MiTek®

Machinery Division

Service Bulletin

Machinery Affected:	*SmartSet*®, *Cyber*®, and *Cyber A/T* Saws
Document:	**SB221 rev. B**
Title:	**Replacing the End-to-End Communications Cable**
Applies To:	**All With RX3i PLC and 6" Interconnect Cables**
Distribution:	**Customers, Upon Order**

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Purpose and Scope

This Service Bulletin describes how to properly install the End-to-End cable that runs the length of the saws listed on the title page. If this cable is installed incorrectly, it may significantly affect the performance of the saw and result in a safety hazard if proper NFPA guidelines are not followed.

Overview

The parts included in this kit are shown in Table 1. Please ensure all parts are present before starting this procedure.

knockout punch or hole saw for 2-1/2"

wire cutters

Table 1: Parts in SB221KIT

Qty.	Part Description	Part #
1	End-to-End communication cable	92019
2	Cabtite fittings, round	511776
6	Grommets for fitting, blank	511765
2	Grommets for fitting, w/hole	511780
25	Cable ties	508704
1	Service Bulletin Document	SB221

Before beginning the procedure, gather the supplies listed in the margin.

If you have any questions, call MiTek Machinery Division Customer Service at 800-523-3380.

Procedure

Preparing the Saw

1. Before shutting down the saw, move the carriage to its farthest position so the cable track is straight for its entire length.

2. Power down the operator interface (touch screen computer).

3. Power down the saw, turning the disconnect switch to Off.

4. Lock out and tag out the source that supplies power to the saw, following the instructions in the next section and your internal procedures.

Electrical Lockout/Tagout Procedures

	⚠ **WARNING**
	ELECTROCUTION HAZARD!
	Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance.
	All electrical work must performed by a qualified electrician.
	If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.

When Working on a Machine Inside the Machine's Main Electrical Enclosure or in the Electrical Transmission Line to the Machine

Before opening the main electrical enclosure, or attempting to repair or replace an electrical transmission line to the machine, lockout/tagout the machine properly. Follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps here.

1. Engage an E-stop on the machine.

2. Turn the machine's disconnect switch to the "off" position. This is usually required to open the main electrical enclosure's door.

3. Shut the power to the machine off at the machine's power source which is usually an electrical service entry panel on the facility wall. One example of a locked-out power source panel is shown in Figure 1.

4. Attach a lock and tag that meets OSHA requirements for lockout/tagout to the electrical service entry panel.

5. Open the door to the enclosure in which you need access, and using a multimeter, verify that the power is off.

Figure 1: Lockout/Tagout on the Power Source Panel

Pneumatic System Lockout/Tagout Procedure

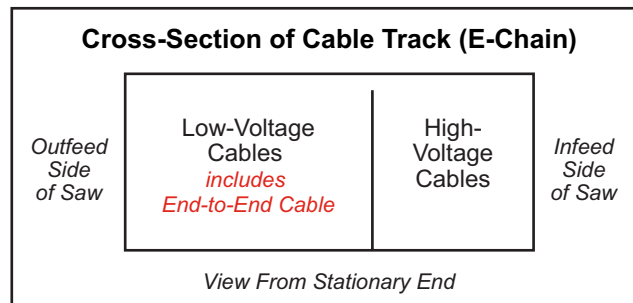|	⚠ **WARNING**
	MOVING PARTS CAN CRUSH AND CUT. **Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.** **Turn off the air switch before performing any maintenance on the equipment.**

	⚠ **WARNING**
	HIGH PRESSURE HAZARD. **Bleed pneumatic lines before performing any maintenance on the pneumatic system.**

Removing End-to-End Cable for Replacement

1. After locking and tagging out, unplug the End-to-End cable in the carriage-end enclosure.

2. Unplug the End-to-End cable from the stationary-end enclosure.

3. Remove all cable ties and wraps securing the End-to-End cable.

4. If the old End-to-End cable is routed through the outfeed side of the cable track (E-chain) and separated from the 3-phase wires as shown in Figure 2, cable-tie the new cable to the old cable so it will naturally be routed correctly as the old cable is being removed. If the old cable is not currently routed through the cable track as described, skip this step.

