MiTek®

Machinery Division

Service Bulletin

Machinery Affected: *Cyber*® *A/T* and *Cyber*® Saws

Document: **SB175**

Title: **Replacing a PLC CPU**

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Purpose and Scope

This Service Bulletin describes how to replace any programmable logic controller (PLC) CPU used on a MiTek *Cyber*® or *Cyber*® *A/T* saw, including how to change the default settings in the saw's operation software and replacing the other component(s) affected. Follow these instructions closely to install the components and ensure the PLC CPU communicates properly with the saw.

If replacing a model 364 with a model 374 CPU on a *Cyber A/T* saw, note the additional steps at the back of this Service Bulletin.

Overview

The kit required depends on which saw requires the PLC change. Table 1 and Table 2 list the parts included in each kit. Please ensure all parts are present before starting this procedure.

Table 1: Parts in SB175KIT-A, for *Cyber A/T* Saws Only

Qty.	Part Description	Part #
1	PLC CPU, model #374 (504456), programmed by MiTek	92172
1	Profibus master	504523
4	8-32x1/2" round head screws	341068
1	Service Bulletin 175, document	SB175

Table 2: Parts in SB175KIT-B, for *Cyber* Saws Only

Qty.	Part Description	Part #
1	PLC CPU, model #374 (504456), programmed by MiTek	92172
1	Power supply, model #330 series	504450
4	8-32x1/2" round head screws	341068
1	Service Bulletin 175, document	SB175

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

The PLC CPU is programmed by MiTek specifically for your saw. The program needed is dependent on the version of *Cimplicity*® Project software that you are currently running on the saw.

The PLC program for a *Cyber* saw using PLC CPU model 374 is v. 3.5 ME. For a *Cyber A/T* saw using PLC CPU model 374, it is v. 12.6 ME.

It is a good idea to record your *Cimplicity* Project software version number and PLC software version number and keep it in a safe place.

Procedure

Lockout/Tagout Procedure

WARNING
ELECTROCUTION HAZARD. **Always verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures (OSHA 29 CFR 1910.147) before performing any maintenance on this equipment.** **If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.**

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. On a *Cyber* or *Cyber A/T* saw, this is on the stationary-end enclosure.

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.

Figure 1: Lockout/Tagout at the Power Source

Installing the PLC

1. After locking and tagging out per the instructions on page 3, open the stationary-end enclosure.

2. Locate the PLC CPU inside the main stationary-end enclosure. Figure 2 points to the PLC CPU.

3. For a *Cyber A/T* saw, remove the communication cable and ground wire from the front of the PLC CPU.

4. Remove the PLC CPU from its rack by pressing the release latch located on the bottom of the PLC. Tilt the card upward and remove it from the rack.

   Figure 3 shows the release latch on a PLC card, which is identical to the release latch on the PLC CPU.

5. Install the new PLC CPU by locating the top hinge on the rack and tilting the card downward until the catch snaps into place.

6. Reconnect the ground wire to the PLC CPU.

7. For a *Cyber A/T* saw, reconnect the communication cable.

8. When installing a PLC CPU model number 374 or higher on a *Cyber* saw, replace the power supply with the heavy-duty power supply included in your kit. *Cyber A/T* saws already have the heavy-duty power supply.

   a) Refer to Figure 4 to locate the power supply.

On a *Cyber* saw, the cable connections are on a separate module and do not need to be disconnected.

Use power supply model #330 or higher when using a PLC CPU model #374.

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 2: PLC CPU Inside Main Electrical Enclosure


Figure 3: Press the Release Latch to Remove Card

b) Note the location of each of the 3 wires on the power supply, then remove the wires.

c) Remove the old power supply and discard.

d) Snap the new power supply onto the rack.

e) Attach the 3 wires to the new power supply.

Figure 4: Locating the Power Supply and Profibus Master

Power Supply

Battery Port
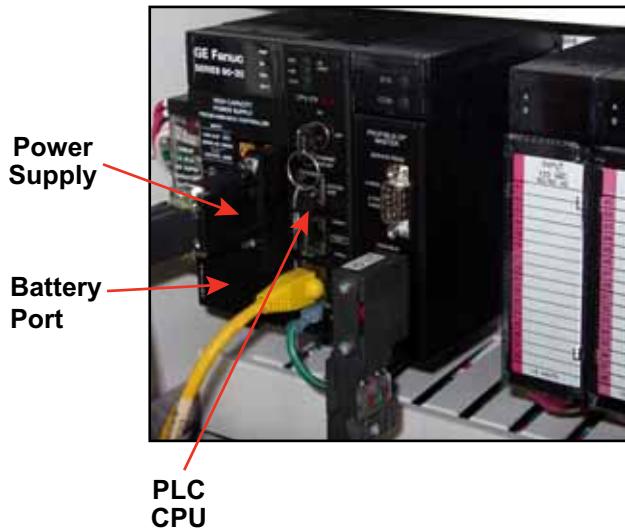
PLC CPU

9. PLC CPU models 374 and higher have a separate battery. Attach the battery to the electrical enclosure.

a) Vacuum the bottom of the electrical enclosure.

b) Place the battery on the bottom of the electrical enclosure where its power cable can reach the location labeled "Battery Port" in Figure 4.

c) Mark the location of the holes on the four corners of the battery. See Figure 5.

