



ABOVE FLOOR SLIDE-OUT OEM INSTALLATION MANUAL

LIPPERT
COMPONENTS®

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System Information

The Above Floor Slide-out System is a rack and pinion style slide system. Utilizing a bi-directional electric motor to actuate the drive shaft, the slide-out room is extended and retracted from the same source. The actuator has a built-in automatic clutching feature. The Lippert Above Floor Slide-out System is designed as a negative ground system.

There are no serviceable parts within the electric motor. If the motor fails, it **MUST** be replaced. Disassembly of the motor voids the warranty.

Mechanical portions of the slide-out system are replaceable. Contact Lippert Components, Inc. to obtain replacement parts.

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Safety Information

WARNING

Failure to follow the instructions provided in this manual may result in death, serious injury, unit damage, or voiding of the component warranty.

WARNING

The unit MUST be supported per manufacturer's specifications before working underneath. Failure to do so may result in death or serious injury.

WARNING

Always wear eye protection when performing service or maintenance to the unit. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the service.

CAUTION

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

NOTE: Lippert Components, Inc. recommends that the following inspections, troubleshooting, component replacement, and verifications be completed only by certified RV technicians.

The Above Floor 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 other purpose or reason than to actuate the slide-out room. To use the system for any reason other than what it is designed for may result in damage to the unit and/or cause serious injury or even death.

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 unit prior to the slide-out room actuation.
- 3.** Keep hands and other body parts away from slide-out mechanisms during actuation. Death or severe injury may result.
- 4.** To optimize slide-out actuation, park unit on solid and level ground.

Resources Required

- Cordless or Electric Drill or Screw Gun
- Appropriate Drive Bits
- Heat Gun (Electrical Connections)
- Hex Key
- $\frac{3}{8}$ " - 1 $\frac{1}{2}$ " Full Threaded Screw
- $\frac{3}{8}$ " Washers
- #8 x 1" Screws
- Crimp Butt Connectors

Installation

Prior to Installation

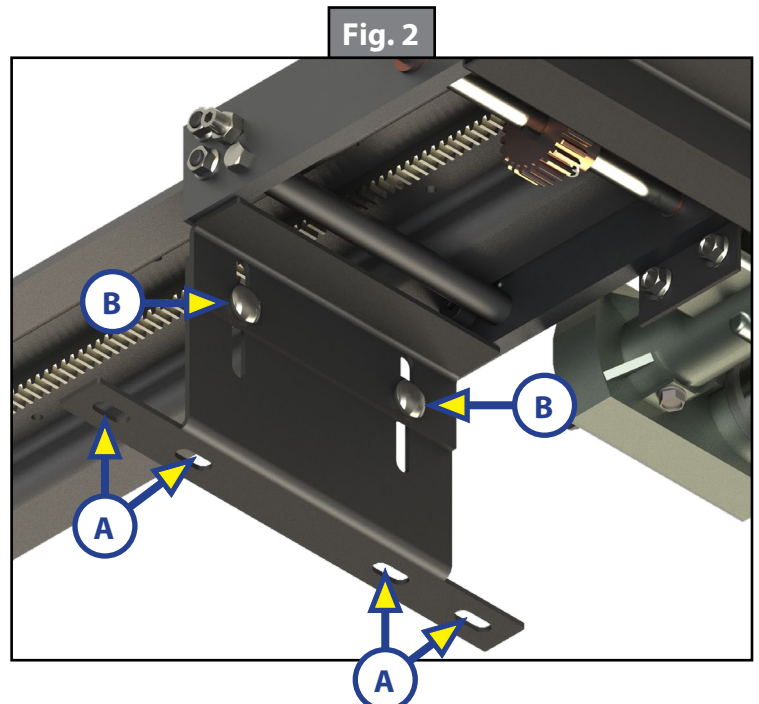
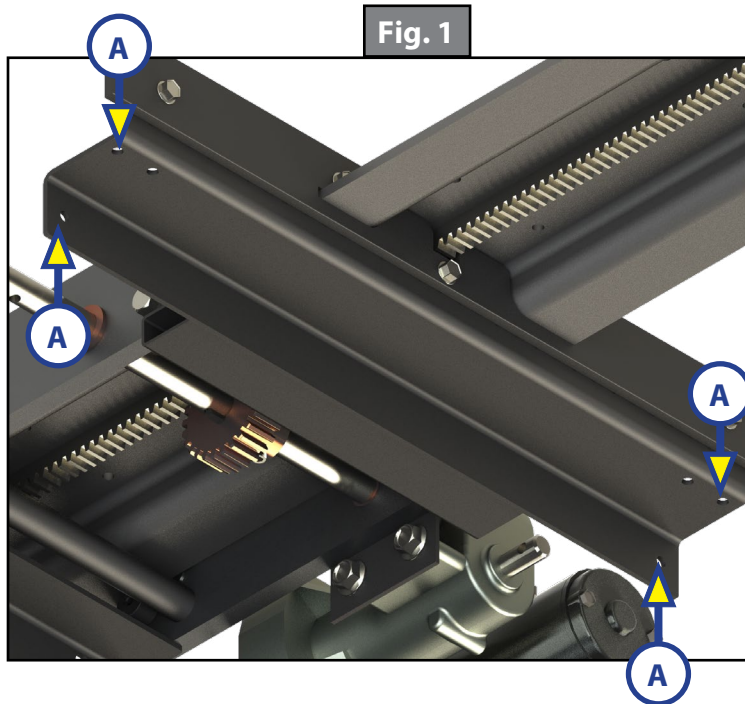
1. Inspect slide-out mechanism and ensure that all stop blocks are intact and that there are no missing/damaged parts.

