

SLIDE-OUTS

Purpose

This document describes testing the operation of the controller and motor encoders for a slide-out system with Auto-Program controller part numbers Power Gear 1510000236 / LCI [366701](#) (Fig. 1) and Power Gear 1510000276 / LCI 366703 (Fig. 2). The encoders are located inside each motor and cannot be replaced without replacing the motor.

NOTE: The following information was obtained from Power Gear document number 82-S0534 (Encoder Test 1), Rev 0C effective July 2014 and Power Gear document number 82-S0535 (Encoder Test 2), Rev 0B effective July 2014 and updated to current practices.

NOTE: Controller part number Power Gear 1510000236 / LCI [366701](#) uses a 6-pin connector on Motor 2 (Fig. 1A). Controller part number Power Gear 1510000276 / LCI 366703 is used on Winnebago units and has an 8-pin connector on Motor 2 (Fig. 2A).

If the slide-out system can be operated in manual override mode and move at least 12" of travel, perform **Encoder Test 1** described in Section 1. In this test, the system can be tested while still installed on the slide-out.

If the slide-out system cannot be operated in manual override mode or if the room will not move at least 12" of travel, perform **Encoder Test 2** described in Section 2. In this test, the motor **MUST** be removed to test the encoder.

Fig. 1

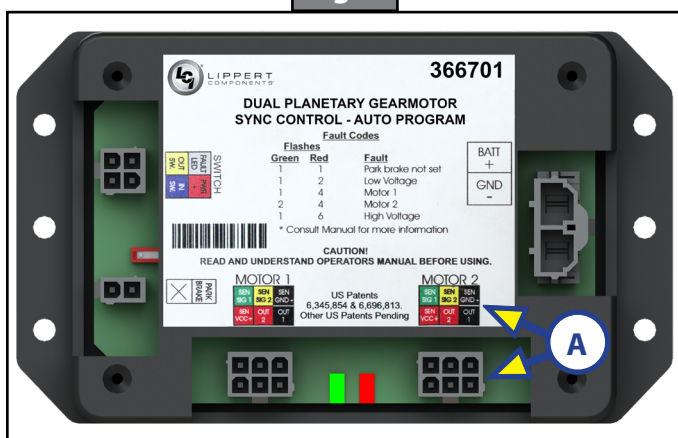
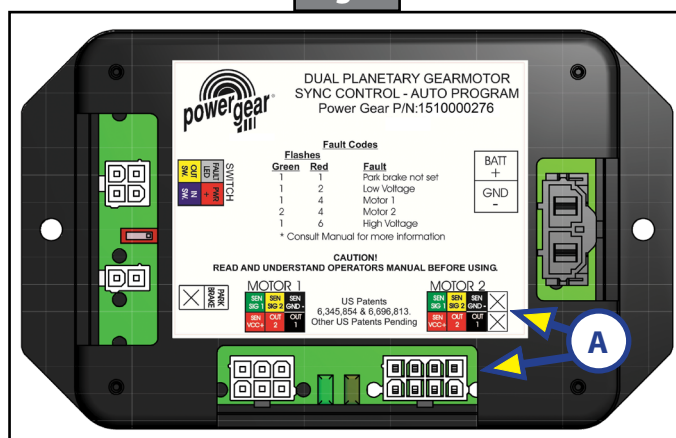


Fig. 2



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Safety

⚠ 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-out gear racks when room is being operated. The gear rack assembly may pinch or catch on loose clothing.

⚠ WARNING

A 12 volt automotive battery contains sulfuric acid which can cause severe burns. Avoid contact with the skin, eyes and clothing. A 12 volt automotive battery produces hydrogen gas, which is explosive. Keep cigarettes, open flames and sparks away from the battery at all times.

⚠ CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

⚠ CAUTION

Damage to the room can occur during over travel of the slide-out gear racks. Do not allow gear racks to become too far out of sync with each other. This will cause the room to bind and may cause damage to the slide-out gear rack assembly.

⚠ CAUTION

If the room is moved while the encoder is unplugged, the room stops must be reset. Consult the installation and service manual for the proper procedure.

Section 1 - Encoder Test 1

If the slide-out room will operate with the wall switch in manual override mode, perform **Encoder Test 1**.

Required Resources

- Multimeter
- 12V DC power source

Preparation

The controller has the ability to detect and display several faults. When a fault is detected, the room movement may stop and two different LEDs on the controller will flash in a pattern (Fault Code). The red LED flashes to indicate a specific type of fault. The green LED flashes to identify which motor has the fault.

