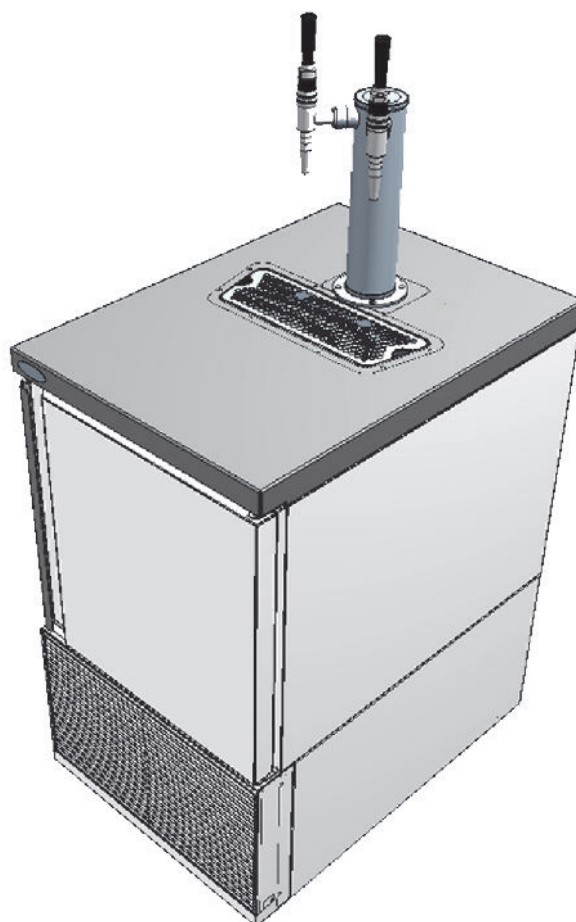




COLD NITRO BREW DISPENSER

Model: CNB BIB

Operator's Manual



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Contact Information:

To inquire about current revisions of this and other documentation or for assistance with any Cornelius product contact:

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This document contains the original instructions for the unit described.

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Printed in U.S.A.

Correct Disposal of this Product



RECYCLE

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

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SAFETY INSTRUCTIONS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Safety Overview

- Read and follow **ALL SAFETY INSTRUCTIONS** in this manual and any warning/caution labels on the unit (decals, labels or laminated cards).
- Read and understand ALL applicable OSHA (Occupational Safety and Health Administration) safety regulations and/or national and local codes before operating this unit.

Recognition

Recognize Safety Alerts



This is the safety alert symbol. When you see it in this manual or on the unit, be alert to the potential of personal injury or damage to the unit.

Different Types of Alerts



DANGER:

Indicates an immediate hazardous situation which, if not avoided, **WILL** result in serious injury, death or equipment damage.



WARNING:

Indicates a potentially hazardous situation which, if not avoided, **COULD** result in serious injury, death, or equipment damage.



CAUTION:

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury or equipment damage.

SAFETY TIPS

- Carefully read and follow all safety messages in this manual and safety signs on the unit.
 - Keep safety signs in good condition and replace missing or damaged items.
 - Learn how to operate the unit and how to use the controls properly.
 - **Do not** let anyone operate the unit without proper training. This appliance is **not** intended for use by very young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
 - Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.
-

QUALIFIED SERVICE PERSONNEL



WARNING:

Only trained and certified electrical, plumbing and refrigeration technicians should service this unit. **ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

SAFETY PRECAUTIONS

This unit has been specifically designed to provide protection against personal injury. To ensure continued protection, observe the following:



WARNING:

Disconnect Power When Servicing - Disconnect power to the unit before servicing following all lock out/tag out procedures established by the user. Verify all of the power is off to the unit before any work is performed. Failure to disconnect the power could result in serious injury, death or equipment damage.



WARNING:

Avoid Clutter - Always be sure to keep area around the unit clean and free of clutter. Failure to keep this area clean may result in injury or equipment damage.



CAUTION:

Provide Emergency Power Off (EPO) - Connect to a switchable AC outlet (switch within operator's reach) or ensure that the AC receptacle is in a readily-accessible location allowing quick, emergency shutdown by the operator.

SHIPPING AND STORAGE

**CAUTION:**

Before shipping, storing, or relocating the unit, the unit must be sanitized and all sanitizing solution must be drained from the system. A freezing ambient environment will cause residual sanitizing solution or water remaining inside the unit to freeze resulting in damage to internal components.

UNIT LOCATION

**CAUTION:**

The CNB BIB unit is not suitable for installation in an area where a water jet could be used.

**CAUTION:**

The CNB BIB unit must be located in a horizontal position.

**CAUTION:**

This CNB BIB unit is not designed for use in outdoor locations.

POWER CORD

**CAUTION:**

If the power cord is damaged, it must be replaced by a special cord available from the manufacturer or its service agent.

SOUND LEVELS

**CAUTION:**

The A-weighted sound pressure level has been determined to be below 60 dBA.

MACHINE USAGE



CAUTION:

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the CNB BIB unit by a person responsible for their safety.



CAUTION:

Children should not be allowed to play with or operate the unit.



CAUTION:

This appliance is intended to be used in commercial applications for the dispensing of only non-hazardous product.

UNIT CLEANING



CAUTION:

This CNB BIB unit **MUST NOT** be cleaned by using a water jet.

GROUNDING INSTRUCTIONS



CAUTION:

This appliance must be grounded. In the event of malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.



DANGER:

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with green insulation with or without yellow stripes is the equipment grounding conductor. If repair or replacement of the cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal. If in doubt whether the appliance is properly grounded, check with a qualified electrician or serviceman. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.



CAUTION:

This appliance is for use on electrical circuits, as shown in Table 1, and has a grounding plug that looks like the plug illustrated in Figure 1.

A qualified electrician should be consulted if there is any doubt about the outlet box being properly grounded.



3-Prong Plug *

* Example of grounded North American plug.

Figure 1.



SYSTEM OVERVIEW

OVERVIEW

The Cold Nitro Brew (CNB BIB) Dispenser is a self-contained, on-demand, in-line nitrogen infusion unit. The CNB BIB (Bag-in-Box) unit allows for still and nitro product to be poured from the same post-mixed source through different dispensers.

The CNB BIB unit provides the highest quality drink appearance and consistency, while keeping operation and maintenance simple and straightforward.

FEATURES

-
- Durable, robust design
 - Easy to use – double-dispenser lever interface
 - Easy to Clean – dispense area is easily wiped down
 - Small Footprint – CNB BIB design allows the unit to be installed remotely and under-counter with minimum space requirement.
 - OPTIMIZED DESIGN — Efficient front breathing design allows the unit to be installed under a counter top or stand-alone.
 - SELF-CONTAINED DESIGN — Water, Nitrogen, and electrical connections are all that are needed, a drain is optional. The unit automatically chills water for cold beverages.
 - PROPRIETARY INFUSION — Unique infusion process layers the beverage with an industry leading, long lasting cascade.
 - No Mixing, No Shaking, No Filling. Just connect the BIB and go!
 - Utilizes concentrated BIB's of cold brew, 1:3 - 1:5 ratio automatic mixing.



SPECIFICATIONS

Table 1.

Food Grade Nitrogen Requirements	60-80 psi (0.41-0.55 MPa) at input
Nitrogen Input Connection	90° ¼" BARB valved Quick Disconnect body (NSF Tubing)
Water Supply Requirements	Filtered water @ > 0.5 GPM and 90 psi (0.62 MPa) at store
Water Supply Connection	90° 3/8" BARB valved QD insert (NSF Tubing)
Electrical Ratings	120V/60Hz/4.5Amps
Drain Line	3/4" ID Tubing
Cabinet Capacity	(2) 3-gallon BIBs (Approx. box Dimensions: 13 1/2" H x 7 1/2" W x 9 1/2" D)
Cabinet (Door closed, not including tower)	30.1" (76.5 cm) D (includes standoffs) x 20" (50.8 cm) W x 34" (86.4 cm) H
Cabinet (Door closed, including tower)	30.1" (76.5 cm) D (includes standoffs) x 20" (50.8 cm) W x 50.8" (129 cm) H
Shipping Weight	285 lbs. (129.3 kg)
Cup Clearance	7 1/4" (18.4 cm) drip tray to spout nozzle
Recommended pouring size:	At 75°F ambient temperature and 75°F input water temperature, the unit can pour drinks at 16 oz. per minute with a drink temperature of 41°F or lower.
Ambient Operating Temperature	55° F to 100° F (12.8° C to 37.8° C)

OPERATION

INITIAL STARTUP

UNIT DETAILS

The CNB BIB unit consists of two taps for dispensing two varieties of coffee. The left tap dispenses still cold brew coffee and the right tap dispenses Nitro cold brew coffee.

NOTE: The tap handles need to be pulled all the way down. There is no need to tip the cup when filling it.

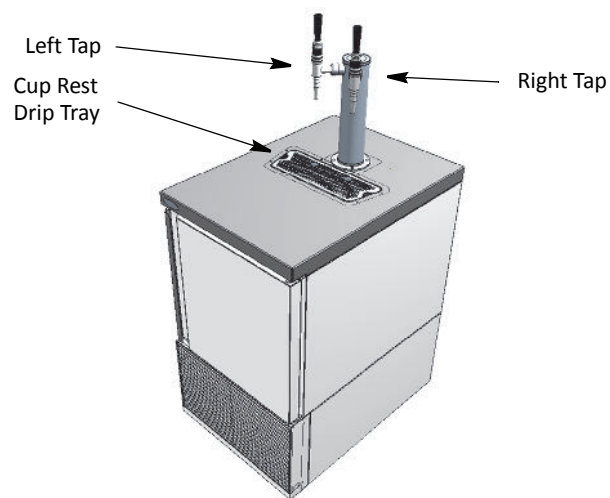


Figure 2

Connecting Power

Make sure the power cord is plugged into the appropriate AC outlet.

Connecting Water

Make sure the Water line tubing is properly secured to the back of the unit, as shown in Figure 3

Connecting Nitrogen

Make sure the nitrogen input connector is properly secured to the back of the unit, as shown in Figure 3.

