HAPPIJAC®

by Lippert Components®

HAPPIJAC® BED LIFT

OEM INSTALLATION MANUAL (AU)

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System Information

These ratings are for the lifting mechanism only. Attachments, such as bed platforms or sofas, are not rated in this document. Load ratings for these items are the responsibility of the manufacturer.

- Voltage = 12V DC
- Nominal current draw = 8 - 10 amps (1 bed going up); 12 - 16 amps (2 beds going up)
- Load limit = 204 kg dynamic (moving) load; 272 kg static (stationary) load

Kit Configuration

These instructions cover all of the following configurations available for the HappiJac Bed Lift.

- Upper Trolley and Standard Lower Trolley
- Upper Trolley and Slotted Lower Trolley
- No Upper Trolley and Standard or Slotted Lower Trolley

For information on the assembly or individual components of this product, please visit: https://support.lci1.com/beds-support-happijac-beds.

Safety

This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage.

⚠WARNING

The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.

⚠WARNING

Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.

⚠WARNING

Always make sure that the bed lift platform is clear of people and objects before and during operation of the bed lift.

⚠CAUTION

The "CAUTION" symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.

⚠CAUTION

Always wear eye protection when performing service or maintenance to the bed lift system. 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.

Preparation

Resources Required

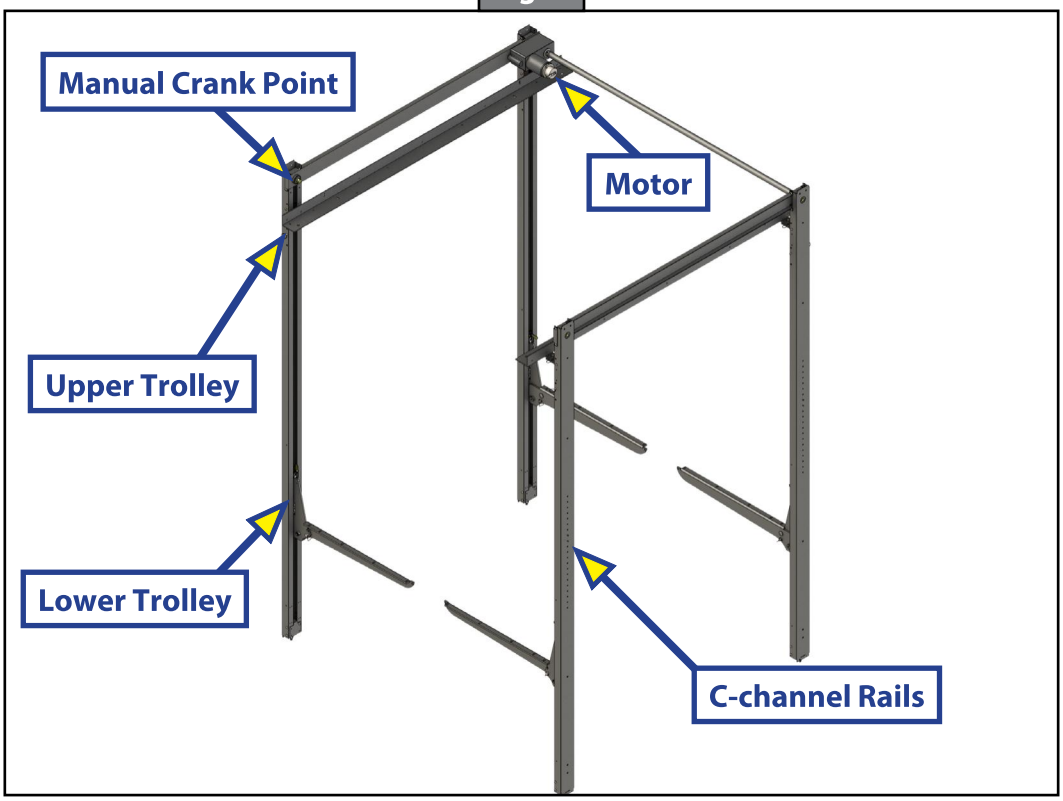
NOTE: Kit supplied hardware is SAE.

- One to two people, depending on task
- ½" socket and ratchet
- ¼" wood or self-tapping sheet metal screws (OEM supplied)

Pre-installation

1. The bed lift frame (Fig. 1) must be installed squarely, at the same height side-to-side and at the same distance from front-to-back in the unit with vertical rails parallel side-to-side. Leave wooden packing strips in place until system is secured to the unit.
2. Sufficient backing, a minimum of 1/8" aluminum tube or wood, must be incorporated within the walls of the unit to support the load of the bed lift with bed platforms installed. The bed lift is rated at 272 kg per platform attachment (static load).

Fig. 1



Installation

1. Use 1/4" wood or self-tapping sheet metal screws (OEM supplied) of sufficient length to safely secure the C-channel vertical rails to hold 272 kg per platform attachment (static load).

NOTE: Screws **MUST NOT** interfere with any moving parts of the bed lift system.

⚠ CAUTION

A pinched travel limit microswitch wire can cause damage to the bed lift system. Make sure installed lower vertical rail mounting screws do not pinch, cut or crush the lower limit switch wire. Also, make sure the upper limit switch wire is not pinched behind the motor mounting plate or rubbing against the chain or sprocket assembly.

NOTE: The number of mounting holes will vary according to the vertical rail length of the system being installed.

NOTE: Use the smaller holes for alternate mounting locations of the upper bunk stop.

2. The 1/4" wood or self-tapping sheet metal screws (OEM supplied) must be used in all large holes of the vertical C-channel rails, including the large double mounting holes at the top (Fig. 2) and bottom (Fig. 3) of the rails, to prevent rail-twist.

Fig. 2

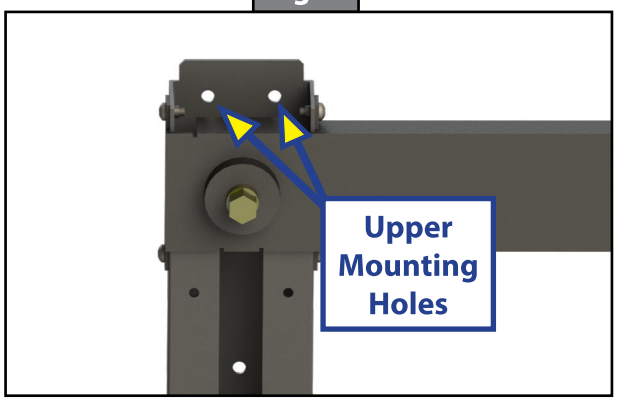
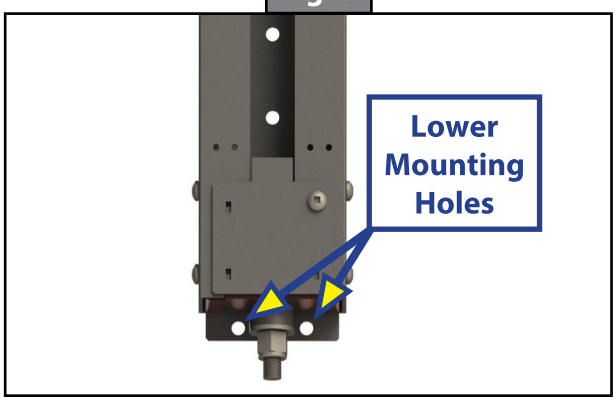


Fig. 3



3. After the rails are installed:
   - **A.** Check the rails for squareness and parallelism.
   - **B.** Remove wooden packing strips.

Motor and Connecting Shaft

1. The motor may be installed inward (Fig. 4) or outward (Fig. 5) on the rear curbside rail. Motor orientation is determined by the way the motor is attached to the mounting plate (Fig. 6). Attach the motor mounting plate for the desired orientation using the four large countersunk screws provided.
2. After mounting plate is bolted to the motor, attach the assembly to the bed lift system by sliding the hex connecting shaft into the motor. Install the two screws (Fig 7A) to hold the motor plate tight to the lift rail.