1. Write down the number of flashes indicated by the red and green controller LEDs for reference later.

NOTE: Once the room is forced to move, the error code will be cleared. Writing down the code allows monitoring to see if the original code changes to a different code. If the code changes after performing the encoder tests, additional troubleshooting can be performed.

2. Press the wall switch to move the slide-out room in or out for 12" of travel or more.

NOTE: If the room will **NOT** operate in manual override mode or if the room will not move 12" of travel, perform **Encoder Test 2** described in Section 2.

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Instructions

NOTE: Read, understand and follow all instructions in this document before beginning this procedure.

Perform **Encoder Test 1** only if the slide-out room can be moved at least 12" of travel in manual override mode.

NOTE: Reference SlimRack® Slide-out Installation and Service Manual [3010002813](https://www.lci1.com/slide-outs-/support-slimrack). To locate this document online, go to <https://www.lci1.com/slide-outs-/support-slimrack>. Go to the Manuals tab. Look for the document in the listing.

All harnesses **MUST** stay plugged in during this test.

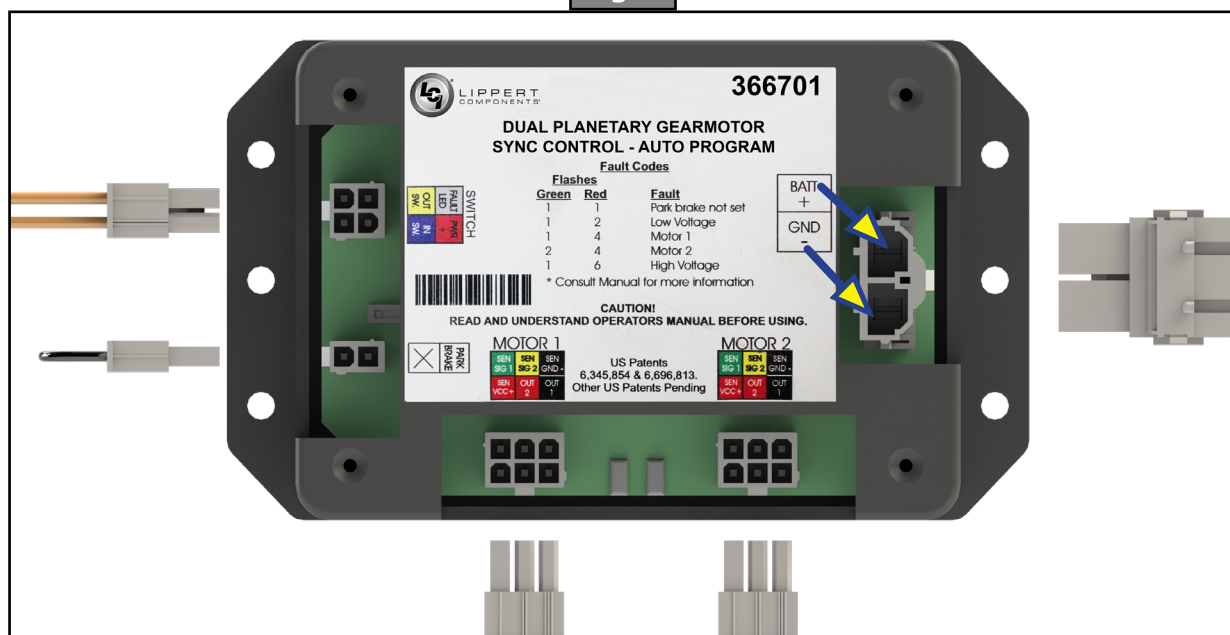
1. Verify the incoming voltage and ground to the controller. The slide-out controller main power connector needs a minimum of 12V DC and a good ground to operate correctly.

NOTE: This requires the unit's engine to be running or plugged into shore power.

- A. To test the controller, use a multimeter to back probe the power connector.
- B. Check for a minimum of 12V DC at the main power connection. Probe between the "BATT+" and "GND-" (Fig. 3).

NOTE: If there is no power or ground or if there is less than 12V DC measured between the pins, contact the OEM for the power and ground sources.

