

WJ Broadband Fixed Wireless System Transceiver Installation and Replacement Instructions

Revision Date: March 29, 2000

To be used with:

SX1122 MMDS High Power Transceivers

SX1124 MMDS/MDS High Power Transceivers

PRELIMINARY

WJ Broadband Fixed Wireless System Transceiver Installation and Replacement Instructions

Product Numbers: SX1122, SX1124.

This document explains how to install, remove, or replace the wireless transceiver component of a broadband fixed wireless system. It includes instructions for powering down the system, removing an installed transceiver, and installing a new transceiver.

Note Use this document in conjunction with the *Cisco uBR7200 Series Universal Broadband Router Installation and Configuration Guide* and *Regulatory Compliance and Safety Information for the Cisco uBR7200 Series Universal Broadband Router* that shipped with your Cisco uBR7200 series router, and the *Cisco uBR7200 Series Universal Broadband Router Wireless Modem Card and Subsystem Installation and Configuration* document that shipped with your broadband fixed wireless modem card and subsystem.

This document includes the following sections:

- If You Need More Information, page 1
- Wireless Transceiver Overview, page 2
- Installation Prerequisites, page 3
- Installing the Wireless Transceiver, page 8
- Removing and Replacing the Wireless Transceiver, page 23
- Regulatory Compliance and Safety Information, page 27
- Technical Support, page 31

If You Need More Information

To obtain general information about documentation, refer to the “Cisco Connection Online” section on page 23, or call customer service at 800 553-6387 or 408 526-7208. Customer service hours are 5:00 a.m. to 6:00 p.m. Pacific time, Monday through Friday (excluding Cisco-observed holidays). You can also send e-mail to cs-rep@cisco.com, or you can refer to the *Cisco Information Packet* that shipped with your router.

Wireless Transceiver Overview

The wireless transceiver (often referred to as the outdoor unit or ODU) is the control and data interface to the indoor router subsystems. It provides up/down conversion for IF to RF frequencies and power amplification.

The wireless transceiver consists of the following components:

- RF head
- Connector port for IF input/output, control, and test
- Ground lug

Figure 1 shows the connectors on the wireless transceiver, and Table 1 describes their use.

Figure1 Wireless Transceiver

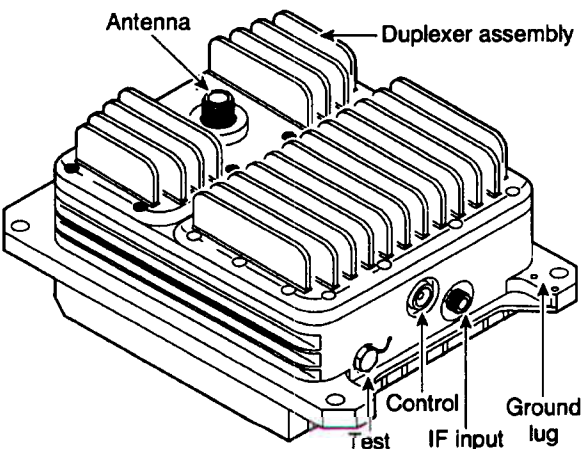


Table 1 Wireless Transceiver Connectors

Connector	Type	Input/Output	Function
Antenna connector	N-type weatherized (female)	Input and Output	Antenna connection
IF Input/ Control/Power	N-type weatherized (female)	Input and Output	Carries receive and transmit IF signals, power, IF reference frequency, and RF subsystem control interface

Installation Prerequisites

This section provides a list of parts and tools you need to install, remove, or replace a wireless transceiver at the antenna site. This section also includes safety and ESD-prevention guidelines to help you avoid injury to yourself and damage to the equipment.

Parts and Tools

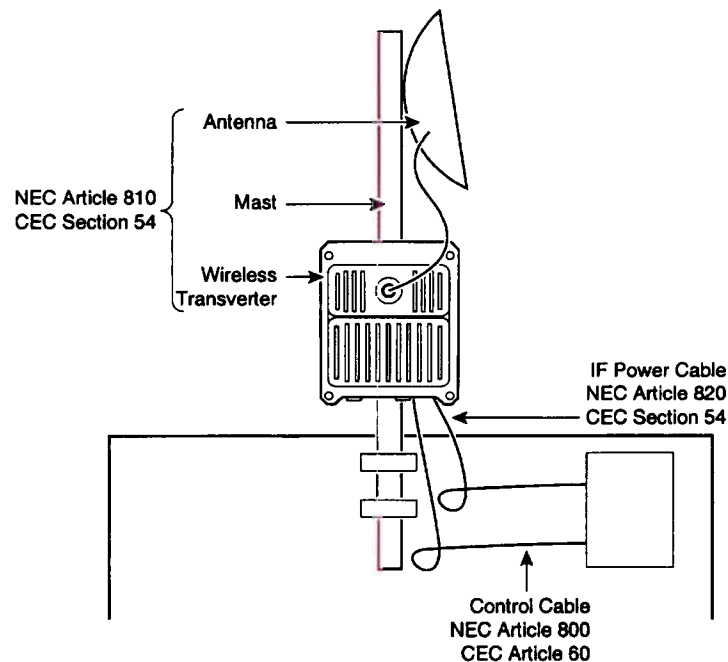
You need the following tools and parts to install, remove, or replace the transceiver. If you need additional equipment, contact a service representative for ordering information.

Note Some N-type connectors require specific tools. Obtain this information from your cable supplier.

- Wireless transceiver: SX1122 or SX1124
- Number 2 Phillips screwdriver
- Soldering iron/gun
- 9/16-inch open-end wrench
- Open-end adjustable wrench
- Cable wrap
- Antenna tools (refer to the antenna manufacturer's instructions)
- Mounting kit (provided with the new transceiver)
- Ground lug (provided in the mounting kit)
- 50 ohm coaxial cable with N-type (male) connectors to cable the wireless transceiver to the antenna
- Your own ESD-prevention equipment.

Safety Guidelines

Following are safety guidelines that you should follow when working with any equipment that connects to electrical power or telephone wiring.



Safety Warnings



Warning This warning symbol means *danger*. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the “Regulatory Compliance and Safety Information” section in this document.

Waarschuwing Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen. Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het document *Regulatory Compliance and Safety Information* (Informatie over naleving van veiligheids- en andere voorschriften) raadplegen dat bij dit toestel is ingesloten.

