

U-Treat v4.1 Upgrade Installation Kit

Kit Part Number:

**03-21-0027 = U-Treat Version 1 Panel
with Tri-Flo® (v2.1 or Older)**

Installation Instructions

Document: TD-09-06-3036

Revision: B

RECEIVING YOUR UPGRADE KIT

As soon as the equipment is received, it should be carefully inspected to make certain that it has sustained no damage during shipment and that all items listed on the packing list are accounted for. If there is any damage or shortages, the purchaser must immediately notify USC, LLC. The purchaser is responsible for unloading and mounting all components of the equipment.

Write the serial number from the original door in the Existing S/N: space provided on the label in the upper right hand corner of the new door. The existing serial number is the one you will need to provide USC when calling for service or parts. USC recommends that you also write that number down on page 3 of the U-Treat v4.1 operators manual (TD-09-06-1050) provided in this kit.

Also write down the serial number from the label on the back of the IPC2100 touch screen at the bottom of this page. This number will also be needed when calling in for help.



Existing Serial Number



IPC2100 Serial Number

SERIAL NUMBER: _____

UPGRADE KIT COMPONENTS

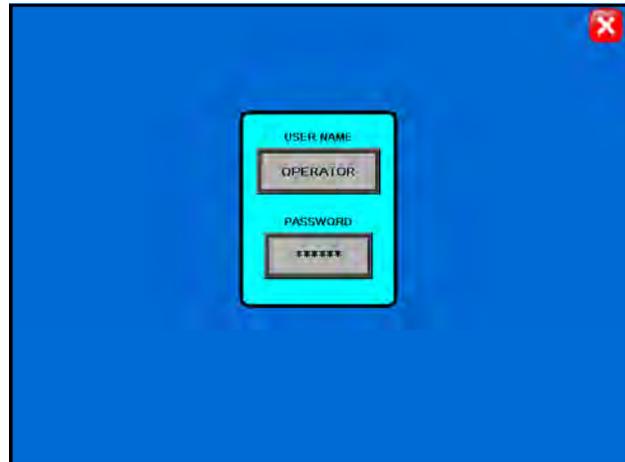
Please verify you have received the following parts in your kit:

- **Pre-Assembled Control Panel Door** with 03-08-0383 pre-wired break-out board and 03-04-0108 20 Amp power disconnect switch.
- 03-11-0141 = Alternate Hoffman Control Panel Door (Qty = 1).
- 03-02-0056 = Fuse 1 Amp Class T SB/TD GMD-1-R (Qty = 1).
- 03-02-0057 = Fuse 3 Amp Class T SB/TD GMD-3-R (Qty = 1).
- 03-05-0061 = Terminal Block Fused WM0474560000 (Qty = 2).
- 03-07-0074 = Ethernet Cable, Blue, 6FT (Qty = 1).
- 03-07-0112 = CBL STD CANOPEN UL SCHDR TSXCANCB50 (Qty = 2).
- 03-08-0234 = Connector, IEFM-RJ45-C Pass-Thru (Qty = 1).
- 03-08-0255 = CONN Breakout Board DB9 BRKSD9F-C (Qty = 1).
- 03-08-0268 = Connector, Compact, TNML BLK 2-CON (Qty = 3).
- 03-09-0001 = Wire Ties - White.
- 03-09-0002 = Wire Ties - Black.
- 03-09-0005 = Din Rail (2.5") (Qty = 1).
- 03-16-0017 = PLC ACC TMNL BLCK RCVR TM5ACTB12PS (Qty = 1).
- 03-16-0121 = PLC MOD CANOPEN FIELDBUS TM5NCO1 (Qty = 1).
- 03-16-0122 = PLC ACC BUS BASE FIELD BUS TM5ACBN1 (Qty = 1).
- 03-16-0123 = PLC ACC BUS BASE FIELD BUS TM5SPS3 (Qty = 1).
- 03-21-0019 = M258 firmware on USB .(Qty = 1).
- 03-21-0029 = PRG M258 Remote I/O on USB (Qty = 1).
- 06-06-0005 = Self Tapping Screw 10-16 X .50 LG (Qty = 2).
- 09-05-0008 = Printer Server Internet to USB PRG (Qty = 1).
- TD-09-06-1050A = MANUAL - U-TREAT V4.0 AUTOMATED.pdf (Qty = 1).
- TD-09-06-2009A = QCK REF SHT - U-TREAT V4.0 AUTOMATED.pdf (Qty = 1).
- TD-09-06-3033A = SYS UPGRD KIT - U-TREAT V4.0 V2-3.pdf (Qty = 1).

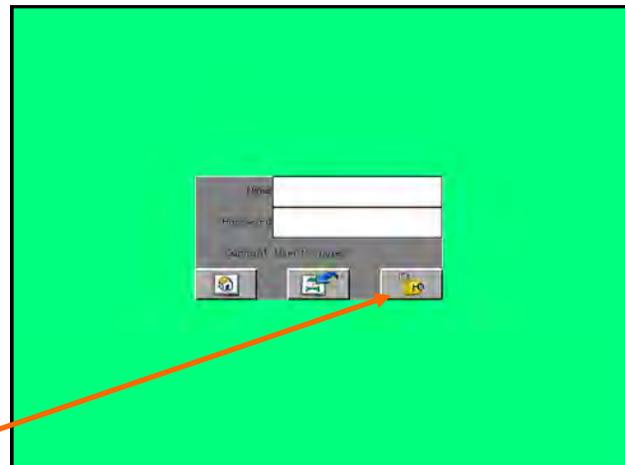
PRESERVING SYSTEM DATA

Step 1: Updating the program will erase all treater and bin site settings. Follow these instructions to record all of the settings for re-entry into the system after the installation process is complete.

1. Go to Security screen on the HMI and press the USER NAME button.

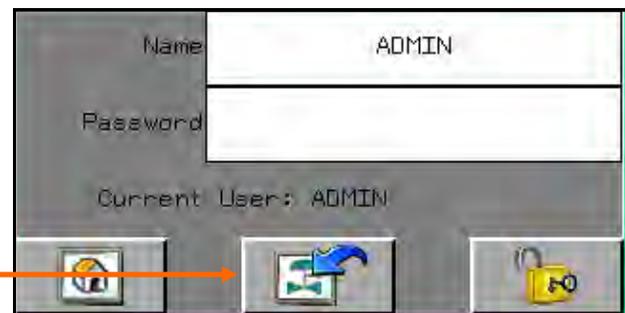


2. Press on the Name space, type in **ADMIN** and press enter. Then press on Password space, type in **SERVICE** and press enter. Press the unlock button.



Unlock Button

3. Verify the current user is ADMIN. Then press the return button.



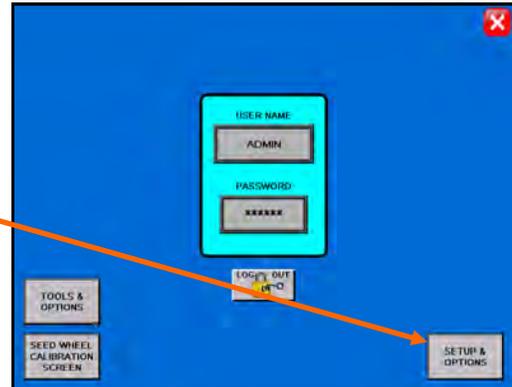
Return Button

PRESERVING SYSTEM DATA

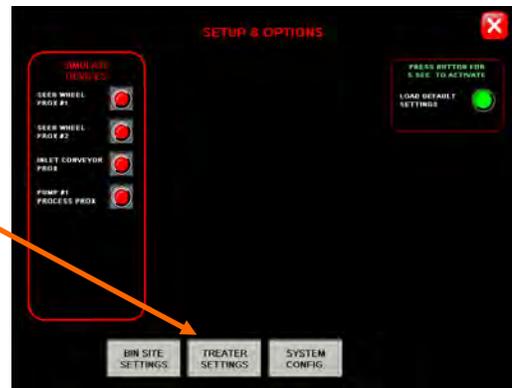
NOTICE

The easiest way to record all of the system information is to take a digital picture of each screen instead of writing all of the information down.

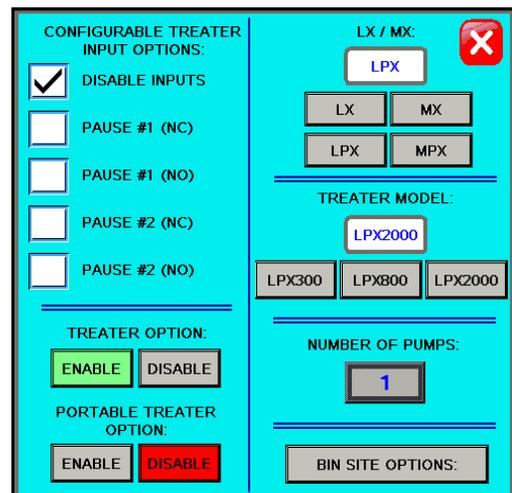
4. Press SETUP & OPTIONS button.



5. Press TREATER SETTINGS button.



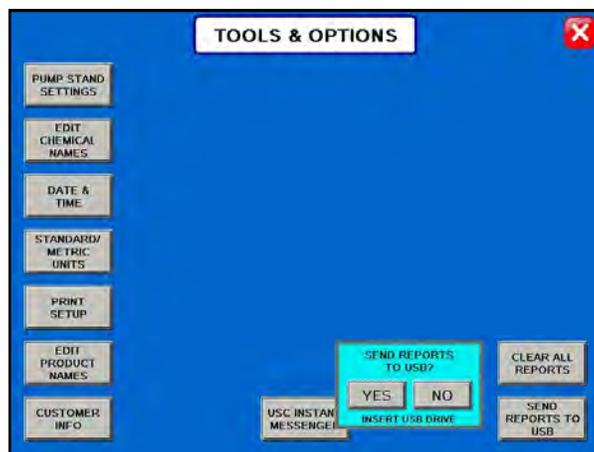
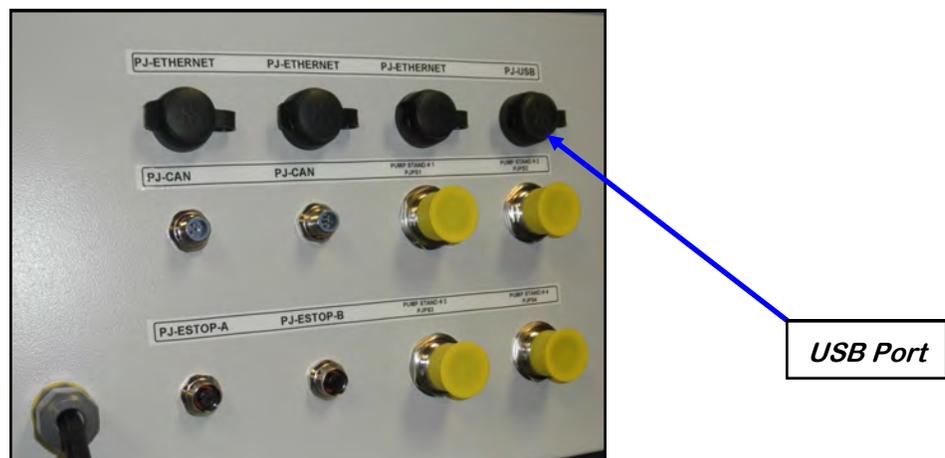
6. Record all treater data such as target rates, timer settings, product names, customer information and chemical names. Installing the new software will reset the treater to factory defaults. Make sure to go through all treater screens and record settings, product names, rates, etc. If the site is a bin site system, the bin site configuration data will also need to be recorded. Press the Bin Site Options button and record that information as well. Please contact your USC service provider for more instructions on this process.