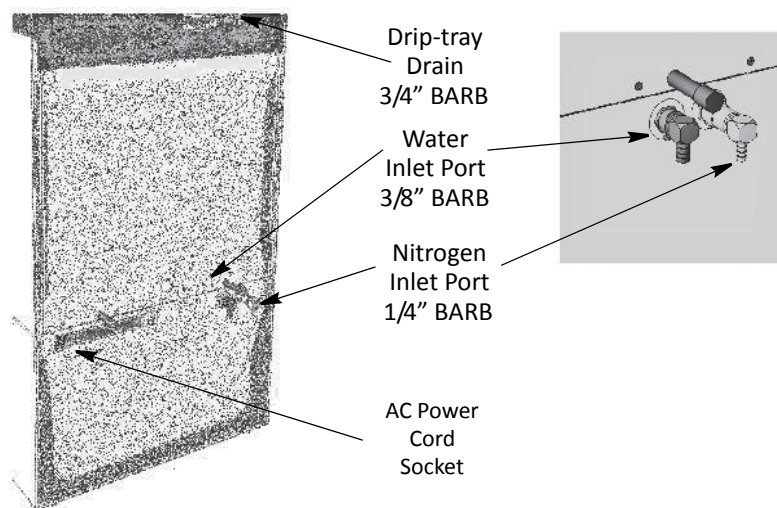


Figure 3.

UNIT MAINTENANCE

DAILY MAINTENANCE


CAUTION:

Use only products approved by Cornelius in the CNB BIB unit. Failure to do so can result in reduced unit performance or render the unit inoperable.

Perform the items listed in Table 2 on a daily basis.

Table 2.

Step	Action
1	Wipe the outside, inside, tower, drip tray and taps of the dispenser with a clean disposable towel.
2	Wash and rinse the drip tray grate.
3	Check tap nozzles for coffee grains and clean if required.
4	Check the level of the product BIB.
5	If using a nitrogen generator, be sure the generator is operational and the gauge shows pressure. If using a nitrogen tank, check the primary nitrogen tank pressures: the primary side gauge should be between 500 and 2500 PSI (3.45 MPa and 17.24 MPa) and the secondary gauge should be between 60 and 80 PSI (0.41 and 0.55 MPa). If either gauge is not in the proper range, alert the manager on duty of the nitrogen level.

Cleaning Products

KAY-5® Cleaner/Sanitizer

Mix one 1 oz. (29.6 ml) packets of Kay-5 ® Sanitizer/Cleaner solution (or similar brand) in 0.75 gallons (3 quarts) of tap water to insure 330 PPM of available chlorine.

Urnex Sani-Pure Sanitizer & Cleaner

Mix 3 oz. (88.7 ml) of Urnex Sani-Pure Sanitizer & Cleaner solution (or similar brand), in 1 gallons (4 quarts) of tap water to insure 600 PPM of available chlorine.

IMPORTANT: Use tap water at 75-95°F (23.89-35°C). Water above this range breaks down the chlorine count and minimizes sanitation.

WEEKLY MAINTENANCE

The following procedures are to be performed on a weekly basis, in addition to the daily maintenance tasks.

Unit Cleaning and Sanitation

Before using the CNB BIB unit for product dispensing and on an ongoing basis, the product tubing and the tower dispenser must be cleaned and sanitized.

Sanitize the product tubing and tower dispenser thoroughly (internally and exterior surfaces) by using one of the cleaners listed.

For the cleaning process, have the following ready: Two, 1 gallon buckets, one white cleaning adapter and approved Sanitizer.

To clean and sanitize the unit, the product tubing and the tower dispenser, perform the procedure in Table 3.

Table 3.





Step	Action	
1	Open the cabinet door (front door).	
2	<p>A. Disconnect the product output connector from the BIB (Bag in Box product) by turning the BLACK threaded connector counterclockwise and lifting on the outside of the BLACK connector</p> <p>B. Remove the BIB from the unit</p>	 
3	Connect the WHITE screw-in connector to the BLACK product output connector by turning the threaded connector clockwise.	

Table 3.





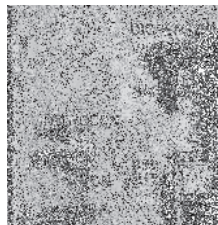


Step	Action	
4	<p>Using a clean and empty food-grade container:</p> <p>Prepare any of the listed sanitizer/cleaner solutions from the "Cleaning Products" section above. Place the container of sanitizer/cleaner solution inside the cabinet storage area.</p>	
5	<p>Place the BLACK product output connector with the WHITE cleaning adapter inside the food-grade container so that the connector will stay at the bottom.</p>	
6	<p>Turn the Sanitizing Valve to the "Dispense" position and the Nitrogen valve to the "OFF" position.</p>	
7	<p>A. Open LEFT tower dispenser and dispense 0.25 gallons (1 quart) of sanitizer/cleaner solution.</p> <p>B. Close the tap.</p> <p>C. Open RIGHT tower dispenser and dispense 0.25 gallons (1 quart) of sanitizer/cleaner solution.</p> <p>D. Close the tap.</p>	
8	<p>Turn the Sanitizing Valve to the "SANITIZE" position.</p>	
9	<p>A. Open LEFT tower dispenser and dispense 0.25 gallons (1 quart) of sanitizer/cleaner solution</p> <p>B. Close the tap</p> <p>C. Open RIGHT tower dispenser and dispense 0.25 gallons (1 quart) of sanitizer/cleaner solution</p> <p>D. Close the tap</p>	
10	<p>With the taps straight up (closed), allow sanitizer/cleaner solution to soak in the lines for 20 minutes.</p>	<p>20 Minutes</p> 

Table 3.







Step	Action	
11	Open the LEFT and RIGHT dispenser taps at the same time and dispense 0.5 gallons (2 quarts) of sanitizer/cleaner solution.	
12	Turn the Sanitizing Valve to the "DISPENSE" position and the Nitrogen valve to the ON position.	
13	Open the LEFT and RIGHT dispenser taps at the same time and dispense 0.5 gallons (2 quarts) of sanitizer/cleaner solution.	
14	<p>A. Remove the empty food-grade container from the cabinet and discard any remaining sanitizer.</p> <p>B. Disconnect the WHITE cleaning adapter from the BLACK product output connector by turning the BLACK connector counterclockwise and lifting on the outside of the BLACK connector.</p>	
15	<p>Reusing a clean and empty plastic food-grade container:</p> <p>A. Prepare a cleaning solution containing 100PPM available chlorine using any of the listed sanitizer/cleaner solutions as described by manufacturer's instructions. Prepare at least 1 gallon (4 quarts) of solution.</p> <p>A. Bring container of solution to the coffee dispense area.</p>	
16	<p>A. Remove the two dispenser nozzles by unscrewing clockwise (as viewed from above). Carefully use a wrench if needed.</p> <p>B. Place the two nozzles into the food-grade container with sanitizer/cleaner solution. Inspect to ensure that the o-ring, jet disc, and regulation cone are in place; these should not be removed from the nozzle.</p>	

Table 3.

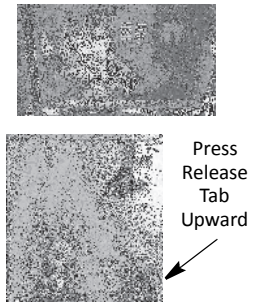


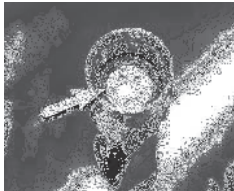
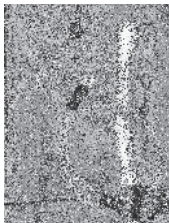
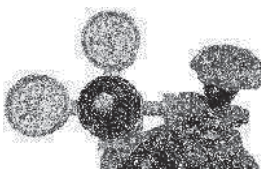
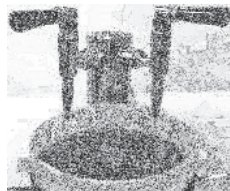
Step	Action	
17	<p>From inside of the cabinet:</p> <p>A. Disconnect the BIB product output line from the dispenser panel connector by pushing up on the release tab on the top of the connector and pulling the hose straight out.</p> <p>B. Place the hose assembly into the container with sanitizer/cleaner solution.</p> <p>C. Close the cabinet door.</p>	
18	<p>A. Soak the BIB product line and nozzles for 15 minutes.</p> <p>B. While the parts are soaking, wipe the outside, inside, tower, drip tray and valves of the dispenser with a clean, disposable towel. Do not use caustic cleaners inside the unit, use only a damp towel as needed.</p> <p>A. Wash and rinse the drip-tray grate and reinstall.</p>	<p>15 Minutes</p> 
19	<p>A. Wash hands and put on single-use gloves.</p> <p>B. Remove the nozzles from the container of cleaner/sanitizer solution.</p>	
20	<p>A. Perform a visual inspection on each nozzle.</p> <p>B. Look at the end of the nozzle.</p> <p>C. Check that the screen and O-ring inside the nozzle are in good condition.</p> <p>D. Screw the two dispenser nozzles onto the spout, tighten only hand tight.</p>	
21	<p>A. Remove the BIB product line from the sanitizer/cleaner solution.</p> <p>B. Grasp the hose by the metal connector.</p> <p>C. Push the hose straight into the "BIB OUT" port until it locks in place.</p>	
22	<p>If using a nitrogen generator, Be sure the generator is operational and the gauge shows pressure.</p> <p>If using a nitrogen tank, check the primary nitrogen tank pressures: the primary side gauge should be between 500 and 2500 PSI (3.45 MPa and 17.24 MPa) and the secondary gauge should be between 60 and 80 PSI (0.41 and 0.55 MPa). If either gauge is not in the proper range, alert the manager on duty of the nitrogen level.</p>	
23	<p>A. Obtain a product BIB.</p> <p>B. Place it in the cabinet, outlet port towards the base of the cabinet, and connect the BLACK product output connector by turning the threaded connector ring clockwise. Be sure the connector is screwed on completely.</p> <p>C. Close the cabinet door.</p>	

Table 3.

