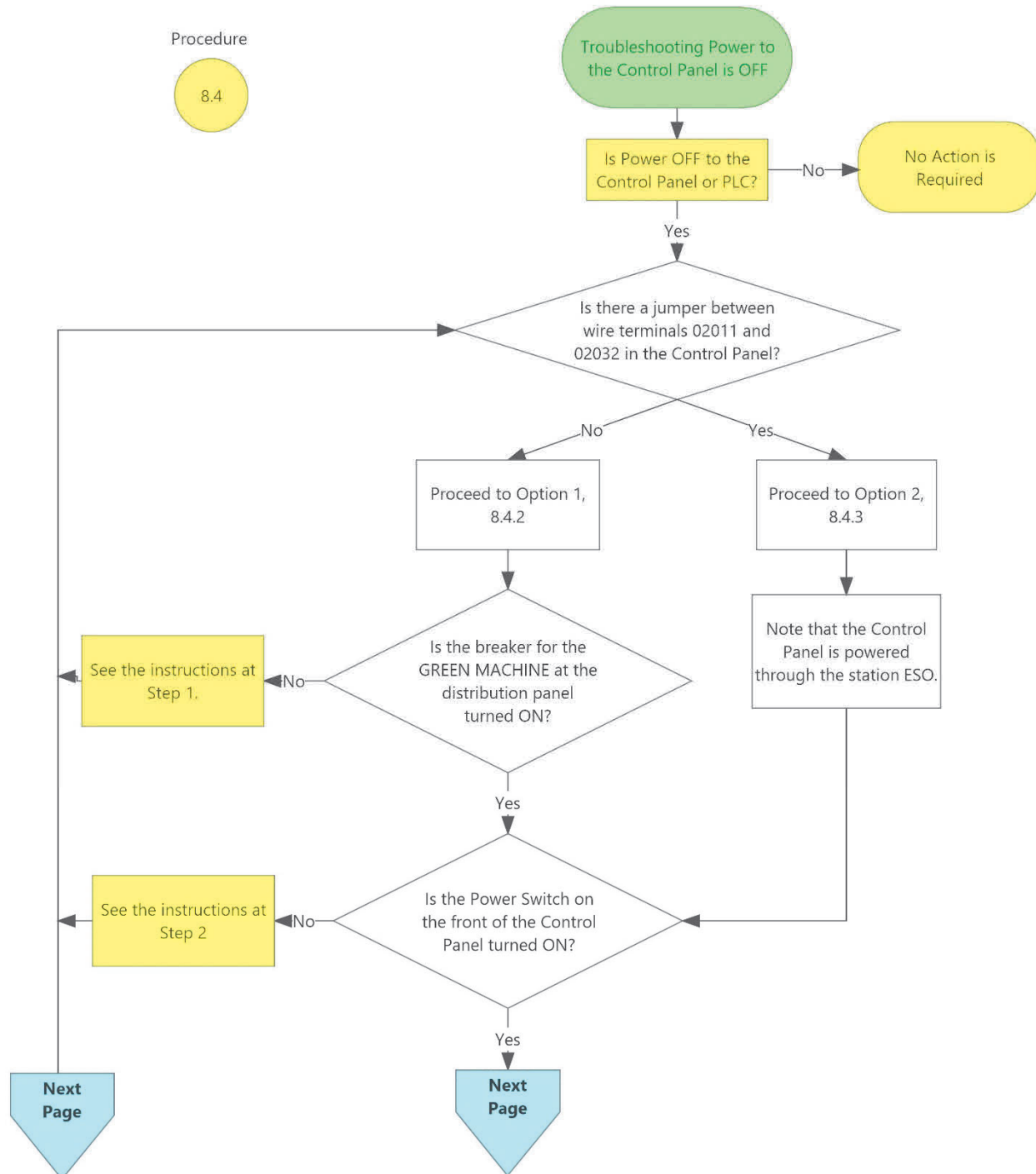




## 8.4 Power to the VST Control Panel or PLC Controller is OFF

### Power to the Control Panel or the Controller is OFF



Power to the Control Panel is OFF, Pg 1, 3-8-2018

Figure 8-4: Power to the VST Control Panel or Controller is OFF



Power to the Control Panel or the Controller is OFF, continued...

