



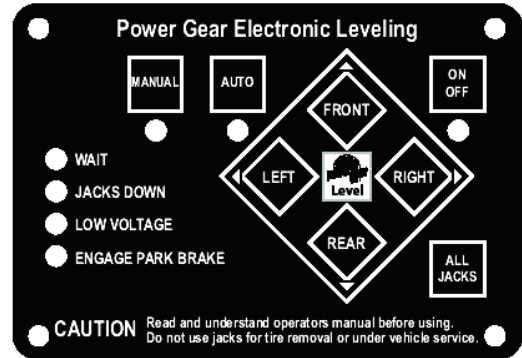
Operation Manual for Automatic Leveling Systems

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Operation Manual for Automatic Leveling Systems

with Touch Pad
140-1226

and Control Box
140-1229



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Before You Level Your Coach

1. Engine must be running, the park brake must be set, and the transmission in "park" ("neutral" for diesel coaches) for the jacks to operate.
2. Check leveling site to make sure obstructions have been cleared away for proper jack operation.



- Keep people clear of coach prior to turning the leveling system on and while leveling system is in use.
- Never expose hands or other parts of the body near hydraulic leaks. High-pressure oil leaks may cut and penetrate the skin causing serious injury.
- If your coach is equipped with a slide out(s), always level your unit first, and then operate the slide out room(s). When retracting the slide(s), always retract the room(s) first then retract the leveling jacks. Following this procedure will produce the least amount of stress on your chassis.
- Please read the owners manual from the manufacturer who built and designed your motor home for further leveling and slide out room operating information and safety features.

