

# **Trailer Auto-Level™ Installation Troubleshooting & Warranty Guide**

**Includes Manual & Automatic 4-Point Leveling Systems**

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## Trailer Auto-Level™ 4 Point Installation

**Make sure that all hydraulic lines, power cables and wire harnesses are clear of hot exhaust and chassis pinch points.**

**All of these items must be securely fastened to the chassis with wire ties.**

### Jack / Pump Installation

**Step 1:** Determine where the jacks will be mounted. The front jacks will be mounted to the drop wall. The rear jacks will be mounted as close as possible to the rear axles.

**Step 2 (Jacks):** The jacks must be installed with a minimum of 7 to 8 inches of ground clearance. In any case, the bottom of the footpad should be no lower than any other item mounted on the coach. Pay particular attention to the angle of departure for the chassis when mounting the rear jacks and the angle of approach when mounting the front jacks.

**Step 3 (Controller):** The controller must be mounted to the underside of the coach or in the basement (if available). The controller must be mounted as close to center (side to side) of the coach as possible and as close to center between the jacks (front to rear). The controller has a label with mounting instructions for proper orientation. The mounting directions must be followed for the Auto-Level™ sensor to operate properly (harnesses exiting the controller towards the rear of the coach). The dual switch and harness can be positioned no more than 9 feet from the pump location. This simply plugs into the pump harness and is used to operate the front legs independently while loading and unloading the trailer from the tow vehicle. This is to be used only for this operation. Any adjustments while utilizing Auto-Level™ should be made at the control panel.

**Step 4 (Pump):** Install the pump assembly. The pump must be mounted in a location that is reasonable to route all of the hydraulic hoses to the manifold. It must be accessible for filling the reservoir and monitoring the fill level. Take note if the unit is equipped with the manual override option. The cartridge valves, end of the motor, and hand pump (if applicable) must be accessible, if manual override is needed. An additional mounting box may be used.

**Step 5 (Fittings):** Install the hydraulic hose fittings in the top and bottom of each jack and install the JIC O-ring fittings into the manifold. The fittings should be installed in the manifold *finger tight*. Rotate the fitting to the desired orientation, and then tighten the 9/16" jam nut. **Care must be taken to ensure that the fitting is tight in the manifold, but not overly tight as to compromise the o-ring seal.**

**Step 6 (Hoses):** Install the hydraulic hoses. Route the hoses clear of all hot exhaust components and pinch points in the suspension/chassis system. Attach the hoses to the manifold and jacks according to the hose connection chart. Secure the hydraulic hoses with wire ties to the chassis.

## Installation of Hoses to the Manifold

<b>Jack Leg</b>	<b>Manifold Connection</b>
Left Front-TOP	T-1 Brown Solid
Left Front-BOTTOM	B-1 Brown Stripe
Right Front-TOP	T-2 White Solid
Right Front-BOTTOM	B-2 White Stripe
Left Rear-TOP	T-3 Orange Solid
Left Rear-BOTTOM	B-3 Orange Stripe
Right Rear-TOP	T-4 Yellow Solid
Right Rear-BOTTOM	B-4 Yellow Stripe

### **Connections: Push Button Control Panel/ Controller/ Pump Assembly Application**

**Most harnesses used in the system are communication cables.**

**It is very important that all connections for the pump and control panel harnesses are tight and physically sound!**

**Step 7 (Keypad/Controller harness):** Fasten the keypad mount in the desired location. Note: Keypad is not weather resistant. Attach the supplied wire harness between the keypad and the location of the controller (see step # 3 above). This harness will connect between the in-board 4-pin (J1) connector on the keypad and the (1ea.) mating connector on the controller. Secure the harness with wire ties to the chassis. Refer to the attached diagram.

The harness from the keypad to the controller is routed (step # 7). You should have no disconnected plugs.

The harness from the pump to the controller is also routed. All of the connections at the pump should be completed, *except the power and ground connections at the pump, which are completed next*

### **Connections: Toggle Switch Panel/ Level Sensor / Pump Assembly Application**

## **AutoLevel Sensor™ (Auto-Level™ Systems ONLY)**

**Step 7 (Control Panel/Pump harness):** Fasten the control panel mount in the desired location. Attach the supplied wire harness between the pump and the intended location for the control panel. This harness will connect between the horizontal 12-pin connector (J1) on the control panel and the 6-pin connector (P4) on the pump assembly. Secure the harness with wire ties to the chassis.