Fig. 4

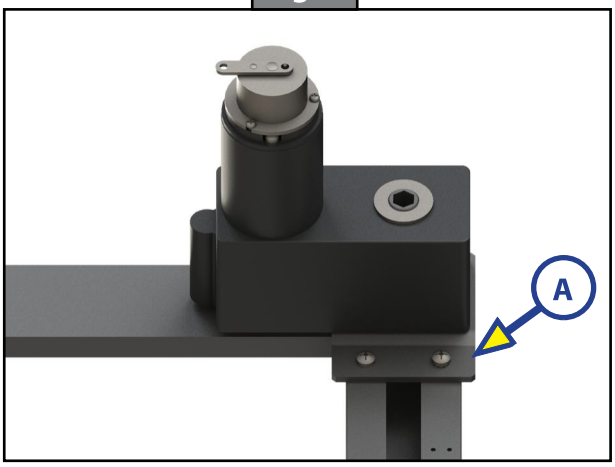


Fig. 5

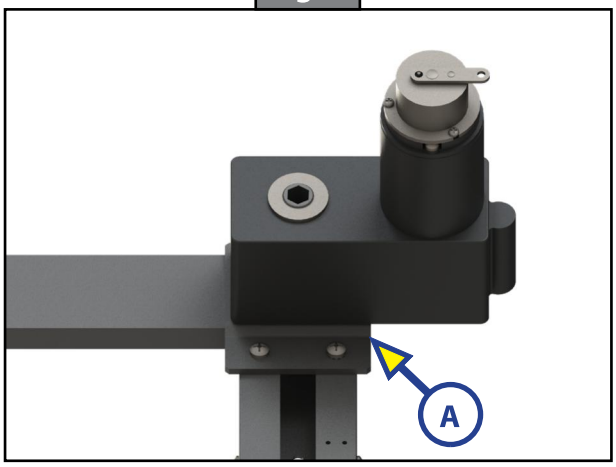


Fig. 6

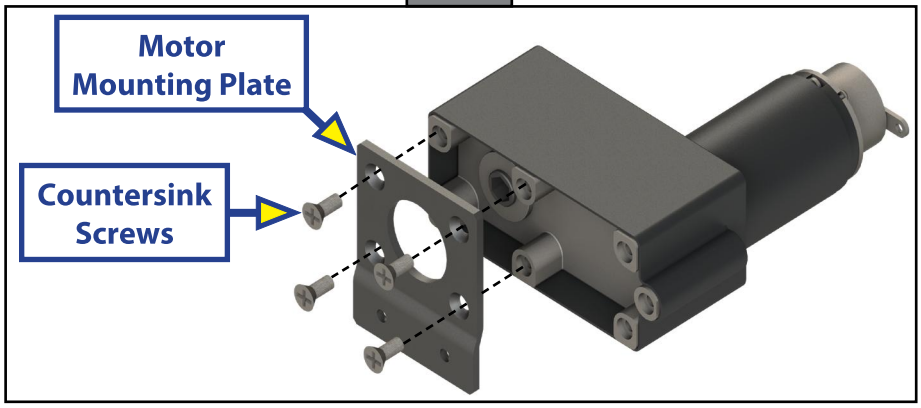
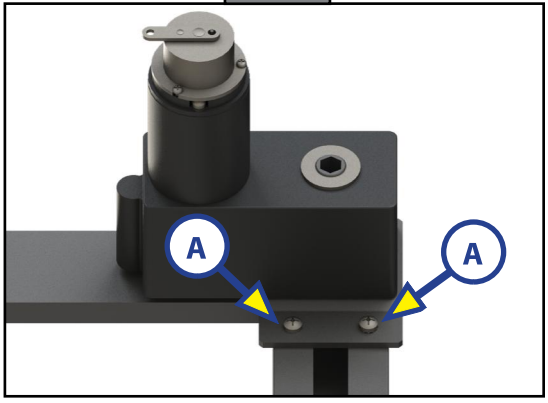


Fig. 7



3. Make sure that the drive (lower) trolleys (Fig. 8A) are at the same height on both sides of the bed lift.
4. Install connecting shaft by sliding open end of shaft over the hex shaft on the side opposite the motor (Fig. 9).

NOTE: If a gap forms due to the timing shaft "walking," the sprocket will twist.

Fig. 8

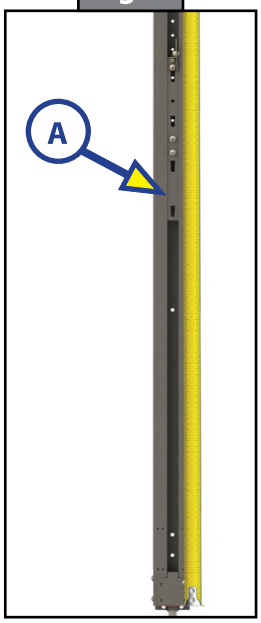
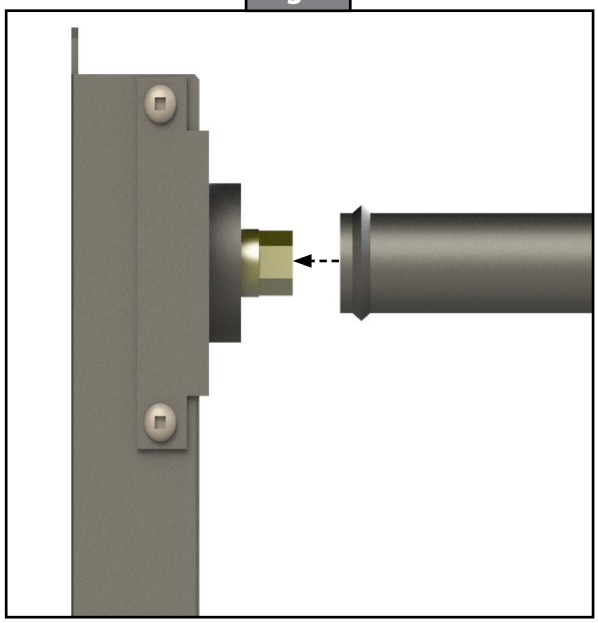


Fig. 9

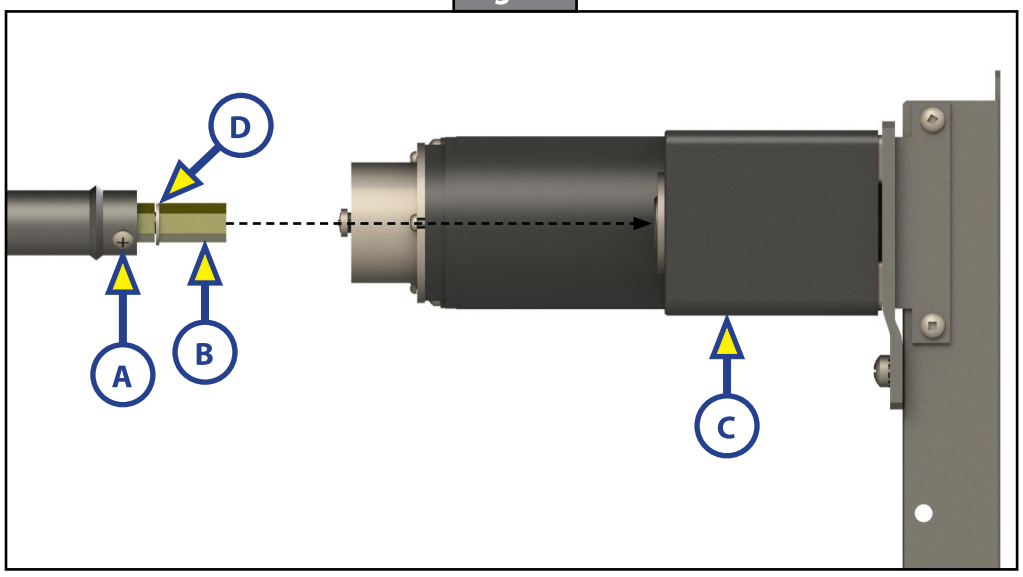


5. Loosen the set screw (Fig. 10A) in the collar of the connecting shaft where the gold hex shaft protrudes.
6. Draw out the hex shaft (Fig. 10B) and insert it into the motor (Fig. 10C) until the E-clip (Fig. 10D) is seated against the motor. Make sure the opposite end of the connecting shaft remains seated.

NOTE: It may be necessary to slightly rotate the connecting shaft back and forth to get the shaft to engage the motor. Side-to-side leveling will be affected by no more than 6 mm. The ideal setting is having the non-motor side trolleys 13 mm higher than the motor side to facilitate the lock-up pins. Small incremental changes can be made by utilizing the 12 pt. socket ends on the timing shaft.

