GV3000 115 VAC
Control Option Board
Installation Instructions

M/N 2LB3000

Instruction Manual D2-3376

Rockwell Automation

Reliance Electric

The information in this manual is subject to change without notice.

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL IN ITS ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

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PREFACE

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

The 115 VAC Control Option board provides an interface between any of a number of external motor control devices operating at 115 volts AC and a GV3000 AC drive. The Control Option board accepts input from these devices and passes the signals to the drive's Regulator board.

This manual is divided into five chapters and two appendices. Each chapter provides complete instructions for installing a 115 VAC Control Option Board (W/N 2LB3000) on a specific range of GV3000/P drives. The appendices provide supporting board and input/output connection illustrations and information.

The chapters are organized as follows:

1.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 1-5 HP AND 7.5-10 HP DRIVES - The instructions in this chapter pertain to GV3000 AC drives in the 1 to 5 horsepower and 7.5 to 10 horsepower ranges only.

2.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 15-25 HP DRIVES - The instructions in this chapter pertain to GV3000 AC drives in the 15 to 25 horsepower range only.

3.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 25-60 HP DRIVES - The instructions in this chapter pertain to GV3000 AC drives in the 25 to 60 horsepower range only.

4.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 60-100 HP AND 100-150 HP DRIVES - The instructions in this chapter pertain to GV3000 AC drives in the 60 to 100 horsepower and 100 to 150 horsepower ranges only.

5.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 200-400 HP DRIVES - The instructions in this chapter pertain to GV3000 AC drives in the 200 to 400 horsepower range only.

Appendix A 115 VAC CONTROL OPTION BOARD LAYOUT AND CONNECTIONS - This appendix provides illustrations of the Control Option board's layout and of the input and output connections on the board.

Appendix B 115 VAC CONTROL OPTION BOARD INPUT AND OUTPUT WIRING - The tables in this appendix detail the correct connections for AC input to the control option board and the control device input and output connections on the Control Option board and the drive's Regulator board.

This manual is intended for qualified electrical personnel who are responsible for installing the GV3000 drive.

You will need to refer to instruction manual D2-3360 (GV3000 AC Power Modules Hardware Reference Installation, and Troubleshooting) as you perform the installation procedure.

The installation procedure consists of installing the 115 VAC Control Option Board, wiring user control devices to the board, and wiring the board to the existing control inputs on the GV3000 drive's Regulator board terminal strip.

The Control Option board's component layout is shown in figure A-1 in Appendix A. Figure A-2 shows the board's input and output connections.

No software configuration or parameter changes are necessary when installing a Control Option board. To install the Control Option board in a GV3000 drive, go to the chapter that covers your specific drive and perform the steps in the order in which they are presented in the chapter.

Table 1 - 115 VAC Control Option Board Kit Contents

Item No.	Description	Qty	Part Number
1	115 VAC Control Option Board	1	3402R1B
2	M3 X 6 Self-Tapping Screw	4	419062-100PEE
3	M3 Flat Washer	4	419064-1SE
4	M3 Nuts	4	419063-1SE

Getting Assistance from Reliance Electric

If you have any questions or problems with the products described in this instruction manual, contact your local Reliance Electric sales office. For technical assistance, call 1-800-RELIANCE.

1.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 1-5 HP AND 7.5-10 HP DRIVES

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL AND OTHER APPLICABLE MANUALS IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

THE DRIVE IS AT LINE VOLTAGE WHEN CONNECTED TO INCOMING AC POWER. DISCONNECT, LOCK OUT, AND TAG ALL INCOMING POWER TO THE DRIVE BEFORE PERFORMING THE FOLLOWING PROCEDURE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

DC BUS CAPACITORS RETAIN HAZARDOUS VOLTAGES AFTER INPUT POWER HAS BEEN DISCONNECTED. AFTER DISCONNECTING INPUT POWER, WAIT FIVE (5) MINUTES FOR THE DC BUS CAPACITORS TO DISCHARGE AND THEN CHECK THE VOLTAGE WITH A VOLTMETER TO ENSURE THE DC BUS CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL COMPONENTS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: Do not route signal wiring with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduit. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Use the following procedure to install a 115 VAC Control Option board (M/N 2LB3000) in 1 to 5 HP and 7.5 to 10 HP GV3000 drives. Refer to the instruction manual for your GV3000 drive as you perform this procedure.

NOTE: *Read and understand the warning labels on the drive before proceeding.*

Remove the Keypad Support Bracket from the Drive

Step 1. Disconnect, lock out, and tag power to the drive.

Step 2. Wait five (5) minutes for the DC bus capacitors to discharge.

