Doc. No. 78-1900-02

1200-Watt AC-Input Power Supply Replacement Instructions

Product Number: PWR-7513-AC(=), PWR-7513-ACU(=), PWR-7513-ACA(=), PWR-7513-ACI(=), and PWR-7513-ACE(=)

This document contains instructions for installing or replacing a 1200-watt (W), alternating current (AC)–input power supply in the Cisco 7513.

A single power supply is standard equipment for the Cisco 7513. A second, identical power supply, when installed, provides redundant power.

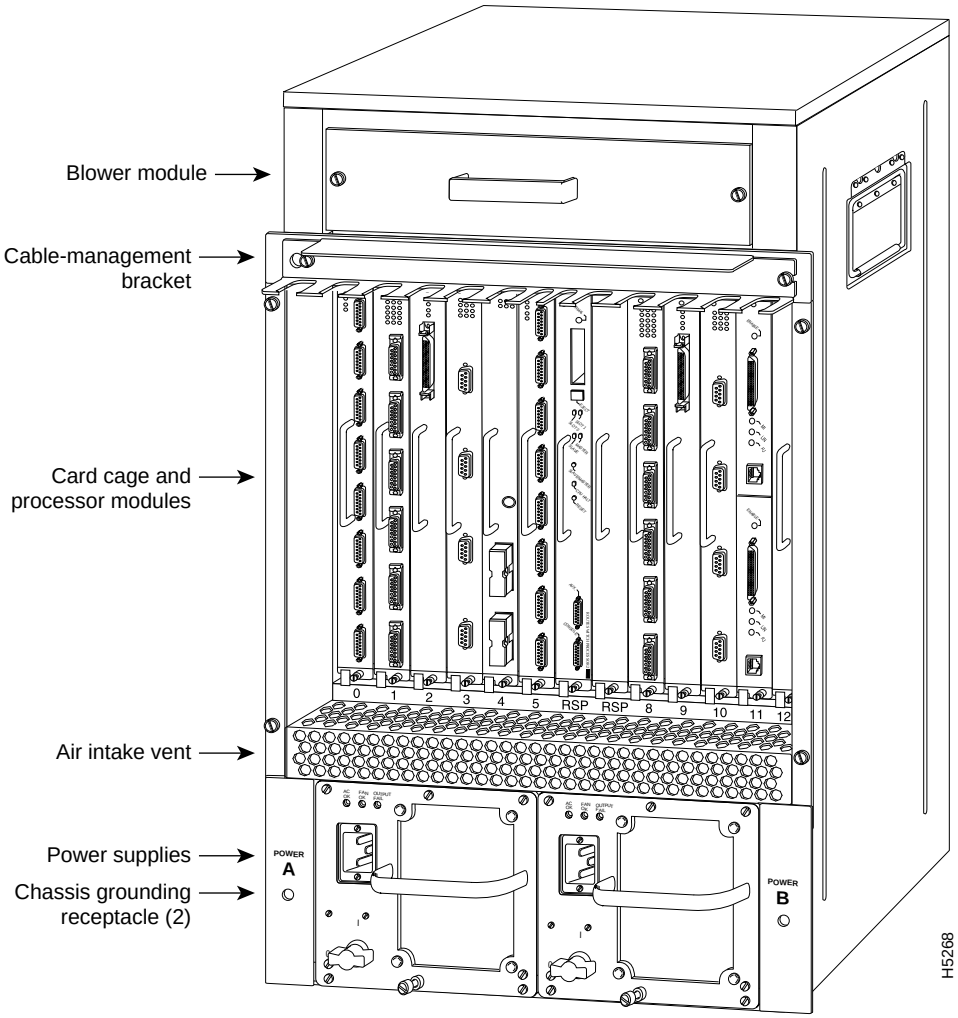
In systems with redundant power, the power supplies are load-sharing and fully hot-swappable; you can remove and replace one supply, while the remaining supply immediately ramps up to full power to maintain uninterrupted system operation.

The sections in this document include the following:

Product Overview

The AC-input power supply is a modular power supply for the Cisco 7513 multiprotocol, multimedia router. The AC-input power supply is optional equipment in the Cisco 7513. A second, identical power supply, if installed, provides redundant power. Power supplies reside in power supply bays in the rear of the router chassis, as shown in Figure 1.

Figure 1 Cisco 7513 (Rear-Panel View)



Caution To prevent problems with the Cisco 7513, *do not mix DC-input and AC-input power supplies in the same chassis*. Your Cisco 7513 must have *either* DC-input or AC-input power supplies.

