Master Owner's Manual

L E V E L I N G & S T A B I L I Z A T I O N

P A R T V I

Master Owner's Manual

The Master Owner's Manual is intended to provide information on Lippert's most widely used products. Products described in the Master Owner's Manual may not be on every trailer. The trailer may also have products not included in this manual. All manual information is subject to change without notice. Revised editions will be available for free download at lippert.com/support. Manual information is considered factual until made obsolete by a revised version. Manual information may be distributed as a complete document only, unless Lippert provides explicit consent to distribute individual parts.

User's Note

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HYDRAULIC LEVELING

(4 POINT/3 VALVE SPRINTER)

OWNER'S MANUAL

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Introduction

NOTE: The hydraulic leveling system was designed for use only on a Sprinter chassis.

The four-point three-valve hydraulic leveling system is a hydraulic system which includes four points of contact utilizing jacks and a three-valve system. A 12V DC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach. Mechanical portions of the hydraulic leveling system are replaceable. Contact Lippert Components, Inc. to obtain replacement parts. The hydraulic leveling system is primed and tested at the factory. However, the system is shipped dry to avoid hazardous material restrictions.

Additional information about this product can be obtained from lippert.com/support or by downloading the free LippertNOW app. The app is available on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.

For support information on this product, go to: https://support.lci1.com/hydraulic-leveling-4-point-4-valve-sprinter

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Component Description

1. Jacks
   - **A.** Rated at a lifting capacity of 8,000 lbs each.
   - **B.** Standard 9" diameter (63.5 sq in) foot pad on a ball swivel for maximum surface contact on all surfaces.
   - **C.** System operation is powered by a 12V DC motor/pump assembly.
2. Motor/Pump Assembly
   - **A.** 12V DC motor
   - **B.** Hydraulic fluid reservoir tank, 1.2 gal
   - **C.** Control valve manifold
   - **D.** Solenoid valve for directing control
3. System Controls
   - **A.** Controlled electronically from the touchpad
   - **B.** Touchpad can be operated in manual mode or fully automatic mode
4. Fittings and Hoses
   - **A.** Fittings - High pressure O-Ring Face or JIC - Size 4
   - **B.** Hose - ¼" I.D., 3000 psi - W.P. Rated

Safety

Please read and study the operating manual before operating the leveling system.

⚠WARNING

The "WARNING" symbol above is a sign that an installation procedure has a safety risk involved and may cause death or serious injury if not performed safely within the parameters set forth in this manual.

⚠CAUTION

The "CAUTION" symbol above is a sign that a procedure has risk involved that may cause personal injury and/or product damage if not performed safely and within parameters set forth within this manual.

⚠WARNING

During servicing make sure that the coach is supported according to the manufacturer's recommendation. Lift the coach by the frame and never the axle or suspension. Do not go under the coach unless it is properly supported. Unsupported coaches can fall causing death or personal injury or product or property. Use proper personal protective equipment damage.

⚠WARNING

Failure to act in accordance with the following instructions may result in serious personal injury or death.

⚠CAUTION

Moving parts can pinch, crush, or cut. Keep clear and use caution

The use of the Lippert Hydraulic Leveling System to support the coach for any reason other than which it is intended, is prohibited by the Lippert Limited Warranty. The Hydraulic Leveling System is designed as a leveling system only and should not be used for any reason to provide service under the coach, e.g. changing tires or servicing the leveling system. Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other service while the coach is supported by the hydraulic leveling system could result in damage to the coach and/or cause serious injury or death.

Operation

NOTE: It is recommended to have the engine running to maintain the minimum required voltage of 12.75V DC.

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

4. The coach is parked on a reasonably level surface.
5. The coach "PARKING BRAKE" is engaged.
6. The coach transmission should be in the park position.
7. Make sure all persons, pets and property are clear of the coach while LCI4A3LCD Hydraulic Leveling system is in operation.

⚠CAUTION

After starting the automatic leveling cycle, it is important to avoid movement in the coach until the coach is level and the green LED light illuminates in the center of the touchpad. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

Selecting A Campsite

When the coach is parked on an excessive slope, the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed. "Excess Angle" will appear on the LCD screen if the coach is 3.5 degrees or more out of level front-to-rear, or side-to-side.

⚠WARNING

While utilizing leveling blocks and jack pads, all coach wheels MUST NOT leave the ground during leveling. Lifting all the wheels off the ground creates a condition where severe property damage, serious personal injury or possible death may occur.

Zero Point Calibration

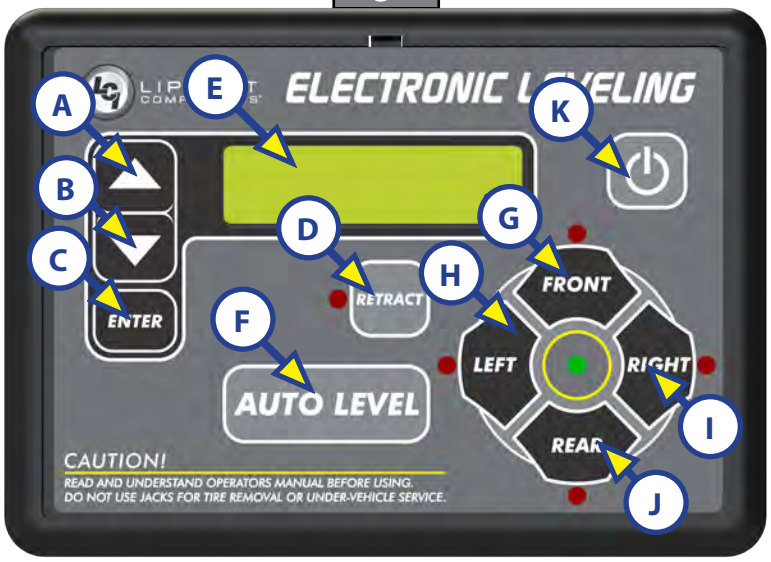
NOTE: Zero Point Calibration may have been pre-set by the OEM. Verify if Zero Point has already been set. If not, then recalibration for Zero Point must be performed.

Before auto-leveling features are available, the Zero Point **MUST** be set. This is the reference point that the system will return to when an auto-leveling cycle is initiated.

To set the Zero Point, first run a manual leveling sequence to get the coach to the desired level point. Then activate the Zero Point configuration mode. This mode is enabled by performing the following sequence:

1. Turn the touchpad off.
2. With the touchpad off, perform the following:
   - **A.** Press Front (Fig. 1G) five times.
   - **B.** Press Rear (Fig. 1J) five times.
3. At this point, an alarm will sound and the display will read "**ZERO POINT CALIBRATION** ENTER to Set, POWER to Exit."
4. Press ENTER (Fig. 1C) to set the Zero Point.
5. The screen will then display "PLEASE WAIT."
6. An alarm will sound and the screen will display "ZERO POINT SUCCESSFUL."
7. The touchpad will then turn off.

Fig. 1



Callout	Description
A	Up Arrow (UP) - Scrolls up through menu on LCD.
B	Down Arrow (DOWN) - Scrolls down through menu on LCD.
C	ENTER - Activates modes and procedures indicated on LCD.
D	RETRACT - Places leveling system into retract mode - Manual mode ONLY. Press and hold for several seconds to activate Auto Retract Function.
E	LCD Display - Displays procedures and results.
F	AUTO LEVEL - Places leveling system into auto level mode.
G	FRONT Jack Button - Activates both front jacks in manual mode.
H	LEFT Jack Button - Activates left rear jack in manual mode.
I	RIGHT Jack Button - Activates right rear jack in manual mode.
J	REAR Jack Button - Activates both rear jacks in manual mode.
K	Power Button - Turns leveling system on and off.

Automatic Leveling Procedure

NOTE: Coach requires 12.75V DC to commence auto-leveling function.

NOTE: Refer to Component Description listing in the System Information section for questions regarding component locations and functions of the four-point three-valve hydraulic leveling system.

NOTE: The engine **MUST** be running and the parking brake **MUST** be engaged for the four-point three-valve hydraulic leveling system to operate.

NOTE: Pressing any button during an automatic sequence will stop the sequence and a "Function Aborted" error code will occur. Press ENTER to clear the code and then continue the operation or start a new function.

1. Press the Power Button (Fig. 1K) to turn system on. The green light will illuminate.
2. Press Auto Level (Fig. 1F). LCD Screen will display "Remain Still."
3. The coach will level automatically and indicate "Auto Level - Success" in the LCD display (Fig. 1E).

NOTE: Display will then read "Level - Jacks: Down." Do not press any buttons until this message appears or a "Function Aborted" error will be displayed.

Automatic Leveling Descriptive Logic

⚠ CAUTION

After starting the automatic leveling cycle it is very important to avoid movement in the coach until the coach is level and the green LED light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

Grounding

The following steps describe the process of how the auto leveling sequence extends the jacks to the ground.

1. Depending on which end of the coach is lowest to the ground the level sensor in the controller will activate the jacks, the lowest end first, either front or rear.
   - **A.** If the rear of the coach is the lowest end, ground the lowest rear jack first.
   - **B.** If the front end is the lowest end, ground the front jack closest to the power unit.
2. Ground the remaining lowest end jack, front or rear.
3. Lift lowest jacks together until level.
4. The leveling system will then ground remaining jacks.
   - **A.** If the rear of the coach is the remaining end, ground lowest jack first.
   - **B.** If the front of the coach is the remaining end, ground the front jack closest to the power unit.
5. Ground the remaining front or rear remaining end jack
6. Lift remaining end jacks together until level.

Leveling

The following steps describe the process of how the auto leveling sequence levels the coach once the jacks have been grounded.

NOTE: This process may repeat several times until level.

1. Front-to-Rear
2. Side-to-Side
3. Individually
4. Minor adjustments to confirm grounding.

Manual Leveling Procedure

NOTE: When leveling the coach, level from front-to-rear first. When the coach is level from front-to-rear, then level the coach from side-to-side.

NOTE: The engine **MUST** be running and the parking brake **MUST** be engaged for the four-point three-valve hydraulic leveling system to operate.

NOTE: Coach requires a minimum of 9.5V DC to perform manual leveling.

1. Press the Power Button (Fig. 1K) to turn system on.
2. Press the Up Arrow (UP) or the Down Arrow (DOWN) (Fig. 1A or Fig. 1B) to scroll through control features until “MANUAL MODE” is displayed.
3. Press ENTER (Fig. 1C).
4. Press FRONT (Fig. 1G) to extend front jacks to the ground.
5. Press REAR (Fig. J) to extend rear jacks to ground, then level the coach front-to-back.
6. Press appropriate LEFT or RIGHT, to level the coach side-to-side.

NOTE: The front jacks will work in pairs, i.e., FRONT operates both front jacks.

NOTE: The right and left rear jacks are used to level the coach side-to-side. Pressing LEFT (Fig. 1H) on the touch pad will extend the left rear jack. Pressing RIGHT (Fig. 1I) on the touch pad will extend the right rear jack.

7. Repeat steps 4-6 as needed.
8. Press Power Button (Fig. 1K) to turn system off.

⚠WARNING

All coach wheels MUST NOT leave the ground during leveling. Lifting all the wheels off of the ground creates a condition where severe property damage, serious personal injury or possible death may occur.

9. Visually inspect all jacks to make sure all footpads are touching the ground. If either of the rear jack footpads is not touching the ground, press LEFT or RIGHT (Fig. 1H or Fig. 1I) to lower the non-compliant jack to the ground.

⚠CAUTION

Check to make sure all jacks are fully retracted before travel.

Auto Jack Retract Procedures

NOTE: Pressing any button during an automatic sequence will stop the sequence and a "Function Aborted" error code will occur. Press ENTER to clear the code and then continue the operation or start a new function.

1. Turn on the system by pressing the Power Button (Fig. 1K) on control panel. The LCD screen will display "READY Jacks: Down".
2. Press Up Arrow or Down Arrow (Fig. 1A or Fig. 1B) to display "Auto Retract All" on the touchpad.
3. Press ENTER (Fig. 1C) to begin.

NOTE: "AUTO RETRACT" can also be commenced by pressing and holding RETRACT (Fig. D) for one second.

NOTE: To stop the jacks from retracting, turn the system off and back on again by pressing the Power Button (Fig. 1K) twice. The coach can then be manually leveled by following steps 1-9 in the Manual Leveling Procedure section. Press ENTER to acknowledge.

4. The jacks will retract and shut off automatically.
5. The display will read "READY - Jacks: Up".
6. Press Power Button (Fig. 1K) on the touchpad to turn off the system.
7. Perform a brief visual inspection around the coach to verify the jacks are fully retracted.

Manual Jack Retract Procedures

1. To retract in the manual mode, press the RETRACT button (Fig. 1D) until it lights. Pressing the FRONT or REAR jack buttons will operate front or rear jacks in pairs. Pressing the RIGHT or LEFT jack buttons will operate the right or left rear jacks individually.

Troubleshooting

NOTE: To enter the manual mode, refer to Manual Leveling Procedure section.

Manual Override of Power System and Jacks

In the event that the jacks do not retract, the cartridge valves can be manually overridden.

NOTE: Cartridge valves should be opened prior to operating with any auxiliary power device.

The hydraulic leveling system can be operated in conjunction with auxiliary power devices, like cordless or power drills. In the event of electrical or system failure, the manual method of retracting the jacks can be used. A standard handheld drill is all that is required.

⚠WARNING

Do not over tighten override set screws, as this can damage the valves.

1. Use a 5⁄32" hex key to turn the manual override clockwise (Fig. 2) on each of the three cartridge valves (See Plumbing Diagram) to open the valves.
2. Disconnect or shield power cables on the motor.
3. Remove plastic cap (Fig. 3A) from motor coupler.
4. Unplug the wire harness from the directional valve. See Wiring Diagram.
5. Using a ½" socket and auxiliary drive device, e.g. cordless or power drill, insert the ½" socket onto coupler (Fig. 4A).
6. Run drill in reverse, or counterclockwise direction, to simultaneously retract all jacks.
7. After all jacks have been retracted, turn all manual overrides counterclockwise (Fig. 5).
8. Reinsert previously-removed protective plastic motor coupler cap.
9. Re-attach previously unplugged wire harness to directional valve.

Fig. 2

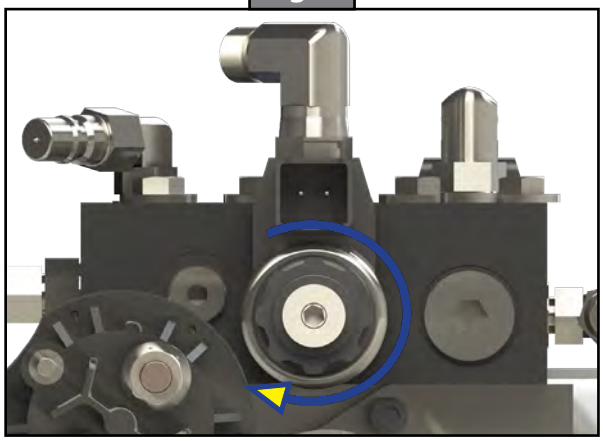


Fig. 3

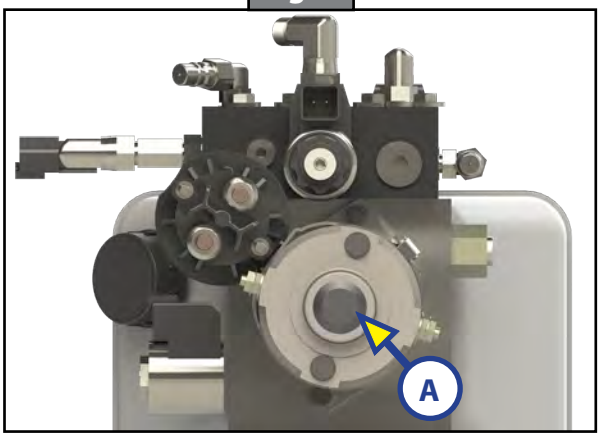


Fig. 4

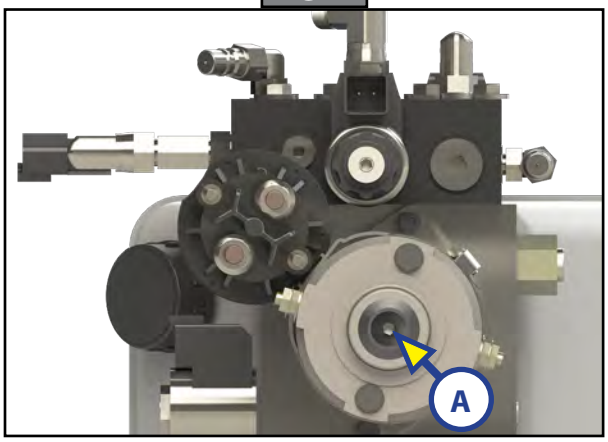
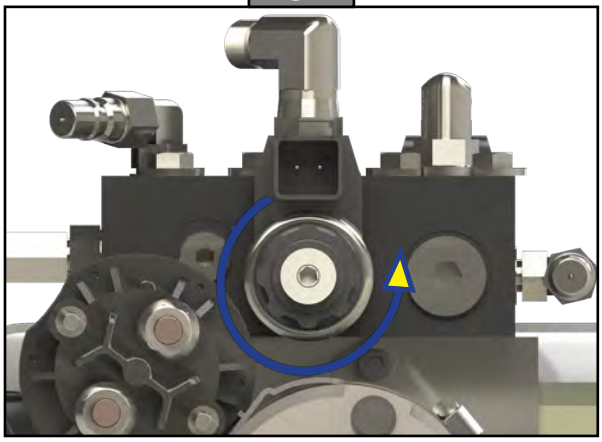


Fig. 5



Counterclockwise for Normal Operation

Automatic Safety Shutoff

The touchpad will automatically turn off after four minutes, if left inactive. To reset the system, turn the coach ignition off, then back on. Press the touchpad's Power Button (Fig. 1K) again.

Drive Away Protection System

If the ignition is in the “RUN” position, the jacks are extended and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The leveling system will automatically fully retract the jacks to clear the alarm, or, if the operator resets the parking brake, the alarm will shut off.

Jacks Up Verification

If the coach ignition is in the "RUN" position, the parking brake is released and the vehicle is in motion; the leveling system may activate the power unit to ensure retract pressure is high enough to keep jacks fully retracted. The LCD screen will say "JACKS UP VERIFICATION" until the retract pressure returns to normal level. The touchpad will then turn off. No beeping will occur and the "JACKS DOWN" dash light will not illuminate.

Low Voltage Signal

1. The vehicle requires 12.75V DC to operate in the AUTO mode. If the voltage is too low, the screen will display "Low Voltage."
2. Minimum Voltage - If voltage drops below 9.5V DC during AUTO or MANUAL operation, "Low Voltage" will appear in the screen and the system will cease operating.

NOTE: Coach will operate in manual mode between 9.5V DC and 12.75V DC.

Error Mode

1. If an error occurs before or during operation, the error will be displayed in the touchpad's LCD screen (Fig. 1E) and an alarm will sound. To reset common ERROR displays, press ENTER (Fig. 1C).

NOTE: To reset "Return for Service" errors, press ENTER (Fig. 1C) and RETRACT (Fig. 1D) simultaneously. Refer to Error Code Chart for additional error codes.

2. All normal functions will be disabled while the system is in Error Mode.

Error Code Chart		
LCD Display	What is Happening?	What Should Be Done?
Excess Angle	Coach not parked on level ground. Zero point incorrectly calibrated.	Move coach to level ground prior to starting auto level sequence. Recalibrate Zero Point.
Excessive Angle	Occurs only in manual mode when the angle of the coach is too severe.	Use the manual functions to return coach to a more level condition.
Out of Stroke	Jack has insufficient length to complete the leveling procedure.	Check the disposition of the jack.
Low Voltage	Battery voltage dropped below 9.5V DC during operation.	Turn engine on, check battery voltage under load.
Function Aborted	A button was pressed on touchpad during Auto Level operation.	Hit enter to acknowledge. Restart procedure.
Unable to Finish Leveling	Excessive movement inside coach during auto level sequence.	Discontinue movement inside coach during auto level sequence.
Engage Park Brake	Parking brake not set prior to starting auto level sequence.	Set parking brake prior to starting auto level sequence.
Comm Error Check Wiring **NOTE**: Screen will not back light.	Wiring connections loose or faulty between touchpad and controller.	Check connections, replace communication harness if necessary.
Retract Timeout Return Levelers for Service	Pressure switch did not sense retract pressure and pump timed out. Leaking hose or fitting.	Return levelers for service. Check for leaks, repair if necessary. Press enter and retract to clear error.

Excess Slope

1. The control will not operate at extreme slopes, i.e. 3.5 degrees front and rear and 3.5 degrees side-to-side.
2. If the coach's display indicates “Excess Angle” or “Out of Stroke “ during an auto-level cycle, move the coach to a level spot.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted, the touchpad will buzz and the LED will signal a park break error to the user. The system will then perform an automatic retract sequence. No other features are available in this mode.

Miscellaneous

1. A "Re-Level" feature is programmed into the controller. If the jacks are extended and the user presses AUTO LEVEL (Fig.1F), the system will re-level from that point. The system will not retract before performing the re-level.
2. System will refuse any operation when a low voltage condition is present.

Troubleshooting Table

What Is Happening?	Why?	What Should Be Done?
System will not turn on and ON/OFF indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Parking brake not set.	Set parking brake.
	Controls have been on for more than four minutes and have timed out.	Turn ignition off and then back on.
Touchpad turns on, but turns off when jack button is pushed.	Low voltage on battery.	Start coach to charge battery.
Touchpad turns on, coach will not auto level, JACKS DOWN light is on, jacks are retracted.	Faulty pressure switch or low pressure in system.	Press RETRACT ALL JACKS button on touchpad. If JACKS DOWN light remains on, call LCI Customer Service.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Fill reservoir with recommended ATF.
	Jack valve is inoperative.	Clean, repair or replace.
	Electronic signal is lost between controller and jack valves.	Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace controller.
Any one or two jacks will not retract.	Hose damaged or disconnected.	Replace with new hose or reconnect hose.
	Return valve inoperative.	Replace inoperative return valve.
	Electronic signal is lost between controller and solenoid.	Test for voltage drop between controller and jack valve. Repair bad wiring or replace defective controller or valve.
JACKS DOWN light does not go out when all jacks are retracted.	Insufficient pressure in system.	Contact LCI Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and JACKS DOWN light starts flashing while traveling; jacks are fully retracted.	Loss of pressure in leveling system.	Contact LCI Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Jack bleeds down after being extended.	Valve Manual Override open.	Close override.
Touchpad powers up; LOW VOLTAGE light flashes.	Engine not running.	Start coach engine.
Low voltage light on solid.	Charging system faulty.	Turn key OFF, then back ON again to reset. Check power and ground connections on battery, alternator and chassis.
No power to touchpad.	Tripped circuit breaker.	Reset breaker.
	Ignition not on.	Turn on.

Troubleshooting Table Continued

What Is Happening?	Why?	What Should Be Done?
No power to touchpad.	Tripped or blown circuit protection.	Reset or replace circuit protection.
	Ignition not ON.	Turn ignition ON.
Auto level function does not finish.	Error code "Unable to finish leveling."	Move coach to a level site.

Maintenance

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Purging the Hydraulic System

NOTE: Make sure jacks are fully retracted prior to filling reservoir to prevent over-filling

1. Zip-tie any loose wiring or hydraulic lines.

NOTE: The basic purge procedure to bleed the LCI Hydraulic Systems can be performed without the use of any tools. The hydraulic system will purge the air from the hydraulic lines and cylinders by simply running the pump.

NOTE: It is recommended to perform a minimum of three complete cycles (steps 2-7) to ensure both proper function and adequate fluid level of the system.

2. Start with all hydraulic components in the fully retracted position, meaning all jacks and slide-outs are brought back inside the coach as if the coach were ready for travel.
3. Find the hydraulic pump location and note the amount of fluid currently in the reservoir. The fluid level should be about ¼" from the top of the reservoir and no more than ½" from the top.

NOTE: When checking the fluid level after ensuring all hydraulic components are retracted, note if there are any bubbles, froth or foam on top of the fluid. This is an indication that air has been pushed back to the reservoir when the hydraulic components were retracted in the last cycle. Wait 15-20 minutes for the foam to dissipate before beginning the purge process.

4. If there is no froth or foam in the reservoir and the fluid is not within ½" of the top, fill the reservoir to within the level described in step 3.
5. With the fluid level full and no foam in the reservoir, begin cycling the hydraulic system.
6. Extend jacks fully, taking the coach off the tires. If the coach has hydraulic slide-outs, extend all slide-outs. Once all jacks and slide-outs are extended, immediately retract all slide-outs and then jacks.
7. Check the reservoir foam. If foam is present, see NOTE following step 3 and then repeat steps 4-6. Repeat these steps until no foam is present in the reservoir. If no foam is present, the system is purged of air.

Preventative Maintenance

1. Check hydraulic fluid in reservoir every 12 months. If fluid is a clear, red color, do not change. If fluid is milky, pink and murky, and not clear red in color, drain reservoir and add new fluid. Hydraulic fluid in reservoir should be changed a minimum of every five years.

NOTE: Check the hydraulic fluid only when all the jacks are fully retracted.

NOTE: When checking the hydraulic fluid level, fill reservoir to within ¼" to ½" of fill spout.

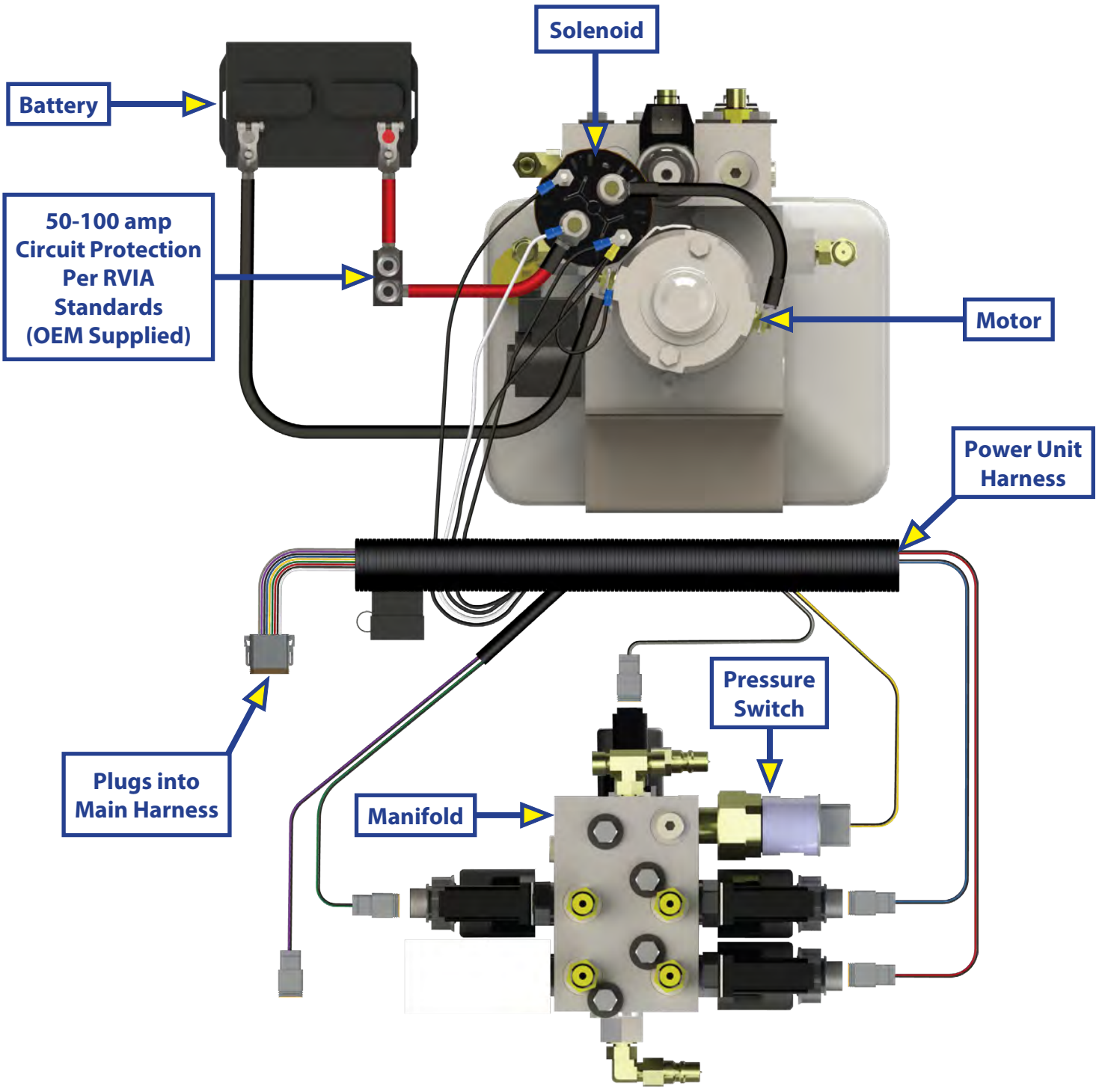
2. Inspect and clean all power unit electrical connections every 12 months. If corrosion is evident, spray connections with electrical contact cleaner.
3. Remove dirt and road debris from jacks as needed.

⚠WARNING

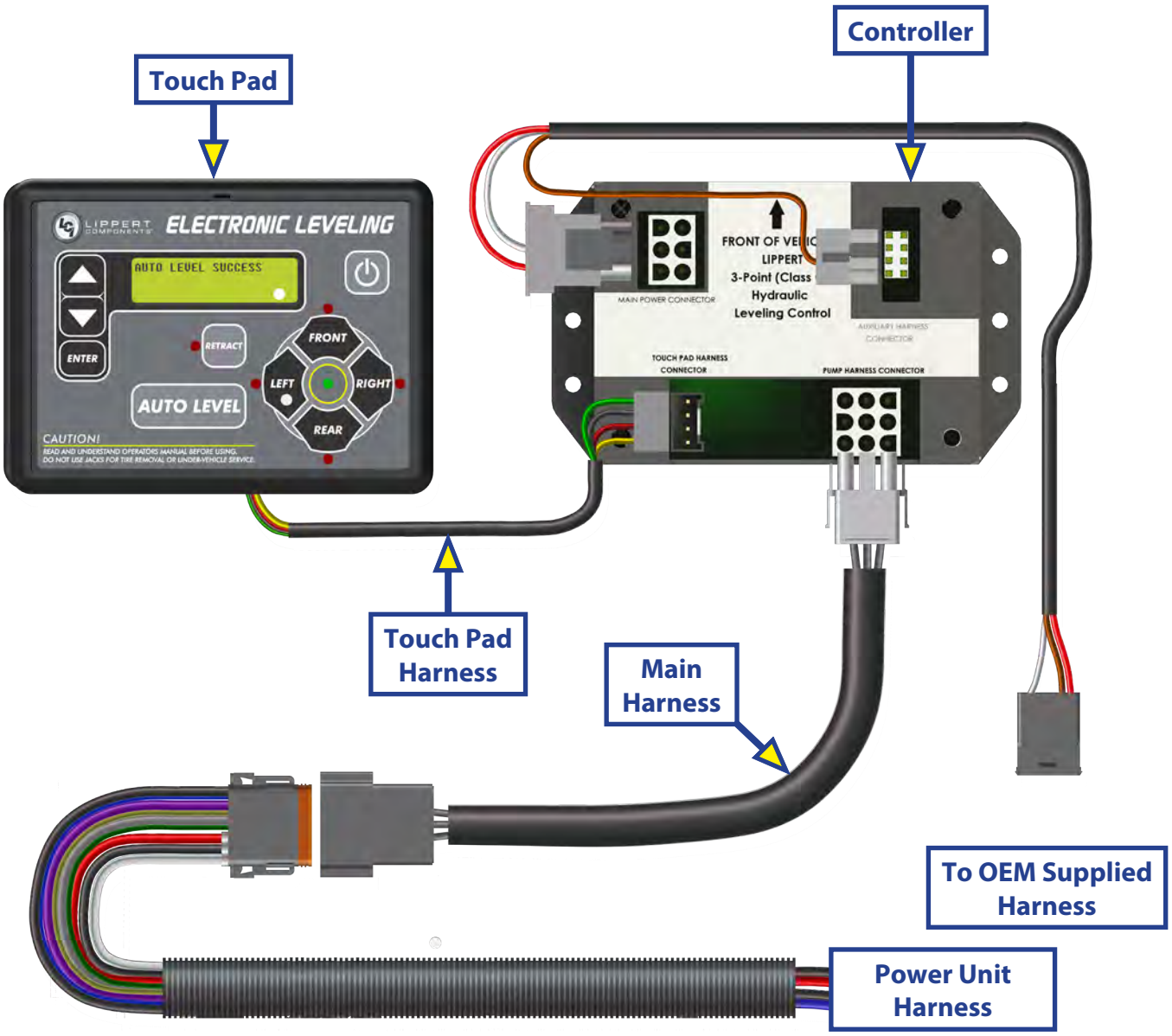
The coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in death, serious personal injury or severe product and/or property damage.

4. If jacks are extended for long periods of time, it is recommended to spray exposed jack rods with a dry silicone lubricant every three months for protection. If the coach is located in a salty environment, it is recommended to spray the rods every 4 - 6 weeks.

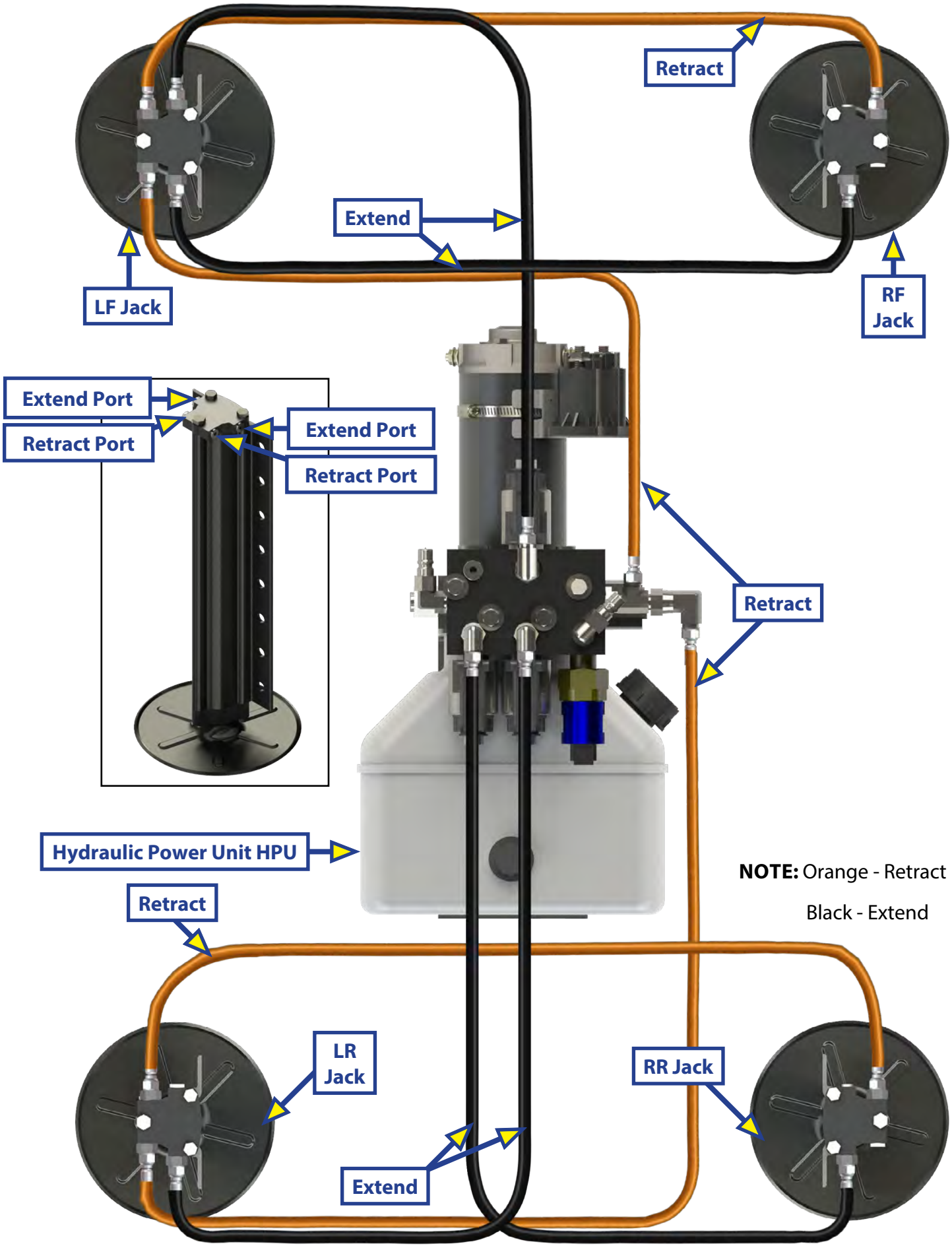
Wiring Diagram - Overall System



Wiring Diagram - Controller and Touchpad



Hydraulic Plumbing Diagram



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Motorized Leveling - Unidirectional (2009-Present)

OWNER'S MANUAL

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Introduction

The Lippert Electronic Leveling System is an electric/hydraulic system. A 12V DC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach.

The use of the Lippert Electronic Leveling System to support the coach for any reason other than which it is intended is prohibited by Lippert's limited warranty. The Lippert leveling system is designed as a "leveling" system only and should not be used to provide service for any reason under the coach such as changing tires or servicing the leveling system.

Additional information about Lippert products can be obtained from support.lci1.com or by downloading the free LippertNOW app. The app is available on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.

For additional support on this product go to: https://support.lci1.com/motorized-standard-leveling

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels. This manual provides general service and maintenance procedures. Many variables can change the circumstances of the service procedure, i.e., the degree of difficulty involved in the service operation and the ability level of the individual performing the operation. This manual cannot begin to plot out procedures for every possibility, but will provide the general instructions for effectively servicing the vehicle. In the event the skill level required is too high or the procedure is too difficult, a certified technician should be consulted before performing the necessary service. Failure to correctly service the vehicle may result in death, serious injury or voiding the warranty. The owner's manual for the unit may have more procedures for service and maintenance To use the system for any reason other than what it is designed for may result in damage to the coach and/or cause serious injury or even death

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

Failure to act in accordance with the following may result in serious personal injury or death.

⚠WARNING

Lifting all wheels off the ground may result in serious personal injury or death.

⚠WARNING

Your coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in personal injury or death.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

System Features

- Automatic extension of jacks from full retract position (with automatic ground detection).
- Automatic leveling of jacks.
- Manual leveling of jacks
- Automatic retraction of jacks (with automatic full retract detection).
- Air bag suspension features (configurable on/off).
- Emergency retract/User alarm mode (jacks not retracted and park brake disengaged).
- Automatic jack error detection and error mode.
- Configuration mode for Air features.
- Configurations mode for Leveling Zero Point.
- Remote operation.

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Component Description

The Lippert Electronic Leveling System consists of the following major components:

- Lippert jacks are rated at a lifting capacity appropriate for your coach. Each jack has a 9" diameter (63.5 Square inch) shoe on a ball swivel for maximum surface contact on all surfaces. (12" Dia. - 113 Sq. In. shoe also available).
- Each jack is powered from a central 12V DC (Fig.1) motor/pump assembly, which also includes the hydraulic oil reservoir tank, control valve manifold, and solenoid valves.
- The Lippert Electronic Leveling System is controlled electronically from the driver's seat of the coach. The touchpad is mounted in the dash. The system can be operated in a manual mode or a fully automatic mode.

System Wiring Requirements

- Battery power (2 ga. SAE J1127. Type SGX).
- Battery ground (2 ga. SAE J1127. Type SGX).
- Logic power (switched via ignition).
- Power brake signal (open=park brake disengaged, GND=park brake engaged).

Air and Auxiliary Features (When Applicable)

System has the option to control external Air and Auxiliary features.
When enabled, the feature works according to the following logic:

- Air bag pressure automatically lowered when starting the auto or manual sequence to maximize lift of jacks.
- An Auxiliary mode activated when starting an auto retract sequence to fill airbags.
- Auxiliary is active when jacks are all retracted and park brake is disengaged to fill airbags.