7. Tighten the set screw.

Fig. 10



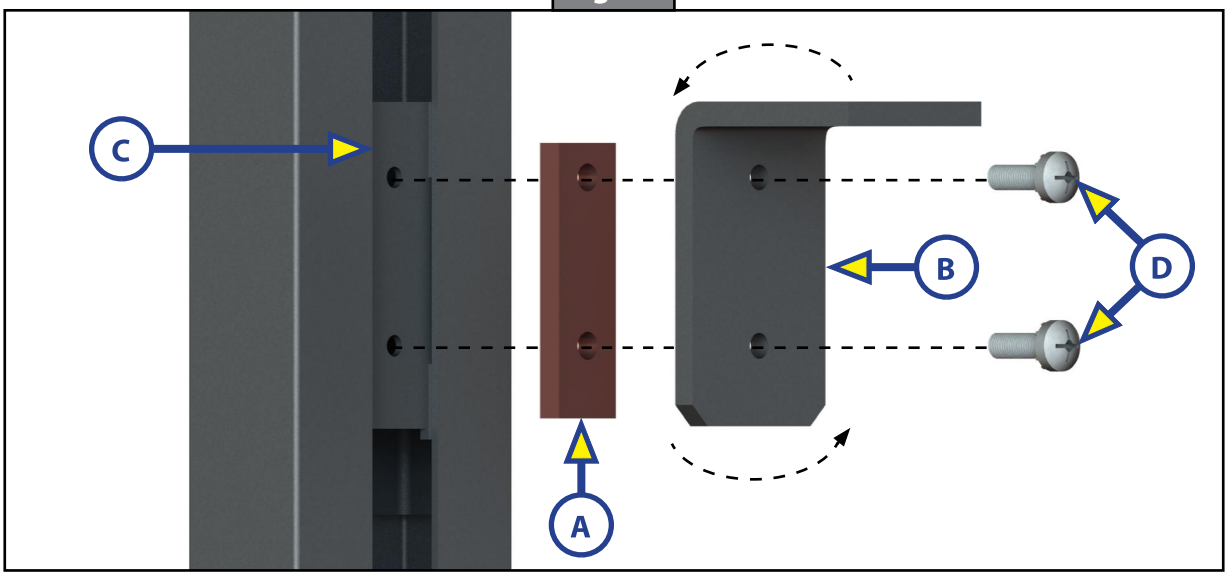
Upper Trolley Tab Bracket

1. Line up the holes in the gold-colored spacer block (Fig. 11A) and trolley tab bracket (Fig. 11B) with the holes in the upper trolley (Fig. 11C). Secure the trolley tab bracket and spacer block to the upper trolley with the included screws (Fig. 11D).

NOTE: The trolley tab bracket can be installed with the tab at the top or bottom.

2. Repeat for the other upper trolleys.

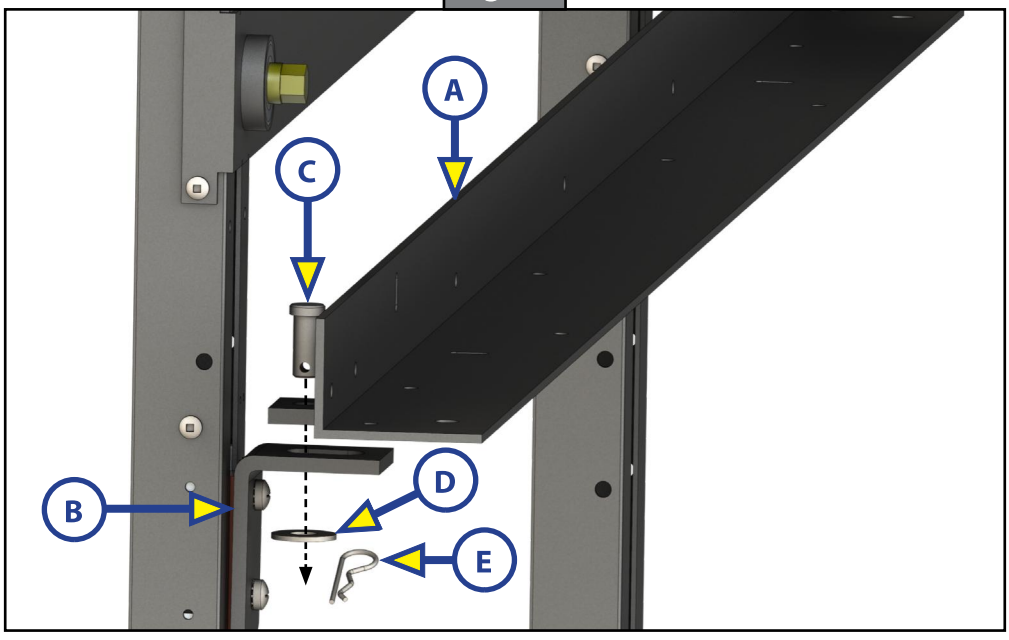
Fig. 11



Bed Platform

1. Place the bed platform (Fig. 12A) on the upper trolley tabs (Fig. 12B).
2. Insert a clevis pin (Fig. 12C) through the tab on the back of the bed platform, the trolley tab and a washer.
3. Secure with a hairpin (Fig. 12E)
4. Repeat for the other side of the rail.
5. Repeat steps 1 through 4 for the other side of the bedlift.

Fig. 12



Standard Lower Trolley Tab Bracket

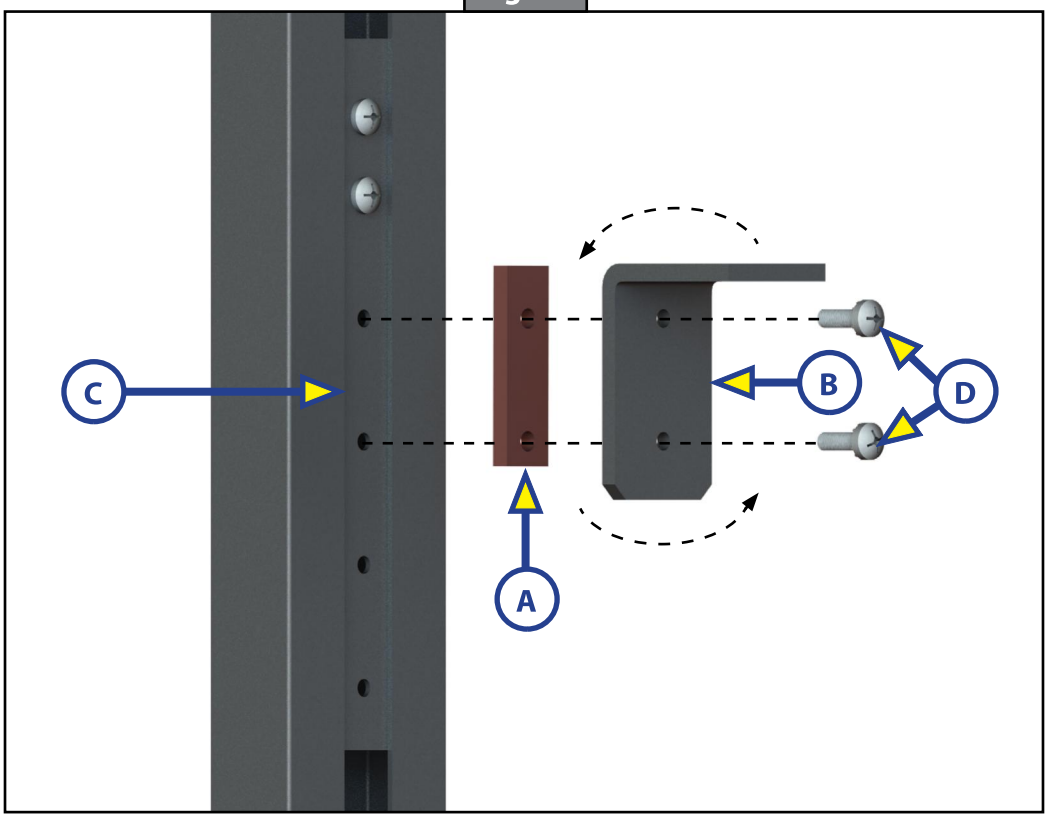
NOTE: The standard lower trolley has four holes. The trolley tab bracket and spacer block can be installed in any two holes on the lower trolley.

1. Line up the holes in the gold-colored spacer block (Fig. 13A) and trolley tab bracket (Fig. 13B) with two holes in the standard lower trolley (Fig. 13C). Secure the trolley tab bracket and spacer block to the upper trolley with included screws (Fig. 13D).

NOTE: The trolley tab bracket can be installed with the tab at the top or bottom.

2. Repeat for the other upper trolleys.

Fig. 13



Slotted Lower Trolley Sofa/Dinette Bracket

⚠ CAUTION

The sofa/dinette brackets are not designed to bear the weight of the furniture. Any furniture installed on the brackets MUST have the proper support legs attached to the furniture frame.

1. Line up the hooks on the base of the sofa bracket (Fig. 14A) with the slots of the lower trolley (Fig 14B), then insert the hooks into the lower trolley.
2. Pull down on the bracket to lock it into the lower trolley.
3. Install included 1/4" Phillips head locking screw (Fig. 15A) into the second hole in the lower trolley directly above the sofa bracket (Fig. 15B) to further secure the sofa bracket if there is no upper trolley. If there is an upper trolley, this screw will be installed during the Automatic Bunk Lock-up Mechanism installation.

