



TM

**IN-WALL® SLIDE-OUT
(WINNEBAGO VERSION)
SERVICE MANUAL**

L I P P E R T
C O M P O N E N T S™

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System and Safety Information

Safety Information



Failure to act in accordance with the following may result in death, serious injury, coach or property damage.

The In-Wall® Slide-Out System is intended for the sole purpose of extending and retracting the slide-out room. Its function should not be used for any purpose or reason other than to actuate the slide-out room. To use the system for any reason other than what it is designed for may result in death, serious injury or damage to the coach.

Before actuating the system, please keep these things in mind:

1. Parking locations should be clear of obstructions that may cause damage when the slide-out room is actuated.
2. Be sure all persons are clear of the coach prior to the slide-out room actuation.
3. Keep hands and other body parts away from slide-out mechanisms during actuation.
4. To optimize slide-out actuation, park coach on solid and level ground.

Operation

Prior to Operation

1. Coach should be parked on the most level surface available.
2. Leveling or stabilizing system should be actuated to ensure coach will not move during operation of slide-out system.
3. Be sure to keep all persons and pets clear of slide-out system during operation.

NOTE: Install transit bars (if so equipped) on the slide-out room during storage and transportation.

⚠ CAUTION

Always make sure that the slide-out room path is clear of people and objects before and during operation of the slide-out. Always keep away from the gear racks when the room is being operated.

Extending Slide-Out Room

1. Level the coach.
2. Remove the transit bars (if so equipped).
3. Press and hold the IN/OUT switch (Fig. 1B) in the OUT position until the room is fully extended and stops moving.

NOTE: It is important to continue to press the slide-out switch for a few seconds after the room is fully extended until the motor shuts off. The control will sense that the room has stopped and will shut off the motor after a few seconds.

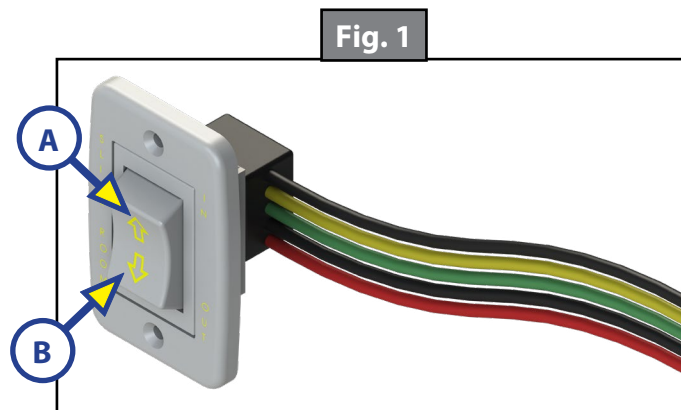
4. Release the switch, which will hold the room in its position.

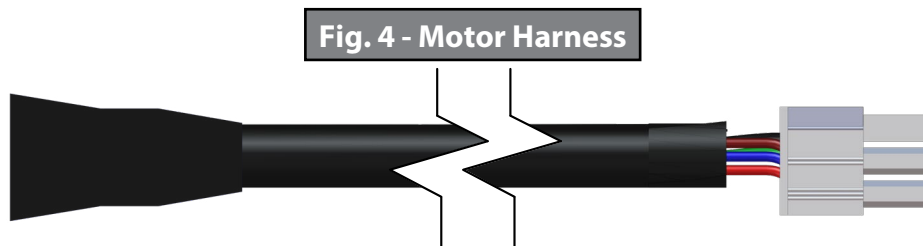
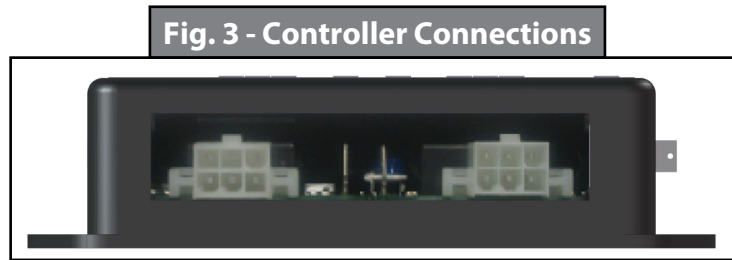
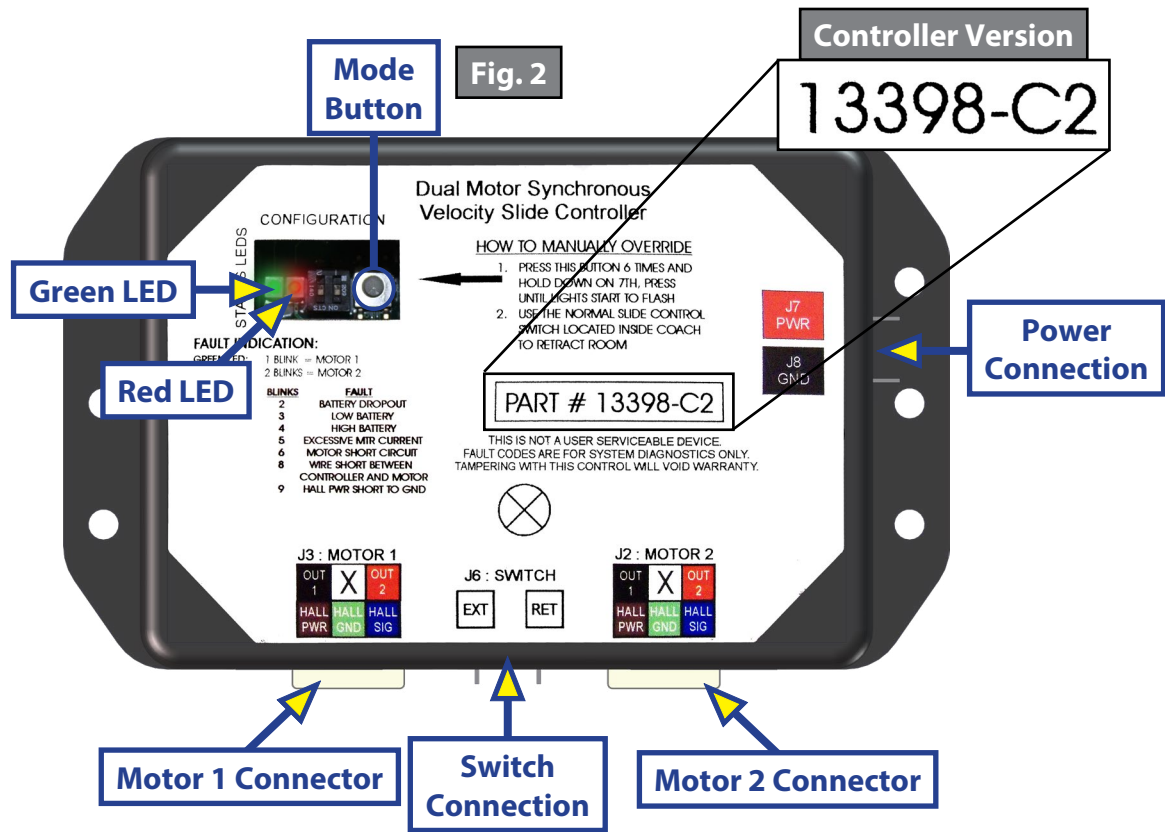
Retracting Slide-Out Room

