SERVICE MANUAL

Tuesday, September 13, 2016 9:12 AM



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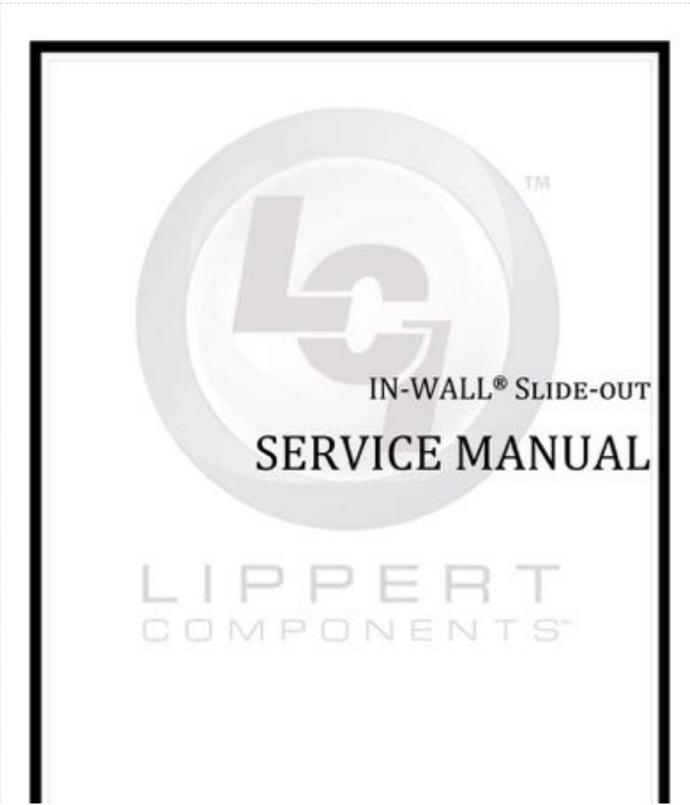


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Safety Information



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:

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

Operation

Prior to Operation

- Coach should be parked on the most level surface available.
- Leveling or stabilizing system should be actuated to ensure coach will not move during operation of slide-out system.

NOTE: In the case of a motorized unit, ignition MUST be off to operate the slide-out.

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.



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.

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Extending Slide-out Room

1. Level the unit.

NOTE: In the case of a motorized unit, ignition MUST be off to operate the slide-out.

- Remove the transit bars (if so equipped).
- Press and hold the IN/OUT switch (Fig. 18) 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.

Release the switch, which will lock the room into position.

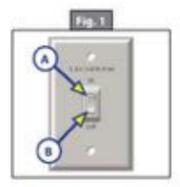
Retracting Slide-out Room

NOTE: In the case of a motorized unit, ignition MUST be off to operate the slide-out.

 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.

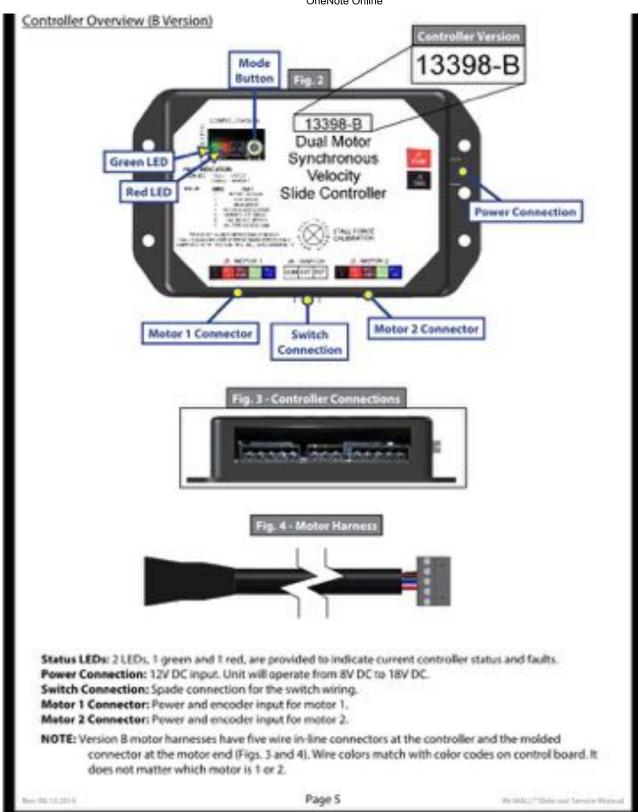
- 2. Release the switch, which will lock the room into position.
- Install the transit bars (if so equipped).

