

GS-X v.III Guarding Safety Controller Hold-to-Run Switch

Packaging

1 ea. 47-142117-000 Pkg. Hold-to-Run Cable Assembly

*1 ea. 47-142118-000 Pkg. Hold-to-Run Switch

1 ea. 47-902601-000 Installation Instructions

* One per Center Item

Tools Required

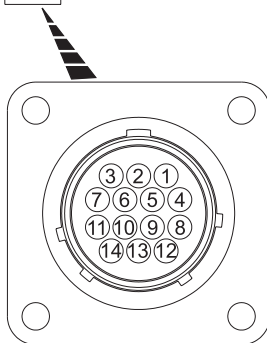
- Straight (flat) Screw Driver
- Phillips (cross) Screw Driver

Hold-to-Run Cable Assembly 47-142117-000

The Hold-to-Run cable assembly provides a connection on the Safety Controller for the Hold-to-Run switch. A cable must be wired into each safety controller where a Hold-to-Run operation is desired. Refer to *Figure 1*.



TO
ENABLE
SWITCH



FRONT VIEW

i **NOTE:** There are two brown wires and two orange wires in cable assembly 47-142117-000. The two brown wires are interchangeable. The two orange wires are interchangeable.

Figure 1

Hold-to-Run Cable Installation in the Safety Controller



WARNING! Turn off the main power to the pinsetter at the main electrical panel and turn “OFF” the main power switch on the safety controller.

1. Remove and discard cover plate from safety controller and retain all screws for re-use. Refer to Figure 2.

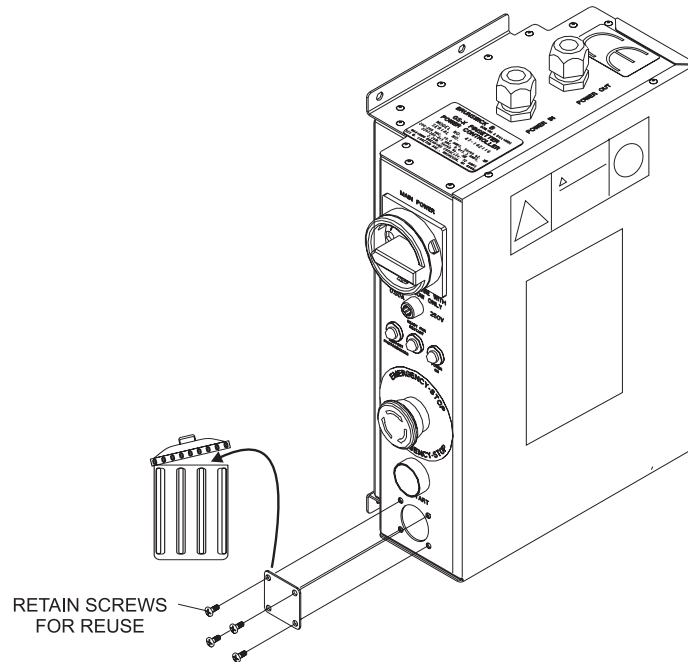


Figure 2



IMPORTANT!: Save all screws.

2. Remove the cover from the safety controller.



WARNING! Verify all lights inside the safety controller are off before continuing.

