

AVENUE

OWNER'S GUIDE

OBSESSED WITH PROVIDING THE
BEST RV OWNERSHIP EXPERIENCE!





OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

WELCOME TO THE ALLIANCE RV FAMILY!

Congratulations on the purchase of your new Alliance RV. We are honored that you have placed your trust in the Alliance RV Team, and it is our privilege to help you enjoy a great RV ownership experience!

One of the best ways to begin enjoying your Alliance RV experience is by taking time to read and familiarize yourself with the contents of this owner's manual along with the individual component manuals included with your new Alliance RV. Knowing how to properly operate the various systems, appliances, and components will make your first trips even more enjoyable. We would also encourage you to review the general maintenance recommendations, as these will help keep your RV in great working condition for years to come.

Your new Alliance is backed by a Limited Base Warranty and Limited Structural Warranty as outlined on the following pages. While we work to build Alliance RVs to a higher quality standard, if a warranty or service concern arises, our priority is to get you back to camping as promptly as possible. Your Alliance RV Dealer is authorized and trained in servicing the many systems unique to your Alliance RV and is a great "Ally" to assist you in finding a resolution. If for any reason it is not feasible to work with your local Alliance RV dealer, please don't hesitate to reach out to the Alliance Customer Service Team directly. Our ability and willingness to keep open lines of communication and find creative service solutions will help us navigate thru finding the best way to assist your specific circumstance. The Alliance RV Customer Service Team can be reached at:

- Phone: (574) 226-0140
- Email: service@alliancerv.com
- Address: Attn: Customer Service - 301 Benchmark Drive, Elkhart, IN 46516

Thank you again for being a valued member of the Alliance family. The entire Alliance team wishes you safe travels and looks forward to enhancing your RV ownership experience!

Happy camping,

A handwritten signature in black ink that reads "Bill Martin".

Bill Martin
Vice President of Customer Experience



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

MY INFO:

Alliance RV Model (ie. Paradigm): _____

Floorplan or Model # (ie. 370FB): _____

VIN (17 Digits):

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Dealership Name: _____

Dealership Address: _____

Dealer Phone: _____



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

TABLE OF CONTENTS

OWNER'S INFORMATION BAG	1
OWNER SUPPORT RESOURCES	2
Contacting Alliance Customer Service	2
Social Media	2
AllianceRVOwners.com	2
Alliance Academy	3
VEHICLE IDENTIFICATION NUMBER (VIN)	4
REPORTING SAFETY DEFECTS	5
In the United States:	5
To Contact NHTSA:	5
In Canada:	5
To Contact Transportation Canada:	5
SERVICE & WARRANTY	6
Alliance RV Limited Warranties	6
Extended or Third-Party Warranties	8
Obtaining Service	8
Parts Information for Non-Warranty Purposes	9
Unable to Complete Warranty Claim Within the Warranty Period	9
Repair Remedy: Exclusive Remedy	9
Warranty Exclusions	9
Events Discharging Alliance RV from Obligation Under Warranty	10
Warranty Registrations	11
Care and Maintenance	11
LEGAL REMEDIES	11
SAFETY PRECAUTIONS	13
SYMBOLS USED	14
WEIGHT RATINGS, ASSOCIATED LABELS, LOADING AND WEIGHING	15
Weight Terms	15
Federal Certification	16
Tire and Loading Information	16
Cargo Capacities & Weighing Your RV	16



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

TOW VEHICLE: HITCH AND CONFIGURATION CONCERNS	18
Hitch and Hitch Selection	18
Hitch Ball	18
Hitch Weight	18
Hitch Height	19
Suspension	19
Sway Control (Customer Supplied)	19
Sway Control (Customer Supplied)	19
TIRE AND WHEEL INFORMATION & SAFETY	20
DOT Tire Identification Number	20
Tire Size	20
Spare Tire Carrier	20
Tire and Wheel Maintenance	20
Inspect Tires and Check Pressure	20
Changing a Tire	22
Wheel Nut Torque	22
BRAKE SYSTEMS	24
Brake Controller	24
Breakaway Switch	24
Brake Troubleshooting	24
Brake Maintenance	25
Breakaway Switch Operation	25
Brake Inspection	25
LEAF SPRING SUSPENSION SYSTEM	26
MORryde CRE 3000 Equalizer	27
HD Shackle Links and Wet Bolt Kit	27
Leaf Spring Suspension Maintenance	27
Spring Hanger and Leaf Spring Inspection	27
CRE 3000 Inspection	27
Wet Bolt Torque	28
Axle U-Bolt Torque	28
Wet Bolt Lubrication	28



Axle Bearing Inspection and Grease Repacking	28
TOW PLUG.....	29
Tow Plug Troubleshooting	29
Tow Plug Maintenance	29
Inspection.....	29
Wire Lug Torque.....	30
SAFETY CHAINS	31
TOWING YOUR RV.....	32
Before and After Travel: Checklists.....	33
HITCH RECEIVER	35
CONNECTING TO THE TOW VEHICLE	36
DISCONNECTING AND LEVELING YOUR RV	38
BAL LS 5.3 AUTO LEVELING SYSTEM	39
Overall Display and System Usage	40
Disconnecting the Tow Vehicle and Leveling the Trailer	40
Reconnecting the Trailer to the Tow Vehicle.....	43
Manual Mode Functions	45
Manual Stabilizer Jack Mode	45
Manual Leveling Jack Mode	46
Auto Leveling System Troubleshooting	47
Auto Leveling System Maintenance.....	48
Inspection and Greasing	48
Manual Override	50
Programming the Zero Point or “Level Position”	52
OCCUPANT SAFETY	54
Emergency Exit Windows.....	54
Fire Safety	57
Fire Extinguishers.....	57
Smoke Alarm (Ceiling).....	57
Propane and Carbon Monoxide (LP & CO) Alarm (Base of Wall near Stairs)	59
Alarm Troubleshooting	60
Alarm Maintenance	60



Smoke & CO/Carbon Monoxide Alarm	60
LP & CO Alarm	61
PROPANE	62
Traveling with Propane	63
Two Stage LP Regulator	63
External Appliance Quick Connect	65
Propane Cylinders	67
Filling Your Propane Cylinders	67
Cooking with Propane Gas	68
Propane System Maintenance	68
Installing Propane Cylinders	68
Inspection (Owner)	68
Inspection (Professional)	69
SLIDE-OUTS OVERVIEW	70
Slide-out Safety Information	70
Slide-out Control	70
ELECTRIC SLIDE-OUTS (IF EQUIPPED)	72
Electric Slide-out System Overview	72
Slide-out Gear Pack	73
Operating Your Electric Through Frame Slide-out	73
Extending Your Electric Slide-out	73
Retracting Your Electric Slide-out	74
Electric Slide-out Troubleshooting	74
Electric Slide-out Maintenance	75
System Inspection	75
System Maintenance	75
Mechanical Maintenance	76
Electrical Maintenance	76
Gear Pack Lubrication	76
Manual Electric Slide-out Operation (Manual Override)	77
Advanced Maintenance: Adjusting Your Electric Slide-outs	79
Adjusting Electric Slide-out "IN" Position	79



Adjusting Electric Slide-out “OUT” Position.....	80
Adjusting the Electric Slide-out Room Horizontally.....	81
Adjusting the Electric Slide-out Room Vertically	81
Synchronizing Electric Slide-out Room Travel.....	82
IN-WALL® ELECTRIC SLIDE-OUT SYSTEM (SCHWINTEK) (IF EQUIPPED)	84
Operating Your In-Wall Slide-out System	84
Extending Your In-Wall Slide-out	84
Retracting Your In-Wall Slide-out	84
In-Wall Slide-out Controller Overview	85
In-Wall Slide-out Controller Connections	85
In-Wall Slide-out System Overview.....	86
In-Wall Slide-out Motor and Harnesses.....	86
In-Wall Slide-out Troubleshooting.....	87
Controller Fault Codes	88
In-Wall Slide-out Maintenance	88
Inspection.....	88
Resynchronizing In-Wall Slide-out Motors	89
Electric Slide-out Electronic Override	89
Motor Disengagement Procedure	90
BAL® EXACT-SLIDE SLIDE-OUT SYSTEM (IF EQUIPPED)	92
Operating Your Exact-Slide System.....	92
Extending Your Slide-out.....	92
Retracting Your Slide-out.....	92
BAL Exact-Slide Troubleshooting	92
BAL Exact-Slide Maintenance.....	93
Adjustment Procedure.....	93
Manual Override	93
BAL® ACCU-SLIDE SLIDE-OUT SYSTEM (IF EQUIPPED)	94
Operating Your Accu-Slide System.....	94
Extending Your Slide-out.....	94
Retracting Your Slide-out.....	94
BAL Accu-Slide Troubleshooting	94



BAL Accu-Slide Maintenance	96
Cable Adjustment Procedure	96
Stand-off Bracket Alignment.....	97
Manual Override	98
ELECTRICAL: GENERAL	99
Electrical System Overview	99
Electrical Troubleshooting	100
Removing All Power from the RV.....	101
Power Cord	102
GFCI (Ground Fault Circuit Interrupter)	103
GFCI Troubleshooting	104
GFCI Maintenance.....	104
GFCI Outlet Testing	104
Battery Disconnect Switch	104
Solar Disconnect Switch (if equipped)	105
Battery.....	105
Battery Troubleshooting	106
Battery Maintenance	106
Non-Vented Batteries (If Equipped)	107
Renogy Batteries (If Equipped)	107
Battery Management System (BMS).....	107
Identification of Parts.....	108
Connecting Batteries in Banks	109
Activation Switch Operation	110
Battery Storage	111
Renogy Battery Troubleshooting	112
Renogy Battery Maintenance	113
Inspection.....	113
Cleaning.....	114
Renogy Battery Monitor (If Equipped).....	114
Overview	114
Operational Display.....	115



Sleep Mode Wake Up Operation	115
Manual Backlight Disable.....	115
User Settings	116
Settings Available	116
Preset Capacity and Voltage Setting.....	117
Set Capacity to Zero or Full	117
Capacity Calibration	117
Check and Reset the Actual Capacity.....	117
Renogy Battery Monitor Troubleshooting.....	118
Renogy Battery Monitor Maintenance	118
Battery Upgrade or Replacement	118
Inspection/Torque Check.....	118
POWER DISTRIBUTION	119
Smart Wire Technology (12 V systems)	119
12 Volt Bus Bar.....	120
Progressive Dynamics Power Control Center (IF EQUIPPED)	121
120 Volt Circuit Breakers	121
12 Volt Fuse Panel.....	122
Reverse Battery Protection Fuses	123
12 Volt Converter	123
Selecting Battery Type	123
Progressive Dynamics Power Control Center Troubleshooting.....	123
Progressive Dynamics Power Control Center Maintenance	124
Inspection & Torque Check.....	125
WFCO Power Control Center	126
120 Volt Circuit Breakers	127
12 Volt Fuse Panel.....	128
Reverse Battery Protection Fuses	128
12 Volt Converter	128
WFCO Power Control Center Troubleshooting.....	129
WFCO Power Control Center Maintenance	129
Inspection & Torque Check.....	129



INVERTER (IF EQUIPPED).....	132
Overview	132
Intellitronix Energy Management System (If Equipped).....	132
Standard Programming	133
Using the Control Module.....	134
Intellitronix Maintenance	134
Inspection & Torque Check.....	135
Progressive Dynamics Inverter (If Equipped).....	135
Operation	135
Progressive Dynamics Inverter Troubleshooting	136
Progressive Dynamics Inverter Maintenance	139
Inspection & Cleaning	139
Renogy PCL Inverter-Charger (If Equipped)	140
Operation	140
Wired Remote Control.....	144
Renogy PCL Inverter-Charger Troubleshooting	144
Renogy PCL Inverter-Charger Maintenance	145
Inspection & Cleaning	145
SOLAR EQUIPMENT (IF EQUIPPED)	146
Solar Disconnect Switch (If Equipped)	146
Solar Panels and Cable Entry Point (If Equipped)	147
Solar Prep (If Equipped)	147
Renogy 20A DC-DC Charger (If Equipped)	148
Overview	148
DIP Switch Setting / Battery Conversion.....	148
Lithium Battery Reactivation	148
Renogy 20A DC-DC Charger Troubleshooting.....	149
Renogy 20A DC-DC Charger Maintenance.....	151
Go Power! Solar Charge Controller (If Equipped).....	151
Overview	151
Operation	152
Go Power! Solar Charge Controller Troubleshooting	155



Go Power! Solar Charge Controller Maintenance	156
Renogy Rover Solar Charge Controller, 20A or 40A (If Equipped)	157
Overview	157
Main Display Screens / Operating the Unit	160
Programming	160
Renogy DC Home app (Bluetooth)	160
Lithium Battery Reactivation	160
Additional Components	161
Renogy Rover 20/40A Troubleshooting.....	161
Renogy Rover 20/40A Maintenance	162
Renogy Rover Solar Charge Controller, 60A (If Equipped)	162
Overview	162
Main Display Screens / Operating the Unit	165
Programming	166
Renogy DC Home app (Bluetooth)	166
Lithium Battery Reactivation	166
Additional Components	166
Renogy Rover 60A Troubleshooting	167
Renogy Rover 60A Maintenance.....	171
Renogy Rover Elite Solar Charge Controller (If Equipped)	171
Overview	171
Main Display Screens / Operating the Unit	172
Programming	173
Renogy DC Home app (Bluetooth)	173
Lithium Battery Reactivation	173
Additional Components	173
Renogy Rover Elite Troubleshooting.....	173
Renogy Rover Elite Maintenance	176
Victron SmartSolar MPPT 100/30 Solar Charger (If Equipped).....	176
Overview	176
Identification.....	177
Shutdown and Restart Procedure.....	178



Monitoring Operation via LED Indicators	179
Monitoring Operation via the VictronConnect app	180
Programming Options	180
Victron Solar Charger Troubleshooting	181
Victron Solar Charger Maintenance	181
TV & STEREO	182
ALL TV	182
Winegard TV Antenna	183
Winegard Booster Switch	183
Winegard Gateway (Wi-Fi)	183
Taoglas TV Antenna	184
Taoglas Booster Switch	184
Television & Stereo Setup and Operation	184
TV Signal Troubleshooting	184
Common COAX Troubleshooting Steps	184
Common symptoms and remedies	184
MONITOR PANEL	187
Backup Camera	188
AWNINGS	189
Awning Operation	189
Extending the Awning	190
Retracting the Awning	190
Adjusting the Awning Pitch	190
Awning Component Breakdown	192
Awning Troubleshooting	192
Awning Maintenance	192
Cleaning & Inspection	192
Awning Manual Override	193
Slide-out Topper Prep	194
Slide-out Toppers (If Equipped)	194
Slide Topper Component Breakdown	195
HEATING, COOLING & VENTILATION	196



Furrion Single Zone Thermostat (If Equipped)	196
Identification	196
Operation	196
Modes Available	197
Furrion Single Zone Thermostat Troubleshooting	198
Furrion Air Conditioners (If Equipped)	198
Furrion AC Maintenance	199
Cleaning the AC Filter	199
AC Coil Cleaning	200
LCD Thermostat for Coleman Mach Air Conditioners (If Equipped)	200
Digital Thermostat for Coleman Mach Air Conditioners (If Equipped)	202
Operating the Thermostat	202
Coleman Mach Air Conditioners (If Equipped)	203
Coleman Mach AC Maintenance	204
Cleaning the AC Filter	204
AC Coil Cleaning	204
Suburban Furnace	204
To Turn the Furnace On	205
To Turn the Furnace Off	205
Suburban Furnace Maintenance	205
Inspection	205
Fireplace	206
Control Panel	206
Remote Control	207
Ventilation	208
Maxxfan	208
Maxxfan Mini (if equipped)	208
Range Vent	209
APPLIANCES	210
12 V Refrigerator	210
12 V Refrigerator Maintenance	210
Microwave or Microwave/Convection Combination (If Equipped) Oven	210



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

Range Vent (Vent Hood)	210
Range/Cooktop	210
Before Using Your Range	210
PLUMBING AND UTILITIES	211
Centralized Docking Station	211
Docking Station Handle Position and Valve Routing	212
Cable and Satellite Connection	213
Filling the Fresh Water Tank – Power Fill.....	213
Fill and/or Sanitize the Fresh Water Tank with the Pump.....	214
Using the Fresh water Tank for Dry Camping	217
Connecting to City Water.....	217
Winterizing.....	218
Rinsing Holding Tanks / Tank Flush.....	222
Fresh Water System	223
Waste Water System	225
Plumbing System Throughout the Trailer	226
Tankless Water Heater (If Equipped)	227
Control Panel.....	227
Operation	228
Tankless Water Heater Troubleshooting	229
Sequence of Operation	229
Tankless Water Heater Maintenance	231
Draining and Storage.....	232
Winterizing.....	232
Descaling Information.....	232
Tank Water Heater (If Equipped)	232
Tank Water Heater Troubleshooting	235
Tank Water Heater Maintenance	236
Safely Drain the Water Heater	236
Anode Rod Inspection.....	236
Storage	237
Winterization	237



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

Toilet	237
Operation	237
Dumping Your Waste Tanks	238
Waste Tank Pull Valve Maintenance	238
Monitoring Your Water Systems.....	239
Tank Heaters	240
Washer / Dryer Prep (If Equipped)	241
INTERIOR	242
Window Blinds	242
Window Blind Troubleshooting	242
Window Blind Maintenance	242
Cleaning.....	242
Removing and Replacing a Roller Shade Assembly: Metal Clips.....	243
Removing and Replacing a Roller Shade Assembly: Plastic Clips.....	243
FURNITURE.....	244
Theatre Seating.....	244
CARE & MAINTENANCE.....	246
Roof Maintenance & Inspection	246
Washing & Waxing.....	246
Harsh Environments.....	247
Treating Rust	247
Exterior Seals.....	247
Slide-out Seals.....	247
Inspection.....	247
Conditioning.....	248
Interior	248
EXTENDED RECREATIONAL USE OF THE RV	249
Condensation & Mold	249
Exterior Plumbing.....	249
Formaldehyde	249
MAINTENANCE SCHEDULE.....	250
VENDOR WARRANTY AND CONTACT INFORMATION.....	257



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

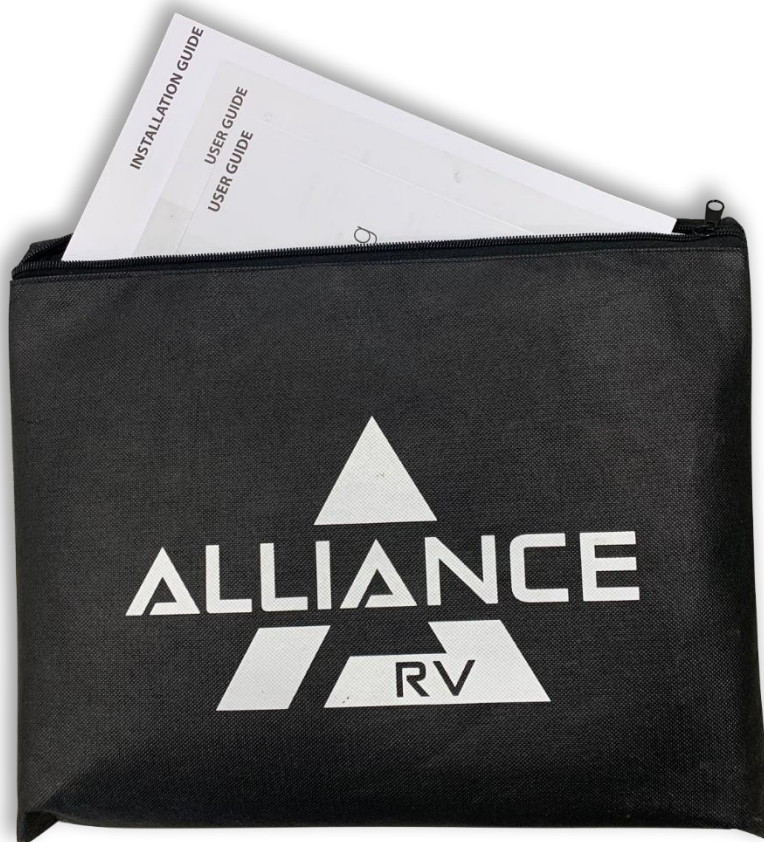


OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

OWNER'S INFORMATION BAG

You will find the manuals and registration cards for individual components in your Alliance RV Owner's Information Bag.

It is important that you take time to register and activate each component warranty according to the information and timelines provided. Doing so will help any potential delays in the event your RV requires warranty service. Failure to register these warranties will not dismiss warranty coverage, although it could cause delays. Please contact Alliance Customer Service with any questions.



Alliance RV Customer Service Contact Information:

Phone: (574) 226-0140

Email: service@alliancerv.com



OWNER SUPPORT RESOURCES

Alliance RV has provided many resources for owners to obtain information about their RV, ranging from simple tips to in-depth videos, manufacturer links for installed appliances and equipment, how-to summaries of systems called Tech Tips, and owner-supported forums for discussion.

Contacting Alliance Customer Service

The three primary methods to contact customer service directory are:

- Phone: (574) 226-0140
Especially useful for urgent situations during business hours. After hours, a message can be left. This should be followed up by an email with specific information as noted below. *You may also use this number to contact our Parts team, following the voice prompts accordingly.*
- Email: service@alliancerv.com
 - This is the preferred method of contact. When writing, please be sure to include the last six (6) digits of your VIN, a clear description of the issue(s) to be addressed, and if possible pictures of the issue(s).
 - Response time is typically 1-2 business days.
- In writing:
Alliance RV
Attn: Customer Service
301 Benchmark Drive
Elkhart, IN 46516

Social Media

Alliance RV can be found on the following social media channels: Facebook, Instagram, X and Tik Tok. You can find all current links at <https://jointhealliance.com/>.

It is worth noting that the Facebook page “Alliance RV Group” is a particularly focused point of contact that is monitored by not only many Alliance employees, but also several Owner Empowerment Ambassadors – non-employee owners who have extensive experience with the Alliance RV products and are available to assist other owners.

AllianceRVOwners.com

Outside of the social media outlets mentioned above, this website provides the most comprehensive starting point for finding information about:

- The National Rally
- Other Owner-hosted events around the country
- Alliance RV Apparel
- Alliance Academy: Training videos, short video tips on a range of topics, Owner’s Manuals for equipment and appliances installed in Alliance RVs, and Tech Tips. See the next section.
- And Alliance Owners Forums: focused areas of discussion on a very wide range of topics, all related to the Alliance RV ownership experience (maintenance, specific systems, upgrades, etc.)

Alliance Academy

The Alliance Academy is a collection of resources dedicated to helping the interested owner find all documentation and videos related to learning about RV care and use, and the specific components in Alliance RVs.

Some of the available resources are:

- Alliance RV Training: Over 4 hours of videos produced in partnership with the NRVTA covering RV Electricity, Propane Systems, Water Systems, Air Conditioning, Leveling Systems, and Slideouts. This also includes new owner walkthroughs of interior and exterior components!
- Owner Empowerment Video links: Alliance-produced videos on in depth topics such as the Super Solar System components and use, the TV system, plumbing, and more.
- What'cha Know Wednesday Video links: Snippets of information addressing the most common questions fielded by Alliance Customer Service
- Tech Tips: Documents focused on how to perform certain tasks or work with certain sets of equipment. Examples include Winterization, the All TV System wiring, a master Torque Guide for running gear, and how to use an Automatic Changeover Regulator.
- Product Support/Vendor Information: Owner's Manuals and links for advanced information on specific products and vendors of equipment installed in Alliance trailers.



While every effort has been made to include useful and relevant video and document links throughout this manual, there are videos and documents beyond what is shown here, and new resources are being produced. As such, the well-informed reader will visit the Alliance Academy, and monitor other online resources, to keep aware of all new information between User Manual updates.



VEHICLE IDENTIFICATION NUMBER (VIN)

Alliance RV vehicles all have a unique 17-digit VIN. You will find your VIN listed on the Federal Certification label located toward the front of the RV on the off-door side. The following VIN decoder identifies each digit location and its function.

DIGIT LOCATION	FUNCTION	KEY
1st, 2nd and 3rd	WMI (SAE Assigned)	7M5
4th	Trailer Type	F = Fifth Wheel / Gooseneck T = Travel Trailer / Bumper Pull
5th	Model Designator	P = Paradigm (Active 2021 Model Year) V = Valor (Active 2021 Model Year) A = Avenue (Active 2022 Model Year) D = Delta (Active 2024 Model Year)
6th and 7th	Length of RV	Length of RV (2 digits regardless of length)
8th	Number of Axles	1 = 1 Axle 2 = 2 Axles 3 = 3 Axles
9th	Check Digit	Calculated
10th	Model Year	M = 2021 T = 2026 1 = 2031 6 = 2036 N = 2022 V = 2027 2 = 2032 7 = 2037 P = 2023 W = 2028 3 = 2033 8 = 2038 R = 2024 X = 2029 4 = 2034 9 = 2039 S = 2025 Y = 2030 5 = 2035
11th	Plant Location	A = Plant 1 - Location Elkhart, IN B = Plant 2 - Location Elkhart, IN C = Plant 3 - Location Elkhart, IN D = Plant 4 - Location Elkhart, IN
12th thru 17th	Serial Number	Sequential Six Digit Number (001000)



REPORTING SAFETY DEFECTS

In the United States:

If you believe that your recreational vehicle has a defect which could cause a crash or cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA), and Alliance RV.

If the National Highway Traffic Safety Administration (NHTSA) receives similar complaints, they may open an investigation. If they determine that a safety defect exists in other vehicles, a recall and remedy campaign may be ordered. NHTSA does not become involved in individual cases between you, your dealer or Alliance RV.

To Contact NHTSA:

Website: www.safercar.gov

Address: NHTSA Headquarters

Attn: Administrator
1200 New Jersey Avenue, SE
Washington DC 20590
Toll Free Vehicle Safety Hotline: 888.327.4236
TTY: 800.424.9153

For additional information, please refer to the NHTSA website at www.safercar.gov.

In Canada:

If you believe that your recreational vehicle has a defect which could cause a crash or cause injury or death, you should immediately inform Transportation Canada's Defect Investigations and Recalls Division, and Alliance RV.

To Contact Transportation Canada:

Website: www.tc.gc.ca

Address: Transport Canada

Defect Investigations & Recalls Division
330 Sparks Street
Ottawa ON K1A 0N5
Canada
Toll Free in Canada: 800.333.0510

If calling internationally or from the Gatineau-Ottawa area: 819.994.3328



SERVICE & WARRANTY

Alliance RV Limited Warranties

Alliance RV, LLC (Alliance RV) provides the following Limited Base and Limited Structural Warranties with this recreational vehicle which sets forth what Alliance RV will cover and what Alliance RV will do if a defect is found to exist. Please read the following warranty details closely before your purchase of the recreational vehicle.

ACCEPTANCE OF WARRANTY: When you request or accept the performance of warranty repairs under the terms of either limited warranty, you are accepting all terms of both limited warranties.

ONE (1) YEAR LIMITED BASE WARRANTY

Alliance RV provides this Limited Base Warranty for the period of One (1) Year. Warranty period starts from the earlier of (a) the date of purchase by the original retail purchaser, or, (b) if the dealer places the vehicle in service prior to retail sale, on the date the recreational vehicle is first placed in such service.

For the warranty period set forth above, this one (1) year Limited Base Warranty covers certain defects in materials and/or workmanship for the recreational vehicle manufactured by Alliance RV, and workmanship provided directly by Alliance RV, arising under normal use and service for the Limited Base Warranty period of the recreational vehicle. Alliance RV reserves the right to use new or remanufactured parts of similar quality to complete any work, and to make parts and design changes without notice to anyone. Alliance RV reserves the right to make changes in the design or material of its products without obligation to incorporate such changes in any product previously manufactured.

This Limited Base Warranty only covers a recreational vehicle sold by an authorized Alliance RV dealer and to the original retail purchaser. Note that recreational vehicles purchased in the US with the specific intent to import to Canada will NOT be covered under this Limited Base Warranty.

Alliance RV makes no warranty whatsoever with respect to the recreational vehicle beyond that contained in this Limited Base Warranty. No other person(s) are authorized by Alliance RV to establish any other obligation or liability for it regarding this recreational vehicle. Alliance RV is not responsible for any promise, representation or warranty made by any dealer or person beyond what is expressly stated in this Limited Base Warranty. No one has authority to amend or modify this Limited Base Warranty.

NOTE: This Limited One (1) Year Base Warranty is separate from the Limited Three (3) Year Structural Warranty on the following page and will expire exactly one year from the warranty period start date as identified above.

LIMITATIONS, EXCLUSIONS AND DISCLAIMER OF IMPLIED WARRANTIES:

THE LIMITED BASE WARRANTY IS PROVIDED EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, AND IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF ALLIANCE RV. IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, IN ANY, GIVEN BY LAW, WILL BE LIMITED TO AND NOT EXTEND BEYOND THE SCOPE OF COVERAGE AND BEYOND THE DURATION OF THE ABOVE ONE-YEAR LIMITED BASE WARRANTY.

IN NO EVENT SHALL ALLIANCE RV BE RESPONSIBLE OR LIABLE FOR ANY LOSS OF USE, REVENUE, PROFIT, OR FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES OF ANY KIND OR NATURE THAT RESULT FROM ANY DEFECT IN THE RECREATIONAL VEHICLE REGARDLESS OF WHETHER SUCH DAMAGES WERE FORESEEABLE. THE DISCLAIMER OF CONSEQUENTIAL DAMAGES IS NOT DEPENDENT UPON THE LIMITED BASE WARRANTY FULFILLING ITS ESSENTIAL PURPOSE.



NOTE: SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THREE (3) YEAR LIMITED STRUCTURAL WARRANTY

Alliance RV provides this Limited Structural Warranty for the period of Three (3) Years. Warranty period starts from the earlier of (a) the date of purchase by the original retail purchaser, or, (b) if the dealer places the vehicle in service prior to retail sale, on the date the recreational vehicle is first placed in such service.

For the warranty period set forth above, this three (3) year Limited Structural Warranty covers certain defects in materials and/or workmanship of the “**structural components**” (as defined below) portions of the recreational vehicle manufactured by Alliance RV, and workmanship provided directly by Alliance RV, arising under normal use and service for the Limited Structural Warranty period of the recreational vehicle. Alliance RV reserves the right to use new or remanufactured parts of similar quality to complete any work, and to make parts and design changes without notice to anyone. Alliance RV reserves the right to make changes in the design or material of its products without obligation to incorporate such changes in any product previously manufactured.

“**Structural components**” is defined as (i) main steel frame including outriggers and cross members; (ii) laminated side walls and rear wall assembly; (iii) slideroom box assembly including sidewall, end walls, roof and floor; (iv) roof assembly; (v) floor assembly; and (vi) fiberglass cap including paint application (this structural warranty item does not cover damages to the cap such as rock chips, dents, scratches or failure to meet the maintenance requirements as outlined in the Owner’s manual).

This Limited Structural Warranty only covers a recreational vehicle sold by an authorized Alliance RV dealer and to the original retail purchaser. Note that recreational vehicles purchased in the US with the specific intent to import to Canada will NOT be covered under this Limited Structural Warranty.

Alliance RV makes no warranty whatsoever with respect to the recreational vehicle beyond that contained in this Limited Structural Warranty. No other person(s) are authorized by Alliance RV to establish any other obligation or liability for it regarding this recreational vehicle. Alliance RV is not responsible for any promise, representation or warranty made by any dealer or person beyond what is expressly stated in this Limited Structural Warranty. No one has authority to amend or modify this Limited Structural Warranty.

NOTE: This Limited Three (3) Year Structural Warranty is separate from the Limited One (1) Year Base Warranty on the previous page and will expire exactly three years from the warranty period start date as identified above.

LIMITATIONS, EXCLUSIONS AND DISCLAIMER OF IMPLIED WARRANTIES:

THE LIMITED STRUCTURAL WARRANTY IS PROVIDED EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, AND IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF ALLIANCE RV. IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, IN ANY, GIVEN BY LAW, WILL BE LIMITED TO AND NOT EXTEND BEYOND THE SCOPE OF COVERAGE AND BEYOND THE DURATION OF THE ABOVE ONE-YEAR LIMITED BASE WARRANTY.

IN NO EVENT SHALL ALLIANCE RV BE RESPONSIBLE OR LIABLE FOR ANY LOSS OF USE, REVENUE, PROFIT, OR FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES OF ANY KIND OR NATURE THAT RESULT FROM ANY DEFECT IN THE RECREATIONAL VEHICLE REGARDLESS OF WHETHER SUCH DAMAGES WERE FORESEEABLE. THE DISCLAIMER OF CONSEQUENTIAL DAMAGES IS NOT DEPENDENT UPON THE LIMITED BASE WARRANTY FULFILLING ITS ESSENTIAL PURPOSE.



NOTE: SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

Extended or Third-Party Warranties

Alliance RV does not offer any warranties outside of those outlined on pages 6-7 on the new purchase of an Alliance RV. Any extended or third party warranties obtained in connection with the purchase of an Alliance RV is the product of another organization. All questions related to such warranties must be directed toward the seller or provider of those warranties.

Obtaining Service

For a defect to be covered under either limited warranty, the repair or replacement must occur at an independent authorized Alliance RV dealer, or Alliance RV approved repair shop/service provider, or Alliance RV facilities. Alliance RV will remedy defects in materials and workmanship covered under the Limited Base Warranty or Limited Structural Warranty, under normal use and service, caused by Alliance RV in the recreational vehicle itself only.

To obtain warranty service the original retail purchaser must do the following:

1. Within twenty (20) days of discovery of any defect to be covered by this warranty, notify an independent, authorized Alliance RV dealer or Alliance RV. Warranty services can only be obtained through Alliance RV authorized dealers and service representatives.
2. Following notification, the recreational vehicle must be taken to an independent, authorized Alliance RV dealer, or if authorized by Alliance RV, a designated repair shop/service provider. Either that dealer or repair shop, or Alliance RV will undertake appropriate corrective repair actions in instances where the defect is covered by this warranty.



Ancillary expenses incurred for transportation of the RV or while the RV is undergoing repairs, shall be borne by purchaser. Ancillary expenses include, but are not limited to: transportation, fuel, accommodations, food, loan payments.

If assistance is needed, you may contact Alliance RV directly at:

- Email: service@alliancerv.com (Preferred method of contact)
- Phone: (574) 226-0140
- Mail: 301 Benchmark Drive, Elkhart, IN 46516 (Attn: Customer Service)



When sending an Email to Alliance RV Customer Service, please include the following information:

- Last six digits of your VIN
- Relevant photos to help illustrate your question or concern
- Questions or concerns regarding components (ie. refrigerator, toilet, awning, etc), a photo of the data tag/label located on that specific component will often be needed.



Alliance RV Customer Service response time for all inquiries is typically within 1-2 business days. For emails, if you do not see a response within the expected timeframe, please check your SPAM or JUNK folders, and also ensure that the email address was keyed in correctly at (service@alliancerv.com)

Parts Information for Non-Warranty Purposes

For parts information on non-warranty items, please contact your local Alliance RV Dealer or email the Alliance RV Parts Team directly at parts@alliancerv.com.

Unable to Complete Warranty Claim Within the Warranty Period

If there are concerns with completing warranty requests within the warranty period, it is recommended that you document these concerns via email prior to the warranty expiration with Alliance RV Customer Service or your Alliance RV Dealer. Sending an email does not guarantee coverage, but will provide a record and allow us to review.

Repair Remedy: Exclusive Remedy


Alliance RV's obligation is to address, within industry standards, any covered substantial defect discovered and reported within the warranty period provided: (a) you notify an authorized dealer within 20 days of your discovery of the substantial defect: AND (b) you deliver the recreational vehicle to an authorized dealership or Alliance RV at your cost and expense. If this primary remedy fails to successfully cure any substantial defect after a reasonable number of repair attempts, your sole and exclusive remedy shall be to have Alliance RV pay an independent service shop to perform repairs to the defect. If the defect is still incapable of being repaired, Alliance RV may, at its option, provide you the diminished value damages (the difference in purchase price and actual value of your recreational vehicle on the date of purchase). You must exhaust the primary repair remedy and this back-up remedy, and both these remedies must fail of their essential purpose before initiating any action against Alliance RV.

Warranty Exclusions

The Limited Base and Limited Structural Warranties noted above will not cover and will not apply to:

- Routine maintenance and adjustments;
- Any deterioration due to normal wear and tear;
- Defects in labor, materials, components or parts not manufactured or performed by Alliance RV;
- Modifications or alterations to the original design after the recreational vehicle leaves possession of Alliance RV;
- Damage caused by unauthorized attachments, modifications or alterations;
- Equipment or accessories installed by any party other than Alliance RV;
- Materials, components, appliances, electronics or parts which are warranted separately by the respective component manufacturer;
- Recreational vehicles used for purposes other than recreational travel and camping (By way of example only business, rental commercial or disaster relief purposes);
- Any recreational vehicle purchased in the United States with specific intent to import vehicle to Canada;
- Any recreational vehicle registered or primarily used outside the United States or Canada;

- Any water leaks or related significant damages that are a result of your failure to properly maintain the exterior seals as required in the Owner's Manual;
- Repairs or replacements made necessary as a result of your failure to follow ordinary maintenance procedures as recommended by Alliance or the manufacturer or dealer of the recreational vehicle;
- Rust or corrosion due to the environment;
- Damage caused by misuse, abuse, neglect, theft, or vandalism;
- Damage caused by improper stowing of equipment, overloading or improper load balancing;
- Damage caused by unprotected electrical hookups or power surges;
- Damage caused by extreme weather conditions such as extreme cold or heat, winds, rain, lightning, hail, ice and flooding;
- Damage caused by unauthorized repair or failure to follow instructions supplied with the recreational vehicle;
- Damage caused by the tow vehicle by the owner, owner's operation or use of the tow vehicle, improper selection or installation of towing hitch on tow vehicle, or damage to the owner's tow vehicle;
- Damage caused by road conditions, applications of salt or de-icing chemicals, gravel, sand, potholes, etc.;
- Fading, yellowing or aging of exterior materials and components due to exposure of UV or sunlight, or weather;
- Damage caused in-transit to or from a dealer, or to or from the consumer, or by the consumer or another;
- Recreational vehicles not originally purchased through an authorized Alliance RV dealer

	<p>Relating to aftermarket items & modifications:</p> <ul style="list-style-type: none"> • As stated above, warranties will not cover and will not apply to damage caused by unauthorized attachments, modifications or alterations. It is important to note that such addition or modification does not automatically void a coach warranty. If that aftermarket item is deemed to be the cause of an issue, then it could impact warranty coverage of that or a related issue. • In providing a warranty covered repair or replacement of any kind, should that repair negatively affect an aftermarket item, Alliance RV is not liable to return the aftermarket addition to like-new condition. For example, replacement of graphics due to warranty coverage will not result in Alliance RV paying for a new ceramic coating application.
---	--

Events Discharging Alliance RV from Obligation Under Warranty

Certain things completely discharge Alliance RV from any obligation under these warranties. By way of example, the following shall discharge Alliance RV from any express or implied warranty obligation to repair or replace any defect that results from: misuse or negligent use, abuse, or accident, neglect, unauthorized alteration, failure to provide reasonable and necessary maintenance including reasonable periodic inspections of the recreational vehicle, use of the recreational vehicle for rental, business or commercial use or any other use other than to use the recreational vehicle only for recreational and personal use.



Warranty Registrations

The selling dealer will assist you in completing and submitting the Alliance RV product warranty registration form. That form must be returned to Alliance RV within ten (10) days of your taking delivery of the recreational vehicle. Failure to file this warranty registration with Alliance RV will not affect your rights under the Limited Base or Limited Structural warranties as long as you can present proof of purchase, but it can cause delays in obtaining the benefits of these Limited Warranties and may inhibit any servicing facility's ability to provide proper repairs and/or part replacement.

As stated above, some components, accessories or equipment are not covered by these Limited Warranties. By way of example, the following have coverage that may be provided by the component manufacturer: tires, batteries, generators, and some appliances & electronics and entertainment equipment. These component manufacturer warranties are separate from this Limited Base Warranty, and in some cases may be longer and/or have specific coverage provisions and requirements. In order to activate these warranties, you may have to complete registration forms, post cards or some other form of notification to the component manufacturer within a specific time period. These forms and documents will be located with the Owner's Materials packet provided with your new vehicle. You must complete and submit them to the respective manufacturer as quickly as possible, and within the time periods required by those warranties.

Care and Maintenance

The owner of the recreational vehicle is responsible to perform proper care and maintenance of the recreational vehicle as outlined in the Alliance RV Owner's Manual and the owner's manuals of the chassis and other component part manufacturers. Failure to maintain the RV as noted in those manuals voids these warranties, and any damage to the RV as a result of your failure to perform such care, is not covered by the warranties set forth above.

LEGAL REMEDIES

ANY ACTION TO ENFORCE ANY PORTION OF THIS LIMITED BASE OR STRUCTURAL WARRANTIES, OR ANY IMPLIED WARRANTY, MUST BE COMMENCED WITHIN NINETY (90) DAYS AFTER THE EXPIRATION OF THE APPLICABLE WARRANTY COVERAGE PERIOD. ANY PERFORMANCE OF REPAIRS WILL NOT SUSPEND THIS LIMITATION PERIOD FROM EXPIRING, UNLESS STATE LAW PROVIDES OTHERWISE. ANY PERFORMANCE OF REPAIRS AFTER THE APPLICABLE WARRANTY COVERAGE PERIOD HAS EXPIRED, OR PERFORMANCE OF REPAIRS REGARDING ANYTHING EXCLUDED FROM COVERAGE UNDER THIS LIMITED WARRANTY SHALL BE CONSIDERED "GOOD WILL" REPAIRS, AND THEY WILL NOT CHANGE THE EXPRESS TERMS OF THIS LIMITED WARRANTY OR EXTEND THE WARRANTY COVERAGE PERIOD.

EXCLUSIVE JURISDICTION FOR DECIDING LEGAL DISPUTES RELATING TO ALLEGED BREACH OF WARRANTY OR REPRESENTATIONS OF ANY NATURE MUST BE FILED IN THE COURTS WITHIN THE STATE OF MANUFACTURE. THE ABOVE LIMITED WARRANTIES WILL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF INDIANA, WITHOUT GIVING EFFECT TO ANY CHOICE OR CONFLICT OF LAW PROVISION OR RULE (WHETHER OF THE STATE OF INDIANA OR ANY OTHER JURISDICTION) THAT WOULD CAUSE THE APPLICATION OF THE LAWS OF ANY JURISDICTION OTHER THAN THOSE OF THE STATE OF INDIANA. ANY AND ALL CLAIMS, CONTROVERSIES, AND CAUSES OF ACTION ARISING OUT OF OR RELATING TO THE ABOVE LIMITED



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

WARRANTIES, WHETHER SOUNDING IN CONTRACT, TORT OR STATUTE, WILL BE GOVERNED BY THE LAWS OF THE STATE OF INDIANA, INCLUDING ITS STATUTE OF LIMITATIONS, WITHOUT GIVING EFFECT TO ANY CHOICE OR CONFLICT OF LAW PROVISION OR RULE (WHETHER OF THE STATE OF INDIANA OR ANY OTHER JURISDICTION) THAT WOULD CAUSE THE APPLICATION OF THE LAWS OF ANY JURISDICTION OTHER THAN THOSE OF THE STATE OF INDIANA.

THE LIMITED BASE WARRANTY AND LIMITED STRUCTURAL WARRANTY GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

SAFETY PRECAUTIONS

Throughout this manual, you will find the symbols shown below. This information is provided to help you avoid personal injury or death as well as damage to your RV and other property. Take the time to review all these warnings.

CAUTION

INDICATES POTENTIAL MINOR TO MODERATE INJURY AND/OR PROPERTY DAMAGE






WARNING

INDICATES POTENTIAL DEATH OR SERIOUS INJURY

DANGER

INDICATES POTENTIAL DEATH OR SERIOUS INJURY

SYMBOLS USED

	Information box: Used to highlight particularly helpful information about the topic.
	Technical Hint or Troubleshooting box: Used to present a short technical hint or troubleshooting method related to the topic.
	This symbol denotes an available vendor manual or Tech Tip at Alliance Academy.
	This symbol denotes an available video at Alliance Academy. When the abbreviation WYKW is used at the beginning, these are What You Know Wednesday videos: especially short and focused videos about the noted topic.
	This symbol denotes available vendor website information.

WEIGHT RATINGS, ASSOCIATED LABELS, LOADING AND WEIGHING

Weight Terms

WARNING

PLEASE READ AND UNDERSTAND THE MANY SAFETY LABELS THROUGHOUT YOUR RV, FAILURE TO DO SO COULD RESULT PROPERTY DAMAGE, DEATH OR SERIOUS INJURY

Knowing and understanding the following weight terms are a crucial step to overall safety of your RV. By becoming familiar with this information, you will be better equipped in making decisions when using your Alliance RV product.

GAWR = Gross Axle Weight Rating and is the maximum weight the recreational vehicles axle(s) are rated for.

GVWR = Gross Vehicle Weight Rating and is the maximum operating weight the vehicle is rated for when fully loaded.

UVW = Unloaded Vehicle Weight and is the weight of the manufactured completed RV.

CCC = Cargo Carrying Capacity and is the difference between what the RV weighs when there is nothing in it and what it weighs when you have loaded it with your personal belongings, also including but not limited to food, water, propane and any upgrades added (ie. *solar power, washer/dryer, additional batteries etc.*)

GTW = Gross Trailer Weight and is the total weight of the trailer as loaded.

HITCH WEIGHT = The weight of the trailer that is on the hitch of the tow vehicle when attached.

Refer to the following section, [TOW VEHICLE: HITCH AND CONFIGURATION CONCERNS](#), for critical information about the tow vehicle hitch and hitch weight considerations.

WARNING

NEVER EXCEED ANY OF THE DESIGNATED WEIGHT RATINGS, DOING SO COULD RESULT IN DEATH OR SERIOUS INJURY

⚠ WARNING

FACTORY INSTALLED WEIGHT LABELS ARE SPECIFIC TO YOUR RV, NEVER REMOVE OR MODIFY THESE LABELS. IF YOU HAVE A MISSING LABEL, CONTACT YOUR DEALER OR ALLIANCE RV FOR ASSISTANCE

Federal Certification

This label verifies that your RV is compliant with all Vehicle Safety Standards. You'll find this label near the front of your RV on the off-door side near the cabover.

MFD BY: USA TRAILER MANUFACTURERS, CO. DATE OF MFG: 03/09				GVWR: 8,164 KG (18,000 LB)	
FRONT GAWR	WITH TIRES	RIMS AT	COLD		
4,354 KG (9,600 LB)	11R17.5HC(H)	17.5X8.25HC	827 KPA (120PSI)	SINGLE	
REAR GAWR	WITH TIRES	RIMS AT	COLD		
4,354 KG (9,600 LB)	11R17.5HC(H)	17.5X8.25HC	827 KPA (120 PSI)	SINGLE	
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.					
VIN: XXXXXXXXXXXXXXXXX				TYPE: TRAILER	

Figure 1. Vehicle Manufacturing Information label.

Tire and Loading Information

This label houses information regarding the correct tire pressure for the vehicle and will also tell you the size of the tires and the CCC of the RV. This label is also located near the front of the RV on the off-door side near the cabover.

TIRE AND LOADING INFORMATION			
The weight of cargo should never exceed XXXX Kg or XXXX Lbs.			
TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	
REAR	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	
SPARE	XXXXXXXXXXXXXX	XXXXXXXXXXXXXX	

Figure 2. Tire and Loading Information label.



[WYKW: Alliance RV Tire Pressure](#)

Cargo Capacities & Weighing Your RV

Weight and balance of your RV is crucial to your safety. To ensure that you are within all the established weight limits and ratings, you should have your RV weighed.

Always make sure that your RV is loaded evenly from side to side, never exceeding the specified weight ratings established for your RV. Always secure loose items and ensure that all factory-provided securements are in place before you travel.



LP Gas and fresh water are considered cargo weight.

⚠ WARNING

A LOAD THAT IS NOT PROPERLY DISTRIBUTED, REGARDLESS OF WEIGHT RATINGS, CAN HAVE AN ADVERSE EFFECT ON THE WAY THE RV PULLS.

⚠ WARNING

THE TOTAL WEIGHT OF THE RV AND THE TOW VEHICLE TOGETHER SHOULD NEVER EXCEED THE GCWR OF THE TOW VEHICLE.

⚠ WARNING

YOU MAY NOT ALWAYS BE ABLE TO USE ALL AVAILABLE STORAGE SPACE WHEN LOADING YOUR RV. JUST BECAUSE IT CAN FIT DOESN'T MEAN THAT YOUR RV IS WITHIN THE ESTABLISHED WEIGHT RATINGS.



[Can My Truck Tow This?](#)

TOW VEHICLE: HITCH AND CONFIGURATION CONCERNS

Hitch and Hitch Selection

There are many different hitch options. The type of hitch you select will impact the towing and handling characteristics of the travel trailer. Selecting and installing an appropriate hitch on the tow vehicle is vital to towing the travel trailer safely.

Information one needs to know:

- Related to the travel trailer: One needs to be familiar with its **GVWR** and **Hitch Weight** *before* selecting a hitch for the tow vehicle.
- Related to the tow vehicle hitch: It has a **Hitch Class Rating** based on its maximum towing capacity and the size of the receiver opening. The hitch class rating specifications also lists a **Maximum Hitch Weight**.

Based upon that information, one needs to ensure the following related to the selected hitch:

1. It must have a **Maximum Towing Capacity** that is *greater than* the trailer's **GVWR**.
2. It must have a **Maximum Hitch Weight** that is *greater than* the trailer's **Hitch Weight**.

CAUTION

DO NOT OVERLOAD THE TOW VEHICLE
THE USE OF A TOW VEHICLE HITCH THAT IS NOT PROPERLY SIZED CAN CAUSE DAMAGE TO THE TRAVEL TRAILER FRAME AND/OR TOW VEHICLE THAT IS NOT COVERED BY ALLIANCE RV.

FINAL BALL HEIGHT AFTER THE TOW VEHICLE AND TRAVEL TRAILER IS CONNECTED IS A FACTOR THAT MUST BE CONSIDERED. WHEN THE TRAILER IS CONNECTED TO THE TOW VEHICLE THE TRAILER SHOULD BE LEVEL TO AVOID OVERLOADING THE TRAILER'S AXLES AND TO MINIMIZE POTENTIAL HANDLING PROBLEMS.

Hitch Ball

Alliance travel trailers require a hitch ball diameter of 2 5/16" and is stamped on the hitch coupler.

Hitch Weight

Maintaining the proper relative hitch weight of the trailer when reloading cargo is vital to stability of the tow vehicle. Adjust cargo such that approximately 10–15% of the gross trailer weight (GTW) is on the hitch.

- If your hitch weight is **MORE THAN** the upper weight limit, adjust some cargo to the rear of your travel trailer.
- If your hitch weight is **LESS THAN** the lower weight limit, adjust some cargo to the front of your travel trailer.
- Cargo Weight that is secure and **BALANCED** side-to-side is vital to proper vehicle handling.

Hitch Height

Hitch height is determined when the trailer is level. Once the travel trailer is connected to your tow vehicle, verify the hitch ball height by taking a measurement from the center of the hitch ball to the ground. This is your hitch height reference measurement.

- When loading cargo and there is an increase in hitch height from the reference measurement, this means that there is weight behind the axles and has the potential to cause your travel trailer to sway or fishtail.
- When loading cargo and there is a decrease in hitch height from the reference measurement, this means that weight has been transferred to the hitch and has the potential to raise the tow vehicle's front wheels causing adverse steering response, traction, and braking.
- It is critical that the travel trailer be as level as possible when loading cargo, and using a reference hitch height to maintain level of the travel trailer is a useful method.

⚠️WARNING

HITCH WEIGHT IS CRITICAL TO THE TOW VEHICLE'S STABILITY AND MANEUVERABILITY. IF THE HITCH WEIGHT IS TOO HEAVY IT CAN RAISE THE TOW VEHICLES FRONT WHEELS TO WHERE IT LOSES STEERING RESPONSIVENESS. TRACTION, AND BRAKING CAN BE NEGATIVELY AFFECTED. AS A RESULT, LOSS OF CONTROL, AND SUSPENSION AND/OR DRIVETRAIN DAMAGE CAN OCCUR.

IF HITCH WEIGHT IS TOO LIGHT IT CAN NEGATIVELY AFFECT THE TOW VEHICLE'S REAR-WHEEL TRACTION AND STABILITY CAUSING TRAILER SWAY OR A JACKKNIFE SITUATION.

Suspension

There are numerous types of tow vehicle suspension systems on the market that will affect ball height, stability, and towing level of the connected travel trailer.

- When a tow vehicle suspension is too stiff, it can potentially cause an increase in bounce and vibration that can lead to speeding up wear on the tow vehicle and RV combination.
- When using a system that provides a tow vehicle with a softer ride, this can lead to increased potential for sway when towing.

Discuss these options with your dealer service center when choosing a towing system.

Sway Control (Customer Supplied)

There are numerous aftermarket sway control devices available to help reduce trailer sway produced by crosswinds, air buffeting caused by passing vehicles, improper weight distribution, and excessive speed etc. Utilizing a sway control device will assist to control side-to-side movement and minimize sway.

Sway Control (Customer Supplied)

Using an aftermarket weight distributing hitch system will increase tow vehicle/travel trailer stability. This system spreads the weight evenly to distribute it to the front and rear tow vehicle axles and the trailer axle.

TIRE AND WHEEL INFORMATION & SAFETY

Your tires are the only part of the RV that has direct contact with the road. Tires directly affect the handling, braking and safety of your RV. Tires must have correct air pressure, tread depth and balance.

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies characteristics of the tire and provides a tire ID number for safety standard certification and in case of a recall.

DOT Tire Identification Number

This begins with the letters “DOT” and indicates the tire meets all federal standards. The following two digits are the plant code where the tire was manufactured. There may be several letters and numbers depending upon the manufacturer. The last four numbers represent the week and year the tire was built. In Figure 3, the tire was made in the seventh week of 2024. The DOT number is also important in the event of a tire recall and used for that purpose.



Figure 3. DOT tire information.

Tire Size

Alliance RV uses a very robust Load Range F ST235/85R16 for the Avenue trailer line. Only purchase new tires that are the same size as the vehicle’s original tires. Look at the tire information label or on the sidewall of the tire you are replacing to find the information. If you have any questions, please contact Alliance RV.

Spare Tire Carrier

A cable hoist is used for storing your spare tire under the RV. You’ll find the spare tire up against the underbelly of the coach towards the rear of the RV. An access hole in the skirt metal is provided for the spare tire crank handle to be inserted in order to lower or raise the spare tire hoist.

Tire and Wheel Maintenance

Inspect Tires and Check Pressure

As per the Maintenance Schedule, as well as after encountering any significant road hazards, each tire should be inspected for abnormal wear, and the tire pressure should be checked.



[WYKW: Alliance RV Tire Pressure](#)

⚠ WARNING

TIRE PRESSURE SHOULD BE CHECKED AT THE BEGINNING OF A TRIP. ALWAYS FOLLOW ALL INSTRUCTIONS ON THE FEDERAL CERTIFICATION LABEL FOR ESTABLISHED REQUIREMENTS.

1. Inspection of the tires
 - Check your tires regularly, this is crucial to your safety. Ideally, tires should be inspected monthly. If you drive over potholes, debris or live in a cold climate or even regularly pull your RV, a more frequent inspection is suggested. The more often you inspect, the easier it is to catch small problems and get them fixed before it becomes a more expensive and potentially time-consuming problem.
 - Look for this during inspection:
 - **Over Inflation** – Too much air causing the tires middle section to contact the road. This will create wear in the center of the tire.
 - **Under Inflation** – Too little air pressure causes the outer edges to contact the road. This will create wear on the outside edges of the tire tread.
 - **Tread Wear on one Edge of the Tire** – This typically indicates that something is out of alignment.
 - **Erratic Tread Wear** – Often called cupping and can mean the wheel is out of balance or an issue with suspension component
2. Pressure should be checked when the tires are cold. Tires are considered cold when the vehicle has not been moved for a period of 3 hours or more. Do NOT adjust tires when they are hot.
3. Using a quality tire gauge rated for the required pressure, check all the tires to make sure they have the same air pressure. Follow the tire manufacturer's inflation guidelines for maximum load capacity on the federal Tire Information Label. If the pressure is too high or too low, adjust as needed to match the required tire pressure.

⚠ WARNING

ALWAYS KEEP TIRES PROPERLY INFLATED. NOT DOING SO CAN RESULT IN TIRE FAILURE THAT COULD RESULT IN AN ACCIDENT.

- If you have been driving your vehicle and think a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that's slightly lower than the vehicle manufacturers recommended cold inflation pressure than to drive with a significantly underinflated tire. **Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.**

⚠ WARNING

NEVER ADJUST TIRE PRESSURE TO A "HOT" OR "WARM" TIRE. ADJUSTMENTS ARE ONLY TO BE MADE AFTER THE TIRE HAS BEEN AT REST FOR 3 OR MORE HOURS.

Changing a Tire



[WYKW: Where to Place Your Tire jack](#)

1. Keep the recreational vehicle attached to the tow vehicle. Block the tire on the opposite side of the recreational vehicle from the tire you are changing.
2. Remove the spare tire from the Spare Tire Carrier.
3. Loosen the wheel lug on the tire you are changing before jacking up the vehicle. **DO NOT remove the lug nuts.**
4. Locate the mainframe rail of the trailer (it spans from front-to-back just inside the tires).
5. To raise the recreational vehicle, place the jack (hydraulic or screw) under the main frame rail. It must be just ahead of the front tire or just behind the rear tire. Raise the recreational vehicle enough to lift the damaged wheel off the ground for removal. NOTE: The trailer may need to be raised slightly more to enable the new wheel to be placed.

⚠ WARNING

NEVER USE THE LEVELING SYSTEM TO CHANGE A TIRE. NEVER RAISE THE RV BY PLACING A JACK UNDER THE AXLE, AXLE SPRINGS OR ANY ATTACHED PARTS.

⚠ WARNING

BE SURE TO REPLACE TIRES WITH A TIRE OF THE SAME SIZE AND SPECIFICATION.

6. Finish removing the lug nuts.
7. Replace the damaged wheel with the spare wheel, and secure the lug nuts hand tight.
8. Lower the recreational vehicle only enough to provide ground contact to prevent the wheel from turning as you complete the lug nut torques.
9. Apply full rated torque to the lug nuts in the sequence shown in **Wheel Nut Torque** for your wheel. You may need to repeat the torque sequence multiple times to fully seat all lug nuts.
10. Fully lower the recreational vehicle.

⚠ WARNING

AFTER REPLACING A WHEEL, TORQUE SHOULD BE CHECKED AGAIN AFTER 100 MILES AND 200 MILES OF DRIVING.

Wheel Nut Torque

Always use a calibrated torque wrench to confirm proper torque. Check the lug nut torque on each wheel before departure and according to the Maintenance Schedule. Do NOT under torque or over torque under any circumstance. Tighten all lug nuts in the correct order according to your RVs lug pattern, illustrated in Figure 4.

⚠ WARNING

ALWAYS TORQUE THE WHEEL LUG NUTS TO THE REQUIRED SPECIFICATIONS.

⚠ WARNING

TRAILERS EQUIPPED WITH THE MORRYDE INDEPENDENT SUSPENSION MUST TORQUE THEIR LUG NUTS TO THE SPECIFICATIONS LISTED AS PER MORRYDE DOCUMENTATION.

Table 1. Wheel lug nut torque specifications.

LUG NUT	STUD DIAMETER	RIM SIZE	RIM TYPE	ACCEPTABLE TORQUE RANGE
6	1/2"	16"	Aluminum	90-120 ft./lbs.

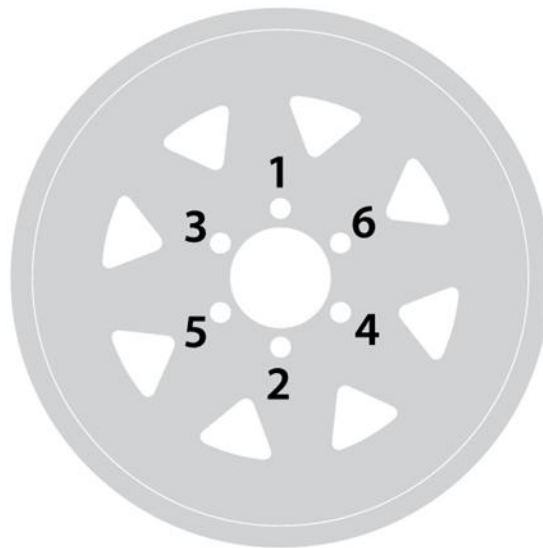


Figure 4. Proper lug nut torque sequence for a six-lug wheel.

BRAKE SYSTEMS

Alliance trailers come standard with drum brakes. The brakes are actuated via a brake controller to provide an electric signal to the trailer via the Tow Plug to apply the brakes. That signal travels to each wheel where an electromagnet applies the brakes. It is important to regularly inspect and maintain the brake systems according to the maintenance schedule.

Brake Controller

The brake controller should be installed in the tow vehicle to work in conjunction with the RV brakes. Consult with your dealer or brake controller manufacturer to decide what is the right towing combination. This controller will be present regardless of the type of brakes installed on the trailer.

Breakaway Switch

The breakaway switch is a critical safety component of the RV brake system. You'll find this located on the trailer's A-frame. If the trailer and the tow vehicle become separated during towing, the line will pull the plunger out and immediately activate the trailer's brakes. Always make sure your breakaway switch is in working order.