1. Press and hold the IN/OUT switch (Fig. 1A) in the IN position until the room is fully retracted and stops moving.

NOTE: It is important to continue to press the slide-out switch for a few seconds after the room is fully retracted until the motor shuts off. The control will sense that the room has stopped and will shut off the motor after a few seconds.

2. Release the switch, which will hold the room in its position.
3. Install the transit bars (if so equipped).





Status LEDs: 2 LEDs, 1 green and 1 red, are provided to indicate current controller status and faults.

Mode Button: Used to engage the electronic manual override.

Power Connection: 12V DC input. Unit will operate from 8V DC to 18V DC.

Switch Connection: Spade connection for the switch wiring.

Motor 1 Connector: Power and encoder input for motor 1.

Motor 2 Connector: Power and encoder input for motor 2.

NOTE: Motor harnesses have Molex® connectors at the controller and a molded connector at the motor end (Figs. 3 and 4). Wire colors match with color codes on control board. From the inside of the coach, facing the slide room, the left hand side motor is Motor 1 and the right hand side motor is Motor 2.

Controller Overview (8 Amp Version)

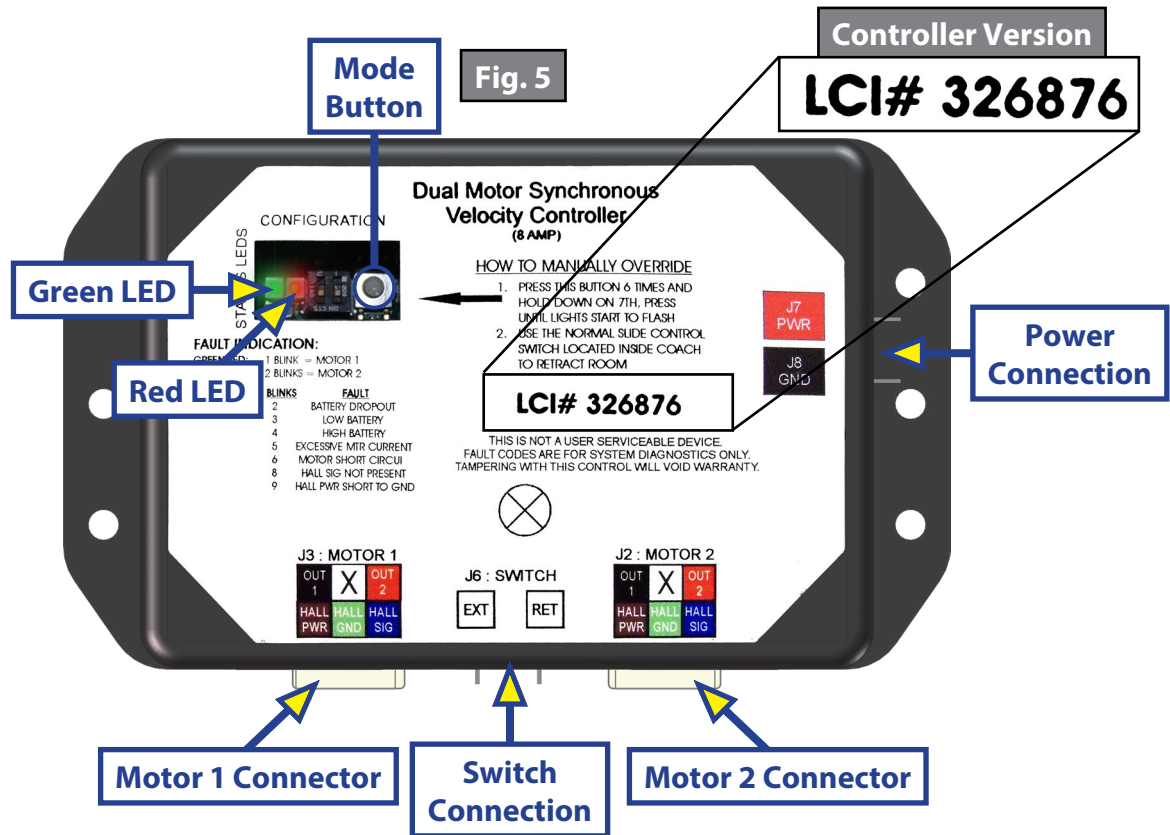


Fig. 6 - Controller Connections

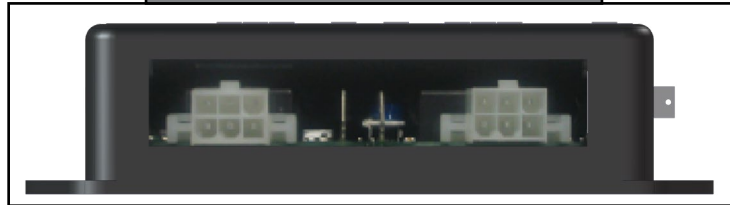
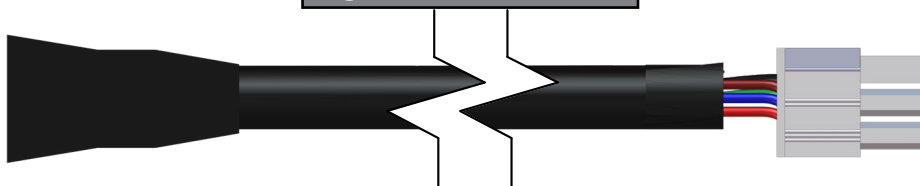


Fig. 7 - Motor Harness



Status LEDs: 2 LEDs, 1 green and 1 red, are provided to indicate current controller status and faults.

Mode Button: Used to engage the electronic manual override.

Power Connection: 12V DC input. Unit will operate from 8V DC to 18V DC.

Switch Connection: Spade connection for the switch wiring.

Motor 1 Connector: Power and encoder input for motor 1.

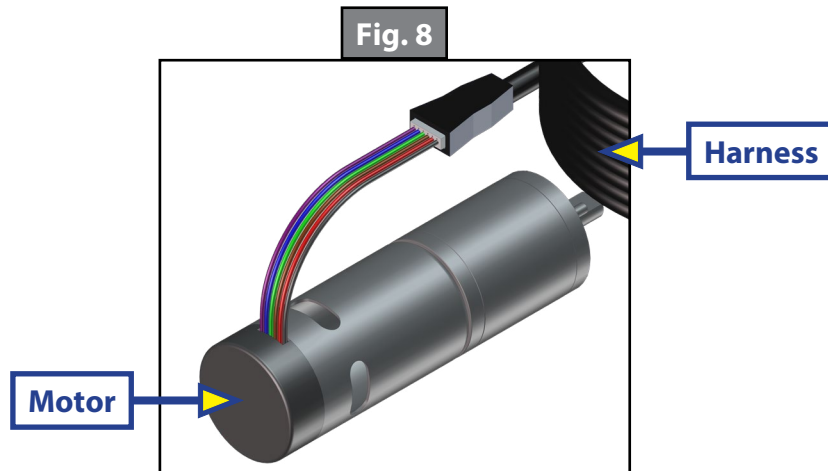
Motor 2 Connector: Power and encoder input for motor 2.

NOTE: Motor harnesses have Molex® connectors at the controller and a molded connector at the motor end (Figs. 6 and 7). Wire colors match with color codes on control board. From the inside of the coach, facing the slide room, the left hand side motor is Motor 1 and the right hand side motor is Motor 2.

