MiTek®
Machinery Division

Service Bulletin

Machinery Affected:	***RoofTracker II™, RoofTracker III™, AutoPress 14LRT™, and RailRider Pro®***
Document:	**SB231**
Title:	**Replacing a Safety Controller**
Application:	**STI G9SP-N20S Safety Controllers**
Distribution:	**Customers Upon Order**

MiTek Machinery Division
301 Fountain Lakes Industrial Drive
St. Charles, MO 63301
Phone: 800-523-3380
www.mii.com

Part # and Rev.	SB231
Revision Date	
Revised By	
Approved By	M. Kanjee
Print Date	5 October 2017
Orig Date Created	17 July 2017
Created By	G. Gaia
Applicability	Gantries with STI G9SP-N20S

Overview

Description of Procedure and Parts Kits

The safety controller monitors circuits in the electrical systems of the *RoofTracker II*, *RoofTracker III*, *RailRider Pro*, and *AutoPress 14LRT* to make sure that they function properly. This procedure describes the steps to replacing both the safety controller and the memory cassette with a new safety controller and memory cassette.

The parts included in this kit are shown below. Please make sure all parts are present before starting this procedure.

Table 1: Parts in all SB231KIT

Qty.	Part Description	Part #
1	Service bulletin document	SB231
1	Memory cassette (programmed)	94019

Table 2: Parts in SB231KIT-A (*RailRider Pro*)

Qty.	Part Description	Part #
1	Safety controller (programmed)	92289-501

Table 3: Parts in SB231KIT-B (*RoofTracker III*)

Qty.	Part Description	Part #
1	Safety controller (programmed)	92289-502

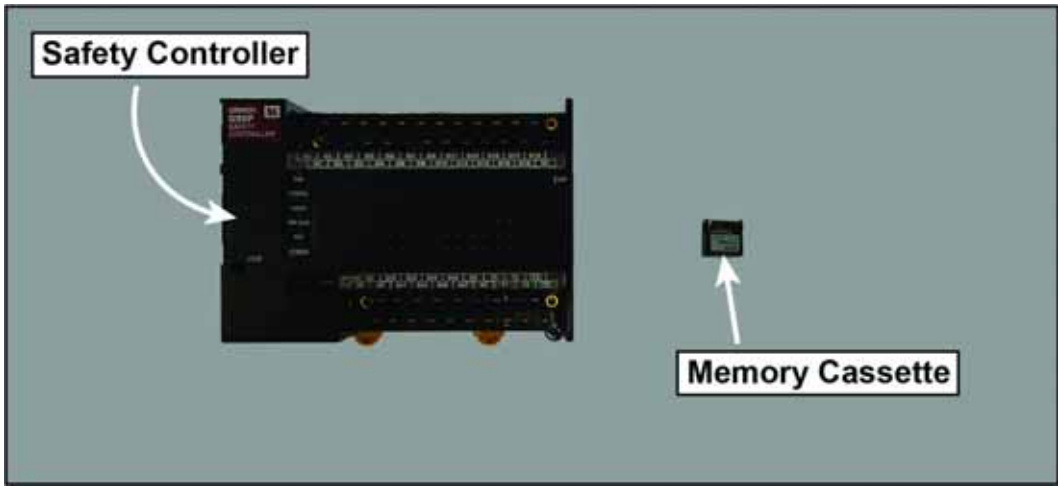
Table 4: Parts in SB231KIT-C (*AutoPress 14LRT*)

Qty.	Part Description	Part #
1	Safety controller (programmed)	92289-503

Table 5: Parts in SB231KIT-D (*RoofTracker II*)

Qty.	Part Description	Part #
1	Safety controller (programmed)	92289-504

Figure 1: Parts in SB231KIT



Supplies

Before gathering supplies, make these obstructions to test the functioning of the gantry head with the new safety controller.

- If you are replacing a safety controller on a *RoofTracker III*, *RailRider Pro*, or *AutoPress 14LRT*, only a wooden T is needed. Skip to Creating a Wooden T on page 3.
- If you are replacing a safety controller on a RoofTracker II, both a wooden T and a heavy object are needed. Continue to the next section.

