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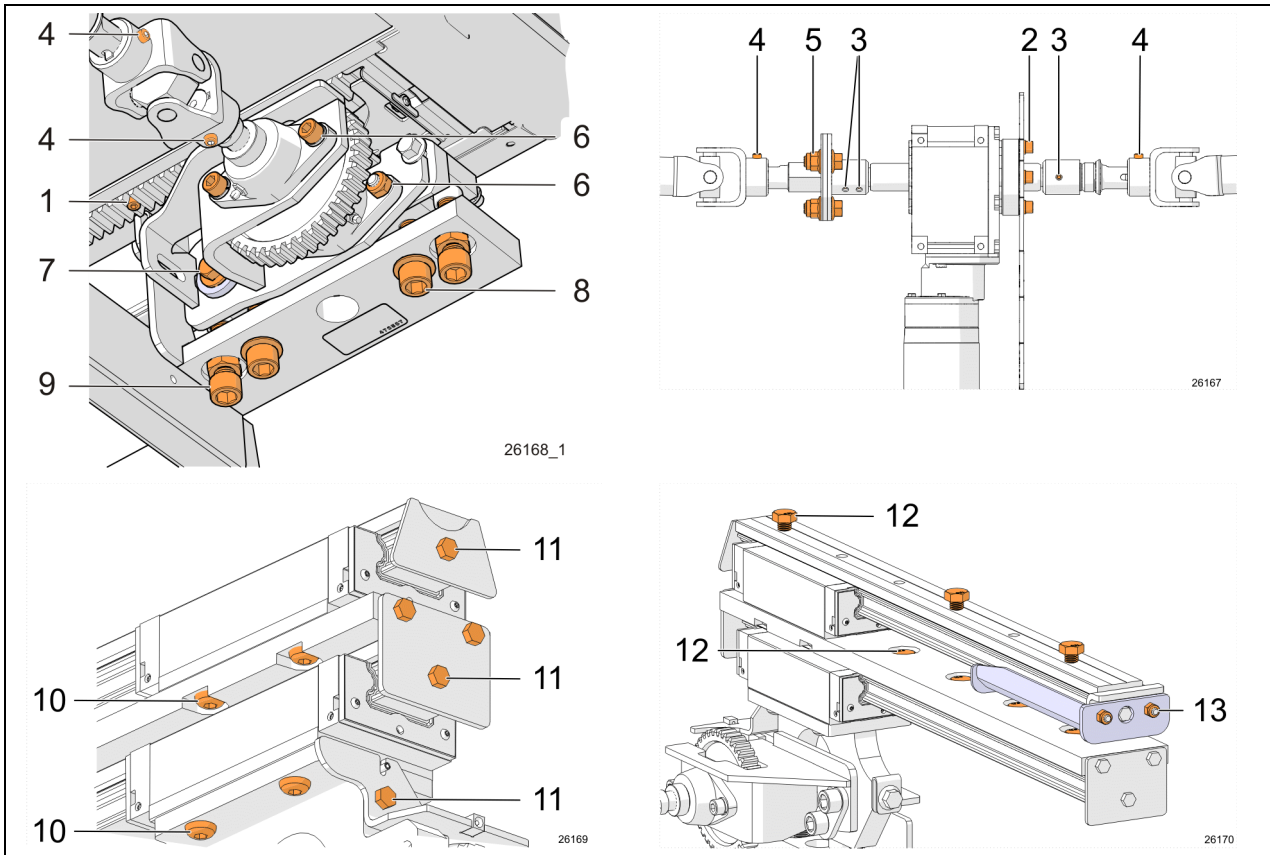
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**SECTION CHANGE LOG**

	DESCRIPTION	DATE
1		
2		
3		
4		
5		
6		

1 TORQUE TABLES



**STANDARD PREVOST SLIDE-OUT (Front left shown)**

No	DESCRIPTION (quantity for one slide-out)	TORQUE
1	Rack gear mounting screws	1.9-2.1 lb-ft (2.58-2.85 Nm) <i>max</i>
2	Drive motor/gearbox assembly mounting bolts (4)	16-20 lb-ft (22-27 Nm)
3	Shaft extension set screw (6)	7 lb-ft (10 Nm)
4	Drive shaft yoke set screws (8)	27 lb-ft (37 Nm)
5	Adjustable flange screws (3)	59 lb-ft (80 Nm)
6	Flange bearing mounting screws	48 lb-ft (65 Nm)
7	Pinion gear support mounting screws (4)	198 lb-ft (268 Nm)
8	Tilting and leveling support retaining screws (4)	55-65 lb-ft (75-88 Nm)
9	Tilting and leveling support leveling screw jam nut (4)	43-53 lb-ft (58-72 Nm)
10	Linear bearing mounting screws (16)	59 lb-ft (80 Nm)
11	Rail end screw (16)	17 lb-ft (23 Nm)
12	Rail mounting screw (18)	130 lb-ft (176 Nm)
13	Removable stopper nuts (4)	94 lb-ft (128 Nm)

## 2 OVERVIEW

X3-45 VIP vehicles can accommodate up to two (2) Prevost slide-outs units.

### 2.1 STANDARD PREVOST SLIDE-OUTS

Slide-outs in the front left and rear left position share the same operation, design features and maintenance requirements.

Maintenance can be performed by moving the slide-out inwards. Refer to SLIDE-OUT 2" INSIDE RETRACTION.

Special tools are required for seal installation and setting the gap between rack and pinion.

### 2.2 OPERATION

Room operation is on a "first in, first served" basis due to the high current demand and safety requirements. Only one slide-out unit may be operated at a time

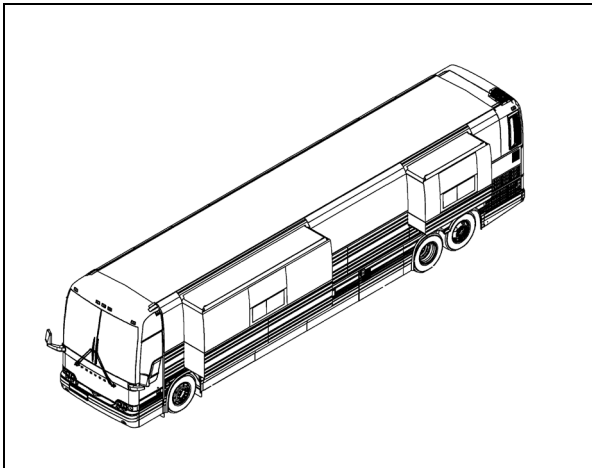


FIGURE 1: X3-45 VIP TWO SLIDE-OUT CONFIGURATION

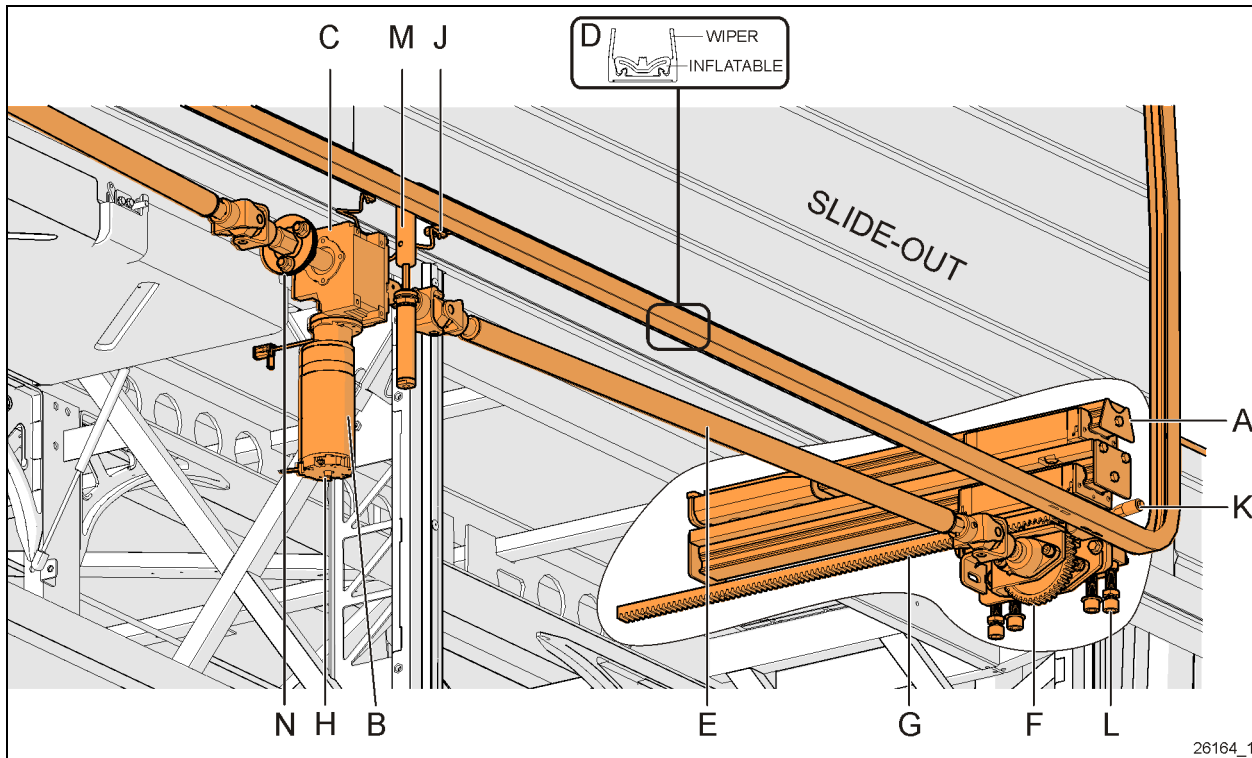


FIGURE 2: TYPICAL SLIDE-OUT MECHANISM OVERVIEW (FRONT LEFT SYSTEM SHOWN)

### 2.3 SLIDE-OUT MECHANISM OVERVIEW

Refer to Figure 2. Each slide-out is moved in and out on stacked linear bearings, (A). Power comes from one electrical motor (B). It is either oriented vertically or horizontally. The motor drives a right angle speed reducing gearbox (C).

Water tightness of the slide-out is ensured by a wiper seal and an inflatable seal (D).

The gearbox is coupled to drive shafts (E) and two pinion gears (F). An adjustable flange (N) allows pinion gear synchronization. Rack gears (G) transform pinion gear rotation into horizontal motion.

Manual extension or retraction is possible by the motor shaft extension (H). Closely follow instructions provided further in this manual to perform this procedure.

To limit rail extension, the system includes two proximity sensors (J) and in case of proximity sensor failure, two factory adjusted rail stoppers (one per rail) (K). An additional inner stopper

along the top edge of the slide-out limits room extension. Refer to Figure 25 and Figure 26.

Slide-out room tilt and leveling adjustment is carried-out by the adjustment plate and screws (L).

Structural integrity of the vehicle platform is ensured with stainless steel casting corner reinforcements in the luggage bays.

A security pin (M) locks the slide-out in the retracted or "in" position for road travel.

A flexible rail cover (Figure 22) protects the linear bearing assembly from the elements. As the room moves out, it is pulled under the linear bearing and rack gear assembly. It is pushed back and curls up over the assembly as the room moves in.

For more information on the various mechanical components, refer to paragraph 7, MAIN COMPONENTS.

## 2.4 SLIDE OUT CONTROL SYSTEM OVERVIEW

Slide out operation is controlled electrically and pneumatically. The control panel is located in the first road side luggage bay, fixed to the ceiling (Figure 49). It controls all slide-outs installed on the vehicle.

The control panel includes multiplex modules, power relays and pneumatic control valves. Logic control and operation is achieved by using the same Volvo multiplex modules found on the vehicle chassis.

A Control Pad provides the input command for extension and retraction of the slide-out room. One control pad per room is provided from factory. Final location and type of control may vary from one vehicle to another depending on interior layout and vehicle converter.

Troubleshooting is performed through the DID. For more information on slide-out control systems, refer to paragraphs 8 SLIDE-OUT PNEUMATIC SYSTEM and 9 SLIDE-OUT ELECTRICAL SYSTEM.

For more information on troubleshooting, refer to paragraph 14 TROUBLESHOOTING.

## 2.5 REPLACEMENT PARTS

Refer to the Prevest parts manual for the latest information to order replacement parts.

## 2.6 MAXIMUM LOADS

### **NOTE**

Maximum load includes occupant weight and equipment added by the converters in the slide-out

### **Front slide-outs:**

Maximum load with vehicle at stand still  
(retracted or extended) **1500 lb**

Maximum load with vehicle or slide-out moving **1200 lb<sup>1</sup>**

### **Rear slide-outs:**

Maximum load with vehicle at stand still  
(retracted or extended) **1500 lb**

<sup>1</sup> Value is for an equally distributed load to prevent seal damage by excessive deflection.

Maximum load with vehicle or slide-out moving **1000 lb<sup>1</sup>**



### **WARNING**

Overloading may damage the seal, interfere with slide-out operation and may cause the system to malfunction.

Do not exceed 1/4" deflection. (Figure 3)

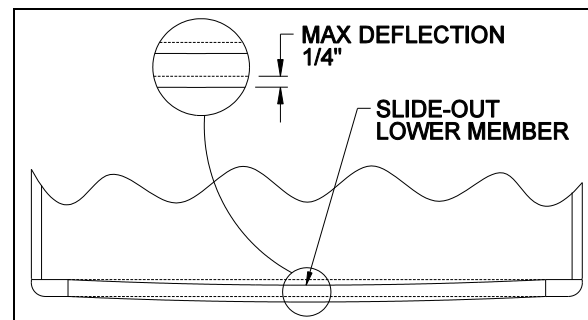


FIGURE 3: FRONT SLIDE-OUT DEFLECTION

### 3 LEVEL & TILT ADJUSTMENT

Tilt and leveling adjustment is carried-out by the adjustment plate and screws located under each linear bearing assembly. (Figure 4).