Step 3. Remove the cover by loosening the four (4) cover retaining screws.

Step 4. Using a voltmeter, verify that there is no voltage at the drive's AC input power terminals (R/L1, S/L2, T/L3).

Step 5. Check the DC bus potential (+, – terminals) with a voltmeter as described in the instruction manual for your drive to ensure that the DC bus capacitors are discharged.

WARNING

THE DRIVE CONTAINS PRINTED CIRCUIT BOARDS THAT ARE STATIC-SENSITIVE. AN ANTI-STATIC WRIST BAND SHOULD BE WORN BY ANY PERSON WHO TOUCHES THE DRIVE'S COMPONENTS, CONNECTORS, OR LEADS. ERRATIC MACHINE OPERATION AND DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT MAY RESULT IF THIS PROCEDURE IS NOT FOLLOWED. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

Step 6. Note the cable lead connections to the Regulator board terminal strip. Record these connections now. Then disconnect these cable leads from the Regulator board terminal strip.

Step 7. Remove the three (3) M4 x 10 screws that fasten the bottom of the support bracket to the drive's heat sink.

NOTE: *The bracket is connected to the drive by wiring. Do not attempt to lift the bracket out completely as this may damage or pull out the wiring.*

Step 8. Locate the Control Option board support tabs on the support bracket. They are below and behind the Regulator board. The Control Option board is attached to these tabs using the four screws and nuts provided.

Step 9. Place a washer on each of the screws provided with the kit.

Step 10. Hold the 115 VAC Control Option board so the row of connectors is at the same end and faces the same direction as the row of connectors on the Regulator board.

Step 11. Working from below the support tabs, line up the holes in the Control Option Board with the holes in the support tabs.

Step 12. Insert one screw from below through the hole in the Control Option board and the hole in the support tab, and then thread a nut on the end of the screw. Repeat this procedure for the remaining three screws.

Step 13. Hand tighten the screws and nuts holding the Control Option board in place until they are snug.

Reinstall the Support Bracket

Step 14. Align the support bracket with the mounting holes in the drive heat sink. Fasten the bracket with the three (3) M4 x 10 screws removed in step 7.

Wire the Control Option and Regulator Boards

Step 15. Wire your 115 VAC supply to the correct TB1 terminals on the Control Option board. Refer to table B.1 and to figure A.1. Route the wire through the left hand wire routing hole at the bottom of the drive.

Step 16. Wire your 115 VAC control devices to the Control Option board's TB1 terminals and then wire the Control Option board's TB2 terminals to the corresponding terminals on the drive's Regulator board. Refer to table B.2, and figures A.1 and A.2 in this instruction manual, and to the instruction manual for your drive. Route the wire through the left-hand wire-routing hole at the bottom of the drive.

Step 17. Reconnect all cable leads to the appropriate terminals on the Regulator board. Refer to the terminal connections documented in step 6 or to the appropriate instruction manual for the speed feedback device being used. Route the wire through the left-hand wire-routing hole at the bottom of the drive.

Reinstall the Cover and Apply Power

Step 18. Reinstall the cover. Align all cover screws into the heat sink before tightening any of them. (For NEMA 4X/12 covers, refer to the appropriate section in your drive's installation manual.)

Step 19. Remove the lockout and tag. Apply power to the drive. SELF will be displayed while the drive performs power-up diagnostics.

Hardware installation of the 115 VAC Control Option board is complete.

2.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 15-25 HP DRIVES

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL AND OTHER APPLICABLE MANUALS IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

THE DRIVE IS AT LINE VOLTAGE WHEN CONNECTED TO INCOMING AC POWER. DISCONNECT, LOCK OUT, AND TAG ALL INCOMING POWER TO THE DRIVE BEFORE PERFORMING THE FOLLOWING PROCEDURE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

DC BUS CAPACITORS RETAIN HAZARDOUS VOLTAGES AFTER INPUT POWER HAS BEEN DISCONNECTED. AFTER DISCONNECTING INPUT POWER, WAIT FIVE (5) MINUTES FOR THE DC BUS CAPACITORS TO DISCHARGE AND THEN CHECK THE VOLTAGE WITH A VOLTMETER TO ENSURE THE DC BUS CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL COMPONENTS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: Do not route signal wiring with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduit. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Use the following procedure to install a 115 VAC Control Option board (M/N 2LB3000) in 15 to 25 HP GV3000 drives. Refer to the instruction manual for your drive as you perform this procedure.

NOTE: *Read and understand the warning labels on the drive before proceeding.*

Remove the Keypad Support Bracket from the Drive

Step 1. Disconnect, lock out, and tag power to the drive.

