



CHALLENGER DOOR
SERIES 1520
OEM INSTALLATION MANUAL

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Introduction

The Challenger Door Series 1520 entry door is designed to accommodate wheelchair accessibility and is an easy hands-free option to getting in and out of the recreational vehicle. Using the remote access, the door opens and closes with a touch of a button, with the use of an air powered compressor.

For information on the assembly or individual components of this product, please visit:

<https://support.lci1.com/entry-doors>

NOTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels.

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, including voiding of the LCI limited warranty.

DANGER

The "DANGER" symbol above is a sign that improper operation has a safety risk involved and may cause death, serious personal injury, severe product and/or property damage if not performed safely and within the parameters set forth in this manual.

DANGER

The Challenger Door Series 1520 is in use with an air compressor, which when in use, can cause the door to rapidly open. Should an error arise and the door does not open, **ALWAYS** drain the air out of the air compressor's bypass valve before attempting to manually open the door. There is **NOT** an object sensor on the door. Keep all people and personal property away from the door area when opening and closing the door. Failure to adhere to this warning will result in severe product and unit damage, including serious personal injury or death.

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.

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, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.

CAUTION

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

Resources Required

- 1-2 People, depending on task
 - Cordless or electric drill or screw gun
 - Appropriate drive bits
 - Appropriate drill bits
 - Caulk gun
 - Gunnable sealant
 - Closed cell foam tape or butyl tape
 - Scissors or cutting tool
 - 5/8" Wrench
 - 1/8" to 3/16" thick plastic or wood shims
 - Cable ties
 - Cleaning cloths
 - Appropriate wire connectors
 - Wire stripping/crimping pliers
 - #8 X 1 1/2" Screws (quantity depends on size of the door) - length must be long enough to penetrate sidewall framing.
 - #8 X 1" Screws, approximately (13)
- NOTE:** For wood frame construction, **DO NOT** use self-tapping screws.

Door Installation

⚠ CAUTION

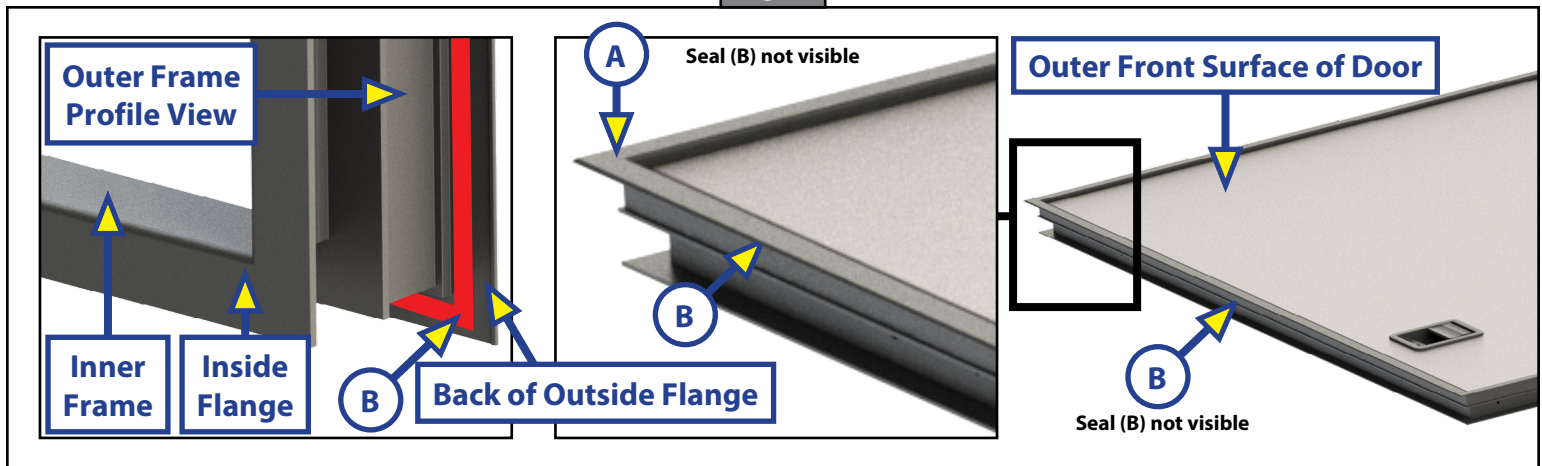
No liability is assumed for incorrect installation of the Challenger Door Series 1520.

Be sure to check that rough opening measures to the size stated on the door label, and is square and even on all sides. The Challenger Door is manufactured to properly fit the rough opening size specified by the OEM. Be sure that the opening has proper framework supporting it, ie; aluminum, steel tubing or lumber.

Install Door Assembly onto Unit

1. Clean the back surface of the outside flange, of the outer frame (Fig. 1A) of the door assembly.
2. Install closed cell foam or butyl tape (red line) along the back inside perimeter (Fig. 1B) of the outer frame surface of the door assembly. This helps to create a tight seal once the door is completely installed inside the wall of the unit.

Fig. 1



3. Place door assembly in the opening of the unit, tight to the bottom (Fig. 2A) and hinge side (Fig. 2B)

NOTE: There are two surfaces that can be used to secure this door. It is recommended to use the surface behind where the door seals, but the forward will work. If using the forward surface be sure to seal screws to prevent water damage.

4. Install a #8 x 1 1/2" screw within 6" of the corner, at the top (Fig. 3A) and bottom (Fig. 3B) of the hinge side of the outer frame.

Fig. 2

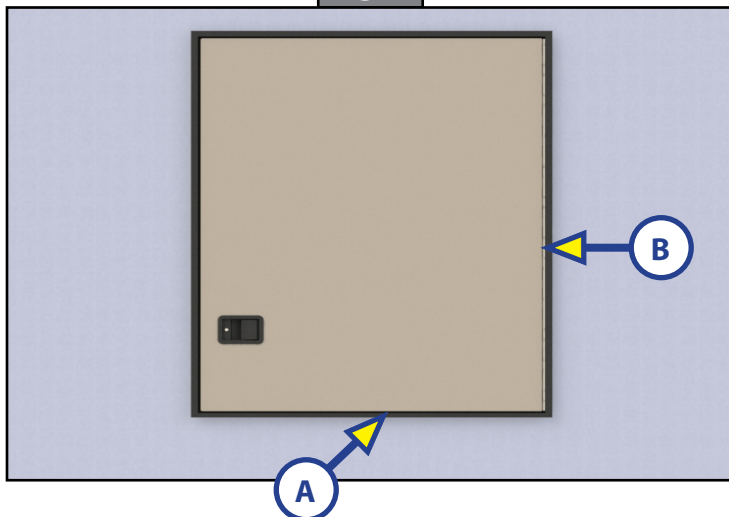
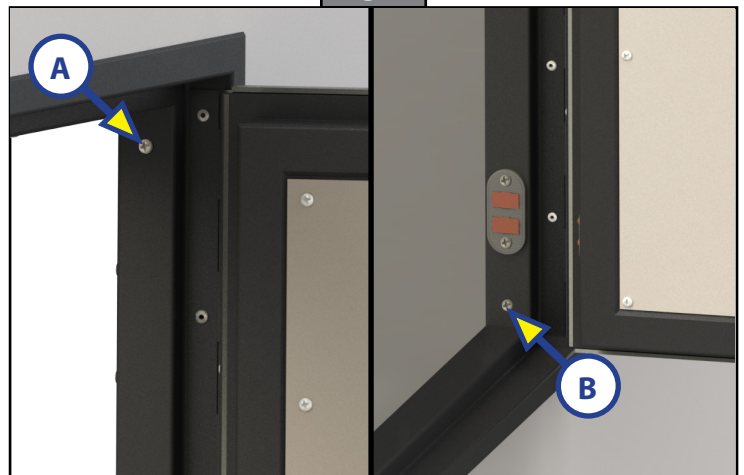


Fig. 3



5. Install a #8 x 1 1/2" screw within 6" of the corner, at the top (Fig. 4A) and bottom (Fig. 4B) of the latch side of the outer frame.

NOTE: Check squareness of the door, adjust and shim as needed.

6. Shim at both rotary latch striker bolts, top and bottom, (Fig. 5A) and install a #8 screw (Fig. 6B) into the outer frame on each side of the rotary latch striker bolt (Fig. 6A).

