



TRIPLE PLAY[™] RAMP DOOR OEM INSTALLATION MANUAL

LIPPERT
COMPONENTS[®]

TABLE OF CONTENTS

Introduction	2
Safety Information	3
Resources Required	3
Installation	4
Doorjamb	4
Hidden Hinge Installation	7
Door Cable System	8
Electrical Connections	14
Angle Sensor	15
Key Switch	15
Touchpad	16
Post Installation Check	16
Patio Mode	17
Ramp Mode	17
Closing the Ramp Door	17
Troubleshooting Fault Codes	18
Optional Configurations	19

Introduction

The following information is intended to provide standard installation instructions for the LCI Triple Play™ Ramp Door. The Triple Play Ramp Door system operates the rear door in several modes: ramp mode, patio mode and closed. Failure to adhere to the recommended installation procedures in this document may result in the voiding of the product warranty. For any alterations outside of the provided instructions in this document, consult your LCI representative.

The Triple Play Ramp Door operates within a voltage range between 10.5V DC and 16V DC. The maximum weight for the Triple Play Ramp Door in ramp configuration is 3,000 lbs. The maximum weight for the Triple Play Ramp Door in patio configuration is 1,500 lbs. Outside approximate operational temperature range of 0-110°F, door will operate but, may operate slower.

NOTE: Green lines, if enclosed, indicate a designated area. Non-enclosed green lines indicate a separator between designated areas.

Safety Information

WARNING

Failure to follow these instructions may result in death, serious personal injury and/or severe product damage or voiding of the product's warranty.

WARNING

The maximum weight for the Triple Play Ramp Door in ramp configuration is 3,000 lbs. The maximum weight for the Triple Play Ramp Door in patio configuration is 1,500 lbs. Exceeding the maximum weight ratings can cause death, serious personal injury, severe product or property damage.

WARNING

Never use the ramp door while anything is obstructing its operation. Obstructions in the ramp door's path can cause serious personal injury, severe product or property damage.

CAUTION

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

CAUTION

Always make sure the cables are pulling out straight and not coming in contact with any obstruction. Uneven and/or interrupted deployment of the ramp door can result in damage to the door and its cabling system.

CAUTION

Do not operate the ramp door if any cable is frayed or damaged. Frayed or damaged cables lose their full capability to function properly. Frayed or damaged cables may break when placed under tension, resulting in possible personal injury or product damage.

NOTE: Cables are not shown in all images for clarity.

Resources Required

- 1-3 persons, depending on task
- 1/2" deep well socket
- 3/4" deep well socket
- Impact wrench
- Ratchet extension
- Flat head screwdriver
- Alignment punch
- 1/2" wrench
- 9/16" socket
- 9/16" wrench
- 3/16" hex key
- 7/32" hex key
- Carriage bolts, 1 1/2" minimum long (4)
- Flange nuts (to match carriage bolts) (4)
- #8 pan head, self-drilling screws (4)
- #10 self-drilling screw
- Gunnable sealant

Installation

Doorjamb

NOTE: The Triple Play Ramp Door system is available in a variety of dimensions depending on the manufacturer's specifications.

1. Set the ramp doorjamb/hoop assembly (Fig. 1A), onto the chassis door frame supports (Fig. 1B).
2. Make sure that the four doorjamb clearance holes (two on each column) line up with four chassis door frame support holes (two on each column) (Fig. 2A and Fig. 2B).

NOTE: A small alignment punch or flat head screwdriver may be used to make small adjustments.