Step 2. Wait five (5) minutes for the DC bus capacitors to discharge.

Step 3. Remove the cover by loosening the four (4) cover retaining screws.

Step 4. Using a voltmeter, verify that there is no voltage at the drive's AC input power terminals (R/L1, S/L2, T/L3).

Step 5. Check the DC bus potential (+, − terminals) with a voltmeter as described in your drive's instruction manual to ensure that the DC bus capacitors are discharged.

WARNING

THE DRIVE CONTAINS PRINTED CIRCUIT BOARDS THAT ARE STATIC-SENSITIVE. AN ANTI-STATIC WRIST BAND SHOULD BE WORN BY ANY PERSON WHO TOUCHES THE DRIVE'S COMPONENTS, CONNECTORS, OR LEADS. ERRATIC MACHINE OPERATION AND DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT MAY RESULT IF THIS PROCEDURE IS NOT FOLLOWED. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

Step 6. Note the cable lead connections to the Regulator board terminal strip. Record these connections now. Then disconnect these cable leads from the Regulator board terminal strip.

Step 7. Loosen the thumbscrew on the left side of the keypad support bracket to release it from the bottom support bracket. Grasp the keypad support bracket on the left-hand side and lift it up and to the left to separate it from the bottom support bracket.

NOTE: *The bracket is connected to the drive by wiring. Do not attempt to lift the bracket out completely as this may damage or pull out the wiring.*

Step 8. Locate the Control Option board support tabs on the support bracket. They are below and behind the Regulator board. The Control Option board is attached to these tabs using the four screws and nuts provided.

Step 9. Place a washer on each of the screws provided with the kit.

Step 10. Hold the Control Option board so the row of connectors is at the same end and faces the same direction as the row of connectors on the Regulator board.

Step 11. Working from below the support tabs, line up the holes in the Control Option board with the holes in the support tabs.

Step 12. Insert one screw from below through the hole in the Control Option board and the hole in the support tab, and then thread a nut on the end of the screw. Repeat this procedure for the remaining three screws.

Step 13. Hand tighten the screws and nuts holding the Control Option board in place until they are snug.

Reinstall the Support Bracket

Step 14. Reconnect the keypad support bracket to the bottom bracket by inserting the mounting tabs into the slots in the bottom bracket and tightening the thumbscrew.

Wire the Control Option and Regulator Boards

Step 15. Wire your 115 VAC supply to the correct TB1 terminals on the Control Option board. Refer to table B.1 and to figure A.1. Route the wire through the left-hand wire-routing hole at the bottom of the drive.

Step 16. Wire your 115 VAC control devices to the Control Option board's TB1 terminals. Then wire the Control Option board's TB2 terminals to the corresponding terminals on the drive's Regulator board. Refer to table B.2 and figures A.1 and A.2 in this instruction manual and to the instruction manual for your drive. Route the wire through the left-hand wire-routing hole at the bottom of the drive.

Step 17. Reconnect all cable leads to the appropriate terminals on the Regulator board. Refer to the terminal connections documented in step 6 or to the appropriate instruction manual for the speed feedback device being used. Route the wire through the left-hand wire-routing hole at the bottom of the drive.

Reinstall the Cover and Apply Power

Step 18. Reinstall the cover. Align all cover screws into the heat sink before tightening any of them. (For NEMA 4X/12 covers, refer to appropriate section in your drive's instruction manual.)

Step 19. Remove the lockout and tag, and apply power to the drive. SELF will be displayed while the drive performs power-up diagnostics.

Hardware installation of the 115 VAC Control Option board is complete.

3.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 25-60 HP DRIVES

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL AND OTHER APPLICABLE MANUALS IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

THE DRIVE IS AT LINE VOLTAGE WHEN CONNECTED TO INCOMING AC POWER. DISCONNECT, LOCK OUT, AND TAG ALL INCOMING POWER TO THE DRIVE BEFORE PERFORMING THE FOLLOWING PROCEDURE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

DC BUS CAPACITORS RETAIN HAZARDOUS VOLTAGES AFTER INPUT POWER HAS BEEN DISCONNECTED. AFTER DISCONNECTING INPUT POWER, WAIT FIVE (5) MINUTES FOR THE DC BUS CAPACITORS TO DISCHARGE AND THEN CHECK THE VOLTAGE WITH A VOLTMETER TO ENSURE THE DC BUS CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL COMPONENTS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: Do not route signal wiring with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduit. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Use the following procedure to install a 115 VAC Control Option board (2LB3000) in 25 to 60 HP GV3000 drives. Refer to the instruction manual for your drive as you perform this procedure.