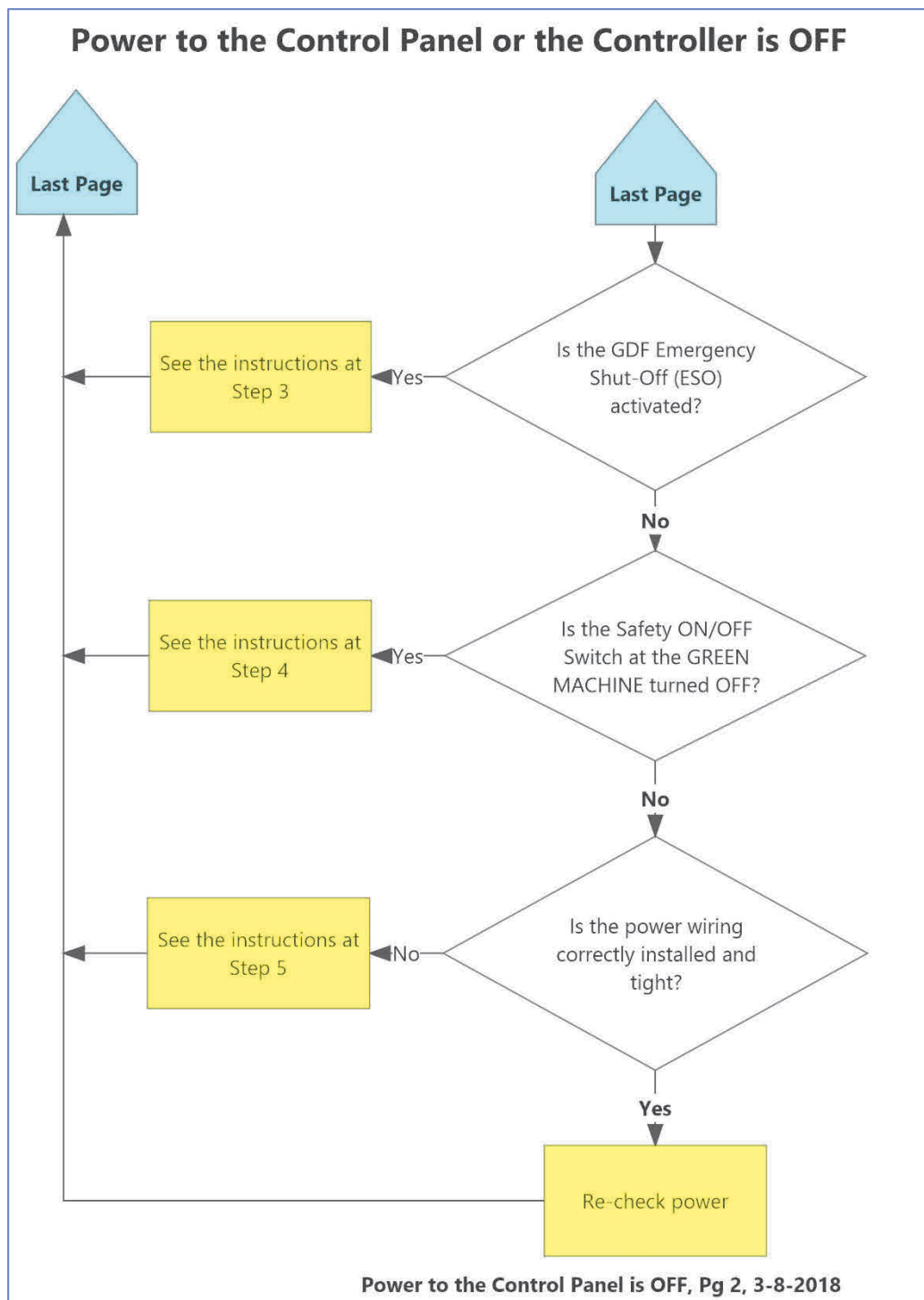


Figure 8-4 continued... Power to the VST Control Panel or Controller is OFF



### 8.4.1 Control Panel General Information

- The VST Control Panels are pre-wired and tested prior to leaving the factory.
- Check all wiring connections to make sure they are properly connected.
- The VST Control Panel is MET Listed to comply with UL Standard 508A, and CSA C22.2 No.14.
- If an electrical component has malfunctioned inside the VST Control Panel, all the electrical components MUST BE ordered from the Replacement Parts List (Chapter 9) in this manual.
- Check the wire terminals 02011 and 02032, then proceed to the appropriate procedures:
  - Option 1:** If there are two wires landed in these terminals, the VST Control Panel is powered directly from the distribution panel. See Section 8.4.2.
  - Option 2:** If there is a jumper connecting these terminals, the VST Control Panel is powered through an ESO breaker. See Section 8.4.3.



