V★S DRIVES

INSTRUCTION SHEET D2-3177-1
Output Contactor Kit
Model 1CN4020 (1-20 HP) and 1CN4050 (25-50 HP)
For use with 1-50 HP 230, 460 VAC and 575 VAC GP2000/VTAC V A-C V★S® Drives

DESCRIPTION

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.

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

The Output Contactor Kit provides a positive disconnect (contactor) between the output of the GP2000 or VTAC V controller and the drive motor. A controller Start command will energize the contactor. A Stop command will cause the contactor to drop out immediately if the controller is configured for coast-to-rest (Function 9 = 0); the contactor will drop out when zero speed is reached if the controller is configured for ramp-to-rest (Function 9 = 1). An instantaneous electronic trip (IET) will cause the contactor to drop out immediately regardless of the Function 9 setting.

Note: The Output Contactor Kit requires the use of the Remote Meter Interface Card (Model number 1MI4000), which is included with this kit.

This kit can be used with all GP2000 and VTAC V controllers in the range of 1-50 HP. Note that when it is applied to the 1-20 HP GP2000 Stand-Alone units, the components must be mounted in a separate, user-supplied cabinet. The components of this kit will fit within the GP2000 1-20 HP units when a factory supplied Expanded Cabinet is provided, and for all 25-50 HP GP2000 controllers and all 1-50 HP VTAC V controllers.

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RECEIVE AND ACCEPT THE SHIPMENT

Upon receiving, check the contents of the kit received with the contents as listed in Table 1. Store this equipment in a clean and dry area until ready to use.

Table 1. Complete Parts List.

Description	Quantity	1-20 HP Part Number	25-50 HP Part Number
Contactor	1	705310-32A	705310-35A
Suppressor	1	611899-10R	611899-10R
Tape	1	417923-AF	417923-AF
M4 x 20 TTS	2	419062-100PGL	419062-100PGL
Transformer (50VA)	1	417155-SC	417155-SC
M5 x 10 TTS	4	419062-100PHG	419062-100PHG
M6 x 10 TTS	1	419062-100PJG	419062-100PJG
Fuse (1.0A)	2	64676-64D	64676-64D
Fuse (0.5A)	2	64676-64B	64676-64B
Fuse Block	1	49454-19B	49454-19B
M4 x 10 TTS	2	419062-100PGG	419062-100PGG
N/P (FU Replacement 1A)	1	417114-77R	417114-77R
N/P (FU Replacement .5A)	1	417114-77B	417114-77B
Remote Meter Interface Card	1	M/N 1MI4000	M/N 1MI4000
Wire Harness (181 182)	1	708205-50S	708205-50S
Wire Harness (281A 282A)	1	708205-50R	708205-50R
Wire Harness (188 189 38)	1	803432-86R	803432-86R
Wire Harness (601B 602B 603B)	1	(1) 803432-76V	(1) 803432-87RW
Wire Jumper (GND)	1	611899-53D	611899-53D
Wire Jumper (601B)	1	803432-76N	803432-87N
Wire Jumper (602B)	1	803432-76P	803432-87P
Wire Jumper (603B)	1	803432-76Q	803432-87Q
Mounting Bracket	1	708205-47A	708205-8A
M4 Nut/Washer	2	419063-201SG	419063-201SG
Ty-Rap	12	69306-3D	69306-3D
Wiring Diagram	1	803432-72	803432-72

(1) Only used if overload relay is installed in controller and would replace jumpers 601B, 602B and 603B Wire Jumpers shown in Table.

Reliance Electric's terms of sale, in all instances, are F.O.B. point of origin. The user is responsible for thoroughly inspecting the equipment before accepting shipment from the transportation company.

If all the items called for on the bill of lading or on the express receipt are not included or if any items are obviously damaged, do not accept the shipment until the freight or express agent makes an appropriate notation on your freight bill or express receipt. If any concealed loss or damage is discovered later, notify your freight or express agent within 15 days of receipt and request that he make an inspection of the shipment. Keep the entire shipment intact in its original shipping container.

The user is responsible for making claim against the Carrier for any shortage or damage occurring in transit. Claims for loss or damage in shipment must not be deducted from the Reliance Electric invoice, nor should payment of the invoice be withheld while awaiting adjustment of such claims since the Carrier guarantees safe delivery.

File a Return Request

1. To return equipment, send a written request to Reliance Electric within ten days of receipt.
2. Do not return equipment without a numbered Equipment Return Authorization (ERA) from Reliance Electric.
3. Reliance Electric reserves the right to inspect the equipment on site.

Store the Kit Until Installation

After receipt inspection, repack the kit in its original shipping container until installation. If a period of storage is expected, store in the original shipping container with its internal packing.

To ensure satisfactory operation at startup and to maintain warranty coverage, store the equipment:

- in its original shipping container in a clean, dry, safe place.
- within an ambient temperature range of -40°C (-40°F) to 65°C (149°F)
- within a relative humidity range of 5 to 95% without condensation.
- away from a highly corrosive atmosphere. In harsh environments, cover the shipping/storage container.

