

# Models WE-30C/K and WE-48C/K Charger Installation Manual

Single Station, Wall Mounted





# Models WE-30C/K and WE-48C/K Charger Installation Manual

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### 1 Important Safety Instructions

Before using the battery charger, read all the instructions in addition to the **WARNING** and **CAUTION** markings in this document and on the charger, battery and all associated equipment.



**WARNING: USED WHEN THERE IS A RISK OF SAFETY OR PERSONAL INJURY**

**CAUTION: USED WHEN THERE IS A RISK OF DAMAGE TO THE EQUIPMENT**

Consult the following symbols and related instructions for the actions necessary to avoid hazards.



**WARNING: ELECTRIC SHOCK CAN KILL.**

- DO NOT TOUCH LIVE ELECTRICAL PARTS.
- PROPERLY INSTALL AND GROUND THIS EQUIPMENT ACCORDING TO ITS INSTALLATION MANUAL AND NATIONAL, STATE AND LOCAL CODES.
- INCORRECT CONNECTIONS WILL CAUSE ELECTRIC SHOCK.
- DISCONNECT INPUT POWER BEFORE INSTALLING OR SERVICING THE EQUIPMENT.



**WARNING: THIS DEVICE IS INTENDED ONLY FOR CHARGING VEHICLES NOT REQUIRING VENTILATION DURING CHARGING.**



**WARNING: TO REDUCE THE RISK OF FIRE, FOLLOW THESE INSTALLATION GUIDELINES.**

- INSTALL CHARGER ON A WALL CONSTRUCTED OF MATERIAL RESISTANT TO COMBUSTION.
- A TYPICAL EXAMPLE OF MATERIAL RESISTANT TO COMBUSTION IS PLASTERBOARD (DRYWALL) OVER WOOD FRAMING. OTHER EXAMPLES OF MATERIALS RESISTANT TO COMBUSTION INCLUDE BRICK, CONCRETE OR METAL.

**CAUTION: INCORRECT CONNECTION WILL CAUSE DAMAGE TO CHARGER.**

- FOR PERMANENTLY-CONNECTED INSTALLATIONS, USE WIRE SIZE AND TEMPERATURE RATING AS REQUIRED BY LOCAL CODE. GROUND CHARGER PROPERLY USING EQUIPMENT GROUND LUG. REFER TO THE LABEL IN CHARGER HOUSING IDENTIFYING SERVICE WIRING TERMINAL CONNECTIONS.
- FOR CORD-CONNECTED INSTALLATIONS, USE CORD SET SUPPLIED WITH THE UNIT ONLY. USE ONLY NEMA 6-50R RECEPTACLE FOR CORD CONNECTION.

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## 2 Guidelines and Specifications

### 2.1 Applicable Codes and Standards

The installer or contractor is responsible for obtaining and becoming familiar with the following publications. Installer or contractor work and materials shall comply with the local municipality's currently adopted versions of:

- National Electric Code
- Municipal, county and state building codes and standards
- Occupational Safety and Health Administration (OSHA)
- Uniform Building Code
- Other relevant codes and standards that apply to the installation of structural components and electrical equipment

### 2.2 Disclaimer of Consequential Damages

ECotality North America (NA)<sup>™</sup> is not responsible for the use or application by any person of the materials in this manual. ECotality NA is not responsible for damages, either direct or consequential, arising out of or relating to the use or application of these materials.

### 2.3 Installer or Contractor Notes

The installer or contractor selected to install the ECotality NA model WE-30C/K and WE-48C/K chargers, including electrical connections, shall conform to the following general notes:

- Installation shall be performed as described in the electrical plans and approved drawings.
- All work shall comply with the latest adopted edition of the National Electric Code and Building Code.
- Labor and materials not specifically described, which are incidental to installations and without which a satisfactory job cannot reasonably be completed, are a part of this installation work.
- All materials used in the installation shall be new and UL listed and labeled where required.
- The installation of AC power circuits and circuit disconnects are not included in this work. Such work must be performed by a certified electrical contractor.
- It shall be the installer's or contractor's responsibility to carefully read this entire guide and associated drawings and sketches to determine his/her responsibilities. Failure to do so shall not release the installer or contractor from doing the work in complete accordance with this document.
- During performance of the work and after all requirements of this installation standard and associated details are fully completed, ECotality NA and/or the customer shall have the option to inspect the work.
- The installer or contractor shall not modify or otherwise alter charging equipment other than specifically authorized by these installation instructions. Unauthorized modification to the charging equipment will void the manufacturer's warranty.

### 2.4 Customer Responsibility

The customer is responsible for contracting with a certified electrical contractor to perform all electrical work, including connections at the charger, supply circuit and main service panel.

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### 2.5 Tools Required for Installation

#### 2.5.1 Meters

- Current Clamp Meter (with 600 A MAX AC/DC) (Recommend: FLUKE 336)
- Digital Multimeter (1000V MAX DC/AC) (Recommend: FLUKE 87V)

#### 2.5.2 Hand Tools

- Drill bit, 3/16 inch
- Hammer
- Pencil/marker
- Slotted and Torx-head screwdrivers
- Wrench, 10 mm
- Torque wrench (reference)

### 2.6 Installer Supplied Items

- Service wiring to charger
- Conduit and fittings (1-inch trade size), except for cord-connected units

### 2.7 Charger Features and Specifications

#### 2.7.1 Features

- Charge circuit interruption device (CCID) with automatic test
- Ground monitoring circuit
- Nuisance-tripping avoidance and auto re-closure
- Cold load pickup (randomized auto-restart following power outage)
- Certified energy and demand metering
- Wireless IEEE 802.11g
- LAN capable
- ZigBee SEP 1.0 capable
- AMI interface capable
- Web-based bi-directional data flow
- Cord management system
- Power cord for connection to NEMA 6-50R receptacle (WE-30K and WE-48K only)

#### 2.7.2 Specifications

Model	WE-30C/K	WE-48C/K
<b>Input Voltage</b>	208-240 VAC +/-10% (120 VAC to GND)	
<b>Input Phase</b>	Single	
<b>Frequency</b>	60 Hz	
<b>Input Current</b>	30 Amps (maximum); 12A, 16A and 24A available	48 Amps (maximum); 12A, 16A, 24A and 30A available
<b>Breaker Size</b>	40 Amps; Available settings: 15A, 20A and 30A	48 Amps; Available settings: 15A, 20A, 30A and 60A
<b>Output Voltage</b>	208-240 VAC +/-10%	
<b>Output Phase</b>	Single	
<b>Pilot</b>	SAE J1772 compliant	
<b>Connector/Cable</b>	SAE J1772 compliant; UL-rated at 30A maximum	
<b>Cord Length (output)</b>	18 feet (approximate)	
<b>Cord Length (input)</b>	1 foot (WE-30K and WE-48K only)	
<b>Exterior Dimensions</b>	Charger assembly: 18" wide x 22" high x 5-9/16" deep Cord reel: 18" diameter	
<b>Temperature Rating</b>	-22 °F (-30 °C) to +122 °F (+50 °C)	
<b>Enclosure</b>	NEMA type 3R sun and heat resistant	
<b>Mounting</b>	Wall mount	

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### 3 Charger Layout

The charger assembly should be mounted on the wall in close proximity to the vehicle stall and at a location where the 18-foot charger cord can be easily connected to the vehicle charging port without the cord stretching taut or presenting a trip hazard.

