SkyLink – Cloud Connection Installation Guide

Rev 12/2023

CONTENTS

1 – INTRODUCTION

The SkyLink data solution system (Cloud Connection hardware kit) enables communication between the charger and the system back end via Wi-Fi. An Ethernet external connection between the laptop and charger enables the Wi-Fi.

1.1 – Symbol Usage

The PosiCharge® ground support equipment (GSE) chargers are designed with safety as the highest priority. Installation must comply with all local codes, and the following safety precautions must be read and observed.

DANGER Indicates information about safety practices which, if not followed, may result in serious injury or death.

WARNING Indicates information about safety practices which, if not followed, could result in personal injury, fire, or equipment overheating.

NOTE Indicates helpful information for installation or usage but does not contain personnel or equipment safety-related information.

Customer Support:

Contact the PosiCharge Customer Support Department at the number below prior to performing an service on the unit.

1-866-767-4242

DANGER Touching live electrical parts can cause fatal shocks or severe burns. The battery terminals are always electrically live, and the output circuit is live whenever the battery is connected or being charged. The input power circuitry and internal circuits are live whenever input power is on. An incorrectly installed or improperly grounded charger is a hazard.

1.2 – General Safety Precautions

- Read this entire manual and cautionary markings BEFORE YOU BEGIN.
- Make sure that you also read the IMPORTANT SAFETY INSTRUCTIONS in section 1.3.
- This kit must be installed ONLY by qualified personnel.

ATTENTION!

- Always wear safety glasses.
- Tools and equipment can be dangerous if not safely handled.
- Read each step completely before performing a task.
- Perform all debris-, dust-, or fume-producing work in a well-ventilated, designated area.
- Follow all lockout-tagout (LOTO) safety procedures, as applicable.

1.3 – Important Safety Instructions

- Do not touch the uninsulated portion of any connector or an uninsulated terminal.
- Only qualified service personnel may remove the panels on the GSE) unit. Refer all servicing to qualified service personnel. Opening of the system or attempted installation or repair of it by anyone other than qualified service personnel voids the warranty.
- Disconnect the battery charger from battery connections and the input power before servicing. Lock out and tag out the input power according to OSHA 29 CFR 1910.147.
- Do not expose the system to rain or install/service/repair it when it is in standing water.
- Stop a charge by disconnecting the output cable connector or by pressing the Stop button on the front panel. The charger automatically stops a charge event, in the event of a hot disconnection, to prevent arcing or burning of the charger connections.

WARNING OSHA INSTRUCTION STD 1-11.4 OCTOBER 30, 1978

"Battery charging" areas, where power industrial truck batteries are only charged (i.e., no maintenance is performed, batteries are not removed from the trucks, and no electrolyte is present in the area) are not subject to the requirement of 29 CFR 1910.178 (g) (2). The charging areas shall otherwise be in compliance with 29 CFR 1910.178 (g) (1), (8), (9), (10), (11), and (12).

1.4 – Acronyms, Abbreviations and Terms

Acronym, Abbreviation, or Term	Meaning
CFR	Code of Federal Regulations
Cloud Computing System Back End	Various computers, servers, and data storage systems that create the cloud of computing services **NOTE:** The cloud computing system is divided into two sections: the front end and the back end. They connect to each other through a network, usually the Internet. The front end is the side the computer user, or client, sees. It includes the client's computer (or computer network) and the application required to access the cloud computing system. The back end is the "cloud" section of the system.[1]
DVS	Dual-Vehicle System
GSE	Ground Support Equipment
IP	Internet Protocol
LOTO	Lockout-Tagout
MAC	Media Access Control
OS	Operating System
OSHA	Occupational Safety and Health Administration
SN	Serial Number
SSID	Service Set Identifier (Wireless Network Name)
UPC	Universal Product Code
URL	Uniform Resource Locator
WCSI	Webasto Charging Systems, Inc.
Wi-Fi	[N]ame of a wireless networking technology that uses radio waves to provide high-speed network and Internet connections[2] [W]ireless local area network (WLAN) products that are based on the Institute of Electrical and Electronics Engineers (IEEE) 802.11 standards.[3]

[1] "How Cloud Computing Works" by Jonathan Strickland
[2] "Wi-Fi Definition is Not Wireless Fidelity," Vangie Beal; July 14, 2020
[3] Wi-Fi Alliance, the organization that owns the Wi-Fi (registered trademark) term (ibid.)

1.5 – SKYLINK SYSTEM SETUP

Cloud Connection

The hardware kit (Figure 1) requires multiple components (Figure 2) for setup (Figure 3).

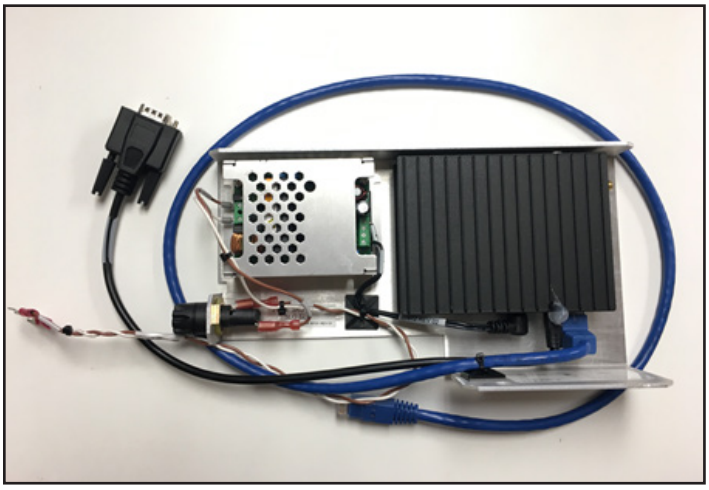

Figure 1 – Assembled Hardware Kit

Figure 2 – Hardware Kit Components

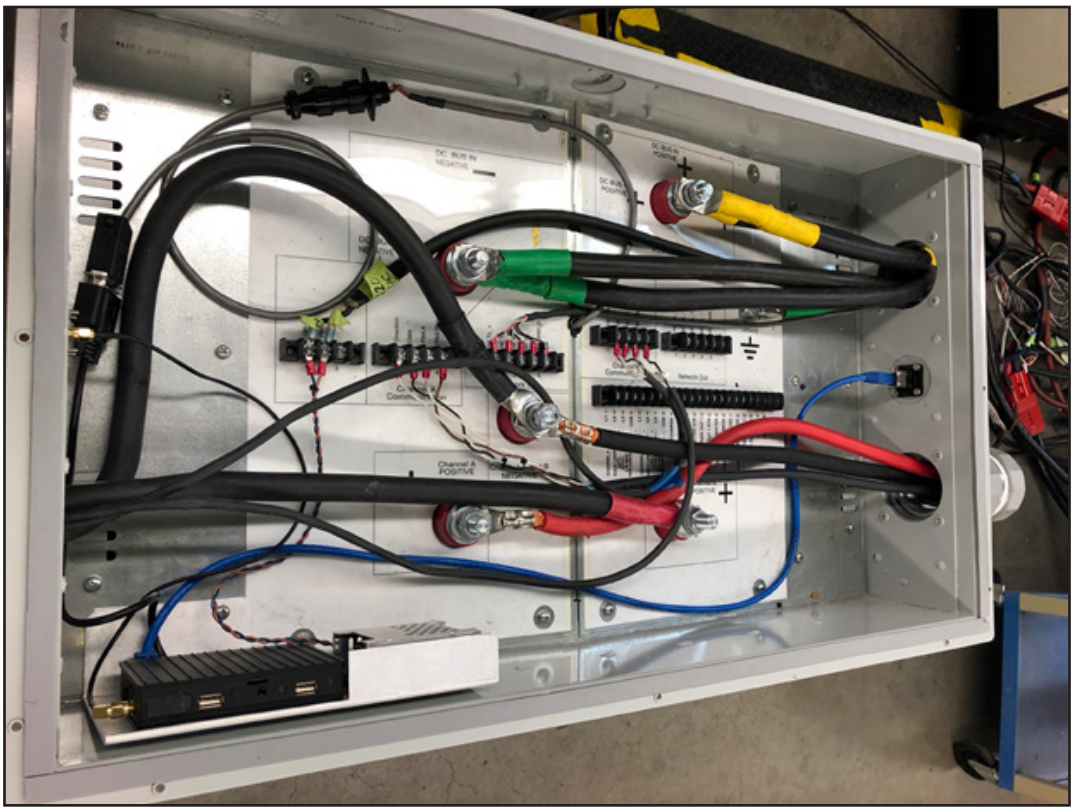

Figure 3 – System Hardware Setup

2 – SKYLINK INSTALLATION PROCESS

The following sections walk technicians through a three-step installation process. All three steps must be implemented in order to complete the SkyLink system setup.