NOTE: *Read and understand the warning labels on the drive before proceeding.*

Remove the Keypad Support Bracket from the Drive

Step 1. Disconnect, lock out, and tag power to the drive.

Step 2. Wait five (5) minutes for the DC bus capacitors to discharge.

Step 3. Remove the cover by loosening the six (6) cover retaining screws.

Step 4. Using a voltmeter, verify that there is no voltage at the drive's AC input power terminals (R/L1, S/L2, T/L3).

Step 5. Remove the two (2) screws from the top of the hinged panel on which the keypad support bracket is mounted, then tilt the mounting panel forward out of the drive chassis.

Step 6. Check the DC bus potential (+, – terminals) with a voltmeter as described in your drive's instruction manual to ensure that the DC bus capacitors are discharged.

WARNING

THE DRIVE CONTAINS PRINTED CIRCUIT BOARDS THAT ARE STATIC-SENSITIVE. AN ANTI-STATIC WRIST BAND SHOULD BE WORN BY ANY PERSON WHO TOUCHES THE DRIVE'S COMPONENTS, CONNECTORS, OR LEADS. ERRATIC MACHINE OPERATION AND DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT MAY RESULT IF THIS PROCEDURE IS NOT FOLLOWED. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

Step 7. Swing the hinged mounting panel back into position in the drive chassis.

Step 8. Note the cable lead connections to the Regulator board terminal strip. Record these connections now. Then disconnect these cable leads from the Regulator board terminal strip.

Step 9. Remove the four (4) screws and lock washers that fasten the keypad support bracket to the hinged mounting panel. Set aside the screws and lock washers for later use.

NOTE: *The bracket is connected to the drive by wiring. Do not attempt to lift the bracket out completely as this may damage or pull out wiring.*

Step 10. Locate the Control Option board support tabs on the support bracket. They are below and behind the Regulator board. The Control Option board is attached to these tabs using the four screws and nuts provided.

Step 11. Place a washer on each of the screws provided with the kit.

Step 12. Hold the Control Option board so the row of connectors is at the same end and faces the same direction as the row of connectors on the Regulator board.

Step 13. Working from below the support tabs, line up the holes in the Control Option board with the holes in the support tabs.

Step 14. Insert one screw from below through the hole in the Control Option board and the hole in the support tab, and then thread a nut on the end of the screw. Repeat this procedure for the remaining three screws.

Step 15. Hand tighten the screws and nuts holding the Control Option board in place until they are snug.

Reinstall the Keypad Support Bracket

Step 16. Reattach the keypad support bracket to the hinged mounting panel using the four (4) screws and lock washers removed in step 9.

Step 17. Swing the hinged mounting panel back up into position. Make certain that the keypad ribbon connector is tucked into the cabinet and not pinched by the panel. Refasten the two (2) screws to the top of the panel.

Wire the Control Option and Regulator Boards

Step 18. Wire your 115 VAC supply to the correct TB1 terminals on the Control Option board. Refer to table B.1 and to figure A.1. Route the cables through the right-hand wire-routing hole at the bottom of the drive.

Step 19. Wire your 115 VAC control devices to the Control Option board's TB1 terminals, then wire the Control Option board's TB2 terminals to the corresponding terminals on the drive's Regulator board. Refer to table B.2 and figures A.1 and A.2 in this instruction manual and to your drive's instruction manual.

Step 20. Reconnect all Regulator board cable leads to the appropriate terminals on the Regulator board. Refer to the terminal connections documented in step 8 or to the appropriate instruction manual for the speed feedback device that is being used. Route the wire through the right-hand wire-routing hole at the bottom of the drive, away from the AC lines.

Reinstall the Cover and Apply Power

Step 21. Reinstall the drive cover. Align all cover screws into the heat sink before tightening any of them. Make certain that no wires or cables are being pinched by the cover. (For NEMA 4X/12 covers, refer to the appropriate section in your drive's instruction manual.)

Step 22. Remove the lockout and tag. Apply power to the drive. SELF will be displayed while the drive performs power-up diagnostics.

Hardware installation of the 115 VAC Control Option board is complete.

4.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 60-100 HP AND 100-150 HP DRIVES

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL AND OTHER APPLICABLE MANUALS IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

THE DRIVE IS AT LINE VOLTAGE WHEN CONNECTED TO INCOMING AC POWER. DISCONNECT, LOCK OUT, AND TAG ALL INCOMING POWER TO THE DRIVE BEFORE PERFORMING THE FOLLOWING PROCEDURE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

DC BUS CAPACITORS RETAIN HAZARDOUS VOLTAGES AFTER INPUT POWER HAS BEEN DISCONNECTED. AFTER DISCONNECTING INPUT POWER, WAIT FIVE (5) MINUTES FOR THE DC BUS CAPACITORS TO DISCHARGE AND THEN CHECK THE VOLTAGE WITH A VOLTMETER TO ENSURE THE DC BUS CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL COMPONENTS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: Do not route signal wiring with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduit. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Use the following procedure to install a 115 VAC Control Option board (M/N 2LB3000) in 60 to 100 HP and 100 to 150 HP GV3000 drives. Refer to the instruction manual for your drive as you perform this procedure.

