PARADIGM

OWNER'S GUIDE 2025

OBSESSED WITH PROVIDING THE BEST RV OWNERSHIP EXPERIENCE!

ALLIANCE RV

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,

Bill Martin
Vice President of Customer Experience

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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: _____

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OWNER'S INFORMATION BAG

You will find the manuals and registration cards for individual components in your Alliance RV Fifth Wheel 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 Weel / 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.safecar.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.safecar.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

	Relating to aftermarket items & modifications: • 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

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 weights 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.)*

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

⚠WARNING

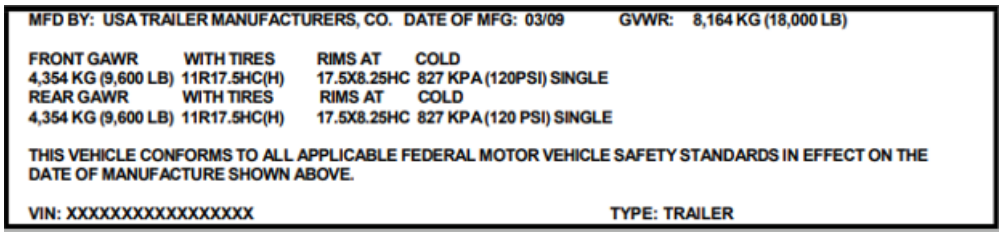
NEVER EXCEED ANY OF THE DESIGNATED WEIGHT RATINGS, DOING SO COULD RESULT IN DEATH OR SERIOUS INJURY

⚠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.

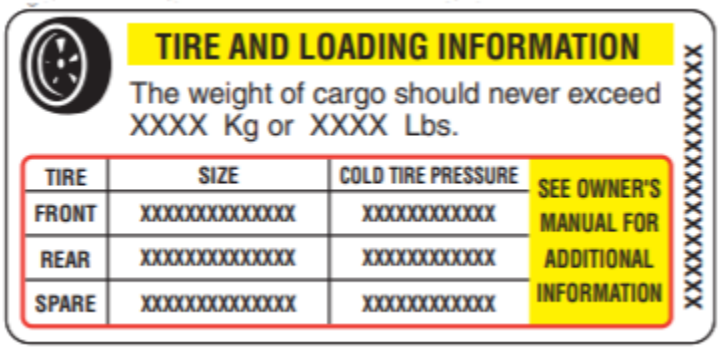


Figure 2. Tire and Loading Information label.

	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?

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 G ST235/85R16 or optionally a Load Range H 215/75R17.5 tire for the Paradigm 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
8	1/2"	16"	Steel/Aluminum	90-120 ft./lbs.
8	9/16"	17.5"	Aluminum	120-140 ft./lbs.
8	1/2"	MORryde Ind. Suspension		100 ft./lbs.
8	9/16"	MORryde Ind. Suspension		140 ft./lbs.
8	5/8"	MORryde Ind. Suspension		150 ft./lbs.

Figure 4. Proper lug nut torque sequence for an eight-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.

Hydraulicly actuated disc brake systems are also available on the Paradigm trailer. 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 or near the fifth wheel pin box. If the fifth wheel 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.

Figure 5. Breakaway Switch.

⚠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.

Electric Over Hydraulic (EOH) Brake Actuator for Disc Brakes (If Equipped)

The brake actuator converts the electrical signal from the tow vehicle, via the Tow Plug, to a hydraulic pressure to activate the brakes if the trailer is equipped with disc brakes. It is located in the front of the trailer near the off-door-side of the storage area. It is filled at the factory with DOT 3 brake fluid.

Figure 6. Dexter Brake Actuator.

	Dexter DX Brake Actuator Service Manual

⚠CAUTION

IT IS ADVISED NOT TO MIX DIFFERENT TYPES OF BRAKE FLUID (FOR EXAMPLE, DOT 3 SHOULD NOT BE MIXED WITH DOT 5.)

Brake Actuator 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 (Drum brakes)

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.

Breakaway Switch Operation (Disc brakes – If Equipped)

As per the Maintenance Schedule, test your breakaway switch with the following procedure.

1. If the RV is still hitched to the tow vehicle, disconnect the tow plug from the vehicle.
2. Pull the breakaway pin out, only to the first stage.
3. You should hear the brake actuator pump start at the front of the trailer.

	If you do not clearly hear the pump start, you need to determine the reason the pump will not start when the breakaway pin is pulled. This is most commonly due to a dead battery, a disconnected battery, or a faulty ground connection.

4. Reinsert the breakaway pin to disengage the brakes.

Brake Actuator Brake Fluid (If Equipped)

As per the Maintenance Schedule, check the fluid level of the brake actuator:

1. Ensure the RV is reasonably level, and that you have access to the brake actuator. This may not be possible when connected to the tow vehicle.
2. Using a clean rag, wipe excess dirt and dust from the cap, around the fill tube, and top of the actuator house.
3. Open the cap and ensure fluid can be seen at the base of the fill tube. If fluid is below the level pictured, add fluid (DOT 3) such that the fluid level is as shown in the below image.

Brake Inspection (Drum or Disc Brakes)

⚠WARNING

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

LEAF SPRING SUSPENSION SYSTEM (IF EQUIPPED)

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 (see below). It is designed uniquely to work with your steel leaf spring suspension to improve overall towing performance.

	Running Gear - Dexter: Operation, Maintenance, Service Manual -Axles -Brakes (electric drum or hydraulic disc) -Double eye leaf springs

	Heavy Duty Shackle Kit – MORryde product page Equalizer - MORryde, Tandem Axle, CRE3000 product page

	WYKW: Why is there a slight bend in your Alliance RV Axles?

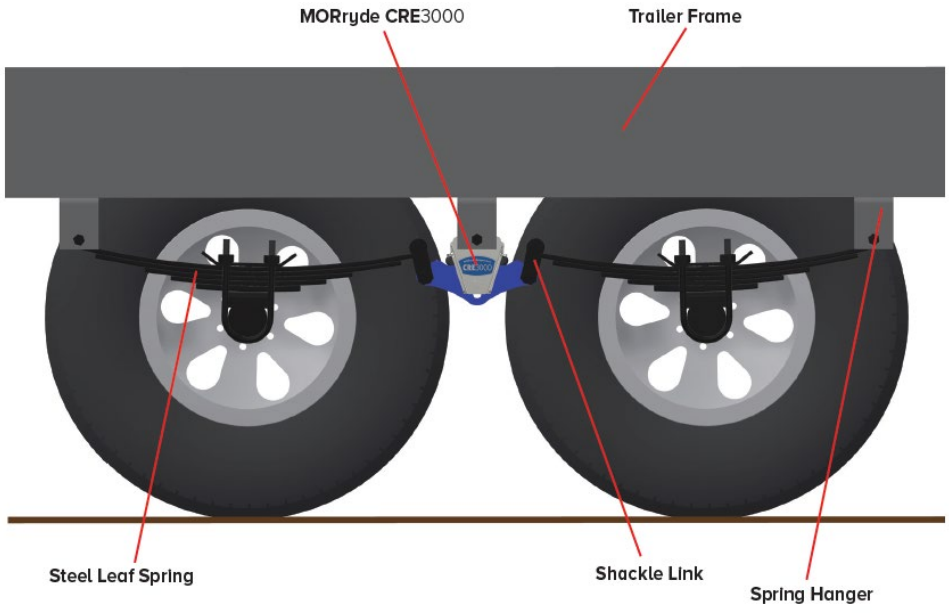


Figure 7. MORryde CRE3000 equalized suspension.

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 8. 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.

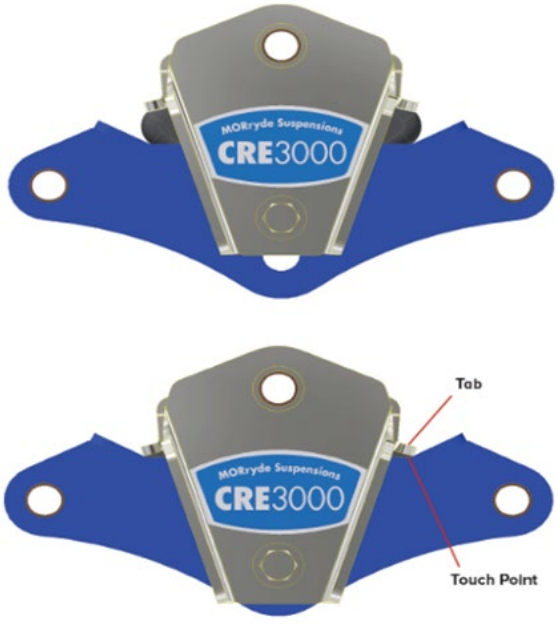


Figure 9. CRE 3000 shown at full design load. Top is new, bottom illustrates rubber worn out.

	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 10.

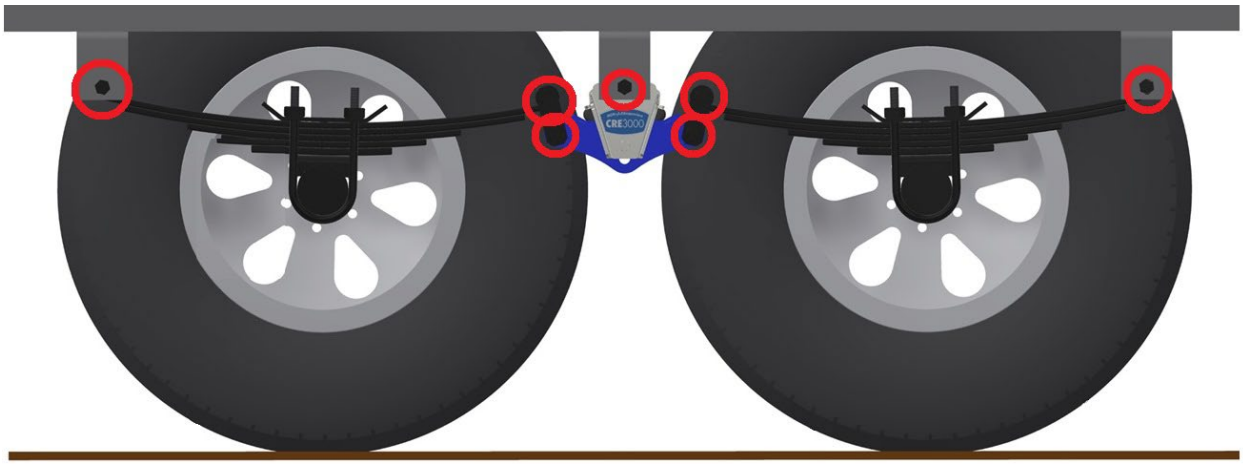


Figure 10. Wet Bolt locations to check torque and lubricate.

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 nuts of all axle U-bolts to 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 10 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, to rotate the bolt.

Axle Bearing Inspection and Grease Repacking

⚠WARNING

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

INDEPENDENT SUSPENSION SYSTEM (IF EQUIPPED)

The MORryde IS suspension system for your 5th wheel or travel trailer allows each wheel to respond individually to the road. That means your unit glides easily over uneven and rough roads to give you an amazing towing experience as well as protecting your trailer from damaging road shock. Each wheel has up to 5-1/2” of independent movement.

MORryde has provided extensive information in their documentation, linked below, to assist owners in the care and maintenance of the system.

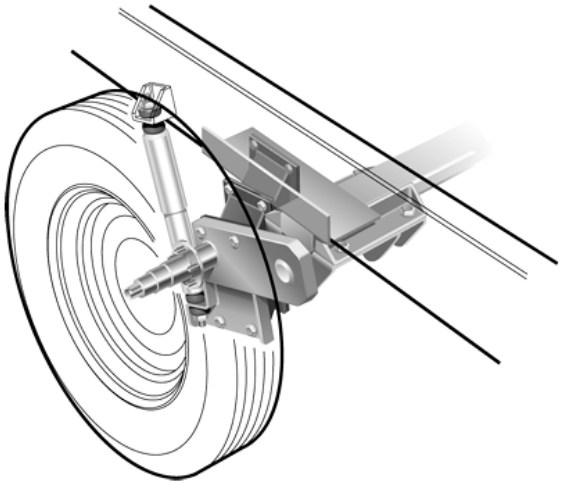


Figure 11. MORryde Independent Suspension.

	MORryde Independent Suspension Owner’s Manual Independent Suspension System Tire Changing Instructions

MORryde Independent Suspension Troubleshooting

Most problems related to this assembly will appear in the form of uneven tread wear on one or more wheels. Due to the large and complex nature of this assembly, detailed troubleshooting and corrective actions information is beyond the scope of this manual. Please refer to the information provided by MORryde.

	MORryde Independent Suspension Troubleshooting Guide

MORryde Independent Suspension Maintenance

Inspection

MORryde rubber springs are made of a special formulation of natural rubber and are bonded to steel plates. There are two unlikely problems that may occur with MORryde rubber springs:

1. Bond failure: This condition is apparent when the rubber separates or delaminates from the metal plate.
2. Rubber failure: This condition is apparent when the rubber tears or rips apart in the middle of the rubber spring, but not against the plates.

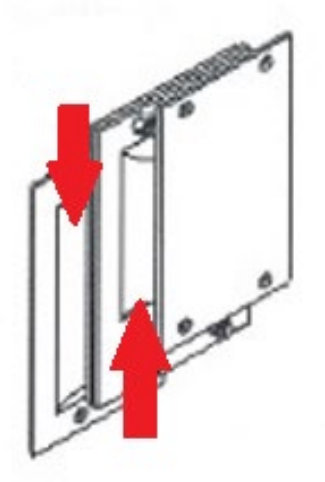


Figure 12. Locations to inspect.

As per the Maintenance Schedule, the rubber springs on your I.S. system should be inspected for any tears or cracks. If a rubber spring has a 3" wide AND 3/4" deep crack or tear, it should be replaced. A flat tool such as a putty knife can be used as a probe to check this. If the knife can be inserted into the rubber to a depth of 3/4" or more AND at a width of 3" or more, the rubber should be replaced.

ℹ	It is normal to see rubber spring weather checking, or small surface cracks in the rubber. Weather checking does not require a rubber spring replacement.

Torque Bracket Lubrication

As per the Maintenance Schedule:

1. Using a grease gun with NLGI Standard No 2 automotive grease, lubricate the fitting on each Torque Bracket. The zerk is located on the bottom of each wheel's rotational axle housing, as indicated in the image.
2. Grease should flow easily through the zerk fitting and exit the ends of the shaft housing. Only add enough grease to verify the cavity is full and grease is clean.

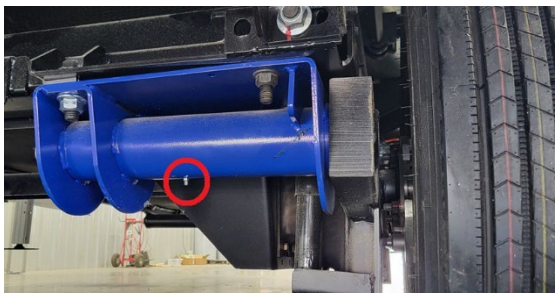


Figure 13. Torque bracket lubrication zerk.

MORryde recommends using a high-quality, multipurpose, extreme pressure (EP) lithium complex grease for automotive wheel bearing use. It should be NLGI GC-LB certified and NLGI Grade 2. MORryde uses Kendall L-427 Super Blu #2.

Axle Bearing Inspection and Grease Repacking

⚠WARNING

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

CURT TOURING COIL SUSPENSION (TCS) HD (IF EQUIPPED)

The CURT touring coil suspension (TCS) HD system is a trailing-bar style suspension system with coil springs and shock absorbers. Alliance Paradigm trailers with this system also have the optional ABS Braking installed. The system has drum brakes, it is not available with disc brakes.

Figure 14. Curt Touring Coil Suspesion overview.

The system is comprised of a solid **axle** mounted on two **trailing arms**, each one connected to the frame near each wheel. Each trailing arm has a **Coil Spring** to support the load at that wheel, and a pair of **Shocks** to dampen vibration and absorb bumps. There is a **bump stop** mounted above each end of each axle. A single **track bar** is mounted diagonally from the top of one trailing arm to the axle at the other end, providing lateral stability in turns.

Anti-lock braking system (ABS)

Anti-lock braking systems are designed to improve stability of the trailer during severe braking events. When the ABS control is not active, or if there is no power to the ABS module, the tow brake signal from the vehicle will pass through to the trailer brakes, the same as on a trailer without ABS technology.

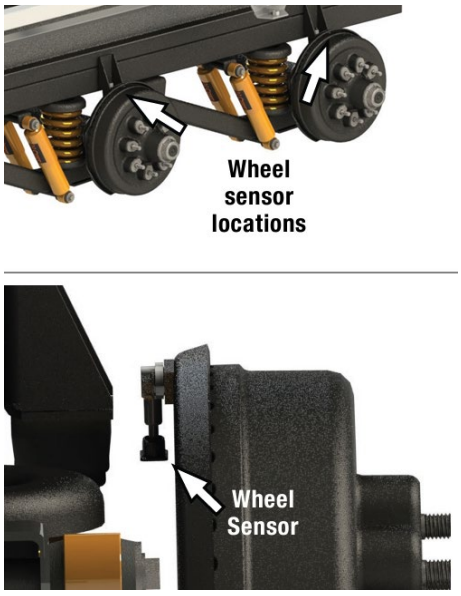


Figure 15. CURT TCS ABS Sensors.

When the ABS system detects a wheel is about to lock, the brake signal from the tow vehicle is reduced on that specific wheel to maintain wheel rotation. The tow vehicle brake signal is monitored at all times, and a proxy load is in place to ensure the ABS system maintains compatibility with all tow vehicle brake controllers. The ABS system features wheel sensors which must be handled carefully to avoid damage. The sensors are located on each wheel to measure tow vehicle brake signals.

CURT Coil Suspension Troubleshooting

Most problems related to this assembly will appear in the form of uneven tread wear on one or more wheels. Due to the large and complex nature of this assembly, detailed troubleshooting and corrective actions information is beyond the scope of this manual.

	CURT Touring Coil Suspension HD Service Manual

CURT Coil Suspension Maintenance

Inspection

The following items should be inspected as per the Maintenance Schedule, and faults should be corrected as listed. If any components are replaced, the hardware securing the components (including nuts and bolts) should be replaced with hardware of the same grade and specification. Information on replacement, including part numbers and required torques, can be found in the Service manual link in the troubleshooting section.

1. Shocks: Inspect each one for fluid leakage or shiny spots around the shock body neck. If leakage is found, replace. Note: Replace all shocks on the axle at the same time, even if only one is found to be faulty.
2. Coil Springs: If the suspension feels loose, check for excessive scuffing (large area) around the contact area of the coil springs. If found, replace both coils on the axle.
3. Bump Stops: Check that they are secured. If one is loose or out of place, tighten to 20 ft-lbs. torque. If the bump stop stud is bent, replace the bump stop.
4. Track Bar (the diagonally mounted bar between one trailing arm and the axle): Move it back and forth and check for excessive movement or play at both mounting points. If excessive movement is found, replace the track bar. If the bar squeaks during movement, but the movement is not excessive, refer to the procedure Lubrication of Track Bar, below.
5. Move the trailing arms side to side and check for excessive movement or play. If the trailing arm joints are loose, replace the bushings.

Lubrication of Trailing Arms

Using a grease gun filled with appropriate grease as per Lippert Specification ES-002 (see Table 2) add grease to the zerks on each end of the trailing arm. Only apply enough grease to see evidence of grease exiting the busing location at that end of the arm. There are 4 zerks per axle.

Lubrication of Track Bar

If the Track Bar squeaks during movement, but excessive movement is not found, lubricate the bushings at both ends using a spray-can formulation of one the approved greases listed in Specification ES-002. Apply lubricant around the inner diameter of the track bar bushings at four points around its circumference.

Table 2. Lippert grease specification ES-002.

MFG.	PRODUCT	MFG.	PRODUCT
Kendall Motor Oil (Div. of Witco Corp.)	Kendall Super Blue L427 Grease	**Pennzoil-Quaker State**	Premium Wheel Bearing Grease 707L
Chem Arrow Corp.	Arrow 78981-1		Synthetic Red Grease
Citgo Petroleum	Lithoplex MP #2	**Shell**	ALBIDA LC2
	Lithoplex CM #2		ALBIDA Grease SLC 220
Exxon Company USA	Ronex, MP		ALBIDA Grease SLC 460
Great Plains Lubricants	Lithium Complex EP Grease NLGI 2	**Royal Mfg.**	Royal 987 Multi-Lube EP #2 Lithium Complex
Mobil Oil Co.	Mobil Grease HP	**Chevron Texaco**	Ulti-Plex Grease EP NLGI2
	Mobilith AW2		Starplex Moly MPGM2
	Mobil I Synthetic Grease	**Valvoline**	Valvoline Multi-Purpose GM
Mystik Oil Co. Inc.	Mystik JT-6 Hi-Temp Grease	**Oil Center Research of Oklahoma**	O: Liquid-O-Ring No. 167L
	Low Temp Blue Lithium Comp.	**76 Lubricants Co.**	6 Multiplex EP
	Red Lithium Complex EP No. 2		76 Multiplex RED

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.

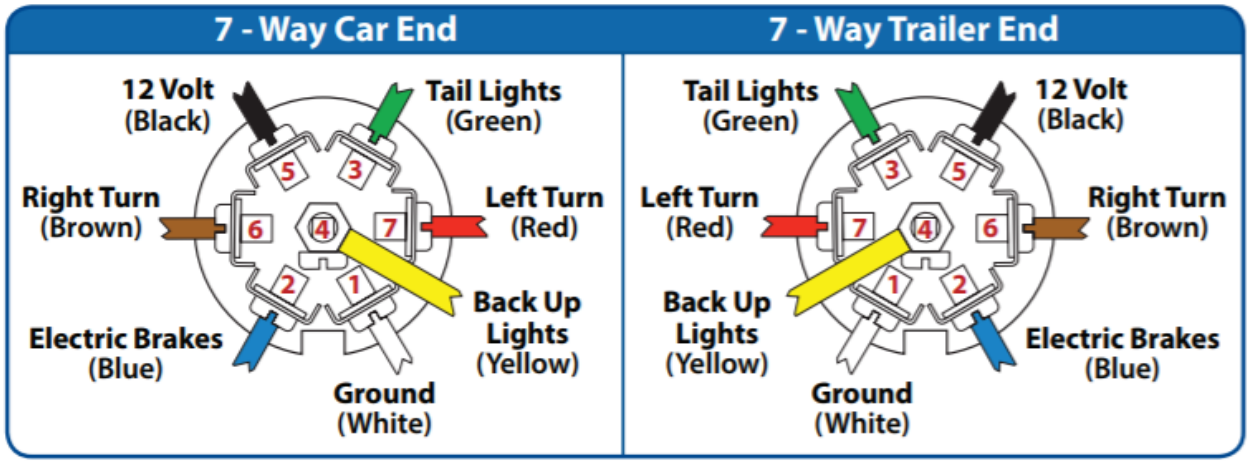


Figure 16. Standard 7 pin trailer wiring.

	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.

PIN BOX

Alliance Paradigm trailers are shipped standard with a conventional fifth wheel pin box. All documentation on hitching, unhitching, etc., relate to the use of these pin boxes.

CURT Rota-Flex Pin box (If Equipped)

The Rota-Flex fifth wheel pin box provides a robust connection point between your tow vehicle and the recreational vehicle. The Rota-Flex features a pivoting head that controls back and forth movement of the king pin within the hitch which reduces chucking and leads to a smoother ride. The Rota-Flex also contains a robust rubber compound in its head that absorbs road shock and vibrations, resulting in less strain and reduced wear and tear on your trailer as you travel.

	Rota-Flex Pin Box Installation and Owner's Manual

Rota-Flex Pin Box Troubleshooting

Table 3. CURT Rota-Flex pin box troubleshooting guide.

WHAT IS HAPPENING	WHY?	WHAT SHOULD BE DONE?
Trailer not level.	Adjustment needed.	Adjust pin box or hitch accordingly.
Excessive bottoming of skid pad assembly. Chucking in tow vehicle.	Operational or mechanical issues.	Inspect the rubber compression bumpers to make sure they are in place. Check the trailer brakes for proper operation. NOTE: If the above items are satisfactory, it may be necessary to install a shear spring with a different spring rate.
Skid pad assembly does not return to neutral position when disconnected from the tow vehicle.	Spring loose or damaged.	Check for loose or torn rubber shear spring.
Excessive noise from pin box area.	Attachment and/or hitch issues.	Verify that the pin box is securely attached to the 5th Wheel. If the kingpin is excessively worn, the skid pad will need to be replaced.
		Hitch mechanisms can also cause noise. Verify that unwanted noise is not coming from the hitch. The hitch manufacturer can provide guidelines for this check.

Rota-Flex Pin Box Maintenance

Inspection

As per the Maintenance Schedule:

- Regularly inspect the king pin for excessive wear.
- Inspect the skid plate for a neutral/centered position.
- When the trailer is disconnected from the tow vehicle, an equal gap of approximately 1-1/4" should be between the lip of the skid pad and the rubber compression bumpers. It is normal to be able to slightly move and twist the skid pad assembly with hand force.
- Inspect the retainment rods for excessive wear.
- Inspect the plastic glide pads for excessive wear. The pad should be no less than ¾"
- Check and grease bearing(s) once per season. If more grease is needed, add it to the bearing assembly.

Figure 17. CURT Rotaflex pin box.

⚠WARNING

DO NOT MIX LITHIUM, CALCIUM, SODIUM OR BARIUM COMPLEX GREASES. MIXING OF THESE CAN CREATE A CORROSIVE TOXIC CHEMICAL WITH FUMES THAT CAN RESULT IN SERIOUS HEALTH ISSUES.

Table 4. CURT approved sources of bearing grease.

MFG.	PRODUCT
Mobile Oil	Mobilegrease HP
Exxon/Standard	Ronex MP
Kendall Refining Co.	Kendall L-427
Ashland Oil Co.	Valvoline Val-plex EP Grease
Pennzoil Prod. Co.	Premium Wheel Bearing Grease 707L

Pin Box 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 **mounting bolts** to 135 ft-lbs (location A in Fig. 18.) Torque the two **bearing bolt nuts** on the rotation head, location B in Fig. 18, to 80 ft-lbs.

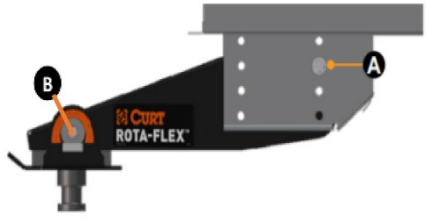


Figure 18. Pin box bolt torque locations. A: Mounting bolts, B: Bearing bolt nuts.

CURT Helux Pin Box (If Equipped)

The Helux fifth wheel pin box is designed to provide a smooth and comfortable ride when towing, reducing aggressive bouncing and jarring in the trailer, as well as a reduction in chucking experienced while towing. Built with premium coil spring technology dampened with an oil filled shock absorber, it meets the SAE J2638 safety standard. It has a standard kingpin design enabling it to work with all conventional jaw-type hitches.

Figure 19. CURT Helux Pin Box.

Helux Pin Box Troubleshooting

Table 5. CURT Helux pin box troubleshooting guide.

WHAT IS HAPPENING	WHAT SHOULD BE DONE?
Excessive chucking in tow vehicle	Inspect pin box coil spring for condition and any possible damage.
Excessive noise from pin box area	Verify that the pin box is securely attached to the 5th wheel. If the king pin is excessively worn, the jaw plate will need to be replaced. Check the condition of the coil spring and replace if damaged or broken. Look for damage on shock or a disconnected shock. Reconnect or replace shock if needed. Hitch mechanisms can also cause noise. Verify that unwanted noise is not coming from the hitch. The hitch manufacturer can provide guidelines for this check.

Helux Pin Box Maintenance

	CURT Helux Pin Box Maintenance Manual

Inspection

As per the Maintenance Schedule:

- Inspect the spring for cracks or damage. Have a qualified installer, service agency, or dealer replace if needed.
- Inspect the king pin for excessive wear.

Pin Box 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 the following bolt locations to the prescribed values. Location references can be seen in Figure 20.

Table 6. CURT HELUX Pin box torque specifications.

BOLT	LOCATION	VALUE (FT-LB.)
Shock bolts	A	70 ± 5
Stop bolts	B	75
Pivot bolts	C	120 ± 5
Mounting bolts	D	120 ± 5

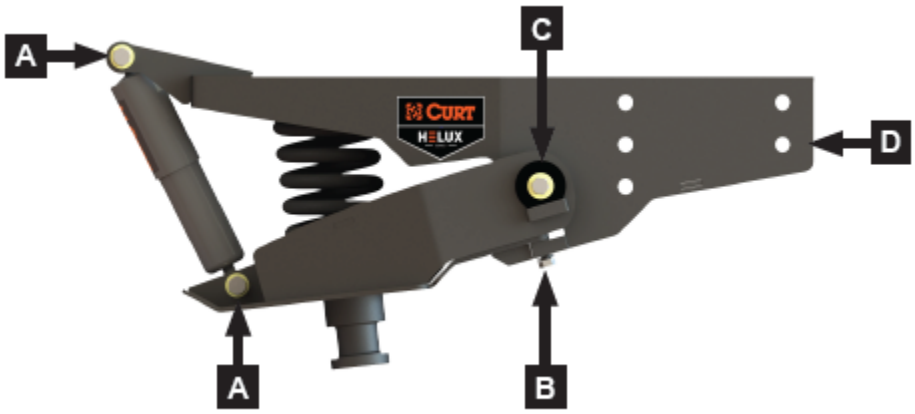


Figure 20. CURT Helux pin box torque check locations.

