MiTek®
Machinery Division

Service Bulletin

Document:	**SB164**
Title:	**Installing a Cooling System on the PC Enclosure**
Machinery Affected:	***Cyber***® **and *Cyber A/T* Saws**
Applies To:	**For Use With SB160 if Installed Prior to Including a Cooling Kit**

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Purpose and Scope

This Service Bulletin exists to help a *Cyber*® or *Cyber A/T* saw owner install a cooling kit on the previously installed PC enclosure. It affects those customers who have already purchased and installed SB160KIT which is the PC enclosure and necessary parts. Without this modification, the computer located inside of the enclosure can overheat and shut down.

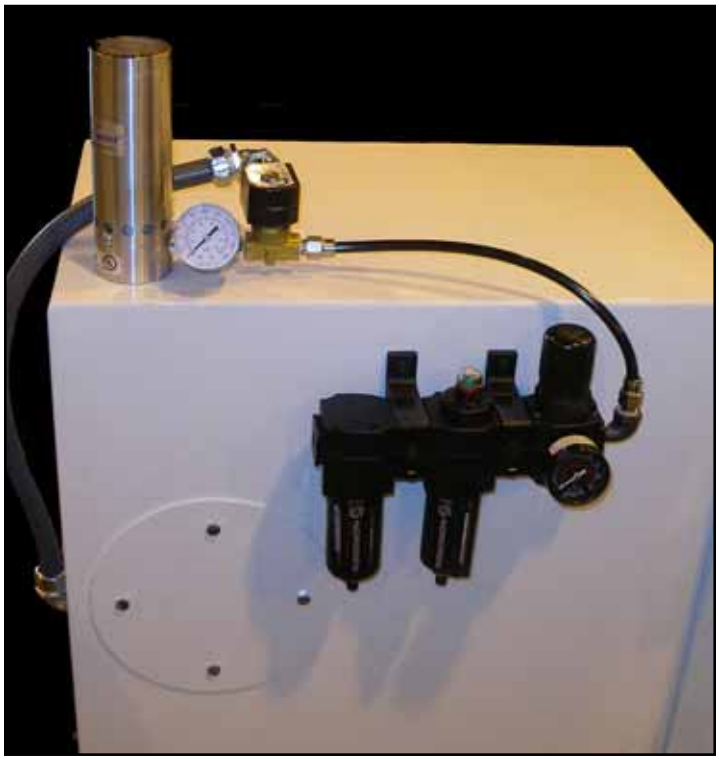
If you have any questions about this Service Bulletin or kit, contact MiTek Machinery Division Customer Service at 800-523-3380.

Overview

This procedure describes how to install the enclosed cooling kit. This Service Bulletin provides step-by-step instructions that walk you through how to modify your enclosure to install the cooling kit.

After this is procedure is complete, your PC enclosure should look like Figure 1. The procedure will be easier to follow if you are familiar with the terms in Table 1.

Figure 1: After the Procedure is Complete



Terminology

Table 1: Terms to Know

Term	Description
Computer	Also referred to as a PC (personal computer); housed inside a PC enclosure on saws built after frame 411 and saws that have installed SB160KIT
PC enclosure	The small enclosure, separate from the saw, where the computer is housed
Cooler	The component labeled in Figure 6 that provides the ability to create cold air
Cooling unit	An assembly consisting of the cooler, street elbow, muffler, and hose barb
Cooling kit	The entire kit provided with SB164, identified as SB164KIT
Solenoid	Electrically energized device which generates on-off signals controlling the flow of air to the cooling unit

Parts and Supplies

The customer-supplied tools and supplies that must be available to perform this procedure are listed in Table 2. Ensure that you have all of these supplies before starting. They are **not** included in this kit.

The parts supplied in this kit are listed in Table 3. Before beginning, ensure that all of the parts listed are enclosed. If anything is missing, contact Machinery Division Customer Service at 800-523-3380.

Table 2: Customer-Supplied Items Required

Screwdrivers: slotted and phillips-head	Cutters or utility knife for cutting tubing
1-1/2" knockout punch or 1-15/16" hole saw	1/2" knockout punch or 7/8" hole saw
Thread sealant	Tap paste
7/16" socket and handle	Pliers
Drill with 9/32" drill bit for sheet metal	
Wire cutters and strippers for electrical work	
Vacuum cleaner with hose	
Shrink tubing for 16 AWG wire or electrical tape	
Solder and soldering gun for 16 AWG wire	
Air source with a minimum of 100 psi at 15 SCFM	
Hose and hose clamp (min. 3/8” diameter) to connect cooling kit to air source	
2 drain hoses and connectors to 1/4" NPT ports for auto-drains on pneumatic components	
Fittings to connect hose to 1/4” NPT pipe fitting and to air source (NO quick-disconnects!)	
#21 (5/32") drill bit for sheet metal (Only required if customer has a catcher display and an inker)	
10-32 hand (bottom) tap and tap handle (Only required if customer has a catcher display and an inker)	

Table 3: Parts Included in SB164KIT

Qty.	Part Description	Part #	2nd Level Part #
1	12" DIN rail	146122	—
4	Cap screw, flat, socket head, 1/4-20-1	325161	
4	Cap screw, hex head, 1/4-20x3/4"	327157	
8	Nut, 1/4-20	361601	
8	Lock washer, 1/4"	364034	
1	Pressure gauge	434424	—
1	Gasket	477182	—
21'	16 AWG wire	508006	7' of green wire
			7' of red wire
			7' of white wire
21"	1/2" Sealtite conduit	510032	—
2	90°, 1/2" Sealtite fitting	511112	—
1	Jumper bar	518143	—
5	Terminal block	518223	—
1	Terminal block markcard	518405	—
36"	3/8" poly flex tubing	704008	—
2	1/4" close nipple	714026	—
1	1/4" street elbow	731132	—
1	1/4" Tee	741041	—
2	1/4" fitting for poly flex tubing	747653	—
1	Regulator	78485-501 pneumatic assembly	438005
1	Oil Remover		438006
1	Auto-drain		438008
2	Quick clamp bracket		438572
1	Cooler	809039 cooling kit	809040
1	Cold air distribution kit		809042
1	Solenoid		809043
1	Thermostat		809044
1	Capacitor (in thermostat pkg.)		809048
1	Service Bulletin Document and Drawing 90503, rev. B	SB164 and 90503 rev. B	

Drawings 90503 is attached to this Service Bulletin. It may be of assistance when wiring the new terminal blocks.

THIS DRAWING SHOULD REPLACE THE PRINT OF 90503 THAT YOU RECEIVED WITH SB160!

Throw away the revision that came with SB160 and keep the most recent revision that is attached to SB164.

Preparation

Lockout/Tagout Power

	DANGER
	**All electrical work must be performed by a qualified electrician and must conform to all national electrical codes.** **Do not turn on electrical power until you have completed the entire procedure.** **Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).** **Lockout and tagout the electrical power source before continuing this procedure.** **Live electrical power may cause death or serious injury.**

1. Disconnect all power to the saw. Lockout and tagout the electrical supply to the saw.
2. Disconnect all power to the PC enclosure. Lockout and tagout the electrical supply to the PC enclosure.

