

TLS-450PLUS Console

Hardware Replacement Guide

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Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

DAMAGE CLAIMS / LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

Veeder-Root must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

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1. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

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RETURN SHIPPING

For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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Introduction

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

- Display door assembly (P/N 330020-772)
- Acknowledge (Ack) Switch Panel door assembly (P/N 330020-774)
- Printer door assembly (P/N 330020-777)
- Non-printer (blank) door assembly (P/N 330020-775)
- Power supply (P/N 330020-623)

For troubleshooting information, see 577014-078.

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
- **VR Vapor Products Certification:** Contractors holding a certification with the following designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system. ISD – In Station Diagnostics
- PMC – Pressure Management Control
- CCVP - Veeder-Root Vapor Polisher
- Wireless – ISD/PMC Wireless
- A current Veeder-Root Technician Certification is a prerequisite for the VR Vapor Products course.

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








EXPLOSIVE

Fuels and their vapors are extremely explosive if ignited.







FLAMMABLE

Fuels and their vapors are extremely flammable.

| | |
|---|--|
|  <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>WARNING Heed the adjacent instructions to avoid damage to equipment, property, environment or personal 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 system operates near highly combustible fuel storage tanks.</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> <p>To ensure proper installation, operation, and continued safe use of this product:</p> <ol style="list-style-type: none"> 1. Read and follow all instructions in this manual, including all safety warnings. 2. Have equipment installed by a contractor trained in its proper installation and in compliance with all applicable codes including: the National Electrical Codes; federal, state, and local codes; and other applicable safety codes. 3. Before working on this console, turn off, tag and lockout power to the console. 4. Substitution of components may impair intrinsic safety. 5. Do not modify or use service parts other than those provided by Veeder-Root. |
|---|---|

Precautions Against Static Electricity

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

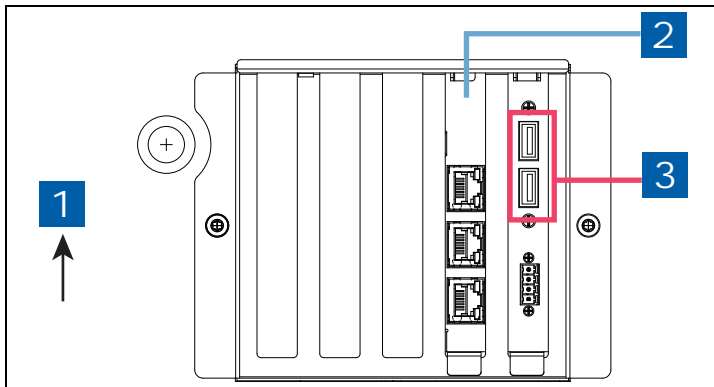
1. Before handling any components, discharge your body's static electric charge by touching a grounded surface.
2. Do not remove parts from their anti-static bags until you are ready to install them.
3. Do not lay parts on the anti-static bags! Only the insides are anti-static.
4. When handling parts, 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 1).



LEGEND FOR NUMBERED BOXES IN Figure 1

1. Front of console
2. Ethernet Interface Module
3. USB Ports on USB Module

Figure 1. USB board - 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.

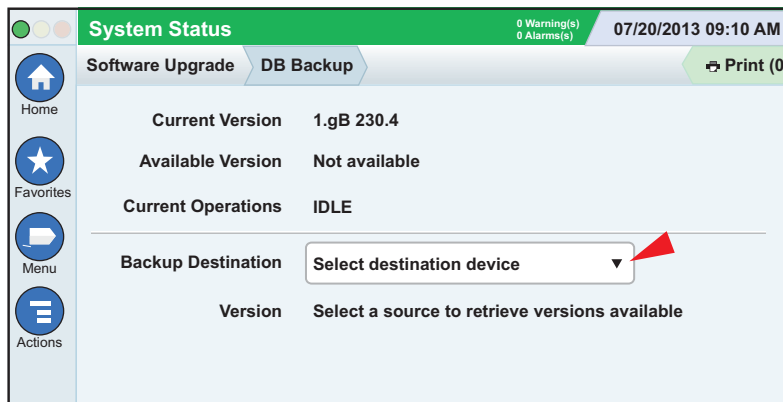


Figure 2. DB Backup Screen



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

Replacing The Right Door (Ack Switch Panel Or Display)

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).

