V★S DRIVES

INSTRUCTION SHEET D2-3176
Control Signal Buffer Kit

Model 1SB4000 (230 and 460 VAC)
Model 1SB5000 (575 VAC)

For use with 1–20 HP 230, 460 and 575 VAC GP2000 A-C V★S® Drives

DANGER

ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS EQUIPMENT AND THE HAZARDS INVOLVED SHOULD INSTALL, ADJUST, OPERATE AND/OR SERVICE THIS EQUIPMENT. READ AND UNDERSTAND THIS MANUAL IN ITS ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DESCRIPTION

The products described in this instruction manual are manufactured and/or distributed by Reliance® Electric Industrial Company.

The Control Signal Buffer Kit provides higher signal power for customer interlocks that cannot operate reliably with the low signal power output from the controller. The kit is for single drive applications only; multiple drive applications require individual control signal buffers for each controller.

This kit is intended for use with a stand-alone GP2000 1–20 horsepower controller only. It is included as standard equipment in the Expanded Cabinet Kit, the VTAC V, and the GP2000 25–50 horsepower controller. The customer wiring terminals TB11 (1–19) on the Control Signal Buffer PC Board (0-55325-49) are exactly the same as terminals TB1 (1–19) on the GPI-1 Regulator PC Board. See GP2000 Instruction Manual D2-3166 for customer wiring detail. Also refer to Figure 6 and 6A in this instruction sheet for 2-wire and 3-wire user control connections.

Note: If a Motor Overload Kit is to be installed on the 1–20 horsepower GP2000 controller, the Control Signal Buffer Kit must be installed first.

Upon receiving, check the contents of the kit with the contents listed in Table 1. Store this equipment in a clean and dry area until ready to use. The ambient temperature of the storage area must not exceed 65°C (149°F) or go below –40°C (–40°F) within a relative humidity range of 5 to 95% without condensation.

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Table 1. Complete Parts List.

Description	Quantity	Part Number
Control Signal Buffer PC Board	1	0-55325-49
Interface Wire Harness	1	708205-46R
Fuse (0.10A)	2	64676-64P
Fuse (0.125A)	2	64676-64Q
Fuse (0.25A)	2	64676-64A

INSTALLATION: STAND-ALONE CONTROLLER

DANGER

DO NOT INSTALL MODIFICATION KITS WITH POWER APPLIED TO THE UNIT. DISCONNECT AND LOCK OUT INCOMING POWER BEFORE ATTEMPTING SUCH INSTALLATION. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

1. Disconnect all power to the A-C V★S Drive before installing this kit.
2. Select the Control Signal Buffer kit mounting location within 2.0 feet of the controller for proper performance.
3. Remove the four M3 x 6 CCSM screws that fasten the enclosure top to the enclosure bottom. Set the top aside for reassembly.
4. Mount the Control Signal Buffer kit in the selected location. Refer to Figure 1 for mounting hole detail.
5. Remote customer interlocks can be located up to 1000 feet from the kit. (Use 22 AWG minimum.) These wires should be routed separate from other power wiring.