TOWING YOUR RV

When pulling an RV, the most obvious thing is shear 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.

CONNECTING TO THE TOW VEHICLE

Hooking Up

1. If not already present, place blocks against the front and rear of each RV tire.
2. If necessary, lower the tow vehicle's tailgate.

Figure 21. Appropriate vertical position to assure safe kingpin capture: flat pin box plate rides up the hitch ramp.

⚠CAUTION

CLEARANCE OF THE LOWERED TAILGATE TO THE TRAILER NEEDS TO BE MONITORED DURING HOOKUPS, AS COMBINATIONS OF TOW VEHICLE AND TRAILER HAVE LITTLE TO NO CLEARANCE.

3. With the RVs front landing gear, adjust trailer height so the bottom of the trailer's pin box is 1/2" to 1" below the top portion hitch skid plate.

ℹ	During the hitching procedure, the bottom of the trailers pin box should encounter the hitch skid plate ramp. See Figure 21.

⚠WARNING

DO NOT ATTEMPT TO HITCH THE RV BY USING TRAILERS LANDING GEAR TO LOWER THE KINGPIN ONTO THE HITCH OPENING. THIS COULD RESULT IN THE KINGPIN COMING TO REST ON TOP OF THE SKID PLATE INSTEAD OF WITHIN THE HITCH OPENING, WHICH MAY RESULT IN DEATH OR SERIOUS INJURY.

4. Open the jaw on the 5th wheel head.
5. Back the tow vehicle slowly toward the trailer until the tow vehicle's hitch contacts the bottom of the pin box and the kingpin slides into the receiver.
6. Latch the 5th wheel hitch in the closed position per the instructions of the 5th Wheel hitch manufacturer.

7. If space exists between the bottom of the pin box and top plate of the hitch, the trailer has not been properly hitched. Do not tow the trailer. Instead, repeat the hitching steps 1-7 until the trailer is properly hitched.
8. Connect the Tow Plug and Breakaway Switch cord.
9. Raise the tailgate of the truck if applicable.
10. Do not tow the trailer until a Pull Test has been conducted (covered below).

Pull Test (Tug Test)

WYKW: What is a Tug Test and what can happen if you don't perform one.

⚠WARNING

FAILURE TO PERFORM A PULL TEST COULD RESULT IN SEVERE PROPERTY DAMAGE, INJURY OR DEATH. FAILURE TO SECURE TOW VEHICLE AND RV FROM MOVEMENT DURING THIS PROCEDURE COULD RESULT IN SEVERE PROPERTY DAMAGE, INJURY OR DEATH.

1. Make sure the trailer wheels are blocked and the tow vehicle's emergency brake is on with the vehicle in Park.
2. Raise the front landing gear approximately 1" off the ground. With some leveling systems, only one side will rise initially. This is okay and you may proceed as pressure has been relieved from the other side as well.
3. Return to the cab of the tow vehicle, release the emergency brake and apply the trailer brakes (only.) Do not apply the tow vehicle brakes.
4. Put the tow vehicle into gear, and slowly attempt to pull the trailer forward with the tow vehicle. **NOTE:** If properly connected, the trailer brakes and chock blocks will prevent you from moving.
5. After successfully performing the Pull Test, shift to Park and set the vehicle emergency brake.
6. Fully raise the landing gear per manufacturer's recommendations.
7. Check and inspect all electrical circuits for proper operation, including clearance lights, turn signals and stop lights.
8. Remove and store all trailer wheel blocks.

HITCH RECEIVER

The Alliance Paradigm Fifth Wheel RV 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 SEVER PRODUCT AND/OR PROPERTY DAMAGE, INCLUDING VOIDING OF THE WARRANTY.

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, and guidelines can be found in the respective sections LEVELING and USING YOUR SLIDE-OUTS.

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. Extend the front landing gear to support the weight of the trailer. See **Unhitching from the Tow Vehicle (below.)**
3. Disconnect the Tow Plug and Breakaway safety cable.
4. Unhitch the tow vehicle as per the directions provided by your hitch manufacturer. Disconnect the Tow Plug and Breakaway safety cable. Move the vehicle a safe distance away from the trailer.
5. Perform automatic or manual leveling operations to ensure the trailer is level and stabilized. Please refer to the **Hydraulic 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

6. 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

HYDRAULIC LEVELING SYSTEM

Early model Alliance trailers were equipped with the Lippert Level Up® Automatic Leveling system using hydraulic actuators. This system is equipped with 14K aluminum landing gear (in front) and 8K aluminum leveling jacks (all four rear units.) The jacks in the Level Up® system work in pairs (front, left rear, and right rear.)

Late model Alliance trailers are equipped with a similar system called the Level Up® Automatic Leveling with Titan Jacks system still using hydraulic actuators. In this system, all jacks have jacks with 8K load limits, which still work in pairs as before. The system wiring and hydraulic line routing is different, including attachment points at the jacks.

Both the original and new systems use the same LCD control pad and operate with the same instructions and processes.

	How Do I Level My Alliance RV?

	Level Up 5th Wheel Owner's Manual Level Up LCD 5th Wheel With Titan Jacks Owner's Manual

	In colder temperatures the jacks may extend and retract slowly due to the fluid's viscosity, specially formulated fluid for low temperatures may be desired.

Prior to Operation

The leveling system shall only be operated under the following conditions:

1. The unit is parked on a reasonably level surface.
2. Be sure all persons, pets and property are clear of the unit while LCI Level-Up Automatic System is in operation.
3. Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
4. When parking the 5th Wheel on extremely soft surfaces, utilize load distribution pads under each jack.
5. Ensure the battery of the unit is fully charged or that the unit is plugged into shore power prior to attempting to operate the system. Level-Up requires a minimum of 12 VDC from the battery for proper operation.

⚠WARNING

ANY ATTEMPTS TO CHANGE THE TIRES, OR PERFORM OTHER SERVICE, WHILE 5TH WHEEL IS SUPPORTED SOLELY BY THE LIPPERT LEVEL-UP® WITH AUTOMATIC LEVELING SYSTEM COULD RESULT IN DEATH OR SERIOUS PERSONAL INJURY, SEVERE PRODUCT AND/OR PROPERTY DAMAGE.

⚠WARNING

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.

Leveling System Touch Pad

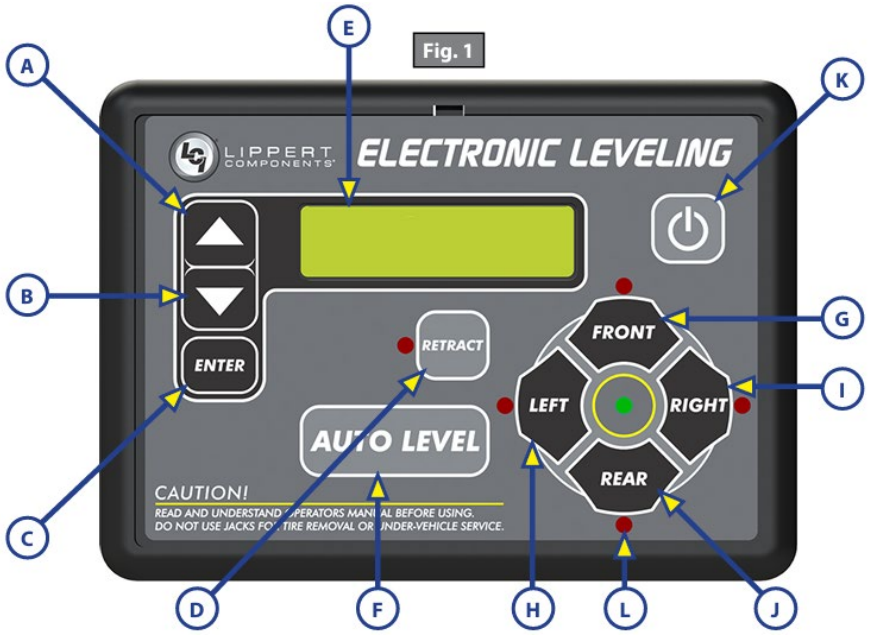


Figure 22. Lippert Level-up hydraulic system touch pad.

Table 7. Level-Up touchpad button functions.

CALLOUT	DESCRIPTION
A	Up Arrow - Scrolls up through the menu on LCD.
B	Down Arrow - Scrolls down through the menu on LCD.
C	ENTER - Activates modes and procedures indicated on LCD.
D	RETRACT - Places leveling system into retract mode while in manual mode only.
E	LCD Display - Displays procedures and results.
F	AUTO LEVEL - Places leveling system into auto level mode.
G	FRONT Button - Activates both front jacks.
H	LEFT Button - Activates left leveling jack(s) in manual mode.
I	RIGHT Button - Activates right leveling jack(s) in manual mode.
J	REAR Button - Activates leveling jacks in manual mode.
K	Power Button (ON/OFF) - Turns leveling system on and off.
L	LED lights.

Operation

Powering Up / Menu Selection

When the touch pad is initially activated:

- The leveling system will be in Standard Mode. The display will indicate the battery voltage. In this mode, the front landing gear can be extended and retracted, the rear jacks can only be retracted, and the AUTO HITCH OPERATION can be started.
- Using the Up and Down arrows (Figure 22 A & B, respectively) the following menu selections are available:
    - **Auto Hitch** [Process]– Pressing Enter (Figure 22C) will cause this operation to start. Rear jacks will retract, and the Landing Gear will extend to set the hitch at the same height it was at when “Auto Level” was last activated.

	If the auto level sequence was started with the front of the trailer in a below-level condition, Auto Hitch will not function and the LCD will display “Feature Disabled.” For Auto Hitch to function, the auto level sequence must be started with the front of the trailer above level, and at no time can Manual Level be used (as it will erase the hitch height memory.)

    - **Auto Retract** [Process] – Pressing Enter (Figure 22C) will cause this operation to start. All jacks will retract.

⚠WARNING

SELECTING "AUTO RETRACT" WHEN THE TRAILER IS DISCONNECTED FROM A TOW VEHICLE WILL CAUSE THE FRONT OF THE TRAILER TO FULLY LOWER TO THE GROUND. MAKE SURE ALL PEOPLE, ANIMALS, AND OBJECTS ARE REMOVED FROM UNDER THE TRAILER BEFORE OPERATING THIS MODE.

- **Manual Level** – Pressing Enter (Figure 22C) will allow one to manually level the trailer. The display will change to show the front to back angle and side to side angle of the trailer. Manual control of all jack pairs is possible (Front, Rear, Left, or Right.)
  - The top line is the Front-to-Back angle, with the symbol "↔". Positive degrees are Front high.
  - The second line is the Left-to-Right angle, with the symbol "↕". Positive degrees are Left-side high.
- Return to Standard mode – the current battery voltage will display.

ℹ	The red and green LEDs (Figure 22L) indicate the current state of the trailer as determined by the leveling sensors. The center green LED will be illuminated when the trailer is within one degree of level for both front-to-back and side-to-side measurements. If any red LED is blinking, it means that portion of the trailer is too low, beyond 0.5 degrees of level.

Basic Jack Operation

Landing Gear Jacks (Front of Trailer)

A. Landing gear jacks can be operated any time the system is on, but not during the AUTO LEVEL sequence. Press the FRONT button (Figure 22G), so that both the front landing gear jacks can be extended.
B. If the touch pad is put in the RETRACT mode, indicated by the orange illuminated LED next to the RETRACT button (Figure 22D), the front jacks can be retracted together by pressing the FRONT button.

🔧	When raising or lowering the landing gear, it is common for one to move for its full stroke, either up or down, before the other one moves when unloaded. This is not a fault. When both landing gear are under load, they will raise or lower in unison. The same behavior happens with the Left and Right pairs of leveling jacks.

Level-Up Jacks

A. The Level-Up jacks operate when "AUTO LEVEL" is activated or the touch pad is in "MANUAL LEVEL" mode.

ℹ	The Auto mode is active unless the Manual Level mode is selected through the LCD menu.

B. Once the system is in "MANUAL LEVEL" mode, press the REAR button (Figure 22J) to extend all Level-UP jacks at the same time. Pressing "Retract" (Figure 22D) will illuminate the red LED and then pressing the REAR button will retract all Level-UP jacks at the same time.

C. Once the system is in "MANUAL LEVEL" mode, press the LEFT or RIGHT buttons (Figure 22H or I) to extend both of the Level-Up jacks on the left (road) or right (curb) side of the trailer, respectively. Pressing "Retract" (Figure 22D) will illuminate the red LED and then pressing the LEFT or RIGHT buttons will retract both Level-UP jacks on the respective side at the same time.

⚠WARNING

BE SURE TO PARK THE TRAILER ON SOLID AND LEVEL GROUND. PRIOR TO OPERATION, CLEAR ALL JACK LANDING LOCATIONS OF DEBRIS AND OBSTRUCTIONS. THE LOCATIONS SHOULD ALSO BE FREE OF SURFACE DEPRESSIONS AND MOISTURE. WHEN PARKING THE TRAILER ON EXTREMELY SOFT SURFACES, UTILIZE LOAD DISTRIBUTION PADS UNDER EACH JACK.

⚠CAUTION

PEOPLE AND PETS SHOULD BE CLEAR OF THE TRAILER WHILE THE LEVELING SYSTEM IS OPERATED. NEVER LIFT THE TRAILER COMPLETELY OFF THE GROUND. LIFTING THE TRAILER SO THE WHEELS ARE NOT TOUCHING THE GROUND WILL CREATE AN UNSTABLE AND UNSAFE CONDITION.

Unhitching From a Tow Vehicle

1. Push touch panel "ON/OFF," (Figure 22K) to turn system on. The LCD Screen (Figure 22E) lights up.
2. The LCD will display status … "READY" and the battery voltage.
3. Red arrow lights (Figure 22L) may come on, indicating the current disposition of the unit. If any are illuminated, that section is low.
4. Push "FRONT" button (Figure 22G) to extend landing gear jacks and lift front of unit to take the weight of the 5th wheel off of the hitch.
5. Uncouple the 5th wheel connection on the tow vehicle, including the Tow Plug and Breakaway safety cable.
6. Pull tow vehicle away and park at a safe distance.

Auto Level

ⓘ	Pressing any button during an Auto Level sequence will abort the auto leveling cycle.

ⓘ	In order for Auto Hitch feature to function, the auto level sequence MUST be started with the front of the unit above level. Additionally, the Manual Level mode must not be used as it will erase the Hitch Height memory.

1. After disconnecting from your vehicle, locate the leveling touch pad on the unit (Figure 22) mounted at the front of the Off Door Side (Street Side) of the trailer.

2. Press the “ON/OFF” button (Figure 22K) and then press “AUTO LEVEL” (Figure 22F).

	Once the auto leveling has been started, it is important that there is no movement in the RV until it has completed the process. Failure to remain still during the leveling cycle could hinder the performance of the leveling system.

Auto Level Sequence

1. When auto level begins, the front of the RV will seek a position near a level state.
2. The rear legs will then extend and complete the rear leveling sequence, starting with the Left side and then the Right.
3. When the rear leveling sequence has been completed, the RV will adjust front to back. It may again adjust side to side.
4. Once this has been completed the screen will read "AUTO LEVEL SUCCESS."
5. The LED screen will then read "READY" and also display current battery voltage. The green LED in the center of the four leveling jack buttons will be illuminated (Figure 22L, center).

	If the auto level sequence does not perform as outlined, put the system in manual mode and test that the legs operate correctly by pushing the corresponding buttons on the touch pad. If the jack functions are incorrect, check that the correct jack wiring harnesses are plugged into the correct ports on the controller.

	If the auto level sequence was started with the front of the trailer in a below-level condition, Auto Hitch will not function and the LCD will display “Feature Disabled.” For Auto Hitch to function, the auto level sequence must be started with the front of the trailer above level, and at no time can Manual Level be used (as it will erase the hitch height memory.)

Hitching to a Tow Vehicle

1. Push touch panel “ON/OFF,” (Figure 22K) to turn system on. The LCD Screen (Figure 22E) lights up.
2. The LCD will display status … “READY” and the battery voltage.
3. Either press the LEFT and RIGHT buttons simultaneously (Figure 22H and I) OR press the UP or DOWN arrows (Figure 22G and J) until “Auto Hitch” is shown on the screen and press ENTER (Fig. 1C).
4. The rear jacks will be raised, and the front of the trailer will raise to the height where the auto level sequence was started.
5. Connect tow vehicle and make sure 5th Wheel and hitch are connected and locked. Press Up arrow (Figure 22A) arrow until “AUTO RETRACT” appears in LCD screen. Press ENTER. The system will immediately retract all jacks.

Hydraulic Leveling System Troubleshooting

	In colder temperatures the jacks may extend and retract slowly due to the fluid's viscosity, specially formulated fluid for low temperatures may be desired.

	Lippert Level-Up® LCD 5th Wheel Troubleshooting Guide

	WYKW: Dealing With Auto-Level Excessive Angle

The following table shows various error codes that may show on the touch pad.

To clear an error from the touch pad, repair or otherwise correct the issue, press ENTER. If the error is still present, the message will be displayed again. After working to resolve the issue that led to an error code, press ENTER on the touchpad. If the error is still present, the message will be displayed again. If resolved the error message will clear.

Table 8. Level-Up troubleshooting guide.

LCD MESSAGE	WHAT'S HAPPENING?	WHAT SHOULD BE DONE?
Excess Angle [Auto Mode Error]	Controller not properly secured.	Check and secure controller placement.
	Excessive angle reached during auto operation.	* Recalibrate Zero Point at current orientation. Attempt Leveling, then repeat Zero Point Calibration. * Re-hitch trailer. Use blocks under wheels to start more level if needed side-to-side, use blocks under front or rear to assist with jack extension. * Relocate the trailer.
Excessive Angle [Manual Mode Error]	Controller not properly secured.	Check and secure controller placement.
	Excessive angle reached during manual operation.	* Recalibrate Zero Point at current orientation. Attempt Leveling, then repeat Zero Point Calibration. * Re-hitch trailer. Use blocks under wheels to start more level if needed side-to-side, use blocks under front or rear to assist with jack extension. * Relocate the trailer.

LCD MESSAGE	WHAT'S HAPPENING?	WHAT SHOULD BE DONE?
Feature Disabled	Front of trailer below level when starting Auto Level process (only when trying to initiate Hitch Recognition).	Push the "FRONT" button to raise the trailer up to hitch height and connect to tow vehicle.
	Touch pad power not cycled between consecutive leveling operations.	Turn touch pad off and then back on to reset the system.
	Hitch Recognition has been requested, no hitch angle set. This can also happen if Manual Level mode was entered after Auto Level completed successfully.	Set zero point.
	Zero point not set.	Set zero point.
Low Voltage	Battery voltage dropped below 9.5V.	Check wiring - repair or replace.
		Test battery voltage under load - charge or replace.
Out of Stroke	Jack has reached maximum stroke length and is unable to lift.	Check disposition of jacks and/or relocate the trailer.
External Sensor	Bad connection or wiring from the controller to the rear sensor.	Replace or repair connection to rear remote sensor.
Jack Time Out	Time limit exceeded for the requested auto operation.	Check for obstructions, leaks, fluid level and voltage to power trailer motor under load.
Auto Level Fail	Unable to auto level due to uneven ground.	Check disposition of jacks and/or relocate the trailer.
	Unable to auto level due to zero point being set incorrectly.	Reset zero point.
Auto Level Failure	Unsecured controller	Check and secure controller placement.
Auto Level Failure	Voltage drop	Test battery voltage under load - charge or replace.
Bad Calibration	Sensor calibration values are out of range.	Replace controller.
Internal Sensor	Internal sensor problem.	Replace controller.

LCD MESSAGE	WHAT'S HAPPENING?	WHAT SHOULD BE DONE?
Panic Stop OR Function Aborted	The user pressed a button on the touch pad during an automatic operation.	Restart automatic operation and then refrain from pressing any buttons on the touch pad.

Hydraulic Leveling System Maintenance

⚠WARNING

FAILURE TO FOLLOW THE INSTRUCTIONS PROVIDED IN THIS MANUAL MAY RESULT IN DEATH, SERIOUS PERSONAL INJURY, SEVERE PRODUCT OR PROPERTY DAMAGE OR VOIDING OF THE COMPONENT WARRANTY.

⚠WARNING

THE UNIT'S FRAME SHOULD BE SUPPORTED BOTH IN FRONT OF AND BEHIND THE AXLES WITH JACK STANDS BEFORE WORKING UNDERNEATH. FAILURE TO DO SO MAY RESULT IN DEATH, SERIOUS PERSONAL INJURY, SEVERE PRODUCT OR PROPERTY DAMAGE OR VOIDING OF THE COMPONENT WARRANTY.

⚠CAUTION

ALWAYS WEAR EYE PROTECTION WHEN PERFORMING SERVICE OR MAINTENANCE TO THE UNIT. OTHER SAFETY EQUIPMENT TO CONSIDER WOULD BE HEARING PROTECTION, GLOVES AND POSSIBLY A FULL-FACE SHIELD, DEPENDING ON THE NATURE OF THE SERVICE.

⚠CAUTION

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.

Periodic Maintenance

- Remove dirt and road debris from jacks as needed.
- If jacks are down for extended periods, spray exposed jack rods with a silicone lubricant every 3 months for protection. If the unit is in a salty environment, spray the rods every 4 to 6 weeks.

As per the Maintenance Schedule:

1. Check the fluid level and condition in reservoir (refer to the section **Hydraulic Slide-out Maintenance: Check and Fill Hydraulic Fluid** for the procedure.)

2. Inspect and clean all power unit electrical connections. If corrosion is evident, spray power unit electrical connections with electrical contact cleaner.

Checking Torque on Leveling System

Early model Paradigm trailers used the Lippert Level-Up Landing Gear and Jacks. Late model Paradigm trailers use a modified Titan Leveling Jack in all six locations, with the two front landing gear being longer than the other four jacks.

As per the Maintenance Schedule, check the torque on all bolts attaching the landing gear and jacks to the frame brackets. All Level-Up landing gear and jacks, as well as Titan jacks, use ½”-20 Grade 8 bolts. They require 90 ft-lbs. of torque.

Zero Point Calibration

The "Zero Point" is the programmed point to which the 5th Wheel will return whenever the auto-level feature is used. The Zero Point is preset at the factory. However, if necessary, the Zero Point can be reset.

1. Manually run all leveling jacks and landing gear to level the 5th Wheel.
    a. This is best achieved by placing a level in the center of the 5th Wheel and leveling it both front-to-back and then side-to-side.
    b. See Basic Jack Operation section for instructions on how to manually operate the system.
2. After the 5th Wheel has been leveled, turn off the touchpad.
3. With the touchpad off, press and release the FRONT button (Figure 22G) ten times and then press and release the REAR button (Figure 22J) ten times.
4. The touchpad will flash and beep, then the LCD screen will read "ZERO POINT CALIBRATION ENTER to set, Power to Exit”
5. To set the current position as the zero point, press the ENTER button (Figure 22C). The LCD screen will read “Zero point stability check”
6. LCD display will read “Zero point set successfully” once process is complete.
7. The system will set this point as its level state and the touch pad will turn off.

Manual Override

Please refer to the Manual Override Operation in the Hydraulic Slide=Out section for information on how to do this.

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 23. 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 9. 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 24. Pull style latch on an emergency exit.*  *Figure 25. 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 26. 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 27. Rotation-Lever style latch on an emergency exit. Rotate the handle up into the window area to disengage the latch. Push window out.

Figure 28. Pull-Lever style latch on an emergency exit. Pull the leverl 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 29. 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 Paradigm 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 30. 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 31. 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 PRESENSE 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. Evactuate 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 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 requried. 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. Evactuate 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.
- Vaccum 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 AN 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 at 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.

LP Regulators

Your trailer is equipped with two LP regulators, each with different functions.

Step Down Regulator

This regulator is connected to the door side (curb side) propane cylinder and reduces the pressure in the supply line down to 30 psi. This is required by federal regulation for supply lines greater than 60 inches. The output of this regulator enters one side of the two-stage regulator discussed below.

Figure 32. Step down propane regulator for long hose lengths, dropping pressure from tank levels to 30 psi.

Two Stage 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 33. 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.

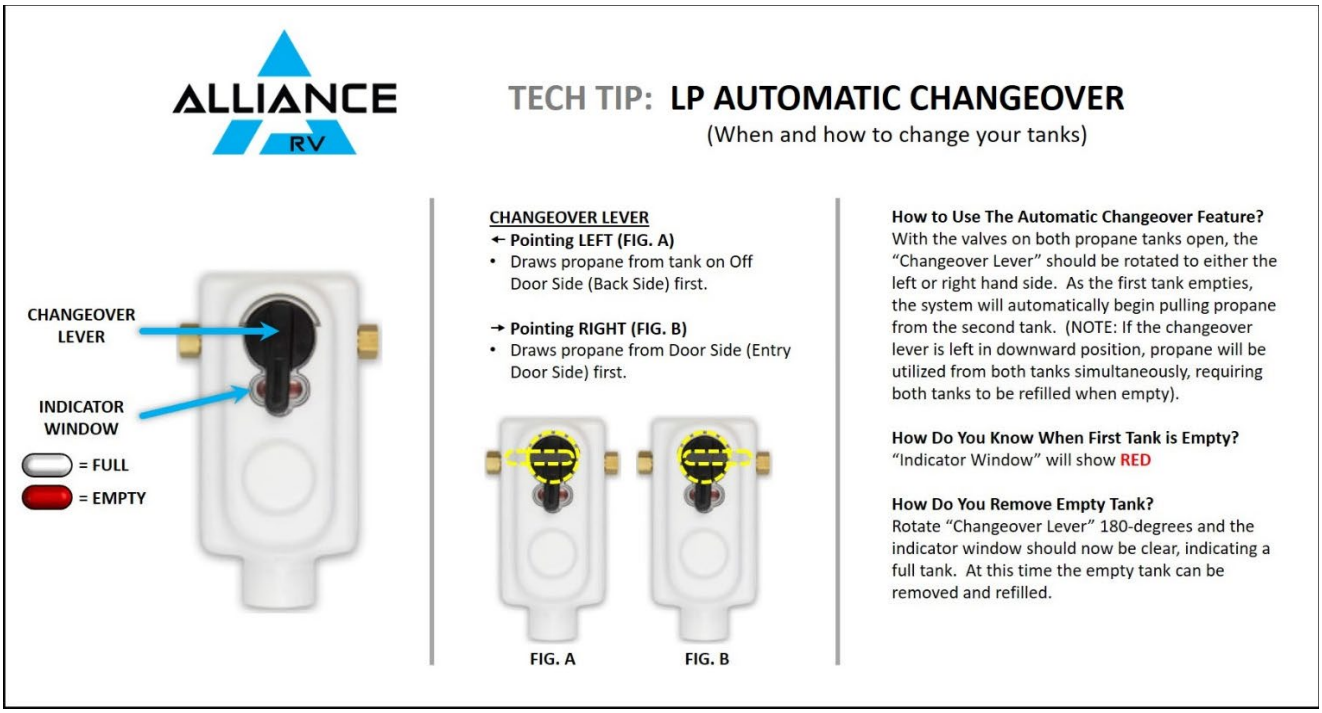


Figure 34. Using the Automatic Changeover regulator.

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 35. 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 36. Pushing the retaining ring to accept an appliance connector.

Figure 37. 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 38. 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 39. 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 40. Remote slide controls in the utility bay of the Paradigm.

HYDRAULIC SLIDE-OUTS (IF EQUIPPED)

Alliance RV utilizes a hydraulic through frame slide-out for the main floor slide-outs on Paradigm trailers. This system is a rack and pinion guided and utilizes a hydraulic cylinder to move the room. The cylinder rod is driven in a forward and backward motion in order to move the slide-out room in and out.

	Lippert Hydraulic Through Frame Slide-Out Owner's Manual

Hydraulic Slide-out System Overview

Alliance Paradigm trailers use the Lippert 2 x 2 hydraulic 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 synchronized.

