

WJ Broadband Fixed Wireless System Transceiver Installation and Replacement Instructions

Product Numbers: SX1115, SX1122, SF1119, SF1120.

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
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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 ports for IF input/output, control, and test
- Duplexor assembly with antenna connection
- Ground lug

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

Figure1 Wireless Transceiver with Duplexor Assembly Installed

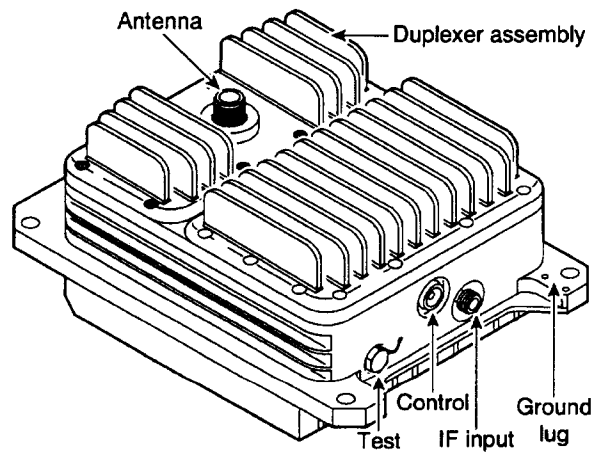


Table 1 Wireless Transceiver and Duplexor Assembly Connectors

Connector	Type	Input/Output	Function
Antenna connector	N-type weatherized (female)	Input and Output	Antenna connection
IF Input	N-type weatherized (female)	Input and Output	Carries receive and transmit IF signals, power, and IF reference frequency
Control	LEMO (8-pin, R, 1K series)	Input and output	Provides RF subsystem control interface

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Test	Phone (female) 3.5 mm	Output	Measures voltage for antenna alignment
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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

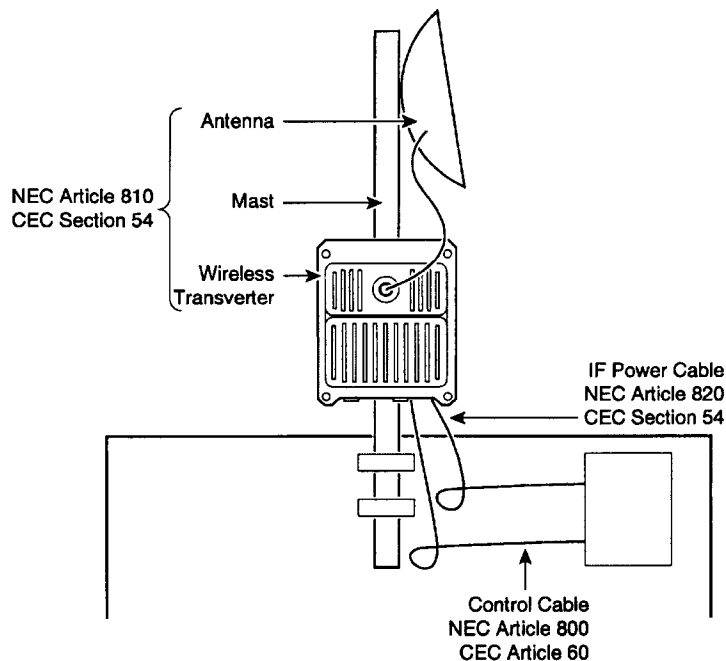
You need the following tools and parts to install, remove, or replace the transceiver. If you need additional equipment, contact a service representative for ordering information.

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

- Wireless transceiver: SX1115 or SX1122
- Duplexer assembly: SF1119 or SF1120 for SX1115 only.
- 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
- Digital voltmeter with 3.5 mm mono phone plug to use for antenna alignment tasks
- 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* -kirjasta (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*

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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.

Warning! 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.

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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.

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Warning A radiation hazard may exist within a specific radius around the center point of the antenna. The table below associates antenna gain (in dB) with a minimum acceptable distance. Determine the gain of the antenna and use Table 2 to locate the minimum acceptable distance from the center point of the antenna. (Transmitter Power max= 25 dBm.)

Table 2 Antenna Radiation Hazard

The table below specifies the minimum distance away from the antenna an operator should be while antenna is transmitting. Distances are determined by transmit output power from the antenna.

Maximum permissible exposure (MPE) is limited to $1\text{mW}/\text{cm}^2$ for uncontrolled environments and $5\text{mW}/\text{cm}^2$ for controlled environments.

Antenna Gain (dBi)	Transmit Power EIRP (dBm)	EIRP (W)	Minimum Acceptable Distance under FCC Rules— Uncontrolled Environment (cm)	Minimum Acceptable Distance under FCC Rules – Controlled Environment (cm)
10	35	3.16	16	7
12	37	5.01	20	9
14	39	7.94	25	11
16	41	12.6	32	14
18	43	20.0	40	18
20	45	31.6	50	22
22	47	50.1	63	28
24	49	79.4	79	36
26	51	126	100	45
28 and above	53 max	200	126	56

Installing the Wireless Transceiver

This section provides instructions for installing the duplexer assembly in the transceiver chassis and installing the transceiver on the antenna mast.