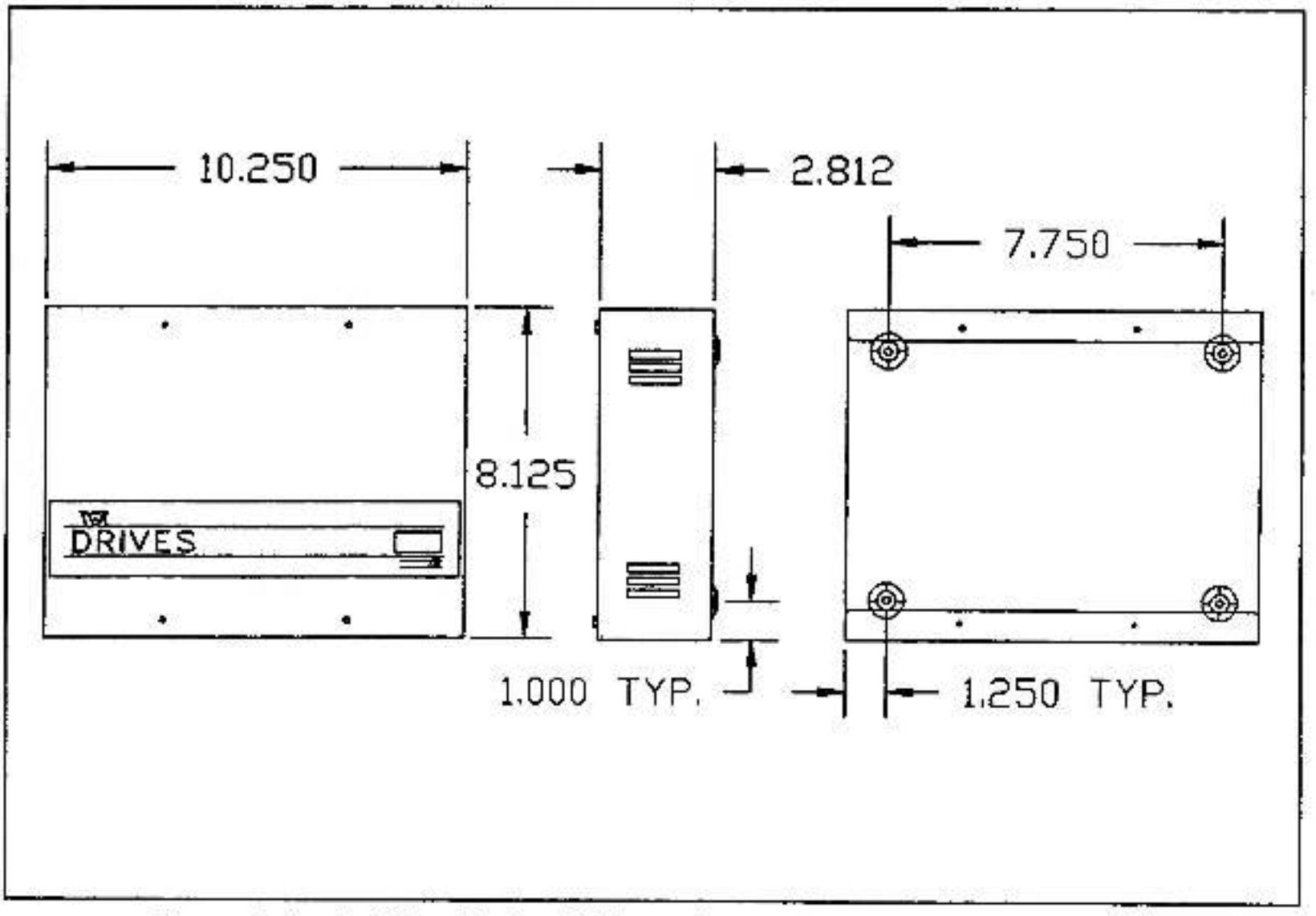

Figure 1. Control Signal Buffer Kit Dimensions and Mounting Hole Locations.

6. Rewire the transformer according to application voltage (if necessary).

   a. For Kit 1SB4000: Kit 1SB4000 is factory-wired for 460-volt operation. If necessary, rewire the kit for either 230- or 575-volt operation as follows:

DANGER

ALL TRANSFORMER PRIMARY TAPS HAVE LIVE VOLTAGE WHEN POWERED. IF THE TRANSFORMER IS USER WIRED FOR OTHER THAN FACTORY VOLTAGE, THE USER IS RESPONSIBLE FOR PROPERLY SHIELDING THE UNUSED TAP LEADS TO PREVENT ACCIDENTAL CONTACT WITH LIVE VOLTAGE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

230-volt operation (Refer to Figure 2.)

1) Remove the Red/White wire from fuseholder terminal 281.
2) Remove the insulator from the Green/White wire and place it on the Red/White wire.
3) Connect the Green/White wire to fuseholder terminal 281 using the fast-on connector provided.
4) Install the 0.25 amp fuses in the fuseholder.

575-volt operation (Refer to Figure 2.)

1) Remove the Red/White wire from fuseholder terminal 281.
2) Remove the insulator from the Black/White wire and place it on the Red/White wire.
3) Connect the Black/White wire to fuseholder terminal 281 using the fast-on connector provided.
4) Install the 0.10 amp fuses in the fuseholder.

Also refer to the wiring connection diagram located on the inside front cover of the kit enclosure.

   b. For Kit 1SB5000: Kit 1SB5000 is factory-wired for 575-volt operation. If necessary, rewire the kit for either 230- or 460-volt operation as follows:

DANGER

ALL TRANSFORMER PRIMARY TAPS HAVE LIVE VOLTAGE WHEN POWERED. IF THE TRANSFORMER IS USER WIRED FOR OTHER THAN FACTORY VOLTAGE, THE USER IS RESPONSIBLE FOR PROPERLY SHIELDING THE UNUSED TAP LEADS TO PREVENT ACCIDENTAL CONTACT WITH LIVE VOLTAGE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

230-volt operation (Refer to Figure 2.)

