BUILD GUIDE • BUILD 001

SOAR™

Mobile Power Platform

A complete, reproducible installation and build guide for a portable 12-volt DC auxiliary power system

James C. Lybarger
LyMade Crafts

REVISION 1.2 • AUGUST 2026

SOAR™ Mobile Power Platform

Build Guide — Build 001

Author: James C. Lybarger

Published by: LyMade Crafts

This guide documents the complete construction of the SOAR™ Mobile Power Platform, Build 001, exactly as it was designed, built, tested, and installed. It is intended to allow another builder to reproduce the platform using the same approved components, layout, and procedures.

Disclaimer and Release of Liability

The information contained in this guide is provided for educational and informational purposes only.

The SOAR™ Mobile Power Platform – Build 001 is intended to serve as a reference for builders who choose to construct a similar system. Construction, installation, and operation of electrical equipment involve inherent risks, including the potential for personal injury, property damage, equipment failure, or fire.

By using this guide, the builder acknowledges that they are solely responsible for the safe construction, installation, testing, operation, and maintenance of their project.

The author, James C. Lybarger, LyMade Crafts, and any affiliated parties assume no responsibility or liability for any injury, death, loss, damage, or expense resulting from the use of this guide or the construction or operation of any system based upon it.

Builders are responsible for:

– Following all applicable local, state, and federal laws. – Following the manufacturer's instructions for every component used. – Using proper electrical practices. – Verifying all wiring before applying power. – Ensuring the completed installation is safe and suitable for its intended application.

No warranties or guarantees, expressed or implied, are made regarding the completeness, accuracy, suitability, or performance of the information contained in this guide.

By using this guide, the builder accepts full responsibility for all work performed and agrees to hold harmless and indemnify James C. Lybarger, LyMade Crafts, and their representatives from any claims, damages, liabilities, costs, or expenses arising from the construction, installation, or use of the SOAR™ Mobile Power Platform.

Table of Contents

CHAPTER 1

Introduction

Welcome

Welcome to the SOAR™ Mobile Power Platform – Build Guide, Build 001.

This guide documents the complete construction of the SOAR™ Mobile Power Platform exactly as it was designed, built, tested, and installed. Every procedure, component, and layout described in this guide reflects the approved Build 001 standard.

This guide walks you through the complete assembly of the platform using the same components, layout, and procedures used during the development of Build 001.

Purpose of This Guide

The SOAR™ Mobile Power Platform was developed to provide a compact, organized, and serviceable auxiliary power system for vehicle-based applications.

This guide documents:

- Approved components
- Required tools
- Base plate fabrication
- Component installation
- Electrical wiring
- System testing
- Vehicle installation
- Maintenance procedures

By following this guide, builders can reproduce the Build 001 platform using the same layout and construction methods.

About Build 001

Build 001 is the first production version of the SOAR™ Mobile Power Platform.

It incorporates the lessons learned during prototype development and testing into a standardized design that can be consistently reproduced.

The design emphasizes:

- Simple construction
- Organized component layout
- Reliable operation
- Easy maintenance
- Repeatable assembly

Every major component has a designated mounting location on the SOAR™ Base Plate, eliminating layout work and simplifying assembly.

Intended Use

The SOAR™ Mobile Power Platform is designed to provide portable 12-volt DC power for vehicle-based applications.

Typical uses include:

- Powering a Starlink Mini
- Charging portable electronic devices
- Supporting mobile communications equipment
- Providing auxiliary DC power while traveling or working remotely

Although Build 001 was developed for installation in a pickup truck, the design may be adapted to other vehicles or stationary applications as required.

Safety

Although Build 001 operates on a 12-volt DC electrical system, proper electrical safety practices should always be followed.

Before beginning construction:

- Read the manufacturer's instructions for each component.
- Disconnect the battery before performing any wiring.
- Verify all wiring before applying power.
- Use properly sized wire, terminals, and fuses.
- Wear appropriate eye protection during assembly.

Before You Begin

Before starting the build:

- Read this guide completely.
- Obtain all required components.
- Gather the required tools.
- Prepare a clean, well-lit work area.
- Inspect all components for shipping damage.

