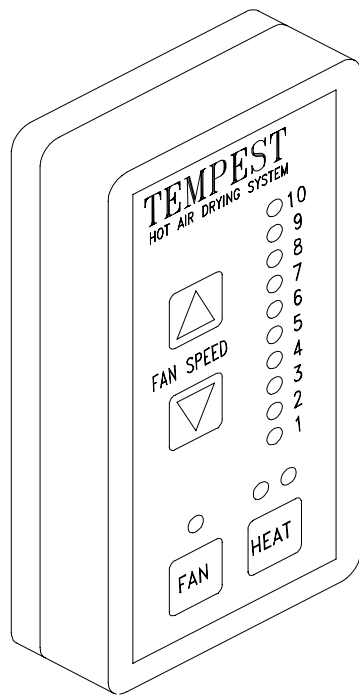


Tempest[®] Hot Air Drying System

Installation Instructions

Heidelberg SORK, SORM, SOR, SORD, SORS

Single & Two Color Presses



ACCEL  [®]
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 System's Dealers.

If the operating characteristics or the appearance of your product differs from those described in this manual, please contact your local Accel Graphic System's 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:

**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
WEB SITE www.accelgraphicsystems.com

GENERAL INFORMATION

ELECTRICAL REQUIREMENTS

220 VAC 50/60HZ
30 AMP DEDICATED LINE
NEMA L630R 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

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.

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.

GENERAL INFORMATION

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.

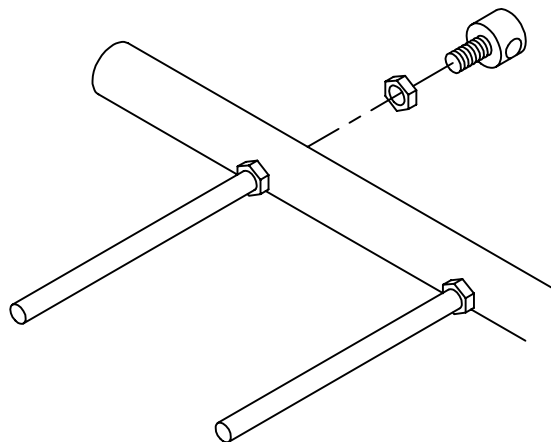
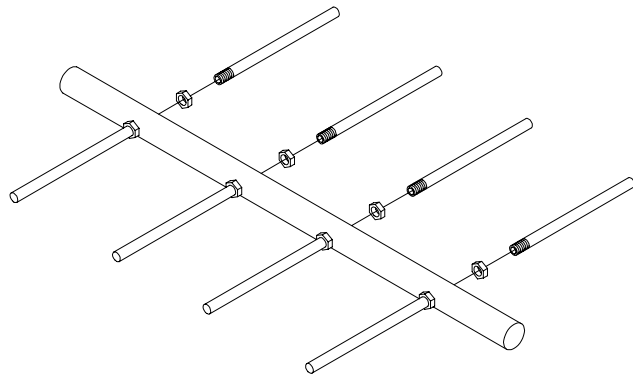
KEY FACTORS TO REMEMBER ABOUT DRYERS FOR SMALL OFFSET PRESSES.

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.



INSTALLATION

1

Turn off the power to the press

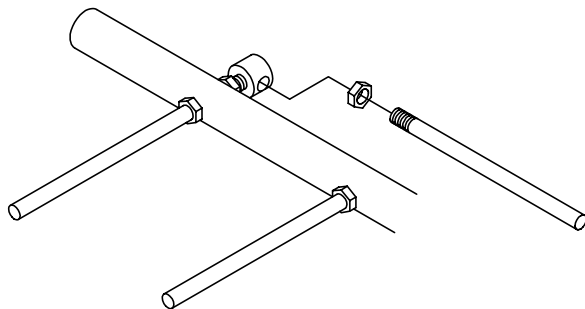
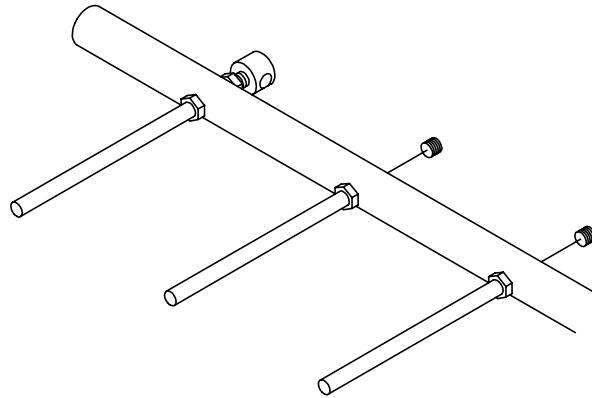
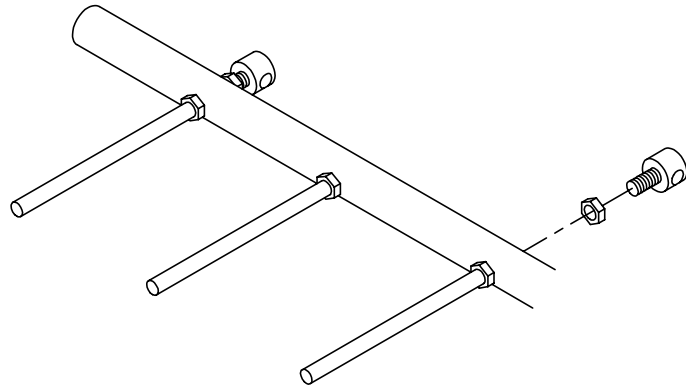
2

Remove all the blow down bars on the feeder side of the main distribution tube extending across the delivery as shown in Diagram A.

3

Install the provided right angle adapters, using the original nuts from the blow down bars to lock them in place, to the two outside positions as shown in Diagram B (Diagram shown NOPS). Make sure that the female threaded holes in the right angle adapters are pointing in towards each other.

7



INSTALLATION

4

This step for SORS machines only.

Install a right angle adapter, using one of the original blow down tube nuts to lock it in place, into the third blow down tube position from the NOPS as shown in Diagram C.

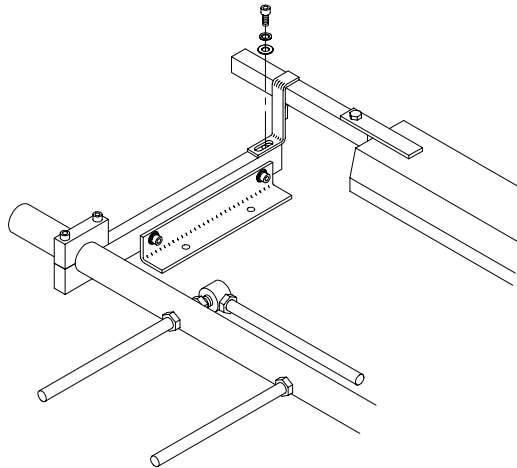
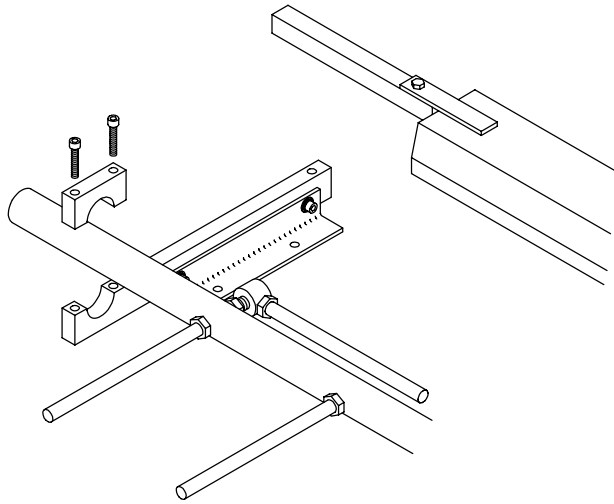
5

Plug the remaining holes in the blow down tube with the provided threaded taper plugs as shown in Diagram D.

6

Install the original blow down tubes to the adapters as shown in Diagram E. Use the original blow down tube nuts to lock them in place.

