

Spiral® SST and STT Prewire Installation Manual

Rytec installation safety information

The meaning of signal words

Summary



Technical content produced by Rytec includes safety information which must be read, understood and obeyed to reduce the risk of death, personal injury or equipment damage. This information is boxed to set it apart from other text. The boxed text identifies the nature of the hazard and appropriate steps to avoid it.

The safety alert symbol identifies a situation that can result in personal injury. The accompanying signal word indicates the likelihood and potential severity of the injury. The meaning of the signal words is as follows:

	⚠ WARNING Warning indicates a hazardous situation that, if not avoided, could result in death or serious injury.
	⚠ CAUTION Caution indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Safety icons used in this manual



Shock hazard



Fall hazard



Crush hazard



Cut hazard



Forklift

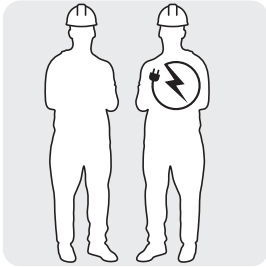
Installation safety

- **Do not install any Rytec product until** you have read and understood the safety information and instructions. Make sure all applicable regulations are observed and obeyed at all times.
- **Observe these precautions** while installing the door:
 - Only trained, qualified and authorized individuals are to install the door and the control system.
 - The installation site comprises the physical area required to safely uncrate, stage and install the door.
 - Make sure all personnel at the installation site have been informed of the date, time and location of the installation.
 - Make sure there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.
 - Make sure you have and use all required Personal Protective Equipment.
 - Make sure you have adequate personnel and equipment to safely perform all lifts.
 - Make sure you have been informed of any hazardous conditions that exist within the installation site.
 - Make sure the installation site is kept clear of obstructions and debris and that the floor is dry.
 - Make sure you are aware of the location of all power lines, piping and HVAC systems within the installation site.
 - Make sure all accessories installed with the door are approved by the manufacturer.

Other icons used in this manual

IMPORTANT	Indicates instructions which, if not followed, could result in damage to the door or voiding of the warranty .	INSIDER'S TIP	Indicates best practice . This is how Rytec Technical Support does the job.
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Requirements – Staffing



- Two installers
- A licensed electrician is recommended for making all electrical connections

Electrician's responsibilities

Refer to the Rytec System 4® Drive & Control Installation & Owner's Manual for a complete list of the electrician's responsibilities.

	⚠ WARNING Electrical work must meet all applicable local, state and national codes. Failure to wire the door correctly can cause shock, burns or death to the people who install, use or service the door. Failure to comply also voids the warranty for the door.
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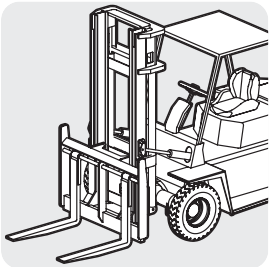
Requirements – Site Conditions

- Installers must have unrestricted access to the door opening at all times during the installation.
- Make sure there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.

Requirements – Lifts

	⚠ WARNING A forklift is mandatory for the safe and proper installation of this door.
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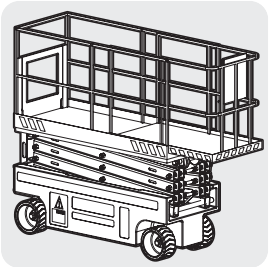
- **Forklift** that meets the following specifications:



- Minimum 4,000-pound lift capacity
- Minimum height ability: door height + 12"
- 48"-wide fork
- Side shift capability

	⚠ WARNING Follow all safety instructions on all lifts and ladders used for this installation.
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- **Scissor lift** that meets the following specifications:



- Can hold both installers
- Minimum height ability: door height

- **Alternatively, two ladders** of sufficient height to safely access the door head assembly

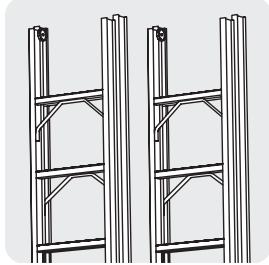


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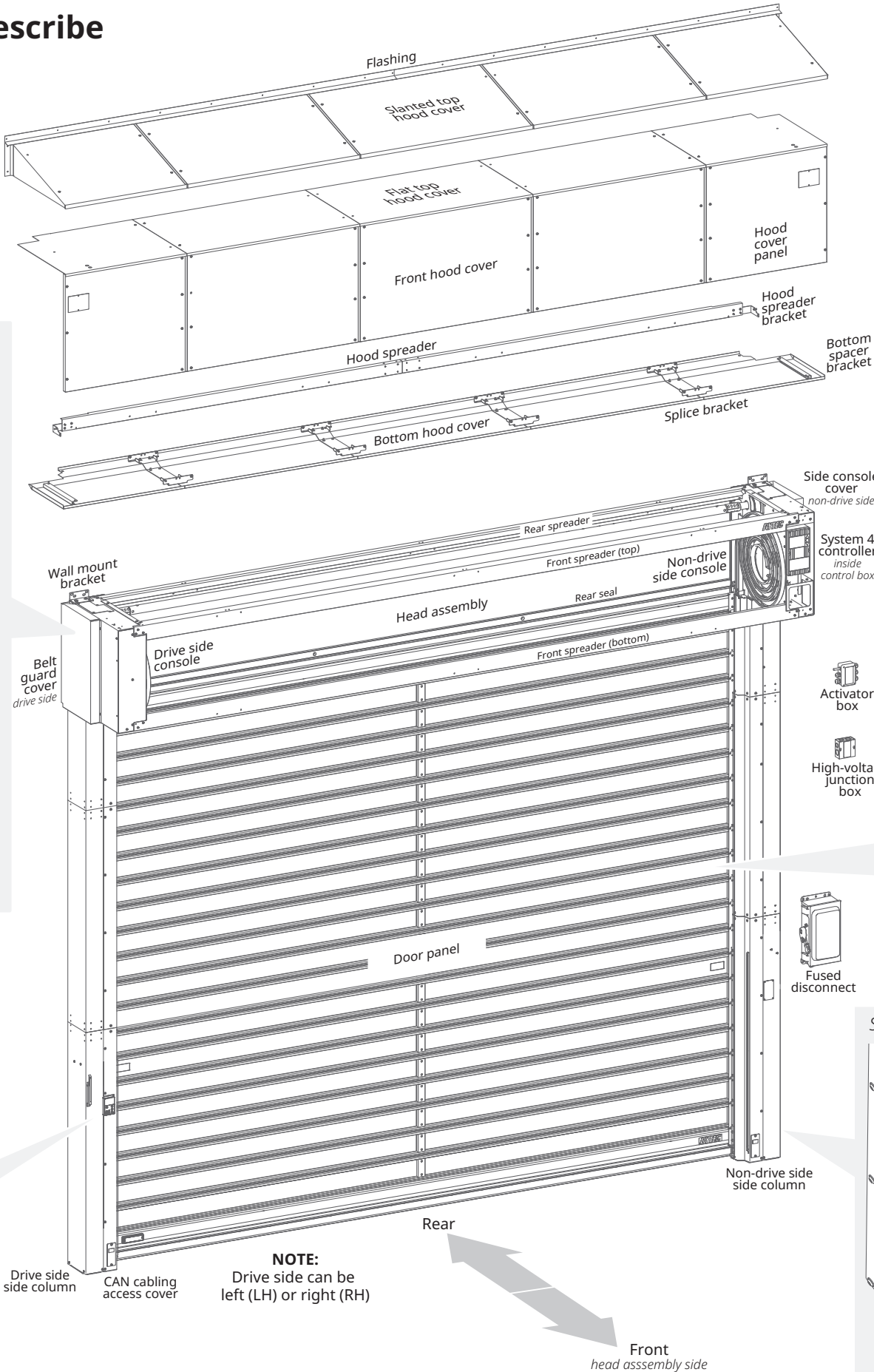
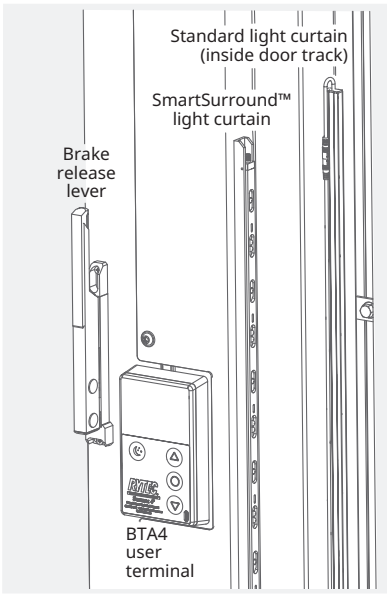
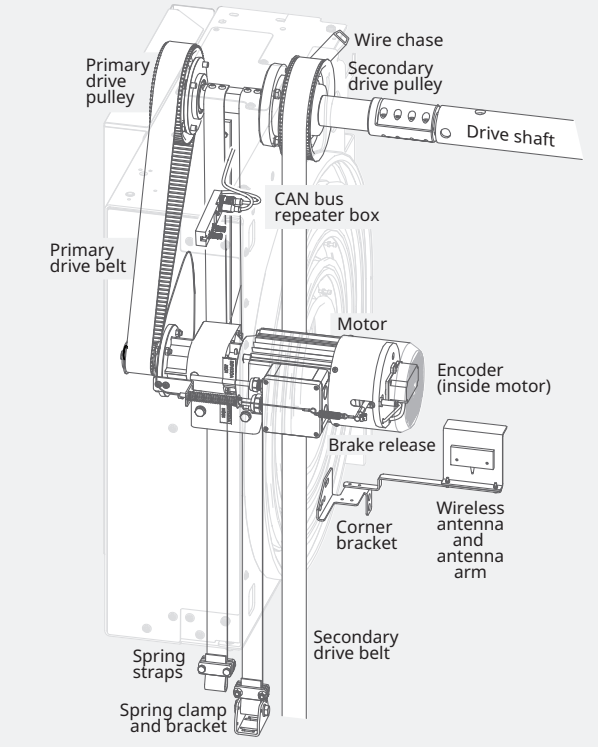
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Terms used by Rytec to describe the parts of the door

This illustration shows the terms used by Rytec technical support to refer to the major components of your door.

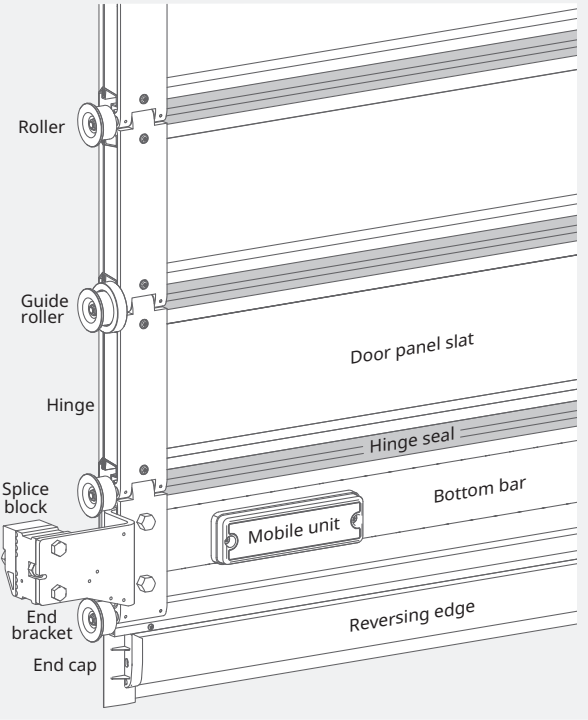
Using these terms helps technical support provide assistance as quickly as possible.

Inside the drive side console

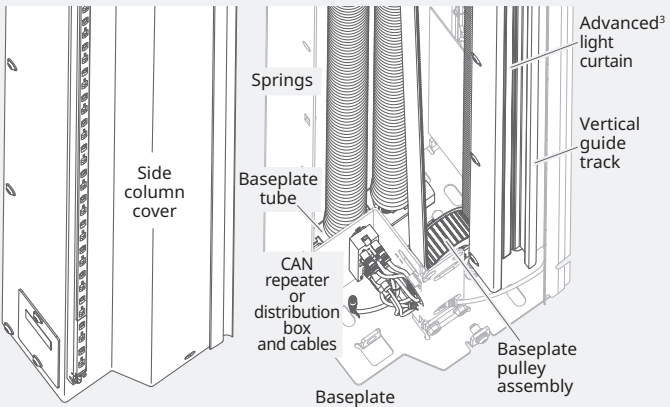


NOTE:
Drive side can be left (LH) or right (RH)

Door panel components



Side column components



NEW in 2022 Spirals: Smartsurround™ light curtains and CAN bus cabling

Two new features have been added to Spirals in 2022, both of which change the installation process.

CAN bus cabling

The CAN bus system simplifies cabling and minimizes internal field wiring during installation. the system works this way:

- CAN bus cabling is a **single chain (series) of cables** that connect ALL CAN-enabled devices to the controller.
- The cabling starts at the controller and runs through the CAN repeater box in the head assembly, then the CAN repeater box at the base of the drive side side column, then across the rear spreader to **terminate at the CAN distribution box** at the base of the non-drive side side column.
- CAN-enabled Rytec devices **can plug into any available port in any CAN box**. For example the BTA4 can plug into a baseplate port if it is mounted to a side column, or a head assembly port if it is remotely mounted.
- Ports must be jumpered if they are not connected to a device so that the signal path remains unbroken until it terminates at the distribution box.

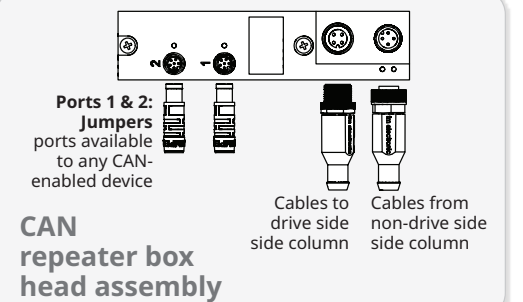
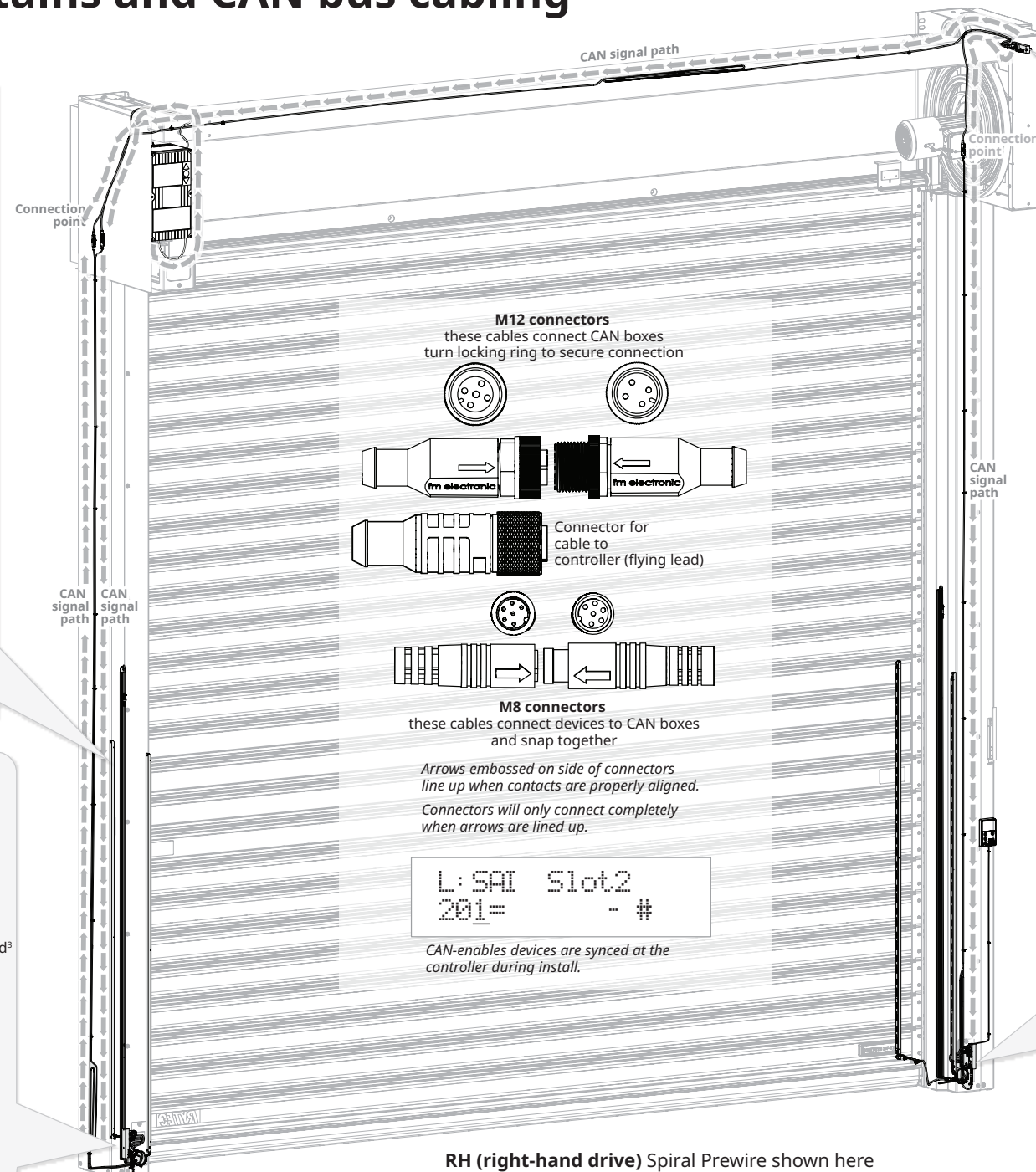
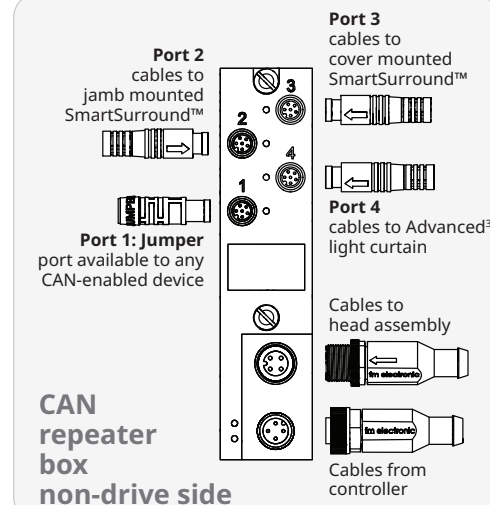
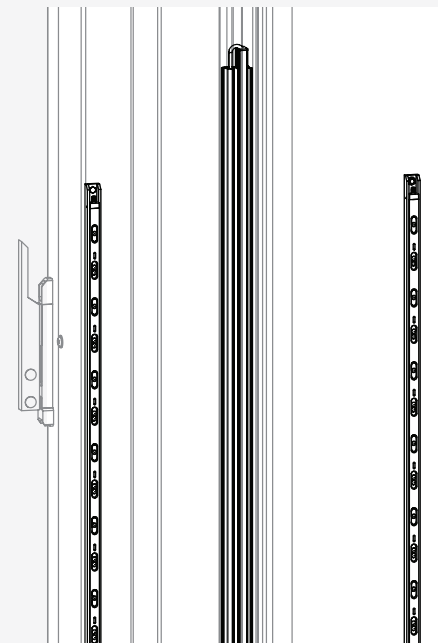
SmartSurround™ light curtains

The SmartSurround™ light curtains replace the Pathwatch LED strips, and combine the function of a light curtain and an alert system.

- Spiral doors now have **three sets of light curtains**:
 - The standard light curtains, now called the Advanced³, in the door track
 - One set of SmartSurrounds™ mounted on the side column covers (cover mounted)
 - Another set installed on the walls of the door opening (jamb mounted)
- The LEDs are larger and brighter than the Pathwatch, and display a sequence of lights that move up and down when the door opens. and closes, and that flash repeatedly whenever any of the detection planes are broken.

SmartSurround™ light curtains

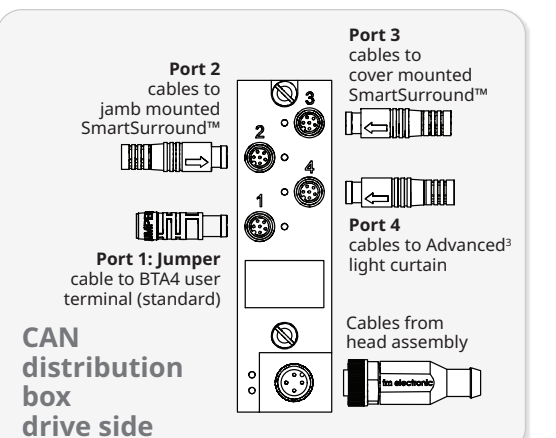
SmartSurround™ light curtains mount on the side column covers (cover mounted) and the walls of the door opening (jamb mounted). The standard light curtain, now called the Advanced³, is still located inside the door track.



IMPORTANT

On prewired Spirals, the CAN distribution box is on the drive side baseplate, and the CAN repeater box is on the non-drive side baseplate.

This is the reverse of their locations in all other Spirals.

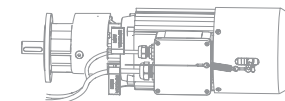


Reversing edge

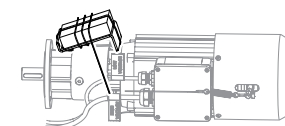
The SmartSurround™ system, in combination with the Advanced³ light curtains located within the door line, meets the requirements for entrapment protection. SmartSurround™ offers a contactless method of object recognition that is an improvement over the reversing edge system; this makes the reversing edge system redundant.

Standard installations of Spiral doors now have the reversing edge deactivated. Activation can be requested as an **option**.

Check the motor to see if a wireless antenna is attached. If it is, follow steps to install the antenna and bracket (pp.19-20).



No wireless antenna:
reversing edge deactivated (standard)



Wireless antenna included:
reversing edge activated (optional)

Spiral® Installation Manual for SST (Solid Panel) and STT (Full Vision Panel) Prewire Models

Call **800-628-1909**

or email **helpdesk@rytecdoors.com**

if you have any questions during this installation. See previous page for list of Rytec terms for the parts of the door.

How to uncrate the door and inspect the installation site

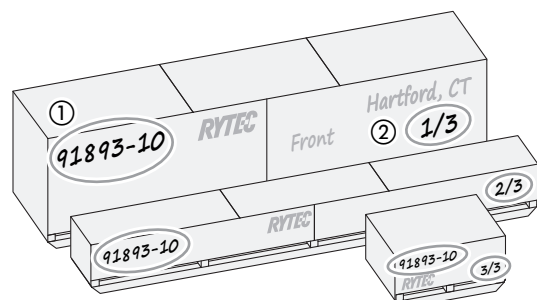
IMPORTANT

Spirals ship in two crates (three if there is a slanted hood cover).

Each set of crates is marked with the unique serial number for the door ① and the number of crates used for the door ②.

All parts for the door are in these crates.

If more than one door is to be installed, **treat each set of crates as a separate installation.**



Mixing parts from different doors voids the warranty for all doors in the installation.

1 Remove all top panels.



Pry bar

INSIDER'S TIP

Panels are made of fiberboard that shreds easily, and are secured with many nails.

Slide the pry bar along the edge, prying gently every six inches, to remove the panel in one piece.



2 Check the crates. Make sure all serial numbers match the number on the crate and all visible parts have no shipping damage.

Drive belt guard cover: indicates drive side. May be left (LH) or right (RH). LH is used for this manual.

Flat top hood cover (optional): preinstalled. Must be removed to access the head assembly components, then reinstalled.

Front hood cover (optional): preinstalled. Some panels must be removed, then reinstalled.

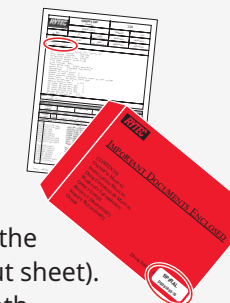
Head assembly: check the serial number on the label (inside top, non-drive side).



Small parts box(es): check the serial number on side of box. There may be two boxes.

IMPORTANT

Open box, remove the red documents envelope, then open the envelope and get the object list (also called the cut sheet). Check serial numbers on both.



SMALL PARTS

Parts and hardware that you find in the box(es) will be called out in this manual as they are needed.

Bottom hood cover (optional): panels are crated in front of head assembly, and brackets are crated under the lifting cradle.

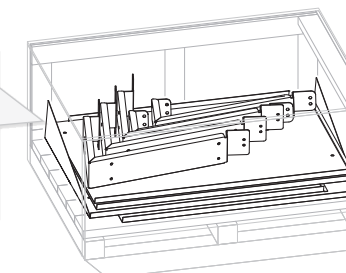
Springs: number varies from one to twelve based on size of door.

SmartSurround™ light curtains: packed in tube inside side columns

Side columns: check the serial number on the label.

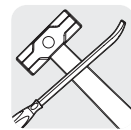


Slanted top hood cover (optional): third crate holds panels and brackets. Number varies based on size of door.

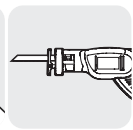


3 Check your tools. Make sure you have all tools and supplies for the installation.

Tools you need



Pry bar and mallet or reciprocating saw



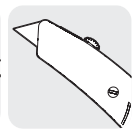
Crowbar



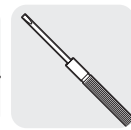
Cutting pliers



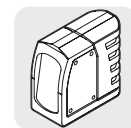
Utility knife



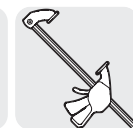
Precision screwdriver



Flat screwdriver



Laser level



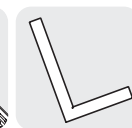
(2) Bar clamps



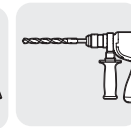
Measuring tape



Spirit level



Carpenter's square

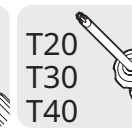


Anchoring tools

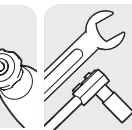
Hardware tools and sizes (manual or powered)



#2 Phillips screwdriver



T20
T30
T40 Torx screwdriver

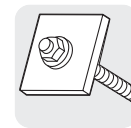


5/16"
10mm
13mm
17mm Socket or open wrench

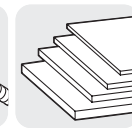


7mm
10mm
13mm (2) Sockets or wrenches needed

You also provide



Anchoring hardware



Shims



Caulk



Cable ties and anchors

4 Check the measurements. Make sure the door will fit in the installation site.



Tape measure

Object list		Material number
Original		724
Description lists if door is small (-L, -L/R), large (-S, -S/R) or extra large (-US, -US/R).		
SPIRAL STT-L		
MRP controller	500	Production scheduler
B5 ZMAT	T7	Tier 7
Order type		ZP02
Status		RYTEC MTO Order
REL MSPT PRT PRC SETC		Plant
		2000
Serial number		Rytec Corporation -
D0091893-010		
Configuration		
DOOR MODEL NAME Spiral Full Vision "I"		
Door Width (Inches) 144.094 144-1/16		
Door Height (Inches) 128.346 128-3/8		
Production Width in mm 3,660		
Production Height in mm 3,260		
Door head sizeB		
Line Voltage 460V		
motor mount side Right Hand Moto		
Motor Duty Standard Duty Motor		
Horsepower 2.0		
Number of solid slats 0		
Number of vent slats 0		
Brake Release Location Release le		
Hood style No spiral hood type		
Number of Springs 4		
Spring Tension (ln) 4.724		
1st inner Spring Pack Qty 0		
2nd inner Spring Pack Qty 2		

Write on object list:
Width to center = 1/2 ①
Total width = ③
Total height = ② + ④

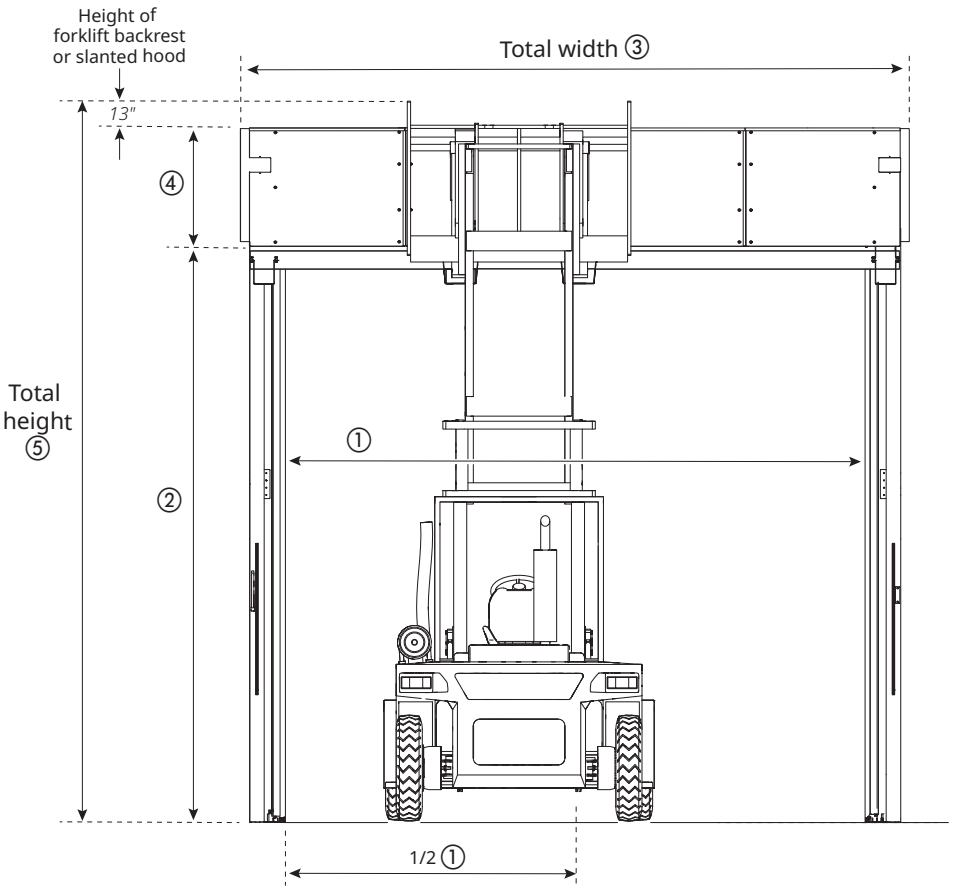
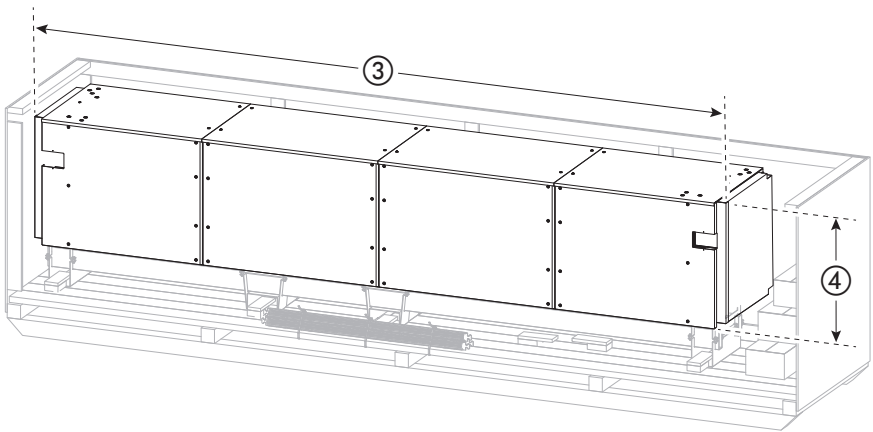
IMPORTANT

Spirals are built to metric specifications to a very tight spec. Round the Door Width and the Door Height to nearest 1/16 inch.

Decimal	.063	.125	.188	.250	.313	.375	.438	.500
Fraction	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
Decimal	.563	.625	.688	.750	.813	.875	.938	
Fraction	9/16	5/8	11/16	3/4	13/16	7/8	15/16	

1. **Locate the Door Width ① and Door Height ② on the object list.**
Round the numbers to nearest 1/16 inch.
2. **Measure the door opening** to make sure the width and height match the numbers on the object list.
3. **Calculate the width to center:** divide the Door Width ① by 2.
Write this number on the object list. **Use it** when you center the door.
4. **Find the total width of the door:** measure the width of the head assembly ③ in the crate.
Write this number on the object list.
5. **Calculate the total height of the door:**
 - Start with the Door Height ②.
 - Measure the height of the head assembly ④ in the crate. Add this to ②.
 - Add 13 inches (13") to account for the height of the forklift backrest or an optional slanted hood.**Write this number** on the object list.
6. **Make sure there is enough space to lift the door:** make sure the site has space for the total width and the total height you calculated.

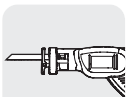
Call Rytec technical support at 800-628-1909 or email helpdesk@rytecdoors.com if you have any questions about the measurements at the site.



5 If all checks are good, finish uncrating the door. Starting at the center, remove the crossbars, then remove the front panel.



Mallet and pry bar or



Reciprocating saw



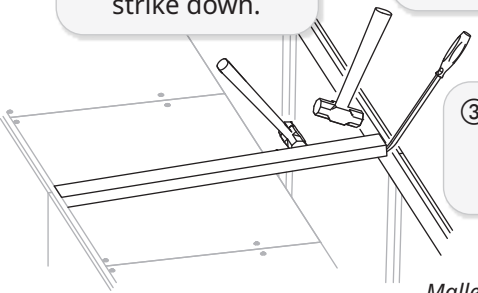
CAUTION

Flatten exposed nails as you go. Keep hands clear while striking or cutting.

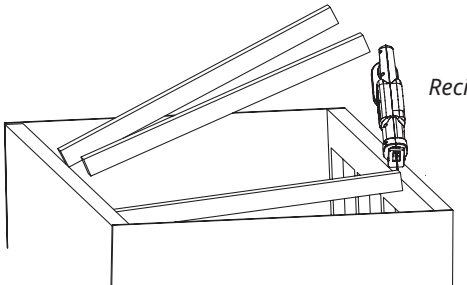
① Strike across the crossbar to loosen nails. Do not strike down.

② Strike the side panel to expose nails.

③ Pry up to remove crossbar.

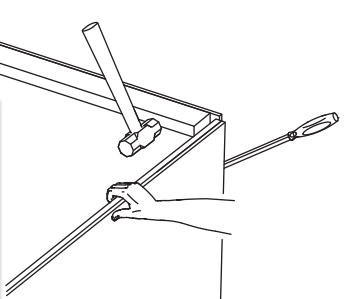


Mallet and pry bar

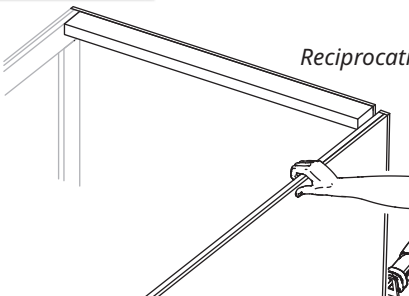


Reciprocating saw

End panels are nailed into the side panel. Strike crossbar and pry end panel to loosen nails. Pull side panel free from sides, then pull down to remove.