Figure 5: Holes on Battery
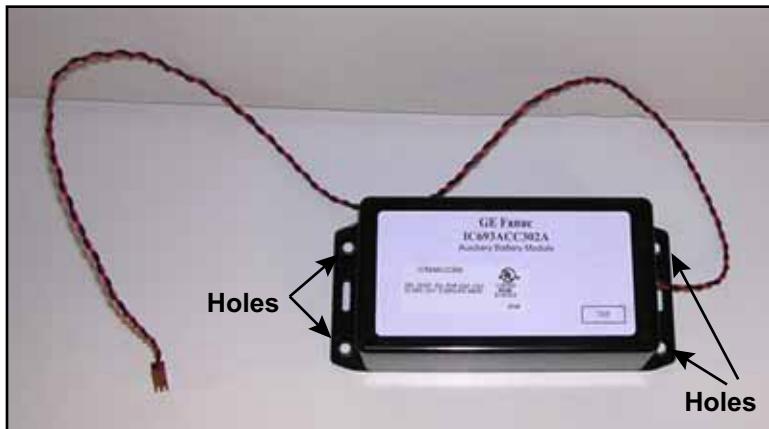
d) Remove the battery from the electrical enclosure.

e) Using a #29 drill bit, drill holes at the locations marked in step c).

f) Tap the holes to 8-32.

g) Vacuum any metal shavings from the floor of the cabinet and line up the corners of the battery with the four holes.

h) Attach the battery to the electrical enclosure using the four (4) 8-32 x 1/2 round head screws included with your kit.

10. Plug in the battery.

a) Remove the cover labeled "Battery Port" in Figure 4 from the battery compartment on the PLC rack.

b) Plug the 2-pin plug that extends from the battery into the battery compartment.

It is recommended that you replace the battery every 12 to 15 months. A red light on the PLC will illuminate if the battery is dead. If the battery is dead, the saw will continue to function normally while it is turned on. However, if the saw is turned off before the battery is replaced, your saw will lose important information including automatic programs, defaults, and calibration.

11. Ensure the PLC is in Run Mode.

⚠	**WARNING**
	ELECTROCUTION HAZARD.
	The following troubleshooting procedure should be performed only by or with the guidance of a qualified electrician.
	Follow NFPA 70E for proper procedures and personal protective equipment.

a) Leaving the stationary-end enclosure door open for troubleshooting purposes, remove the lock and tag from the electrical power source and turn the disconnect handle to the on position.

b) Turn the disconnect handle on the saw's stationary-end electrical enclosure to the on position. See Figure 6.

c) Wait a few moments after turning on power to ensure the green LED light labeled "Run" on the power supply illuminates.

   1) If the Run light does not turn on, "cycle" the key that is located on the front of the PLC CPU: turn the key off—on—off—on.

   2) If the Run light does not come on after cycling the key, call Machinery Division Customer Service for assistance.

Figure 6: Turning On the Disconnect Switch

Pull down on lever to turn the disconnect switch on with the doors open.

12. Shut the stationary-end enclosure door immediately upon determining the PLC is in Run Mode.

This procedure is required ONLY when upgrading from PLC CPU model 364 to model 374 and ONLY on a *Cyber A/T* saw.

Replacing the Profibus Master *(Cyber A/T Saws Only)*

If you are replacing a model 364 PLC CPU with a model 374 on a *Cyber A/T* saw, you must also replace the Profibus master.

Figure 7: Installing the Profibus Master

Flip switch up for CPU 374 and down for CPU 364
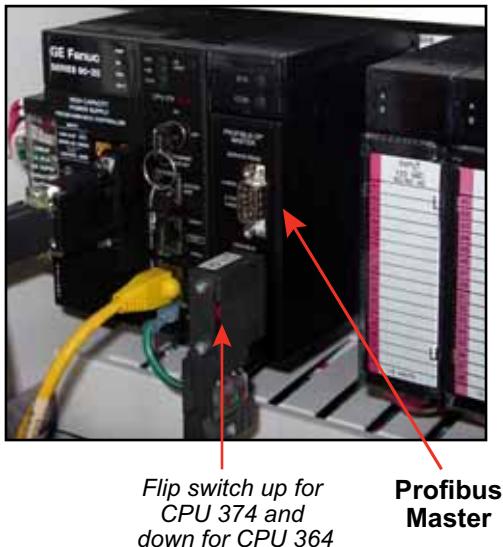
Profibus Master

1. Refer to Figure 7 to locate the Profibus master.

2. Remove the plug on the front by unscrewing the 2 screws and pulling the plug off the Profibus master.

3. Remove the Profibus master from its slot and discard.

4. Insert the new Profibus master in its place.

5. Re-attach the plug to the front of the Profibus master.

6. Flip the red switch on the plug to the up position. See Figure 7.

> PLC CPU model 374 requires the Profibus master switch be in the up opposite when using model 374, and the down position when using model 364.

