

TLS-450PLUS Console

Board And Software Replacement/Upgrade

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Introduction

This manual contains instructions for replacing the following TLS-450PLUS console components:

- CPU board
- Replacing Software SD card
- Replacing iButton
- Installing software features

This manual does not provide troubleshooting information.

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.









Technician Certification (Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank


Warranty Registrations may only be submitted by selected Distributors.

Safety Precautions

The following safety symbols may be used throughout this manual to alert you to important safety hazards and precautions

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p>NOTICE NOTICE is used to address practices not related to physical injury.</p>	 <p>WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>
 <p>STATIC SENSITIVE COMPONENTS Wear grounded anti-static wrist strap before handling the printed circuit board and mounted components.</p>	 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>

Safety Warnings

⚠ WARNING	
	<p>This console contains high voltages which can be lethal. It is also connected to low power devices that must be kept intrinsically safe.</p> <p>FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.</p> <ol style="list-style-type: none"> 1. Turn off and tag power at the circuit breaker. Do not connect the console AC power supply wires at the breaker until all devices are connected. 2. Attach conduit from the power panel to the console's Power Area knockouts only. 3. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes. <p>Connecting power wires to a live circuit can cause electrical shock that may result in serious injury or death.</p> <p>Routing conduit for power wires into the intrinsically safe compartment can result in fire or explosion resulting in serious injury or death.</p>

Related Documents

577014-073	TLS-450PLUS Console Site Prep And Installation Manual
577014-075	TLS-450PLUS Console Troubleshooting Guide

Precautions Against Static Electricity

Before removing electronic components from their anti-static bags read the following static electricity precautions.

1. Before handling any components, discharge your body's static electric charge by touching a grounded surface.
2. Do not remove parts from their anti-static bags until you are ready to install them.
3. Do not lay parts on the anti-static bags! Only the insides are anti-static.
4. When handling parts, hold them by their edges and their metal mounting brackets.
5. Avoid touching components or edge connectors that plug into slots and wear the anti-static wrist strap (Part No. 576010-908) included in your component replacement kit.
6. Never slide parts over any surface.
7. Avoid plastic, vinyl, and Styrofoam in your work area.



Before Turning Off Power

Before powering off the console perform a system backup:

1. Beneath the left side of the 450 Plus console, locate the USB module and insert the V-R Backup thumb drive, minimum 4 GB, (P/N 332970-004) into one of the external USB ports on the USB card, P/N 333477-001 (see item 3 in Figure).

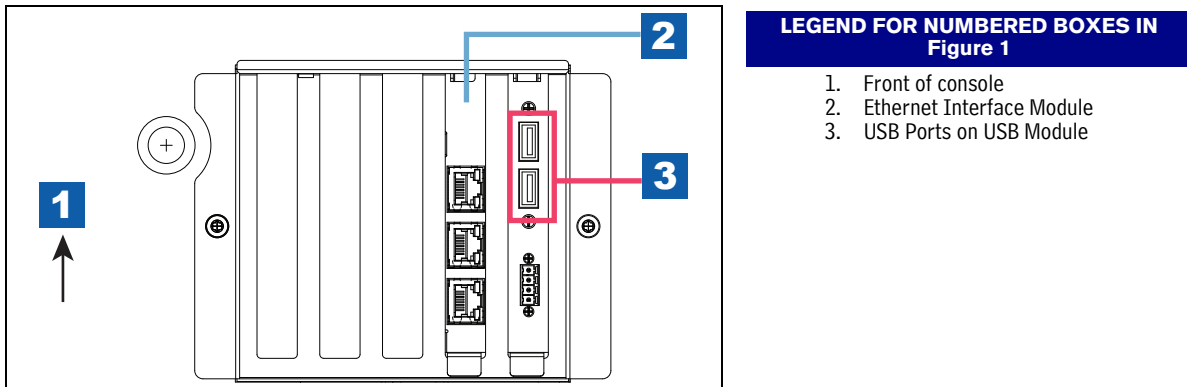


Figure 1. USB Module - USB Ports

2. From the Home Screen touch **Menu > Software Upgrade > DB Backup** to view the Database Backup Screen (see Figure 2). Touch the down arrow in the Backup Destination field to select the Backup thumb drive inserted in Step 1, then follow the on-screen instructions to backup TLS-450PLUS console data.

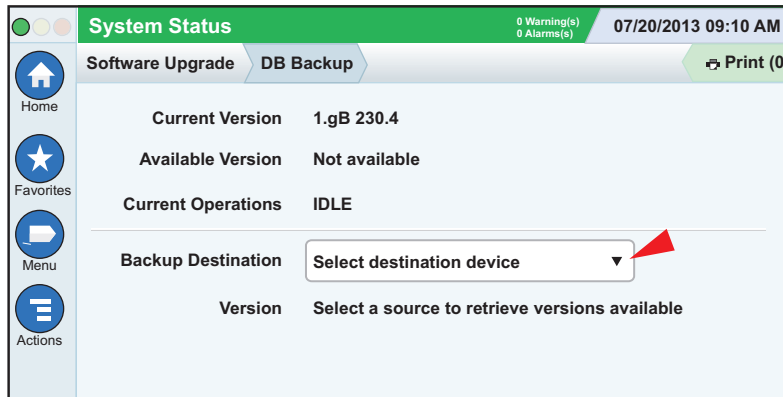


Figure 2. DB Backup Screen

Replacing The CPU Board

WARNING



Turn off, tag and lockout the breaker that supplies power to the console.

1. Remove the both left and right door screws (with a T-15 Torx driver) and swing open both doors to the left (see Figure 3).