Steel Jacks

(Fig. 1) - 115842

- Capacity - 22,000 lb.
- Stroke - 16 in.
- H - 20 ½ in.
- D - 3 ⅜ in.
- 12″ Shoe Standard

(Fig. 2) - 115841

- Capacity - 12,000 lb.
- Stroke - 15 in.
- H - 19 ½ in.
- D - 2 ⅜ in.
- 9″ Shoe - Standard
- 12″ Shoe (Option)

(Fig. 3) - 113314

- Capacity - 7,000 lb.
- Stroke - 13.75 in.
- H - 18 ¼ in.
- D - 2 ⅜ in.
- A - 2 ½ in.
- 9″ Shoe - Standard
- 12″ Shoe (Option)

(Fig. 4) - 117179

- Capacity - 7,000 lb.
- Stroke - 13.75 in.
- H - 18 ¼ in.
- D - 2 ⅜ in.
- A - 5 ¾ in.
- 9″ Shoe - Standard
- 12″ Shoe (Option)

Fig. 1

Fig. 2

Fig. 3

Fig. 4

NOTE: OEM to supply attachment brackets for leveling jacks.

Aluminum Jacks

(Fig. 5) - 1958604

- Capacity - 8,000 lb.
- Stroke - 15.00 in.
- Bore - 2.00 in.
- H - 21.375 in.
- Rod Diameter - 1.50 in.
- 9″ Footpad - Standard
- 12″ Footpad
- (Option) - 117238

(Fig. 6) - 2365601

- Capacity - 14,000 lb.
- Stroke - 15.13 in.
- Bore - 2.50 in.
- H - 21.50 in.
- Rod Diameter - 1.875 in.
- 9″ Footpad - Standard
- 12″ Footpad
- (Option) - 117238

(Fig. 7) - 258550

- Capacity - 20,000 lb.
- Stroke - 16.00 in.
- Bore - 3.00 in.
- H - 23.063 in.
- Rod Diameter - 2.25 in.
- 9″ Footpad - Standard
- 12″ Footpad
- (Option) - 117238

Fig. 5

Fig. 6

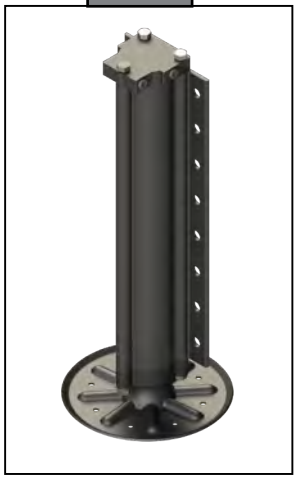
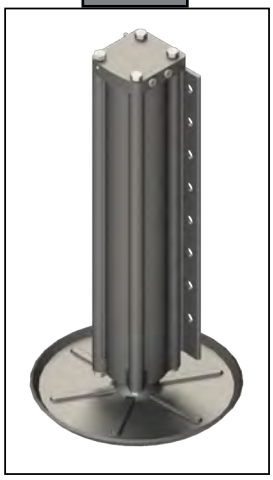


Fig. 7



Power Unit Components

Fig. 8

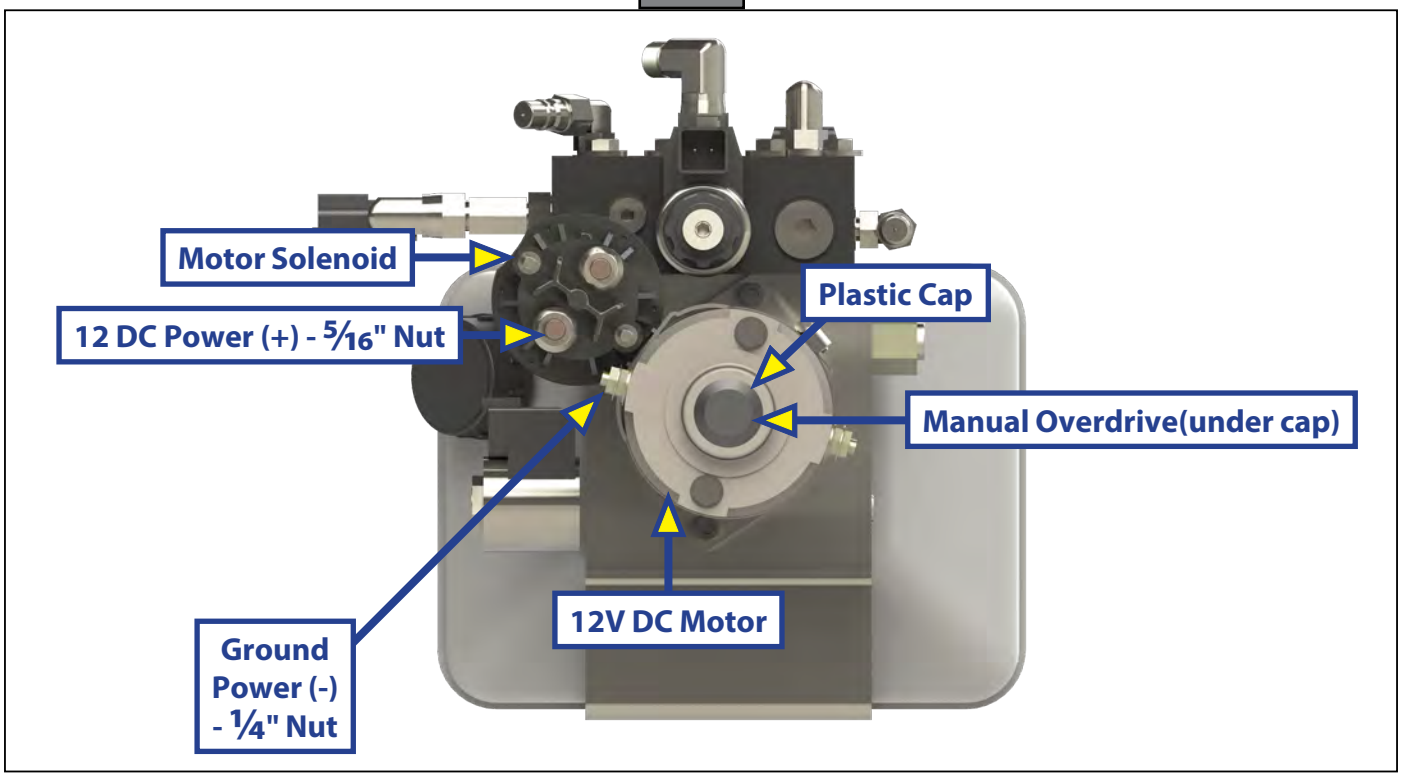
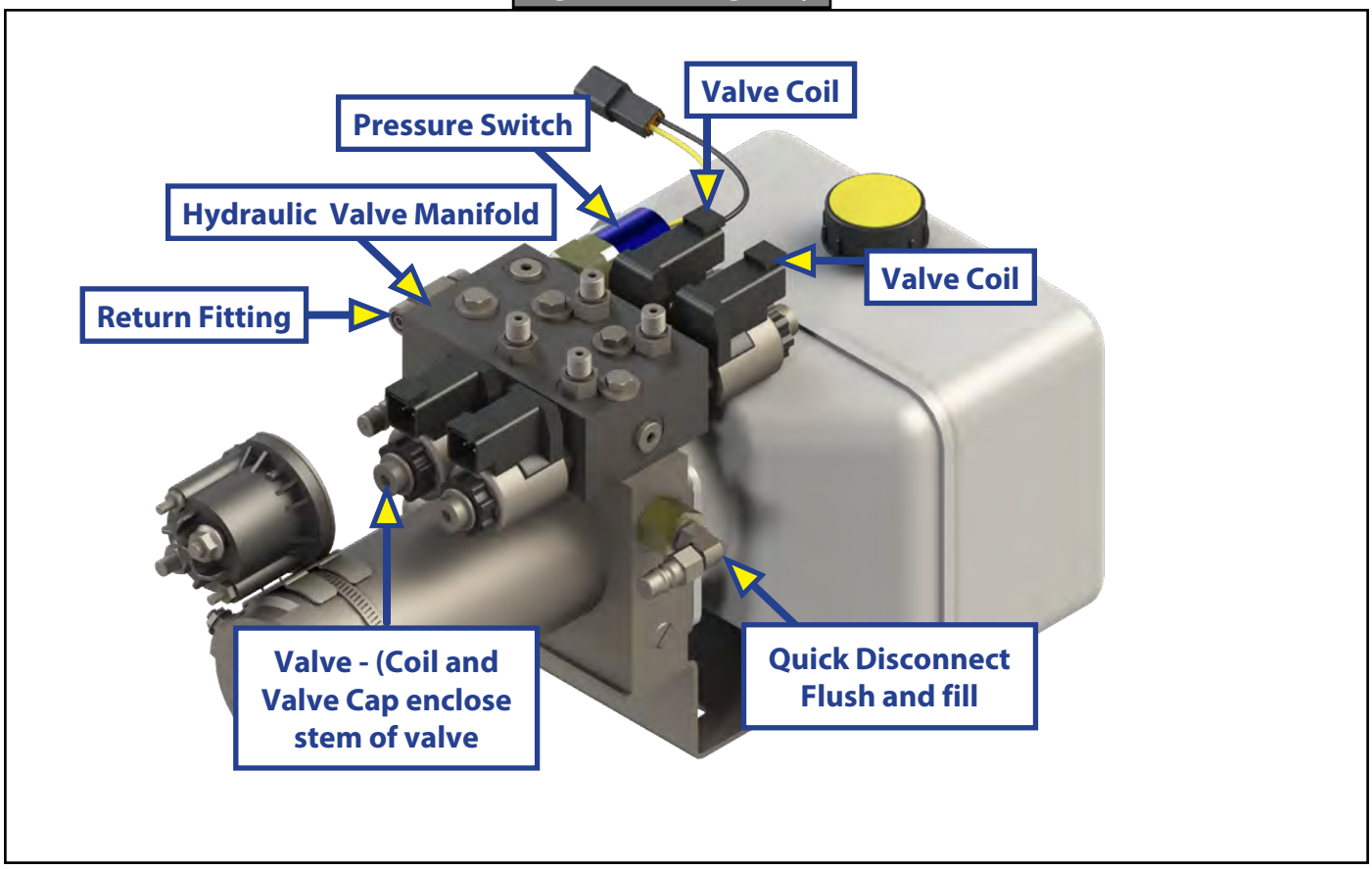


Fig. 9 - Leveling Only



Prior to Operation

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

1. The coach is parked on a reasonably level surface.
2. The coach "parking brake" is engaged.
3. All jack landing locations are cleared of debris and obstructions.
4. The coach transmission should be in the neutral or park position.
5. Locations should also be free of depressions.

NOTE: When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.

6. People and pets should be clear of coach while operating leveling system.
7. Be sure to keep hands and other body parts clear of fluid leaks. Oil leaks in the Lippert Leveling System may be under high pressure and can cause serious skin penetrating injuries.
8. Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching ground will create an unstable and unsafe condition.

Operation

Selection A Site

When the coach is parked on an excessive slope, the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

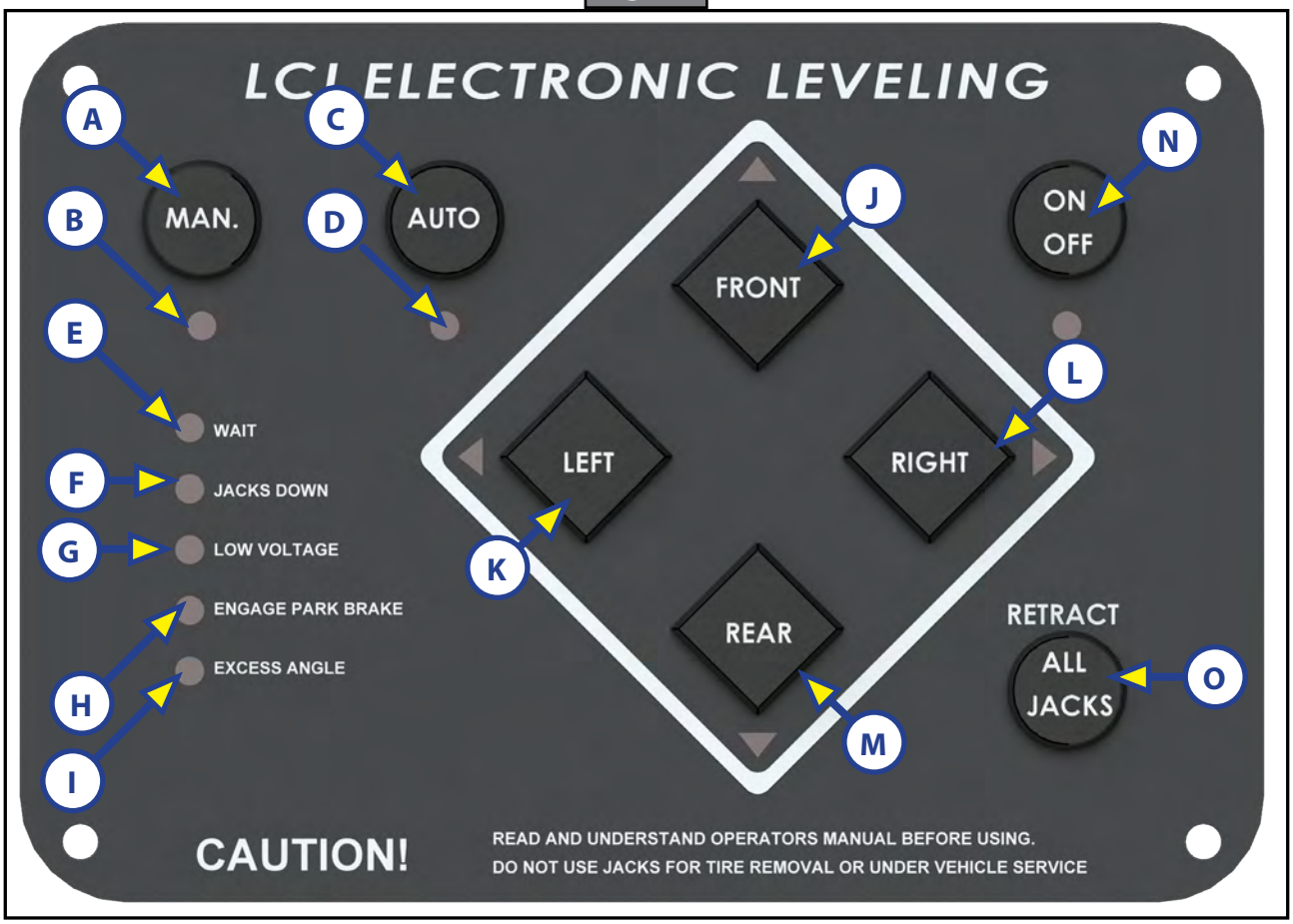
- After 4 minutes of no operation. Leveling cycle cannot be started until all jacks are fully retracted.
- Make sure jacks are retracted before attempting to auto level. (The System will perform full retract automatically if jacks are not down on the request of an auto cycle).
- System will refuse any operation when a low voltage condition is present.
- System will automatically alarm and retract if park brake is disengaged and jacks are not retracted with any change in sensor readings.

NOTE: When in alarm mode, the only available feature is to retract all jacks.

- The Wait LED shows the status of Air/Auxiliary features.
- The LEDs blink differently when in special controller modes (error, alarm and configuration). Learning how to recognize these modes is important.
- Excess slope LED blinks whenever the Y axis (vehicle length) is over 5 degrees from programmed level point.

Touchpad Operation

Fig. 10



Callout	Description
A	Manual Operation - Places touchpad in manual operation mode.
B	Manual Operation LED - Indicates touchpad in manual operation mode.
C	Automatic Operation - Places touchpad in automatic operation mode.
D	Automatic Operation LED - Indicates touchpad in automatic operation mode.
E	Wait LED - Indicates to the operator to pause operation until the LED turns off.
F	Jacks Down LED - Indicates jacks are not fully retracted.
G	Low Voltage LED - Indicates voltage has dropped below safe operable level. Solid LED indicates voltage is too low to operate system.
H	Engage Park Brake LED - Flashes when park brake is disengaged; off when park brake has been engaged.
I	Excess Angle LED - Coach may not be able to level in current location and must be moved to a more level location.
J	Front Button - Controls operation of both front jacks.
K	Left Button - Controls operation of both left jacks.
L	Right Button - Controls operation of both right jacks.
M	Rear Button - Controls operation of both rear jacks.
N	Power Button - Turns system on and off.
O	Retract All Jacks - Retracts all jacks automatically.

Automatic Leveling Procedure

NOTE: Refer to (Fig.10) for questions regarding location and functions of the Lippert Electronic Leveling System. Coach must be running and parking brake must be engaged for Lippert Electronic Leveling System to operate.

1. Push ON/OFF (Fig.10N) button on touchpad. The system is now operational and the electronic level lights will become active.
2. Check to see that the touchpad ENGAGE PARK BRAKE (Fig.10H) light is not flashing.
3. Push the AUTO (Fig.10C) button to begin the automatic leveling cycle.

NOTE: After starting the automatic leveling cycle it is very important that you do not move around in the coach until the coach is level. This could have an affect on the performance of the leveling system.

4. If further adjustments are necessary, refer to the Manual Leveling Procedures section.
5. Push power button to turn off the system.
6. Visually inspect all jacks to ensure all shoes are touching ground. Should one of the rear jack shoes not be touching the ground. Push the corresponding LEFT (Fig.10K) or RIGHT (Fig.10L) buttons to lower the corresponding jack to the ground.

Manual Leveling Procedures

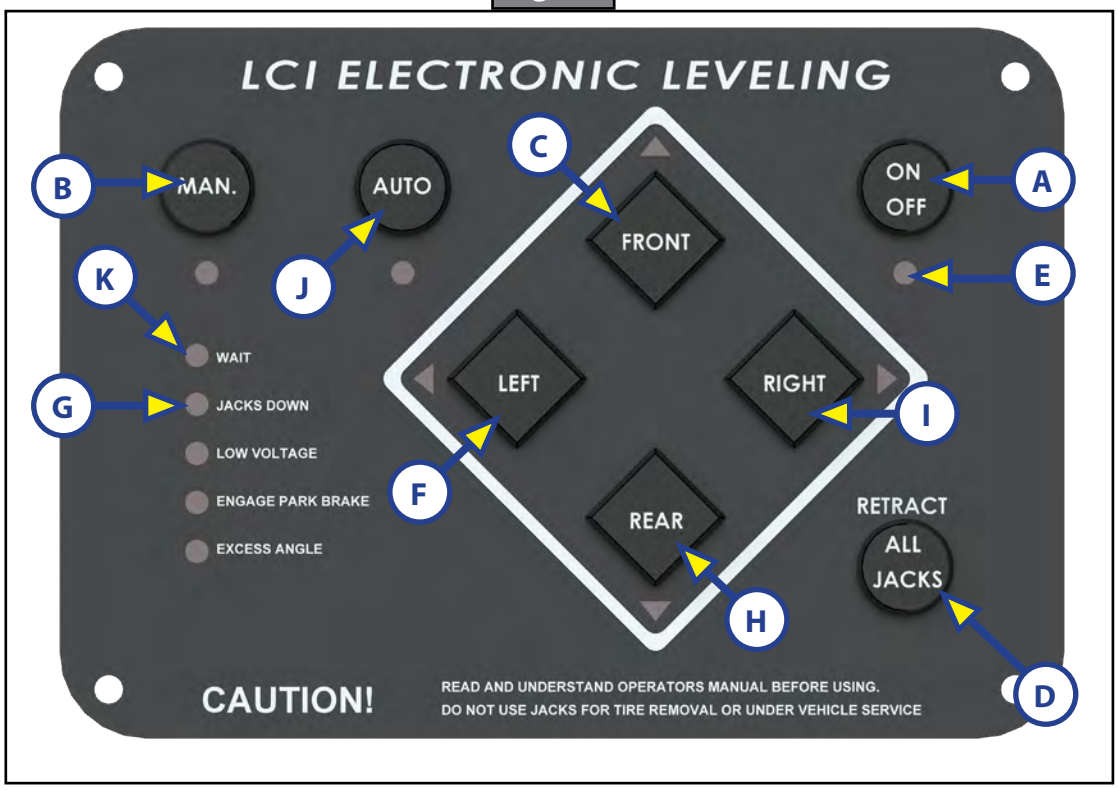
NOTE: When leveling your coach, the coach should be leveled from front to rear first. When the coach is level from front to rear, then level the coach from left to right. Coach must be running for Lippert Electronic Leveling System to operate.

1. Push ON/OFF (Fig.10N) button on touchpad. The system is now operational, ON/OFF light will be lit.
2. Push and hold MAN (Fig.10A) button for 5 seconds.
3. Push FRONT (Fig.10J) button until jacks contact the ground and lift the front of the coach 1-2 inches.
4. Push REAR (Fig.10M) button until jacks contact the ground and lift rear of coach.
5. Press FRONT (Fig.10J) or REAR (Fig.10M) button; if light is on at the FRONT button press the FRONT (Fig.10J) button; if the light is on at REAR button press the REAR (Fig.10M) button. Continue to hold until the light goes out.
6. Push LEFT (Fig.10K) or RIGHT (Fig.10L) button: If light is on at RIGHT button, push RIGHT button; if the light is on at LEFT button push LEFT button. Continue to hold until the light goes out.
7. The right and left jacks are used to level the coach side to side. Pushing the LEFT button on the touchpad will extend both left jacks. Pushing the RIGHT button on the touchpad will extend both right jacks. Jacks always work in pairs, both front jacks; both right side jacks, etc.
8. Repeat steps 2 through 6 if needed.
9. Turn power off to leveling system by pushing ON/OFF (Fig.10N) button.
10. Visually inspect all jacks to ensure all shoes are touching ground. Should one of the rear jack shoes not be touching the ground, press the corresponding LEFT (Fig.10K) or RIGHT (Fig.10L) rear jack buttons to lower the corresponding jack to the ground.

⚠WARNING

Lifting all wheels off the ground may result in serious personal injury or death.

Fig. 11



Jack Retract Procedures

1. Energize the system by pushing ON/OFF (Fig 11A) button on touchpad. The ON/OFF light (Fig. 11E) will be lit.
2. Push the RETRACT ALL JACKS (Fig.11D) button. All the jacks will start to retract and return to the full retract position. When jacks return to full retract position the JACKS DOWN (Fig.11G) light will go out.

NOTE: If you wish to stop the jacks from retracting, turn the system off and back on again by pushing the ON/OFF button twice. You can then re-level the coach by following steps 1-6 again.

3. When the JACKS DOWN (Fig.11G) light goes out, push the ON/OFF (Fig 11A) button on the touchpad to de-energize the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, you may proceed to travel.

NOTE: When in the MANUAL mode, if the RETRACT button is pushed the jacks will only retract as long as the RETRACT button is depressed. In AUTOMATIC mode, the RETRACT button need only be pressed once and released for the jacks to fully retract.

Troubleshooting

Automatic Safety Shutoff

If the touchpad is left on and inactive for four minutes it will shut off automatically. To reset the system the coach ignition must be turned off, then back on and the ON/OFF button must again be pushed.

Drive Away Protection System

If the ignition is in the "RUN" position, jacks are down, and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.
The power unit will also operate to keep the jacks retracted in the event the leveling system loses pressure as the coach is being driven.

Error Mode

If any problem is detected with the jacks, the system will enter Error Mode. Error mode may be recognized by the blinking of Left, Center LCI and Right LEDs. The following errors are detected by this system:

- Jack over current/short circuit.
- Jack under current/ open circuit.
- Jack extending too long (ground not detected after 2 minutes).
- Jack retracting too long (fully retracted not detected after 2 minutes).
- Out of stroke detection during auto cycle (if enabled).

The user must respond by pressing On/Off switch, which resets operation. All normal features are disabled in Error Mode. If panel loses communication with the controller for more than 5 seconds, the panel will blink the Jacks Down, Park Brake and ON/OFF (if included) LEDs.

Level Zero Point Calibration

The Zero Point is the programmed point that the trailer will return to each time the Auto Level feature is used. The Zero Point must be programmed prior to using the Auto Level feature to ensure the proper operation of the system. To set the zero point (controller module must be fully secured in production intent location), first run a manual leveling sequence using carpenters level, get the vehicle to the desired level point. Then activate the Level Zero point configuration mode.

Check the part number printed on the faceplate sticker of your controller. If the controller part number is 2020003067 or newer, follow the procedure in "Setting the Zero Point for Newer Controller Models." If the controller part number is 365150, 364557, 175226, or any other number, follow the procedure in "Setting the Zero Point for Obsolete Controller Models."

Setting the Zero Point For Newer Controller Models

1. Turn system on by pressing the “ON/OFF” (Fig. 11A). The “ON/OFF” indicator light (Fig. 11E) will illuminate.
2. Press the “MAN” (Fig. 11B) and hold for 2-3 seconds. The indicator light below the "MAN" button will then illuminate. This will put the system into "MANUAL" mode.
3. Level the coach in “MANUAL” mode by using a carpenter’s level on the floor. Level front to rear and then left to right.
   - **A.** Push the "FRONT" (Fig. 11C) button until both front jacks contact the ground and lift the front of the coach 1-2 inches.
   - **B.** Push "REAR" (Fig. 11H) button until both rear jacks contact the ground and lift rear of coach. Keep button depressed until the carpenter's level bubble is centered.
   - **C.** Push "LEFT" (Fig. 11F) and "RIGHT" (Fig. 11I) buttons as needed to raise the left and right sides of the coach respectively until level bubble is centered.
4. Turn Touch Pad “OFF” (Fig. 11A) to exit "MANUAL" mode; then turn it on again.
5. Now that the coach is leveled, press “FRONT” (Fig. 11C) 5 times.
6. Press “REAR” (Fig. 11H) 5 times. At this time all lights on the touch pad will flash with the exception of the ON/OFF indicator (Fig. 11E), it will remain solidly lit.
7. The touch pad is now in zero mode.
8. With the coach in level condition, simultaneously press the "RETRACT ALL JACKS" (Fig. 11D) button and the "AUTO" (Fig. 11J) button to store this as the Zero Level Point reference.
9. The "WAIT" light (Fig. 11K) will flash for approximately 5 seconds. After this, the control will emit an audible beep and revert back to normal operation mode. Zero Point calibration is now complete.

NOTE: You may also enter zero mode per above at anytime the system is in IDLE mode. The user then has control to extend any pair of jacks while in zero mode in order to position the vehicle properly prior to setting the zero point.

Setting the Zero Point For Obsolete Controller Models

1. Turn system on by pressing the “ON/OFF” (Fig. 11A). The “ON/OFF” indicator light Fig. 11E) will illuminate.
2. Press the “MAN” (Fig. 11B) and hold for 2-3 seconds. The indicator light below the "MAN" button will then illuminate. This will put the system into "MANUAL" mode.
3. Level the coach in “MANUAL” mode by using a carpenter’s level on the floor. Level front to rear and then left to right.
   - **D.** Push the "FRONT" (Fig. 11C) button until both front jacks contact the ground and lift the front of the coach 1-2 inches.
   - **E.** Push "REAR" (Fig. 11H) button until both rear jacks contact the ground and lift rear of coach. Keep button depressed until the carpenter's level bubble is centered.
   - **F.** Push "LEFT" (Fig. 11F) and "RIGHT" (Fig. 11I) buttons as needed to raise the left and right sides of the coach respectively until level bubble is centered.
4. Turn Touch Pad “OFF” (Fig. 11A) to exit "MANUAL" mode; then turn it on again.
5. Now that the coach is leveled, press “FRONT” (Fig. 11C) 5 times.
6. Press “REAR” (Fig. 11H) 5 times. At this time all lights on the touch pad will flash with the exception of the ON/OFF indicator (Fig. 11E), it will remain solidly lit.
7. The touch pad is now in zero mode.
8. With the coach in level condition, press "RETRACT ALL JACKS" (Fig. 11D) 3 times to store this as the Zero Level Point reference.

NOTE: You may also enter zero mode per above at anytime the system is in IDLE mode. The user then has control to extend any pair of jacks while in zero mode in order to position the vehicle properly prior to setting the zero point.

Air and Auxiliary Feature Configuration

For Diesel Units with Airbag Suspensions ONLY:

- Feature is entered ONLY after zero mode programming.
- At this point the Wait LED will blink for 20 seconds. You are now in Air/Auxiliary Feature Configuration mode.

To enable Air Auxiliary features, perform the following:

1. Press the Retract All switch 3 times.

2. User must do this within 20 seconds of entering this mode.

To disable Air features, perform the following:

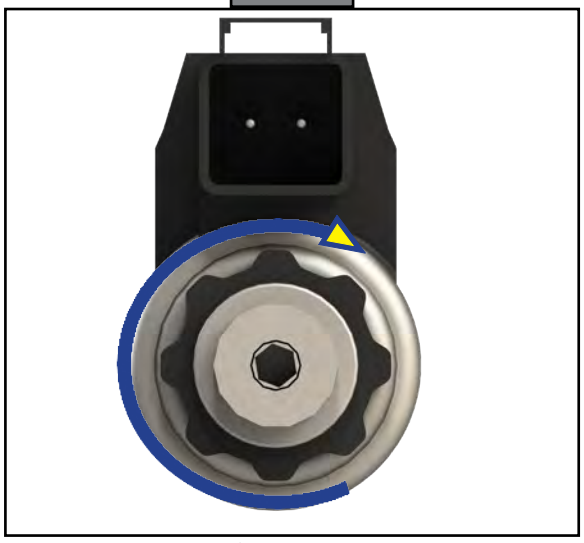
1. Do nothing.

2. After 20 seconds, module will exit mode with features disabled.

Manual Override - Jacks

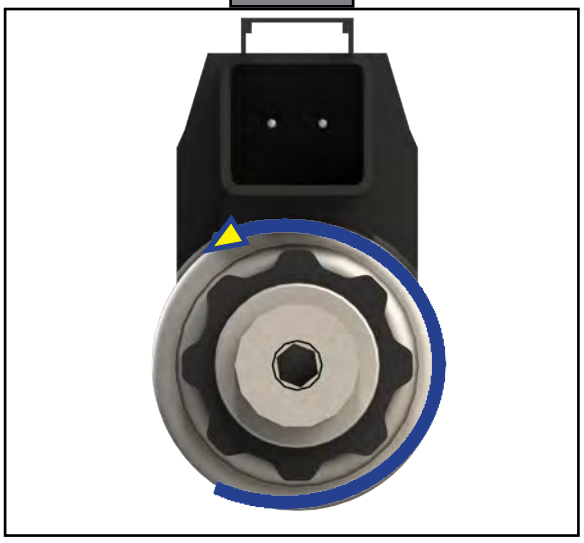
In the event that the jacks will not extend or retract, the valves can be manually overridden by using a 5⁄32" Allen wrench (Pre-2006 model year, see update below) to turn the manual override clockwise on the valve. (See Fig. 12.) The leveling jacks can then be extended or retracted. Remember to turn the manual override completely counterclockwise (See Fig. 13.) until it will no longer turn, to close the valve after the jacks have been completely extended or retracted.

Fig. 12



Clockwise for manual override

Fig. 13



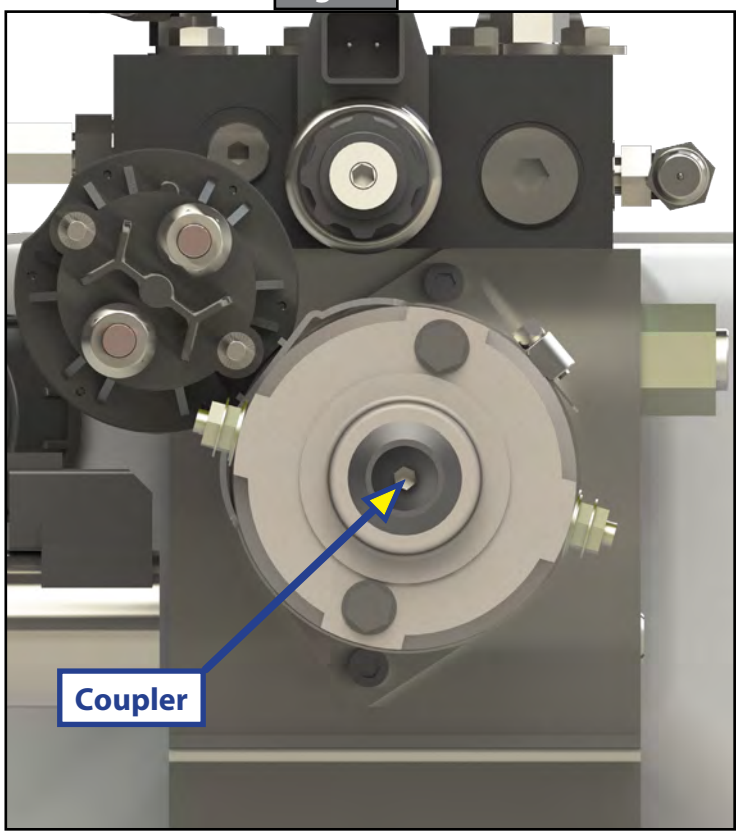
Counter-clockwise for normal operation

Manual Override - Power System

The Lippert Electronic Leveling System can be run with auxiliary power devices like electric drills, ratchet wrenches or cordless screwdrivers. In the event of electrical or system failure, this manual method of extending and retracting the jacks can be used. A standard handheld drill is all that is required. See the instructions below.

Fig. 14

Fig. 15



1. Remove plastic cap (Fig 14).
2. Disconnect power cables on the motor.
3. Using a ½" socket, insert into auxiliary drive device, i.e. cordless or power drill. Insert socket onto coupler found under plastic cap (Fig. 15).
4. Run drill in reverse or counterclockwise to retract jacks.

“Jacks Down" Alarm

The Lippert Electronic Leveling System is designed to sound an alarm and illuminate the control panel in the event of two (2) possible scenarios:

A. A “RETRACT” hose leaks.

B. The pressure holding the jacks in the retracted position falls to approximately 1500 psi to sound the alarm.

If the alarm sounds and the touchpad illuminates and flash while driving the vehicle:

1. Immediately find an area to safely pull the vehicle off of the roadway.

2. Set the PARKING BRAKE.

3. Inspect all jacks hoses and check valve for leaks.

If no leaks are observed;

1. Turn touchpad “ON.”

2. Push “RETRACT ALL JACKS” button.

3. Wait until “JACKS DOWN” light and alarm are off.

4. Inspect jacks. If jacks are retracted and no leaks are observed, vehicle can be driven.

If system is leaking or alarm does not subside after applying the above procedure, disconnect wires from pressure switch and proceed immediately to a service center. For prolonged travel to the service center, be sure to stop and check the disposition of the leveling jacks periodically to make sure they are not extending.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than a predefined amount, the panel will signal this error to the user. When in alarm mode, all LEDs will flash and the buzzer will beep. The status LEDs will show the system status. The system performs an automatic retract. No other features are available in this mode.

Low Voltage Signal

If LOW VOLTAGE light is on solid, it is an indication of a charging system problem. Turn ignition OFF and then back ON to reset system. If LOW VOLTAGE light persists, test battery under load at battery and at the motor solenoid on the pump unit. Check all power and ground connections at the battery, alternator and chassis.

Preventative Maintenance Procedures

1. Change fluid in RESERVOIR ONLY when contaminated.
   - **A.** Check fluid only when jacks are fully retracted.
   - **B.** Always fill the reservoir with the jacks in the fully retracted position. Filling reservoir when jacks are extended will cause reservoir to overflow into its compartment when jacks are retracted.
   - **C.** When checking fluid level, fluid should be within ¼" of fill spout lip.
2. Check the fluid level every month.
3. Inspect and clean all Pump Unit electrical connections every 12 months. If corrosion is evident, spray unit with WD-40 or equivalent.
4. Remove dirt and road debris from jacks as needed.
5. If jacks are down for extended periods, it is recommended to spray exposed leveling jack rods with a silicone lubricant every three months for protection. If your coach is located in a salty environment, it is recommended to spray the rods every 4 to 6 weeks.

Latched Out Warning

⚠WARNING

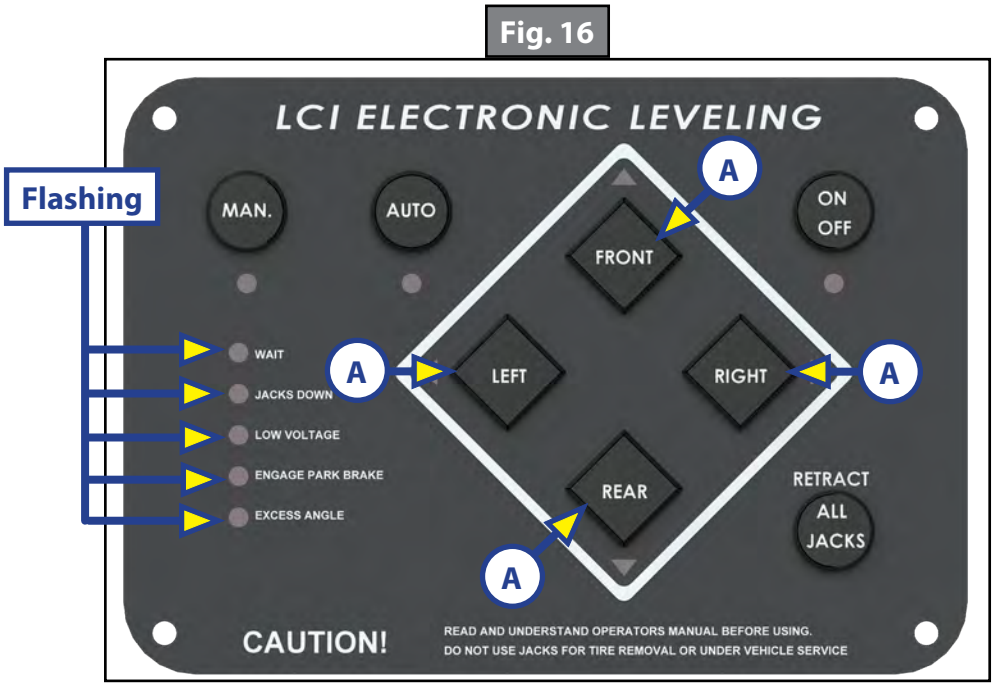
Your coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in personal injury or death.

LATCHED ERROR mode is "Wait", "Jacks Down", "Park Brake", "Excess Slope" and "Low Voltage" lights flashing.

1. Battery voltage below 10.0V DC.
2. Retract time over 67 seconds in auto retract.
3. This is the only LATCHED ERROR mode.
4. All revisions prior to "G" controllers treat this error as regular ERROR mode.

To RESET, push all 4 diamond-shaped jack buttons at the same time (Fig. 16A).

