

TLS-4xx Series Consoles

Console Hardware Replacement

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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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Introduction

This manual contains instructions for replacing the following TLS-4XX console components:

- Display Door Assembly (P/N 330020-625)
- Printer Door Assembly (P/N 330020-626)
- Power Supply (P/N 330020-623)

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: Contractors holding valid Installer Certification are approved to perform wiring and conduit routing, equipment mounting, probe and sensor installation, tank and line preparation, and line leak detector installation.

TLS-350 Technician Certification: Contractors holding valid TLS-350 Technician Certifications are approved to perform installation checkout, startup, programming and operations training, troubleshooting and servicing for all Veeder-Root TLS-300 or TLS-350 Series Tank Monitoring Systems, including Line Leak Detection and associated accessories.

TLS-450 Technician Certification: Contractors holding valid TLS-450 Technician Certifications are approved to perform installation checkout, startup, programming and operations training, troubleshooting and servicing for all Veeder-Root TLS-450 Series Tank Monitoring Systems, including Line Leak Detection and associated accessories.

In-Station Diagnostics (ISD) Technician Certification: Contractors holding valid ISD Technician Certifications are approved to perform installation checkout, startup, programming and operations training, troubleshooting and servicing for all Veeder-Root In-Station Diagnostics hardware, including ISD-PMC and Carbon Canister Vapor Polisher.

Warranty Registrations may only be submitted by selected Distributors.






Before You Begin





Before you begin component replacement, read the following guidelines:

- To avoid electrical shock, be sure AC power to the console is Off when performing the procedures in this manual.
- Failure to comply with these requirements could result in death, serious personal injury, property loss, or equipment damage.

Safety Precautions

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

| | |
|--|--|
|  <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>INJURY Careless or improper handling of tools can cause bodily injury.</p> |  <p>STATIC SENSITIVE COMPONENTS Wear grounded anti-static wrist strap before handling the printed circuit board.</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> | |

|  WARNING | |
|---|--|
|    | <p>This system operates on 115 Vac power. Serious injury or death from electrical shock could occur if the power ON/OFF warnings in this manual are not heeded.</p> <ol style="list-style-type: none"> 1. Read and follow all instructions in this manual, including all safety warnings. 2. Remove rings from hands, metal watch bands and bracelets, and loose hanging neck jewelry before performing these procedures. 3. Do not modify or use service parts other than those provided by Veeder-Root. |

Precautions Against Static Electricity

Before removing electronic components from their antistatic 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 antistatic bags until you are ready to install them.
3. Do not lay parts on the antistatic bags! Only the insides are antistatic.
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.
6. Never slide parts over any surface.
7. Avoid plastic, vinyl, and styrofoam in your work area.
8. Wear the antistatic wrist strap included in your component replacement kit.
9. The antistatic caution icon shown to the left appears in several places in this manual to remind you to wear an antistatic wrist strap (Part No. 576013-908) when handling static sensitive devices.

Before Turning Off Power

Before powering off the console perform a system backup:

- Insert the V-R Backup thumb drive (P/N 330020-604) in the external USB port on the USB/Ethernet card, P/N 332913-001 (see item 2 in Figure 1).
- Touch the Diagnostics button on the Home Screen and touch the Software Maintenance button to view the Software Maintenance File Manager tab screen. Touch the Backup button to begin the backup process.
- After the 'Backup Completed Successfully' message displays, you can safely remove the V-R Backup thumb drive.



Figure 1. USB/Ethernet board - V-R thumb drive port

Legend for numbered boxes in Figure 1

1. USB/Ethernet module end plate.
2. V-R thumb drive plugged into USB port

Replacing the Display Door Assembly (P/N 330020-625)