Step 1 – Installing the SkyLink System–Cloud Connection Hardware

Step 2 – Updating the Charger Software Version

Step 3 – Configuring and Registering the Charger to the SkyLink Web Portal

STEP 1

2.1 – Installing the SkyLink System–Cloud Connection Hardware

Mechanics (i.e., service providers who perform maintenance and repairs) or mechanical technicians (i.e., mechanics who can diagnose causes and troubleshoot problems) generally install the hardware.

Important Steps to Be Performed before Starting the Installation Process!!!

1. Record the serial number (SN) (Figure 4) from the SkyLink device, under the universal product code (UPC) symbol, for Step 3: Initial Setting Up and Programming, to be performed later, and for the Owner's Record (Figure 5).

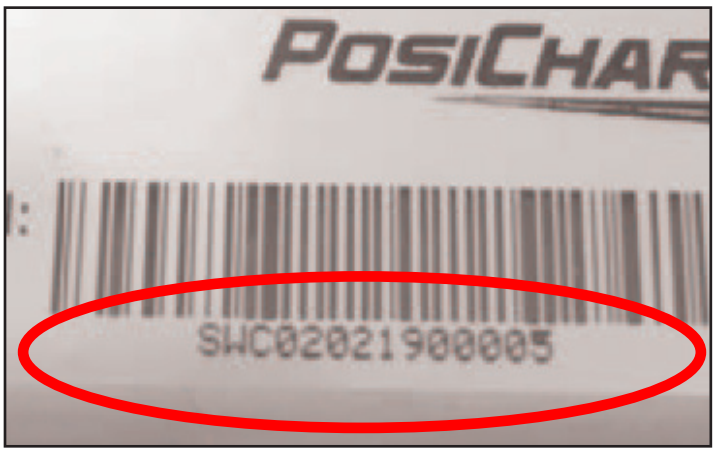

Figure 4 – SkyLink Devise Serial Number

Owner's Record

Model:
SkyLink – Cloud Connection

Serial Number (SN):

MAC Address ID:

Installation Date:

Figure 5 – Owner's Record

2. Record the media access control (MAC) address ID on the Owner's Record.

   Finding the MAC Address

   There may be cases in which the MAC Address for a SkyLink device is required to access an Ethernet or Wi-Fi network. A security method called "MAC filtering" can be used, in such cases, to control access to a network. The MAC Address for each device will need to be provided to the network administrator, to use this method, so that the administrator can grant access to the SkyLink device.

   SkyLink Assembly MAC Address Label

   The simplest way to retrieve the MAC address is to look on the SkyLink assembly for the MAC address label, which lists two MAC addresses: Ethernet and Wi-Fi. If connecting to a Wi-Fi network, then provide the Wi-Fi MAC address to the network administrator; if connecting to a hardwired network, then provide the Ethernet MAC address to the network administrator.

   If there is no MAC address label on the device, then the MAC address can be retrieved after all three system setup steps have been completed, and the unit has been powered up. Please refer to Appendix A: Missing MAC Address Retrieval.

3. Record the installation date on the Owner's Record.

4. Confirm that the airport web instance is created for the specific site and that an Airport Installer user account has been created (also for Step 3).

2.2 – Disconnecting the Unit Breaker

1. Power off/disconnect the breaker to the unit (Figure 6), and verify that the power to the unit is off before starting the installation.

2. Follow all applicable lockout–tagout (LOTO) procedures, as required.

2.3 – Assembling the Wi-Fi Antenna

1. Take the Wi-Fi antenna adapter (Figure 7) that comes with the SkyLink hardware kit.

2. Remove the backing nut, which is screwed onto it.

3. Insert the adapter through the bracket.

4. Insert the red O-ring (which waterproofs the adapter) onto the back of the adapter, and replace the backing nut.

5. Attach the Wi-Fi antenna to the front of the adapter, opposite the side of the red O-ring, on the other side of the bracket.

Figure 6 – Unit Breaker

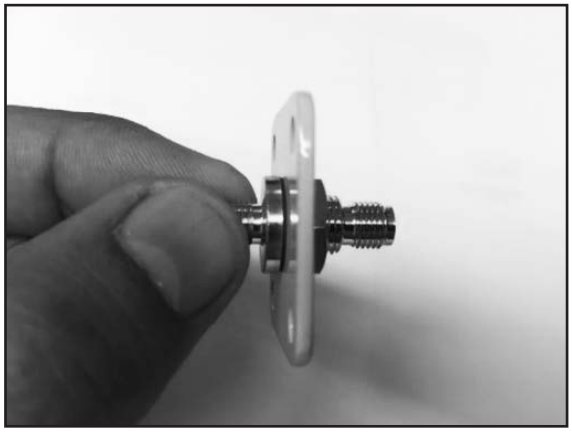

Figure 7 – Wi-Fi Antenna Adapter

2.4 – Locating the Installation Area

The SkyLink device is to be installed only within the power station, which can be standalone or the top portion of a dual-vehicle system (DVS) unit (Figure 8).

2.5 – Accessing the Internal Hardware

1. Carefully remove the top cover of the unit by removing all nine screws with a ⅛-inch Allen wrench (Figure 9).

2. Remove the cover to install the SkyLink device.

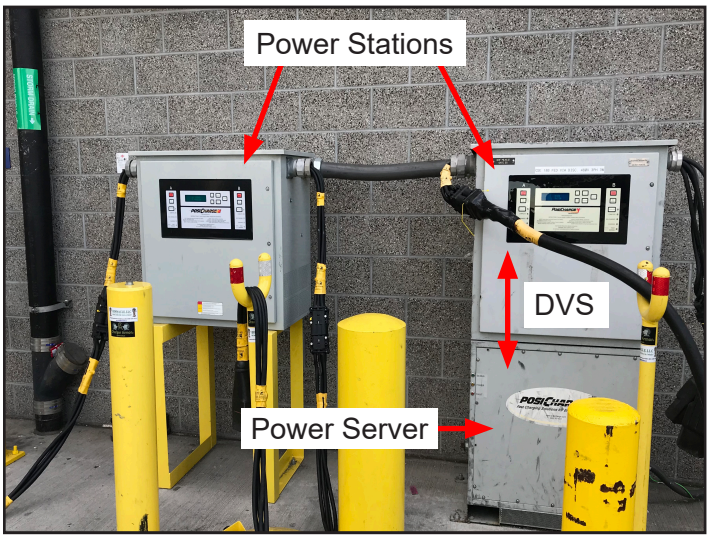

Figure 8 – Power Station and DVS Unit

Figure 9 – Top Cover Removal

2.6 – Identifying the Installation Location

Install the SkyLink device in the front left section of the power station (Figure 10).

2.7 – Locating and Removing the Power-Station 10-32 Screw

Remove the power-station 10-32 screw (highlighted in Figure 11) with a #2 Phillips screwdriver.

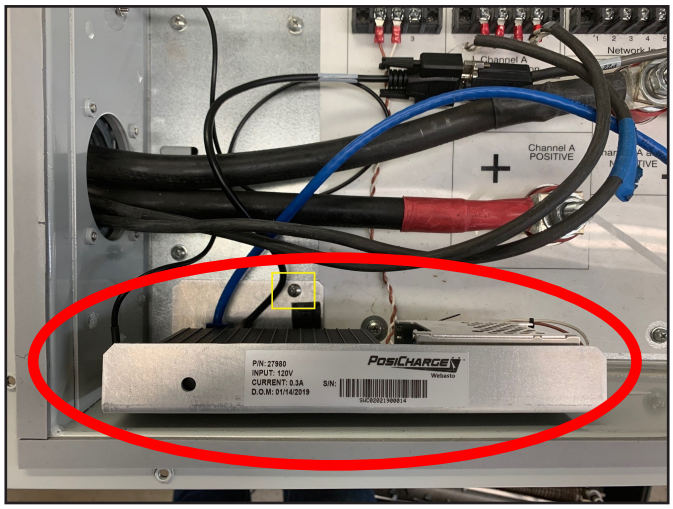

Figure 10 – SkyLink Devise Installation

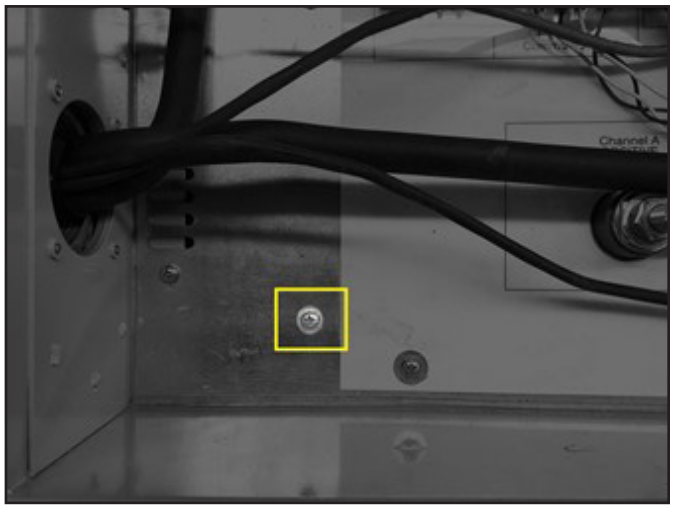

Figure 11 – Removing the Power Station 10-32 Screw

2.8 – Placing the SkyLink Device

Position the SkyLink device in place (Figure 10) with the longer SkyLink 10-32 screw (highlighted in yellow) included within the kit, also using a #2 Phillips screw driver.