Fig. 3

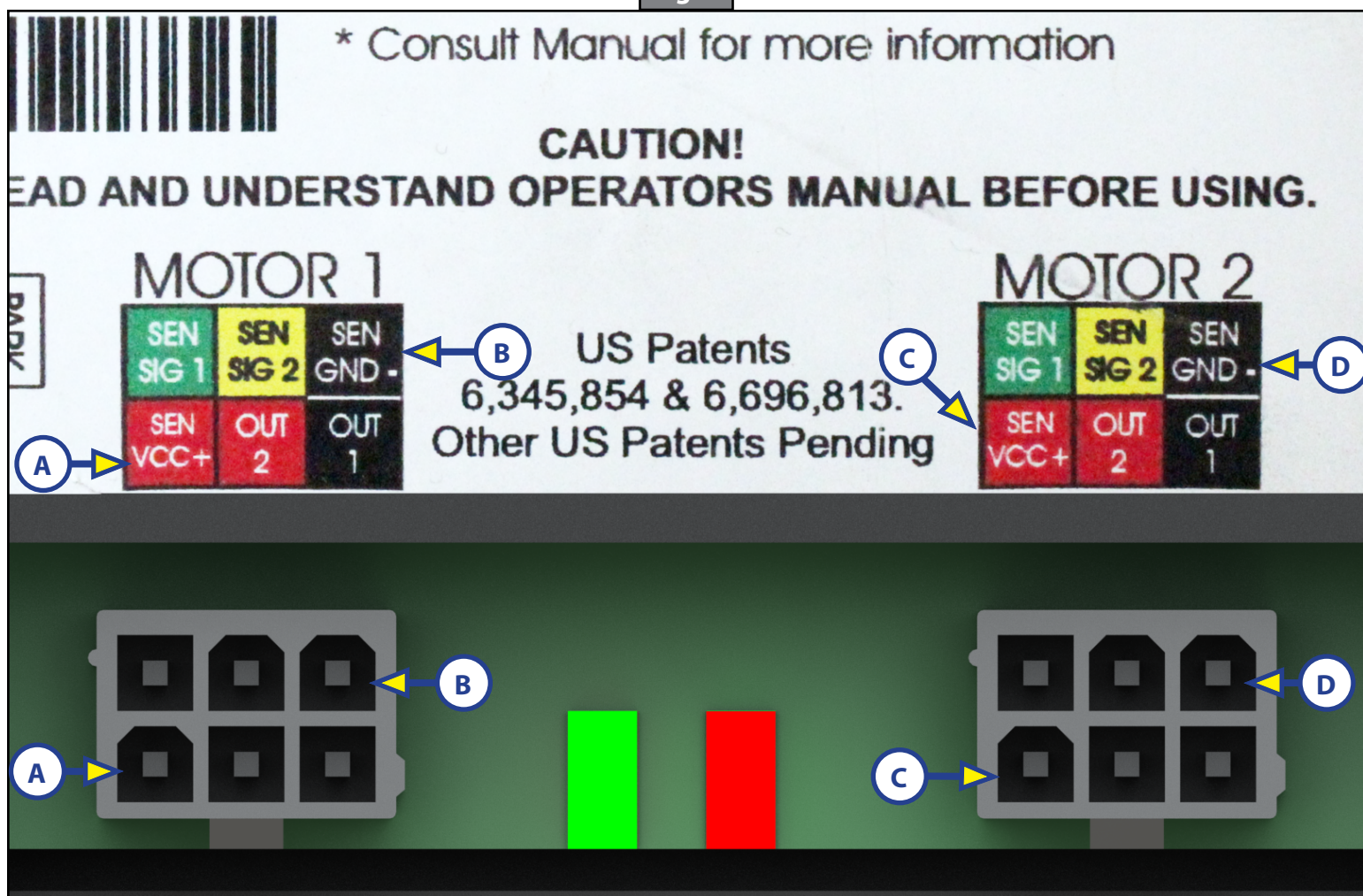


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All harnesses **MUST** stay plugged in during this test.

2. Verify that the controller is sending power and ground to the encoder.
 - A. Set multimeter to DC volts, and back probe at the "MOTOR 1" and "MOTOR 2" connectors.
 - I. To test MOTOR 1 encoder, probe between "SEN VCC+" (power) (Fig. 4A) and "SEN GND-" (ground) (Fig. 4B) at MOTOR 1 connector.
 - II. To test MOTOR 2 encoder, probe between "SEN VCC+" (power) (Fig. 4C) and "SEN GND-" (ground) (Fig. 4D) at MOTOR 2 connector.
 - B. Voltage should read 10-12V DC.