INSTALLATION – STAND-ALONE CONTROLLER (GP2000 1~20 HP) WITHOUT EXPANDED CABINET

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.

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.

Note: The wire harnesses provided in this kit are designed for use with the Expanded Cabinet and may not be usable with the stand-alone controller. Before finalizing the component mounting location, the user should study the instructions given in paragraphs 3, 5, and 7 to determine the applicability of the wiring harness to the specific installation.

1. Mount the contactor, transformer, and fuse block in a user-supplied enclosure that meets all applicable codes. (Refer to Figure 1.)
   a. Disconnect all power to the controller before installing this kit.
   b. Mount the contactor: In the selected mounting location, drill two holes as detailed in Figure 1. Mount the contactor with the two (2) M4 x 20 TTS screws provided.
   c. Mount the transformer: In the selected mounting location, drill four holes as detailed in Figure 1. Mount the Transformer with the four (4) M5 x 10 TTS screws provided.
   d. Mount the fuse block: In the selected mounting location, drill two holes as detailed in Figure 1. Mount the fuse block with the two (2) M4 x 10 TTS screws provided.
   e. Mount the replacement fuse nameplate for fuses 6FU and 7FU on the top of the fuse block. Select the 1.0 amp nameplate for 230-volt operation; select the 0.5 amp nameplate for 460/575-volt operation.

CAUTION

COMPLETE ALL DRILLING, CUTTING, WELDING, ETC., BEFORE MOUNTING THE COMPONENTS. DURING INSTALLATION, PROTECT THE COMPONENTS FROM METAL CHIPS, WELD SPLATTERS AND OTHER DEBRIS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, THE EQUIPMENT.

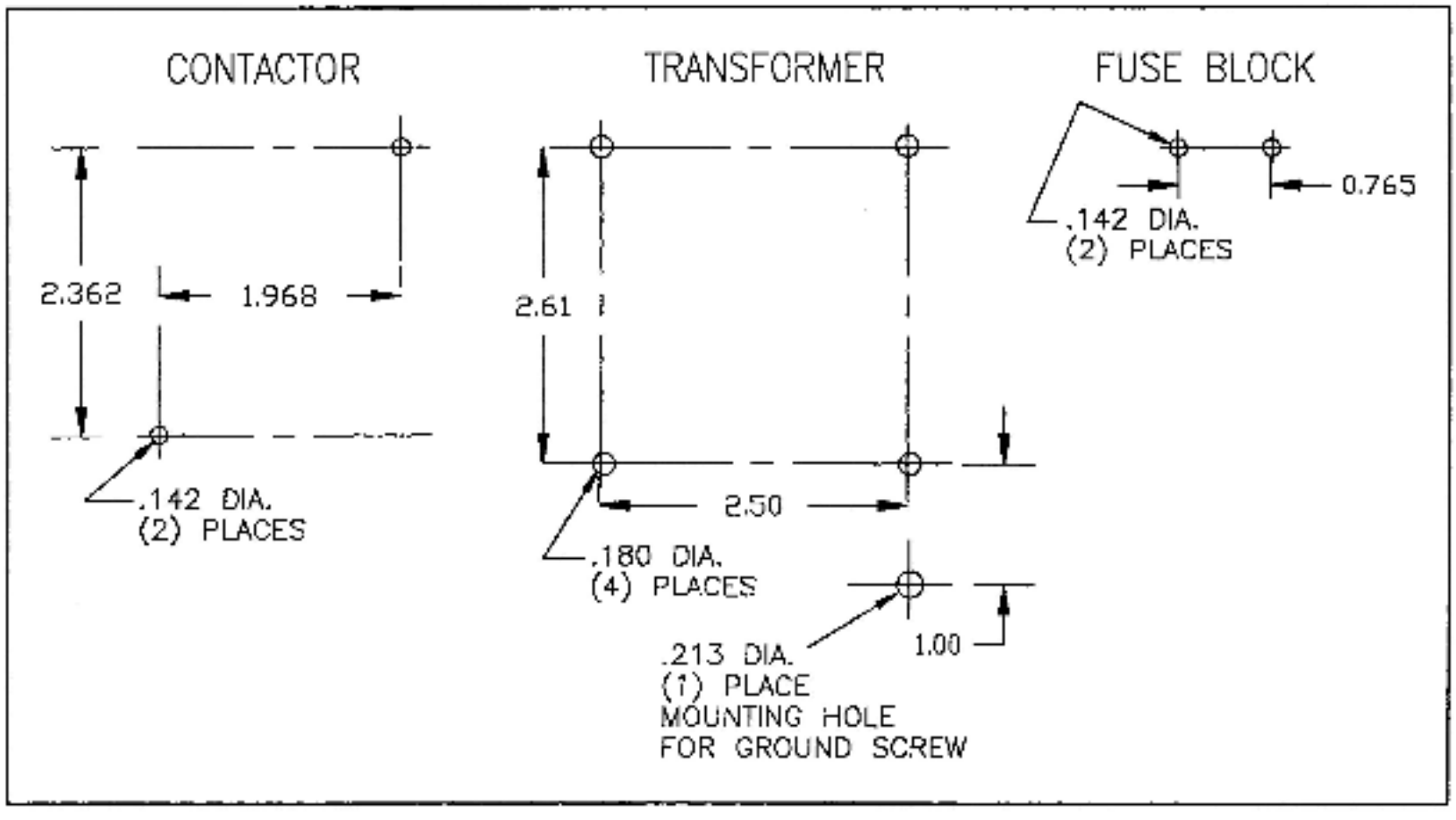

Figure 1. Contactor, Transformer, and Fuse Block Mounting Hole Dimensions.