5. Gently pull the old cable out and discard it.

Figure 2: Correct Location of Cables in Cable Track

| **Cross-Section of Cable Track (E-Chain)**		
Outfeed Side of Saw	Low-Voltage Cables *includes End-to-End Cable*	High-Voltage Cables	*Infeed Side of Saw*
	View From Stationary End		

Adding Holes to the Enclosures

Use a 2-1/2" hole saw to make a hole in the side of the stationary-end enclosure and one in the side of the carriage-end enclosure according to Figure 3. Both holes should be on the outfeed side of the saw. Follow these guidelines when creating the hole:

- Protect all components next to and below the hole with a cloth or plastic bag to protect them from metal shavings.
- Drill from outside to inside, being careful not to make contact with any electrical components inside the enclosure.
- A hole punch can be used instead, if desired.

Figure 3: Hole Locations
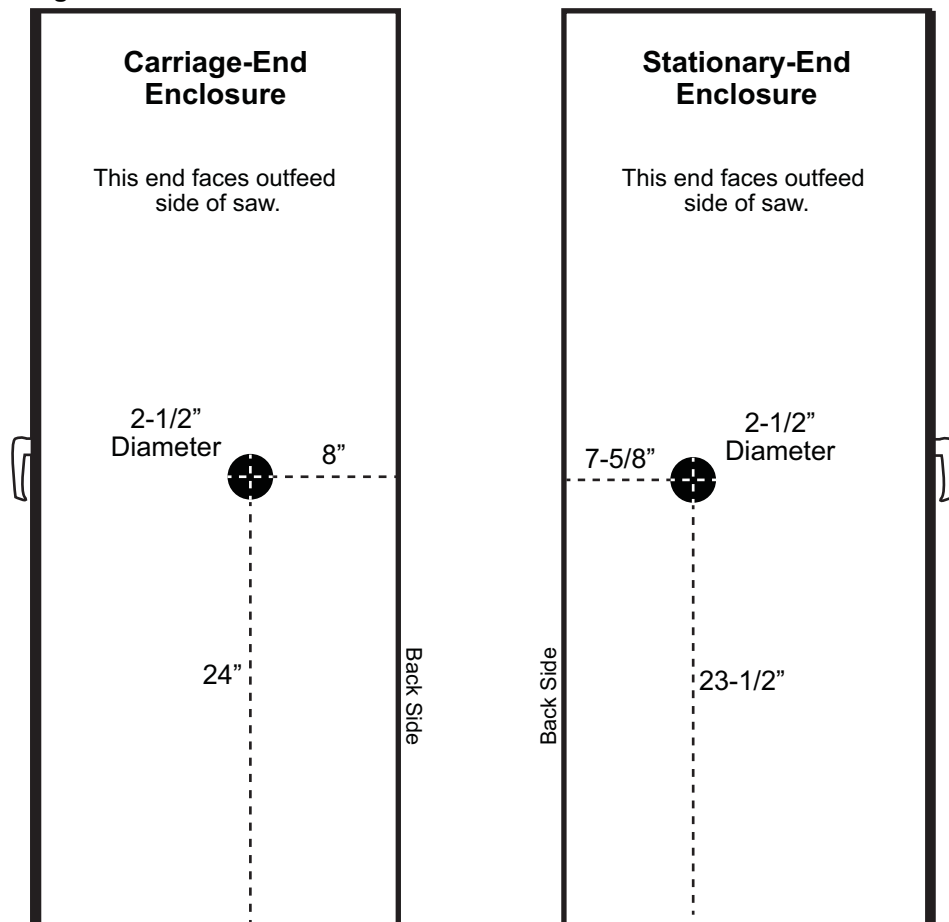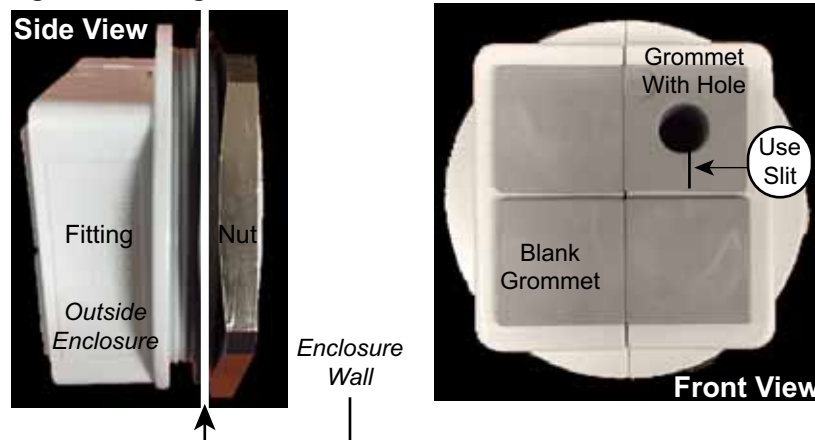
Installing Cable on Stationary End