What You Will Build

By following this guide, you will construct a complete SOAR™ Mobile Power Platform consisting of:

- SOAR™ Base Plate
- LiFePO4 Battery
- Battery Monitor and Shunt
- Battery Charger
- Battery Disconnect Switch
- Fuse Block
- Associated wiring and hardware

When completed, Build 001 becomes a compact, organized, and serviceable auxiliary power platform that can be installed, removed, or maintained as a single assembly.

What's Included in This Guide

This guide includes:

- Approved Components
- Required Tools
- Base Plate Preparation
- Component Installation
- Electrical Wiring
- System Testing
- Vehicle Installation
- Maintenance
- Reference Drawings

Complete each chapter in order before proceeding to the next.

CHAPTER 2

SOAR™ Approved Components

Introduction

The components listed in this chapter are the exact components used to construct the SOAR™ Mobile Power Platform – Build 001.

Each component was selected based on performance, reliability, availability, ease of installation, and compatibility with the overall system design.

Using the same components described in this guide will produce a platform identical to Build

1. While substitutions may be made, they are outside the scope of this guide and may require modifications to the base plate, wiring, or mounting methods.

Power System Components

ERYY 12.8V 25Ah LiFePO4 Battery

Manufacturer: ERYY • Model: YD1225

Specifications

- 12.8 Volt LiFePO4
- 25 Amp-Hour Capacity
- 320 Watt-Hours
- Integrated 30A Battery Management System (BMS)
- Built-in Battery Status Display

Purpose

Provides the primary power source for the SOAR™ Mobile Power Platform. The compact size, integrated BMS, and built-in battery status display make this battery well suited for Build 001.

Approximate Cost: $69.99

REDODO Battery Monitor with External Shunt

Manufacturer: REDODO

Specifications

- External 500A Shunt
- LCD Display
- M10 Terminals

Purpose

Provides real-time battery information including battery voltage, current, power consumption, amp-hours, remaining battery capacity, and state of charge. The external shunt accurately measures all current entering and leaving the battery.

Approximate Cost: $99.99

ExpertPower 12.8V 5A LiFePO4 Smart Charger

Manufacturer: ExpertPower

Specifications

- 12.8 Volt Output
- 5 Amp Charging Current
- Designed for LiFePO4 Batteries

Purpose

Charges the auxiliary battery whenever 120-volt AC power is available.

Approximate Cost: $33.99

Nilight 90 015A Battery Disconnect Switch

Manufacturer: Nilight • Model: 90 015A

Specifications

- 12–48 Volt DC
- Heavy-Duty Rotary Disconnect Switch

Purpose

Provides a safe means of isolating the battery during maintenance, storage, and troubleshooting.

Approximate Cost: $12.13

DAIERTEK 6-Way Fuse Block

Manufacturer: DAIERTEK

Specifications

- Six Circuits
- ATO/ATC Blade Fuses
- LED Blown Fuse Indicators
- Protective Cover

Purpose

Distributes fused power to the individual accessory circuits. The required blade fuses are supplied with the fuse block. Install the fuse size recommended by the equipment manufacturer for each accessory.

Approximate Cost: $10.99

BNTECHGO 12 AWG Silicone Wire Kit

Manufacturer: BNTECHGO

Specifications

- 12 AWG
- Tinned Copper
- Silicone Insulation

- Seven Colors
- Five Feet Per Color

Purpose

Used for all low-current wiring throughout Build 001. Using multiple wire colors simplifies assembly and future troubleshooting.

Approximate Cost: $25.98

Eventronic 4:1 Marine Heat Shrink Kit

Manufacturer: Eventronic

Specifications

- 600 Pieces
- 4:1 Shrink Ratio
- Adhesive Lined
- Seven Sizes
- Five Colors

Purpose

Insulates and seals electrical connections against moisture and vibration.

Approximate Cost: $15.99

TOOLTROOPERS Heavy-Duty Hook-and-Loop Fastener

Manufacturer: TOOLTROOPERS

Specifications

- 1.6 Inches Wide
- 16 Feet Long
- Industrial Strength

Purpose

Provides a removable mounting system for selected components while allowing future maintenance or replacement.

Approximate Cost: $19.99

SOAR™ Build 001 Base Plate

Manufacturer: LyMade Crafts

Purpose

Provides the structural foundation of the SOAR™ Mobile Power Platform. Each major component location is precision engraved, eliminating layout work and ensuring repeatable assembly.