Preparing the Enclosure

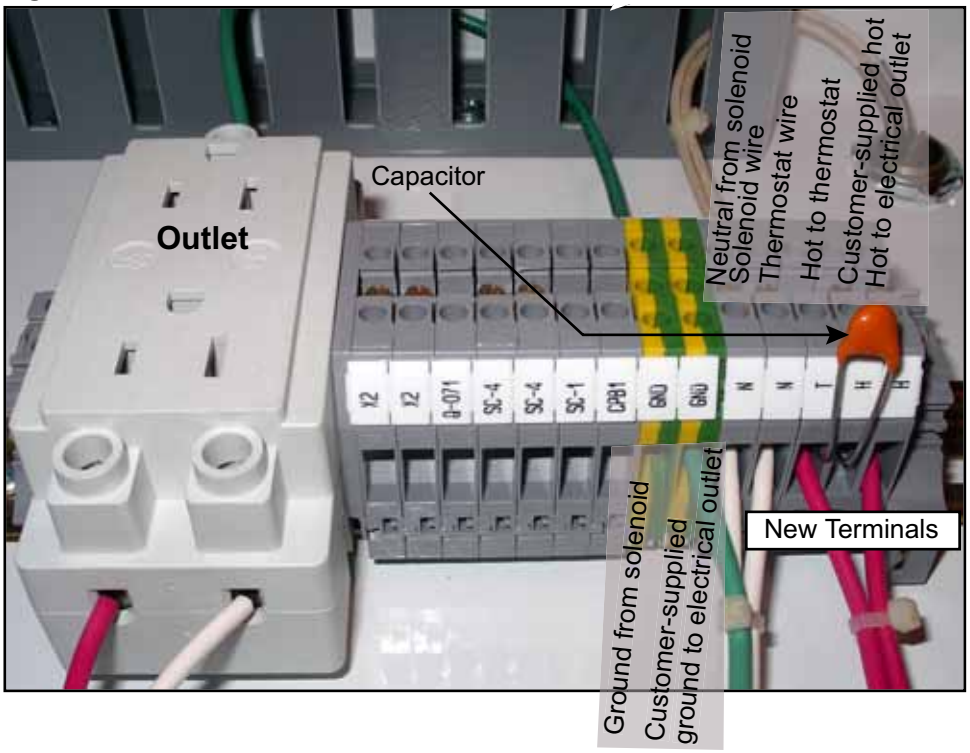
1. Remove the computer, disk drive, UPS, and all other electronic components from the PC enclosure and set them in a safe location.
2. Vacuum out any debris from the enclosure.
3. Unplug the fan from the inside the enclosure.
4. Unbolt the large, orange filter and metal plate from the outside of the enclosure using a 7/16-in. socket on the four (4) nuts on the outside of the enclosure. Set them aside.
5. Remove the fan using a phillips head screwdriver and pliers. Set it aside.
6. Place the metal filter plate back over the filter/fan hole to cover the hole. Secure it to the enclosure using the supplied 1/4-20-3/4-in. bolts (PN327157) with lock washers and nuts. Refer to Figure 1 for clarification.
7. Throw away the fan and filter.

Labeling the Terminal Blocks

Attach terminal block markcards to each new terminal block so the terminal blocks can be configured like Figure 2.

- N=neutral
- T=thermostat
- H=hot

Figure 2: Terminal Block Labels



Installing Terminal Blocks

Saws That Do Not Have a Catcher Display and Inker

If you only have a Catcher Display, an Inker, or you have no accessories at all, install the five (5) supplied terminal blocks on your current 8-in. DIN rail as shown in Figure 2.

1. Install the terminal blocks in their proper location by sliding them on to the DIN rail.
2. For more information, refer to attached Drawing 90503.

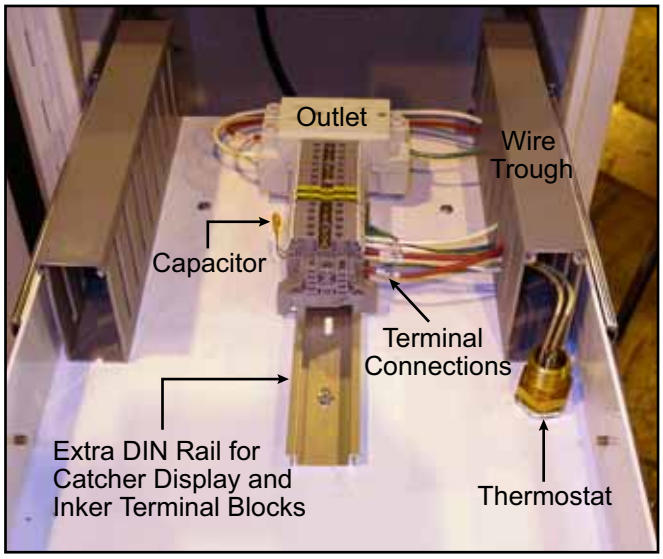
Saws With Catcher Display and Inker

For those customers who have both a Catcher Display and an Inker, use the supplied 12-in. DIN rail because the additional terminal blocks needed for the cooling unit and thermostat will not fit on the current 8-in. DIN rail with the relays that are already there. The basic layout can be seen in Figure 3. For customers who only have a Catcher Display, only an Inker, or no additional components, the original 8-in. DIN rail in its current location will be satisfactory.

To install the 12-in. DIN rail, complete these steps.

1. Without removing existing wiring, remove all items from the DIN rail.
2. Remove the screws that anchor the DIN rail to the enclosure. Save the screws to use later.
3. Remove the 8-in. DIN rail from the enclosure drawer. Keep the screws to use again.
4. Locate the supplied 12-in. DIN rail and position it on the drawer as shown in Figure 3. Due to the extra length, it will have to be rotated 90° in order to fit in the drawer.
5. Tap two (2) holes in the drawer with a 10-32 tap and screw the new DIN rail onto the enclosure drawer using the original screws.
6. Attach the following components onto the DIN rail in the order listed. Refer to Figure 3 and Figure 2
    - End block
    - Electrical outlet
    - Pre-existing terminal blocks
    - Five (5) new terminal blocks
    - End block

Figure 3: Electrical Layout

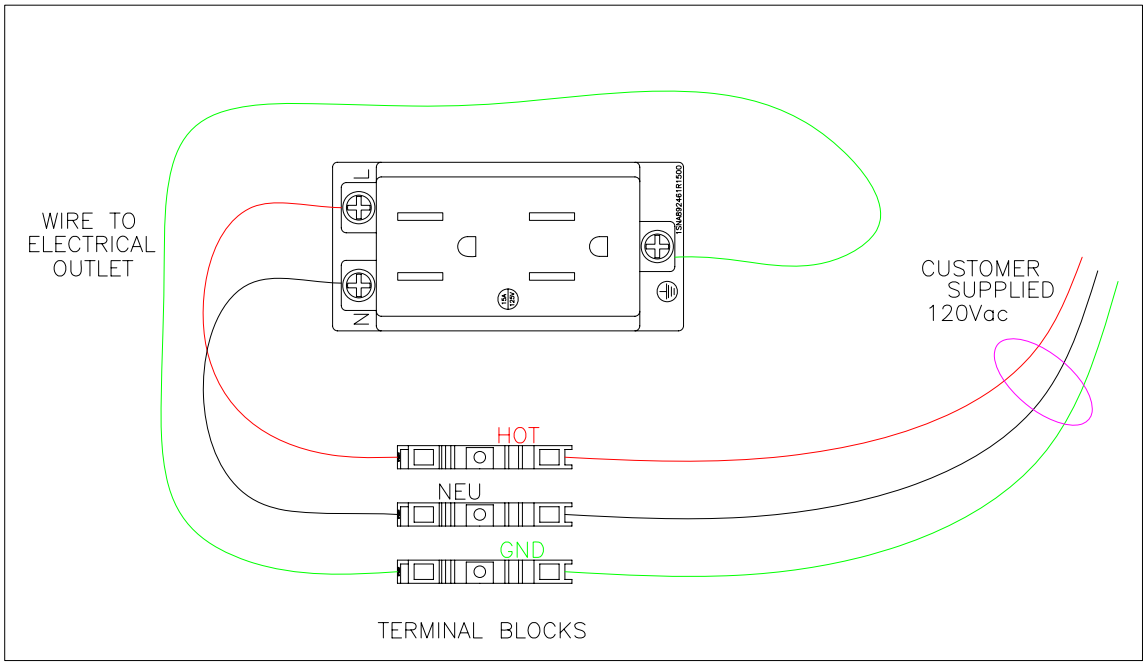


Connecting Terminals

Wiring the Terminal Blocks

1. Cut the supplied jumper bar so you have two (2) sections with two (2) screws on each.
2. Attach one jumper bar to the top of the two (2) terminal blocks marked “N”.
3. Attach the other jumper bar to the top of the two (2) terminal blocks marked “H”.
4. Remove the customer supplied 120 VAC hot line from terminal “L” on the electrical outlet and wire it to one of the terminal blocks marked “H”, running it through the wire trough. The wire is labeled “HOT” in Figure 4.