9



INSTALLATION

7

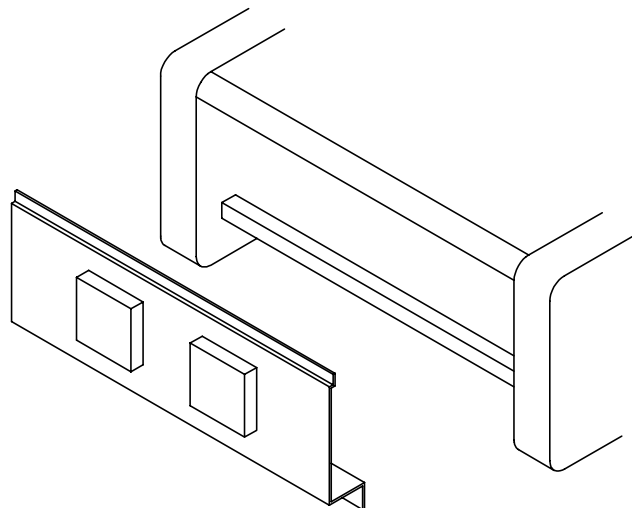
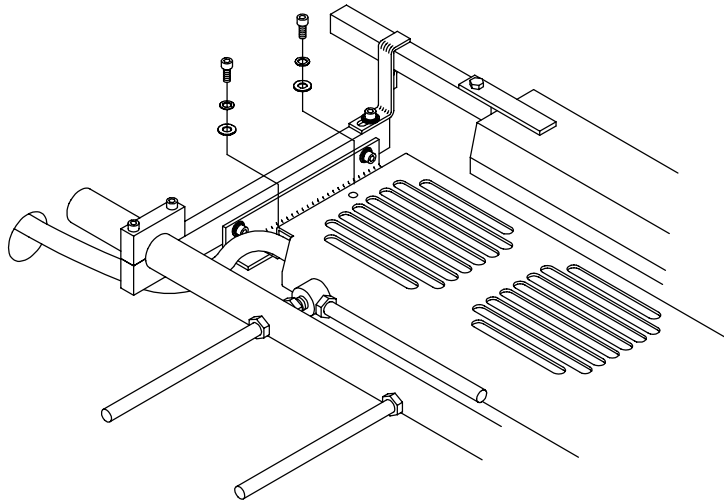
Install the NOPS mounting bracket assembly to the blow down distribution tubes as shown in Diagram F. Clean the tube with alcohol or press wash before attaching the bracket. Do not tighten the bolts that clamp the bracket to the tube at this time. The bracket is repositioned along the tube in a later step.

8

Attach the end support bracket to the mounting bracket installed in the previous step as shown in Diagram G. This bracket fits around the square bar that supports the delivery light and prevents the mounting bracket from falling into the grippers should the bolts loosen around the blow down tube.

9

Repeat the previous two steps for the OPS mounting bracket. Make sure that the sheet metal brackets that are already attached to the mounting brackets are facing towards each other.



INSTALLATION

10

Set the dryer on the mounting brackets with the cable exiting the dryer on the NOPS. Route the cable under the blow down distribution tube and through the same hole in the press frame that the spray powder hose comes through as shown in Diagram H. Use tie wraps as necessary to secure the cable away from all moving parts.

Reposition the mounting brackets along the blow down tube as necessary to align the open slots on the mounting flanges of the dryer with the threaded inserts in the mounting brackets. Center the dryer in the press as much as possible. Secure the dryer to the brackets with the provided bolts, lock-washers, and flat washers as shown in Diagram H.

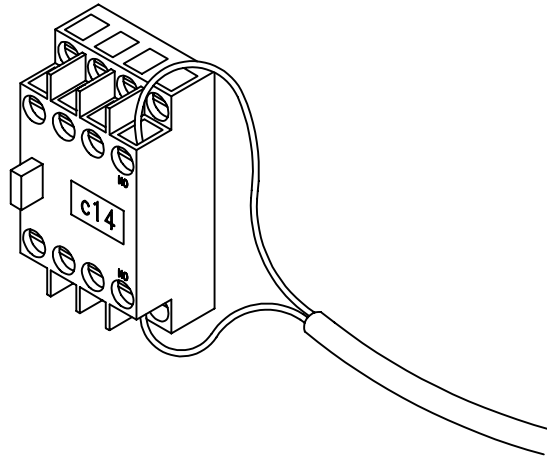
11

Tighten the bolts in the mounting brackets that clamp to the blow down distribution tube once the dryer is secured to the brackets.

12

Remove the large plastic guard in the end of the delivery. Using the original hardware install the preassembled guard/exhaust system as shown in Diagram J.

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 the previous step. Route the impression signal cable into the press electrical cabinet and connect it to a set of normally open contacts on the d14 relay. Use the provided tie-wraps to secure the cables as necessary to clear any moving parts of the machine.

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 tags 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

Attach the Tempest® remote control unit to the press where it is convenient for the operator. This unit is held on the press with velcro attached to the bottom of the remote.

15

INSTALLATION

16

Installation of the Tempest® is now complete. Check to make sure all cables and equipment is clear of all moving parts. Replace all guards and covers that may have been removed. Please read to the next section "Operation & Maintenance" before using the dryer.

17

OPERATION & MAINTENANCE

HOW DRYING IS ACCELERATED WITH TEMPEST®

Tempest® creates a two step drying process when used with oil base inks.

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

HOW TEMPEST® WORKS

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.

1. When voltage is applied to the thermistors, (triangular shaped coated semiconductors arranged in a honeycomb pattern), they begin to heat.
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.

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.

OPERATION & MAINTENANCE

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 degrees above the initial pile temperature.

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

If the temperature is above that, **decrease 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.

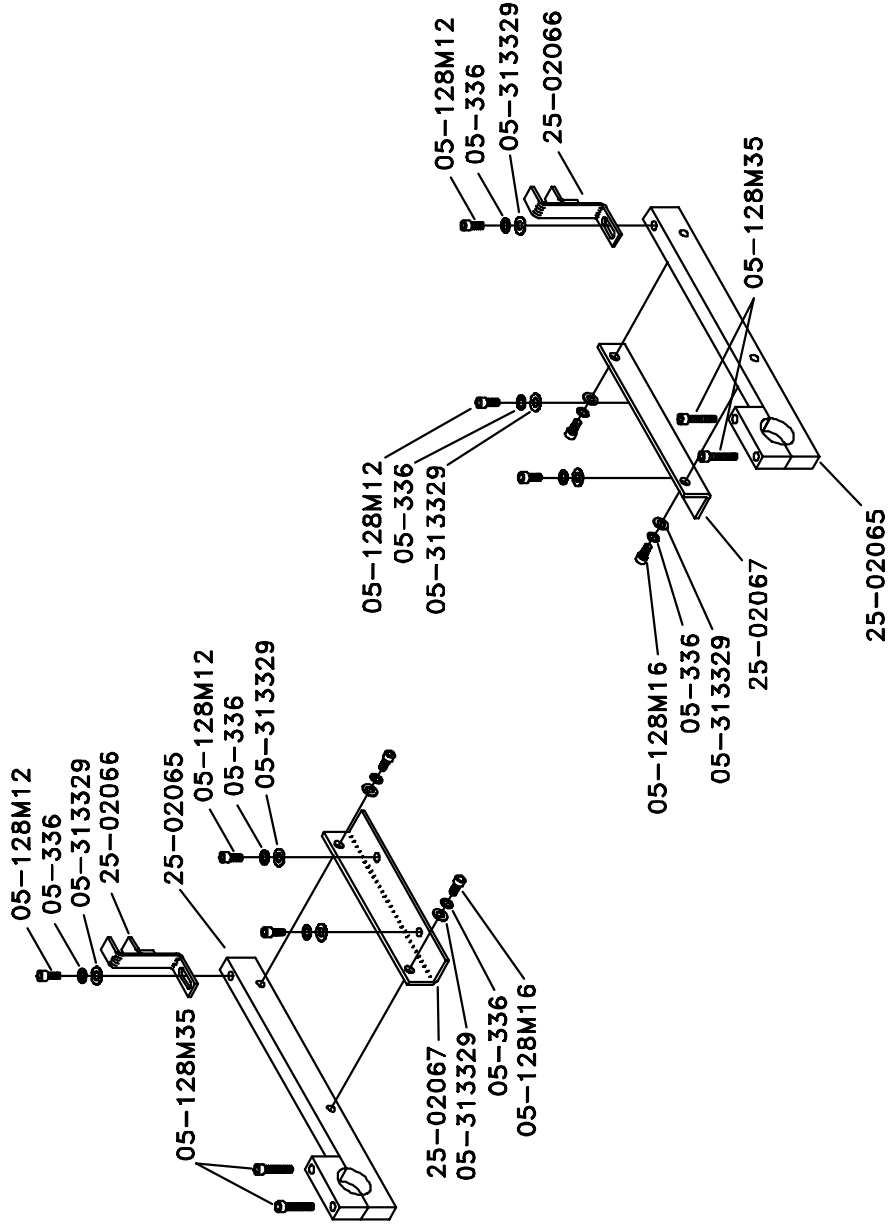
KEYS TO REMEMBER

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 degrees 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