1) Remove the Black/White wire from fuseholder terminal 281.
2) Remove the insulator from the Green/White wire and place it on the Black/White wire.
3) Connect the Green/White wire to fuseholder terminal 281 using the fast-on connector provided.
4) Install the 0.25 amp fuses in the fuseholder.

460-volt operation (Refer to Figure 2.)

1) Remove the Black/White wire from fuseholder terminal 281.
2) Remove the insulator from the Red/White wire and place it on the Black/White wire.
3) Connect the Red/White wire to fuseholder terminal 281 using the fast-on connector provided.
4) Install the 0.125 amp fuses in the fuseholder.

Also refer to the wiring connection diagram located on the inside front cover of the kit enclosure.

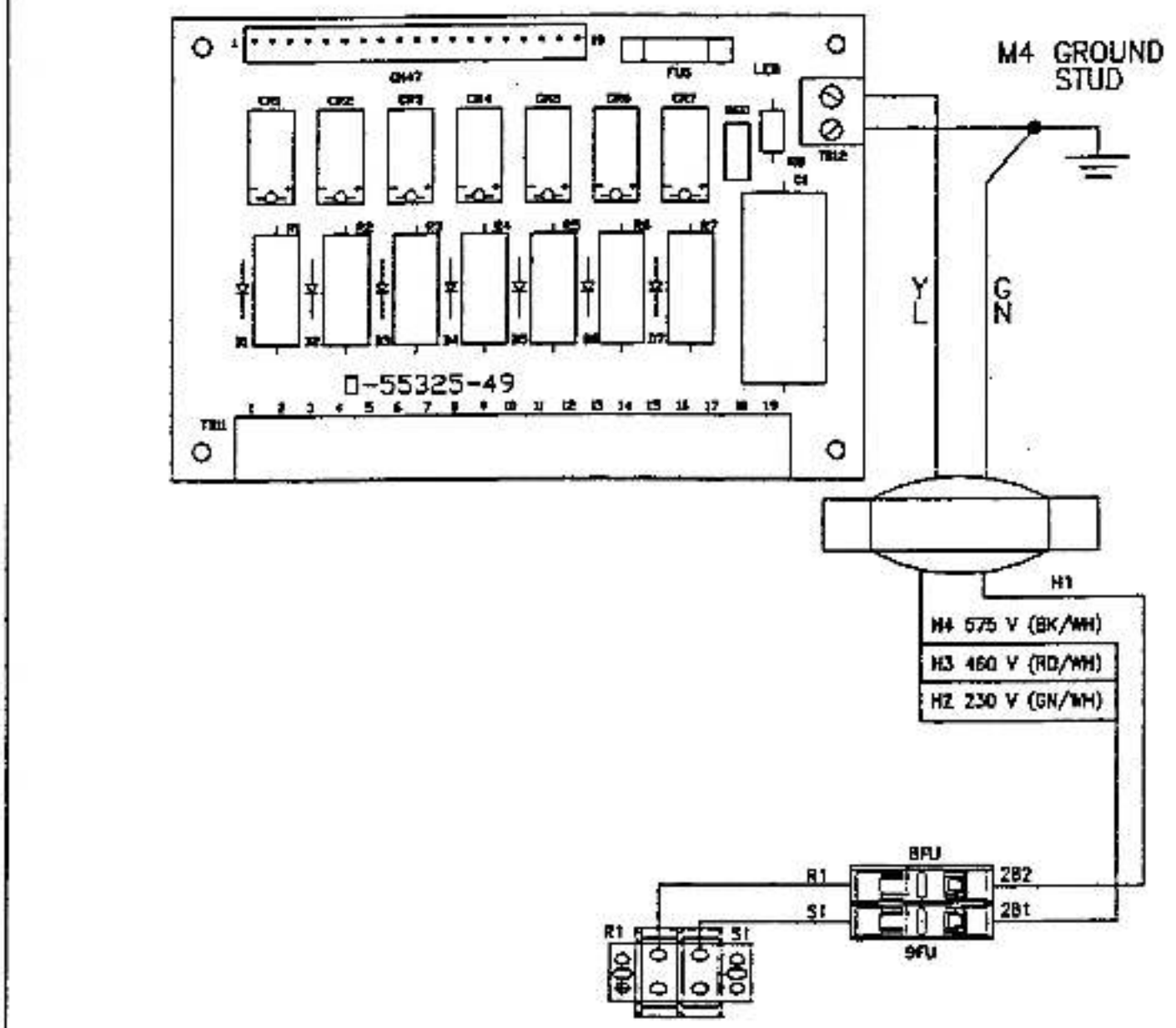

Figure 2. Control Signal Buffer PC Board Transformer Wiring Connections.