## **Auto-Level Sensor™ (Auto-Level™ Systems ONLY)**

**(Auto-Level™ Sensor):** Mount the Auto-Level Sensor Assembly (part # 7196) to the underside of the coach, or in the basement (if available). The sensor must be mounted as close to center of the coach as possible. The sensor assembly has a label with mounting instructions for proper orientation. The mounting directions must be followed for the Auto-Level sensor to operate properly.

**(Auto-Level™ Sensor Harness):** The Auto-Level Sensor Harness (part # 1616) will connect between the Auto-Level Sensor and the Auto-Level Control Panel. Note the small white 3-pin connector attaches to J2 on the control panel. The large black connector attaches to the wire harness exiting the Auto-Level Sensor. Secure the harness with wire ties to the chassis.

## **Power connections for Uni-Directional Motor**

**These motors can be identified by the presence of a single motor solenoid.**

**(Pump -12volts):** Attach a #4 gauge wire (#2gauge if the run is over 12ft.) between the negative 12volt terminal on the battery and the ground stud on the pump. This is the preferred method of grounding. If grounding the pump to the chassis, the connection must be sound, free of paint and not susceptible to corrosion. **It is not acceptable to allow the pump mounting bolts to be the sole grounding connection.**

**(Pump +12volts):** Attach a #4 gauge wire (#2gauge if the run is over 12ft.) between the positive +12volt terminal on the battery and the open post at the motor solenoid on the pump. This supply may be fused at the source with a 120-amp. circuit breaker. **This +12volt supply must be a dedicated and isolated circuit (not shared with other devices), and must be constant, non-switched +12volt.**

## **Purging for Uni-Directional Pumps**

The MH jacks are shipped in the fully retracted position. The retraction side of the cylinders is the first to be purged of air. This procedure outlines the steps taken if the jacks need to be purged of air following repairs, etc.

**Do not manually overextend individual jacks singularly. This may cause unwanted stress on the coach or the jacks.**

**Retraction Purge:** The retraction side of the cylinders is the first to be purged of air. Fill the reservoir to  $\frac{3}{4}$  full with Dexron III Transmission fluid. This is the same fluid used in GM vehicles. Begin to purge the retraction side of the system by pushing the UP  $\Delta$  button for each jack or by pressing ALL RETRACT. The jacks may be

run in pairs (front pair & rear pair). We will know when the retraction side of the hydraulic circuit is purged when the fluid level in the reservoir stops and the pump changes sound (bypass mode). Release the keypad button(s). Repeat this process for the rear jack(s). **Refill the reservoir to ¾.**

**Full Purge:** Next, cycle the system by lowering each jack to the ground manually, using the DOWN ▽ buttons on the keypad. Do not allow the jack to lift the coach. After all jacks are in contact with the ground, press ALL RETRACT to retract the jacks. Next, run the jacks in pairs (front pair & rear pair) to full extension by holding both DOWN ▽ buttons simultaneously. Monitor the fluid level and all fittings for leakage. Retract the jacks by pressing ALL RETRACT. Recheck the reservoir and fill to ¾. Note the fluid level in the reservoir is at maximum when all jacks are fully retracted and minimum when jacks are fully extended. This full extension and retraction in pairs should be repeated 3-4 times.

## Power connections for Bi-Rotational Motor

**These motors can be identified by the presence of two motor solenoids.**

**(Pump -12volts):** Attach a #4 gauge wire (#2gauge if the run is over 12ft.) between the negative 12volt terminal on the battery and the ground stud on the pump. This is the preferred method of grounding. If grounding the pump to the chassis, the connection must be sound, free of paint and not susceptible to corrosion. **It is not acceptable to allow the pump mounting bolts to be the sole grounding connection.**

**(Pump +12volts):** Attach a #4 gauge wire (#2gauge if the run is over 12ft.) between the positive +12volt terminal on the battery and the **common posts on the motor solenoids**. This supply may be fused at the source with a 120-amp. circuit breaker.

**This +12volt supply must be a dedicated and isolated circuit (not shared with other devices), and must be constant, non-switched +12volt.**

## Purging for Bi Rotational units - 4 function units only

This procedure must be performed with the initial installation & running of hydraulic system, following installation of the pump assembly and jack(s).

This procedure applies ONLY to MH-4 systems that are equipped with the bi-rotational pump.