Step	Action	
24	A. Open the LEFT and RIGHT and dispense coffee until dark coffee starts flowing. B. Close the tap	
25	The sanitizing procedure is complete.	

MONTHLY MAINTENANCE

Check the water level in the ice bank and replenish it when it is low, as described in Table 4.

Table 4

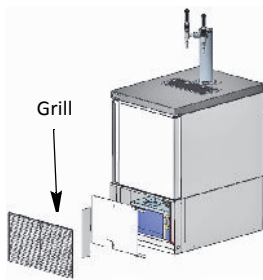
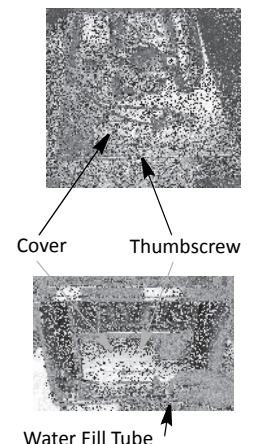
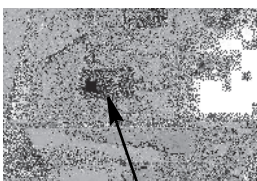
1	Access the ice bank for water filling. C. Lift grill upwards. D. Slide filter. E. Unfasten cover (remove 2 screws).	
2	Open the ice-bank water-refill cover. A. Remove the thumbscrew securing the ice-bank refill cover. B. Lift off the cover and set it aside.	

Table 4

3	<p>Fill the ice bank with potable water.</p> <p>A. Use a funnel and pour water into refill opening. Capacity is approximately 3.6 gallons (13.6 liters). The reservoir is full when water begins trickling through the clear over-flow tubing at the lower-front, center of the ice bank.</p> <p>NOTE: The ice bank may also be filled with chilled water to reduce the time for cool down to 33°F (0°C). (Typical cooling time using room-temperature water is 6 hours.)</p> <p>NOTE: The ice bank typically requires a water refill every month. Observe the water level shown in the fill tube (with red cap). Remove cap for accurate reading.</p>	 <p>Pour water into opening.</p>
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CHANGING A BIB CONTAINER

When changing a product BIB container, orient the BIB with the connector hose upward to prevent spillage during product hose disconnection. Be sure to clean up any spillage.

Table 5.

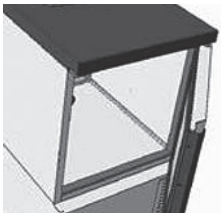






Step	Action	
1	Open the cabinet door.	
2	<p>A. Disconnect the product line connector from the empty BIB by unscrewing the BLACK threaded ring counter-clockwise.</p> <p>B. Remove the empty BIB container and properly discard it.</p>	 

Table 5.

Step	Action	
3	<p>A. Open the new BIB box to expose the bag outlet connector.</p> <p>B. Remove the protective white cap from the outlet connector and discard.</p>	 
4	<p>A. Orient the BIB as shown and place it into the cabinet.</p> <p>B. Connect the dispenser product line to the BIB by pressing its BLACK connector into the BIB outlet while rotating the threaded ring clockwise. Ensure it is secure and not leaking.</p> <p>C. Close the cabinet door.</p>	 
5	<p>A. Dispense about 8 to 10 oz. of product to remove any trapped air in the lines.</p> <p>B. Check foam height and adjust if required by referring to the next section, Unit Foam Head Height Adjustment.</p>	

CHANGING COFFEE TYPES

In some cases the type of coffee used in the CNB BIB unit may require an adjustment of the height of the foam head for proper presentation. If this adjustment is required, it should be performed by a manager or technician who is trained in the operation of the CNB BIB unit.

Unit Foam Head Height Adjustment

NOTE: Follow all previous **INSTALLATION** and **CLEANING/SANITATION** section processes before continuing with this section.

Once the equipment has been installed, cleaned, and sanitized, perform the procedure in Table 6 to adjust the foam head height on the CNB BIB unit.

Table 6.



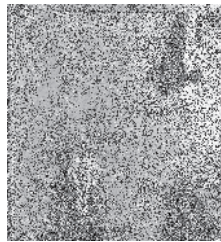
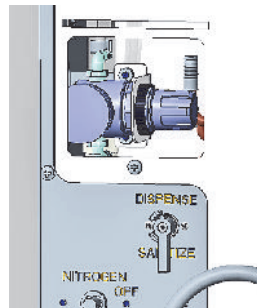
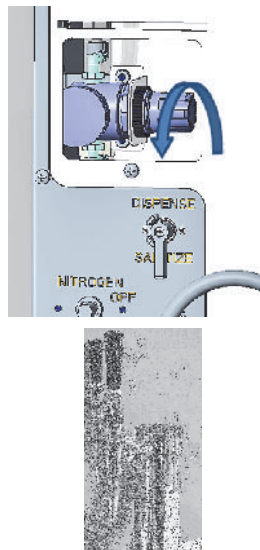
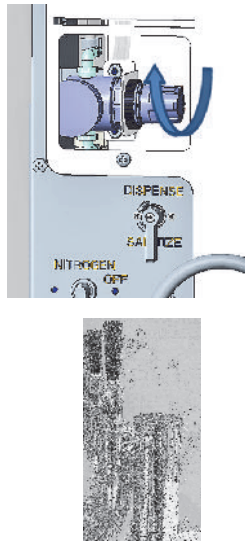

Step	Action	
1	Make sure the Nitrogen tank is open or the nitrogen generator is turned on. The primary side gauge should be between 500 and 2500 PSI and the secondary gauge should be between 60 and 80 PSI.	
2	Open the cabinet door.	
3	Inside the cabinet, ensure that the Nitrogen inlet valve is turned to the "ON" position.	
4	A. Open/remove Nitrogen secondary regulator access cover. B. Locate the secondary Nitrogen regulator. Adjust only the regulator shown.	

Table 6.

Step	Action	
5	<p>REDUCED FOAM HIGHT adjustment:</p> <p>A. Adjust the regulator control knob slightly (approximately 1/8th of a turn) to the LEFT (counter-clockwise). Only very fine adjustments are required. This reduces the amount of Nitrogen injected.</p> <p>B. Open the RIGHT tower dispenser and dispense about 8 oz. of product to drain the line of product at the previous foam setting. Then dispense 12 oz. of product and confirm the foam head height. Repeat and dispense another 12 oz. to confirm setting.</p> <p>C. Repeat step A if a further reduction of foam head height is required.</p>	
6	<p>INCREASED FOAM HIGHT adjustment:</p> <p>A. Adjust the regulator control knob slightly (approximately 1/8th of a turn) to the RIGHT (clockwise). Only very fine adjustments are required. This increases the amount of Nitrogen injected.</p> <p>B. Open the RIGHT tower dispenser and dispense about 8 oz. of product to drain the line of product at the previous foam setting. Then dispense 12 oz. of product and confirm the foam head height. Repeat and dispense another 12 oz. to confirm setting.</p> <p>C. Repeat step A if a further increase of foam head height is required.</p>	
7	Reinstall the regulator access cover.	

TROUBLESHOOTING

Table 7 describes some of the possible symptoms and solutions for troubleshooting the CNB BIB unit.

Table 7.

Symptom	Probable Cause	Solution
Refrigerator not working	A. Power cord not plugged into outlet. B. GFI outlet tripped. C. Store breaker on dispenser circuit is tripped.	A. Plug into outlet. B. Press reset on outlet. C. Check/reset the breaker.
Dispenser tap is dripping	A. Tap handle not fully in off position. B. Tap valve seal is worn or damaged. C. Excessive system pressure.	A. Move to off position. B. Check/replace seal(s). C. Check/adjust Water and Nitrogen pressure settings.
Tap leaks at the tower coupling.	A. Tap is not connected tightly. B. Worn/cracked coupling gasket.	A. Tighten coupling nut. B. Replace coupling gasket.
Tap cannot be removed from tower coupling.	A. May not have been removed recently.	A. Pour hot water on the coupling ring to loosen it.
Tap is spurting or no product is being dispensed.	A. BIB is empty or nearly empty. B. Tap strainer is clogged.	A. Replace BIB. B. Remove the tap nozzle and clean internal components.
If none of the above solutions fix the unit, call service.		