Mallet and pry bar



Reciprocating saw

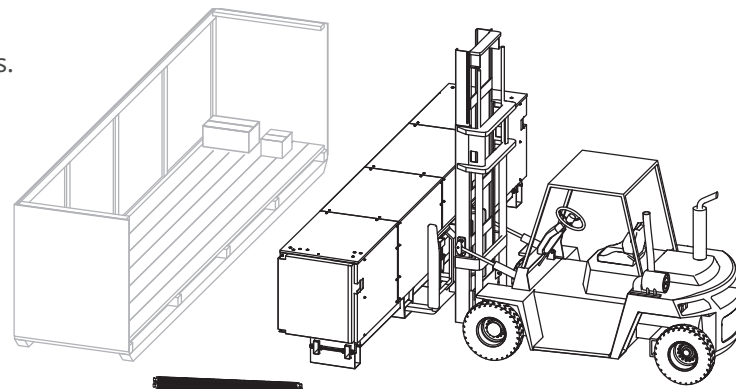
How to prep the head assembly

- 1 **Remove** springs, blocks and (optional) hood cover panels for clear access.

Use a forklift to move the head assembly to an open space.

INSIDER'S TIP

After the head assembly is removed, **use the crate** to stage parts until they are needed.



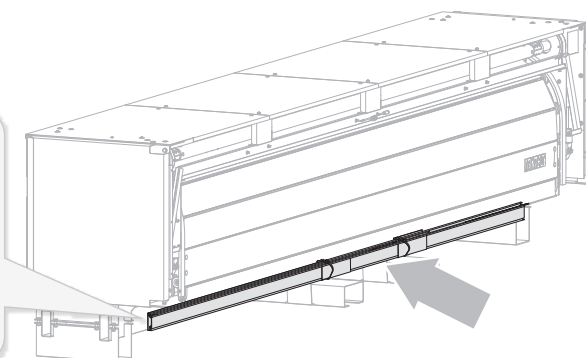
- 2 **Locate and remove** the rear seal (rear spreader). It is tied to the **back of the lifting cradle**.



Cutting pliers

If the door has a **slanted top hood cover**, the flashing will also be tied to the cradle.

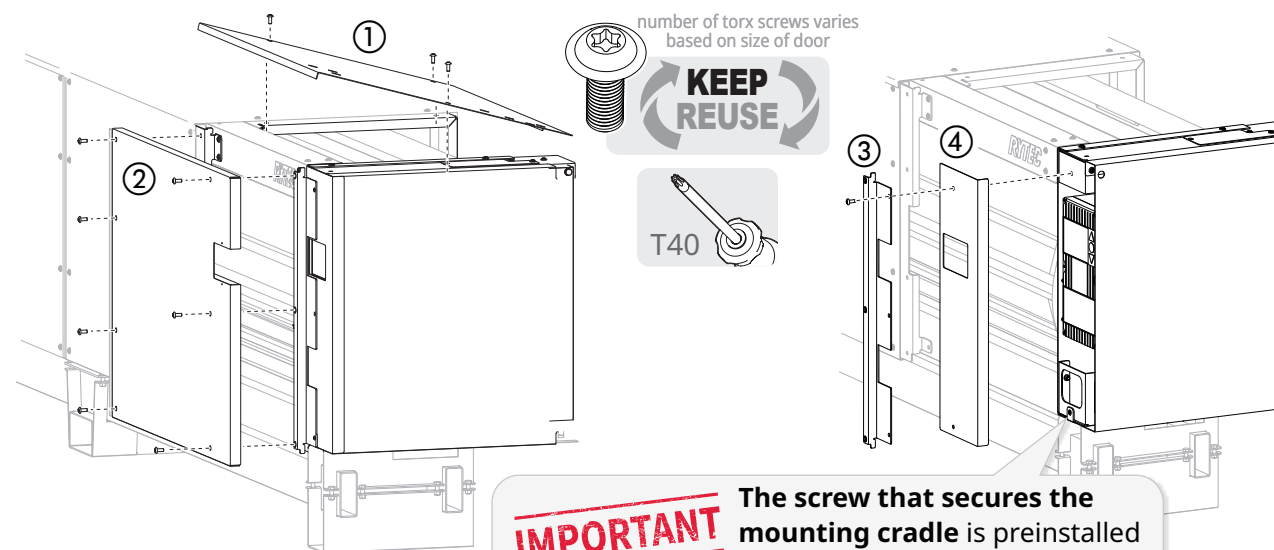
If the door has a **bottom hood cover**, the bottom hood spreader will also be tied to the cradle.



How to remove the side console covers and side column screws

- 1 **Smaller (-L and -L/R) doors:** remove the front console cover ④ to access the top screw for the belt cover.

- If the door has a preinstalled flat top hood cover ①, remove this end panels first.
- If the door has a preinstalled front hood cover ②, remove this end panels next. The end spacer bracket ③ is removed with the console cover.



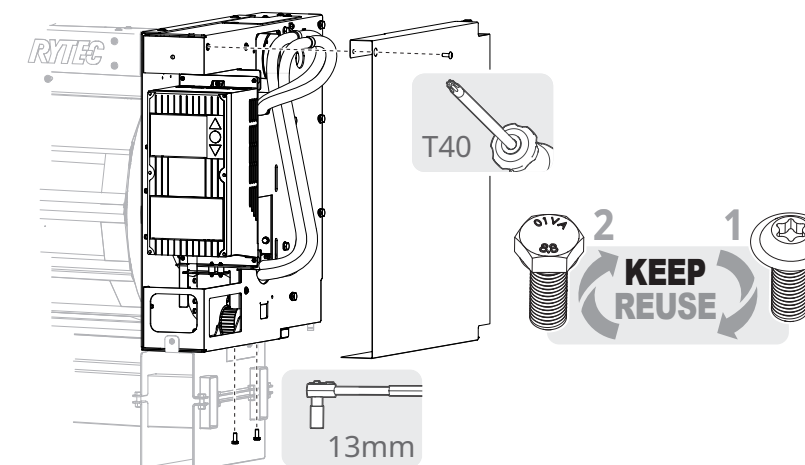
Do this on both sides of the head assembly.

IMPORTANT The screw that secures the mounting cradle is preinstalled behind the cover and bracket. **Do not remove it** until the head assembly has been lifted into place.

- 2 **-L and -L/R doors:** remove the side console covers.

NOTE: this is called the **belt guard cover** on the drive side.

Do this on both sides of the head assembly.

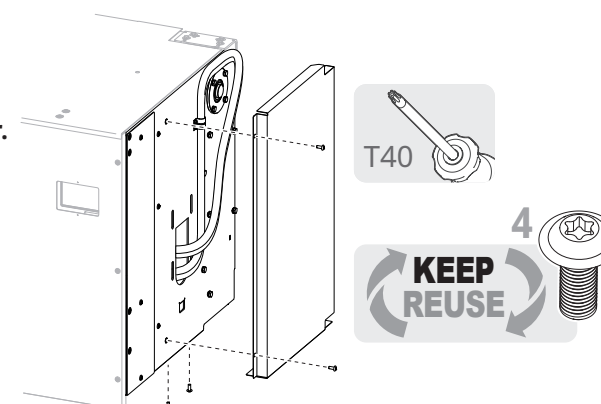


- 3 **-S and -S/R doors:** remove the side console covers. **Do this** on both sides of the head assembly.

INSIDER'S TIP

You do not need to remove the front cover. Removing the non-drive (controller) side front cover may make the installation easier.

- **To do this**, follow Step 1 for smaller (-L, -L/R) doors.

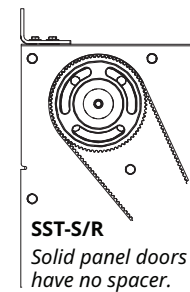
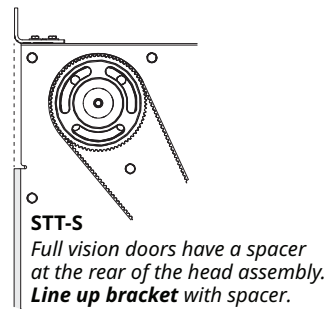
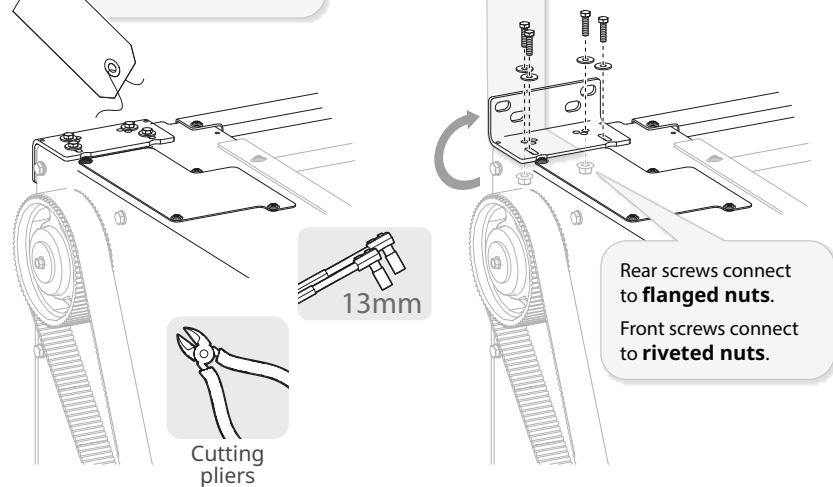


4

-S and -S/R doors: look for the wall mount brackets at the top rear corners of the head assembly.
Remove the screws and washers and **flip** each bracket so the flange points up.
Line up bracket with the rear of the head assembly, then **reinstall** the screws and washers.

Brackets are labeled with yellow tags.
Remove tags before flipping brackets.

If the door has a slanted top hood cover, **do not reinstall** the outer screws and washers until the cover is installed.



5

IMPORTANT

Protect your cables!
Make sure all cables preinstalled in the head assembly are clear of the side columns and won't get pinched or crushed when the head assembly is installed.

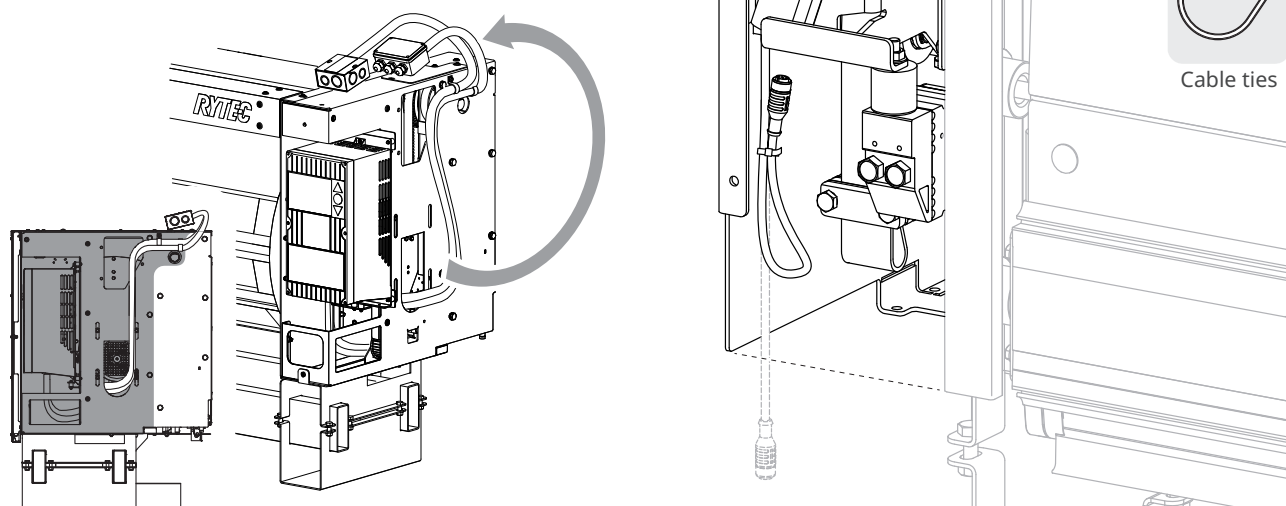
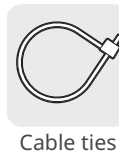
On the non-drive (controller) side, **reach** into the console and place the two cables with junction boxes on top of the head assembly.

Make sure as much of the cables as possible are clear of the side columns (non-shaded area).

Leave the pulley, spring strap and other cabling in place.

In both consoles, look for the preinstalled CAN connector(s) (unattached cable with M12 connector descending from wire chase).

If the cable hangs below the bottom of the head assembly (dotted line), **use a cable tie** to keep it clear of the bottom.



6

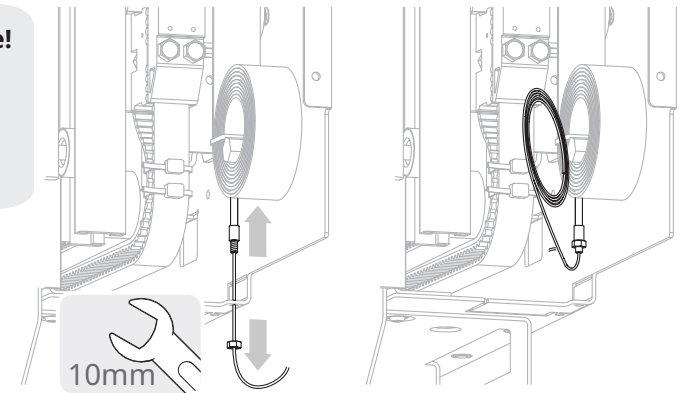
IMPORTANT

Protect the brake release cable!
 The cable is preinstalled, and can be damaged when the head assembly is raised onto the side columns. This extra step puts it out of harm's way.

Unscrew the retaining nut, cut the cable tie and slide the cable through the hole in the console.

Slide the nut up the cable and reattach.

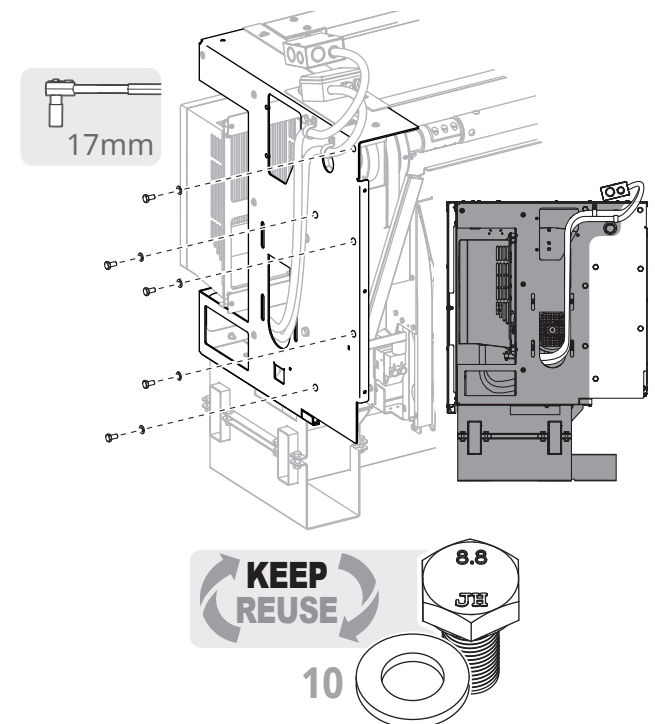
Coil the cable inside the console.



7

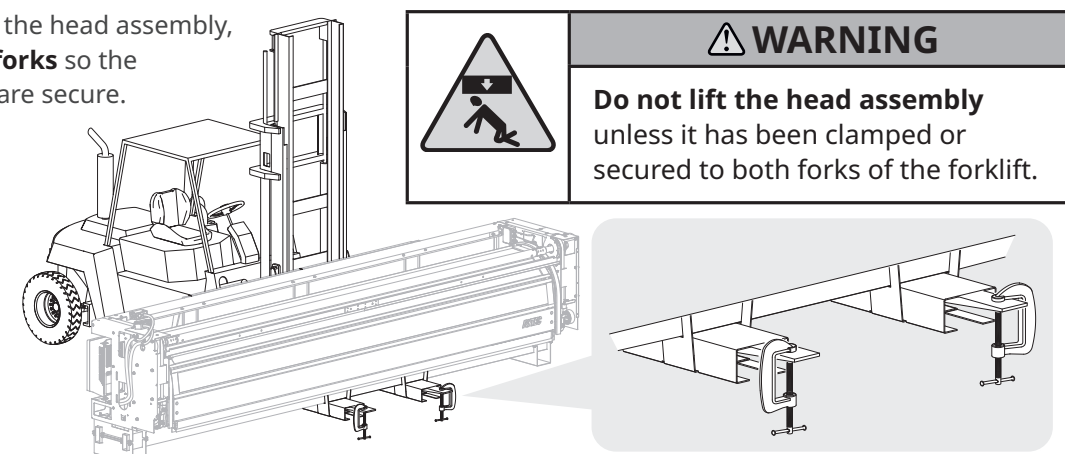
Remove the five preinstalled side column screws (located in the non-shaded area).

Do this on both sides of the head assembly.



8

Before lifting the head assembly, **clamp both forks** so the fork pockets are secure.

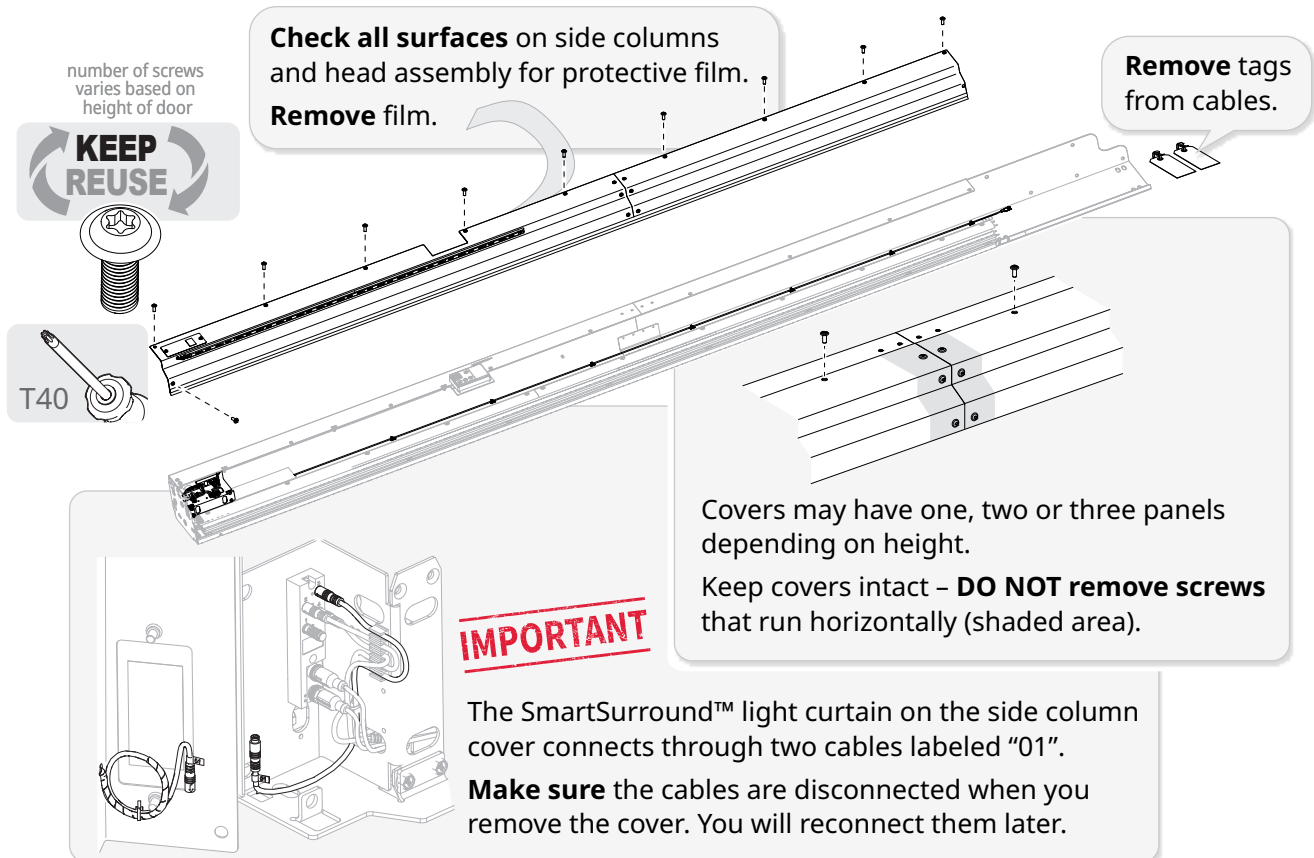


WARNING

Do not lift the head assembly unless it has been clamped or secured to both forks of the forklift.

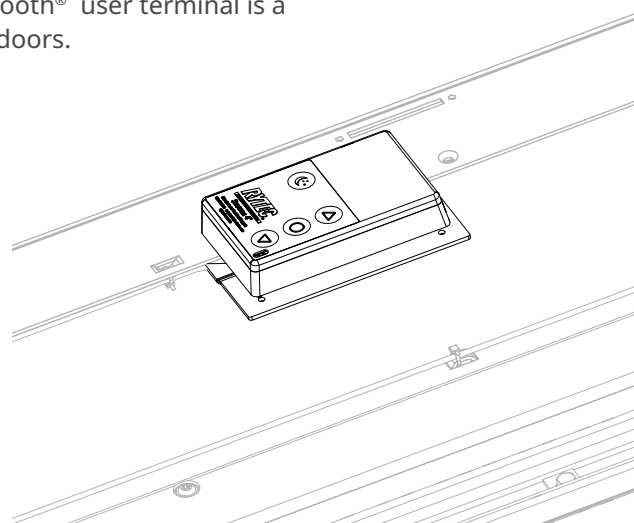
How to prep the side columns

- 1 Remove** the covers on both side columns.
Screws for side column covers run in a vertical line. There is also one screw at the base of the column.

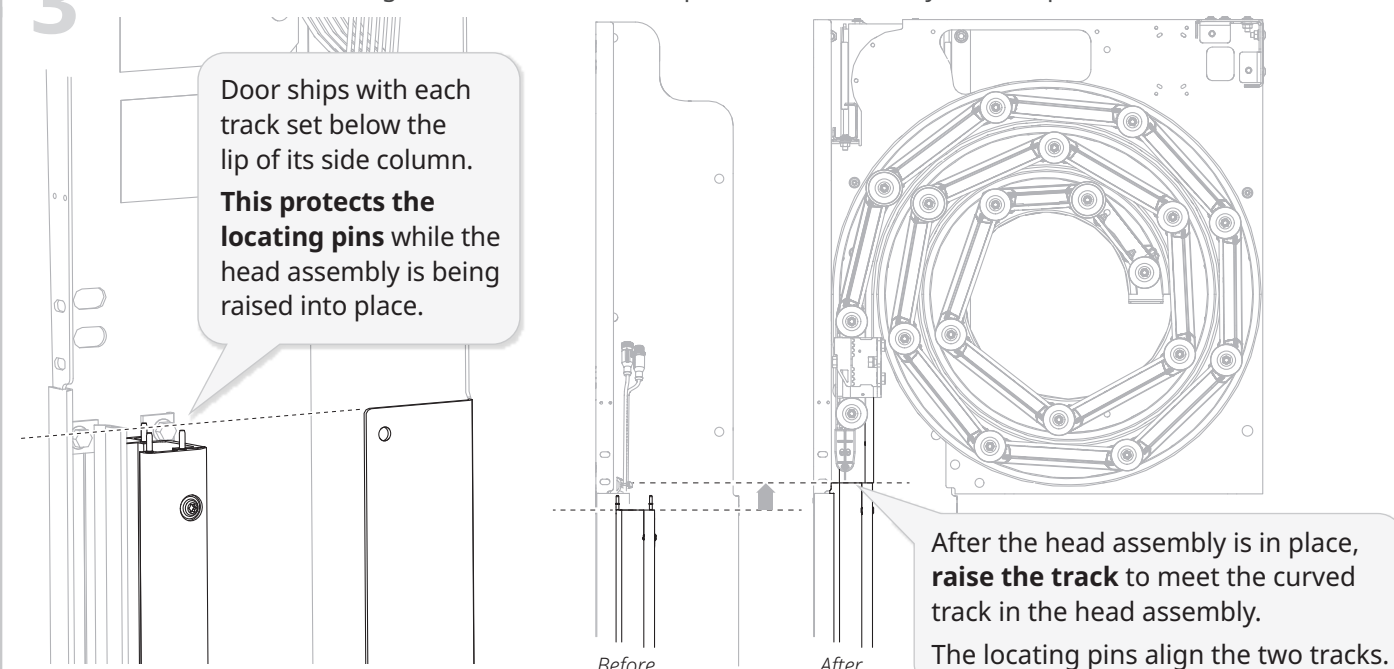


- 2 IMPORTANT** Beginning in 2022, the BTA4 Bluetooth® user terminal is a standard feature of Spiral prewire doors.

- The BTA4 can be **preinstalled** in a side column, or **field installed** at a location remote from the door.
- If you do not see** a BTA4 terminal preinstalled in either side column, check with the door owner for where they want the terminal installed, and read (Optional) *How to install the BTA4 user terminal in a remote location* on page 22.



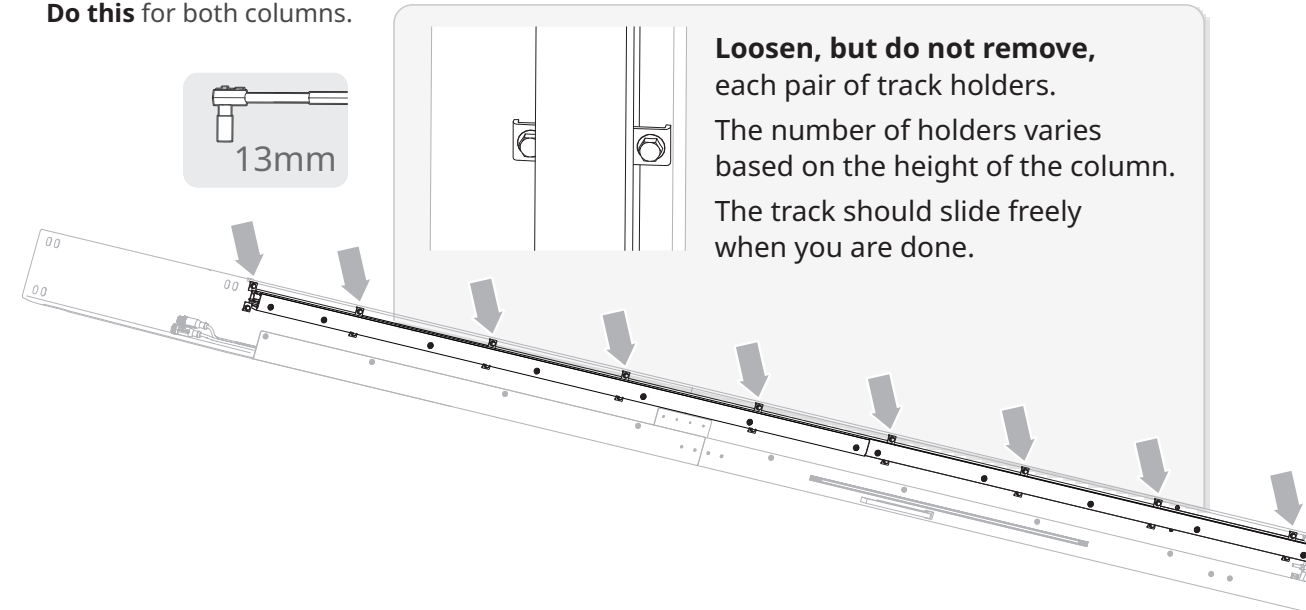
- 3 Make sure** the vertical guide tracks for the door panels are in the fully lowered position.



- 4 Loosen** the holders on the vertical guide track.

If necessary, lower the track.

Do this for both columns.



- 5** Select one holder at the halfway point of the side column and **hand tighten the screws** to secure the guide track in place. **Do this** for both columns.



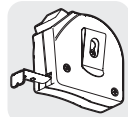
The tracks can now be repositioned easily after the side columns are installed, but will not slide while the columns are being lifted into place and leveled.

How to center the door in the door opening

IMPORTANT

Rytec doors are engineered to be centered in the door opening, so follow these steps even if the width of the opening and the production width match exactly.

1



Measuring tape



Carpenter's square

Object list		Material number	
Original		724	
Material description		Order number	Order quantity
SPIRAL STT-L		20000597	1 EA
MRP controller	500	Production scheduler	T7
B5 ZMAT	Tier 7	Order type	ZP02
REL MSPT PRT PRC SETC		RYTEC MTO Order	Start
		Plant	06/03/2019
		Reservation number	06/05/2019
		Creation Date	05/31/2019
		RYtec Corporation	
Serial number			
D0091893-010			
Configuration			
DOOR MODEL NAME		Spiral Full Vision "I"	
Door Width (Inches)		144-094 144 1/16	
Door Height (Inches)		128-346 128 3/8	
Production Width in mm			
Production Height in mm			
Door head sizeB			
Line Voltage		460V	
motor mount side		Right Hand Motor	
Motor Duty		Standard Duty Motor	
Horsepower		2.0	
Number of solid slats		0	
Number of vent slats		0	
Brake Release Location		Release lever on side column	
Hood style		No spiral hood type	
Number of Springs		4	
Spring Tension (in)		4.724	
Inches Spring Pack Qty		2	

Width to center = 1/2 ①

1: Measure the width of the door opening (w) and find the halfway point ($\frac{1}{2}w$). Mark the centerline there.

2: Use the width to center from the object list ($\frac{1}{2} \text{ ①}$). Starting at the centerline, measure and mark the reference line for the first column.

Plumb, level, square: how to position the door correctly as you install the side columns

IMPORTANT

Call Rytec technical support at 800-628-1909 immediately and stop the installation if you are not able to correctly position the door.

Before you begin: where to find the anchor points on the Spiral side columns

1

There are four sets of anchor holes (①,②,③,④) at the top of each side column.

- Use at least one anchor in each set of anchor holes: ①, ②, ③ and ④. Anchor both holes unless conditions at the installation site prevent this.
- Position anchors at the **horizontal center** of the anchor holes.

How to anchor the door:

- Use 1/2" diameter through bolts, 1/2" diameter threaded rods or equivalent to anchor the side columns.
- Anchoring hardware and materials must be provided by the door owner or installer.
- **Make sure** the anchors do not interfere with the moving parts of the door.

2

INSIDER'S TIP

For doors over 12' (twelve feet) in height, **drill an extra anchor hole** near the halfway point of the side column for added stability when the column is installed.

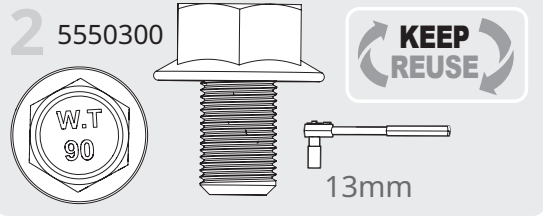
3

There are three anchor holes (①,②,③) in the baseplate of each side column.

You must use at least two baseplate anchors.

To access all three anchor holes:

- **Remove** the bolts and **move** the bracket and CAN terminal out of the way. **Make sure** you do not disconnect any cables when moving the bracket.



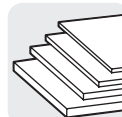
Step 1: Plumb and level the site, then install and plumb the side columns

- 1** **Plumb** the door opening. **If the wall is not plumb**, or there is bowing or an obstruction in the wall, shim the columns.

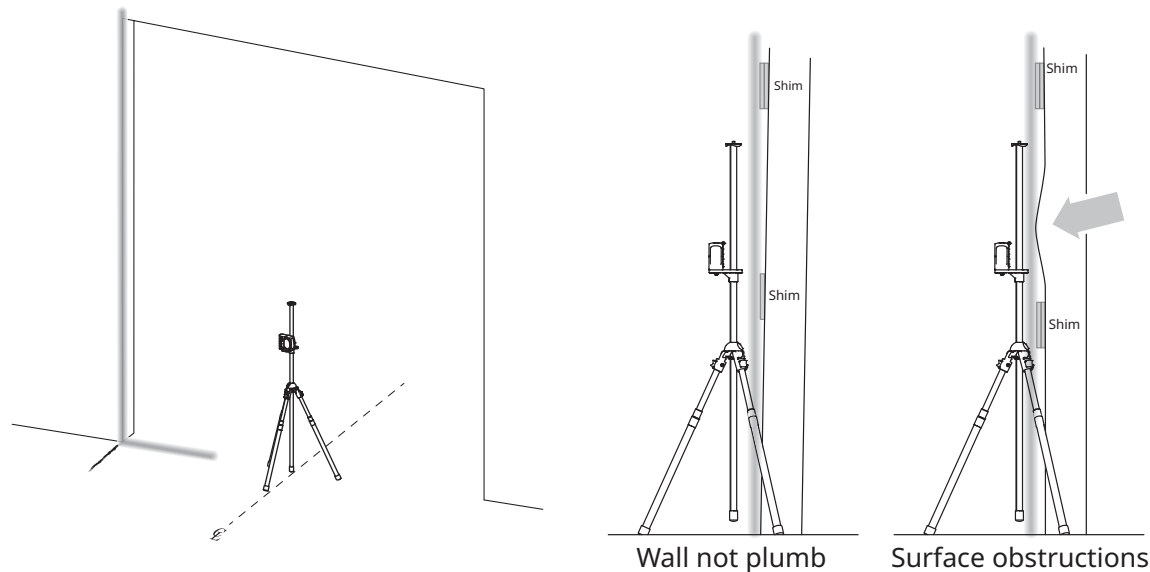
IMPORTANT To prevent column from bowing, shim as needed **at each anchor point**.



Laser level



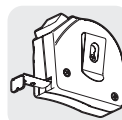
Shims



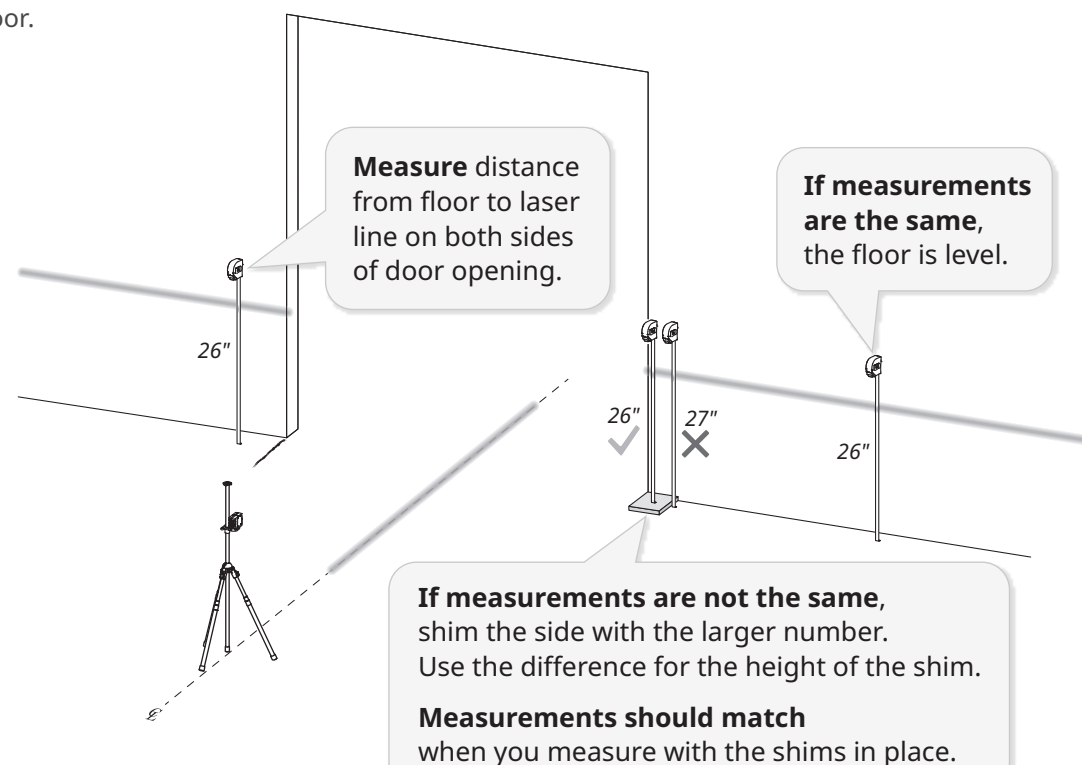
- 2** **Level** the floor.