1. Switch Off power to the console.
2. Open the two front doors of the console as shown in Figure 2

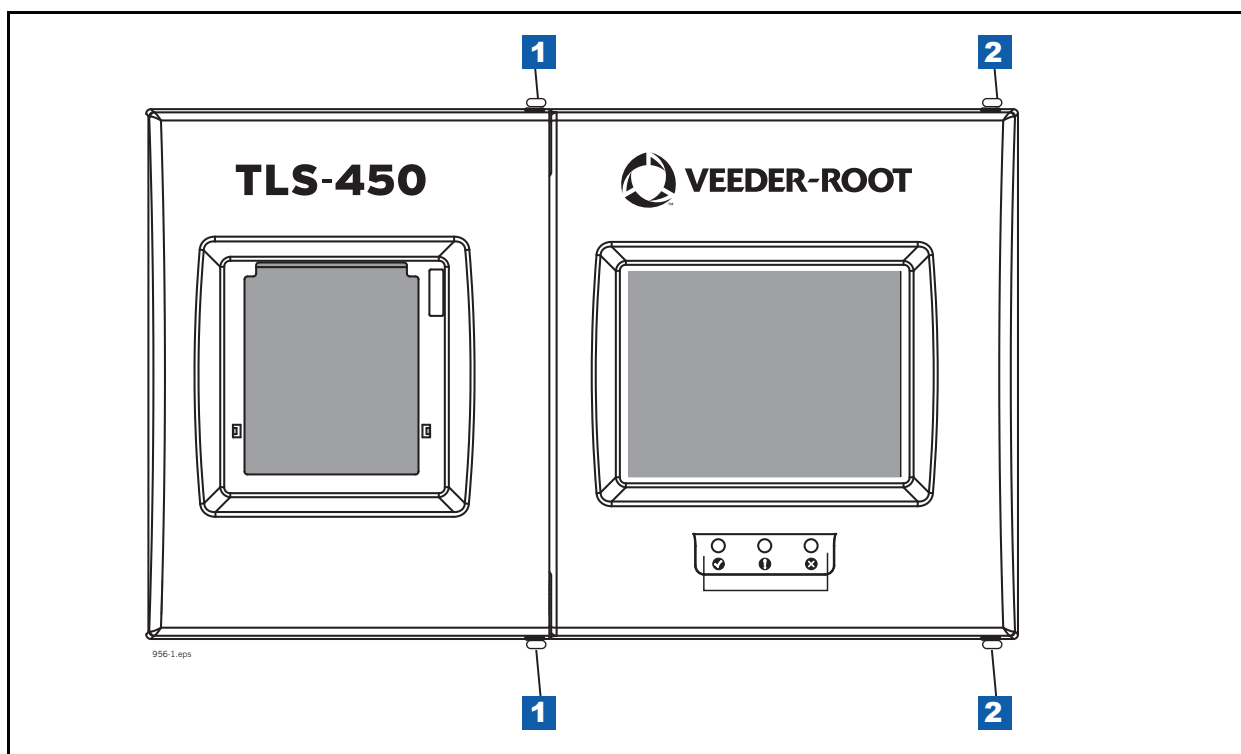


Figure 2. Front doors

Legend for numbered boxes in Figure 2

1. Remove top and bottom #8 taptite screws on right side of left (Printer) door and swing door to left.
 2. Remove top and bottom #8 taptite screws on right side of left (Display) door and swing door to left.
3. Disconnect grounding braid from the saddle clamp on the inside of the Display door.
 4. Disconnect the three cables from the Display door attached to the CPU board touchscreen connector, the display data connector and the LED/Display connector (see Figure 3).
 5. Remove the top and bottom #8 taptite screws in the Display door hinge and remove the door.
 6. Get the replacement Display door and line up the holes in the two door hinges with the top and bottom holes in the console housing and screw in the top and bottom #8 taptite screws. Tighten the two hinge screws.
 7. Reconnect the grounding braid to the saddle clamp on the inside of the Display door.

