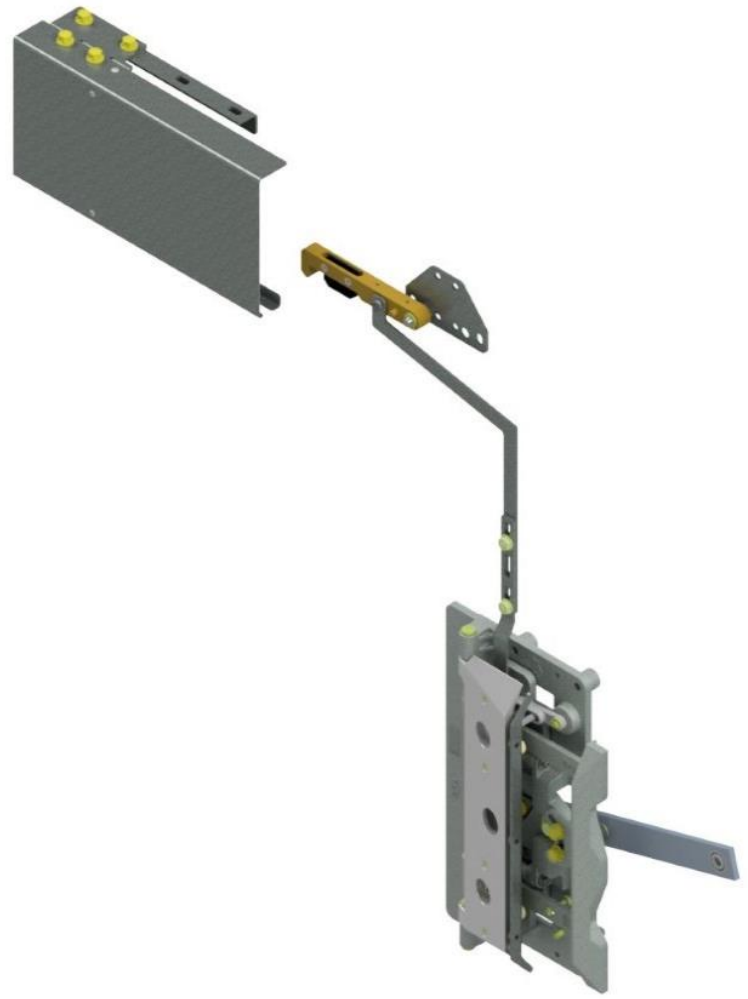
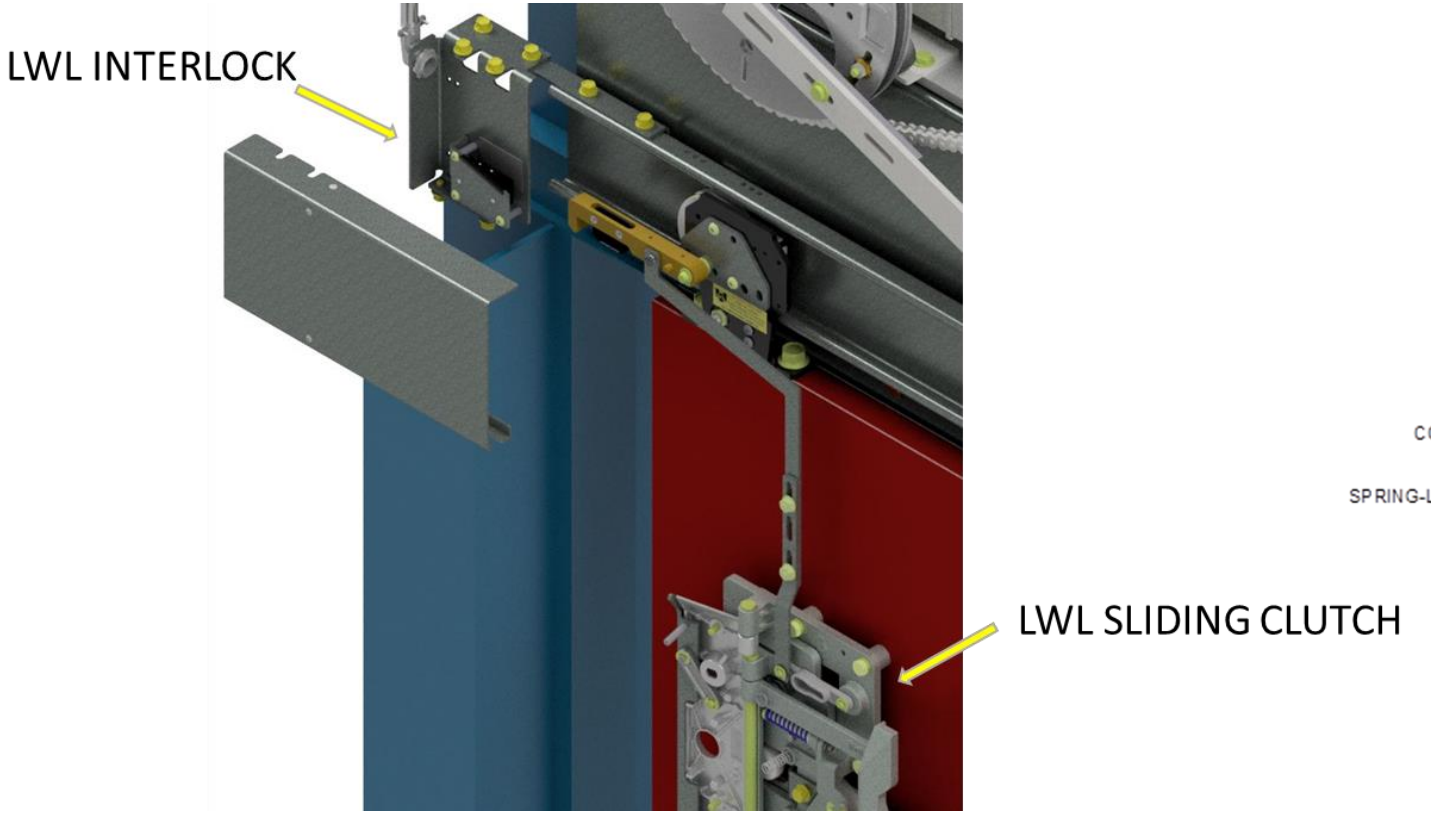
LWL Clutch and Interlock Tech Support Training

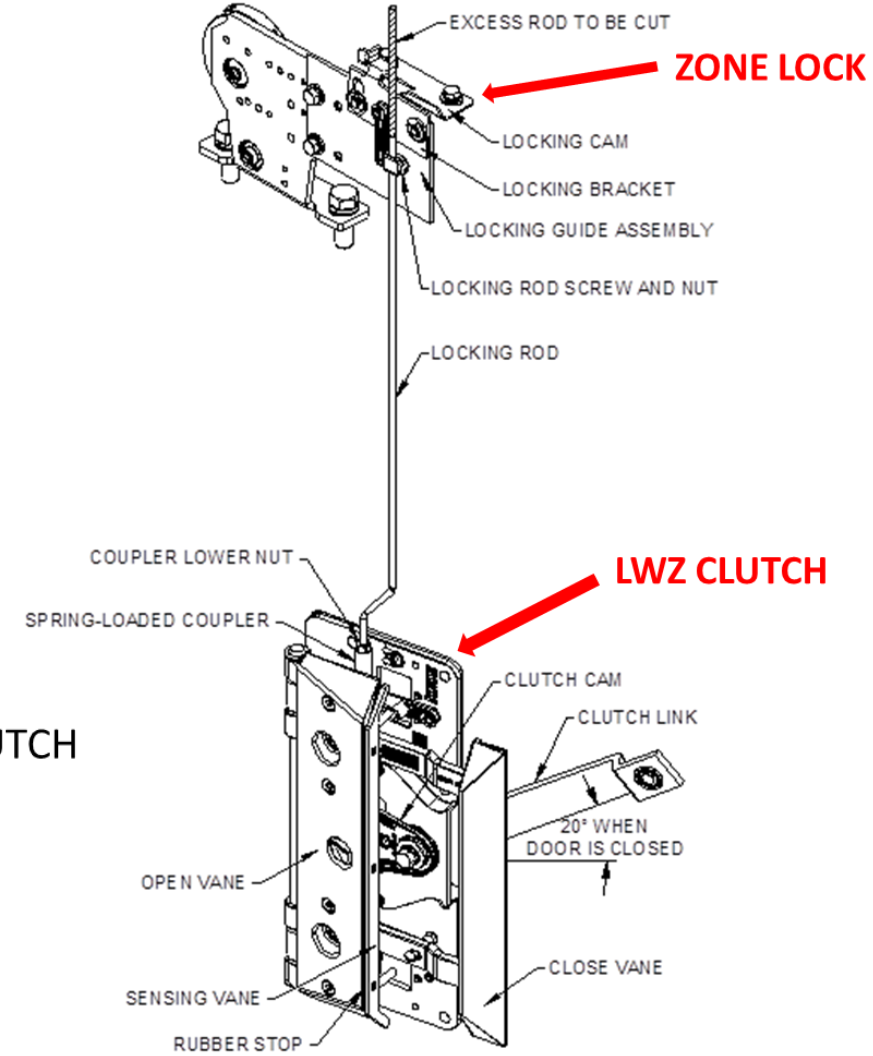


What is the LWL?

The LWL Clutch and Interlock are a drop-in replacement for the LWZ-2 Clutch, Gate Switch, and Zone Lock

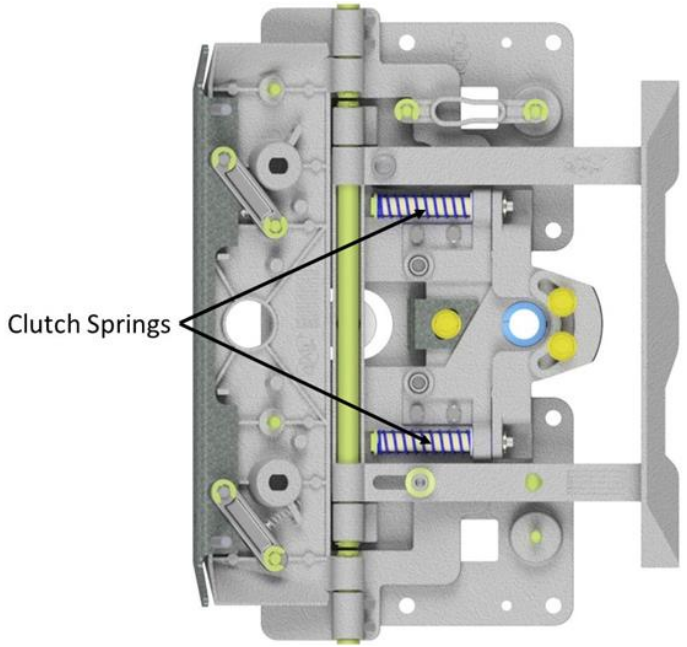
Note: not compatible with cable clutches, round elevators, MOVFE, swing doors, or LRC applications

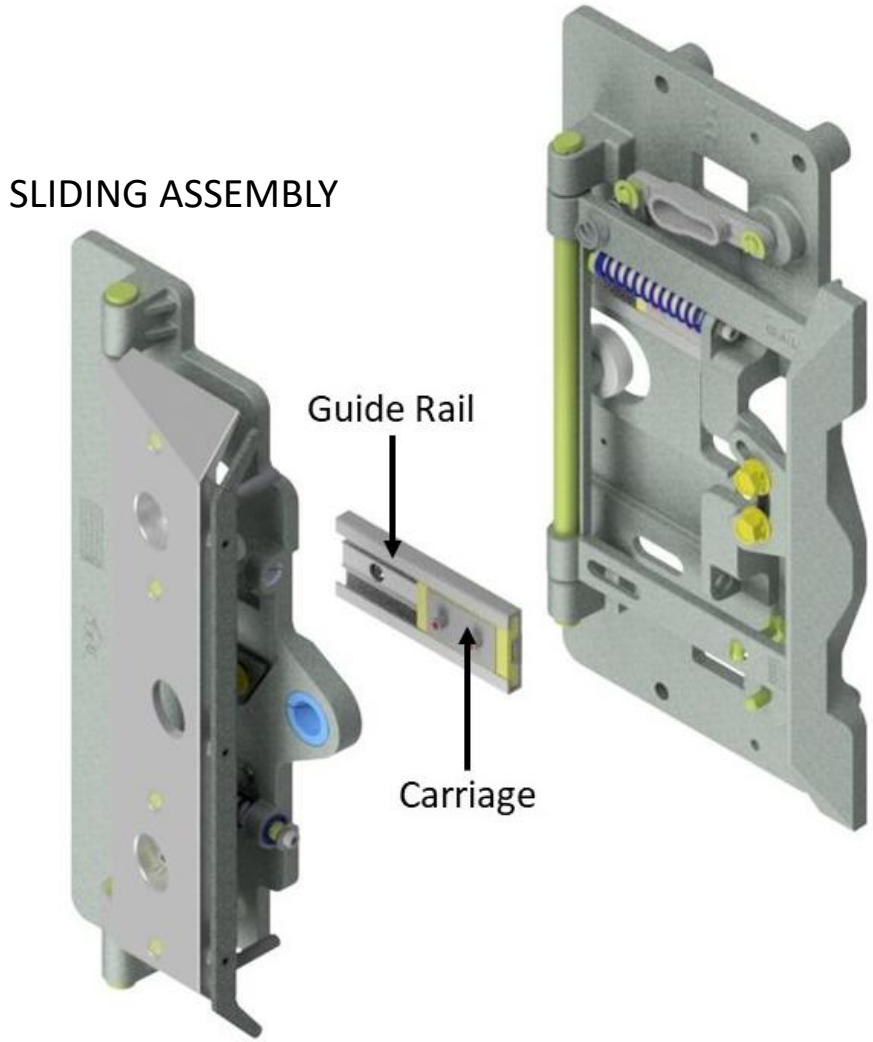




The LWL “Sliding” Clutch

- Motion is achieved with two linear bearings
- Bearings are dry running – never apply lubrication of any kind
  - They have been cycle tested to 2,000,000+ cycles with little to no wear detected
- Bearings are not field replaceable – entire clutch must be replaced if bearings are worn
- Springs return clutch to resting position – they are field replaceable
  - Center Parting springs are RED
  - Side Slide springs are BLUE

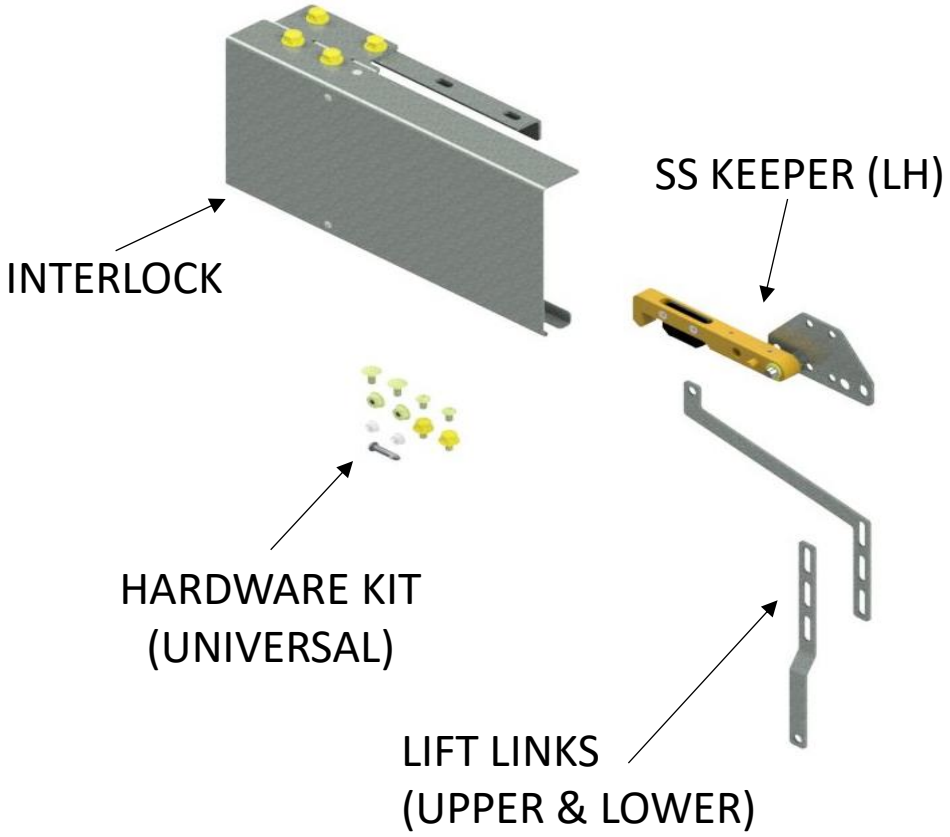




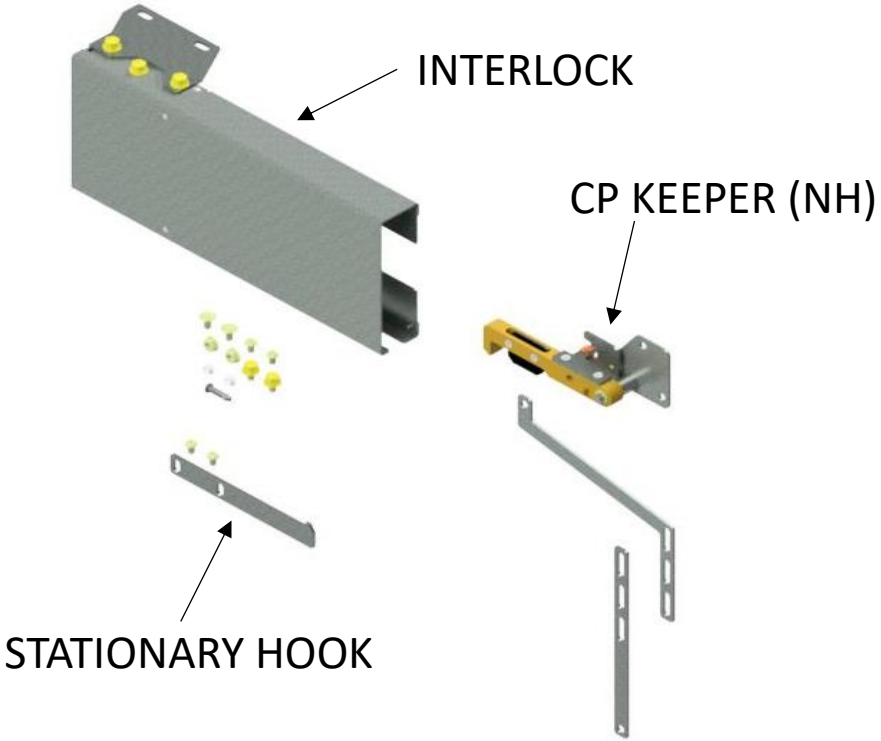
The LWL Interlock

- Available for SS, 2S, 3S, CP, and 2S CP
- Only compatible with the LWL Clutch
  - Does not work with an LWZ-2

SIDE SLIDE INTERLOCK KIT



CENTER PARTING INTERLOCK KIT



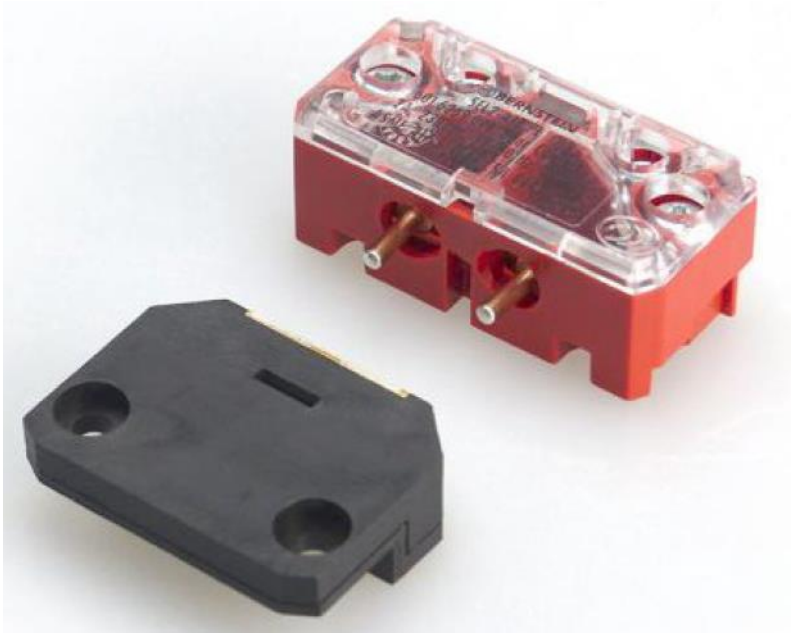
Why is the LWL better than the LWZ-2?