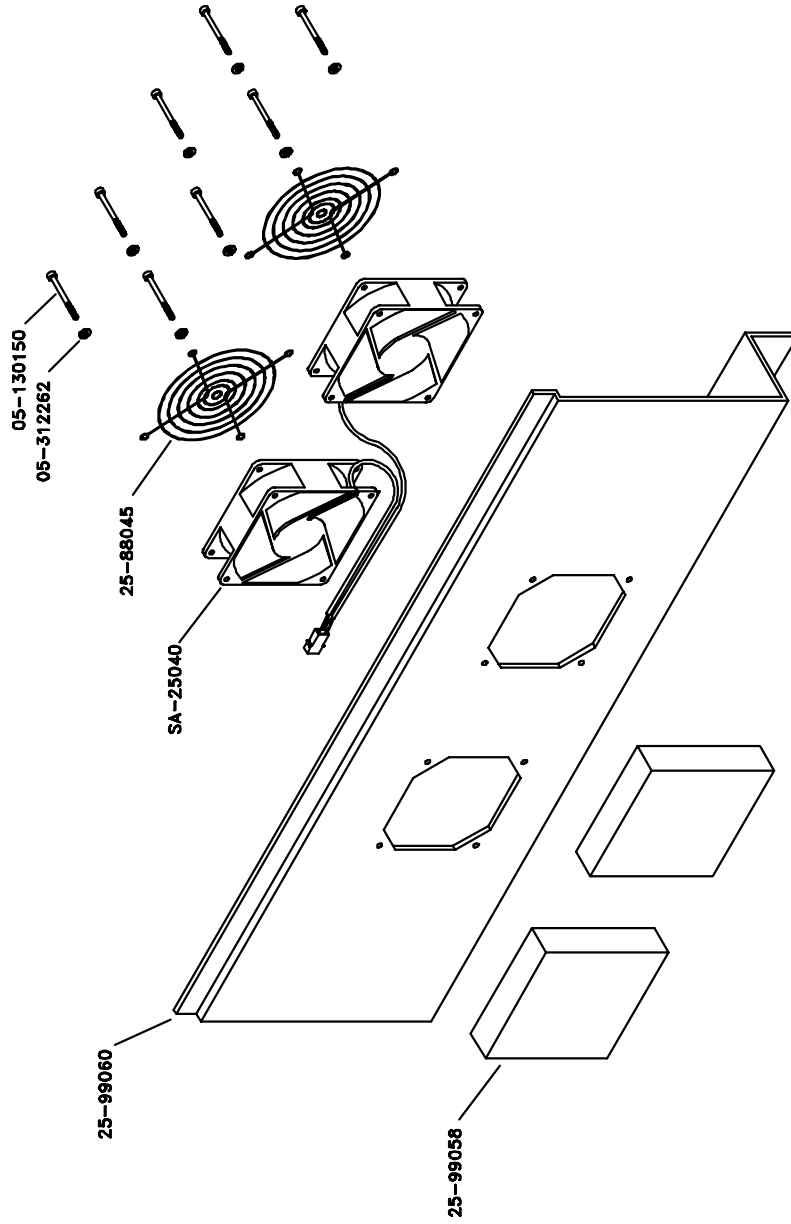
1. Inspect the dryer weekly. If the thermistors are cracked or have been damaged, do not operate the dryer. Call Accel immediately.
2. Never squirt cleaning solvents, water or any other liquids into the dryer. This may damage electrical components.
3. Any spray powder that accumulates in the dryer should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