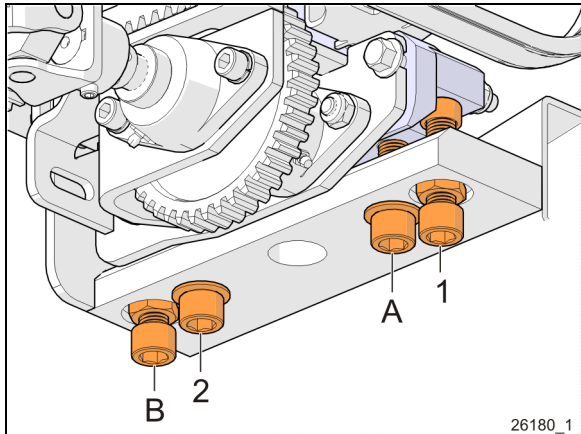


FIGURE 4: LEVELING & TILTING SCREWS

**A & B TORQUE: 55-65 lb-ft (75-88 Nm)**

**1 & 2 NUT TORQUE: 43-53 lb-ft (58-72 Nm)**

#### 3.1 HEIGHT ADJUSTMENT VALUE

The desired height level is 13/16" (21mm) from the bottom (Figure 5)

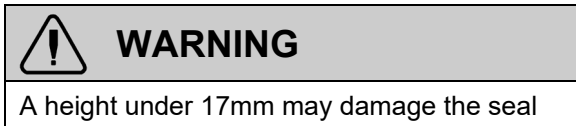
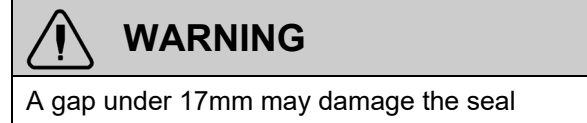


FIGURE 5: SLIDE-OUT LEVEL ADJUSTMENT

When proper level is reached (Figure 5) retaining screws A & B maintain the support seated on the leveling screws.

#### 3.2 LATERAL ADJUSTMENT

The desired gap on each side is 13/16" (21mm) (Figure 5)



#### 3.3 TILT ADJUSTMENT VALUES

The desired tilt adjustment is one where the top of the slide-out is slightly more recessed (inside) than the bottom. (Figure 6)

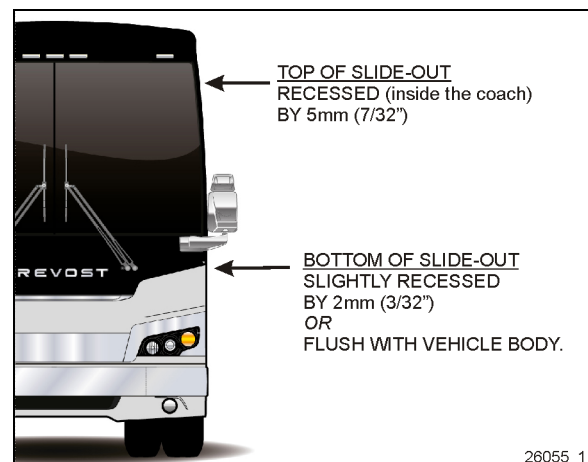


FIGURE 6: TILT ADJUSTMENT VALUES

Tilt adjustment is done by changing the linear bearing support inclination using leveling screws 1 & 2 to adjust the angle (Figure 4).

#### 3.4 STOPPER SEQUENCE

When retracting, the upper "in limit" stoppers should touch the vehicle structure first, followed by the lower "in limit" stoppers.

#### 3.5 TILT ADJUSTMENT SEQUENCE

Before proceeding with the level and tilt adjustment, check the following conditions:

- The slide-out is retracted;
- The 2 lower "in limit" stoppers are perfectly adjusted, that means that the lower edge of the slide-out outer panel is flush or



slightly in by 2mm (3/32") with the vehicle body when retracted;(Figure 6)

- The 2 upper "in limit" stoppers are removed from the slide-out (see paragraph 7.3).



### WARNING

Leveling and tilting adjustment must be performed with a retracted (fully in) slide-out.



### WARNING

Never unscrew completely retaining screw A and B (Figure 4) or the slide-out may tip inside.

1. With the lower edge of the slide-out outer panel flush with the vehicle body, adjust the slide-out level. (Figure 5) The distance between the top of the horizontal member under the slide-out and the slide-out under panel must be 21mm (13/16" approximately).

**To raise the linear bearing support plate**, turn levelling screw 1 & 2 clockwise. Slightly and gradually, loosen the retaining screws A & B as the support plate elevates, but keep the retaining screws tight.

**To lower the linear bearing support plate**, turn screw 1 & 2 counter clockwise. As the support plate goes down, maintain the retaining screw A & B tight.

2. Tighten retaining screws A & B (Figure 4)

**TORQUE: 55-65 lb-ft (75-88 Nm)**

3. Ensure that leveling screw 1 & 2, are firmly leaning on the support plate and then firmly tighten the jam nuts.

**TORQUE: 43-53 lb-ft (58-72 Nm)**

4. Verify that the tilt is still properly adjusted (7/32").

#### 4 ROOM EXTENSION FOR MAINTENANCE

It is possible to extend the room further out for maintenance operations.



### CAUTION

Prepare a scissor lift or a set of jack stands to support the slide-out room while it is extended for maintenance.

From the inside of the vehicle, remove any capping or trims hiding linear bearings at the bottom of the slide-out on both sides.

Then remove the room extrusion end caps. (Figure 7)

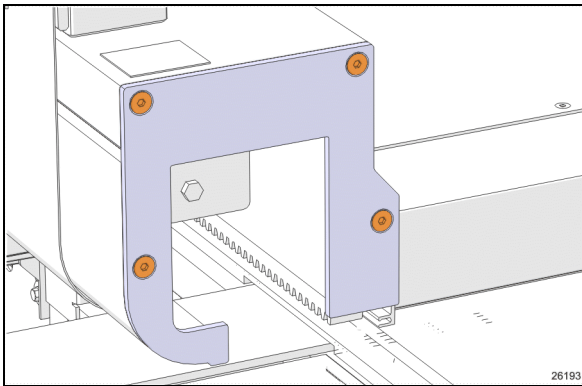


FIGURE 7: EXTRUSION END CAP

Once the room is fully extended, remove the screw and tab holding the flexible plastic rail cover in place. (Figure 8) *Perform this on both sides.*

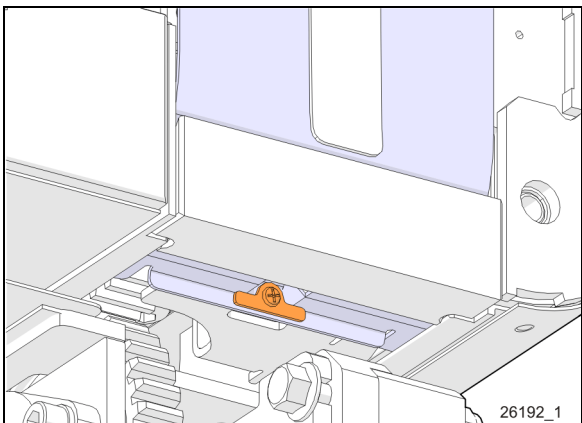


FIGURE 8: TAB AND MOUNTING SCREW

Remove the upper inner stopper (Figure 9).

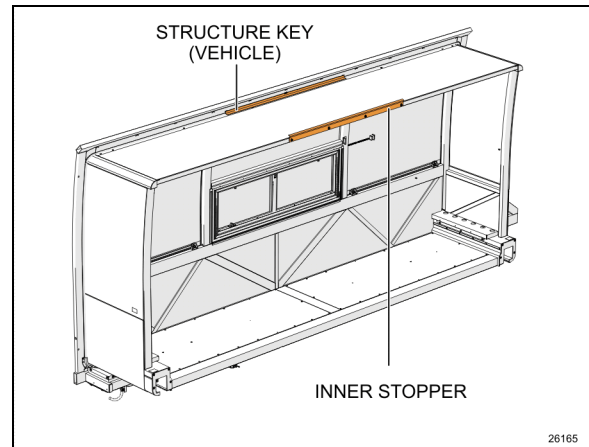


FIGURE 9: UPPER INNER STOPPER

Remove the two nuts holding the extension stopper (perform both sides). (Figure 10)

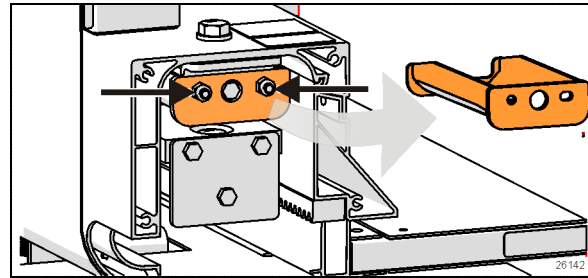


FIGURE 10: EXTENSION STOPPER REMOVAL

The room can now be extended further.

Do not remove any additional stoppers.  
Heed the safety warning below.

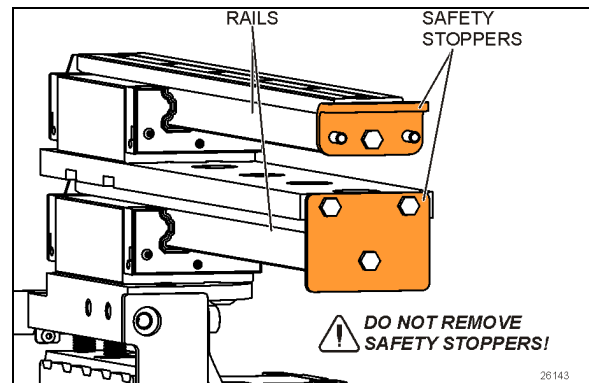


FIGURE 11: SAFETY STOPPERS ON RAILS

**DANGER**

Safety stoppers are bolted to the rail ends. (Figure 11)

Never remove these stoppers.

These prevent the room from sliding out of the bearings.

Without these stoppers, the room could slide completely out of the bearings, therefore posing a risk of serious injury or death and significant damage to the vehicle's components

Deflate the seal by using the relieving shut-off valve located on the pneumatic component panel. Confirm by the pressure gage.

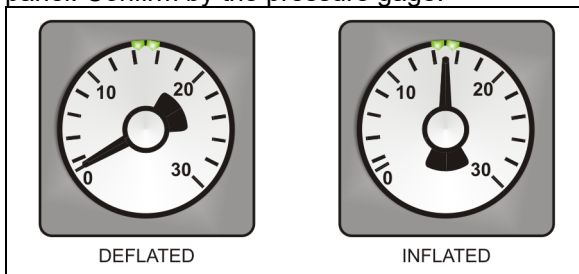


FIGURE 12: INFLATABLE SEAL PRESSURE GAGE

**CAUTION**

Failure to deflate the seal may result in seal damage. Refer to Paragraph 7.5 "SEAL" for further details

Prepare the supports under the room.

Using a cordless drill with a 10 mm hexagonal socket, drive the motor extension to further extend the slide-out room until the gears leave the rack gear.

Finish by pushing out the room by hand. A minimum of two persons are required.

Raise the supports in place

## 5 SLIDE-OUT MANUAL OVERRIDE PROCEDURES



### CAUTION

Never use an impact wrench to manually operate the slide-out. Doing so would damage the various mechanical components of the slide-out.

In case of power retracting system failure, it is possible to use the manual override procedure to retract or extend the slide-out.

The manual override procedures consist in rotating the slide-out motor shaft extension using a cordless power drill with a 10 mm hexagonal socket.

Follow all instructions carefully to avoid damaging the inflatable seal or the retraction mechanism.

### 5.1 PRELIMINARY CONDITIONS FOR MANUAL OVERRIDE PROCEDURE

Before using the slide-out manual override procedures, make sure that the problem cannot be solved by one of the following simple checks:

- Check the fuses. See paragraph 9.2.
- Make sure the parking brake is applied and that transmission is in the "NEUTRAL" position.

#### NOTE

*The slide-out control system inhibits transmission range selection to prevent the vehicle from moving if the slide-out is not in its full "IN" position.*

- Make sure the voltage is high enough by running the engine at fast idle or having a battery charger connected.



### CAUTION

Before extending or retracting the slide-out, always open a window to avoid movement restriction and to prevent the motor from stopping in overcurrent because of a vacuum or pressure build up inside the vehicle.

### 5.1.1 Manual Retracting Procedure – Front And Rear Slide-Out

1. Turn the ignition switch to the "OFF" position, and remove the ignition key for more safety.
2. Deflate the seal by using the relieving shut-off valve located on the pneumatic component panel (Item 1, Figure 48).
3. Turn the handle clockwise to deflate the seal. Make sure the pressure indicator reading is "0 psi".



### CAUTION

The pressure in the inflatable seal must be completely relieved to prevent any damage to the seal.

#### NOTE

*When air pressure is relieved using the shut-off valve, the normal extending and retracting operation cycle is disabled, for that reason the slide-out cannot be moved using the control pad.*

4. To move the slide-out, use a cordless power drill with a 10 mm hexagonal socket on the shaft extension of the slide-out motor.
5. Rotate the slide-out motor shaft extension with the power drill until the slide-out comes to its closed position. (Figure 13)

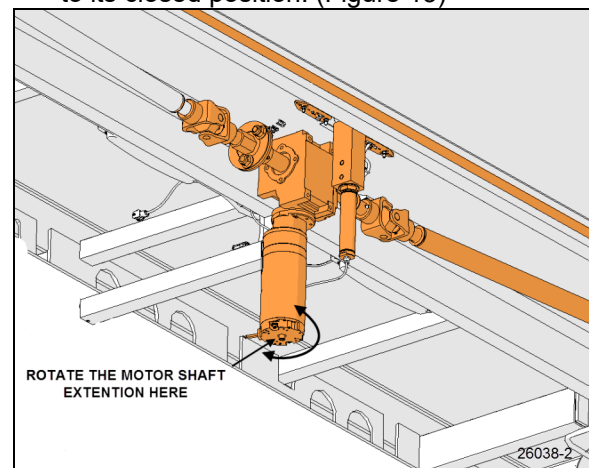


FIGURE 13: SLIDE-OUT MOTOR ROTATION

6. Once the slide-out room is lined up to its closed position, remove the tool from the motor.

**CAUTION**

Slow down the closing speed as the slide-out approaches its closed position. As soon as the "in limit" stoppers come in contact with their bearing surface, stop immediately the power drill rotating movement. Not doing so could overload the drive mechanism and cause damage to the reduction gearbox.

4. Finally, the inflatable seal can be re-inflated by turning the shut-off valve handle counterclockwise. Check the pressure gage on the inflatable seal regulator to see if the pressure increases to 15 psi  $\pm$  5 psi (Figure 14). Needle should be pointing between the two small green marks on the dial.

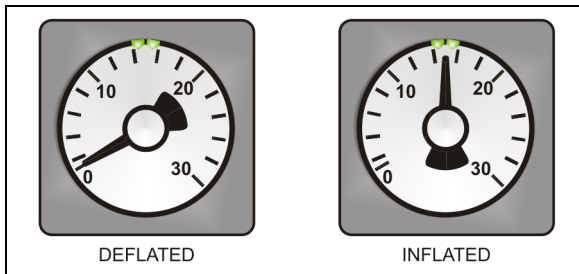


FIGURE 14: INFLATABLE SEAL PRESSURE GAGE

### 5.1.2 Manual Extending Procedure – Front And Rear Slide-Out

1. Apply parking brake to disengage the security pin from the receptacle.
2. Turn the ignition switch to the "OFF" position, and remove the ignition key for more safety.
3. Deflate the seal by using the relieving shut-off valve located on the pneumatic component panel (Figure 48, Item 1). Turn the handle clockwise to deflate the seal. Make sure the pressure indicator reading is "0 psi".