NOTE: *Read and understand the warning labels on the drive before proceeding.*

Remove the Keypad Support Bracket from the Drive

Step 1. Disconnect, lock out, and tag power to the drive.

Step 2. Wait five (5) minutes for the DC bus capacitors to discharge.

Step 3. Remove the cover by removing the six (6) cover retaining screws.

Step 4. Using a voltmeter, verify that there is no voltage at the drive's AC input power terminals (R/L1, S/L2, T/L3).

Step 5. Loosen the two (2) screws from the top of the hinged panel on which the keypad support bracket is mounted, then tilt the mounting panel forward out of the drive chassis.

Step 6. Check the DC bus potential (+, − terminals) with a voltmeter as described in your drive's instruction manual to ensure that the DC bus capacitors are discharged.

WARNING

THE DRIVE CONTAINS PRINTED CIRCUIT BOARDS THAT ARE STATIC-SENSITIVE. AN ANTI-STATIC WRIST BAND SHOULD BE WORN BY ANY PERSON WHO TOUCHES THE DRIVE'S COMPONENTS, CONNECTORS, OR LEADS. ERRATIC MACHINE OPERATION AND DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT MAY RESULT IF THIS PROCEDURE IS NOT FOLLOWED. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

Step 7. Swing the hinged mounting panel back into position in the drive chassis.

Step 8. Note the cable lead connections to the Regulator board terminal strip. Record these connections now. Then disconnect these cable leads from the Regulator board terminal strip.

Step 9. Remove the four (4) screws and lock washers that fasten the keypad support bracket to the hinged mounting panel. Use a magnetic screwdriver to retain the screws and keep them from falling inside the drive. Be sure to hold the keypad support bracket as you remove the screws. Set aside the screws and lock washers for later use.

NOTE: *The bracket is connected to the drive by wiring. Do not attempt to lift the bracket out completely as this may damage or pull out wiring.*

Step 10. Locate the Control Option board support tabs on the support bracket. They are below and behind the Regulator board. The Control Option board is attached to these tabs using the four screws and nuts provided.

Step 11. Place a washer on each of the screws provided with the kit.

Step 12. Hold the Control Option board so the row of connectors is at the same end and faces the same direction as the row of connectors on the Regulator board.

Step 13. Working from below the support tabs, line up the holes in the Control Option board with the holes in the support tabs.

Step 14. Insert one screw from below through the hole in the option board and the hole in the support tab and then thread a nut on the end of the screw. Repeat this procedure for the remaining three screws.

Step 15. Hand tighten the screws and nuts holding the Control Option board in place until they are snug.

Reinstall the Keypad Support Bracket

Step 16. Reattach the keypad support bracket to the hinged mounting panel using the four (4) screws and lock washers removed in step 9.

Step 17. Swing the hinged mounting panel back up into position. Make sure that no wires or cables are pinched by the panel. Refasten the two (2) screws to the top of the panel.

Wire the Control Option and Regulator Boards

Step 18. Wire your 115 VAC supply to the correct TB1 terminals on the Control Option board. Refer to table B.1 and to figure A.1.

Step 19. Wire your 115 VAC control devices to the Control Option board's TB1 terminals, then wire the Control Option board's TB2 terminals to the corresponding terminals on the drive's Regulator board. Refer to table B.2 and figures A.1 and A.2 in this instruction manual and to your drive's instruction manual.

Step 20. Connect all Regulator board cable leads to the appropriate terminals on the Regulator board. Refer to the terminal connections documented in step 8 or to the appropriate instruction manual for the speed feedback device that is being used. Route the wire through the right-hand wire-routing hole at the bottom of the drive, away from AC lines.

Reinstall the Cover and Apply Power

Step 21. Reinstall the drive cover. Align all cover screws into the heat sink before tightening any of them. Make certain that no wires or cables are being pinched by the cover.

Step 22. Remove the lockout and tag. Apply power to the drive. SELF will be displayed while the drive performs power-up diagnostics.

Hardware installation of the 115 VAC Control Option board is complete.