DRYER MOUNTING ASSEMBLY
HEIDELBERG SOR/SORK/SORM/SORD/SORS



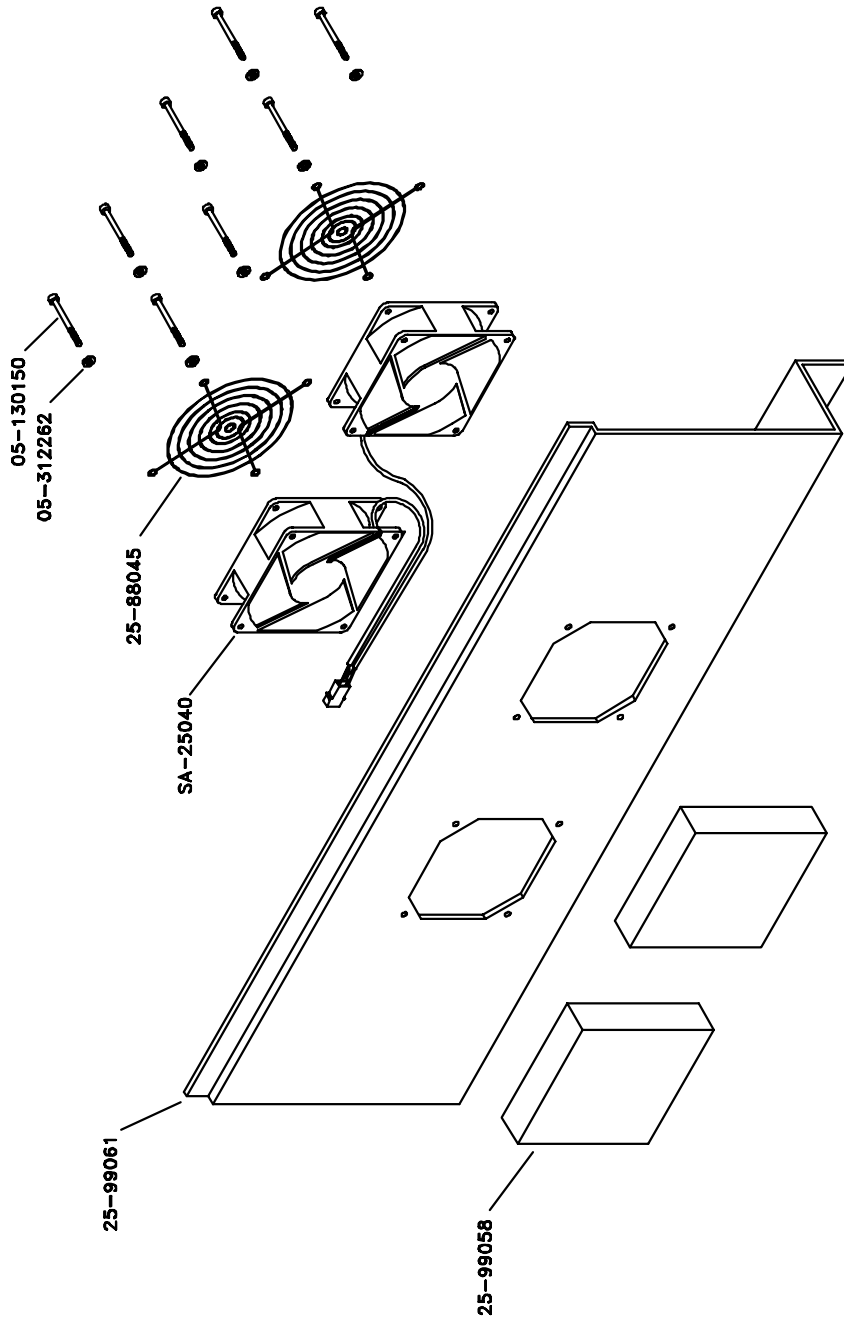
SORT01, 3-17-98

EXHAUST ASSEMBLY
HEIDELBERG SORK



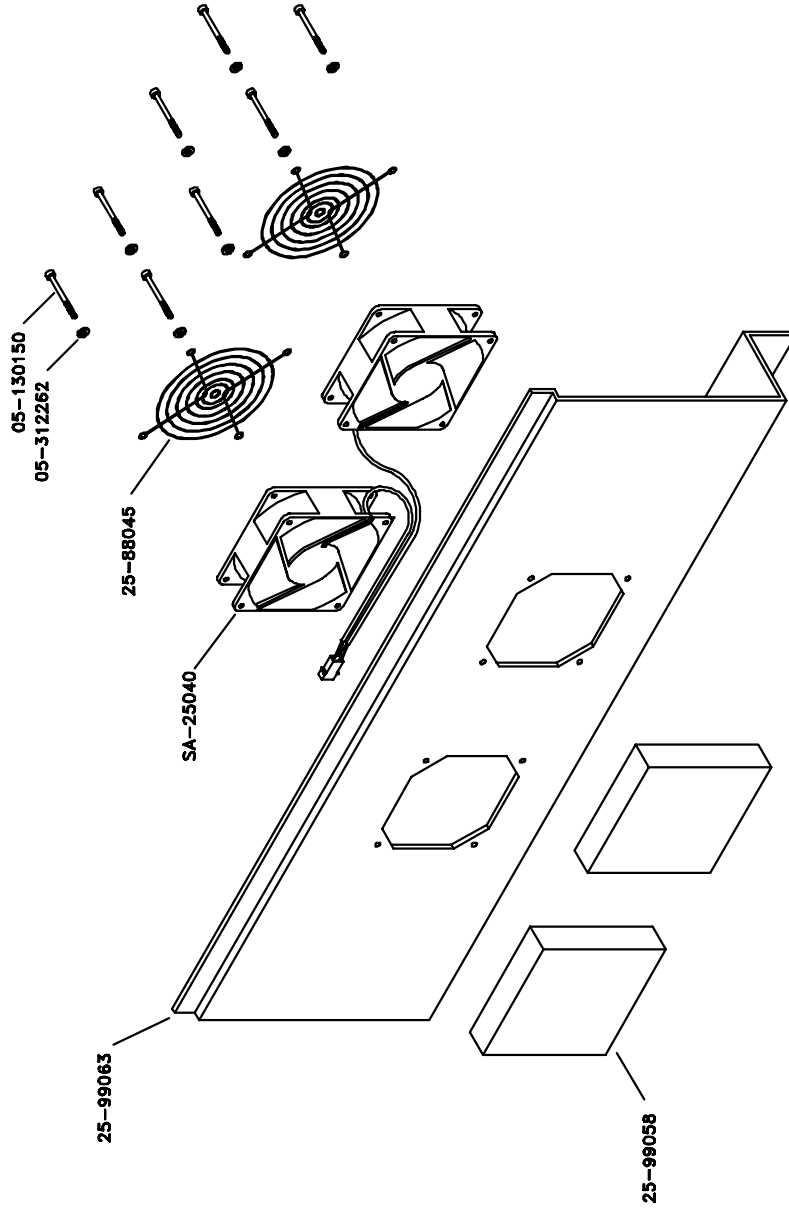
SORT02, 7-29-97

EXHAUST ASSEMBLY
HEIDELBERG SOR/SORM



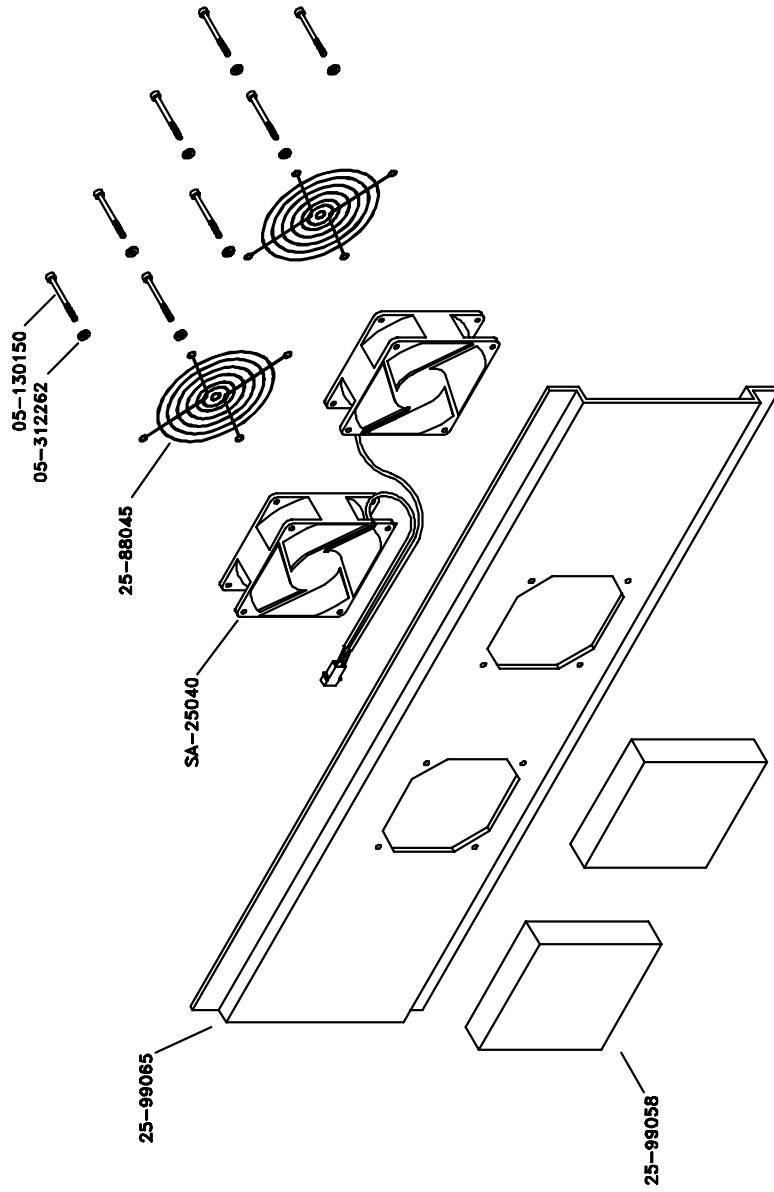
SORT03, 3-17-98

EXHAUST ASSEMBLY
