

MiTek Machinery

Service Bulletin

Product(s)
Affected *Cyber® A/T Saw*
Description Replacing the Brake Relay
Date 7/30/2004



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SB 149	
Revision	—
Created by	tl/rr
Reviewed by	vc
Approved by	gm
Verified by	tbh

Product(s)
 Affected *Cyber*[®] A/T Saw
 Description Replacing the Brake Relay Assemblies
 Date 7/30/2004

Purpose and Scope

All brake relay assemblies on the *Cyber*[®] A/T saw are being replaced with brake relay assemblies that contain lower current consumption coils, providing protection for the VFD (variable frequency drive) digital output. This Service Bulletin affects *MiTek*[®] electrical assemblies with the part numbers of 90501, revisions C through G and 90502, revisions C through E, frame numbers 337 through 388 only.

Table 1 lists the items needed to complete the procedure for a 5-bladed *Cyber* A/T. Table 2 lists the items needed to complete the procedure for a 6-bladed *Cyber* A/T. Refer to the graphics throughout this procedure to view the parts.

If there are any questions, please have your electrician call *MiTek* Customer Service at 800-523-3380.

Table 1: Parts Included in SB149KIT-A, 5-Blade Saw

Quantity	Part Number	Description
14	514130	Relay, 24 VDC, 4 SPDT
14	514131	Socket, Relay
14	514132	Module, Diode
14	514133	Retainer
7	518223	Terminal Block
7	518234	End Section
21 ft	508006	16 AWG Blue Wire
1	SB149KIT-A	Service Bulletin Procedure

Table 2: Parts Included in SB149KIT-B, 6-Blade Saw

Quantity	Part Number	Description
16	514130	Relay, 24 VDC, 4 SPDT
16	514131	Socket, Relay
16	514132	Module, Diode
16	514133	Retainer
8	518223	Terminal Block
8	518234	End Section
24 ft	508006	16 AWG Blue Wire
1	SB149KIT-B	Service Bulletin Procedure

Overview

The tools required to complete this Service Bulletin are a slotted screwdriver and a pair of wire cutters.

Refer to Table 3 for the location of each brake relay assembly.

Table 3: Brake Assembly Location

Enclosure	Shelf	Brake Relay
Stationary	1	Angle 2 & Centerline 2
	2	Angle 1 & Centerline 1
	3	Angle 6 & Centerline 6 (6 Blade Saw Only)
	4	Horizontal Infeed & Hold-Down
Carriage	1	Angle 3 & Centerline 3
	2	Angle 4 & Centerline 4
	3	Angle 5 & Centerline 5
	4	Horizontal Infeed & Hold-Down



Do not discard the electrical drawings provided with your machine. The drawings included in this Service Bulletin are supplemental to those drawings. One copy should be kept with your machine and one copy with your manual.

In Table 4, you will find the item nomenclature used throughout this Service Bulletin with the corresponding callout number. This will assist you in identifying the parts and their locations.

Table 4: Item Nomenclature


Callout Number	Nomenclature
1	Power Source Off
2	Wire to Disconnect/Connect
3	Wire to Disconnect/Connect
4	Wire to Disconnect/Connect
5	Wire to Disconnect/Connect
6	Wire to Disconnect/Connect
7	Wire to Disconnect/Connect
8	Wire to Disconnect/Connect
9	Wire to Disconnect/Connect
10	Old Brake Relay
11	Latch
12	Din Rail
13	Brake Relay Assembly
14	Diode Module
15	Relay Socket
16	Relay
17	Retainer
18	Terminal
19	End Section
20	Terminal Block
21	Wire From Kit
22	Terminal A1
23	Second Brake Relay Assembly
24	Manual Screen Button
25	Blade Button
26	Angulation Button
27	Fault Indication

- Using Table 5 and Table 6, document each of the labeled wires connected to the brake relay assembly.