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

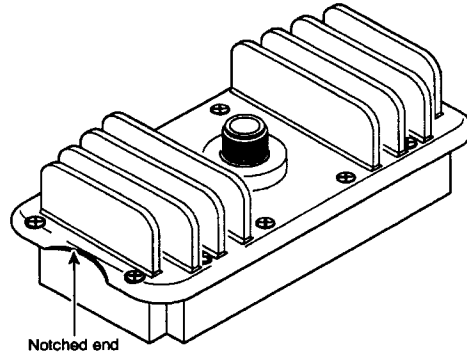
Installing the Duplexor in the Wireless Transceiver

Installing a wireless transceiver requires the installation of the duplexor assembly prior to mounting the transceiver on the antenna mast.

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The duplexor acts as a filter for Tx/Rx isolation. The duplexor assembly is ordered and shipped as a separate unit based on the RF channel plan you have selected for your installation.

Figure 2 Duplexor Assembly



Installing the Duplexor Assembly in the Wireless Transceiver

The orientation of the duplexor assembly when installed in the transceiver will determine its transmit and receive frequency.

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.

Use the following steps to install the duplexor in the transceiver.

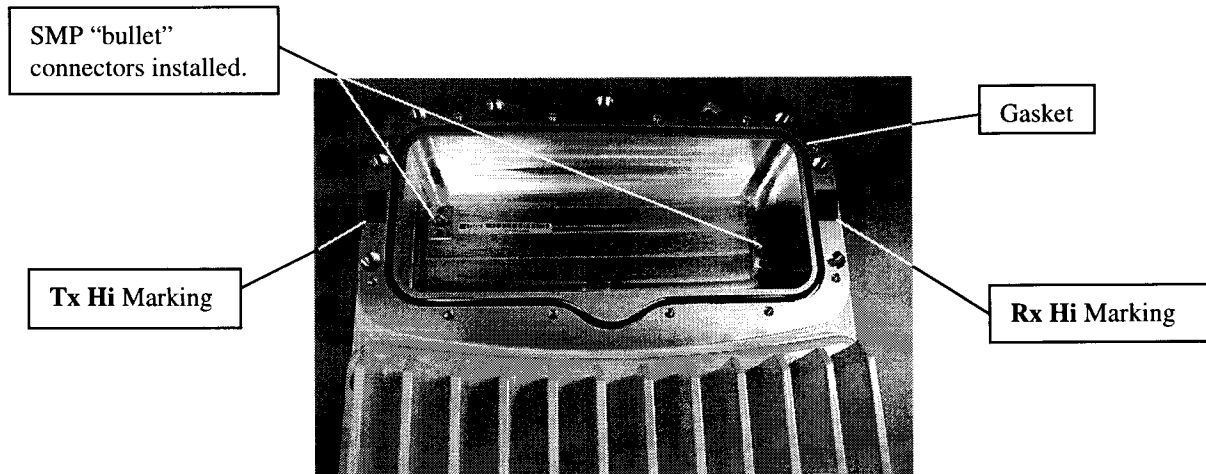
- Step 1** Determine if you will be using the high end of the frequency for transmitting or receiving.
- Step 2** Detach the bottom portion of the label affixed to the under side of the duplexor, and record the duplexor orientation. (See Figure 3.) This label can be attached to equipment records and used for reference when configuring the system or performing maintenance.

Figure 3 Frequency Assignment Label



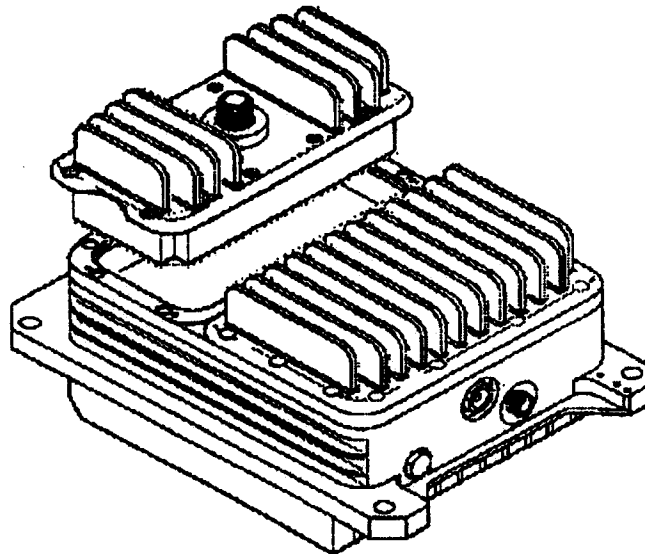
- Step 3** Verify that the gasket is aligned in the groove in the transceiver chassis. The duplexor gasket is included with every duplexor. (See Figure 4.)
- Step 4** Match the notched end of the duplexor with either the Tx Hi or Rx Hi side of the duplexor receptacle in the wireless transceiver. (see Figure 4.)
- Step 5** Verify that the gasket is aligned in the groove in the transceiver chassis. (See Figure 4.)

Figure 4 Duplexor Receptacle in the Wireless Transceiver



- Step 6** Install the SMP “bullet” connectors supplied with the duplexor on to the connectors in the transceiver. Line up the duplexor and plug it in to the chassis, being careful that the internal RF connectors are properly aligned. (See Figure 5.)