2. Install the Remote Meter Interface Card.

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

   b. Install the Remote Meter Interface Card according to the wiring diagrams and instructions in Instruction Manual D2-3168.

3. Connect the fuse block. (Refer to Figure 2 and to the connection diagram on the transformer nameplate.)

   a. Using wire harness 708205-50S (or user-supplied wiring), connect terminal 181 of the fuse block to terminal R1 on the controller terminal board. Connect terminal 182 on the fuse block to terminal S1 on the controller terminal board.

   b. Using wire harness 708205-50R (or user-supplied wiring), connect terminal 281A of the fuse block to terminal H1 of the transformer. Connect terminal 282A of the fuse block to the transformer according to the required operating voltage as follows:

      For 230-volt operation, connect fuse block 282A to transformer H2.

      For 460-volt operation, connect fuse block 282A to transformer H3.

      For 575-volt operation, connect fuse block 282A to transformer H4.

   c. Using jumper wire 611899-53D, connect transformer terminal X3 (189) to a suitable equipment ground. See Figure 2.

4. Select and install the appropriate fuses 6FU and 7FU according to operating voltage as detailed in Table 2.

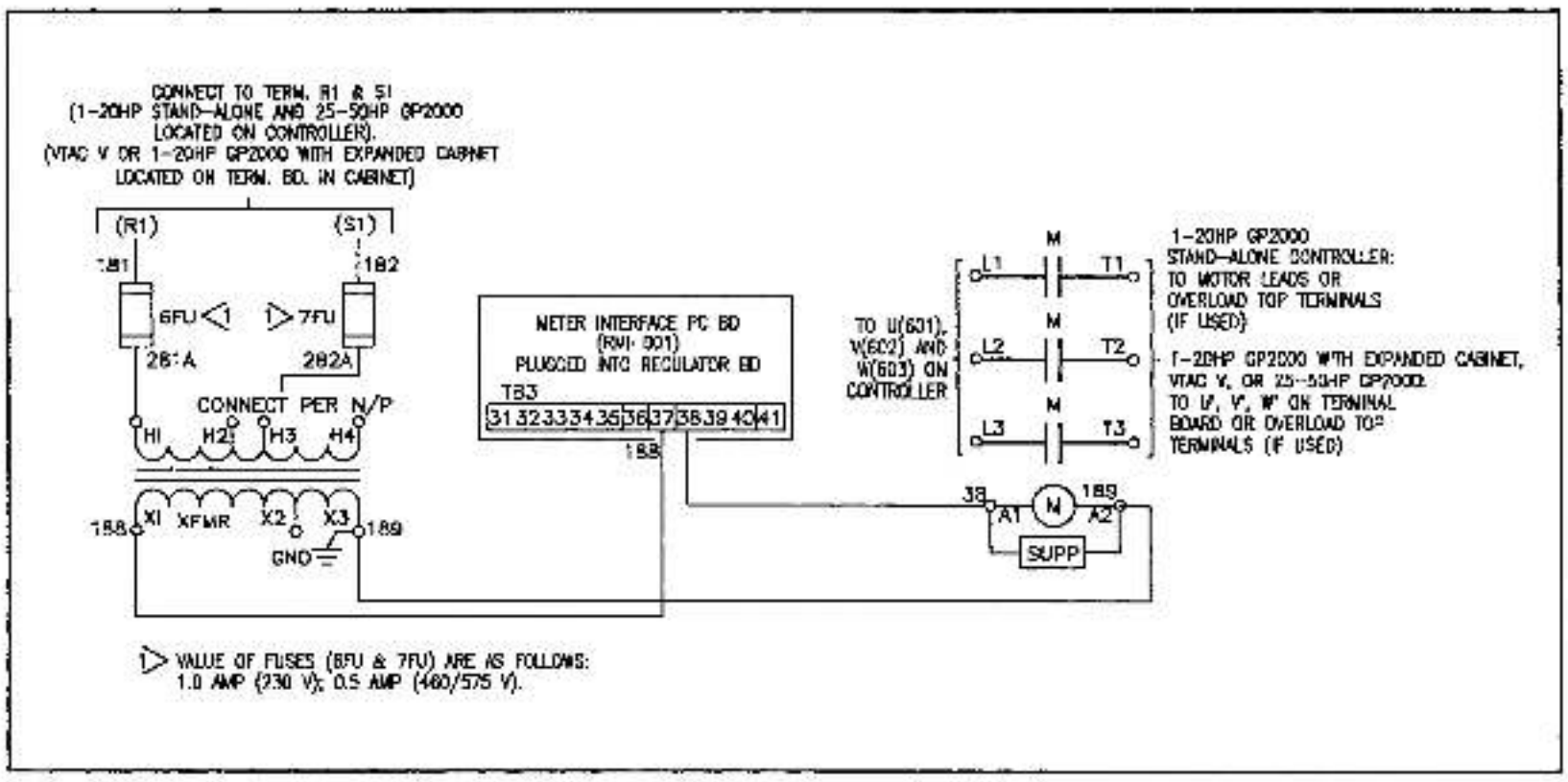

Figure 2. Output Contactor Kit Wiring Diagram – GP2000, Expanded Cabinet, and VTAC V Controllers.

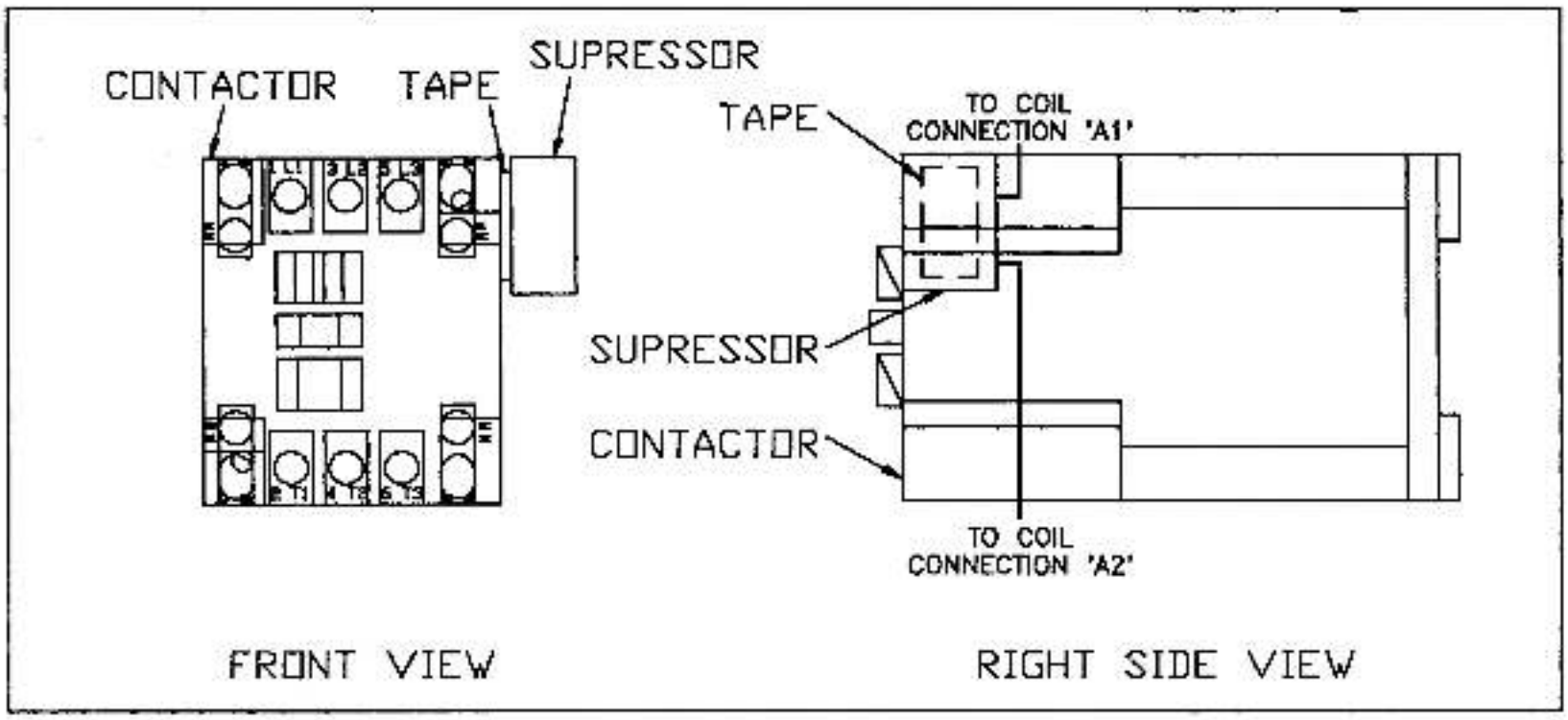

Figure 3. Supressor Location on Contactor.

Table 2. Transformer Input Protection Fuse Selection.

Operating Voltage	Fuse
230 Volts	1.0 amp
460/575 Volts	0.5 amp

5. Connect the transformer to the Remote Meter Interface Card and contactor coil. (Refer to Figure 2.)

   a. Using wire harness 803432-86R (or user-supplied wiring), connect transformer terminal X1 (188) to terminal 37 (188) on the Remote Meter Interface Card. Connect transformer terminal X3 (189) to contactor coil connection A2 (189). Connect terminal 38 on the Remote Meter Interface Card to contactor coil connection A1 (38).