3. Install hold-to-run cable assembly into safety controller with the 4 screws from step 1. Refer to *Figure 3*.

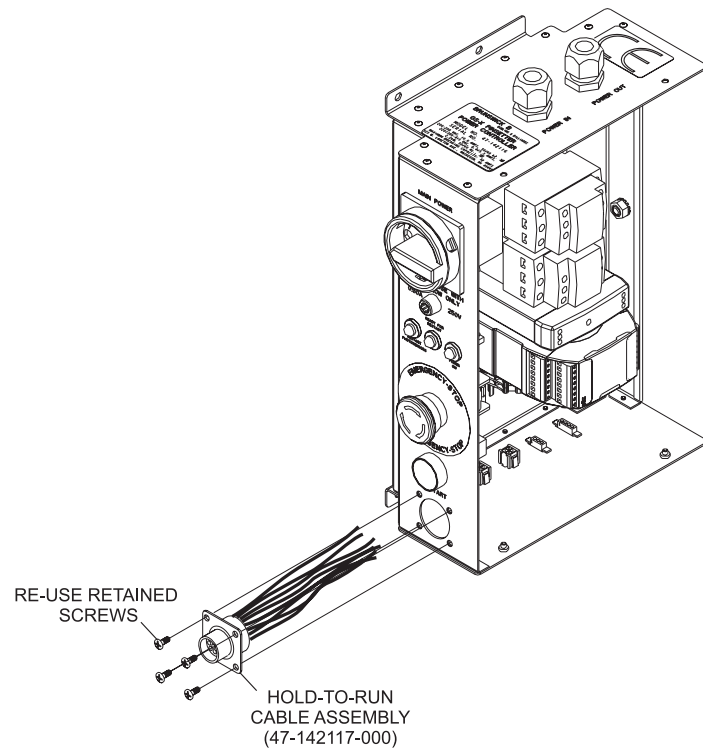


Figure 3

- Wire the hold-to-run cable assembly to safety controller. Refer to *Figure 4* and *Schematic of Hold-to-Run Cable Figure 1*.

i **NOTE:** The existing orange wire connecting terminal Ill to terminal block T2 must be removed in order for the hold-to run switch to function.