Adjusting the Settings

1. Turn the touch screen and computer on, and login to the software.

   Some saws have a combined touch screen computer and some have a separate computer in a PC enclosure.

2. Using the touch screen, go to the Main Menu.

3. Press DEFAULTS, and the Default Parameters screen appears. Figure 8 shows the screen for a saw that has already changed blades 2 through 5 and is in the process of changing blade 1 diameter.

Figure 8: Setting the Blade Diameters
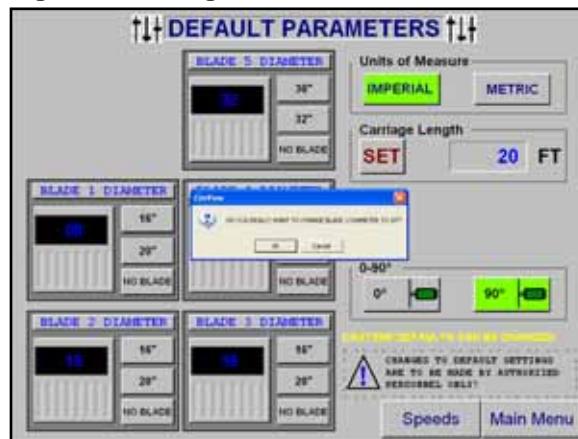
4. Set the correct blade sizes that are currently on the saw:

    a) Press the correct diameter for blade 1 under *Blade 1 Diameter*.

    b) Press OK when it asks, "Do you really want to change blade 1 diameter...?"

    c) Repeat for the remaining blades.

5. Change the speed settings:

    a) Press the SPEEDS button in the bottom right corner of the Default Parameters screen, and the Default Speeds screen appears.

    b) Press ADVANCED.

    c) Press OK in the password window. No password is required.

    d) Press the SPEEDS button and the Speed Settings screen appears.

Figure 9: Set All of These Settings to Their Default Parameters
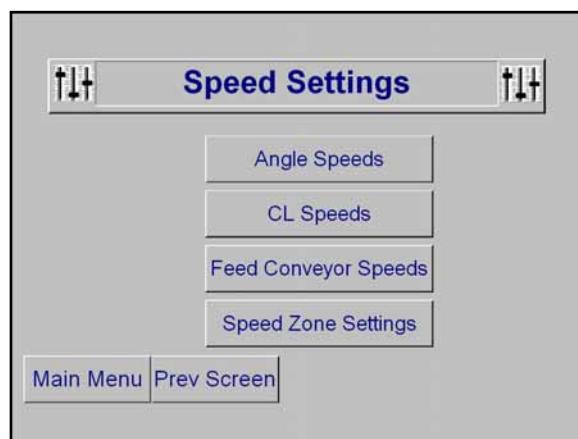
    e) Press ANGLE SPEEDS and the Angulation Speed Settings screen appears.

Figure 10: Setting the Angulation Speed
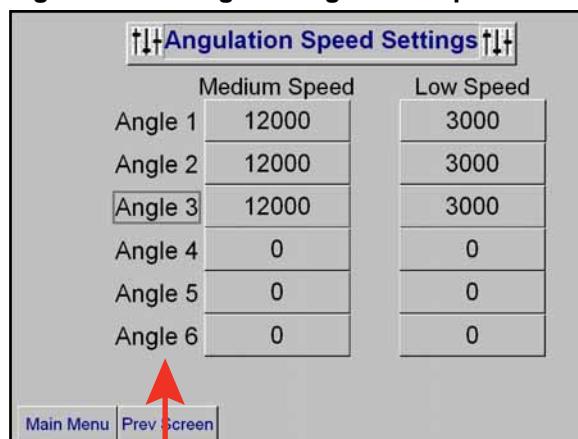
Column A

For *Cyber* saws, the angles are the only speed settings required. After the angle speeds are set, continue to step 7.

f) Press one of the angle numbers (same as blade numbers) shown in Column A in Figure 10, and both of the speed settings automatically go to their default settings for that blade. Figure 10 shows angles 1-3 have already been changed.

g) Repeat for the remaining angles.

h) Press PREVIOUS SCREEN to return to the Speed Settings screen.

i) Press CL SPEEDS and set the centerline speeds the same way you just set the angle speeds.

j) Press PREVIOUS SCREEN to return to the Speed Settings screen.

k) Press FEED CONVEYOR SPEEDS and set the infeed conveyor speed the same way you just set the angle speeds.

l) Press PREVIOUS SCREEN to return to the Speed Settings screen.

m) Press SPEED ZONE SETTINGS and set the speeds for each speed zone the same way you just set the angle speeds.

6. Verify that the carriage length is correct on the Default Parameters screen shown in Figure 8. Most saws have a carriage length of 20 ft.

7. Calibrate the entire saw using the *Calibration* section of your equipment manual.

END OF SERVICE BULLETIN