Fig. 4

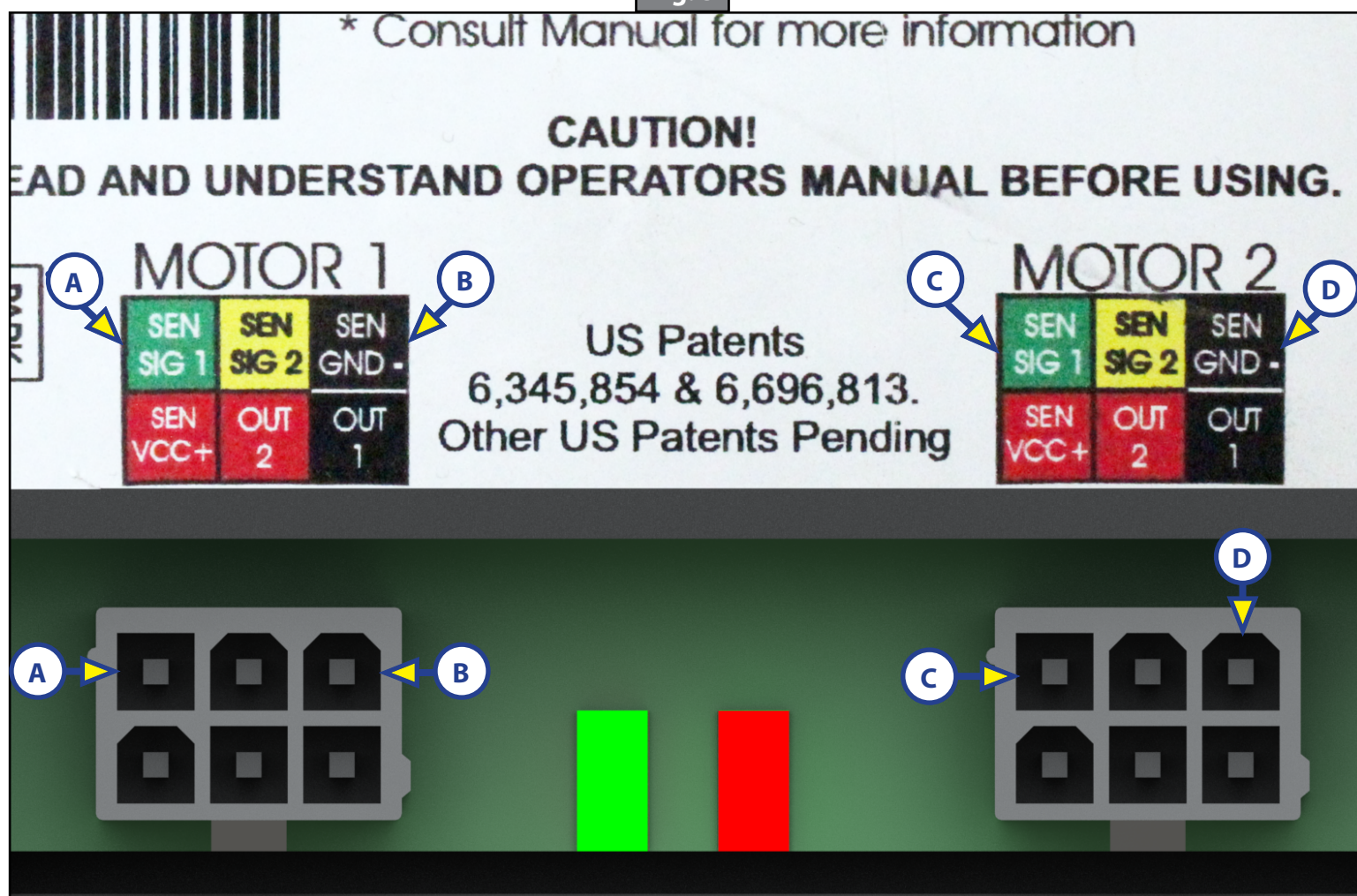


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All harnesses **MUST** stay plugged in during this test.

3. Check the first encoder signal (SEN SEG 1) (Fig. 5). There are two signal wires per encoder.
 - A. Set multimeter to AC volts.
 - B. While the room is moving, back probe at the controller sensor connection.
 - I. For the MOTOR 1 encoder, probe between the "SEN SIG 1" (Fig. 5A) and "SEN GND-" (Fig. 5B) at MOTOR 1 connector.
 - II. For the MOTOR 2 encoder, probe between the "SEN SIG 1" (Fig. 5C) and "SEN GND-" (Fig. 5D) at MOTOR 2 connector. This should be a steady AC signal.
 - C. If there is a steady AC voltage, proceed to step 6.