2.9 – Connecting the Power Spade Connectors

Connect the power spade connectors to the terminal block marked “120VAC & Rtrn” (which is not polarity sensitive) (Figure 12), also with a #2 Phillips screw driver.

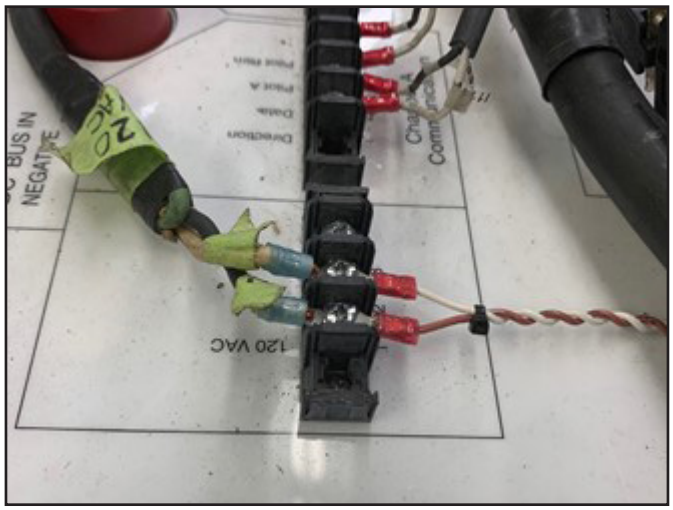

Figure 12 – Connecting the Power Spade Connectors

2.10 – Removing the Hardware Attaching the Amp Connector

Remove the hardware that attaches the Amp data communication connector (Figure 13), with a #1 Phillips screw driver for the front side and a ¼-inch open-ended wrench for the back side. The hardware will be reused to attach the Wi-Fi antenna adapter hub (step 2.12.1).

2.11 – Installing the Wi-Fi Adapter

1. Install the wireless fidelity (Wi-Fi) adapter plate and gasket (Figure 14), on the front side; reusing the hardware, in the following order, on the back side.
    - Screw
    - Flat washer
    - Locking washer (washer with a split)
    - 0.25-inch nut

2. Attach and tighten the Wi-Fi antenna.

Figure 13 – Amp Data Communication Connector

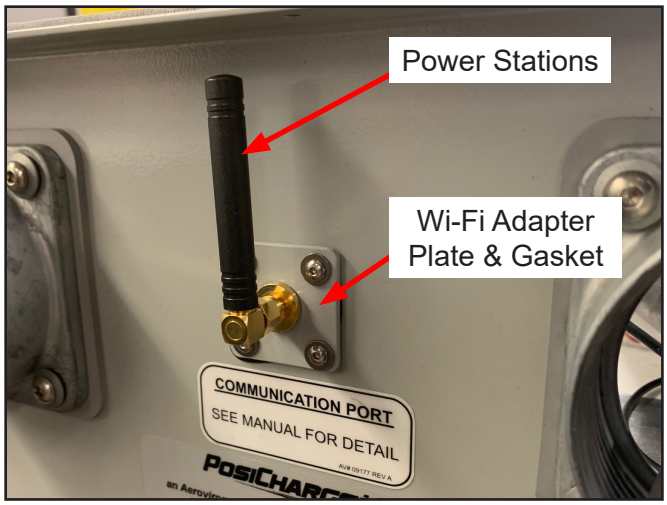

Figure 14 – Wi-Fi Adapter Plate, Gasket and Antenna

2.12 – Connecting the Wi-Fi Extension

Connect and tighten the Wi-Fi antenna extension connector to the Wi-Fi antenna adapter hub (Figure 15), on the back side, with a 5/16-inch wrench.

2.13 – Installation of Cable 06945

1. Route the 06945 cable to the interior of the unit through the hole located on the top of the unit as shown below.

Route the cable to the interior of the unit through here.

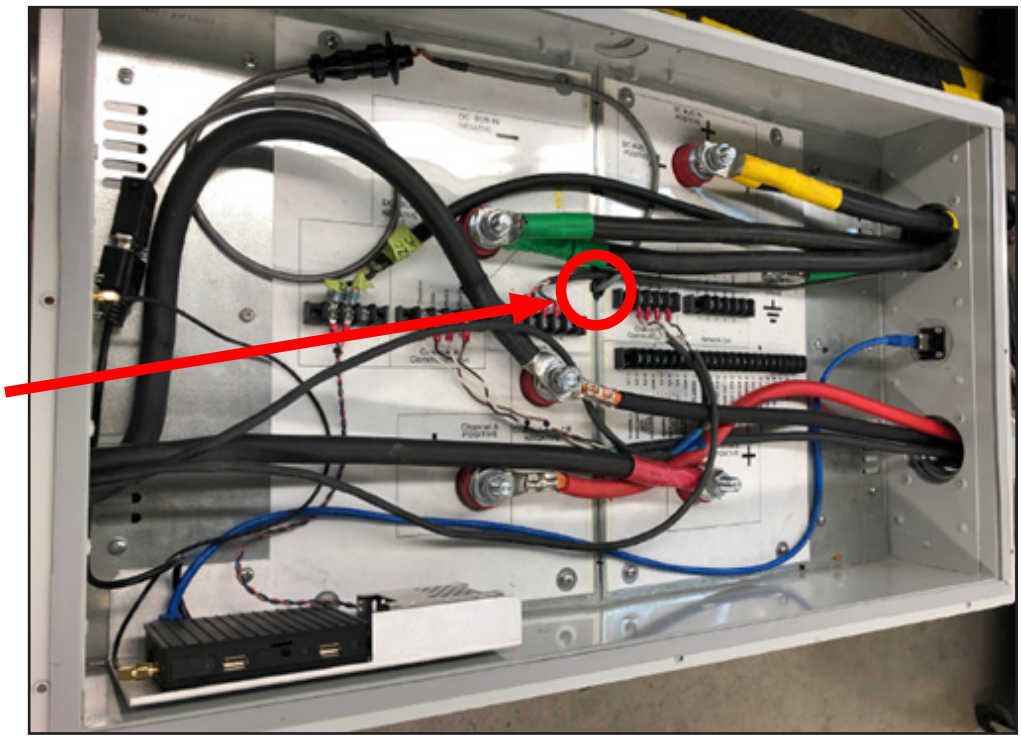

Figure 15 – Cable 06945 Routing

2. Feed the cable through the hole until it reaches the control board.

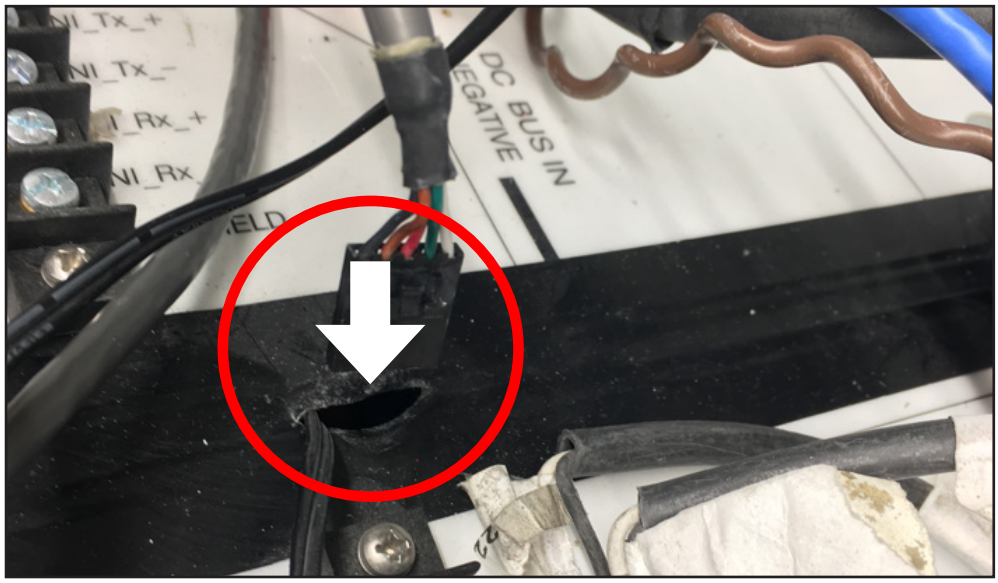

Figure 16 – Cable 06945 Routing to Control Board

3. Feed enough cable through the hole so the door can be opened easily without stretching the cable.

4. Connect the small flat connector of cable 06945 to the control board as shown.

   Please Note:
   There are two different versions of the control board as shown below.