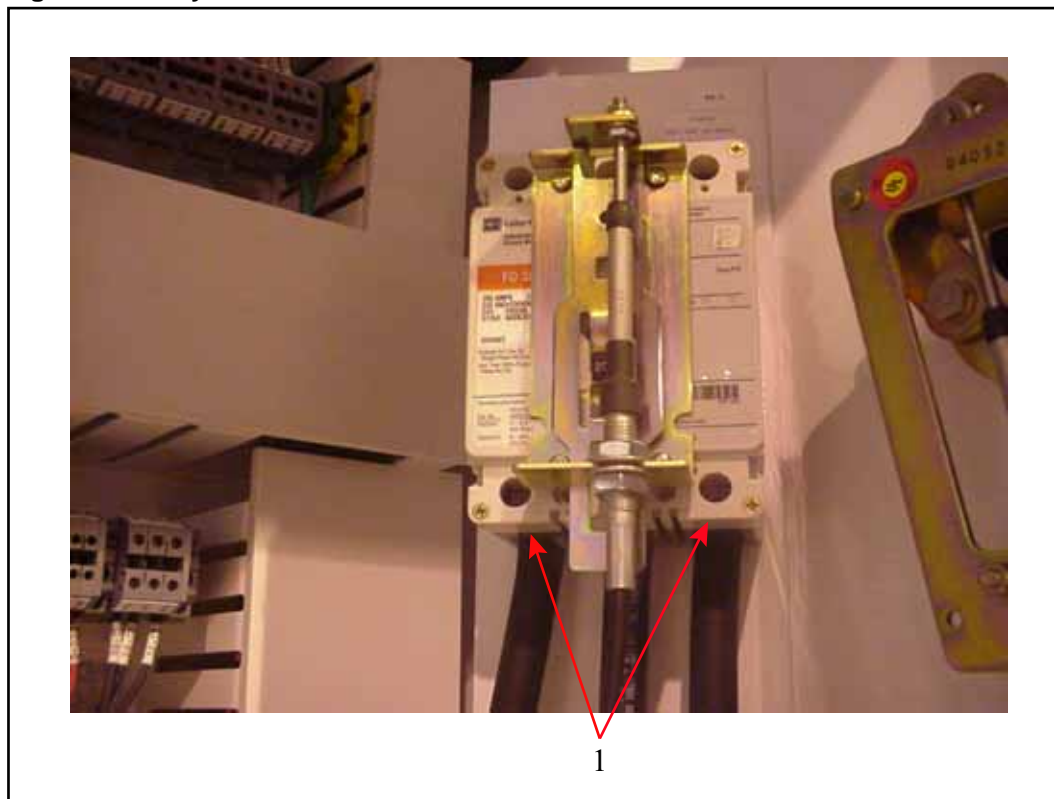
For identification purposes, each wire is marked with a preprinted label that is white with black letters and numbers. Write this number in the WIRE NUMBER column in Table 5 and Table 6.

Record Wire Numbers

DANGER	
	<p>All electrical work must be performed by a certified electrician and must conform to all national electrical codes.</p> <p>Do not turn on electrical power until you have completed the entire procedure.</p> <p>Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).</p>

1. Turn off, lockout and tagout all power to the saw.

Figure 1: Verify Power Source is Off



2. Referring to Figure 1 and using a multimeter, verify the power source is off below the 200-amp breaker (1).
3. Using a vacuum, thoroughly remove saw dust from the enclosure and shelves.

Table 5: Stationary Enclosure Brake Relay Assembly Wire Locations

Axis	Stationary Shelf	Old Relay Terminals	Wire Number	New Relay Terminals
ANGLE 2 (M-S1B)	1	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 2 (M-S1A)	1	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
ANGLE 1 (M-S2B)	2	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 1 (M-S2A)	2	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)

Table 5: Stationary Enclosure Brake Relay Assembly Wire Locations (Continued)

Axis	Stationary Shelf	Old Relay Terminals	Wire Number	New Relay Terminals
ANGLE 6 (M-S3B) (OPTIONAL)	3	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 6 (M-S3A) (OPTIONAL)	3	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
STATIONARY HORIZONTAL INFEEED (M-S4A)	4	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
STATIONARY HORIZONTAL HOLDDOWN (M-S4B)	4	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)

Table 6: Carriage Enclosure Brake Relay Assembly Wire Locations

Axis	Carriage Shelf	Old Relay Terminals	Wire Number	New Relay Terminals
ANGLE 3 (M-T1B)	1	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 3 (M-T1A)	1	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
ANGLE 4 (M-T2B)	2	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 4 (M-T2A)	2	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)

Table 6: Carriage Enclosure Brake Relay Assembly Wire Locations (Continued)