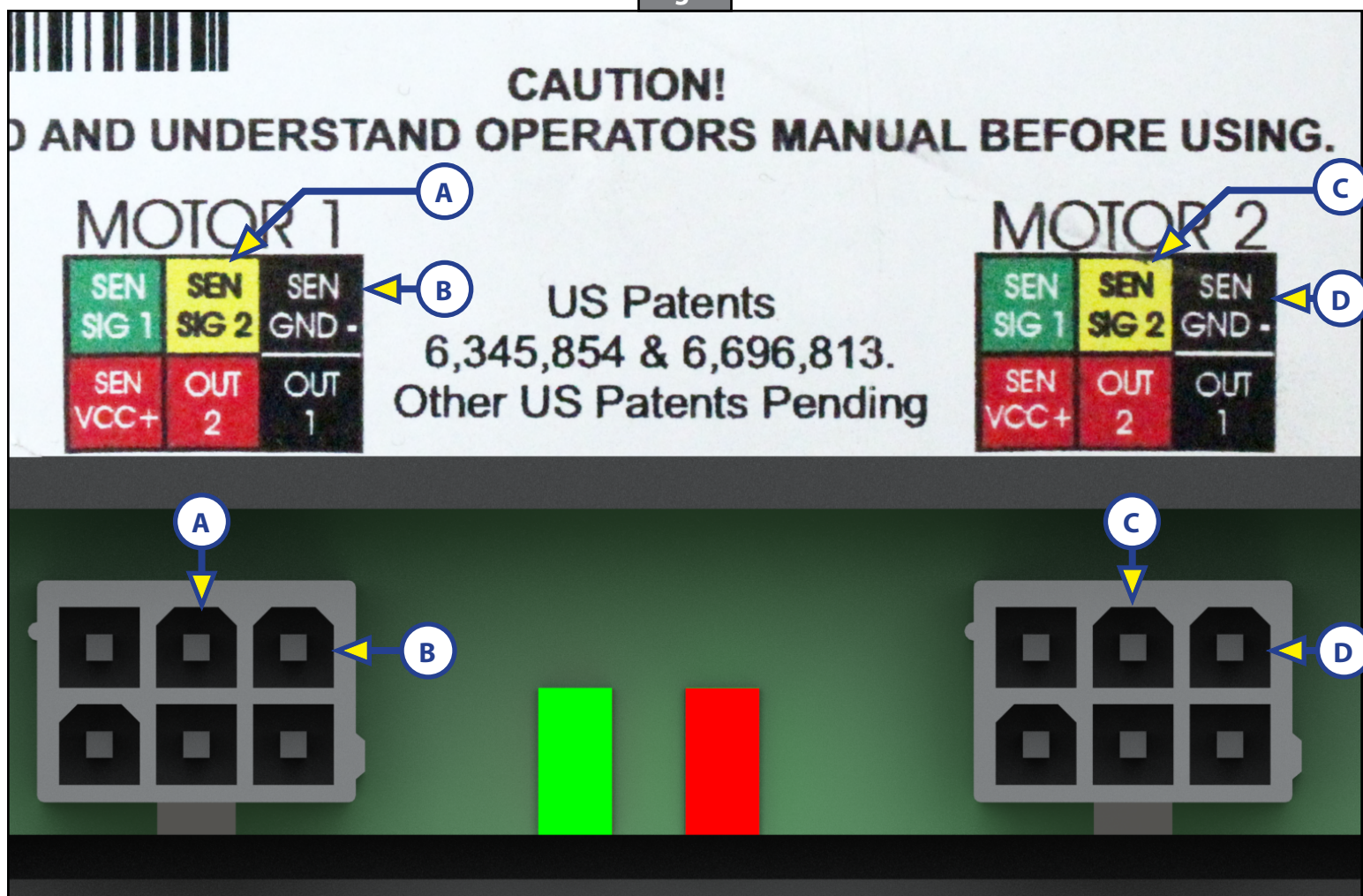
Fig. 5



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4. Check the second encoder signal (SEN SEG 2) (Fig. 6).
 - A. Set multimeter to AC volts.
 - B. While the room is moving, back probe at the controller sensor connection.
 - I. For MOTOR 1 encoder, probe between the "SEN SIG 2" (Fig. 6A) and "SEN GND-" (Fig. 6B) at MOTOR 1 connector.
 - II. For MOTOR 2 encoder, probe between the "SEN SIG 2" (Fig. 6C) and "SEN GND-" (Fig. 5D) at MOTOR 2 connector. This should be a steady AC signal.
 - C. If there is a steady AC voltage, proceed to step 6.