Fig. 14

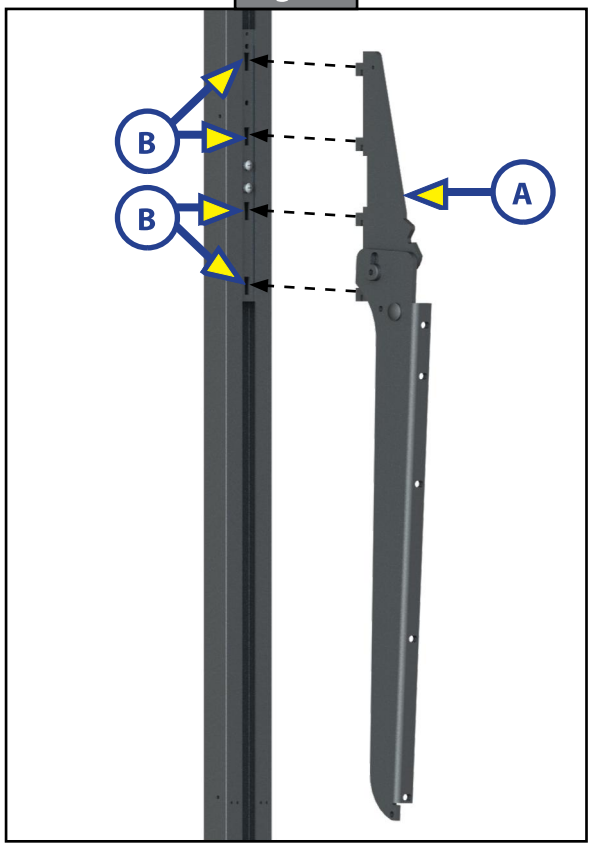
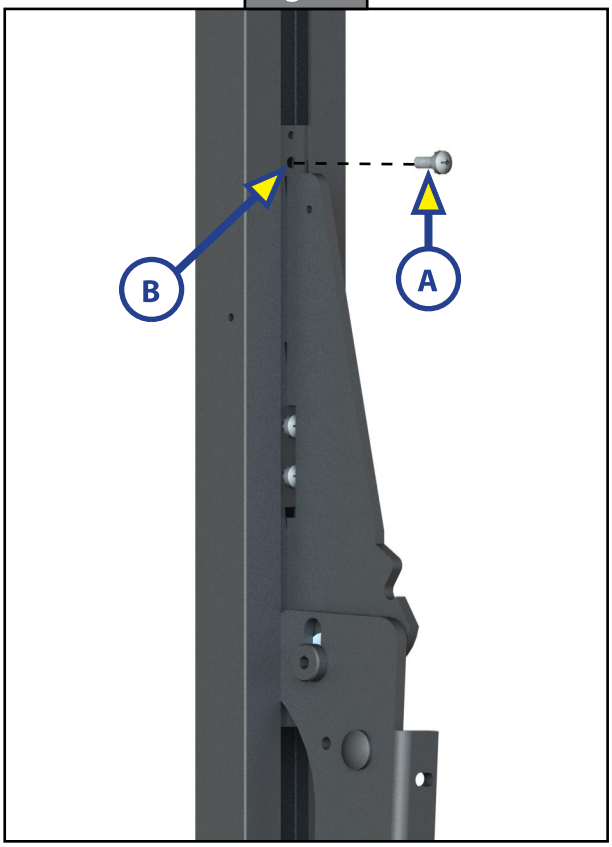


Fig. 15



4. Repeat steps 1 through 3 for the other lower trolleys.

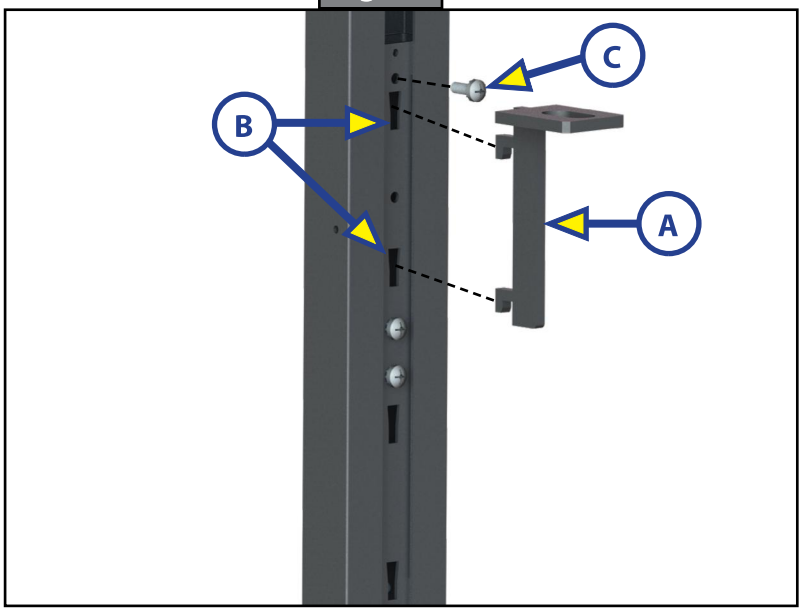
Slotted Lower Trolley Tab Bracket Installation

Slotted lower trolley tab brackets can be installed in place of the sofa/dinette brackets if a lower bunk configuration is required.

NOTE: There are four slots in the lower trolley. This trolley tab can only go into the top slots and can only be installed with the trolley tab at the top.

1. Line up the hooks on the edge of the trolley tab bracket (Fig. 16A) with the top two slots (Fig. 16B) in the slotted trolley, then push the brackets into the channels.
2. Push the bracket down so it locks into the trolley tab channels and secure with provided 1/4" Phillips head locking screw (Fig. 16C) if there is no upper trolley. If there is an upper trolley, this screw will be installed during the Automatic Bunk Lock-up Mechanism installation.

Fig. 16



3. Repeat steps 1 through 3 for the other lower trolleys.

Automatic Bunk Lock-Up System

The Automatic Bunk Lock System utilizes a lock-up mechanism to push the upper trolleys into spring-backed brackets (Fig. 17) inside the C-channels so the upper trolleys do not drift downward. The brackets come already bolted into the C-channels (Fig. 18).

Fig. 17

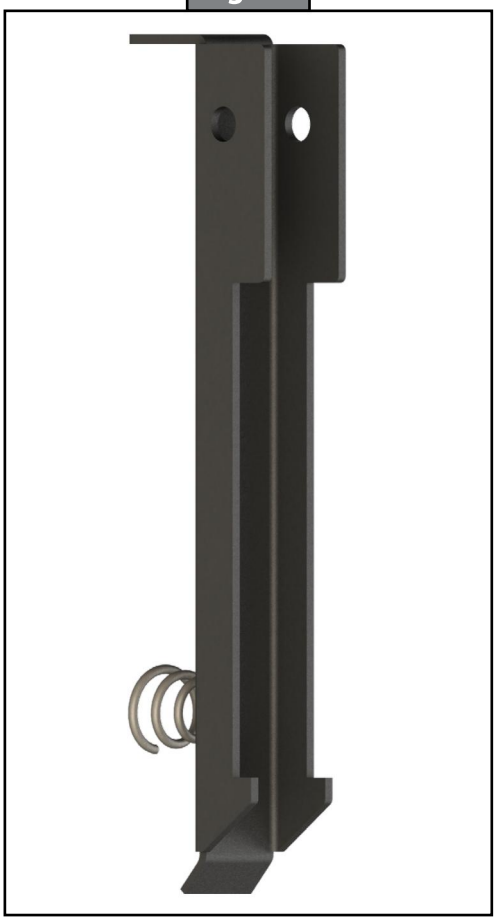
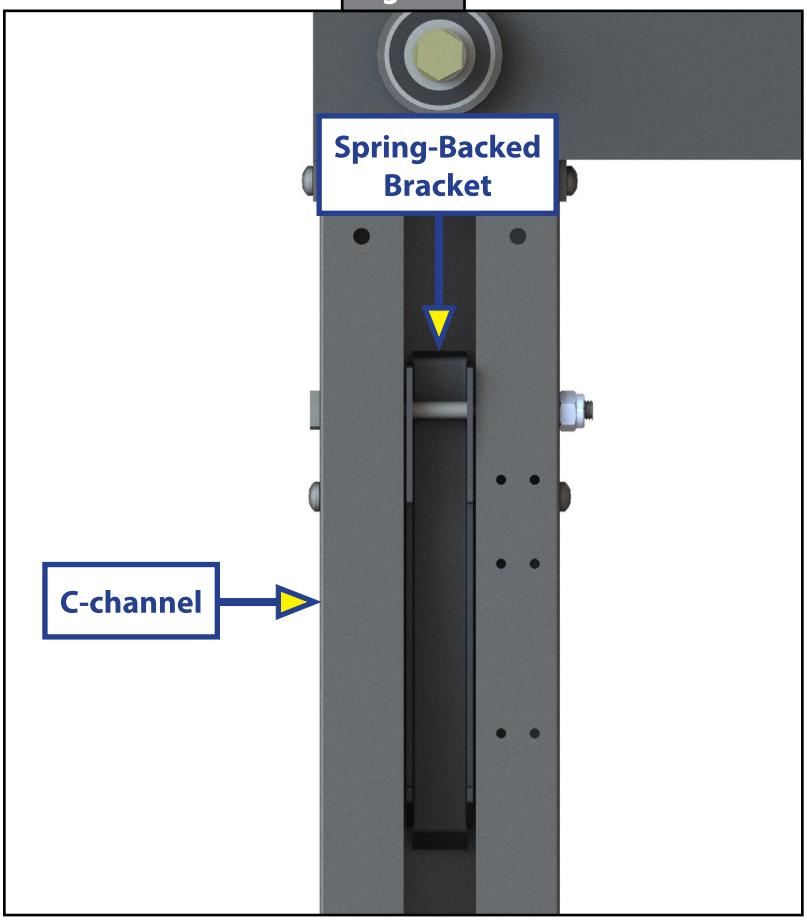