Fig. 4

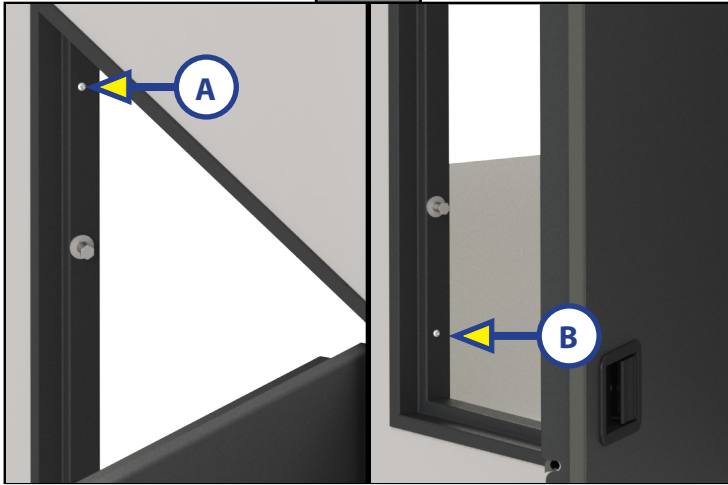


Fig. 5

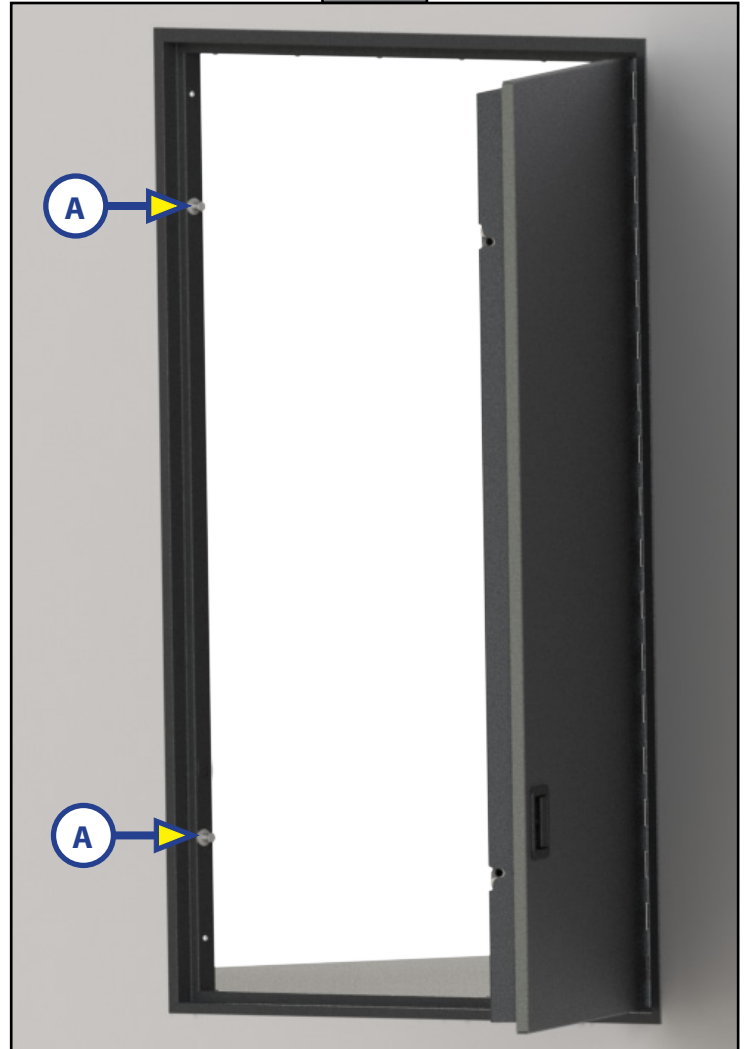
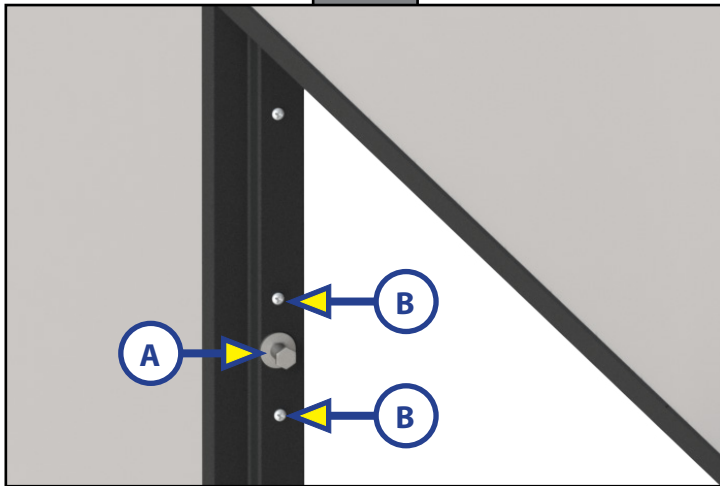
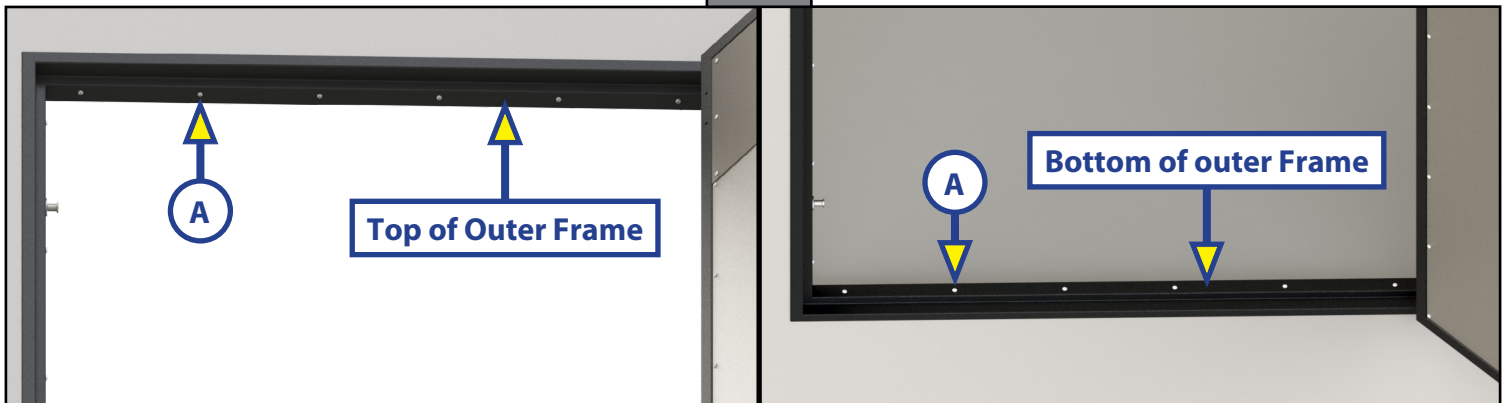


Fig. 6

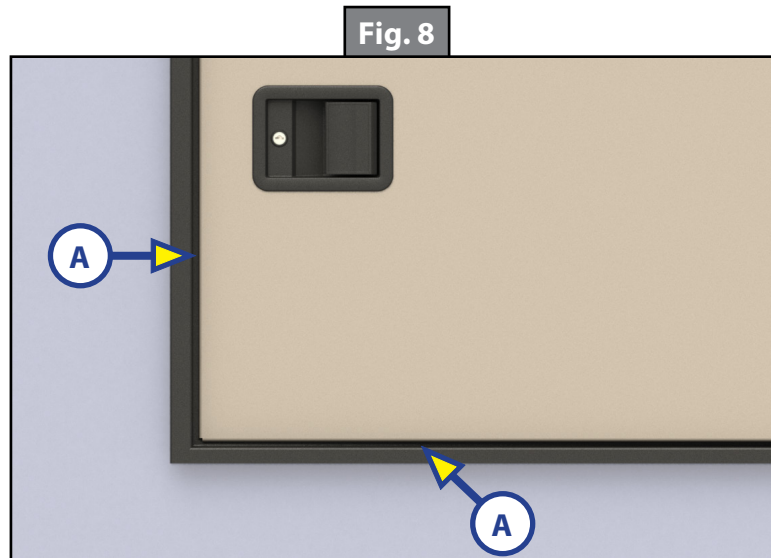


7. Install #8 x 1 1/2" screws (Fig. 7A) into all four sides of the inside of the outer frame, starting within 6" of the corners and not further than 16" apart from each other. Be sure to add shims if needed at all screw points to keep frame straight and true.

