



SLIM RACK SLIDE-OUT INSTALLATION AND SERVICE MANUAL

© Copyright LCI/Power Gear Issued: October 2015 #3010002813, Rev. OG
Controls: 1510000236 and 1510000276

TABLE OF CONTENTS

System Information	2
Component Descriptions	2
Installation	3
General Requirements	3
Mechanical Components	3
Electrical Components	5
Programming	6
Setting the Retracted Stop Point	6
Setting the Extended Stop Point	6
Installation Issues	6
Operation	7
Prior To Moving the Slide-Out Room:	7
Extending the Room	7
Retracting the Room	7
Preventative Maintenance	7
Troubleshooting	8
Override Mode	9
Manual Emergency Retract Mode	9
Alternate Overrides	10
Notes	13

System Information

The Power Gear Slim Rack Slide-out System is a rack and pinion design operated by a 12 Volt DC gear motor. Slide-out systems are engineered to provide years of trouble-free service. Changes to weight, stroke, weight distribution, rail position, controller, power supply, seals, slide toppers, ramps, rollers, etc. all have an effect on the performance of the system. In order to secure warranty coverage, each new application or changes to existing applications **MUST** be audited and approved by Power Gear with a signed document. Audits can be arranged by contacting your account representative.

Component Descriptions

- Rocker switch that mounts to the wall. It allows room movement and provides end user feedback.
- A specially designed control box that gives the user full control of room movement, in or out. The control has programmable stops that stop the motor when the room is fully extended or retracted and the ability to detect faults for ease in troubleshooting.
- Vertical channel with 12V DC gear motor and gear rack arms that mount into the side wall opening and slide-out room.
- Harnesses to connect the touch pad and motors to the control box.
- Floor rollers (not supplied by Power Gear) that support the room's weight while extending and retracting the room. Only floor rollers approved by Power Gear can be used with the system. Contact Power Gear for recommended rollers.

Installation

General Requirements

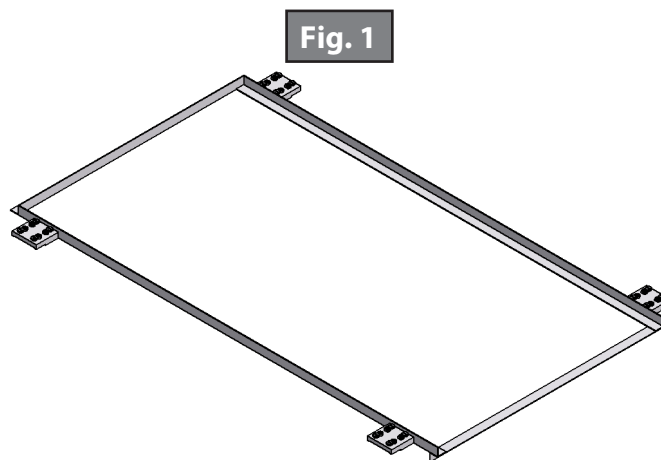
- Power and wiring **MUST** be such that there is not less than 10.5 running volts supplied at the motor leads under maximum load.
- Slide system controls **MUST** come from Power Gear. Controls supplied by other companies will void warranty.
- Voltage supply **MUST** come from a 12VDC automotive/RV type battery.

Mechanical Components

1. Install Power Gear-approved floor rollers. Consult roller manufacturer for proper installation procedures and location.
2. For sealing the screws used to attach end brackets, Power Gear recommends RTV silicone, rubber gaskets, or closed cell foam gaskets. DO NOT use any type of sealant putty as this can intrude into the mechanism and possibly cause the system to malfunction.

With Drill Fixture

- A. A Drill Fixture (Fig. 1) is used to pre-drill the mounting holes for the end brackets and maintain even spacing between the upper and lower gear rack arms. Even spacing between the gear rack arms and the location of the end brackets is critical for proper operation of the slide-out. Drill Fixtures are reusable from system to system. Drill Fixtures are not supplied with the system and must be purchased from Power Gear to aid in assembly and reduce installation time.
- B. Position the Drill Fixture so that the bottom flange of the fixture is pulled up against the bottom of the room.
- C. Move the Drill Fixture out so that it is up flush against the outer room flange.
- D. Drill all 16 holes (4 per end bracket) with a #25 drill bit.
- E. Place the slide mechanism up to the side of the room and secure end brackets with button or pan head #10 screws torqued to 40-50 in-lbs.
- F. Repeat steps A-E for the other side of the slide-out room. Proceed to step #3.