Install the new End-to-End cable by routing it as described here.

1. Thread one end of the End-to-End cable through the new hole in the **stationary-end** enclosure, starting from outside the enclosure.

2. Thread that same end through the nut shown in Figure 5.

3. Plug the End-to-End cable into the Interconnect cable that is plugged into the expansion slot in the stationary-end enclosure. See Figure 4.

Figure 4: *Cyber A/T, Rack 0 and Rack 1,* **Stationary End**

Interconnect #1

End-to-End Cable

4. Install the stationary-end fitting so it looks like Figure 5:

    a) Place one of the supplied fittings around the cable, on the outside of the stationary-end enclosure and insert the grommets, placing the cable through the grommet with the hole in it.

    b) Snap the two halves together.

    c) Screw the nut on the back side (inside the enclosure).

    d) Pull the cable through to remove the slack outside the enclosure.

Figure 5: Fitting and Grommets

Side View

Fitting

Nut

Outside Enclosure

Enclosure Wall

Grommet With Hole

Use Slit

Blank Grommet

Front View

## Routing Cable Down Length of Saw

1. The End-to-End cable should exit the stationary-end enclosure and go directly to the yellow guard shown in Figure 6.

    • Keep it on the outfeed side of the guard, and run it toward the cable track (E-chain) on the carriage end.

    • Bundle it with other cables using cable ties if desired.

    • Use the supplied cable ties to occasionally tie it to the guard.

Figure 6: Guard Supporting Cables, View From Stationary End
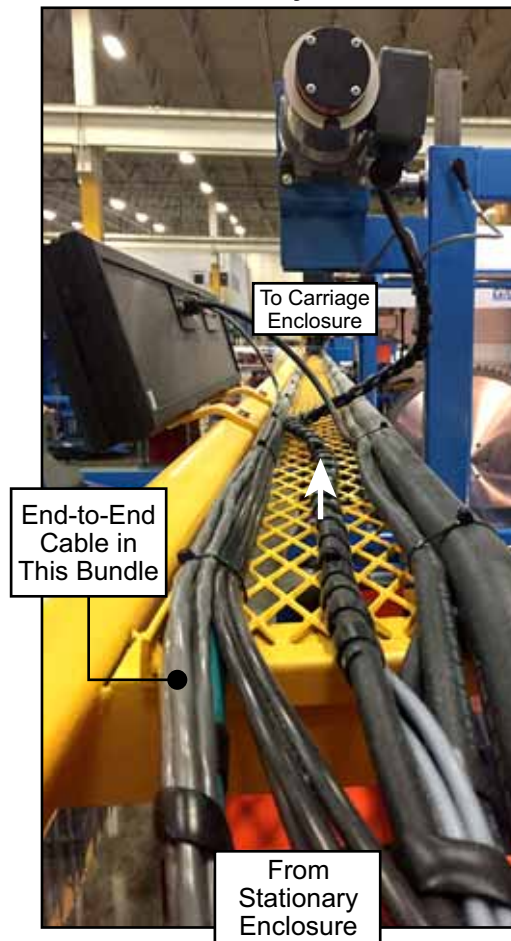
End-to-End cable must be on the outfeed side of the cable track and separated from the 3-phase wires by the divider to avoid damage to the cable.