Cable 06945 Connection to the GEN2 Control Board

Version 1

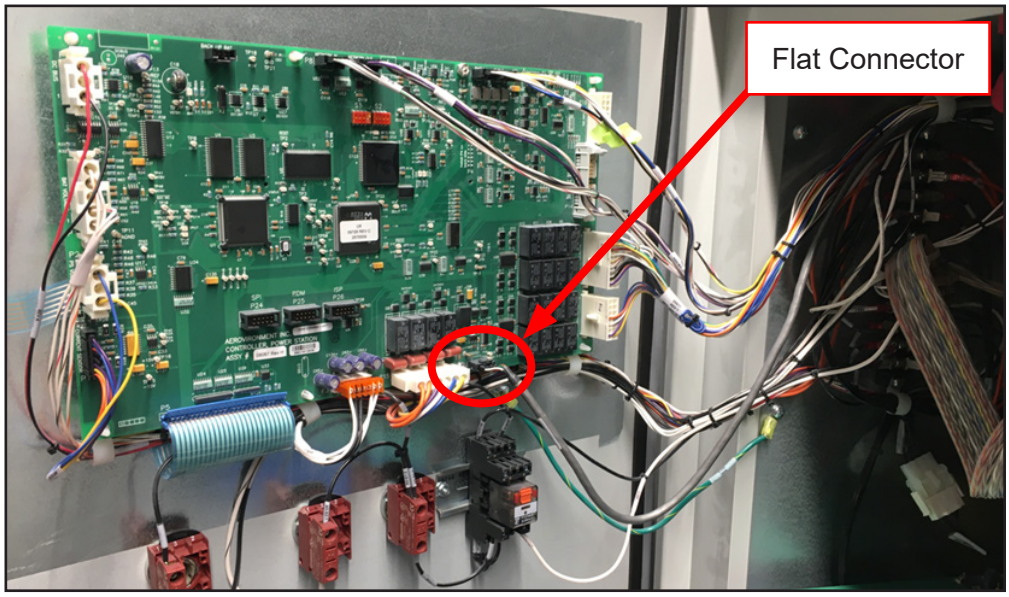

Figure 17 – Cable 069445 Connection to Control Board Version 1

Cable 06945 Connection to the GEN3 Control Board

Version 2

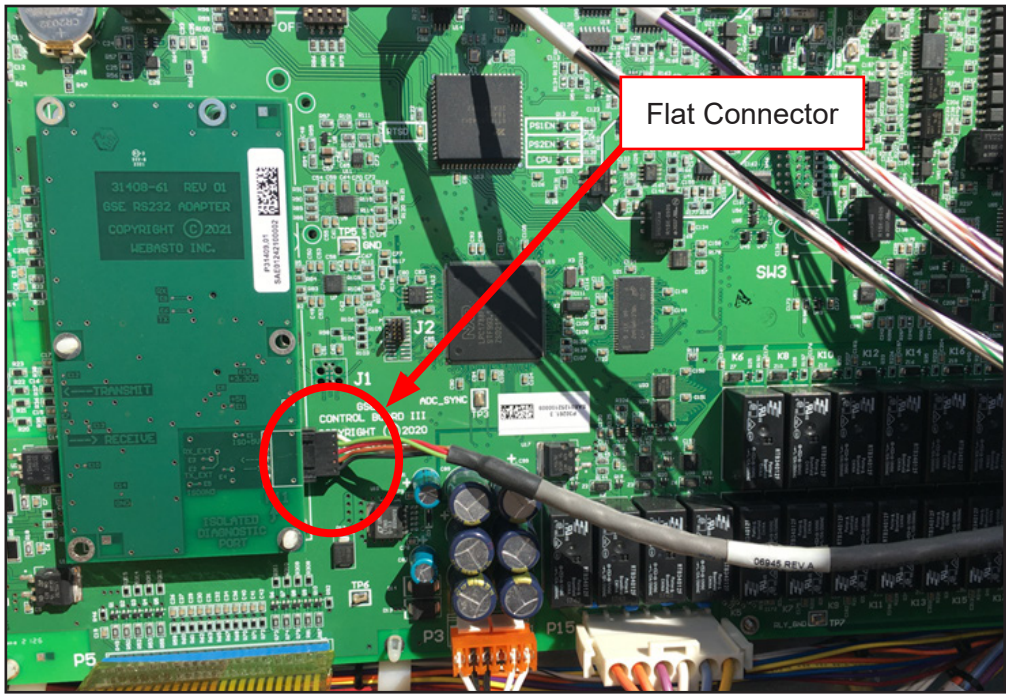

Figure 18 – Cable 06945 Connection to Control Board Version 2

5. Connect the round connector of cable 06945 to cable 27968 as shown below.

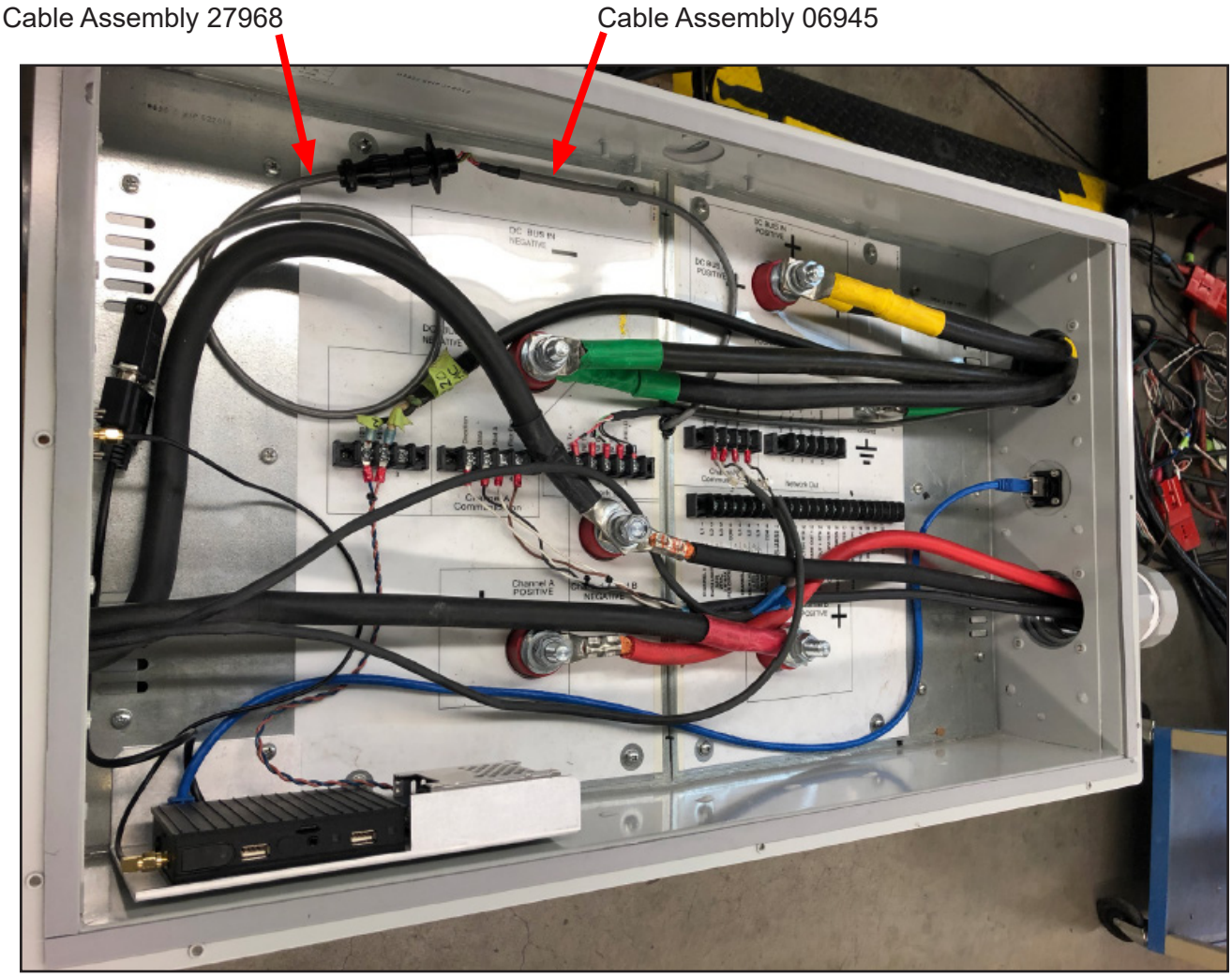

Figure 19 – Cable 06945 Connection to Cable 27968

6. Secure cable 06945 to the harness using the tie-wraps provided – installation of cable 06945 is complete.

2.14 – Routing the Amp Data Communication Connector to the SkyLink Module

Link the charger Amp data communication connector and Skylink serial connection, using the serial-to-Amp cable from the kit (Figure 21).

Figure 20 – Antenna Extension Connector

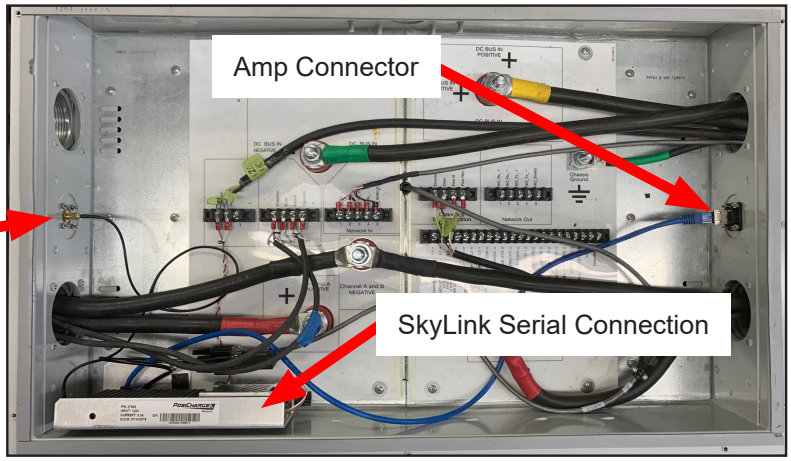

Figure 21 – Amp Connector and SkyLink Serial Connection

2.15 – Checking the Amp Data Communication and Serial Connections

Check that the Amp data communication connector is connected to the Amp-to-serial connector and that the serial connection is connected to the serial-to-Amp connector (Figure 22).

2.15 – Checking the Ethernet Adapter Plate

If the adapter plate for the Ethernet (Figure 23) is available, then remove the plate and keep the hardware for reuse.

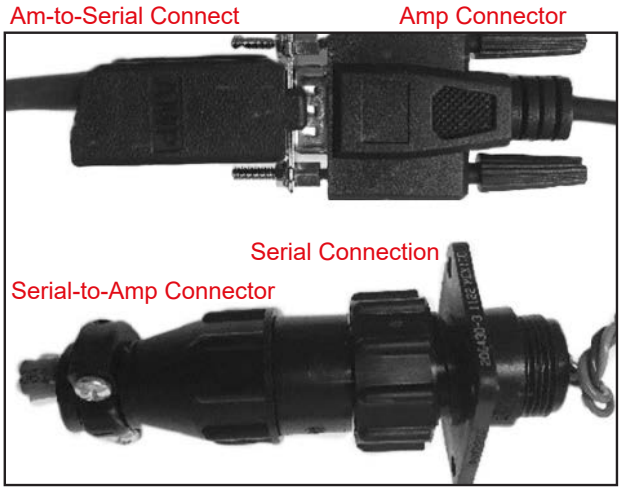