Fig. 18

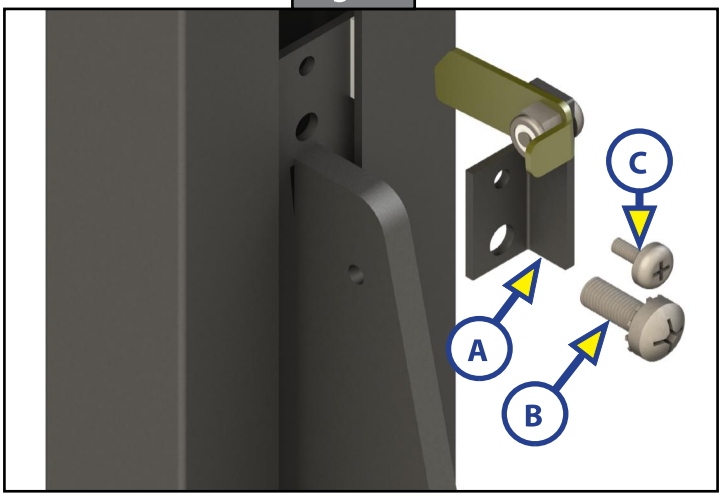


Automatic Lock-up Mechanism Installation

NOTE: If the sofa/dinette brackets or lower bunk trolley tabs are required, make sure they are already installed before beginning the lock-up mechanism installation.

1. Align the holes in the lock-up mechanism bracket (Fig. 19A) with the top two holes in the lower trolley.
2. Install the lower trolley set screw (Fig. 19B) in the lower hole of the trolley.
3. Install the bracket screw (Fig. 19C) in the upper hole of the trolley. Hand tighten the screw.

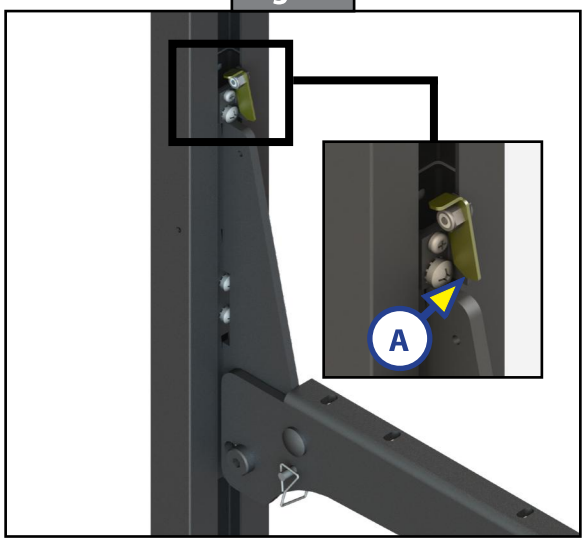
Fig. 19



Locking the Upper Bunk Trolleys

1. If the lower trolleys have a have a sofa or dinette attached, rotate the seatback(s) to the horizontal position.
2. Flip the locking mechanism tab (Fig. 20A) so the long portion of the tab is outside of the C-channel. Repeat for the other locking mechanisms.

Fig. 20



3. Press UP on the control switch until the upper bunk is in the full up position where the bed lift shuts off automatically. This will engage the locking mechanism.

NOTE: There is an audible click when the locking mechanism engages. If the mechanism fails to latch, check to make sure the bolt is not too tight and that the mechanism springs back freely within the C-channel.

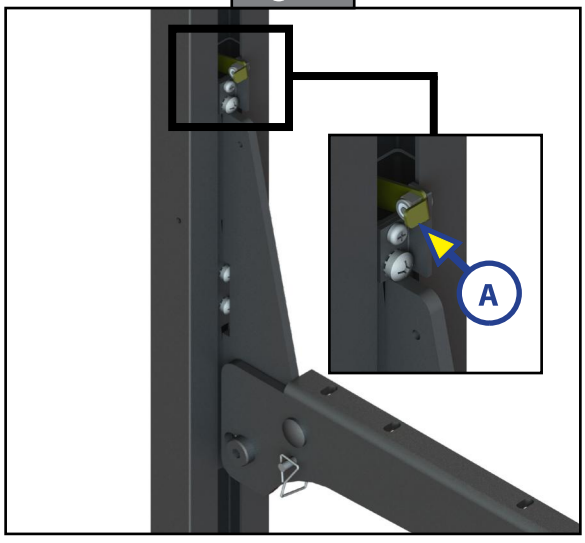
4. Press DOWN on the control switch to lower the lower slotted trolleys and make sure that the upper bunk trolleys are locked into place.

NOTE: If one or more of the trolleys is not locked into place, check all alignments and component installations.

Releasing the Upper Bunk Trolleys

1. Flip the locking mechanism tab (Fig. 21A) to the release position, where the long portion of the tab is inside the C-channel. Repeat for the other locking mechanisms.

Fig. 21



2. Press the UP switch until the lower trolley disengages the upper bunk from the locking mechanism.
3. Press the DOWN switch to bring down the upper bunk trolleys along with the lower trolleys.

Wiring the System

1. Connect 12V DC and ground from the unit's power supply to the motor's location with 2.59 mm stranded electrical wire.
2. Connect a 12V DC line to the solid white wire of the supplied power pigtail and the ground wire to the black striped wire of the pigtail (Fig. 22).
3. Run the RJ-11 COMM cable from the bed lift control switch to the control module.

NOTE: When holding the locking tabs toward you (Fig. 23), the wire colors are the same left-to-right.

Fig. 22

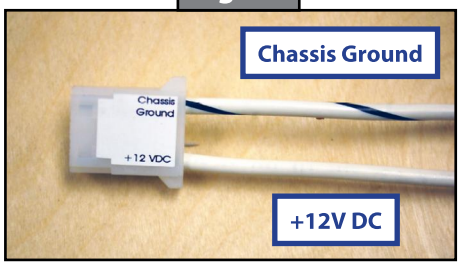
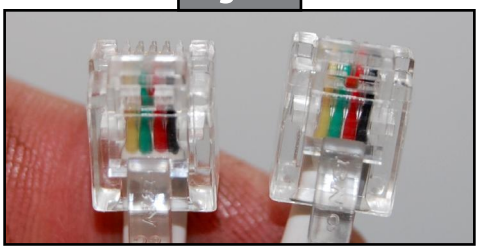


Fig. 23



4. Plug the power pigtail, COMM cable, PnP motor, PnP brake, the 3-pin upper PnP microswitch and the 2-pin lower PnP microswitch into the PnP control module. See Wiring Diagram (Fig. 27).

⚠ CAUTION

Leave a small downward loop in the COMM cable to reduce the risk of moisture or condensation running down the cable into the PnP module.

5. Secure the control module to the unit using the module's two mounting holes.
6. Use a router or 38 mm hole saw to create an opening in the wall or cabinet panel where the control switch is to be mounted.
   - **A.** Run the COMM cable through the opening (Fig. 24).

⚠ CAUTION

Make sure the printed circuit board is not in contact with any metallic surface or object. Metal-to-metal contact between the circuit board and any other metallic surface can damage (short circuit) the control switch. A short circuit may cause the bed lift to operate without pressing the switch, which could cause personal injury or component damage.