Laser level



Measuring tape

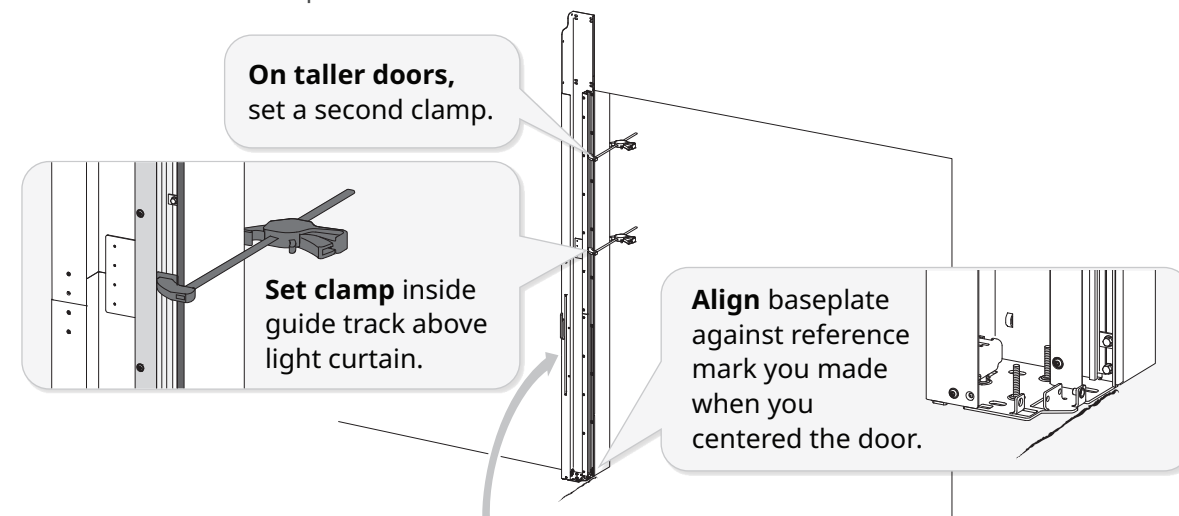


- 3** **If the floor is level**, install the drive side column first.
If the floor is not level, install the side column that is not shimmed first.

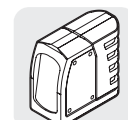
- 4** **Clamp** the first side column into place.



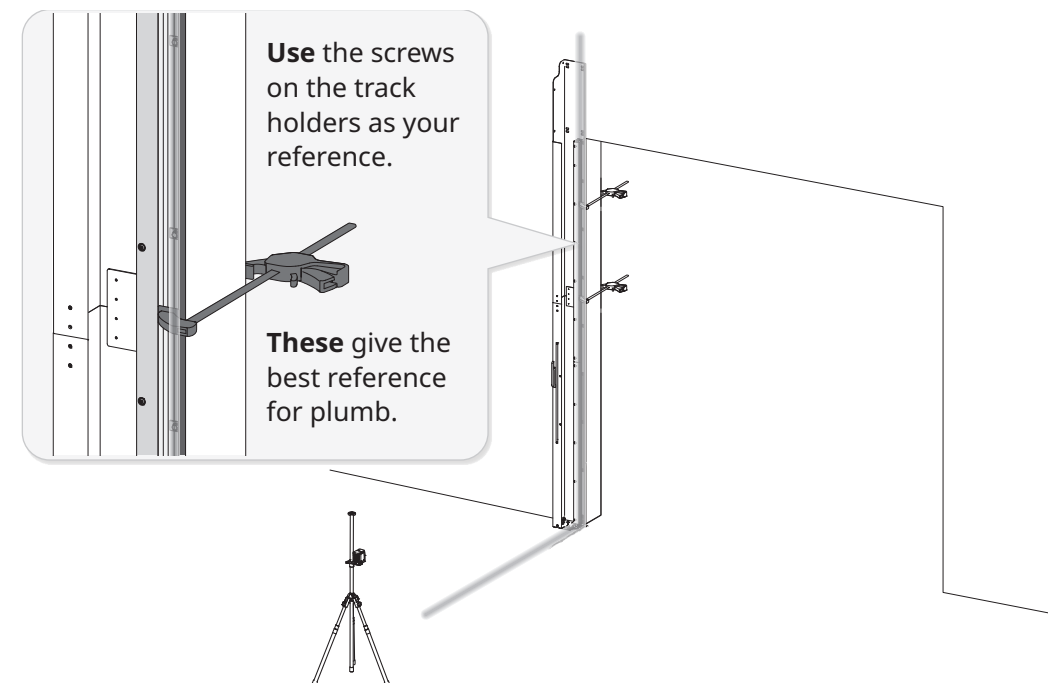
Bar clamp



- 5** **Plumb** the side column.



Laser level

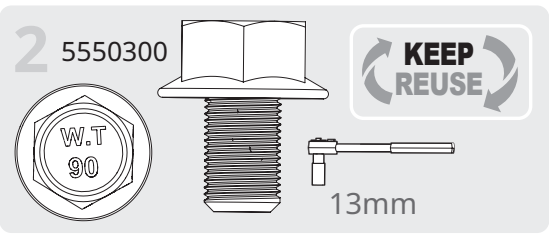
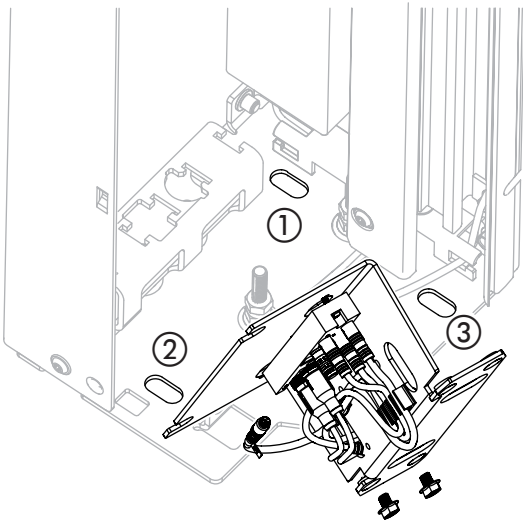


6 Remove the bolts and **move** the bracket and CAN terminal to allow access to all anchor holes ①,②,③.

IMPORTANT Make sure you do not disconnect any cables when moving the bracket.

Leave the brackets loose until the installation is complete.

See *How to install the wall mounted (rear) SmartSurround™ light curtains* on page 21.



Do this on both side columns before anchoring.

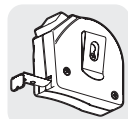
7 Anchor the first side column to the wall at the **top of the column** and **baseplate**. Set anchors tight. Remove clamp.

IMPORTANT Make sure you have read *Before you begin* on page 9 before you start.



Anchoring hardware

8 Measure and mark the reference mark for the second side column.

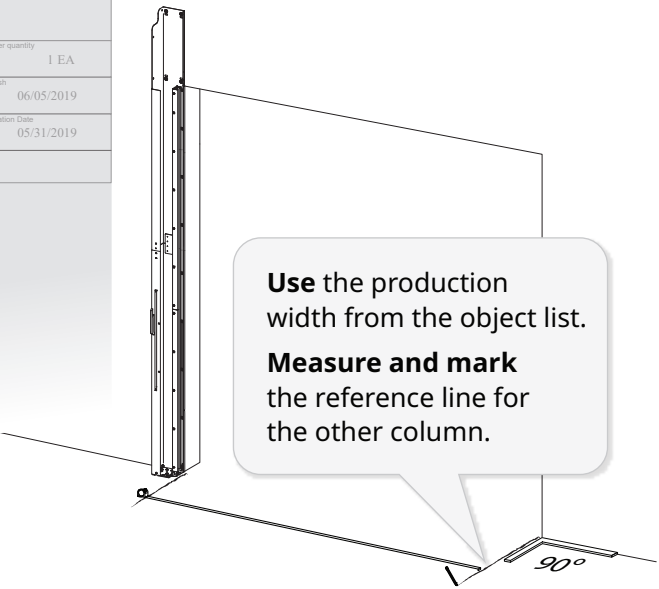


Measuring tape



Carpenter's square

		Object list Original		Material number 724	
Material description SPIRAL STT-L				Order number 20000597	Order quantity 1 EA
MRP controller S00 BS ZMAT	Production scheduler T7 Tier 7	Order type ZP02 RYTEC MTO Order	Start 06/03/2019	Finish 06/05/2019	
Status REL MSPT PRT PRC SETC		Plant 2000 Rytec Corporation -	Reservation number 0002425475	Creation Date 05/31/2019	
Serial number D0091893-010					
Configuration DOOR MODEL NAME Spiral Full Vision "L" Door Width (Inches) 144.094 144 1/16 ① Door Height (Inches) 128.346 Production Width in mm 3,660 Production Height in mm 3,260 Door head sizeB Line Voltage 460V motor mount side Right Hand Motor Motor Duty Standard Duty Motor Horsepower 2.0 Number of solid slats 0 Number of vent slats 0 Brake Release Location Release lever on side column Hood style No spiral hood type Number of Springs 4 Spring Tension (lb) 4.724 LH Inner Spring Pack Qty 0 RH Inner Spring Pack Qty 2					



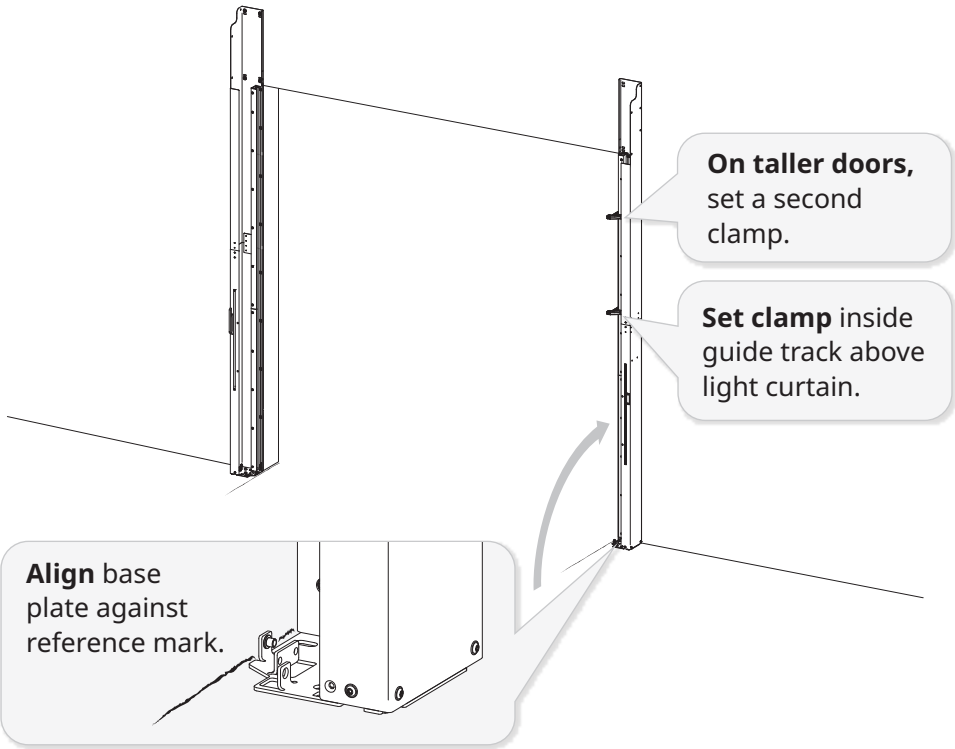
Use the production width from the object list.

Measure and mark the reference line for the other column.

9 Clamp the non-drive side column into place.

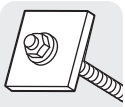


Bar clamp



10 Anchor the second side column to the wall, but **DO NOT SET ANCHORS TIGHT** until after the head assembly is installed.

IMPORTANT Make sure you have read *Before you begin* on page 9.



Anchoring hardware

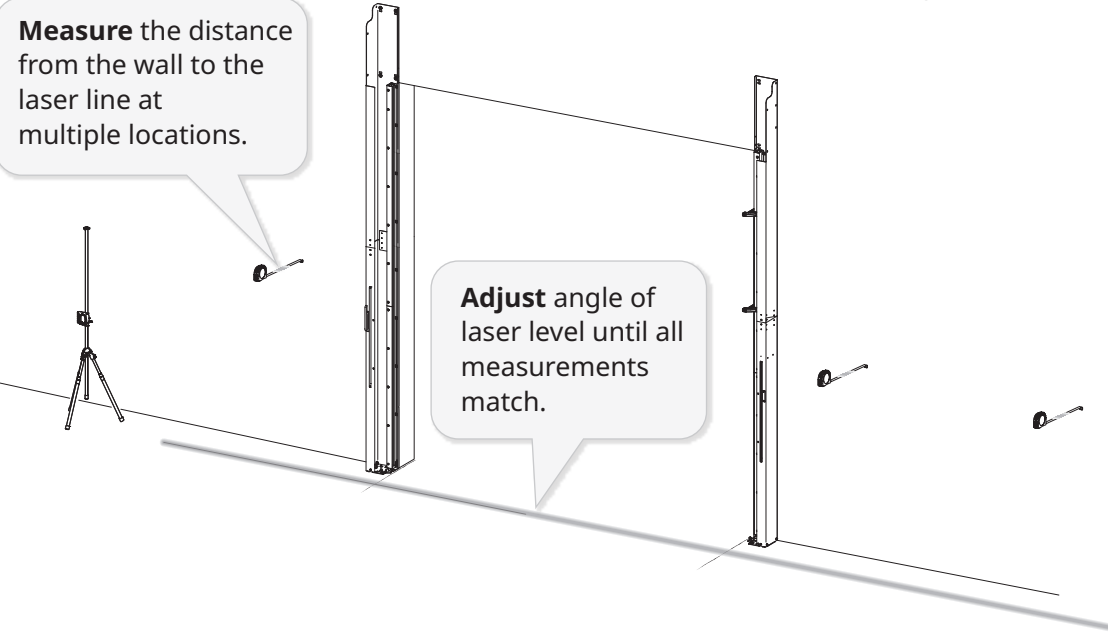
11 Set a laser line parallel to the wall 1" (one inch) in front of columns. **Make sure** the line is parallel to the wall.



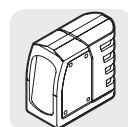
Laser level



Measuring tape



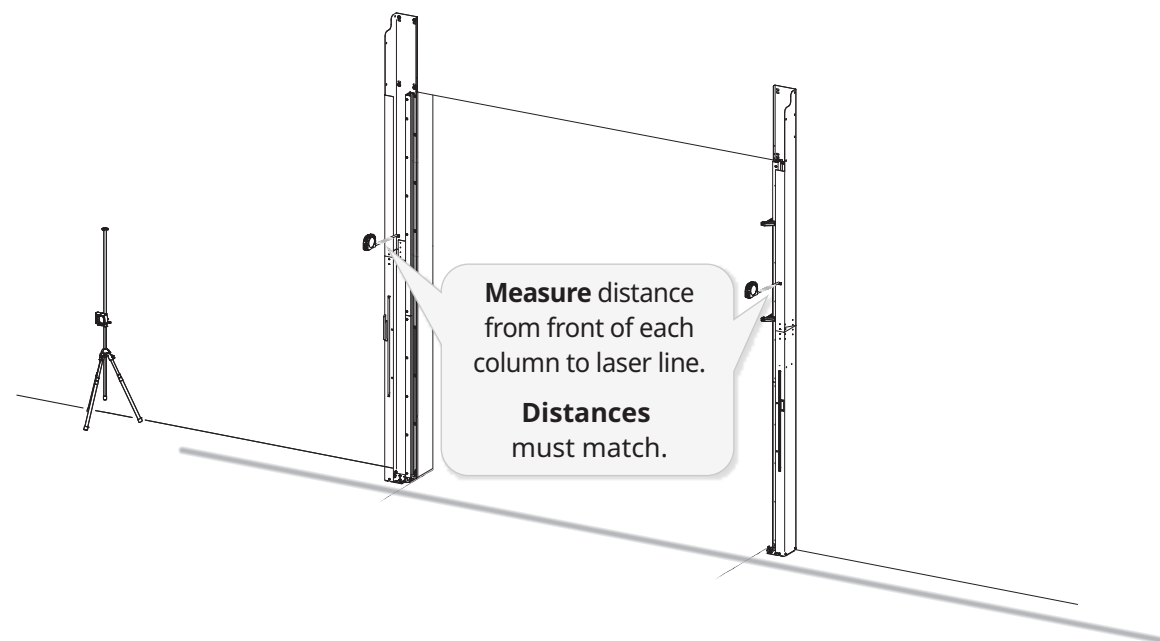
12 Plumb the side columns to each other.



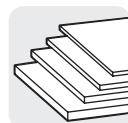
Laser level



Measuring tape



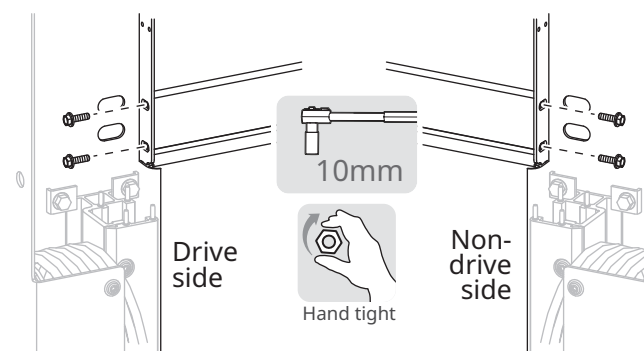
13 If necessary, shim the side columns so they are plumb to each other.



Shims

Step 2: Install the rear seal

1 Install bolts on both sides of the seal and hand tighten.



SMALL PARTS

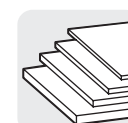
0550259-0Z01



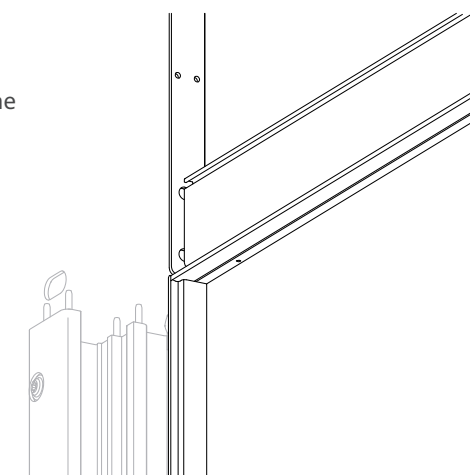
4

2 Make sure the back of the seal is flush with the back of the side column and that there is direct contact with the wall.

- If necessary, **shim the seal** where it meets both side columns and at the anchor point so that both conditions are met.



Shims

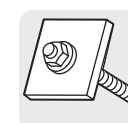


3 Make sure the rear seal is level.

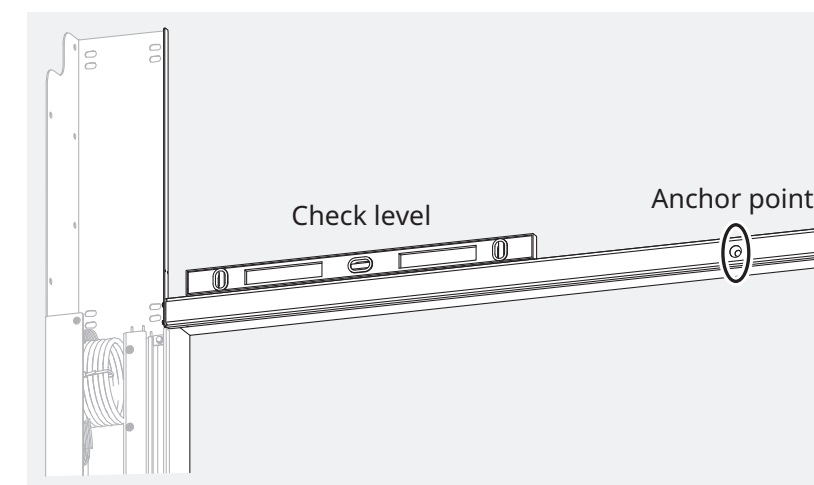
Anchor rear seal to wall at all anchor points.



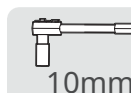
Spirit level



Anchoring hardware



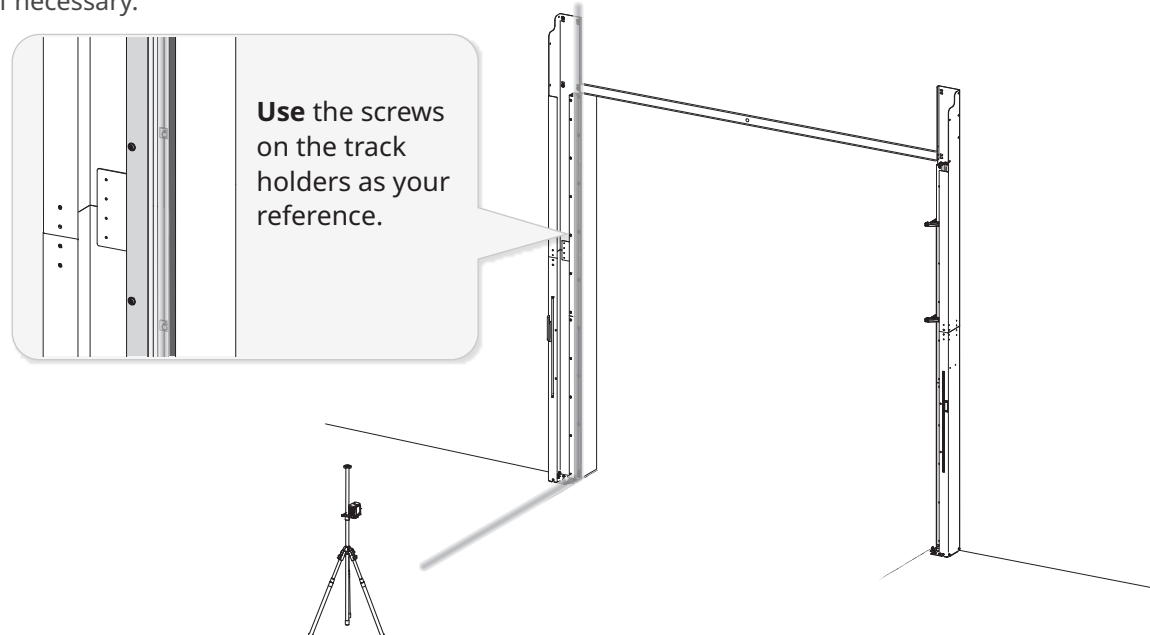
4 Tighten the bolts on both sides of the seal.



10mm

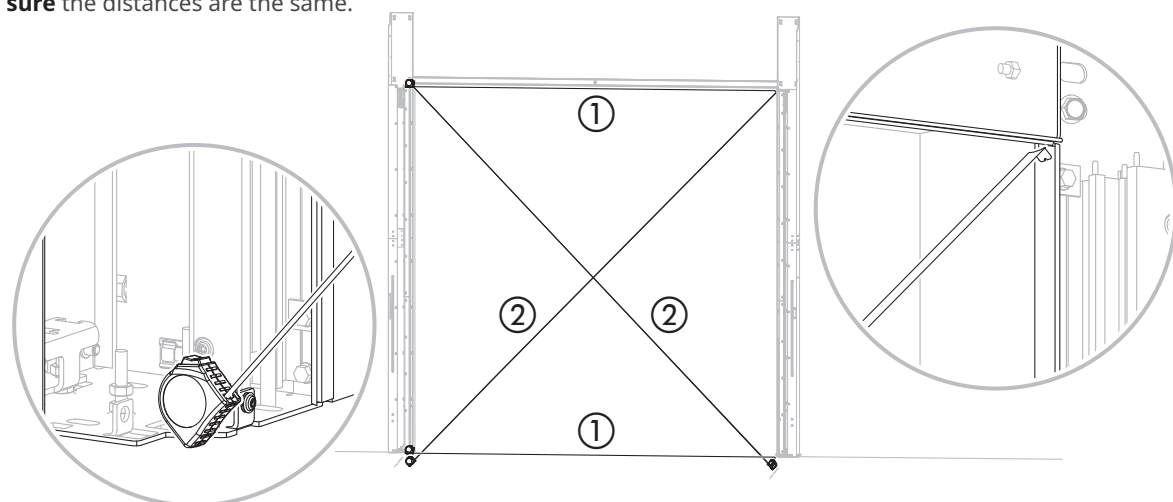
Step 3: Replumb and square the door and finish anchoring the side columns

- 1** Plumb both side columns from the front again.
Realign if necessary.



- 2** Square the door:

- Measure distance between side columns at top and bottom of columns ①.
Make sure the distances are the same.
- Measure distance from bottom corner of drive side to top corner of non-drive side, then from bottom corner of non-drive side to top corner of drive side ②.
Make sure the distances are the same.

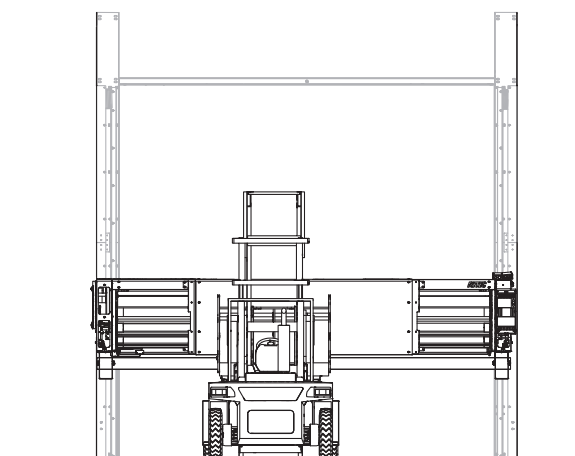
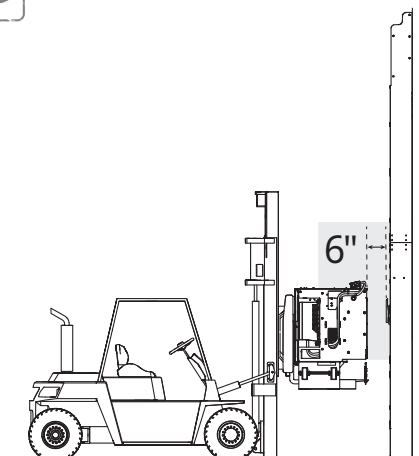


- 3** Tighten all anchors.

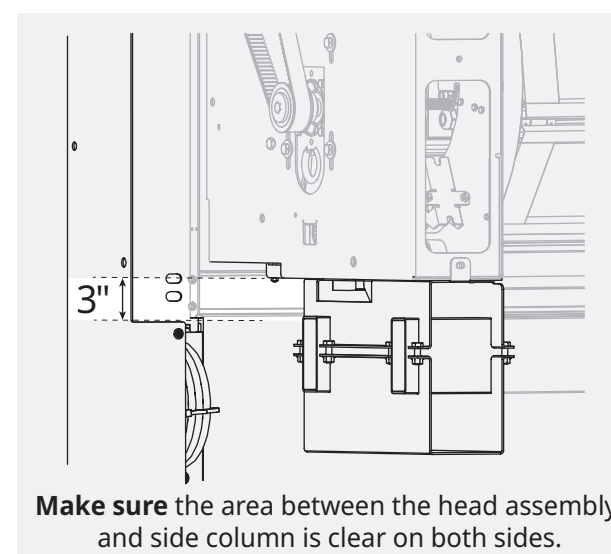
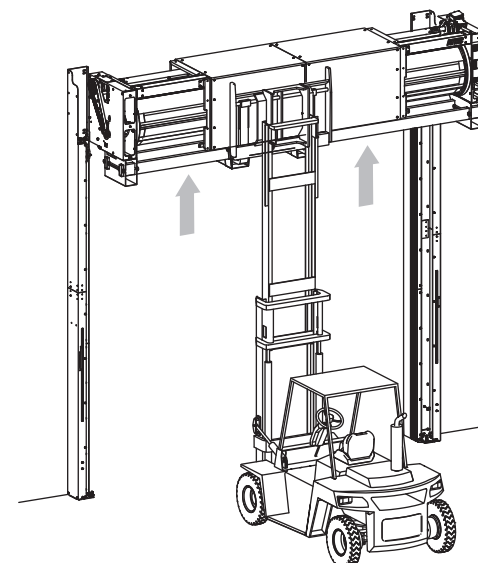


How to install the head assembly

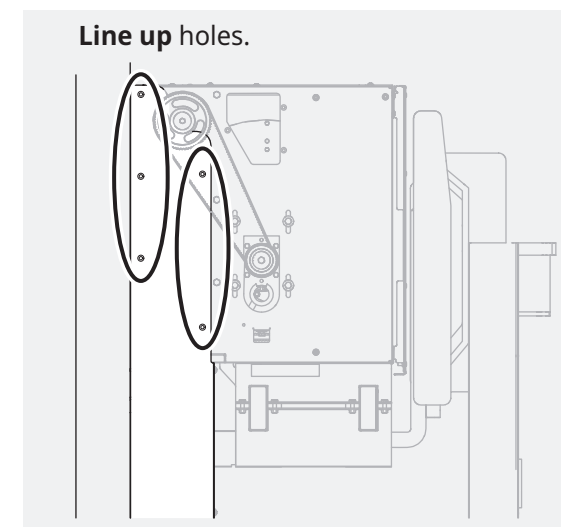
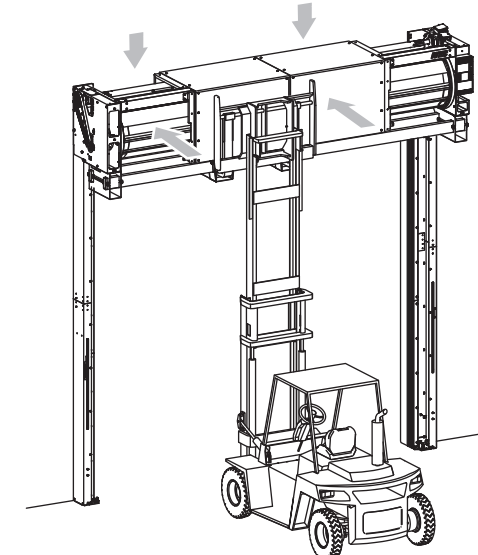
- 1** **INSIDER'S TIP** Line up the head assembly with the side columns before lifting.



- 2**

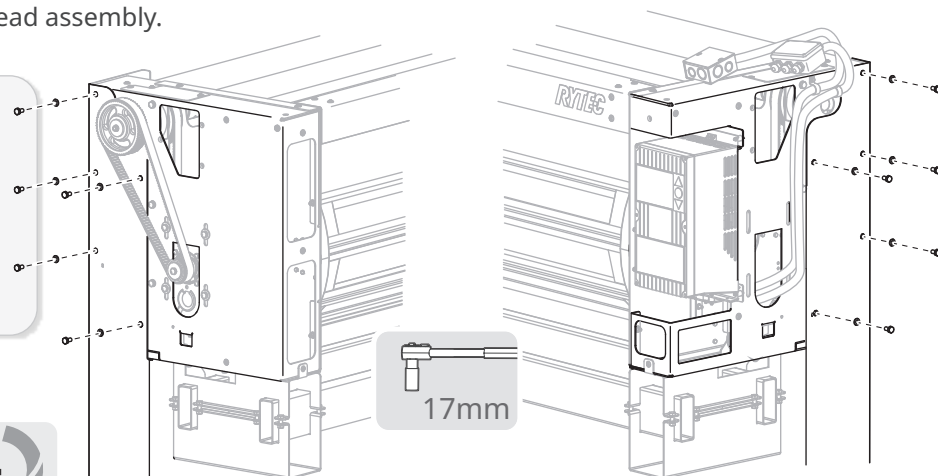
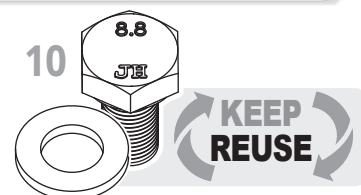


- 3**



- 4** **Secure** the head assembly to the side columns.
Do this on both sides of the head assembly.

Start at the top and work around the screw holes.
Install screws and washers and **hand tighten**.
When all screws are seated, **tighten** screws.

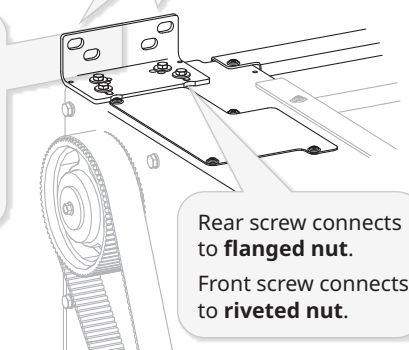


- 5** **-S and -S/R doors only:** loosen the screws on the wall mount brackets.
Place the brackets flush to the wall and **anchor** the brackets.



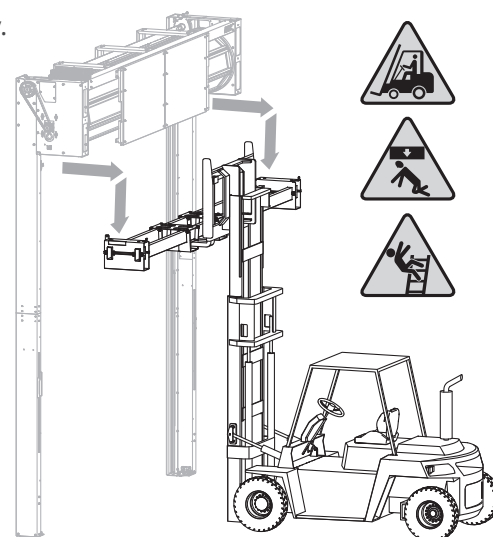
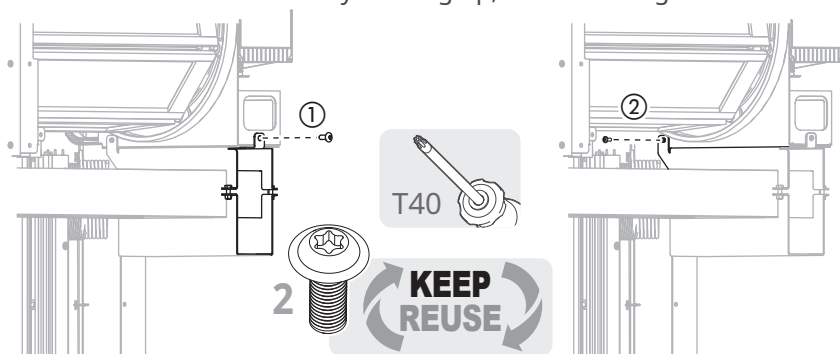
If the door has a slanted top hood cover, **do not install the outer anchors** until the cover is installed.
Make sure the outer screws, washers and nut are not installed.

