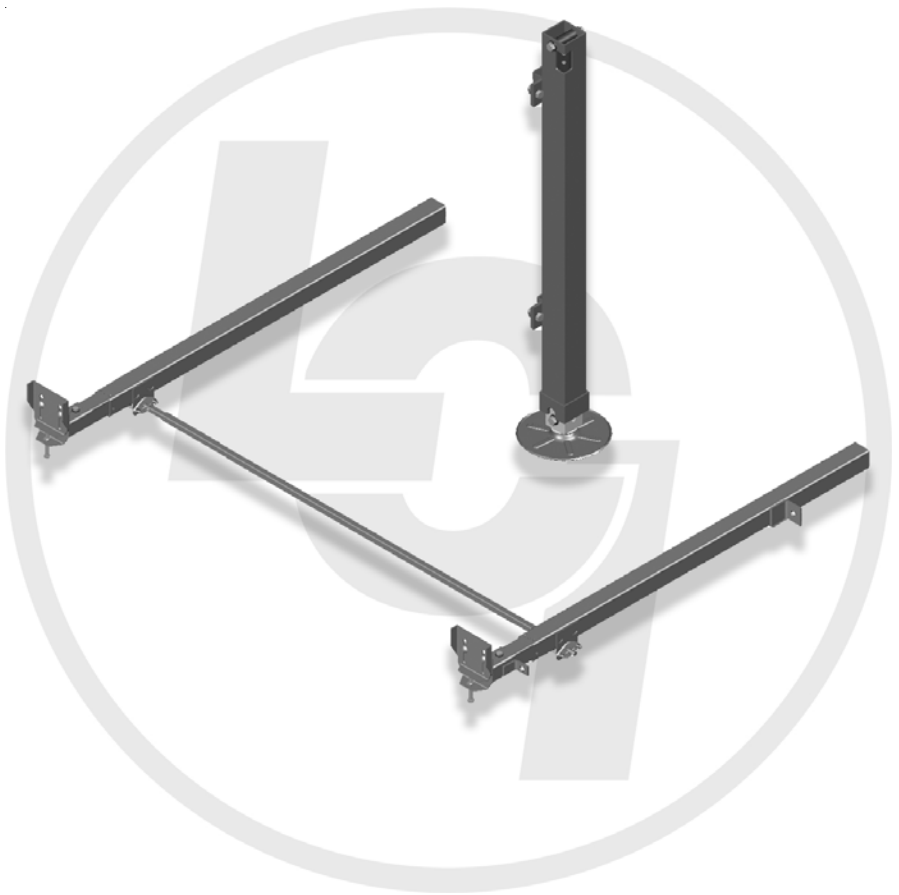




**LIPPERT COMPONENTS**

***XL HYDRAULIC SLIDEOUT AND  
HYDRAULIC LANDING GEAR (HLG) SYSTEM  
OPERATION AND SERVICE MANUAL***



# TABLE OF CONTENTS

<b>SYSTEM.....</b>	<b>3</b>
<b>Warning.....</b>	<b>3</b>
<b>Prior to Operation.....</b>	<b>4</b>
<b>Description.....</b>	<b>4</b>
<b>Preventative Maintenance.....</b>	<b>5</b>
<b>System Maintenance.....</b>	<b>6</b>
<b>OPERATION-SLIDEOUTS.....</b>	<b>8</b>
<b>Warning.....</b>	<b>8</b>
<b>Extending Slideout Room.....</b>	<b>9</b>
<b>Retracting Slideout Room.....</b>	<b>9</b>
<b>Auxiliary Operation.....</b>	<b>10</b>
<b>OPERATION-HYDRAULIC LANDING GEAR.....</b>	<b>11</b>
<b>Warning.....</b>	<b>11</b>
<b>SERVICE.....</b>	<b>12</b>
<b>Filling Procedures.....</b>	<b>12</b>
<b>Adjustment Instructions.....</b>	<b>13</b>
<b>Synchronizing System.....</b>	<b>16</b>
<b>Replacing Cylinder.....</b>	<b>17</b>
<b>Troubleshooting.....</b>	<b>18</b>
<b>Chart.....</b>	<b>20</b>
<b>Checking for Bad Cylinder.....</b>	<b>21</b>
<b>Pump Configurations.....</b>	<b>22</b>
<b>Ordering Parts.....</b>	<b>28</b>
<b>LIMITED WARRANTY.....</b>	<b>29</b>
<b>Warranty Registration.....</b>	<b>31</b>

# **SYSTEM**

## **WARNING**

**FAILURE TO ACT IN ACCORDANCE WITH THE FOLLOWING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**

THE *LIPPERT XL HYDRAULIC SLIDEOUT AND HLG SYSTEM* IS INTENDED FOR THE PURPOSES OF EXTENDING AND RETRACTING THE SLIDEOUT ROOM AND LEVELING THE UNIT. THE USE OF THIS SYSTEM FOR ANY REASON OTHER THAN WHICH IT IS INTENDED IS PROHIBITED BY LIPPERT'S LIMITED WARRANTY AND MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

THE *LIPPERT XL HYDRAULIC SLIDEOUT AND HLG SYSTEM* IS DESIGNED AS A "SLIDEOUT" AND "LEVELING" SYSTEM 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 TIRE ON THE COACH. ANY ATTEMPTS TO CHANGE TIRES OR PERFORM OTHER SERVICE WHILE COACH IS SUPPORTED BY THE *LIPPERT XL HYDRAULIC SLIDEOUT AND HLG SYSTEM* COULD RESULT IN DAMAGE TO THE COACH AND/OR CAUSE SERIOUS PERSONAL INJURY OR DEATH.

**WARNING! – BE SURE TO PARK THE COACH ON SOLID, LEVEL GROUND.**

**WARNING! – CLEAR ALL JACK LANDING LOCATIONS OF DEBRIS AND OBSTRUCTIONS. LOCATIONS SHOULD ALSO BE FREE OF DEPRESSIONS.**

**WARNING! – WHEN PARKING THE COACH ON EXTREMELY SOFT SURFACES, UTILIZE LOAD DISTRIBUTION PADS UNDER EACH JACK.**

**WARNING! - PEOPLE AND PETS SHOULD BE CLEAR OF COACH WHILE OPERATING LEVELING SYSTEM.**

**WARNING! – BE SURE TO KEEP HANDS AND OTHER BODY PARTS CLEAR OF FLUID LEAKS. OIL LEAKS IN THE *LIPPERT XL HYDRAULIC SLIDEOUT AND HLG SYSTEM* MAY BE UNDER HIGH PRESSURE AND CAN CAUSE SERIOUS SKIN PENETRATING INJURIES.**

**WARNING! - 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.**

## 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. Be sure all person, pets and property are clear of the coach while *Lippert XL Hydraulic Slideout and HLG System* is in operation.
3. Unit must be leveled prior to extending the slideouts to ensure coach will not move during operation of Slideout System and to provide the unit with a firm foundation.
4. Be sure battery is fully charged.