CAUTION

NEITHER THE BREAKAWAY SWITCH NOR THE TRAILER BRAKES SHOULD EVER BE USED AS A PARKING BRAKE

CAUTION

ENSURE THAT THERE IS ENOUGH SLACK IN THE BREAKAWAY SWITCH CABLE TO ALLOW FOR TIGHT TURNING RADII.

Brake Troubleshooting

Full troubleshooting of brake systems is beyond the scope of this manual. However, the following issues have been reported by Alliance owners:

Symptom: The drum brakes on the trailer appear to work less than in the past. The brakes have low miles and should not be worn.

Possible Causes:

- The brakes are self-adjusting, but the mechanisms that allow for self-adjustment can fail or become disconnected.
- Wires between the pin box connection and each brake could be damaged or disconnected. Check as much wiring as possible, using continuity checks where the full wire run cannot be seen.

Symptom: There is a known issue on Chevy/GMC trucks where a “Check Trailer Wiring” or “Service Trailer Brake” issue will post on the Driver Information Center, yet all tail lights and brakes function

- Damage to tow vehicle socket or trailer plug causing poor blade or socket connection. Refer to GM service bulletin 21-NA-155 to check for this issue.
- Some tow vehicles need to have an EOH actuator adaptor module added to the brake actuator on the trailer. Please refer to your dealer or Dexter Brake Actuator documentation to investigate this issue.

Brake Maintenance

WARNING

FAILURE TO KEEP YOUR BRAKES IN PROPER WORKING CONDITION AS OUTLINED CAN CAUSE PROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

Breakaway Switch Operation

As per the Maintenance Schedule, test your breakaway switch with the following procedure. You may need to have a helper with you to hear the brakes actuate against the brake drums.

1. If the RV is still hitched to the tow vehicle, disconnect the tow plug from the vehicle.
2. With a helper standing near a trailer wheel, pull the breakaway pin out, only to the first stage.
3. The brake actuator should be heard to contact the brake drum.



It may be necessary to raise a wheel (or pair of wheels) using proper jacking techniques to test that it does not (they do not) rotate.

4. Reinsert the breakaway pin to disengage the brakes.

Brake Inspection




WARNING

BRAKE MAINTENANCE SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONS USING STANDARD INSPECTION AND MAINTENANCE PROCEDURES.

LEAF SPRING SUSPENSION SYSTEM

Equipped with dual axles, a MORryde CRE3000 Suspension System, and upgraded Wet Bolt Kit w/ heavy duty shackle links, you'll find that this set up will give you smoother towing than a conventional equalizer and leaf springs and better protection of your RV from damaging road shock.

The CRE3000 equalizer is located between the tandem axles, replacing the steel equalizer. It is designed uniquely to work with your steel leaf spring suspension to improve overall towing performance.

	<p>Running Gear - Dexter: Operation, Maintenance, Service Manual</p> <ul style="list-style-type: none"> -Axles -Brakes (electric drum) -Double eye leaf springs
	<p>Heavy Duty Shackle Kit – MORryde product page Equalizer - MORryde, Tandem Axle, CRE3000 product page</p>
	<p>WYKW: Why is there a slight bend in your Alliance RV Axles?</p>

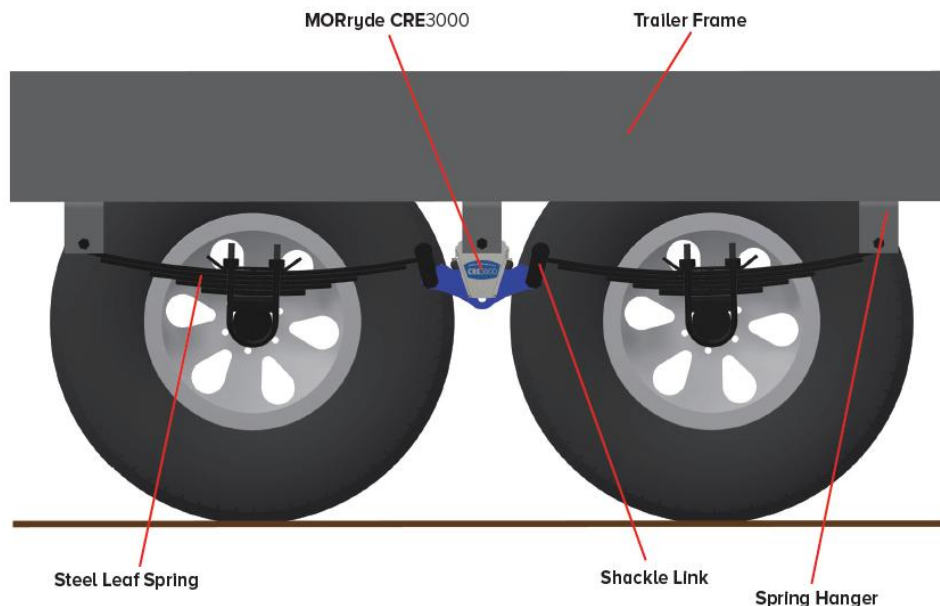


Figure 5. MORryde CRE3000 equalized suspension.

MORryde CRE 3000 Equalizer

A **tandem axle equalizer** is a component in a trailer's suspension system that is used to distribute the load evenly between the two axles, ensuring that the weight is shared and balanced as the trailer moves over uneven terrain.

The equalizer connects the leaf springs of the two axles. As the trailer encounters bumps or dips, the equalizer allows one axle to rise while the other lowers, effectively "equalizing" the load distribution between the two axles. This reduces stress on the suspension system and provides a smoother ride for the trailer.

HD Shackle Links and Wet Bolt Kit



Figure 6. MORryde HD Shackle and Wet Bolts.

The axles and suspension systems are installed with heavy duty shackle links and greaseable "wet" bolts with bronze bushings for enhanced durability and less maintenance. Wet Bolts are also used at Spring Hanger locations.

Leaf Spring Suspension Maintenance

Spring Hanger and Leaf Spring Inspection

Inspect each spring hanger location to assure no cracks exist and the hanger is straight. Ensure leaf springs are solid and not cracked or broken.

CRE 3000 Inspection

The rubber springs should be periodically inspected for deterioration.

1. If the tabs that protrude from either side of the spring carrier **are touching the top of the beam arm**, the spring rate of the spring has been affected and the equalizer should be replaced.
2. Also inspect the tab edges to assure the weld at the corner has not split.

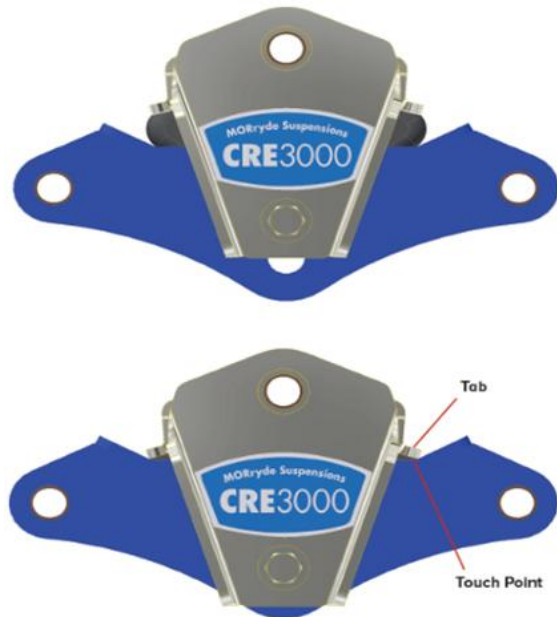


Figure 7. CRE 3000 shown at full design load. Top is new, bottom illustrates rubber worn out.



It is normal to see rubber spring weather checking, which is small surface cracks in the rubber, and does not require replacement. It is also common to see minor tearing or cracking of the rubber around the edges.

Wet Bolt Torque

Always use a calibrated torque wrench to confirm proper torque according to the Maintenance Schedule. Do NOT under torque or over torque under any circumstance. Torque the nuts of all wet bolts to 40 ft-lbs. There are seven locations per side, as indicated with red circles in Figure 8.

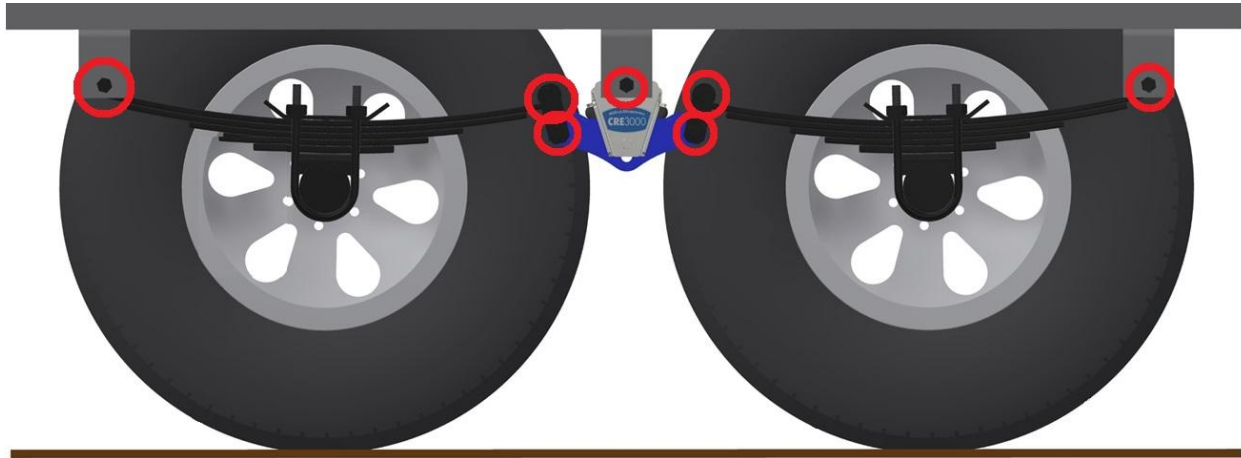


Figure 8. Wet Bolt locations to check torque and lubricate.

Axle U-Bolt Torque

Always use a calibrated torque wrench to confirm proper torque according to the Maintenance Schedule. Do NOT under torque or over torque under any circumstance. Torque the **flanged nuts** of all axle U-bolts to 100 ft-lbs.



U-bolts mounted prior to mid-2024 used non-flanged U-Bolt Nuts, and those have a torque requirement of only 70-80 ft-lbs.

Wet Bolt Lubrication

As per the Maintenance Schedule, lubricate each of the wet bolts as follows. There are seven locations per side as indicated in Figure 8 for Wet Bolt torque.

1. Using a grease gun with NLGI Standard No 2 automotive grease, lubricate each fitting.
2. Grease should flow easily through the zerk fitting, bolt cavity, and exit into spring eye bushing area.



If grease flow is restricted, check the grease exit hole position of the bolt (if marked.) The hole position may need to be altered to 3 or 9 o'clock position to better allow grease flow. It may help to remove weight from the suspension, using proper jacking techniques.

Axle Bearing Inspection and Grease Repacking

⚠ WARNING

AXLE MAINTENANCE SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONS USING STANDARD INSPECTION AND MAINTENANCE PROCEDURES.

TOW PLUG

The tow plug (7-way wire harness) is wired to your RV to connect electrical power from the tow vehicle for the RV brakes, taillights, clearance lights, turn signals and brake lights. The plug is keyed to fit into a receptacle on your tow vehicle and can only be inserted one way. The gauge of wiring to operate your brakes must be the same size in both the tow vehicle and RV.

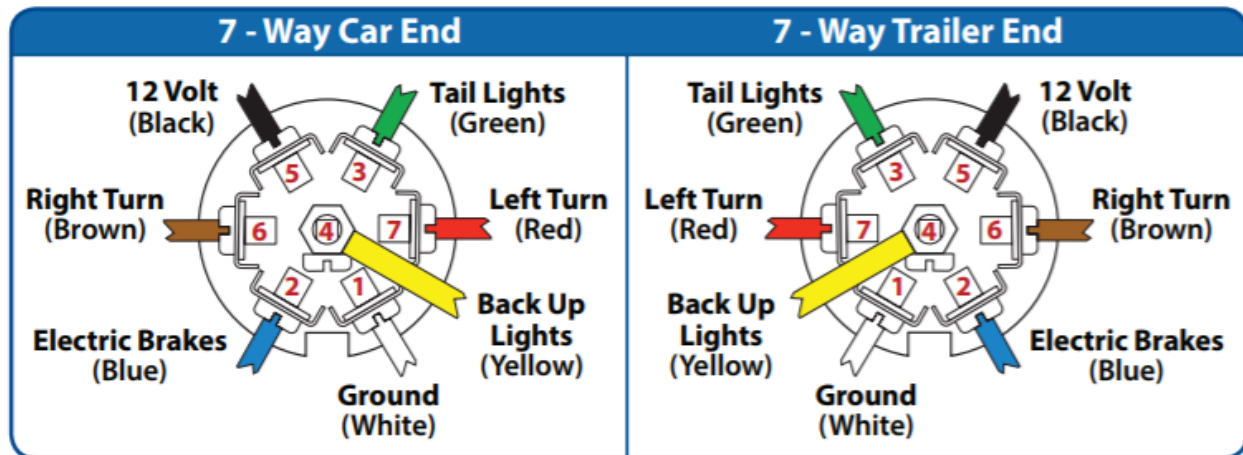


Figure 9. Standard 7 pin trailer wiring.



[WYKW: 7-Way Trailer Connection](#)

Tow Plug Troubleshooting

Modern tow vehicles have many advanced monitoring systems for trailer wiring and braking. Often times, when these vehicles post errors and warnings for trailer braking issues, the issue will be related to fusing, programming, grounding, or other concern on the tow vehicle itself. Some things to verify on the trailer are as follows:

- Are the spades and sockets of the tow vehicle plug and trailer tow plug in good condition?
- Is there continuity between the trailer connection points and the connection box points?
- Is there continuity between the trailer tow plug pin 1 and the trailer frame ground?
- When testing the trailer's breakaway switch, does it operate normally?

If all of these items check out as functional, it is suggested to check the tow vehicle setup by contacting the manufacturer or online resources for your vehicle.

Tow Plug Maintenance

Inspection

As per the Maintenance Schedule, inspect your tow plug for corrosion and build up, clean as needed. Ensure the insulation is not pulled out from the plug. If damage is noticed, have the tow plug repaired by an authorized RV technician.

Wire Lug Torque

The Tow Plug cord is connected to the trailer wiring through a junction box mounted on the back of the Pin box. According to the Maintenance Schedule, one should follow this procedure to assure a solid wiring connection.

1. Using the battery disconnect switch on the trailer, turn off the battery power.

CAUTION

ALWAYS EXPECT THAT 12 V POWER IS ACTIVE IN THE JUNCTION BOX AND DO NOT TOUCH MORE THAN ANY ONE METAL OBJECT WITH THE TOOL.

2. Remove the junction box cover by removing the 2 screws.
3. Using a socket or nut driver, attempt to tighten each of the wire lugs connecting the Tow Plug cord to the trailer wiring.
4. Replace the cover, ensuring no wires are pinched.

SAFETY CHAINS

Requirements for safety chains vary by state. Your travel trailer RV comes equipped with chains to meet Society of Automobile Engineers (SAE) standards for the maximum gross trailer weight.

Using safety chains when towing is always recommended. The recommended method is to cross them under the trailer tongue and attach them to the safety chain loops on the tow vehicle's hitch.

When hitching always inspect the length of the chains once they are attached to the tow vehicle frame as they should be of sufficient length to allow sharp turns, but short enough as to not contact the ground. Each chain should have an equal amount of slack but only enough length to allow the tow vehicle to turn at its minimum radius.

WARNING

ALWAYS USE SAFETY CHAINS WHEN TOWING YOUR TRAVEL TRAILER. SAFETY CHAINS MAINTAIN THE CONNECTION BETWEEN THE TRAVEL TRAILER AND THE TOW VEHICLE IN THE EVENT THE TRAVEL TRAILER WERE TO BECOME DETACHED DURING TRAVEL.

TOWING YOUR RV

When pulling an RV, the most obvious thing is sheer mass. You'll be taller, wider and much heavier. Allow yourself plenty of room and time to maneuver out of potentially difficult situations.

Being taller, RVs are more susceptible to sway caused by cross winds and turbulence created by other large passing vehicles. Having the correct hitch equipment that is adjusted properly can significantly reduce these effects.

Know the height of your RV. This can only be properly measured when hitched to your tow vehicle. This will help in avoiding overhead obstructions such as tree branches, low building overhangs and low clearance bridges or overpasses.

Know the width of your RV. This is important when negotiating, turns and other obstructions. Extendable side mirrors and/or add on tow mirrors can help.

Know how much your RV weighs and be aware of the weight ratings of the RV. This information is available for your safety. It is critical to never overload your RV. Overloading adversely affect the towing and handling of your RV. Stay within the weight ratings and limits of your RV.



[Can My Truck Tow This?](#)

A tow vehicle and RV weigh a lot and can take longer to stop. Increase your following distance and give yourself plenty of room and time to stop. Ensure your braking controller is set to correctly stop your vehicle, referring to your brake controller or tow vehicle owner's manual. Each truck & towable recreational vehicle setup is unique and no one value of brake gain or setup can be advised.

Practice makes perfect. Get a feel for how the RV tows and handles. Offtracking is the term used to describe the behavior of the rear wheels of a vehicle, or the wheels of a trailer, to turn inside the radius of a turn made by the front (steering) wheels of a vehicle. Many incidents of recreational vehicle damage are caused by this behavior. As such, it is imperative that a driver understands this tendency and is comfortable with how to safely navigate turns in tight spaces and at highway speeds. This is especially important if you are new to RVs. It is also important to obey highway signs with speed advisement for turns and downgrades.

⚠ WARNING

THE RV BRAKE SYSTEM IS DESIGNED AND RATED FOR THE GVWR OF THE RV, NOT THE GCWR OF THE TOW VEHICLE.

⚠ WARNING

WHEN POSSIBLE, ENSURE THAT YOUR HOLDING TANKS ARE EMPTY DURING TRAVEL. FULL HOLDING TANKS CAN ADVERSELY AFFECT THE TOWING OF THE RV.

⚠ WARNING

ALWAYS MAKE SURE THE PROPANE IS OFF WHEN TOWING THE RV.

Before and After Travel: Checklists

Your Alliance RV has a multitude of features that enable comfortable living while camping and traveling. Many of those features and capabilities require moving parts and specific setups for use. This not only includes sliding doors, but also small appliances, assorted decorations, and equipment setup inside and out (electronics, camp chairs, utility connections.) In order to move place to place, it's important to prepare for the trip carefully, review items during travel (depending upon distance being traveled,) and set up at the new location. Finally, it's good to assure that your Alliance RV continues to be "road ready" between trips.

Experienced RVer's know the importance of carefully preparing to leave a campsite, converting their RV from a living space to a traveling vehicle. As such, they often use checklists to assure all items are taken care of. Sometimes, those lists contain items added due to unfortunate experiences in the past. Every owner is encouraged to develop a series of checklists to assure each stage of the RV experience is protected from oversight of small but important steps.

⚠ WARNING

THIS SECTION MENTIONS SEVERAL TYPES OF CHECKS NEEDED FOR SAFE TRAVEL, BUT CANNOT SUGGEST ALL CHECKS AND MAINTENANCE THAT ONE MAY NEED TO PERFORM. EACH SITUATION IS DIFFERENT AND THE READER IS ADVISED TO BUILD THEIR CHECKLISTS AND TRAVEL ROUTINES BASED UPON THEIR UNIQUE SITUATION(S), RV, AND TOW VEHICLE SETUPS.

An example of a couple of items to think about before travel is shown in the following short videos



[WYKW: Microwave Plate Quick Tip](#)



[WYKW: Shower Door Latch](#)

Some of the suggested checklists are:

- Pre-travel or departure checklist: This list contains all steps that might be needed to transition from a stationary campsite to a traveling RV, departing the campground. Sometimes, this list may need to start being addressed the day before travel (tow vehicle checks, electronic device charging are two points that might need to be reviewed the day before.) The list commonly contains things like packing up decorations, making sure to empty any water out of the fresh water tank, pack up satellite dishes, ensuring all doors and windows are latched in position, vent lids down, etc.
- Mid-travel quick check: This list might be used at every location where you stop during a travel day. Often called a “walk around,” it can be used to assure the condition of the tires, wheels, running gear, and hitch are all in the expected condition. For example, your Tire Pressure Monitor System may not be indicating any problems, but there may be damaged tire tread or a bubble in the side of the tire that needs attention.
- Arrival checklist: What should be done when you arrive at a new camp location, and in what order? For example, it’s important to level the trailer before extending slides. It’s also important to carefully check around slides on the inside before extending to ensure things have not fallen or jostled into position to damage the slide as it moves out.
- Post-trip checklist: This is often done between travel days, and its purpose is to assure that no major repair is needed before the next travel day. It should be done close to arrival at a destination, which would help provide time to complete any repair so that travel plan changes are mitigated. This list would include the same type of items as the Mid-travel quick check, but is intended to be more in depth and include tow vehicle fluid checks, bolt torques as needed, etc.

There are numerous sources for checklists in the RV community. For novice RV owners, it is suggested to consult with other trusted RV owners as to what they use for checklists, as well as numerous RV owner communities that provide information on the internet.



Building a checklist is not a one-and-done activity. Even experienced RVers find they revise their checklists to account for things like new equipment or decorations, age of the tow vehicle, or unusual conditions.

HITCH RECEIVER

The Alliance Avenue is supplied with a factory hitch receiver and you can tow an additional small trailer behind your RV. Do not use a draw bar longer than 10 inches. The maximum length of the draw bar is from the center of the fastening pin to the center of the ball. The maximum trailer tow rating of the hitch receiver is 3,000 lbs. with a maximum hitch weight of 300 lbs.

The receiver can also be used for a storage rack, bike rack or similar. The cargo weight carrying capacity includes the weight of the cargo carrier and should never exceed 300 lbs.

Laws around double towing and overall towing length vary depending on where you live. Consult the appropriate authority for local towing resections in your area.



[WYKW: What Can You Tow With Your Hitch on an Alliance RV?](#)

⚠️ WARNING

**DO NOT EXCEED THE MAXIMUM LOAD OR HITCH WEIGHT RATING OF ANY HITCH KIT.
EXCEEDING MAXIMUM LOAD OR WEIGHT RATINGS CAN CREATE A HAZARDOUS
CONDITION THAT MAY RESULT IN POSSIBLE DEATH, SERIOUS PERSONAL INJURY OR
SEVERE PRODUCT AND/OR PROPERTY DAMAGE, INCLUDING VOIDING OF THE WARRANTY.**

CONNECTING TO THE TOW VEHICLE

The following procedure assumes that:

- The trailer has wheel chocks properly placed in front of and behind the wheels on both sides.
- The trailer has been prepared for hitching, with all jacks and stabilizers up, and the hitch is high enough to enable one to position the hitch ball underneath the hitch ball receiver on the trailer tongue.

Complete details on how to prepare the trailer for hitching are contained in the section [BAL LS 5.3 AUTO LEVELING SYSTEM](#).

1. Move the tow vehicle into position with the hitch ball underneath the hitch ball receiver.
2. Ensure the receiver latch mechanism is open/up to receive the hitch ball correctly.
3. Open the cover to the tongue jack, providing access to the illuminated control screen.
4. Press the **ON/OFF** button to activate the display.
5. Press the **TONGUE JACK MODE** on-screen button.
6. Press and hold the **RETRACT** soft button to lower the trailer onto the hitch ball.

⚠ WARNING

ENSURE THAT THE LATCH OF THE HITCH BALL RECEIVER IS ACTUALLY UNDER THE HITCH BALL AND THAT THE BALL HAS NOT ACTUALLY PUSHED IT UP INTO THE RECEIVER.

7. Complete connecting the trailer to the tow vehicle: Latch the hitch ball receiver, connect the safety chains securely, and connect the trailer's electrical plug to the tow vehicle.
8. Press the **HOME SCREEN** button, then **AUTO MODE**, and then finally **TONGUE JACK RETRACT**.

⚠ WARNING

ALWAYS CHECK TO ENSURE THAT THE UNIT IS PROPERLY CONNECTED TO THE TOW VEHICLE BEFORE RETRACTING THE TONGUE JACK.

9. Press **OK** to begin retracting the tongue jack. Press **STOP** to make another selection.
 - a. The display will read "TONGUE JACK RETRACT IN PROGRESS."
 - b. When the jack has been fully retracted the display will read "TONGUE JACK RETRACT SUCCESSFUL" and a beep will sound.
10. Raise all adjustable feet to the hole that provides the most ground clearance before towing the unit.
11. Press **ON/OFF** to deactivate the display.
12. Close and latch the cover of the touch screen display.



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

⚠ WARNING

**VISUALLY CHECK ALL JACKS TO ENSURE THAT THEY ARE FULLY RETRACTED BEFORE
TOWING THE UNIT.**

DISCONNECTING AND LEVELING YOUR RV

When disconnecting and leveling your RV, it is important that your RV is reasonably level to begin as per leveling system documentation. This may include using leveling devices under wheels to assure wheels are not lifted off the ground on one side or the other after leveling.

The following process is only a general guide in disconnecting and leveling your RV. The specific process, requirements, images, and guidelines can be found in the appropriate section of [BAL LS 5.3 AUTO LEVELING SYSTEM](#).

1. After locating the trailer in a suitable, reasonable level location and orientation, place blocks in front of and behind wheels on both sides of the trailer.
2. Lower the tongue jack adjustable foot, and disconnect the electrical cable from the tow vehicle.
3. Disconnect the safety chains from the tow vehicle.
4. Open the cover to the tongue jack, providing access to the illuminated control screen.
5. Press the **ON/OFF** button to activate the display.
6. Press the **TONGUE JACK MODE** on-screen button.
7. Press and hold **EXTEND** until the necessary detachment height is reached. As the weight is removed from the hitch ball, release the ball hitch latch.
8. Pull the tow vehicle completely clear of the unit.
9. Perform automatic or manual leveling operations to ensure the trailer is level and stabilized. Please refer to the [BAL LS 5.3 AUTO LEVELING SYSTEM](#) section.

CAUTION

THE LEVELING OF THE RECREATIONAL VEHICLE SHOULD BE DONE BEFORE THE STAIRS ARE LOWERED AND WITH THE SLIDES IN.



[WYKW: Do you level your Alliance RV with your slides in or out?](#)
[WYKW: Make Sure Steps are Up BEFORE Leveling](#)

10. After the trailer is stable and level, the stairs may be lowered, and the slides may be extended. Please refer to the **Slide-outs** section.



[Entry Steps Operation](#)

BAL LS 5.3 AUTO LEVELING SYSTEM

Your Avenue travel trailer is equipped with the LS 5.3 Auto Leveling & Stabilizing system from BAL RV Products. This is a five point automated system equipped with a powered tongue jack, two rear leveling jacks, and one powered c-jack near the front corners of the trailer.

Keeping the RV level is important to ensure proper function of the appliances, slide-outs, compartment doors, and interior/exterior doors. The easy-to-read, interactive touch screen can operate all leveling jacks and stabilizers automatically, or manually when desired. The bottom of the main control box also has LED illumination of the trailer's hitch area.



Figure 10. BAL LS 5.3 control display on the tongue jack.

⚠ WARNING

- NEVER USE THE LEVELING SYSTEM AS A LIFT FOR CHANGING TIRES OR WORKING UNDER THE UNIT.
- KEEP PEOPLE AND PETS CLEAR OF THE UNIT BEFORE TURNING THE LEVELING SYSTEM ON AND WHILE OPERATING THE SYSTEM.
- ALWAYS CHECK THE TIRES BEFORE DISCONNECTING THE UNIT FROM THE TOW VEHICLE AND/OR OPERATING THE LEVELING SYSTEM.
- PARK UNIT ON REASONABLY SOLID SURFACE SO THAT JACKS WILL NOT SINK INTO THE GROUND. ON EXTREMELY SOFT SURFACES USE LOAD DISTRIBUTION PADS UNDER EACH JACK.
- PARK UNIT ON REASONABLY LEVEL SURFACE MAKING SURE THAT THE JACK CONTACT LOCATIONS ARE CLEAR OF OBSTRUCTIONS AND DEPRESSIONS BEFORE OPERATING THE SYSTEM.
- ALWAYS MAKE SURE THAT THE TOW VEHICLE IS DISCONNECTED AND MOVED COMPLETELY CLEAR OF THE FRONT OF THE UNIT BEFORE THE LEVELING PROCESS IS STARTED.
- NEVER LIFT THE WHEELS OF THE UNIT COMPLETELY OFF THE GROUND TO LEVEL THE UNIT.
- ALWAYS CHECK TO ENSURE THAT THE UNIT IS PROPERLY CONNECTED TO THE TOW VEHICLE BEFORE EXECUTING THE "TONGUE JACK RETRACT" FUNCTION.
- VISUALLY CHECK ALL JACKS TO ENSURE THAT THEY ARE FULLY RETRACTED BEFORE TOWING THE UNIT.
- FAILURE TO HEED ANY OF THESE WARNINGS MAY RESULT IN DAMAGE TO THE UNIT, TOW VEHICLE AND/OR CAUSE SERIOUS INJURY OR DEATH.



[BAL Electric Leveling System LS 5.3 User Manual](#)

Overall Display and System Usage

In all screens:

- At any time during an Auto function you may press **STOP** to abort the Auto function.
- When buttons are outlined in white the function may be selected.
- When buttons are outlined in yellow the function is active.

Disconnecting the Tow Vehicle and Leveling the Trailer

1. After locating the trailer in a suitable, reasonable level location and orientation, place blocks in front of and behind wheels on both sides of the trailer.
2. Lower the tongue jack adjustable foot and disconnect the electrical cable from the tow vehicle.
3. Disconnect the safety chains from the tow vehicle.

4. Open the cover to the tongue jack, providing access to the illuminated control screen.
5. Press the **ON/OFF** button to activate the display.

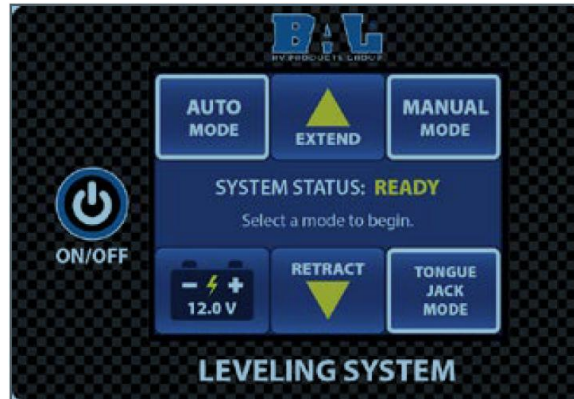


Figure 11. Leveling system HOME SCREEN. White buttons are available options

6. Press the **TONGUE JACK MODE** on-screen button.
7. Press and hold **EXTEND** until the necessary detachment height is reached. As the weight is removed from the hitch ball, pause movement and release the ball hitch latch.
8. Pull the tow vehicle completely clear of the unit.
9. Lower the rear leveling jack adjustable feet and position them so that they are close to the same distance from the ground.
10. Press **AUTO MODE**.



Figure 12. Tongue Jack Mode screen. The yellow highlight indicates the active function.

11. Press **AUTO LEVEL**.



Figure 13. AUTO LEVEL execution screen.

⚠ WARNING

VEHICLE, PEOPLE, PETS AND OBSTRUCTIONS MUST BE COMPLETELY CLEAR OF UNIT BEFORE EXECUTING THE "AUTO LEVEL" FUNCTION.

12. Press **OK** to begin "AUTO LEVEL" or **STOP** to make another selection.

The system will go through a series of moving the jacks and checking the unit for level. The display will read "AUTO LEVEL IN PROGRESS". When the system has successfully leveled the unit, the display will read "AUTO LEVEL SUCCESSFUL" and a beep will sound.

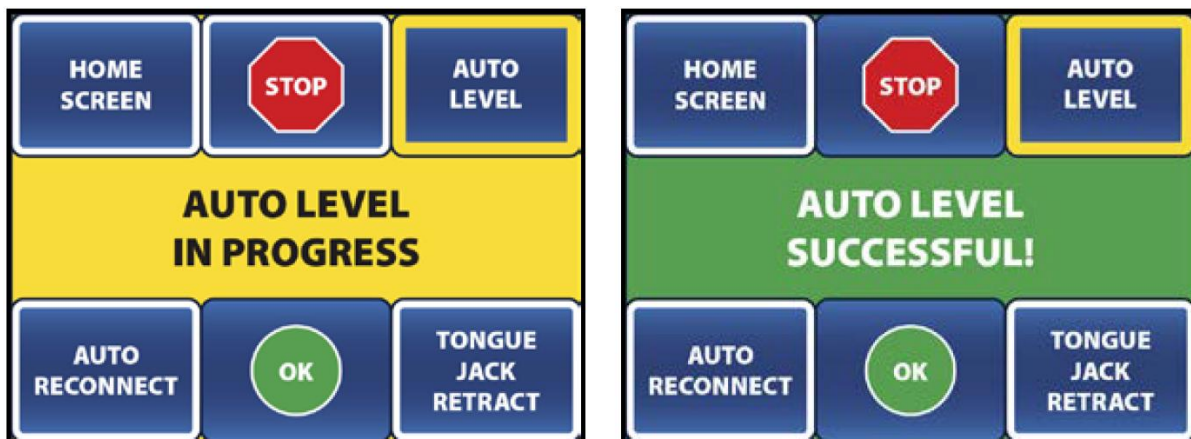



Figure 14. AUTO LEVEL status displays.

13. Press **HOME SCREEN**, then **ON/OFF** to deactivate the display.

14. Close and latch the cover of the touch screen display.



If the system fails to successfully Auto Level, check the unevenness of the area under the unit. All lifting jacks must be able to make full contact for the system to function properly.

Reconnecting the Trailer to the Tow Vehicle

1. Press the **ON/OFF** button to activate the display.



Figure 15. HOME SCREEN display after turning the system on.

2. Press **AUTO MODE**, then press **AUTO RECONNECT**.



Figure 16. AUTO RECONNECT execution screen.

3. Press **OK** to begin "AUTO RECONNECT" or **STOP** to make another selection.

The system will retract all stabilizer jacks and the rear leveling jacks, then extend or retract the tongue jack until the proper connection height is achieved. The display will read "AUTO RECONNECT IN PROGRESS ". When the system has completed the "AUTO RECONNECT" function the display will read "AUTO RECONNECT SUCCESSFUL" and a beep will sound.

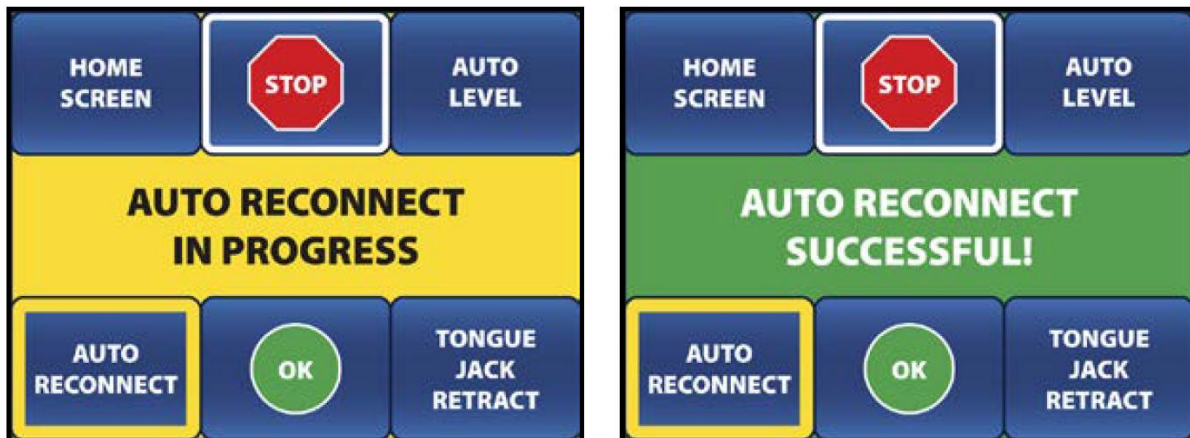


Figure 17. AUTO RECONNECT status displays.

4. Press **HOME SCREEN**. Position the tow vehicle's hitch ball underneath the hitch ball receiver. If needed, use the **EXTEND** button to raise the hitch ball receiver on the trailer.
5. Ensure the receiver latch mechanism is open/up to receive the hitch ball correctly.
6. Press and hold **RETRACT** until the unit can be connected to the tow vehicle. Connect the unit to the tow vehicle.

⚠ WARNING

ENSURE THAT THE LATCH OF THE HITCH BALL RECEIVER IS ACTUALLY UNDER THE HITCH BALL AND THAT THE BALL HAS NOT ACTUALLY PUSHED IT UP INTO THE RECEIVER.

7. Complete connecting the trailer to the tow vehicle: Latch the hitch ball receiver, connect the safety chains securely, and connect the trailer's electrical plug to the tow vehicle.
8. Press **AUTO MODE**, and then **TONGUE JACK RETRACT**.



Figure 18. TONGUE JACK RETRACT execution screen.

⚠ WARNING

ALWAYS CHECK TO ENSURE THAT THE UNIT IS PROPERLY CONNECTED TO THE TOW VEHICLE BEFORE RETRACTING THE TONGUE JACK.

9. Press **OK** to begin retracting the tongue jack. Press **STOP** to make another selection.
 - a. The display will read "TONGUE JACK RETRACT IN PROGRESS."
 - b. When the jack has been fully retracted the display will read "TONGUE JACK RETRACT SUCCESSFUL" and a beep will sound.

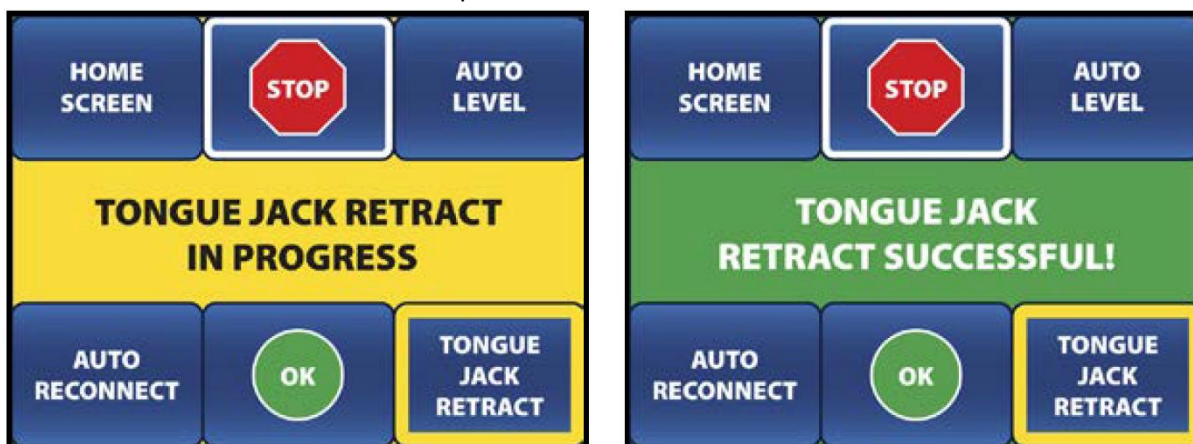


Figure 19. TONGUE JACK RETRACT status displays.

10. Raise all adjustable feet to the hole that provides the most ground clearance before towing the unit.
11. Press **ON/OFF** to deactivate the display.
12. Close and latch the cover of the touch screen display.

⚠ WARNING

VISUALLY CHECK ALL JACKS TO ENSURE THAT THEY ARE FULLY RETRACTED BEFORE TOWING THE UNIT.

Manual Mode Functions

Manual Stabilizer Jack Mode

1. Press **ON/OFF** to activate the display.

2. Press **MANUAL MODE**.

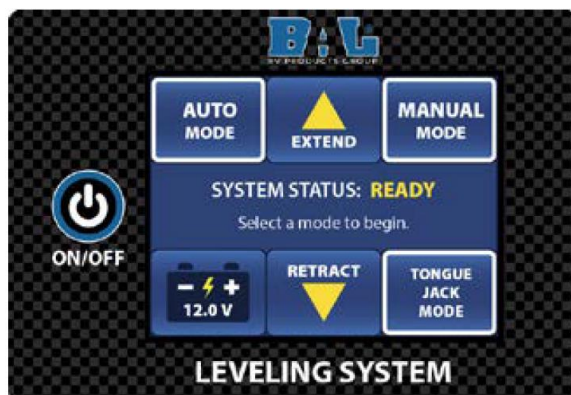


Figure 20. Leveling system HOME SCREEN.

3. Press and hold **EXTEND/RETRACT** to operate the stabilizer jacks.



Figure 21. STABILIZER MODE execution screen, allowing manual control of the stabilizers only.

4. Press **MANUAL MODE** or **HOME SCREEN** to continue.

⚠ WARNING

ALWAYS MAKE SURE THAT THE STABILIZER JACKS ARE FULLY RETRACTED BEFORE OPERATING THE TONGUE JACK OR REAR LEVELING JACKS.

Manual Leveling Jack Mode

1. Press **ON/OFF** to activate the display.
2. Press **MANUAL MODE**.
3. Select **EXTEND** or **RETRACT** as desired to move the system in the following ways. Note the bubble level can help identify level. When the white dot is centered, the system reads the trailer as being level.
FRONT: Tongue jack on the front of the unit will move.

REAR: Both leveling jacks on the rear of the unit will move. NOTE: Run the rear leveling jacks all the way to the ground before lifting side to side.

LEFT: The left rear leveling jack will move (road side.)

RIGHT: The right rear leveling jack will move (curb side.)

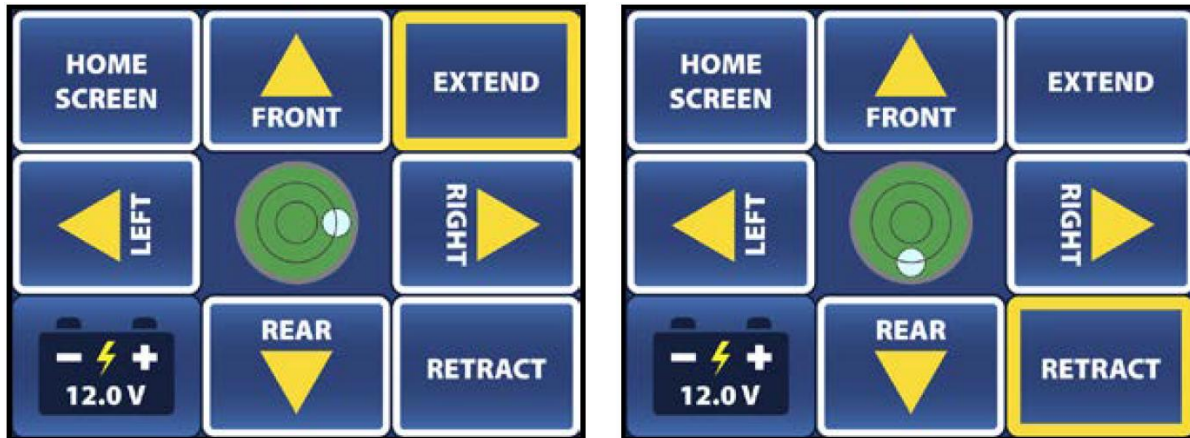


Figure 22. Manual leveling jack movement screen. The left image shows when EXTEND is active, the right image is for RETRACT.

4. Press **ON/OFF** to deactivate the display.
5. Close and latch the cover of the touch screen display.

Auto Leveling System Troubleshooting

If there is an error in the system, an error display will be shown. Use the following information to alleviate the problem. Press **CLEAR ERROR** to proceed.

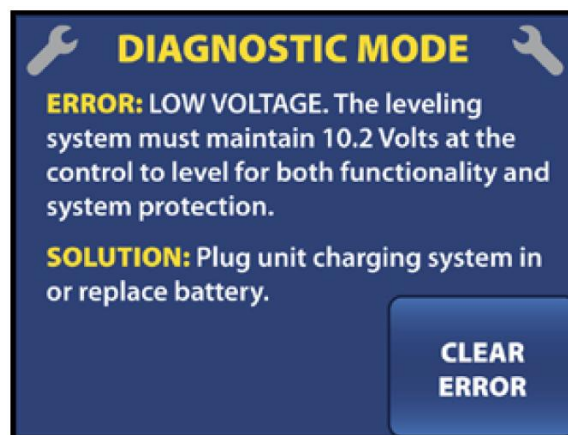


Figure 23. Sample error display, stating the error and solution.

Table 2. BAL LS 5.3 leveling system error messages.

LCD Message	What's Happening?	What Should Be Done?
AUTO LEVEL FAILED	Rear raised too high during auto level process. (Without being able to lift side to side) This may be a sign of unstable ground.	Move the unit into an area with stable soil or place load distribution pads under each jack. Minimize movement within unit.
LOW VOLTAGE	The leveling system must maintain 10.2 Volts at the control to operate for both functionality and system protection.	Verify power to the charging system (converter) and connections are secure. Verify battery condition.
HIGH VOLTAGE	The leveling system must be less than 16 Volts at the control to operate for both functionality and system protection.	Verify charging system is working properly.
EXCESS ANGLE DETECTED	The angle of the unit is too great to perform operation.	Move the unit into an area with lesser grade or unevenness.
MANUAL ADJUST ANGLE LIMIT	Manual adjust angle limit.	Use extend and retract options to keep unit reasonably level during manual operations. Try using Auto level or move the unit into an area with lesser grade.
OUT OF STROKE	The jack leg is fully extended.	Move the unit into an area with lesser grade, unevenness or place load distribution pads underneath the jacks.
FEATURE DISABLED	Zero point not set.	Contact an Authorized Dealer to have the system Zero point set.
	Auto Reconnect position not set.	Use Tongue Jack Mode to obtain disconnect position then Auto level before using Auto Reconnect.
JACK TIMEOUT	The control is not seeing movement from the jacks.	Check that landing area is firm and within reach of the jack travel. Check all wire harnesses to make sure they are not damaged and that they are plugged in properly.

Auto Leveling System Maintenance

Inspection and Greasing

The system should be inspected and maintained as per the Maintenance Schedule with the following steps:

1. Inspect the jacks for dirt and debris. Clean and lubricate as needed. Do not use a pressure washer to clean any of the leveling system components.
2. Grease the tongue jack:
 - a. Extend the jack halfway.

- b. Remove the plastic plug on the tube just under the top casing.
- c. Apply a small amount of grease on the screw.
- d. Reinstall the plastic plug.



Figure 24. Tongue Jack grease access hole.

3. Grease the rear leveling jacks:
 - a. Extend the jack halfway.
 - b. Remove the plastic plug on the tube just under the top casing.
 - c. Apply a small amount of grease on the screw.
 - d. Reinstall the plastic plug.



Figure 25. Rear leveling jack grease access hole.

4. Grease the stabilizer c-jack:
 - a. Extend the jack such that it is about one inch from the ground.
 - b. Apply some grease on the screw between the motor coupler and trunnion nut (where the leg is attached.)



Figure 26. Stabilizer c-jack grease location.

5. Check all bolts for correct torque.
 - a. Tongue Jack: 30 ft. lbs.
 - b. Rear Leveling Jacks: 80 ft. lbs.
 - c. Stabilizer Jacks: 30 ft. lbs.

Manual Override

Each component can be manually driven should the need arise. The leveling and tongue jacks each have an override access point at the bottom of the motor, while the tongue jack also has a top access point.

Tools needed for override:

- Bottom access point on jacks: Drill with a 5/16" socket.
- Top access point on the tongue jack: Drill with a 3/8" square socket drive.
- Stabilizer jack override: 3/4" socket or wrench.

Tongue Jack Override (top)

1. Remove the round plug to the right of the touch screen.
2. Insert the 3/8" square socket drive on a drill to rotate the jack.



Figure 27. Top of tongue jack manual override.

Jack Override (tongue and rear leveling from bottom)

1. Remove the round plug at the bottom center of the motor.
2. Insert the 5/16" socket mounted in a drill driver to rotate the motor.

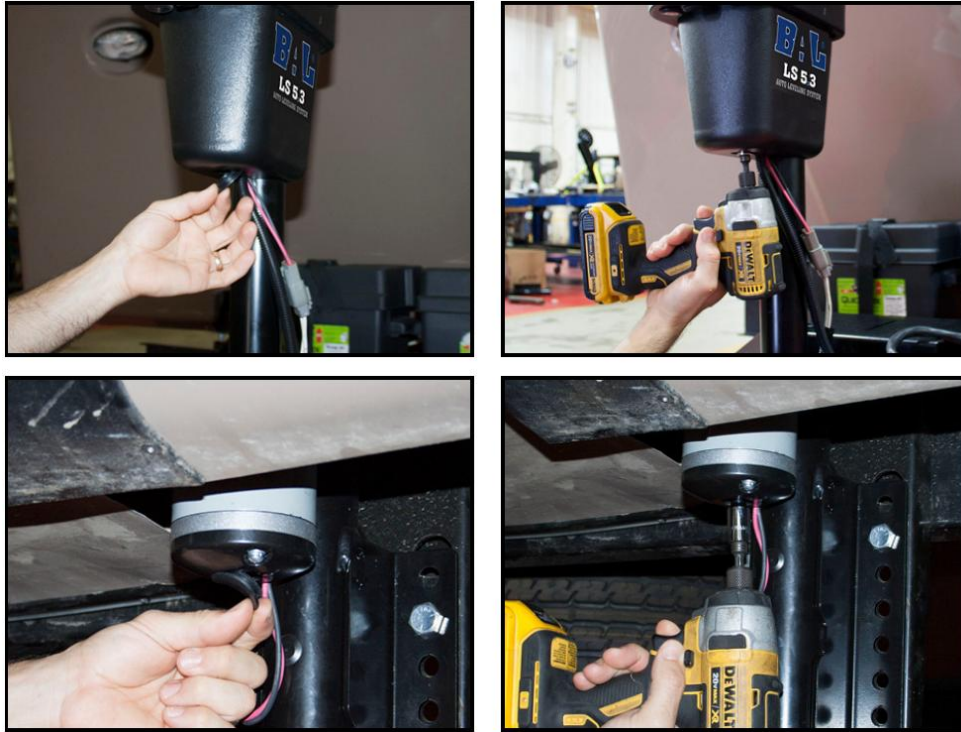


Figure 28. Manual override of jack motors from the bottom. Upper images are the tongue jack, lower images are the rear leveling jacks.

Stabilizer Override

1. Locate the 3/4" nut on the out facing end of the stabilizer jack. Use a 3/4" socket or wrench to raise or lower the jacks



Figure 29. Front stabilizer manual override nut.

Programming the Zero Point or “Level Position”

⚠ WARNING

BAL LEVELING SYSTEMS ARE NOT DESIGNED WITH SAFETY FEATURES AND/OR WARNING MESSAGES WHILE PROGRAMMING THE “LEVEL POSITION” IN THIS MODE. BE CAREFUL NOT TO PUT THE RV IN A TWIST OR ANY OTHER UNDESIRABLE POSITION THAT MAY CAUSE DAMAGE TO THE LEVELING SYSTEM AND/OR THE RV. THIS SERVICE INFORMATION IS DESIGNED FOR EXPERIENCED RV TECHNICIANS. ALLIANCE RV NOR BAL RV PRODUCTS ARE RESPONSIBLE FOR DAMAGE THAT MAY RESULT FROM THE MISUSE OF THIS INFORMATION.

1. To access the programming screen, press and hold the voltage readout in the bottom left corner of the home screen. Refer to Figure 12.
2. When the keypad appears, type in the code 9588. This code will take you in to the programming screen. If the 9588 code does not work on your system, use the code 3759.

3. Now that you are at the programming screen, you will see the buttons necessary to manually level the RV. First run both rear leveling legs to the ground, then use the extend and retract buttons as necessary to achieve the true level position. A carpenter's bubble level on the RV floor may be helpful for this step.



Figure 30. Programming screen of the leveling system.

4. When the RV is perfectly level, front to back, and side to side, press the "SET" button in the bottom left corner. This will program the system's "level position" to the RV's current position.
5. The system will return to the main screen.

OCCUPANT SAFETY

Alliance RV trailers are equipped with safety systems that work together to help protect the occupants in the event of an emergency. Please read and fully understand all safety functions before using your new RV.

Emergency Exit Windows

While all RV brands are different, the operation of the emergency windows are generally consistent across brands. The design, application, and location of these windows are governed by the RV Industries governing bodies. You will find some helpful safety information below regarding these exit windows. Please take time to familiarize yourself and anyone that will be in the RV with the location and operation of all exit windows in the RV.



Figure 31. Label placed on or near all emergency exits in the RV.

⚠ CAUTION

ENSURE THAT ALL EXIT WINDOWS ARE CLOSED AND LOCKED DURING TRAVEL.

Identify and locate all emergency exit windows in the RV, they are easily identifiable by both the "EXIT" sticker and the red hardware used to open them.

Know what to expect in the event of an emergency. Activate the release mechanisms on the exit windows and apply pressure to push or slide them open.

Once you're familiar with the location and operation, make yourself familiar with the drop between the window and the ground. Depending on the RV, it could be a significant distance.

⚠ WARNING

ALWAYS PUT YOUR LEGS OUT FIRST AND ATTEMPT TO LAND ON YOUR FEET IF YOU MUST USE AN EMERGENCY EXIT WINDOW.

Table 3. Styles of emergency exit windows that may be present on your RV. Each opens differently.

1. **Pull or Tab Style Latch:** This style is generally used on larger slider style exit windows. Pull the handle out, or rotate the tab out (similar to other sliding windows) to slide the window open for escape.



Figure 32. Pull style latch on an emergency exit.

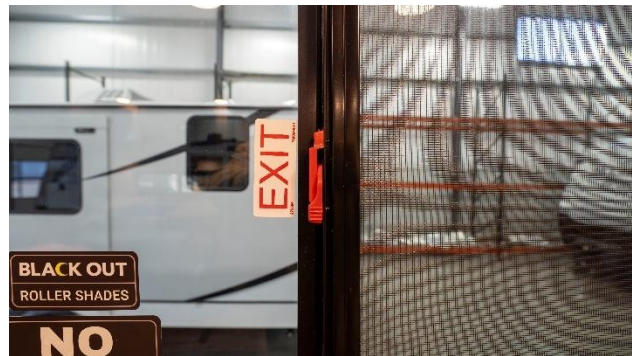


Figure 33. Tab style latch on an emergency exit.

2. **Flip Style Latch:** This style flips up and disengages which allows the window to be pushed out for escape.



Figure 34. Flip style latch on an emergency exit.

3. **Lever Style Latch:** This style has a handle that will either rotate or pull out and up to disengage to window retention. Once opened, push out the window, which will hinge at the top.



Figure 35. Rotation-Lever style latch on an emergency exit. Rotate the handle up into the window area to disengage the latch. Push window out.



Figure 36. Pull-Lever style latch on an emergency exit. Pull the lever out, away from base, to disengage latch. Push window out.

4. **Bar Style Latch:** This style has a long bar with red handle that unlatches from the frame, and then rotating in. Push the bar out through the opening, which opens the window and allows escape.



Figure 37. Bar style latch on an emergency exit.

Fire Safety

Safety is always important, whether you're at home or on the road. As far as your RV, make sure to keep fire safety a top priority.

WARNING

IN A FIRE, EVACUATING ALL OCCUPANTS FROM THE RV SAFELY MUST BE YOUR TOP PRIORITY.

Fire Extinguishers

Your recreational vehicle comes equipped with a fire extinguisher mounted by the door. Become familiar with its location and use to be prepared for emergency situations. A common acronym for proper fire extinguisher operation is P.A.S.S.

P – Pull the pin

A – Aim the nozzle (always aim at the base of the fire, not the flames)

S – Squeeze the trigger

S – Sweep from side to side

For additional information on fire extinguisher chemistry and operation, please refer to the fire extinguisher's user manual.

Alarms

Smoke Alarm (Ceiling)

Your RV is equipped with a smoke alarm. Understanding the information in this section will prepare you to reach in the event of an emergency.

WARNING

NEVER TEST OR PRACTICE USING A FIRE EXTINGUISHER BY SQUEEZING THE TRIGGER. THESE ARE NON-RECHARGEABLE AND ONCE USED, PRESSURE WILL DECREASE OVER TIME AND WILL NOT BE FULLY FUNCTIONAL IN AN EMERGENCY.

WARNING

WHILE USING A FIRE EXTINGUISHER, ALWAYS KEEP YOUR BACK TOWARD A CLEAR PATH FOR EXIT.

⚠️ WARNING

DO NOT TURN ELECTRICAL POWER BACK ON AFTER THE USE OF AN EXTINGUISHER.

⚠️ WARNING

INSPECT EXTINGUISHERS WEEKLY. IF YOUR RV HAS BEEN IN STORAGE, INSPECT BEFORE THE RV IS USED. ALWAYS INSPECT BEFORE A VACATION OR TRIP WITH YOUR RV.



Some early model Alliance trailers had a combination smoke & carbon monoxide (CO) alarm. Instruction manuals for those alarms will indicate how to determine differences between the active alarms. Regardless of model installed, there is always a carbon monoxide alarm installed along with the LP alarm (see next section.)

Follow safety rules and prevent hazardous situations:

- 1) NEVER smoke in bed.
- 2) Keep matches or lighters away from children.
- 3) Store flammable materials in proper containers.
- 4) Keep electrical appliances in good condition and NEVER overload electrical circuits.
- 5) Keep stove debris free.
- 6) Never leave anything cooking on the stove unattended.
- 7) Keep portable heaters and open flames, such as candles, away from flammable materials.
- 8) Don't let rubbish accumulate.

Refer to the alarm owner's manuals for a more in-depth understanding of the features, functions and precautions of this safety device.

Keep alarms clean and test them weekly. Immediately replace any alarm that is not functioning properly.



Figure 38. Ceiling mounted smoke alarm.

⚠️ WARNING

- **THIS ALARM WILL NOT OPERATE WITHOUT BATTERIES.**
- **NEVER IGNORE ANY ALARM, FAILURE TO RESPOND COULD RESULT IN SERIOUS INJURY OR DEATH.**
- **TEST ALARMS WEEKLY. IF THE ALARM FAILS TO TEST CORRECTLY, REPLACE THE ALARM IMMEDIATELY.**

If this alarm sounds, get out of the RV as quickly as possible and call your emergency services. Do not go into the RV until the problem is identified and corrected.

Propane and Carbon Monoxide (LP & CO) Alarm (Base of Wall near Stairs)

For your safety, your RV is equipped with a combination LP and CO Alarm. This alarm will detect both propane gas and carbon monoxide. Please read and become familiar with the individual users manual for this alarm. This will help prepare you if there is an emergency.



Figure 39. Wall mounted Carbon Monoxide (CO) and Propane alarm. These will be mounted near floor level, usually near stairs.

⚠ WARNING

- **THIS UNIT MUST BE REPLACED WITHIN 5 YEARS OF ITS PRODUCTION DATE.**
- **THIS ALARM WILL NOT WORK WITHOUT POWER.**
- **THIS ALARM WILL ONLY INDICATE THE PRESENCE OF GAS AT THE SENSOR. THERE COULD BE GAS ELSEWHERE THAT HAS NOT REACHED THE SENSOR.**
- **THIS ALARM IS DESIGNED TO DETECT CARBON MONOXIDE AND PROPANE GAS. THE ALARM IS NOT DESIGNED TO DETECT SMOKE OR FIRE.**

If an alarm sounds, identify which alarm is sounding.

CO Alarm - If CO is detected, the red CO LED will flash and the alarm will sound with 4 beeps and then a 5 second silence. This indicates that the CO level is over 35pp. If this alarm is activated, immediate action is required.

If the CO alarm sounds:


1. Press the TEST/MUTE button to temporarily silence the alarm.
2. Evacuate the RV. Make sure to account for everyone.
3. Call 911 or the local emergency services available in your area.
4. Do not re-enter the RV until the problem has been corrected

Propane Alarm - If propane is detected, the RED led will flash and the alarm will sound with a steady tone and remain on until the area is clear from propane gas. If you hear this alarm, immediate action is required. Exit the RV immediately and do not return into the RV until the problem has been corrected.

If the Propane alarm sounds:

1. Extinguish all flames and smoking material and turn off all gas appliances.
2. Press the TEST/MUTE button to temporarily silence the alarm (DO NOT DISCONNECT POWER).
3. Evacuate the RV. Make sure to account for everyone.
4. Turn off the propane tank valve.
5. Open doors and windows of the RV.
6. Determine & Repair the source of the leak.
7. Do not re-enter the RV until the issue has been corrected.

Alarm Troubleshooting

	WYKW: LP and CO Detectors - Beeping
---	---

If you hear “chirping” in your trailer:

- Get very close to both the Smoke & CO alarm and the LP & CO Alarms to determine which one is making the noise. Also watch the front of the alarm for any LED indications
- If the chirping is coming from the Smoke & CO alarm: Open the cover and change the battery with a new battery. If the chirping persists, replace the alarm unit.

⚠ WARNING

- **THE SMOKE & CO ALARM WILL NOT OPERATE WITHOUT BATTERIES.**
- **NEVER ATTEMPT TO REPAIR AN ALARM, IMMEDIATELY HAVE THE ALARM REPLACED.**
- **ALWAYS USE THE EXACT BATTERIES SPECIFIED BY THE ALARM MANUFACTURER.**
- If the LP & CO alarm is chirping and has an alternating Red & Green LED: You will need to replace the unit. This requires removal from the wall and disconnecting the power to replace.