   - **B.** Plug the COMM cable into the connector under the printed circuit board located on the back of the control switch (Fig. 25).

Fig. 24

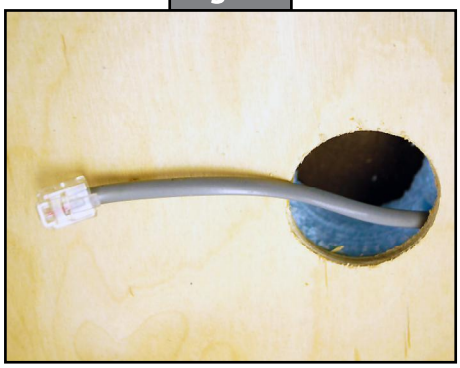
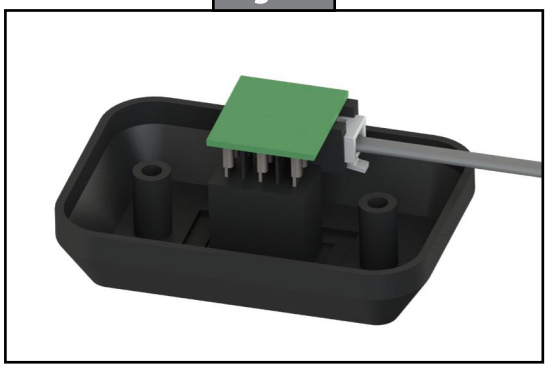
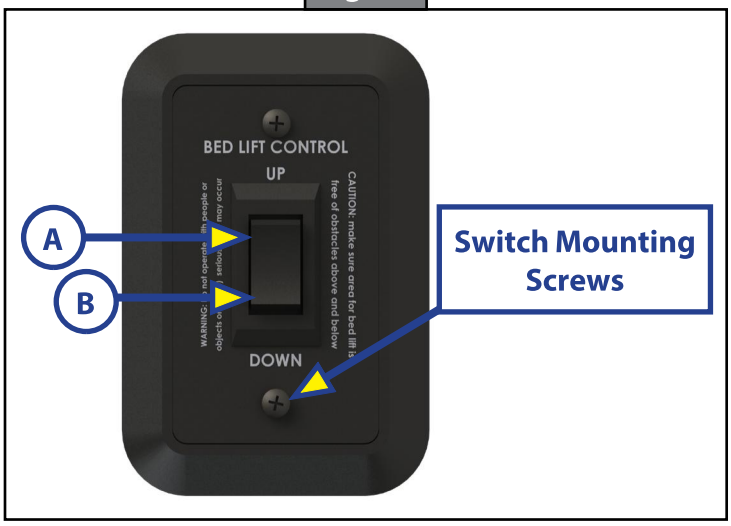


Fig. 25



7. Place the BED LIFT CONTROL switch (Fig. 26) over the hole and secure it with the screws provided. Make sure the switch is positioned such that both screws will securely hold the switch in place.

Fig. 26



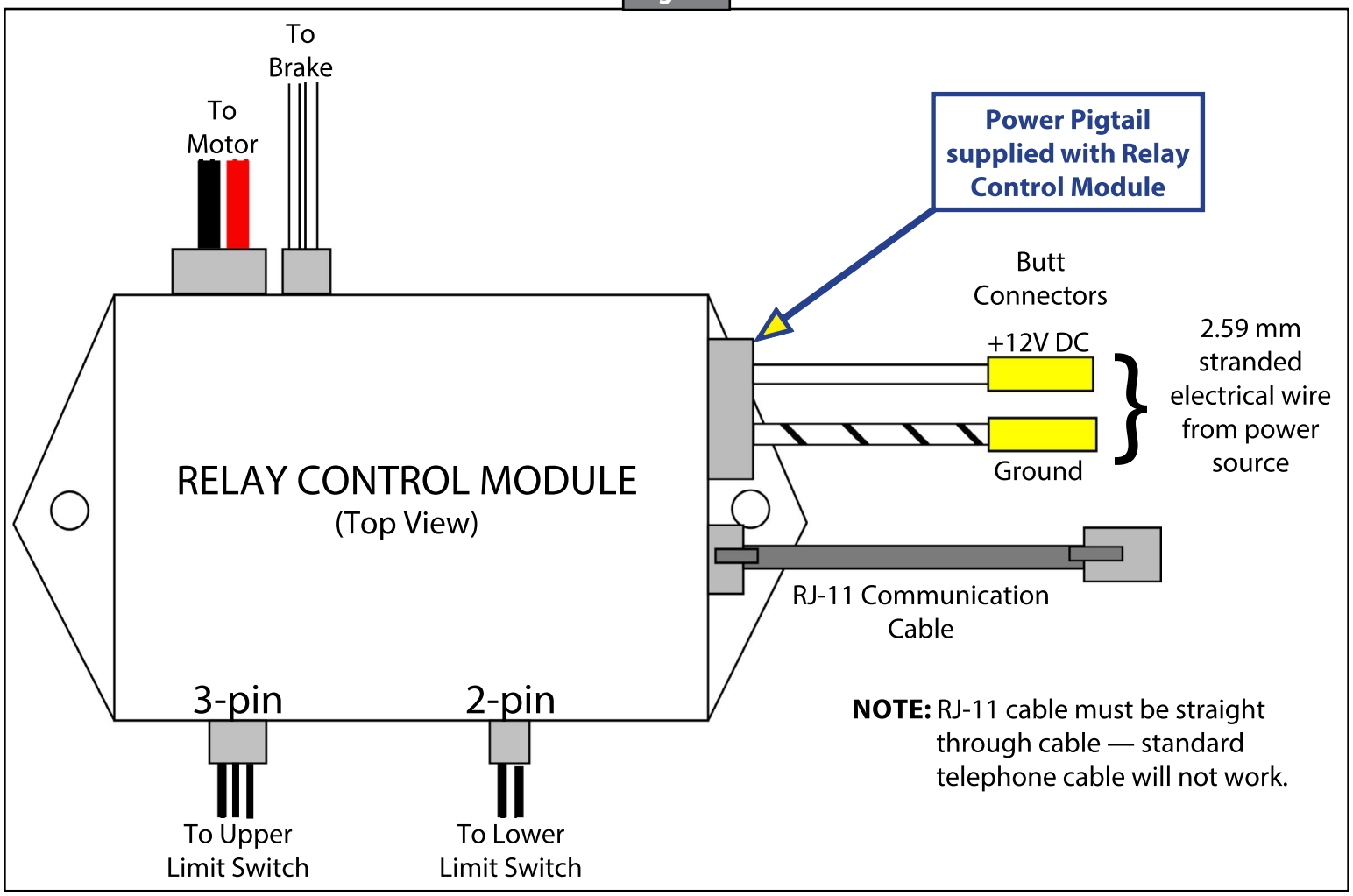
Relay Control Module

All outputs are marked on underside of the relay control module (Fig. 27).

Wiring Diagram

RVIA wiring requirements restrict the length of exposed motor leads to a maximum of 254 mm. Therefore, the Relay Control Module must be placed above the motor or on the wall of the unit in close enough proximity to the motor that the 254 mm motor lead will reach.

Fig. 27



Testing the System

Trolley Travel

⚠ CAUTION

Moving parts can cut or crush. Keep clear of moving parts.

This test requires two people. Each time the micro-limit switch is depressed the drive trolley should stop. If the trolley fails to stop when the switch is depressed, re-check all electrical connections and 12V DC and ground wire connections.

1. Press and hold the control switch UP button (Fig. 26A) to make sure that the trolleys travel upward. If the trolleys travel downward, check the orientation of the 12V DC and ground connections to the power pigtail (Fig. 22). Refer to Wiring Diagram (Fig. 27).

NOTE: The limit switches (microswitches) (Figs. 28A and 29A) are located behind the two small Phillips head screws (Figs. 28B and 29B) near the top and bottom of the vertical rail below the motor.