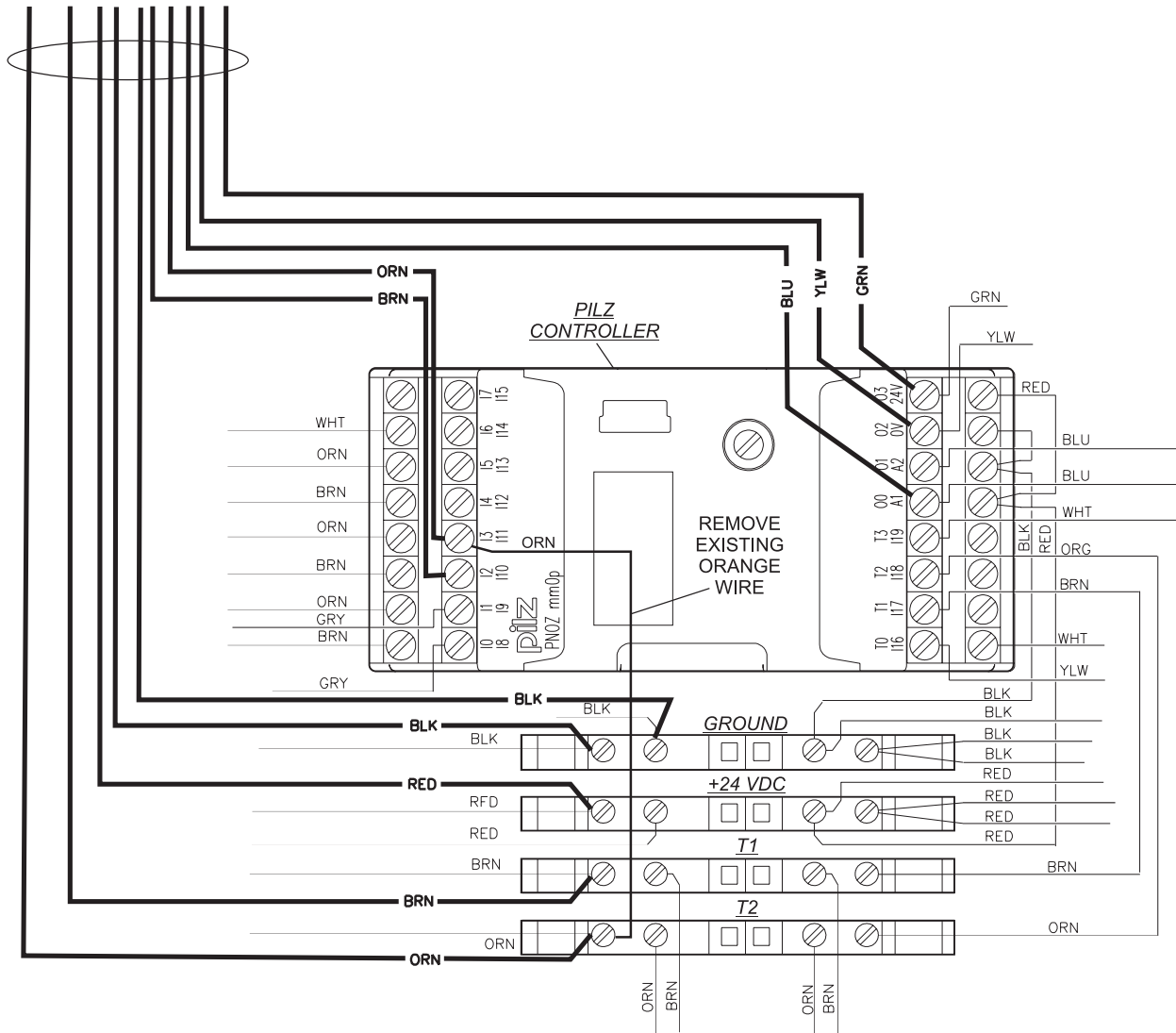


Figure 4

- Secure the cover removed in step 4 to the safety controller.

Hold-to-Run Switch 47-142118-000

The Hold-to-Run switch is a manually operated switch that allows work to be conducted in the GS-X pinsetter areas while the machine is operating. Refer to *Figures 5 & 6*.