7. Remove the controller cover and set aside for reassembly.

DANGER

THE USER IS RESPONSIBLE FOR CONFORMING TO THE NATIONAL ELECTRICAL CODE AND ALL OTHER APPLICABLE LOCAL CODES. WIRING PRACTICES, ENCLOSURES, GROUNDING, DISCONNECTS, AND OVERCURRENT PROTECTION ARE OF PARTICULAR IMPORTANCE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

8. Connect the Control Signal Buffer Kit to the GP2000 Controller Terminal Board.

   a. Follow the wiring diagrams and instructions in the controller Instruction Manual D2-3166 (GP2000, 1–20 HP) and/or any appropriate kit instruction manuals (if other kits are installed) for all wires except those wires detailed in this instruction manual.

   b. Run a suitable equipment grounding conductor unbroken from the Control Signal Buffer ground terminal to a ground terminal on the GP2000 controller. Tighten the connection to 19 in-lbs. Refer to Instruction Manual D2-3166 for GP2000 ground terminal location and to Figure 3 in this instruction sheet for Control Signal Buffer Kit ground terminal location.

   c. Connect terminal R1 on the Control Signal Buffer terminal board to R1 on the GP2000 terminal board. Refer to Figures 3 and 4.

   d. Connect terminal S1 on the Control Signal Buffer terminal board to S1 on the GP2000 terminal board. Refer to Figures 3 and 4.