Alarm Maintenance

Smoke & CO/Carbon Monoxide Alarm

- Test at least once a month by pushing the TEST button.
- Test after the RV has been in storage and before a vacation or long trip.

- Clean the alarm at least once a month by blowing air across it from a vacuum output or dusting the cover with an appropriate cloth or dusting tool.

⚠ WARNING

- **ALWAYS USE THE EXACT BATTERIES SPECIFIED BY THE ALARM MANUFACTURER.**
- **NEVER USE AN OPEN FLAME OF ANY KIND TO TEST AN ALARM.**
- **DO NOT STAND CLOSE TO THE ALARM WHEN THE HORN IS SOUNDING. EXPOSURE AT CLOSE RANGE CAN BE HARMFUL TO YOUR HEARING. WHEN TESTING, STEP AWAY WHEN THE HORN STARTS TO SOUND.**

LP & CO Alarm

- Test at least once a month by pushing the TEST button.
- Test after the RV has been in storage and before a vacation or long trip.
- Vacuum the dust off of the alarm cover. If cleaning is needed, clean with a damp cloth. Do NOT spray cleaning agents or waxes directly onto the front panel. This can cause damage to the alarm.

PROPANE

The propane system provides heat, hot water, fuel for cooking, refrigeration and can be used for other small appliances.

The propane supply for an RV is stored in a DOT cylinder that is positioned vertically upright and mounted outside the living space of an RV. Repair and/or replacement should always be done by certified service technicians.

Make sure your propane system is inspected at least annually by a certified service technician. They are trained to detect incorrect tank pressure, leaks, or other potential hazards and address them properly. Do not connect your propane system to another gas source or attempt to repair any propane related component yourself.

WARNING

IF YOU SMELL PROPANE:

- **EXTINGUISH ANY OPEN FLAMES INCLUDING PILOT LIGHTS AND ALL SMOKING MATERIALS.**
- **SHUT OFF THE PROPANE SUPPLY AT THE LP CONTAINERS.**
- **DO NOT TOUCH ELECTRICAL SWITCHES.**
- **OPEN DOORS AND OTHER VENTS.**
- **LEAVE THE AREA UNTIL THE ODOR CLEARS.**
- **THE PROPANE SYSTEM SHOULD BE CHECKED FOR LEAKS AND THE SOURCE DETECTED AND REPAIRED BEFORE USING THE RV AGAIN.**
- **FAILURE TO COMPLY COULD RESULT IN EXPLOSION RESULTING IN DEATH OR SERIOUS INJURY.**

WARNING

NEVER USE AN OPEN FLAME TO TEST FOR A PROPANE LEAK. DO NOT CHECK FOR LEAKS USING PRODUCTS THAT CONTAIN AMMONIA OR CHLORINE, THESE PRODUCTS CAN CAUSE CRACKS TO FORM ON METAL COMPONENTS IN THE PROPANE SYSTEM. A SOLUTION OF WATER AND MILD SOAP SHOULD BE USED BY SPRAYING THE FITTINGS AND CONNECTION POINTS DOWN AND WATCHING FOR BUBBLES.

⚠ WARNING

IF YOU SMELL PROPANE:

- DOT PROPANE TANKS MUST BE TRANSPORTED AND STORED IN AN UPRIGHT POSITION SO THE PRESSURE RELIEF VALVE CAN FUNCTION PROPERLY. LAYING A TANK ON ITS SIDE MAY CREATE A VERY DANGEROUS SITUATION.
- THE LP PIGTAIL HOSE MUST BE INSTALLED IN A MANNER TO AVOID TENSION OR STRESS AT EITHER END OF THE HOSE. KEEP THE PIGTAIL AWAY FROM SHARP EDGES, RIGID CORNERS, WALLS, AND DOORS.
- BEFORE ENTERING A PROPANE FUEL SERVICE STATION MAKE SURE ALL PILOT LIGHTS ARE EXTINGUISHED. SHUT THE GAS TO ALL APPLIANCES OFF BY TURNING OFF THE PROPANE AT THE GAS SHUT OFF VALVE(S). ALWAYS SHUT OFF ANY ENGINE BEFORE REFUELING. DO NOT SMOKE AND NEVER OPERATE IGNITION SOURCES WHILE REFUELING.

Traveling with Propane

Turning the propane off when traveling is always safer, it reduces the risk of a gas leak from a line or connection working loose. Some states have laws against traveling with propane on. Even in states where traveling with propane on is legal, there may be locations, such as bridges and tunnels, that restrict or prohibit propane altogether. Make sure you are familiar with those laws and regulations in the area you are traveling.

⚠ WARNING

MAKE SURE ALL PROPANE CYLINDER FASTENERS ARE SECURED BEFORE TRAVELING.

Two Stage LP Regulator

To regulate the propane pressure throughout the RV, it is equipped with a two-stage regulator with automatic changeover. With the first stage of the regulator, the fuel coming from the tank is reduced by venting from the tank or extended feed line high pressure down to 10 to 15 psi. In the second stage, the pressure is reduced again by further venting down to 11" water column which is the pressure safe for the appliances that the propane system powers. Always make sure that the vents are clean and unobstructed.

This regulator allows for removal of empty cylinders for refill without interrupting propane supply and will automatically switch from the supplying cylinder to the reserve cylinder when empty.



Figure 40. Two stage regulator with 11" water column pressure output for the trailer's appliances.



[WYKW: Your Auto-Changeover LP Regulator](#)

⚠ WARNING

PROPANE CONNECTIONS SHOULD BE CHECKED PERIODICALLY AS VIBRATIONS FROM TRAVEL MAY CAUSE THEM TO LOOSEN. FAILURE TO CHECK THESE CONNECTIONS COULD LEAD TO A PROPANE LEAK. A LEAK CAN CAUSE A FIRE OR EXPLOSION.

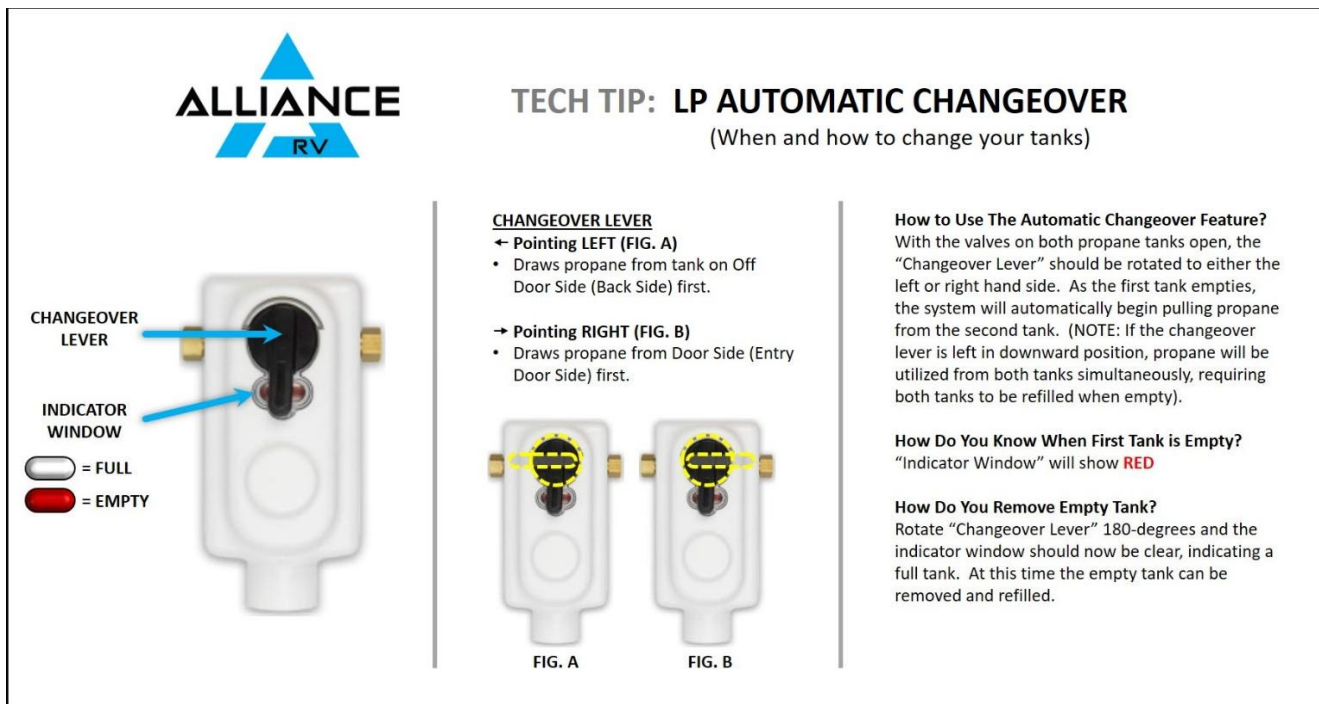


Figure 41. Using the Automatic Changeover regulator.

External Appliance Quick Connect

The quick connection port allows you to use the onboard propane supply for external appliances outside of your RV. The pressure at the port is already at 11" of Water Column (wc), meaning your appliance (BBQ Grill, firepit, etc.) needs to be able to connect to this port without having the propane supply travel through another regulator. Please refer to the appliance documentation for proper setup in this application.



Figure 42. External propane quick connect, with flow lever in the "off" position.

Using the External Quick Connect

Connecting an Appliance

1. Remove the Dust Cover.
2. Push the retaining ring back (toward on/off lever.) **Ensure that the shutoff lever is as shown in the picture, turned perpendicular (across) the flow of propane.** The ring will not move when the lever is inline with the direction of flow (propane flow ON.)
3. Push the connection line fitting into the port, the retaining ring will pop back out. Make sure the ring is fully seated toward the new connection.
4. Rotate the lever to the ON position, allowing propane to flow.



Figure 43. Pushing the retaining ring to accept an appliance connector.



Figure 44. Connected appliance, with flow lever rotated forward to the "on" position.



The quick connect port connection can be difficult if debris has fouled the unit. If this is the case, electrical contact cleaner, carburetor cleaner, or brake cleaner can be sprayed into/on the port while moving the ring to clean out dirt and debris. Always allow the fluid to completely evaporate before re-attempting a connection.



The pressure at the quick connect port is 11" of water column, which is the desired operational pressure of most propane appliances. If the appliance connected to the quick connect port has an additional regulator, the pressure will be too low to function. Verify proper set up with accessory manufacturer.

Disconnecting an Appliance

1. Rotate the black ON/OFF lever to the OFF position, stopping the flow of propane and enabling the retaining ring to be moved.
2. Firmly grasp the connection hose at the quick-connect fitting. Push the retaining ring on the fitting back (toward on/off lever.)
3. The connection hose should be able to be pulled out without too much force.
4. Ensure the ring closes/returns to the closed position. This may need to be manually pulled to the front position.
5. **Make sure to replace the Dust Cover, keeping the fitting clean.**

Propane Cylinders

Alliance RVs have a pair of DOT approved propane cylinders mounted at each front corner of the trailer. These cylinders can be removed and taken to a propane dealer for refilling. During transport, do not tilt the cylinders onto their side. Doing so will cause a safety valve to shut at the outlet of the cylinder and flow will be prevented.

Propane cylinders, like many other items, have an expiration date to ensure they are safe and reliable for use. Each cylinder is stamped with a date code that indicates when it was manufactured or last certified for use. Understanding this date is important because propane cylinders must be re-certified or replaced after a certain period to maintain safety standards.

The date code is typically stamped on the collar or handle of the cylinder and is shown in a **month-year** format, such as "03-20," which means March 2020. Most propane cylinders have a shelf life of **12 years** from the date of manufacture, after which they must either be inspected and re-certified for continued use or replaced.

Always check the date code before using a propane cylinder to ensure it is still within its certified period, ensuring safety and peace of mind during use.



Figure 45. Propane cylinder with a date code of "03-20".

Filling Your Propane Cylinders



[WYKW: Quick Tip After Changing LP Tanks \(Cylinders\)](#)

A propane cylinder can only be filled to 80% of their total capacity. The remaining 20% is for expansion that takes place when subjected to heat. If a cylinder is filled to 80% when it is cold outside, that same cylinder may be at 90% on a much warmer day. Always ensure that the cylinder is filled to the required limit only.

⚠ WARNING

NEVER FILL A PROPANE TANK OVER 80% OF ITS CAPACITY. AN OVERFILLED TANK COULD ALLOW LIQUID PROPANE TO ENTER THE SYSTEM WHICH IS DESIGNED FOR VAPOR AND CREATE A VERY HAZARDOUS CONDITION.

Cooking with Propane Gas

In an RV most stovetops and ovens run on propane. A properly ventilated RV is very important when cooking. Open a window or roof vent and turn your range hood fan on. Never use your stove or oven for space heat and never use outdoor fuel-burning equipment inside the RV.

⚠ WARNING

IN AN RV, THE AMOUNT OF OXYGEN SUPPLY IS LIMITED DUE TO ITS SIZE. PROPER VENTILATION DURING COOKING WILL HELP AVOID DANGEROUS SITUATIONS.

Propane System Maintenance

⚠ WARNING

- **NEVER ATTEMPT TO REPAIR ANY PROPANE RELATED COMPONENT.**
- **ENSURE THAT ALL ALARMS, DETECTORS AND EXTINGUISHERS ARE IN GOOD WORKING ORDER.**

Installing Propane Cylinders

Anytime a propane cylinder is removed for servicing or filling and re-installed on the RV, ensure that the fittings are all tight and the main shutoffs on the LP cylinders are in the off position and that the strap that secures the tank is in place. A quick visual inspection of the LP system should be performed any time cylinders are removed.

Inspection (Owner)

As per the Maintenance Schedule:

1. Visually inspect your propane cylinders, mounting hardware, and connection points for wear, rust, kinks or damage. Using a good flashlight can help illuminate small defects that would otherwise go unseen.
2. Inspect supply lines (between cylinders and regulator(s), along the underside of the trailer) using your eyes and fingers to assure there is no wear/rub point, no cracks, and no separation at joints. Using a good flashlight can help illuminate small defects that would otherwise go unseen.



3. **If issues are found:** Turn off the propane cylinders immediately. The propane system should be serviced by a qualified technician immediately upon an issue being identified. Never paint propane cylinders, valves or mounting hardware.

Inspection (Professional)

As per the Maintenance Schedule, your RV's propane system should be inspected by a certified professional. This will usually consist of a full visual inspection of visible lines as well as a Pressure Drop Test to assure no leaks in the system.

SLIDE-OUTS OVERVIEW

Slide-out Safety Information

⚠ WARNING

FAILURE TO ADHERE WITH THE FOLLOWING INFORMATION MAY RESULT IN DEATH, SERIOUS INJURY, RV OR OTHER PROPERTY DAMAGE.

All slide-out systems are intended solely for opening and closing the slide-out room and should never be used for any other purpose. Before operating your slide-out, please keep these things in mind:

- Exterior: Your location should be clear of obstructions that may cause damage when the slide-out room is operated. Each slide-out may open a different distance. Know your slide-out opening distances.
- Interior: Ensure that items have not fallen while traveling and are now blocking the slide-out path or trim pieces. Also check that cabinet doors have not jostled open and are now blocking the slide from opening.
- Be sure that everyone is clear of the RV prior to the slide-out room actuation.
- Keep parts away from slide-out mechanisms during use. Severe injury or death may result.
- Park your RV on solid and level ground.



[WYKW: Properly Opening and Closing Slides – What to Check](#)



[WYKW: Slide Seal Setup](#)

⚠ CAUTION

ALWAYS ENSURE THE SLIDE-OUT PATH IS CLEAR DURING OPERATION. KEEP CLEAR OF SLIDE RAILS WHEN THE ROOM IS IN MOTION. THE GEAR ASSEMBLY MAY PINCH OR CATCH ON LOOSE CLOTHING AND CAUSE PERSONAL INJURY.

Slide-out Control

All slide-outs are operated at the central monitor panel shown below, regardless of type. This panel will be found relatively close to the entry door of the RV in a cabinet designed to house this panel. The location of the panel and number of slide switches will vary depending on floor plan of your RV. Slides

are numbered as such: Starting at the front end of the trailer on the street side (Off Door Side) and continuing around the trailer in a counterclockwise direction.



Figure 46. Monitor panel with slide-out controls highlighted.

Late model Alliance Trailers also have slide switches located either at the utility panel at the off-door-side, or in the forward pass-through (door side). They are individual switches labeled to control the same slide numbers as the inside Monitor Panel.



Figure 47. Remote slide controls in the utility bay of the Avenue.

ELECTRIC SLIDE-OUTS (IF EQUIPPED)

Alliance RV utilizes an electric through frame slide-outs for the main floor slide-outs on Avenue trailers. This system has a single electric actuator with manual override capability. The system is robust, low maintenance, and enables easy adjustment of the slide if needed.

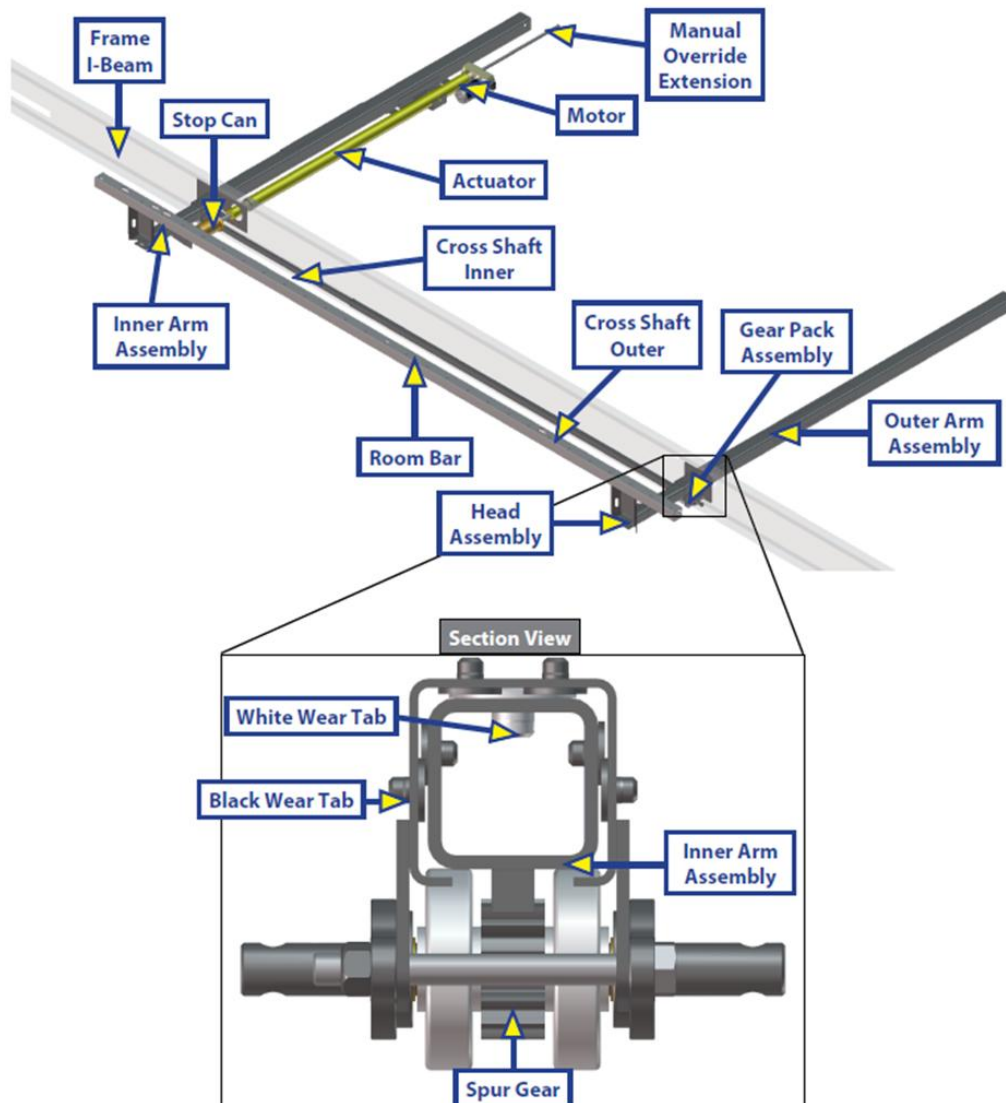


[Lippert Electric Through Frame Slide-Out Owner's Manual](#)

Electric Slide-out System Overview

The system is a Lippert 2 x 2 electric through frame slide system. This system uses a pair of telescoping bars (arms) with rack gears and connected by a cross shaft with pinion gears to keep each arm

Figure 48. Lippert electric 2x2 through-frame slide-out system overview.



synchronized. A single actuator drives the system from one side, and has a gold-colored Stop Can and nuts secured to the brackets in order to control the precise in and out travel distances.

Slide-out Gear Pack

The Gear Pack converts the linear motion from the drive bar into rotational motion, which is transmitted to the idler side of the system via the crossbar, and a second gear pack converts the rotational motion back to linear motion. Early model year Alliance trailers have these gear packs inside of the frame, while late model trailers have these outside the frame.



Figure 49. Frame view of the early-model trailers with gear pack inside the frame.



Figure 50. The gear pack is now mounted outside the frame on late-model trailers.

Operating Your Electric Through Frame Slide-out

Extending Your Electric Slide-out

1. Level the RV.
2. Press and hold the room's switch in the "OUT" position until room is fully extended and stops moving.
3. Release the switch, this will lock the room into the "OUT" position (**NOTE: Only hold switch until the room stops extending**).



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

Retracting Your Electric Slide-out

1. Ensure the floor is swept clean and no debris is present that will get caught under the slide and damage the floor. Lifting the covering flap and sweeping below it often helps to remove pebbles, etc.
2. Press and hold the room's switch in the "IN" position until the room is fully retracted and stops moving.
3. Release the switch, this will lock the room in the "IN" position. (**Note:** *Only hold the switch until the room stops retracting*).



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

Electric Slide-out Troubleshooting



[Lippert Electric Through-Frame Slide-Out Service Manual](#)

The troubleshooting chart below outlines some common problems, their causes, and possible corrective actions. If any part or serial number information is available, provide it to the service technician when asking for assistance.

The Through Frame Electric Slide-out System is only one of four interrelated slide-out room system components. These four components are: chassis, room, coach, and Through Frame Electric Slide-out System. Each one needs to function correctly with the others or misalignment problems will occur.

Every travel trailer has its own personality and what may work to fix one trailer may not work on another even if the symptoms appear to be the same.

When something restricts room travel, system performance will be unpredictable. It is very important that slide tubes be free of contamination and allowed to travel full distance (Stroke). Ice or mud buildup during travel is an example of a type of contamination that can occur.

When you begin to troubleshoot the system, make sure the battery is fully charged, there are no visible signs of external damage to the system and that all connections are secure.

During troubleshooting, remember that if you change something, that change may affect something else. Be sure any changes you make will not create a new problem.

Table 4. Electric Through-frame slide troubleshooting.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Room doesn't move when switch is pressed.	Restriction or obstruction inside or outside of unit.	Check for and clear obstruction.
	Low battery voltage, blown fuse, or defective wiring.	*Check battery voltage and charge if needed. This must be above 10.5V, under load. *Find and check fuse in the main 12V fuse panel, replace if blown. *Check battery terminals and wiring. Look for loose, disconnected or corroded connectors.
Actuator motor runs but room does not move.	Actuator not attached to front mounting drive bracket.	Check jam nuts/nylock nuts. Be sure that they are properly tightened and adjusted.
	Bad motor or gear housing.	Replace motor.
Motor runs but room moves slowly (compared to normal.)	Low battery voltage, poor ground, extremely low outdoor temperature.	Charge battery and check ground wire.
	Room is in a bind.	Check to see that the room is properly adjusted.
Room stalls in mid travel.	Actuator is in a bind.	Crank the manual override and move room short distance then retry electric switch to move room.
	Bad actuator.	Replace actuator if above instructions do not work.

Electric Slide-out Maintenance

System Inspection

The following general inspections should be performed as per the Maintenance Schedule to assure the system is in peak operating condition.

- Before any slide movement, ensure the interior floor is clean and free of debris. Ensure the exterior wall and areas around the seals is also clean.
- Retract and extend the slide as needed to check the following points:
 - Outside seals compress when slide-out is retracted.
 - Inside seals compress when slide-out is extended.
 - Slide-out extends and retracts smoothly.
 - Both sides of slide-out are synchronized. Each end of the slide should have the same (or nearly the same) seal compression when extended and retracted.

System Maintenance

It is recommended that when operating in harsh environments (road salt, ice buildup, etc.) the moving parts be kept clean. They can be washed with mild soap and water. No grease or lubrication is necessary

and, in some situations, may be detrimental to the environment and long-term dependability of the system.

⚠ CAUTION

THE GEAR PACKS SHOULD BE LUBRICATED PERIODICALLY OR WHEN EXCESSIVE SOUND IS HEARD, PLEASE REFER TO THE APPROPRIATE MAINTENANCE SECTION.

Mechanical Maintenance

Although the system is designed to be almost maintenance free, actuate the room once or twice a month to keep the seals and internal moving parts lubricated. Check for any visible signs of external damage after and before movement of the unit.



When the RV is in storage or not being used for extended periods of time, it is recommended the room be closed (retracted.)

Electrical Maintenance

The slide-outs need a full battery for operation. The battery should be maintained in accordance with the battery manufacturers' recommendations. Always check the terminals and other connections at the battery, the control switch, and the system for corrosion, and loose or damaged terminals. Check motor leads under the trailer chassis, these connections are subject to damage from road debris.

Gear Pack Lubrication

Depending upon the year and date of manufacture of your Alliance trailer, the gear pack assembly may be either outside the frame and visible, or inside of the frame, requiring one to remove fasteners along a portion of the bottom covering material. Refer to Figure 49 and Figure 50.

1. Loosen both gear packs bolts (Figure 51A and B) until tension is off of the gear pack.

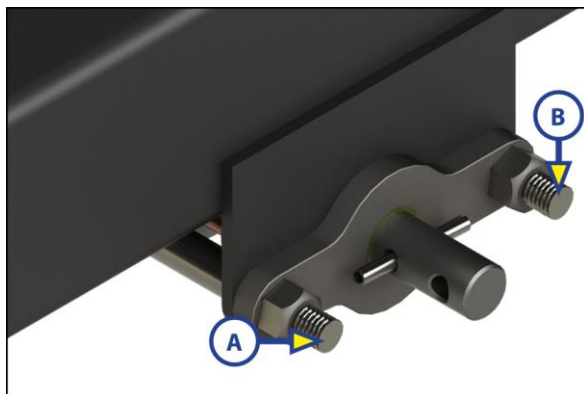


Figure 51. Gear pack mounting bolts.

2. Apply dry silicone onto gear pack drive shaft at lubrication points A through D in Figure 52 and Figure 53.



Figure 52. Gear Pack lubrication points - exterior.

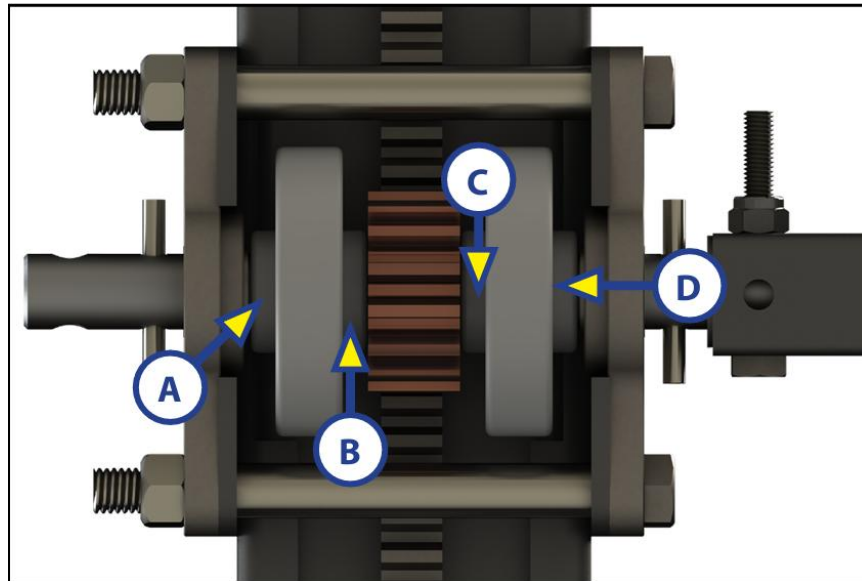


Figure 53. Gear Pack lubrication points - interior.



Do not lubricate rack or pinion gear teeth, lubricate drive shaft only. If lubricant gets on pinion/bar, dirt and debris can stick and cause premature wear.

3. Extend and retract slide-out arms several times to work lubricant through gear pack.

Manual Electric Slide-out Operation (Manual Override)

⚠ CAUTION

ALWAYS DISCONNECT BATTERY FROM SYSTEM PRIOR TO MANUALLY OPERATING SYSTEM. FAILURE TO DISCONNECT BATTERY CAN CAUSE ELECTRICITY TO BACKFEED THROUGH THE MOTOR AND CAUSE SERIOUS DAMAGE TO THE SYSTEM AS WELL AS VOID THE WARRANTY.

The Lippert Electric Through Frame Slide-out comes with a Manual Override system. The manual override is accessed through specially placed access holes which penetrate the lower skirting and frame of the trailer. These holes are placed on the opposite side of the trailer from the slide-room, near the location of the actuator. For example, if one wants to move the Door Side (Curb Side) slide, the manual override hole will be on the Off Door Side (Street Side) of the trailer, nearer to the front of the slide (where the actuator is.) A gold-colored crank handle is provided for this purpose with a hex socket on the end. That hex socket is placed through the hole and will connect to a hex drive on the actuator gear box.

Rotate the extension clockwise to retract the slide-out and counterclockwise to extend the slide-out. It is important to note that you DO NOT need to attempt to disengage the motor (physically) as the actuator is “manual ready.” Please do note the previous warning about disconnecting the electrical path to the battery.

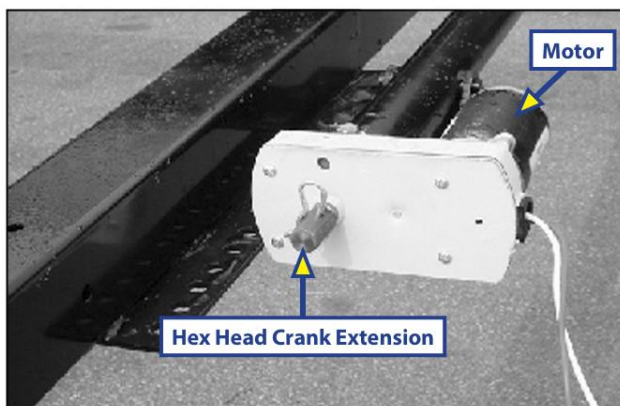


Figure 54. Actuator manual override hex configuration. This assembly is inside the frame of the trailer. The access hole lines up with the Hex Head Crank Extension.

⚠️ WARNING

USE EXTREME CAUTION WHEN EXTENDING AND/OR RETRACTING ROOM USING THE MANUAL OVERRIDE FEATURE. IT IS POSSIBLE TO OPERATE THE SLIDE-OUT BEYOND THE MAXIMUM EXTENSION AND/OR RETRACTION AND DAMAGE THE SLIDE COMPONENTS, SLIDE ROOM STRUCTURE OR TRIM COMPONENTS.

⚠️ WARNING

THE GEARS CAN BE STRIPPED OUT IF THE ROOM IS MANUALLY RETRACTED/EXTENDED TO ITS FULLEST EXTENT AND THE OPERATOR CONTINUES TO ROTATE MANUAL OVERRIDE. ANY DAMAGE DUE TO MISUSE OF THE MANUAL OVERRIDE FEATURE WILL DISQUALIFY ANY AND ALL CLAIMS TO THE LIMITED WARRANTY.

Advanced Maintenance: Adjusting Your Electric Slide-outs

While slide-outs are adjusted at the factory to achieve smooth and consistent operation, normal wear and tear may require slides are adjusted over the lifetime of the trailer.

CAUTION

WE RECOMMEND THAT SLIDE-OUTS ARE ADJUSTED BY A CERTIFIED RV TECHNICIAN.

WARNING

- IT IS THE RESPONSIBILITY OF THE TECHNICIAN PERFORMING THESE PROCEDURES TO FOLLOW ALL STANDARD SAFETY PROTOCOLS IN SUPPORTING THE SLIDEROOM.
- REMOVE ALL EQUIPMENT FROM THE WORKING AREA BEFORE MOVING THE SLIDE OUT AFTER ADJUSTMENTS.

Adjusting Electric Slide-out "IN" Position

1. Locate the cylinder coming through the frame.
2. Run the slide-out room partially out. Pressure must be off of the Stop Can.
3. Referring to Figure 55, loosen the 3/4" jam nut at the end of the stop can using a 1-1/8" wrench (A).
4. Adjust the Stop Can away from the frame if the room does not seal.
5. Adjust the Stop Can towards the frame if the room is too tight.
6. Tighten the jam nut (A) back against the Stop Can and test the room "IN" position.

CAUTION

MAKE SMALL ADJUSTMENTS, RUNNING THE ROOM IN AFTER EACH ADJUSTMENT UNTIL PROPER SEAL IS ACHIEVED.

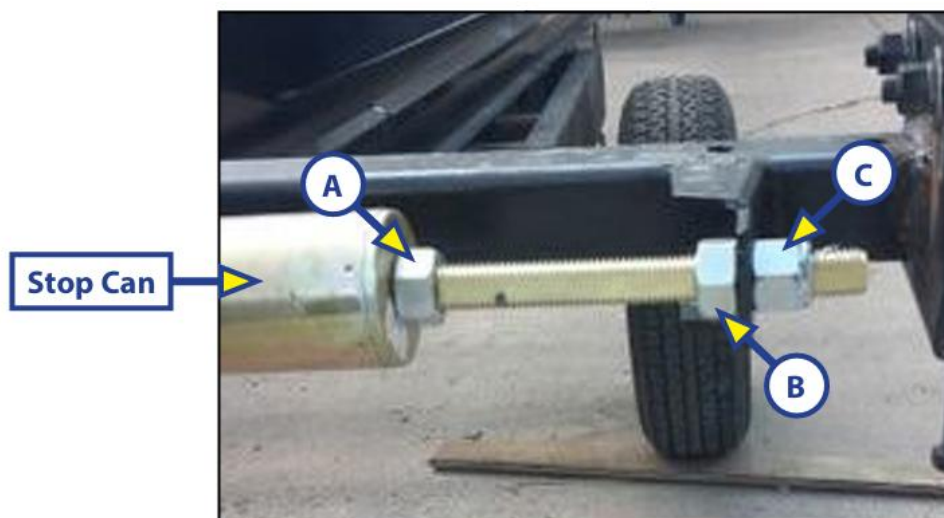


Figure 55. Electric slide-out IN and OUT adjustment components on the actuator.

Adjusting Electric Slide-out “OUT” Position

1. Locate the cylinder coming through the frame.
2. If the slide is fully extended, bring it partially in.
3. Referring to Figure 55, use a 1-1/8” wrench for nut (B) and a 1-1/16” wrench for the Nylock nut (C) to move the bracket in or out as needed. You may need to loosen the first nut in the direction of desired change, then tap the actuator in the desired direction to bring the bracket in, and then tighten the other nut against the bracket.
 - a. Adjust the pair **closer** to the Stop Can if the room is too tight at full extension.
 - b. Adjust the pair **farther** from the Stop Can if there is too much gap between the trim and wall (too loose) when the room is at full extension.
4. Ensure both nuts (B) and (C) are tight on the bracket before testing.

CAUTION

MAKE SMALL ADJUSTMENTS, RUNNING THE ROOM IN AFTER EACH ADJUSTMENT UNTIL PROPER SEAL IS ACHIEVED.

Adjusting the Electric Slide-out Room Horizontally

⚠ WARNING

BEFORE BEGINNING THIS PROCEDURE, MAKE SURE THE VERTICAL ADJUSTMENT BOLT ON BOTH BRACKETS IS DRIVEN FULLY UP AGAINST IT'S BRACKET. IF NOT, THE ROOM WILL DROP WHEN YOU LOOSEN THE BOLTS IN STEP 4. REFER TO THE VERTICAL ADJUSTMENT PROCEDURE FOR AN IMAGE OF THE BOLTS OF CONCERN.

1. Begin by determining how much sideways movement is needed. Noting this value, divide it in half for the following adjustments. For example, if the slide must move $\frac{1}{2}$ " forward on the trailer, you will adjust the brackets by only $\frac{1}{4}$ ". This will be called the **Bracket Offset Distance**, below.
2. Extend the room fully.
3. Using a scribe, mark the horizontal location of the bracket on the room bar (both sides.)
4. Loosen carriage bolts (Figure 56A) on each bracket located at the end of each guide rail. The image shown is from the top of the bracket, where the slide-out room is sitting.

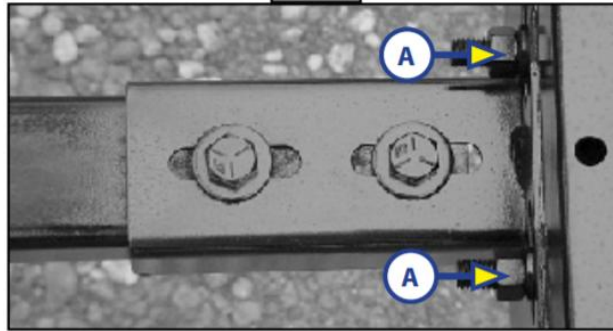


Figure 56. Room Bar mounting bracket - idler side. The drive side will not have adjustments on the guide rail.

5. Using a Dead-blow hammer or other hefty mallet, move the bracket by the **Bracket Offset Distance**, in the direction opposite of what direction you want the room to move. Continuing the example from above, if you want the room to move forward on the trailer, the bracket must be moved backwards. This will result in pulling the room forward.
6. Tighten the bolts on this bracket.
7. Repeat for the second bracket.
8. Make sure the area is clear of any tools, run the room in and out fully a few times to verify the new position of the room.

Adjusting the Electric Slide-out Room Vertically

1. Extend the room fully.
2. Place a jack underneath the slide room, near the bracket you will adjust first. Use a vertical board to extend the jack's height and a horizontal board of some length directly on the slide underside. Raise the room only enough to remove weight from the bracket. This can be observed by seeing the inner bar come up with respect to the outer bar near the trailer frame rail.
3. Using a scribe, mark the vertical location of the bracket on the room bar.

4. Loosen carriage bolts (Figure 57A) on each bracket located at the end of each guide rail. The image shown is from the top of the bracket, where the slide-out room is sitting.

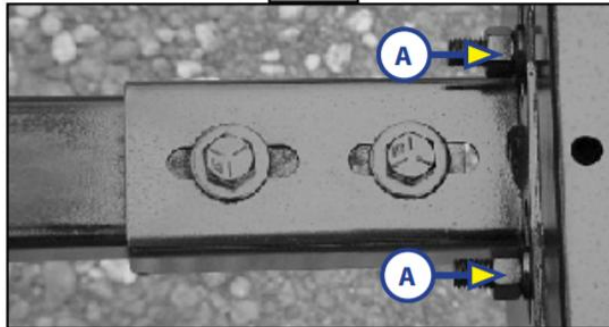


Figure 57. Room Bar mounting bracket - idler side. The drive side will not have adjustments on the guide rail.

5. Referring to Figure 58 for the following adjustments, raise the room using the jack to ensure it lifts off of the vertical adjustment bolt (B).
6. Loosen jam nut (A).

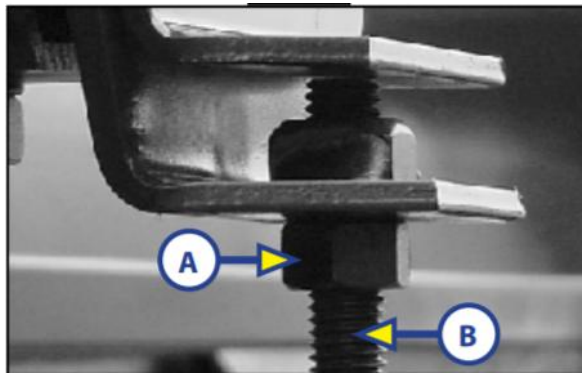


Figure 58. Vertical adjustment lock nut (A) and bolt (B).

7. For vertical adjustment turn vertical adjustment bolt (B) up or down to set room height.
8. Once room height is located, tighten the jam nut (A).
9. Tighten carriage bolts (Figure 57A) on this bracket. Once you are sure they're tight, gently lower the jack.
10. Repeat for the second bracket, moving the jack near that bracket.
11. Make sure the area is clear of any tools and the jack, run the room in and out fully a few times to verify the new position of the room.

Synchronizing Electric Slide-out Room Travel

This can be adjusted with the specially designed synchronizing bracket mounted on the passive slide tube. The passive slide tube is the one that is not powered. The active slide tube has the actuator attached to it. If one side of the room fails to seal adjust as follows:

1. Run the slide-out approximately halfway out.
2. Measure the active side from the "T"-molding on the slide-out main wall to the outside wall of the RV.



If the synchronization requires more distance than that provided by the adjustment bracket, a more advanced procedure is required to adjust the gear pack position on the telescoping bar. That procedure is beyond the scope of this section. Refer to Lippert documentation for further assistance.

3. Measure the passive side in the same way.
4. Loosen bolts (Figure 59B) on top of the passive slide tube (A).

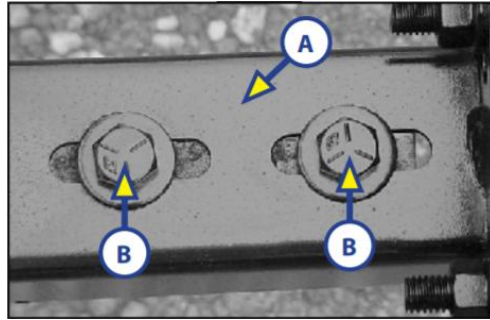


Figure 59. Synchronization adjustment bolts on guide rail. These are only present on the idler side.

5. Push or pull room (on passive side) to align the passive side with the active side.



It can be helpful to remove weight from this side of the slide room using jacking techniques similar to the Vertical Slide-out Adjustment procedure.

6. Tighten bolts (Figure 59B) to secure the passive side position.
7. Move the room in and out to verify the new position.

IN-WALL® ELECTRIC SLIDE-OUT SYSTEM (SCHWINTEK) (IF EQUIPPED)

Early model-year Alliance trailers utilize the In-Wall® electric slide-out system in the upstairs portion of the RV, typically a bedroom slide-out. This system is commonly referred to as a Schwintek slide-out system. The system has two in-wall channels with gear racks at the top and bottom. The motors are connected to a single controller.



[Lippert In-Wall® Slide-out Owner's Manual](#)

Operating Your In-Wall Slide-out System

Extending Your In-Wall Slide-out

1. Level the RV.
2. Press and hold the room's switch in the "OUT" position until room is fully extended and stops moving. **Continue to hold the switch for a count of 5.** The motors will shut off automatically within this time frame.
3. Release the switch, this will lock the room in the "OUT" position.



The In-Wall slide-out system uses two independent motors synchronized and controlled through an external control box. Holding the motor drive switch in this manner "synchronizes" the two motors.



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

Retracting Your In-Wall Slide-out

1. Ensure the slide path is clear, with no objects blocking it's movement inward.
2. Press and hold the rooms switch in the "IN" position until the room is fully retracted and stops moving.
3. Release the switch, this will lock the room in the "IN" position.



There is no need to hold the switch down after the slide stops when retracting. Motor synchronization only occurs for outward movement. If desired for consistency, you may hold the switch down as no damage will occur.

In-Wall Slide-out Controller Overview

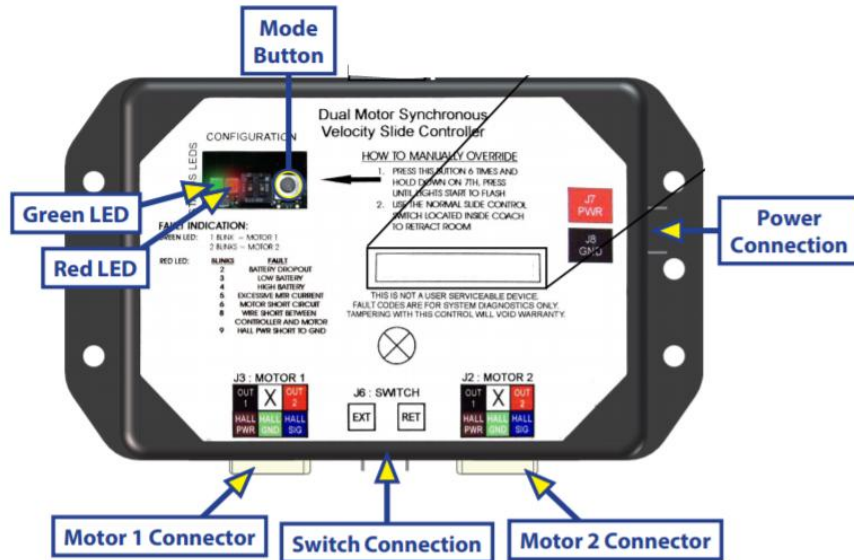


Figure 60. In-Wall (Schwintek) slide controller. Each slide will have one controller.

- **Status LEDs:** 2 LEDs, 1 green and 1 red, are provided to indicate current controller status and faults.
- **Mode Button:** Used to engage the electronic manual override.
- **Power Connection:** 12V DC input.
- **Switch Connection:** Spade connection for the switch wiring.
- **Motor 1 Connector:** Power and encoder input for motor 1.
- **Motor 2 Connector:** Power and encoder input for motor 2.

In-Wall Slide-out Controller Connections

- **Connections & Motor Harness**



Figure 61. Controller bottom view w connection plugs (left.) Motor extension cable (right.)

NOTE: Motor harnesses have Molex connectors at the controller and a molded connector at the motor end (Figure 61). Wire colors match with color codes on the control board. It does not matter which motor is 1 or 2.

In-Wall Slide-out System Overview

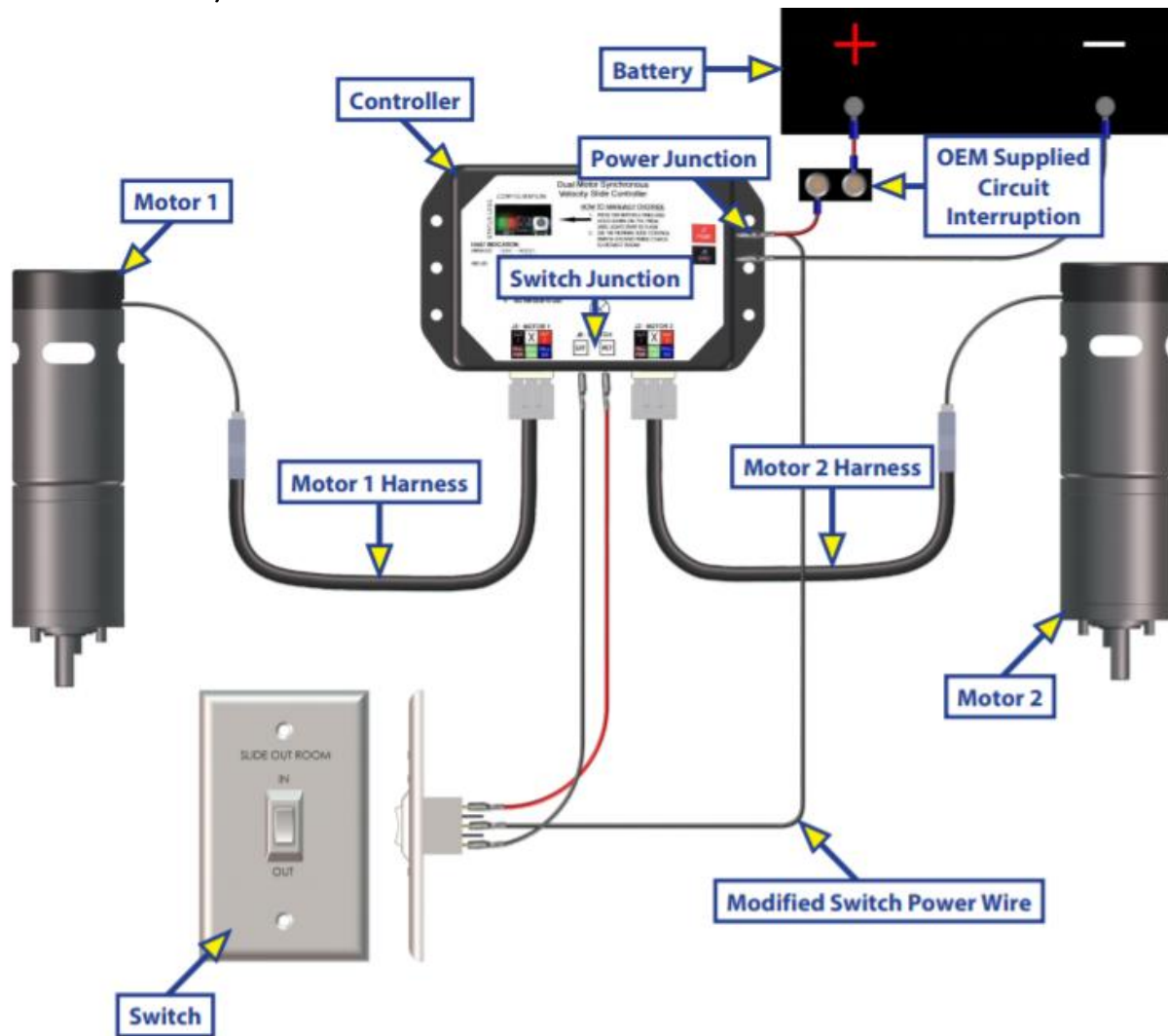


Figure 62. In-Wall slide out system diagram.

In-Wall Slide-out Motor and Harnesses

Check for proper connections between the motors and harnesses. Visually inspect the exposed harnesses to ensure they are not pinched or damaged.

Note: Ribs on motor connector lineup with notch inside of female connector on the wiring harness. Color codes on wires also match (black to black, red to red, etc.)

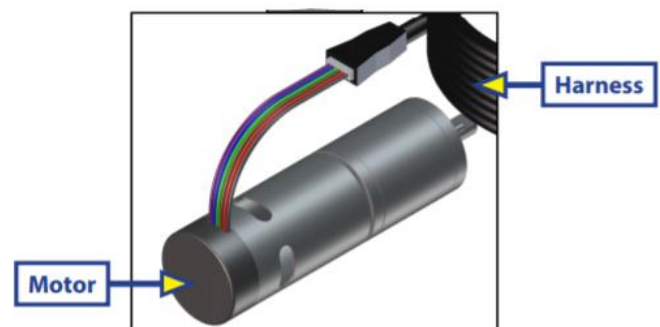


Figure 63. In-Wall motor and connected motor extension cable.

In-Wall Slide-out Troubleshooting



[Lippert In-Wall® Slide-out Troubleshooting and Service Manual](#)

If problems occur with your slide-out, follow these steps to find the issue.

- If there is no movement in the slide, and no noise can be heard:
 1. Check controller for a fault code. See Controller Fault Codes, below.
 2. Check incoming power voltage at controller. If below 12V:
 - Check battery voltage
 - Check all wiring and connections from battery to controller
 - Check converter output voltage, if applicable (i.e. when connected to shore power.)
 - Check all wiring and connections from converter to controller
 3. Check self-resetting breaker at 12V distribution bar in front compartment. If this breaker is showing a voltage across the terminals, replace the breaker with a new breaker of the same style and rating.
 4. Check wiring to the slide switch.
 5. Check the motor wire harnesses at the controller and motors.
- If there is no movement in the slide, noise can be heard at least temporarily:
 1. Check for any obstructions outside the trailer, and inside the trailer. Ensure no objects are wedged into the floor below the slide, no objects on the slide-out roof, and no objects blocking the side of the slide.
 2. Check the outside rack for dirt or debris. Clean using a soft brush or soap and water. Do not lubricate.
 3. Follow the steps as above for “If there is no movement in the slide, and no noise can be heard.”
- The slide moves a short distance, in or out, and then stops.
 1. Attempt to get the slide all the way out, then perform the **Resynchronizing the Electric Slide-out Motors** procedure.
 2. If the slide cannot be fully extended, follow the same steps as above for “If there is no movement in the slide, noise can be heard at least temporarily.”
 3. If those steps do not help, perform the steps in **Electric Slide-out Electronic Override**. If this is successful, seek the assistance of a certified RV Technician or other service provider to determine the system fault. Do not use the override as a standard method of operation.
- The slide-out moves out a short distance, but one side will not move or stops moving well before the other side.
 1. If a motor was recently replaced, make sure the new motor and original motor have the same gear ratio. Check the ratio of the other motor (the one not replaced) to verify the correct ratio needed, either 300:1 or 500:1.
 2. Follow the steps for “if the slide moves a short distance, in or out, and then stops,” above.

Controller Fault Codes

During operation when an error occurs, the controller board will use the LEDs at the upper left corner to indicate where the problem exists (see Figure 64). For motor specific faults the green LED will blink 1

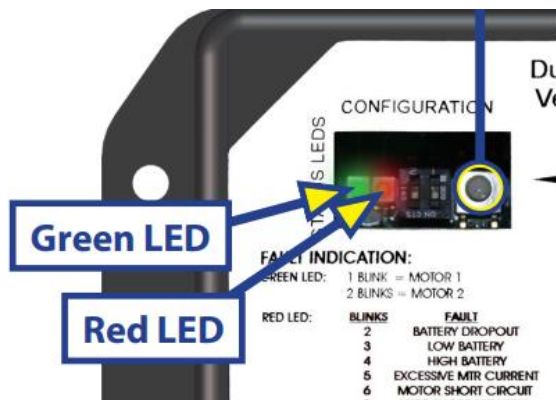



Figure 64. Controller indicator LEDs.

time for motor 1, and 2 times for motor 2. The red LED will blink 2 to 9 times depending on the error code, see Table 5. When an error code is present, the board needs to be reset. Energizing the slide-out switch resets the board. Energize the slide-out switch again for normal operation.

Table 5. In-Wall slide-out controller error codes.

Error Code	Name	Description
2	Battery Drop Out	Battery capacity low enough to drop below 6 volts while running or short in switch wiring
3	Low Battery	Voltage below 8 volts at start of cycle
4	High Battery	Voltage greater than 18 volts
5	Excessive Motor Current	High amperage, also indicated by 1 side of slide continually stalling
6	Motor Short Circuit	Motor or wiring to motor has shorted out
8	Wire Short Between Controller and Motor	Encoder is not providing a signal. This is usually a wiring problem.
9	Hall Power Short to Ground	Power to encoder has been shorted to ground. This is usually a wiring problem.

In-Wall Slide-out Maintenance

	Lippert In-Wall® Slide-out Troubleshooting and Service Manual
---	---

Inspection

Keep the gear racks and seals clean and free of debris. They can be washed with mild soap and water.

NOTE: No grease or lubrication is necessary, and in some situations it can be detrimental.

Resynchronizing In-Wall Slide-out Motors

If operated properly, holding down the Extend/Out button every time until both motors shut themselves off, your slide-out motors will normally remain in synchronization with each other. However, there can be electrical events or mechanical friction which causes them to not operate simultaneously. If you notice one side moves more than the other, or the system stops retracting the slide after a few inches (commonly stopping when askew) then you may have to resynchronize the slide using the following procedure.

1. Run the slide-out room all the way out. **Keep the switch pressed until both motors shut down on their own.**
2. Bring the slide-out back in 3-4 inches.
3. Repeat steps 1 and 2 until both motors shut down at the same time.



It can take 3 or more attempts to successfully re-sync the room.

4. When both motors shut down at the same time at full extension and full retraction, the room is properly synced. If they do not shut down at the same time, repeat the process until they do.

Electric Slide-out Electronic Override

⚠ CAUTION

USING THE OVERRIDE CAN HELP MOVE A SLIDE-OUT WHEN NEEDING TO TRAVEL OR ACCESS THE INTERIOR OF THE RV. HOWEVER, THE USE OF THE OVERRIDE INDICATES A MECHANICAL OR ELECTRICAL PROBLEM THAT NEEDS TO BE RECTIFIED AS SOON AS POSSIBLE. DO NOT USE OVERRIDE AS A STANDARD OPERATING PROCEDURE, AS PERMANENT SYSTEM DAMAGE MAY RESULT.

1. Press the mode button on the controller (see Figure 65) six times and hold on the seventh for five seconds to enter electronic manual override mode.
2. Use the slide-out switch to move both motors in or out. Note: Over-current and short circuit detection are still enabled. Electronic manual override provides 12-volt directly to both motors.
3. To exit this mode, push and hold the mode button until the LEDs begin to blink simultaneously. Exiting the override mode resets the motor positions which will require you to have to re-sync the motors.



During this override procedure the motors are not synced. Visually watch the room, if one side is moving noticeably slower than the other (or not at all) then immediately stop and use the Motor Disengagement Procedure covered below

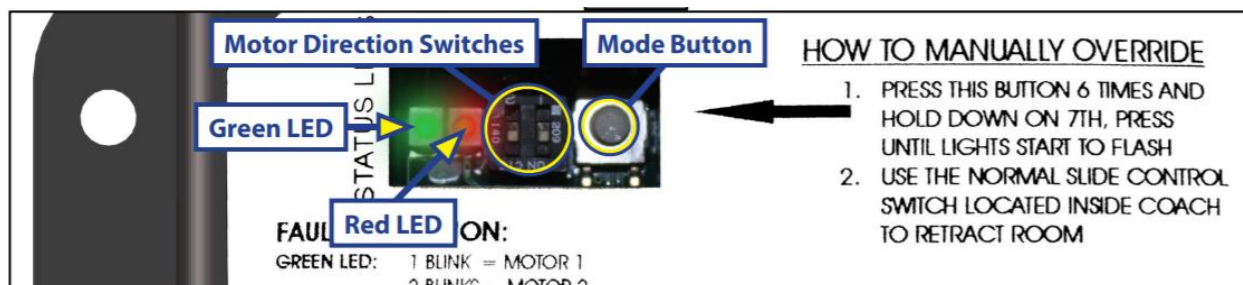



Figure 65. Controller interface showing Mode button.

Motor Disengagement Procedure

The following procedure can be used to manually move a slide when one motor is unresponsive and the slide must be extended or closed.

	<p>This procedure is also the method by which a motor can be replaced. Further details can be found at https://lci-support-doc.s3.amazonaws.com/technical-information-sheets/slideouts/ccd_0002058.pdf</p>
---	--

⚠ WARNING

- **THE MOTOR HAS A BRAKE, WHICH IS USED TO PREVENT SLIDE MOVEMENT WHEN NOT OPERATING TO EXTEND/RETRACT THE SLIDE.**
- **REMOVAL OF THE MOTOR THEN ENABLES THE SLIDE TO TRAVEL FREELY ON THAT SIDE.**
- **THIS CAN RESULT IN UNINTENDED SLIDE MOVEMENT. DO NOT MOVE THE TRAILER WITH THE MOTOR REMOVED.**

Referring to Figure 66:

1. Remove retention screws from the motor, located near the top of each vertical column on the outside of the coach. This is illustrated below in the left image.
2. Inside the trailer, locate the motor at the top of the wall opening on the side of interest. The inside wiper seal must be pulled back from the top edge downward as needed. This is illustrated below in the right image.
3. Pull the motor up until disengaged. A flathead screwdriver can be used to pry the motor up.
4. Reinstall motor retention screw to hold motor in place or remove the motor.

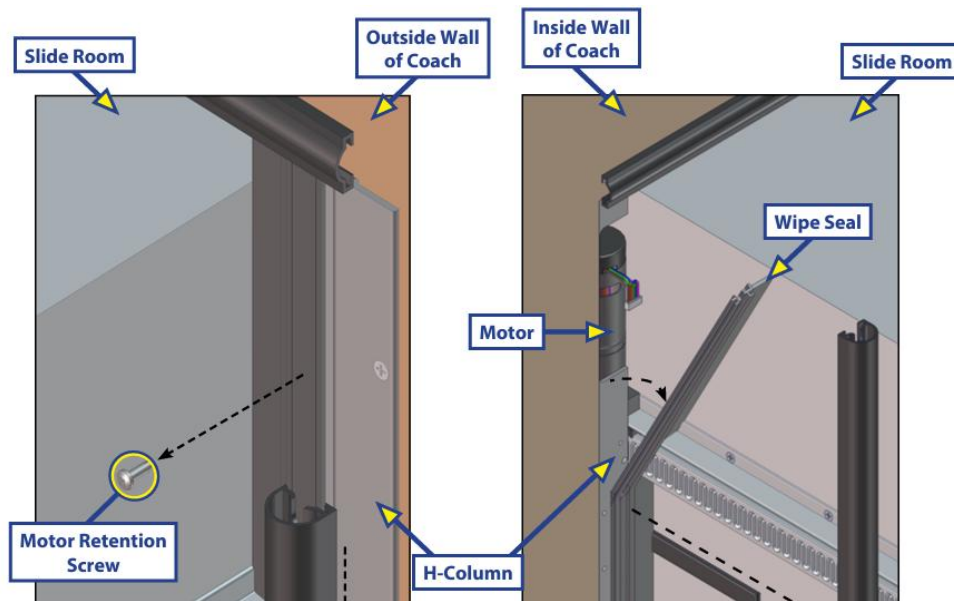


Figure 66. In-Wall system overview, showing relevant positions for motor disengagement.