Cornelius Inc.
www.cornelius-usa.com



SuperCharge™

Electric Vehicle Charging System

Installation and Operation Guide

Rev. 1 10/4/01

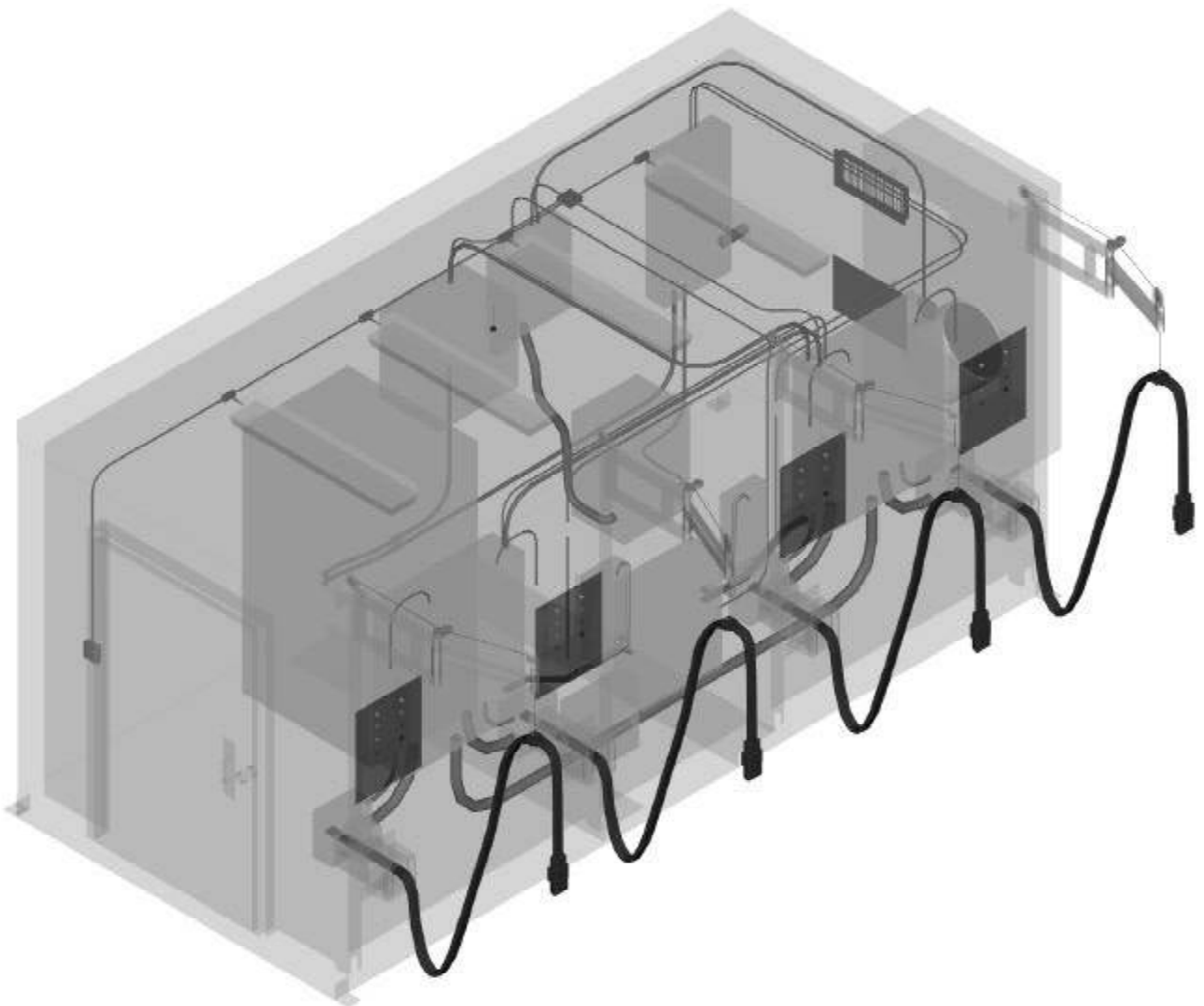


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1.0 INTRODUCTION

This guide provides all the necessary instructions for installing and operating the eTec SuperCharge™ vehicle charging station. Please follow these instructions in the order in which they are presented in this guide.

Special warnings and precautions are included in section 2.0 and throughout this guide. Please observe them in detail to avoid personal injury and damage to the equipment.

NOTICE: The procedures in this guide must be conducted only by personnel who are qualified to install and operate the vehicle charging equipment. Refer to section 2.0 Warnings and Precautions for specific requirements.

Technical Support

In the event that you encounter difficulties during the system installation, or during normal operation of the charging station, please contact an eTec technical representative via the information listed below.

eTec

electric transportation engineering corporation

401 S. 2nd Ave.

Phoenix, AZ 85003

Ph: 888-383-2387

Fax: 602-256-2606

e-mail: operations@etecevs.com

web: www.etecevs.com

2.0 WARNINGS AND PRECAUTIONS

Qualified Personnel

A “qualified person” is someone who is familiar with the installation, mounting, start-up and operation of the equipment and the hazards involved. Such personnel must meet the following qualifications:

- 1) Trained and authorized to energize, de-energize, clear, ground and tag electrical circuits and equipment in accordance with established safety procedures.
- 2) Trained in the proper care and use of protective equipment in accordance with established safety procedures.
- 3) Trained in rendering first aid.

Symbols Used in This Manual



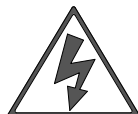
NOTE

This symbol indicates information about the product or the respective part of the user guide that must be observed for proper equipment use or functioning.



CAUTION!

This symbol indicates that personal injury or material damage can result if the prescribed precautions are not followed.



DANGER! SHOCK HAZARD

This symbol indicates death, severe personal injury or substantial property damage can result if proper shock hazard precautions are not taken. The charging circuits operate at very high amperage levels.

TO AVOID AND PREVENT SHOCK HAZARDS

Before Applying Power to the System:

Check all components for damage, and check to ensure that there are no loose or disconnected wires, cables or mechanical connections.



DANGER! SHOCK HAZARD

During Normal System Operation:

NEVER disconnect a charging cable from a vehicle during the charging process. High-current arcing may result and cause physical injury or damage to the equipment. ALWAYS press the red STOP button on the applicable interface panel to shut off power before disconnecting a vehicle from the system.

In the Event of a Malfunction:

Do not disassemble the equipment if you are not qualified to do so; call a qualified service person or an eTec technical representative when service or repair is required. Incorrect reassembly can result in a significant risk of electric shock or fire. Unauthorized servicing of the equipment may result in voiding of the product warranty.

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.1 Site Selection and Preparation

First determine a location for the *SuperCharge*™ station that allows for proper layout of the charging equipment and adequate access space for the electric vehicles. Figure 3–1 shows the overall layout of the *SuperCharge*™ station with dimensions. Regardless of the type of vehicles in use, it is important to allow enough area for the vehicles as well as the personnel operating them.

If the site selected for installation of the *SuperCharge*™ station is susceptible to water runoff from adjacent areas, roof drainage or the location is not level concrete, a concrete equipment pad should be constructed. The pad must be no smaller than 19 ft. L x 8 ft. 6 in. W x 6 in. H, and designed to meet all applicable codes and standards. The pad must accommodate the *SuperCharge*™ station such that the front edge of the station is flush with the front edge of the concrete pad, with a minimum of 6 in. of the pad extending out from beneath the other three sides, as shown in Figure 3–1.

3.2 Placing the Charge Station

Move the *SuperCharge*™ station into place with either a crane or a forklift of adequate capacity to manage 12,000 pounds. If a crane is used, Figure 2 shows eight lifting rings mounted on the top of the *SuperCharge*™ station. Use all eight lifting points when connecting the station to the crane. If a forklift is used, Figures 3–2 and 3–3 show forklift lifting tubes that span the bottom of the *SuperCharge*™ station. Employ a fork lift with adequate load capacity and adequate fork length (preferably 8 ft. long).

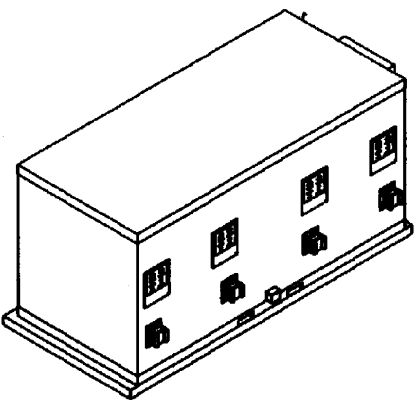
If a raised concrete pad is required, the *SuperCharge*™ station must be placed such that the front edge of the *SuperCharge*™ station is flush with the front edge of the concrete pad, with a minimum of 6 in. of the pad extending out from beneath the other three sides (Figure 3–2).

Securing the Charging Station in Place

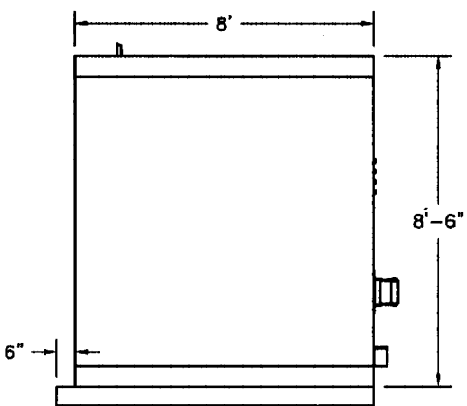
Attach the four mounting straps (angle brackets) to secure the *SuperCharge*™ station in place using the hardware provided (Figure 3–4). It is important to use the correct mounting hardware. If replacements are needed, refer to the hardware schedule in Figure 3–5 for specifications.

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

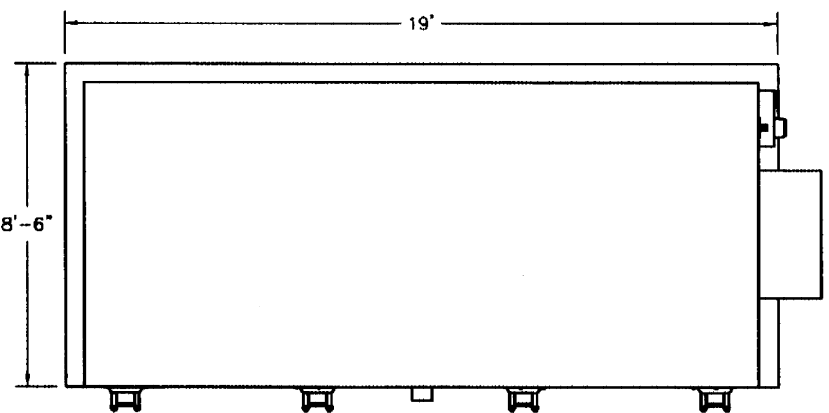
3.2 Placing the Charge Station (cont.)



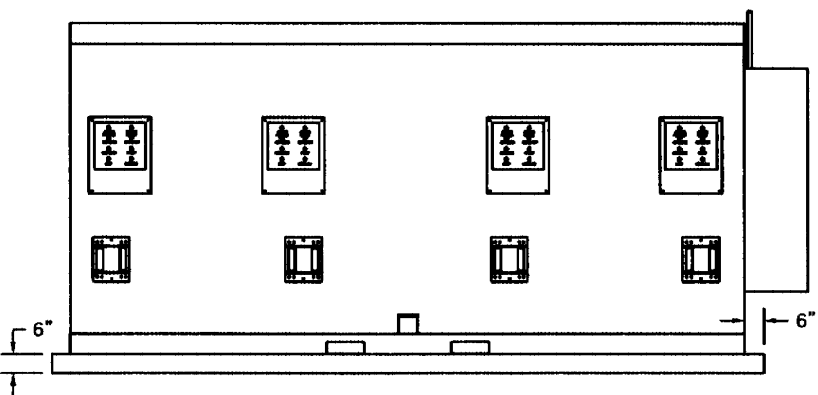
ISOMETRIC



SIDE



TOP



FRONT

Figure 3-2 - Charge Station and Equipment Pad Dimensions

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.2 Placing the Charge Station (cont.)