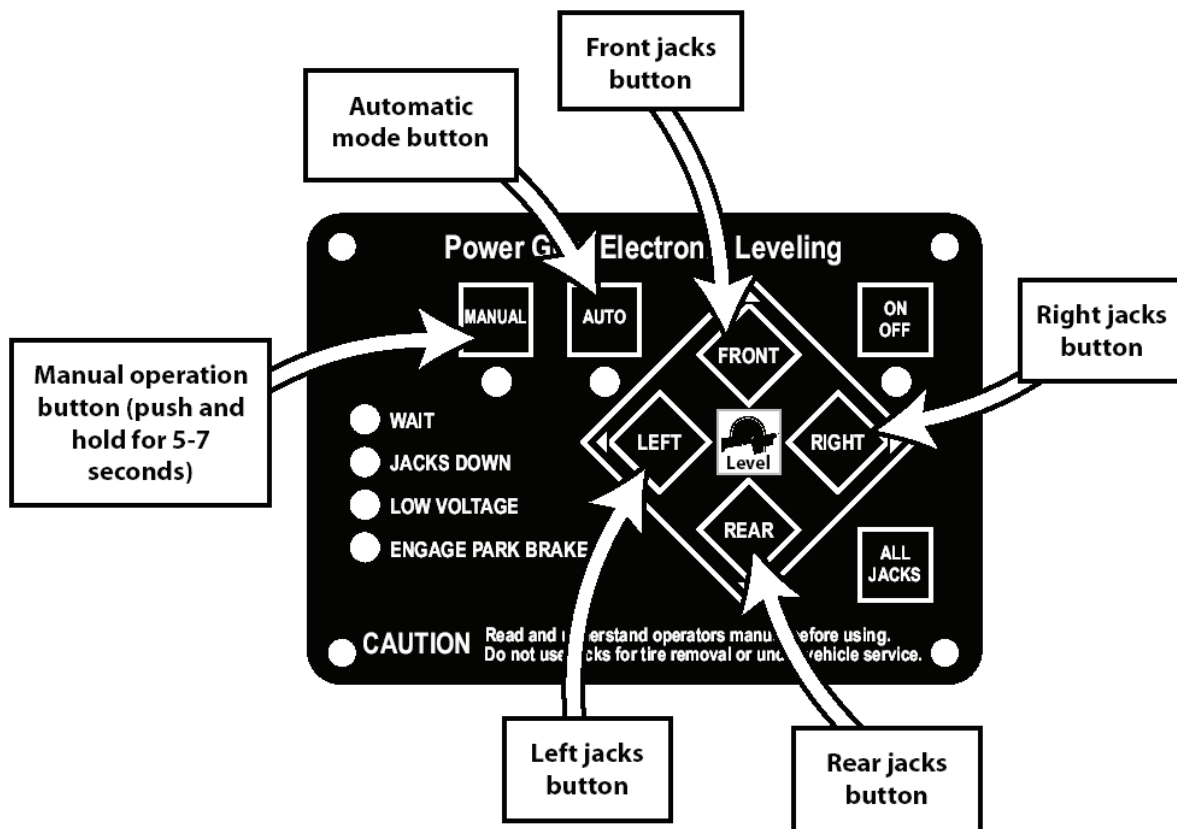


This is a leveling system only and is not intended to lift your coach's tire or tires completely off the ground. Attempting to lift your coach completely off the ground (for example to use this leveling system to change a tire) could cause damage to the system and serious injury to the parties involved. If a tire should require changing please have the proper equipment and contact a professional.

Do not use a high pressured wash/rinse system on any of the components associated with the leveling system. This includes the pump, pump motor, wiring harness, control, and touchpad. The use of a high pressure wash/rinse system will void the warranty.



Operating Instructions



Leveling Your Coach

1. Turn on the ignition and start the coach. Your leveling control will start a self check sequence indicated by the lights on the panel blinking in a rotating pattern. It will turn off when it has finished its self check.
2. Push the "On/Off" button on the control panel. The system is now operational and "On/Off" LED will turn on. (On some controls, there will be a 10 second wait period before operation is allowed. During this time, the *wait* light will flash.)

Note: Check to see that the Low Voltage light is not illuminated. If so, start the engine and wait a few minutes to ensure that the battery voltage is good. The engine must be running for the jacks to operate.

3. Check to see that the engage park brake light is not illuminated. If so, engage the parking brake. (Your coach will have to be in neutral or park to operate the system.)
4. Push the "AUTO" button. The automatic leveling system will begin its leveling procedure. Please avoid movement in the coach during automatic leveling as it can cause errors in the results. It will signal that it has completed the process by illuminating the center green "Power Gear LEVEL" light. Check to make sure that all jacks are on the ground. Also check to make sure that no tire is off the ground. If so, your leveling process is complete. If further adjustments are needed, or one or more tires are off the ground, retract all jacks and refer to the "Manual Operation" section of this manual.
5. You can then turn the system off by pushing the On/Off button again.

Retracting Your Leveling Jacks

1. Turn on the ignition and start the coach.
2. Turn on the system by pushing the "On/Off" button. The system is now operational and the "On/Off" LED will turn on.
3. Push the "RETRACT-ALL JACKS" button. When the "JACKS DOWN" light turns off, visually check to make sure that all jacks have fully retracted. If so, your coach leveling system is ready to travel.



NOTE

The right and left rear jacks are used to level the coach side to side. Pushing the "LEFT" button on the control panel will extend the left rear jack. Pushing the "RIGHT" button on the control will extend the right rear jack.



NOTE

If the "Wait" LED is ever flashing by itself, it means the control is busy and you cannot operate the jacks. After a short period of time (from 5 to 30 seconds), the "WAIT" LED will go off again, and you can resume operation as normal.

Manually Operating Your Leveling Jacks

Leveling Your Coach

There are certain conditions where manually leveling your coach may be desirable. Conditions where large amounts of side to side leveling are necessary or when one or more tires are off the ground at the end of the auto-level sequence, it may work better using the manual leveling procedures that follow:

1. Turn on the ignition and start the coach.
2. Push the "On/Off" button to turn on the system.
3. Push and hold the "MAN" button for 5-7 seconds in order for the system to switch to the manual mode. It will signal that it is in the manual mode when the light under the "MAN" button is illuminated.
4. Push "FRONT" button until the front of the coach rises at least 3". This is important and necessary to allow the coach to pivot when leveling side to side. If there is insufficient jack stroke to lift the front of the coach at least 3 inches, the coach will have to be moved to an area with less front to back slope, or a weight distribution block will have to be placed under the jack.
5. Push the "REAR" button until jacks contact the ground.
6. Level the coach from front to rear by pushing the "REAR" button if the light under the "REAR" button is illuminated. If the light is illuminated above the "FRONT JACKS" button, push the "FRONT" button. In either case, keep button depressed until the green center "LEVEL" light is illuminated, or both front and rear lights are dark.
7. Level the coach from side to side by pushing the "RIGHT" button if the light beside the "RIGHT" button is illuminated. If the light beside the "LEFT" button is illuminated, push the "LEFT" button until the "LEVEL" light is illuminated.
8. Repeat steps 6 and 7 if needed.
9. Turn power off to leveling system by pushing "ON/OFF" button.
10. Visually inspect jack to ensure all pads are touching ground. Should one of the rear jacks not be touching the ground, press the corresponding left or right rear jack buttons to lower the appropriate jack to the ground. Never lift the wheels off the ground to level the coach. This can lead to an unsafe condition and damage to the leveling system or coach.
11. If a level condition cannot be reached or one or more tires are off the ground at the completion of leveling, retract the leveling jacks and move the coach to a different location or change its orientation to achieve a more level starting position and repeat steps 1 through 10.
12. If a level condition cannot be obtained with the previous steps, level the coach as much as possible while maintaining tire contact with the ground.

Preventative Maintenance

1. Check and/or fill the reservoir with the jacks and room(s) in the fully retracted position, each month. The fluid should be one inch onto the dipstick (on models so equipped) or to the bottom of the fill port on models without dipsticks.
2. Change fluid every 24 months.
3. Inspect and clean all hydraulic pump electrical connections every 12 months.
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 chrome rods with a silicone lubricant every 5 to 7 days for protection.
6. If your coach is located in a salty environment (within 60 miles of coastal), it is recommended to spray the rods every 2 to 3 days with a silicone lubricant.
7. Grease the fitting on the bottom of each jack cylinder with Lithium grease every 20-30 uses.
8. Do not use a high pressured wash/rinse system on of the components associated with the leveling system. This includes the pump, pump motor, wiring harness, control, and touch pad. The use of a high pressure wash/rinse system will void the warranty.

Recommended Hydraulic Fluids for Your Hydraulic Pump

The fluids listed here are acceptable to use in your pump assembly. Contact coach manufacturer or selling dealer for information about what specific fluid was installed in your system.

- It is not recommended that hydraulic fluid and automatic transmission fluids be mixed in the reservoir.
- In most applications, Type A automatic transmission fluid (ATF, Dexron III, etc..) will work satisfactorily. Mercon V is also recommended as an alternative fluid for Power Gear hydraulic systems.
- If operating in cold temperatures (less than -10° F), the jacks may extend and retract slowly.
- For cold weather operation, fluid specially-formulated for low temperatures may be desirable. Mobil DTE 11M, Texaco Rando HDZ-15HVI, Kendall Hyden Glacial Blu, or any Mil. Spec. H5606 hydraulic fluids are recommended for cold weather operation.

Please consult factory before using any other fluids than those specified here.

Troubleshooting Tips

Troubleshooting Tips

The following chart contains troubleshooting tips if your system is not operating properly, and the touch pad *is not* giving you a trouble code.

Description	Probable Cause	Corrective Action
Touch Pad will not turn ON	Coach ignition not in run position.	Turn on the ignition and start the coach. The engine must be running for the jacks to operate.
	Blown fuse or tripped circuit breaker	Replace fuse or reset breaker
	Auto Shut Off has	Push On/Off button to turn the control back ON.
Jacks will not extend. Pump <i>is not</i> running	Blown fuse or tripped circuit breaker	Replace fuse or reset breaker
	Batteries are weak.	Turn on the ignition and start the coach. Wait a few minutes to allow the batteries some time to charge. The engine must be running for the jacks to operate.
Jacks will not extend (or are extending slowly), pump <i>is</i> running	Fluid level low.	Fill tank to proper level with automatic transmission fluid, see tip sheet 140.
	Batteries are weak.	Turn on the ignition and start the coach. Wait a few minutes to allow the batteries some time to charge. The engine must be running for the jacks to operate.
Jacks will not retract fully	Air in the system	Check for coils in hose. Remove the coil if present then extend all jacks to full extension, then retract fully. Repeat 4 cycles waiting a few minutes between cycles, check fluid level in between cycles.