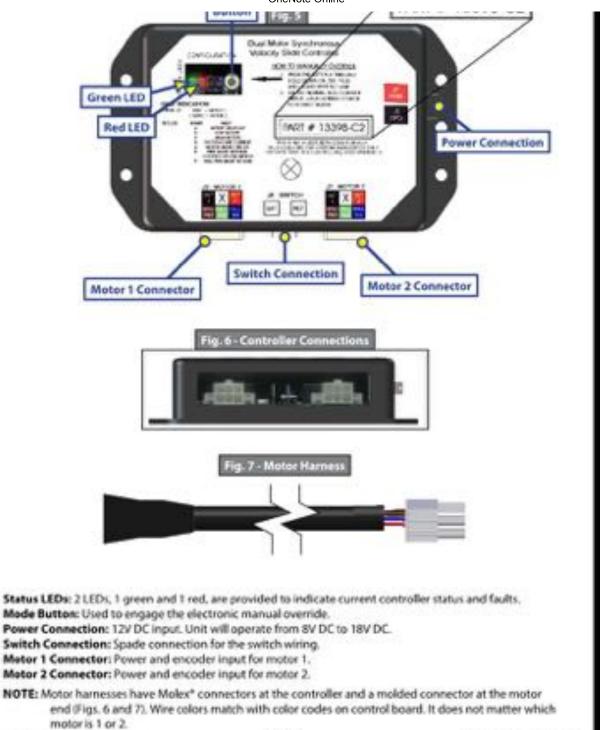


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Motor 1 Connector: Power and encoder input for motor 1. Motor 2 Connector: Power and encoder input for motor 2.

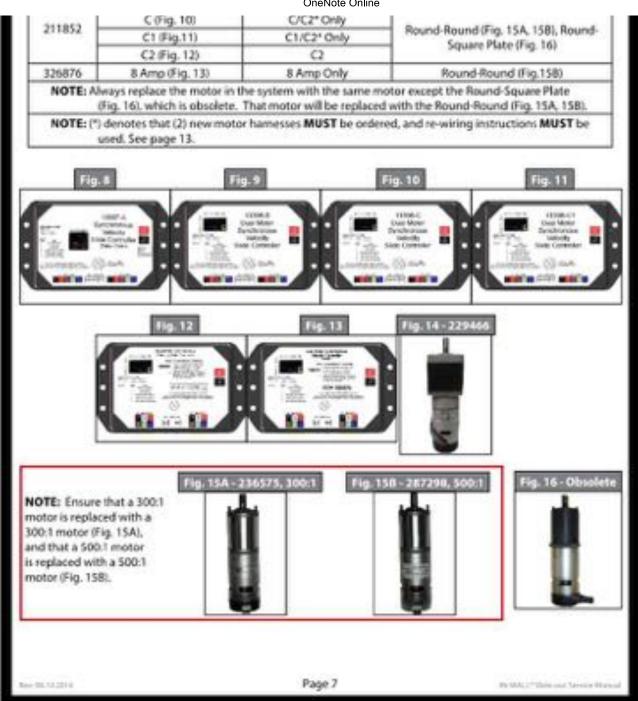
NOTE: Motor harnesses have Molex* connectors at the controller and a molded connector at the motor

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Motor and Controller Compatibility

| Part # | Controller Version | Controller Replacement | Motor(s) Used |
|--------|--------------------------|---------------------------|--|
| 239657 | A (Daisy Chain) (Fig. 8) | A Only | Round-Square (Fig. 14), Round- Round (Fig. 15A) |
| | B (Fig. 9) | B/C2+Only | Round Square (Fig. 14) |
| | | | |



Motors and Harnesses Check for proper connections between the motors and harnesses (Fig. 17). Visually inspect the exposed harnesses to ensure they are not pinched or damaged. NOTE: Ribs on motor connector line up with notch inside of female connector on wiring harness. Color codes on wires also match (black to black, red to red, etc.) Harness



Resynchronizing the Slide-out Motors

- 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.
- 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 the slide-out and keep the switch engaged until the motors shut down on their own. Fully retract the slide-out, again keeping the switch engaged until the motors shut down on their own. If both motors shut down at the same time at full extension and full retraction, the room is properly synchronized. If they do not shut down at the same time, repeat the process until they do.

Extend and Retract Switch Connections

Rev. A - Rev. C1 Controllers: Common connection on controller goes to common connection on extend and retract switch.

Rev. C2 and 8 amp Controllers: 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. A 30 amp resetting or blade fuse is required (OEM supplied).

