

## **WPC 2000 Option 2**

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*Lube, Speed, Hydraulic Overload,  
and Flywheel Brake Control  
Expanded User Inputs  
1132300  
Rev. G August 2026*



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# Installation Manual



## **NOTICE**

### **SEE DOWNLOAD CENTER FOR FULL USER MANUAL**

Go to [www.wintriss.com](http://www.wintriss.com). Under Support click Download Center.

If you encounter cross-references in this manual to chapters that have not been included, refer to the appropriate chapter of the user manual.

## **NOTICE**

### **CHECK DOWNLOAD SITE FOR ADDENDA TO MANUAL**

Addenda that document changes to this manual since its last revision may be available on the download site shown on the manual cover. Make sure to check the download site for relevant addenda before using this manual to install your Wintriss product.

The download site also contains the full product user manual from which this installation manual was extracted as well as other documents relating to the product you purchased. The user manual provides complete product documentation including setup, programming, and operating instructions.



Thank you for purchasing a Wintriss product. We appreciate your business and want to do whatever we can to ensure your satisfaction. Wintriss products are built to stay on the job day after day, and are backed by an ironclad guarantee, international standards approvals, and unbeatable support.

Whenever you need assistance or service, we back all our products with excellent spare parts inventories, training programs, and prompt repair service. We would like to share with you a list of service options—probably the largest number of service options offered in the industry.

- **Technical Assistance**

We offer a toll-free number for technical support assistance. Call 1-800-586-TECH (8324) or email [techsupport@wintriss.com](mailto:techsupport@wintriss.com) should you have any questions about your equipment. Our technical staff is ready to assist you Monday through Friday, 8:00 a.m. to 5:00 p.m. Eastern Time. In many cases our experienced technical staff can resolve your inquiry right over the phone.

- **Return Authorization**

Please call our 800 number for a return authorization (RMA) number to return a product for repair. Returned goods must arrive freight prepaid. In order to process your return quickly, we ask that you provide us with the following pertinent information when you call: purchase order number, shipping address, contact name and telephone number, and product type. The assigned RMA number should appear on all packages returned to Wintriss Controls Group to ensure prompt service.

At the time of requesting an RMA, you will be quoted a flat-rate repair price for the product you are returning. We ask that you email us a PO to [orders@wintriss.com](mailto:orders@wintriss.com) for that amount or enclose the PO with the returned item. This will enable us to ship the item back to you as soon as the repair has been completed. If the item cannot be repaired or there are additional charges, you will be contacted for approval.

Please be sure to carefully pack all returned items and ship to our Acton, MA location.

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Rush service providing 48 hour turnaround is available for most products upon request. An Expedite Fee will be applied to our standard repair rate.

- **Board Exchange Program**

If your needs are urgent, take advantage of our Board Exchange (EX) program. Call our 800 number between 8:00 a.m. and 3:30 p.m. Eastern Time and we will send a replacement to you overnight. A fee does apply to this service. Contact Wintriss Technical Support at 800-586-8324 for details.

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Our Service Center for product service is located at our headquarters in Acton, MA. If your equipment requires repair, please contact us at 800-586-8324 to obtain a return authorization number.

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We also offer both product training and maintenance/troubleshooting courses at our Acton, MA and Chicago-area facilities. On-site training is available from the factory or through your local Wintriss representative.

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Whatever the product, we are committed to satisfying you with innovative engineering, quality construction, reliable performance, and ongoing, helpful support. Call us whenever you need assistance.



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## HOW TO USE THIS MANUAL

### NOTICE

The Option 2 can be used with the integration of SmartPAC 2 or SmartPAC PRO with WPC 2000. This manual refers to SmartPAC PRO and shows SmartPAC PRO screens. SmartPAC 2 screens are similar, and you can use these instructions with either version of SmartPAC, except where noted.

This manual shows you how to install and troubleshoot WPC 2000 Option 2. Option 2 is a WPC 2000 daughter board that provides expanded user inputs and hydraulic overload and flywheel brake control. Lube and speed control are available as options.

Chapter 2 shows you how to install and wire the Option 2 board and upgrade Option 2 firmware.

Chapter 6 provides explanations of the Option 2 fault messages that display on your SmartPAC PRO panel and shows you how to correct these faults.

Appendix A provides a setup sheet for Option 2 user inputs on which you can document the stop type and name you have assigned to each input.

Wiring diagrams at the end of the manual provide detailed wiring schematics to help you install and wire your Option 2.

Refer to the WPC 2000 Option 2 User Manual for additional information.

### NOTICE

Download Wintriss documents from [www.wintriss.com](http://www.wintriss.com). Under *Support*, click on *Download Center*.



# Important Highlighted Information

Important danger, warning, caution, and notice information is highlighted throughout the manual as follows:

## **DANGER**

A DANGER symbol indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

## **WARNING**

A WARNING symbol indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

## **CAUTION**

A CAUTION symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.

## **NOTICE**

A NOTICE symbol indicates important information that you should remember, including tips to aid you in performance of your job.



# WARRANTY

Wintriss Controls warrants that Wintriss electronic controls are free from defects in material and workmanship under normal use and service for a period of one year (two years for Shadow light curtains) from date of shipment. All software products (SFC/LETS), electro-mechanical assemblies, and sensors are warranted to be free from defects in material and workmanship under normal use and service for a period of 90 days from date of shipment. Wintriss's obligations under this warranty are limited to repairing or replacing, at its discretion and at its factory or facility, any products which shall, within the applicable period after shipment, be returned to Wintriss Controls freight prepaid and which are, after examination, disclosed to the satisfaction of Wintriss to be defective. This warranty shall not apply to any equipment which has been subjected to improper installation, misuse, misapplication, negligence, accident, or unauthorized modification. The provisions of this warranty do not extend the original warranty of any product which has either been repaired or replaced by Wintriss Controls. No other warranty is expressed or implied. Wintriss accepts no liability for damages, including any anticipated or lost profits, incidental damages, consequential damages, costs, time charges, or other losses incurred in connection with the purchase, installation, repair or operation of our products, or any part thereof.

Please note:

It is solely the user's responsibility to properly install and maintain Wintriss controls and equipment. Wintriss Controls manufactures its products to meet stringent specifications and cannot assume responsibility for consequences arising from their misuse.

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INSTALLATION MANUAL  
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# Chapter 2 – Installation

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This chapter shows you how to install the Option 2 board, upgrade Option 2 firmware, and make wiring connections for Option 2 functions. The chapter also provides instructions for installing a motor current transducer.

## Installing the Option 2 Board

### NOTICE

If your Option 2 board comes pre-installed with the WPC 2000 Main Processor Board, skip this section and proceed to the wiring procedures, starting on page 21.

To install the WPC 2000 Option 2 board (see Figure 2-1, next page) perform the following steps:

### CAUTION

#### DAMAGE TO BOARD FROM STATIC DISCHARGE

Ground yourself before touching circuit boards or chips by touching a large metal object such as the press. Static electricity can destroy electronic components.

**Failure to comply with these instructions could result in property damage.**

1. Making sure you are grounded, carefully unpack the Option 2 board and remove it from its anti-static bag.

### NOTICE

Be sure to save the shipping box in case you need to return the Option 2 board.

2. Verify that the board has not been damaged during shipment. If damage has occurred, contact Wintriss Tech. Support immediately.

### WARNING

#### ELECTRIC SHOCK HAZARD

- Ensure that the power source is off before you replace electronic components in a control.
- Disconnect power from the machinery it is connected to before replacing electronic components. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