## 8.4.2 Option 1: Control Panel is Powered from Distribution Panel

Steps	Procedures
1.	Verify that the Breaker for the VST Control Panel in the main power distribution panel is ON. If not, turn the breaker ON. <b>See Figures 8-5 &amp; 8-6</b>
2.	Check that the Power Switch on the front of the Control Panel is ON. If not, turn it ON. <b>See Figure 8-9.</b>
3.	The VST Control Panel must supply 115 VAC power through an Emergency Shut-Off (ESO) dry relay for the VST Control Panel to have power and for the GREEN MACHINE to operate. <b>See Figures 8-5 &amp; 8-6.</b> <ul style="list-style-type: none"><li data-bbox="427 762 1198 789">a) Verify the VST Control Panel is connected to the station ESO.</li><li data-bbox="427 842 1398 905">b) Verify the ESO is not engaged. If the ESO is engaged the GREEN MACHINE will not have 115 VAC power.</li><li data-bbox="427 957 1344 1020">c) Verify all the wire connections from the VST Control Panel to the ESO are correct and tight.</li><li data-bbox="427 1031 1409 1136">d) Verify the ESO circuit has 115 VAC power from the VST Control Panel across terminals 02011 and 02032 on the field connections section of the VST Control Panel. <b>See Figure 8-6.</b></li><li data-bbox="427 1188 1409 1251">e) Verify that the 115 VAC Over/Under Voltage Relay is adjusted to 118 VAC or at the local voltage. <b>See Figure 8-10.</b></li></ul>
4.	Check to see if the Safety Disconnect Switch at the GREEN MACHINE is turned ON. If not, turn ON the switch. If the switch has a Lockout/Tagout lock, do not remove the lock and leave the switch OFF. Someone is performing maintenance.



Option 1: Control Panel is powered from Distribution Panel, continued...

5. Check that there is power at the VST Control Panel and the wiring is installed correctly and tight. **See Figure 8-10.**
  - Verify that the VST Control Panel fuses and wiring to power supply are correct.
    - a) With power OFF to the VST Control Panel, check to see if the 24 VDC power supply FU 4 fuse is functioning by checking continuity. The 5-amp fuse may be blown. If so replace the fuse.
    - b) With the power ON to the VST Control Panel, verify there is 24 VDC power out of the 24 VDC power supply. On the 24 VDC power supply, check the OUTPUT terminals marked -V and +V. The voltage should be  $24 \pm 5$  VDC. The 24 VDC power supply may be damaged. If so replace the 24 VDC power supply.
    - c) With the power ON to the VST Control Panel, check the 24 VDC wire connections to the GREEN MACHINE Controller. At the PLC Controller, check to make sure there is 24 VDC power across wire numbers 02092 and the ground. The PLC Controller may be damaged. If so replace the PLC Controller.
  - If the VST Control Panel worked prior to this issue after checking STEPS 1-5, and the Control Panel still does not have power, call a VST Service Technician.
  - Troubleshoot the VST Control Panel by checking the power circuit to make sure none of the electrical components are damaged.
  - The parts can be found under the Control Panel Replacement Parts List. These parts can be purchased from VST or a distributor, but they must be identical to the parts listed.
  - See the Control Panel Parts Replacement Table in Chapter 9.
    - 115 VAC 20A Motor Circuit Controller
    - 115 VAC Side Mount Aux. Contact N.O.
    - Solid State Relay, 30A, SPST, 90-280V INPUT, N.O., 24-280 VAC LOAD
    - 115 VAC Over/Under Voltage Relay



### 8.4.3 Option 2: Control Panel is Powered from ESO Breaker

Steps	Procedures
1.	Note that the VST Control Panel is powered through the ESO breaker. <b>See Figures 8-7 &amp; 8-8.</b>
2.	Check that the Power Switch on the front of the Control Panel is ON. If not, turn it ON. <b>See Figure 8-9.</b>
3.	The VST Control Panel must be supplied 115 VAC power through an Emergency Shut-Off (ESO) dry relay for the VST Control Panel to have power and for the GREEN MACHINE to operate. <b>See Figures 8-7 &amp; 8-8.</b>  a) Verify the VST Control Panel is connected to the station ESO.  b) Verify the ESO is not engaged. If the ESO is engaged the GREEN MACHINE will not have 115 VAC power.  c) Verify all the wire connections from the VST Control Panel to the ESO are correct and tight.  d) Verify the ESO circuit has 115 VAC power from the VST Control Panel across terminals 02011 and 02032 by checking the continuity of the jumper. <b>See Figure 8-8.</b>  e) Verify that the 115 VAC Over/Under Voltage Relay is adjusted to 118 VAC or at the local voltage. <b>See Figure 8-10.</b>



Option 2: Control Panel is powered from ESO Breaker, continued...