## SYSTEM DESCRIPTION

**Please read and study the operating manual before you operate the leveling system.**

The *Lippert XL Hydraulic Slideout and HLG 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 as well as extend and retract the slideout rooms. The *Lippert HLG* portion of this system is a rack & pinion guide system, utilizing a hydraulic actuator to move the room assembly. The power unit drives the cylinder rod in a forward and backward motion to drive the slide room in and out. The *Lippert XL Hydraulic Slideout and HLG System* is designed to operate as a negative ground system.

There are no serviceable parts within the electric motor. If the motor fails, it must be replaced.

Disassembly of the motor voids the warranty.

Mechanical portions of the *Lippert XL Hydraulic Slideout and HLG System* are replaceable. Contact Lippert Components, Inc. to obtain replacement parts.

**COMPONENT DESCRIPTION** The *Lippert XL Hydraulic Slideout and HLG System* consists of the following major components:

Lippert leveling jacks and slideout cylinders are rated at capacities appropriate for your coach.

Each jack and cylinder is powered from a central 12VDC motor/pump assembly, which also includes the hydraulic oil reservoir tank, control valve manifold, and solenoid valves.

The *Lippert XL Hydraulic Slideout and HLG System* is controlled electronically from switches near the pump for the leveling and from a control panel inside the unit for the slideouts.

## PREVENTATIVE MAINTENANCE PROCEDURES

The *Lippert XL Hydraulic Slideout and HLG System* has been designed to require very little maintenance. To ensure the long life of your system, read and follow these few simple procedures.

1. Change fluid every 36 months (in reservoir **ONLY!**).
  - a) Check fluid only when jacks and slideouts are fully retracted.
  - b) Always fill the reservoir with the jacks and slideouts are in the fully **retracted** position. Filling reservoir when jacks and slideouts are extended will cause reservoir to overflow into its compartment when jacks and slideouts are retracted.
  - c) When checking fluid level, fluid should be within 1/2" of fill spout lip.
2. Check the fluid level every month.
3. Inspect and clean all Pump Unit electrical connections every 12 months.
4. Remove dirt and road debris from jacks and slideout arms and cylinders as needed.

### **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.**

5. If jacks are down and/or slideouts are extended for lengthy periods, it is recommended to spray exposed jack and cylinder rods with a silicone lubricant every seven days for protection. If your coach is located in a salty environment, it is recommended to spray the rods every 2 to 3 days.

**IF YOU HAVE ANY PROBLEMS OR QUESTIONS CONSULT YOUR LOCAL AUTHORIZED DEALER OR CALL LIPPERT AT:  
(866) 524-7821.**

### **WARNING!**

**DO NOT WORK ON YOUR SLIDEOUT SYSTEM UNLESS THE BATTERY IS DISCONNECTED. FAILURE TO ACT IN ACCORDANCE WITH THE FOLLOWING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**

# SYSTEM MAINTENANCE

The *Lippert XL Hydraulic Slideout and HLG System* has been static tested to over 6,000 continuous cycles with out any noticeable wear to rotating or sliding parts. It is recommended that when operating in harsh environments (road salt, ice build up, etc.) the moving parts be kept clean and can be washed with mild soap and water. No petroleum-based grease or lubrication is necessary and in some situations may be detrimental to the environment and long term dependability of the system.

## ELECTRICAL SYSTEM MAINTENANCE

For optimum performance, the system requires full battery current and voltage. The battery must be maintained at full capacity. Other than good battery maintenance, check the terminals and other connections at the battery, the control switch, and the electric actuator motor for corrosion, and loose or damaged terminals. Check motor leads under the trailer chassis. Since these connections are subject to damage from road debris, be sure they are in good condition.

**NOTE:** The *Lippert XL Hydraulic Slideout and HLG System* is designed to operate as a negative ground system. A negative ground system utilizes the chassis frame as a ground and an independent ground wire back to battery is necessary (see pages 24-29 for wiring diagrams). It is important that the electrical components have good wire to chassis contact. Over 90% of unit electrical problems are due to bad ground connections.

## MECHANICAL SYSTEM MAINTENANCE

Although the system is designed to be almost maintenance free, actuate the slideouts and jacks once or twice a month to keep the seals and internal moving parts lubricated.

Check for any visible signs of external damage or “leakage” before and after movement of the unit.

When the room is out, visually inspect the Inner and Outer Assemblies of the slideout. Refer to Fig. 2 for location of inner assemblies. Also inspect around the shoe of the leveling jacks for signs of leakage. Check for excess build-up of dirt or other foreign material; remove any debris that may be present.

If the system squeaks or makes any noises it is permissible to apply a coat of lightweight oil to the drive shaft and roller areas of the slideout only but remove any excess oil so dirt and debris do not build-up. **DO NOT USE GREASE.**

**NOTE:** *For long-term storage: It is recommend that the room be closed (retracted).*

**NOTE:** The *Lippert XL Hydraulic Slideout and HLG System* is designed to operate as a negative ground system. A negative ground system utilizes the chassis frame as the ground source. An independent ground wire back to the battery is not needed. It is important the electrical components have good wire to chassis contact. Over 90% of unit electrical problems can be attributed to bad ground connections.

**NOTE:** For long-term storage: It is recommended that the room be closed (retracted) and if your unit is equipped with the IRC room control, it is recommended all of the control knobs be kept in the closed position.

**IF YOU HAVE ANY PROBLEMS OR QUESTIONS CONSULT YOUR LOCAL  
AUTHORIZED DEALER OR CALL LIPPERT AT:  
(866) 524-7821.**

# **OPERATION-HYDRAULIC SLIDEOUT**

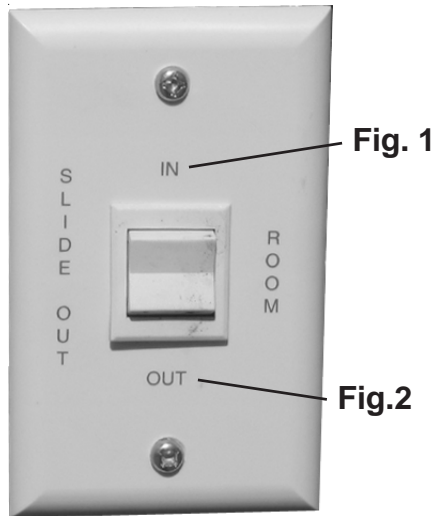
## **WARNING**

**FAILURE TO ACT IN ACCORDANCE WITH THE FOLLOWING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**

ALWAYS MAKE SURE THAT THE SLIDEOUT ROOM PATH IS CLEAR OF PEOPLE AND OBJECTS BEFORE AND DURING OPERATION OF THE SLIDEOUT ROOM.

ALWAYS KEEP AWAY FROM THE SLIDE RAILS WHEN THE ROOM IS BEING OPERATED. THE GEAR ASSEMBLY MAY PINCH OR CATCH ON LOOSE CLOTHING CAUSING PERSONAL INJURY.

INSTALL TRANSIT BARS (IF SO EQUIPPED) ON THE SLIDEOUT ROOM DURING STORAGE AND TRANSPORTATION.



**SLIDEOUT CONTROL**



## **EXTENDING SLIDEOUT ROOM**

1. Level the unit.
2. Verify the battery is fully charged and hooked-up to the electrical system.
3. Remove the transit bars (if so equipped).
4. Press and hold the IN/OUT switch (Fig. 2) in the OUT position until the room is fully extended and stops moving.
5. Release the switch, which will lock the room into position.

