SERVICE BULLETIN

Document ID:

SB305

Title:

Replacing Auto Deck VFD with ABB™ ACS380 VFD

Affected machinery: All BLADE II™ saws and BLADE™ (Gen 1) saws with Auto Deck options.

Distribution: Customers Upon Order

Applies to: All frames with an automated infeed rail with a failed ABB ACS355 drive within the Auto Deck 90626-502 enclosure. This includes the 16 ft, 20ft., standard, and reverse configurations.

Sensitivity: Approved for customer use.

CAUTION:
MiTek recommends printing this document in high resolution using color ink. Many of the graphics may be unclear and may create an unsafe condition if this recommendation is not followed.

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Orig. Approved By	R. Tucker

Purpose and Scope

This service bulletin instructs how to replace the ACS355 drive located in the Auto Deck enclosure with an ACS380 drive.

Overview

Parts Included

The parts included in this kit are shown in Table 1. Please make sure all parts and supplies are present before starting the procedure.

Table 1: Parts in SB305KIT

Quantity	Description	Part #
1	Programmed VFD for Auto Deck	94048-502
3	Wing Nut	306159
10	Dark Blue Wire, 18AWG	508003-06
1	White/Blue Wire, 18AWG	508003-10
10	Zip-Tie	508700
1	Contactor Block	513889
1	Terminal Block	518460
1	Terminal End Cap	518493
1 sheet	Write-In Labels	694060
1	Service bulletin document	SB305

If you have any questions, call MiTek Automation Support at 1-800-523-3380.

Supplies Needed

- Voltmeter
- Flat head screwdriver
- 3/32″ Flat head screwdriver
- 3/16″ Flat head screwdriver
- #2 Phillips head screwdriver
- Wire strippers
- Wire snips

Lockout/Tagout Instructions

Electrical Lockout/Tagout Procedure

The lockout/tagout instructions for the electrical systems will be referenced as necessary in this document. Service Bulletin instructions start on page 4.

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

1. If applicable, close machine software and shut down the PC using the **Power** > **Shut down** method in Windows.
2. Engage an E-stop on the machine.
3. Turn the machine's disconnect switch to the Off position. This is usually required to open the main electrical enclosure's door.
4. 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.
5. Attach a lock and tag that meet OSHA requirements for lockout/tagout to the electrical service entry panel.
6. Open the door to the enclosure to which you need access. Use a multimeter to verify that the power is off.

Figure 1: Lockout/Tagout on the Power Source Panel

Procedure

Replacing the VFD in the Auto Deck Enclosure

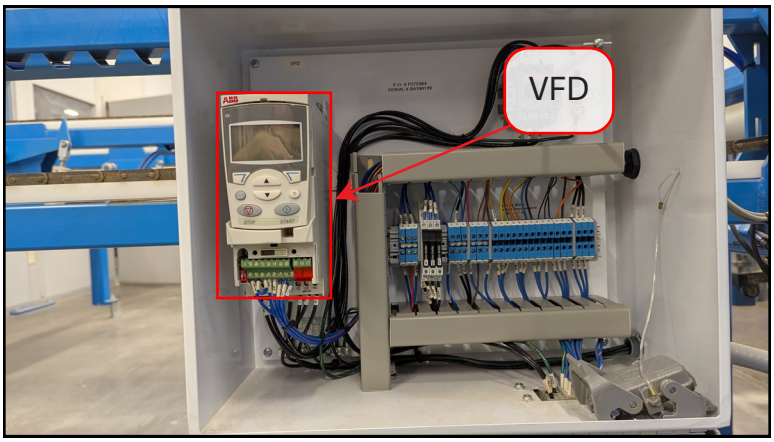
	**⚠ WARNING** **MOVING PARTS CAN CRUSH AND CUT.** **Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.**

1. Using the provided sheet of blank labels, write-in two of each for the following wire label names.

Write-In Wire Label Names	
S1	I:58
S2	+24
S+	25
SPARE	26

2. Lockout/tagout the electrical and pneumatic systems of the machine using the Lockout/Tagout Instructions on page 3.
3. With power locked out as previously described, open the Auto Deck main electrical enclosure.
4. Disconnect all wires from the VFD (Shown in Figure 2).