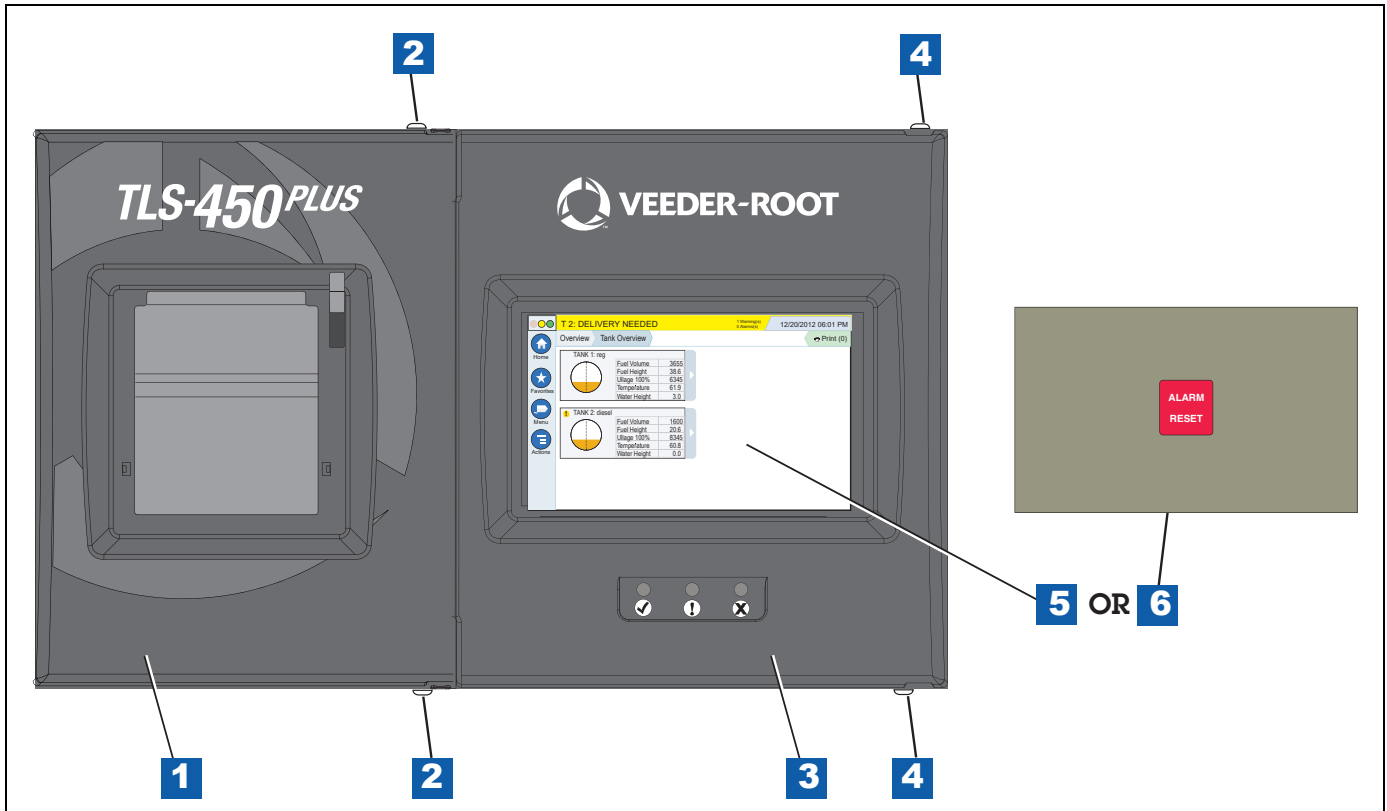


Figure 3. Opening The TLS-450PLUS Console Doors

LEGEND FOR NUMBERED BOXES IN Figure 3

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Left (Printer) door 2. Using a T-15 Torx driver, remove the top and bottom screws securing left door and swing door to left. 3. Right (Display) door. | <ol style="list-style-type: none"> 4. Using a T-15 Torx driver, remove the top and bottom screws securing left door and swing door to left. 5. Optional Display 6. Acknowledge Switch panel |
|--|--|

- For right doors with an Acknowledge Switch panel, remove its cable from its connector (J502) on the CPU board (see Figure 4).

For right doors with the optional touch display, remove the Display Data cable (pointer 1 in Figure 5) from the CPU board connector. Rotate the locking member of the cable's Display connector (1a pointer) up 90° from the connector's fixed base and slide cable end out