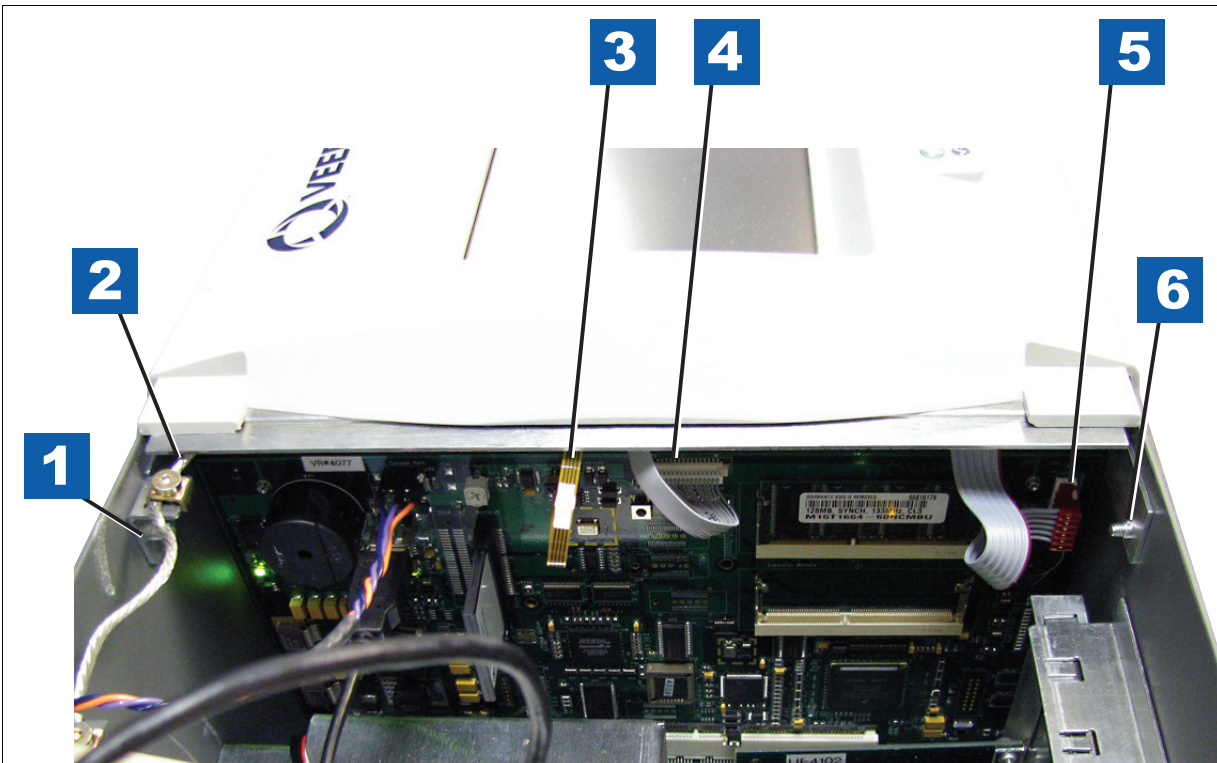


Figure 3. Display door cables

Legend for numbered boxes in Figure 3

- | | |
|--|---|
| 1. Top Display door hinge shoulder screw | 5. LED/Display cable |
| 2. Grounding braid | 6. Bottom Display door hinge shoulder screw |
| 3. Touchscreen control cable | |
| 4. Display data cable | |

8. Reconnect the three cables from the Display door to their connectors on the CPU board (see Figure 3).
9. Close the Display door and insert the right-side top and bottom #8 taptite screws. Tighten the two screws.
10. Close the Printer door and insert the right-side top and bottom #8 taptite screws. Tighten the two screws.

Replacing the Printer Door Assembly (P/N 330020-626)



1. Switch Off power to the console.
2. Open the left front door of the console as shown in Figure 2.
3. Disconnect grounding braid from the saddle clamp on the inside of the Printer door (see Figure 4).