Approximate Cost: $19.99 + S/H

SOAR™ BMS Display Mount

Manufacturer: LyMade Crafts

Purpose

Provides a secure mounting location for the REDODO Battery Monitor Display while allowing the display to be easily viewed and serviced.

Approximate Cost: $7.99 + S/H

Chapter Summary

All components listed in this chapter have been selected, tested, and approved for Build 001.

Using these components will allow the builder to reproduce the SOAR™ Mobile Power Platform as documented throughout the remainder of this guide.

CHAPTER 3

Required Tools

Introduction

One of the design goals of the SOAR™ Mobile Power Platform was to create a system that could be assembled using commonly available hand tools.

No specialized fabrication equipment is required beyond the laser-cut components supplied by LyMade Crafts.

Gather all tools, components, and hardware before beginning assembly.

Required Tools

Wire Stripper

Removes insulation from electrical wire without damaging the conductor.

Ratcheting Wire Crimper

Produces secure, repeatable crimps on ring terminals and electrical connectors. A quality ratcheting crimper is recommended to ensure consistent electrical connections.

Heat Gun

Shrinks adhesive-lined heat shrink tubing to insulate and seal electrical connections. Do not use an open flame.

Digital Multimeter – used to verify:

- Battery Voltage
- Charger Output
- Circuit Continuity
- Correct Polarity
- Final System Operation

Metric Wrench and Socket Set – used to tighten:

- Battery Terminals
- Shunt Connections
- Fuse Block Hardware
- Battery Disconnect Switch

Phillips Screwdriver

Used where Phillips-head screws are required during assembly.

Flat-Blade Screwdriver

Used to tighten terminal screws and electrical connections.

Side Cutters – used to cut:

- Electrical Wire
- Cable Ties
- Heat Shrink Tubing

Measuring Tape

Used to verify cable lengths and installation clearances when required.

Optional Tools

Flashlight or Headlamp

May be helpful when installing the completed platform inside a vehicle or in areas with limited lighting.

Safety Equipment

The following safety equipment is recommended during assembly:

- Safety Glasses
- Work Gloves
- Fire Extinguisher
- Clean Work Surface
- Adequate Lighting

Before You Begin

Before beginning assembly:

- Read this guide completely.
- Verify all required components are available.
- Inspect all components for damage.
- Organize the work area.
- Keep the battery disconnected until instructed to connect it.

Builder's Tip – Wire Identification

Build 001 uses color-coded wire throughout the 12-volt DC electrical system.

Maintain the same wire color from one end of each circuit to the other whenever possible.

For external connections, identify each cable using colored tape placed near the connector.

Build 001 Identification Standard:

Connection	Identification
120V AC Input	Red Identification Tape
Starlink Power Cable	Blue Identification Tape

Place the identification tape close to each connector so the cable can be recognized immediately during setup, storage, and operation.

Chapter Summary

The tools identified in this chapter are all that is required to construct the SOAR™ Mobile Power Platform Build 001.

Having all tools and materials available before beginning assembly will help ensure an organized and efficient build.

CHAPTER 4

Preparing the SOAR™ Base Plate for Assembly

Introduction

The SOAR™ Base Plate serves as the foundation of Build 001. Every major component is mounted to this single plate, creating a compact, organized, and serviceable assembly.

The engraved layout eliminates measuring, guesswork, and trial-and-error by providing a designated location for every component.

Base Plate Overview

The SOAR™ Build 001 Base Plate is precision laser cut by LyMade Crafts and is supplied ready for assembly.

The engraved layout has been engineered to:

- Eliminate layout work.
- Maintain consistent component placement.
- Improve cable routing.
- Simplify future maintenance.
- Produce repeatable builds.

No measuring or drilling is required by the builder.

Figure 4.1 — SOAR™ Base Plate Layout, Build 001, Version 1.0

[PHOTO / FIGURE PLACEHOLDER]

About the SOAR™ Base Plate

The Build 001 base plate is manufactured from 1/4-inch MDF.

The material was selected because it:

- Produces clean laser cuts.
- Is dimensionally stable.
- Provides an excellent mounting surface.
- Is economical to replace if damaged.