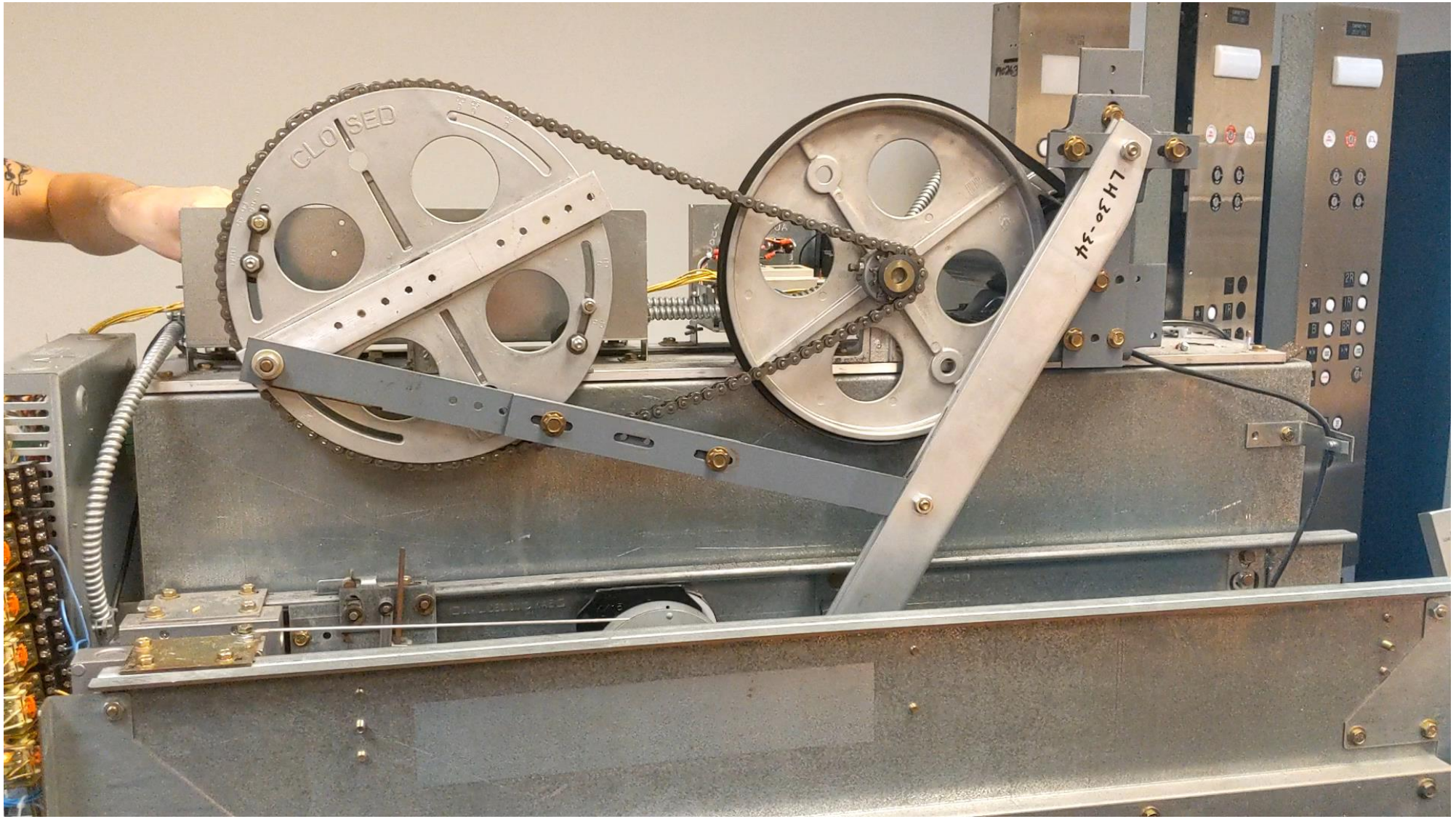
Safety!

- Customers can no longer bypass the zone lock

ZONE LOCK REMOVED BY MECHANIC

- Interlock uses off the shelf contacts
  - UL listed
  - ASME A17.1 certified
  - Easily replaceable





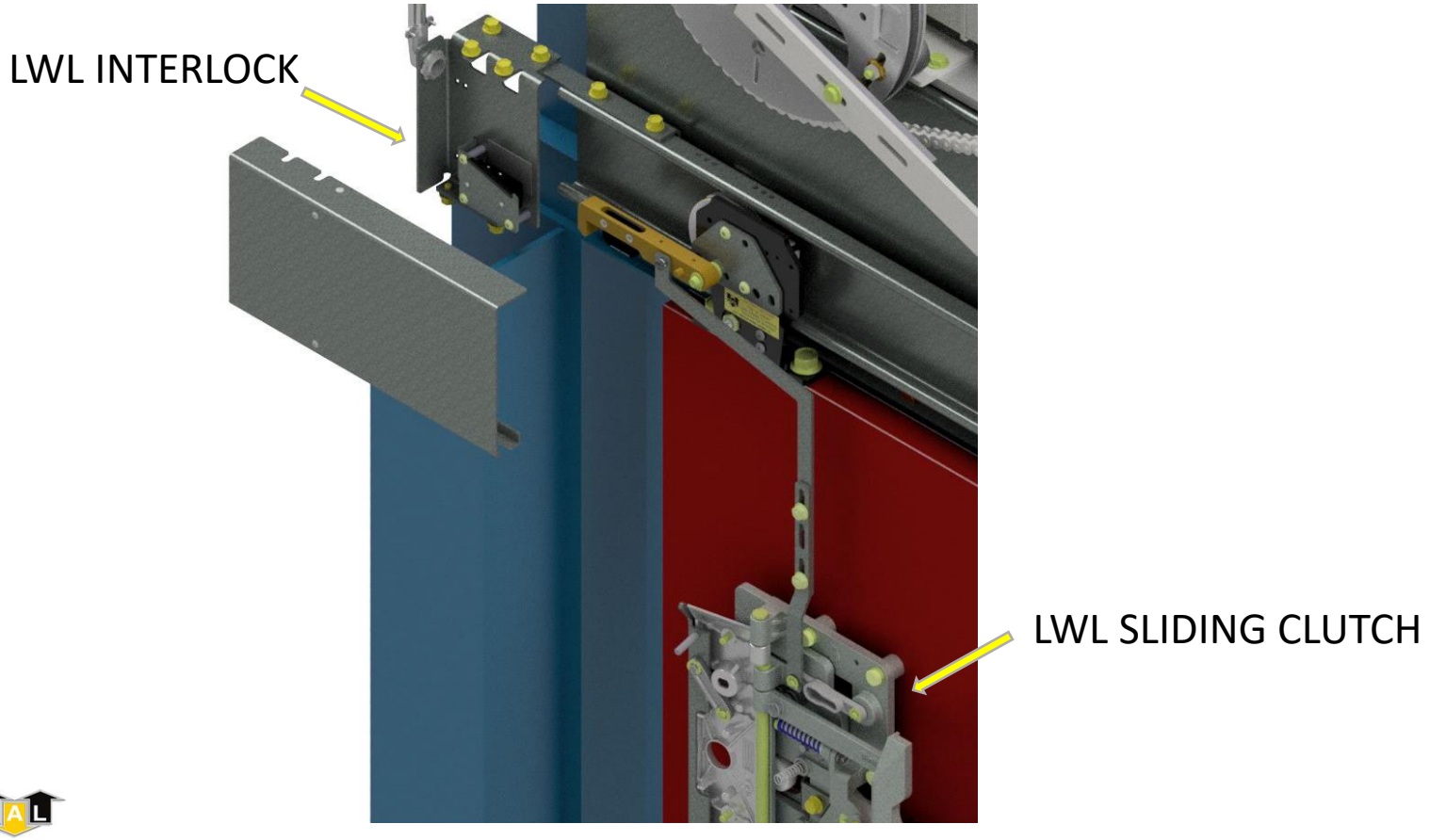
A typical MOVFR set up with gate switch/zone lock.
Note how the car door moves about ½” before the roller engages with the sensing vane on the clutch.

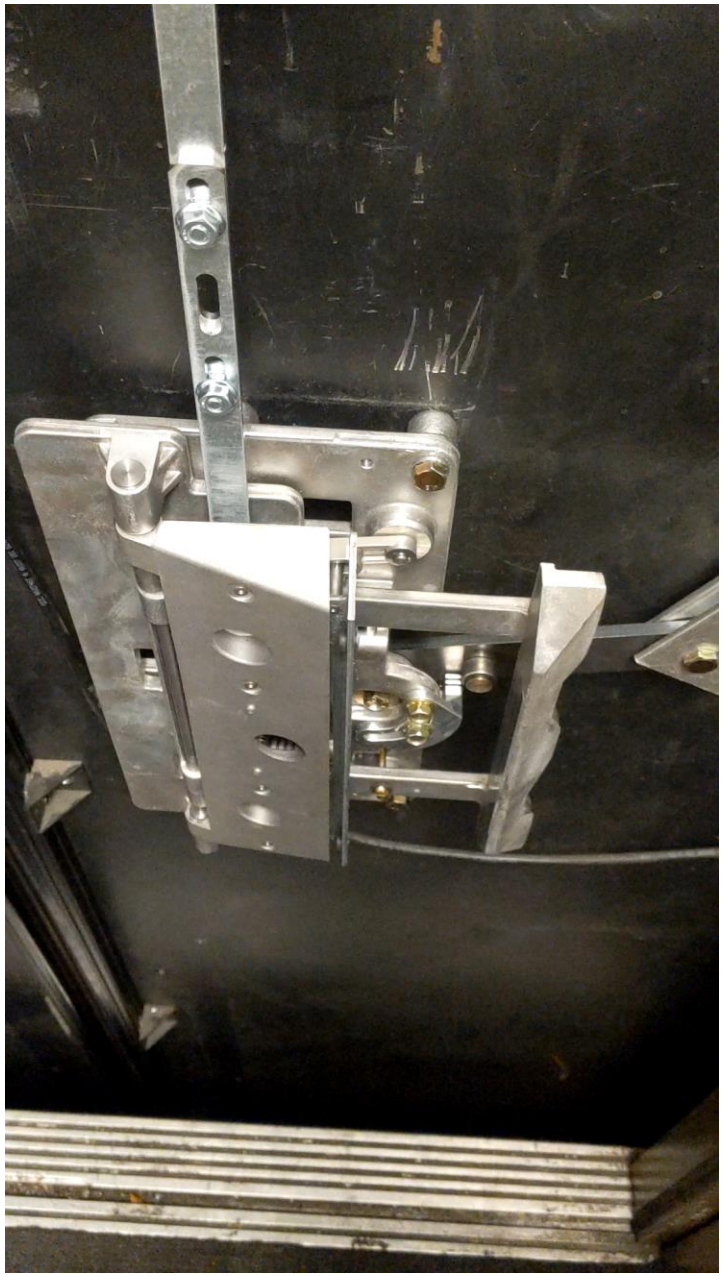
HOW THE LWL SLIDING CLUTCH & INTERLOCK WORKS

With the LWL Sliding Clutch, we have eliminated the ½” of door movement by incorporating that lateral motion into the clutch.

The video on the right displays the sliding motion.

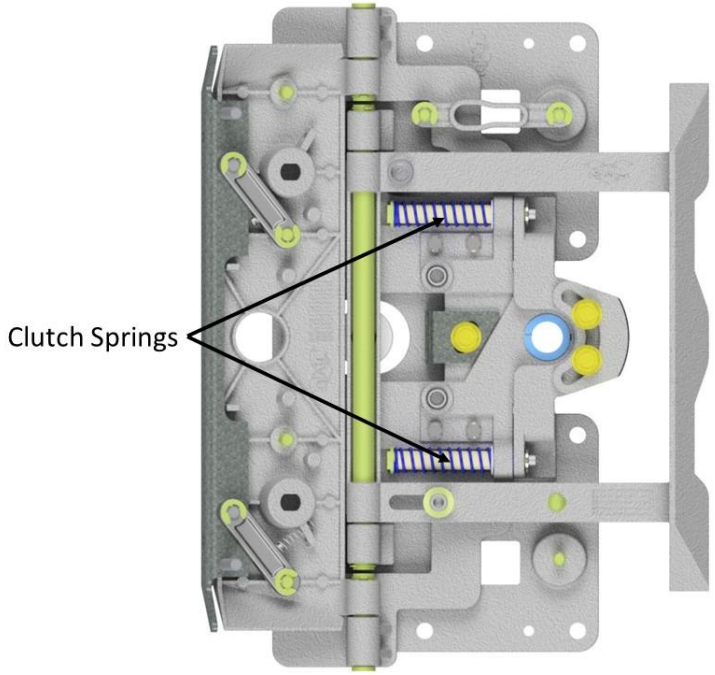
By eliminating the door movement, we can combine the gate switch and zone lock into a single electro-mechanical interlock.

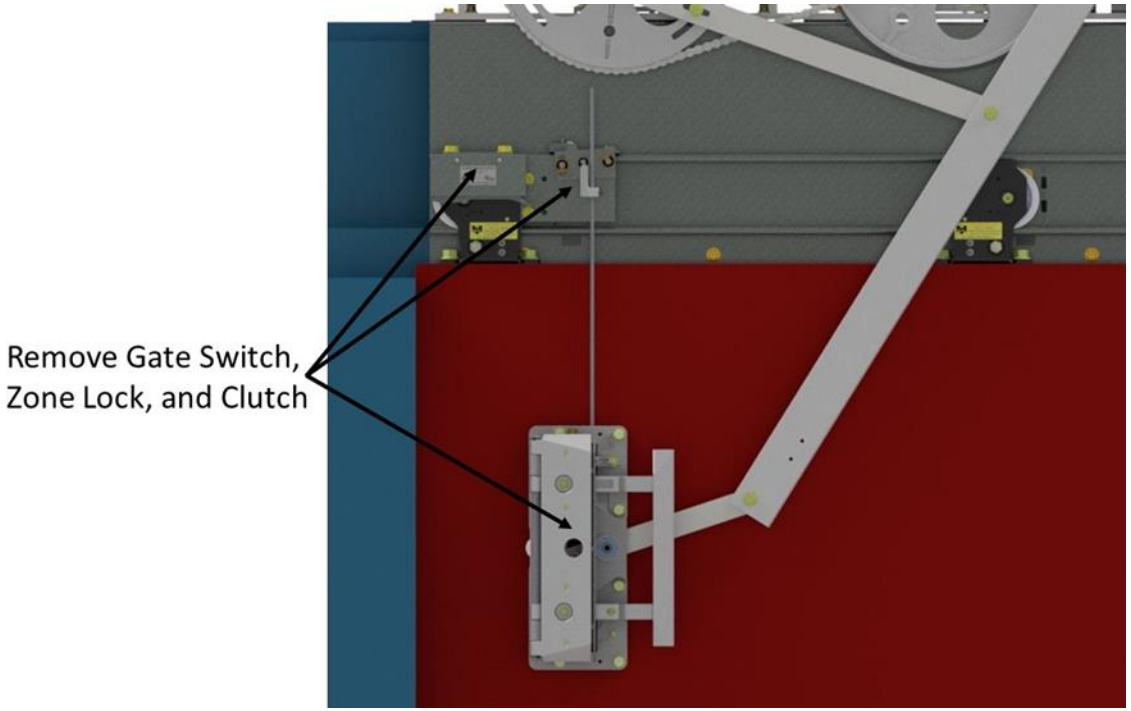




LWL Installation – Side Slide

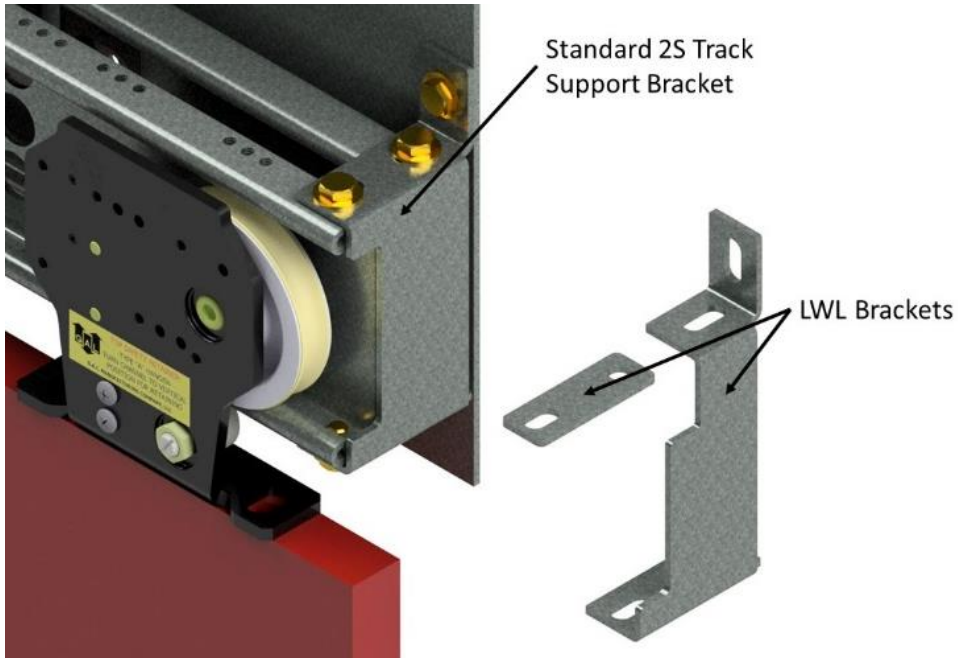
- Remove existing LWZ-2, gate switch, and zone lock.
- Do not remove hatch door equipment. The LWL clutch is compatible with standard GAL MOH rollers.
  - Adjustment of MOH rollers may be necessary after installing the LWL clutch.
- Verify that the springs are BLUE

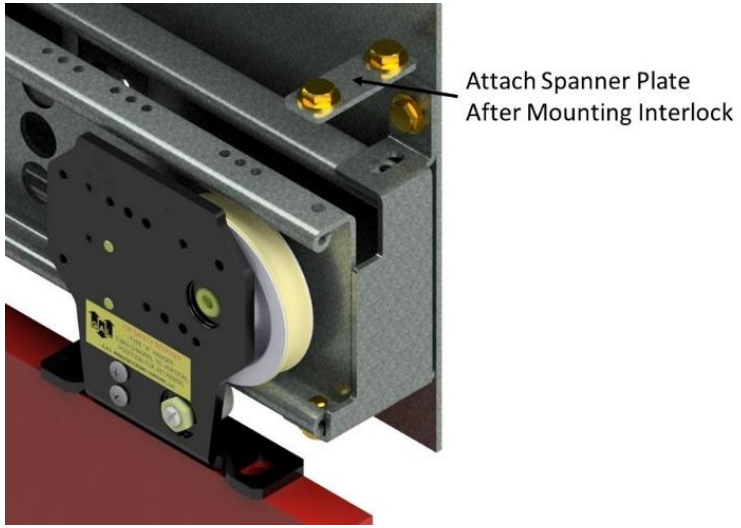


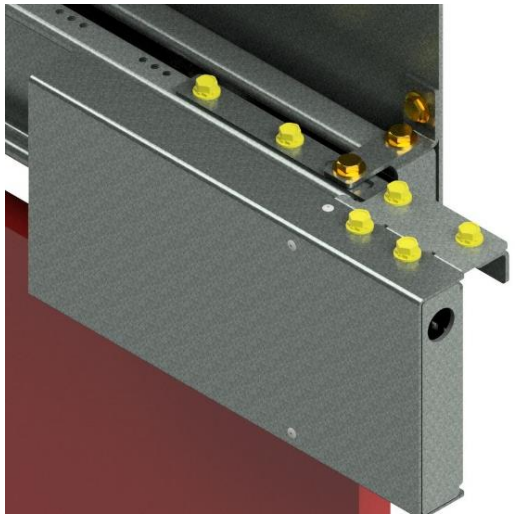


LWL Installation – 2S/3S Side Slide

- If installing a 2S or 3S side-opening interlock, the standard track support bracket on the daylight end of the track must be replaced with the LWL bracket.