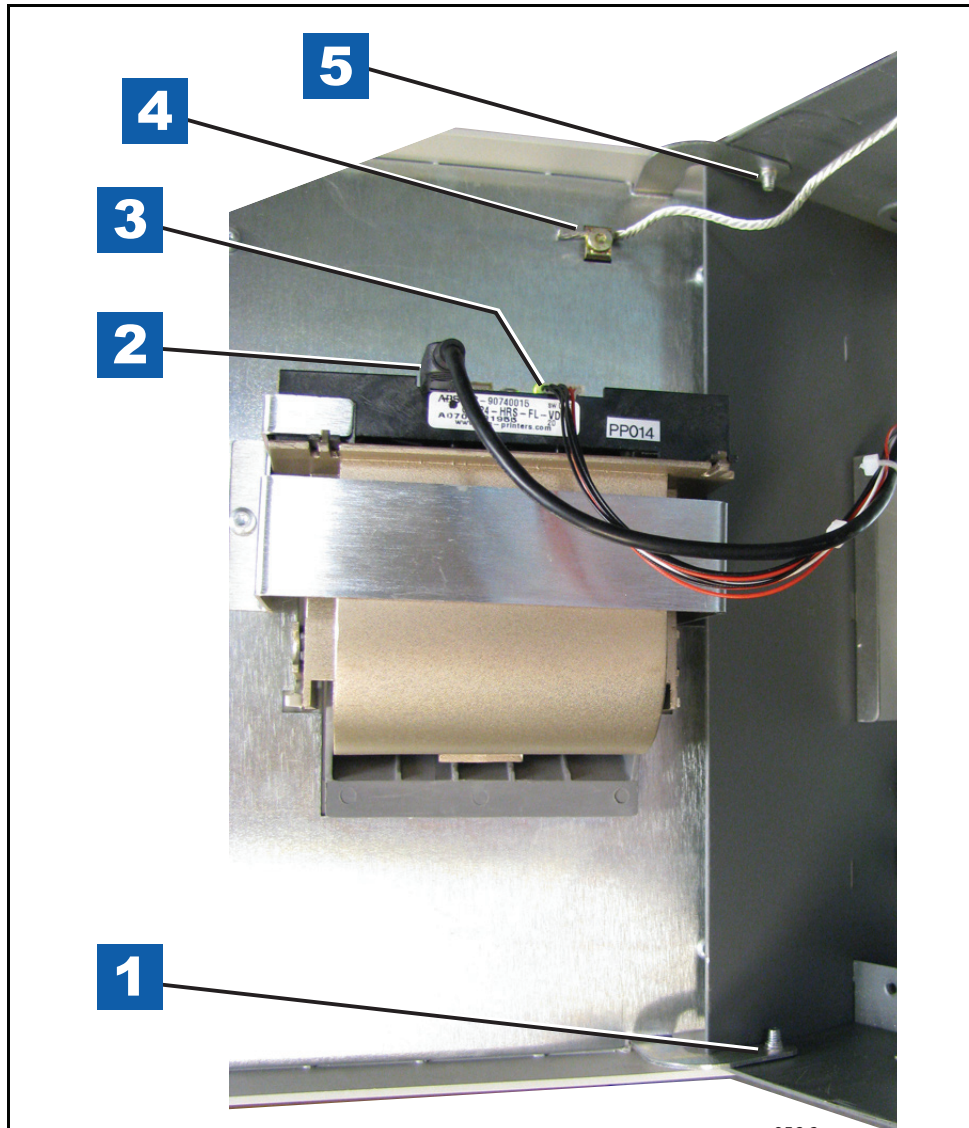


Figure 4. Printer door cables

Legend for numbered boxes in Figure 4

- | | |
|---|--|
| 1. Bottom Printer door hinge shoulder screw | 4. Grounding braid |
| 2. USB cable | 5. Top Printer door hinge shoulder screw |
| 3. Power cable | |

4. Disconnect the two cables from the Printer door (see Figure 3).
5. Remove the top and bottom #8 taptite screws in the Printer door hinges and remove the door.
6. Get the replacement Printer door and line up the holes in the two door hinges with the top and bottom holes in the console housing and screw in the top and bottom #8 taptite screws. Tighten the two hinge screws.
7. Attach the grounding braid to the saddle clamp on the inside of the Printer door (see Figure 4).
8. Connect the USB cable and the power cable to the printer (see Figure 4).

Replacing the Power Supply (P/N 330020-623)



1. Switch Off power to the console.
2. Open the left front door of the console as shown in Figure 2.
3. Disconnect the USB connector and remove the CF card from the CPU board (see Figure 5).