Figure 5 Plugging the Duplexor Assembly into the Chassis



- Step 6** Verify that the cover of the duplexor housing is flush with the transceiver housing.

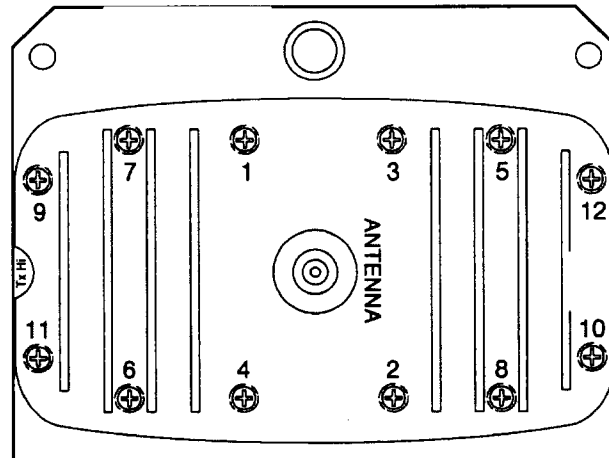
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Caution If the cover is not flush, check the alignment of the internal RF connectors. In order to avoid damage, do not tighten the screws if the cover is not flush.

Step 7 Using a number 2 Phillips screwdriver, follow the threading sequence shown in Figure 6 and start tightening the screws.

Figure 6 Tightening Sequence



Step 8 Repeat the sequence and finish tightening the screw to between 20 and 24 in-lb of torque.

Mounting the Wireless Transceiver

The 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.

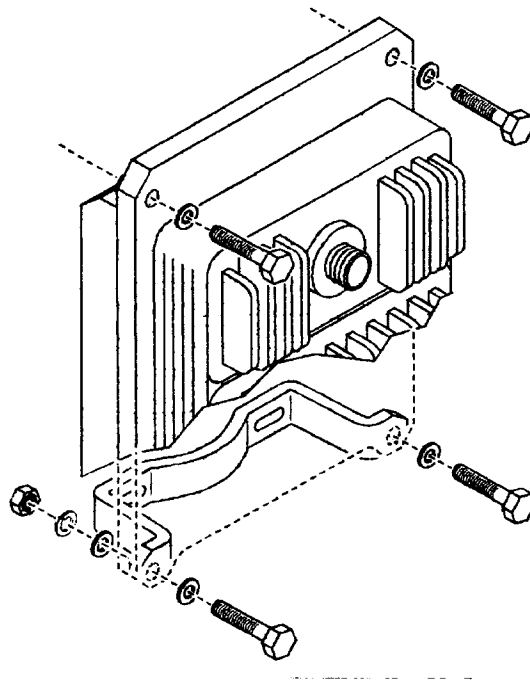
Note This mounting kit requires a mast with an outside diameter size of 2 3/8 to 4 1/2 inches. If the antenna you are using requires a mast smaller than 2 3/8 inches, attach a pipe of the proper diameter to the antenna mast using a pipe-to-pipe clamp set.

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.
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- | | |
|---------------|--|
| Step 1 | Attach one mounting bracket to the lower portion of the wireless transceiver. (See Figure 7.) |
| Step 2 | Thread two bolt and washers through the mounting holes at the top of the transceiver. See Figure 7.) |

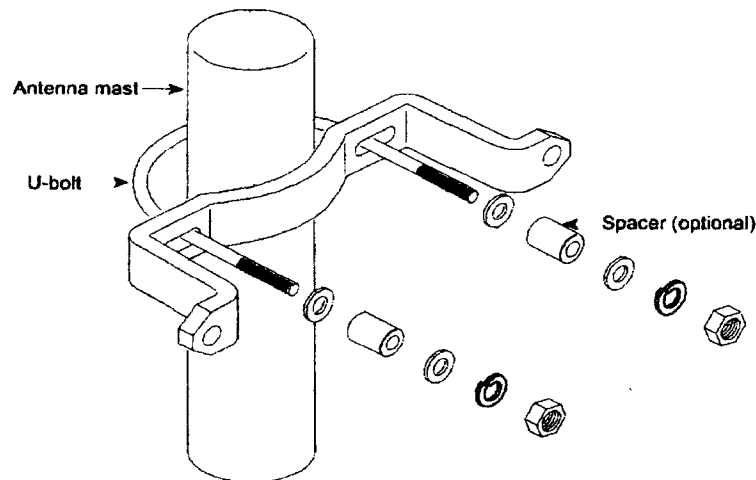
Figure 7 **Attaching the Lower Mounting Bracket and Upper Bracket Hardware**



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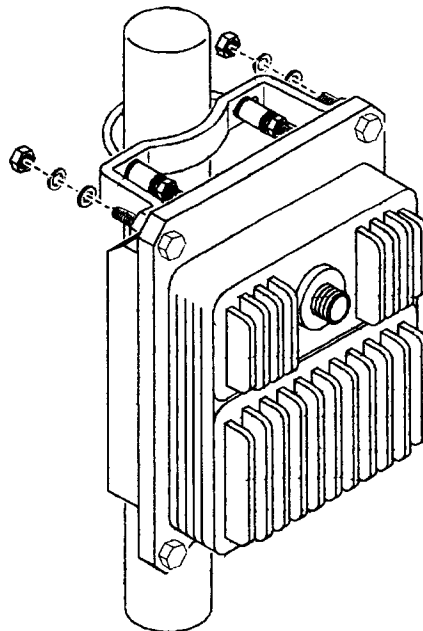
Step 3 Select the appropriate size U-bolt from the mounting kit and attach the remaining bracket to the antenna mast and tighten the nuts. (See Figure 8.) If necessary, use the provided spacers. This will be the bracket that holds the top of the transceiver.