Use at least one anchor on each side of the bracket.



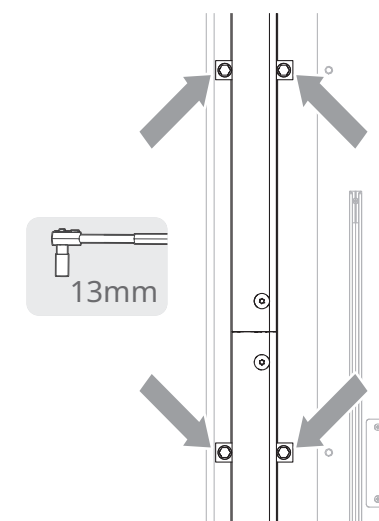
How to remove the cradle

- 1** **Remove** the two screws that attach the cradle to the head assembly.
Do this on both sides of the head assembly.
Remove the cradle by backing up, then lowering.



How to raise the vertical guide tracks into place

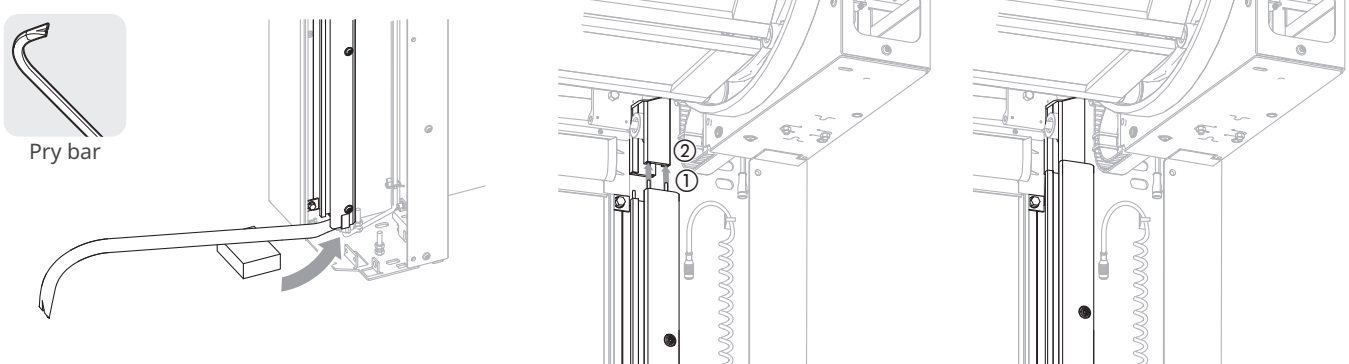
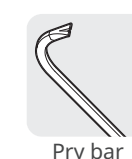
- 1** **Make sure** that all of the vertical guide track holders are loose enough to allow the track to move freely.
DO NOT remove any of the holders.



- 2** **Make sure** the pins at the top of the vertical guide track ① align with the holes in the head assembly track ②.



Use a pry bar to lift and hold the vertical guide track in place.

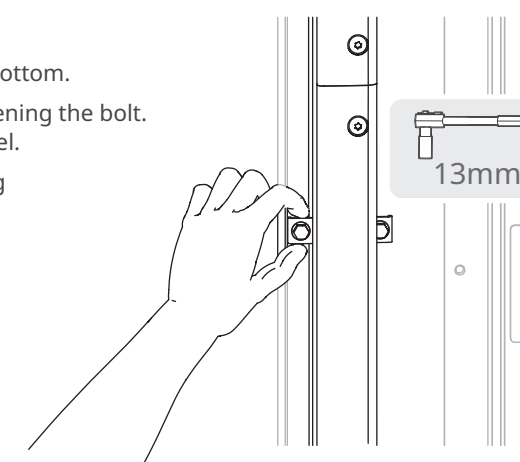


- 3** **Tighten** the bolts on the track holders.
- Start at the **middle of the track** and work toward the top and bottom.
 - Make sure** the holder is at a 90° angle to the track before tightening the bolt. **You will need to hold it in place** while tightening to keep it level.
 - Make two full passes** from top to bottom: tighten bolts to snug on the first pass, then fully tighten on the second pass.



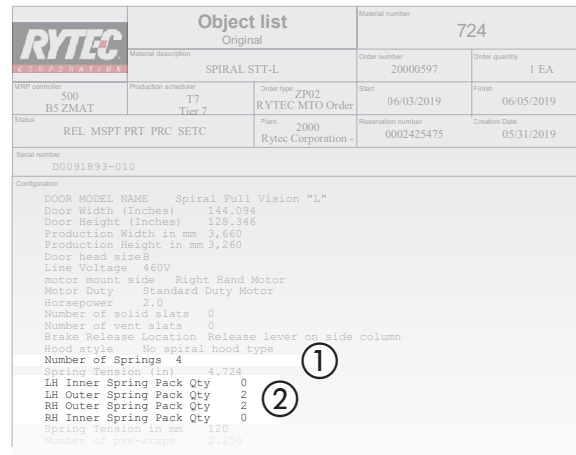
CAUTION

Make sure your fingers are clear of the bolt when tightening. Power tools are not recommended.

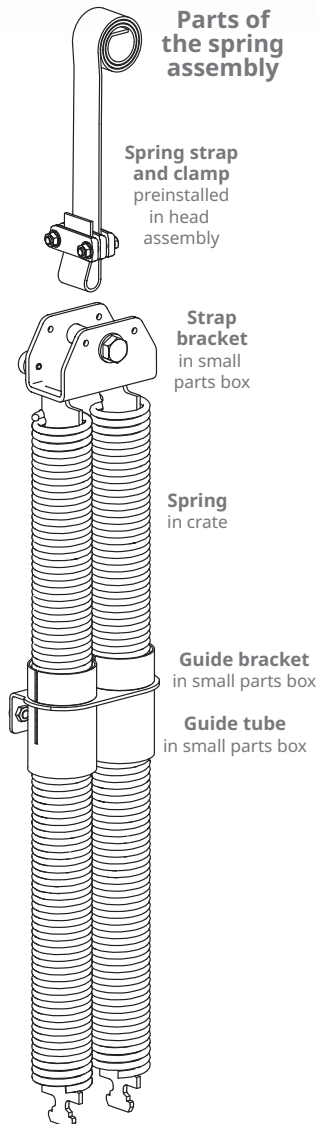


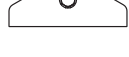
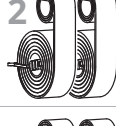
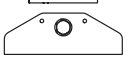
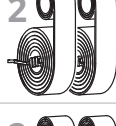
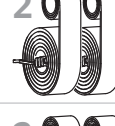
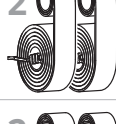
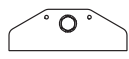
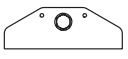
1 Make sure the total number of springs in the crate matches the number listed in the object list ①. The object list also shows how to divide the springs between the side columns ②.

Make sure the preinstalled spring straps on both sides of the head assembly match the table below ③ for the total number of springs in the door.



3-spring assembly
uses these slots



Total number of springs			Drive side						Non-drive side	
	Springs	Spring straps	In small parts box: guide tube(s), strap bracket, guide bracket(s)			Springs	Spring straps	In small parts box: guide tube(s), strap bracket, guide bracket(s)		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

2 01900812

01901506

01260110

NOTE: a four-spring, two-assembly configuration is shown for these steps.

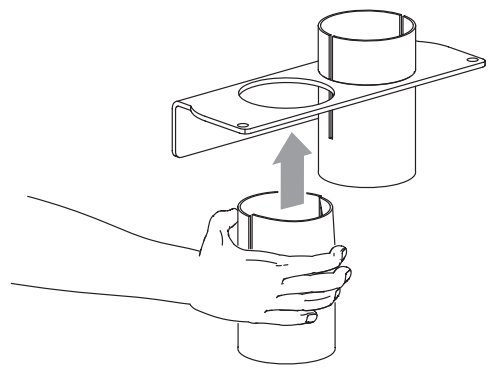


It is recommended that you **do not use power tools** for these steps. Overtorquing screws can damage parts.

2

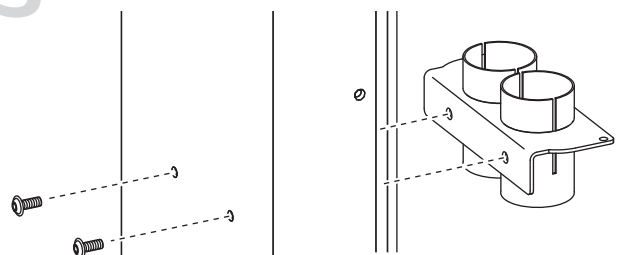
Install the guide tubes into the guide bracket.

Squeeze the top of the tube, then slide the tube into a guide hole until it clicks into place.



3

Install the bracket into the side column.



SMALL PARTS



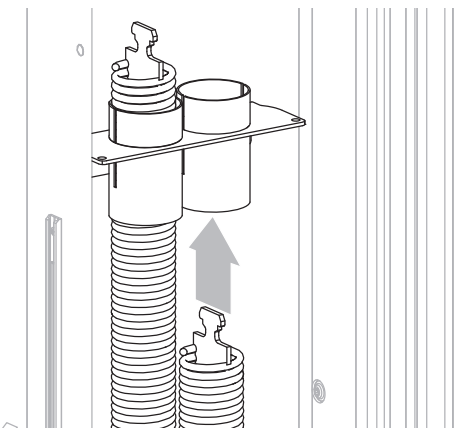
T40

01900812

2

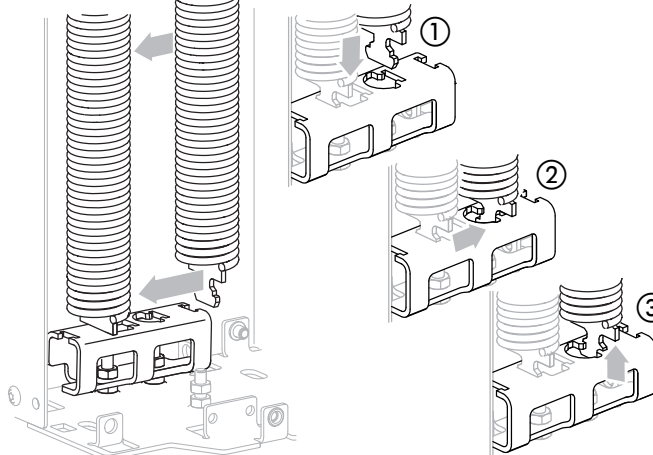
4

Slide the top of the springs into the bracket.



5

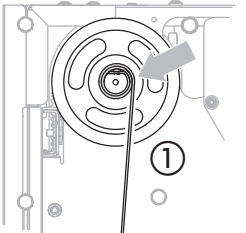
Slide the bottom spring tabs into the wide slot ①, through the narrow ②, then **pull up** into the retaining slot ③. The spring should remain upright.



6

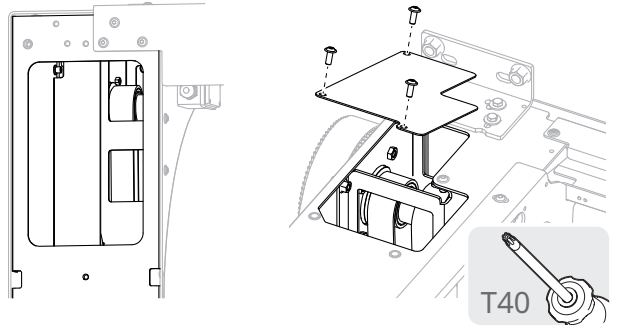
Make sure the number of wraps for the spring strap matches the object list ①.

Look through the front of the console or temporarily **remove** the top access cover.



Production Width in mm 3,660
Production Height in mm 3,260
Door head size B
Line Voltage 460V
motor mount side Right Hand Motor
Motor Duty Standard Duty Motor
Horsepower 2.0
Number of solid slats 0
Number of vent slats 0
Brake Release Location Release lever on side
Hood style No spiral hood type
Number of Springs 4
Spring Tension (in) 4.724
LH Inner Spring Pack Qty 0
LH Outer Spring Pack Qty 2
RH Outer Spring Pack Qty 2
RH Inner Spring Pack Qty 0
Spring Tension in mm 120
Number of pre-wraps 2.250 ①

①



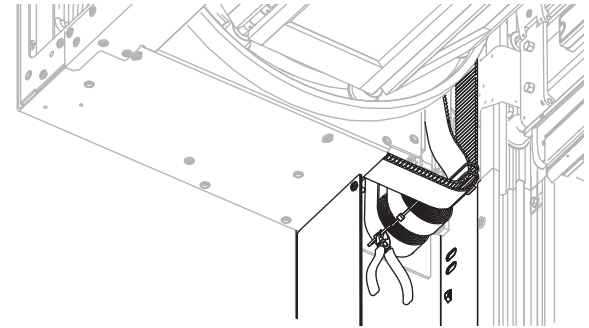
IMPORTANT **DO NOT** unspool the strap or change the number of wraps unless you are in contact with Rytec technical support at **800-628-1909**.

The wraps are required for the door to operate correctly.



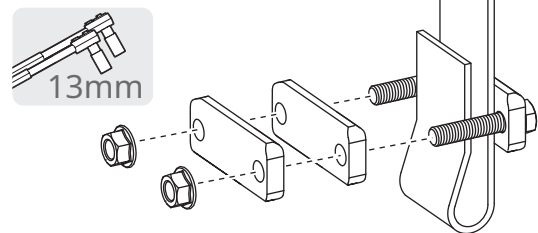
7

Cut the cable tie on the outer spring strap and let it drop.



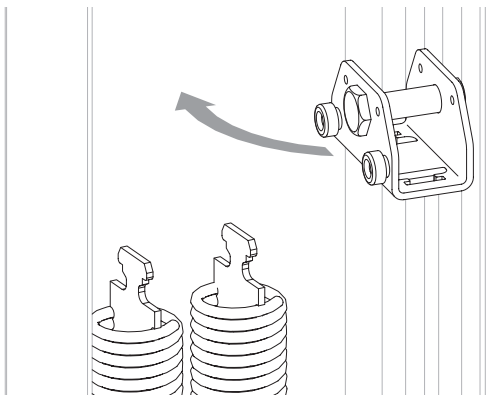
8

Loosen the clamp on the spring strap.



9

Position the spring bracket so that the bumpers and locking tab face the side wall.



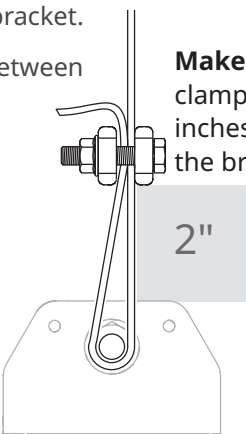
10

Loop the spring strap around the bolt in the spring bracket.

Thread the strap between two plates of the clamp.

Hand tighten the clamp nuts.

IMPORTANT **DO NOT** trim the strap.



Make sure the clamp stays two inches (2") above the bracket.

2"

11

Set the spring tension. This is the distance the springs must be stretched to provide the correct tension for the door.



Measuring tape

Locate the spring tension ① on the object list. **Round** to the nearest 1/16 inch.

Measure the distance between the bottom of the spring bracket and the top of the spring tab (shaded area).

.063	1/16	.313	5/16	.563	9/16	.813	13/16
.125	1/8	.375	3/8	.625	5/8	.875	7/8
.188	3/16	.438	7/16	.688	11/16	.938	15/16
.250	1/4	.500	1/2	.750	3/4		

Configuration

DOOR MODEL NAME Spiral Full Vision "L"

Door Width (Inches) 144.094

Door Height (Inches) 128.346

Production Width in mm 3,660

Production Height in mm 3,260

Door head size B

Line Voltage 460V

motor mount side Right Hand Motor

Motor Duty Standard Duty Motor

Horsepower 2.0

Number of solid slats 0

Number of vent slats 0

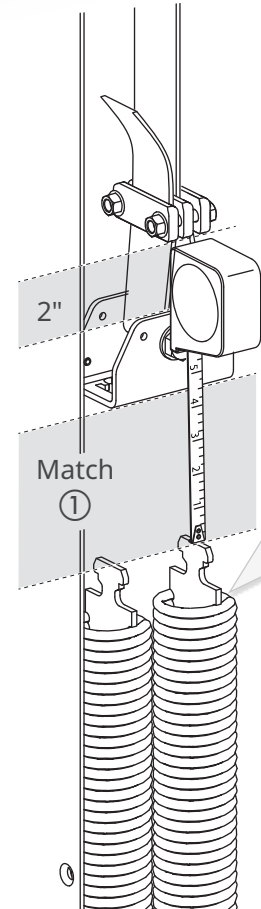
Brake Release Location Release lever on side column

Hood style No spiral hood type

Number of Springs 4

Spring Tension (in) 4.724 4-3/4 ①

LH Inner Spring Pack Qty 0



2"

Match ①

IMPORTANT

Make sure the spring is standing straight up and does not sag while you measure.

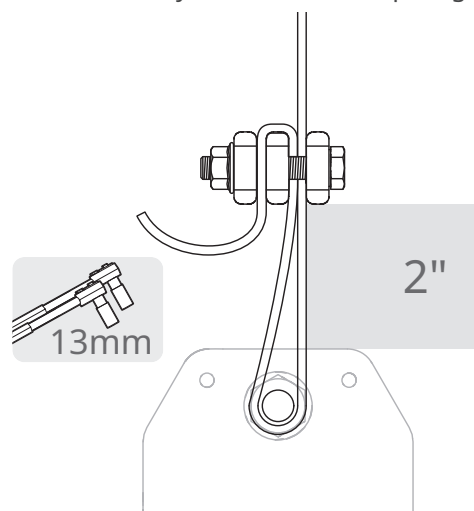
12 **Adjust** the strap until the measured distance matches the object list and the distance from the clamp to the bracket is two inches (2").

13 **Remove** the nuts and **retrieve** the third clamp plate.

Loop the spring strap down between the second and third clamp plate.

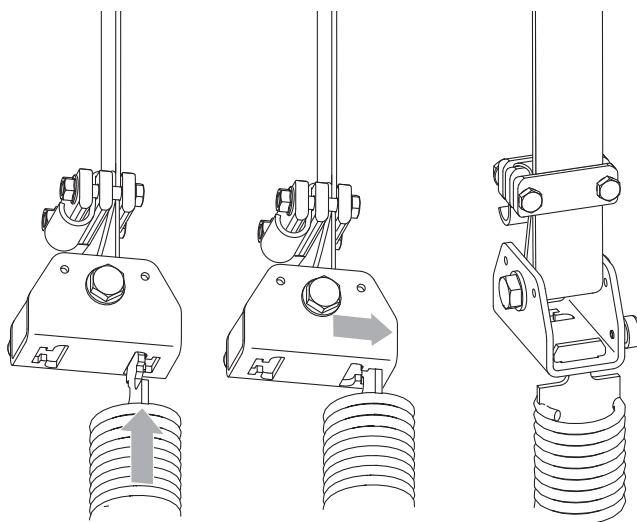
Tighten the nuts to secure the strap.

If necessary, **trim** excess strap length.



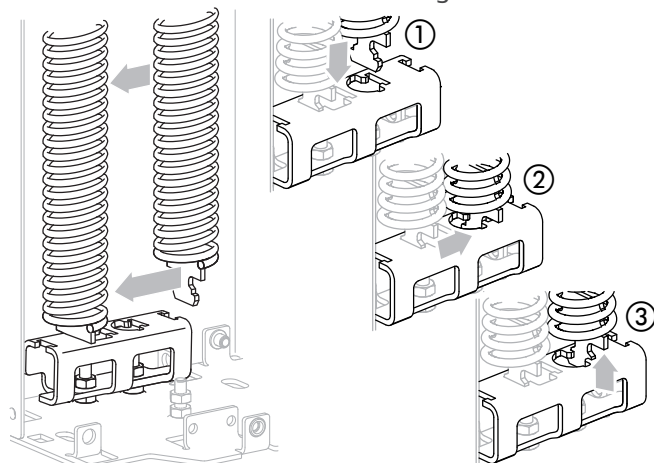
14 **Release** each spring from the baseplate tube.

Lift each spring and **slide** the spring tab into the slot in the spring bracket.



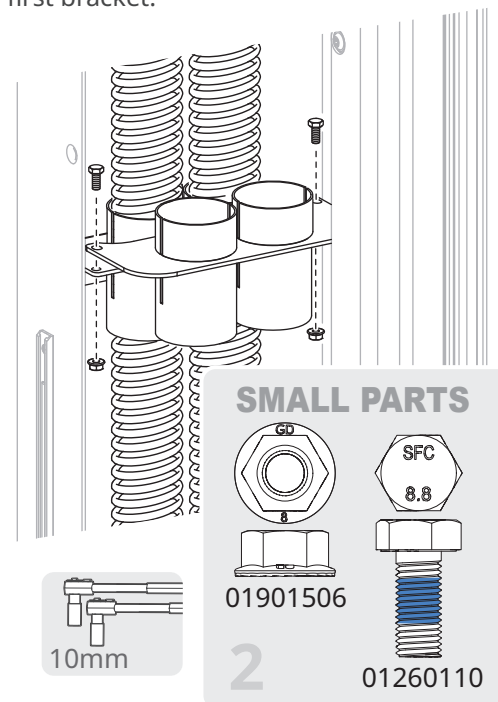
15 **Stretch** the springs downward.

Slide the bottom spring tabs into the wide slot ①, through the narrow ②, then **pull up to lock** it into the retaining slot ③.



How to install a second assembly in the side column

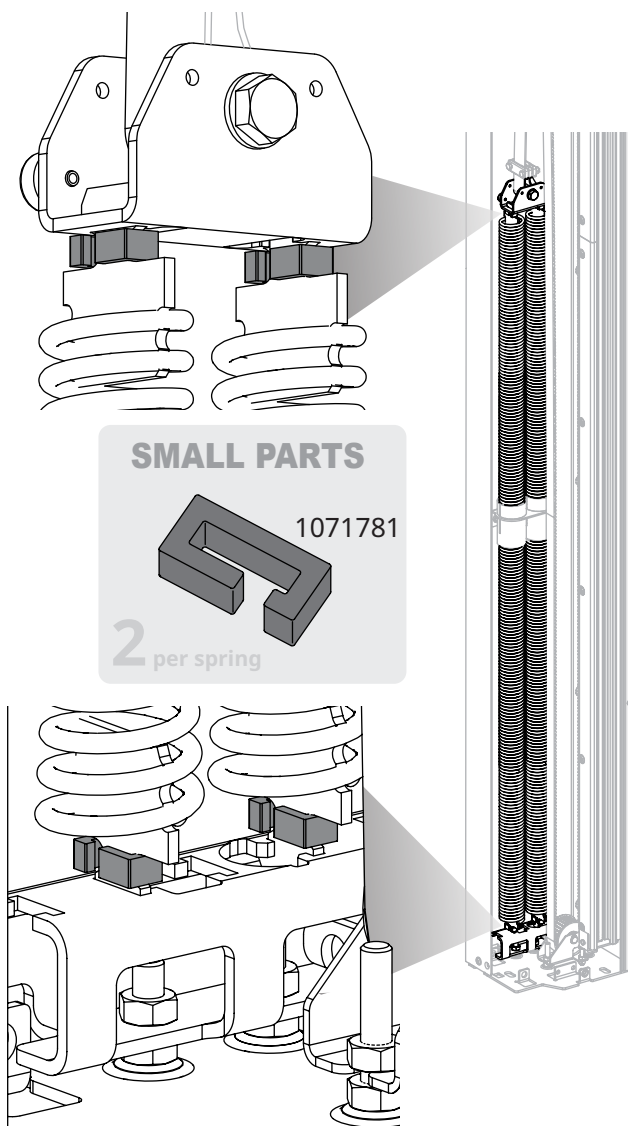
1 **Install** the guide tubes into the second bracket. **Install** the second bracket above the first bracket.



2 **Follow** steps 4-15 for installing the springs. **Make sure** the spring bracket bumpers face out, toward the first spring assembly.

How to install the locking collars at the top and bottom of the springs

Install the locking collars onto the tabs at the top and bottom of each spring after the secondary drive belts have been tensioned.

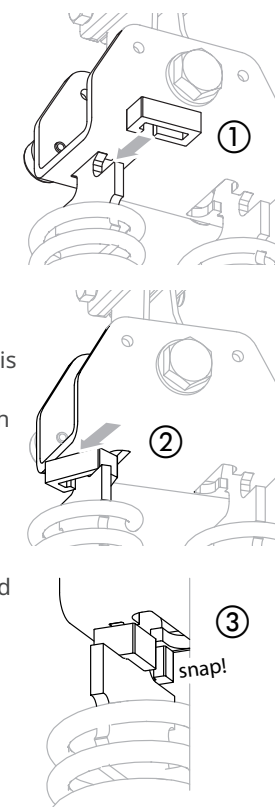


1 **Install** collar into the top tab:

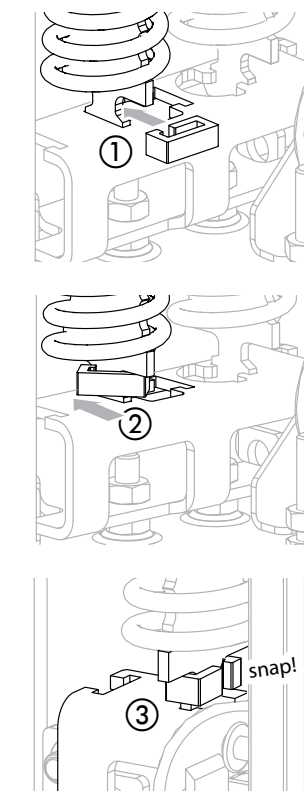
① **Slide** the opening in the collar onto the tab.

② **Twist, then push** the collar across the tab (the collar is flexible and will bend open enough to fit).

③ **Push** the short end around until it clicks into place.



2 **Follow the same steps** for the tab at the baseplate pulley assembly.

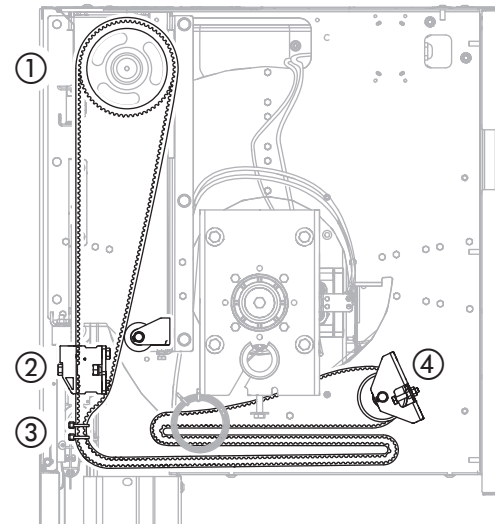


How to install the secondary drive belt

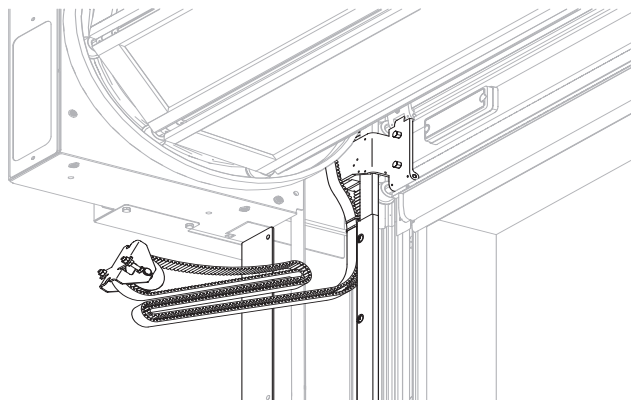
1 **IMPORTANT** Make sure the secondary drive belt is kept taut throughout these steps.

- The belt is preinstalled around the **pulley** ①.
- The **door panel end bracket** ② is connected at the precise height to keep the door panel level.
- The belt is kept taut to the pulley and end bracket during crating by **two cable ties** ③.
- **If the belt becomes loose** before it is secured to the baseplate, it can skip a tooth in the pulley. **This will cause the door panel to run crooked and damage the door.**

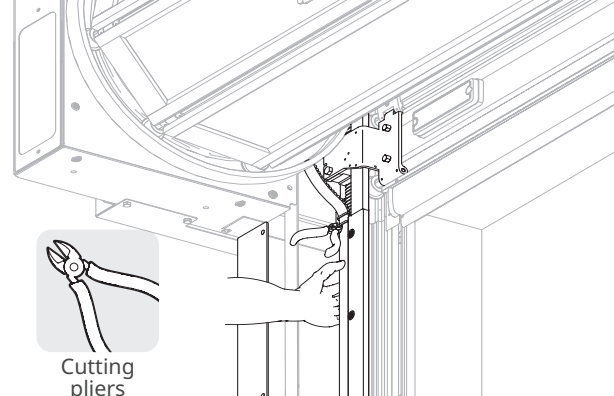
Keep downward pressure on the secondary drive belt until the baseplate pulley assembly ④ is installed and the belt has been properly tensioned.



2 Pull the secondary drive belt and baseplate pulley assembly out of the console. Lower them down the side column.



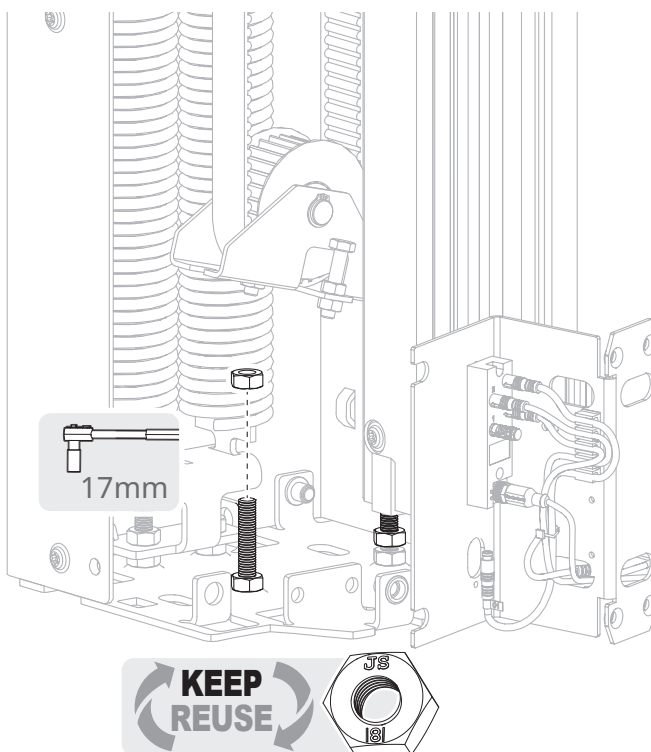
3 Grab the belt below the cable ties and pull gently downward to keep the belt tight. Cut the two cable ties to release the belt.



Cutting pliers

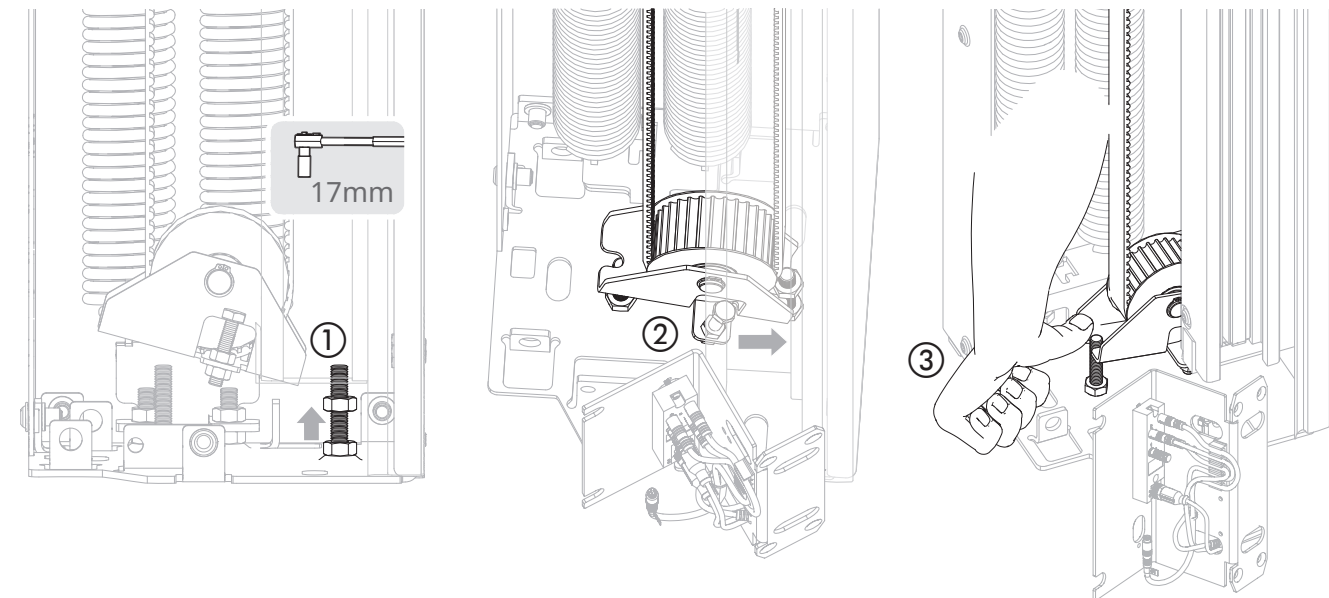
4 Remove the top nut on the front baseplate mounting post. Keep the nut. Loosen the top nut on the rear mounting post.

IMPORTANT DO NOT loosen the bottom nuts.



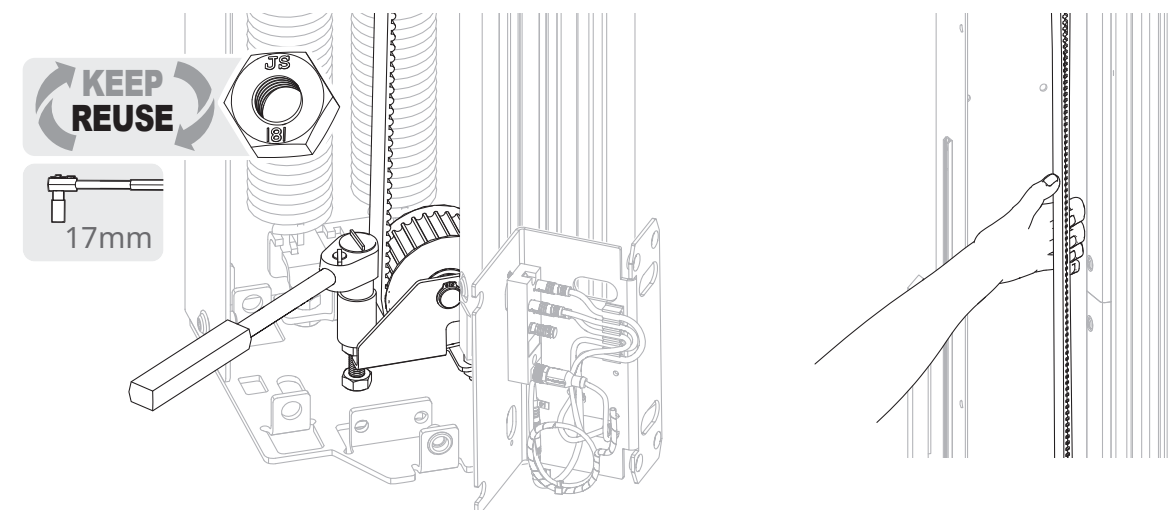
5 Set the height of the top nut on the rear baseplate mounting post ①.