Varoitus Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä julkaisussa esiintyvien varoitusten käännökset löydät laitteen mukana olevasta *Regulatory Compliance and Safety Information* -kirjasesta (määräysten noudattaminen ja tietoa turvallisuudesta).

Attention Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez le document *Regulatory*

Compliance and Safety Information (Conformité aux règlements et consignes de sécurité) qui accompagne cet appareil.

Warnung Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Dokument *Regulatory Compliance and Safety Information* (Informationen zu behördlichen Vorschriften und Sicherheit), das zusammen mit diesem Gerät geliefert wurde.

Avvertenza Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nel documento *Regulatory Compliance and Safety Information* (Conformità alle norme e informazioni sulla sicurezza) che accompagna questo dispositivo.

Advarsel Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i dokumentet *Regulatory Compliance and Safety Information* (Overholdelse av forskrifter og sikkerhetsinformasjon) som ble levert med denne enheten.

Aviso Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. Para ver as traduções dos avisos que constam desta publicação, consulte o documento *Regulatory Compliance and Safety Information* (Informação de Segurança e Disposições Reguladoras) que acompanha este dispositivo.

¡Advertencia! Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. Para ver una traducción de las advertencias que aparecen en esta publicación, consultar el documento titulado *Regulatory Compliance and Safety Information* (Información sobre seguridad y conformidad con las disposiciones reglamentarias) que se acompaña con este dispositivo.

Varning! Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador. Se förklaringar av de varningar som förekommer i denna publikation i dokumentet *Regulatory Compliance and Safety Information* (Efterrättelse av föreskrifter och säkerhetsinformation), vilket medföljer denna anordning.

Electrical Equipment Guidelines

Follow these basic guidelines when working with any electrical equipment:

- Disconnect all power and external cables before moving a chassis.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power has been 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.



Warning Do not locate the transceiver near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits.



Warning This unit is intended for installation in restricted access areas. A restricted access area is where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the locations.



Warning Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.



Warning Only trained and qualified personnel should be allowed to install, replace, or service this equipment. This equipment contains an energy hazard. Disconnect the system before servicing.



Warning Do not work on the system or connect or disconnect cables during periods of lightning activity.



Antenna Installation Instructions: FCC RF Exposure Limits

The WJ SX1122 and SX1124 transceivers, used in conjunction with 18 - 34 dBi gain antennas, are to be employed in point-to-point applications only. Antennas used for these transmitters shall be professionally installed on permanent structures for outdoor operations. The installer is responsible for ensuring that the systems using high-gain, directional antennas are used exclusively for fixed, point-to-point operations.

The installer shall mount all transmit antennas so as to comply with the limits for human exposure to radio frequency (RF) fields per paragraph 1.1307 of the Federal Communications Commission (FCC) Regulations. The FCC requirements incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric field strength, magnetic field strength, and power density.

The WJ SX1122 and SX1124 transceivers are intended to be installed in restricted access areas, where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security. Regardless, antenna installations shall be engineered so that MPE is limited to 1 mW/cm², the more stringent limit for "uncontrolled environments". Table 2 below specifies the **minimum** distance that must be maintained between the antenna and any areas where persons may have access, including rooftop walkways, sidewalks, as well as through windows and other RF-transparent areas behind which persons may be located.

Table 2 Antenna Radiation Hazard

Antenna Gain	Power Max per Rules	MPE Distance, cm	Regulatory Limit
10 dBi	27.8 dBm	21.9	max power, 15.407a3
12 dBi	27.8 dBm	27.5	max power, 15.407a3
14 dBi* corner reflector	27.8 dBm	34.7	max power, 15.407a3
18.5 dBi* flat panel	27.8 dBm	58.2	max power, 15.407a3
20 dBi	27.8 dBm	69.2	max power, 15.407a3
22 dBi* 1ft dish	27.8 dBm	87.1	max power, 15.407a3
24 dBi	26.8 dBm	97.7	max EIRP, 15.407a3
26 dBi* flat panel	24.8 dBm	97.7	max EIRP, 15.407a3
28 dBi	22.8 dBm	97.7	max EIRP, 15.407a3
30 dBi	20.8 dBm	97.7	max EIRP, 15.407a3
32 dBi	18.8 dBm	97.7	max EIRP, 15.407a3
34 dBi* 4ft dish	16.8 dBm	97.7	max EIRP, 15.407a3

*Antennas tested and qualified for FCC certification August - October 1999. Other antenna types may be used, provided applicable requirements in FCC Rule parts 2 and 15 are met.

Antenna manufacturer-supplied installation instructions for specific models generally contain information regarding antenna mounting, aiming, lightning protection, and other relevant factors. In addition to meeting these requirements, the antenna system installer is responsible for installing antennas so that they comply with FCC RF exposure requirements. The FCC RF exposure requirements at a given location are based on the sum total of contributions from all radio sources. For WJ system antennas placed in close proximity to other transmitters (e.g., on a shared rooftop or tower installation), installers shall take steps to insure that MPE guidelines in 1.1307 of the Rules continue to be met with the inclusion of the contribution from the new antenna. Further information and guidance can be found in FCC Bulletin OET 65, available for download at <http://www.fcc.gov/oet/rfsafety/>.

Installing the Wireless Transceiver

This section provides instructions for installing the transceiver on the antenna mast.

Note These instructions apply to the transceiver manufactured and supplied by WJ.

Transmit and Receive Frequencies

The SX1122 and SX1124 are provided with the transmit frequency and the receive frequency set at the factory. Each model can be supplied with transmit on the high frequency band or transmit on the low frequency band. When installing the transceiver, ensure that the proper transmit and receive frequencies are used.

Note The orientation of one end of a point-to-point link must be opposite to that of the other end of the link. In addition, the choice of Tx Hi or Rx Hi must match the frequencies configured for the wireless modem card in the router.

Mounting the Wireless Transceiver

A mounting kit is included for mounting the wireless transceiver on an antenna mast.

The transceiver can be wall mounted by using the slotted holes in the mounting bracket supplied with the transceiver. Hardware and mounting instructions for this mounting configuration are not provided.

Note This mounting kit requires a mast with an outside diameter size of 2 3/8 to 4 1/2 inches. If the antenna you are using requires a mast smaller than 2 3/8 inches, attach a pipe of the proper diameter to the antenna mast using a pipe-to-pipe clamp set.

