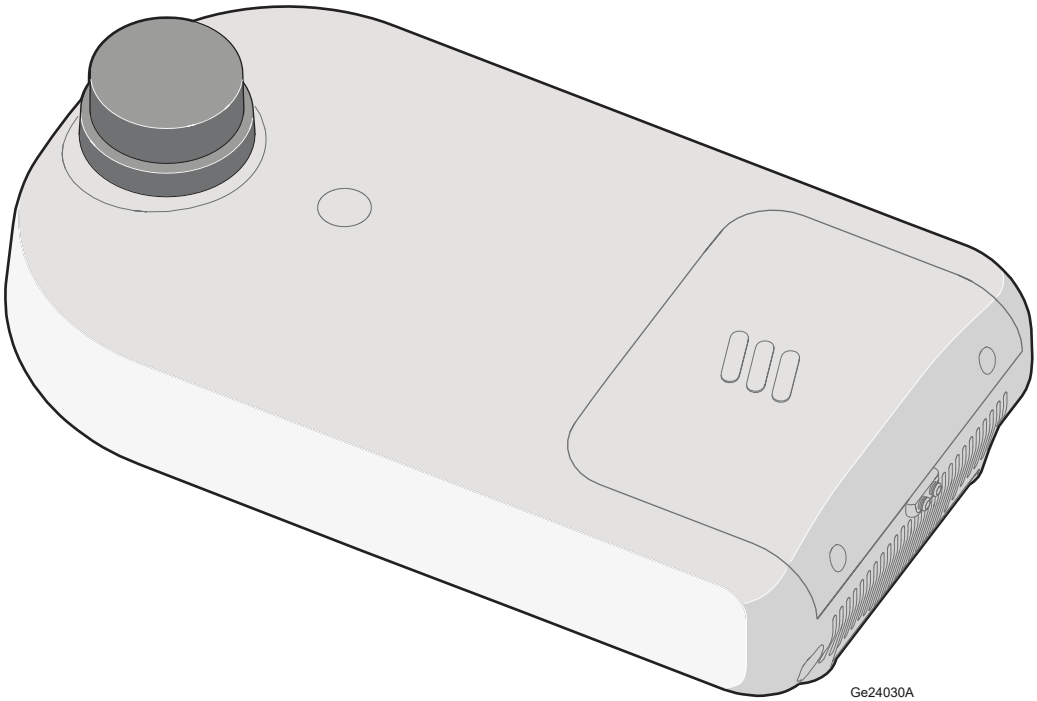
Install Radio

Street Radio 4402



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1 Introduction

This document describes how to install Street Radio 4402 on site.

Note: Illustrations are generic, unless specific detail must be shown.

1.1 Documents

Make sure that the following documents are read and understood:

- Personal Health and Safety Information
- System Safety Information
- Transportation and Storage

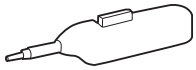
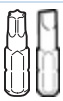
1.2 Tools

The tools listed in this section are only examples. Tools in different areas and regions can look different than those listed here.

Depending on the installation and environment, different tools are required. It is important to do the following:

- Use tethered tools when working at heights.
- Always wear a helmet and avoid standing in an area where objects can fall.

Table 1 Tools Required

Tool	Product Name
	Protective gloves
	Harness
	Helmet
	Cleaner for optical connections
	Ferrule end-face cleaner
	Measure
	Knife
	Torque screwdriver with bit holder – 5–40 in-lb (0.5–4.5 Nm)
	Bits – TORX® T20

Tool	Product Name
	– Hex 3/16 in. (4.76 mm) – Flat head FH 8 mm
	Torque wrench – 13–40 in-lb (1.5–4.5 Nm)
	Open-ended wrench heads – 11 mm – ½ in. (12.7 mm)

1.3 Conditions

The conditions in this section must be fulfilled before work starts.

1.3.1 Before Going to the Site

Before going to the site, ensure the following:

- Site access permission has been received.
- The required documentation is available.
- The required tools are available.
- The instructions are read and understood.

1.3.2 Before Starting the Installation

Before starting the installation, make sure of the following:

- The site is prepared according to the *Site Installation Documentation*.
- The ordered hardware is available.
- The site grounding system is installed and tested.

2 Work Process

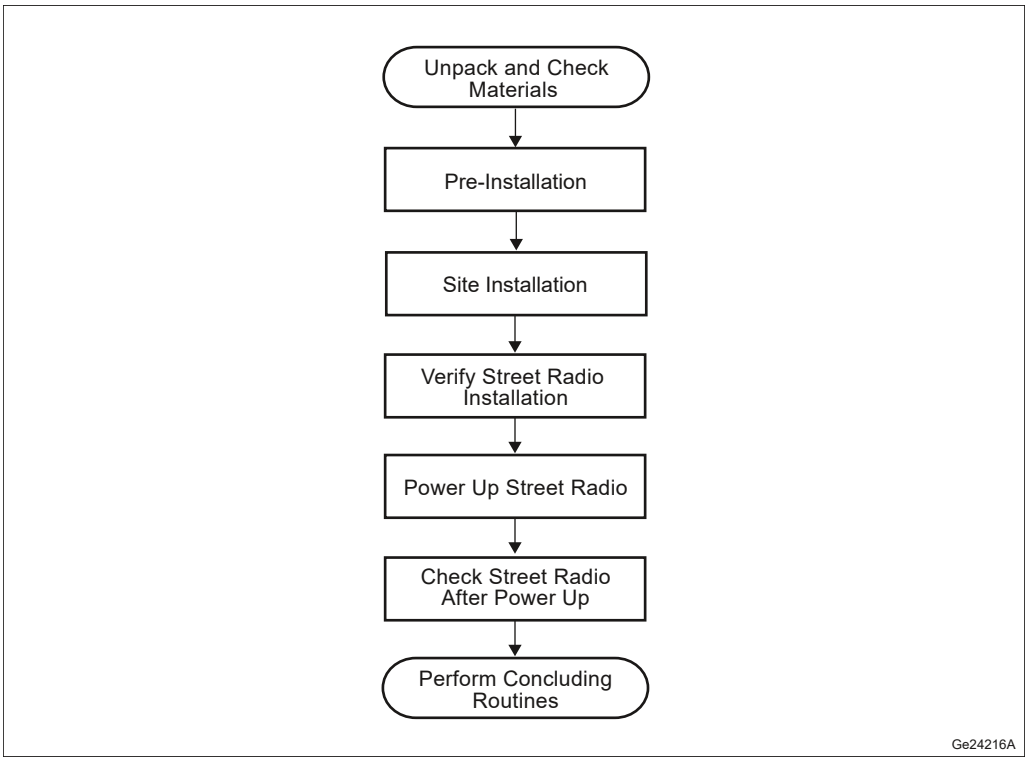


Figure 1 Radio Installation Work Process

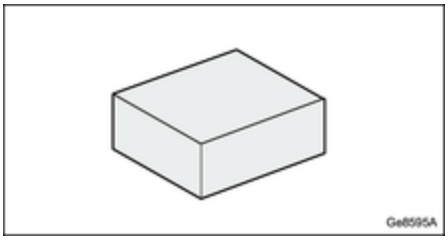
3 Unpack and Check Materials

The radio components are transported in corrugated boxes.

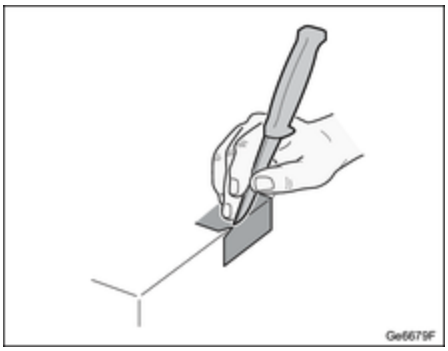
Note: The packed radio must be kept in weather-protected environment. The radio, once unpacked, must be installed according to the instructions, even if it is not powered up immediately. The radio must be powered up within 48 hours in outdoor environment.

Unpacking and preparation of the units can be done indoors, before going to the site.

Steps

1. 

   Examine the packaging for damage. Immediately register a complaint with the transport company if it is damaged. Take a photo of the damages to improve the claims process.

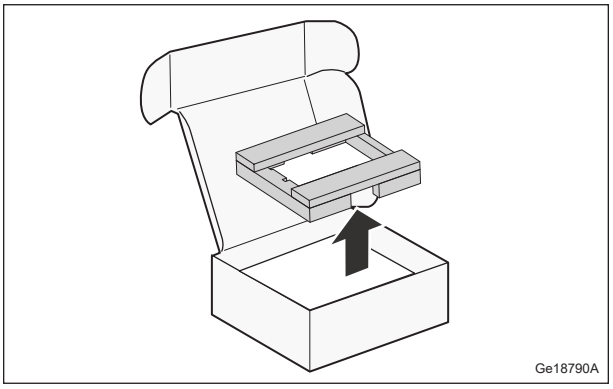
2. 

   Cut off the label on the carton.

   Note: Make sure that the items in the carton are not damaged.

3.

