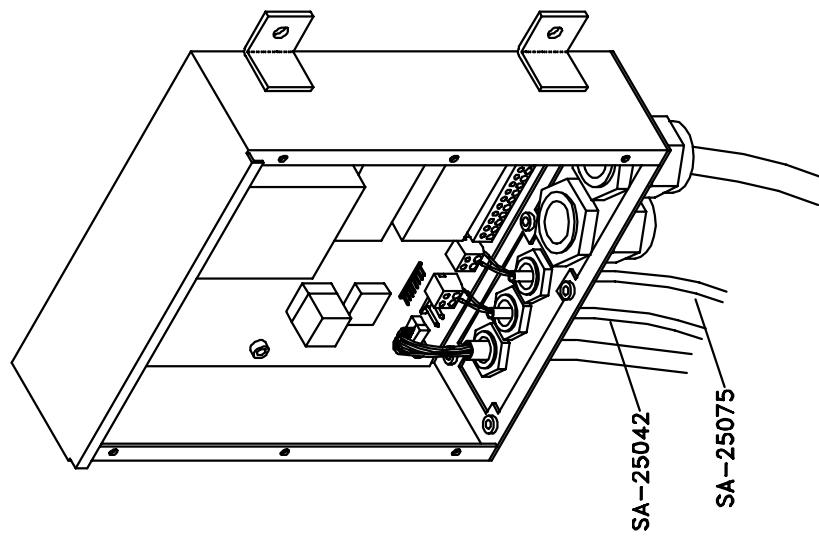
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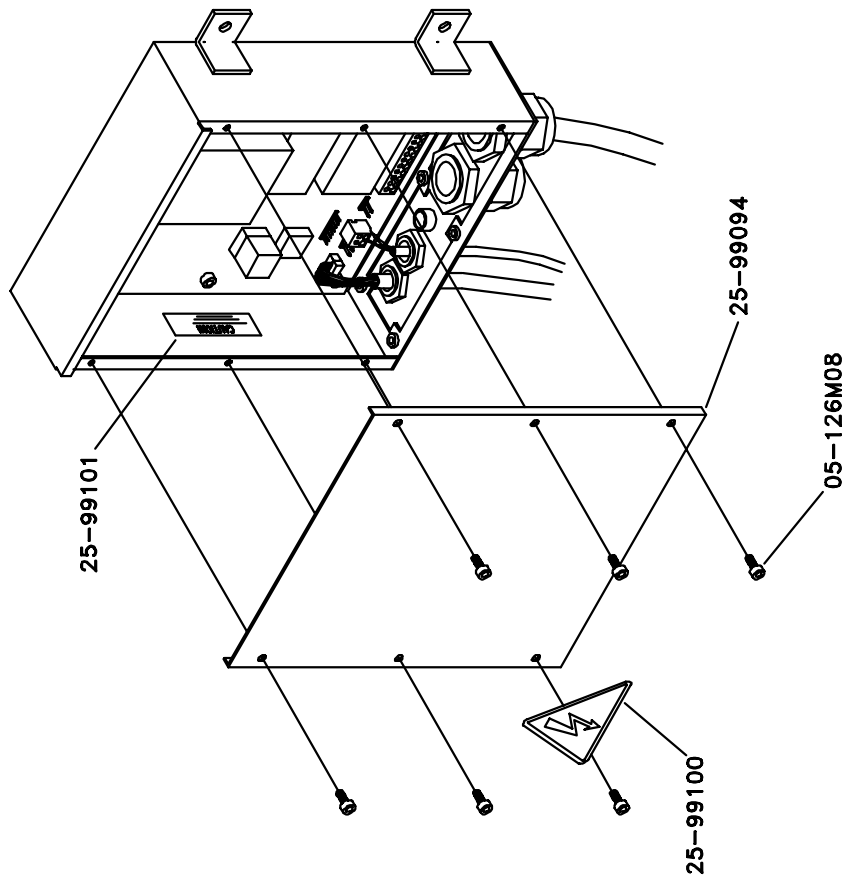