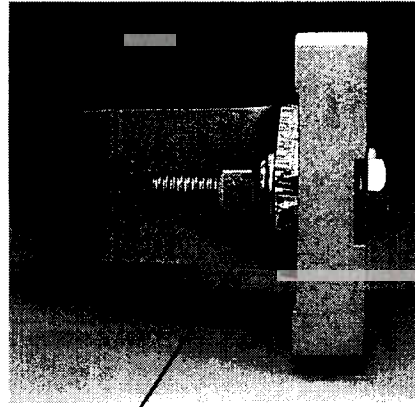
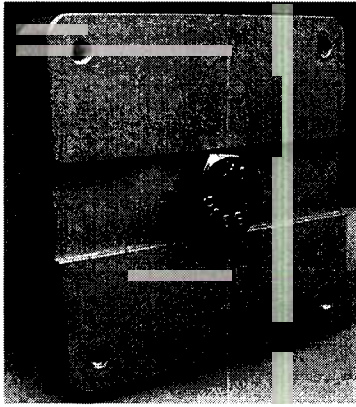
Use the following steps to mount the transceiver on an antenna mast:

Note These instructions apply to the WJ transceiver manufactured and supplied by WJ.

Step 1 Install a 3/8-32x1.75" hex bolt through a mounting adaptor. (See Figure 7).

Step 2 Install the Mounting Bracket on to the mounting adaptor from Step 1 and tighten. Ensure that the head of the nut is within the groove on the adaptor plate. (See Figure 7).

Figure 7 Attaching the Adaptor Plate to the Mounting Bracket.

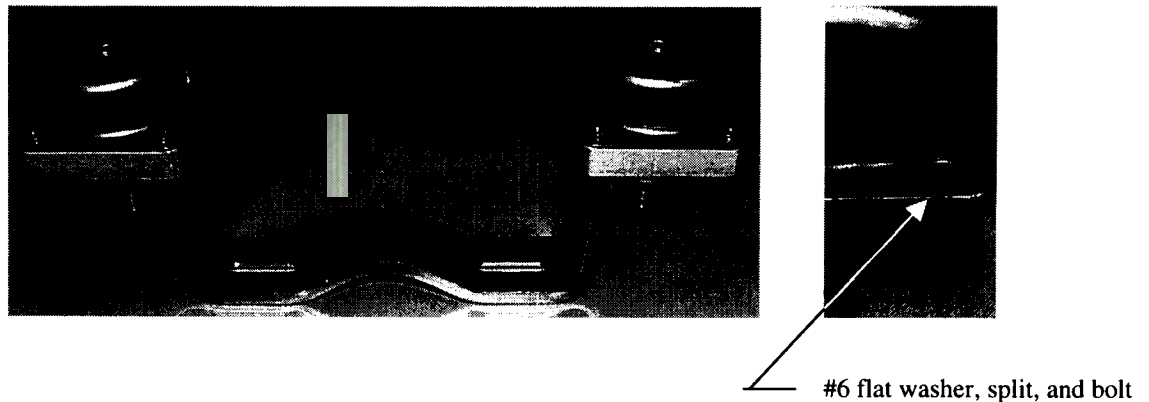


3/8" flat washer, split washer, and nut.

Step 3 Repeat this process for the other side of the mounting bracket.

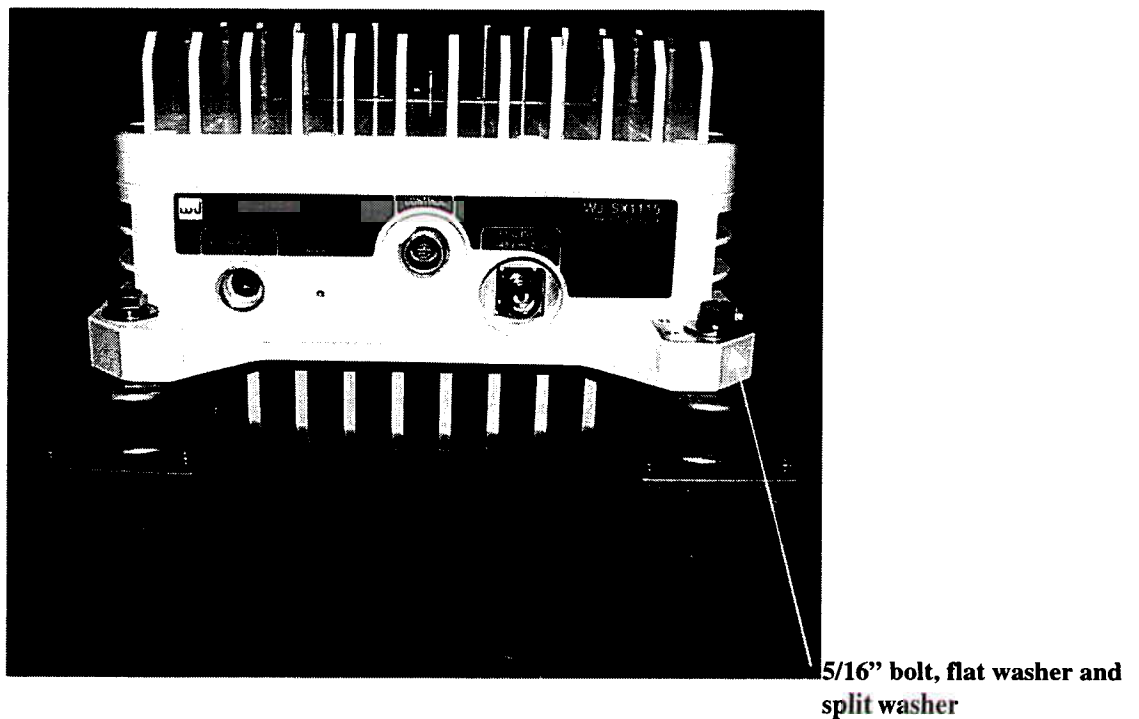
Step 4 Install shock mounts on to the bracket assembly (2 places) using the #6 hardware supplied. Tighten all screws. (See Figure 8.)