Component Location Reference

The mounting locations for all major components are engraved directly onto the SOAR™ Base Plate.

The engraved layout identifies the location for:

- Battery
- Battery Disconnect Switch
- Battery Monitor Display
- Battery Monitor Shunt
- Fuse Block

- Battery Charger

Simply position each component within its engraved outline and verify the fit before installation.

Dry Fit

Before attaching any component, place every component on the base plate without removing the backing from the hook-and-loop fastener.

Confirm:

- All components fit within their engraved outlines.
- Electrical terminals are accessible.
- Cable routing appears logical.
- Nothing interferes with another component.

Once satisfied with the layout, remove all components and begin installation.

Applying the Hook-and-Loop Fastener

The SOAR™ Mobile Power Platform uses TOOLTROOPERS Heavy-Duty Hook-and-Loop Fastener to secure selected components.

Installation Procedure:

2. Cut the hook-and-loop fastener to the required size.
3. Press the hook and loop halves firmly together.
4. Remove the protective backing from one side.
5. Apply the assembled fastener to the engraved location on the base plate.
6. Press firmly.
7. Remove the remaining protective backing.
8. Align the component with its engraved outline.
9. Press the component firmly into place until fully seated.

Using both halves of the fastener together ensures accurate alignment and proper placement.

Battery Disconnect Switch

The production version of Build 001 includes a designated location for the Nilight 90 015A Battery Disconnect Switch.

During prototype development, several mounting locations were evaluated to improve cable routing and accessibility. The final layout reflects the preferred location identified during testing.

Builder's Tip

The engraved outlines on the SOAR™ Base Plate are your assembly guide.

There is no need to measure component locations or create your own layout. The engineering work has already been completed.

Install each component within its engraved outline and verify the fit before proceeding to the next step.

CHAPTER 5

Mounting the Components

Introduction

With the SOAR™ Base Plate prepared, the next step is to install each component in its designated location.

Install the components in the order presented in this chapter. This sequence simplifies the assembly process, provides better access to mounting locations, and minimizes interference during installation.

Do not connect any electrical wiring during this chapter. Wiring procedures are covered in Chapter 6.

Installation Order

Install the components in the following order:

10. Battery
11. Battery Monitor Shunt
12. Fuse Block
13. Battery Charger
14. Battery Disconnect Switch
15. BMS Display Mount and Battery Monitor
16. Final Inspection

Installing the Battery

17. Locate the engraved battery outline on the SOAR™ Base Plate.
18. Before attaching the battery, verify that the positive and negative terminals are oriented as shown on the engraved layout.
19. Apply the hook-and-loop fastener using the procedure described in Chapter 4.
20. Carefully lower the battery into its engraved location and press firmly to fully engage the hook-and-loop fastener.

Verify that:

- The battery is fully seated.
- The battery does not move during normal handling.
- Both battery terminals remain accessible.

Inspection – confirm:

- Battery is centered within the engraved outline.
- Hook-and-loop fastener is fully engaged.
- Battery display remains visible.
- Battery terminals are unobstructed.

Do not connect any battery cables at this time.

Installing the Battery Monitor Shunt

21. Locate the engraved shunt location adjacent to the battery.

22. Secure the shunt using the designated mounting hardware.
23. Verify that both large terminals are easily accessible before tightening the mounting hardware.

Do not install any wiring at this time.

Inspection – confirm:

- Shunt is securely mounted.
- Electrical terminals remain accessible.

Installing the Fuse Block

24. Locate the engraved fuse block outline.
25. Position the fuse block so the fuse cover can be removed without interfering with adjacent components.
26. Apply the hook-and-loop fastener using the installation procedure described in Chapter 4.
27. Position the fuse block within its engraved outline and press firmly into place.

Leave the protective cover installed until wiring is complete.

Inspection – confirm:

- Fuse block is secure.
- Cover can be removed.
- All terminals are accessible.

Do not install fuses at this time.

Installing the Battery Charger

28. Locate the engraved charger outline.
29. Apply the hook-and-loop fastener using the installation procedure described in Chapter 4.
30. Position the charger within its engraved outline and press firmly into place.
31. Verify that both the AC input and DC output leads are accessible.