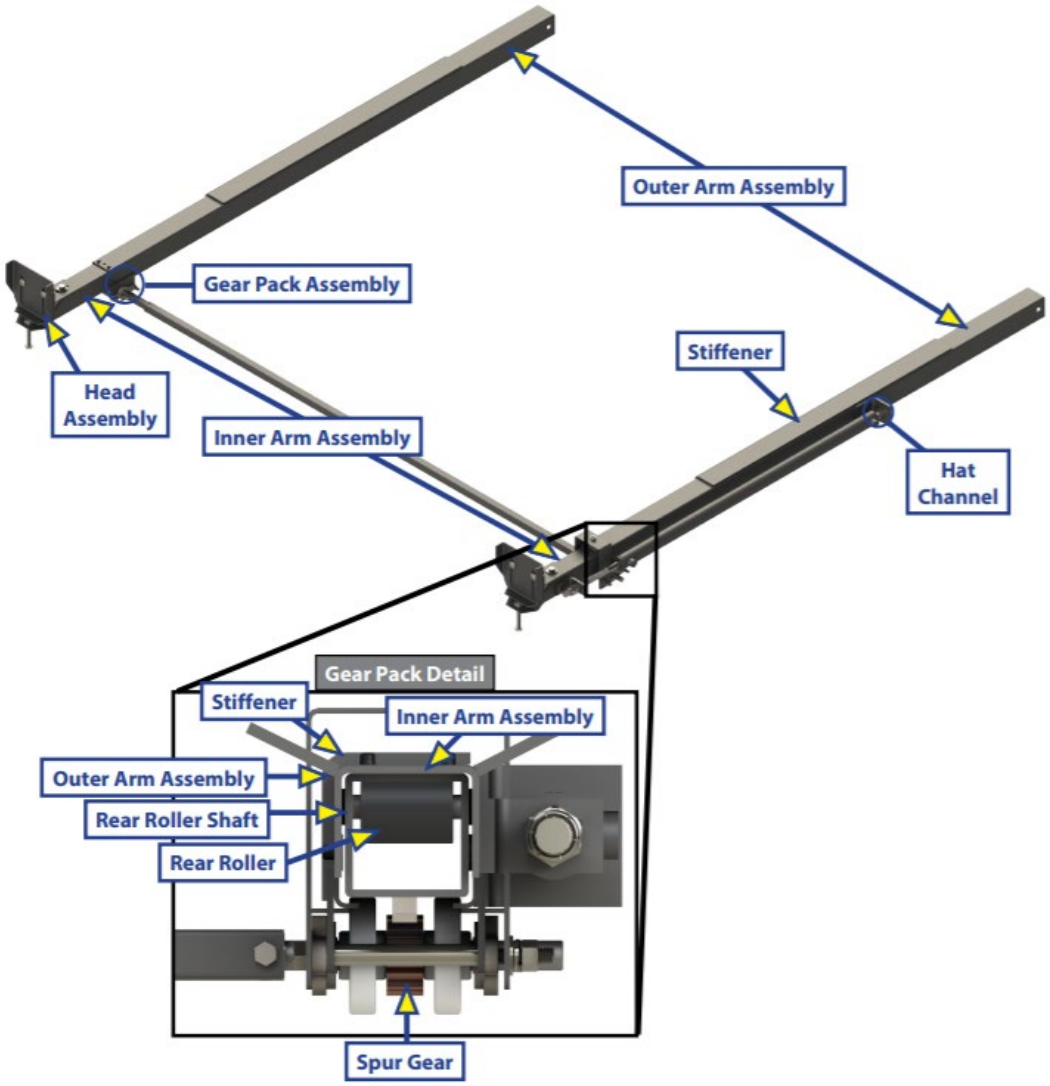


Figure 41. Overview of the Lippert 2x2 Hydraulic slide system.

Hydraulic 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.

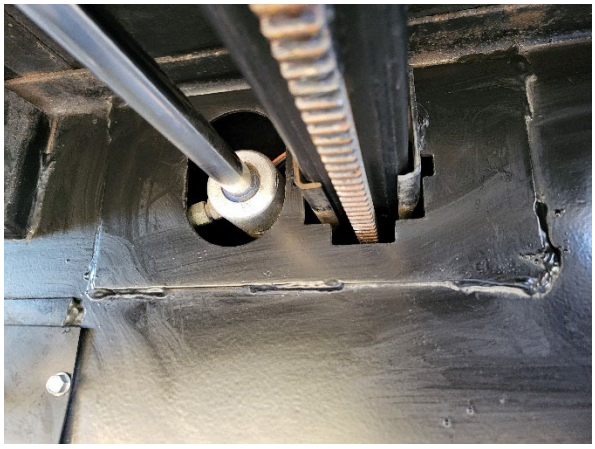


Figure 42. Frame view of the early-model Paradigm trailers with gear pack inside the frame.

Figure 43. The gear pack is now mounted outside the frame on late-model trailers.

Hydraulic Motor, Fluid Reservoir, Fluid Solenoids, and Electrical Solenoid Assembly

Located in the front of the trailer, this assembly is used to power and control the hydraulic systems in your trailer. It not only drives the Slide-outs, but also is part of the hydraulic leveling system (if equipped). The hydraulic solenoid configuration, on the top of the motor, will change depending on the number of hydraulic actuators on the trailer.

	Early model trailers had a vertically oriented hydraulic motor and holding tank mounted to the Off Door Side wall. In this setup, the solenoid assembly was mounted beside the system.

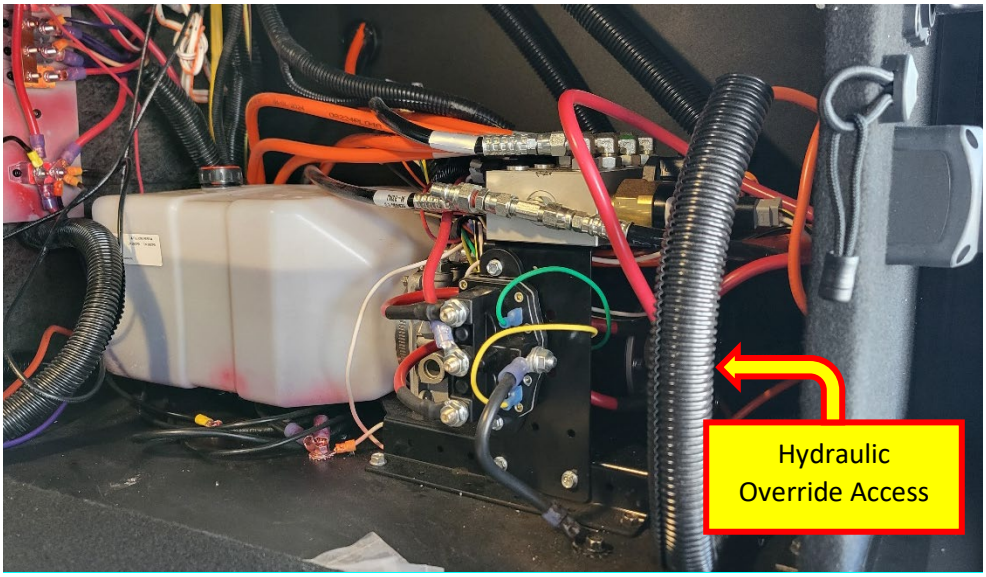


Figure 44. Hydraulic reservoir and motor system with manual override access.

Operating Your Hydraulic Slide-out

Extending Your Hydraulic 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 Hydraulic 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.

Hydraulic Slide-out Troubleshooting

	Lippert Hydraulic Through Frame Slide-Out Service Manual

	The system is self-purging, by cycling the system 2-3 times, any air in the system will be forced back to the reservoir and out of the fill cap.

	In colder temperatures the jacks may extend and retract slowly due to the fluid's viscosity. For cold weather operation, fluid specially formulated for low temperatures may be desired.

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 10. Lippert through-frame hydraulic slide-out troubleshooting guide.

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, defective wiring.	*Check battery voltage and charge if needed. *Find and check fuse, replace if blown. *Check battery terminals and wiring. *Look for loose, disconnected or corroded connectors.

WHAT IS HAPPENING?	WHY?	WHAT SHOULD BE DONE?
Power unit runs but room does not move.	Restrictions both inside and outside of unit.	Check for and clear restriction.
Power unit runs, room moves slowly.	Low battery, poor ground, extremely low outdoor temperature.	Charge battery and check ground wire.
Room drifts in both the "in" and "out" positions.	Possible external leak in the hydraulic system.	Tighten fittings.
		Inspect hoses, fittings and power unit for external leaks.
	Air in system.	After checking all connections, cycle pump several times in and out.
In the closed position, room drifts out.	Leaking cylinder seal.	See cylinder test, Lippert Hydraulic Through Frame Slide-Out Service Manual, page 7.
	Fluid bypassing cylinder piston.	See cylinder test, Lippert Hydraulic Through Frame Slide-Out Service Manual, page 7.
	Hose from pump is leaking.	Tighten fitting or replace hose.
	Air in system.	After checking all connections, cycle pump several times in and out.
	Loose mounting bolts.	Tighten mounting bolts.
In the open position, room drifts in.	Hose from pump is leaking.	Tighten fitting or replace hose.
	Leaking cylinder seal.	See cylinder test, Lippert Hydraulic Through Frame Slide-Out Service Manual, page 7.
	Fluid bypassing cylinder piston.	See cylinder test, Lippert Hydraulic Through Frame Slide-Out Service Manual, page 7.

Hydraulic 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.

1. 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.
2. Retract and extend the slide as needed to check the following points:
    a. Outside seals compress when slide-out is retracted.
    b. Inside seals compress when slide-out is extended.
    c. Slide-out extends and retracts smoothly.

d. 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.

Check and Fill Hydraulic Fluid

	The leveling system and the hydraulic slides share the same fluid reservoir. Recommended hydraulic fluid: Dexron III or Mercon V Class "A" automatic transmission fluid.

⚠CAUTION

DO NOT USE ATF TYPE F FLUID. TYPE F ATF IS NOT COMPATIBLE WITH LIPPERT HYDRAULIC SYSTEM SEALS. SEALS WILL NOT WORK PROPERLY.

⚠CAUTION

ONLY CHECK THE FLUID WITH ALL HYDRAULIC SLIDES IN AND ALL LEVELING FEET & LANDING GEAR RAISED/RETRACTED.

To fill your slide-out hydraulics:

1. Using a rag or disposable towel, wipe the fill cap and area surrounding it.
2. Remove the fill cap.
3. With all jacks retracted and all hydraulic slides in, the hydraulic fluid level should be within ½" of the fill spout. If fluid is a clear red color, do not change. If fluid is milky, pink and murky, drain reservoir and add new fluid. Hydraulic fluid should be changed at a minimum every 5 years, more frequently if the slides and jacks are operated frequently (for example for full-time living and traveling.)
4. Pour fluid into the fill opening. Fill to within ½" of the top.
    a. **Note:** Do not allow any contamination into the reservoir during the fill process.
    b. **Note:** Standard reservoir holds approximately 2 quarts of fluid.
5. Replace the fill cap.

Figure 45. Hydraulic drive motor, solenoid, and reservoir (horizontally mounted.) Early trailer models used a vertically oriented system with top fill cap.

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.

1. Loosen both gear packs bolts (Figure 46A and B) until tension is off of the gear pack.

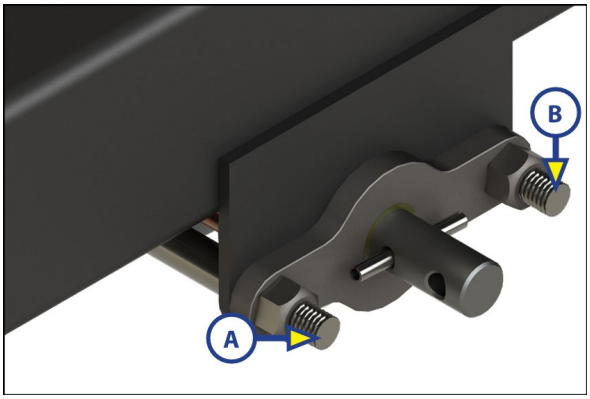


Figure 46. Gear pack mounting bolts.

2. Apply dry silicone onto gear pack drive shaft at lubrication points A through D in Figure 47 and Figure 48.

Figure 47. Gear Pack lubrication points - exterior.

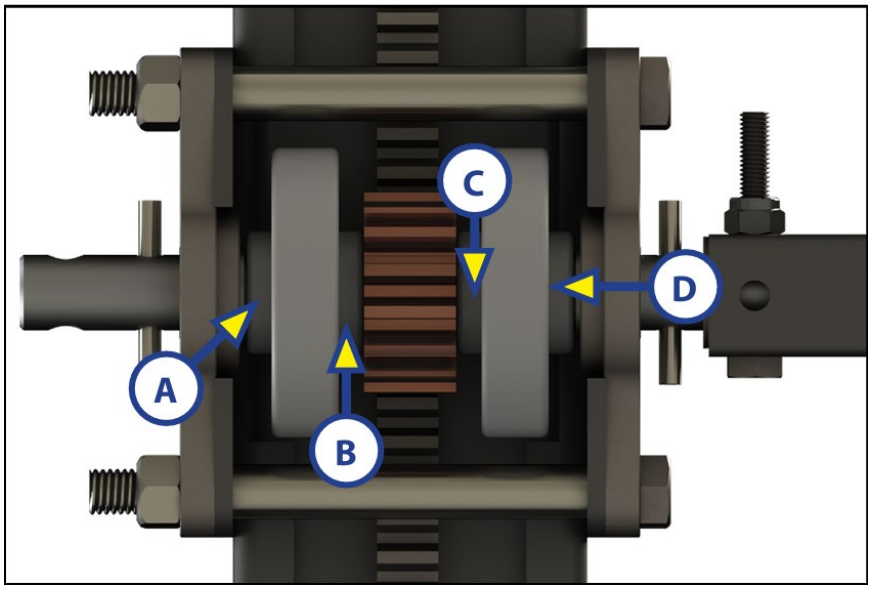


Figure 48. Gear Pack lubrication points - interior.

	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 Hydraulic Slide-out Operation (Manual Override)

The slide-out can be run with an electric or cordless drill.

1. If there are felt covered panels around the pump, they will need to be removed. This applies to late model year trailers only.
    a. Undo the elastic cord closure.
    b. Unscrew the L-bracket holding the side panel, set panel aside.
    c. Slide front panel out of the way. There are likely solar and/or battery disconnect switches mounted to this panel- it is sufficient to slide the panel toward the center of the trailer to simply gain access to the pump centerline.
2. Remove protective label (Figure 49A) on the front end of the hydraulic motor.

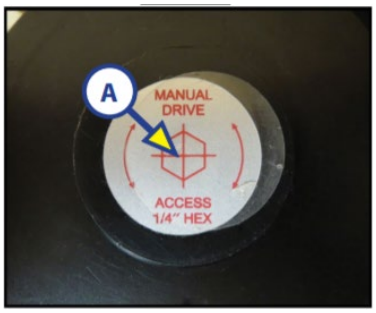


Figure 49. Label covering the manual override on the hydraulic pump.

3. Each hydraulic slide, and each pair of hydraulic jacks, is controlled by a valve on the manifold. For a Paradigm trailer, that will be 3 solenoids for the leveling jacks, and up to 2 for the slides, for 5 total.
4. Locate the solenoid that controls the room you wish to move. If you don't know which solenoid that is, you can test each solenoid in turn and determine what moves as you perform the next few steps.

⚠WARNING

THE VALVE IS "CLOSED" WHEN THE SET SCREW IS FLUSH WITH THE TOP OF THE VALVE ('OUT'.) THE VALVE IS "OPEN" WHEN IT IS TURNED CLOCKWISE ('IN') ONLY ABOUT 4 TURNS.

DO NOT FORCE THE SCREW WHEN TURNING IN! PERMANENT DAMAGE CAN OCCUR. TURN THE SCREW ONLY UNTIL RESISTANCE IS FELT – ABOUT 4 TURNS.

5. Select the valve that likely controls the room of interest. Loosen the set screw at the top 2 turns. A pair of wires will be connected to the valve. The following colors are standard wiring for Lippert Hydraulic systems:
    a. Grey/white: Front landing gear
    b. Blue/white: Door Side / Curb Side middle and rear leveling jacks

c. Purple/white: Off Door Side / Street Side middle and rear leveling jacks
d. X/Y: Slide room

6. Using a standard ¼" hex bit with appropriate extension and drill, insert the bit into coupler found under the protective label on the hydraulic motor.

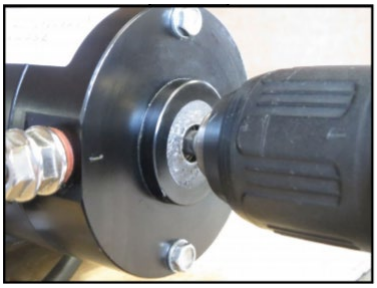


Figure 50. Driving the hydraulic pump with a battery operated drill.

7. Run the drill counterclockwise (CCW) to move the slide-out out and clockwise (CW) to bring the slide-out in. For landing gear and jacks, a CCW movement will extend, and a CW movement will retract.
8. If the movement seen is not the desired movement, reverse direction on the drill to set the affected actuator back to its original position. Close the valve opened on step 5. Repeat steps 5-7 until the proper movement is completed.

Advanced Maintenance: Adjusting Your Hydraulic 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 Hydraulic Slide-out "IN" Position

1. Locate the cylinder coming through the frame.
2. Run the slide-out room partially out.
3. Referring to Figure 51, hold the jam nut in place with wrench (A).
4. Adjust nut (C) towards the bracket if the room does not seal.

5. Adjust the (C) nut away from the bracket if the room is too tight.

⚠ CAUTION

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

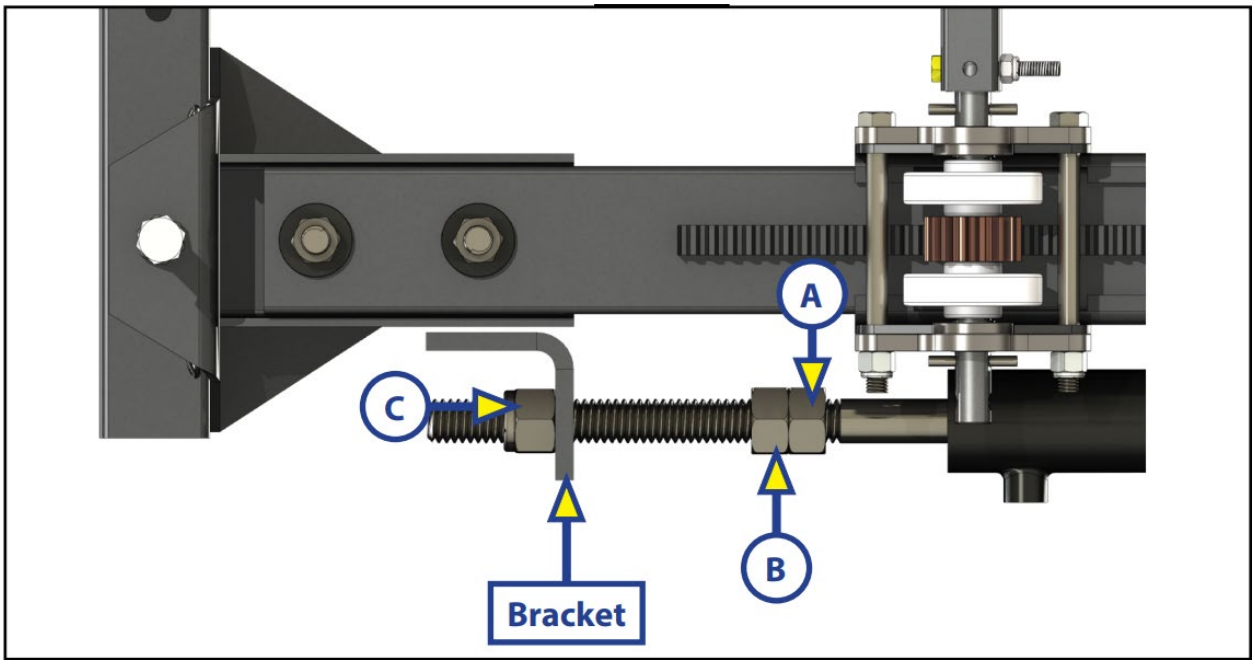


Figure 51. Hydraulic slide IN and OUT adjustment nuts on ram.

ℹ	2” to 3” of free travel of the bracket is normal (between nuts B and C.) This can also cause a “grinding” or “clunking” sound as the actuator moves for the first few inches of travel.

Adjusting Hydraulic Slide-out “OUT” Position

1. Locate the cylinder coming through the frame.
2. Run the slide-out room completely out.
3. Check the inside fascia and seal positioning.
4. Bring the room partially in.
5. Referring to Figure 51, loosen and back off jam nut (A) from nut (B) to give nut (B) room for adjustment.
6. Adjust nut (B) away from the bracket if the room extends too far. Adjust nut (B) towards the bracket if the room does not seal.
7. Tighten jam nut (A) to nut (B).

⚠CAUTION

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

Adjusting the Hydraulic 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 ½" forward on the trailer, you will adjust the brackets by only 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 52A) 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.

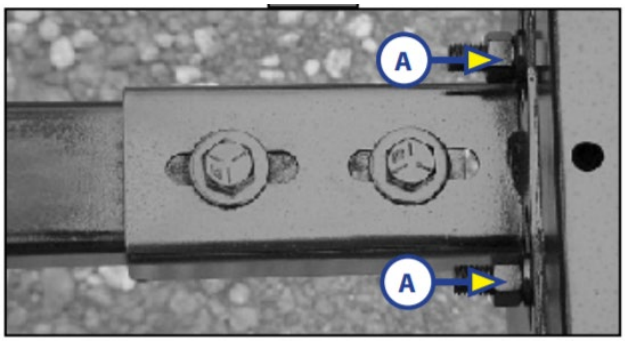


Figure 52. Room Bar mounting bracket - idler side. The drive side will not have adjustments on the guide rail.

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 Hydraulic 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 53A) 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.

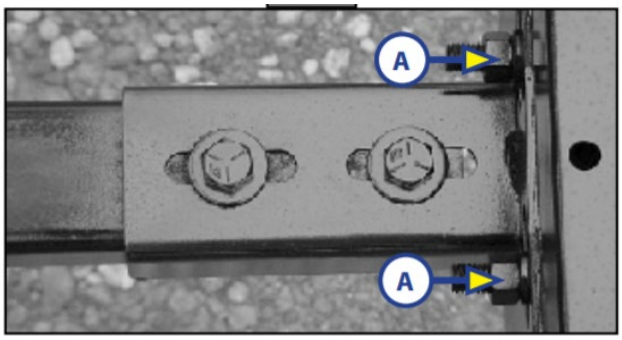


Figure 53. Room Bar mounting bracket - idler side. The drive side will not have adjustments on the guide rail.

5. Raise the room using the jack to ensure it lifts off of the vertical adjustment bolt B in the image below.
6. Loosen jam nut (Figure 54A).

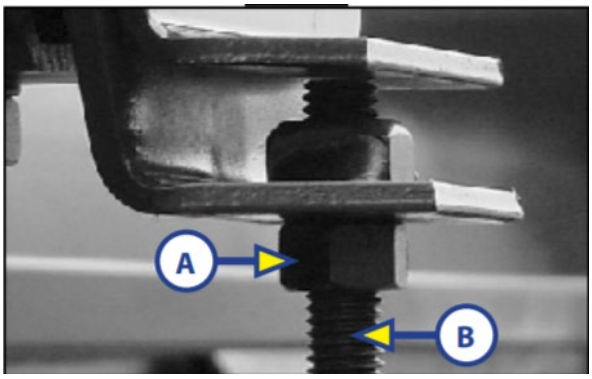


Figure 54. Vertical adjustment lock nut (A) and bolt (B).

7. For vertical adjustment turn vertical adjustment bolt (Figure 54B) up or down to set room height.
8. Once room height is located, tighten the jam nut (Figure 54A).
9. Tighten carriage bolts (Figure 53A) 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 Hydraulic 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 cylinder 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 55B) on top of the passive slide tube (A).

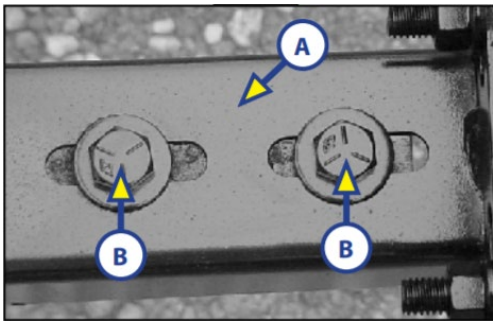


Figure 55. Synchronization adjustment bolts on guide rail. These are only present on the idler side.

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 Horizontal Slide-out Adjustment procedure.

6. Tighten bolts (Figure 55B) to secure the passive sides position.
7. Bring the room in and run as normal.

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.

In-Wall Slide-out Controller Overview

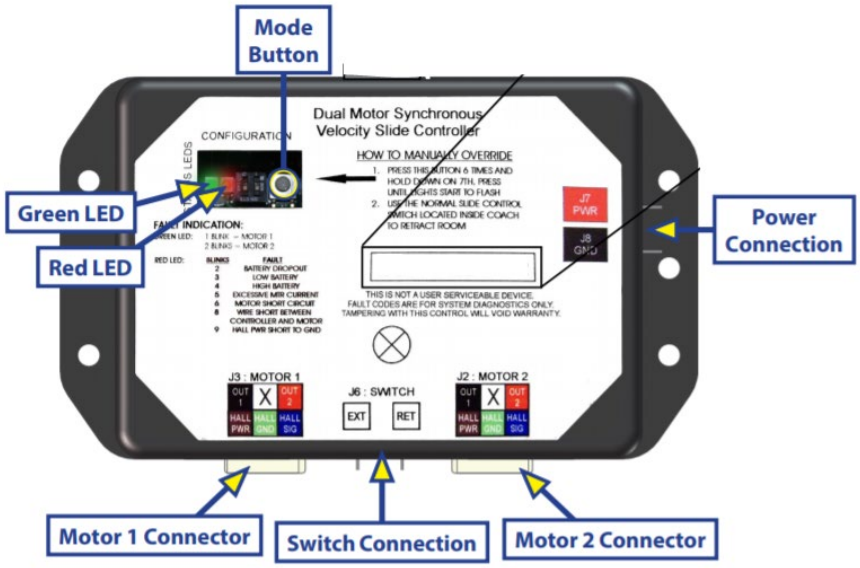


Figure 56. In-Wall (Schwintek) slide controller. Each slide will have one controller.

- **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 57. 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 57). 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

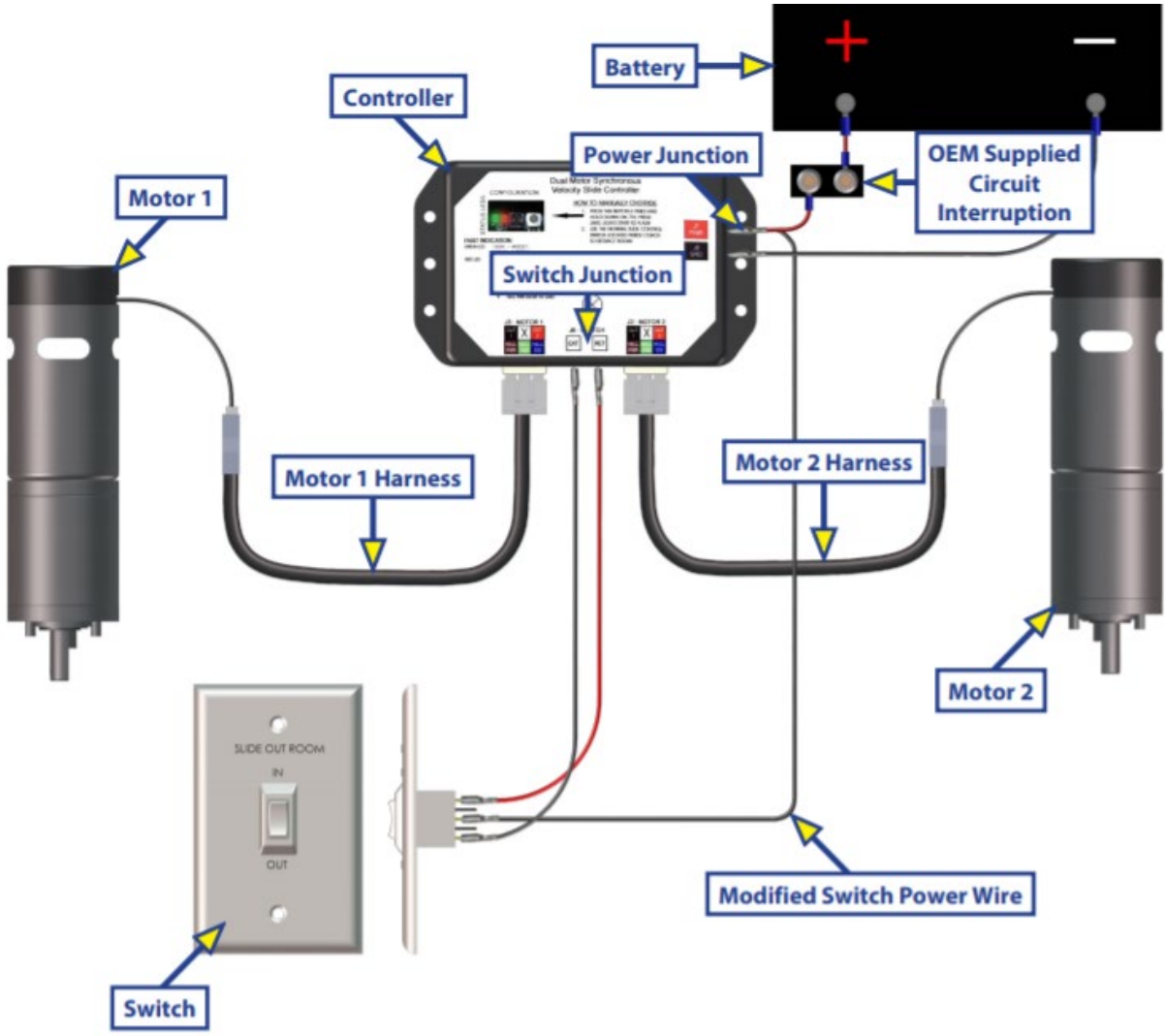


Figure 58. In-Wall slide out system diagram.

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.)

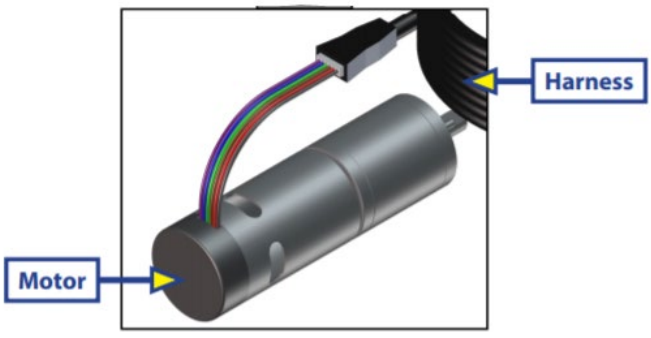


Figure 59. In-Wall motor and connected motor extension cable.