4. Check to see if the Safety Disconnect Switch at the GREEN MACHINE is turned ON. If not, turn ON the switch. If the switch has a Lockout/Tagout lock, do not remove the lock and leave the switch OFF. Someone is performing maintenance.
5. Check that there is power at the VST Control Panel and the wiring is installed correctly and tight. **See Figure 8-10.**
  - Verify that the VST Control Panel fuses and wiring to power supply are correct.
    - a) With power OFF to the VST Control Panel, check to see if the 24 VDC power supply FU 4 fuse is functioning by checking continuity. The 5-amp fuse may be blown. If so replace the fuse.
    - b) With the power ON to the VST Control Panel, verify there is 24 VDC power out of the 24 VDC power supply. On the 24 VDC power supply, check the OUTPUT terminals marked -V and +V. The voltage should be  $24 \pm 5$  VDC. The 24 VDC power supply may be damaged. If so replace the 24 VDC power supply.
    - c) With the power ON to the VST Control Panel, check the 24 VDC wire connections to the GREEN MACHINE Controller. At the PLC Controller, check to make sure there is 24 VDC power across wire number 02092 and the ground. The PLC Controller may be damaged. If so replace the PLC Controller.
  - If the VST Control Panel worked prior to this issue after checking STEPS 1-5, and the Control Panel still does not have power, call a VST Service Technician.
  - Troubleshoot the VST Control Panel by checking the power circuit to make sure none of the electrical components are damaged.
    - The parts can be found under the Control Panel Replacement Parts List. These parts can be purchased from VST or a distributor, but they must be identical to the parts listed.
    - See the Control Panel Parts Replacement Table in Chapter 9.
      - 115 VAC 20A Motor Circuit Controller
      - 115 VAC Side Mount Aux. Contact N.O.
      - Solid State Relay, 30A, SPST, 90-280V INPUT, N.O., 24-280 VAC LOAD
      - 115 VAC Over/Under Voltage Relay



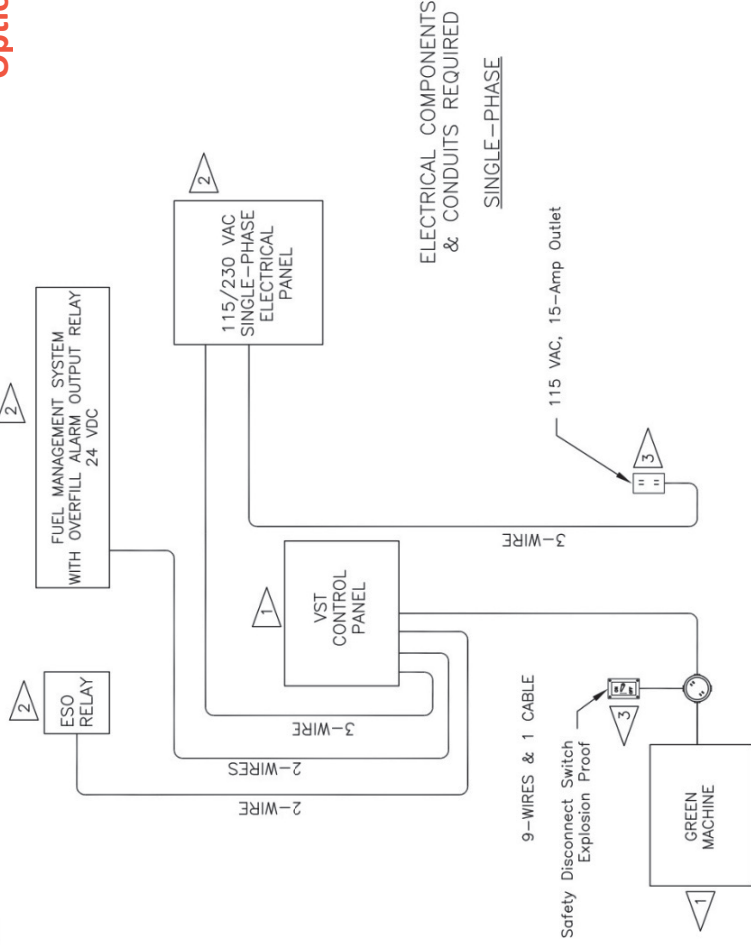
NOTE:  
 1. THE ESO WILL TURN OFF THE GREEN MACHINE WHEN ACTIVATED (2-WIRE)  
 2. THE OVERFILL OUTPUT RELAY WILL TURN OFF THE GREEN MACHINE WHEN AN OVERFILL OCCURS (2-WIRES)



## Option 1

### WARNING

REFERENCE SHEET 3/9  
 WHEN THE VST CONTROL  
 PANEL IS POWERED FROM  
 THE MAIN ELECTRICAL  
 DISTRIBUTION PANEL.



ELECTRICAL COMPONENTS  
 & CONDUITS REQUIRED  
 SINGLE-PHASE

NOTES:

- 1. ITEM ARE SUPPLIED BY VST, INC.
- 2. ITEM ARE EXISTING AT GDF SITE LOCATION.
- 3. ITEM ARE SUPPLIED BY CONTRACTOR.