1. Run the pump to retract the jack(s). Maintain the fluid level as above. Do not fill to full until after the legs are fully retracted.
2. **IMPORTANT** - If fluid in reservoir appears to be aerated (foaming), allow unit to sit until foam dissipates (approximately 5- 10 minutes).
3. Fully extend and retract jack(s) a minimum of 3 times. Allow any foam in the oil to dissipate as needed. Maintain the fluid level in the reservoir as needed.

## Additional Notes regarding Purging of the Bi Rotational Pump

- The reservoir fluid level will be greatest when all jacks are fully retracted; the reservoir fluid level will be lowest when all jacks are fully extended.
- **Never allow the reservoir to go empty.** Maintain the fluid level at least ¼ full all the time.
- **!! Being patient helps !!** It does no good to run the pump and try to move the jacks when the reservoir is full of foam. Pumping foam will only reintroduce air into the system and will prolong the process unnecessarily.
- **!! We want the air out !!** Allowing the air to dissipate thru the reservoir and maintaining the reservoir fluid level will get things working faster.

### **Equalizer Systems Auto-Level Toggle Switch Control Panel**

The Toggle Switch control panel operates in the same manner as the Touch Pad control panel. This information can be found in the Operation segment of this booklet. The toggle switch control is designed and programmed to be utilized for trailer applications

Note: If the master power switched is turned off, once the switch is turned back on the alarm may sound and the control panel lights will blink. You can trigger the “All-Up” toggle and allow the timed retraction to take place (roughly 90 seconds). The other option is to hold the front leg toggle switches in the up position and then repeat this step for the rear legs. You do not have to reset the null at this time. The system contains a memory that will retain the setting previously determined as level.

## Operation

### Manual Operation

- **Power On:** Extend the front jack legs to the desired level position for the front legs using the dual switch and harness. This will help speed up the leveling process. Once these are in the proper position all other jack leg movements will be completed at the keypad. Push and release the POWER keypad button to engage power. The LED next to the POWER button should be lit red when power is on.
- **Planting the Jacks:** Using the DOWN keypad button, extend each jack until they contact the ground (this is referred to as “planting” the jacks). Front jacks will work independently. As you extend the jacks, an LED light positioned on the keypad will indicate the jacks are out of the “stowed” position. Rear jacks may be operated individually. **Do not manually overextend individual jacks. This may cause unwanted stress on the coach or the jacks.**
- **Leveling the Coach:** Use a bubble level on a flat surface in the center of the coach as a reference. Level the vehicle by using DOWN or UP keypad buttons until the vehicle is level. Rear jacks may be operated individually or in pairs as long as they are operated in the same direction; front jacks will operate independently. Do not attempt to lift the vehicle off of the tires. The keypad may be left on once level has been achieved. The keypad will enter “sleep mode” after five minutes of inactivity.

- **Retracting the Jacks:** The Equalizer System provides the ability to retract the rear jacks using the ALL RETRACT button or the UP button for each individual jack. Only the rear jacks will automatically retract and return to stowed position when the ALL RETRACT button is pressed and released. The pump will run in retract mode until the rear jacks are fully stowed (plus an additional 5 seconds). You may stop the all retract by pressing any button on the keypad. The front jacks will remain extended when ALL RETRACT is pressed to continue support of the trailer. The front jacks must be retracted manually by using either the RF or LF UP button or the dual rocker switch and harness.