**CAUTION**

The pressure in the seal must be completely relieved to prevent any damage to the seal.

**NOTE**

The slide-out cannot be moved with the

control pad when seal air pressure is relieved.

4. To move the slide-out, use a cordless power drill with a 10 mm hexagonal socket on the shaft extension of the slide-out motor.
5. Rotate the slide-out motor shaft extension with the power drill until the slide-out comes to its opened position.
6. Once the slide-out is lined up to its opened position, remove the tool from the motor.

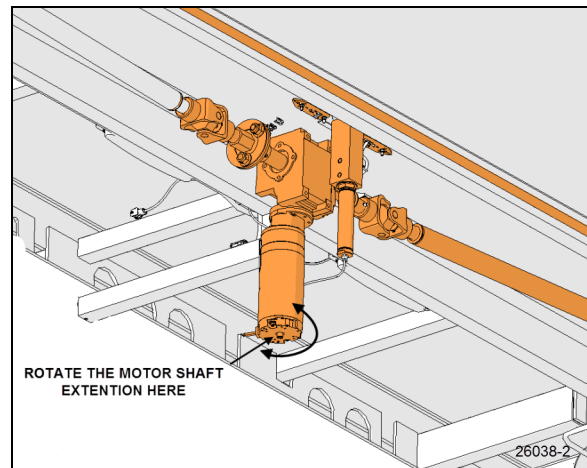


FIGURE 15: SLIDE-OUT MOTOR ROTATION

**NOTE**

The **front slide-out motor** is located inside the 2<sup>nd</sup> baggage compartment while the **rear slide-out motor** is accessible from inside the vehicle, under the bed structure.

**CAUTION**

Slow down on the closing speed as the slide-out approaches its extended position. As soon as the "out limit" stoppers come in contact with their bearing surface, stop immediately the power drill rotating movement. Not doing so could overload the drive mechanism and cause damage to the reduction gearbox.

7. Finally, the inflatable seal can be re-inflated by turning the shut-off valve handle counterclockwise. Check the pressure gage on the inflatable seal regulator to see if the pressure is increasing to 15 psi  $\pm$  5 psi (Figure 14).

## 6 SLIDE-OUT 2" INSIDE RETRACTION

Use this procedure to change a damage seal or for maintenance of the rear right slide-out.



### CAUTION

Do not retract slide-out room too far in. Retract just past the wiper seal. (Figure 21)



### CAUTION

Avoid using the slide-out control pad to move the slide-out inwards. The limits are not recognized over the closed position. The slide-out will not stop and damage may occur.

1. Fully deflate the air seal by turning the shut-off valve clockwise (Item 1, Figure 48). Make sure the pressure indicator is at "0 psi".
2. Turn the ignition to the off position. Using the manual override procedure (Paragraph 5), extend the slide-out a few inches so the exterior extrusion screws located on the top of the slide-out are accessible from outside (Figure 30).
3. Some items need to be removed to provide clearance for the pinion. (Figure 16, top image)

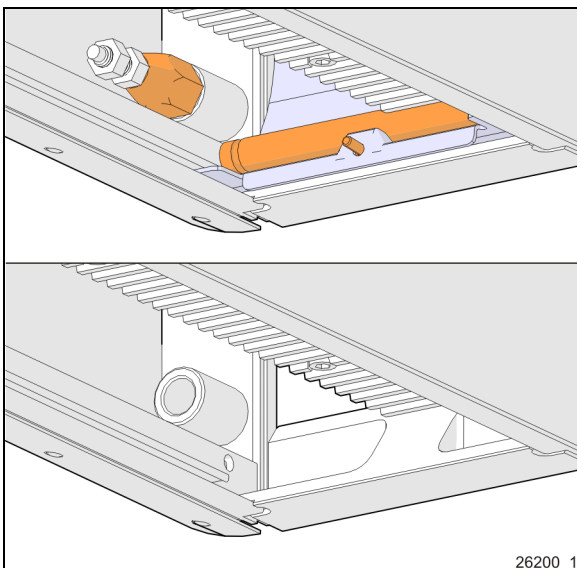


FIGURE 16: REMOVAL FOR PINION CLEARANCE.

4. Remove the flexible rail cover, refer to 7.1.2

5. Mark and remove the in limit stoppers, refer to 7.3.2. Once the procedure is completed, they should be returned in their original location to preserve room adjustment.

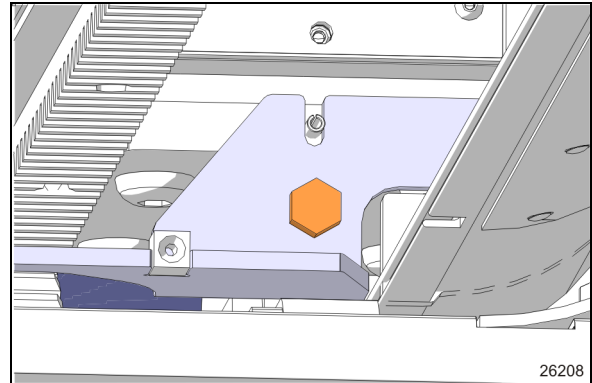


FIGURE 17: FLEX COVER ANCHOR PLATE

6. Remove the flexible cover anchor plate to provide clearance moving in. (Figure 17).
7. Using a knife, cut the sealant between the Top extrusion and the roof. (Figure 18, Figure 30)

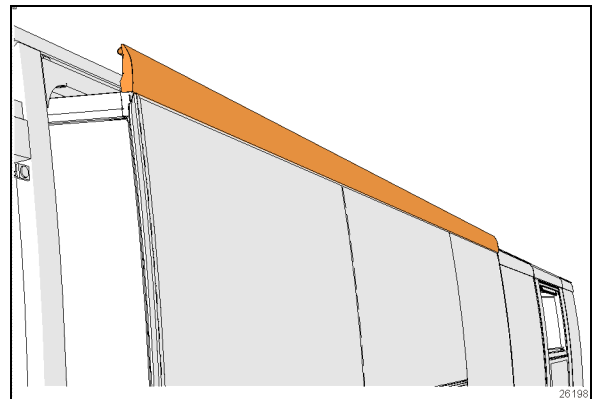


FIGURE 18 TOP EXTRUSION

8. Remove the screws holding the top extrusion to the room structure. (Figure 18)

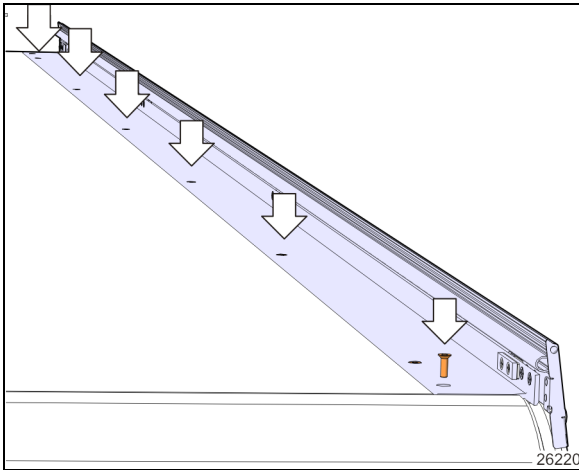


FIGURE 19: TOP EXTRUSION SCREWS

9. Carefully remove the top extrusion
10. Optionally you may disengage the pinion, see PINION GEAR DISENGAGEMENT.

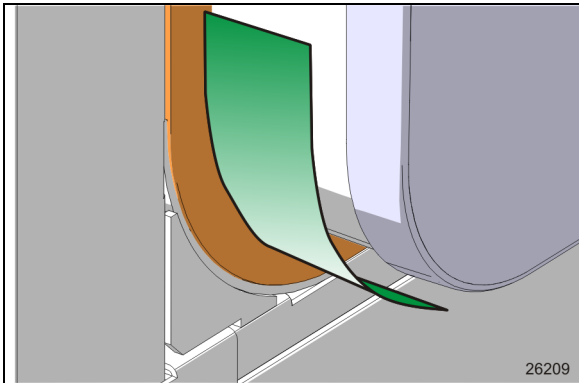


FIGURE 20: PLASTIC SHEET -WIPER SEAL PROTECTION

11. Protect the wiper seal by inserting a polypropylene plastic sheet between the room and the wiper seal. Do this on both bottom corners (Figure 20). This will distribute the compression of the wiper seal on a wider zone and prevent the room exterior panel corner from binding or pulling on the wiper seal.
12. Using the manual override procedure paragraph 5, move the slide-out 2" inside the vehicle just so the seal becomes accessible from the outside (Figure 21).

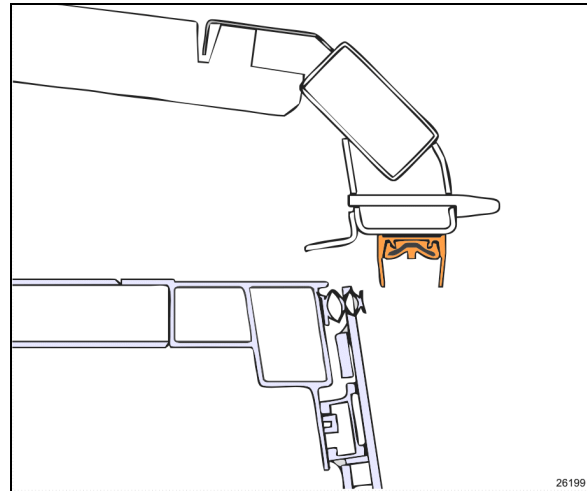


FIGURE 21: ROOM 2" INSIDE – UPPER SECTION VIEW

13. Once completed, use the manual override procedure to extend the slide-out and reinstall the exterior extrusion. Apply appropriate sealant on the exterior extrusion screws and between the extrusion, the roof and the edges to prevent water infiltration (Figure 30).
14. Re install all removed components.
15. Using the manual override procedure, retract the slide-out to its closed position.
16. Finally, the seal can be re-inflated by turning the shut-off valve handle counterclockwise. Check the pressure gage on the inflatable seal regulator to see if the pressure is increasing to 15 psi  $\pm$  5 psi.

## 7 MAIN COMPONENTS

### 7.1 FLEXIBLE RAIL COVER

A flexible rail cover (Figure 22) protects the linear bearing assembly from water, dust and debris. As the room moves out, it is pulled under the linear bearing and rack gear assembly. It is pushed back and curls up over the assembly or slide up in the wall as the room moves in.

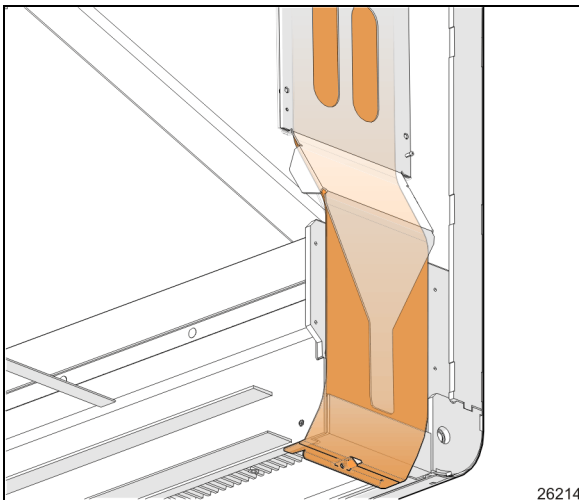


FIGURE 22: FLEXIBLE RAIL COVER (FRONT LEFT S/O SHOWN)

#### 7.1.1 Maintenance

Regular visual inspection of the rail cover will ensure the rail and bearing system is protected from debris and dust intrusion.

If it is damaged or cracked, it must be replaced. The flexible cover is fixed by a tab and mounting screw. (Figure 23)

#### 7.1.2 Removal

Deflate inflatable seal completely by turning the relief shut-off valve handle clockwise (see Figure 48, Item 1)

Push down wiper seal with a soft pry tool taking care not to damage the inflatable seal.

Unscrew the retaining screw (Figure 23)

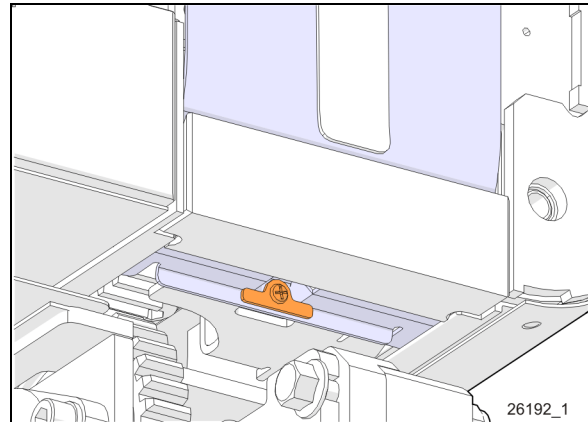


FIGURE 23: TAB AND RETAINING SCREW

Pull flexible cover towards the inside of the vehicle. Slip the cover out of the extrusion at the notch in extrusion bottom (Figure 24)

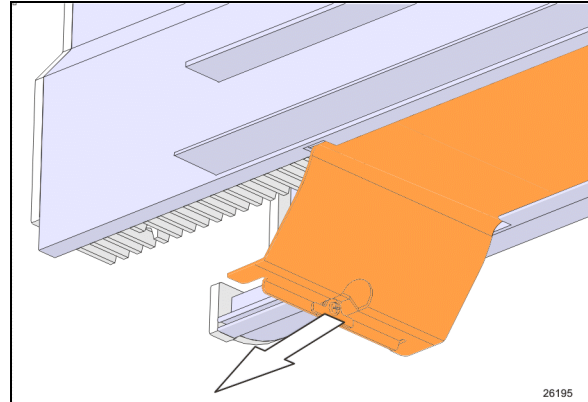


FIGURE 24: PULLING THE FLEXIBLE COVER OUT.

### 7.2 INNER STOPPER

The slide-outs are equipped with one inner stopper on the top horizontal member of the slide-out (Figure 26). The upper inner stoppers are used to provide a support to align the slide-out with the vehicle structure.

Note that when the “out limit” sensors are properly adjusted, the slide-out extension stops before the stoppers reach the structure keys (Figure 26 & Figure 25).

#### 7.2.1 Maintenance

Check that the inner stopper screws are tight and that no damage or deformation has occurred.