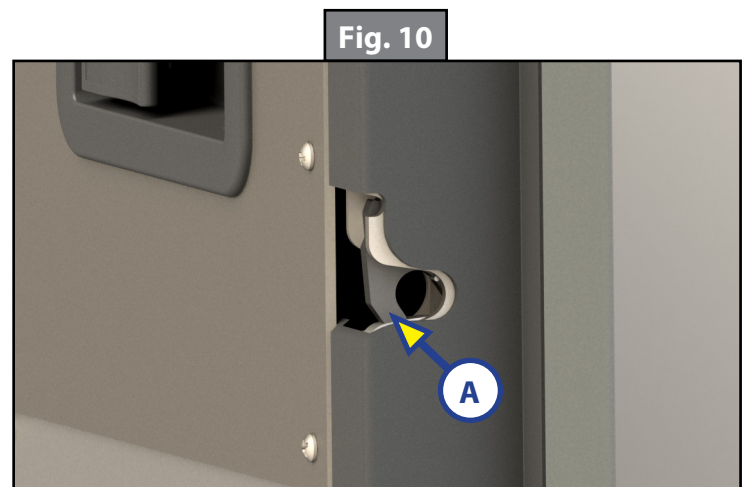
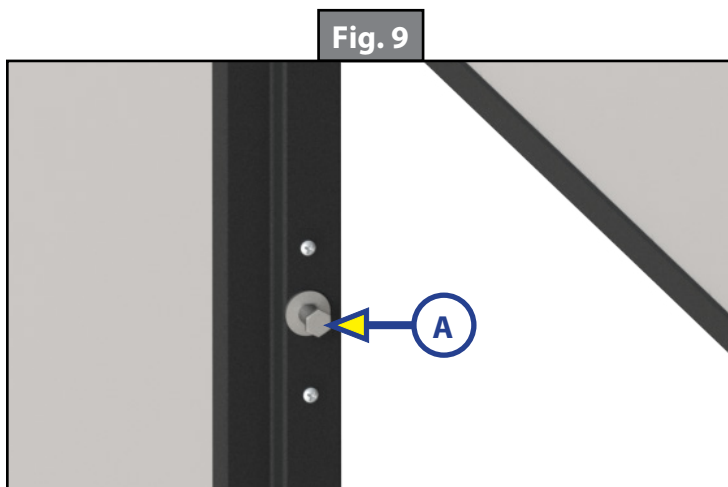
Fig. 7



8. Check the reveal (Fig. 8A), that there is even spacing all around between the inner side of the outer frame and the door. Make sure the door does not rub or hit against the outer frame, adjust accordingly.

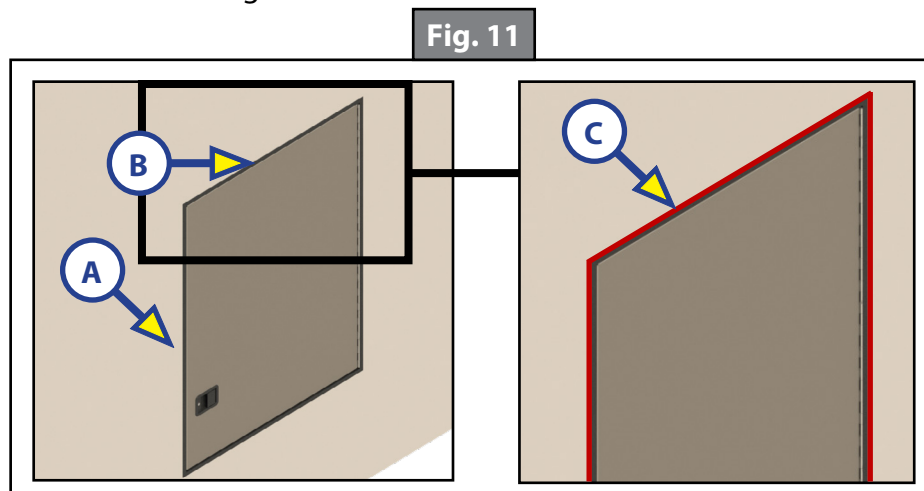


9. Check that the door closes flush to the outer frame. If needed, with a 5/8" wrench, loosen and adjust the rotary latch striker bolt's (Fig. 9A) up or down, front or back, to get a proper connection with the top and bottom latches (Fig. 10A) on the door. Tighten the rotary latch striker bolt in place.



Sealing the Door

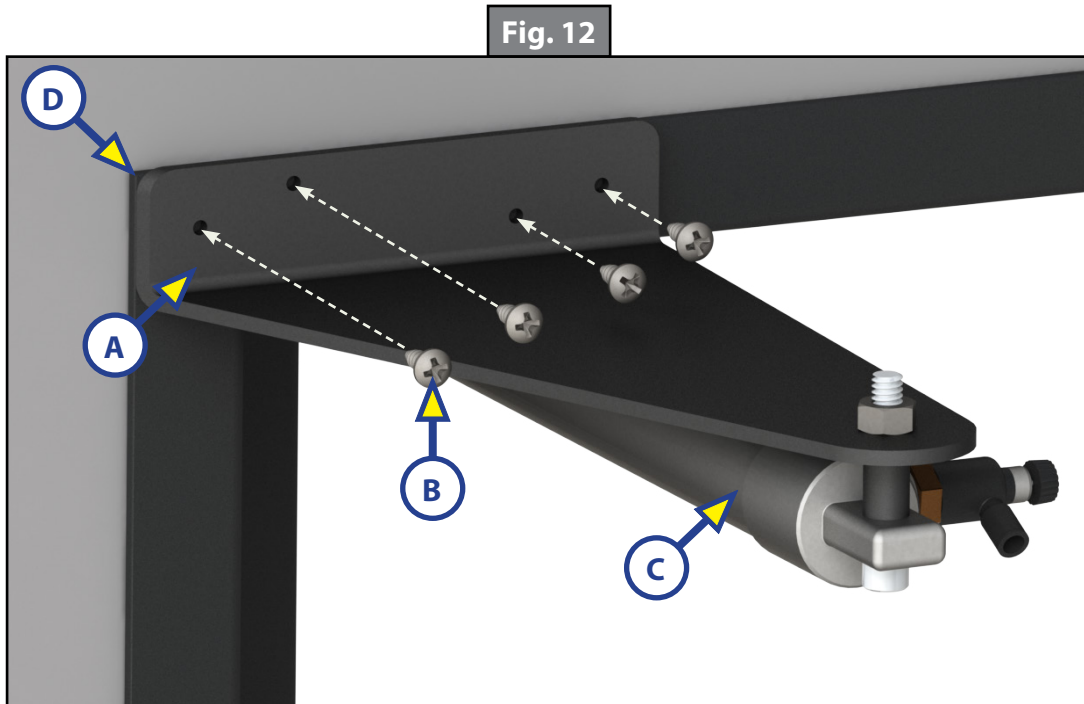
1. Clean the outside of the sidewall (Fig. 11A) and the mounting frame (Fig. 11B) to ensure a proper bond.
2. Caulk (red line) at the top of the mounting frame (Fig. 11C) and down both sides to the bottom of the mounting frame, to ensure a watertight seal.



Air Powered Door Arm Cylinder Installation

Back Bracket of Air Powered Door Arm Cylinder

1. Using the #8 X 1" screws (Fig. 12B), mount the back bracket (Fig. 12A) of the air powered door arm assembly (Fig. 12C) square and flush to the inside, top back corner of the door frame (Fig. 12D). The underside of the bracket is to be flush to the underside of the door frame.



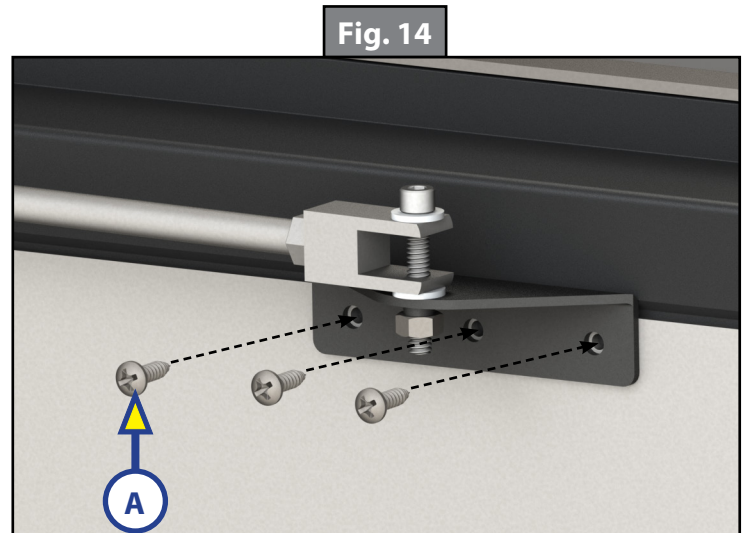
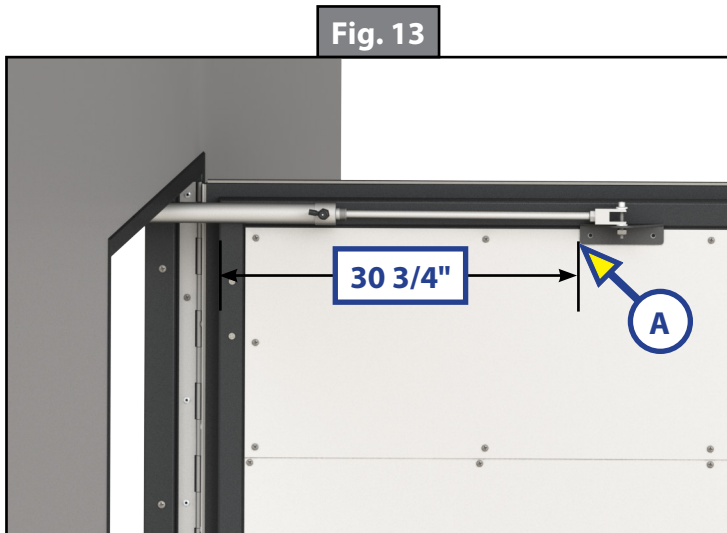
Front Bracket of Air Powered Door Arm Cylinder

1. Measure out from the hinge side of the door 30 3/4" (Fig. 13A) and make a non-permanent mark at the location.
2. Extend the inner arm and front bracket out so that the left edge of the bracket is in-line with the previous measurement.