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Visual Inspections

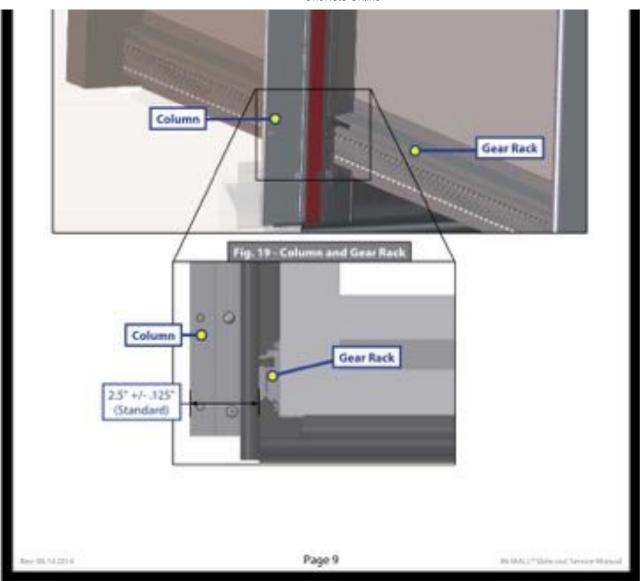
Measurements

 Measure from the outside edge of the column to the face of the gear rack (Fig. 18 and 19). The standard measurement should be 2 ½" plus or minus ¾". Take this measurement when the room is fully extended and again when the room is 3" from fully retracted.

NOTE: For units with non-standard installations, contact the OEM for their specific measurements.

- Measure the gear racks for parallel. There should be less than ½" difference between the parallel measurements.
- Check for proper seal engagement (no binding, 14" nominal overlap).
- 4. Check for damage to gear rack.

Fig. 18 - Gear Rack Measurements





2. Gear Racks MUST be parallel.

V-Rollers

Visually inspect V-roller (Fig. 21D) for obstructions or damage.



| Callout | Description |
|---------|-------------|
| A | Motor |
| 8 | Gear Rack |
| C | Shoe |
| D | V-Roller |

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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.

Debris in the rack

Check the sides of the slide room for any cirt or debris. Small dirt clumps or metal shavings can cause the spur gear to bind up and stop the movement of the slide out. Use compressed air or a dry brush to remove any dirt or debris from the rack before attempting to actuate the system again.

Error Codes

During operation when an error occurs, the board will use the LEDs to indicate where the problem exists (Fig. 22). For motor-specific faults the green LED will blink. I 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. 23).

When an error code is overset, the board needs to be reset. Energizing the extend/retract switch (Fig.

When an error code is present, the board needs to be reset. Energizing the extend/retract switch (Fig. 1) resets the board. Energize the extend/retract switch again for normal operation.



| Error Code | Name | Description | |
|----------------------|--|---|--|
| 2 | Battery Drop Out | Battery capacity low enough to drop below 6 volts while running or short in switch wiring. | |
| 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. | |
| | Wire Short Between Controller and Motor | Encoder is not previding a signal. This is usually a wiring problem. | |
| 9 Short To Ground | | Power to encoder has been shorted to ground. This is usually a wiring problem. | |

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Electronic Manual Override (Controllers C-1 and C-2 Only)

NOTE: See (Fig. 24) for locations of the mode button and LEDs.

- Press the mode button on the controller six times and hold on the seventh for five seconds to enter electronic manual override mode.
- Use the extend/retract switch to move both motors in or out.

NOTE: Over-current and short circuit detection are still enabled. Electronic manual override provides 12V directly to both motors.

To exit the mode, push and hold the mode button until the LEDs begin to blink simultaneously. Exiting
the override mode resets the motor positions (you will have to resync motors).

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" below.

Motor Disengagement Procedure

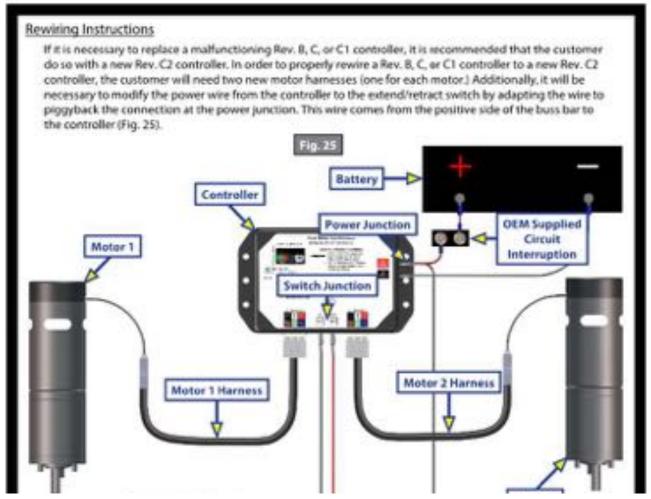
- Remove motor retention screws located near the top of each vertical column on the outside of the coach (under bulb seal if equipped with bulb seal on column).
- Locate motor.
 - A. On units built prior to 2011: Bend back wipe seal from outside of coach.
 - On units from 2011 to current: See slot in H-column on the inside of the coach.
- Pull motor up until disengaged (roughly ½"). A flat head screwdriver can be used to pry the motor up.
- 4. Reinstail motor retention screw to hold motor in place or remove motor.