Figure 8 Attaching the Top Mounting Bracket to the Antenna Mast



Step 4 Using a 9/16-inch wrench, attach the transceiver to the top mounting bracket. (See Figure 9.)

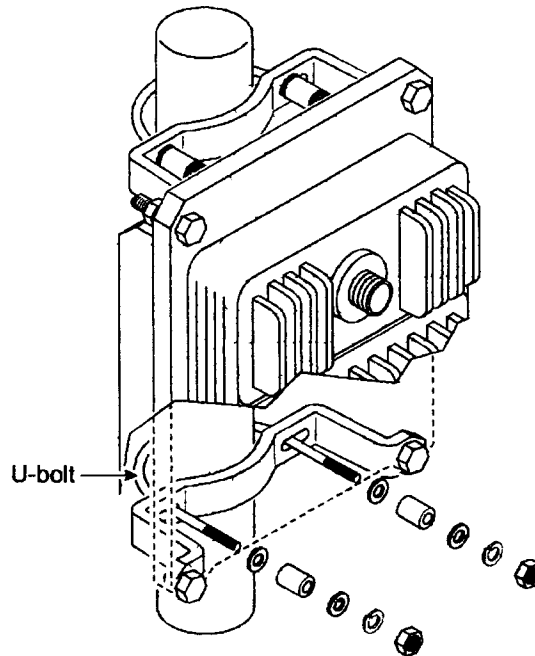
Figure 9 Attaching the Transceiver to the Top Mounting Bracket



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

Step 5 Attach the U-bolt to the bottom bracket (See Figure 10), and tighten.

Figure 10 Attaching the Bottom U-Bolt



Step 5 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

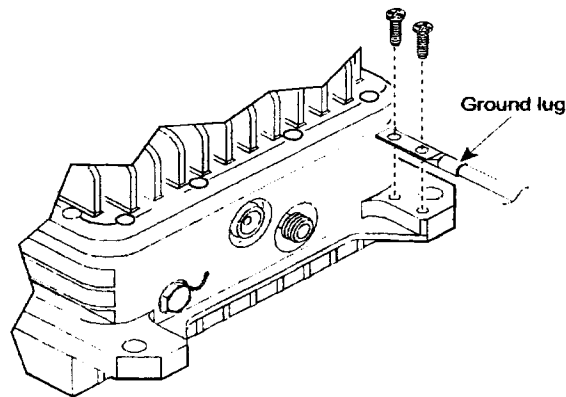
A ground lug kit is provided with the transceiver. Use the following steps to attach the ground lug to the transceiver chassis.

Step 1 Attach an approved ground wire to the ground lug.

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- 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 11.)

Figure 11 Attaching the Ground Lug



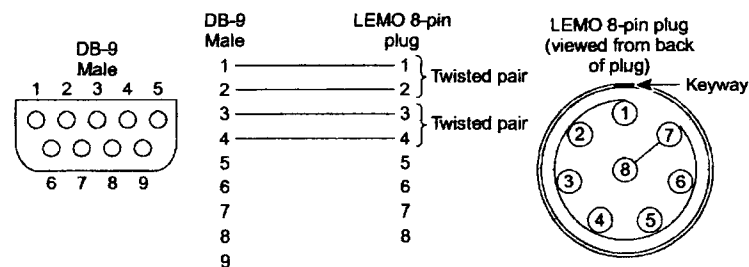
- Step 4** Using a number 2 Phillips screw driver, tighten the screws.

Attaching the LEMO Connector to the Control Cable

An 8-pin LEMO plug designed to be used with a 0.24-inch or less outside diameter jacket cable with braided shielding is provided to attached the control cable to the wireless transceiver. Using Figure 12 as a guide, use the following instructions to wire the connector to the control cable coming from the power feed panel.

Note If a cable with a larger outside diameter is used, alternate sealing hardware must be used (not supplied).