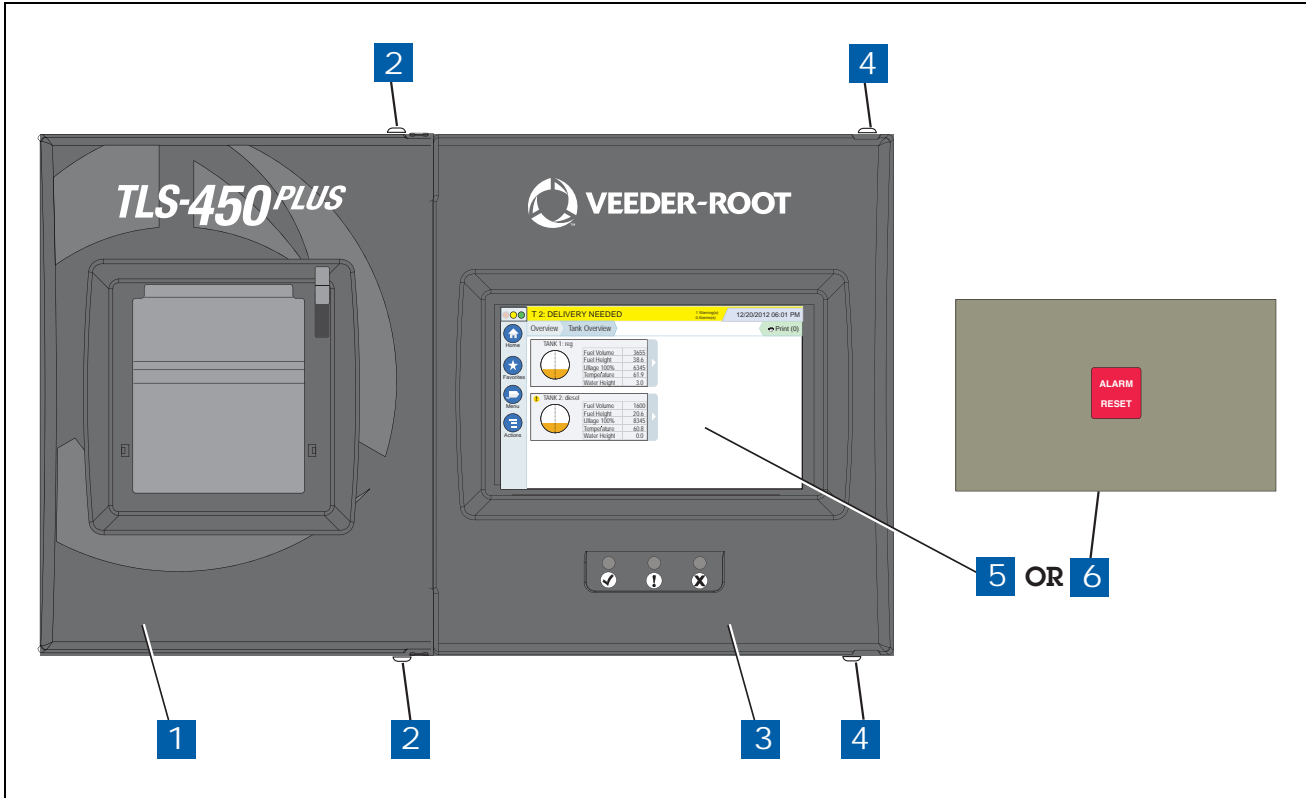


Figure 3. Opening The TLS-450PLUS Console Doors

| Legend For Figure 3 | | | |
|---------------------|---|------|--|
| Item | Description | Item | Description |
| 1 | Left blank door or optional printer door. | 4 | Remove the top and bottom T15 screws securing left door and swing door to left |
| 2 | Remove the top and bottom T15 screws securing left door and swing door to left. | 5 | Optional Display |
| 3 | Right door (with Ack Switch Panel or optional Display). | 6 | Acknowledge (Ack) Switch Panel |

2. For the Ack Switch panel door remove the Ack Switch Panel cable plug from its CPU board connector (item 16 in Figure 4). Remove the LED Back light cable (pointer 2) from CPU board connector (see Figure 5).

For the optional Display door, remove the Display Data cable (pointer 1, 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.