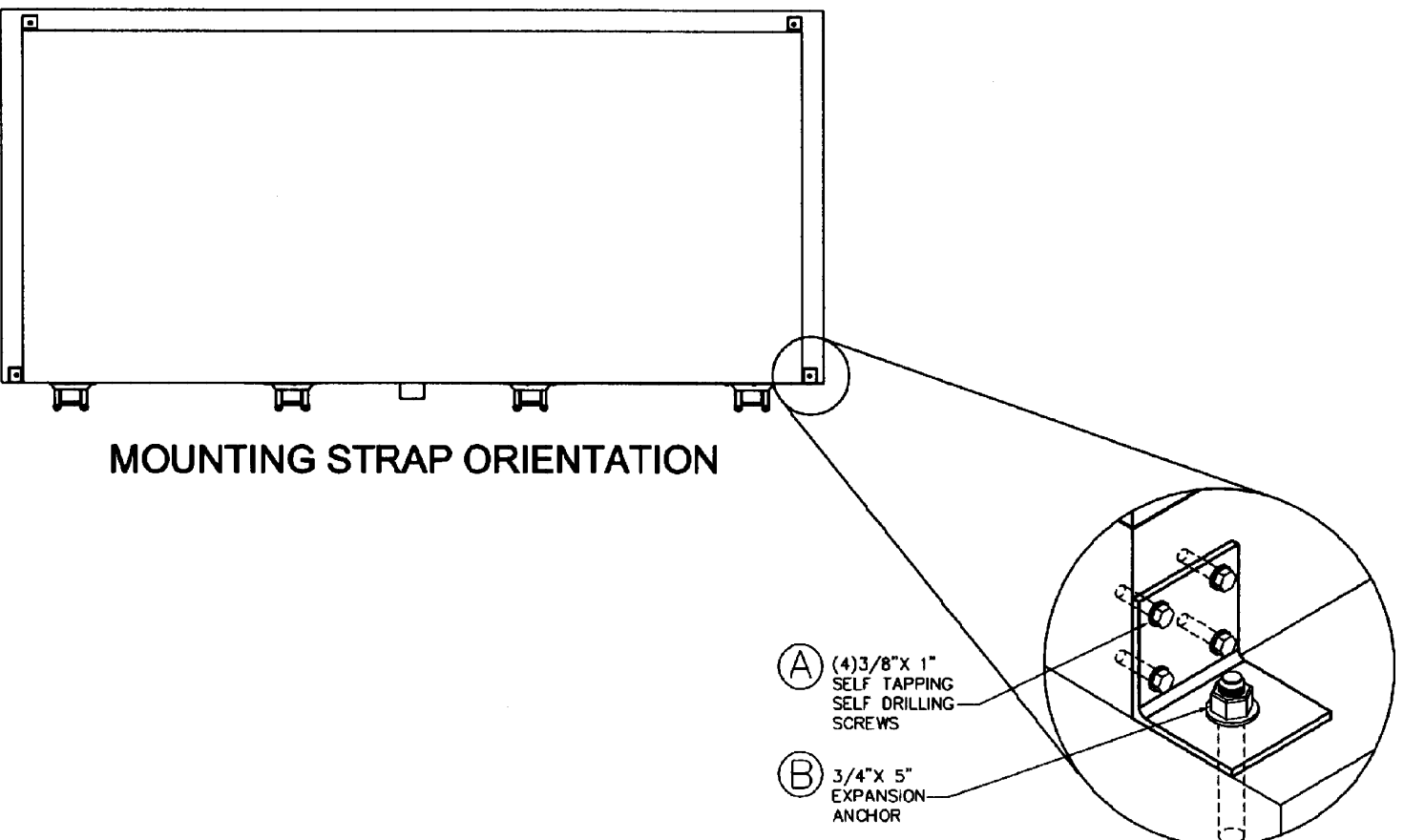


Figure 3-4 - Charge Station Mounting Strap Installation

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.2 Placing the Charge Station (cont.)

HARDWARE SCHEDULE

LINE ITEM	LETTER CODE	QTY.	DESCRIPTION	MGF. PART NO.
1	(A)	16	SCREW, 3/8" X 1". SELF-TAPPING, SELF-DRILLING	–
2	(B)	4	EXPANSION ANCHOR, 3/4" X 5 1/2"	HILTI KB IC 45375
3	(C)	6	FITTING, MALE ADAPTOR, PVC 1"	CARLON E943F
4	(D)	1	CONDUIT BODY, TYPE LR, W/COVER & GASKET ALUMINUM DIE CAST, 1" THREADED	APPLETON LR100M
5	(E)	1	CONDUIT BODY, TYPE LL, W/COVER & GASKET ALUMINUM DIE CAST, 1" THREADED	APPLETON LL100M
6	(F)	1	WIRE RAMP, 5 CHANNEL, POLY PLASTIC	GLASTIC 2888
7	(G)	1	CONDUIT, PVC, SCHEDULE 40, 1"	–
8	(H)	2	EYE BOLT, 3/4" X 12", 1 1/2" EYE	COPPERSTATE 19EBFGP 075 1200
9	(J)	4	LANYARD, #6 GA. WIRE, 10" LONG	–
10	(K)	4	COVER, 14" X 14", HDPE PLASTIC, 3/4" THICK	M-EDS-003.2
11	(L)	4	ATENNA ASSEMBLY, RFID TYPE	OMRON V700-H01
12	(M)	2	BOLT, 1/4" – 20 X 1/2"	–
13	(N)	10	ANCHOR BOLT, 1/2" X 7"	POWER-STUD 7428
14	(O)	2	CONDUIT COVER	APPLETON
15	(P)	6	COUPLING, PVC, 1"	CARLON E940F
16	(Q)	4	CONDUIT COVER SCREW	APPLETON
17	(R)	10	BOX CONNECTOR, PVC, 1"	CARLON E996F

Figure 3–5 - Charge Station Hardware Schedule

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation

1) Extend two conduits from the *SuperCharge*™ station junction box and in the conduit chase component.

2) By proper heating methods, make 90° bends in the 1 inch PVC conduit to route them parallel to the *SuperCharge*™ station, one in each direction, as shown in Figure 3–6.



NOTE

It is best to measure each concrete bumper and its openings to ensure a proper fit of the conduit and PVC enclosures. Make sure that the conduits and antenna boxes are oriented as shown in Figure 3–7.

3) Layout the rest of the conduit and PVC enclosures as shown in Figure 3–7.



NOTE

Install the plastic trim covers and their securing lanyards as shown in Figure 3–9 before placing the bumper units over the conduit assembly.

4) Using the lifting rings (provided), squarely place each concrete bumper over the conduit and PVC enclosures as shown in Figure 3–7. Insert the lifting rings through the bumper mounting holes and thread them into the nut embedded in the concrete bumper bottom, as shown in Figure 3–8.



CAUTION!

Do not use a hand truck or similar device for lifting the concrete bumpers. Use a properly sized forklift, the lifting rings and proper lifting procedures when installing the bumpers.

5) After final positioning of the concrete bumpers (parallel to the enclosure) has been performed, anchor the bumpers in place by using the anchor bolts provided as shown in Figure 3–10. It is important to use the correct hardware and to follow the anchor bolt installation procedures.

6) Pull the antenna cables through the conduits and into the PVC enclosures. Locate any cable slack inside the *SuperCharge*™ station junction box. Note that two antenna cables are pulled in each conduit. Also note that the antenna cables are numbered (one through four) and must be pulled to their appropriate charge port, numbers one through four, respectively. The numbering convention is from left to the right when facing the *SuperCharge*™ station.

7) Connect all four antenna components to each of the antenna cables.

8) Place the antennas inside the PVC enclosures orientated as shown in Figure 3–11. Secure them in place with the four screws provided.

9) Install the enclosure lid and secure it in place with the cover screws.

10) Place the trim covers on the concrete bumper openings.

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation (cont.)