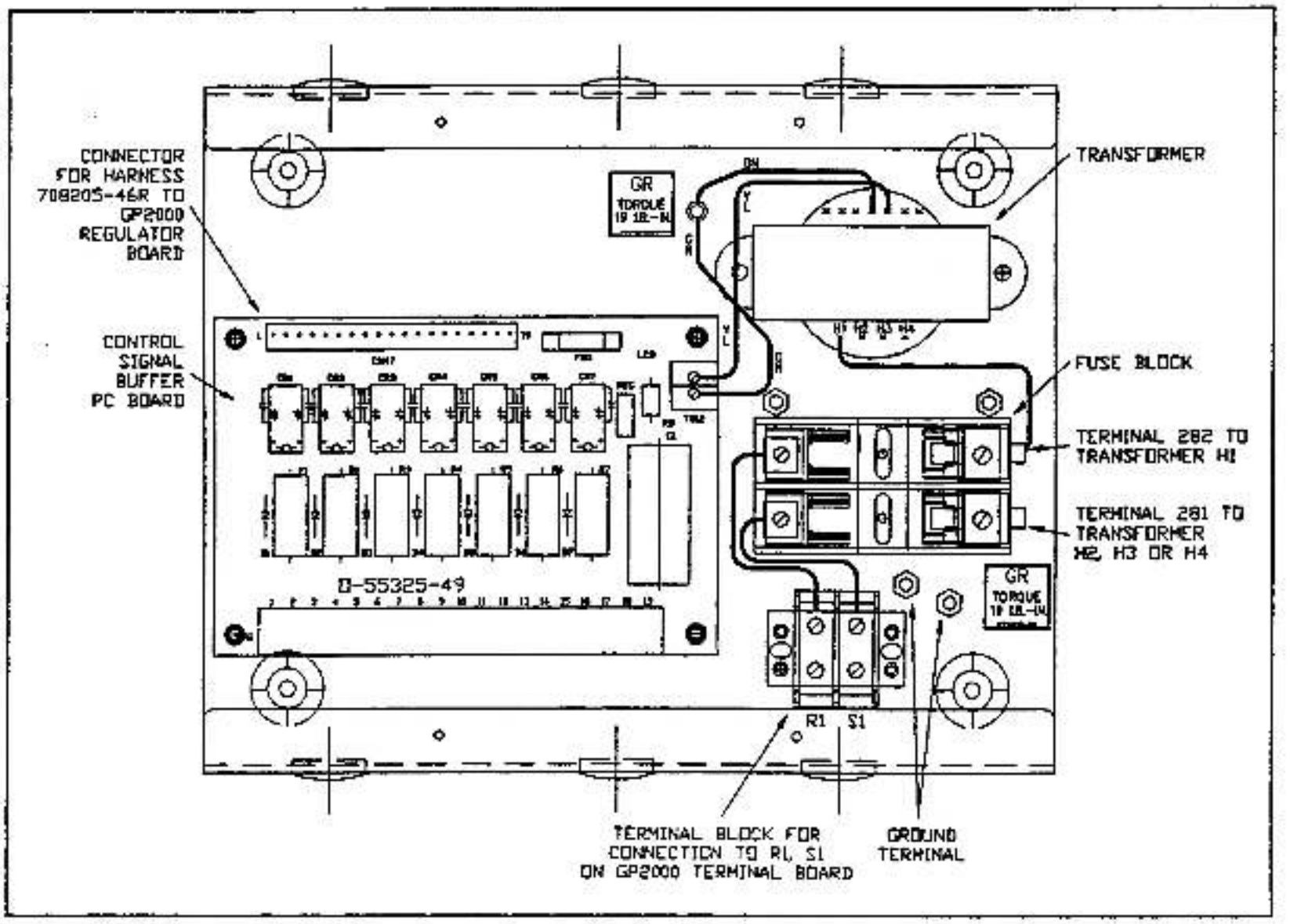

Figure 3. Control Signal Buffer Kit Wiring Locations.