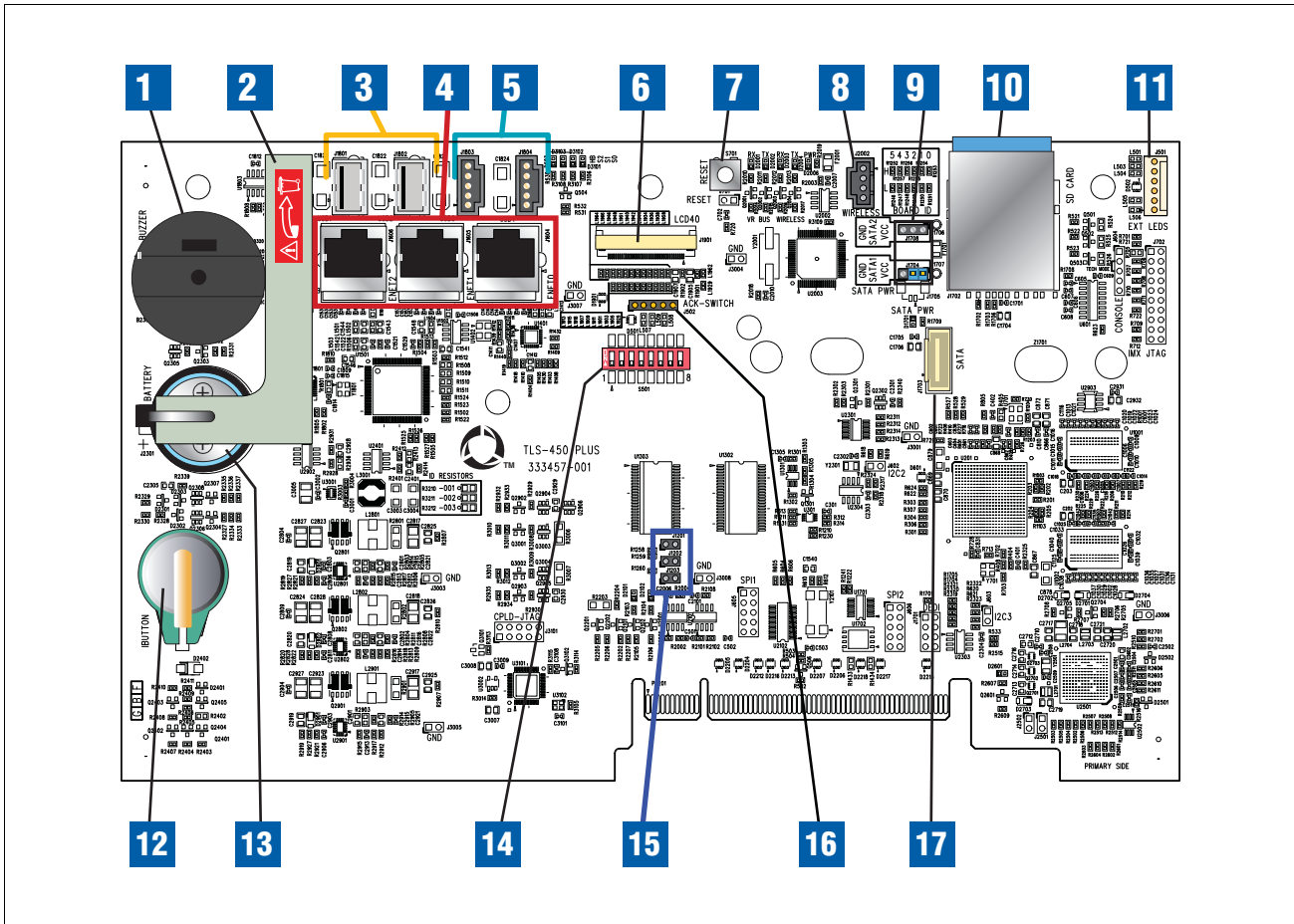


Figure 4. CPU board

| Legend For Figure 4 | | | |
|---------------------|---|------|---|
| Item | Description | Item | Description |
| 1 | Console beeper | 10 | SD Card (in metal enclosure) |
| 2 | Battery isolator strip - to be removed prior to startup | 11 | LED Backlight cable connector (optional display) |
| 3 | USB Type A connectors (2) | 12 | Features iButton |
| 4 | Ethernet (RJ-45) connectors (3) | 13 | Backup Battery |
| 5 | USB (0.1" pitch header) connectors (2) | 14 | Configuration DIP switches |
| 6 | Display cable connector (optional display) | 15 | SD card/SATA selection jumpers (J1201, J1202 & J1203) |
| 7 | Reset button | 16 | Acknowledge Switch panel cable connector |
| 8 | USB module - wireless cable connector | 17 | SD/SATA board connector |
| 9 | SATA Type Jumpers (J1704 & J1708) | | |