Figure 4: Wiring Path



5. Cut 1-1/2 ft of red wire off of the supplied 7 ft of red wire. Use the piece of short wire to create a jumper line from terminal “L” on the electrical outlet to the terminal block marked “H” (see hot to electrical outlet in Figure 4).
6. Remove the customer supplied 120 VAC neutral line from terminal “N” on the electrical outlet and wire it to one of the new terminal blocks marked “N”.
7. Cut 1-1/2 ft of white wire off of the supplied 7 ft of white wire. Use the piece of short wire to create a jumper line from the terminal block marked “N” to the “N” terminal on the outlet.

8. Remove the customer-supplied 120 VAC ground line from the electrical outlet and wire it to one of the terminal blocks marked “GND”.

9. Cut 1-1/2 ft of green wire off of the supplied 7 ft of green wire. Use the piece of short wire to create a jumper line from the terminal block marked “GND” to the ground terminal on the electrical outlet.

10. For more information, refer to Drawing 90503.

Installing the Capacitor

A capacitor is included in the thermostat package. It is shown in Figure 5. The capacitor prevents thermostat contact bounce and solenoid chatter due to small switching loads.

Install the capacitor so it connects the terminal blocks labeled “H” and “T” on the side of the terminal blocks opposite the thermostat wires. Insert one capacitor wire into a terminal in terminal block “H” and the other capacitor wire into a terminal in terminal block “T”.

Figure 5: Capacitor Location

CAUTION
If the capacitor is improperly installed, it may damage the thermostat.

Overview of the Components

The cooling unit consists of a thermostat, solenoid, cooling unit, and cold air distribution kit in addition to many different connectors and accessories. Many of these parts are labeled in Figure 6 and Figure 7. Use these graphics to assist with the rest of this procedure.

Figure 6: Primary Components in Cooling Kit

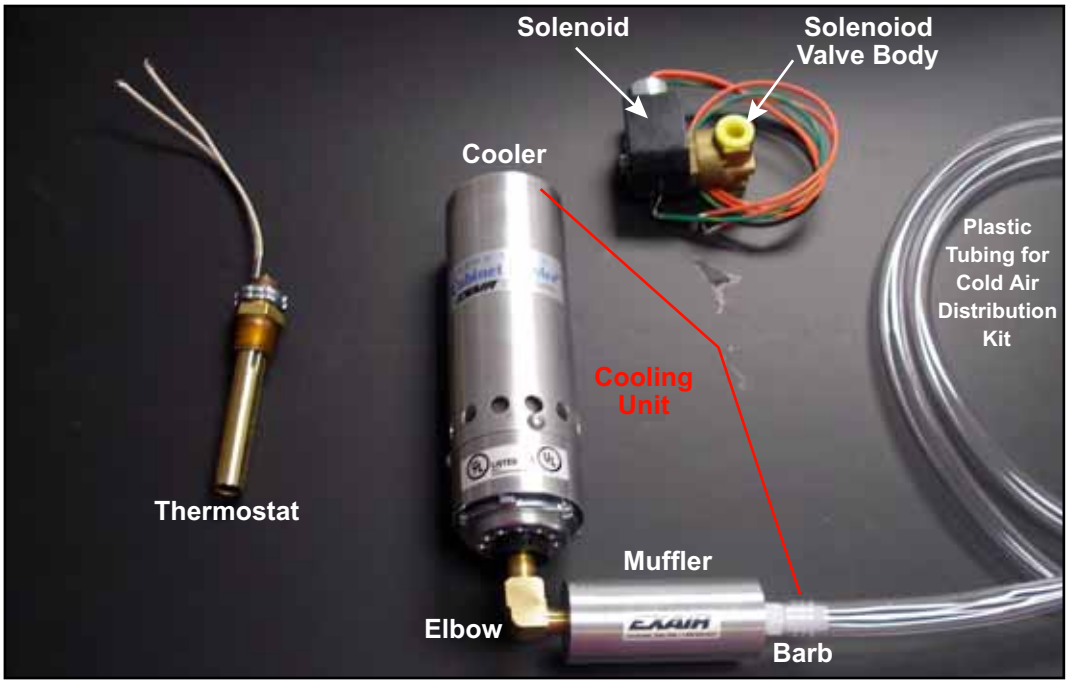
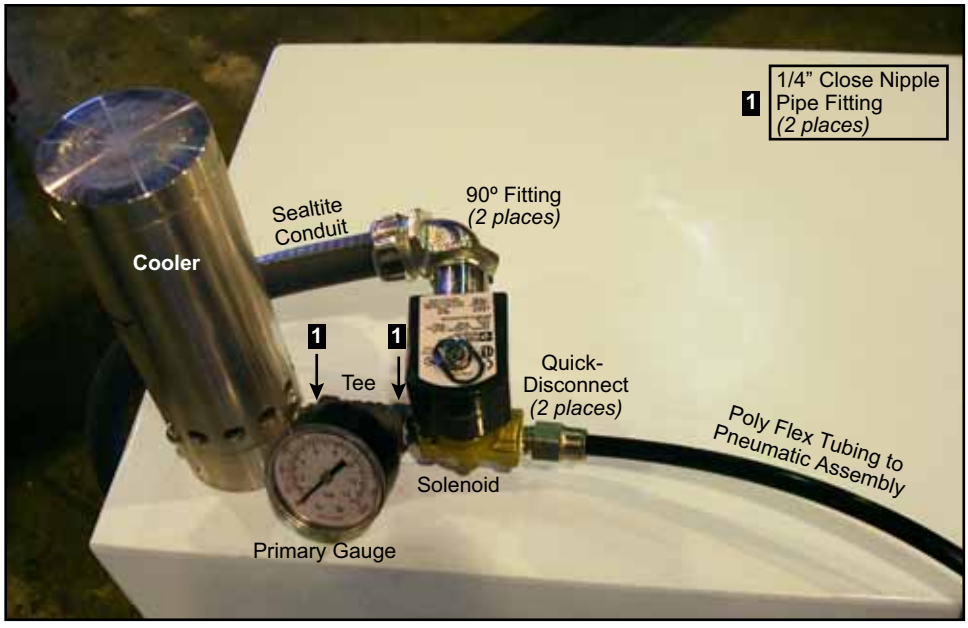


Figure 7: Additional Components in Cooling Kit



Installing the Thermostat

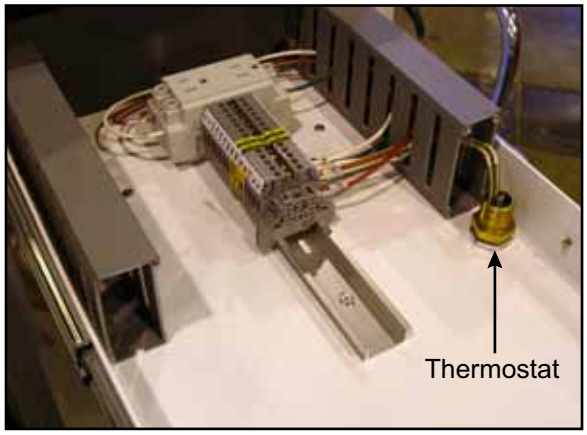
1. Create a hole in the drawer of the enclosure using a drill fitted with a 7/8-in. hole saw or a 1/2-in. knockout punch. Center the hole 1-1/2 in. from the right side of the drawer and 1-1/2 in. in front of the right-hand gray wire trough. Figure 8 shows the hole location in more detail.

2. Insert the thermostat in the hole, rod end down, and secure it using the nuts that came with the thermostat.

3. Run the two wires from the thermostat through the wire trough and to the terminals.

4. Connect one of the lead wires to a terminal marked “H” and the other lead wire to the terminal marked “T”. See Figure 2 for the correct terminals.