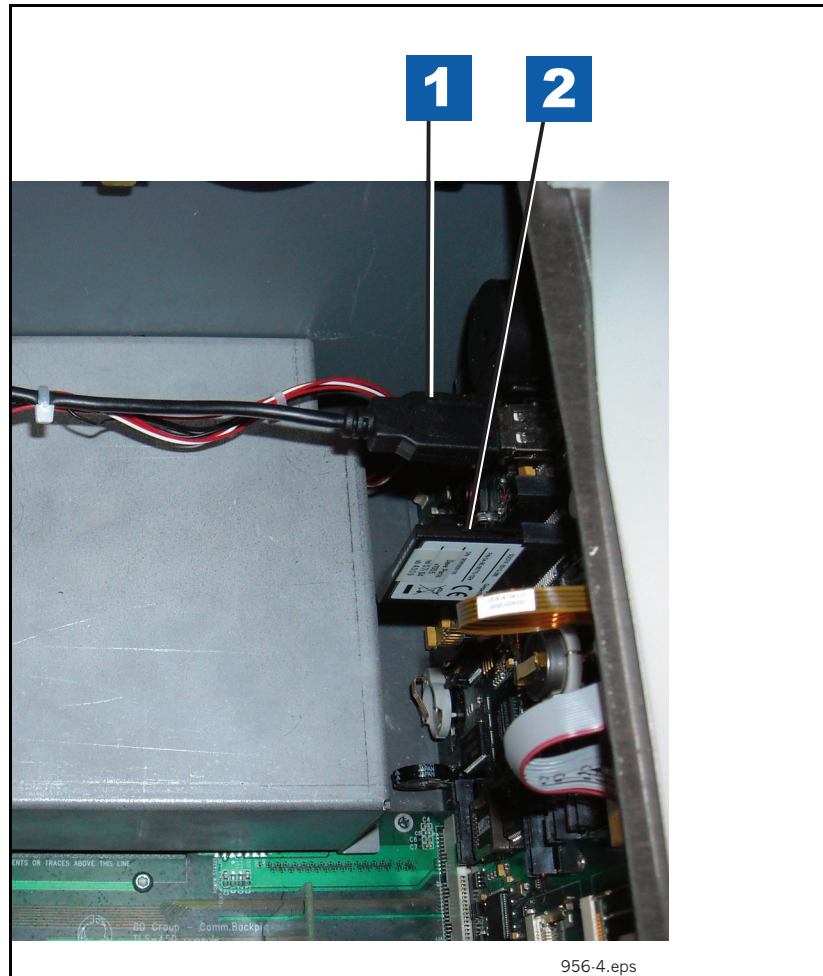


Figure 5. Remove USB cable and CF card

Legend for numbered boxes in Figure 5

1. USB cable
2. CF Card

4. Remove the two #8 taptite screws from the AC Channel cover and put the cover and screws aside (see Figure 6).



Figure 6. Remove AC Channel cover

Legend for numbered boxes in Figure 6

1. AC Channel cover
2. #8 taptite screws (2)

5. Remove the three #8 taptite screws in the AC Input module (item 1 in Figure 7).
6. 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 7).
7. Grasp the AC Input module handle (see item 3 in Figure 7) and slowly pull up and away from the power supply until the AC Input module disconnects from the power supply. Lift the AC Input module out of the console.