## **RETRACTING SLIDEOUT ROOM**

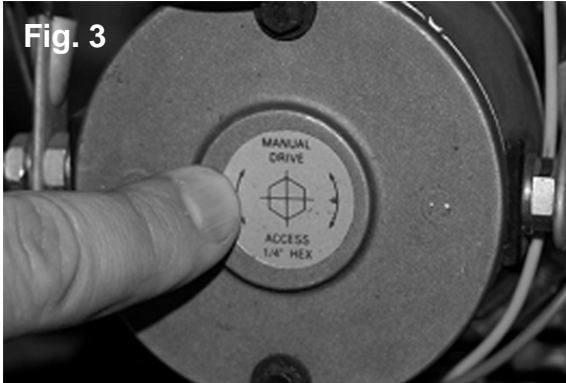
1. Verify the battery is fully charged and hooked-up to the electrical system.
2. Press and hold the IN/OUT switch (Fig. 1) in the IN position until the room is fully retracted and stops moving.
3. Release the switch, which will lock the room into position.
4. Install the transit bars (if so equipped).

## AUXILIARY OPERATION

The *Lippert XL Hydraulic Slideout and HLG 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.

**NOTE:** It is suggested to use a power drill running on AC power instead of a cordless drill with a rechargeable battery pack. The auxiliary operation takes an extended period of time to finish and may quickly run batteries down.

See the instructions below:



1. Remove protective label. (See Fig 3).
2. Using a standard hex bit, insert into auxiliary drive device, i.e. cordless drill or screwdriver or ratchet wrench.



3. Insert hex bit into coupler found under protective label, Fig. 4
4. Run drill forward or clockwise to extend slideout room and in reverse or counterclockwise to retract slideout room.

# OPERATION-HYDRAULIC LANDING GEAR

## WARNING

**FAILURE TO ACT IN ACCORDANCE WITH THE FOLLOWING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**

ALWAYS MAKE SURE THAT THE LANDING GEAR AREA IS CLEAR OF PEOPLE AND OBJECTS BEFORE AND DURING OPERATION OF THE LANDING GEAR.

ALWAYS KEEP AWAY FROM THE LANDING GEAR WHEN THE SYSTEM IS BEING OPERATED. SERIOUS PERSONAL INJURY OR DEATH MAY OCCUR.

The *Lippert XL Hydraulic Slideout and HLG System* employs a system of manually leveling the unit. The control box for the leveling system is located in the compartment with the pump and works on a remote harness operated from the outside of the unit. Fig. 5a is the ON/OFF switch making the Control Box active. Figs. 5b are the switches, when in the "READY" position, correspond with the leveling jacks to activate the leveling jack. Figs. 5c display the lights that indicates which jacks are active. Fig. 5d is the Master Control switch, extending and retracting the jacks.

Utilize a carpenter's level when leveling the unit. Set the level on the floor and take note of the position of the bubble in both the front to back reading and the side to side reading. It is best to set up the unit on the most level site available. The system is set up to level the unit from front to back so it is important to get the unit as level as possible side to side prior to using the landing gear.

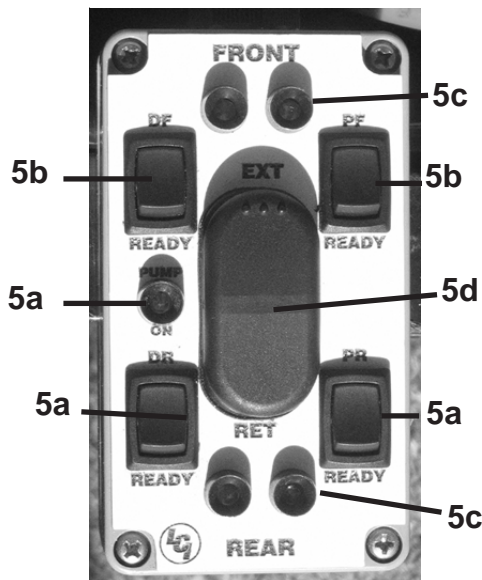
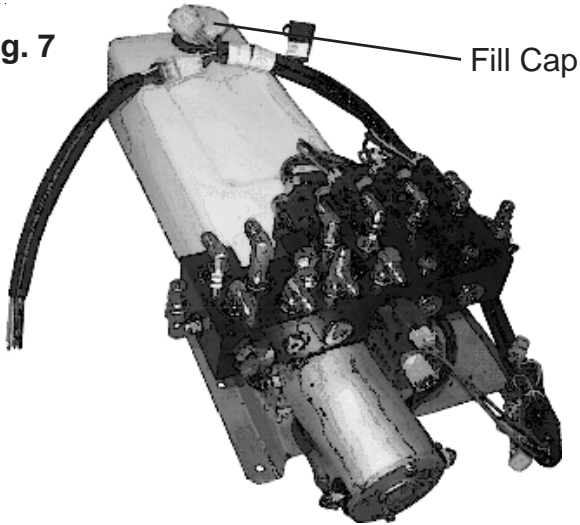


FIG. 5 - LEVELING CONTROL PANEL

# SERVICE

## FLUID FILLING PROCEDURE

Fig. 7



The *Lippert XL Hydraulic Slideout and HLG System* uses automatic transmission fluid (ATF). Any ATF can be used. A full synthetic or synthetic blend works best such as Dexron II, Dexron III or Mercon 5. For best operation, fill system within 1" of the top when all slideouts and landing gear are completely retracted. The see through reservoir makes it easy to check oil level. It is recommended that the oil level be checked prior to operating the system. Make sure the breather cap is free of contamination before removing, replacing or installing. In colder temperatures (less than 10° F) the cylinders and 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.

Please consult factory before using any other fluids.

### FILLING DIRECTIONS

1. Remove Breather/Fill Cap
2. Pour ATF into Breather/Fill opening.

**Note:** Do not allow any contamination into reservoir during fill process.

**Note:** Standard reservoir holds approximately 2 quarts (1.89 liters) of ATF.

3. Fill to within 1" of top.
4. Replace Breather/Fill cap when finished.

# MECHANICAL ROOM ADJUSTMENT

## Vertical & Horizontal Room Adjustment

**NOTE:** All slideout room adjustments must be performed by certified service technicians. Adjustments made by non-certified persons may void any and all warranty claims.