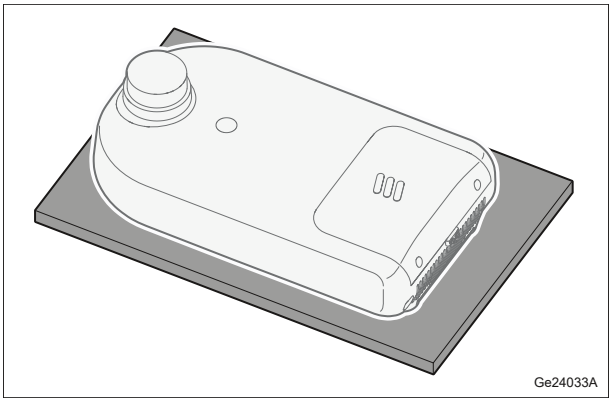
   Check that the items delivered correspond to the packing list.

4. 

   Remove the fitments.

   Note: The Radio 4402 and Support 6523 are packed in individual boxes. While the fitments differ, the unpacking methods are similar.

5.



Remove the components from the boxes separately, and carefully place them on a clean, soft surface.

Note: Make sure to keep the Radio and Support units clean from moisture and dirt. Keep the bottom foam fitment on the Support to protect the NEMA connector from damage.

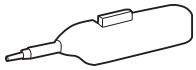
6. Save the box and packing material for when transporting the unit to the site, and later for any return of units. For more information about packing and returning units, see Handling Faulty Equipment.

4 Pre-Installation

The preparation steps can be done indoors before going to the site.

Required Tools and Equipment

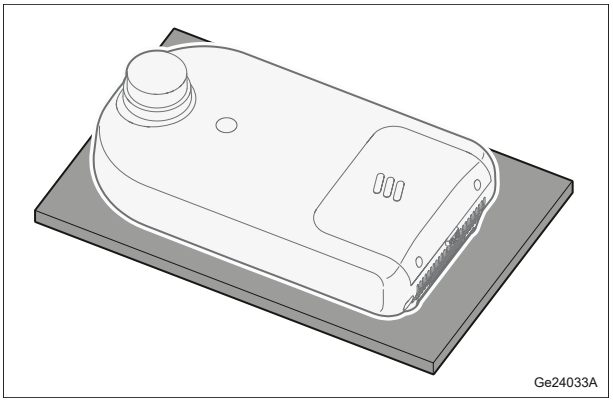
Table 2 Tools Required

Tool	Product Name
	ESD wrist strap
	Torque screwdriver with bit holder – 5–40 in-lb (0.5–4.5 Nm)
	Bit – TORX® T20
	Ferrule end-face cleaner

Do!

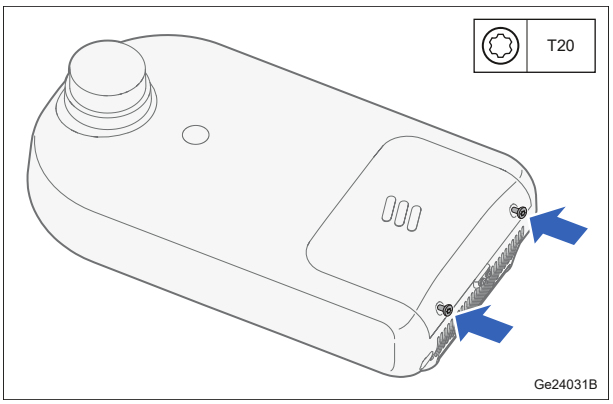
This product contains components sensitive to ESD. Use an approved ESD wrist strap, connected to the product grounding point, to avoid damaging these components.

Steps

1. 

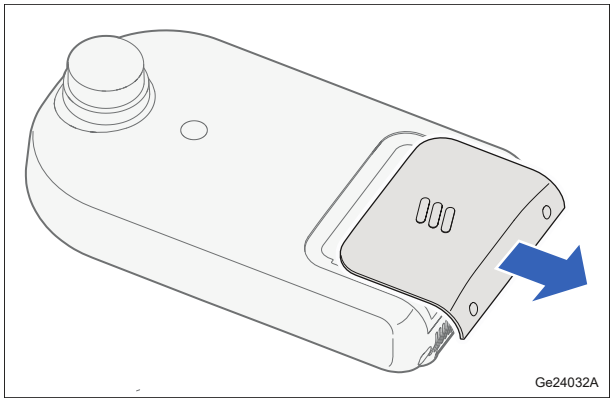
Place the Support 6523 on clean surface.

Keep the unit placed on the foam fitment throughout the process to protect the NEMA connector from damage.

2. 

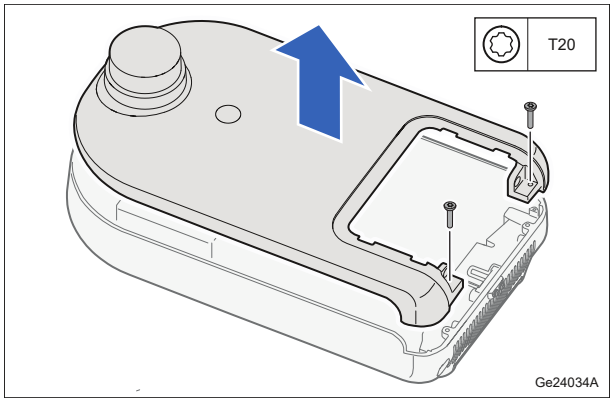
Loosen the captive screws on the utility access cover.

3.

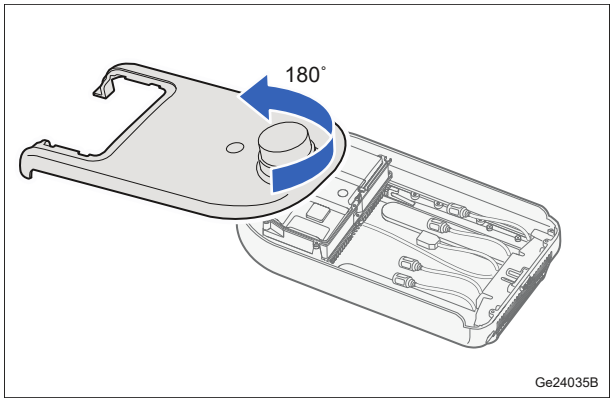


Slide back and lift the access cover off.

The cover is tethered and can hang off the side.

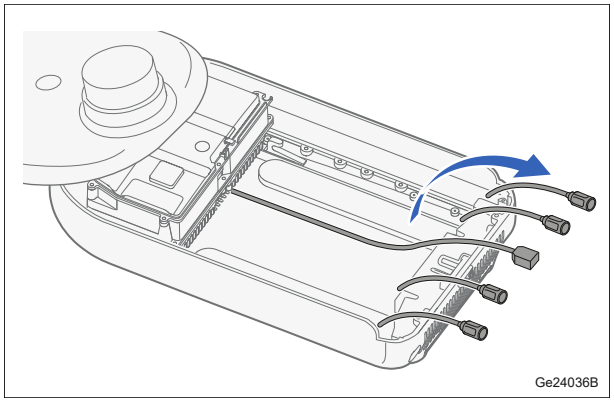
4. 

Remove the two screws. Carefully slide the top housing back then lift it up.

5. 

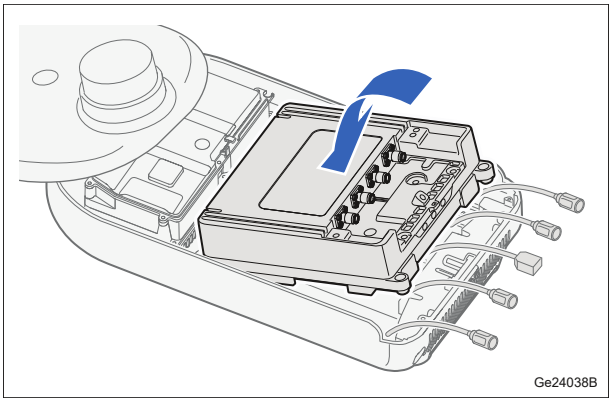
Gently turn and move the top housing to the side and let it rest on the bottom housing.

Do not turn the top housing more than 180°.

6. 

Move the power cable, antenna cables, and antenna cable guide bracket out of the bottom housing.

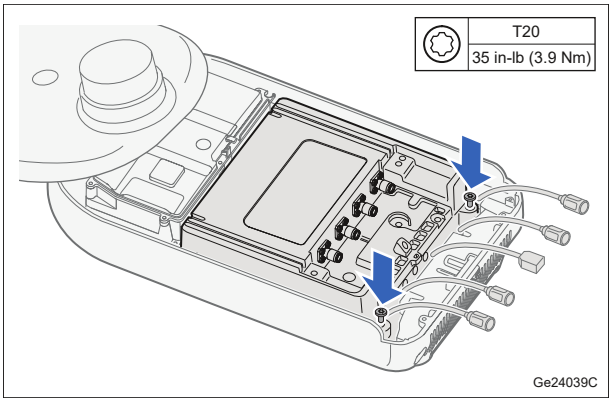
7.