3. Lift the slide room box into the coach opening and push in until the mounting flange meets the exterior wall.
4. Verify the weight of the room is supported by the floor rollers and not the slide-out mechanism (Fig. 2).
NOTE: If the room is not completely supported by the floor rollers, you will hear a slight “popping” sound as the room settles on to the rollers. This is normal, and there is nothing wrong with the system or the install.
5. Secure the mounting flanges to the unit’s side wall with button or pan head #10 screws torqued to 40-50 in-lbs.

Alternate Install for Vertical Channel Assemblies with Two Flanges

After steps 1-2 above are complete, it will be necessary to remove the inner flange (Fig. 4) from each side of the vertical channel assemblies before lifting the room into position. Once room is in position, reinstall the removed flanges. Installation of the vertical channel assembly is now complete.

Electrical Components

1. Mount the controller in a clean and dry, weather tight location that will keep it from being damaged, but is easily accessible for service. The controller is not waterproof.
2. Determine location to mount the rocker switch (Fig. 5). The location needs to be in view of slide-out room and have minimum depth of 1” inside the wall.
3. Route and attach the harness to where the rocker switch will be mounted, and mount the rocker switch with 2 screws.
4. Label the motor leads at both ends to aid in connections at the control box and motors. Route the motor/sensor harnesses from the slide-out room motors to the control box.
5. Set park brake signal input (Fig. 6):
 - A. 1510000236 control. With the switch in the left position (as shown) the control will be looking for a park brake signal input. With the switch in the right position the control will be in bypass (not looking for a park brake input signal).

Fig. 2



Floor Roller (Not Supplied)