Fig. 6





SLIMRACK® DUAL PLANETARY GEAR MOTOR SYNC ENCODER TESTS (82-S0534 & 82-S0535)

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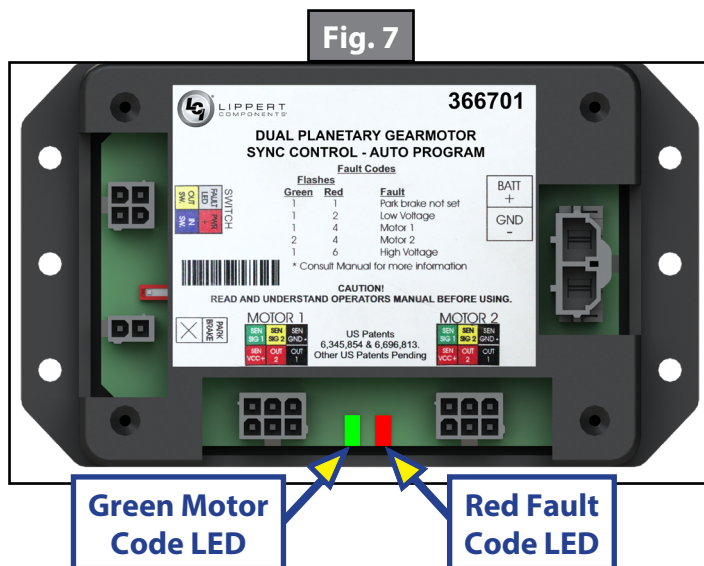
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5. Check the harness continuity and all connections.
 - A. If there is no voltage reading from the encoder or if the AC voltage reading was **NOT** steady, check the following:
 - I. Check the continuity of the harness between the controller encoder pins and the motor encoder pins.
 - a. If the harness does not have continuity, then replace the bad wire or the harness.
 - b. The harness can also be checked from pin-to-pin for continuity, and from each pin-to-ground. There should not be continuity to ground, or pin-to-pin.
 - II. Check the connections at the motor and controller.
 - III. Repair any loose connections or loose pins.
 - B. If the continuity of all the harness wires tests good, and connections are good, then replace the motor assembly. See the motor label for the Power Gear / LCI part number for replacement.
6. If the tests in steps 3 and 4 show a steady AC voltage at the controller sensor connection, contact Lippert Components at www.lci1.com/support or call Customer Service at 574-537-8900 for further diagnostic assistance.

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Troubleshooting

For additional troubleshooting information, refer to figure 7, the following Fault Code table and the SlimRack® Slide-out Installation and Service Manual [3010002813](https://www.lci1.com/slide-outs-/support-slimrack). To locate this document online, go to <https://www.lci1.com/slide-outs-/support-slimrack>. Go to the Manuals tab. Look for the document in the listing.



Fault Code Table - Auto Programmable Controllers					
Fault Code Flashes		Fault Type	Description	Why?	What Should Be Done?
Green (Motor)	Red (Fault)				
1	1	Minor	Park Brake Not Set	Parking brake is not set (if applicable).	Set parking brake (if applicable).
				Ground signal lost at park brake receptacle at controller.	Check for continuity to ground on wire plugged into park brake receptacle at controller.
1	2	Minor	Low Voltage	Incoming voltage to controller is below 12V DC. The slide-out will NOT move if voltage is 10.5V DC or below.	Start vehicle, generator, or make sure unit is plugged into shore power. Check 2-pin power connector at controller at BATT + and GND –. Consult manufacturer of unit's charging system for troubleshooting assistance.
1	4	Major	Motor 1 Fault	Bad wire connection. Bad motor.	Refer to Troubleshooting Control Box 1510000236 or 1510000276 For In-Wall Slim Rack Systems, 82-S0533 . To obtain this information online, go to https://www.lci1.com/slide-outs-/support-slimrack . Go to the Technical Information Sheets tab. Look for the document in the listing.
2	4	Major	Motor 2 Fault	Bad wire connection. Bad motor.	
1	6	Minor	High Voltage	Supply voltage to controller is 17V DC or greater.	

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Section 2 - Encoder Test 2

If the slide-out room will **NOT** operate with the wall switch in manual override mode or if the room will not move 12" of travel, perform **Encoder Test 2**. In this test, the motor **MUST** be removed to test the encoder.