The charger assembly must be mounted at a height (minimum 18 inches [460 mm] above floor) where the panel display can be easily seen and monitored by the operator. A height of 60 inches (152 cm) to the center of the display is suggested. The cord reel can be mounted below or in another location near the charger assembly that best accommodates the user's preferences and comfort. The charger assembly and cord reel may be installed on adjacent walls (corner mounted). For cord-connected chargers (models WE-30K and WE-48K), there must be sufficient space allowed between the charger assembly and mounting of the cord reel for installation of the 6-50R receptacle.



**WARNING: THIS EQUIPMENT HAS ARCING OR SPARKING PARTS THAT MUST NOT BE EXPOSED TO FLAMMABLE VAPORS. THIS EQUIPMENT MUST BE LOCATED AT LEAST 18 INCHES (460 MM) ABOVE THE FLOOR.**

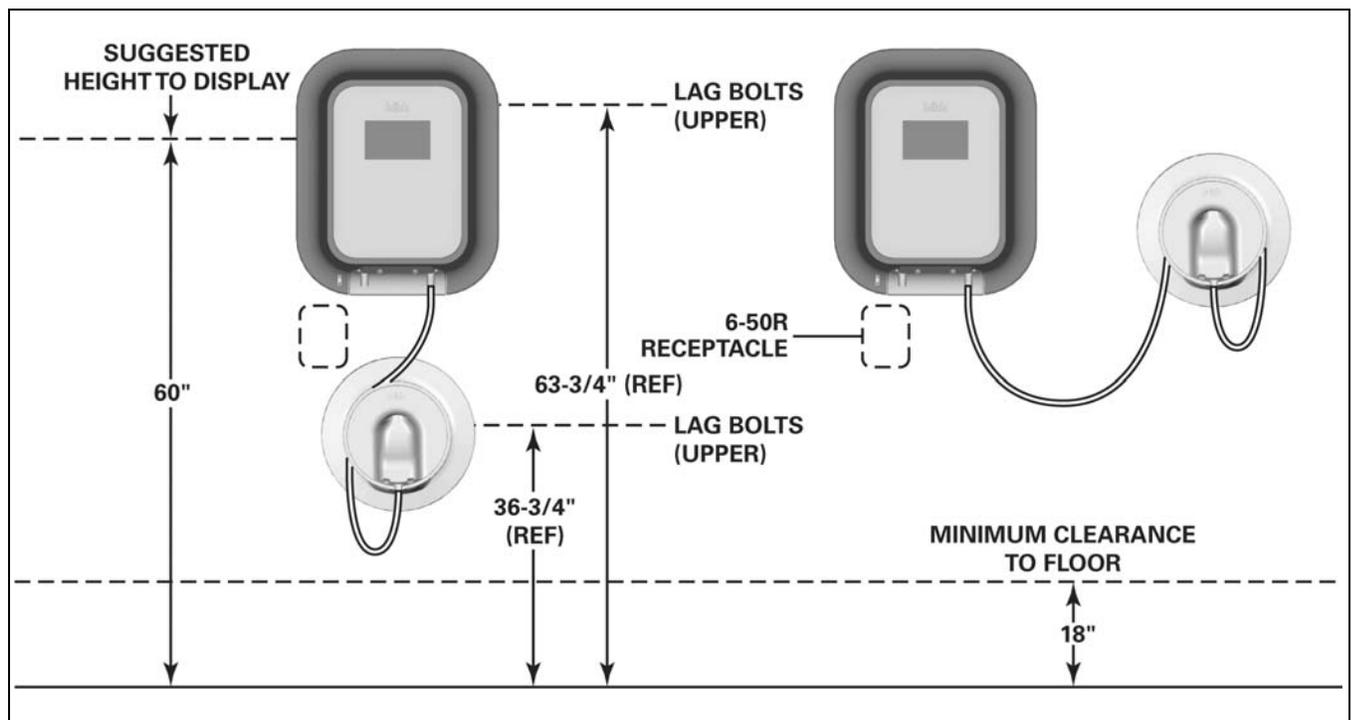


Figure 1 — Charger Installations, Typical

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### 4 Installation



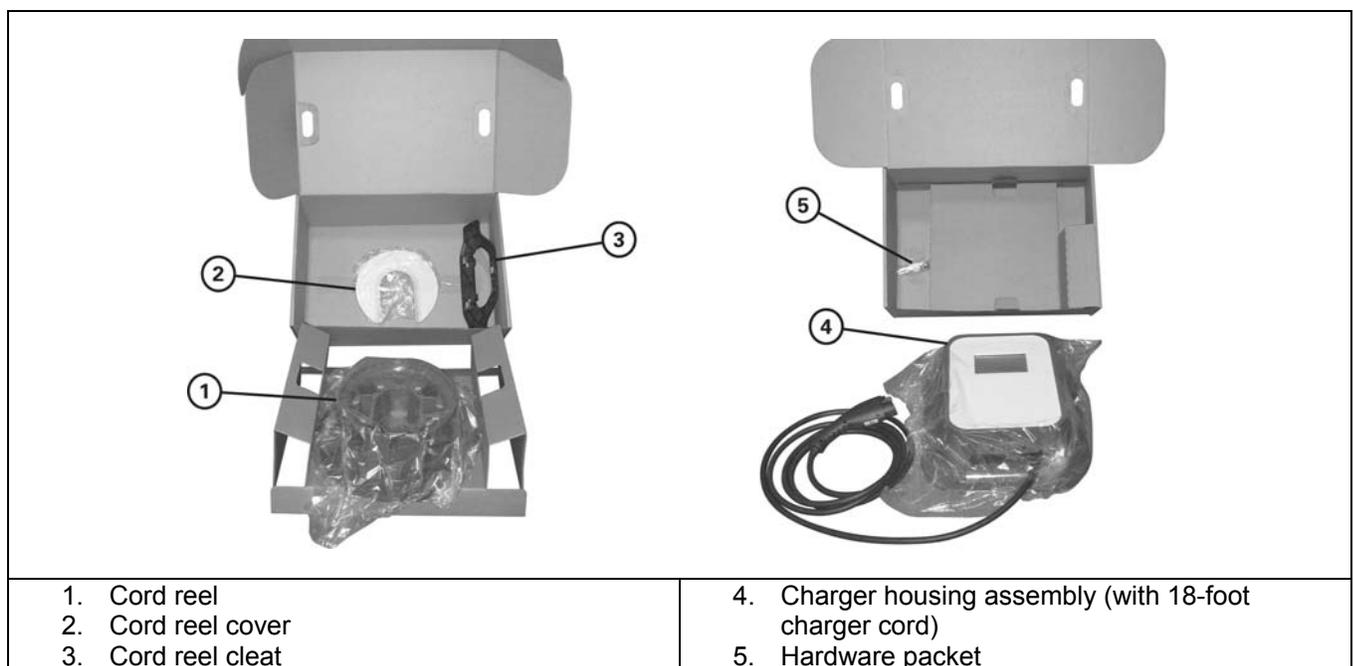
**WARNING: TO REDUCE THE RISK OF FIRE, INSTALL CHARGER ON A WALL CONSTRUCTED OF A MATERIAL RESISTANT TO COMBUSTION SUCH AS PLASTERBOARD (DRYWALL) OVER STUDS, 16 INCHES ON CENTER.**

The charger kit supports installation of the charger assembly over a wood-framed wall (studs on 16-inch centers) with or without plasterboard (drywall) covering. If the assembly is to be installed on a brick or concrete wall, anchors (not supplied) of an appropriate size suitable for the 1/4-inch lag bolts and wall material must be used.



**WARNING: SUITABLE WALL ANCHORS (NOT SUPPLIED) FOR BRICK OR CONCRETE WALLS MUST WITHSTAND A PULL-OUT FORCE OF 80 LB (36 kg) PER ANCHOR, WITHOUT DAMAGING THE WALL MOUNTING.**

#### 4.1 Shipping Box Contents



**Figure 2 — Shipping Box Contents**

- The charger is shipped in an over-pack box containing two cartons, one with the charger housing assembly and the second with the cord reel.
- The top carton in the over-pack box contains the cord reel mounting cleat, the cord reel and cord reel cover.
- The bottom carton contains the charger housing assembly (with 18-foot charger cord) and hardware packet. The 18-foot charger cord is attached at the bottom right of the charger housing assembly. In addition, the cord-connected (models WE-30K and WE-48K) will also have a 1-foot power cord attached at the bottom left of the assembly (not shown).

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- Contents of the hardware packet include:
  - P/N 11-031-0564 — 1/4-inch hex-head lag screws (Qty. 8)
  - P/N 11-452-0163 — 1/4-inch washers (Qty. 8)
  - P/N 11-356-0273 — M6.1 x 20 hex-head bolts (Qty. 3)



**Figure 3 — Hardware Packet Contents**

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### 4.2 Charger Housing Assembly and Cord Reel