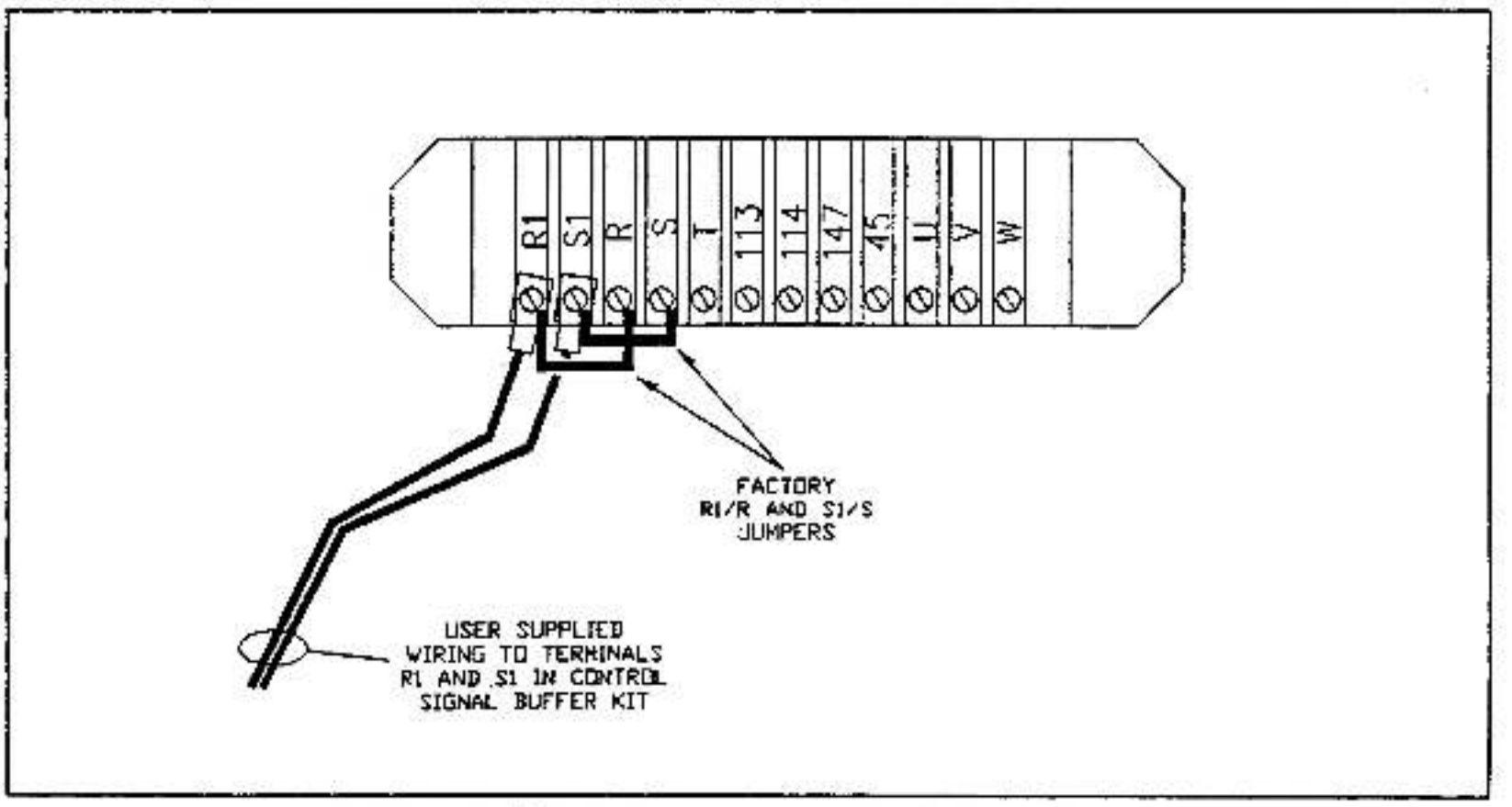

Figure 4. GP2000 Terminal Board Wiring Locations.

9. Connect the Control Signal Buffer interface connector to the GP2000 regulator board.

   a. Attach the plug end of harness 708205-46R to connector TB12 on the Control Signal Buffer PC Board. Refer to Figure 3.

   b. Connect the wires on the other end of the harness to the GP2000 regulator board terminal TB1. Refer to Figure 5 for wiring detail.

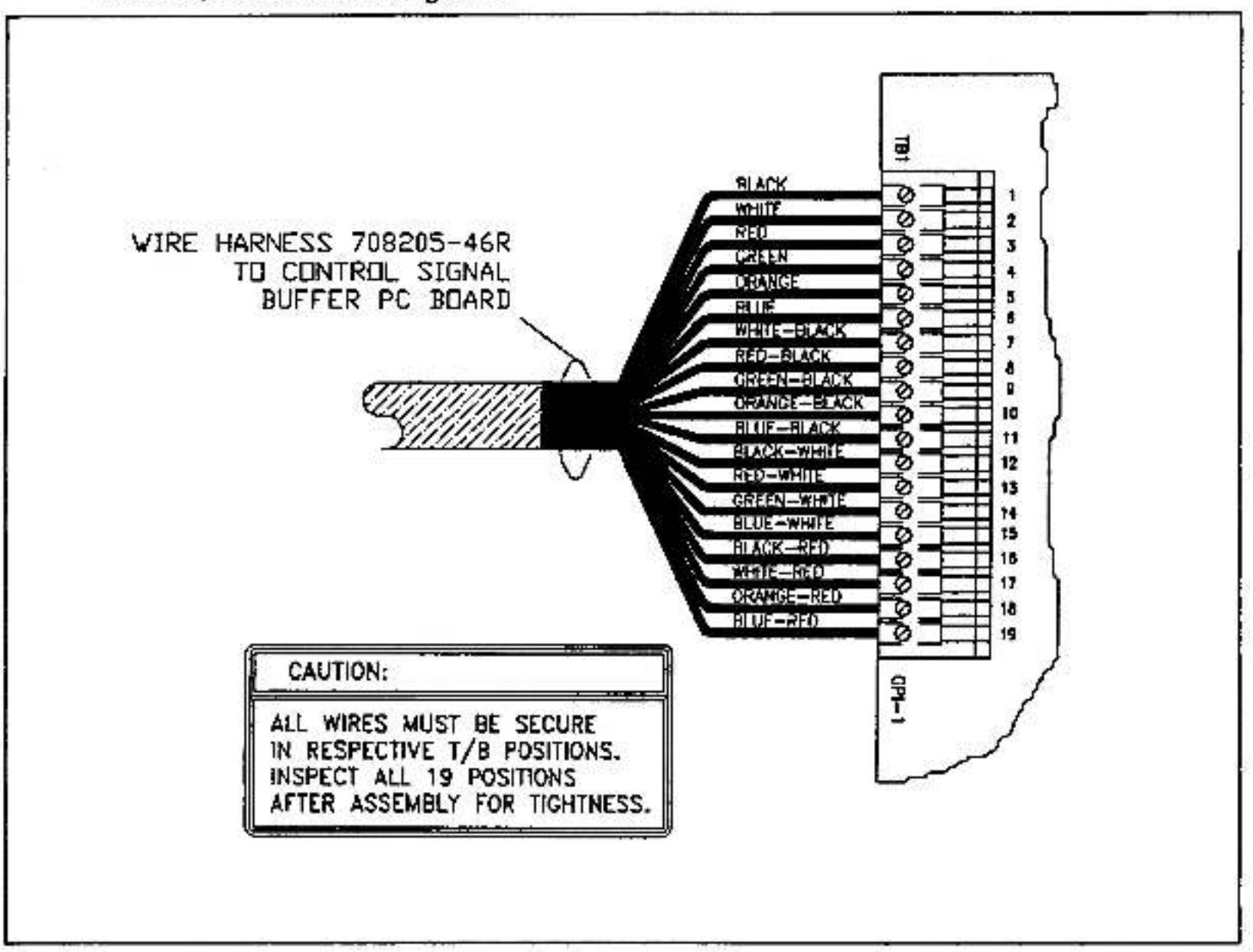

Figure 5. Control Signal Buffer to GP2000 Regulator Wiring Locations.