The power A bay contains the first (or standard) power supply, and the power B bay contains the second (optional) supply, in systems with redundant power. Table 1 lists the AC-input power supply specifications.

Table 1 Cisco 7513 AC-Input Power Supply Specifications

Specification	Rating
AC-input voltage	100 to 240 VAC[1], 20 amps maximum
Frequency	50 to 60 Hz
Internal DC voltages supplied and steady-state maximum current ratings	+5.2 VAC @ 200A +12 VAC @ 35A –12 VAC @ 3A +24 VAC @ 8A
Input power requirement	1600W
Power output	1200W with a maximum configuration and one or two AC-input power supplies
Heat dissipation	5465 Btu/hr
Weight	25 pounds (11.34 kilograms)
Cable supplied	12 American Wire Gauge (AWG), 20-amp[2]

1. VAC = volts direct current.
2. The Cisco 7513 requires a minimum of 20-amp service, with a 20-amp receptacle at the power source. The power cable supplied with the Cisco 7513 uses a 20-amp male plug.

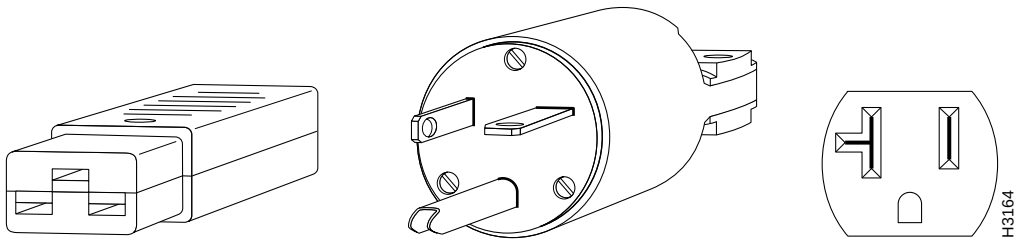
Dual power supplies are automatically load-sharing and redundant, which means that you can install or replace a second power supply on line. During normal operation, dual supplies provide system power simultaneously (load share). When you remove one supply, the remaining supply immediately ramps up to provide full power and maintain uninterrupted power to the system. Whenever possible, connect each power supply to a separate AC source.

The AC-input power supply uses a power factor corrector (PFC) that automatically adjusts for the input voltage being supplied. The AC-input voltage range is 100 to 240 VAC.

The Cisco 7513 requires a minimum of 20-amp service, with a 20-amp receptacle at the power source. The power cable supplied with the Cisco 7513 uses a 20-amp male plug. Figure 2 shows the cable connector plug and the 20-amp receptacle required to connect the 20-amp cable to your AC source.

Note Wiring codes prevent this type of power cable from being used with the power strips in equipment racks.

Figure 2 20-Amp AC Power Cable Connector and Plug, and 20-Amp Receptacle

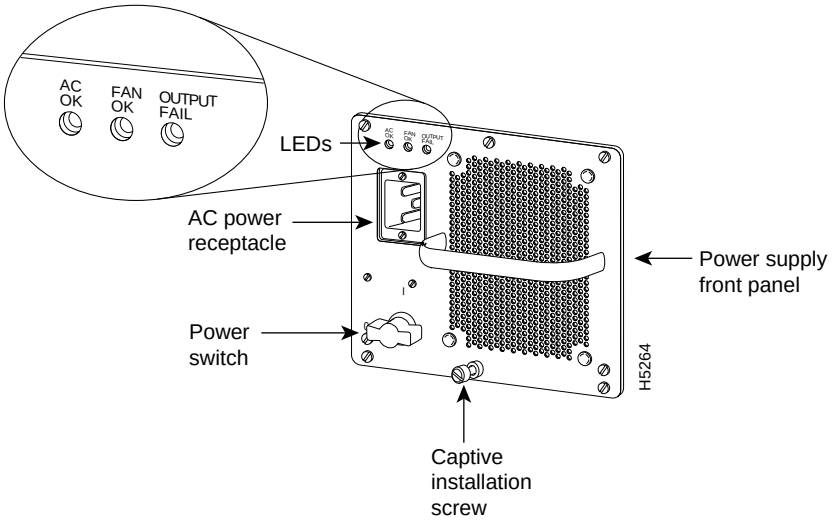


IEC 320 20-amp connector | 20-amp plug | 20-amp receptacle

On the Cisco 7513 chassis front panel, the power A and power B LEDs go on when the power supply in the corresponding bay is installed and supplying power to the system. Both the power LEDs should be on in systems with redundant power.