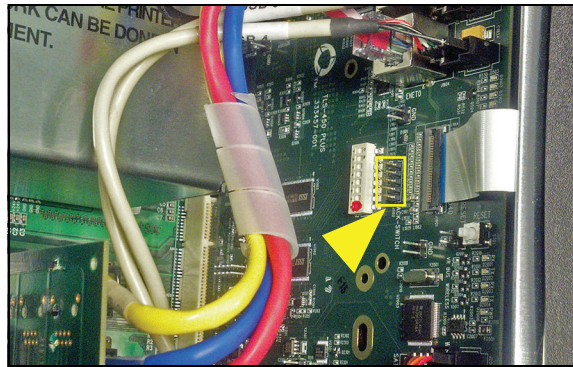


Figure 4. Remove the Acknowledge Switch Panel Cable From Its CPU Board Connector

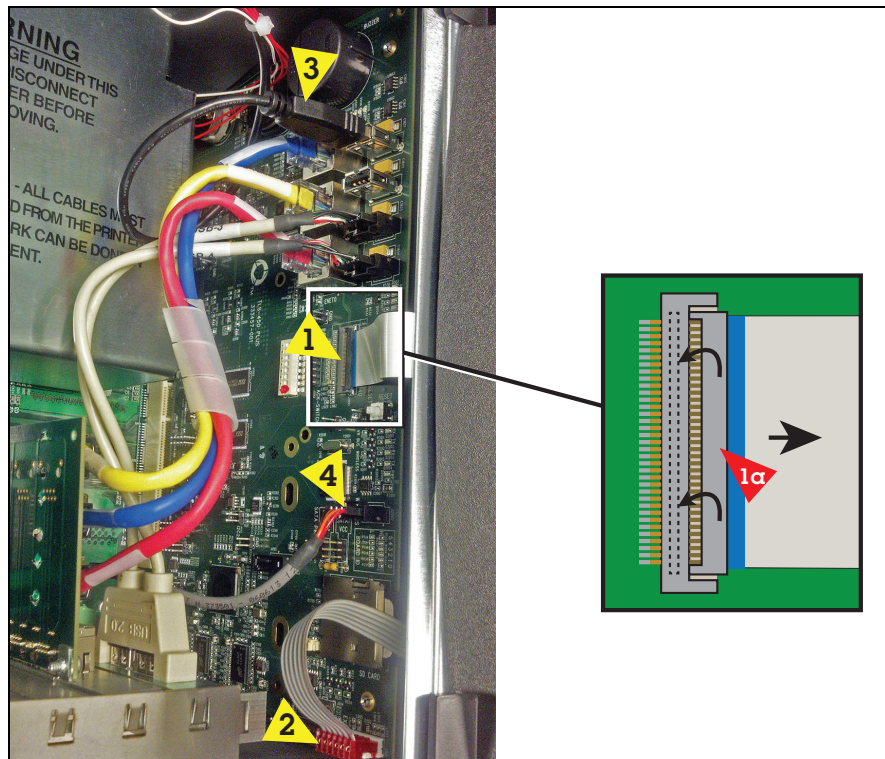


Figure 5. Remove Optional Printer And Display Cables From CPU Board

- Remove the LED Back light cable (pointer 2 in Figure 5) from the CPU board connector.

4. If a printer is installed, remove the printer's USB cable (pointer 3 in Figure 5) from the top USB connector (USB 1).
5. Remove the Wireless cable (pointer 4 in Figure 5) from the CPU board connector.
6. Remove the Ground wire at the top of the Display door (see Figure 6).

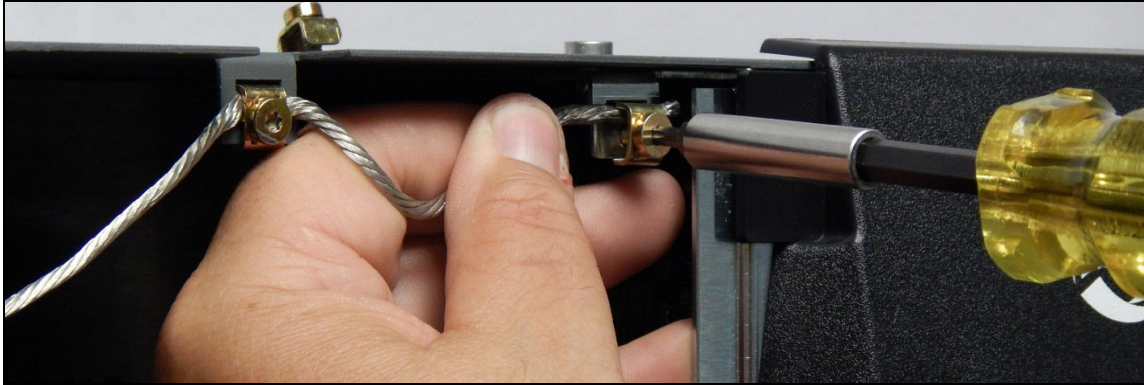


Figure 6. Remove Ground Wire From Display Door

7. Remove and set aside the TLS-450PLUS Display door by removing the top and bottom hinge shoulder screws (see Figure 7).

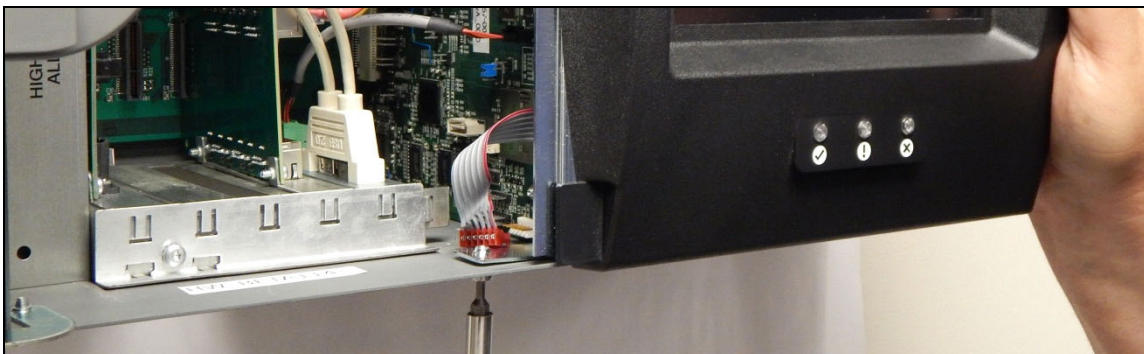
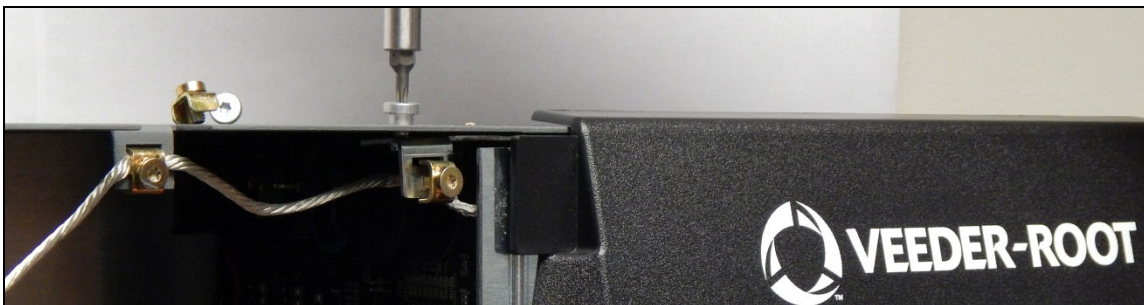