Figure 8: Thermostat Location in Drawer



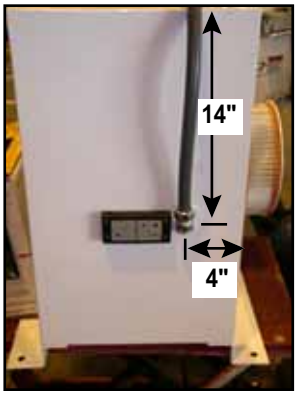
Installing the Solenoid

Drilling a Hole for the Solenoid Wires

Before the solenoid can be installed, a hole must be drilled in the back of the enclosure to run the wires into the enclosure.

1. On the back of the enclosure, measure 14 in. from the top and 4 in. from the right. Mark this spot. See Figure 9.
2. Create a hole at the marked location using a 1/2-in. knockout punch or a 7/8-in. hole saw.

Figure 9: Location of Hole



Lengthening the Solenoid Wires

There are three (3) wires that lead from the solenoid, but the wires are too short in their current state.

1. Solder the remainder of the supplied extension wires onto the wires leading from the solenoid per Table 4.
2. Wrap each soldered location with shrink tubing or electrical tape to ensure a safe connection.
3. Do not connect the wires to the terminal blocks yet. That will be done later.

Table 4: Connecting Wire Extensions to the Solenoid Wires

Color of Solenoid Wire	Purpose of Wire	Color of Extension Wire	Terminal Label
red	for neutral	white	N
red	for thermostat	red	T
green	ground	green	GND

Routing the Solenoid Wires

1. Attach the supplied gasket to one end of a supplied 90° 1/2-in. fitting.

2. Place this end of the fitting into the hole in the back of the enclosure. Insert it from the outside with the free end facing up. Secure the fitting to the enclosure using a supplied nut.

3. Remove the valve body from the solenoid temporarily by sliding the locking clip off. Refer to Figure 10 and the following instructions.

   CAUTION: The screwdriver may cause injury if it slips while performing this procedure.

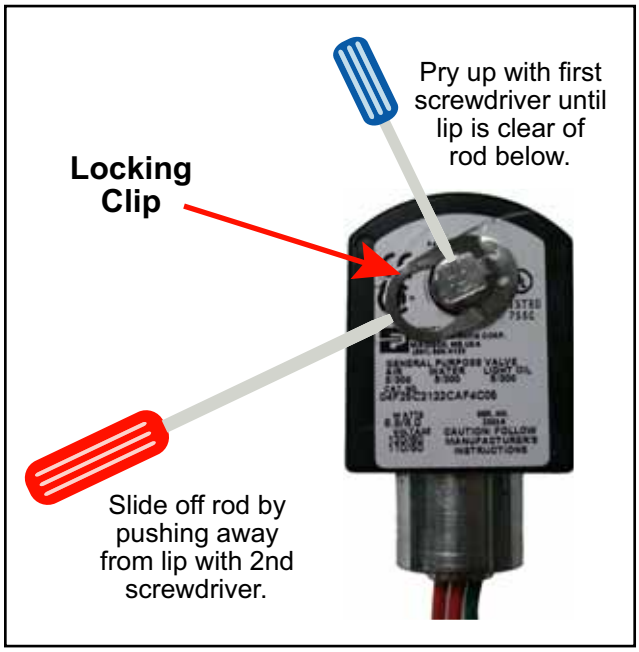
   a) Using a slotted screwdriver, gently pry up the top piece of the locking clip until the lip is above the rod.

   b) Leave the screwdriver in place to hold the lip above the rod and push back on the edge of the locking clip with a second slotted screwdriver.

   c) When the locking clip slides off the rod, separate the solenoid from the valve body and set the valve body aside.

   d) Be careful not to lose the locking clip or the washer beneath the solenoid.

Figure 10: Separating Solenoid from Valve Body



4. Run the second 90° 1/2-in. fitting onto the solenoid wires.

5. Run the wires through the Sealtite conduit and completely through the 90° 1/2-in. fitting that is attached to the enclosure.

6. Attach the 90° fittings to each end of the Sealtite conduit.

7. Inside the enclosure, retrieve the wires that were threaded through the conduit and fittings.

8. Pull out the drawer and run the wires through the wire trough to the following terminal locations. They are also described in Table 4.

   - Connect the red soldered solenoid wire to the terminal marked “T”
   - Connect the white soldered solenoid wire to the correct terminal marked “N”
   - Connect the green soldered solenoid wire to the free terminal marked “GND”

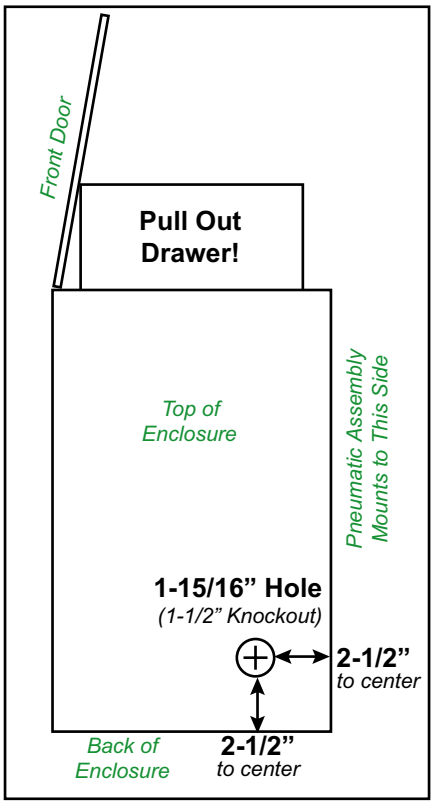
Installing the Cooling Unit Assembly

Drilling a Hole for the Cooling Unit

1. Pull out the drawer from inside the PC enclosure to prevent metal shavings from falling into the electrical system.
2. Working on the top surface of the enclosure, measure 2-1/2 in. from the back of the enclosure and 2-1/2 in. from the side of the enclosure as shown in Figure 11. Mark this spot.

3. Make sure the hole is on the correct side as shown in Figure 11.
4. Create a hole for the cooling unit at the marked location using a 1-1/2-in knockout punch or 1-15/16-in. hole saw.

Figure 11: Cooling Unit Hole



Assembling the Components

Use a thread sealant on all threaded connections in the pneumatic system.

1. Refer to Figure 6 and Figure 7 when assembling these parts.
2. Assemble the cooling unit to look like Figure 6.
    a) Remove the locking nut on the bottom of the cooler and set aside to use later.
    b) Thread the street elbow that came with the cooler into the bottom of the cooler.
    c) Thread the muffler onto the free end of the street elbow.
    d) Thread the plastic hose barb into the end of the muffler.
3. Attach a supplied 1/4-in. close nipple pipe fitting to the side of the cooler. See Figure 7.
4. Attach the 1/4-in. tee to the close nipple pipe fitting so the 3rd port of the tee is facing toward the pneumatic assembly location.

5. Attach the pressure gauge (PN 434424) to the port on the 1/4-in. tee that faces out. (This is a different gauge than the one that came with the pneumatic assembly.)

6. On the 1/4-in. pipe fitting tee's third port, attach the remaining 1/4-in. close nipple pipe fitting.

7. Attach the solenoid valve body (that you disassembled earlier) to the 1/4-in. close nipple pipe fitting.

8. Attach a poly flex tubing fitting to the free side of the solenoid valve body.

9. Connect the 3/8-in. poly flex tubing to the fitting, but do not connect the other end yet.

10. Insert the cooling unit into the hole on top of the enclosure so the muffler is oriented as shown in Figure 12.

11. Lock the cooling unit in place by screwing the nut that came with the cooler onto the bottom of the cooling unit inside the enclosure. Tighten it using a screwdriver and hammer.

12. Reattach the solenoid valve body to the solenoid. Be sure to slide the washer onto the pin before locking the solenoid in place.