The power supply LEDs include the AC OK LED, the fan OK LED, and the output fail LED. (See Figure 3.) The AC OK LED is on when the input power is applied. The fan OK LED is normally on; however, it is off if the power supply fan fails. The output fail LED is normally off, but flashes at power on for a lamp test.

Figure 3 Power Supply LEDs



The output fail LED lights for either of the following reasons:

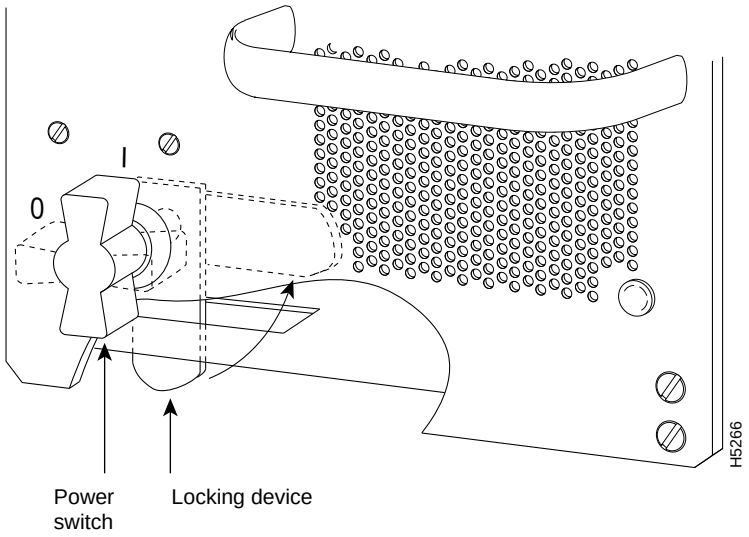
- Power supply DC-output failure, which could be caused by overload by the system or an actual failure in the AC-input power.
- Power shutdown, initiated by the power supply because it detected an out-of-tolerance voltage condition in the power supply

In systems with a single power supply, and in systems with redundant power when both power supplies are shutting down, the output fail LED lights momentarily as the system ramps down, but goes out when the power supply has completely shut down.

The power supplies feature the following three safety interlock features:

- An on/off switch with a locking mechanism (see Figure 4) on each power supply prevents the power supply from being removed from the chassis when the power supply switch is in the ON (|) position. When the switch is ON, a metal tab extends into a slot in the chassis. When the switch is OFF (O), the tab is raised and clears the slot.

Figure 4 On/off Switch Locking Mechanism



- A captive installation screw at the bottom of the power supply front panel provides electrical grounding and prevents the power supply from vibrating or sliding out of the bay and dislodging from the power connectors in the backplane. (See Figure 3.)
- A spring clip on the AC receptacle supplies strain relief and prevents the power supply power cable from being pulled out accidentally.

The power supplies are self-monitoring. Each supply monitors its own temperature and internal voltages. An internal fan in each power supply draws cooling air from the rear of the chassis, through the power supply, and out the front of the chassis. The power supply airflow is separate from that of the rest of the chassis.

Environmental Monitoring and Reporting Functions

The environmental monitoring and reporting functions, controlled by the chassis interface board, enable you to maintain normal system operation by identifying and resolving adverse conditions prior to loss of operation. The environmental monitoring functions constantly monitor the internal chassis air temperature and DC supply voltages and currents. Each power supply monitors its own voltage and temperature and shuts itself down if it detects a critical condition within the power supply. If conditions reach shutdown thresholds, the system shuts down to avoid equipment damage from excessive heat. The reporting functions periodically log the values of measured parameters so that you can retrieve them for analysis later, and the reporting functions display warnings on the console if any of the monitored parameters exceed defined thresholds.

In addition to monitoring internal temperature and voltage levels, the system also monitors the blower. If the blower fails, the system displays a warning message on the console. If the blower is still not operating properly after two minutes, the system shuts down to protect the internal components against damage from excessive heat.

Environmental Monitoring

Three sensors on the Route Switch Processor (RSP2) monitor the temperature of the cooling air that flows through the processor slots: inlet, hotpoint, and exhaust. The sensors are located at the bottom, center, and top of the RSP2, when facing the interface processor end of the chassis and viewing the RSP2 as it is installed.

The power supply uses the Normal, Critical, and Warning levels to monitor DC voltages. Table 2 lists temperature thresholds for the three processor-monitored levels. Table 3 lists the DC power thresholds for the Normal and Critical (power-supply-monitored) levels.