Fig. 1



Fig. 2

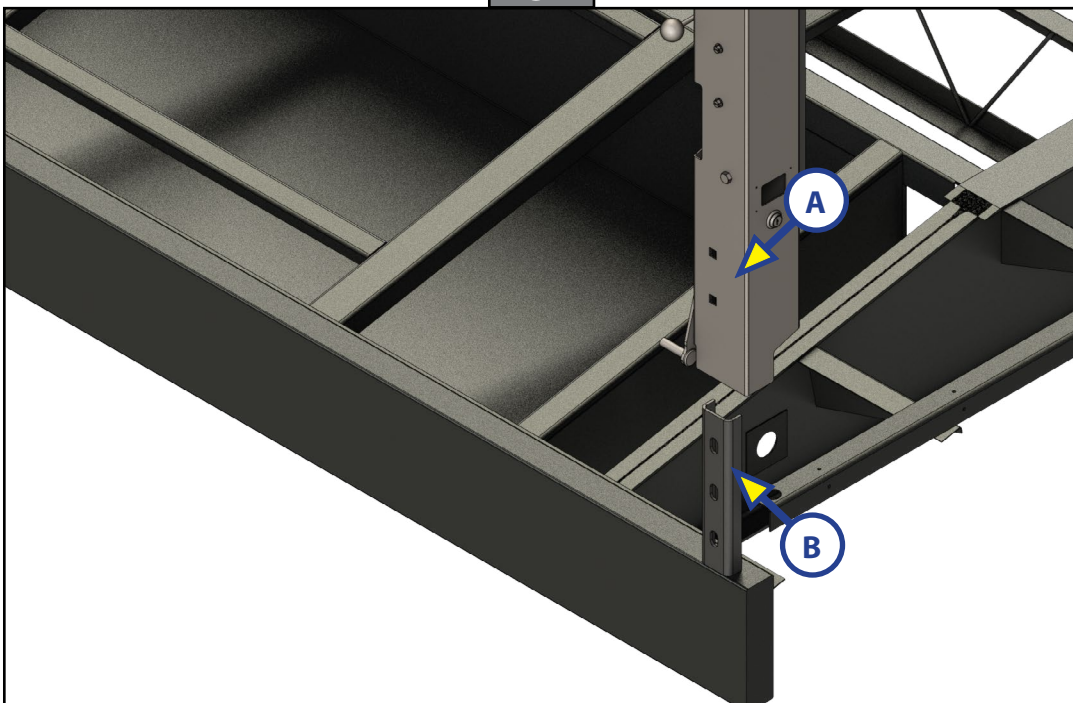


Fig. 3

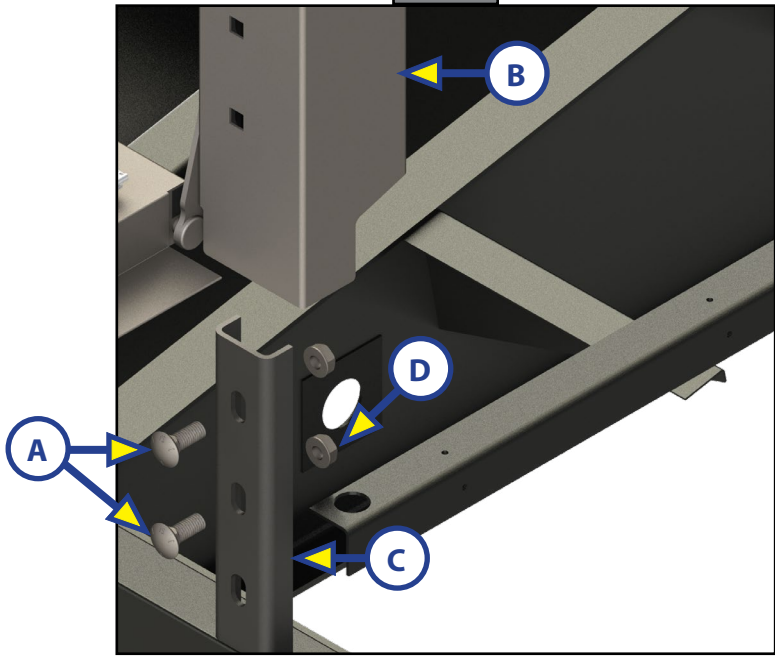
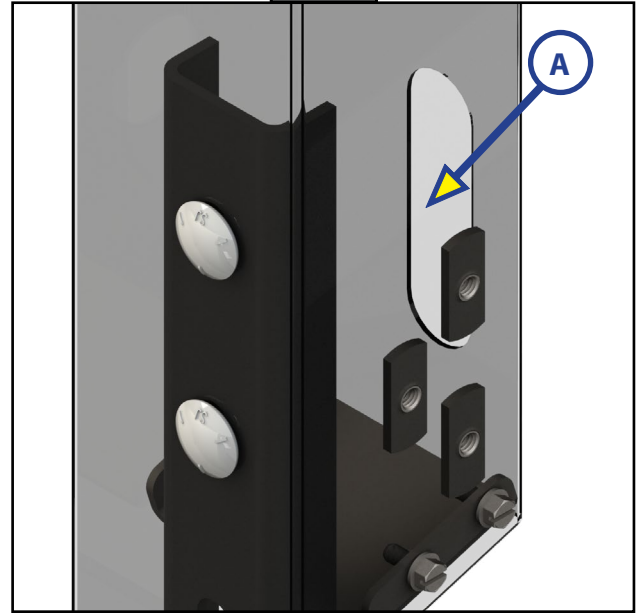


Fig. 4



3. Insert 1 1/2" minimum long carriage bolts (Fig. 3A) (two per column), through the doorjamb (Fig. 3B) and the chassis door frame supports (Fig. 3C).
4. Use a 3/4" deep well socket attached to a ratchet extension to thread and secure appropriate sized flange nuts to the carriage bolts (Fig. 3D).

NOTE: Access to the carriage bolts is through the large rounded end slot (Fig. 4A) on the interior of the doorjamb.

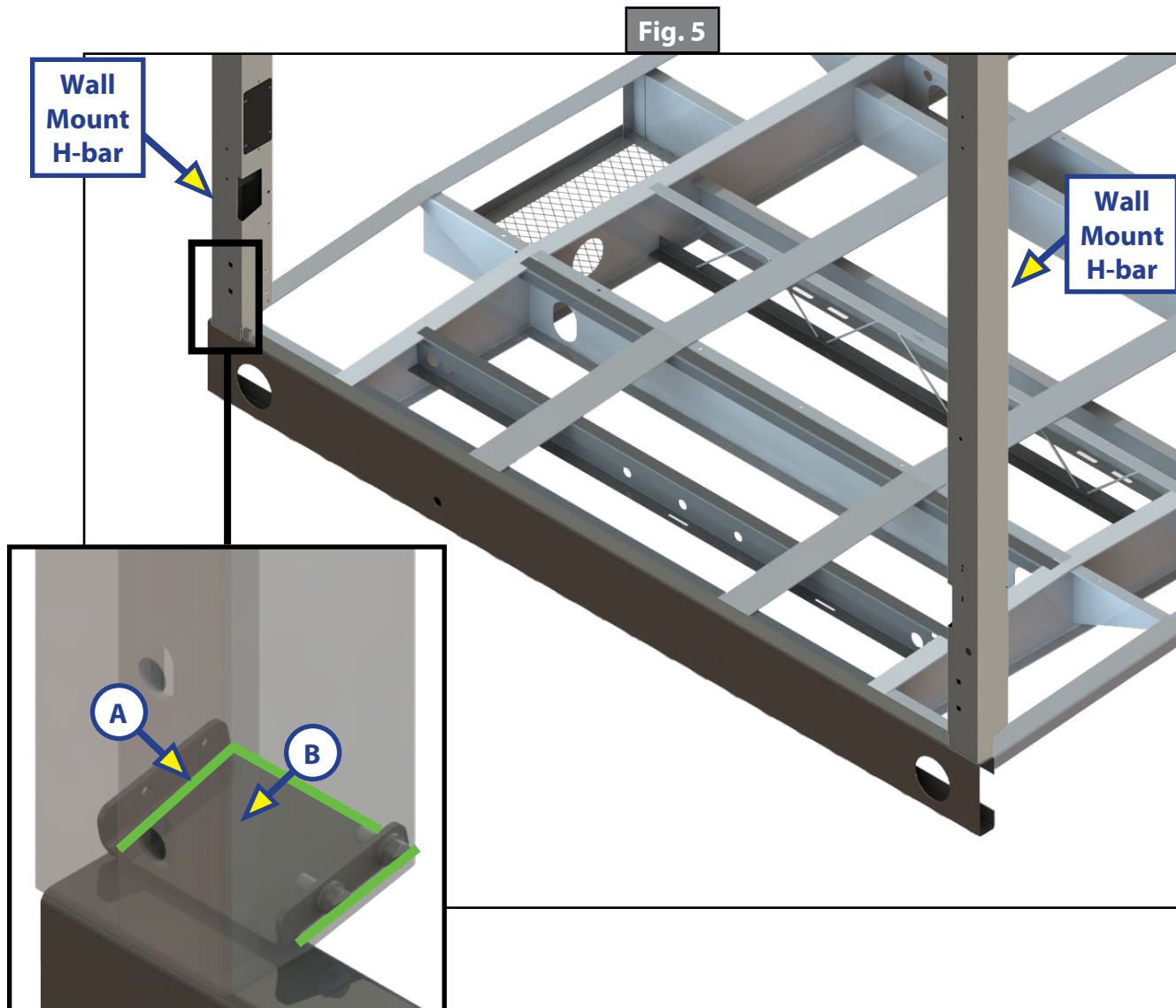
5. After the flange nut is attached to the carriage bolt, an impact wrench may be used to tighten the flange nut.

NOTE: Carriage bolts have the potential to spin if not properly seated in the vertical columns.

6. The ramp doorjamb assembly is now installed on the trailer chassis (Fig. 5) and ready for the installation of the hidden hinge-equipped ramp door.

NOTE: At the bottom of the doorjamb assembly, gunnable sealant may be applied around all outside edges (Fig. 5A, green line) of each water management plate (Fig. 5B), located on both sides of the doorjamb assembly.