PRESERVING SYSTEM DATA

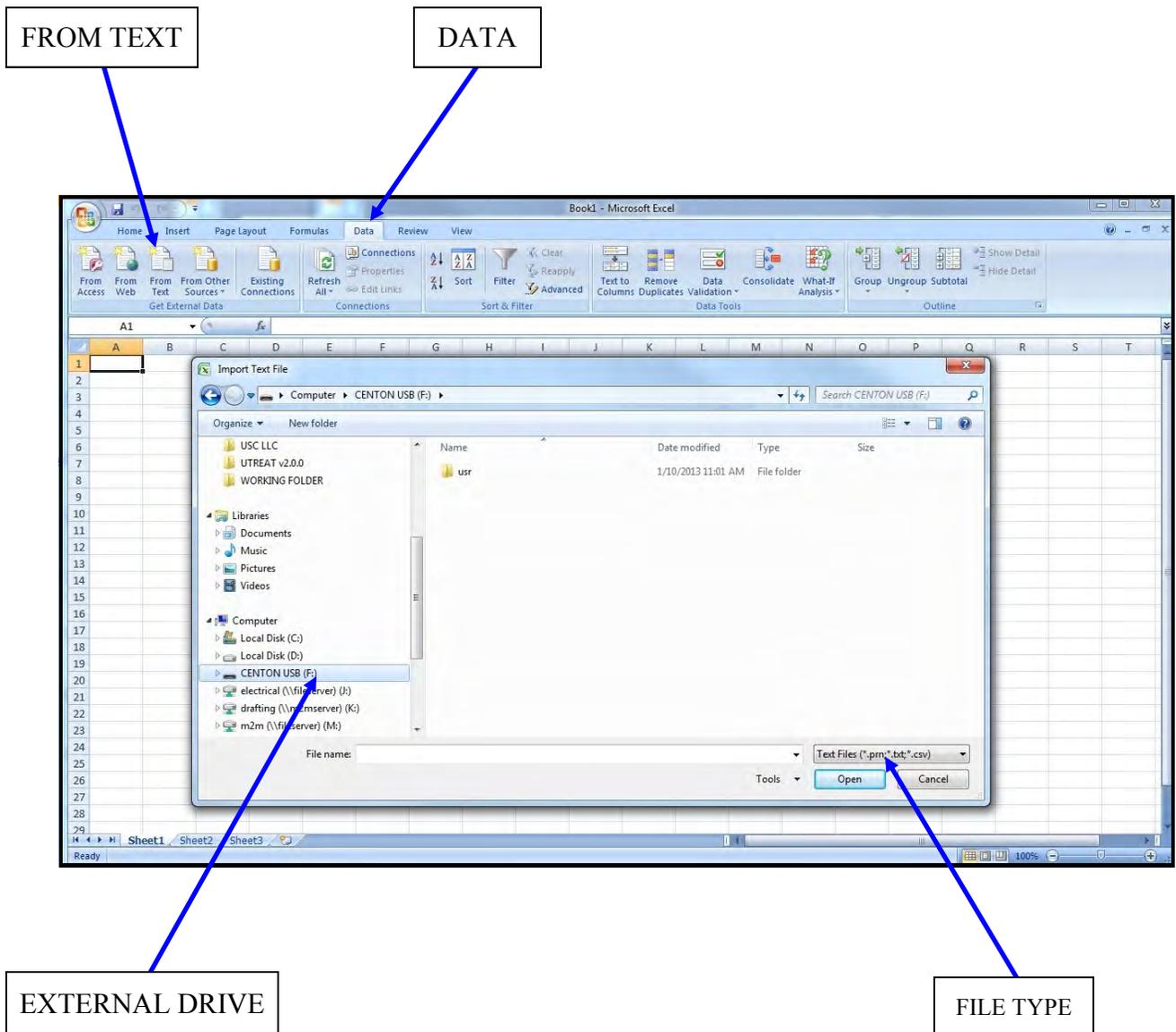
Step 2: Updating the program will also erase all treater and bin site reports that have been saved in the system. To retain any saved reports, you must download them to your computer before performing this update.

1. Insert a Compact Flash device into the USB port. The Flash device must be in Fat 32 format.
2. Advance to the TOOLS & OPTIONS screen
3. Press the Send Reports to USB button. A confirmation window will appear. Press the Yes button and all the reports will automatically copy to the compact flash device.
4. Remove the compact flash device from the control panel and insert into your computer.



PRESERVING SYSTEM DATA

5. Start Microsoft Office Excel. From the top menu select DATA then FROM TEXT.
6. From the Input Text File screen select the appropriate external drive. Then select the folders USR / LOG. Change the file type to ALL FILES. Select the file you want to work with and the Text Import Wizard window will open.

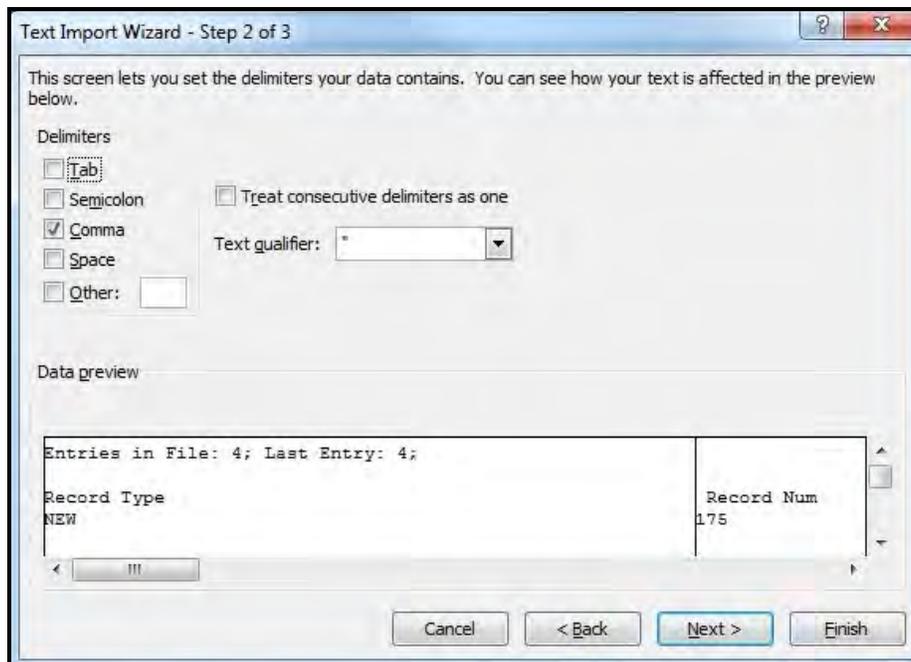


PRESERVING SYSTEM DATA

- Under Original data type select Delimited. Change Start import row to 3, then click Next.



- Under Delimiters deselect Tab and select Comma. Then click Next.



PRESERVING SYSTEM DATA

9. Click Finish and the Import Data window appears. Click OK.



10. The Report conversion process is complete. In the File menu, click Save As and file the report.

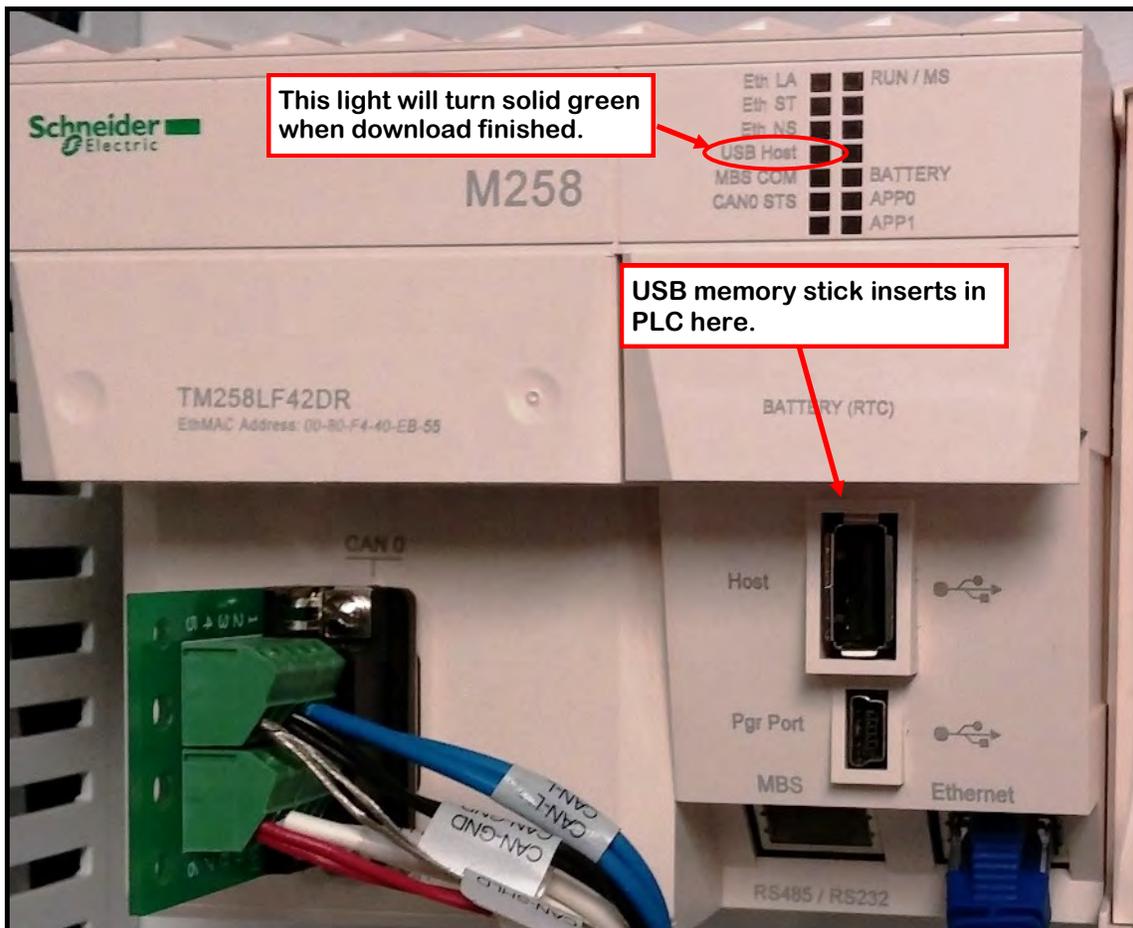
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Time	Date	Message															
2	11:45:40	4/17/2012	196	4/17/2012 11:37:59	USC	MANUAL HOPPER	SOYBEANS				2800	1832						
3	11:51:59	4/17/2012	197	4/17/2012 11:46:15	USC	MANUAL HOPPER	SOYBEANS				2800	1834						
4	14:58:45	4/17/2012	201	4/17/2012 14:56:8	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9		2650	969						
5	15:03:02	4/17/2012	202	4/17/2012 14:59:20	USC	MANUAL HOPPER	SOYBEANS				2800	1057						
6	15:21:33	4/17/2012	205	4/17/2012 15:16:49	USC	MANUAL HOPPER	SOYBEANS				2800	1149						
7	15:26:04	4/17/2012	206	4/17/2012 15:22:8	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9		2650	1467						
8	16:32:48	4/17/2012	207	4/17/2012 15:26:39	USC	MANUAL HOPPER	SOYBEANS				2800	1932						
9	17:04:45	4/17/2012	208	4/17/2012 16:33:23	USC	MANUAL HOPPER	SOYBEANS				2800	1863						
10	10:44:10	4/18/2012	210	4/18/2012 10:9:3	USC	MANUAL HOPPER	SOYBEANS				2800	1581						
11	10:54:16	4/18/2012	211	4/18/2012 10:44:46	USC	MANUAL HOPPER	SOYBEANS				2800	1932						
12	11:00:54	4/18/2012	212	4/18/2012 10:54:52	USC	MANUAL HOPPER	SOYBEANS				2800	1932						
13	11:12:20	4/18/2012	213	4/18/2012 11:1:30	USC	MANUAL HOPPER	SOYBEANS				2800	2064						
14	11:20:22	4/18/2012	214	4/18/2012 11:12:56	USC	MANUAL HOPPER	SOYBEANS				2800	2249						
15	11:48:08	4/18/2012	215	4/18/2012 11:20:58	USC	MANUAL HOPPER	SOYBEANS				2800	1754						
16	11:55:10	4/18/2012	216	4/18/2012 11:48:44	USC	MANUAL HOPPER	SOYBEANS				2800	1799						
17	12:10:34	4/18/2012	217	4/18/2012 11:55:46	USC	MANUAL HOPPER	SOYBEANS				2800	1754						
18	13:13:27	4/18/2012	218	4/18/2012 12:11:10	USC	MANUAL HOPPER	SOYBEANS				2800	1797						
19	13:28:54	4/18/2012	219	4/18/2012 13:14:4	USC	MANUAL HOPPER	SOYBEANS				2800	1796						
20	13:40:19	4/18/2012	220	4/18/2012 13:29:30	USC	MANUAL HOPPER	SOYBEANS				2800	1607						
21	13:50:50	4/18/2012	221	4/18/2012 13:40:55	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9		2650	2102						
22	14:05:33	4/18/2012	222	4/18/2012 13:51:26	USC	MANUAL HOPPER	SOYBEANS				2800	871						
23	14:11:59	4/18/2012	223	4/18/2012 14:6:9	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9		2650	1242						
24	14:19:52	4/18/2012	224	4/18/2012 14:12:35	USC	MANUAL HOPPER	SOYBEANS				2800	1227						
25	14:25:29	4/18/2012	225	4/18/2012 14:20:28	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9		2650	879						

LOADING FIRMWARE TO PLC

NOTICE

Loading the M258 firmware is **IMPORTANT** to ensure proper program loading. Ignore any alarms or errors that may appear on the HMI while loading the PLC.

