



LIPPERT MOTORIZED
LEVELING PLUS
OWNER'S MANUAL

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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.

For information on the assembly or individual components of this product, please visit:

<https://support.lci1.com/motorized-standard-leveling>

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.

Safety Information

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

⚠ 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.

⚠ WARNING

Failure to act in accordance with the following 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 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 Components, Inc. 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:

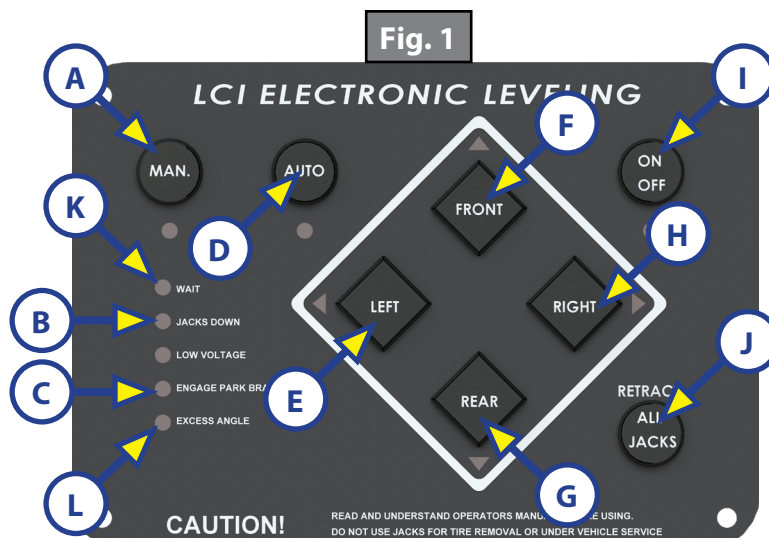
1. Make sure to park the coach on solid, level ground.
2. Clear all jack landing locations of debris and obstructions.
3. Locations should also be free of depressions.
4. When parking the coach on extremely soft surfaces, utilize load distribution pads under each jack.
5. People and pets should be clear 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.



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.