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 60). For motor specific faults the green LED will blink 1

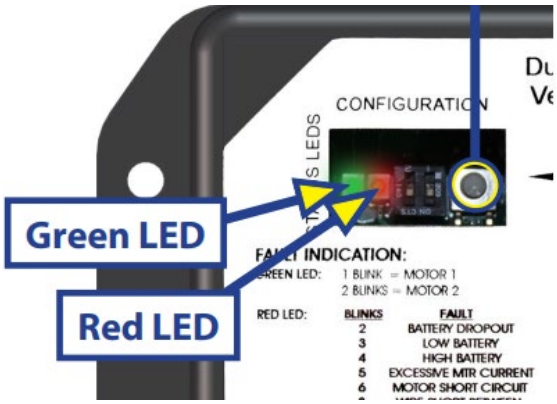


Figure 60. Controller indicator LEDs.

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 11. 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 11. 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 1-2 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 61) 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. **Note**: 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.

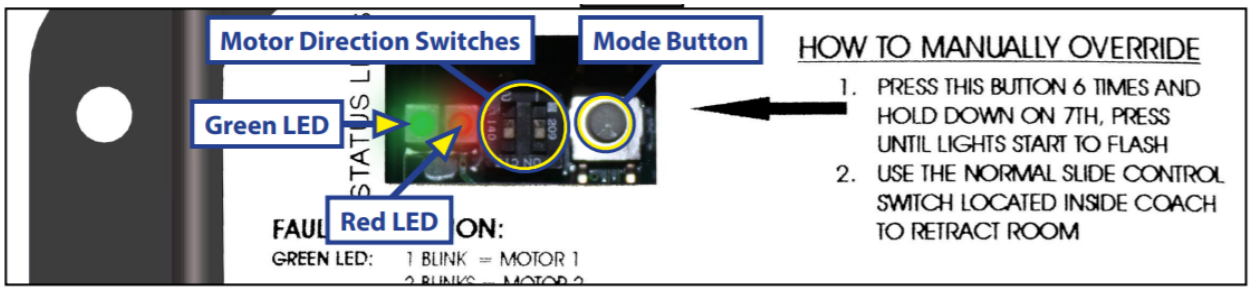


Figure 61. Controller interface showing Mode button.

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.

	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

⚠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 62**:**

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.

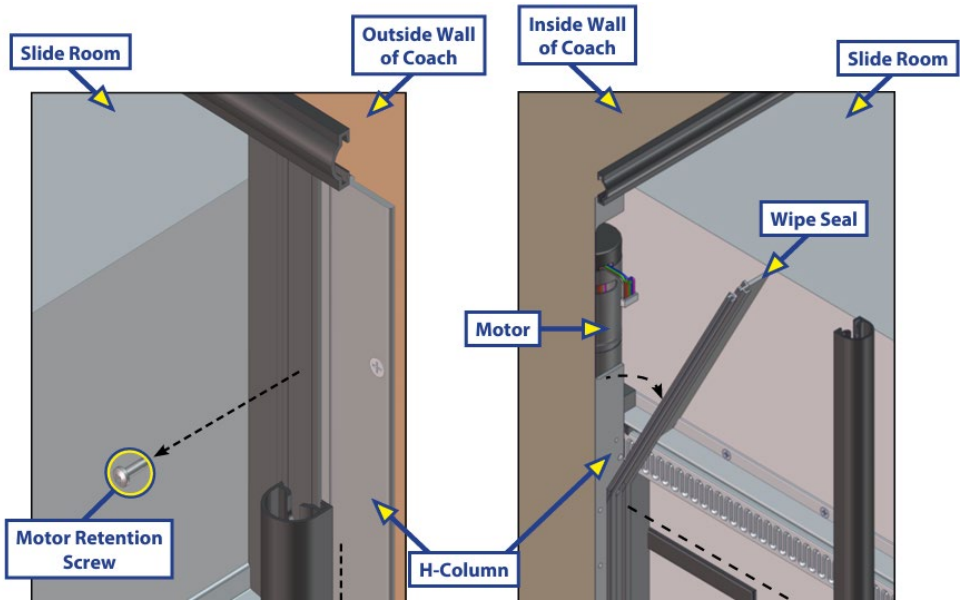


Figure 62. In-Wall system overview, showing relevant positions for motor disengagement.

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)

Late model Alliance Paradigm 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.

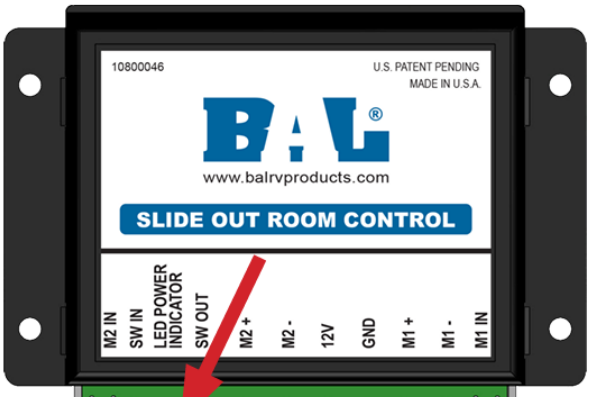


Figure 63. BAL Exact-Slide controller, with indicator lights shown in lower left corner.

- 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 ¼" deflection, meaning you should be able to easily lift the cable ¼" and push it down ¼" from center with your thumb and pointer finger.
3. Adjust tension the top cable until you reach ½" deflection. This is again ½" 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 64. 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.

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 12. 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)	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)	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 65. 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/adapter/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 RVs 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 PROPERY 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 5th wheel. 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 66. 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.

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.

	• 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 13. Renogy battery identification of features.

ITEM	DESCRIPTION
1	Positive Terminal
2	Negative Terminal
3	RS485 UP Communication Port
4	RS 485 LINK Communication Port

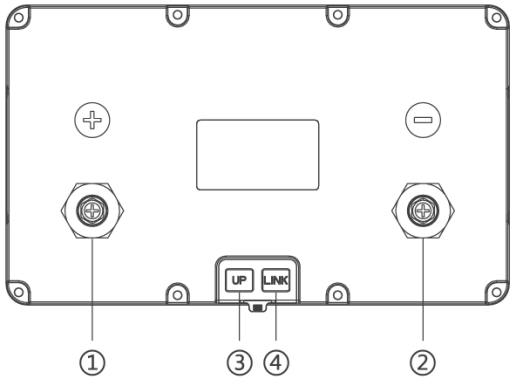


Figure 67. Renogy battery features.

Figure 68. Renogy battery activation cable.

Figure 69. 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 68 and Figure 69. 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

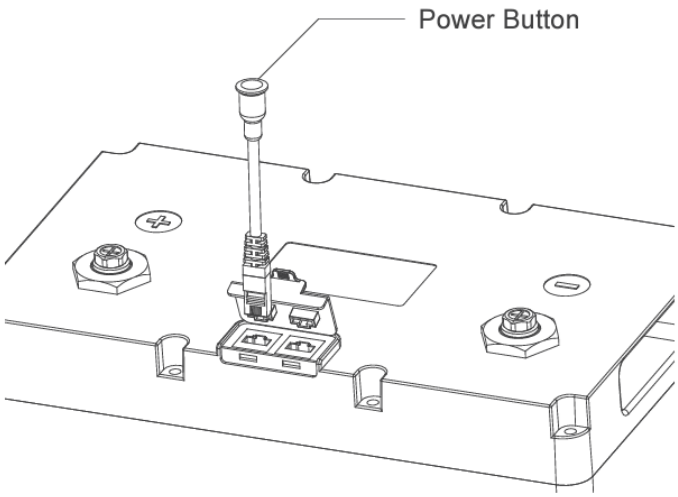


Figure 70. Connecting the activation cable/switch.

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.

ℹ	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 14. 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 (≥ 131°F, ≤ 32°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 71. 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.

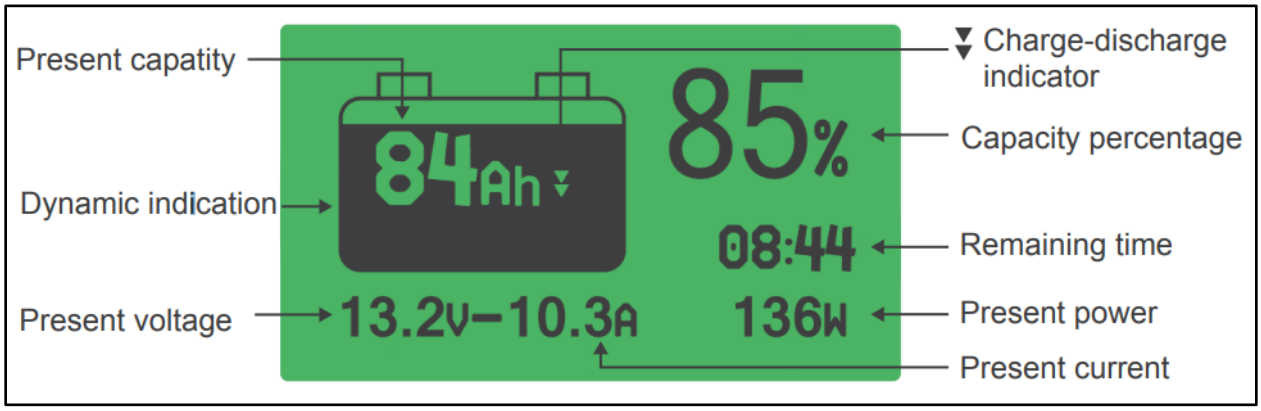


Figure 72. Renogy Battery Monitor normal display.

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

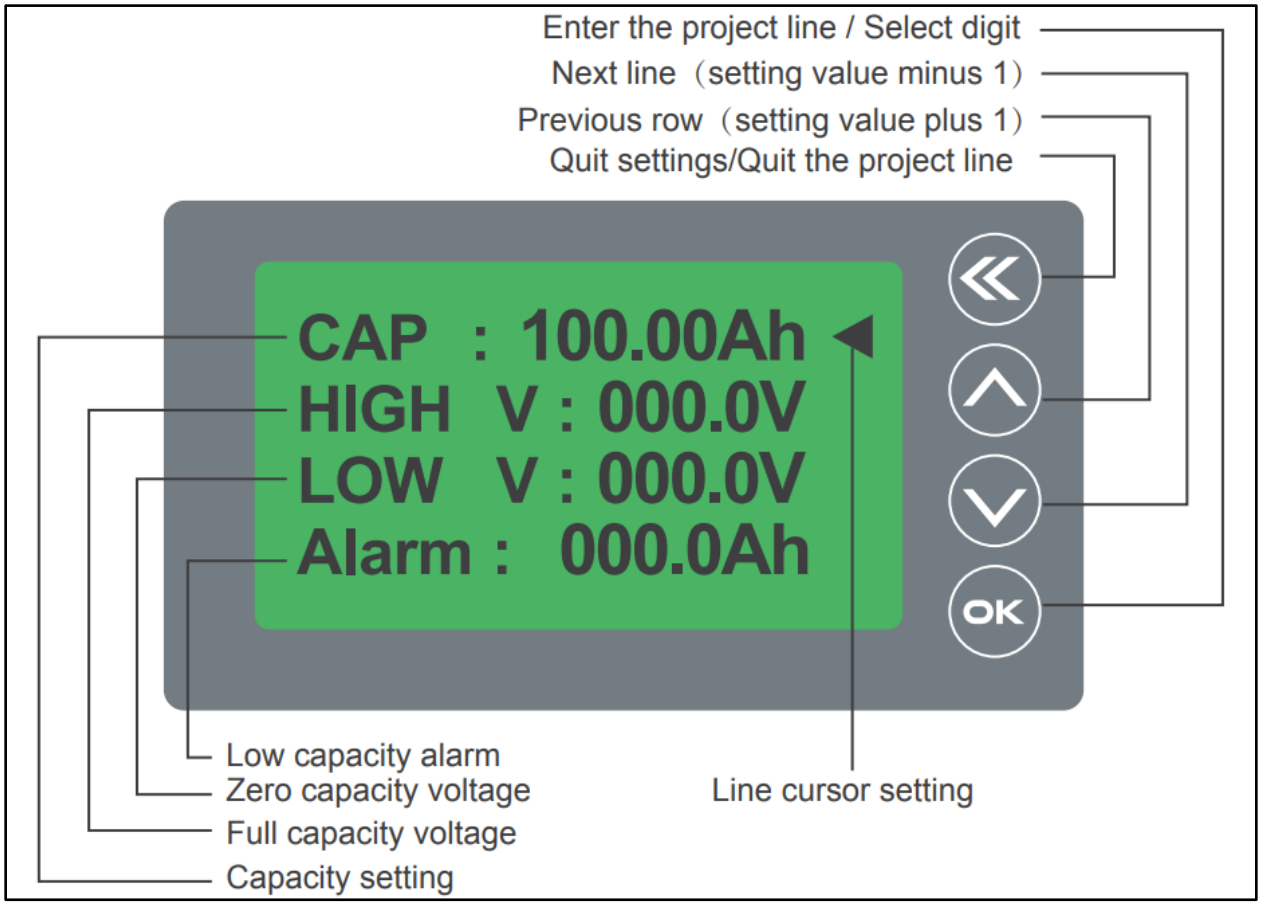


Figure 73. Renogy Battery Monitor programming display.

Settings Available

Table 15. Available settings on the Renogy Battery Monitor.

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

ℹ	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 16. 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 Inteli-Power 4500 series distribution panel is the most commonly installed Power Control Center used in Alliance Paradigm 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.

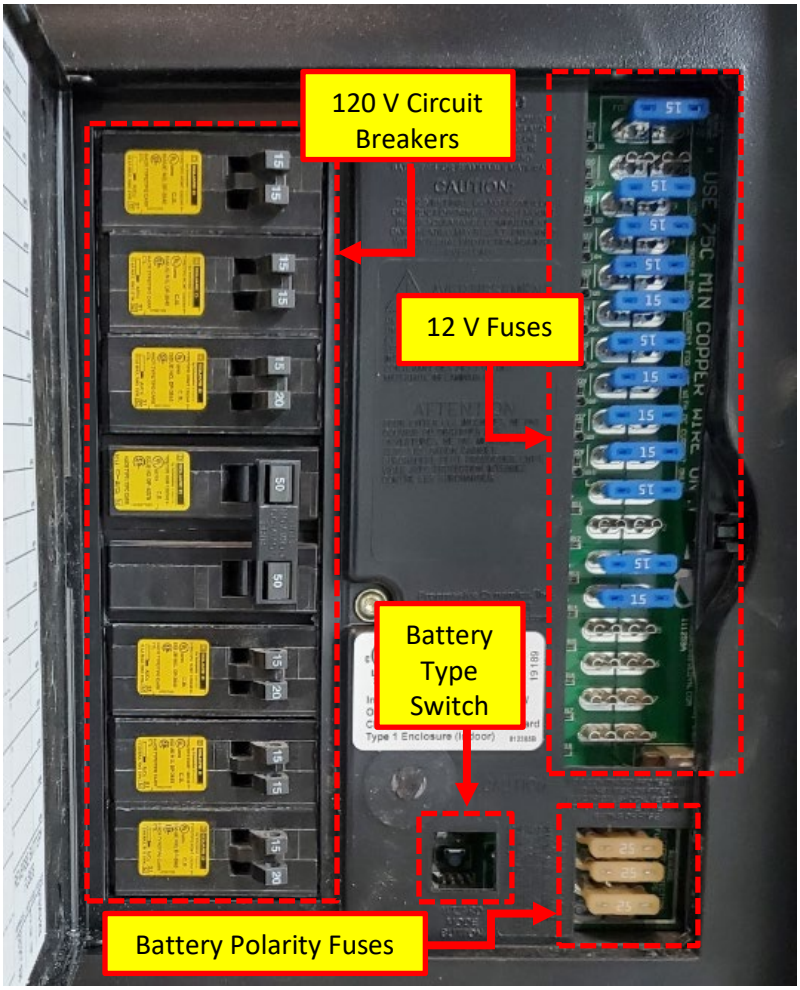


Figure 74. Progressive Dynamics Power Control Center.

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 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 74. 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 17. 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 75.
5. Check the torque of all electrical connections in the power control center as per the following table.

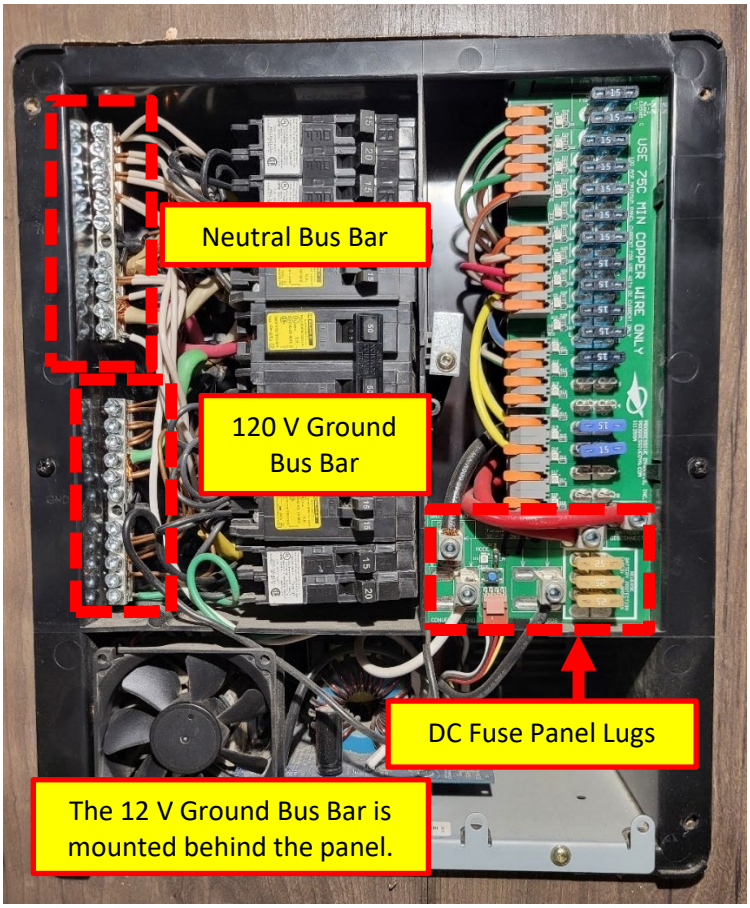


Figure 75. Progressive Dynamics Power Control Center with the safety cover removed. The converter is shown at the bottom, where the fan is.

Table 18. 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

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.**

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 74 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.

WFCO Product Manuals

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.

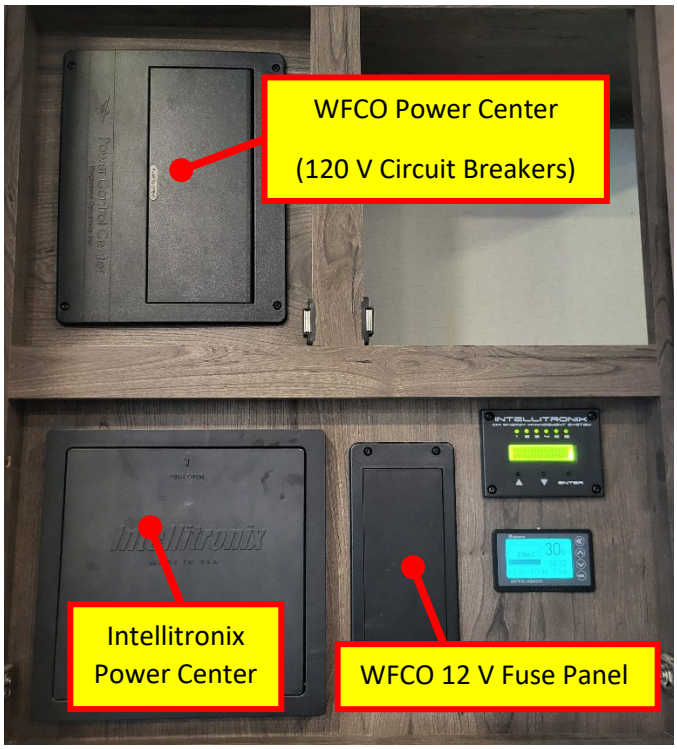


Figure 76. WFCO Power Control Center (top) with separate 12V fuse panel (bottom center.)

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 19. 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 77.
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.

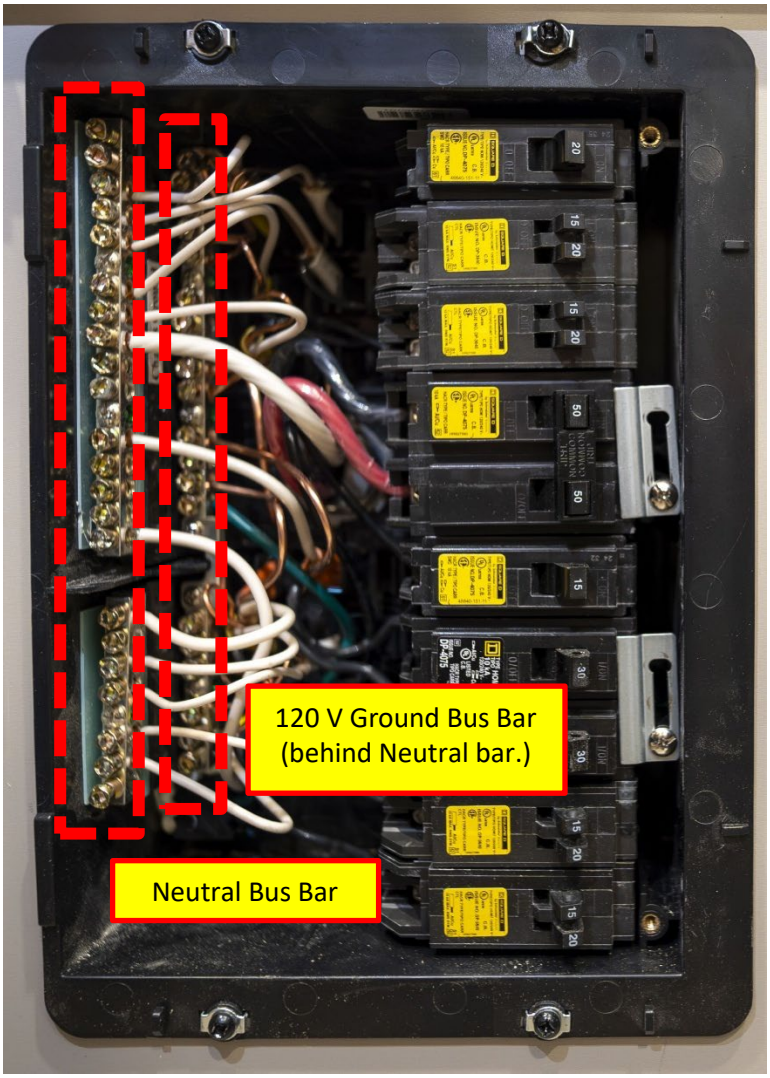


Figure 77. WFCO Power Control Center with the safety cover removed.

	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.**

Table 20. 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

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 78. 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 79. 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 21. 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

Figure 80. Intellitronix power module details.

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 21, 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 80. 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.

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 22. 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 81 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.)**

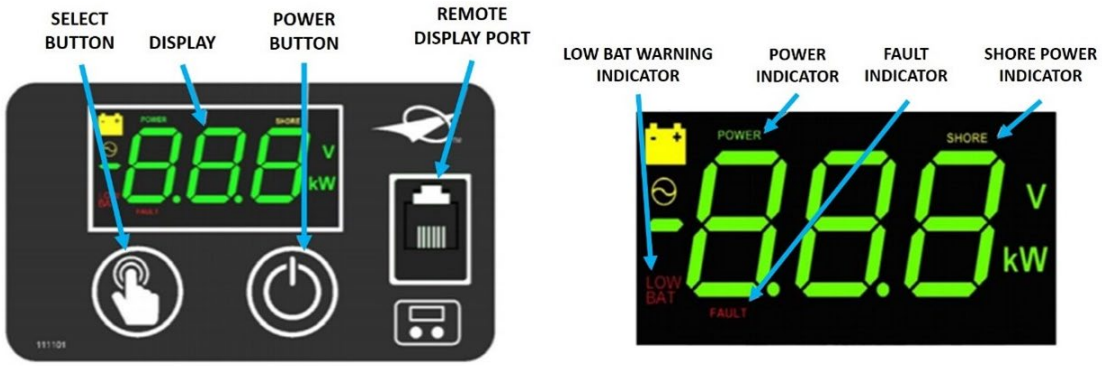


Figure 81. Progressive Dymanics control panel (left) and display detail (right.)

- **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 rate power loads remove loads until peak power is below 2x rate 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.

Figure 82. Renogy PCL Inverter-Charger.

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.

	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.

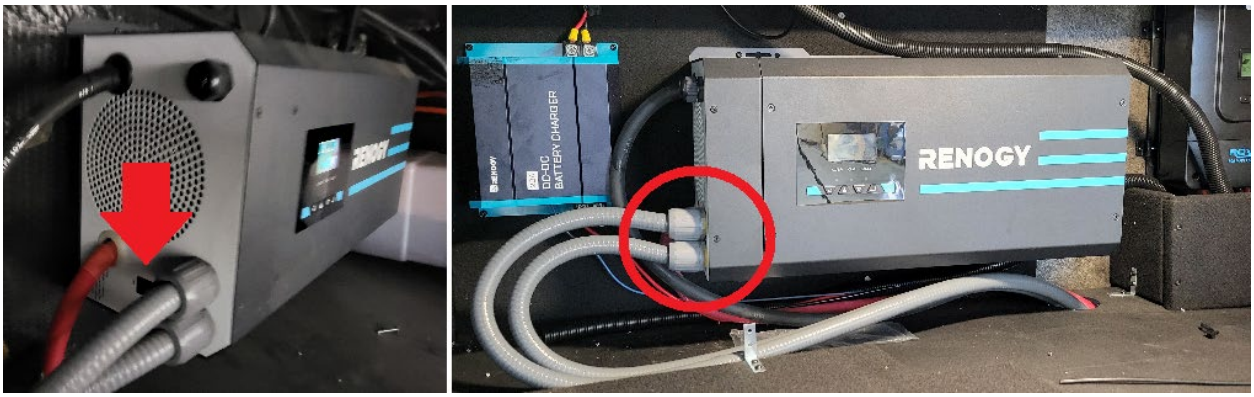


Figure 83. Renogy PCL Inverter-charger mounted in the front bay, with identification of the power switch.

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.

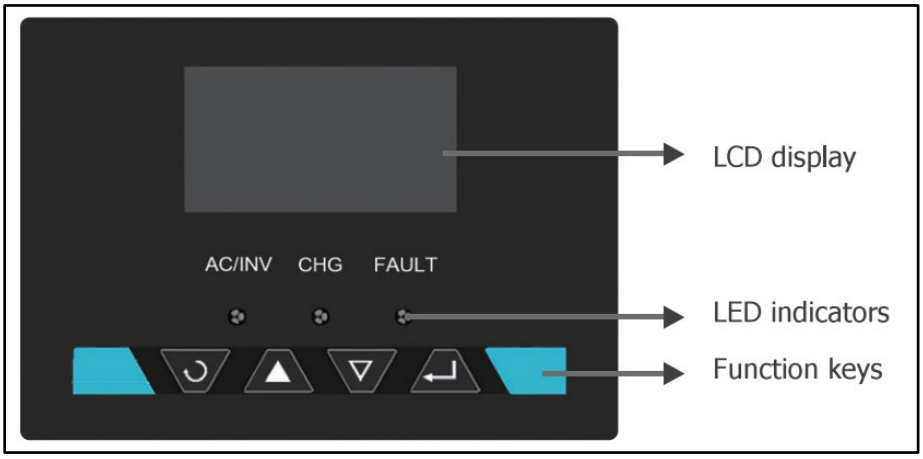


Figure 84. Renogy PCL Inverter/Charger display and interface.

Table 23. 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 24. 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

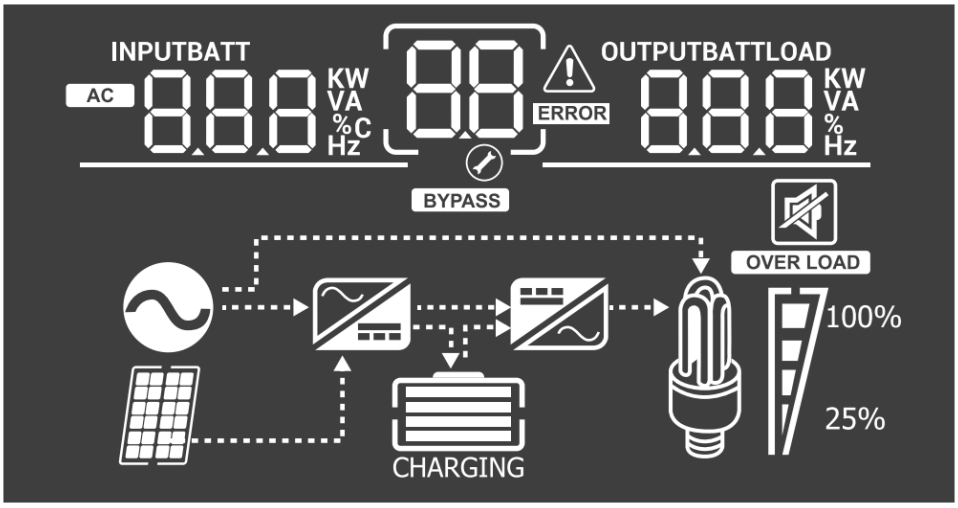
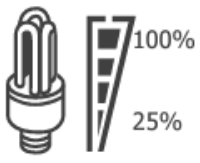


Figure 85. The Renogy PCL Inverter/Charger has many icons in the display. See below for their meaning. Note that on some PCL models the icons may differ slightly.