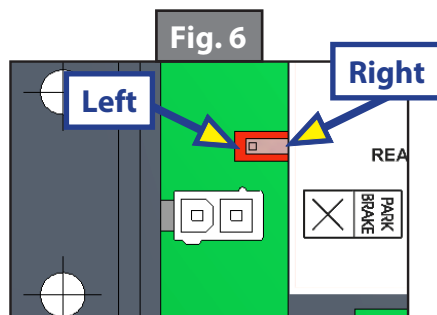
Fig. 3



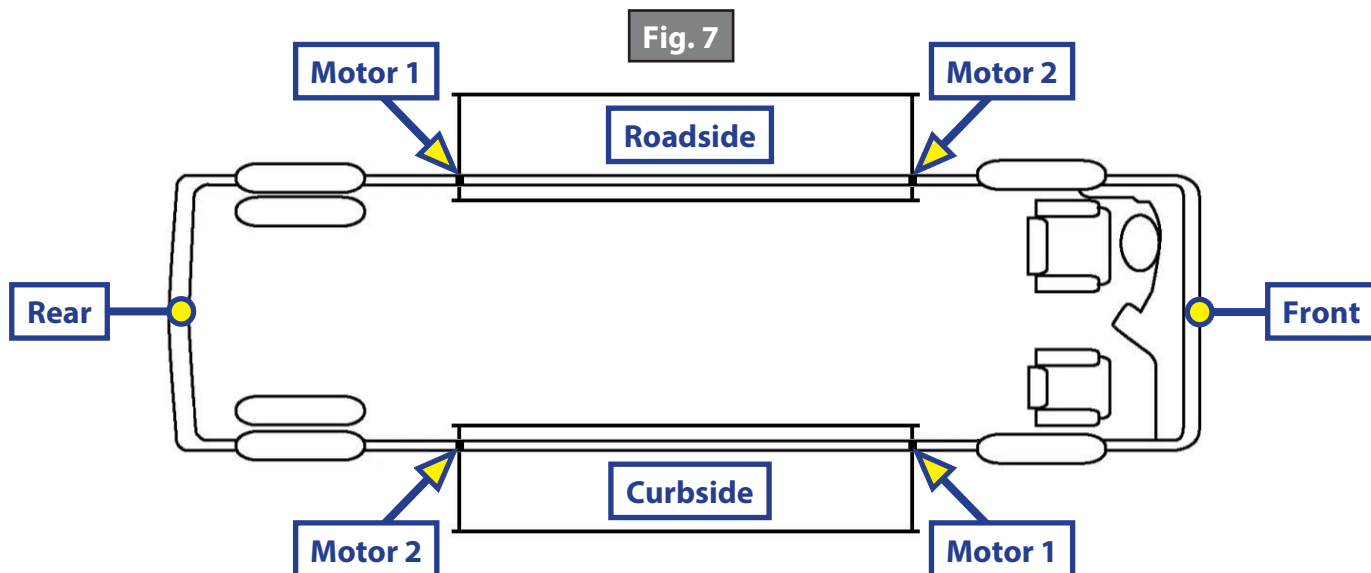
Fig. 4



- B.** 1510000276 control. With the switch in the left position (as shown) the control will be in bypass (not looking for a park brake input signal). With the switch in the right position the control will be looking for a park brake signal input.
- 6.** If using the park brake feature, route the park brake input harness from the park brake signal source to the control box.
- NOTE:** It is important that the slide-out motors be plugged in to the proper receptacle at the control box. See (Fig. 7) below for proper slide-out motor designation. Failure to properly connect the motors to the control will result in problems for future troubleshooting. (The control will identify the incorrect motor during a fault).
- 7.** Route and attach the proper gauge wire from the control to the 12V DC battery. It is recommended that this circuit be protected with a 30 amp fuse. Wire must be sized so that a minimum of 12.5 VDC is measured at the control while under load.



Wire Gauge	Maximum Length
16	10 feet
14	15 feet
12	25 feet
10	40 feet



Programming

NOTE: When retracting or extending, the switch will need to be depressed and held for 2 seconds after the room stops moving. Failure to do so will cause the stops to NOT be set.

⚠ WARNING

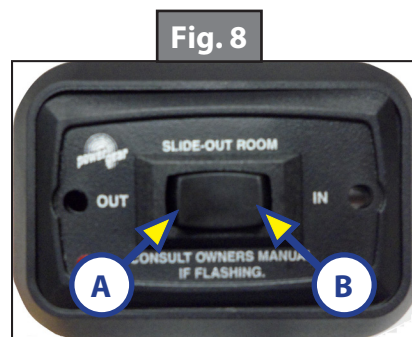
Always make sure that the slide-out room path is clear of people and objects before and during operation of the slide-out room. Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

Setting the Retracted Stop Point

1. Press and hold the IN button on the wall rocker switch (Fig. 8B).
2. Move the room to the fully retracted position. Press and hold the IN button for 2 seconds after the room stops moving. Release the wall switch.
3. Visually inspect the room seal to make certain the room is fully retracted. If it is not, push and hold the IN button until fully retracted. This procedure may need to be repeated until both sides of the slide-out are fully retracted.

Setting the Extended Stop Point

1. Press and hold the OUT button on the wall rocker switch (Fig. 8A).
2. Move the room to the fully extended position. Press and hold the OUT switch for 2 seconds after the room stops moving. Release the wall switch.
3. Visually inspect the room seal to make certain the room is fully extended. If it is not, push and hold the OUT button until fully extended. This procedure may need to be repeated until both sides of the slide-out are fully extended.



Installation Issues

The control box is equipped to help troubleshoot the system during installation. Count the number of LED flashes and refer to the FAULT DIAGNOSTICS/TROUBLESHOOTING section starting on page 8 of this manual or on the label of the control box.

NOTE: It is important that the slide-out motors be plugged in to the proper receptacle at the control box. See Fig. 7 for proper slide-out motor designation. Failure to properly connect the motors to the control will result in problems for future troubleshooting. (The control will identify the incorrect motor during a fault).

If you are still having difficulties programming the system (and prior to replacing the control), verify that the system has been wired correctly and that the IN stop location was programmed before the OUT stop location. See Fig. 7, page 5 for proper connection of the motors to the slide-out control.

Operation

WARNING

Always make sure that the slide-out room path is clear of people and objects before and during operation of the slide-out 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.

Prior To Moving the Slide-Out Room:

- Make sure the engine or generator is running to ensure ample voltage is being supplied to the slide-out control box.
- Set the parking brake, if applicable.

Extending the Room

1. The engine or generator must be running, or coach must be plugged into shore power.
2. Transmission must be in park or neutral (if applicable).
3. Set the park brake (if applicable) and level the unit.
4. If equipped, remove the transit bars.
5. If equipped, turn "on" the on/off switch or key.
6. Press and hold the OUT button (Fig. 8A). There will be a slight delay before the room will begin to move. This is normal.
7. Release the button when the room is fully extended and stops moving.
8. If equipped, turn "off" the on/off switch or key.

Retracting the Room

1. The engine or generator must be running, or the coach must be plugged into shore power.
2. Transmission must be in park or neutral (if applicable).
3. Set the park brake (if applicable) and level the unit.
4. If equipped, turn "on" the on/off switch or key.
5. Press and hold the IN button (Fig. 8B). There will be a slight delay before the room will begin to move, this is normal.
6. Release the button when the room is fully retracted and stops moving.
7. If equipped, turn "off" the on/off switch or key.
8. If equipped, install the transit bars.

