



OPERATORS MANUAL
for
HYDRAULIC LEVELER SYSTEM

Part No. 82-L0040-01 REV.1
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OPERATION AND MAINTENANCE

- The Power Gear leveling system on your coach is designed and built to give you years of trouble free leveling and stabilizing operation. The Power Gear system reflects state of the art technology in both hydraulic and electric components. **Please read and study this manual before you operate the leveling system.**

SYSTEM DESCRIPTION - The Power Gear electro-hydraulic leveling system consists of the following major components:

(A) Power Gear supplies spring return jacks rated at a lifting capacity appropriate for your coach. Each jack has a large 10" diameter (78.5 square inch) shoe for maximum surface area on soft surfaces.

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

(C) The system is controlled by the solid state touch pad control panel and dual axis bubb in the coach.

WARNING

DO NOT USE LEVELING JACKS (OR AIR SUSPENSION) TO SUPPORT VEHICLE WHILE UNDER COACH OR CHANGING TIRES. THE HYDRAULIC LEVELING SYSTEM IS DESIGNED AS A LEVELING SYSTEM ONLY. DO NOT USE AS A JACK OR IN CONJUNCTION WITH A JACK. IT IS HIGHLY RECOMMENDED THAT SHOULD A TIRE CHANGE BE REQUIRED THAT IT BE PERFORMED BY A KNOWLEDGEABLE TRAINED PROFESSIONAL. ATTEMPTS TO CHANGE TIRES WHILE SUPPORTING THE VEHICLE WITH THE HYDRAULIC SYSTEM COULD RESULT IN DAMAGE TO THE MOTOR HOME AND RISK CAUSING SERIOUS INJURY.

OPERATION CAUTION NOTES!

CAUTION - CHECK THAT POTENTIAL JACK CONTACT LOCATIONS ARE CLEAR OF OBSTRUCTIONS OR DEPRESSIONS BEFORE OPERATION.

CAUTION - KEEP PEOPLE CLEAR OF COACH WHILE LEVELING SYSTEM IS IN USE.

CAUTION - 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.

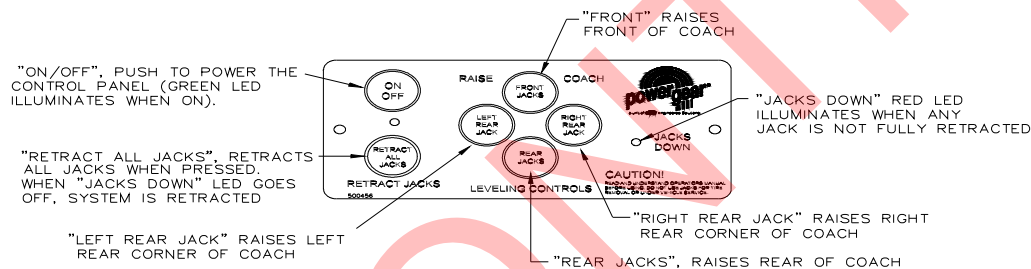
CAUTION - PARK COACH ON REASONABLY SOLID SURFACE OR JACKS MAY SINK INTO GROUND ETC.. ON EXTREMELY SOFT SURFACES USE LOAD DISTRIBUTION PADS UNDER EACH JACK.

CAUTION - NEVER LIFT ALL THE WHEELS OFF THE GROUND TO LEVEL THE COACH. DOING SO MAY CREATE AN UNSTABLE CONDITION.

BEFORE YOU OPERATE THE SYSTEM

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

- (A) The coach is parked on a reasonably level surface.
- (B) The coach "PARKING BRAKE" is engaged.
- (C) The coach transmission is engaged in "Neutral or Park".
- (D) The ignition is in the run position.



STEP 1 - Push "ON/OFF" pad on control panel. The system is now operational and the "ON/OFF" light will be lit. If "ON/OFF" light is not lit, see "BEFORE YOU OPERATE THE SYSTEM" conditions above.

STEP 2 - Push "FRONT" pad until contact with the ground is felt.

STEP 3 - Push "REAR" pad until contact with the ground is felt.

STEP 4 - Push pad ("FRONT" or "REAR") that is opposite the air bubble in the level that is pointed front and rear, (i.e. if bubble is towards front of coach push "REAR" pad.) Keep pad depressed until bubble is centered in vial.