Figure 7. Remove Top And Bottom Display Door Hinge Screws

8. Remove the two USB module cables from the CPU board USB connectors USB3 and USB4 (see Figure 8).

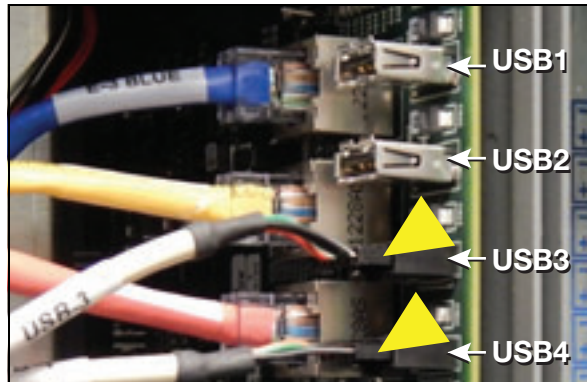


Figure 8. Remove USB Module Cables From CPU Board

9. Remove the three Ethernet Module cables ENET2 (blue), ENET1 (yellow) and ENET0 (red) from the CPU board (see Figure 9).

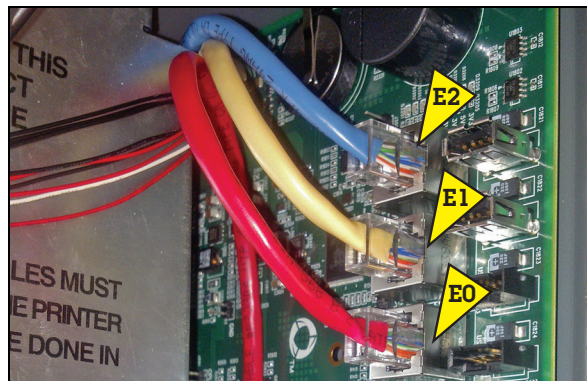


Figure 9. Remove Ethernet Module Cables From CPU Board

10. Locate the three retention snap pins along the front edge of the CPU board. Position your forefinger beneath one of the pins and press up releasing the CPU board from the snap pin. Repeat at each of the remaining two retention pins.
11. Tilt the board a little away from the bulkhead and grasping the edge of the board pull out firmly to remove the board from its backplane board connector. Once the CPU board is free from the connector, slowly remove the board from the console.
12. With anti-static strap attached to wrist and to a grounded metal surface, place the CPU board on a clean work surface.
13. Locate the SD card on the CPU board (see Figure 10). If a SD card is not installed as shown, skip Step 14 and go to Step 15.

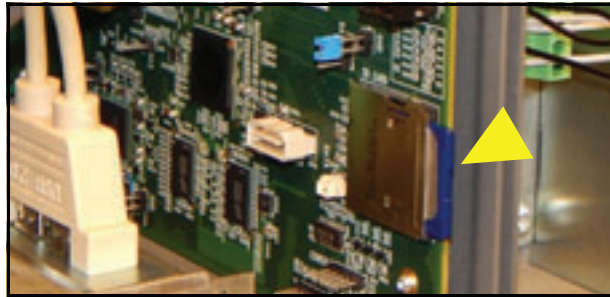


Figure 10. Locating SD card

14. Press the outer edge of the SD card towards the read of its enclosure and it should spring out so it can be removed. Remove the SD card from the old CPU board and check that the read/write-protect switch on the side of the card is in the position shown in (item 1 Figure 11). Insert the SD card into its enclosure on the new CPU board with the contact side facing the CPU board (item 2) and gently push the card into its enclosure until it clicks into the enclosure's latch.

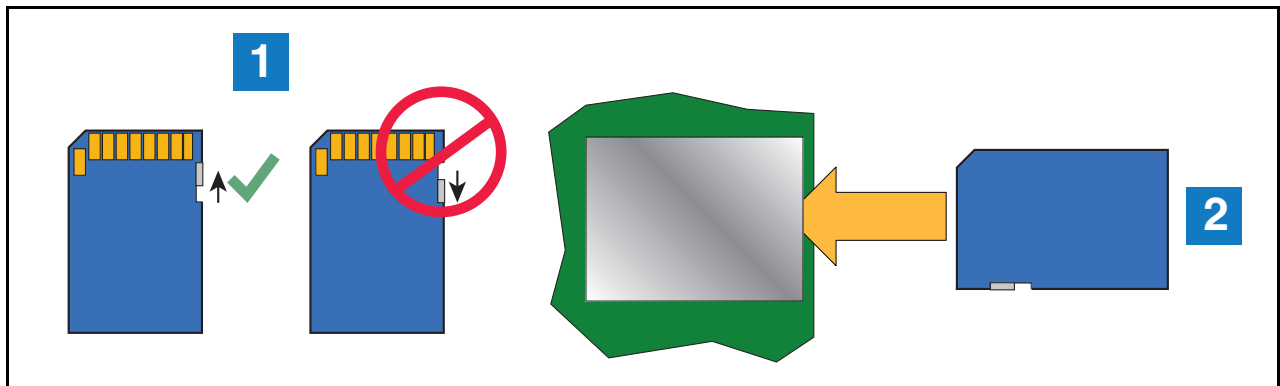


Figure 11. Installing SD Card

15. If a SATA drive board is installed instead of an SD card, it will be located in the middle of the CPU board (pointer 1 in Figure 12):

Note: SATA drive may appear slightly different than version shown.