Insert the Radio 4402 unit into the housing. Gently push the radio down into the housing and then pull it towards the rear until it is firmly seated in its position.

Make sure that no cable is in the way.

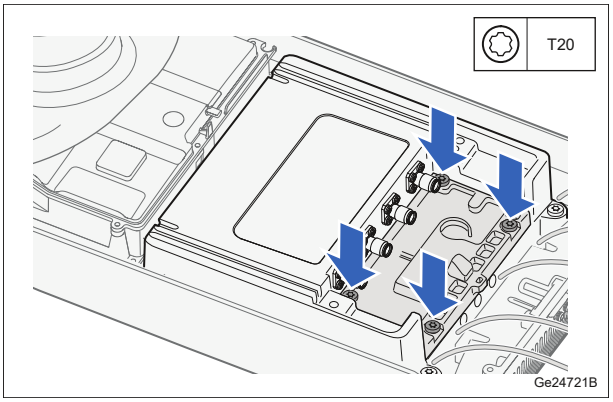
8.



Secure the radio in the bottom housing with the two captive screws.

Tighten the screws to 35 in-lb (3.9 Nm) torque.

9.

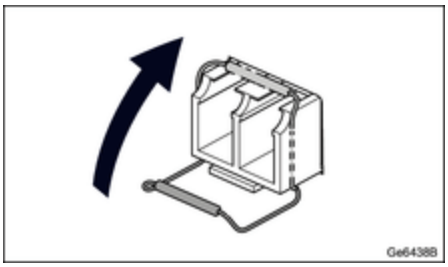


Loosen the screws on the installation hatch of the Radio 4402 inside. Remove the hatch.

Be careful when handling SFP modules. For information on how to handle SFP modules, refer to Handling SFP Modules and Optical Cables.

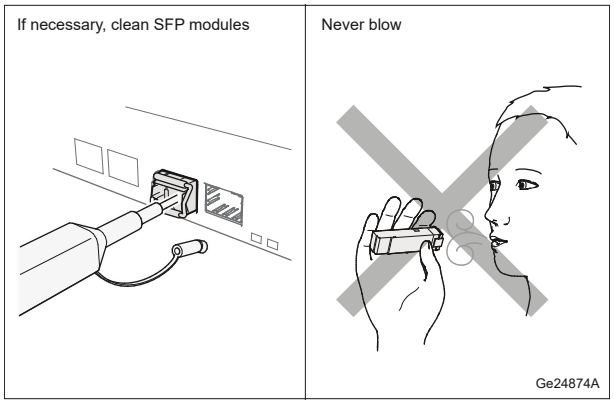
Note: Only use SFP modules approved and supplied by Ericsson.

10.



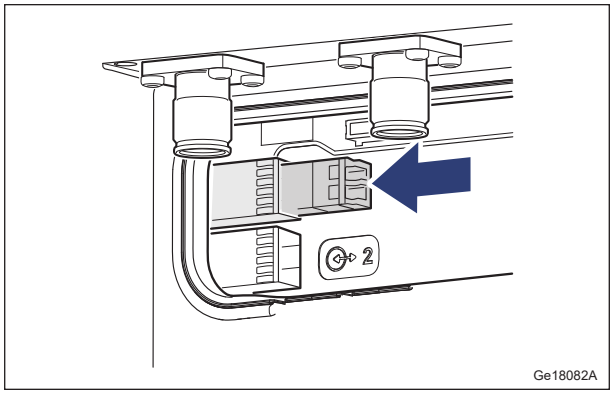
If applicable, close the latch on the SFP module.

11.



Make sure that the SFP modules are clean. Clean the SFP module with a ferrule end-face cleaning tool if needed.

12.

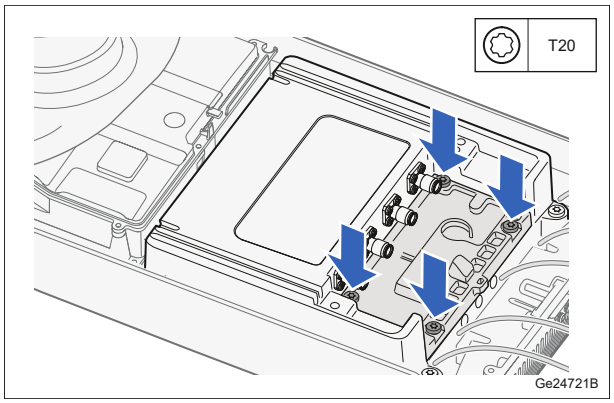


Insert the SFP module into the optical cable connector at the position marked 1.

Note: The interface marked 1 must be first used in default configuration.

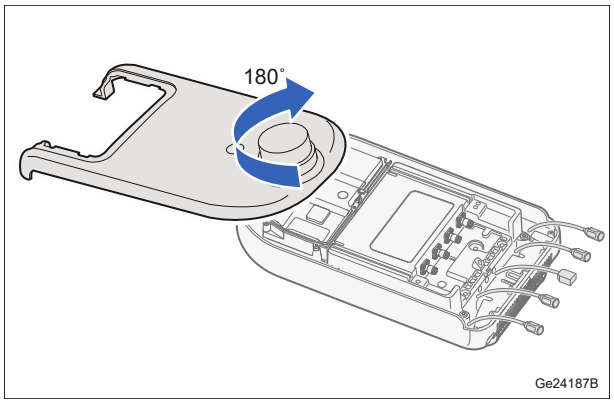
If a second SFP is to be installed, repeat Step 10 to Step 12 at position 2.

13.



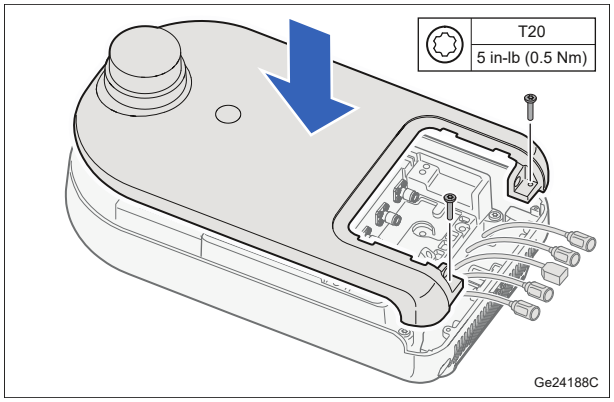
Close the installation hatch and hand-tighten the screws.

14.



Gently turn the top housing cover back.

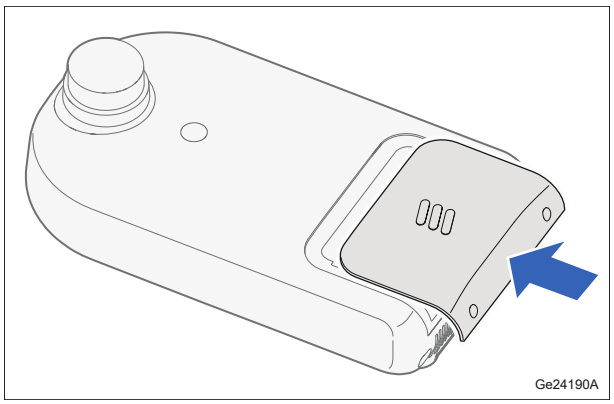
15.



Ensure that no cable is in the way. Snap the cover carefully into place.

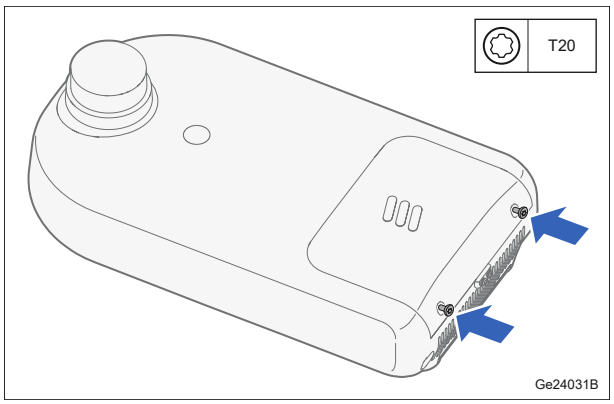
Tighten the screws to 5 in-lb (0.5 Nm) torque to secure the cover.

16. Tuck the tethered antenna cable guide, the power cable, and antenna cables back inside the housing without plugging them in.

17. 

Put the utility access cover into place.

Make sure that the cover is seated before gently sliding forward until closed.

18. 

Gently hand-tighten the two captive screws to fasten the cover.

19. Repack the unit in the box to protect it during transport to the site.

5 Site Installation

Warning!

When working at height, there is a risk of falling objects. Falling objects can cause serious injury or even be fatal. Always wear a helmet and avoid standing in an area where objects can fall.

The procedures are listed as follows:

1. Prepare the clamp
2. Adjust the NEMA connector on the luminaire if needed
3. Install the Street Radio 4402 on the luminaire
4. Connect the cables

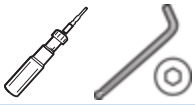
The preparation steps for the Street Radio can be done indoors before going to the site.