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

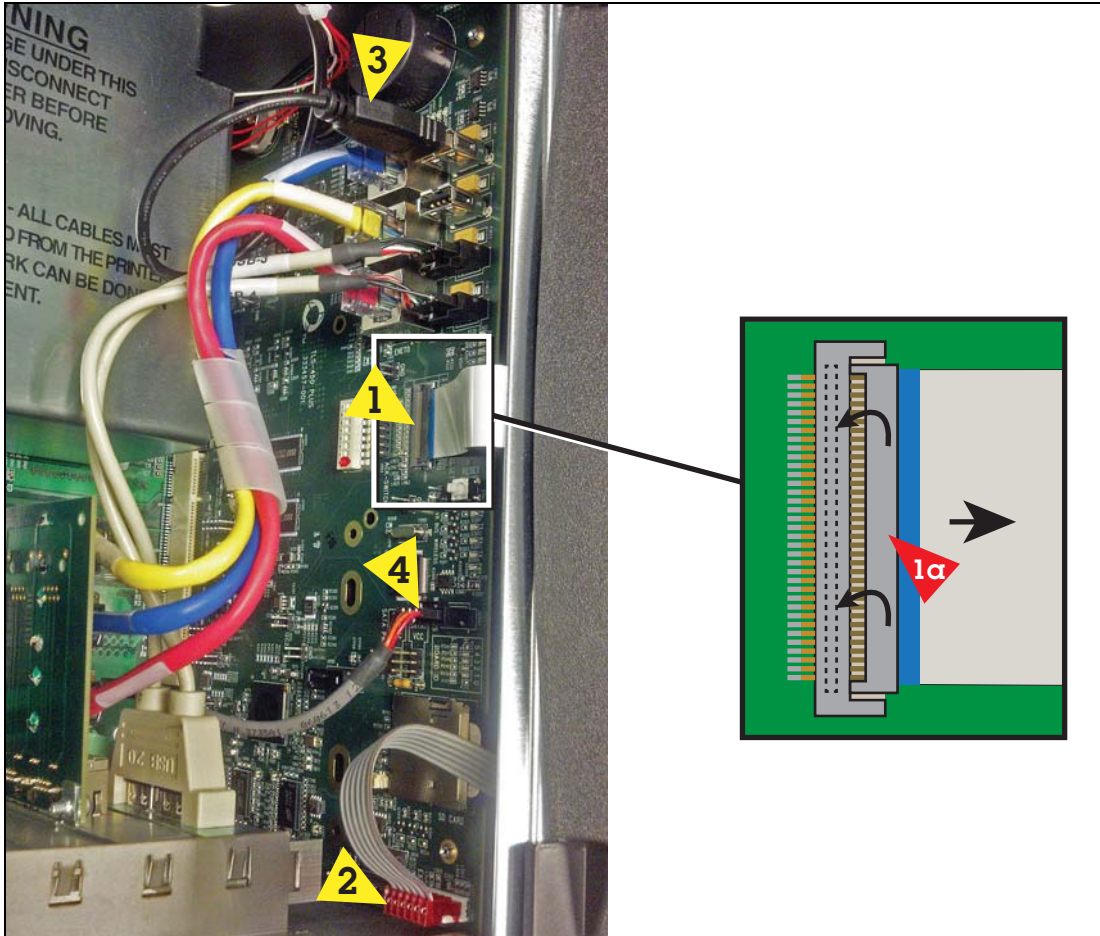


Figure 5. Remove Display Cables From CPU Board

4. Remove the Ground wire at the top of the door (see Figure 6).

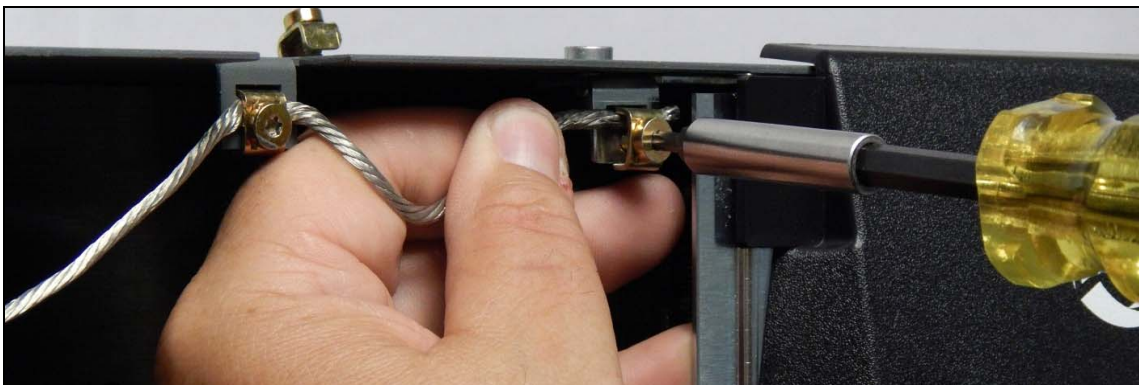


Figure 6. Remove Ground Wire From Ack Switch/Display Door

5. Remove the TLS-450PLUS Ack Switch Panel/Display door by removing the top and bottom hinge shoulder screws (see Figure 7).