Low Voltage

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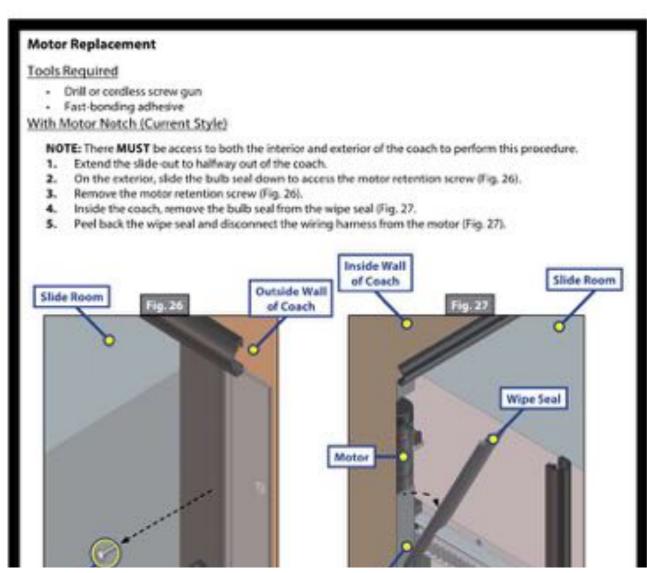
The Lippert IN-WALL* Slide-out Controller is capable of operating the room with as little as 8 volts. But at these lower voltages the amperage requirement is greater. Check voltage at the controller, see Figs. 2 and 5 for the location of power connections. If the battery is low, it needs to be charged or the unit should be plugged into shore power or the generator can be run, if equipped. It may be possible to "jump" the RV's battery temporarily to extend

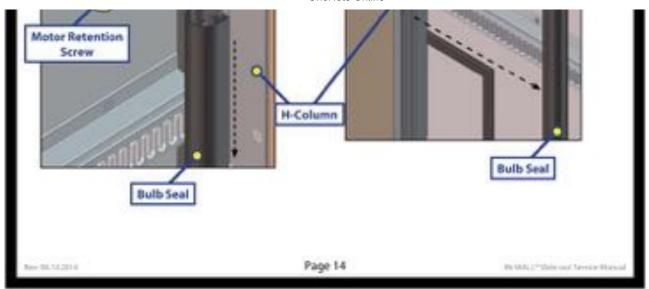
or retract the room. Consult the RV manufacturer's owners manual. NOTE: Always connect directly to the battery and never to the controller power connections. Motor Direction Switches Motor direction switches (Fig. 24) are used to change the direction of individual motors. If when trying to extend or 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 mator 1. If mator 1 is going in the wrong direction then change switch 1's position. If mator 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/netract 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. Motor Direction Switches Mode Button HOW TO MANUALLY C 1. PRESS THIS BUTTON 6 HOLD DOWN ON 7TH Green LED LINES LIGHES STAFF TO LISE THE NORMAL SLEE SWECH LOCATED INSE FAUL Red LED TO RETRACT ROOM Page 12