Horizontal adjustment - See pg. 17, Fig. 8

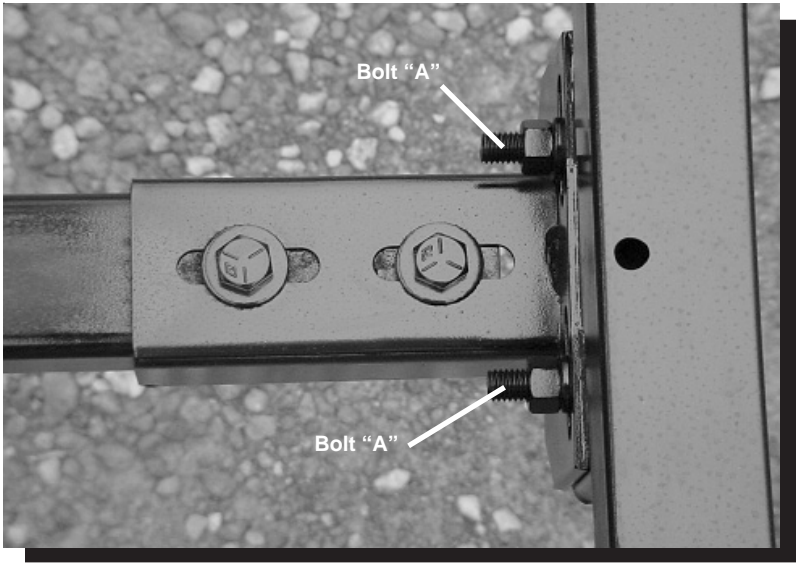
1. Loosen 2 carriage bolts "A" on each bracket located at the end of each guide tube.
2. Room is ready to be positioned horizontally by pushing on the outside, sidewall or by using a prying devise inserted into the opening between the room and coach.

*Note: Use caution when using prying devise so seals do not become damaged.*

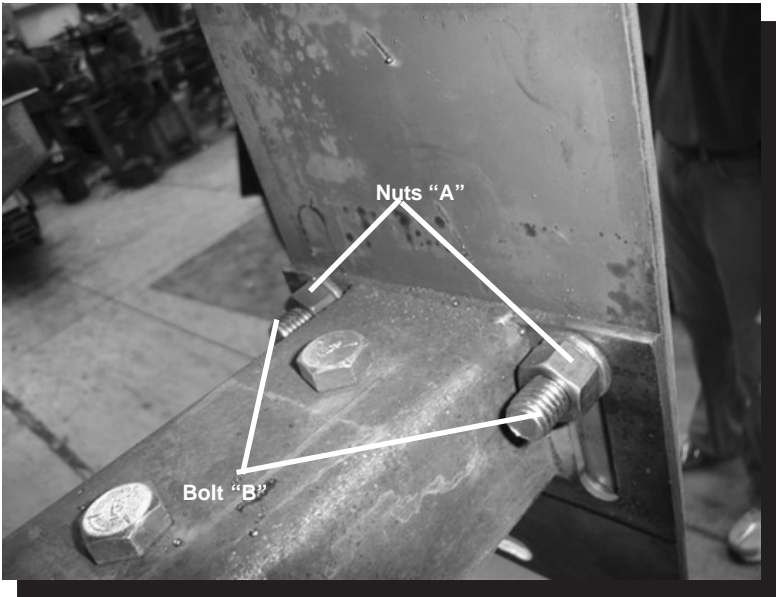
Vertical adjustment - See pg. 17, Fig. 9

1. Loosen both nuts "A" on the head assembly bracket bolts "B" located a the end of the inner arm.
2. Adjust head assembly to desired vertical location.
3. Tighten both nuts "A" on head assembly bracket.

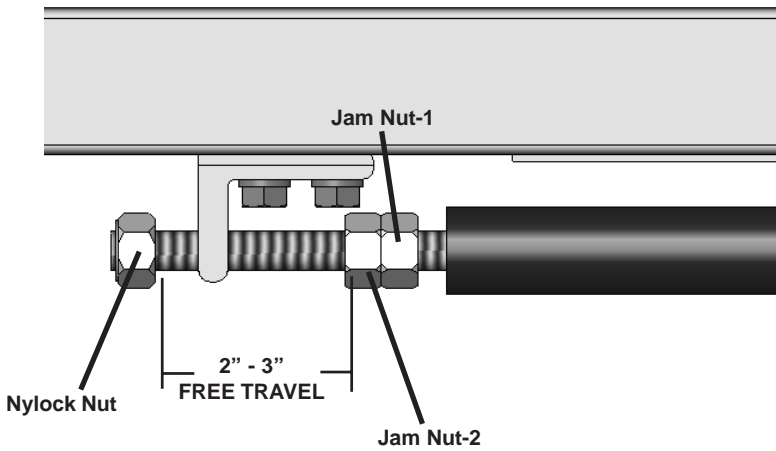
# MECHANICAL ROOM ADJUSTMENT



**Fig. 8**



**Fig. 9**



Adjusting room so it seals in the IN position

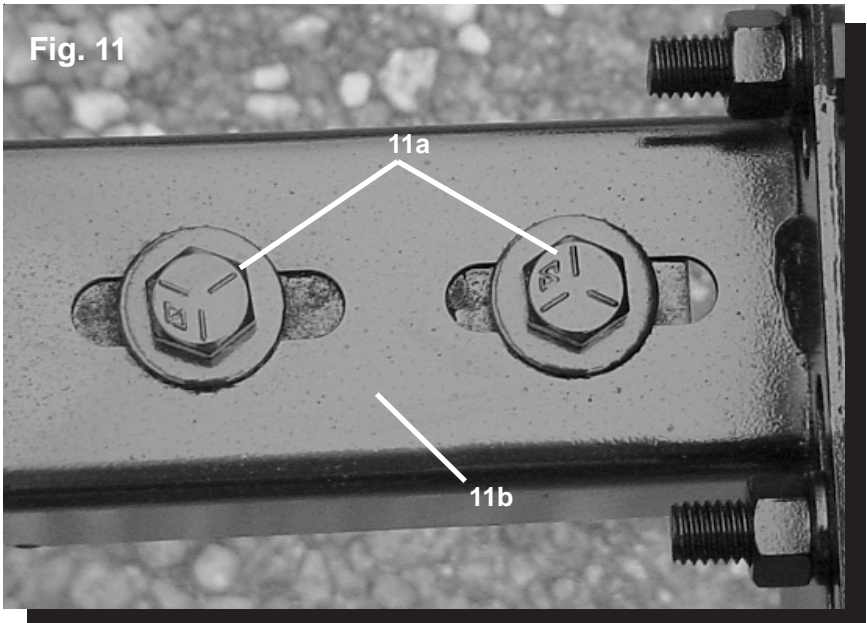
1. Locate cylinder coming through the frame;
2. On the end of the cylinder there is a threaded shaft mounted to the drive bracket with 3 nuts.
3. Loosen the Jam Nut-1 and set Jam Nut-2 to desired location.
4. Tighten down the Nylock Nut against bracket. Make sure Jam Nut-2 is adjusted for "FREE TRAVEL" (see above). Secure assembly by tightening Jam Nut-1 against Jam Nut-2. This will change the

location of your seal going to the "in position".

Adjusting room so it seals in the OUT position

1. Locate actuator coming through the frame;
2. On the end of the cylinder there is a threaded shaft mounted to the bracket with 3 nuts.
3. Adjust Jam Nuts 1 & 2 one way or the other– this will change the location of your seal going to the "out position".
4. Make sure all nuts are tight.