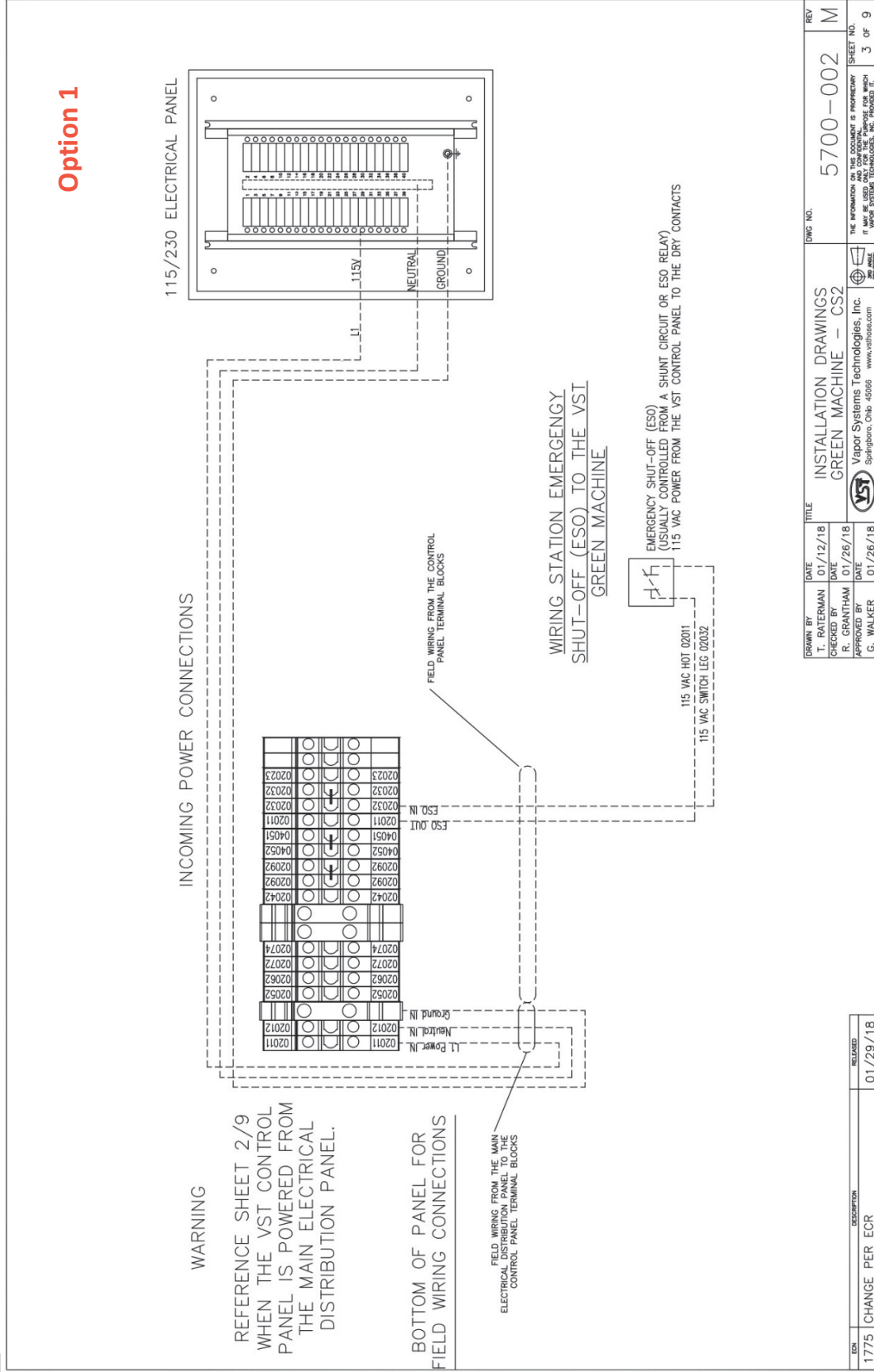
DATE	01/12/18	DATE	01/26/18	DATE	01/26/18	DATE	01/26/18
DRAWN BY	T. RATERMAN	CHECKED BY	R. GRANTHAM	APPROVED BY	G. WALKER	REV	M
TITLE				DWG. NO.			
INSTALLATION DRAWINGS				5700-002			
GREEN MACHINE - CS2				SHEET NO.			
Vapor Systems Technologies, Inc.				2 OF 9			
Springboro, Ohio 45066 www.vstho.com				THE INFORMATION ON THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL TO VAPOR SYSTEMS TECHNOLOGIES, INC. PROTECTED BY PATENT.			
ECN	DESCRIPTION	RELEASED					
1775	CHANGE PER ECR	01/29/18					