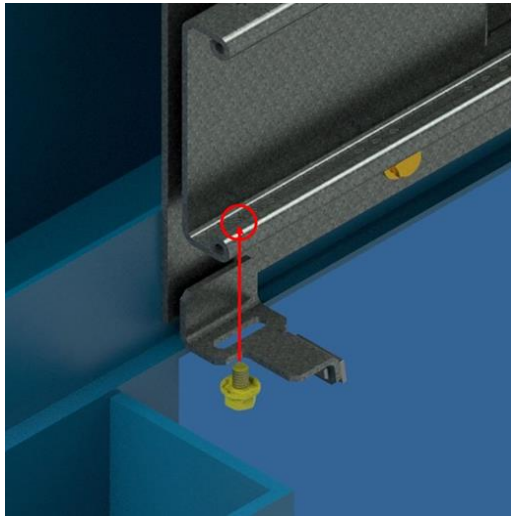


LWL Clutch Installation – Side Slide

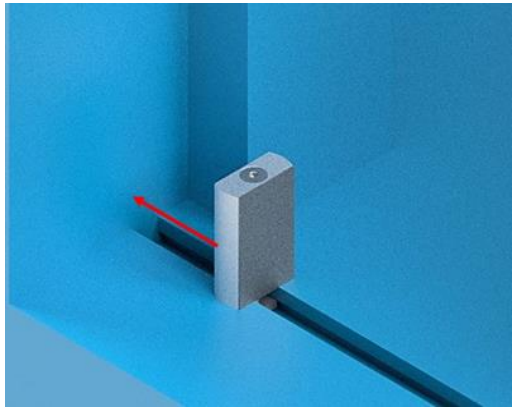
1. Per GAL templates the car door lap should be spaced out from 3/4” to 1 1/4” to match the hatch door lap.

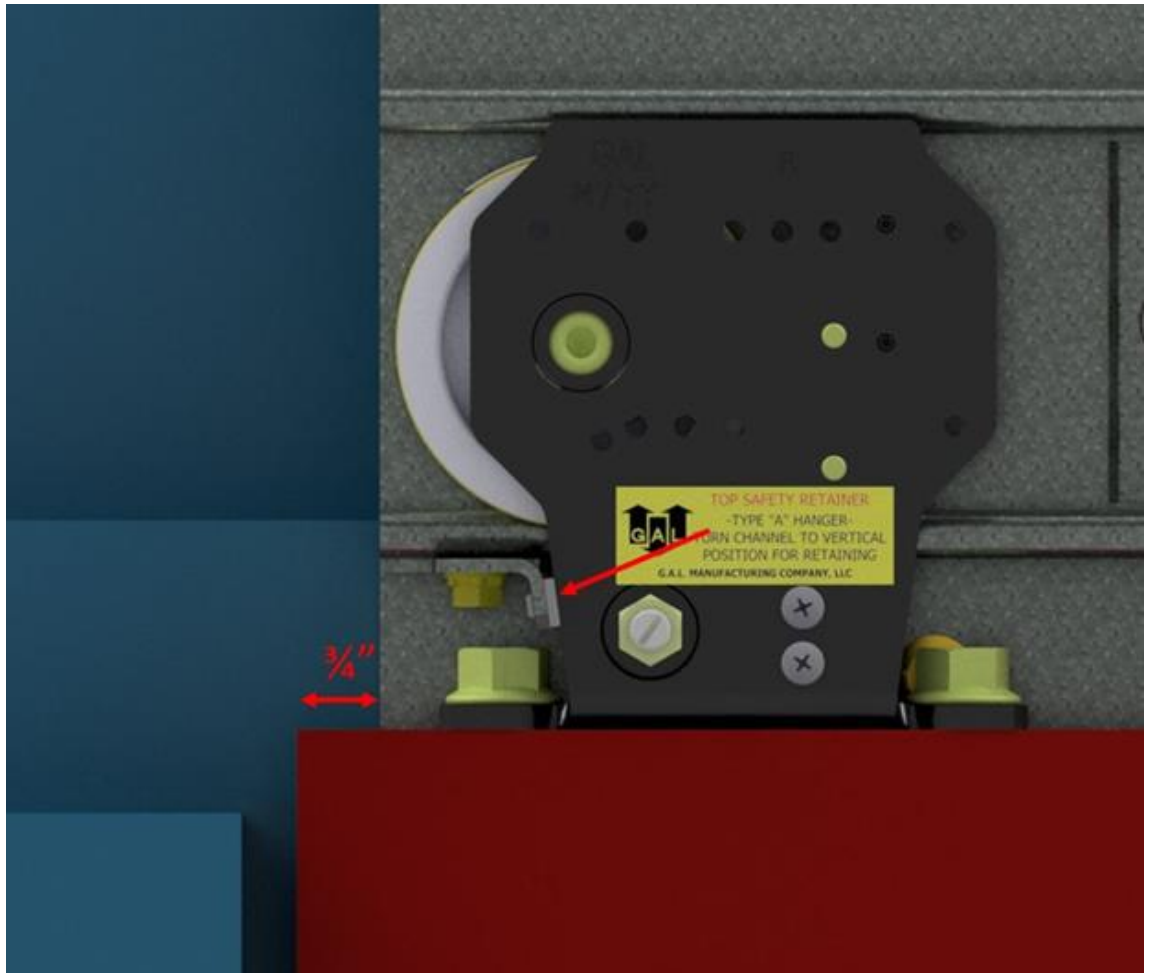
   Mount the END STOPS to the bottom of the track and in the car door sill as shown below:

Track mounted end stop:



Sill mounted end stop:



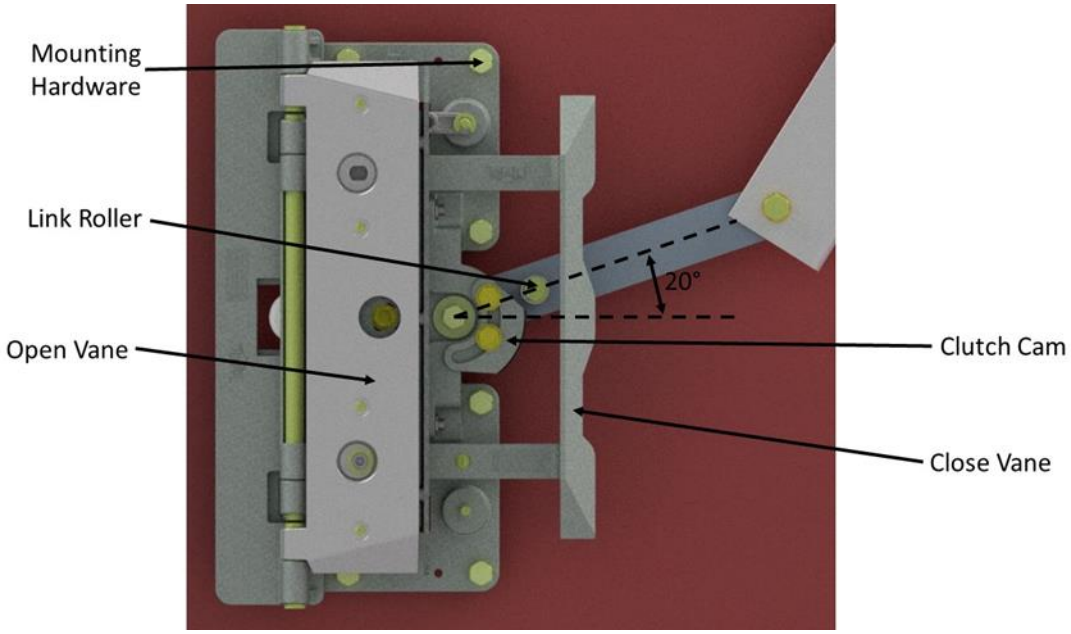


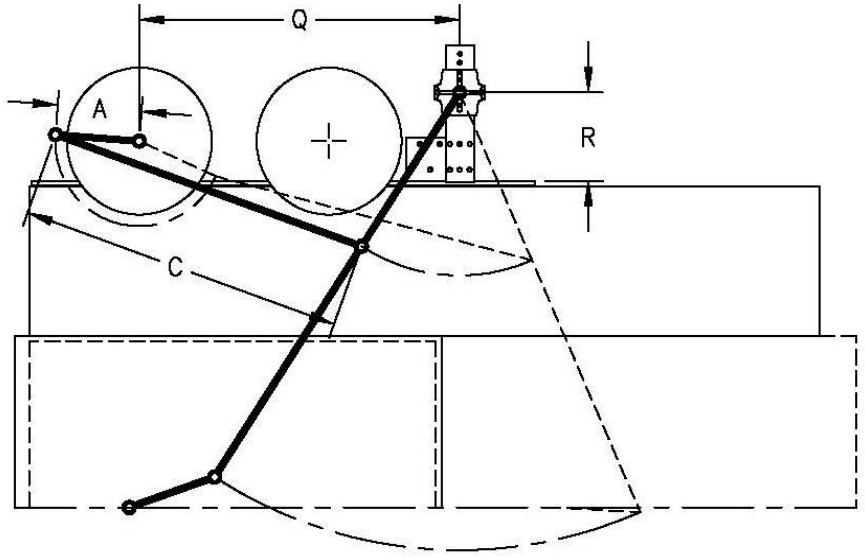
LWL Clutch Installation – Side Slide

2. Mount the clutch to the door and space appropriately using provided hardware and spacers

3. Use the Operator Data Tables available at www.gal.com/products/door-equipment/operators/ for a starting point of the A, C, Q, and R dimensions

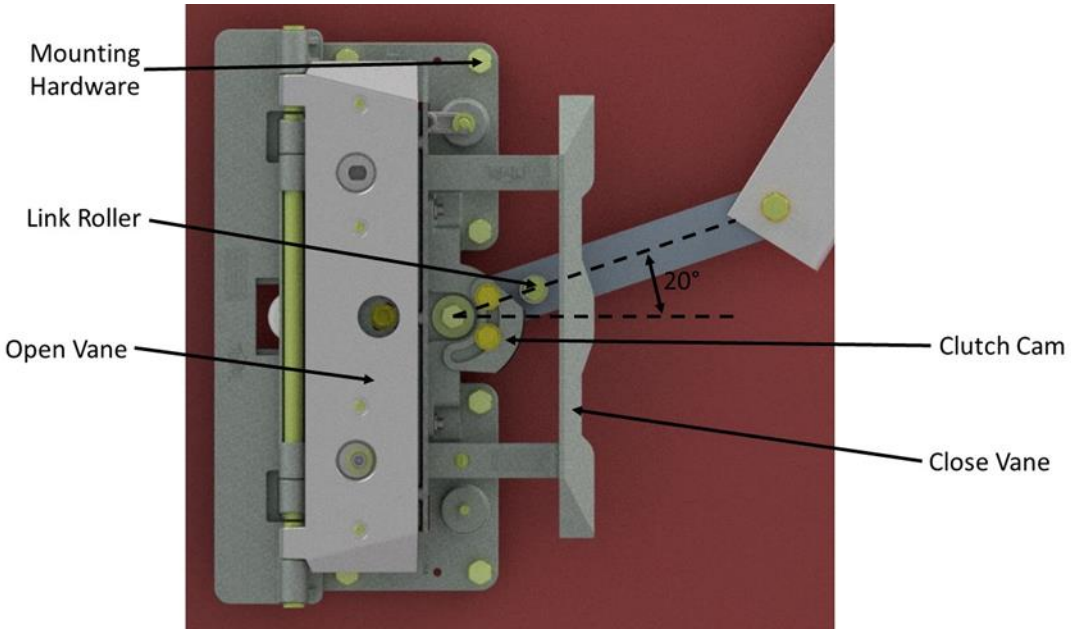
4. With the car door closed, adjust the drive arm using the R and Q dimensions so the clutch link is at ~20° above horizontal.

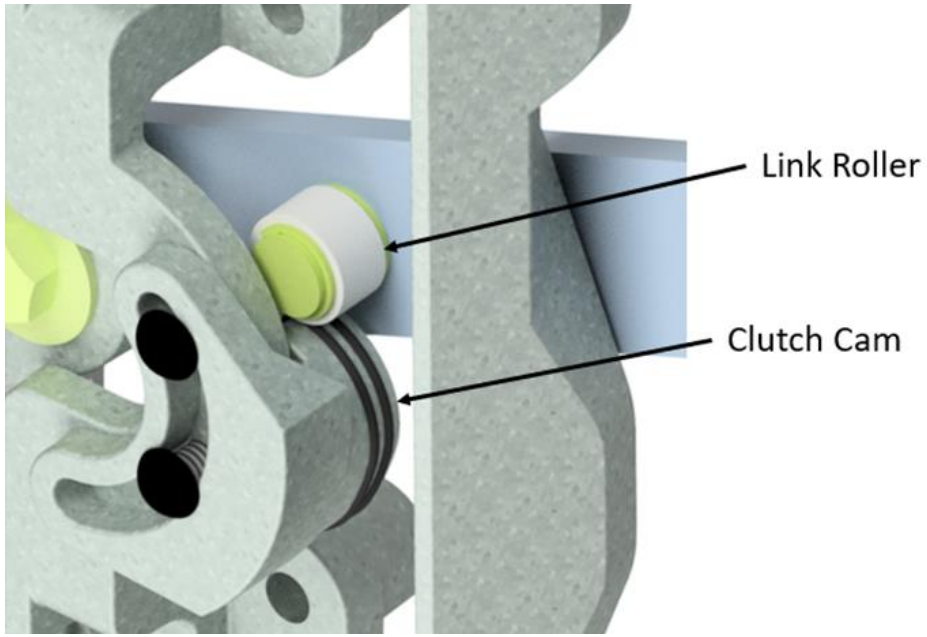




LWL Clutch Installation – Side Slide

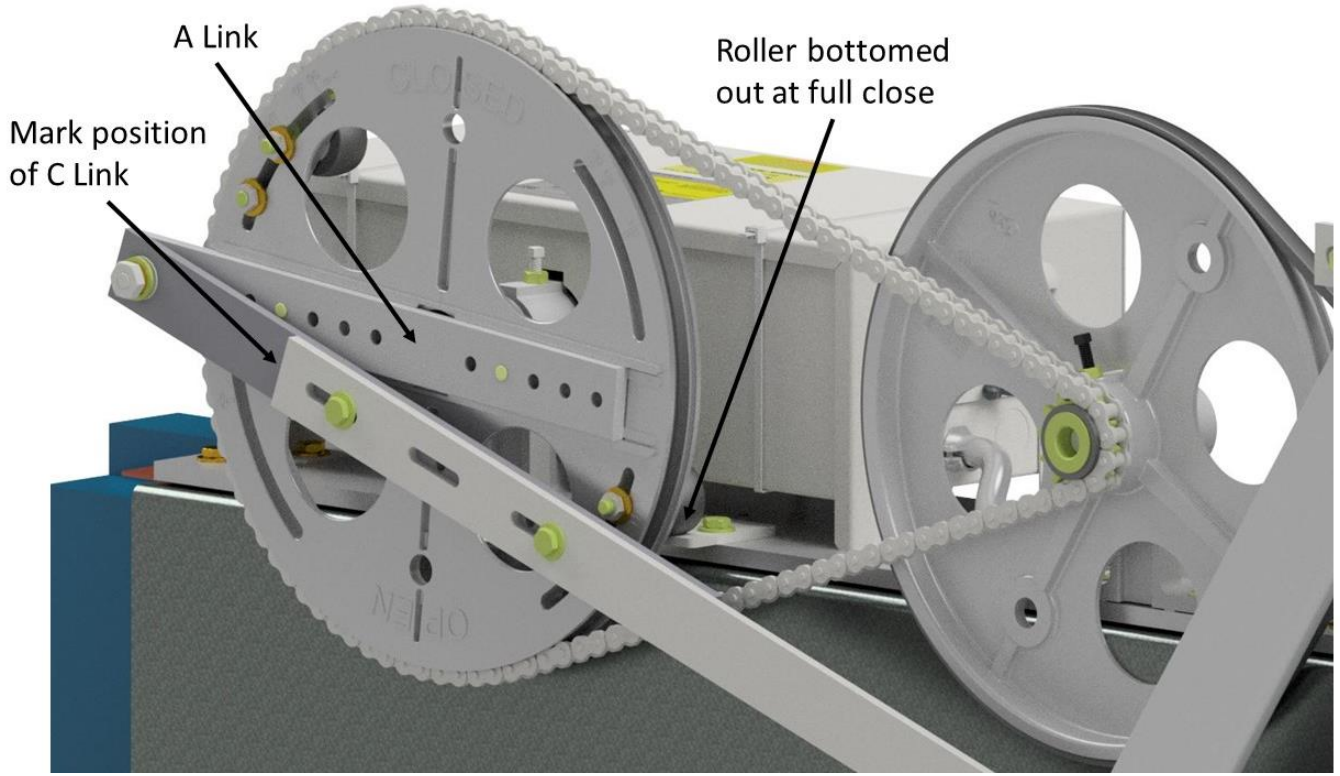
5. Open the car door and make sure the clutch link does not bottom out against the clutch when the drive arm is vertical.
6. Close the car door and adjust the clutch cam so the link roller can pass over the cam when the springs are compressed





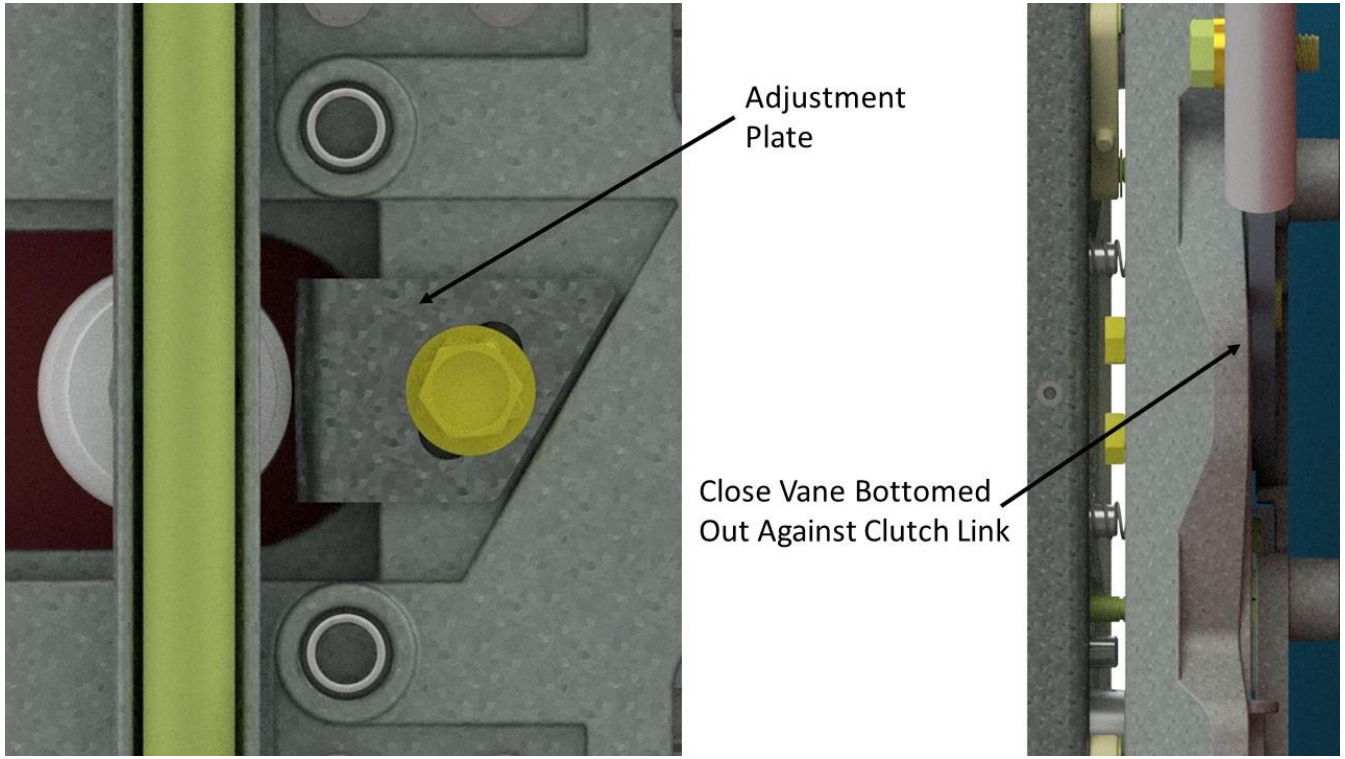
LWL Clutch Installation – Side Slide

7. Adjust the C-link so the clutch springs will fully compress when the operator drive wheel bumper is bottomed out. Mark C-link position.
8. Open the car door and adjust the C-link so the car door is aligned with the return jamb. Mark C-link position and adjust C-link halfway between the marks.
9. Fully close the car door and adjust the A-link so the clutch springs will fully compress when the operator drive wheel bumper is bottomed out.