Troubleshooting Tips, cont'd

Normal Operation: Description of Flashing Lights

The following chart contains information about different sets of flashing lights you will see during normal operation

Flashing Lights	Mode	Description of operation	Reason
<i>Wait</i>	Wait	Will not allow operation while the wait light is flashing	The system is busy. The wait light will go out within one minute. At that time operation can be resumed.
<i>Power Gear Logo</i>	Already Level	The <i>Power Gear Logo</i> is flashing indefinitely	The coach is already level as it sits. However leveling can still be executed as normal (to stabilize the coach)
Any two of: <i>Front, Right, Rear & Left</i>	Not Level	These two lights could be ON solid or Flashing	This is normal anytime the coach is not already level. The arrows indicate the side of the coach that would need to be raised to reach level, if manual mode is used.
<i>Left, Right, Front, Rear & the Power Gear Logo</i>	Diagnostic Check	For approximately 5 seconds, the <i>Front, Right, Rear & Left</i> lights flash in a clockwise pattern, along with the <i>Power Gear Logo</i>	This is a normal diagnostic check anytime the ignition is turned ON. The control will either turn back OFF after this diagnostic check, or a trouble code will start to flash.
All lights are flashing	Emergency Retract	All of the lights are flashing, and the jacks are retracting. A buzzer sounds for the first 10 seconds of retract	While the jacks were extended, either the parking brake was released or the transmission was put into gear. This is normal behavior as a safety feature. This is to prevent damage to the coach or leveling system due to driving away with your jacks down.
All lights are flashing	Program Mode	All of the lights are flashing indefinitely. No buzzer is sounding.	This mode was intentionally entered, and cannot be entered by accident. See TIP Sheet # 153 for a description of operation in program mode.

Trouble Codes: Description of Flashing Lights

The following chart contains troubleshooting tips if your system is not operating properly, but the touch pad *is* giving you a trouble code

Flashing Lights	Fault Code	Description of operation	Probable Cause	Corrective Action
Low Voltage	Low Voltage	Low Voltage light is ON solid or flashing. May or may not allow operation	Batteries are weak.	Turn on the ignition and start the coach. Wait a few minutes to allow the batteries some time to charge. The engine must be running for the jacks to operate.
On/Off and Wait	Transmission	Will not allow operation	Transmission is in gear	Place the transmission in Park (or Neutral for diesel coaches).
Park Brake	Park Brake	Will not allow operation	Parking Brake is not engaged	Engage the parking brake
Left, Right, Front, Rear & the Power Gear Logo	Excessive Slope	The lights are flashing indefinitely, but leveling is possible	1) Too steep/uneven terrain 2) The control was improperly programmed	1) Move coach to ground that is more level 2) See TIP Sheet # 153 to reprogram control
Jacks Down & Wait	Pressure Loss	Will not allow operation	The leveling system has a pressure leak and needs service	Take your coach to an authorized service center for repair. Note: The electronics are fine and do not need service. Only the hydraulic portion of the system needs service.
On/Off, Jacks Down & Park Brake	Communication Error	Will not allow operation	Faulty wiring, poor connections, or faulty component	Check to make sure that all connections are tight and properly connected. Cycle the ignition power to reset. If that does not work, try replacing components individually, in the following order: a) Harness (between the touch pad and control) b) the touch pad c) the control
All of the Lights are on Solid, indefinitely	Internal Error	Will not allow operation	This is an internal error	A new control box is needed. However, a touch pad <i>is not</i> needed.
Left, Right & the Power Gear Logo	Timeout Error	Leveling operation was aborted. There are several internal timers that could have tripped. These timers are built-in to protect the hydraulic pump or the coach from being damaged. The most common are a) Jacks took too long to retract or b) Jacks took too long to finish auto leveling	Batteries are weak.	Turn on the ignition and start the coach. Wait a few minutes to allow the batteries some time to charge. The engine must be running for the jacks to operate.
			Too steep/uneven terrain	Move the coach to ground that is more level
			Thick hydraulic fluid caused by cold weather	See Page 4 for recommended cold weather hydraulic fluid
			Air in the Leveling System	Check for coils in hose. Remove the coil if present then extend all jacks