Preventative Maintenance

Your Power Gear slide-out system has been designed to require very little maintenance. To ensure the long life of your slide-out system, read and follow these few simple procedures:

- When the room is extended, visually inspect the slide rail assemblies. 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, blow out any debris from the gear rack arms and apply a dry lubricant to prevent and/or stop squeaking.

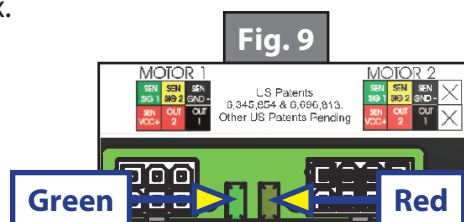
Troubleshooting

This control has the ability to detect and display several faults. When a fault is detected, the room movement may stop and 2 different LEDs on the control box will flash in a pattern.

- The Fault Code LED (Fig. 9) on the rocker switch will flash RED a number of times corresponding to the number of red flashes on the control box (Fig. 9). Refer to the troubleshooting chart below to best determine what caused the fault.
- The Motor LED (Fig. 9) on the control box will flash GREEN a number of times corresponding to which motor had the associated fault. For example: 2 GREEN flashes and 4 RED flashes means there is a motor fault on motor 2.

NOTE: For major faults, the control will automatically enter "Emergency Jog" mode when motor movement is not detected by the control box in either direction during room actuation. When in "Emergency Jog" mode, the control will jog both motors in the direction the rocker switch is pressed (IN or OUT). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an OEM authorized dealer for service.

NOTE: The control box will return to normal operation mode after 5 minutes of inactivity or by cycling power to the control box.



Fault Code Flashes		Fault Type	Description	Why?	What Should Be Done?
Green Flash	Red Flash				
1	1	Minor	Park Brake Not Set	Park Brake not set (if applicable). Ground signal lost at park brake receptacle at control box.	Set parking brake (if applicable). Check for continuity to ground on wire plugged into park brake receptacle at control box.
1	2	Minor	Low Voltage	Incoming voltage to control is below 12.0 VDC. The room will NOT move if the voltage is 10.5 VDC or below.	Start vehicle, generator, or ensure coach is plugged into shore power. Check 2-pin power connector at control box at BATT + and GND. Consult manufacturer of unit charging system for troubleshooting assistance.
1	4	Major	Motor 1 Fault	Bad wire connection Bad motor	Refer to TIP Sheet 82-S0533 for troubleshooting.
2	4	Major	Motor 2 Fault	Bad wire connection Bad motor	
1	6	Minor	High Voltage	Supply voltage to control box is 17 VDC or greater.	Consult manufacturer of unit charging system for troubleshooting assistance.

Override Mode

In the event of component failure or loss of system power, your slide-out can be manually overridden and retracted for travel.

NOTE: At any time during the override procedure, the unit will exit this mode if the room has not been moved for five (5) minutes.

NOTE: For major faults, only 1510000236 control will automatically enter "Emergency Jog" mode when motor movement is not detected by the control box in either direction during room actuation. When in "Emergency Jog" mode, the control will jog both motors in the direction the rocker switch is pressed (IN or OUT). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an OEM authorized dealer for service.

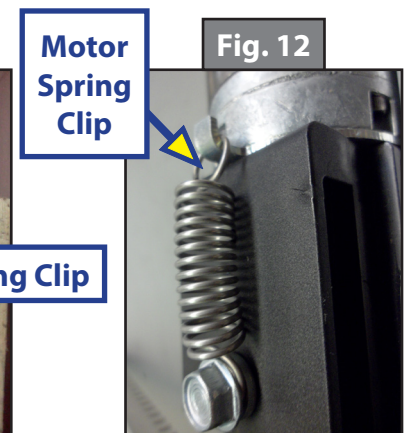
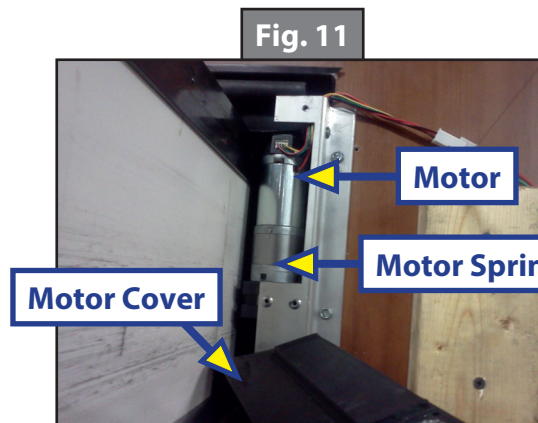
NOTE: The control box will return to normal operation mode after 5 minutes of inactivity or by cycling power to the control box. Use TIP Sheet 82-S0544 to reset control box 1510000276