NOTE: Make sure the inner arm does not pull out from the outer piston when the door is vertical to the unit.

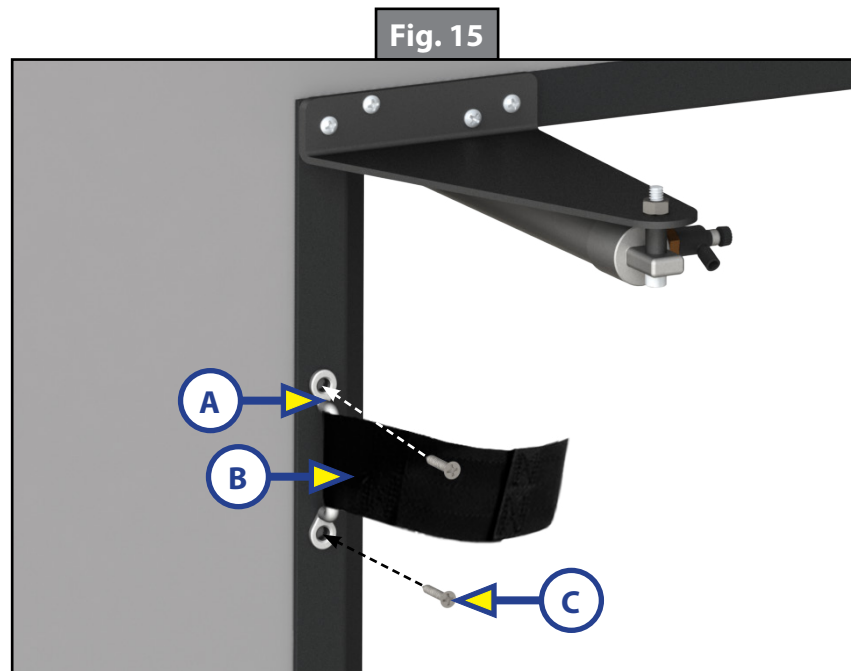
3. Install #8 X 1" screws to secure the bracket (Fig. 14A).

NOTE: See the Wiring Diagram section for the procedure to connect the air hose from the compressor to the air powered door arm.

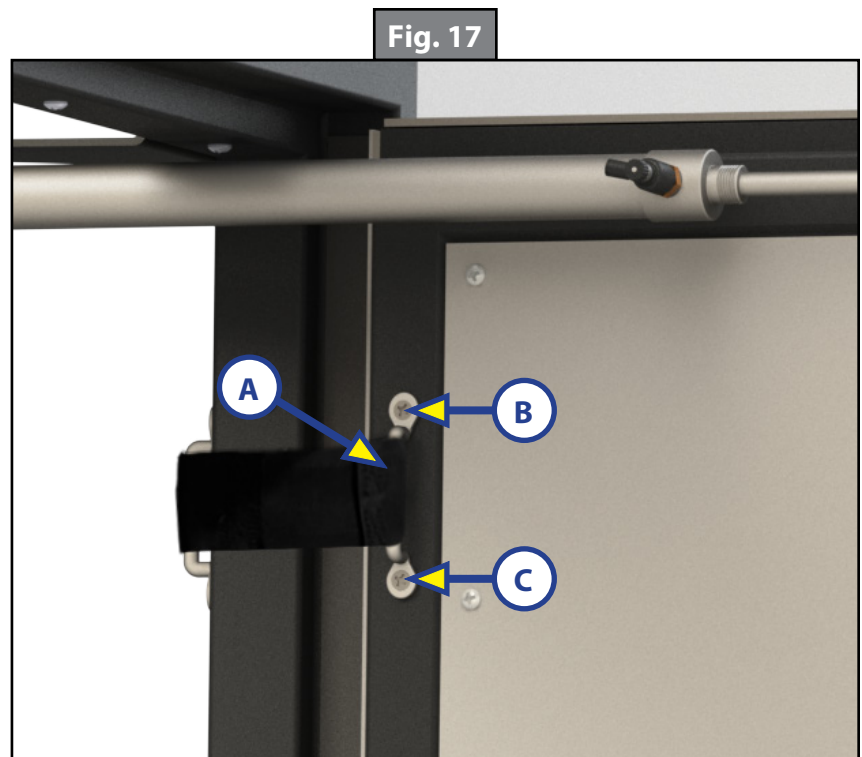
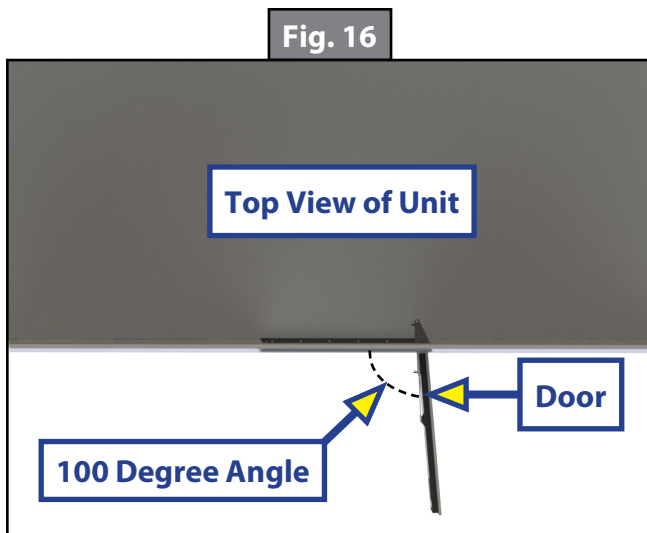


Footman's Loop Installation

1. Slide one end of the footman's loop strap (Fig. 15B), onto the footman's loop bracket (Fig. 15A).
2. Using the #8 X 1" screws (Fig. 15C), mount the footman's loop back bracket approximately 6" down from the top of the inside, back of the door frame.



3. Position the door at an exact 100 degree angle (Fig. 16) to the front of the door frame and hold the door in-place.
4. Slide the other end of the footman's loop strap (Fig. 17A), onto the footman's loop bracket (Fig. 17B) with the strap stretched as far as it will go, position the footman's loop on the front of the door and install the two #8 X 1" screws (Fig. 17C).
5. Gently open the door and make sure the door goes not open farther than 100 degrees. The door swinging open any further than 100 degrees may run the risk of the door arm pulling out of the air compressed piston.