- Normal—All monitored parameters are within normal tolerances. The system blower operates at 55 percent of its maximum speed if the internal air temperature does not exceed this level.
- Warning (low and high)—The system is approaching an out-of-tolerance condition. The system will continue to operate, but operator monitoring or action is recommended to bring the system back to a normal state. If the internal air temperature the normal range, the blower speed will increase linearly from 55 percent of maximum speed until it reaches 100 percent speed at 33 C (91 F).
- Critical (low and high)—An out-of-tolerance temperature or voltage condition exists. The system may not continue operation. If a voltage measurement reaches this level, the power supply can shut down the system. If the blower fails, the system will display a warning message and shut down in two minutes. Immediate operator action is required.
- Processor shutdown—The chassis interface has detected a temperature or blower-failure condition that could result in physical damage to system components and has disabled DC power to all interface processors (in slots 0 through 5 and 8 through 12). DC power to the RSP2, chassis interface, and blower stays on, but no RSP2-related processing takes place. Immediate operator action is required. DC power remains off until the inside temperature of the chassis reaches 40 C (104 F), at which point the system will restart up to 15 times (if required). If the source of the shutdown has not been corrected, the system will execute a hard shutdown. Before any shutdown, the system logs the status of monitored parameters in NVRAM so that you can retrieve it later to help determine the cause of the problem.
- Power supply shutdown—An out-of-tolerance voltage, current, or temperature condition was detected within the power supply and it was shut down (or a shutdown is imminent). All DC power remains disabled until the operator toggles the power switch and corrects the problem that caused the shutdown (if any). This condition typically occurs because of one of the following reasons:
  - Loss of AC input power (the power source failed).
  - Power supply detected an overvoltage, overcurrent, AC or DC undervoltage, or overtemperature condition within the power supply. This includes operator shutdown by turning off the system power switch, which the power supply interprets as an undervoltage condition.
  - The chassis interface detected an overtemperature condition within the system.
- Blower failure—The blower impeller has stopped turning. A warning message is displayed on the console, and the system will continue operating until it shuts itself down due to overheating.

Table 2 Typical Processor-Monitored Temperature Thresholds

Parameter	Normal	High Warning	High Critical	Shutdown
Inlet	10–40 C	44 C	50 C	–
Hotpoint	10–40 C	54 C	60 C	–
Exhaust	10–40 C	–	–	–
Processors	–	–	–	70 C
Power supply	–	–	–	75 C
Restart	40 C	–	–	–

Table 3 Typical Power Supply-Monitored DC-Voltage Thresholds

Parameter	Normal	Low Critical	Low Warning	High Warning	High Critical
+5V	4.74 to 5.26	4.49	4.74	5.25	5.52
+12V	10.20 to 13.8	10.76	11.37	12.64	13.24
–12V	–10.20 to –13.80	–10.15	–10.76	–13.25	–13.86
+24V	20.00 to 28.00	19.06	21.51	28.87	26.51

If the air temperature exceeds a defined threshold, the system processor displays warning messages on the console terminal and, if the temperature exceeds the shutdown threshold, it shuts down the system. The system stores the present parameter measurements for both temperature and DC voltage in NVRAM, so that you can retrieve it later as a report of the last shutdown parameters.

The power supplies monitor internal power supply temperature and voltages. A power supply is either within tolerance (Normal) or out of tolerance (Critical or Warning levels), as shown in Table 3. If an internal power supply temperature or voltage reaches a critical level, the power supply shuts down without any interaction with the system processor.

If the system detects that AC or DC input power is dropping, but it is able to recover before the power supply shuts down, it logs the event as an intermittent power failure. The reporting functions display the cumulative number of intermittent power failures logged since the last power up.

Environmental Reports

The system displays warning messages on the console if chassis interface-monitored parameters exceed a desired threshold or if a blower failure occurs. You can also retrieve and display environmental status reports with the **show environment**, **show environment all**, **show environment last** and **show environment table** commands. Parameters are measured and reporting functions are updated every 60 seconds. A brief description of each of these commands follows.

Caution To prevent overheating the chassis, ensure that your system is drawing cool inlet air. Overtemperature conditions can occur if the system is drawing in the exhaust air of other equipment. When viewing the chassis from the interface processor end, the airflow intake vent is on the front of the chassis (below the card cage), and the exhaust vent in on the front of the chassis (behind the lower front panel). Ensure adequate clearance around the sides of the chassis so that cooling air can flow through the chassis interior unimpeded. Obstructing or blocking the chassis sides will restrict the airflow and can cause the internal chassis temperature to exceed acceptable limits.