6. Install the suppressor (part 611899-10R) in the top right corner of the contactor using the tape provided (part 417923-AF) as shown in Figure 3. Connect the two suppressor leads to contactor coil connections A1 and A2 according to Figure 2.

7. Connect the output contactor. (Refer to Figure 2.)

   a. Using wire harness 803432-76V (or user-supplied wiring), connect contactor terminals L1, L2, and L3 to controller output terminals U, V, and W, respectively.

   b. If the optional Motor Overload Kit is not used, connect the motor leads to contactor terminals T1, T2, and T3.

   c. If the Motor Overload Kit is used, use wire jumpers 803432-76N, 803432-76P, and 803432-76Q, to connect overload top terminals 601, 602, and 603 to terminals T1, T2, and T3, respectively, of the contactor. Connect the motor leads to overload bottom terminals 601A, 602A, and 603A. Refer to Motor Overload Instruction Manual D2-3222 for appropriate wiring diagrams and instructions.

8. Replace the controller cover.

9. Turn power ON.

WARNING

THE RAMP-TO-REST FUNCTION REQUIRES PROPER OPERATION OF REGULATOR ELECTRONICS. WHEN THE RAMP-TO-REST STOP FUNCTION IS USED, A COAST-STOP PUSHBUTTON IS REQUIRED. THE COAST-STOP PUSHBUTTON DISABLES THE REGULATOR AND ALLOWS THE MOTOR TO COAST-TO-REST. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY INJURY.

10. Select parameter 28. Change the parameter setting to "3." Push the MONITOR key to store the selection in memory.

11. Press the START key to start the drive. The drive should run at the keypad display speed setting.

12. Press the STOP key. The contactor should drop out after STOP is pressed. If controller parameter 9 is in the "ramp-to-rest" mode, the contactor will not drop out until the motor reaches zero speed.

INSTALLATION – 1–20 HP GP2000 WITH EXPANDED CABINET, 25–50 HP GP2000, OR VTAC V 1–50 HP CONTROLLERS

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.

DANGER

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1. Mount the contactor, transformer, and fuse block as shown in the appropriate Figure 4 or Figure 5.
   a. Disconnect all power to the controller before installing this kit.
   b. Remove the controller cover and set aside for reassembly.
   c. Mount the contactor: Two mounting holes are provided in the kit tray compartment for mounting the 705310-32A (705310-35A for 25–50 HP) contactor. Mount the contactor to the bracket using the two (2) M4 x 20 TTS screws provided.
   d. Mount the transformer: Refer to Figure 4 for 1–20 HP (or to Figure 5 for 25–50 HP) for mounting location. Mount the transformer with the four (4) M5 x 10 TTS screws provided.
   e. Mount the fuse block: Install mounting bracket 708205-47A (708205-8A for 25–50 HP) to the three studs on the side of the kit mounting channel using the three (3) M4 nuts provided. Refer to Figure 4 or Figure 5 for mounting location. Mount the fuse block with the two (2) M4 x 10 TTS screws provided. Mount the replacement fuse nameplate for fuses 6FU and 7FU beside the fuse block. Select the 1.0 amp nameplate for 230-volt operation; select the 0.5 amp nameplate for 460/575-volt operation.
2. Install the Remote Meter Interface Card.
   a. Remove the controller cover and set aside for reassembly.
   b. Install the Remote Meter Interface Card according to the wiring diagrams and instructions given in Instruction Manual D2-3168.
3. Follow the wiring diagrams and instructions in the applicable controller Instruction Manual D2-3166 (GP2000, 1–20 HP), D2-3182 (GP2000 25–40 HP), D2-3167 (VTAC V, 1–50 HP), and/or any appropriate kit instruction manuals (if other kits are installed) for all wires except those wires detailed in this instruction manual.