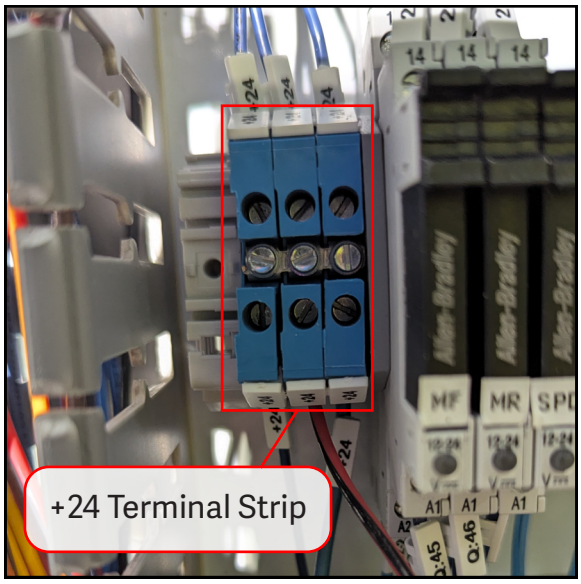
Figure 2: Auto Deck VFD



5. Loosen the four screws that mount the VFD to the panel. There are two at the top and two at the bottom. They do not need to be removed.
6. Locate the Red / Black wire labeled “SPARE.”
   - Note: It is most likely tucked into the wire-way.

7. Replace the label with the provided **S2** label.
8. Strip the wire back by approximately 1/4″.
9. Locate the Blue / Red wire labeled **28** and relabel it to **S1**.
10. Locate the Red / Black wire located on the +24 terminal strip (Figure 3) and disconnect it. Replace the existing label with the **S+** label.

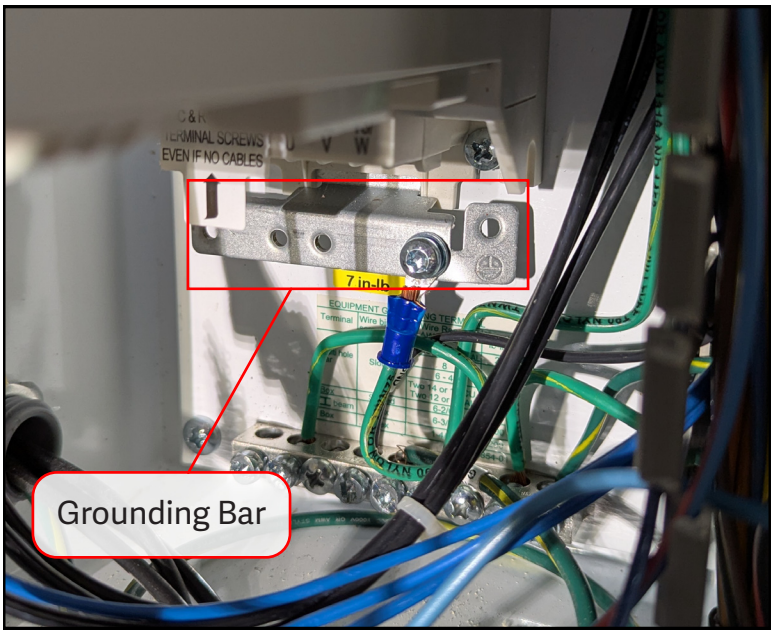
Figure 3: +24 Terminal Strip



11. Remove the Orange / Red wire from terminal I:58 and cut off the exposed copper. Then affix one of the provided wing nuts.
12. Mount the provided ACS380 VFD in the same location that the existing ACS355 was in, then tighten the mounting screws.

13. Using the grounding screw from the ACS355, or a fastener provided in the ACS380 box, fasten the ground to the VFD's ground bar, which is located at the bottom of the back side of the VFD. See Figure 4.