5.1 Prepare Clamp

Required Tools and Equipment

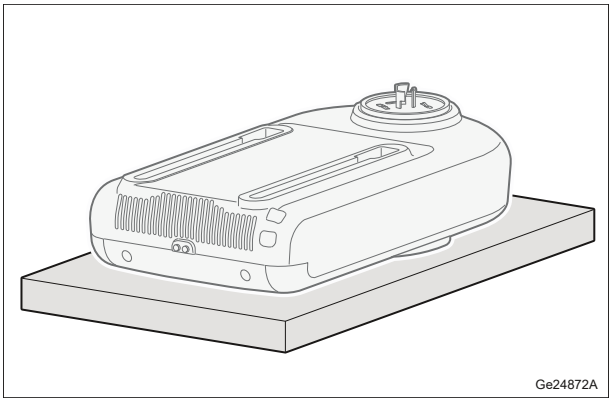
- Use tethered tools when working at heights.
- Always wear a helmet and avoid standing in an area where objects can fall.

Table 3 Tools Required

Tool	Product Name
	Helmet
	Measure
	Screwdriver with bit holder or hex key – Hex 3/16 in. (4.76 mm)
	Bits – Hex 3/16 in. (4.76 mm)

Steps

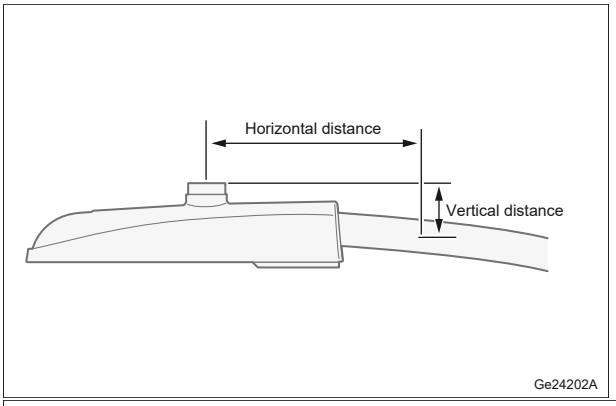
1.



Keep the top foam fitment on and position the Street Radio with the underside facing up.

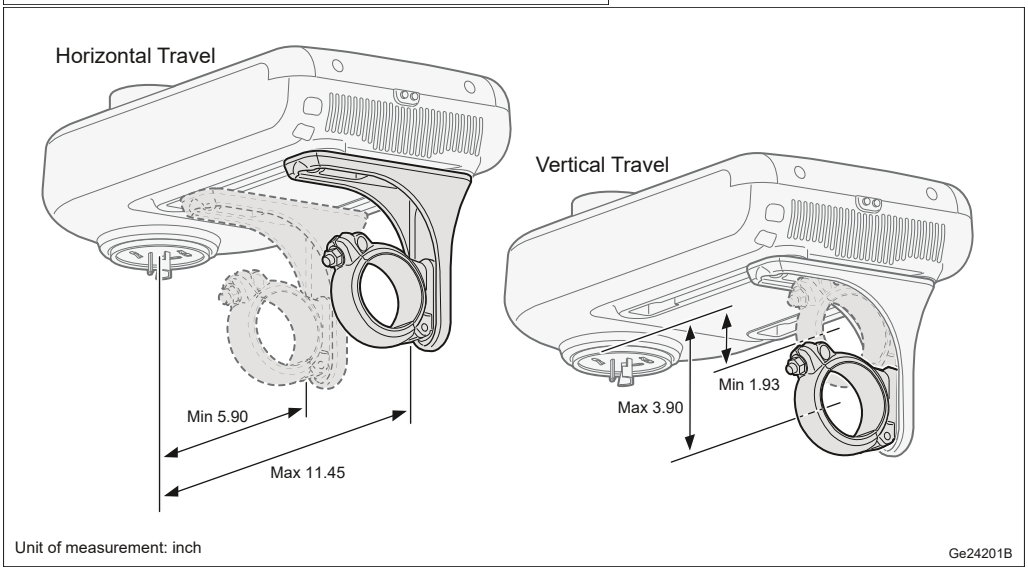
Place the radio in the box with the packing material to protect it from damage and dirt while preparing the clamp.

2.

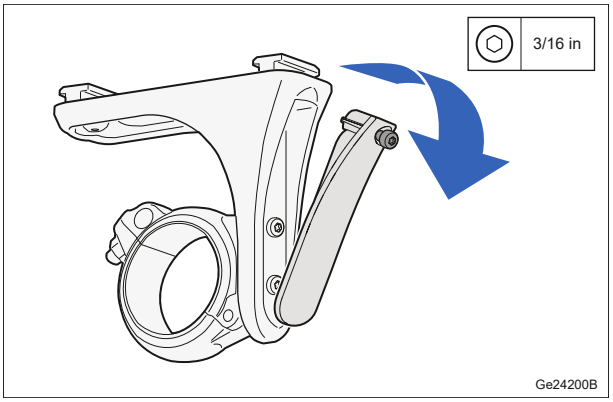


Measure the distance from the NEMA socket to a point on the pole that will allow for level alignment for the Street Radio 4402 with the NEMA socket.

The clamp fits a 2-3/8 in. (60 mm) diameter pole and can be adjusted between 5-7/8 in. and 11-1/2 in. (150–291 mm) horizontal travel, and between 1-7/8 in. and 3-7/8 in. (49–99 mm) vertical travel.

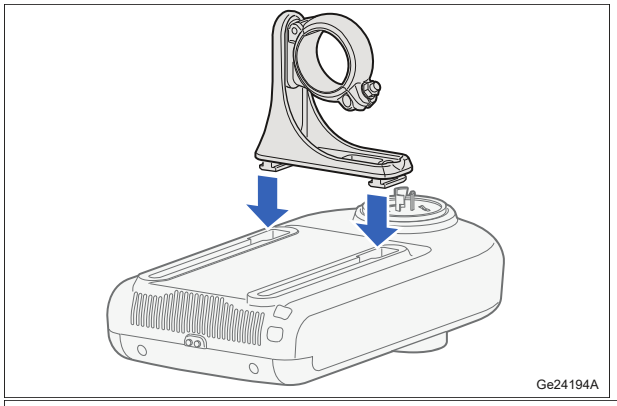


3.

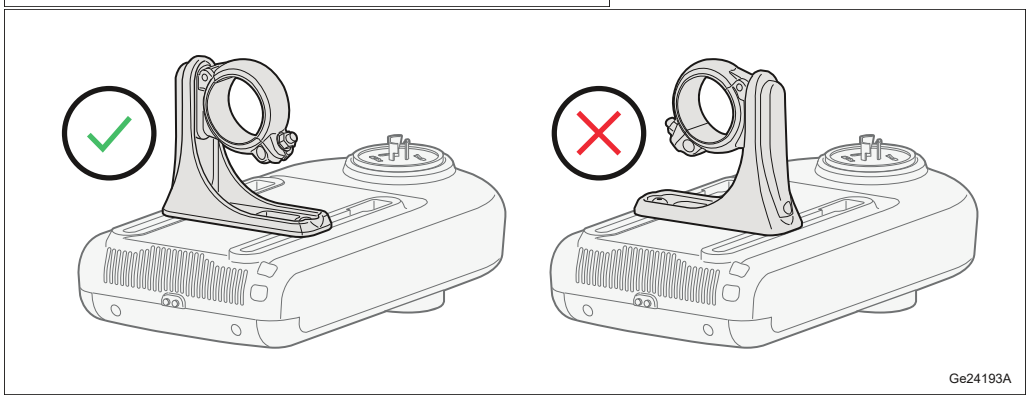


Unscrew and remove the clamp adjustment cover.

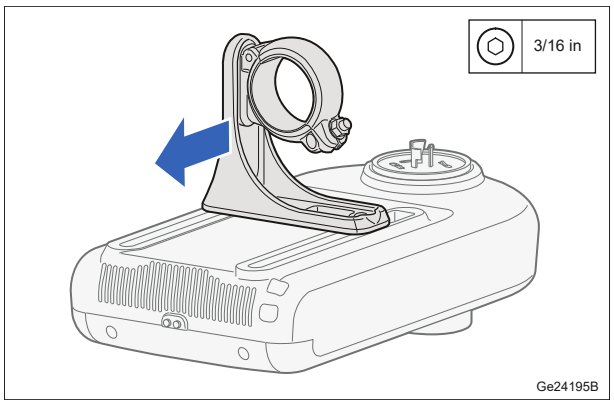
4.



Align the shuttles on the top of the clamp with the openings in the mounting rails on the bottom of the Street Radio 4402 housing. There is a single orientation for assembly.



5.



Slide the clamp to the previously measured location using the markings on the housing as reference. Hand-tighten the screws in the position.