Installing the Slide-Out Assembly Onto the Slide Opening

1. Center the slide-out assembly inside the slide-out opening.

NOTE: Slide openings are determined by the OEM.

2. Using the 4 pre-drilled holes/slots in the Main Body Sub Assembly (Fig. 1A), fasten to the bottom edge of the slide opening using $\frac{3}{8}$ " screws and $\frac{3}{8}$ " washers (OEM supplied).
3. Using the 4 pre-drilled holes in the Floor Mounting Bracket (Fig. 2A), fasten to the unit's main floor using $\frac{3}{8}$ " screw and $\frac{3}{8}$ " washer (OEM supplied).
4. If using a dual mechanism, repeat steps 1-3.
5. Using the carriage bolts on the adjustable Floor Mounting Bracket (Fig. 2B), ensure the slide-out assembly is level prior to installing the slide room.



Slide Room Installation

1. Place room on top of the hat channel(s) (Fig. 3). Center the room in the slide opening.

NOTE: Ensure the room is centered before securing to hat channel(s).

2. Locate the 2 exterior holes (Fig. 3A) in the hat channel. Secure the room to the hat channel(s) using OEM supplied fasteners.

NOTE: LCI recommends carriage bolt or lag bolt, determined by OEM.

3. Locate the 2 interior holes inside the unit (Fig. 3B) in the hat channel. Secure the room to the hat channel(s) using OEM supplied fasteners.

NOTE: Ensure the T-molding and fascia are installed prior to operating the slide-out (determined by OEM).

4. Use a hex key to set stop blocks (refer to the Hard Stops section of this manual in order to achieve proper seal in and out).