Creating a Heavy Object

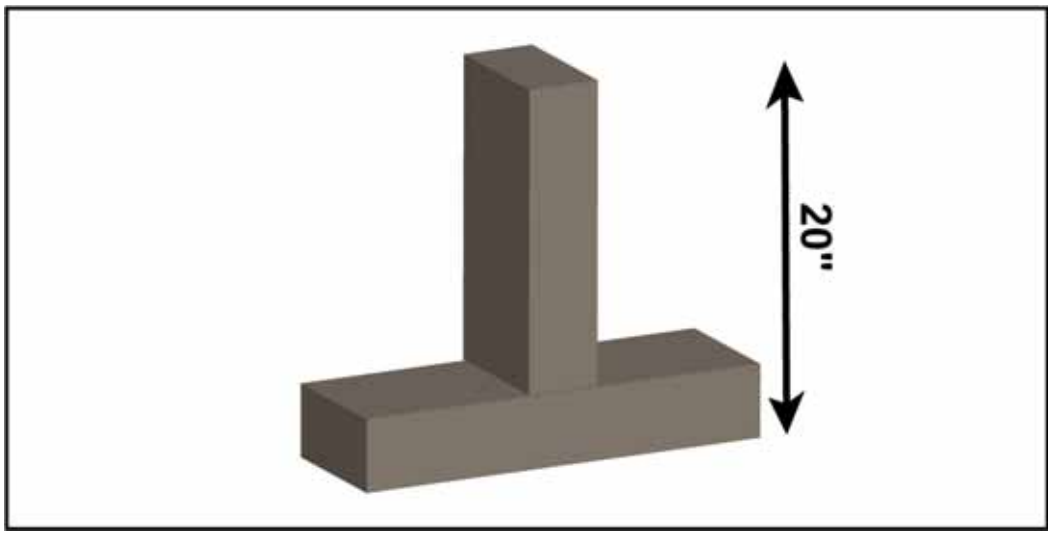
A heavy object weighing more than 100 lbs is necessary to test the bumper system on the *RoofTracker II*. A trash can filled with sandbags is ideal. At the least, however, the heavy object must meet the following criteria:

- Stable enough to resist movement when the bumper hits it
- Sturdy enough to resist breaking, splintering, or shattering when the bumper hits it

Creating a Wooden T

An object is necessary to trip the light curtains on the *RoofTracker II* and the laser scanners on the *RoofTracker III*, *RailRider Pro*, and *AutoPress 14TL*. The simplest object is a wooden T. Permanently fasten two pieces of wood together to form a T. The T should be a minimum of 20" tall. The T should be able to stand upside down on its own. See Figure 2.

Figure 2: Wooden T



Gathering Tools

Before beginning the procedure, gather the supplies listed here:

RoofTracker III, AutoPress 14LRT* or *RailRider Pro	***RoofTracker II***
• Phillips screwdriver • Slotted screwdriver • Wooden T	• Phillips screwdriver • Slotted screwdriver • 2x4 board • Heavy object • Wooden T

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

Procedure

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.**

Working on a Machine Inside the Machine's Electrical Enclosure

Before opening the main electrical enclosure, 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. Remove power to the machine.

RoofTracker II, RoofTracker III, RailRider Pro	*AutoPress 14LRT*
Turn the disconnect switch on the main electrical enclosure to the Off position.	Turn the disconnect switch on the disconnect enclosure to the Off position.

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.

4. Attach a lock and tag that meets OSHA requirements for lockout/tagout to the electrical service entry panel. One example of a locked-out electrical service entry panel is shown in Figure 3.

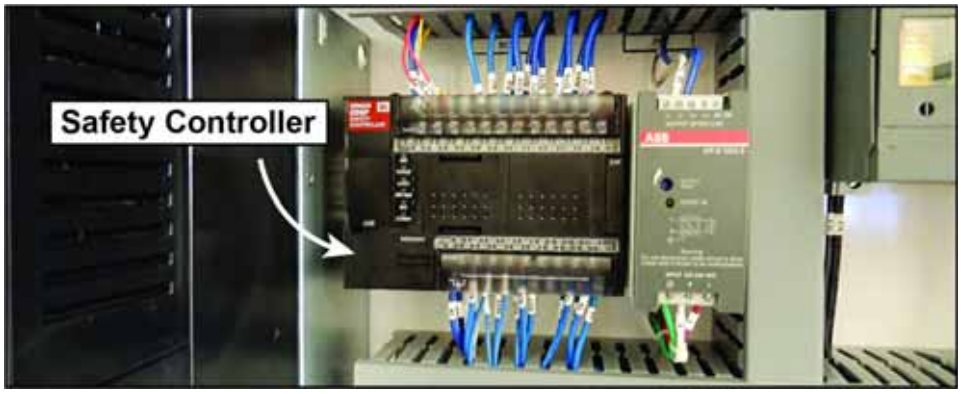
Figure 3: Lockout/Tagout on the Electrical Service Entry Panel

Replacing the Safety Controller

Removing the Safety Controller

1. Open the door of the main electrical enclosure. Locate the safety controller.
   The exact location of the safety controller inside the electrical enclosure varies based on the particular gantry head. The safety controller shown in Figure 4 is on a RailRider Pro.