Table 25. 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 86. Wired remote control for inverter.

Renogy PCL Inverter-Charger Troubleshooting

Table 26. 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.

Xantrex Freedom X Inverter (If Equipped)

Overview

Early model Alliance trailers built in 2020 may have a Xantrex Freedom X or Freedom XC inverter installed.

Figure 87. Xantrex Freedom X inverter.

The Xantrex Freedom X series inverter has a built-in transfer switch that allows AC power to pass through but will switch quickly to inverting operation when it determines AC power has been lost, or has quality reduced to a certain threshold.

The Freedom XC inverter adds the additional capability of providing for battery charging when the AC input is active.

Once powered on, inverters operate without user intervention. While the 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.

	Freedom XC 2000 Owners Guide Freedom XC Remote Panel Owners Guide

Operation

Upon successful connection of a 12V deep cycle battery bank, power on the inverter. Push the power button (button 6 in Figure 88) to turn it on.

One can cycle through several screens of information about the current state of the inverter. In this section, you can see 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.

	If equipped, the Xantrex Remote Display has the same configuration, display icons, LEDs, and function buttons. The inverter can be operated either on the main control panel or the remote display in the same manner.

	Briefly pressing any function button activates backlight illumination. After 60 seconds of inactivity, backlight illumination turns off.

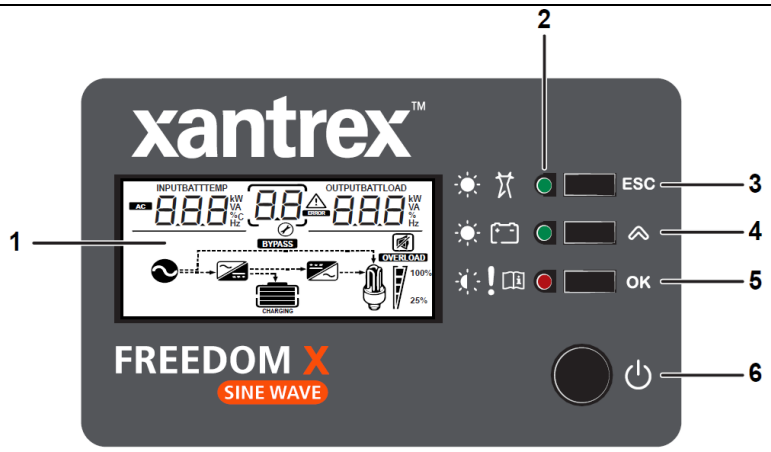
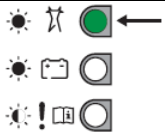
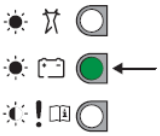
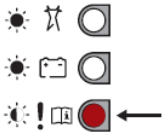
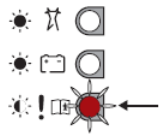


Figure 88. Xantrex Inverter/Charger display and interface.

Table 27. Xantrex inverter control button descriptions.

ID	ICON	FUNCTION DESCRIPTION
3	ESC	Return to default screen or exit setting mode
4		Next screen or next selection Press and hold for three seconds to back one step
5	OK	To enter the setting mode or to confirm the setting
6		Turns on inverter operation or to Standby mode

Table 28. Xantrex Inverter LED indications.

INDICATOR	FUNCTION DESCRIPTION
	Solid green. Indicates grid mode in which shore power is available and passing through to the loads.
	Solid green. Indicates Battery mode (Inverter mode) in which the inverter is running and supplying power to the loads from the battery.
	Solid red. Indicates **error or fault mode** and is accompanied by an error code displayed on the LCD screen. See Troubleshooting.
	Flashing red. Indicates a **warning condition** and is accompanied by an error code and a sounding alarm. See Troubleshooting.

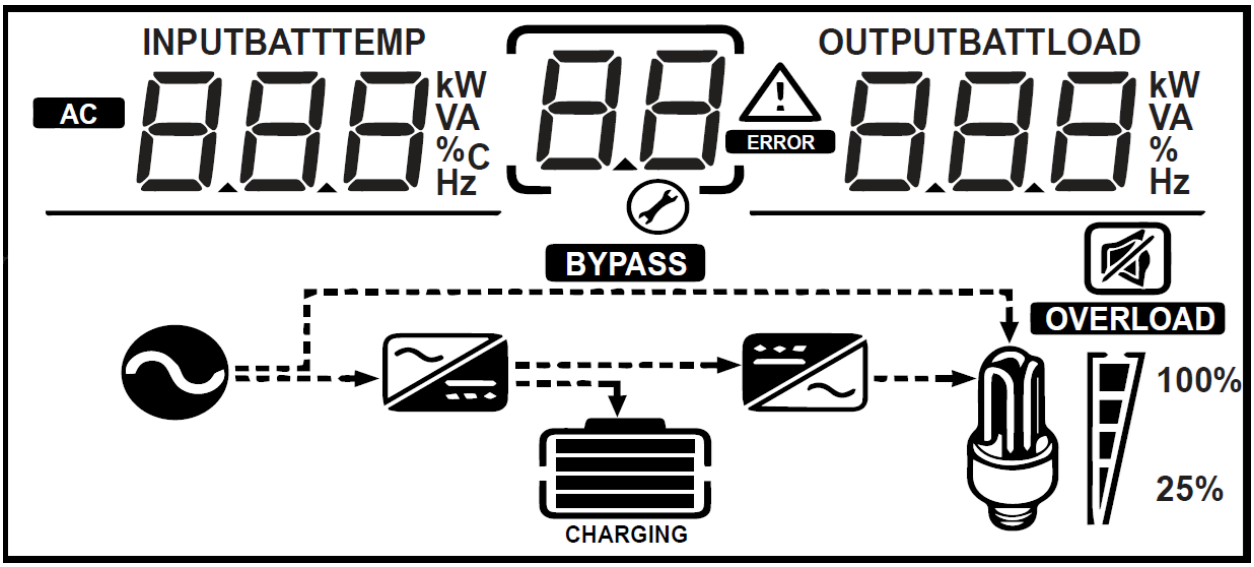
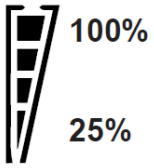


Figure 89. The Xantrex Inverter/Charger has many icons in the display. See below for their meaning. Note that if your Xantrex is a Freedom X instead of a Freedom XC, charging-related icons will not be utilized.

Table 29. Xantrex inverter display symbol meaning. Some versions of the inverter may have slightly different symbols.

ICON	FUNCTION DESCRIPTION
Input Source Information (Upper Left)	
	AC input and output indicator.
	Indicates: Input Voltage (V) (INPUT & AC illuminated) Battery Voltage (V) (BATT illuminated) Frequency (Hz) Inverter Temperature (°C) (TEMP illuminated) Charge Current (A)
Configuration Program and Fault Information (Upper Middle)	
	Indicates a settings program number, displayed during configuration mode
	Indicates a warning event with its corresponding number
	Indicates an error event with its corresponding number
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)	
	Battery level. One bar = 1-25%, two bars = 25-50%, three bars = 50-75%, and four bars = 75-100%.
Load Information (Bottom Right)	
	Indicates an Overload condition.
	The load icon is displayed if there is voltage available at the AC output

	The bar represents load consumption levels. 100% is an indication of full capacity and 25% indicates low consumption. All the bars disappear at < 20 watts, and AC load indicates zero watt power.
Mode Operation Information (Middle/Middle Left)	
	Indicates the unit is connected to shore power. If flashing, the system is qualifying the power (ensuring it is good before passing through.)
	Indicates the load (output) 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

Alarm Conditions

Any warnings such as error or fault conditions or imminent shutdown are both displayed on the LCD screen and sounded on the alarm speakers.

- Audible alarm for warning: The unit beeps once when a warning condition is detected.
- Audible alarm for error: The unit beeps once every five seconds for one minute.

To mute the alarm:

Press any one of the three function buttons. The alarm is automatically muted after one minute. But the error code continues to be displayed until the error is cleared.

To manually reset the alarm:

1. Press the Power button to turn it Off (from a down position to up) and press again to turn it On to reset an active alarm and clear the error.
2. If the Inverter Ignition Control is set to auto-on, toggle the ignition signal to clear the alarm and error.
3. Toggle the AC input power to force the transition between grid mode and battery mode. This action clears the alarm and error.

Xantrex Inverter Troubleshooting

Warning messages in the form of audible alarms and error codes that appear on the LCD screen to alert you to an impending system change. Warnings do not affect operation.

The following table will assist in determining basic error code response. There is significant additional troubleshooting help in the user manual.

Table 30. Xantrex inverter troubleshooting guide.

ERROR CODE (ON SCREEN)	CONDITION	MODE	WHAT SHOULD BE DONE?
E01	Low battery voltage shutdown is imminent depending on the setting, see page 66 in owner's manual	Battery mode (inverting)	*After the LBCO shutdown delay, the unit will immediately stop inverting.* 1. Check battery status and recharge if necessary. 2. Check for proper DC cable sizing. 3. Check for loose connections and tighten if necessary.
E02	High battery voltage shutdown > 18.0 volts DC	Battery mode (inverting)	*For this error code, the unit will stop inverting.* Check for external charging sources, such as a PV charger and an over voltage alternator. Disconnect, if necessary.
E03	AC output overload shutdown	Battery mode (inverting)	*For this error code, the unit will stop inverting.* 1. Reduce the loads connected to the AC outlet of the unit. 2. Check appliances that have high-surge ratings and disconnect if necessary.
E04	Over-temperature shutdown	Battery mode (inverting)	*For this error code, the unit will stop inverting.* 1. Reduce the loads connected to the AC outlet of the unit. 2. Check that the ventilation grille is not blocked. 3. Check for ambient temperature and move the unit to a cooler location whenever possible.
E06	AC output overload warning	Battery mode (inverting)	Reduce the loads connected to the AC outlet of the unit.
E07	Over-temperature alarm and fan lock alarm	Battery mode (inverting)	1. Reduce the loads connected to the AC outlet of the unit. 2. Check that the ventilation grille is not blocked. 3. Check for ambient temperature and move the unit to a cooler location whenever possible. 4. Check the fan for any obstruction and remove it.
E08	Fan lock error	Grid mode (bypass)	1. If there is no issue with the fan, disconnect the unit from its DC and AC power sources, then reconnect, and then restart the unit. Perform Drip Shield Installation on page 42 of the owner's manual. 2. If error detection persists, contact Xantrex customer service.

ERROR CODE (ON SCREEN)	CONDITION	MODE	WHAT SHOULD BE DONE?
E10 or E19	Internal hardware error	Battery and grid modes	If error detection persists, contact Xantrex customer service.

Xantrex Inverter Maintenance

⚠WARNING

ELECTRICAL SHOCK HAZARD
TURNING THE POWER BUTTON TO STANDBY MODE DOES NOT DISCONNECT DC BATTERY POWER FROM THE FREEDOM X. YOU MUST DISCONNECT FROM ALL POWER SOURCES BEFORE WORKING ON ANY CIRCUITS CONNECTED TO THE UNIT.
FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH, SERIOUS INJURY, OR EQUIPMENT DAMAGE.

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 90. 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, early model year Alliance RVs are equipped with a single 190W panel and Go Power! Cable Entry Point (CEP) on the roof to enable wiring to an installed solar charge controller. Late model year RVs have one or more 320W solar panels using the same CEP and having the wiring travel to an installed solar charge controller.

Figure 91. 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.

ℹ	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!

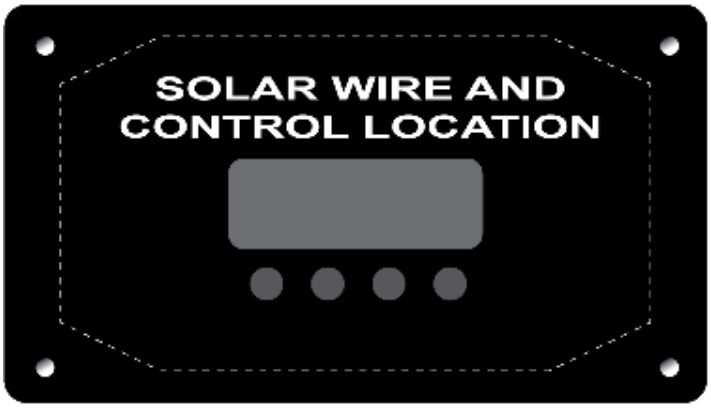


Figure 92. Label used to indicate pre-wired location of solar control mounting on early model Alliance trailers.

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 93. 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 two 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 31 in order to determine what might be happening.

Table 31. Determining the cause for a fault light.

PROTECTION	WHAT SHOULD BE DONE?
Battery Overvoltage	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) 2.Disconnect any other chargers in the circuit and let the battery rest to lower the voltage. Disconnect any sensitive loads. 3.Double check correct DIP switches
Battery Undervoltage	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) 2.Disconnect any other loads in the circuit and let the battery charge. 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.
Reverse Polarity	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. 2.If the DC reading is negative, your poles are reversed. Fix the wiring to return to normal operation. WARNING: Lithium batteries in reverse polarity may cause irreversible damage to the dc-dc.
High Temperature	1.Double check that your wiring is correct with a multi-meter and that the battery levels are suitable within the operating voltage range. 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. 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.
Short Circuit	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. 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.

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 94. 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.

ℹ	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 32. Button functions on the Go Power! Solar Controller.

ICON	DESCRIPTION
	Turn on or off a connected Go Power! Inverter (not utilitized 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.

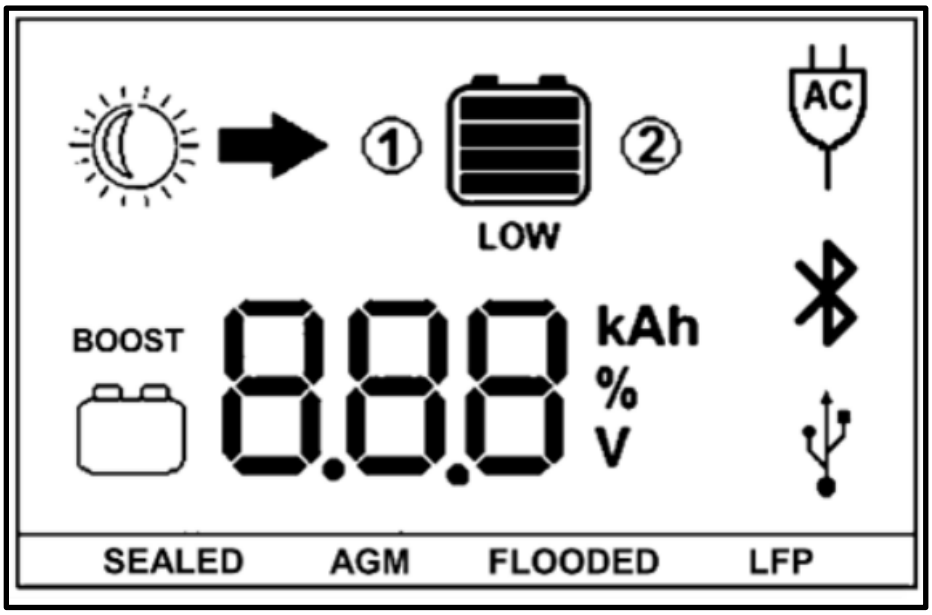


Figure 95. Go Power! Display details.

Table 33. 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 34. 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 35. 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)	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. WARNING: Do not disconnect battery without disconnecting or otherwise disabling the PV panel(s).

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, Nightime (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 96.

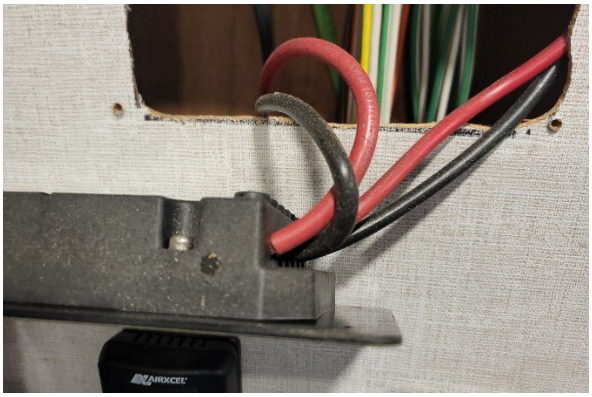


Figure 96. Go Power! Solar Charge controller wiring interface (looking from the top of the controller.). The controller has been removed from the wall and rolled forward.

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

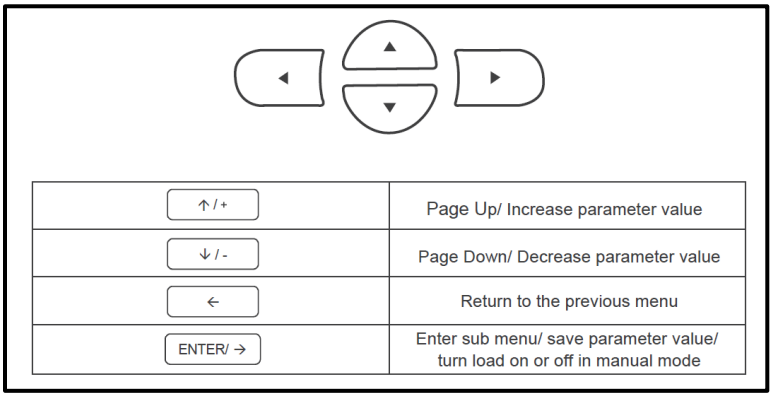
⚠WARNING

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 36. Renogy Rover front panel indicators, display, and controls. For LED indicator meanings, refer to Table 37.

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 98)

Figure 97. Renogy Rover interface.



↑ / +	Page Up/ Increase parameter value
↓ / -	Page Down/ Decrease parameter value
←	Return to the previous menu
ENTER/ →	Enter sub menu/ save parameter value/ turn load on or off in manual mode

Figure 98. Renogy Rover operating key use.

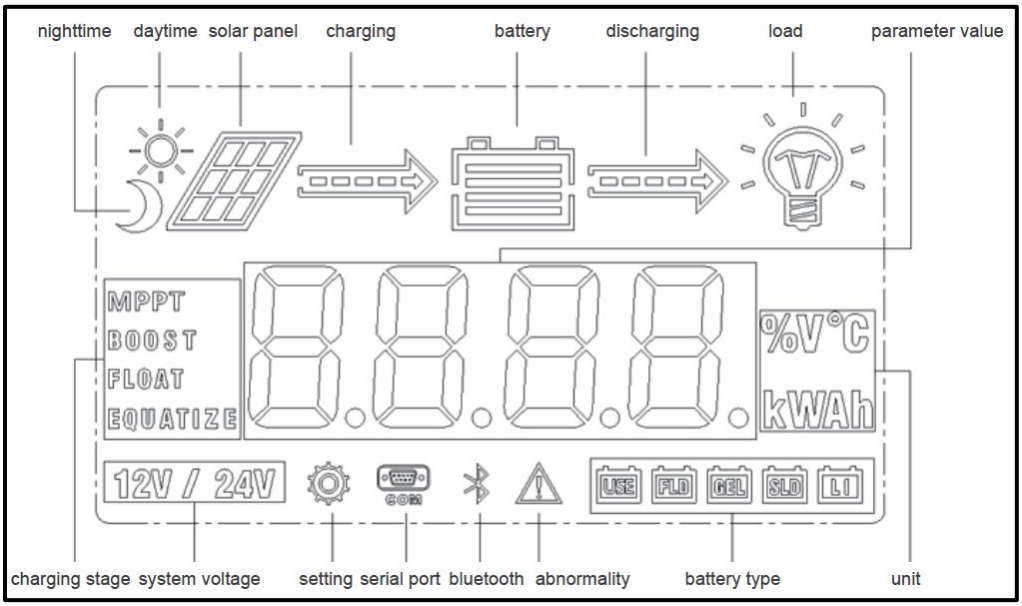


Figure 99. Display icons used on the Renogy Rover 20A, 30A, and 40A charge controllers.

Table 37. Renogy Rover LED Indicator guide.

PV INDICATOR (1)	**STATUS**
White Solid	The PV system is charging 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 charging the battery bank at the rated current.
Off	The PV system is not charging the battery bank. PV not detected.
BATT Indicator (2)	**STATUS**
White Solid	Battery is normal
White Slow Flashing	Battery is over-discharged
White Fast Flashing	Battery is over-voltage
LOAD Indicator (3)	**STATUS**
White Solid	Load is on
White Fast Flashing	Load is over-loaded or short-circuited
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 99 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 100. Renogy Rover display screen.

In Figure 100, 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 101. Renogy remote temperature sensor.

ℹ	Do not use this sensor when charging lithium batteries.

Renogy Rover 20/40A Troubleshooting

Table 38. 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 39. 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

Further troubleshooting information can be found on the Renogy Learning Center at the following links:

- 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.

Renogy 60A 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 40. Renogy Rover front panel indicators, display, and controls. For LED indicator meanings, refer to Table 41.

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 103)

Figure 102. Renogy Rover interface.

↑ / +	Page Up/ Increase parameter value
↓ / -	Page Down/ Decrease parameter value
←	Return to the previous menu
ENTER/ →	Enter sub menu/ save parameter value/ turn load on or off in manual mode

Figure 103. Renogy Rover operating key use.

Table 41. Renogy Rover LED Indicator guide.

PV INDICATOR (1)	STATUS
White Solid	The PV system is charging 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 charging the battery bank at the rated current.
Off	The PV system is not charging the battery bank. PV not detected.
BATT Indicator (2)	**STATUS**
White Solid	Battery is normal
White Slow Flashing	Battery is over-discharged
White Fast Flashing	Battery is over-voltage
LOAD Indicator (3)	**STATUS**
White Solid	Load is on
White Fast Flashing	Load is over-loaded or short-circuited
Off	Load is off
ERROR Indicator (4)	**STATUS**
White Solid	System Error. Please check LCD for Error code
Off	System is operating normally

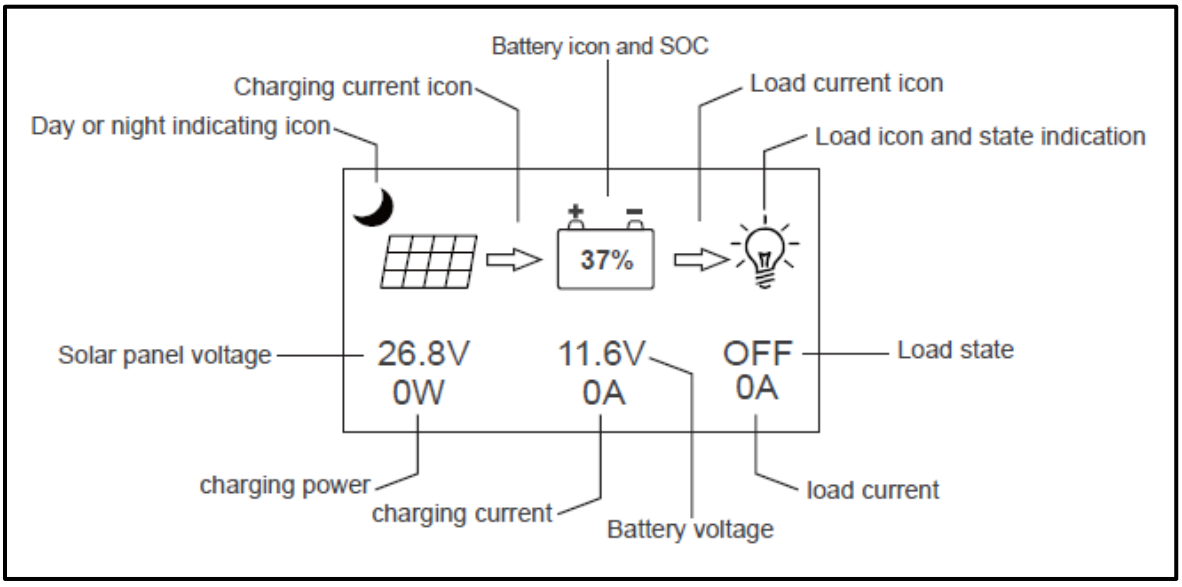


Figure 104. Display icons used on the Renogy Rover 60A charge controller.

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 104 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

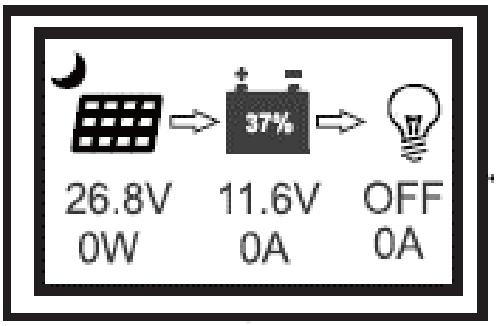


Figure 105. Renogy Rover 60A display.

In Figure 105, 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 42. 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 106. 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 43. 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.

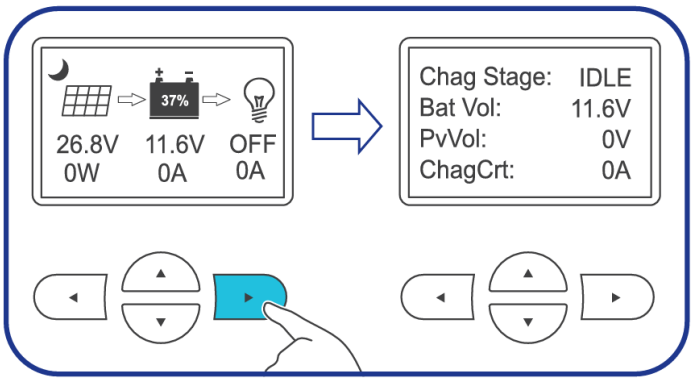


Figure 107. Step one to find error codes on the Renogy Rover 60A.

2. Now press the DOWN ARROW button to see the Fault display. The table following the display explains the fault abbreviations.

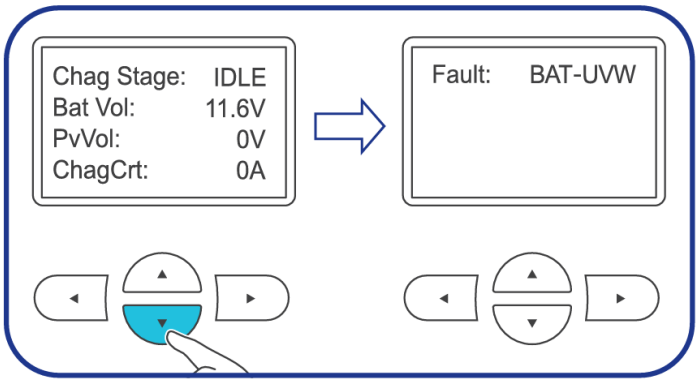


Figure 108. Step two to find error codes on the Renogy Rover 60A

Table 44. 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 45. 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.	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: 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. For technical support, please contact our customer service through renogy.com/contact-us.
The battery is connected. However, the indicators of the charge controller LCD and Battery LED Indicator cannot light up.	The battery needs troubleshooting if it can not be detected. Follow the troubleshooting steps below: 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. For technical support, please contact our customer service through renogy.com/contact-us.

WHAT IS HAPPENING?	WHAT SHOULD BE DONE?
The charging current of the charge controller or the solar panel current is lower than expected.	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. Hight 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.	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. After the voltage of the lithium battery is restored, the battery will automatically exit the activation mode and work normally.
The load cannot be powered on after connection.	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.

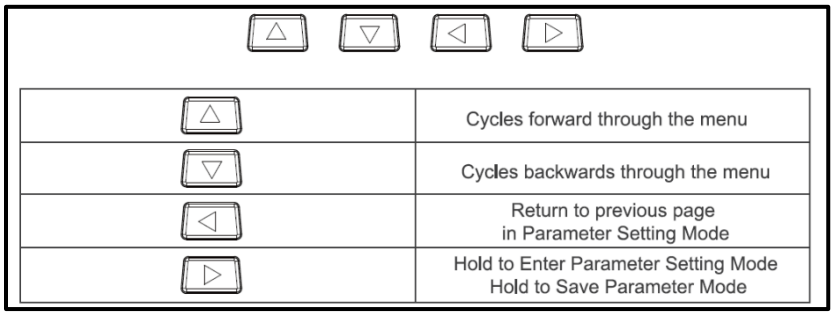


Figure 109. Renogy Rover Elite operating key use.

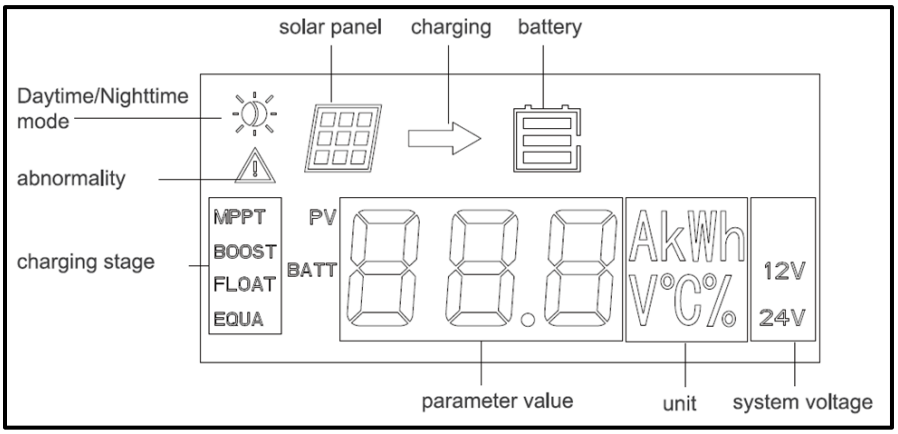


Figure 110. Display icons used on the Renogy Rover Elite 20A and 40A charge controllers.