Inspection – confirm:

- Charger is fully seated.
- Hook-and-loop fastener is fully engaged.
- Wiring leads are accessible.

Installing the Battery Disconnect Switch

32. Locate the engraved disconnect switch location.
33. Secure the switch using the appropriate mounting hardware.
34. Orient the switch so the ON and OFF positions can be easily identified after installation.

Inspection – confirm:

- Disconnect switch is secure.
- Operating handle moves freely.
- Electrical studs are accessible.

Installing the BMS Display Mount

35. Apply the hook-and-loop fastener using the installation procedure described in Chapter 4.
36. Position the BMS Display Mount within its engraved outline and press firmly into place.
37. Install the REDODO Battery Monitor into the display mount.
38. Verify that the display is fully seated and can be clearly viewed.

Inspection – confirm:

- Display mount is secure.
- Battery monitor is fully seated.
- Display remains visible.
- Hook-and-loop fastener is fully engaged.

Final Component Inspection

Before proceeding to Chapter 6, verify the following:

- Battery installed
- Shunt installed
- Fuse block installed
- Battery charger installed
- Battery disconnect switch installed
- BMS display mount installed
- All hook-and-loop fasteners fully engaged
- No wiring installed

The SOAR™ Mobile Power Platform is now ready for electrical wiring.

CHAPTER 6

Electrical Wiring

Introduction

With all components mounted to the SOAR™ Base Plate, the platform is ready for wiring.

This chapter describes the wiring sequence used for Build 001. Complete each connection in the order presented before moving to the next step.

Do not connect the battery until instructed.

Wiring Overview

Build 001 consists of two electrical systems: the 12-Volt DC System and the 120-Volt AC Input.

The 120-volt AC system is used only to power the battery charger. The battery charger converts AC power into 12-volt DC power to recharge the LiFePO4 battery. All remaining components operate on the 12-volt DC system.

Wire Identification

Build 001 uses color-coded wire throughout the platform. Maintain the same wire color from one end of each circuit to the other. External cables are identified using colored tape.

Connection	Identification
120V AC Input	Red Tape
Starlink Power	Blue Tape

Before Wiring Before making any electrical connections, verify:

- All components are securely mounted.
- All hook-and-loop fasteners are fully engaged.
- The battery disconnect switch is in the OFF position.
- The battery is not connected.
- All tools and wiring materials are available.

Wiring Sequence

Complete the wiring in the following order:

39. Battery Monitor Shunt
40. Battery Disconnect Switch
41. Fuse Block
42. Battery Charger
43. Battery Monitor Display
44. Final Battery Connections

General Wiring Practices

- Measure each wire before cutting.
- Cut each wire to the required length.

- Strip only enough insulation for the terminal being installed.
- Crimp each terminal securely.
- Apply adhesive-lined heat shrink tubing over every crimped connection.
- Route wiring neatly.
- Avoid unnecessary wire crossings.
- Keep wiring away from sharp edges.

Builder's Tip

Complete one circuit at a time. After completing each circuit, compare it to the wiring diagram before moving to the next connection. Correcting a wiring error immediately is much easier than troubleshooting after the entire platform has been wired.

Final Inspection

Before connecting the battery, verify:

- Every wire is properly routed.
- Every terminal is fully seated.
- Heat shrink has been applied where required.
- No bare conductors are exposed.
- The battery disconnect switch remains OFF.

Do not apply power until the inspections and testing procedures in Chapter 7 have been completed.

CHAPTER 7

Testing and Verification

Introduction

Before installing the SOAR™ Mobile Power Platform into the vehicle, perform a complete inspection and operational test.

This chapter verifies that all components have been installed correctly and that the system operates as intended before power is applied.

Visual Inspection

Inspect the entire platform before connecting the battery. Verify:

- All components are properly mounted.
- All hook-and-loop fasteners are fully engaged.
- Wiring is neatly routed.
- No bare conductors are exposed.
- All terminals are properly insulated.
- No tools or loose hardware remain on the base plate.

Correct any issues before continuing.

Battery Connection

45. Verify that the Battery Disconnect Switch is in the OFF position.
46. Connect the battery cables to the battery terminals.

Confirm:

- Positive cable is connected to the positive battery terminal.
- Negative cable is connected through the battery monitor shunt.
- Battery terminals are secure.
- No cables are under tension.