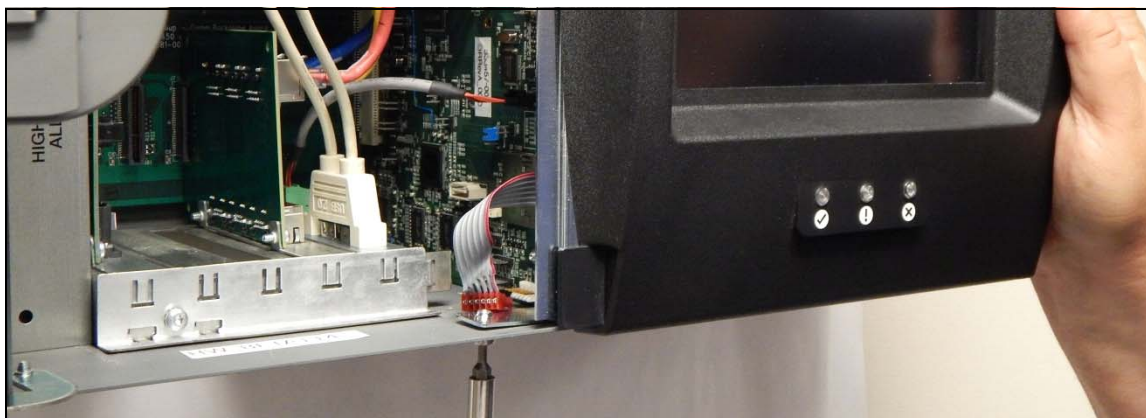
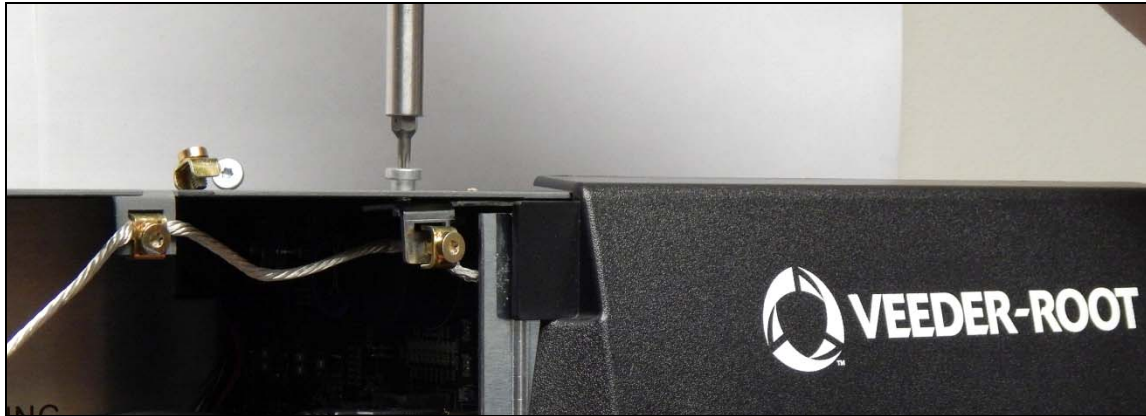


Figure 7. Remove Top And Bottom Optional Display Door Hinge Screws

6. Replace the Ack Switch Panel/Display door by reversing the appropriate steps above.

Replacing Left Door (With Or Without Printer)

1. Perform all of the Steps in the section entitled “Before Turning Off Power” on page 3.
2. Remove both left door screws (with a T-15 Torx driver) and swing open the door to the left.
3. If a printer is installed, remove the printer's USB cable (pointer 3 in Figure 5) from the top USB connector (USB 1).
4. Loosen the T15 ground clamp screw securing the ground wire at the top of the Printer door and slide it free of the clamp (see Figure 8).