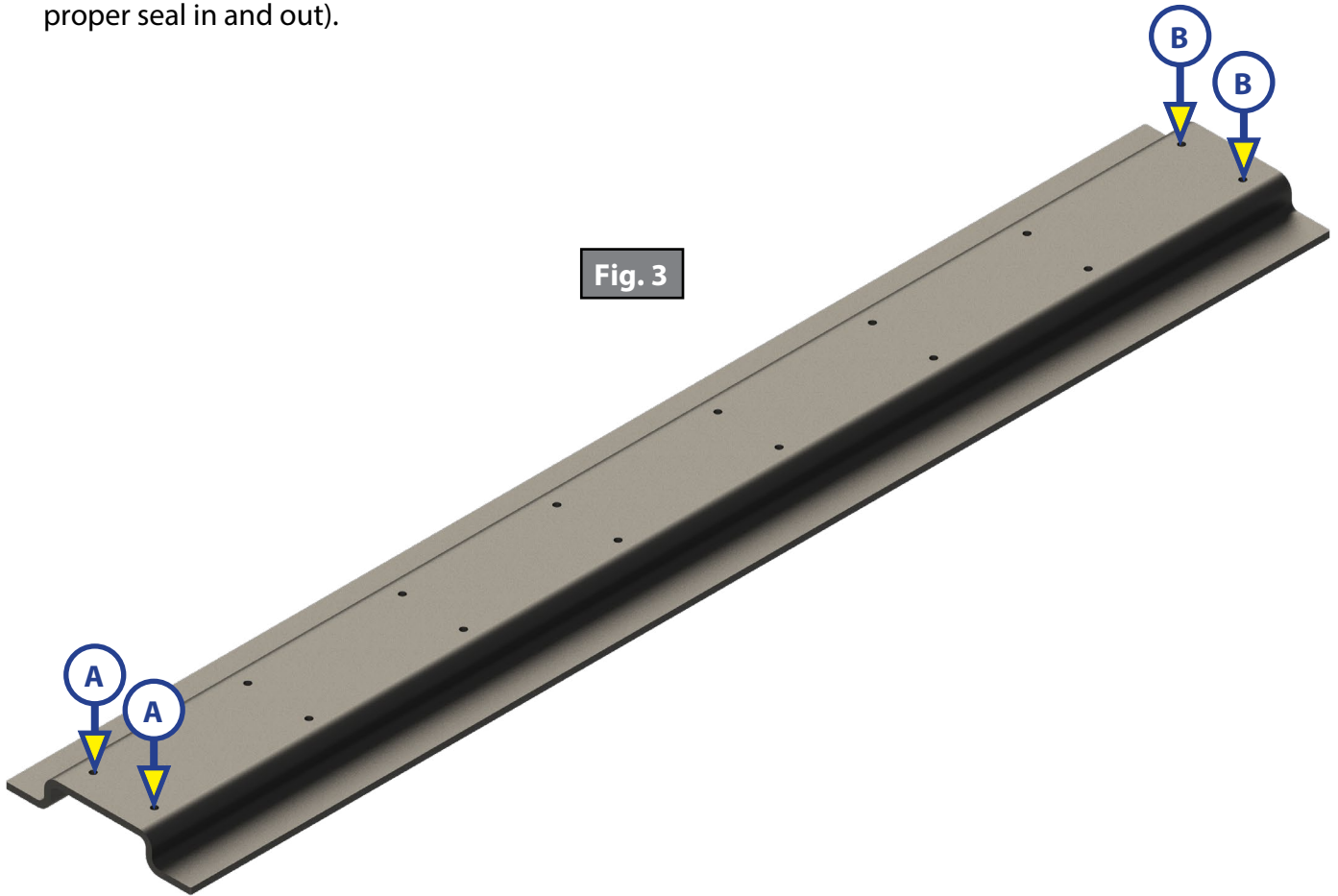


Fig. 3

Mounting and Wiring of The Switch

NOTE: Determine where to mount the wall switch (Fig. 4). The wall switch can be mounted anywhere inside the unit. The mounting location must be watertight.

1. Install the wall switch per OEM recommendations using 2 OEM supplied #8 x 1" screws.
2. See the Wiring Diagram section at the back of this manual for wiring instructions.

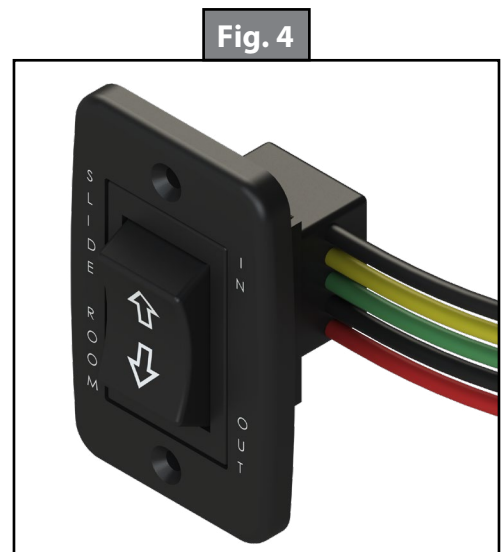


Fig. 4

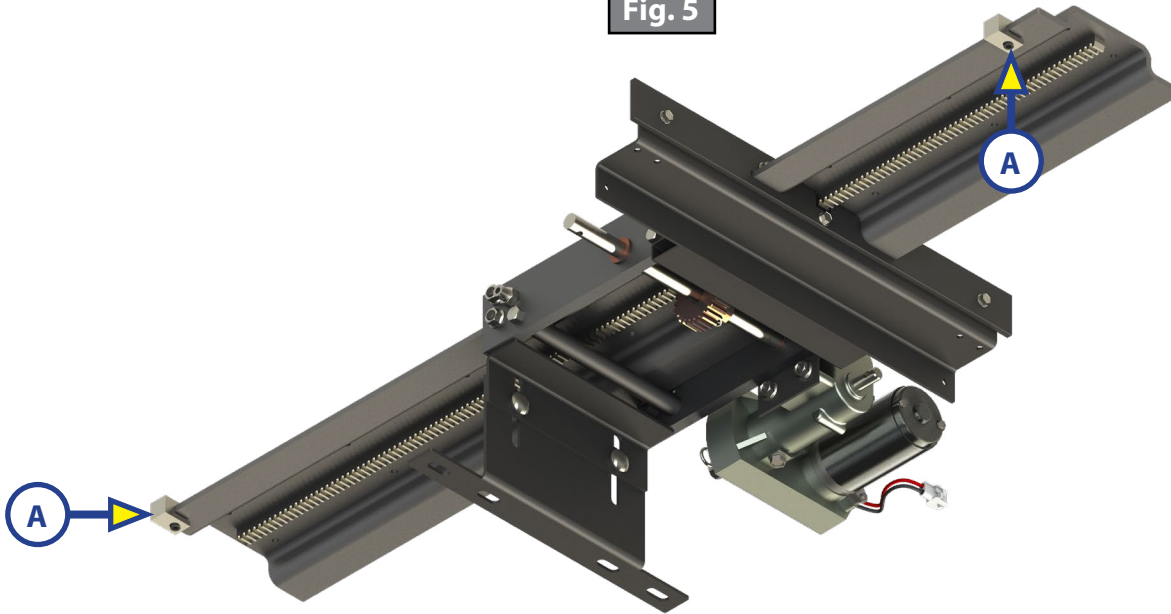
Hard Stops

The Above Floor Slide-out Systems are available in many different configurations and applications with varying height, travel, steel or aluminum and single and double arm. Access to these mechanisms is generally from inside the unit, under the floor of the slide-out. If the fully extended or fully retracted travel of the slide-out appears to be putting pressure on the interior trim or exterior flange, stops may be missing from the mechanism and should be installed to prevent damage to the unit and slide system components.