Fig. 28

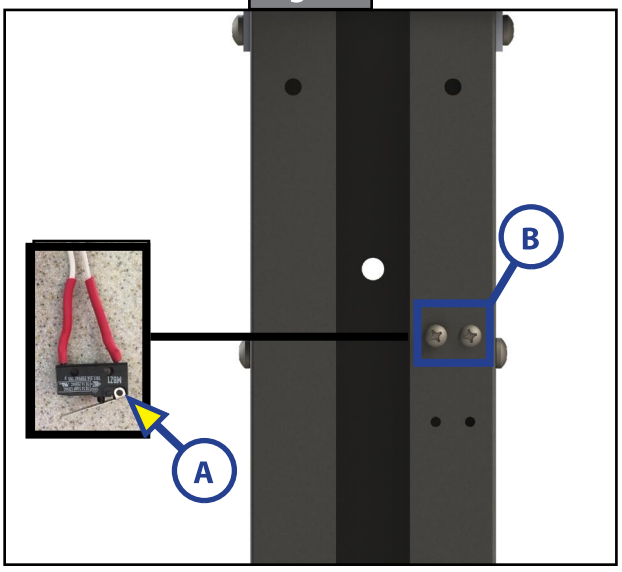
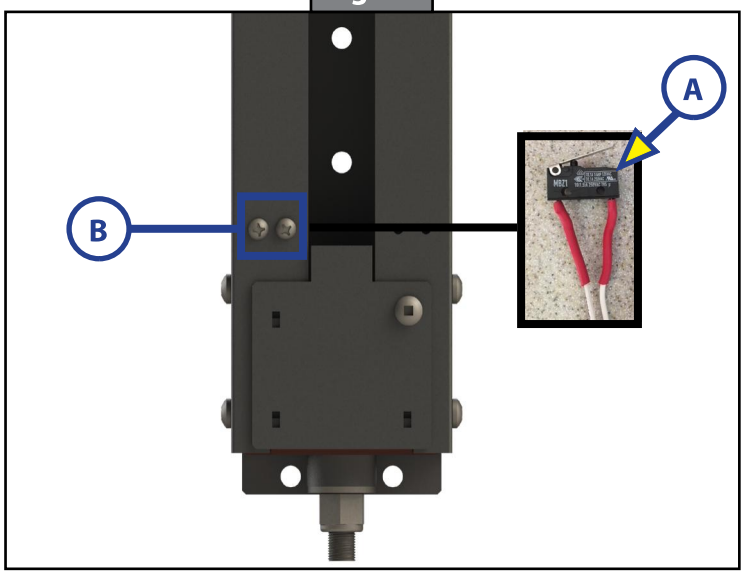


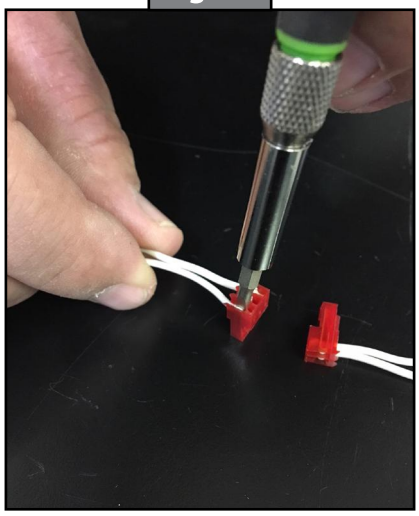
Fig. 29



2. While running the system upward, toggle the upper microswitch with a stiff wire or large paper clip (Fig. 28A).
3. Press and hold the control switch DOWN button (Fig. 26B) to make sure that the trolleys travel downward. If the trolleys travel upward, check the orientation of the 12V DC and ground connections to the power pigtail (Fig. 22). Refer to Wiring Diagram (Fig. 27).
4. While running the system downward, toggle the lower microswitch with a stiff wire or large paper clip (Fig. 26A).
5. If the system fails to operate, check all electrical connections.

6. Check to make sure that the wires punched down into the microswitch connectors (small red ones) are tightly secured. If necessary, press wires firmly in place with a small screwdriver blade (Fig. 27) to make sure that the pins in the connector bite through the insulation on the wire.

Fig. 30



Bed Lift Operation

⚠ CAUTION

Moving parts can cut or crush. Keep clear of moving parts.

1. Press and hold the bed lift control switch UP button (Fig. 26A) to make the lift go up.
2. Continue to hold the UP button until the limit switches (microswitches) stop the lift's movement.
3. Press and hold the DOWN button (Fig. 26B) until the limit switches stop the lift's movement.

Motor and Brake

If the motor does not operate properly in this test mode, the problem may still be unrelated to the motor. If uncertain of failure, contact LCI customer service before replacing the motor. See back cover page for LCI customer service contact information.

1. Position the bed(s) well out of the upper and lower limit switches.

⚠ CAUTION

Moving parts can cut or crush. Keep clear of moving parts.

2. Remove the motor plug from the control module.
3. Release the brake lever on the end of the motor.

NOTE: If the beds are up, they will drift downward.

4. Briefly jump 12V DC from a known good source to the motor wires.
5. Use care not to contact the limit switches. If the beds move too close to the limit switches, reverse the wires to reverse the direction of the beds. Run the beds this way only long enough to verify motor operation.

Limit Switches - Microswitches

⚠CAUTION

The limit switches are no longer active in the circuit and will not stop the bed. Damage to the switches, mechanism or unit could occur. Reversing the wire leads will reverse the motor direction.

To determine if there is a limit switch problem, eliminate the switches from the circuit.

1. Remove the small 3-pin and 2-pin red limit switch from the relay control module.
2. Short the connector pins of the module. See Wiring Diagram (Fig. 27).
   - **A.** Lace a paper clip over and under the output pins of the 3-pin connector to create a short (Fig. 31).

NOTE: Alternatively, an alligator clip may be used instead of a paper clip.

   - **B.** Wedge a small screw, or other metallic object, between the output pins of the 2-pin connector to create a short (Fig. 32).

Fig. 31

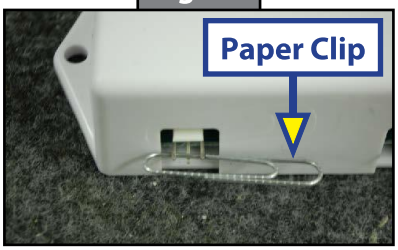
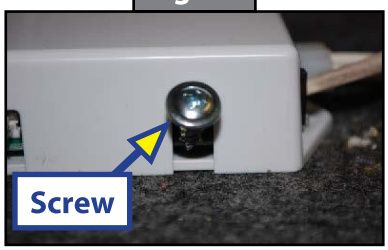


Fig. 32



3. Briefly depress the UP/DOWN buttons on the control switch to see if the motor energizes.
   - **A.** If the motor energizes, then the problem is with the limit switch circuit. Replace the limit switch.
   - **B.** If the motor does not energize, then the problem is not in the limit switch but elsewhere.

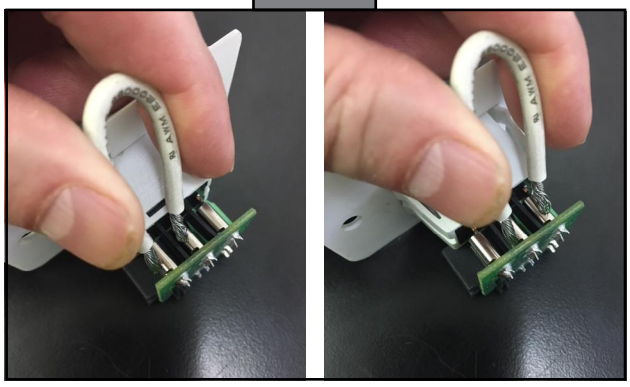
Bed Lift Control Switch - LCI-Supplied Switch Only

The bed lift relay control switch (rocker switch) (Fig. 25) is plugged into a circuit board which transitions the signal from the switch to the communication cord.

Bypass the switch for testing purposes as follows:

1. Remove the screws from the switch bezel to gain access to the back of the switch.
2. Use a loop of wire to short the switch's center contact to the outer contacts (Fig. 33).

Fig. 33



   - **A.** Short from center silver lug to each outside lug. One side should move the beds up and the other side will move the beds down.
   - **B.** If the bed(s) move while contacts are being shorted but not when the switch is depressed, the switch is defective. Replace bed lift control switch.
3. Install switch bezel to the back of the switch with previously removed screws.

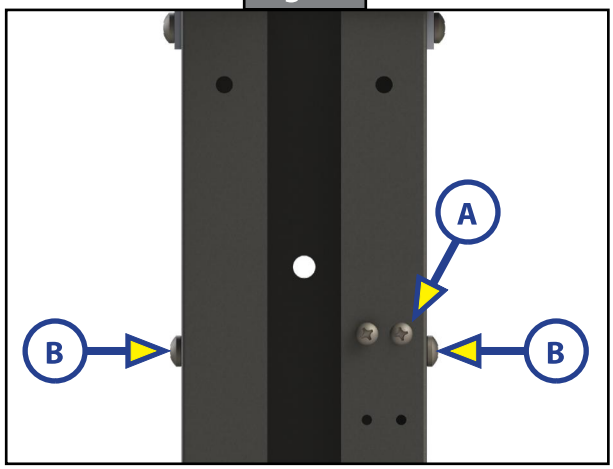
Relocating Limit Switches

If desired, the limit switches can be moved from their factory locations to one of the alternate positions.