## Auto-Level™ Operation

- **Setting the Null:** Null is the term used to indicate “levelness” of the coach. If the coach is not level following an attempt to Auto-Level™, you will need to reset the null. To set the null, push and release the POWER keypad button to engage power. The LED next to the POWER button should be lit red when power is on. Level the coach by deploying jacks manually (using the DOWN t keypad button, extend each jack until the coach is level), or by simply parking the coach on a level site. You do not need to have jacks deployed to set the null. Use a bubble level on a flat surface in the center of the coach as a reference. Once the coach is level, turn the POWER off at the panel. Depress and hold the AUTO-LEVEL™ keypad button. Continue to hold the AUTO-LEVEL™ button and press and release the POWER button and listen for a series of beeps. After the panel has beeped 5 to 6 times, release the AUTO-LEVEL™ button (the keypad will continue to beep as long as the AUTO-LEVEL™ button is held). The new null has been set and the panel will maintain this setting. Pressing and releasing the ALL RETRACT button will retract the rear jacks to the stowed position.
- A) Power On: Push and release the POWER button to engage power. The LED next to the POWER button should be lit red when power is on.
  - B) Front Legs: Extend the front legs to the ground and continue to lift the trailer to the point where the front of the trailer is at a satisfactory level.
  - C) Auto-Level™: Press the AUTO-LEVEL™ button and release. The system will send out a continuous series of beeps, the ‘OPERATING’ LED will flash red to let you know Auto-Level™ is operating and will automatically level the coach. When completed, the keypad will signal a successful level with a dual-level tone. The keypad may be left on once level has been achieved. The keypad will enter “sleep mode” after five minutes of inactivity
  - D) Retracting the Jacks: The Equalizer System provides the ability to retract the rear jacks using the ALL RETRACT button or the UP button for each individual jack. Only the rear jacks will automatically retract and return to stowed position when the ALL RETRACT button is pressed and released. The pump will run in retract mode until the rear jacks are fully stowed (plus an additional 5 seconds). You may stop the all retract by pressing any button on the keypad. The front jacks will remain extended when ALL RETRACT is pressed to continue support of the trailer. The front jacks must be retracted manually by using either the RF or LF UP button or the rocker style switch and harness.

Note: There are specific instances when manual extension of one (or more) jack is inhibited (deny tone when DOWN is depressed). This situation is caused by the “anti-twist” protocol in the software contained in the control box. Simply stated, the “anti-twist” protocol denies jack extension if the system senses that a specific corner of the coach is approximately 3 degrees higher than the rest. You will be able to extend other jacks to overcome the slope. ***If the system incorrectly senses excessive slope, this can be overcome by re-setting the null. This will allow manual extension of all jacks. Remember to re-set the null after manually leveling the coach.***

## Helpful Hints

- Front jacks will work in tandem. If either LF or RF DOWN or UP keypad buttons are pressed, both front jacks will respond.
- The all retract function will only affect the rear jacks. The fronts will always be retracted by using the UP buttons on the panel or the dual rocker switch and harness.
- Do not allow excessive motion in the coach during the Auto-Level™ operation (don't move around in the coach). This could cause the system to level improperly.
- Your Auto-Level™ is a microprocessor-controlled system. It is necessary to have at least 10 1/2 volts of power at the pump in order for the system to operate properly. ***Proper and adequate battery voltage and permanent chassis ground are essential.***
- Your system may be equipped with a manual override option. Refer to the procedure for proper operation of this option. It is usually better to review this procedure prior to its actual use, rather than having to learn a new procedure in difficult environments

### Manual Override for Bi-Rotational Style Pumps\*

Your hydraulic pump may be equipped with a bi-rotational motor.  
You will use a 2000 r.p.m. drill and a 7/16" socket.

**Care must be taken to ensure neither the drill nor the socket contact any wires or hydraulic hoses while in use.**

#### To operate your jack(s) using the manual override (with bi-rotational motor):

- 1) The individual cartridge valves are clustered together on the side of the pump manifold. They are labeled 1 thru 4. Locate the screws on the appropriate cartridge valve(s). Using a small flat blade screwdriver, turn the screw(s) clockwise until all the way in\*\*.
- 2) Remove the black plastic cap from the top of the motor. Use a small flat head screwdriver. Place the drill with the 7/16" (11mm) socket on the manual override shaft located at the top of the motor.
- 3) To **retract** your jack(s) run the drill in the counter-clockwise direction.
- 4) To **extend** your jack(s), run the drill in the clockwise direction.
- 5) When manual override is complete, return the cartridge valve(s) to the normal positions. Reinstall black plastic cap on motor.

**CAUTION: Following manual override operation, failure to return all valves to normal position may result in one or more jack legs drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter-clockwise.**