Figure 4: Safety Controller in Main Electrical Enclosure



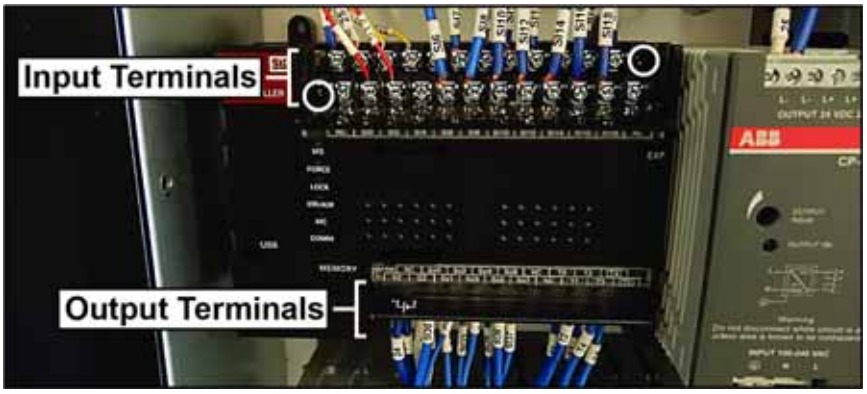
2. Remove the wire duct covers around the safety controller.

3. Remove the terminal blocks from the safety controller by using the following steps.

    a) Flip the clear terminal block guard on the top of the safety controller down to expose the input terminals. See the exposed terminals in Figure 5 for reference.

    b) Flip the clear terminal block guard on the bottom of the safety controller up to expose the output terminals. See Figure 5 for reference.

Figure 5: Input and Output Terminal Blocks



    c) Loosen the two screws securing the input terminal block to the safety controller. The screws are circled in white in Figure 5. Loosen the two screws securing the output terminal block to the safety controller.

    The two screws securing the output terminal block to the safety controller are not visible in Figure 5.

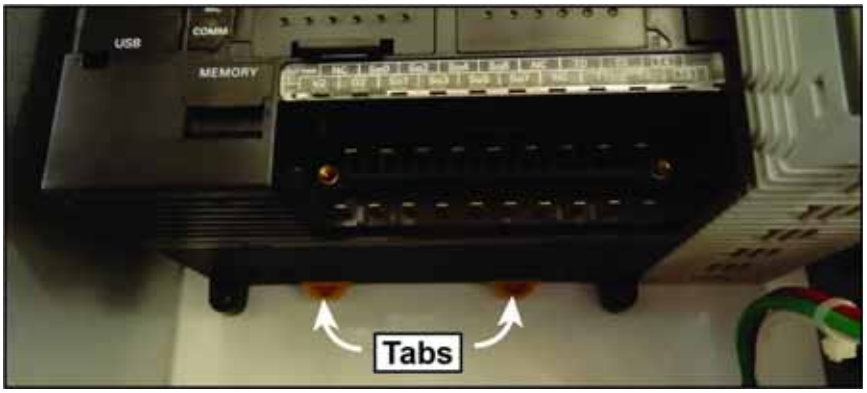
    d) Pull the terminal blocks away from the safety controller. Leave the terminal blocks hanging with their wires still connected. See Figure 6 for the safety controller with the terminal blocks removed.

Figure 6: Input and Output Terminal Blocks Removed

4. Remove the safety controller by using the following steps.

   a) Locate the two yellow tabs on the underside of the safety controller. See Figure 7.

Figure 7: Pull Tabs on the Underside of the Safety Controller



   b) Use a slotted screwdriver to pull the tab to the downward position. Repeat with the other tab.

      Pulling the tabs unlocks the safety controller from the DIN rail.

   c) Pull forward while swinging the safety controller up to remove it from the DIN rail.

Figure 8: Removing the Safety Controller

Installing a Replacement Safety Controller

To install the replacement safety controller, reverse the steps starting with step c on page 8 and ending with step 2 on page 6.

Checking the Status of the Safety Controller

1. Close the door on the main electrical enclosure.
2. Remove the lock and tag from the electrical service entry panel. Restore power at the electrical service entry panel.
3. Turn the disconnect switch to restore power to the machine.
4. Proceed according to your specific machine.

RoofTracker II, RoofTracker III, or RailRider Pro	***AutoPress 14LRT***
Continue with step a below.	Skip to page 10.

a) Look through the window of the main electrical enclosure. Check the safety controller to make sure its status is correct.