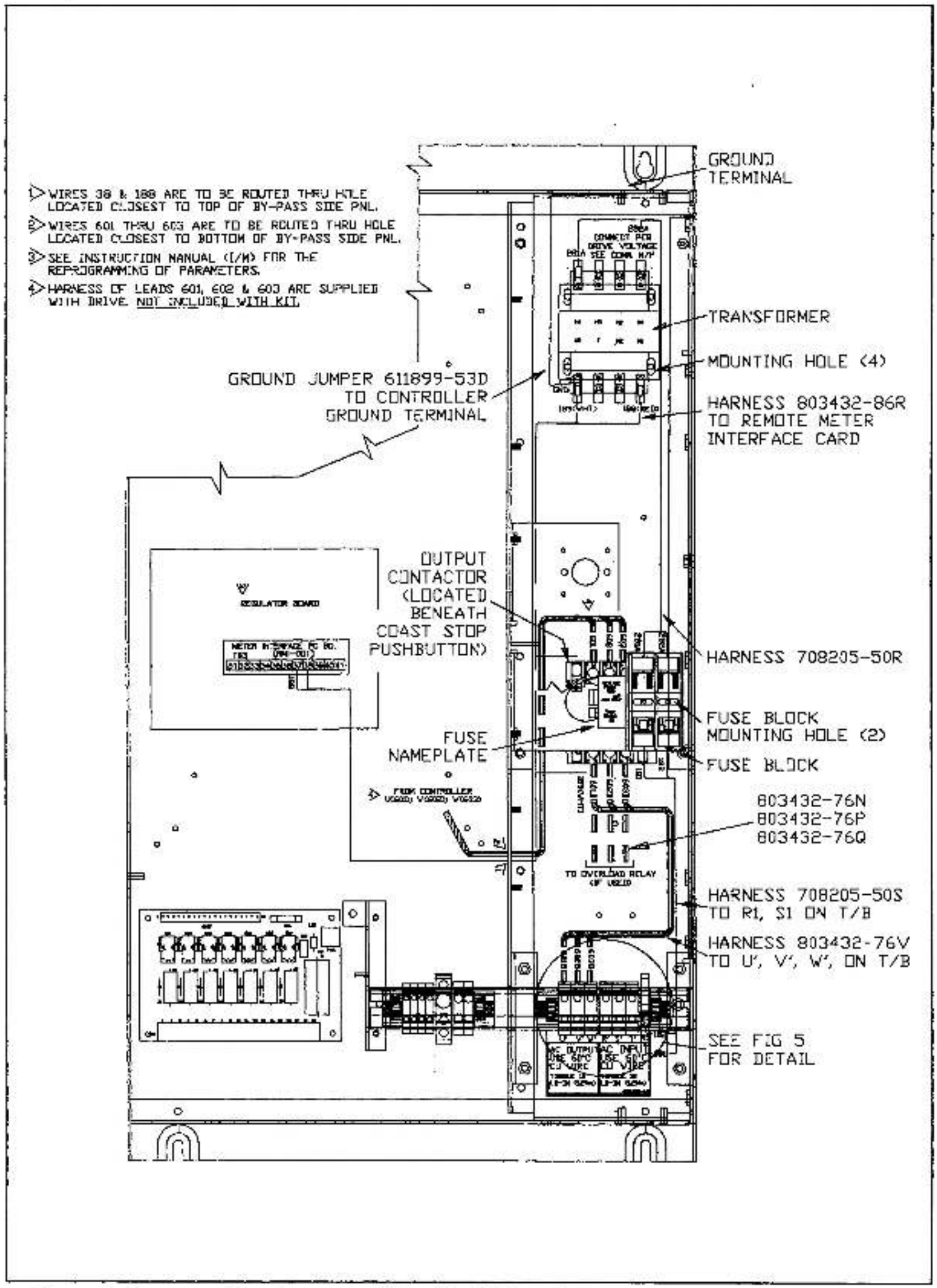

Figure 4. Contactor, Transformer, and Fuse Block Mounting Locations - 1-20 HP GP2000 with Expanded Cabinet or 1-20 HP VTAC V.