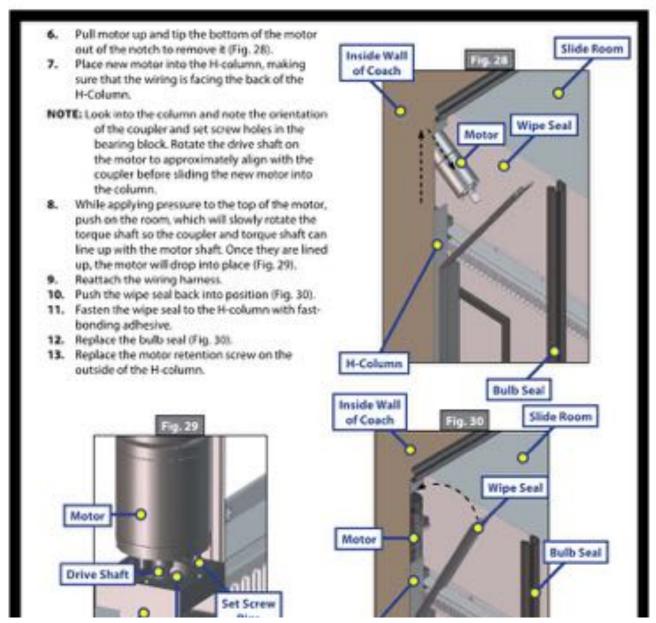


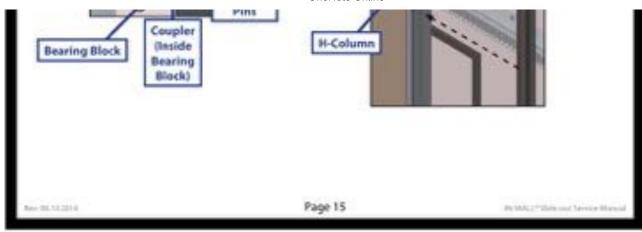
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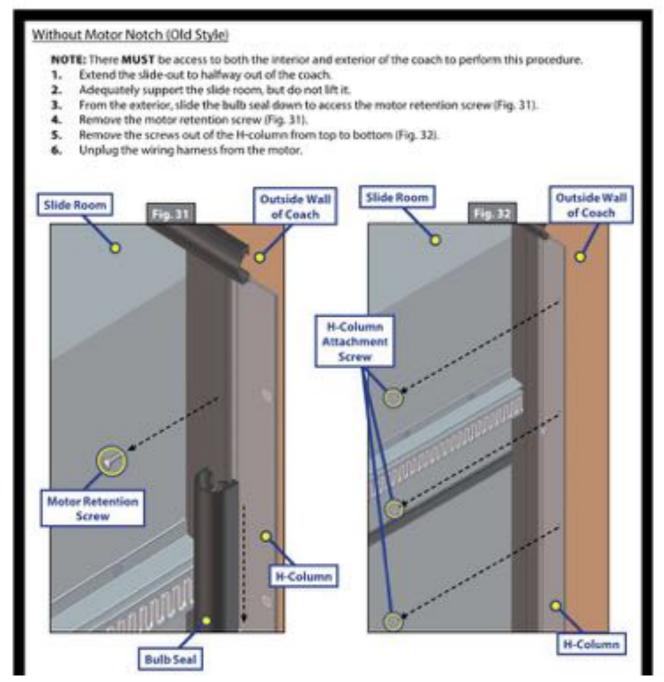
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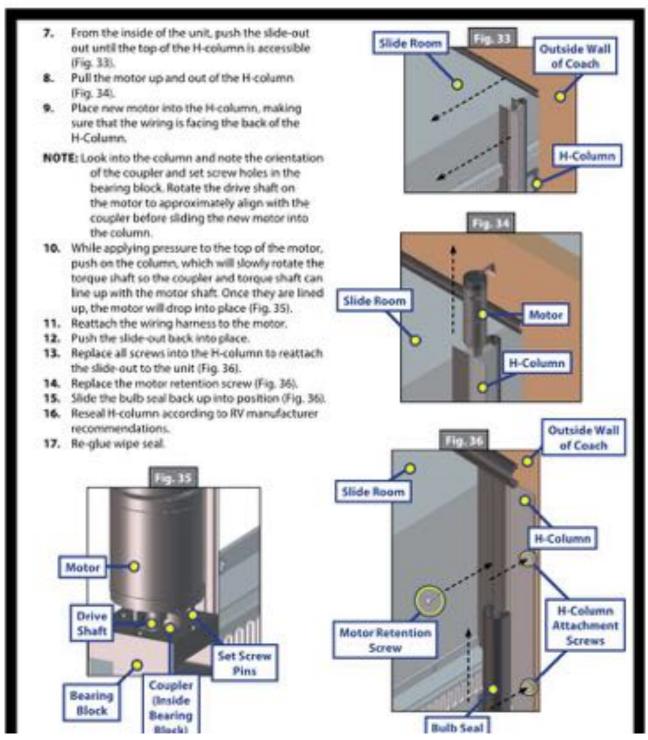








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Assembly Removal Procedure

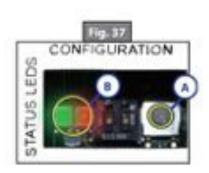
Tools Required

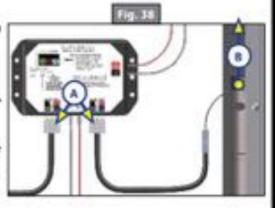
- · Electric drill or cordless screw gun
- Rubber mallet
- 2x4 (length=gap between T-molding and side of unit-'\(\frac{1}{2}\)')
- Razor knife
- Floor jack

Procedure

NOTE: If the slide will not move by use of the switch it may be necessary to use one of the three methods (A, B, or C) described below:

- A. Use electronic override mode on the IN-WALL* controller.
 - Press the "mode button" 6 times quickly, press a 7th time and hold for approximately 5 seconds (Fig. 37A).
 - The red and green LED lights will begin to flash indicating system is in override mode (Fig. 378).
 - Using the wall switch, press and hold the "IN" button until the unit comes completely in.
- Disconnect the motor harnesses from the IN-WALL* controller to allow the slide room to be manually pushed into position (Fig. 38A).
- Disengage the motors to allow the slide room to be manually pushed into position (Fig. 388).
- Remove first 3 sets of screws in each rack on the interior side of slide room.
- Extend the slide room until about 8" of the room is left inside the unit.
- Support the slide room with a floor jack or other adequate support before continuing.
- Place the 2x4 block on top of the slide room (standing on its edge between the T-molding and side of the unit.)
- Reach inside the top of the slide column to disconnect the wiring harness from the motor.
- Using a razor knife, carefully cut the caulk bead along the edge of the slide column.
- Remove the screws from the slide column attaching it to the side wall of the unit.
- Create a jumper wire from an extra wiring harness: Cut a 3-foot length of the harness (with the motor wire connector attached) and strip the ends of the red and black wires (Fig. 39).
- 9. Plug the jumper wire into the motor wire.
- Holding the black and red wires against the terminals of your cordless screw gun battery, determine which polarity actuates the motor in the retract direction. The



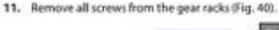


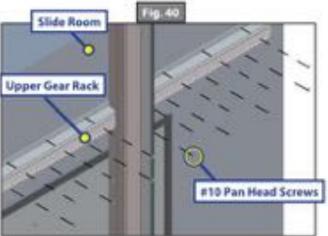


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- You may need to pry the gear racks away from the sides of the slide room with a flathead screwdriver
 or putty knife. Do this carefully so you don't damage the finish on the side of the slide room.
- 13. Carefully slide the ends of the gear racks past the bulb seal on the T-molding.
- 14. Pull the full system out and set aside.

NOTE: LCI recommends that inspection and repair of the assembly be done on a clear workbench to prevent further damage to the system.

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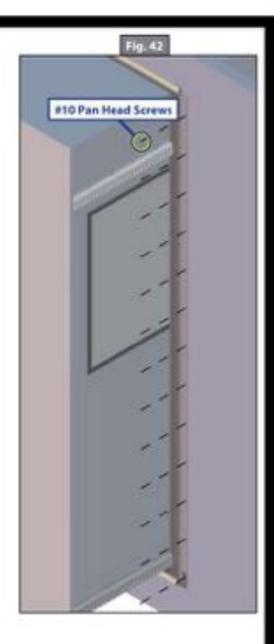
Assembly Installation Procedure Prepare the slide room and side of the unit for the new install by cleaning the surfaces of any adhesive residue using a putty knife and a solvent, being careful not to damage the finishes on the unit. Prepare the new system for installation: measure the distance (center to center) from one gear rack to the next gear rack along the slide column. Write these measurements down. Apply OEM recommended sealant to the entire length of the H-column along the inside edge where it will contact the side face of the unit. NOTE: If installing a new assembly, remove the shipping angles before continuing this procedure. Gently slip the system through the opening between the slide room and the side wall opening. Tuck the gear racks inside the bulb seal attached to the T-molding. Align the bottom lip (alignment flange) of the lower gear rack with the bottom edge of the slide room (Fig. 41). Push the bottom gear rack tight against the bottom of the slide room and put a screw into each end of the gear rack. Slide Room Lower Gear Rack **Bottom Edge** of Slide Room Alignment Flange Page 20

7. Measure from the bottom gear rack (center to center) to the next gear rack and align that rack so that it matches the measurement you took off of the system during step 2. This will ensure that the racks are installed parallel and square. Put a screw in each end of the gear rack to hold it in place until you align all the gear racks.

- Once you align and secure all the gear racks, put all the screws into the gear racks.
- Attach the jumper wires to the motor in top of the slide column and then to the cordless screw gun battery. Actuate the motor to move the slide column in towards the couch. Stop the column when it is still a few inches away from the unit. Remove the jumper cable.
- Make sure the motor cable is tucked into the top of the slide column.
- 11. Remove the 2x4 block.
- Push the slide room in by hand until the slide column is flush with the side wall of the coach.
- Screw the slide column into the side wall by placing a screw in the column by each rack and in the middle of the column to ensure the rack is straight, then fill in remaining screws (Fig. 42). Remove the floor jack.
- From the inside of the coach, connect the wiring harness to the motor cable.
- Repeat this process for the other side of the slide room (if required).
- Once you have completed both sides of the slide room, synchronize the slide system motors (See procedure below).