Figure 4: Grounding Bar

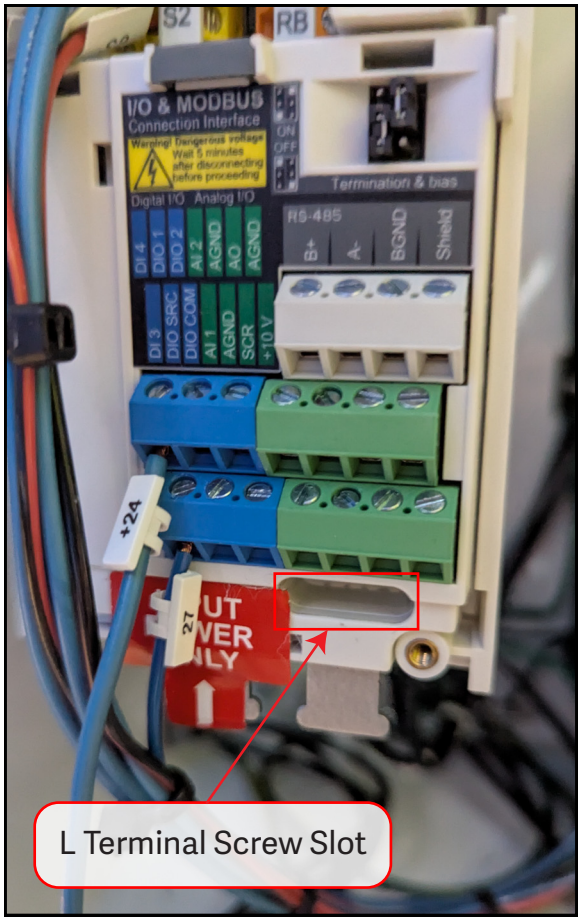


14. Land wires U2, V2, and W2 to the T1/U, T2/V, and T3/W terminals located at the bottom of the back side of the VFD.
15. Remove the front cover of the VFD by unscrewing the screw located on the lower-right side of the cover (Figure 5).

Figure 5: Front Cover Screw

16. Land wires 9L1, 9L2, and 9L3 to L1, L2, and L3 located at the bottom of the front side of the VFD.
    - Note: The screws for the L terminals are located via the slot that is exposed after removing the cover of the VFD. See Figure 6.

Figure 6: L Terminal Screws Slot



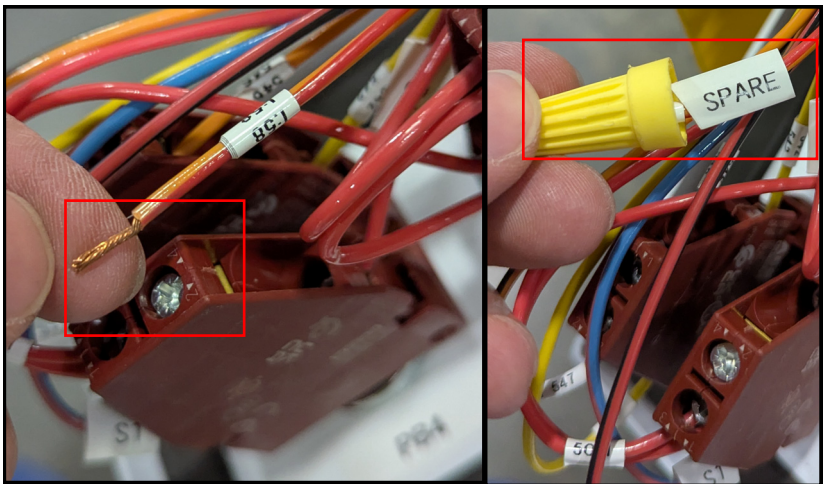
17. Remove the two small black jumper wires that run from S+ to S1 and S2.
    - If a jumper wire does not already exist, add a small White / Blue jumper between DGND and DCOM.
18. Land the +24 blue wire to the +24V terminal of the VFD.
    - Note: If the +24 blue wire is too short, there is a 18AWG blue wire provided in the SBKIT.
19. Land S+, S1, and S2 wires to the S+, S1, and S2 terminals of the VFD.
20. Land 25 to DI1 and 26 to the DI2 terminals of the VFD.
21. Add the +24 18AWG blue wire to the RC terminal of the VFD.
    - Note: If no other +24 blue wires are present, use the included +24 labels and blue wire and run one to an open terminal of the +24 terminal strip.

22. Add the I:58 18AWG blue wire from the I:58 terminal to the RB terminal of the VFD. Be sure to use the included labels and blue wire.
23. Land wire 27 to DI3 of the VFD.
24. Clean up all wires and the wire-way. Replace all wire-way covers and the VFD cover.