The **show environment** command display reports the current environmental status of the system. The report displays parameters that are out of the normal values. No parameters are displayed if the system status is normal. The example that follows shows the display for a system in which all monitored parameters are within Normal range. Following is sample output of the **show env** command:

```
Router# show env

All measured values are normal
```

If the environmental status is *not* normal, the system reports the worst-case status level in the last line of the display.

The **show environment last** command retrieves and displays the NVRAM log showing the reason for the last shutdown (if the shutdown was related to voltage or temperature) and the environmental status at that time. Air temperature is measured and displayed; the DC voltages supplied by the power supply are also displayed. Following is sample output of the **show env last** command:

```
Router# show env last

  RSP(6) Inlet       previously measured at 27C/80F
  RSP(6) Hotpoint    previously measured at 38C/100F
  RSP(6) Exhaust     previously measured at 31C/87F
  +12 Voltage        previously measured at 12.17
  +5 Voltage         previously measured at 5.19
  -12 Voltage        previously measured at -12.17
  +24 Voltage        previously measured at 23.40
```

The **show environment table** command displays the temperature and voltage thresholds for each of the three RSP2 temperature sensors, for each monitored status level: low critical, low warning, high warning, and high critical, which are the same as those listed in Tables 2 and 3. The slots in which the RSP2 can be installed are indicated in parentheses (6 and 7). Also listed are the shutdown thresholds for the processor boards and power supplies. Following is sample output of the **show env table** command:

```
Router# show env table

Sample Point    LowCritical    LowWarning     HighWarning    HighCritical

RSP(6) Inlet                                    44C/111F       50C/122F
RSP(6) Hotpoint                                 54C/129F       60C/140F
RSP(6) Exhaust
RSP(7) Inlet                                    44C/111F       50C/122F
RSP(7) Hotpoint                                 54C/129F       60C/140F
RSP(7) Exhaust
+12 Voltage     10.76          11.37          12.64          13.24
+5 Voltage      4.49           4.74           5.25           5.52
-12 Voltage     -10.15         -10.76         -13.25         -13.86
+24 Voltage     19.06          21.51          26.51          28.87
Shutdown boards at           101C/213F
Shutdown power supplies at   101C/213F
```

Note Temperature ranges and values are subject to change.

The **show environment all** command displays an extended report that includes the arbiter type, backplane type, power supply type (AC or DC), wattage and status, the number and type of intermittent power failures (if any) since the system was last powered on, and the currently measured values at the RSP2 temperature sensors and the DC-input lines. The **show environment all** command also displays a report showing which slots in the Cisco 7513 are occupied (indicated by an X) and which are empty.

Active fault conditions are indicated when the blower or power supply has failed or is not present (as "Blower #3" indicates in the following example). The system expects to see three blowers or fans in the Cisco 7513: the main system blower, and one fan in each power supply. The system blower is designated *#1*, the power supply fan in power bay A is *#2*, and the power supply fan in power bay B is *#3*. The active fault condition in the following example shows that there is no power supply installed in power bay B because the display indicates that power supply #2 (in power bay B) is removed. System blower speed is displayed as a percentage of maximum.

There are four active trip points: *restart OK*, *temperature warning*, *board shutdown*, and *power supply shutdown*. (There are no active trip points shown in the following example.) The *soft shutdowns* refer to the number of times the system will reset itself before it executes a complete chassis (or hard) shutdown.

The current temperature measurements at the three RSP2 sensors are displayed as *inlet*, *hotpoint*, and *exhaust*. The shutdown temperature source is the *hotpoint* sensor, which is located toward the center of the RSP2. System voltage measurements are also displayed, followed by the system current measurements and power supply wattage calculation. Following is sample output of the **show env all** command:

```
Router# show env all

Arbiter type 1, backplane type 7513 (id 2)
Power supply #1 is 1200W AC (id 1), power supply #2 is removed (id 7)
Active fault conditions: Blower #3
Fan speed is 50%
Active trip points: none
15 of 15 soft shutdowns remaining before hard shutdown

                     1
            0123456789012
Dbus slots: XX XXXX XXXX

         inlet        hotpoint     exhaust
RSP(6)   24C/75F      35C/95F      29C/84F

Shutdown temperature source is 'hotpoint' slot6 (requested slot6)

+12V measured at 12.17
 +5V measured at 5.19
-12V measured at -12.26
+24V measured at 24.44
+2.5 reference is 2.49

PS1 +5V Current    measured at 42.35 A (capacity 200 A)
PS1 +12V Current   measured at 6.86 A (capacity 35 A)
PS1 -12V Current   measured at 0.55 A (capacity 3 A)
PS1 output is 296 W
```

Installation Safety, ESD Precautions, and Tools Required

Before you begin this installation, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment. This section also provides power requirements to consider if you are adding a second power supply to your system for redundant power, and lists of the tools and parts you need to perform this installation.