**Failure to comply with these instructions could result in death or serious injury.**

3. Shut off power to WPC 2000.
4. Open the WPC 2000 enclosure or console.

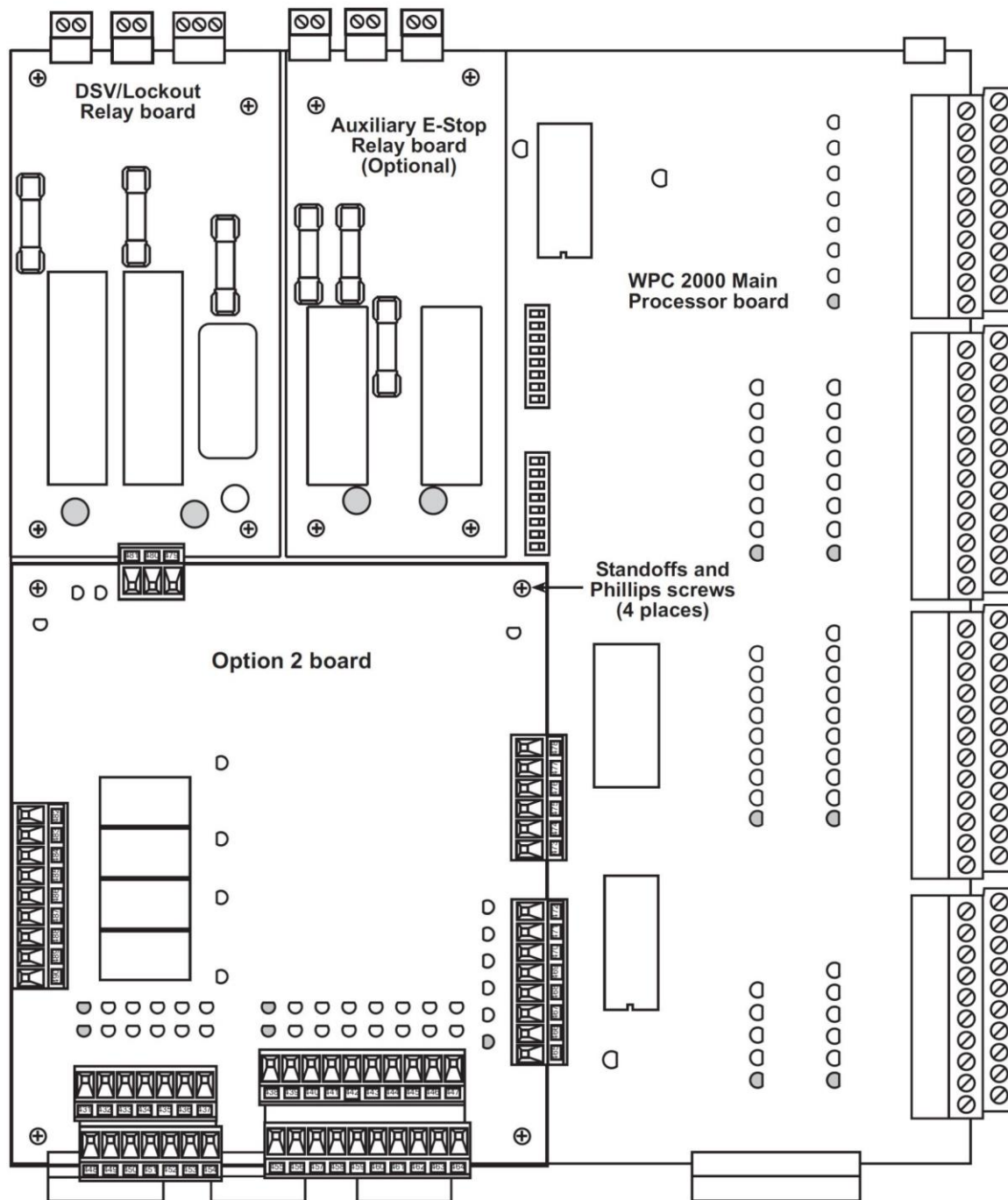


Figure 2-1. Option 2 Board Installed on WPC 2000 Main Processor Board

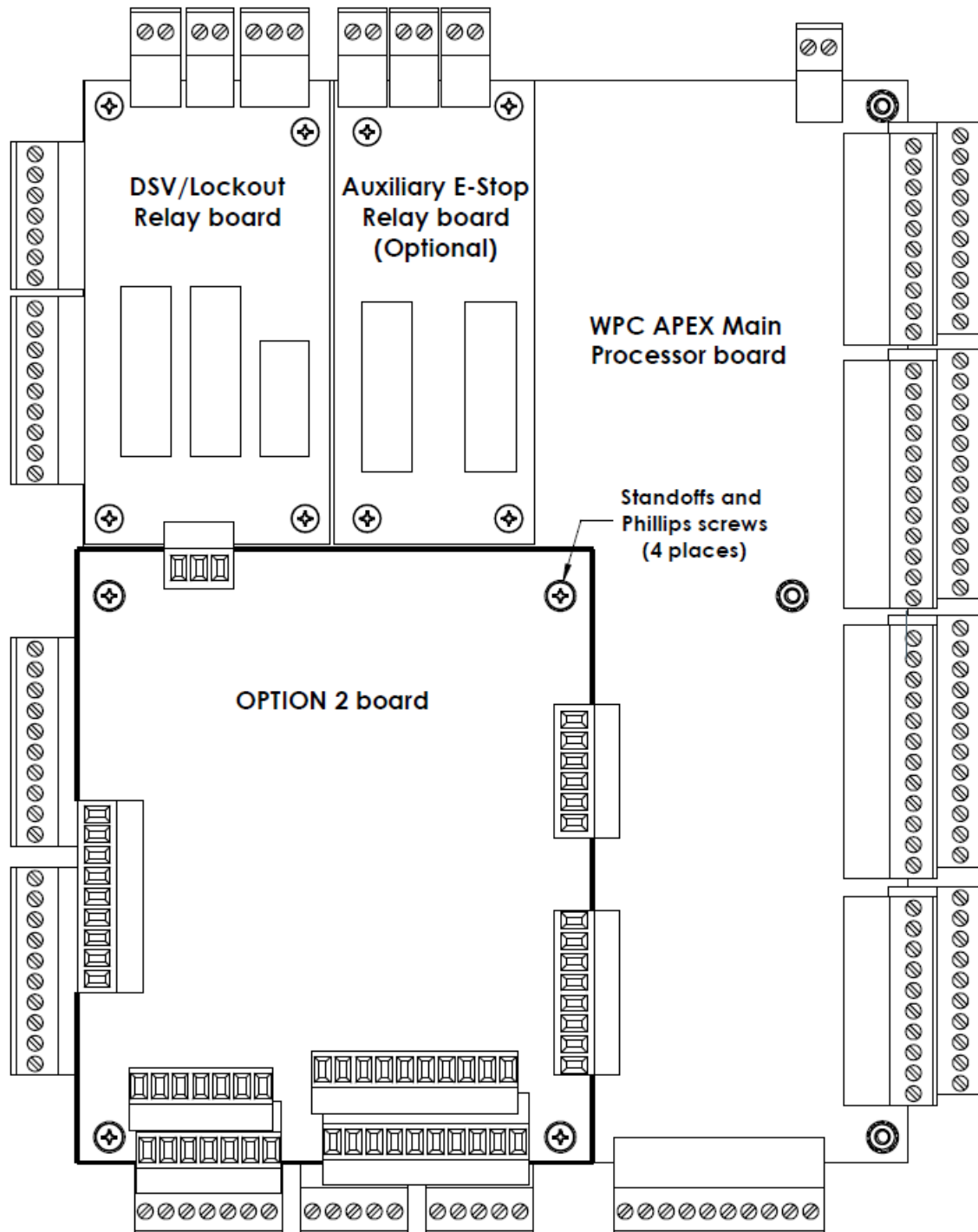


Figure 2-2. Option 2 Board Installed on WPC APEX Main Processor Board

5. Locate the four ¼-in. hex standoffs in the lower left corner of the WPC 2000 Main Processor board.

### NOTICE

If there are six ¼-in. standoffs in the area where the Option 2 board is to be installed, remove the top middle and bottom middle standoffs, using a ¼-in. nut driver. Be sure to remove the screws underneath the standoffs so they don't short out the board.

6. Making sure you are grounded, align the holes in the four corners of the Option 2 board with the four standoffs on the WPC 2000 Main Processor board (refer to Figure 2-1 for correct placement of board), align the two connectors on the underside of the Option 2 board with their mating connectors on the WPC 2000 board, and slowly push the board down until both connectors are seated. Then screw the board down, using the Phillips screws provided.
7. Wire the CAN bus connector (TB605) on the Option 2 board to TB108 on the WPC 2000 board, referring to Table 2-1, below, and Figure 2 at the end of the manual.

*Table 2-1. Option 2 Board: CAN Bus Wiring Connections (TB605)*

| Option 2 Board TB605 Pin # | Function | WPC 2000 Board TB108 Pin # |
|----------------------------|----------|----------------------------|
| 481                        | CAN +    | 117                        |
| 480                        | Shield   | 118                        |
| 479                        | CAN –    | 119                        |

### NOTICE

Make sure to route the CAN bus wiring so that it doesn't interfere with wiring Option 2 terminal blocks or replacing the Option 2 firmware chip. One solution is to run the wiring beneath the Option 2 board.

### NOTICE

If you receive a pre-wired CAN bus wiring kit, make sure you connect the 3-pin plug to the 3-pin TB605 connector on the Option 2 board and the 5-pin plug to the 5-pin TB108 connector on the WPC 2000 board.

8. If you are ready to make wiring connections to the Option 2 board, go to the appropriate wiring instructions on the following pages. Otherwise, close the door of the WPC 2000 enclosure or console.

## Replacing Option 2 Firmware

If you upgrade Option 2 firmware (e.g., from the standard offering to firmware that provides lube and/or speed control, or from a lower to a higher version number), you will have to replace the Option 2 firmware chip. To do so, follow these steps:

### **WARNING**

#### **ELECTRIC SHOCK HAZARD**

- Ensure that the power source is off before you replace electronic components in a control.
- Disconnect power from the machinery it is connected to before replacing electronic components. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

**Failure to comply with these instructions could result in death or serious injury.**

1. Turn off power to the system.

### **CAUTION**

#### **DAMAGE TO BOARD FROM STATIC DISCHARGE**

Ground yourself before touching circuit boards or chips by touching a large metal object such as the press. Static electricity can destroy electronic components.

**Failure to comply with these instructions could result in property damage.**

2. Making sure that you are grounded, open the enclosure and find the Option 2 firmware chip (U603) on the Option 2 board (see Figure 2-3, page 22). Note the direction in which the notch on the chip faces. A newer board may not have a firmware chip inserted; the standard code may be stored directly in the board's memory.

### **NOTICE**

The new Option 2 firmware chip must be installed with the notch facing in the same direction as the notch on the chip you just removed.

### **CAUTION**

#### **DAMAGE TO PC BOARD**

Insert the screwdriver between the chip and the socket. Be careful not to insert the screwdriver under the socket, as you may damage the board.

**Failure to comply with these instructions could result in property damage.**

3. Insert a small screwdriver between the bottom of the chip and the socket, and carefully pry the old chip from the board. Put the old chip aside.
4. Open the package containing the new Option 2 chip and remove the chip from its holder. If there was no firmware chip inserted and the code was stored in the memory, any new code inserted via firmware chip will take precedence.

**CAUTION****WRONG INSTALLATION DAMAGES CHIP**

Install the chip with the notch facing in the same direction as the notch on the chip you just removed; otherwise, when you power up the control, the chip will be destroyed. The socket into which you plug the chip is also notched, and the notch on the chip should be aligned with the notch in the socket.

**Failure to comply with these instructions could result in property damage.**

5. Plug the chip into the firmware socket, inserting the upper row of pins first, then aligning the bottom row of pins over the socket and pushing them in. Make sure that the notch in the chip faces in the same direction as the notch in the socket (see Figure 2-3, page 22) and that all of the pins are plugged into the socket.