### 7.2.2 Adjustment

1. Adjust the upper structure key and the inner stoppers according to Figure 27 with the seal deflated. When inflating, the seal presses the roof structure upward slightly and at that moment, the upper inner stopper comes into contact with the upper structure key.

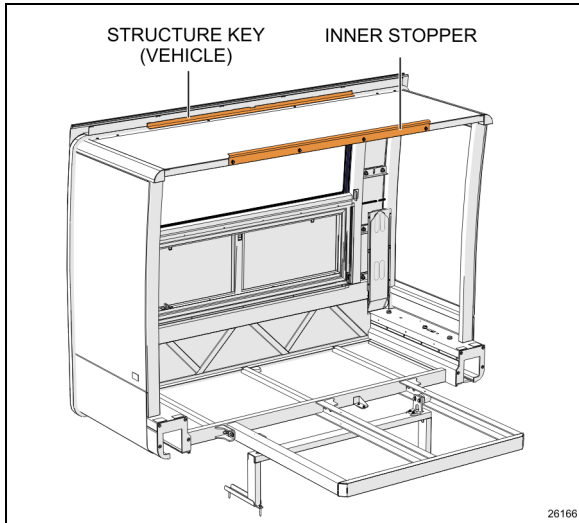


FIGURE 25: REAR LEFT SLIDE-OUT

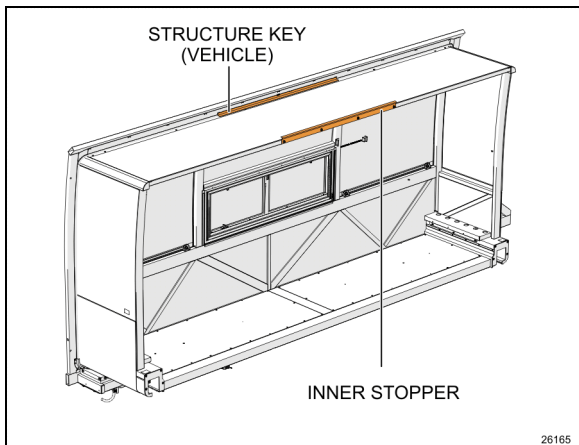


FIGURE 26: SLIDE-OUT UPPER STOPPER (FRONT LEFT SHOWN)

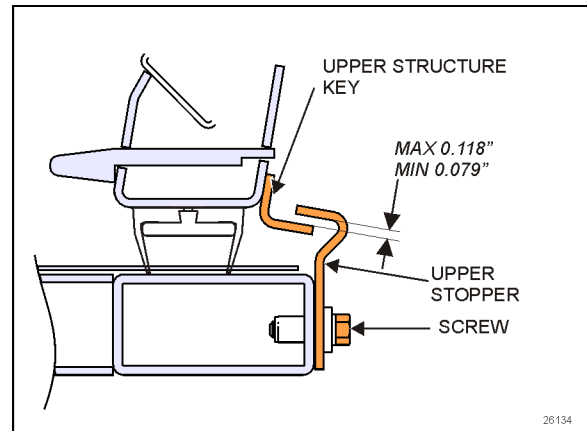


FIGURE 27: UPPER INNER STOPPERS ADJUSTMENT

### 7.3 "IN LIMIT" STOPPER

Each slide-out has four "in limit" stoppers. Two "in limit" stoppers are mounted under the slide-out, next to the rail (Figure 28) and two other "in limit" stoppers are mounted on the exterior extrusion at the top of the slide-out (Figure 29). These stoppers are used to adjust the outer face of the slide-out flush with the vehicle body when retracted.

#### 7.3.1 Maintenance

Check that the "in limit" stoppers are clean and that there is no foreign matter accumulated between the stopper and their bearing surface. Check that the screws locking the stoppers in proper position are tight.

#### 7.3.2 Removal

If removal of the lower in limit stoppers is required for maintenance, only unscrew the body. (Figure 28)

Leave the stem and jam nut in position to preserve adjustment. Adjustment may differ in fore and aft. We recommend marking the stoppers and returning them to their original position.

At reassembly, **Tighten to 7 lb-ft (10 Nm)**. (Aluminum threads)

#### 7.3.3 Adjustment

##### **NOTE**

*To properly adjust the "in limit" stoppers, the slide-out system must be turned off to prevent the "in limit" sensors from stopping the slide-*

## SECTION 26b: X3 SERIES SLIDE-OUT

*out movement before having the "in limit" stoppers contacting their bearing surface.*

1. Extend the slide-out partially.
2. Set the ignition switch to the OFF position.
3. Unscrew the flexible cover retaining screw (Figure 23)
4. Slide the flexible cover fully towards the outside to gain access to the stopper.
5. To adjust the lower "in limit" stoppers, loosen the jam nut, then rotate the stem CW or CCW to move it back or forward depending on the required adjustment. **Tighten to 7 lb-ft (10 Nm).**
6. To adjust the upper "in limit" stoppers, add or remove shims as required between the stopper and the extrusion.
7. Using the manual override procedure (paragraph 5), move the slide-out to its full "in" position.
8. With the stoppers contacting their bearing surface, check the outer face of the slide-out using a straight edge. Confirm it is flush with the vehicle body. Readjust the stoppers if required
9. Readjust the "in limit" sensor.

### **NOTE**

*To make sure that the lower "in limit" stoppers are contacting their bearing surface when the slide-out is closed, put white paint on the "in limit" stopper before and check if the surfaces are marked with paint.*

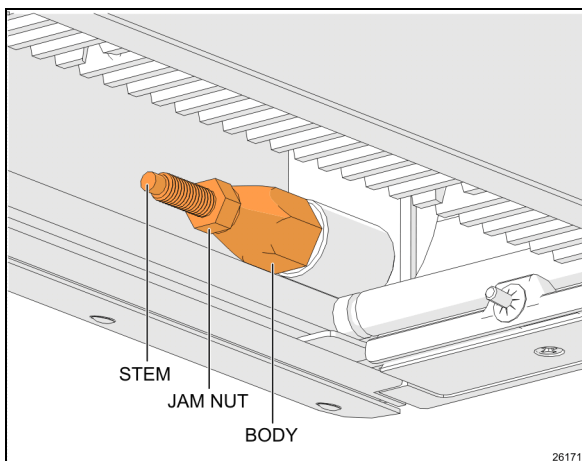


FIGURE 28: LOWER "IN LIMIT" STOPPER

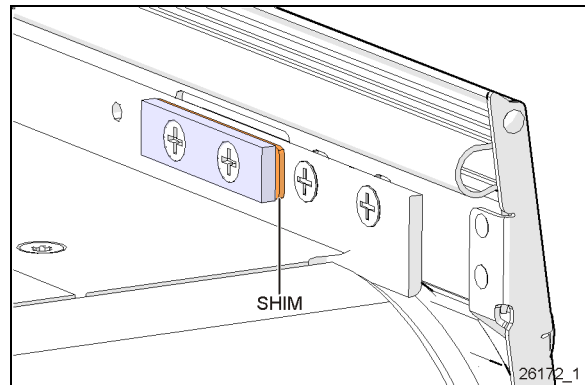


FIGURE 29: UPPER "IN LIMIT" STOPPER

## 7.4 EXTERIOR EXTRUSION

The exterior extrusion provides a support for the upper in limit stoppers and upper body joint.

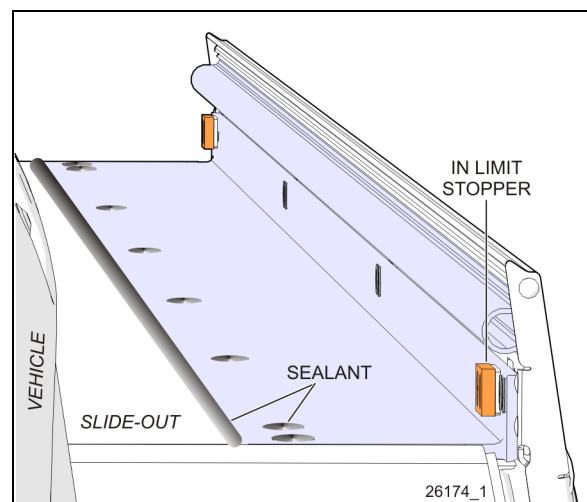


FIGURE 30: EXTERIOR EXTRUSION

### 7.4.1 Maintenance

Inspect the exterior extrusion for any deformation or deterioration. Check that the screws are tight. Inspect sealant condition on all screw heads and between the extrusion and the structure, and also at both ends of the extrusion. If needed, clean old sealant and replace with Sika 221 sealant or equivalent product.

## 7.5 INFLATABLE SEAL ASSEMBLY

An inflatable seal is used to prevent any type of infiltration that may occur between the vehicle body and the slide-out itself.

It is composed of an inflatable seal which is used as the *primary* sealing measure for both the retracted and extended slide-out position. There is also a wiper seal acting as a *secondary* sealing measure used to wipe water out and to ensure sealing during slide-out movement.

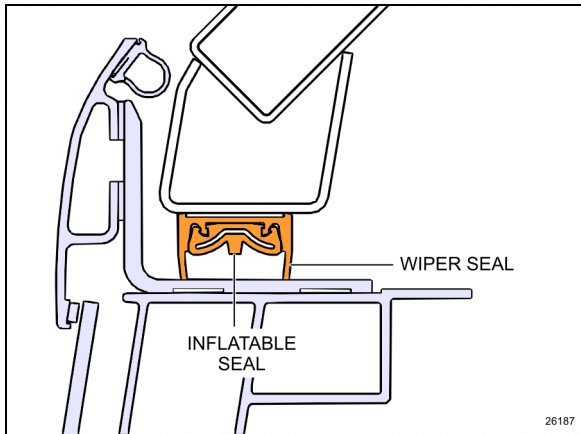


FIGURE 31: INFLATABLE SEAL ASSEMBLY

Seal is deflated automatically each time the slide-out is moved. The deflating valve solenoid is activated before and during slide-out movement. The deflating solenoid is deactivated upon reaching the retracted or extended position. Then the inflating solenoid is activated to re-inflate the seal.



### CAUTION

Make sure the inflatable seal is deflated when manually moving the slide-out during service maintenance. Deflate inflatable seals completely by turning the relief shut-off valve handle clockwise (see Figure 48, Item 1).



### CAUTION

Check before using any cleaning or adhesive product on seal, panel or glass to prevent alteration or damage.

## 7.5.1 Maintenance

The inflatable seal pressure must be set to 15 psi  $\pm$  5 psi with the pressure regulator. It is recommended to check the inflatable seal pressure once a month to ensure sealing efficiency and prevent any infiltration from outside. Check both seals for air leaks or cracks. Check the sealant between the inflatable seal and the exterior panels and glasses. Add sealant if necessary.

## 7.5.2 Seal Assembly Replacement

### NOTE

Refer to [MI19-27](#) for detailed instructions on inflatable seal assembly replacement

## 7.6 SECURITY PIN

During normal ride, the slide-out cannot extend by itself because the 740:1 ratio speed reduction worm gear type gearbox system is not reversible, the output shafts are self-locking. The security pin purpose is to lock the slide-out in retracted position if an accident occurs. It is built to withstand any resulting lateral acceleration of the slide-out.

The system consists of a stainless steel pin connected to a single action/spring return pneumatic cylinder (Figure 32). The pin engages in the slide-out receptacle with releasing of the parking brake. A knocking sound may be heard at this moment. An O-ring is located at the base of the pin housing to reduce knocking when the pin retracts. The lower hole on the pin housing permits water to drain. The upper hole allows inserting a small screwdriver to prevent pin rotation on air cylinder removal.

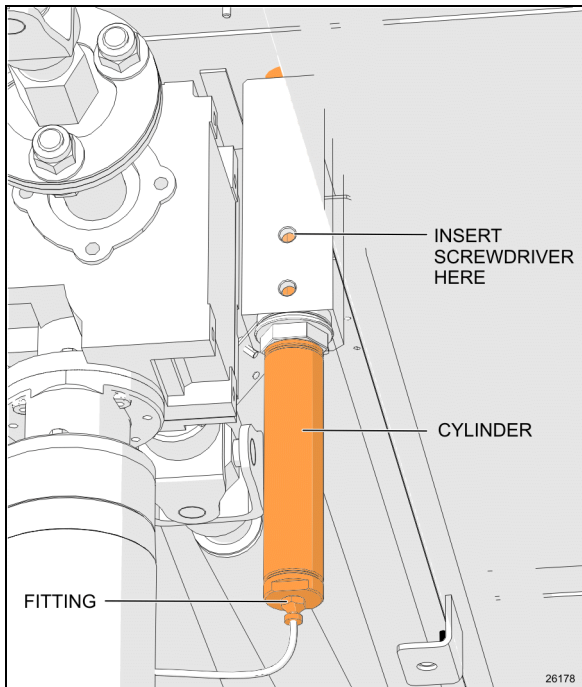


FIGURE 32: SECURITY PIN AIR CYLINDER REMOVAL

### 7.6.1 Maintenance

Inspect air cylinder and fitting for air leaks. Periodically, check that the pin retracts and engages in the receptacle as it should when the parking brake is applied or released.

To extend the slide-out, it must be at full “IN” position with the engine running. If the pin produces excessive knocking when it engages on parking brake release, reduce air cylinder speed by adjusting the air flow regulator on the pneumatic control panel (Figure 48, item 5).

### 7.6.2 Air Cylinder Replacement

1. Ensure the parking brake is applied.
2. Disconnect the fitting from the cylinder base. (Figure 32).
3. Using a wrench at its lower end, unscrew the air cylinder from the pin housing.
4. Insert a small screwdriver through pin and housing to prevent pin rotation. Unscrew the cylinder rod from the pin.
5. Transfer the fitting on the new cylinder. Apply Teflon paste on threads.
6. Cylinder installation is like removal but in reverse order.

## 7.7 RACK GEAR

Slide-out movement is made by a system of racks and pinions. There are two racks on each slide-out.

### 7.7.1 Maintenance

Once a year, check the rack gears for broken or worn tooth, especially the front slide-out racks. Also, check the rack fastening hole teeth that are weaker and might break (Figure 33). Replace the racks if excessive wear is present. Clean racks from sand or other debris. Check that the racks are properly secured. Check the backlash between the gear and the rack. Excessive backlash indicates rack wear.