Figure 22 – Amp and Serial Connection

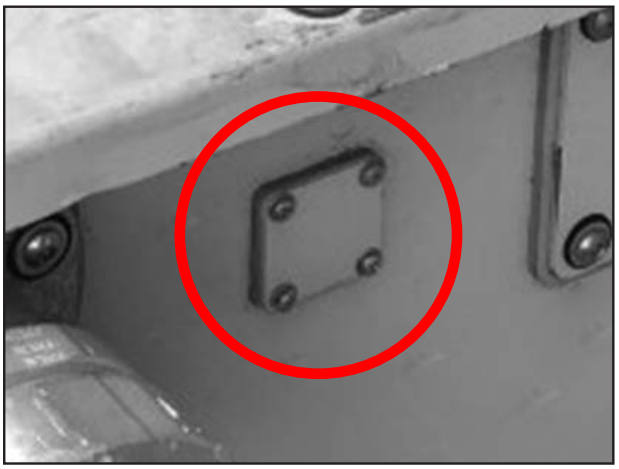

Figure 23 – Ethernet Adapter Plate

2.17 – Installing the Ethernet Adapter

1. Install the Ethernet adapter with the gasket and rubber cap, in place of the former PosiNet/Ethernet port from the outside of the cabinet (Figure 24) with a 1.5-mm Allen wrench, using the supplied hardware in the following order:

   - a screw
   - a flat washer
   - a locking washer (a washer with a split)
   - a 0.25-inch nut

   2. Install the rubber cap with one of the nine screws (Figure 25).

Figure 24 – Ethernet Adapter Installation

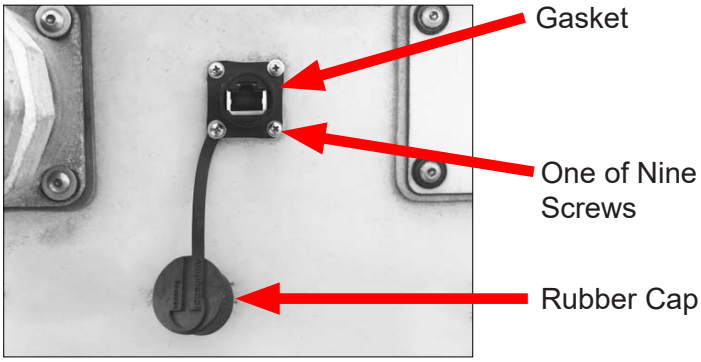

Figure 25 – Gasket, Screw and Rubber Cap

2.18 – Connecting the SkyLink Ethernet Cable

Connect the SkyLink Ethernet cable to the Ethernet adapter hub (Figure 26).

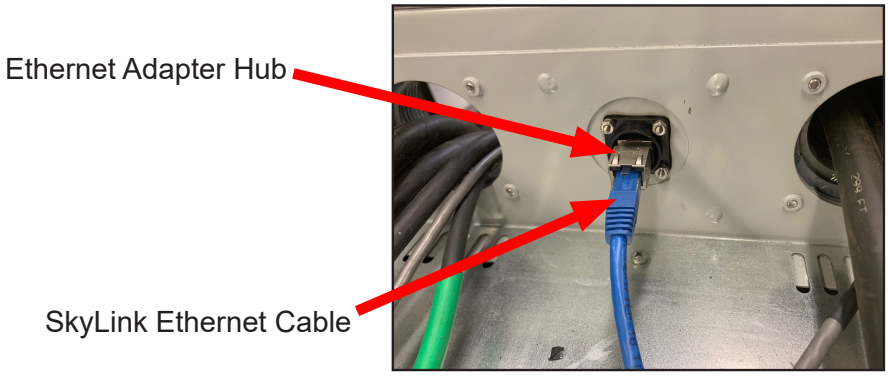

Figure 26 – Skylink Ethernet Cable Connection

2.19 – Completing the Hardware Installation

1. Replace the top cover of the unit and the remaining eight connecting screws. This step is the reversal of the cover removal step in section 2.5.
2. Power the device back on.
3. The hardware installation (Step 1) is completed. The next steps are to update the charger software version (Step 2) and then register the charger to the SkyLink Cloud Connection (Step 3).

3 – INITIAL SETUP

Electronics technicians (e.g., computer installers) update the charger software after all units are physically installed.