Motors and Harnesses

1. Check for proper connections between the motors and harnesses (Fig. 8).
2. Visually inspect the exposed harnesses to ensure they are not pinched or damaged.

NOTE: Ribs on motor connector line up with notch inside of male connector on wiring harness. Color codes on wires also match (black to black, red to red, etc.).



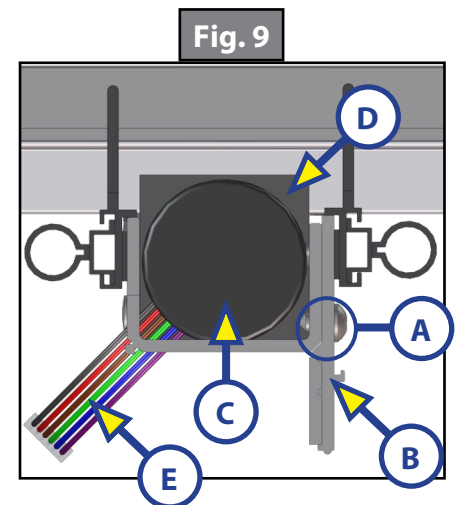
Resynchronizing the Slide-Out Motors

1. Fully extend the slide room using the switch. Keep the switch engaged until the motors shut down on their own.
2. Retract the room 1-2 inches.
3. Repeat steps 1 and 2 until both motors shut down at the same time. In many cases, two or three repetitions are necessary to re-sync the system.
4. Fully extend and then retract the room.

NOTE: Always let the motors shut down on their own before releasing the switch.

Motor Disengagement Procedure

1. Gently pull back the screw cover.
2. Remove both rows of screws (Fig. 9A) securing the clamp strap (Fig. 9B).
3. Remove the clamp strap from the side wall and slide it away from the side wall to reveal the motor (Fig. 9C).
4. Push the motor upwards removing it from the bearing block (Fig. 9D), being sure to unplug the wire harness (Fig. 9E).



Extend and Retract Switch Connections

Common connection on controller (Figs. 2 and 5 - Switch Connection) goes to common connection on extend and retract switch. Extend and retract connections on the controller go to the extend and retract terminals on the switch. Switch is powered by the OEM supplied 12V DC power source.

Power and Ground Connections at the Controller

Power and ground are supplied to the controller through the spade terminals located on the right-hand side of the controller (Figs. 2 and 5 - Power Connection). 12V DC is recommended. A 10ga wire is the minimum size recommended.

Visual Inspections

Measurements

- A. The distance from the clamp strap to the room itself should be 84mm with a tolerance of +3mm/-1.5mm or 85mm (+3mm/-1.5mm) from the screw cover to the room itself.
- B. The distance from the bottom of the room to the bottom wiper seal should be 45mm with a tolerance of +/- 3mm.