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



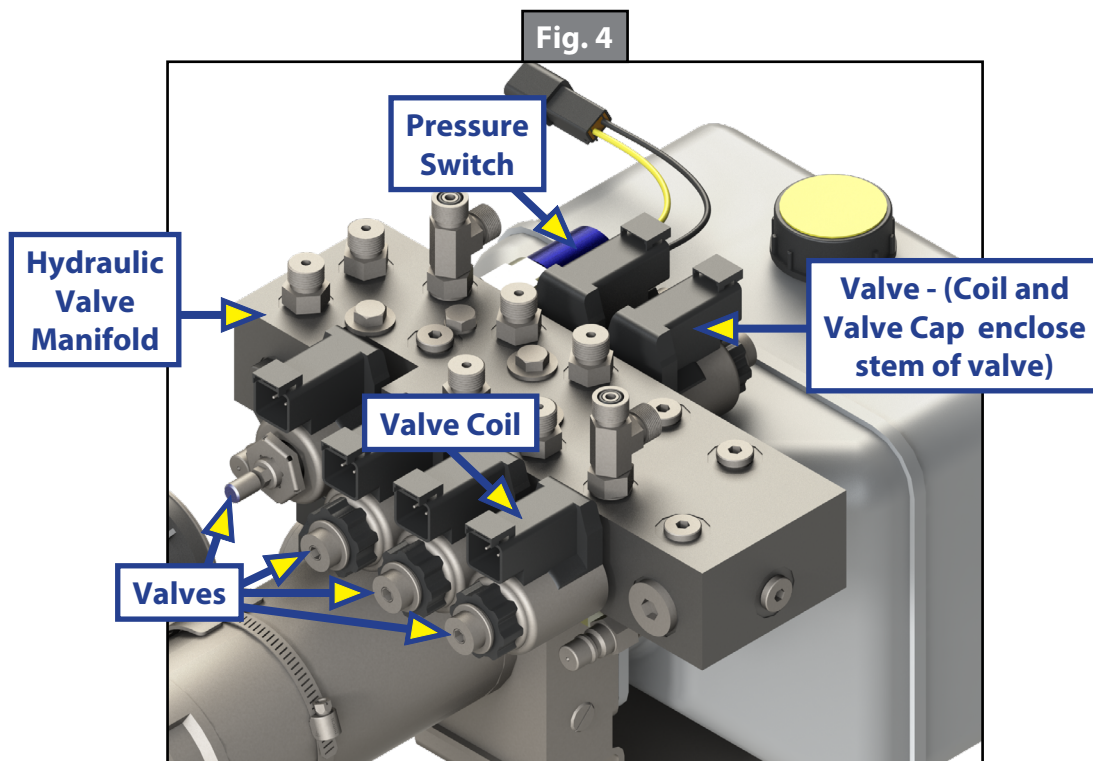
Clockwise for manual override

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

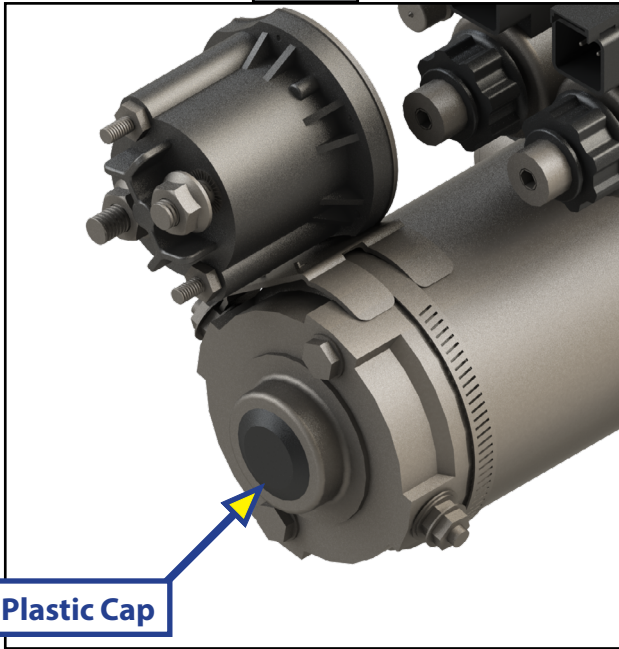
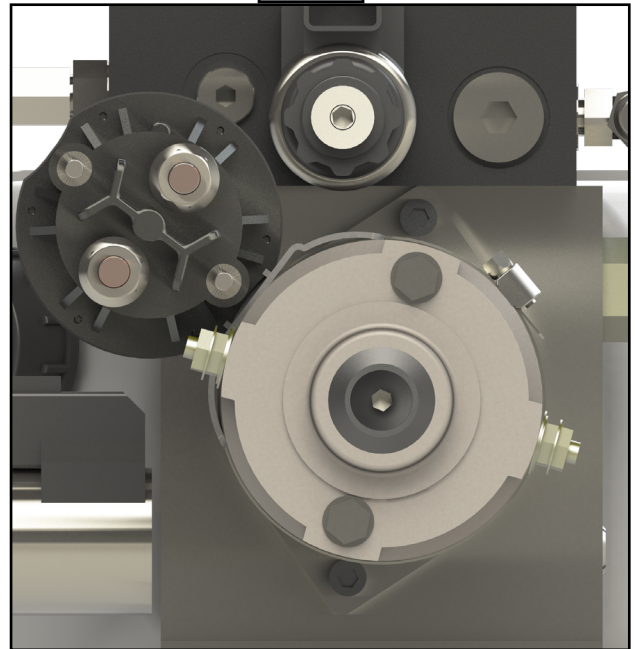


Fig. 6



1. Remove plastic cap (Fig. 5).
2. Disconnect power cables on the motor.
3. Using a 1/2" 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



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

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](#). To obtain this Technical Information sheet on-line, go to <https://www.lci1.com/support-motorized-standard-leveling>. Then click on the Technical Information Sheets tab. Look for TI-188: Hydraulic Operation Fluid Recommendation within the listing.

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 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 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 $\frac{1}{2}$ " 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. 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 $\frac{1}{4}$ " to $\frac{1}{2}$ " 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.



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For all concerns or questions, please contact Lippert
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