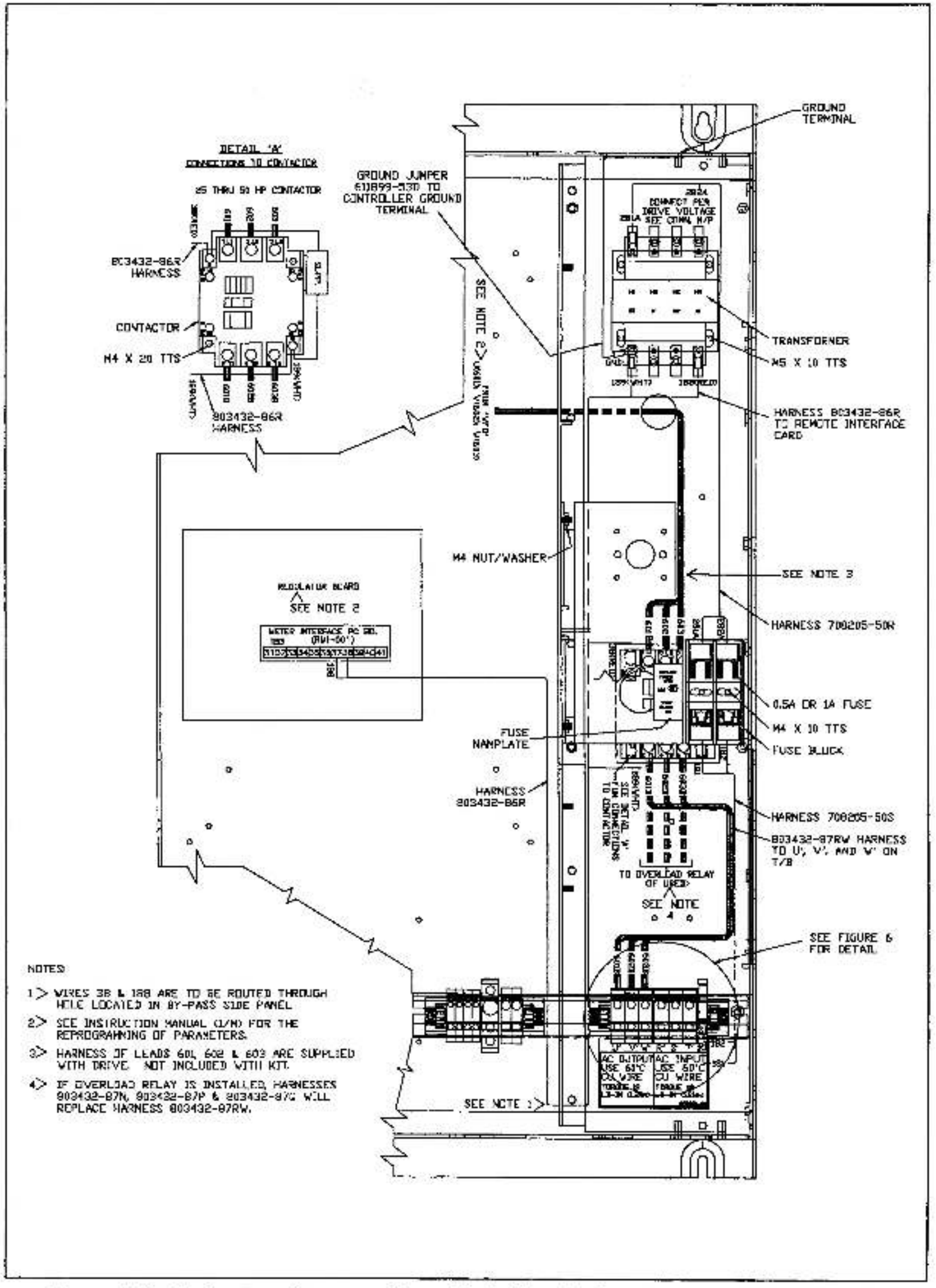

Figure 5. Contactor, Transformer, and Fuse Block Mounting Locations – 25-50 HP GP2000 and VTAC V Controllers.

4. Connect the fuse block. (Refer to Figure 2 and to the connection diagram on the transformer nameplate.)

   a. Using wire harness 708205-50S, connect terminal 181 of the fuse block to terminal R1 on the terminal block. Connect terminal 182 on the fuse block to terminal S1 on the terminal block. Refer to Figure 6 and to Figure 2 for connection locations.

   b. Using wire harness 708205-50R, connect terminal 281A of the fuse block to terminal H1 of the transformer. Connect terminal 282A of the fuse block to the transformer according to the required operating voltage as follows:

      For 230-volt operation, connect fuse block 282A to transformer H2.

      For 460-volt operation, connect fuse block 282A to transformer H3.

      For 575-volt operation, connect fuse block 282A to transformer H4.

   c. Using jumper wire 611899-53D, connect transformer terminal X3 (189) to the ground terminal located at the top of the cabinet. Refer to Figure 4 or Figure 5 and to Figure 2 for the ground terminal location.