- 1: Slide the rear flange of the baseplate pulley assembly ② **under the top nut** until it touches the post.
- 2: Press down on the front of the pulley assembly as hard as you can ③.
 - The top nut is at the correct height when **three (3) threads of the front mounting post clear the front flange.**
- 3: Adjust the height of the nut as needed to reach the correct height.



6 Set the tension of the belt.

- 1: Replace the top nut on the front mounting post. **Tighten** the nut to increase the tension on the belt.
- 2: Grab the belt as close as possible to the midpoint with one hand. Press the front and rear legs of the belt together between your fingers and thumb.
 - The tension is correct when it requires **considerable effort to bring the legs together.**
- 3: Adjust the height of the top nut as needed to reach the correct tension.



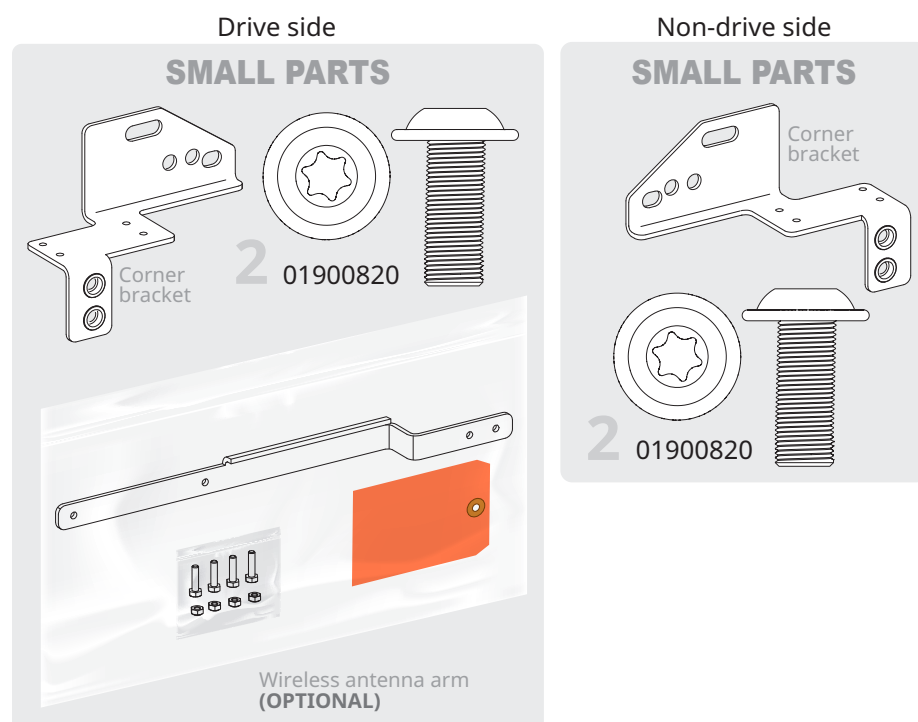
How to install the corner brackets, (optional) bottom hood spreader and (optional) wireless antenna

1 **Locate** the corner brackets, wireless antenna arm and hardware in the small parts box.

Install a corner bracket on each side column.

- **The drive side bracket** holds the wireless antenna arm and has an extra screw hole to secure the side panel cover.
- **The non-drive side bracket** has an extra screw hole to secure the side panel cover.

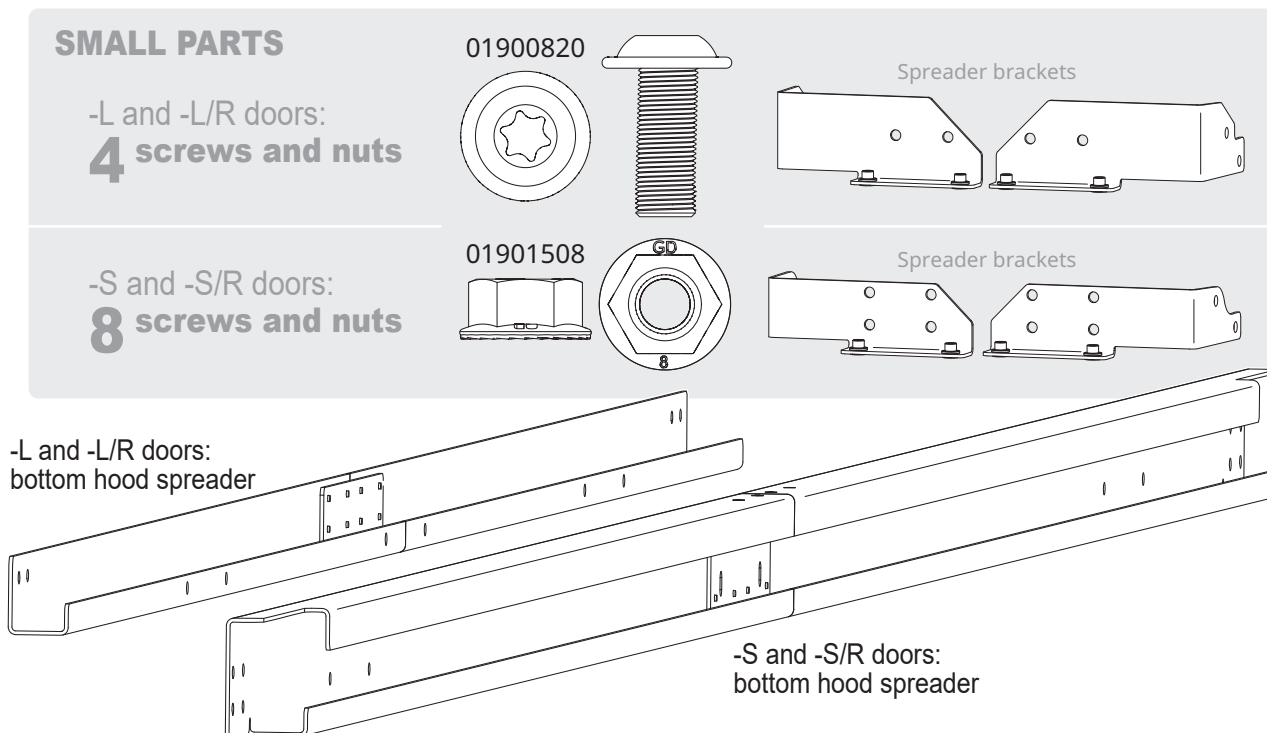
NOTE: depending on the configuration of the door, the drive side may be on the left (LH) or right (RH) side of the door. These steps show a left hand (LH) door.



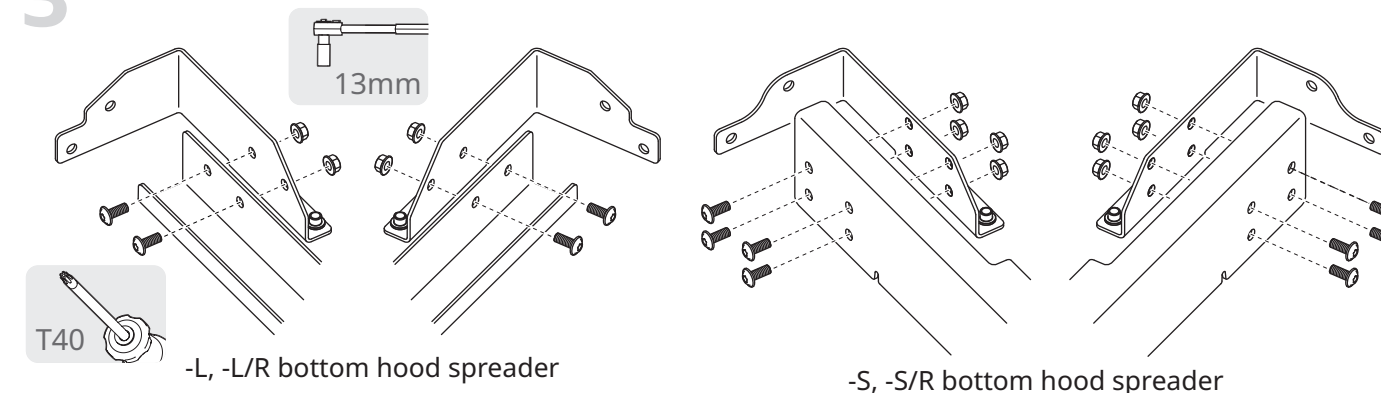
If the door has an optional bottom hood spreader

2 **If the door has a bottom hood cover:**

- **Locate** the two spreader brackets and hardware for the bottom hood spreader in the small parts box
- **Locate** the bottom hood spreader.



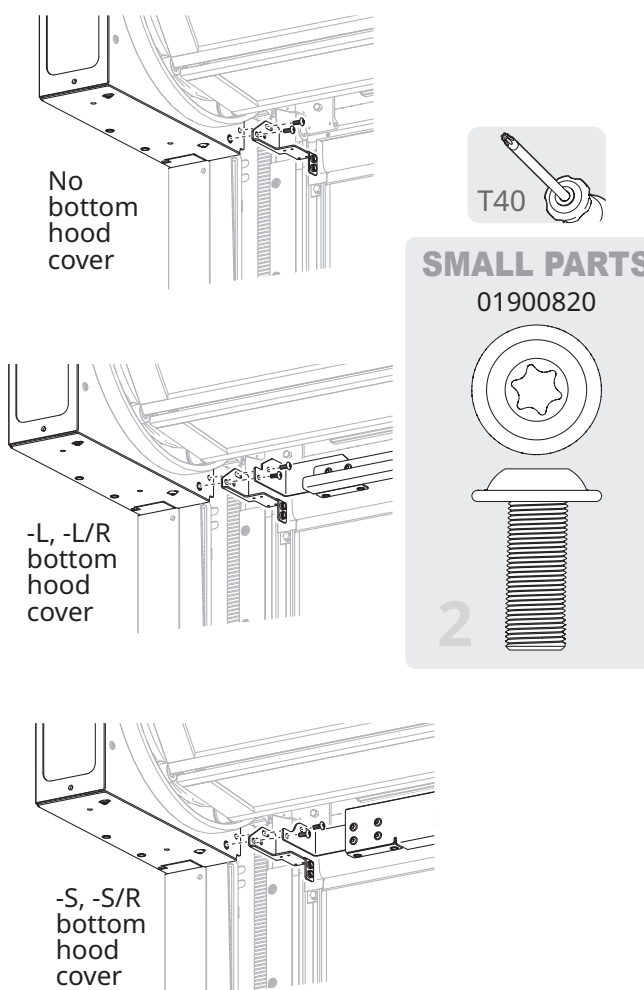
3 **Attach** the spreader brackets to the bottom hood spreader.



4 **Install** the corner brackets.

If the door has a bottom hood cover, install the bottom hood spreader inside the corner bracket, using the same screws.

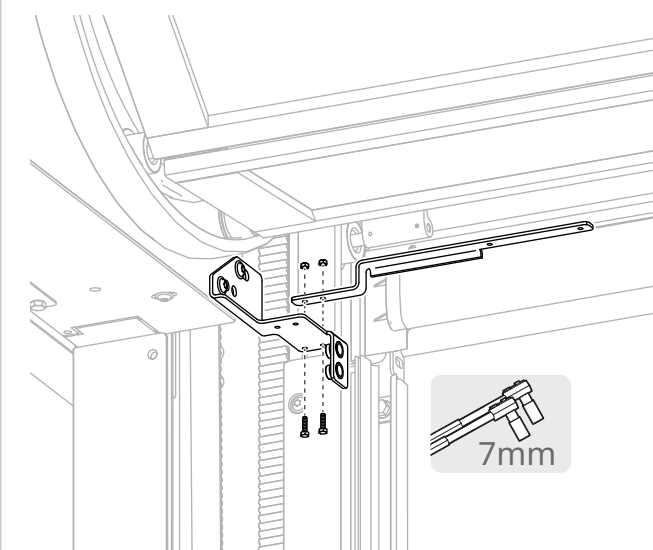
Do this on both sides of the head assembly.



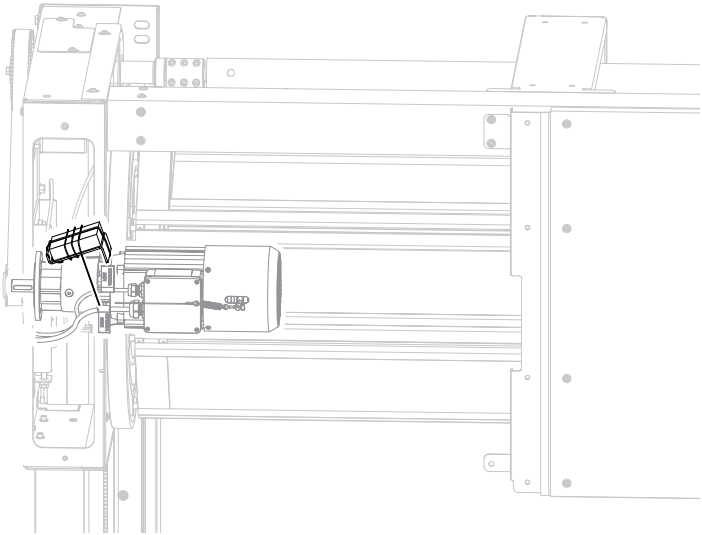
If the door has an optional wireless antenna (reversing edge activated)

5 **Install** the wireless antenna arm onto the drive side corner bracket.

Use the hardware included with the wireless antenna arm.



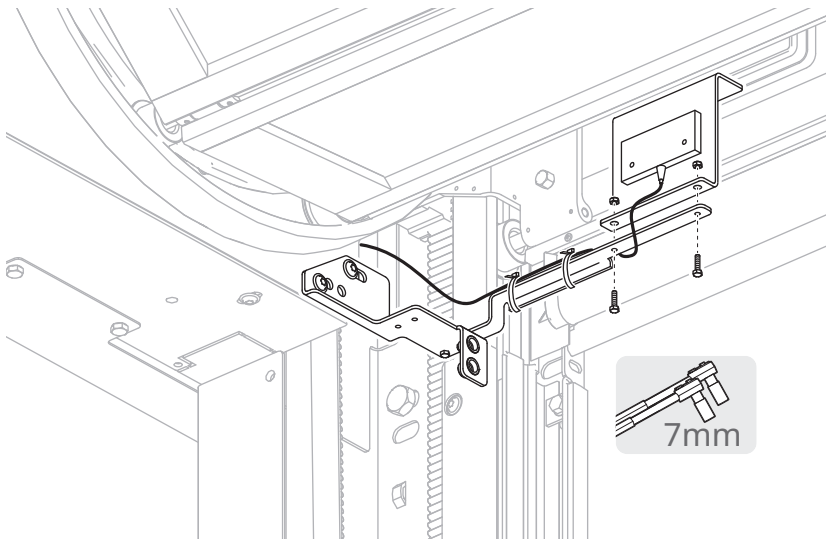
- 6** **Reach** into the drive side compartment and **remove** the wireless antenna and antenna bracket from the top of the motor.
- Unwrap** the antenna cable.



- 7** **Install** the wireless antenna bracket onto the arm.
- Use** the hardware included with the wireless antenna arm.
- Secure** the cable to the wireless antenna arm with cable ties.



Cable ties

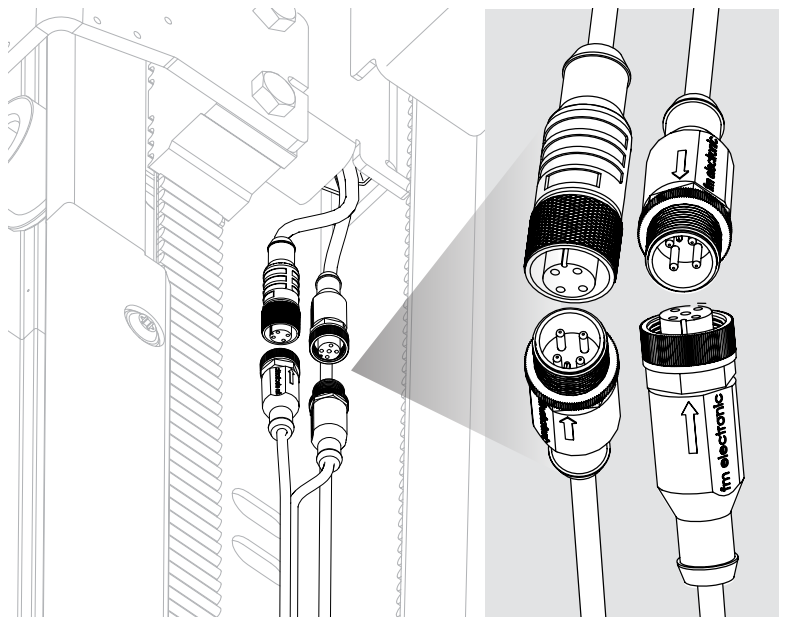


How to connect the CAN bus cables

- 1** Inside the **non-drive side console**, **connect** the M12 CAN connectors:
- The male M12 for the cable from the CAN port in the side column to the female M12 connector for the cable to the controller.
 - The female M12 for the cable from the CAN port in the side column to the male M12 connector for the cable that crosses the rear spreader.

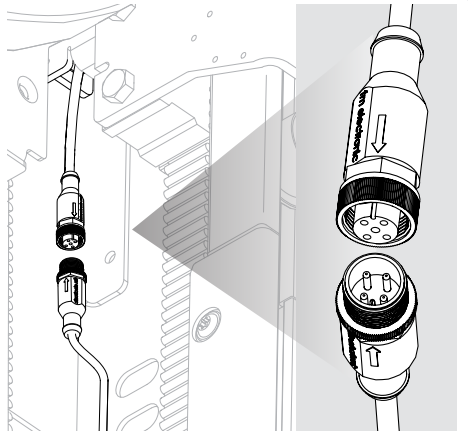
IMPORTANT

Line up the embossed arrows on the connectors to align the guide notch and contacts correctly. The connectors will only fully connect if they are aligned correctly.



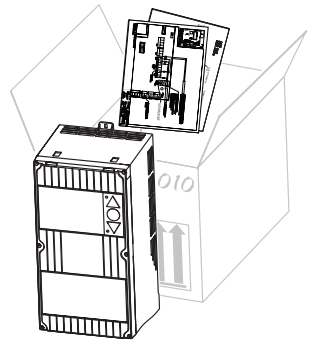
- 2** Inside the **non-drive side console**, **connect** the M12 CAN connectors:
- The male M12 for the cable from the CAN port in the side column to the female M12 connector for the cable that crosses the spreader.

Line up the embossed arrows on the connectors to align the guide notch and contacts correctly. The connectors will only fully connect if they are aligned correctly.



- 3** **Find the schematics for the door** in same box that holds the System 4® controller.
- Check the crate and small parts boxes** for accessories such as activators or safety devices and any schematics included with them.
- If the schematics indicate the door has non-standard wiring, **follow the schematics** instead of this manual.

IMPORTANT



How to install the jamb mounted SmartSurround™ light curtains

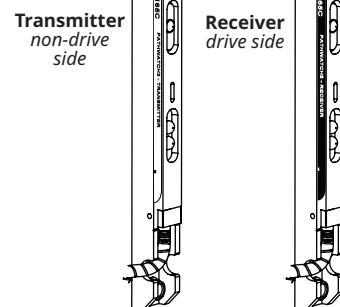
- 1 Get the jamb mounted SmartSurround™ transmitter and receiver from the kit.

IMPORTANT

Make sure the jamb mounted and cover mounted SmartSurround™ transmitters are both on the **non-drive side of the door**.

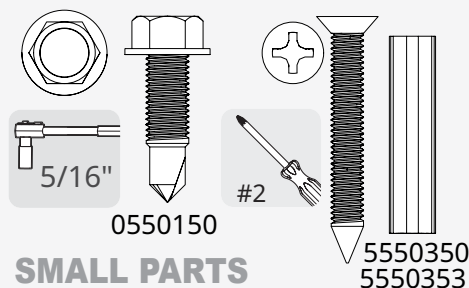
Make sure the jamb mounted and cover mounted SmartSurround™ receivers are both on the **drive side of the door**.

Check the labels at the bottom of the light curtains to match.



- 2 Install the jamb mounted SmartSurround™ light curtains and cables onto the drive side and non-drive side walls of the door opening.

Use supplied anchored or self-tapping screws to secure light curtains and P-clips.



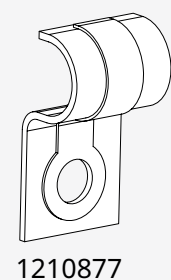
SMALL PARTS

Use two (2) supplied P-clips to secure cable tightly to wall

Place one clip one to two inches (1-2") from SmartSurround™

Place the other clip one to two inches (1-2") from side column

Cable should run **parallel to floor**

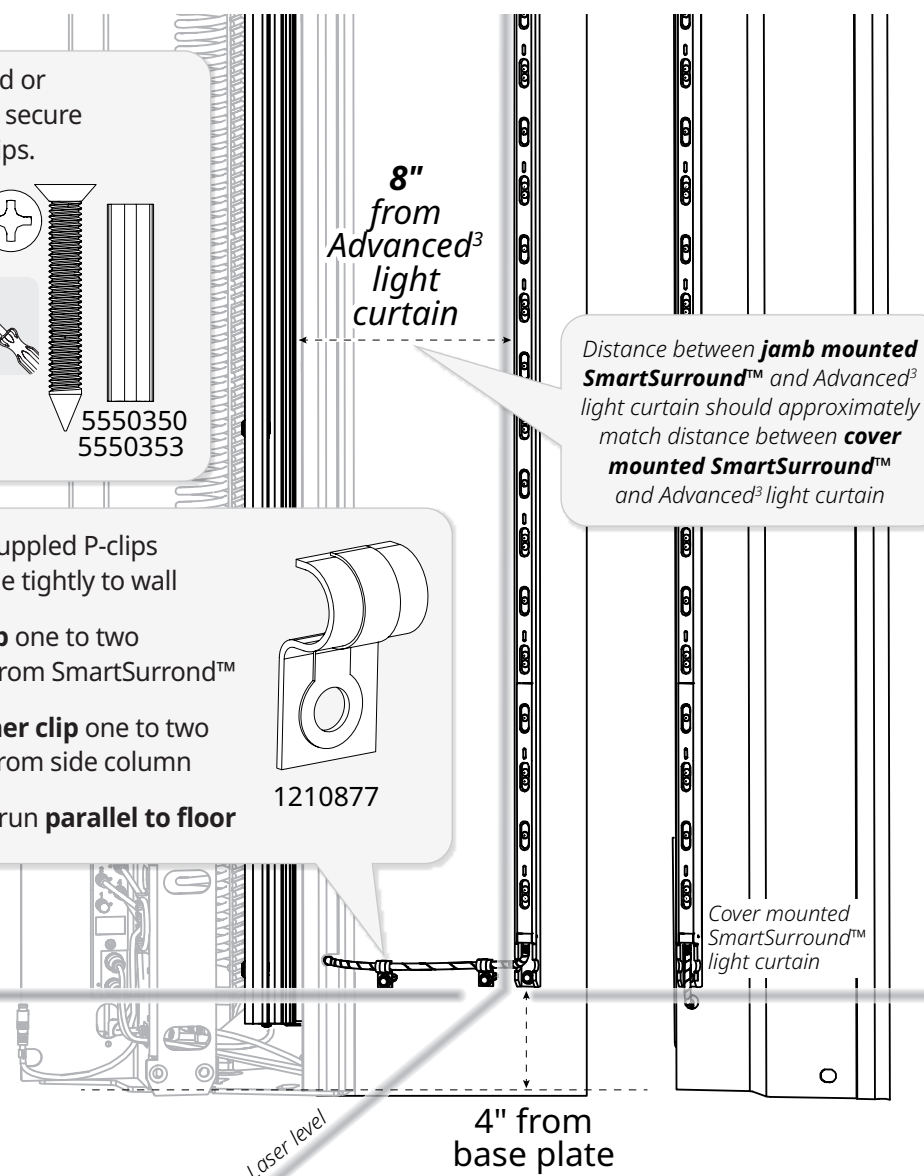


8" from Advanced³ light curtain

Distance between **jamb mounted SmartSurround™** and Advanced³ light curtain should approximately match distance between **cover mounted SmartSurround™** and Advanced³ light curtain

If the floor is level, use the cover mounted SmartSurround™ and a laser level to set the mounting height of the wall mounted light curtain.

The **bottom** of the aluminum retaining bracket should be 4" above base plate.

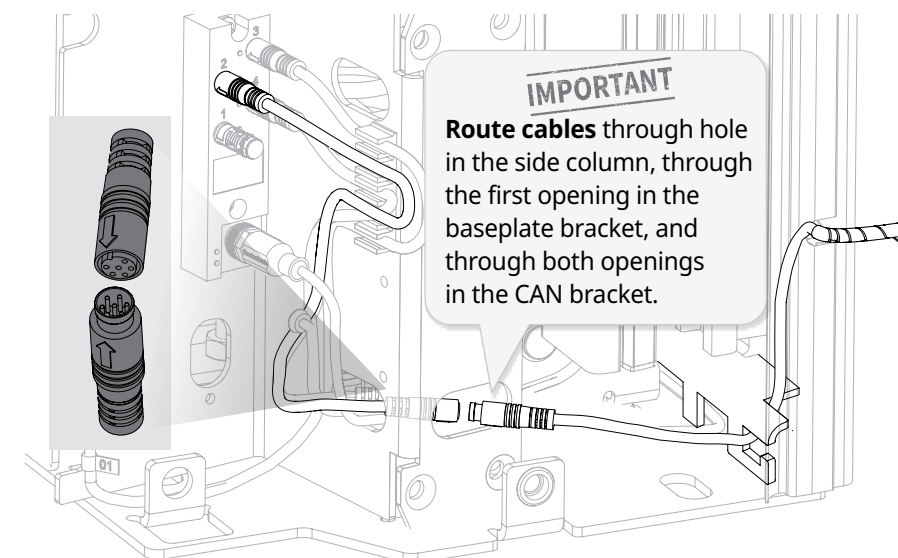


How to complete the installation of the CAN bus cables

- 1 Connect the two cables that connect the jamb mounted SmartSurround™ light curtain to the CAN port.

Line up the embossed arrows on the connectors to align the guide notch and contacts correctly.

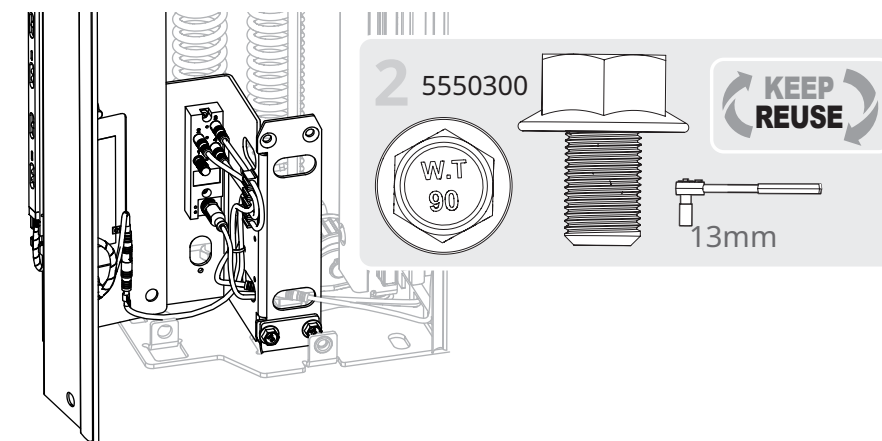
The connectors will only fully connect if they are aligned correctly.



IMPORTANT

Route cables through hole in the side column, through the first opening in the baseplate bracket, and through both openings in the CAN bracket.

- 2 Reinstall the CAN bus brackets in both side columns.
- If possible, **reconnect** the cables labeled "01" before reinstalling the side column covers.



- 3 Reinstall the side column covers.

Use one screw each to hold them in place; it may be necessary to open them to make adjustments during testing.

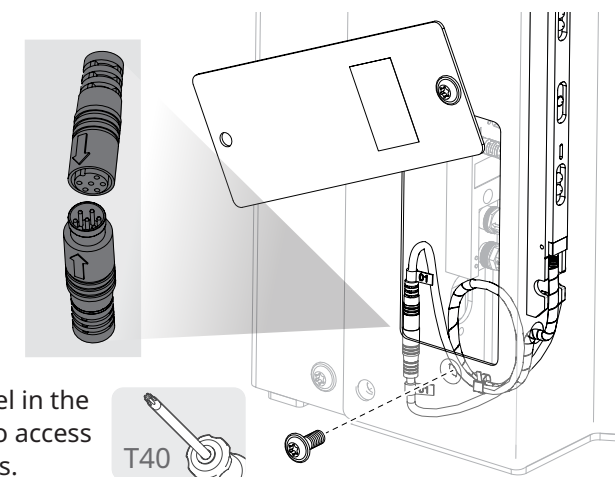
Do not secure them fully until all testing is complete.

Reconnect the two cables labeled "01".

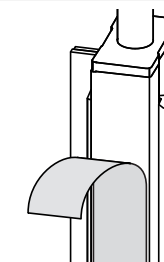
Line up the embossed arrows on the connectors to align the guide notch and contacts correctly.

The connectors will only fully connect if they are aligned correctly.

If necessary, **open** the panel in the side column to access the connectors.



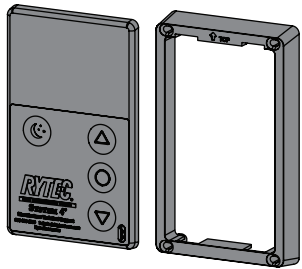
- 4 Remove the protective flim from the Advanced³ light curtains and the SmartSurround™ light curtains installed on the side column covers.



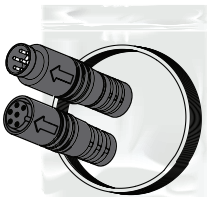
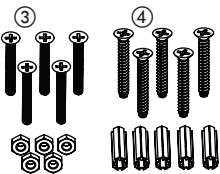
(Optional) How to install the BTA4 user terminal in a remote location

1 **Locate** the BTA4 kit and cable in the small parts box.

SMALL PARTS

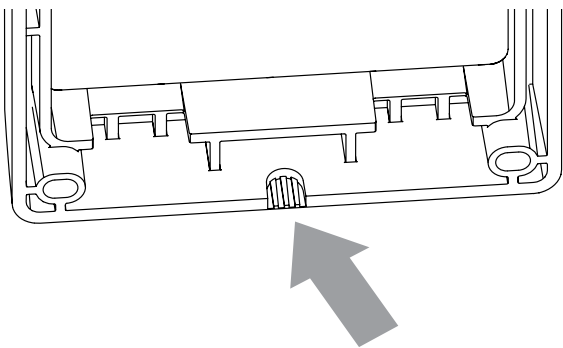


ID	Part No.	Description	Qty.
①	1210765-0	BTA4 unit	1
②	1210766-0	BTA4 frame	1
③	5550351-0A01 5550057-0Z01	Mounting hardware, side column	5
④	1210756-0 5550353-0	Mounting hardware, wall	5

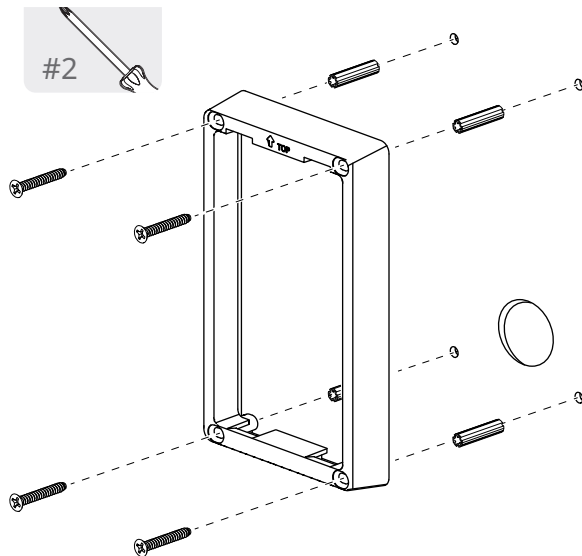


1210800

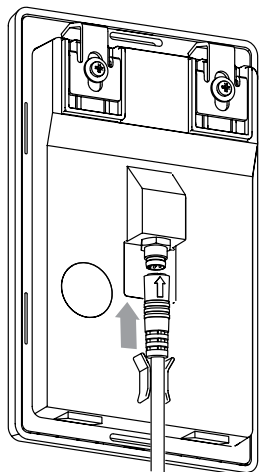
2 If you are mounting the unit to the wall and cannot run cable inside the wall, **snap off** the perforated tab at the bottom of the frame.



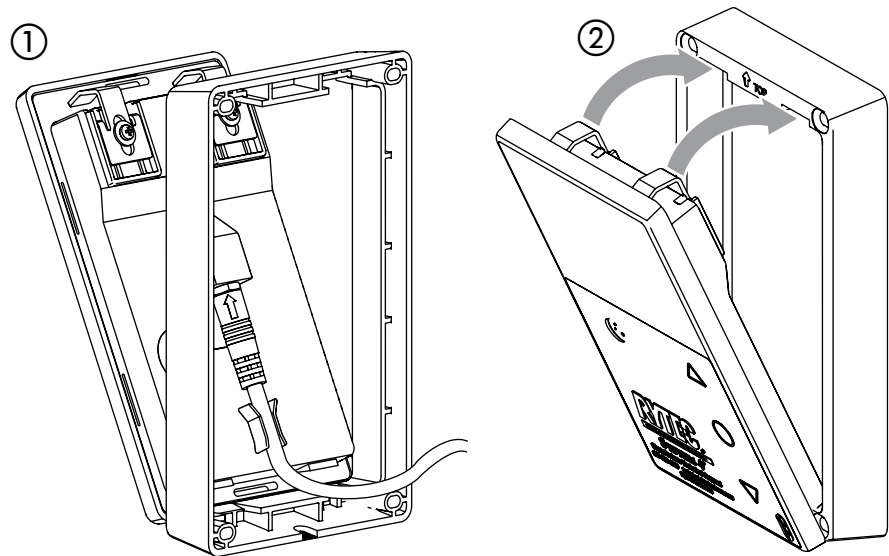
3 **Install** the BTA4 frame using the supplied hardware or your own.



4 **Plug** the female quick connector on the cable into the back of the BTA4 unit.