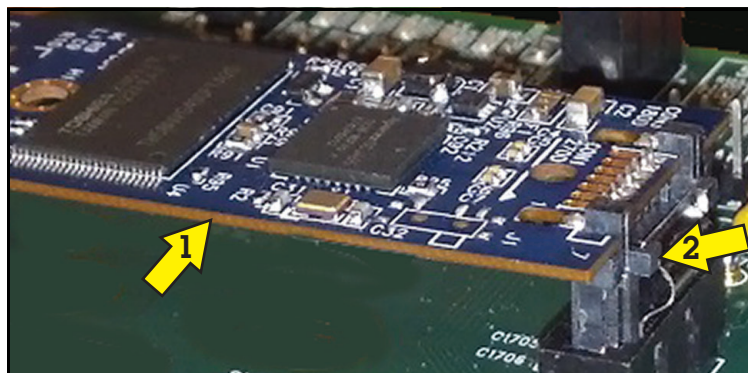


Figure 12. SATA Drive Board



16. Handle the SATA drive by its edges and avoid touching components on the board. To remove the SATA drive board, push in on the small button (pointer 2 above) to release the plug latch while lifting the board from the CPU connector.
17. To reinstall hold the SATA drive board by its edges and push the SATA drive board plug into the CPU connector until the plug latch snaps into place.
18. Locate the iButton on the old TLS-450PLUS CPU board. Remove the iButton from the old CPU board and install it in the empty socket on the new TLS-450PLUS CPU board (see Figure 13). Make sure the flanged side of the iButton is facing up in its socket (see Figure 14).

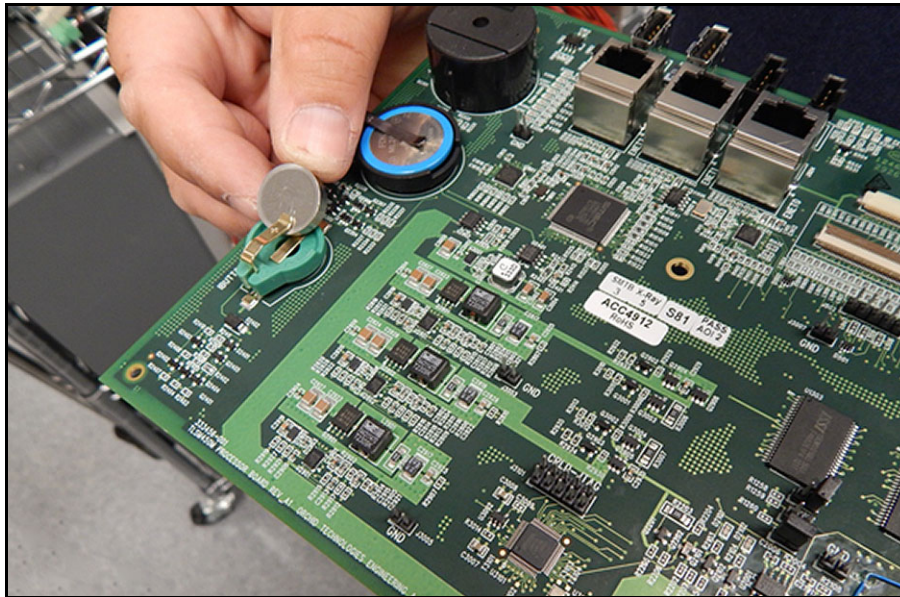


Figure 13. Locating TLS-450PLUS CPU Board iButton

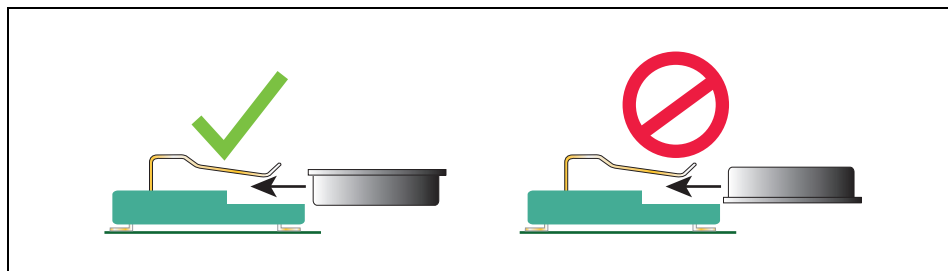


Figure 14. Install iButton Flange Facing Up

19. Install the new TLS-450PLUS CPU board into the console. Line up with slot in back of console wall and make sure board is fully seated in its backplane connector and the front edge is over the standoff pins. Push board front edge onto snap pins to secure it in place.