## SYNCHRONIZING ROOM TRAVEL

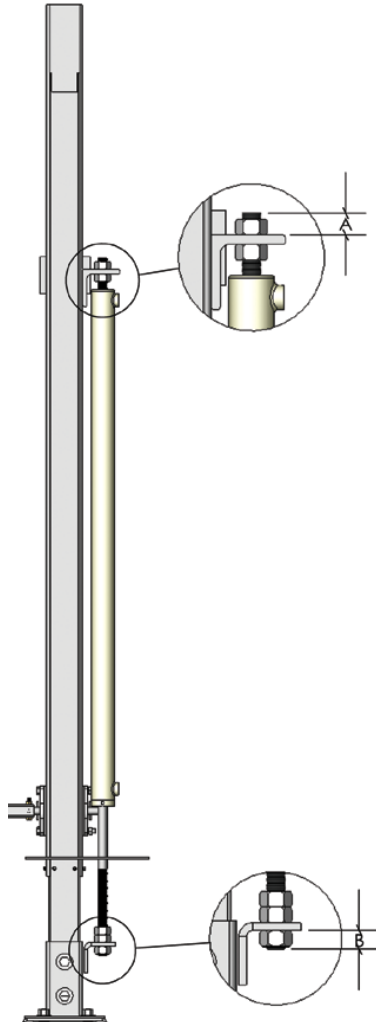


The *Lippert XL Hydraulic Slideout and HLG System* room travel (both sides of the room traveling the same distance) can be adjusted with specially designed synchronizing bracket mounted on the passive slide tube. The passive slide tube is the one that is not powered. The active slide tube is the one that has the cylinder attached. If one side of the room fails to seal adjust as follows:

1. Loosen bolts (Fig. 11a) on top of the passive slide tube (Fig. 11b)
2. Push or pull room (on the passive side) to align with the active side.



## REMOVING AND REPLACING CYLINDER



**Fig. 12**

### **To replace cylinder:**

1. Take measurements A and B.
2. Remove both nylock nuts (2 total) from threaded shafts on cylinder rod.
3. Take note of jam nut locations and remove.
4. After everything is disconnected, slide hydraulic cylinder out of frame. To replace with new cylinder, follow previous directions in reverse.

# **TROUBLESHOOTING**

<b>Hydraulic Landing Gear (HLG).....</b>	<b>21</b>
<b>Hydraulic Slideout System.....</b>	<b>21</b>
<b>Troubleshooting Chart - Slideouts.....</b>	<b>22</b>
<b>Troubleshooting Chart - HLG.....</b>	<b>22</b>
<b>Checking for Bad Cylinder.....</b>	<b>23</b>
<b>Power Unit.....</b>	<b>23</b>

## **TROUBLESHOOTING-HLG**

The *Lippert XL Hydraulic Slideout and HLG System* is a feature that allows the owner more options and flexibility for quickly and effectively leveling his coach. It is a totally integrated system with your coach's chassis and electronics.

Every coach has it's own personality and what may work to fix one coach may not work on another even if the symptoms appear to be the same.

When something restricts mechanized travel, system performances will be unpredictable. It is very important that leveling legs be free of contamination and allowed to travel freely the full distance. Dirt, sand, mud and other contaminants build-up during travel and can be potentially damaging to the performance of the system.

When beginning to troubleshoot the system, make sure the battery is fully charged, there are no visible signs of external damage to the legs, motor or hoses and that the motor is wired properly and all connections are secure.

## **TROUBLESHOOTING-HYDRAULIC SLIDEOUTS**

The *Lippert XL Hydraulic Slideout and HLG System* is only one of four interrelated slideout room system components. These four components are: chassis, room, coach, and *Lippert Hydraulic Slideout and HLG System*. Each one needs to function correctly with the others or misalignment problems will occur.

Every travel trailer has its own personality and what may work to fix one trailer may not work on another even if the symptoms appear to be the same.

When something restricts room travel, system performance will be unpredictable. It is very important that slide tubes be free of contamination and allowed to travel full distance (Stroke). Ice or mud build-up during travel is an example of some types of contamination that can occur.

When you begin to troubleshoot the system, make sure the battery is fully charged, there are no visible signs of external damage to the actuator or motor and that the motor is wired correctly and all connections are secure.

You can adjust the room extension with the jam nuts on the end of the hydraulic cylinder threaded rod (See pg. 17, Fig. 10).

During troubleshooting, remember that if you change something, that change may affect something else. Be sure any changes you make will not create a new problem.

**You can obtain additional information on the  
*Lippert Hydraulic Slideout System*  
by calling 866-524-7821.**

# TROUBLESHOOTING CHART - SLIDEOUT

The following troubleshooting chart outlines some common problems, their causes and possible corrective actions. When reference is made to a "Power Unit," the term includes the motor and the actuator as a complete unit. All Power Units are shipped from the factory with a serial number and date code, which should be given to the service technician when asking for assistance.

## ROOM DOESN'T MOVE WHEN SWITCH IS PRESSED

PROBABLE CAUSE	CORRECTIVE ACTION
Restrictions both inside and outside of unit	Check for and clear restriction
Low battery voltage, blown fuse, defective wiring	Check battery. Charge battery or add auxiliary power source. Check battery terminals, and all other wiring. Look for loose or corroded connections
Power Unit not functioning	See "Power Unit Troubleshooting" page 22

## POWER UNIT RUNS, ROOM DOES NOT MOVE

Restrictions both inside and outside of unit	Check for and clear restriction
--	---------------------------------

## POWER UNIT RUNS, ROOM MOVES SLOWLY

Low battery, poor ground, extremely low outdoor temperature.	Charge battery, and check ground wire
Leaking cylinder	See "Checking for Bad Cylinder" page 23

## ROOM DRIFTS IN BOTH IN & OUT POSITIONS

Check for leaks in the hydraulic system	Tighten fittings
Air in system	After checking all connections, cycle pump several times in and out

## IN THE CLOSED POSITION, ROOM DRIFTS OUT

Leaking cylinder seal	See "Checking for Bad Cylinder" page 23
Fluid bypassing cylinder piston	See "Checking for Bad Cylinder" page 23
Hose from pump is leaking	Tighten fitting or replace hose
Air in system	After checking all connections, cycle pump several times in and out
Loose mounting bolts	Tighten mounting bolts

## IN THE OPEN POSITION, ROOM DRIFTS IN

Hose from pump is leaking	Tighten fitting or replace hose
Leaking cylinder seal	See "Checking for Bad Cylinder" page 23
Fluid bypassing cylinder piston	See "Checking for Bad Cylinder" page 23

# TROUBLESHOOTING CHART - HLG

## JACKS WILL NOT EXTEND TO GROUND, PUMP IS RUNNING

PROBABLE CAUSE	CORRECTIVE ACTION
Little or no fluid in reservoir	Fill reservoir with DEXRON III ATF, See pg. 14
Leg valve is inoperative	Clean, repair or replace
Electronic signal is lost between switch and leg valves	Trace wires for voltage drop or loss of signal Repair or replace necessary wires or replace switch.

## ANY ONE OR TWO JACKS WILL NOT RETRACT

PROBABLE CAUSE	CORRECTIVE ACTION
Hose damaged or unconnected	Replace with new hose or reconnect hose
Return valve inoperative	Replace inoperative return valve
Electronic signal is lost between switch and solenoid	Attempt to retract jacks in MANUAL mode. If successful, replace control pad; if not, test for voltage drop between switch and leg valve Repair bad wiring or replace defective board or valve.