NOTE: After the exterior walls are placed onto the trailer, make sure that the doorjamb is perpendicular to the chassis frame.



Hidden Hinge Installation

NOTE: The hidden hinge pivot brackets will come assembled to the doorjamb.

1. Using a $\frac{3}{16}$ " hex key, remove the three $\frac{5}{16}$ "-18 button head fasteners from the roadside doorjamb.
2. Place the roadside hidden hinge bracket (Fig. 6A) into the ramp door.
3. Mount the ramp door (Fig. 7A) onto the curbside hidden hinge pin (Fig. 7B).
4. Slide the ramp door, along with the roadside hidden hinge, into the roadside (left) vertical doorjamb hoop column.
5. Using a $\frac{3}{16}$ " hex key, secure the roadside hidden hinge (Fig. 8) onto the vertical column with the previously removed $\frac{5}{16}$ " - 18 x $\frac{3}{4}$ " button head fasteners (Fig. 8A).
6. Installation of the hidden hinge is now complete. See Door Cable System section for completing the ramp door installation.

Fig. 6

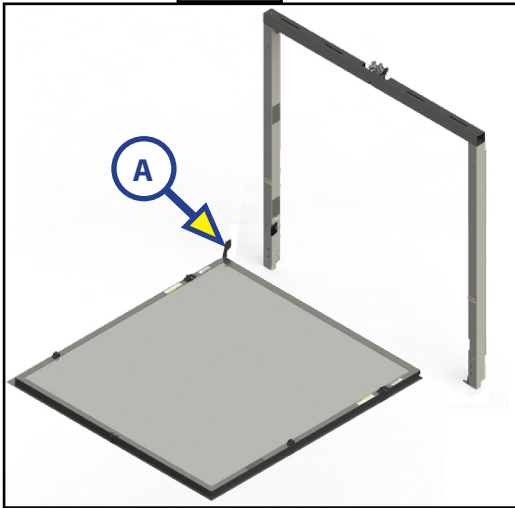


Fig. 7

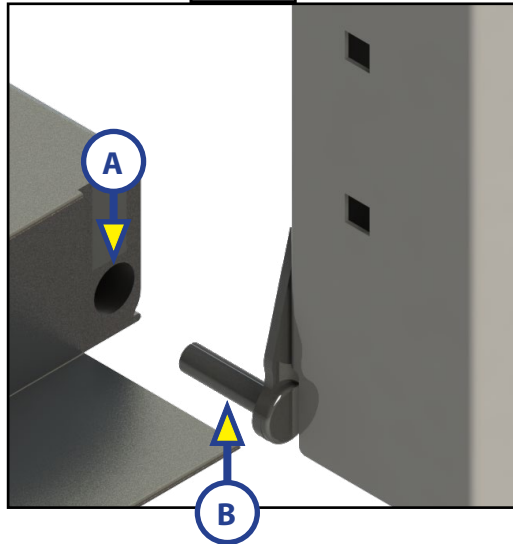
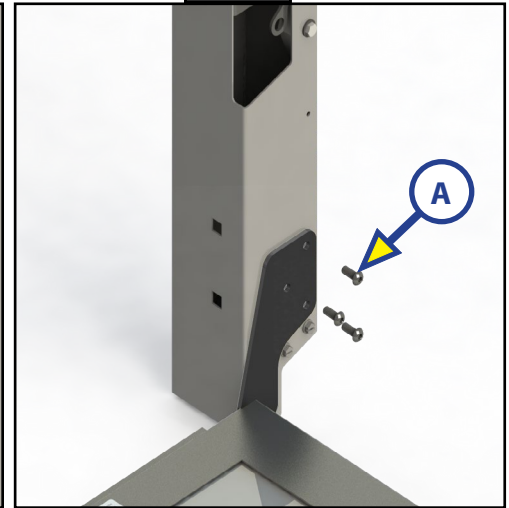


Fig. 8



Door Cable System

The Triple Play Ramp Door system incorporates two sets of cables in the operation of the ramp door. The shorter, thin, black cables connect the ramp door to the drive motors. The longer, thicker, silver cables provide weight support for the ramp door when in patio mode. Cable anchor brackets for both sets of cables are pre-installed onto the door.

NOTE: Cables are not always shown in the images for clarity purposes.

The Triple Play Ramp Door comes equipped with an adjustable support cable system which assists in maintaining the position of the door at a 90-degree angle from the doorjamb. Follow applicable tensioning bolt safety instructions (Fig. 9) for use of the adjustable cable. See figure 10 for safety label locations. The support cable system allows for up to +/- 2.5" of adjustment in order to achieve a 90-degree angle for the patio door while in patio mode.

Adjustment of the door is done by lengthening or shortening the support cable. By turning the turnbuckle and holding the other end, the cable can be shortened or lengthened to adjust the angle of the door. When the cable is lengthened, the angle of the door relative to the jamb will increase. When the cable is shortened, the angle of the door relative to the jamb will decrease.

⚠ WARNING

Failure to properly secure both tension cables and anchors can result in catastrophic failure of the Triple Play Ramp Door system. Serious personal injury or severe property damage may occur.

⚠ WARNING

Do not remove tensioning bolts. Failure to follow this warning may result in death, serious personal injury or property damage.

Fig. 9

⚠ WARNING	⚠ CAUTION
• Failure to follow these instructions may result in death, serious injury or property damage. • Always secure the ramp door in either the closed, ramp or party deck position. • Never use the ramp door while anything is obstructing operation. • Keep hands away from all openings, rollers and cables when operating the ramp door.	• Failure to follow these instructions may result in serious injury or property damage. • Read the instructions before installation or operation. • Never force the ramp door in any direction. • Always make sure the cables are pulling out straight, staying in the grooved portion of the rollers and not coming in contact with any obstructions. • Do not operate the ramp door if the cable is frayed or damaged.