20. Remove the battery isolator strip from under the battery hold-down clip (see Figure 15).

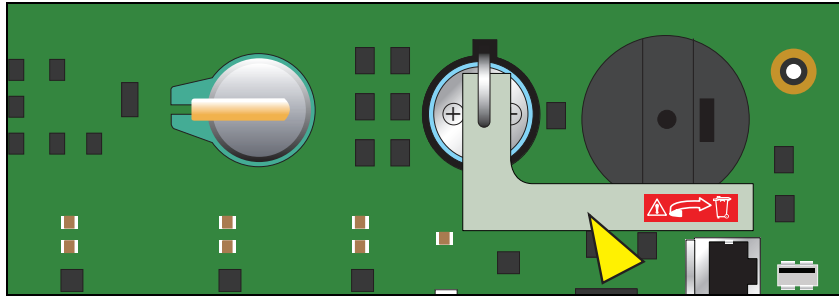


Figure 15. Remove TLS-450PLUS CPU Board Battery Isolator Strip

21. Reconnect the three Ethernet Module cables ENET2 (blue), ENET1 (yellow) and ENET0 (red) from the CPU board (ref. Figure 9).

22. Reconnect the optional Printer, LED Backlight and Wireless cables (ref. Figure 5).

23. For right doors with an Acknowledge Switch panel, reconnect its cable to connector (J502) on the CPU board (ref. Figure 4).

For right doors with the optional touch display, connect the Display Data cable to its CPU connector. If necessary rotate the Display Data cable's locking flap (1a in Figure 23) up from the CPU connector and insert end of the Display Data ribbon cable fully into the connector then push down on the flap (1a) until it rests against the connector. Verify the Display Data ribbon cable is securely seated in the connector and that the flap is down against the connector as shown in the enlarged section. If inserted fully, the blue end of the cable will be no more than 1/16" (2mm) out of the connector as shown (see Figure 16).

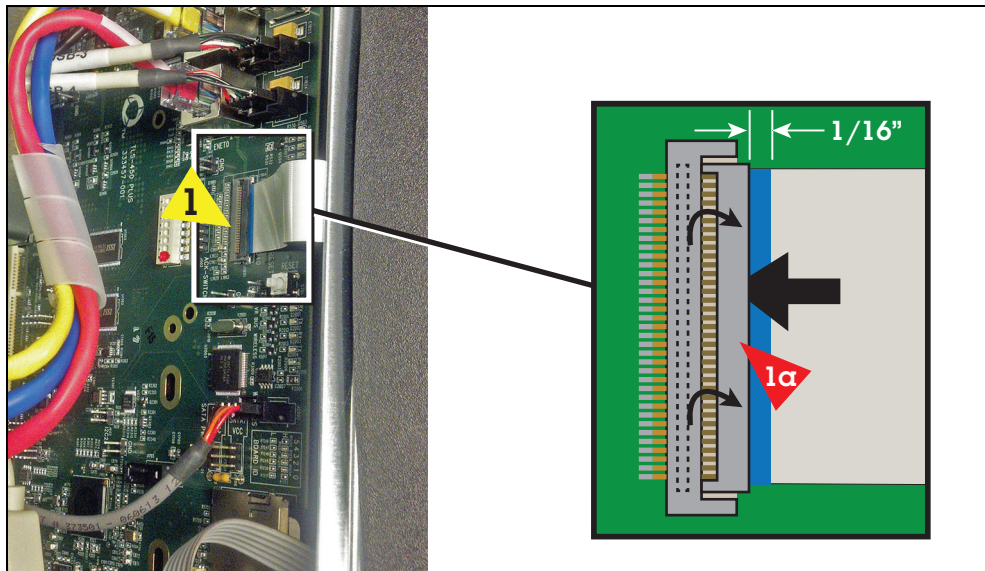


Figure 16. Inserting Data Display Cable End Into CPU Board Connector

24. Replace the Display door using the two hinge shoulder screws removed earlier (see Figure 7)

25. Replace the ground wire to the Display door (see Figure 6).

26. Close and secure the two doors of the console by reversing the procedure in Step 2 of “Replacing The CPU Board” on page 4.

27. After installing the TLS-450PLUS CPU board follow the appropriate initial startup procedure below:

For Sites Without Wireless 2 Devices

- a. Power up the TLS-450PLUS and wait 5 minutes until the console's 'Discover Mode' is complete.
- b. Perform a DB Restore. Insert the thumb drive used to back up the TLS-450 in Step 1 of “Before Turning Off Power” on page 3.
- c. Touch **Menu>Software Upgrade>DB Restore** and follow the on-screen directions restore the original system data base.

For Sites With Wireless 2 Devices

- a. Power up all wireless devices.
- b. Power up the TLS RF console and wait about 5 minutes, before applying power to the TLS-450PLUS.
- c. Power up the TLS-450PLUS and wait 5 minutes until the console's 'Discover Mode' is complete.
- d. Perform a DB Restore. Insert the thumb drive used to back up the TLS-450 in Step 1 of “Before Turning Off Power” on page 3.
- e. Touch **Menu>Software Upgrade>DB Restore** and follow the on-screen directions restore the original system data base.

Replacing The iButton

WARNING



Turn off, tag and lockout the breaker that supplies power to the console.

1. Follow Steps 1 through 11, in the instructions for “Replacing The CPU Board” beginning on page 4.
2. Locate the iButton on the top rear of the TLS-450PLUS CPU board (see Figure 17). Remove the iButton from its socket on the board. Slide the replacement iButton into the socket with its flanged side facing up in the socket (see Figure 18).