Axis	Carriage Shelf	Old Relay Terminals	Wire Number	New Relay Terminals
ANGLE 5 (M-T3B)	3	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CENTERLINE 5 (M-T3A)	3	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CARRIAGE HORIZONTAL INFEED (M-T4A)	4	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)
CARRIAGE HORIZONTAL HOLDDOWN (M-T4B)	4	A1 A2 1L1 2T1 5L3 6T3 13NO 14NO		A1 (13) A2 (14) 44 (8) 41(12) 24 (6) 21(10) 14 (5) 11 (9)

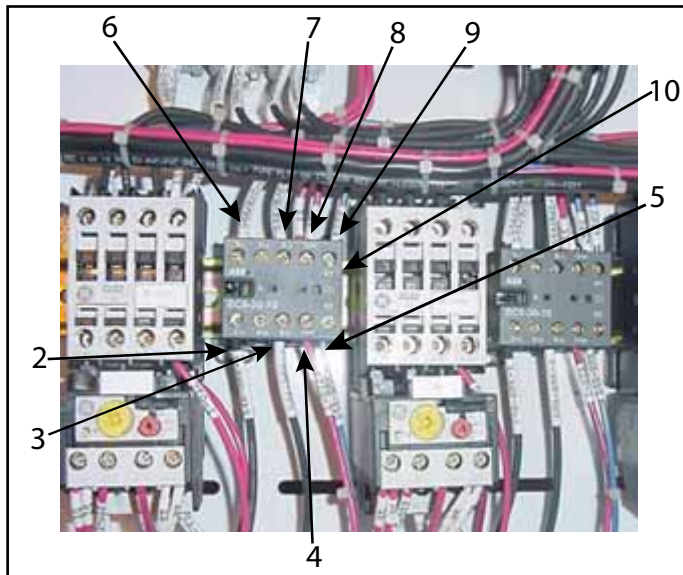
Removing the Brake Relay Assemblies



Prior to performing the following procedure, ensure the wire locations have been recorded on Table 5 and Table 6.

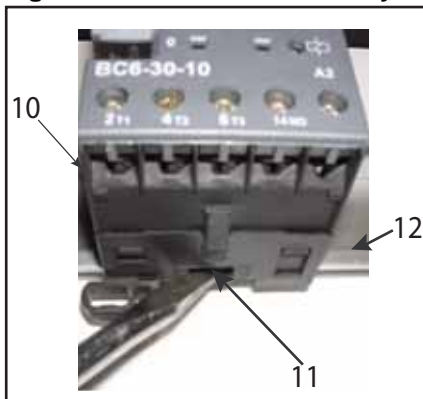
1. Using a slotted screwdriver, loosen the screws holding the wires (2), (3), (4), (5), (6), (7), (8), (9) and remove the wires from the brake relay assembly (10). Refer to Figure 1.

Figure 1: Wires to Disconnect



2. Using a slotted screwdriver, release the latch (11) on the bottom of the brake relay assembly (10) and remove the brake relay assembly (10) from the DIN rail (12).

Figure 2: Latch on Brake Relay Assembly



3. Repeat step 1 and step 2 for each of the remaining brake relay assemblies (10). Their locations are described in Table 3.

Installing the Brake Relay Assemblies



Refer to Table 4 for identification of the parts in this procedure.

- Using the parts identified in Figure 4, build a brake relay assembly (13) to resemble Figure 3.