1. Turn off the power and open door of Main Control panel.
2. Insert USB memory stick (03-21-0019) that contains the **firmware** files into the USB port on M258 PLC.
3. Turn power on, **wait until USB Host light turns solid green**, then turn the power back off.
4. Turn power on, **wait until USB Host light turns solid green**, then remove the firmware memory stick.
5. Wait one minute. Turn the power off.
6. Turn power back on for another minute then turn back off.

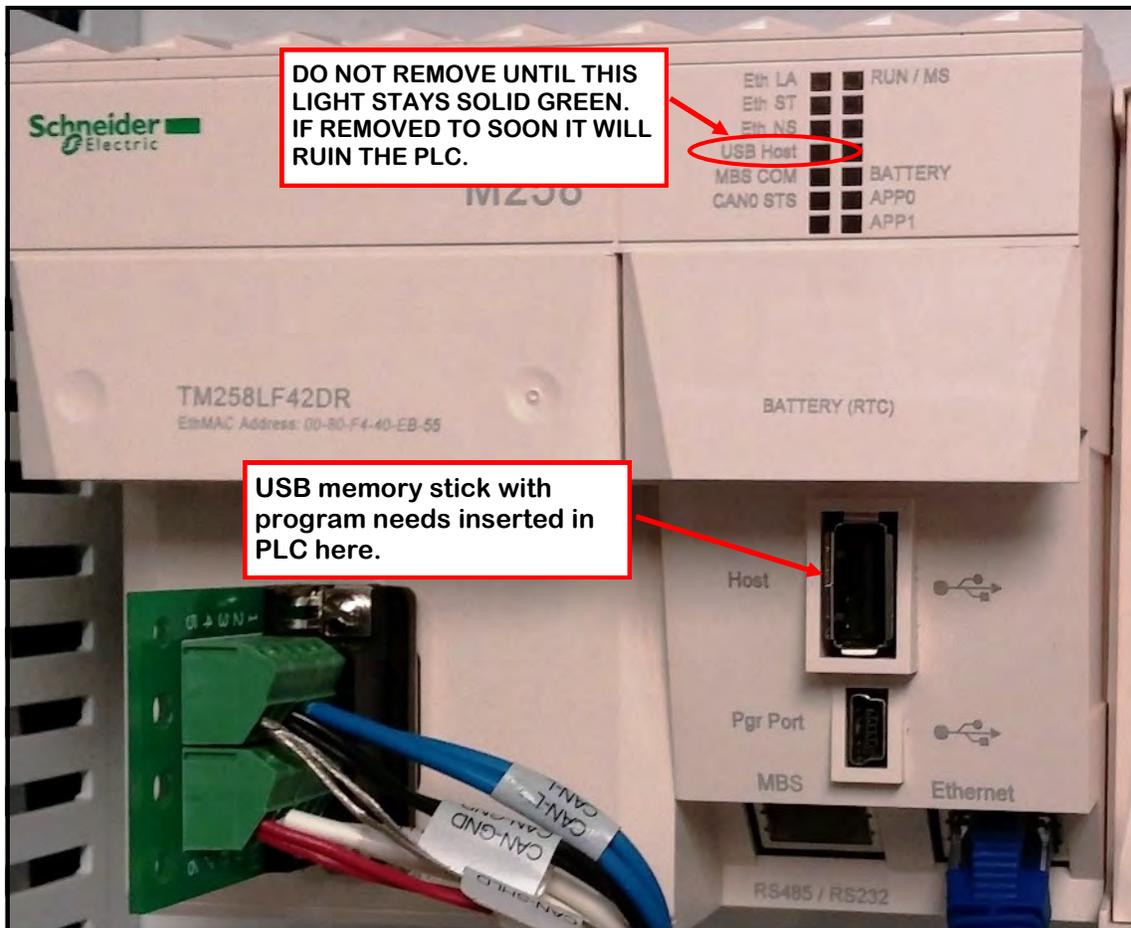


LOADING PROGRAM TO PLC

NOTICE

Ignore any alarms or errors that may appear on the HMI while loading the PLC.

1. Turn off the power and open door of Main Control panel.
2. Insert the USB memory stick (03-21-0029) that contains the **Program** files for U-Treat v3.7 into USB port on the M258 PLC.
3. Turn power on, **wait until USB Host light turns solid green**, then turn the power back off and remove memory stick.
4. Turn power back on for 1 minute, then turn it off.
5. Turn power back on for another minute, then turn it off.



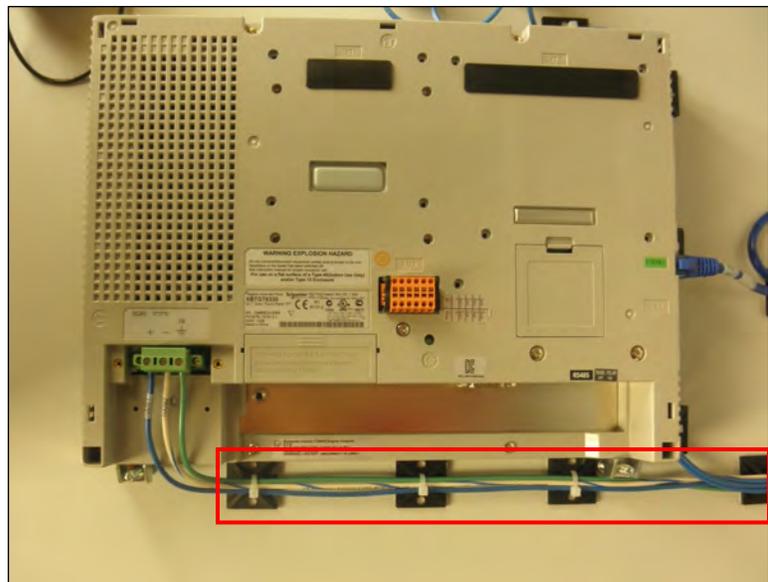
CONTROL PANEL DOOR INSTALLATION



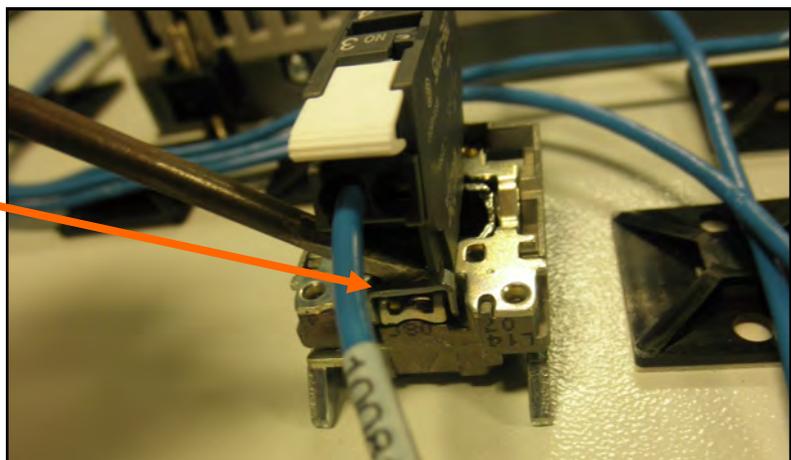
Under no circumstance attempt to install this upgrade kit while the power cord is plugged into the power source. **DO NOT** rely on the main power switch alone to ensure that the control panel is de-energized.

STEP 1: Rotate the power handle counter clock-wise to turn off power to the panel. Then, unplug the power cord from the power source. Use a small container to place the E-Stop, E-Stop Reset and Power Disconnect switches, labels and hardware into to prevent losing any items as they will be reinstalled on the new control panel door.

STEP 2: Using a flathead screwdriver, turn the door latches counter-clockwise. Open the control panel door. Remove all of the wire ties holding the control panel door wiring.

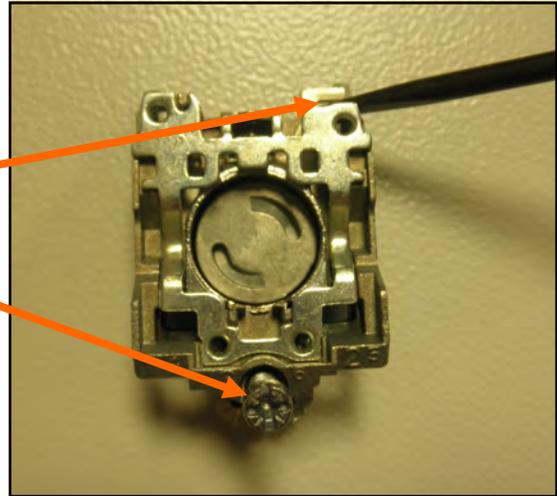


STEP 3: Remove the E-Stop and E-Stop Reset wire contact blocks. Use a small flat blade screwdriver to pull up on the metal tab on the top center of the block. Lay the contact blocks with the wires still connected inside the control panel. They will both be reinstalled on the new control panel door.

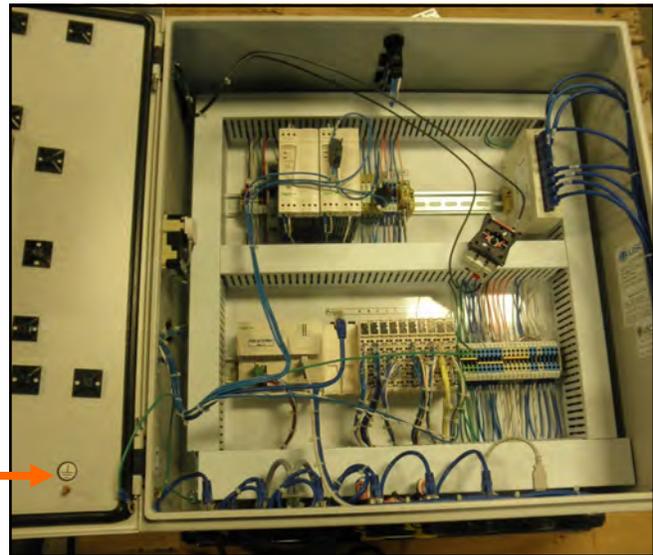


CONTROL PANEL DOOR INSTALLATION

STEP 4: Remove the E-Stop and E-Stop Reset switches. Loosen the screw on the bottom. Then, using a small flat blade screw driver pull up on the small metal clip at the top and remove the switches. Place the switches, labels and mounting clips in the container.

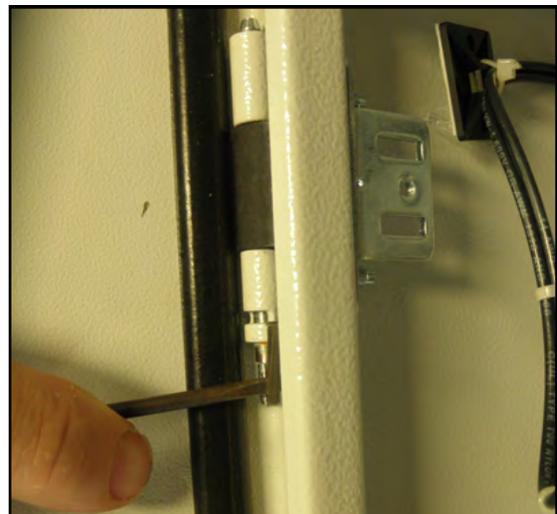


STEP 5: Remove the Ethernet connection and the three power wires from the green connector from the old HMI. DC Positive is blue, DC negative is white / blue and ground is green (see page 11). Set them inside the control panel. The wiring will all be reattached to the new B&R HMI



Do not forget to remove the ground wires.

STEP 6: Remove the control panel door. Holding the door open at a 90 degree angle, use a small screwdriver to carefully remove the two hinge pins. Take care not to drop the door to avoid damaging the HMI.



CONTROL PANEL DOOR INSTALLATION

Some of the version 1 control panels were built with Schaefer enclosures and some with Hoffman enclosures.