Changes to the Auto Deck Operator Controls

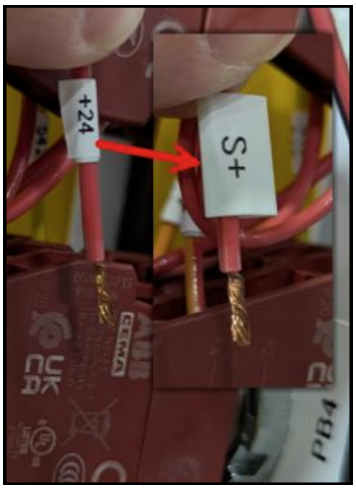
1. Remove the I:58 Orange / Red wire from N/O pin 4 of the PB4 (E-STOP) contact block (Figure 7).

Figure 7: **I:58** Wire Relabeled as **SPARE**



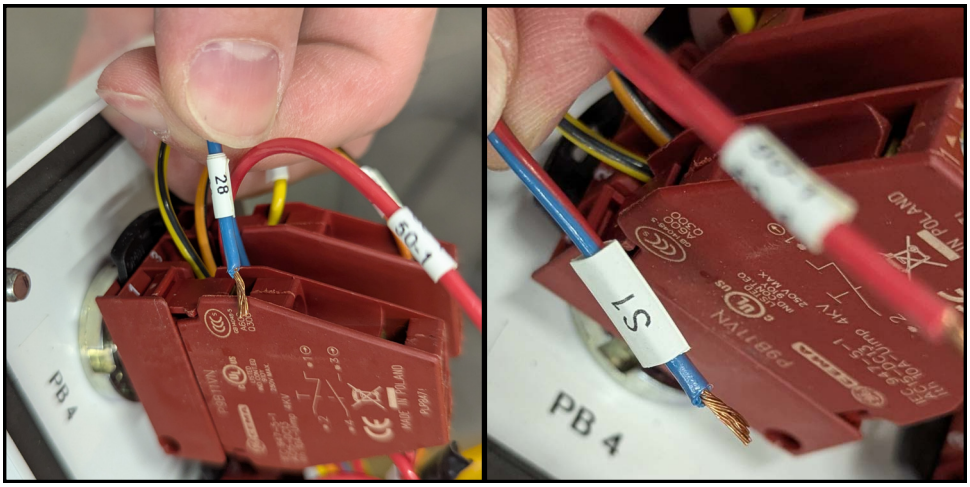
2. Cut off any exposed copper, replace the label with **SPARE**, and cap the wire with one of the provided wing nuts. See Figure 7.
3. Remove the +24 wire from pin 2 of PB4 and replace the label with **S+** Figure 8).

Figure 8: Removing the **+24** Wire



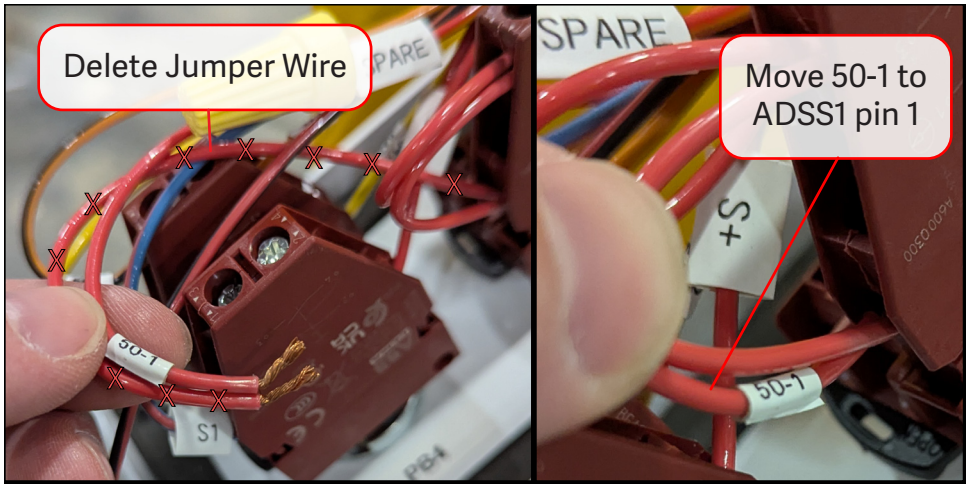
4. Remove the Blue / Red wire labeled **28** from pin 1 of PB4, then replace the label with **S1 (**Figure 9).