Figure 3: Brake Relay Assembly

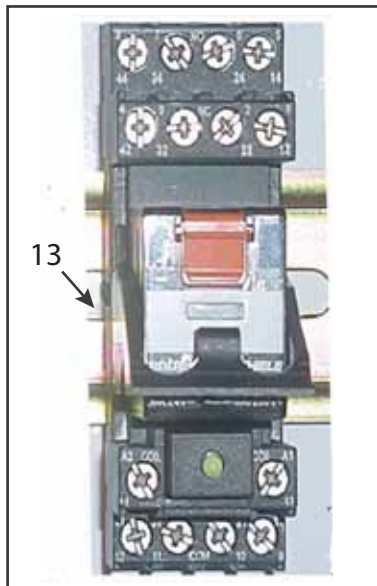
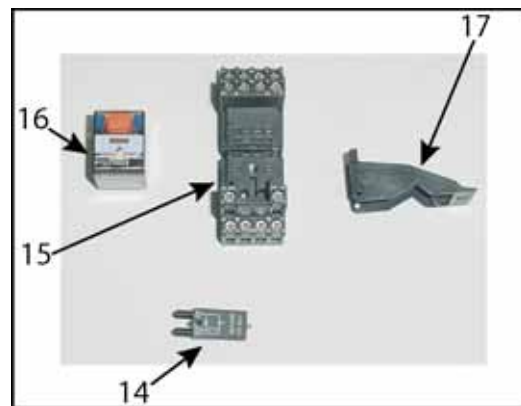
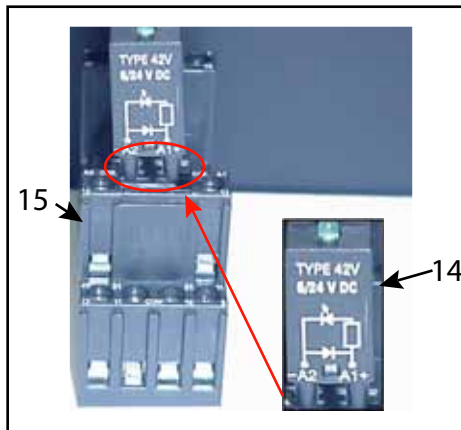


Figure 4: Brake Relay Assembly Components



- Insert the diode module (14) into the relay socket (15), as shown in Figure 5.

Figure 5: Diode Module



- b) Place the retainer (17) over and on the relay socket (15) pins as shown in Figure 6.

Figure 6: Retainer Installation

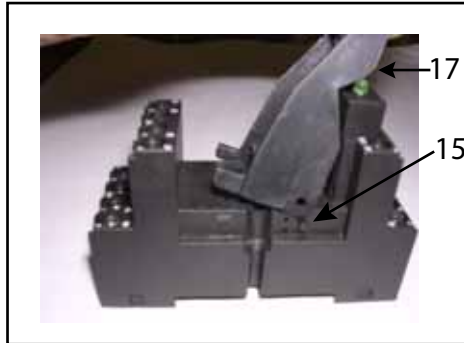
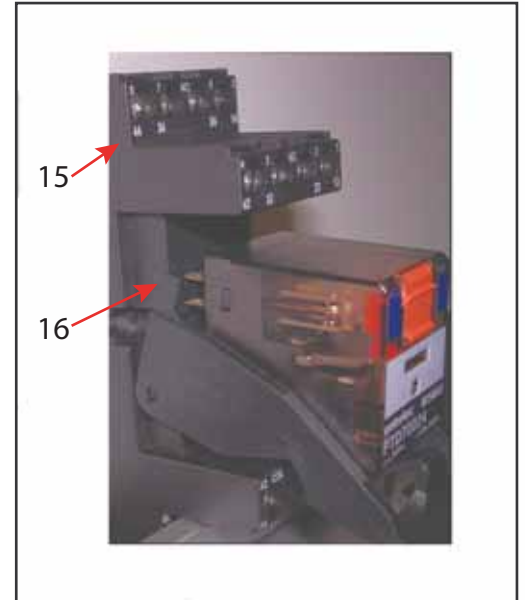
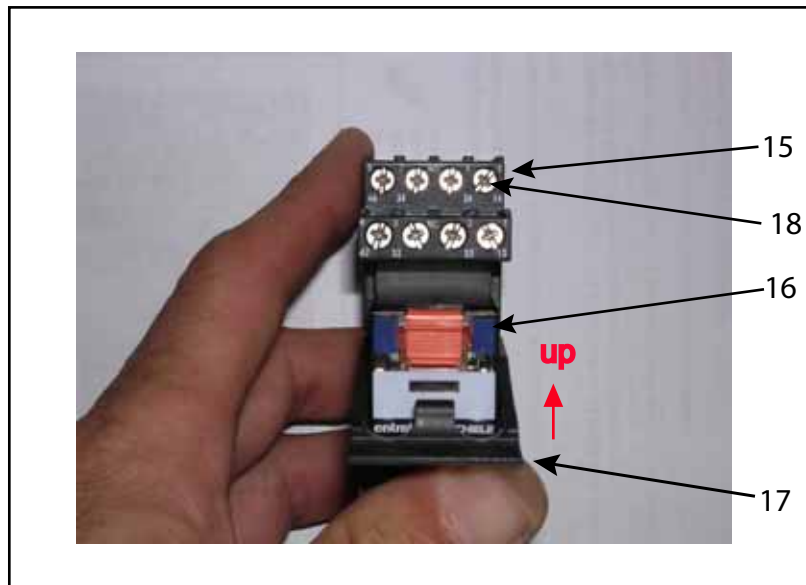