## TROUBLESHOOTING – CHECKING FOR BAD CYLINDER

1. Retract (close) the slideout (room) completely.
2. Loosen hose from “E” (extend) port on the manifold of the Power Unit.

### **WARNING!**

*Do not attempt to run room out with the “E” port hose loose.  
The system will experience RAPID FLUID LOSS.*

3. Plug opening on manifold to prevent drawing air into the system.
4. Energize the Power Unit to retract (close) room.
5. Continue to run the room in and watch for fluid flow from hose/port “E”. Fluid flow greater than a few drops will indicate internal cylinder leaking (bypassing of piston seal). If there is no fluid flow, reconnect hose to “E” port and tighten.

### **WARNING!**

*Be sure to reconnect and tighten hose at the “E” port before attempting to extend (open) the room or the system will experience RAPID FLUID LOSS.*

Contact qualified technician if there is excessive fluid flow. The cylinder should not be repaired in the field.

Refill the Power Unit Reservoir as recommended on Page 10 of this manual.

## TROUBLESHOOTING – POWER UNIT

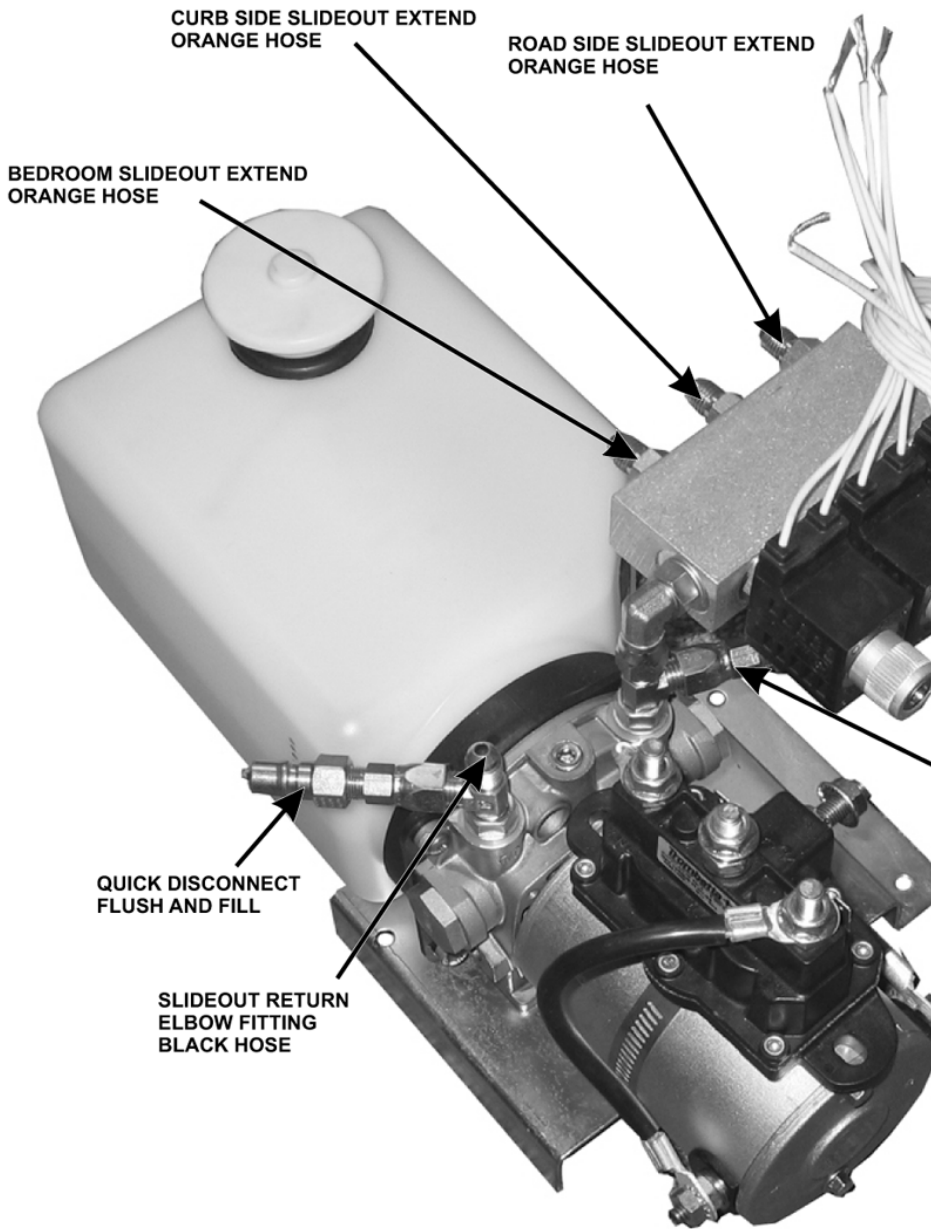
Before attempting to troubleshoot the Power Unit, make sure an adequate power source is available. The unit batteries should be fully charged or the unit should be plugged into to A/C service with batteries installed. Do not attempt to troubleshoot the Power Unit without assuring a full 12V DC charge. The following tests require only a DC voltmeter (or DC test light) and a jumper lead.

**Step 1** - Attach voltmeter (or test light) leads to the negative and positive terminals on motor solenoid (See Fig. 7). Does the meter indicate 12V DC? If **YES**, see **Step 2**; if **NO** see **Step 3**.

**Step 2** - If **YES**, at the motor, check the incoming leads to 12V DC (if necessary, disconnect leads at wire splices). Does meter indicate 12V DC? If **YES**, Power Unit needs to be replaced. The motor is not field serviceable. **DO NOT ATTEMPT TO REPAIR**. If **NO**, Inspect all wires and connections between the wall switch and the motor. Repair connections as necessary. Recheck as in **Step 1**.

**Step 3** - If **NO**, Inspect all connections between battery and solenoid. Inspect 30A Auto-reset Circuit Breaker (See Fig. 7 for location). Recheck as above in **Step 1**.

Since there are no field serviceable parts in the motor of the Power Unit, electrical troubleshooting and service is limited to replacing only those components as previously outlined. Thorough inspection of wiring and connections is the only other electrical service that can be performed.



**CURB SIDE SLIDEOUT EXTEND  
ORANGE HOSE**

**ROAD SIDE SLIDEOUT EXTEND  
ORANGE HOSE**

**BEDROOM SLIDEOUT EXTEND  
ORANGE HOSE**

**QUICK DISCONNECT  
FLUSH AND FILL**

**SLIDEOUT RETURN  
ELBOW FITTING  
BLACK HOSE**

**3 SLIDEOUTS  
(3 NO/FD)**

MOTOR FORWARD  
BLACK 2 GA.