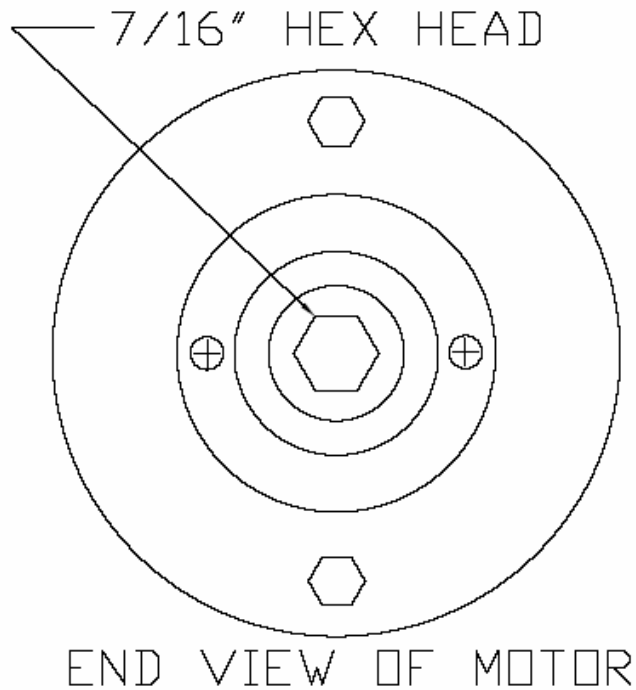
\*These are identified by the presence of 2 motor solenoids and 2 motor leads

\*\*Note: The normal operating position of the screw in the cartridge valve is the counter-clockwise “out” position. The **only** time the valve should be shifted manually is when attempting to operate jack(s) via manual override.

## **Manual Override for MH4 System**

**Your system may be equipped with a manual override option.**

**If electrical power is lost to the Equalizer Systems jack leveling system, the following procedure gives step-by-step instructions on how to operate the manual override to either extend or retract the leveling jacks.**



**Your hydraulic motor may be equipped with a manual override output shaft. You must use a drill with a 7/16" (11mm) hex head driver.**

**The drill must be capable of producing a minimum of 2000 r.p.m. for the pump to develop appropriate pressure output.**

**Your pump assembly may have a hand pump in place of the motor with manual override shaft. If this is the case, you may pump the hand pump in lieu of using the 2000 r.p.m. drill and the 7/16" (11mm) hex head driver.**

**To retract your jack(s) using the manual override (if available):**

- 1) The individual cartridge valves are clustered together on the side of the pump manifold. They are labeled 1 thru 4. Locate the screws on the appropriate cartridge valve(s). Using a small flat blade screwdriver, turn the screw(s) clockwise until all the way in\*.
- 2) Locate the red knurled knob on the directional valve\*\* DV2. This valve will be on the opposite side of the manifold from the cluster of cartridge valves. Pull the red knob out and turn ¼ turn. The knob will remain in the 'out' position.
- 3) To retract, locate the red knurled knob on the directional valve\*\* DV1. This valve will be on the adjacent side of the manifold to the cluster of cartridge valves. Pull the red knob out and turn ¼ turn. The knob will remain in the 'out' position.

- 4) Remove the black plastic cap from the top of the motor. Use a small flat head screwdriver. Place the drill with the 7/16" (11mm) hex bit on the manual override shaft located at the top of the motor. Run drill in a clockwise direction at 2000 r.p.m. (minimum). The jack(s) will retract.
- 5) When retraction is complete, return the cartridge valve(s) and the directional valves DV1 & DV2 to the normal positions. Reinstall black plastic cap on motor.

**Caution: Following manual override operation, failure to return all valves to normal position may result in one or more jack legs drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter-clockwise. For directional valves, rotate the red knob until it 'snaps' back to the normal position.**

**\*Note:** The normal operating position of the screw in the cartridge valve is the counter-clockwise 'out' position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.

**\*\*Note:** The normal operating position of the red knob on the directional valve(s) is the 'in' position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.

### **To extend your jack(s):**

To extend the jack(s), follow all of the above steps EXCEPT DO NOT manually shift directional valve DV1 as described in step #3 above.

### **Operation of Hydraulic Level System Manual Override Hand Pump**

If electrical power is ever lost to the Equalizer jack leveling system, your system has been equipped with a manual override hand pump option. The following procedure will guide you step by step on how to initialize the manual override to either retract or extend the leveling jacks.

To RETRACT one or more Jacks\*

#### 1. Initializing the [Leg Valves](#)

Locate the Leg Valve(s) for the legs you want to operate (Items 1-4 on drawing). Using a SMALL flat blade screwdriver, turn the center screw all the way in (clockwise).

#### 3. Initialize [Manual Override Valve](#)

Locate Valve #5 located on the back of the pump. Pull the center red knob out and rotate ½ turn in either direction.

#### 4. Initialize the [Directional Valve](#)

For RETRACT only, locate Directional Valve #6 located on the front of the pump. Pull the center red knob out and rotate ½ turn in either direction.