After removal of motor, the remaining motor can be activated and the slide moved as long as there are person(s) able to manually assist the side of the slide with the missing motor. Once the slide is in the desired setting, the motor must be lowered back into place and the retention screw applied to ensure the slide will not move. It is also a good idea to place blocking inside the RV to prevent slide extension if one intends to move the trailer.

BAL® EXACT-SLIDE SLIDE-OUT SYSTEM (IF EQUIPPED)

Some Alliance Avenue trailers utilize an Exact-Slide in-wall slide system. These systems have two in-wall channels connected via a single controller.



[BAL Exact-Slide product information \(see Support and Video tabs\)](#)

Operating Your Exact-Slide System

Extending Your Slide-out

1. Level the RV.
2. Press and hold the room's switch in the "OUT" position until the slide is fully extended and both motors turn themselves off to ensure the best seal.
3. Release the switch, this will lock the room in the "OUT" position.



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

Retracting Your Slide-out

1. Ensure the floor is swept clean and no debris is present that will get caught under the slide and damage the floor.
2. Press and hold the room's switch in the "IN" position until the slide is fully retracted and both motors turn themselves off to ensure the best seal.
3. Release the switch, this will lock the room in the "IN" position.



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

BAL Exact-Slide Troubleshooting

If the slide does not respond to switch input, take the following steps:

- Locate the slide controller. It should be mounted near the slide in a cabinet near the slide, or a lower storage area. Locate the green and red LED lights between 'SW IN' and 'SW OUT' on the slide out control.
- The green light indicates that the control has power.
- The red light indicates low voltage. The control will enter sleep mode and the light will turn off after 5 minutes of switch inactivity.
- Verify 12V at the proper, marked, terminal.



Figure 67. BAL Exact-Slide controller, with indicator lights shown in lower left corner.

- To determine if the controller is not getting a signal from the switch, locate the Motor 1 (M1) and Motor 2 (M2) move IN switches (shown in white in the lower corners of the control board, and marked on the cover.) Push one at a time to see if the corresponding slide motor moves in. If so, look for power loss from the switch or a bad switch.
- If there is no response to pushing M1 IN or M2 IN, use the manual override procedure to operate the slide-out and contact an authorized dealer for repair.

BAL Exact-Slide Maintenance

Adjustment Procedure

The only points of adjustment are at the black standoff brackets located directly behind the fascia backer boards.

1. Run the slide room all the way in. First loosen the top cable until the cable is visually sagging in position.
2. Adjust tension the interior bottom cables until you reach $\frac{1}{4}$ " deflection, meaning you should be able to easily lift the cable $\frac{1}{4}$ " and push it down $\frac{1}{4}$ " from center with your thumb and pointer finger.
3. Adjust tension the top cable until you reach $\frac{1}{2}$ " deflection. This is again $\frac{1}{2}$ " movement up or down from center using only your thumb and pointer finger.

Manual Override

Use a flex shaft and #3 square bit mounted in a drill/driver. **DO NOT USE AN IMPACT DRIVER.** Locate each motor at the top of the mechanism. Insert the drive bit into the end of the motor and activate.



Figure 68. Using the flexible drive tool to manually override the slide.

Alternate between motors so that the room does not become wedged in the opening or encounter cabinets or other fixtures in the RV.

BAL® ACCU-SLIDE SLIDE-OUT SYSTEM (IF EQUIPPED)

Some Alliance Avenue trailers utilize an Accu-Slide in-wall slide system. These systems can be identified by having a single motor above or below the slide on the inside wall, with a dual chain system connecting both sides of the slide.



[BAL Accu-Slide product information \(see Support and Video tabs\)](#)

Operating Your Accu-Slide System

Extending Your Slide-out

1. Level the RV.
2. Press and hold the room's switch in the "OUT" position until the slide is fully extended.
3. Release the switch, this will lock the room in the "OUT" position.



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

Retracting Your Slide-out

1. Ensure the floor is swept clean and no debris is present that will get caught under the slide and damage the floor.
2. Press and hold the room's switch in the "IN" position until the slide is fully retracted.
3. Release the switch, this will lock the room in the "IN" position.



If your slide room does not move, or moves initially and then stops, the first item to check is the state of charge of your battery.

BAL Accu-Slide Troubleshooting

The following information will help diagnose and repair common problems. While the Cable Adjustment Procedure and Stand-Off Bracket Alignment Procedure are listed in the maintenance section, all procedures can be found on the BAL Accu-Slide support page, linked at the top of the Accu-Slide section and available at this address: <https://balrvproducts.com/product/accu-slide/>

Table 6. BAL Accu-Slide troubleshooting guide.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Motor does not run or make any noise.	Dead battery	Charge or replace battery.
	Open circuit or faulty switch	Check connections at switch, fuse & circuit breaker.
	Bad Motor	Replace the Motor.
Motor runs, but slide room does not move.	Cable(s) have become detached	Check tension of all cables. Place grommet or screw in standoff bracket to secure the cable.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
	Chain is caught on a bracket	Adjust cable tension. Tighten all 4 jamb nuts. Place white anti-vibration blocks on cable nuts.
	Chain is off the sprocket	Put chain back on sprocket. Re-adjust cable tension, tighten all jamb nuts (4). Place white anti-vibration blocks on cable nuts.
	Drive Shaft key is broken	Remove motor Cylinder from motor mount, remove/replace driveshaft key and reinstall motor cylinder.
	Bad Gearbox	Replace Gearbox
Loose Cable – Sagging 1 or more inches, or hanging.	Adjustment nut is too loose or off cable	Install all nuts with white anti-vibration blocks, and adjust.
	Cable is loose from connector bracket	Loosen nut on loose cable and attach to bracket, then adjust.
	Drive chain has too much slack	Tighten the chain adjustment nuts.
	Broken Cable	Refer to the cable replacement instructions at the Accu-Slide support site.
	Room stand-off bracket is loose or off	Inspect all inside and outside brackets for secure attachment, and repair as required.
Room squeaks or crackles while operating.	Cables are too tight	Adjust tension. Refer to adjustment instructions below.
	Brackets are not properly aligned	Refer to the Stand-off Bracket Alignment procedure below.
Room wipe is torn or missing.	Room or framework is out of square	Correct the problem and replace wipe.
	Wipe is torn or weathered	Replace wipe.
Room doesn't close completely.	Improper adjustment	Adjust tension. Refer to Cable Adjustment Procedure below.
	Room is hitting an obstruction	Check for obstructions and correct.
	Improper stand-off bracket alignment (cable is kinked)	Loosen cable nut to allow slack. Refer to the Stand-off Bracket Alignment procedure, below. Follow with the Cable Adjustment procedure.
Loud grinding noise when room operates.	Screw or foreign object lodged in jamb pulleys	Remove jamb clamp and inspect area causing the noise. Remove any loose objects. Inspect pulleys for damage. Replace the cable(s) if any have become frayed due to the problem.
	Cable has jumped off pulley	Remove and Replace cable, refer to cable replacement instructions on the Accu-slide support site.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Cable is bent and/or frayed at standoff bracket.	Standoff bracket was not proper aligned during installation process	<ol style="list-style-type: none"> 1. Remove the tension from the cable via the cable adjustment nut. 2. Remove the screws from the standoff bracket and adjust to the approximately appropriate location. 3. Complete the Stand-off Bracket Adjustment procedure, below. 4. Complete the Cable Adjustment Procedure, below. 4. Replace the cable if it has become frayed. Refer to cable replacement instructions available on the Accu-slide support site.

BAL Accu-Slide Maintenance

Cable Adjustment Procedure

If an ACCU-Slide system is not making the proper seal when it is either open or closed, it needs to be re-adjusted. The best way to perform an adjustment is to extend the room completely in order to have easier access to the cable adjustment brackets. With the room fully extended check top and bottom of both sides to verify all points have sealed. If it is not uniform then an adjustment is necessary.

Some important points regarding the system:

- The Accu-Slide is a give and take system between the cables, if the inside and outside opposing cables are too tight you will cause the motor to be over worked leading to trouble later on.
- When the room is seated full out, the **EXTERIOR** cables should be slack enough to move the cable approximately ½" up or down (1" total movement) by hand. The holding power is actually on the **INTERIOR** cables pulling the standoff brackets tight against the frame.
- When the room is seated full in, the **INTERIOR** cables should be slack enough to move the cable approximately ½" up or down (1" total movement) by hand. The holding power is now on the **EXTERIOR** cables pulling the standoff brackets tight against the frame.
- The chains work the same way as the cables, when the room is full in or out, half of the chain on each side of the motor will be slightly slack and half of each chain will be tight.

Procedure:

1. Before tightening an adjustment nut, loosen the cables and chains attached to the "IN" adjustment brackets to insure that the exterior cables won't pull against you, while trying to accomplish an out seal.
2. Tension the **OUT BTM** cables until the bottom interior standoff brackets make contact with jamb.
3. Tension the **OUT TOP** cables until the adjustment bracket is sitting straight up and down insuring that both **OUT TOP** and **OUT BTM** cables are tensioned evenly.

4. Tension the **IN TOP** and **IN BTM** cables and chain until you have reached $\frac{1}{2}$ " deflection on the exterior cables. (Deflection: you should be able to use your thumb and pointer finger to easily lift the cable $\frac{1}{2}$ " and push the cable down $\frac{1}{2}$ " from center.)
5. When the system is adjusted, tighten all jamb nuts and replace anti-vibration blocks.

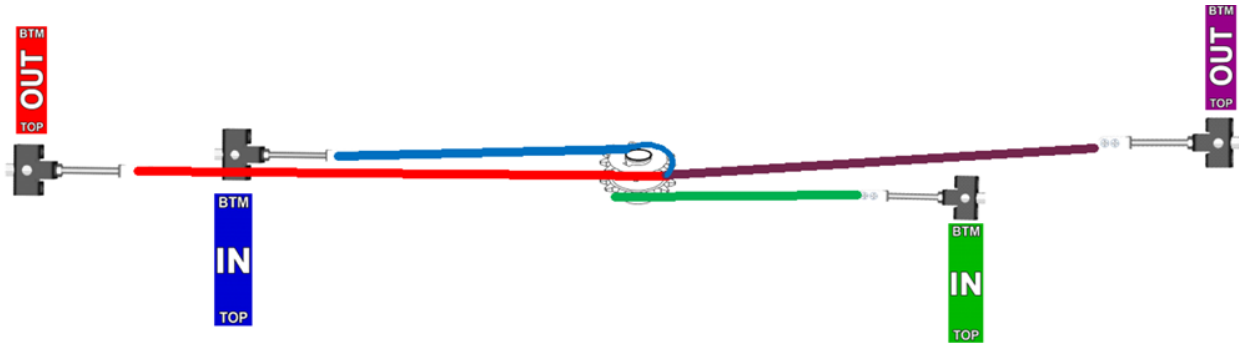


Figure 69. Accu-slide cable identification.

⚠ CAUTION

AFTER ALL FINAL ADJUSTMENTS, TIGHTEN 1/4-20 JAM NUT AGAINST CABLE/CHAIN ADJUSTER BRACKET ON ALL CHAIN CONNECTIONS. TIGHTEN THE JAM NUTS ON THE CABLES BY USING A WRENCH ON BOTH THE JAM NUT AND THE COUPLING NUT - FAILURE TO DO SO WILL RESULT IN A MALFUNCTION OF THE SYSTEM .

Stand-off Bracket Alignment

Stand-off bracket alignment is critical for proper function of the Accu-Slide system. Improper Stand-off bracket alignment can cause:

- a. Slide room not to seal correctly in the extend or the retracted position.
- b. Excessive wear to cable causing the cable to fray and break.
- c. Excessive wear to the Jamb.

When adjusting the interior Stand-off, run the room to the **extended** position, stopping six to eight inches before the room is completely extended.

When adjusting the exterior Stand-off, retract the room to the **in** position, stopping six to eight inches before room seals.

Adjusting the interior and exterior stand-off bracket:

1. Remove the four fasteners in the round hole on stand-off. Loosen the two fasteners in the slot on bracket.
2. With a hammer and at eye level with cable, adjust stand-off accordingly until the cable is running straight into the punched hole in jamb.
3. Tighten screws in slot, Predrill at the four holes removed in step 1 and install the four fasteners using new ones if needed.

Manual Override

Use the flexible shaft included in your owner's packet. You may or may not need the #3 square bit mounted on the shaft, depending upon your specific motor. Some motors will have a square drive hole, some will have a hex drive socket. in a drill/driver. **DO NOT USE AN IMPACT DRIVER.**



Figure 70. Using the flexible drive tool to manually override the slide.

Locate the motor & gearbox at the top of the slide, centered over the slide. Insert the drive bit or the shaft itself into the end of the motor and activate. Turn in the proper direction to move the room in or out as needed.

⚠ WARNING

IF THE CABLES TIGHTEN AND THE MOTOR IS DIFFICULT TO TURN, REVERSE THE DIRECTION. OVER-TORQUING CAN HAPPEN, RESULTING IN SEVERE DAMAGE TO THE SYSTEM.

ELECTRICAL: GENERAL

This section of the manual focuses on all items related to the power connection, distribution, and conversion devices on your Alliance RV.

All trailers will have: A Power Cord, a Battery Disconnect Switch, a 12-volt Battery Bank, and a Power Distribution Center that includes a converter. These items are discussed in this section. Many other optional systems and devices have been installed as optional equipment as Alliance RV has grown. The following sections on Inverters, Solar (equipment), and Generators discuss those items in detail.

Electrical System Overview

Your RV has a 120-volt (120V) electrical system and a 12-volt (12V) system.

The 120-volt system is powered by an electrical source such as: Shore Power via the Power Cord, an Inverter converting 12V battery power to 120V power (if equipped), or a Generator (if equipped.) This system usually powers the Air Conditioners, kitchen appliances, TVs, and other items that utilize conventional wall outlets. All 120V circuits are protected by breakers in a Power Distribution Center, and most outlets in the RV will be protected by a GFCI outlet. More details on the Power Distribution Center and the GFCI circuits can be found below.

The 12-volt system is powered by a bank of one or more batteries and powers numerous items such the water heater, water pump, furnace, lights, radio, alarms such as Carbon Monoxide and LP detectors, and depending upon the refrigerator some, or all, of its power. You'll also find that Alliance RV uses Smart Wire Technology, where 12-volt wiring is color coded and numbered. Further details on Smart Wire Technology are covered below. All 12V circuits are protected by fuses in the Power Distribution Center, special fuses mounted on a high-power 12V bus bar near the battery bank, and possibly by additional fuses contained within the 12V device itself (such as a 12V refrigerator.)

The 12-volt system is supported by a converter, which will charge the battery or batteries when on shore power or a generator is running. The converter will also help power the 12V loads in the RV up to a certain extent. High power items such as a hydraulic pump or electric slide motor depend upon the high-current capabilities of the battery bank. The battery bank may also be charged from a solar system (if equipped) or a DC-DC charger (if equipped.)



High-current systems such as Leveling and Slides will draw primarily from your battery bank. This is why problems with your slides or leveling may be related to the health of your battery, and not the converter. However, it's important to be sure both are operating at peak condition if you experience problems.



The converter generates a fair amount of heat when many 12 V loads are running. This is why you'll often hear a fan running near your power panel, especially is several 12 V loads are running.

Alliance RV is compliant with industry standards applicable at the time the RV is manufactured. Do not make unauthorized changes.

Modifications to the RVs electrical system should only be performed by qualified technicians and should never be made without approval from Alliance RV. Should modifications be made, those changes MUST comply with current safety and code requirements.

⚠️ WARNING

CHANGES OR ADDITIONS MADE AFTER DELIVERY MAY RESULT IN HAZARDOUS CONDITIONS. ALWAYS HAVE A PROFESSIONAL WORK ON YOUR RV.



[Owner Empowerment Series Video – Electrical System Overview.](#)

Electrical Troubleshooting

There are a number of individual electrical systems in your Alliance RV. Some of them interact with each other, and all of them are connected through the Power Distribution Center, either on the 120 V side, or the 12 V side. This section will help identify common problems found at the highest level of electrical power in your RV. It is not intended to solve specific problems, but rather to help identify where to go for further investigation.



[My Power Is Out... What Can I Check?](#)

Below is a second video with the same topic, but some different information:



[No Power To My Alliance RV! Why?](#)

Table 7. General RV electrical troubleshooting.

Symptom	When plugged into 50 Amp shore power, several 120V items in the RV work, but several 120V items in the RV do not work.
Possible Cause	One leg of 50 Amp power supply is faulty
Suggested Action(s)	<ol style="list-style-type: none"> 1. Contact a campground employee to check that shore power is correct at the power pole. 2. Ensure Power Cord is securely plugged into the power pole, and the connection at the RV is secure. 3. Check the Automatic Transfer Switch (if equipped.)

Symptom	One or more of the 120V outlets in the RV do not work.
Possible Causes	Breaker tripped, faulty GFCI, loose connection.
Suggested Action(s)	<ol style="list-style-type: none"> 1. Locate any breaker labeled GFI in the Power Distribution Center. Turn each breaker off, then on. Do this even if they don't seem to have been tripped. 2. Reset each GFI in the trailer. Each one should have a solid green light when operating correctly. If the green light is not on, use a multimeter or small appliance to determine if the outlet is working. 3. If the above steps do not solve the problem, contact a qualified repair service to further troubleshoot the outlets.
Symptom	The 120V items work fine either on shore power or generator, but not with the other source.
Possible Cause	Faulty Automatic Transfer Switch, or a fault at the generator.
Suggested Action(s)	Refer to the troubleshooting section for Automatic Transfer Switch.

Removing All Power from the RV

To disable all power systems in the RV, follow these steps, in order. If your RV does not have a particular power source, for example a generator, simply skip that step.

⚠️ WARNING

USE CAUTION WHEN USING METAL TOOLS. IF A TOOL CONTACTS A BATTERY OR ELECTRICAL TERMINAL OR METAL CONNECTED TO IT, A SHORT CIRCUIT COULD OCCUR AND CAUSE INJURY.

1. Turn off all appliances (Refrigerator, AC, Water Heater) and loads (lights, radios.)
2. Turn off the generator (if equipped and running) and disable the auto start function (if equipped.)
3. Make sure the inverter is turned off (if equipped.)
4. Turn off the solar disconnect switch, or otherwise disable solar power input to the solar charge controller (if equipped.)
5. Turn off the battery disconnect switch.
6. In the Power Distribution Center, turn off the Main input AC circuit breakers.
7. If connected to shore power turn off the breaker at the power pole, then disconnect the Power Cord.
8. Disconnect the negative 12-volt DC battery terminal from the battery.

Power Cord

A heavy-duty power cord with a 4-prong grounding plug is used to plug the RV into an external 120V source.



Figure 71. Power plug port and connected cord.

Never connect the power cord to a power source:

- That is not wired to the National Electric Code standard for 50 amp 120V/240V.
- With non-functioning ground circuits.
- That has reverse polarity.
- That shows outward signs of heat damage.

Do not:

- Use a cheater plug/adaptor/extension cord. (A device to lift AC ground.)
- Adapt the power cord to plug into a connector which it was not designed.

⚠ WARNING

VIOLATING THE ABOVE DIRECTIONS MAY RESULT IN PROPERTY DAMAGE OR SERIOUS INJURY. YOU CAN POTENTIALLY DAMAGE YOUR RV'S ELECTRICAL SYSTEM WHICH COULD RESULT IN SEVERE OR EVEN FATAL INJURY.

To connect your power cord:

1. At the power pole, ensure the breaker is off.
2. At the Power Distribution Center, turn off the MAIN breakers.
3. Attach the power cord to the trailer. Tighten the outer plastic ring. Do not over-tighten.
4. Extend the power cord to the length needed.
5. Plug the power cord into the power pole. Be sure that all the power cord prongs are properly plugged in at the same time.
6. Turn on the breaker at the power pole.

7. Turn on the MAIN breakers in the Power Distribution Center.

- **DO NOT** plug your RV 50-amp shore cord into any receptacle that is not wired to National Electric Code for 50 amp 120/240V configuration. Doing so will supply the RV with the incorrect electrical power causing extensive damage to the electrical system and 120-volt components which would not be warrantable.
- **DO NOT** disconnect the 50-amp male plug connection by pulling up on the cord. This will cause a loss of neutral and 240 volts AC will be supplied to the electrical system and 120-volt components causing extensive damage which would not be warrantable. Always pull straight out on the head of the cord so all 4 prongs disengage the receptacle simultaneously.
- **DO NOT** plug in or unplug the shore cord while under load. Make sure all 120-volt components are turned off prior to connecting or disconnecting the shore cord or damage to the 120-volt systems may result. Turn off the breakers at the power center first before connecting or disconnecting the shore cord to prevent damage.

⚠ WARNING

FAILURE TO PLUG YOUR 50 AMP POWER CORD INTO A RECEPTACLE THAT IS NOT WIRED TO THE NATIONAL ELECTRIC CODE FOR 50 AMP 120/140V CONFIGURATION COULD LEAD TO AN INCREASED RISK OF PROPERTY DAMAGE, SERIOUS INJURY OR DEATH. IT IS IMPORTANT TO INSPECT POWER CORD FREQUENTLY FOR DAMAGE. IF DAMAGE IS FOUND, HAVE THE CORD REPLACED IMMEDIATELY.

⚠ WARNING

EXPOSURE TO VOLTAGES HIGHER OR LOWER THAN A NOMINAL 120-VOLTS, WILL DAMAGE OR SHORTEN THE SERVICE LIFE OF THE ELECTRICAL SYSTEM AND APPLIANCES. THE 50 AMP 120-VOLT 60HZ AC ELECTRICAL SYSTEM CAN BE POWERED BY AN OUTSIDE 120/240-VOLT 60HZ UTILITY SERVICE LIKE THOSE COMMONLY FOUND IN CAMPGROUNDS OR BY 120/240-VOLT 60HZ GENERATOR POWER.

⚠ WARNING

MAKE CERTAIN THE EXTERNAL POWER SOURCE YOU CONNECT THE POWER CORD TO IS A PROPERLY WIRED 50 AMP NEMA 14-50 RV RECEPTACLE AND NOT 240 VOLT AC. PLUG INTO 50-AMP SERVICE ONLY. CIRCUIT BREAKERS AND FUSES WILL NOT OFFER COMPLETE PROTECTION OF THE ELECTRICAL SYSTEM IN THE EVENT OF POWER SURGE OR VOLTAGE SPIKE.

GFCI (Ground Fault Circuit Interrupter)

A ground fault circuit interrupter is a type of circuit breaker usually incorporated into a standard-looking 120V wall socket that shuts off electric power when it senses an imbalance between the outgoing and

incoming current. A GFCI is specifically designed to protect a person from electrical shock by reacting to an imbalance that can be as small as 4 or 5 milliamps, when detected, in less than one tenth of a second the circuit is tripped and shuts off.

GFCI Troubleshooting

If the GFCI circuit breaker trips, and cannot be reset by pushing the RESET button, please check the following things:

- Power to the GFCI: Sometimes, an event that causes the GFCI to trip can also cause the circuit's breaker to trip.
 - Manually turn off the breaker and turn it back on, even if it looks like it has not tripped.
 - Try again to RESET the GFCI.
- Check the circuit for overloads:
 - Unplug all loads on the GFCI and try to RESET.
 - If the RESET is successful, plug in devices one at a time until the circuit trips again.
 - If the circuit does not trip again, it could be due to a connected device pulling more than average power.
- Check for ground faults: this could be water near an outlet or damaged wiring. Inspect for either of these conditions and rectify before attempting to RESET the GFCI again.
- Nuisance tripping: GFCI outlets can be sensitive to high levels of moisture and electromagnetic interference. Check for either of these conditions and rectify before resetting.
- Faulty GFCI. GFCI outlets do have a lifespan and can wear out over time. If no other cause can be determined, contact a qualified professional to replace the GFCI outlet.

GFCI Maintenance

GFCI Outlet Testing

As per the Maintenance Schedule:

1. Push the TEST button. This action should force the RESET button out on the receptacle (engaging the interruption of power).
2. To reset the GFCI to working order, push the RESET button.
3. If the RESET button cannot be depressed, your 120-volt electrical will require service – contact your servicing dealer immediately.

Battery Disconnect Switch

Used to shut off all nonessential 12 Volt (12V) power that supplies RV. When the switch is activated, in the "OFF" position, the batteries are disconnected/isolated and no longer supply 12V power to the RV.

Some items will remain powered. Exactly which items stay on depend upon your specific trailer options but may include the Refrigerator (if a 12V model,) battery heaters (if equipped,) and the charge line from your Tow Plug. Also, if you have solar panels, they will still be connected to the battery via the solar charge controller unless the Solar Disconnect switch is off. When the switch is in the "ON" position, all 12V items in the RV will have power.

You will find the battery disconnect switch in the storage compartments of the trailer. They may be mounted above docking station or in the upper front compartment. There are two types of battery disconnect switches – the original key style on early models and a newer rotating knob style on later models. The key style switch has a lanyard attached to prevent the removable key from being misplaced.

To turn the 12V system ON and OFF, simply rotate the key or knob to the desired position.



Figure 72. Battery disconnect switches. Original style, left, and new style, right.

Solar Disconnect Switch (if equipped)

Mounted near the solar charge controller (if equipped,) this switch is used to disconnect the solar panel(s) from the solar charge controller. It should be turned off before the battery/batteries are disconnected from the solar charge controller or the trailer.

⚠ WARNING

IF YOUR TRAILER HAS A SOLAR CHARGER, ENSURE THE SOLAR DISCONNECT IS SET TO “OFF” BEFORE DISCONNECTING THE BATTERY/BATTERIES FROM THE TRAILER. THE SOLAR CHARGE CONTROLLER (IF EQUIPPED) CAN BE DAMAGED BY HAVING SOLAR PANEL INPUT WITHOUT A BATTERY/BATTERIES CONNECTED.

Battery

Unless certain upgraded solar packages are purchased from the factory, Alliance RV does not supply batteries in trailers. Trailers not equipped with these solar options have their batteries selected and installed by the dealership from which you purchased your trailer.

When you are not plugged into electricity (dry camping), the battery supplies power to the 12-volt system in the RV. The battery in this scenario will eventually die unless other steps are taken to charge them with a generator and/or solar power (if equipped.) See the appropriate section of this manual for more details on each of those systems.

When plugged in, the Converter in your RV reduces some of the 120-volt incoming power down to 12 volts in order to supply power to the 12-volt system in the RV. It will also automatically sense voltage on

the battery and will select an appropriate charging profile based on the battery type and state of charge (how full it is.) The battery type setting on the converter may be manually set, or it may be automatic. Please refer to the Power Distribution Center section for more information.

The converter will also charge the battery when the trailer is connected to a running generator (if equipped) as the generator simulates shore power. When a trailer is equipped with a solar package, charging may come from the Solar Charge Controller or a DC-DC charger. See appropriate user manuals for the solar equipment.



[WYKW: What to Expect of Your Batteries in Storage](#)

Battery Troubleshooting

When encountering problems with any 12V device, the following items should be verified. Note that this is not a full troubleshooting process for 12V systems, but can help identify where issues may exist.

- Ensure all connections between the battery terminals and device of concern are tight.
- Verify any fuse(s) are not damaged. Fuses can pass electrical checks for voltage and resistance when not under load but fail once put under load (usually through heated expansion of a crack.) If in doubt, replace the fuse with a known-good fuse.
- If no other sources of error are found for a dropping voltage when the battery is the only power source, disconnect all batteries and perform load testing on each battery individually before re-connecting.

Battery Maintenance

Perform the following maintenance on each battery as per the Maintenance Schedule, or whenever problems are being investigated with any 12V powered item on the trailer:

1. Remove any corrosion from the terminals using standard safety protocols and techniques.
2. Look for cracks, leaks, or bulging in the case. Any physical damage requires a replacement of the battery.
3. Check water levels in non-sealed batteries.
 - Ensure the top of the battery is very clean before removing caps.
 - Add distilled water as needed to keep each cell full.
 - Do not allow **any** contaminants to enter the battery.
 - Replace the caps.

WARNING

IT IS IMPORTANT THAT THE FLUID LEVELS OF ANY NON-SEALED CONNECTED BATTERY(S) BE CHECKED ON A REGULAR BASIS. ALL BATTERIES WILL "GAS" AND LOSE SOME FLUID WHEN CONTINUOUSLY CONNECTED TO ANY CHARGING SOURCE.

4. Ensure all battery connections are tight.
5. Using a voltmeter set to a proper range, ensure battery voltage is appropriate at the battery.

- It is best to check this while the trailer is unplugged from shore power, the generator is off (if equipped) and solar disconnect is turned off (if equipped.) **If this is not done, you may be reading input charging voltage and not actual battery resting voltage.**
- The value measured across the terminals should be **equal to or more than** the nominal value of 12.0 Volts.

Non-Vented Batteries (If Equipped)

Many late model Alliance Trailers are shipped with non-vented batteries. Those batteries are mounted in locations where the use of vented batteries would be hazardous. In such locations, the following warning is placed via a sticker. Do not install vented batteries in these locations.

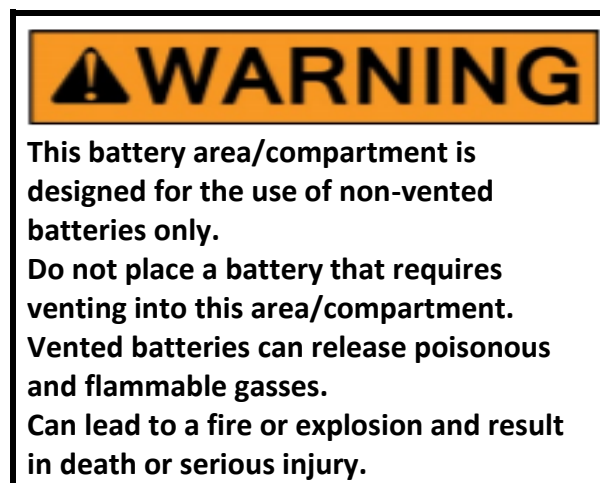



Figure 73. Non-vented battery warning label placed in applicable location(s) on Alliance trailers.

Renogy Batteries (If Equipped)


When equipped with certain solar packages, Alliance RV will install up to three Lithium Ion Phosphate batteries each rated at 100 Ah and wired in parallel (if more than one) to provide up to 300 Ah of power.

The Renogy Smart Lithium Iron Phosphate Battery enables auto-balancing among parallel connections and provides more flexibility for the battery bank configuration. The integrated battery management system (BMS) not only protects the battery from various abnormal conditions but monitors and manages the charging and discharging process.

	Renogy 100Ah Lithium Battery (non-heated)
---	---

Battery Management System (BMS)

The battery contains a battery management system (BMS) that warns you and protects the battery from over-voltage, under-voltage, over-current, short circuit, high temperature, and low temperature. Further information on these faults and warnings is available in the Owner's Manual for the battery.

	<ul style="list-style-type: none"> • The warning status is only visible on the Renogy Monitoring Screen and the DC Home app. • The warning status will not affect the normal use of the battery. But it is recommended to pay closer attention to the battery to prevent it from entering the protection mode.
---	--

Identification of Parts

The Renogy Battery has top-mounted connection points, as well as two RS485 communication ports. It is important to note the difference between the two ports.

Table 8. Renogy battery identification of features.

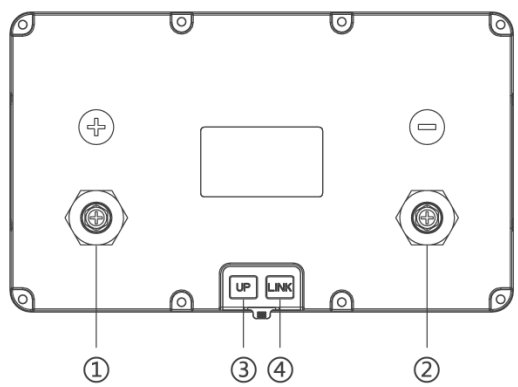
ITEM	DESCRIPTION	 <p>Figure 74. Renogy battery features.</p>
1	Positive Terminal	
2	Negative Terminal	
3	RS485 UP Communication Port	
4	RS 485 LINK Communication Port	



Figure 75. Renogy battery activation cable.



Figure 76. Renogy battery activation cable - power button (switch).

Connecting Batteries in Banks

⚠ WARNING

DO NOT STRING BATTERIES IN SERIES. DOING SO CAN CAUSE CATASTROPHIC FAILURE.

⚠ CAUTION

- **DO NOT STRING BATTERIES WITH DIFFERENT CHEMISTRIES, BRANDS, MODELS, RATED CAPACITIES, OR NOMINAL VOLTAGES IN PARALLEL.**
- **PLEASE AVOID TOO HIGH A VOLTAGE DIFFERENCE BETWEEN PARALLELED BATTERIES, DESPITE THE AUTO-BALANCING FUNCTION, TO AVOID TRIGGERING THE OVER-CURRENT PROTECTION.**
- **IN PARALLEL BATTERY BANKS, THE CABLES BETWEEN EACH BATTERY SHOULD BE OF EQUAL LENGTH TO ENSURE THAT ALL BATTERIES IN THE SYSTEM CAN WORK EQUALLY TOGETHER.**
- **IT IS NOT RECOMMENDED TO CONNECT MORE THAN 4 BATTERIES IN PARALLEL IF TAKING ADVANTAGES OF THE AUTO-BALANCING FUNCTION.**

To string multiple batteries in parallel, first connect the Positive Terminals of the batteries to each other. Then, connect the Negative Terminals of the batteries to each other. Finally, connect the Positive Terminal of the first battery and the Negative Terminal of the last battery to the system. This type of arrangement is used to increase the overall battery capacity while keeping the battery voltage the same.

To enable the communication between paralleled batteries for the proper operation of the Renogy Monitoring Screen or the Renogy Bluetooth Module, connect the RS485 LINK Communication Ports of the former batteries to the RS485 UP Communication Ports of the latter ones using CAT5 (or above) Ethernet straight through cables (not included). The Renogy Monitoring Screen or the Renogy Bluetooth Module should be connected to the RS485 UP Communication Port of the first battery.

Activation Switch Operation

CAUTION

PLEASE LEAVE THE BATTERY IN SHELF MODE DURING INSTALLATION. DO NOT SWITCH THE BATTERY TO ACTIVE MODE UNTIL MAKING SURE THAT ALL THE CONNECTIONS ARE CORRECT AND SECURE. CONNECTING ACTIVE BATTERIES TO THE SYSTEM MAY TRIGGER THE SHORT CIRCUIT PROTECTION OF THE BATTERY.

The battery can be switched between active mode and shelf mode with the Activation Switch, shown in Figure 75 and Figure 76. When the battery is in shelf mode, connect the Activation Switch to the RS485 UP Communication Port of the battery and press the Power Button. The dim blue LED light on the Power Button will become bright blue to indicate that the battery has been successfully switched to active mode. Please check the battery voltage to validate an active battery.

Prior to long periods of storage, disconnect the battery from the system, connect the Activation Switch to the RS485 UP Communication Port of the battery, and then long-press the Power Button for 3

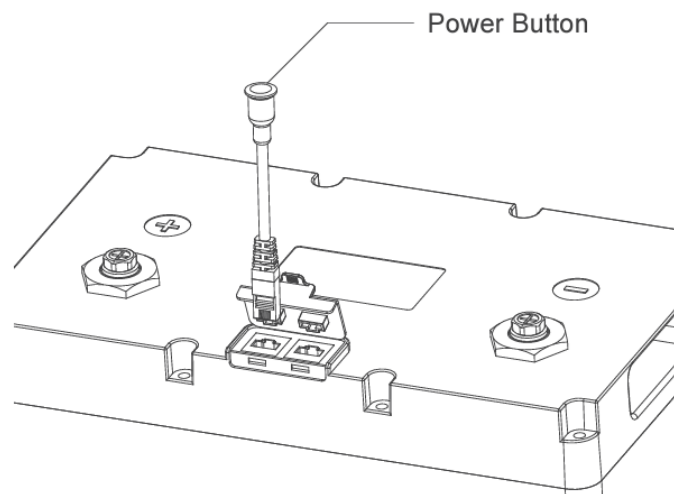


Figure 77. Connecting the activation cable/switch.

seconds to switch the battery to shelf mode. The bright blue LED indicator will become dim blue to indicate that the battery has been switched to shelf mode. In shelf mode, the battery has a low self-discharge rate and can hold the charge for a longer period.



Paralleled batteries can be switched to active mode simultaneously by charging them or using the Activation Switch on any battery. To switch paralleled batteries to shelf mode simultaneously, please enable the communication between paralleled batteries and use the Activation Switch on the first battery. Otherwise, please disconnect paralleled batteries and use the Activation Switch to switch each battery to shelf mode.



A common error when trying to activate/de-activate the battery is plugging into the incorrect port. Notice the correct port (pictured) is closer to the Positive battery terminal.

Battery Storage

⚠ CAUTION

- **DO NOT EXPOSE THE BATTERY TO THE EXTREME TEMPERATURES OVER 149°F (65°C).**
- **DO NOT EXPOSE THE BATTERY TO HEAT SOURCES.**
- **DO NOT EXPOSE THE BATTERY TO DIRECT SUNLIGHT, MOISTURE, OR PRECIPITATION.**

If you are storing the trailer outside with exposure available for the solar panels, no further action is needed. You may leave the batteries ON (Activated) and the solar charge controller will maintain them correctly.

If removing the battery/batteries from the trailer for storage, please follow these tips to ensure that the battery emerges from storage in a good condition:

1. Turn the Solar Disconnect switch to the OFF position.

⚠ WARNING

IF A SOLAR DISCONNECT SWITCH OR BREAKER IS NOT PRESENT, PLEASE SEE DOCUMENTATION FOR THE SOLAR CHARGE CONTROLLER BEFORE PROCEEDING. DISCONNECTING BATTERIES FROM A SOLAR CHARGE CONTROLLER WHILE SOLAR PANELS ARE STILL CONNECTED/POWERING THE SYSTEM DAMAGE OR FIRE MAY RESULT.

2. Charge the battery to 30% - 50% and switch the battery to shelf mode using the Power Button.
3. Disconnect the battery from the discharge equipment to eliminate any potential parasitic loads that may discharge the battery.
4. Store the battery in an open, well ventilated, dry, clean area in temperature between -13°F~149°F (-25°C~65°C).
5. Handle the battery carefully to avoid sharp impacts or extreme pressure on the battery casing.
6. Charge the battery at least once every 3~6 months to prevent over-discharge.
7. When the battery is taken out of storage, it should be given a full charge prior to use.

Renogy Battery Troubleshooting

⚠ WARNING

- PLEASE KEEP THE BATTERY AWAY FROM WATER, HEAT SOURCES, SPARKS, AND HAZARDOUS CHEMICALS.
- DO NOT PUNCTURE, DROP, CRUSH, BURN, PENETRATE, SHAKE, OR STRIKE THE BATTERY.
- DO NOT OPEN, DISMANTLE, OR MODIFY THE BATTERY.
- DO NOT TOUCH ANY TERMINALS OR CONNECTORS.
- DO NOT TOUCH THE EXPOSED ELECTROLYTE OR POWDER IF THE BATTERY CASING IS DAMAGED.
- UNCOVERED ELECTROLYTE OR POWDER THAT HAS CONTACTED THE SKIN OR EYES MUST BE FLUSHED OUT WITH PLENTY OF CLEAN WATER IMMEDIATELY. SEEK MEDICAL ATTENTION AFTERWARDS.
- PLEASE MAKE SURE ANY BATTERY CHARGER OR CHARGE CONTROLLER HAS BEEN DISCONNECTED BEFORE WORKING ON THE BATTERY.
- DO NOT CONNECT OR DISCONNECT TERMINALS FROM THE BATTERY WITHOUT FIRST DISCONNECTING LOADS.

⚠ CAUTION

- DO NOT PLACE TOOLS ON TOP OF THE BATTERY.
- PLEASE KEEP THE BATTERY OUT OF THE REACH OF YOUNG CHILDREN.
- PLEASE WEAR PROPER PROTECTIVE EQUIPMENT WHEN WORKING ON THE BATTERY.
- PLEASE USE INSULATED TOOLS WHEN WORKING ON BATTERY.
- DO NOT WEAR JEWELRY OR OTHER METAL OBJECTS WHEN WORKING ON OR AROUND THE BATTERY.
- PLEASE ENSURE ADEQUATE AND SECURE MOUNTING OF THE BATTERY.
- PLEASE USE SUITABLE HANDLING EQUIPMENT FOR SAFE TRANSPORTATION OF THE BATTERY.
- DO NOT DISPOSE OF THE BATTERY AS HOUSEHOLD WASTE. PLEASE USE RECYCLING CHANNELS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

Table 9. Troubleshooting guide for Renogy 100Ah battery.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Activation switch unable to switch battery to active mode	Battery may be severely over-discharged (due to self-discharge or parasitic loads)	Revive battery using a battery charger or charge controller with a lithium battery activation function.
Battery resting voltage under 10V in active mode at room temperature		

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Battery terminal voltage shows 0V in active mode	battery internal fuses may have blown due to severe over-current	Contact Renogy for assistance.
Battery voltage gets too low to reliably power electric loads or triggers the battery under-voltage protection	Battery charging circuit fault	1. Disconnect battery and charge on a Lithium-compatible charger 2. Verify Converter Operation 3. Verify Solar Charger Operation (if equipped)
The below faults are best identified using the battery internal BMS monitoring system. The system will post Warnings and Faults via either the Renogy Battery Monitor or the Renogy DC Home app. Please refer to the battery owner's manual or Alliance Academy Vendor Reference Page for Renogy.		
Battery high/low temperature protection triggered ($\geq 131^{\circ}\text{F}$, $\leq 32^{\circ}\text{F}$, respectively)	Battery in non-conditioned space	1. Disconnect battery. 2. Bring the battery to room temperature. Battery will automatically recover when cooler/warmer thresholds are achieved (see Owner's Manual BMS details.)
Charge/discharge over-current protection triggered	Charging device(s) or load(s) exceeded battery capability	1. Disconnect battery from charging circuit or load circuit(s) immediately. 2. Battery will recover automatically. 3. Verify integrity of electrical circuits before reconnecting.
Short-circuit protection triggered	Electrical fault in connected system	1. Remove short circuit immediately. 2. Charge the battery with a current greater than 1A to recover battery from the short circuit protection.

Renogy Battery Maintenance

Inspection

As per the Maintenance Schedule, perform the following checks

1. Examine the external appearance of the battery. The top of the battery and terminals should be clean, dry, and free of corrosion. If cleaning is needed, please refer to the following procedure:
Cleaning.
2. Check battery cables and connections. Replace any damaged cables and tighten any loose connections.

⚠ CAUTION

TERMINAL CORROSION MAY ADVERSELY AFFECT THE BATTERY PERFORMANCE AND PRESENT A SAFETY HAZARD. PLEASE KEEP TERMINALS FREE OF CORROSION.

Cleaning

If inspection reveals a need to clean the battery, follow these steps:

1. Turn the Solar Disconnect switch to the OFF position.

⚠ WARNING

IF A SOLAR DISCONNECT SWITCH OR BREAKER IS NOT PRESENT, PLEASE SEE DOCUMENTATION FOR THE SOLAR CHARGE CONTROLLER BEFORE PROCEEDING. DISCONNECTING BATTERIES FROM A SOLAR CHARGE CONTROLLER WHILE SOLAR PANELS ARE STILL CONNECTED/POWERING THE SYSTEM DAMAGE OR FIRE MAY RESULT.

2. Disconnect the battery from the charging source or electric load.
3. Switch the battery to shelf mode using the Activation Switch.
4. Clean the top of the battery and terminals with a damp cloth or non-metallic brush. A household cleaner may be used if the battery is extremely dirty.
5. Dry the battery with a clean cloth and keep the area around the battery clean and dry.
6. Ensure the battery is completely dry before switching it to active mode and/or reconnecting it to the charging source or electric load.

Renogy Battery Monitor (If Equipped)

Overview

The Renogy Battery Monitor is a high precision device (also known as coulometer), which can test the voltage, current, and capacity of a battery to help users know the state of charge at any time. The Renogy Battery Monitor has a memory function which allows users to set a low voltage capacity alarm. It is suitable for either lithium or lead acid batteries that have voltage from 10V to 120V.



Figure 78. Renogy battery monitor.



[Renogy Battery Monitor](#)

Operational Display

During normal operation, the following information will be displayed. The monitor has a backlight that will be on when the monitor senses any current flow above minimum levels. When charging the battery, the backlight will blink. See the section Manual Backlight Disable if desired.

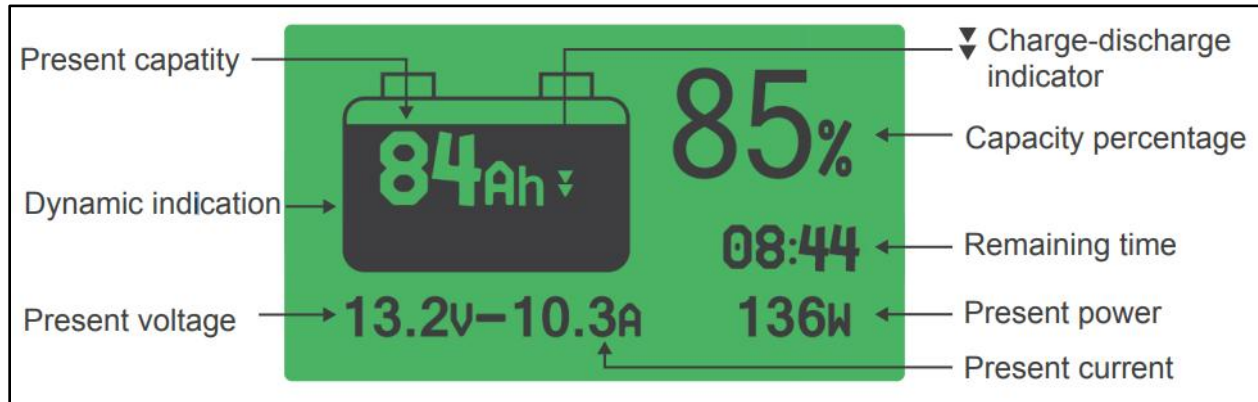


Figure 79. Renogy Battery Monitor normal display.

Sleep Mode Wake Up Operation

When the battery current is low, the Renogy Battery Monitor will go into a low power sleep mode, press any key to see the display if needed. When the battery current rises over normal value or the battery starts charging or discharging the Renogy Battery Monitor will wake up.

Manual Backlight Disable

While charging the battery, the LCD screen's backlight will also be slowly flashing. In order to turn off the backlight function, long press the "left-arrow" key to turn off the backlight, Long press the "left arrow" key again to wake up the backlight.

User Settings

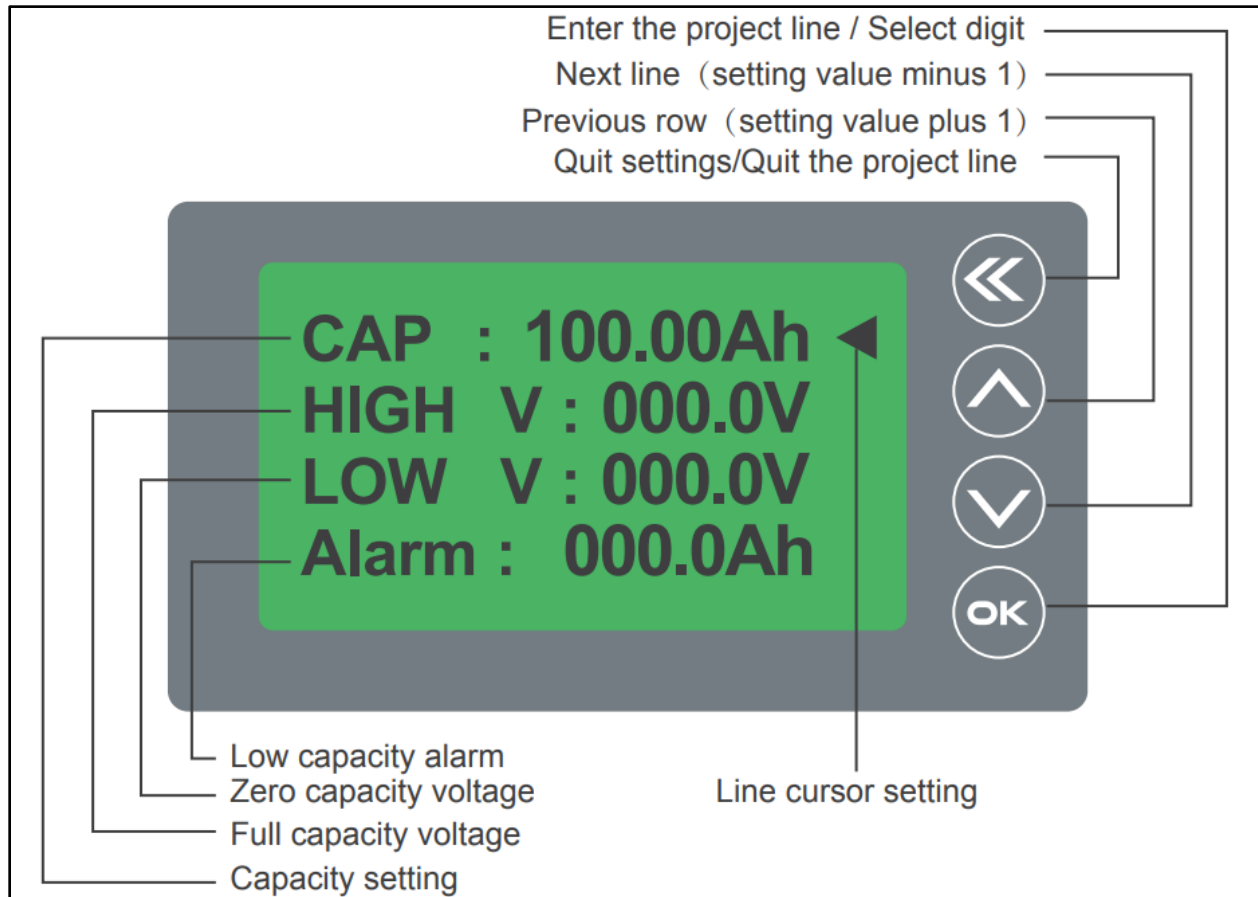



Figure 80. Renogy Battery Monitor programming display.

Settings Available

Table 10. Available settings on the Renogy Battery Monitor.

CAP	<u>Preset capacity</u> : An initial capacity has been set at the factory, please set it according to the real capacity of your battery.
HIGH V	<u>Full capacity voltage</u> : When the voltage is higher than the set value, the capacity will be automatically set to 100%.
LOW V	<u>Zero capacity voltage</u> : When the voltage is lower than the set value, the capacity will be automatically set to 0%. If the discharge continues, the voltage value will flash, and the alarm will beep once every 10s.
ALARM	<u>Alarm setting</u> : When the battery capacity is below the set capacity, the percentage and battery symbol will flash and the alarm will beep once every 10s.

	If you need to set the HIGH V and LOW V values, please confirm the full charge voltage and all discharge voltage specifications of your battery.
---	--

Preset Capacity and Voltage Setting

1. Press the "OK" key for 3s to enter setting menu
2. Click "up" or "down" key to select the desired setting item
3. On the desired setting, click the "OK" key to activate the setting. The set value will flicker, click the "OK" key to select other values, click the "up" or "down" key to select the correct values. Click the "left arrow" key to save the displayed setting.
4. When all items are set and all the values are correct, click the "left arrow" key to save the settings and quit the menu.

Set Capacity to Zero or Full

On first use or change of the battery bank, the memory capacity should be set zero or full:

1. Hold the "down" key for 3s to set the capacity to zero, verify the percentage is 0%
2. Hold the "up" key for 3s to set the capacity full, verify the percentage is 100%

Capacity Calibration



If you find the displayed capacity doesn't match the actual capacity during use, please check and reset the actual capacity, discussed below.

On first use, the percentage and capacity are not the actual value, you need to calibrate the capacity to either 100% or 0%. This will only have to be done on initial installation of the battery monitor or if the battery bank is replaced or upgraded.

1. First set the usable AH capacity of the battery as the preset AH capacity.
2. For Lithium and Sealed Lead Acid batteries to calibrate to 100%:
 - a. Charge the battery fully
 - b. Hold the "up" key for 3s to set the capacity to 100%
3. For Lithium batteries to calibrate to 0%:
 - a. Discharge the battery completely
 - b. Hold the "down" button key for 3s to set the capacity to zero

Check and Reset the Actual Capacity

If you find the displayed capacity doesn't match the actual capacity during use, please check and reset the actual capacity.

1. For Lithium batteries
 - a. Discharge the battery to 0%
 - b. Hold the "down" key for 3s to set the capacity to 0
 - c. Set the preset capacity as large as possible
 - d. Charge the battery fully and the displayed AH capacity should be the actual usable capacity.
 - e. Finally set the displayed AH capacity as the preset AH capacity.
2. For Sealed Lead Acid batteries, it is recommended to set the AH lower than the usable rating after conducting a capacity test or consulting the battery manufacturer.

Renogy Battery Monitor Troubleshooting

Table 11. Renogy Battery Monitor troubleshooting guide.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Backlight blinking (as loads are being connected)	B- and P- of the shunt is wired inversely.	See Owner's Manual for proper connection diagram.
Monitor backlight off	Low battery current	Press any button and the backlight will come on for 10 s.
System is inaccurate	Battery current changes frequently	In this case, data acquisition may be inaccurate, causing data inaccuracy.

Renogy Battery Monitor Maintenance

CAUTION

- DO NOT PLACE TOOLS ON TOP OF THE BATTERY OR SHUNT.
- WEAR PROPER PROTECTIVE EQUIPMENT WHEN WORKING ON THE SHUNT. DO NOT WEAR JEWELRY OR OTHER METAL OBJECTS WHEN WORKING ON OR AROUND THE BATTERY AND SHUNT.
- PLEASE USE INSULATED TOOLS WHEN WORKING ON BATTERY AND SHUNT.

Battery Upgrade or Replacement

If you add or replace batteries, please refer to the product owner's manual for proper connection and system startup steps.

Inspection/Torque Check

As per the Maintenance Schedule, perform the following maintenance on the battery monitoring Shunt/Sampler, which is located on the battery/battery bank negative connection just prior to the load(s) or grounding bus bar.

1. Inspect and verify the shunt is clean. If cleaning is needed, place batteries in shelf mode, or otherwise disconnect them from the positive bus bar. Clean with soft brush, and re-energize system.
2. Tighten the lugs at each end connecting the battery cable and the cable to the loads/bus bar.
3. Verify the positive battery lead powering the shunt has a tight connection.

POWER DISTRIBUTION

All electrical circuits in an RV need protection devices. These devices most commonly are 120 V **breakers**, similar to what is in a house, or they could be 12V **fuses**, similar to what is seen in a car. There are also some 12V fuses that may be in another location (close to the batteries) that are commonly termed **self-resetting fuses** or **self-resetting breakers**. These are often placed on a single device called a **12V Bus Bar**.



[WYKW: How Many A/Cs Can I Run?](#)



[WYKW: Power and Amp Draw in Your Alliance RV](#)

The most common power distribution setup in an RV is the single **Power Control Center**. This device looks like a panel mount breaker box, but also has 12V fuses visible and accessible. This device also usually has an integrated Converter, discussed at the start of the electrical section.

Note that while this single three-function unit is most commonly used, some Alliance trailers will have their 12V fuse panel separated from the 120V breakers, and also may have the converter mounted outside of the actual Power Control Center, but still behind a wall and inaccessible to the RV inhabitants (called a “deck mount” converter.)

In the below sections, you’ll find separate discussions of most items due to the variety of installations in Alliance RV models. If you need help verifying what is installed in your RV, take a look at the images in the sections to identify which equipment you have, or feel free to contact Alliance RV to learn what your specific trailer has.

Smart Wire Technology (12 V systems)

Smart Wire is an attempt to help individuals trace and troubleshoot 12V circuits when needed. Throughout the trailer, 12V wiring is highly standardized with specific colors and numbers printed on the wires which can be identified via a label on the inside of the Power Control Center door. This chart lists the following information:

- Circuit Number
- Equipment on the circuit / its use
- Required fuse amperage
- The gauge of wire and number of conductors
- The color and number printed on the wires used for that circuit

In addition to these pairs of wires, the wires used for specific slides and tank heaters have markings and colors, as listed at the bottom of the Power Control Center door panel. The fuses for these systems are located in the front compartment on the 12 V bus bar (see 12 V Bus Bar, below.)



[WYKW: Smart Wire Quick Tip](#)

12 Volt Bus Bar

While not in the Power Control Center, it is important to note the location of where several 12 Volt circuits receive their power. These circuits may require high current or a certain type of fused connection, such as a self-resetting circuit breaker. This bus bar is mounted in the front bay of the trailer and is split into an upper and lower section. One section is connected directly to the battery bank and is connected to the converter through the battery disconnect switch, and the other section is connected directly to the converter.

All maintenance or modifications to these bus bars must be performed by trained and certified persons.

⚠ WARNING

- ITEMS CONNECTED THROUGH THE 12 V BUS BAR ARE HIGH POWER ITEMS.
- ALL MAINTENANCE AND MODIFICATION TO THESE CONNECTIONS MUST BE DONE BY TRAINED PERSONS.
- REPLACEMENT BREAKERS AND FUSES MUST BE OF THE SAME VOLTAGE, AMPERAGE RATING AND TYPE. NEVER USE A HIGHER RATED REPLACEMENT FUSE, DOING SO MAY CAUSE A FIRE BY OVERHEATING THE RV WIRING.

Progressive Dynamics Power Control Center (IF EQUIPPED)

The Progressive Dynamics Intelli-Power 4500 series distribution panel is the most commonly installed Power Control Center used in Alliance trailers. It has 120V breakers on the left side of the panel, and 12V fuses at the upper right of the panel. Each 12V fuse has a faulty-fuse indicator which will light up if a blown fuse is detected.

120 Volt Circuit Breakers

Your 120V circuit breakers are in the main power control center. These circuit breakers act just like those in a household in that they protect 120V wiring and components. You'll find the individual circuits labeled on the power center door to identify which each breaker is for.

To reset a breaker, simply flip the switch to the off position then immediately back to the on position. If the breaker immediately trips again, contact your dealer or Alliance RV for assistance.

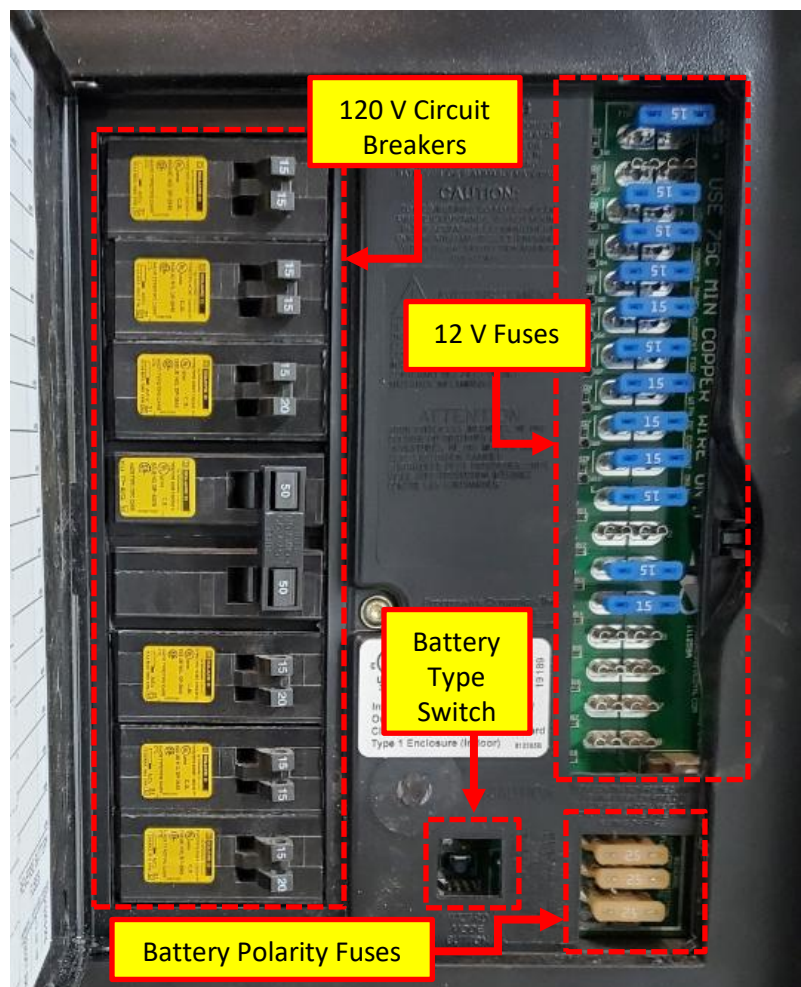


Figure 81. Progressive Dynamics Power Control Center.



If you believe a circuit breaker has tripped, but the switch is not visibly moved from its ON position, it is suggested to turn it off and then back on anyway. Sometimes when a circuit breaker trips the movement of the switch is not easily visible.

⚠️ WARNING

- CIRCUIT BREAKERS AND FUSES WILL NOT OFFER COMPLETE PROTECTION OF THE ELECTRICAL SYSTEM IN THE EVENT OF POWER SURGE OR VOLTAGE SPIKE
- REPLACEMENT CIRCUIT BREAKERS MUST BE OF THE SAME VOLTAGE, AMPERAGE RATING AND TYPE. NEVER USE A HIGHER RATED REPLACEMENT CIRCUIT BREAKER, DOING SO MAY CAUSE A FIRE BY OVERHEATING THE RV WIRING.

At the beginning of camping season, inspect the circuit breakers and replace as needed. Test by turning each circuit breaker off and back on, circuit breakers are wearable parts and must be replaced as needed as part of your RV maintenance.