Fig. 10 - Gear Rack Measurements

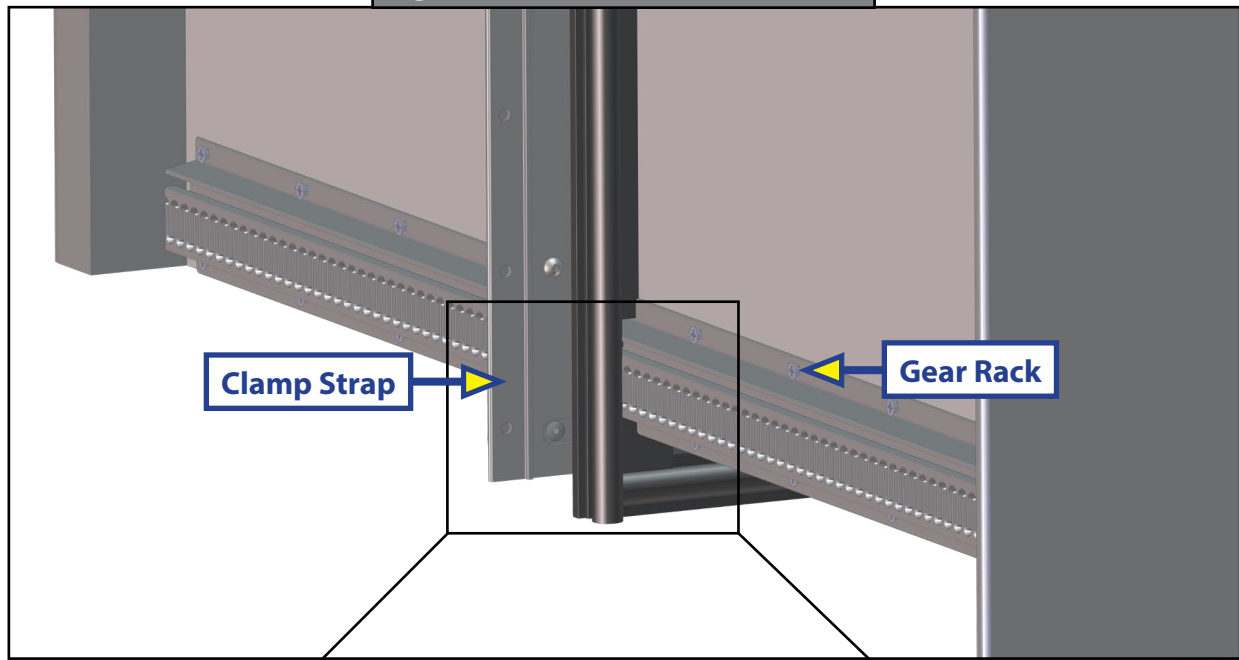
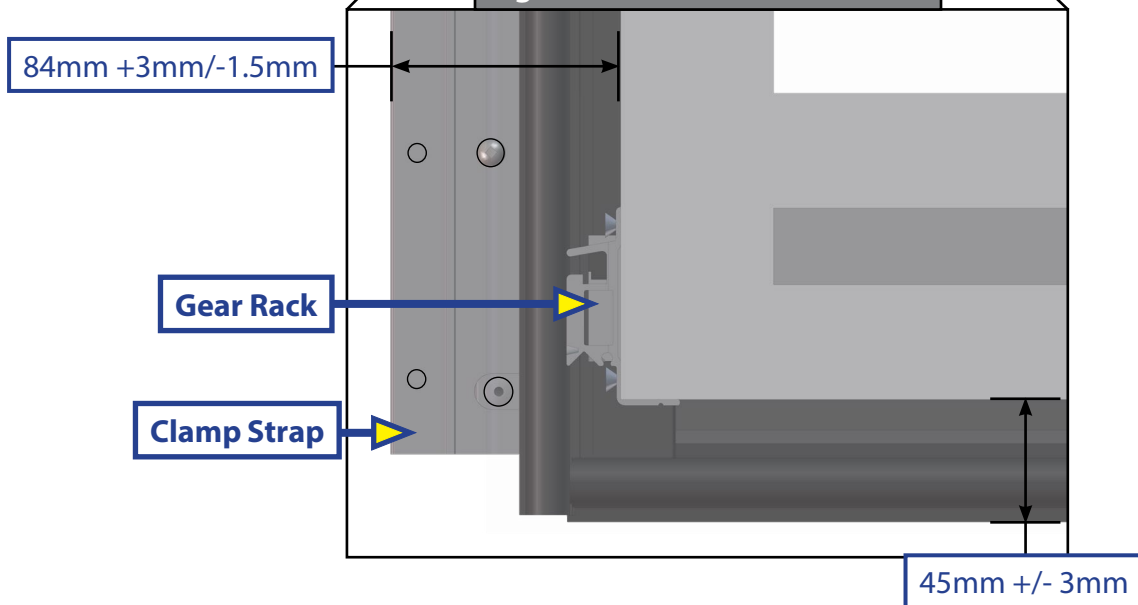
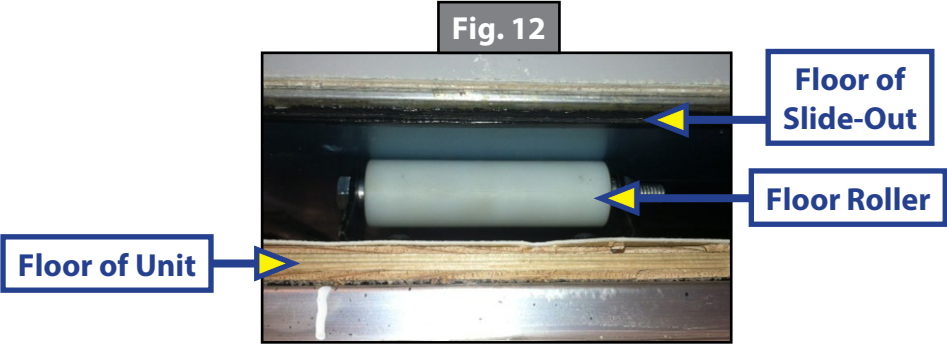


Fig. 11 - Column and Gear Rack



Floor Rollers

- 1. Check that the seals are not getting caught in the rollers, which could cause binding to the slide-out.
- 2. Check for proper roller engagement (Fig. 12):
 - A. Rollers should not be digging into the floor of the slide-out.
 - B. Rollers should not spin freely beneath slide-out.