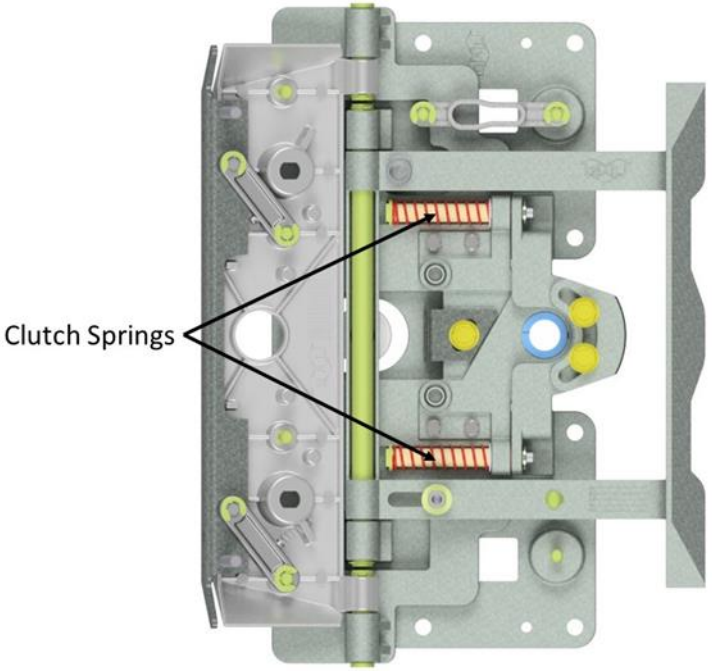
LWL Clutch Installation – Side Slide

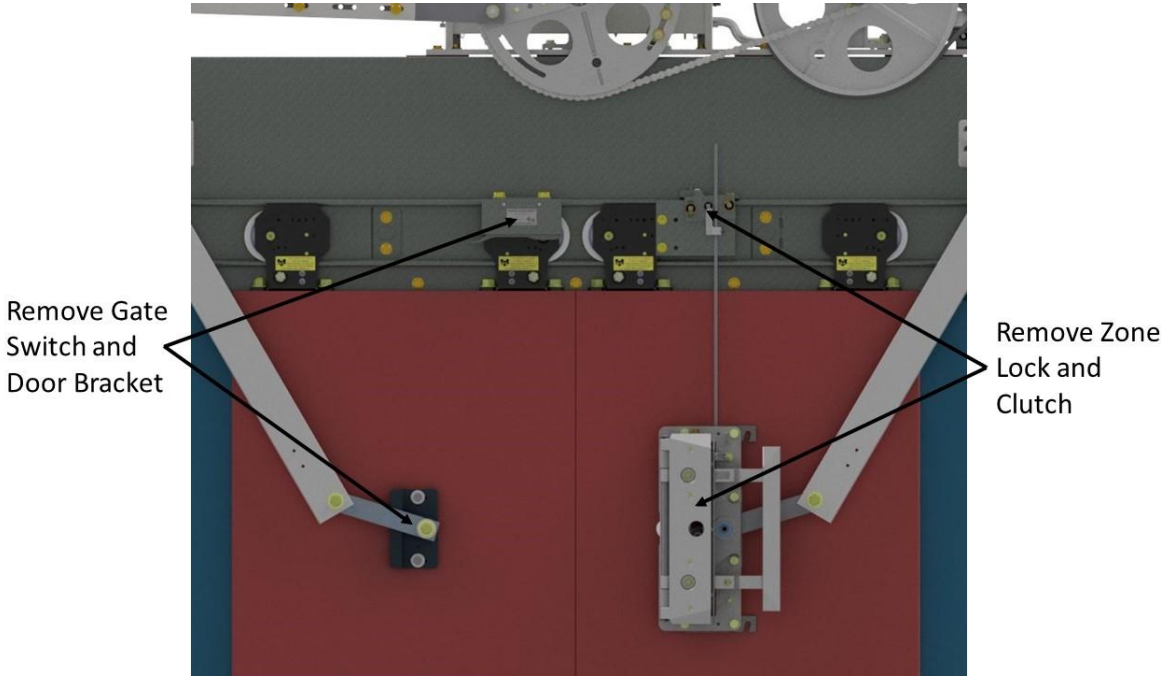
10. Manually cycle the car door to ensure proper adjustment.
11. With the car door fully closed, adjust the close vane adjustment plate so that the close vane is fully retracted



LWL Clutch Installation – Center Parting

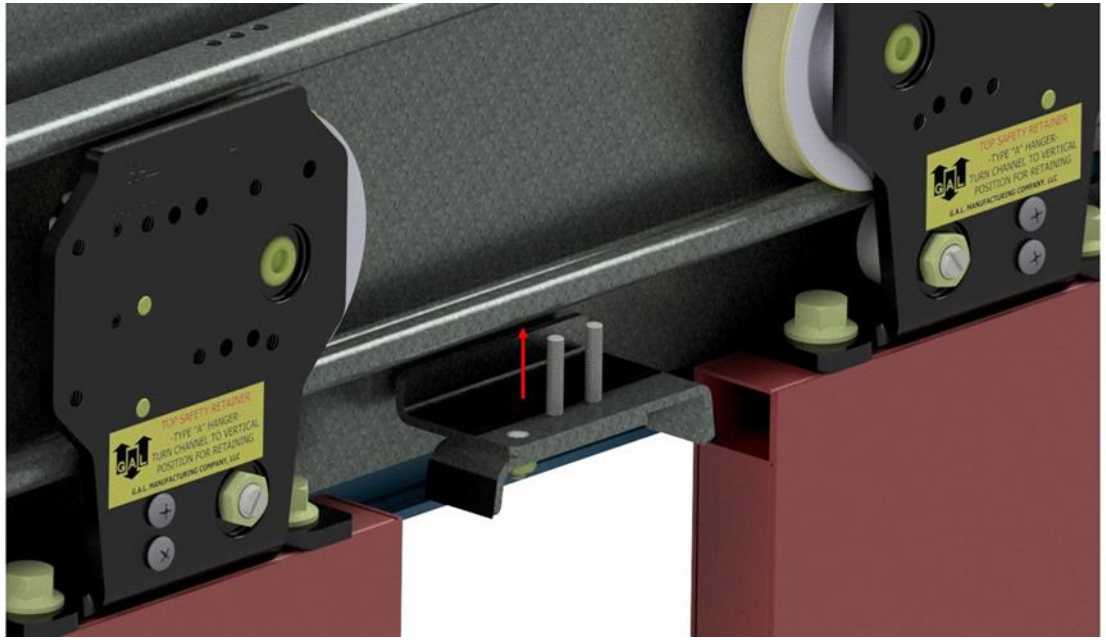
- Remove existing LWZ-2, gate switch, and zone lock.
- Do not remove hatch door equipment. The LWL clutch is compatible with standard GAL MOH rollers.
  - Adjustment of MOH rollers may be necessary after installing the LWL clutch.
- Verify that the springs are RED

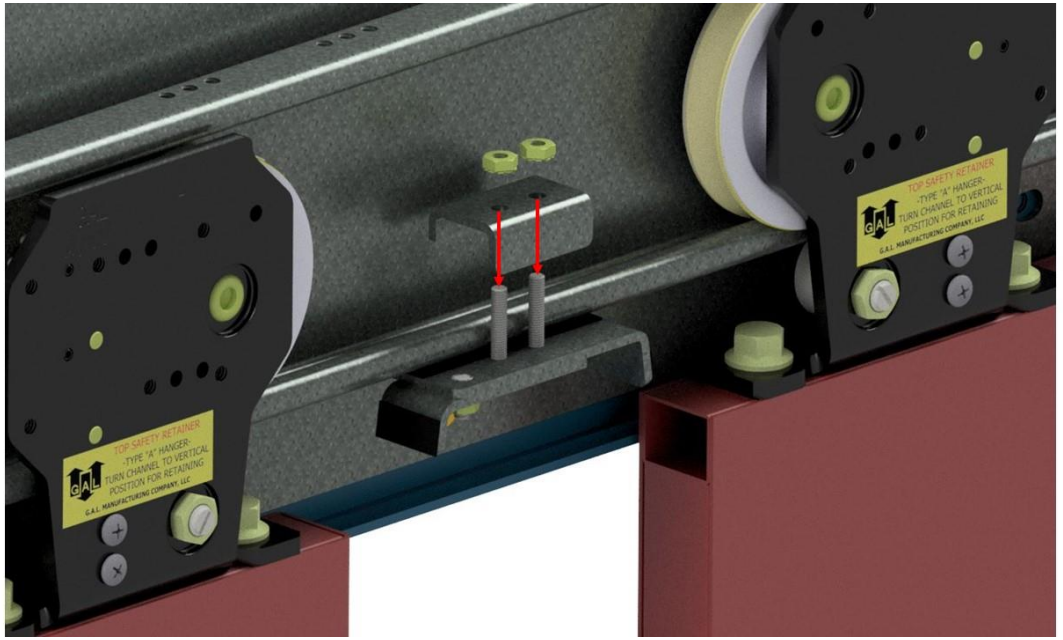




LWL Clutch Installation – Center Parting

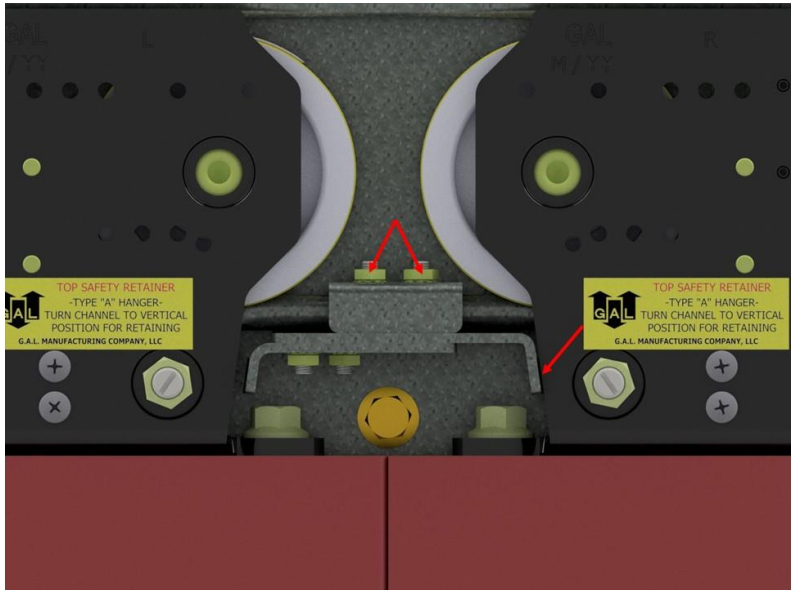
1. Before installing the LWL clutch and door bracket, the center-stop must be installed and setup on the car door track.
2. Hold the bottom piece of the center-stop against the bottom of the track in the center of the track.
3. Attach the top piece and thread on the nuts. Leave the nuts loose so the center-stop can still be positioned on the track.



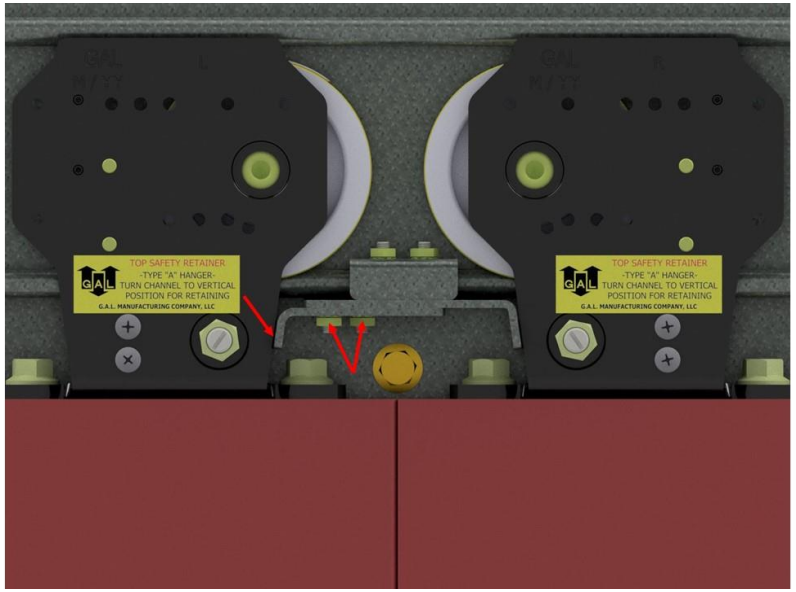


LWL Clutch Installation – Center Parting

4. Close the car doors and line them up with the centerline of the door opening. Push the center-stop against the right sheave and tighten the top nuts, shown in **Figure 15**, to lock the center-stop in place.

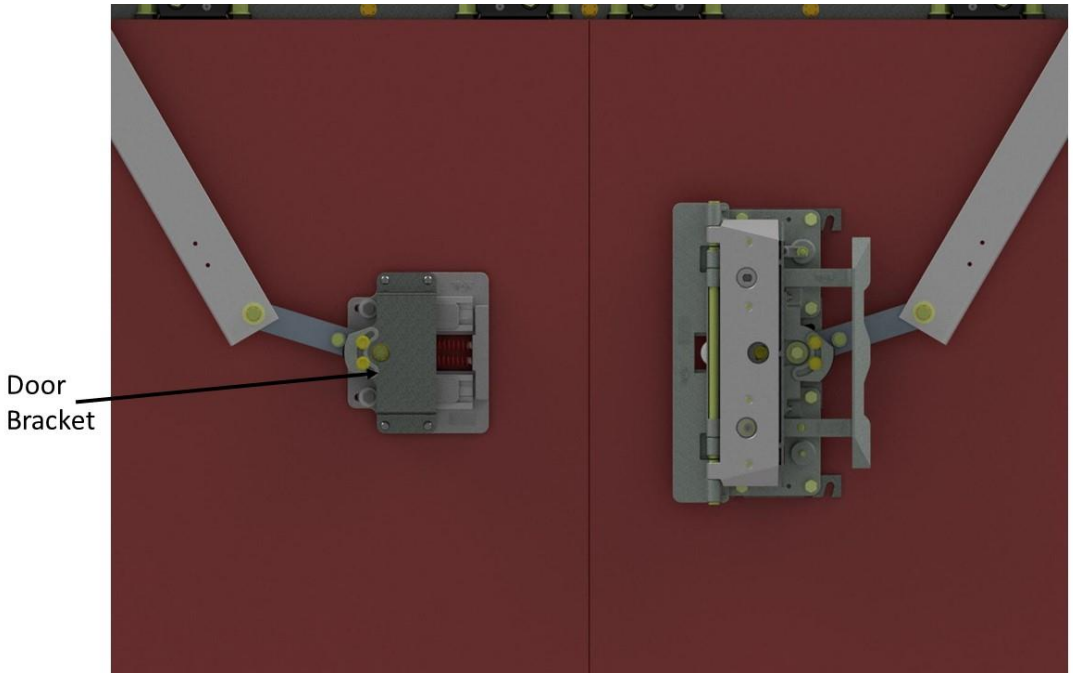


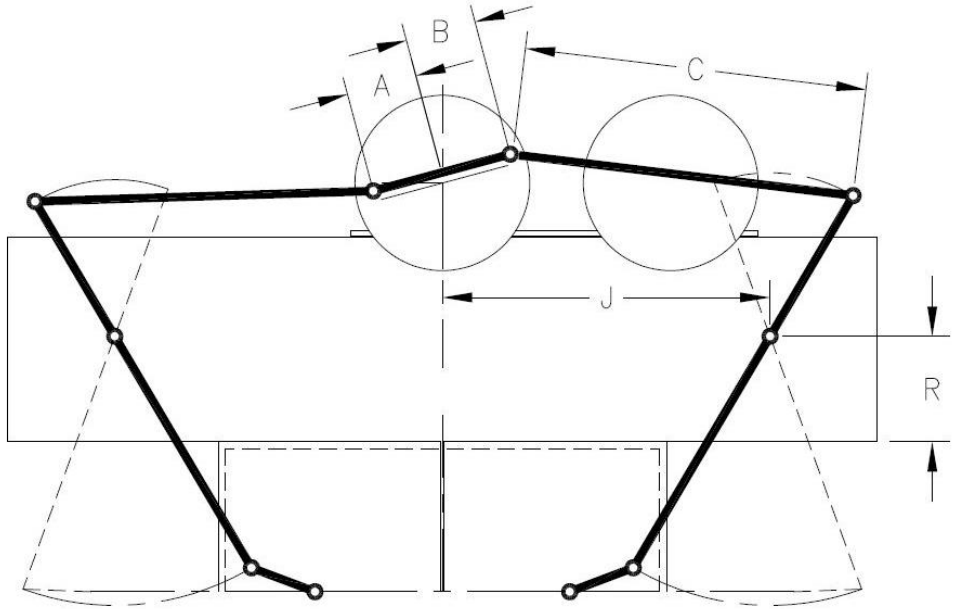
5. Loosen the bottom nuts and slide the left stop up against the left sheave as shown in **Figure 16**. Ensure that the front edge of the bottom pieces is flush when the bottom nuts are tightened down as shown in **Figure 17**.