Figure 8-5: Electrical Field Wiring Diagram





**Option 1**



FILENAME: 5700-002 TITLE: CS2 SCALE: N/A

Figure 8-6: Incoming Power Connections

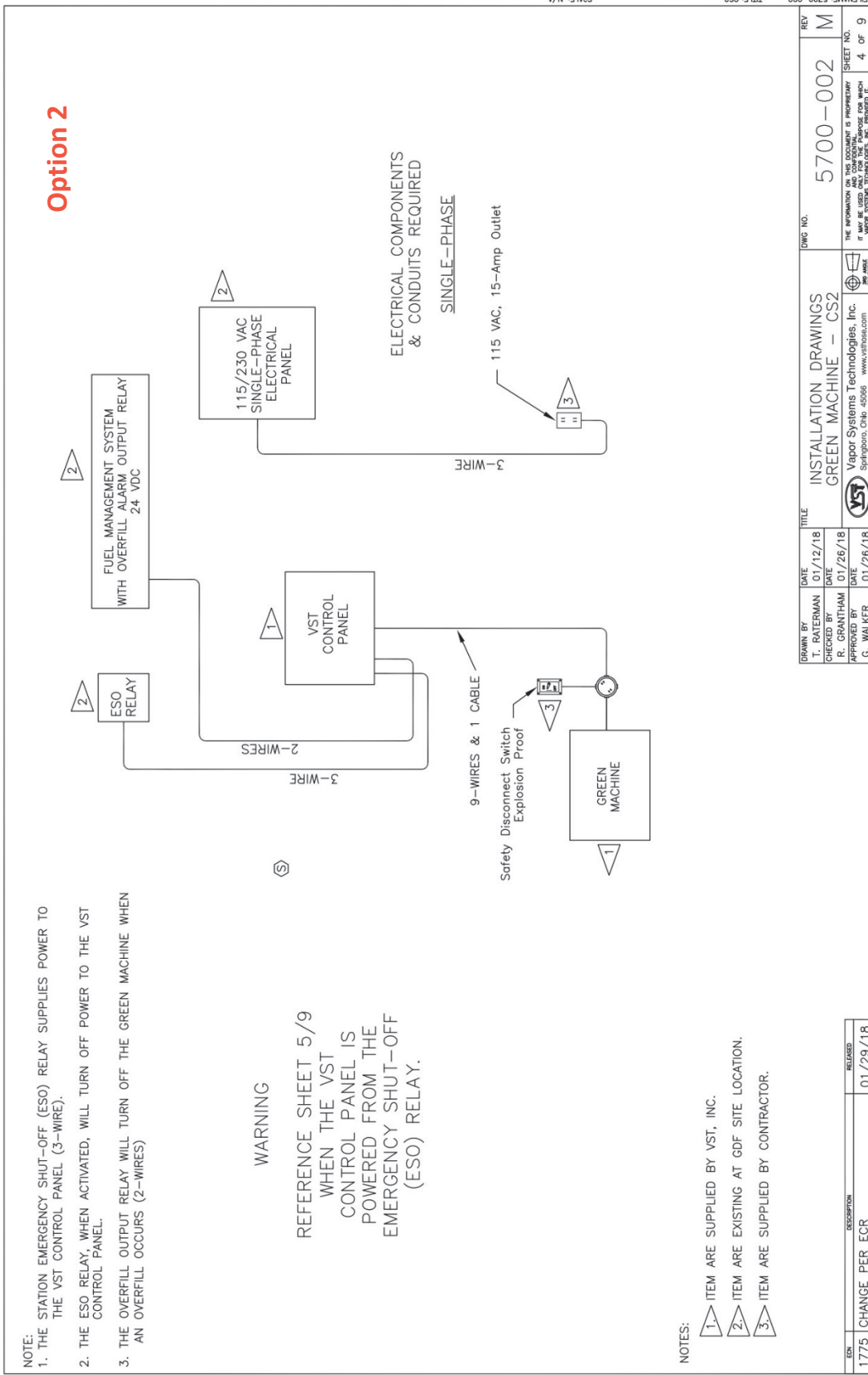