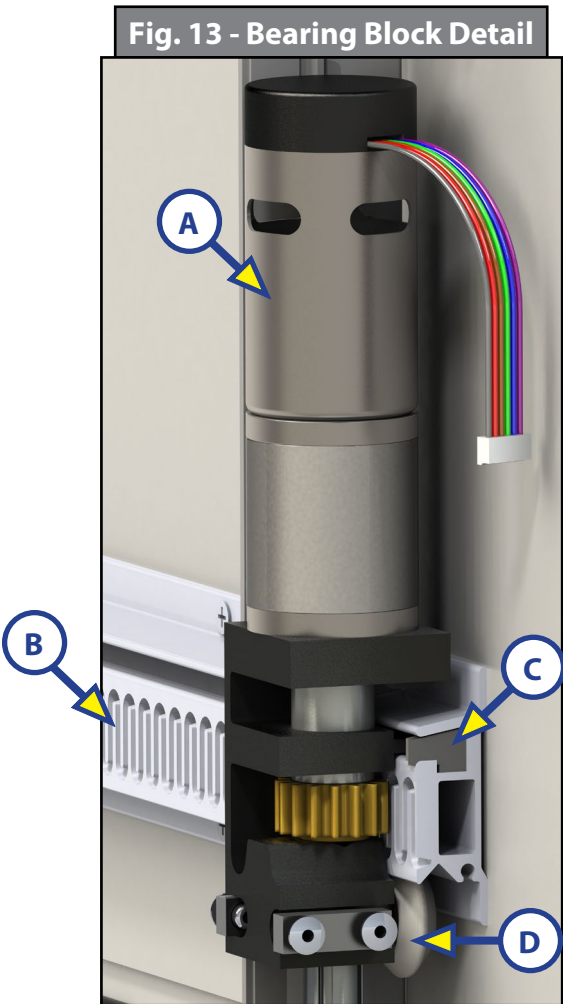
Gear Racks

- 1. Check to make sure the screws in the gear racks are secured flush and not getting caught in the seals (Fig. 13B).
- 2. Gear racks must be parallel.

NOTE: Measure the space between the upper and lower gear racks at each end of the gear racks. The difference between the measurements **MUST** not be greater than 3mm.

V-Rollers

- 1. Visually inspect V-roller (Fig. 13D) for obstructions or damage.



Callout	Description
A	Motor
B	Gear Rack
C	Shoe
D	V-Roller

Troubleshooting

Checking Circuit Breakers

The In-Wall® Slide-Out requires a minimum of a 30-amp circuit breaker. Check the 12-volt circuit breaker box for blown circuit breakers, and replace any if necessary. Consult the RV manufacturer's documentation for the location of the 12-volt circuit breaker box, and the location of the In-Wall® Slide-Out controller's circuit breaker. If the circuit breaker blows immediately upon replacement, there is a problem with the wiring to the In-Wall® Slide-Out controller. Have qualified service personnel check and repair.

Obstructions

Check outside the RV for possible obstructions: tree, post, car, etc. Check inside the RV for any obstructions: luggage, furniture, open cabinets, etc. Also, check for smaller objects that may be wedged under the floor or in the sides of unit. Remove obstructions before proceeding.

Error Codes

During operation when an error occurs, the board will use the LEDs to indicate where the problem exists (Fig. 14). For motor-specific faults the green LED will blink 1 time for motor 1, and 2 times for motor 2. The red LED will blink from 2 to 9 times depending on the error code (Fig. 15). When an error code is present, the board needs to be reset. Energizing the extend/retract switch resets the board. Energize the extend/retract switch again for normal operation.