Initial Power Test

47. Turn the Battery Disconnect Switch to the ON position.
48. Observe the REDODO Battery Monitor.

Verify:

- Battery voltage is displayed.
- State of charge is displayed.
- No warning messages are present.
- Display operates normally.

If the display does not power up, turn the disconnect switch OFF and inspect the wiring before proceeding.

Battery Charger Test

Connect the battery charger to a 120-volt AC power source. Verify:

- Charger power indicator illuminates.
- Battery monitor indicates charging current.
- Battery voltage begins to increase.
- Charger operates normally.

After verifying proper operation, disconnect AC power.

Fuse Block Verification

Verify:

- Fuse block cover is installed.
- All required fuses are installed.
- Each circuit is properly identified.
- No unused wiring is contacting adjacent terminals.

Final Inspection

Before installing the platform into the vehicle, verify:

- Battery securely mounted.
- Shunt securely mounted.
- Fuse block securely mounted.
- Charger securely mounted.
- Battery Disconnect Switch operates correctly.
- Battery Monitor operates correctly.
- Wiring is secure.
- Platform is clean and ready for installation.

Builder's Tip

If a problem is discovered during testing, stop and correct it before continuing. Never install the platform into the vehicle until every function has been verified.

Vehicle Installation Note

If the SOAR™ Mobile Power Platform is installed directly on a carpeted surface rather than inside an under-seat storage compartment, secure the SOAR™ Base Plate to the carpet using the same TOOLTROOPERS Heavy-Duty Hook-and-Loop Fastener used throughout Build 001.

Apply the hook-and-loop fastener to the underside of the SOAR™ Base Plate following the installation procedure described in Chapter 4. Once positioned, press the platform firmly onto the vehicle carpet to engage the fastener.

This method provides a secure installation while allowing the platform to be removed for service or relocation without drilling holes or permanently modifying the vehicle. This is a clean, no-hole installation that maintains the vehicle's original condition while securely holding the platform in place.

Chapter Summary

The SOAR™ Mobile Power Platform has now been assembled, wired, and tested.

The platform is ready for installation into the vehicle.

CHAPTER 8

Vehicle Installation

Introduction

The SOAR™ Mobile Power Platform is designed to be installed as a single, self-contained assembly.

Because all major components are mounted to the SOAR™ Base Plate, installation into the vehicle requires only positioning the platform, securing it, and connecting the required cables.

Selecting the Installation Location

Choose a location that provides:

- Protection from shifting cargo.
- Easy access for maintenance.
- Adequate ventilation.
- Access to the battery monitor display.
- Access to the battery disconnect switch.
- Access to the battery charger AC input.

For Build 001, the platform was designed for installation beneath the rear seat of a pickup truck.

Positioning the Platform

Place the SOAR™ Mobile Power Platform in its intended location. Verify:

- The platform sits level.
- No components interfere with the vehicle.
- Wiring can be routed without being pinched.
- The battery monitor remains visible.
- The battery disconnect switch can be operated.

Securing the Platform

If the platform is installed inside an under-seat storage compartment, verify that it cannot move during normal vehicle operation.

If the platform is installed directly on vehicle carpet, secure the SOAR™ Base Plate using the TOOLTROOPERS Heavy-Duty Hook-and-Loop Fastener. This provides a secure installation while

allowing the platform to be removed without drilling holes or permanently modifying the vehicle.

This is the preferred clean, no-hole installation for Build 001.

Routing the Wiring

Route all wiring to prevent:

- Pinching
- Abrasion
- Contact with moving parts
- Contact with hot surfaces

Support wiring as necessary to prevent movement during vehicle operation.

Connecting the AC Input

Route the 120-volt AC input cable to a location where it can be easily connected when external power is available. Identify the cable using the Red Identification Tape described in Chapter 3.

Connecting the Starlink Power Cable

Route the Starlink power cable to the desired operating location. Identify the cable using the Blue Identification Tape described in Chapter 3.

Avoid placing unnecessary strain on the cable or connector.

Final Vehicle Inspection

Verify:

- Platform is secure.
- Wiring is protected.
- Battery monitor is visible.
- Battery disconnect switch is accessible.
- AC input cable is accessible.
- Starlink cable is accessible.