STEP 5 - Push pad ("LEFT" or "RIGHT") that is opposite the air bubble in the level that is pointed left and right, (i.e. if bubble is towards left of coach push "RIGHT" pad.) Keep pad depressed until bubble is centered in vial.

***NOTE:** The right and left rear jacks are used to level the coach side to side. Pushing the "LEFT" pad on the control panel will extend the left rear jack. Pushing the "RIGHT" pad on the control panel will extend the right rear jack. There is no individual control of the right or left front jacks.

STEP 6 - Repeat steps 2 or 5 if needed.

STEP 7 - Turn power off to leveling system by pushing "ON/OFF" pad.

STEP 8 - Visually inspect jacks 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 all the wheels off the ground to level the coach

JACK RETRACT PROCEDURES

STEP 1 - Energize the system by pushing "ON/OFF" pad on control panel. The "ON/OFF" light will be lit.

STEP 2 - Push the "ALL" retract pad. 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 will go out.

NOTE: If you wish to stop the jacks from retracting, turn the system off and back on again by pushing the on/off pad twice. You can then relevel the coach by following steps 1-5 again.

STEP 3 - When the "JACKS DOWN" light goes out push the "ON/OFF" pad on the control panel to de-energize the system. After a brief visual inspection around the coach to verify the jacks are fully retracted, you may proceed to travel.

AUTOMATIC SAFETY SHUTOFF FEATURE

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

DRIVE AWAY PROTECTION SYSTEM

If the ignition is in the "RUN" position, jacks are down, and the operator takes the transmission out of neutral or releases the parking brake, the "JACKS DOWN" indicator will light and the alarm beeper will activate. The system will then automatically retract the jacks until the jacks are fully retracted or the operator resets the parking brake and places the transmission back into park or neutral.

RECOMMENDED HYDRAULIC FLUIDS FOR YOUR POWER GEAR LEVELING SYSTEM

In most applications, Type A automatic transmission fluid (ATF, Dexron III, etc.,) will work satisfactorily. 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.

SYSTEM FLUID CAPACITIES

Usable Reservoir Capacity = **1.2 gal**
4-JACK System Capacity = **2.4 gal (approx.)**

PREVENTATIVE MAINTENANCE PROCEDURES

1. Change fluid every 36 months.
2. Check fluid level every month. **Fluid should be within 1/4 inch of the fill port lip and checked only with all jacks retracted.**
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 chrome rods with a silicone lubricant every seven days for protection.

PARTS ORDERING INFORMATION

When ordering parts, please provide the following information:

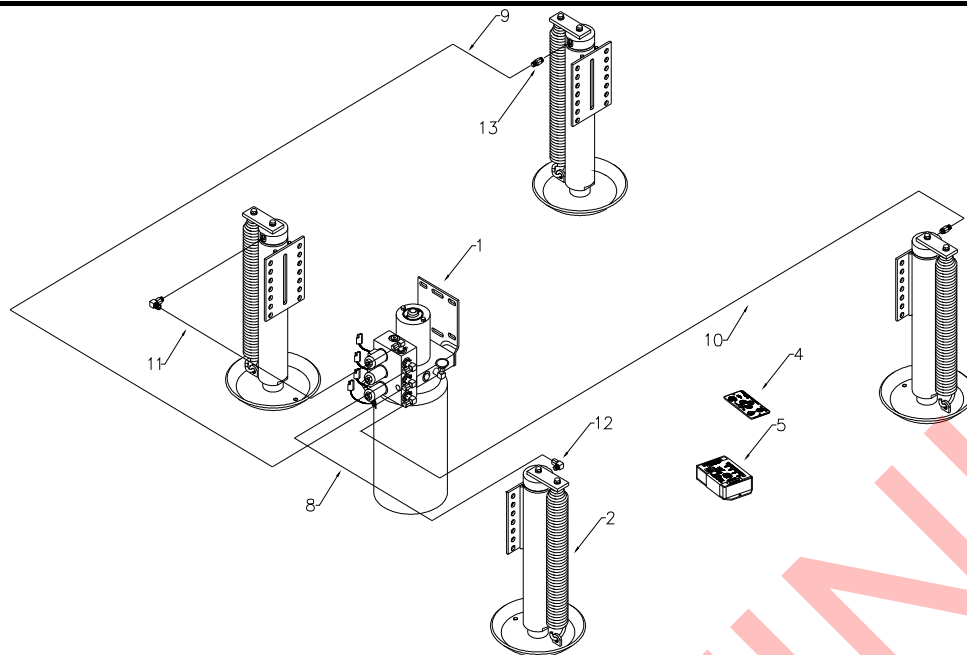
- 1) Your Name
- 2) Company Name
- 3) Phone Number
- 4) Shipping Address
- 5) Billing Address
- 6) Purchase Order Number