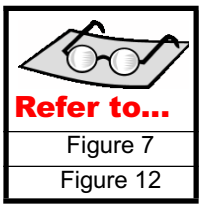
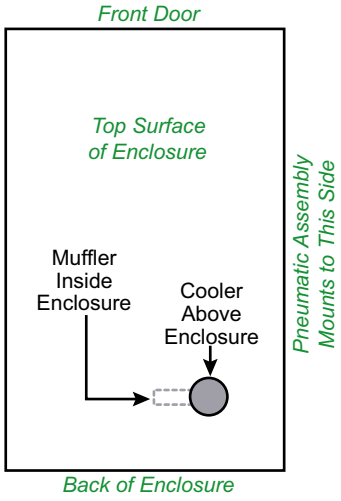


Figure 12: Orientation of the Cooling Unit

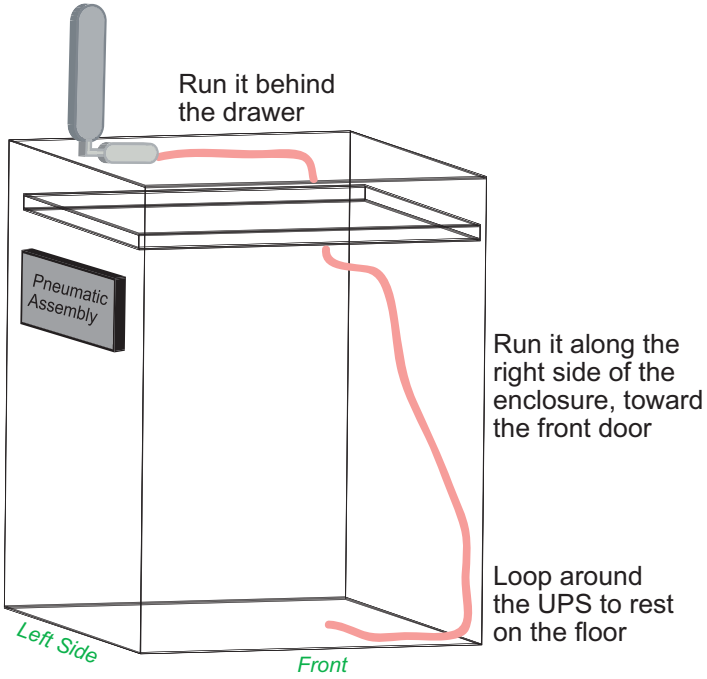


Installing the Cold Air Distribution Kit

1. Locate the supplied cold air distribution kit and cut the plastic tubing to approximately 4 ft (half its current length).
2. Inside the enclosure, attach the open end of the tube to the barb extending from the muffler.
3. Run the tubing behind the drawer and down to rest on the bottom of the enclosure as shown in Figure 13.
4. Place the plastic clips on the inside of the enclosure as needed to hold the plastic tubing in place.

CAUTION
The tubing must be run below the drawer for the enclosure to cool properly.

Figure 13: Routing the Plastic Tubing



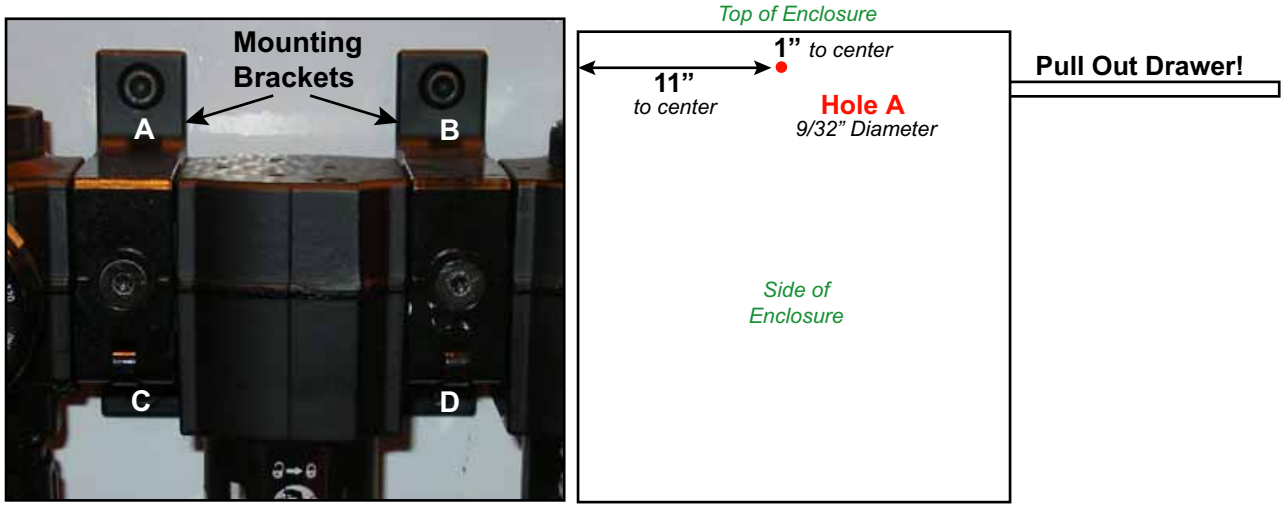
Pneumatic Components

Figure 14 shows the mounting holes required. Figure 15 shows the entire pneumatic assembly. Please refer to these graphics for more information.

Mounting the Pneumatic Assembly

1. Refer to Figure 14 for this procedure.
2. Pull out the drawer from inside the PC enclosure to prevent metal shavings from falling into the electrical system.
3. Determine the correct side of the enclosure to mount the pneumatic assembly according to Figure 14. It is the left side when facing the front door.
4. Working on the side of the enclosure, measure and mark approximately 11 in. from the back of the enclosure and 1 in. down.
5. Hold the pneumatic assembly so hole A in the pneumatic assembly lines up with hole A just marked.
6. Ensure the assembly is level and mark the location of the holes B, C, and D.
7. Drill all four (4) holes using a 9/32-in. drill.
8. Use the supplied flat head socket head 1/4-20x1-in. bolts (PN 325161) with lock washers and nuts to attach the pneumatic assembly to the enclosure.

Figure 14: Drilling the Mounting Bracket Holes



Connecting the Pneumatic Assembly and Cooling Unit

Figure 15: Pneumatic Assembly

1. Attach the 1/4-in. street elbow to the right side of the pneumatic assembly.
2. Attach the second poly flex tubing fitting to the 1/4-in. street elbow.
3. Cut the poly flex tubing (coming off of the solenoid) to the desired length, leaving plenty of room so the tubing will not be pulled taught or kinked once connected.
4. Attach the free end of the poly flex tube to the fitting on the street elbow.

Connecting and Adjusting the Air Source

1. Attach a customer-supplied pneumatic system connector, hose, and hose clamp to the left side of the pneumatic assembly. Do NOT use a quick-disconnect fitting!

   *Do **NOT** use a quick-disconnect fitting to connect the air source to the cooling kit. It will restrict the air flow and prevent the cooler from operating effectively.*

2. Connect the hose to your air source.

3. Turn the air source on. Your air source and supply line must be capable of consistently providing 100 psi of compressed air at 15 SCFM. The gauge on the pneumatic assembly monitors this pressure.

   There is a gauge located at the cooler inlet on top of the enclosure that shows the pressure actually entering the cooling unit (operating pressure). It is labeled “Primary Gauge” in Figure 7. This gauge must show between 80-100 psi at ALL times. If your operating pressure drops below 80 psi, the cooler will not function properly. For questions or problems with your air flow, contact your local compressor distributor.

CAUTION
If you have an insufficient air supply, the enclosure will not cool properly!

4. Set the regulator to 100 psi.

   a) To increase pressure at the pressure regulator, pull up on the adjustment knob and turn clockwise.

   b) To decrease pressure at the pressure regulator, pull up on the adjustment knob and turn counter-clockwise

Connecting the Auto-Drain Hoses

Refer to the *Maintaining the New Components* section at the end of this document for instructions on attaching the hoses to the auto-drain ports.