Figure 8 Attaching the Shock Mounts to the Adaptor Plate



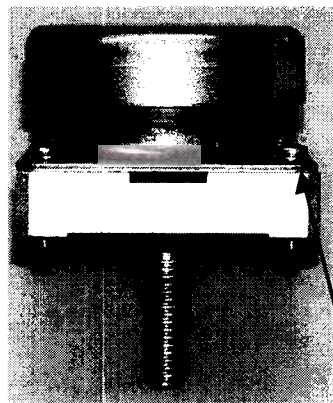
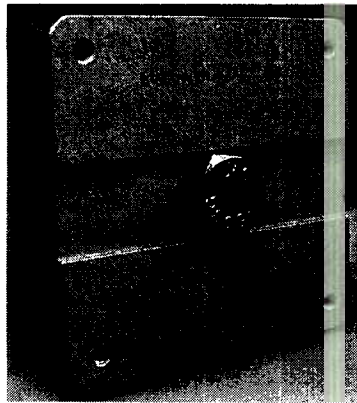
Step 5 Install this bracket assembly to the lower portion of the wireless transceiver using 5/16" hardware supplied. Counter torque may need to be applied to the cup of the shock mount when tightening the bolt. (See Figure 9.)

Figure 9 Attaching the Lower Mounting Bracket



Step 6 Place a 3/8" bolt through an adaptor plate and then install the shock mount on to the adaptor plate using #6 hardware and tighten. The 3/8" bolt will be loose but captive in the assembly. Assemble the other shock mount as well. (See Figure 10.)

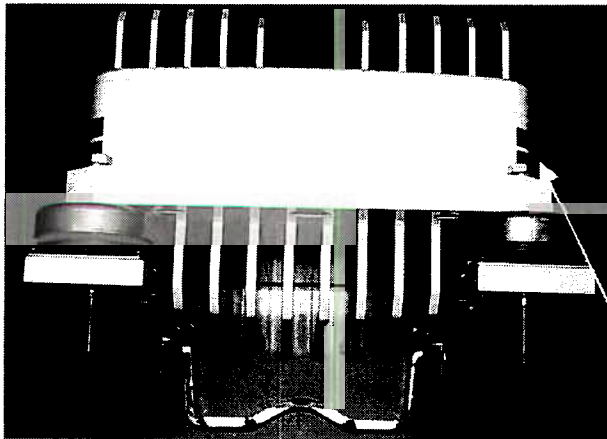
Figure 10 Assembling the Shock Mount Assembly



#6 bolt, flat washer, lock washer

Step 7 Install the shock mount assemblies on to the holes at the top of the transceiver using 5/16" hardware. The transceiver is now ready to mount on to a pole. (See Figure 11.)

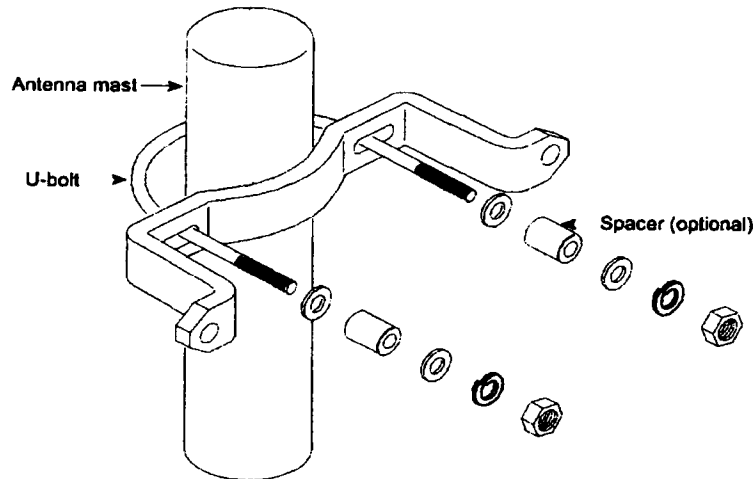
Figure 11 Attaching the Shock Mount Assemblies to the Top of the Transceiver



5/16" bolt, flat washer, lock washer

Step 8 Select the appropriate size U-bolt from the mounting kit and attach the remaining mounting bracket to the antenna mast using 3/8" hardware and tighten. (See Figure 12.) If necessary, use the spacers provided. This will be the bracket that holds the top of the transceiver.

Figure 12 Attaching the Top Mounting Bracket to the Antenna Mast



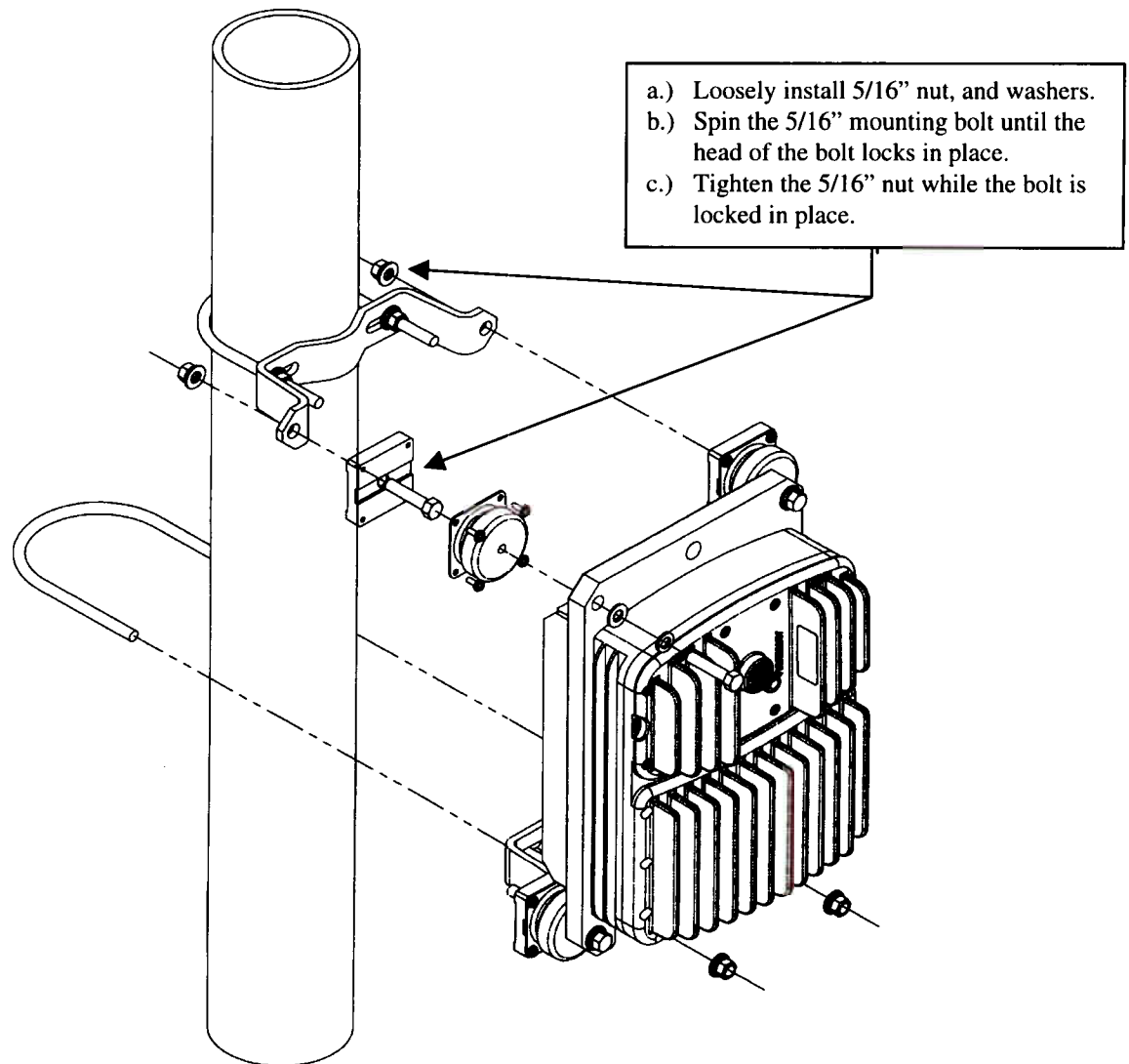
Step 8 Using a 9/16-inch wrench, attach the transceiver to the top mounting bracket using 3/8" nut, flat washer, and lock washer. (See Figure 13.)