For each part needed

- 1) Coach
 - Serial#/VIN#
 - Make
 - Model
 - Wheel Base
 - Mileage
- 2) Part Number
- 3) Description
- 4) Quantity

ALL REPAIRS MUST BE MADE BY AN AUTHORIZED SERVICE CENTER. SYSTEMS THAT HAVE BEEN TAMPERED WITH, MODIFIED, ADJUSTED OR REPAIRED BY ANY PARTY OTHER THAN AN AUTHORIZED SERVICE CENTER WILL VOID ALL WARRANTIES.

REPLACEMENT PARTS FOR TYPICAL JACK SYSTEM

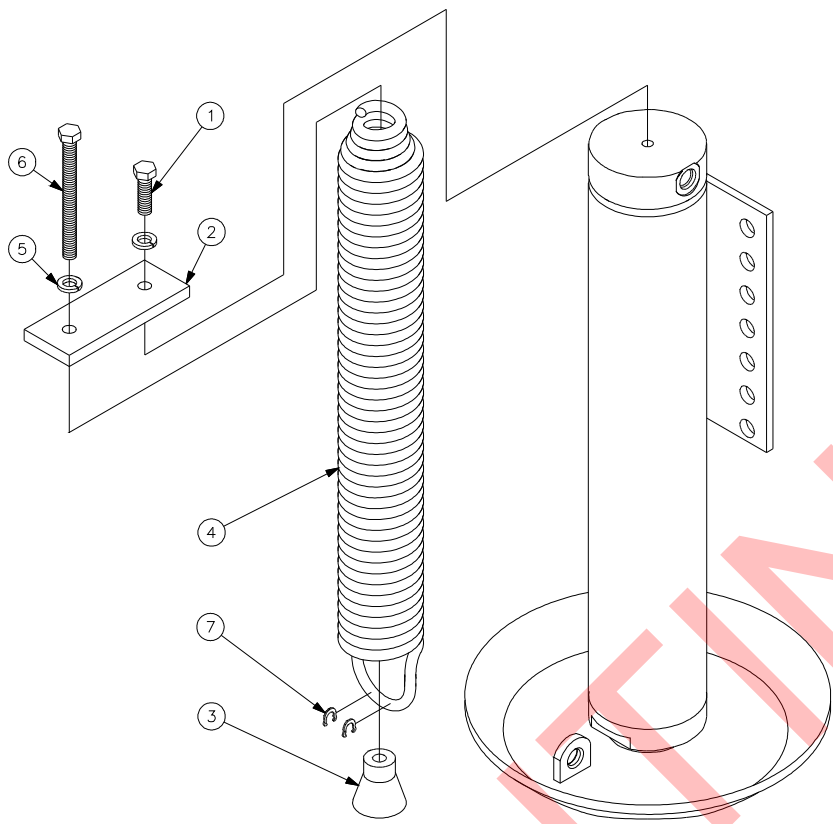


ITEM	DESCRIPTION	QTY	PAGE
1-13	COMPLETE LEVELING SYSTEM	1	6
1	POWER UNIT ASSEMBLY	1	8
2	RV JACK ASSEMBLY	4	7
3	CHASSIS HARNESS (SEE NOTE 1)	1	NOT SHOWN
4	MEMBRANE TOUCH PAD	1	10
5	CONTROL BOX	1	10
6	"JACKS DOWN" INDICATOR LIGHT	1	NOT SHOWN
7	"JACKS DOWN" DECAL	1	NOT SHOWN
8-11	HOSES (SEE NOTE 2)	4	NOT SHOWN
12	90 DEGREE ELBOW	3	NOT SHOWN
13	CONNECTOR	1	NOT SHOWN