5.2 Adjust NEMA Connector

Required Tools and Equipment

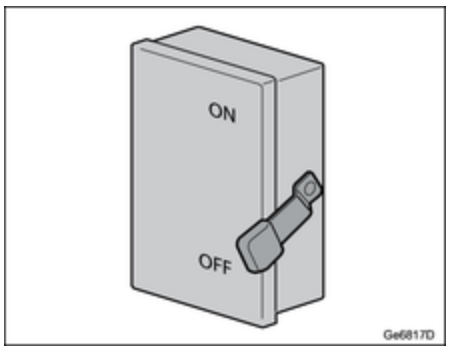
- Use tethered tools when working at heights.
- Always wear a helmet and avoid standing in an area where objects can fall.

Table 4 Tools Required

Tool	Product Name
	Protective gloves
	Harness
	Helmet

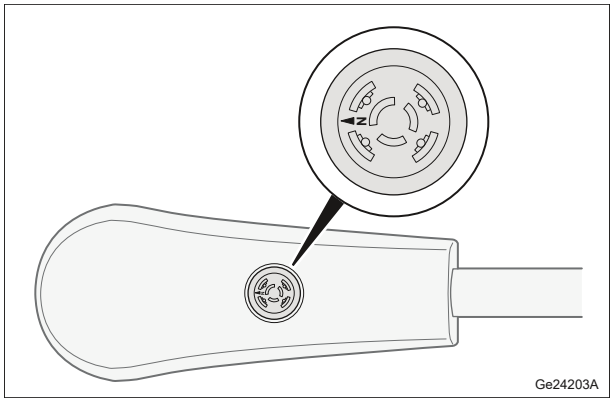
Tool	Product Name
	Screwdriver

Steps

1. 

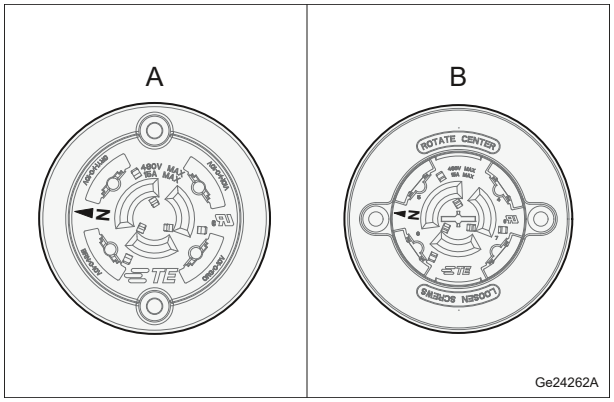
Ensure that the power to the luminaire is turned off.

2. Remove any cover or photocell connected to the NEMA connector on the luminaire.

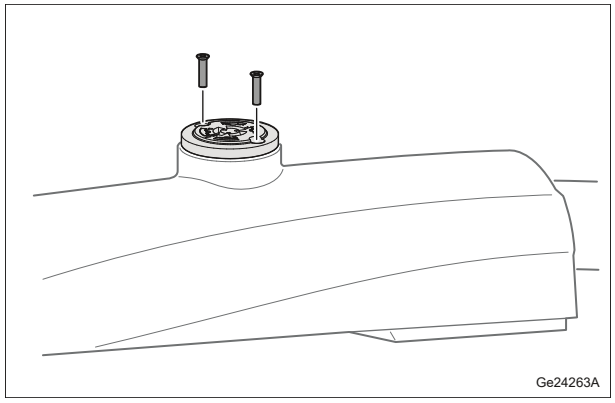
3. 

Check the orientation of the NEMA connector on the luminaire.

Neutral on the NEMA (N▲) should face away from the pole of the luminaire.

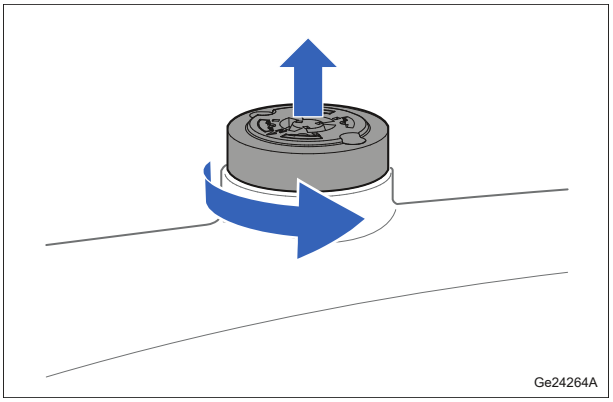
4. 

Adjust the position if needed:

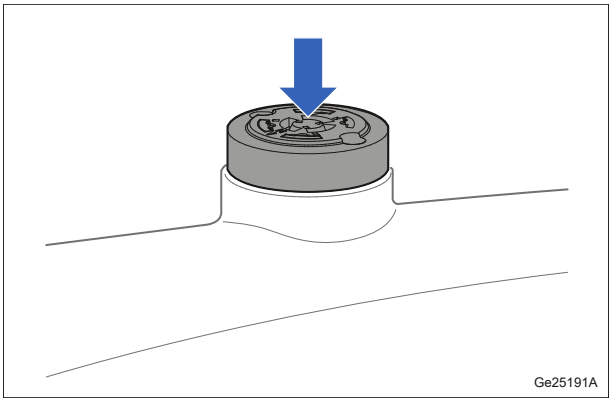
a. 

For type A, first use a screwdriver to remove the two screws holding the NEMA connector.

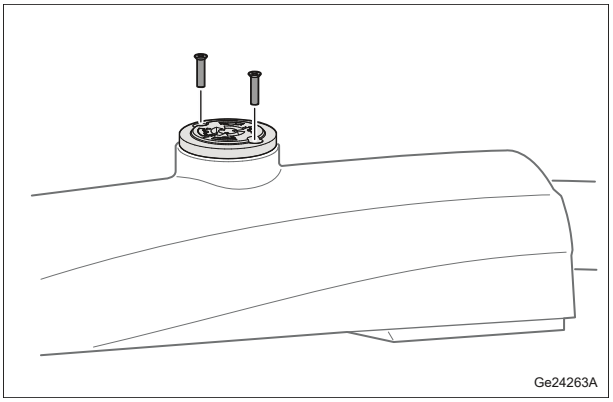
b.



For type A and B, lift then turn the NEMA connector so that the N arrow is facing in the correct direction, away from the luminaire pole.

5. 

Push down the NEMA connector in the adjusted position.

6. 

For type A, fasten the NEMA connector with the two screws.

5.3 Install Street Radio on Luminaire

Warning!

High energy levels are present in this unit. Improper handling of the unit can lead to short circuits that can result in serious injury. Exercise care when working with this unit.

Note: For information on cable product numbers, see Site Installation Products Overview.

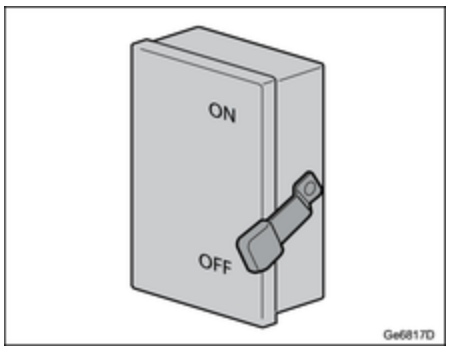
Required Tools and Equipment

- Use tethered tools when working at heights.
- Always wear a helmet and avoid standing in an area where objects can fall.

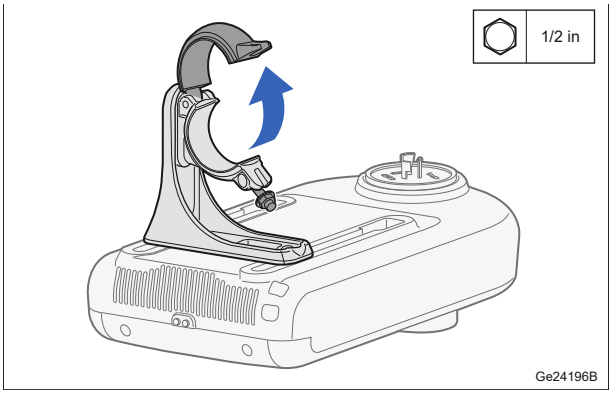
Table 5 Tools Required

Tool	Name
	Protective gloves
	Harness
	Helmet
	Torque screwdriver with bit holder – 5–40 in-lb (0.5–4.5 Nm)
	Bits – TORX® T20 – Hex 3/16 in. (4.76 mm)
	Torque wrench – 40 in-lb (4.5 Nm)
	Open-ended wrench head or deep socket – ½ in. (12.7 mm)

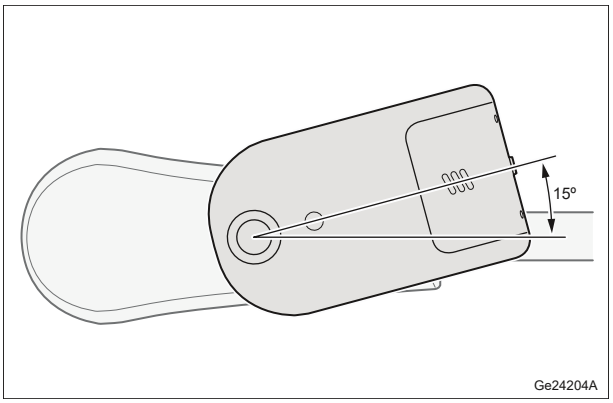
Steps

1. 