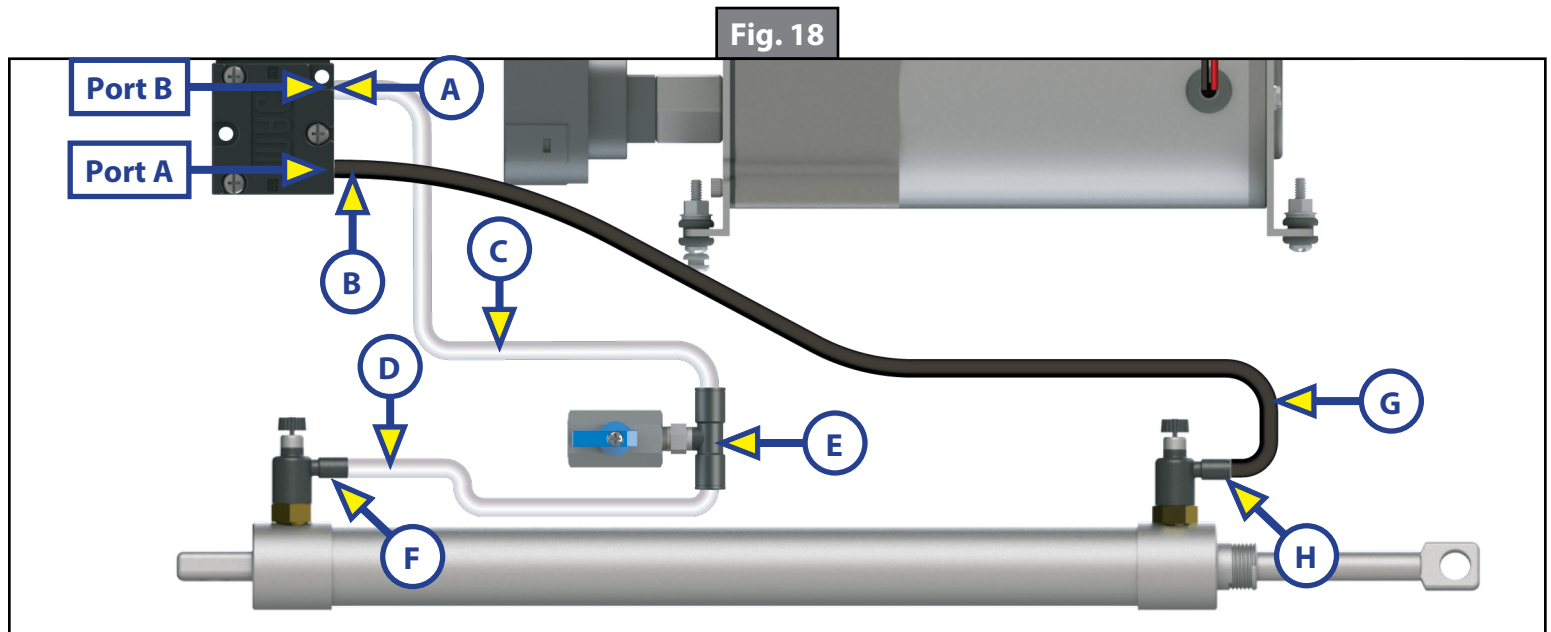
Hoses and Wiring

Air Hoses to the Air Compressor Terminal

NOTE: Use cable ties to secure the air hoses close to the door arm, so there is no extra slack in the black hose to the front of the door arm.

1. Attach one end of the black hose (Fig. 18G) to the front of the door arm valve (Fig. 18H) and the opposite end to port "A" on the inlet port (Fig. 18B).
2. Attach one end of the clear hose (Fig. 18D) to the back of the door arm valve (Fig. 18F) attach the other end to the bypass valve (Fig. 18E).
3. Attach another clear hose (Fig. 18C) from the bypass valve (Fig. 18E) to port "B" (Fig. 18A) on the inlet port.

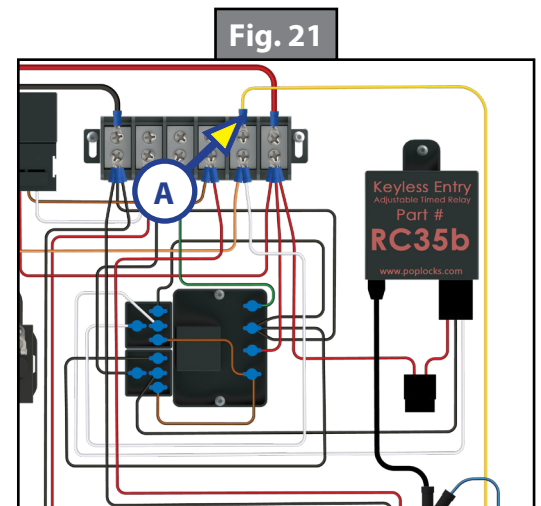
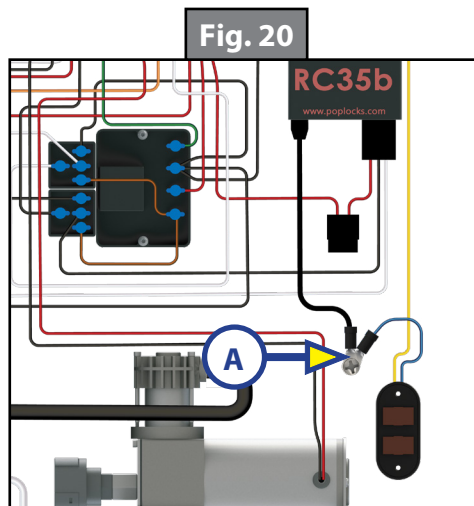
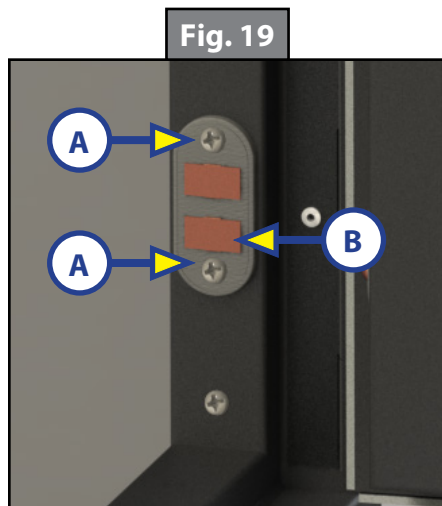
NOTE: See the Wiring Diagram section for wiring to the terminal.



Door Compression Switch to the Compression Switch Relay

NOTE: For a complete view of the wiring diagram, see the Wiring Diagram section.

1. Remove the two screws (Fig. 19A) in the door compression switch (Fig. 19B), located on the inner, bottom hinge side, of the door frame.
2. Install a 16 GA. blue wire, top position (negative) on the door actuator, and connect to ground, same as the RC35b compression switch relay (Fig. 20A).
3. Install a 16 GA. yellow wire, bottom position (positive) on the door compression switch, to the second position from the right, on the terminal strip (Fig. 21A).
4. Install the door compression switch back into place and install the two screws.



Key Ignition Safety Switch

This connection is a safety measure so that the door is not opened when the unit is in motion. The key **MUST** be removed before the door will operate. See the Wiring Diagram section that illustrates connecting to the terminal strip.

Connect to the Power Source

See the Wiring Diagram section that illustrates connecting the terminal strip to the power source. A 20AMP in-line fuse will be needed.

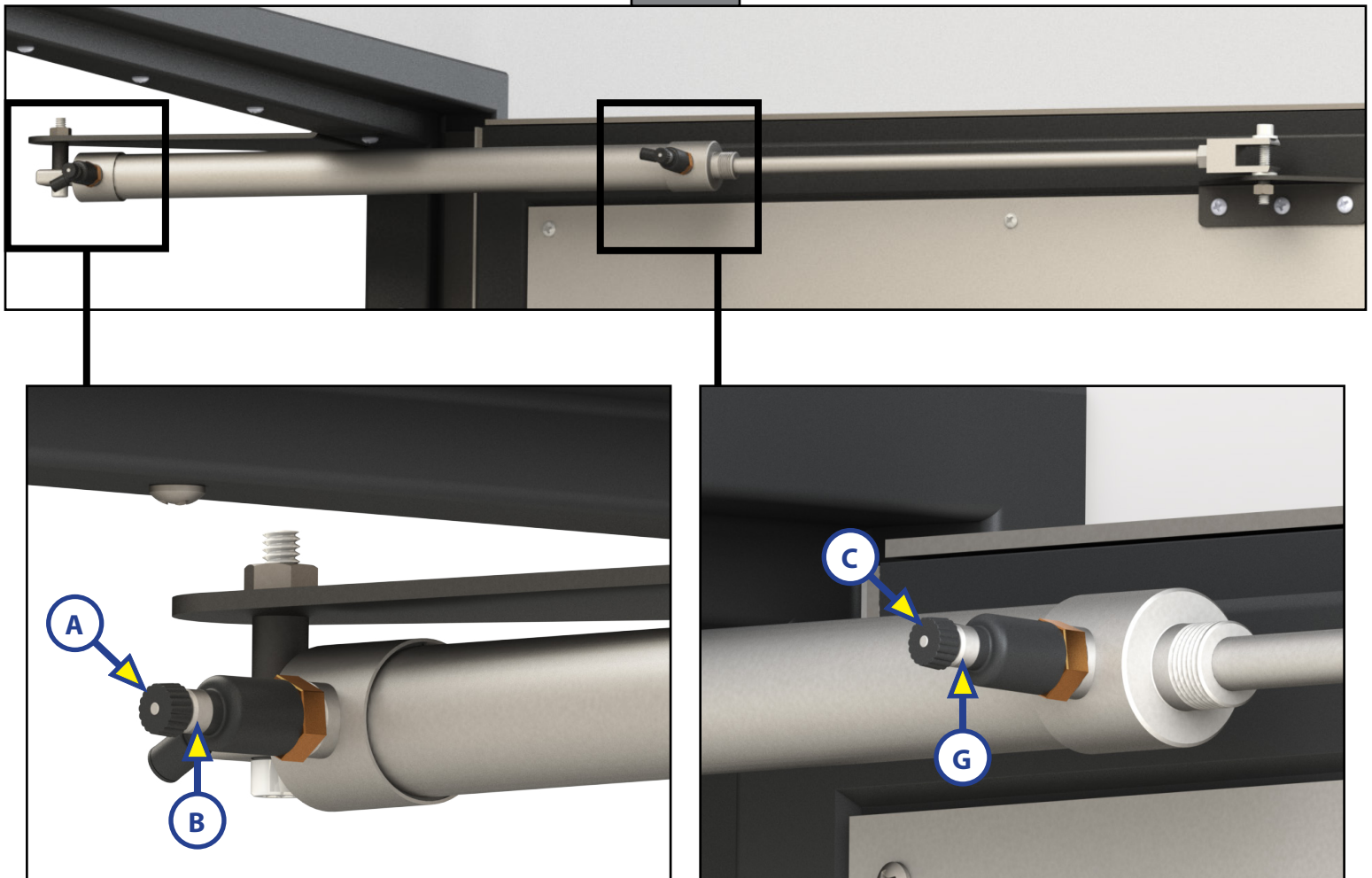
Final Adjustments Before Operation

Adjusting the Opening and Closing Speed of the Door Arm Cylinder Closing

NOTE: Air hoses have been removed for clarity.