Warning: Loosely install the 5/16" hardware, then pull and turn the bolt until you feel the head of the bolt lock within the groove of the adaptor plate. This will keep the bolt from spinning while tightening the hardware. Tighten the nut once the bolt is locked in place.

Step 9 Install the appropriate U-bolt to secure to the transceiver using the appropriate 3/8" hardware and tighten. (See Figure 13.)

Figure 13 Attaching the Transceiver to the Pole



Caution Do not leave the transceiver unattended until all the fasteners have been tightened.

Step 10 Tighten all fasteners to 15 foot-pounds of torque.

Cabling the Wireless Transceiver



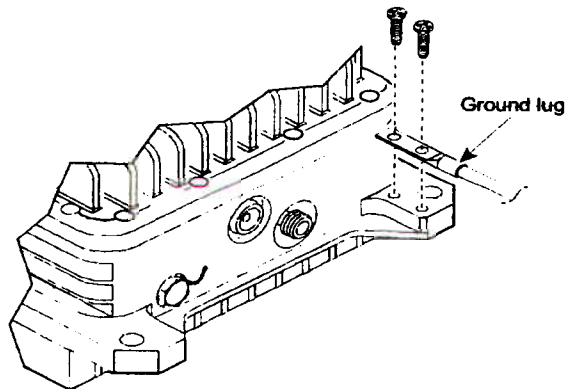
Warning Ensure that the power/breaker switches (on the power feed panel) for both the Main and Diversity transceiver are in the OFF position.

Attaching the Ground Lug

A ground lug kit is provided with the transceiver. Use the following steps to attach the ground lug to the transceiver chassis.

- Step 1** Attach an approved ground wire to the ground lug.
- Step 2** Locate the two ground lug threaded holes on the lower right mounting bracket of the transceiver chassis.
- Step 3** Align the ground lug with the threaded holes and fasten it to the chassis using the two screws included in the mounting kit. (See Figure 14.)

Figure 14 Attaching the Ground Lug



- Step 4** Using a number 2 Phillips screw driver, tighten the screws.



Warning Cisco and WJ strongly recommend that you use some type of cable-connection weatherproofing on all outdoor RF and IF cable connections to protect them against long-term degradation from weather effects. This is typically done by applying a suitable seal to the N-type connectors after they have been connected and verified. Do not use common electrical tape or similar types of tape because the resulting seal is not adequate, these types of tape do not withstand sunlight well, and they leave a gummy residue when removal becomes necessary.

There are several available products for this purpose. Some of the manufacturers/suppliers of these products are listed in Table 3.

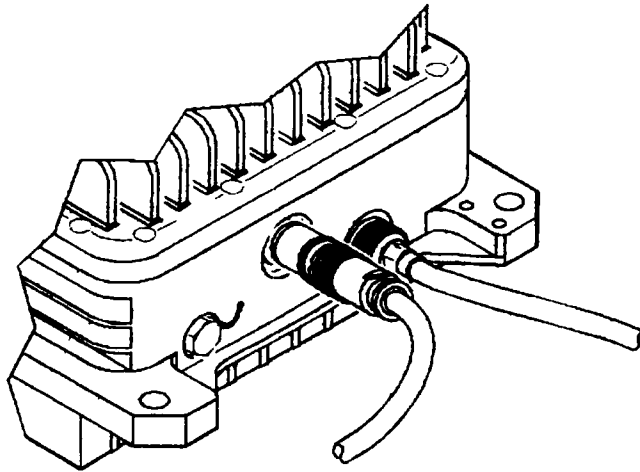
Table 3 N-type connector cable weatherproofing suppliers.

3M Cold Shrink Weatherproofing Kit Andrew Corporation www.andrew.com
Coax-Seal Universal Electronics, Inc. 4555/13 Groves Rd., Columbus OH 43232. (800) 241-8171

Connecting the IF/DC Cable

Connect the IF cable to the transceiver connector marked **IF/DC INPUT**. Tighten the connection with an adjustable wrench or pliers.

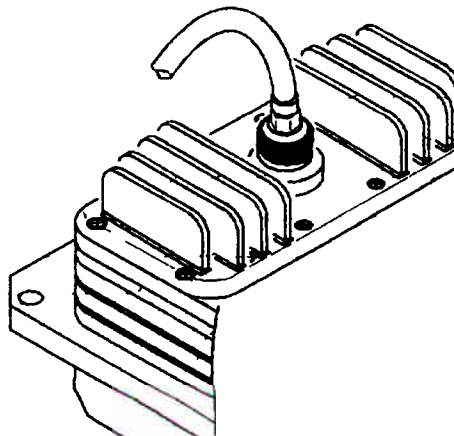
Figure 24 IF/DC Cable Connection



Connecting the Antenna Cable

Connect the Antenna cable to the transceiver connector marked **ANTENNA**. Tighten the connection with an adjustable wrench or pliers. Consult the instructions provided by your antenna manufacturer for additional instructions on installing antennas. Table 2 provides safe, minimum distances an operator should be from an antenna when it is transmitting.