Manual Emergency Retract Mode

In the event that power is lost to the slide-out motor(s) the room can be manually retracted by following these steps:

1. You will need to gain access from either the inside or outside (whichever is more convenient) of the coach to the vertical channel assembly. The motors are currently located at the top of the channel.
2. If applicable, remove the top screw from the bulb seal at the top of the vertical channel (Fig. 10A).
3. Pull down the bulb seal and remove the motor cover (Fig. 11). The motor cover may stick to the bulb seal.
4. Using a pick tool, remove the end of the retaining spring from the motor spring clip (Fig. 12A).
5. Unplug the motor from the harness and remove the motor by lifting it up and out.
6. Repeat steps 1-5 for the other side.
7. Push the room into the retracted position.
8. Secure the room in place by either:
 - A. Re-installing the motors. Make sure the end of the retaining spring is re-hooked to the motor spring clip (Fig. 12).
 - B. Torque the motor retaining screw to 40 in lbs. (Fig. 10) with the motor retainer fully engaged.
 - C. Use a travel lock (2 x 4 cut to size).
9. Have the slide-out room serviced by the OEM authorized dealer as soon as possible. Do not operate room until service is complete, as damage to the room may result.

NOTE: For major faults, the control will automatically enter "Emergency Jog" mode when motor movement is not detected by the control box in either direction during room actuation. When in "Emergency Jog" mode, the control will jog both motors in the direction the rocker switch is pressed (IN or OUT). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an OEM authorized dealer for service.



Alternate Overrides

It may be possible to manually retract the room by accessing the ½" square drive tube at the bottom of each vertical channel assembly. This will only be possible if there is access to this area.

1. Using a ½" 8-point star socket (Fig. 13) and alternating from one side to the other, turn the ½" square drive tube to bring the room in. A 15 mm 12-point socket is an option if the ½" 8-point star socket is not available. Use caution, as the 15 mm 12-point socket does not fit as snug as the ½" 8-point socket.
2. Secure the room in place by either:
 - A. Re-installing the motors (making sure the end of the retaining spring is re-hooked to the motor spring clip (Fig. 12).
 - B. Torque the motor retaining screw to 40 in lbs. (Fig. 10) with the motor retainer fully engaged.
 - C. Use a travel lock (2 x 4 cut to size).
3. Have the slide-out room serviced by a dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

It may also be possible to manually retract the room by using a ratchet and socket attached to the end of the coupler (Fig. 14).

1. You will first need to follow steps 1-6 under the Manual Retract Mode section to remove the motor.
2. Place a socket wrench with a 3" extension and ⅝" deep well socket (Fig. 15) through the motor access opening and seat the socket onto the coupler. One man alternating from side to side of the room is able to retract a 1500 lbs. room with or without a ramp.

NOTE: 1 person per side of the room (2 total) with ratchet and socket will expedite the process. Room moves approximately ¼" for every 30-40 degree turn of the wrench.

3. Secure the room in place by either:
 - A. Re-installing the motors (making sure the end of the retaining spring is re-hooked to the motor spring clip (Fig. 12).
 - B. Torque the motor retaining screw to 40 in lbs. (Fig. 10) with the motor retainer fully engaged.
 - C. Use a travel lock (2 x 4 cut to size).
4. Have the slide-out room serviced by an OEM authorized dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