Synchronizing The Slide-Out Motors

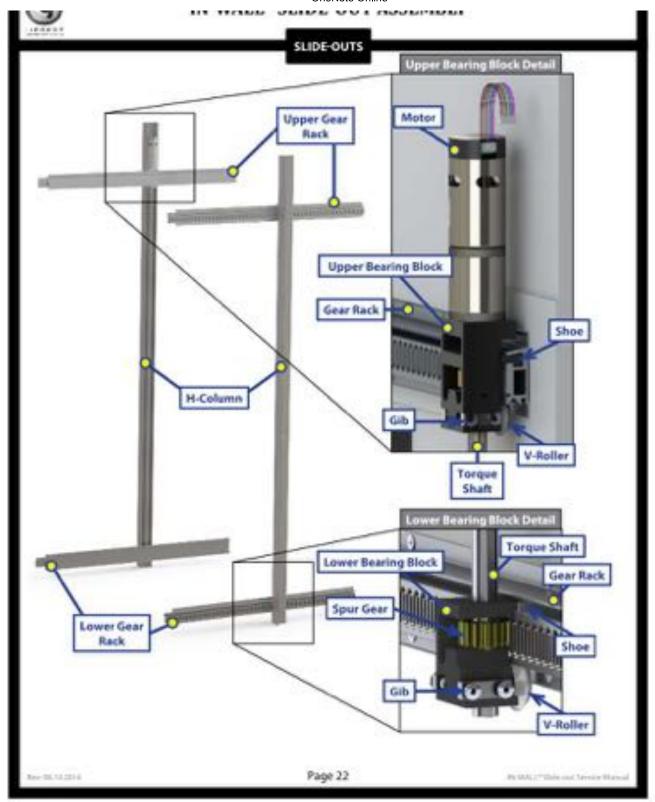
- Fully extend the slide room using the switch. Keep
 the switch engaged until the motors shut down on
 their own.
- Retract the room 1-2 inches.
- Repeat steps 1 and 2 until both motors shut down at the same time. In many cases, two or three repetitions are necessary to re-sync the system.
- Fully extend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



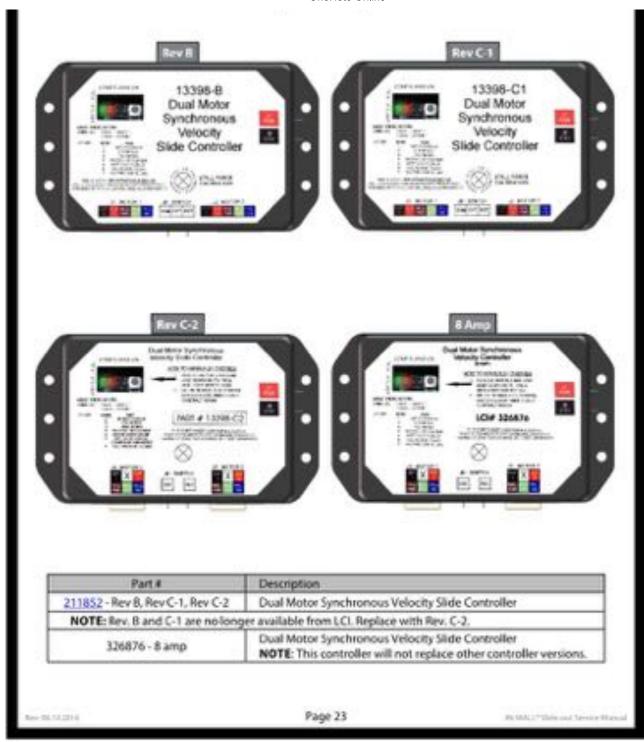
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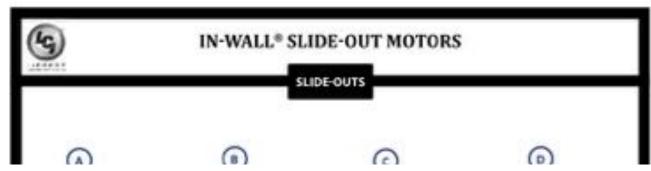
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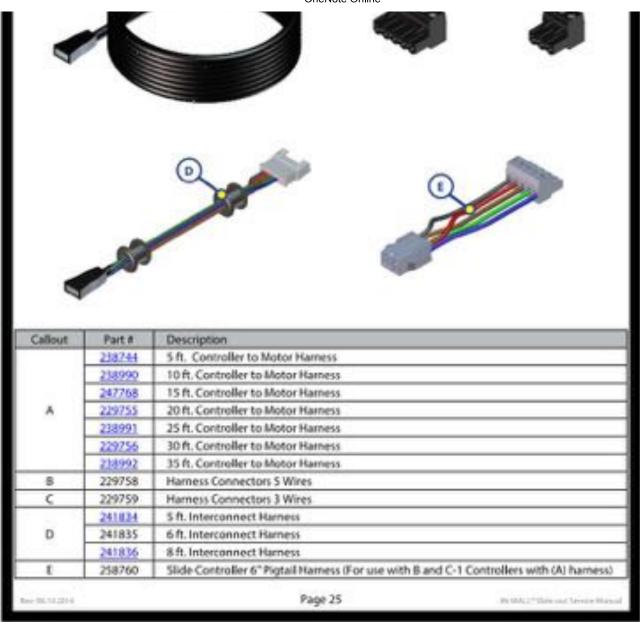