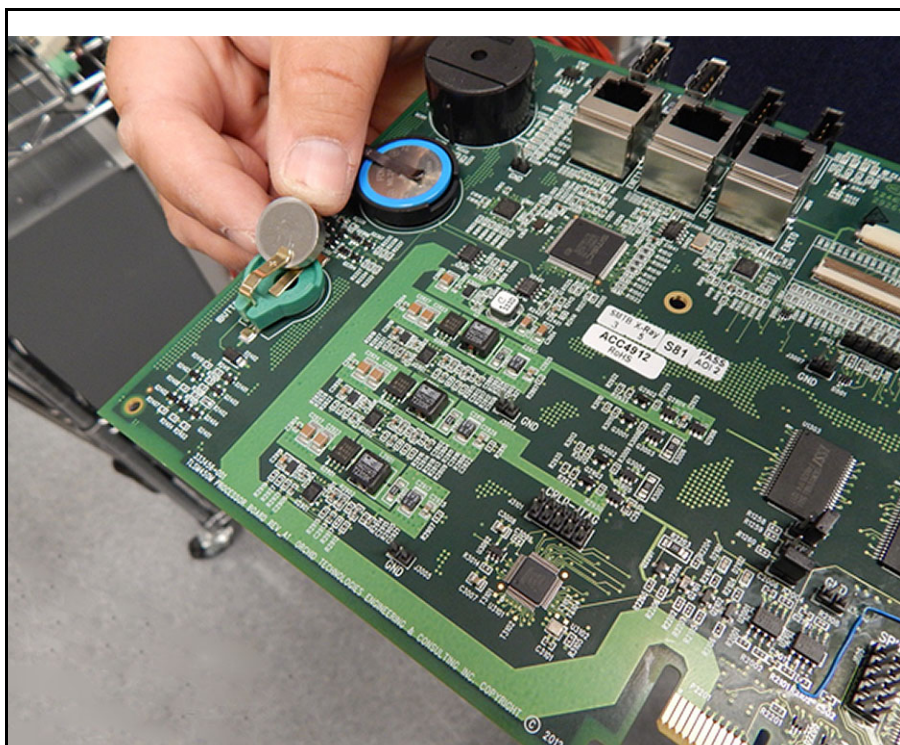


Figure 17. Locating TLS-450PLUS CPU Board iButton

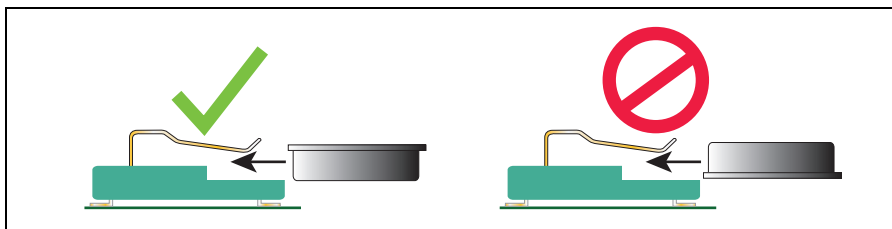


Figure 18. Install iButton Flange Facing Up

3. Reinstall the TLS-450PLUS CPU board into the console. Line up with slot in back of console wall and make sure board is fully seated in its backplane connector and the front edge is over the standoff pins. Push board front edge onto snap pins to secure it in place.
4. Reconnect the three Ethernet Module cables ENET2 (blue), ENET1 (yellow) and ENET0 (red) from the CPU board (ref. Figure 9).
5. Reconnect the two USB module cables to USB connectors USB3 and USB4 (ref. Figure 8).
6. Reconnect the optional Printer cable to the USB1 connector, LED Backlight and Wireless cables (ref. Figure 5).
7. For right doors with an Acknowledge Switch panel, reconnect its cable to connector (J502) on the CPU board (ref. Figure).

For right doors with the optional touch display, connect the Display Data cable to its CPU connector. If necessary rotate the Display Data cable's locking flap (1a in Figure 16) up from the CPU connector and insert end of the Display Data ribbon cable fully into the connector then push down on the flap (1a) until it rests against the connector. Verify the Display Data ribbon cable is securely seated in the connector and that the flap is down against the connector as shown in the enlarged section. If inserted fully, the blue end of the cable will be no more than 1/16" (2mm) out of the connector as shown (ref. Figure 16).

8. Replace the Display door using the two hinge shoulder screws removed earlier (ref. Figure 7)
9. Replace the ground wire to the Display door (ref. Figure 6).
10. Close and secure the two doors of the console by reversing the procedure in Step 2 of "Replacing The CPU Board" on page 4.
11. Power up the console and perform the Upgrade Features/DB backup procedures on page 16.

Replacing The SD Card

1. Perform a DB Backup of the system as instructed in “Before Turning Off Power” on page 3.



Turn off, tag and lockout the breaker that supplies power to the console.

2. Remove both left and right door screws (with a T-15 Torx driver) and swing open both doors to the left (see Figure 3).
3. Locate the SD card on the CPU board (see Figure 19).

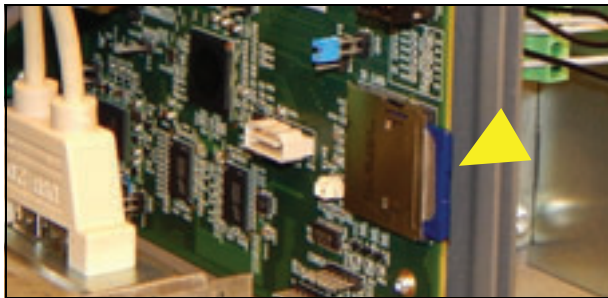


Figure 19. Locating SD card

4. Press the outer edge of the SD card towards the interior of its enclosure and it should spring out so it can be removed. Remove the SD card from the old CPU board and check that the read/write-protect switch on the side of the card is in the position shown in (item 1 Figure 20). Insert the SD card into its enclosure on the new CPU board with the contact side facing the CPU board (item 2) and gently push the card into its enclosure until it clicks into the enclosure's latch.