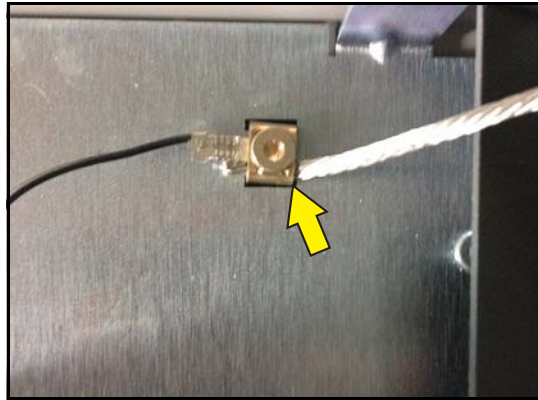


Figure 8. Removing Printer Door Ground Wire

5. If a printer is installed, unplug the Printer power cable plug from the Power Supply board connector. (see Figure 9).

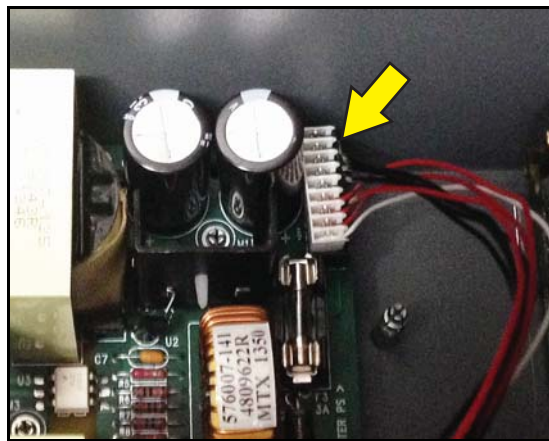


Figure 9. Removing Printer Door Power Connector

6. Remove the TLS-450PLUS Printer door by removing the top and bottom hinge shoulder T15 screws (identical to the Ack Switch Panel/Display Door shoulder screws (item 2, Figure 3).
7. Replace door reversing appropriate steps above.

Replacing The AC Input Filter And/Or Power Supply Board

1. Perform all of the Steps in the section entitled “Before Turning Off Power” on page 3.
2. Open the console left door as described in Step 2 of the section entitled “Replacing Left Door (With Or Without Printer)” on page 8.
3. Remove the two T15 screws from the AC Channel cover and put the cover and screws aside (see Figure 10).



Figure 10. Remove AC Channel Cover

| Legend For Figure 10 | | | |
|----------------------|-------------------|------|-----------------|
| Item | Description | Item | Description |
| 1 | AC Channel cover. | 2 | T15 screws (2). |

4. Remove the three T15 screws in the AC Input Filter (item 1 in Figure 11).

5. Lift the Power Supply shield up to disengage the two retention snap pins in its right side flange and remove it from the console (item 2 in Figure 13).
6. Grasp the AC Input Filter handle (see item 3 in Figure 11) and slowly pull up and away from the Power Supply board until the two AC Input Filter plugs disconnect from the Power Supply board connectors. Lift the AC Input Filter out of the console. Remove the two T-15 screws that secure the AC Input board to the AC input board bracket. Place fingers under the AC Input board near each of the two retention pins and lift the board up until it is free of the pins.

To replace the AC Input Filter reverse the above steps. To remove the Power Supply Board continue to Step 7.