Fig. 16

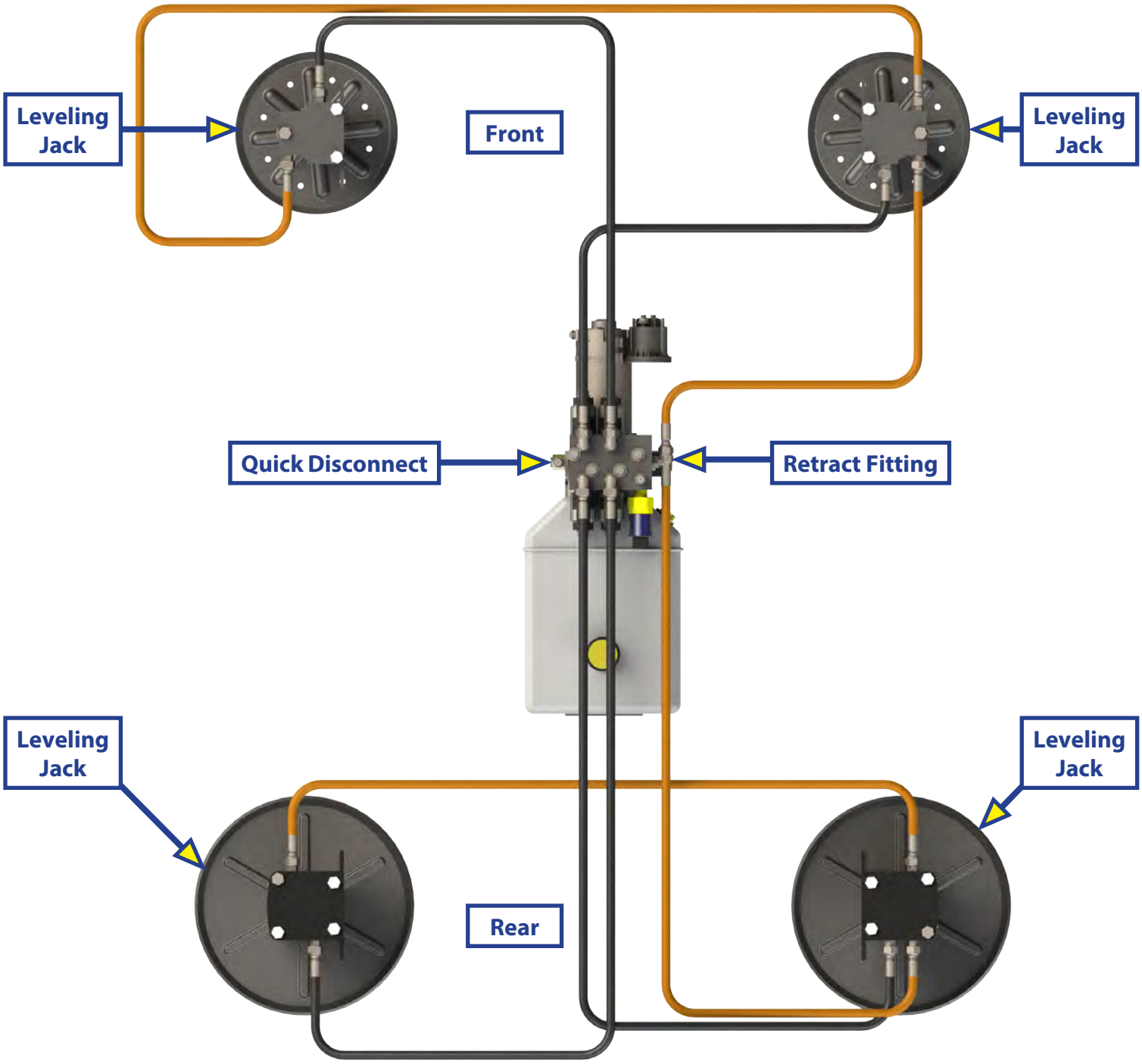


Troubleshooting Chart

What Is Happening?	Why?	What Should Be Done?
System will not turn on and ON/OFF indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Parking brake not set.	Set parking brake.
	Controls have been on for more than four minutes and have timed out.	Turn ignition off and then back on.
Touchpad turns on, but turns off when jack button is pushed.	Low voltage on battery.	Start coach to charge battery.
Touchpad turns on, coach will not auto level, JACKS DOWN light is on, jacks are retracted.	Faulty pressure switch or low pressure in system.	Press RETRACT ALL JACKS button on touchpad. If JACKS DOWN light remains on, call Lippert Customer Service.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Fill reservoir with recommended ATF.
	Jack valve is inoperative.	Clean, repair or replace.
	Electronic signal is lost between controller and jack valves.	Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace controller.
Any one or two jacks will not retract.	Hose damaged or disconnected.	Replace with new hose or reconnect hose.
	Return valve inoperative.	Replace inoperative return valve.
	Electronic signal is lost between controller and solenoid.	Test for voltage drop between controller and jack valve. Repair bad wiring or replace defective controller or valve.
JACKS DOWN light does not go out when all jacks are retracted.	Insufficient pressure in system.	Contact Lippert Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and JACKS DOWN light starts flashing while traveling; jacks are fully retracted.	Loss of pressure in leveling system.	Contact Lippert Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Jack bleeds down after being extended.	Valve Manual Override open.	Close override.
Touchpad powers up; LOW VOLTAGE light flashes.	Engine not running.	Start coach engine.
Low voltage light on solid.	Charging system faulty.	Turn key OFF, then back ON again to reset. Check power and ground connections on battery, alternator and chassis.
No power to touchpad.	Tripped circuit breaker.	Reset breaker.
	Ignition not on.	Turn on.

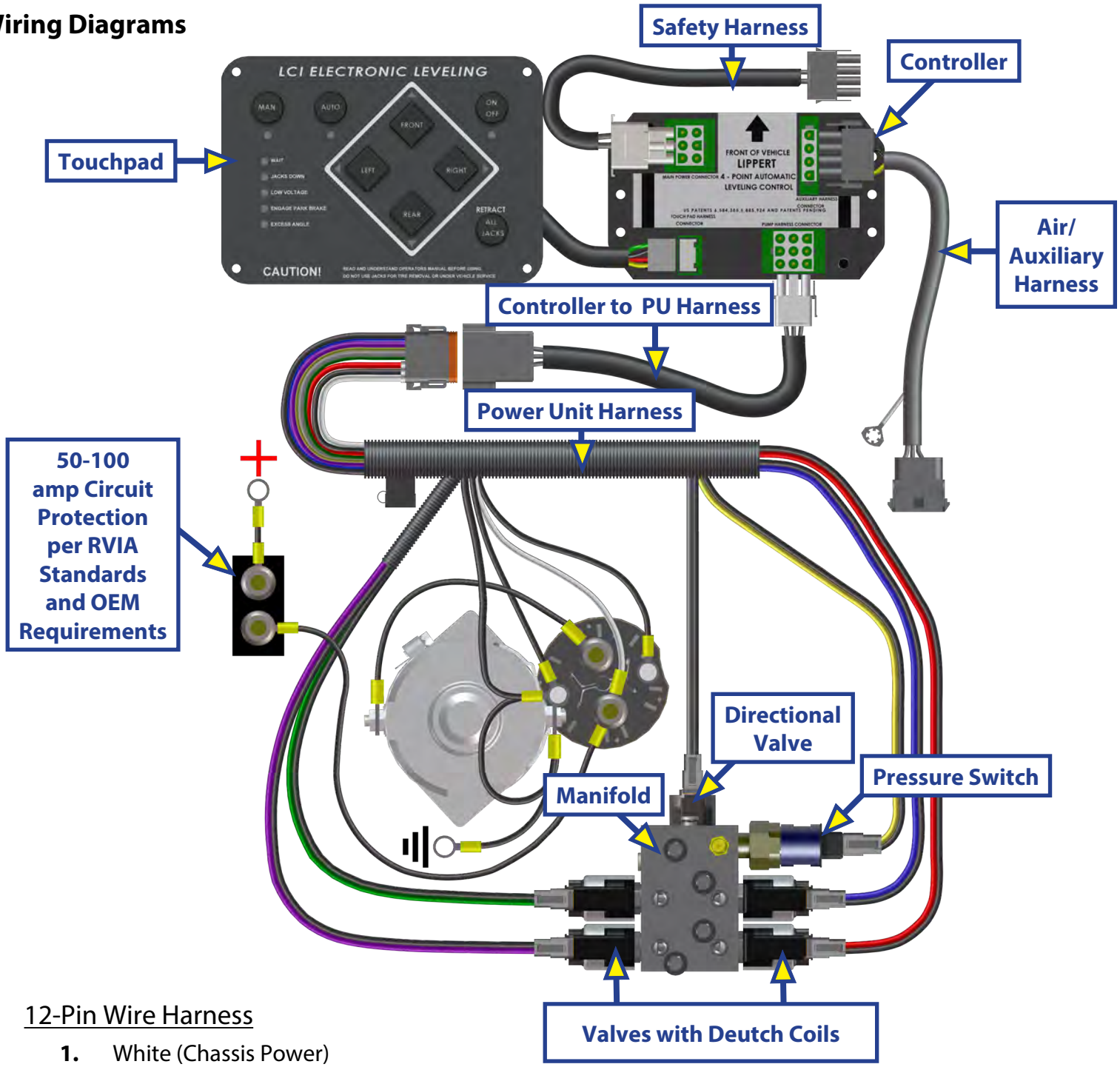
Plumbing Diagram

Fig. 17



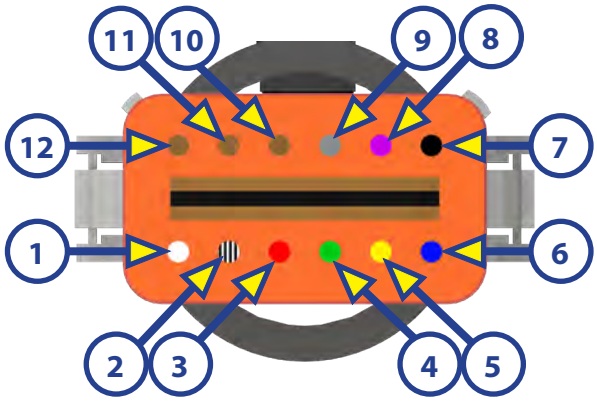
1. Hoses will vary in length by coach model.
2. Measure hose and consult Lippert Service. Hose Specs. 3000 p.s.i.; ½" in. I.D.
3. Curbside Front - Black Hose - PURPLE Label & Wire
4. Roadside Front - Black Hose - GREEN Label & Wire
5. Curbside Rear - Black Hose - RED Label & Wire
6. Roadside Rear - Black Hose - BLUE Label & Wire
7. Return - Orange Hose
8. PSI Switch - Yellow Wire into Blue PSI Wire

Wiring Diagrams



12-Pin Wire Harness

1. White (Chassis Power)
2. Black w/ White (Pump Solenoid)
3. Red (Curbside Rear Valve)
4. Green (Roadside Front Valve)
5. Yellow (PSI Switch)
6. Blue (Roadside Rear Valve)
7. Black (Ground)
8. Purple (Curbside Front Valve)
9. Gray (Pump Solenoid)
10. Aux
11. Aux
12. Aux



RETURN TO TOC

MOTORIZED LEVELING PLUS

OWNER'S MANUAL

Scan for product support

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Introduction

The Lippert Motorized Leveling Plus system is an electric/hydraulic system. A 12V DC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach. Mechanical portions of the Lippert Motorized Leveling Plus system are replaceable. Contact Lippert Components, Inc. to obtain replacement parts.

Features

- Automatic extension of jacks from full retract position (with automatic ground detection).
- Automatic leveling of jacks.
- Manual leveling of jacks.
- Automatic retraction of jacks (with automatic full retract detection).
- Air bag suspension features (configurable on/off).
- Emergency retract/User alarm mode (jacks not retracted and park brake disengaged).
- Automatic jack error detection and error mode.
- Configuration mode for air features.
- Configuration mode for leveling zero point.
- Remote operation.

Component Description

1. Jacks
   - **A.** Rated at a lifting capacity for the coach
   - **B.** Standard 9-inch diameter (63.5 square inch) footpad on a ball swivel for maximum surface contact on all surfaces
   - **C.** 12-inch diameter (113 square inch) footpad also available
   - **D.** Operational powered from a 12V DC motor/pump assembly
2. Motor/Pump Assembly
   - **A.** 12V DC motor
   - **B.** Hydraulic fluid reservoir tank
   - **C.** Control valve manifold
   - **D.** Solenoid valves
3. System Controls
   - **A.** Controlled electronically from the touchpad
   - **B.** Touchpad can be operated in manual mode or fully automatic mode

System Wiring Requirements

- Battery power (2 AWG SAE J1127 type SGX)
- Battery ground (2 AWG SAE J1127 type SGX)
- Logic power (switched via ignition)
- Power brake signal (open = park brake disengaged, GND = park brake engaged)
- 4-wire harness connecting controller to touchpad
- Jacks status input - switched to GND Jacks not all up - switch closed
- Jacks all up – switch open.

Additional Information

Additional information about this product can be obtained from lci1.com/support or by downloading the free LippertNOW app. The app is available on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.

For additional support on this product go to: https://support.lci1.com/motorized-standard-leveling

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels.

This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠WARNING

During servicing make sure the coach is supported according to the manufacturer's recommendations. Lift the coach by the frame and never the axle or suspension. Do not go under the coach unless it is properly supported. Unsupported coaches can fall causing death or personal injury and/or product or property damage.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

⚠CAUTION

Always wear eye protection when performing service, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.

⚠CAUTION

Moving parts can pinch, crush, or cut. Keep clear and use caution.

The use of the Lippert Motorized Leveling Plus System to support the coach for any reason other than which it is intended is prohibited by Lippert's Limited Warranty. The Lippert Motorized Leveling Plus System is designed as a leveling system only and should not be used to provide service for any reason under the coach, such as changing tires or servicing the leveling system.

Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other service while coach is supported by the Lippert Motorized Leveling Plus System could result in death, serious injury or damage to the coach.

Operation

Prior to Operation

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

1. Make sure to park the coach on solid, level ground.
2. Clear all jack landing locations of debris and obstructions.
3. Locations should also be free of depressions.
4. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
5. People and pets should be clear of unit while operating leveling system.
6. Make sure to keep hands and other body parts clear of fluid leaks. Oil leaks in the Lippert Motorized Leveling Plus System may be under high pressure and can cause serious skin-penetrating injuries.
7. Never lift the unit completely off the ground. Lifting the unit so the wheels are not touching the ground will create an unstable and unsafe condition.
8. The coach parking brake is engaged.
9. The coach transmission should be in the neutral or park position.
10. Make sure all persons, pets and property are clear of the coach while the Lippert Motorized Leveling Plus System is in operation.

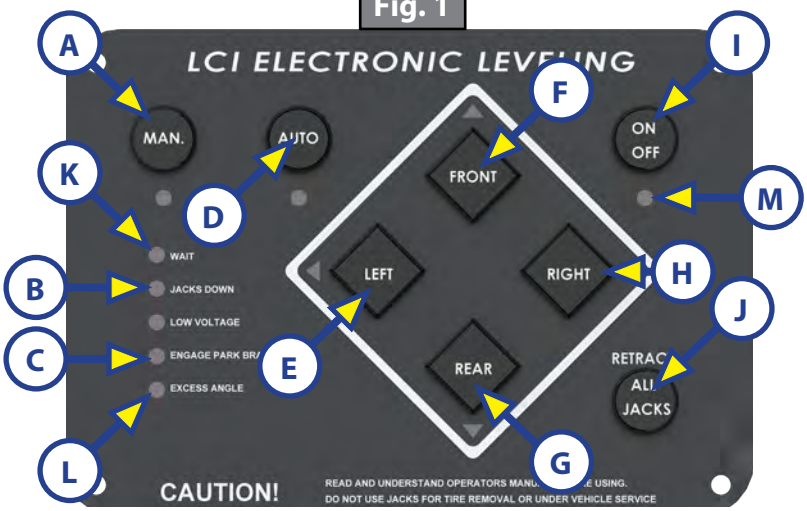
Selecting A Site

When the coach is parked on an excessive slope, the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

Automatic Leveling Procedure

NOTE: Coach must be running for Lippert Motorized Leveling Plus system to operate.

Fig. 1



1. Push ON/OFF (Fig. 1I) button on touchpad. The system is now operational and the electronic level lights will become active.
2. Check to see that the touchpad ENGAGE PARK BRAKE (Fig. 1C) light is not flashing.

NOTE: Engage Parking Brake if ENGAGE PARK BRAKE (Fig. 1C) light is flashing.

3. Push the AUTO (Fig. 1D) button to begin the automatic leveling cycle.

NOTE: After starting the automatic leveling cycle, it is very important to not move around in the coach until it is level. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

⚠WARNING

Never lift all the wheels off the ground to level the coach. Lifting all wheels off the ground may result in death, serious personal injury and/or severe product or property damage.

4. If further adjustments are necessary, push and hold the MAN button (Fig. 1A) for approximately five seconds until the light under this button is illuminated. Push the appropriate leg button to override the system and level the coach.
5. Push ON/OFF button (Fig. 1I) to turn off the system.

Automatic Leveling Descriptive Logic

⚠CAUTION

After starting the automatic leveling cycle it is very important that you do not move around in the coach until the coach is level and the green LED light illuminates in the center of the touchpad. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

Grounding: Jacks will begin deploying on the lowest end of the coach from the controller's calibrated Zero Point, either individually or in pairs depending on your system's control logic. The opposite end will follow individually or in pairs, until all jacks are contacting the ground.

Leveling: The following steps describe the process of how the auto-leveling sequence levels the coach, once the jacks have been grounded. This process may repeat several times until level.

1. Front-to-rear
2. Side-to-side
3. Individually
4. Minor adjustments to confirm grounding

Air and Auxiliary Features

When applicable, the system has the option to control external Air and Auxiliary features. When enabled, the feature works according to the following logic:

- To maximize lift of the jacks, air bag pressure is automatically lowered when starting the auto or manual sequence.
- An auxiliary mode is activated when starting an auto-retract sequence to fill airbags.
- Auxiliary is active when jacks are all retracted and parking brake is disengaged to fill airbags.

Air and Auxiliary Feature Configuration

For diesel units with airbag suspensions ONLY:

Feature is entered ONLY after zero mode programming. At this point the WAIT (Fig. 1K) LED will blink for 20 seconds, putting the system in the Air and Auxiliary feature configuration mode.

To enable Air or Auxiliary features, perform the following:

1. Press the RETRACT All JACKS switch three times.

NOTE: User must do this within 20 seconds of entering this mode.

To disable Air and Auxiliary features, perform the following:

1. Wait 20 seconds.
2. After 20 seconds, module will exit mode with features disabled.

Manual Leveling Procedure

NOTE: Coach must be running for Lippert Motorized Leveling Plus to operate.

When leveling the coach manually, it should be leveled from front-to-rear first (steps 3-5). When the coach is level from front-to-rear, then level it from left-to-right (step 6).

1. Set a carpenter's level on the floor inside the coach and use the manual controls to manually level the unit according to the carpenter's level.
2. Push ON/OFF button (Fig. 1I) on touchpad to turn system on. The system is now operational and the ON/OFF light will be lit.
3. Push and hold MAN button (Fig. 1A) for five seconds.
4. Push FRONT button (Fig. 1F) until jacks contact the ground and lift the front of the coach 1-2 inches.
5. Push REAR (Fig. 1G) button until jacks contact the ground and lift rear of coach. Keep button depressed until the carpenter's level bubble is centered.
6. Push LEFT (Fig. 1E) and RIGHT (Fig. 1H) buttons until level bubble is centered.

NOTE: The right and left jacks are used to level the coach side-to-side. Pushing the LEFT button on the touchpad will extend both left jacks. Pushing the RIGHT button on the touchpad will extend both right jacks. Jacks always work in pairs: Both front jacks, both right side jacks, etc.

7. Repeat steps 3-6 if needed.
8. Push ON/OFF button.
9. Visually inspect all jacks to make sure all footpads are touching the ground. If one of the rear jack footpads is not touching the ground, press the corresponding LEFT or RIGHT rear jack buttons to lower the corresponding jack to the ground.

Jack Retract Procedures

1. Turn on the system by pushing ON/OFF (Fig. 1I) button on the touchpad. The ON/OFF light will be lit.
2. Push the RETRACT ALL JACKS button (Fig. 1J) only until the power unit turns on and the coach begins to lower. Release the button once the retract process has begun.
3. All the jacks will start to retract and return to the full retract position. When all jacks return to full retract position, the JACKS DOWN light (Fig. 1B) will go out.

NOTE: If desiring to stop the jacks from retracting, turn the system off and back on again by pushing the ON/OFF (Fig. 1I) button twice. You can then re-level the coach by following the Manual Leveling Procedure.

4. When the JACKS DOWN light (Fig. 1B) goes out, push the ON/OFF (Fig. 1I) button on the touchpad to turn off the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, travel may proceed.

NOTE: When in the manual mode, if the RETRACT ALL JACKS button (Fig. 1J) is pushed, the jacks will only retract as long as the RETRACT ALL JACKS button is depressed. In automatic mode, the RETRACT ALL JACKS button (Fig. 1J) need only be pressed once and released for the jacks to fully retract.

Level Zero Point Calibration

The Zero Point is the programmed point that the trailer will return to each time the Auto Level feature is used. The Zero Point must be programmed prior to using the Auto Level feature to ensure the proper operation of the system. To set the zero point (controller module must be fully secured in production intent location), first run a manual leveling sequence using carpenters level, get the vehicle to the desired level point. Then activate the Level Zero point configuration mode.

Check the part number printed on the faceplate sticker of your controller. If the controller part number is 2020003067 or newer, follow the procedure in "Setting the Zero Point for Newer Controller Models." If the controller part number is 365150, 364557, 175226, or any other number, follow the procedure in "Setting the Zero Point for Obsolete Controller Models."

Setting the Zero Point For Newer Controller Models

1. Turn system on by pressing the “ON/OFF” (Fig. 1I). The “ON/OFF” indicator light (Fig. 1M) will illuminate.
2. Press the “MAN” (Fig. 1A) and hold for 2-3 seconds. The indicator light below the "MAN" button will then illuminate. This will put the system into "MANUAL" mode.
3. Level the coach in “MANUAL” mode by using a carpenter’s level on the floor. Level front to rear and then left to right.
   - **A.** Push the "FRONT" (Fig. 1F) button until both front jacks contact the ground and lift the front of the coach 1-2 inches.
   - **B.** Push "REAR" (Fig. 1G) button until both rear jacks contact the ground and lift rear of coach. Keep button depressed until the carpenter's level bubble is centered.
   - **C.** Push "LEFT" (Fig. 1E) and "RIGHT" (Fig. 1H) buttons as needed to raise the left and right sides of the coach respectively until level bubble is centered.
4. Turn Touch Pad “OFF” (Fig. 1I) to exit "MANUAL" mode; then turn it on again.
5. Now that the coach is leveled, press “FRONT” (Fig. 1F) 5 times.
6. Press “REAR” (Fig. 1G) 5 times. At this time all lights on the touch pad will flash with the exception of the ON/OFF indicator (Fig. 1M), it will remain solidly lit.
7. The touch pad is now in zero mode.
8. With the coach in level condition, simultaneously press the "RETRACT ALL JACKS" (Fig. 1J) button and the "AUTO" (Fig. 1D) button to store this as the Zero Level Point reference.
9. The "WAIT" light (Fig. 1K) will flash for approximately 5 seconds. After this, the control will emit an audible beep and revert back to normal operation mode. Zero Point calibration is now complete.

NOTE: You may also enter zero mode per above at anytime the system is in IDLE mode. The user then has control to extend any pair of jacks while in zero mode in order to position the vehicle properly prior to setting the zero point.

Setting the Zero Point For Obsolete Controller Models

1. Turn system on by pressing the “ON/OFF” (Fig. 1I). The “ON/OFF” indicator light Fig. 1M) will illuminate.
2. Press the “MAN” (Fig. 1A) and hold for 2-3 seconds. The indicator light below the "MAN" button will then illuminate. This will put the system into "MANUAL" mode.
3. Level the coach in “MANUAL” mode by using a carpenter’s level on the floor. Level front to rear and then left to right.
   - **A.** Push the "FRONT" (Fig. 1F) button until both front jacks contact the ground and lift the front of the coach 1-2 inches.
   - **B.** Push "REAR" (Fig. 1G) button until both rear jacks contact the ground and lift rear of coach. Keep button depressed until the carpenter's level bubble is centered.
   - **C.** Push "LEFT" (Fig. 1E) and "RIGHT" (Fig. 1H) buttons as needed to raise the left and right sides of the coach respectively until level bubble is centered.
4. Turn Touch Pad “OFF” (Fig. 1I) to exit "MANUAL" mode; then turn it on again.
5. Now that the coach is leveled, press “FRONT” (Fig. 1F) 5 times.
6. Press “REAR” (Fig. 1G) 5 times. At this time all lights on the touch pad will flash with the exception of the ON/OFF indicator (Fig. 1M), it will remain solidly lit.
7. The touch pad is now in zero mode.
8. With the coach in level condition, press "RETRACT ALL JACKS" (Fig. 1J) 3 times to store this as the Zero Level Point reference.

NOTE: You may also enter zero mode per above at anytime the system is in IDLE mode. The user then has control to extend any pair of jacks while in zero mode in order to position the vehicle properly prior to setting the zero point.

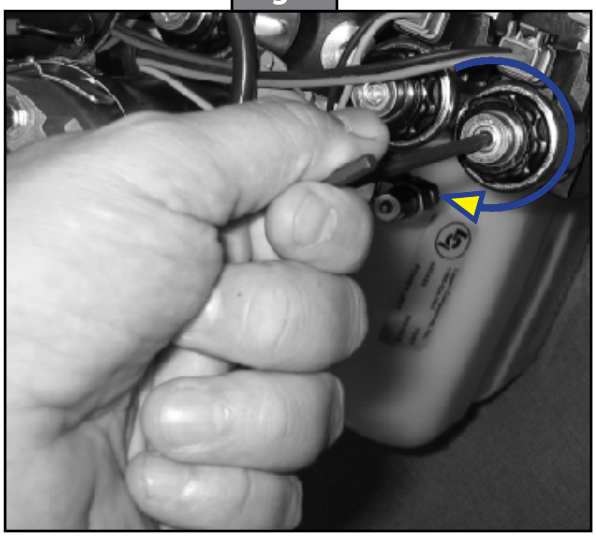
Manual Override - Retract Jacks

In the event that the jacks will not retract, the valves can be manually overridden by using a 5/32" Hex wrench to open the valves. Turn all the blocking valves clockwise (Figs. 2 and 4) to open and allow them to build retract pressure. After the jacks have been retracted, return the valves to the original position by turning them counterclockwise (Figs. 3 and 4).

⚠CAUTION

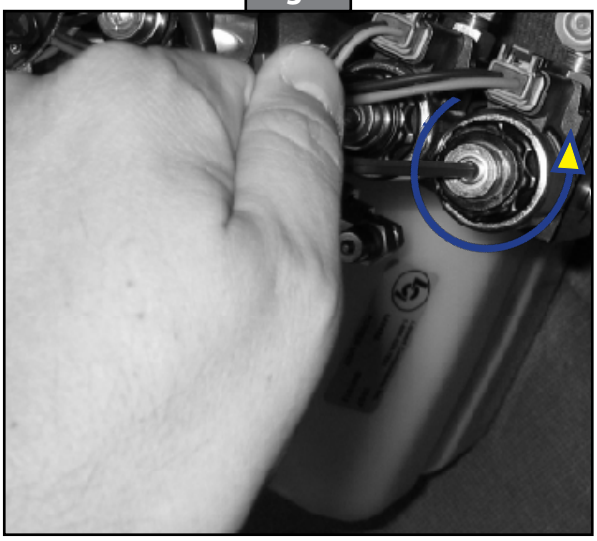
Do not use the manual override to extend the jacks. Extending the jacks using the manual override procedure could damage the chassis.

Fig. 2



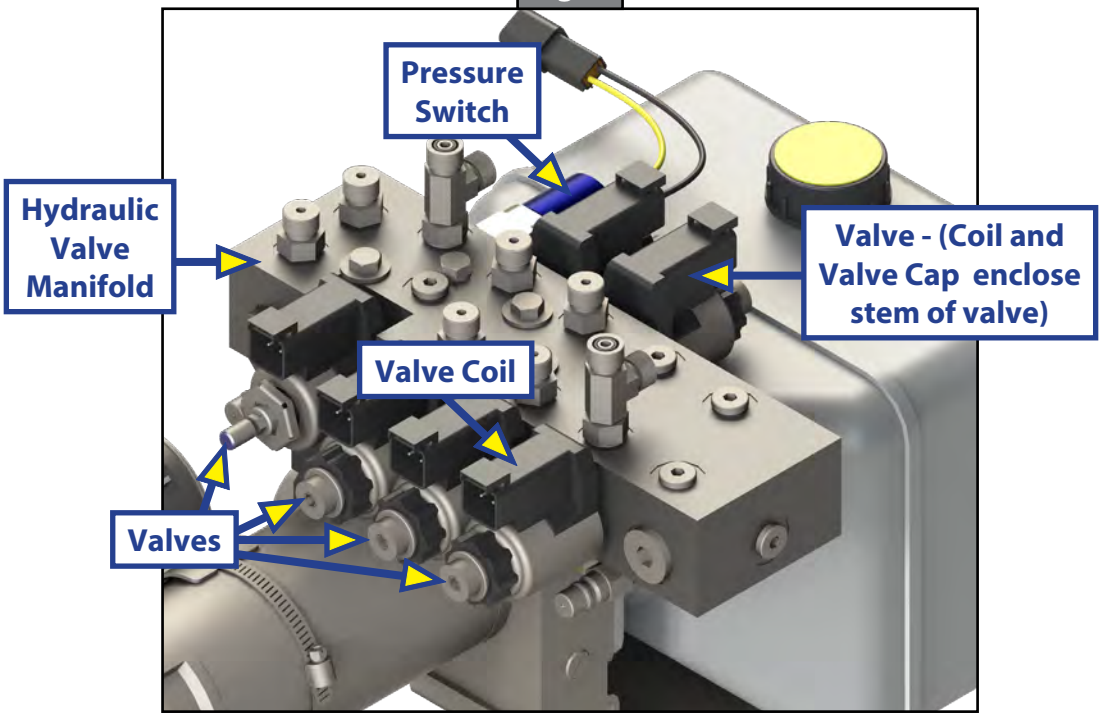
Clockwise for manual override

Fig. 3



Counterclockwise for normal operation

Fig. 4



Manual Override - Power System

The Lippert Electronic Leveling System can be run with auxiliary power devices like electric drills, ratchet wrenches or cordless screwdrivers. In the event of electrical or system failure, this manual method of extending and retracting the jacks can be used. A standard handheld drill is all that is required. See the instructions below.

Fig. 5

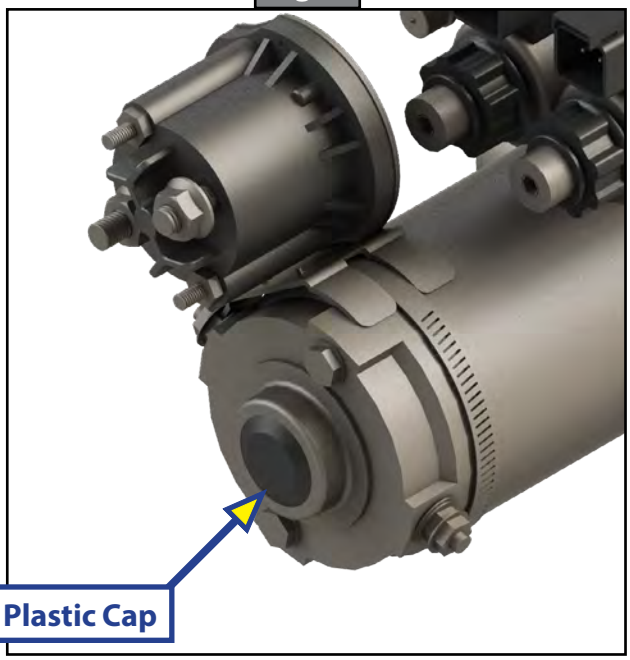
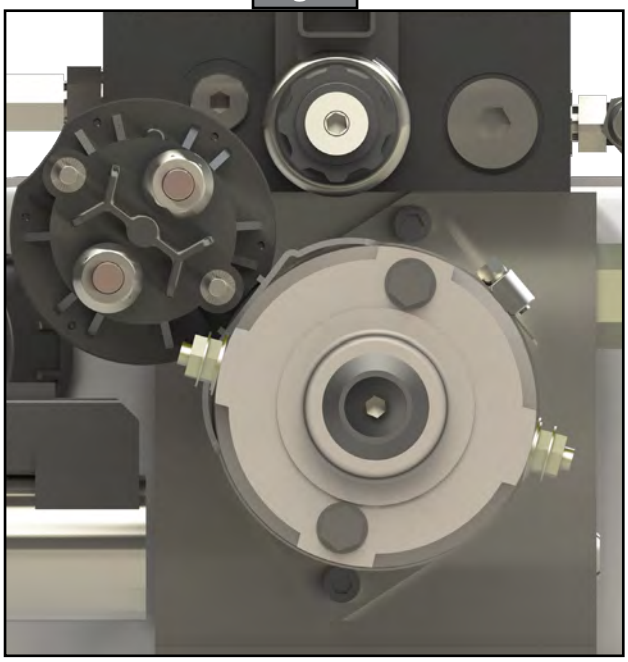


Fig. 6



1. Remove plastic cap (Fig. 5).
2. Disconnect power cables on the motor.
3. Using a ½" socket, insert into auxiliary drive device, i.e. cordless or power drill. Insert socket onto coupler found under plastic cap (Fig. 6).
4. Run drill in reverse or counterclockwise to retract jacks.

Troubleshooting

What Is Happening?	Why?	What Should Be Done?
System will not turn on and ON/OFF indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Parking brake not set.	Set parking brake.
	Controls have been on for more than four minutes and have timed out.	Turn ignition off and then back on.
Touchpad turns on, but turns off when jack button is pushed.	Low voltage on battery.	Start coach to charge battery.
Touchpad turns on, coach will not auto level, JACKS DOWN light is on, jacks are retracted.	Faulty pressure switch or low pressure in system.	Press RETRACT ALL JACKS button on touchpad. If JACKS DOWN light remains on, contact the Lippert Customer Care Center.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Fill reservoir with recommended ATF.
	Jack valve is inoperative.	Clean, repair or replace.
	Electronic signal is lost between controller and jack valves.	Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace controller.
Any one or two jacks will not retract.	Hose damaged or disconnected.	Replace with new hose or reconnect hose.
	Return valve inoperative.	Replace inoperative return valve.
	Electronic signal is lost between controller and solenoid.	Test for voltage drop between controller and jack valve. Repair bad wiring or replace defective controller or valve.
JACKS DOWN light does not go out when all jacks are retracted.	Insufficient pressure in system.	Contact the Lippert Customer Care Center.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and JACKS DOWN light starts flashing while traveling; jacks are fully retracted.	Loss of pressure in leveling system.	Contact the Lippert Customer Care Center.
	Retract pressure switch inoperable.	Check connection or replace.
Jack bleeds down after being extended.	Valve Manual Override open.	Close override.
Touchpad powers up; LOW VOLTAGE light flashes.	Engine not running.	Start coach engine.
Low voltage light on solid.	Charging system faulty.	Turn key OFF, then back ON again to reset. Check power and ground connections on battery, alternator and chassis.
No power to touchpad.	Tripped circuit breaker.	Reset breaker.
	Ignition not on.	Turn on.

Miscellaneous

- The system will automatically shut down after four minutes of no operation.
- Auto leveling cycle cannot be started until all jacks are fully retracted. Make sure jacks are retracted before attempting to auto level. (Coach will perform full retract automatically if jacks are not down on the request of an auto cycle.)
- System will refuse any operation when a low voltage condition is present.
- System will automatically alarm and retract if parking brake is disengaged and jacks are not retracted with any change in sensor readings. In alarm mode, the only available feature is to retract all jacks.
- The WAIT (Fig. 1K) LED shows the status of Air/Auxiliary features.
- The LEDs blink differently when in special controller modes (error, alarm and configuration). Learning how to recognize these modes is important.
- EXCESS ANGLE (Fig. 1L) LED blinks whenever the Y-axis (vehicle length) is over 50 degrees from programmed level point.

Maintenance

⚠WARNING

The coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in death, serious personal injury and/or severe product or property damage.

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Purging the Hydraulic System

NOTE: Make sure jacks are fully retracted prior to filling reservoir to prevent over-filling.

1. Zip-tie any loose wiring or hydraulic lines.

NOTE: The basic purge procedure to bleed the Lippert Hydraulic Systems can be performed without the use of any tools. The hydraulic system will purge the air from the hydraulic lines and cylinders by simply running the pump.

NOTE: It is recommended to perform a minimum of three complete cycles (steps 2-7) to ensure both proper function and adequate fluid level of the system.

2. Start with all hydraulic components in the fully retracted position, meaning all jacks and slide-outs are brought back inside the coach as if the coach were ready for travel.

3. Find the hydraulic pump location and note the amount of fluid currently in the reservoir. The fluid level should be about ¼" from the top of the reservoir and no more than ½" from the top.

NOTE: When checking the fluid level after ensuring all hydraulic components are retracted, note if there are any bubbles, froth or foam on top of the fluid. This is an indication that air has been pushed back to the reservoir when the hydraulic components were retracted in the last cycle. Wait 15-20 minutes for the foam to dissipate before beginning the purge process.

4. If there is no froth or foam in the reservoir and the fluid is not within ½" of the top, fill the reservoir to within the level described in step 3.
5. With the fluid level full and no foam in the reservoir, begin cycling the hydraulic system.
6. Extend jacks fully, taking the coach off the tires. If the coach has hydraulic slide-outs, extend all slide-outs. Once all jacks and slide-outs are extended, immediately retract all slide-outs and then jacks.
7. Check the reservoir foam. If foam is present, see NOTE following step 3 and then repeat steps 4-6. Repeat these steps until no foam is present in the reservoir. If no foam is present, the system is purged of air.

Preventative Maintenance

1. Check hydraulic fluid in reservoir every 12 months. If fluid is a clear, red color, do not change. If fluid is milky, pink and murky, and not clear red in color, drain reservoir and add new fluid. Hydraulic fluid in reservoir should be changed a minimum of every five years.

NOTE: Check the hydraulic fluid only when all the jacks are fully retracted.

NOTE: When checking the hydraulic fluid level, fill reservoir to within ¼" to ½" of fill spout.

2. Inspect and clean all power unit electrical connections every 12 months. If corrosion is evident, spray connections with electrical contact cleaner.
3. Remove dirt and road debris from jacks as needed.
4. If jacks are extended for long periods of time, it is recommended to spray exposed jack rods with a dry silicone lubricant every three months for protection. If the coach is located in a salty environment, it is recommended to spray the rods every four to six weeks.

RETURN TO TOC

LEVEL UP® MOTORHOME LEVELING (2013-PRESENT)

OWNER'S MANUAL

Scan for product support

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Introduction

The Lippert Level Up® Motorhome Leveling system is an electric/hydraulic system. A 12V DC power supply drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach.

The use of the Lippert Level Up® Motorhome Leveling System to support the coach for any reason other than which it is intended is prohibited by Lippert's Limited Warranty. The Lippert Level Up® Motorhome Leveling System is designed as a "Leveling" system only and should not be used to provide service for any reason under the coach, such as changing tires or servicing the leveling system.

Lippert jacks are rated at a capacity appropriate for the coach. Each jack has a 9-inch diameter (63.52 inches) footpad on a ball-swivel for maximum surface contact. Optionally, 12-inch diameter (1132 inches) footpads are available.

Each jack is powered from a central 12V DC motor/pump assembly, which includes a hydraulic oil reservoir tank, control valve manifold and solenoid valves. The leveling system is controlled electronically from the driver's seat of the coach. The touchpad is mounted in the dash. The system can be operated in a manual mode or a fully automatic mode.

Additional information about this product can be obtained from lci1.com/support or by downloading the free LippertNOW app. The app is available on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.

For additional support on this product, please visit: https://support.lci1.com/motorized-br-level-up.

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels.

This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠WARNING

Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other services while coach is supported by the Lippert Level Up® Motorhome Leveling system could result in death, serious personal injury and/or damage to the motor home.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

⚠CAUTION

Always wear eye protection when performing service, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.

⚠CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

Selecting A Site

When the coach is parked on an excessive slope the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

NOTE: EXCESS ANGLE will appear on the LCD screen if the coach is 3.5 degrees out of level front-to-rear or side-to-side. See Touchpad Error Codes chart in Troubleshooting section.

The leveling system **MUST** be operated under the following conditions:

1. The coach is parked on a reasonably level surface.
2. The coach "PARKING BRAKE" is engaged.
3. The coach transmission should be in the neutral or park position.
4. Be sure all persons, pets and property are clear of the coach while Lippert Level Up Motorhome Leveling system is in operation.
5. Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
6. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
7. Make sure hands and other body parts are clear of fluid leaks. Oil leaks in the Lippert Level Up Motorhome Leveling system may be under high pressure and can cause serious skin penetrating injuries.