STEP 2

3.1 – Updating the Charger Software Version

Update the charger software to version 1.005 or later, using the Charger Tools software. Please see your local PosiCharge® service representative for a copy of the latest software version.

4 – PROGRAMMING

Electronics technicians configure and register the charger to the cloud service after the charger software is updated.

STEP 3

4.1 – Configuring and Registering the Charger to the SkyLink Web Portal

Things You Will Need before Starting:

- Laptop using Windows 10 (or later) operating system (OS)
- Ethernet cable
- Serial number of the SkyLink device
- Airport installer credentials created for the specific airport site and supplied by WCSI
- Wi-Fi settings at the facility or CradlePoint wireless access point information
- Service set identifier (SSID) (wireless network name)
- Password

Connecting the Ethernet Cable to the Laptop:

1. Temporarily disable the laptop Wi-Fi (access to the Internet) by disconnecting the laptop from the Wi-Fi, before connecting the Ethernet cable to the laptop device, to ensure Ethernet operation, as follows.
2. Select the Wi-Fi icon (Figure 27, A) on the bottom-right corner of the test laptop.
3. Click the Wi-Fi button (Figure 27, B) to turn off the Wi-Fi.
4. Connect the laptop directly to the external Ethernet port of the charger (Figure 28), using the Ethernet cable.

Configuring Wi-Fi Settings

1. Open the Internet Explorer browser window on the laptop.

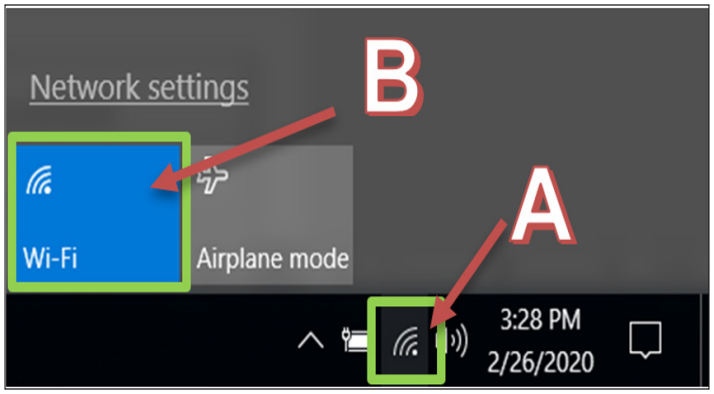

Figure 27 – Wi-Fi Icon and Wi-Fi Button

Figure 28 – Ethernet Port of the Charger

2. Type the SN from the SkyLink assembly into the address bar of the Internet Explorer window, followed by **.local**, for example **SWC02112000010.local** (Figure 29).

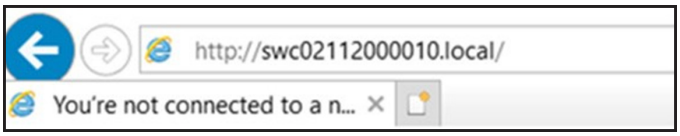

Figure 29 – SkyLink Assembly Serial Number

The Airport Installer login window (Figure 30) is displayed.

3. Select Wi-Fi Settings under the login credential section.

4. Select the appropriate SSID of the client's Wi-Fi service in the Wi-Fi Settings window (Figure 31), using the drop-down menu options. Click the **Save** button after entering the supplied information.

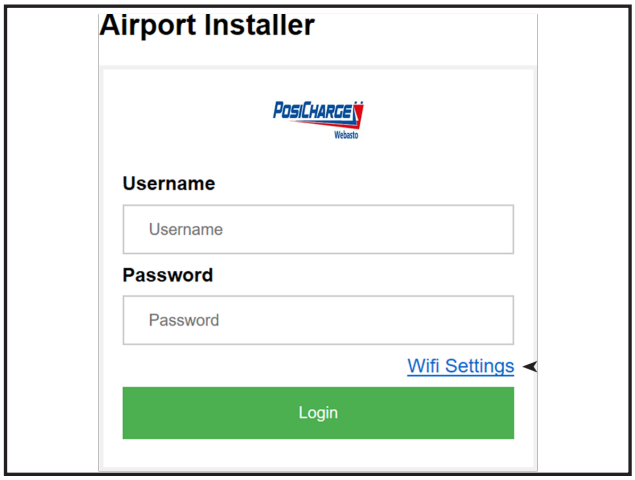

Figure 30 –
Airport Installer Login Window

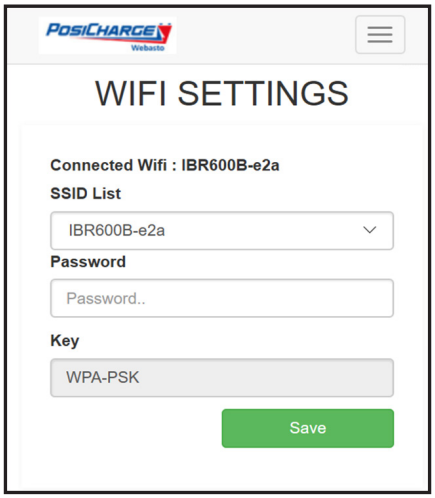

Figure 31 – Wi-FI
Settings Window

The message “Wi-Fi settings configured successfully!” is displayed, and the window is redirected back to the login window.

5. Close the Internet Explorer window on the laptop.

Entering Information in the Airport Charger Configuration Window

1. Power cycle the charger from the breaker panel. Wait until the charger information comes back online before continuing to the next step.
2. Launch the new Internet Explorer window on the laptop.
3. Navigate back to the Airport Installer login window by typing in the SN from the SkyLink assembly, followed by **.local**, for example **SWC02112000010.local**, into the address bar of the Internet Explorer window.
4. Log in at the Airport Installer login window, using the airport credentials supplied by Webasto Charging Systems, Inc. (WCSI). The Airport Charger Configuration window (Figure 32) is displayed after a successful login.

5. Verify that the information displayed in the following fields matches the charger information. (Do not click the Save button.)

    - Airport Name
    - Charger ID
    - Charger Type
    - Software Version

6. Enter information in the following fields.

    - Charger Serial Number (Figure 33) – If the charger (power station) SN (on the standalone or the DVS top portion) has not been automatically uploaded, then enter it.
    - Server Serial Number (if applicable) (Figure 28)
    - Installer Notes (if applicable)