Fig. 10



Drive Cables

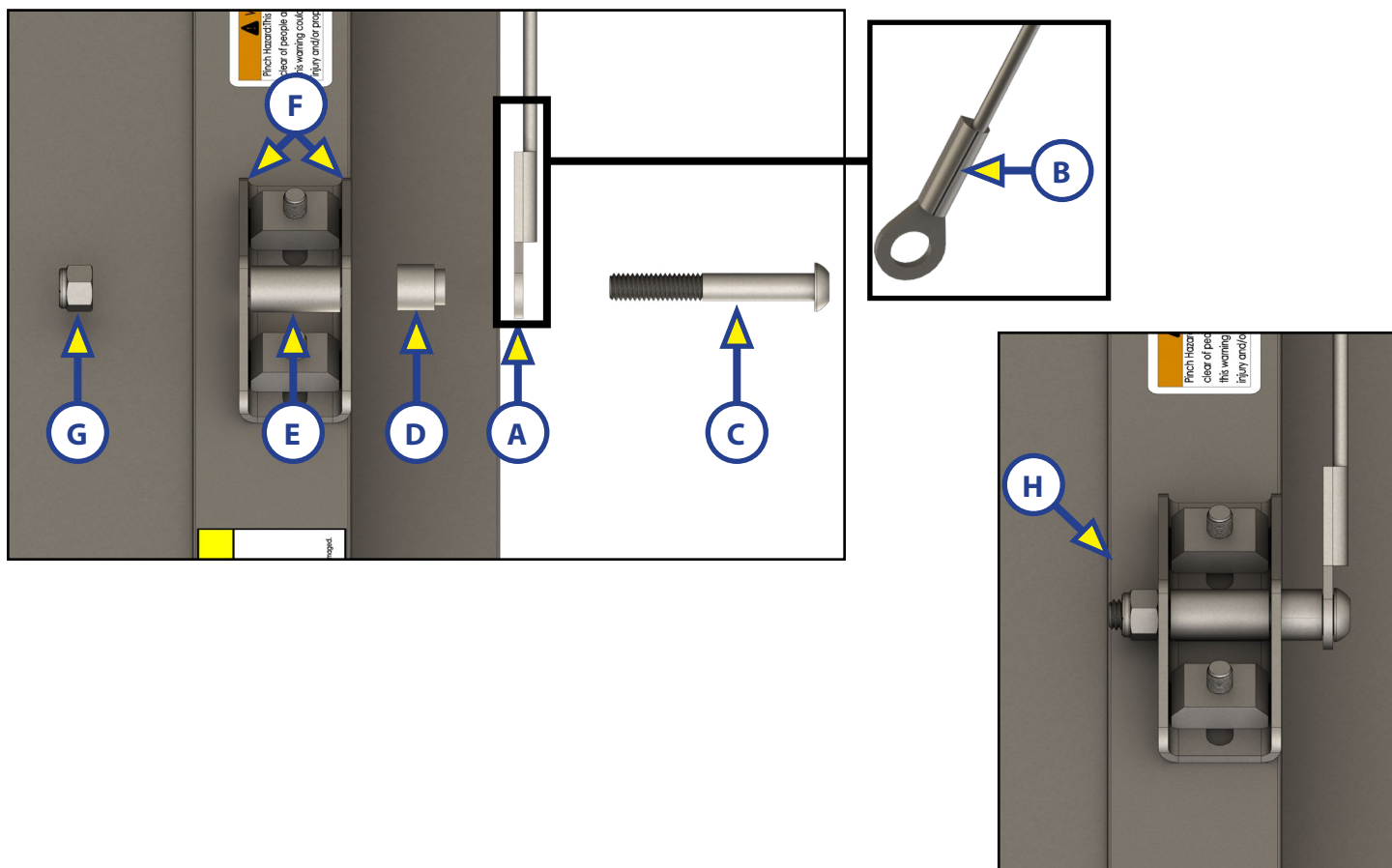
The drive cable anchor bracket will come assembled on the ramp door. One end of the drive cable will be pre-installed and attached to the spring in the doorjamb, the other end will be loose.

⚠ WARNING

Do not allow the ramp door to free fall while being lowered into the horizontal position, as this could cause serious personal injury, severe product or property damage.

1. Raise the ramp door parallel to the ground and support it.
2. Retrieve loose drive cable eyelet from inside the vertical column.
3. Insert the loose drive cable eyelet (Fig. 11A), **seam side** out (Fig. 11B) onto the $\frac{3}{8}$ " - 16 x 2 $\frac{3}{4}$ " socket button head bolt (Fig. 11C).
4. Insert the short metal bushing as shown (Fig. 11D) onto the exposed socket button head bolt. The small step of the metal bushing should seat into the inside of the eyelet.
5. Place the long bushing (Fig. 11E) in the ramp door cable anchor bracket (Fig. 11F) mounted to the surface of the ramp door.
6. Insert the bolt assembly through one side of the ramp door cable anchor bracket and long bushing.
7. Insert the socket button head bolt through the other side of the ramp door cable anchor bracket.
8. Thread the nylon locking nut (Fig. 11G) onto the exposed socket button head bolt.

Fig. 11



9. Use a $\frac{7}{32}$ " hex key and a $\frac{9}{16}$ " wrench, to secure the drive cable assembly to the ramp door cable anchor bracket.

NOTE: Figure 11H shows the fully assembled drive cable assembly.

10. Repeat steps 1-9 on the opposite side of the ramp door.

NOTE: Refer to figures 12 (roadside cable assembly) and 13 (curbside cable assembly). All cables MUST be secured to the anchor brackets before proceeding with the remainder of the Triple Play Ramp Door installation.

Fig. 12



Fig. 13



Patio Support Cables

Support cable brackets are pre-installed onto door and doorjamb.

NOTE: Support cables may be installed in any order.

NOTE: Orientation of the cable is critical. Turnbuckle must be at the doorjamb end.

1. Attach one end of the patio support cable to the doorjamb swing arm (Fig. 14A).
 - A. Loosen carabiner lock (Fig. 14B) with a $\frac{9}{16}$ " socket wrench.
 - B. Slip the eyelet (Fig. 14C) of the patio support cable over the carabiner (Fig. 14D).
 - C. Insert the carabiner into the round hole on the swing arm.
 - D. Tighten carabiner lock (Fig. 14B) with $\frac{9}{16}$ " socket wrench.
2. Attach the other end of the patio support cable to the ramp door.
 - A. Install the patio support cable eyelet (Fig. 15A) and bushing (Fig. 15B) into the support cable anchor bracket (Fig. 15C).
 - B. Make sure that the bushing (Fig. 15B) is inserted towards the perimeter of the door and the cable is towards the middle of the door.
 - C. Insert retaining pin (Fig. 15D) through the anchor bracket, bushing and support cable eyelet to secure assembly.