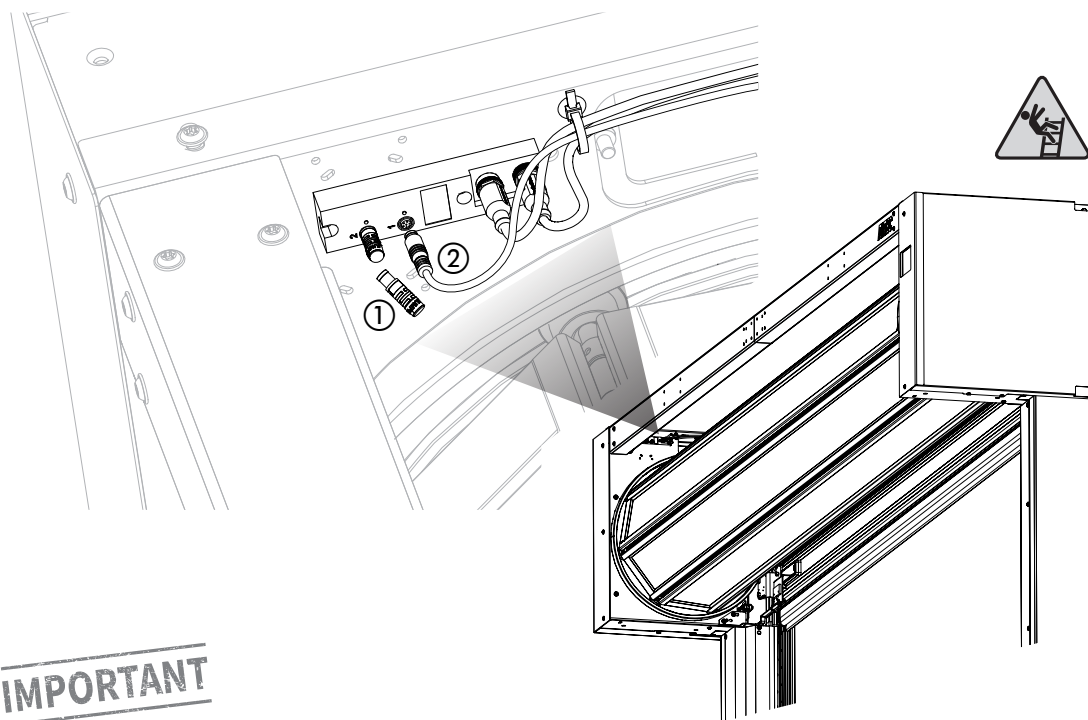


5 **Line up** the two bottom tabs on the BTA4 unit with the bottom tabs in the frame ①. Then **snap** the two top tabs into place ②.



6 In the head assembly, on the drive side, **remove** the jumper from port 1 on the CAN repeater ① and **plug in** the cable from the BTA4 terminal ②.

- This port requires the least amount of cable routing to connect the remote BTA4 to the CAN bus.



IMPORTANT

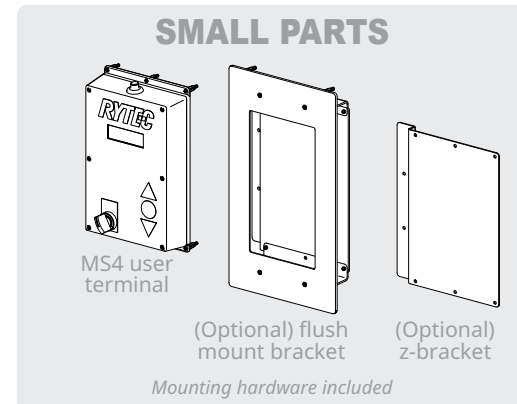
The BTA4 user terminal will **automatically sync with the controller** when you manually sync the light curtains. See *How to sync the SmartSurround™ system to the controller, set limits, and test the door* beginning on page 28.

(Optional) How to install the MS4 user terminal

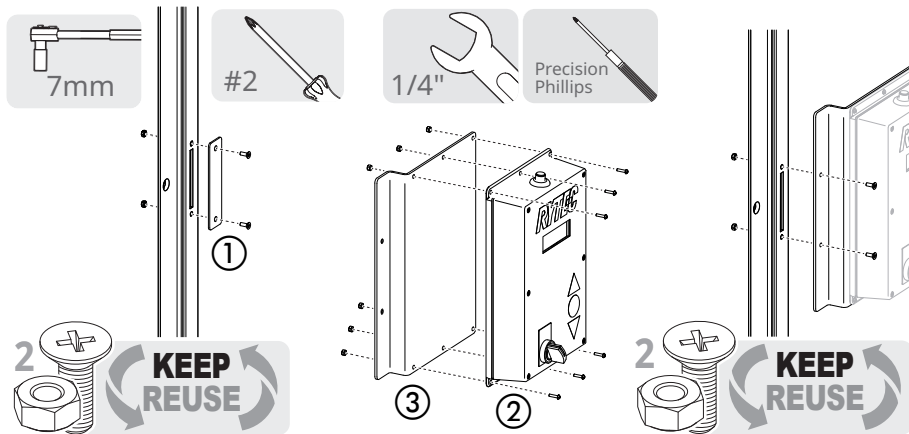
IMPORTANT

Check with the door owner whether they want the MS4 installed into the side column or remotely.

- 1 **Locate** the MS4 user terminal, mounting brackets and hardware in the small parts box.



- 2 **Anchor the user terminal** at an easily accessible height using the included hardware. The user terminal can be mounted onto the wall, flush to the wall using the optional bracket, or onto the side column using the optional z-bracket.

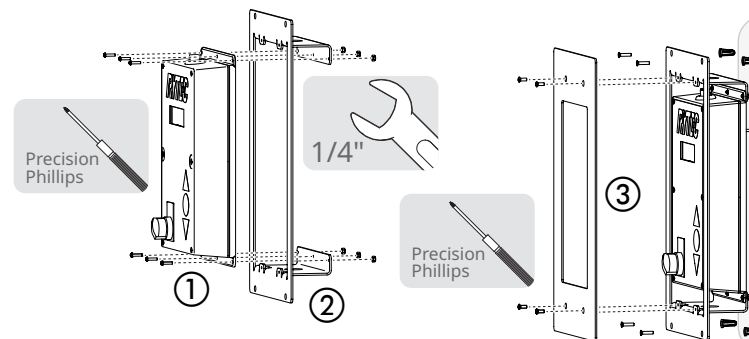


Side column mount

1. **Remove** plate ① from non-drive side column.
2. **Install** the user terminal ② onto the z-bracket ③ using supplied hardware.
3. **Install** bracket onto side column using screw holes from plate.

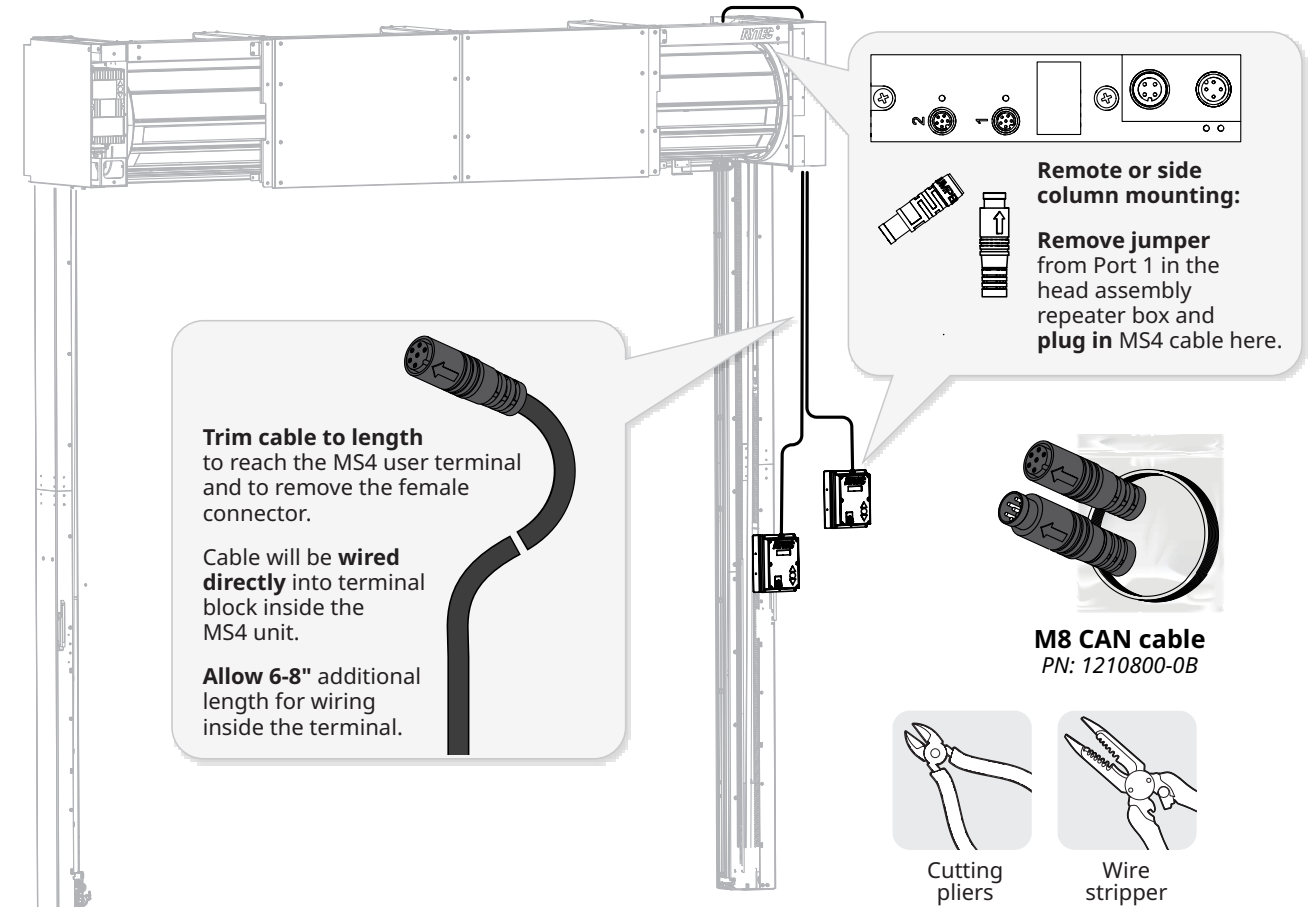
Flush mount (in-wall installation)

1. **Cut** hole: 6-3/8"W x 11-1/2"H.
2. **Install** the user terminal ① onto the flush mount bracket ② using supplied hardware.
3. **Anchor** bracket to wall using supplied hardware.
4. **Install** the cover plate ③.

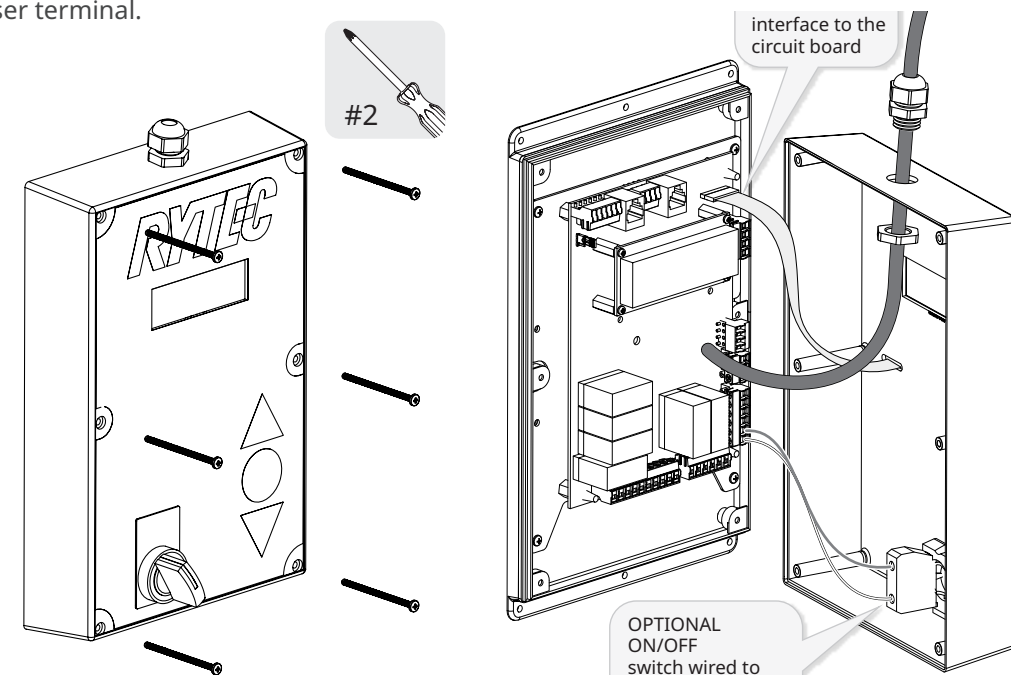


How to connect the MS4 user terminal to the CAN bus system

- 1 **Connect** the M8 flying lead cable to the head assembly repeater box and **route** it to the MS4 user terminal.

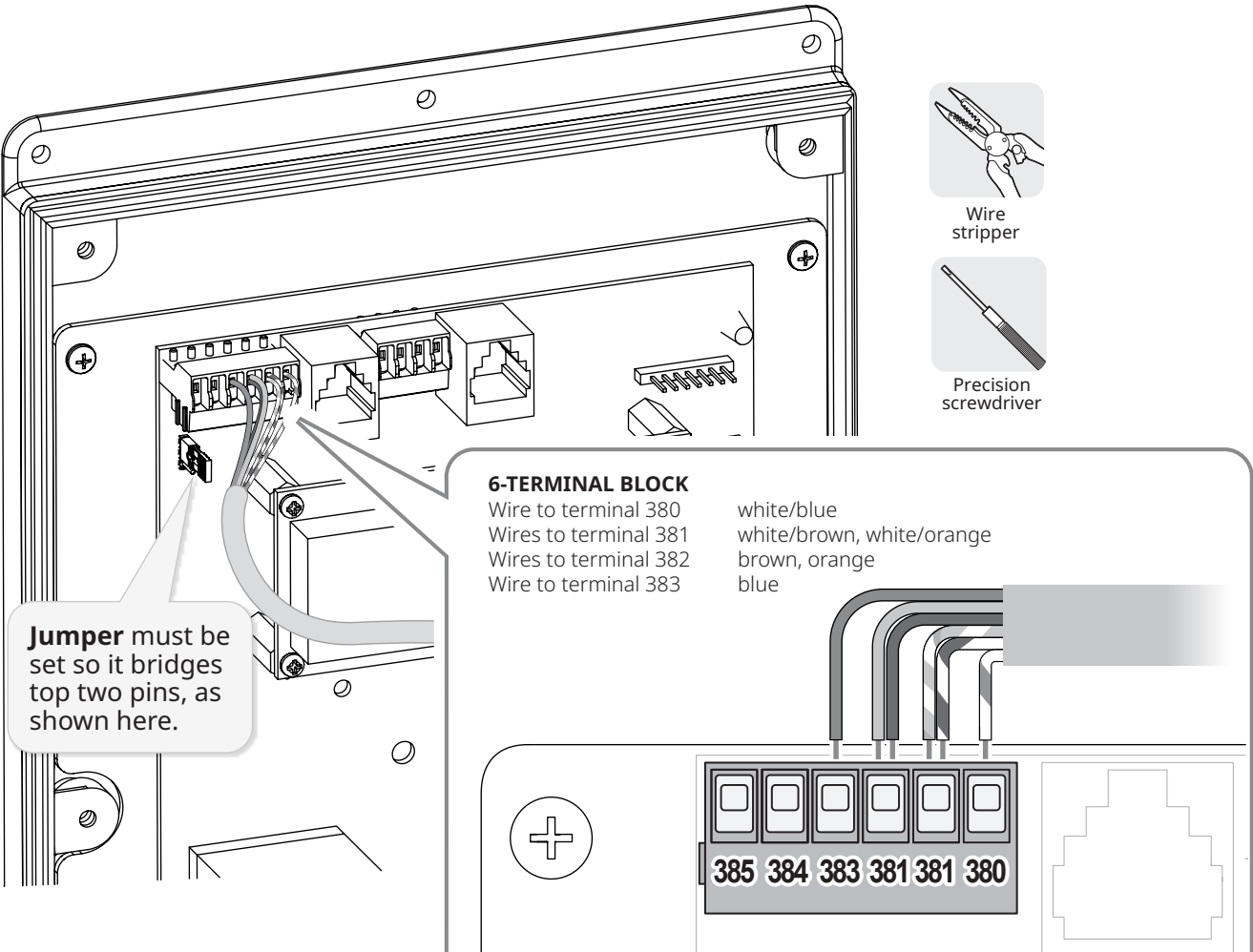


- 2 **Loosen** the six screws and **remove** the cover plate. **Loosen** the cord grip and **thread** the M8 flying lead into the user terminal.



3

Trim jacket on M8 flying lead to expose wires, and **connect** wires to terminals 380-383.

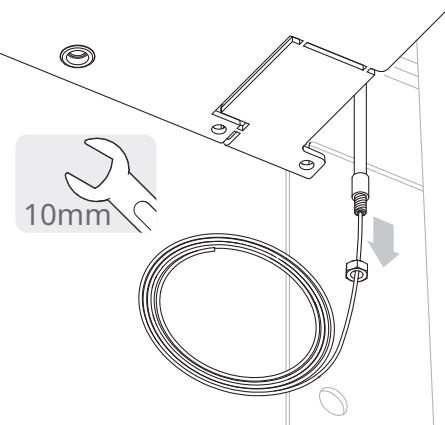


4

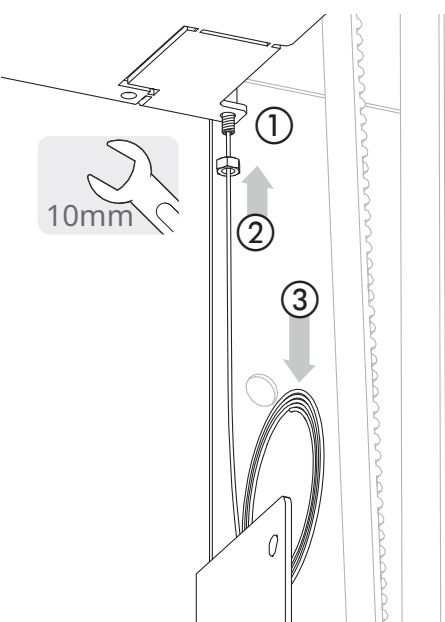
Tighten the cord grip, **replace** the cover and **reinstall** the six screws.

How to connect the brake release cable to the brake release lever

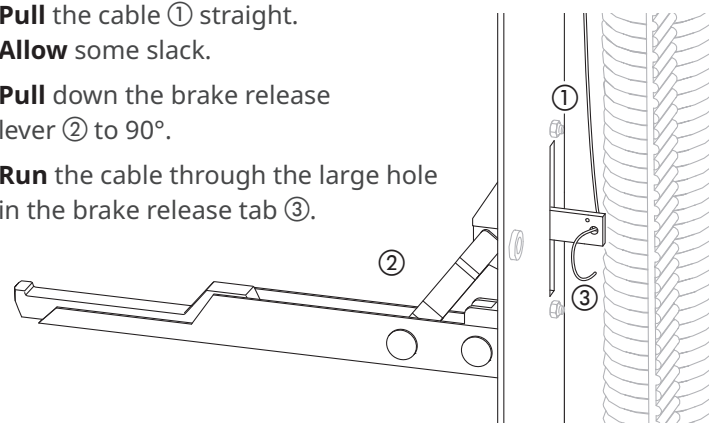
- 1** **Locate** the brake release cable in the console.
Loosen the retaining nut and slide it down the length of the brake release cable.



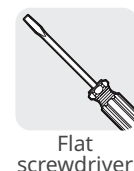
- 2** **Thread** the cable through the hole in the bottom of the console ①.
Thread the retaining nut ② up the cable and install into the bottom of the console.
Run the cable ③ down the side column to the brake release lever.



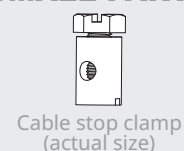
- 3** **Pull** the cable ① straight. **Allow** some slack.
Pull down the brake release lever ② to 90°.
Run the cable through the large hole in the brake release tab ③.



- 4** **Loosen** the screw on the cable stop clamp ④ until you can thread the cable through the clamp.
Slide the clamp against the lever tab and **tighten**.



SMALL PARTS



IMPORTANT

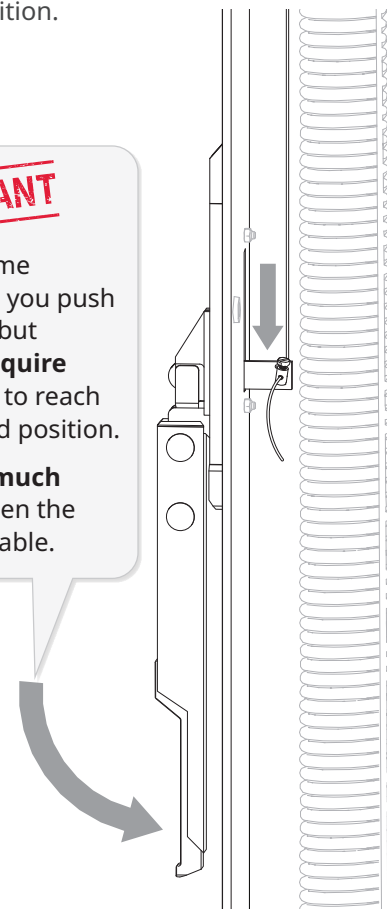
Make sure the clamp is tight enough to hold when pressure is applied.
DO NOT trim the cable until the brake release has been fully tested.

- 5** **Pull down** the brake release lever to the fully released position.

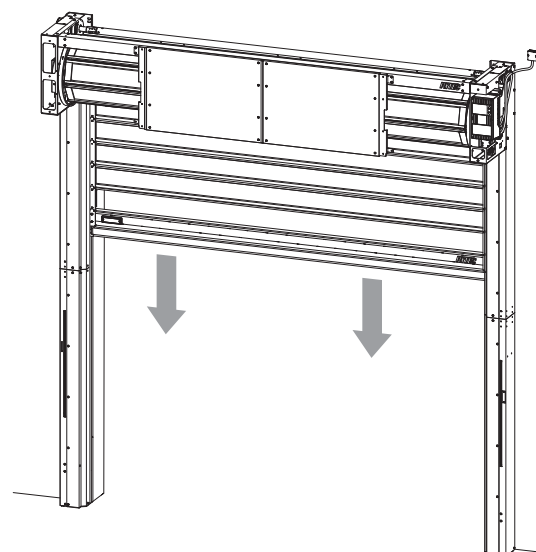
IMPORTANT

There will be some resistance when you push the lever down, but **it should not require excessive force** to reach the fully released position.

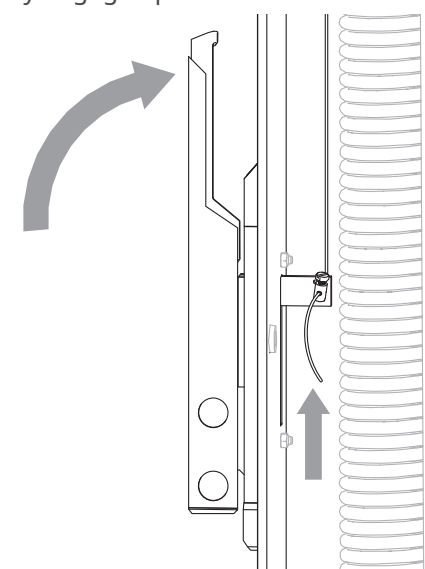
If you feel too much resistance, loosen the tension on the cable.



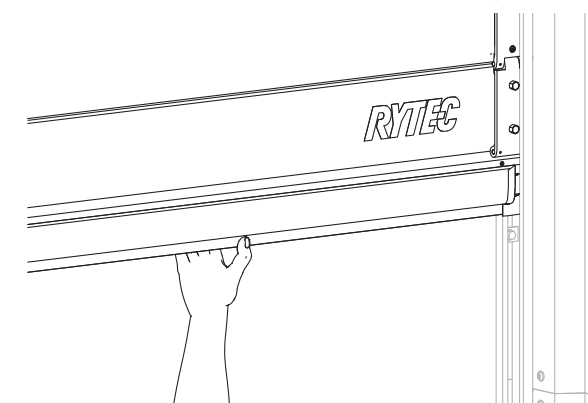
- 6** The door panel should **release** under its own weight and **drop** approximately 1/3 of the door height.
If it does not drop, **manually pull** the door panel down to that height.



- 7** **Pull up** the brake release lever 180° to the fully engaged position.



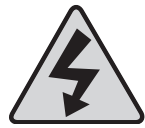
- 8** Try to **manually move** the door panel up and down.
You should **NOT** be able to move the panel.



- 9** If necessary, **adjust the tension** on the cable until both conditions are met:
- ▣ The door moves freely when the brake release level is in the fully released position.
 - ▣ The door does not move when the lever is in the fully engaged position.

- 10** **Release, then reengage** the brake several times. **Test** after each time.
Make sure the cable does not loosen after multiple uses.
- ▣ If necessary, **adjust the tension** on the cable.
 - ▣ When all tests are complete, you can **trim** the cable (minimum trim length = 4").

How to wire the door



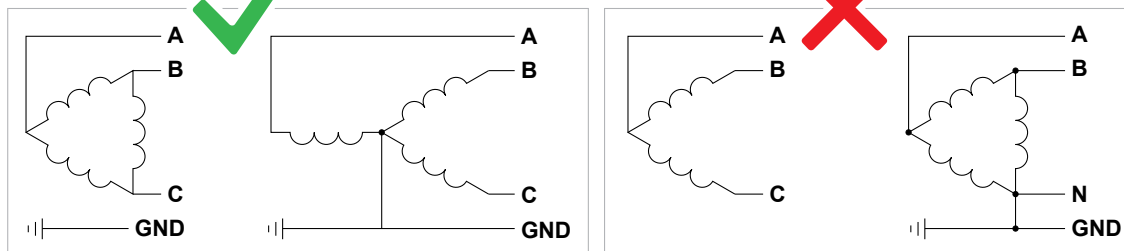
⚠ WARNING

All electrical work must meet all applicable local, state and national codes. It is recommended that all electrical work be done by a certified electrician. Failure to wire the door correctly could result in shock, burns or death to the people who install, use or service the door.



⚠ WARNING

The high-voltage power to the controller must be properly grounded. Improper grounding could result in shock, burns or death to the people who install, use or service the door, as well as catastrophic motor failure.



- If the service is floating, ungrounded or open delta type power, an isolation transformer must be installed.
- Metal conduit entering the bottom left of the control box contacts the metal protection ground plate inside the controller. **If non-metallic conduit is used**, a protection ground conductor must be used.

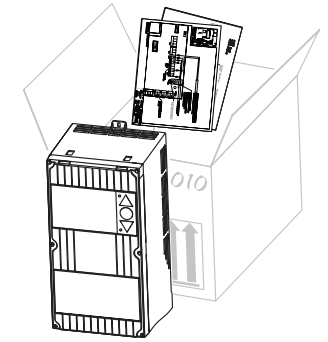
2

Find the schematics for the door in same box that holds the System 4® controller.

Check the crate and small parts boxes for accessories such as activators or safety devices and any schematics included with them.

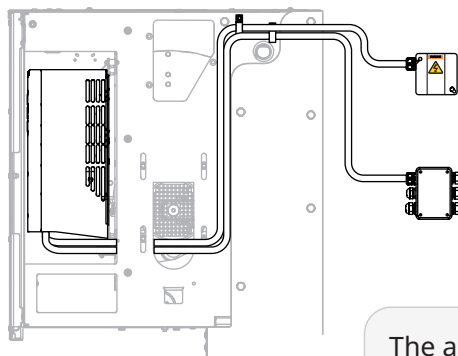
If the schematics indicate the door has non-standard wiring, **follow the schematics** instead of this manual.

IMPORTANT

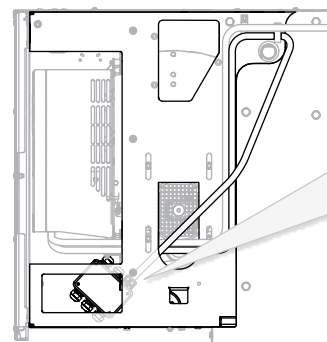


1

Remove the high-voltage power whip/junction box and, if necessary, the activation whip/junction box from the non-drive side console.

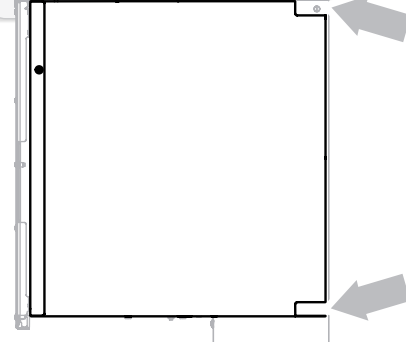


The high-voltage power whip and junction box are required to bring power to the door.



The activation whip and activator box are used to wire optional, additional activators for the door. If the junction box is not needed, tuck it back into the console.

When the non-drive side cover is reinstalled, whips may be run through the rear of the cover at the top or the bottom.

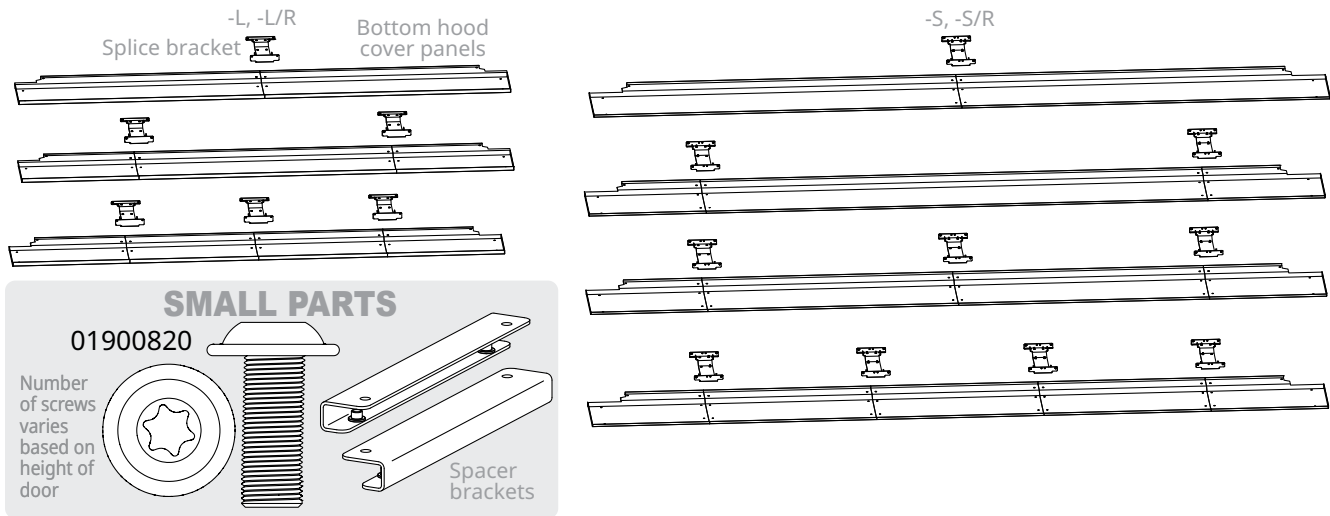


(optional) How to install the bottom hood cover

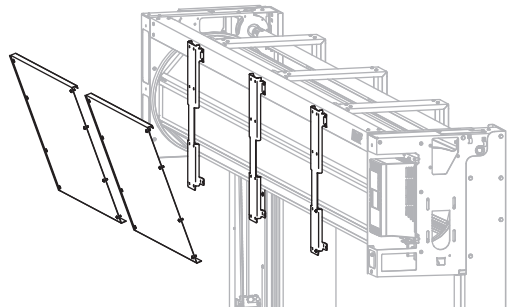
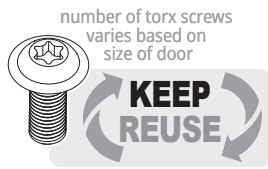


It is recommended that you **do not use power tools** for these steps. Overtorquing screws can damage the riveted nuts that secure them.

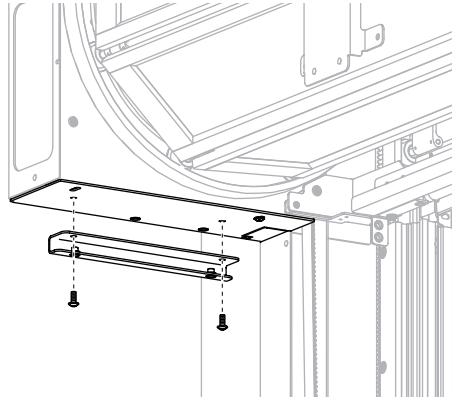
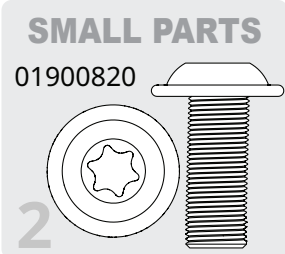
- 1 **Locate** the spacer brackets and hardware in the small parts box.
- Locate** the bottom hood cover panels and bottom splice brackets (mounting brackets) in the crate.
 - -L and -L/R doors may have 2, 3 or 4 panels, -S and -S/R doors may have 2, 3, 4 or 5 panels.



- 2 **-L and -L/R doors only:** if necessary, remove all front cover panels to access the front splice brackets.

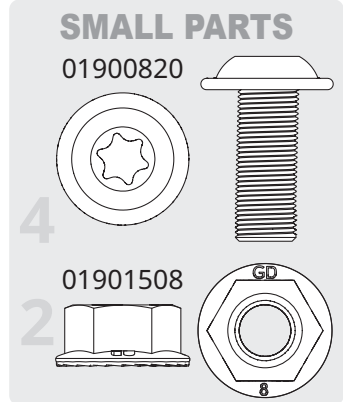
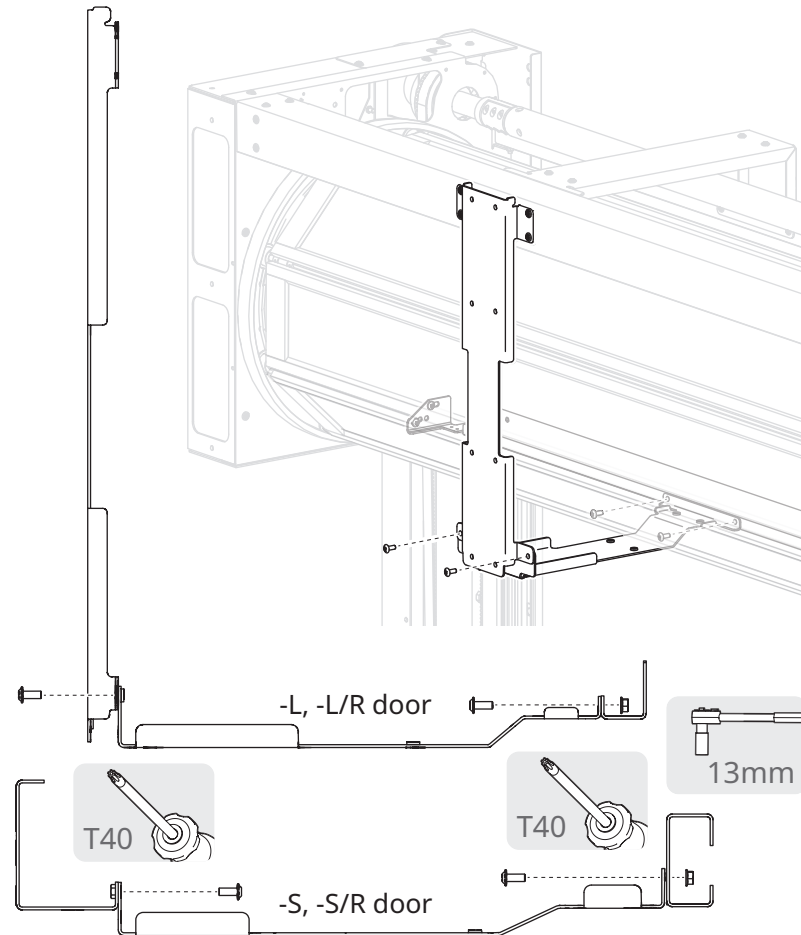


- 3 **Install** the spacer bracket from the small parts box onto the side console.
- Do this** on both sides of the head assembly.