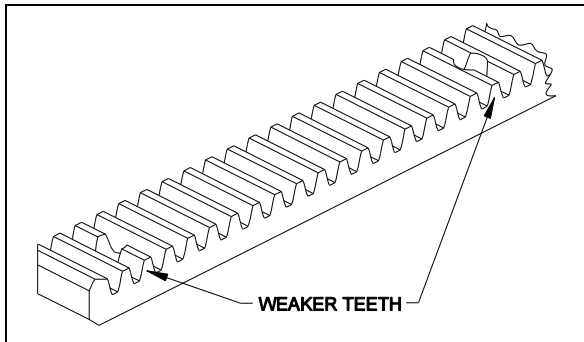


FIGURE 33: RACK GEAR

### 7.7.2 Front Slide-Out Rack Gear Replacement

1. Remove the slide-out from the vehicle (removal must be performed according to MI18-31).
2. From under the slide-out, unscrew all the rack screws and remove the rack.
3. Install a new rack and tighten the screws. Use Loctite™ 242 or equivalent product on threads.

**TORQUE: 1.9-2.1 lb-ft (2.58-2.85 Nm)  
MAX**

4. Reinstall the front slide-out inside the vehicle.

### 7.7.3 Rear Slide-Out Rack Gear Replacement

1. Using the slide-out control pad, extend the slide-out about one foot.

2. If using the manual override procedure, paragraph 12, do not forget to deflate the inflatable seal completely
3. From outside, unscrew and remove only the first two screws of the rack to be changed.
4. Using the manual override procedure (paragraph 5) only, retract the slide-out to its fully closed position.
5. Rotate the pinion assembly away from the rack as described in 7.8.1
6. From under the slide-out, unscrew all the rack screws and remove the rack.
7. Install a new rack between the slide out structural rack seat and the pinion and tighten the screws. Use Loctite™ 242 or equivalent product.

**TORQUE: 1.9-2.1 lb-ft (2.58-2.85 Nm)**

8. Rotate the pinion assembly back in place. As described in 7.8.1
9. Using the slide-out manual override procedure only, extend the slide-out about one foot.
10. Tighten the two remaining screws. Use Loctite™ 242 or equivalent product.

**TORQUE: 1.9-2.1 lb-ft (2.58-2.85 Nm)  
MAX**

11. Using the slide-out control pad key or the manual override procedure, retract the slide-out to its fully closed position.
12. Re-inflate the air seal and confirm pressure is 15 psi ± 5 psi on the pressure gage. (Item 7, Figure 48)

## 7.8 PINION GEAR

A pinion gear is located on each side of the slide-out. It is used to move the slide out inward and outward.

The gear is mounted on a keyed shaft supported by two flange bearings. (Figure 34).

The *pinion assembly* (Figure 34) includes flange bearings, shaft, pinion and a mounting bracket.

The bracket rotates around a pivot screw. This screw serves as a locating pin only.

Gear play is adjusted by using tool G36772.

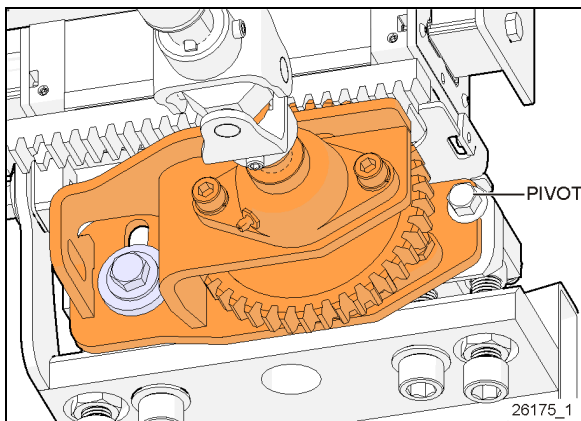


FIGURE 34: PINION ASSEMBLY



### CAUTION

In normal maintenance the pivot screw should not be tampered with or removed. If it is removed by error, apply thread locker and hand tighten.

### 7.8.1 Pinion Gear Disengagement

#### NOTE

To achieve proper gap between pinion and rack gear, use special tool: G36772. See 7.8.2 RACK AND PINION GAP SETTING

Pinion disengagement can be achieved by rotating the pinion assembly.

The pinion assembly rotates around a screw. (Figure 34) This screw serves as a locating pin only.

1. Slightly unscrew the slot screw to remove tension as shown in Figure 35

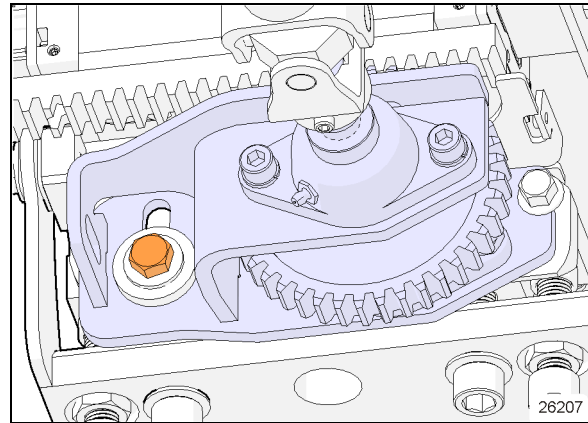


FIGURE 35: REMOVE TENSION. SLIGHTLY UNSCREW.

2. Rotate pinion assembly down. (Figure 36)

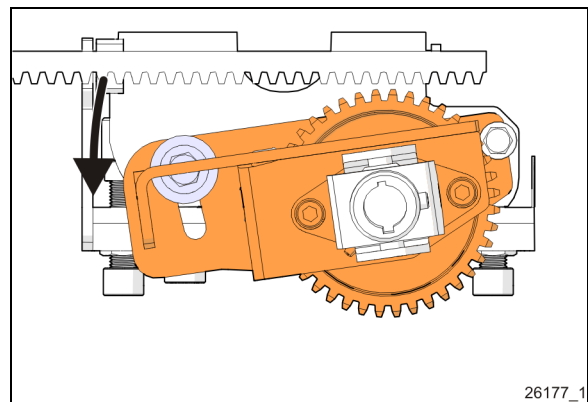


FIGURE 36: PINION ASSEMBLY ROTATION

3. Reverse steps to return the pinion assembly in position.
4. Set gear gap, see RACK AND PINION GAP SETTING.
5. Tighten screw to:  
**198 lb-ft (268 Nm)**

### 7.8.2 Rack And Pinion Gap Setting

Disengage pinion and place tool G36772 between the pinion gear and rack to set the gap. Push pinion gear to the bottom of the rack gear. Tighten pinion assembly in place.

Tighten screw to: **198 lb-ft (268 Nm)**.

Move the room to free the tool. Proceed to other side.

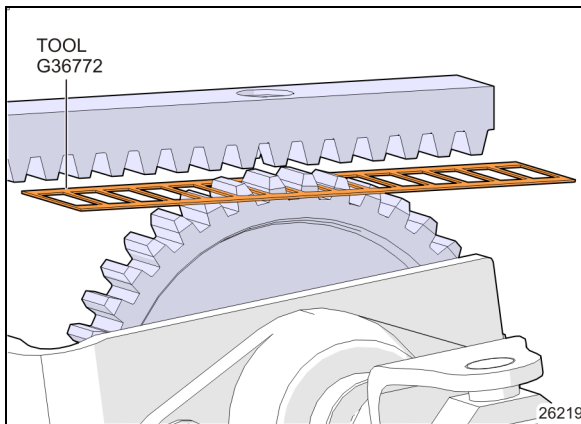


FIGURE 37: TOOL G36772

### 7.8.3 Pinion Gear Synchronization

To synchronize the pinion gears, use the adjustable flange.

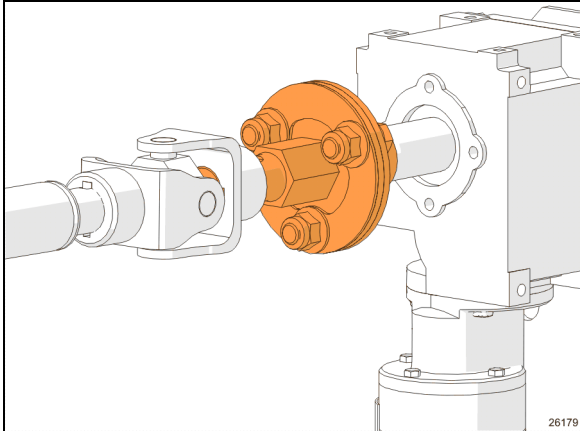


FIGURE 38: ADJUSTABLE FLANGE

1. Loosen flange screws. This disconnects the right angle gearbox and allows rotating the driveshaft leading to the pinion.
2. Rotate until pinion gears are synchronized.
3. The flange mating surfaces should be clean and dry to have proper friction.
4. Tighten screws to **59 lb-ft (80 Nm)**

### 7.8.4 Front Slide-Out Pinion Replacement

1. Unscrew all set screws on the drive shaft yokes (item 4 in TORQUE TABLES). Slide drive shaft towards gearbox to disengage the yoke from the pinion shaft (item 1 in Figure 39).
2. Disengage the pinion assembly. See 7.8.1.
3. Completely remove the pinion assembly. Place on a workbench.

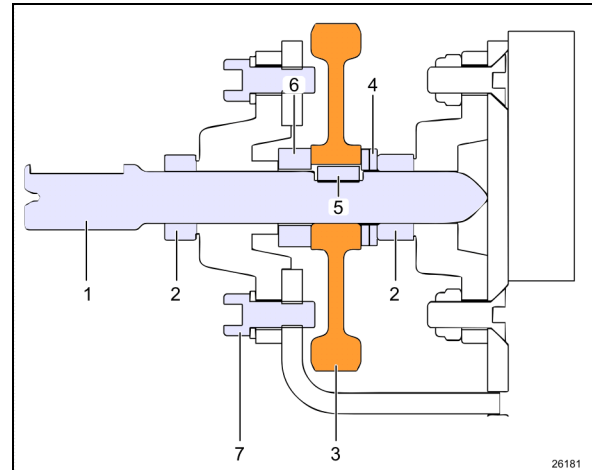


FIGURE 39: PINION ASSEMBLY SECTION VIEW.

- 1) Pinion shaft
  - 2) Locking collars (2)
  - 3) Pinion gear
  - 4) Thrust washers (2)
  - 5) Pinion key
  - 6) Thrust bushing
  - 7) Mounting screw, top pillow block bearing
4. Release both locking collars (2) by backing out the set screws and turning the collar.
  5. Unscrew and remove the top pillow block mounting screws (7). Keep hardware.
  6. Pull shaft (1) out
  7. Remove old pinion gear (3). If key is damaged, replace with new.
  8. On shaft (1), install thrust bushing (6), key (5), new pinion (3) and thrust washers (4).
  9. Push shaft through bottom locking collar (2) and bottom pillow bearing until the shaft end contacts the bottom mounting plate.
  10. Maintain shaft in contact with plate and lock bottom collar (2).
  11. Using a drift and hammer, tension the eccentric locking collar (2) by means of one

or two strong blows. There is a cavity on the collar made for that purpose.

12. Apply blue loctite 243 threadlocker to set screws and hand tighten.
13. Re-install the top pillow block hardware  
**Tighten to 48 lb-ft (65 Nm)**
14. Re-install pinion assembly.
15. On the pinion assembly, tighten screw (Figure 35) to: **198 lb-ft (268 Nm)**
16. Slide driveshaft back in place  
Tighten drive shaft yokes set screws to **27 lb-ft (37 Nm)**

#### 7.8.5 Rear Slide-Out Pinion Replacement

The procedure is similar to the front slide-out shaft pinion replacement.  
Gain access to the mechanism from inside the vehicle under the bed structure.

## 7.9 ELECTRIC MOTOR

The power is supplied by a 24V, 1/3 HP electric motor coupled with a speed reduction gearbox.

Opposite to the gearbox, the motor is equipped with a 10 mm hexagonal shaft extension allowing slide-out movement without the control pad.

This shaft extension is used to move the slide-out at low speed during the inner stoppers adjustment, the tilt adjustment or the 2" inside retraction.

See paragraph 5 for the manual override procedures.



### CAUTION

When moving the slide-out with a cordless power drill as described in the manual override procedure, be careful as the slide-out approaches the open or closed position, in order not to overload the mechanism.

#### 7.9.1 Maintenance

Inspect the electrical connections and water seal condition. Check that the mounting bolts are tight (Figure 41).

#### 7.9.2 Replacement

1. The slide-out must be retracted half way in.



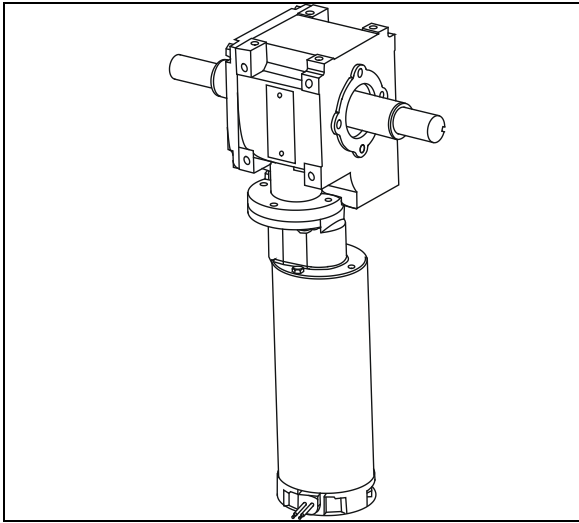


FIGURE 40: ELECTRIC MOTOR AND SPEED REDUCTION GEARBOX

2. Unplug the electric cable connector.
3. Remove the motor from the gearbox.
4. Fasten the new motor to the gearbox using screws.
5. Re-connect the electric cable connector.

## 7.10 SPEED REDUCTION GEARBOX

The speed reduction gearbox used is a helical worm gear type. This gearbox has a 2-stage 740:1 ratio and the output shafts are self-locking. Keys on output shafts are glued into keyseats.

### 7.10.1 Maintenance

Inspect the gearbox to check if there is any leakage or backlash in the box. Replace the gearbox if excessive wear is present. Check that all bolts are tight.

The gearbox is lubricated for life and the oil should not have to be changed.

### 7.10.2 Gearbox Replacement

1. The slide-out must be retracted half way in.
2. Disengage the drive shafts
3. Remove the 4 cap screws securing the drive motor/gearbox assembly and dismount the assembly.
4. Remove the gearbox from the motor and install the new one.
5. Reinstall the drive motor/gearbox assembly on the vehicle mounting bracket. Tighten mounting bolts in a crisscross pattern.

**TORQUE: 16-20 lb-ft (22-27 Nm)**



### CAUTION

To prevent damaging threads, use your fingers to drive the bolts into the aluminum gearbox housing mounting holes.