**NOTICE**

If the two rows of pins are spread too far apart to plug easily into the socket, hold the chip on its side on a flat surface with the pins pointing toward you. Being careful not to overbend the pins, gently draw the top of the chip toward you until the pins bend a little. Turn the chip over so that the other row of pins is now flat and pointing toward you. Draw the top of the chip toward you again until the pins bend. When the rows of pins look parallel, plug the chip into its socket again. If the chip still doesn't fit, repeat this procedure.

6. Double-check to make sure that the notch in the firmware chip faces in the same direction as the notch in the socket.
7. Turn on power to the system, and wait for either the Program or Run screen to display. Then turn off power, and turn on power a second time so that the new program can take effect.
8. Access the List of Installed Options screen (select INSTALLED OPTIONS on the SmartPAC PRO Main Initialization Menu), and make sure that the correct version of Option 2 is displayed in the list.
9. If the correct version of Option 2 does not appear among the installed options, one or more of the pins on the firmware chip may be bent, or the chip may not be plugged in properly.

Turn off power to the SmartPAC PRO and WPC 2000, remove the firmware chip, and try straightening and realigning the pins, following the instructions in the Notice following step 5. Reinstall the chip and cycle power two times, as in step 7. If the correct Option 2 firmware is still not shown in the list of installed options, call Wintriss Tech. Support.

## Wiring User Inputs

### **DANGER**

#### **USER INPUTS 1 THROUGH 7 AND 12 THROUGH 31 NOT SUITABLE FOR SAFETY USE**

DO NOT use inputs 1 through 7 or 12 through 31 as part of any personnel protection system.

These inputs are not control reliable.

**Failure to comply with these instructions will result in death or serious injury.**

### **DANGER**

#### **USER INPUTS ADD DELAY TO STOPPING TIME**

DO NOT connect light curtains or other presence-sensing devices to any user inputs.

Crosschecked

input pairs (8 & 9, 10 & 11, 32 & 33, 34 & 35, 36 & 37, and 38 & 39), though control reliable, are suitable only for such applications as connecting to safety switches used with interlocking barrier guards.

**Failure to comply with these instructions will result in death or serious injury.**

### **DANGER**

#### **CROSS-CHECKED INPUT PAIRS WIRED INCORRECTLY**

Wire and use input pairs 8 & 9, 10 & 11, 32 & 33, 34 & 35, 36 & 37, and 38 & 39 as instructed in this manual. These inputs are control reliable only if correctly wired in pairs.

**Failure to comply with these instructions will result in death or serious injury.**

### **DANGER**

#### **PRESS DOES NOT STOP WHEN USER INPUT ACTUATES**

- Remove the jumper from the Option 2 board connectors when you wire a user input. Option 2 comes from the factory with the inputs bypassed by jumpers. If you do not remove the appropriate jumper, Option 2 will not receive the signal from the input.
- Perform checkout procedures to ensure that the user inputs are wired correctly. Check after installation to make sure Option 2 responds correctly when the user input faults.

**Failure to comply with these instructions will result in death or serious injury.**

## **NOTICE**

### **INPUTS BYPASSED**

At the factory, the user inputs are jumpered to bypass their operation. Be sure to remove any jumper that bypasses operation of an input you use. Leave all unused inputs jumpered/bypassed

Wiring connections for WPC 2000 Option 2 user inputs are made on terminal blocks TB601 and TB602 on the Option 2 board (see Figure 2-3 next page). Pin numbers are shown in Table 2-2, page 23, and Figure 1 at the end of the manual. See *Expanded User Inputs* in Chapter 1 of your user manual, for a description of Option 2 user inputs.

Wire from the terminal shown in Table 2-2, page 23, or Table 2-3, page 26, to your equipment and then back to either +24 VDC or ground. TB601 provides one +24 VDC terminal and one ground terminal. TB602 provides two +24 VDC terminals and two ground terminals.

If you remove any of the jumpers installed at the factory, make sure to bypass those user inputs either by connecting them to +24 VDC or ground or by setting the stop type to Unused in SmartPAC PRO Initialization. To set the stop type for and assign a name to user inputs, see *Setting User Input Stop Type and Name* in Chapter 3 of your user manual.

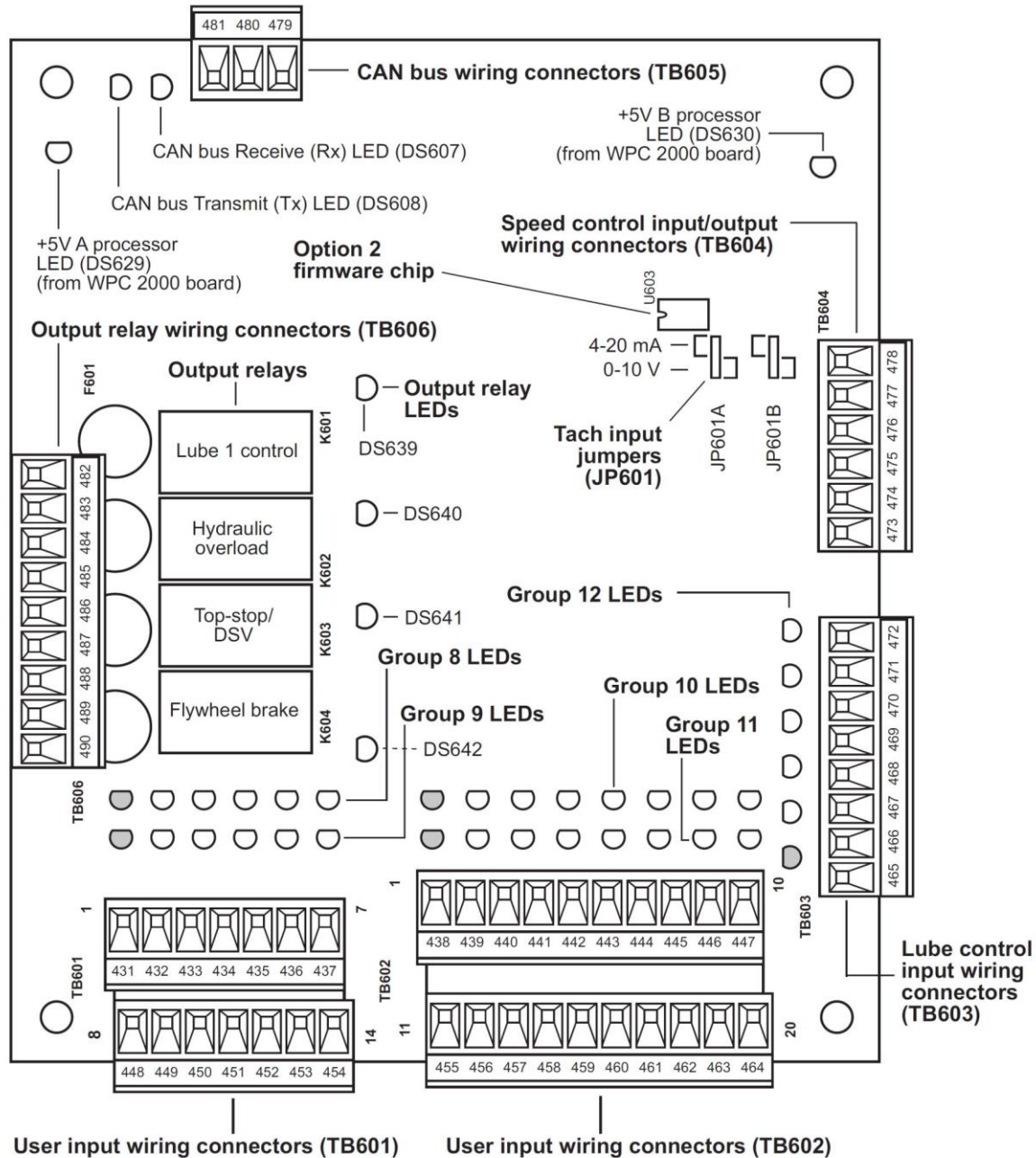


Figure 2-3. Option 2 Board: Location of Important Components

When you have finished wiring user inputs, check the LEDs for the appropriate pin numbers to make sure that your connections are good (see Figure 2-4, page 30). You can also check whether user inputs are “on” by displaying the appropriate input status screen (see *Viewing the Status of User Inputs* in Chapter 3 in your user manual).