BATTERY POWER  
WHITE

PUMP RETRACT  
BLACK w/STRIPE

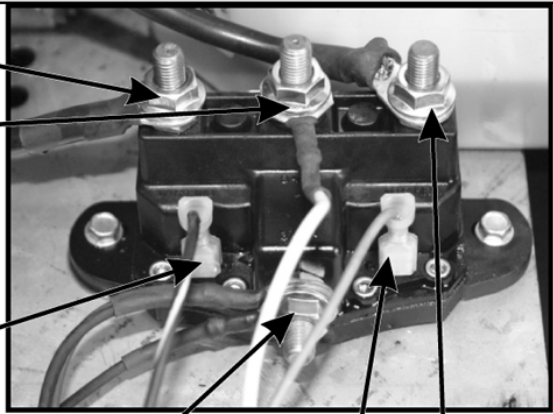
BATTERY GROUND  
BLACK & BROWN DOUBLE WIRE  
BLACK SINGLE WIRE

MOTOR REVERSE  
BLACK 2 GA.

PUMP EXTEND  
GRAY

DELTROL VALVES SHOWN  
(HYDRAFORCE VALVES AS OPTION)

QUICK DISCONNECT  
FLUSH AND FILL



**PETERSON**

DWG. NO.

**30**



**LIPPERT COMPONENTS, INC.**  
A LIPPERT COMPONENTS SUBSIDIARY

2766 COLLEGE AVE.  
GOSHEN, IN 46528  
(574) 535-2085 PHONE  
(574) 534-7618 FAX

DWG. NO.

**135419**

**PROPRIETARY AND CONFIDENTIAL**

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIPPERT COMPONENTS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIPPERT COMPONENTS, INC. IS PROHIBITED.

**CURB REAR JACK LOCATION  
ELBOW FITTING  
BLUE WIRE  
ORANGE HOSE**

**ROAD REAR JACK LOCATION  
ELBOW FITTING  
RED WIRE  
ORANGE HOSE**

**SLIDEOUT RETURN  
ELBOW FITTING  
BLACK HOSE**

**REAR JACK RETURN  
ELBOW FITTING  
BLACK HOSE**

**QUICK DISCONNECT  
FLUSH AND FILL**

**SLIDEOUT RETURN  
ELBOW FITTING  
BLACK HOSE**

**FRONT JACKS RETURN  
ELBOW FITTING  
BLACK HOSE**

**LEVELING + 3 SLIDEOUTS NO FLOW DIVI  
(L+3 NO/FD)**



**MOTOR FORWARD  
BLACK 2 GA.**

**BATTERY POWER  
WHITE**

**CURB SLIDE  
CYLINDER LOCATION  
ELBOW FITTING  
PURPLE & WHITE WIRE  
ORANGE HOSE**

**PUMP RETRACT  
BLACK w/STRIPE**

**BATTERY GROUND  
BLACK & BROWN DOUBLE WIRE  
BLACK SINGLE WIRE**

**MOTOR REVERSE  
BLACK 2 GA.**

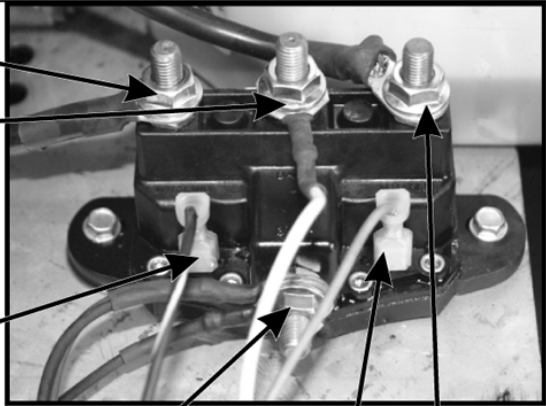
**PUMP EXTEND  
GRAY**

**QUICK DISCONNECT  
FLUSH AND FILL**

**ROAD SLIDE  
CYLINDER LOCATION  
ELBOW FITTING  
PINK WIRE  
ORANGE HOSE**

**BEDROOM SLIDEOUT CYLINDER LOCATION  
ELBOW FITTING  
PURPLE WIRE  
ORANGE HOSE**

**FRONT JACK LOCATION  
SWIVEL "T" FITTING  
VALVES MOUNTED TO JACKS  
ORANGE HOSE**



## PETERSON

DWG. NO.

# 300



**LIPPERT COMPONENTS, INC.**  
A LIPPERT COMPONENTS SUBSIDIARY

2766 COLLEGE AVE.  
GOSHEN, IN 46528  
(574) 535-2085 PHONE  
(574) 534-7618 FAX

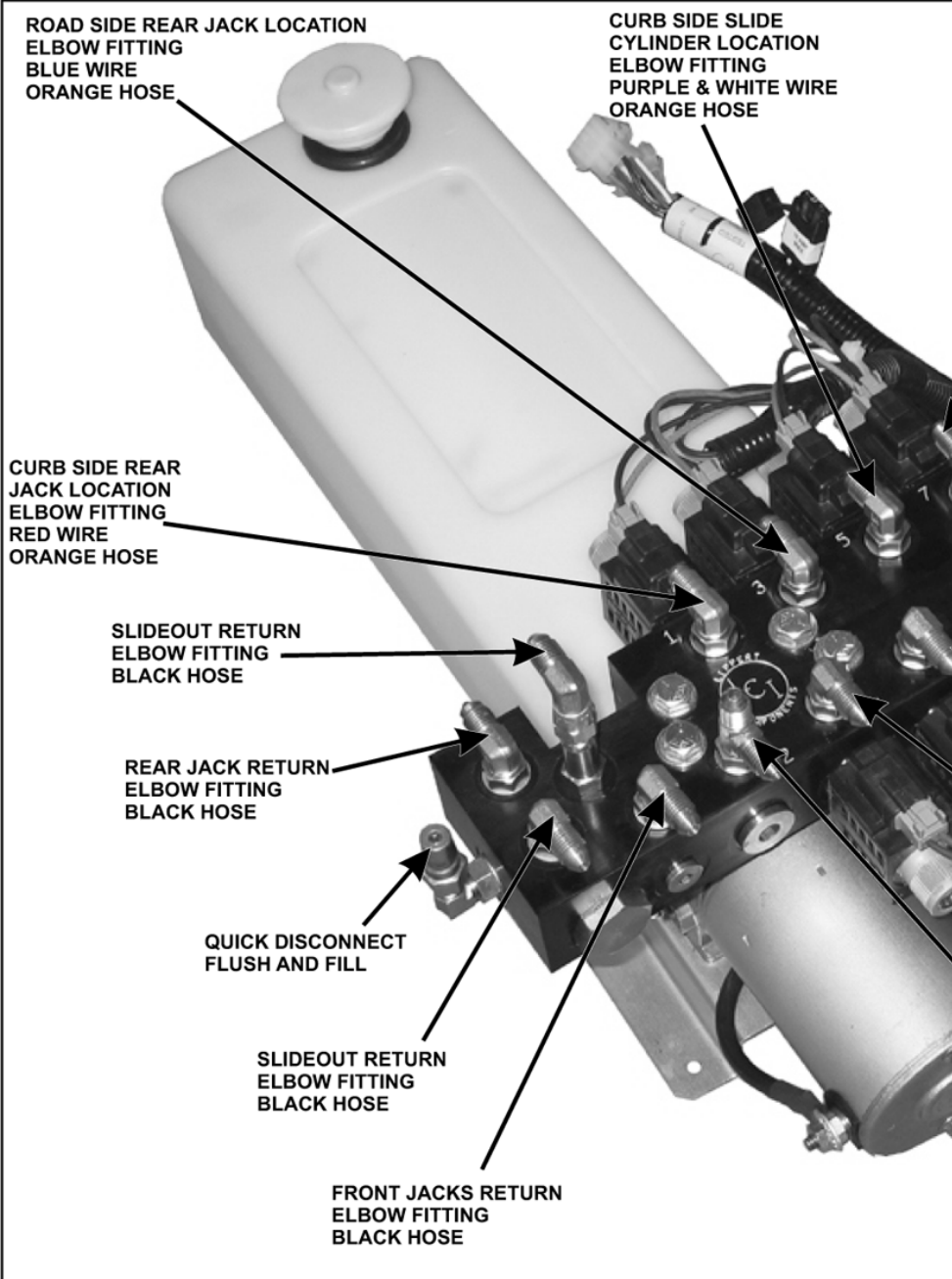
DWG. NO.