6. Reinstall the drive shafts.

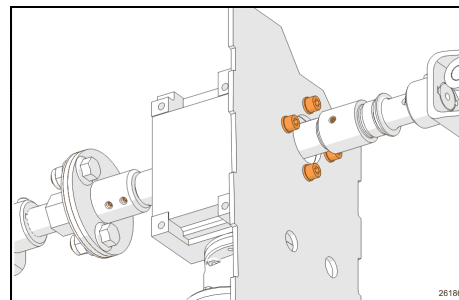


FIGURE 41: DRIVE MOTOR/GEARBOX ASSEMBLY MOUNTING BOLTS

## 7.11 DRIVE SHAFT

A driveshaft transmits the rotation from the gearbox to the pinion.

### 7.11.1 Maintenance

Due to the low speed and low duty cycle of slide-out operation, the drive shafts do not require any maintenance or additional greasing. In

### 7.11.2 Replacement

1. The slide-out must be retracted.
2. Disengage the yokes by unscrewing the set screws and sliding out of the pinion and gearbox shafts.
3. Install the new drive shaft.
4. Tighten the yoke set screws to **27 lb-ft (37 Nm)**

## 7.12 flange BEARINGS

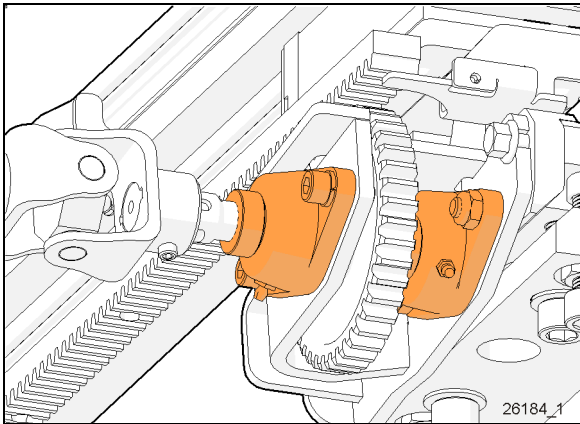


FIGURE 42: FLANGE BEARINGS

The flange bearings are pre-lubricated and no subsequent lubrication is required due to the very low extending and retracting speed of the slide-out system.

## 7.13 LOCKING COLLAR

The locking collar secures the shaft and the flange bearing together using friction. Once locked, it prevents axial translation and rotation of the shaft in the flange bearing bore.

### 7.13.1 Installation

Slide the locking collar along the shaft up to the flange bearing. Turn the locking collar clockwise while maintaining it pressed against the bearing.

Using a drift and hammer, tension the eccentric locking collar by means of one or two strong blows. There is a cavity on the collar made for that purpose.

Apply Loctite 243 blue thread locker and tighten the set screw to **4.4 lb-ft (6 Nm)**.

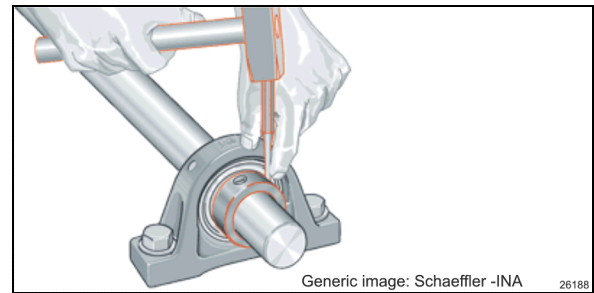


FIGURE 43: ECCENTRIC COLLAR TENSION APPLICATION

To remove the collar, loosen the set screw and strike with a drift and hammer in the opposite direction.

## 7.14 LINEAR BEARING AND RAIL

Rail and linear bearing system provide precise frictionless linear movement together with high load carrying capacity and high stiffness. This standardized equipment is fully interchangeable.

To prevent corrosion, an electrolytic black film treatment is performed to the rail. Do not strike the rail with metal tools, this could damage the treatment.

A flexible rail cover (Figure 22) protects the linear bearing assembly from water, dust and debris.

### 7.14.1 Dummy Rail

The bearing carriages are sold with a dummy rail. It prevents damage to the rolling element set if the carriage is removed from the main rail.

Additional dummy rails are useful for carriage replacement.

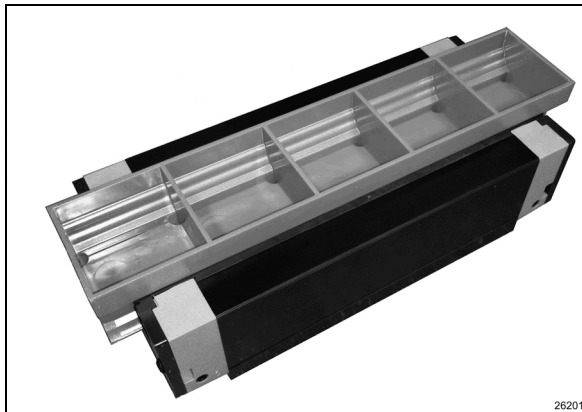


FIGURE 44: BEARING CARRIAGE AND DUMMY RAIL

### 7.14.2 Bearing Carriage Maintenance

Make every effort not to allow dust and foreign objects to enter inside the linear bearing. Regularly inspect and clean the flexible rail cover to make sure it is in good condition.

The linear bearings are pre-lubricated and no subsequent lubrication is required.

### 7.14.3 Bearing Replacement

#### **NOTE**

Before starting procedure, we recommend having at least one dummy rail in hand.

The procedure allows replacement of the bearings with minimal impact on the adjusted position of the slide-out room. Perform the procedure on one side at a time.

1. Extend the room for maintenance. See paragraph 3
2. Remove the top rail screws (3) on one side.

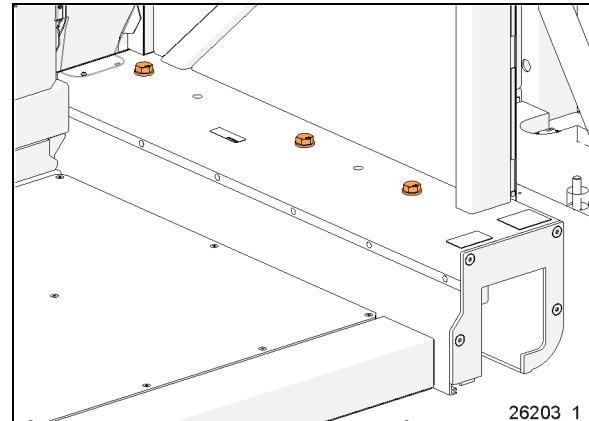


FIGURE 45: TOP RAIL SCREWS

3. On the same side, remove retaining screws A & B, (Figure 4).
4. Remove the lower carriage mounting screws. (Figure 46)

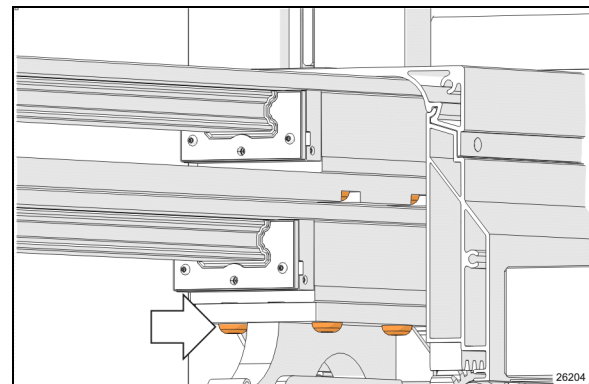


FIGURE 46: LOWER CARRIAGE MOUNTING SCREWS

5. Pull out bearing and rail sub-assembly. Place on a work table.
6. Turn the assembly upside down to access and remove the bearing mounting screws (Figure 47).

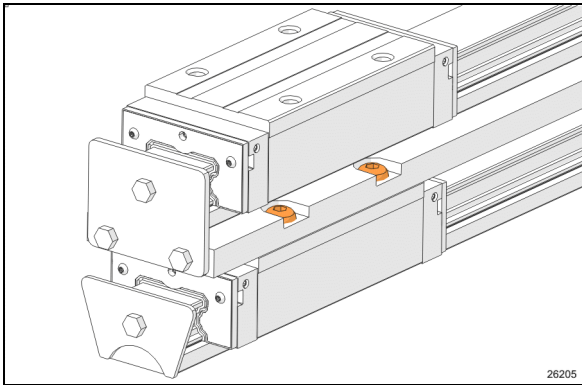


FIGURE 47: BEARING CARRIAGE MOUNTING SCREWS

7. Remove rail end plates.
8. Place the dummy rail at the end of the rail.
9. Dismount one of the two linear bearing carriages onto the dummy rail. Proceed similarly for second carriage.

**WARNING**

Always push the bearing carriage directly from the slide-out rail onto the dummy rail.

Leave dummy rail in the carriage until ready to reassemble.

10. Slip new carriages onto the slide-out rail.
11. Tighten the mounting bolts in a crisscross pattern.  
**TORQUE: 59 lb-ft (80 Nm)**
12. Reinstall end plates  
**TORQUE: 17 lb-ft (23 Nm)**
13. Re install the lower carriage mounting screws. (Figure 46).  
**TORQUE: 59 lb-ft (80 Nm)**
14. Re-install retaining screws A & B, (Figure 4).  
**TORQUE: 55-65 lb-ft (75-88 Nm)**
15. Proceed to bearing assembly on the remaining side and re-start procedure.

## 8 SLIDE-OUT PNEUMATIC SYSTEM

The slide-out is controlled by a pneumatic and electrical system. The pneumatic system consists of electrically controlled valves that operate slide-out components and control safety operations.

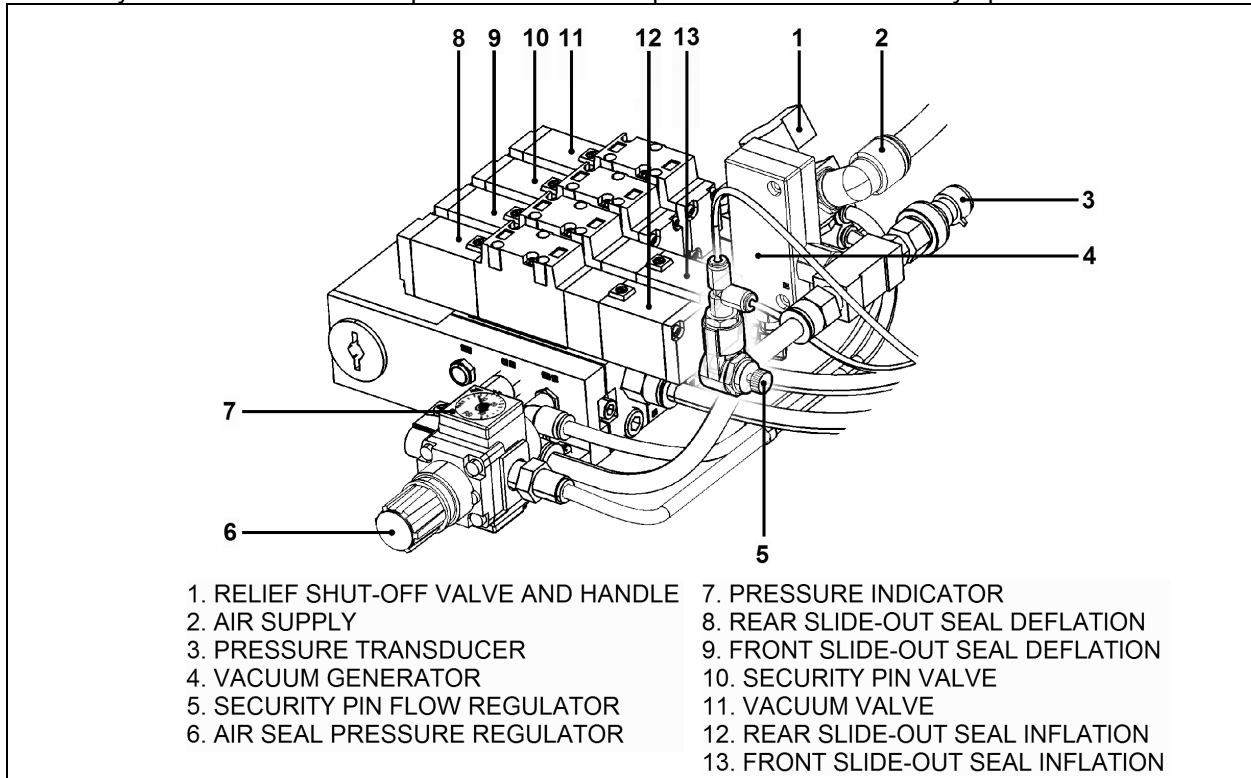


FIGURE 48: PNEUMATIC COMPONENT PANEL

### 8.1 DESCRIPTION

#### AIR PRESSURE INLET VALVE

The slide-out air supply comes from the accessory tank.

The supply line for the pneumatic component panel (Item 2, Figure 48) is connected to the air pressure inlet valve on the pneumatic panel in the front service compartment.

#### INFLATABLE SEAL VALVE

Seal inflation and deflation is done using a 5-port 2-position manifold valve with two solenoids. One solenoid is used for inflating of the seal and the other for deflating of the seal. When one of the solenoids is activated (seal deflating valve for example), the valve will keep its state even if the solenoid is deactivated. The inflating valve

solenoid is activated to re-inflate the seal when the slide-out reaches its inner or outer limit. The inflatable seal pressure is set to 15 psi  $\pm$  5 psi. In full "IN" or full "OUT" position, this pressure is continuously applied to the seal as long as the accessory air tank (which supplies the slide-out) is not empty.

#### VACUUM GENERATOR

A vacuum generator using Venturi principle is controlled by a 5-port 2-position manifold valve and is used to evacuate the air faster from the seal and to ensure that the seal surface does not stay in contact with the slide-out.

The vacuum generator valve is activated simultaneously with seal deflating valve solenoid for 10 seconds. A pressure transducer will detect a seal, vacuum valve or generator failure if -5

psig is not reached after the 10 seconds delay. In that situation, an error code will be stored in the DID. In normal operating condition, -5 psig is a necessary condition to consider the seal as deflated.

**NOTE**

*When air pressure is relieved using the shut-off valve, the normal extending and retracting operation cycle is disabled. This is due to the pressure transducer reading 0 psig and that is higher than -5 psig (vacuum). For that reason the slide-out cannot be moved with the control pad.*

## 8.2 MAINTENANCE

### COMPRESSED AIR LINE

Inspect all compressed air line tubing for cuts, swelling, kinks or other damage or deterioration. Inspect the pneumatic fittings and components for any leak.

The slide-out air supply comes from the accessory air tank. For maintenance information, refer to Section 12, “Brake and air system”.