Figure 9: Removing the **28** Wire and Relabeling as **S1**



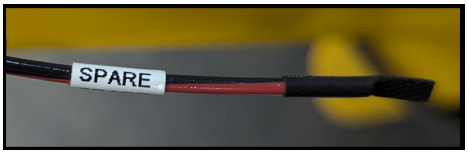
5. Remove the two red wires in pin 3 of PB4. Delete the red jumper that goes into the ADSS1 pin 1 and move the **50-1** wire into that position (Figure 10).

Figure 10: Removing the Two Red Wires in Pin 3



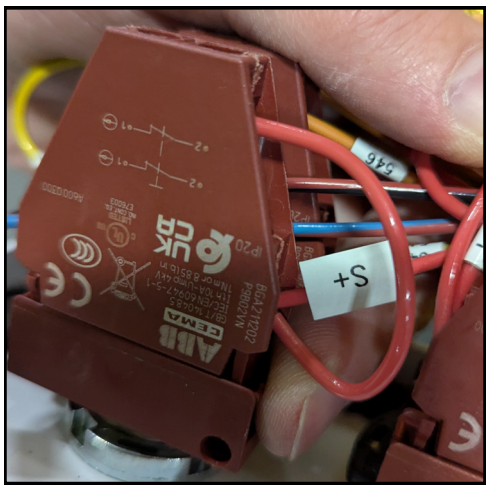
6. Locate the **Spare** Red / Black wire and replace the label with **S2**, then cut the back copper to approximately 1/4″ (Figure 11).
   - Note: This wire is most likely tucked into the conduit.

Figure 11: Relabeling the **SPARE** Red / Black Wire With **S2**



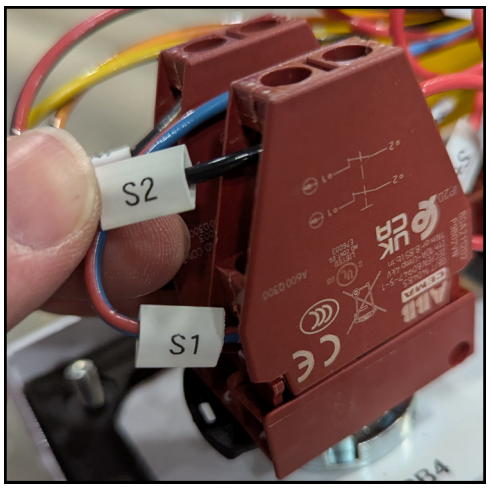
7. Replace the NO/NC contactor with the provided NC/NC contact block. The NO/NC contact block can be discarded.
8. Land **S+** to pin 2 of the new contact block and add a jumper from pin 2 to pin 2 from bottom to top (Figure 12).
   - Note: The red jumper cable that was removed from Step 6 can be used for this jumper. It may be easier to add a jumper while the contact block is removed from the button base.

Figure 12: Landing S+ and Adding a Jumper



9. Land **S1** and **S2** to pin 1 (bottom) and 1 (top) of the NC/NC contact block (Figure 13).

Figure 13: Landing **S1** and **S2**



10. Clean up all wires and fasten the door back onto the push button box.

Upgrading the BLADE II Main Electrical Enclosure

- Note: This procedure is only to be performed on the BLADE II. The procedure for upgrading the main electrical enclosure of the BLADE (Gen 1) is found in the next section starting on page 12.

1. Remove the wires located on K2 pins 1L1, 3L2, 5L3, 2T1, 4T2, and 6T3.
2. Snap the provided terminal end cap to the side of the provided terminal block and place it to the left of K1 (Figure 14). The ground side should be facing the bottom. See Figure 15.