If the slide-out room will operate with the wall switch in manual override mode, perform **Encoder Test 1** described in Section 1.

WARNING

A 12 volt automotive battery contains sulfuric acid which can cause severe burns. Avoid contact with the skin, eyes and clothing. A 12 volt automotive battery produces hydrogen gas, which is explosive. Keep cigarettes, open flames and sparks away from the battery at all times.

Required Resources

- 12V DC power source
- Pick tool
- 5/16" open-ended wrench or ratcheting box wrench
- Multimeter

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Instructions

Read, understand, and follow all instructions in this document before beginning this procedure.

NOTE: This test **MUST** also be performed when Motor Fault Code 2-4 (Green 2, Red 4) appears on either controller 1510000236 / [366701](#) or 1510000276 / 366703 for MOTOR 2.

NOTE: The controller will return to normal operation mode after five minutes of inactivity or by cycling power to the controller.

⚠ CAUTION

The motor shaft will turn when the motor is operating. Moving parts can pinch, crush or cut. Keep clear and use caution.

1. Remove the motor / encoder assembly from the system.

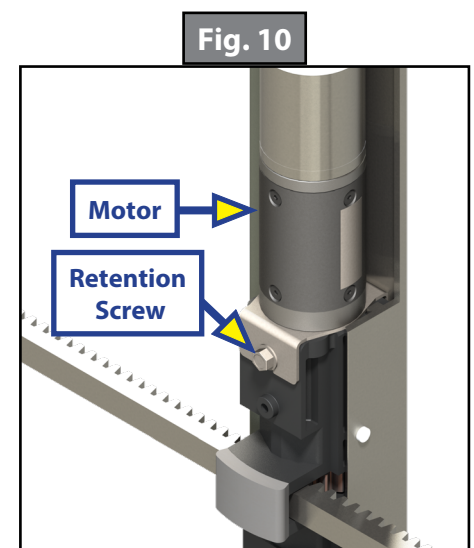
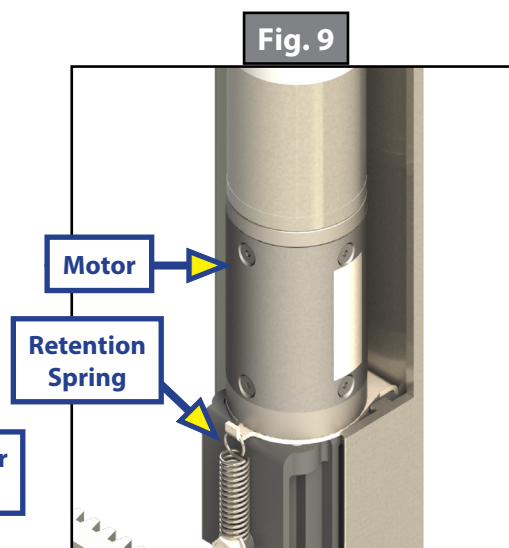
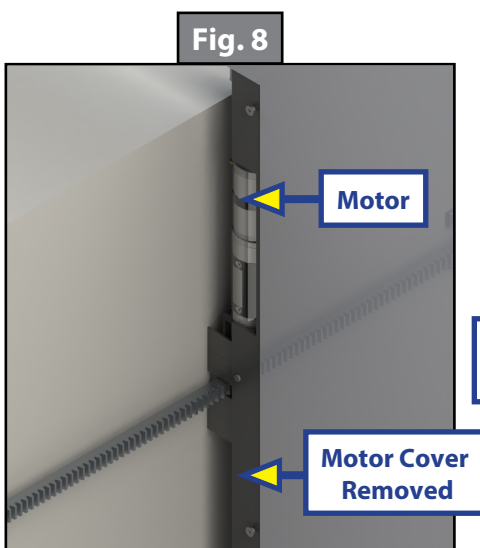
NOTE: Depending on the accessibility, it may be necessary to remove the interior motor cover or the exterior motor cover. The motor is located at the top of the column.

NOTE: For questions on supporting the room or accessing the gear rack assembly, contact the OEM.