### INFLATABLE SEAL CIRCUIT

The efficiency of the seal could be affected by impurities, such as white powder in the pneumatic control valve. It is recommended to inspect the inflatable seal control components once a year to prevent malfunction. In this case, remove the seal valves and clean the interior valve components using a compressed air nozzle. Do the same thing with the vacuum generators.

The inflatable seal pressure must be set to 15 psi maximum. It is recommended to check the inflatable seal pressure once a month to ensure sealing efficiency and prevent any infiltration from outside. The needle on the pressure gage should indicate between the two small green arrows on the dial (Figure 14).

## 9 SLIDE-OUT ELECTRICAL SYSTEM



### DANGER

Never modify the slide-out electrical wiring. Any modifications may cause an unexpected slide-out action and could result in personal injuries.

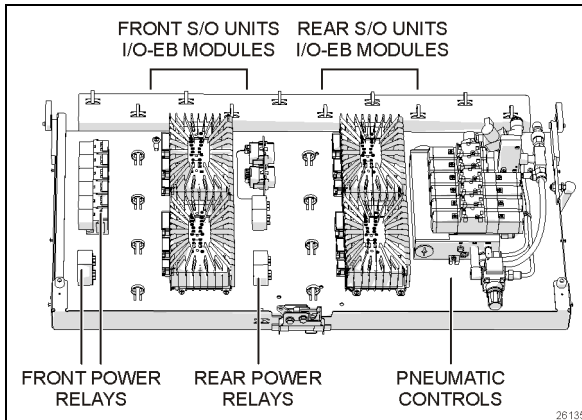


FIGURE 49: SLIDE-OUT CONTROL PANEL

The multiplexed slide-out electrical system is mainly composed of the MCM module, the VEC module and one I/O-EB module per installed slide-out.

For standard Prevost slide-outs, each I/O-EB module has two power relays assigned.

I/O-EB modules analyze the input signal conditions and activate outputs like pneumatic valves, retraction and extension sequence, etc. The power relays are used to supply power coming from the I/O-EB module to the electric motor and to change polarity to reverse motor rotation.

I/O-EB modules input signals are:

- Control pad switch IN;
- Control pad switch OUT;

Also, the following input signals are required for a safe operation of the slide-out:

- Pressure transducer;
- Parking brake;
- “in limit” sensor;
- “out limit” sensor;

I/O-EB modules output signals are:

- Control pad green indicator light;
- Power relay current reversing;
- Seal valve inflating solenoid;
- Seal valve deflating solenoid;
- Vacuum generator valve solenoid;
- Security pin valve solenoid;
- Electric motor, output 16 amps; one per motor



### DANGER

Before working on the slide-out electrical system, turn the ignition key to the “OFF” position.

### 9.1 ELECTRICAL INTERCONNECTION WITH PREVOST VEHICLE

The slide-out power supply comes from the 24-volt circuit breaker in the rear electrical compartment. The other interconnections are located on the pneumatic panel and the electrical panel in the front service compartment. All the interconnections are shown on the electrical diagrams of your vehicle.

A blinking green light on the control pad means that an error condition or a missing operation condition is present on a slide-out.

### 9.2 SLIDE-OUT FUSES

The main fuse for the slide-out electrical system is F136. It is located in the rear electrical compartment

#### 9.2.1 Multiplex Fuses

The multiplex module outputs are protected in current by an internal “soft-fuse”. Each output is

programmed to specific maximum amperage. When an output is shorted, the current gets above the limit and the soft-fuse intervenes to turn the output OFF. The output stays OFF until the "soft-fuse" is reset.

Turn the ignition key to the OFF position and turn to the ON position again. This resets all "soft-fuses".



## CAUTION

Never put grease, Cortec VCI-238 or other product on the multiplex modules connector terminals.

### 9.3 PROBING VOLTAGE ON THE MULTIPLEX CIRCUITS

Multiplex modules are supplied by 24 volts.

Inactive Multiplex output = Residual voltage of 18% to 33% of supply voltage.

Inactive Multiplex input = Residual voltage of 50% of supply voltage.

#### NOTE

*For a 24V module: an active voltage would be 24V or 0V but not in between. If you measure the intermediate tensions (ex. 12V, 4V, or 8V) this must be interpreted as if the input or the output is inactive.*

### 9.4 MODULE REPLACEMENT

I/O-EB modules can be replaced and reprogrammed without having to connect a computer to the vehicle.

Refer to Section 06 under heading "MULTIPLEX MODULES REPLACEMENT" for the detailed procedure.

### 9.5 SLIDE-OUT LIMIT SENSORS

Two Hall-Effect sensors are used on each slide-out to define end limit positions. The "in limit" and "out limit" sensors detect two pairs of permanent magnets fixed on the slide-out underbody.

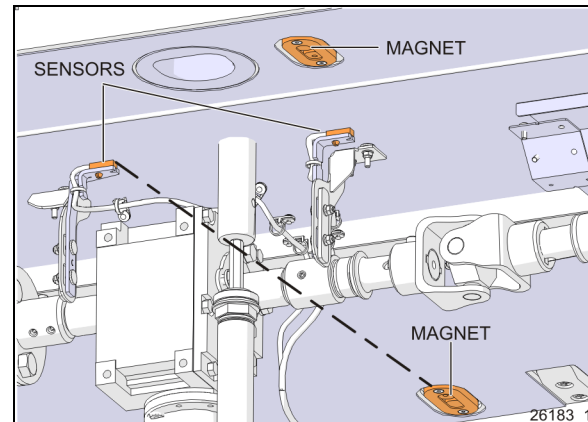


FIGURE 50: SENSORS & MAGNETS (FRONT S/O SHOWN)

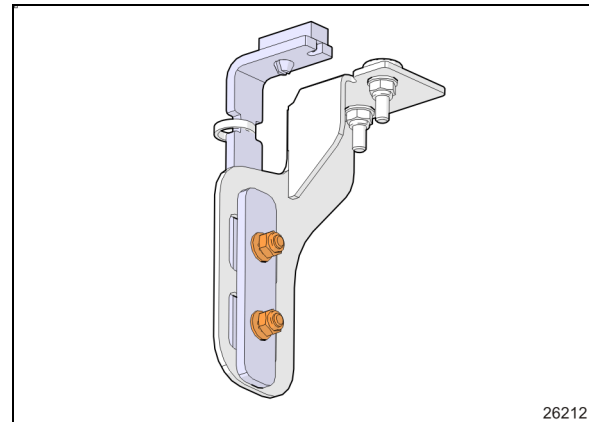


FIGURE 51: SENSOR BRACKET (FRONT)

#### 9.5.1 Accessibility

The front slide-out sensors can be reached from the baggage compartment. The rear slide-out sensors are accessible from inside of the vehicle, under the bed structure.

#### 9.5.2 To Adjust The "In Limit" Sensor:

Before adjusting the "in limit" sensor, ensure that the "in limit" stoppers are perfectly adjusted (see paragraph 7.3.3).

1. Retract the slide-out to its full "IN" position with the "in limit" stoppers in contact with their bearing surface.



- Loosen the “in limit” sensor mounting bracket screws and move back the sensor completely (toward the inside of the vehicle).
- Bring slowly the sensor toward the outside of the vehicle until the LED turns on. When it does, move it 0.079” (2mm) further in the same direction. Adjust vertically to 7mm from magnet support face (Figure 52). Tighten the mounting bracket screws.

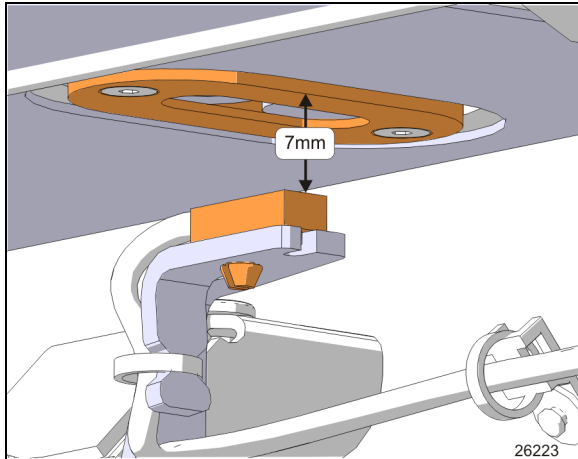


FIGURE 52: SENSOR VERTICAL ADJUSTMENT

- Check if the “in limit” sensor is properly adjusted. At the moment when the slide-out stops during normal retraction, the “in limit” stoppers must contact their bearing surface. Put white grease on the “in limit” stopper beforehand to visually confirm the system stops the motion before hitting the surface. There should be a grease mark on the surface.

### 9.5.3 To Adjust The “Out Limit” Sensor:

Before adjusting the “out limit” sensor, ensure that the inner stoppers are perfectly adjusted (see paragraph 3).

- The slide-out is slightly tilted except when it is in its full “IN” or “OUT” position. Extend the slide-out near its full “OUT” position. When the slide-out straightens up and is perpendicular with the vehicle body, stop the slide-out.
- Loosen the “out limit” sensor mounting bracket screws and move back the sensor completely (toward the inside of the vehicle).
- Bring slowly the sensor toward the outside of the vehicle until the led turns on. When it

does, move it 0.079” (2mm) further in the same direction and adjust vertically to 7mm from magnet support face (Figure 52). Tighten the mounting bracket screws.

#### NOTE

*When the “out limit” sensor is properly adjusted, the slide-out extension stops before the side inner stoppers reach the vehicle structure.*

## 10 SLIDE-OUT EXTERIOR FINISHING PANELS & WINDOWS

#### NOTE

*The removal and installation procedures are all based on standard service methods described in section 18: BODY. Refer to this manual for procedures, tools, cleaner, adhesives and other product needed.*

## 11 WELDING PRECAUTIONS



### CAUTION

Prior to arc welding on the vehicle, refer to the Welding Precautions Procedure Prior To Welding” in section 00 GENERAL of this manual to avoid serious damage to the vehicle components.

## 12 FINISHING PRECAUTIONS FOR CONVERTERS

No drilling is allowed in the zones identified by Figure 53, and Figure 54. *This applies on both sides of the slide-out room.*

This precaution is to avoid drilling through the flexible rail cover (Figure 22) which slides inside the slide out wall or rail housing when the slide-out is closed

SECTION 26b: X3 SERIES SLIDE-OUT

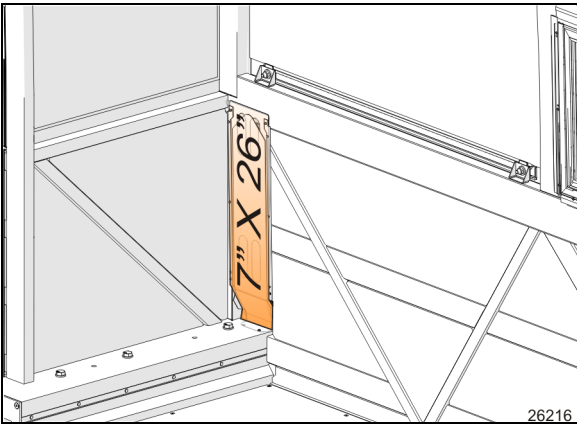


FIGURE 53: FRONT LEFT SLIDE-OUT "NO DRILLING" ZONE

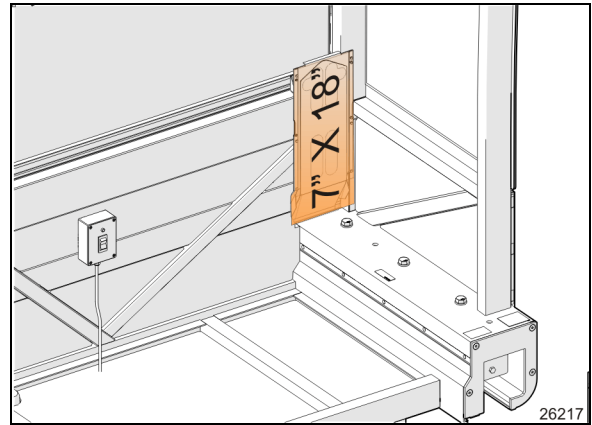
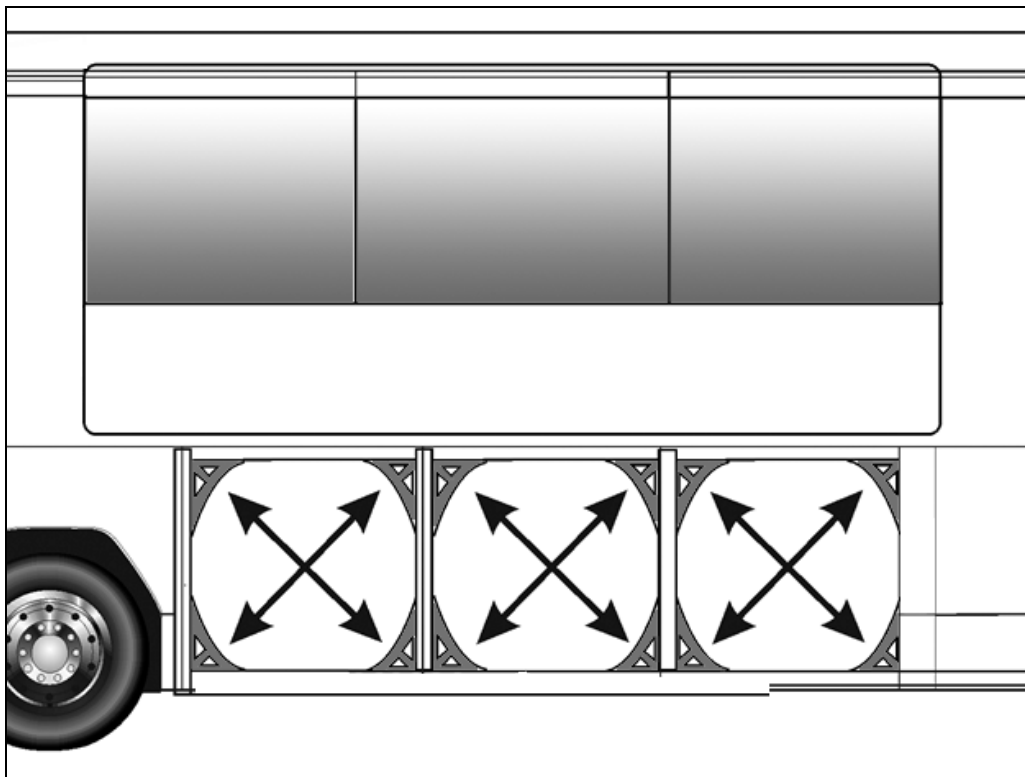


FIGURE 54: REAR RIGHT SLIDE-OUT "NO DRILLING" ZONE



**CAUTION**

Never remove the structural reinforcement angle brackets inside the baggage compartments. Doing so could lead to termination of the warranty coverage concerning the structural integrity.