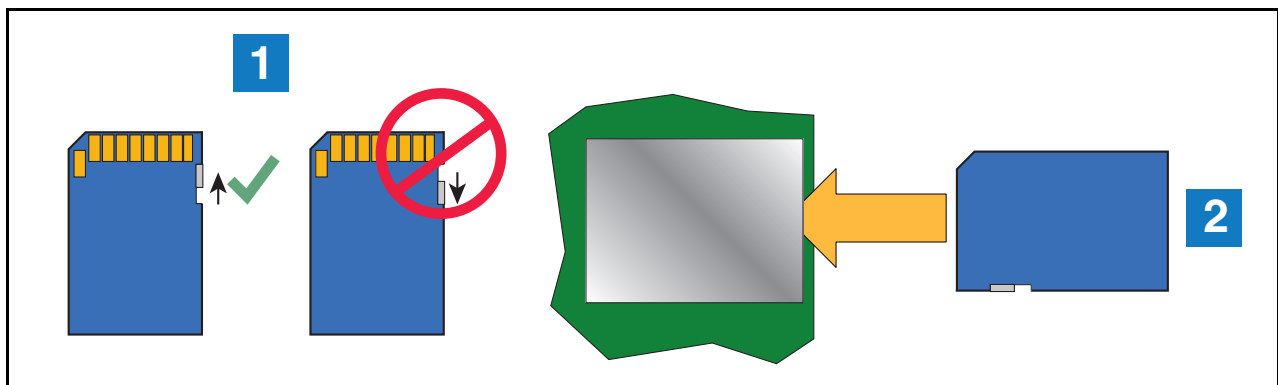


Figure 20. Installing SD Card

5. Close and secure the two doors of the console by reversing the procedure in Step 2 of “Removing The CPU Board” on page 5.
6. Power up the console and insert the backup thumb drive into an available USB port.

7. From the home screen, touch **Menu>Software Upgrade> DB Restore** and follow the on-screen instructions.
8. Perform a DB Backup as instructed in “Before Turning Off Power” on page 3.

Installing Software Features

Before installing a software feature upgrade, perform a system backup using a V-R Backup thumb drive (P/N 332970-004) following the procedure described in “Before Turning Off Power” on page 3.

NOTICE The V-R Backup thumb drive is different from a V-R Software Upgrade thumb drive - the two are not interchangeable.

Software Features Installation Procedure

1. Get the USB adapter with the installed feature upgrade iButton from the upgrade kit
2. Insert the USB Adapter into one of the two USB ports in the bottom of the console as shown in Figure 21 below.

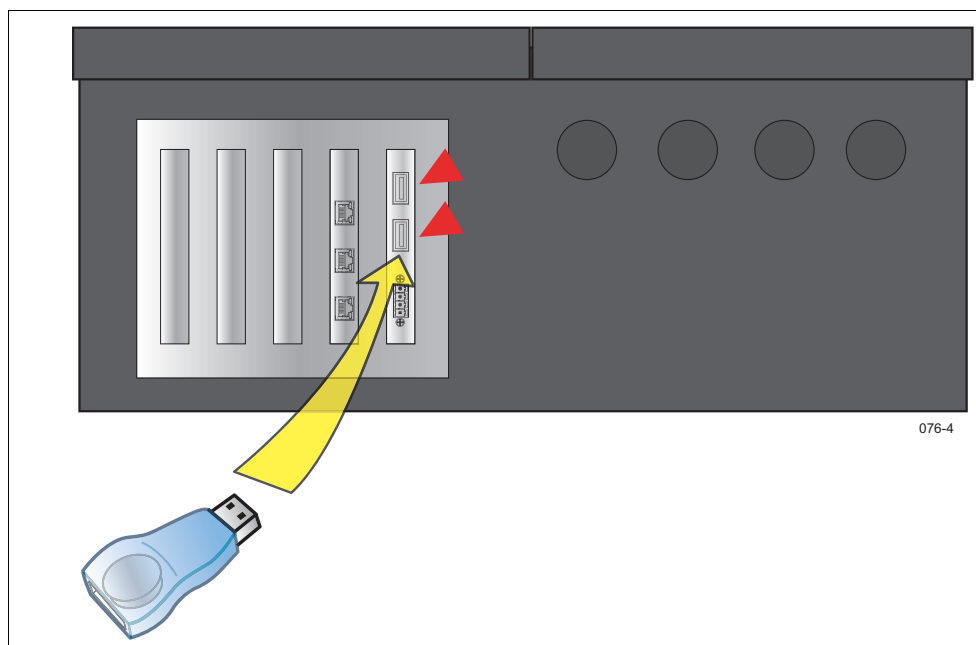


Figure 21. Insert The iButton Adapter Thumb Drive Into A USB Port On The Console

3. From the Home Screen, touch the following: Menu>Software Maintenance >Upgrade Features.

NOTICE You will have to scroll to see Upgrade Features option in Software Maintenance.

4. Touch the Install Features button to start the installation process.
5. When you have completed the Upgrade Features procedure, remove the upgrade thumb drive.
6. From the Home Screen, touch the following Menu > Overview > About and verify that the features in the upgrade were installed.
7. With the new software features installed, perform a system backup using the V-R Backup thumb drive (P/N 332970-004) as discussed in “Before Turning Off Power” on page 3.

NOTICE The V-R Backup thumb drive is different from a V-R Software Upgrade thumb drive - the two are not interchangeable.



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www.veeder.com

A blue rectangular box containing a white globe icon at the top and contact information below it.