Figure 14: Terminal End Cap Attached

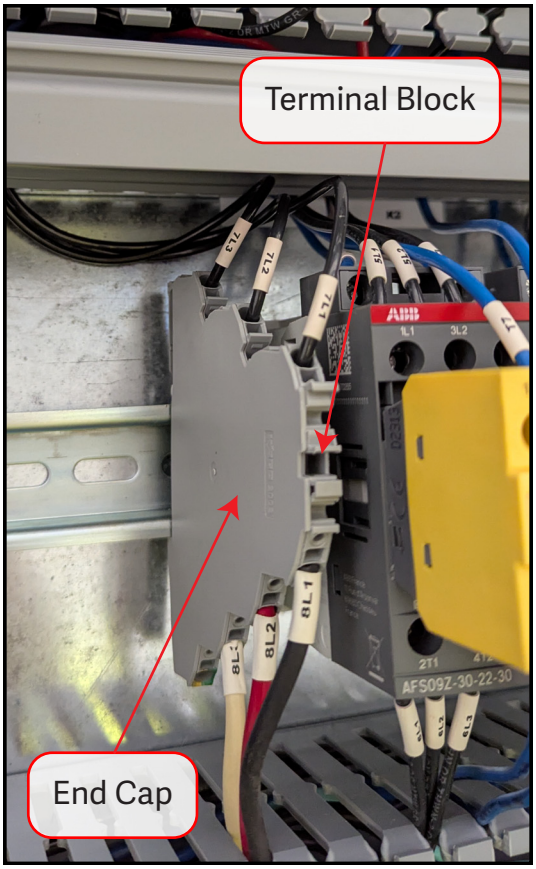
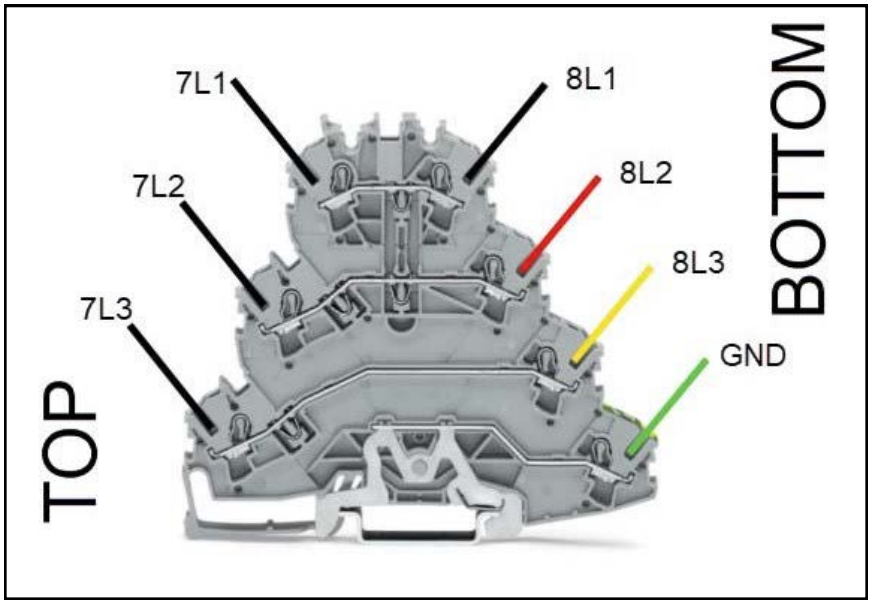


Figure 15: Terminal End Cap



3. Land wires 7L1, 7L2, 7L3, 8L1, 8L2, 8L3, and GND as shown in Figure 15.
   - Note: Wires 7L1, 7L2, and 7L3 will need to be relocated.
   - Note: The ground wire from the Auto Deck cordset is located on the ground terminals to the right of SR_1. Disconnect it from those terminals and move it over to item 4 of the GND terminal.
4. Clean up the cabinet and reattach any wire-way covers.
5. Remove lockout/tagout devices and test to ensure the saw and Auto Deck are functioning without any errors.

Upgrading the BLADE (Gen 1) Main Electrical Enclosure

- Note: This procedure is only to be performed on the BLADE (Gen 1). The procedure for upgrading the main electrical enclosure of the BLADE II is found in the previous section starting on page 11.

1. Remove the wires located on K3 pins 1L1, 3L2, 5L3, 2T1, 4T2, and 6T3.
2. Snap the provided terminal end cap to the side of the provided terminal block and place it into the same spot as K3 (Figure 14).
3. Land wires 7L1, 7L2, 7L3, 8L1, 8L2, 8L3, and GND as shown in Figure 15.
   - Note: Wires 7L1, 7L2, and 7L3 will need to be relocated.
   - Note: The ground wire from the Auto Deck cordset is located on the ground terminals to the right of SR_1. Disconnect it from those terminals and move it over to item 4 of the GND terminal.
4. Clean up the cabinet and reattach any wire-way covers.
5. Remove lockout/tagout devices and test the ensure the saw and Auto Deck are functioning without any errors.

END OF SERVICE BULLETIN