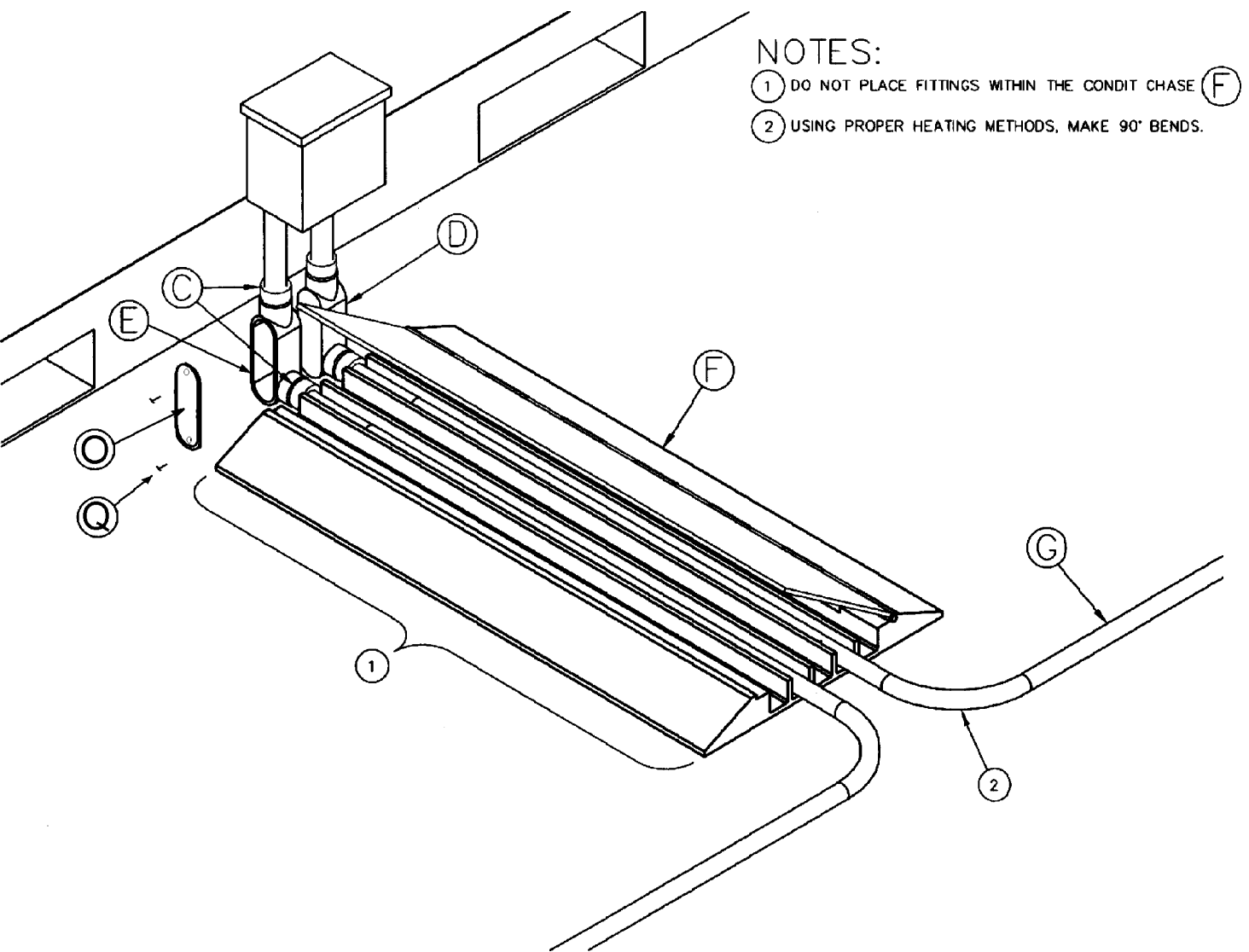


Figure 3-6 - Conduit Configuration to Parking Bumpers

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation (cont.)

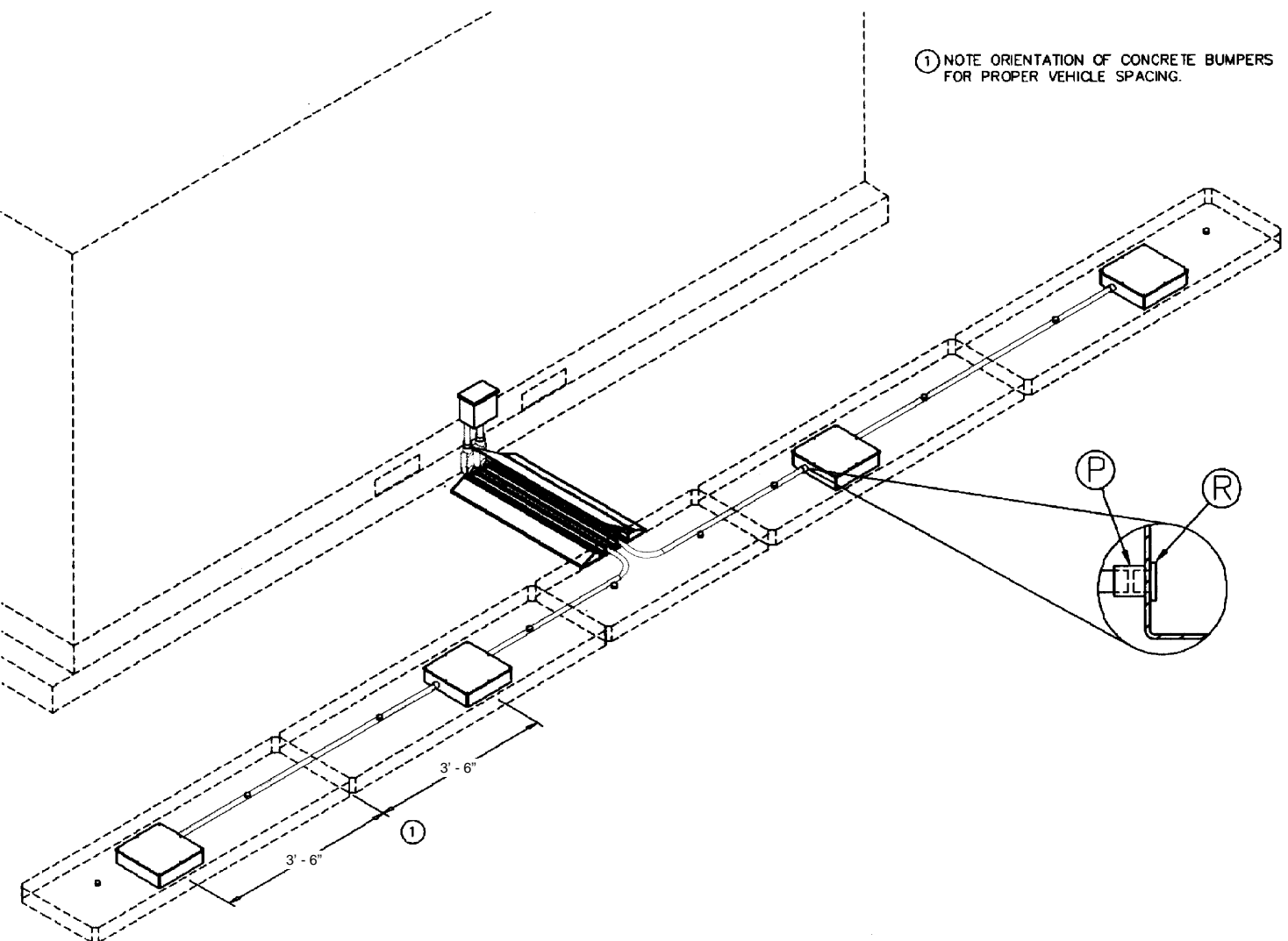
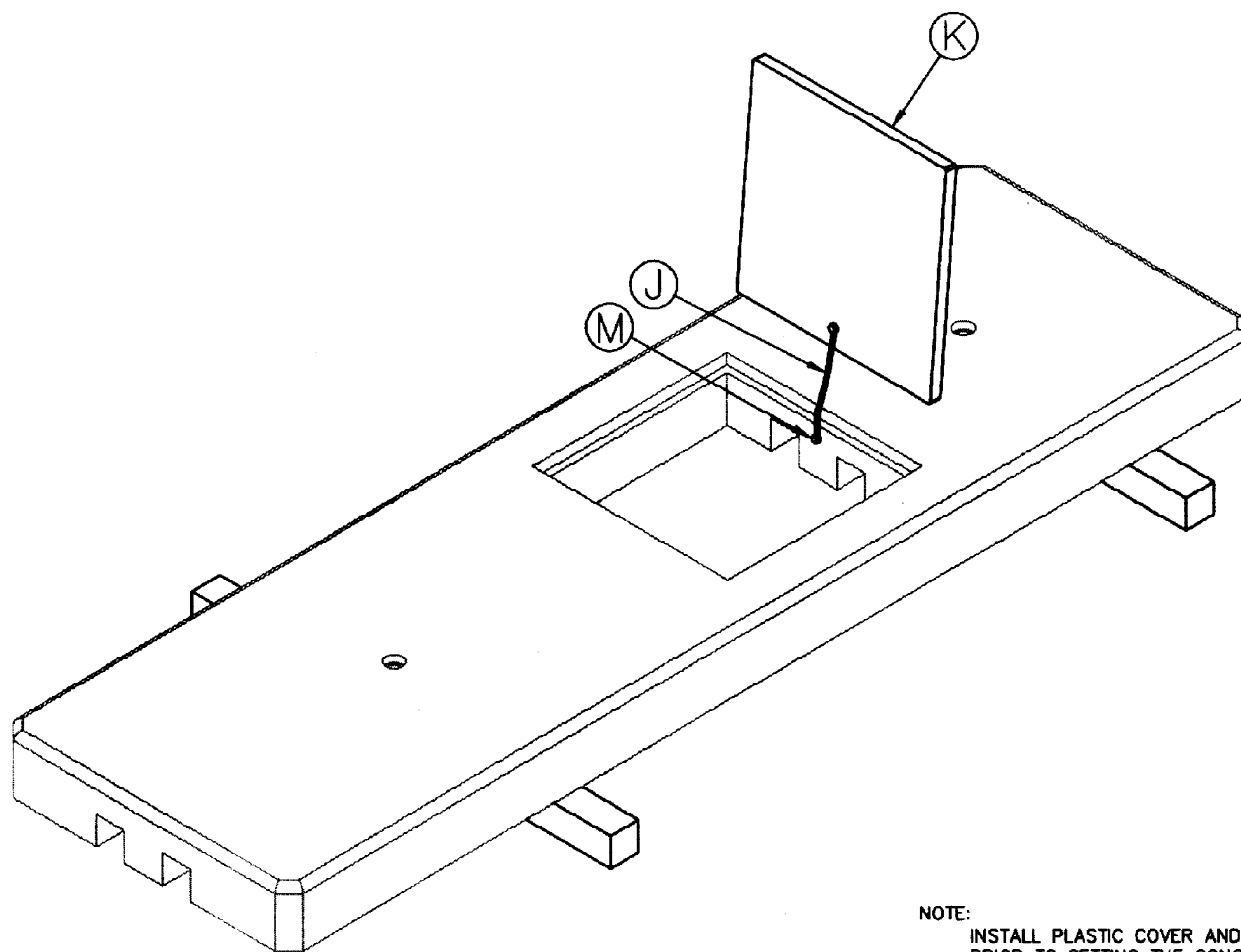


Figure 3-7 - Parking Bumper Configuration

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation (cont.)