12 Volt Fuse Panel

You'll find the 12-volt fuse panel on the right side of the power control center, Figure 81. As with the 120 V circuits, individual 12 V circuits are labeled as to their use. As part of the Smart Wire system, the 12 V circuit label also has notation as to what colors the wires are, what gauge/size they are, and what number is stamped on the wiring. This can be quite helpful in matching wires behind panels.

The fuse panel has helpful indicator LEDs that illuminate when a fuse has failed. When a fuse fails, the LED next to the corresponding failed fuse will light. These can be useful to quickly identify if there is a fault in a fuse.



Failed fuse LEDs are not a fool-proof method to check fuses. Sometimes they will not light for certain types of fuse failures. In particular a fuse can have a type of failure that it only fails when the load is applied, but not when it's out-of-circuit. **If there is any reason to suspect the fuse could be bad, it is best to replace the fuse.**

⚠️ WARNING

DISCONNECT ALL POWER TO THE CONVERTER PRIOR TO CHECKING OR CHANGING FUSES.

⚠️ WARNING

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE OR ELECTRICAL SHOCK, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE. CONSULT A LICENSED ELECTRICAL OR RV TECHNICIAN FOR ANY NEEDED ASSISTANCE.

When replacing fuses, please follow these safety precautions:

- Disconnect the main power cord.
- Turn the inverter off, if equipped.
- Disconnect solar, if equipped.

- Disconnect batteries.

Reverse Battery Protection Fuses

In order to protect the RV from an improperly installed battery, the Power Control Center features a set of ATC type fuses and associated circuit. Located at the lower-right corner of the panel and separated from all other fuses, these easily accessible fuses will blow when a battery is connected in reverse. If these fuses blow, correct battery wiring and replace fuses with the same type and rating.

12 Volt Converter

The 12 V converter is mounted inside the power control center and is responsible to power the 12 V fused circuits and charge the battery bank when 120 Volt power is received. It is powered by a single 120V breaker as labeled on the power control center door. It can monitor and power both conventional (flooded) batteries as well as Lithium-Ion (Li-Ion) batteries.

Selecting Battery Type

The Progressive Dynamics converter can interface with both Lead-Acid (flooded) and Lithium-Ion batteries. The converter is properly set at the factory for Lead-Acid batteries, unless shipped with Lithium-Ion batteries. The only time you would need to change this is when upgrading from Lead-Acid batteries to Lithium-Ion batteries.



[WYKW: Switching Between Lithium & Lead Acid Batteries](#)

To change the battery type:

1. Disconnect existing batteries.
2. Set the Battery Type Switch (referred to as the Wizard Switch) as needed:
 - a. The switch should be UP when Lithium-Ion batteries are connected.
 - b. The switch should be DOWN if Lead-Acid batteries are connected.
3. Connect new batteries.

⚠ CAUTION

IF YOU HAVE A SOLAR CHARGE CONTROLLER INSTALLED, REFER TO THE OWNER'S MANUAL OF THAT EQUIPMENT TO REVIEW WHAT STEPS NEED TO BE TAKEN, IF ANY, TO ENSURE IT WORKS WITH THE NEW BATTERIES.

Progressive Dynamics Power Control Center Troubleshooting



At normal input voltages (105 – 130VAC) the full load rated capacity is available. At input voltages less than 105 VAC the converter may not supply full rated output capacity.

Table 12. Progressive Dynamics Power Distribution Center troubleshooting guide.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
No Output	Proper AC power not connected	Connect power supply Check AC distribution panel for proper operation
	Reverse battery fuses blown	Check for reverse battery connection Replace fuses with same type and rating
	Short circuit	Trace circuits for possible fault
	Unit has shutdown due to overheating	Check air flow Allow unit to cool
	Unit has shutdown due to over voltage	Check input voltage Correct input voltage
Low Output	Compartment gets too hot	Check air flow to the converter Improve ventilation to the compartment
	Excessive load for converter	Reduce load requirements Install larger converter
	Input voltage not between 105-130 Volts AC	Correct input supply voltage
	Bad battery cells	Replace battery
Intermittent or no output on generator, works on shore power	Unit has shutdown due to over voltage	Add another load to the generator, this may reduce the spikes to an acceptable level.
	Some generators exhibit excessive voltage spikes on the AC power output, this may cause the over voltage protection to shut the unit down.	Contact generator manufacturer for possible defect in the generator
	Reverse battery fuses blown	Check battery polarity Replace fuses
	No battery connection	Check wiring to battery Check inline fuse

Progressive Dynamics Power Control Center Maintenance

⚠ WARNING

120 V ELECTRICAL POWER IS DANGEROUS. ALL POWER CONTROL CENTER MAINTENANCE MUST BE PERFORMED BY A TRAINED AND QUALIFIED PERSON.

Inspection & Torque Check

As per the Maintenance Schedule, perform the following inspection and bolt torquing procedure to the Power Control Center.

1. Completely remove all power from the RV as per the associated procedure discussed above.
2. Using a Voltmeter set to AC Voltage, ensure no power is present on either AC Mains breakers.
3. Set Voltmeter to DC Voltage, and ensure no voltage exists on any of the DC connections.
4. Remove the power distribution center cover panel, exposing all ground and neutral bars for both AC and DC sides of the panel. See Figure 82.
5. Check the torque of all electrical connections in the power control center as per the following table.

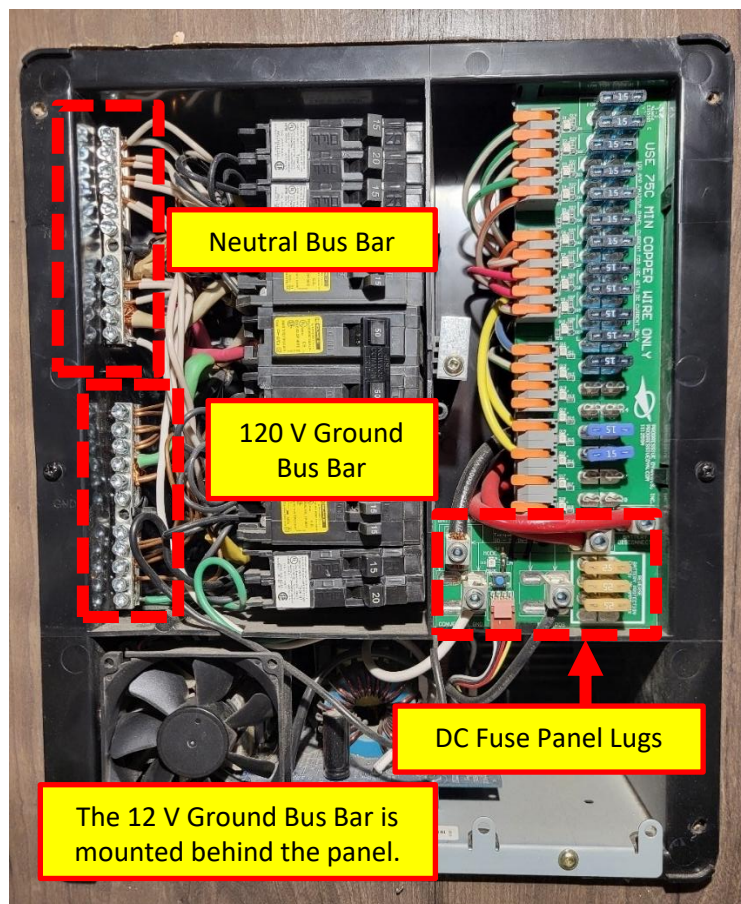



Figure 82. Progressive Dynamics Power Control Center with the safety cover removed. The converter is shown at the bottom, where the fan is.

Table 13. Required torque values for lugs in the Progressive Dynamics power distribution center.

LOCATION/BOLT	WIRE GAUGE (AWG)	TORQUE REQ. (in. lbs.)
AC Breakers		See breaker mfg. data
AC Neutral & Ground Bars	8	30
	10-14	25
DC Fuse Panel Lugs (+VCC, NEG-, POS+)		30-50
DC Terminal Block: Single Ckt Terminals DO NOT REMOVE TERMINAL BLOCK SCREWS		7-9

	<p>IMPORTANT: Pay close attention as to what wires are on the Neutral bar. Most of them will be 120 V neutral wires (solid core, paired in romex cable with black and bare copper ground.) If you do not see a 12 V set of white wires – between the Circuit Breakers and the 12 V fuses, then the 12 V bus bar for negative is mounted behind the Power Distribution box. You will need to carefully remove the power distribution box from the wall, the ground bar will then be visible, and you can tighten all lugs. This must be done to properly complete this procedure.</p>
---	--

WFCO Power Control Center

The WFCO power control center may come in one of two varieties. One of the available units is the WF-8900-AD series, where 120V breakers, 12V fuses, and the converter are housed in a single unit. It is very similar to what is shown in Figure 81 on page 121 . It has 120V breakers arranged near the middle of the unit, arranged vertically, and 12V fuses at the upper right of the panel. Each 12V fuse has a faulty-fuse indicator which will light up if a blown fuse is detected.

	<p>WFCO Product Manuals</p>
---	---

Alternatively, some Alliance trailers will have a split-panel configuration, where the 120V breakers and 12V fuses are in separate panels. In this configuration, the converter is also physically separated from the two main panels, but still operates in the same way as the other single-panel configuration. It is called a Deck-Mount converter, as it is mounted to a surface behind the power panel.

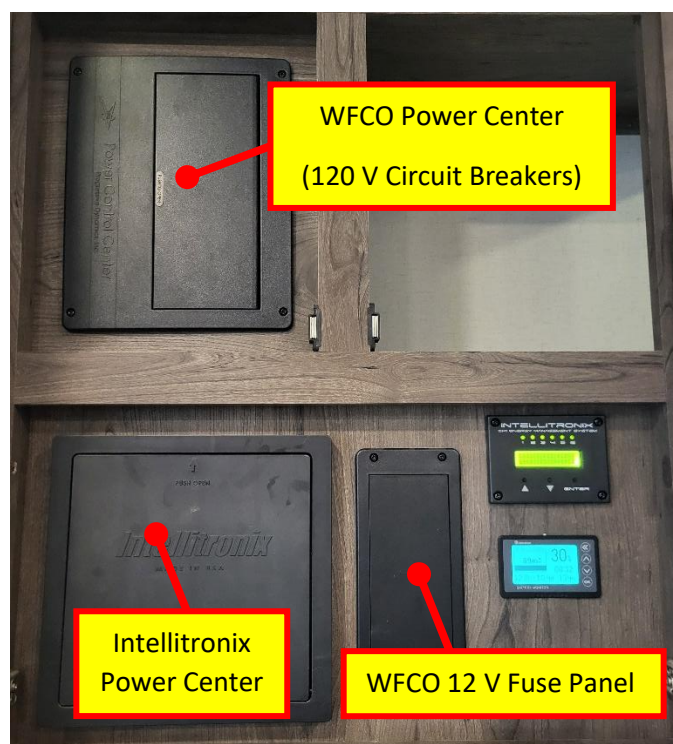


Figure 83. WFCO Power Control Center (top) with separate 12V fuse panel (bottom center.)

120 Volt Circuit Breakers

Your 120V circuit breakers are in the main power control center. These circuit breakers act just like those in a household in that they protect 120V wiring and components. You'll find the individual circuits labeled on the power center door to identify which each breaker is for.

To reset a breaker, simply flip the switch to the off position then immediately back to the on position. If the breaker immediately trips again, contact your dealer or Alliance RV for assistance.



If you believe a circuit breaker may have tripped, but the switch is not visibly moved from its ON position, it is suggested to turn it off and then back on anyway. Sometimes when a circuit breaker trips the movement of the switch is not easily visible.

⚠ WARNING

- CIRCUIT BREAKERS AND FUSES WILL NOT OFFER COMPLETE PROTECTION OF THE ELECTRICAL SYSTEM IN THE EVENT OF POWER SURGE OR VOLTAGE SPIKE
- REPLACEMENT CIRCUIT BREAKERS MUST BE OF THE SAME VOLTAGE, AMPERAGE RATING AND TYPE. NEVER USE A HIGHER RATED REPLACEMENT CIRCUIT BREAKER, DOING SO MAY CAUSE A FIRE BY OVERHEATING THE RV WIRING.

At the beginning of camping season, inspect the circuit breakers and replace as needed. Test by turning each circuit breaker off and back on, circuit breakers are wearable parts and must be replaced as needed as part of your RV maintenance.

12 Volt Fuse Panel

You'll find the 12-volt fuse panel either in the main power control center, or in a separate narrow panel mounted near the main power panel. As with the 120 V circuits, individual 12 V circuits are labeled as to their use. As part of the Smart Wire system, the 12 V circuit label also has notation as to what colors the wires are, what gauge/size they are, and what number is stamped on the wiring. This can be quite helpful in matching wires behind panels.

The fuse panel has helpful indicator LEDs that illuminate when a fuse has failed. When a fuse fails, the LED next to the corresponding failed fuse will light. These can be useful to quickly identify if there is a fault in a fuse.



Failed fuse LEDs are not a fool-proof method to check fuses. Sometimes they will not light for certain types of fuse failures. In particular a fuse can have a type of failure that it only fails when the load is applied, but not when it's out-of-circuit. **If there is any reason to suspect the fuse could be bad, it is best to replace the fuse.**

⚠ WARNING

DISCONNECT ALL POWER TO THE CONVERTER PRIOR TO CHECKING OR CHANGING FUSES.

⚠ WARNING

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE OR ELECTRICAL SHOCK, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE. CONSULT A LICENSED ELECTRICAL OR RV TECHNICIAN FOR ANY NEEDED ASSISTANCE.

When replacing fuses, please follow these safety precautions:

- Disconnect the main power cord.
- Turn the inverter off, if equipped.
- Disconnect solar, if equipped.
- Disconnect batteries.

Reverse Battery Protection Fuses

In order to protect the RV from an improperly installed battery, the Converter features a set of ATC type fuses and associated circuit. These fuses will blow if a battery is connected in reverse. If these fuses blow, correct battery wiring and replace fuses with the same type and rating.

12 Volt Converter

The 12 V converter is either mounted within the power control center or mounted outside of the power control center and behind the wall of the RV near the power panel. Either unit operates the same way

and requires no user intervention. It is responsible to power the 12 V fused circuits and charge the battery bank when 120 Volt power is received. It is powered by a single 120V breaker as labeled on the power control center door. It can monitor and power both conventional (flooded) batteries as well as Lithium-Ion (Li-Ion) batteries. **This WFCO converter automatically senses the battery type, so no manual setting is required when upgrading or changing batteries.**

WFCO Power Control Center Troubleshooting

The following information may be helpful to determine the root causes of problems with the AC and DC output of the power control center.

Table 14. WFCO Power Distribution Center troubleshooting guide.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
No Output	Proper AC power not connected	Connect power supply Check AC distribution panel for proper operation
	Reverse battery fuses blown	Check for reverse battery connection Replace fuses with same type and rating
	Short circuit	Trace circuits for possible fault
	Unit has shutdown due to overheating	Check air flow Allow unit to cool
	Unit has shutdown due to over voltage	Check input voltage Correct input voltage
Low Output	Compartment gets too hot	Check air flow to the converter Improve ventilation to the compartment
	Excessive load for converter	Reduce load requirements Install larger converter
	Input voltage not between 105-130 Volts AC	Correct input supply voltage
	Bad battery cells	Replace battery

WFCO Power Control Center Maintenance

⚠ WARNING

120 V ELECTRICAL POWER IS DANGEROUS. ALL POWER CONTROL CENTER MAINTENANCE MUST BE PERFORMED BY A TRAINED AND QUALIFIED PERSON.

Inspection & Torque Check

As per the Maintenance Schedule, perform the following inspection and bolt torquing procedure to the Power Control Center.

1. Completely remove all power from the RV as per the associated procedure discussed above.

2. Using a Voltmeter set to AC Voltage, ensure no power is present on either AC Mains breakers.
3. Set Voltmeter to DC Voltage, and ensure no voltage exists on any of the DC connections (inside the DC power distribution panel.)
4. Remove the AC power distribution center cover panel, exposing all ground and neutral bars for the AC connections. See Figure 84.
5. Check the torque of all AC electrical connections in the power control center as per the following table.
6. For DC connections, remove the safety cover from the DC panel, and check the torque of all lugs on that panel as well. The power distribution panel may need to be removed from the wall panel to locate the ground bus bar behind in order to check all ground connections.


	<p>IMPORTANT: Pay close attention as to what wires are on the Neutral bar. Most of them will be 120 V neutral wires (solid core, paired in romex cable with black and bare copper ground.) If you do not see a 12 V set of white wires – between the Circuit Breakers and the 12 V fuses, or you have a separate 12 V fuse panel, then the 12 V bus bar for negative is mounted behind the Power Distribution box. You will need to carefully remove the power distribution box from the wall, the ground bar will then be visible, and you can tighten all lugs. This must be done to properly complete this procedure.</p>
---	--

Table 15. Required torque values for lugs in the WFCO power distribution center.

LOCATION/BOLT	WIRE GAUGE (AWG)	TORQUE REQ. (in. lbs.)
AC Breakers		See breaker mfg. data
AC Neutral & Ground Bars	10 -12	25
	14	15-20
	8	30
	6	35
DC Fuse Panel Lugs (+VCC, NEG-, POS+)	10 -14	25
	8	32
	6	45
DC Fuse Panel: Single Ckt Terminals	16	12-20
	14	14-20
	12	16-20
	10	20-25

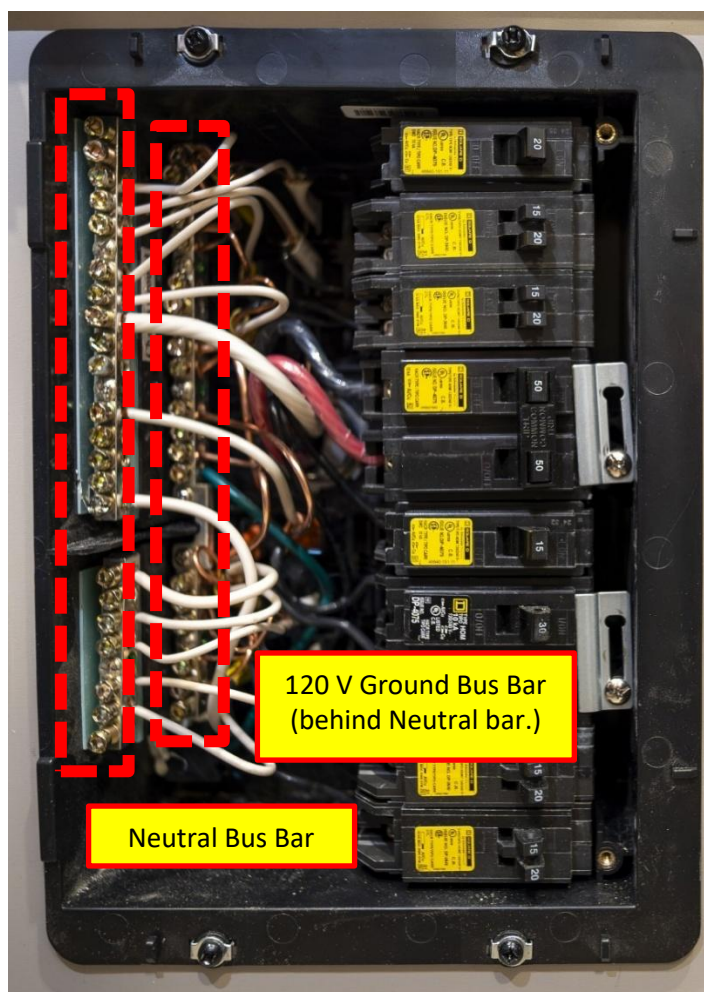


Figure 84. WFCO Power Control Center with the safety cover removed.

INVERTER (IF EQUIPPED)

Overview

The inverter is used to transform the input DC power from the batteries into 120 Volt AC power. Items receiving power from the inverter vary by trailer configuration. However, all trailers are wired with an AC passthrough functionality. When connected to shore power, or there is a generator providing power, if equipped, then the AC power flows through the inverter to the load(s). However, when the AC power is removed, the inverter (if on) will immediately supply power from the batteries to the AC loads.

Inverters are mounted in the front bay, or the front pass-through storage. Information on specific inverters is covered in the following sections.

While there are a few variations of installation, the particular configuration of your trailer may be identified by power output available from your inverter.

1000 W Inverter

On early model Alliance trailers, this system was installed to supply power to the Residential (120V) Refrigerator only. It is intended to enable the trailer to power the refrigerator when not connected to shore power.

2000 W Inverter

This system commonly is connected to a circuit breaker labeled “Inverter”, and it is responsible for running only a few components in the trailer. Namely, the TV, recliners, a kitchen island GFCI plug, and the refrigerator is powered through this circuit. This configuration is used when the trailer is configured with basic solar (or simply a “Solar Option”.) Note that the solar charging system runs separately from this inverter system.

3000 W Inverter

This system is used when the trailer is configured with the “Super Solar” option. The inverter receives AC power from the automatic transfer switch and it’s AC Output is sent to the Power Control Center.

Intellitronix Energy Management System (If Equipped)

The Intellitronix CH-1 is an energy management system (EMS) coupled to the inverter installed by Alliance RV. It combines a standard breaker box with automatic power management, allowing it to sense available AC power and prioritize power distribution to circuits based on user preferences. This helps optimize power usage in environments with limited power supply such as an inverter. This system is only installed at the factory when the trailer is delivered with a Renogy 3000 W Inverter.

The intent of the EMS is to allocate the limited input power from the installed inverter to up to six connected devices. Those devices, together, will consume greater than the 30 Amps available to them if they’re all running at full power. As such, this system has a way to set a priority on these connected devices, and the system constantly manages the available incoming power and the outgoing load to devices. If the power demand exceeds the incoming power available, it will start to shut down the

devices of lowest priority so that the remaining devices can run without issue. This is called **load shedding**.

The system is comprised of a wall mount Control Module coupled with a nearby wall mount Power Module, which looks like a second power panel with only 120 V breakers. Both devices are mounted on the interior of the RV near the Power Distribution Center previously discussed.



Figure 85. Intellitronix Power Module with 5 circuits installed. The breaker without the yellow label is the input (main) breaker, which would disable all other circuits if turned off.



Figure 86. Intellitronix Control Module.



[Intellitronix CH1 Energy Management System User Manual](#)

Standard Programming

From the factory, the Intellitronix module is wired with and programmed for the following circuits and priorities. Notice that Circuit 1 is at the top or left, and the Main (incoming) breaker is between Circuits 3 and 4.

Table 16. Intellitronix Load Shed priorities.

CIRCUIT #	APPLIANCE	PRIORITY
1	General Purpose	2
2	GFCI	1
3	Microwave	3
4	Fireplace	4
5	A/C Main	5
6	N/A	N/A

Using the Control Module

The Control Module has six LED indicators across the upper portion of the panel. The LED will light up when that circuit is turned on (enabled.) In Table 16, one will note that the order of priority for the circuits does not need to match the circuit number. In that table, one can see that circuit #2 has the highest priority to run, followed by #1, then #3, and so on. In order to determine what each circuit is, the interested reader can review the Power module, shown in Figure 87. The circuits are numbered from left to right, with the Main breaker near the middle-right of the row. Note that circuit #6 is not utilized.



Figure 87. Intellitronix power module details.

Using the Up and Down arrows on the Control Module, one can review several screens as shown in the following list:

1. Total Power display (Percent of total available load being used, and what amperage.)
2. History menu (Press Enter to review the hour-by-hour power usage for each circuit.)
3. Max Power Setting display
4. Circuit Priority display (as shown in the above image.)
5. Present Wattage display
6. Present Amperage display

Further details regarding the display usage and reprogramming the priority of circuits is available in the User Manual.

Intellitronix Maintenance

⚠ WARNING

120 V ELECTRICAL POWER IS DANGEROUS. ALL POWER CONTROL CENTER MAINTENANCE MUST BE PERFORMED BY A TRAINED AND QUALIFIED PERSON.

Inspection & Torque Check

As per the Maintenance Schedule, perform the following inspection and bolt torquing procedure to the Power Control Center.

1. Completely remove all power from the RV as per the associated procedure discussed above.
2. Carefully remove the power distribution center cover panel, exposing all ground and neutral bars.
3. Using a Voltmeter set to AC Voltage, ensure no power is present on either AC Mains breakers.
4. Check the torque of all electrical connections in the power control center as per the following table.

Table 17. Required torque values for lugs in the Intellitronix power control center.

LOCATION/BOLT	WIRE GAUGE (AWG)	TORQUE REQ. (in. lbs.)
AC Breakers		See breaker mfg. data
AC Neutral & Ground Bars	10 -14	20
	8	25
	6 - 4	35

Progressive Dynamics Inverter (If Equipped)

The Progressive Dynamics inverters have several advanced features to keep your RV supplied with quality AC power. Providing a pure sine wave output, these devices have numerous protections to assure you that if the system is on and running, the input and output power are within specifications. As mentioned in the Inverter Overview section, these devices transform DC power from your batteries to AC power for items such as refrigerators, appliances, and electronics.

There are numerous variations regarding the exact model, ratings, and configuration of the inverter installed. However, the section Inverter Overview will help identify the basic expectations of your system. Details about the inverter can be found in the User Manuals. If you have further questions on what your trailer has or how it's configured, please reach out to Alliance RV Service at service@alliancerv.com. Please provide the last six digits of your VIN number when doing so.

The information below is universal to all Progressive Dynamics inverters used.

Operation

The inverter may be turned on at any time. If the trailer is plugged into shore power, the inverter will simply allow the AC power to flow through the unit to the connected devices. When the shore power is removed (either by power failure, or when properly disconnecting from the power pole) the unit will switch over to inverter operation and continue to provide power to the connected devices.

The inverter will show "Power" and "Shore" when on and it sees adequate input AC power (either from shore power or when a generator is supplying power.)

The inverter will show "Power" and the Battery symbol in the upper left corner when providing power from the battery bank.

Figure 88 shows the display section on the inverter face. **The remote display panel inside the trailer, if equipped, will have identical displays and operation, with the exception of the Remote Display port (which is only on the inverter itself.)**

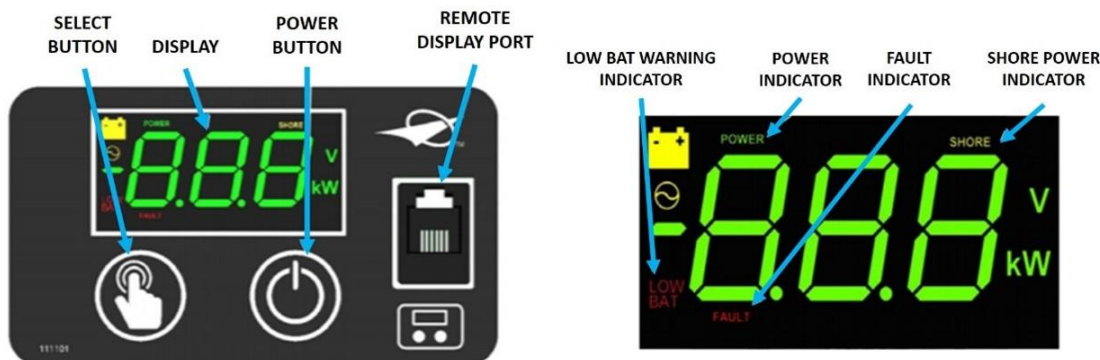


Figure 88. Progressive Dynamics control panel (left) and display detail (right.)

- **Select Button:** Cycles between display states:
 - Input Voltage (top left battery indicator will be illuminated as well as “V”)
 - Output Voltage (middle left AC power indicator will be illuminated as well as “V”)
 - Output Power (middle left AC power indicator will be illuminated as well as “kW”)
 - Sleep (no numbers, may have Power, Shore, Fault, or Low Battery illuminated.)
 - Error Code (if applicable)
- **Power Button:** Press to turn on; hold to turn off
- **Power Indicator:** Lights up green when the inverter is on
- **Fault Indicator:** Flashes red when an error has occurred
- **Shore Indicator:** Lights up yellow when AC input is detected
- **Low Bat Warning Indicator:** Lights up red when the battery is nearing the end of its charge
- **Sleep:** Lights automatically dim after 30 seconds
- **Remote Display Port:** For externally mounted display

Progressive Dynamics Inverter Troubleshooting

⚠ WARNING

- INVERTER SHOULD ONLY BE INSTALLED BY AN ELECTRICIAN OR A CERTIFIED RV TECH.
- INVERTER SHOULD BE MOUNTED IN A DRY, WELL VENTILATED SPACE WITH ADEQUATE AIR FLOW.
- FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.

⚠️ WARNING

- DO NOT CONNECT ANY AC SOURCE TO THE AC OUTPUT WIRING OF THE INVERTER. CONNECTING AN AC SOURCE TO THE AC OUTPUT OF THE INVERTER WILL RESULT IN A HAZARDOUS CONDITION.
- ANY DIRECTLY WIRED AC INPUT AND AC OUTPUT WIRING MUST BE PROTECTED WITH PROPERLY SIZED CIRCUIT PROTECTION.
- FAILURE TO FOLLOW THESE INSTRUCTIONS MAY DAMAGE THE UNIT AND/OR EQUIPMENT.

⚠️ WARNING

- MAKE SURE WIRING IS DISCONNECTED FROM ALL ELECTRICAL SOURCES BEFORE HANDLING. ALL WIRING MUST BE DONE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL WIRING CODES.
- DO NOT DISASSEMBLE THE INVERTER. IT DOES NOT CONTAIN SERVICEABLE PARTS. ATTEMPTING TO SERVICE THE UNIT YOURSELF COULD RESULT IN ELECTRICAL SHOCK OR BURN.

There are a couple of error situations that can be easily addressed by following the below guidance, in order.

Problem: Inverter circuit/connected items lose power. Inverter display indicates it's operating on batteries, but the trailer is either plugged into shore power or is running on generator (internal or external to the RV.)

Solution: Check the "Inverter" or "INV" circuit breaker. It may not visibly indicate it has tripped. Switch the breaker off, then back on after a 5 second delay. The inverter should now indicate "shore power" and your items should again run without issue.



The PD 1600 series inverter can have the AC pass through get stuck. This is a known error condition of these inverters. It is suggested to contact the manufacturer and replace the inverter.

Problem: The inverter is off and nothing happens when the power button is pressed.

Solution: It is likely that the DC input power is not being properly applied to the DC input terminals.

- Ensure all DC input connections are properly tightened
- Ensure that all external DC
- Disconnect switches are in the on position
- Make sure the DC input wires are connected to positive and negative terminals correctly and not reversed
- If using the remote display model, make sure that it is connected to the inverter using the provided cable

Problem: The inverter has turned off for seemingly no reason.

Solution: An interruption in the communication between the display and the inverter has taken place. Check to make sure that the equipment ground wire is properly secured to the ground lug.

Problem: The inverter is making a buzzing noise.

Solution: A buzzing sound may sometimes be present during large surges in output power. This will most commonly take place when a refrigerator compressor is starting up, this is normal and will not last more than 2 seconds.

Problem: Inverter is flashing a fault light – A fault has been detected.

Solution: If the display is not active, press the Select button to view the Error Code (30 seconds after the fault condition is detected the display enters sleep mode.) Press the select button again to view the battery voltage. Proceed to the correct troubleshooting action below.

- E-1 is displayed (Low Battery Voltage) – The input voltage fell below 10.5 volts DC. Inverter will automatically restart when DC input voltage is increases to 12 volts DC.
 - Recharge the batteries to at least 12 volts DC
 - Ensure all DC input connections are tightened
- The inverter is turning on and off, E-1 is displayed when it is off – Likely the batteries are nearly fully discharged. When a heavy load is being drawn from a battery the battery voltage will drop causing an under-voltage error. With the inverter turned off the battery voltage will slowly drift back up because there is no load on the batteries. If the battery voltage drifts back up to 12 volts, the inverter will turn back on. This cycle may repeat several times. This will be seen more often when batteries are nearing the end of their life cycle.
 - Re charge batteries to 12 volts
 - Ensure all DC input connections are tight
 - Make sure DC input wire size and length are correct
 - Replace batteries
- Battery is fully charged but the inverter displays E-1 immediately after it is turned on – The batteries may be fully charged, but if the battery voltage is not properly connected to the DC input terminals of the inverter, a low battery fault may be falsely triggered.
 - Make sure all DC input connections are tight
 - Make sure the DC input wire size and length are correct
- E-2 (High Battery Voltage) is displayed – The input voltage has exceeded 15.5 volts. The inverter will automatically restart when the input voltage is decreased to 15 volts.
 - Turn off the inverter by holding down the power button. Locate the DC source and verify it is properly connected for 12-volt operation
- E-3 (AC Output Overload) is displayed – An overload condition has been detected, this can be excessive power or a peak power that exceeds 2x rate power. A manual restart is required after the overload issue has been resolved.
 - Check output wiring for a short

- Determine what loads are connected to the output of the inverter. Remove any unnecessary loads until power is below maximum rated power
 - Determine peak power draw from inductive loads (refrigerators and other motor drive loads). If total peak power draw exceeds 2x rated power loads remove loads until peak power is below 2x rated power
- E-4 (Over Temperature) is displayed – An over temperature condition has occurred. The inverter will automatically restart when the internal temp falls to a safe operating level.
 - Ensure that debris hasn't fallen into the fan opening and hindering its operation
 - Ensure that the inverter has adequate air flow. If surrounded by any stored items, remove them and make sure to keep the area clear in the future
 - Lower the ambient air temperature to room temperature
- The inverter is turning on and off and E-4 is displayed when off – An over temperature condition has occurred. The inverter will automatically restart when the internal temp falls to a safe operating level.
 - Ensure that debris hasn't fallen into the fan opening and hindering its operation
 - Ensure the inverter has adequate airflow. If surrounded by any stored items, remove them and make sure to keep the area clear in the future
 - Lower the ambient air temperature
- E-5 (Internal Error) is displayed – During startup the inverter draws a small amount of current to charge the input capacitors. If that current exceeds a normal range the inverter will shut down and report the error.
 - Ensure that all DC input connections are tightened properly
 - Verify that all DC input wire is the proper size and length

Progressive Dynamics Inverter Maintenance

Inspection & Cleaning

According to the Maintenance Schedule:

1. With all sources of power off, clean the exterior of the unit with a damp cloth to prevent the accumulation of dust and dirt.
2. Ensure that the DC cables are secure and fasteners are tight.
3. Make sure the ventilation openings are not clogged.

Renogy PCL Inverter-Charger (If Equipped)

The Renogy PCL series inverter-charger combines an inverter with battery charger. When it senses the AC input is active (and has quality power to pass through), it will provide battery charging functionality as it lets the AC current pass through to the loads. When AC power is lost or not present, the inverter function will provide the AC output up to the stated limits of the inverter that is installed in your trailer.

Once powered on, inverters operate without user intervention. While the Renogy PCL inverter can be programmed with several unique capabilities, discussion of programming is beyond the scope of this manual and the interested reader should review the inverter's owner manual. The manual can be found at the link given in the Troubleshooting section.



Figure 89. Renogy PCL Inverter-Charger.



[Renogy PCL Inverter User Manual](#)

Operation

Upon successful connection of a 12V deep cycle battery bank, flip the inverter power to the ON position. The power switch is at the end of the unit near the AC line connections – on the middle-right of the face as shown in the below picture.

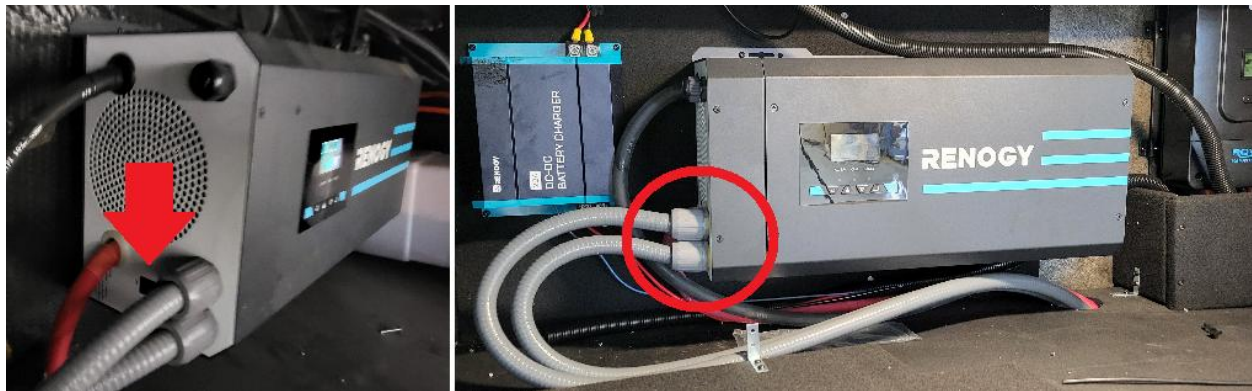


Figure 90. Renogy PCL Inverter-charger mounted in the front bay, with identification of the power switch.

One can cycle through several screens of information about the current state of the inverter. This section illustrates the overall display, function key use, how to interpret the LEDs, and how to interpret the display. The reader is directed to the user manual for further examples of display readings, if interested.

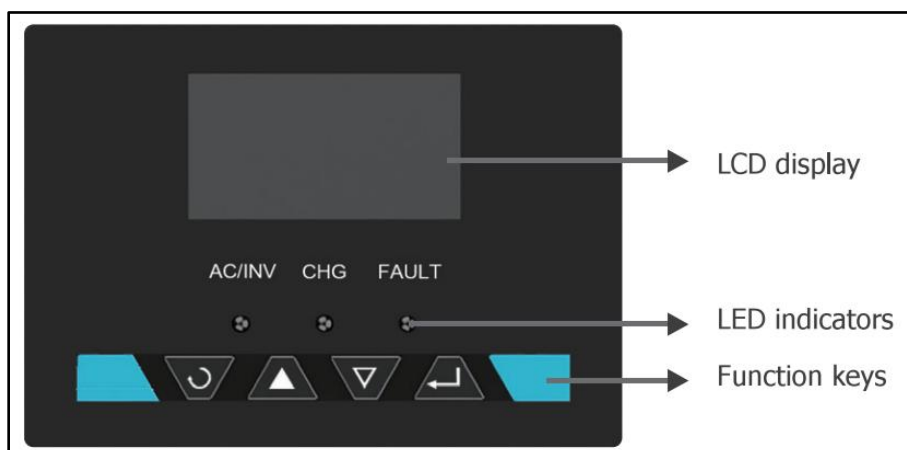


Figure 91. Renogy PCL Inverter/Charger display and interface.

Table 18. Renogy function keys and their use.





	Exit setting mode, go back to main menu
	Cycle through the menu
	Cycle through the menu
	1. Hold down to enter Parameter setting menu. 2. Tap to change/confirm setting in parameter setting menu

Table 19. Renogy PCL LED indicator meanings.

LED INDICATOR			PARAMETER
AC/INV	Green	Solid	Output is powered by an AC source in line
		Flashing	Output is powered by battery or in invert mode
CHG	Green	Solid	Battery is fully charged
		Flashing	Battery is charging
FAULT	Red	Solid	Fault occurred
		Flashing	Warning condition has occurred

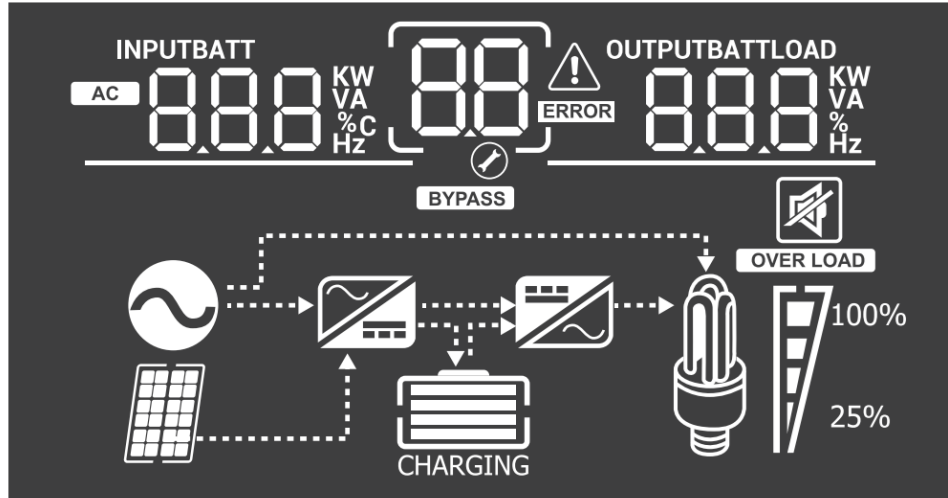








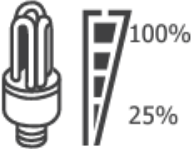







Figure 92. The Renogy PCL Inverter/Charger has many icons in the display. See below for their meaning. Note that on some PCL models the icons may differ slightly.

Table 20. Renogy PCL inverter display symbol meaning. Some versions of the inverter may have slightly different symbols.

ICON	FUNCTION DESCRIPTION
Input Source Information (Upper Left)	
	Indicates AC input.
	Indicates: Input Voltage (V) (INPUT & AC illuminated) Battery Voltage (V) (BATT illuminated) Frequency (Hz) Inverter Temperature (°C) Charge Current (A)
Configuration Program and Fault Information (Upper Middle)	
	Indicates a settings program number
	Indicates a warning code (symbol flashing)
	Indicates a fault code
Output Information (Upper Right)	
	Indicates: Output Voltage (V) Output Frequency (Hz) Load Percent (%) Load in Volt-Amps (VA) Load in Watts (KW) Discharge Current (A)
Battery Information (Bottom Middle)	
	When in Charging Mode (AC is present,) this will indicate the current battery level. If all bars are solid, the charge status is Float Mode. When operating in Inverter Mode (no AC present on the input) the number of bars will be determined by both the % Load and the Battery Voltage. See User Manual for further details.
Load Information (Bottom Right)	
	Indicates an Overload condition.
	Indicates the current load in 25% increments.
Mode Operation Information (Middle/Middle Left)	

	Indicates the unit is connected to shore power
	Indicates the load is supplied by utility power (shore power)
	Indicates the charging circuit is working
	Indicates the inverter circuit is working
Mute Operation (Middle Right)	
	Indicates the unit alarm is disabled

Wired Remote Control

The wire remote control for the inverter chargers gives users the opportunity to power on/off the inverter from a distance. Make sure both the PCL inverter model and the wired remote are both in the off position. Then you will be able to turn on the inverter charger via remote power switch.



Figure 93. Wired remote control for inverter.

Renogy PCL Inverter-Charger Troubleshooting

Table 21. Warning/fault code interpretation.

WARNING CODE	FAULT CODE	EVENT
03	-	Battery over voltage
04	-	Battery low voltage
05	-	Inverter over temperature
07	-	Inverter overload
88	-	Transformer phase reversal
89	-	Frequency is out of range
-	02	Heat sink over temperature

WARNING CODE	FAULT CODE	EVENT
-	03	Battery voltage is too high
-	04	Battery voltage is too low
-	05	Output short circuit
-	06	Output is too high or too low
-	07	Overload
-	99	Inverter fail to slow start

Renogy PCL Inverter-Charger Maintenance

Inspection & Cleaning

According to the Maintenance Schedule:

1. With all sources of power off, clean the exterior of the unit with a damp cloth to prevent the accumulation of dust and dirt.
2. Ensure that the DC cables are secure and fasteners are tight.
3. Make sure the ventilation openings are not clogged.

SOLAR EQUIPMENT (IF EQUIPPED)

Alliance RV is committed to continuous product improvement. As such, the implementation of solar options has resulted in several versions of solar installations from the beginning. This started with early model trailers having a Solar Prep option or being equipped with a Solar Option from the factory. Some early model year trailers had no solar prep from the factory. Late model year trailers have basic solar equipment as a standard, with options for more robust packages.

This section discusses the various equipment that may be in your trailer, depending on the original build at the factory. If you have any questions as to how your trailer is equipped, please reach out to us!



For information on Lithium Batteries that may be installed as part of an option package, please refer to the Electrical section of this manual.



[WYKW: What Can You Run With Standard Solar on Your Alliance RV](#)



[Standard Solar \(not just Valor\)](#)



[Everything You Need to Know About Alliance RV's Solar Plus Package](#)

Solar Disconnect Switch (If Equipped)

The Solar Disconnect switch provides a way to interrupt incoming power from the solar panels to the Solar Charge Controller. It is completely independent of the 12V battery switch and may be left on when the 12V battery disconnect switch is OFF to enable automatic battery maintenance charging during times of storage.



Figure 94. Solar disconnect switch.

⚠ WARNING

IT IS IMPORTANT TO TURN OFF THE SOLAR DISCONNECT SWITCH WHEN PERFORMING CERTAIN SOLAR SYSTEM AND/OR ELECTRICAL MAINTENANCE. ALL ELECTRICAL MAINTENANCE (SOLAR OR OTHERWISE) SHOULD ONLY BE PERFORMED BY TRAINED PERSONS.

Solar Panels and Cable Entry Point (If Equipped)

When solar is installed at the factory, Alliance RVs are equipped with a single 320W Monocrystalline panel and a Cable Entry Point (CEP) on the roof to enable wiring to an installed solar charge controller.



Figure 95. Roof-mounted cable entry port.

Solar Prep (If Equipped)

Early model year Alliance RVs had as an option a solar prep package. The basic solar prep includes a pre-installed CEP (cable entry plate) mounted on the roof of the RV. The wiring from the CEP will run to a convenient location in the RV in which a solar charge controller can be installed inline.

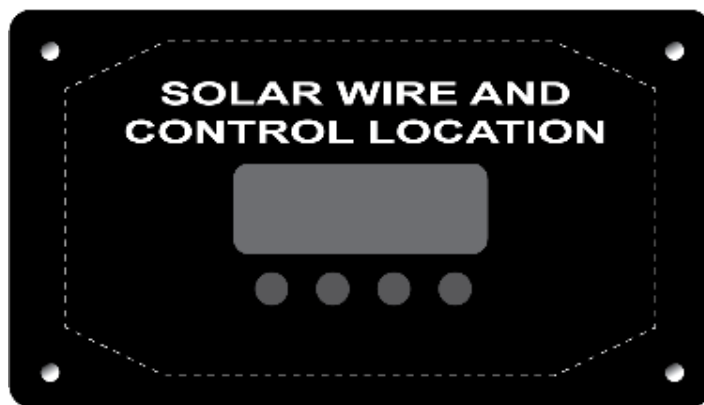


Figure 96. Label used to indicate pre-wired location of solar control mounting on early model Alliance trailers.



The intended location for the solar charge controller will be identified by a label. This label could be in various locations in the RV. If you cannot locate this entry point, please give us a call!

The wiring from the cable entry point will then continue from the pre-determined controller location to the battery compartment and tie DIRECTLY into the battery. The solar prep is now ready for a solar panel and solar controller. By adding a panel and controller, you will not have a solar charge going directly to your house battery that will support your 12 volt system. Please contact Alliance RV or your dealer for details on the controller and panel.

With the addition of an inverter (we recommend an inverter with a built in transfer switch, commonly marketed as an inverter with AC pass-through) and some additional wiring, the solar power you'll be receiving can also positively impact your 120 volt system. Consult with your RV dealer for more detail.



The solar prep and solar option are low voltage systems. For more details or any questions, please contact your Alliance RV dealer or Alliance RV.

Renogy 20A DC-DC Charger (If Equipped)

Overview

The Renogy 20A DC-DC charger is used to provide DC power for battery charging in cases where an installed inverter does not have charging capability when shore power is present. This provides high current charging from the tow vehicle's connection, with intelligent monitoring and protections.



Figure 97. Renogy DC-DC charger.

The charger runs automatically and requires no user intervention. There are two LEDs located on the output end of the charger, above the red DIP switches. During normal operation, the Green LED will be on and solid while the Red LED will be off. If either LED is not correct, please refer to the troubleshooting section.



[Renogy 12V 20A DC to DC On-Board Battery Charger](#)

DIP Switch Setting / Battery Conversion

Setup and installation of the unit, or reconfiguring in the case of a battery change, are beyond the scope of this manual and the interested reader is directed to the User Manual.

Lithium Battery Reactivation

Renogy DC-DC charger has a reactivation feature to awaken a sleeping lithium battery. The protection circuit of lithium battery will typically turn the battery off and make it unusable if over-discharged. Without the wake-up feature to reactivate and recharge batteries, these batteries would become unserviceable and the packs would be discarded. The Rover will apply a small charge current to activate the protection circuit and if a correct cell voltage can be reached, it starts a normal charge.

Renogy 20A DC-DC Charger Troubleshooting

WARNING

RISK OF ELECTRIC SHOCK, FIRE HAZARD, OR INJURY. TO MINIMIZE RISK:

- **ENSURE THE POSITIVE AND NEGATIVE TERMINALS FOR THE CHARGER DO NOT COME INTO CONTACT.**
- **FIRMLY SECURE CABLES AND CONNECTIONS.**
- **DISCONNECT THE PRODUCT FROM THE BATTERY EACH TIME BEFORE CLEANING OR BEFORE MAKING CHANGES TO THE CIRCUIT.**
- **DO NOT USE THE PRODUCT IF PHYSICALLY DAMAGED OR WITH VISIBLY CRACKED CABLES. CONTACT THE MANUFACTURER OR CUSTOMER SERVICE TO PREVENT SAFETY HAZARDS**
- **DO NOT ATTEMPT TO REPAIR THE CHARGER. INADEQUATE REPAIRS MAY CAUSE SERIOUS INJURY.**
- **ELECTRICAL DEVICES ARE NOT TOYS—KEEP AWAY FROM CHILDREN.**

When your trailer is connected to your tow vehicle and you are not receiving a charge, verify the status of the LEDs. If the Green LED is off, and the Red LED is off as well, please review the following items to determine if there is a fault:

1. Use a multi-meter on the Tow Vehicle plug to ensure Pin 5 has a voltage (compare Pin 5 to Pin X.) If there is no voltage, verify what conditions must be present for the tow vehicle to provide power to the trailer. If the voltage is between 10 V and 15.5 V, continue. If not, stop and determine the problem with the tow vehicle.
2. With the tow vehicle connected and in the same state as the previous step, check the voltage at the incoming end of the charger. This is the end with two circular openings for fans, and no LEDs. The voltage should be between 10 V and 15.5 V. If this is not the case, the fault lies between the tow plug and this connection point. Verify all connections and ensure voltage is consistent from the tow plug to the charger input.
3. If the voltage is good at the input, and the battery is connected to the output, and there is still no Green or Red LED, please contact the Alliance Service Dept. or a qualified RV Technician, Service Center, or Dealer to obtain service.

When the red fault light is on, refer to Table 22 in order to determine what might be happening.

Table 22. Determining the cause for a fault light.

PROTECTION	WHAT SHOULD BE DONE?
Battery Overvoltage	<p>1. Use a multi-meter to measure the DC input and DC output batteries as well as the respective DC-DC input/output terminals. Battery over-voltage is 15.5-16V: (High Voltage Shutdown @ 16 V, High Voltage Restart @ 15.5 V)</p> <p>2. Disconnect any other chargers in the circuit and let the battery rest to lower the voltage. Disconnect any sensitive loads.</p> <p>3. Double check correct DIP switches</p>
Battery Undervoltage	<p>1. Use a multi-meter to measure the DC input and DC output batteries as well as the respective DC-DC input/output terminals. They should be similar. Battery undervoltage is below 8-10V: (Low Voltage Cut-out @ 8 V (Lead Acid), Low Voltage Restart @ 10 V)</p> <p>2. Disconnect any other loads in the circuit and let the battery charge.</p> <p>3. Lead acid batteries below 8V may need an external charger to reach minimum DC-DC voltages; Lithium batteries will be able to recover due to Lithium Activation.</p>
Reverse Polarity	<p>1. Use a multi-meter in DC Volts and probe the positive line onto the positive battery terminal and probe the negative line to the negative battery terminal. You should see a reading within 10V~14V and be a positive number.</p> <p>2. If the DC reading is negative, your poles are reversed. Fix the wiring to return to normal operation.</p> <p>WARNING: Lithium batteries in reverse polarity may cause irreversible damage to the dc-dc.</p>
High Temperature	<p>1. Double check that your wiring is correct with a multi-meter and that the battery levels are suitable within the operating voltage range.</p> <p>2. Observe the ambient temperature. Avoid installations in direct sun. Ambient temperatures above 122°F/50°C will cause the unit to stop functioning until conditions get cooler.</p> <p>Move the unit to a cooler location or introduce ventilation into the install location. The protection is automatic, and the charger will resume normal function upon cooling down.</p>
Short Circuit	<p>1. The DC-DC is experiencing an internal short circuit due to an imbalance between its input and output circuits. Restart the DC-DC by disconnecting the input/output and then reconnecting it again.</p> <p>The error will clear automatically upon a successful restart. If issues continue with a permanent red led, then contact Renogy support to address the previous troubleshooting steps.</p>

Renogy 20A DC-DC Charger Maintenance

As per the Maintenance Schedule:

1. Inspect the wiring and note any wiring cracks, wear, tear, corrosion, or loose wiring and replace immediately. Inspect wiring terminals and ensure they're tight as they may become loose during vehicle vibrations.
2. Check that the battery charger is free of dust, liquids, or heat sources and ensure the DC-DC is receiving some ventilation. Improved ventilation improves performance.

Go Power! Solar Charge Controller (If Equipped)

Overview

A solar charge controller, like the Go Power! GP-PWM-30-UL Solar Charge Controller, plays a vital role in managing and optimizing the performance of a solar power system. It ensures that the energy generated by solar panels is efficiently stored in batteries while protecting them from potential damage due to overcharging. By regulating the flow of electricity, the controller helps maintain battery health and longevity.



Figure 98. Go Power! Solar Charge Controller.

The Go Power! GP-PWM-30-UL uses Pulse Width Modulation (PWM) technology to control the charging process. This ensures that batteries are charged efficiently and safely. The controller has a four-stage charging system designed to enhance battery performance, and it includes an optional equalization stage, which can help balance charge levels across battery cells. For more details on the stages of charging, the reader is directed to the Owner's Manual.

An integrated LCD display allows users to monitor key system parameters, such as solar panel output, battery voltage, and overall state of charge. It also allows Bluetooth connectivity to monitor and control charging from your smartphone using the Go Power! Connect app. Please refer to the owner's manual and the app for more information on the use of the app.

Finally, it includes a feature called Maximum Power Boost Technology™, which lets users manually boost charging at any point during the charge cycle for optimal battery performance if heavy demands are needed after the sun goes down. Please refer to the Maximum Power Boost Technology™ section for more details.



The Go Power! Solar charge controller can manage two banks of batteries. As delivered, it will only be wired for a single bank, even if two batteries are installed (either in parallel or serial.)



The Go Power! Solar charge controller has an available USB port on the front panel. It is 5.0 VDC, and can be used to charge devices with up to 800mA of current. Remove the rubber cover on the front panel to access the port.







[Go Power! GP-PWM-30-UL Solar Charge Controller User Manual](#)

Operation

The charge controller runs automatically, managing the battery charge based upon the needs of the battery and available sunlight. In order to determine what is happening with the system, one can use the buttons as shown in the table.

Table 23. Button functions on the Go Power! Solar Controller.

ICON	DESCRIPTION
	Turn on or off a connected Go Power! Inverter (not utilized in OEM installations.)
	Enable Max Boost Technology™
	Hold for 5 seconds to enable automatic status scrolling
	Push to manually cycle through displays: Battery voltage, PV charge current, SOC (battery state of charge in %), and Amp hours.

The information in this section is useful for using the interface panel for monitoring. Note that the control of the inverter is not functional unless the RV owner installs a Go Power inverter. Alliance does not sell or install this brand of inverter.

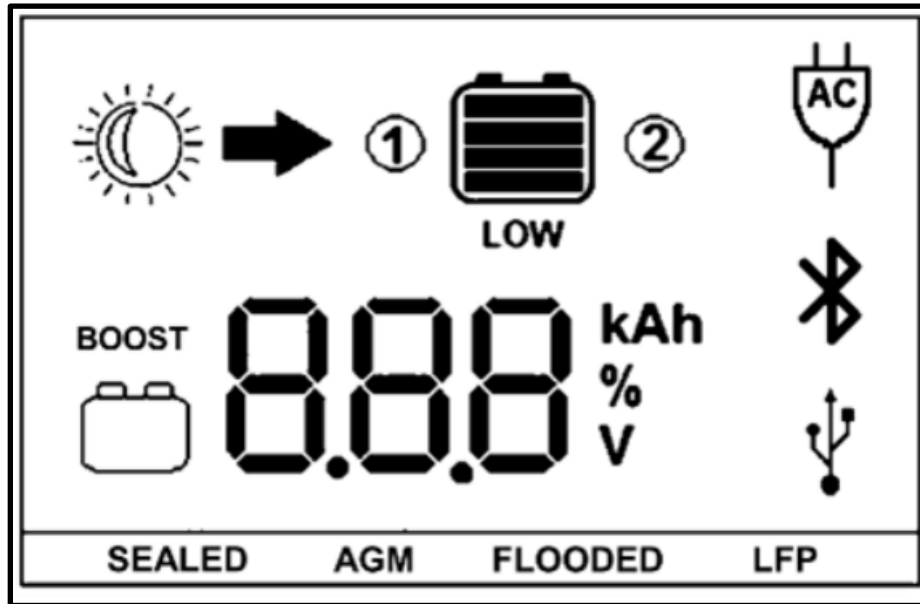









Figure 99. Go Power! Display details.

Table 24. The following symbols are used to represent voltage and state of charge on the Go Power! Display.

ICON	BATTERY VOLTAGE
	4 bars: 100% (only after Boost or Equalization cycle)
	3 bars: >12.6 V
	2 bars: >= 11.8 V - 12.6 V
	1 bar: > 11.0 V - 11.8 V
	Battery <= 11.0 V
100%	Shows only after full Boost or Equalization cycle
$SOC = \frac{battery\ voltage - 11.0V}{1.8V} * 90\%$	< 12.8 V and > 11.0 V
0%	<= 11.0 V

The other display icons are as follows:

Table 25. Go Power! display icons not related to battery charge.

ICON	DESCRIPTION
	Nighttime
	Daytime
	USB charger ON (when not connected, no symbol will show)
	Inverter on (shown for completeness: Alliance does not install a Go Power! Inverter, this will not show on display when other brand inverters are on.)
	Flashing: Controller ready to pair (Bluetooth) Steady on: Controller and mobile device connected via Bluetooth communication
BOOST	Max Power Boost activated, Boost charge is incomplete
LOW	Battery voltage is lower than 11.0 VDC
[Whole display will start to blink]	Battery voltage >15.5 VDC
SEALED, AGM, FLOODED, LFP	Type of battery programmed
POL	Battery reverse polarity

Go Power! Solar Charge Controller Troubleshooting

⚠ WARNING

ELECTRICITY CAN BE VERY DANGEROUS. INSTALLATION SHOULD BE PERFORMED ONLY BY A LICENSED ELECTRICIAN OR QUALIFIED PERSONNEL.

OBSERVE ALL SAFETY PRECAUTIONS OF THE BATTERY MANUFACTURER WHEN HANDLING OR WORKING AROUND BATTERIES. WHEN CHARGING, BATTERIES PRODUCE HYDROGEN GAS, WHICH IS HIGHLY EXPLOSIVE.

THE MAXIMUM CURRENT OF THE SOLAR SYSTEM IS THE SUM OF PARALLEL-CONNECTED PV MODULE-RATED SHORT CIRCUIT CURRENTS (ISC) MULTIPLIED BY 1.25. THE RESULTING SYSTEM CURRENT IS NOT TO EXCEED 37.5A. IF YOUR SOLAR SYSTEM EXCEEDS THIS VALUE, CONTACT YOUR DEALER FOR A SUITABLE CONTROLLER ALTERNATIVE.

THE MAXIMUM VOLTAGE OF THE ARRAY IS THE SUM OF THE PV MODULE-RATED OPEN-CIRCUIT VOLTAGE OF THE SERIES CONNECTED MODULES MULTIPLIED BY 1.25 (OR BY A VALUE FROM NEC 690.7 PROVIDED IN TABLE 690.7 A). THE RESULTING VOLTAGE IS NOT TO EXCEED 35V. IF YOUR SOLAR SYSTEM EXCEEDS THIS VALUE, CONTACT YOUR DEALER FOR A SUITABLE CONTROLLER ALTERNATIVE.

The following table lists some possible faults and potential remedies. If that information does not address or solve your problem, consider reviewing further information in the owner's manual, section 14 (page 23.)



Some unusual problems with Bluetooth connection or USB charging may be corrected by performing a soft restart of the controller. This can be done by holding down all four buttons for 3 seconds.

Table 26. Go Power! solar controller troubleshooting guide.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Display flashing with all icons	Battery over voltage (> 15.5 VDC)	<ol style="list-style-type: none"> 1. Consider any recent changes to the charging circuit of the batteries. Was a converter recently installed? Could there be a short circuit? 2. Cover solar array with an opaque material, or if equipped, use the solar disconnect switch to remove solar input power from controller. Attempt to utilize battery power to reduce the amount of energy stored to reduce voltage. 3. Contact a qualified RV repair facility for assistance. <p>WARNING: Do not disconnect battery without disconnecting or otherwise disabling the PV panel(s).</p>

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Low Battery SoC symbol with the text "LOW" is displayed beneath it	Low battery voltage (< 11.0 VDC)	This will happen when loads on the battery exceed the charge current of the controller. If plugged into shower power, determine if the RV converter is functioning. Reduce power consumption until the controller can recharge your battery.
"POL" on display and audible alarm	Battery reverse polarity	Disconnect the battery leads (the PV should already be disconnected) and reconnect correctly to Positive and Negative terminals.
"POL" on display, Nighttime (moon) symbol on display, and an audible alarm	PV reverse polarity	Disconnect the PV leads and reconnect correctly to Positive and Negative terminals.
Display shows Nighttime (moon) symbol on display, there is bright sunlight outside.	PV short circuit	Contact a qualified solar repair facility for assistance.
Large voltage difference between display and voltmeter checking at battery	Significant resistance in wiring	It is normal for differences around 0.1 VDC due to several reasons. If the difference in voltage reported and voltage measured at the battery terminals, check all connections between the solar charge controller and battery terminals. Check battery terminals and wires for corrosion or damage as well.