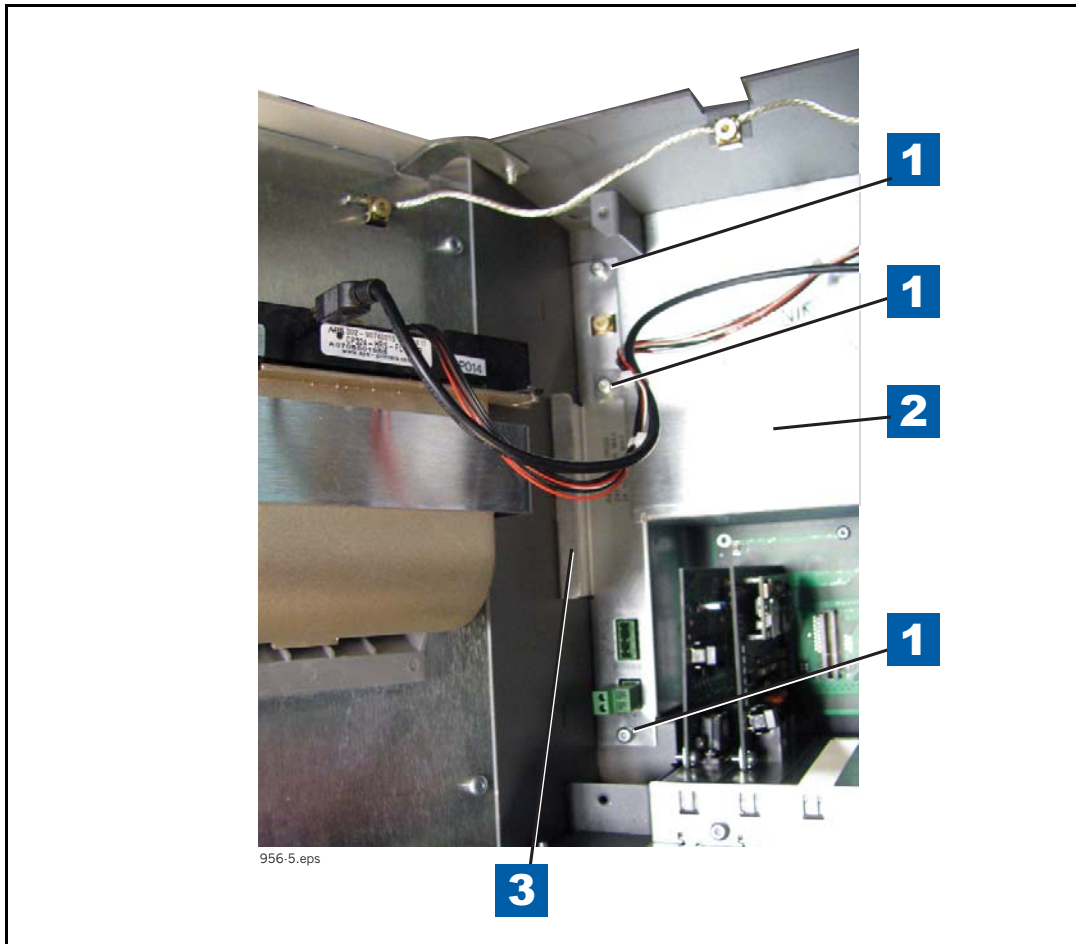


Figure 11. Removing AC Input Filter

| Legend For Figure 11 | | | |
|----------------------|--|------|------------------------|
| Item | Description | Item | Description |
| 1 | T15 screws (the middle one secures the Power Supply shield to the AC Input Filter bracket) | 3 | AC Input Filter handle |
| 2 | Power Supply shield | | |

7. Remove the two T15 screws (item 1 in Figure 12) that secure the Power Supply board to the console housing.
8. Place a finger under the edges of the Power Supply board near the upper right and lower left edges of the board and lift the board up until it is free of the three snap pins (item 2 in Figure 12).



WARNING! Shock hazard. Do not touch underside of Power Supply board beneath the five capacitors (identified by item 3 in Figure 12).

9. Disconnect the printer power cable from the Power Supply board connector J1.
10. Lift the board out of the console by its edges since there is still undischarged high voltage in the item 3 capacitors.