NOTE 1 - ORDER HARNESS BY MODEL AND WHEEL BASE

NOTE 2 - ORDER HOSES BY MODEL AND WHEEL BASE

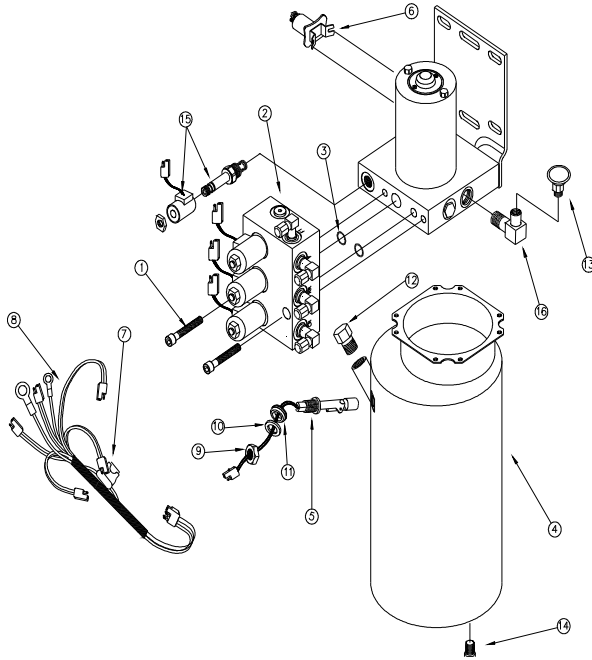
SPRING KIT FOR RV JACK ASSEMBLY



			15" STROKE	12" STROKE
			500146	500269
			500082	500235
ITEM	PART NO	DESCRIPTION	QTY	QTY
1-7	500094	LONG SPRING REPLACEMENT KIT	1	-
1-7	500252	SHORT SPRING REPLACEMENT KIT	-	1
1	*	BOLT 3/8-16 X 1-1/4	1	1
2	*	SPRING ANCHOR PLATE	1	1
3	*	SPRING PLUG CONE	1	1
4	*	SPRING	1	1
5	*	LOCK WASHER 3/8	2	2
6	*	SPRING TENSION SCREW	1	1
7	*	RETAINING RING	2	2