Figure 7: Relay Installation



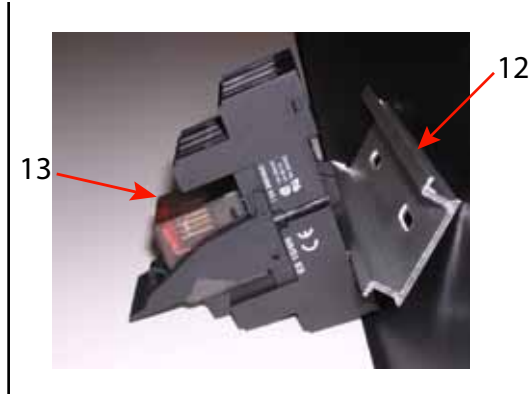
- c) Align the pins of the relay (16) with the relay socket (15) receptacles and insert the relay (16) into the relay socket (15). See Figure 7.
- d) Hold the brake relay assembly (13) with the terminal screws (18) facing you.
- e) Push up on the retainer (17) to seat the retainer (17) as shown in Figure 8.

Figure 8: Seating Retainer



2. Install the new brake relay assembly (13) on the DIN rail (12) where the old brake relay (10) was removed. Figure 1 depicts the position of the old brake relay assembly.

Figure 9: Brake Relay Assembly on DIN rail

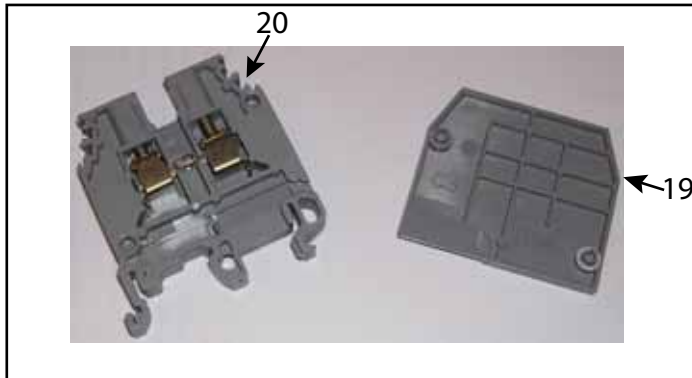


- a) Position the brake relay assembly (13) on the DIN rail (12), bottom first. See Figure 9.
 - b) Lower the top of the brake relay assembly (13) onto the DIN rail (12) until the brake relay assembly (13) is seated on the DIN rail (12).
3. Repeat step 1 and step 2 to assemble and install the remaining brake relay assemblies (13). Refer to Table 3 for their locations.

Wiring the Brake Relay Assemblies

1. Referring to Figure 10, place an end section (19) onto a supplied terminal block (20) by aligning the pins of the end section (19) with the holes on the terminal block (20) and pressing the end section (19) into place.

Figure 10: Terminal Block



In the following step, the new terminal block should be installed near the brake relay assembly located on the left side of the shelf as shown in Figure 11. One terminal block is installed for every two brake relay assemblies installed.

Shelf 3 in the stationary enclosure is only used for 6-bladed saws.

2. Install an assembled terminal block (20) on the DIN rail (12) next to the brake relay assemblies (13), as shown in Figure 11 and Figure 12.