HEIDELBERG SORD

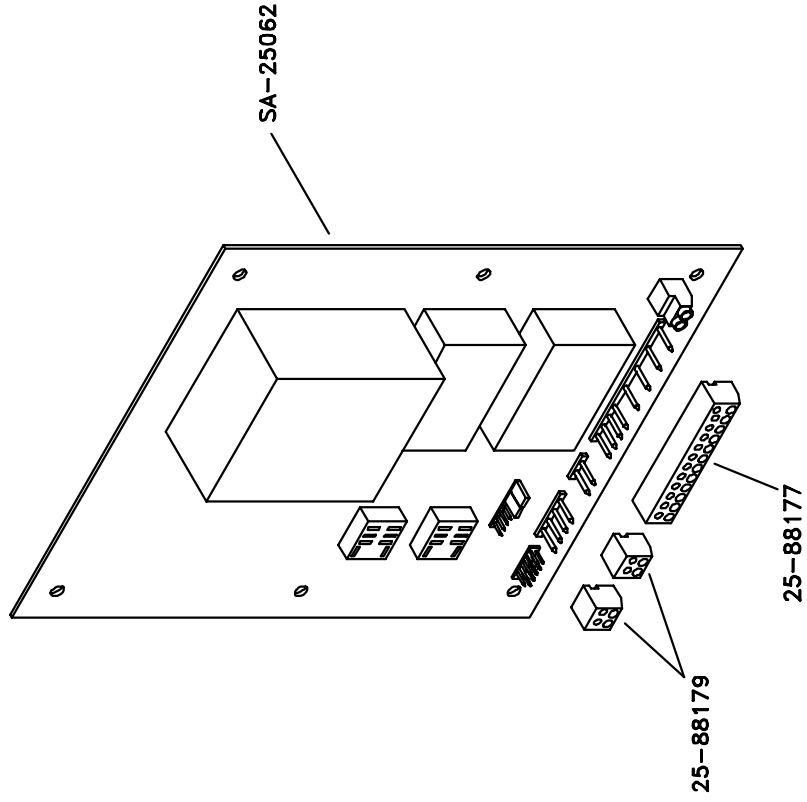


SORT04, 7-29-97

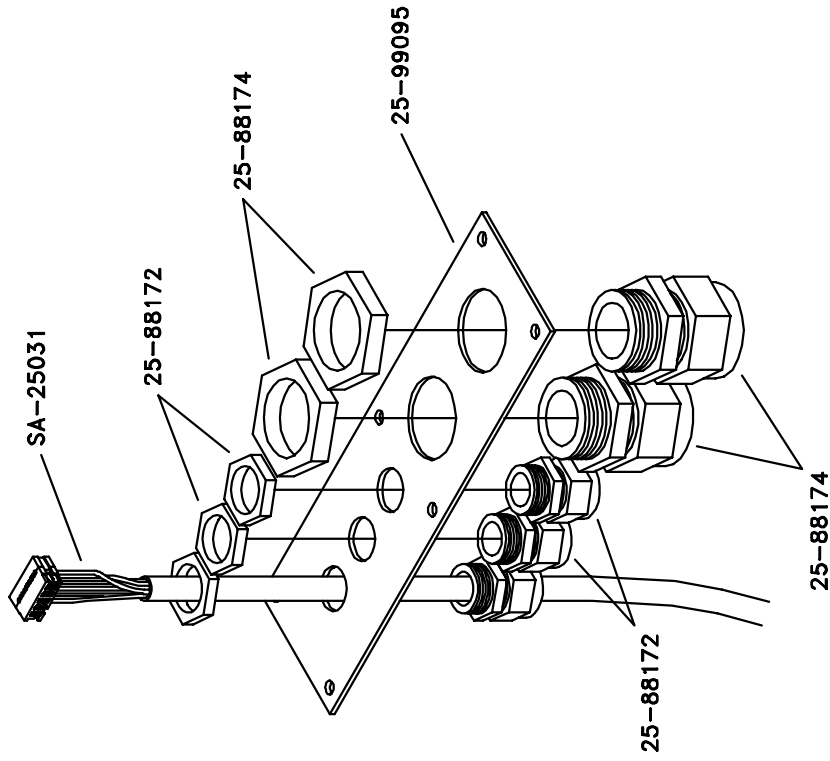
EXHAUST ASSEMBLY
HEIDELBERG SORS



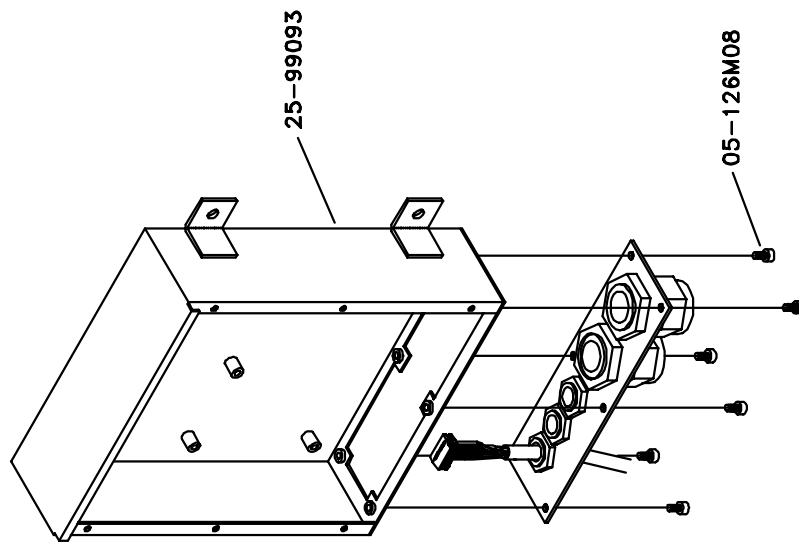
SORT05, 7-29-97



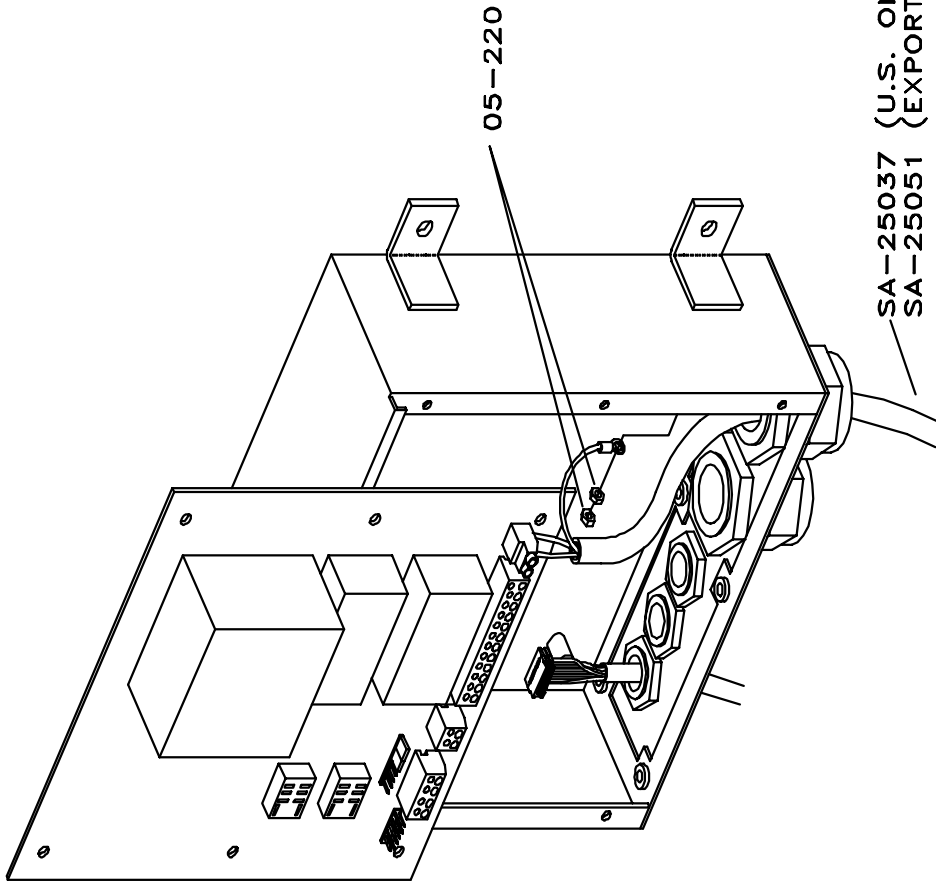
SORT06, 7-29-97



Sort07, 7-29-97

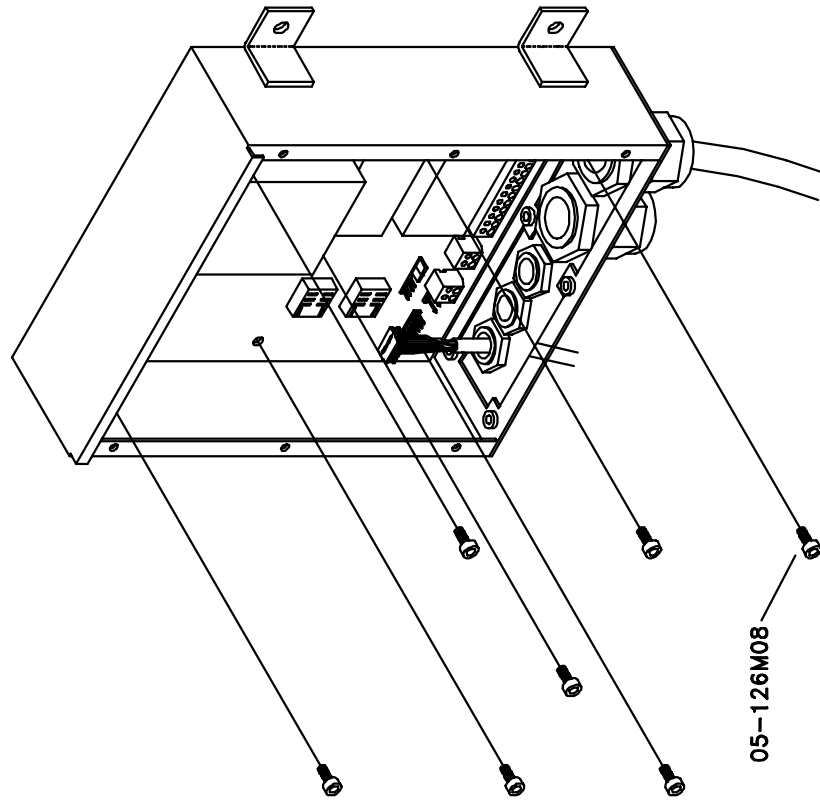