7. Click the **Save** button to register the charger to the airport.

8. Wait until the message “Charger Configuration Success” is displayed before closing the Internet Explorer.

9. Disconnect the Ethernet cable from the laptop and the external Ethernet port of the charger.

4.2 – Verifying Charger Registration Completion

1. Enable the Wi-Fi on the laptop by connecting the laptop to the Wi-Fi, as follows.

2. Select the Wi-Fi icon (Figure 27, A) on the bottom right corner of the test laptop.

3. Click the Wi-Fi button (Figure 27, B) to turn ON the Wi-Fi.

4. Use the same SSID and password used for the Wi-Fi setting configuration.

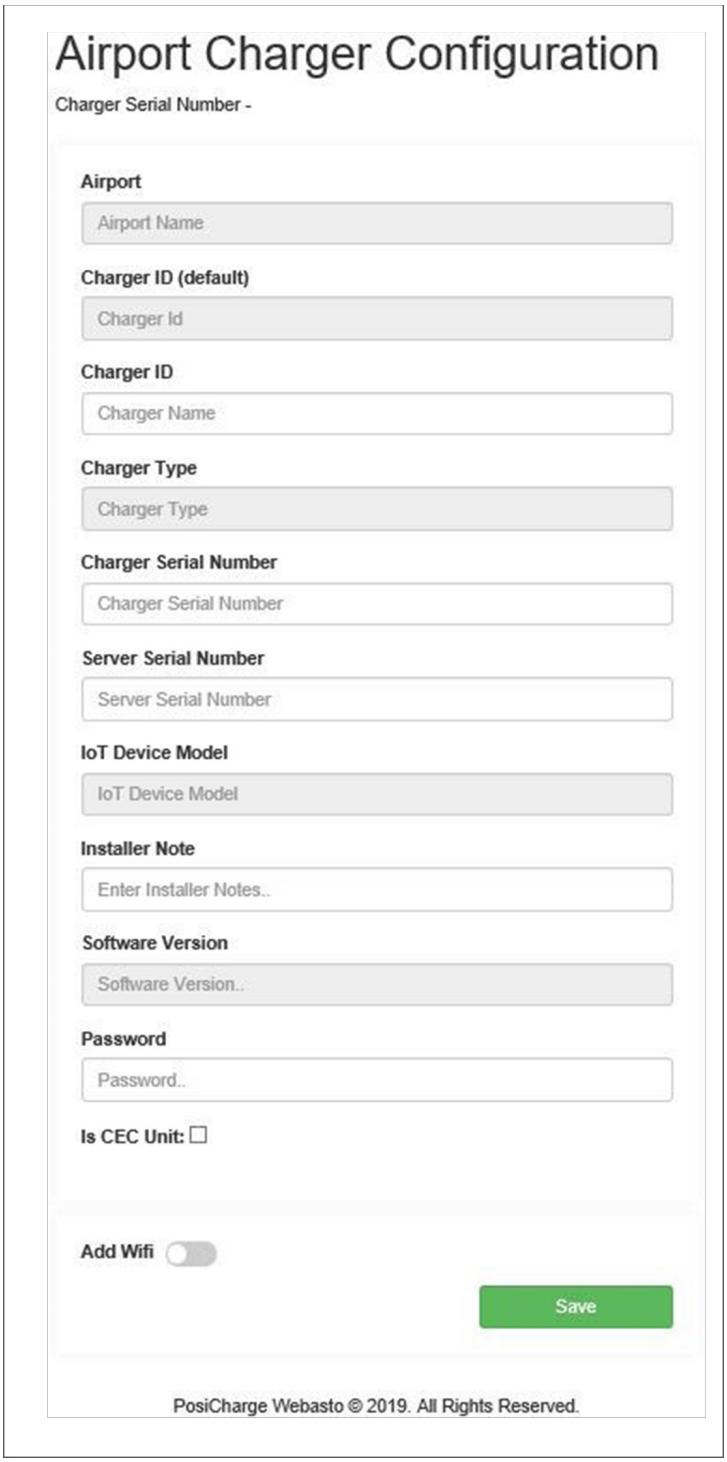

Figure 32 – Airport Charger Configuration

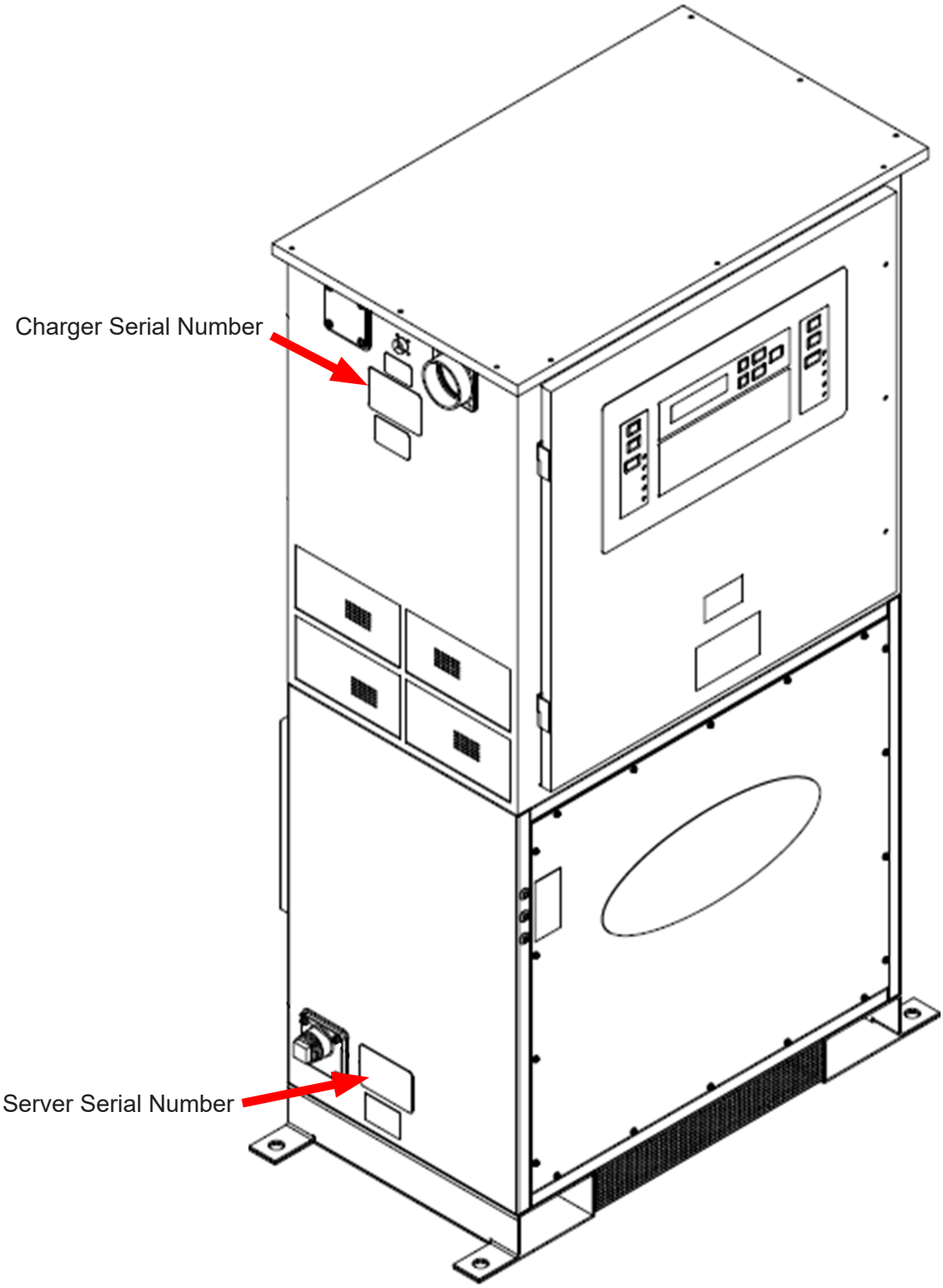

Figure 33 – Charger Serial Number & Server Serial Number

APPENDIX A – MISSING MAC ADDRESS RETRIEVAL

If the MAC Address label is missing, then there are two ways to retrieve it. Both require the use of an iPhone with iOS v13 or later, with the hot spot feature enabled. Sections A.1 and A.2 describe the two methods based on whether or not technicians have their login credentials.

A.1 – MAC Address Retrieval Method 1: Technician Has Login Credentials

1. Enable the Personal Hotspot (Figure A-1) on your iPhone.

   Settings → Personal Hotspot → Enable "Allow Others to Join"

2. Connect the SkyLink device to the Personal Hotspot. Follow the instructions in section 4.1.3 to configure the Wi-Fi settings.

3. Navigate back to the Airport Installer login window, and log back into the Airport Charger Configuration window (Figure A-2).

4. Click your name in the upper-right corner to access the drop-down menu, and then click the Network Details option (Figure A-3).

Figure A-1 – Personal Hotspot

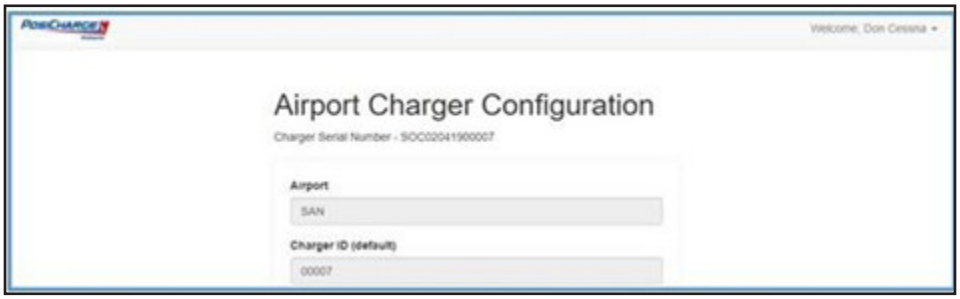

Figure A-2 – Airport Charger Configuration Window

Figure A-3 – Network Details Option

5. The Ethernet Settings are displayed by default. The MAC address for the Ethernet interface is found on this page. Clicking on the Wi-Fi Settings button displays the Wi-Fi interface settings, along with the Wi-Fi MAC address. Figures A-4 and A-5 display sample data for Ethernet settings and Wi-Fi settings, respectively.