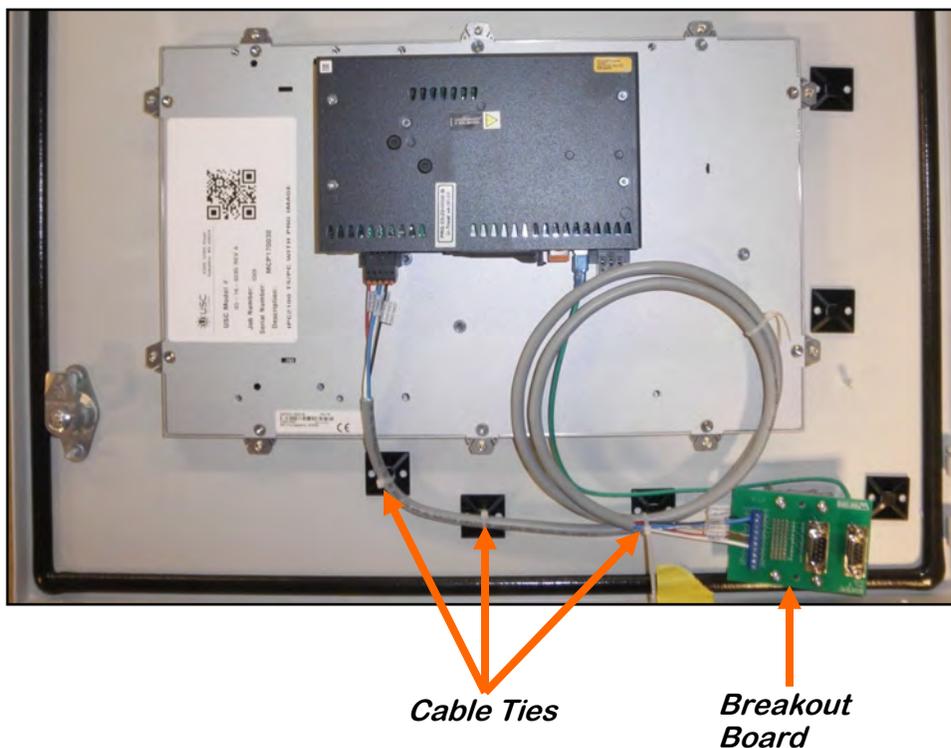
NOTICE

The door assembly for this kit was built with a Schaefer door. Hold the new panel door assembly up to the enclosure.

If you have a Schaefer enclosure and the door hinges are the correct spacing, skip step 7 and proceed to step 8. If they do not fit, proceed to step 7.

STEP 7: You will need to move the touch screen from the Schaefer door to the Hoffman door. Remove the protective sheet covering the touch screen from the door. Do not discard. Fold the tape over and lay it on a level work surface as large as the door assembly. Lay the door face down so that the touch screen is being protected by the plastic sheet.

Cut the three cable ties securing the breakout board cable and green ground lead. Disconnect both from the touch screen and set aside.

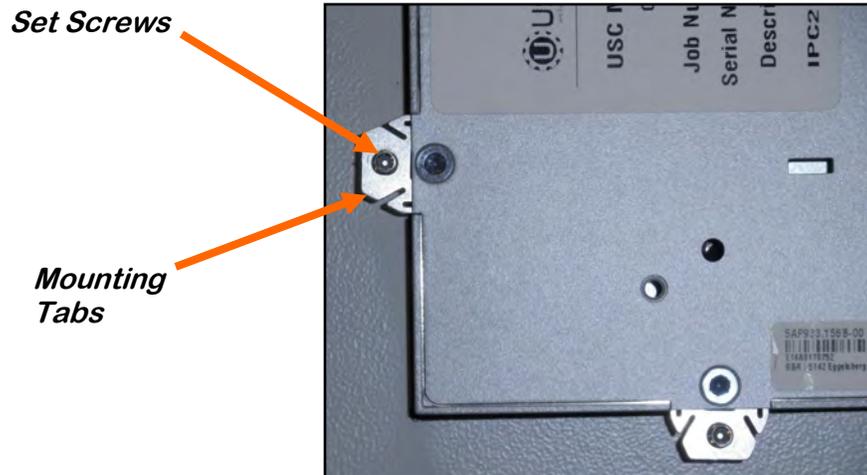


CONTROL PANEL DOOR INSTALLATION

STEP 7 (Continued):

Using a #10 allen wrench, back off the ten set screws holding the touch screen in place far enough to be able to slide out the mounting tabs. After all of the tabs are removed, lift the door straight up and discard.

Place the Hoffman door in the same location. Re-insert the mounting tabs until they are all the way in. You will feel a slight click when they are home. Tighten the set screws and plug the breakout board cable and ground back in.



STEP 8: You are now ready to install the new door. Carefully place door so the mating hinges are together and reinstall hinge pins.

STEP 9: Reinstall the E-Stop and E-Stop Reset buttons. You will notice that there is an arrow on the top, back of each button. This indicates the top of the switch so you will need to ensure that the labels are facing up to correspond with the switch. Insert them together into the door. The mounting clips will snap onto the switches with the screw down. Tighten this screw until just snug. If the screw is tightened too much, the outside of the label will start to bend outward and not sit flush on the panel door.

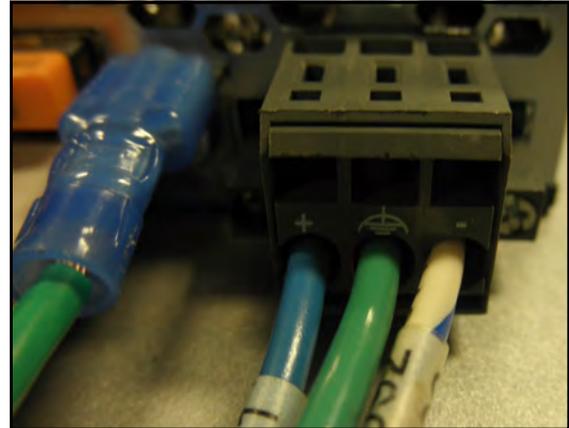


CONTROL PANEL DOOR INSTALLATION

STEP 10: Reinstall the contact blocks for the E-Stop and E-Stop Reset switches. The NC block (1 and 2, red), installs on the E-Stop button. There is a tab on the bottom side that you will need to insert first, then push up and it will click onto the mounting clip. The NO block (3 and 4, green), installs the same way onto the E-Stop Reset button.

STEP 11: Connect the power wires to the new HMI.

DC Positive	Blue
DC Negative	White
Ground	Green



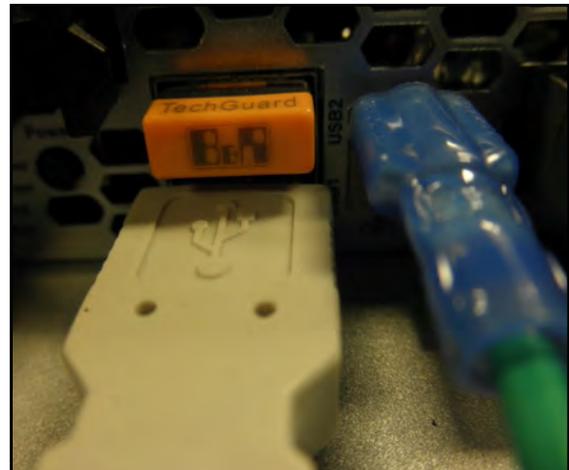
STEP 12: Reroute the blue Ethernet cable (P4) inside the panel so it will reach Ethernet port ETH2 on the new HMI.



STEP 13: Reroute the white USB cable that is currently plugged into the PLC and plug it into the USB 1 port on the new HMI.



DO NOT remove the orange plug that is in USB 2 port



CONTROL PANEL DOOR INSTALLATION

STEP 14: Ensure that the enclosure ground and the HMI ground are reconnected to the door ground lug. Then, reinstall all of the wire ties to keep wires neat and in place.



Door Ground Lug

STEP 15: Inside the panel in the upper right hand corner, locate the existing power contactor. Loosen the set screw to the left of the disconnect shaft and remove shaft from the middle of the contactor. Remove the top, middle and right side wireway covers. Run the two wires from the new door power contactor inside the top wireway and down the right side.



CONTROL PANEL DOOR INSTALLATION

STEP 16: Using the splices supplied in the kit, connect the following wires:

DS1002 - L3 to DS1002 - T3.

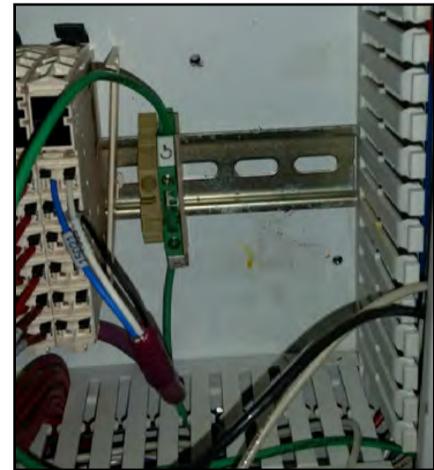
DS1002 - L1 to new door lead (L1).

DS1002 - T1 (10031) to new door lead (10021).

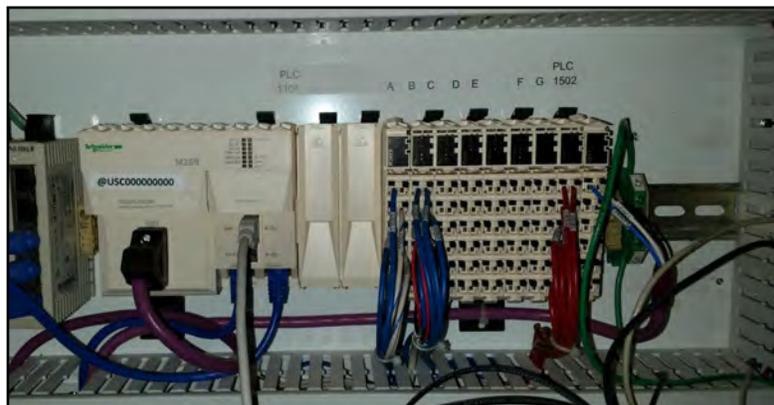
Tuck the spliced wires into one of the wireways.



STEP 17: Remove the two mounting screws and the old contactor (DS1002).



STEP 18: Loosen the screw on the retaining clip next to the green ground terminal, then release the lockdown clips for the PLC. Slide the wires out of the wireway slots and then slide the ground terminal and PLC all the way to the right.



CONTROL PANEL DOOR INSTALLATION

STEP 19: Tighten the ground terminal set screw and lock the PLC back down. Tuck the wires back into the nearest available wireway slots.



STEP 20: Route the breakout board cable through the middle wireway and snap the breakout board onto the DIN rail to the left of the PLC.



STEP 21: Disconnect the CAN Open cable from the PLC and connect it to the connector in the middle of the breakout board. Replace all of the covers for the wireways.



CONTROL PANEL DOOR INSTALLATION

NOTICE

If there is not enough room available on one of the existing din rails, locate an open area as close to the PLC as possible to install the 2.5 inch long DIN rail (03-09-0005) provided in the kit. Before you mount it ensure there is enough space to attach the breakout board to it. Also, ensure that both the cable for the breakout board and the cable that needs to be relocated from the PLC will reach the location chosen. Secure it with the two self tapping screws (06-06-0005) provided.

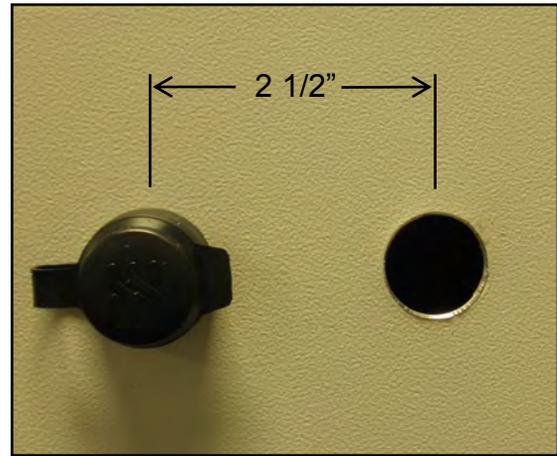


The grey cable and CAN breakout board coming from the door will need to be installed onto the small DIN Rail that was just installed. The board will snap onto the DIN rail. Disconnect the purple cable from the PLC and connect it to the connector in the middle of the breachout board.