Fig. 13



Fig. 14

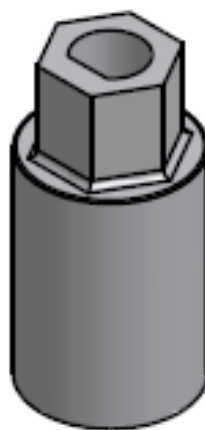


Fig. 15



Fig. 16



Fig. 17 - Wiring Information for Control Box 151000276

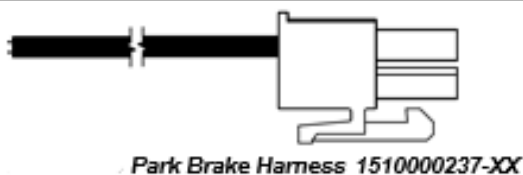
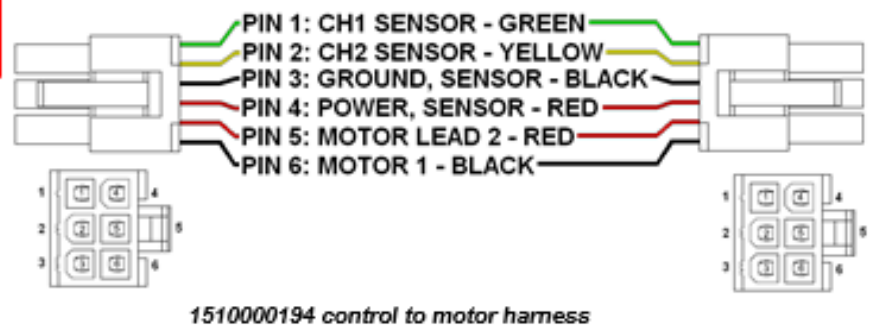
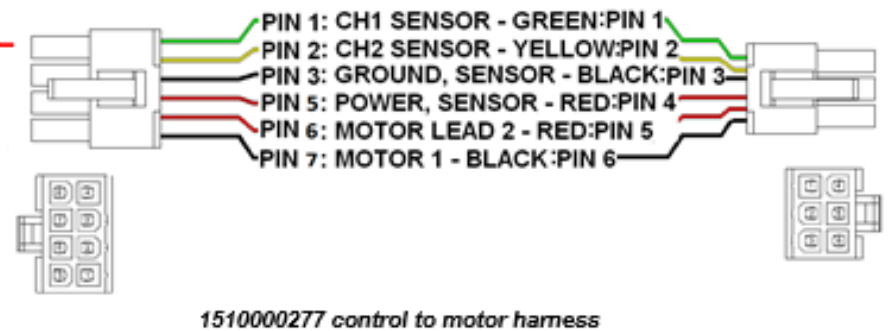