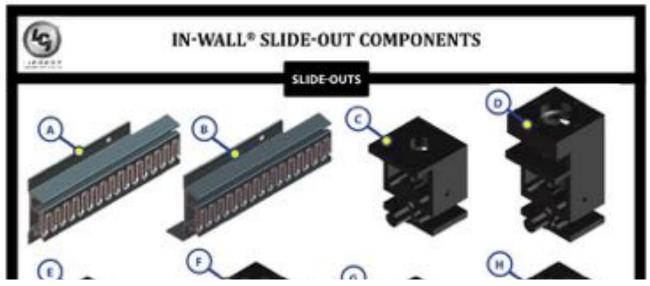


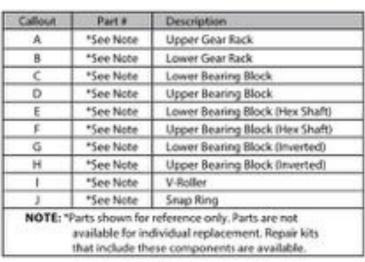




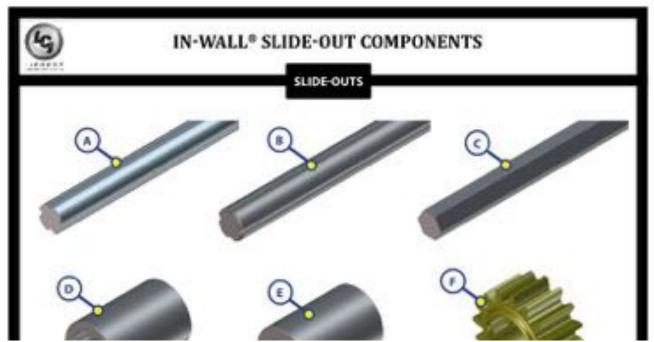


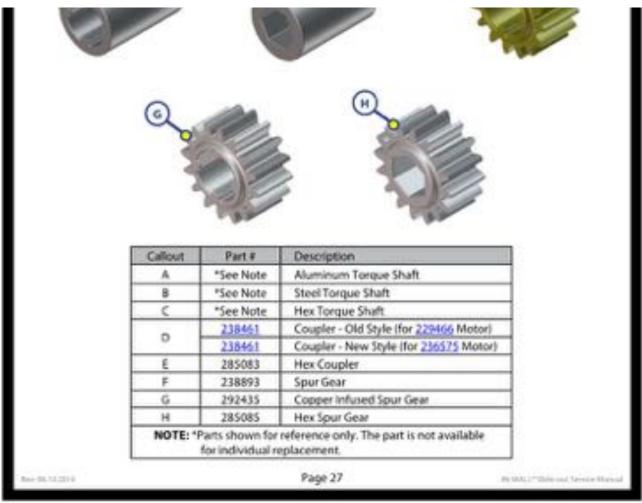


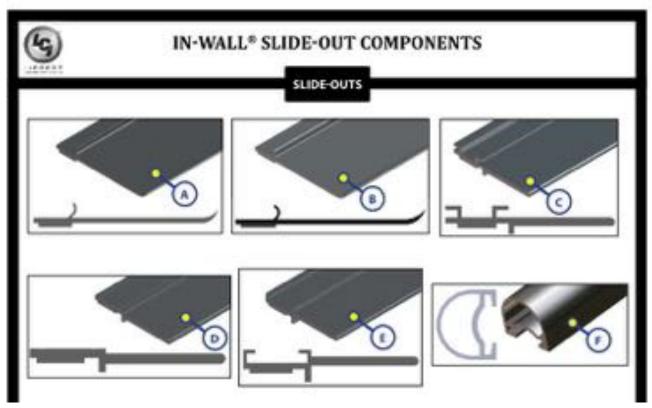


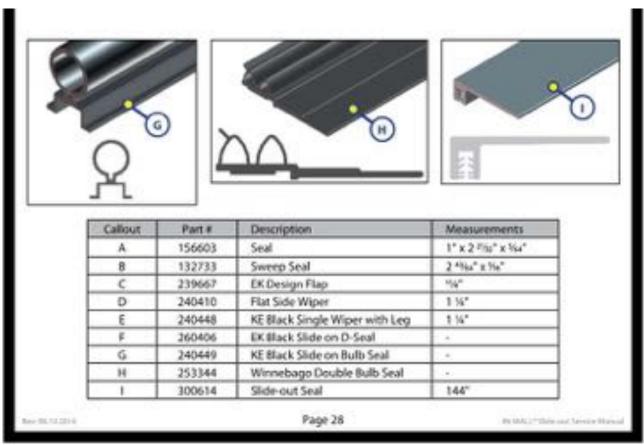


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