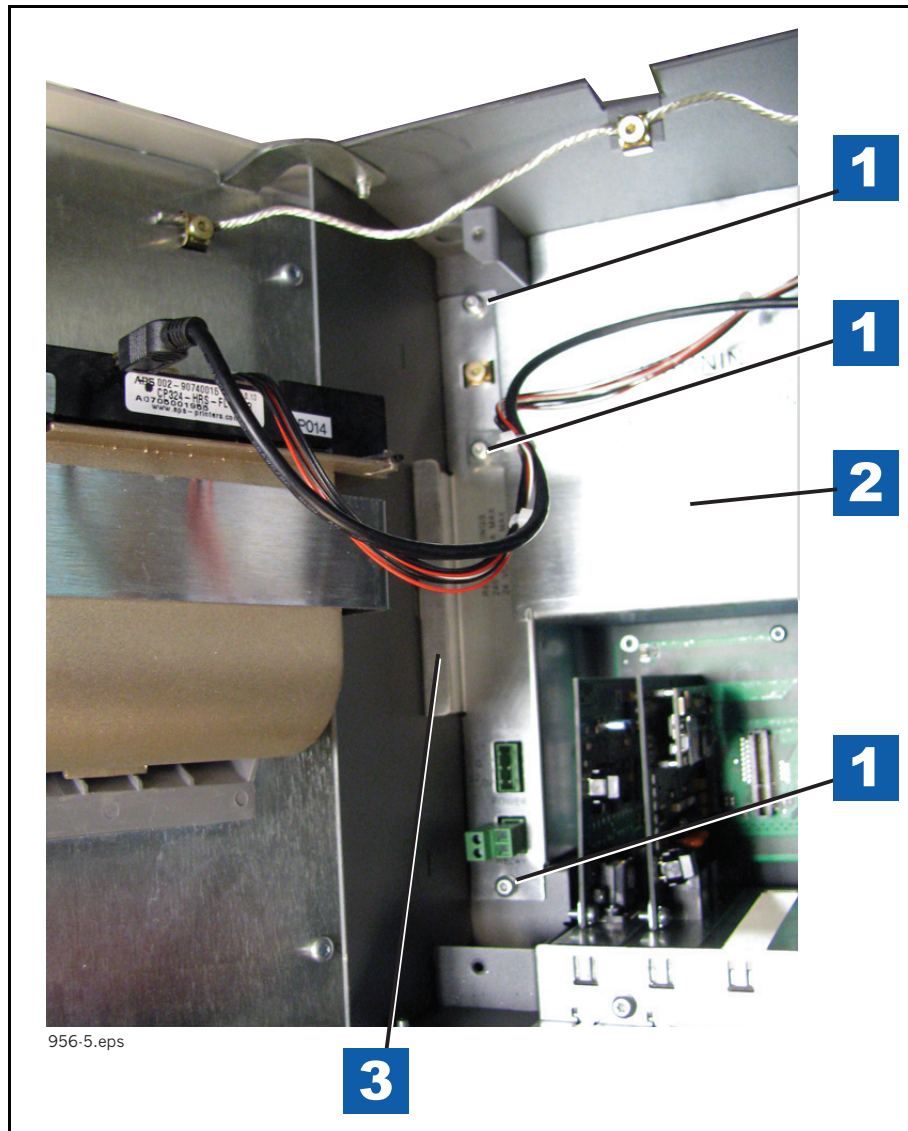


Figure 7. Removing AC Input module

Legend for numbered boxes in Figure 7

- | | |
|--|---------------------------|
| 1. #8 taptite screws (the middle one also secures the Power Supply shield) | 3. AC Input module handle |
| 2. Power Supply shield | |

8. Remove the three #6 taptite screws (item 1 in Figure 8) that secure the Power Supply board to the console housing.
9. Place fingers under the Power Supply board (at locations indicated by two arrows in Figure 8) and lift the board up until it is free of the two retention pins (item 3 in Figure 8).
10. Disconnect the printer power cable from the Power Supply board.
11. Lift the board out of the console by its edges since there is still undischarged high voltage in the big capacitors.