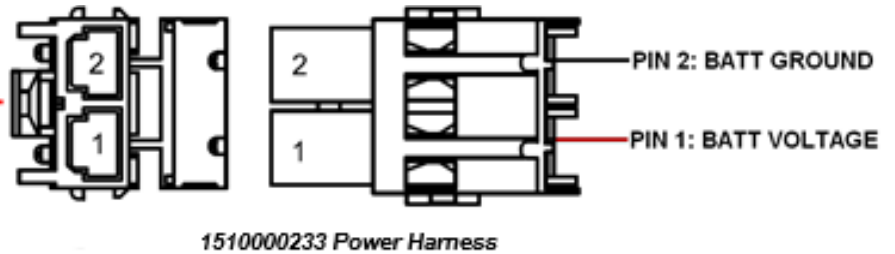
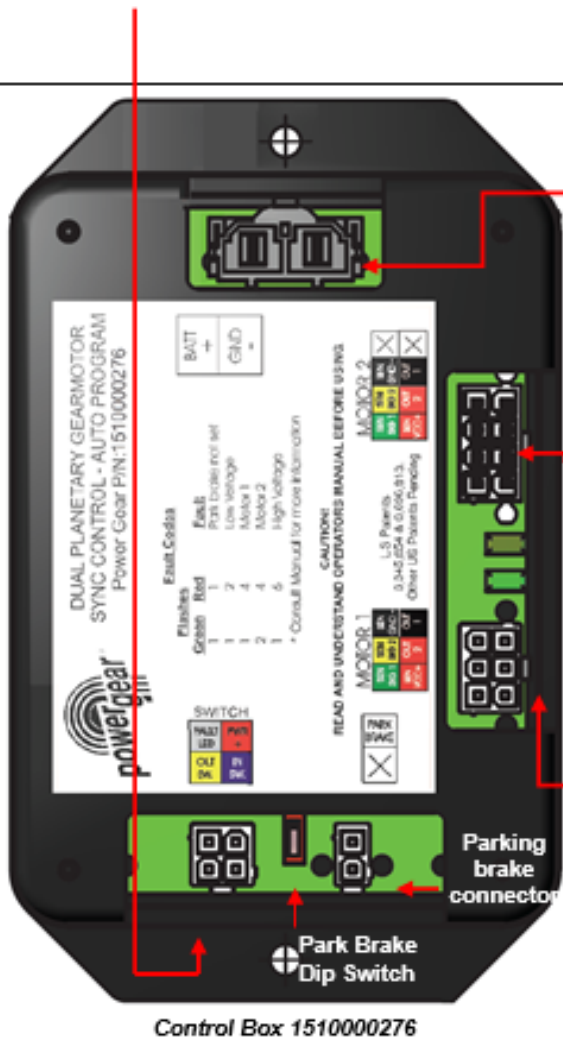
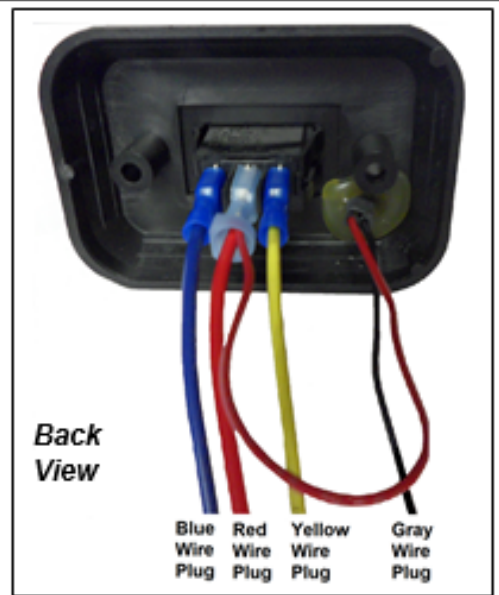
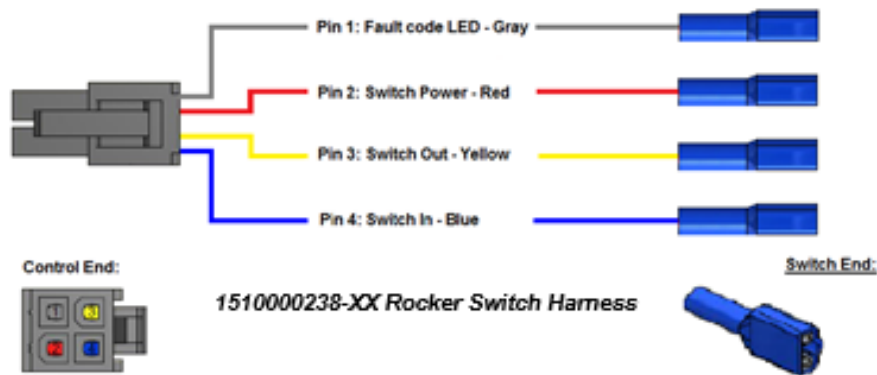
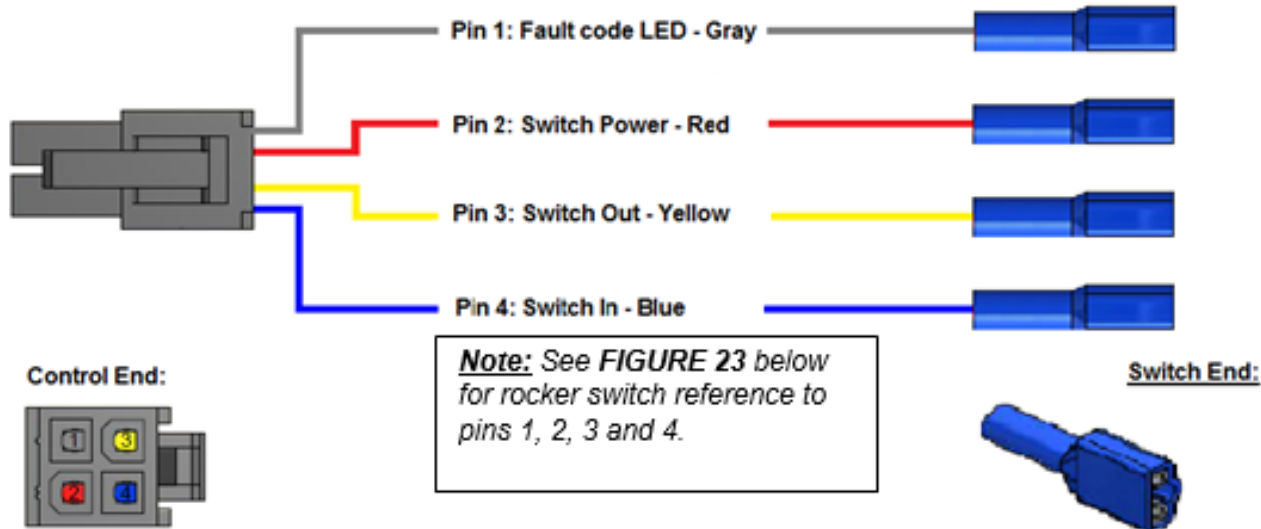
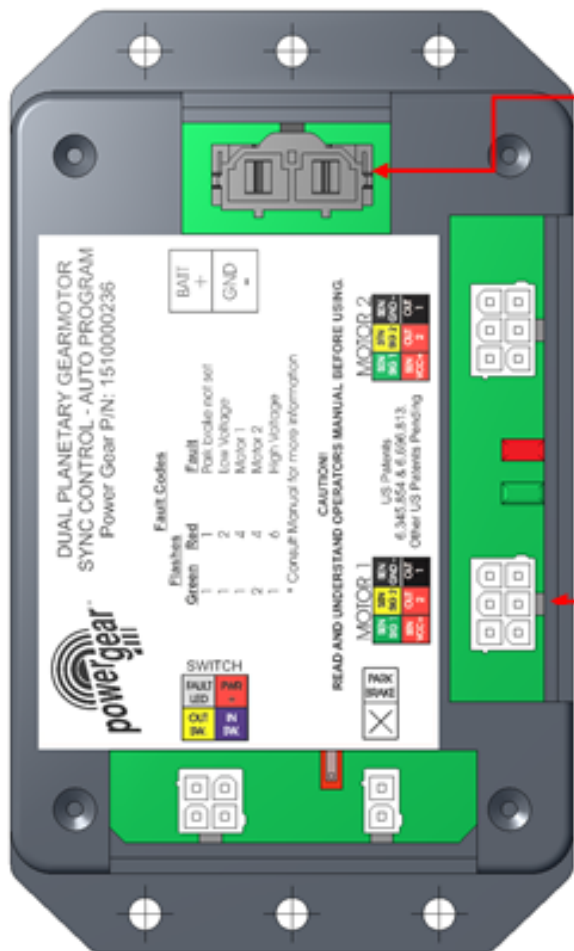