Manual Override Valves

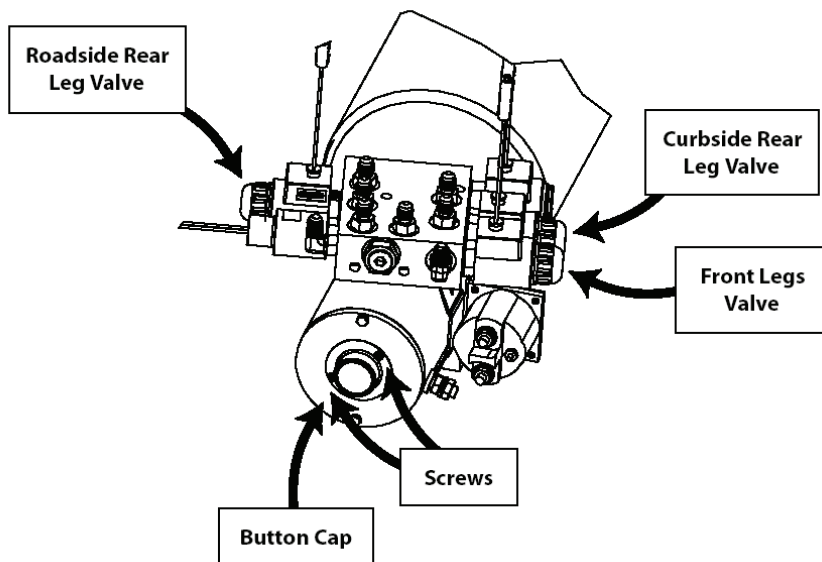
In case of a loss of power at the pump assembly, the manual override valves (MOV's) can be used to retract the leveling jacks. Not all Power Gear leveling system pumps have manual override valves. Power units for double acting systems that have manual override valves have flexible rubber caps on the valves and a hex override nut under the button cap on the electric motor.

To use the MOV's:

1. Remove the button cap from the end of the electric motor. First remove the two Phillips head screws from the top of the motor. The button cap can now be removed from the electric motor. You should now see a 7/16" override nut on the end of the electric motor shaft.
2. After verifying all personnel and tools are clear of the press the rubber cap on the valve for the front legs valve. The front end of the coach will start to descend. Only allow the coach to descend for 2 inches.
3. Push and hold the rubber cap on the Roadside Rear valve. Allow the coach to descend for 2 inches.
4. Push and hold the rubber cap on the Curbside Rear valve. Allow the coach to descend for 2 inches.
5. Repeat procedures 2-4 until the weight of the coach is transferred off the jacks and onto the suspension and tires.

WARNING

Care must be taken during the manual retraction of jacks to prevent bodily injury or death. The next step will allow fluid to transfer from the legs to the reservoir. This procedure will allow the coach to descend. Keep all personnel and equipment clear of the coach. Make sure no one is under the coach prior to this procedure. Do not have any body parts or equipment positioned such that the coach will descend on it.



6. This procedure will retract the front legs. Using a 7/16" socket attached to a drill, spin the override nut clockwise while holding the button on the front legs valve. Stop when the legs are fully retracted.
7. This procedure will retract the roadside rear leg. After the front legs are retracted, press the button on the roadside rear leg valve and spin the override nut clockwise. Stop when the leg is fully retracted.
8. This procedure will retract the curbside rear leg. After the front legs are retracted, press the button on the curbside rear leg valve and spin the override nut clockwise. Stop when the leg is fully retracted.
9. Replace the button cap on the electric motor and securely tighten the Phillips head screws.