Fig. 14

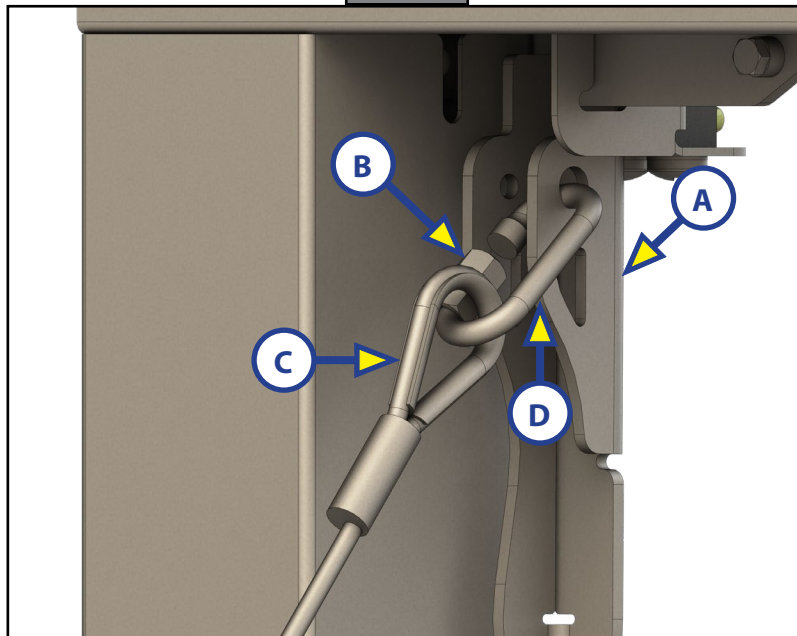
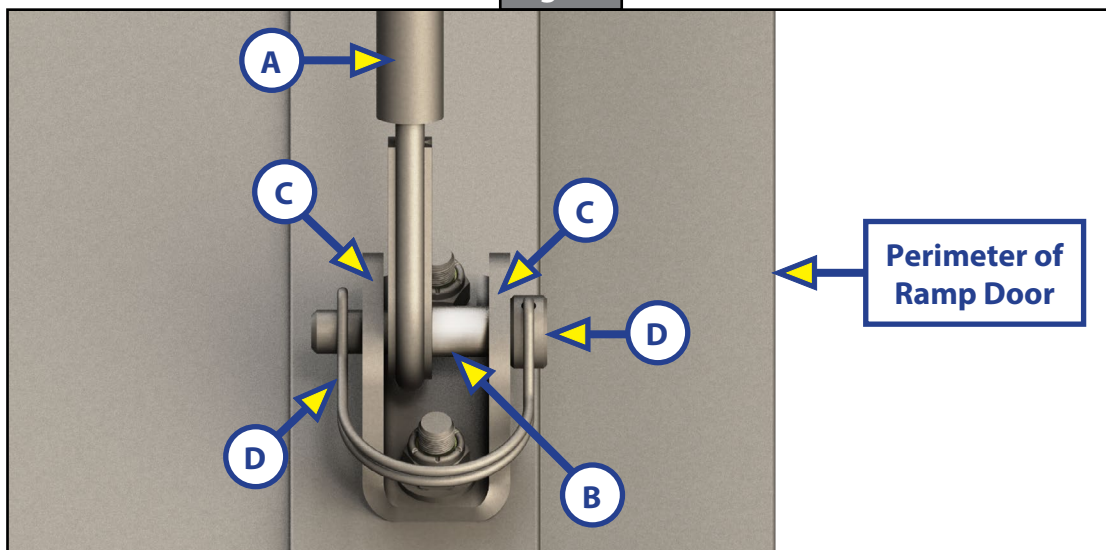


Fig. 15



Setting Ramp Door Tension

1. With the Triple Play Ramp Door parallel to the ground (Fig. 16), use a $\frac{9}{16}$ " socket on either a ratcheting extension or impact wrench and remove the $\frac{3}{8}$ " - 16 x 4 $\frac{1}{2}$ " tensioning bolt (Fig. 16A) from the vertical columns of the doorjamb.

⚠ CAUTION

Always make sure the cables are pulling out straight and not coming in contact with any obstruction.

2. As the bolts (Fig. 16A) are drawn out of the vertical columns, tension will be transferred to the cable assembly.

⚠ WARNING

Do not allow the ramp door to free fall while being lowered into the horizontal position, as this could cause serious personal injury, severe product or property damage.

3. After both tensioning bolts have been removed from both vertical columns, slowly lower the ramp door to the ground.
4. Plug the tensioning bolt holes on the vertical columns with the supplied hole plugs (Fig. 17).
5. After tensioning bolt holes are plugged, the LCI Triple Play Ramp Door system is operational.

Fig. 16

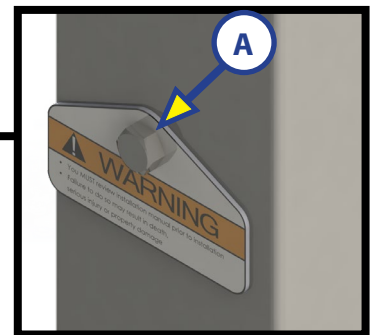
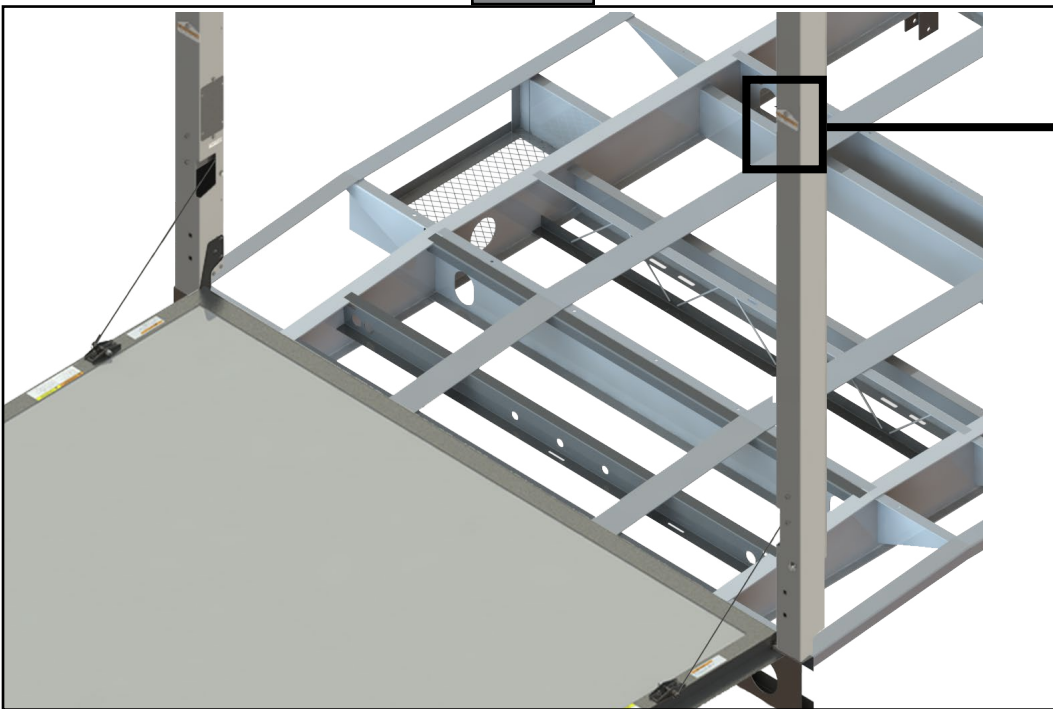