Hard stops are added to the Above Floor Slide-out Systems in the form of stop block assemblies (Fig. 5A).

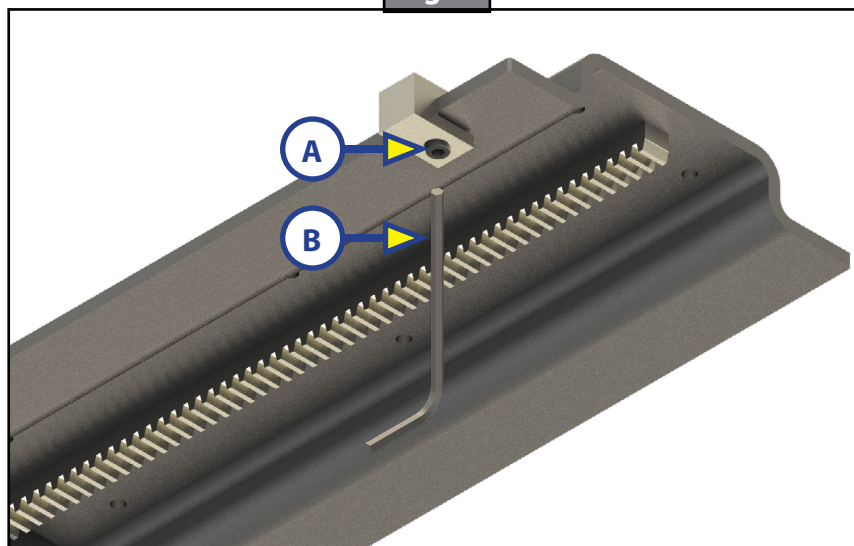
The stop block assemblies are provided as a clamp-on stop, giving the slide-out the hard stops it needs to end the extend and retract travel of the slide out mechanism. The assemblies are comprised of the aluminum block notched to fit over the rear of the slide-out hat channel or arm and the set screw.

Fig. 5



The stop block is placed on the rear of the hat channel or arm at the extend and retract points of the slide-out. The stops are set when slide-out seal is made, making the slide-out weather-tight. The set screw (Fig. 6A) is then tightened with a hex key (Fig. 6B) in order to provide the Above Floor Slide-out with hard stops. Without the hard stops, the interior trim and the outside slide flange become soft stops and can be damaged as the slide controller or motor clutch will not be able to shut the system off. The hard stop will allow the motor to clutch or the control box to sense the amperage spike when the slide motor is stopped. The stops shut down the slide-out system protecting the drive shaft, shaft bolt and the crown gear.

Fig. 6



Operation

⚠ WARNING

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

Prior to Operation

Prior to operating the Above Floor Slide-out, follow these guidelines:

- Unit should be parked on the most level surface available.
- If operating a motorized coach the PARKING BRAKE must be engaged.
- If operating a motorized coach the transmission must be in PARK.
- If operating a motorized coach the ignition must be in the off position (Class A and C only; Gas and Diesel)
- 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.
- Keep stored items in compartment clear of slide-out motor mechanisms and wiring to prevent interference of slide-out operation.
- Install transit bars (if so equipped) on the slide-out room during storage and transportation.
- The 12V DC battery disconnect should be in the ON position.

NOTE: Batteries **MUST** be tested under a load to get an accurate reading. Use a multi-meter to ensure the battery is fully charged, the multi-meter must read 12.5V - 13.7V for a full charge.

Extending Slide-Out Room

1. Level the unit
2. Ensure the battery is fully charged and hooked up to the electrical system.
3. Remove transit bars (if so equipped).
4. Press and hold the IN/OUT switch in the OUT (Fig. 7B) position until room is fully extended and stops moving.
5. Release the switch, which will lock the room into position.

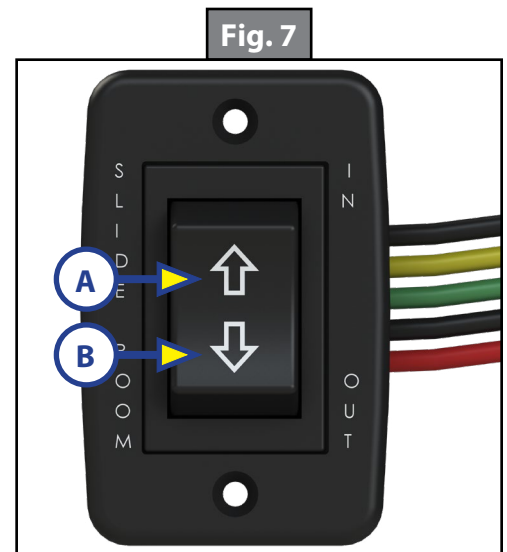
NOTE: Only hold OUT switch until room stops.