LWL Clutch Installation – Center Parting

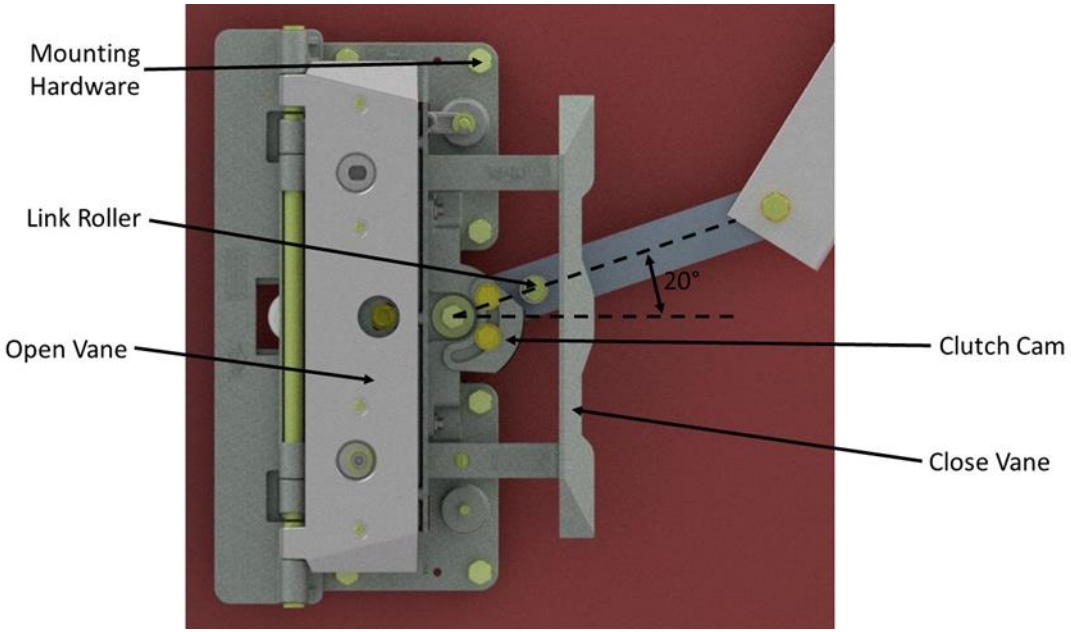
6. Mount clutch and door bracket to the car doors using provided hardware
7. Use the Operator Data Tables available at www.gal.com/products/door-equipment/operators/ for a starting point of the A, B, C, J, and R dimensions
8. With the car doors closed at centerline, adjust the R and J dimensions so the clutch and door bracket links are at ~20° above horizontal.

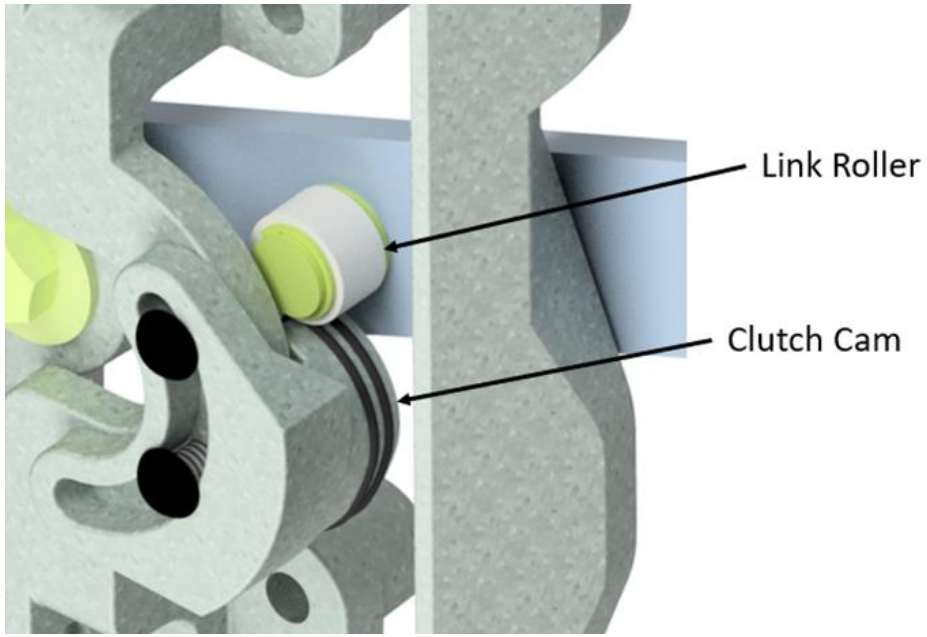




LWL Clutch Installation – Center Parting

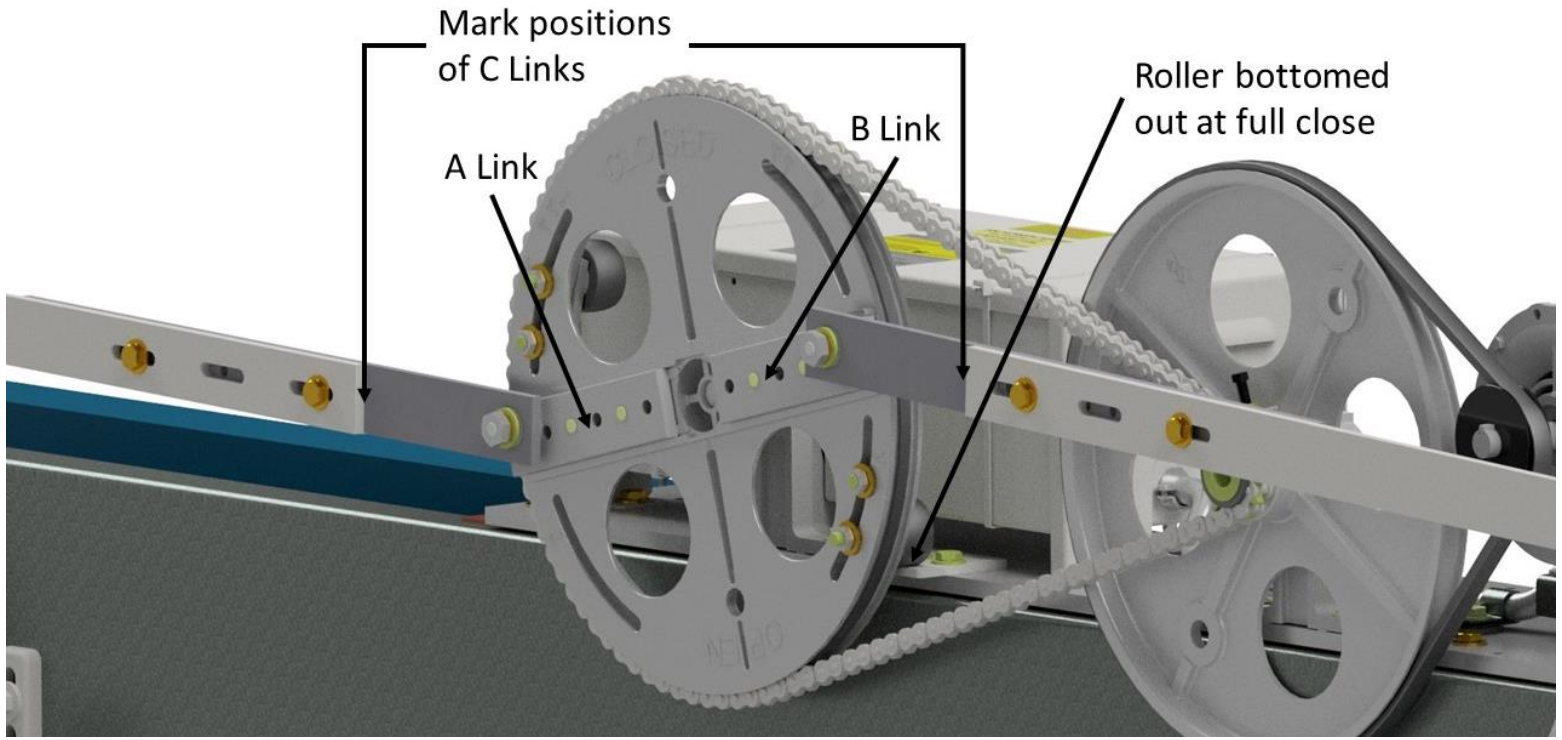
9. Open the car doors and make sure the clutch and door bracket links do not bottom out when the drive arms are vertical.
10. Close the car doors and adjust the clutch and door bracket cams so the link rollers can pass over the cams when the springs are compressed.





LWL Clutch Installation – Center Parting

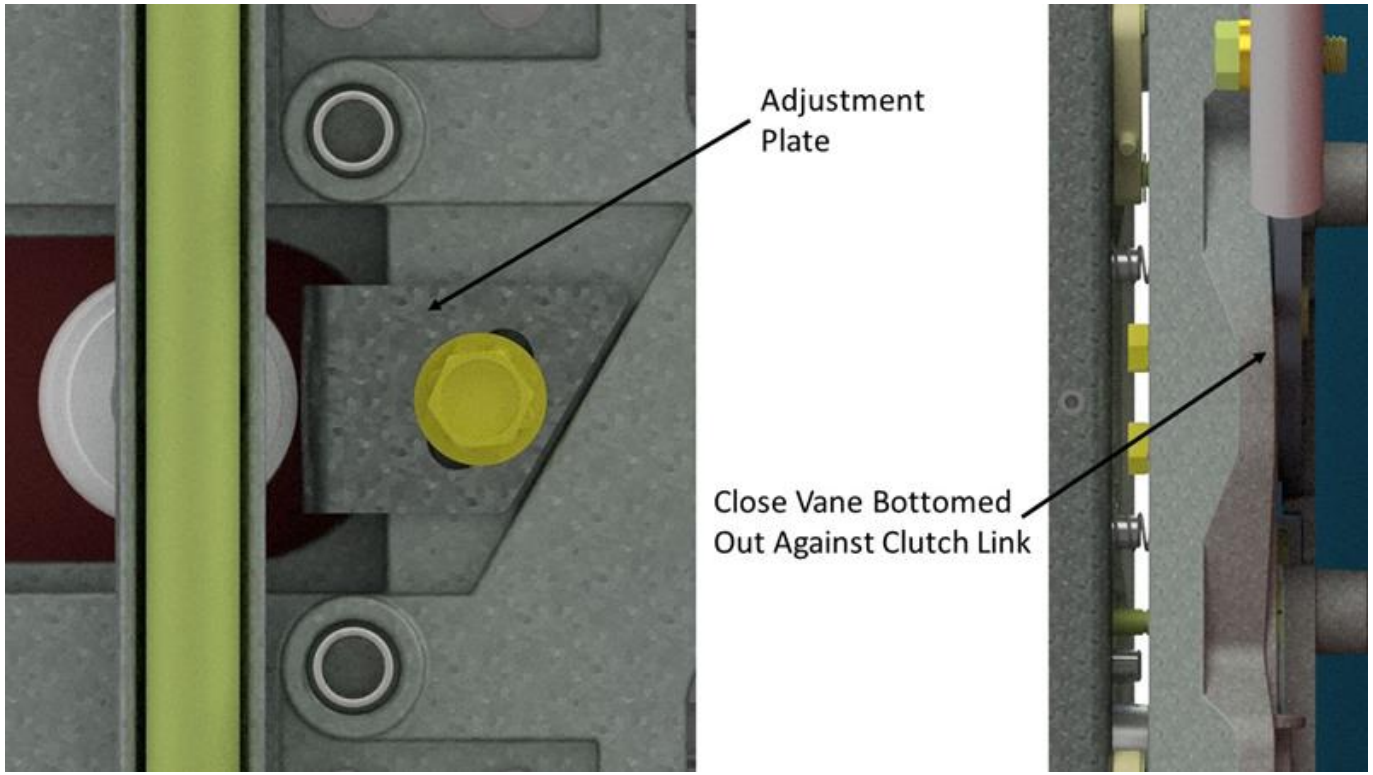
11. Adjust the C-links so the clutch and door bracket springs will fully compress when the operator drive wheel bumper is bottomed out. Mark C-link positions.
12. Open the car doors and adjust the C-links so the car doors are aligned with the return jambs. Mark C-link positions and adjust C-links halfway between the marks.
13. Fully close the car door and adjust the A and B-links so the clutch and door bracket springs will fully compress when the operator drive wheel bumper is bottomed out.



LWL Clutch Installation – Center Parting

14. Manually cycle the car doors to ensure proper adjustment.

15. With the car doors fully closed, adjust the close vane adjustment plate so that the close vane is fully retracted

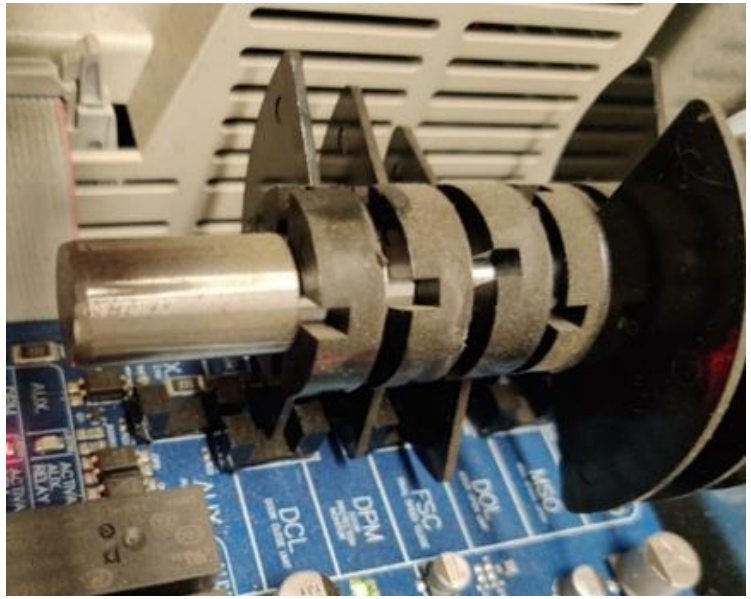


LWL Clutch Installation – Operator Adjustments

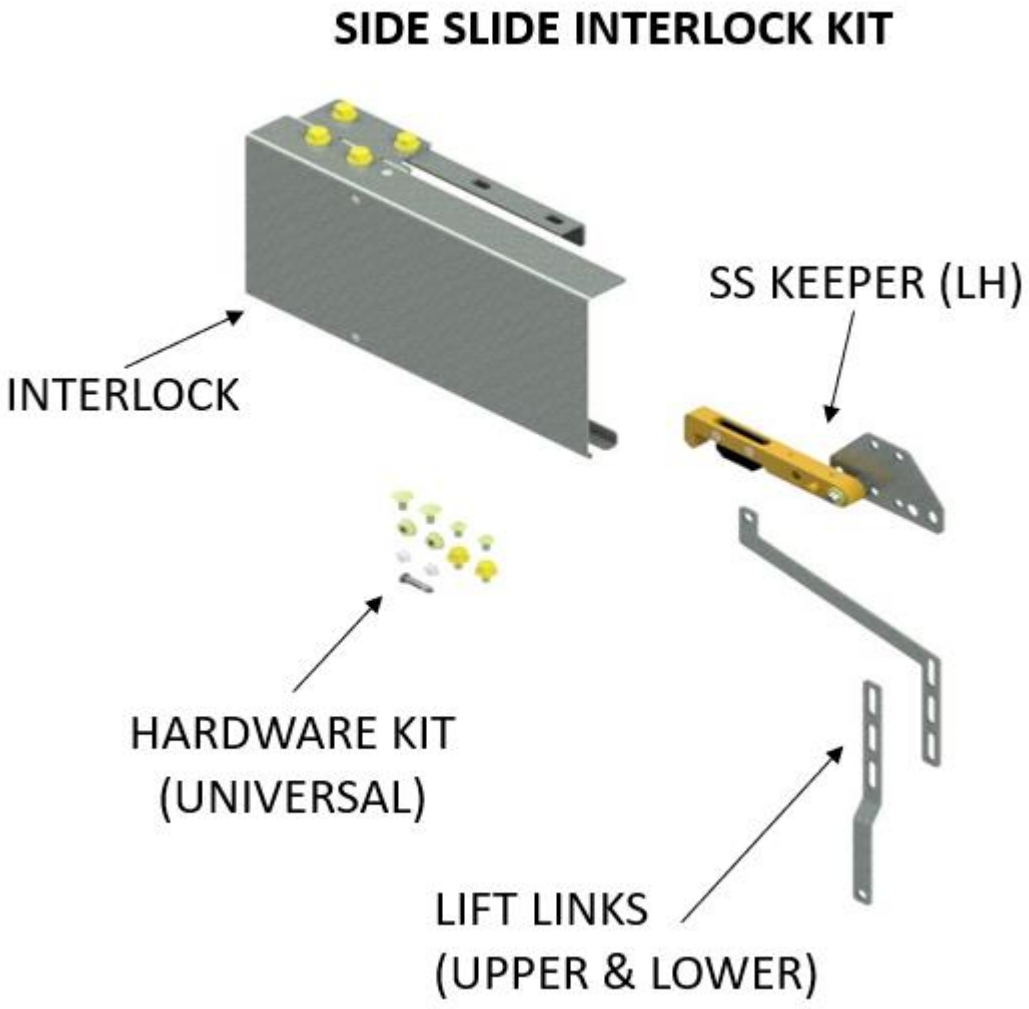
- The close holding torque (Pr# 1) must be increased using the Parameter Unit.
  - Start at 5% and increase the torque by 0.5% increments until the clutch expands fully.
  - Do not set the holding torque above 7%. This could cause the motor and/or drive to overheat.

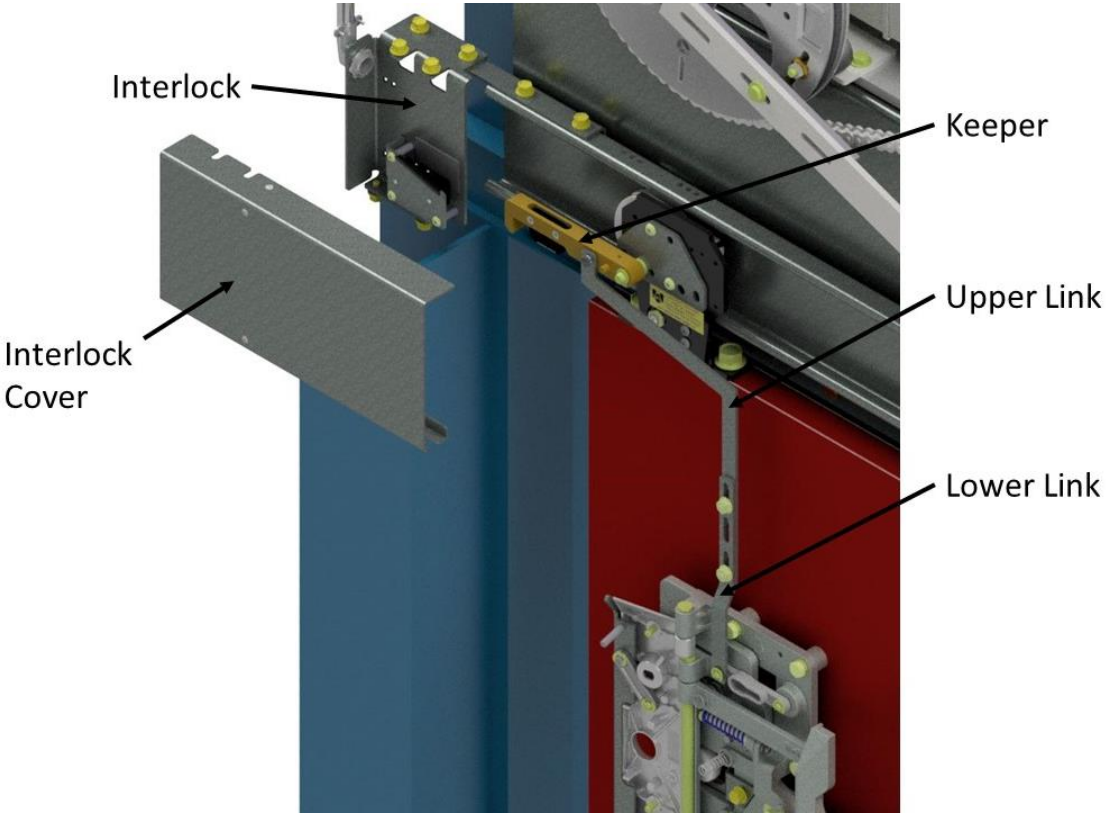
LWL Clutch Installation – Operator Adjustments

1. Set the toggle switches to CAM SETUP and MAN.
2. Manually close the car door(s) so they are against the door jamb for side-opening or each other for center-parting.
3. Adjust the DCL optical cam so the DCL LED is lit.
4. Flip the top toggle switch to RUN and let the operator fully close.
5. Flip the top toggle switch to CAM SETUP and ensure the DCL LED is still lit after the clutch collapses.