Ensure that the power to the luminaire is turned off.

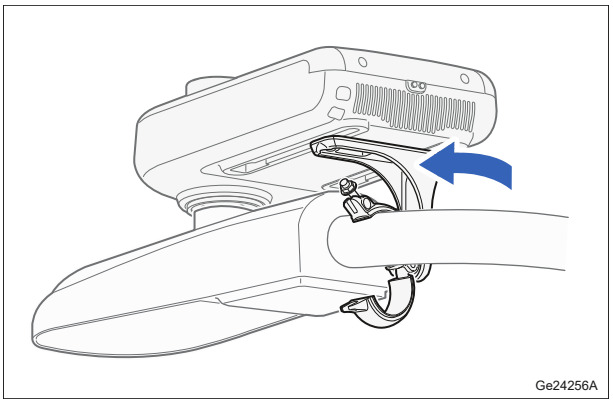
2. 

Loosen the locking nut with a wrench or socket. Open the clamp and turn the swivel locking nut up and out of the way.

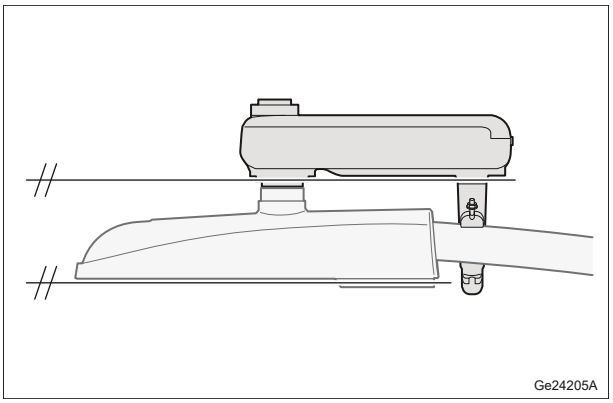
3. 

Line up the NEMA plug on the Street Radio with the NEMA connector on the luminaire.

The Street Radio should be angled off the luminaire by about 15 degrees once inserted.

4. 

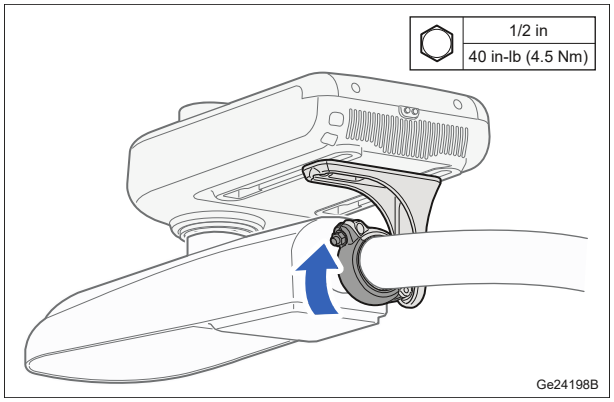
Once inserted, turn the Street Radio towards the pole to lock the NEMA connector in place. Stop when the clamp is aligned with the pole.

5. 

Adjust the clamp vertically and horizontally as needed to ensure that there is no stress or strain on the NEMA socket.

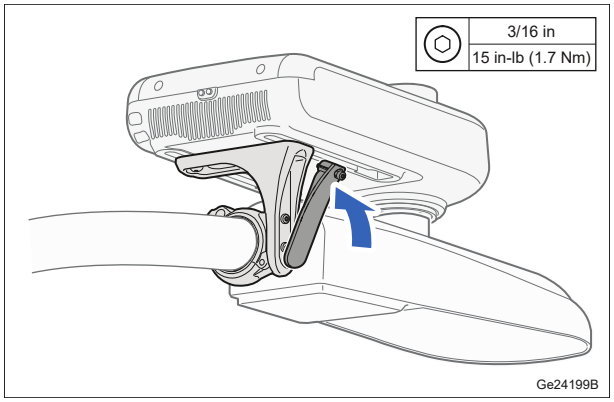
Tighten all clamp adjustment bolts to 40 in-lb (4.5 Nm) torque.

6.



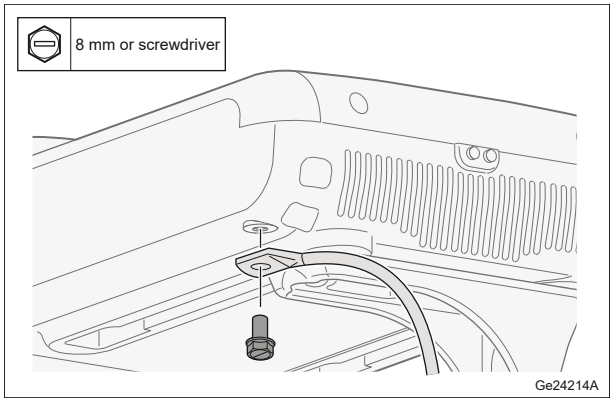
Close the clamp around the pole by rotating the clamp latch and securing with the swivel locking nut.

Tighten the locking nut to 40 in-lb (4.5 Nm) torque.

7. 

Place the clamp adjustment cover over the sliding bolts. Toe-in the bottom and before locking into place.

Tighten the top screw to 15 in-lb (1.7 Nm) torque.

8. 

Ground the unit according to local regulations and guidelines. Use a ground cable with a minimum area of 2.5 mm^2.

Note: The unit must be grounded in accordance with the local codes or regulations defined by the local inspector. The surface where the grounding clamp is to be installed must be prepared to assure metal to metal contact.

9. Ensure that the top NEMA connector is covered.
   The Street Radio uses a built-in photocell. If the luminaire had a photocell attached to the NEMA connector before the installation, remove the cap on the Street Radio by twisting it counterclockwise. Then insert the photocell into the NEMA connector on the top of the Street Radio and twist clockwise until locked in place. Cover the photocell with the NEMA cap.

   Note: Never leave the NEMA open.

5.4 Connect Cables

Required Tools and Equipment

- Use tethered tools when working at heights.
- Always wear a helmet and avoid standing in an area where objects can fall.

Table 6 Tools Required

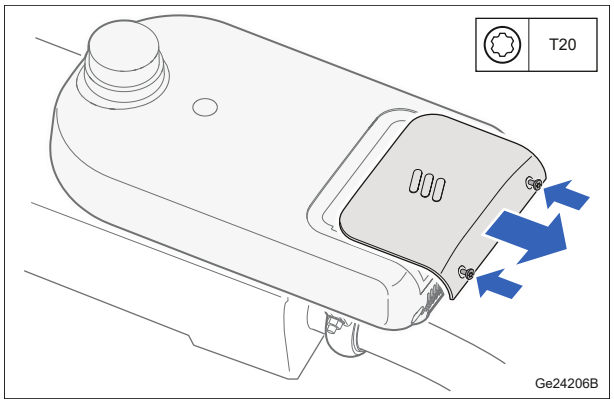
Tool	Product Name

Tool	Product Name
	Protective gloves
	ESD wrist strap
	Harness
	Helmet
	Cleaner for optical connections
	Ferrule end-face cleaner
	Torque screwdriver with bit holder – 15 in-lb (1.7 Nm)
	Bits – TORX® T20
	Torque wrench – 13–40 in-lb (1.5–4.5 Nm)
	Open-ended wrench head – 11 mm

Do!

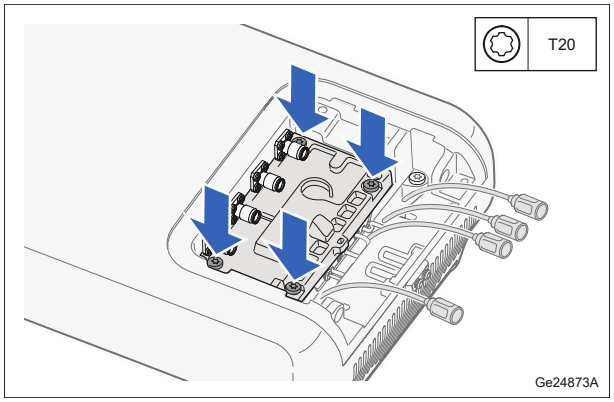
This product contains components sensitive to ESD. Use an approved ESD wrist strap, connected to the product grounding point, to avoid damaging these components.

Steps

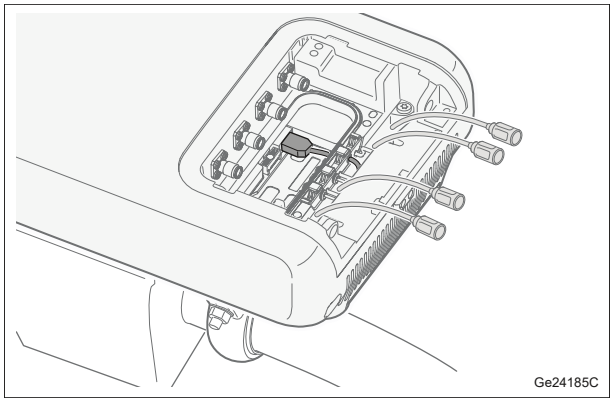
1. 