Connecting the Computer

1. When all of the shipped components in this kit have been installed, vacuum out any debris that may have accumulated during installation.

2. Connect the computer to PLC and/or the plant network, and continue setting up the computer as it was before this procedure started. If you have the original instructions provided in SB160 that came with your PC enclosure, it will be of assistance, specifically Drawing SB160DWG.

3. Remove the lockout/tagout device on the saw and PC enclosure.

	CAUTION
	**Burn hazard.** **When in use, the cooling unit can become hot. Do not touch the cooling unit.**

4. Restore power and resume regular saw operation.

DRAWING 90503 SHOULD REPLACE THE PRINT OF 90503 THAT YOU RECEIVED WITH SB160!

Throw away the revision that came with SB160 and keep the most recent revision that is attached to SB164.

Maintaining the New Components

Setting the Thermostat

The thermostat was set by the manufacturer to keep the cabinet at approximately 95°F which should be adequate for your computer's needs. If it becomes necessary to adjust the thermostat, refer to the Exair documentation that came with the thermostat. A brief summary for adjusting the thermostat is provided here.

CAUTION

Do not remove the adjusting screw or turn the adjusting screw in too far. This can permanently damage the thermostat.

The slotted adjusting screw is shown in Figure 16. Turning the adjusting screw 1/4 turn changes the temperature approximately 25°F. Since you should never adjust this thermostat more than a few degrees at a time, only turn the head a minute amount, then operate the saw and computer for several hours to test the adjustment.

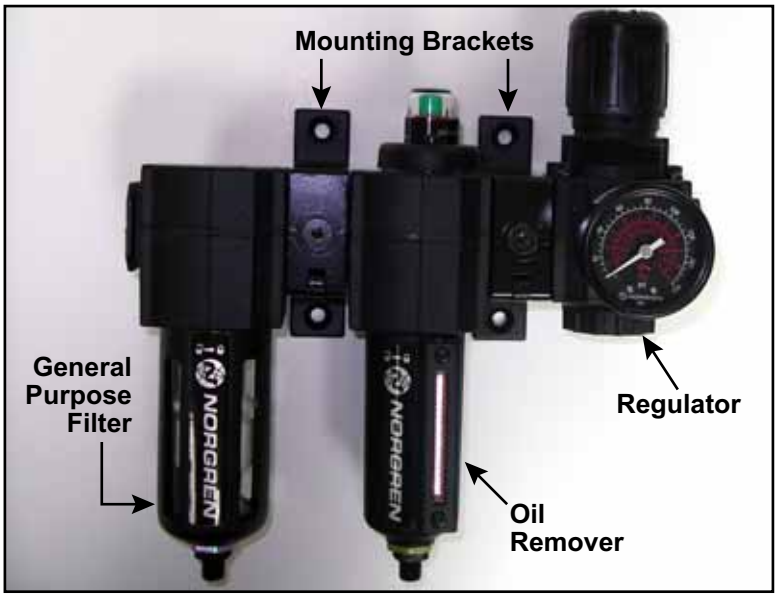
An arrow on the head of the thermostat directs you to turn it clockwise to increase the temperature setting. Turn counterclockwise to decrease it. See Figure 17.

Figure 16: Adjusting Screw

NOTE: Collar may be located above or below the drawer, but adjusting screw will always be above the drawer.

Figure 17: Direction to Turn Screw to Increase Temperature

Pneumatic Components Overview



Maintaining the Regulator

Adjusting the Pressure

The operating pressure of the pneumatic system should be 100 psi. The pressure adjustment knob shown in Figure controls the operating pressure. To adjust the system pressure to 100 psi:

1. Unlock the pressure adjustment knob on the Regulator by pulling it straight up.
2. Turn the knob clockwise to increase pressure or counterclockwise to decrease pressure.
3. Once a pressure of 100 psi is achieved, push the knob down to lock it in place.

The primary gauge on top of the enclosure must register 80-100 psi at all times! If the pressure drops below 80 psi, the cooler will not function properly.

Additional Maintenance

	WARNING
	**COMPRESSED AIR** **To avoid injury, bleed all pressure from the lines before removing the regulator.**

If a regulator is not operating at its optimum capacity, we recommend cleaning the regulator and replacing the O-rings, gaskets, diaphragm, and valve assembly. A repair kit may be purchased from MiTek using the part number given in Table 3.

Maintaining the Oil Remover

The oil remover, or coalescing filter, removes articles down to .01 micron in size. The filter provides Air Quality Class 2 Hydrocarbon and Class 1 Particulate Removal according to ISO 8573-1.

The oil remover features an automatic drain. Once the fluid in the bowl raises the float to a certain height, the fluid automatically drains out of the bottom of the bowl.

The oil remover's bowl has a sight gauge on it that turns a different color where water is touching it. This feature is not necessary if a hose is connected to the auto drain port, but is very helpful if required to manually drain the bowl.

Connecting a Hose to the Oil Remover's Auto Drain Port

	CAUTION
	**Slip hazard. Trip hazard.** **Do not allow water or oil to gather on the floor. Injury may result from personnel slipping and falling.** **If using a hose to drain the fluid, secure it to the floor. Injury may result from personnel tripping on the hose and falling.**

Fluid will automatically drain out of the bottom of the oil remover's bowl as needed. It has a 1/4-in. NPT threaded port on the bowl. Connect a customer-supplied hose to this port and run the hose to a safe place for the fluid to drain. Secure the hose to the floor to prevent a trip hazard.

Replacing the Oil Remover's Filter Element

	WARNING
	COMPRESSED AIR **To avoid injury, bleed all pressure from the lines before removing the filter body.** **Ensure that the filter body is securely attached to the unit before returning pressure to the lines.**

A service life indicator on top of the oil remover unit changes from green to red when the filter element needs to be replaced. The MiTek part number for a new filter is listed in Table 3.

1. When replacing the filter, the system must be free of pressure. To depressurize the system:
    a) Turn the main air source off.
    b) Bleed the pressure from the lines by disconnecting the air line.
    c) Ensure the gauge reads "0" before unscrewing the filter guard.
2. Push up on the bowl and turn to the left to unlock the bowl.
3. Pull straight down to remove the bowl from the unit.

Do not lose the float that is inside the bowl!

4. Unscrew the filter and replace it with a new filter.
5. Ensure the float is still inside the bowl. The spoke inside the bowl should rest inside the hole in the float.
6. Lock the bowl back onto the unit.

Maintaining the General Purpose Filter

The general purpose filter removes water from the compressed air as well as fine particles. The filter provides particle removal according to ISO 8573-1, Class 5 and Class 3.

The general purpose filter features an automatic drain. Once the fluid in the bowl raises the float to a certain height, the fluid automatically drains out of the bottom of the bowl.

The general purpose filter's bowl has a clear window in it to view the amount of fluid that has gathered in the bowl. This feature is not necessary if a hose is connected to the auto drain port, but is very helpful if required to manually drain the bowl.

Connecting a Hose to the General Purpose Filter's Auto Drain Port

	CAUTION
	**Slip hazard. Trip hazard.** **Do not allow water or oil to gather on the floor. Injury may result from personnel slipping and falling.** **If using a hose to drain the fluid, secure it to the floor. Injury may result from personnel tripping on the hose and falling.**

Fluid will automatically drain out of the bottom of the oil remover's bowl as needed. It has a 1/8-in. NPT threaded port on the bowl. Connect a customer-supplied hose to this port and run the hose to a safe place for the fluid to drain. Secure the hose to the floor to prevent a trip hazard.

Replacing the General Purpose Filter Element

The auto-drain uses a 40-micron filter element that must be replaced every six (6) months. Refer to Table 3 for the MiTek part number.