Fig. 18 - Wiring Information for Control Box 151000236



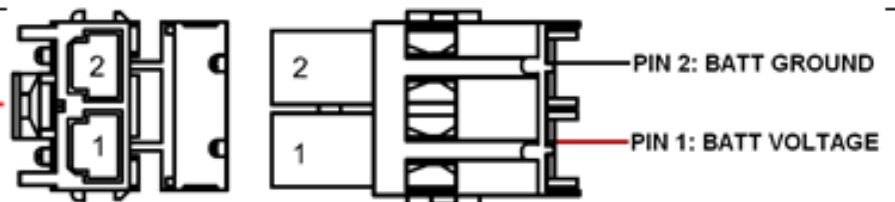
1510000238-XX Rocker Switch Harness



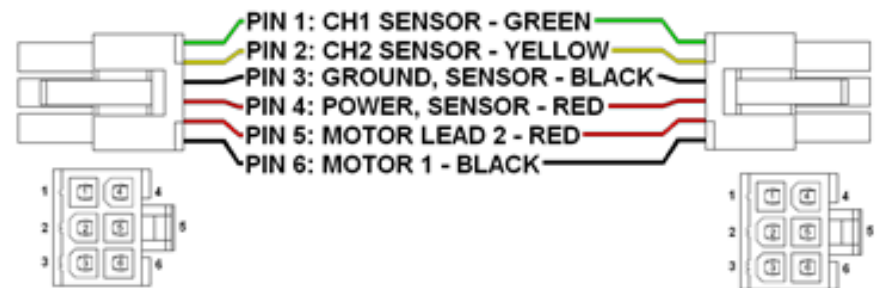
Control Box 151000236



Park Brake Harness 1510000237-XX



1510000233 Power Harness

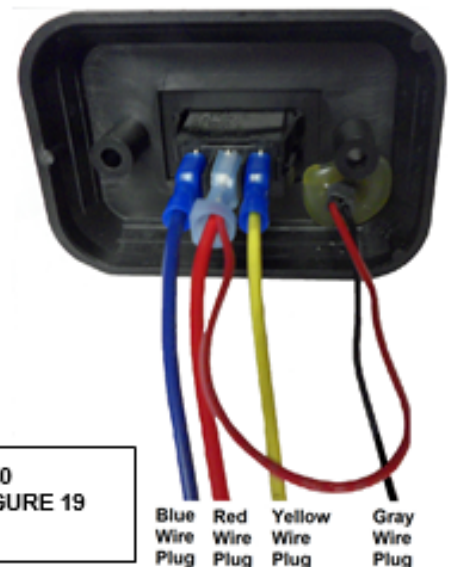


1510000194 control to motor harness



Rocker Switch 1510000240

Reference of pins 1, 2, 3 and 4 from FIGURE 19 above.



Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



by



LIPPERT
COMPONENTS™

The contents of this manual are proprietary and copyright protected by Lippert Components, Inc. ("LCI"). LCI prohibits the copying or dissemination of portions of this manual unless prior written consent from an authorized LCI representative has been provided. Any unauthorized use shall void any applicable warranty. The information contained in this manual is subject to change without notice and at the sole discretion of LCI.

Revised editions are available for free download from www.lci1.com.

Please recycle all obsolete materials.

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

Ph: (574) 537-8900 | Web: lci1.com | Email: customerservice@lci1.com