Carefully loosen the two screws. Slide and lift the utility access cover off and let it hang in the tether on the side.

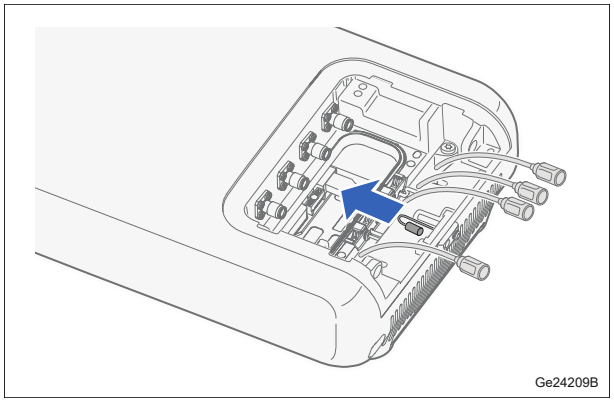
2. Lift out the cable guide and cables tucked inside.
3.



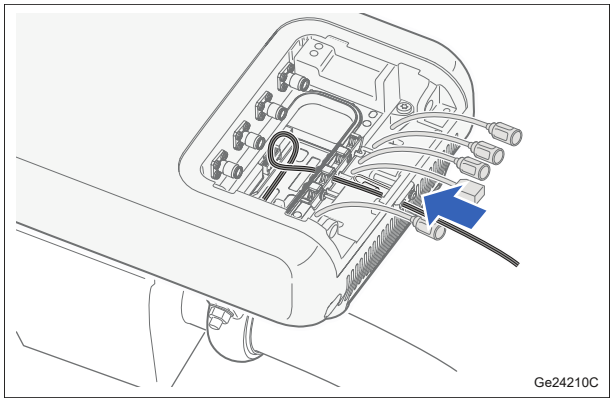
Loosen the screws on the installation hatch of the radio unit inside. Remove the hatch.

4. 

Lift the rubber flap covering the cable gasket closest to the power connector. Insert the power cable through the open slot. Connect the power cable to the radio unit.

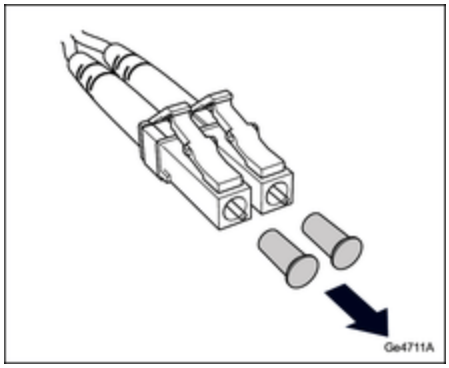
5. 

Remove one of the plugs from the rear cable gasket on the support unit housing.

6. 

Lift the rubber flaps of the cable gaskets at the rear of the support unit housing and on the radio unit. Carefully insert the optical cable through the now open slots.

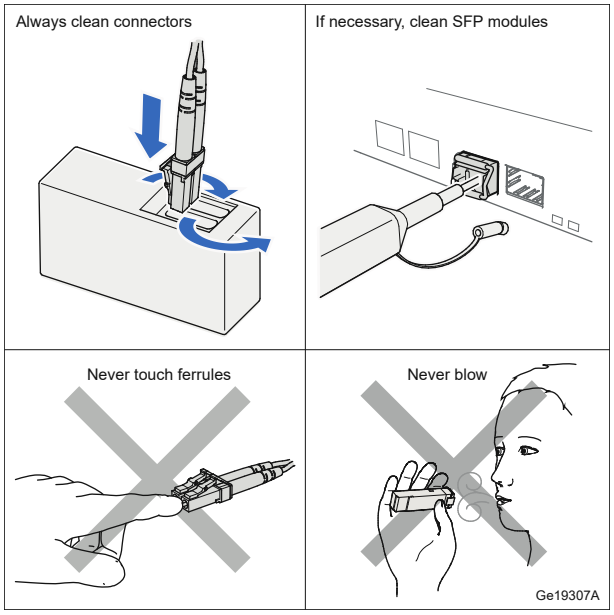
7.



Remove the fiber protection from the fibers in the optical cable.

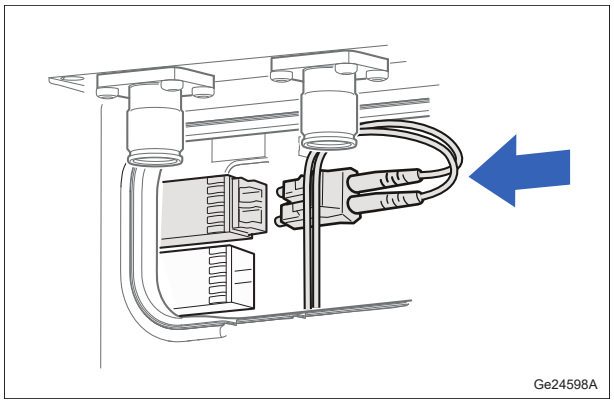
Be careful when handling optical cables. For more information about optical cables, refer to Installing Optical Cables for Main-Remote Solutions, and Handling SFP Modules and Optical Cables.

8.



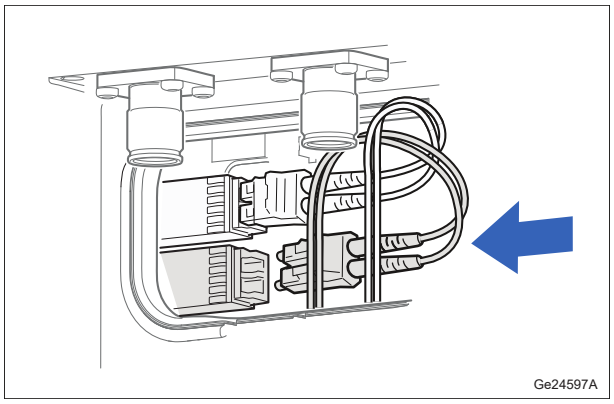
Make sure that the optical cable connectors and SFP modules are clean. Always clean the optical connectors with the cleaning cassette before installing the cables in the SFP module. Only clean the SFP module if needed.

9.



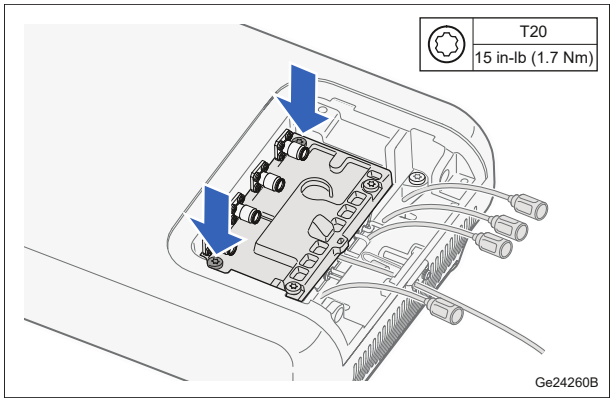
Plug in the optical cable (with outer diameter 4.5–5.5 mm and complying with standard G.657.A2) into the SFP receptacle at position marked 1.

10.



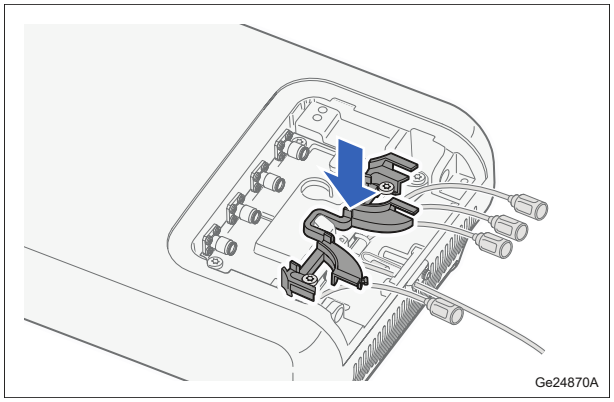
If a second optical cable is to be installed, plug in the optical cable into the SFP receptacle at position marked 2.

11.



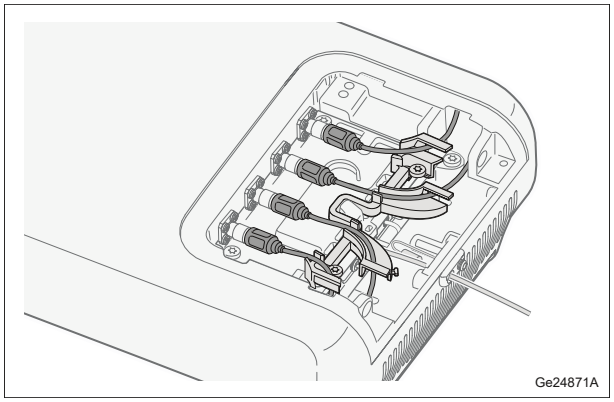
Fasten the two upper screws next to the antenna connectors on the hatch.