- 1. Closing the Door** - The valve located near the back of air powered door arm cylinder, closest to the door hinge, is to adjust the speed on closing the door. This should be set fast enough to latch the rotary latches in the second latch position. The valve has a locking nut (Fig. 22B), turn the nut clockwise to be able to turn the black adjustment knob (Fig. 22A) clockwise for slower or counterclockwise for faster closure. Tighten the lock nut to hold the position.
- 2. Opening the Door** - The adjustment knob at the front of the cylinder is to adjust the speed on opening the door. The door valve should be set so that it completely opens within 10 seconds. The valve has a locking nut (Fig. 22D), turn the nut clockwise to be able to turn the black adjustment knob (Fig. 22C), clockwise for slower or counterclockwise for faster opening. Tighten the lock nut to hold the position.

Fig. 22



Adjusting the Rotary Latch Striker Bolts

1. If the rotary latches are only in the first or second position (Fig. 23A) not into the fully closed third position, (Fig. 24A) the rotary latch striker bolts (Fig. 25A) may need to be re-positioned so they properly hit the latches into the closed position.
2. Use a 5/8" wrench to loosen and adjust the rotary latch striker bolt(s) (Fig. 25A) up or down, front or back, to get a proper connection with the top and bottom rotary latches on the door. Tighten the rotary latch striker bolt in place.

NOTE: Also check, Adjusting the Speed of the Door Arm section once again, the valve for closing the door may need to be adjusted to make the door close faster.

Fig. 23

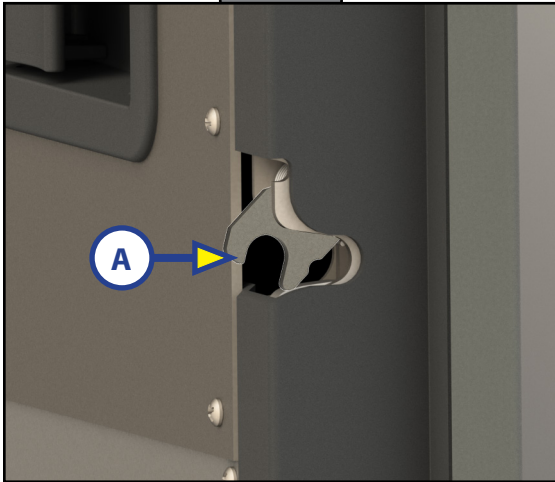


Fig. 24

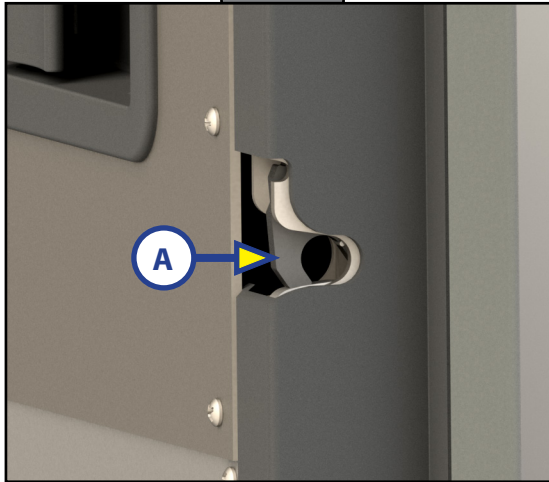
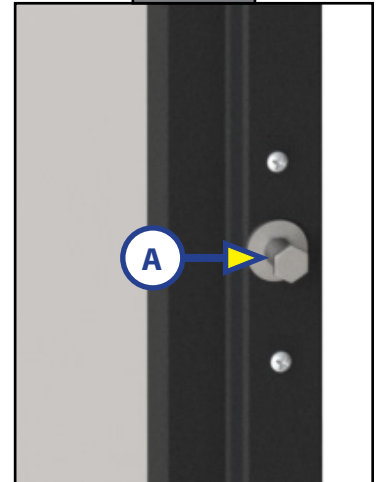


Fig. 25

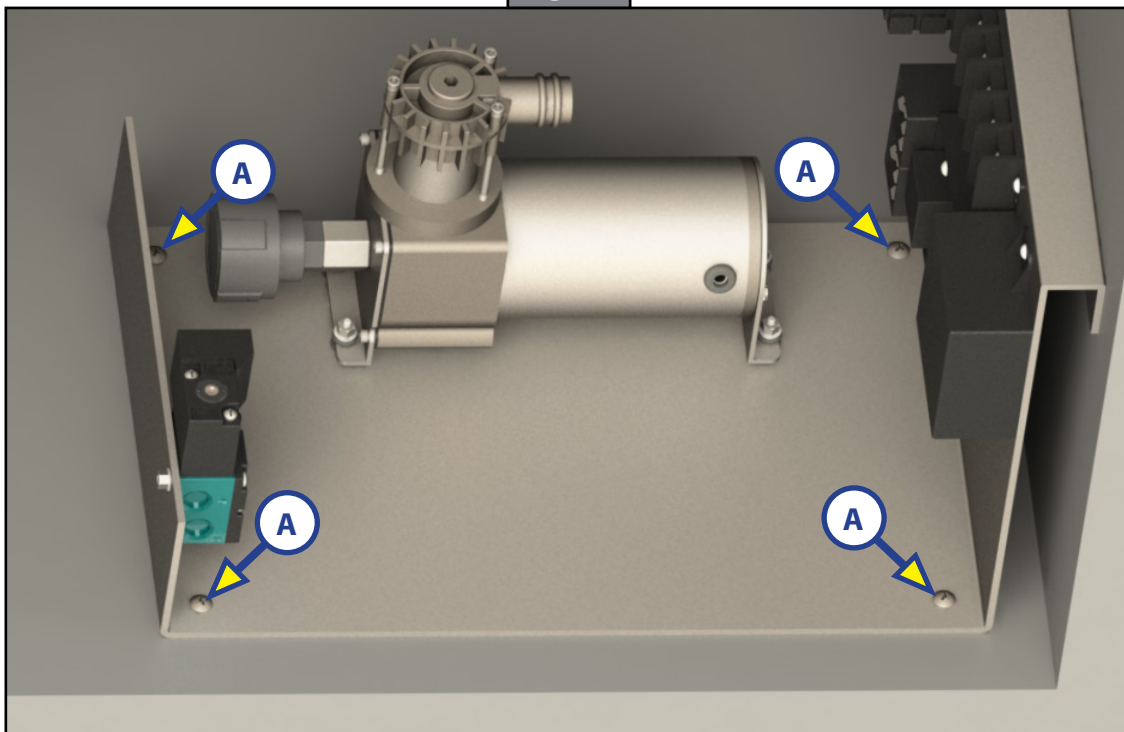


Securing the Air Compressor

NOTE: Wires and hoses have been removed for clarity.

1. Place the motor assembly plate in an accessible storage area, close to the door opening.
2. Using four #8 X 1" screws (Fig. 26A), at each corner, attach the plate to the storage compartment so that it is secured.

Fig. 26



Flex Wall Switch Installation

1. Open the remote to make sure there is a battery inside, if no battery, install an A23 battery.
2. Peel the sticker-backing off of the back of the flex wall switch (Fig. 27).
3. Place on the flex wall switch on the inside wall of the unit where it will be accessible and close to the door.