CONTROL PANEL DOOR INSTALLATION

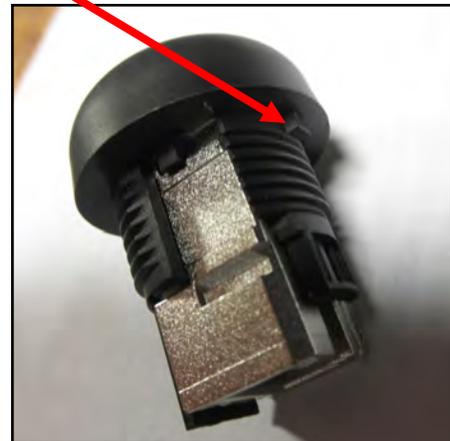
STEP 22: Drill one 7/8" hole in the bottom of the enclosure. The center of this hole should be 2 1/2" to the right of the center of the USB pass-thru, and in line with the row of pass-thru connectors. Remove burrs and clean out all metal shavings.



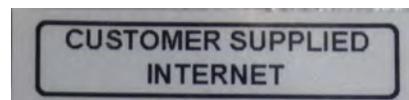
STEP 23: Install the RJ45 pass-thru (03-08-0234). Disassemble the pass through and remove the black tab. Re-attach the boot and insert in the hole. Secure with the nut.



STEP 24: Run the CAT 5 cable (03-07-0074) from this connector to the HMI / ETH1 port. This is the incoming internet connection. Reinstall the wire way caps.

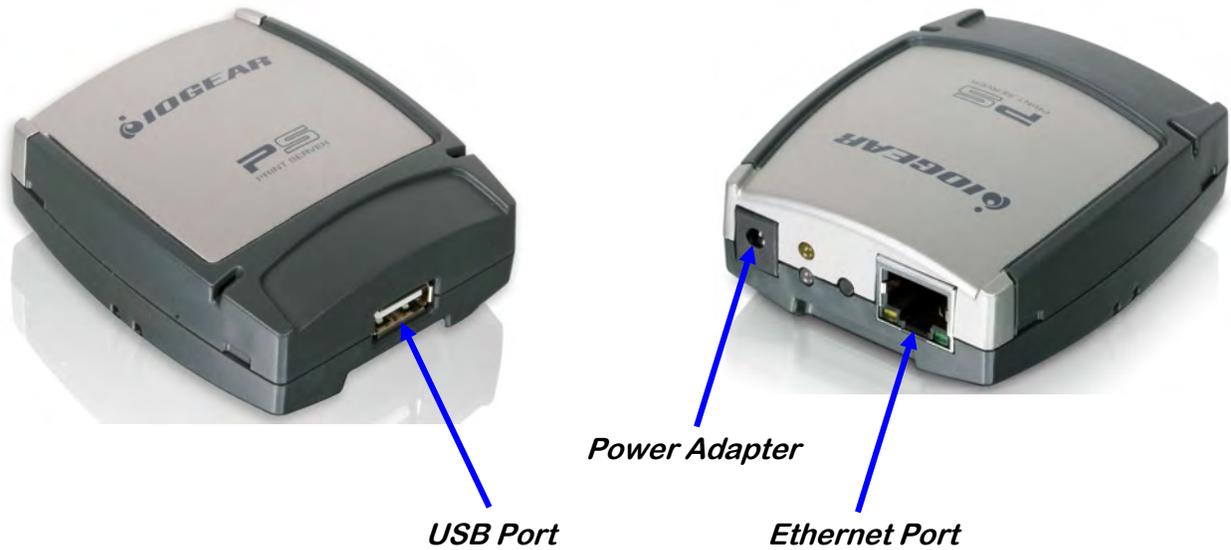


STEP 25: Place the CUSTOMER SUPPLIED INTERNET sticker above the newly installed pass-thru.



CONTROL PANEL DOOR INSTALLATION

STEP 26: Installing the Printer Ethernet to USB Server. Place the unit near the existing printer. Plug the power adapter cable into the server and plug the transformer into any standard 110V plug. Disconnect the printer USB cable from the control panel and plug it into the server USB port. Plug one end of the CAT5 Patch cable into the Ethernet port on the server and the other end to any available Ethernet port on the bottom of the control panel. The hardware installation is complete.



UPDATING TRI-FLO® CONTROL PANEL WIRING



Under no circumstance attempt to install this upgrade kit while the power cord is plugged into the power source. **DO NOT** rely on the main power switch alone to ensure that the control panel is de-energized.

STEP 1: Preassemble the new PLC module. Start with the module base shown in figure 1 (03-16-0022). Add the CANOPEN Fieldbus (03-16-0121) as shown in figure 2. Add the bus base (03-16-0123) as shown in figure 3 and the terminal block receiver (03-16-0117) in figure 4.

Figure #1



Figure #2



Figure #3

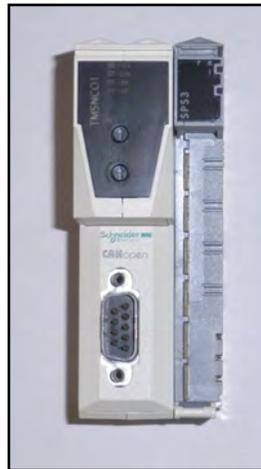
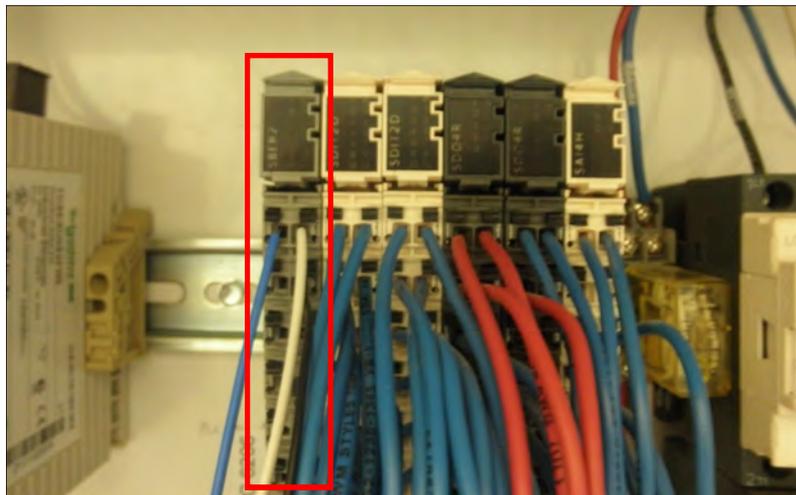


Figure #4



STEP 2: Remove PLC card 6206 from the left side of the upper din rail. Refer to page 5 of the schematic on [page 25](#) of this document.



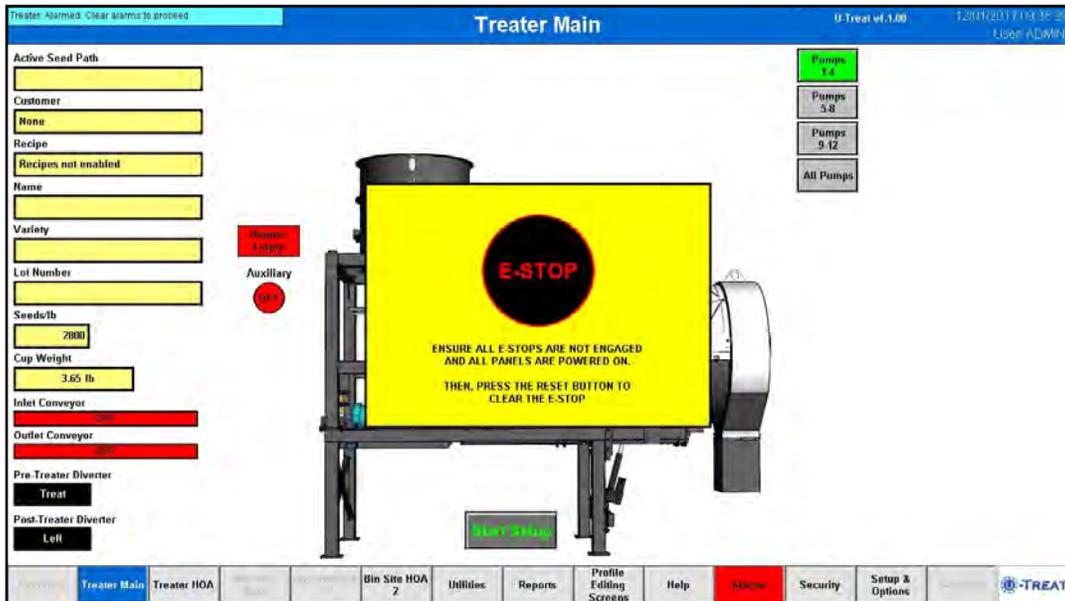
ESTABLISHING THE SYSTEM PARAMETERS

After the installation is complete, power up the system. The first screen the operator will see is the USC Startup screen with the User Acknowledgement popup. After reading the User Acknowledgement statement, press the Acknowledge button at the bottom of the popup window to close the screen. While the system is booting up, the touch screen will display a timer bar at the bottom of the Start Up Screen. Once the timer bar reaches the end it will disappear and be replaced with a line of text that reads Press Screen to Continue. Select any where on the screen and it will advance to the Main screen



ESTABLISHING THE SYSTEM PARAMETERS

The first screen will be the main treater screen with a flashing emergency stop popup. The user name will also be set to DEFAULT. The system is alarming because none of the system parameters have been established. The following steps will take you through the process to set up the system to accommodate your treater and or bin site.



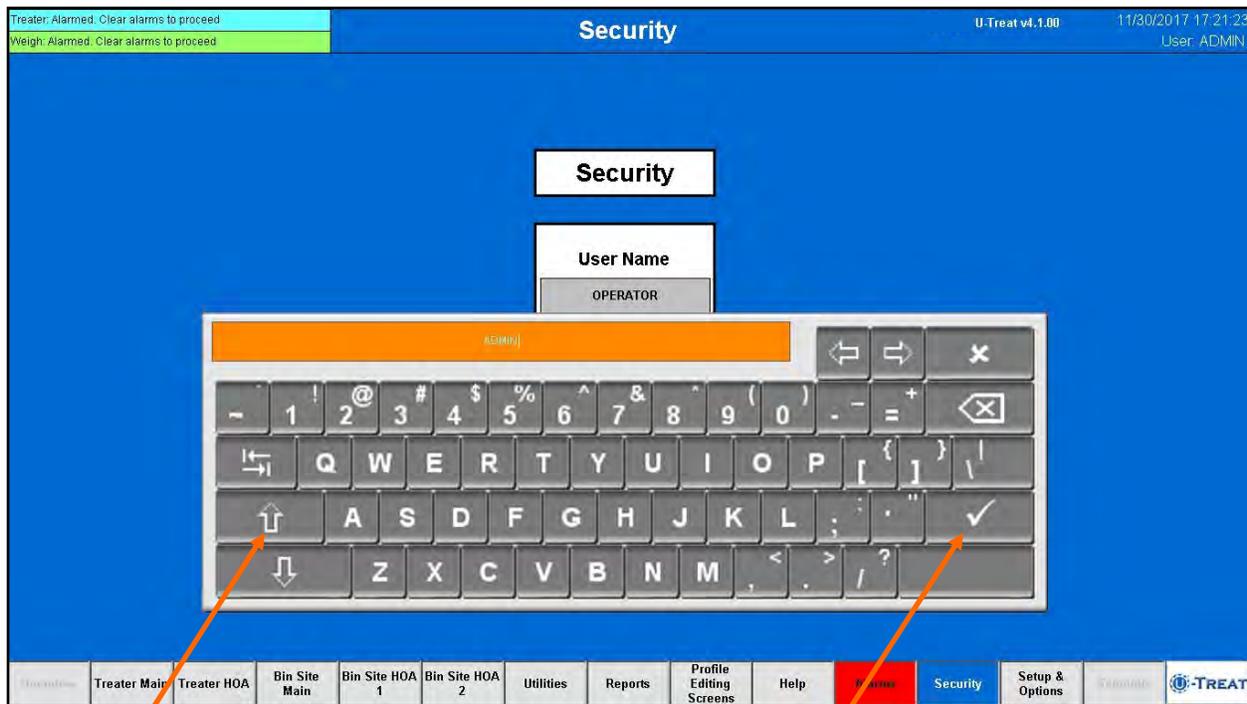
Step 1: Press the Security button at the bottom of the screen



ESTABLISHING THE SYSTEM PARAMETERS

Step 1 (continued): Press the User Name button and a keyboard will popup with white background and grey text. This means it is set for lower case text. Press the shift key and it will change to dark grey background with white text for upper case. Type ADMIN in upper case text and press the key with the check mark to enter. Press the Password button and type SERVICE in upper case text and press the enter key.