10. Select fuses 8FU and 9FU according to application voltage (Table 2) and insert them into the fuse holders.

Table 2. Control Signal Buffer Kit Fuse Selection.

Application Voltage	Fuse Size
230 volts	0.25 amps
460 volts	0.125 amps
575 volts	0.10 amps

11. Replace the Control Signal Buffer Kit enclosure top using the four M3 x 6 CCSM screws.
12. Replace the GP2000 controller cover.
13. Turn power ON.

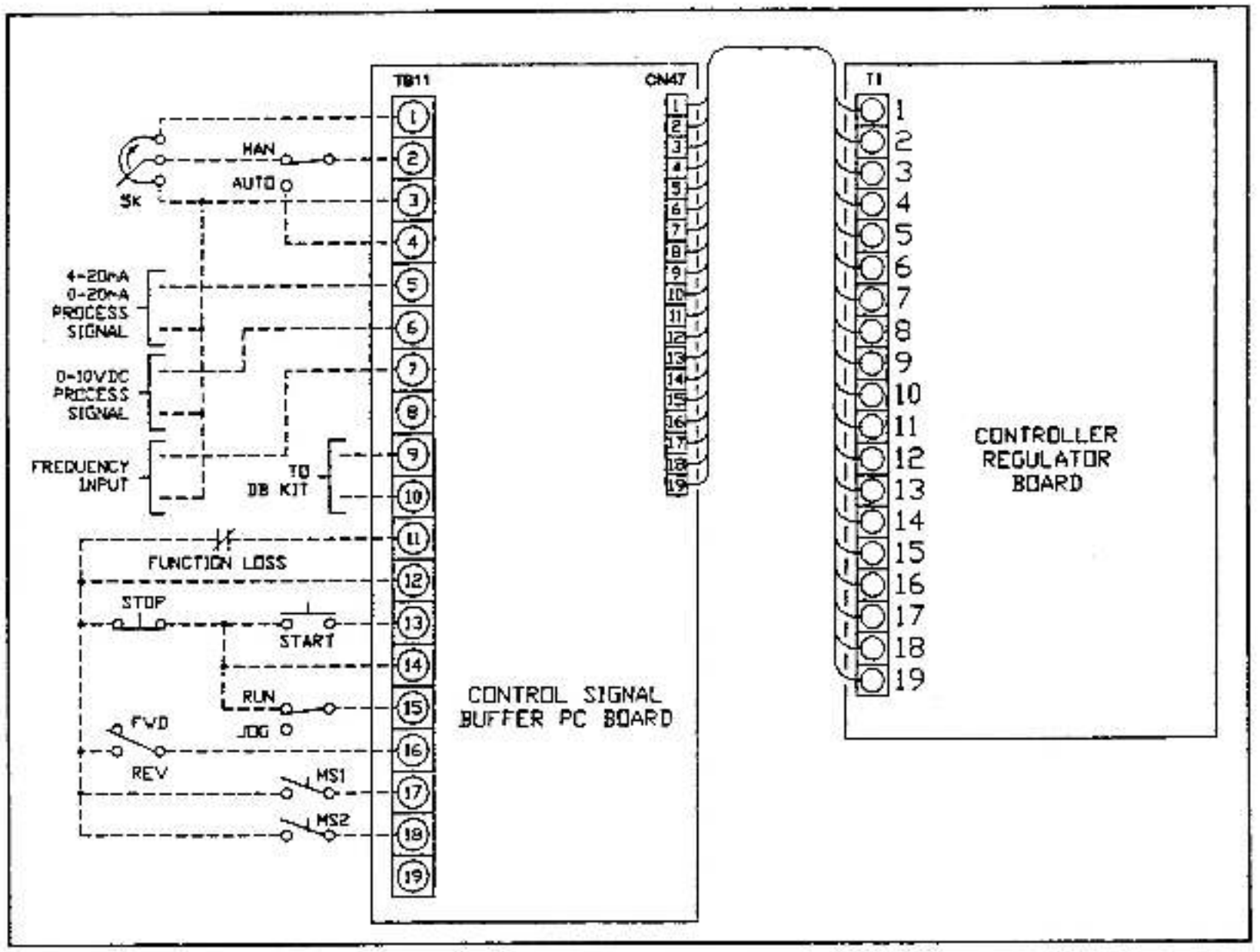

Figure 6. Control Signal Buffer Kit Customer Wiring Detail (3-Wire Control).