Fig. 17

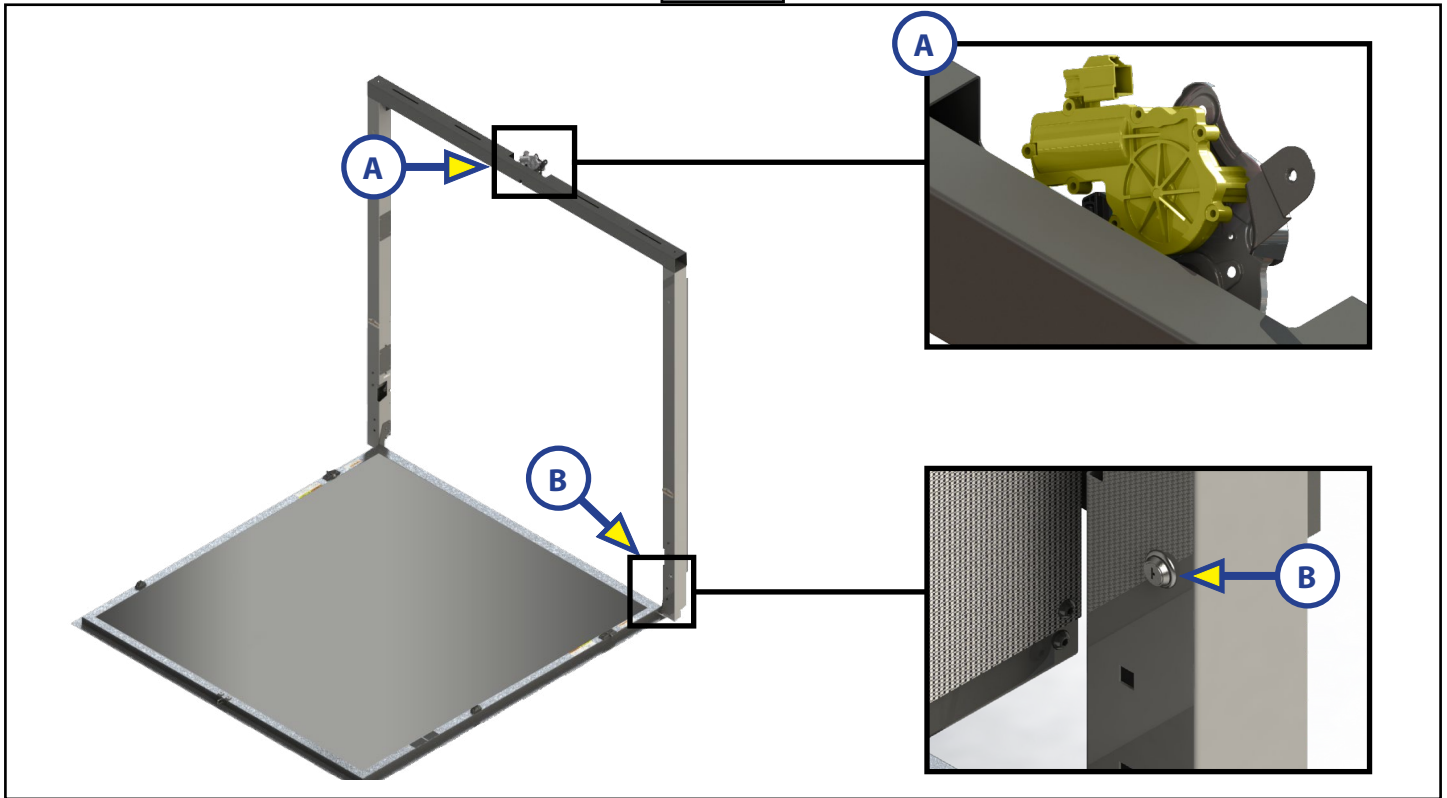


Cinch Latch Mechanism

The Triple Play Ramp Door uses an automotive-grade cinch latch mechanism (Fig. 18A) which is pre-installed on the doorjamb. The cinch latch mechanism catches the ramp door pin, then progressively adds pressure to the door, ensuring a weathertight seal.

With a quick-cycling solenoid, the cinch latch mechanism also allows for keyed access (Fig. 18B) of the ramp door. The keyed access point allows for complete control of the ramp door system from one stationary point. The keyed access point may be installed in a location in accordance with the manufacturer's requirements, for example, on the curbside vertical column as shown in figure 18B.

Fig. 18



Electrical Connections

NOTE: When installing components, be aware of all cable and harness lengths when choosing the mounting location. See figure 19 for curbside and roadside locations.

Controller

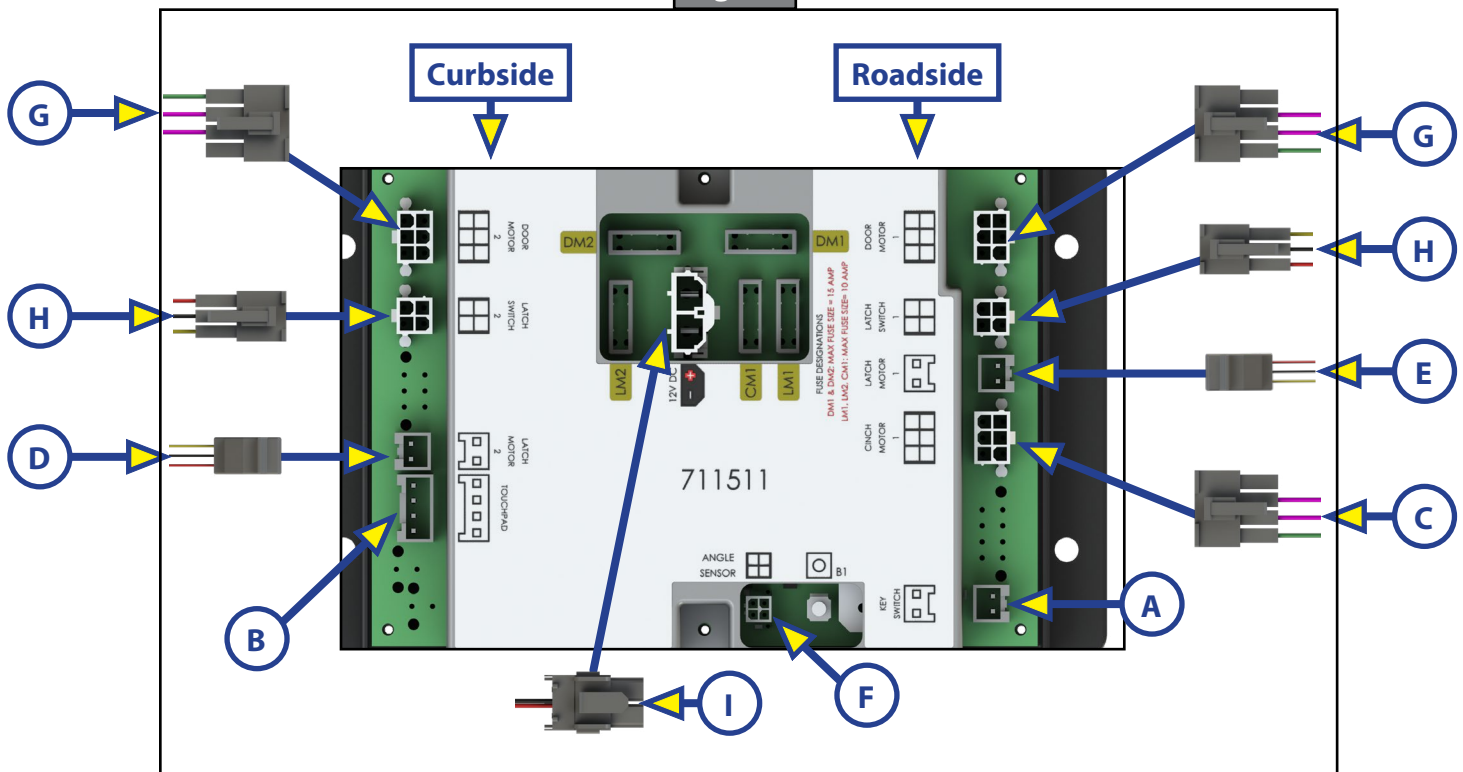
1. The controller is NOT waterproof. Mount the controller (Fig. 19) in a clean, dry, weathertight location that will keep it from being damaged, but is easily accessible for service.