Figure 8-7: VST Control Panel Powered from ESO Relay



## Option 2

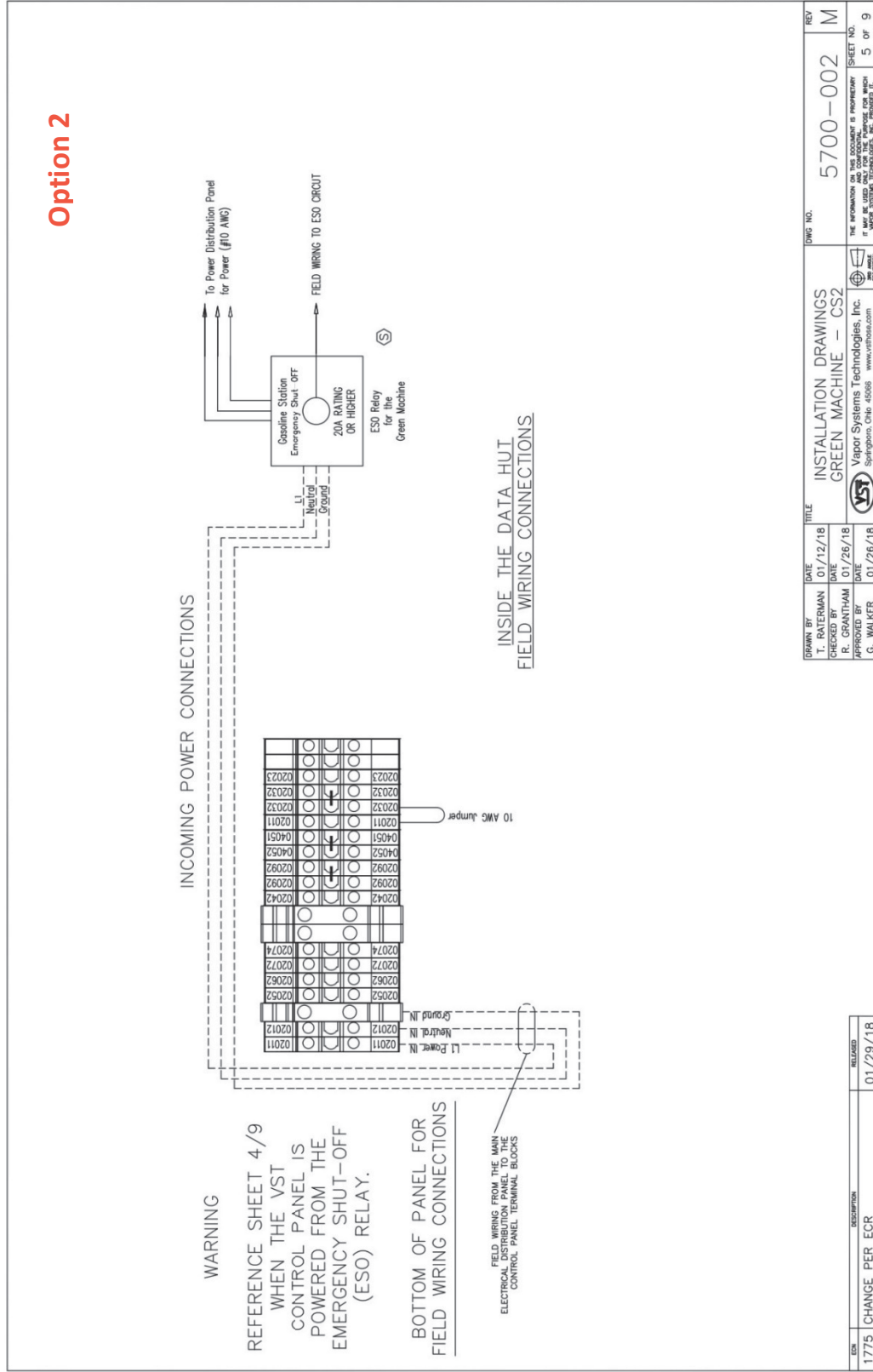


Figure 8-8: Electrical Overview Installation Drawing

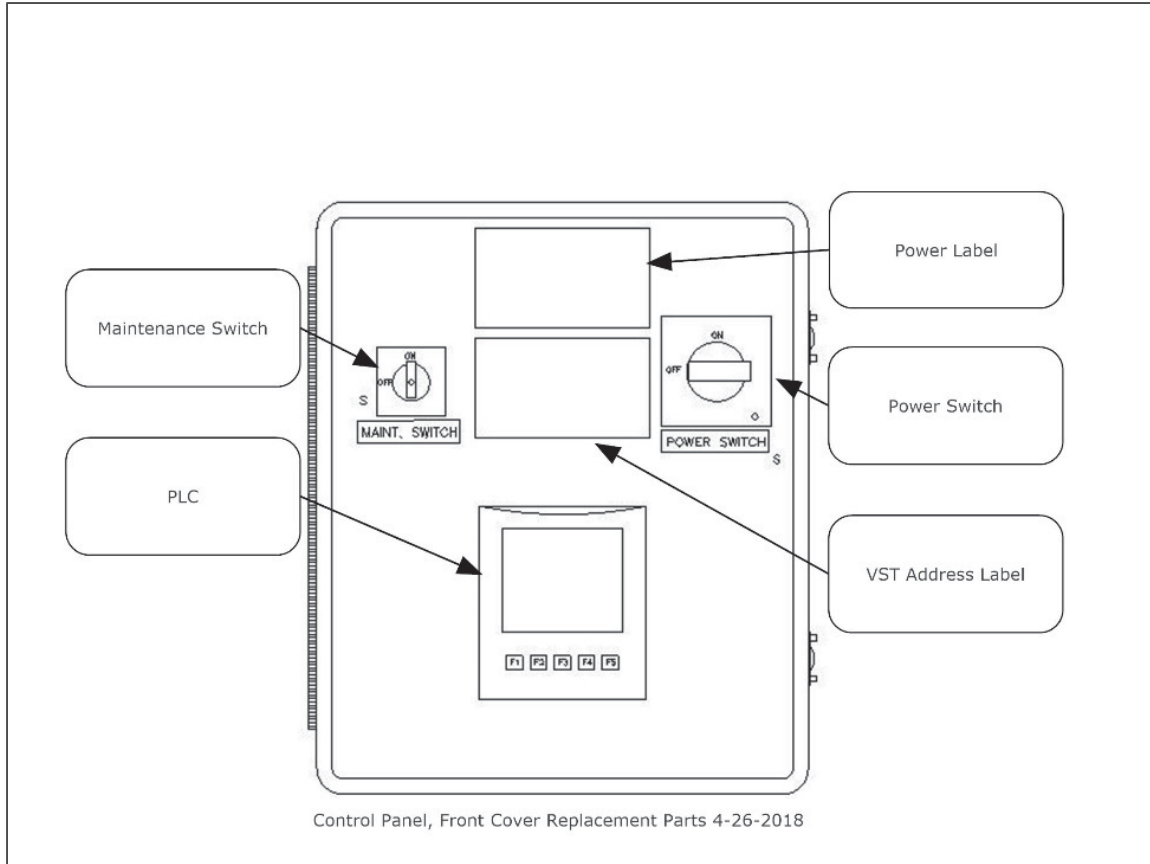