Press the Login button and the User in the upper right hand corner will change from DEFAULT to ADMIN. The Setup & Options button in the lower right corner of the screen is now active.



*Shift
Key*

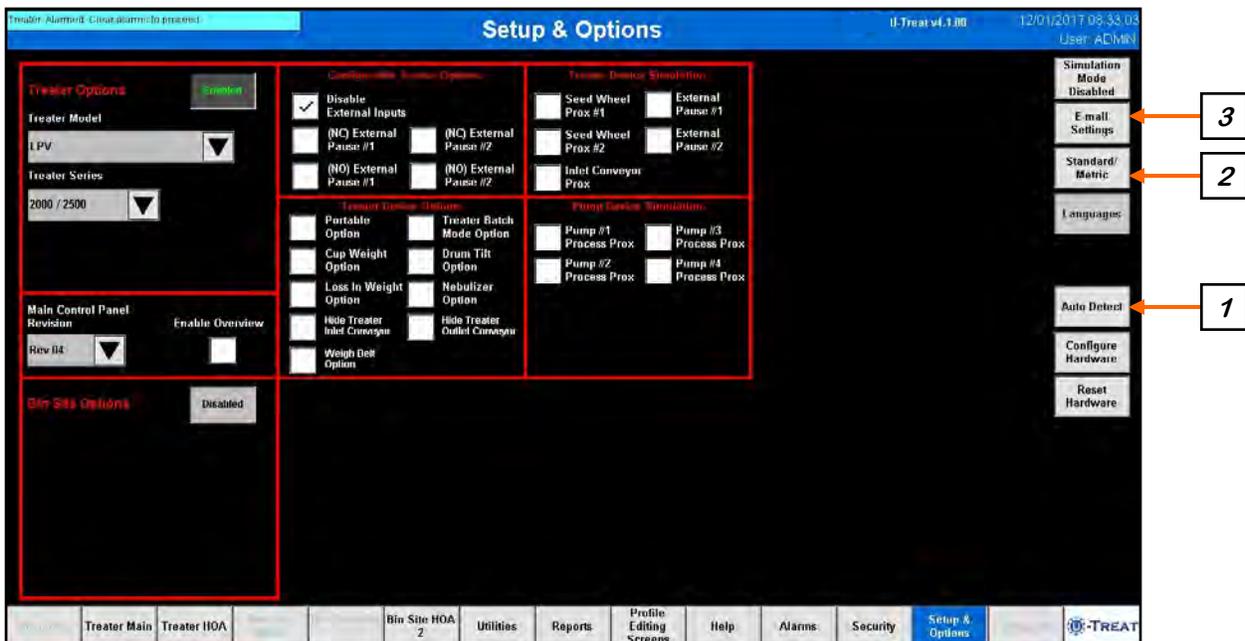
*Enter
Key*

ESTABLISHING THE SYSTEM PARAMETERS

Step 2: Press the Setup & Options button at the bottom of the screen. This is where all of hardware parameters are established.

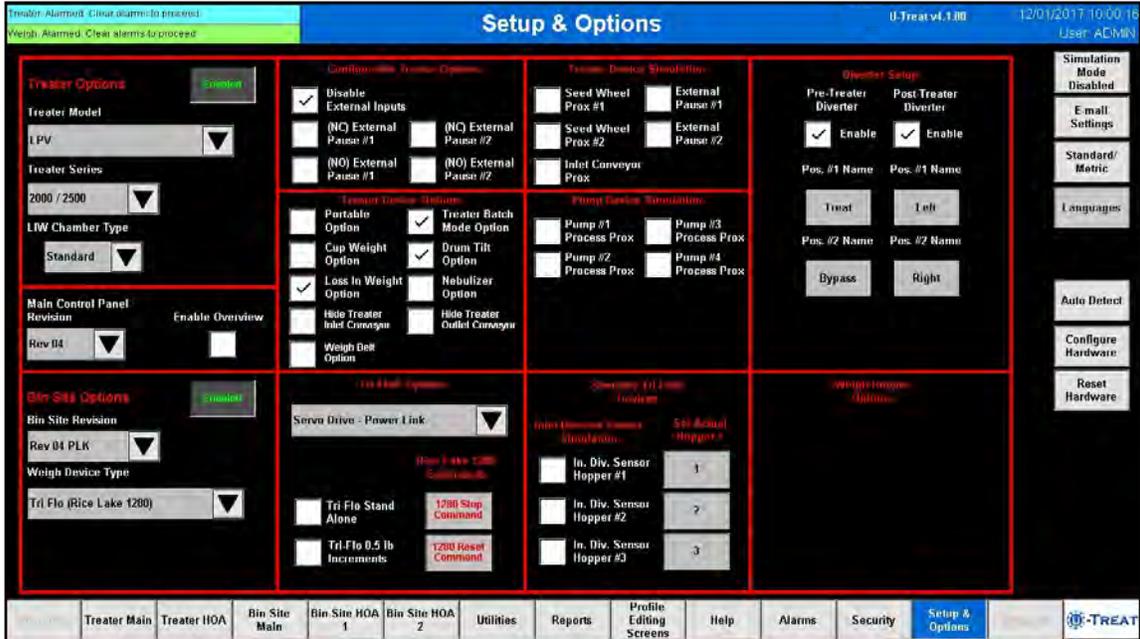
1. Press the Auto Detect button. This will establish communication from the new main control panel to the existing control panels in the system. Some of the boxes will become checked and some of the other parameters will be set. You will still need to add some of the more detailed information. Select the items on this screen to activate the parameters that apply to your existing hardware configuration. The treater options are on the top half and the bin site options at the bottom.

The example on page 27 shows an LPV2000 loss in weight treater with version 4 main control panel. Also, the drum tilt and treater batch mode are active as well as a pre-treater and post treater diverters. The bin site is also enabled with a Tri-Flo® weighing device, Rice Lake 1280 scale head and power link interconnectivity.

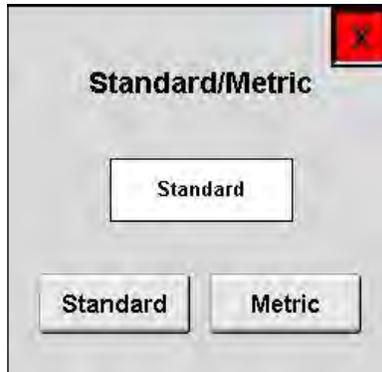


ESTABLISHING THE SYSTEM PARAMETERS

Step 2: (Continued).



- Pressing this button allows the operator to switch between Standard or Metric units of measurement. When this button is pressed a popup window will appear. The box in the center indicates the active unit of measurement. The default is standard unit. Pressing the metric button to change to metric measurement.



ESTABLISHING THE SYSTEM PARAMETERS

3. If you want to use the e-mail feature define the following e-mail settings.



USE UCP RELAY: This setting is enabled if the customer is using U-Connect-Pro to relay the e-mail. If this option is not selected, the customer will need to provide their own mail relaying.

RESET SERVER SETTINGS: This button will reset the settings for the e-mail client.

Reply Address: This will be what e-mail address the e-mail is coming from. If there is a failure to deliver message, this e-mail will receive notification of the failure.
EXAMPLE: A misspelled e-mail destination.

Server: This will be the server that we will use to authenticate the e-mail delivery.

Port: This is the port number for the authentication server.

User Name: This is the username for the authentication server. This will be used to confirm that we have rights to use the authentication server.

Password: This is the password for the authentication server.

ESTABLISHING THE SYSTEM PARAMETERS

Step 3: Set the date and time. Press the Utilities button at the bottom of the screen, then the Date & Time button in the upper right corner. Select the top three boxes to set the year, month and day. Select the bottom three boxes to set the time. The system is based on a 24 hour clock. When keying in the hour, 2:00 P.M. is 14 hours as in the example below. If you wish to view the time on the screens in 12 hour display, check the box below the time setting. The display in the upper right hand corner will now show a 12 hour clock indicating A.M. or P.M. Press the Set Date & Time button in the center of the screen to save your entries.

Treater: Idle
Weigh: Idle

U-Treat v4.1.00 11/28/2017 02:28:50 PM
User: OPERATOR

Date & Time

Internal PLC Clock
11/28/2017 14:28:50

Date must be entered in the following format YYYY / MM / DD.

Year Month Day
2017 11 28

Set Date & Time

Time must be entered in 24-hour format. (23:59:00)

Hour Minute Second
14 28 50

Enable Title bar Date and Time 12h format display mode

Home Treater Main Treater HOA Bin Site Main Bin Site HOA 1 Bin Site HOA 2 Utilities Reports Profile Editing Screens Help Alarms Security U-TREAT

LOADING PRESERVED SYSTEM DATA TO NEW HMI

When upgrading from a U-Treat v2.1 or older release to v4.1, all of the system parameters that you recorded before installation of the upgrade kit will need to be manually inputted into the new system.

Refer to section C-1 in the operators manual (TD-09-06-1050) for detailed information on the profile editing screens. This is where you will re-enter all of the Customer, Seed, Chemical, Pump Stand and Bin Editing data.

NOTES:

V3.6 UPGRADE KIT SCHEMATIC (Sheet 1)



Seed Treating Solutions®

2320 124th Rd
 Sabetha, KS 66534 USA
 Phone: (785) 431-7900
 Main Fax: (785) 431-7950

TRI FLO WITH SMW
 (TF-CP2)
 (V 3.0 Upgrade Kit)

Changes to wiring on page 5 & 10

Table of Contents	
Sheet	Description
1	Title
2	Notes/Legends
3	Change notes
4-5	Main Control Panel Layout
6	Main Control Panel Cutouts
7	Terminal Strip Layout
8-15	Control Schematic

DATE	8/4/14	TITLE	TRI FLO WITH SMW
DESIGNED BY	R. Bolewsky	PROJECT NO.	(TF-CP2)
CHECKED BY		DRAWING NO.	03-21-0011
SHEET	1	OF	15
			REV. A



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Seed Treating Solutions®

V3.6 UPGRADE KIT SCHEMATIC (Sheet 2)

GENERAL NOTES

- Wiring shown conforms to 2008 National Electric Code. Customer is responsible for assuring that field wiring complies with local and national electric codes.
 - For all field wiring terminals "Use Copper Conductors Only"
 - Field wiring of power circuits shall have a temperature rating of not less than 60 degrees Celsius or 140 degrees Fahrenheit.
 - Field wiring between Class 1 and Class 2 circuits shall maintain a minimum 1/4" separation (by means of routing or clamping) unless the conductors of both circuits are insulated for the maximum voltage of either circuit. If either circuit is over 150V to ground a minimum 2" separation shall be maintained.
 - Unless otherwise specified, control circuit wiring is multiple strand copper. Wire colors are as follows, AC+ red, AC- white, DC+ blue, DC- white with blue stripe.
 - Terminal block ratings:
Red, White, Blue, Green & Gray (WDU 4) 600 Volt, 35 Amp
Beige (WDU 10) 600 Volt, 85 Amp
 - Control panel and all equipment frames must be grounded as required by local codes.
- 8-20. (Not used)
- NOTES REFERENCE ELSEWHERE ON DRAWING
- Field wiring terminal block tightening torque to be:
Red, White, Blue, Green & Gray (WDU 4) - 1.0 Nm or 9 lbs. in.
 - Disconnect Switch terminal tightening torque to be:
6.3 Nm or 55 lbs. in. (Copper Conductors Only)
 - 03-08-0217 needs M12 connector 03-08-0229 added to Limit Switch Side of plug. Pin one needs to be jumpered to pin three on connector. Wire three is unused in patch cable.
 - NODE address - 9
03-08-0217 needs bin site needs to be set to 37 in the bin site panel

- Route all communication wiring (Ethernet, USB, Modbus, etc.) separate from all power and control wiring as much as possible. Ethernet and USB cables must maintain a minimum .5" separation.
- 28-40 (Not used)
- Nameplate mounted inside of MCP2 on the left-hand wall.
Mfg. By: USC, LLC
Max Voltage: 115V, 1PH, 60Hz
Schematic number: 03-12-0177 A
End-use rating: UL Type 1
Shunt: 100mA
Size: RUS-Sym, 600V Max

- Warning stickers located inside of MCP2 on the left-hand wall.
WARNING
To maintain overcurrent, short-circuit, and ground-fault protection, the manufacturer's instructions for selection of overload and short circuit protection must be followed to reduce the risk of fire or electric shock.
- If an overload or a fault current interruption occurs, interrupter must be replaced immediately. If a fault condition exists, the interrupter carrying components should be examined and replaced if damaged, and the integral current sensors must be replaced to reduce the risk of fire or electric shock.
- Panel identification sticker mounted inside of MCP2 on the left-hand wall.
Tri-Flow With SMW
See schematic number 03-12-0177A for interconnections.