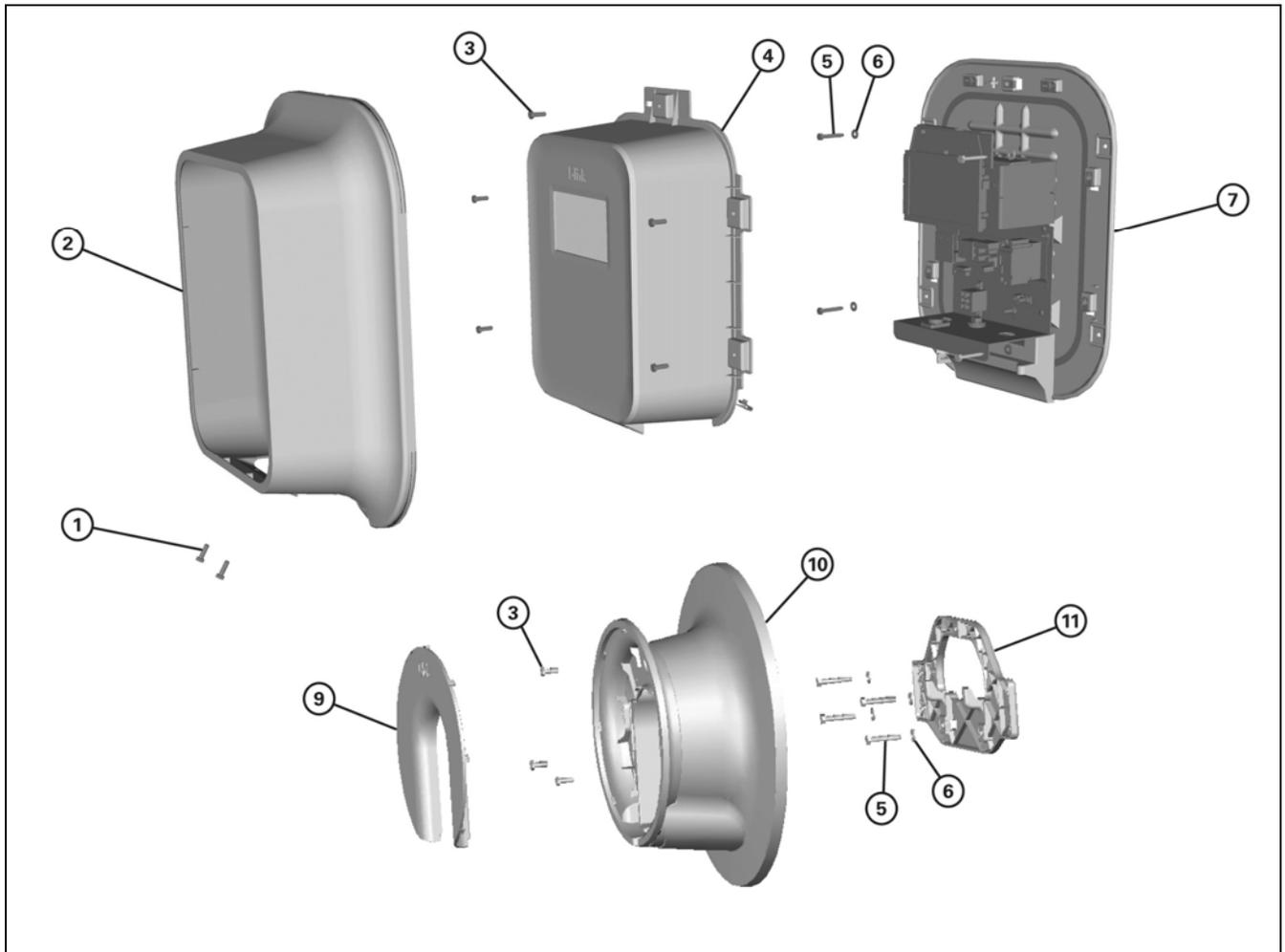


Figure 4 — Charger Housing Assembly and Cord Reel

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	11-357-0277	Torx-head screw (T30)	2
2	20-030-0001	Bezel	1
3	11-356-0273	M6 x 20 hex-head bolt	8
4	20-180-0001	Charger housing cover	1
5	11-031-0564	1/4-inch lag screw	8
6	11-452-0163	1/4-inch washer	8
7	20-180-0001	Charger unit and base	1
8	09-068-0001	Output cord (part of charger unit) (not shown)	1
9	20-071-0001	Cord reel cover	1
10	20-043-0001	Cord reel	1
11	20-349-0001	Cord reel cleat	1
12	—	Power cord (part of WE-30K and WE-48K charger units ONLY) (not shown)	1

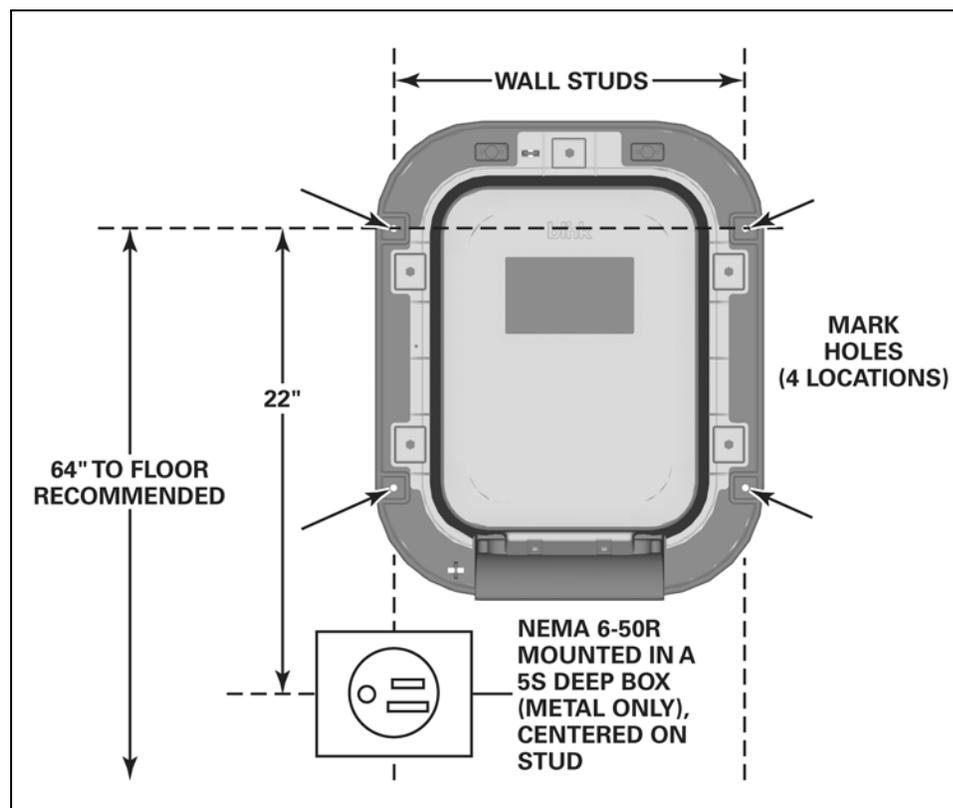
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#### 4.3 Charger Housing Installation

1. Open the charger shipping box and remove the two cartons containing the cord reel and the charger assembly. Unpack the cartons and lay out the contents (the two cartons are attached by the charging cord; DO NOT allow excess strain on the cord). Check for all contents as listed in Section 4.1, *Shipping Box Contents*.
2. With the charger assembly set flat on a work table, remove the two Torx-head screws at the bottom of the charger assembly. Carefully pull up on the bezel to remove the bezel from the housing cover. Pull at the top of the bezel to disengage the two pins from the grommets in the base plate.
3. Choose an appropriate place on a wall for mounting the charger housing assembly. Refer to Section 3, *Charger Layout*, for guidelines in locating the charger assembly and cord reel.
4. Locate and mark the centers of two studs in the mounting area if the assembly is being mounted on a typical wood-framed wall. (Omit this step if the charger assembly is being mounted on a brick or concrete wall and wall anchors are being used.)
5. Place the charger housing assembly in the desired location on the wall with the mounting holes in the base over the marked studs, if applicable. Make sure the charger housing assembly is positioned level and plumb.

**NOTE:** For cord-connected chargers (models WE-30K and WE-48K), space must be allowed for installation of a receptacle below the charger assembly when mounting the assembly and the cord reel (refer to Figure 5 for recommended mounting dimensions). A corded unit requires a NEMA 6-50R receptacle mounted in a metal 5S deep box. Make sure to orient the receptacle as shown in Figure 5.



**Figure 5 — Charger Assembly Installation**

6. Using the housing assembly as a template, mark the centers of the four mounting holes and remove the housing assembly from the wall.

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7. Using a 3/16-inch drill bit, drill a pilot hole for each of the mounting holes (wood-framed wall). For brick or concrete walls, metal anchors must be placed in the wall. Follow the manufacturer's installation instructions for wall anchors that provide a minimum pull-out force of 80 lbs (36 kg) per anchor; install four anchors.
8. Place the charger housing assembly back in position on the wall and install four 1/4-inch lag screws with washers (Items 5 and 6, Figure 4) to secure the housing assembly in place. Tighten the screws enough to remove any gaps between the wall, housing base plate, washer and screw head.

**NOTE:** If there are irregularities in the wall surface, it may be necessary to place a shim behind one or more of the mounting holes to avoid distorting the charger housing base plate.