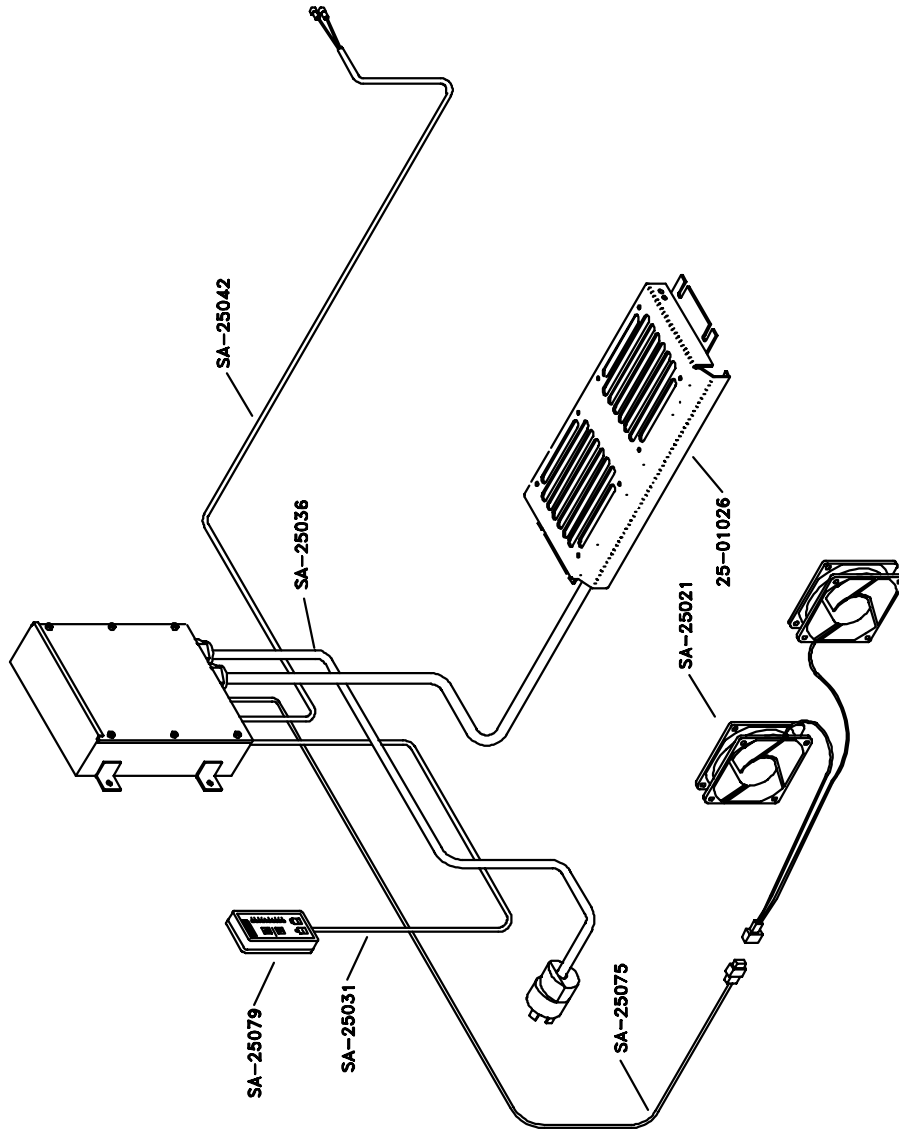
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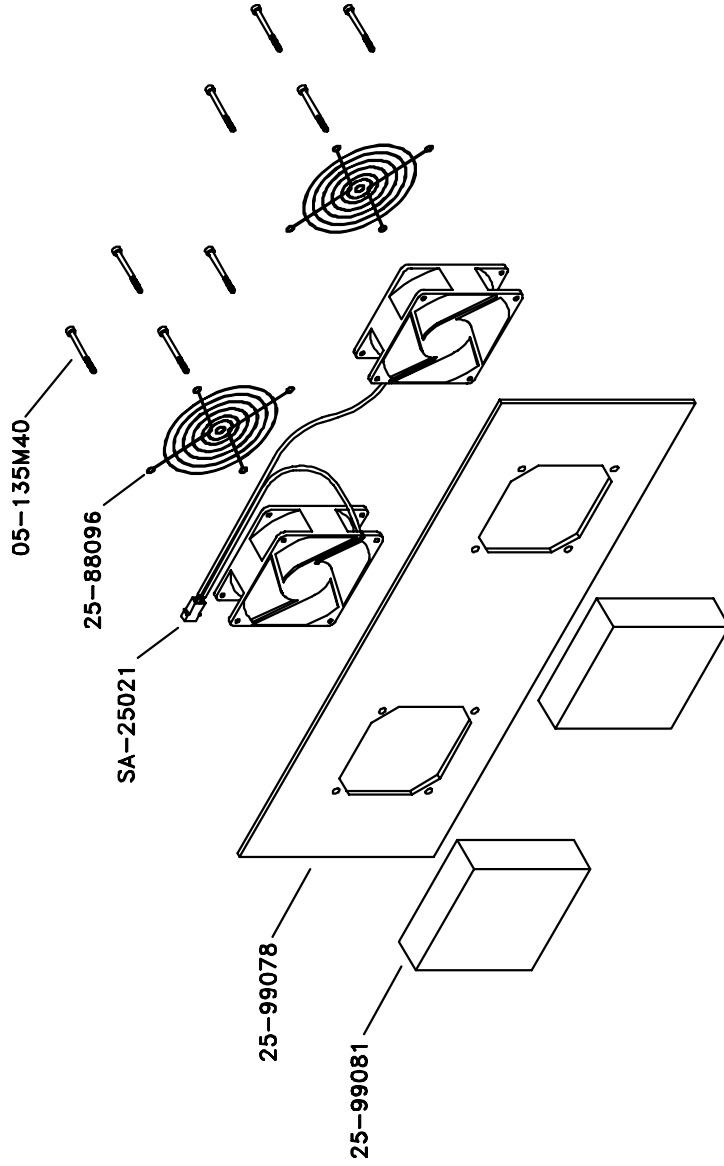