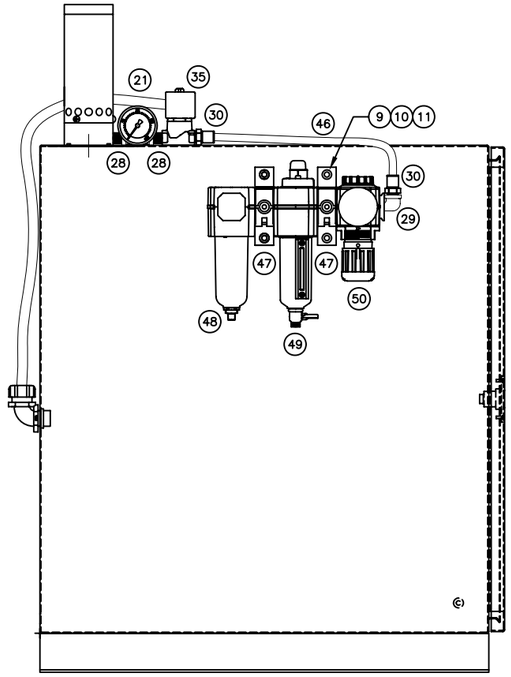
	WARNING
	**COMPRESSED AIR** **To avoid injury, bleed all pressure from the lines before removing the filter body.** **Ensure that the filter body is securely attached to the unit before returning pressure to the lines.**

1. When replacing the filter, the system must be free of pressure. To depressurize the system:
    a) Turn the main air source off.
    b) Bleed the pressure from the lines by disconnecting the air line.
    c) Ensure the gauge reads "0" before unscrewing the filter guard.
2. Push up on the bowl and turn to the left to unlock the bowl.
3. Pull straight down to remove the bowl from the unit.

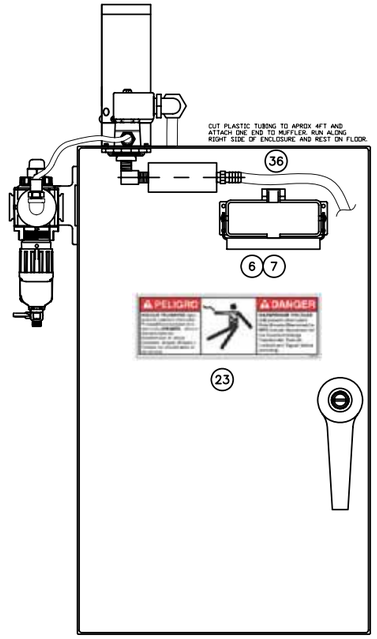
Do not lose the float that is inside the bowl!

4. Unscrew the plastic stop and remove the filter.
5. Replace it with a new filter and screw the plastic stop on to hold the filter in place.
6. Ensure the float is still inside the bowl. The spoke inside the bowl should rest inside the hole in the float.
7. Lock the bowl back onto the unit.

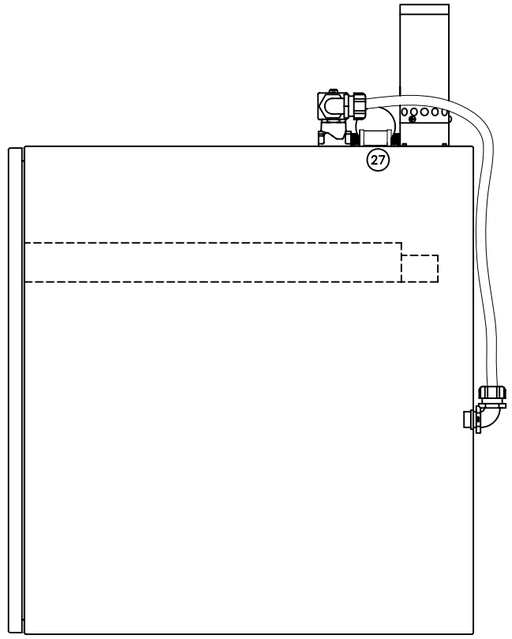
REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
-	8/18/04	INITIAL RELEASE	IL			
A	6/15/05	ADD 92183, ADD 511782 REMOVE 511765, SEE ECR 5248	IL			
B	7/27/05	ADDED CABINET COOLER KIT REMOVED FAN/FILTER SEE ECR 5252	LN			



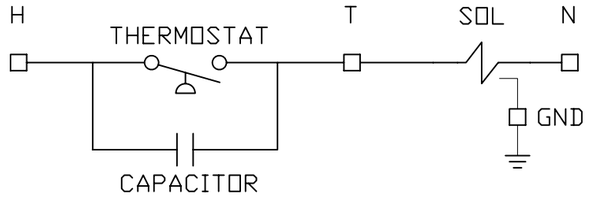
LEFT SIDE



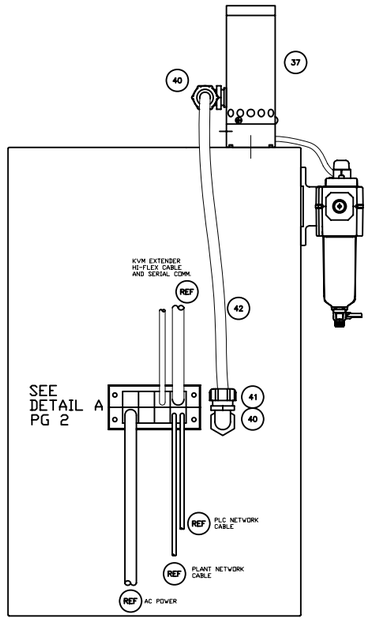
FRONT

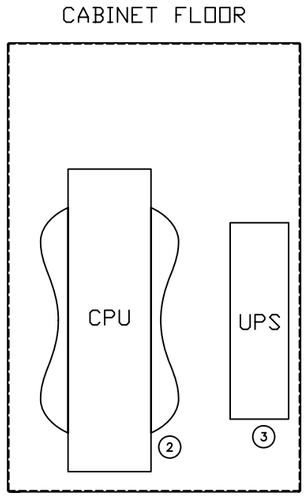


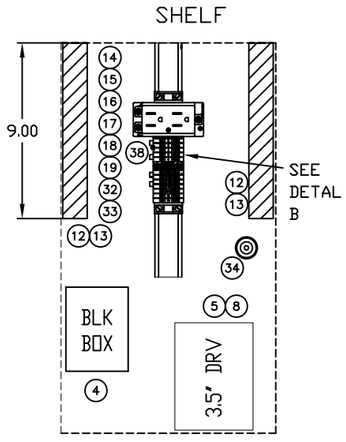
RIGHT SIDE



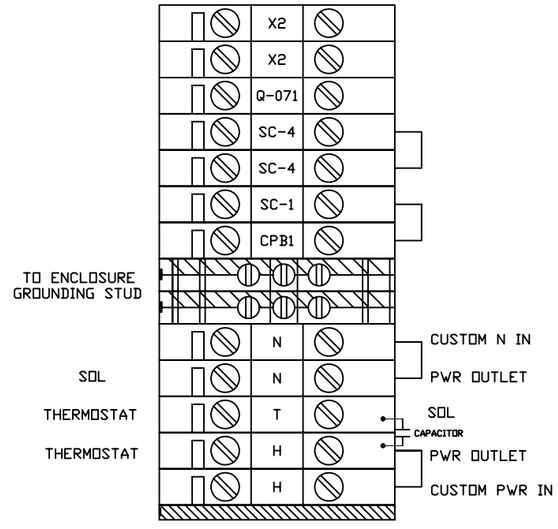
SWITCH SOLENOID ON HOT SIDE...NOT NEUTRAL.