Go Power! Solar Charge Controller Maintenance

As per the Maintenance Schedule:

1. Remove the unit from the wall by removing the four square-head mounting screws in the corners.
2. Carefully pull the unit from the wall, removing the left side before the right side (as there are wires exiting the right side of the unit at the back. See Figure 100.



Figure 100. Go Power! Solar Charge controller wiring interface (looking from the top of the controller.). The controller has been removed from the wall and rolled forward.

3. Gently rotate the unit to access the slotted screw clamps from the rear of the unit. Ensure all screws holding wires are tight.
4. Replace the unit and re-secure the four mounting screws. Do not use a power screwdriver, and be mindful not to over-torque.

Renogy Rover Solar Charge Controller, 20A or 40A (If Equipped)

Overview

The Renogy Rover charge controller manages the charging of batteries in a solar power system. It uses MPPT technology to maximize energy capture from solar panels, regulates charging to prevent overcharging or damage, and provides monitoring and protection features for both the batteries and the system. They work with all battery chemistry, with the proper programming to ensure the charging profile is correct.

Rover MPPT charge controller has a reactivation feature to awaken a sleeping lithium battery. The protection circuit of lithium battery will typically turn the battery off and make it unusable if over-discharged. Without the wake-up feature to reactivate and recharge batteries, these batteries would become unserviceable and the packs would be discarded. The Rover will apply a small charge current to activate the protection circuit and if a correct cell voltage can be reached, it starts a normal charge.



[Renogy 20A/30A/40A MPPT Solar Charge Controller Manual](#)

⚠ WARNING

CONNECT BATTERY TERMINALS TO THE CHARGE CONTROLLER BEFORE CONNECTING THE SOLAR PANEL(S) TO THE CHARGE CONTROLLER. NEVER CONNECT SOLAR PANELS TO CHARGE CONTROLLER UNTIL THE BATTERY IS CONNECTED.

Table 27. Renogy Rover front panel indicators, display, and controls. For LED indicator meanings, refer to Table 28.


ITEM	DESCRIPTION	
1	PV LED Indicator – indicating the controller’s current charging mode.	
2	BATT LED Indicator – indicating the battery’s current state.	
3	LOAD LED Indicator – indicating the loads’ On/Off state.	
4	ERROR LED Indicator – indicating whether the controller is functioning normally.	
5	LCD Screen	
6	Operating Keys (see Figure 102)	

Figure 101. Renogy Rover interface.

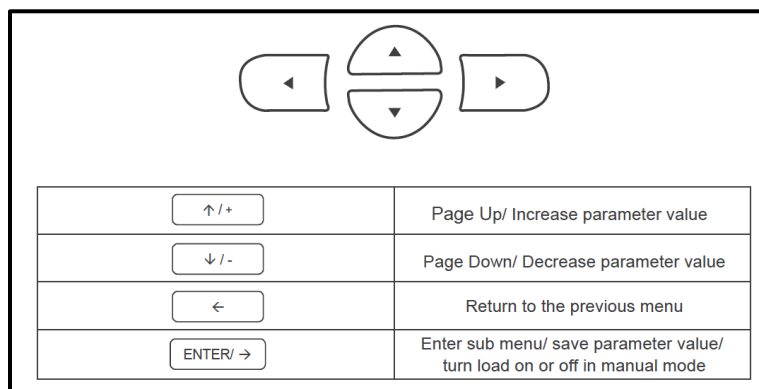


Figure 102. Renogy Rover operating key use.

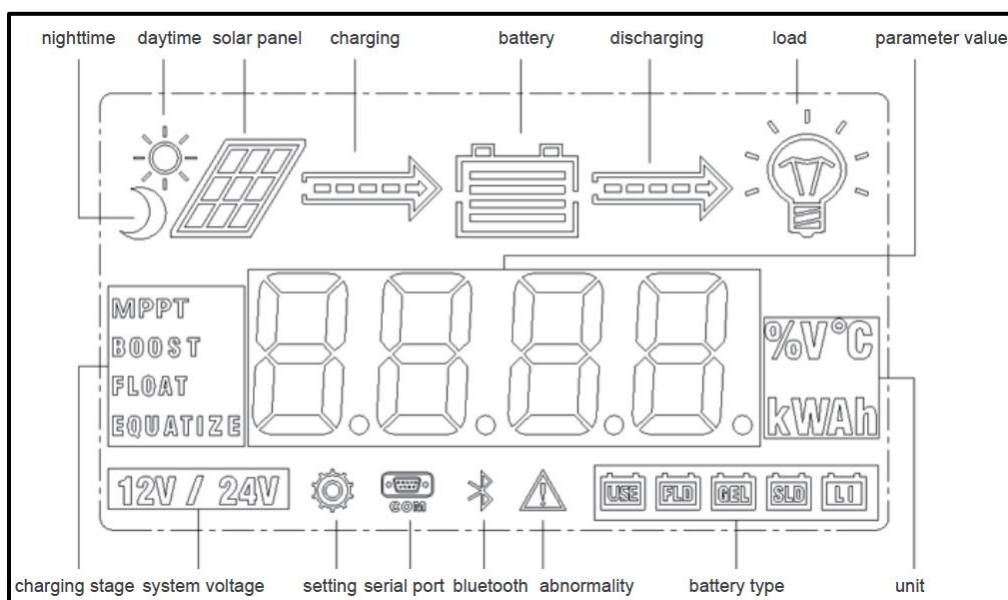


Figure 103. Display icons used on the Renogy Rover 20A, 30A, and 40A charge controllers.

Table 28. Renogy Rover LED Indicator guide.

PV INDICATOR (1)	STATUS
White Solid	The PV system is <u>charging</u> the battery bank
White Slow Flashing	The Controller is undergoing boost stage
White Single Flashing	The Controller is undergoing float stage
White Fast Flashing	The Controller is undergoing equalization stage
White Double Flashing	The oversized PV system is <u>charging</u> the battery bank at the rated current.
Off	The PV system is <u>not charging</u> the battery bank. PV not detected.
BATT Indicator (2)	STATUS
White Solid	Battery is normal
White Slow Flashing	Battery is <u>over-discharged</u>
White Fast Flashing	Battery is <u>over-voltage</u>
LOAD Indicator (3)	STATUS
White Solid	Load is on
White Fast Flashing	Load is <u>over-loaded</u> or <u>short-circuited</u>
Off	Load is off
ERROR Indicator (4)	STATUS
White Solid	System Error. Please check LCD for Error code
Off	System is operating normally

Main Display Screens / Operating the Unit

The main display can cycle through the following screens using the operating keys. The LCD display description in Figure 103 will also help interpret the information shown on each screen. The interested reader is directed to the User Manual for additional examples and details.

Screens Available (cycles from top to bottom, then back to top):

- Main Screen (shown at right)
- Solar Panel Voltage
- Charging Current
- Battery Capacity
- Battery Voltage
- Load Current
- Accumulated Amp Hours
- Discharged Amp Hours
- Controller Temperature
- Load Mode
- Error Code

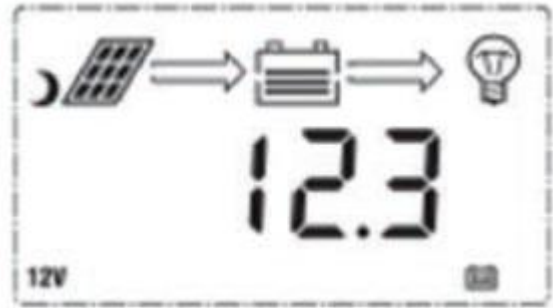


Figure 104. Renogy Rover display screen.

In Figure 104, the charge controller is not receiving energy from the connected PV panel(s) and the battery is at 12.3V, with an estimated 51-75% battery life, providing energy to loads.

Programming

Programming and reprogramming the unit (in the case of battery upgrade or conversion) are beyond the scope of this manual and the interested reader is directed to the Renogy Rover User Manual.

Renogy DC Home app (Bluetooth)

The **Renogy DC Home app** is a mobile application designed to work with Renogy's range of solar energy products, providing users with real-time monitoring and control of their solar power systems. This app enhances the functionality of Renogy's devices, offering convenience and insight into how your system is performing through a user-friendly interface. The main advantage of this functionality is for system monitoring, remote control, historical data, and customizable notifications. The interested reader is directed to the owner's manual for more information.

Lithium Battery Reactivation

Rover MPPT charge controller has a reactivation feature to awaken a sleeping lithium battery. The protection circuit of lithium battery will typically turn the battery off and make it unusable if over-discharged. Without the wake-up feature to reactivate and recharge batteries, these batteries would become unserviceable and the packs would be discarded. The Rover will apply a small charge current to activate the protection circuit and if a correct cell voltage can be reached, it starts a normal charge.

Additional Components

Remote Temperature Sensor: This sensor measures the temperature at the battery and uses this data for very accurate temperature compensation. The sensor is supplied with a 9.8ft cable length that connects to the charge controller. Simply connect the cable and adhere the sensor on top or the side of the battery to record ambient temperature around the battery.



Figure 105. Renogy remote temperature sensor.



Do not use this sensor when charging lithium batteries.


Renogy Rover 20/40A Troubleshooting

Table 29. Renogy Rover 20/40 troubleshooting guide.

PV INDICATOR (1)	TROUBLESHOOTING STEPS
Off during daylight	Ensure that the PV wires are correctly and tightly secured inside the charge controller PV terminals. Use a multi-meter to make sure the poles are correctly connected to the charge controller.
BATT INDICATOR (2)	TROUBLESHOOTING STEPS
White Slow Flashing	Disconnect loads, if any, and let the PV modules charge the battery bank. Use a multi-meter to frequently check on any change in battery voltage to see if condition improves. This should ensure a fast charge. Otherwise, monitor the system and check to see if system improves.
White Fast Flashing	Using a multimeter check the battery voltage and verify it is not exceeding 32 volts.
LOAD INDICATOR (3)	TROUBLESHOOTING STEPS
White Fast Flashing	The Load circuit on the controller is being shorted or overloaded. Please ensure the device is properly connected to the controller and make sure it does not exceed 20A (DC).
ERROR INDICATOR (4)	TROUBLESHOOTING STEPS
White Solid	System Error. Please check LCD for Error code

Table 30. On screen error code descriptions.

ERROR CODE (ON SCREEN)	DESCRIPTION
E0	No error detected
E1	Battery over-discharged
E2	Battery over-voltage
E3	Battery under-voltage
E4	Load short circuit
E5	Load overloaded
E6	Controller over-temperature
E8	PV input over-current
E10	PV over-voltage

	<p>Further troubleshooting information can be found on the Renogy Learning Center at the following links:</p> <ul style="list-style-type: none"> • Charge Controller Troubleshooting Guide • Troubleshoot Renogy Rover 20A, 30A, and 40A Charge Controller
---	--

Renogy Rover 20/40A Maintenance

As per the Maintenance Schedule, please perform the following checks and adjustments:


1. Check around the controller to ensure it is clean and dry.
2. Check wiring going into the charge controller and make sure there is no wire damage or wear.
3. Tighten all terminals and inspect any loose, broken, or burnt up connections.
4. Check to make sure none of the terminals have any corrosion, insulation damage, high temperature, or any burnt/discoloration marks.
5. Make sure LED readings are consistent. Take necessary corrective action.

Renogy Rover Solar Charge Controller, 60A (If Equipped)

Overview

The Renogy Rover 60A charge controller manages the charging of batteries in a solar power system. It is very similar to the 20, 30, and 40A models, but also allows for the parallel connection of a second controller should that upgrade be desired. The display is also different, as detailed in this section.

It uses MPPT technology to maximize energy capture from solar panels, regulates charging to prevent overcharging or damage, and provides monitoring and protection features for both the batteries and the system. They work with all battery chemistry, with the proper programming to ensure the charging profile is correct.

	<p>Renogy 60A MPPT Solar Charge Controller Manual</p>
---	---

⚠ WARNING

CONNECT BATTERY TERMINALS TO THE CHARGE CONTROLLER BEFORE CONNECTING THE SOLAR PANEL(S) TO THE CHARGE CONTROLLER. NEVER CONNECT SOLAR PANELS TO CHARGE CONTROLLER UNTIL THE BATTERY IS CONNECTED.

Table 31. Renogy Rover front panel indicators, display, and controls. For LED indicator meanings, refer to Table 32.


ITEM	DESCRIPTION	
1	PV LED Indicator – indicating the controller’s current charging mode.	
2	BATT LED Indicator – indicating the battery’s current state.	
3	LOAD LED Indicator – indicating the loads’ On/Off state.	
4	ERROR LED Indicator – indicating whether the controller is functioning normally.	
5	LCD Screen	
6	Operating Keys (see Figure 107)	

Figure 106. Renogy Rover interface.

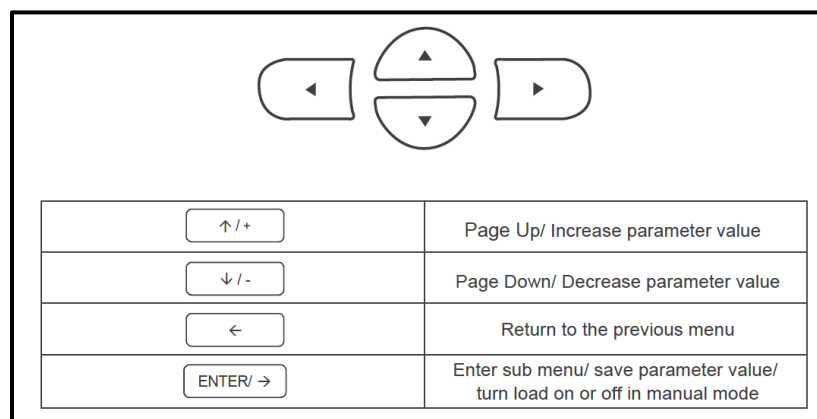


Figure 107. Renogy Rover operating key use.

Table 32. Renogy Rover LED Indicator guide.

PV INDICATOR (1)	STATUS
White Solid	The PV system is <u>charging</u> the battery bank
White Slow Flashing	The Controller is undergoing boost stage
White Single Flashing	The Controller is undergoing float stage
White Fast Flashing	The Controller is undergoing equalization stage
White Double Flashing	The oversized PV system is <u>charging</u> the battery bank at the rated current.
Off	The PV system is <u>not charging</u> the battery bank. PV not detected.
BATT Indicator (2)	STATUS
White Solid	Battery is normal
White Slow Flashing	Battery is <u>over-discharged</u>
White Fast Flashing	Battery is <u>over-voltage</u>
LOAD Indicator (3)	STATUS
White Solid	Load is on
White Fast Flashing	Load is <u>over-loaded</u> or <u>short-circuited</u>
Off	Load is off
ERROR Indicator (4)	STATUS
White Solid	System Error. Please check LCD for Error code
Off	System is operating normally

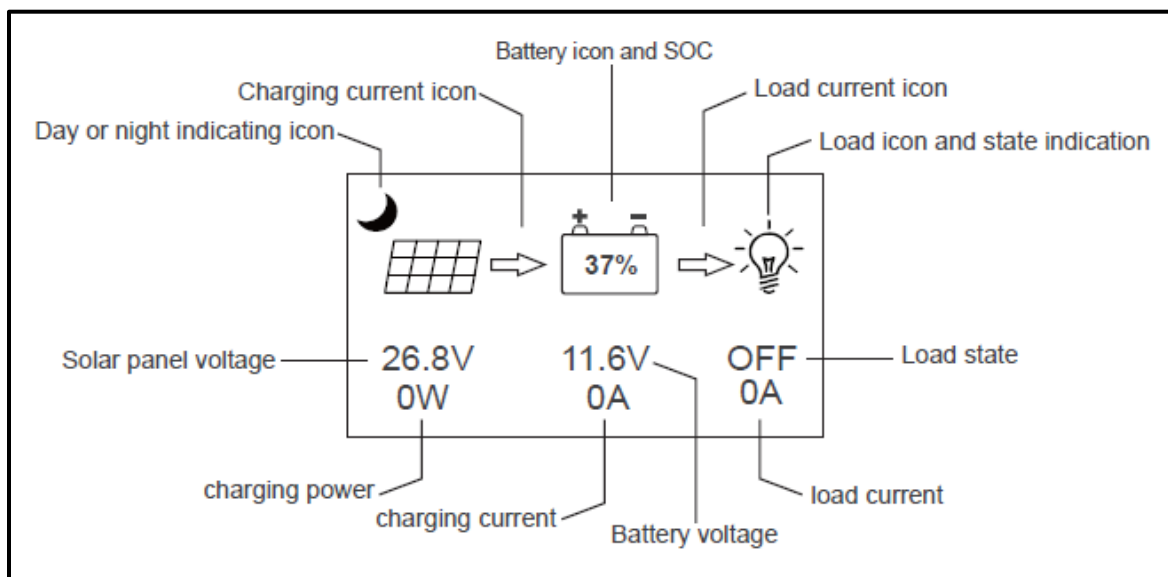


Figure 108. Display icons used on the Renogy Rover 60A charge controller.

Main Display Screens / Operating the Unit

The main display can cycle through the following screens using UP and DOWN operating keys. The LCD display description in Figure 108 will also help interpret the information shown on each screen. For each screen, one can push the RIGHT ARROW key to find more details about that section/screen. Then use the LEFT ARROW to return back to the main tree. Once at the bottom screen, the user must push the UP key to go back up to the starting screen.

Screens Available (This tree does not cycle. When at the bottom, must use the UP key to get back to the start):

- Main Menu (shown at right)
- Load Mode
- Parameters setting
- Statistic data
- Historical data of the current day
- Device Information

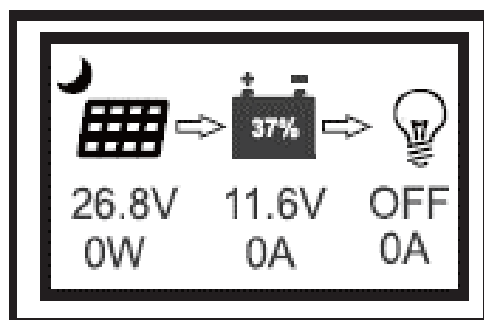









Figure 109. Renogy Rover 60A display.

In Figure 109, the charge controller is not receiving energy from the connected PV panel(s) and the battery is at 11.6V, with an estimated 37% battery life, with no loads pulling energy.

Table 33. Renogy Rover 60A display icons used.

ICON	STATE	DESCRIPTION
	Steady on	Nighttime
	Steady on	Daytime
	Steady on	A dynamic arrow indicates charging is in progress
	0-100%	Current battery capacity
	0% Slow Flashing	Battery over-discharged
	100% Fast Flashing	Battery over-voltage

ICON	STATE	DESCRIPTION
	Steady on	Load Terminal is on
	Steady on	Load Terminal is off
	Fast Flashing	Overload or Short-circuit protection

Programming

Programming and reprogramming the unit (in the case of battery upgrade or conversion) are beyond the scope of this manual and the interested reader is directed to the Renogy Rover User Manual.

Renogy DC Home app (Bluetooth)

The **Renogy DC Home app** is a mobile application designed to work with Renogy's range of solar energy products, providing users with real-time monitoring and control of their solar power systems. This app enhances the functionality of Renogy's devices, offering convenience and insight into how your system is performing through a user-friendly interface. The main advantage of this functionality is for system monitoring, remote control, historical data, and customizable notifications. The interested reader is directed to the owner's manual for more information.

Lithium Battery Reactivation

Rover MPPT charge controller has a reactivation feature to awaken a sleeping lithium battery. The protection circuit of lithium battery will typically turn the battery off and make it unusable if over-discharged. Without the wake-up feature to reactivate and recharge batteries, these batteries would become unserviceable and the packs would be discarded. The Rover will apply a small charge current to activate the protection circuit and if a correct cell voltage can be reached, it starts a normal charge.

Additional Components

Remote Temperature Sensor: This sensor measures the temperature at the battery and uses this data for very accurate temperature compensation. The sensor is supplied with a 9.8ft cable length that connects to the charge controller. Simply connect the cable and adhere the sensor on top or the side of the battery to record ambient temperature around the battery.



Figure 110. Renogy remote temperature sensor.



Do not use this sensor when charging lithium batteries.

Renogy Rover 60A Troubleshooting

The LED indicators at the top of the face of the unit can be used as a first step in diagnosing problems. The following information can be used to see fault conditions.

Table 34. Renogy Rover 60 troubleshooting guide.

PV INDICATOR (1)	TROUBLESHOOTING STEPS
Off during daylight	Ensure that the PV wires are correctly and tightly secured inside the charge controller PV terminals. Use a multi-meter to make sure the poles are correctly connected to the charge controller.
BATT INDICATOR (2)	TROUBLESHOOTING STEPS
White Slow Flashing	Disconnect loads, if any, and let the PV modules charge the battery bank. Use a multi-meter to frequently check on any change in battery voltage to see if condition improves. This should ensure a fast charge. Otherwise, monitor the system and check to see if system improves.
White Fast Flashing	Using a multimeter check the battery voltage and verify it is not exceeding 32 volts.
LOAD INDICATOR (3)	TROUBLESHOOTING STEPS
White Fast Flashing	The Load circuit on the controller is being shorted or overloaded. Please ensure the device is properly connected to the controller and make sure it does not exceed 20A (DC).
ERROR INDICATOR (4)	TROUBLESHOOTING STEPS
White Solid	System Error. Please check LCD for Error code

If the bottom LED light is on, there will also be an error code that can be viewed on the display using the following steps:

1. On the main interface, press the RIGHT ARROW button.

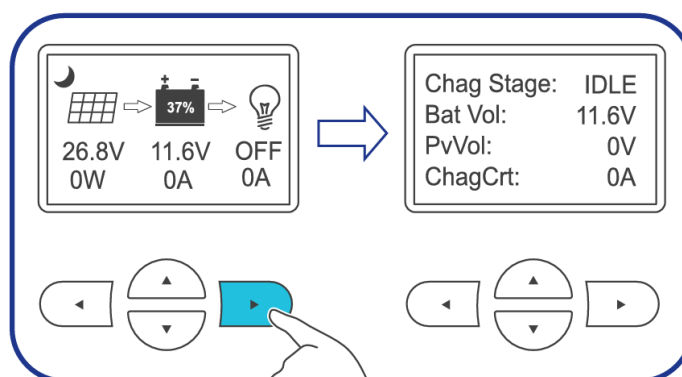


Figure 111. Step one to find error codes on the Renogy Rover 60A.

2. Now press the DOWN ARROW button to see the Fault display. The table following the display explains the fault abbreviations.

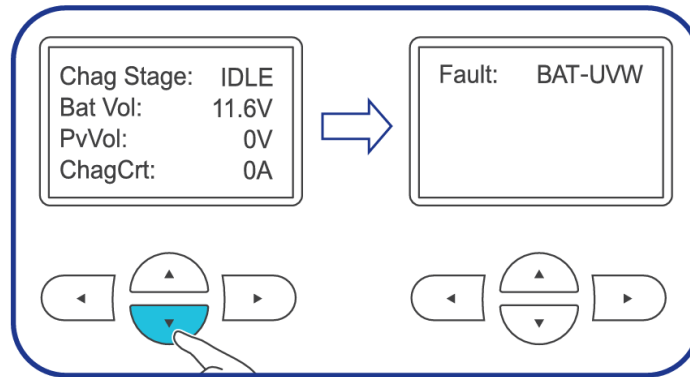


Figure 112. Step two to find error codes on the Renogy Rover 60A

Table 35. Renogy Rover 60 on-screen error code descriptions.

CODE	DESCRIPTION
BAT-LDV	Battery overdischarge
BAT-OVD	Battery overvoltage
BAT-UVW	Battery under-voltage warning
L-SHTCRT	Load short-circuit
L-OVRCRT	Load overcurrent
DEV-OVRTMP	Internal over-temperature of the charge controller
BAT-OVRTMP	Battery over-temperature
PV-OVP	Solar panel over wattage
PV-OC-OVD	Solar panel overvoltage
PV-REV	Solar panel reverse polarity warning
BAT-REV	Battery reverse polarity warning

Table 36. Further troubleshooting for the Renogy Rover 60A.

WHAT IS HAPPENING?	WHAT SHOULD BE DONE?
The solar panel is connected, but the PV LED Indicator cannot light up.	<p>This indicates the solar panel voltage may be too low or the panel cannot be detected by the charge controller. Follow the troubleshooting steps below:</p> <ol style="list-style-type: none"> 1. Inspect the solar panel for any visible damage and make sure it works normally. If the voltage of the solar panel is too low at night, check it again during the day. 2. Inspect the solar panel and keep it away from the shade. 3. Make sure the voltage of the solar panel is higher than the battery voltage. Otherwise, the solar panel cannot charge the battery. 4. Identify the polarities (positive and negative) on the cables used for the solar panel. A reverse polarity contact will cause the charge controller to work abnormally. 5. Make sure the cables of the solar panel are properly connected to the Solar + and Solar - of the charge controller (cable lugs are tight and well connected.) 6. Inspect the cable of the solar panel for any visible damage. 7. Inspect the fuse of the solar panel for any visible damage. <p>For technical support, please contact our customer service through renogy.com/contact-us.</p>
The battery is connected. However, the indicators of the charge controller LCD and Battery LED Indicator cannot light up.	<p>The battery needs troubleshooting if it can not be detected. Follow the troubleshooting steps below:</p> <ol style="list-style-type: none"> 1. Inspect the battery and replace it with a new one if it has any visible damage. 2. Measure the battery voltage with a multimeter and make sure the system voltage of the battery is 12V, 24V, 36V, or 48V. Otherwise, the battery can not be detected by the charge controller. 3. Identify the polarities (positive and negative) on the cables used for the battery. A reverse polarity contact will cause the charge controller to work abnormally. 4. Make sure the cable of the battery is properly connected to the Battery + and Battery - of the charge controller. (cable lugs are tight and well connected.) 5. Inspect the cable of the battery for any visible damage. 6. Inspect the fuse of the battery for any visible damage. <p>For technical support, please contact our customer service through renogy.com/contact-us.</p>

WHAT IS HAPPENING?	WHAT SHOULD BE DONE?
The charging current of the charge controller or the solar panel current is lower than expected.	<ol style="list-style-type: none"> 1. The charge controller is in the float charging stage, and the charging current will gradually drop until the battery is fully charged. 2. Inspect the solar panel and keep it away from the shade. 3. Check whether the sunlight intensity is high enough. 4. If the temperature of the charge controller is too high, the error code will not be displayed. Shut down the charge controller until the temperature drops to a standard value. 5. Select the appropriate cables and fuses according to the "3.5. Check the Solar Panel(s)" in the owner's manual. 6. The voltage drops because the Solar Panel Extension Cable is too long. 7. High temperatures at the solar panels can reduce the panel efficiency. As temperatures rise above 95°F, resistance will increase and voltage will decrease.
The lithium activation lasts more than 1 to 2 days but the battery is still in sleep mode.	<ol style="list-style-type: none"> 1. Identify the polarities (positive and negative) on the cables used for the battery. A reverse polarity contact will cause the charge controller to work abnormally. Connect the battery first and then the solar panel. Otherwise, the charge controller may be damaged. 2. Measure the voltages of the battery, Battery +, and Battery- of the charge controller with a multimeter. If the voltages are inconsistent, the circuit is interrupted. Inspect the circuit and the battery fuse for any visible damage or incorrect connection. 3. The preset battery voltage is incorrect. Measure the battery voltage with a multimeter, and then reset the system voltage according to the actual use. For details, refer to "5.8. Set a Battery Voltage" in the owner's manual. With the solar panels disconnected, disconnect the battery from the charge controller and reconnect to it to activate the battery. 4. The discharging speed of the battery is faster than the charging speed. Turn off or disconnect the load of the battery and charge the battery immediately to prevent the lithium battery from triggering BMS protection due to low voltage. <p>After the voltage of the lithium battery is restored, the battery will automatically exit the activation mode and work normally.</p>
The load cannot be powered on after connection.	<ol style="list-style-type: none"> 1. Identify the polarities (positive and negative) on the cables used for the battery. A reverse polarity contact will cause the load to work abnormally. 2. Make sure the load cables are properly connected. 3. Ensure that the load works normally. If the load is damaged, replace it with a new one. 4. Check the load mode. For details, refer to "7.3. Configure Load Output Mode" in the owner's manual. 5. Check the battery voltage. If the battery voltage is too low, charge the battery immediately.



Further troubleshooting information can be found on the Renogy Learning Center at the following links:

- [Charge Controller Troubleshooting Guide](#)
- [Troubleshoot Renogy Rover 60A Charge Controller.](#)

Renogy Rover 60A Maintenance

As per the Maintenance Schedule, please perform the following checks and adjustments:

1. Check around the controller to ensure it is clean and dry.
2. Check wiring going into the charge controller and make sure there is no wire damage or wear.
3. Tighten all terminals and inspect any loose, broken, or burnt up connections.
4. Check to make sure none of the terminals have any corrosion, insulation damage, high temperature, or any burnt/discoloration marks.
5. Make sure LED readings are consistent. Take necessary corrective action.

Renogy Rover Elite Solar Charge Controller (If Equipped)

Overview

The Renogy Rover charge controller manages the charging of batteries in a solar power system. It uses MPPT technology to maximize energy capture from solar panels, regulates charging to prevent overcharging or damage, and provides monitoring and protection features for both the batteries and the system. They work with all battery chemistry, with the proper programming to ensure the charging profile is correct.



[Renogy Rover Elite User Manual](#)

⚠ WARNING

CONNECT BATTERY TERMINALS TO THE CHARGE CONTROLLER BEFORE CONNECTING THE SOLAR PANEL(S) TO THE CHARGE CONTROLLER. NEVER CONNECT SOLAR PANELS TO CHARGE CONTROLLER UNTIL THE BATTERY IS CONNECTED.









	
	
	
	
	Cycles forward through the menu
	Cycles backwards through the menu
	Return to previous page in Parameter Setting Mode
	Hold to Enter Parameter Setting Mode Hold to Save Parameter Mode

Figure 113. Renogy Rover Elite operating key use.

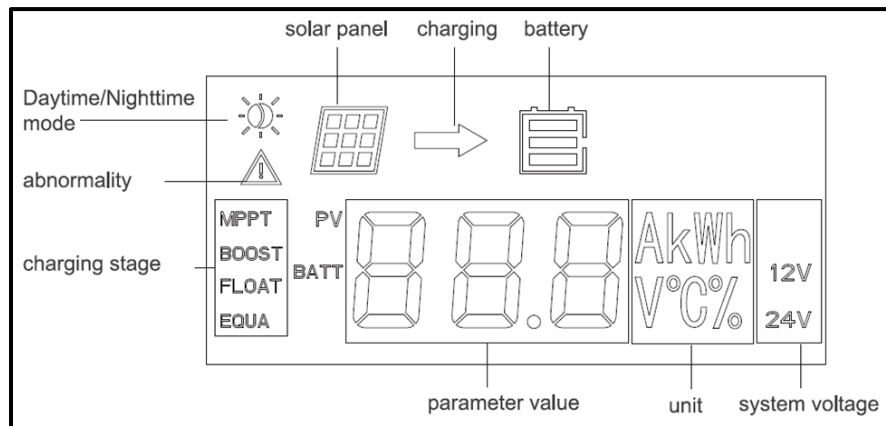


Figure 114. Display icons used on the Renogy Rover Elite 20A and 40A charge controllers.

Main Display Screens / Operating the Unit

The main display can cycle through the following screens using the operating keys shown in Figure 113. The LCD display description in Figure 114 will also help interpret the information shown on each screen. The interested reader is directed to the User Manual for additional examples and details.

Screens Available (cycles from top to bottom, then back to top):

- Main Screen (shown at right)
- Solar Panel Voltage
- Charging Current
- Battery Voltage
- Accumulated Amp Hours
- Ambient Temperature
- Error Code – This screen will not display unless there is an error. The menu will normally go from ambient temperature back to the main screen.

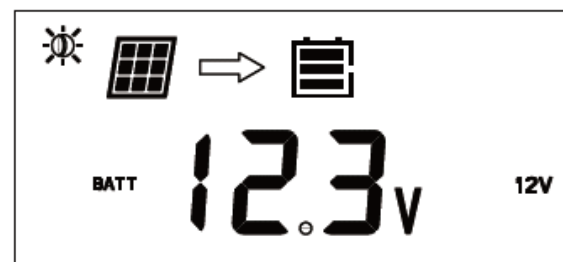


Figure 115. Renogy Rover Elite display.

In Figure 115, the charge controller is not receiving energy from the connected PV panel(s) and the battery is at 12.3V.

Programming

Programming and reprogramming the unit (in the case of battery upgrade or conversion) are beyond the scope of this manual and the interested reader is directed to the Renogy Rover Elite User Manual.

Renogy DC Home app (Bluetooth)

The **Renogy DC Home app** is a mobile application designed to work with Renogy's range of solar energy products, providing users with real-time monitoring and control of their solar power systems. This app enhances the functionality of Renogy's devices, offering convenience and insight into how your system is performing through a user-friendly interface. The main advantage of this functionality is for system monitoring, remote control, historical data, and customizable notifications. The interested reader is directed to the owner's manual for more information.

Lithium Battery Reactivation

Rover MPPT charge controller has a reactivation feature to awaken a sleeping lithium battery. The protection circuit of lithium battery will typically turn the battery off and make it unusable if over-discharged. Without the wake-up feature to reactivate and recharge batteries, these batteries would become unserviceable and the packs would be discarded. The Rover will apply a small charge current to activate the protection circuit and if a correct cell voltage can be reached, it starts a normal charge.

Additional Components

Remote Temperature Sensor: This sensor measures the temperature at the battery and uses this data for very accurate temperature compensation. The sensor is supplied with a 9.8ft cable length that connects to the charge controller. Simply connect the cable and adhere the sensor on top or the side of the battery to record ambient temperature around the battery.



Figure 116. Renogy remote temperature sensor.



Do not use this sensor when charging lithium batteries.

Renogy Rover Elite Troubleshooting

If there is abnormal operation of the solar controller, it may be posting error codes. The error codes are found by scrolling through the display screens.


Table 37. Renogy Rover Elite error code meanings and suggested actions.

Error Code (on screen)	WHY?	WHAT SHOULD BE DONE?
E0	No Error	System behaving normally, no action needed. When this condition exists, the error code screen is not shown.
E01	Overdischarged battery	Use a multi-meter to get a reading of the battery voltage in volts DC to validate error code. Battery is very low. Disconnect any loads to the battery and let the solar system charge the battery backup. If the battery voltage is low it may be in open battery protection mode, which is a Rover Elite Protection.
E02	Battery Overcharging	Use a multi-meter to get a reading of the battery voltage in volts DC to validate error code. Battery is charging very high and approached 16VDC. Disconnect any external chargers and isolate which charger is overcharging battery. Eliminate from system.
E06	Controller internals over temperature	Make sure controller is in ventilated area and that the appropriate wire sizes are used to connect to and from the controller. This may be creating heating issues inside the controller. The controller will resume normal operation upon cooling down.
E07	Controller is overtemperature	Record the ambient temperature found in the controller screen. Make sure the controller is not placed in direct line of heating sources or that it is over-heating due to over-sun exposure. The controller will resume normal operation upon cooling down.
E10	PV Overvoltage	The controller has a maximum dc voltage input of 100 VDC. If connecting your panels in series, make sure the reading does not go over this limit. Check with a multi-meter before connecting to the controller to ensure you're within this specification. This might require using less panels.
E13	PV reverse polarity	The solar panel wires are connected in reverse polarity. Verify using a multi-meter to make sure your voltage reading has the correct polarity with a positive number in volts DC.
E14	Battery reverse polarity	The battery cables are reversed. Use a multi-meter to make sure your voltage reading has the correct polarity (Red to positive and Black to negative) with a positive number in volts DC. If the number is negative, switch the positive and negative battery cables in the battery terminal of the Rover Elite.

Table 38. Additional troubleshooting steps for the Renogy Rover Elite.

WHAT IS HAPPENING?	WHAT SHOULD BE DONE?
The battery is connected to the controller, but the controller is not turning on	Reverse Battery Polarity Protection
	The Rover Elite needs a correct battery connection to startup. This might mean that the battery cables are reversed. Use a multi-meter to make sure your voltage reading has the correct polarity (Red to positive and Black to negative) with a positive number in volts DC. If the number is negative, switch the positive and negative battery cables in the battery terminal of the Rover Elite.
The battery and solar panels are connected to the controller, but the controller shows nighttime.	Solar Panels Reverse Polarity Protection
	The solar panel wires are connected in reverse polarity. Verify using a multi-meter to make sure your voltage reading has the correct polarity with a positive number in volts DC. In some cases, with the battery and solar panels both connected in reverse polarity, the controller will not turn on, but the controller is not damaged. Simply correct the reverse polarity to continue normal operation.
When connecting solar panels to the controller it sounds an alarm	Solar Panels Over voltage
	The controller has a maximum dc voltage input of 100VDC. If connecting your panels in series, make sure the reading does not go over this limit. Check with a multi-meter before connecting to the controller to ensure you're within this specification. This might require using less panels to make sure you are within the Rover Elite specified input.
My system stopped charging	E02 Battery Overcharging
	If the battery was charging fine and stopped, it could be because it was being overcharged by the solar source if not an external source. You might see an E02 display or perhaps an empty screen. Make sure your charging sources are not charging at 16VDC or check to see if your batteries are being equalized, an intentional over-charging, that might be triggering this error.
Current Limiting / Temperature Protection	Current Limiting / E06 / E07
	The max amp charging from the Rover Elite will be the respective amp rating. The Rover Elite will current limit any excess amperage than the rating of the controller, however, be cautious as this might create excess heat and put the controller in an internal/external temperature protection mode which will halt the controller performance until it can cool down and function normally again.

WHAT IS HAPPENING?	WHAT SHOULD BE DONE?
The charge controller believes the battery is over-discharged, but it is not	Open Battery Protection Mode
	Whether connecting the system for the first time or operating it for a while, you may experience an E01 error if the controller does not actually detect a battery and assumes it to be under-discharged. This can happen in an accidental line break or failure to connect it correctly the first time. This will not damage the controller, but you will need to make sure the battery voltage is the same as the battery terminal voltage or check for continuity. Once fixed, normal operation should continue.

	Further troubleshooting information can be found on the Renogy Learning Center at the following links:
	<ul style="list-style-type: none"> • Charge Controller Troubleshooting Guide • Troubleshoot Renogy Rover Elite 20A and 40A Charge Controller

Renogy Rover Elite Maintenance

As per the Maintenance Schedule, please perform the following checks and adjustments:

1. Check around the controller to ensure it is clean and dry.
2. Check the wiring going into the charge controller and make sure there is no wire damage or wear.
3. Tighten all terminals and inspect for any corrosion or loose, broken, or burnt up connections.

Victron SmartSolar MPPT 100/30 Solar Charger (If Equipped)

Overview

The Victron solar charger manages the charging of batteries from the input of the installed solar panel(s). It uses Maximum Power Point Tracking (MPPT) technology to maximize energy capture from solar panels. It can manage up to 100 Volts of solar panel input and will charge batteries at a variable rate up to 30 Amps, and is suitable for 12 V or 24 V batteries.

The charger is able to utilize the **VictronConnect** app for programming and monitoring, available on app stores for the

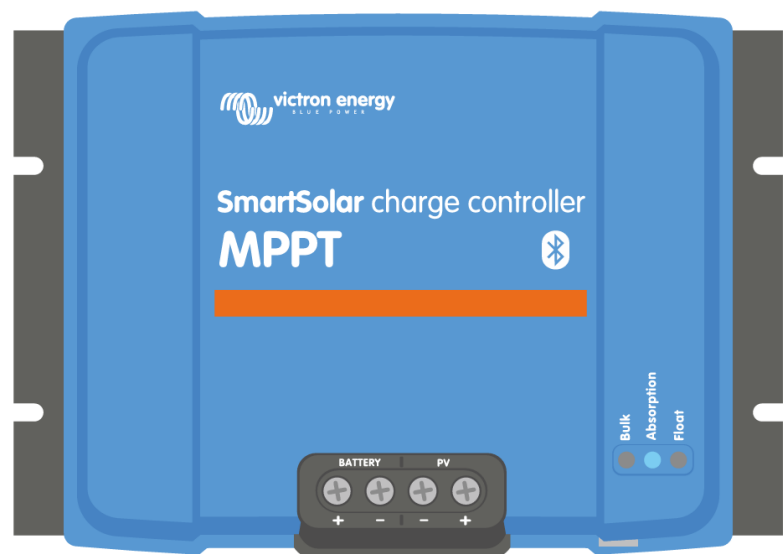


Figure 117. Victron MPPT Solar Charge Controller.

Android, Windows (USB connection only with optional VE.Direct USB Interface,) Apple iOS (Bluetooth connection only,) and MacOs platforms.

Normal operation of the device requires no user intervention, but there are times when the user may need to disconnect/connect solar panels or batteries or change programming of the solar charge controller when changing batteries or system configuration. See the procedure below for Shutdown and Restart.

⚠ CAUTION

THE SOLAR CHARGER WILL BE PROGRAMMED FOR GEL-TYPE BATTERIES WHEN INSTALLED AND SHIPPED FROM ALLIANCE, UNLESS THE SUPER SOLAR PACKAGE IS INSTALLED (WITH RENOGY LITHIUM BATTERIES PROVIDED FROM THE FACTORY.) IF LITHIUM OR LEAD ACID BATTERIES ARE INSTALLED BY THE DEALER, THE SOLAR CHARGER MUST BE PROGRAMMED TO CORRECTLY MANAGE THOSE BATTERIES. PLEASE REFER TO ALLIANCE TECH TIP 20, LINKED BELOW, FOR INFORMATION ON HOW TO PROGRAM THE CHARGER FOR THESE SITUATIONS.



[Victron MPPT solar charger manual for SmartSolar MPPT 100/30](#)



[Victron Software Downloads Page](#)

Identification

Figure 118, bottom, is looking at the bottom of the charger, where most of the important features can be seen. The table below the image identifies the parts.

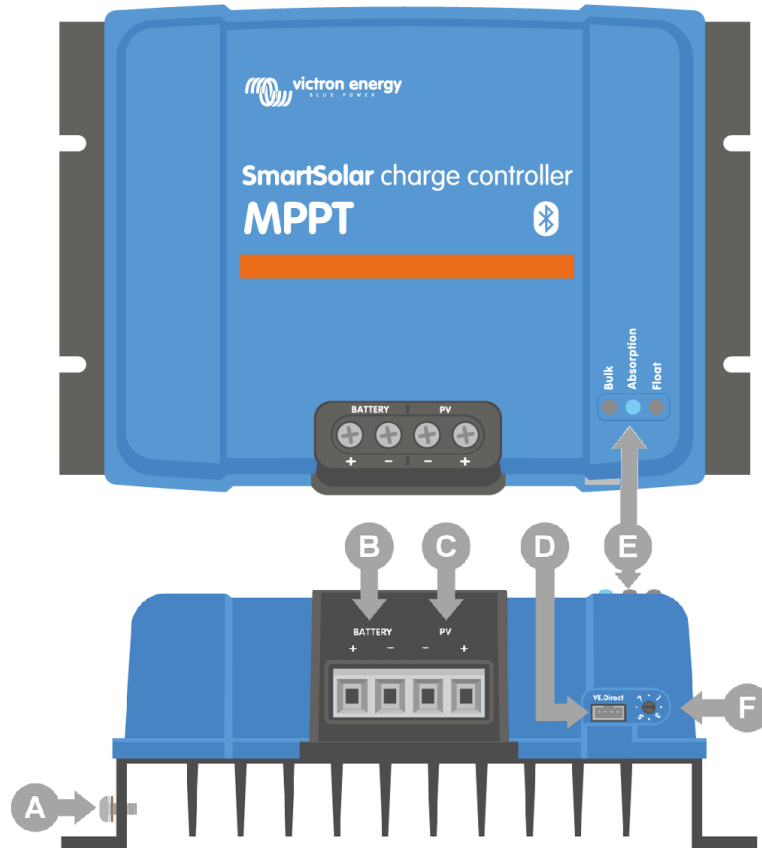


Figure 118. Victron MPPT charge controller interface identification.

Table 39. Victron interface identification. See Figure 118.

ID	DESCRIPTION
A	Ground screw
B	Battery screw terminals
C	PV (solar panel) screw terminals
D	VE.Direct socket
E	Operation/Fault LEDs
F	Rotary switch (battery type quick programming)

Shutdown and Restart Procedure

The solar charger is always active when the PV and/or the battery terminals are powered. The solar charger does not have an on/off switch.

To shut down the solar charger, perform these steps in the prescribed order:

1. Disconnect the PV supply to the solar charger by switching the Solar Disconnect rotary switch to OFF.

2. Disconnect the battery supply to the solar charger by switching the battery supply off. For Alliance trailers, this means first turning off the Battery Disconnect rotary switch, **then disconnecting the negative battery lead**. In the case of multiple batteries, disconnect the negative battery lead at the single point of connection to the 12 V bus bar.

To restart the solar charger after it was shutdown, perform these steps in the prescribed order:

1. Connect the battery supply to the solar charger by connecting the negative battery lead to the 12 V bus bar. Be sure to also re-enable the Battery Disconnect rotary switch when desired, as this switch has no influence on the solar charger connection on Alliance trailers but will affect the remainder of the trailer.
2. Reconnect the PV supply to the solar charger by switching the PV supply on or by turning on the Solar disconnect rotary switch.

Monitoring Operation via LED Indicators

The status of the LED lights will inform you as to what the current operation is, or if there is a noted fault which requires further investigation. Symbols determining if the LED is on, blinking, or off, are identified in Table 40. Victron LED interpretation..

For the latest and most up-to-date information about the LED blink codes, refer to the **Victron Toolkit** app. The app is available for Apple and Android. The app can be downloaded from the respective app stores or at the link provided above.

Table 40. Victron LED interpretation.











SYMBOL	MEANING
	LED is on (solid)
	LED is blinking
(blank)	LED is off

Table 41. Victron LED Interpretation.









OPERATION MODE	BULK LED	ABSORPTION LED	FLOAT LED
Not Charging ¹			
Bulk ¹			
Absorption ²			
Float ²			
Manual Equalization (alternating blinking) ²			
Automatic equalization ²			

OPERATION MODE	BULK LED	ABSORPTION LED	FLOAT LED
----------------	----------	----------------	-----------

Notes:

1. The bulk LED will blink briefly every 3 seconds when the system is powered but there is insufficient power to start charging.
2. The LED(s) might blink every 4 seconds indicating that the charger is receiving data from another device, this can be a GX device (ESS) or a VE.Smart Network link via Bluetooth.

Table 42. Victron LED Interpretation - fault modes.

FAULT MODE	BULK LED	ABSORPTION LED	FLOAT LED
Charger temperature too high			
Charger over-current			
Charger or panel over-voltage			
VE.Smart networking or BMS issue			
Internal error, calibration issue, settings data lost or current sensor issue.			

Monitoring Operation via the VictronConnect app

The VictronConnect app can be used to monitor the solar charger, see its historical values and if there are operational warnings or errors. It is beyond the scope of this manual to discuss the app. More information about using the VictronConnect app to monitor this device can be found in section 7 of the solar charger manual, linked above, or one may also refer to the VictronConnect app manual, linked below.

	VictronConnect app manual
---	---

Programming Options

The Victron solar charger is shipped from Victron with a default setting of Gel-type batteries. If your trailer is equipped from the factory with one or more Lithium batteries, the charger will be reprogrammed to work with that battery. However, **if the dealer has provided batteries, of any type, the charger programming will need to be updated to properly work with the battery type installed.** This can be done with either the rotary switch on the bottom, via Bluetooth and the VictronConnect app, or via a USB connection via an optionally available adapter through the VE.Direct port.

⚠ WARNING

DO NOT CHANGE SOLAR CHARGER SETTINGS UNLESS YOU KNOW WHAT THEY ARE AND WHAT THE EFFECT OF CHANGING THESE SETTINGS CAN BE. INCORRECT SETTINGS MAY CAUSE SYSTEM PROBLEMS INCLUDING DAMAGE TO BATTERIES. WHEN IN DOUBT, SEEK ADVICE FROM AN EXPERIENCED VICTRON ENERGY INSTALLER, DEALER OR DISTRIBUTOR.

Victron Solar Charger Troubleshooting

If you suspect the solar charger is not performing correctly, or the LEDs on the front panel indicate a fault condition, use the VictronConnect app to review the status of the charger. The Victron manual for the charger contains extensive information on potential faults occurring with the charger, how to verify if certain faults are occurring, and how to correct them. It also includes information on the error codes used in the app related to the MPPT chargers.

Victron Solar Charger Maintenance

As per the Maintenance Schedule, inspect the charger and check the cable screw terminal torque as follows:

1. Inspect the housing and area surrounding the housing for any signs of water damage / stains or mechanical damage (loose or broken wires, cut or damaged insulation, discolored wire insulation, or marks from any unrelated objects contacting the housing or area around it.)
2. Using a torque wrench with adapter, ensure the screws have a torque of 1.6Nm (14 in-lbs.)

TV & STEREO

ALL TV

ALL TV is an effort to simplify the overall configuration and wiring for the AV system in your RV. We've taken steps to eliminate connection points, wall plates and the overall burden of work when trying to switch from one AV source to another.

Regardless of TV antenna model, at each new location, an initial channel scan must be run on each TV. Ensure that the antenna power supply is in the on position and the green light is illuminated on the booster plate. The location of the booster plate is usually mounted on the front pass-through storage area wall on the Door Side of the trailer. A scan will find any new channels that have been added in your area. Follow the channel scan instructions for your TV when running a new scan.


[How To Setup My Alliance RV TV](#)

The COAX wiring system is configured as shown in Figure 119. One component not shown in the diagram is the living room radio. It is connected to the antenna line between the Booster Switch and living room TV outlet.

SATELLITE TV

1. Connect coax line from Satellite Dish to "SAT" input on front of Utility Panel.
2. Connect one of the Unconnected Satellite Lines (for desired TV) to backside of "SAT" input on Water Utility Panel.
(Note: These satellite lines were left unconnected intentionally by the factory, so you can choose which TV you want to connect to the satellite. To connect multiple TVs with satellite an aftermarket SWM or multi-switch will be required)
3. Connect Satellite Receiver to Wall Plate (coax cable) and TV (HDMI cable) per satellite providers instructions.
4. Utilize television remote control to select satellite input on the TV.

OVER-THE-AIR & CABLE TV

- **Over-The-Air**—Turn "ON" green LED located on the Booster Switch
- **Cable**—Connect cable from the park to the "CABLE" input on Utility Panel, and turn "OFF" green LED located on the Booster Switch.
- Utilize television remote control to access TV menu and scan for channels.

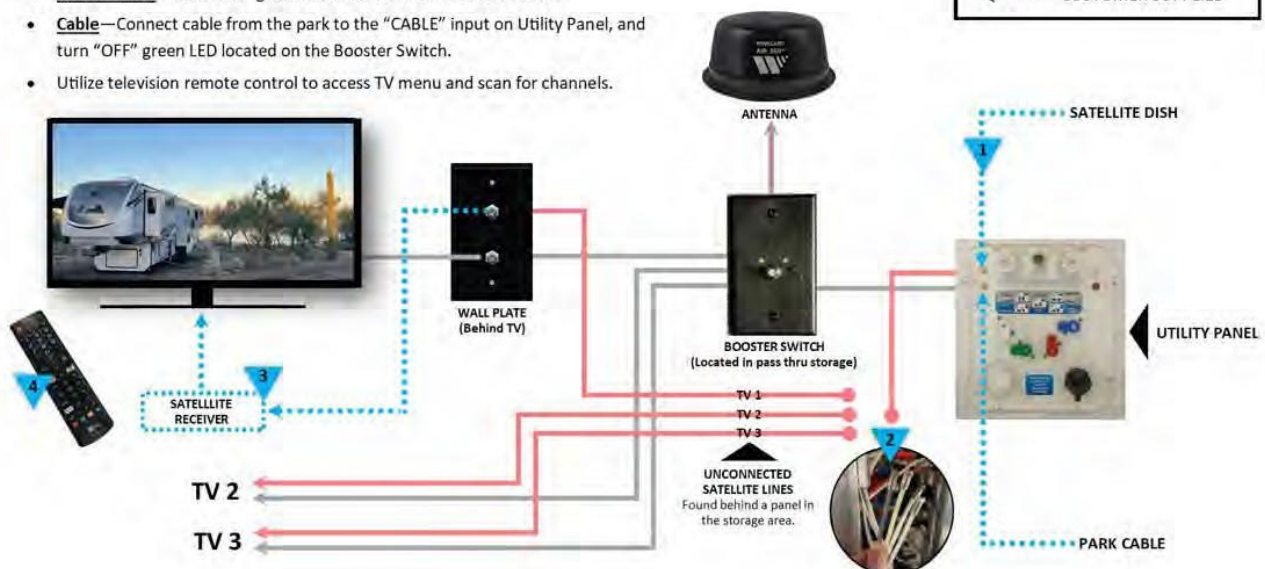


Figure 119. Alliance RV All TV COAX wiring system.

In order to connect a satellite antenna, one will need to connect to the marked port on the Nautilus P3 panel and then use a Male/Male connector between that feed and the desired TV feed behind the booster switch panel with the group of white COAX wires. These wires are bundled together at the factory.



For information on connecting a satellite dish or campground-provided Cable to the to the AV system, see the plumbing section regarding the Nautilus P3 Centralized Docking Station.

Winegard TV Antenna

Avenue trailers made prior to 2025 are equipped with a Winegard Air 360+. This unit provides signal amplification of television and radio signals and also is cellular internet ready and can be upgraded easily with the Winegard Gateway for 4G LTE & WiFi capabilities. It is a low-profile dome that requires no aiming or pointing to pick signals up. Be sure to read the full manual for your antenna for all features and functionality.



Figure 120. Winegard Air 360+ antenna. This combines TV, radio, and cellular (for Wifi) reception. Note that a Wifi router is not included, but purchased as an additional component.



[Winegard Air 360 Installation and Owner's Manual](#)

Winegard Booster Switch

The booster switch is normally located in the passthrough storage of your trailer, and its exact location can vary by model. Most trailers have them in the forward passthrough area.

This panel provides power to the tv/radio antenna (left button,) and the wifi router if equipped (right button.) When the tv/radio button is depressed and the light is ON, then your TV and radio are receiving the TV antenna signal for Over-The-Air viewing. If this is OFF, then the system is routing the incoming Cable TV signal (from the cable connected to the CABLE port on the Nautilus panel) to the ports in your trailer.

Winegard Gateway (Wi-Fi)

The Winegard Gateway is an optional module with a pre-installed port location on the ceiling of the RV just below where your antenna is installed. Please refer to the following video on how to access the wiring and install the gateway should you wish to add it.



Figure 121. Winegard booster switch, with booster and Wifi enabled.



[WYKW: Winegard Gateway Installation and Booster Power](#)

Taoglas TV Antenna

Starting in 2025, Avenue trailers are equipped with a Taoglas LoPro Connect 4-in-1 antenna model MAR140.A.001. Similar to the prior antenna, this unit provides signal amplification of television and radio signals and also is cellular internet ready and can be upgraded easily with a cellular modem/router. It also requires no aiming or pointing to pick signals up.

Taoglas Booster Switch

The booster switch is normally located in the passthrough storage of your trailer, and its exact location can vary by model. Most trailers have them in the forward passthrough area.

This panel provides power to the tv/radio antenna and the wifi router if equipped. When the tv/radio button is depressed and the light is ON, then your TV and radio receive the TV antenna signal for Over-The-Air viewing. If this is OFF, then the system is routing the incoming Cable TV signal (from the cable connected to the CABLE port on the Nautilus panel) to the ports in your trailer.

Television & Stereo Setup and Operation

Due to the large variety of models of televisions and stereos installed in Alliance RV units, please review the owner's manual for your tv or stereo for operation. For a list of installed equipment along with links to their manuals can be found at Alliance Academy.

TV Signal Troubleshooting

If one or more of your TVs is not displaying the intended programming, please follow this troubleshooting list, in order, to help diagnose and fix common issues. If after following this list you're unable to achieve the desired viewing, please contact your Alliance Dealer or other service provider.

Common COAX Troubleshooting Steps

When troubleshooting using the guidance in the next section, many remedies will suggest one of these procedures. Executed carefully, these procedures can often remedy COAX problems.

Checking all relevant COAX connections.

1. Starting at the back of the problematic TV, check to ensure COAX cable is tight at the TV, and the Wall Plug.
2. Next, remove the wall plate (cable(s) still connected) and check to ensure the COAX connections on the back of the wall plate are tight.
3. If this TV outlet is near the living area radio, locate the COAX splitter providing a signal to the radio, and ensure all connections on that splitter are tight.
4. Finally, check all fittings on the back of the plate for the booster switch.

Common symptoms and remedies

Symptom: One or more TVs are able to see many TV channels after performing a Channel Scan, while one or more are not able to see the same channels.

Possible Issues:

Loose COAX connection: Check all COAX connections.

Damaged COAX cable: If all connections are tight, exchange the COAX cable from the problematic TV with the one from a working TV. If all channels are now found, discard the removed cable and replace.

Symptom: No TVs are finding the number of channels expected with Over-The-Air (OTA) reception. They have been able to receive OTA programming in the past.

Possible Issues:

Ensure the Booster is turned OFF.

Potential signal interference: Is the RV parked near a large metal structure (for example, a park model trailer with carport in an RV resort?) If so, very localized disruption of TV signals can occur in this situation.

Loose COAX connection: Check all COAX connections.

Damaged COAX cable: If all connections are tight, exchange the COAX cable from the problematic TV with the one from a working TV. If all channels are now found, discard the removed cable and replace.

Symptom: No TVs are finding the number of channels expected with CABLE reception. They have been able to receive CABLE programming in the past.

Possible Issues:

Campground CABLE source: Ensure the campground cable feed is in working order at the power pole. Ensure tight connections from the campground CABLE source to the trailer at the Nautilus panel.

Ensure the Booster is turned ON.

Loose COAX connection: Check all COAX connections.

Symptom: A TV cannot connect with the satellite source. If the satellite receiver is connected directly to the dish/source, it works well.

Possible Issues:

Satellite input at Nautilus not connected to TV/Room feed.

1. Each satellite COAX connection has a white COAX cable connected to the back (in-wall side) of the plate. Remove the plate and ensure the lower COAX cable is white. Ensure the satellite receiver box is connected to that COAX port on the wall plate.
2. Near the booster switch, behind the wall, is a bundle of white COAX cables. Each cable connects to a different COAX plate. One will be for the service entrance at the Nautilus,

one will be for the room of interest (for example, the living room.) Using a Male/Male COAX connector, ensure the two desired cables are connected.

3. If the problem TV is the living room TV, remove the radio from its mounted position and gentle pull it out. Follow the antenna cable to the splitter. Verify the COAX cable connection color. If the wire leading from the splitter to the TV is white, then go back to the TV wall plate and connect the satellite receiver to the non-white (other) COAX cable. Most satellite signals will not travel through a splitter well.

Loose COAX connection: Check all COAX connections.

Damaged COAX cable: If all connections are tight, exchange the COAX cable from the problematic TV with the one from a working TV. If all channels are now found, discard the removed cable and replace.

MONITOR PANEL

This system allows monitoring of fresh water, gray water, black water and battery levels. All functions are controlled from computer grade tactile switches for easy operation. Power control of the water heater, water pump, tank heaters, some of the RVs lights, awnings and slide-outs are also done from the central monitor panel. Controls are explained in the sections of interest.