- The MS indicator should be illuminated green.
- The LOCK indicator should be illuminated yellow.

b) Complete the replacement of the safety controller based on the indicator lights.

- If the lights illuminate properly, proceed to page 10 to complete the safety test.
- If the lights do not illuminate properly, call MiTek Machinery Division Customer Service.

Customer Service is available at **800-523-3380** Monday through Friday.

Testing the Function of the Safety Controller

	**DANGER** **If your equipment fails any part of this function check, lockout/tagout the equipment and call MiTek Machinery Division Customer Service immediately.** **Operating equipment that has failed the function check may result in severe injury or death.**

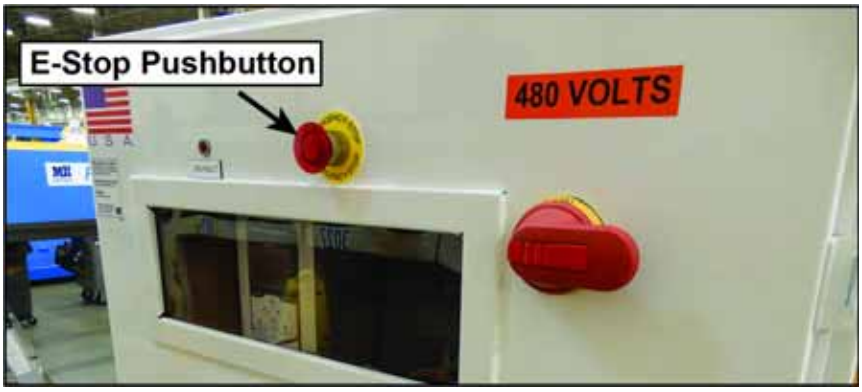
	**DANGER** **Only the person performing the test should be in the restricted zone during testing.** **If the equipment fails to stop as anticipated, severe injury or death may occur to a bystander in the restricted zone.**

Testing the E-Stop Pushbutton on the *RoofTracker II*, *RoofTracker III*, *RailRider Pro*, or *AutoPress 14LRT*

1. Check the function of the E-stop or E-stops while the gantry head is stopped using the following steps.

    a) Engage the E-stop pushbutton near the operator control station.

    Figure 9: E-Stop Pushbutton on *RoofTracker III*

    b) Attempt to move the gantry head. The gantry head should not move.

    c) Disengage the E-stop pushbutton near the operator control station.

    d) Continue the function check based on the configuration of your equipment.

- If you are replacing the safety controller on a *RoofTracker II*, *RoofTracker III*, *AutoPress 14LRT*, or *RailRider Pro* with only two pendants, skip to step 2 on page 11.
- If you are replacing the safety controller on a *RailRider Pro* with four pendants, move to the other side of the gantry head and repeat steps a through c with the other E-stop pushbutton.

2. Check the function of the E-stop pushbutton or pushbuttons while the gantry head is moving using the following steps.

   a) Use the operator controls to move the gantry head in one direction.

   b) While the gantry head is moving, engage the E-stop pushbutton button near the operator control station.

      - The gantry head should stop immediately without skidding.

   c) Disengage the E-stop pushbutton near the operator control station.

   d) Reset the safety circuit.

   e) Continue the function check based on the configuration of your equipment.

      - If you are replacing the safety controller on a *RoofTracker II*, *RoofTracker III*, *AutoPress 14LRT*, or *RailRider Pro* with only two pendants, skip to step 1 on page 12.
      - If you are replacing the safety controller on a *RailRider Pro* with four pendants, move to the other side of the gantry head and repeat steps a through d with the other E-stop pushbutton.

Testing the Laser Scanners on the *RoofTracker III*, *RailRider Pro*, or *AutoPress 14LRT*

If you are working on a *RoofTracker II*, skip to page 13.

1. Check the function of the laser scanners while the gantry head is moving using the following steps.

    a) Place the wooden T on the tables at least 10 feet from the gantry head.

    b) Use the operator controls to move the gantry head toward the wooden T. Do not release the controls until the gantry head stops.

    - The gantry head should slow and then stop short of the wooden T.

    c) After the gantry head stops, release the controls. Try to move the gantry head in the direction of the wooden T. The gantry head should not move.

    d) Reset the safety circuit.

    e) Repeat steps a through d with the laser scanner on the other side of the gantry head.