Figure 25 Antenna Cable Connection





Warning After cabling, reinstate power .

This completes the procedure for installing and cabling a wireless transceiver.

Removing and Replacing the Wireless Transceiver

Follow these instructions to remove and replace the wireless transceiver.

Removing the Wireless Transceiver

Removing an installed wireless transceiver involves the following tasks:

- 1 Shutting Down the Wireless Link
- 2 Disconnecting the Power
- 3 Removing the Cables
- 4 Removing the Wireless Transceiver from the Antenna Mast

Shutting Down the Wireless Link

The wireless transceiver is a required component of the broadband fixed wireless system, and can only be removed when the wireless link is down. Shut down the wireless link.

Disconnecting the Power

Use these steps to disconnect the DC power from the wireless transceiver.



Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit in the power feed panel, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

Step 1 Ensure that the DC power source is disconnected. (See warning above.)

Step 2 Switch the wireless transceiver power/breaker switches on the power feed panel to the OFF position.

Removing the Cables

Use these steps to remove the cables from the wireless transceiver.



Warning When installing or replacing the unit, the ground connection must always be made first and disconnected last.

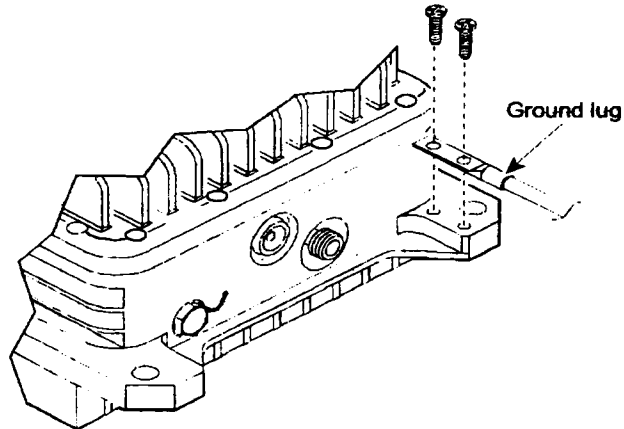
Timesaver To make replacement easier, be sure all cables are labeled.

Step1 Remove the RF cable leading to the antenna.

Step2 Remove the IF/DC/Control cable.

Step3 Remove the screws from the ground lug. (See Figure 26.)

Figure 26 Removing the Ground Lug

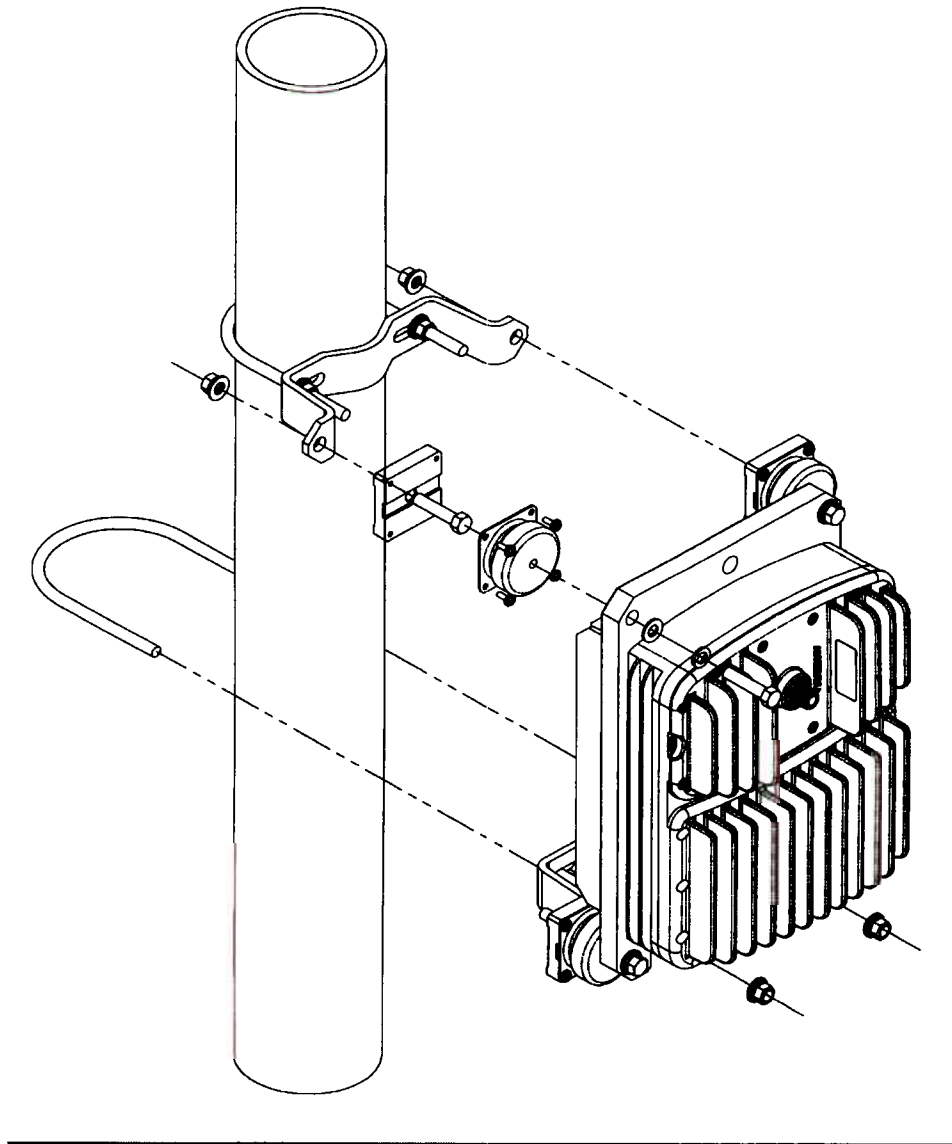


Removing the Wireless Transceiver from the Antenna Mast

Follow these steps to remove the wireless transceiver from the antenna mast:

Step1 Remove the hardware securing the bottom U-bolt to the mast (see Figure 27), and remove the U-bolt from the mast.