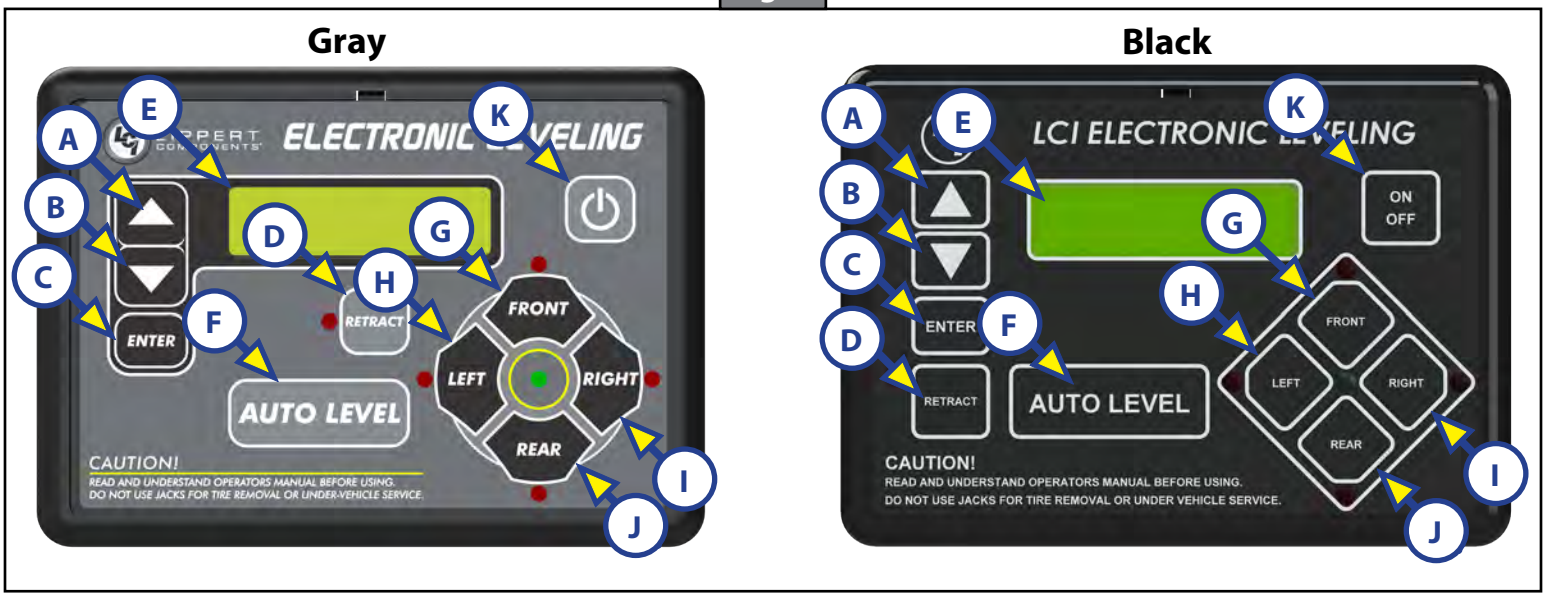
⚠WARNING

Never lift all wheels off the ground. Lifting all wheels off the ground creates an unsafe condition which may result in serious personal injury or death. Make sure unit is supported in accordance with manufacturer's recommendations.

8. Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching the ground will create an unstable and unsafe condition.

Touchpad Diagram

Fig. 1



NOTE: Units manufactured before January 2018 will utilize the black touchpad.

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. - Manual mode ONLY Press and hold for several seconds to activate Auto Retract Function.
E	LCD Display - Displays procedures and results.
F	AUTO LEVEL - Places leveling system into auto level mode.
G	FRONT - Activates both front jacks in manual mode.
H	LEFT - Activates left rear jack in manual mode.
I	RIGHT - Activates right rear jack in manual mode.
J	REAR - Activates both rear jacks in manual mode.
K	Power Button - Turns leveling system on and off.

Operation

Automatic Leveling Descriptive Logic

Grounding: Steps 1-3 describe the process of how the AUTO LEVEL LOGIC extends the jacks to the ground.

1. Depending on which end of the coach is lowest to the ground, the level sensor in the brain will activate the jacks, one at a time on the lowest end first, either front or rear.
   - **A.** Ground lowest side jack first e.g., front passenger side (curbside).
   - **B.** Ground remaining side jack next i.e., front driver side (roadside).
2. Together, both jacks will lift lowest end until level i.e., front of coach will lift briefly until the coach is level.
3. The system will then ground remaining jacks, one at a time e.g., rear jacks.
   - **A.** Ground lowest side jack first e.g., rear passenger side.
   - **B.** Ground remaining side jack next e.g., rear driver side.

Leveling: Steps 4-6 describe the process of how the AUTO LEVEL LOGIC levels the coach after the jacks have been grounded. This process may repeat several times until the coach is level.

4. Front-to-rear
5. Side-to-side
6. Individual

NOTE: Minor adjustments will be made throughout the leveling process to limit or prevent frame twisting.

NOTE: After starting the automatic leveling cycle it is very important that there is no movement within the coach until the auto level sequence is complete. Failure to remain still during the leveling cycle may have a negative effect on the performance of the leveling system.

Automatic Leveling Procedure

Coach must be running for Lippert Level Up Motorhome Leveling system to operate.

1. Press the ON/OFF (power) button (Fig. 1K) on the touchpad to turn the leveling system on. The leveling system is now operational and the electronic level lights will activate.
2. Check to see that the Control Pad ENGAGE PARK BRAKE is engaged.
3. Press the AUTO LEVEL (Fig. 1F) button to begin the automatic leveling cycle.
4. Press the ON/OFF (power) button to turn the leveling system off.

Manual Leveling Procedure

When leveling the coach, the coach should be leveled front-to-rear first, then leveled left-to-right.

NOTE: The coach requires 12.7V DC to begin the auto leveling function. If voltage at the power unit is below 12.7V DC, run the engine.

1. Press the ON/OFF (power) button (Fig. 1K) on the touchpad to turn the leveling system on. The leveling system is now operational and the electronic level lights will activate.
2. Press the Down Arrow button (Fig. 1B) to display "MANUAL LEVEL" on the LCD screen (Fig. 1E). Press the ENTER button (Fig. 1C) to set.
3. Press the FRONT button (Fig.1G) until the front jacks contact the ground and lift the front of the coach 1-2 inches.
4. Press the REAR button (Fig. 1J) until the rear jacks contact the ground and lift the rear of the coach. Keep the button depressed until the level indicator displays "LEVEL."
5. Press the LEFT or RIGHT button (Fig. 1H or I).
   - **A.** If the level indicator is towards the left (roadside) of the coach, press the RIGHT button (Fig. 1I).
   - **B.** If the level indicator is towards the right (curbside) of the coach, press the LEFT button (Fig. 1H).
   - **C.** Keep either button (RIGHT or LEFT) depressed until the level indicator displays "LEVEL."

NOTE: The right and left jacks are used to level the coach side-to-side. Pressing the LEFT button on the

touchpad will extend both left jacks. Pressing the RIGHT button on the touchpad will extend both right jacks. Jacks always work in pairs; both front jacks, both right side (curbside) jacks, etc.

6. Repeat steps 2-5 if needed.
7. Press the ON/OFF (power) button (Fig. 1K) to turn the leveling system off.
8. Visually inspect all jacks to ensure all footpads are touching the ground. For example, if one of the rear jack footpads is not touching the ground, press the corresponding LEFT or RIGHT button to lower the non-compliant jack to the ground.

Jack Retract Procedures

1. Press the ON/OFF (power) button (Fig. 1K) to turn the leveling system on. The LCD screen (Fig. 1E) will display "JACKS DOWN."
2. Press the Down Arrow button (Fig. 1B) to display "AUTO RETRACT" on the LCD screen.
3. Press the ENTER button (Fig. 1C) to begin automatically retracting the jacks.

NOTE: To stop the jacks from retracting, turn the leveling system off, then back on again by pressing the ON/OFF (power) button twice. Do steps 1-5 of the Manual Leveling Procedure section to manually level the coach. Press the ENTER button to acknowledge.

4. When the "JACKS DOWN" message on the LCD display goes off, press the ON/OFF (power) button to turn the leveling system off.
   - **A.** Do a visual inspection around the coach to verify all jacks are fully retracted.
   - **B.** If all jacks are fully retracted, the coach is ready for travel.
5. To retract jacks while in MANUAL mode:
   - **A.** Press the RETRACT button (Fig. 1D) until it lights.
   - **B.** By pressing any of the jack buttons (Fig.1G-J), the jacks will retract in pairs i.e., pressing the FRONT button makes both front jacks retract in unison.
6. An "auto retract" sequence can also be performed by pressing and holding the RETRACT button (Fig. 1D) for one second.

NOTE: In cold weather operation, always check to make sure all jacks, slide rooms and steps are fully retracted before traveling.

Leveling System Safety Features

1. The leveling system will automatically shut down after four minutes of no operation.
2. Auto leveling cycle cannot be started until all jacks are fully retracted.
   - **A.** Make sure jacks are retracted before attempting to auto level.
   - **B.** The leveling system will automatically perform a full retract of all jacks if jacks are down when there is a request for an auto cycle.
3. The leveling system will refuse any operation when a low voltage condition is present.
4. The leveling system will automatically sound an alarm and retract all jacks if the PARK BRAKE is disengaged and jacks are not retracted with any change in sensor readings.

NOTE: When the leveling system is in alarm mode, only the "retract all jacks" feature is available.

5. If the "WAIT" message displays in the touchpad's LCD screen (Fig. 1E), this indicates the status of Air/Auxiliary features.

Low Voltage Signal

1. The vehicle requires 12.7V DC to operate in the AUTO mode.
   - **A.** If the voltage is too low, the touchpad's LCD screen (Fig. 1E) will display "LOW VOLTAGE."
   - **B.** If voltage drops below 12.7V DC, the leveling system will only operate in manual mode and continue to display "LOW VOLTAGE."
2. If voltage drops below 9.5V DC during automatic or manual operation "LOW VOLTAGE" will appear in the LCD screen and the leveling system will stop operating.

Automatic Safety Shutoff

The touchpad will automatically turn off after four minutes of inactivity. To reset the leveling system, the coach ignition must be turned off, then back on and the ON/OFF (power) button (Fig. 1K) must be pressed.

Drive Away Protection System

If the coach's ignition is in the “RUN” position, jacks are down and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.

The power unit will also operate to keep the jacks retracted in the event the leveling system loses pressure as the coach is being driven.

“Jacks Down" Alarm

The leveling system is designed to sound an alarm and illuminate the touchpad in the event of two possible scenarios:

1. A retract hose leak.
2. The pressure holding the jacks in the retracted position falls to approximately 1500 psi, which activates the alarm. If the alarm sounds and the touchpad illuminates and flashes while driving the vehicle:
   - **A.** Immediately find an area to safely pull the vehicle off of the roadway.
   - **B.** Set the PARKING BRAKE.
   - **C.** Inspect all jacks, hoses and valves for leaks.
   - **D.** If no leaks are observed:
     - **I.** Turn leveling system touchpad on.
     - **II.** Press RETRACT button (Fig. 1D).
     - **III.** Inspect jacks. If jacks are retracted and no leaks are observed, vehicle can be driven.
   - **E.** If system is leaking or alarm does not subside after applying step 2, disconnect wires from pressure switch and proceed immediately to a service center.

NOTE: The pressure switch is a blue and gold colored valve located on the power unit manifold identified by the spark proof style connector with yellow and black wires. See figure 5.

NOTE: For prolonged travel to the service center, periodically stop and check the disposition of the leveling jacks to make sure they are not extending.

For Diesel Units with Air Bag Suspensions ONLY:

The leveling control will automatically detect an air bag system. If the unit does not use air bags, the touchpad LCD screen will display “NO” for air bag control. If the LCD screen reads "NO," but an air bag system is present on the unit:

1. Confirm harness is connected properly.
2. Run the auto level function.
3. Recalibrate the Zero Point.
4. If the air bag system is still not being detected, contact the OEM for more information.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than the predefined amount, the touchpad will signal this error to the user.

When in alarm mode:

1. All LEDs will flash.
2. The buzzer alarm will beep.
3. The status LEDs will show the current leveling system status.
4. The leveling system will begin retracting all jacks.

NOTE: No other leveling system features will be available when in alarm mode.

Level Zero Point Calibration

Before auto leveling features are available, the Level Zero Point must be set. This is the point to which the system will return when an auto leveling cycle is initiated.

To set the zero point (controller module must be fully secured in production-intent location), first run a manual leveling sequence to get the vehicle to the desired level point. Then activate the Level Zero Point configuration mode by performing the following sequence:

1. Turn touchpad off.
2. Press the FRONT button (Fig. 1G) 10 times.

NOTE: On Winnebago coaches, press the FRONT button five times.

3. Press the REAR button (Fig. 1J) 10 times.

NOTE: On Winnebago coaches, press the REAR button five times.

4. A tone will sound and the LCD screen display (Fig. 1E) will read "ZERO POINT CALIBRATION."
5. Press the ENTER button (Fig. 1C) to set the zero point.
6. The LCD screen will then display "Zero Point Stability Check" and "PLEASE WAIT."
7. A tone will sound and the LCD screen display will read "ZERO POINT SUCCESSFUL."
8. The touchpad will then turn off.

Manual Override

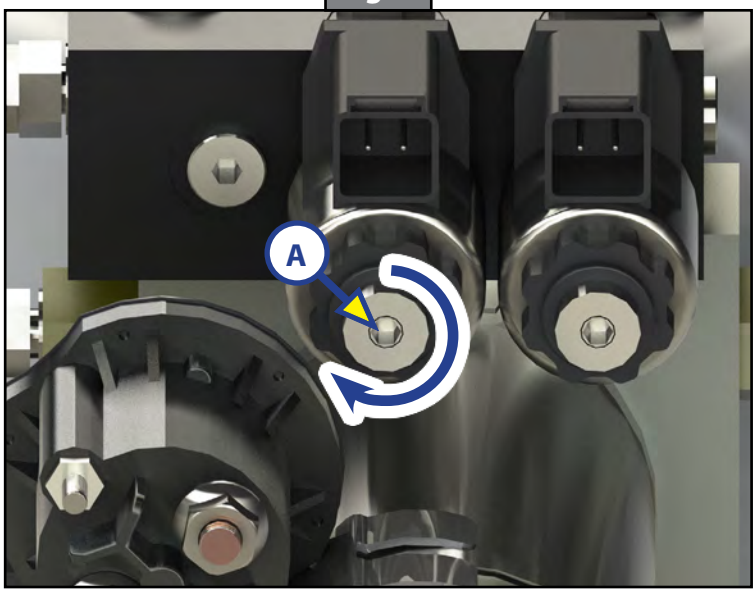
Manual Override - Jacks

The leveling system can be run with auxiliary power devices like cordless or electric power drills. In the event of electrical or system failure, this manual method of retracting the jacks can be used. A standard hand-held drill is all that is required.

To manually extend or retract jacks, do as follows:

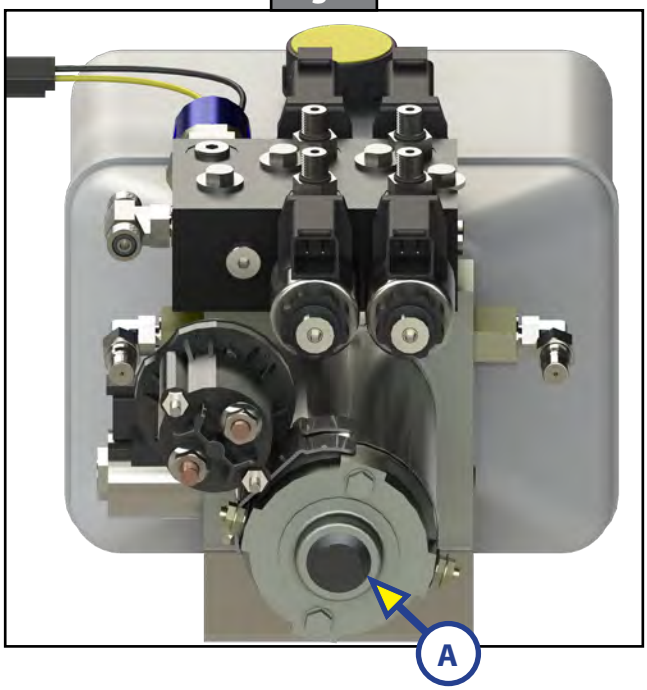
1. Insert a 5/32" hex wrench into the adjustment end of the valve (Fig. 2A).
2. Turn the hex wrench on the valve clockwise (Fig. 2) to allow the jacks to be extended or retracted.
3. Remove the hex wrench from the valve.
4. Remove the plastic cap (Fig. 3A) from the end of the motor.

Fig. 2



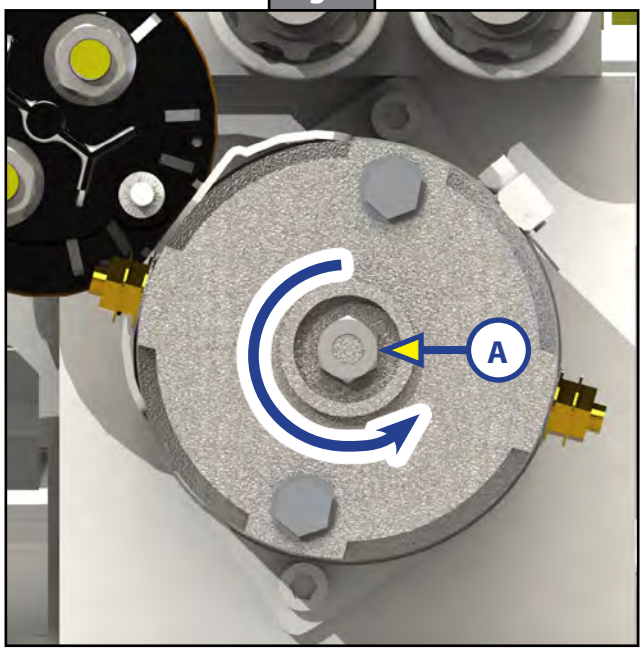
Clockwise for Manual Override

Fig. 3



5. Disconnect or shield power cables on the motor.
6. Using a ½" socket and auxiliary drive device, e.g., cordless or electric power drill, insert ½" socket onto the coupler (Fig. 4A).
7. Run drive device in reverse (counterclockwise) to retract jacks (Fig. 4).
8. After the jacks have been fully extended or retracted, remove the 1/2" socket and drill from the motor's coupler.

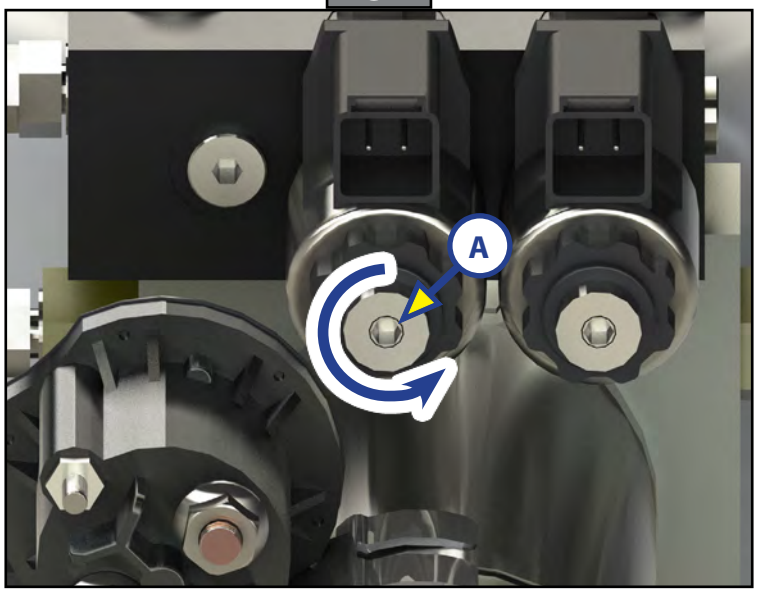
Fig. 4



Run Counterclockwise to Manually Retract Jacks.

9. Reinsert the 5/32" hex wrench into the valves' manual override adjustment (Fig. 5A).
10. Turn the valve's manual override completely counterclockwise (Fig. 5) until the adjustment no longer turns, thus completely closing the valves.
11. Do not over-tighten override set screws, as this can damage the valves.

Fig. 5



Counterclockwise for normal operation

Troubleshooting

For leveling system concerns, refer to the Leveling System Troubleshooting Chart.

Leveling System Troubleshooting Chart		
What Is Happening?	Why?	What Should Be Done?
System will not turn on and ON/OFF indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Parking brake not set.	Set parking brake.
	Controls have been on for more than four minutes and have timed out.	Turn ignition off and then back on.
Touchpad turns on, but turns off when jack button is pushed.	Low voltage on battery.	Start coach to charge battery.
Touchpad turns on, coach will not auto level, JACKS DOWN light is on, jacks are retracted.	Faulty pressure switch or low pressure in system.	Press RETRACT ALL JACKS button on touchpad. If JACKS DOWN light remains on, call Lippert Customer Care.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Fill reservoir with recommended ATF.
	Jack valve is inoperative.	Clean, repair or replace.
	Electronic signal is lost between controller and jack valves.	Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace controller.
Any one or two jacks will not retract.	Hose damaged or disconnected.	Replace with new hose or reconnect hose.
	Return valve inoperative.	Replace inoperative return valve.
	Electronic signal is lost between controller and solenoid.	Test for voltage drop between controller and jack valve. Repair bad wiring or replace defective controller or valve.
JACKS DOWN light does not go out when all jacks are retracted.	Insufficient pressure in system.	Contact Lippert Customer Care.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and JACKS DOWN light starts flashing while traveling; jacks are fully retracted.	Loss of pressure in leveling system.	Contact Lippert Customer Care.
	Retract pressure switch inoperable.	Check connection or replace.
Jack bleeds down after being extended.	Valve Manual Override open.	Close override.
Touchpad powers up; LOW VOLTAGE light flashes.	Engine not running.	Start coach engine.
Low voltage light on solid.	Charging system faulty.	Turn key OFF, then back ON again to reset. Check power and ground connections on battery, alternator and chassis.
No power to touchpad.	Tripped circuit breaker.	Reset breaker.
	Ignition not on.	Turn on.

Error Mode

All normal functions will be disabled when the system is in Error Mode.

1. Auto Level can only commence if running voltage is 12.7V DC or above.
2. Auto Level operation will halt if running voltage drops to 9.5V DC.
3. Manual Level operation can be performed at all running voltages above 9.5V DC.

If an error occurs before or during operation, the error will be displayed in the LCD screen (Fig. 1E) and an alarm will sound. To reset all error or service displays, press RETRACT and ENTER buttons (Fig. 1D and C) at the same time. Refer to Touchpad Error Codes chart.

Touchpad Error Codes	
Error Text	Description
Excess Angle	Excess slope for auto leveling.
Feature Disabled	Control not zeroed.
External Sensor	Remote sensor short or disconnected.
Out of Stroke	Check campsite for even, level ground and turn engine on - Check battery voltage under load.
Low Voltage	Turn engine on - Check battery voltage under load.
Function Aborted	Panic stop.
Jack Timeout	Auto mode/Retract timeout.
Auto Level Fail	Unable to level.
Not Configured	Control not zeroed.
Zero Not Set	Control not zeroed.
Battery Voltage	Turn engine on - Check battery voltage under load.
Apply Park Brake to Auto Level	Set parking brake.
Unit has retracted for longer than 50 seconds	Retract timeout, return leveling jacks for service. Latched retract mode.
Unable to Finish Leveling	Move coach to a more level site.
Check Wiring	Touchpad is powered, but not communicating with the controller. Check pin 1 and 2 of touchpad harness.
Caution, Excess Run Time	Pump run too long in manual mode.
Latched Retract/Service	Check for leaking jack hose or fitting, reset by pressing retract and enter at the same time.

Excess Angle

1. The control will not operate at extreme slopes i.e., 3.5 degrees front and rear and 3.5 degrees side-to-side.
2. If the coach indicates “EXCESS ANGLE” or “JACKS STROKED OUT“ during an auto level cycle, move the coach to a more level spot.

Maintenance

1. For optimum performance, the system requires full battery current and voltage. The battery must be maintained at full capacity.
2. Check the terminals and other connections at the battery, the controller, and the jacks for corrosion and loose or damaged connections.
3. Remove dirt and road debris from jacks as needed.
4. If jacks are down for extended periods, it is recommended to spray exposed leveling jack rods with a silicone lubricant every three months for protection. If the unit is located in a salty environment, it is recommended to spray the rods every 4-6 weeks.

Fluid Recommendation

⚠CAUTION

Do NOT use ATF Type E fluid. Type F ATF is NOT compatible with Lippert hydraulic system seals. Seals will not work properly.

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Component Description

Aluminum Jacks

Feature	Figure 6 - 433458	Figure 7 - 433464	Figure 8 - 433472
Capacity	8000 lbs	14,000 lbs	20,000 lbs
Stroke	15.00 inches	15.13 inches	16.00 inches
Bore	2.00 inches	2.50 inches	3.00 inches
H	21.375 inches	21.50 inches	23.063 inches
Rod Diameter	1.50 inches	1.875 inches	2.25 inches
Footpad	9-inch Standard		
	12-inch Optional (P/N 117238)		

Fig. 6

Fig. 7

Fig. 8

Hydraulic Power Unit

See figures 9 and 10 for hydraulic power unit feature identification and the following:

- Fittings - High Pressure O-Ring Face - Size 4
- Hose - ¼" I.D. 3000PSI - W.P. Rated

NOTE: Fittings are labeled with port assignments found stamped into the manifold for easy identification.

Fig. 9

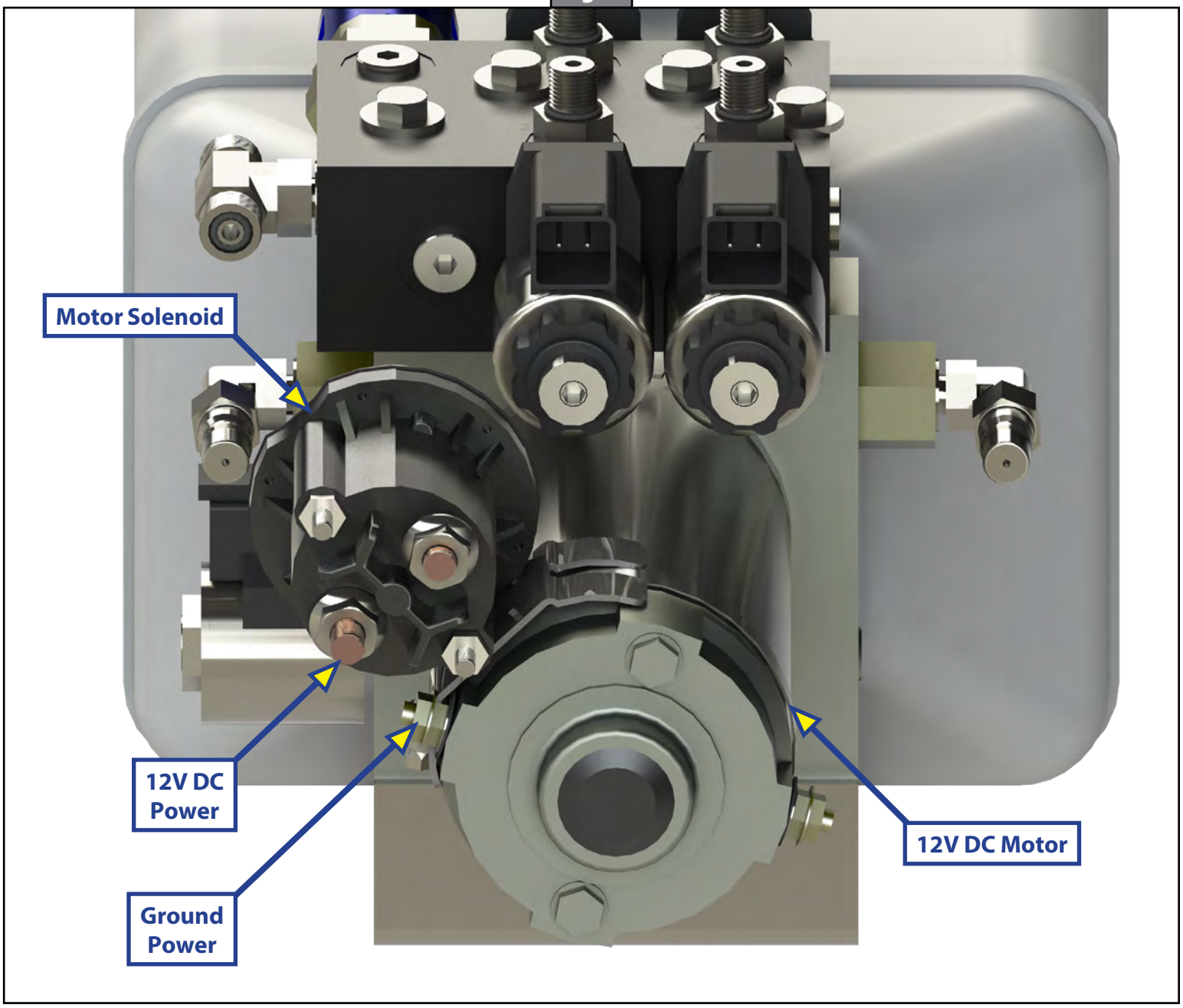
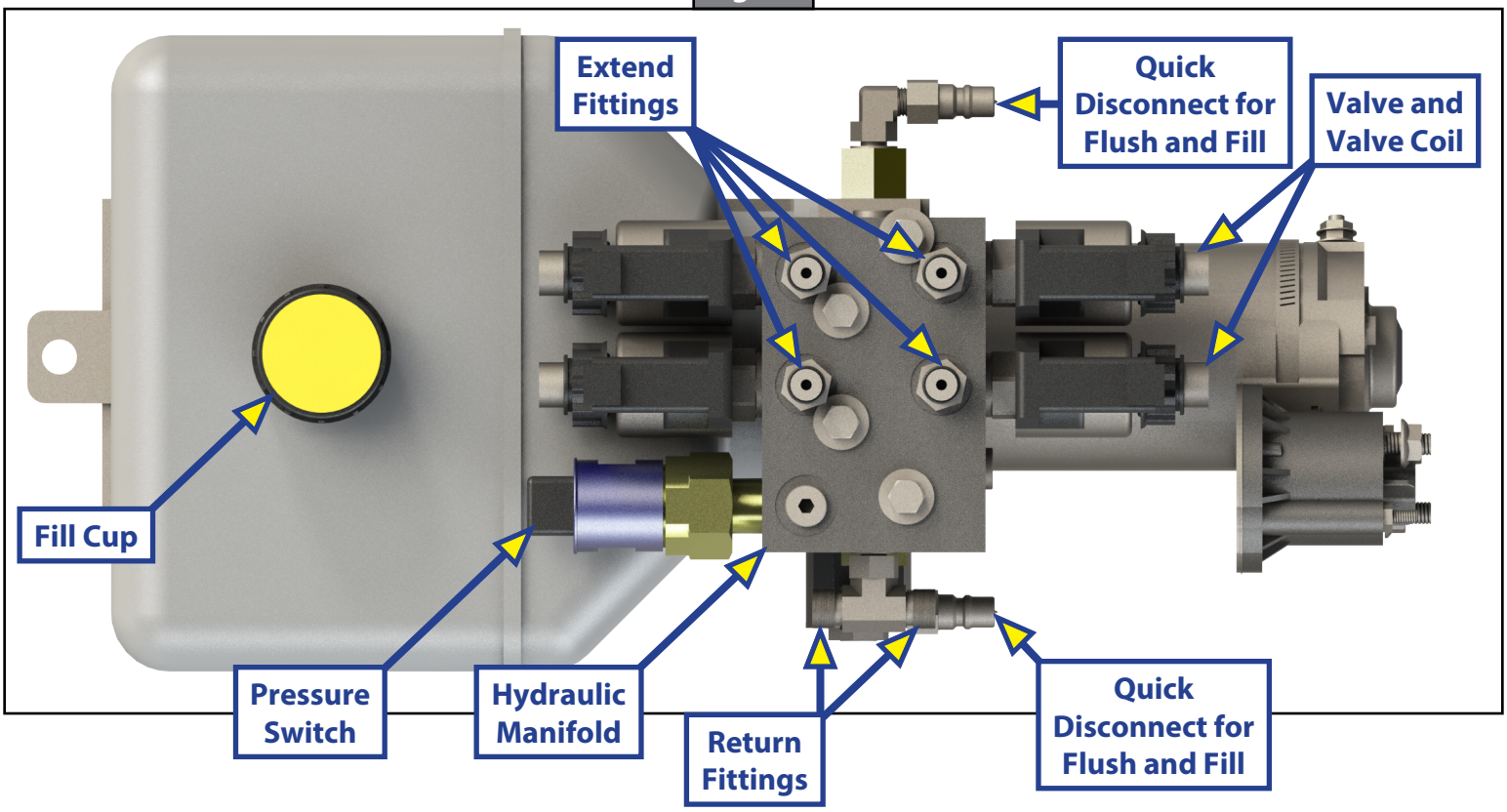


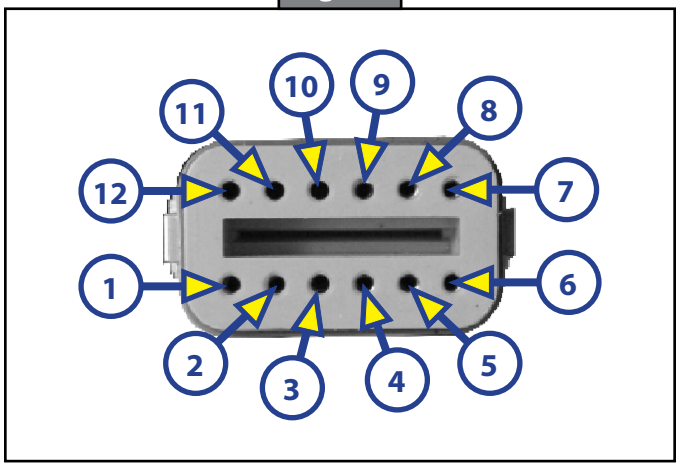
Fig. 10



12-Pin Wire Harness

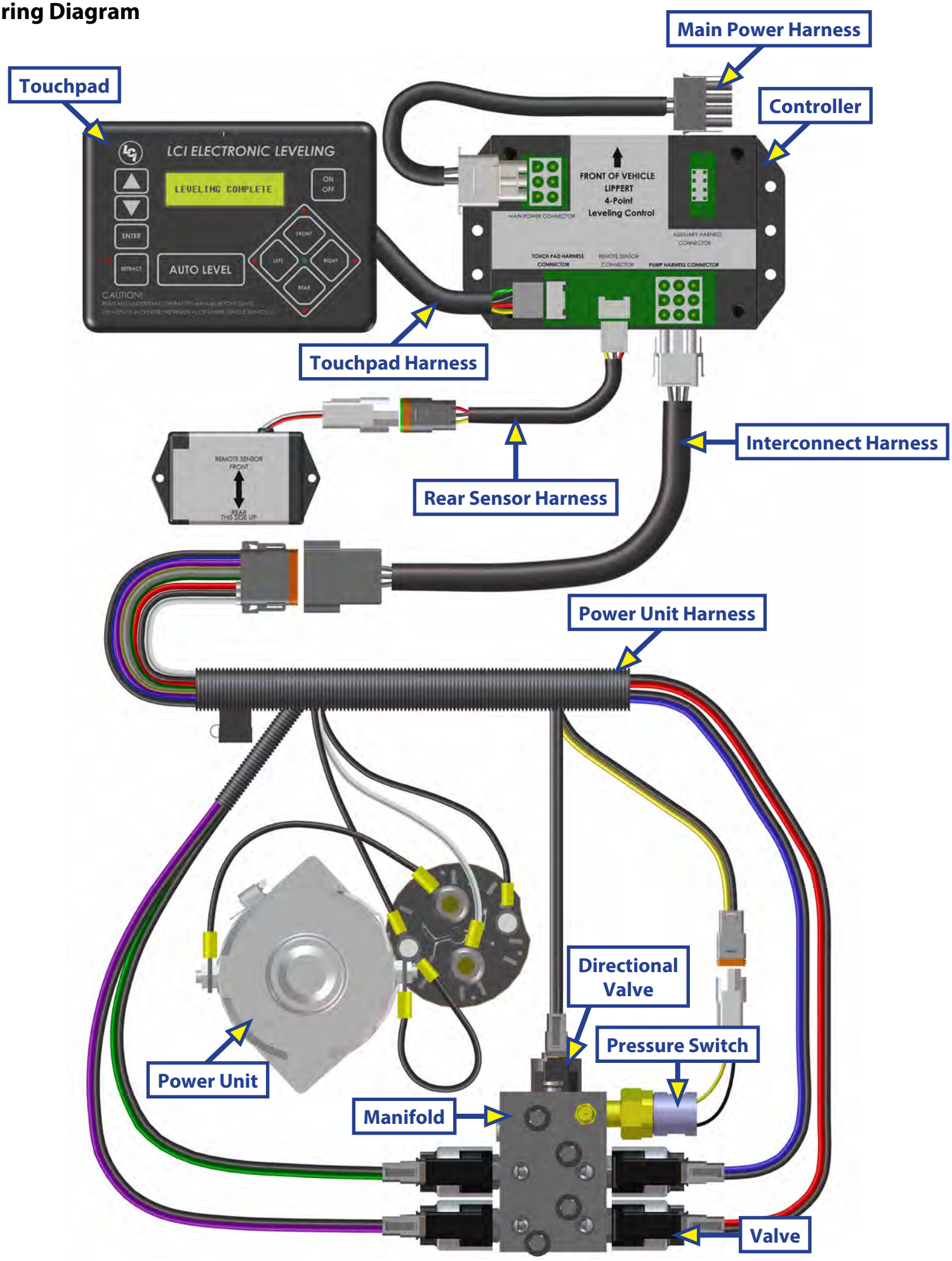
See figure 11 for 12-Pin wire harness pin locations and definitions.

Fig. 11

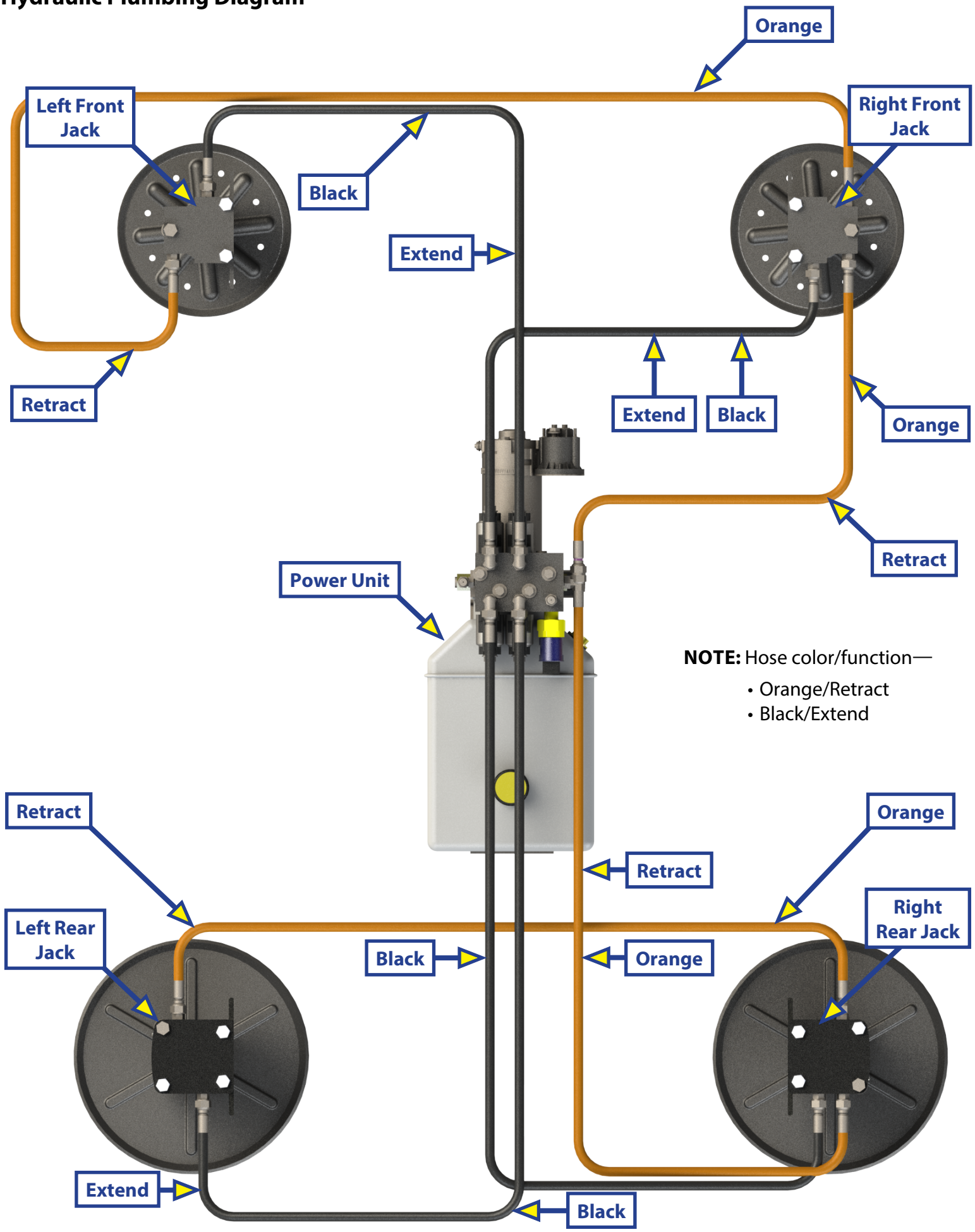


12-Pin Wire Harness Pin Definitions					
Pin #	Color	Function	Pin #	Color	Function
1	White	Chassis Power	7	Brown	Ground
2	Black/White	Pump Solenoid	8	Purple	Curbside Front Valve
3	Red	Curbside Rear Valve	9	Gray	Pump Solenoid
4	Green	Roadside Front Valve	10	— — —	Aux
5	Yellow	PSI Switch	11	— — —	Aux
6	Blue	Roadside Rear Valve	12	— — —	Aux

Wiring Diagram



Hydraulic Plumbing Diagram



RETURN TO TOC

LEVEL UP® MOTORHOME LEVELING WINNEBAGO INDUSTRIES 9-2015 TO PRESENT

OWNER'S MANUAL

Scan for product support

TABLE OF CONTENTS

Safety

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The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

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Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

The use of the Lippert Level Up Motorhome Leveling System for Winnebago Industries to support the coach for any reason other than which it is intended is prohibited by Lippert's Limited Warranty. The Lippert Level Up Motorhome Leveling System for Winnebago Industries is designed as a leveling system only and should not be used to provide service for any reason under the coach, such as changing tires or servicing the leveling system.

Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other service while coach is supported by the Lippert Level Up Motorhome Leveling System for Winnebago Industries could result in damage to the motorhome and/or cause serious injury or death.

1. Be sure to park the coach on solid, level ground.
2. Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
3. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
4. People and pets should be clear of coach while operating leveling system.
5. Be sure to keep hands and other body parts clear of fluid leaks. Oil leaks in the Lippert Level Up Motorhome Leveling System for Winnebago Industries may be under high pressure and can cause serious skin penetrating injuries.
6. Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching the ground will create an unstable and unsafe condition.

Prior to Operation

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

1. The coach is parked on a reasonably level surface.
2. The coach "PARKING BRAKE" is engaged.
3. The coach transmission should be in the neutral or park position.
4. Be sure all persons, pets and property are clear of the coach while Lippert Level Up Motorhome Leveling System for Winnebago Industries is in operation.

⚠CAUTION

After starting the automatic leveling cycle it is very important that you do not move around in the coach until the unit is level and the green LED light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an affect on the performance of the leveling system.

System Description

Please read and study the operating manual before operating the leveling system.

The Lippert Level Up Motorhome Leveling System for Winnebago Industries is an electric/hydraulic system. A 12V DC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach.

Mechanical portions of the Lippert Level Up Motorhome Leveling System for Winnebago Industries are replaceable. Contact Lippert to obtain replacement parts. See page 18 for the Bill Of Materials list.

Component Description

1. **Jacks**
   - **A.** Rated at a lifting capacity for your coach.
   - **B.** 9" diameter (63.5 square inch) foot pad on a ball swivel for maximum surface contact on all surfaces.
   - **C.** 12" diameter - (113 square inch) foot pad also available.
   - **D.** Powered from a 12V DC Motor/Pump assembly.
2. **Motor/Pump Assembly**
   - **A.** 12V DC Motor
   - **B.** Hydraulic oil reservoir tank
   - **C.** Control valve manifold
   - **D.** Solenoid valves
3. **System Controls**
   - **A.** Controlled electronically from the driver's seat of the coach.
   - **B.** Touch pad is mounted in the dash or side console.
   - **C.** Touch pad can be operated in manual mode or fully automatic mode.

Maintenance

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Preventative Maintenance

1. Check fluid in reservoir every 12 months. If fluid is a clear, red color, do not change. If fluid is milky, pink and murky, and not clear red in color, drain reservoir and add new fluid.

   NOTE: Check fluid only when all jacks are fully retracted.

   NOTE: When checking fluid level, fill to within ¼ to ½ inch of fill spout.
2. Inspect and clean all Power Unit electrical connections every 12 months. If corrosion is evident, spray unit with lubricant.

⚠WARNING

3. Remove dirt and road debris from jacks as needed.

The coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in death or personal injury.

4. If jacks are down for extended periods, it is recommended to spray exposed leveling jack rods with a silicone lubricant every three months for protection. If the coach is located in a salty environment, it is recommended to spray the rods every four to six weeks.

NOTE: OEM to install attachment brackets for leveling jacks.

Fig. 1 - 195860

Fig. 1

CAPACITY - 8,000 lb.
STROKE - 15.00 in.
BORE - 2.00 in.
HEIGHT - 21.1875 in.
ROD DIA. - 1.50 in.
9" FOOTPAD-STANDARD
12" FOOTPAD-***OPTION*** -
Part# - 117238

Fig. 2 - 236560

Fig. 2

CAPACITY - 14,000 lb.
STROKE - 15.13 in.
BORE - 2.50 in.
HEIGHT - 21.625 in.
ROD DIA. - 1.875 in.
9" FOOTPAD-STANDARD
12" FOOTPAD-***OPTION*** -
Part# - 117238

Fig. 3 - 258550

Fig. 3

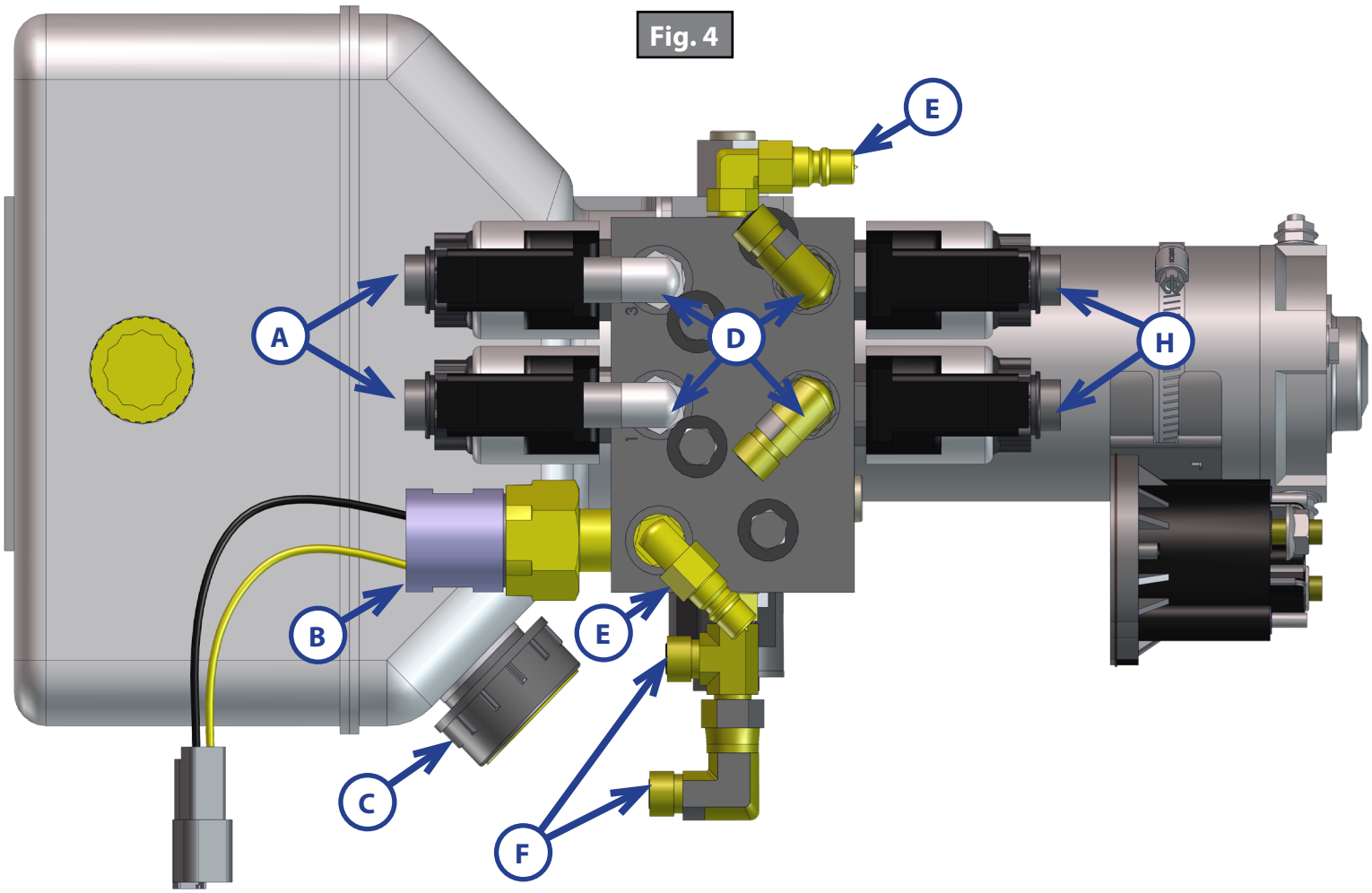
CAPACITY - 20,000 lb.
STROKE - 16.00 in.
BORE - 3.00 in.
HEIGHT - 23.125 in.
ROD DIA. - 2.25 in.
12" FOOTPAD-STANDARD

Fitting Orientation

NOTE: Fittings - High pressure O-Ring Face - Size 4

NOTE: Hose - ¼ in. I.D. 3000 psi - W.P. Rated

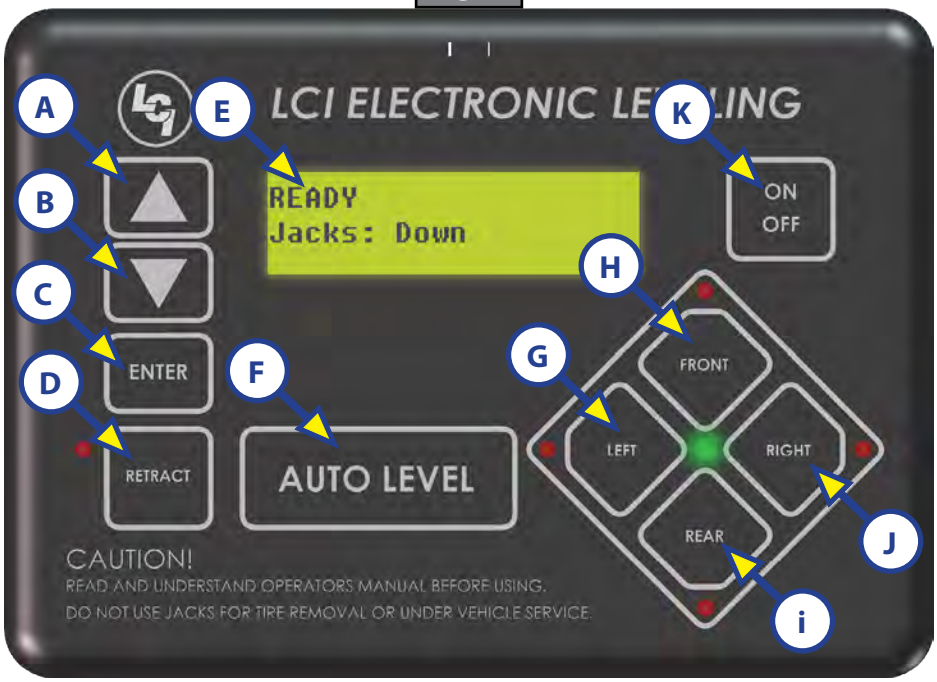
Fig. 4



Callout	Part #	Description
A	177094 / 174184	Valve/Coil - Rear Jacks
B	142927	Pressure Switch
C	--	Filler Vent
D	156846 / 141109 (Straight)	Extend Fittings **NOTE:** Fittings are labeled w/ port assignments found stamped into the manifold.
E	140457 / 320521 (Elbow)	Quick Disconnect for Flush & Fill
F	156846 / 143108	Return Fittings
H	177094 / 174184	Valve/Coil - Front Jacks

Controls

Fig. 5



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. - Manual mode ONLY
E	LCD Display - Displays procedures and results.
F	Auto Level - Places leveling system into auto level mode.
G	Front Jack Button - Activates both front jacks in manual mode.
H	Left Jack Button - Activates both left jacks in manual mode.
I	Right Jack Button - Activates both right jacks in manual mode.
J	Rear Jack Button - Activates both rear jacks in manual mode.
K	Power Button - Turns leveling system on and off.

Features

- **A.** Automatic extension of jacks from full retract position (with automatic ground detection).
- **B.** Automatic leveling of jacks.
- **C.** Manual leveling of jacks
- **D.** Automatic retraction of jacks (with automatic full retract detection).
- **E.** Air bag suspension features (configurable on/off).
- **F.** Jacks Up Verification (jacks not retracted and park brake disengaged).
- **G.** Automatic jack error detection and error mode.
- **H.** Configurations mode for Leveling Zero Point.
- **I.** Remote operation.

System Wiring Requirements

- **A.** Battery power (2 ga. SAE J1127. Type SGX).
- **B.** Battery ground (2 ga. SAE J1127. Type SGX).
- **C.** Logic power (switched via ignition).
- **D.** Power brake signal (open=park brake disengaged, GND=park brake engaged).
- **E.** 4-wire harness connecting Controller to Touch Pad.
- **F.** Jacks status input - Switched to GND.
  - **I.** Jacks not all up – switch closed to ground .
  - **II.** Jacks all up – switch open.

Air and Auxiliary Features (When Applicable)

System has the option to control external Air and Auxiliary features.

When enabled, the feature works according to the following logic:

- **A.** Air bag pressure automatically lowers when starting the auto or manual level sequence to maximize lift of jacks.
- **B.** Air bags automatically fill during any retract sequence or when the park brake is disengaged.

The Manual Air Bag Dump/Fill functions as follows:

1. Set park brake.
2. Scroll up twice to “MANUAL AIR CONTROL”.
3. Press enter.
4. Press REAR button (Fig. 5I) to dump, FRONT button (Fig. 5H) to fill.

Level Zero Point Calibration

Before auto-leveling features are available, the Level Zero Point must be set. This is the point to which the system will return when an auto leveling cycle is initiated.

To set the Zero Point (controller module must be fully secured in production-intent location), first run a manual leveling sequence to get the vehicle to the desired level point. Then activate the Level Zero Point configuration mode.

This mode is enabled by performing the following sequence:

1. Turn panel off.
2. Perform the following:
3. Press the "FRONT" button (Fig. 5H) 5 times.
4. Press the "REAR" button (Fig. 5I) 5 times.
5. At this point, an alarm will sound and the display will read "**ZERO POINT CALIBRATION**" ENTER to Set, POWER to Exit."
6. Press ENTER (Fig. 5C) to set the Zero Point.
7. Screen will then display "PLEASE WAIT".
8. Alarm will sound and the screen will display "ZERO POINT SUCCESSFUL".
9. Control will then turn “OFF”.

For DIESEL UNITS with Air Bag Suspensions ONLY:

NOTE: The leveling control will automatically program for air bag control. The option will not be present if no dump valve coil resistance is detected.

Error Mode

A. If an error occurs before or during operation, the error will be displayed in the LCD and an alarm will sound. To reset common ERROR displays, press ENTER (Fig. 5C).

NOTE: To reset "Return for Service" errors, press "ENTER" (Fig. 5C) and "RETRACT" (Fig. 5D) simultaneously.

B. All normal functions will be disabled when the system is in error mode.

C. Auto level can only commence if running voltage is 12.75V DC or above.

D. Auto level operation will halt if running voltage drops to 9.5V DC.

E. Manual level operation can be performed at all running voltages above 9.5V DC.

Excess Slope

A. The control will not operate at extreme slopes, i.e. 3.5° fore and aft and 3.5° side to side.

B. If the coach indicates “EXCESS ANGLE” or “OUT OF STROKE “ during an auto level cycle, move the coach to a more level spot .

LCD Display	What is Happening?	What Should Be Done?
****ERROR**** Excess Angle	Coach not parked on level ground. Zero point incorrectly calibrated.	Move coach to level ground prior to starting auto level sequence. Recalibrate Zero Point.
****ERROR**** External Sensor	Rear sensor shorted out or disconnected.	Check wire connection or replace sensor.
Out of Stroke	Jack has insufficient length to complete the leveling procedure.	Check the disposition of the jack.
Low Voltage	Battery voltage dropped below 9.5 VDC during operation.	Turn engine on, check battery voltage under load.
Function Aborted	A button was pressed on touch pad during Auto Level operation.	Hit enter to acknowledge. Restart procedure.
Unable to Finish Leveling	Excessive movement inside coach during auto level sequence.	Discontinue movement inside coach during auto level sequence.
Engage Park Brake	Parking brake not set prior to starting auto level sequence.	Set parking brake prior to starting auto level sequence.
Comm Error Check Wiring NOTE: Screen will not back light.	Wiring connections loose or faulty between touch pad and controller.	Check connections, replace communication harness if necessary.
****ERROR**** Retract Timeout Return Levelers for Service	Pressure switch did not sense retract pressure and pump timed out. Leaking hose or fitting.	Return levelers for service. Check for leaks, repair if necessary. Press enter and retract to clear error.
Excessive Angle	Occurs only in manual mode when the angle of the unit is too severe.	Use the manual functions to return coach to a more level condition.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than a predefined amount, the panel will signal this error to the user.

The system performs an automatic retract.

No other features are available in this mode.

Miscellaneous

- **A.** The leveling system will automatically shut off after being idle for 4 minutes.
- **B.** A "Re-level" feature is programmed into the Rev G controller. If the jacks are extended and the user presses Auto Level again the system will re-level from that point. The system will not retract before performing the Re-Level.
- **C.** System will refuse any operation when a low voltage condition is present.
- **D.** System will automatically alarm and retract if park brake is disengaged and jacks are not retracted with any change in sensor readings. In alarm mode, the only available feature is to retract all jacks.

Low Voltage Signal

- **A.** The vehicle requires 12.75V DC to operate in the AUTO mode. If the voltage is too low, the screen will display "LOW VOLTAGE".
- **B.** Minimum Voltage - If voltage drops below 9.5V DC during AUTO or MANUAL operation, "LOW VOLTAGE" will appear in the screen and the system will cease operating.

NOTE: Coach will operate in manual mode between 9.5V DC and 12.75V DC.

Operation

Selecting A Site

When the coach is parked on an excessive slope the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

"EXCESS ANGLE" will appear on the LCD screen if the coach is 3.5° out of level front to rear or side to side. See error code chart on Page 10.

Automatic Leveling Procedure

NOTE: Refer to Component Description on page 4 and page 7 (Fig. 5) for questions regarding location and functions of the Lippert Level Up Motorhome Leveling System for Winnebago Industries system.

NOTE: Coach must be running and parking brake must be engaged for Lippert Level Up Motorhome Leveling System for Winnebago Industries to operate.

1. Press “ON/OFF” button to turn system “ON” (Fig. 5K).
2. Press “AUTO LEVEL” button (Fig. 5F). LCD Screen will display "REMAIN STILL".
3. The coach will level automatically and indicate "Auto Level - SUCCESS!" in LCD display (Fig. 5E).

NOTE: Display will then read "LEVEL - Jacks: Down". Do not press any buttons until this message appears or a "FUNCTION ABORTED" error will be displayed.

NOTE: Always check to make sure all jacks are fully retracted before travel.

Automatic Leveling Descriptive Logic

Grounding: Steps 1 - 7 describe the process of how the AUTO LEVEL LOGIC extends the jacks to the ground:

1. Depending on which end of the coach is lowest to the ground the level sensor in the controller will activate the jacks, one at a time on the lowest end first, either front or rear.
2. Ground lowest side jack first; i.e., front passenger side.
3. Ground remaining side jack next; i.e., front driver side.
4. Together, both jacks will lift lowest end until level; i.e., front of coach will lift briefly until the coach is level.
5. The system will then ground remaining jacks, one at a time; i.e., rear jacks.
6. Ground lowest side jack first; i.e., rear passenger side.
7. Ground remaining side jack next; i.e., rear driver side.

Leveling: Steps 8- 11 describe the process of how the AUTO LEVEL LOGIC levels the coach once the jacks have been grounded. This process may repeat several times until level.

8. Fore/aft
9. Side/side
10. Individual
11. Minor adjustments to limit/prevent twist

⚠ CAUTION

After starting the automatic leveling cycle it is very important that you do not move around in the coach until the unit is level and the green LED light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

Manual Leveling Procedure

NOTE: When leveling your coach the coach should be leveled from front to rear first. When the coach is level from front to rear, then level the coach from left to right.

NOTE: Coach requires 12.75 VDC to commence auto leveling function. If voltage at the power unit is not 12.75 VDC, run the engine.

1. Apply parking brake.
2. Turn ignition “On”.
3. Press “ON/OFF” button (Fig. 5K) to turn system "ON".
4. Press “UP” or “DOWN” button (Fig. 5A/B) to scroll through features to “MANUAL MODE” in display.
5. Press “ENTER” (Fig. 5C).
6. Press “FRONT” button (Fig. 5H) to extend front jacks to the ground; Press “REAR” button (Fig. 5I) to run rear jacks to ground and level the coach front to back.
7. Press appropriate “LEFT” or “RIGHT” button to level the coach from side to side. Red flashing lights next to the buttons on touch pad will indicate which side(s) of the coach needs to be raised to achieve level condition.

NOTE: Jacks always work in pairs, i.e., “FRONT” button operates both front jacks, etc.

NOTE: The right and left jacks are used to level the coach side to side. Pressing the LEFT button (Fig. 5G) on the control panel will extend both left jacks. Pressing the RIGHT button (Fig. 5J) on the control panel will extend both right jacks. Jacks always work in pairs, both front jacks; both right side jacks, etc.

8. Repeat steps 2 through 7 as needed.
9. Turn power off to leveling system by Pressing ON/OFF button (Fig. 5K).
10. Visually inspect all jacks to ensure all footpads are touching the ground. Should one of the rear jack footpads not be touching the ground, press the corresponding LEFT or RIGHT arrow buttons to lower the non-compliant jack to the ground.

⚠WARNING

NEVER LIFT ALL THE WHEELS OFF THE GROUND TO LEVEL THE COACH!
Lifting all the wheels off the ground may result in death or serious personal injury.

Jack Retract Procedures

1. Energize the system by pressing ON/OFF button (Fig. 5K) on control panel. The LCD screen will display READY Jacks: Down".
2. Press "DOWN" button (Fig. 5B) to display "Auto Retract All" on the screen.
3. Press "ENTER" (Fig. 5C) to begin.

NOTE: If the need to stop the jacks from retracting arises, turn the system off and back on again by pressing the "ON/OFF" button (Fig. 5K) twice. The coach can then be manually leveled by following steps 1-9 in the MANUAL LEVELING PROCEDURE section. Press "ENTER" to acknowledge.

4. The jacks will retract and shut off automatically; the display will read "READY - Jacks: Up". Press the "ON/OFF" button (Fig. 5K) on the Control Panel to de-energize the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, you may proceed to travel.
5. To retract in the MANUAL mode, press the "RETRACT" button (Fig. 5D) until it lights. By pressing any of the JACK buttons, the jacks will retract in pairs, i.e. "FRONT" button, both front jacks will retract, etc.

NOTE: Prior to allowing manual retract functions, the air bags will fill. There will be a 22 second countdown on the LCD display while the air bag fill occurs.

6. “AUTO RETRACT” can also be commenced by pressing and holding the "RETRACT" button (Fig. 5D) for 1 second.

NOTE: Always check to make sure all jacks are fully retracted before travel.

Remote Leveling Operation

TO BEGIN - INSIDE COACH - Press ON/OFF button. ON/OFF LED on TOUCH PAD will illuminate. LED at REMOTE SWITCH will also illuminate. Ready to operate.

Fig. 8

OUTSIDE COACH - Press ROCKER SWITCH (Fig. 6) for operation.

AUTOMATIC MODE - Press ROCKER SWITCH and release toward LEVEL (Fig. 6A) position. A slowly blinking LED indicates Automatic Leveling Operation in progress. Operation completion is indicated by LED at ROCKER SWITCH flashing rapidly for 2 seconds and then staying illuminated until control unit times out.

JACKS STORE - Press ROCKER SWITCH and release toward JACKS STORE (Fig. 6B) position. The slowly blinking LED indicates JACKS STORE (Fig. 6B) in progress. Operation completion is indicated by LED at ROCKER SWITCH flashing rapidly for 2 seconds and then staying illuminated until control unit times out.

STOPPING EXTEND/RETRACT MID-OPERATION - Press the ROCKER SWITCH towards LEVEL (Fig. 6A) or JACKS STORE (Fig. 6B) to stop operation of LEVELING SYSTEM or press the ON/OFF button on the TOUCH PAD inside the coach.

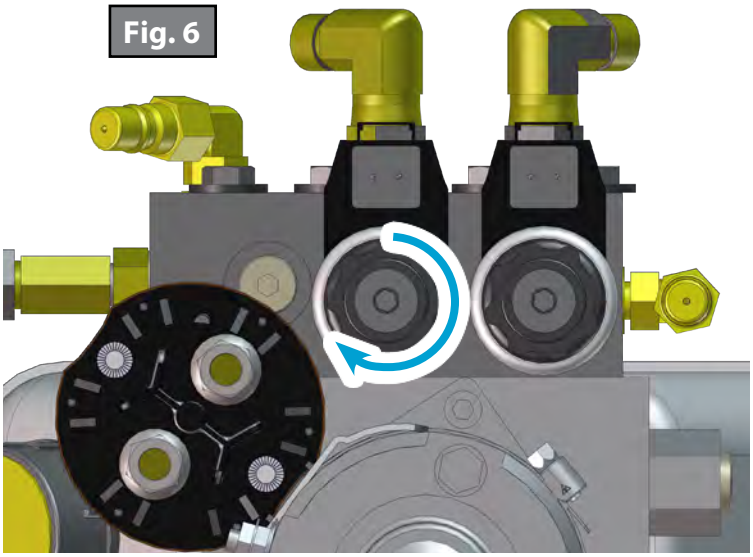
RESTARTING JACKS STORE AFTER MID OPERATION STOP - To restart JACKS STORE (Fig. 6B) after it has been stopped mid-operation, press the ROCKER SWITCH and release in the JACKS STORE (Fig. 6B) position.

RESTARTING LEVEL AFTER MID OPERATION STOP - To restart LEVEL (Fig. 6A) after it has been stopped mid-operation, press the ROCKER SWITCH and release in the JACKS STORE (Fig. 6B) position to retract jacks completely. After jacks are completely retracted, press ROCKER SWITCH and release in the LEVEL (Fig. 6A) position.

Manual Override - Jacks

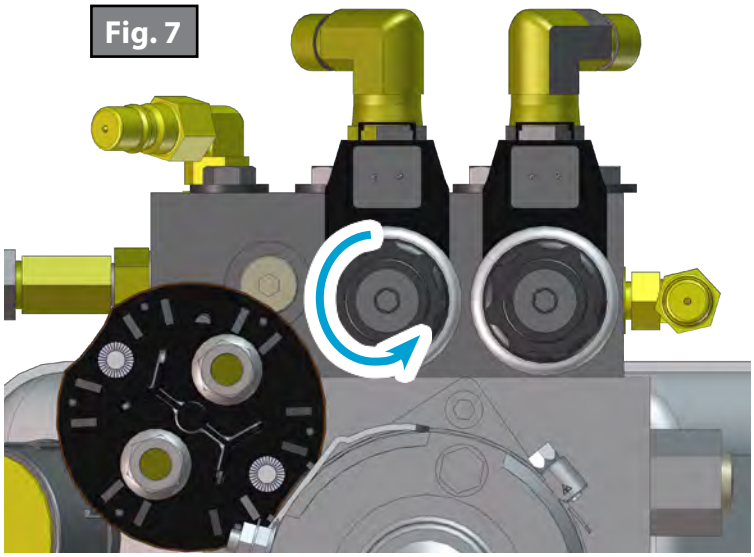
In the event that the jacks will not extend or retract, the valves can be manually overridden. By using a 5/32" hex wrench to turn the manual override clockwise on the valve, (Fig. 7), the leveling jacks can then be extended or retracted. Remember to turn the manual override completely counterclockwise, (Fig. 8), until it will no longer turn, to close the valve after the jacks have been completely extended or retracted. Do not overtighten override set screws, as this can damage the valves.

Fig. 6



Clockwise for manual override

Fig. 7



Counterclockwise for normal operation

Manual Override - Power System

The Lippert Level Up Motorhome Leveling System for Winnebago Industries can be run with auxiliary power devices like cordless or power drills. In the event of electrical or system failure, this manual method of extending and retracting the jacks can be used. A standard handheld drill is all that is required. See the instructions below.

Fig. 9

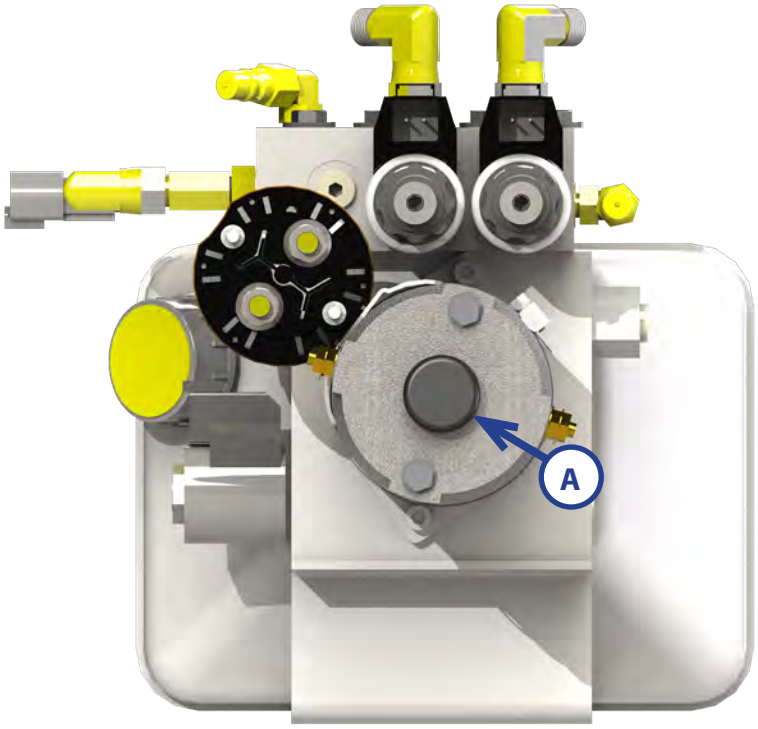
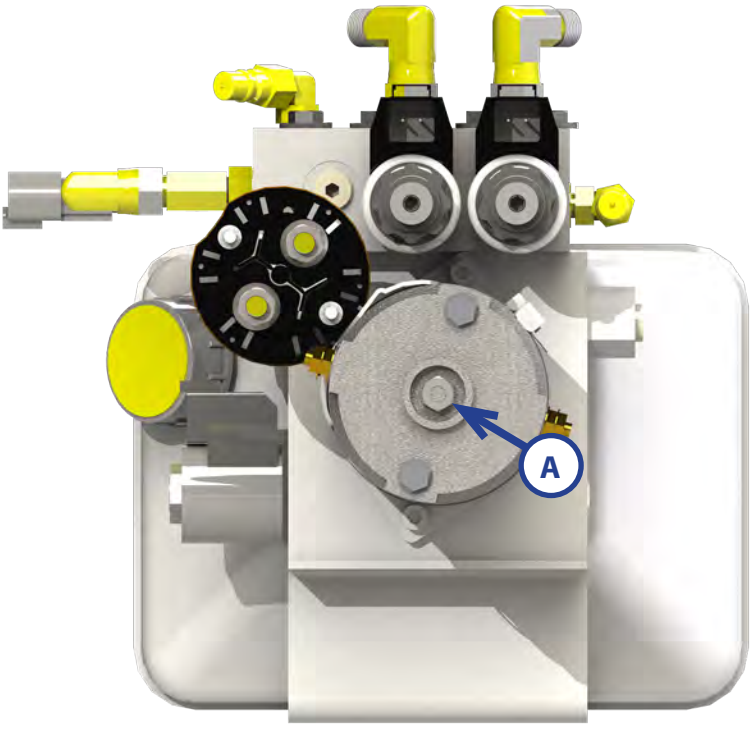


Fig. 10



1. Remove plastic cap (Fig. 9A).
2. Disconnect or shield power cables on the motor.
3. Using a ½" socket and auxiliary drive device, i.e. cordless or power drill, insert ½" socket onto coupler found under plastic cap (Fig. 10A).
4. Run drill in reverse or counterclockwise to retract jacks.

Automatic Safety Shutoff

If the control panel is left on and inactive for four minutes it will shut off automatically. To reset the system, the coach ignition must be turned off, then back on, and the ON/OFF button (Fig. 5K) must again be pressed.

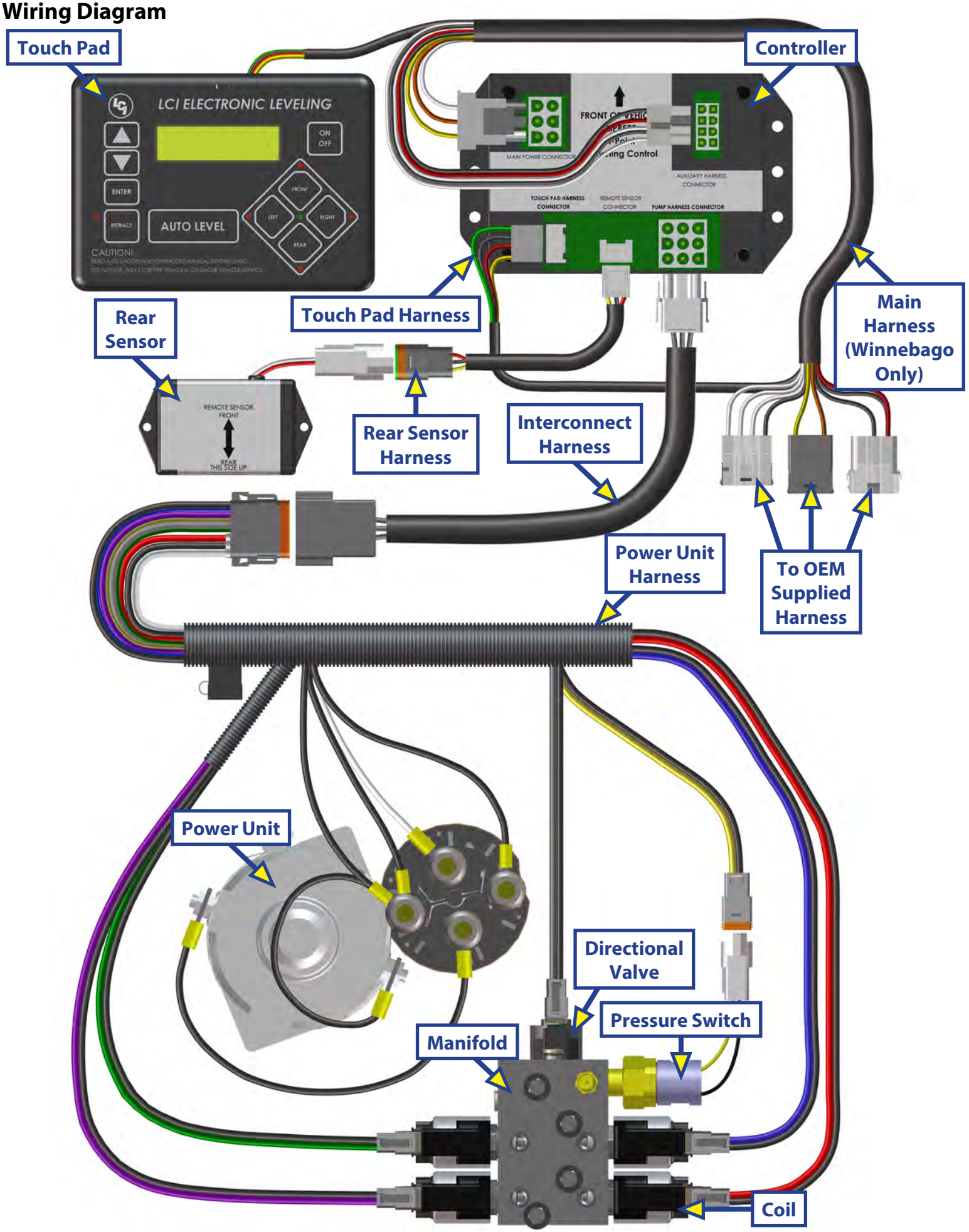
Drive Away Protection System

If the ignition is in the “RUN” position, jacks are down, and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.

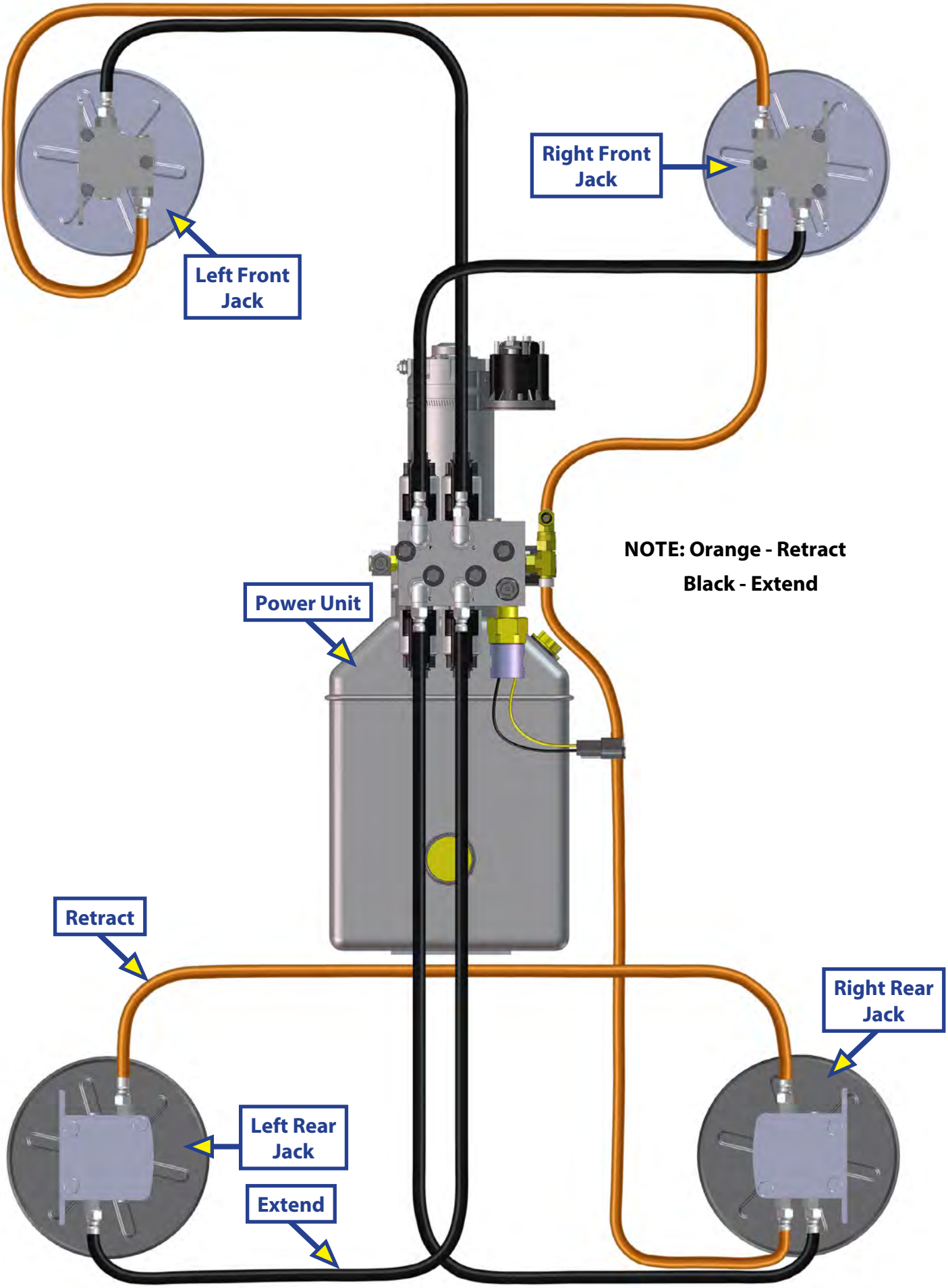
Jacks Up Verification

If the ignition is in the "RUN" position, the parking brake is released, and the vehicle is in motion, the system may activate the power unit to ensure that the retract pressure is high enough to keep the jacks fully retracted. The LCD screen will say "JACKS UP VERIFICATION" until the retract pressure has returned to normal. If the touch pad was previously off, the touch pad will shut off again. No beeping will occur and the "JACKS DOWN" dash light will not illuminate.