Table 2-2. Option 2 Board: User Input Wiring Connections (TB601)

| Pin #     | User Input                                         | Terminal for Jumper Bypass Connection |
|-----------|----------------------------------------------------|---------------------------------------|
| Upper Row |                                                    |                                       |
| 431       | User input 32 + (cross-checked with user input 33) | +24 VDC                               |
| 432       | User input 34 + (cross-checked with user input 35) | +24 VDC                               |
| 433       | User input 12 –                                    | Ground                                |
| 434       | User input 13 –                                    | Ground                                |
| 435       | User input 14 –                                    | Ground                                |
| 436       | User input 15 –                                    | Ground                                |
| 437       | +24 V                                              |                                       |
| Lower Row |                                                    |                                       |
| 448       | User input 22 +                                    | +24 VDC                               |
| 449       | User input 23 +                                    | +24 VDC                               |
| 450       | User input 24 +                                    | +24 VDC                               |
| 451       | User input 25 +                                    | +24 VDC                               |
| 452       | User input 36 + (cross-checked with user input 37) | +24 VDC                               |
| 453       | User input 38 + (cross-checked with user input 39) | +24 VDC                               |
| 454       | Ground                                             |                                       |
| Upper Row |                                                    |                                       |
| 438       | User input 33 + (cross-checked with user input 32) | +24 VDC                               |
| 439       | User input 35 + (cross-checked with user input 34) | +24 VDC                               |
| 440       | User input 16 –                                    | Ground                                |
| 441       | User input 17 –                                    | Ground                                |
| 442       | User input 18 –                                    | Ground                                |
| 443       | User input 19 –                                    | Ground                                |
| 444       | User input 20 –                                    | Ground                                |
| 445       | User input 21 –                                    | Ground                                |
| 446       | +24 V                                              |                                       |
| 447       | +24 V                                              |                                       |

| Pin #     | User Input                                         | Terminal for Jumper Bypass Connection |
|-----------|----------------------------------------------------|---------------------------------------|
| Lower Row |                                                    |                                       |
| 455       | User input 26 +                                    | +24 VDC                               |
| 456       | User input 27 +                                    | +24 VDC                               |
| 457       | User input 28 +                                    | +24 VDC                               |
| 458       | User input 29 +                                    | +24 VDC                               |
| 459       | User input 30 +                                    | +24 VDC                               |
| 460       | User input 31 +                                    | +24 VDC                               |
| 461       | User input 37 + (cross-checked with user input 36) | +24 VDC                               |
| 462       | User input 39 + (cross-checked with user input 38) | +24 VDC                               |
| 463       | Ground                                             |                                       |
| 464       | Ground                                             |                                       |

## Wiring Hydraulic Overload Inputs and Outputs

### NOTICE

#### OVERLOAD INPUT MUST BE JUMPERED WHEN NOT IN USE

Pin #468 on TB603 on the Option 2 board is jumpered at the factory. If your press is not equipped with a hydraulic overload system or you are not going to monitor it using Option 2, do not remove this jumper. If pin #468 is not jumpered, you will get continuous hydraulic overload error messages. There is no programming screen to disable the hydraulic overload feature.

If your press is equipped with a hydraulic overload system, the Option 2 board has wiring connections that allow monitoring of the associated pressure switch and provide the logic to stop the press and return it to normal operation after occurrence of a hydraulic overload. See Hydraulic Overload Control, in Chapter 1 of your user manual for a description of the hydraulic overload feature.

To wire the hydraulic overload input, locate the pressure switch (refer to the wiring diagrams for your press or consult the press manufacturer) and connect one wire from it to pin #468 on TB603 on the Option 2 board and the other wire to one of the TB603 ground connections (i.e., pins #465 and #466). Refer to Table 2-4, page 26 and Figure 2 at the end of the manual. The pressure switch is normally closed to ground and opens in the event of a hydraulic overload.

The hydraulic overload output (see Table 1-1 in your user manual for output relay specifications) is wired to the pump that repressurizes the hydraulic overload system after a hydraulic overload has occurred. The pump is part of the hydraulic overload system. Wire the pump to pins #484 and #485 on TB606 on the Option 2 board (refer to Table 2-5, page 29 and Figure 2 at the end of the manual).

The contacts on the relay associated with the hydraulic overload output are normally closed, and the pump is always on. When an overload occurs, the relay contacts open, causing the pump to turn off. When the ram has been returned to the top of its stroke (i.e., within the 270°-to-30° window), the pump turns back on to repressurize the system. The pump stays on during normal press operation.

## Wiring Flywheel Brake Inputs and Outputs

If your press is equipped with a flywheel brake, Option 2 provides wiring connections that allow the position of the brake to be monitored and the brake to be applied and released. See *Flywheel Brake Control* in Chapter 1 of your user manual for a description of the flywheel brake feature.

To make flywheel brake input connections, wire the pressure or limit switch associated with the flywheel brake to pin #467 on TB603 on the Option 2 board and to one of the TB603 ground connections (i.e., pin #465 or #466), referring to Table 2-4, page 26 and to Figure 2 at the back of the manual.

Wire flywheel brake output from pin #488 (N/O) or #490 (N/C) and pin #489 on TB606 (see Table 2-5, page 29) to the flywheel brake actuator.

The flywheel brake output turns the brake on and off based on the state of the press's main motor. When the motor is on, the flywheel brake is turned off. When the motor is off, the brake is turned on and applied to the flywheel.

When you have finished wiring flywheel brake input and output, you must enter settings for flywheel brake operation in SmartPAC PRO Initialization mode (see *Setting Flywheel Brake Initialization Parameters* in Chapter 3 of your user manual).

## Wiring Top Stop Outputs

Option 2 provides an additional output connection that can be used for one of two functions:

- Top-stopping an ancillary device when the Top Stop button on the Operator Station is pressed or WPC 2000 issues a Top-stop command
- Resetting a Dual Safety Valve (DSV) when it has been tripped

See *Other Standard Features* in Chapter 1 of your user manual for a description of the top-stop and DSV reset functions.

You wire the ancillary device or DSV to pins #486 and #487 on TB606 (see Table 2-4, page 26, and Figure 2 at the end of the manual).

When you have finished wiring, you must enable the device you have wired in SmartPAC PRO Initialization mode (see *Setting Top Stop Output Mode* in Chapter 3 of your user manual). If you have wired and initialized a DSV, instructions for resetting it are provided in *Resetting a Dual Safety Valve (DSV)* in Chapter 3 of your user manual.

## Wiring Lube Control Inputs and Outputs

Terminal blocks on the Option 2 board provide wiring connections for three different lube systems: Lube 1, Monitor 1, and Monitor 2. Lube 1 provides both input and output connections. Monitor 1 and Monitor 2 provide input connections only. Option 2 also provides a Lube Motor On input that, when wired to a lube pump, can be programmed to initiate Monitor 1 and Monitor 2 operation.

When properly programmed (see *Making Lube Control Settings* in Chapter 3 of your user manual). Lube 1 allows you to control operation of a lube control valve or other device and monitor the operation of cycle switches on the divider valves in the lube system fed by the pump. Monitor 1 and

Monitor 2 can be programmed to monitor the operation of cycle switches in two other lube systems. See Lube Control in Chapter 1 of your user manual for a description of the lube control feature.

Lube control input connections are made on TB603 on the Option 2 board (see **Error! Reference source not found.**, page 22 and Table 2-4, below). You make output connections on TB606 (see Table 2-5). See also Figure 2 at the end of the manual.

*Table 2-3. Option 2 Board: Lube Control and Other Input Connections (TB603)*

| Pin # | Input Function                     | Associated LED (Group 12) |
|-------|------------------------------------|---------------------------|
| 465   | Ground                             |                           |
| 466   | Ground                             |                           |
| 467   | Flywheel brake monitor switch      | 1                         |
| 468   | Hydraulic overload pressure switch | 2                         |
| 469   | Lube motor ON                      | 3                         |
| 470   | Lube monitor 2 cycle switch        | 4                         |
| 471   | Lube monitor 1 cycle switch        | 5                         |
| 472   | Lube 1 limit switch                | 6                         |

*Table 2-4. Option 2 Board: Lube Control and Other Output Connections (TB606)*

| Pin # | Output Function        | Associated LED |
|-------|------------------------|----------------|
| 482   | Lube 1 control N/O     | DS639          |
| 483   | Lube 1 control COM     |                |
| 484   | Hydraulic overload N/O | DS640          |
| 485   | Hydraulic overload COM |                |
| 486   | Top Stop N/O           | DS641          |
| 487   | Top Stop COM           |                |
| 488   | Flywheel brake N/O     | DS642          |
| 489   | Flywheel brake COM     |                |
| 490   | Flywheel brake N/C     |                |

The Lube 1 output turns a lube control valve or other device on and off. A variety of lube control devices with different voltages can be wired to this output.

To wire the Lube 1 input, find the wires running from the cycle switch (there are typically two), then connect one of them to pin #472 on TB603 on the Option 2 board, the other to one of the TB603 ground connections (i.e., pin #465 or #466).

To make output connections for Lube 1, locate the wires from the lube control valve or other device that you are using to push lubricant through the system, and connect them to pins #482 and #483 on TB606 on the Option 2 board.

To wire Monitor 1 and Monitor 2 inputs, proceed as you did with the Lube 1 input. First, locate the appropriate wires on the cycle switches for the lube systems you want to monitor. Then, for Monitor 1, connect one wire to pin #471 on TB603 and the other to one of the ground connections (i.e., pin #465 or #466). Connect wires for Monitor 2 to pin #470 on TB603 and to a convenient ground connection.

To wire the Lube Motor On input, locate the auxiliary relay on your lube pump motor starter. The relay contacts provide closure to ground when the lube pump motor comes on. (If your lube pump motor starter does not have a relay, you will have to install one in order to wire the Lube Motor On input.) Connect one side of the relay to pin #469 on TB603 and the other side to one of the TB603 ground connections (i.e., pin #465 or #466).

When you are finished wiring, you are ready to program your lube control inputs and outputs in SmartPAC PRO Initialization. Refer to *Making Lube Control Settings* in Chapter 3 of your user manual.

## Wiring Analog Speed Control Inputs and Outputs

### NOTICE

You must have a variable speed press and motor drive that has a 0-10 VDC input for the Option 2 speed control feature to function properly. The motor drive may also have a 0-10 VDC or 4-20 mA tachometer generator output.

Terminal block TB604 on the Option 2 board (see Figure 2-3, page 22, and Table 2-5, page 29) provides input and output connections that allow you to monitor and control the speed of a variable speed press. See *Speed Control* in Chapter 1 of your user manual.

Connect the 0-10 VDC input of the motor drive (sometimes referred to as a “speed pot”) to pin #478 on TB604.

If you are wiring a 4-20 mA tachometer generator output from your motor drive, connect the + TACH OUTPUT wire to pin #476 on TB 604 and the ground or negative wire to pin #475 (see Table 2-5, page 29 and Figure 2 at the end of the manual). Then set jumpers JP601A and JP601B to the “4-20 mA” position (see Figure 2-3).