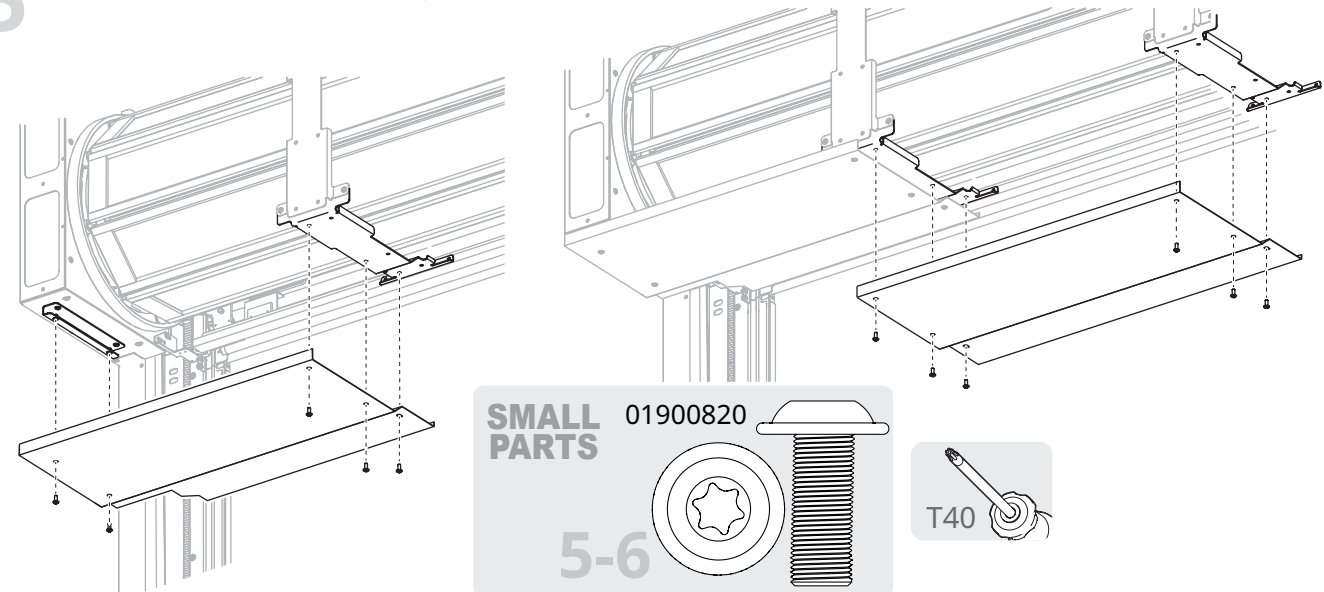
4

- Install** the splice brackets for the bottom hood cover panels.
- On -L and -L/R doors, the brackets attach to the front splice brackets and the bottom hood spreader.
 - On -S and -S/R doors, the brackets attach to the bottom front spreader and the bottom hood spreader.



5

- Install** the bottom hood cover panels.



(optional) How to install the slanted top hood cover



It is recommended that you **do not use power tools** for these steps. Overtorquing screws can damage the riveted nuts that secure them.

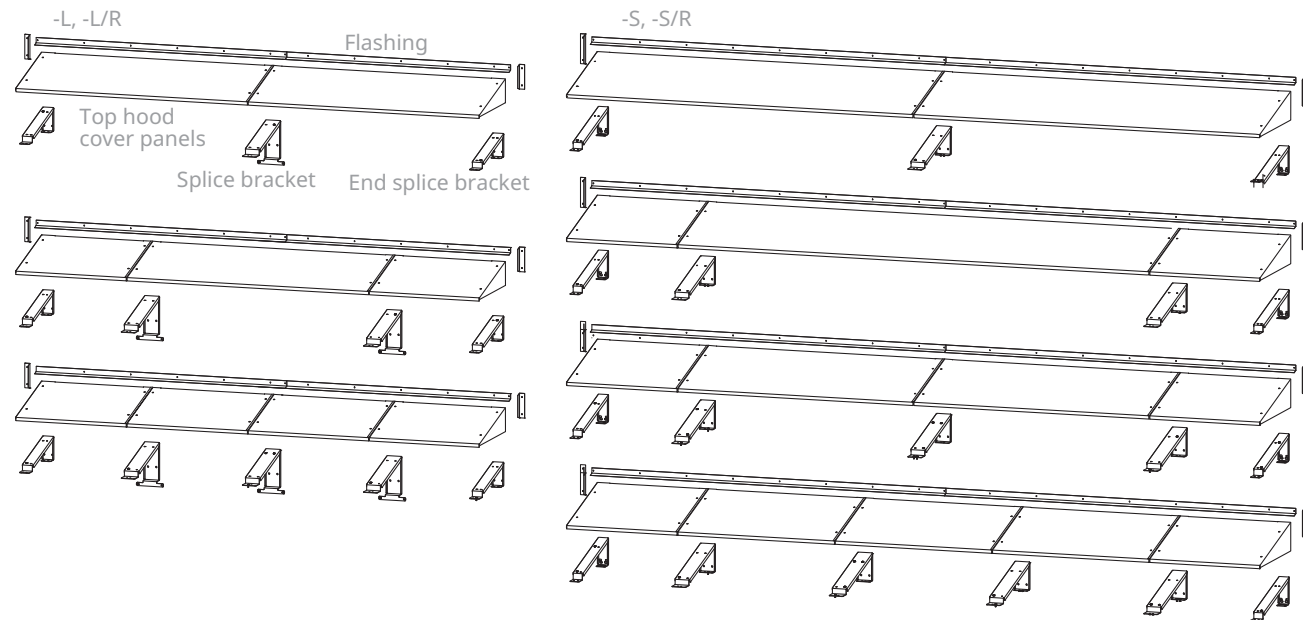
1

Locate the top hood cover panels and splice brackets in their crate.

- L and -L/R doors may have 2, 3 or 4 panels, -S and -S/R doors may have 2, 3, 4 or 5 panels.

Locate the flashing. There should be two long segments and two short side segments.

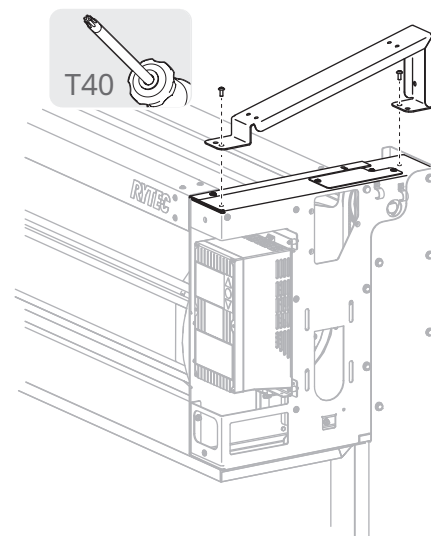
Locate the hardware in the small parts box.



2

-L and -L/R doors: install the end splice bracket.

Do this on both sides of the head assembly.



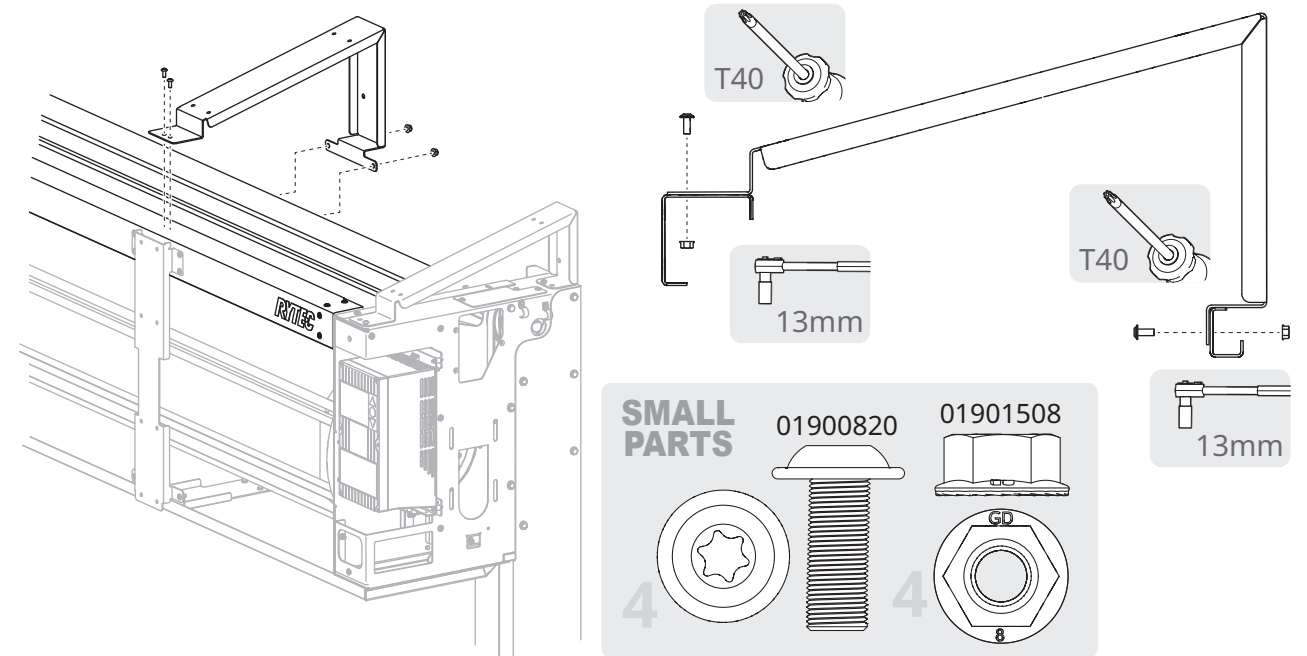
SMALL PARTS

01900820



3

-L and -L/R doors: install the rest of the splice brackets.



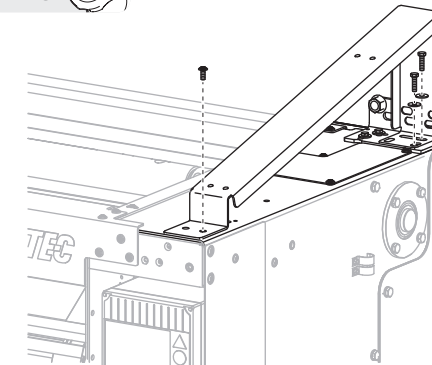
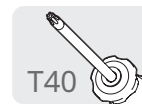
4

-S and -S/R doors: install the end splice bracket.

Do this on both sides of the head assembly.

SMALL PARTS

01900820

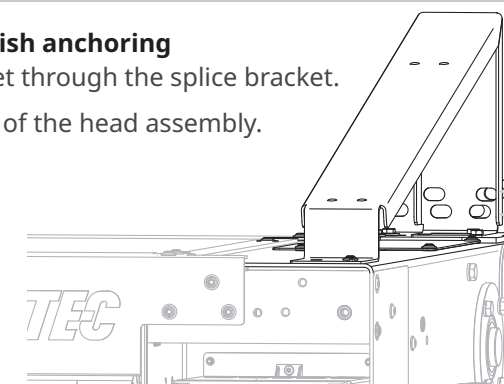
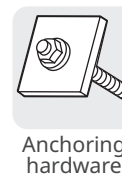


Use hardware saved in Step 10 on page 6.
Rear screw connects to **flanged nut**.
Front screw connects to **riveted nut**.

5

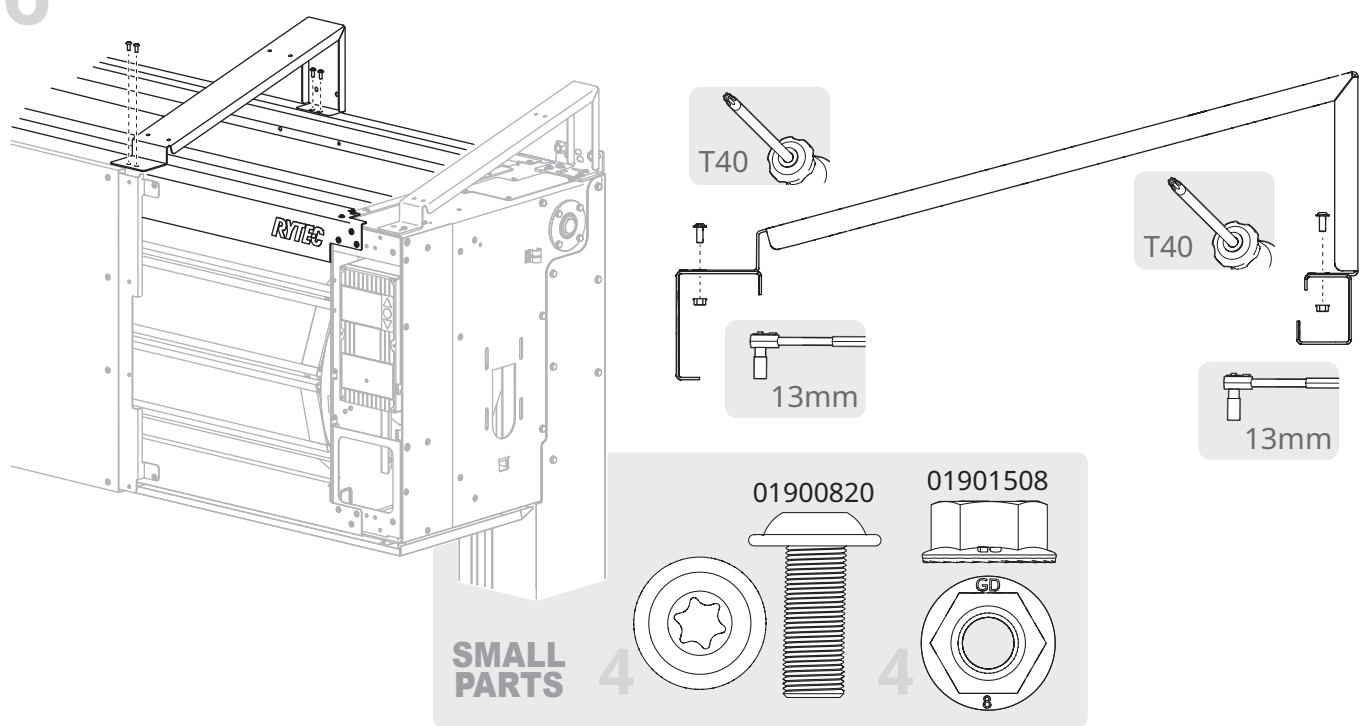
-S and -S/R doors: finish anchoring the wall mount bracket through the splice bracket.

Do this on both sides of the head assembly.

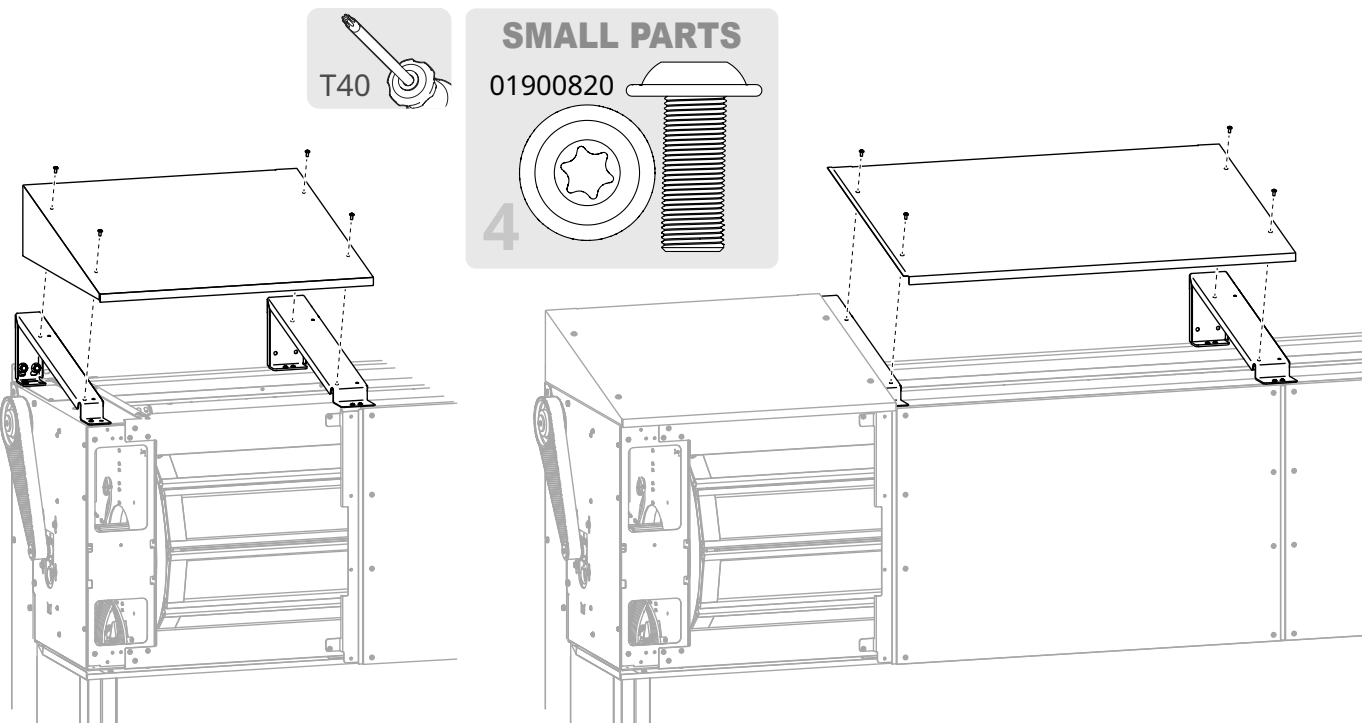


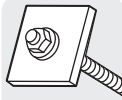
Use at least one anchor point through the splice bracket and the wall mount bracket.

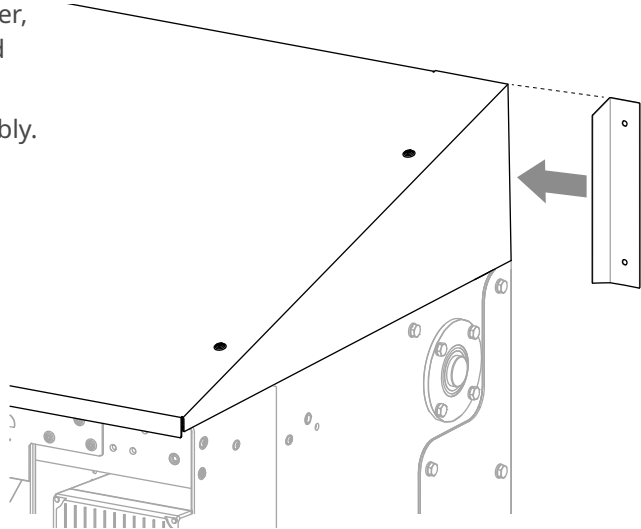
6 -S and -S/R doors: install the rest of the splice brackets.



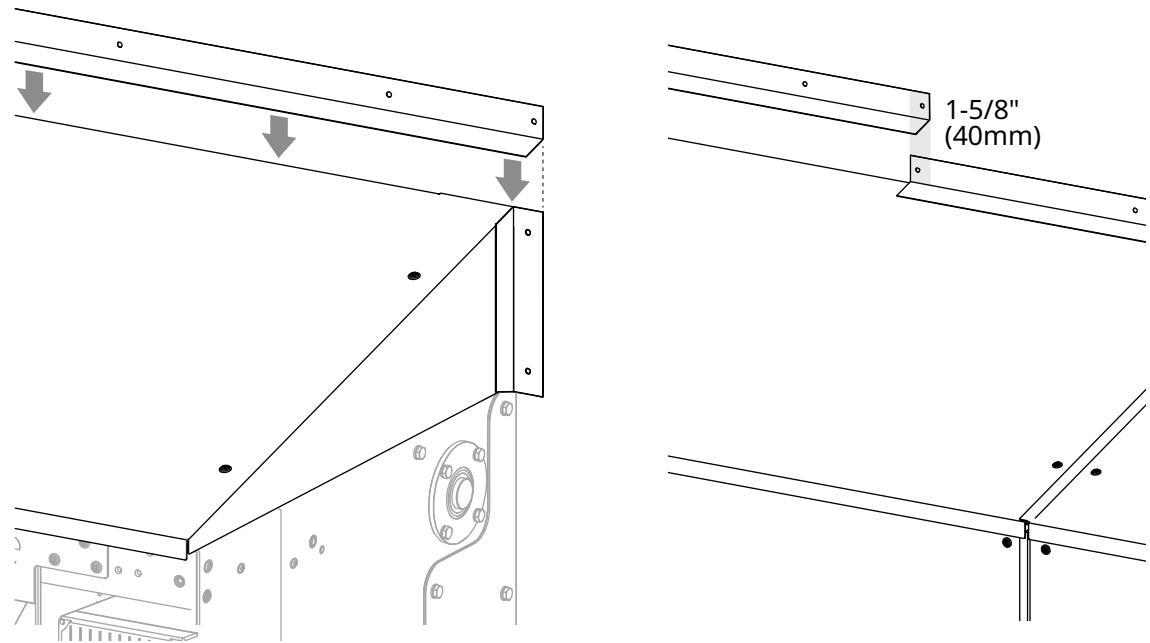
7 All doors: install the top hood cover panels.
▪ Install panels left to right: each panel overlaps the panel to the left.



8  **Align side flashing** with top of hood cover, place flashing tight against the cover and **anchor** in place.
Do this on both sides of the head assembly.



9  **Align top flashing** with end of side flashing, place flashing tight against the cover and **anchor** in place.
▪ The two sections of top flashing overlap by 1-5/8" (40mm).



Before powering up the door

⚠ WARNING

It is recommended that this pretest be done by a certified electrician.

1 Make sure the power to the door is correct.

- Open the System 4 control box and check the power supply listed on the label inside.
- Test the voltages at the disconnect. Test leg to leg and leg to ground.
- If power is correct, **power up** the door and start the set limits sequence.

Multimeter

While the control box is open, **locate** the 120Ω resistor for CAN bus testing taped to the bottom of the box

#2

Sample electrical specs shown

POWER SUPPLY: 480v +/- 10% 3 PH, 60Hz@ 7.1 FLA
LARGEST MOTOR LOAD: 2.0 Hp
ENVIRONMENTAL PROTECTION TYPE: 4x
SHORT CIRCUIT CURRENT: 5KA RMS SYMMETRICAL
D0079721-010

How to sync the SmartSurround™ system to the controller, set limits, and test the door

⚠ CAUTION

Make sure that people and vehicles do not pass through the open doorway until the automatic calibration is complete. The door can open or close unexpectedly, resulting in injury.

The Controller Display

Access level

- 0 = Operator level
- S = Service level
Accesses more parameters
- R = Rytec level
*Accesses all parameters
Requires password from technical support*

Parameter name

P: Password 0

001= 1979 Cyc

Parameter number
All three digits are hexadecimal

Parameter value
? = value being changed
✓ = change saved

Blinking cursor
On left side of display: *press arrows to change parameter number*
On right side of display: *press arrows to change paramter value*

The Controller Controls

UP Arrow

- Press to increase a value or parameter number
- Press and hold to increase values or parameter numbers quickly

RESET Button

- Press to toggle the flashing cursor between parameters and values
- Press and hold to save changes to a value

DOWN Arrow

- Press to decrease a value or parameter number
- Press and hold to decrease values or parameter numbers quickly

Icon key

Press Press and hold Press UP or DOWN arrow, as needed

NOTE: The System 4 display uses hexadecimal numbers to number parameters and for some values.

The display uses the ten numeric characters (0-9), plus six letters (A-F), which represent the values from 11 through 16.

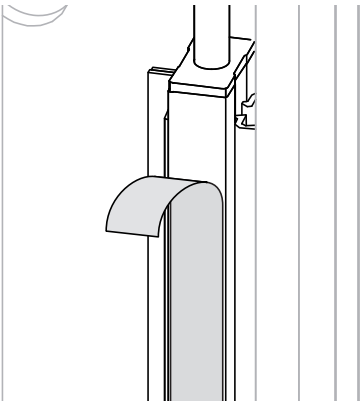
In some cases it will be necessary to press the UP arrow sixteen times to change a value from 0000 to 0010.

Make sure the protective film has been removed from ALL light curtains on both sides of the door before turning on power to the door.

IMPORTANT

Inform the door owner that Rain-X® 620036 Plastic Treatment applied to the light curtains reduces static and helps keep them clear of dirt and dust. Available at more hardware stores.

INSIDER'S TIP



First: set the controller to Parameter mode and access Service level parameters

Do This

1 Turn on power to controller

Result

Spiral
0 Cycles

The door starts in run mode.

Do This

4 1X to move cursor to the right (edit value)

Result

P: Password 0
999= 0000v#

You can now change the value of parameter P:999.

Do This

2 until the parameter screen displays

Result

P: Password 0
001= [xxx] Cyc

You are in Parameter mode. Go to parameter 999.

Do This

5 16X to set value to hexadecimal 10

Result

P: Password 0
999= 0010?#

Set the value to 10 (Service level password).

Do This

6 until question mark changes to checkmark (value saved)

Result

P: Password S
999= 0010v#

The Service level password is saved.

Do This

7 The controller automatically moves to parameter L:201.

Result

L: SAI Slot2
201= - #

Next: to start the CAN bus synchronization, assign the two Advanced3 light curtains to parameter L:201

NOTE: the values you will see at parameters L:201, L:401 and L:501 will be the IDs for the light curtains included in the kit, and will not match the values shown here.

Do This

Result

1

1X to show the first set of light curtains

L: SAI Slot2

201= 0932-9156?

2

Check the Advanced³ light curtains mounted in the door tracks of both side columns.

- If all four LEDs are flashing (transmitter: green and yellow, receiver: blue and red), the door track light curtains are synced correctly.
- If other light curtains light up, go to the next value.

Drive side

Non-drive side

Do This

Result

3

If the current selection does **NOT** light the LEDs:

1X to show the next set of light curtains

L: SAI Slot2

201= 0948-9147?

Re-check the light curtains.

4

If the current selection **DOES** light the LEDs:

until the setting is saved

L: SAI Slot2

201= 0948-9147✓

5

If the current selection **DOES** light the LEDs:

until the setting is saved

L: SAI Slot2

201= 0948-9147✓

6

The controller moves to parameter L:401.

L: SAI Slot4

401= - #

Next: assign the two inside SmartSurround™ light curtains to parameter L:401

On doors that are mounted to **interior walls**, the **cover mounted SmartSurrounds™** are considered to be the inside light curtains and are assigned to parameter L:401.

On doors that are mounted to **exterior walls**, the **jamb mounted SmartSurrounds™** are considered to be the inside light curtains and are assigned to parameter L:401.

IMPORTANT

Jamb mounted Smartsurrounds are outside of installation site and sync to **parameter L:501**

Cover mounted Smartsurrounds are outside of installation site and sync to **parameter L:501**

Door mounted to exterior wall

Jamb mounted Smartsurrounds are inside installation site and sync to **parameter L:401**

Cover mounted Smartsurrounds are inside installation site and sync to **parameter L:401**

Door mounted to interior wall

Do This

Result

1

1X to show the first set of light curtains

L: SAI Slot4

401= 0932-9156?

2

Check the SmartSurround™ inside light curtains on both side columns.

- If all LEDs are flashing, the cover mounted light curtains are synced correctly.
- If other light curtains light up, go to the next value.

Drive side

Non-drive side

Do This

Result

3

If the current selection does **NOT** light the LEDs:

1X to show the next set of light curtains

L: SAI Slot4

401= 0992-9187?

Re-check the light curtains.

4

If the current selection **DOES** light the LEDs:

until the setting is saved

L: SAI Slot4

401= 0992-9187✓

5

The controller moves to parameter L:501.

L: SAI Slot5

501= - #

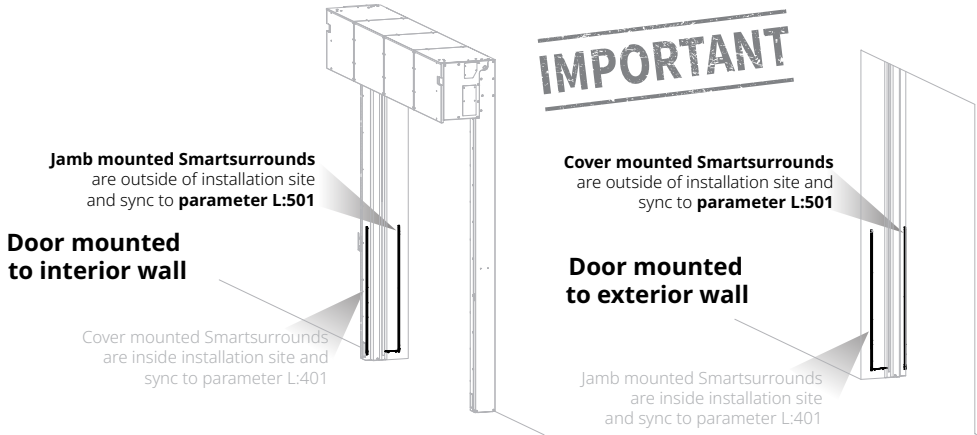
SPIRAL® SST AND STT PREWIRE INSTALLATION MANUAL • 1072124-0 • REV 03 • 04/22

31

Next: assign the two outside SmartSurround™ light curtains to parameter L:501

On doors that are mounted to **interior walls**, the **jamb mounted SmartSurrounds™** are considered to be the outside light curtains and are assigned to parameter L:501.

On doors that are mounted to **exterior walls**, the **cover mounted SmartSurrounds™** are considered to be the outside light curtains and are assigned to parameter L:501.



Do This Result

1 1X to show the first set of light curtains

L: SAI Slot5
501= 0932-9156?

2 Check the SmartSurround™ outside light curtains on both side columns.

- If all LEDs are flashing, the cover mounted light curtains are synced correctly.
- If other light curtains light up, go to the next value.

Drive side Non-drive side

Do This Result

3 If the current selection does **NOT** light the LEDs:

1X to show the next set of light curtains

L: SAI Slot5
501= 0923-9126?

Re-check the light curtains.

4 If the current selection **DOES** light the LEDs:

until the setting is saved

L: SAI Slot5
501= 0923-9126✓

5 The controller ends at parameter P:000.

P: Door Cycles S
000# 0000 Cyc

Next: set limits

Do This Result

1 until the "Synchron." screen displays

! Synchron. !
_0 Press Reset

Scrolling message:
Hold Reset button if position OK

2 1X to start sequence

To Open Pos.
_0 Hold Reset

Scrolling message:
Hold Reset button if position OK

IMPORTANT Interrupt the set limits sequence and run the tests in *What to test after powering up the door* on the next page.

3 Resume the sequence and set the open position.

until open height is correct

To Open Pos.
_0 Hold Reset

The bottom of the reversing edge should line up with the lintel (top of the door opening).

Do This Result

4 until "Open Limit Set" screen displays

Open Limit Set
_0

when quality check is complete, you see these screens:

LGx Qual. Check
_0

! Synchron. !
_0 Press Close

Scrolling message:
Press Close button to begin

5 1X to start. The door panel closes.

Search Edge
-1330 Auto Close

the door panel stops when it reaches the bottom of the light curtain, then you see:

!Auto Calibrate!
Press Open butto

6 1X to start auto-calibration

Door Is Opening
Act11 = 45Sec
Door Is Closing
Act11 = 45Sec
Spiral
[xxx] Cycles

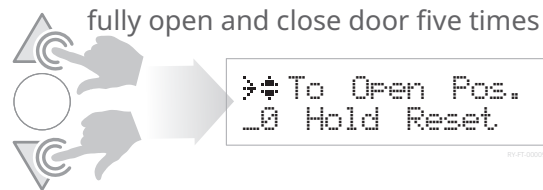
- The door opens and closes automatically **up to 12 times**.
- The controller automatically sets the close limit position while the door calibrates.
- When calibration is complete, the door switches to Run mode.

IMPORTANT The door may not open or close **completely** during automatic calibration. This is normal.

When calibration is complete, the door will open and close correctly.

- You can manually adjust the close limit after calibration is complete by changing parameter P:275. See page 34.

What to test after powering up the door



Press and hold the arrows to fully open, then fully close the door five (5) times.

1 Does the door panel move in the right direction?

Test: The direction of the door should match the direction of the arrow on the controller.

Yes: no action is needed.

No: follow the steps in *How to reverse the rotation of the motor*.

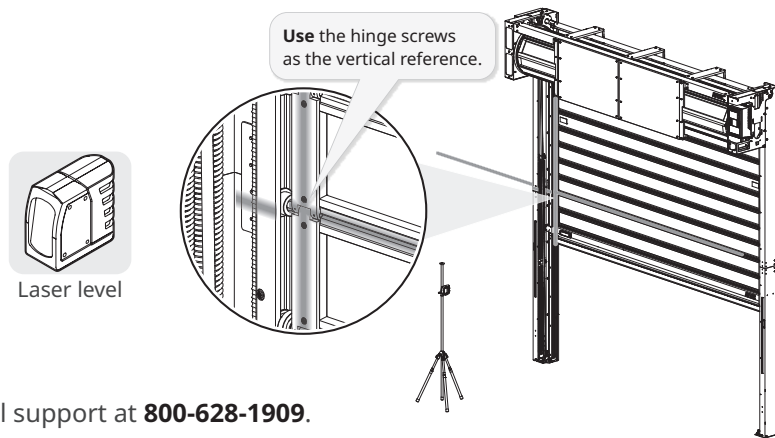
2 Is the door panel level and plumb?

Test: laser the door along the seal between two door panel slats.

Yes: no action is needed.

Panel is not level: follow the steps in *How to adjust the secondary drive belt*.

Panel is not plumb: contact Rytec technical support at 800-628-1909.

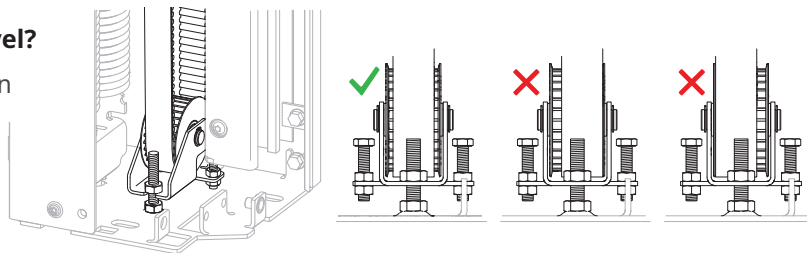


3 Are the drive belt pulley assemblies level?

Test: make sure the secondary drive belts in both side columns are centered in the pulley assemblies after the door has been opened and closed several times.

Yes: no action is needed.

No: follow the steps in *How to level the baseplate pulley assembly*.



4 Is the manual brake release operating correctly?

Test: pull down the lever to 90° to manually release the brake, then push the lever back up to reset it.

Release operating correctly: when the lever is down, the door panel moves freely and the controller displays an F211 Emergency Stop error. When the handle is reset, the controller displays Door is Stopped and you can close the door by pressing the DOWN arrow. **No action is needed.**

Release NOT operating correctly: the F211 Emergency Stop error stays on when the lever is reset, and the door cannot be closed. **Follow the steps in How to adjust the proximity sensor.**

5 Is the door operating correctly?

Test: listen for grinding, whining or excessive motor noise. Watch for changes in speed or excessive movement of the motor or drum

Yes: no action is needed.