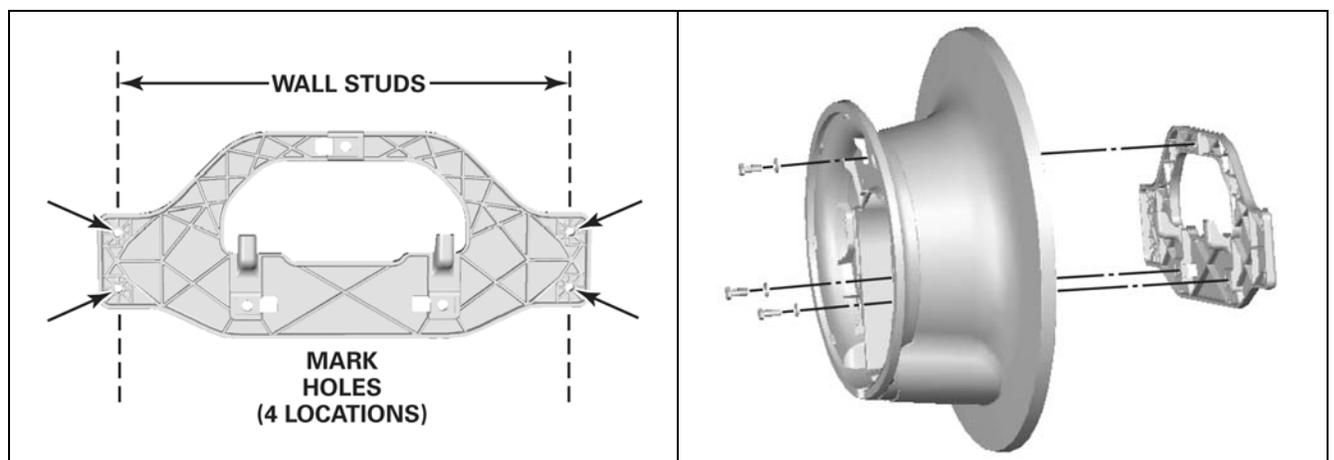
**WARNING: ALL FOUR LAG BOLTS (AND ANCHORS, IF APPLICABLE) MUST BE INSTALLED TO PREVENT THE CHARGER ASSEMBLY FROM PULLING OUT OF THE WALL.**

**CAUTION: DO NOT OVER-TIGHTEN THE LAG BOLTS WHEN MOUNTING THE CHARGER HOUSING ASSEMBLY ON THE WALL. OVER-TIGHTENING CAN DEFORM AND DAMAGE THE HOUSING BASE PLATE.**

#### 4.4 Cord Reel Installation

1. Choose an appropriate place on the wall for mounting the cord reel assembly. This can be below or to either side of the charger assembly.
2. Locate and mark the centers of two studs in the mounting area, if applicable. (Omit this step if the charger assembly is being mounted on a brick or concrete wall and wall anchors are being used.)
3. Place the cord reel cleat (Item 11, Figure 4) in the desired location on the wall with the mounting holes in the cleat over the marked studs, if applicable.
4. Using the cleat as a template, mark the centers of the four mounting holes and remove the cleat from the wall.
5. Using a 3/16-inch drill bit, drill a pilot hole for each of the mounting holes (wood-framed wall). For brick or concrete walls, metal anchors must be placed in the wall. Follow the manufacturer's installation instructions for wall anchors that provide a minimum pull-out force of 80 lbs (36 kg); install four anchors.
6. Place the cleat back in position on the wall and install four 1/4-inch lag screws with washers (Items 5 and 6, Figure 4) to secure the cleat in place. Tighten the screws enough to remove any gaps between the wall, cleat, washer and screw head.

**CAUTION: DO NOT OVER-TIGHTEN LAG SCREWS WHEN MOUNTING CORD REEL CLEAT ON WALL. OVER-TIGHTENING CAN DEFORM AND DAMAGE THE CLEAT.**



**Figure 6 — Cord Reel Installation**

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**NOTE:** If there are irregularities in the wall surface, it may be necessary to place a shim behind one or more of the mounting holes to avoid distorting the cleat.

7. Place the cord reel in position on the cleat. Using a socket wrench with extension, install three M6 hex-head bolts (Item 3, Figure 4) to attach the reel to the cleat. Tighten the bolts to 35-38 in-lb (4.0-4.3 Nm).
8. Align tabs on the cover with the seven slots in the cord reel and firmly push in on the cover to attach it to the cord reel. The tabs will snap into place to secure the cover.

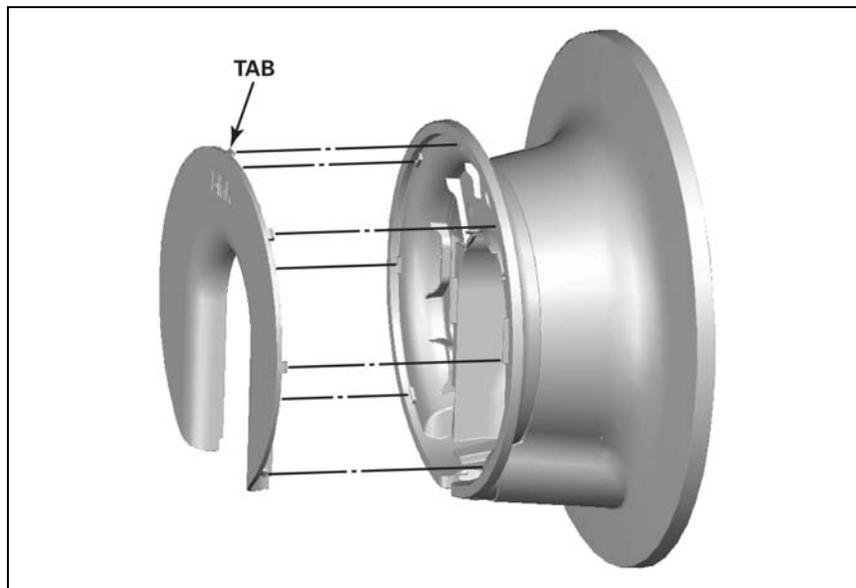


Figure 7 — Cord Reel Cover Installation

**NOTE:** The cover may be removed by inserting a small screwdriver blade into the slot from the inner side of the reel rim to release each tab.

9. Wrap the charging cord around the cord reel and place the vehicle connector end in the holder at the center of the reel. DO NOT force the connector strain relief past the cord retention fingers on the reel. Lift the connector up and into the reel so that only the cord passes between the retention fingers.