Figure 27 Removing the Bottom and Top U-bolts



Step2 Leaving the hex bolts in place, carefully remove the hex nuts, lock washers, and flat washers from the back of both sides of the top mounting bracket. (See Figure 27.)

Step3 Carefully remove the wireless transceiver from the top bracket and move it to a work area.

Warning Do not leave the transceiver unattended while the fasteners are removed.



Replacing the Wireless Transceiver

Replacing the wireless transceiver involves the following tasks:

- 1 Mounting the Wireless Transceiver on the Antenna Mast
- 2 Attaching the Cables
- 3 Reinstating the Power
- 4 Initiating the Wireless Link

Remounting the Wireless Transceiver on the Antenna Mast

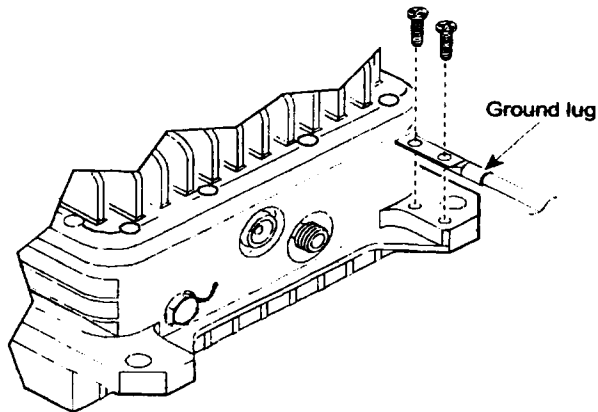
Mount the replacement transceiver on the mast using the instructions in the section of this document called **Installing the Wireless Transceiver**.

Attaching the Cables

Use these steps to attach the cables to the new wireless transceiver.

Step1 Attach the ground lug. (See Figure 28.)

Figure 28 Attaching the Ground Lug



Step3 Connect the IF/DC/Control cable to the IF/DC/Control input connector.

Step4 Connect the RF cable leading to the antenna to the N-type connector on the duplexor.

Reinstating the Power

Use these steps to reinstate the power.

Step1 Reconnect the DC power source.





Warning After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

Step2 Switch the wireless transceiver power/breaker switches to the ON position.

Initiating the Wireless Link

This completes the procedure for removing or replacing the wireless transceiver in a Cisco broadband fixed wireless system.

Regulatory Compliance and Safety Information

This section provides international agency compliance, safety, and statutory information regarding the removal and replacement of the WJ broadband fixed wireless system transceiver.

FCC Registration and Requirements

The following paragraphs describe requirements and information based on FCC rules.

This WJ product has been tested and complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, can cause harmful interference to radio transmissions.

This product complies with FCC Class B limits with the use of shielded cable.

Translated Safety Warnings

This section repeats in multiple languages the warnings found in this document.

Energy Hazard Warning



Warning Only trained and qualified personnel should be allowed to install, replace, or service this equipment. This equipment contains an **energy** hazard. Disconnect the **system** before servicing.

Waarschuwing Alleen getraind en gekwalificeerd personeel mag deze uitrusting installeren, vervangen of onderhouden. Deze uitrusting bevat energierisico's. Ontkoppel het systeem voordat u het onderhoudt.

Varoitus Tämän laitteen asennuksen, vaihdon tai huollon saa suorittaa ainoastaan koulutettu ja pätevä henkilökunta. Laitteessa on sähköiskuvaara. Irrota järjestelmä ennen huoltoa.

Attention Cet équipement ne doit être installé, remplacé ou entretenu que par du personnel d'entretien qualifié et formé. Cet équipement contient de l'énergie électrique potentiellement dangereuse. Débrancher le système avant tout entretien/révision.

Warnung Gerät nur von geschultem, qualifiziertem Personal installieren, auswechseln oder warten lassen. Im Gerät liegt gefährliche Spannung an. Vor allen Wartungsarbeiten Gerät vom Netz trennen.

Avvertenza Questo apparato può essere installato, sostituito o revisionato solo da personale qualificato e competente. Questo apparecchio presenta pericolo di scosse elettriche. Scollegare il sistema prima di procedere alla revisione.

Advarsel Dette utstyret skal bare monteres, skiftes ut eller vedlikeholdes av kvalifisert personell som har gjennomgått opplæring. Det kan være fare for elektrisk støt forbundet med dette utstyret. Kople fra systemet før igangsetting av vedlikeholdsarbeid.

Aviso Apenas pessoal treinado e qualificado deve ser autorizado a instalar, substituir ou fazer a revisão deste equipamento. Este equipamento constitui risco de choque eléctrico. Desligar o sistema antes de efectuar qualquer serviço de revisão.

¡Advertencia! Solamente el personal calificado debe instalar, reemplazar o reparar este equipo, ya que existe riesgo de descarga eléctrica. Desenchufe el sistema antes de proceder al mantenimiento del mismo.

Warning! Endast utbildad och behörig personal får utföra installation, utbyte eller service av denna utrustning. Denna utrustning kan medföra fara för elstöt. Koppla ifrån systemet innan service utförs.

Lightning Activity Warning



Warning Do not work on the system or connect or disconnect cables during periods of lightning activity.

Waarschuwing Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.

Varoitus Älä työskentele järjestelmän parissa äläkä yhdistä tai irrota kaapeleita ukkosilmalla.

Attention Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

Warnung Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.

Avvertenza Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.

Advarsel Utfør aldri arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.

Aviso Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).

¡Advertencia! No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.

Warning! Vid åska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.

DC Power Disconnection Warning



Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

Waarschuwing Voordat u een van de onderstaande procedures uitvoert, dient u te controleren of de stroom naar het gelijkstroom circuit uitgeschakeld is. Om u ervan te verzekeren dat alle stroom UIT is geschakeld, kiest u op het schakelbord de stroomverbreker die het gelijkstroom circuit bedient, draait de stroomverbreker naar de UIT positie en plakt de schakelaarhandel van de stroomverbreker met plakband in de UIT positie vast.

Varoitus Varmista, että tasavirtapiirissä ei ole virtaa ennen seuraavien toimenpiteiden suorittamista. Varmistaaksesi, että virta on KATKAISTU täysin, paikanna tasavirrasta huolehtivassa kojetaulussa sijaitseva suojakytkin, käännä suojakytkin KATKAISTU-asentoon ja teippaa suojakytkimen varsi niin, että se pysyy KATKAISTU-asennossa.