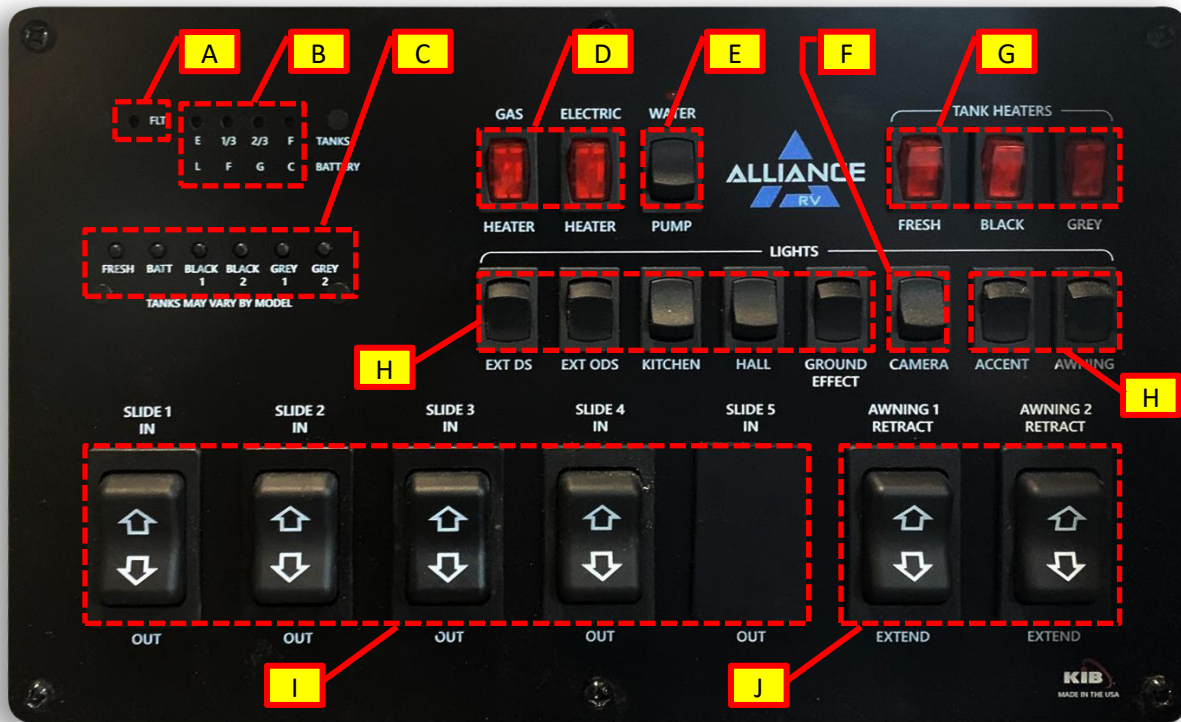


Figure 122. Monitor panel with sections highlighted.

Table 43. Monitor panel control group identification.

ID	DESCRIPTION
A	Water Heater Gas Fault Light
B	Holding Tank & Battery Charge Levels
C	Holding Tank Levels Selector Buttons
D	Water Heater Power Switches
E	Water Pump Power
F	Backup Camera Power
G	Fresh Water & Holding Tank Heating Pads
H	Light Switches
I	Slide out Room Controls
J	Awning Controls




OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com

Backup Camera


The trailer has a pre-wired backup camera location at the top-rear of the trailer. The mounting location is covered and sealed with a circular black plastic cover. When mounting a camera, one removes the cover, and the +12 V and ground wires are attached to the cover. **The Camera switch on the Monitor Panel controls power to this location- and must be ON for the camera to receive power.** The camera can then be mounted at this location using proper screws and sealant.

AWNINGS

Your Alliance RV comes standard with a power awning and in some cases, depending on the floor plan, may have two power awnings installed from the factory.

	WYKW: Best Practices for Patio Awnings Use
---	--

	Solera 3000 Series 12V Power Awning Owner's Manual
---	--

	<p>Early model year Avenue Trailers were equipped with the Carefree of Colorado "Compass" model awnings. Information about these awnings can be found at this link.</p> Carefree of Colorado Compass Awning Service Manual
---	--

Awning Operation

The awning controls are located at the lower-right corner of the Monitor Panel, in section J of Figure 122. Late model Alliance trailers also include remote awning controls in the front pass-through storage on the Door Side of the trailer. Either switch location may be used at any time. Awning 1 is the awning closer to the front of the trailer.

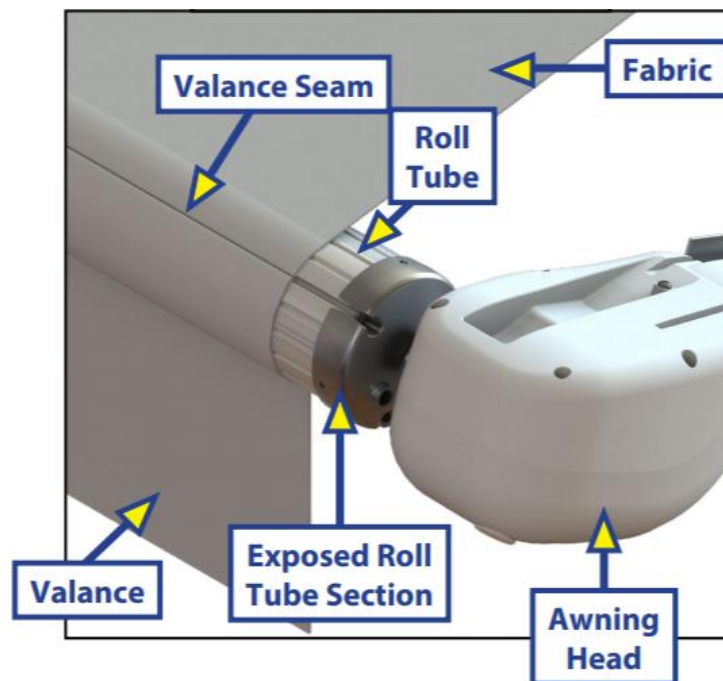


Figure 123. Awning part identification at full extension.

Extending the Awning

1. First verify that the battery is fully charged and connected to the electrical system.
2. Press and hold the awning extend button in the monitor panel.



Extension is considered complete when the fabric is completely unrolled, the valance seam is visible and a section of the awning tube is exposed.



The fabric should always be above the tube. However, if the extend switch is engaged too long or it is accidentally hit, the awning will roll up backwards. To correct the orientation of the fabric, press the retract button to extend it to its correct position and normal operation can resume.



[WYKW: Awning Operating in Reverse](#)

⚠ WARNING

TYING DOWN THE ROLLER TUBE ONCE THE AWNING IS EXTENDED WILL NOT ALLOW THE FREE-FLOATING SUPPORT ARMS TO WORK AS DESIGNED AND CAN CAUSE DAMAGE TO THE AWNING AND/OR RV.

Retracting the Awning

1. Always check the battery first to ensure it's charged and tied into the electrical system.



The awning can be retracted without resetting the pitch.

2. Press and hold the retract button until the awning is retracted completely.

Adjusting the Awning Pitch

Pitch can be set by adjusting the articulating arm to tip one side of the awning in order to allow water runoff.

1. Extend the awning.

2. Choose the side of the awning for optimum shade or convenient water runoff. Pull down on the joint of the articulating arm until desired pitch is set to allow for water runoff. Never push the joints of the articulating arms up. This will put tension on the gas strut, which can cause the strut to break.

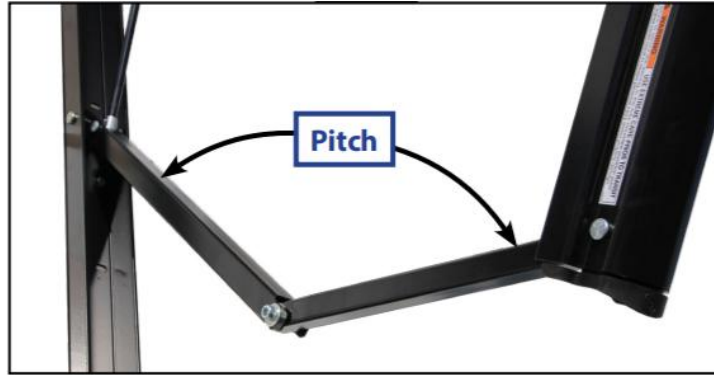


Figure 124. Awning pitch adjustment location. Pull down on the center of the arm to lower pitch.



If the articulating arm does not hold position, it can be tightened by adjusting the bolt in the center of the articulating arm.

⚠ CAUTION

DURING INCIDENTS OF HIGH WIND, HEAVY RAIN OR EXTENDED TIME AWAY FROM THE RV, BE SURE TO RETRACT THE AWNING COMPLETELY TO PREVENT DAMAGE TO THE AWNING AND THE RV.

Awning Component Breakdown

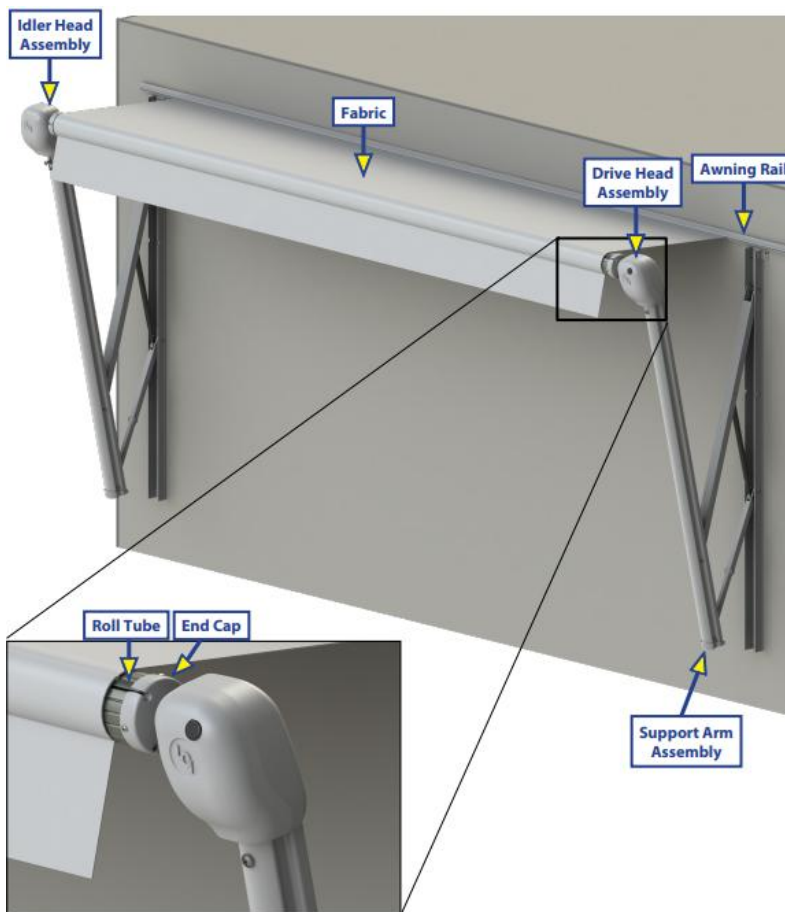


Figure 125. Awning components of interest.

Awning Troubleshooting



[Solera Power Awning Troubleshooting and Service Manual](#)

Awning Maintenance

Cleaning & Inspection

As per the Maintenance Schedule, perform the following tasks:

1. Extend the awning and clean it with mild soap and water, or approved awning cleaner. Allow awning to dry before closing.
2. While running the awning out and in, monitor the gas struts. If bouncing or rough operation is witnessed, open the awning fully, and wipe the exposed strut shafts with a small cloth dampened with silicone lubricant.
3. With the awning out, carefully inspect upward (from underneath the awning) to verify the awning rail has not started to separate from the trailer side. If evidence of this is seen, contact an appropriate service provider to remedy.

Awning Manual Override

If you lose power or experience motor failure, the awning can be extended and retracted manually. This override can also be used if you're dry camping or camping without a battery.

1. Remove the rubber grommet from the drive head assembly (on the right or forward arm,) this will expose the override nut on the motor.

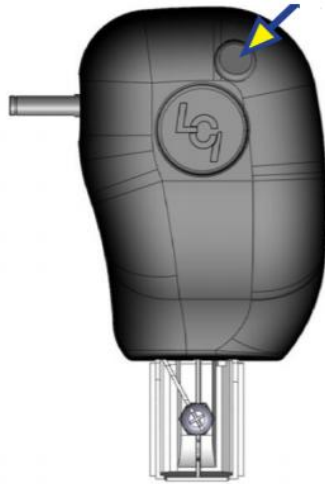


Figure 126. Location of rubber grommet covering the awning manual override. Location may vary slightly due to manufacturer differences.

2. Using a 7/16" socket and a drill, turn the override nut counterclockwise to retract the awning.



Figure 127. Using a drill to manually retract or extend awning.

3. When the awning is completely retracted, remove the drill and replace the rubber grommet.

Slide-out Topper Prep

The trailer is prepped with a slide topper prep kit to allow for easy installation of a Solera Slide-out Topper at a later date. The top left and right hand corners, just beneath the slide-out fascia, you'll find the bracket (shown below) installed.

For assistance with parts and or questions regarding the slide-out topper prep kits, please contact your Alliance Dealer or Alliance RV.



Figure 128. Slide topper prep with cover. Note the cover may be black.



[Solera 1000 Series Slide Topper \(Aftermarket Installation and Owner's Manual\)](#)

Slide-out Toppers (If Equipped)

Late model Alliance RVs can be purchased with Solera Series 1000 Slide Toppers installed. Slide toppers are affixed to the top of the side and the side of the trailer and require no user intervention.



[Solera 1000 Series Slide Topper Owner's Manual](#)

Slide Topper Component Breakdown

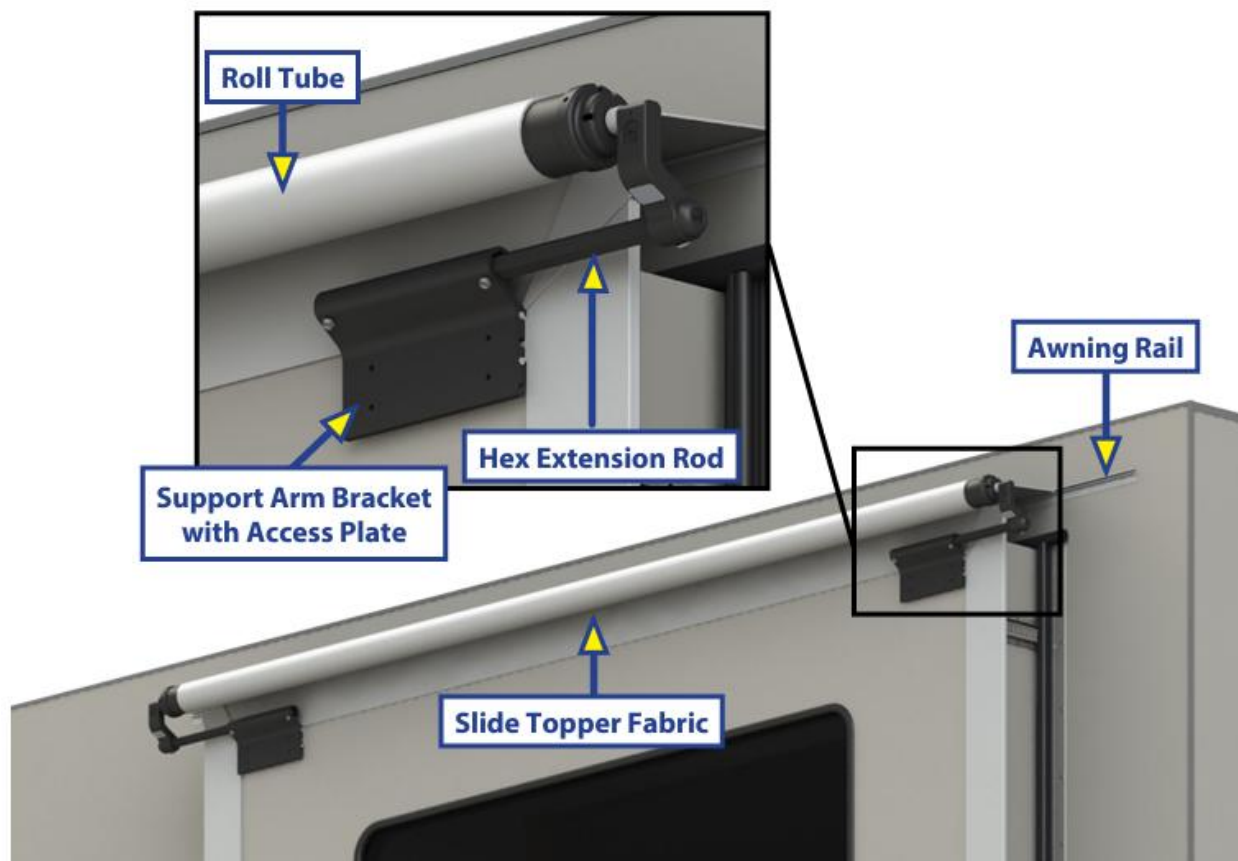


Figure 129. Slide topper component identification.

HEATING, COOLING & VENTILATION

Furrion Single Zone Thermostat (IF Equipped)

When equipped, and depending upon floorplan and options purchased, your Avenue trailer will have between one and three individual thermostats. Each thermostat controls a single rooftop air conditioning unit. The bedroom area thermostat will also be connected to your Suburban propane furnace to manage heating your RV.



[Furrion Single Zone Basic Wall Thermostat](#)

Identification

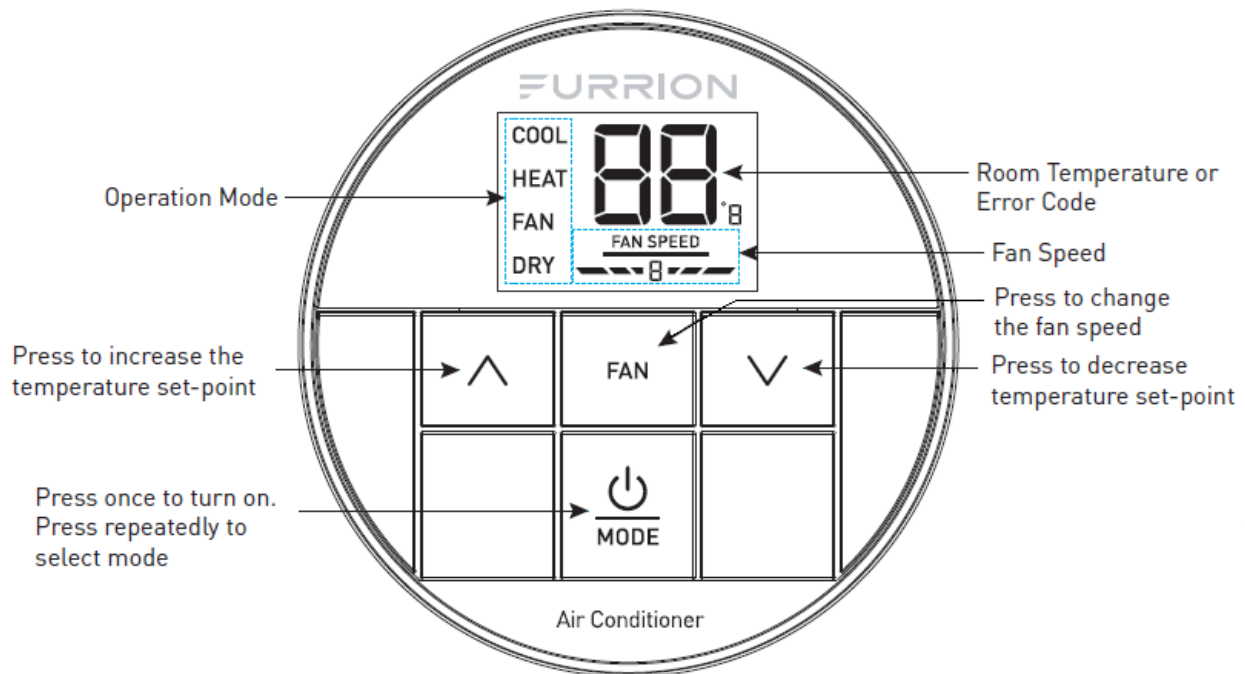



Figure 130. The display and buttons of the Furrion single zone thermostat.

Operation

- To turn on: Hold the Power/Mode button for 3 seconds.
- To turn off: When on, hold the Power/Mode button for 3 seconds.
- To cycle between modes: Once on, press the Power/Mode button to cycle through the COOL, HEAT (if enabled), FAN, and DRY modes.
- To set the Fan Speed: Press the FAN button to cycle through Low, Medium, High, Auto, and Off.
- To change the set point temperature: Press the Up and Down arrow buttons.
- To change between Fahrenheit and Celsius: Simultaneously press the Up and Down arrow keys for three (3) seconds. The display will show °F or °C to indicate the current format.

Modes Available

The following descriptions detail how the system will run in each of the available modes on the thermostat.

	<p>Fan AUTO mode: In auto modes, the fan speed will change relative to the difference between the room temperature and the set-point temperature. When that difference is greater than three (3) degrees, it will run on HIGH. When that difference is between one (1) and three (3) degrees, it will run on MEDIUM. When there is less than one (1) degree difference, the fan will run on LOW.</p>
---	--

COOL Mode:

- The system will cycle the compressor on and off based on the room temperature and the temperature set-point.
- The fan will be turned on after the compressor is running.
- There are four (4) fan speed selections in this mode. Use the FAN button to change the speed.
 - **Low:** The fan operates continuously at low speed and the fan icon shows a (1) on the LCD.
 - **Medium:** The fan operates continuously at medium speed and the fan icon shows a (2) on the LCD.
 - **High:** The fan operates continuously at high speed and the fan icon shows a (3) on the LCD.
 - **Auto:** The fan speed varies depending on the difference between the temperature set-point and room temperature. The fan icon shows an (A) on the LCD.

HEAT Mode (If enabled/equipped):

- The system will cycle the furnace on and off based on the room temperature and the temperature set-point.
- The fan speed selections only apply to the rooftop fan that is part of the Air Conditioner. The fan speed selection does not change the fan speed of the furnace.
- There are five (5) fan speed selections in this mode. Use the FAN button to change the speed.
 - **Low:** The fan operates continuously at low speed and the fan icon shows a (1) on the LCD.
 - **Medium:** The fan operates continuously at medium speed and the fan icon shows a (2) on the LCD.
 - **High:** The fan operates continuously at high speed and the fan icon shows a (3) on the LCD.
 - **Auto:** The fan speed varies depending on the difference between the temperature set-point and room temperature. The fan icon shows an (A) on the LCD.
 - **Off:** The fan is off. The fan icon shows a zero (0) on the LCD.

FAN Mode:

- The Temperature set-point is not available.
- There are three (3) fan speed selections in this mode. Use the FAN button to change the speed.
 - **Low:** The fan operates continuously at low speed and the fan icon shows a (1) on the LCD.
 - **Medium:** The fan operates continuously at medium speed and the fan icon shows a (2) on the LCD.
 - **High:** The fan operates continuously at high speed and the fan icon shows a (3) on the LCD.

DRY Mode:

- The compressor runs continuously when room temperature is higher than set-point.
- Compressor cycles ON for 10 minutes and OFF for 6 minutes when the room temperature is lower than set-point.
- The fan runs continuously at Low (1) speed.

Furrion Single Zone Thermostat Troubleshooting

If the display of the thermostat indicates an error code, refer to the following table to determine what is happening. In all cases, the system will shut down.

Table 44. Furrion thermostat error codes.

ERROR CODE ON DISPLAY	MEANING
E1	Indoor temperature sensor out of order.
E2	Evaporator temperature sensor out of order.
E3	Loss of communication between the thermostat and control box.
E4	Condenser temperature sensor out of order.
E5	Outdoor temperature sensor out of order.
LO	Insufficient low level of +12V power supply.

- If the system has an E1 or E3 error, the problem may be related to a loose or damaged connection at the thermostat. One may remove the thermostat from the wall by twisting counter-clockwise to remove it from the baseplate. Inspect the wire connections and repair using appropriate methods if damage is apparent.
- For an LO error, the root cause of the problem is likely not related to the Air Conditioner or Thermostat. Ensure at least +12V is available to the system. The actual problem may be related to your batteries or RV converter.
- In all cases, contact a qualified service provider for remedy.

Furrion Air Conditioners (If Equipped)

Alliance RV main living quarters (Living Room and Kitchen) will utilize one or two “direct cool” air conditioners. These units are mounted on the exterior roof of the RV with a shroud mounted on the inside ceiling – this is called the **Air Distribution Box**. We’ve opted for most of the RV to be cooled with these direct cool units as they are significantly more efficient than your typical ducted system.

The bedroom area(s) of the RV may utilize a ducted air conditioner system, depending upon the floorplan and purchased options. Due to the nature of the design in these spaces, containing multiple rooms and areas that can be isolated with doors, a ducted system is utilized.

Each air conditioner will be operated by its own individual thermostat.

The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the recreational vehicle. The size of the vehicle, amount of window area, amount of insulation, direct exposure to the sun, outside temperature, and the number of people in the recreational vehicle may increase the heat gain to such an extent that the capacity of the air conditioner is exceeded.

As a general rule, air entering the air conditioner will be cooled about 15 to 20 degrees, depending on the outside temperature and humidity conditions. For example, if the air entering the return air grilles in the air conditioner is 80° F, the air leaving the discharge grilles in the air conditioner will be 60 - 65°F. As long as this temperature difference is being maintained between the return air and discharge air, the air conditioner is operating at its capacity. If the desired inside temperature (normally 80° F) cannot be maintained, then the heat gain of the RV is too great for the capacity of the air conditioner.

Parking the vehicle in a shaded area, keeping windows and doors shut and avoiding the use of heat producing appliances in the vehicle will help to reduce the heat gain. When possible, the addition of insulation and tinted glass (especially in uninsulated vans) should be considered.

Furrion AC Maintenance

⚠ WARNING

DO NOT OPERATE YOUR AIR CONDITIONER WITHOUT THE FILTER INSTALLED.

Cleaning the AC Filter

As per the Maintenance Schedule, clean or replace the AC Filters:

1. Remove the decorative plate by pushing the side tabs to release. The tabs are accessed by reaching up over the sides of the plate on each side.

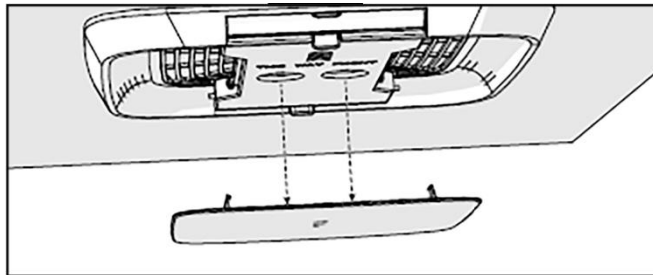


Figure 131. Removing the decorative plate for filter cleaning.

2. Remove the filters by pushing the tabs to release.
3. The filter can be washed with warm soapy water. Take care not to rip the fabric.
4. Replace the filters and decorative plate by reversing the above process.



The filter must be completely dry before re-installation.

AC Coil Cleaning

As per the maintenance Schedule, one needs to remove the top shroud and clean the Evaporator Coils,

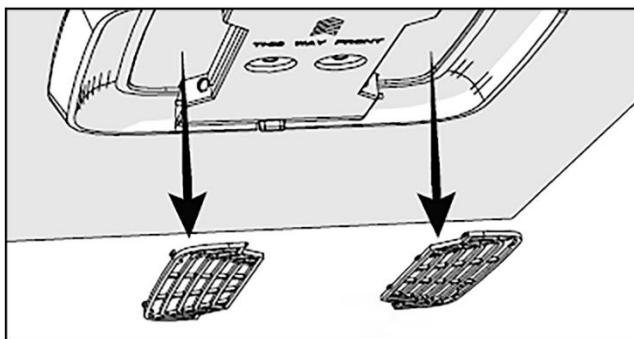


Figure 132. Removing the filters from the Air Distribution Box for cleaning.

Condenser coils, and Fan (as needed.) The process to do this standard service is beyond the scope of this manual. There are many sources of information on how to do this online, and RV service centers can also provide this service.

LCD Thermostat for Coleman Mach Air Conditioners (If Equipped)

The display normally indicates the mode and the room temperature. When the mode button is pressed once, the thermostat will wake, including illuminating a backlight. The temperature will change to the Setpoint Temperature (the temperature the system wants to maintain in whatever mode is set.) When the mode button is pressed again, the mode will change. One can also press the up or down button to wake the thermostat. Press the up or down button again to change the set temperature. The thermostat will go back to sleep after 5 seconds of no activity, and the newly selected mode (if applicable) will become active.



Figure 133. Coleman (Airxcel) LCD Thermostat interface.

The general modes of operation are as follows:

Fan Hi/ Fan Low: In this mode, the system will turn the fan on high or low and will not attempt to cool the space regardless of the temperature setting.

Cool Hi / Cool Low: In this mode the system will turn the fan on high or low, as selected. It will also engage the compressor to cool the space based upon the set-point temperature on the screen. The compressor will cycle off when the temperature is reached, but the fan will stay on the set speed.

Cool Hi Auto / Cool Low Auto: In this mode the system will turn on the fan and compressor to the selected speed only when the temperature is above the set point temperature on the display. Once that temperature has been reached both the compressor and fan will be turned off.

Heat: (Only available on the middle thermostat in the trailer) In this mode the system will turn on the furnace when the room temperature falls below the set-point temperature. Once the room achieves the desired temperature, the furnace burner will be turned off, while the fan continues to run an additional 2 minutes to cool off the furnace housing and blow out exhaust gases for safety.



There is a three-minute anti-short cycle for cooling. After the cooling system has been de-energized, which can happen by selecting the Fan or Heat mode, or turning the system off. The system will not energize again for three minutes, this is to protect the compressor on the ac unit.

Temperature setpoint values are retained for Cool and Heat modes separately. That is to say that if you set the cooling temperature to 72, and the heating temperature to 68, those values are saved for each

mode independently. Whenever a Cool mode is selected, it will use that temperature, and then automatically recall the Heat mode temperature when the mode is changed.



Hold the mode button down for 5 seconds to change from Fahrenheit to Celsius.



Operating your cooling system when the outdoor temp is below 50 deg Fahrenheit can cause damage to your cooling equipment.

Digital Thermostat for Coleman Mach Air Conditioners (If Equipped)

Late model Alliance trailers will have the Coleman digital thermostat installed. It operates similarly to the legacy LCD version, but has some display differences and also will run in a cooling/heating automatic selection mode for the central thermostat where a furnace is connected.

Room Temperature: The current room temperature is displayed in large digits in the middle of the display.

Setpoint Temperature: The setpoint temperature is displayed on the right side of the display in smaller digits.

System Mode: Information about the system mode settings is displayed at the lower-left corner of the display, circled in blue in Figure 134. The state of the cooling/heating will be shown above the box, and the selected mode will be shown in the box.

Fan: Information about the Fan settings is in the lower right corner of the display, circled in blue in Figure 134. The state of the fan will be shown above the box (on/off) and the setting (Low, High, and Auto if selected) will be shown in the box.

Selection Knob: Use the Selection Knob to change the mode, set the fan, and setpoint temperature. You can push on the knob to accept a setting. If it's not pushed, it will automatically "accept" the set value after 7 seconds. See below for operation details.



Figure 134. Coleman digital thermostat.



Hold the Selection Knob down for 4 seconds to change from Fahrenheit to Celsius.

Operating the Thermostat



[Coleman Digital Wall Thermostat Manual](#)

The Selection Knob is the only input method for the thermostat. Depending upon the current state of the thermostat/system, the knob enables certain functions.

1. System off: The knob has no effect when turned. Press the knob to enable Mode Selection.
2. Mode Selection: If the knob is pushed at any time before being turned, you will enter Mode Selection.
 - Turning the dial changes the selected mode, flashing in the lower left corner (Cool, Dry Cool, Heat (if equipped,) and Cool+Heat (if equipped.) Push the knob to accept the state.
 - The Fan mode is now flashing. Rotate the dial to select the desired setting (Lo, Hi, Lo Auto, Hi Auto.) If Dry Cool is selected, you will not be able to set the Fan mode. Push the dial to accept.
 - The system now runs in the selected HVAC state (cool/heat) and fan speed, related to the Setpoint Temperature.
3. Running in any mode: Turning the knob will change the Setpoint Temperature. Push to accept or let the system automatically “accept” the setting after 7 seconds.
4. Turn the system off: With the system running, push the Selection Knob. Rotate until the HVAC State is “off” and push the knob again.



In Alliance trailers, only the middle thermostat has a furnace connected.

Coleman Mach Air Conditioners (If Equipped)

Alliance RV main living quarters (Living Room and Kitchen) will utilize one or two “direct cool” Coleman air conditioners. These units are mounted on the exterior roof of the RV with a combination shroud mounted on the inside ceiling of the RV. We’ve opted for most of the RV to be cooled with these direct cool units as they are significantly more efficient than your typical ducted system.

The bedroom area(s) of the RV may utilize a ducted Coleman air conditioner system, depending upon the floorplan and purchased options. Due to the nature of the design in these spaces, containing multiple rooms and areas that can be isolated with doors, a ducted system is utilized.

Each air conditioner will be operated by its own individual thermostat.

The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the recreational vehicle. The size of the vehicle, amount of window area, amount of insulation, direct exposure to the sun, outside temperature, and the number of people in the recreational vehicle may increase the heat gain to such an extent that the capacity of the air conditioner is exceeded.

As a general rule, air entering the air conditioner will be cooled about 15 to 20 degrees, depending on the outside temperature and humidity conditions. For example, if the air entering the return air grilles in the air conditioner is 80° F, the air leaving the discharge grilles in the air conditioner will be 60 - 65° F. As long as this temperature difference is being maintained between the return air and discharge air, the air conditioner is operating at its capacity. If the desired inside temperature (normally 80° F) cannot be maintained, then the heat gain of the RV is too great for the capacity of the air conditioner.

Parking the vehicle in a shaded area, keeping windows and doors shut and avoiding the use of heat producing appliances in the vehicle will help to reduce the heat gain. When possible, the addition of insulation and tinted glass (especially in uninsulated vans) should be considered.



[How Do I Fix/Troubleshoot My Alliance RV Air Conditioner \(AC\)?](#)

Coleman Mach AC Maintenance

⚠ WARNING

DO NOT OPERATE YOUR AIR CONDITIONER WITHOUT THE FILTER INSTALLED.

Cleaning the AC Filter

As per the Maintenance Schedule, clean or replace the AC Filters:

1. Turn the AC unit off.
2. Each side of the AC ceiling assembly has a removable plastic grille and foam filter behind it. On each side, push the pair of tabs on the outer edge toward the center. The grilles can be stiff and difficult to bend.
3. Once loose on the outside edge, rotate and lower. The grille will come loose along with the filter.
4. Either clean the filter with a vacuum, or soap and water, and shake or gently wring out the water. If replacing, make sure to use identical replacement filters. Do not use more restrictive (i.e. HEPA) filters as the AC fan is not designed to use these and premature system failure can be expected.
5. Replace the filters in the reverse order of removal.

AC Coil Cleaning

As per the maintenance Schedule, one needs to remove the top shroud and clean the Evaporator Coils, Condenser coils, and Fan (as needed.) The process to do this standard service is beyond the scope of this manual. There are many sources of information on how to do this online, and RV service centers can also provide this service.

Suburban Furnace

Every Alliance RV will be heated with an SF-Q series Suburban furnace that provides 42,000 BTU's. An exterior access door allows for ease of service. The furnace is operated with the thermostat that is tied to the main air conditioner unit in the center zone of the trailer.



[Owner Empowerment Furnace Tips](#)

⚠ WARNING

DO NOT OPERATE THE FURNACE WHILE VEHICLE IS IN MOTION OR BEING TOWED.



During initial firing of this furnace, a burn-off of excess paint and oils remaining from manufacturing process may cause foul odors and mild smoking for 5 – 10 minutes. This can also happen after several months with no operation due to dust build up.

To Turn the Furnace On

For the furnace to properly turn on, the propane gas valve must be fully open. Never attempt to operate the furnace with any of the gas valves partially open

1. Set the thermostat to Heat mode, and program the Setpoint Temperature as desired.
2. When the thermostat senses the room temperature at least 2 degrees below the Setpoint Temperature, the furnace fan motor will start. It will run approximately 30 seconds before the next step.
3. After the burn chamber has been purged for 30 seconds, the furnace will automatically attempt to ignite. At the outside cover of the furnace, you will hear a click and then the ticking of the ignitor.

⚠ WARNING

DO NOT ATTEMPT TO LIGHT THE BURNER BY HAND.

- a. If the burner fails to light after several seconds of ignition attempt, the system will stop the ignitor (ticking stops) and the propane valve will close. The fan will run for another 2 minutes before another attempt is made to ignite (steps 2-3.)
 - b. If the system fails to ignite after 3 cycles, the furnace will go into "Lockout Mode." The fan will continue to run for several minutes to evacuate the burn chamber of any propane fumes.
 - c. The system can be reset by turning the system off, then back on. See Troubleshooting for further assistance.
4. After a normal ignition, the system will continue to run the fan and blower until the thermostat senses the room is 1 degree warmer than the Setpoint Temperature. It will then shut off the burner, while the fan continues to run for several minutes to cool the burn chamber and ensure all exhaust gasses have been purged before stopping.

To Turn the Furnace Off

1. Set the thermostat Setpoint Temperature to a value at least 2 degrees warmer than the current room temperature, or set the mode to OFF.
2. The burner will shut off, but the fan continues to run for several minutes to cool the burn chamber and ensure all exhaust gasses have been purged before stopping.

Suburban Furnace Maintenance

Inspection

As per the Maintenance Schedule, and prior to operation after an extended period of not running the furnace:

1. Inspect the exterior furnace vent for debris, spider webs, animal presence, or soot.

2. If soot is found, shut down the furnace immediately and contact a qualified service provider to address incomplete burning of the fuel.
3. Inspect the return air location (under the front stairs in most Alliance trailers) to assure no blockages exist. Open the access panel beside/behind the nautilus utility panel and use a flashlight to inspect behind the furnace. Ensure no debris or excessive fiber buildup (from rugs, pet fur, etc.) has occurred. If found, ensure area is clean before furnace is used.

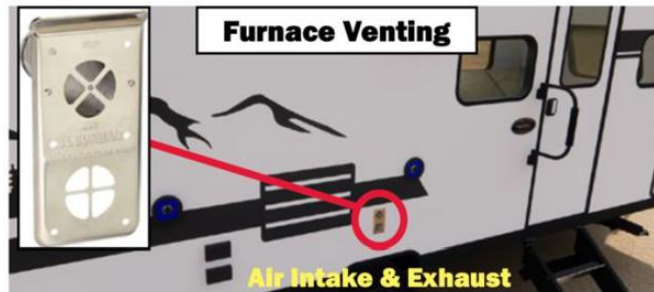


Figure 135. Exterior furnace vent.

Fireplace

Your RV is equipped with an electric fireplace with a rating of 5100 Btu. You'll be able to use this to help knock the chill off on cold days, this fireplace is not intended to heat your entire RV nor will it do so.

You can operate the fireplace at the control panel on the fireplace itself or with the remote.

Control Panel

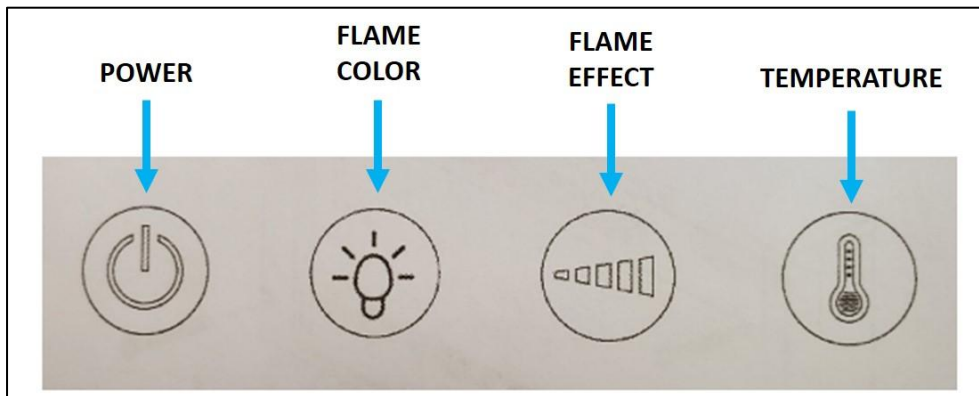


Figure 136. Fireplace control panel at the bottom center.

- **Power button** – Press this button to turn the fireplace on. The unit will beep. Press again to turn the fireplace off.



The fan will continue to run for 60 seconds without heat.

- **Flame Color** – Press this button to change the flame color. The unit will beep – press once for orange, press twice for an orange’ish blue, press three times for blue
- **Flame Effect** – Press this button to change the flame effect. The unit will beep. Press again to decrease the flame intensity. There are 6 light settings for your selection. The flame optics will go lower under the sequence of 6,5,4,3,2,1. Pressing the button again will stop the flame effect.
- **Temperature** – Press this button to set the temperature. The unit will beep. Press to set the desired temperature. When desired ambient temp is reached, the heater will automatically stop heating. When the ambient temperature drops below the set point, the heater will resume heating.

Remote Control

- **Fahrenheit Vs. Celsius** – Press this button to toggle between the two temperature scales.
- **Flame Effect** - Press this button to change the flame effect. The unit will beep. Press again to decrease the flame intensity. There are 6 light settings for your selection. The flame optics will go lower under the sequence of 6,5,4,3,2,1. Pressing the button again will stop the flame effect.
- **Up and Down** – Press these buttons to set the desired temperature.
- **Power Button** – Turn the unit on and off with this button.
- **Time Function** – Press this button for timer function. The letters “0H” to “8H” will appear on the LED screen. “0H” means there is no set running time and the heater will run continuously. The letters “1H” thru “8H” mean the number of hours that the heater will operate before shutting off.

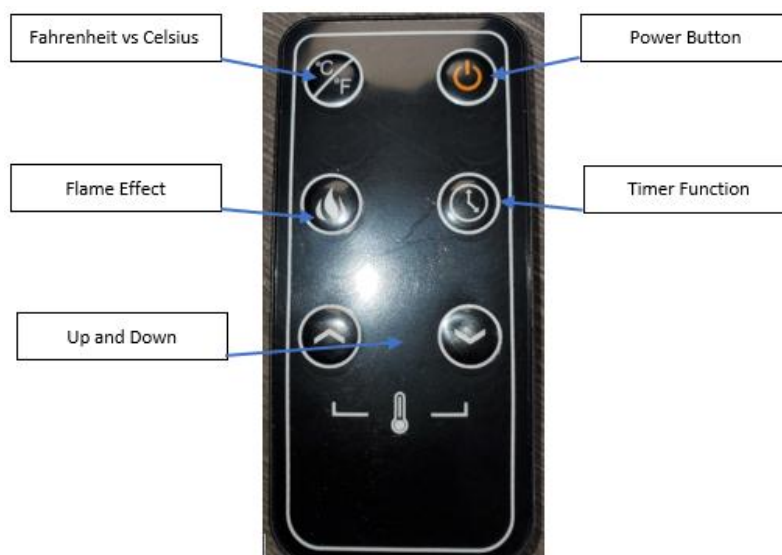


Figure 137. Fireplace remote interface.



The battery in the remote is a CR2025 battery.



If the fireplace will not run, verify the AC outlet in the space behind the unit is providing adequate power. If not, have a qualified RV Technician verify the plug function as well as checking the relay mounted in the bottom of the kitchen island. This relay diverts power to the dishwasher (if installed) or device(s) running on the provided dishwasher outlet.



[How to Fix/Troubleshoot Your Alliance RV Fireplace](#)

Ventilation

Maxxfan

MAXXAIR Maxxfan vent fans are located in the kitchen and master bathroom areas. These high-powered fans with openable lids are an industry staple that operate very easily. These fans are crucial in your RVs ventilation and assisting with minimizing condensation, especially in extended use and extreme temperature situations. Your MAXXAIR fans will be controlled by remote wall mounted controls. There is a manual override for opening and closing of the lid on the unit at the ceiling.



OPERATION OF 4 KEY WALL CONTROL		
FAN ON 1-2-3-4	Turns the fan motor ON at the last selected speed and OPENS the Vent Lid.	When Fan is running, cycles through four (4) fan Speeds. Once HIGH Speed is reached, the fan motor cycles back to LOW Speed.
FAN OFF	Turns the Fan Motor OFF and CLOSES the Vent Lid	
VENT OPEN	OPENS the Vent Lid	Fan motor remains in previous state
VENT CLOSE	CLOSES the Vent Lid	Fan motor remains in previous state. If fan motor is ON, the MAXXFAN enters Ceiling Fan Mode

Figure 138. Maxxfan control interface and use. This control is used for the standard (openable) version. The mini has a "Light" button for the upper right button, and motion sensor at the lower right location.

Maxxfan Mini (if equipped)

In trailers with a half-bath, a Maxxfan Mini will be installed. These units have a similar wall control where the Vent Open/Close controls are replaced with a Light button, and Auto-motion button that relates to the automatic illumination of the light when motion is sensed. These units have a sliding damper around the light for the roof unit. The lid will not rise, but the damper should be in the open position to enable exhaust to escape out the roof of the RV.



Figure 139. Maxxfan Mini used in the 1/2 bath.



OFFICE: (574) 218-7165 / SALES: (574) 281-9869 / SERVICE: (574) 226-0140
EMAIL: service@alliancerv.com / WEBSITE: alliancerv.com



[WYKW: Max Air Fan – Quick Tip](#)

Range Vent

The microwave or microwave/convection oven (if equipped) situated above your stove has a built-in fan. This will be covered in the Appliances section to follow.

APPLIANCES



There is a large variety of appliances used in Alliance trailers. All operating manuals can be found online at Alliance Academy at <https://alliancerv.com/alliance-academy>.

12 V Refrigerator

The trailer was equipped from the factory with a 12 V residential refrigerator and the RV will not need an inverter to run the refrigerator (although it may have one.) The refrigerator may run while traveling without any safety concern.

12 V Refrigerator Maintenance

Properly caring for your refrigerator will give you years of trouble-free service, checking these few things periodically should be priority.

- Keep the food compartment and freezer clean.
- Make sure the doors seal correctly (refer to the Maintenance Schedule for a method to check this.)

Microwave or Microwave/Convection Combination (If Equipped) Oven

Your Alliance RV comes equipped with either an Over the Range (OTR) Microwave, or combination Microwave/Convection Oven.

Range Vent (Vent Hood)

Your OTR (Over-the-Range) microwave is equipped with a vent fan and a light underneath the microwave. The fan works as a range hood to filter out smoke and other odors from cooking. Use your range hood anytime you cook, this will help maintain the air quality in your RV.

On early model-year trailers, prior to the middle of 2023, and on trailers where the microwave is not mounted to an external wall, the microwave venting is directed forward and uses the top-front edge of the microwave for exhaust. Opening the roof vent and running the Maxxair fan will help exhaust more fumes.

On late model trailers where the microwave is mounted on an external wall, the vent is already directed outside via a range vent hood. This hood has closure tabs and a flap to keep cold air out when not in use. It is **recommended** to keep these tabs in the open position when cooking on the stovetop and they **must be open** when using a convection cooking option (if equipped) in the microwave.

Range/Cooktop

Your freestanding residential style gas range represents the newest in RV range design and is designed for reliable and trouble-free performance.

Before Using Your Range

Remove all packaging materials and wipe the surfaces of your range with a damp cloth or sponge. When you turn on a burner or the oven for the first time, smoke and odors may be present. This is normal, make sure the room is well ventilated.

PLUMBING AND UTILITIES

Centralized Docking Station

Alliance RV uses the Nautilus P3 Water Management System for Avenue trailers. With this system you'll have the ability to perform the following functions from a centralized and easy to access location:

1. Power fill your fresh water tank for dry camping.
2. Use your pump to supply water to fixtures from fresh water tank
3. Use your pump to siphon fill or sanitize your fresh water tank from a bucket
4. Connect to city water at the camping site to supply water to fixtures
5. Winterize your plumbing lines and fixtures
6. Bypass hot water heater when winterizing to avoid water heater damage
7. Rinse black tank to help control odors and prevent sewage buildup
8. Rinse off items outside unit with a hot/cold faucet
9. Connect up to three (3) coax lines with satellite, cable and auxiliary



Figure 140. Nautilus P3 Water Management System panel.



[Nautilus P3 Plumbing Flow](#)
[Nautilus Panel Winterizing Troubleshooting](#)
[Nautilus P3 Parts List](#)

Docking Station Handle Position and Valve Routing



USER INSTRUCTIONS

Nautilus P3 Handle Position and Valve Routing Information

WHITE HANDLE: Receives water from water inlet on front of panel

Sideways - water goes to pump inlet



Down – water goes into blue handled diverter



BLUE HANDLE: Receives water from the white handle valve/water inlet on front of panel

Sideways - water goes to fixtures (cold)



Down – water will go to or come from fresh water tank



GREEN HANDLE: Is an on/off flow through valve that feeds pump from fresh water tank

Sideways - water will not flow through valve



Up – water will go to or come from fresh water tank



RED HANDLE: Receives water from cold water supply line

Sideways - water goes to hot water fixtures without going through hot water heater



Up – water goes to hot water heater



Cable and Satellite Connection



1. For cable TV connection, connect the threaded coax from the source to the **"CABLE"** connection.
2. For satellite TV connection, connect the threaded coax from the satellite dish to the **"SAT"** connection.
3. Consult your Owner's Manual to see if the **"AUX"** connection has an application.

Filling the Fresh Water Tank – Power Fill



[WYKW: Proper Water Pressure \(PSI\)](#)



[WYKW: Properly Connecting Your Water Fill](#)

1. Connect garden hose to inlet labeled "**CITY WATER.**"
2. Turn handles to **PowerFILL Tank** position as shown.
 - **BLUE** diverter handle should be facing down.
 - **WHITE** diverter handle should be facing down.
 - **RED** diverter handle should be facing up.
 - **GREEN** diverter handle should be facing left.



3. Connect other end of hose to water supply source.



4. Turn water supply on at source. Fresh water tank should begin to fill.

NOTE: Consult your Owner's Manual for tank capacity. **DO NOT OVERFILL TANK!**



5. When desired level in fresh water tank is reached, turn water off at source.
6. Disconnect garden hose from inlet on Nautilus panel.

Fill and/or Sanitize the Fresh Water Tank with the Pump



There is no gravity fill port for the fresh water tank. The water pump is used along with a short hose and buck or other means to provide the water or fluid to be put into the tank.



[WYKW: Winterizing Quick Tip – Pulling Antifreeze In](#)

1. Connect garden hose to inlet labeled **"CITY WATER."**
2. Turn handles to **"SANITIZE"** position as shown.
 - **BLUE** diverter handle should be facing down.
 - **WHITE** diverter handle should be facing right.
 - **RED** diverter handle should be facing up.
 - **GREEN** diverter handle should be facing left.



3. Place other end of hose in container holding water or sanitizing solution.



4. Push **"PUMP"** switch to turn pump on.



NOTE: LED indicator light below the pump switch will be lit if pump has power.



For sanitizing, a solution of 1 gallon of water and one quarter cup of household bleach should be prepared for every fifteen gallons of holding tank capacity. A commercial sanitizing product may also be used.

5. Pump should be running and fresh water tank should begin to fill.

NOTE: Consult your Owner's Manual for tank capacity. **DO NOT OVERFILL TANK!**

6. When desired level in fresh water tank is reached, push "**PUMP**" switch to turn pump off.

NOTE: LED indicator light below the pump switch will not be lit.



7. Disconnect garden hose from inlet on Nautilus panel.

Using the Fresh water Tank for Dry Camping

1. Make sure fresh water tank has necessary supply of water.
2. Turn handles to "**DRY CAMPING**" position as shown.
 - **BLUE** diverter handle should be facing left.
 - **WHITE** diverter handle should be facing down.
 - **RED** diverter handle should be facing up
 - **GREEN** diverter handle should be facing up



3. Push "**PUMP**" switch to turn pump on.

NOTE: LED indicator light below the pump switch will be lit if pump has power.

4. Water should be available to all fixtures.

NOTE: The pump will run when a plumbing fixture is open.

5. Make sure pump is turned off when not in use.

Connecting to City Water



[WYKW: Proper Water Pressure \(PSI\)](#)

1. Connect garden to hose to inlet "**CITY WATER.**"
2. Turn handles to "**CITY WATER**" position.
 - **BLUE** diverter handle should be facing left.
 - **WHITE** diverter handle should be facing down.
 - **RED** diverter handle should be facing up.
 - **GREEN** diverter handle should be facing left.



3. Connect other end of hose to water supply source.



4. Open faucet at water supply source. Water should be available to all fixtures.

NOTE: Refer to OEM Owner's Manual for safe operating pressures.



Over pressurizing water lines may cause damage to plumbing lines and fixtures.

Winterizing



[Winterizing Your Avenue RV](#)



[WYKW: Winterizing Quick Tip – Pulling Antifreeze In](#)

1. Turn handles to **"POWERFILL"** position as shown.

- **BLUE** diverter handle should be facing down.
- **WHITE** diverter handle should be facing down.
- **RED** diverter handle should be facing up.
- **GREEN** diverter handle should be facing left.



2. Open low point drain(s) on RV to remove water in plumbing lines. Open both a hot and cold faucet to help drainage process.

3. Open drain plug on hot water heater to drain water if unit is equipped with hot water holding tank.

NOTE: Contact your dealer or manufacturer for exact location of low point drains and hot water heater.

4. Once most water has been drained from plumbing lines, turn **RED**, **BLUE**, **GREEN** and **WHITE** handles so they are at a 45 degree angle as shown.



5. Using "**CITY WATER**" inlet or low point drain, blow out plumbing lines (40 PSI max) with handles still at 45 degree angle as shown. This will ensure any trapped water in plumbing harness is removed.
6. Close drains on hot water tank & low point drains.



7. Turn handles to "**WINTERIZE**" position as shown.

- **BLUE** diverter handle should be facing left.
- **WHITE** diverter handle should be facing right.
- **RED** diverter handle should be facing right.
- **GREEN** diverter handle should be facing left.

8. Connect a short section of garden hose to inlet labeled "**CITY WATER.**"



9. Place other end of garden hose in container holding approved winterizing solution.



NOTE: A short or cut off section of garden hose should help the pump to prime easier.

10. Push "**PUMP**" switch to turn pump on.

NOTE: LED indicator light below the pump switch will be lit if pump has power.



11. Pump should be running and winterizing solution should begin to flow through pump into plumbing lines and fixtures.

NOTE: The pump will run when a plumbing fixture is open.

12. Open one plumbing fixture, keeping it open until winterization solution appears, then close.
 13. Follow above procedure until all inside & outside plumbing fixtures have been winterized hot & cold sides of plumbing fixtures.

Important! Make sure to run winterizing solution through hot & cold lines on exterior shower.

14. Push "**PUMP**" switch to turn off pump.

NOTE: LED indicator light below the pump switch will not be lit.



15. Disconnect garden hose from "**CITY WATER**" inlet.

NOTE: It is normal for some winterizing solution to be present as hose is being disconnected.



[Nautilus Panel Winterizing Troubleshooting](#)



Using antifreeze fluid after blowing out with air: It's often asked if this is needed. The answer is YES. Using an air blow technique alone can result in low points in the system retaining some pockets of water, and if the system has a tankless water heater it is very important to assure all water is out of the system.

Rinsing Holding Tanks / Tank Flush

1. Connect flexible sewer hose to 4" dump outlet on unit.



2. Open black waste holding tank valve and leave open to allow black tank to drain.



3. Attach a garden hose to inlet labeled **"TANK FLUSH."**



4. Connect other end of hose to water supply source.



5. Fully open faucet at water supply source (40 psi minimum). Flush tank until water appears clear in 4" discharge hose.



6. Completely close faucet at water supply source.
7. Disconnect garden hose from water source.
8. Disconnect garden hose from **"TANK FLUSH"** inlet

9. Close black waste holding tank valve.



NOTE:

To help ensure debris does not clog tank sprayer orifices, use **"TANK FLUSH"** every time waste holding tank is emptied.

Fresh Water System

The fresh water system is made up of two inputs, a portable fresh water holding tank with a pressure demand 12 volt water pump and a city water connection that provides water to the system and bypasses the fresh water holding tank and the water pump to supply your fresh water from an already pressurized source. All tanks (fresh and waste) are equipped with electric heating pads that are controlled in the central monitor panel.

The fresh water system consists of:

- **A fresh water holding tank** which is filled at the docking station (covered above). The tank is emptied/drained at a low point drain on the exterior beneath the fresh water holding tank, see Figure 141. There is a large, white, manual pull dump valve to allow for rapid draining if putting

the rv into storage, or if draining water to enable travel. Always be sure to drain your freshwater tank between uses, and during storage in the winter, this will prevent any stagnation that can cause water to smell and/or taste bad. This tank is also equipped with a safety overflow drain. This drain is connected to the top of the tank, and will come straight out of the underbelly of the RV beneath the fresh water tank. It is blue, ½" in diameter, and has an open end. This drain should never be plugged or obstructed. Keeping this line open for safety overflow will prevent damage that can occur from overfilling your fresh water tank.

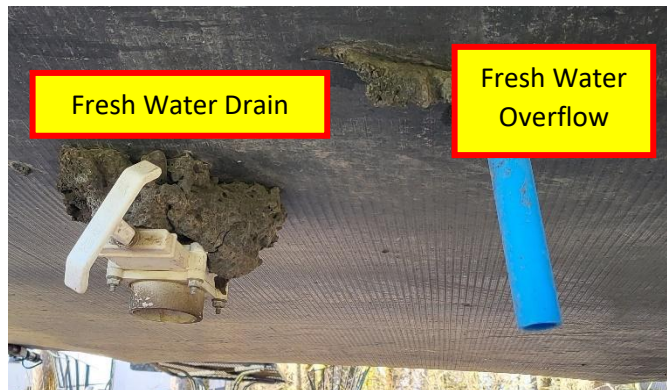


Figure 141. Fresh water drain and overflow.



[WYKW: Can I Travel With Full Tanks?](#)



The fresh water tank does not have a gravity fill capability. The water pump siphon method must be used. See above section "Fill and/or Sanitize the Fresh Water Tank with the Pump."

- **A water pump connected to the fresh water tank.** When not hooked up to an external water supply, the RV's fresh water tank is utilized. The water is pumped from the fresh water tank by the water pump. When the power is switched on, the pump works automatically whenever a faucet is on. The water pump is self-priming and when the system pressure drops below 55psi, the water pump will energize and re-pressurize the system to that 55psi.



If the water pump is on, and no faucets are running, the pump should not run after it pressurizes the plumbing lines. If your pump runs for short periods of time (anywhere from several seconds between runs up to a couple of hours between runs) then you either have a leak or there is a problem with the inner workings of the pump.

- **A city water system connection,** which is a water hose connected to the docking station (covered above). When connected and turned on, the system will automatically pressurize. It is always a good idea to bleed the system by turning on a hot water faucet until the water runs smoothly and there is no air present.

⚠ CAUTION

HIGH WATER PRESSURE CAN DAMAGE YOUR WATER SYSTEM. DUE TO PRESSURE INCONSISTENCIES IN POTENTIAL WATER SOURCES, AN RV WATER PRESSURE REGULATOR MUST BE USED BETWEEN THE HOSE AND THE CONNECTION POINT TO ENSURE AN ALWAYS CONSISTENT WATER PRESSURE COMING INTO THE RV. A SAFE SETTING IS 45PSI.

When draining your fresh water system (required for winterization, covered in the centralized docking station portion of this manual, when the RV is not being used and/or is being stored in the cold or winter months), all tanks should be emptied. This will prevent damage from freezing. Every Alliance RV has **low point drains** as well as a **fresh water drain (and overflow)** in which the fresh water system can be evacuated. These low point drains will be located on the off-door side of the RV near the water heater directly beneath the RV and coming out of the underbelly. These are shut off valves that can be opened and closed with a thumb turn, see Figure 142.

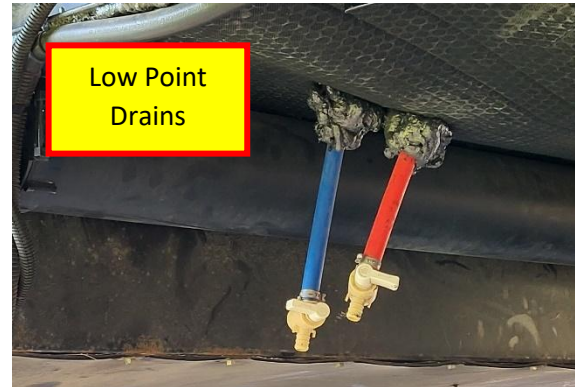


Figure 142. Water system low point drains.



The Fresh Water Drain & Overflow, as well as the Low Point Drains may be located in slightly different locations depending upon the model of trailer but will always look similar.

Waste Water System



[WYKW: Best Practices for Holding Tanks](#)

The waste system contains holding tanks. The quantity of tanks along with location is dictated by the floor plan of the RV. All tanks are equipped with electric heating pads that can be controlled in the monitor panel.

- **Black tanks** hold toilet waste. There are some things to note with black tanks. Black tanks typically will need a digester/deodorant (talk with your RV dealer for recommendations). Black tanks require RV toilet paper. RV toilet paper breaks down quicker and is specifically designed for this type of waste water system. You'll find that this toilet paper breaks down more quickly and allows the waste water to flow more easily during the dumping process. A black tank's monitoring electronics can be adversely affected by debris hanging up on the reading probes. For this case, we have installed a tank flush for your black tank(s) to assist in keeping the probe indicators clean so that you have accurate readings on the tank's levels. It is advised to always keep the black tank(s) closed until full. This allows for solid waste to flow out of the tank along with liquid. When left open, the liquid will run out, leaving the solid to build into a very difficult to remove pile.

⚠ CAUTION

DO NOT USE THE BLACK TANK FLUSH SYSTEM WITHOUT HAVING THE BLACK TANK VALVES OPEN. IF CLOSED, THE TANK COULD OVERFILL.

- **Gray tanks** hold your sink, shower, and laundry waste water. Gray tanks require less maintenance due to the difference in waste produce making its way into the tank. It may be ideal to dump black tanks first and then your gray tanks, the gray tank running thru the main dump will help in keep the pipeline cleaner.

Plumbing System Throughout the Trailer

Your trailer is plumbed with ½" PEX B piping. Clamp-style fittings are used at all locations, and all fixtures have a shutoff valve to ensure if there are problems, you can turn off the water to that fixture without disabling your entire water system. These valves are usually located very close to the fixture, for example under a sink below the faucet. However, for some fixtures they may be in the storage space below the trailer floor (in the case of a shower or washer supply.)