Figure 12 DB-9 to 8-Pin LEMO Wiring

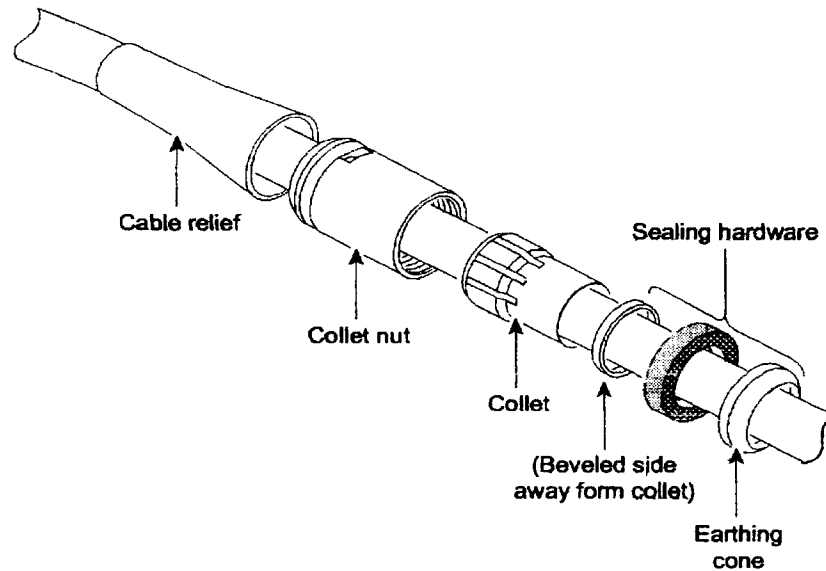


Note The cable shield must be grounded to the connector housing.

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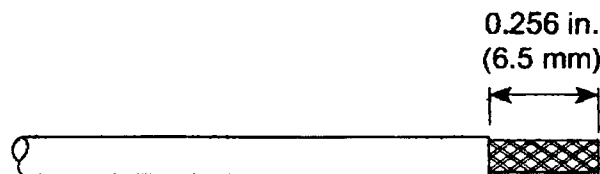
Step 1 Slide the cable relief, collet nut, collet, and sealing hardware on to the cable. (See Figure 13.)

Figure 13 Sliding the Hardware on the Cable



Step 1 Strip the cable jacket to expose the shielding. (See Figure 14.)

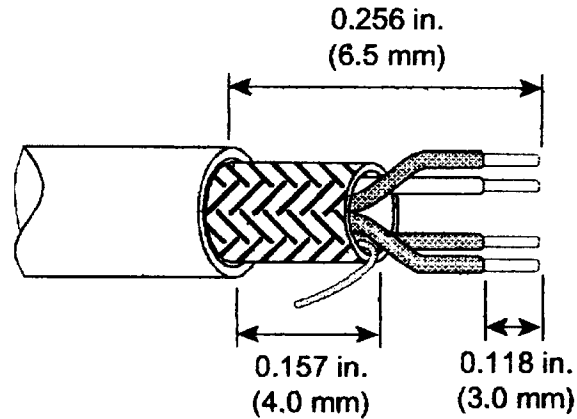
Figure 14 Stripping the Cable Jacket



Step 2 Strip the conductor insulation to the dimensions shown in Figure 15.

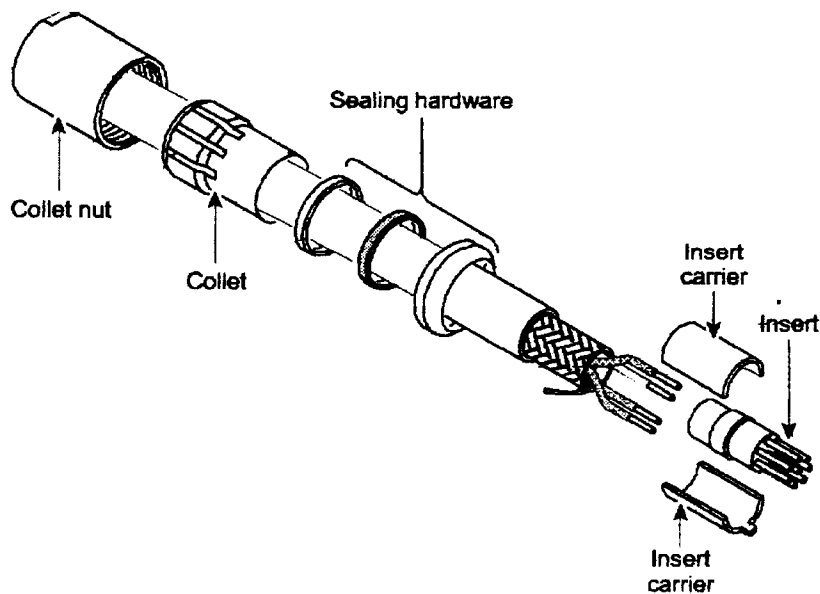
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Figure 15 Stripping the Conductor Insulation



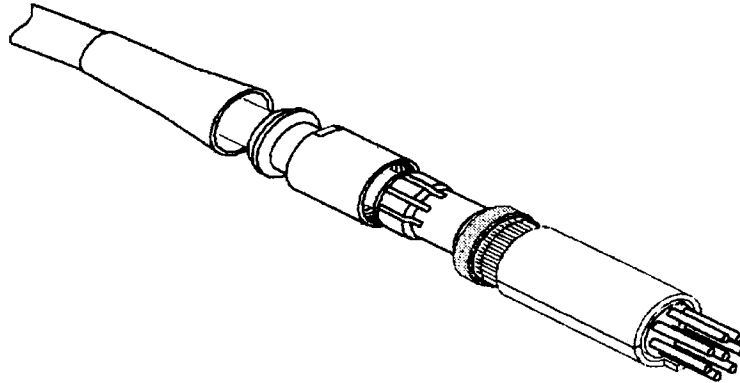
Step 3 Solder the contacts, then position the midpieces on the insert. (See Figure 16.) Make sure the insert key appears through the midpiece window.