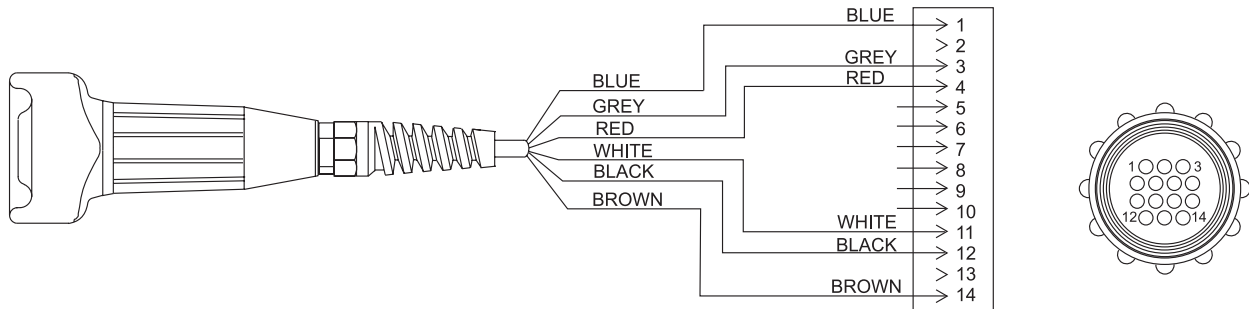


Figure 5

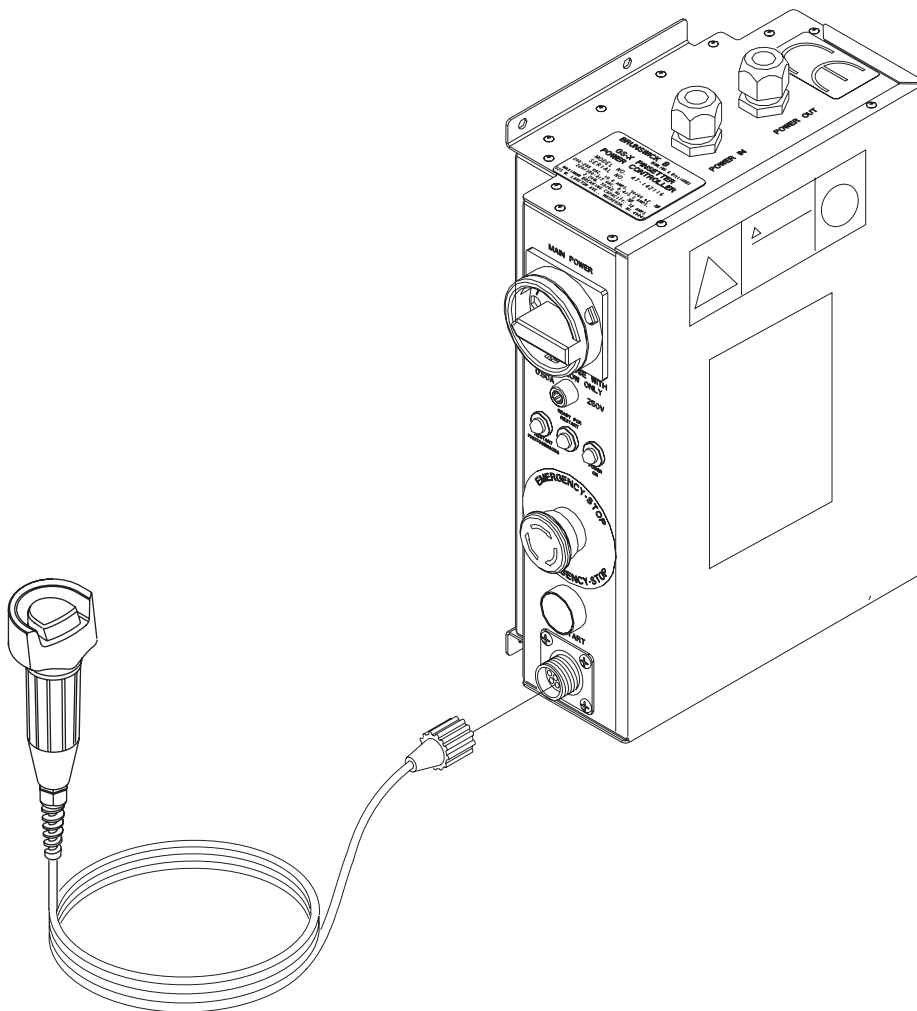


Figure 6

i **NOTE:** When the Hold-to-Run switch is not in use, remove it from the safety controller and store in a secure location.

The Hold-to-Run switch has three positions that provide three pinsetter conditions. Positions 1 (not pressed) and 3 (pressed too far) removes power from the pinsetters. Position 2 (middle position) allows the mechanic to operate the pinsetters with the safety sensors bypassed. Since position 2 allows unprotected operation of the pinsetters, the pinsetters should be considered as being in a dangerous state whenever the switch is in position 2. Additional safety precautions should be used. Refer to *Figure 7*.