Retracting Slide-Out Room

1. Ensure the battery is fully charged and hooked up to the electrical system.
2. Press and hold the IN/OUT switch in the IN (Fig. 7A) position until the room is fully retracted and stops moving.
3. Release the switch. This will lock the room into position.

NOTE: Only hold IN switch until room stops.

4. Install the transit bars (if so equipped).



Troubleshooting

Troubleshooting Introduction

When something restricts room travel, system performances will be unpredictable. It is very important that slide rails, rack and pinion be free of any form of debris or other type of contamination and allowed to travel freely the full distance or "STROKE." Debris build-up during travel is an example of the type of contamination that may occur.

When beginning to troubleshoot the system, make sure the battery is fully charged by testing under a load to get an accurate reading. Make sure there are no visible signs of external damage to the motor or assembly or rails and that the motor is wired properly and all connections are secure.

You can adjust the room extension by repositioning the stop blocks on both ends of the hat channel.

During troubleshooting, remember, by changing, altering or adjusting one thing, it may affect something else. Be sure any changes do not create a new problem.

Switch Related Concerns

- If room moves opposite from what the switch plate indicates, reverse the wires from the motor on the back of the switch. Wire size must be 10 gauge minimum, see the Wiring Diagram at the back of the manual.
- Black wires are ground
- Yellow wire is out or extend
- Green wire is in or retract
- Red wire is power

Motor Unit Concerns

Before attempting to troubleshoot the Power Unit, make sure an adequate power source is available. The unit batteries should be fully charged or the unit should be plugged into A/C service with batteries installed. Do not attempt to troubleshoot the Power Unit without assuring a full 12V DC charge. Batteries **MUST** be tested under a load to get an accurate reading.

The following tests require only a DC voltmeter (or DC test light) and a jumper lead.

Step 1 - Attach voltmeter (or test light) leads to the negative and positive switch terminals on back of wall switch. Does the meter indicate 12V DC?

If **NO**, see **Step 2**; if **YES** see **Step 3**.

Step 2 - If **NO**, Inspect all connections between battery and switch. Inspect any and all breakers, relays and fuses. Recheck as above in **Step 1**.

Step 3 - If **YES**, at the motor, check the incoming leads to 12V DC (if necessary, disconnect leads at wire splices). Does meter indicate 12V DC? If **YES**, Power Unit needs to be replaced. The motor is not field serviceable. DO NOT ATTEMPT TO REPAIR.

NOTE: Since there are no field serviceable parts in the 12V DC motor, electrical troubleshooting and service is limited to replacing only those components as previously outlined.

NOTE: Thorough inspection of wiring and connections is the only other electrical service that can be performed.

Troubleshooting Chart

What Is Happening?	Why?	What Should Be Done?
Room doesn't move when switch is pressed	Restriction or obstruction inside or outside of unit	Check for and clear obstruction.
	Low battery voltage, blown fuse, defective wiring.	Check battery voltage and charge if needed. Find and check fuse, replace if blown. Check battery terminals and wiring. Look for loose, disconnected or corroded connectors.
	Excessive room drag.	Check that transit bars are removed.
Power unit runs but room does not move	Motor turns, room does not move.	Gear key is broken or lost. Replace gear drive assembly.
	Broken gear on drive shaft.	Replace gear drive assembly.
	Broken gear in gearbox.	Replace motor/gearbox assembly.
	Bad motor or gearbox.	Replace motor/gearbox assembly.
Power unit runs but room moves slowly	Low battery, poor ground, extremely low outdoor temperature.	Charge battery and check ground wire.
	Room is in a bind.	Adjust to proper room setting.
Room starts to move and stops	Low battery voltage, blown fuse, defective wiring.	Check battery voltage and charge if needed. Find and check fuse, replace if blown. Check battery terminals and wiring. Look for loose, disconnected or corroded connectors.
	Obstruction of room inside or outside.	Check for and clear obstruction.
Room chatters during operation	Teeth on gear drive broken or worn.	Gear drive assembly needs replaced.
	Teeth on inner rail broken and worn.	Gear drive assembly needs replaced.

Manual Override

The Above Floor Slide-out motor is equipped with a manual override that allows you to extend or retract a room if the room does not move when the switch is pushed. Check the Troubleshooting section for possible solutions before using the manual override.

⚠ CAUTION

Always disconnect battery from system prior to manually operating the system. Failure to disconnect the battery can cause electricity to backfeed through the motor and cause serious damage to the system as well as void the warranty.

1. Locate the unit's 12V DC battery disconnect and turn the switch to the OFF position.
2. Access the slide-out mechanism inside the unit.

NOTE: The gears can be stripped out if the room is manually retracted/extended to its fullest extent and the operator continues to rotate the manual override. Any damage due to misuse of the manual override feature will disqualify any and all claims to the Limited Warranty.

NOTE: If a gear is stripped, the entire gearbox must be replaced.