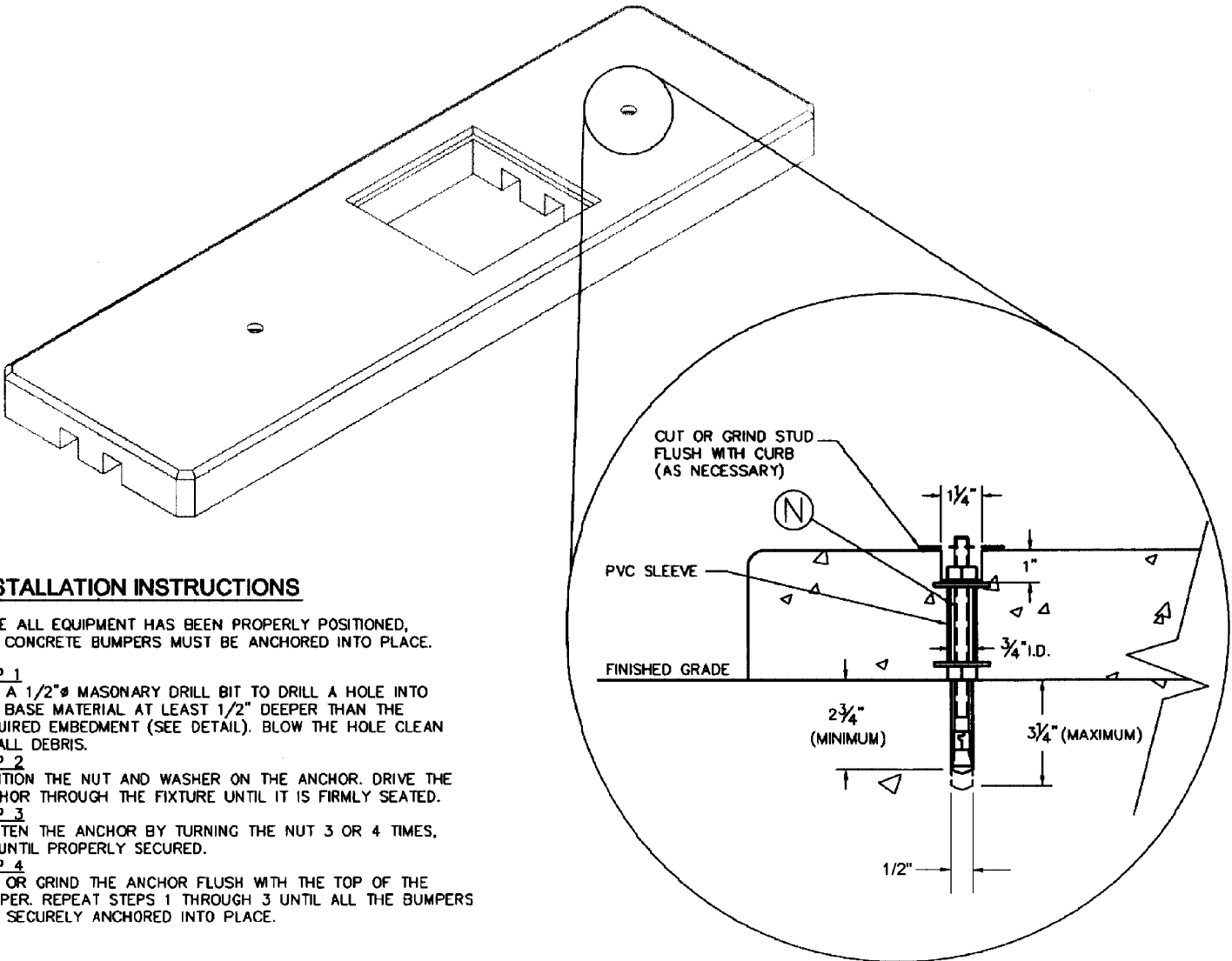


NOTE:
INSTALL PLASTIC COVER AND LANYARD
PRIOR TO SETTING THE CONCRETE BUMPER
IN PLACE.

Figure 3-9 - Installing Plastic Trim Cover in Parking Bumper

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation (cont.)



INSTALLATION INSTRUCTIONS

ONCE ALL EQUIPMENT HAS BEEN PROPERLY POSITIONED, THE CONCRETE BUMPERS MUST BE ANCHORED INTO PLACE.

STEP 1

USE A 1/2"Ø MASONRY DRILL BIT TO DRILL A HOLE INTO THE BASE MATERIAL AT LEAST 1/2" DEEPER THAN THE REQUIRED EMBEDMENT (SEE DETAIL). BLOW THE HOLE CLEAN OF ALL DEBRIS.

STEP 2

POSITION THE NUT AND WASHER ON THE ANCHOR. DRIVE THE ANCHOR THROUGH THE FIXTURE UNTIL IT IS FIRMLY SEATED.

STEP 3

TIGHTEN THE ANCHOR BY TURNING THE NUT 3 OR 4 TIMES, OR UNTIL PROPERLY SECURED.

STEP 4

CUT OR GRIND THE ANCHOR FLUSH WITH THE TOP OF THE BUMPER. REPEAT STEPS 1 THROUGH 3 UNTIL ALL THE BUMPERS ARE SECURELY ANCHORED INTO PLACE.

Figure 3-10 - Parking Bumper Anchoring Detail

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.3 Antenna and Parking Bumper Installation (cont.)

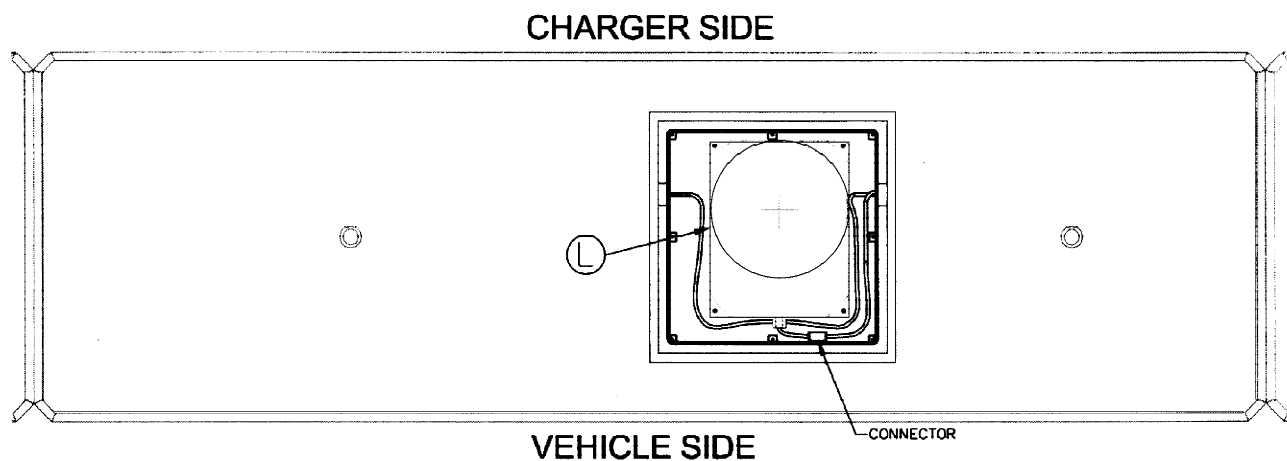


Figure 3–11 - Installing RF Antenna in Parking Bumper

3.0 CHARGE STATION INSTALLATION AND ASSEMBLY

3.4 Electrical Installation

Connect a branch circuit feeder or a new service feeder inside the meter/disconnect enclosure (Figure 3–1) to the terminals shown in Figure 3–12. The power supply enclosure can be fed from underground or overhead.

Maximum Actual Load and Voltage Rating

Amperes: 80
Voltage: 480V, 3ph, 4W

Circuit Rating

Amperes: 100
Voltage: 480V, 3ph, 4W

Minimum Branch Circuit Feeders

(3) #2 Copper, XHHW or THHN
(or equiv. 90°C rated insulation)
(1) #8 Copper, Ground

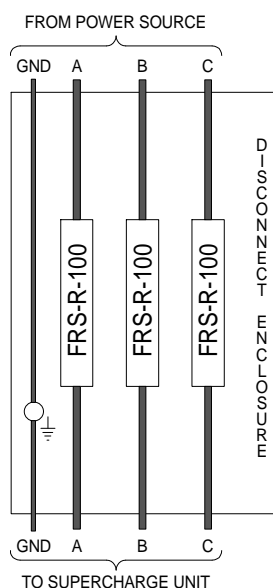


Figure 3–12 - Disconnect Switch Phase Wiring

4.0 VEHICLE PREPARATION AND CHARGE INDICATORS

4.1 RFID Tag Installation on Vehicles

Each vehicle that will undergo recharging at the *SuperCharge™* station must have a Radio Frequency Identification (RFID) tag affixed to its underside to allow electronic identification of the vehicle (Figure 4–1). This allows the charger to identify the vehicle, its battery configuration and charge cycle history stored on a semiconductor chip inside the tag. **The RFID tag must stay with the vehicle battery to which it has been assigned** since it stores information for that specific battery.



Figure 4–1 - RF Identification (RFID) Tag



NOTE

A vehicle cannot receive recharging power if it does not have the correct RFID tag installed. The *SuperCharge™* station will not recognize the vehicle and will provide no response to it on the user interface panel.

Install the assigned RFID tags on the GSE vehicles as described below.

1) Choose a location (structural member) on the vehicle for mounting the RFID tag. The tag must be affixed in a location that will be situated above the RF antenna (in the parking bumper) when the vehicle is parked for recharging and no more than 13 inches above the top of the parking bumper. A typical mounting location is shown in Figure 4–2.

4.0 VEHICLE PREPARATION AND CHARGE INDICATORS

4.1 RFID Tag Installation on Vehicles (cont.)

2) Insulate the RFID tag from the metal surface of the vehicle by mounting it onto a 3/4" thick piece of plastic (nylon, EPDM or polypropylene) with a suitable adhesive.

3) Mount the tag assembly onto the vehicle structural member in a location as shown below.



NOTE

Mount the RFID tag on the vehicle in a location no more than 13 in. above the top of the parking bumper or the antenna may not detect it.