Safety Guidelines

The following guidelines will help to ensure your safety and protect the equipment. This list is not inclusive of all potentially hazardous situations, so *be alert*.

- Never try to lift the chassis by yourself; *two people are required* to lift the Cisco 7513.
- Always disconnect all power cords and interface cables before moving the chassis.
- Keep tools and chassis components away from walk areas.
- Do not work alone if potentially hazardous conditions exist.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Safety with Electricity

You can remove or install a redundant (second) power supply without turning off the other supply. Before removing a redundant power supply, ensure that the first supply is powered on to ensure uninterrupted operation.

Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before moving a chassis.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

In addition, use the guidelines that follow when working with any equipment that is connected to telephone wiring or other network cabling.

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage, which can occur when electronic boards or components are handled improperly, can result in complete or intermittent failures.

Following are guidelines for preventing ESD damage:

- Always use an ESD-preventive wrist strap or ankle strap and ensure that it makes good skin contact.
- When removing or installing a power supply, connect the equipment end of a ground strap to the chassis ground screw on the interface processor end of the chassis, or to an unpainted surface inside the noninterface processor end of the chassis, such as the chassis frame.
- If you are returning a replaced part to the factory, immediately place it in a static shielding bag to avoid ESD damage to the board.
- The wrist strap only protects the board from ESD voltages on the body; ESD voltages on clothing can still cause damage.

Warning For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohms.

Tools Required

You need the following tools to install or replace a power supply:

- A 1/4-inch flat-blade and Number 2 Phillips screwdriver.
- Small, wire cutter.
- If the chassis is mounted in an equipment rack, and cables from other equipment fall in front of the power supply bays, you will need cable ties to temporarily anchor the cables out of the way.
- If access to the power supply bays is partially blocked by a power strip or other permanent rack fixture, you will need a 1/4-inch flat-blade screwdriver to temporarily detach the ears from the equipment rack mounting strips.
- ESD-preventive wrist strap.

Before beginning the power supply installation, check the installation screws on all power supplies and check the area around the power supply bays to determine which tools you will need.

The new or replacement power supply and the power cable that you supply are the only parts you need to complete this installation.

If you remove a power supply and leave the bay empty, install a cover plate over the empty bay. The chassis is shipped with a cover plate installed over the empty bay.

Circuit Protection Requirements

Based on the NFPA 70 National Electrical Code, you should use a 35A overcurrent protector to meet the requirement for the overcurrent protector size of 125 percent of the load current, which is approximately 27A. An overcurrent protector rated for 30A can be used *only* if it has been listed by the safety agency for operation at 100 percent of its rating.

Removing and Replacing a Power Supply

The power supplies rest on the floor of the chassis under the card cage.

In addition to a large slotted screwdriver, you also need a pair of wire cutters for this procedure.

The following sections describe the procedures for removing an existing power supply and installing a new one.

Note If cables from other equipment are in front of the bay, move them aside and temporarily secure them with cable ties.

In systems with redundant power, you can install, remove, or replace one of the power supplies without affecting system operation. When power is removed from one supply, the redundant power feature causes the second supply to ramp up to full power and maintain uninterrupted system operation.

Note This procedure is not for new system installation; perform this procedure *only* if you have already connected the system to network interfaces and performed the first-time startup procedures described in the *Cisco 7513 Hardware Installation and Maintenance* publication.

Warning Although it is not necessary to turn OFF both power supplies to remove one of two power supplies, you must turn OFF the power to the power supply you plan to remove. When the power is on with one of two power supplies removed, high current is exposed on the power connector inside the chassis. If you have only one power supply, you must turn OFF the power to this power supply.

Removing a Power Supply

Follow these steps to remove a power supply.

Step 1 Turn OFF (O) the system power switch on the power supply you plan to remove.