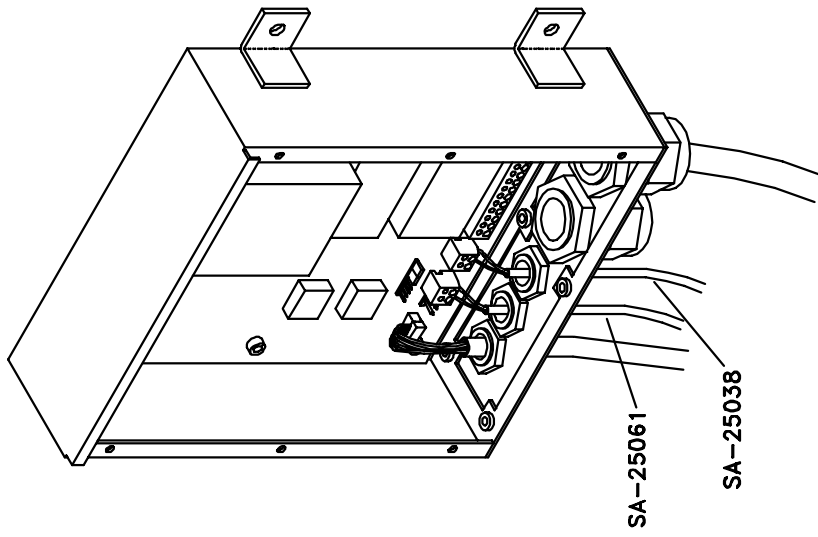
SCRT08, 7-29-97



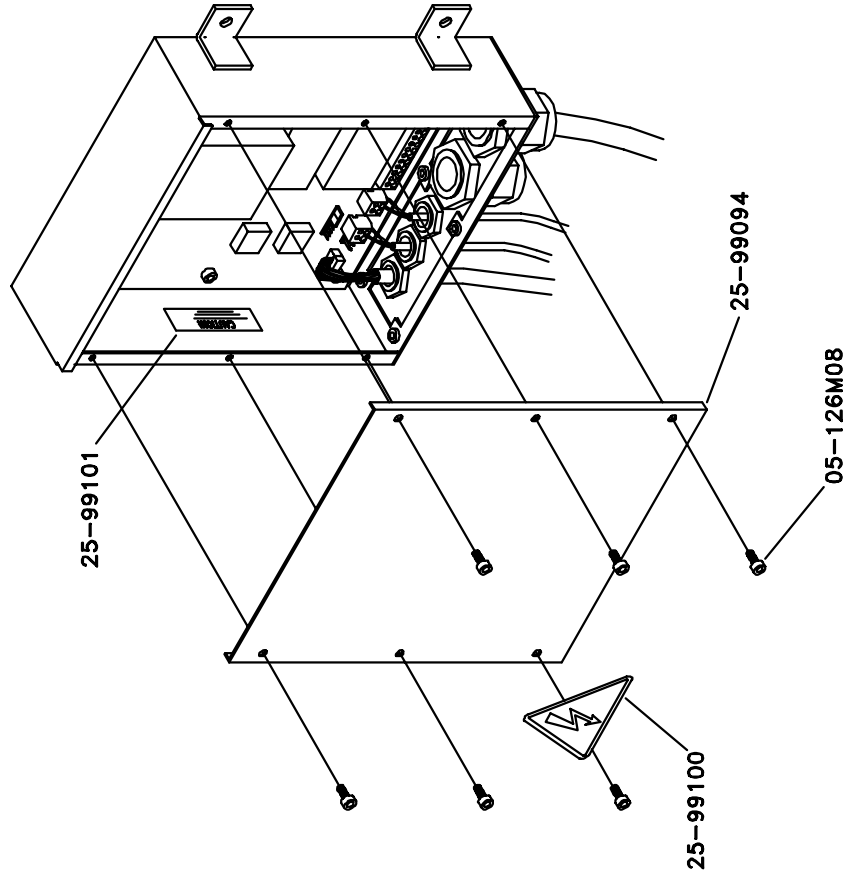
SORT09, 3-10-98

Sort10, 7-29-97

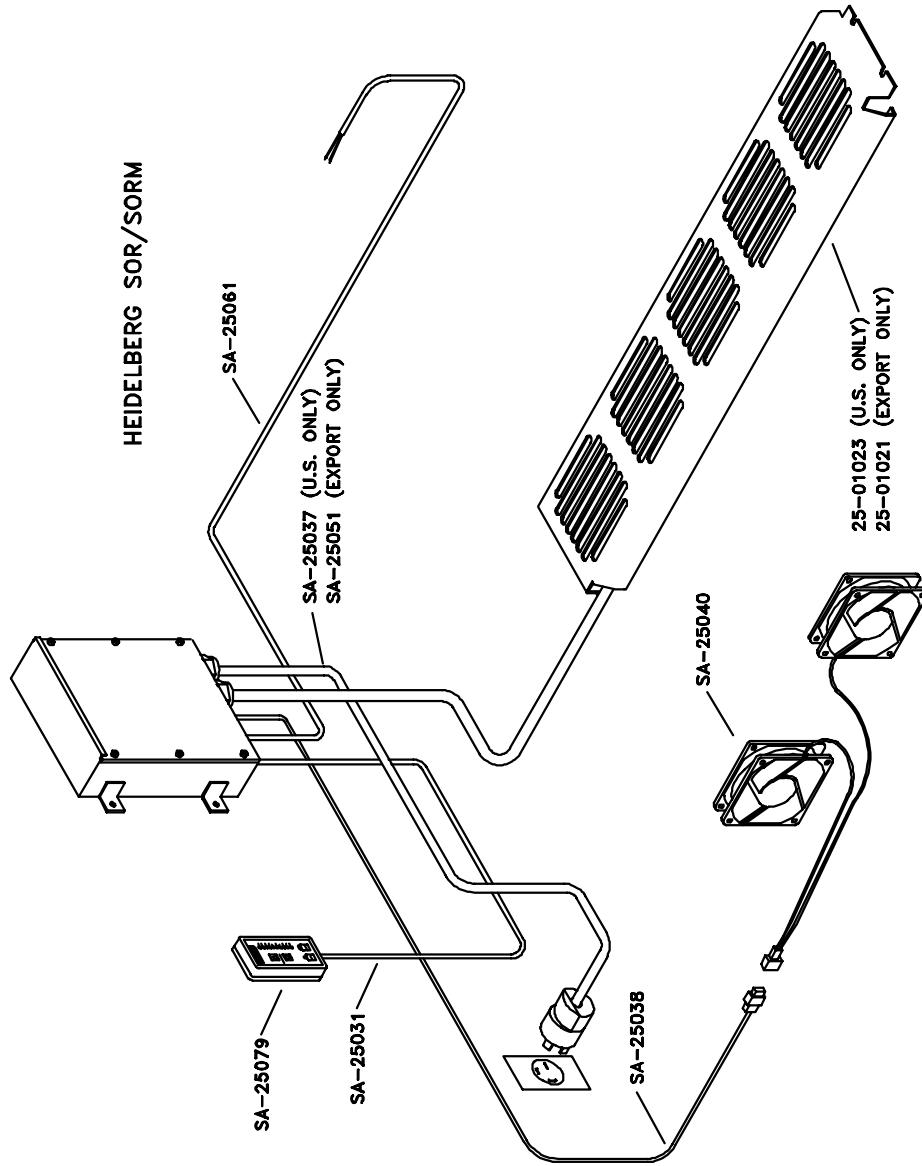




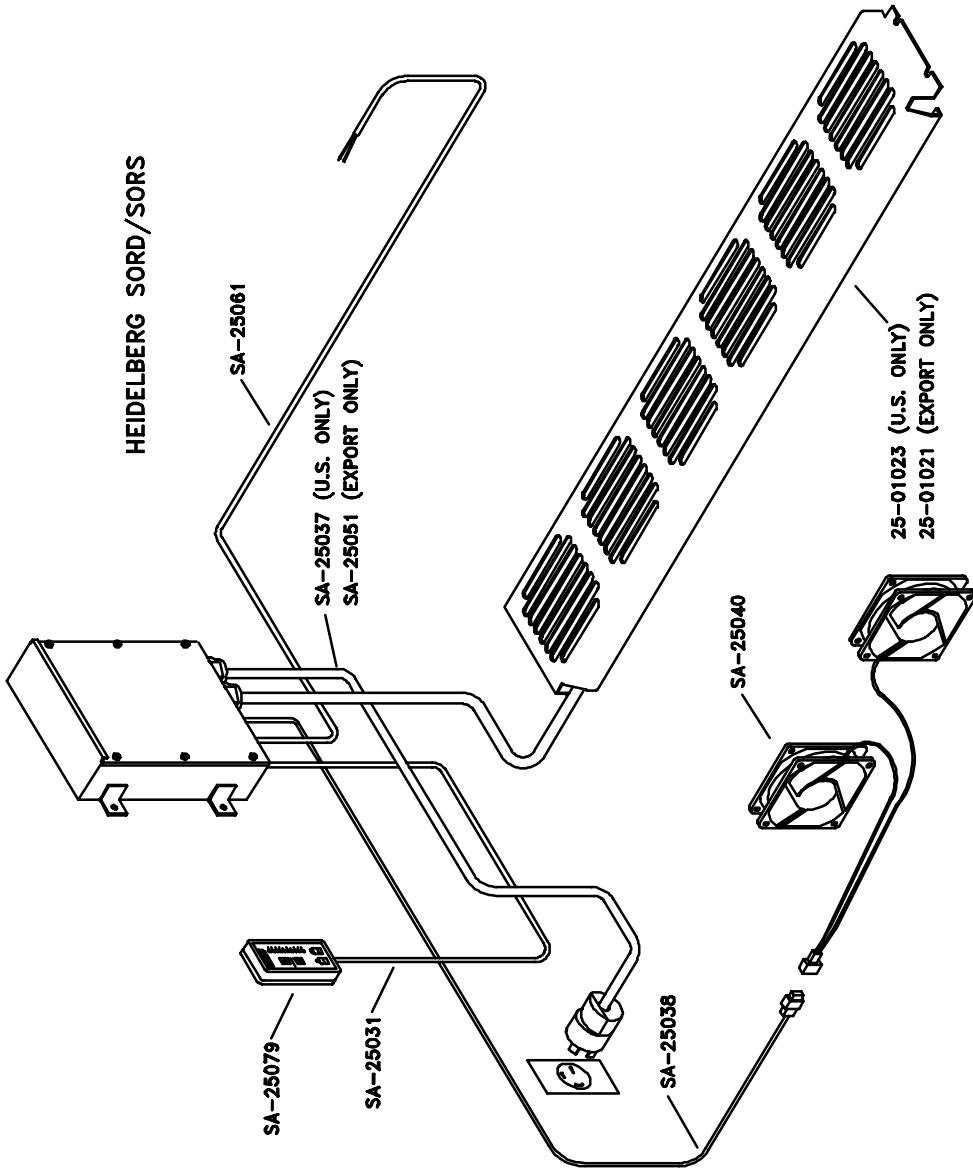
50811, 7-29-97



SORT12, 7-29-97

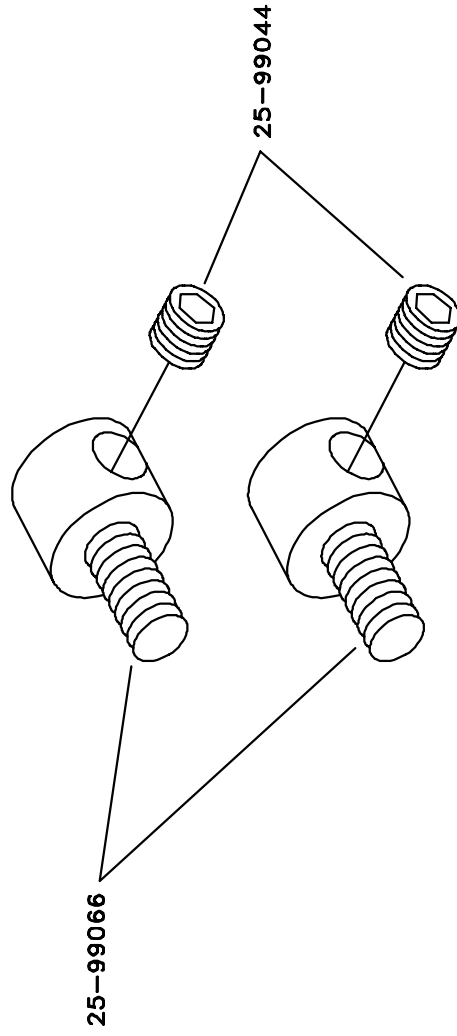


SORT14, 3-17-98