If your tachometer generator output is 0-10 VDC, connect the TACH OUTPUT wire to pin #476 on TB604, as you did for the 4-20 mA signal, but connect the - TACH OUTPUT wire to pin #477 (Ground). Set jumpers JP601A and JP601B to the “0-10 VDC” position.

The tachometer input is used to receive feedback from the drive on how fast the motor is running (i.e., actual flywheel speed).

Refer to the wiring diagrams for your motor drive and press if you need additional help.

After you have wired speed control connections, you should enter speed limits in Initialization mode (see *Making Speed Control Settings* in Chapter 3 in your user manual) and program speeds for individual tools in Program mode (see Chapter 4). See Chapter 5 in your user manual to calibrate and adjust press speed in Run mode (*Calibrating Speed Control Settings and Adjusting Press Speed*).

## Installing and Wiring a Motor Current Transducer

### NOTICE

Installation and wiring procedures will vary depending on the brand and model of the transducer you use. The following instructions are provided only as general guidelines. Follow the manufacturer's instructions when installing and wiring the transducer.

You can install an AC motor current transducer on one of the conductors for your motor drive to monitor the maximum and minimum percent of load on your motor. When the transducer is wired to Option 2, the current drawn by the motor on each stroke is displayed on the Press Control Run screen (see *Monitoring Motor Current* in Chapter 5 of your user manual). You can use these readings to determine if your counterbalance pressure is set correctly.

When determining the brand and model of transducer that is best for your application, select one with a maximum amperage that is at least 60% greater than the maximum amperage of your motor. For example, if your motor has a rated amperage of 21A, choose a current transducer capable of sensing a minimum of 33A.

### Installing the Transducer

To install the motor current transducer, do the following:

1. Connect the wires you will be running to the Option 2 board to the terminals of the transducer.
2. Open the transducer's hinged base (if you are installing a split-core transducer), place the aperture of the transducer around one of the conductors for your press motor drive, and snap the base shut so the transducer completely encloses the conductor (i.e., the conductor runs through the transducer's aperture).

### NOTICE

If you are installing a solid-core current transducer, follow the manufacturer's instructions.

3. Secure the transducer to your motor control enclosure, using screws, two-sided tape, or other means.

### Wiring the Transducer

When the motor current transducer has been installed, do the following to wire it to the Option 2 board:

1. Connect the 0-10 VDC output wire from the transducer to pin #473 on TB604 on the Option 2 board and the ground wire to pin #474 (see Table 2-5, below, and Figure 2 at the end of the manual).
2. Select the desired output range by positioning the range jumper on the transducer.

### NOTICE

The high value in the range you select should be at least 60% greater than the rated amperage of your motor.

After you have installed and wired the motor current transducer, you must enter settings in SmartPAC PRO Initialization mode (see *Making Flywheel Brake and Related Settings* in Chapter 3 of your user manual). Instructions for viewing and interpreting the motor current readout on the Press Control Run screen are provided in Chapter 5, starting with Monitoring Motor Current.

*Table 2-5. Option 2 Board: Speed Control Connections (TB604)*

| Pin # | Function                                 |
|-------|------------------------------------------|
| 473   | Motor current monitor input (0-10 VDC)   |
| 474   | Ground                                   |
| 475   | – Tachometer input (4-20 mA only)        |
| 476   | + Tachometer input (0-10 VDC or 4-20 mA) |
| 477   | Ground                                   |
| 478   | Velocity output (0-10 VDC)               |

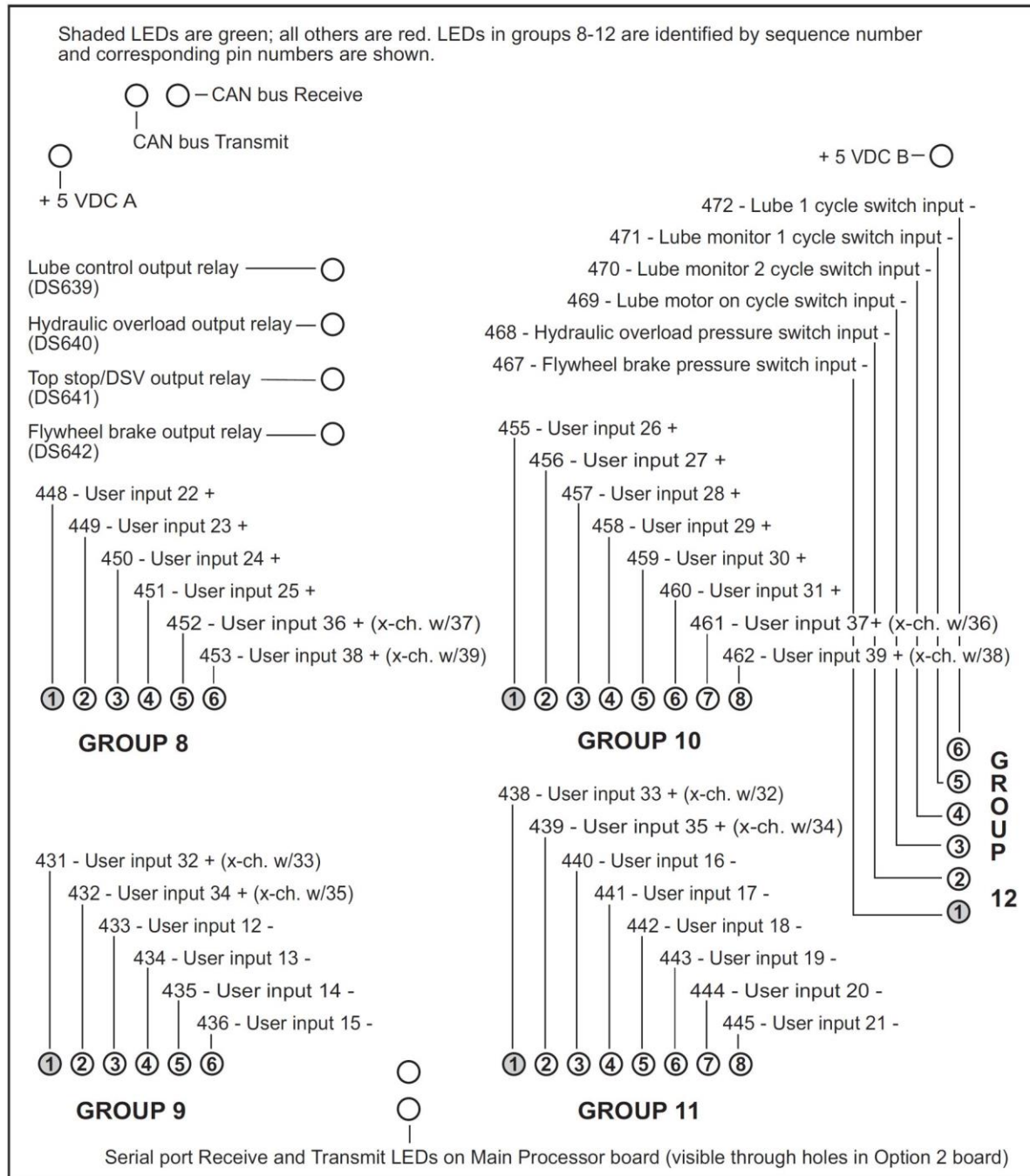


Figure 2-4. Option 2 Board: LED Map

# Chapter 6 – Troubleshooting

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This chapter shows you how to interpret and correct Option 2 fault messages. When a fault occurs, the associated message, identified by fault code, appears on your SmartPAC PRO display or in the error log. (If you need help using the error log, refer to the error message chapter in your SmartPAC PRO with WPC 2000 user manual.)

When an error occurs, a red message window like the one shown in Figure 6-1 is displayed. The error windows indicate the exact nature of the error and provide a brief explanation.



*Figure 6-1. Error Code Message*

To clear the fault message, press OK. Then correct the malfunction, referring to documentation of the appropriate fault in this chapter. When the problem has been corrected, you can resume operation.

## General Faults

### **F148 OPTION BOARD NOT CORRECT**

The previously installed option board was not present when the system powered up.

#### **Problem:**

This message displays when either Option 2 firmware has been upgraded and power has not been cycled twice or the Option 2 board has been removed from the WPC 2000 board or is not seated properly.

#### **Remedy:**

If you get this message after upgrading Option 2 firmware, cycle power twice to the SmartPAC PRO control.

If you haven't upgraded firmware and the Option 2 board is installed, make sure that the board is seated firmly and that the screws securing it to the WPC 2000 board are tight. If the Option 2 board has been removed, WPC 2000 must be re-initialized and power cycled to the SmartPAC PRO control.

### **NOTICE**

Removal of the Option 2 board should be performed only after careful consideration of safety implications. If you have wired and programmed cross-checked user inputs on the Option 2 board, removal of the board could render press operation hazardous.

**NOTICE**

When you re-initialize WPC 2000, all press control parameters (e.g., option switch settings, brake monitor settings, etc.) are reset to their default values. To avoid losing data you have painstakingly entered, copy existing press control parameters to a table so you can replace them when WPC 2000 is re-initialized.

To re-initialize WPC 2000, put the SmartPAC PRO into Initialization mode, then select, in succession, PRESS CONTROL on the Main Initialization Menu, PRESS PARAMETERS on the WPC Initialization Menu, and, finally, INITIALIZE PARAMETERS on the Press Control Parameter Menu.

**F149****Problem:**

A fault has occurred with a WPC 2000 Option board. This is a global fault code. It appears only if the WPC 2000 has a remote display board.

When this fault occurs, the SmartPAC PRO or SmartPAC 2 automatically decodes the error and shows the appropriate fault number (F150 – F163) on its display.

**Remedy:**

Refer to the remedy for the fault number shown on the SmartPAC 2 or SmartPAC PRO display.