6. Record the SkyLink device Ethernet or Wi-Fi MAC address, as required.

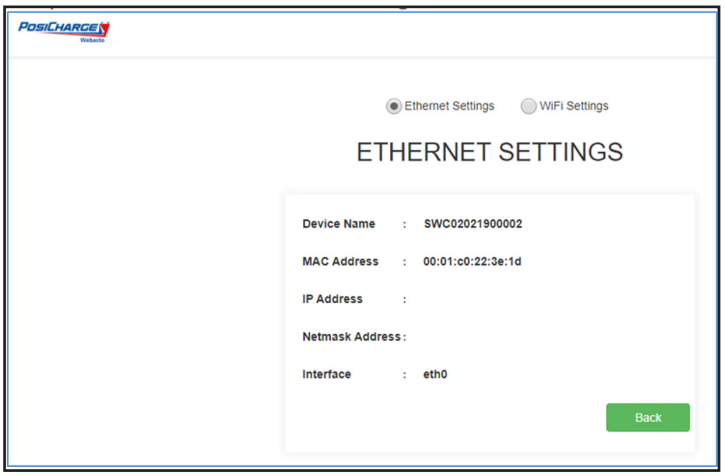

Figure A4 – Sample MAC Address for Ethernet Settings

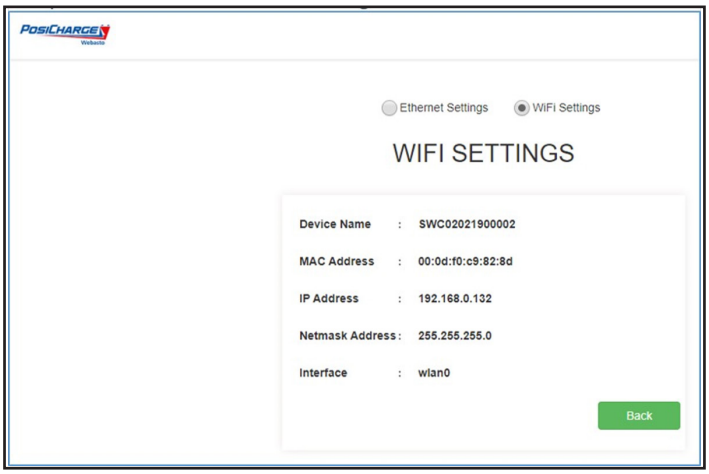

Figure A5 – Sample MAC Address for Wi-Fi Settings

A.2 – MAC Address Retrieval Method 2: Technician Does Not Have Login Credentials

1. Install “Network Analyzer” (Figure A-6) by Techet from the App Store.

NOTE The Network Analyzer application is free.

Figure A-6 – Network Analyzer Installation

2. Enable the Personal Hotspot (Figure A-1) on your iPhone.

   Settings → Personal Hotspot → Enable "Allow Others to Join"

3. Connect the SkyLink device to the Personal Hotspot. Follow the instructions in section 4.1.3 to configure the Wi-Fi Settings.

   The SkyLink device is connected to the iPhone Personal Hotspot.

4. Open the Network Analyzer application (Figure A-7).

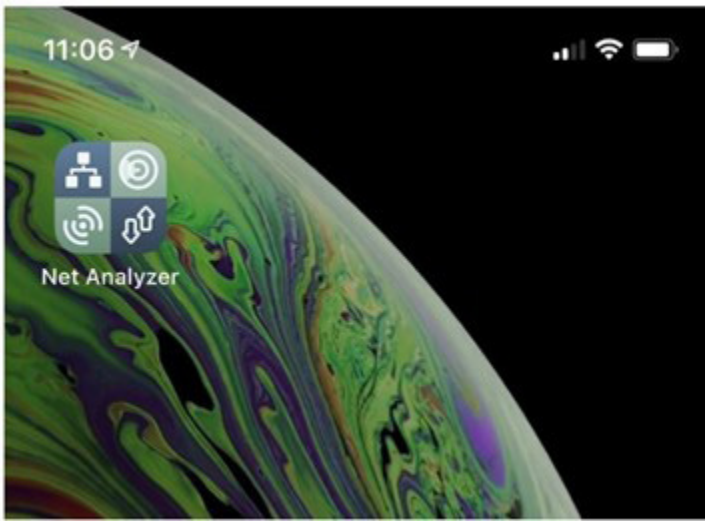

Figure A-7 – Network Analyzer Application

5. Press the Scan button in the upper-right corner of the application window.

   The scan is completed, and a list of devices connected to the iPhone Personal Hotspot is displayed. There should be at least two devices on the list: the iPhone and the SkyLink device. The device names, Internet Protocol (IP) addresses, and Wi-Fi MAC addresses are displayed for each device. Please note that the MAC address shown in Figure A-8 is highlighted in a red box.

6. Record the SkyLink device Wi-Fi MAC address, as required.

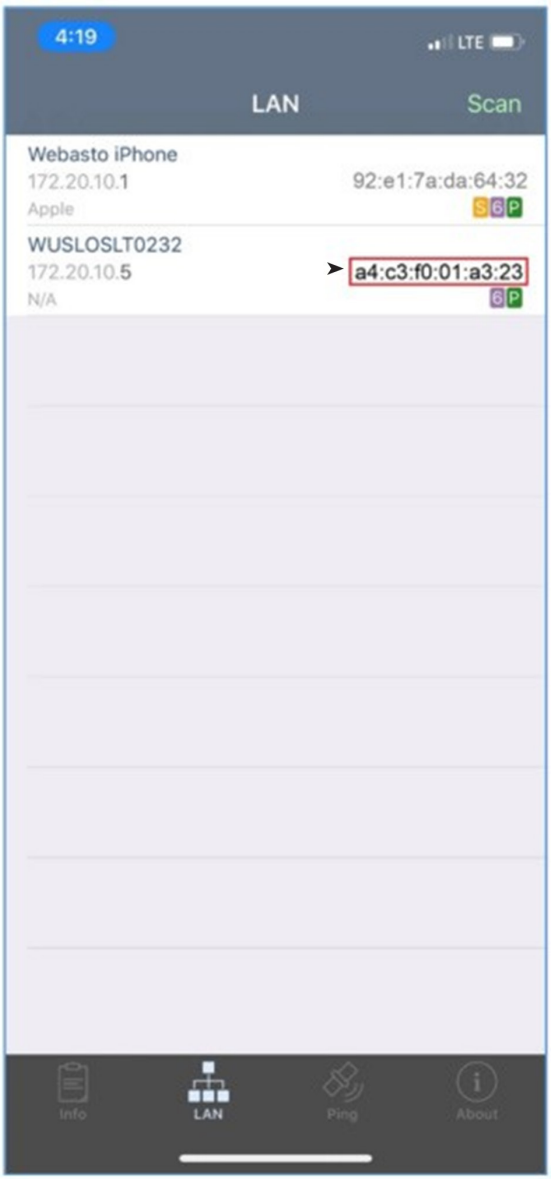

Figure A-8 – MAC Address

APPENDIX B – SKYLINK INSTALLATION CHECKLIST AND WORKSHEET

SkyLink Installation Checklist and Worksheet	
SkyLink installation date:	
SkyLink serial number (SN):	
SkyLink media access control (MAC) address:	
Charger or power station SN:	
Server SN:	

Pre-Installation			
Step	**Component**	**Confirmation**	**Confirmed**
1	Hardware	Confirm that all hardware is accounted for that is shown in Figures 1 and 2 of the installation guide.	
2	Software	Confirm, before the SkyLink installation, that the software version for the charger control board is v1.005 or later.	
3	Cables	Confirm, before installation in the charger, that all cables and connectors are inserted and secured in the SkyLink device.	
4	Recorded information	Confirm that the SkyLink SN, MAC address, and charger SN are recorded.	
5	Airport account	Confirm that you have the airport installer user account for the SkyLink web portal.	

SkyLink Device Registration with the Web Portal			
Step	**Component**	**Confirmation**	**Confirmed**
6	Airport Wi-Fi	Confirm that the airport Wi-Fi and password are available.	
7	Airport login	Confirm, when connecting the SkyLink device to the cloud service, that the Airport Installer login window is displayed. (Refer to Figure 25 of the installation guide.)	
8	Charger configuration	Confirm, after login, the data (the airport name, charger ID, charger type, and software version) in the Airport Charger Configuration window. (Refer to Figure 27 of the installation guide.)	
9	Message confirmation	Confirm, after clicking the Save button, that the "Charger Configuration Success" message is displayed. (Refer to sections 4.1.4.7 and 4.1.4.8 of the installation guide.)	

SkyLink Device Registration with the Web Portal			
Step	**Component**	**Confirmation**	**Confirmed**
10	SkyLink airport site	Confirm, after going to the SkyLink airport site and opening the Charger Management window, that the charger just registered is listed in the window. (Refer to sections 4.2.2–4.2.6 of the installation guide.)	

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