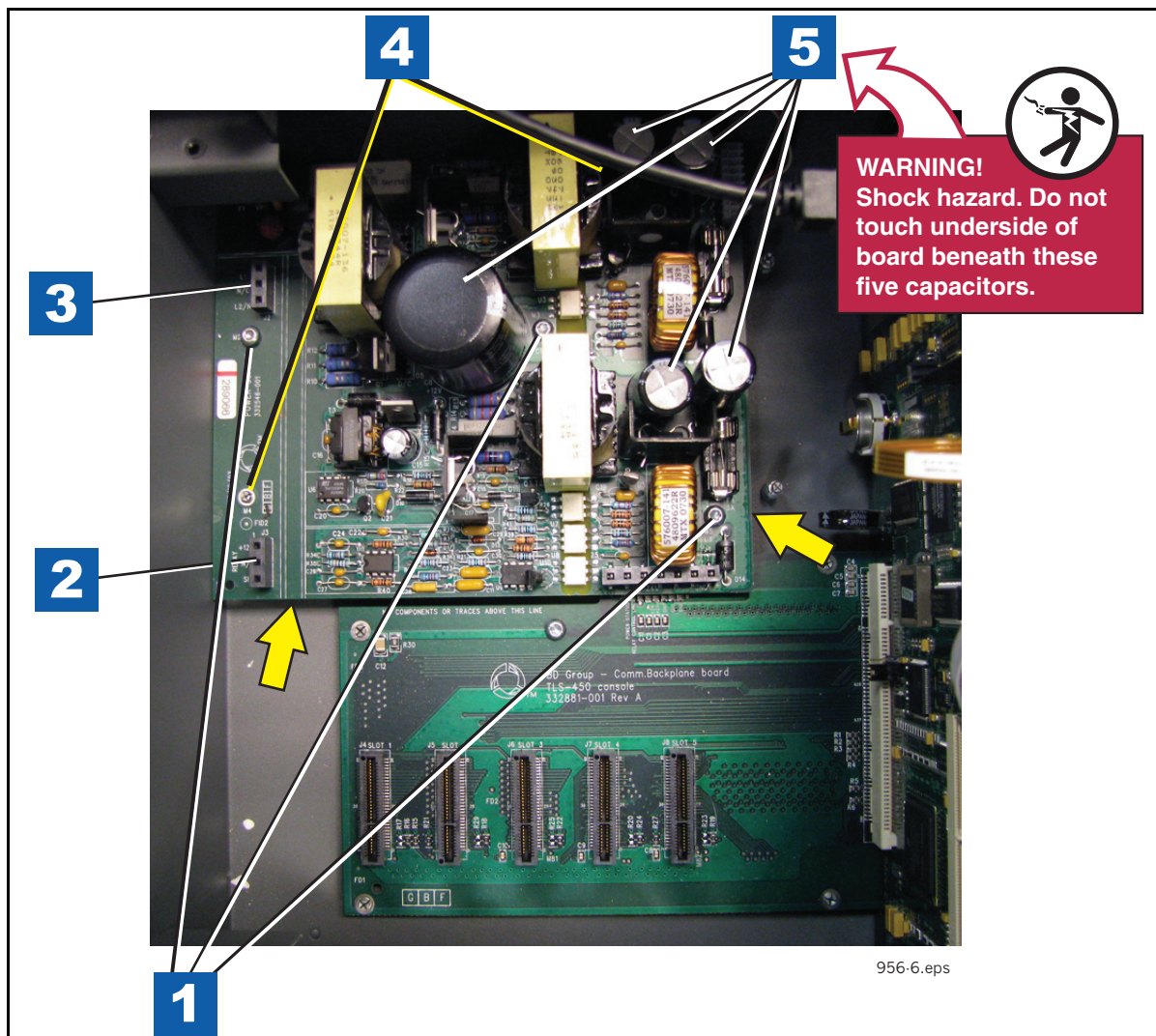


Figure 8. Removing Power Supply

Legend for numbered boxes in Figure 8

1. #6 taptite screws
2. J3 - Low voltage relay control connector
3. J2 - AC Input module power connector
4. Two board retention pins.

5. Capacitors



WARNING! These caps can hold a high charge, do not touch underside of board where these caps are soldered to board.