**F157 CAN COMMS FAILURE**

Lost CAN bus communications with option 2 board.

**Problem:**

One or both of the CAN bus connections to the Option 2 board (TB605) and WPC 2000 board (TB108) are bad, causing loss of communications between the two boards.

**Remedy:**

Check the 3-pin (TB605) and 5-pin (TB108) plugs on the CAN bus (see Figure 2-3, page 22 and Table 2-1, page 18) to make sure they are seated firmly in their connector sockets. If either connection appears to be loose, remove and reinsert the plug. If the plugs are firmly seated, check the wiring at the individual pins to make sure the wires are screwed down tightly.

**F159 OPTION BOARD DISAGREEMENT**

Processors A & B disagree over the presence of the option 2 board.

**Problem:**

One or both of the connectors underneath the Option 2 board are not seated properly or one or both of the connectors are bad.

**Remedy:**

Try reinstalling the Option 2 board (see *Installing the Option 2 Board*, page 15), making sure to seat both connectors accurately, then power down and power up the SmartPAC PRO. If you still get the F159 fault, one or both of the connectors are bad. Contact Wintriss Tech. Support for assistance.

**F160 OPTION BOARD ID ERROR**

The current option board firmware is not supported by the current WPC firmware version.

**Problem:**

The current WPC 2000 firmware is too old to recognize the Option Board ID.

**Remedy:**

Updating the WPC 2000 firmware will solve this problem.

**F163 OPTION BOARD VERSION ERROR**

The installed option board firmware is not supported by the current WPC firmware version.

**Problem:**

The current WPC 2000 firmware is too old to recognize the Option Board firmware.

**Remedy:**

Updating the WPC 2000 firmware will solve this problem. You may be able to change to an earlier version of Option 2 FW and get the system to work.

**A MULTIPAC OR WPC LUBE CONTROL WAS INSTALLED THE LAST TIME THE UNIT WAS POWERED-UP AND WAS NOT SEEN THIS TIME.**

If this is OK then press the clear key to remove it from the list. To try to connect again press the enter key. If this is not OK or you cannot get connected then you must not operate the press until the problem has been fixed.

### **Problem:**

This fault, which occurs at power-up, indicates either that a previously installed MultiPAC board has been removed and replaced by an Option 2 board or that a previously installed MultiPAC or Option 2 board has been removed.

### **Remedy:**

If you have replaced a MultiPAC board with an Option 2 board, press ENTER. If a MultiPAC or Option 2 board has been removed, press CLEAR.

## **User Input Faults**

Table 6-1, below, shows the fault code associated with each Option 2 user input that appears on your SmartPAC PRO display when there is a problem with the auxiliary equipment to which that input is connected.

To correct the problem that caused the fault code to display, check the equipment and wiring connected to that user input. When you have corrected the problem, reset the system. If the problem recurs, contact Wintriss Tech. Support.

*Table 6-1. WPC 2000 Option 2 User Input Fault Codes*

| <b>Fault Code</b> | <b>User Input</b> | <b>Pin #</b> | <b>Terminal for jumper connection</b> |
|-------------------|-------------------|--------------|---------------------------------------|
| 120               | User 12           | 433          | Ground                                |
| 121               | User 13           | 434          | Ground                                |
| 122               | User 14           | 435          | Ground                                |
| 123               | User 15           | 436          | Ground                                |
| 124               | User 16           | 440          | Ground                                |
| 125               | User 17           | 441          | Ground                                |
| 126               | User 18           | 442          | Ground                                |
| 127               | User 19           | 443          | Ground                                |
| 128               | User 20           | 444          | Ground                                |
| 129               | User 21           | 445          | Ground                                |

| Fault Code | User Input                  | Pin # | Terminal for jumper connection |
|------------|-----------------------------|-------|--------------------------------|
| 130        | User 22                     | 448   | +24 VDC                        |
| 131        | User 23                     | 449   | +24 VDC                        |
| 132        | User 24                     | 450   | +24 VDC                        |
| 133        | User 25                     | 451   | +24 VDC                        |
| 134        | User 26                     | 455   | +24 VDC                        |
| 135        | User 27                     | 456   | +24 VDC                        |
| 136        | User 28                     | 457   | +24 VDC                        |
| 137        | User 29                     | 458   | +24 VDC                        |
| 138        | User 30                     | 459   | +24 VDC                        |
| 139        | User 31                     | 460   | +24 VDC                        |
| 140, 144   | User 32 paired with User 33 | 431   | +24 VDC                        |
|            |                             | 438   | +24 VDC                        |
| 141, 145   | User 34 paired with User 35 | 432   | +24 VDC                        |
|            |                             | 439   | +24 VDC                        |
| 142, 146   | User 36 paired with User 37 | 452   | +24 VDC                        |
|            |                             | 461   | +24 VDC                        |
| 143, 147   | User 38 paired with User 39 | 453   | +24 VDC                        |
|            |                             | 462   | +24 VDC                        |

## Hydraulic Overload Faults

### F153 HYDRAULIC O/L FAULT

The hydraulic overload pressure switch has opened. You must INCH the press to the top of the stroke. The system must repressurize to close the switch. Check reason for overload before normal operation.

### Problem:

The normally closed hydraulic overload switch, which is wired to pin #468 on TB603 on the Option 2 board, has opened during operation of the press, indicating that a hydraulic overload has occurred. The press has been emergency-stopped.

This message may also display when the press does not have a hydraulic overload system and pin #468 on TB603 has not been jumpered to ground.

**Remedy:**

Turn the Stroke Select key switch to INCH. When a second F153 message displays, press OK, then try stroking the press. If additional F153 or F155 (see below) messages display, keep pressing OK and trying to stroke the press. If the F154 message displays, follow the directions provided in the Remedy for the F154 fault (see next item); otherwise, continue “inching” the press forward to the top of its stroke.

The hydraulic overload pump should turn on when the ram reaches 270° and begin repressurizing the system. The STATUS setting for the Hydraulic Overload output on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user manual) should change from OFF to ON when the pump turns on. The STATUS setting for the Hydraulic Overload Monitor Switch input should change from OFF to ON when the system has been repressurized.

**NOTICE**

You can also check the state of the pump by observing LED DS640 on the Option 2 board (see Figure 2-4, page 30). When the system has been repressurized, LED 2 in Group 12 will light.

If your press does not have a hydraulic overload system, make sure that pin #468 on TB603 is jumpered to ground (see Figure 2-3, page 22).

**F154 HYDRAULIC O/L FAULT**

The hydraulic overload pressure switch is open. The ram is before BDC. If possible, REVERSE the MOTOR and INCH to the top of the stroke. The system must repressurize to close the switch.

**Problem:**

The normally closed hydraulic overload switch, which is wired to pin #468 on TB603 on the Option 2 board, has opened during operation of the press, indicating that a hydraulic overload has occurred. The press has been emergency-stopped before bottom dead center (BDC).

This message displays after you have changed the operating mode of the press to Inch and pressed OK following display of fault F153. You may also see fault F155 (see below) before this message displays.

**Remedy:**

Press OK. Stop the main motor, then restart the motor in reverse, and inch the press to the top of the stroke.

**NOTICE**

If you cannot reverse the motor at the control, contact your plant electrician for instructions.

The hydraulic overload pump should turn on some time after the ram reaches 30° and begin repressurizing the system. The STATUS setting for the Hydraulic Overload output on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user

manual) should change from OFF to ON when the pump turns on. The STATUS setting for the Hydraulic Overload Monitor Switch input should change from OFF to ON when the system has been repressurized.

## NOTICE

You can also check the state of the pump by observing LED DS640 on the Option 2 board (see Figure 2-4, page 30). When the system has been repressurized, LED 2 in Group 12 will light.

### F155 HYDRAULIC O/L FAULT

The hydraulic overload pressure switch is still open. The system must repressurize, in order to close the pressure switch. Check reason for overload before returning to normal operation.

#### Problem:

You are attempting to restart the press while the hydraulic overload pressure switch is open. The press cannot be restarted until the hydraulic overload pump has repressurized the hydraulic overload system and the hydraulic overload pressure switch has closed.

#### Remedy:

Before attempting to restart the press, check the setting in the STATUS field for the Hydraulic Overload Monitor Switch input on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user manual). When the hydraulic overload system has been repressurized, the setting should change from OFF to ON.

## NOTICE

You can also determine when the hydraulic overload system has been repressurized by observing LED 2 in Group 12 on the Option 2 board (see Figure 2-4, page 30), which illuminates when the hydraulic pressure switch closes.

### F161 HYDRAULIC O/L WRONG STATE

The overload pressure switch has closed before the pump energized. Select INCH mode and bring the ram to the top of the stroke to repressurize.

#### Problem:

The hydraulic overload pressure switch has closed before a hydraulic overload condition could be cleared, and the hydraulic overload pump cannot be restarted. Normally, the pressure switch remains open after a hydraulic overload fault until the hydraulic overload pump has turned on and repressurized the system.

**Remedy:**

Inch the press to the top of the stroke. The hydraulic overload pump should turn on when the ram reaches either 270° or 30° and begin repressurizing the system. The STATUS setting for the Hydraulic Overload output on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user manual) should change from OFF to ON when the pump turns on. The STATUS setting for the Hydraulic Overload Monitor Switch input should change from OFF to ON when the system has been repressurized.

**NOTICE**

You can also check the state of the pump by observing LED DS640 on the Option 2 board (Figure 2-4, page 30). When the system has been repressurized, LED 2 in Group 12 will light.

## Flywheel Brake Faults

**F156 FLYWHEEL BRAKE FAULT**

The flywheel brake did not work as expected. Check the brake system monitoring switch connections.

**Problem:**

The flywheel brake did not disengage when the main motor was turned on. The brake should disengage whenever power is applied to the flywheel.