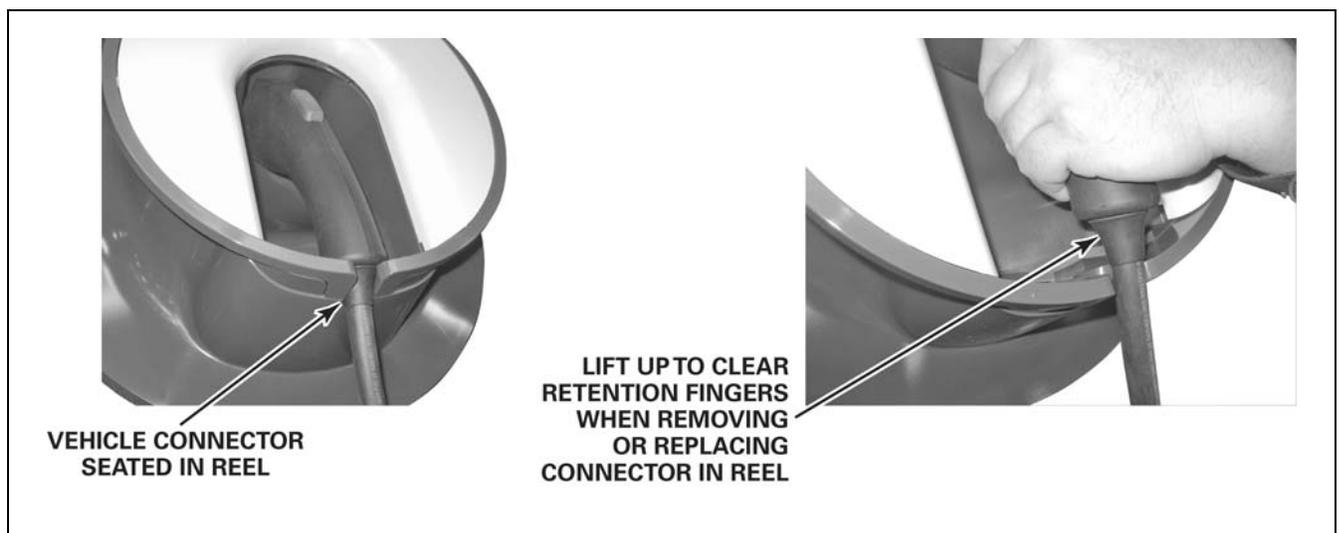


Figure 8 — Cord Reel Vehicle Connector

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### 5 Connecting Power to the Charger

#### 5.1 Input Power

**IMPORTANT:** Electrical power to the charger must be installed by a certified electrical contractor who is familiar with local codes and standards that apply to the installation of structural components and electrical equipment. Minimum size and color-coding requirements must be in accordance with any applicable state or local code, and the National Electrical Code.

Voltage/Phase	208-240 VAC/1 phase (120 VAC to GND)
Rated Current	30 Amps (maximum); 12A, 16A and 24A available (WE-30C/K) 48 Amps (maximum); 12A, 16A, 24A and 30A available (WE-48C/K)
Circuit Rating	40 Amps; settings at 15A, 20A and 30A available

#### 5.2 Connecting Charger



**WARNING: VERIFY THAT ELECTRICAL POWER TO THE CHARGER INPUT POWER WIRING IS DISCONNECTED. ELECTRIC SHOCK CAN KILL.**

**NOTE:** The following procedure covers the installation of a charger that is being hard-wired to the main service panel. This procedure does not apply to the optional cord-connected wall-mount chargers. The cord-connected chargers require the installation of a NEMA 6-50R receptacle in close proximity to the charger housing assembly. For these installations, insert the power cord into the 6-50R receptacle and perform the “Charger Start-Up Test” following the procedure in the 45-293-0001 manual.

1. Remove five M6 hex-head bolts (Item 3, Figure 4); then, remove the charger housing cover from the charger assembly. DO NOT remove the four lag bolts securing the charger base to the wall.

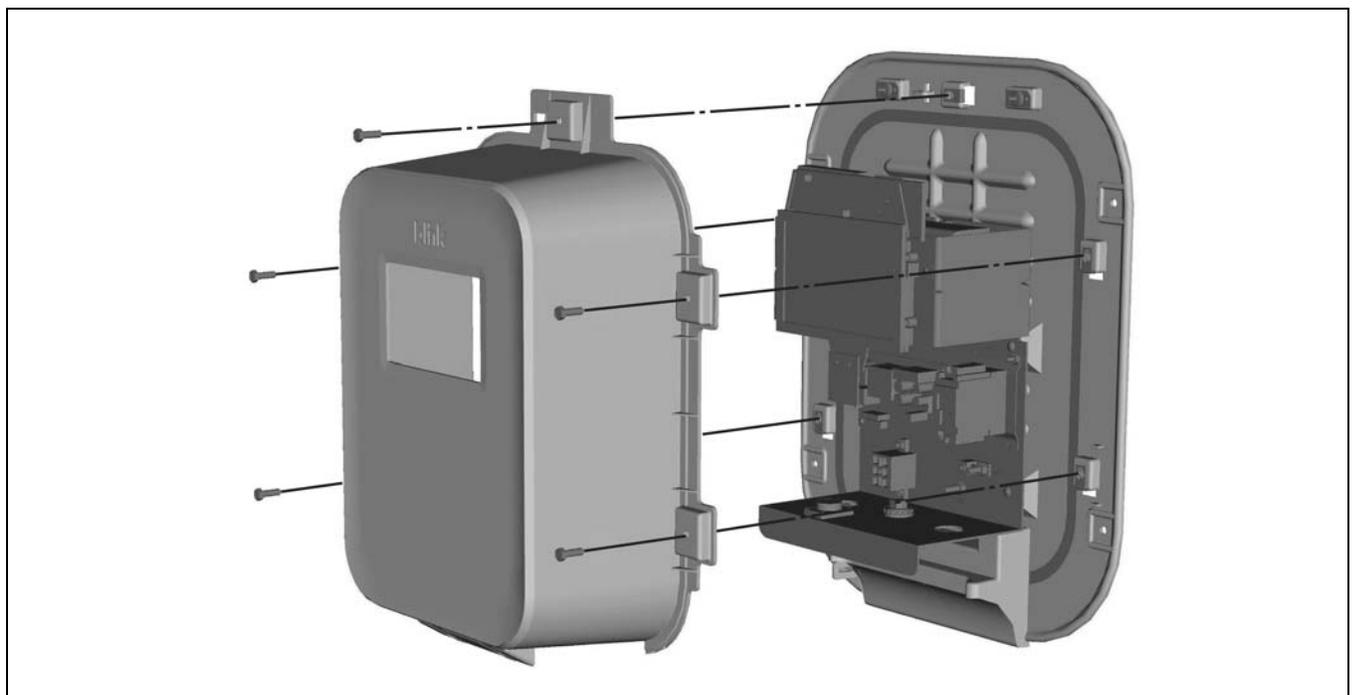


Figure 9 — Housing Cover Removal

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- Slide a 1-inch trade-size fitting (not provided), appropriate to the conduit type used, over the end of the service wiring.