Fig. 14

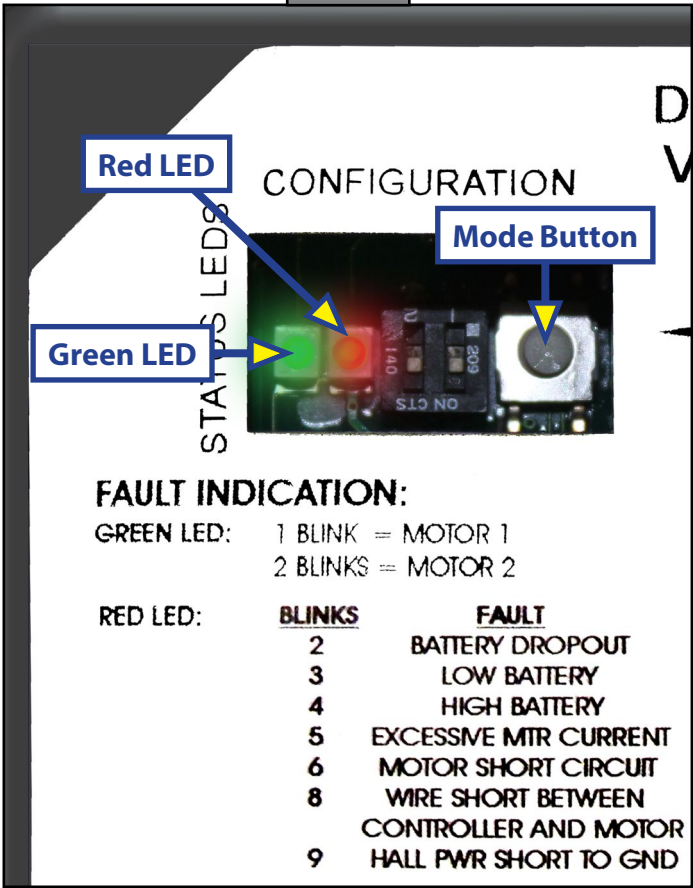
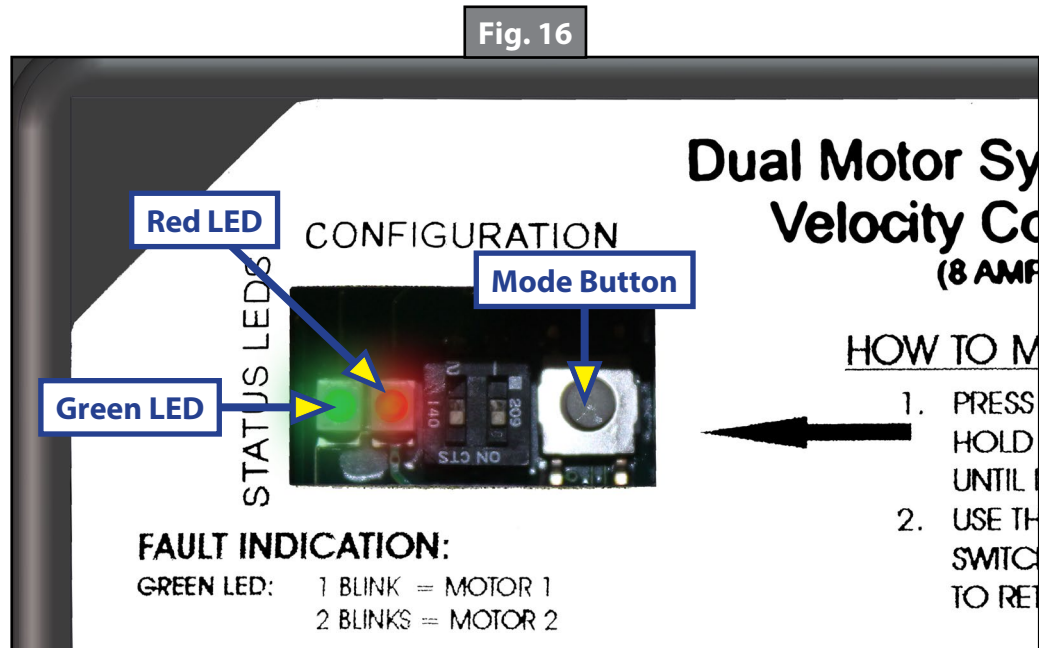


Fig. 15 - Error Code Descriptions

Error Code	Name	Description
2	Battery Drop Out	Battery capacity low enough to drop below 6 volts while running.
3	Low Battery	Voltage below 8 volts at start of cycle.
4	High Battery	Voltage greater than 18 volts.
5	Excessive Motor Current	High amperage, also indicated by 1 side of slide continually stalling.
6	Motor Short Circuit	Motor or wiring to motor has shorted out.
8	Wire Short Between Controller and Motor	Encoder is not providing a signal. This is usually a wiring problem.
9	Hall Power Short To Ground	Power to encoder has been shorted to ground. This is usually a wiring problem.

Manual Mode - Jog

1. Press mode button (Fig. 16) 2 times quickly, press a 3rd time and hold for approximately 5 seconds. The Green LED will flash on and off. Manual mode now active for motor #1. Using the extend and retract switch, motor 1 can be jogged manually.
2. Press the mode button 1 more time and the Green LED will flash on and off. Manual mode is now switched to motor #2. The extend and retract switch will now jog motor #2.
3. When both motors have been jogged to the desired position, exit manual mode by pressing and holding the mode button until both red and green LEDs start to flash. The controller is now back in auto mode.



Manual Override (Electronic)

In the event of any fault code, (except fault code 6) the unit can be electronically overridden using these steps:

1. Locate the circuit board.
2. Press the "mode button" six times quickly, press a 7th time and hold for approximately 5 seconds.
3. The red and green LED lights will begin to flash indicating system is in override mode.
4. Using the wall switch, press and hold the "in" button until the unit comes completely in.

NOTE: During this override procedure the motors are not synchronized. Visually watch the room, if one side is moving significantly slower than the other (or not at all) then immediately stop and use the "Motor Disengagement Procedure" on Page 6.