2. Once you have verified the function of the safety circuit, resume operation.

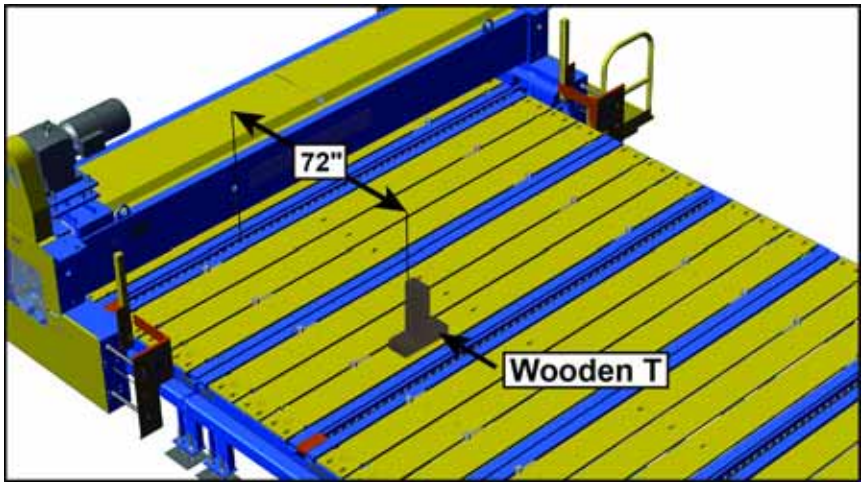
Testing the Light Curtains and Bumpers on the *RoofTracker II*

Instructions for making the wooden T are on page 3.

1. Test the light curtains using the following steps.

   a) Place the wooden T on the tables 6 to 8 feet from the gantry head. The shaft of the wooden T should stick into the air. See Figure 10 for its location in relation to the gantry head.

   Figure 10: Placement of the Wooden T

   b) Use the operator controls to move the gantry head toward the wooden T without releasing the controls.

      - The gantry head should stop before any part of the gantry head hits the wooden T.

   c) Release the operator controls.

   d) Move operator controls as if you were moving the gantry head toward the wooden T.

      - The gantry head should remain still.

   e) Release the operator controls.

   f) Move the wooden T to the other side of the gantry head. Reset the safety circuit.

   g) Repeat steps a through e with the light curtain on the other side of the gantry head.

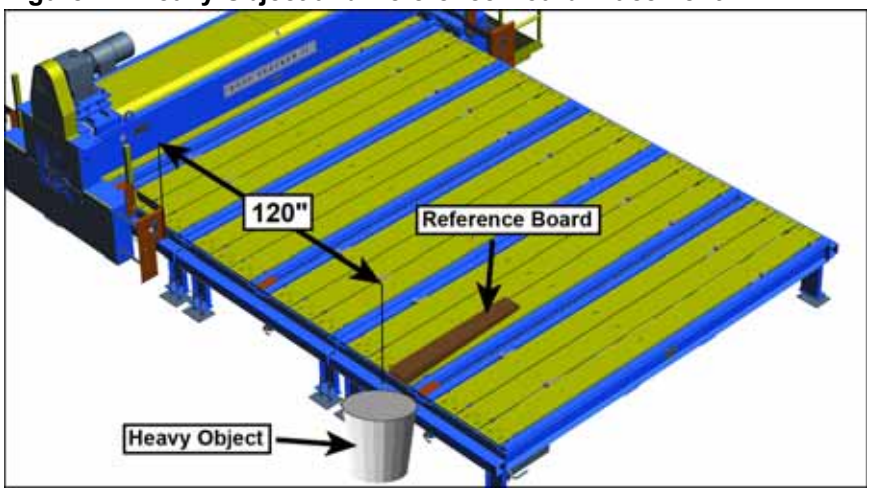
2. Remove the wooden T from the tables.

Instructions for making the heavy object are on page 2.

3. Prepare to test the bumpers using the following steps.

    a) Place the heavy object 10 feet from one of the bumpers. See Figure 11 for the approximate placement of the heavy object.

Figure 11: Heavy Object and Reference Board Placement



    b) Place the board (referred to as a reference board) on the table with the front of the board even with the front of the heavy object. See Figure 11 for the approximate placement of the reference board.

4. Test the bumpers using the following steps.

    a) Use the operator controls to move the gantry toward the heavy object and reference board without releasing the controls.

        - The bumper should move.
        - The gantry head should stop.
        - The frame of the gantry head should stop short of the reference board.

    b) Release the operator controls.

    c) Move the operator controls as if you were moving the gantry head toward the reference board and heavy object.

        - The gantry head should not move.

    d) Release the operator controls. Move the reference board and heavy object to a new bumper. Reset the safety circuit.

    e) Repeat steps a through d with the other bumpers.

5. Once you have verified the function of the safety circuit, resume operation.