3. Disconnect one of the motor wires from the slide-out motor (Fig. 8B).

NOTE: Only one lead needs to be disconnected. If neither lead is disconnected from the battery, actuating the system may push an electrical charge back through the motor and damage the motor or other electrical components.

4. Locate the hex head crank extension at the back of the motor gear box (Fig. 8A). Using a 5/8" wrench or socket/ratchet combination, rotate the shaft counterclockwise to retract the slide-out room (Fig.9A) or rotate the shaft clockwise (Fig. 10A) to extend the slide-out room.

NOTE: Once the room has reached its fully extended/retracted position, apply pressure to the wrench to firmly set the room. The worm gear in the gear box will prevent the room from drifting in or out.

5. After the room extends or retracts, reconnect the wire at the motor.

Fig. 8

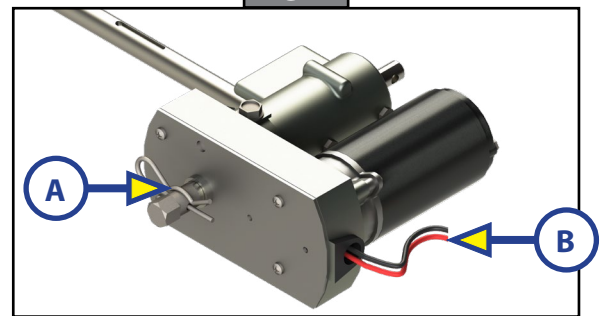


Fig. 9

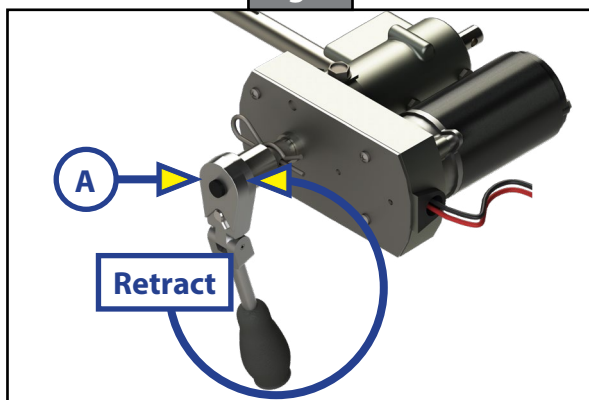
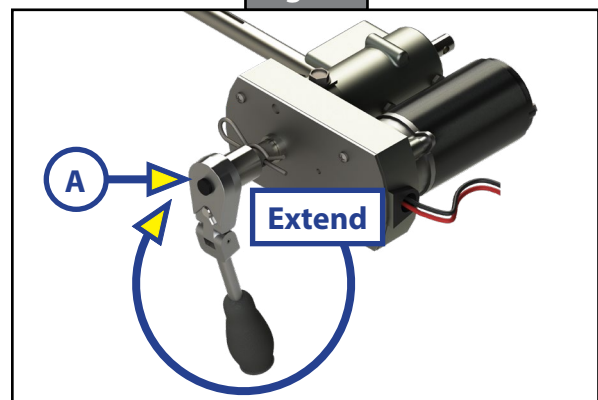


Fig. 10



Room Adjustment

1. For vertical adjustment, loosen the two carriage bolts (Fig. 11A) out just enough to release tension on the interior mounting plate (Fig. 11B).
2. Adjust the room to desired location.
3. Tighten the two carriage bolts before operating room.
4. For out stop (Fig. 12A) or in stop (Fig. 12B) adjustment, loosen the set screw (Fig. 12A or 12B) on the stop block.
5. Adjust the stop block to desired location.
6. Tighten the set screw.