Low Voltage

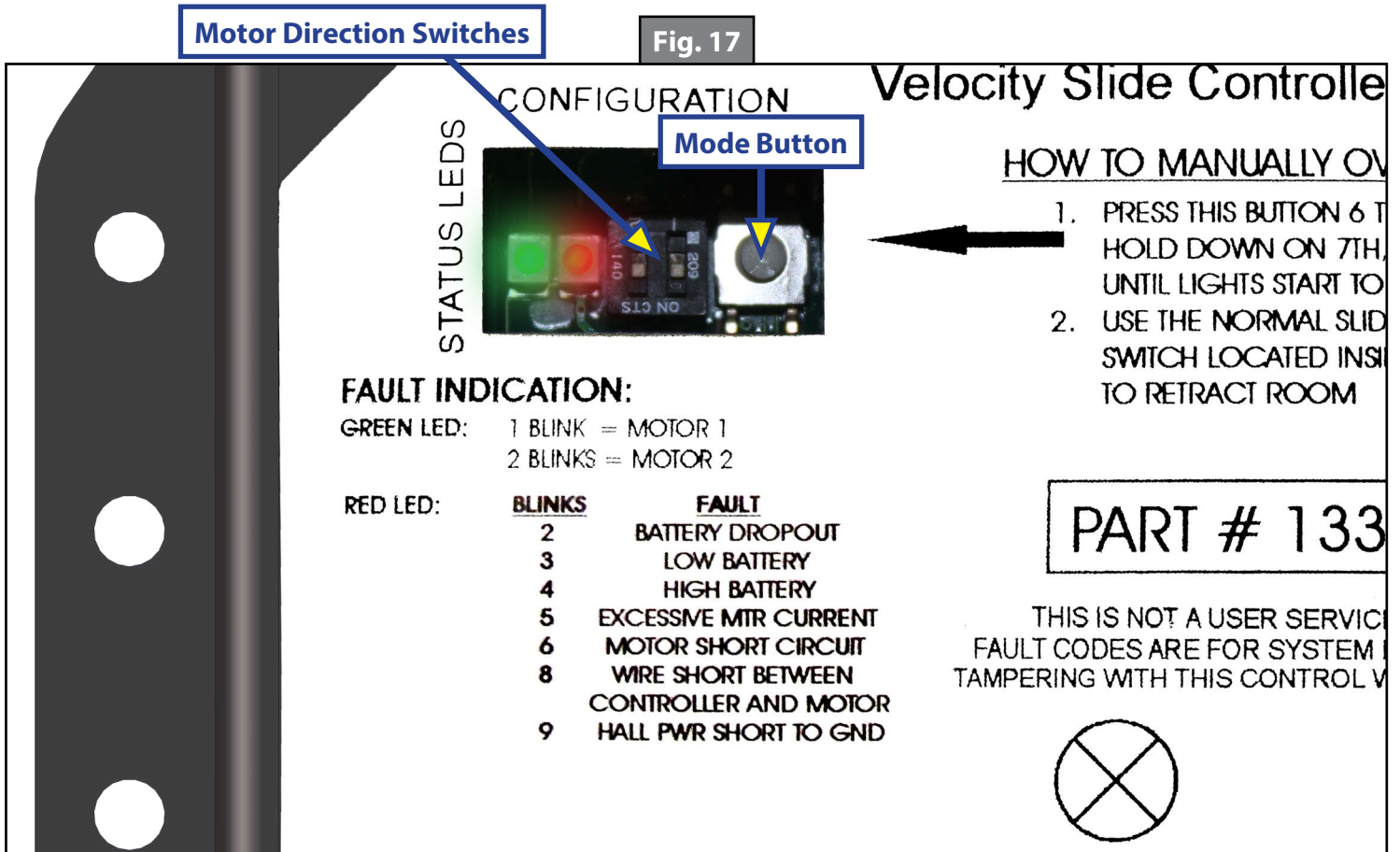
The Lippert In-Wall® Slide-Out Controller is capable of operating the room with as little as 8 volts. But at these lower voltages the amperage requirement is greater. Check voltage at the controller, see Figs. 2 and 5 for the location of power connections. If voltage is lower than 11 volts, it is recommended that the coach engine should be run to charge the battery. It may be possible to "jump" the RV's battery temporarily to extend or retract the room. Consult the RV manufacturer's owners manual.

NOTE: Always connect directly to the battery and never to the controller power connections.

Motor Direction Switches (Fig. 17)

Motor direction switches are used to change the direction of individual motors. If when trying to extend or retract the room, one side goes in and the other side goes out, then there is a problem in the wiring. The motor direction switches can be used to correct this problem. The left switch controls motor 2 and the right switch controls motor 1. If motor 1 is going in the wrong direction then change switch 1's position. If motor 2 is going in the wrong direction then change switch 2's position.

The motor direction switches can also be used to change the direction of the extend/retract switch. If the room extends when the extend/retract switch is moved to the retract position, its direction can be reversed by moving both switch 1 and switch 2 to their opposite positions. This feature can be used if it is more convenient to change the motor direction switches than to rewire the extend/retract switch.



Current Production Motor Retention Fastener

The motor retention fastener is a two piece system using the motor retention screw (Fig. 18A) and a "T"-nut (Fig. 18B) to securely hold the motor (Fig. 18C) in place. The "T"-nut slides into the oblong cutout in the motor so that the flat base of the "T"-nut is flush with the motor housing (Fig. 19). The motor is then put into position inside the column, making sure that the drive shaft is properly aligned with the coupler and the four set screw pins on the motor are properly aligned with the matching holes in the bearing block (Fig. 20). The motor retention screw is then driven through the pre-drilled hole in the clamp strap, and into the "T"-nut (Fig. 21). This system may be added to prior manufactured In-Wall® Slide-out systems. Remove the original screw from the trim. Drill out the hole to 3/16" diameter. Insert the "T"-nut and tighten screw.