Main Display Screens / Operating the Unit

The main display can cycle through the following screens using the operating keys shown in Figure 109. The LCD display description in Figure 110 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.

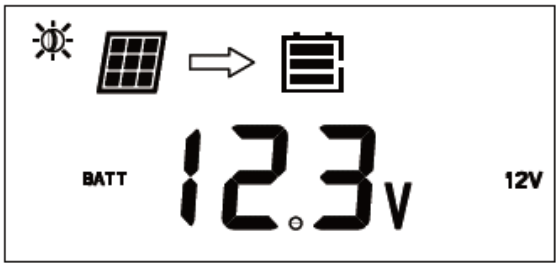


Figure 111.Renogy Rover Elite display.

In Figure 111, 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 112. 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 46. 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 47. 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 100DC. 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: • 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

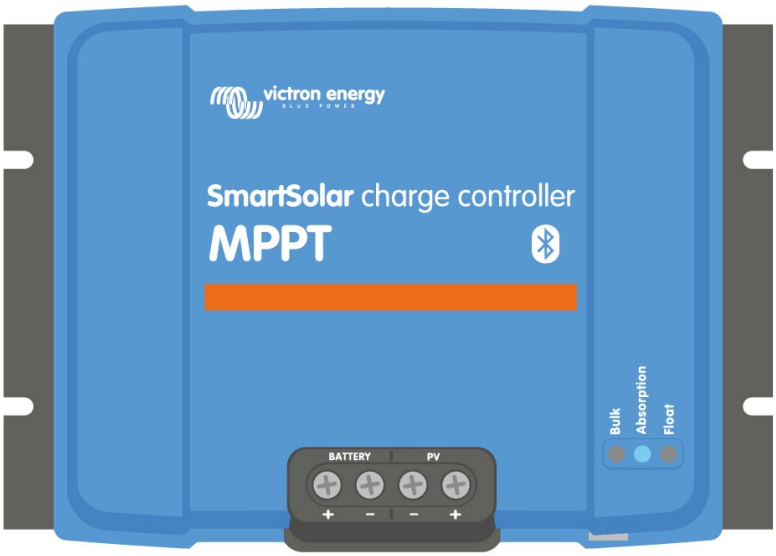


Figure 113. Victron MPPT Solar Charge Controller.

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 114, 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.

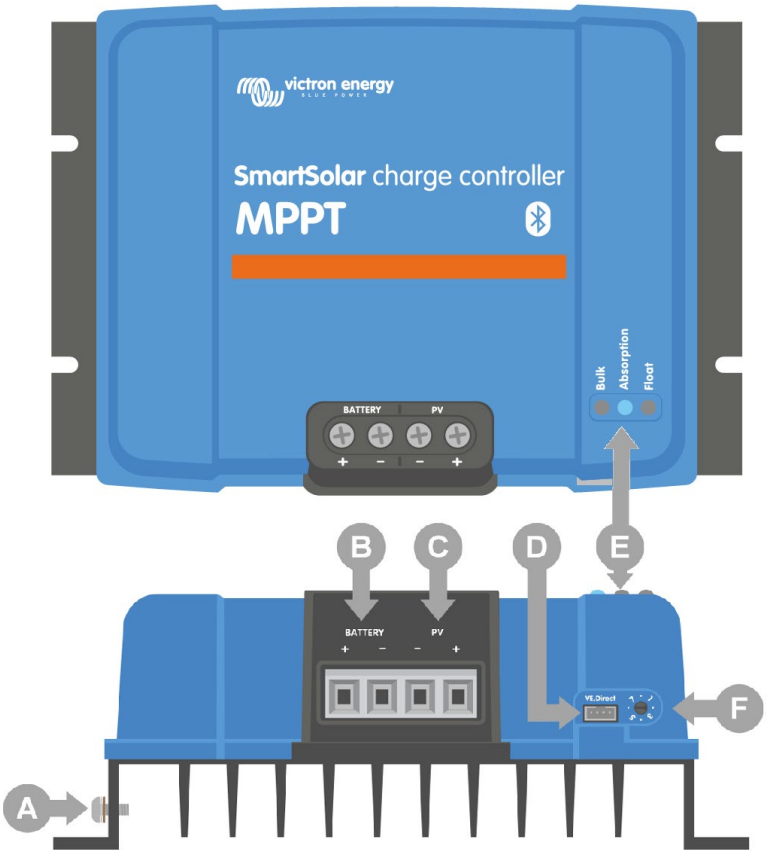


Figure 114. Victron MPPT charge controller interface identification.

Table 48. Victron interface identification. See Figure 114.

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 49. 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 49. Victron LED interpretation.

SYMBOL	MEANING
	LED is on (solid)
	LED is blinking
(blank)	LED is off

Table 50. 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 51. 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.)

GENERATOR PREP / GENERATOR (IF EQUIPPED)

Progressive Dynamics Automatic Transfer Switch (If Equipped)

The **automatic transfer switch (ATS)** is wired into the trailer when the Generator Prep or the Factory-Installed Generator option is purchased. Its function is to manage the flow of shore power or generator power to the power control center. When plugged into shore power, it will be sent through the ATS to the power control center. However, if the generator is started, the switch will delay 20-45 seconds after it senses generator power and automatically switch to that power source, feeding the generator output to the power control center. This is considered “generator priority” setup. The switch will continue to route generator power to the power control center until the generator is shut down. The device operates automatically and has no user intervention, manual switching, or other controls or indicators.

Figure 115. Progressive Dynamics Automatic Transfer Switch.

Location: These devices are usually mounted either behind the front pass-through storage wall (toward the aft of the trailer) or on the ceiling of the pass-through storage.

Progressive Dynamics ATS Troubleshooting

⚠WARNING

SHOCK HAZARD - DUE TO THE HIGH VOLTAGES ASSOCIATED WITH ITS OPERATION ONLY QUALIFIED SERVICE PERSONNEL SHOULD INSTALL OR TROUBLESHOOT THIS TRANSFER SWITCH! ALL APPLICABLE CODES AND STANDARDS MUST BE MET WHEN INSTALLING THIS DEVICE. SEE WIRING DIAGRAM INSIDE OF THE COVER AND ON THE BACK OF THIS PAGE. IMPROPER HANDLING OR INSTALLATION MAY CAUSE SERIOUS INJURY OR DEATH.

When problems exist with incoming 120V power, troubleshooting must be performed with live 120 V power. Due to the danger involved, this should not be attempted by anyone who is not trained in this troubleshooting. Please contact a qualified service provider for assistance.

	Trained persons should refer to the following page for advanced troubleshooting information from the manufacturer: https://www.progressivedyn.com/wp-content/uploads/Support/manuals/Technical-library/PD52-Transfer-switch-troubleshooting-.pdf

Progressive Dynamics ATS Maintenance

⚠WARNING

TORQUE ALL CONNECTIONS PER LABEL – EXCESSIVE TORQUE MAY CAUSE DAMAGE TO CONNECTIONS LEADING TO A FIRE CAUSING PROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

⚠WARNING

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

Inspection & Check Torque

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. Gain access to the Automatic Transfer Switch location. Carefully remove the cover.
3. Using a Voltmeter set to AC Voltage, ensure no power is present on any incoming AC connection point.
4. Check the torque of all electrical connections in the power control center as per the label on the inside of the cover of the device.

Generator Prep (If Equipped)

With Generator Prep, you'll find that your RV will include the basic wiring and structures needed to install an aftermarket generator. The installed equipment includes:

- A mounting base
- A vapor isolating shroud
- An electrical transfer switch
- Associated wiring access point (a junction box to connect generator output to the input for the automatic transfer switch)
- A capped propane line
- A remote for an Onan generator

We recommend you work with your dealer and/or Alliance RV if you decide to add a generator to your RV.

Onan Generator (If Equipped)

Factory installed generators in Alliance Paradigm RVs are the Cummins Onan 5500 HGJAA/HGJAB variants. These units provide 5500 Watts (45.8 Amps) continuous power and run on LP Gas. Stated consumption is 3.3 lbs/hr at half load, and the unit has an air cooled two cylinder engine. These are permanently installed and are designed to provide power for air conditioners, lighting and appliances.

⚠WARNING

THOROUGHLY READ THE OPERATORS MANUAL BEFORE OPERATING THE GENERATOR. IT CONTAINS IMPORTANT INSTRUCTIONS THAT SHOULD BE FOLLOWED DURING OPERATION AND MAINTENANCE. SAFE OPERATION AND TOP PERFORMANCE CAN ONLY BE ACHIEVED WHEN EQUIPMENT IS PROPERLY OPERATED AND MAINTAINED.

⚠WARNING

OPERATION OF EQUIPMENT IS UNSAFE WHEN MENTALLY OR PHYSICALLY FATIGUED. DO NOT OPERATE EQUIPMENT IN THIS CONDITION, OR AFTER CONSUMING ANY ALCOHOL OR DRUG.
MAINTAINING OR INSTALLING A GENERATOR SET CAN CAUSE SEVER PERSONALLY INJURY. WEAR PERSONAL PROTECTIVE EQUIPMENT SUCH AS SAFETY GLASSES, PROTECTIVE GLOVES, STEEL-TOED BOOTS AND PROTECTIVE CLOTHING WHEN WORKING ON EQUIPMENT.
NEVER OPERATE THE GENERATOR WITH THE COVER OR SERVICE DOOR REMOVED, IT MAY RESULT IN SEVERE PERSONALLY INJURY OR EQUIPMENT DAMAGE.
STARTING FLUIDS, SUCH AS ETHER, CAN CAUSE EXPLOSION AND GENERATOR SET ENGINE DAMAGE. DO NOT USE.
GENERATOR VOLTAGE IS DEADLY, AN IMPROPERLY CONNECTED GENERATOR ELECTRICAL OUTPUT CONNECTIONS CAN CAUSE EQUIPMENT DAMAGE, SEVERE PERSONAL INJURY, OR DEATH. ELECTRICAL CONNECTIONS MUST BE MADE BY A TRAINED AND EXPERIENCED ELECTRICIAN IN ACCORDANCE WITH APPLICABLE CODES.
ENGINE EXHAUST/CARBON MONOXIDE IS DEADLY, SUBSTANCES IN THESE GASES HAVE BEEN IDENTIFIED BY SOME STATE AND FEDERAL AGENCIES TO CAUSE CANCER OR REPRODUCTIVE TOXICITY. DO NOT BREATHE IN OR COME INTO CONTACT WITH EXHAUST GASSES.

General Precautions and Recommendations

The following points relate to the full use and lifecycle of your generator. Keeping these points in mind will help keep your generator running well for many years and ensure it is ready to provide power when you need it.

- There is a specific recommended break-in process for new or rebuilt engines. See the Maintenance section, below.
- When used infrequently, the generator can develop conditions that make it difficult to start and run. To avoid this, please see the section Exercising Your Generator and ensure it is operated at least 2 hours per month on at least a ½ load.
- Make sure never to block air flow to and from the generator

- Always run the generator with the provided access cover in place. Airflow within the generator casing is optimized when it's cover is in place. **The front compartment door must also stay closed during operation to maintain required compartment sealing.**
- Make sure engine oil viscosity is appropriate for the ambient temperature. Refer to the Operator Manual for recommended oil.
- Keep your generator clean – do not let dirt and debris accumulate inside the generator compartment.
- If operating in a dusty environment, increase the frequency of air filter element maintenance as well as engine oil changes.
- Ensure that regular maintenance is performed. A reference is provided below.

The Load on the Generator

The power rating on the generator nameplate determines how much electrical load (motors, fans, heaters, air conditioners and other appliances) the generator can power. When installed at the factory, Onan generators are rated for 5500 Watts (45.8 Amps) of 120 V power. If the sum of the loads exceeds the generator set power rating, the generator will shut down or its line circuit breakers will trip.

To avoid shutdowns due to generator overload, use the electrical ratings from each appliance to compare the sum of the electrical load likely to be used at the same time to the generator rating. Typical appliance loads are shown below.

Appliance load and generator power are measured in terms of watts or kilowatts. 1 kilowatt = 1000 watts.

Table 52. Typical RV appliance loads.

APPLIANCE	AVERAGE POWER REQUIRED	
	WATTS	AMPS
Air Compressor (1hp)	900 - 1800	7.5 - 15
Air Conditioner	1,200 - 2,400	10 - 20
Air Fryer	1,200 - 1,700	10 - 15
Battery Charger	Up to 3,000	6 - 28
Blender	450 - 700	3.3 - 5.8
Vacuum	1,000 - 1,440	8.3 - 12
Stereo	85	.7
Coffee Pot	900 - 1200	7.5 - 10
Computer	60 - 270	.5 - 2.25
Laptop	20 - 50	.16 - .41
Converter	500 - 1,000	4 - 8
Curling Iron	20 - 50	.16 - .41
Dishwasher	1,200 - 2,400	10 - 20
Electric Blanket	60 - 100	.5 - .8

APPLIANCE	AVERAGE POWER REQUIRED	
	WATTS	AMPS
Fan	10 - 175	.08 - 1.45
Flat Iron	40 - 80	.3 - .6
Electric Skillet	1,000 - 1,350	8 - 11.25
Game Console	19 - 200	.16 - 1.6
Hair Dryer	1,200 - 1,875	10 - 15.6
Iron	1,000 - 1,800	8 - 15
LED Lights	8 - 15	.06 - .13
Microwave	750 - 1,100	6.25 - 9.2

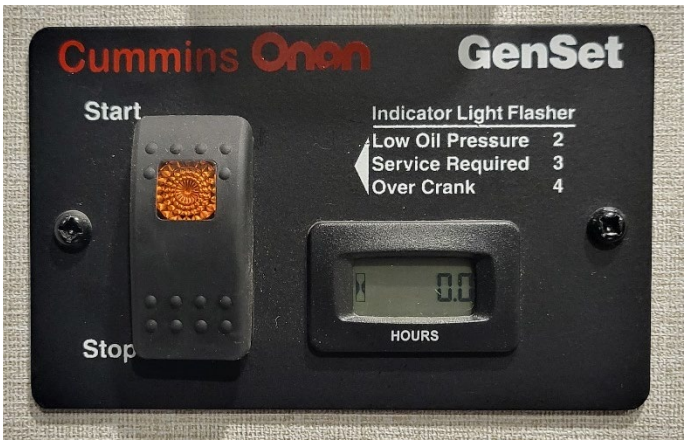


Figure 116. Remote generator start panel. The start/stop button and integrated fault indicator are on the left, and hour meter on the right.

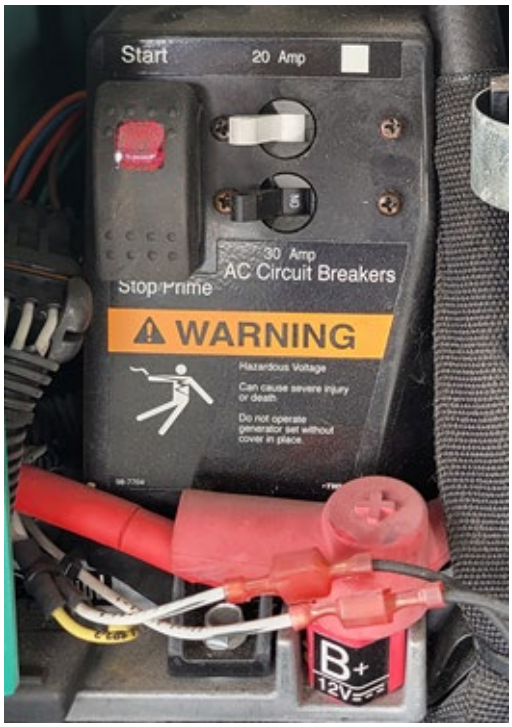


Figure 117.On-board controls for the Onan 5500 generator. The start/stop button and integrated fault light are on the left, and circuit breakers are on the right.

Starting the Generator

1. Visually inspect for fuel and/or exhaust leaks. Do NOT start the generator until any fuel or exhaust leak is repaired.
2. Turn off air conditioners and any other significant AC load.
3. Using either the remote start button on the panel inside the trailer, or the onboard start button inside the generator cover, press and hold the control switch to START until the generator starts.

The status indicator on the switch flashes while cranking. It will stay on continuously when the generator set is running.

4. If the generator fails to start, cranking will stop in approximately 30 seconds. The status indicator will blink, indicating an over crank fault. Wait 5 seconds for the control to reset before trying again. After 5 tries, let the starter motor cool down for 30 seconds before trying again.

⚠CAUTION

THE STARTER MOTOR CAN BE DAMAGED BY OVERHEATING. ALLOW IT TO COOL DOWN FOR 30 SECONDS AFTER EVERY FIFTH CRANK.

5. For top performance and engine life, especially in colder weather, let the engine warm up for 2 minutes before you put a load on the generator.

	If the generator shuts down unexpectedly, the status light on the Start/Stop switch will blink a code. This code is very helpful in troubleshooting. Please refer to chapter 6 of the Operator Manual for more information.

Stopping the Generator

1. Turn off your air conditioners and any other large appliances.
2. Run the generator for 2 minutes to allow for cool down.
3. Press the control switch into the STOP position. This can be done either onboard the generator, or at the remote start/stop button inside the trailer.

Resetting Line Circuit Breakers

If a generator set line circuit breaker (on the generator control panel behind the access cover, Figure 117) or a circuit breaker in the power distribution panel trips, either a short has occurred or too many loads were connected.

	Reduced air pressure (i.e. high altitude) and high ambient temperature reduce the power rating of the generator. For example, operating at 5000 ft above sea level drops the rating to 5114 Watts (3.5% for each 1000 ft.), and for every 10°F above 77°F the rating drops by 1% (55 Watts).

If a circuit breaker trips, disconnect or turn off as many electrical loads as possible and reset the circuit breaker.

- If the circuit breaker trips again right away, either the appliance (or electrical load) has a short or the circuit breaker is faulty. You should immediately schedule service for repair.
- If the circuit breaker does not trip right away, reconnect loads one-by-one making sure not to overload the generator or cause a breaker to trip.

Onan Generator Troubleshooting

There are a couple of common problems experienced when using a generator. If these points do not help resolve your problem, please refer to the manufacturer's service manual for further, detailed troubleshooting instructions.

Symptom: Generator starts and runs fine, but no appliances in the trailer are getting power.

Possible Causes:

- The line set circuit breakers on the generator are off. Remove the access cover and check them. They are located on the right side of the control panel.
- The automatic transfer switch is faulty. Consult a qualified service provider for assistance.

Symptom: The generator has run fine recently, but will not start now.

Possible Causes: There are many possible reasons for this problem, but the first items to check are as follows:

- Is there enough LP Gas in the system? This can be verified by trying to run the stove. Note that very cold weather can reduce the effectiveness of the fuel delivery system, and the cylinders effectively appear "empty". This happens below about 45°F.
- Could the air filter be contaminated enough to keep air from flowing freely? Check the air filter, especially in dusty environments. Do not attempt to run the generator without an air filter in place.

	Excellent troubleshooting information is available in the Onan Owner's Manual, section 6, available at the following link: https://www.cummins.com/sites/default/files/rv-manuals/A035D009.pdf

Onan Generator Maintenance

Exercising your Generator

Your Generator should be exercised at least 2 hours a month if use is infrequent. Run your generator at approximately ½ rated power. A single 2-hour exercise period is better than several shorter periods.

This action helps drive off moisture, lubricates the engine, replaces stale fuel in fuel inlets and removes oxides from electrical contacts and generator slip rings. The result is better starting, longer engine life and greater reliability.

Break-In Period

Proper engine break-in of a new or rebuilt engine is essential for top engine performance and acceptable oil consumption. Run the generator set at approximately ½ rated power for the first 2 hours and at ¾ rated power for 2 more hours.

Proper engine oil and oil level are especially critical during break-in because of the higher engine temperatures that can be expected. Change the oil if the oil is not appropriate for the ambient temperatures during break-in. See Section 5.5 of the Operator Manual for engine oil recommendations.

Check oil level twice a day or every 4 hours during the first 20 hours of operation and change the oil after the first 20 hours of operation.

Regular Maintenance

Keeping your generator running well depends upon performing regular maintenance. The following table is replicated from the Operator Manual to provide a ready reference. Procedures not listed in this manual are listed in the Operator Manual.

Table 53. Onan generator required maintenance.

MAINTENANCE REQUIRED	FREQUENCY				
	EVERY DAY OR EVERY 8 HOURRS	AFTER FIRST 20 HOURS	EVERY MONTH	EVERY 150 HOURS	EVERY 500 HOURS
General Inspection	X				
Check Engine Oil Level	X				
Clean and Check Battery			X[3]		
Change Engine Oil and Oil Filter (at least once per year)		X[1]		X[2,3,4]	
Replace Air Filter Element				X[2]	
Clean Engine Cooling Fins					X[5]
Replace Spark Plug(s)					X[2]
Replace Fuel Filter					X[5,6,7]
Adjust Valve Lash					X[6]

Notes:

1. As part of engine break-in, change the engine oil after the first 20 hours of operation.
2. Perform more often when operating in dusty environments.
3. Perform more often when operating in hot weather.
4. Perform at least once per year.
5. Perform sooner if engine performance deteriorates.
6. Must be performed by a trained and experienced mechanic (auth. Cummins dealer).
7. Replace every 500 hours or once every 3 years.

General Inspection

As per the Maintenance Schedule, perform the following checks. Follow all precautions and warnings in the Operator Manual and refer to the Operator Manual for further information.

1. Check the battery connections.
    a. Keep the battery case and terminals clean and dry.
    b. Keep the battery terminals tight.
    c. When removing or replacing battery connections, always remove the negative (-) cable first and reconnecting it last to reduce arcing.
2. Check engine oil level. See Operator Manual for details and oil recommendations.
3. Check fuel system

⚠WARNING

GASOLINE AND LPG ARE HIGHLY FLAMMABLE AND EXPLOSIVE AND CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. DO NOT SMOKE OR TURN ELECTRICAL SWITCHES ON OR OFF WHERE FULE FUMES, TANKS, OR EQUIPMENT ARE PRESENT; OR IN AREAS SHARING VENTILATION. KEEP FLAMES, SPARKS, PILOT LIGHTS, ARC-PRODUCING EQUIPMENT AND SWITCHES, AND ALL OTHER SOURCES OF IGNITION WELL AWAY. KEEP A TYPE ABC FIRE EXTIGUISHER IN THE VEHICLE.

a. Check for leaks at the hose, tube, and pipe fittings in the fuel supply system while the generator set is running and while it is stopped.
b. Check flexible fuel hose sections for cuts, cracks, abrasions, and loose hose clamps.
c. Make sure the fuel line does not rub against other parts of the vehicle or generator set.
d. Replace worn or damaged fuel line parts before leaks occur.
e. If a Propane gas odor is detected, close the LPG cylinder shutoff valve and have the generator serviced.

4. Check exhaust system

⚠WARNING

EXHAUST GAS IS DEADLY! DO NOT OPERATE THE GENERATOR SET IF THERE IS AN EXHAUST LEAK OR ANY DANGER OF EXHAUST GASSES ENTERING OR BEING DRAWN INTO THE VEHICLE.

⚠WARNING

GRASS OR BRUSH IN CONTACT WITH THE EXHAUST SYSTEM CAN CAUSE FIRE. DO NOT PART THE VEHICLE IN HIGH GRASS OR BRUSH.

a. Look and listen for exhaust system leaks while the generator set is running. Shut down the generator set if a leak is found and have it repaired before operating.
b. Look for openings or holes between the generator set compartment and living space if the generator set sounds louder than usual. Have all such openings or holes closed off and sealed to prevent exhaust gases from entering the RV.
c. Replace dented, bent, or severely rusted sections of the tailpipe and make sure the tailpipe extends at least 1 inch beyond the perimeter of the vehicle.
d. Park the vehicle so that the generator set exhaust gases disperse away from the vehicle. Barriers such as walls, snow banks, high grass, brush, and other vehicles can cause exhaust gases to accumulate in and around the vehicle.
e. Do not operate power ventilators or exhaust fans while the vehicle is standing with the generator set running. The ventilator or fan can draw exhaust gases into the vehicle.
f. Check all CO monitors to assure proper operation.

5. Check mechanical system

⚠WARNING

COMPRESSED AIR, PRESSURE WASHERS, AND STEAM CLEANERS CAN CAUSE SEVERE EYE INJURY. ALWAYS WEAR SAFETY GLASSES WHEN USING.

a. Look for mechanical damage and listen for unusual noises and vibrations.
b. Check the generator set mounting bolts.
c. Check to see that the generator set air inlet and outlet openings are not clogged with debris or blocked.
d. Clean accumulated dust and dirt from the generator set. Do not clean the generator set while it is running or still hot. Protect the generator, air cleaner, control panel, and electrical connections from water, soap, and cleaning solvents.

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.

	How To Setup My Alliance RV TV

TV Antenna

Your RV is 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 118. 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.

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. 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.

	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, against the rear wall, on the door side. In the Paradigm 385FL, however, it is in the rear storage area, on the forward wall of the door side, close to the entry door. Some early model Alliance trailers had the switch inside the trailer, hidden behind the Monitor Panel.

This panel provides power to the tv/radio antenna (Left button,) and the wifi router (right button,) if equipped. 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.

Figure 119. Winegard booster switch, with booster and Wifi enabled.

	For information on connecting a satellite dish or campground-provided Cable to the to the AV system, see the plumbing section regarding the Nautilus P4 Centralized Docking Station.

The COAX wiring system is configured as shown in Figure 120. 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.

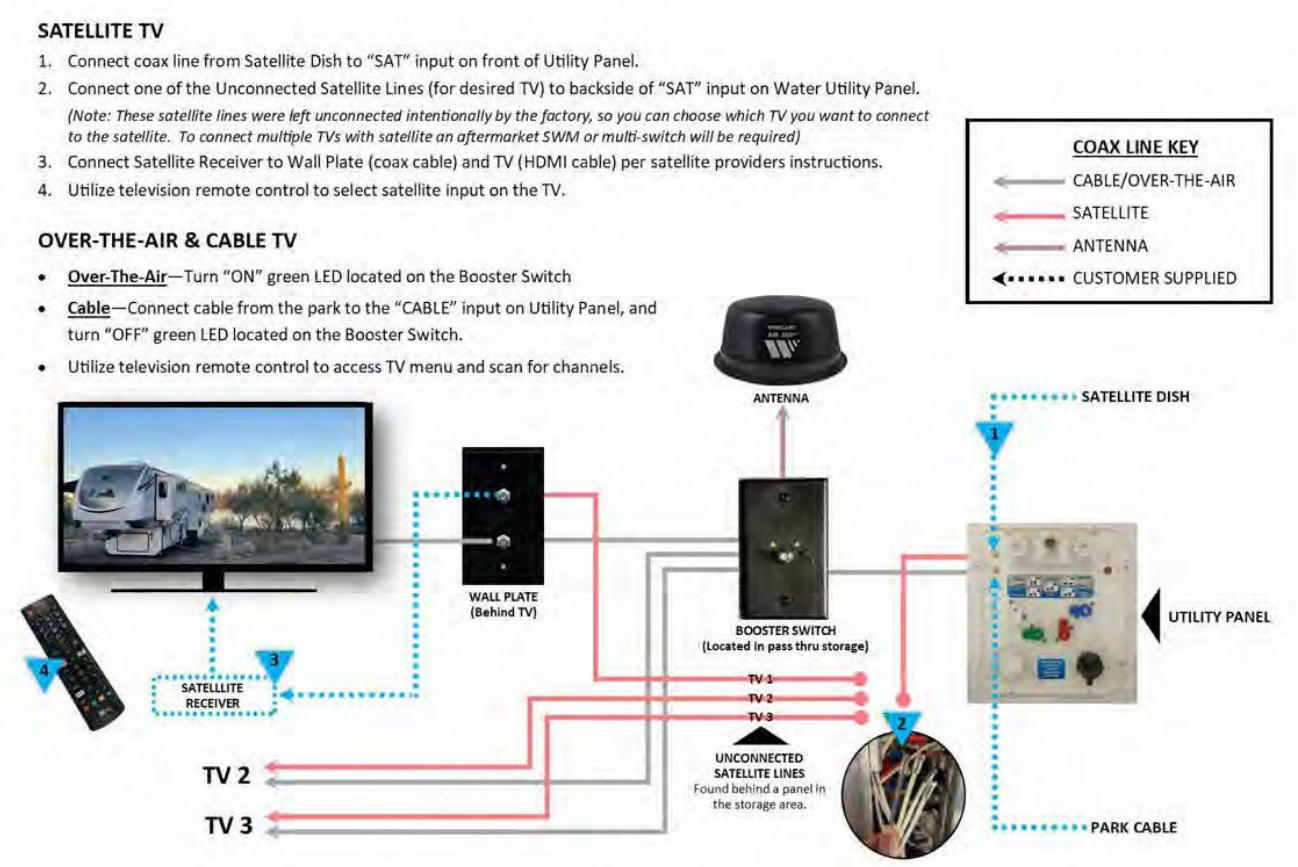


Figure 120. Alliance COAX wiring system.

In order to connect a satellite antenna, one will need to connect to the marked port on the Nautilus P4 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.

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.

	WYKW: Winegard Gateway Installation and Booster Power

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 the link below.

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.

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.

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.

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.

Loose COAX connection: Check all 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.

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.

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.

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.

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.

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.