DETAIL B



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

DIMENSION TOLERANCES, UNLESS OTHERWISE SPECIFIED;
FRACTIONS ± 1/32 DECIMALS ± .010 ANGLES ± 1°
TOTAL RUNOUT ± ☐ MACHINED SURFACES NOT SPECIFIED 250

FEATURES: ENCLSR DETAIL

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

MATERIAL

PAGE

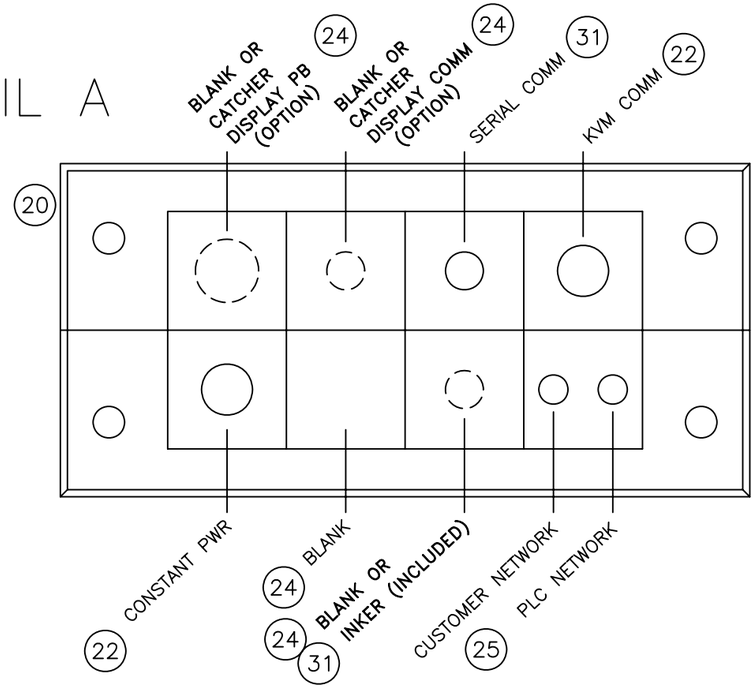
APPROVED	DATE	MFG.	CYBER,AT,PC,ENCLSR						
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	B90503	DASH NO.	REV.
		IL	8/19/04	X	NONE	1 OF 2		501	B

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

NOTES:

1. COMPONENTS QUANTITY IS CALLED OUT ON 90500 DWG
2. IF CATCHER DISPLAY OPTION IS INSTALLED CORRESPONDING BLANK MUST BE REMOVED AND GROMMET SUPPLIED WITH OPTION MUST BE INSTALLED IN CABTITE FRAME TO MAINTAIN SEAL
   INKER GROMMET IS INCLUDED BUT NOT INSERTED INTO FRAME UNLESS INKER OPTION IS INSTALLED

DETAIL A



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
51	1 EA	FILTER/REGULATOR ASSEMBLY	JHFM-3849	X	P	78485-501
50	REF ASSY	REGULATOR	NORGREN R73G-2AK-RMG	X	P	438005
49	REF ASSY	OIL REMOVAL FILTER	NORGREN F73C-2AD-ADO	X	P	438006
48	REF ASSY	AUTO DRAIN FILTER	NORGREN F73G2ANAP3	X	P	438008
47	REF ASSY	QUICKCLAMP,W/WALL,BRKT	NORGREN 4314-52	X	P	438572
46	3 FT	TUBE,BLACK,NYLON,3/8x.048	#66SN	X	P	704008
45	7 FT	WIRE,MTW,GRN	#16	X	P	508006
44	7 FT	WIRE,MTW,WHT	#16	X	P	508006
43	7 FT	WIRE,MTW,RED	#16	X	P	508006
42	1.75 FT	CONDUIT,EXTRA-FLEX,1/2	LIQUATITE EF11	X	P	510032
41	1 EA	GASKET,1/2	T&B 5262	X	P	477182
40	2 EA	CONN,FLEX,90DEG,1/2	T&B 5252	X	P	511112
39	1 EA	CABINET COOLER KIT, NEMA 4	EXAIR 4815J	X	P	809039
38	REF KIT	CAPACITOR, .002, MICROFARAD	EXAIR 4519	X	P	809048
37	REF KIT	CABINET COOLER	EXAIR 4615	X	P	809040
36	REF KIT	COLD AIR DIST KIT	EXAIR 4904	X	P	809042
35	REF KIT	SOLENOID VALVE	EXAIR 9018	X	P	809043
34	REF KIT	THERMOSTAT	EXAIR 9017	X	P	809044
33	1 EA	TERM,END,SEC,FLD-FLD	ENTRELEC #118368.16	X	P	518234
32	2 EA	TERM,BLK,GND,G/Y	ENTRELEC #165113.16	X	P	518209
(2)	31	2 EA	CABTITE,GRMMT,KT6,.24-.28	WEIDMULLER #1826490000	X	P	511762
30	2 EA	FTG,STR,1/4NPT,TO,3/8 POLY	NORGREN 12-425-0628	X	P	747653
29	1 EA	ELBOW	90 ST-M.IRON 1/4 150LB	X	P	731132
28	2 EA	NIPPLE	BI.SCH40,1/4,CLOSE	X	P	714026
27	1 EA	FTG,MALIRON	T,1/4,150LBS	X	P	741041
26	1 EA	MARKCARD	ENTRELEC #RC610	X	P	518405
25	1 EA	CABTITE,GRMMT,KT2/5,2-0.20	WEIDMULLER #1826630000	X	P	511766
(2)	24	4 EA	CABTITE,GRMMT,BTK,SMALL BLANK	WEIDMULLER #1828170000	X	P	511765
23	1 EA	LABEL,SAFETY,DANGER,	DUNLAP #113361	X	P	691410
22	2 EA	CABTITE,GRMMT,KT8,0.31- 0.35	WEIDMULLER #1826510000	X	P	511763
21	1 EA	GAUGE,AIR,1/4NPT	MASTER-PNEUMATIC #200BDD	X	P	434424
20	1 EA	CABTITE,CBL,INLET,FRAME,16/8	WEIDMULLER #1825910000	X	P	511761
19	1 EA	RECPTCLE,DUPLX,125V,DIN-MNT	ABB #1SNA892461R1500	X	P	511587
18	2 EA	TERM,JUMPER,BAR,10-P	ENTRELEC #168.973.07	X	P	518143
17	12 EA	TERM,BLCK,FLD-FLD	ENTRELEC #115116.07	X	P	518223
16	2 EA	TERM,END,STOP,SCREWLESS	ENTRELEC #399903.02	X	P	518192
15	6 EA	RIVET,POP,5/32	#ABA53	X	P	390005
14	1 FT	RAIL,DIN	IDEC #BNDN-1000	X	P	146122
13	1.5 FT	DUCT,COVER,WIRING,PVC	PANDUIT #C1LG6	X	P	510151
12	1.5 FT	DUCT,WIRE,PVC	PANDUIT #G1X3LG6	X	P	510141
11	4 EA	WSHR,LCK	1/4	QUICK CLAMP	P	364034
10	4 EA	NUT,HEX,FINISHED	1/4-20	QUICK CLAMP	P	361601
9	4 EA	C'SCW,FHSH	1/4-20X1	QUICK CLAMP	P	325161
(1)	8	0 REF	CABLE,USB,EXTENSION	BLKBOX #CBCC283604	X	P	508940
7	1 EA	FLOPPY DRIVE BRACKET	SEE DWG	X	M	60195-501
6	1 EA	HOUSING,FLOPPY	PROCON #PB424/3.5	X	P	504321
(1)	5	0 REF	EXTERNAL 3.5" DISK DRIVE	DELL	X	P	504547
(1)	4	0 REF	KVM EXTENDER KIT	BLKBOX #ACU3022A	X	P	504548
3	1 EA	UPS,500VA,w/RS-232 PORT	PULSAR #ELSP500	X	P	509111
(1)	2	0 REF	PC, OPTIFLEX, MINI TOWER	DELL	X	P	504555
1	1 EA	ENCLSR,15x23x25,SLIDING SHELF	MWA	X	P	30005
ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

DIMENSION TOLERANCES, UNLESS OTHERWISE SPECIFIED;
FRACTIONS ± 1/32 DECIMALS ± .010 ANGLES ± 1°
TOTAL RUNOUT ± ____ MACHINED SURFACES NOT SPECIFIED 250

FEATURES: BOM

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

MANUAL XXX PAGE XXX

APPROVED	DATE	MFG.	CYBER,AT,PC,ENCLSR						
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	DASH NO.	REV.
		IL	8/19/04	X	NONE	2 OF 2	B90503	501	B