Fig. 27



Operation

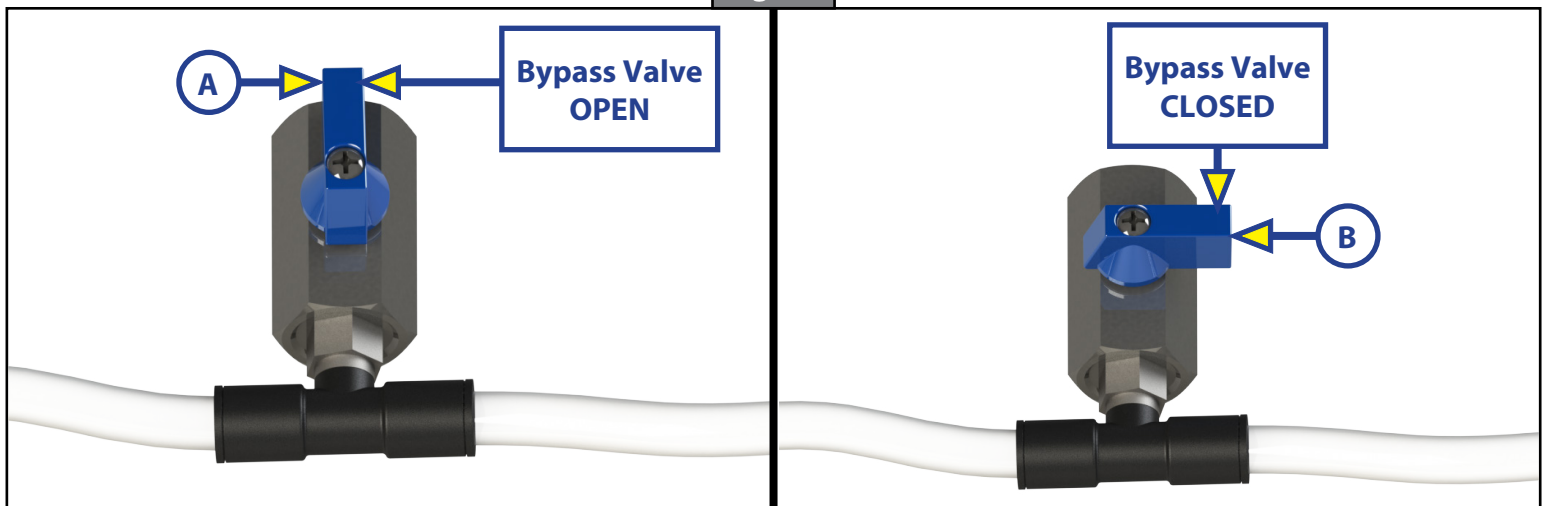
DANGER

When operating the Challenger door and the door does not open with the remote, the **BYPASS VALVE (Fig. 28A) MUST BE CLEARED OF AIR FIRST BEFORE OPENING THE DOOR** with the key.

Switch the bypass valve to the **OPEN** position (Fig. 28A).

The Challenger Door Series 1520 is in use with an air compressor, which when in use, can cause the door to rapidly open. Should an error arise and the door does not open, **ALWAYS** drain the air out of the air compressor's bypass valve before attempting to manually open the door. There is **NOT** an object sensor on the door. Keep all people and personal property away from the door area when opening and closing the door. Failure to adhere to this warning will result in severe product and unit damage, including serious personal injury or death.

Fig. 28

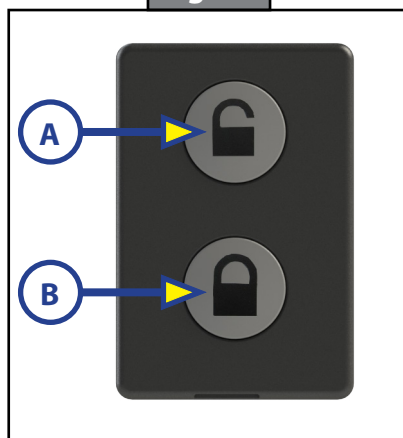


Using the Flex Wall Switch

NOTE: Replacement battery for the Flex Wall Switch is one A23 battery.

1. The Challenger door will not open or close unless the key to the unit is removed from the ignition to prevent accidents from happening. Make sure the ignition key to the unit is not in the ignition.
2. Make sure people and objects are clear of the door opening.
3. Press the unlock button (Fig. 29A) on the remote to open the door.
4. Press the lock button (Fig. 29B) on the remote to close the door.

Fig. 29

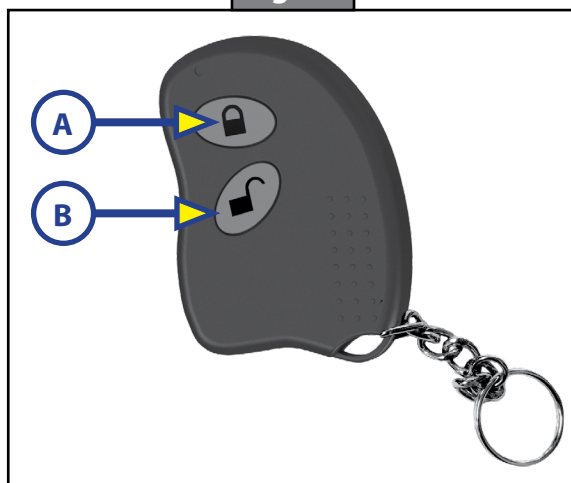


Using the Remote Key Fob

NOTE: Replacement battery for the Remote Key Fob is one L1028F battery

1. The Challenger door will not open or close unless the key to the unit is removed from the ignition to prevent accidents from happening. Make sure the ignition key to the unit is not in the ignition.
2. Make sure people and objects are clear of the door opening.
3. Press the unlock button (Fig. 30B) on the remote to open the door.
4. Press the lock button (Fig. 30A) on the remote to close the door.

Fig. 30



Using the Key

1. **THE BYPASS VALVE (Fig. 28A) MUST BE CLEARED OF AIR FIRST BEFORE OPENING THE DOOR WITH THE KEY.** The bypass valve should be located in the same compartment as the air compressor.
2. Turn the bypass valve to the **OPEN** position (Fig. 28A).
3. Make sure people and objects are clear of the door when first opening the door after shutting off the bypass valve as some air may still be in the air hose line.

Troubleshooting

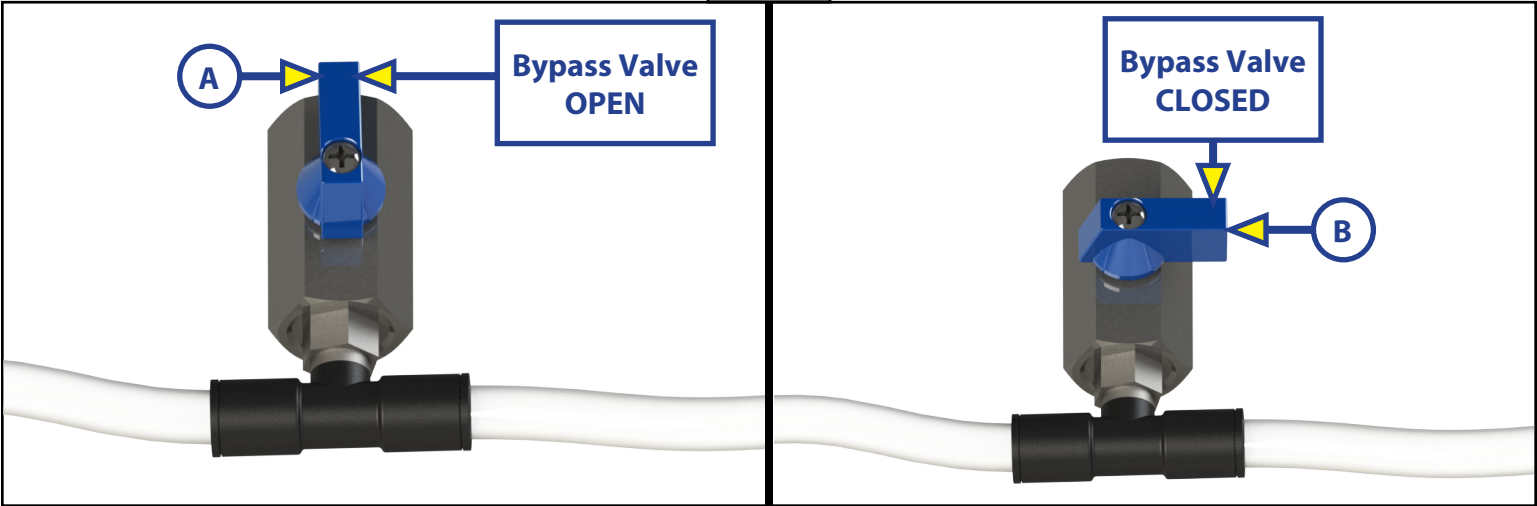
⚠ DANGER

When operating the Challenger door and the door does not open with the remote, the **BYPASS VALVE** (Fig. 31A) **MUST BE CLEARED OF AIR FIRST BEFORE OPENING THE DOOR** with the key.