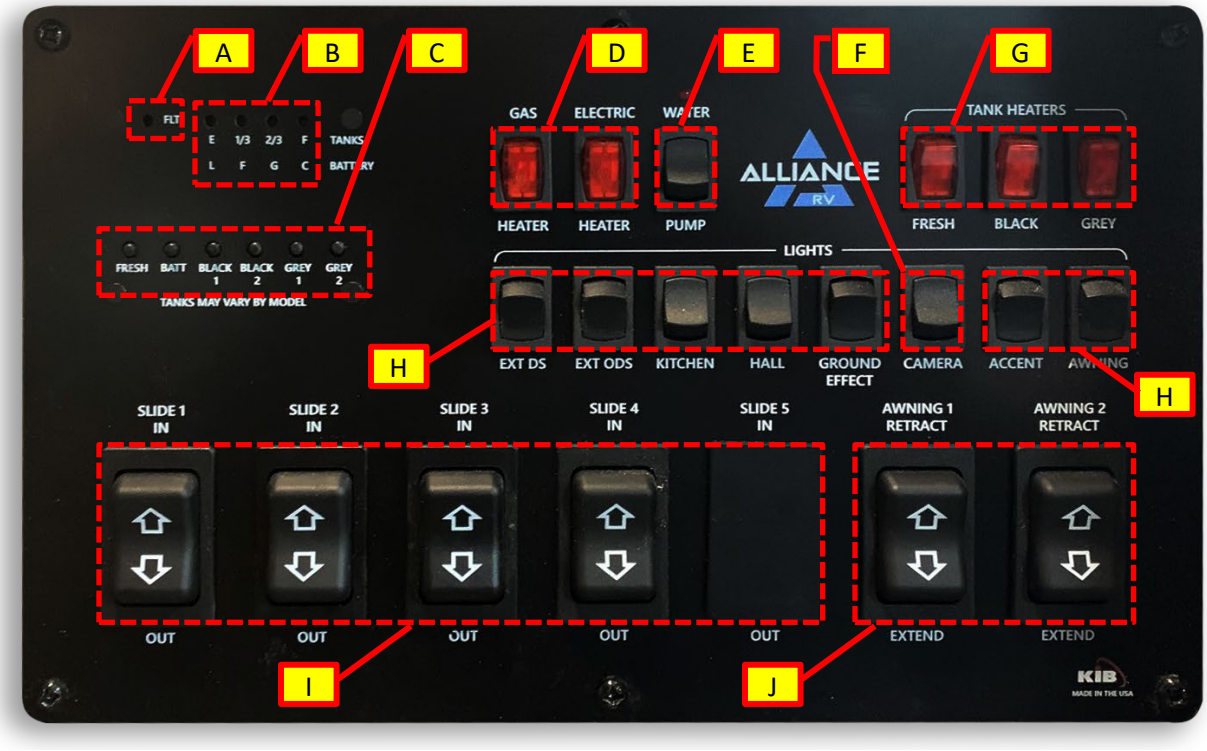


Figure 121. Monitor panel with sections highlighted.

Table 54. 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

Backup Camera

The Alliance Paradigm 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

Awning Operation

The awning controls are located at the lower-right corner of the Monitor Panel, in section J of Figure 121. 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.

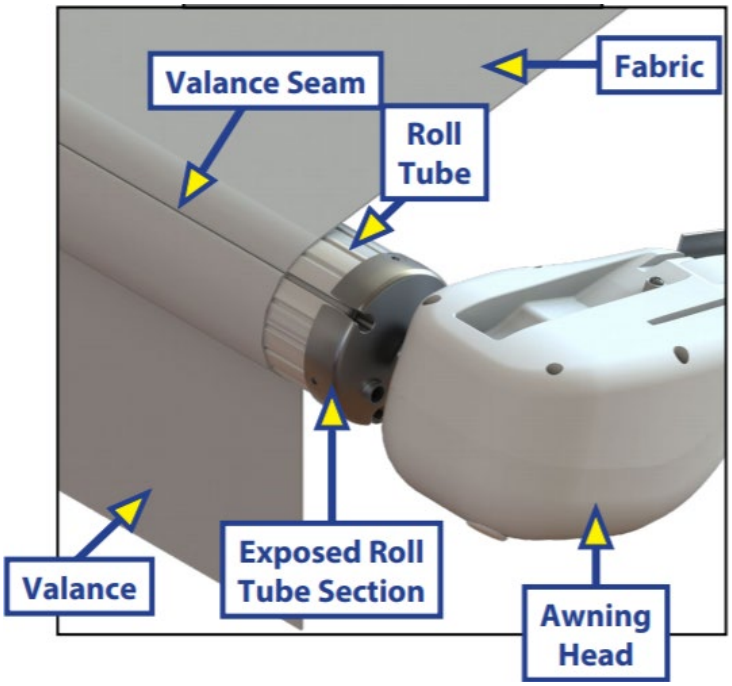


Figure 122. Awning part identification at full extension.

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 sean 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 AWING 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 wihtout 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 conenient water runoff. Pull down on the joint of the atriculating arm until desired pitch is set to allow for water runoff. Never push the jointes of the atriculating arms up. This will put tension on the gas strut, which can cause the strut to break.

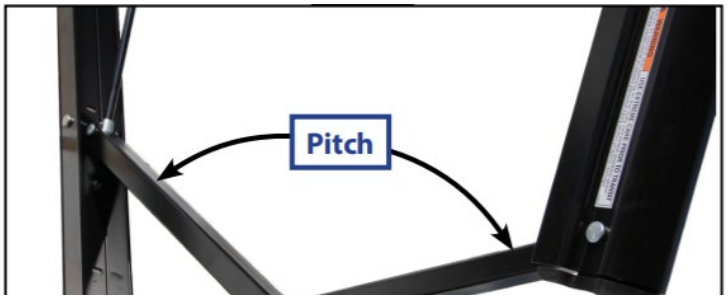


Figure 123. Awning pitch adjustment location. Pull down on the center of the arm to lower pitch.

	If the articulating arm does not hold position, it can be tightened by adjusting the bolt in the center of the articualating arm.

⚠ CAUTION

DURING INCIDENTS OF HIGH WIND, HEAVY RAIN OR EXTENDED TIME AWY FROM THE RV, BE SURE TO RETRACT THE AWNING COMPLETELDY TO PREVENT DAMAGE TO THE WAWNING AND THE RV.

Awning Component Breakdown

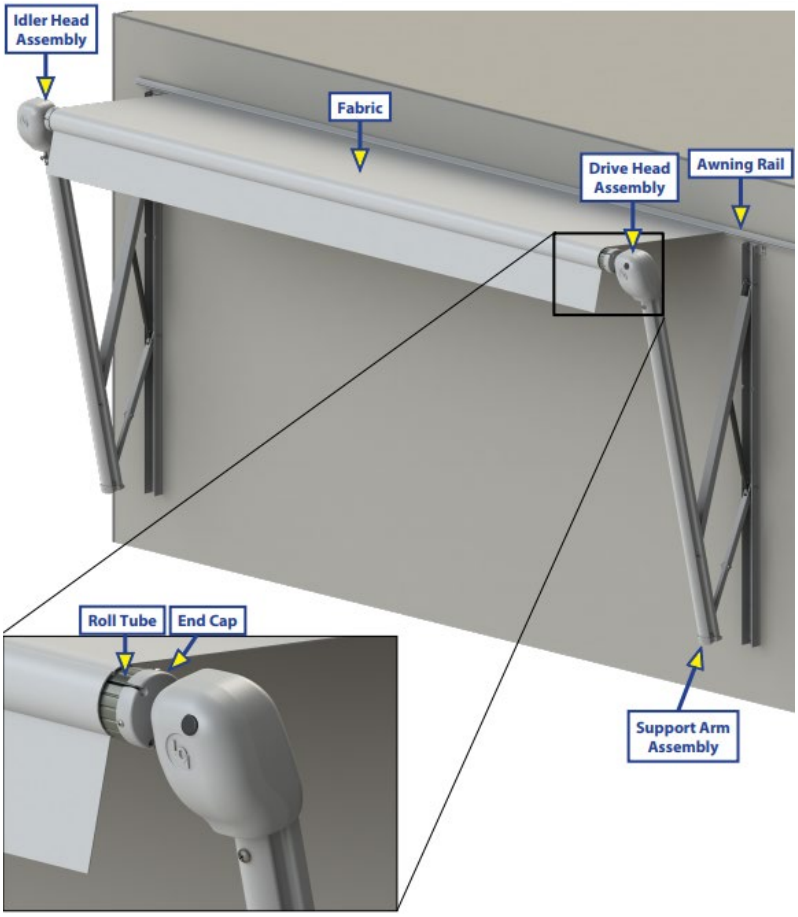


Figure 124. Awning components of interest.

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 falilure, the awning can be extended and rertracted manually. This override can also be used if you're dry camping or camping without a battery.

1. Remove the rubber grommet form the drive head assembly (on the right or forward arm,) this will expose the override nut on the motor.

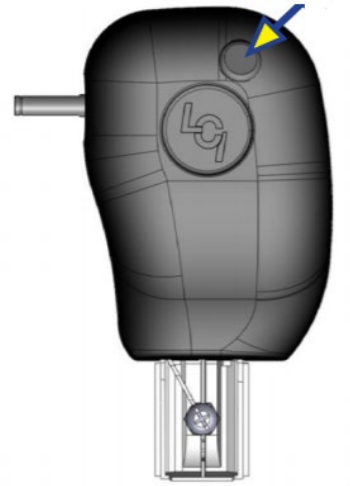


Figure 125. Location of rubber grommet covering the awning manual override. Location may vary slightly due to manufacturer differences.

2. Using a 7/16" socket and a drill, turn the override nut counterclockwise to retract the awning.

Figure 126. 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

Alliance RV has prepped their fifth wheels 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 127. 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

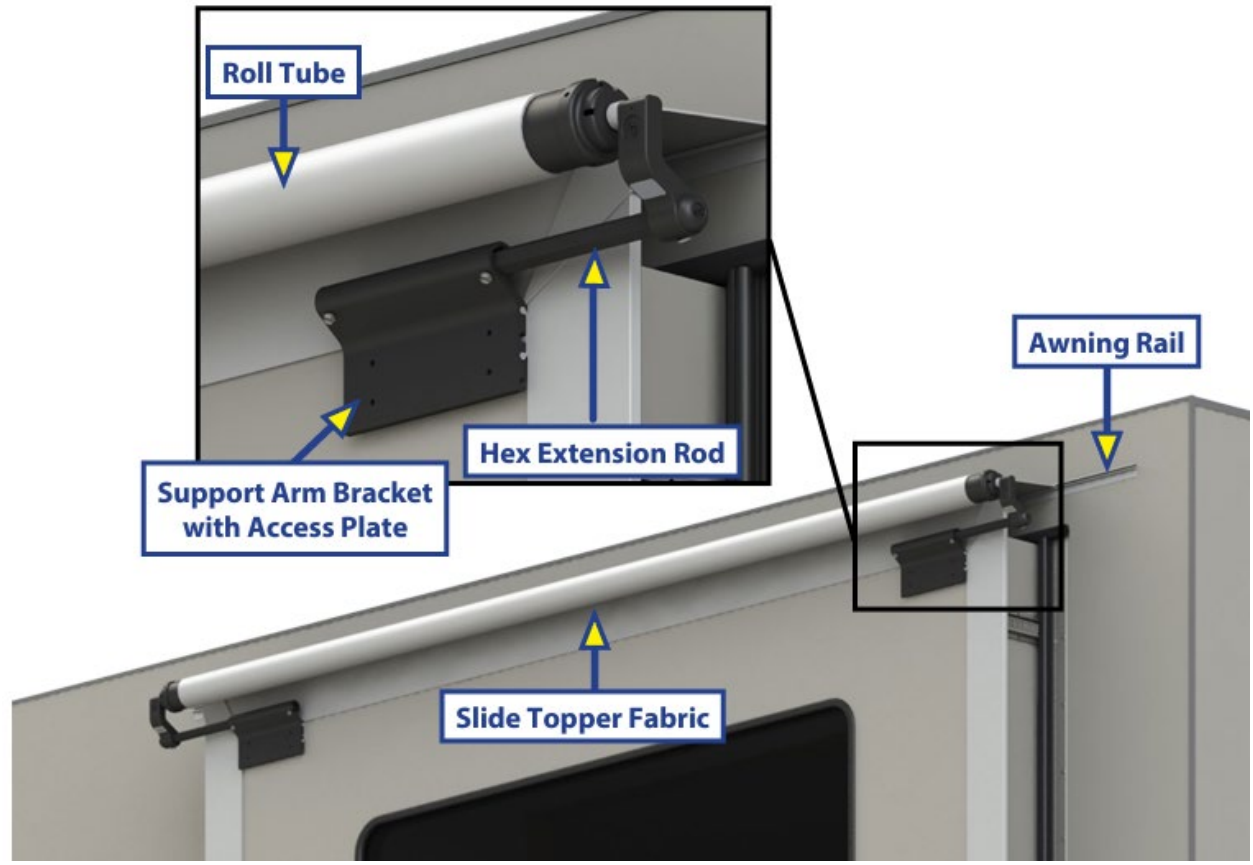


Figure 128. Slide topper component identification.

HEATING, COOLING & VENTILATION

LCD Thermostat (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 129. 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 (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.

Figure 130. Coleman digital thermostat.

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 130. 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 130. 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.

	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 Paradigm trailers, only the middle thermostat has a furnace connected.

Coleman Mach Air Conditioners

Alliance RV main living quarters (Living Room and Kitchen) will utilize 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.

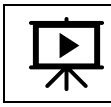
The bedroom area(s) of the RV will utilize a ducted Coleman air conditioner system. Due to the nature of the design in these spaces, containing multiple rooms and areas that can be isolated with doors, a ducted system is utilized.

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 degrees F., the air leaving the discharge grilles in the air conditioner will be 60 to 65 degrees 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 degrees 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.

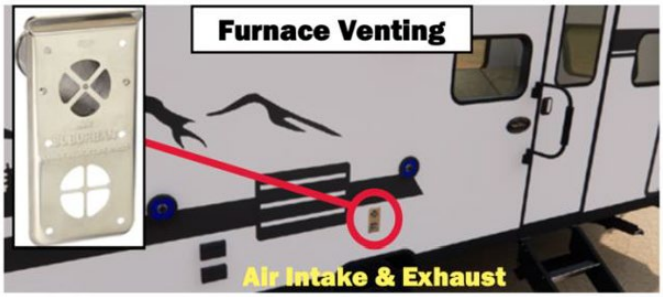


Figure 131. Exterior furnace vent.

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

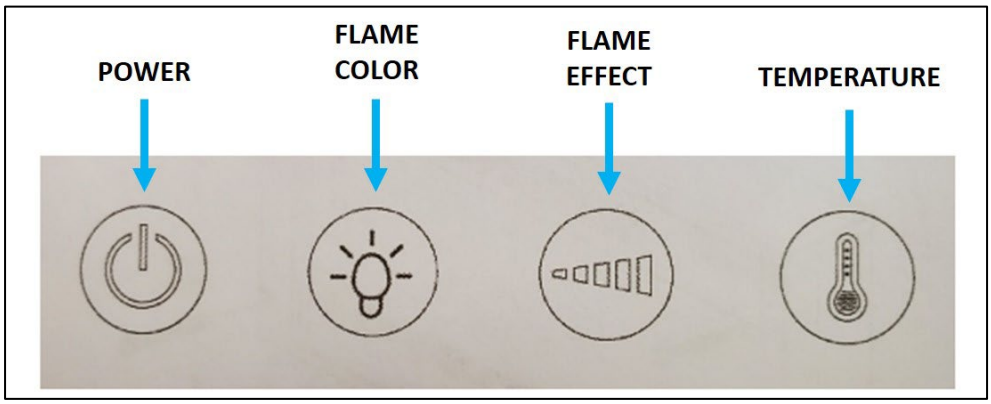


Figure 132. Fireplace control panel at the bottom center.

- **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. “OH” 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.

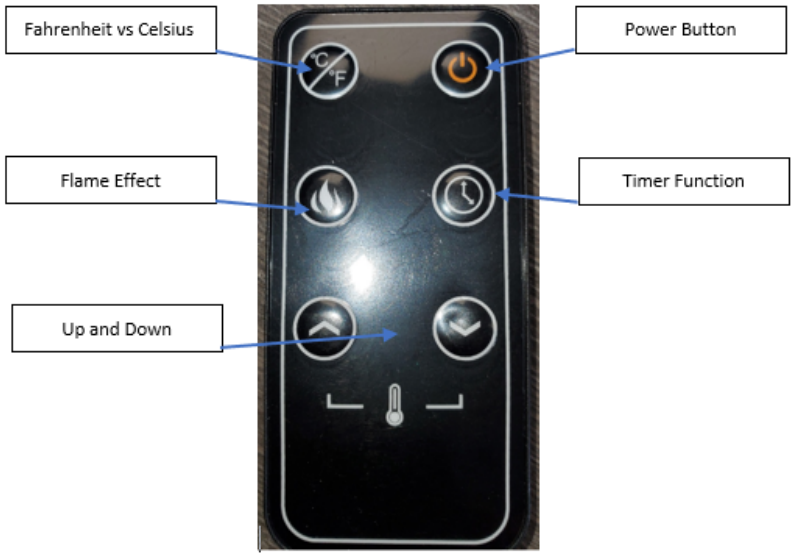


Figure 133. Fireplace remote interface.

	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

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 134.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

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 135. Maxxfan Mini used in the 1/2 bath.

	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

Refrigerator

You'll find one of three types of refrigerators in your RV:

- A Gas Absorption (RV) refrigerator. This uses either LP Gas or 120V electricity to cool. The system also uses 12V electricity to control operations (not for cooling.)
- A residential-style 120V refrigerator. This uses only 120 V power. To run, one must be connected to shore power, be running a generator, or use an inverter while consuming power from the battery bank.
- Late models will have a 12V power refrigerator. This uses only 12V power and is the most efficient option available. It will run using only battery power, and when the RV is plugged into shore power (or a generator is running) the converter in your power panel will charge the battery bank. Trailers equipped with solar options will also have that source available to charge batteries.

Gas Absorption (RV) Refrigerator (If Equipped)

Early model Paradigms have a Norcold 18 cubic foot refrigerator, specifically designed for an RV, and can stand up to life in a trailer. It uses 12V electricity only to run it's computer and determine when and how to run (controls.) In order to actually cool, it must have either LP Gas or 120V electricity. A very quiet, efficient and easy to use refrigerator with a lot of room.

⚠WARNING

- **STORAGE OF FLAMMABLE MATERIALS BEHIND OR AROUND THE REFRIGERATOR CREATES A FIRE HAZZARD. DO NOT USE THE AREA BEHIND THE REFRIGERATOR TO STORE ANYTHING, ESPECIALLY FLAMMABLE MATERIALS**
- **INCORRECT ADJUSTMENT, CHANGE OR MAINTENANCE OF THIS REFRIGERATOR CAN CAUSE PERSONAL INJURY OR DEATH. ALWAYS USE AN AUTHORIZED TECHNICIAN FOR NEEDED WORK**
- **THE REFRIGERATOR COOLING SYSTEM IS UNDER PRESSURE. NEVER TRY TO REPAIR OR RECHARGE A DEFECTIVE COOLING SYSTEM. BREATHING OF SOME OF THE COMPOUNDS IN REFRIGERATOR COOLING CAN CAUSE CANCER**
- **REGULARLY CHECK THE REFRIGERATOR VENT AREAS AND PATHWAYS BETWEEN THE VENTS TO ENSURE THEY ARE FREE FROM ANY FLAMMABLE MATERIAL OR BLOCKAGE. ALWAYS CHECK THESE AREAS AFTER ANY PERIODS OF STORAGE OR EXTENDED PERIODS OF TIME IN WHICH THE RV ISN'T USED.**

Specific operation instructions are in the appliance owner's manual. Below are some suggestions for operating your Gas Absorption refrigerator.

- Do not start a refrigerator's cooling function when exterior temperatures are below 35°F degrees outside. Doing so could cause damage to the cooling system from gelled coolant. Refer to the owner's manual for cold-weather operation.

- Start the refrigerator and let it cool for eight hours before loading it with food.
- When you operate the refrigerator on propane gas at altitudes higher than 5,500 feet above sea level, you may experience reduced performance and burner outages. To avoid these possible problems, it is recommended that you operate the refrigerator on AC at altitudes higher than 5000 feet above sea level, or have the propane operation optimized by a certified RV Technician.
- Periodic defrosting of the freezer will be required, especially in humid environments. Do not allow the ice in the freezer to build too thick, this will reduce overall cooling efficiency.

Gas Absorption (RV) 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
- Be aware of any performance changes that are not caused by overloading, weather or gas control changes
- Outside, make sure the air flow in the lower intake vent and the upper exhaust vent is not blocked or impeded in any way

120 V Residential Refrigerator (If Equipped)

If the trailer was equipped from the factory with a 120 V residential refrigerator, this RV will have an inverter installed that will be converting 12-volt battery power to 120-volt power for assistance with powering the refrigerator and allowing it to be operated when not on shore power.

Please refer to your residential refrigerators user's manual for full details on this appliance.

120 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
- Be aware of any performance changes that are not caused by overloading or weather

12 V Refrigerator (If Equipped)

If the trailer was equipped from the factory with a 12 V residential refrigerator, 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.

	Long periods of travel without an alternative battery charging source (Solar capability or a high-output DC-DC charger) may result in batteries being depleted by the time one arrives at their destination, making unhitching and slide movement difficult.

Please refer to your refrigerators user's manual for full details on this appliance.

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

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. Please refer to the owner's manual of your appliance for a review of all features and operations of your appliance.

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 or using a convection cooking option (if equipped) in the microwave.

Be sure to read your microwave oven user's manual or convection oven user's manual (if equipped) for additional information.

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.

Cooking

Please refer to the owner's manual for your range to find operation instructions.

PLUMBING AND UTILITIES

Centralized Docking Station

Alliance RV uses the Nautilus P4 Water Management System for Paradigm 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 136. Nautilus P4 Water Management System panel.

	Nautilus P4 Plumbing Flow Nautilus P4 Winterizing Troubleshooting Nautilus P4 Parts List

Docking Station Handle Position and Valve Routing

Nautilus P4

USER INSTRUCTIONS

Nautilus P4 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.

ℹ	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.

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 Paradigm 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 P4 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 138. 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.

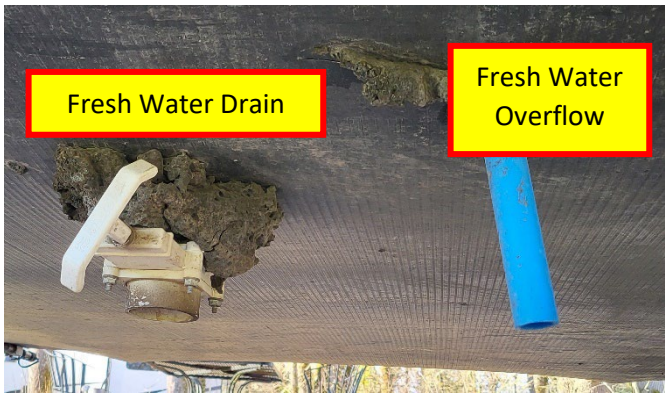


Figure 137. Fresh water drain and overflow.

	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 RVs 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 138.

Figure 138. 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 handing 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 139. 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.

Figure 140. Air admittance valve.

Water Heater

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.

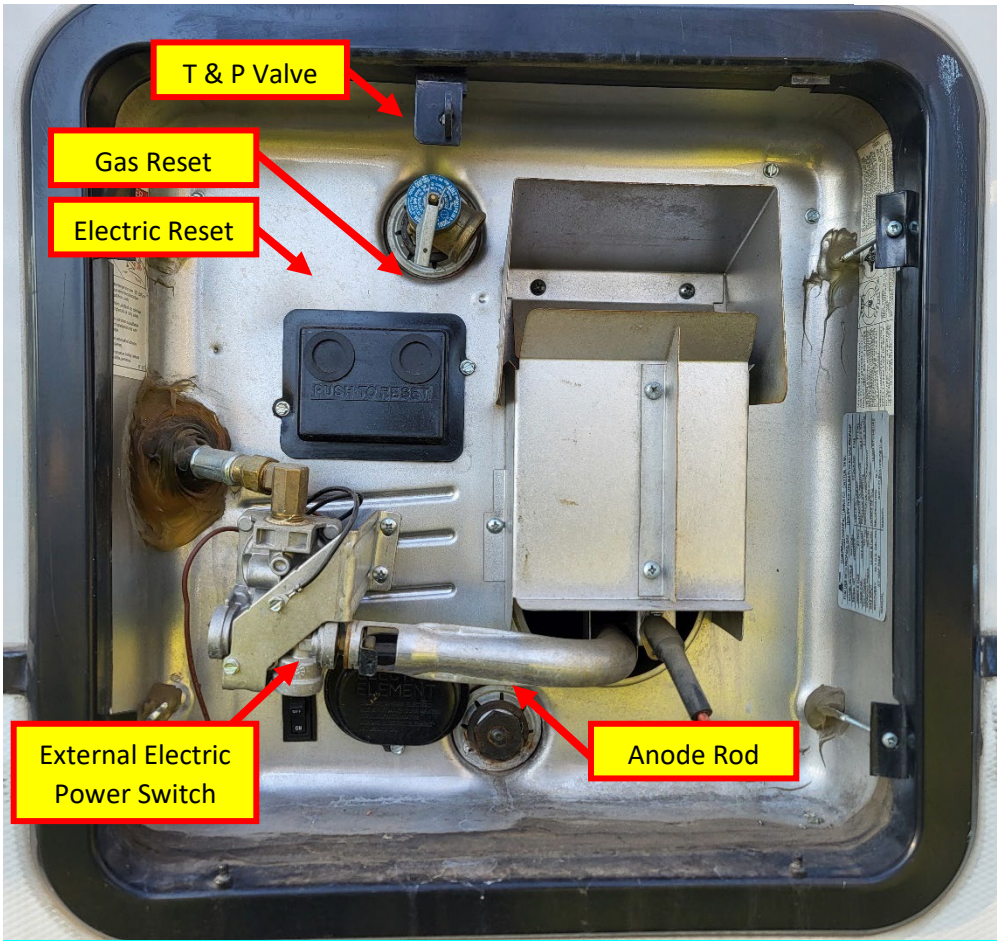


Figure 141. Suburban water heater.

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.

	WYKW: Maintaining Your Anode Rod

⚠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.

Figure 142. The water heater power switches on the main Monitor Panel. The FLT light is highlighted on the left. These are also shown in Figure 121A and D.

	When using the Gas option, you may see the FLT light illuminate on the Monitor Panel, refer to Figure 142 and Figure 121A 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.

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.)

⚠WARNING

YOU MUST READ THE USERS MANUAL FOR THIS WATER HEATER.

Water Heater Troubleshooting

	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.

	WYKW: No Hot Water Quick Fix (On Demand or Tank Water Heater)

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 141 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.

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 ¾" 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 excaping 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?

Toilet – Dometic MasterFlush 7640 Macerator Toilet (If Equipped)

The MasterFlush 7640 toilet provides an electric-flush toilet that macerates waste and pumps it to a holding tank or other effluent storage/disposal system. Operated by a flush pedal, the toilet allows the user to add water to the bowl (before using or flushing) and to flush the toilet.

There is a choice of two water consumption settings. “Normal” flush uses 0.83 gal.(3.1 liters) per flush and adds water to bowl after flush; “Dry Bowl” setting uses only 0.21 gal.(0.79 liters) per flush and does not add water to the bowl.

When connected to a holding tank level indication system, the toilet will not flush when the holding tank is full. This safety features prevents overfilling the holding tank, which may cause damage to the trailer.

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. To avoid possible overflow, water flow will stop automatically if pedal is pressed too long.

To flush, press pedal down completely, then release it. This activates a powerful macerator pump that siphons water and waste from the toilet bowl, macerates and propels the effluent to the holding tank.

	**Residual water trickle in ceramic bowls:** Due to integrated rim of this toilet bowl, water may continue to slowly trickle into toilet bowl for up to 20 minutes after flushing.If water trickle continues after 30 minutes, replace water valve.

Changing Flush Modes

MasterFlush 7640 toilets offer two flush settings to help manage water consumption:

- Normal flush – Uses 0.83 gal.(3.1 liters) per flush. Adds water to bowl after every flush.
- Dry Bowl flush – Uses 0.21 gal.(0.79 liters) per flush. Does not add water to bowl after flush.

To change from Normal to Dry Bowl flush setting, press flush pedal for about 10 seconds. Flush mode has then been changed to Dry Bowl setting. Change mode to Normal flush by following the same procedure.

Dometic Macerator Toilet Maintenance

Routine Cleaning

For routine cleaning, use most any non-abrasive bathroom and toilet bowl cleaner. Please follow label instructions.

⚠ CAUTION

TO AVOID DAMAGING INTERNAL SEALS, DO NOT CLEAN TOILET WITH ABRASIVE CLEANERS, CAUSTIC CHEMICALS, OR LUBRICANTS AND CLEANERS THAT CONTAIN ALCOHOLS OR PETROLEUM DISTILLATES.

Routine Maintenance

As per the maintenance schedule:

1) Inspect toilet, plumbing, and plumbing connections for leaks, kinks, or damage.
2) Close and open all valves.
3) Inspect wires and wire connections for problems (loose connections, damage.)

Extended Periods of Non-use, Winterization

Please refer to the owner's manual for the process to prepare the toilet for storage and winterization.

Toilet – Saniflo SN4 071 Macerator Toilet (If Equipped)

The Saniflo SN4 071 toilet provides an electric-flush toilet that macerates waste and pumps it to a holding tank or other effluent storage/disposal system. Operated by a push button control panel, the toilet allows the user to use a normal or eco mode flush cycle. The toilet will not flush when the holding tank is full. This safety features prevents overfilling the holding tank, which may cause damage to the trailer.