5. Operate the [Hand Pump](#)

Locate Hand Pump handle. Insert handle into the Hand Pump collar located on the front of the pump. Begin pumping the handle. Continue operating Hand Pump until jack(s) begin to retract. Note: It may require many strokes before any movement is noticed in the jack(s). Continue operating Hand Pump until jack(s) are retracted.

6. Return System to Normal Mode

Once the jacks are retracted, you must return the Valves back to their normal modes. **CAUTION: Failure to do this may result in one or more jacks drifting down from their retract (stowed) position.** For Valves 1-4, rotate the center screws fully in the counter-clockwise direction. For Valves 5 and 6, simply rotate the red knob until it snaps back into its normal position.

To EXTEND jack(s), follow the above procedure EXCEPT do not initialize the Directional Valve as described in Item #4 above.

\*If your vehicle is equipped with Equalizer Systems hydraulic slide out mechanisms, these directions can be followed as long as the proper valves are adjusted.

## Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
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<b>Keypad will not turn on</b>	Blown fuse at pump harness or in fuse panel	Replace fuse
	Faulty ground or power wire	Trace and repair or replace
	Low Battery Voltage	Charge chassis and/or coach batteries
	Defective Keypad or Controller	Call Equalizer Tech Support
	Defective Keypad harness	Trace and repair or replace

	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	Faulty electrical connection	Trace and repair or replace
	Defective Keypad or Controller	Call Equalizer Tech Support
	Defective pump motor or solenoid(s)	Check and replace as needed
	Other system defect	Call Equalizer Tech Support

<b>Jacks will retract but will not extend</b>	Low Battery Voltage to Pump	Charge chassis and/or coach batteries
	System Null not set	Set Null
	Anti-Twist Software Protocol has been Initiated	Lower opposite side of coach and/or Re-set Null and Level Coach
	Defective extend motor solenoid	Check and replace as needed
	Defective Keypad or Controller	Call Equalizer Tech Support
	Faulty electrical connection	Trace and repair
	System Defect	Call Equalizer Tech Support

<b>Jacks will extend but will not retract</b>	Low battery voltage	Charge chassis and/or coach batteries
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	Incorrect hose connection at pump or jack	Trace and repair
	Defective retract motor solenoid	Check and replace as needed
	Defective Keypad or Controller	Call Equalizer Tech Support
<b>Auto-Level™ will not level</b>	System Null not set	Set Null
	Controller installed improperly or has moved	Check controller orientation
	Damaged or defective Keypad harness	Call Equalizer Tech Support
	Defective Keypad	Call Equalizer Tech Support
	Other System Defect	Call Equalizer Tech Support
<b>Auto-Level™ stops mid-cycle</b>	Low battery voltage	Charge chassis and/or coach batteries
	Excessive vehicle motion during leveling sequence	Reset Control Panel and re-try
	System Null not set	Set Null
	Damaged or defective Controller	Check and replace –
	Damaged or defective Keypad harness	Call Equalizer Tech Support
	Other System Defect	Call Equalizer Tech Support

<b>Jack LED's on panel stay on</b>	Defective Pressure Switch or wiring	Trace and repair or replace
	Defective Keypad Harness	Trace and repair or replace
	Hydraulic fluid leak or level low	Repair leak and/or refill reservoir
	Defective Keypad	Call Equalizer Tech Support

<b>Hydraulic pump inoperative</b>	Low battery voltage	Charge chassis and/or coach batteries
	Blown fuse or breaker in fuse panel	Replace fuse or reset breaker
	Faulty electrical connection	Trace and repair
	Defective pump motor or solenoid	Replace
<b>Jack(s) bleed down from leveled position or stowed position</b>	Air in hydraulic system	Purge air
	External fluid level	Trace and repair
	Defective valve in pump	Clean or replace valve
	Defective jack	Replace jack
<b>Jack(s) are jerky when retracting</b>	Air in the system	Purge air
	Fluid level low	Check fluid level and add as necessary

<b>Jack(s) will not retract from full extension</b>	Low Battery Voltage at Pump	Charge chassis and/or coach batteries
	Low battery voltage or poor ground to Keypad	Charge chassis and/or coach batteries and ensure proper grounding
	Damaged or defective harness from Keypad to pump	Trace and repair
	Fluid level low	Check fluid level and add as necessary

**Avoid headaches! Always ensure & verify proper charge on the batteries!**

**Proper and adequate grounding of the pump is essential!**

**90% of the phone calls we receive are found to be a discharged battery or poor ground!**

If your problem is not listed or persists, call Equalizer Systems at (800) 846-9659.