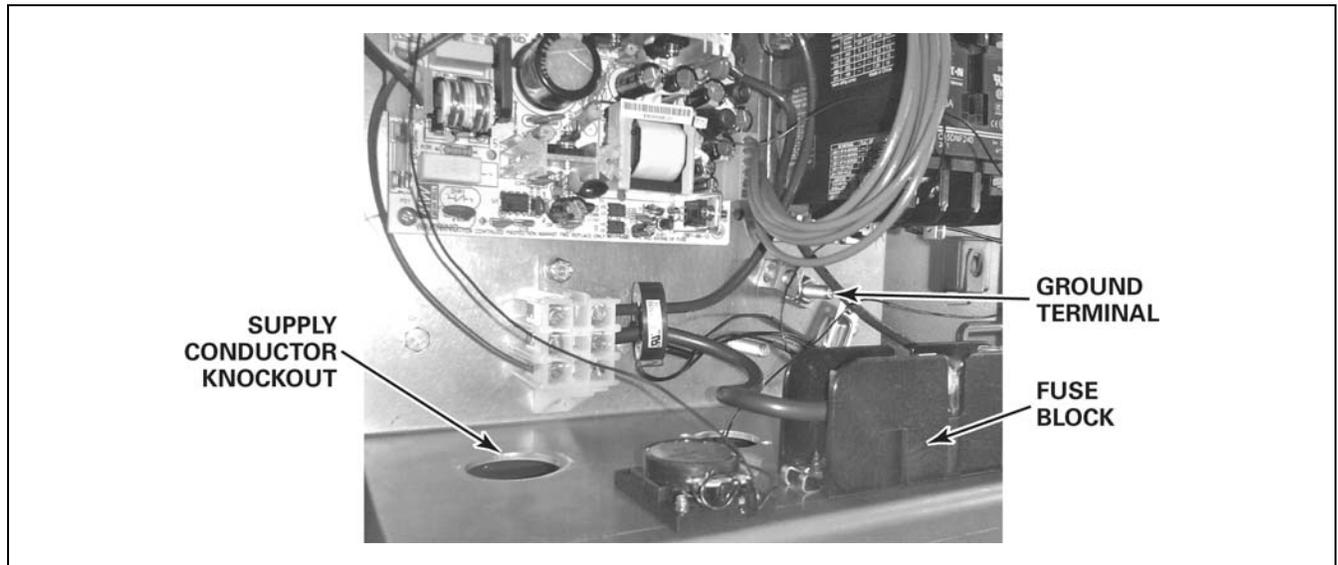


Figure 10 — Supply Circuit Port

- Insert the supply circuit conductors through the knockout in the metal housing bracket. Pull enough wiring through to allow for connection to the knockout and ground terminals.
- Position the 1-inch fitting in the knockout and secure in place using a metal lock ring.