**Remedy:**

Check the pressure switch that controls operation of the flywheel brake.

## DSV Faults

**F47 DSV MONITOR FAULT**

The check contacts in the DSV have opened. Check the DSV to insure that it's safe to operate the press.

**Problem:**

The Dual Safety Valve (DSV) input switch is open, and the DSV is faulted.

**Remedy:**

To reset the DSV press DUAL VALVE RESET on the WPC Initialization Menu (see *Resetting a Dual Safety Valve (DSV)* in Chapter 3 of your user manual).

## Lube Faults

### F150 LUBE 1 FAULT

A lube control fault has occurred. The lubricant is not being properly circulated or there is a cycle switch failure.

#### Problem:

The Lube 1 input has not received the number of cycle switch actuations programmed for the lubrication time specified in Initialization for either an initial or regular Lube 1 lube session.

#### Remedy:

If this is a new installation, check the status of the Lube 1 Cycle Switch input on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs*, in Chapter 3 of your user manual). The STATUS entry for LUBE 1 CYCLE SW should toggle from OFF to ON as the cycle switch on the divider valve opens and closes. If the STATUS setting does not change (i.e., remains continuously OFF or ON), check the wiring of the cycle switch.

### NOTICE

You can also check whether the cycle switch is working by observing the LED associated with the Lube 1 input (LED 6 in Group 12—see Figure 2-4, page 30). The LED should blink off and on if the cycle switch is operating properly.

If the cycle switch is working and the press has just been started, you may have programmed too many cycle switch actuations for the specified lubrication time in SmartPAC PRO Initialization. Try decreasing the cycle switch actuations or increasing the lube time. Refer to *Making Lube Control Settings* in Chapter 3 of your user manual.

If this message displays after the machine has been running for some time, check to make sure that the lube system has sufficient oil in the reservoir and that no lube lines have become crimped or unattached. Also check the wiring from the cycle switch to the Lube 1 input on the Option 2 board (see *Wiring Lube Control Inputs and Outputs*, page 25).

### F151 MONITOR 1 SW FAULT

A lube control fault has occurred. The lube cycle monitor switch 1 has detected a problem.

#### Problem:

The Monitor 1 input has not received the number of cycle switch actuations programmed for the lubrication time specified in Initialization for a Monitor 1 lube session.

#### Remedy:

If this is a new installation, check the status of the Monitor 1 Cycle Switch input on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user

manual). The STATUS entry for MONITOR 1 CYCLE SW should toggle from OFF to ON as the cycle switch on the divider valve opens and closes. If the STATUS setting does not change (i.e., remains continuously OFF or ON), check the wiring of the cycle switch.

## NOTICE

You can also check whether the cycle switch is working by observing the LED associated with the Monitor 1 input (LED 5 in Group 12—see Figure 2-4, page 30). The LED should blink off and on if the cycle switch is operating properly.

If the cycle switch is working and the press has just been started, the Monitor 1 lubrication monitoring window set in SmartPAC PRO Initialization may be too long. Try increasing the lube monitoring time. Refer to *Making Lube Control Settings* in Chapter 3 of your user manual.

If this message displays after the machine has been running for some time, check to make sure that the lube system has sufficient oil in the reservoir and that no lube lines have become crimped or unattached. Also check the wiring from the cycle switch to the Monitor 1 input on the Option 2 board (see *Wiring Lube Control Inputs and Outputs*, page 25).

### F152 MONITOR 2 SW FAULT

A lube control fault has occurred. The lube cycle monitor switch 2 has detected a problem.

### Problem:

The Monitor 2 input has not received the number of cycle switch actuations programmed for the lubrication time specified in Initialization for a Monitor 2 lube session.

### Remedy:

If this is a new installation, check the status of the Monitor 2 Cycle Switch input on the Option 2 I/O Status screen (see *Viewing the Status of Option 2 Inputs and Outputs* in Chapter 3 of your user manual). The STATUS entry for MONITOR 2 CYCLE SW should toggle from OFF to ON as the cycle switch on the divider valve opens and closes. If the STATUS setting does not change (i.e., remains continuously OFF or ON), check the wiring of the cycle switch.

## NOTICE

You can also check whether the cycle switch is working by observing the LED associated with the Monitor 2 input (LED 4 in Group 12—see Figure 2-4, page 30). The LED should blink off and on if the cycle switch is operating properly.

If the cycle switch is working and the press has just been started, the Monitor 2 lubrication monitoring window set in SmartPAC PRO Initialization may be too long. Try increasing the lube monitoring time. Refer to *Making Lube Control Settings* in Chapter 3 of your user manual.

If this message displays after the machine has been running for some time, check to make sure that the lube system has sufficient oil in the reservoir and that no lube lines have become crimped or unattached. Also check the wiring from the cycle switch to the Monitor 2 input on the Option 2 board (see *Wiring Lube Control Inputs and Outputs*, page 25).

**F162 LUBE MOTOR FAULT**

A lube control fault has occurred. The lube motor was off when the main motor was turned on. Check the wiring or the setting of Monitor Switch Check in lube setup window.

**Problem:**

The LUBE MOTOR IN setting is enabled in the MONITOR SWITCH CHECK field on the Press Lubrication Setup screen, but no input is wired to pin #469 (LUBE MOTOR ON) on TB603 on the Option 2 board, or the input wiring connection is loose.

**Remedy:**

If you are not using a lube motor input signal to initiate Monitor 1 and 2 lube cycles, change the setting in the MONITOR SWITCH CHECK field on the Press Lubrication Setup screen to either MAIN MOTOR ON or DSV ON (see *Setting Monitor 1 and 2 Initialization Parameters* in Chapter 3 of your user manual). If you are using a lube motor input signal, check the wiring at pin #469 (see Figure 2-3, page 22).

## Speed Control Faults

**F158 TACH FAULT**

A tachometer reading fault has occurred. The tach input is set to 4-20 mA and the reading is too low or the current loop is open. Check the wiring.

**Problem:**

Either there is a loose wiring connection or no power at the tachometer generator terminals of the motor drive, or jumpers JP601A and JP601B on the Option 2 board are set to the wrong position (i.e., jumpers are set to the “4-20 mA” position, but the tachometer generator output supplies a 0-10 VDC signal and is wired to the 4-20 mA terminals, pins #475 and #476, on TB604 on the Option 2 board).

**Remedy:**

If this is a new installation, check the wiring at TB604 and the jumper settings at JP601A and JP601B. If wiring and settings are for a 4-20 mA signal, rewire the tachometer generator connections for 0-10 VDC (i.e., to pins #476 and #477 on the Option 2 board) and reset jumpers JP601A and JP601B to the “0-10 V” position (see Figure 2-3, page 22). If wiring and settings are for a 0-10 VDC signal, check the tachometer generator terminals on the motor drive for a loose wiring connection or no power.

If the press has been in operation for a while, first check the wiring connections and power at the tachometer generator terminals, then, if these are OK, check TB604 wiring and jumper JP601A and JP601B settings.



# Appendix A – Option 2 User Input Setup Sheet

| User Input                  | Fault Code | Stop Type | Pin # | Terminal for jumper connection | Name of Auxiliary Equipment (see step 5 under <i>Setting User Input Stop Type and Name</i> in Chapter 3 of your user manual.) |
|-----------------------------|------------|-----------|-------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| User 12                     | 120        |           | 433   | Ground                         |                                                                                                                               |
| User 13                     | 121        |           | 434   | Ground                         |                                                                                                                               |
| User 14                     | 122        |           | 435   | Ground                         |                                                                                                                               |
| User 15                     | 123        |           | 436   | Ground                         |                                                                                                                               |
| User 16                     | 124        |           | 440   | Ground                         |                                                                                                                               |
| User 17                     | 125        |           | 441   | Ground                         |                                                                                                                               |
| User 18                     | 126        |           | 442   | Ground                         |                                                                                                                               |
| User 19                     | 127        |           | 443   | Ground                         |                                                                                                                               |
| User 20                     | 128        |           | 444   | Ground                         |                                                                                                                               |
| User 21                     | 129        |           | 445   | Ground                         |                                                                                                                               |
| User 22                     | 130        |           | 448   | +24 VDC                        |                                                                                                                               |
| User 23                     | 131        |           | 449   | +24 VDC                        |                                                                                                                               |
| User 24                     | 132        |           | 450   | +24 VDC                        |                                                                                                                               |
| User 25                     | 133        |           | 451   | +24 VDC                        |                                                                                                                               |
| User 26                     | 134        |           | 455   | +24 VDC                        |                                                                                                                               |
| User 27                     | 135        |           | 456   | +24 VDC                        |                                                                                                                               |
| User 28                     | 136        |           | 457   | +24 VDC                        |                                                                                                                               |
| User 29                     | 137        |           | 458   | +24 VDC                        |                                                                                                                               |
| User 30                     | 138        |           | 459   | +24 VDC                        |                                                                                                                               |
| User 31                     | 139        |           | 460   | +24 VDC                        |                                                                                                                               |
| User 32 paired with User 33 | 140, 144   |           | 431   | +24 VDC                        |                                                                                                                               |
|                             |            |           | 438   | +24 VDC                        |                                                                                                                               |
| User 34 paired with User 35 | 141, 145   |           | 432   | +24 VDC                        |                                                                                                                               |
|                             |            |           | 439   | +24 VDC                        |                                                                                                                               |
| User 36 paired with User 37 | 142, 146   |           | 452   | +24 VDC                        |                                                                                                                               |
|                             |            |           | 461   | +24 VDC                        |                                                                                                                               |
| User 38 paired with User 39 | 143, 147   |           | 453   | +24 VDC                        |                                                                                                                               |
|                             |            |           | 462   | +24 VDC                        |                                                                                                                               |