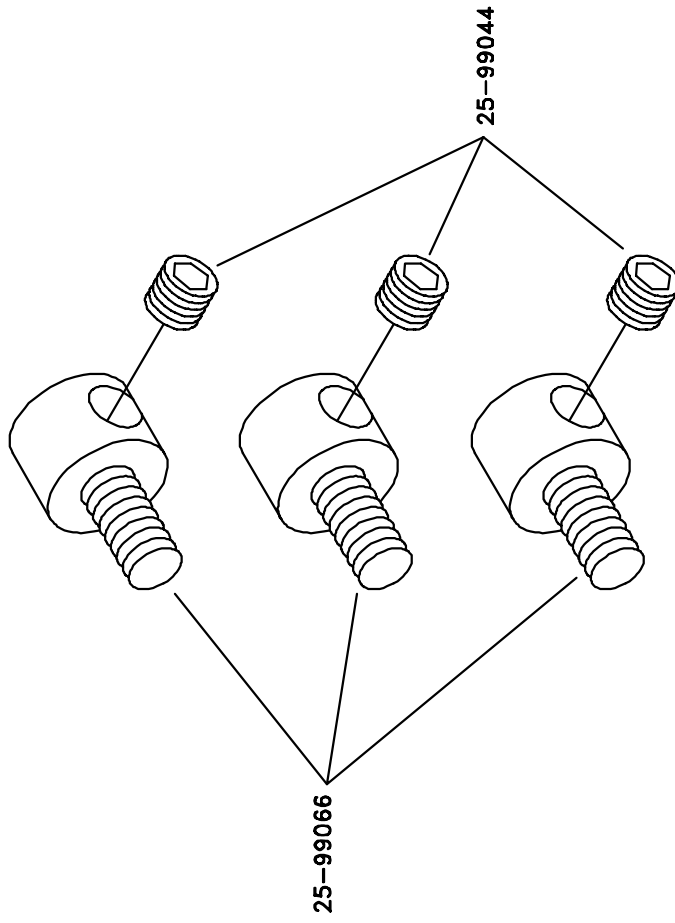
SORT15, 3-10-98

RIGHT ANGLE ADAPTER ASSEMBLIES
HEIDELBERG SOR/SORK/SORM/SORD



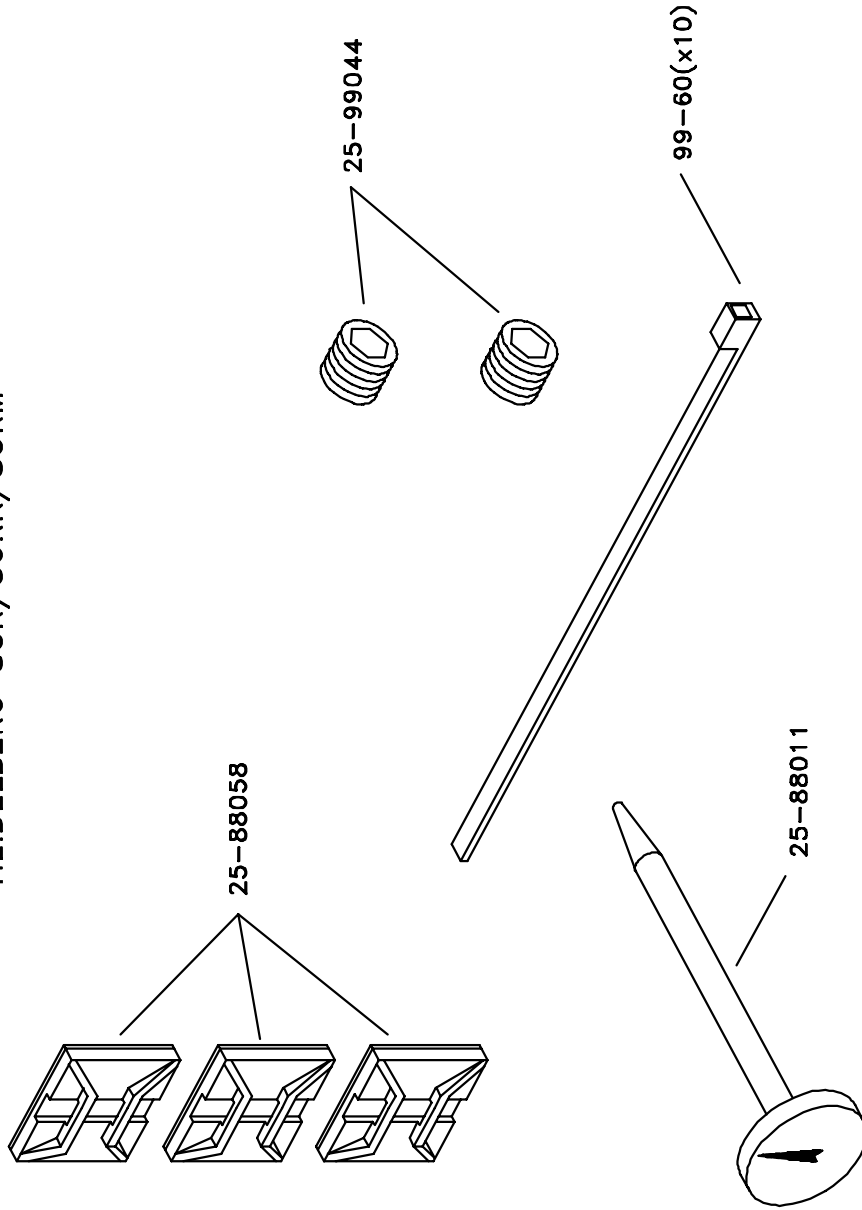
SORT16, 3-17-98

RIGHT ANGLE ADAPTER ASSEMBLIES
HEIDELBERG SORS



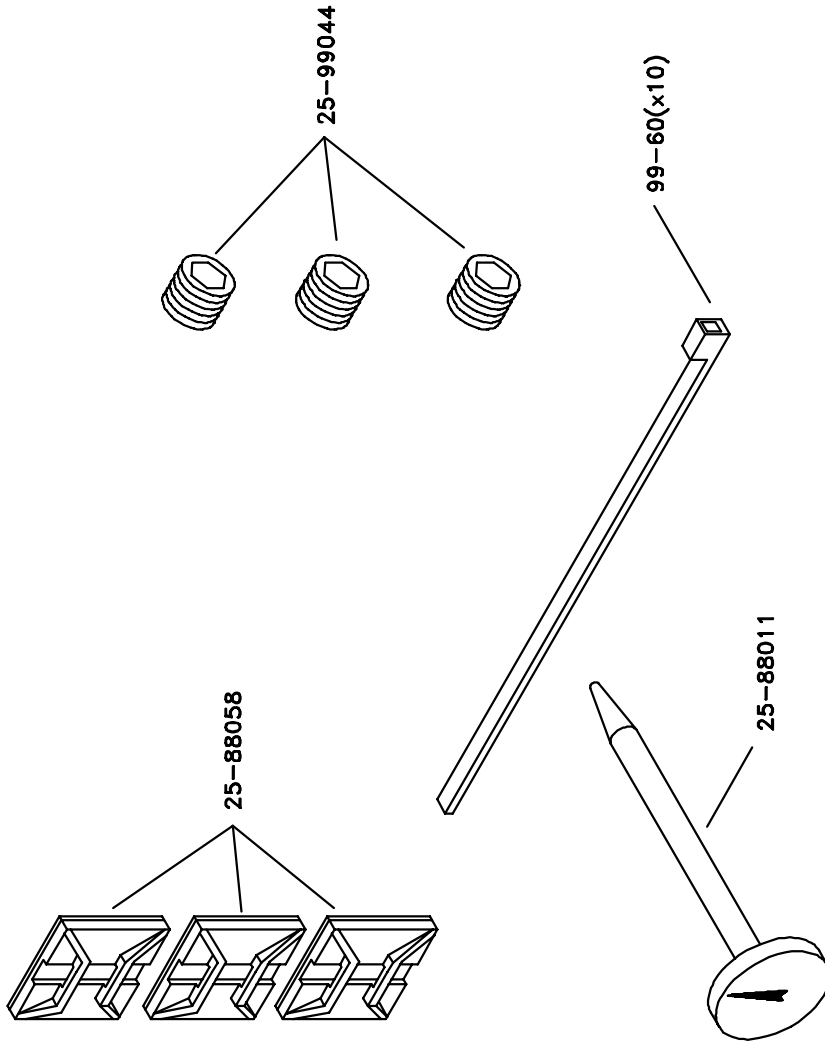
SORT17, 7-29-97

MISCELLANEOUS PARTS
HEIDELBERG SOR/SORK/SORM