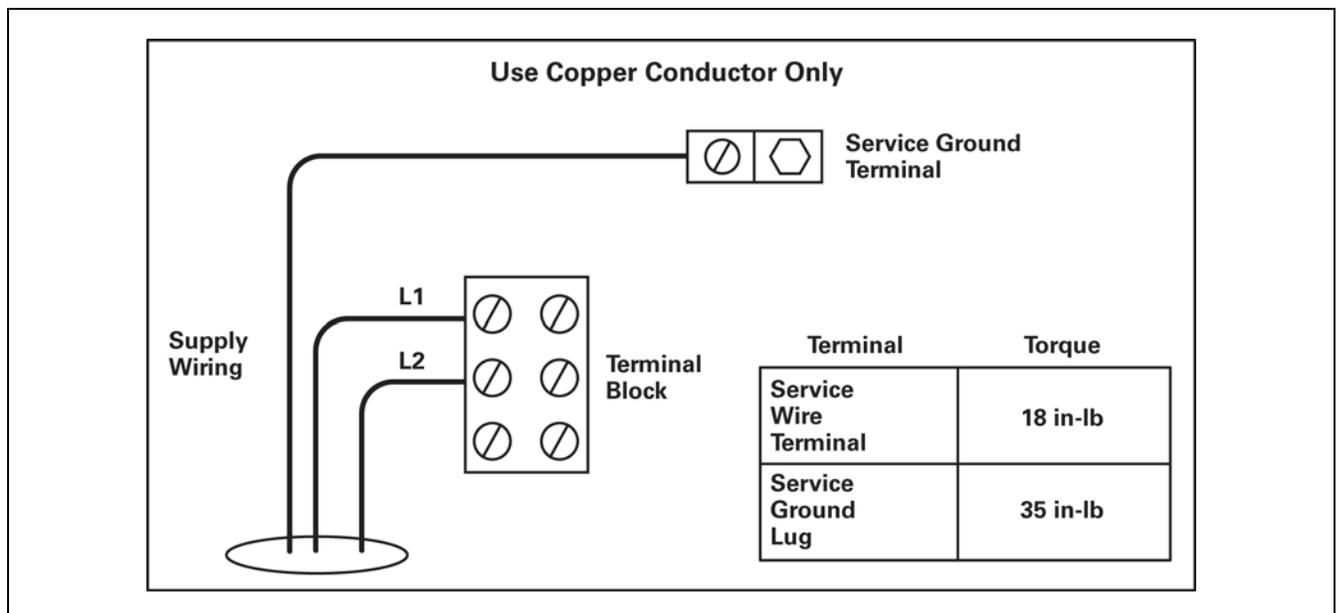


Figure 11 — Service Wiring Terminals

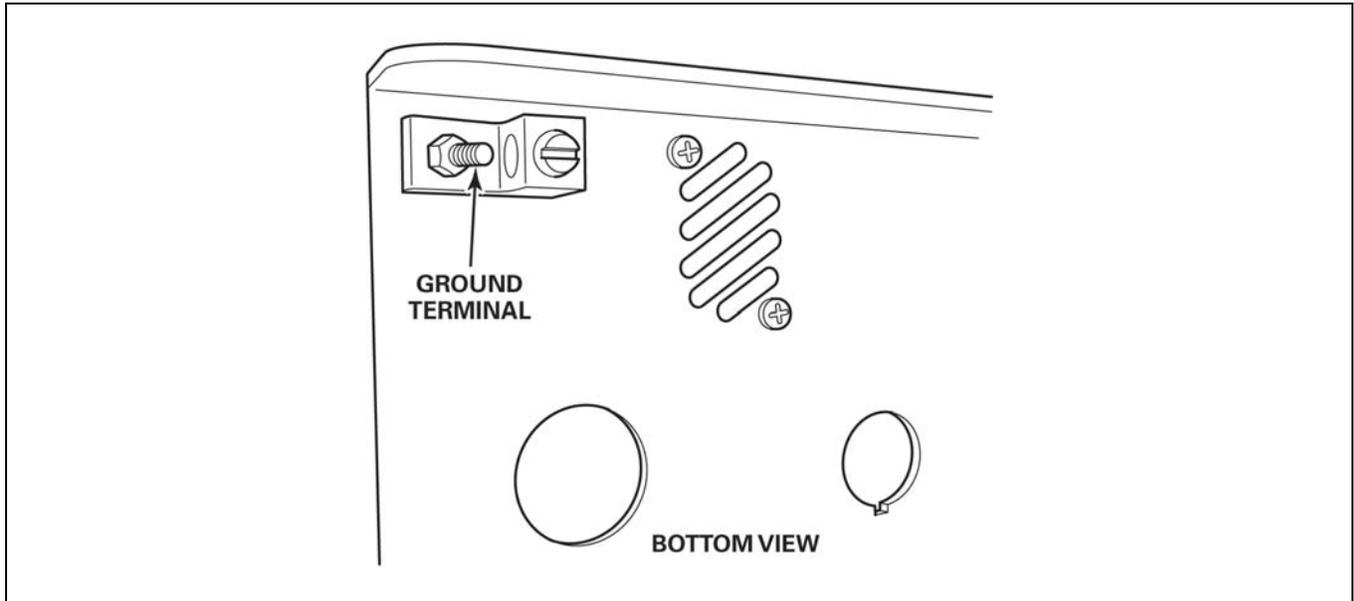
**CAUTION: USE CARE TO NOT DISTURB FACTORY WIRING WHEN MAKING SUPPLY CIRCUIT WIRING CONNECTIONS WITHIN THE CHARGER HOUSING.**

- Connect the AC supply conductors (L1 and L2) to the upper two terminals in the terminal block (Figure 11) at the lower left of the charger.

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6. Connect the ground wire to the service ground terminal (Figure 11) at the lower right of the charger.
7. An external bond must be provided to the unit. Connect a minimum 10AWG conductor to the external ground terminal (Figure 12), found on the bottom face of the aluminum panel, just in front of the 1-inch input circuit knockout. Route this wire to a metal box or conduit that is grounded to the service panel earth ground. Use a grounding screw or clamp to affix this bonding wire to the grounded metal component.



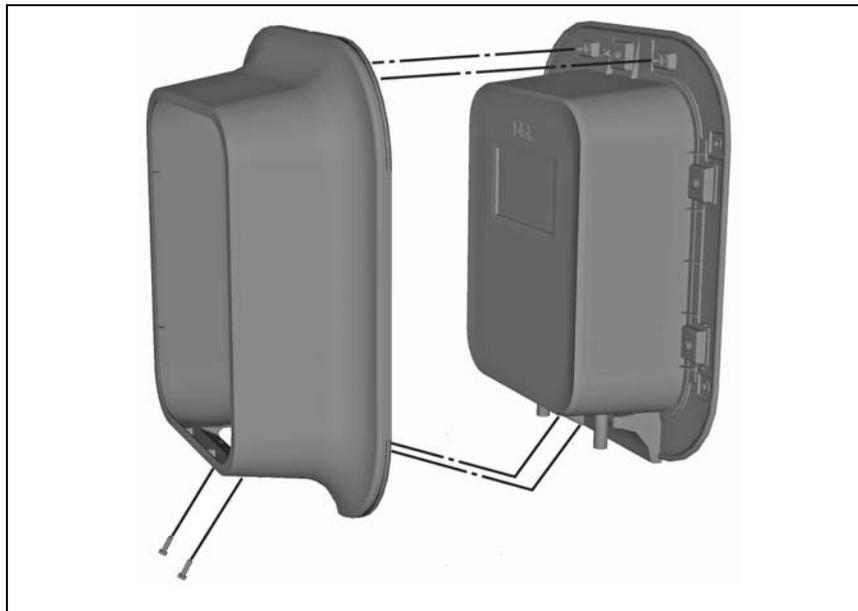
**Figure 12 — External Ground**

8. Remove and discard the protective film on the display.