Figure 16 Positioning the Midpieces



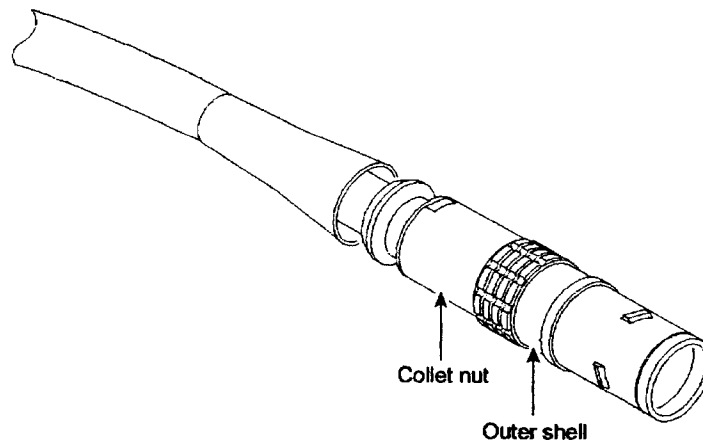
Step 4 Position the coilet and sealing hardware. (See Figure 17.) Trim the foil and plastic inner foil. Fold the ground wire over the earthing cone, making sure not to exceed the beveled edge.

Figure 17 Positioning the Collet and Sealing Hardware



Step 5 Line up the key on the insert carrier with the notch in the housing. Install the outer shell and tighten the collet nut to 5 inch-pounds of torque using a plug securing wrench over the nozzle and a torque wrench on the collet nut. (See Figure 18.)

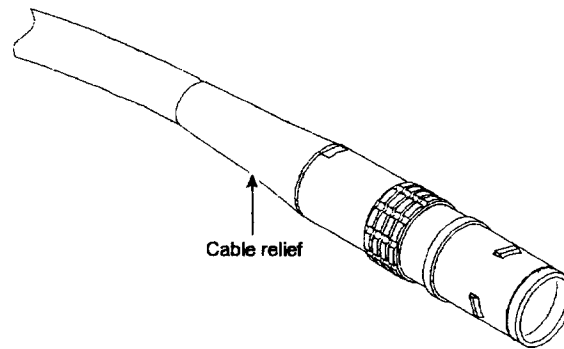
Figure 18 Tightening the Collet Nut



Step 6 To complete the assembly, attach the cable relief to the back nut on the collet nut. (See Figure 19).

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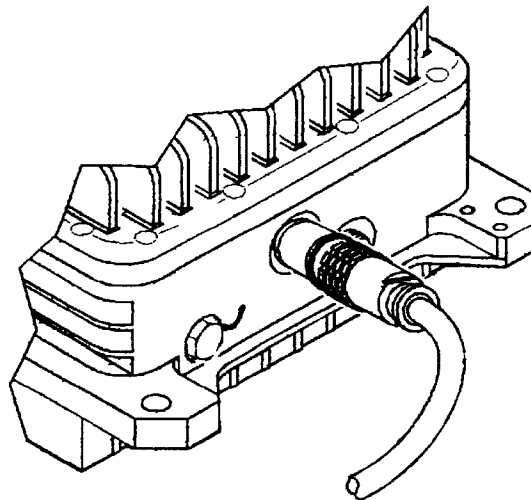
Figure 19 Cable Relief Attached to Collet Nut



Connecting the Control Cable

Connect the Control cable to the transceiver connector marked **CONTROL**. The connector is polarized and must be aligned prior to insertion.

Figure 20 Control Cable Connection

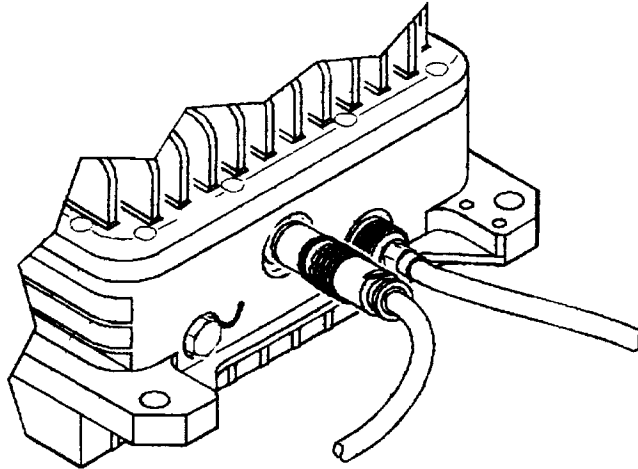


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Connecting the IF/DC Cable

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

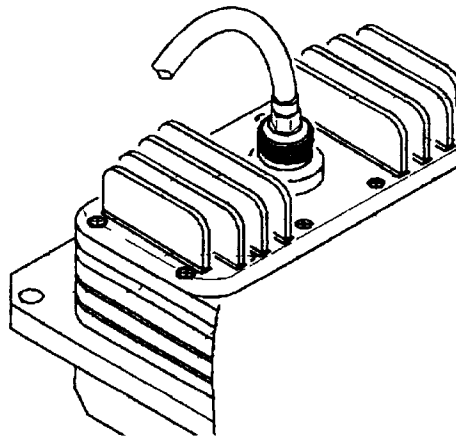
Figure 21 IF/DC Cable Connection



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 22 Antenna Cable Connection



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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.