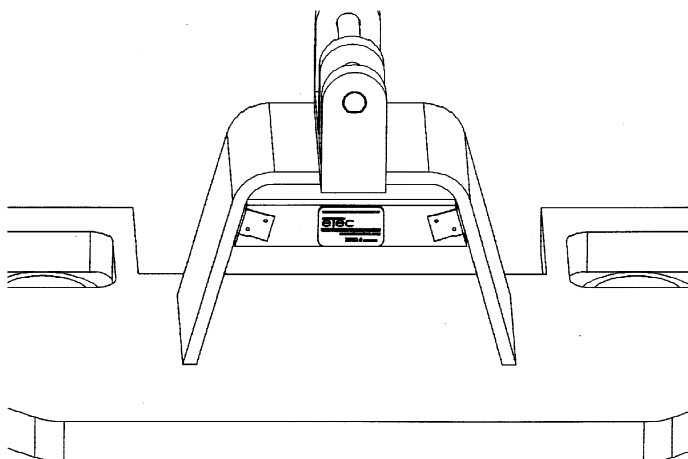


Figure 4-2 - RFID Tag Mounted on Vehicle (underside view)

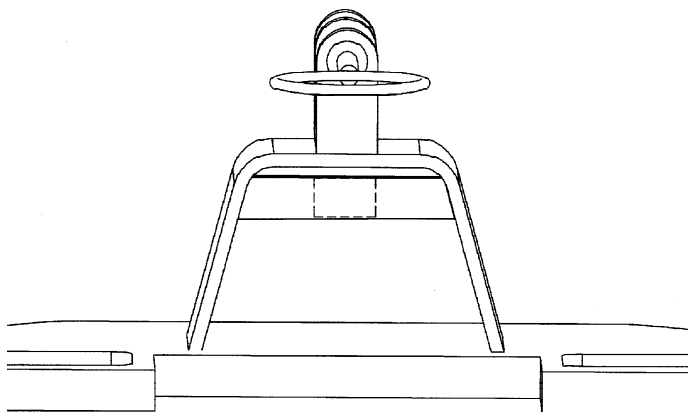


Figure 4-3 - RFID Tag (top view)

4.2 Vehicle Charge Indicators

There are three different models of the charge monitor/indicator that may be installed in the vehicle.

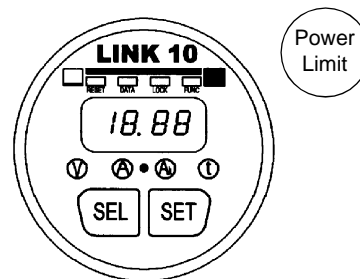


Figure 4-4 - Link 10 Charge Monitor and Power Limit Indicator

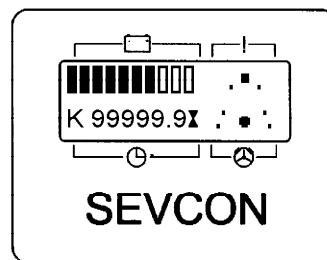


Figure 4-5 - Sevcon Charge Monitor

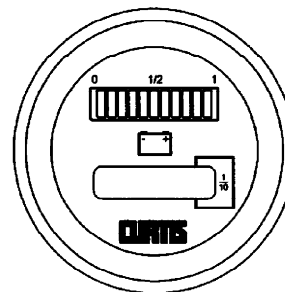


Figure 4-6 - Curtis Charge Monitor

These monitors are configured by trained technical personnel and cannot be adjusted by the GSE vehicles users. Drivers must return the vehicle to the *SuperCharge*™ station for recharging when the monitor activates as indicated below.

LINK 10: Red Power Limit light activates.

CURTIS: Green charge status lights have declined to illuminated red light.

SEVCON: LCD bar graph segments decline to predetermined low charge level.

5.0 CHARGE STATION OPERATION

These instructions describe how to properly park a vehicle at the charge station, connect it to the charger and interpret the user interface indicator lights during the recharging process.

5.1 Parking and Connecting a Vehicle for Recharging

1) Drive the vehicle into the desired parking space at the *SuperCharge*™ station. When the RFID tag is within adequate proximity of the bumper antenna, the user interface panel (Figure 5–2) will indicate:

ACCESS APPROVED

2) Shut off the vehicle and engage the parking brake.

3) Insert the charging cable connector into the charge connector on the vehicle (see Figure 5–1). The user interface panel will indicate one of the following conditions:

CHARGING: Vehicle is receiving charge current.

STANDBY: Charge current is being applied to another vehicle. When its charging cycle is complete, the next vehicle on standby will receive charge current and the CHARGING light will illuminate.

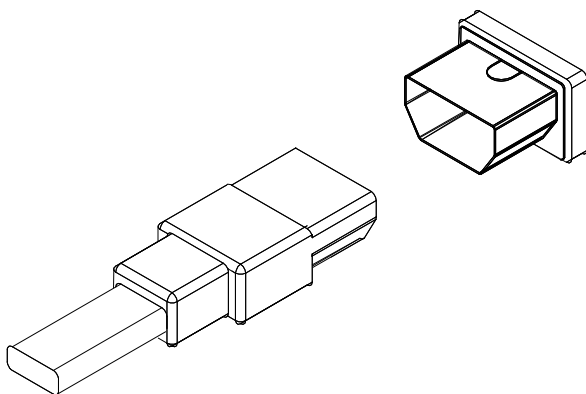


Figure 5–1 - Charge Connector Orientation

EQUALIZE: On a periodic basis, the *SuperCharge*™ station will perform an Equalizing charge on the vehicle battery to condition it for optimal charging and service life. When this blue light is on steadily, it indicates that an Equalizing charge is required. When it is on and flashing (and the CHARGING light is also on), the Equalizing charge is in progress. Upon completion, the COMPLETE indicator will light up. Press the STOP button and disconnect the charging cable from the vehicle.



DANGER! SHOCK HAZARD

DO NOT disconnect the charging cable from a vehicle when the user interface panel indicates **CHARGING** or serious injury and equipment damage may result from electrical arcing between the charge connectors. Up to 400 amperes may be present at 36-120V d.c. which can cause electrical shock, burns, eye injury and death. If a vehicle must be disconnected from the *SuperCharge*™ station before charging is complete, press the **STOP** button on the user interface panel to terminate charging, and then disconnect the charging cable.

4) Allow the vehicle to remain connected until the user interface panel indicates:

COMPLETE

5) Press the STOP button.



NOTE

If you press the **STOP** button while a vehicle is charging, charging will be terminated and the **FAULT** light will illuminate. This is normal in this circumstance. Disregard the **FAULT** light and disconnect the charging cable from the vehicle.

6) Disconnect the charging cable from the vehicle and move the vehicle away from the charging station.

5.0 CHARGE STATION OPERATION

5.1 Parking and Connecting a Vehicle for Recharging (cont.)

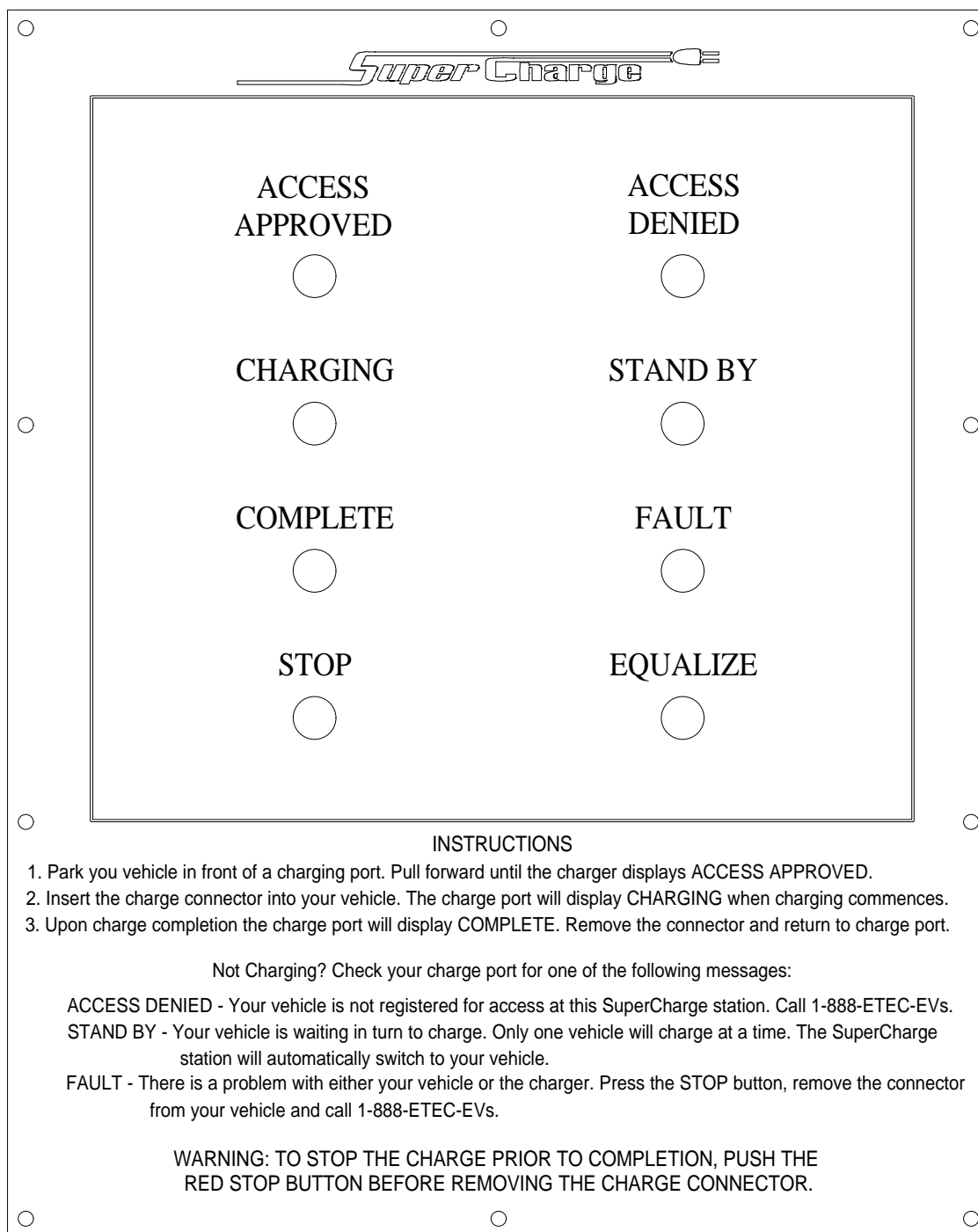


Figure 5-2 - User Interface Panel