2. Thread the End-to-End cable through the cable track (E-chain):

    a) When the End-to-End cable reaches the cable track, enter the cable track on the left side (outfeed side) as shown in Figure 8 and Figure 7. IT MUST STAY SEPARATED FROM THE 3-PHASE WIRES!

    b) Where it must cross a 3-phase wire, it must cross at a 90-degree angle.

    c)   Thread it through the cable track until it exits at the orange arm.

    d) Use electrical wrap or supplied cable ties to secure it and to keep it away from 3-phase wires.

    e) Once it exits the cable track, cable tie it to the orange arm and run it down the orange arm until it is even with the new hole in the carriage-end enclosure.

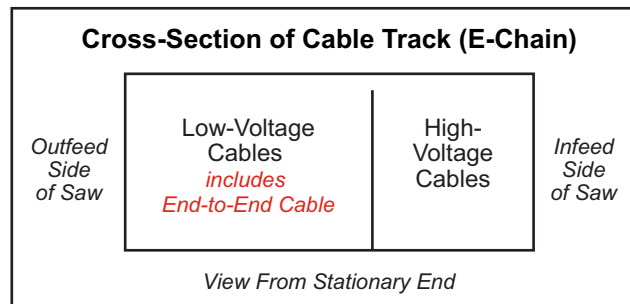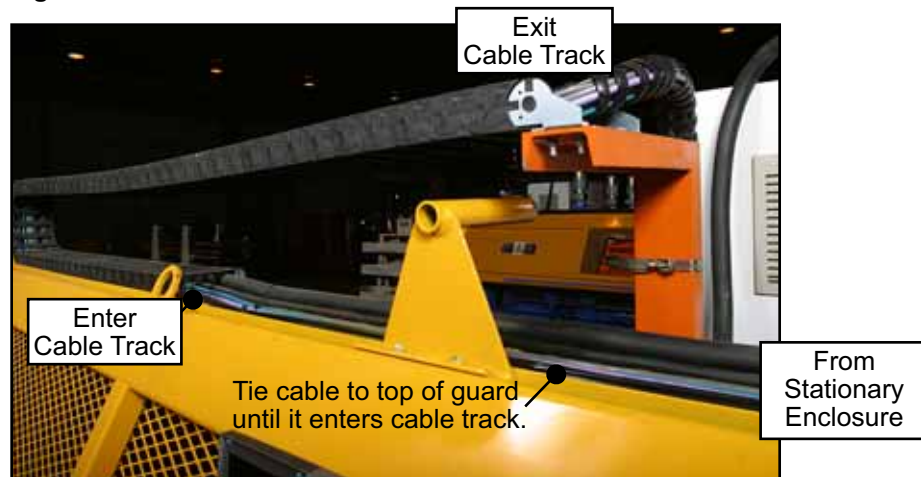**Figure 7: Correct Location of Cables in Cable Track**

Cross-Section of Cable Track (E-Chain)		
Outfeed Side of Saw	Low-Voltage Cables *includes End-to-End Cable*	High-Voltage Cables	*Infeed Side of Saw*
	View From Stationary End		

Figure 8: Cable Track

|	**NOTICE**
[90° diagram]	**If the End-to-End cable must touch a 3-phase wire, it must intersect only at a 90-degree angle. If these cables come into contact with each other at any other angle, it may result in extensive electrical damage.**

Installing Cable on Carriage End

1. After the End-to-End cable is routed properly and secured on the guard and cable track, thread the free end through the new hole in the **carriage-end** enclosure, and thread the fitting nut over the free end inside the carriage-end enclosure.