*** ITEMS ARE INCLUDED IN THE SPRING REPLACEMENT KIT ARE NOT SOLD SEPARATELY**

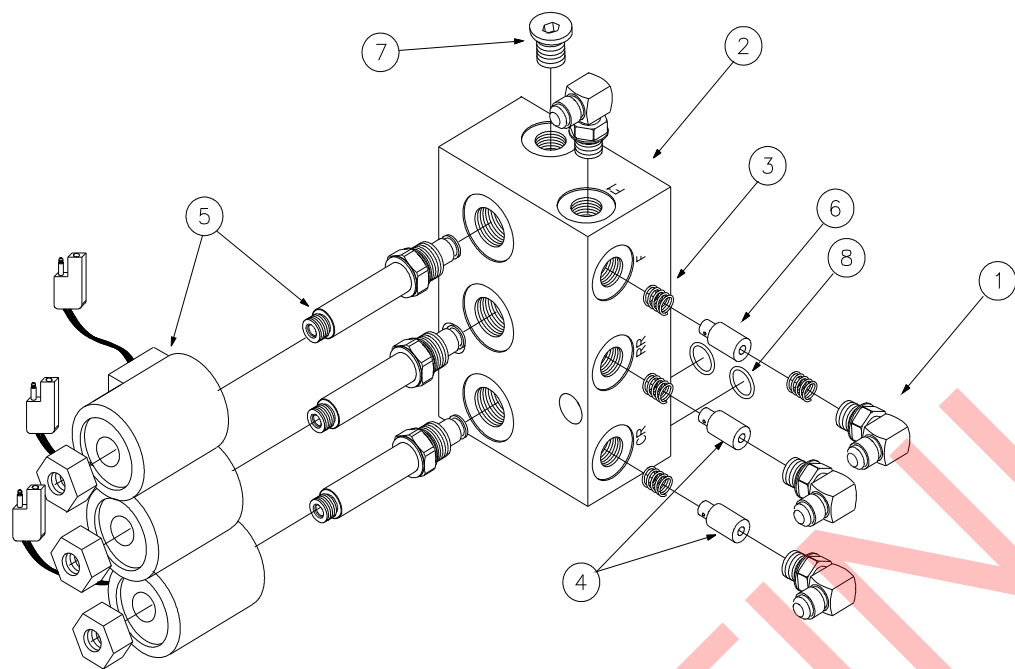
POWER UNIT ASSEMBLY



ITEM	PART NO	DESCRIPTION	QTY
1-17	500348	POWER UNIT ASSEMBLY	1
1	15-1337	SHCS 3/8-16 X 2	2
2	500338	VALVE ASSEMBLY	1
3	01-1029	O-RING, (.614 I.D.X .07 C.S.)	2
4	13-1099	TANK, 1.5 GAL	1
5	*	FLOAT SWITCH	1
6	500310	12VDC SOLENOID	1
7	14-1055	10 AMP FUSE	1
8	500335	WIRING HARNESS, PUMP	1
9	*	NUT, FLOAT SWITCH	1
10	*	WASHER, FLOAT SWITCH	1
11	*32-1019	GROMMET, FLOAT SWITCH	1
12	07-1238	FILL PLUG, SAE #10 W/O-RING	1
13	06-1004	BREATHER	1
14	07-1239	DRAIN PLUG, SAE #6 W/O-RING	1
15	500096	DUMP VALVE	1
16	07-1240	90° STREET ELBOW	1

* Available with float switch kit #500199

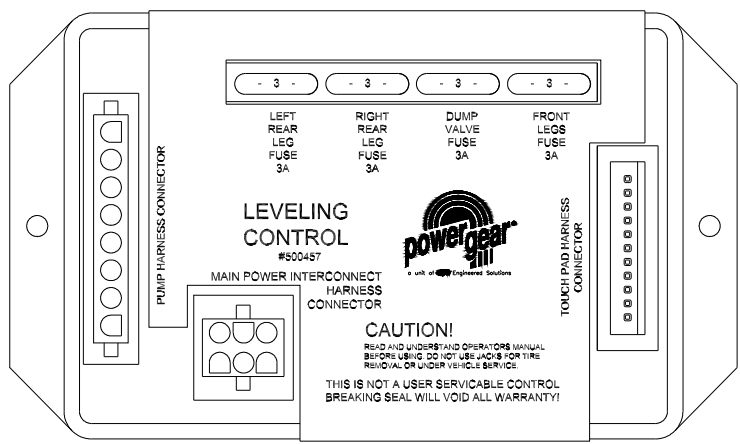
VALVE ASSEMBLY



ITEM	PART NO	DESCRIPTION	QTY
1-9	500338	VALVE ASSEMBLY	1
1	07-1059	90 DEG. ELBOW	4
2	*	MANIFOLD	1
3	31-1001	SHUNT VALVE SPRING	4
4	5015-038	SHUNT VALVE POPPET, REAR (.038)	2
5	500098	CYLINDER VALVE	3
6	5015-052	SHUNT VALVE POPPET, FRONT (.052)	1
7	07-1135	SHC PLUG W/O-RING, SAE #6	1
8	01-1029	O-RING, ARP-016	2

* Item not available as parts, included in valve assembly 500338.

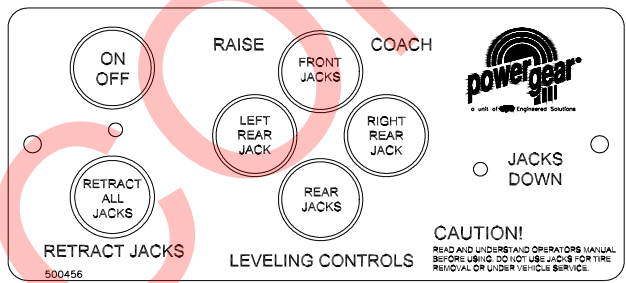
CONTROL BOX AND MANUAL TOUCH PAD



(CONTROL BOX)