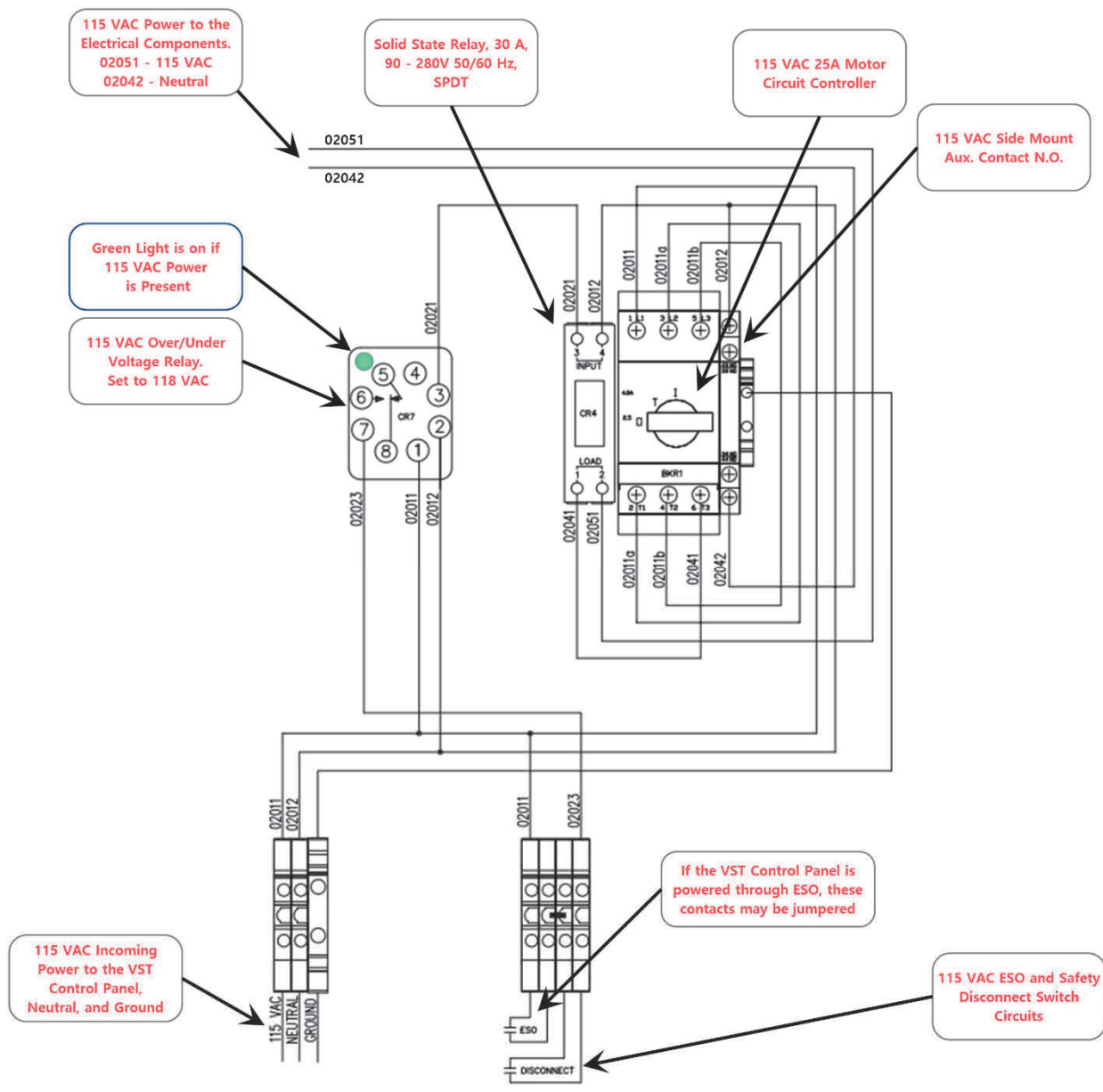


Figure 8-9: VST Control Panel Components – Front Cover



GM NA VST Control Panel Power Circuit, 1-19-2018

Figure 8-10: VST Control Panel 115 VAC Power Circuit Diagram