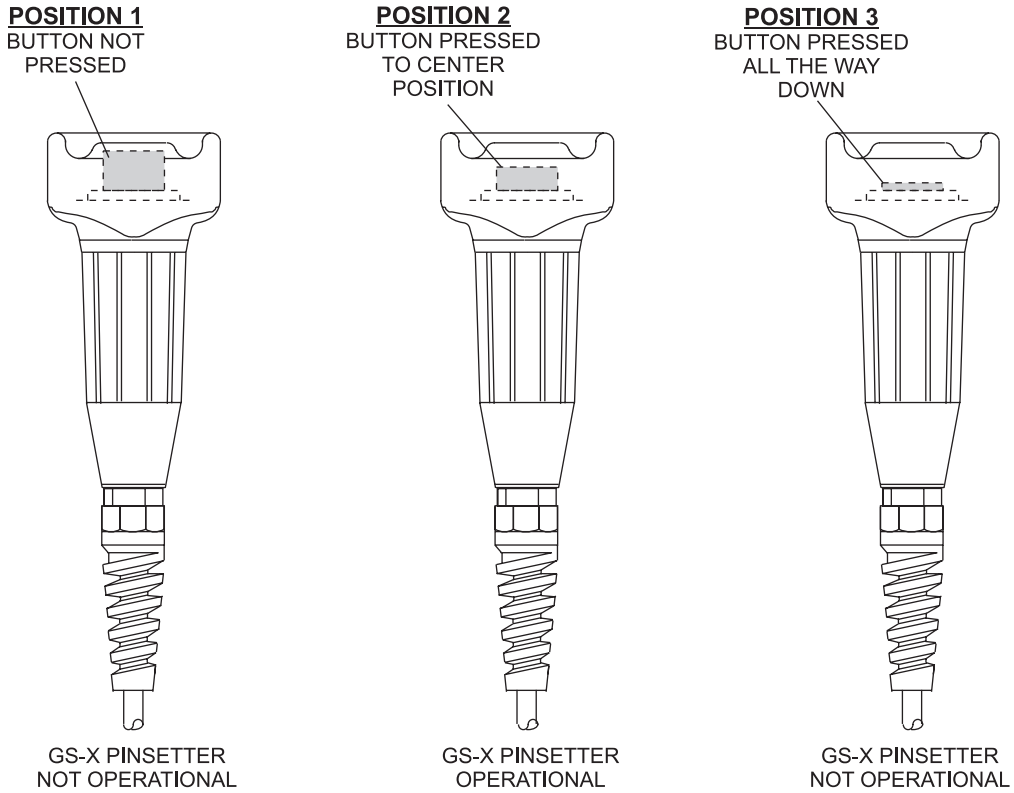


Figure 7

Functional Test of the Hold-to-Run Switch



WARNING! *The effectiveness of the Hold-to-Run switch must be tested before use. Occupy a safe area, outside of the GS-X pinsetter and away from any dangerous parts or areas that could cause injury.*

Since position 2 of the Hold-to-Run switch allows unprotected operation of the pinsetters, the pinsetters should be considered as being in a dangerous state whenever the switch is in position 2.

1. Check all the protective devices, interlocks and sensors before any work or the dangerous state of the pinsetter is initiated.
 - a. Completely cover each light beam with a test piece that is not transparent (at least 30 mm [1-3/16"] diameter) at the following positions:
 - Directly in front of the sender
 - In the middle between sender and receiver
 - Directly in front of the receiver
 - b. Open the rear pinsetter access door equipped with the interlock switch.
 - c. Lift the masking unit panel to open the masking unit interlock switch.
 - d. Press the emergency stop button.

Each of the preceding individual tests must produce the following result:

- During the light beam test the receiver for the related safety photoelectric safety switch must have no LED illuminated.
- As long as the light beam, interlock or emergency stop switch is interrupted, it must not be possible to initiate a dangerous (operational) state of the pinsetter.

2. Connect the hold-to-run switch to the safety controller (refer to page 4, Figure 6). Operate the switch and verify all three positions of the switch (refer to page 5, Figure 7) perform correctly.

Position 1 - Off, push button not pressed, GS-X pinsetter not operating

Position 2 - Enabled, push button pressed to center position, GS-X pinsetter operational

Position 3 - Disabled, push button pressed to full down position, GS-X pinsetter not operating

3. Operate the hold-to-run switch in the position 2 state (enabled, push button pressed to center position) and verify all the interlocks and sensors will NOT disable the dangerous state of the pinsetter:
 - a. Completely cover each light beam with a test piece that is not transparent (at least 30 mm [1-3/16"] diameter) at the following positions:
 - Directly in front of the sender
 - In the middle between sender and receiver
 - Directly in front of the receiver
 - b. Open the rear pinsetter access door equipped with the interlock switch.
 - c. Lift the masking unit panel to open the masking unit interlock switch.
 - d. Press the emergency stop button.

During each of these tests the pinsetter should stay operational in the dangerous state only **WHILE** the hold-to-run switch is in the position 2 state (enabled, push button pressed to center position).

4. Disconnect the hold-to-run switch from the safety controller and store in a secure location.