<b>Equalizer Systems Limited Warranty Policy</b>
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**RV or Vehicle Manufacturer Installed Systems or Components:**

1. Only warranty claims with prior written or verbal authorization from Equalizer Systems will be recognized, all other claims will be denied.
2. Equalizer Systems warrants slide out and leveling system components for a period of three years from the date of original sale of the vehicle. This warranty covers defects in material and workmanship only. Equalizer Systems is not liable for any damage due to abuse, neglect, misuse, negligence, misapplication, error of operation, accidental or purposeful damage or damage due to an “act of God” such as, wind or rain damage, flood, lightning or other natural occurrence of the like. Equalizer Systems limited warranty is applicable to the Equalizer Systems components only and does not apply to the vehicle, apparatus or property to which it is attached. Warranty parts will be shipped at no charge if the repair is authorized by an Equalizer Systems representative. Purchased components used in authorized warranty repairs will be reimbursed at the original purchase price.
3. Labor and freight expenses due to warrantable parts defects or workmanship will be reimbursed for a period of one year from the date of original sale of the vehicle. Freight expenses will either be prepaid by Equalizer Systems or reimbursed at the UPS Ground rate only. Any additional shipping charges or requirements are the

obligation of the vehicle owner or service center performing the warranty repair. The owner or service center's obligation may include overseas shipping charges, border fees, brokerage fees and any other additional fee of the like.

4. Warranty labor will be reimbursed only for claims that have prior written or verbal authorization from an Equalizer Systems representative. Warranty labor compensation is required to correspond with the "Warranty Parts Replacement Time Guideline" published by Equalizer Systems. Any warranty repair not listed on this guideline will require prior authorization from an Equalizer Systems representative. A reasonable time allowance will be determined by the Equalizer Systems representative. Any warranty repair that is not listed on this guideline that is performed without prior authorization will be denied without exception. Time associated with learning about the repair or excessive diagnostic and installation time will not be reimbursed. Warranty labor will be reimbursed at the authorized service center's published shop rate if the rate is reasonable for that region. Overtime labor will not be reimbursed without exception.

#### **RV or Vehicle Manufacturer Installed Systems or Components (continued):**

5. Labor, parts and freight credit (if applicable) will be sent after the parts are tested and the warranty claim is validated. Returned parts that are found to be in normal operating condition are not warrantable and will be charged to the owner or service center. Equalizer Systems reserves the right to charge back the service center for labor claim payments previously submitted if the installation of the warranted part is found to be inadequate at a later date.

6. Claims will be denied if the date submitted is greater than 30 days from the repair date.

7. Prior authorization is required before parts may be sent back to Equalizer Systems. A Return Authorization Number required for items to be accepted.

8. Complete systems are not warranted unless authorized by an Equalizer Systems representative. There are absolutely no exceptions to this clause.

9. This warranty begins upon the original sale date of the vehicle and is transferable, with limitation, to subsequent owners upon furnishing the original sale date of the vehicle and proof of purchase. Only the remainder of the three year parts warranty is applicable. Warranty labor and freight are only applicable to original owner of the vehicle.

10. Equalizer Systems is not liable for loss of time, manufacturing costs, labor material, loss of profits, direct or indirect damages incurred by the vehicle manufacturer.

11. Excessive warranty labor resulting from inadequate access to the Equalizer Systems product will not be reimbursed.
12. Equalizer Systems will not pay a markup on warranty parts unless required by law.
13. Travel expenses, hotel, telephone, fuel or any other expenses of the like are not covered under warranty.

**Replacement Parts:**

1. Replacement parts are warranted under the same guidelines listed above for the remainder of the original warranty or 90 days, whichever is longer. Proof of warranty repair date and original vehicle purchase date are required.
2. No additional warranties, expressed or implied, are authorized by Equalizer Systems
3. This warranty voids all previous issues. Questions concerning this warranty should be directed to:

<b>Equalizer Systems</b>	<b>(800) 846-9659</b>
<b>P.O. Box 668</b>	<b>(574) 264-3437</b>
<b>Elkhart, IN 46515</b>	<b>(574) 266-6083 fax</b>