Switch the bypass valve to the **OPEN** position (Fig. 31A).

The Challenger Door Series 1520 is in use with an air compressor, which when in use, can cause the door to rapidly open. Should an error arise and the door does not open, **ALWAYS** drain the air out of the air compressor's bypass valve before attempting to manually open the door. There is **NOT** an object sensor on the door. Keep all people and personal property away from the door area when opening and closing the door. Failure to adhere to this warning will result in severe product and unit damage, including serious personal injury or death.

Fig. 31



Possible Solutions to Door Not Opening or Closing

What is Happening	Why?	What Should Be Done?
Door does not open or close.	Key is in the ignition.	Remove the key from the ignition.
	No power.	Check if the power source is fully charged.
	Batteries in key fob or flex switch need to be replaced.	Replace key fob with a L1028F Battery. Replace the flex switch with an A23 Battery.
	Check to see if the in-line fuse is blown.	Replace with a 20AMP fuse.
	Check to see if the RC35b Relay fuse is blown.	Remove from the air compressor tray and open the RC35b relay switch. If the fuse is blown inside the relay, call Lippert Customer Care Center to order a replacement RC35b relay.
	Bypass valve not in the correct position.	The bypass valve must be in the closed position to operate with the use of the air compressor.

Remote Control Door and Compressor Relay Replacement Programming

NOTE: If all other options have been addressed for the door not opening or closing, and the RC relay has been opened and checked that the circuit board is blown, use the procedure below to replace and set the remotes for the new RC relay.

NOTE: Have the wall remote and key fobs close to the newly installed relay switch to be able to program the remotes to work with the new RC Relay.

NOTE: During the code learning mode, if there is no action after 5 seconds, the system will exit the code learning mode.

1. Make sure power is off to the system.
2. Remove the screw (Fig. 32A) holding the RC Relay to the air compressor board, remove the old relay from the board, set screw aside to install with the new relay.
3. Pull the cover off of the new RC relay (Fig. 33A).
4. Located inside the new RC relay are two small white switches (Fig. 34A), make sure both switches are placed in the bottom position (Fig. 35A).
5. Install and wire the new RC relay onto the board.
6. Make sure power is on to the system.
7. Within five seconds press both buttons on one of the remotes at the same time. The system will then enter into a learning mode. The unlock output will trigger so that you are aware that the system is in learning mode.
8. Within 5 seconds after entering the code learning mode, press any button on the remote. The unlock output will trigger to let you know the remote has been recognized and is compatible with the system.
9. Repeat steps 6-8 for all other remotes.

Fig. 32



Fig. 33



Fig. 34

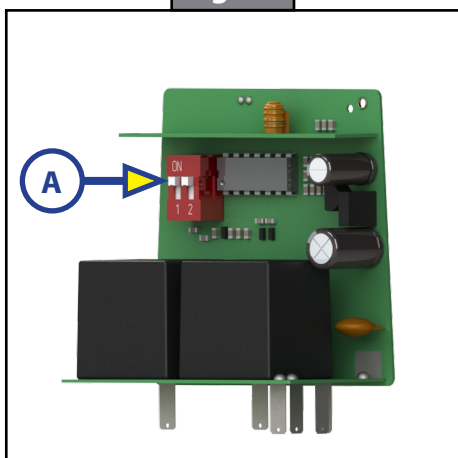
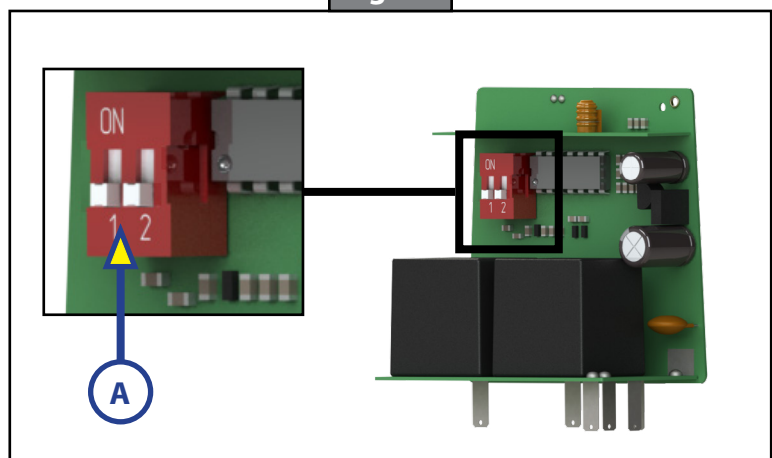
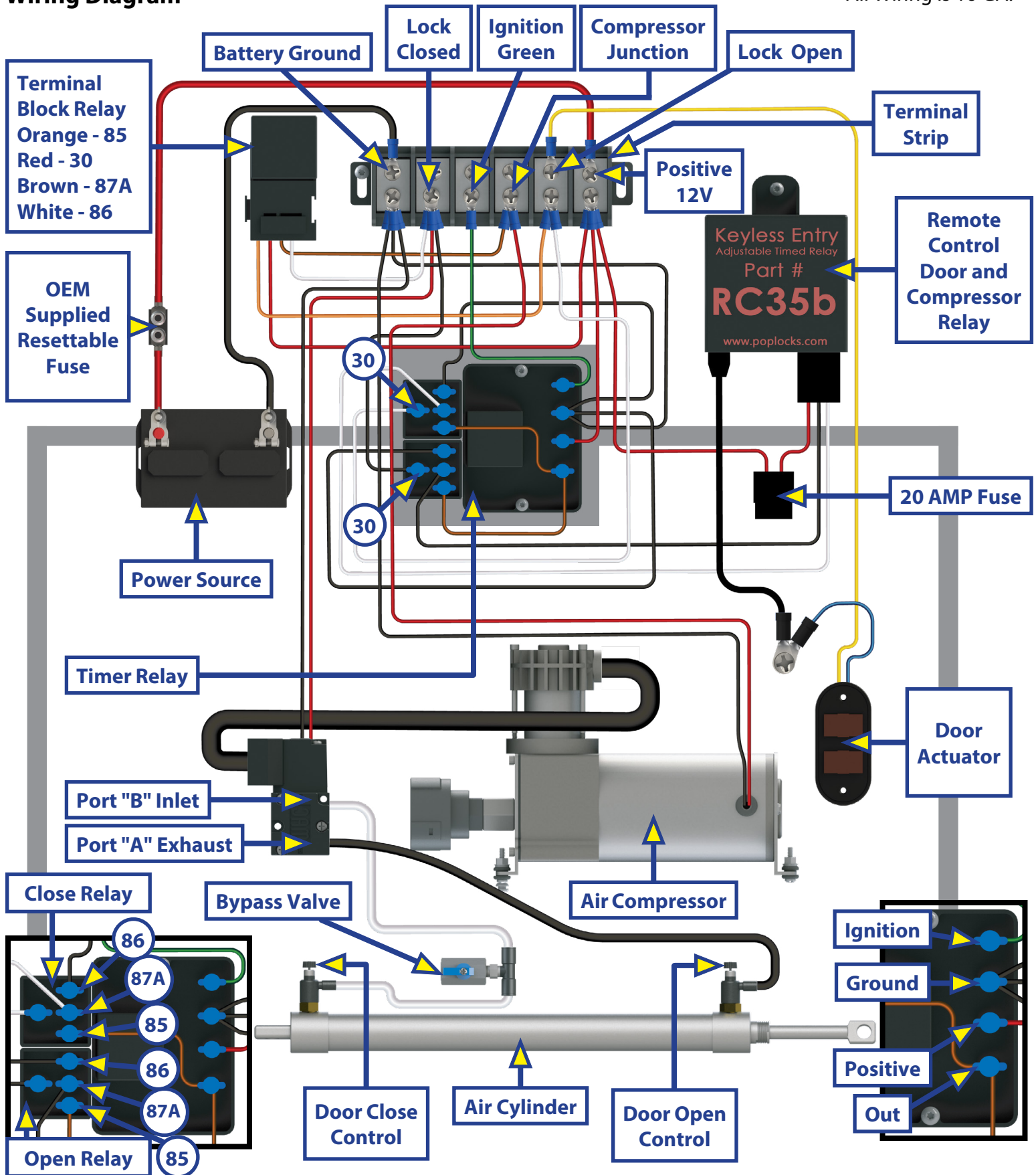


Fig. 35



Wiring Diagram

• All Wiring is 16 GA.



NOTE: If the compressor fails, open the bypass valve to allow the doors to move manually.

NOTE: If the door doesn't have power locks, put the rotary actuator ground to ground on the terminal strip, **NOT** on the closed terminal.

NOTE: Delayed relays do not work for 10 seconds after the ignition is shut off and key is removed.

Notes

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