2. Install the carriage-end fitting using these steps and Figure 5 on page 7:

   a) Place the supplied fitting around the cable, on the outside of the carriage-end enclosure and insert the grommets as shown in xx, placing the cable through the grommet with the hole in it.

   b) Snap the two halves together.

   c) Screw the nut on the back side (inside the enclosure).

   d) Pull the cable through to remove the slack outside the enclosure.

3. Route the cable (inside the enclosure) along the back side of the enclosure, then bring it up to the expansion slot at the PLC.

Figure 9: End-to-End Cable at Back of Enclosure

4. Plug the End-to-End cable into the expansion slot in the carriage-end enclosure. Follow these steps and refer to Figure 10.

   a) Locate the Interconnect #2 cable that is plugged into the expansion slot.

   b) Position the 2 supplied spacer nuts and connect the cables as shown in Figure 10.

   c) If any of the Interconnect cables are not present or are unplugged, refer to the next section to connect the Interconnect cables properly.

   d) If the next section is not needed, this procedure is complete, and you may remove the lockout/tagout devices.

Figure 10: Connecting the End-to-End Cable
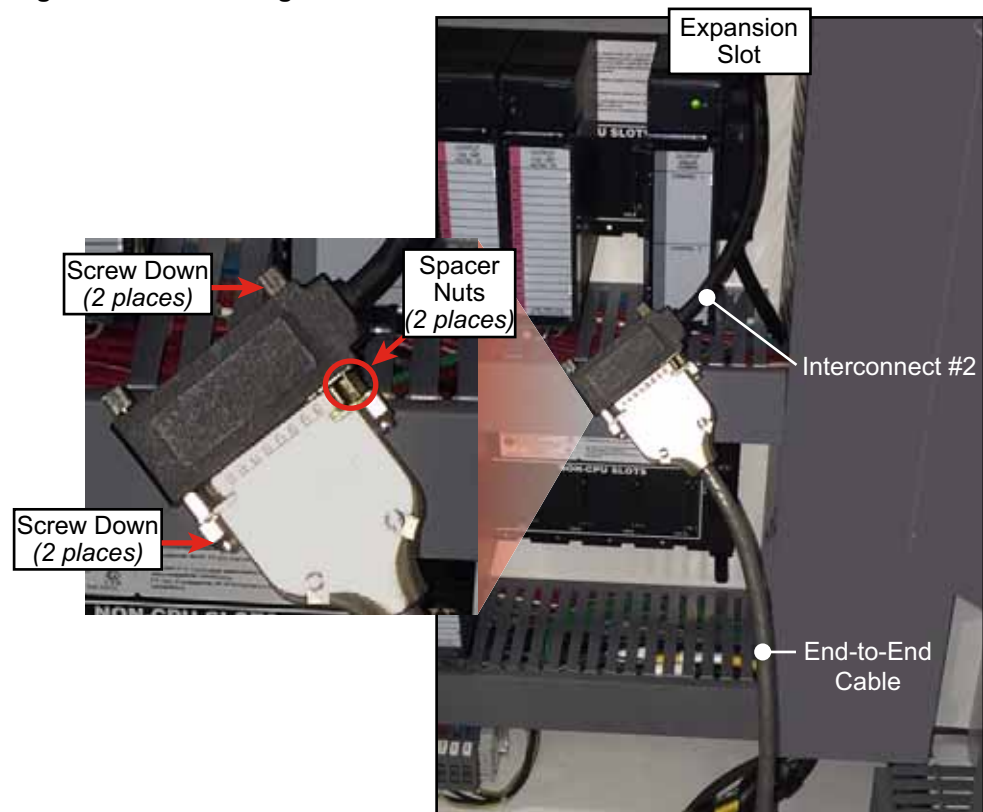
Connecting the Interconnect Cables in Carriage End

The 6-in. Interconnect cables and terminating plug discussed here should already be in the carriage-end enclosure for any saw using an RX3i PLC. They were supplied with SB208. It is not necessary to unplug any Interconnect cable or the termination plug. This section is only needed if one of those items inadvertently gets unplugged or is not present.