- Fuse replacement stickers mounted inside of enclosure on the left-hand wall.
Replacement Fuse Type:
Type T, Slow Blow, Fuse Size- 5mm x 20mm.

Fuse Replacement		
Fuse	Line	Size
FU6502	6502	5 Amp
FU6503	6503	5 AMP
FU6211	6211	1 AMP
FU6211	6211	3 AMP
A		

Legend:
Wiring provided by USC, LLC

Delines wiring to a component not located in a control panel but provided by USC, LLC

Delines wiring to a component not located in a control panel and provided by customer.

Terminal Block Located in (TFCP2)

- Legend (Abbreviations)
- ACT Actuator
 - AH Alarm Horn
 - CA Control Actuator
 - CB Circuit Breaker
 - CMS Combination Motor Starter
 - CR Control Relay
 - DS Disconnect Switch
 - DV Device
 - FM Flow Meter
 - FS Flow Switch
 - FU Fuse
 - LI Level Indicator
 - LP Electronic Load Cell
 - LS Limit Switch
 - LI Light
 - MA Motor Adapter
 - MC Motor Controller
 - MCP Manual Motor Protector
 - MOT Motor
 - MS Motor Starter
 - OL Over Load
 - PB Push-button
 - PJ Plug-Jack Exterior Receptacle
 - PR Printer
 - PRS Proximity Sensor
 - PS Power Supply
 - RECPT Receptacle
 - RES Resistor
 - SB Summing Box
 - SC Digital Scale Readout
 - SOL Solenoid
 - SS Selector Switch
 - SU Surge Suppressor
 - TS Touch screen
 - VFD Variable Frequency Drive
 - VR Variable Resistor
 - Xf Transformer
- Color Abbreviations
- BLK Black
 - BLU Blue
 - BRN Brown
 - GRN Green
 - GRY Gray
 - ORG Orange
 - PNK Pink
 - PUR Purple
 - WHI White
 - YEL Yellow

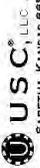


V3.6 UPGRADE KIT SCHEMATIC (Sheet 3)

REVISION CHANGE NOTES				
DATE	BY	PAGE	LINE	CHANGE
8/4/2014	Simon	5 & 10		Changed CAN wiring to work with program upgrade 3.0

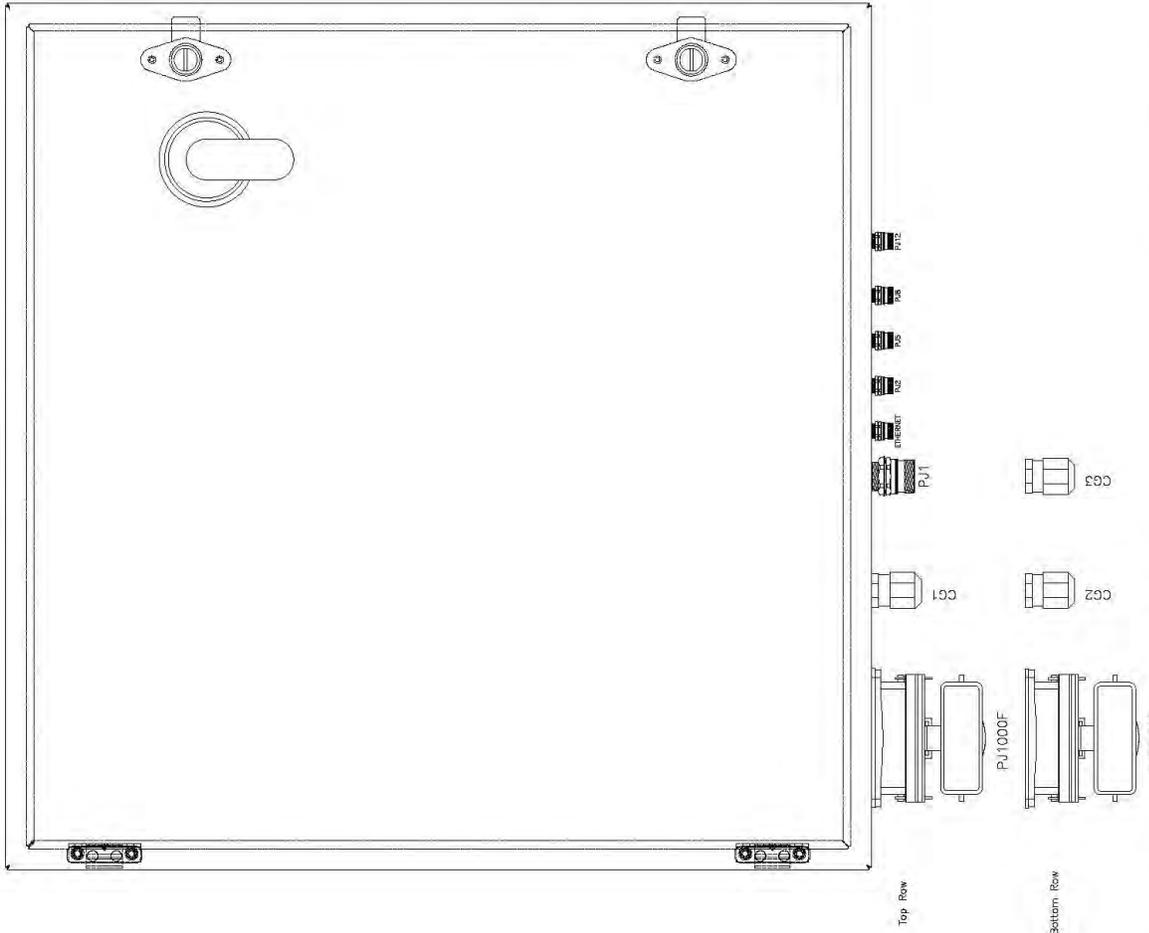
REASON

Added features, function.

 <p style="text-align: center;">USC[®] Seed Treating Solutions[®]</p>	<p>TRIFLO WITH SMW (TECP2)</p>
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V3.6 UPGRADE KIT SCHEMATIC (Sheet 4)

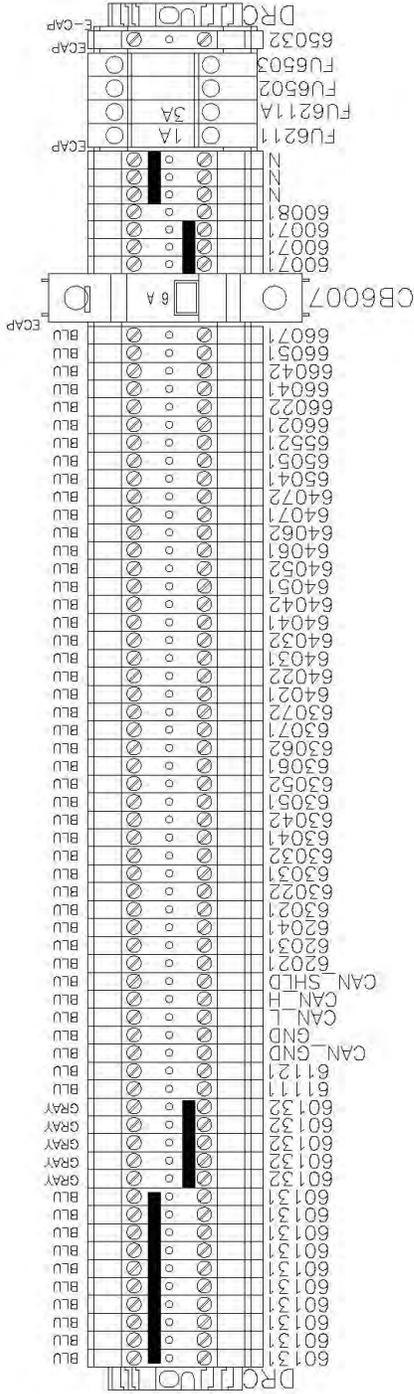
TRI-FLOW JB



SHEET 4 OF 15
 DRAWING NO. 03-21-0011
 REV. A
 THE TRI-FLOW WITH SMW (TECP2)
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V3.6 UPGRADE KIT SCHEMATIC (Sheet 7)

TRI-FLOW CONTROL PANEL TERMINAL STRIP



SHEET 7 OF 13
 DRAWING NO. 03-21-0011
 REV: A

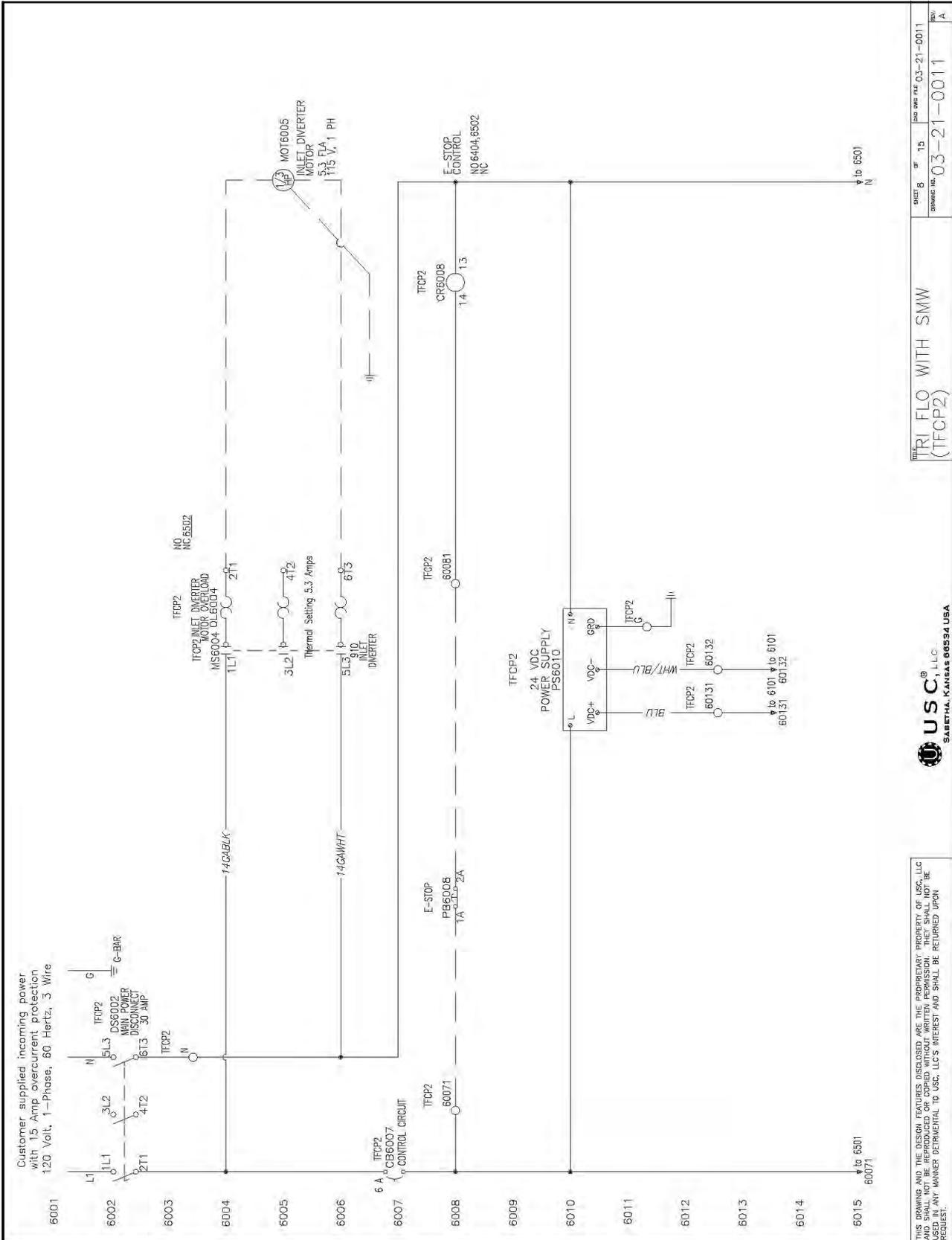
TRI FLO WITH SMW
 (TFCP2)