[WYKW: Plumbing Shutoff Valves](#)

The drains for sinks and showers may use conventional p-traps, or they may use **waterless p-traps** due to space or other constraints.



Figure 143. Waterless p-trap under a shower location.



[WYKW: Waterless P-Traps](#)



If you should notice foul smells coming from drains with a waterless p-trap, it may need replacement. Sometimes the “duck bill” can be left open to permit odors to backflow into the RV space. These are typically only available at RV parts supply locations and online.

Another item that may be used in the plumbing system is an **air admittance valve**. The air admittance valve is a device designed to allow air to enter the drainage system to balance the pressure. These can sometimes fail and need replacement. They can be found at local big-box hardware stores.

Tankless Water Heater (If Equipped)

Beginning model year 2025, Avenue trailers ship with a Suburban ST-60 Tankless Water Heater. This unit provides a source of rapid hot water via a propane burner system. The unit will start when hot water is requested and the control panel, shown below, is turned ON.




Figure 144. Air admittance valve.

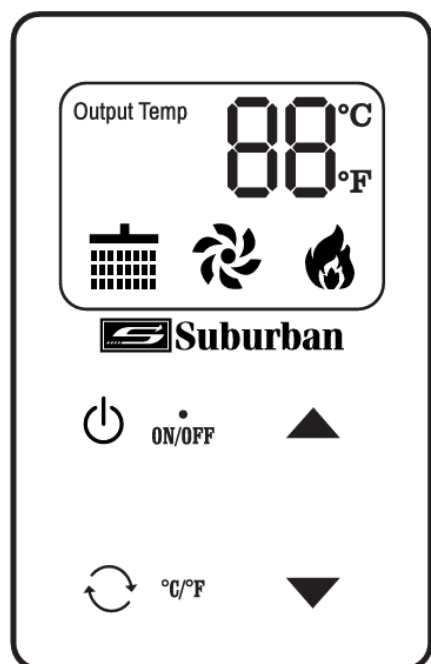
The tankless hot water heater is a great appliance for providing a lot of hot water for the RV. However, there are unique operational differences between it and a traditional tanked water heater. As such, it is important to read this and the following **Tankless Water Heater Troubleshooting** section, below, which includes details about the expected sequence of operation.

	Suburban ST-60 Operation and Maintenance Manual
---	---

Control Panel

Unlike a traditional tank water heater, the tankless water heater uses a remote control panel to set the expected temperature and help activate the water heater. The control panel must be turned on to enable hot water to flow once a faucet is opened and the burner has started.

	<p>It may take upwards of 30 seconds to feel hot water depending upon the location of the faucet being used. When activated, the hot water heater must start up, and heat the initial water, then travel through the pipes where it will lose some heat initially. For more information, see the Sequence of Operation section inside Troubleshooting, below.</p>
---	---













SYMBOL	FUNCTION	DESCRIPTION
	WATER FLOW	This icon is displayed when water is flowing through the unit (i.e. hot water demand).
	BLOWER	This icon is displayed when the blower is running.
	FLAME	This icon is displayed when the burners are on.
	OUTLET WATER TEMP SETTING	This icon displays the outlet water temperature set point.
BUTTON	FUNCTION	DESCRIPTION
	ON/OFF	Power Button. Switch from turning unit ON or turning unit OFF.
	UNITS	Press to switch between degrees (°) Celcius or degrees (°) Fahrenheit.
	UP	Increase Set Temperature by 1 degree increments. Setting range is 95°F/ 35°C to 131°F/ 55°C.
	DOWN	Increase Set Temperature by 1 degree increments. Setting range is 95°F/ 35°C to 131°F/ 55°C.

Figure 145. Control panel use for the ST-60 tankless water heater.

Operation

1. On the control panel, turn the heater ON via the power button.
2. For best results, open hot water faucet fully until hot water arrives, then reduce flow and mix cold water as needed to achieve desired temperature. Many people find that using only the hot water, and setting the desired temperature directly, is the best way to operate.

	The water heater operates based off of hot water demand. There must be a hot water faucet open to a minimum of 0.7 GPM for the unit to operate.
---	--

	<ul style="list-style-type: none"> • If too much cold water is mixed, the flow of the hot water will be too low and the system will turn off. • If the burner does not light, the system will automatically attempt two more tries for ignition before lock-out.
---	--

3. To change the water temperature setting, press the up or down arrow to the desired temperature.
4. A child lock prevents outlet water temperature set point from exceeding 122°F. To remove the child lock, hold the up arrow on the User Control Panel for five (5) seconds. This will allow the maximum outlet temperature to reach 131°F.
5. When use of hot water is complete, simply close the faucet valves. The water heater will remain in a "ready" state and automatically turn on the next time hot water is flowing.

6. When the system is no longer needed (i.e. after a trip is over) simply turn OFF the water heater at the control panel. Also turn OFF the power button that is on the face of the water heater, and shut off the propane gas supply.

General Notes:

- Before the water heater can operate, the power switch outside must be turned “ON”. This switch does not need to be switched OFF during a trip, but should be turned off when storing the RV.
- When not providing water, and the Power Button is “ON” at the Control Panel, the system will rest in a “ready” state, and ignite the burner when
 - A hot water faucet is turned on
 - The water temperature in the heater drops below 41°F. As long as the electrical power is on at the outside switch and the gas supply is on, this will occur for freeze protection, and run for five (5) seconds.
- After supplying hot water, and a hot water faucet is turned off, the system will automatically shut off and return to the “ready” state. A blower fan will continue to run for 20 seconds to remove exhaust gasses.
- It is suggested NOT to use the shower head stop-flow button, as the interruption of flow of hot water will turn off the heater.

Tankless Water Heater Troubleshooting

Sequence of Operation

Knowing the expected operation of an appliance or device can greatly assist in pinpointing what might be happening incorrectly, or clear up confusion about what should be happening. The following steps will occur, as long as the control panel is turned on, and propane gas is available to the water heater:

1. Turning ON a hot water faucet activates the appliance.
2. The water heater measures the flow of water, inlet water, and outlet water temperatures.
3. The water heater proves that the combustion air fan is working.
4. The combustion chamber is then purged of any remaining raw gas.
5. The burner will ignite and prove the flame.
 - a. The approximate time from turning ON the faucet to ignition is 7 seconds. After the initial lighting sequence and the water heater is maintaining temperature, the ignition cycle is reduced to approximately 5 seconds.
 - b. Burners will stay ON until the water flow is shut OFF.
6. The flow of hot water begins approximately 3 seconds after ignition but will not reach the faucet until the hot water lines leading to the faucet are cleared of any remaining water. This time is determined by the length of the hot water line.
7. When the hot water faucet is turned OFF, the water heater shuts down and will remain in a ready state until hot water is called for again.



The Blower motor will operate for approximately 20 seconds after the hot water faucet is turned OFF.

8. If the User Control Panel is left ON, no further action is required by the user.
9. If the water heater fails to light for any reason, a second Trial For Ignition (TFI) will automatically begin. If the second TFI fails, the water heater will automatically begin a third TFI. If the third TFI fails, the water heater will go into a lock out mode and will not try to light the burner again. To reset, on the User Control Panel, turn ON/OFF button OFF, then back ON.



Air in the gas line after changing propane tanks is the main reason for not lighting the burner. A simple method to purge air from the gas line is to ignite a burner on the installed cooking appliance inside your RV.

The following table lists a summary of known problems people experience with tankless water heaters.

Table 45. Troubleshooting operation of the ST-60 tankless water heater.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
No hot water, the burner is not lighting.	No electrical power to water heater.	<ol style="list-style-type: none"> 1. Ensure outside power switch is ON. 2. Ensure control panel power switch is ON. 3. Ensure propane cylinder is turned ON (at least one.) 4. Ensure propane cylinder is not empty or near empty.
	Water flow below 0.7 gpm.	<ol style="list-style-type: none"> 1. Ensure water is not being used in other locations in the RV (clothes washer, toilet, other sink or shower.) 2. Ensure any water filtration device is not over-restricting flow. 3. Ensure city water source can provide adequate flow. This can be tested by the time it takes to fill a five gallon bucket. It should fill within 7 minutes, 15 seconds.
Water temperature fluctuates drastically.	Water flow near or below 0.7 gpm.	<p>When the water flow drops below 0.7 gpm, the burner will turn off. Then a rise in flow will re-light the burner. This will cause noticeable temperature fluctuation. Often, this is caused by mixing too much COLD water with the HOT water at the faucet. Suggest using less COLD water, or if possible, use no COLD water and reduce the temperature setting on the control panel.</p>

Blower fan runs after the hot water is turned off and the burner shuts off.	The blower fan is removing exhaust gasses.	Normal operation.
The water heater turns on and runs for five (5) seconds unexpectedly.	Freeze Protection	The water heater has built-in Freeze Protection and will cycle the burner for 5 seconds when the water temperature has fallen below 41°F. To provide this freeze protection, the gas supply must be ON, gas must be available and electrical power must be ON.
The Temperature and Pressure (T & P) relief valve appears to leak.	Thermal Expansion	In a closed water system, there may be significant thermal expansion of the water. When hot, the water may be hot or high enough pressure to relieve the pressure at this location. Contact an authorized service center for further assistance.
	Hard Water contamination on the mechanism in the valve.	Hard water deposits can foul the action of this valve, causing it not to close after it's been used to drain the system or relieve pressure (see above.) Contact an authorized service center to have the valve replaced or if exercising the valve (quickly opening and shutting) does not solve the issue.

Tankless Water Heater Maintenance

⚠ WARNING

- FOR YOUR SAFETY, ALL REPAIRS AND/OR MAINTENANCE OF UNIT SHOULD BE PERFORMED BY YOUR DEALER OR A QUALIFIED SERVICE TECHNICIAN.
- IF THE USER OF THIS APPLIANCE FAILS TO MAINTAIN IT IN THE CONDITION IN WHICH IT WAS SHIPPED FROM THE FACTORY OR IF THE APPLIANCE IS NOT USED SOLELY FOR ITS INTENDED PURPOSE OR IF APPLIANCE IS NOT MAINTAINED IN ACCORDANCE WITH THE INSTRUCTIONS IN THIS MANUAL, THEN THE RISK OF A FIRE AND/OR THE PRODUCTION OF CARBON MONOXIDE EXISTS WHICH CAN CAUSE PERSONAL INJURY, PROPERTY DAMAGE OR LOSS OF LIFE.
- LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. VERIFY PROPER OPERATION AFTER SERVICING.
- NO CLEANING OR ADJUSTMENT OF THE BURNERS IS PERMITTED. IF BURNER OPERATION IS SUSPECTED TO BE FAULTY SHUT OFF APPLIANCE IMMEDIATELY AND CONTACT A QUALIFIED SERVICE CENTER.

As per the Maintenance Schedule:

- Periodically inspect unit for soot. If soot is present anywhere on water heater, immediately shut unit down and contact your dealer or a qualified service person. Soot is a sign of incomplete combustion and must be corrected before operating water heater.
- Other areas and things to check would include:
 - Check for an obstruction in vent.
 - Check vent to see that no foreign material has accumulated to prevent flow of combustion and ventilating air.
 - Check to be sure there is no flame present at burner orifice or burner whenever main gas valve is closed. This can be checked by turning the ON/OFF switch to the OFF position.
 - Periodically check wiring and wire connections to be sure wiring is not damaged/frayed and that all terminals and connections are tight.

Draining and Storage

Follow these steps to fully drain the water heater:

1. Turn OFF electrical power to water heater either by flipping the circuit breaker, removing fuse, or powering off User Control Panel.
2. Shut OFF gas supply to water heater.
3. Turn OFF pressure pump on water system.
4. Follow steps 1-6 of the **Winterizing** process in the section for the Nautilus water system. Note that removing the drain plug is not required.

System will have to be refilled with water and all air removed from lines before unit will re-light.

Winterizing

If RV is to be stored during winter months, the water heater system must be drained to prevent damage from freezing. Follow the steps listed in **Draining and Storage**, and then continue to follow the remaining steps shown in the **Winterizing** section of this manual. It is suggested to fill the system with NON-TOXIC RV antifreeze to assure no damage.

Descaling Information

Each year, drain the water from the system and flush the heat exchanger with an approved descaling solution.

Tank Water Heater (If Equipped)

A Suburban SW12DEL with a 12-gallon capacity supplies your RV with hot water. This water heater has a porcelain lined steel tank to fight against corrosion and foam insulation around the tank for added insulation and protection.

When initially filling the water system, it's recommended to open the top Temperature & Pressure (T & P) safety valve once you have connected to city water or turned on the water pump. Let the air escape until you see water starting to come out of the top valve. Then close the valve, it is now safe to turn on the water heater in gas and/or electric mode.

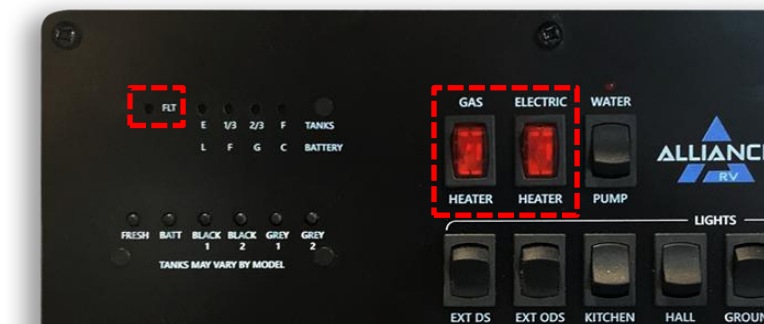


Figure 146. The water heater power switches on the main Monitor Panel. The FLT light is highlighted on the left. These are also shown in Figure 122A and D.

⚠ WARNING

DO NOT TURN ON THE WATER HEATER WITHOUT HAVING WATER IN THE TANK.

The water heater may use either LP Gas or 120 V electricity, or both at the same time. Simply turn on either the “Gas” or “Electric” switch on the Monitor Panel to enable water heating.



When using the Gas option, you may see the FLT light illuminate on the Monitor Panel, refer to Figure 146 and Figure 122A and D. This is normal and simply means that the system is expecting a gas flame to be burning, but it has not yet started. Once the gas ignition system safely starts the water heater burner, the light will go out. If the light stays illuminated, you should turn off the Gas switch and contact someone for service.

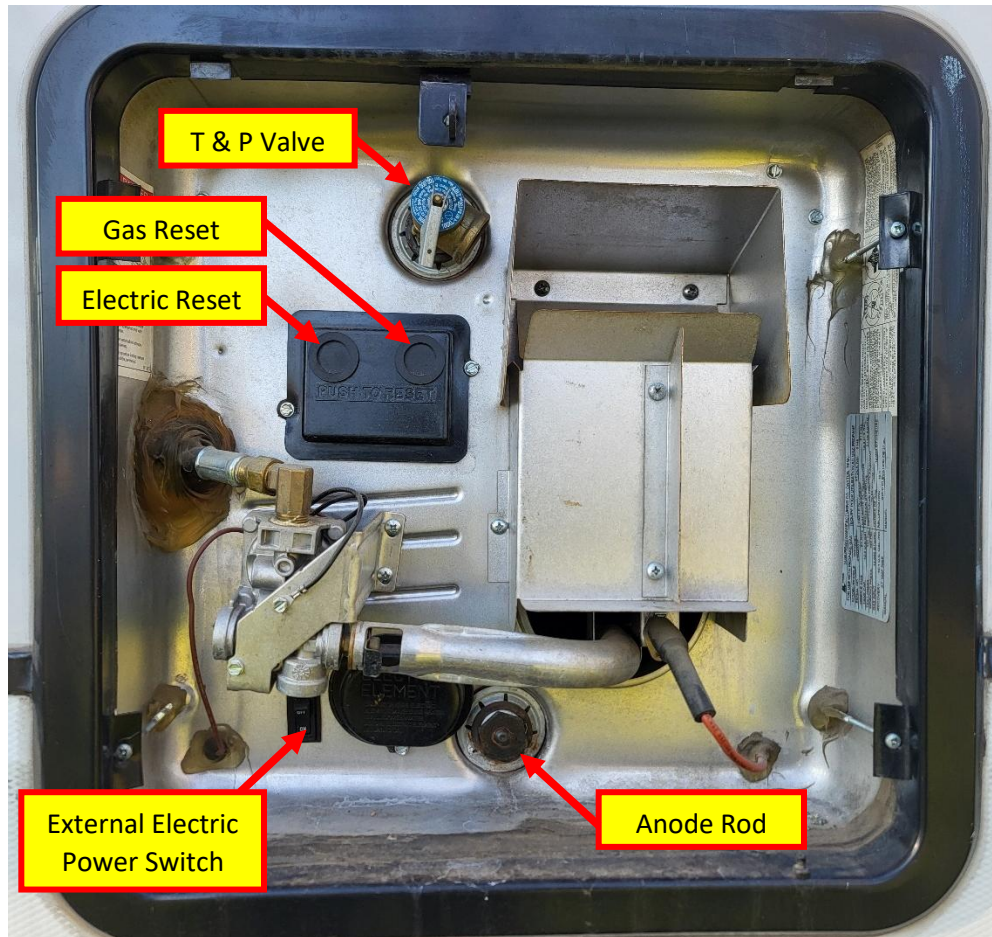


Figure 147. Suburban SW12DEL tank water heater.

It should be noted that heating water from cold/ambient temperature, with the water heater being cold itself, is a lengthy process with only electricity. This is because not only the water must heat up, but also the tank and inside surfaces of the insulation. Once the system is hot, electric heating (only) tends to heat water sufficiently quick for most users. The gas may be used as needed to hasten the water heating where there are large demands on the hot water (i.e. multiple showers, or running laundry or a dishwasher.)




[WYKW: Maintaining Your Anode Rod](#)

⚠ WARNING

YOU MUST READ THE USERS MANUAL FOR THIS WATER HEATER.

Tank Water Heater Troubleshooting

	<p>There are times when the over-temp limit switch is activated (when water temp rises above 180°F) and the system will not heat water. If this happens, wait until the water is below 110°F and push the reset buttons indicated in the image above. If the problem repeats, do not use that side of the water heater (electric or gas, as appropriate) and contact an RV service center for repair.</p>
---	---

	<p>WYKW: No Hot Water Quick Fix (On Demand or Tank Water Heater)</p>
---	--

Symptom: The hot water is suddenly smelling like rotten eggs. We have recently moved to a new site/campground.

Possible Causes/Suggested Actions: The water heater normally uses a Magnesium Anode Rod. However, this can sometimes react with water supply minerals to produce this effect. Switch the Anode Rod to an Aluminum Anode Rod to alleviate this problem. Be sure to change back to a Magnesium rod when you travel to another location.

Symptom: I have turned on the electric water heating element and waited a very long time (at least 60 minutes,) but the water isn't even warm.

Possible Causes/Suggested Actions: There are a couple of common things that happen in this scenario:

- The outside electric power switch is still off. Refer to Figure 147 in the lower left corner. This switch is mounted behind the face cover of the water heater and is sometimes hidden behind components on the face of the water heater. This needs to be turned on, as well as the inside switch. It is okay to leave this switch on permanently.
- The electric element can be quickly damaged if it is turned on when there is no water in the tank. If the gas side of the water heater heats water without a problem, contact an RV service provider to diagnose the electrical side non-operational status. It may be helpful to denote this potential issue.

Symptom: I have turned on the gas-powered water heater and the system won't light the flame. The FLT light stays illuminated.

Possible Causes/Suggested Actions: There are a couple of common things that happen in this scenario:

- Check to make sure at least one propane cylinder has fuel and is turned on. One of the common ways to assure this is to run the gas cooktop or furnace to assure propane is burning in either one of those appliances.

- You are at high altitude. At altitudes above 4,500 feet, the burner needs to be adjusted (derated) to run with the thinner air.
- If neither of these cases apply, contact an RV service provider to determine the cause.

Symptom: Water is weeping from the Pressure & Temperature (P & T) valve.

Possible Causes/Suggested Actions: This can happen if the air pocket at the top of the water heater has been reduced (this can happen through normal usage) or if the valve is developing calcification or other deterioration. Follow this process to correct:

1. Turn off the water heater (both gas and electric.)
2. Turn off cold water supply.
3. Open a faucet in the RV.
4. Pull out the handle of the Pressure & Temperature (P & T) relief valve and allow water to flow from the valve until it stops.
5. Release the handle of the P&T valve, it should snap closed.
6. Close the faucet and turn on the cold water supply. As the tank fills, the air pocket will develop.

You may need to repeat this procedure to get the weeping to stop. If it does not, contact an RV service provider to replace the T & P Valve.

Tank Water Heater Maintenance

Safely Drain the Water Heater

1. Turn the water heater off, both gas and electric.
2. In the RV, or at the outside shower, turn on a hot water faucet. Let the water run until it's evident the hot water has been depleted. This assures no pressure in the tank and no scalding water. Close this faucet.
3. Turn off the water pump and ensure any City Water is turned off.
4. Open a hot water faucet in the RV, preferably both the Hot and Cold side of the main shower.
5. Remove the drain plug/anode rod from the water heater. It will be easiest using a 1-1/16" socket with a minimum 4" extension.
6. Open the Temperature & Pressure (T&P) relief valve to allow water to drain.

Anode Rod Inspection

As listed in the Maintenance Schedule, perform the following inspection procedure on the water heater:

- 1) Safely drain the water heater. See the procedure [Safely Drain the Water Heater](#).

- 2) Inspect the anode rod. It is normally $\frac{3}{4}$ " in diameter and approximately 9" long inside the drain plug. At the center of the anode is a steel rod.
- 3) If less than 50% of the material has been removed, you may continue to use the rod. If in doubt, replace the anode rod.
- 4) Apply Teflon tape to the anode rod threads.
- 5) Insert the Anode Rod and secure on the water heater. Do not overtighten.
- 6) Ensure all faucets are off in the trailer and turn the City Water supply back on or turn on the water pump.
- 7) Allow the water heater tank to fill until water is escaping from the T & P valve. Close the valve.

Storage

When the RV is not in use or is being stored, the water heater must be drained. This will prevent damage to the water heaters lining and protect the water heater in the cold. Follow the procedure to **Safely Drain the Water Heater**, after you have disabled power to the water heater.

Winterization

Refer to the Centralized Docking Station section of this manual.

Toilet

Alliance RV uses the best in class 310 series Dometic RV toilet. Each toilet is 100% factory tested to assure watertight seal in the toilet bowl before it even leaves Dometic. After installation by Alliance RV, the entire waste system is flood tested for leaks by filling the system with water to the rim of the bowl.

Operation

To use the toilet, first add water to the toilet by pressing the flush pedal only partially down. Water will flow into the bowl while the flush ball remains closed. If the flush ball moves, let up slightly on the pedal until the ball closes. Adding water to the empty bowl acts as a trap and helps prevent holding tank odors from entering the RV. Adding water is always recommended prior to flushing solids and/or toilet paper.

To flush the toilet, press the pedal down until it contacts the floor. Release the pedal after the flush is complete. When flushing liquids, quick press of the pedal for 1 to 2 seconds will do. When flushing solids, the pedal should be pressed until the contents are rinsed from the bowl. Never flush longer than needed as this will cause holding tank capacity to be used up and require more frequent black tank dumps. A small amount of water should collect in the bowl after a flush, this will create an airtight seal. Further instructions and information can be found in the toilet owners/users manuals.



If water will not stay in the bowl, you may have to add plumber's grease to the Flush Seal (the black rubber piece separating the bowl from the flat bottom valve.) You can shut off water behind the bowl, have a helper hold down the flush pedal, and apply the grease in a thin film around the bottom and inside of the seal. If this doesn't solve the problem, replacing the Flush Seal is an easy repair. Be mindful of not dropping the seal into the tank, and make sure to orient it correctly as well.



[WYKW: Toilet Ball Valve Quick Tip](#)



[How Do I Fix My Alliance RV Toilet?](#)

Dumping Your Waste Tanks

Avenue trailers are equipped with manual cable termination valves. Most of these valves are going to be routed to the centralized docking station convenience center for ease of pulling. However, in some occasions, dictated by floor plan, you may find one or more gate valve pull handles located on the off-door side frame rail of the RV, either forward of or behind the wheels.

Waste Tank Pull Valve Maintenance

The handles can become difficult to pull over time. Here are a couple of points to keep in mind:

- If possible, use waste tank chemicals that provide lubrication to the seals of the waste tank valves.
- When open, you might find it useful to add silicone lubricant to the valve push rod. This will allow it to work into the cable sleeve over several cycles.
- Always be sure to push the valve closed in such a way as to direct the closing force straight into the pushrod. Pushing sideways will often cause a bent pushrod. As they are Aluminum, these can be carefully straightened.

Should you need to access your dump valves, late model year trailers will have a Cloroplast patch material attached under the trailer in the location needed to access the valves. One may remove the patch material, cut a U-shaped hole in the belly material (make sure the top of the "U" faces forward, and the opening toward the rear of the trailer,) and then use this patch to close up the opening.

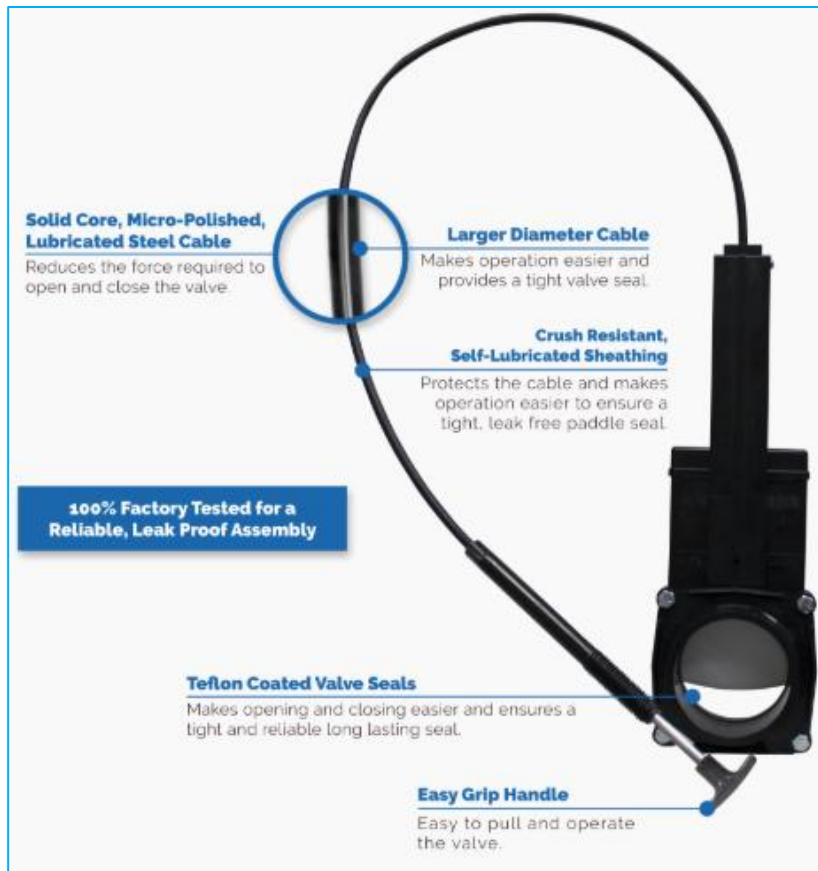


Figure 148. Valterra manual waste tank valve assembly.

Monitoring Your Water Systems

The Monitor Panel shows the fill levels of the fresh water, grey water and black water tanks. You will also operate the heaters on the holding tanks here and as well as the power to the fresh water pump (you'll also find a water pump switch in the exterior docking station) and the water heater. These switches will illuminate while in the on position.



Figure 149. The upper portion of the monitor panel showing tank and water controls. This figure has the same indicators as Figure 122.

When an individual button is pressed (Figure 149C), the lights above the switch (Figure 149B) illuminate to reveal the level of the selection pushed. For the battery level indicator, the individual letters mean the following:

- L = Low at 6.0 volts
- F = Fair at 11.6 volts
- G = Good at 12.1 volts
- C = Charge at 12.7 volts



The panel is universal for many Alliance trailers. As such, it has available buttons to check up to 4 waste tanks. Your floor plan may have less. The number of waste tank pull handles or dump valve switches will be the true indicator of the number and types of tanks on your trailer.

The water pump is operated with the water pump switch (Figure 149E) as well as the gas and electric options for the water heater (Figure 149D). The gas water heater switch enables propane operation of the water heater while the electric switch enables electric operation of the water heater. Both switches being on will allow for a quicker hot water recovery. The water heater can be operated in electric or gas only by turning one of the individual switches on.

Note: The holding tank heaters will also be operated from the monitor panel (Figure 149G).

Tank Heaters

Alliance trailers come standard with fresh water and holding tank heating pads installed on the bottom of the tanks. They are thermostatically controlled, meaning they will only turn on when the temperature drops below 45°F (5°C) and will turn off when they reach a temperature of 67°F (20°C.) As per the Owner's Manual for the pads, **no harm will come to the tank if the heating pads are ON and the tank is empty.** It is suggested to turn the pads off in such a case as they will cycle On and Off with no liquids in the tanks.

Washer / Dryer Prep (If Equipped)

Your trailer may come with a washer / dryer prep depending upon floorplan. This prep is in the front closet area of the trailer. You will find both hot and cold-water connection points. Should a washer and dryer be your desire, please consult with your dealership or Alliance RV for our installation recommendations. Otherwise you will find functional cabinet or closet space in that area.



Figure 150. Washer connections and drain.

INTERIOR

Window Blinds


Alliance RVs come with MCD Innovations' roller shades. Early model Alliance RVs did not have day shades installed. Later models have dual Day/Night shades on all windows in the main living area and only have the night shades in the bedroom, and also the rear bedroom for double-suite models.

Periodically, some blinds may need adjustment of their upper stop setting, or their tension. Please see the maintenance section for instructions on these operations. Also see the maintenance section for cleaning instructions.

Window Blind Troubleshooting

Please refer to the following Tech Tip for a guide on troubleshooting and adjusting the MCD shades. Note that for single Night shade installations, the Tension/Speed Adjustment is always on the LEFT end of the shade (the fabric hangs down over the BACK of the roller tube) and the Set Point (AutoStop™) Adjustment is on the RIGHT end.

	How to fix/troubleshoot your roller shades in your Alliance RV (Alliance video)
---	---

	MCD video library – extensive selection of how-to videos
---	--

Window Blind Maintenance

Adjustments of the shade can be found in the Tech Tip referenced in the Troubleshooting section. For cleaning and removing/replacing a shade, see below.

Cleaning

Day Shade

Clearview™ Solar Screens should be vacuumed periodically to remove accumulated dust, particularly when traveling in dry, dusty climates. We recommend using your vacuum cleaner's soft upholstery brush to gently vacuum each shade.

To clean your Clearview™ solar screens, use a sponge or a soft brush and water to remove stuck-on dust and most stains. A mild cleaning solution can be used to remove tougher blemishes. Rinse after cleaning by soaking a clean cloth in fresh water, wringing out any excess and wiping the areas where any cleaner was used – repeat as necessary. Use a towel behind the screen as you clean with a sponge or brush to keep splatter down.

Night Shade

Vinyl blackout shades material will typically clean up nicely with water using a micro-fiber cloth or non-colored paper towel. Wipe down with water after cleaning and dry thoroughly before raising the shade.

Fabrics have been Teflon treated and should be cleaned with a damp sponge. For stubborn stains, Woolite brand pet stain remover with oxygen may be used carefully and as directed. After using upholstery cleaner, you should consider reapplying the Teflon treatment by using a ScotchGuard™ brand upholstery protecting spray and following the directions for application on a “lightweight” fabric.



Be sure the shades are completely dry before rolling them up. They may stick together if you do not let them dry. It is also recommended to spray ScotchGuard™ (on the cloth fabric shades only) over the area you cleaned if you use a chemical cleaner.



[How to use Mounting Clips | MCD Innovations](#)

Removing and Replacing a Roller Shade Assembly: Metal Clips

Early model year Avenue trailers use shades with a metal clip which grabs the external ridges of the shade base. If one inspects the area between the shade assembly and the wall, you may see two or three (on longer shade assemblies) metal tabs visible between the shade and the wall.



The procedure below is done without removing the valence from the wall. In the Alliance-produced video linked above, the valence is removed for easier access to the clips. Either method is acceptable.

To remove the shade assembly:

1. Insert a flat bladed screwdriver between the metal tab and the shade
2. Twist to release the back side of the shade base from the clip. The front will still be contained in the clip until the other clip(s) is/are removed as well.

To replace the assembly shade:

1. Hold the shade assembly with the shade rolling off the back of the roller tube away from you.
2. Roll the shade assembly back at the top, where the front edge will contact the top of the valence/metal clips first.
3. While pushing up and pulling forward (engaging the front of the clip,) rotate the shade assembly up in back. This will engage the tab- and after pushing against it as you continue to roll the shade back you'll hear the clip and feel the shade captured.

Removing and Replacing a Roller Shade Assembly: Plastic Clips

Late model Avenue trailers use a plastic clip mounted to the window valence. The main difference is that the plastic clip grabs internally on the MCD shade rail- meaning it springs OUT, while the older metal clips grab from the outside, with it spring loaded to push IN.

FURNITURE

You'll find a range of styles and sizes of furniture in your RV, below is some information on the different types of furniture you may see in your RV.

⚠ WARNING

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.

Theatre Seating

A modular seating system that features electric controls and smoothly operating recliners which is assembled and installed by the factory for ease of use.

Every furniture component locks into place with each adjacent piece.



Figure 151. Modular components of the theater seating. At the right are details of the back connection, and module interlocking.

Sofa Seating

Two and three cushion sofas that fold out for additional sleeping.

To operate:

1. Remove the back cushions
2. Fold out the couch seat to expose the middle seat
3. Fold out the couch seat legs and set upright
4. Fold down the stationary back

5. User back cushions as headrest or pillows

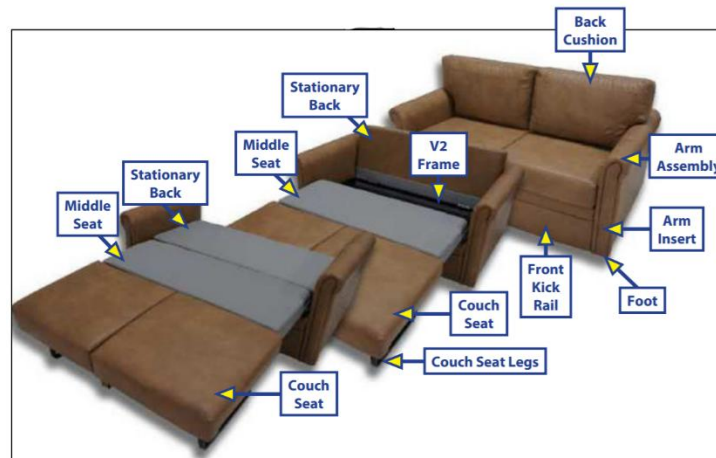


Figure 152. Operating the fold-out sofa.

A polyurethane fabric constructed and designed for all home furniture. Polyurethanes should be cleaned with a mild water based shampoo or soap. More stubborn stains can be cleaned with a mild, non-alcohol based cleaning fluid. Rinse with clean water afterward. For non-liquid stains such as mustard, remove any excess before cleaning. All stains and spills must be attended to promptly.

CARE & MAINTENANCE

An RV comes with a variety of surfaces that need to be cleaned and maintained both on the exterior and interior. Regular cleaning and maintenance of these different components is needed and will help keep the RV in the best possible condition both cosmetically and functionally. The rate of the breakdown and deterioration of the seals, sealants and gaskets on your RV is directly tied to the outside environment and the needed maintenance, cleaning and touch up of these crucial components may vary based on your specific experience. The [Maintenance Schedule](#) in this manual is based on minimum applicable intervals. This section will highlight some of the general items that need to be done not specifically covered elsewhere.



[WYKW: Should You Walk on Your Slide Roof?](#)



[WYKW: Roof Seams and Air Bubbles](#)

Roof Maintenance & Inspection

Keep your roof clean. Use Dicor roof cleaners (RP-RC320S spray or RP-RC160Cj concentrate) or standard products such as 409, Fantastik or mild detergents. Do NOT use harsh abrasives or products containing solvents. For stubborn spots, a rag dampened with mineral spirits is recommended. DO NOT SOAK (never apply mineral spirits directly to the roof.) Start by rinsing the roof membrane with clean water to remove any loose dirt or debris. Then, using a medium bristle brush along with a mild detergent / soap and a few gallons of water, scrub the entire roof and then rinse thoroughly, a rubber squeegee may be used to direct water off the roof.

NOTE: do not use abrasive pads or cleaning solutions that contain solvents.

A semi-annual inspection of the roof is suggested. Check the membrane for damage and check the lap sealant used at all termination areas (front, rear and side seams as well as roof attachments). The lap sealant has a limited life span, depending on the geographic region and conditions, and should be repair or replaced as needed. Use a self-leveling lap sealant on locations not near edges. Along edges and corners, use a non-self-leveling version to prevent the sealant from excessive spreading.

Washing & Waxing

When washing, start from the top and work your way down, try to stay out of direct sunlight. Often it is best to clean sidewalls after first cleaning the roof. Sidewalls and the front and rear skin or cap should be washed and waxed to protect and restore. Never take your RV through an automatic car wash and avoid using highly abrasive cleaning pads or high-pressure sprayers, the finish and decals/labels on your RV can be damaged by using such products. A soft bristled brush and a mild soap / detergent, if cleaned properly and frequently, will meet your needs. Normal automotive wax should be utilized when waxing your RV, we recommend waxing two to three times a year, at minimum.



[WYKW: How to Wash Your Alliance RV Walls or Roof](#)

Harsh Environments

Exposure to salt can result in damage to exterior paints, finishes and other components, it is highly corrosive and should be cleaned off as frequently as possible. The more your RV is exposed to snow, rain, road salt, chemicals and saltwater, the more severe corrosion can be, therefore, a stricter cleaning and maintenance schedule may be needed.

Treating Rust

Periodically inspect the pin box, chassis, landing gear/leveling jack brackets, axles, wheels, and suspension components for spot rust.

If you find spot rust, use a wire brush to clean the spot. Wash off dust and allow to dry. Touch up the finish as needed with rustproof or rust-covering enamel paint as applicable. The more quickly you take care of this, the less damage it can cause and lead to bigger issues.

Exterior Seals



[WYKW: Inspecting Seals](#)

Your RV is sealed all around to prevent water intrusion and damage to the RV. These seals and sealants (clear and colored) are crucial to your RV's protection from the outside environment. These seals and sealants should be inspected regularly and touched up and/or resealed as needed. Make sure to check the roof, slide-outs, the corner, termination and beltline trims and moldings on the exterior of the RV. For questions on required seals and sealants, please contact your dealer and Alliance RV.

Slide-out Seals

Inspection

Your slide-outs utilize wipe, cap and bulb seals to protect the room from the outside elements. Due to the nature of a slide-out room, these seals are not 100% watertight and should be checked regularly for any visual signs of damage and addressed immediately when found. Inspect the slide-out seals for proper contact as follows.

When slide-outs are closed: the top, forward, and rearward bulb seals should be approximately 50% compressed along their full length. If there are gaps or significant deviations, contact an RV repair center to have your slide closed position adjusted, or refer to the section [Hydraulic Slide-outs: Advanced Maintenance](#).

When slide-outs are open- wiper seals: the forward and rear wiper seals should show approximately the same amount of deflection indicating the slide is centered in the opening. The top wiper seal should also show some deflection. All wiper seals should show an outward deflection. If any of these conditions are not present, contact an RV repair center to have them corrected appropriately.

When slide-outs are open- inside bulb seals: all three bulb seals (front, rear, and top) between the trim boards and interior wall should be in contact and compressed approximately 50%. If there are gaps or significant deviations, contact an rv repair center to have your slide open position adjusted, or refer to the section Hydraulic Slide-outs: Advanced Maintenance.

Conditioning

Spraying your slide-out seals with an appropriate spray for lubrication and conditioning will help keep the slide-out seals and gaskets malleable, flexible, in good working condition. Many commercial products are available and suitable for this purpose.

Interior

Keep your RV clean and well-kept during regular usage and always be sure to thoroughly clean after extended uses, long trips and before you store your RV. Sweep and mop floors as required, clean the kitchen and bathroom as you would in your own house. For appliances, sinks, countertops, toilets, showers and flooring, you'll want to use your regular household cleaners (always refer to the owner's manual of the individual component for additional information). Make sure that the RV is ventilated well when doing this, clean air is needed for your safety.

Strip your bedding down and clean as required, be sure to follow the care instructions on these soft goods. When wiping down cabinets, walls, ceilings and other surfaces, use a mild soap / detergent and warm water in order to not cause damage to these surfaces.

EXTENDED RECREATIONAL USE OF THE RV

In some cases you may find yourself in the RV for extended periods of time. Whether that be full time living, a long weekend or an extended stay, you may run into some challenges. We have put together some helpful tips for battling some of these challenges.



[WYKW: Cold Weather Camping Tips](#)

Condensation & Mold



[WYKW: Controlling Moisture in Your RV](#)

The normal living activities of even a few people in an RV can lead to rapid moisture saturation of the air inside the RV as well as accelerated wear and tear. This condensation, if left unaddressed, can lead to mold. A more aggressive maintenance schedule may need to be adopted. Below are some pointers to assist with some of the problems you may face while using the RV for extended periods of time.

- Use a dehumidifier.
- Use exhaust fans when showering and cooking.
- In warmer temperatures, use your air conditioner.
- Crack windows.
- Don't air dry clothes in the RV.
- Implement proper preventative maintenance and overall RV cleanliness.

⚠ WARNING

CONDENSATION MAY CAUSE DAMPNESS, MILDEW AND MOLD. IF NOT ADDRESSED IMMEDIATELY, CAN RESULT IN DAMAGE AND POSSIBLY LEAD TO ADDITIONAL MOLD OR MILDEW ISSUES WHICH CAN BE HAZARDOUS TO YOUR HEALTH.

Exterior Plumbing

Alliance RVs are equipped with heating pads for the holding tanks and a dedicated heat vent to drop air down into the underbelly. Depending on your needs, it may be necessary for you to take additional protection steps. Keeping your water running and the additional use of heat tape on pipes, hoses, fresh water and sewer lines will all assist in keeping your RV safe from damage during use in freezing temperatures. If your RV will not be used in cold weather, ALWAYS have your RV winterized (covered in the plumbing section of this manual).

Formaldehyde

Formaldehyde is used in many products such as glues, fabrics, paint coatings, and even paper products. Formaldehyde is also released from many smoking, cooking, soaps and many other household products. While most of the formaldehyde used in products in construction is consumed during the manufacturing process, a very small amount remains. This leftover formaldehyde dissipates over time as it works its way out of the product. Proper ventilation by way of the available vents, fans and air conditioning units in your RV is key.

MAINTENANCE SCHEDULE

The following maintenance schedule will help keep your Alliance Avenue trailer operating at peak performance, and such maintenance is required to keep your warranty active.

For items listed as “Before Use”: Most items are commonly quick inspections to assure a safe towing experience. It should be noted that some of these inspections require lengthy repair and/or special parts if the inspections should fail. As such, it is common for experienced RVers to perform these checks in days prior to expected travel.

For items listed as “Monthly”: These items can be skipped if the unit is not in service, but must be performed before the unit is used again.

Table 46. Required maintenance schedule.

MAINTENANCE REQUIRED	FREQUENCY						
	BEFORE USE	AFTER USE	MONTHLY	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED
GENERAL EXTERIOR/SIDEWALL, INCLUDING SLIDEOUTS							
Inspect for Interior & Storage Compartment Leaks: Inspect for wet items or surfaces, or dried water stains. If witnessed, determine source and resolve.		X	X				
Inspect Exterior Seals/Sealants: Inspect for damage, cracks or voids in sealant used around items on the exterior walls, at corners, and the front and rear caps of the RV. If witnessed, repair or reseal as needed.		X		X			
Locks and Latches: Lubricate with silicone lubricant			X				X
Washing Exterior Walls, Slideouts, Chassis: Refer to the section Care & Maintenance: Washing & Waxing				X			X
Waxing Exterior Walls & Front Cap: Refer to the section Care & Maintenance: Washing & Waxing					X		
SLIDEOUTS							
Inspect All Slideout Seams: Inspect all T-molding joints, roof membrane seal along edges and T-molding, screws. Look for damaged sealant, eternabond tape, and loose or missing screws. Remove any damaged sealant or tape and clean, then replace.				X			

Inspect Slide Seals: Ensure the rubber is not cracked or torn, and for proper compression. Refer to the section Slide-out Seals: Inspection				X			
Condition Slide Seals: Refer to the section Slide-out Seals: Conditioning						X	
Electric Through-Floor Slideouts: Actuate each one. Ensure one full cycle of retraction and extension is completed. Note any unusual movements or behavior, perform slide seal inspections at each end of movement. Resolve any identified issues.			X				
Perform System Inspection and Maintenance of Electric Slide-Outs: Execute all procedures listed in the section Electric Slide-out Maintenance .						X	
Lubricate Gear Packs in the Electric Slide-outs: Refer to section Electric Slide-out Maintenance: Gear Pack Lubrication .						X	X
In-Wall Slide-out inspection: Keep the gear racks and seals clean and free of debris. They can be washed with mild soap and water. Do not grease or lubricate them.			X				
Resynchronizing In-Wall Slide-out Motors: Each time the slide is opened, follow the standard procedure of holding down the Extend button for a count of 5. Refer to section In-Wall Slide-out Maintenance: Resynchronizing In-Wall Slide-out Motors if the system does not operate well (both sides moving in unison.)							X
BAL Accu-Slide Slide-out (if equipped): Verify Proper Adjustment: Run the slide all the way out, and all the way in. At both positions, check the seal of the room. If there is not a proper seal in either position, Refer to the section BAL Accu-Slide Maintenance: Cable Adjustment Procedure to correct the condition.							X
BAL Exact-Slide Slide-out (if equipped): Verify Proper Cable Tension: With slide fully closed (in), manually test cable tension with thumb and index finger. The bottom cable should be able to move 1/4" up and down at the middle and the top cable should be able to move 1/2" up and down. See the section BAL Exact-Slide Maintenance: Adjustment Procedure for details.							X

ROOF							
Inspect the PVC Membrane & Attachment Points/Seams: Refer to the section Roof Maintenance & Inspection				X			
Wash the Roof: Refer to the section Roof Maintenance & Inspection					X		
FRAME & UNDERBELLY							
Inspect the Frame & Underbelly: Check for damage, loose wires, loose brake lines/wires, and debris. Repair any damage to underbelly material, wires, or brake lines as needed.						X	X
Inspect Undercarriage For Chipped Paint & Rust: Refer to the section Care & Maintenance: Treating Rust					X		
CHASSIS/TOWING							
Inspect Tires & Check Pressure: Refer to the section Tire and Wheel Maintenance: Inspect Tires and Check Pressure	X		X				X
Check Wheel Lug Nut Torque: Refer to the section Tire and Wheel Maintenance: Wheel Nut Torque	X						
Verify Breakaway Switch Operation: Refer to the section Brake Actuator Maintenance: Breakaway Switch Operation				X			
Brake Inspection: To be performed by a qualified technician.						X	
Check Disc Brake Actuator Brake Fluid (If equipped): Refer to the section Brake Actuator Maintenance: Brake Actuator Brake Fluid (If Equipped)				X			
Bearing Inspection and Grease Repacking: Every 12k miles OR one year, whichever comes first, have a qualified person perform this service.						X	
Tow Plug Inspection & Wire Lug Torque Check: Refer to the section Tow Plug Maintenance	X						
CURT Rota-Flex Pin Box Inspection: Refer to the section Rota-Flex Pin Box Maintenance: Inspection	X		X				
Check CURT Rota-Flex Pin Box Bolt Torque: Refer to the section Rota-Flex Pin Box Maintenance: Pin Box Bolt Torque			X				
Leaf Spring Suspension System (if equipped)							
Inspect the Spring Hangers & Leaf Springs: Refer to the section Leaf Spring Suspension Maintenance: Spring Hanger and Leaf Spring Inspection	X						

Inspect CRE3000 Rubber Shear Spring and Bracket: Refer to the section Leaf Spring Suspension Maintenance: CRE 3000 Inspection	X						
Check Wet Bolt Torque: Refer to the section Leaf Spring Suspension Maintenance: Wet Bolt Torque	X						
Check Axle U-Bolt Torque: Refer to the section Leaf Spring Suspension Maintenance: Axle U-Bolt Torque	X						
Grease Wet Bolts: Refer to the section Leaf Spring Suspension Maintenance: Wet Bolt Lubrication						X	
BAL LS 5.3 Automatic Leveling System							
Inspect All Power Unit Electrical Connections: If corrosion is evident, spray connections with electrical contact cleaner.					X		
Clean Landing Gear & Jacks: Remove road debris.					X		
Lubricate Jacks & Stabilizer: Apply a small amount of grease to each jack and stabilizer screw using the access ports or directly on the stabilizer screw.					X		
Check Torque on Jacks and Stabilizer: Refer to the section Auto Leveling System Maintenance: Inspection and Greasing					X		
Electrical							
Test GFCI Outlet: Press the TEST button to activate the internal electrical testing function. The RESET button should pop out and the outlet should not be functional, nor will downstream outlets function. RESET the GFCI outlet. If there are problems, contact a qualified servicing dealer.				X			
Perform General Battery Maintenance (Flooded/Lead Acid, Sealed, or AGM Batteries (If Equipped): Refer to the section Battery Maintenance				X		X	
Inspect Renogy Lithium Battery/Batteries (If Equipped): Inspect and if required clean, the Renogy battery/batteries. Refer to the section Renogy Battery Maintenance .			X			X	
Inspect and Perform a Torque Check of the Renogy Battery Monitor (if equipped): Refer to the section Renogy Battery Monitor Maintenance: Inspection/Torque Check						X	
Inspect and Perform a Torque Check for your Power Center: Refer to the proper section for the Power Control Center (Progressive Dynamics or WFCO) installed in your trailer.						X	

Inspect and Perform a Torque Check for the Intellitronix EMS (if equipped): Refer to the section Intellitronix Maintenance: Inspection & Torque Check						X	
Inverter (if equipped)							
Perform an Inspection & Cleaning for the Inverter mounted in your trailer: Refer to the proper section for the particular Inverter mounted in your trailer.						X	
Solar Equipment (if equipped)							
Renogy 20A DC-DC Charger Maintenance (if equipped): Inspect wiring for damage and replace or repair immediately. Inspect terminals and ensure they're tight as vehicle vibrations may have loosened them. Ensure the charger is free of dust and has adequate ventilation.						X	
Check Wire Torque of the Go Power! Solar Charge Controller (if equipped): Remove the unit from the wall and check that all wires are secure to the unit.						X	
Perform General Maintenance on Renogy Rover Solar Charge Controller (any variety, if equipped): Refer to the Maintenance section of your controller's information in this manual for proper maintenance procedures.						X	
Inspect & Perform a Torque Check of the Victron Solar Charger (if equipped): Inspect the housing and area for any signs of water damage, damage, or wire damage. Rectify any found issues immediately. Using a torque wrench with proper adapter, ensure all screw terminals have the proper torque.						X	
Propane & Safety							
Inspect Propane System: Referring to the section Propane System Maintenance: Inspection (Owner) , make sure all components visibly look secure and in good condition. Close both cylinders immediately and contact a qualified service provider to rectify any problem seen.				X			X
Professional Propane System Inspection: Have a certified technician or propane professional inspect the propane system for safe operation.						X	
Test Alarms / Detectors (Smoke, CO/LP): Activate the Test feature of each alarm to ensure proper operation and notification methods are functional.	X		X				

Check Fire Extinguisher Mounting and Charge: Make sure Fire Extinguisher is accessible, yet secure. Also verify the charge is still good using whatever method is printed on the label.			X				
Test Emergency Exit/Egress Windows: Open each Emergency Exit/Egress window and reclose. If any window will not open, contact an authorized service center.			X				
Water/Utility Systems							
Clean AC Filter: During periods of use, clean the inside filters as per the procedure listed for your Air Conditioner model.			X				
Perform AC Coil Cleaning: Using standard techniques, ensure both inside (evaporator) and outside (condenser) coils are cleaned.						X	
Inspect Furnace Exhaust and Air Return: Prior to and during times of use, periodically inspect these areas as per the section Suburban Furnace Maintenance: Inspection				X		X	
Inspect Water Heater Anode Rod (if equipped): Refer to the section Water Heater Maintenance: Anode Rod Inspection					X	X	
Inspect Tankless Water Heater: Ensure no soot is visible anywhere on the water heater or around the exhaust. Also ensure no flame is present after the burner turns off, and that there is no leak in the system. Check all wiring to ensure it's tight. Refer to the section Tankless Water Heater Maintenance				X		X	
Drain Fresh Water Tank: Use the large white pull handle and drain located below the fresh water tank.		X					
Empty and Flush (Black Tanks) Waste Tanks: For flushing the black tank(s) refer to the section Rinsing Holding Tanks / Tank Flush		X					
Inspect the Fresh Water System: At all points throughout the RV where fresh water lines can be inspected (below sinks or in cabinets, on the roof of storage areas, behind the nautilus panel) ensure no evidence of leaks exist while the fresh water system is pressurized. Repair any leaks found.			X				
Sanitize the Fresh Water System: Following standard sanitizing methods when using bleach, or following the instructions provided with commercially available sanitizing treatments, ensure the fresh water system is cleaned.						X	

OTHER							
Clean & Inspect Awning: Refer to the section Awning Maintenance: Cleaning & Inspection		X		X		X	
Check Seals & Lubricate Refrigerator Doors: If your refrigerator has a dual door with central flap attached to a door, open the other door and make sure the flap fully closes flat. Lubricate hinge points with silicone lubricant if needed. Also lubricate any latch rotation points. Using a fresh dollar bill, open a door and place bill where seal will close. Close door and attempt to pull bill. Resistance should be felt. Test all areas of the seals, several inches apart. If any point has no or very little resistance, replace seals as per manufacturer recommendation.				X			

VENDOR WARRANTY AND CONTACT INFORMATION

Below you will find a listed supplier, related warranty information and warranty / tech support contact information should you need it. Some of this information may change without notice. Alliance RV will make all efforts to keep this manual as up to date as possible. **This is a summary of the component manufacturer warranty only. For details on individual component warranties, see their warranty information.**

Table 47. Vendor contact and warranty information.

COMPONENT	BRAND	PHONE EMAIL WEBSITE	MANUFACTURER WARRANTY
Air Conditioner	Coleman	(423) 775-2131 rvpsupport@airxcel.com www.airxcel.com	2-Year Limited
Air Conditioner	Furrion (Lippert Components)	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Automatic Transfer Switch	Progressive Dynamics	(269) 781-4241 sales@progressivedyn.com www.progressivedyn.com	2-Year Limited
Awnings	Carefree of Colorado	(303) 469-3324 carefreewebmail@carefreeofcolorado.com www.carefreeofcolorado.com	1-Year Limited
Awnings	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Axles, Brakes, Leaf Springs	Dexter Axle	(574) 295-7888 warranty@dexteraxle.com www.dexteraxle.com	1-Year Limited (Grease & Oil Seals) 2-Year Limited (Electric/Hydraulic Brake Actuators) 5-Year Warranty (Axles and Suspension System)
Batteries (Renogy Lithium)	Renogy	(574) 294-2684 warranty@dehco.com www.dehco.com	5-Year Prorated
Chassis / Frame	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited

DC-DC Charger	Renogy	(574) 294-2684 warranty@dehco.com www.dehco.com	Varies
Entry Steps	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Fireplace	LaVanture	(800) 348-7625 service@alliancerv.com www.lavanture.com	1-Year Limited
Furnace	Suburban	(423) 775-2131 rvpsupport@airxcel.com www.airxcel.com	2-Year Limited
Furniture	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Inverter	Progressive Dynamics	(269) 781-4241 sales@progressivedyn.com www.progressivedyn.com	2-Year Limited
Inverter	Intellitronix	(440) 359-7200 helpdesk@intellitronix.com https://www.intellitronix.com/	1-Year Limited
Inverter	Renogy	(574) 294-2684 warranty@dehco.com www.dehco.com	Varies
Inverter	Xantrex	(800) 670-0707 https://xantrex.com/support/get-customer-support/ https://xantrex.com/	Varies
Leveling System	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Mattress	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Microwave	Insignia	(877) 467-4289 www.esigniaproducts.com/email-us www.esigniaproducts.com	1-Year Limited
Microwave	Samsung	(800) 442-7717 Technicalsupport@riverparkinc.com www.riverparkinc.com	1-Year Limited



Microwave	Lusso	(574) 848-1118 warrantydept@collins-n-co.com https://www.collinssupport.com/	1-Year Limited
Oven / Cooktops	Insignia	(877) 467-4289 www.igniaproducts.com/email-us www.igniaproducts.com	1-Year Limited
Oven / Cooktops	Lusso	(574) 848-1118 warrantydept@collins-n-co.com https://www.collinssupport.com/	1-Year Limited
Oven / Cooktops	Greystone	(574) 971-4490 www.customerservice@wayinterglobal.com www.wayinterglobal.com	1-Year Limited
Pin Box(Rota-Flex)	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Power Center & Converter	Progressive Dynamics	(269) 781-4241 sales@progressivedyn.com www.progressivedyn.com	1-Year Limited
Power Center & Converter	WFCO	(574) 294-8997 technicalsupport@wfcocoelectronics.com https://www.wfcotech.com/	2-Year Limited
Refrigerator	Norcold / Thetford	(800) 543-1219 info@thetford.com www.thetford.com	1-Year Limited
Refrigerator	Samsung	(800) 442-7717 Technicalsupport@riverparkinc.com www.riverparkinc.com	1-Year Limited
Refrigerator	Everchill	(574) 971-4490 www.customerservice@wayinterglobal.com www.wayinterglobal.com	1-Year Limited
Roof Membrane	Dicor	(574) 264-2699 dmetzger@dicor.com www.dicor.com	15-Year Limited
Roof Vents / Fans	MaxxAir	(423) 775-2131 rvpsupport@airxcel.com www.airxcel.com	2-Year Limited
Slideout Systems (Cable)	BAL - Norco Industries	(877) 557-7788 baltechsupport@norcoind.com https://balrvproducts.com/	1-Year Limited

Slideout Systems (Electric)	Lippert Components	(574) 537-8900 customerservice@lci1.com www.lci1.com	1-Year Limited
Solar Charge Controller	Renogy	(574) 294-2684 warranty@dehco.com www.dehco.com	Varies
Solar Charge Controller	Go Power!	(866) 247-6527 https://gopowersolar.com/contact-go-power/ https://gopowersolar.com/	5-Year Limited
Stereo (JBL)	Riverpark Inc	(800) 442-7717 Technicalsupport@riverparkinc.com www.riverparkinc.com	1-Year Limited
Stereo (Jensen)	ASA Electronics	(800) 688-3135 info@asaelectronics.com www.asaelectronics.com	1-Year Limited
Tires & Wheels	Lionshead	(574) 533-6169 bscott@lionsheadtireandwheel.com www.lionsheadtireandwheel.com	1-Year Guarantee 5-Year Limited
Toilet	Dometic	(800) 366-3242 techservice@dometic.com www.dometic.com	1-Year Limited
TV	LG	(800) 243-0000 www.lg.com/us/support/email-appointment www.lg.com	1-Year Limited
TV	Sansui	(800) 442-7717 Technicalsupport@riverparkinc.com www.riverparkinc.com	1-Year Limited
TV Antenna	Winegard	(800) 288-8094 www.winegard.com/support/contact-us www.winegard.com	2-Year Limited
Water Heater	Suburban	(423) 775-2131 rvpsupport@airxcel.com www.airxcel.com	2-Year Limited

EXPLORE OUR LINE-UP

FROM LUXURY FIFTH WHEELS TO LIGHTWEIGHT TRAVEL TRAILERS AND
NOW INTRODUCING DESTINATION TRAILERS

At Alliance RV, our vision is to create a product driven by our customers, through their experience and input, and execute on those ideas at the highest level. Innovation and product development is best done in collaboration with the RVing community, and we are listening. Many of us here at Alliance RV have spent the majority of our careers in the RV industry, and we believe our RV owners and dealer partners will welcome an independent and truly different manufacturer that is transparent and dedicated to their customers.



DELTA | **AVENUE** | **BENCHMARK** | **-VALOR-** | **PARADIGM**

Product information is as accurate as possible as of the date of publication of this brochure. Alliance RV is commitment to continuous product improvement thus - floorplans, materials, components, features, measurements, specifications, options, etc. are subject to change at any time without notice or obligation. Certain conditions may require additional equipment. Advertising and marketing Photography may show optional equipment or props used for photography purposes only.

Alliance publishes approximate base weight of the trailer without optional equipment included. Optional equipment will impact the weight of the trailer. Please locate the weight sticker attached to the trailer you are considering for the most accurate trailer weight.

Tow Vehicle Caution: Retail owners of Alliance recreational vehicles are solely responsible for the selection and proper use of tow vehicles. All customers should consult with a motor vehicle manufacturer or their dealer concerning the purchase and use of suitable tow vehicles for Alliance products. Alliance disclaims any liability or damages suffered as a result of the selection, operation, use or misuse of a tow vehicle. Alliance's limited warranty does not cover damage to the recreational vehicle or the tow vehicle as a result of the selection of the tow vehicle.

Print date May 9, 2025 10:31 AM



ALLIANCE RV
301 Benchmark Drive
Elkhart, Indiana 46516

Office: (574) 218-7165
Sales: (574) 281-9869
Service: (574) 226-0140



JOIN THE ALLIANCE:
alliancerv.com