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

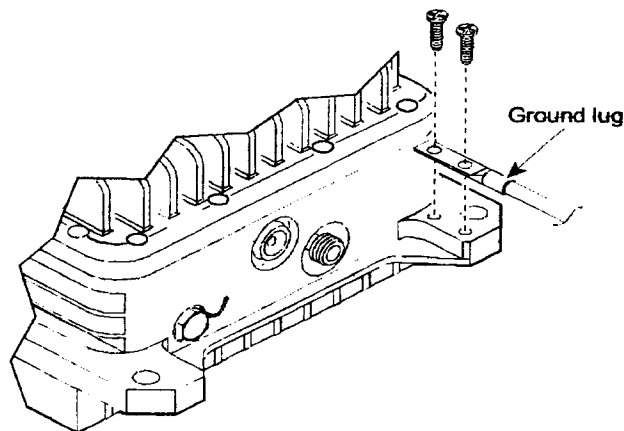
Step1 Remove the RF cable leading to the antenna.

Step2 Remove the IF/DC cable.

Step3 Remove the Control cable.

Step4 Remove the screws from the ground lug. (See Figure 12.)

Figure 12 Removing the Ground Lug

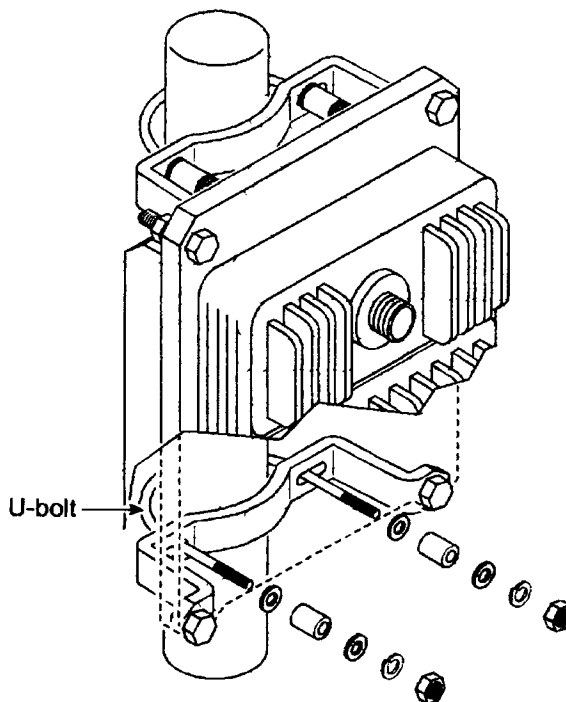


Removing the Wireless Transceiver from the Antenna Mast

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

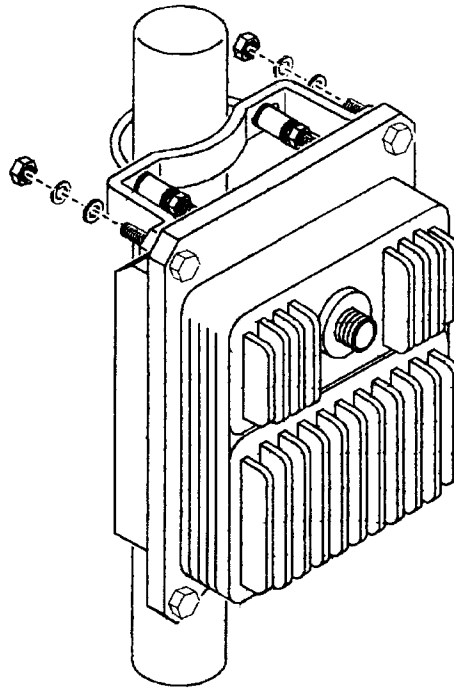
Step1 Remove the hardware securing the bottom U-bolt to the mast (see Figure 13), and remove the U-bolt from the mast.

Figure 13 Removing the Bottom U-Bolt



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 14.)

Figure 14 Removing the Hardware from the Top Mounting Bracket



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.

Step4 If you will be transferring the duplexor to the new transceiver, remove the duplexor and transfer it to the new transceiver according to the instructions in the section of this document called **Installing the Wireless Transceiver**, or the instructions shipped with the duplexor. Be careful to install the duplexor with the proper orientation.