12.



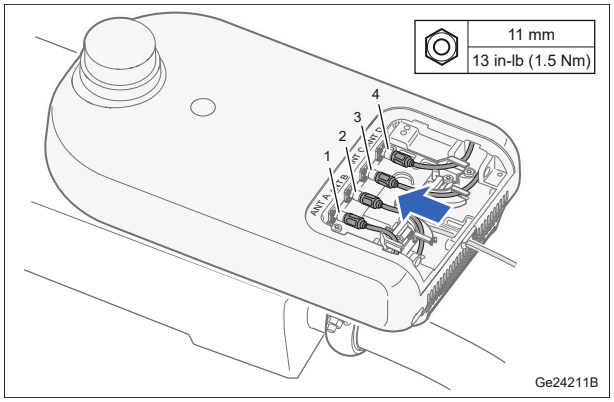
Carefully slide the cable guide into place so that it can be secured with the two lower screws on the hatch.

13.



Insert the antenna cables A–D in the corresponding slots in the cable guide.

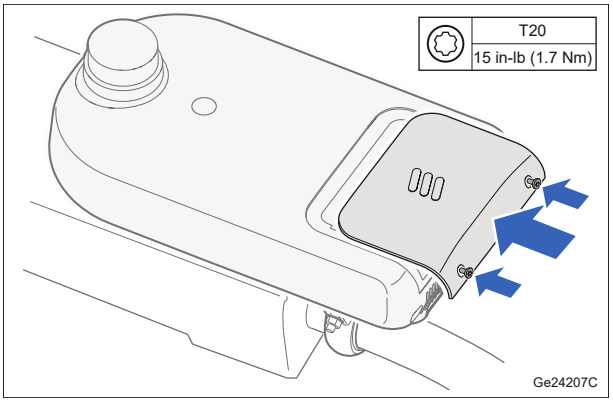
14.



Remove the protective plugs and connect the antenna cables A–D so that cable A goes into antenna port A, and so on.

Tighten the antenna cables to 13 in-lb (1.5 Nm) torque.

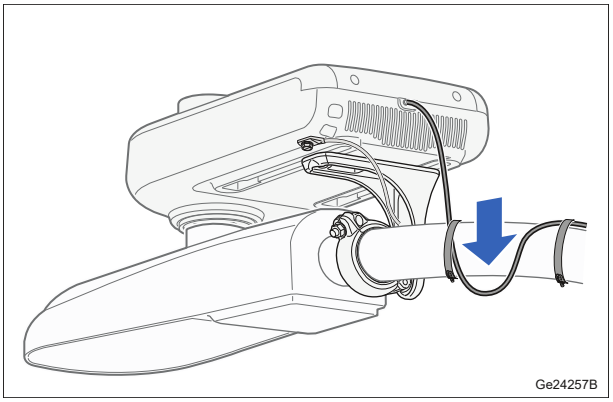
15.



Put the utility access cover back into place and fasten the cover with the two screws.

Ensure that the cover is seated before gently sliding forward until closed. Tighten the screws to 15 in-lb (1.7 Nm) torque.

16.



Ensure that the fiber cable is secured to the pole.

Use a drip loop if needed.

6 Verify Radio Installation on Site

This section describes the verification that must be performed to check the installation of the radio and the connections to the main unit before it is integrated with the radio network.

6.1 Check Site

This section provides checklists for verifying the radio installation.

6.1.1 Check Grounding System

Use the checklist in Table 7 to check the installation of the grounding system for the site and the Radio System.

Note: This is not mandatory if the radio is grounded in the PSU.

Table 7 Grounding Checklist

#	Item	Yes	N/A (1)
1	Grounding system installed as specified in the *Customer Site Documentation*?		
2	Radio grounding installed and connected to site Main Earthing Terminal (MET)?		
3	The ground cable area is minimum 2.5 mm^2 for copper cable, or equivalent(2) (when applicable)		
4	Radio System grounded, washers in place, and nuts tightened (24 Nm)?		
5	Ground lugs, terminals, C-clamps, and cable lugs correctly crimped?		
6	No unstrapped ground cable longer than 1 m?		
7	No damage to insulation of cables?		
8	Equipment undamaged and free from contamination?		
9	Protective ground in power supply box connected to site MET?		
Notes:			

(1) N/A = Not Applicable
(2) For more information about grounding principles, refer to Grounding Guidelines for RBS Sites

6.1.2 Check Radio

Use the checklist in Table 8 to check cabinet installation and equipment of the radio.

Table 8 Radio Checklist

#	Item	Yes	N/A
1	Radio installed as specified in the *Customer Site Documentation*?		
2	Radio clean and undamaged?		
3	Radio properly aligned horizontally and vertically?		

#	Item	Yes	N/A
4	Equipment labeled as required as specified in the *Customer Site Documentation*?		
5	Protective covers, dust caps, and terminations plugs are installed on unused ports?		
6	Antenna cables routed correctly and undamaged?		
7	Antenna cables tightened?		
8	External alarm cables routed correctly and undamaged (when applicable)?		
9	External alarm cables tightened (when applicable)?		
Notes:			

6.1.3 Check Power System

Use the following checklist to check the installation and grounding of power system equipment.

Table 9 Power System Checklist

#	Item	Yes	N/A
1	Radio is installed as specified in the *Customer Site Documentation*?		
2	Radio is terminated in the correct position and labeled?		
3	Ground cable is connected to radio with nuts and tightened? (when applicable)		
4	Power socket is securely and correctly attached to the radio?		
Notes:			

6.2 Power Up Radio

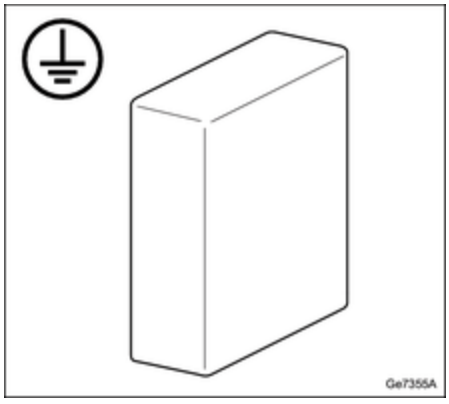
The radio must be powered up within 48 hours after installation, even if it is not taken into service. The reason is to protect the internal units from local climate conditions.

Do!

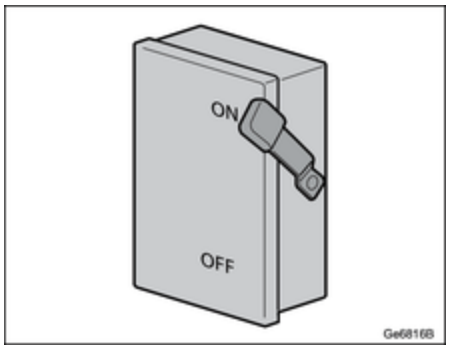
Products not connected to ground risk damage from overvoltage or overcurrent. Always ground products according to instructions.

Steps

1.



Make sure that the radio is grounded according to instructions.

2. 

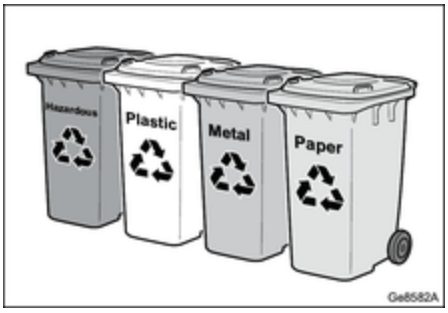
Switch on the external power to the radio.

6.3 Check Radio After Power Up

Once the power has been switched on, the radio is loaded with the specific software. Optical indicators on the Radio 4402 show the status of the radio. The indicators, however, are hidden, as the Radio 4402 is mounted inside the Support 6523.

For more information on interpreting the optical indicators on the radio, see Indicators, Buttons, and Switches.

7 Perform Concluding Routines

1. Clean the site and remove objects such as wrapping paper and cable clippings.
2. 

Dispose of waste according to local regulations.
3. Fill in the verification checklist in the *Site Installation Documentation*.
4. Report any faults according to local requirements.
5. Hand over the *Site Installation Documentation* to the person responsible for the site.
6. Close and lock all covers, doors, and gates to the site, if applicable.

7.1 Environment

> Ericsson strongly recommends that installers pay particular attention to the environment when cleaning the site after installation.

Recycle all waste that can be recycled and sort the rest so that they can be disposed of according to local regulations. Use the checklist in Table 10 for recycling and sorting.

Table 10 Recycling and Sorting Waste

Recycle or Sort	Item	YES	N/A (1)
Sorted with plastics	Pieces of cable with low metallic content		
	Cable insulation from crimping, brazing, or welding		
	Polyethylene		
	Bubble plastic		
	Cable tie clippings		
Paper recycling	Paper		
Recycled or sorted as wood	Wood		
Recycled or sorted as metals	Waste metal from cable ladders		
	Pieces of cable with high metallic content		
	Nuts, bolts, washers, and screws		
Notes:			

(1) Not Applicable

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