Fig. 11

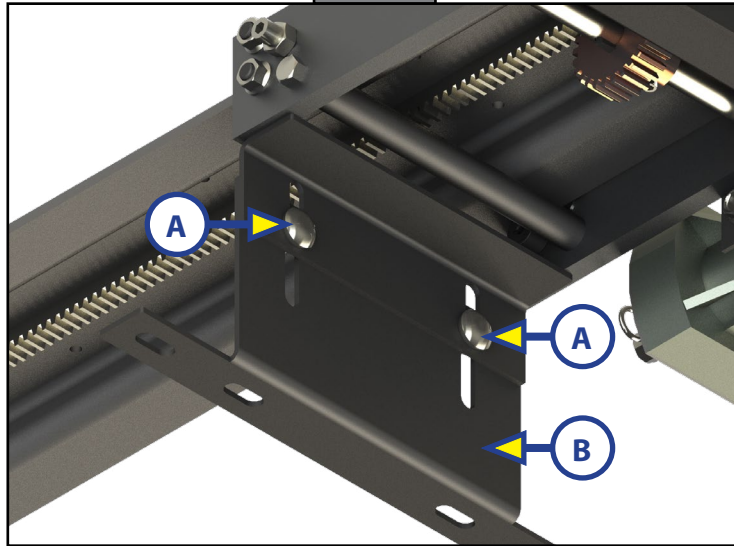
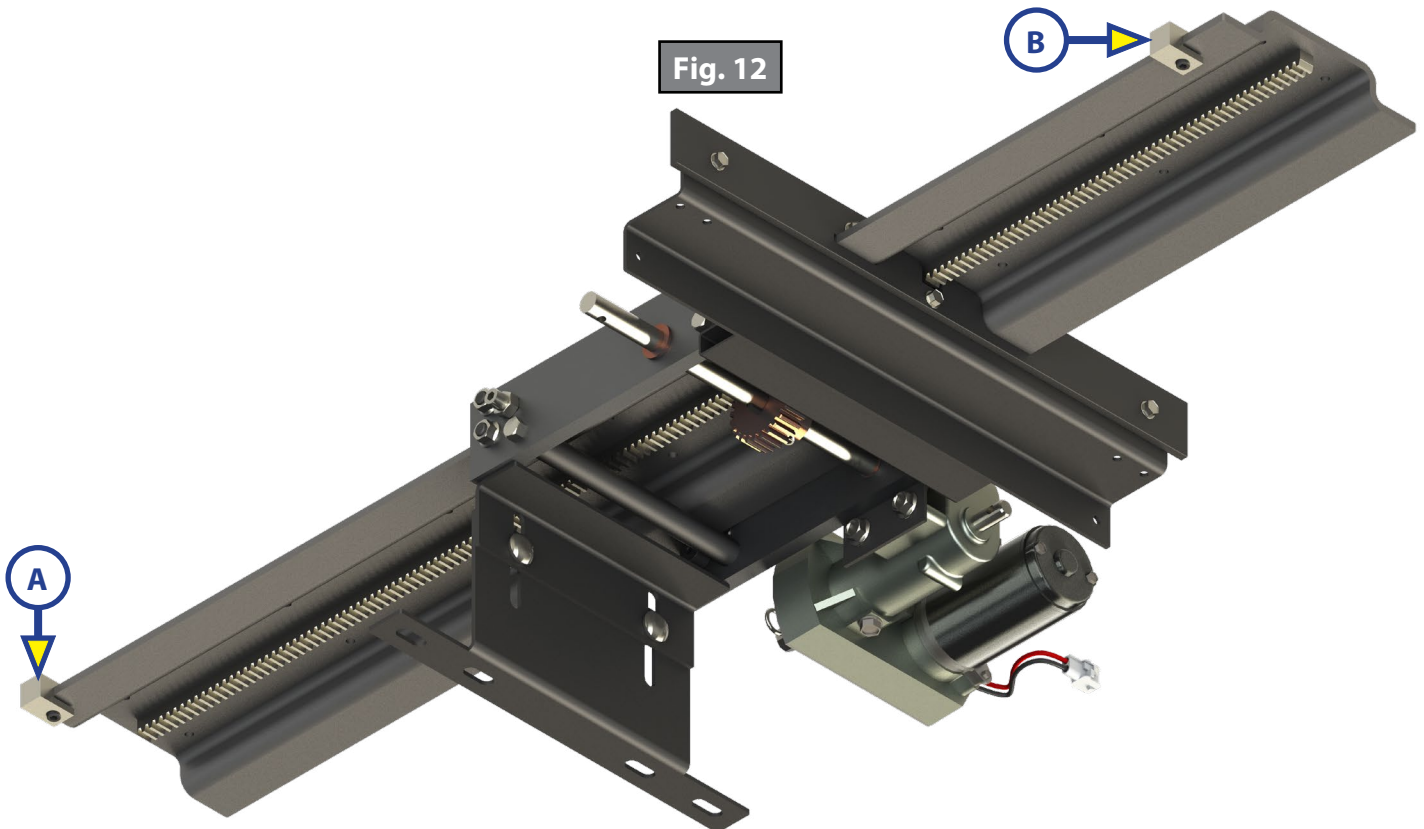


Fig. 12



Maintenance

Preventative

The Above Floor Slide-out has been designed to require very little maintenance and has been static tested to over 2,500 continuous cycles with out any noticeable wear to rotating or sliding parts. No grease or lubrication is necessary and in some situations may be detrimental to the environment and long term dependability of the system. To ensure the long life of your slide-out system, read and follow these few simple procedures.

Electric

For optimum performance, the slide-out system requires full battery current and voltage. The battery **MUST** be maintained at full capacity. Other than good battery maintenance, check the terminals and other connections at the battery, the control switch, and the electric motor for corrosion, and loose or damaged terminals. Check motor leads under the chassis. Since these connections are subject to damage from road debris, be sure they are in good condition.

NOTE: The Above Floor Slide-out is designed to operate as a negative ground system. A 12V DC system must maintain good wire connections. It is important that the electrical components have good ground connection. Over 90% of unit electrical problems are due to bad ground connections.

Mechanical

Although the system is designed to be almost maintenance free, inspect the slide-out for any visible signs of external damage after and before movement of the room. Remember to inspect inside the unit as well as the slide-out outside the unit.