5.0 INSTALLING THE 115 VAC CONTROL OPTION BOARD IN 200-400 HP DRIVES

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL AND OTHER APPLICABLE MANUALS IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

THE DRIVE IS AT LINE VOLTAGE WHEN CONNECTED TO INCOMING AC POWER. DISCONNECT, LOCK OUT, AND TAG ALL INCOMING POWER TO THE DRIVE BEFORE PERFORMING THE FOLLOWING PROCEDURE. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

DC BUS CAPACITORS RETAIN HAZARDOUS VOLTAGES AFTER INPUT POWER HAS BEEN DISCONNECTED. AFTER DISCONNECTING INPUT POWER, WAIT FIVE (5) MINUTES FOR THE DC BUS CAPACITORS TO DISCHARGE AND THEN CHECK THE VOLTAGE WITH A VOLTMETER TO ENSURE THE DC BUS CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL COMPONENTS. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: Do not route signal wiring with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduit. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Use the following procedure to install a 115 VAC Control Option board (M/N 2LB3000) in 200 to 400 HP GV3000 drives. Refer to your drive's instruction manual as you perform this procedure.

NOTE: *Read and understand the warning labels on the drive before proceeding.*

Remove the Keypad Support Bracket from the Drive

Step 1. Disconnect, lock out, and tag power to the drive.

Step 2. Wait five (5) minutes for the DC bus capacitors to discharge.

Step 3. Open the drive cabinet.

Step 4. Using a voltmeter, verify that there is no voltage at the drive's AC input power terminals (R/L1, S/L2, T/L3).

Step 5. Loosen the two (2) screws from the top of the hinged panel on which the keypad support bracket is mounted, then tilt the mounting panel forward out of the drive chassis.

Step 6. Check the DC bus potential (+, − terminals) with a voltmeter as described in your drive's instruction manual to ensure that the DC bus capacitors are discharged.

WARNING

THE DRIVE CONTAINS PRINTED CIRCUIT BOARDS THAT ARE STATIC-SENSITIVE. AN ANTI-STATIC WRIST BAND SHOULD BE WORN BY ANY PERSON WHO TOUCHES THE DRIVE'S COMPONENTS, CONNECTORS, OR LEADS. ERRATIC MACHINE OPERATION AND DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT MAY RESULT IF THIS PROCEDURE IS NOT FOLLOWED. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

Step 7. Swing the hinged mounting panel back into position in the drive chassis.

Step 8. Note the cable lead connections to the Regulator board terminal strip. Record these connections now. Then disconnect these cable leads from the Regulator board terminal strip.

Step 9. Remove the four (4) screws and lock washers that fasten the keypad support bracket to the hinged mounting panel. Use a magnetic screwdriver to retain the screws and keep them from falling inside the drive. Be sure to hold the keypad support bracket as you remove the screws. Set aside the screws and lock washers for later use.

NOTE: *The bracket is connected to the drive by wiring. Do not attempt to lift the bracket out completely as this may damage or pull out wiring.*

Step 10. Locate the Control Option board support tabs on the support bracket. They are below and behind the regulator board. The Control Option board is attached to these tabs using the four screws and nuts provided.

Step 11. Place a washer on each of the screws provided with the kit.

Step 12. Hold the Control Option board so the row of connectors is at the same end and faces the same direction as the row of connectors on the Regulator board.

Step 13. Working from below the support tabs, line up the holes in the Control Option board with the holes in the support tabs.

Step 14. Insert one screw from below through the hole in the Control Option board and the hole in the support tab and then thread a nut on the end of the screw. Repeat this procedure for the remaining three screws.

Step 15. Hand tighten the screws and nuts holding the Control Option board in place until they are snug.

Reinstall the Keypad Support Bracket

Step 16. Reattach the keypad support bracket to the hinged mounting panel using the four (4) screws and lock washers removed in step 9.

Step 17. Swing the hinged mounting panel back up into position. Make sure that no wires or cables are pinched by the panel. Refasten the two (2) screws to the top of the panel.

Wire the Control Option and Regulator Boards

Step 18. Wire your 115 VAC supply to the correct TB1 terminals on the Control Option board. Refer to table B.1 and to figure A.1.

Step 19. Wire your 115 VAC control devices to the Control Option board's TB1 terminals, then wire the Control Option board's TB2 terminals to the corresponding terminals on the drive's Regulator board. Refer to table B.2 and figures A.1 and A.2 in this instruction manual and to your drive's instruction manual.

Step 20. Reconnect all cable leads to the appropriate terminals on the Regulator board. Refer to the terminal connections documented in step 8 or to the appropriate instruction manual for the speed feedback device that is being used. For wire routing, refer to your drive's instruction manual.