# 135420

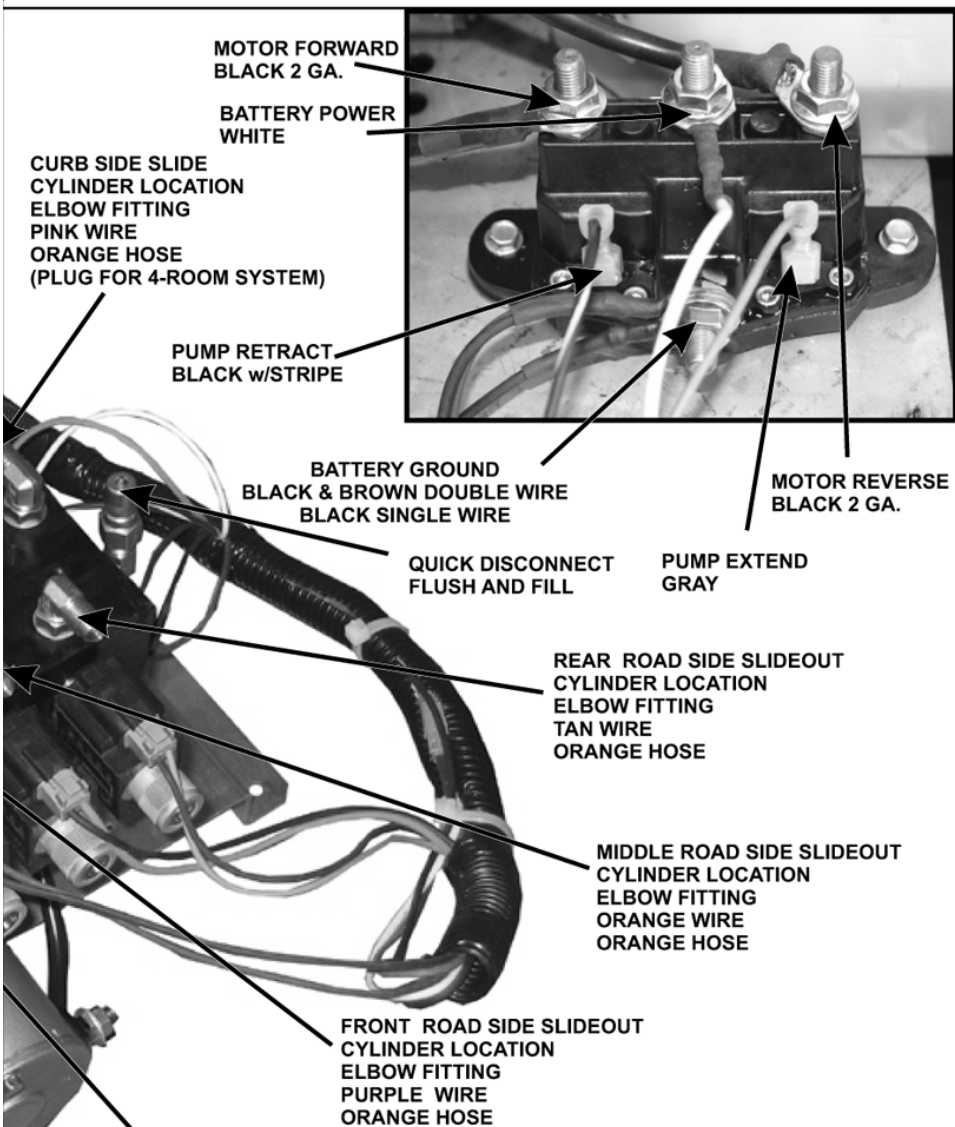
**PROPRIETARY AND CONFIDENTIAL**

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIPPERT COMPONENTS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIPPERT COMPONENTS, INC. IS PROHIBITED.

**IDER**



**LEVELING + 5 SLIDEOUTS NO FLOW DIVI  
(L+5 NO/FD)**



**MOTOR FORWARD  
BLACK 2 GA.**

**BATTERY POWER  
WHITE**

**CURB SIDE SLIDE  
CYLINDER LOCATION  
ELBOW FITTING  
PINK WIRE  
ORANGE HOSE  
(PLUG FOR 4-ROOM SYSTEM)**

**PUMP RETRACT  
BLACK w/STRIPE**

**BATTERY GROUND  
BLACK & BROWN DOUBLE WIRE  
BLACK SINGLE WIRE**

**MOTOR REVERSE  
BLACK 2 GA.**

**QUICK DISCONNECT  
FLUSH AND FILL**

**PUMP EXTEND  
GRAY**

**REAR ROAD SIDE SLIDEOUT  
CYLINDER LOCATION  
ELBOW FITTING  
TAN WIRE  
ORANGE HOSE**

**MIDDLE ROAD SIDE SLIDEOUT  
CYLINDER LOCATION  
ELBOW FITTING  
ORANGE WIRE  
ORANGE HOSE**

**FRONT ROAD SIDE SLIDEOUT  
CYLINDER LOCATION  
ELBOW FITTING  
PURPLE WIRE  
ORANGE HOSE**

**FRONT JACK LOCATION  
SWIVEL "T" FITTING  
VALVES MOUNTED TO JACKS  
ORANGE HOSE**

**PETERSON**

DWG. NO.

**500**



**LIPPERT COMPONENTS, INC.**  
A LIPPERT COMPONENTS SUBSIDIARY

2766 COLLEGE AVE.  
GOSHEN, IN 46528  
(574) 535-2085 PHONE  
(574) 534-7618 FAX

**PROPRIETARY AND CONFIDENTIAL**

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF LIPPERT COMPONENTS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF LIPPERT COMPONENTS, INC. IS PROHIBITED.

DWG. NO.

**135422**

**DER**

## **ORDERING PARTS**

To assist the customer service when ordering parts, please provide the following information:

1. Your Name
2. Company Name
3. Phone Number
4. Shipping Address
5. Billing Address
6. Purchase Order Number
7. Coach
  - A. Serial # and/or VIN #
  - B. Make
  - C. Model
8. Part Number
9. Description
10. Quantity

**Please take your coach to an authorized service center for repairs. Systems that have been modified, adjusted, repaired or augmented by a party other than an authorized service center may void any warranty claim with Lippert Components, Inc.**