12. Get the new Power Supply board and lower into console.
13. Attach the printer power supply cable to its connector (J1) on the upper right corner of the replacement Power Supply board.
14. Lineup the two holes in the Power Supply board (see item 4 in Figure 8) with the two retention pins in the back of the console housing and push the board down until the pins snap into position.
15. Install the three #6 taptite screws (item 1 in Figure 8) and tighten them.
16. Get the AC Input module. Notice that there are two male connectors on the bottom of the AC Input module board that plug into two female connectors on the Power Supply board. With the handle (item 3 of Figure 7) of the AC Input module against the left side of the console housing, line up the two AC Input module bottom connectors over the two female connectors (items 2 and 3 in Figure 8) on the Power Supply board and push down on the AC Input module until the connectors are firmly seated.
17. Place the Power Supply shield (item 2 in Figure 7) over the Power Supply board and lower it down onto its two retention pins (see item 2 in Figure 9) and snap it into place.
18. Install the three #8 taptite screws in the AC Input module (see item 1 in Figure 7).
19. Replace the AC Channel cover and install the two #8 taptite screws (see Figure 6).

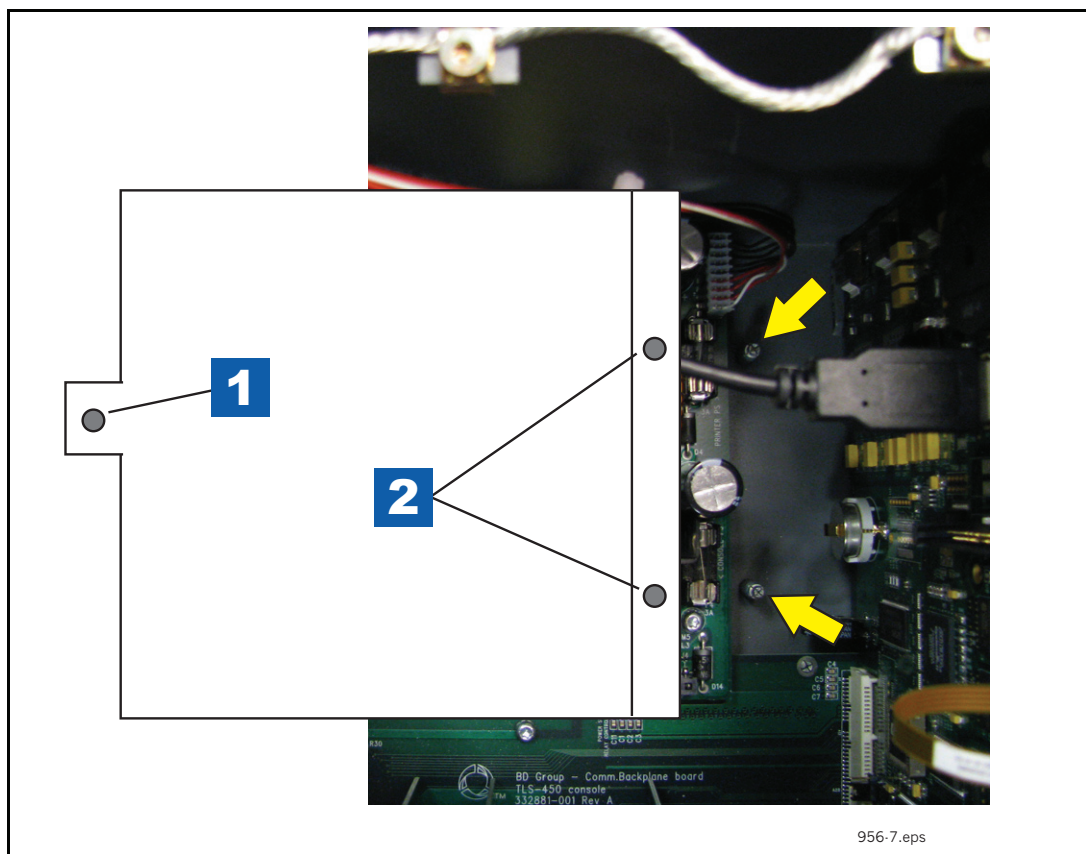


Figure 9. Replacing Power Supply shield over Power Supply board

Legend for numbered boxes in Figure 9

1. This hole lines up over the middle hole in AC Input Module bracket
2. The two holes in the right side flange of the Power Supply shield line up over the retention pins (indicated by two arrows) in the back of the console housing.