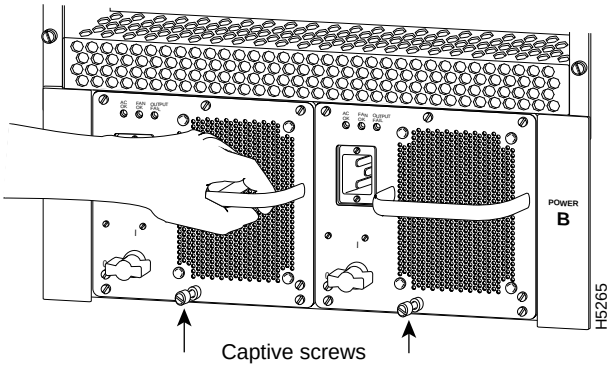
Step 2 If possible, turn OFF the circuit breaker to which the system is connected and tape the breaker switch in the OFF position.

Warning This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit. (To see translated versions of this warning, refer to page 16.)

Step 3 Disconnect the power cable from the power receptacle of the power supply to be replaced.

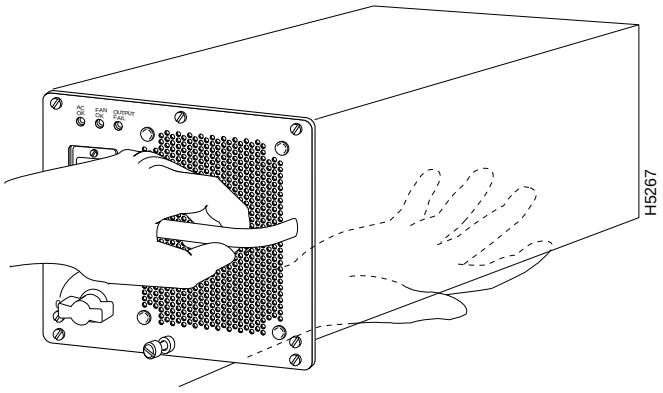
Step 4 Use the large slotted screwdriver to loosen the captive screw that secures the power supply to the chassis frame. (See Figure 5.) Only loosen the captive screw of the power supply you are removing.

Figure 5 Removing and Replacing a Power Supply



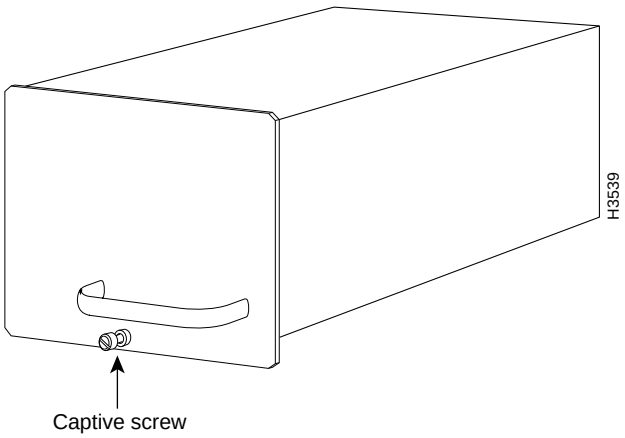
Step 5 Grasp the power supply handle and pull the power supply approximately halfway out of the bay. Then with your other hand under the power supply, pull it completely out of the bay. (See Figure 6.)

Figure 6 Supporting the Power Supply



Caution To maintain agency compliance requirements and meet EMI emissions standards in a Cisco 7513 chassis with a single power supply, the power supply blank must remain in the power supply bay adjacent to the power supply. (See Figure 7.) Do *not* remove this blank from the chassis unless you do so to install a redundant power supply. To prevent system problems, do not mix AC-input and DC-input power supplies in the same chassis.

Figure 7 Power Supply Blank



Replacing a Power Supply

Follow these steps to replace the power supply:

Step 1 Hold the supply as shown in Figure 6 and slide it into the power supply bay. Push the supply all the way into the chassis until the sides are flush against the chassis frame. To prevent damaging the backplane connector, do not jam the power supply into the bay.

Step 2 Use the large slotted screwdriver to tighten the captive screw that secures the power supply to the chassis frame. (See Figure 5.)

Step 3 Reconnect the power cable to the power receptacle on the power supply.

Step 4 After the AC power cable is reconnected, reconnect the power cable at the power source but do *not* turn ON power to the new power supply.

Step 5 If you are replacing both power supplies, repeat Steps 1 through 3 for the second power supply.

This completes the power supply replacement procedure.

Proceed to the following section “Checking the Installation” to apply power and check the installation.

Checking the Installation

To complete the installation, turn the power supply on and observe its LEDs to verify that it is operating properly.

Step 1 Review the descriptions of the power supply LEDs on page 4.