Attention Avant de pratiquer l'une quelconque des procédures ci-dessous, vérifier que le circuit en courant continu n'est plus sous tension. Pour en être sûr, localiser le disjoncteur situé sur le panneau de service du circuit en courant continu, placer le disjoncteur en position fermée (OFF) et, à l'aide d'un ruban adhésif, bloquer la poignée du disjoncteur en position OFF.

Warnung Vor Ausführung der folgenden Vorgänge ist sicherzustellen, daß die Gleichstromschaltung keinen Strom erhält. Um sicherzustellen, daß sämtlicher Strom abgestellt ist, machen Sie auf der Schalttafel den Unterbrecher für die Gleichstromschaltung ausfindig, stellen Sie den Unterbrecher auf AUS, und kleben Sie den Schaltergriff des Unterbrechers mit Klebeband in der AUS-Stellung fest.

Avvertenza Prima di svolgere una qualsiasi delle procedure seguenti, verificare che il circuito CC non sia alimentato. Per verificare che tutta l'alimentazione sia scollegata (OFF), individuare l'interruttore automatico sul quadro strumenti che alimenta il circuito CC, mettere l'interruttore in posizione OFF e fissarlo con nastro adesivo in tale posizione.

Advarsel Før noen av disse prosedyrene utføres, kontroller at strømmen er frakoblet likestrømkretsen. Sørg for at all strøm er slått AV. Dette gjøres ved å lokalisere strømbryteren på brytertavlen som betjener likestrømkretsen, slå strømbryteren AV og teipe bryterhåndtaket på strømbryteren i AV-stilling.

Aviso Antes de executar um dos seguintes procedimentos, certifique-se que desligou a fonte de alimentação de energia do circuito de corrente contínua. Para se assegurar que toda a corrente foi DESLIGADA, localize o disjuntor no painel que serve o circuito de corrente contínua e coloque-o na posição OFF (Desligado), segurando nessa posição a manivela do interruptor do disjuntor com fita isoladora.

¡Advertencia! Antes de proceder con los siguientes pasos, comprobar que la alimentación del circuito de corriente continua (CC) esté cortada (OFF). Para asegurarse de que toda la alimentación esté cortada (OFF), localizar el interruptor automático en el panel que alimenta al circuito de corriente continua, cambiar el interruptor automático a la posición de Apagado (OFF), y sujetar con cinta la palanca del interruptor automático en posición de Apagado (OFF).

Warning! Innan du utför någon av följande procedurer måste du kontrollera att strömförsörjningen till likströmskretsen är bruten. Kontrollera att all strömförsörjning är BRUTEN genom att slå AV det överspänningsskydd som skyddar likströmskretsen och tejpa fast överspänningsskyddets omkopplare i FRÅN-läget.

DC Power Connection Warning



Warning After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

Waarschuwing Nadat de bedrading van de gelijkstroom voeding aangebracht is, verwijdert u het plakband van de schakelaarhendel van de stroomverbreker en schakelt de stroom weer in door de hendel van de stroomverbreker naar de AAN positie te draaien.

Varoitus Yhdistettyäsi tasavirtalähteen johdon avulla poista teippi suojakytkimen varresta ja kytke virta uudestaan kääntämällä suojakytkimen varsi KYTKETTY-asentoon.

Attention Une fois l'alimentation connectée, retirer le ruban adhésif servant à bloquer la poignée du disjoncteur et rétablir l'alimentation en plaçant cette poignée en position de marche (ON).

Warnung Nach Verdrahtung des Gleichstrom-Netzgeräts entfernen Sie das Klebeband vom Schaltergriff des Unterbrechers und schalten den Strom erneut ein, indem Sie den Griff des Unterbrechers auf EIN stellen.

Avvertenza Dopo aver eseguito il cablaggio dell'alimentatore CC, togliere il nastro adesivo dall'interruttore automatico e ristabilire l'alimentazione spostando all'interruttore automatico in posizione ON.

Advarsel Etter at likestrømsenheten er tilkoblet, fjernes teipen fra håndtaket på strømbryteren, og deretter aktiveres strømmen ved å dreie håndtaket på strømbryteren til PÅ-stilling.

Aviso Depois de ligar o sistema de fornecimento de corrente contínua, retire a fita isoladora da manivela do disjuntor, e volte a ligar a corrente ao deslocar a manivela para a posição ON (Ligado).

¡Advertencia! Después de cablear la fuente de alimentación de corriente continua, retirar la cinta de la palanca del interruptor automático, y restablecer la alimentación cambiando la palanca a la posición de Encendido (ON).

Warning! När du har kopplat ledningarna till strömförsörjningsenheten för inmatad likström tar du bort teipen från överspänningsskyddets omkopplare och slår på strømmen igen genom att ställa överspänningsskyddets omkopplare i TILL-läget.

Ground Connection Warning



Warning When installing or replacing the unit, the ground connection must always be made first and disconnected last.

Waarschuwing Bij de installatie van het toestel moet de aardverbinding altijd het eerste worden gemaakt en het laatste worden losgemaakt.

Varoitus Laitetta asennettaessa on maahan yhdistäminen aina tehtävä ensiksi ja maadoituksen irti kytkeminen viimeiseksi.

Attention Lors de l'installation de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier.

Warnung Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden.

Avvertenza In fase di installazione dell'unità, eseguire sempre per primo il collegamento a massa e disconnetterlo per ultimo.

Advarsel Når enheten installeres, må jordledningen alltid tilkobles først og frakobles sist.

Aviso Ao instalar a unidade, a ligação à terra deverá ser sempre a primeira a ser ligada, e a última a ser desligada.

¡Advertencia! Al instalar el equipo, conectar la tierra la primera y desconectarla la última.

Varning! Vid installation av enheten måste jordledningen alltid anslutas först och kopplas bort sist.

Cisco Connection Online

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

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: <http://www.cisco.com>
- WWW: <http://www-europe.cisco.com>
- WWW: <http://www-china.cisco.com>
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

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

If you are a network administrator and need personal technical assistance with a 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.

To obtain information about Watkins-Johnson Co., Watkins-Johnson products, or upgrades, contact 877-334-5012 or visit our website at www.wj.com.