Figure 143. Saniflo control panel.

Operation

There are three operations available for using the toilet.

- Center Button: Press for a normal cycle of 15 seconds
- Left Button: Press for an Eco-cycle of only 13 seconds. Intended for fluids only and small amounts of toilet paper.
- Right Button: An Empty Bowl operation. Press and hold until the water reaches its minimum level in the bowl. Note that a small amount of water will remain as required for the trap.

Indicators & Override

The LEDs on the control panel will help provide feedback on how full the black tank is.

- No LEDs illuminated: Tank is below 50% capacity
- Yellow and Green illuminated: Tank is between 50% and 100% full.
- Red illuminated, Green off: Tank is full. There will be 4 beeps when a button is pressed. Only 3 more cycles will be allowed, then the panel is locked until the tank is empty.

- OVERRIDE: When the full status is reached, you may press and hold the “Normal” button for 5 seconds. They cycles will return to normal operation. **Warning: prolonged use will result in system overflow in this condition.**

Programming

When flushing, the toilet will always fill with water before operation of the macerator pump. The standard “from factory” initial fill is 6 seconds. It may be increased up to 14 seconds. After the initial fill, the system will cycle between “fill and pump” (for 1 second) and “fill” (for 3 seconds) for three pump operations (after the last pump operation there is no extra fill.)

To start programming, press and hold the “Normal” and “Eco” buttons for at least 5 seconds. The Red LED will flash for 5 seconds and then goes off.

- Pressing “Normal” will result in a beep, and an increase of the initial fill by 2 seconds, up to a maximum of 14 seconds.
- Pressing “Eco” will result in a beep, and a decrease of the initial fill by 2 seconds, down to a minimum of 6 seconds.
- If you do not hear a beep, it has reached it’s minimum or maximum time (6 or 14 seconds, respectively.

To exit the programming mode, do not touch a key for 5 seconds. The green LED will illuminate.

Saniflo Macerator Toilet Maintenance

Routine Cleaning

For routine cleaning, use most any non-abrasive bathroom and toilet bowl cleaner. Please follow label instructions.

⚠CAUTION

DO NOT USE AGGRESSIVE CHEMICALS (SUCH AS ACETONE, PURE BLEACH, ETC.) THAT COULD DAMAGE THE MATERIAL OF THE BOWL. DO NOT USE SCOURING OR ABRASIVE PADS.

Routine Maintenance

As per the maintenance schedule:

1) Inspect toilet, plumbing, and plumbing connections for leaks, kinks, or damage.
2) Close and open all valves.
3) Inspect wires and wire connections for problems (loose connections, damage.)

Extended Periods of Non-use, Winterization

Please refer to the owner’s manual, section 7.2, for the process to prepare the toilet for storage and winterization.

Dumping Your Waste Tanks – Manual Cable Pull Valves (If Equipped)

Early model year Paradigm 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.

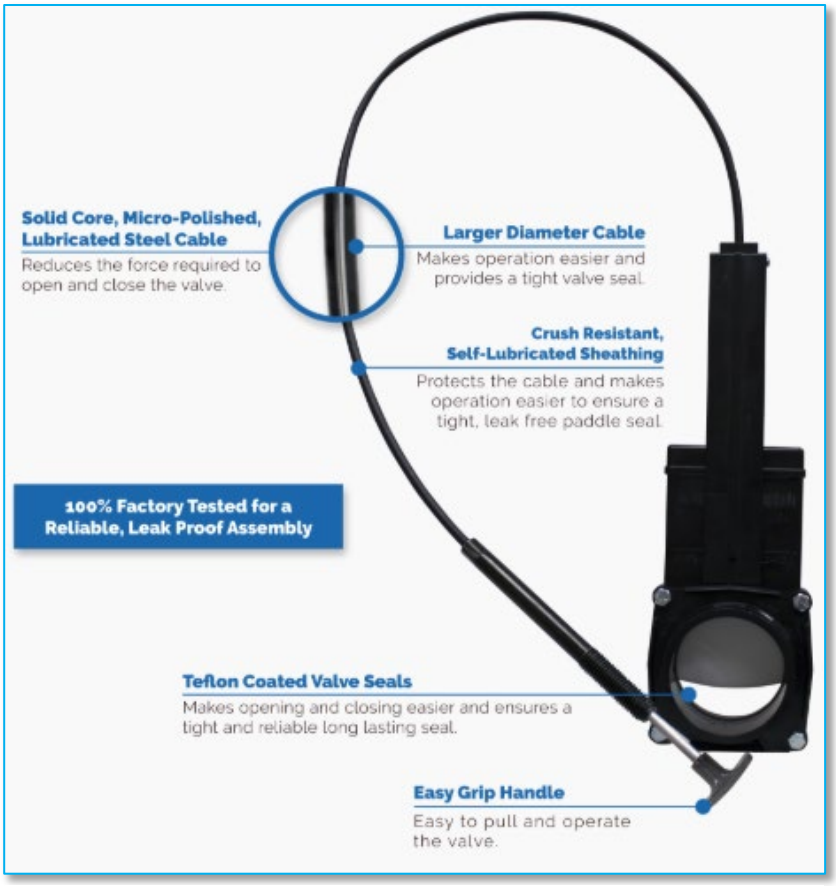


Figure 144. Valterra manual waste tank valve assembly.

Dumping Your Wates Tanks – Electric Waste Valves (If Equipped)

Late model Paradigm trailers now have La Salle Bristol Motodrain electric actuated valves installed on all waste tanks. These systems allow for easy opening and closing of waste valves using 12V power. Should a problem occur with the actuator, or power is not available, a pin may be removed from the end of the actuator and the valve opened by hand.

Figure 145. Electric waste valve actuator switches in the utility bay.

The three-position control switches for these valves will be located at the centralized docking station. Pushing the switch at the top opens the valve, which will illuminate a light in the switch. The switch can be left in this position, or you may return it to center- the valve will stay open and light on. To close, simply push the switch down. After the 2 second actuation time, the light should go out. You can then return the switch to the middle position, and the valve will stay closed.

	While the 3-position switch can be left in the up (open) or down (close) position, it is best practice to return the switch to center after the valve movement is complete. The valve movement is approximately 2 seconds, and returning the switch to center after five seconds will assure it is in the open or close position as desired.

	The light on the switch is activated by a sensor separate from the electric actuator. This provides true feedback of the open or closed position of the valve. If the light stays on, it is likely the valve is not closing all the way. If you're able to fill the tank with no material exiting, then see the Owner's Manual and Installation Guide to adjust the sensor reaction.

Electric Waste Tank Valve Maintenance

This system requires no regular maintenance.

Manual Override

If, for any reason, the valve electric actuators become inoperable or are not responding as expected, one may use a manual override. Each valve is located very close to the exit of its respective waste tank. Alliance RV places an underbelly patch onto the trailer in the approximate location of the valve, as an indicator where to access the valve and as an available cover for the underbelly once it is opened. To manually override a valve:

1. Determine the location in the belly most likely to provide access to the valve. This will be in the location of the underbelly patch near the exit of the respective waste tank. Remove the patch.
2. Within the outline of that removed patch, cut a three-sided access hole, with the sides parallel to the length of the trailer, and the cross-cut toward the rear of the trailer. Bend the flap down, forward.

3. Reaching up and into the belly, find the actuator pin that attaches the moving valve arm to the actuator. See Figure 146 and Figure 147. The pin is on the far side of the actuator compared to the moving valve arm. Pull the pin.
4. To open the valve, pull the valve arm away from the pipe. To close the valve, first pull the valve/actuator attachment off the end of the actuator, then rotate the connection arm out of the way, and then push the valve closed. The actuator piston will stay out/extended.
5. When satisfied with the position of the valve, bend the underbelly flap back into place and replace the belly patch.

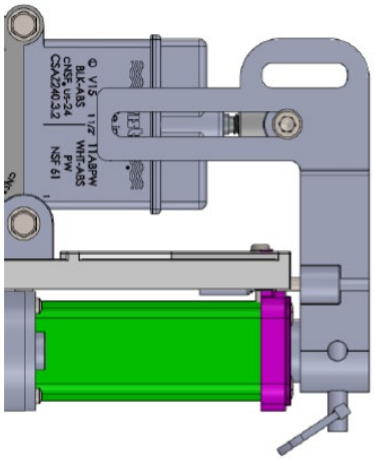


Figure 146. Motodrain assembly with actuator below valve. In the Alliance Paradigm, the actuator (in green) will normally be above the valve.

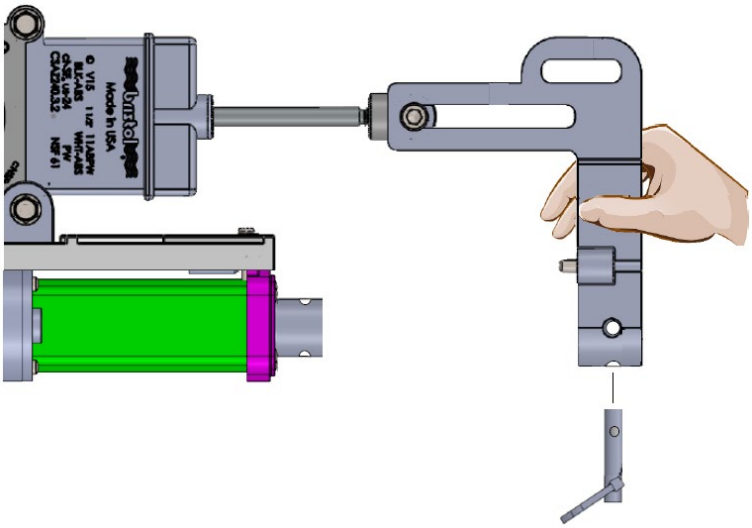


Figure 147. Motodrain assembly with the actuatort pin pulled and manually pulled open.

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 148. The upper portion of the monitor panel showing tank and water controls. This figure has the same indicators as Figure 121.

When an individual button is pressed (Figure 148C), the lights above the switch (Figure 148B) 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 all Paradigm and Valor Fifth Wheel 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 148E) as well as the gas and electric options for the water heater (Figure 148D). 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 148G).

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

Alliance RV 5th wheels come standard with a washer / dryer prep. This prep is in the front closet area of the 5th wheel, or in the rear closet on the 385 FL. 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.

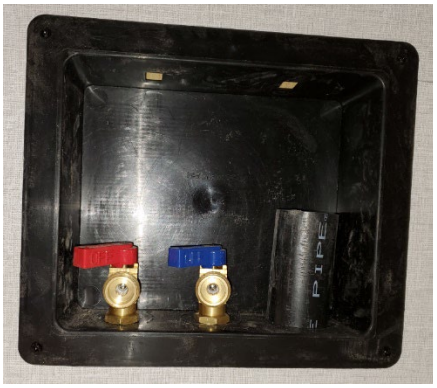


Figure 149. Washer connections and drain.

Dishwasher Prep

Every Alliance Paradigm comes prepped for dishwasher, typically found in the island, a simple change to the cabinets must be performed. Dishwasher prep provides a place to tie the drain into as well as pre-wired for electrical. Please call your dealer or Alliance RV for additional information on how to install a dishwasher in your RV.

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

	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

Alliance Paradigm 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.

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 150. 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

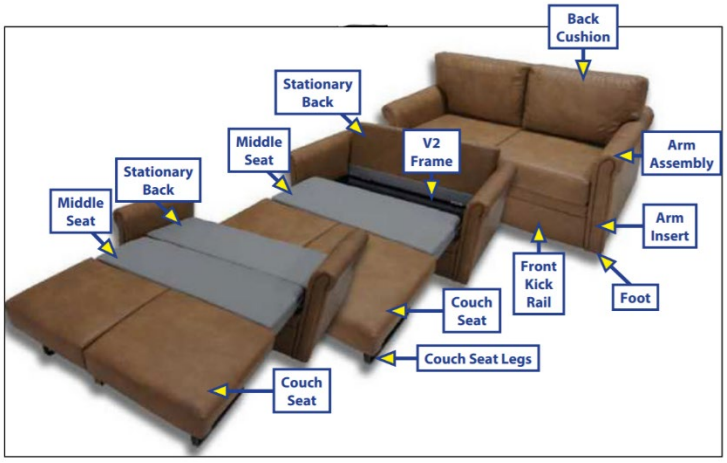


Figure 151. Operating the fold-out sofa.

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 maintenace 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 dehumidifer.
- 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.

If you have any additional questions, please do not hesitate to contact Alliance RV.

MAINTENANCE SCHEDULE

The following maintenance schedule will help keep your Alliance Paradigm 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.

Table 55. Maintenance Schedule.

MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
GENERAL EXTERIOR/SIDEWALL, INCLUDING SLIDEOUTS								
Check for leaks inside compartment doors, main door, windows		X	X					Inspect for wet items or surfaces, or dried water stains. If witnessed, determine source and resolve.
Inspect the following for damage and cracks or voids in the sealant: Exterior moldings, trim, window edges, all sidewall seams, all compartment and main door seals and trim		X		X				Repair damage found or replace item. For cracks or voids in sealant: Remove damaged sealant, clean surfaces, and reseal.
Locks and Latches			X				X	Lubricate with silicone lubricant
Wash (walls, slideouts, chasis)				X			X	Refer to the section Care & Maintenance: Washing & Waxing
Wax (fiberglass sidewalls)					X			Refer to the section Care & Maintenance: Washing & Waxing

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
SLIDEOUTS								
Inspect all seams: T-molding joints, roof membrane seal along edges and T-molding, screws				X				Inspect for damaged sealant, eternabond tape, loose or missing screws. Remove any damaged sealant, tape, or screw, clean area, and replace (sealant, tape, or screw.)
Slide Seals: Inspection				X				Refer to the section Slide-out Seals: Inspection
Slide Seals: Conditioning						X		Refer to the section Slide-out Seals: Conditioning
Hydraulic Slide-outs: Actuate each one			X					For each hydraulic slide, 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.
Hydraulic Slide-outs: System Inspection						X		Refer to section Hydraulic Slide-out Maintenance: System Inspection
Hydraulic Slide-outs: Check and Fill Hydraulic Fluid						X		Refer to section Hydraulic Slide-out Maintenance: Check and Fill Hydraulic Fluid
Hydraulic Slide-outs: Gear Pack Lubrication						X	X	Refer to section Hydraulic Slide-out Maintenance: Gear Pack Lubrication
In-Wall Slide-outs (if equipped)								
Inspection			X					Refer to section In-Wall Slide-out Maintenance: Inspection
Resynchronizing Motors							X	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:

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
								Resynchronizing In-Wall Slide-out Motors if the system does not operate well (both sides moving in unison.)
BAL Exact-Slide Slide-outs (if equipped)								
Cable Tension Inspection							X	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.
ROOF								
PVC Membrane, attachment points/seams				X				Refer to the section Roof Maintenance & Inspection
Wash roof					X			Refer to the section Roof Maintenance & Inspection
FRAME & UNDERBELLY								
Check for damage, loose wires, loose brake lines/wires, and debris.						X	X	Repair any damage to underbelly material, or any loose wires or brake lines using appropriate methods.
Check undercarriage for chipped paint and rust					X			Refer to the section Care & Maintenance: Treating Rust

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
CHASSIS/TOWING								
Inspect Tires and Check Pressure	X		X				X	Refer to the section Tire and Wheel Maintenance: Inspect Tires and Check Pressure
Check Wheel Lug Nut Torque	X						X	Refer to the section Tire and Wheel Maintenance: Wheel Nut Torque
Verify Breakaway Switch Operation				X				Refer to the section Brake Actuator Maintenance: Breakaway Switch Operation
Brake Inspection[2]						X		To be performed by a qualified technician.
Check Disc Brake Actuator Brake Fluid (If equipped)				X				Refer to the section Brake Actuator Maintenance: Brake Actuator Brake Fluid (If Equipped)
Bearing Inspection and Grease Repacking[2]						X		OR 12 k miles, whichever comes first. To be performed by a qualified technician.
Tow Plug Inspection	X							Refer to the section Tow Plug Maintenance: Inspection
Check Tow Plug Wire Lug Torque						X		Refer to the section Tow Plug Maintenance: Wire Lug Torque
CURT Rota-Flex Pin Box Inspection	X		X					Refer to the section Rota-Flex Pin Box Maintenance: Inspection
Check CURT Rota-Flex Pin Box Bolt Torque			X					Refer to the section Rota-Flex Pin Box Maintenance: Pin Box Bolt Torque
CURT Helux Pin Box Inspection	X		X					Refer to the section Rota-Flex Pin Box Maintenance: Inspection
Check CURT Helux Pin Box Bolt Torque			X					Refer to the section Rota-Flex Pin Box Maintenance: Pin Box Bolt Torque

MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Leaf Spring Suspension System (if equipped)								
Spring Hanger and Leaf Spring Inspection	X							Refer to the section Leaf Spring Suspension Maintenance: Spring Hanger and Leaf Spring Inspection
CRE3000 Rubber Shear Spring Inspection	X							Refer to the section Leaf Spring Suspension Maintenance: CRE 3000 Inspection
Check Wet Bolt Torque	X							Refer to the section Leaf Spring Suspension Maintenance: Wet Bolt Torque
Check Axle U-Bolt Torque	X							Refer to the section Leaf Spring Suspension Maintenance: Axle U-Bolt Torque
Wet Bolt Lubrication						X		Refer to the section Leaf Spring Suspension Maintenance: Wet Bolt Lubrication
MORryde Independent Suspension System (if equipped)								
MORRyde Suspension Inspection	X							Refer to the section MORryde Independent Suspension Maintenance: Inspection
MORRyde Suspension Torque Bracket Lubrication						X		OR 10 k miles, whichever comes first. Refer to the section MORryde Independent Suspension Maintenance: Torque Bracket Lubrication
CURT Touring Coil Suspension HD (if equipped)								
System Inspection	X							Refer to the section CURT Coil Suspension Maintenance: Inspection
Lubricate Trailing Arms						X		If there is squeaking during travel, lubricate as per the section CURT Coil Suspension Maintenance: Lubrication of Trailing Arms

MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Lubricate Track Bar						X		If there is squeaking during movement, but movement is not excessive, lubricate as per the section CURT Coil Suspension Maintenance: Lubrication of Track Bar
Hydraulic Leveling								
System Periodic Maintenance						X		Refer to the section Hydraulic Leveling System Maintenance: Periodic Maintenance
Jacks & Landing Gear: Clean debris off							X	Refer to the section Hydraulic Leveling System Maintenance: Periodic Maintenance
Jacks & Landing Gear: Lubricate shafts				X				If extended for long periods of time (monthly if in salty environment.) Refer to the section Hydraulic Leveling System Maintenance: Periodic Maintenance
Jacks & Landing Gear: Check Torque				X				Refer to the section Hydraulic Leveling System Maintenance: Checking Torque on Leveling System
Electrical								
GFCI Outlet Testing				X				Refer to the section GFCI Maintenance: GFCI Outlet Testing
Battery Maintenance (flooded/lead acid, sealed, or AGM batteries)				X		X		Refer to the section Battery Maintenance
Renogy Lithium Battery Inspection			X			X		Refer to the section Renogy Battery Maintenance: Inspection

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	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Renogy Battery Monitor Inspection/Torque Check (if equipped)						X		Refer to the section Renogy Battery Monitor Maintenance: Inspection/Torque Check
Power Control Center: Inspection & Torque Check						X		Refer to the proper section for the Power Control Center installed in your trailer: Progressive Dynamics Power Control Center Maintenance: Inspection & Torque Check OR WFCO Power Control Center Maintenance: Inspection & Torque Check
Intellitronix EMS Inspection & Torque Check (if equipped)						X		Refer to the section Intellitronix Maintenance: Inspection & Torque Check
Inverter (if equipped)								
Progressive Dynamics Inverter Inspection & Cleaning						X		Refer to the section Progressive Dynamics Inverter Maintenance: Inspection & Cleaning
Renogy PCL Inverter Inspection & Cleaning						X		Refer to the section Renogy PCL Inverter-Charger Maintenance: Inspection & Cleaning
Xantrex Inverter Inspection & Cleaning						X		Refer to the section Xantrex Inverter Maintenance: Inspection & Cleaning
Solar Equipment (if equipped)								
Renogy 20A DC-DC Charger Maintenance						X		Refer to the section Renogy 20A DC-DC Charger Maintenance
Go Power! Solar Charge Controller						X		Refer to the section Go Power! Solar Charge Controller Maintenance

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Renogy Rover Solar Charge Controller Maintenance (any variety)						X		Refer to the Maintenance section of your controller's information in this manual for proper maintenance procedures.
Victron solar charger						X		Refer to the section Victron Solar Charger Maintenance
Generator (if equipped)								
Progressive Dynamics Automatic Transfer Switch: Inspection & Check Torque						X		Refer to the section Progressive Dynamics ATS Maintenance: Inspection & Check Torque
Onan Generator: General Inspection & Oil Check	X							Refer to the section Onan Generator Maintenance: General Inspection
Onan Generator: Periodic Exercising			X					Refer to the section Onan Generator Maintenance: Exercising your Generator
Onan Generator: Periodic Maintenance						X	X	Refer to the schedule as listed in the section Onan Generator Maintenance, with procedures available in the owner's manual.
Propane & Safety								
Inspect Propane System				X			X	Refer to the section Propane System Maintenance: Inspection (Owner)
Propane System Professional Inspection						X		have the system inspected by a professional to assure continued safe operation. Refer to the section Propane System Maintenance: Inspection (Professional)
Test Alarms / Detectors (Smoke, CO/LP)	X		X					Refer to the section Alarm Maintenance

MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Check Fire Extinguisher			X					Ensure the extinguisher is securely mounted, and verify it's charge. The extinguisher will have directions printed on it to ensure its readiness for operation.
Test Emergency Exit/Egress Windows			X					Open each Emergency Exit/Egress window and reclose. If any window will not open, contact an authorized service center.
Water/Utility Systems								
Air Conditioner: Clean the AC Filter			X					Only needs done during seasons where the fan or AC are running. Refer to the section Coleman Mach AC Maintenance: Cleaning the AC Filter
Air Conditioner: Coil Cleaning						X		Refer to the section Coleman Mach AC Maintenance: AC Coil Cleaning
Furnace: Inspection				X		X		Periodic inspection only needs done during months when the furnace is running. Refer to the section Suburban Furnace Maintenance: Inspection
Dometic Macerator Toilet: Periodic Maintenance (if equipped)				X				Refer to the section Dometic Macerator Toilet Maintenance: Routine Maintenance
Saniflo Macerator Toilet: Periodic Maintenance (if equipped)				X				Refer to the section Saniflo Macerator Toilet Maintenance: Routine Maintenance
Water Heater: Anode Rod Inspection					X	X		Refer to the section Water Heater Maintenance: Anode Rod Inspection
Fresh Water Tank: Drain		X						Use the large white pull handle and drain located below the fresh water tank.

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
Waste Tanks: Empty, Flush		X						For flushing the black tank(s) refer to the section Rinsing Holding Tanks / Tank Flush
Fresh Water System Inspection			X					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.
Fresh Water System Sanitize						X		Following standard sanitizing methods when using bleach, or following the instructions provided with commercially available sanitizing treatments, ensure the fresh water system is cleaned at least annually.
OTHER								
Awning Cleaning & Inspection		X		X		X		Refer to the section Awning Maintenance: Cleaning & Inspection
Refrigerator (any type): Check Door Seals				X				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. 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

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MAINTENANCE REQUIRED	FREQUENCY							DETAILS OR SECTION REFERENCE
	BEFORE USE	AFTER USE	MONTHLY[1]	3 MONTHS	6 MONTHS	YEARLY / BEFORE STORAGE	AS REQUIRED	
								point has no or very little resistance, replace seals as per manufacturer recommendation.

Notes:

1: Checks listed as Monthly can be skipped if the unit is not in service, but must be performed before the unit is used again.

2: This item must be completed by qualified persons only

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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 56. Vendor contact information.

COMPONENT	BRAND	WEBSITE	CONTACT #	EMAIL	MANUFACTURER WARRANTY
Air Conditioner	Coleman	www.airxcel.com	(423) 775-2131	rvpsupport@airxcel.com	2-Year Limited
Automatic Transfer Switch	Progressive Dynamics	www.progressivedyn.com	(269) 781-4241	sales@progressivedyn.com	2-Year Limited
Awnings	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Axles, Brakes, Leaf Springs	Dexter Axle	www.dexteraxle.com	(574) 295-7888	warranty@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	www.dehco.com	(574) 294-2684	warranty@dehco.com	5-Year Prorated
Chassis / Frame	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
DC-DC Charger	Renogy	www.dehco.com	(574) 294-2684	warranty@dehco.com	Varies: www.renogy.com/content/files/Manuals/Warranty.pdf
Entry Steps	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Fireplace	LaVanture	www.lavanture.com	(800) 348-7625	service@alliancerv.com	1-Year Limited
Furnace	Suburban	www.airxcel.com	(423) 775-2131	rvpsupport@airxcel.com	2-Year Limited
Furniture	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Generator	Onan	www.cumminspower.com	(800) 888-6626	ask.powergen@cummins.com	3-Year Limited

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Inverter	Progressive Dynamics	www.progressivedyn.com	(269) 781-4241	sales@progressivedyn.com	2-Year Limited
Inverter	Intellitronix	https://www.intellitronix.com/	(440) 359-7200	helpdesk@intellitronix.com	1-Year Limited
Inverter	Renogy	www.dehco.com	(574) 294-2684	warranty@dehco.com	Varies: www.renogy.com/content/files/Manuals/Warranty.pdf
Inverter	Xantrex	https://xantrex.com/	(800) 670-0707	https://xantrex.com/support/get-customer-support/	Varies: Contact Xantrex
Leveling System	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Mattress	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Microwave	Insignia	www.insigniaproducts.com	(877) 467-4289	www.insigniaproducts.com/email-us	1-Year Limited
Microwave	Samsung	www.riverparkinc.com	(800) 442-7717	Technicalsupprot@riverparkinc.com	1-Year Limited
Microwave	Lusso	https://www.collinssupport.com/	(574) 848-1118	warrantydept@collins-n-co.com	1-Year Limited
Oven / Cooktops	Insignia	www.insigniaproducts.com	(877) 467-4289	www.insigniaproducts.com/email-us	1-Year Limited
Oven / Cooktops	Lusso	https://www.collinssupport.com/	(574) 848-1118	warrantydept@collins-n-co.com	1-Year Limited
Oven / Cooktops	Greystone	www.wayinterglobal.com	(574) 971-4490	www.customerservice@wayinterglobal.com	1-Year Limited
Pin Box(Rota-Flex or Helux)	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Power Center & Converter	Progressive Dynamics	www.progressivedyn.com	(269) 781-4241	sales@progressivedyn.com	1-Year Limited
Power Center & Converter	WFCO	https://www.wfcotech.com/	(574) 294-8997	technicalsupport@wfcoelectronics.com	2-Year Limited
Refrigerator	Norcold / Thetford	www.thetford.com	(800) 543-1219	info@thetford.com	1-Year Limited
Refrigerator	Samsung	www.riverparkinc.com	(800) 442-7717	Technicalsupprot@riverparkinc.com	1-Year Limited
Refrigerator	Everchill	www.wayinterglobal.com	(574) 971-4490	www.customerservice@wayinterglobal.com	1-Year Limited
Roof Membrane	Dicor	www.dicor.com	(574) 264-2699	dmetzger@dicor.com	15-Year Limited
Roof Vents / Fans	MaxxAir	www.airxcel.com	(423) 775-2131	rvpsupport@airxcel.com	2-Year Limited
Slideout Systems (Cable)	BAL - Norco Industries	https://balrvproducts.com/	(877) 557-7788	baltechsupport@norcoind.com	1-Year Limited
Slideout Systems (Electric)	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited

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Slideout Systems (Hydraulic)	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Solar Charge Controller	Renogy	www.dehco.com	(574) 294-2684	warranty@dehco.com	Varies: www.renogy.com/content/files/Manuals/Warranty.pdf
Solar Charge Controller	Go Power!	https://gopowersolar.com/	(866) 247-6527	https://gopowersolar.com/contact-go-power/	5-Year Limited
Stereo (JBL)	Riverpark Inc	www.riverparkinc.com	(800) 442-7717	Technicalsupport@riverparkinc.com	1-Year Limited
Stereo (Jensen)	ASA Electronics	www.asaelectronics.com	(800) 688-3135	info@asaelectronics.com	1-Year Limited
Suspension (Independent)	MORryde	www.morryde.com	(574) 293-1581	warranty@morryde.com	1-Year Limited
Suspension (Touring Coil)	Lippert Components	www.lci1.com	(574) 537-8900	customerservice@lci1.com	1-Year Limited
Tires & Wheels	Lionshead	www.lionsheadtireandwheel.com	(574) 533-6169	bscott@lionsheadtireandwheel.com	1-Year Guarantee / 5-Year Limited
Toilet	Dometic	www.dometic.com	(800) 366-3242	techservice@dometic.com	1-Year Limited
TV	LG	www.lg.com	(800) 243-0000	www.lg.com/us/support/email-appointment	1-Year Limited
TV	Sansui	www.riverparkinc.com	(800) 442-7717	Technicalsupport@riverparkinc.com	1-Year Limited
TV Antenna	Winegard	www.winegard.com	(800) 288-8094	www.winegard.com/support/contact-us	2-Year Limited
Water Heater	Suburban	www.airxcel.com	(423) 775-2131	rvpsupport@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.

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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.

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Print date March 7, 2025 12:08 PM