Figure 11: Overview of Shelf

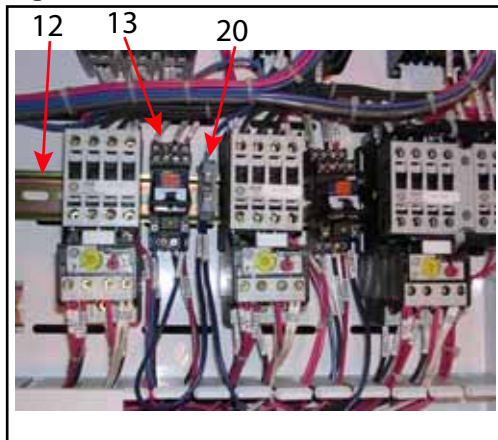
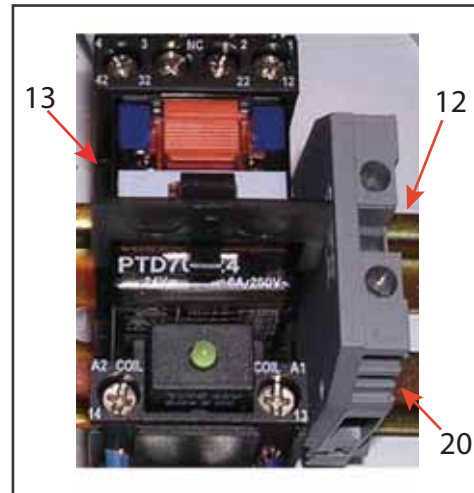
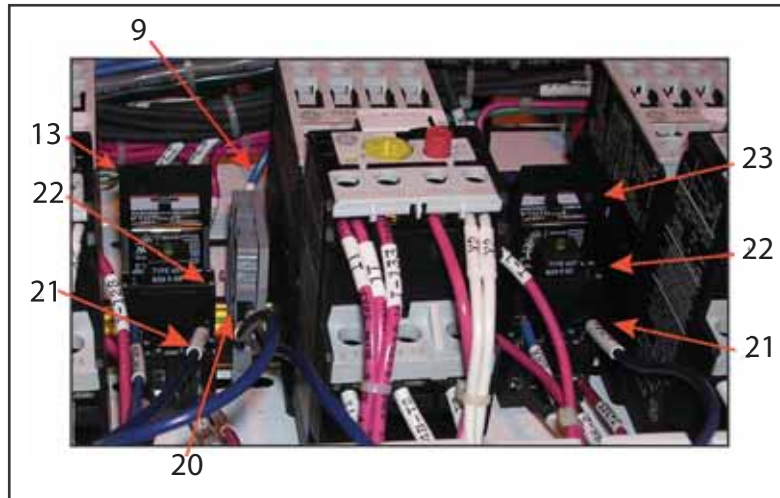


Figure 12: Terminal Block Installed



3. Connect the wire (9) (disconnected from terminal A1 during removal of the brake relay assembly) to the top of the terminal block (20) as shown in Figure 13.

Figure 13: Terminal Block Wire Connections

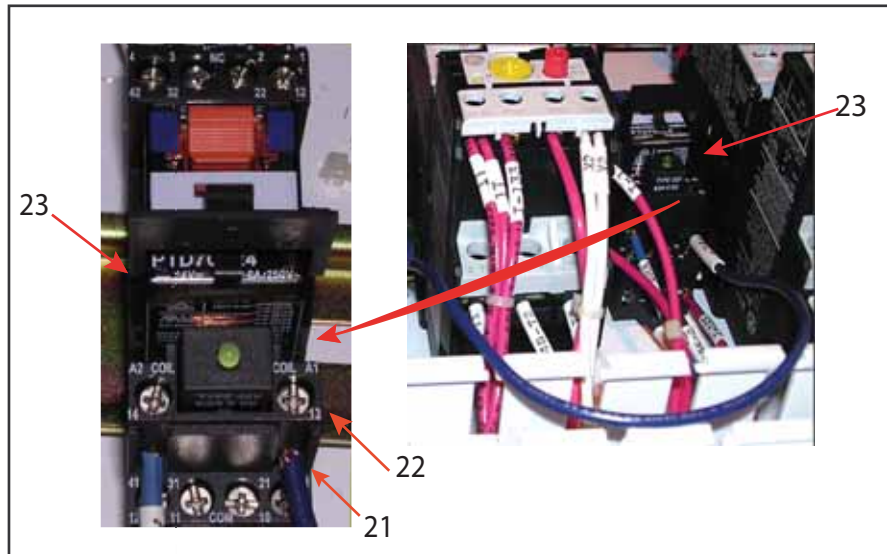


At the completion of this Service Bulletin each shelf will have one new terminal block installed. This terminal block will have two (2) wires exiting the bottom of the terminal blocks shown in Figure 13. One wire runs to each brake relay assembly installed.