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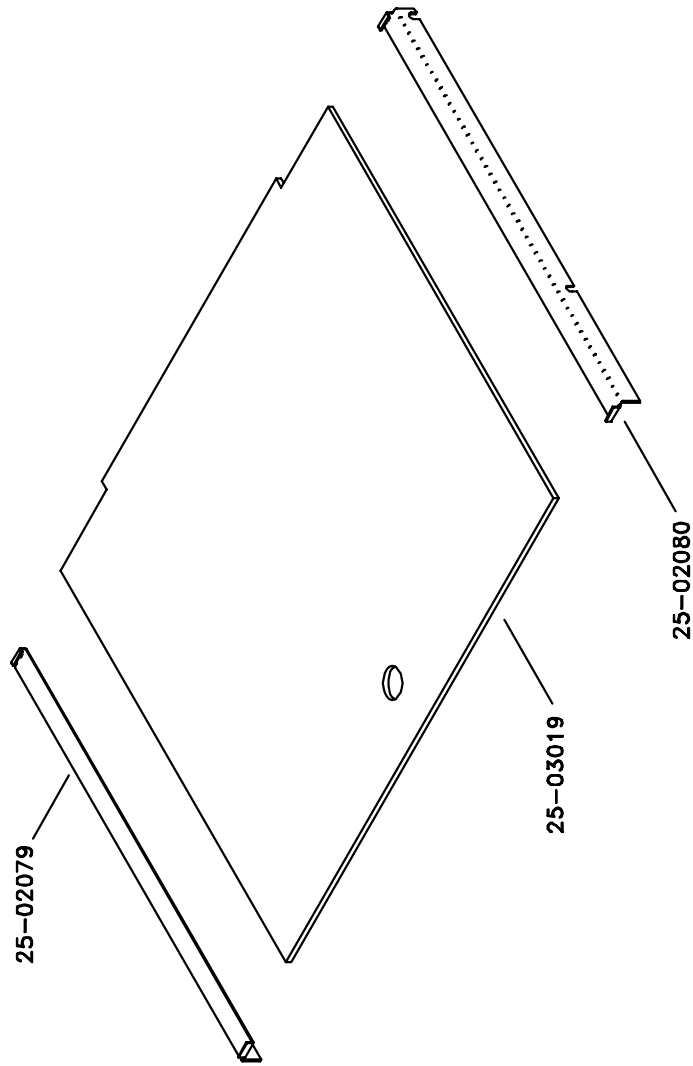




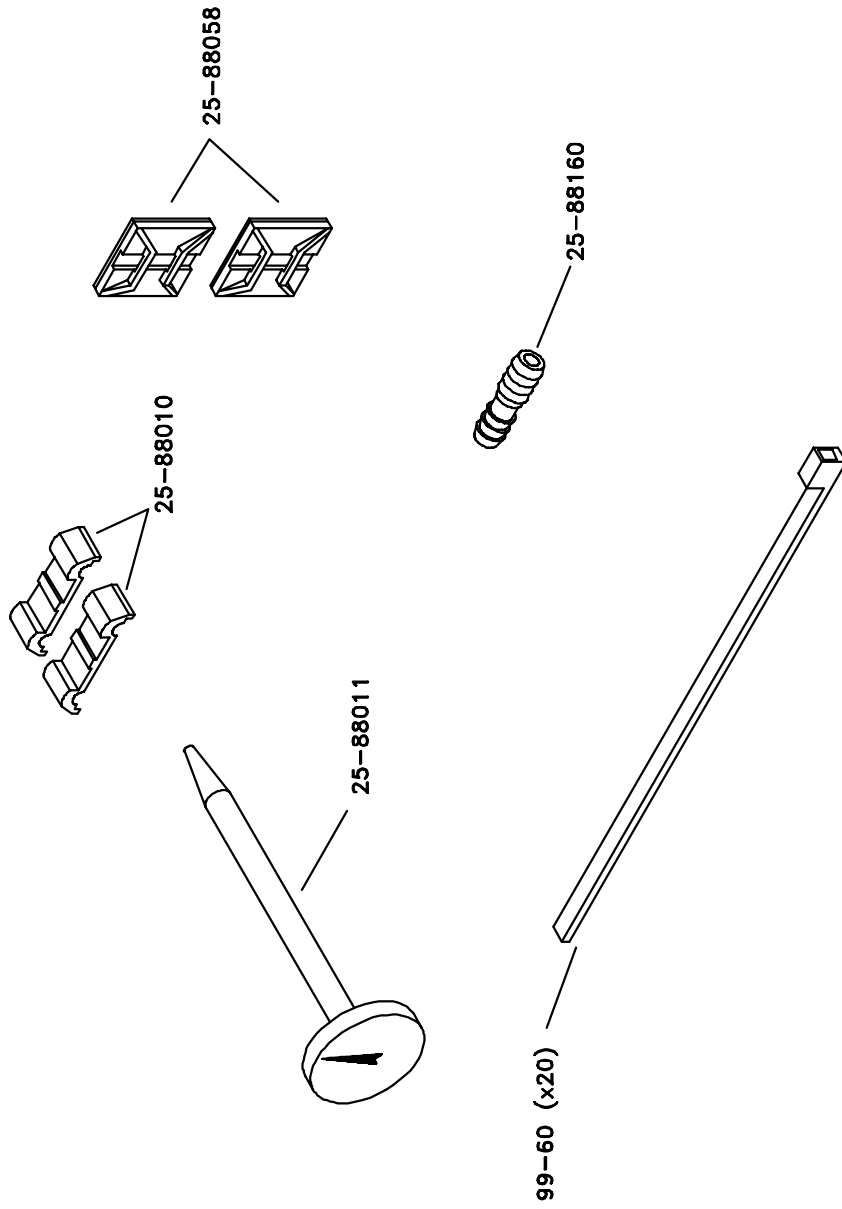
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QM46T13, 7-9-97



QM46T14, 7-9-97



QM46T15, 7-29-97



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