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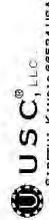
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V3.6 UPGRADE KIT SCHEMATIC (Sheet 8)



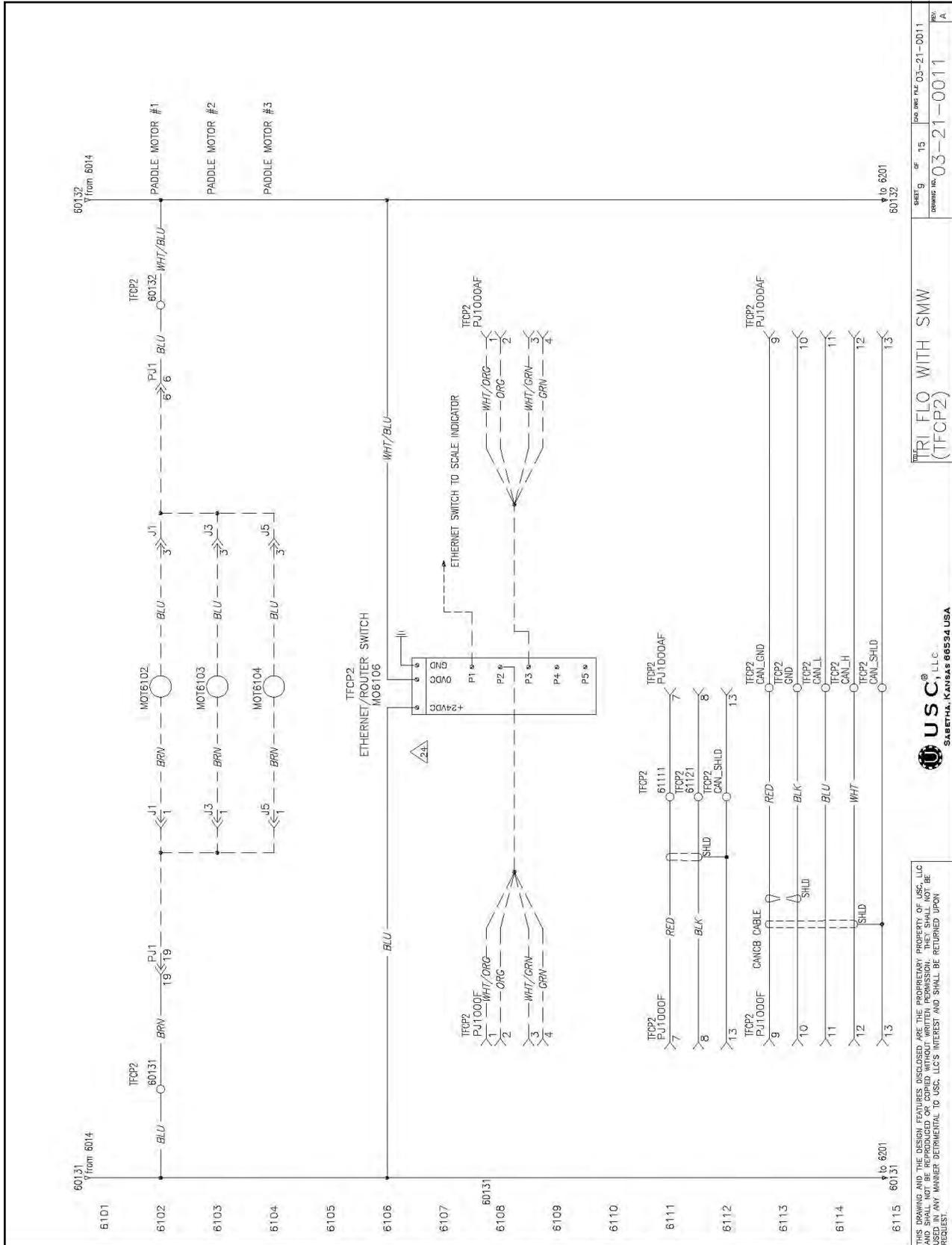
SHEET 8 OF 15
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REV: A

TRI FLO WITH SMW
(TF0P2)



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V3.6 UPGRADE KIT SCHEMATIC (Sheet 9)



SHEET 9 OF 15
 DRAWING NO. 03-21-0011
 REV. A

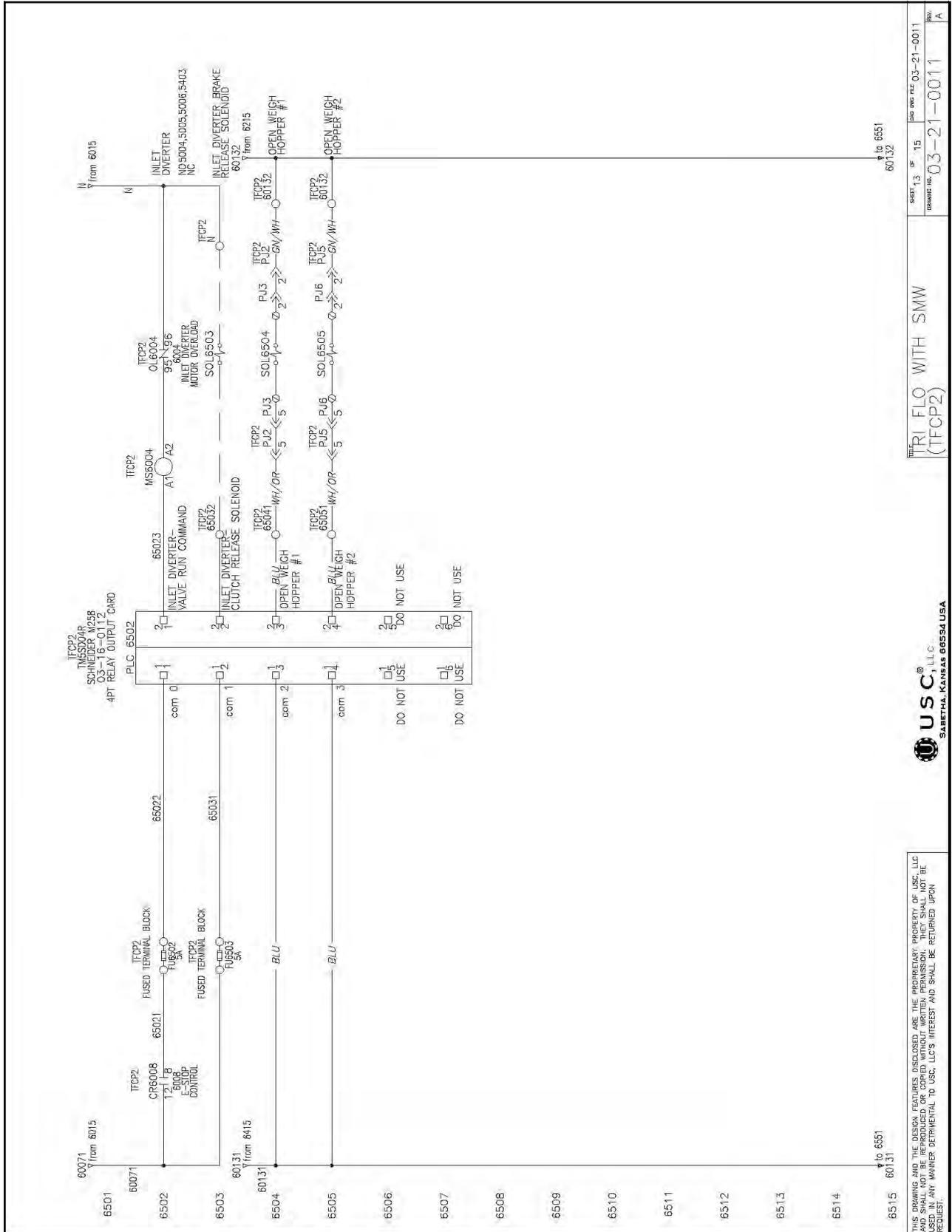
TRI FLO WITH SMW
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V3.6 UPGRADE KIT SCHEMATIC (Sheet 13)



SHEET 13 OF 15
DRAWING NO. 03-21-0011

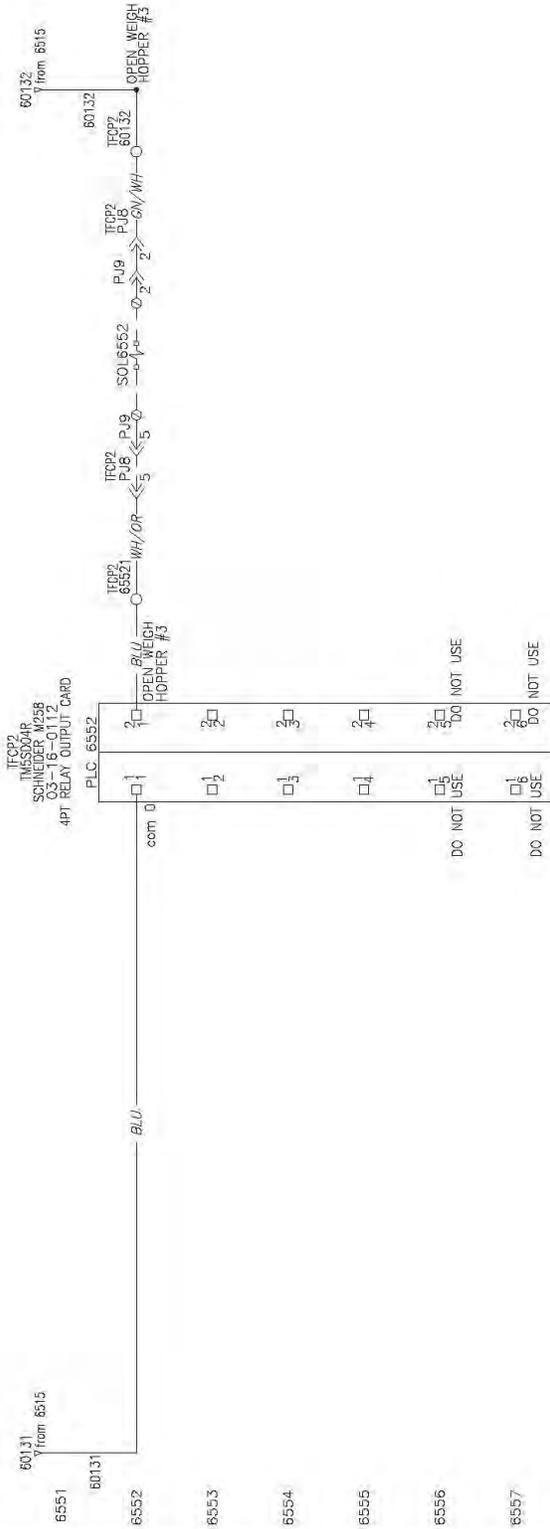
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(TFCP2)

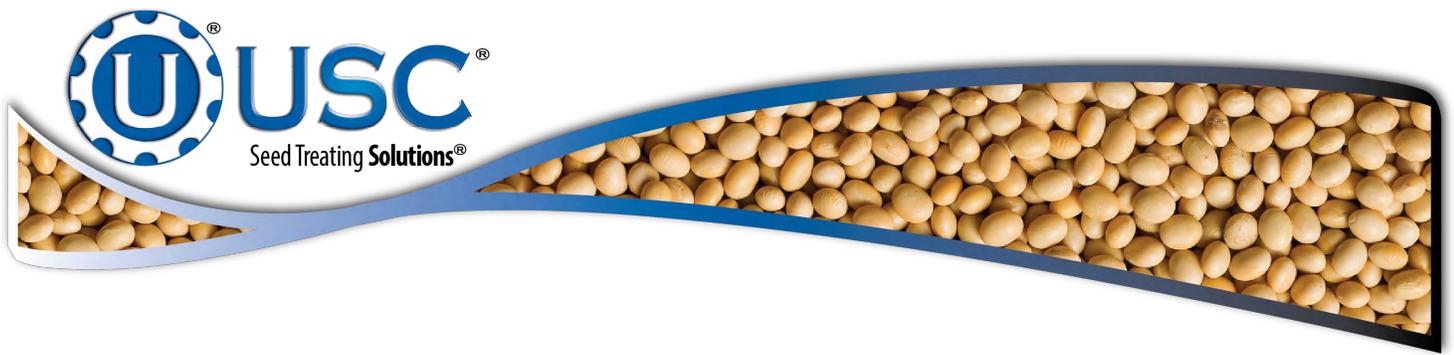
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V3.6 UPGRADE KIT SCHEMATIC (Sheet 14)





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