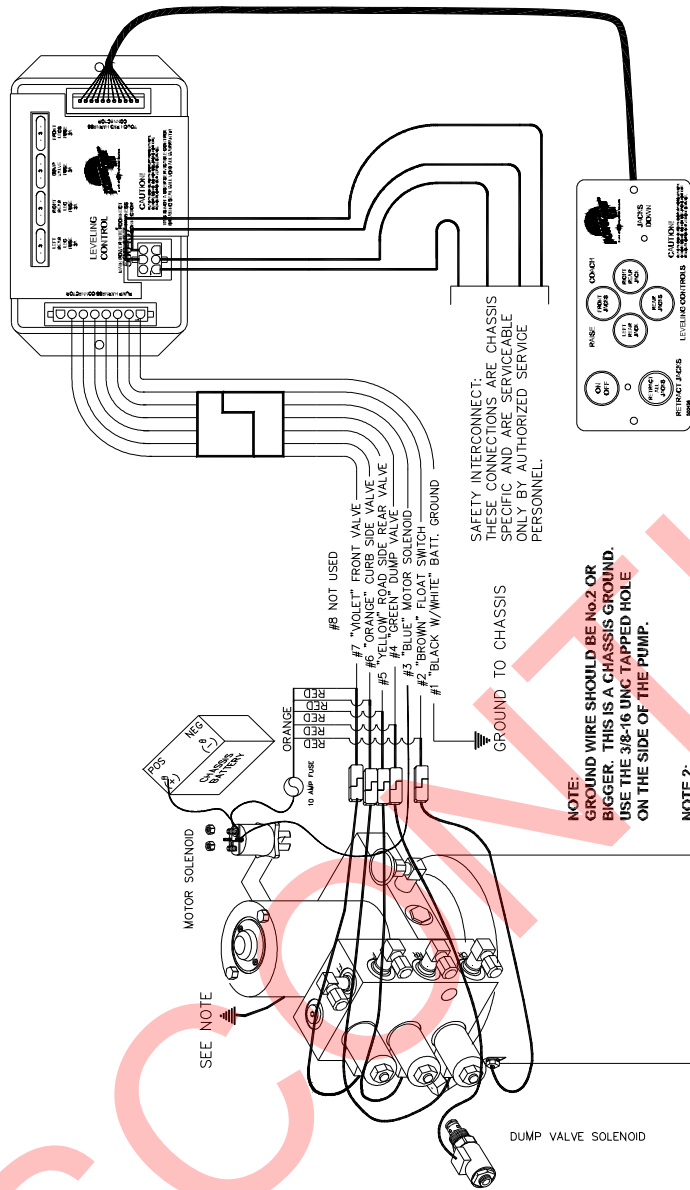
PART NO	DESCRIPTION	QTY
500456	TOUCH PAD MANUAL CONTROL	1
500457	CONTROL BOX	1
*	FUSE 3 AMP DUMP VALVE SOLENOID	1
*	FUSE 3 AMP FRONT LEGS VALVE	1
*	FUSE 3 AMP LEFT REAR LEG VALVE	1
*	FUSE 3 AMP RIGHT REAR LEG VALVE	1
500491	WIRING HARNESS FOR CONTROL BOX/TOUCH PAD	1 (NOT SHOWN)
PART NO	DESCRIPTION	QTY
500509	FUSE KIT	1 (NOT SHOWN)
14-1119	FUSE 3 AMP	4

*** REPLACEMENT**



(TOUCH PANEL)

WIRING DIAGRAM



TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
System will not turn on and ON/OFF indicator light does not light	Coach ignition not in run position.	Turn ignition to run position.
	Transmission not in neutral or park.	Place transmission in neutral or park.
	Parking brake not set.	Set parking brake.
	Panel has been left on for more than four minutes. Auto time out has occurred.	Turn ignition key off and back on.
Touch pad turns on, but turns itself off when leg button is pushed.	Low voltage.	Start coach to charge batteries.
Touch pad turns on, but turns itself off during extension of legs.	Pump motor over heating. Only one button on touch pad should be depressed at a time.	Press on/off button twice. Wait 5 minutes for pump to cool down.
Jacks will not extend to ground, pump is running.	No fluid or not enough fluid in reservoir.	Fill reservoir with Dexron III automatic transmission fluid. See page 3.
	Fuse blown in pump harness.	Replace fuse with 10 amp mini-fuse Power Gear p/n 14-1055. See page 8.
One jack will not extend, others will.	Fuse is blown on touch pad. See page 10.	Replace appropriate fuse in control box with 3 amp 14-1119 fuse. See pages 10 and 11.
None of the jacks will retract.	Fuse on touch pad blown. See page 10.	Replace dump valve fuse in control box with 3 amp fuse 14-1119. See page 10.
Any one or two of the jacks will not retract.	Broken spring(s). See page 6.	Replace spring. See page 6.

"JACKS DOWN" lights on the touch pad do not go out when all jacks are retracted.	Low fluid level.	Fill reservoir to proper level with recommended fluid. See page 3.
Alarm sounds and "JACKS DOWN" light on dash starts flashing while traveling. The jacks are fully retracted.	Low fluid level.	Fill reservoir to proper level with recommended fluid. See page 3.

This document has been modified from the original Power Gear Rev. 1 MAY99 release. All former references to the Power Gear warranty and contact information were removed.

**For all concerns or questions, please contact
Lippert Components, Inc.**

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