Wiring Diagram



Plumbing Diagram



Bill of Materials

Description	Part #	Details	Quantity
Power Unit	293414	Hydraulic Power Unit, Leveling Only	1
	293559	Hydraulic Power Unit, Leveling Only	1
Motor	179327	12VDC Motor for Power Unit	1
Solenoid	161394	Motor Solenoid	1
Valve	177094	Blocking Valve	4
Coil	174184	Electromagnetic Coil for Blocking Valve	5
Pressure Switch	142927	2150 PSI Rated Pressure Switch	1
Pump Harness	178373	Electrical Harness for Power Unit	1
Main Harness	285307	Master Feed to Electrical Components	1
Remote Sensor Harness	241314	Remote Sensor to Brain Harness	1
Controller	289252	Control Module	1
Touchpad	234802	Touchpad mounted in Dash	1
Rear Sensor	294287	Secondary Level Sensor mounted rearward	1
Hydraulic Jacks	195860	8k Leveling Jacks	*
	236560	14k Leveling Jacks	*
	258550	20k Leveling Jacks	*
Foot Pad	113309	9" Foot Pad for Leveling Jacks	4
	117238	12" Foot Pad for Leveling Jacks - Optional	**
Hardware Kit	176556	Hardware Kit	
Main Harness	178375	30' Main Harness	
Interconnect Harness	178372	21' Power Unit to Controller Harness	1
Fitting	141109	Straight Fitting	2
	141610	Elbow Fitting	8
	162838	Washer	16
	196994	Bolt	16

*Jack quantities will either be 2 or 4 depending on OEM specified design.

**Optional - Quantities will vary.

Troubleshooting Guide

What Is Happening?	Why?	What Should Be Done?
System will not turn on and on/off indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Controls have been on for more than four minutes and have timed out.	Turn ignition OFF and then back ON.
Touch pad turns on but turns off when jack directional buttons are pressed or touch pad displays “low voltage”.	Blown fuse.	Check and replace faulty fuse(s).
	Low voltage on battery.	Start coach to charge battery.
Touch pad turns on, coach will not auto-level, “jacks down” displayed, jacks are retracted.	Low fluid Level.	Check fluid level in reservoir, if fluid is low add fluid to 1/2” from top of reservoir with jacks retracted. If "JACKS DOWN" light remains on, call Lippert Service.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Add fluid as recommended; See page 4.
	Valve is inoperative.	Clean, repair, or replace.
	Electronic signal is lost between controller and solenoid.	Trace wires for voltage drop, or loss of, and valves signal. Repair or replace necessary wires or replace control pad.
Any one or two jacks will not retract.	Hose damaged or unconnected.	Replace with new hose or reconnect hose.
	Valve inoperative.	Replace inoperative valve.
	Electronic signal is lost between controller and solenoid.	Attempt to retract jacks in MANUAL mode. If successful, replace touch pad; if not, test for voltage drop between touch pad and valve, repair bad wiring or replace defective board or valve.
“READY - Jacks: Up” does not display when all jacks are retracted.	Low fluid level.	Add fluid as recommended; See page 4.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and “jacks down” light starts flashing while traveling; jacks are fully retracted.	Low fluid level.	Add fluid as recommended; See page 4.
	Retract pressure switch inoperable.	Check connection or replace.
Coach bleeds down after jacks are extended.	Possible fluid leak.	Check for fluid leaks and repair or replace components as necessary.
Jack bleeds down after being retracted.	Valve Manual Override open.	Close Override, See pg. 14, Fig 8.
Touch pad powers up; screen displays “low voltage”.	Loose ground wire at power unit.	Check for loose wires.
	Engine not running.	Start coach engine.
No power to touch pad.	Tripped circuit breaker.	Reset.
	125 amp fuse blown.	Replace fuse.
	Ignition not ON.	Turn ignition ON.
Auto level function does not finish.	Error code "Unable to finish leveling."	Move coach to a more level site.

RETURN TO TOC

LEVEL UP® MOTORHOME LEVELING WINNEBAGO INDUSTRIES UP TO 9-2015

OWNER'S MANUAL

Scan for product support

TABLE OF CONTENTS

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels.

This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

The use of the Lippert Level Up® Motorhome Leveling System for Winnebago Industries to support the coach for any reason other than which it is intended is prohibited by Lippert's Limited Warranty. The Lippert Level Up® Motorhome Leveling System for Winnebago Industries is designed as a leveling system only and should not be used to provide service for any reason under the coach such as changing tires or servicing the leveling system.

Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other service while coach is supported by the Lippert Level-Up® Motorhome Leveling System for Winnebago Industries could result in damage to the motor home and/or cause serious injury or death.

1. Be sure to park the coach on solid, level ground.
2. Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
3. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
4. People and pets should be clear of coach while operating leveling system.
5. Be sure to keep hands and other body parts clear of fluid leaks. Oil leaks in the Lippert Level-Up® Motorhome Leveling System for Winnebago Industries may be under high pressure and can cause serious skin penetrating injuries.
6. Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching the ground will create an unstable and unsafe condition.

Prior to Operation

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

1. The coach is parked on a reasonably level surface.
2. The coach "PARKING BRAKE" is engaged.
3. The coach transmission should be in the neutral or park position.
4. Be sure all persons, pets and property are clear of the coach while Lippert Level-Up® Motorhome Leveling System for Winnebago Industries is in operation.

⚠CAUTION

After starting the automatic leveling cycle it is very important that you do not move around in the coach until the unit is level and the green LED light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an affect on the performance of the leveling system.

⚠WARNING

System Description

Please read and study the operating manual before operating the leveling system.
The Lippert Level Up Motorhome Leveling System for Winnebago Industries is an electric/hydraulic system. A 12V DC electric motor drives a hydraulic pump that moves fluid through a system of hoses, fittings and jacks to level and stabilize the coach.
Mechanical portions of the Lippert Level Up Motorhome Leveling System for Winnebago Industries are replaceable. Contact Lippert to obtain replacement parts. See Page 19 for the Bill Of Materials list.

Component Description

1. **Jacks**
   - **A.** Rated at a lifting capacity for your coach.
   - **B.** 9" diameter (63.5 square inch) foot pad on a ball swivel for maximum surface contact on all surfaces.
   - **C.** 12" diameter - 113 square inch foot pad also available.
   - **D.** Powered from a 12V DC Motor/Pump assembly.
2. **Motor/Pump Assembly**
   - **A.** 12V DC Motor
   - **B.** Hydraulic oil reservoir tank
   - **C.** Control Valve Manifold
   - **D.** Solenoid Valves
3. **System Controls**
   - **A.** Controlled electronically from the driver's seat of the coach.
   - **B.** Touch pad is mounted in the dash or side console.
   - **C.** Touch pad can be operated in manual mode or fully automatic mode.

Maintenance

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Preventative Maintenance

1. Check fluid in reservoir every 12 months. If fluid is a clear, red color, do not change. If fluid is milky, pink and murky, and not clear red in color, drain reservoir and add new fluid. Use recommended fluid (see Page 16).

NOTE: Check fluid only when all jacks are fully retracted.

NOTE: When checking fluid level, fill to within ¼ to ½ inch of fill spout.

2. Inspect and clean all Power Unit electrical connections every 12 months. If corrosion is evident, spray unit with lubricant.

3. Remove dirt and road debris from jacks as needed.

⚠WARNING

The coach should be supported at both front and rear axles with jack stands before working underneath. Failure to do so may result in death or personal injury.

4. If jacks are down for extended periods, it is recommended to spray exposed leveling jack rods with a silicone lubricant every three months for protection. If the coach is located in a salty environment, it is recommended to spray the rods every four to six weeks.

NOTE: OEM to install attachment brackets for leveling jacks.

Fig. 1 - 433458

Fig. 1

CAPACITY - 8,000 lb.
STROKE - 15.00 in.
BORE - 2.00 in.
HEIGHT - 21.1875 in.
ROD DIA. - 1.50 in.
9″ FOOTPAD-STANDARD
12″ FOOTPAD-***OPTION*** - **Part# - 117238**

Fig. 2 - 236560

Fig. 2

CAPACITY - 14,000 lb.
STROKE - 15.13 in.
BORE - 2.50 in.
HEIGHT - 21.625 in.
ROD DIA. - 1.875 in.
9″ FOOTPAD-STANDARD
12″ FOOTPAD-***OPTION*** - **Part# - 117238**

Fig. 3 - 258550

Fig. 3

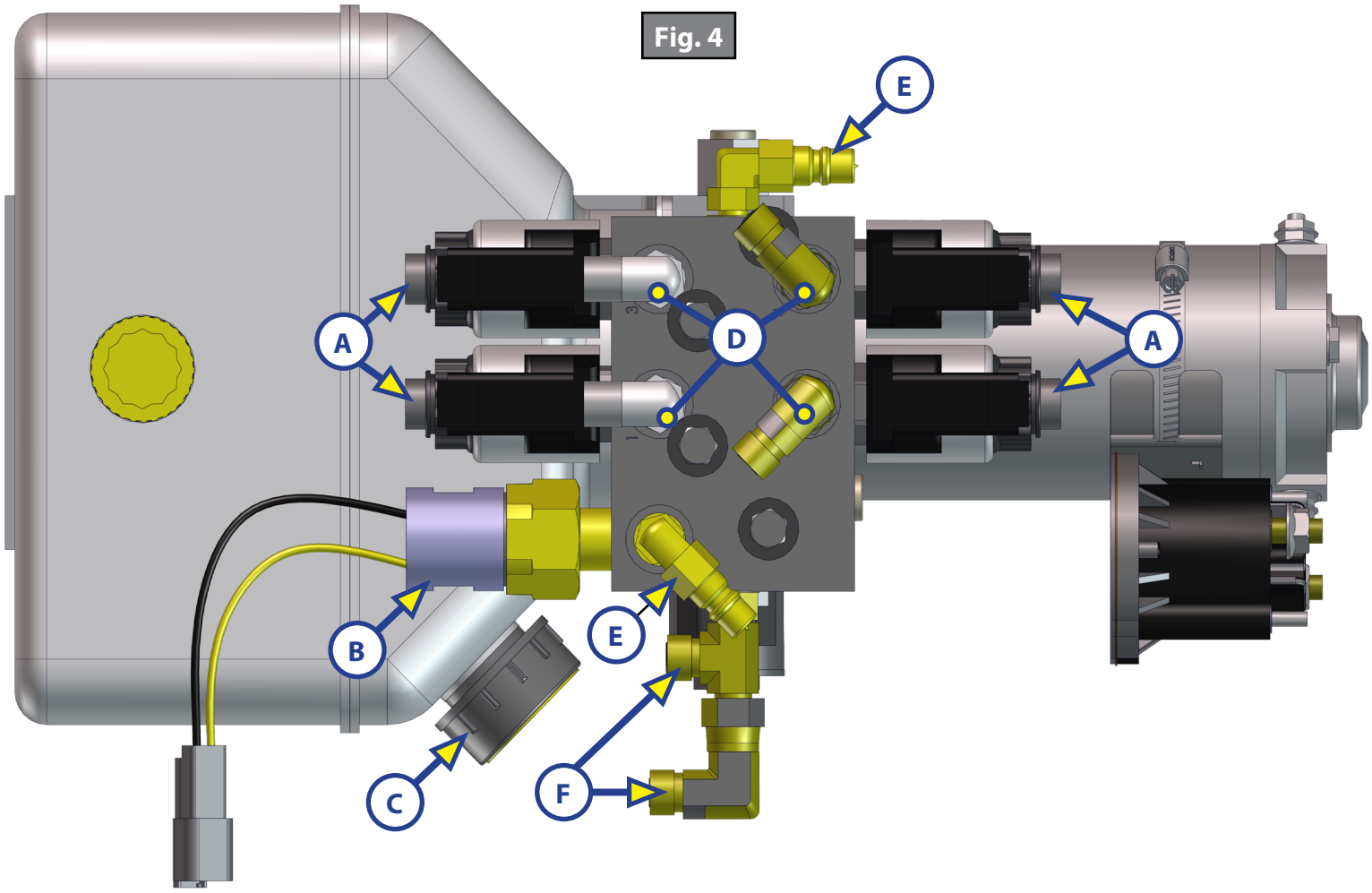
CAPACITY - 20,000 lb.
STROKE - 16.00 in.
BORE - 3.00 in.
HEIGHT - 23.125 in.
ROD DIA. - 2.25 in.
12″ FOOTPAD-STANDARD

Fitting Orientation

NOTE: Fittings - High pressure O-Ring Face - Size 4

NOTE: Hose - ¼ in. I.D. 3000 psi - W.P. Rated

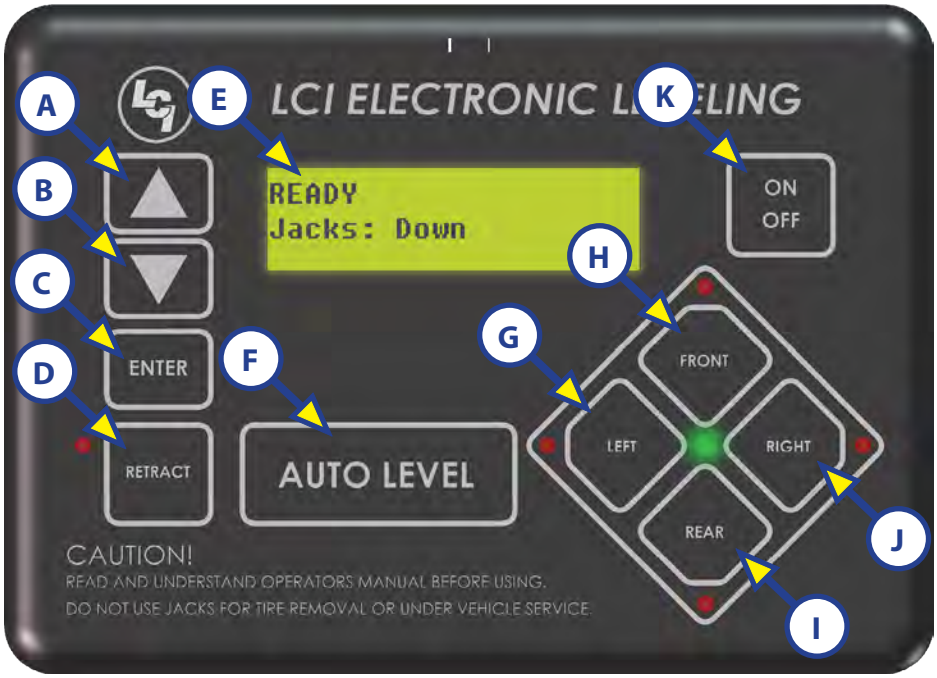
Fig. 4



Callout	Part #	Description
A	177094 / 174184	Valve/Coil - Rear Jacks
B	142927	Pressure Switch
C	--	Filler Vent
D	156846 / 141109 (Straight)	Extend Fittings Fittings are labeled w/ port assignments found stamped into the manifold.
E	140457 / 320521 (Elbow)	Quick Disconnect for Flush & Fill
F	156846 / 143108	Return Fittings

Controls

Fig. 5



Callout	Description
A	Up Button - Scrolls up through the menu on LCD.
B	Down Button - Scrolls down through the menu on LCD.
C	Enter - Activates modes and procedures indicated on LCD.
D	Retract - Places leveling system into retract mode. PRESS and hold for 1 second to initiate Auto Retract.
E	LCD Display - Displays procedures and results.
F	Auto Level - Places leveling system into auto level mode.
G	Left Jack Button - Activates both left jacks in manual mode.
H	Front Jack Button - Activates both front jacks in manual mode.
I	Rear Jack Button - Activates both rear jacks in manual mode.
J	Right Jack Button - Activates both right jacks in manual mode.
K	Power Button - Turns leveling system on and off.

Features

- **A.** Automatic extension of jacks from full retract position (with automatic ground detection).
- **B.** Automatic leveling of jacks.
- **C.** Manual leveling of jacks
- **D.** Automatic retraction of jacks (with automatic full retract detection).
- **E.** Air bag suspension features (configurable on/off).
- **F.** Emergency retract/User alarm mode (jacks not retracted and park brake disengaged).
- **G.** Automatic jack error detection and error mode.
- **H.** Configurations mode for Leveling Zero Point.
- **I.** Remote operation.

System Wiring Requirements

- **A.** Battery power (2 ga. SAE J1127. Type SGX).
- **B.** Battery ground (2 ga. SAE J1127. Type SGX).
- **C.** Logic power (switched via ignition).
- **D.** Power brake signal (open=park brake disengaged, GND=park brake engaged).
- **E.** 4-wire harness connecting Controller to Touch Pad.
- **F.** Jacks status input - Switched to GND.
  - **I.** Jacks not all up – switch closed to ground .
  - **II.** Jacks all up – switch open.

Air and Auxiliary Features (When Applicable)

System has the option to control external Air and Auxiliary features.

When enabled, the feature works according to the following logic:

- **A.** Air bag pressure automatically lowers when starting the auto or manual level sequence to maximize lift of jacks.
- **B.** Air bag pressure automatically increases when starting an auto retract sequence.
- **C.** If the parking brake is disengaged, jacks will automatically retract without the 25 second delay. Air bags will fill during and after this emergency retract.

NOTE: When retracting in manual mode, the air bags will not fill automatically and must be done manually.

The Manual Air Bag Dump/Fill functions as follows:

1. Set park brake.
2. Scroll up twice to “MANUAL AIR CONTROL”.
3. Press enter.
4. Press REAR button (Fig. 5I) to dump, FRONT button (Fig. 5H) to fill.

Level Zero Point Calibration

Before auto-leveling features are available, the Level Zero Point must be set. This is the point to which the system will return when an auto leveling cycle is initiated.

To set the Zero Point (controller module must be fully secured in production intent location), first run a manual leveling sequence to get the vehicle to the desired level point. Then activate the Level Zero Point configuration mode.

This mode is enabled by performing the following sequence:

1. Turn panel off.
2. Perform the following:
3. Press the "Front" button (Fig. 5H) 5 times.
4. Press the "Rear" button (Fig. 5I) 5 times.
5. At this point, an alarm will sound and the display reads "**ZERO POINT CALIBRATION**" ENTER to Set, POWER to Exit."

NOTE: System can be operated in the MANUAL MODE to attain level condition during this period.

6. Press ENTER (Fig. 5C) to set the Zero Point.
7. Screen will then display "PLEASE WAIT".
8. Alarm will sound and the screen will display "ZERO POINT SUCCESSFUL".
9. Control will then turn “OFF”.

For DIESEL UNITS with Air Bag Suspensions ONLY:

NOTE: The leveling control will automatically program for air bag control. The option will not be present if no dump valve coil resistance is detected.

Error Mode

A. If an error occurs before or during operation, the error will be displayed in the LCD and an alarm will sound. To reset all ERROR displays, press ENTER (Fig. 5C).
B. All normal functions will be disabled when the system is in error mode.
C. Auto level can only commence if running voltage is 12.75 VDC or above.
D. Auto level operation will halt if running voltage drops to 9.5 VDC.
E. Manual level operation can be performed at all running voltages above 9.5 VDC.

Excess Slope

A. The control will not operate at extreme slopes, i.e. 3.5° fore and aft and 3.5° side to side.
B. If the coach indicates "EXCESS ANGLE" or "OUT OF STROKE " during an auto level cycle, move the coach to a more level spot .

LCD Display	What is Happening?	What Should Be Done?
****ERROR**** Excess Angle	Coach not parked on level ground. Zero point incorrectly calibrated.	Move coach to level ground prior to starting auto level sequence. Recalibrate Zero Point.
****ERROR**** External Sensor	Rear sensor shorted out or disconnected.	Check wire connection or replace sensor.
Out of Stroke	Jack has insufficient length to complete the leveling procedure.	Check the disposition of the jack.
Low Voltage	Battery voltage dropped below 9.5V DC during operation.	Turn engine on, check battery voltage under load.
Function Aborted	A button was pressed on touch pad during Auto Level operation.	Hit enter to acknowledge. Restart procedure.
Unable to Finish Leveling	Excessive movement inside coach during auto level sequence.	Discontinue movement inside coach during auto level sequence.
Engage Park Brake	Parking brake not set prior to starting auto level sequence.	Set parking brake prior to starting auto level sequence.
Comm Error Check Wiring **NOTE:** Screen will not back light.	Wiring connections loose or faulty between touch pad and controller.	Check connections, replace communication harness if necessary.
****ERROR**** Retract Timeout Return Levelers for Service	Pressure switch did not sense retract pressure and pump timed out. Leaking hose or fitting.	Return levelers for service. Check for leaks, repair if necessary. Press enter and retract to clear error.
Excessive Angle	Occurs only in manual mode when the angle of the unit is too severe.	Use the manual functions to return coach to a more level condition.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than a predefined amount, the panel will signal this error to the user.

The system performs an automatic retract.

No other features are available in this mode.

Miscellaneous

- **A.** The leveling system will automatically shut off after being idle for 4 minutes.
- **B.** Auto leveling cycle cannot be started until all jacks are fully retracted. Make sure jacks are retracted before attempting to auto level (unit will perform full retract automatically if jacks are down on the request of an auto cycle).
- **C.** System will refuse any operation when a low voltage condition is present.
- **D.** System will automatically alarm and retract if park brake is disengaged and jacks are not retracted with any change in sensor readings. In alarm mode, the only available feature is to retract all jacks.

Low Voltage Signal

- **A.** The vehicle requires 12.75V DC to operate in the AUTO mode. If the voltage is too low, the screen will display "LOW VOLTAGE".
- **B.** Minimum Voltage - If voltage drops below 9.5V DC during AUTO or MANUAL operation, "LOW VOLTAGE" will appear in the screen and the system will cease operating.

NOTE: Coach will operate in manual mode between 9.5V DC and 12.75V DC.

Operation

Selecting A Site

When the coach is parked on an excessive slope the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.

"EXCESS ANGLE" will appear on the LCD screen if the coach is 3.5° out of level front to rear or side to side. See error code chart on Page 10.

Automatic Leveling Procedure

NOTE: Refer to Component Description, page 4 and Fig. 5, page 7 for questions regarding location and functions of the Lippert Level Up Motorhome Leveling System for Winnebago Industries system.

NOTE: Coach must be running and parking brake must be engaged for Lippert Level Up Motorhome Leveling System for Winnebago Industries to operate.

1. Push “On/Off” button to turn system “On” (Fig. 5K).
2. Push “Auto Level” button (Fig. 5F).
3. The coach will level automatically and indicate "Auto Level - SUCCESS!" in LCD display (Fig. 5E).

NOTE: Display will then read "LEVEL - Jacks: Down". Do not press any buttons until this message appears or a "FUNCTION ABORTED" error will be displayed.

NOTE: In cold weather operation, always check to make sure all jacks, slide rooms, steps are fully retracted before travel.

Automatic Leveling Descriptive Logic

Grounding: Steps 1 - 7 describe the process of how the AUTO LEVEL LOGIC extends the jacks to the ground:

1. Depending on which end of the coach is lowest to the ground the level sensor in the controller will activate the jacks, one at a time on the lowest end first, either front or rear.
2. Ground lowest side jack first; i.e., front passenger side.
3. Ground remaining side jack next; i.e., front driver side.
4. Together, both jacks will lift lowest end until level; i.e., front of coach will lift briefly until the coach is level.
5. The system will then ground remaining jacks, one at a time; i.e., rear jacks.
6. Ground lowest side jack first; i.e., rear passenger side.
7. Ground remaining side jack next; i.e., rear driver side.

Leveling: Steps 8- 11 describe the process of how the AUTO LEVEL LOGIC levels the coach once the jacks have been grounded. This process may repeat several times until level.

8. Fore/aft.
9. Side/side.
10. Individual.
11. Minor adjustments to limit/prevent twist.

⚠ CAUTION

After starting the automatic leveling cycle it is very important that you do not move around in the coach until the unit is level and the green LED light illuminates in the center of the touch pad. Failure to remain still during the leveling cycle could have an affect on the performance of the leveling system.

Manual Leveling Procedure

NOTE: When leveling your coach the coach should be leveled from front to rear first. When the coach is level from front to rear, then level the coach from left to right.

NOTE: Coach requires 12.75 VDC to commence auto leveling function. If voltage at the power unit is not 12.75 VDC, run the engine.

1. Apply parking brake.
2. Turn ignition “On”.
3. Push “ON/OFF” button (Fig. 5K) to turn system "ON".
4. Push “UP” or “DOWN” button (Fig. 5A/B) to scroll through features to “MANUAL MODE” in display.
5. Push “ENTER” (Fig. 5C).
6. Push “FRONT” button (Fig. 5H) to extend front jacks to the ground; push “REAR” button (Fig. 5I) to run rear jacks to ground and level the coach front to back.
7. Push appropriate “Left” or “Right” button to level the coach from side to side. Red flashing lights next to the buttons on touch pad will indicate which side(s) of the coach needs to be raised to achieve level condition.

NOTE: Jacks always work in pairs, i.e., “FRONT” button operates both front jacks, etc.

NOTE: The right and left jacks are used to level the coach side to side. Pushing the LEFT button (Fig. 5G) on the control panel will extend both left jacks. Pushing the RIGHT button (Fig. 5J) on the control panel will extend both right jacks. Jacks always work in pairs, both front jacks; both right side jacks, etc.

8. Repeat steps 2 through 7 as needed.
9. Turn power off to leveling system by pushing ON/OFF button (Fig. 5K).
10. Visually inspect all jacks to ensure all footpads are touching the ground. Should one of the rear jack footpads not be touching the ground, press the corresponding LEFT or RIGHT arrow buttons to lower the non-compliant jack to the ground.

⚠WARNING

NEVER LIFT ALL THE WHEELS OFF THE GROUND TO LEVEL THE COACH!
Lifting all wheels off the ground may result in death or serious personal injury.

Jack Retract Procedures

1. Energize the system by pushing ON/OFF button (Fig. 5K) on control panel. The LCD screen will display READY Jacks: Down".
2. Push "DOWN" button (Fig. 5B) to display "Auto Retract All" on the screen.
3. Push "ENTER" (Fig. 5C) to begin.

NOTE: If the need to stop the jacks from retracting arises, turn the system off and back on again by pushing the "ON/OFF" button (Fig. 5K) twice. The coach can then be manually leveled by following steps 1-9 in the MANUAL LEVELING PROCEDURE section above. Press "ENTER" to acknowledge.

4. The jacks will retract and shut off automatically; the display will read "READY - Jacks: Up". Push the "ON/OFF" button (Fig. 5K) on the Control Panel to de-energize the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, you may proceed to travel.
5. To retract in the MANUAL mode, push the "RETRACT" button (Fig. 5D) until it lights. By pushing any of the JACK buttons, the jacks will retract in pairs, i.e. "FRONT" button, both front jacks will retract, etc.
6. “AUTO RETRACT” can also be commenced by pushing and holding the "RETRACT" button (Fig. 5D) for 1 second.

NOTE: In cold weather operation, always check to make sure all jacks, slide rooms, and steps are fully retracted before travel.

Remote Leveling Operation

TO BEGIN - INSIDE COACH - Push ON/OFF button. ON/OFF LED on TOUCH PAD will illuminate. LED at REMOTE SWITCH will also illuminate. Ready to operate.

OUTSIDE COACH - Push ROCKER SWITCH (Fig. 6) for operation.

AUTOMATIC MODE - Push ROCKER SWITCH and release toward LEVEL (Fig. 6A) position. A slowly blinking LED indicates Automatic Leveling Operation in progress. Operation completion is indicated by LED at ROCKER SWITCH flashing rapidly for 2 seconds and then staying illuminated until control unit times out.

JACKS STORE - Push ROCKER SWITCH and release toward JACKS STORE (Fig. 6B) position. The slowly blinking LED indicates JACKS STORE (Fig. 6B) in progress. Operation completion is indicated by LED at ROCKER SWITCH flashing rapidly for 2 seconds and then staying illuminated until control unit times out.

STOPPING EXTEND/RETRACT MID-OPERATION - Press the ROCKER SWITCH towards LEVEL (Fig. 6A) or JACKS STORE (Fig. 6B) to stop operation of LEVELING SYSTEM or press the ON/OFF button on the TOUCH PAD inside the coach.

RESTARTING JACKS STORE AFTER MID OPERATION STOP - To restart JACKS STORE (Fig. 6B) after it has been stopped mid-operation, press the ROCKER SWITCH and release in the JACKS STORE (Fig. 6B) position.

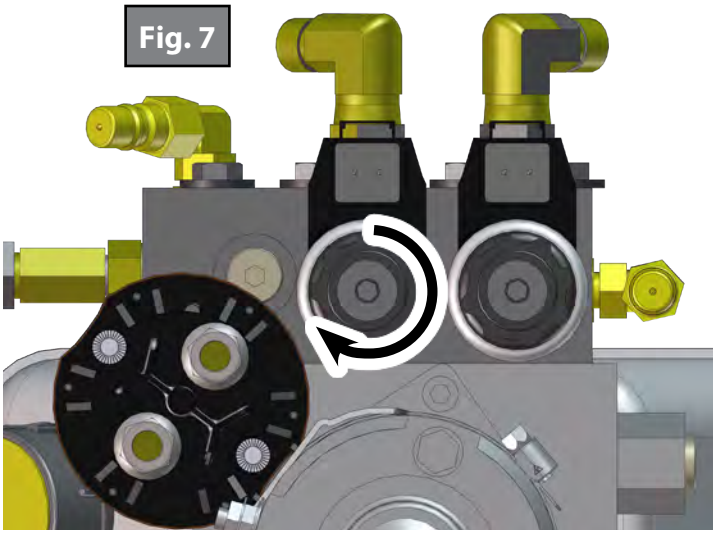
RESTARTING LEVEL AFTER MID OPERATION STOP - To restart LEVEL (Fig. 6A) after it has been stopped mid-operation, press the ROCKER SWITCH and release in the JACKS STORE (Fig. 6B) position to retract jacks completely. After jacks are completely retracted, press ROCKER SWITCH and release in the LEVEL (Fig. 6A) position.

Fig. 6

Manual Override - Jacks

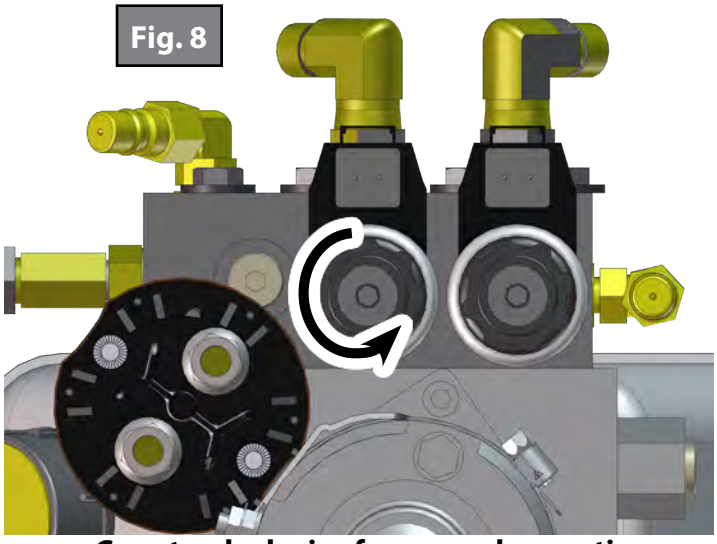
In the event that the jacks will not extend or retract, the valves can be manually overridden. By using a 5⁄32" hex wrench to turn the manual override clockwise on the valve, see (Fig. 7), the leveling jacks can then be extended or retracted. Remember to turn the manual override completely counterclockwise, see (Fig. 8), until it will no longer turn, to close the valve after the jacks have been completely extended or retracted. Do not overtighten override set screws, as this can damage the valves.

Fig. 7



Clockwise for manual override

Fig. 8



Counterclockwise for normal operation

Manual Override - Power System

The Lippert Level Up Motorhome Leveling System for Winnebago Industries can be run with auxiliary power devices like cordless or power drills. In the event of electrical or system failure, this manual method of extending and retracting the jacks can be used. A standard handheld drill is all that is required. See the instructions below.

Fig. 9

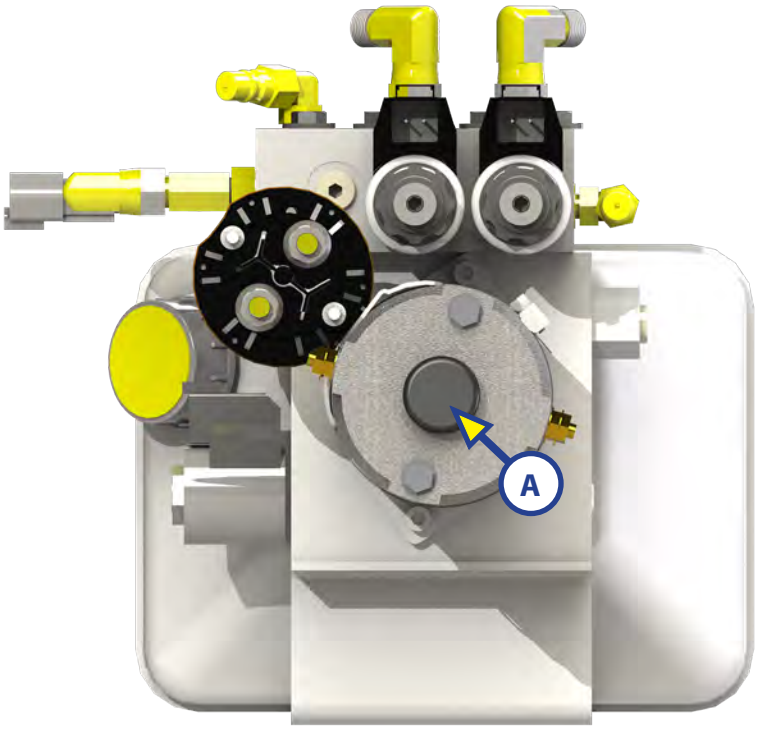
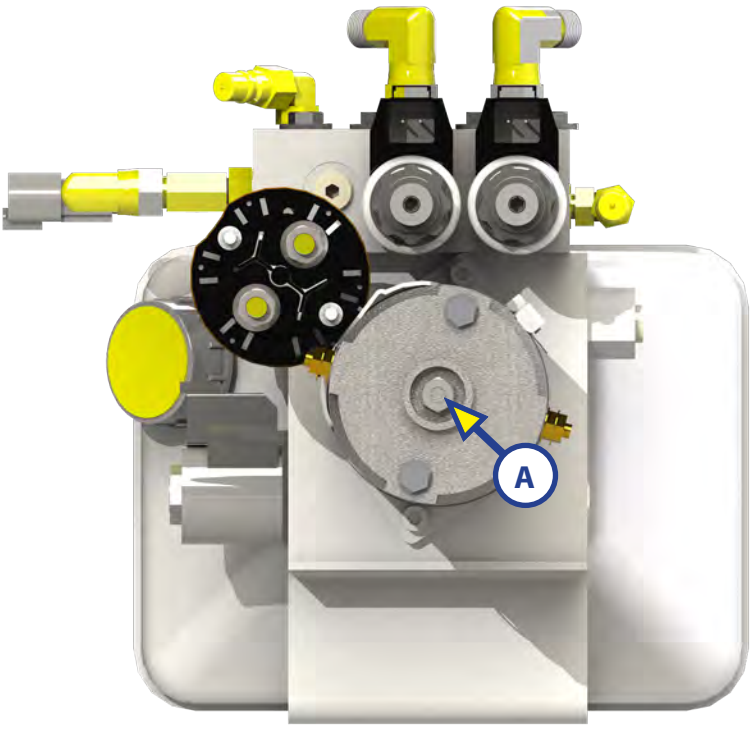


Fig. 10



1. Remove plastic cap (Fig. 9A).
2. Disconnect or shield power cables on the motor.
3. Using a ½" socket, insert auxiliary drive device, i.e. cordless or power drill insert onto coupler found under plastic cap (Fig. 10A).
4. Run drill in reverse or counterclockwise to retract jacks.

Automatic Safety Shutoff

If the control panel is left on and inactive for four minutes it will shut off automatically. To reset the system, the coach ignition must be turned off, then back on, and the ON/OFF button (Fig. 5K) must again be pushed.

Drive Away Protection System

If the ignition is in the "RUN" position, jacks are down, and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.

"Jacks Down" Alarm

The Lippert Level Up Motorhome Leveling System for Winnebago Industries is designed to sound an alarm and illuminate the control panel in the event of two (2) possible scenarios:

1. A “RETRACT” hose leaks.
2. The pressure holding the jacks in the retracted position falls to approximately 1500 psi.

NOTE: If you should happen to hear the "Jacks Down" alarm:

3. Immediately find an area to safely pull the vehicle off of the roadway.
4. Set the PARKING BRAKE.
5. Inspect all jacks, hoses and valves for leaks.

NOTE: If no leaks are observed; Turn control panel “ON.”

6. Push “RETRACT ALL JACKS” button.
7. Wait until “JACKS DOWN” light and alarm are off.
8. Inspect jacks. If jacks are retracted and no leaks are observed, vehicle can be driven.

NOTE: If system is leaking or alarm does not subside after applying the above procedure, disconnect wires from pressure switch and proceed immediately to a service center. The pressure switch is a blue and gold colored valve located on the power unit manifold identified by the deutsch connector with yellow and black wires. See wiring digram on Page 17 for location of pressure switch.

NOTE: For prolonged travel to the service center, be sure to stop and check the disposition of the leveling jacks every so often to make sure they are not extending.

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type “A” Automatic Transmission Fluid (ATF) is utilized and approved.