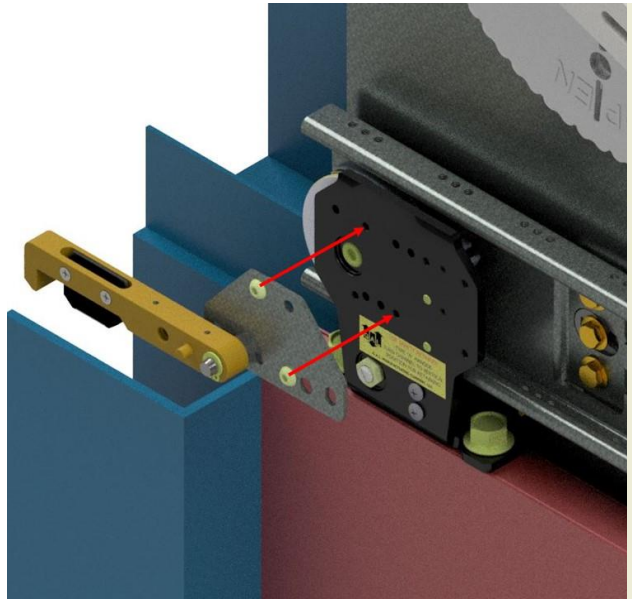
LWL Interlock Installation – Side Slide

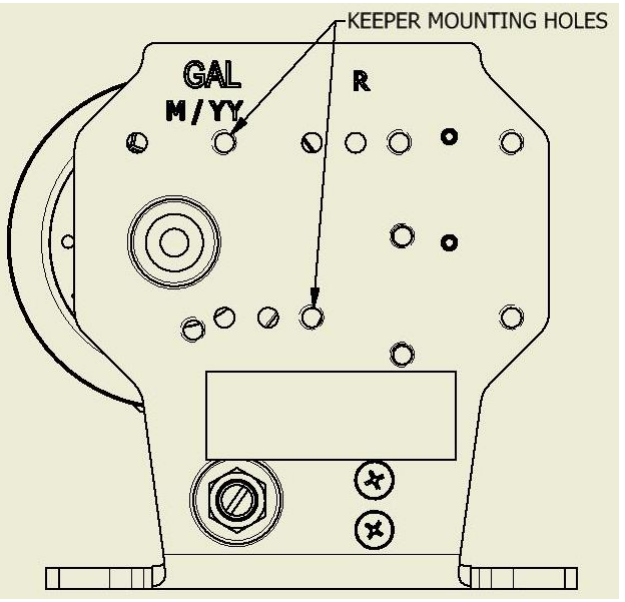




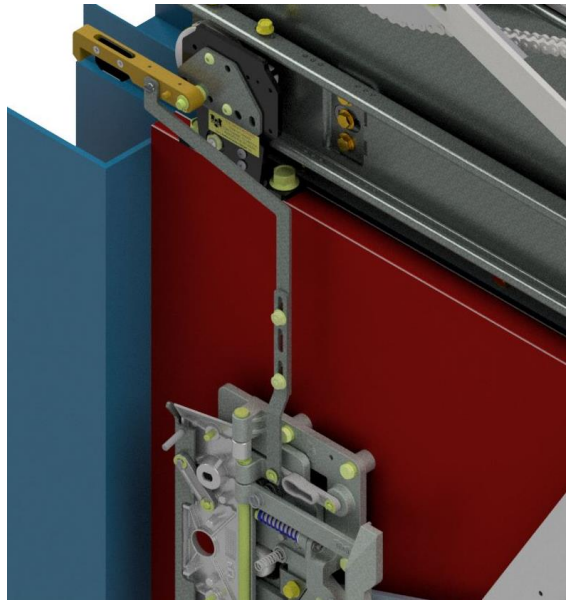
LWL Interlock Installation – Side Slide

1. Mount keeper to the leading sheave on the car door with provided button head screws.



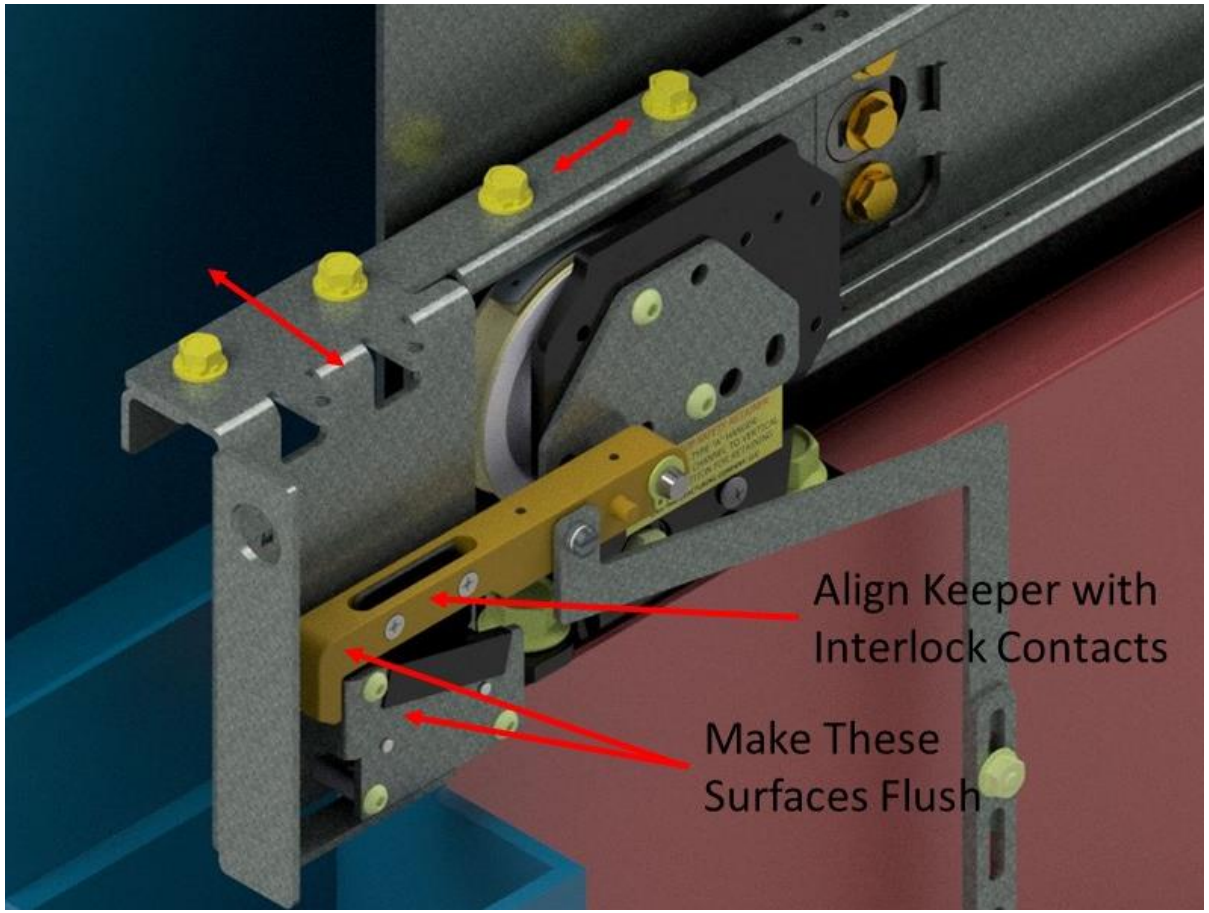


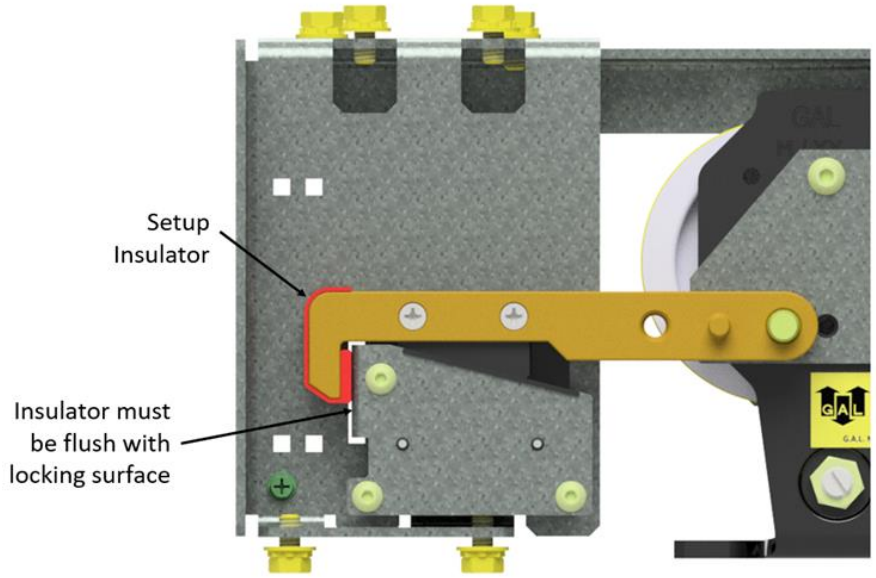
2. Attach keeper to the clutch with the upper and lower links



LWL Interlock Installation – Side Slide

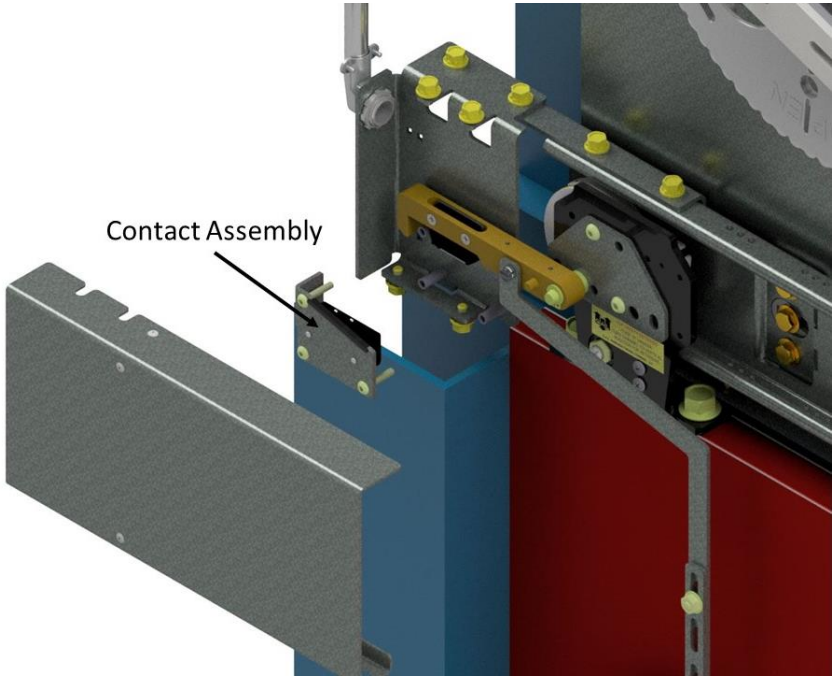
3. Remove cover from the interlock and mount the interlock to the track
4. Adjust interlock so the keeper is aligned with the contacts and the front face of the keeper is flush with the contact plate when the car door is closed.
5. Attach cover to the interlock and ensure there is no interference with the keeper.



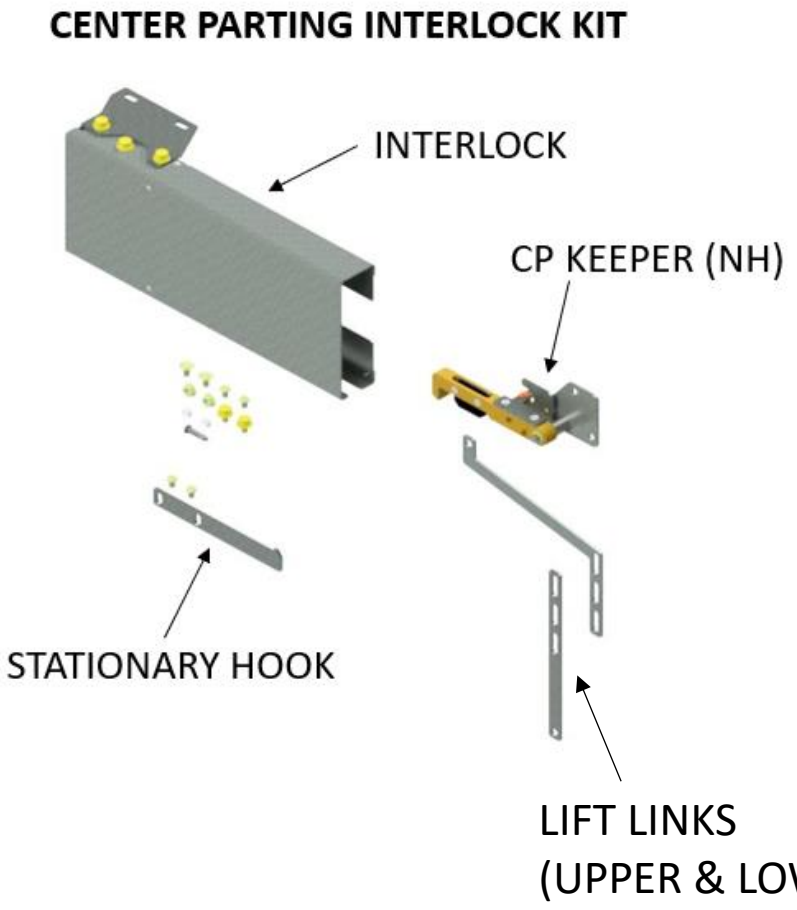


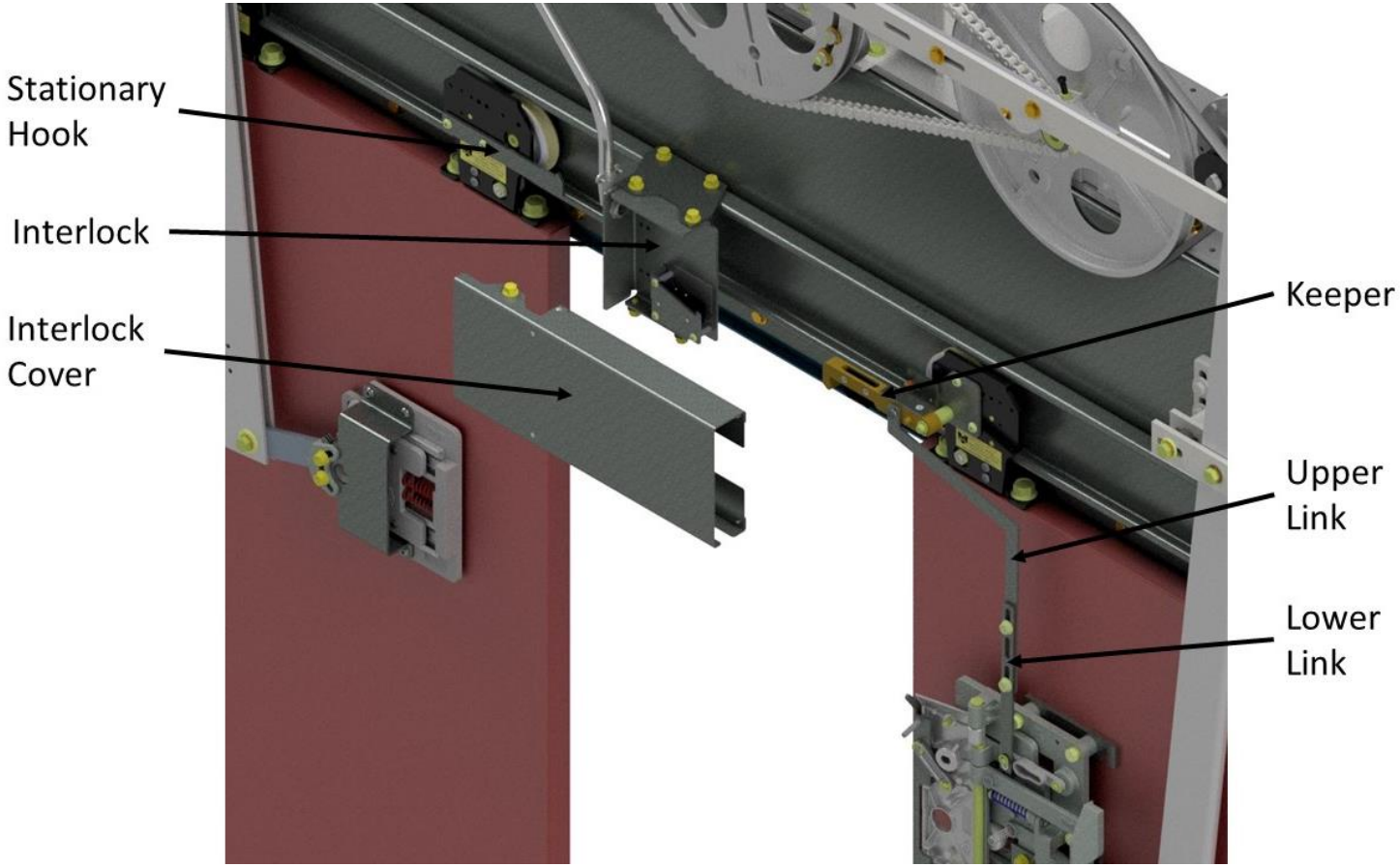
LWL Interlock Installation – Side Slide

6. Remove the cover and the contact assembly for wiring.
7. Wire contacts to the gate switch terminals on the operator.



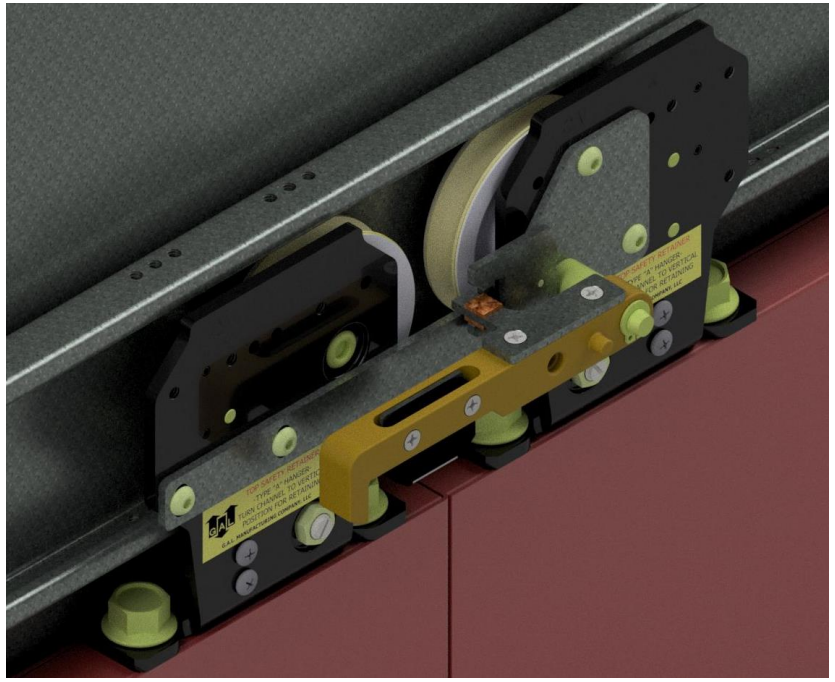
LWL Interlock Installation – Center Parting