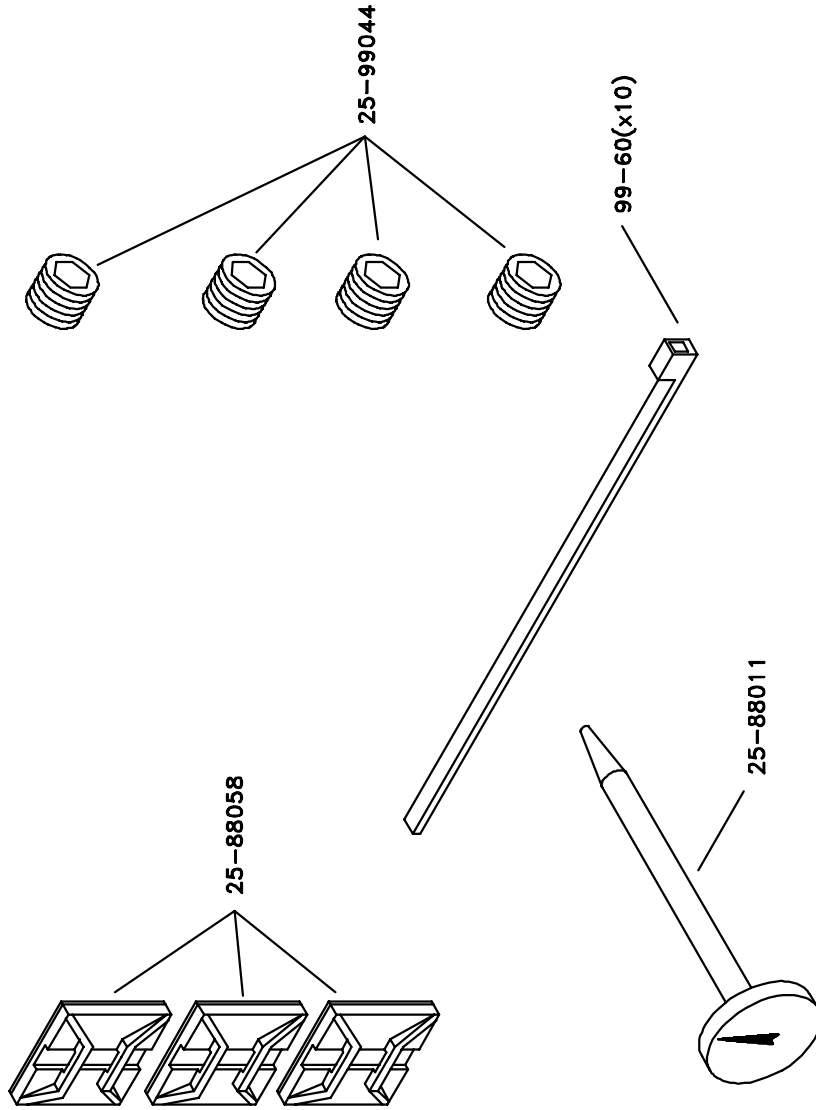
SORT18, 3-17-98

MISCELLANEOUS PARTS
HEIDELBERG SORD



SORT19, 7-29-97

MISCELLANEOUS PARTS
HEIDELBERG SORS



SORT20, 7-29-97

ACCEL  [®]
Graphic Systems

11103 Indian Trail, Dallas, TX 75229 Phone 972-484-6808, Fax 800-365-6510
E-mail accel@dallas.net, Web Site www.accelgraphicsystems.com