9. With the service wiring complete, place the housing cover in position on the charger assembly and install five M6 hex-head bolts (Item 3, Figure 4) to secure the cover in place. Tighten the bolts to 35-38 in-lb (4.0-4.3 Nm).

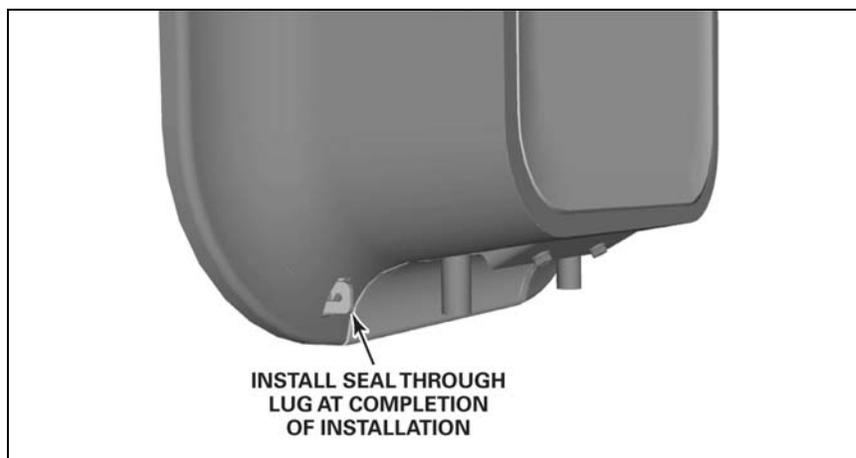
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- Align the pins at the top of the bezel with the two grommets in the charger base plate and seat the bezel over the housing cover.

**Figure 12 — Bezel Installation**

- Install two Torx-head screws (Item 1, Figure 4) at bottom to secure the bezel to the charger housing.
- Perform a “Charger Start-Up Test” following the procedure in the 45-293-0001 manual.

**Figure 13 — Security Seal**

- When the test is successfully completed and if required, install a security seal (not provided) at the bottom of the housing cover.

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### 6 Federal Communications Commission (FCC) Statement

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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**430 S. 2<sup>nd</sup> Ave**  
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