To relocate the upper limit switch:

1. Remove the two Phillips head screws (Fig. 34A).

Fig. 34



2. Move the switch to the new location.

NOTE: It may be necessary to add 6P4C electrical wire to the microswitches to accommodate switch relocation.

⚠ CAUTION

Do not overtighten screws. Tighten screws slowly until switch is snug and does not move. Overtightening screws can crack the limit switch body, causing the limit switch to short-out. If there is a short, the bed lift travel will not stop which could cause catastrophic failures to the system.

3. Carefully reinstall screws to secure switch.

When upper limit switch microswitches are relocated from their factory locations, the self-tapping stop screws located on either side of the microswitches (Fig. 34B) must be moved also.

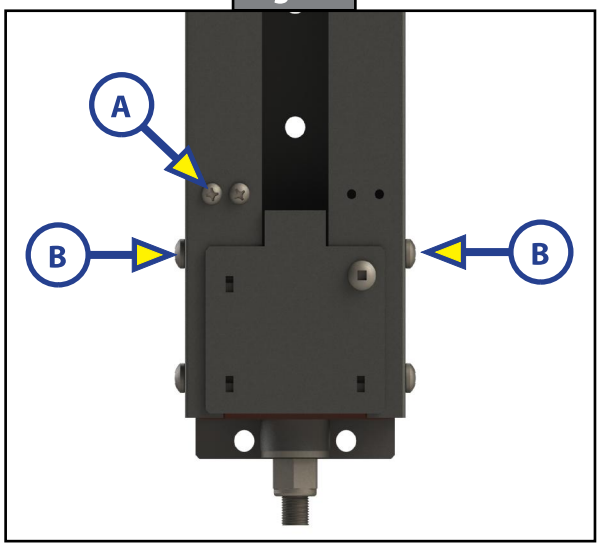
⚠ CAUTION

Failure to relocate stop screws along with relocated microswitches can cause damage to the bed lift system. Relocate, or install new, stop screws when relocating microswitches to prevent possible bed lift damage. Be careful not to pinch, cut or otherwise damage mircoswitch wires.

To relocate the lower limit switch:

1. Remove the two Phillips head screws (Fig. 35A).

Fig. 35



2. Move the switch to the new location.

NOTE: It may be necessary to add 6P4C electrical wire to the microswitches to accommodate switch relocation.

⚠CAUTION

Do not overtighten screws. Tighten screws slowly until switch is snug and does not move. Overtightening screws can crack the limit switch body, causing the limit switch to short-out. If there is a short, the bed lift travel will not stop, which could cause catastrophic failures to the system.

3. Reinstall screws to secure switch.

When limit switch microswitches are relocated from their factory locations, the self-tapping stop screws located on either side of the microswitches (Fig. 35B) must be moved also.

If the lower limit switch is relocated from its lowest position, stop screws must be added at the new location.

⚠CAUTION

Failure to relocate stop screws along with relocated microswitches can cause damage to the bed lift system. Relocate, or install new, stop screws when relocating microswitches to prevent possible bed lift damage. Be careful not to pinch, cut or otherwise damage mircoswitch wires.

Manual Operation

⚠CAUTION

When bed(s) are not being manually raised or lowered, the brake MUST be set or the bed(s) will drift down causing possible personal injury, product or property damage.

⚠CAUTION

Moving parts can cut or crush. Keep clear of moving parts.

Before releasing the brake in manual mode, make sure there are no obstacles below the bed(s), sofa or dinette. Be prepared to apply the brake, if necessary, and make sure to move the brake back into the ON position once the desired height is reached.

Manually Raise the Bed(s)/Sofa or Dinettes

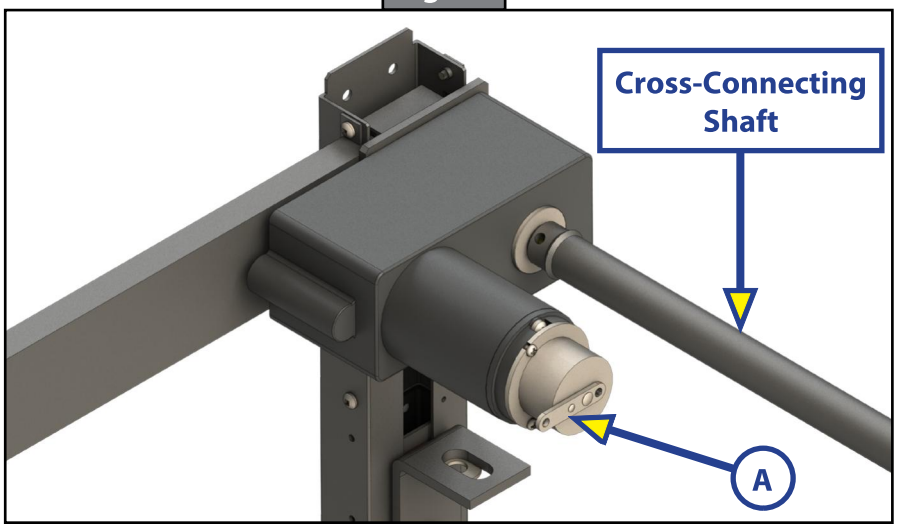
Do the following in the order listed:

1. Unplug the motor harness (Fig. 36A) from the relay control module.

Fig. 36

2. Release the brake by pushing the lever to the OFF position as indicated on the label below the brake lever (Fig. 37A).

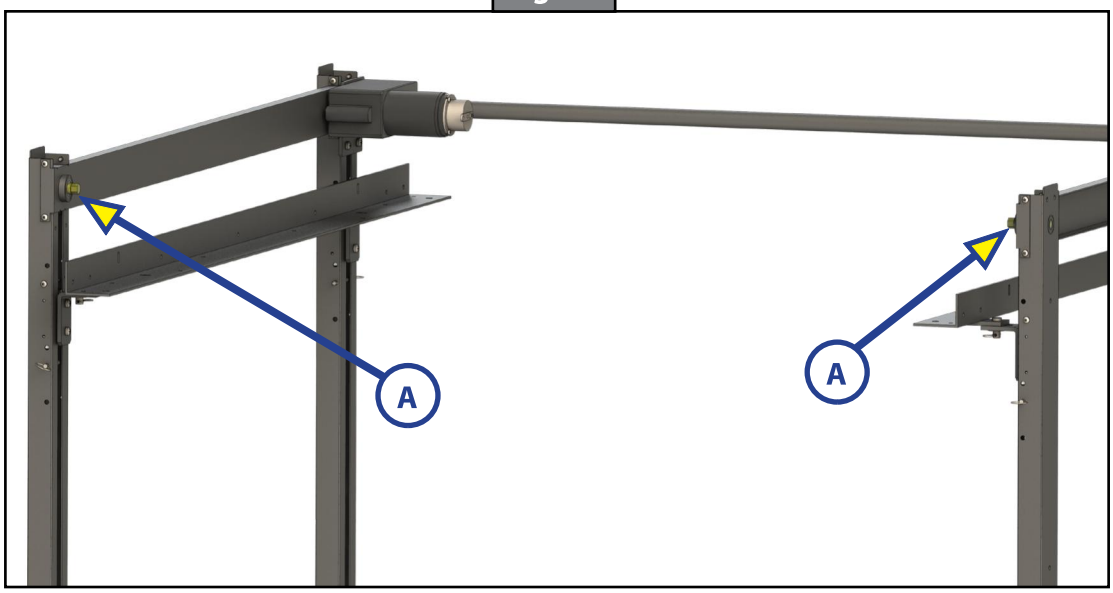
Fig. 37



3. Remove the caps from the cranking points (Fig. 38A), which are located at the top of the front C-channels (opposite of the C-channels where the motor and cross-connecting shaft are installed).
4. Using a 1/2" socket wrench, manually crank the bed lift.

NOTE: Cranking is easier if two people crank simultaneously, one on each side of the bed lift.

Fig. 38



5. Apply brake at the desired bed height by resetting the brake lever to the ON position.
6. Reconnect the motor harness.

Manually Lowering the Bed(s)

⚠ CAUTION

Before releasing the brake in manual mode, make sure there are no people, pets or obstacles below the bed platforms. Keep hold of the brake lever as the bed(s) extends. Be prepared to apply the brake if necessary.

⚠ CAUTION

Moving parts can cut or crush. Keep clear of moving parts.

Do as follows:

1. Unplug the motor harness from the relay control module.
2. Move the brake lever to the OFF position (Fig. 37A). Bed will drift downward.
3. Re-apply the brake by moving the lever to the ON position when the desired bed height is reached.
4. Reconnect the motor harness (Fig. 36A).

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