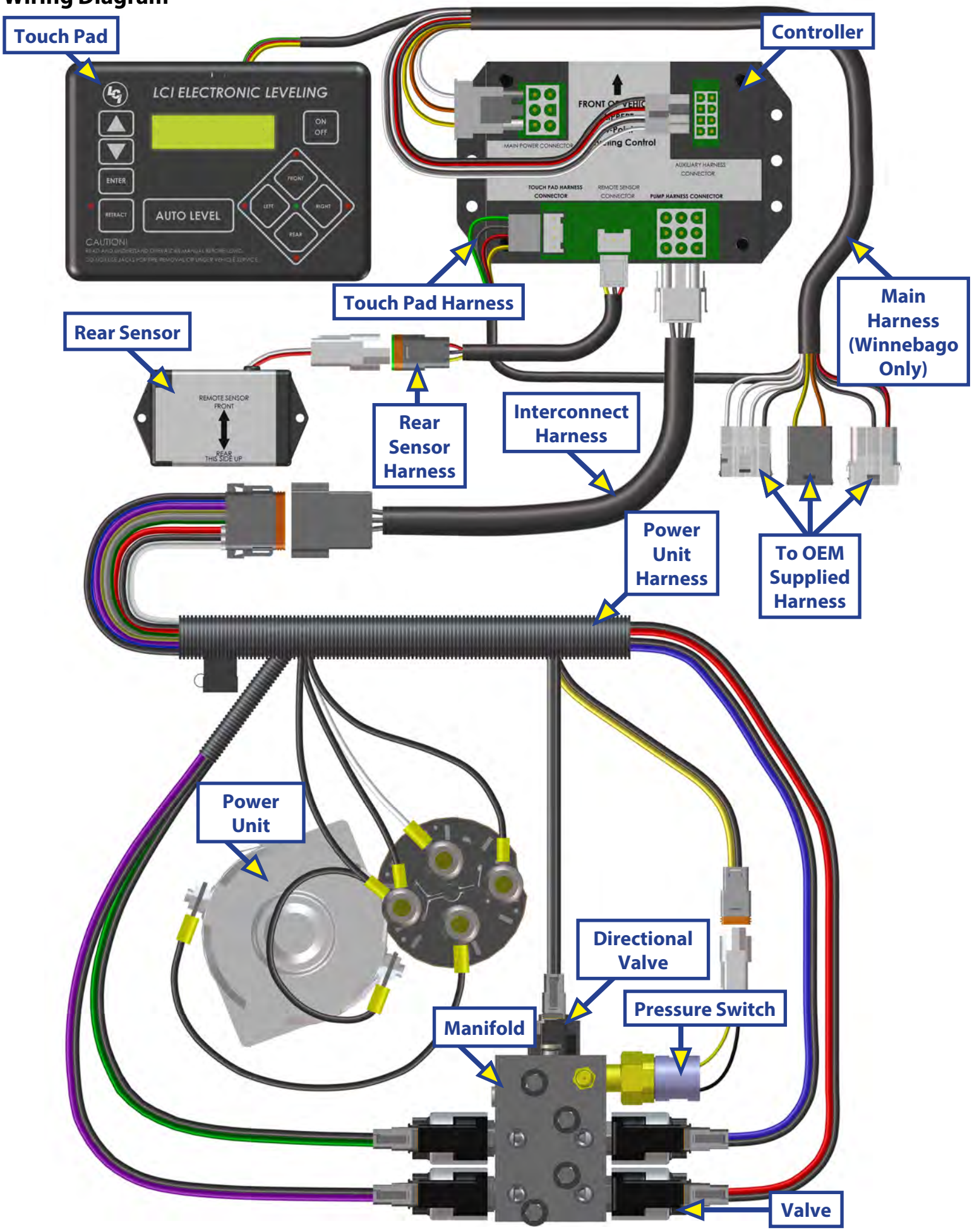
Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

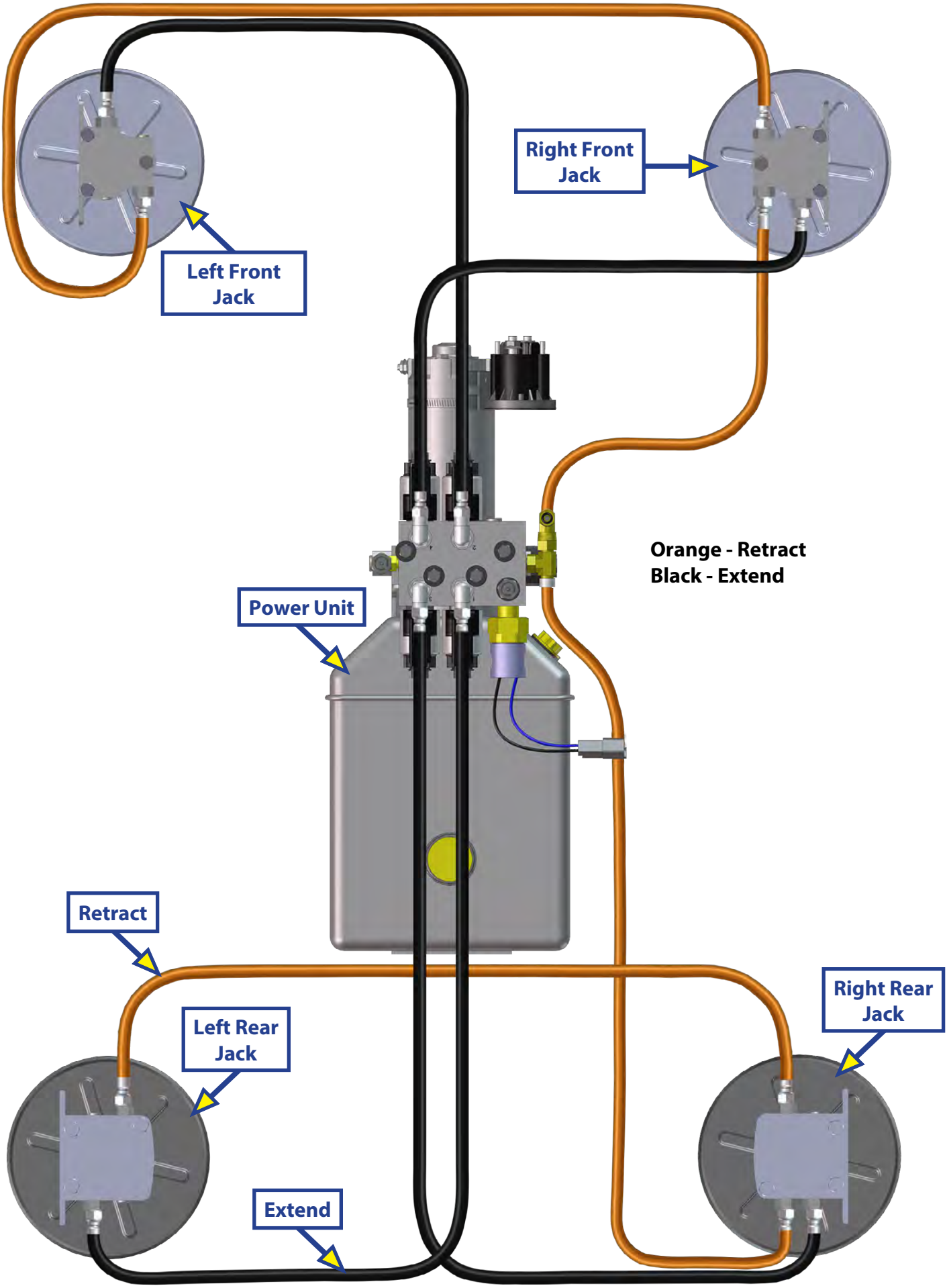
NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Wiring Diagram



Plumbing Diagram



Bill of Materials

Description	Part #	Details	Quantity
Power Unit	293414	Hydraulic Power Unit, Leveling Only	1
	293559	Hydraulic Power Unit, Leveling Only	1
Motor	179327	12V DC Motor for Power Unit	1
Solenoid	161394	Motor Solenoid	1
Valve	177094	Blocking Valve	4
Coil	174184	Electromagnetic Coil for Blocking Valve	5
Pressure Switch	142927	2150 PSI Rated Pressure Switch	1
Pump Harness	178373	Electrical Harness for Power Unit	1
Main Harness	285307	Master Feed to Electrical Components	1
Remote Sensor Harness	241314	Remote Sensor to Brain Harness	1
Controller	289252	Control Module	1
Touch Pad	234802	Touch Pad mounted in Dash	1
Rear Sensor	294287	Secondary Level Sensor mounted rearward	1
Hydraulic Jacks	433458	8k Leveling Jacks	*
	236560	14k Leveling Jacks	*
	258550	20k Leveling Jacks	*
Footpad	113309	9″ Footpad for Leveling Jacks	4
	117238	12″ Footpad for Leveling Jacks - Optional	**
Hardware Kit	176556	Hardware Kit	
Main Harness	178375	30' Main Harness	
Interconnect Harness	178372	21′ Power Unit to Controller Harness	1
Fitting	141109	Straight Fitting	2
	141610	Elbow Fitting	8
	162838	Washer	16
	196994	Bolt	16

*Jack quantities will either be 2 or 4 depending on OEM specified design.
**Optional - Quantities will vary.

Troubleshooting Guide

What Is Happening?	Why?	What Should Be Done?
System will not turn on and on/off; indicator light does not illuminate.	Coach Ignition not in RUN position.	Turn ignition to RUN position.
	Controls have been on for more than four minutes and have timed out.	Turn ignition OFF and then back ON.
Touch Pad turns on but turns off when leg button is pushed or displays “low voltage”.	Low Voltage on battery.	Start coach to charge battery.
Touch Pad turns on, coach will not auto-level, “jacks down” displayed, jacks are retracted.	Low fluid Level.	Check fluid level in reservoir, if fluid is low add fluid to ½” from top of reservoir with jacks retracted. If "JACKS DOWN" light remains on, call Lippert Service.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Add fluid as recommended; See page 16.
	Valve is inoperative.	Clean, repair, or replace.
	Electronic signal is lost between controller and solenoid.	Trace wires for voltage drop or loss of and valves signal. Repair or replace necessary wires or replace control pad.
Any one or two jacks will not retract.	Hose damaged or unconnected.	Replace with new hose or reconnect hose.
	Valve inoperative.	Replace inoperative valve.
	Electronic signal is lost between controller and solenoid.	Attempt to retract jacks in MANUAL mode. If successful, replace touch pad; if not, test for voltage drop between touch pad and valve repair bad wiring or replace defective board or valve.
“READY - Jacks: Up” does not display when all jacks are retracted.	Low fluid level.	Add fluid as recommended; See page 16.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and “jacks down” light starts flashing while traveling; jacks are fully retracted.	Low fluid level.	Add fluid as recommended; See page 16.
	Retract pressure switch inoperable.	Check connection or replace.
Coach bleeds down after jacks are extended. Jack bleeds down after being retracted.	Possible fluid leak.	Check for fluid leaks and repair or replace components as necessary.
	Valve Manual Override open.	Close Override, See pg. 14, Fig 8.
Touch Pad powers up; screen displays “low voltage”.	Loose ground wire at power unit.	Check for loose wires.
	Engine not running.	Start coach engine.
No power to Touch Pad.	Tripped circuit breaker.	Reset.
	125 amp fuse blown.	Replace fuse.
	Ignition not ON.	Turn ignition ON.
Auto level function does not finish.	Error code "Unable to finish leveling."	Move coach to a more level site.

Troubleshooting

Error Codes

⚠WARNING

Make sure the trailer is supported at both front and rear with jack stands and in accordance with the manufacturer's recommendations to properly support the trailer before performing any service to trailer. Failure to do so may result in death, serious personal injury, severe product and/or property damage.

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.

Error Code Chart		
LCD Display	What Is Happening?	What Should Be Done?
Excess Angle	Controller not properly secured.	Check and secure controller placement.
	Excessive angle reached during auto operation.	Relocate the trailer.
Excessive Angle	Controller not properly secured.	Check and secure controller placement.
	Excessive angle reached during manual operation.	Stop manual operation and reset jacks to a more level state. The code will self clear; there is no need to hit ENTER.
		Relocate the trailer.
Feature Disabled	Front of trailer below level when starting auto level process but only when initiating Hitch Recognition feature.	Push the FRONT button to raise the trailer up to hitch height and connect to tow vehicle.
	Hitch recognition not set.	Set hitch angle.
	Zero Point not set.	Set Zero Point.
Low Voltage	Battery 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 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	The time limit is exceeded for the requested auto operation.	Check disposition of jacks.
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.
Bad Calibration	Sensor calibration values are out of range.	Replace controller.
Internal Sensor	Internal sensor problem.	Replace controller.
Function Aborted	The user pressed a button on the touchpad during an automatic operation.	Restart automatic operation and then refrain from pressing any buttons on the touchpad.

Manual Override

Resources Required

- Cordless or electric drill or screw gun
- 5/32" hex wrench
- 1/4" hex bit

The leveling system can be manually operated with an electric drill. In the event of electrical or system failure, this manual override method of extending and retracting the jacks can be used.

NOTE: Unhook the hydraulic power unit motor from the main power source (battery) prior to attempting the manual override procedure.

1. Locate the valves that are paired with the landing gear and roadside and curbside leveling jacks to be manually overridden (Fig. 4). Also see Wiring and Plumbing diagrams.
2. Using a 5/32" hex wrench, open the three valves by turning the manual override set screw clockwise (Figs. 4 and 5).
3. Remove protective label (Fig. 6) from power unit motor to reveal the manual override coupler.
4. Using an electric drill with a 1/4" hex bit, insert the hex bit into the manual override coupler (Fig. 7) to manually operate the system.
   - **A.** Run the drill forward (clockwise) to retract the landing gear and/or leveling jacks.
   - **B.** Run the drill in reverse (counterclockwise) to extend the landing gear and/or leveling jacks.
5. After extending or retracting the landing gear and leveling jacks, make sure to turn the manual override set screw on each valve back to the counterclockwise position using the hex wrench (Fig. 8).

Fig. 4

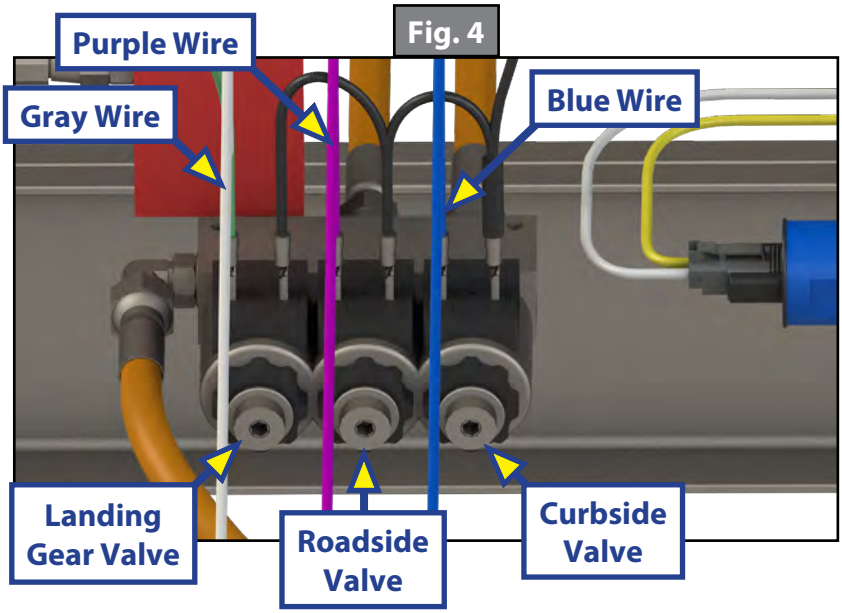


Fig. 5

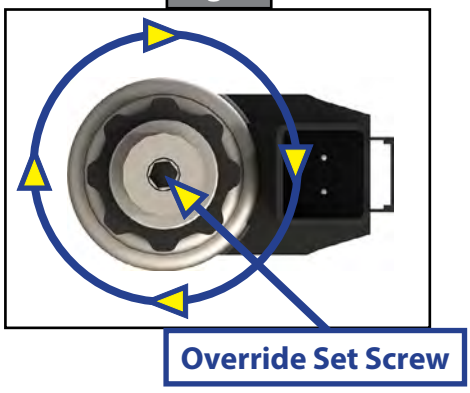


Fig. 6

Fig. 7

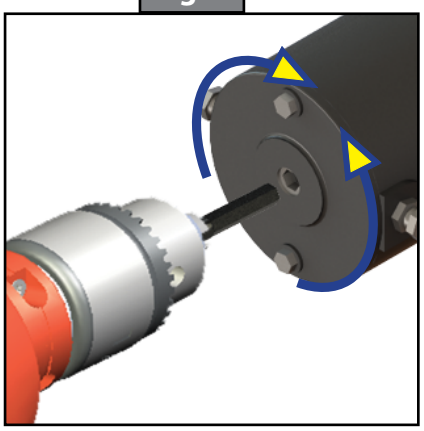
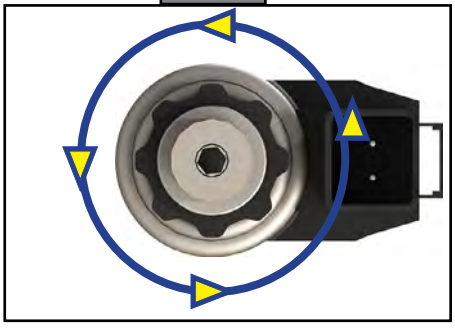


Fig. 8



Zero Point Calibration

Zero Point Calibration is the point the leveling system will return to when an auto-leveling cycle is initiated. The Zero Point Calibration was set by the RV manufacturer and verified by the RV dealer before auto-leveling features were available. To set a new Zero Point, do as follows:

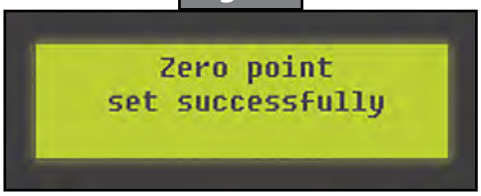
1. Run a manual leveling sequence to set the trailer to the desired level point.
2. Activate the Zero Point configuration mode as follows:
   - **A.** Turn off touchpad.
   - **B.** Press FRONT button (Fig. 1G) 10 times.
   - **C.** Press REAR button (Fig. 1J) 10 times.

NOTE: An alarm will sound and the display will read ZERO POINT CALIBRATION; ENTER to set, Power to Exit (Fig. 9).

   - **D.** Press ENTER (Fig. 1C) to set the Zero Point.
3. Screen will then display PLEASE WAIT.
4. An alarm will sound and the screen will display "Zero point set successfully" (Fig. 10).
5. The touchpad will then turn off.

Fig. 9

Fig. 10



Maintenance

1. Remove dirt and road debris from leveling jacks and landing gear and stabilizer struts (if equipped) as needed.
2. If jacks are down for extended periods, it is recommended to spray exposed jack tubes with a spray lubricant every three months for protection. If the trailer is located in a salty air environment, it is recommended to spray the jack tubes every four to six weeks.
3. Inspect and clean all of the power and electrical connections prior to the first use of the trailer at the start of the traveling season and prior to storing the trailer. If corrosion is evident, clean all corrosion with a wire brush, then apply dielectric grease to the connections.
4. Make sure to turn the manual override set screw on the valve back to the counterclockwise position after extending or retracting the landing gear or leveling jacks.

Hydraulic Fluid

1. Each month, check that the fluid level is within ¼" of the reservoir fill spout lip while leveling jacks and slide-outs are fully retracted.

NOTE: Always fill the reservoir with the leveling jacks and slide-outs fully retracted. Filling the reservoir when leveling jacks and slide-outs are extended will cause the reservoir to overflow into its compartment when the leveling jacks and slide-outs are retracted.

2. Check the color of the hydraulic fluid in the reservoir every 12 months. If fluid is a clear, red color, do not change. If fluid is milky, pink and murky and not clear red in color, drain reservoir and add new fluid. Hydraulic fluid in reservoir should be changed a minimum of every five years.

Fluid Recommendation

ATF with Dexron III® or Mercon 5® or a blend of both is recommended by Lippert.
Type "A" Automatic Transmission Fluid (ATF) is utilized and approved.

Hydraulic system operation in climates at or below 40 degrees F (4 degrees C) may result in the following:

- Slow operation during extension/retraction
- Incomplete retraction of jacks during Auto Retract procedure

NOTE: A visual inspection of the jacks in the retract position is recommended after completing Auto Retract.

For a list of approved fluid specifications, scan this QR Code or go to: TI-188 - Hydraulic Operation Fluid Recommendation.

Purging Procedure

⚠WARNING

Do not attempt to purge this system without the front end of the trailer safely supported. Purging the system without properly supporting the trailer could result in death or serious injury.

⚠CAUTION

Use appropriate personal protective equipment (PPE) for the procedure being performed.

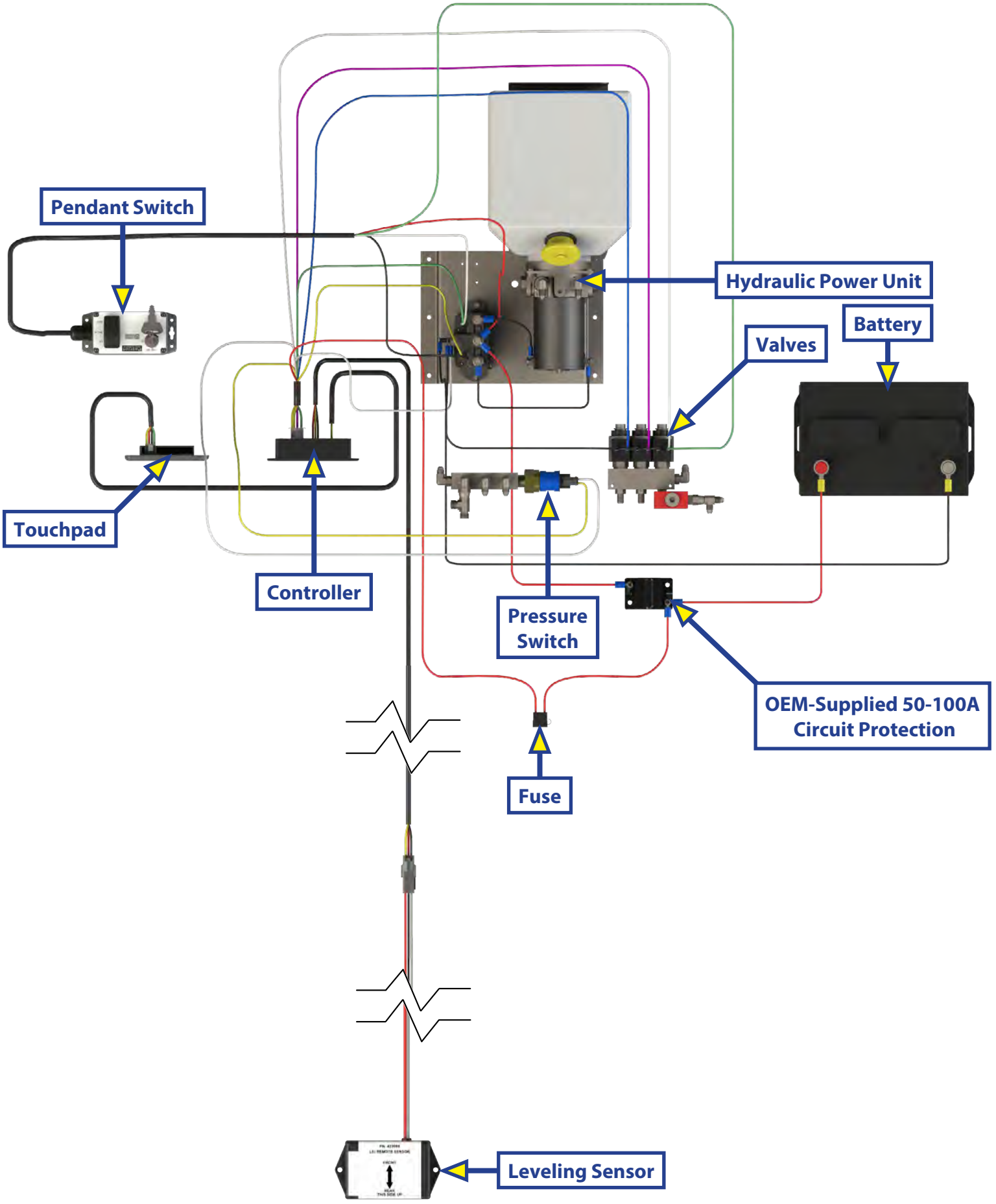
Refer to TI-118, Basic Purge Procedure for Hydraulic Pumps To obtain this Technical Information sheet online, go to https://support.lci1.com/towable-br-level-up-support-towable-level-up-br-touch-pad. Then click on the Technical Information Sheets tab. Look for *TI-118: Basic Purge Procedure for Hydraulic Pumps* within the listing.

1. Purging of the hydraulic system should be performed with the trailer coupled to the tow vehicle, a kingpin stand under the pin box or jack stands under the front portion of the frame.
2. Start with all hydraulic components in the fully retracted position, meaning all jacks, landing gear, stabilizers and slide-outs brought back inside the trailer as if it were ready to travel.
3. Find the hydraulic pump location and note the amount of fluid currently in the reservoir. The fluid level should be about ¼" from the top of the reservoir and no more than ½" from the top.

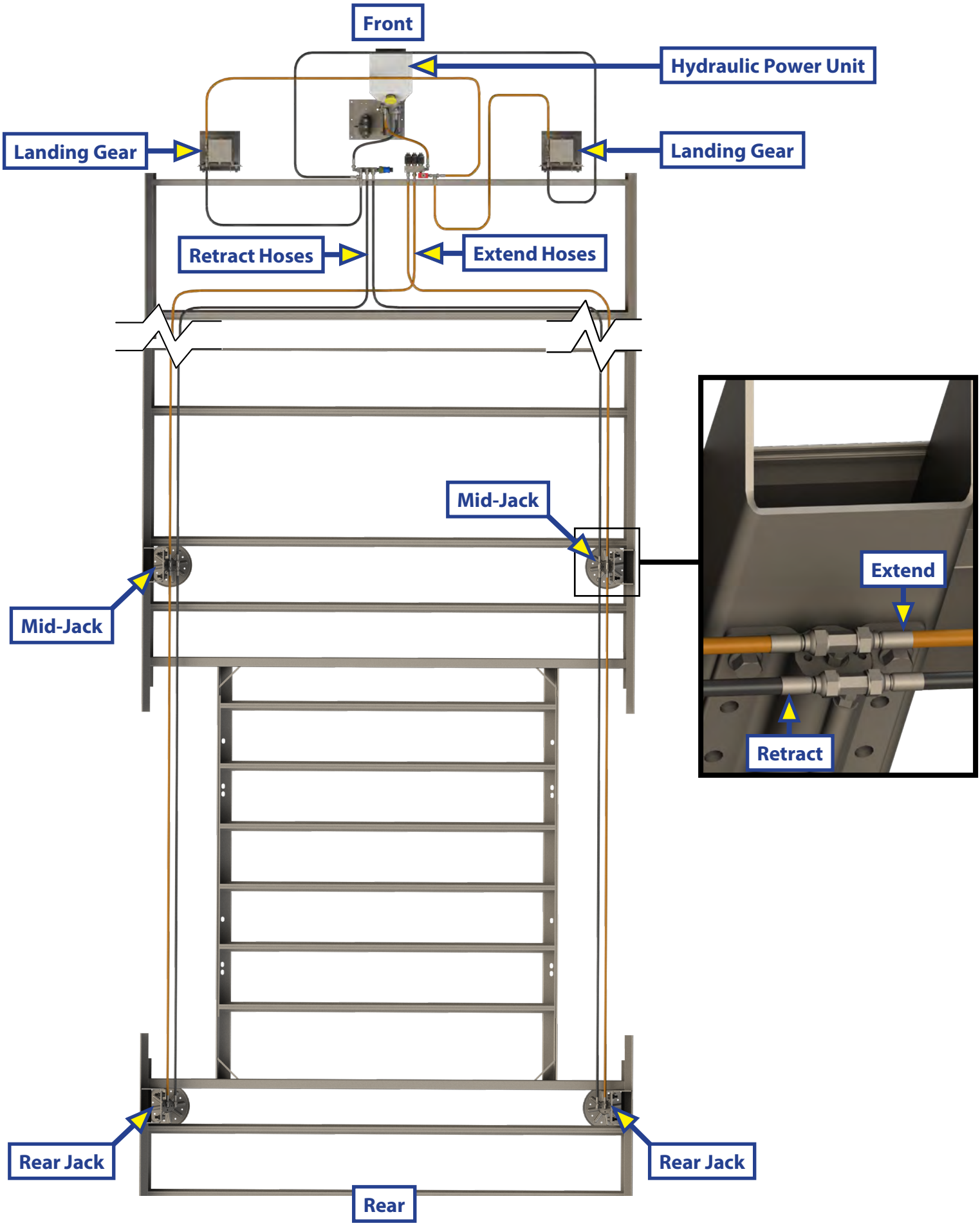
NOTE: When checking the fluid level after ensuring all hydraulic components are retracted, note if there are any bubbles, froth or foam on top of the fluid. This is an indication that air has been pushed back to the reservoir when the hydraulic components were retracted in the last cycle. Wait 15-20 minutes for the foam to dissipate before beginning the purge process.

4. If there is no froth or foam in the reservoir and the fluid is not within ½" of the top, fill the reservoir to within the level described in step 3.
5. With the fluid level full and no foam in the reservoir, begin cycling the hydraulic system:
   - **A.** Extend hydraulic landing gear until footpads contact the ground.
   - **B.** Extend hydraulic leveling jacks to touch the ground.
   - **C.** Extend any slide-outs, if applicable.
   - **D.** Retract any slide-outs, if applicable.
   - **E.** Retract hydraulic leveling jacks.
   - **F.** Retract hydraulic landing gear.
6. Check the reservoir for foam. If foam is present, see **NOTE** above and repeat steps 4 and 5.
7. Repeat these steps until no foam is present in the reservoir. If no foam is present, the system is purged of air.

Wiring Diagram - System



Plumbing Diagram - 6 Point Leveling



TIFFIN MOTORIZED HYDRAULIC LEVELING

OWNER'S MANUAL

TABLE OF CONTENTS

Introduction

The component's purpose is to hydraulically actuate the leveling. Its function should not be used for any purpose or reason other than to actuate the leveling. To use the system for any reason other than what it is designed for may result in death, serious injury or damage to the coach.

The use of the Lippert hydraulic leveling system to support the coach for any reason other than which it is intended is prohibited by the Lippert Limited Warranty. The hydraulic leveling system is designed as a leveling system only and should not be used for any reason to provide service under the coach, e.g. changing tires or servicing the leveling system.
Lippert recommends that a trained professional be employed to change the tires on the coach. Any attempts to change tires or perform other service while coach is supported by the Hydraulic Leveling System could result in damage to the coach and/or cause serious injury or death.

Additional information about this product can be obtained from Lippert1.com/support or the myLippert app is available for free on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.
App Store® and iPad® are registered trademarks of Apple Inc.
Google Play™ and Android™ are trademarks of Google Inc.

For information on the assembly or individual components of this product, please visit:
https://support.LCI1.com/leveling-and-stabilization/

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

System Features

- Automatic extension of jacks from full retract position (with automatic ground detection).
- Automatic leveling of jacks.
- Manual leveling of jacks.
- Automatic retraction of jacks (with automatic full retract detection).
- Jacks Up verification (jacks not retracted and park brake disengaged).
- Automatic jack error detection and error mode.
- Configurations mode for Zero Point.
- Remote operation.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels. This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

During servicing make sure that the coach is supported according to the manufacturer's recommendations. Lift the coach by the frame and never the axle or suspension. Do not go under the coach unless it is properly supported. Unsupported coaches can fall causing death, serious personal injury or severe product and/or property damage.

⚠WARNING

Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

⚠CAUTION

Always wear eye protection when performing service, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.

⚠CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

Prior to Operation

Selecting a Site

When the coach is parked on an excessive slope the leveling requirements may exceed the jack lift stroke capability. If the coach is parked on an excessive slope, the coach should be moved to a more level surface before the leveling system is deployed.
EXCESS ANGLE will appear on the LCD screen if the coach is 3.5 to 5 degrees out of level front-to-rear or side-to-side. See Touchpad Error Codes chart in Troubleshooting section.
The leveling system **MUST** be operated under the following conditions:

1. The coach is parked on a reasonably level surface.
2. The coach "PARKING BRAKE" is engaged.
3. The coach transmission should be in the neutral or park position.
4. Be sure all persons, pets and property are clear of the coach while Leveling system is in operation.
5. Persons inside of coach need to remain still during leveling operation.
6. Clear all jack landing locations of debris and obstructions. Locations should also be free of depressions.
7. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
8. Make sure hands and other body parts are clear of fluid leaks. Oil leaks in the Leveling system may be under high pressure and can cause serious skin penetrating injuries.
9. Never lift the coach completely off the ground. Lifting the coach so the wheels are not touching the ground will create an unstable and unsafe condition.

⚠WARNING

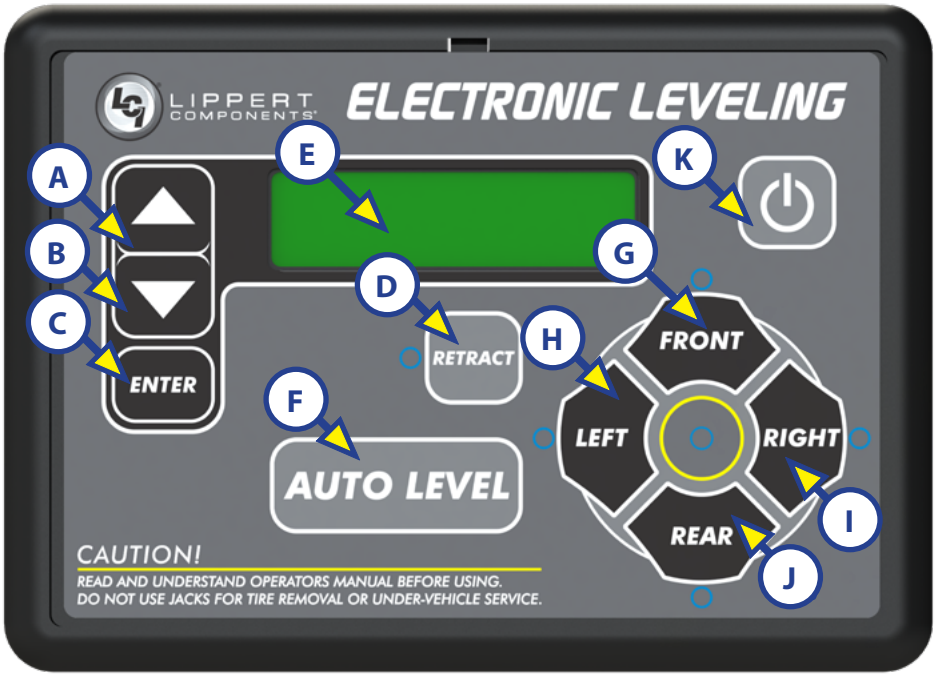
Never lift all wheels off the ground. Lifting all wheels off the ground creates an unsafe condition which may result in serious personal injury or death. Make sure coach is supported in accordance with manufacturer's recommendations.

⚠CAUTION

After starting the automatic leveling cycle it is very important there is no movement inside the coach until the coach is level and the green LED light illuminates in the center of the touchpad. Failure to remain still during the leveling cycle could have an effect on the performance of the leveling system.

Touchpad Diagram

Fig. 1



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. Press and hold for several seconds to activate Auto Retract Function.
E	LCD Display - Displays procedures and results.
F	AUTO LEVEL - Places leveling system into auto level mode.
G	FRONT - Activates both front jacks in manual mode.
H	LEFT - Left (Driver Side) Activates both Front and Rear Jacks together in Manual Mode
I	RIGHT - Right (Passenger Side) Activates Both Front and Rear Jacks together in Manual Mode
J	REAR - Activates both rear jacks in manual mode.
K	Power Button - Turns leveling system on and off.

Operation

Automatic Leveling Descriptive Logic

Grounding: Steps 1-3 describe the process of how the AUTO LEVEL LOGIC extends the jacks to the ground.

1. Depending on which end of the coach is lowest to the ground, the level sensor will activate the jacks, one at a time on the lowest end first, either front or rear.
   A. Ground lowest side jack first e.g., front passenger side (curbside).
   B. Ground remaining side jack next i.e., front driver side (roadside).
2. Together, both jacks will lift lowest end until level i.e., front of coach will lift briefly until the coach is level.
3. The system will then ground remaining jacks, one at a time e.g., rear jacks.
   A. Ground lowest side jack first e.g., rear passenger side.
   B. Ground remaining side jack next e.g., rear driver side.

Leveling: Steps 4-6 describe the process of how the AUTO LEVEL LOGIC levels the coach after the jacks have been grounded. This process may repeat several times until the coach is level.

4. Front-to-rear
5. Side-to-side
6. Individual

NOTE: Minor adjustments will be made throughout the leveling process to limit or prevent frame twisting.

NOTE: After starting the automatic leveling cycle it is very important that there is no movement within the coach until the coach is level and the touchpad LCD display indicates "Auto Level - Success!". Failure to remain still during the leveling cycle may have a negative effect on the performance of the leveling system.

Automatic Leveling Procedure

Coach must be running for Leveling system to operate.

1. Press the ON/OFF (power) button (Fig. 1K) on the touchpad to turn the leveling system on. The leveling system is now operational and the electronic level lights will activate.
2. Check to see that the Control Pad ENGAGE PARK BRAKE is engaged.
3. Press the AUTO LEVEL (Fig. 1F) button to begin the automatic leveling cycle.
4. Once system is finished Leveling, turn touch pad off or it will shut itself off after a brief period.

Low Voltage Signal

1. The vehicle requires 12.7V DC to operate in the AUTO mode.
   A. If the voltage is too low, the touchpad's LCD screen (Fig. 1E) will display "LOW VOLTAGE."
   B. If voltage drops below 12.7V DC, the leveling system will only operate in manual mode and continue to display "LOW VOLTAGE."
2. If voltage drops below 9.5V DC during automatic or manual operation "LOW VOLTAGE" will appear in the LCD screen and the leveling system will stop operating.

Manual Leveling Procedure

When leveling the coach, the coach should be leveled front-to-rear first, then leveled left-to-right.

NOTE: The coach requires 12.7V DC to begin the auto leveling function. If voltage at the hydraulic power unit is below 12.7V DC, run the engine.

1. Press the ON/OFF (power) button (Fig. 1K) on the touchpad to turn the leveling system on. The leveling system is now operational and the electronic level lights will activate.
2. Press the Down Arrow button (Fig. 1B) to display "MANUAL LEVEL" on the LCD screen (Fig. 1E). Press the ENTER button (Fig. 1C) to set.
3. Press the FRONT button (Fig. 1G) until the front jacks contact the ground and lift the front of the coach 1-2 inches.

4. Press the REAR button (Fig. 1J) until the rear jacks contact the ground and lift the rear of the coach. Keep the button depressed until the level indicator displays "LEVEL."
5. Press the LEFT or RIGHT button (Fig. 1H or 1I).
   A. If the level indicator is towards the left (roadside) of the coach, press the LEFT button (Fig. 1H).
   B. If the level indicator is towards the right (curbside) of the coach, press the RIGHT button (Fig. 1I).
   C. Keep either button (RIGHT or LEFT) depressed until the level indicator displays "LEVEL."

NOTE: The right and left jacks are used to level the coach side-to-side. Pressing the LEFT button on the touchpad will extend both left jacks. Pressing the RIGHT button on the touchpad will extend both right jacks. Jacks always work in pairs; both front jacks, both right side (curbside) jacks, etc.

6. Repeat steps 2-5 if needed.
7. Press the ON/OFF (power) button (Fig. 1K) to turn the leveling system off.
8. Visually inspect all jacks to ensure all footpads are touching the ground. For example, if one of the rear jack footpads is not touching the ground, press the corresponding LEFT or RIGHT button to lower the non-compliant jack to the ground.

Jack Retract Procedures

NOTE: Pressing any button during an automatic sequence will stop the sequence and a "Function Aborted" error code will occur. Press ENTER to clear the code and then continue the operation or start a new function.

1. Press the ON/OFF (power) button (Fig. 1K) to turn the leveling system on. The LCD screen (Fig. 1E) will display, "READY Jacks: Down".
2. Press the Down Arrow button (Fig. 1B) to display "AUTO RETRACT ALL" on the LCD screen.
3. Press the ENTER button (Fig. 1C) to begin automatically retracting the jacks.

NOTE: To stop the jacks from retracting, turn the leveling system off, then back on again by pressing the ON/OFF (power) button twice. Do steps 1-5 of the Manual Leveling Procedure section to manually level the coach. Press the ENTER button to acknowledge.

4. When the message on the LCD display reads, "READY Jacks: Up" press the ON/OFF (power) button to turn the leveling system off.
   A. Do a visual inspection around the coach to verify all jacks are fully retracted.
   B. If all jacks are fully retracted, the coach is ready for travel.
5. To retract jacks while in MANUAL mode:
   A. Press the RETRACT button (Fig. 1D) until it lights.
   B. By pressing any of the jack buttons (Fig. 1G-J), the jacks will retract in pairs i.e., pressing the FRONT button makes both front jacks retract in unison.
6. An "auto retract" sequence can also be performed by pressing and holding the RETRACT button (Fig. 1D) for one second.

NOTE: In cold weather operation, always check to make sure all jacks, slide rooms and steps are fully retracted before traveling.

Leveling System Safety Features

1. The leveling system will automatically shut down after four minutes of no operation.
2. Auto leveling cycle cannot be started until all jacks are fully retracted.
   A. Make sure jacks are retracted before attempting to auto level.
   B. The leveling system will automatically perform a full retract of all jacks if jacks are down when there is a request for an auto cycle.
3. The leveling system will refuse any operation when a low voltage condition is present.
4. The leveling system will automatically sound an alarm and retract all jacks if the PARK BRAKE is disengaged and jacks are not retracted with any change in sensor readings.

NOTE: When the leveling system is in alarm mode, only the "retract all jacks" feature is available.

5. If the "WAIT" message displays in the touchpad's LCD screen (Fig. 1E), this indicates the status of Air/Auxiliary features.

Automatic Safety Shutoff

The touchpad will automatically turn off after four minutes of inactivity. To reset the leveling system, the coach ignition must be turned off, then back on and the ON/OFF (power) button (Fig. 1K) must be pressed.

Drive Away Protection System

If the coach's ignition is in the “RUN” position, jacks are down and the operator releases the parking brake, all indicator lights will flash and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake.

The hydraulic power unit will also operate to keep the jacks retracted in the event the leveling system loses pressure as the coach is being driven.