Shelf 3 in the stationary enclosure is only used for the 6-bladed saw.

4. Using the wire supplied with your kit, cut a length of wire (21) that will reach from terminal A1 of the brake relay assembly (13) to the terminal block (20) as shown in Figure 13.
5. Install the wire (21) from the bottom of the terminal block (20) to terminal A1 (22) on the brake relay assembly (13), as shown in Figure 13 and Figure 14.
6. Connect the wires (2), (3), (4), (5), (6), (7), (8) to the brake relay assembly (13) as previously recorded in Table 5 and Table 6.
7. Using a slotted screwdriver, tighten the terminal screws.


Figure 14: Second Brake Relay Assembly on Shelf



8. Verify wiring is secure by gently pulling on each wire.
9. Repeat step 4 through step 8 for the second brake relay assembly (23) on the shelf.
10. Repeat step 1 through step 9 for the brake relay assemblies on the remaining shelves. Refer to Table 3 for their locations.

Return Power to Saw

1. Remove the lockout and tagout devices.
2. Turn power ON to the saw.

WARNING	
	<p><i>In the following procedure, if the axis stops within approximately two seconds after activation, the brake relay assembly has been wired incorrectly and damage to the equipment may occur.</i></p>

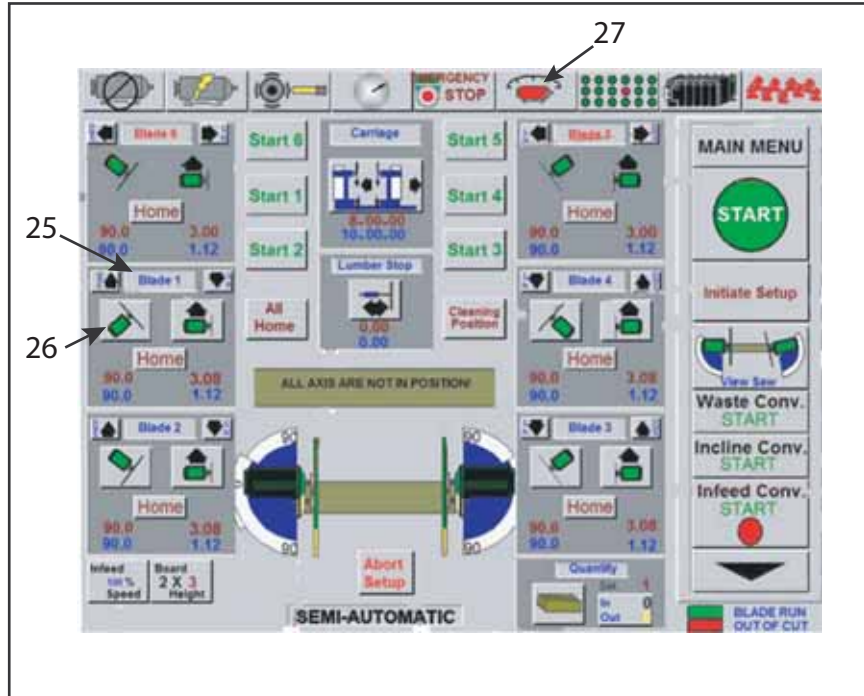
3. Manually test each axis of the saw.
 - a) Press the MANUAL button (24) on the MAIN MENU screen of the touch screen.

Figure 15: Main Menu



- b) From the manual screen, press the Blade 1 axis button (25).

Figure 16: Adjusting the Blade Angle on the Manual Screen



- c) On the manual screen, change the angle by pressing one of the angulation buttons (26) for approximately five (5) seconds.
- d) Observe the touch screen and the axis being tested.
- e) If a red fault indication (27) appears and the axis stops, verify the wiring is correct using Table 5 and Table 6.
- f) If the wiring is correct, please call Customer Service at 1-800-523-3380.
4. Repeat step 3 for the remaining blades.
5. Please call *MiTek* Customer Service at 1-800-523-3380 with any questions you may have concerning this Service Bulletin.



Do not discard the electrical drawings provided with your machine. The drawings included in this Service Bulletin are supplemental to those drawings. One copy should be kept with your machine and one copy with your manual.

END OF SERVICE BULLETIN