Builder's Tip

Before driving the vehicle, confirm that the platform cannot shift during braking, acceleration, or cornering. If movement is detected, remove the platform and install additional hook-and-loop fastener as needed.

Chapter Summary

The SOAR™ Mobile Power Platform is now fully assembled, tested, and installed.

The system is ready for normal operation.

CHAPTER 9

Operation and Maintenance

Introduction

The SOAR™ Mobile Power Platform has been designed for reliable operation with minimal maintenance.

Following the inspection and maintenance procedures in this chapter will help ensure continued performance and long service life.

Normal Operation

Before each use, verify:

- Battery Disconnect Switch is in the desired position.
- Battery Monitor is operating normally.
- Battery state of charge is adequate.
- All cables are securely connected.
- No damage is visible.

Charging the Battery

To recharge the battery:

49. Place the Battery Disconnect Switch in the ON position.
50. Connect the 120-volt AC input cable to an approved power source.
51. Verify that the battery charger begins charging.
52. Monitor battery voltage and charging current using the REDODO Battery Monitor.
53. Disconnect AC power after charging is complete.

Operating the Platform

During normal operation:

- Monitor the battery state of charge.
- Recharge the battery as needed.
- Avoid completely discharging the battery.
- Disconnect AC power before moving the platform.

Routine Inspection

Inspect the platform regularly. Verify:

- Components remain securely mounted.
- Hook-and-loop fasteners remain fully engaged.
- Wiring shows no signs of damage.
- Battery terminals remain clean.
- Electrical connections remain secure.
- Battery Monitor operates normally.

Cleaning

Clean the platform using a soft, dry cloth. Do not use excessive moisture or solvents on electrical components. Keep dirt and debris away from electrical connections and the battery charger cooling openings.

Storage

If the platform will not be used for an extended period:

- Fully charge the battery.
- Turn the Battery Disconnect Switch to the OFF position.
- Store the platform in a clean, dry location.
- Recharge the battery periodically in accordance with the battery manufacturer's recommendations.

Troubleshooting

Battery Monitor Does Not Turn On – verify:

- Battery Disconnect Switch is ON.
- Battery is connected.
- Shunt wiring is connected correctly.
- Battery voltage is present.

Battery Does Not Charge – verify:

- AC power is available.
- Battery charger is connected.
- Battery charger indicator is operating.
- Charger output connections are secure.

Platform Moves During Vehicle Operation – verify:

- Hook-and-loop fastener is fully engaged.
- Base Plate is properly positioned.
- Additional hook-and-loop fastener has been installed if required.

Builder's Tip

Inspect the platform before each trip. A one-minute inspection can identify loose wiring, damaged components, or other issues before they become larger problems.

Chapter Summary

Routine inspection, proper charging, and regular maintenance will help ensure reliable operation of the SOAR™ Mobile Power Platform for years to come.

Photo & Figure Placement Plan

Figure 4.1 — SOAR™ Base Plate - clean engraved layout before components are installed.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 4.2 — Dry-fit view showing all major components positioned on their engraved locations.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 4.3 — Hook-and-loop fastener applied to the base plate before component placement.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 5.1 — Completed component mounting - top view.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 5.2 — BMS display mount secured with hook-and-loop fastener.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 6.1 — Completed 12-volt DC wiring - top view with color-coded wire visible.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 6.2 — Battery monitor shunt wiring detail.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 6.3 — Fuse block and charger wiring detail.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 7.1 — Battery monitor powered during system verification.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 8.1 — Completed SOAR™ platform installed beneath the rear seat.

[INSERT APPROVED BUILD PHOTO HERE]

Figure 8.2 — Clean no-hole carpet installation using hook-and-loop fastener.

[INSERT APPROVED BUILD PHOTO HERE]

Revision History

Revision	Date	Description	Status
1.0	August 2026	Initial compiled Build 001 guide.	Superseded
1.1	August 2026	Approved terminology corrections; Chapter 4 renamed; liability notice moved forward; photo/figure plan and publishing structure added.	Previous Master
1.2	August 2026	Mobile-readability and layout improvements: increased body-text size and adjusted paragraph spacing and page formatting. No technical-content changes.	Current Master