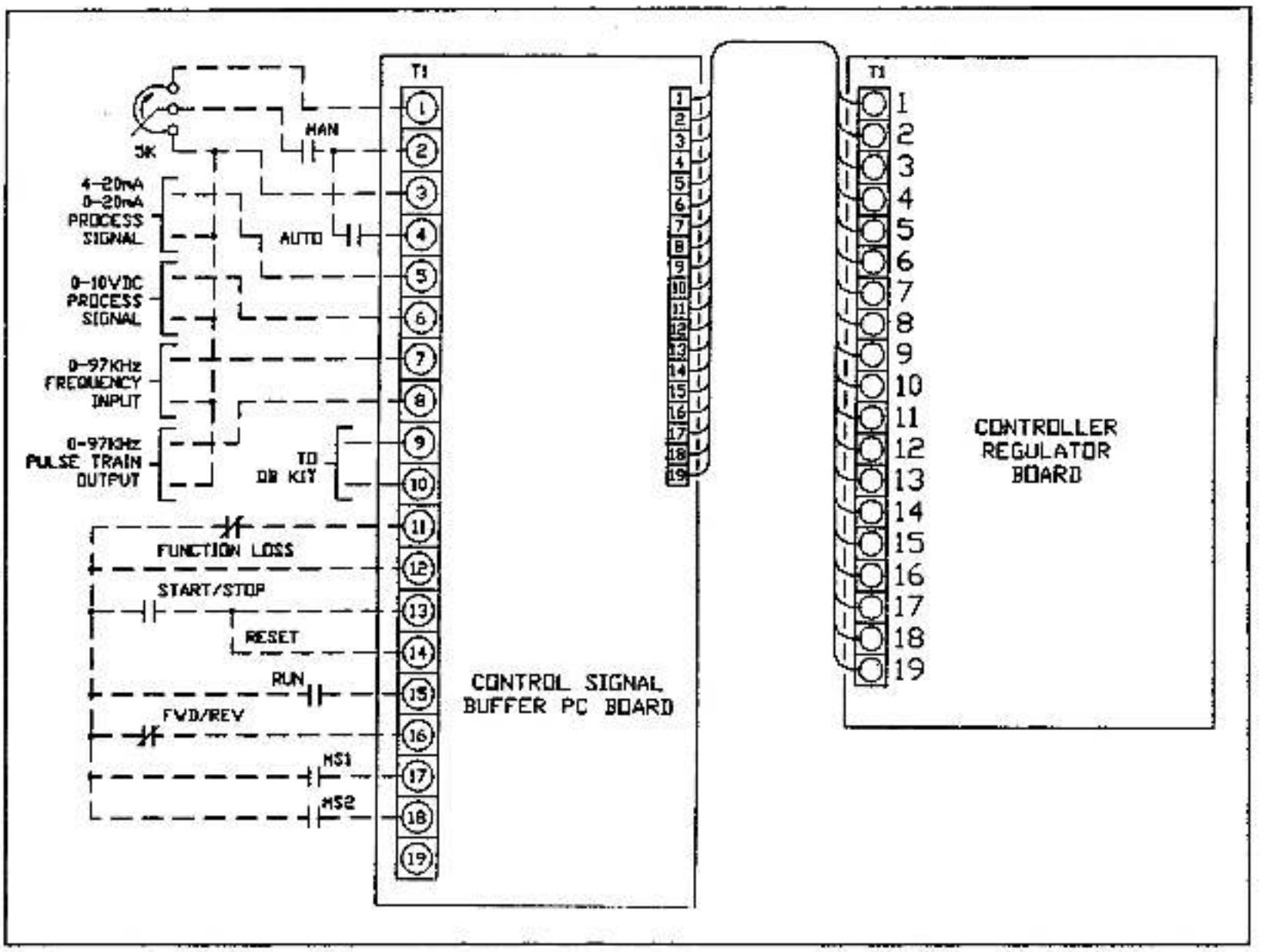

Figure 6A. Control Signal Buffer Kit Customer Wiring Detail (2-Wire Control).

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