Replacing the Wireless Transceiver

Replacing the wireless transceiver involves the following tasks:

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

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Installing the Duplexor in the Wireless Transceiver

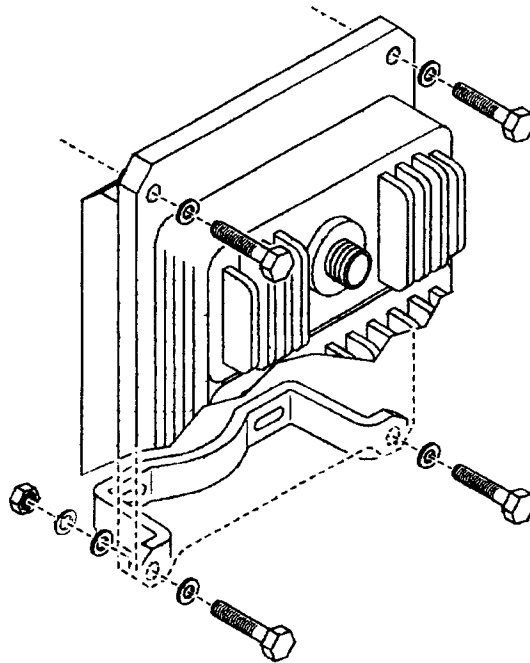
Install the duplexor in the transceiver. Refer to the instructions in the section of this document called **Installing the Wireless Transceiver**, or the instructions shipped with the duplexor.

Remounting the Wireless Transceiver on the Antenna Mast

Follow these steps to mount the replacement transceiver on the antenna mast:

Step1 Attach a mounting bracket to the lower portion of the wireless transceiver. (See Figure 15.)

Figure 15 Attaching the Lower Mounting Bracket



Step2 Insert two bolts into the mounting holes at the top of the transceiver.

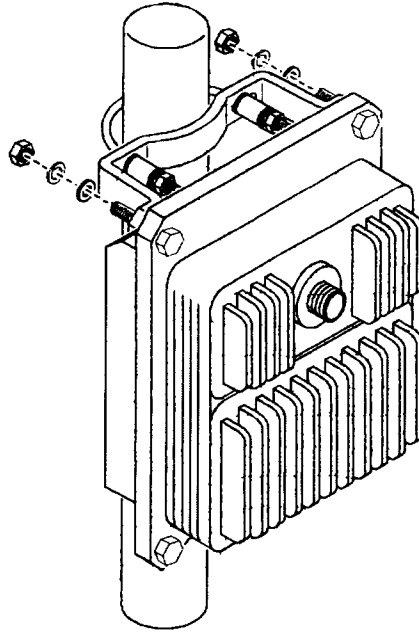
Step3 Attach the transceiver to the top mounting bracket on the mast. (See Figure 16.)



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

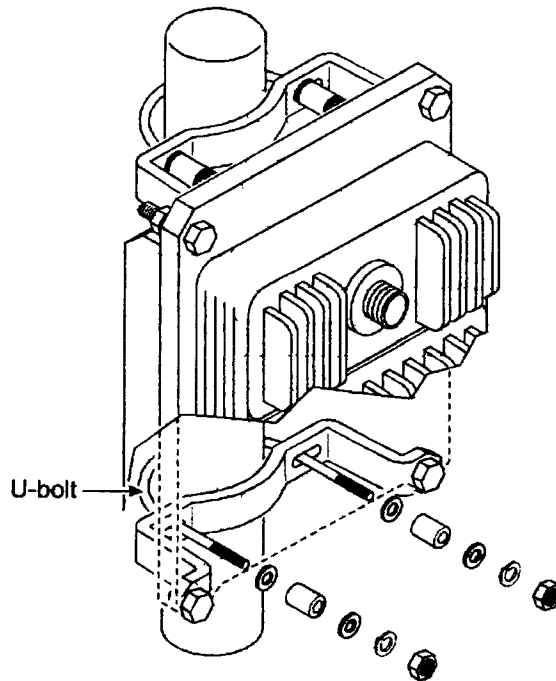
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Figure 16 Attaching the Transceiver to the Top Mounting Bracket



Step4 Attach the U-bolt to the bottom bracket (see Figure 17), and tighten.

Figure 17 Attaching the Bottom U-Bolt



Step5 Tighten all fasteners to 15 foot pounds of torque.

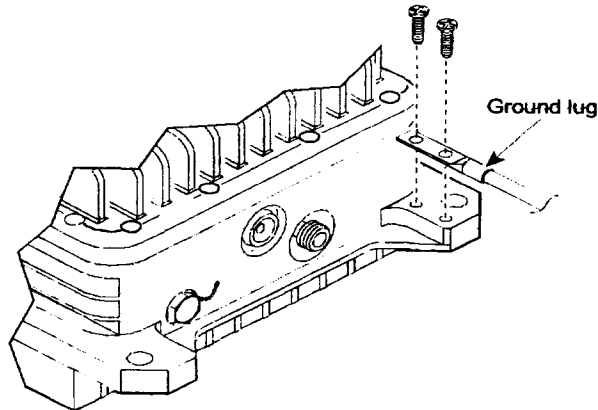
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Attaching the Cables

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

Step1 Attach the ground lug. (See Figure 18.)

Figure 18 Attaching the Ground Lug



Step2 Connect the Control cable to the Control connector.

Step3 Connect the IF/DC cable to the IF/DC 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.

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¡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 lynr.

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 schakelaarhendel 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

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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.

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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.

Warning! 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 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.

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