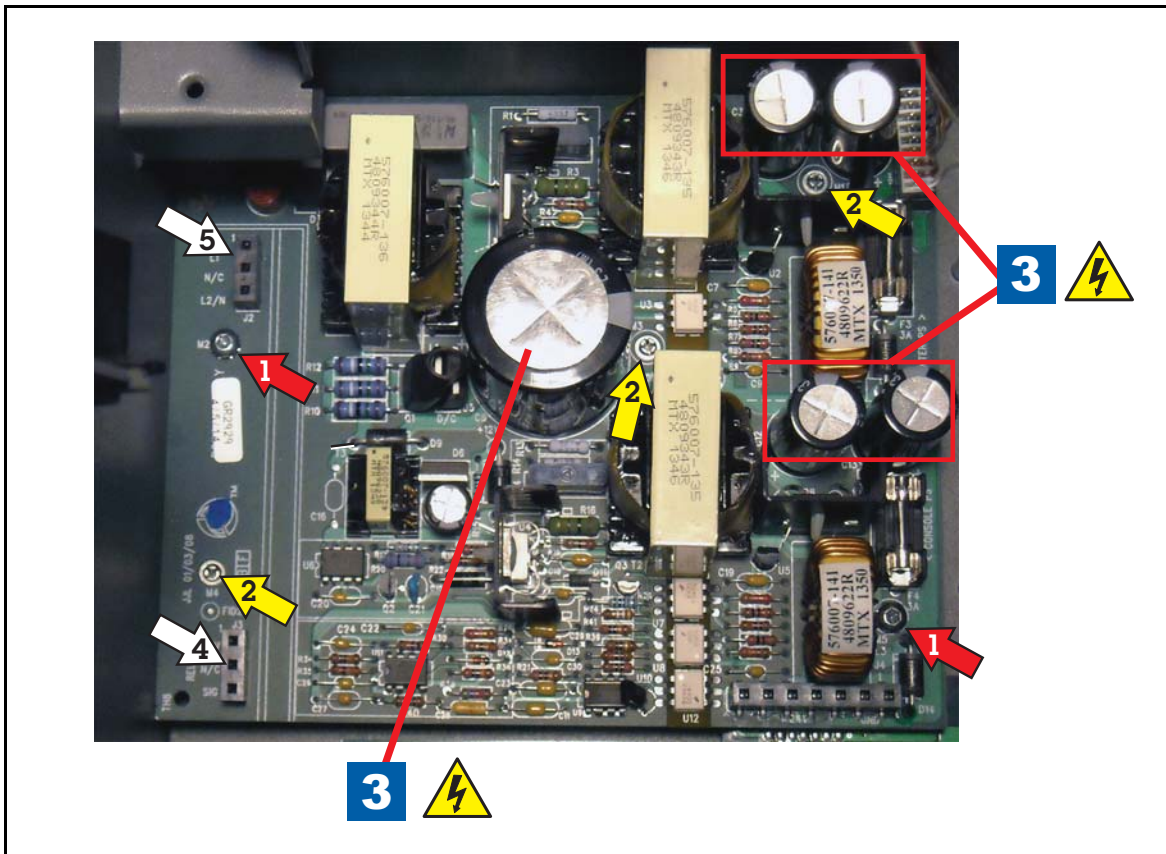



Figure 12. Removing Power Supply Board

| Legend For Figure 12 | | | |
|----------------------|--|---|--|
| Item | Description | Item | Description |
| 1 | Power Supply Board T15 securing screws | 3 | Power Supply Board capacitor warning. |
| 2 | Power Supply Board retention snap pins |  | WARNING! The five capacitors identified by pointer 3, can hold a high charge, do not touch underside of board where these caps are soldered to board. |

11. Get the new Power Supply board and lower it into the console.

12. Attach the printer power supply cable to its connector (J1) on the upper right corner of the replacement Power Supply board.
13. Line up the three holes in the Power Supply board (see item 2 in Figure 12) with the three retention pins in the back of the console housing and push the board down until the pins snap into position.
14. Install the two T15 screws (item 1 in Figure 12) and tighten them.
15. Notice that there are two male connectors on the bottom of the AC Input Filter board that plug into two female connectors on the Power Supply board. With the handle (item 3 of Figure 11) of the AC Input Filter against the left side of the console housing, line up the two AC Input Filter bottom connectors over the two female connectors (items 4 and 5 in Figure 12) on the Power Supply board and push down on the AC Input Filter until the connectors are firmly seated.
16. Place the Power Supply shield (item 2 in Figure 11) over the Power Supply board and lower it down onto its two retention pins (see item 2 in Figure 13) and snap it into place.
17. Install the three T15 screws in the AC Input Filter (see item 1 in Figure 11).
18. Replace the AC Channel cover and install the two T15 screws (see Figure 10).

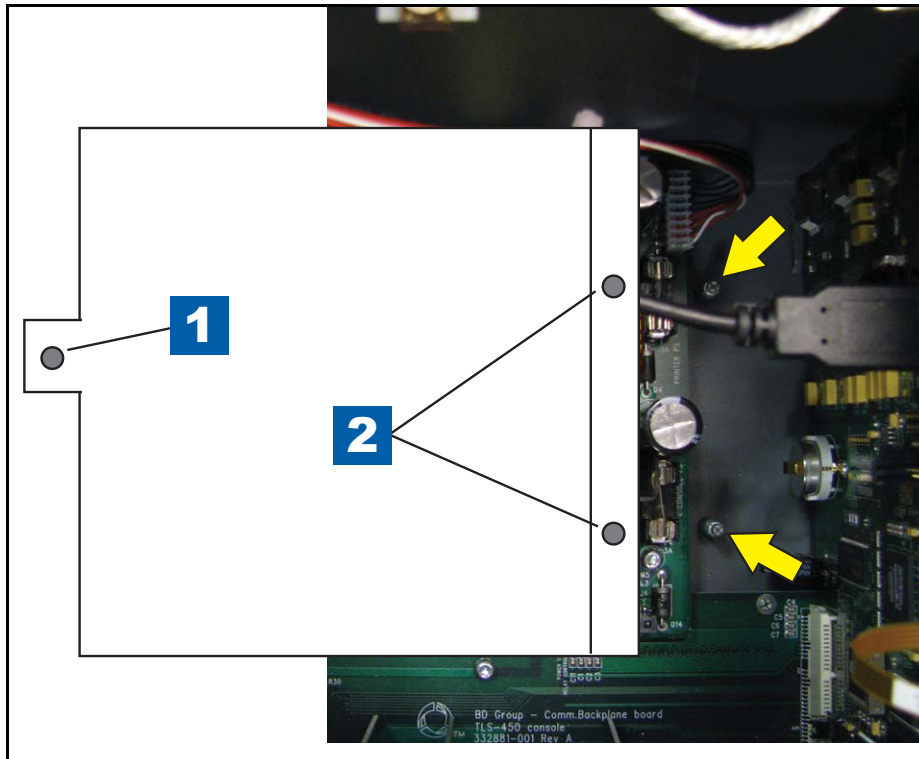


Figure 13. Replacing Power Supply shield over Power Supply board

| Legend For Figure 13 | | | |
|----------------------|-------------|------|---------------------------|
| Item | Description | Item | Description |
| 1 | T15 screws | 2 | Board retention snap pins |

19.