NOTE: The controller **MUST** be mounted with the face visible. The controller should be mounted in an interior area with sufficient access to the wire harnesses.

NOTE: The terms "Curbside" and "Roadside" indicate which direction the leads must attach to the item in the doorjamb based on side of coach.

2. Route and attach the pink and purple wire from the controller (Fig. 19A) to the key switch ends.
3. Route and attach the ends of the touchpad wire harness (with four wires: yellow, red, black and green) from the controller (Fig. 19B) to the touchpad. Press ends of the wires together.
4. Route and attach the ends of the cinch motor wire harness (with red, black, orange, blue and yellow wires) from the controller (Fig. 19C) to the cinch latch. Press ends of the wires together.
5. Route and attach ends of latch motor wire harness to the controller (Figs. 19D and 19E) and to the actuator wire leads. Black wire attaches to black wire and white wire attaches to white wire.
6. Route and attach the angle sensor wire harness (red, green, black wires) from the controller (Fig. 19F) to the angle sensor. Press ends of the wires together.
7. Route the wires from the gear motor wire harness (red, green, yellow, white, black) to the controller (Fig. 19G). Press the wire ends into the controller.
8. Route the wires from the limit switch wire harnesses (red, black, green, white wires) to the controller (Fig. 19H). Press the wire ends into the controller.
9. Once all other connections are made connect power lead to the controller (Fig. 19I).

Fig. 19



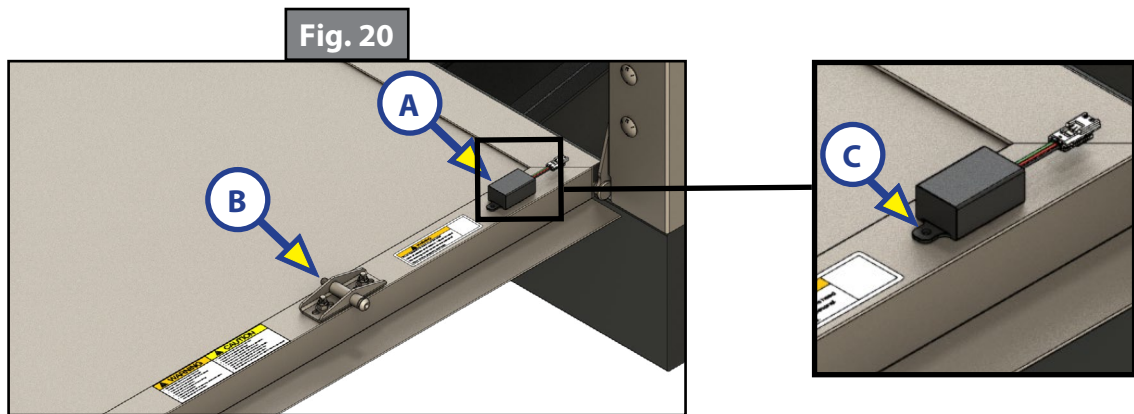
Angle Sensor

The angle sensor must be attached to the ramp door. Once the angle sensor is attached, no calibration is required.

1. Place the angle sensor (Fig. 20A) flat on the ramp door edge plate between the ramp door hinge and the drive cable anchor bracket (Fig. 20B). The angle sensor should be placed approximately eight inches away from the edge of door (but no less than six inches) and relatively centered and square with the extrusion of the door. Place double-sided tape on the bottom of the angle sensor to provide additional mounting support.

NOTE: Placement of the angle sensor **MUST NOT** cover any safety labels.

2. Use a #10 self-drilling screw (Fig. 20C) to secure the angle sensor to the door.

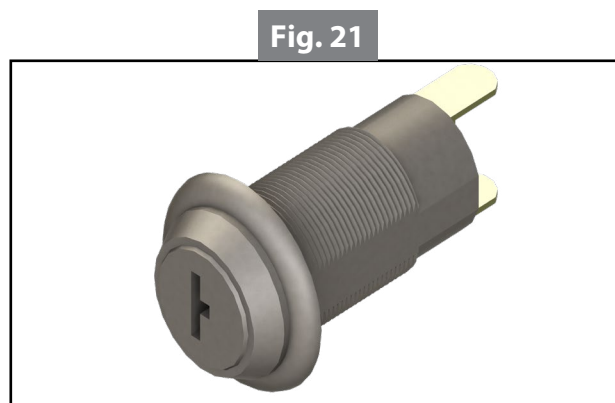


Key Switch

The threaded key switch (Fig. 21), along with a mounting nut, will be shipped loose allowing the OEM to determine the installation location.

NOTE: For ramp door activation, the key must remain inserted into the key switch.

1. Mount the key switch in a clean, dry and easily accessible location within reach of the wires connecting the key switch to the controller.
2. Connect the key switch wire harness to the key switch and to the controller as shown (Fig. 19A).



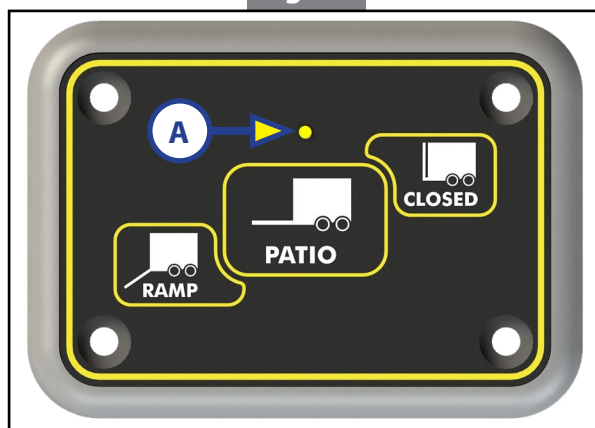
Touchpad

The touchpad is shipped loose allowing the OEM to determine the installation location.