Fig. 18

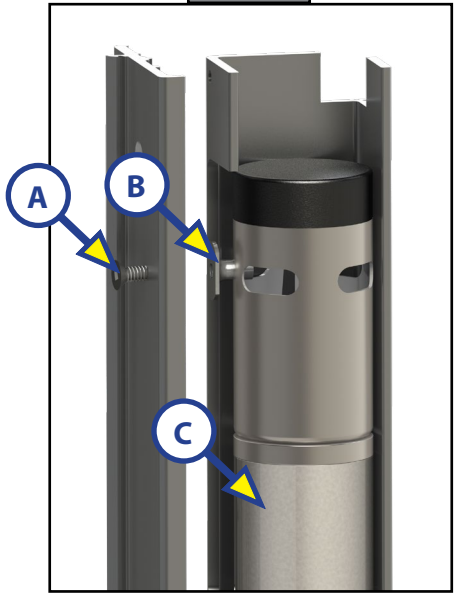


Fig. 19



Fig. 20

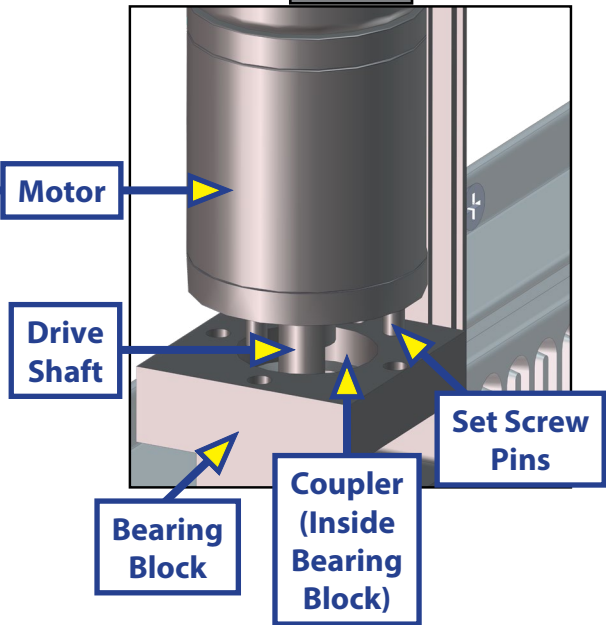
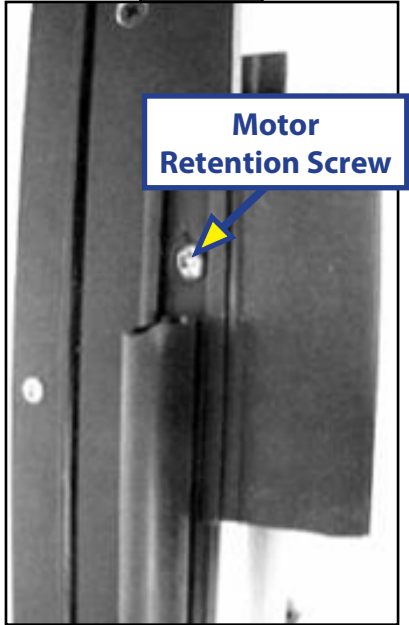
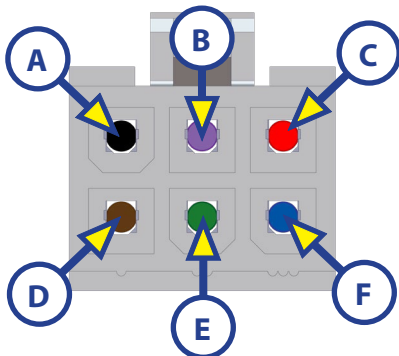
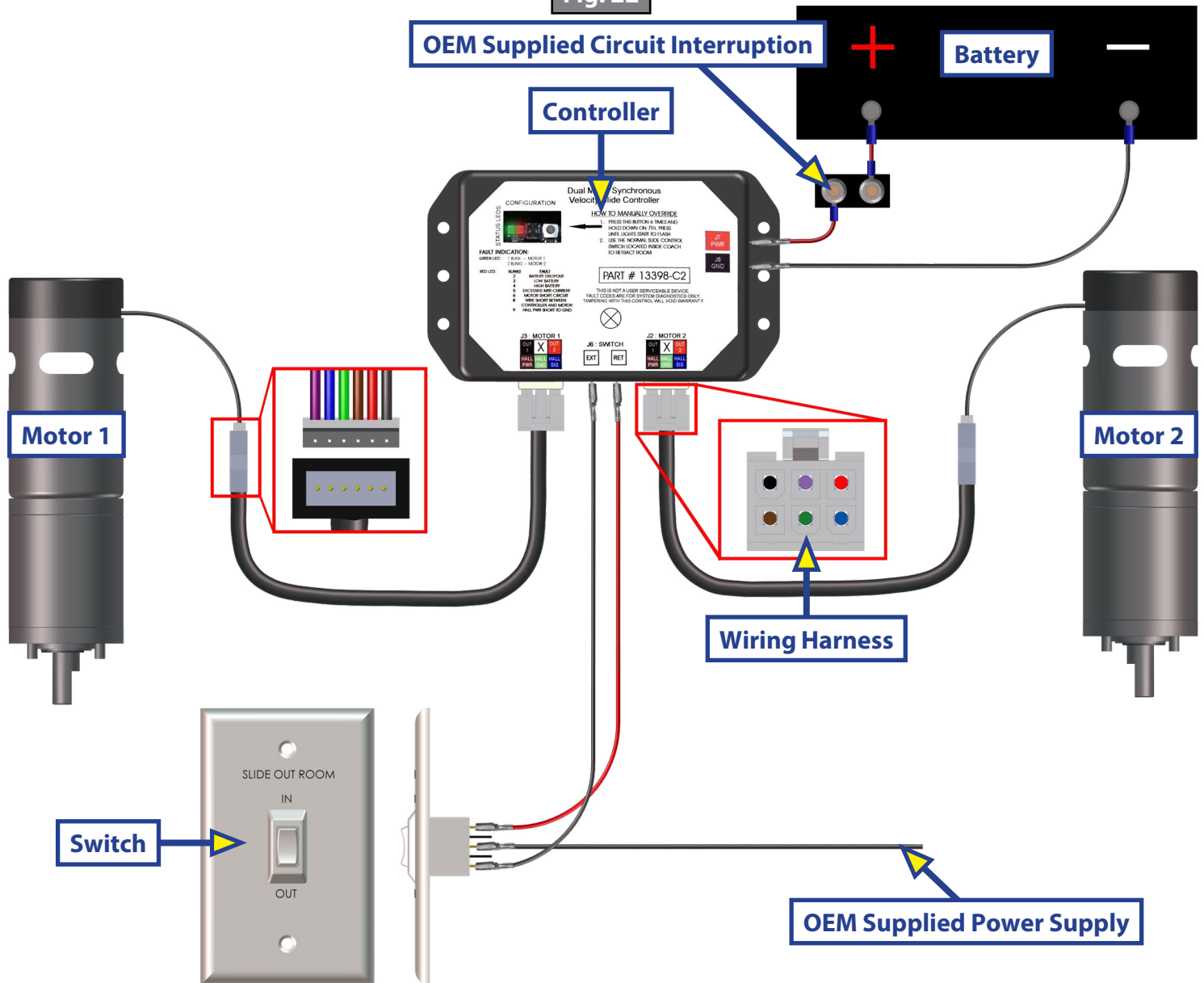


Fig. 21



Wiring Diagram

Fig. 22



Wiring Color Code Information

- A.** Black - Ground
- B.** Purple - Not Used
- C.** Red - Power
- D.** Brown - Hall Effect Power
- E.** Green - Hall Effect Ground
- F.** Blue - Hall Effect Communications



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