Step 2 Check the following components to make sure they are secure:

- Each power supply is inserted all the way into its bay, and the captive installation screw is tightened.
- All power supply cables are attached to the power receptacles and secured with their spring clips.
- At the AC power-source end of the power cable, the cables are securely attached to the AC power, the source power is within the range indicated on the power supply.
- When two supplies are present, the second cable is connected to a separate AC power source if possible.

Step 3 Remove the tape (that you applied earlier) from the circuit breaker switch handle and restore power by moving the circuit breaker handle to the ON position.

Step 4 Turn the power supply ON (|) by turning the switch clockwise one-quarter turn. The AC OK LED and the fan OK LED will go on and stay on. No other LEDs should go on.

If the power supply switch resists, it is probably not fully inserted into the bay. Turn the power switch fully counterclockwise to OFF (O), pull the power supply out of the bay about two inches, then push the power supply firmly back into the slot. Do not slam the supply into the slot—doing so can damage the connectors on the supply and the backplane. Tighten the captive installation screw before proceeding.

Step 5 Verify that the output fail LED stays off.

- If the output fail LED goes on, move the power supply to the other bay if possible and turn the power switch ON (|). If the LEDs go on properly when the supply is installed in the other bay, suspect a faulty backplane power connector.
- If the output fail LED goes on when the power supply is installed in the other bay, suspect a power supply failure or an adverse environmental condition (the power supply has detected an overvoltage or overtemperature condition and has shut down).
- If two power supplies are installed, and the output fail LED goes on only on one power supply, assume that the power supply or AC source (for that supply) is faulty.
- If the output fail LED lights on two supplies that are connected to the same AC source, suspect that the AC source is faulty, or that an overvoltage or overtemperature condition is causing the power supplies to shut down.
- If the output fail LED lights on two supplies that are connected to separate AC sources, assume that an overvoltage or overtemperature condition is causing the power supplies to shut down.

If the power supply fails to operate properly after several attempts to initialize it, contact a service representative for assistance. If the power supply fails (and you need to order a replacement) and you did not record the type of power supply in your chassis, you will have to check the chassis in order to make this determination.

Timesaver The system can identify which type of power supplies are in your chassis: DC-input or AC-input. As a general precaution, use the **show environment all** command and note the type of power supply indicated in each of your chassis (indicated as either “1200W DC” or “1200W AC”). Record and save this information in a secure place.

This completes the power supply installation. Refer to the *Cisco 7513 Hardware Installation and Maintenance* publication for installation troubleshooting procedures, and to the *Router Products Command Reference* publication for descriptions and examples of software features and commands.

Electric Shock Warning

Warning This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit.

Waarschuwing Dit toestel kan meer dan één netsnoer hebben. Om het risico van een elektrische schok te verminderen, dient u de stekkers van de twee netsnoeren uit het stopcontact te halen voordat u het toestel een servicebeurt geeft.

Varoitus Tässä laitteessa saattaa olla useampi kuin yksi virtajohto. Irrota molemmat virtalähteestä tulevat johtimet ennen laitteen huoltamista, jotta vältät sähköiskun vaaran.

Attention Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité.

Warnung Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.

Avvertenza Questa unità potrebbe essere dotata di più di un cavo di alimentazione. Per ridurre il rischio di scossa elettrica, scollegare i due cavi di alimentazione prima di procedere alla manutenzione dell’unità.

Advarsel Denne enheten kan være utstyrt med mer enn én strømledning. Koble fra de to strømledningene før det utføres reparasjonsarbeid på enheten for å redusere faren for elektriske støt.

Aviso Esta unidade poderá ter mais do que um cabo de alimentação. Para reduzir o risco de choque eléctrico, desligue os dois cabos de alimentação antes de efectuar reparações na unidade.

¡Atención! Puede ser que este equipo posea más de un cable de alimentación. Para reducir el riesgo de descarga eléctrica, desenchufar los dos cables antes de proceder al mantenimiento de la unidad.

Varning! Denna enhet kan vara försedd med mer än en nätsladd. För att minska risken för elektriska stötar skall båda nätsladdarna dras ur innan du utför underhållsarbete på enheten.

Cisco Information Online

Cisco Information Online (CIO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CIO to obtain additional content and services.

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You can access CIO in the following ways:

- WWW: `http://www.cisco.com`
- Telnet: `cio.cisco.com`
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; data bits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CIO's Frequently Asked Questions (FAQ), contact `cio-help@cisco.com`. For additional information, contact `cio-team@cisco.com`.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or `tac@cisco.com`. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or `cs-rep@cisco.com`.

This document is to be used in conjunction with the *Cisco 7513 Hardware Installation and Maintenance* publication. (1900ac13.fm)