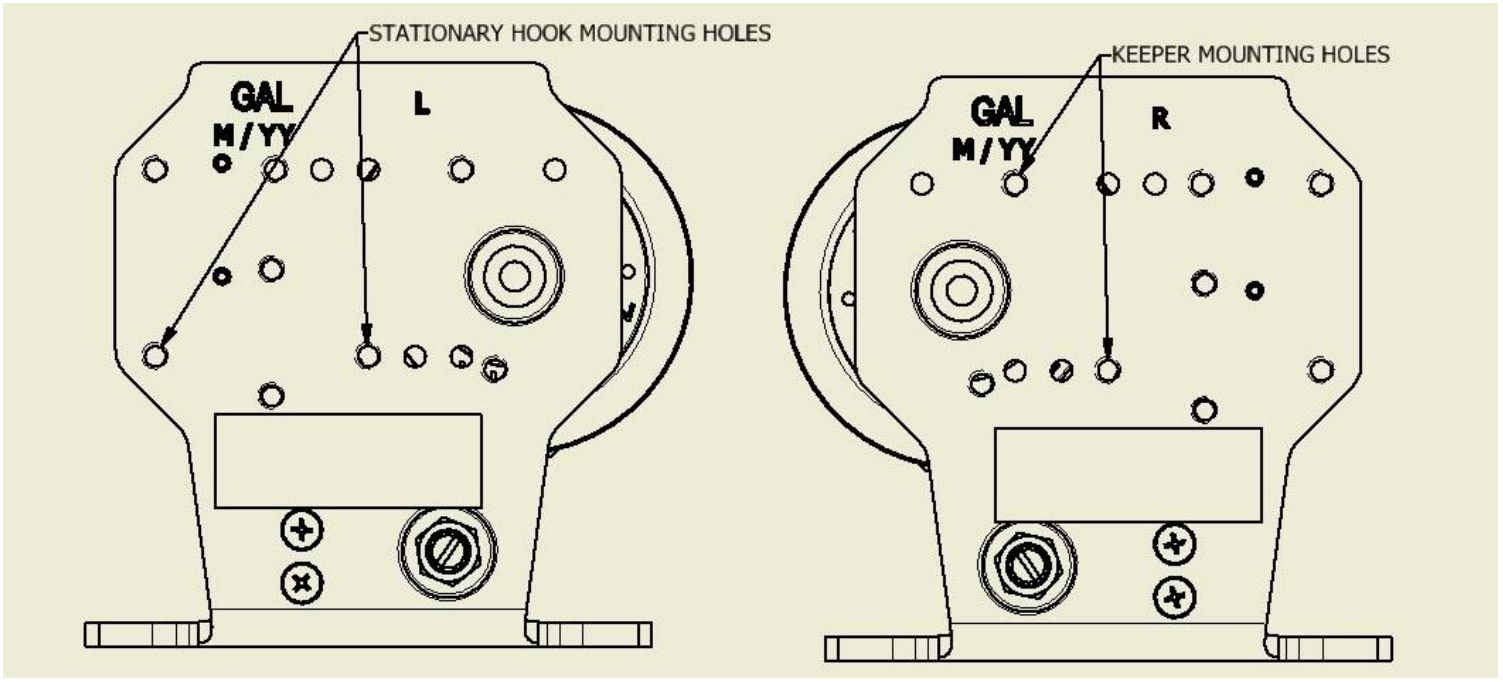




LWL Interlock Installation – Center Parting

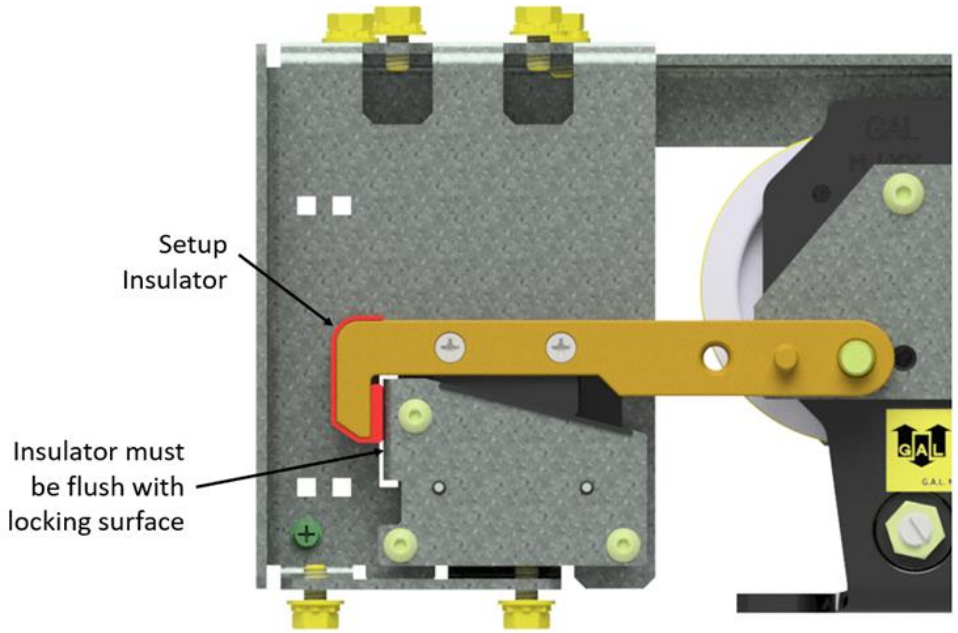
1. Mount keeper and stationary hook to the leading sheaves on the car doors with provided button head screws

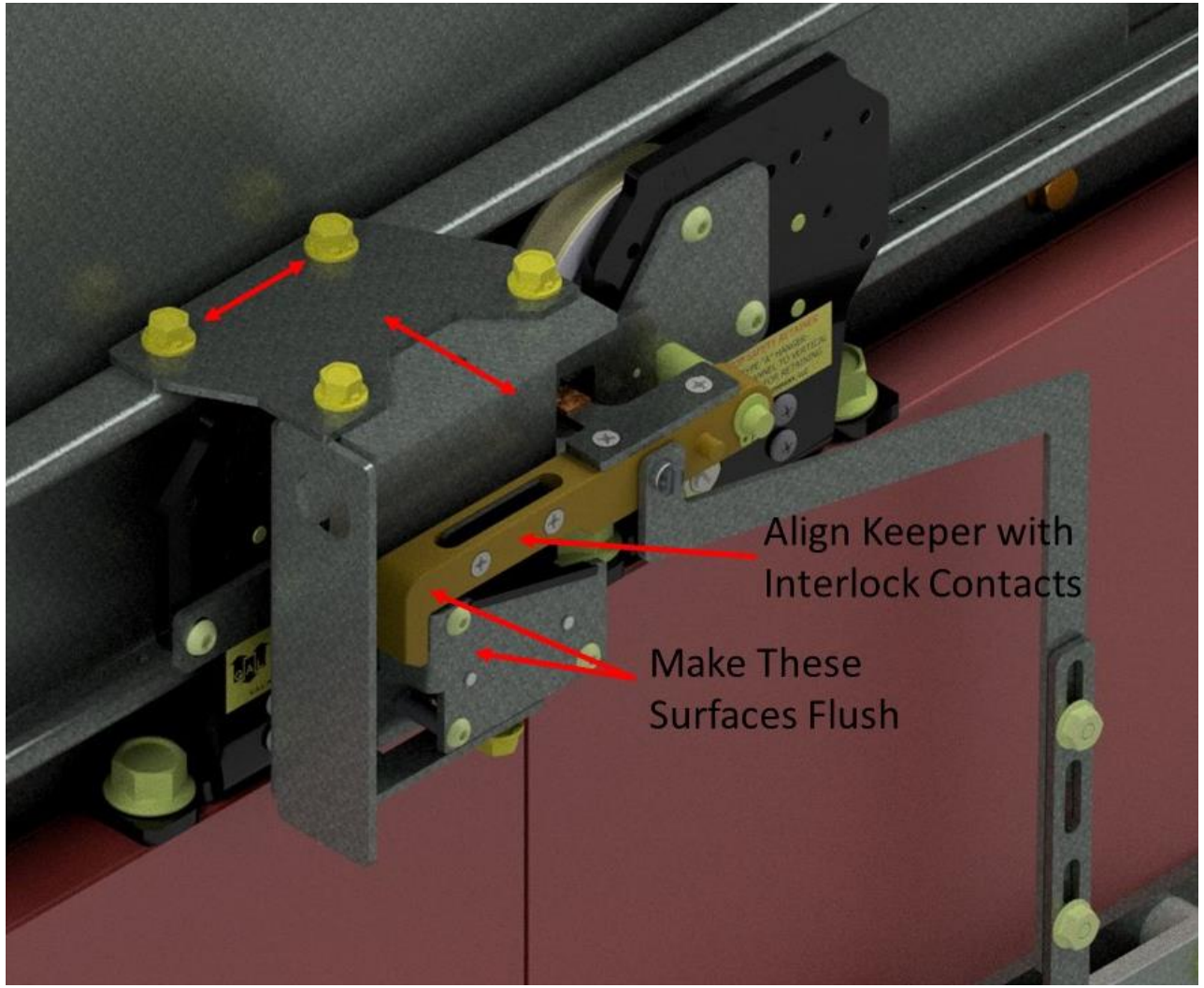




LWL Interlock Installation – Center Parting

2. Attach keeper to the clutch with the upper and lower links.
3. Remove cover from the interlock and mount the interlock to the track. Adjust interlock so the keeper is aligned with the contacts
4. Attach cover to the interlock and ensure there is no interference with the keeper.



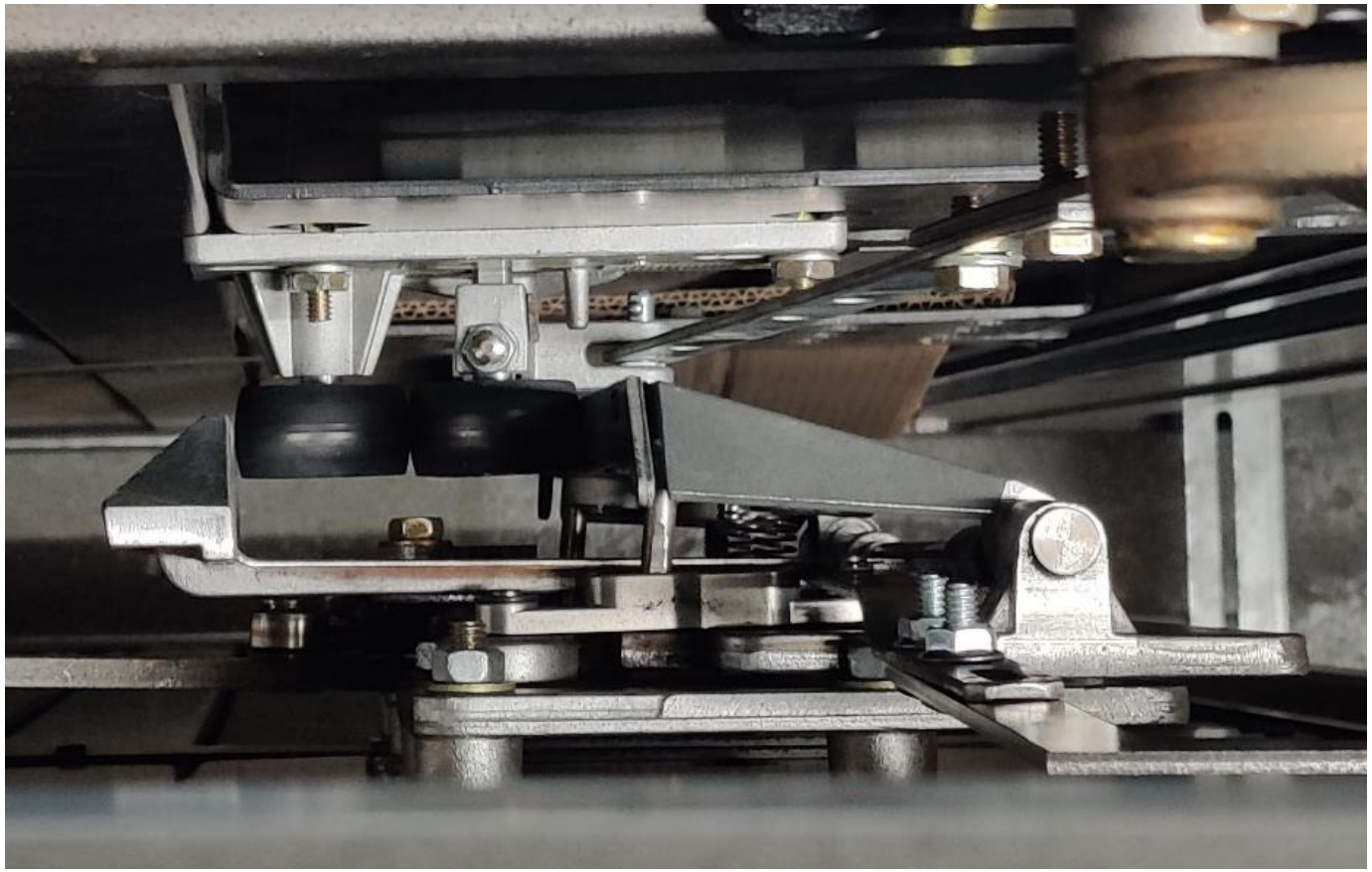


LWL Interlock Installation – Center Parting

5. Remove the cover and the contact assembly.
6. Wire contacts to the gate switch terminals on the operator.
7. Attach contact assembly and cover.
8. Cycle door manually to ensure proper adjustment.

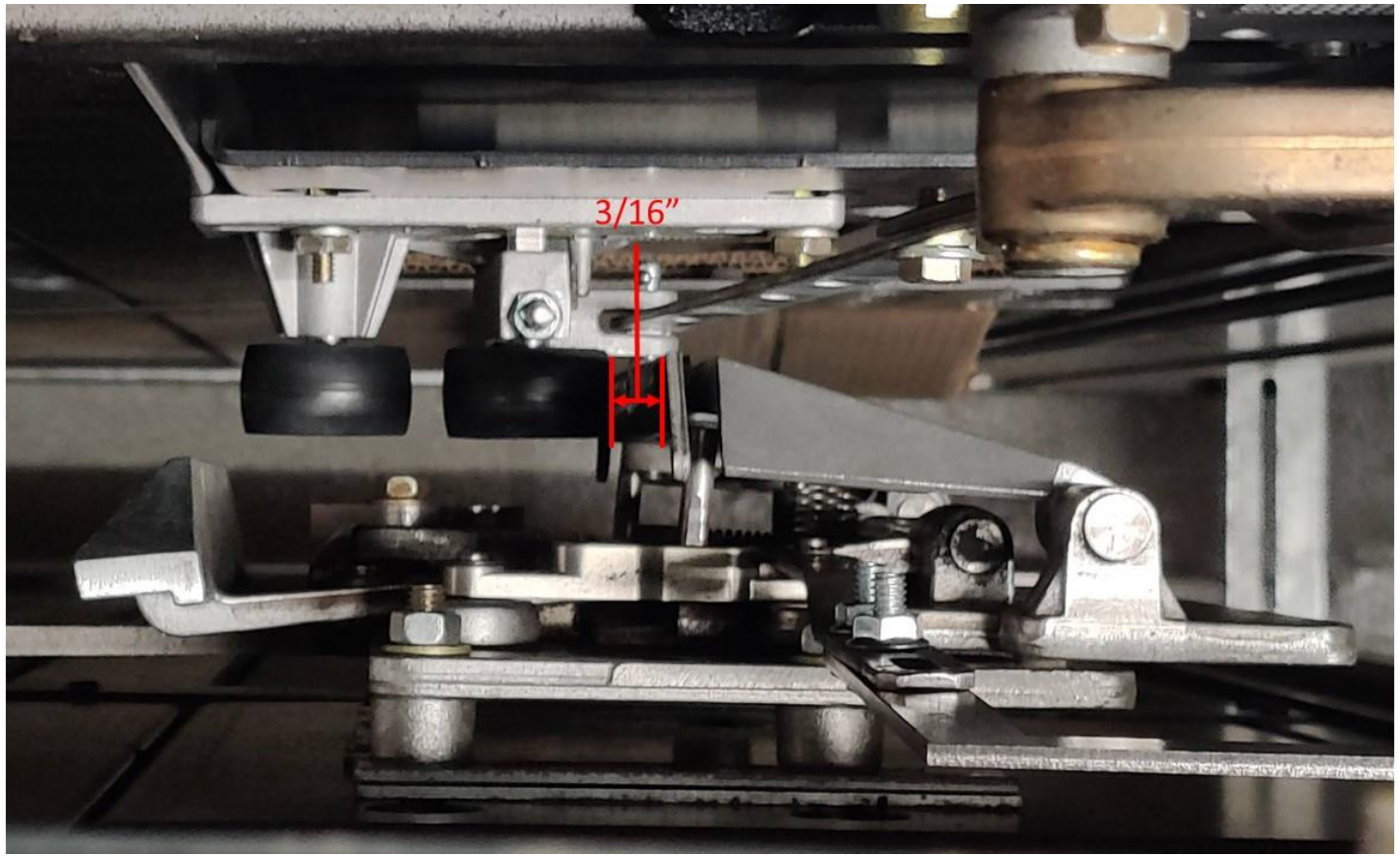
LWL Installation – Hatch Equipment Adjustments

1. After installing the LWL clutch and interlock on the car door, the car must be run to each landing to ensure the roller release is properly adjusted.
2. When the doors are closed the clutch will still be collapsed around the roller release.



LWL Installation – Hatch Equipment Adjustments

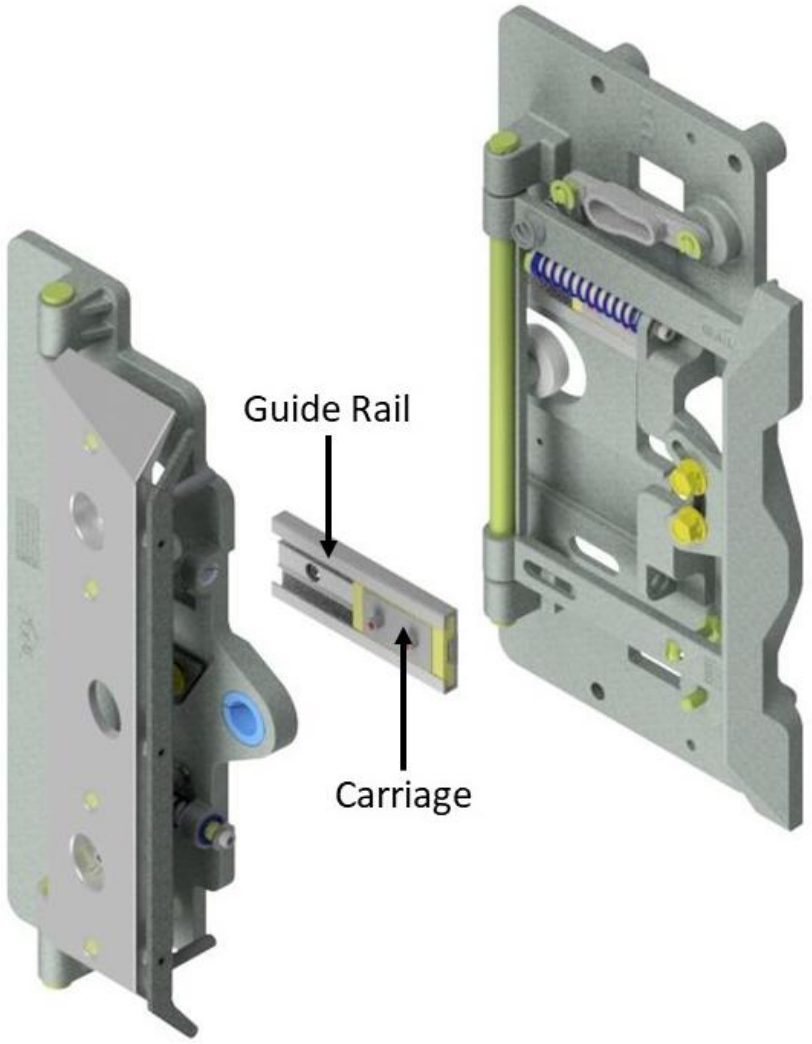
3. Once the clutch has fully expanded there should be a ~3/16” gap between the clutch sensing vane and the roller release. The close vane should be fully retracted from the roller release
4. Check the hatch keeper to ensure it is not raised too high and interfering with the hatch interlock.