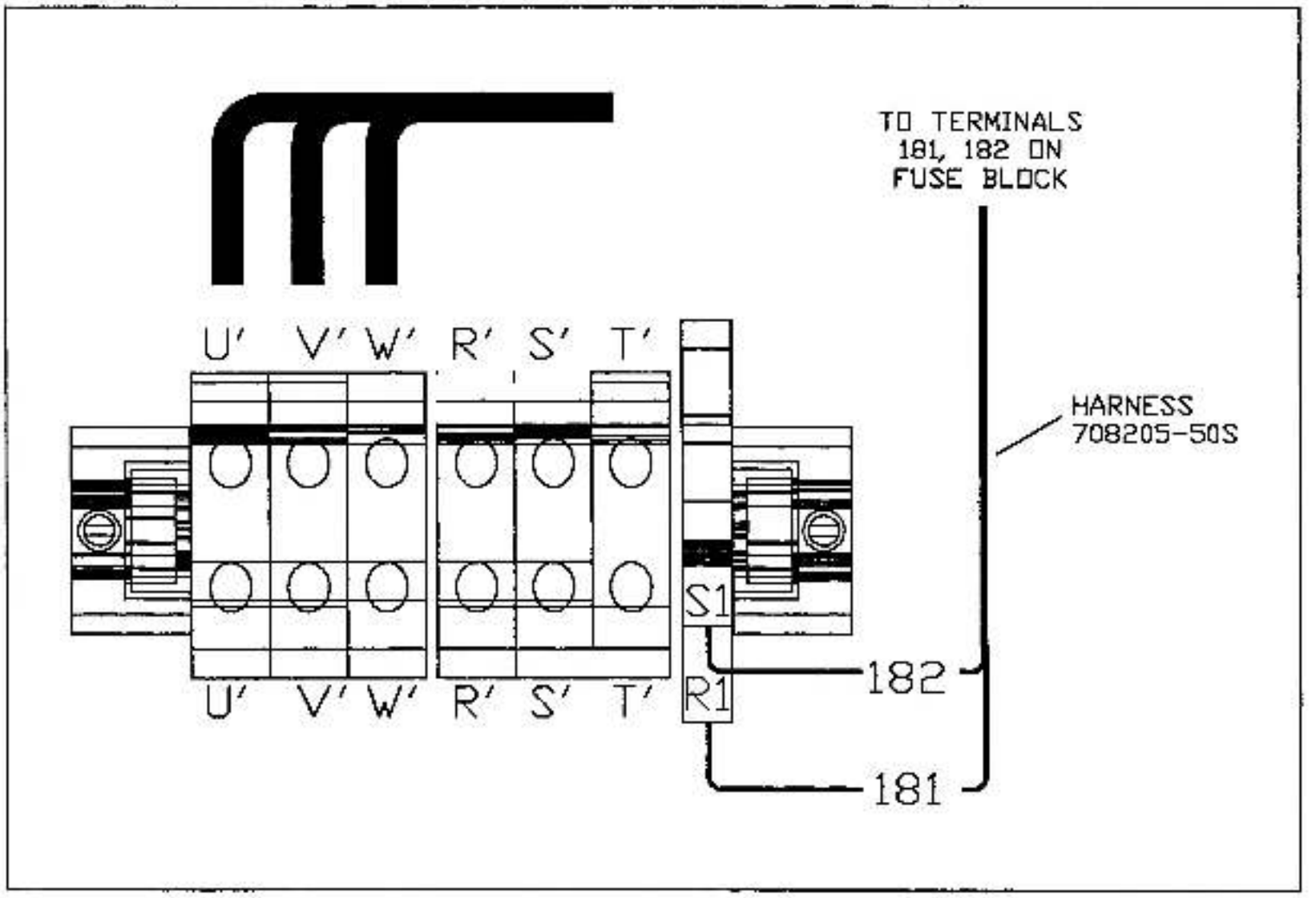

Figure 6. R1, S1 Terminal Block Wiring Locations.

5. Select and install the appropriate fuses 6FU and 7FU according to operating voltage as detailed in Table 2.

6. Connect the transformer to the Remote Meter Interface Card and contactor coil. (Refer to Figure 2 and to Figure 4 or Figure 5 for wiring detail and routing.)

   a. Using wire harness 803432-86R, connect transformer terminal X1 (188) to terminal 37 (188) on the Remote Meter Interface Card. Connect transformer terminal X3 (189) to contactor coil connection A2 (189). Connect terminal 38 on the Remote Meter Interface Card to contactor coil connection A1 (38).

7. Install the suppressor (part 611899-10R) in the top right corner of the contactor using the tape provided (part 417923-AF) as shown in Figure 3. Connect the two suppressor leads to contactor coil connections A1 and A2 according to Figure 2.

8. Connect the output contactor (1–20 HP GP2000 with Expanded Cabinet or 25–50 HP GP2000 or VTAC V controllers without optional Motor Overload Kit).

a. Connect controller output terminals U, V, and W to contactor top terminals L1, L2, and L3, respectively, using existing harness labeled 601, 602, 603. See the applicable instruction manual for wiring detail. See Figure 4 or Figure 5 for routing note.

b. Using wire harness 803432-76V (803432-87RW for 25–50 HP), connect contactor bottom terminals T1, T2, and T3 to the top of output terminals U', V' and W', respectively, on the controller terminal block. Refer to Figure 4 or Figure 5.

c. Connect the motor leads to the bottom of output terminals U', V' and W' on the terminal block.

For 1–20 HP GP2000 with Expanded Cabinet, all VTAC V or 25–50 HP GP2000 controllers with optional Motor Overload Kit:

a. Connect controller output terminals U, V, and W to contactor top terminals L1, L2, and L3, respectively, using existing harness labeled 601, 602, 603. See the applicable instruction manual for wiring detail. See Figure 4 or Figure 5 for routing note.

b. Using wire jumpers 803432-76N (803432-87N for 25–50 HP), 803432-76P (803432-87P for 25–50 HP), and 803432-76Q (803432-87Q for 25–50 HP), connect contactor bottom terminals T1, T2, and T3 to overload top terminals 601, 602, and 603, respectively, on the overload block. Refer to Figure 4 or Figure 5.

c. Using wire harness 803432-76V (803432-87RW for 25–50 HP), connect overload bottom terminals 601A, 602A, and 603A, to the top of output terminals U', V', and W', respectively, on the controller terminal block. Refer to Figure 4 or Figure 5.

   Also refer to Motor Overload Kit Instruction Manual D2-3222 for appropriate wiring diagrams and instructions.

d. Connect the motor leads to the bottom of output terminals U', V' and W' on the terminal block.

9. Replace the controller cover.

10. Turn power ON.

WARNING

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11. Select parameter 28. Change the parameter setting to "3." Push the MONITOR key to store the selection in memory.

12. Press the START key to start the drive. The drive should run at the keypad display speed setting.

13. Press the STOP key. The contactor should drop out after STOP is pressed. If controller parameter 9 is in the "ramp-to-rest" mode, the contactor will not drop out until the motor reaches zero speed.

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