NOTE: Operation of the touchpad is activated by the key switch. For ramp door activation, the key must remain inserted in the key switch.

1. Using four #8 self-drilling, pan head screws, mount the touchpad in a clean, dry and easily accessible location within reach of the wires connecting the touchpad to the controller.
2. Connect the touchpad wire harness (Fig. 19B) to the touchpad and the controller.
3. Activate the buttons on the touchpad by inserting the key into the key switch and turning the key to the ON switch position.
4. The LED on the touchpad will light after a few seconds delay.
5. Door operation is now possible.
6. If the LED turns off, the system has "timed out." In order to operate the touchpad buttons, the key switch must be reset.
7. To reset the key switch, turn the key to the OFF position and then turn back to ON position. The LED on the touchpad will light and the buttons on the touchpad will be functional.
8. When the ramp door is in the desired position, remove the key from the key switch to deactivate the touchpad controls.

Fig. 22



Post Installation Check

⚠ WARNING

Do not walk on Triple Play Ramp Door while in motion. Always make sure that the Triple Play Ramp Door is clear of people, pets and objects before and during operation. Obstructions in the ramp door's path can cause serious personal injury or death .

NOTE: Whenever the ramp door is in motion, there will be a continuous beeping noise until the movement stops.

NOTE: Key must remain in switch in order to operate door. Once door is in desired location, remove key.

Operational mode range is approximately a minimum of 10.5V DC to 16V DC needed to operate. Outside approximate operational temperature range of 0-110 °F, door will operate but, may operate slower.

CAUTION

Always close ramp door when raining. The open ramp door surface is not water resistant. An open ramp door will absorb moisture increasing the weight of door and making it more difficult to close.

Close ramp door during rain. Weight of door will increase as the inner surface of the ramp door becomes wet.

To operate the Triple Play Ramp Door:

1. Insert the key into the key switch.
2. Turn the key to the ON position to activate the touchpad.
3. When the touchpad has been activated, the LED on the touchpad (Fig. 22A) will light after a few seconds delay. When LED is lit, door movement is possible for all modes.
4. If the LED turns off, the system has 'timed out'. The key switch must be reset.
5. To reset the key switch, turn the key to the OFF position and then turn back to ON position. The LED on the touchpad will light.
6. When ramp door is in the desired position, remove the key from the key switch.

NOTE: At any time, the system can be stopped by either turning the key from the ON to the OFF position or by pressing any button on the touchpad.

Patio Mode

1. To place a closed ramp door in PATIO mode, turn the key in the switch until the LED lights on the touchpad.
2. Press the PATIO button on the touchpad.
3. Door will move downwards into patio mode location.

NOTE: When switching from ramp mode to patio mode, the door will lift up slightly (above center) then back down to level out at patio mode.

Ramp Mode

1. To place a closed ramp door in RAMP mode, turn the key in the switch until the LED lights on the touchpad.
2. Press the RAMP button on the touchpad.
3. Door will move downwards into ramp mode location.

NOTE: When switching from patio mode to ramp mode, the door will lift up slightly then move back down to ground level to ramp mode.

Closing the Ramp Door

1. To close the ramp door from either patio or ramp mode, turn the key in the switch until the LED lights on the touchpad.
2. Press CLOSE button on touchpad.
3. Ramp door will move up.
4. Ramp door will stop at approximately 15 degrees prior to full close for a visual safety check.
5. Make sure that there are no obstructions in the doorway.
6. Press CLOSE button on touchpad again to complete door closure.
7. Remove key from switch after ramp door fully closes and beeping stops.

Troubleshooting Fault Codes

The controller diagnostic software continually checks for faults that will prevent proper operation of the controller and door. When a fault is detected, three quick beeps will be followed by a series of beeps and flashing LEDs identifying the fault detailed in the table below. If there is more than one active fault, the system repeats the pattern with the number of beeps for the next fault. The beeping continues for up to 30 seconds, continually looping through all faults or until the user presses a touchpad key or turns the key off.

Triple Play Ramp Door Fault Code Chart		
Number of Beeps / LED Flashes?	Why?	What Should Be Done?
1	Pop out process fail	Door angle is less than 86 degrees and tilted back too far. Level coach.
		Verify angle sensor is secured to mounting location and has not been rotated.
		Door is possibly stuck. Unstick.
2	Position time out - door movement too slow, taking too long.	The time to move door to Close, Ramp, or Patio took too long. Check voltage. If too low to run motors, increase voltage.
		Time to close and cinch door took too long. Verify door pin is not obstructed.
		Verify cinch mechanism is not closed.
		Try running to patio and retry.
	Unlatch timed out	When running to ramp, the time to unlatch expired. Verify no obstructions.
		Inspect latch motor and cinch motor harnesses for broken wires.
	Latch timed out	When running to patio or close, the time to latch expired. Verify no obstructions on swing arms.
		Inspect latch motor and cinch motor harnesses for broken wires.
3	Door is not moving during close	Voltage may be too low to run motors. Increase voltage.
		Make sure door ramp does not have a heavy object on it.
4	Voltage is too high or too low	Check voltage. If voltage is above 16 volts, decrease the voltage; if voltage is below 9 volts, increase the voltage.
5	Motor Stalled	Check for door obstruction.
		Door may need to be resynched.
		Motor mechanical may be bound/stuck.

Triple Play Ramp Door Fault Code Chart		
Number of Beeps / LED Flashes?	Why?	What Should Be Done?
6	Motor driver fault	The motor driver overheated. Wait five minutes and try again.
		Motor wires shorted. Inspect harness.
7	The system lost power or reset	Perform a door close operation.
8	Fuse open	Replace fuse.
9	Communication with angle sensor failed	Inspect angle sensor harness for broken wires.
	Angle sensor has failed	Power cycle the controller.
		Make sure angle sensor is stable and not moving during initial power up.
		Power cycle the controller.
		Replace angle sensor.
	Angle sensor power line shorted to ground	Inspect angle sensor harness for broken wires.
10	Motor hall signal is missing	Inspect ramp motor harness for broken wires.
		Ramp motor may have failed.
		Ramp motor may be stuck. Manually move door.
		Check for obstructions at ramp door.
11	Hall power line shorted to ground	A number of external devices are powered from this power line. Inspect harness(es) for broken wires
	Controller is not receiving data from touchpad	Inspect touchpad harness for broken wires
	Touchpad is not receiving data from controller	
12	Touchpad power line shorted to ground	Power cycle the module. If fault still occurs, replace module.
	Internal controller fault	

Optional Configurations

There are optional accessories that can be purchased with the doorjamb. Refer to the manuals related to those optional accessories for complete installation instructions. Contact LCI Customer Service at (574) 537-8900.



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Follow proper safety practices. If in doubt, consult a professional RV technician.