LWL Maintenance

- Replacement kit part numbers can be found in DOC-0153N.
- Wear items:
  - Cam O-rings
  - Lock activating pivot
  - Nyliner bushing
  - Return springs
  - Interlock contacts

Note: Linear bearings are NOT field replaceable.
If the bearings need to be replaced, the entire clutch needs to be replaced.



LWL Clutch Troubleshooting

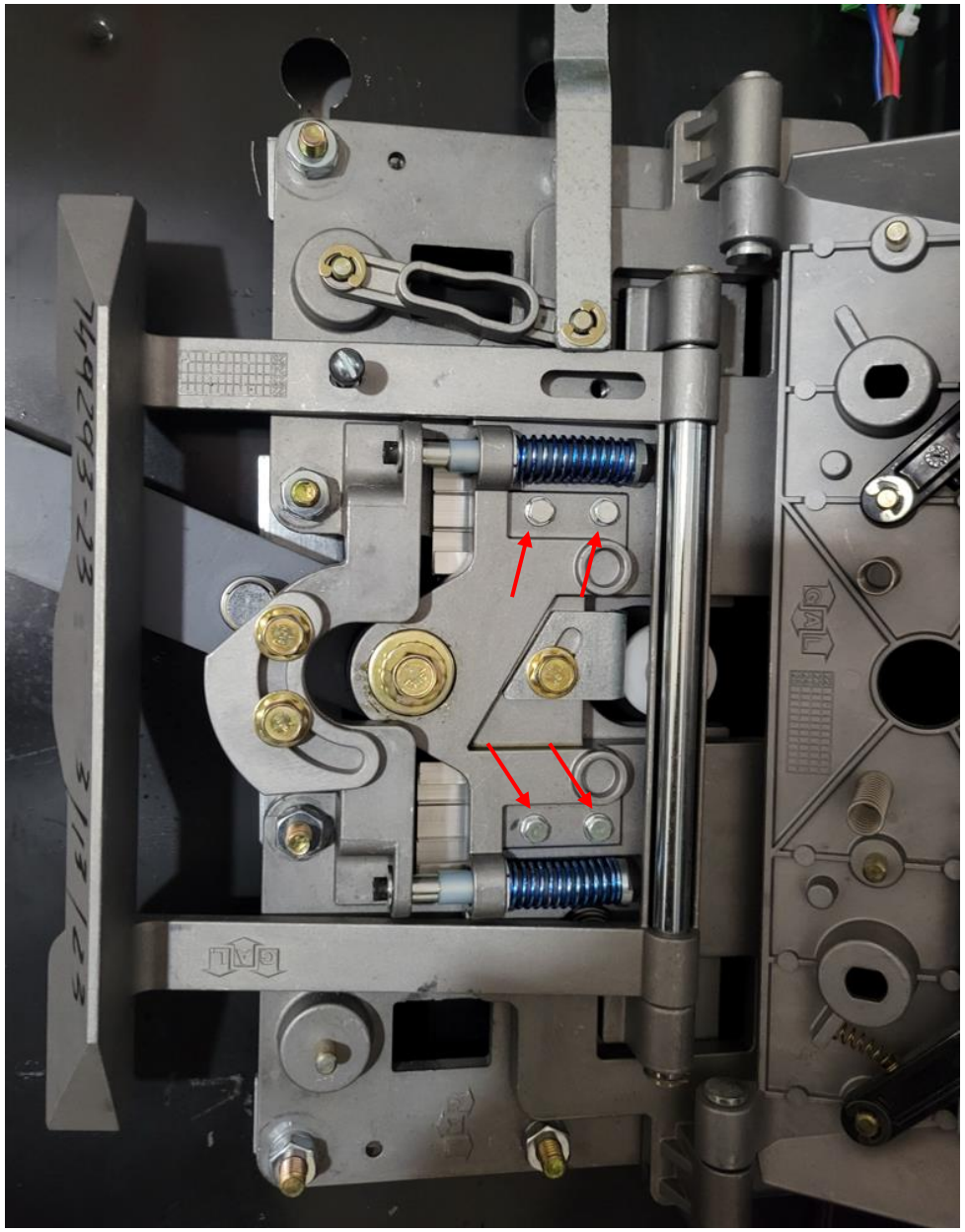
Problem:
Clutch not expanding/contracting smoothly?

Cause:
Most likely, the four hex head bolts connecting the top sliding subassembly to the linear guides are loose.

Solution:
Provide the customer with internal & external star washers (HWWS-0132N) and advise the use of red Loctite on the screws.

Bolt Torque: 26 in-lbs

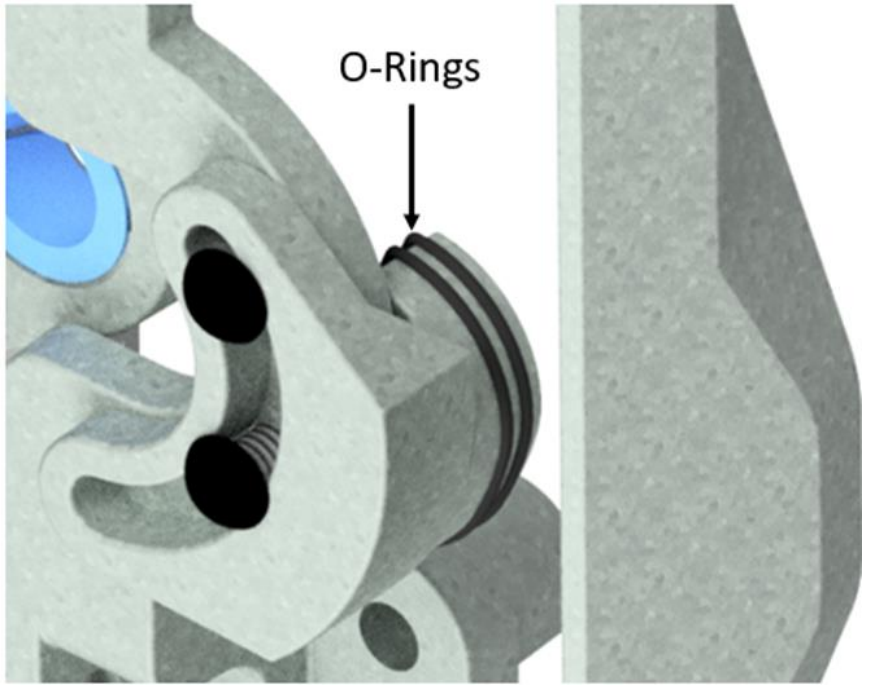
All future LWL Clutches will come with this washer and Loctite installed in the factory

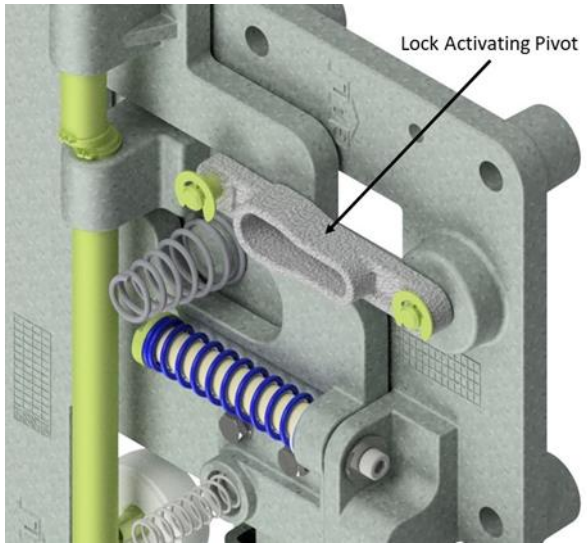


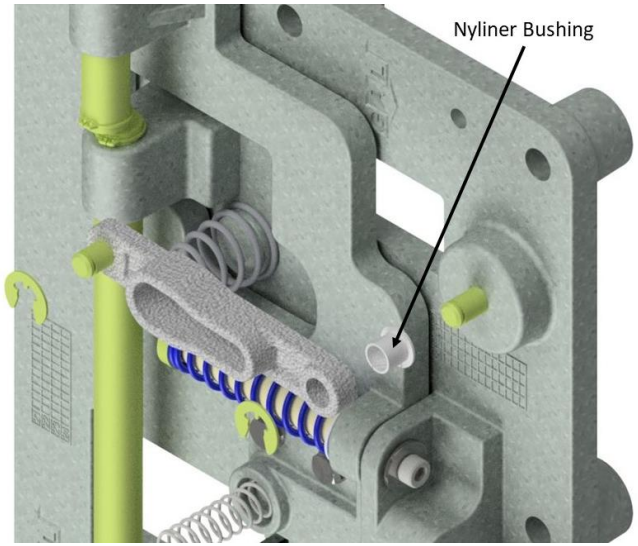
LWL Clutch Maintenance

- Cam O-rings should be replaced annually.
  - They provide a riding surface for the roller bearing on the clutch link.

- The lock activating pivot should be inspected annually for excessive wear inside the riding surface of the part, as well as the Nyliner bushing.





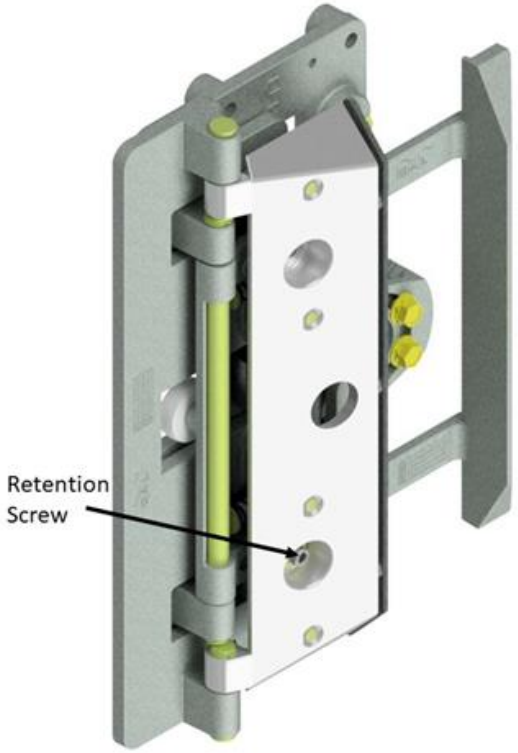


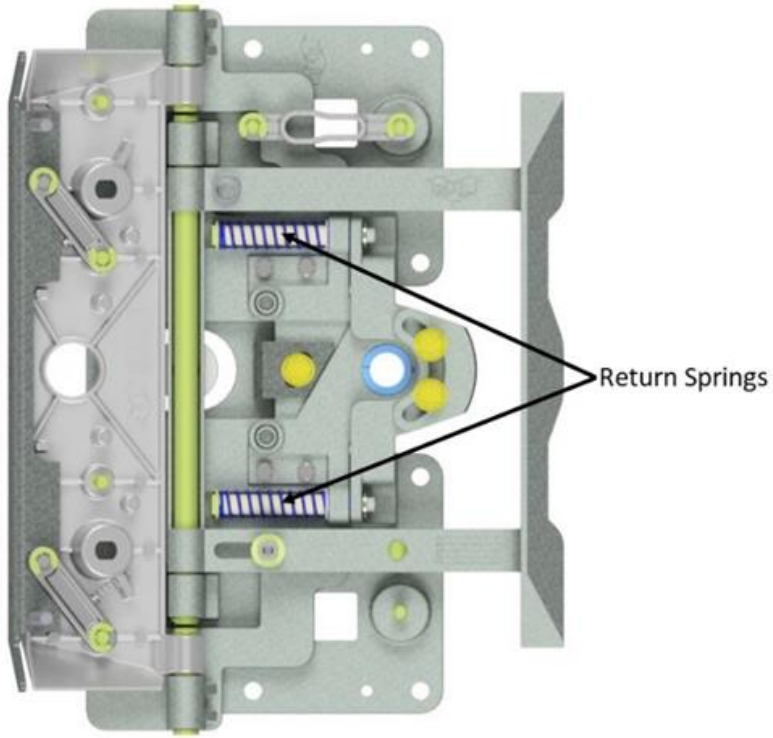
LWL Clutch Maintenance – Return Spring Replacement

- The LWL return springs will deteriorate over time and begin to squeak and creak when they are compressed.
- The springs should be inspected annually and replaced if necessary.

How to replace the Return Springs:

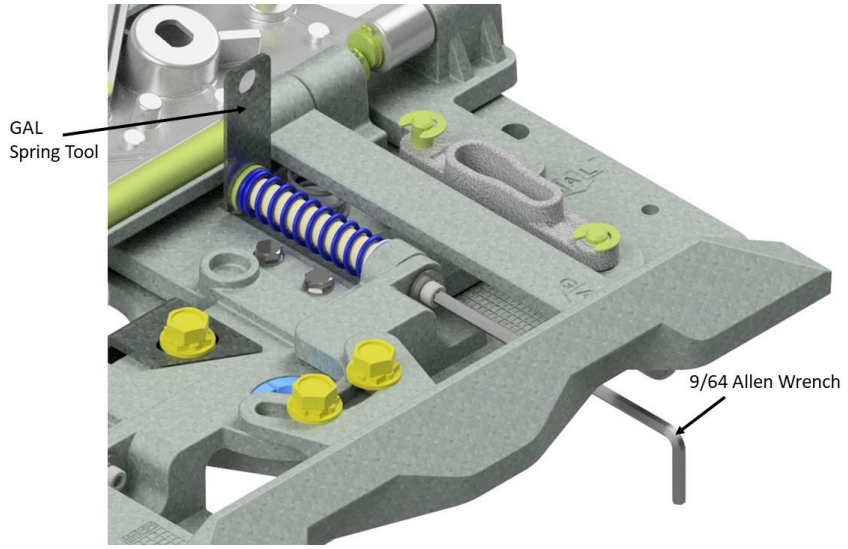
1. Remove the retention screw and flip open the open vane of the clutch to expose the return springs.



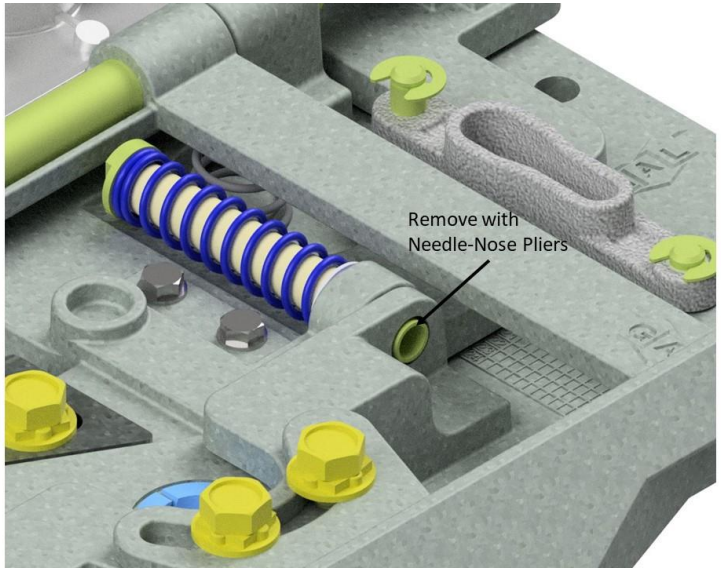


LWL Clutch Maintenance – Return Spring Replacement

3. Use a 9/64” allen wrench and the GAL Spring Tool to remove the socket head screw and washer.
   - Tool is included with replacement kit

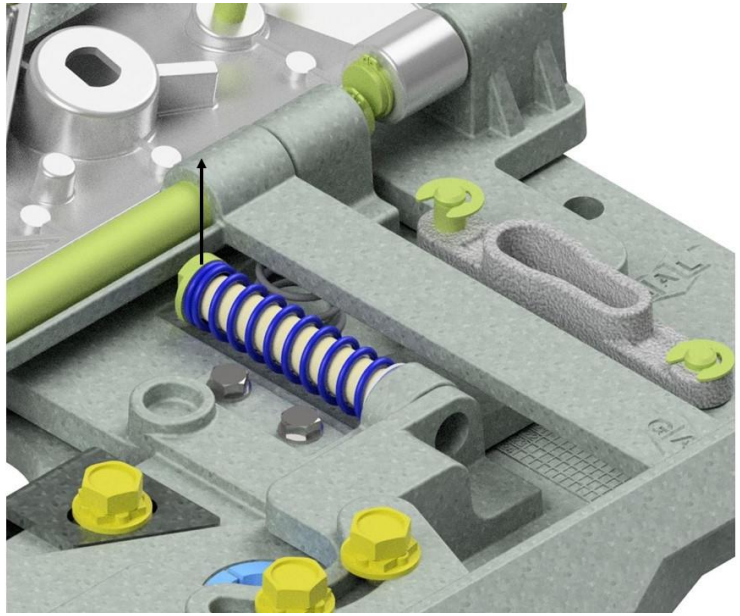


4. Remove metal tube using needle-nose pliers.

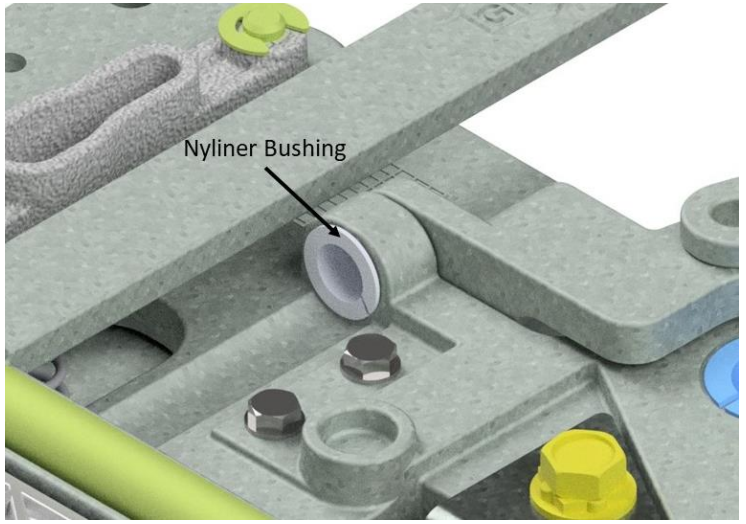


LWL Clutch Maintenance – Return Spring Replacement

5. Lift up on the end of the spring assembly. The spring will still be under some compression so be careful when removing it.



6. Remove the nyliner bushing and replace with a new one.



7. To install the new springs, repeat Steps 1-6 in reverse.

LWL Interlock Maintenance

- The interlock contacts should be checked annually for pitting, carbon build up, or excessive wear.
  - Wipe the contact bridge with a clean cloth to remove any debris.
  - If the contacts or bridge must be replaced, they must be replaced as a set.