“Jacks Down" Alarm

The leveling system is designed to sound an alarm and illuminate the touchpad in the event of two possible scenarios:

1. A retract hose leak.
2. The pressure holding the jacks in the retracted position falls to approximately 1500 psi, which activates the alarm. If the alarm sounds and the touchpad illuminates and flashes while driving the vehicle:
   - A. Immediately find an area to safely pull the vehicle off of the roadway.
   - B. Set the PARKING BRAKE.
   - C. Inspect all jacks, hoses and valves for leaks.
   - D. If no leaks are observed:
     - I. Turn leveling system touchpad on.
     - II. Press RETRACT button (Fig. 1D).
     - III. Inspect jacks. If jacks are retracted and no leaks are observed, vehicle can be driven.
   - E. If system is leaking or alarm does not subside after applying step 2, disconnect wires from pressure switch and proceed immediately to a service center.

NOTE: The pressure switch is a blue and gold colored valve located on the hydraulic power unit manifold identified by the spark proof style connector with yellow and black wires. See figure 11.

NOTE: For prolonged travel to the service center, periodically stop and check the disposition of the leveling jacks to make sure they are not extending.

For Diesel Coaches with Air Bag Suspensions ONLY

The leveling control will automatically detect an air bag system. If the coach does not use air bags, the touchpad LCD screen will display “NO” for air bag control. If the LCD screen reads "NO," but an air bag system is present on the coach:

1. Confirm harness is connected properly.
2. Run the auto level function.
3. Recalibrate the Zero Point.
4. If the air bag system is still not being detected, contact the OEM for more information.

User Alarm Mode

If the alarm system detects that the park brake has been disengaged while at least one jack is not fully retracted and the sensor value changes in any axis more than the predefined amount, the touchpad will signal this error to the user.

When in alarm mode:

1. All LEDs will flash.
2. The buzzer alarm will beep.
3. The status LEDs will show the current leveling system status.
4. The leveling system will begin retracting all jacks.

NOTE: No other leveling system features will be available when in alarm mode.

Troubleshooting

⚠ CAUTION

Make sure all jacks are fully retracted before travel.

Manual Override

In the event that the leveling jacks do not retract, the system can be manually overridden.

Resources Required

- Cordless or electric drill
- 1/2" socket
- 5/32" or 5/64"hex wrench

NOTE: Cartridge valves should be opened prior to operating with any auxiliary power device. The system can be operated in conjunction with auxiliary power devices, like cordless or power drills. In the event of electrical or system failure, the manual method of retracting the leveling jacks can be used.

⚠ CAUTION

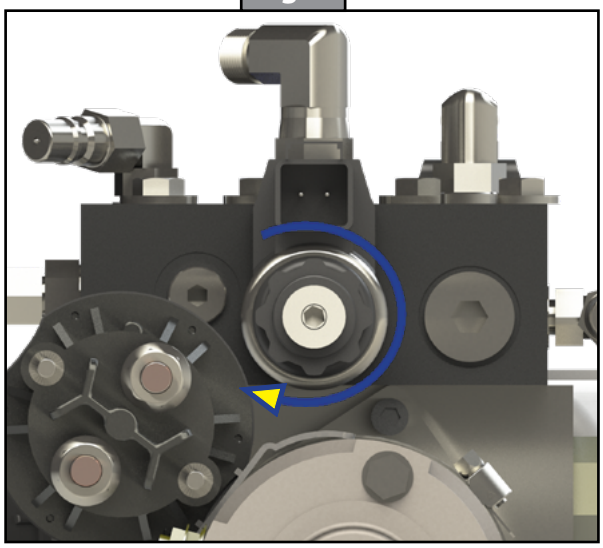
Do not over-tighten override set screws as this can damage the valves.

1. Use a 5⁄32" hex key wrench to turn the manual override clockwise (Fig. 2) on all of the cartridge valves to open the valves.

NOTE: If a 5/32" hex wrench will not fit in the end of the valve, use a 5/64" hex wrench.

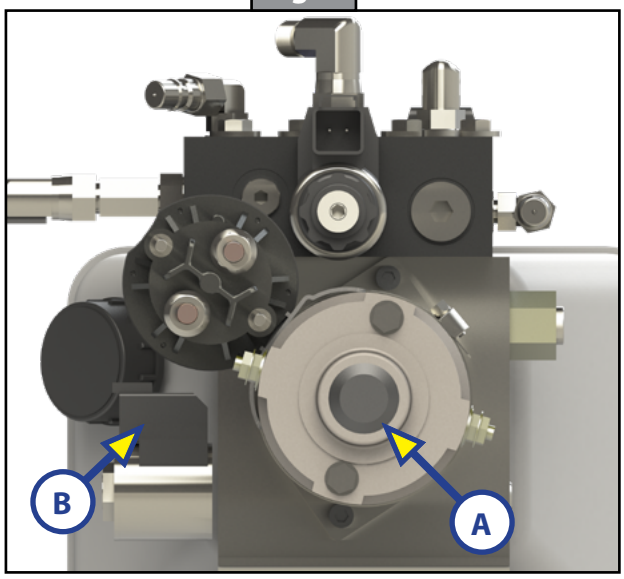
2. Disconnect or shield power cables on the motor.
3. Remove plastic cap (Fig. 3A) from motor coupler.
4. Unplug the wire harness from the directional valve (Fig. 3B). See Wiring Diagrams.

Fig. 2



Clockwise for Manual Override

Fig. 3



5. Using a ½" socket and auxiliary drive device, e.g. cordless or power drill, insert ½" socket onto coupler (Fig. 4A).
6. Run drill in reverse, or counterclockwise direction, to simultaneously retract all leveling jacks and slide out rooms.
7. After all leveling jacks and slide out rooms have been retracted, turn cartridge valve manual overrides, counterclockwise (Fig. 5).
8. Reinsert previously removed protective plastic motor coupler cap (Fig. 3A).
9. Reattach previously unplugged wire harness to directional valve (Fig. 3B).

Fig. 4

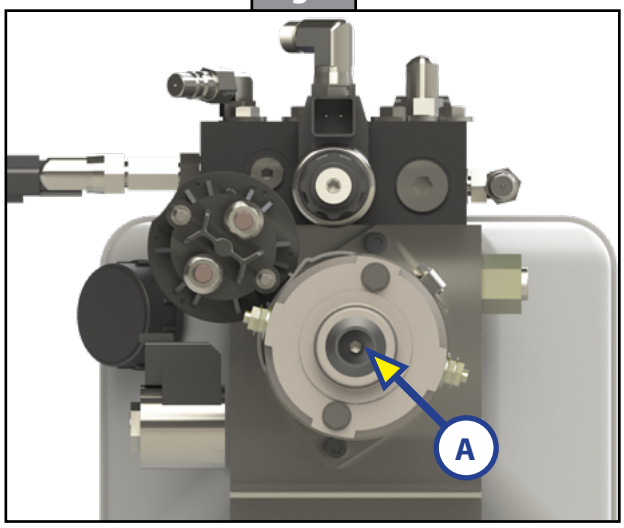
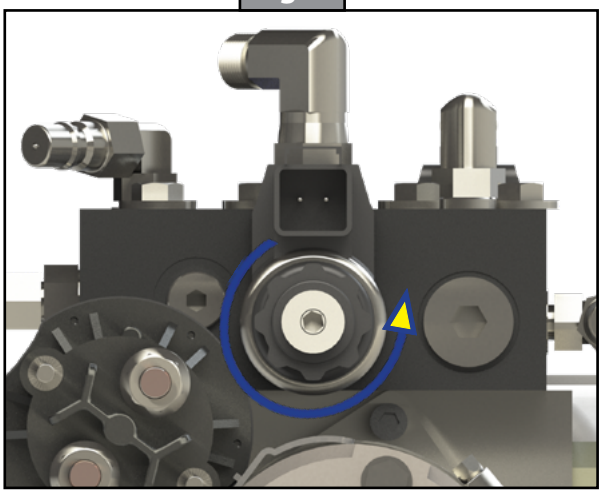


Fig. 5



Counterclockwise for Normal Operation

Jacks Up Verification

If the coach's ignition is in the "RUN" position, the parking brake is released and the vehicle is in motion, the leveling system may activate the hydraulic power unit to ensure retract pressure is high enough to keep jacks fully retracted. The LCD screen will say "JACKS UP VERIFICATION" until the retract pressure returns to normal level. The touchpad will shut off. No beeping will occur and the "JACKS DOWN" dash light will not illuminate.

Hydraulic Power Unit

For this manual the hydraulic power unit is mounted to the front of the driver's side compartment. If the hydraulic power unit is mounted to the front of the driver's side compartment, the driver's side jack (LF jack) will be the first jack in the system.

See figures 6-8 for hydraulic power unit feature identification and the following:

- Fittings - High Pressure O-Ring Face - Size 4
- Hose - 1/4" I.D. 3000PSI - W.P. Rated

  Install the hydraulic power unit in accordance with RVIA Gas Codes, since the hydraulic power unit connections are not spark-proof.

⚠ NOTICE

All electrical wiring harnesses shall be loomed and secured to prevent possible damage and installed in accordance with RVIA electrical standards.

Fig. 6

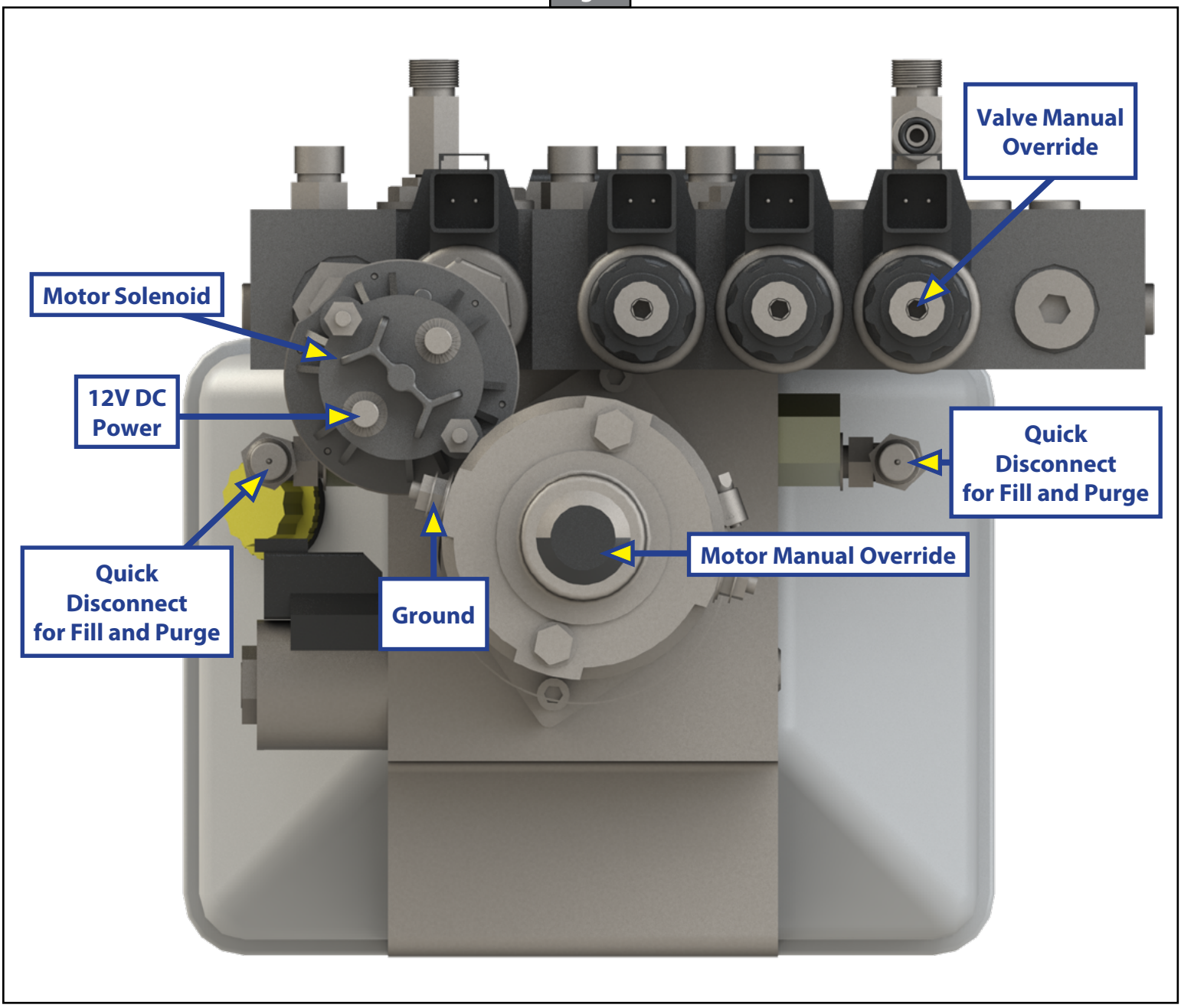


Fig. 7

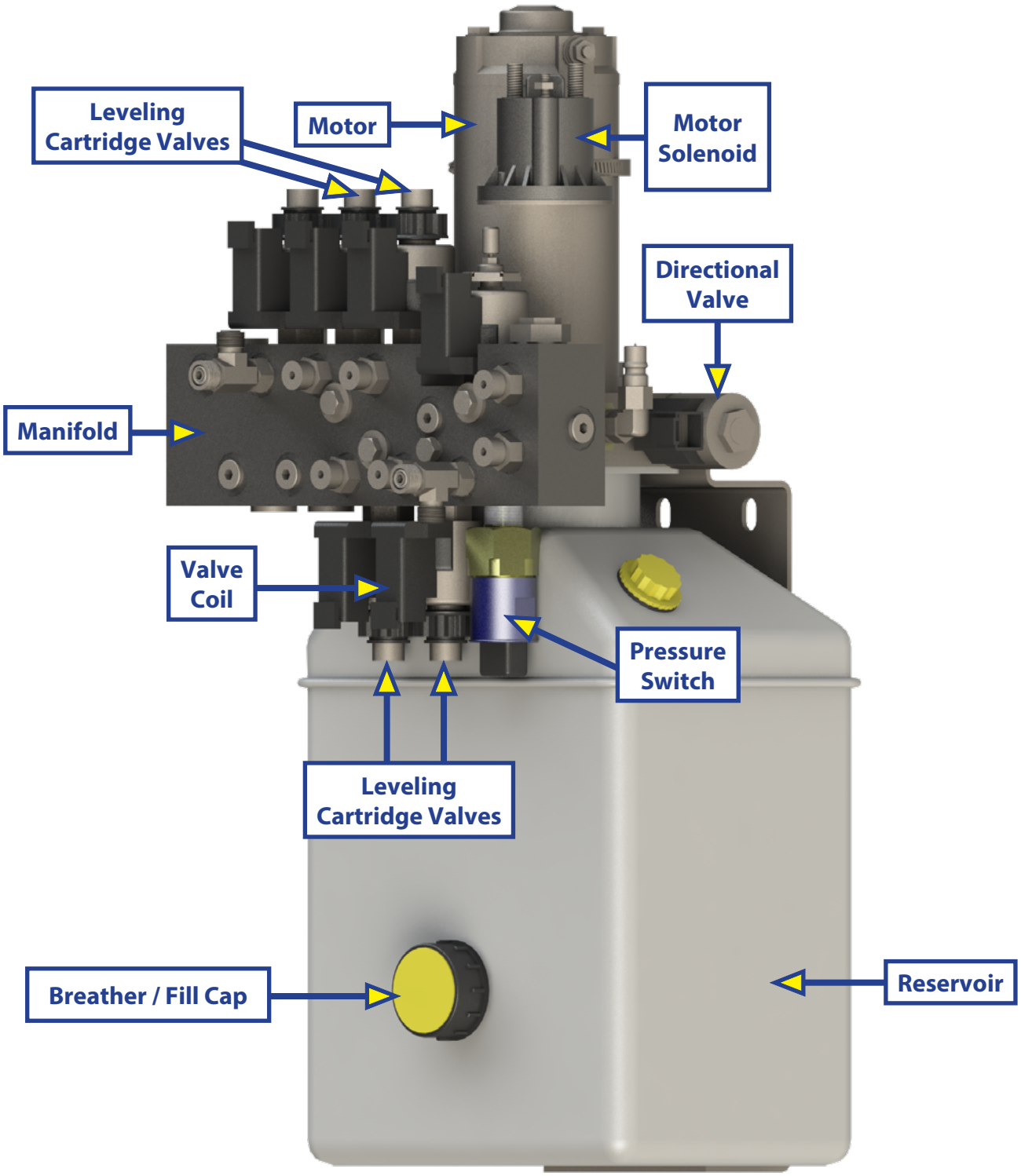
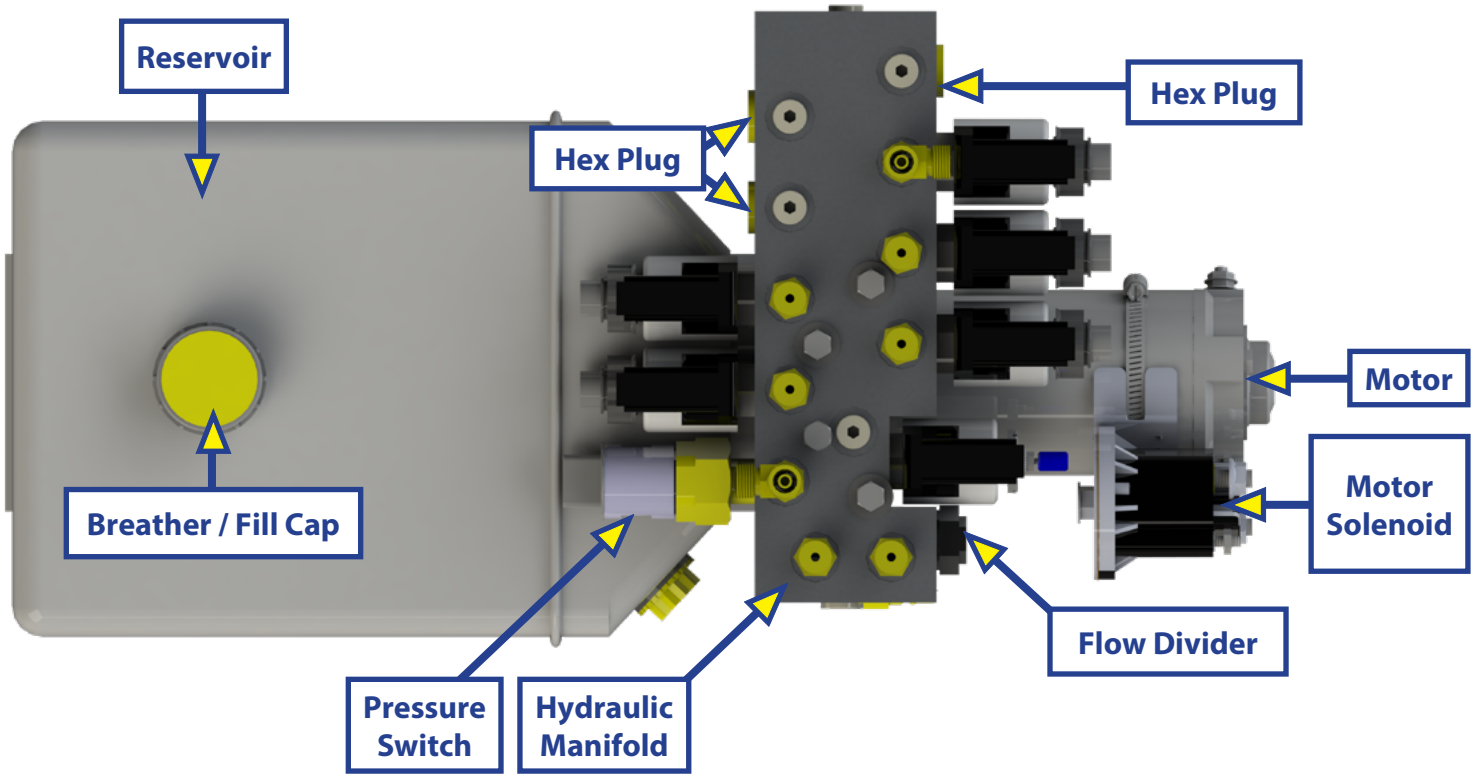

Leveling Cartridge Valves
Motor
Motor Solenoid
Directional Valve
Manifold
Valve Coil
Pressure Switch
Leveling Cartridge Valves
Breather / Fill Cap
Reservoir

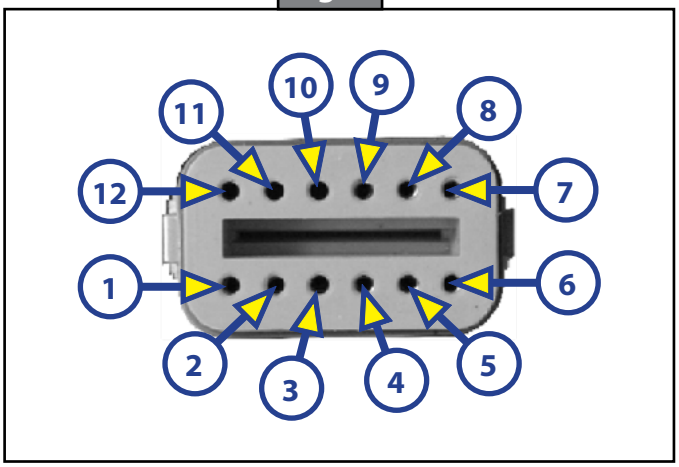
Fig. 8



12-pin Wire Harness

See figure 9, the 12-Pin Wire Harness Pin Definitions chart and the Leveling Wiring Diagram for identification.

Fig. 9



12-Pin Wire Harness Pin Definitions					
Pin #	Color	Function	Pin #	Color	Function
1	White	Chassis Power	7	Brown	Ground
2	Black/White	Pump Solenoid	8	Purple	Curbside Front Valve
3	Red	Curbside Rear Valve	9	Gray	Pump Solenoid
4	Green	Roadside Front Valve	10	— — —	Aux
5	Yellow	PSI Switch	11	— — —	Aux
6	Blue	Roadside Rear Valve	12	— — —	Aux

Fluid Recommendation

⚠ CAUTION

Do NOT use ATF Type E fluid. Type F ATF is NOT compatible with Lippert hydraulic system seals. Seals will not work properly.

Automatic transmission fluid (ATF) with Dexron®III or Mercon®V or a blend of both is recommended by Lippert Components, Inc. For a list of approved fluid specifications, see TI-188 (https://lci-support-doc.s3.amazonaws.com/technical-information-sheets/leveling-and-stabilization/ccd_0002088.pdf).

NOTE: In colder temperatures (less than 10° F) the jacks may extend and retract slowly due to the fluid's molecular nature. For cold weather operation, fluid specially formulated for low temperatures may be desirable.

Purging the System

NOTE: Make sure jacks are fully retracted prior to filling reservoir to prevent over-filling

1. Zip-tie any loose wiring or hydraulic lines.

NOTE: The basic purge procedure to bleed the Lippert Hydraulic Systems can be performed without the use of any tools. The hydraulic system will purge the air from the hydraulic lines and cylinders by simply running the pump.

NOTE: It is recommended to perform a minimum of three complete cycles (steps 2-7) to ensure both proper function and adequate fluid level of the system.

2. Start with all hydraulic components in the fully retracted position, meaning all jacks and slide-outs are brought back inside the coach as if the coach were ready for travel.
3. Find the hydraulic pump location and note the amount of fluid currently in the reservoir. The fluid level should be about 1/4" from the top of the reservoir and no more than 1/2" from the top.

NOTE: When checking the fluid level after ensuring all hydraulic components are retracted, note if there are any bubbles, froth or foam on top of the fluid. This is an indication that air has been pushed back to the reservoir when the hydraulic components were retracted in the last cycle. Wait 15-20 minutes for the foam to dissipate before beginning the purge process.

4. If there is no froth or foam in the reservoir and the fluid is not within 1/2" of the top, fill the reservoir to within the level described in step 3.
5. With the fluid level full and no foam in the reservoir, begin cycling the hydraulic system.
6. Extend jacks fully, taking the coach off the tires. If the coach has hydraulic slide-outs, extend all slide-outs. Once all jacks and slide-outs are extended, immediately retract all slide-outs and then jacks.
7. Check the reservoir foam. If foam is present, see NOTE following step 3 and then repeat steps 4-6.
8. Repeat these steps until no foam is present in the reservoir. If no foam is present, the system is purged of air.

Controller Connections

Connect the harness (Fig. 11) to the matching port on the controller (Fig. 10). The harness contains a 9-pin end and a 12-pin end. Refer to the Wiring Diagrams in this manual throughout this section.

NOTE: Each connector on the controller is a different shape and has a different number of pins. Each harness (Fig. 11) has only one way of connecting to the controller. The harnesses are not interchangeable. This prevents installation of the wrong harness in the wrong connector.

Fig. 10

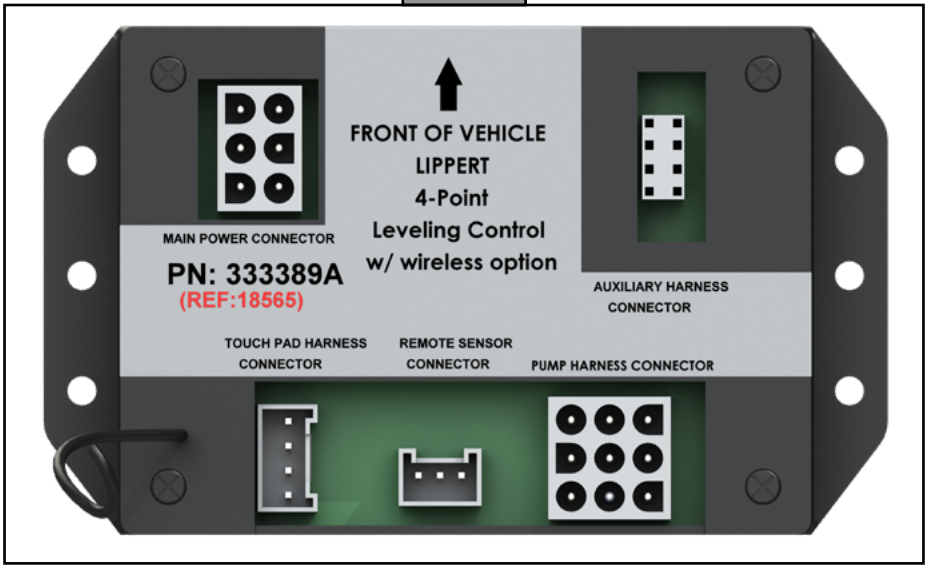
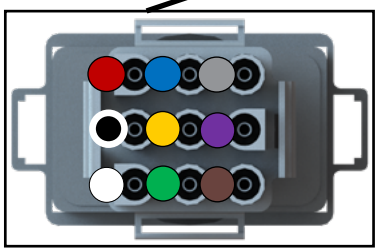


Fig. 11

Hydraulic Power Unit to Controller Harness (Non-Water Resistant)

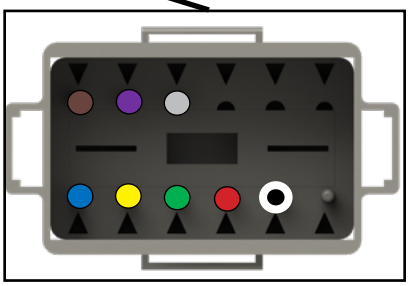


Row 1: 16 GA red, 16 GA blue, 16 GA gray

Row 2: 16 GA black/white, 16 GA yellow, 16 GA purple

Row 3: 14 GA white, 16 GA green, 16 GA brown

Color	What it Controls
White	Controller power
Black/White	Solenoid extend/retract
Red	Right rear jack valve
Green	Left front jack valve
Yellow	Pressure switch
Blue	Left rear jack valve
Brown	Controller ground
Purple	Right front jack valve
Gray	Directional valve



Row 1: 16 GA brown, 16 GA purple, 16 GA gray

Row 2: 16 GA blue, 16 GA yellow, 16 GA green, 16 GA red, 16 GA black/white, 14 GA white

Leveling Troubleshooting Chart

For leveling system concerns, refer to the Leveling System Troubleshooting Chart.

Leveling System Troubleshooting Chart		
What Is Happening?	Why?	What Should Be Done?
System will not turn on and ON/OFF indicator light does not illuminate.	Coach ignition not in RUN position.	Turn ignition to RUN position.
	Parking brake not set.	Set parking brake.
	Controls have been on for more than four minutes and have timed out.	Turn ignition off and then back on.
Touch pad turns on but turns off when jack directional buttons are pressed or touch pad displays “low voltage”.	Low voltage on battery.	Start coach to charge battery.
Touch pad turns on, coach will not auto-level, “Ready Jacks: Down” displayed, jacks are retracted.	Faulty pressure switch or low pressure in system.	Press RETRACT ALL JACKS button on touchpad. If JACKS DOWN light remains on, call Lippert Customer Service.
Jacks will not extend to ground, pump is running.	Little or no fluid in reservoir.	Fill reservoir with recommended ATF.
	Jack valve is inoperative.	Clean, repair or replace.
	Electronic signal is lost between controller and jack valves.	Trace wires for voltage drop or loss of signal. Repair or replace necessary wires or replace controller.
Any one or two jacks will not retract.	Hose damaged or disconnected.	Replace with new hose or reconnect hose.
	Return valve inoperative.	Replace inoperative return valve.
	Electronic signal is lost between controller and solenoid.	Test for voltage drop between controller and jack valve. Repair bad wiring or replace defective controller or valve.
“READY - Jacks: Up” does not display when all jacks are retracted.	Insufficient pressure in system.	Contact Lippert Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Alarm sounds and lights start flashing while traveling; jacks are fully retracted.	Loss of pressure in leveling system.	Contact Lippert Customer Service.
	Retract pressure switch inoperable.	Check connection or replace.
Jack bleeds down after being extended.	Valve Manual Override open.	Close override.
Touch pad powers up; screen displays “low voltage”.	Engine not running.	Start coach engine.
No power to touchpad.	Tripped circuit breaker.	Reset breaker.
	Ignition not on.	Turn on.

Leveling Touchpad Error Mode

1. If an error occurs before or during operation, the error will be displayed in the touchpad's LCD screen (Fig. 1E) and an alarm will sound. To reset common ERROR displays, press ENTER (Fig. 1C).

NOTE: To reset "Return for Service" errors, press ENTER (Fig. 1C) and RETRACT (Fig. 1D) simultaneously.

2. All normal functions will be disabled while the system is in Error Mode.

Leveling Touchpad Error Code Chart		
LCD Display	What is Happening?	What Should Be Done?
Excess Angle	Coach not parked on level ground.	Move coach to level ground prior to starting auto level sequence.
	Zero Point incorrectly calibrated.	Recalibrate Zero Point.
Excessive Angle	Occurs only in manual mode when the angle of the coach is too severe.	Use the manual functions to return coach to a more level condition.
Out of Stroke	Jack has insufficient length to complete the leveling procedure.	Check the disposition of the jack.
Low Voltage	Battery voltage dropped below 9.5V DC during operation.	Turn engine on, check battery voltage under load.
Function Aborted	A button was pressed on touchpad during Auto Level operation.	Hit enter to acknowledge. Restart procedure.
Unable to Finish Leveling	Excessive movement inside coach during auto-level sequence.	Discontinue movement inside coach during auto level sequence.
Engage Park Brake	Parking brake not set prior to starting auto level sequence.	Set parking brake prior to starting auto level sequence.
Comm Error Check Wiring **NOTE**: Screen will not back light.	Wiring connections loose or faulty between touchpad and controller.	Check connections, replace communication harness if necessary.
Retract Timeout Return Levelers for Service	Pressure switch did not sense retract pressure and pump timed out.	Return levelers for service.
	Leaking hose or fitting.	Check for leaks; repair if necessary. Press ENTER and RETRACT to clear error.

Excess Slope

1. The control will not operate at extreme slopes, i.e. 3.5 to 5 degrees front and rear and 3.5 to 5 degrees side-to-side.
2. If the coach's display indicates “Excess Angle” or “Out of Stroke “ during an auto-level cycle, move the coach to a level spot.

Miscellaneous

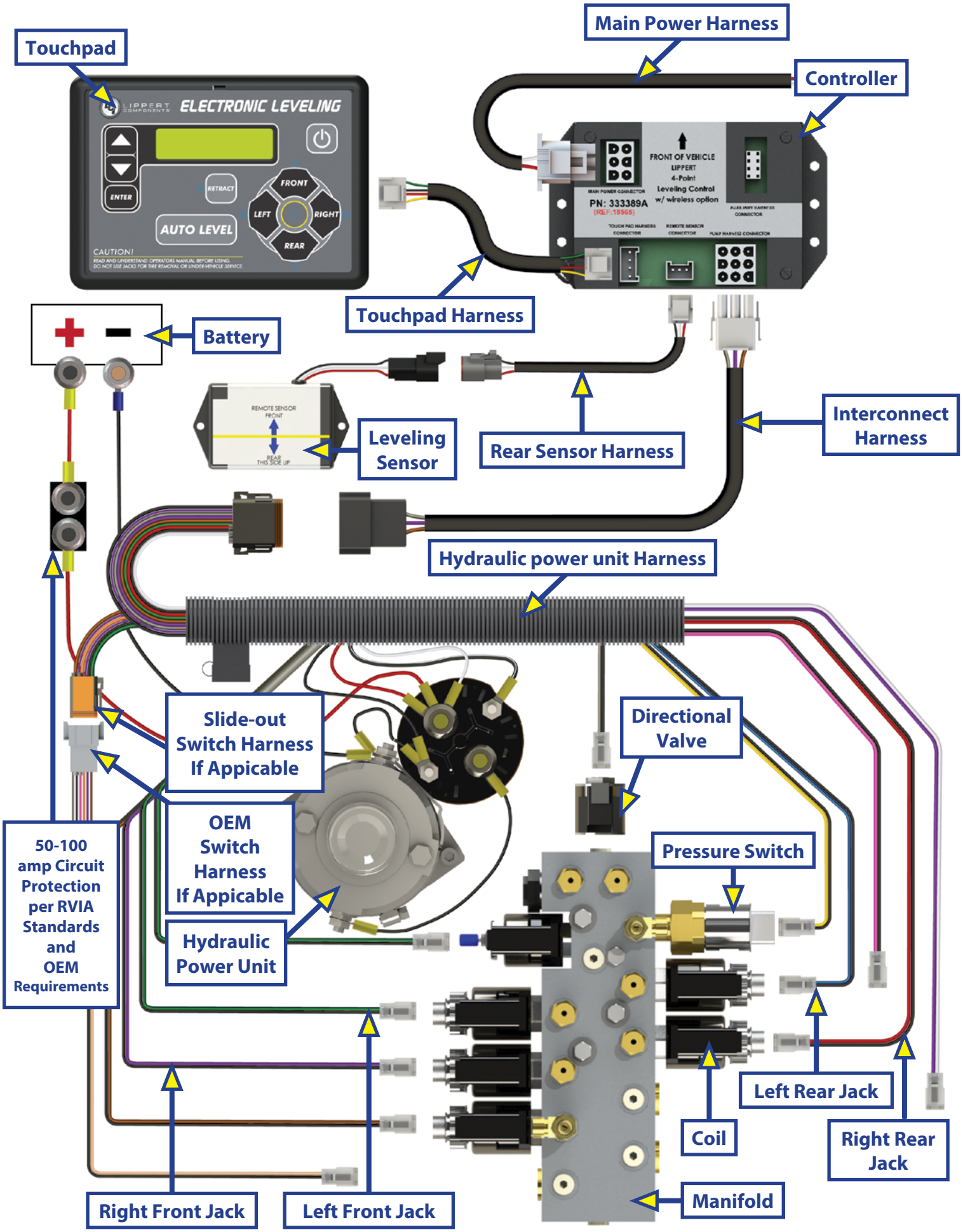
System will refuse any operation when a low voltage condition is present.

Level Zero Point Calibration

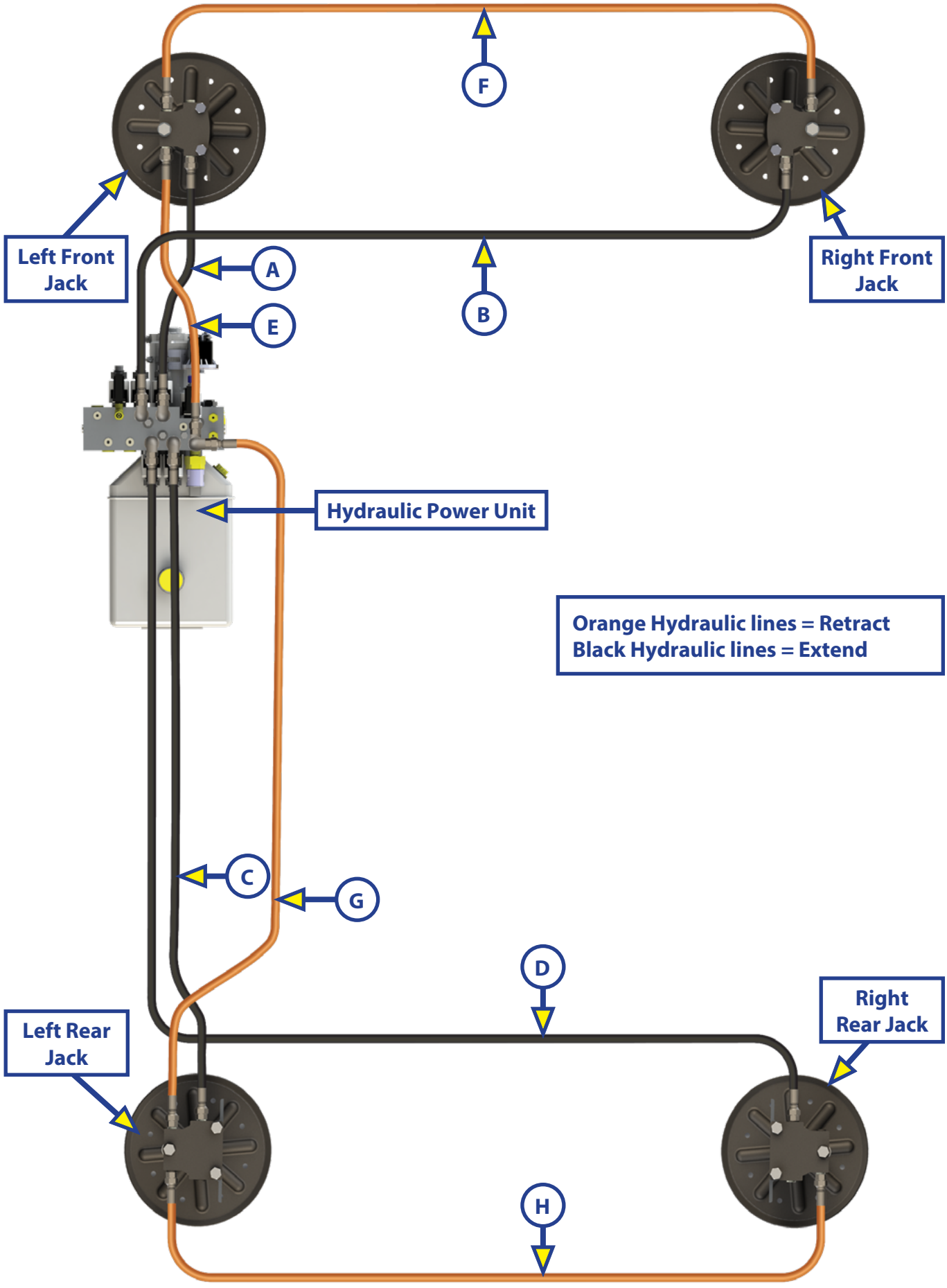
To set the zero point, first run a manual leveling sequence to get the vehicle to the desired level point. Then activate the Level Zero Point configuration mode by performing the following sequence:

1. Turn touchpad off (Fig. 1K).
2. Press the FRONT button (Fig. 1G) 5 times.
3. Press the REAR button (Fig. 1J) 5 times.
4. A tone will sound and the LCD screen display (Fig. 1E) will read "ZERO POINT CALIBRATION."
5. Press the ENTER button (Fig. 1C) to set the zero point.
6. The LCD screen will then display "Zero Point Stability Check" and "PLEASE WAIT."
7. A tone will sound and the LCD screen display will read "ZERO POINT SUCCESSFUL."
8. The touchpad will then turn off.

Leveling Wiring Diagram



Hydraulic Leveling Plumbing Diagram



Please recycle all obsolete materials.

For all concerns or questions, please contact
Lippert Components, Inc.
Ph: (574) 537-8900 | Web: lippert.com | Email: customerservice@lci1.com