Close the Cover and Apply Power

Step 21. Close the cabinet cover.

Step 22. Remove the lockout and tag. Apply power to the drive. SELF will be displayed while the drive performs power-up diagnostics.

Hardware installation of the 115 VAC Control Option board is complete.

Appendix A

115 VAC Control Option Board Layout and Connections

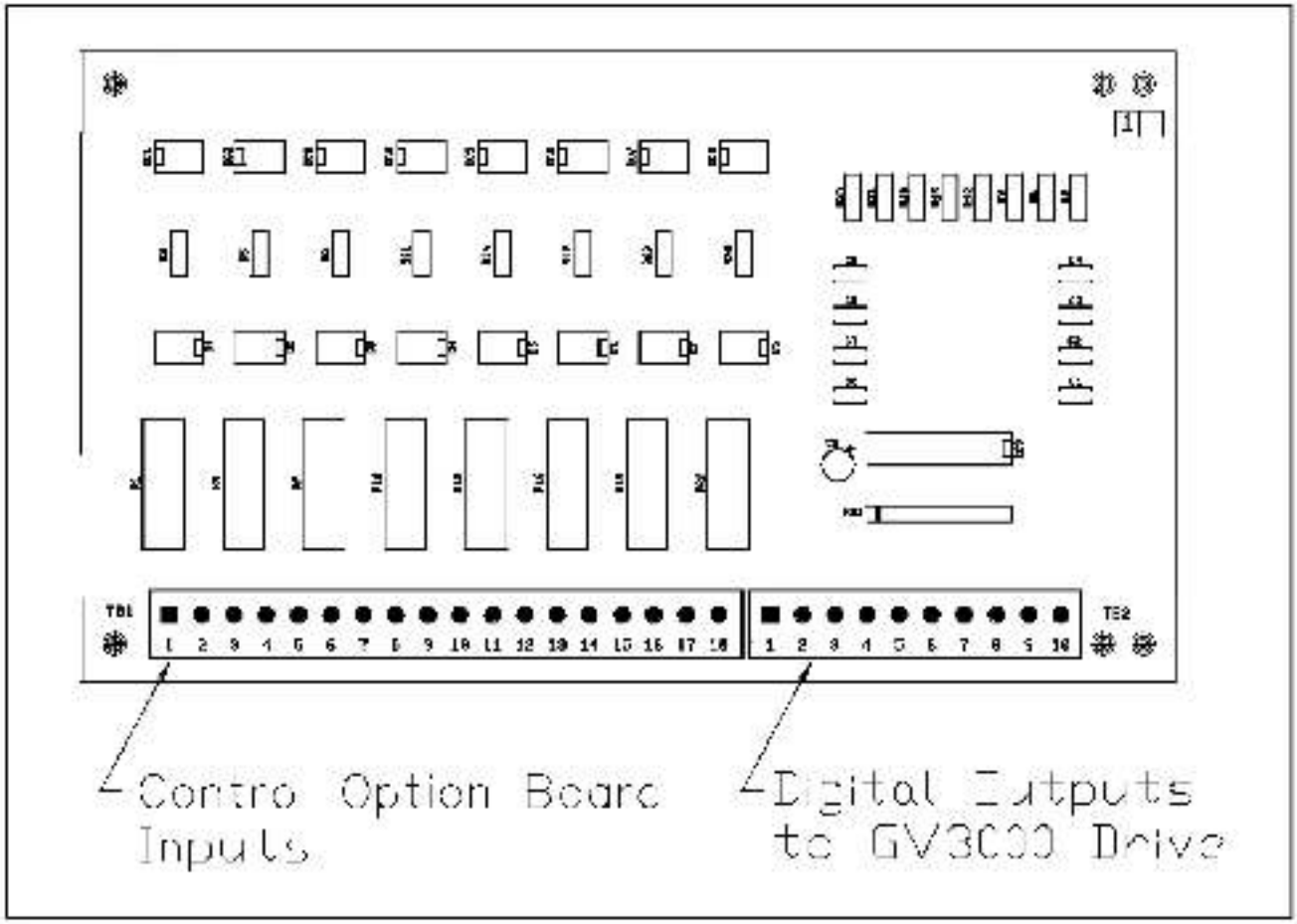

Figure A.1 - 115 VAC Control Option Board

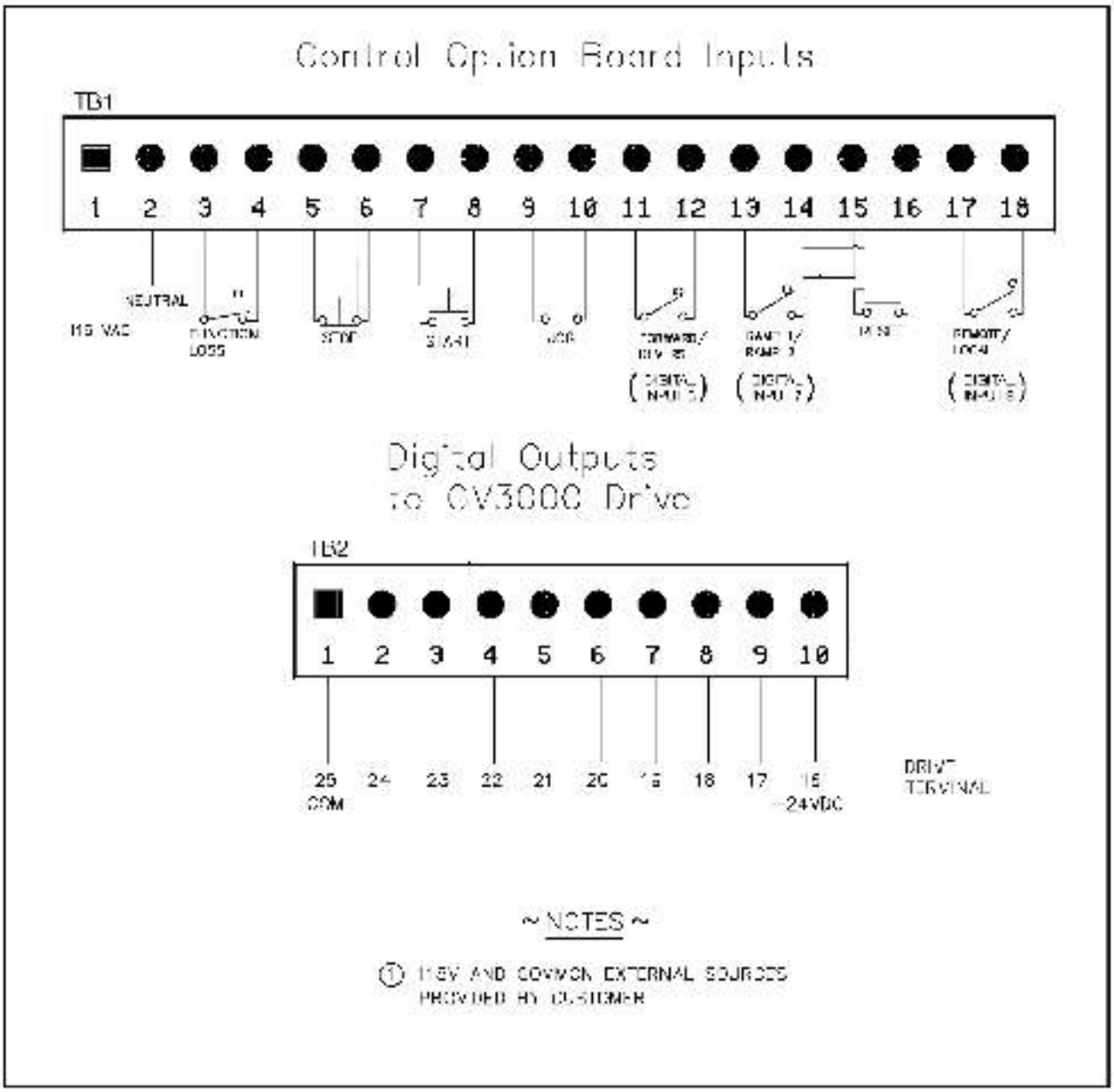

Figure A.2 - 115 VAC Control Option Board Input and Output Connections

Appendix B

115 VAC Control Option Board Input and Output Wiring

Table B.1 - AC Source Input

AC Input	Control Option Board TB1 Terminal Strip
115 VAC	1
Neutral	2

Table B.2 - Control Option Board Wiring to GV3000 Regulator Board

Control Device	Control Option Board TB1 Terminal Strip		Control Option Board TB2 Terminal Strip	GV3000 Regulator Board Terminal Strip
	115 V Source	Control Input		
DIGITAL INPUT 8 (REMOTE/LOCAL)	17	18	9	17
FUNCTION LOSS	3	4	6	20
STOP	5	6	3	23
START	7	8	2	24
RUN/JOG	9	10	5	21
DIGITAL INPUT 6 (FWD/REV)	11	12	7	19
DIGITAL INPUT 7 (RAMP1/2)	13	15	8	18
RESET	14	16	4	22
+24VDC COMMON	–	–	1	25
+24VDC	–	–	10	16

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