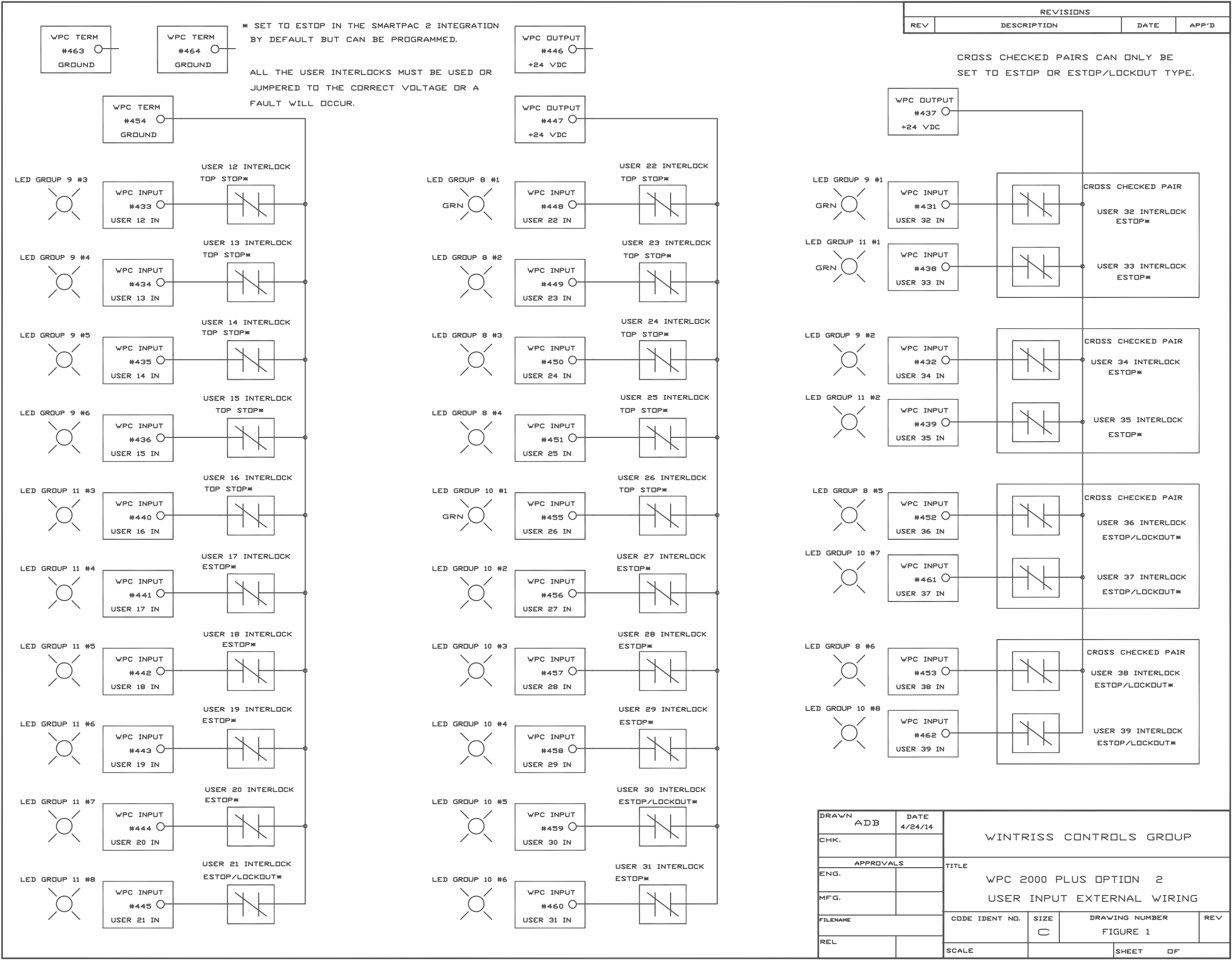


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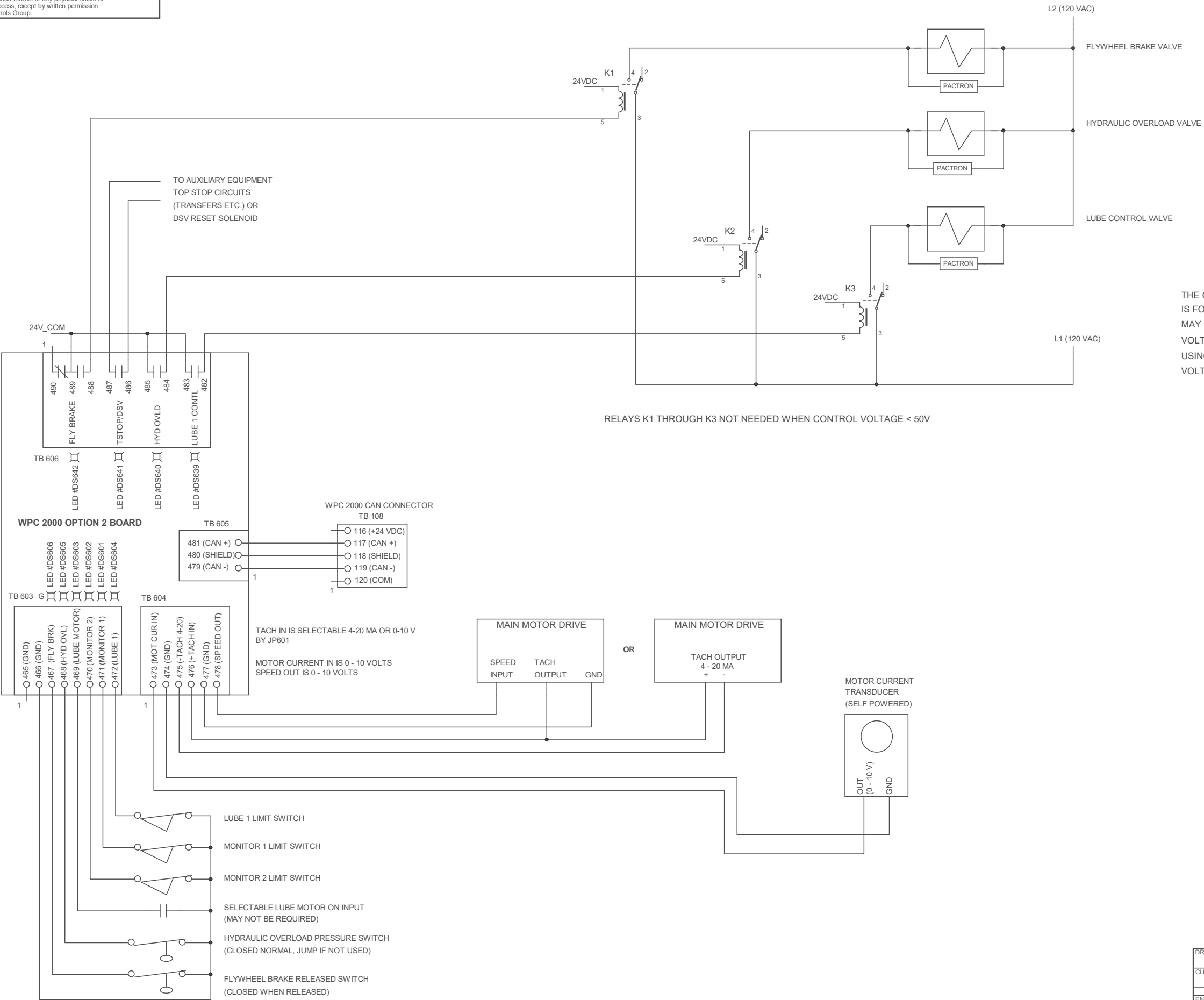




|           |     |                |         |                                                      |  |     |  |
|-----------|-----|----------------|---------|------------------------------------------------------|--|-----|--|
| DRAWN     | AID | DATE           | 4/24/14 | WINTRISS CONTROLS GROUP                              |  |     |  |
| CHK.      |     |                |         |                                                      |  |     |  |
| APPROVALS |     |                |         | TITLE                                                |  |     |  |
| ENG.      |     |                |         | WPC 2000 PLUS OPTION 2<br>USER INPUT EXTERNAL WIRING |  |     |  |
| MFG.      |     |                |         |                                                      |  |     |  |
| FILENAME  |     | CODE IDENT NO. | SIZE    | DRAWING NUMBER                                       |  | REV |  |
| REL       |     |                | C       | FIGURE 1                                             |  |     |  |
|           |     | SCALE          |         | SHEET                                                |  | OF  |  |



| REVISIONS |             |      |       |
|-----------|-------------|------|-------|
| REV       | DESCRIPTION | DATE | APP'D |
|           |             |      |       |



THE OUTPUT CONTROL CIRCUIT WIRING THAT IS SHOWN IS FOR 120 VAC. YOUR ACTUAL CONTROL CIRCUITS MAY USE DIFFERENT VOLTAGES. THE CONTROL VOLTAGES MAY EVEN BE MIXED WITH SOME DEVICES USING ONE VOLTAGE AND OTHERS USING ANOTHER VOLTAGE.

|           |      |                         |                                           |                |     |
|-----------|------|-------------------------|-------------------------------------------|----------------|-----|
| DRAWN     | DATE | WINTRISS CONTROLS GROUP |                                           |                |     |
| CHK.      |      |                         |                                           |                |     |
| APPROVALS |      | TITLE                   |                                           |                |     |
| ENG.      | LT   | 12/18/25                | WPC 2000/APEX OPTION 2<br>EXTERNAL WIRING |                |     |
| MFG.      |      |                         |                                           |                |     |
| FILENAME  |      | CODE IDENT NO.          | SIZE                                      | DRAWING NUMBER | REV |
| REL       |      |                         | D                                         | FIGURE 2       |     |
| SCALE     |      | NONE                    |                                           | SHEET          | OF  |