NOTE: For long term storage: It is recommended that the room be closed (retracted).

NOTE: Visually inspect the slide floor and drive box assemblies. Check for excess build-up of dirt or other foreign material; remove any debris that may be present.

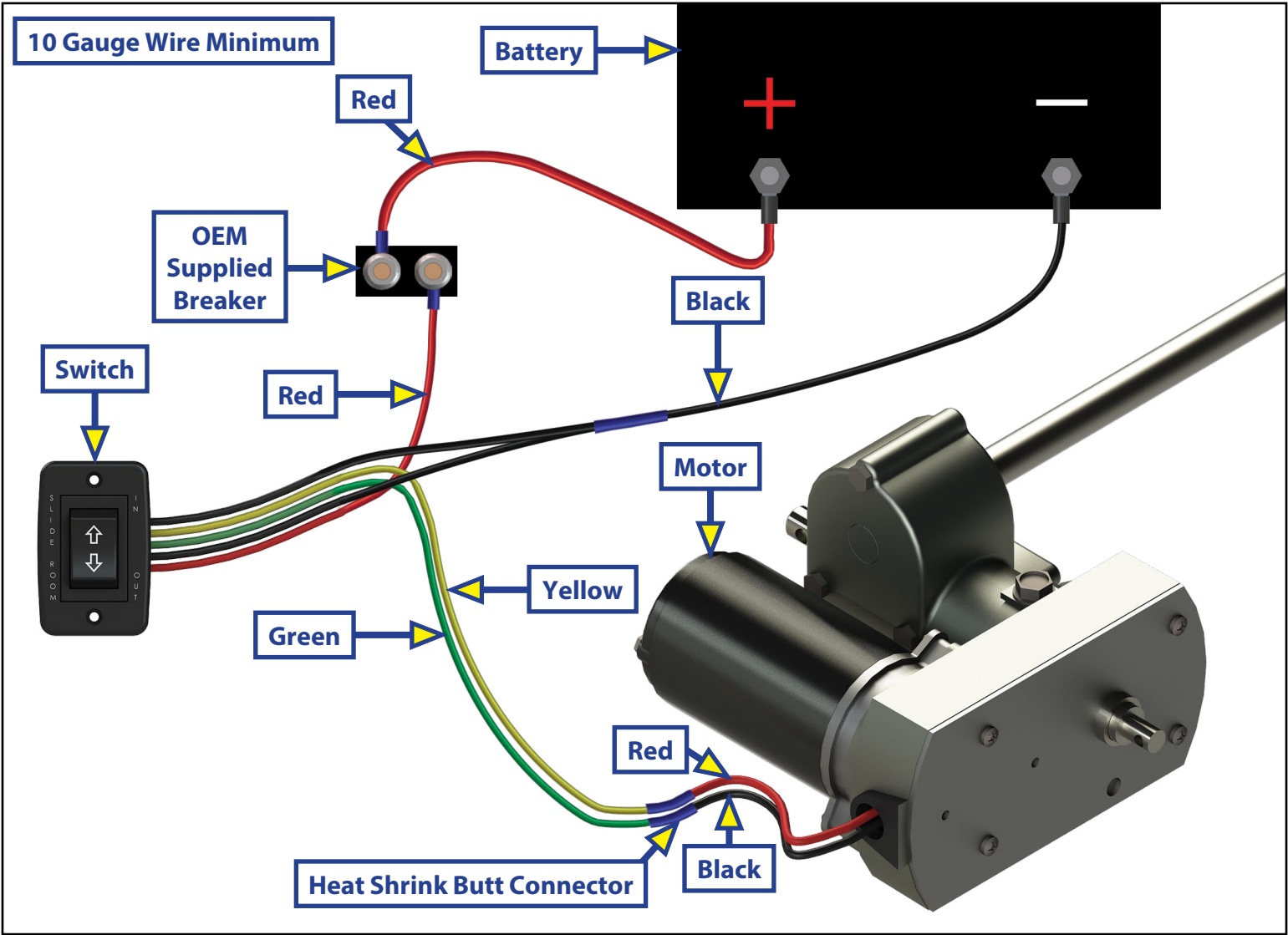
NOTE: If the system squeaks or makes any noises it is permissible to apply lubricant to the drive shaft and roller areas but remove any excess lubricant so dirt and debris do not build-up. DO NOT use grease.

Inspection

After servicing the slide-out system in any way, be sure to check the following:

1. Slide-out stops are installed and adjusted properly.
2. Power unit is mounted properly (Power unit is the motor assembly).
3. Cross shafts are mounted properly and clear all other components.
4. Manual override is accessible.
5. Outside seals compress when slide-out is retracted.
6. Inside seals compress when slide-out is extended.
7. Slide-out extends and retracts smoothly.
8. Both sides of slide-out are synchronized.
9. Any dirt or debris is cleaned from the interior or exterior of the unit.

Wiring Diagram





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