- A. Gain access from either the inside or outside of the unit, whichever is more convenient, to the vertical channel assembly. The motors are currently located at the top of the channel (Fig. 8).
- B. If applicable, remove the top screw from the bulb seal at the top of the vertical channel.
- C. Carefully pull the bulb seal out and remove the motor cover. The motor cover may stick to the bulb seal.
- D. There are two methods of fastening. If there is a retention spring (Fig. 9), use a pick tool to remove the end of the retention spring from the motor spring clip. If not equipped with a retention spring, use a $\frac{5}{16}$ " open-ended wrench or ratcheting box wrench to loosen the retention screw (Fig. 10) from the block by turning $\frac{1}{2}$ - $\frac{3}{4}$ turn.

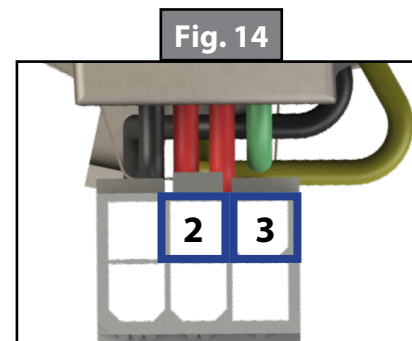
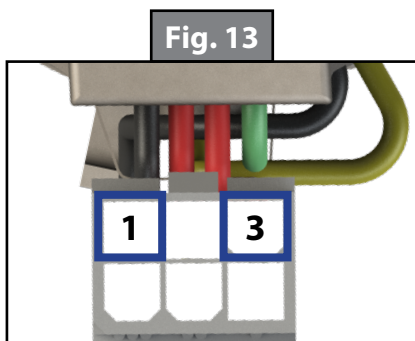
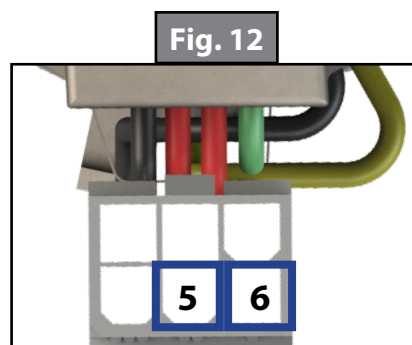
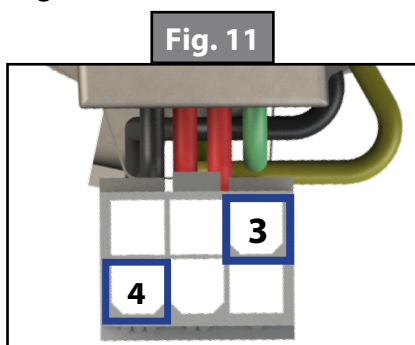
NOTE: Do not remove the retention screw.

- E. Unplug the motor from the electrical harness and remove the motor by lifting it up and out.
- F. Repeat steps A-E on the other side of the slide-out.



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2. Apply 12V DC and ground to the motor / encoder plug.
 - A. Using a fully charged 12V DC battery, apply 12V DC to the motor / encoder plug pin 4 (red thinner gauge wire) (Fig. 11).
 - B. Apply a good ground to the motor / encoder plug pin 3 (black thinner gauge wire) (Fig. 11). This will provide power to the encoder.
 - C. Using a multimeter, back probe between pin 4 and pin 3 at the motor / encoder plug (Fig. 11) to verify there is 12V DC and ground going to the encoder.
 - D. Apply 12V DC to the motor / encoder connector on the red wire, pin 5 (Fig. 12).
 - E. Apply a good ground to the motor / encoder connector on the black wire, pin 6 (Fig. 12). This will provide power to the motor.
3. Check for the encoder signal.
 - A. Using a multimeter set on AC volts, back probe between pin 3 and pin 1 at the encoder connector (Fig. 13).
 - B. Check for a steady AC voltage reading.
 - C. Using a multimeter set on AC volts, back probe between pin 3 and pin 2 at the encoder connector (Fig. 14).
 - D. Check for a steady AC voltage reading.
 - I. If there is a steady AC voltage, proceed to step 4.
 - II. If there is **NOT** a steady AC voltage reading, or there is no voltage reading, replace the motor assembly. See the motor label or the rail assembly label for the Power Gear / LCI part number for replacement.
4. If the test in step 3 showed a steady AC voltage at the encoder connector, contact Lippert Components contact Lippert Components at www.lci1.com/support or call Customer Service at 574-537-8900 for further diagnostic assistance.



As a supplier of components to the RV industry, safety, education and customer satisfaction are our primary concerns. Should you have any questions, please do not hesitate to contact us at (574) 537-8900 or by email at customerservice@lci1.com. Self-help tips, technical documents, product videos and a training class schedule are available at lci1.com or by downloading the MyLCI app.



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