No: contact Rytec technical support at 800-628-1909.

How to reverse the rotation of the motor

First: set the controller to Parameter mode and access Service level parameters

Do This	Result
1 until the parameter screen displays	
You are in Parameter mode. Go to parameter P:999.	
2 2X to reach parameter P:999	
The parameter P:999 screen displays.	
3 1X to move cursor to the right (edit value)	
You can now change the value of parameter P:999.	
4 16X to set value to hexadecimal 10	
Set the value to 10 (Service level password).	
5 until question mark changes to checkmark (value saved)	
The Service level password is saved.	
6 1X to move cursor to left (parameters)	
You can now go to parameter P:130.	

Next: navigate to parameter P:130 and change the value

Do This	Result
1 until parameter displays	
Value is either 0 or 1.	
2 1X to move cursor to the right (edit value)	
The value is either 1 or 0.	
3 press either arrow to change value	
Change the 0 to 1, or change the 1 to 0.	
4	
The new value is saved.	
5 until the "To Open Pos." screen displays	
Reset the limits for the door.	

How to adjust the secondary drive belt



⚠ WARNING

Do not perform this procedure until the power disconnect is in the OFF position and a lockout/tagout is complete.

Contact with high-voltage wires, or the door being activated unexpectedly, can cause death or serious injury.



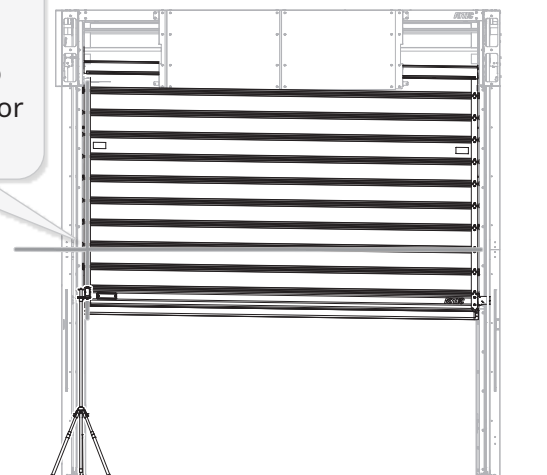
1



Laser level

IMPORTANT

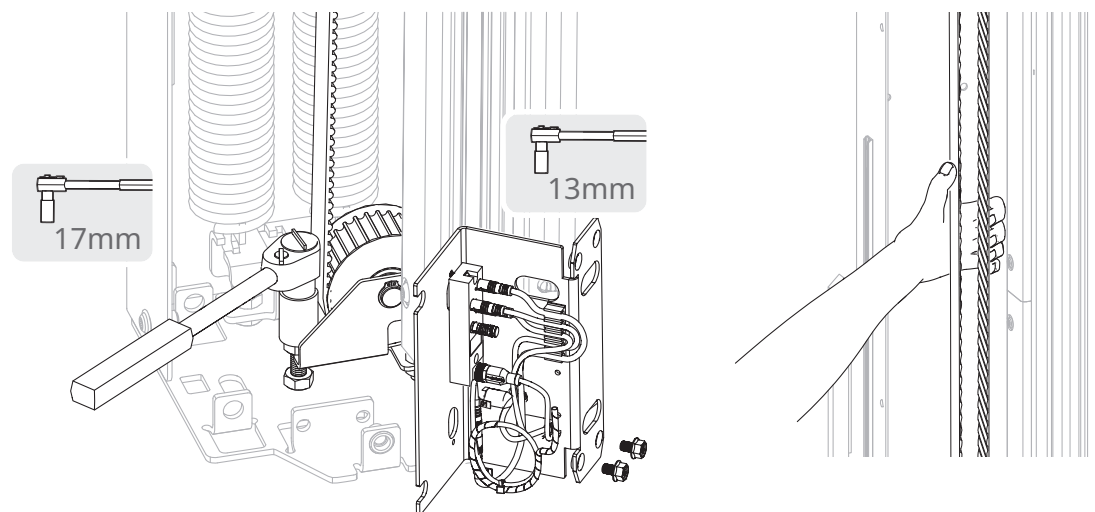
Always adjust the belt to **lower** the side of the door panel that is **higher**.



2

Loosen the top front nut on the baseplate pulley assembly until there is noticeable slack in the secondary drive belt.

- You will need to **loosen** the screws and **move** the CAN bracket out of the way to access the pulley assembly.
- It should not be necessary to remove the pulley assembly from the mounting bolt.



3

In the head assembly, **“jump”** the secondary drive belt one notch in the pulley.

IMPORTANT

Adjust the belt **one tooth at a time**, then recheck level.

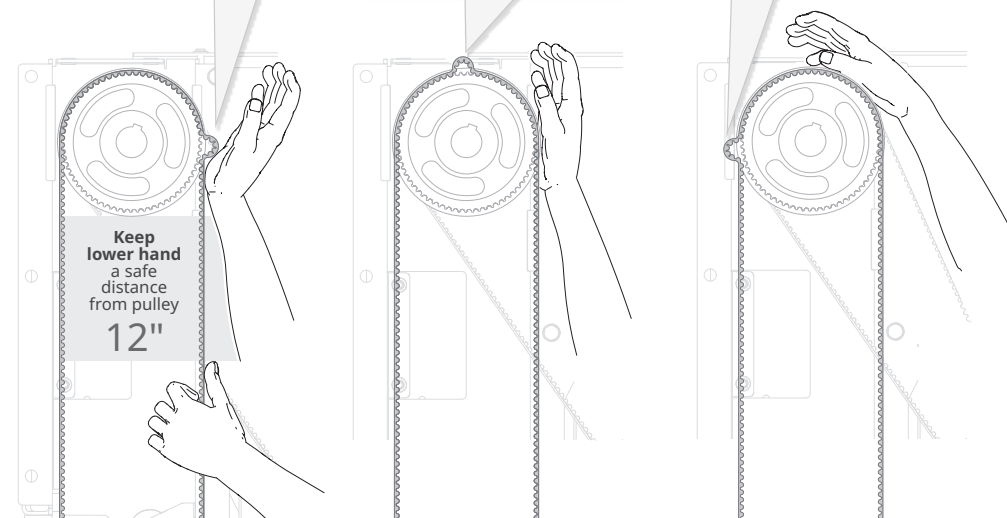
Push up slack to create a “wave” in the belt and hold it against the pulley.

Press belt up and in until teeth drop into the next notch on pulley.

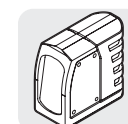
Push “wave” around top of pulley and down the other side.



Keep lower hand a safe distance from pulley
12"



4



Laser level

Level the door panel again.

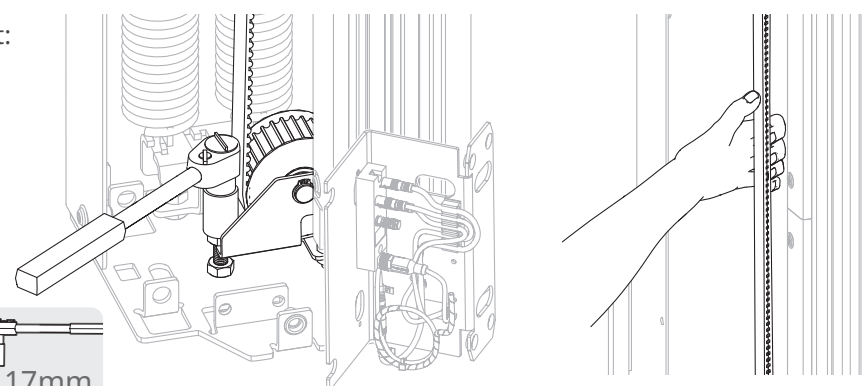
If the door panel is not level, repeat these steps and retest.

If the door panel is level, reset the tension on the belt.

5

To reset the tension on the belt:

- Tighten** the top front nut to increase the tension.
- Press** the front and rear legs of the belt together to test tension.
- Adjust** the height of the top nut as needed to reach the correct tension.



6

Reinstall the CAN bracket.

7

Any time a CAN bus cable is disconnected while the power is on, **you MUST do a soft reboot of the controller** to re-sync the CAN bus system when all cables have been reconnected.

- Press and hold** all three buttons until the display goes blank.
- Release the buttons.** You see Self-Check or the system software versions number.



until the display goes blank

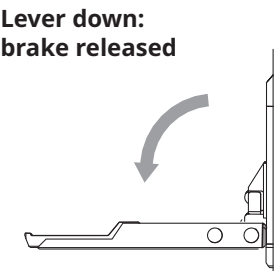
IMPORTANT

RYTEC
TST FU3R-RY V02-

RYTEC
Self Check

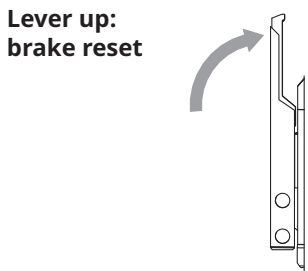
How to adjust the proximity sensor

What's the problem? The controller tracks the position of the manual break release through a magnetic sensor located in the motor. In some installation environments, the sensor needs to be adjusted from the factory preset to correctly track the brake release.



Controller

Emergency Stop
F211 E-Stop Ext1



Door is Stopped

No action is needed

Emergency Stop
F211 E-Stop Ext1

Reset the sensor



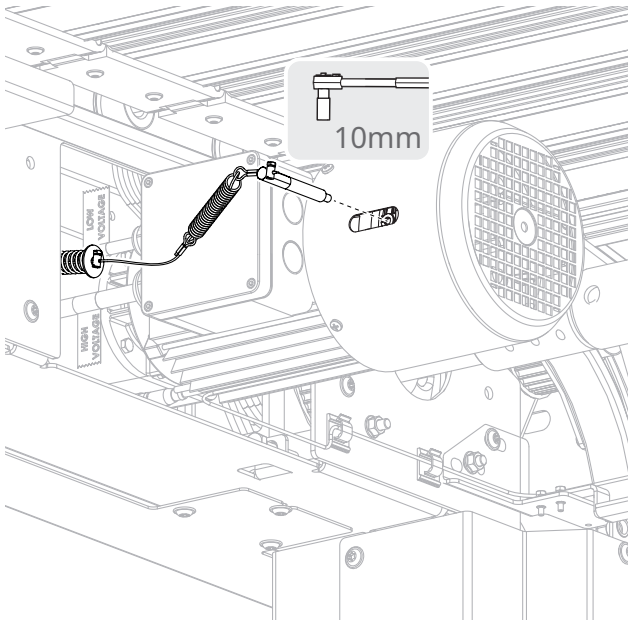
WARNING

Do not perform this procedure until the power disconnect is in the OFF position and a lockout/tagout is complete.

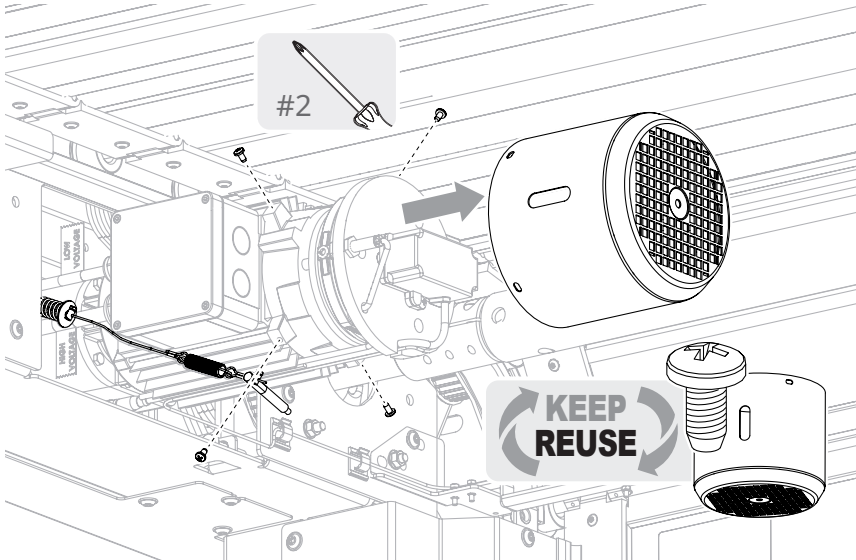
Contact with high-voltage wires, or the door being activated unexpectedly, can cause death or serious injury.



- At the motor, **remove** the brake release lever.
DO NOT remove the cable. The play in the spring allows it to turn with the release lever until it is free of the motor.

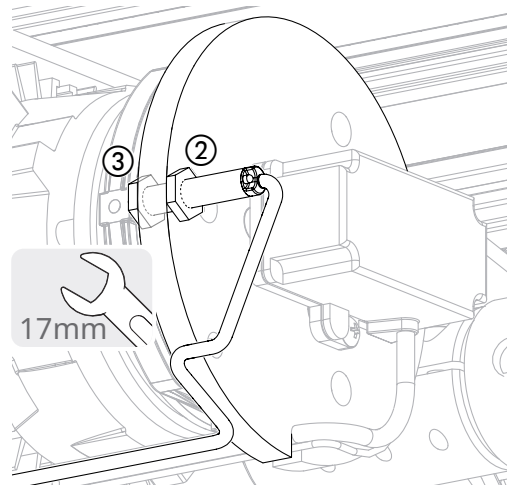
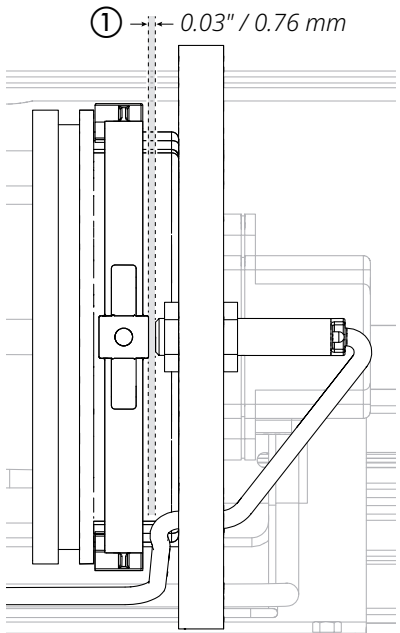


- Remove the four screws and the bottom cover of the motor.



- Check the distance between the sensor and the brake release arm ①. It should be .03"/.76mm, which is the **thickness of a credit card**.

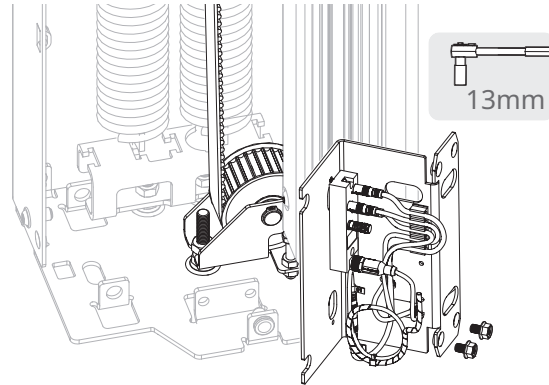
To adjust the sensor, first **loosen** the outer nut ②, then **tighten** the inner nut ③ to secure it in place.



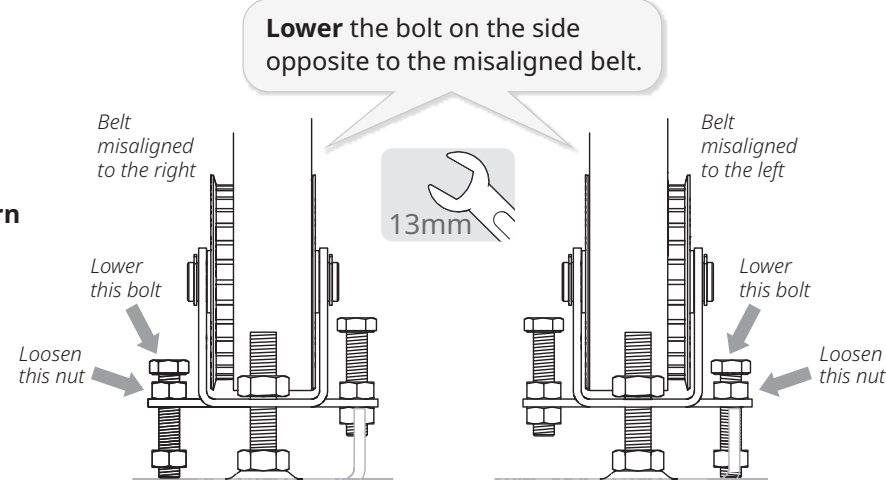
- Test the manual brake release again.
If the controller displays the F211 error on reset, repeat these steps and retest.
If the controller displays "Door Held Open", the issue is resolved.
Reinstall the motor cover and the brake release lever.

How to level the baseplate pulley assembly

- 1 **Loosen** the screws and **move** the CAN bracket out of the way to access the pulley assembly.

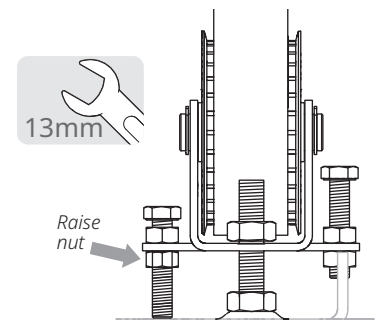


- 2 **Loosen** the top nut of the bolt on the side opposite to the side the belt favors. **Lower** the bolt until it touches the baseplate. Turn the bolt **one more half-turn** to raise that side of the pulley assembly, then test the door.

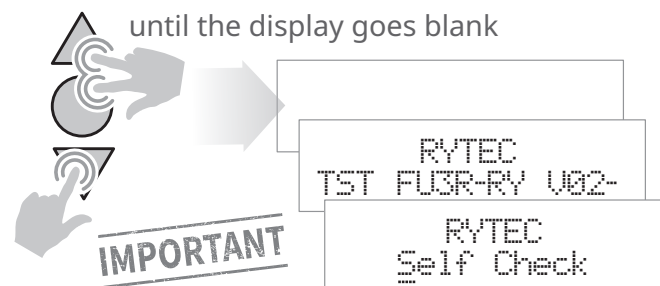


- 3 **Manually raise and lower** the door three (3) times.

- 4 **If the belt is not centered in the pulley assembly:** repeat these steps and retest. **If the belt is centered:** raise the lower nut to lock the assembly in place. **Reinstall** the CAN bracket when you are done.



- 5 Any time a CAN bus cable is disconnected while the power is on, **you MUST do a soft reboot of the controller** to re-sync the CAN bus system when all cables have been reconnected.
 - **Press and hold** all three buttons until the display goes blank.
 - **Release the buttons.** You see Self-Check or the system software versions number.



How to manually reset the close limit (optional)

First: set the controller to Parameter mode and access Service level parameters

Do This	Result
1 until the parameter screen displays	P: Password 0 001= [xxx] Cyc

You are in Parameter mode. Go to parameter 999.

Do This	Result
2 2X to reach parameter P:999	P: Password 0 999= 0000 #

The Password parameter P:999 screen displays.

Do This	Result
3 1X to move cursor to the right (edit value)	P: Password 0 999= 0000. #

You can now change the value of parameter P:999.

Do This	Result
4 16X to set value to hexadecimal 10	P: Password 0 999= 0010?#

Set the value to 10 (Service level password).

Do This	Result
5 until question mark changes to checkmark (value saved)	P: Password S 999= 0010. #

The Service level password is saved.

Do This	Result
6 1X to move cursor to left (parameters)	P: Password S 999= 0010 #

You can now go to parameter 275.

Next: navigate to parameter P:275 (parameter P:221 for doors with photo eyes) and change the value

Do This	Result
1 until parameter displays	P: Incremental S 275= -12 Inc

The default value is -12 (default at.

Do This	Result
2 1X to move cursor to the right (edit value)	P: Incremental S 275= -12. Inc

You can now change the value.

- **The UP arrow** increases the value and raises the close limit position for the door.
- **The Down arrow** decreases the value and lowers the close limit for the door.
- Each press of an arrow changes the limit by a fraction of an inch, which gives you precise control of the value.

Do This	Result
3 until new value displays	P: Incremental S 275= [x]? Inc

IMPORTANT Do not change the value by more than 10 increments. Then test the door.

Do This	Result
4 until question mark changes to checkmark (value saved)	P: Incremental S 275= [x]. Inc

The new value is saved.

Do This	Result
5 until door returns to run mode	Spiral [xxx] Cycles

How to finish testing the door and the safety features

Navigate to parameter P:980 and set the value to 4 so the door will cycle continuously

Do This
Result

1

until parameter displays



P: Operat. Mode S
980= 0 #

The default value is 0.

2

1X to move cursor to the right (edit value)



P: Operat. Mode S
980= 0 #

You can now change the value.

3

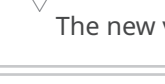
4X to change the value to 4



P: Operat. Mode S
980= 4 #

4

until question mark changes to checkmark (value saved)



P: Operat. Mode S
980= 4 #

The new value is saved.

5

until door returns to run mode



Spiral
[xxx] Cycles

6

press either arrow to start cycling



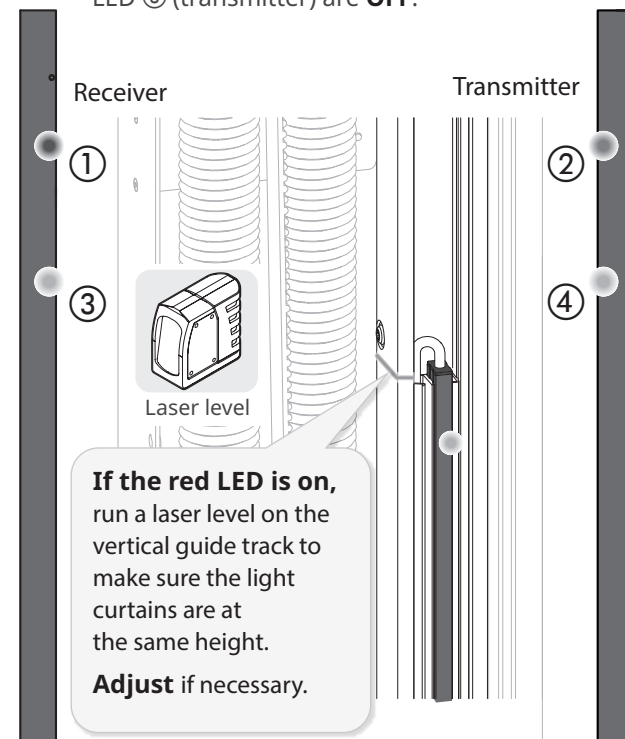
Act 1 5 Sec

- Watch** the door as it cycles.
 - Make sure** the door panel rises to the fully open position, remains in place for the standard time, then closes to the fully closed position.
 - Make sure** the fully open and fully closed positions remain at the set limits.
 - Make sure** the reversing edge is level when the door is fully closed.

IMPORTANT Let the ACL timer hold the door open through each cycle. Shortening the timer while the door is cycling can cause the motor to overheat.

- While the door cycles, **look and listen** for:
 - Unusual noises** such as grinding, whining or excessive motor noise
 - Excess movement** by the motor, drive or drum.
 - Unexpected delay** in activation or unusually long time period before automatically closing.

- Make sure** the blue LED ① (receiver) and green LED ② (transmitter) on the Advanced³ light curtains are flashing once every two second, and that the red LED ③ (receiver) and yellow LED ④ (transmitter) are **OFF**.

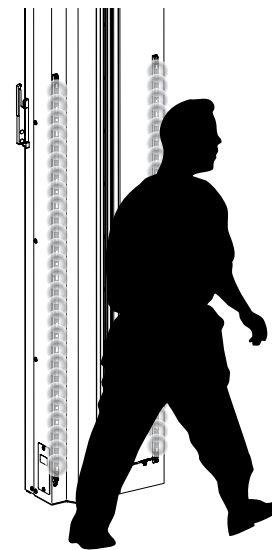


If the red light and yellow lights are on, or if you see a different combination of lights, call Rytec technical support at 800-628-1909.

- Make sure** the SmartSurround™ operates correctly as the door opens and closes:
 - An upward cascade of red lights** while the door opens.
 - A sequence of blinking yellow lights** matching the delay to close timer before the door starts to close.
 - A downward cascade of red lights** while the door closes.

- Test the SmartSurround™ system:**

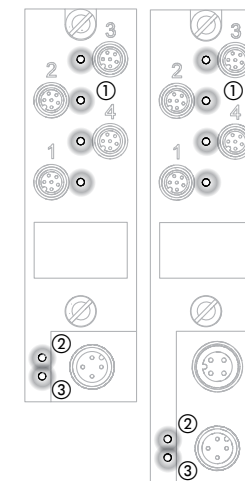
- Make sure** the light curtains flash rapidly whenever either of the planes are broken.
- If one plane is broken but the other is not**, the light curtains should reverse/hold the door, then the door should count down and descend at creep speed.
- If all planes are broken**, the light curtains should reverse/hold the door, then the door should count down and descend at normal speed.



- LEDs on the CAN repeaters and distributor indicate if the system is working correctly**

- LEDs next to the ports (blue)** should be ON steadily (no flashing).
- The CAN status LED (yellow)** should be flashing one to four times per second.
- The power status LED (green)** should be ON steadily (no flashing).

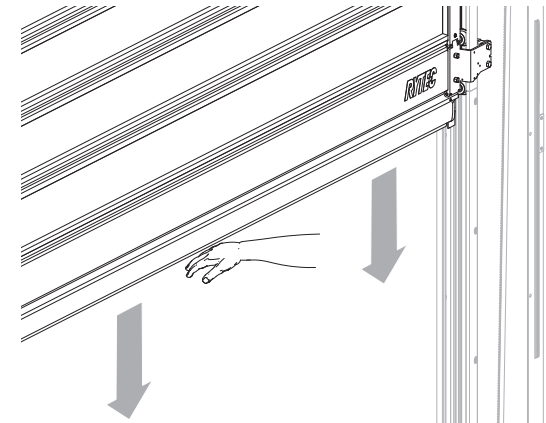
Contact technical support if you do not see this.



- If the door has an active reversing edge (optional), test** the reversing edge by placing your arm in the path of the door while it is closing.

IMPORTANT **Make sure** you place your arm above the light curtains.

The door panel should stop, then reverse direction and rise to the fully open position.



- IMPORTANT**

Set the controller to parameter mode.

Set Parameter 980 back to 0 to take the door out of continuous cycle.

Return to run mode.

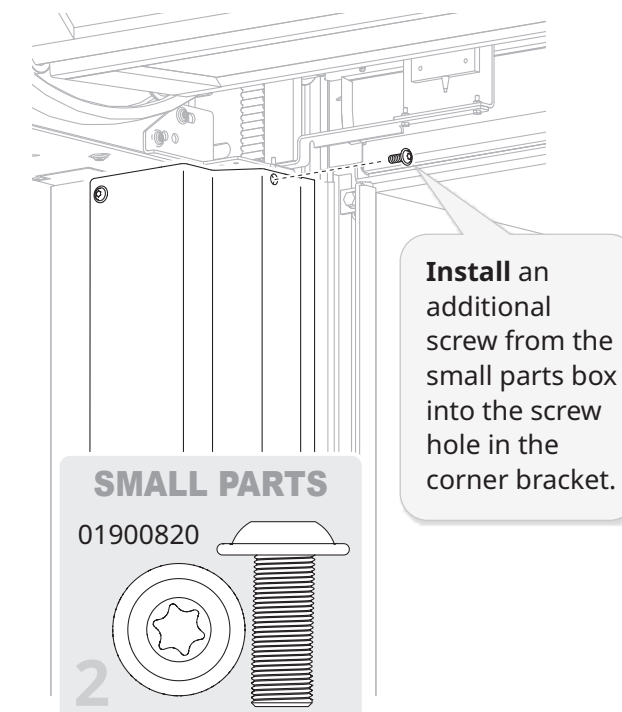
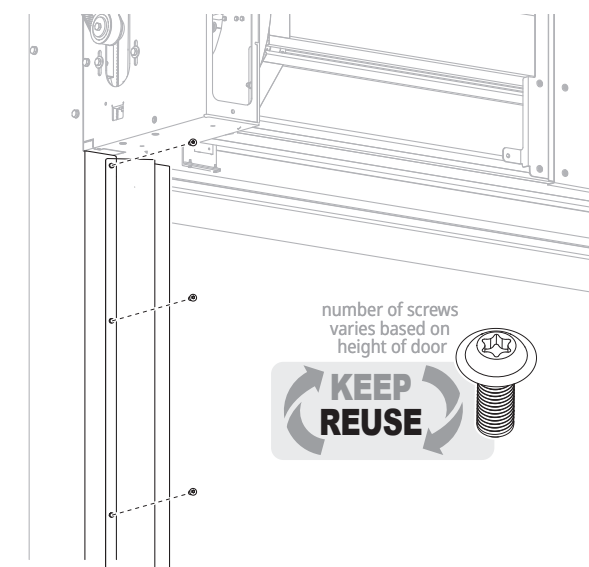
- Activate** the door using each activating system at least three times per system.

How to complete the installation

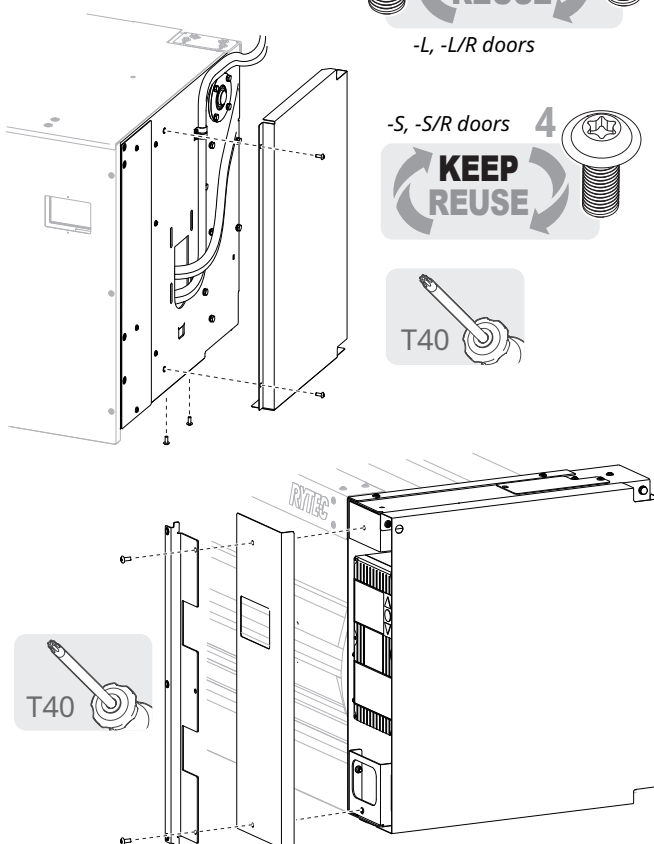
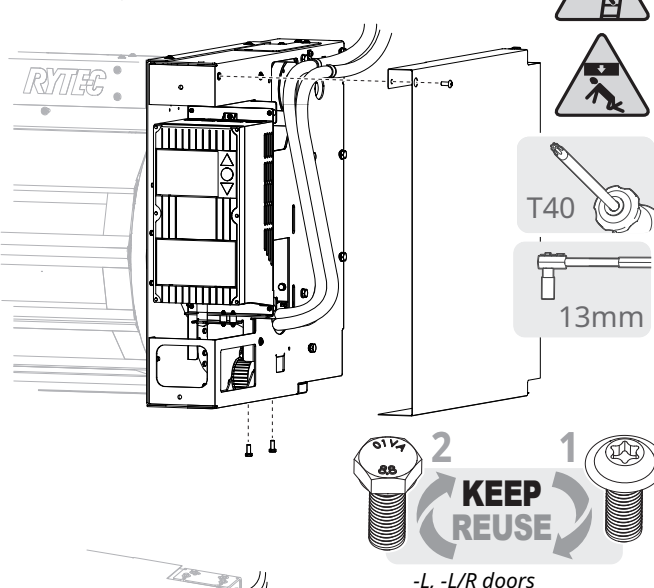


It is recommended that you **do not use power tools** for these steps. Overtorquing screws can damage the riveted nuts that secure them..

1 Reinstall both side column covers.



2 Reinstall the side covers and any front covers that were removed.

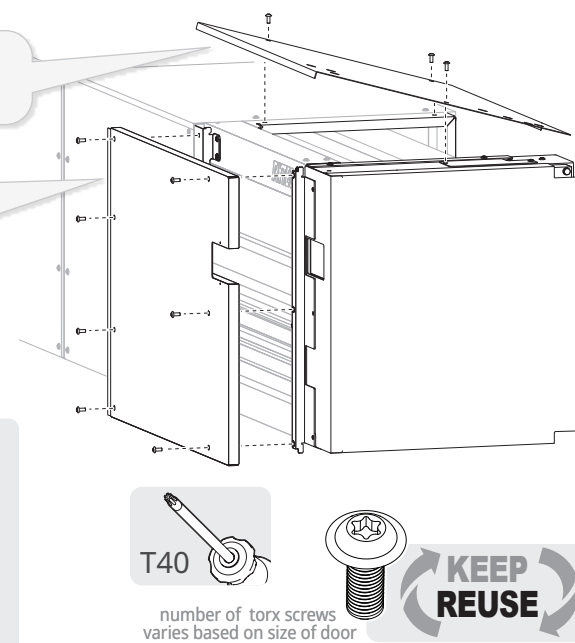
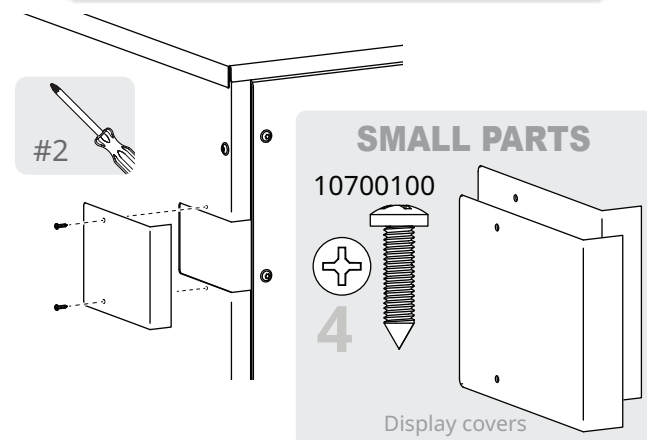


If the door has a preinstalled front hood cover, **reinstall** the front spacer brackets in front of the console covers.

3

If the door has a preinstalled flat top hood cover, **reinstall** the top panels.

If the door has a preinstalled front hood cover, **reinstall** the front panels. **Locate** the display covers and hardware in the small parts box and **install**.



Notes:
-S and -S/R doors have both top and bottom front spreaders.

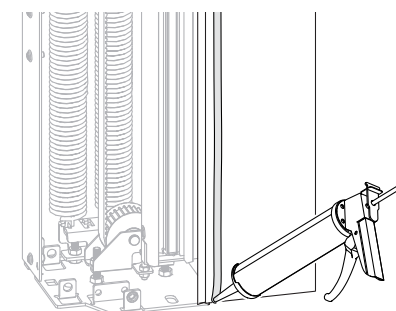
4

If necessary, use the spray paint to correct blemishes in the door finish.



5

Caulk between the door opening and the door.



6

Full vision SST doors: remove the protective plastic film from both sides of each door slat.