If new Interconnect cables are needed, order the correct SB208 kit.

The *Cyber A/T* expansion slot is shown in Figure 11, but the connections are the same for all the affected saws.
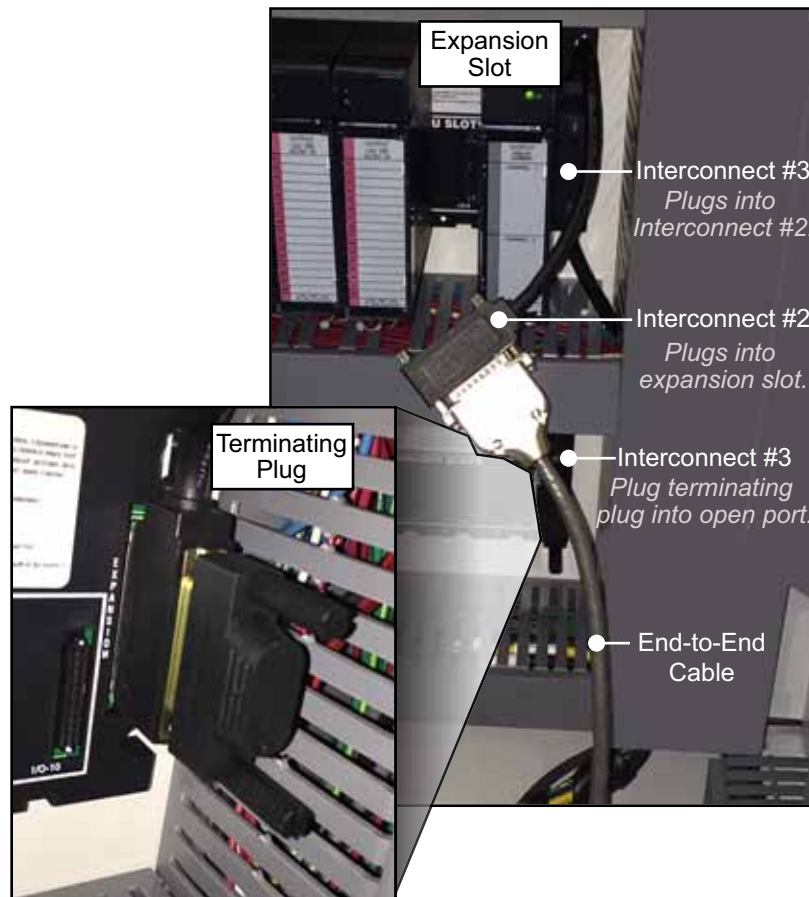
Figure 11: 6" Interconnect Cable

> Only perform these steps if the Interconnect cables are missing or unplugged.
>
> The information here is repeated in SB208.

1. Plug the End-to-End cable into the 1-sided end of an Interconnect cable (now called Interconnect #2) and plug the opposite end of Interconnect #2 into the expansion slot in the carriage-end enclosure.

2. Plug the final Interconnect cable (now called Interconnect #3) into the 2-sided end of the Interconnect cable #2.

3. Plug the free end of Interconnect #3 into the expansion slot on the bottom rack.

4. Plug the terminating plug into the open port on Interconnect #3.

Figure 12: *Cyber A/T*, Rack 2 & Rack 3, Carriage-End Enclosure

END OF SERVICE BULLETIN