**CONVERSION CHECKLIST**

The converter should check these points before closing the walls covering the mechanism:

1. Check that the front slide-out exterior panels are parallel with the vehicle panels when retracted. If not, readjust the tilt.
2. Check that the slide-out is straight when completely extended, and that it leans against all inner stoppers.
3. Check slide-out operation. The slide-out should retract and extend smoothly without vibration.

Final check:

- Make sure the slide-out air pressure inlet valve is completely opened.
- Check the inflatable seal air pressure on the pressure regulator. The pressure should be 15 psi  $\pm$  5 psi.

**13 TROUBLESHOOTING****13.1 ERROR CONDITION OR MISSING OPERATION CONDITION**

When an error condition or a missing operation condition is detected on a slide-out being operated, the green indicator light will blink on the control pad.

Turning the ignition OFF and ON again, will stop the blinking and reset the fault. If the error condition or a missing operation condition is still present, the blinking will start again the next time that the slide-out is operated.

To initiate fault diagnostic, use the DID right after operating the slide-out without cycling the ignition switch.

**NOTE**

*The DID is the main tool for troubleshooting a multiplex vehicle. It is essential to have it in working condition.*

**Fault diagnostic**

To get detailed information about the error condition or the missing operation condition, request a diagnostic using the dashboard Driver's Info Display (DID). Check if there are active errors in the slide-out electrical system. Highlight the DIAGNOSTICS menu and click Enter, highlight the VIEW ACTIVE FAULTS menu and click Enter, then highlight the ELECTRICAL SYSTEM menu and click Enter to request a diagnostic of the electrical system from the MCM.

Press the enter key. If applicable, the DID shows the device ID, the fault messages or fault codes recorded. When more than one fault is recorded, an arrow pointing down appears on the right of the display. Use the down arrow to see all the fault messages.

Once the problem is corrected, the DID will still shows the fault as being active. Leave VIEW ACTIVE FAULTS up to the main menu. Then return to DIAGNOSTICS, VIEW ACTIVE FAULTS, and then ELECTRICAL SYSTEM. The DID should not display any faults

## 13.2 TROUBLESHOOTING TABLE

PROBLEM	CAUSE	CORRECTIVE ACTION
The slide-out functions normally but the handheld control green indicator light blinks	<p>Something is defective and may eventually create an issue if not repaired. The problem may be:</p> <ul style="list-style-type: none"> <li>A. Faulty limit sensor causing the slide-out to stop in overcurrent;</li> <li>B. CAN network problem causing the transmission inhibit safety to be non-operational;</li> <li>C. Vacuum pressure transducer disconnected or damaged (vacuum is applied for a fixed time of 7 seconds);</li> <li>D. Seal inflating valve solenoid open circuit (the seal is not re-inflated and water can penetrate in the vehicle);</li> <li>E. Security pin valve solenoid open circuit (the security pin is not extended while vehicle is riding).</li> </ul>	Request a diagnostic from the DIAGNOSTIC menu using the DID.
The slide-out does not extend	<ul style="list-style-type: none"> <li>A. The parking brake is not seen by the controller as being applied;</li> <li>B. Not enough air pressure in the accessory air tank to permit proper operation of the vacuum generator;</li> <li>C. Faulty vacuum generator, connection to the vacuum generator open, seal deflating valve solenoid open circuit;</li> <li>D. I/O-B module output defective, regulated 5-volt supply to sensors shorted to ground, "out limit" sensor shorted to ground, connection to the motor negative relay solenoid open circuit;</li> </ul>	<ul style="list-style-type: none"> <li>A. Make sure the parking brake is applied. Confirm parking brake application with the parking brake light on the telltale panel.</li> <li>B. Run the engine at fast idle a few minutes to increase air pressure in the accessory air tank and try again.</li> <li>C. Turn the relieving shut-off valve handle clockwise to deflate the seal, disconnect the pressure transducer. Do not forget to reconnect the pressure transducer and to close the relieving shut-off valve. Failure to do so could damage the seal and lead to water infiltration;</li> <li>D. Operate the slide-out with the manual override procedures.</li> </ul>

PROBLEM	CAUSE	CORRECTIVE ACTION
The slide-out does not retract	<p>A. Not enough air pressure in the accessory air tank to permit proper operation of the vacuum generator;</p> <p>B. Faulty vacuum generator, connection to the vacuum generator open, seal deflating valve solenoid open circuit;</p> <p>C. I/O-B module output defective, "in limit" sensor shorted to ground, connection to the motor positive relay solenoid open circuit;</p>	<p>A. Run the engine at fast idle a few minutes to increase air pressure in the accessory air tank and try again.</p> <p>B. Turn the relieving shut-off valve handle clockwise to deflate the seal, disconnect the pressure transducer. CAUTION, do not forget to reconnect the pressure transducer and to close the relieving shut-off valve. Failure to do so could damage the seal and lead to water infiltration;</p> <p>C. Operate the slide-out with the manual override procedures.</p>
When extending, the slide-out stops after having extended by approximately 1 inch	<p>A. The security pin valve solenoid circuit is shorted to (+) 24-volt and the security pin remains engaged;</p>	<p>A. Disconnect air supply from the security pin cylinder;</p>
Transmission DRIVE range or REVERSE cannot be selected (the slide-out telltale light is illuminating).	<p>A. Slide-out not in full "in" position;</p> <p>B. Faulty "in limit" sensor. The slide-out is retracted but the controller doesn't not see it as retracted.</p>	<p>A. Retract slide-out.</p> <p>B. Confirm that all slide-outs are retracted. On the slide-out control panel, disconnect the 5 pins green connector on the I/O-B module to disable the transmission inhibit. CAUTION, this is a temporary measure, the vehicle must be serviced as soon as possible.</p>
Slide-out does not retract or extend when depressing the control switch.	<p>A. Electrical motor failure;</p> <p>B. Speed reduction gearbox failure;</p> <p>C. Security pin still engaged in receptacle; (Standard Prevest Slide-out)</p>	<p>A. Replace motor.</p> <p>B. Inspect gearbox components, particularly: bronze wheel or first reduction stage output shaft. Replace damaged components.</p> <p>C. Disengage pin and check if air cylinder is damaged.</p>
Slide-out is not straight once retracted or during retracting or extending operation.	<p>A. Broken rack tooth;</p> <p>B. Faulty rack attachment;</p> <p>C. Faulty shaft key at speed reduction gearbox; Pinion slipping,</p> <p>D. Shaft breaking;</p> <p>E. Flange bearing attachment loosen;</p>	<p>A. Replace rack.</p> <p>B. Tighten mounting bolts, apply proper torque and use Loctite thread locker (replace rack if necessary).</p> <p>C. Replace key or component having a damaged keyway.</p> <p>D. Replace shaft.</p> <p>E. Reposition shaft and tighten flange bearing mounting bolts.</p>

**SECTION 26b: X3 SERIES SLIDE-OUT**

<b>PROBLEM</b>	<b>CAUSE</b>	<b>CORRECTIVE ACTION</b>
Slide-out moves out slightly when vehicle is traveling.	A. Lower "in limit" stoppers are not leaning against the structure at the moment when the "in limit" sensor detects the magnet;	A. Adjust the sensor position in order to have contact of the stoppers against the structure at the time when the system stops the slide-out retraction.
Slide-out moves when vehicle is moving.	A. Inflatable seal not inflated	A. Check seal condition and seal air supply system.
Slide-out retracts or extends difficultly.	A. Foreign matters accumulated in the linear bearing;	A. Inspect the linear bearing end seals to see if they are in good condition. If not, replace the end seals and clean the inside of linear bearing.
Slide-out oscillates vertically when retracting or extending	A. Linear bearing balls hardened due to a too heavy load; B. Linear bearing mounting bolts loosen;	A. If balls clearance is excessive, replace linear bearing. B. Tighten mounting bolts.
Slide-out vibrating or noisy when extending or retracting	A. Worn-out anti-friction coating on wiper seal around slide-out; B. Debris in protective flexible shield guides;	A. Replace wiper seal. B. Inspect and remove debris.
Slide-out does not retract to its full "in" position	A. Interference between the exterior extrusion and the vehicle upper horizontal member above the slide-out;	A. Check for outer wiper seal lip straightness on the slide-out roof.
Bottom of slide-out not flush with vehicle body	A. Broken or misadjusted lower "in limit" stopper; B. Lower "in limit" stoppers are not leaning against the structure at the moment when the "in limit" sensor detects the magnet;	A. Replace or adjust lower "in limit" stopper. B. Adjust the sensor position in order to have contact of the stoppers against the structure when slide-out is stopped.
Top of slide-out not flush with vehicle body	A. Broken or misadjusted leveling or retaining screw; B. Faulty upper "in limit" stopper;	A. Check and replace screw. B. Replace upper "in limit" stopper.
Lower edge of slide-out not parallel with vehicle body opening	A. Faulty leveling and retaining screw (4 screws each side).	A. Inspect screw, replace and adjust slide-out level.

PROBLEM	CAUSE	CORRECTIVE ACTION
Water tightness problem	<ul style="list-style-type: none"> <li>A. Inflatable seal and/or wiper seal damaged or unstuck;</li> <li>B. Insufficient air pressure in the seal;</li> <li>C. No air pressure in the slide-out pneumatic system;</li> <li>D. Sealant missing;</li> <li>E. Wiper seal draining hole clogged;</li> <li>F. Faulty water recovery pan;</li> <li>G. Faulty internal gutter;</li> </ul>	<ul style="list-style-type: none"> <li>A. Check both seals condition.</li> <li>B. Check the pressure regulator, the relieving shut-off valve and the seal valve condition.</li> <li>C. Check the slide-out air pressure inlet valve condition and the accessory air tank pressure.</li> <li>D. Check the exterior extrusion screws, the windows and the exterior panels sealant condition.</li> <li>E. Unclog draining hole.</li> <li>F. Check the recovery pan.</li> <li>G. Check internal gutter.</li> </ul>
Knocking sound at end of travel when extending slide-out	<ul style="list-style-type: none"> <li>A. Inner stoppers misadjusted;</li> </ul>	<ul style="list-style-type: none"> <li>A. Readjust the inner stoppers.</li> </ul>
Knocking sound when parking brake is released	<ul style="list-style-type: none"> <li>A. Security pin retracts too rapidly;</li> </ul>	<ul style="list-style-type: none"> <li>A. Adjust security pin air flow regulator.</li> </ul>
Inflatable seal damaged or removed, or wiper seal unstuck from the structure.	<ul style="list-style-type: none"> <li>A. Slide-out has been retracted or extended with the manual procedure with the inflatable seal not deflated;</li> <li>B. Pressure transducer malfunction;</li> <li>C. Seal valve malfunction;</li> <li>D. Excessive load in the slide-out;</li> <li>E. Slide-out not centered in the structure opening;</li> </ul>	<ul style="list-style-type: none"> <li>A. Always deflate the seal when manually retracting or extending the slide-out.</li> <li>B. Check the pressure transducer condition, replace if necessary.</li> <li>C. Check the seal valve condition.</li> <li>D. Reduce load or distribute load evenly in order to respect the deflection criterion and slide-out load capacity.</li> <li>E. Readjust the slide-out height and center horizontally in opening.</li> </ul>
Friction at end of travel when in full OUT position or at beginning of retraction	<ul style="list-style-type: none"> <li>A. Interference between upper structure key and upper inner stopper;</li> </ul>	<ul style="list-style-type: none"> <li>A. Readjust the upper inner stopper.</li> </ul>

## 13.3 SLIDE-OUT FAULT MESSAGE ON DID

SID #	FAULT MESSAGE	TEXT	PROBABLE CAUSE	CORRECTIVE ACTION
1	Voltage Module AE58	Value Too Low	Module AE58 sees a Voltage less than 22.0V on its power supply connector. Breaker, fuse or wiring harness open.	Check/ reset circuit breaker F136. Fix wiring harness
2	No Response Mod AE58	Data Error	MCM module does not receive CAN communication from module AE58. Connector J3 is disconnected or CAN wiring harness open, or module AE58 is defective.	Check connection AE58 J3 Fix CAN wiring harness Replace module AE58
3	Voltage Module AE59	Value Too Low	Module AE59 sees a Voltage less than 22.0V on its power supply connector. Breaker, fuse or wiring harness open.	Check/ reset circuit breaker F136. Fix wiring harness
4	No Response Mod AE59	Data Error	MCM module does not receive CAN communication from module AE59. Connector J3 is disconnected or CAN wiring harness open or module AE59 is defective.	Check connection AE59 J3 Fix CAN wiring harness Replace module
5	SldO Vacuum Sensor	Open Circuit	Pressure transducer disconnected. Faulty pressure transducer. Connection or wiring harness open.	Check/ replace vacuum transducer Check/ reconnect the connector SESo1 Fix wiring harness
		Shorted High	Pressure transducer is faulty Wiring harness shorted to 12v or 24v	Check/ replace vacuum transducer Fix wiring harness
6	SldO Seal Def Vac	Mechanical Fault	Does not reach vacuum level (-5 PSIG). Slide-out seal damaged or air leak in the seal deflating pneumatic circuit. Accessories tank near empty.	Check the seals and the pneumatic circuit. Run engine at fast idle to recharge accessories tank.



SID #	FAULT MESSAGE	TEXT	PROBABLE CAUSE	CORRECTIVE ACTION
7	SldO Motor/Limit se	Mechanical Or Electrical Fault	<b>Standard Prevost slide-outs:</b> Slide-Out motor is activated for more than 7 seconds and the limit sensor from the departing end is still seen as active. Either the motor is defective and the slide-out is not moving or the limit sensor from the departing end is broken active.	<b>Standard Prevost slide-outs:</b> If the slide-Out is not moving, then check the motor and its wiring.  If the slide-out is moving, then check the limit sensor from the departing end, also check and clear any obstruction that might prevent the slide-out from moving. (If problem occurs when extending, check the in-limit sensor. If the problem occurred when retracting, then check the out-limit sensor).
8	SldO Park Br Signal	Mechanical Or Electrical Fault	Parking brake is not applied. Wire between parking brake switch and MCM is open.	Make sure the parking brake is applied and the parking brake telltale illuminates. Check / replace parking brake switch. Fix wiring harness.
		Shorted High	Wire between parking brake switch and MCM is shorted to 12v or 24v.	Fix wiring harness.
9	SldO Mot SpeedA Ctr	Shorted High	Wiring harness shorted to 12v or 24v	Fix wiring harness
		Current Above normal	Security pin or object stop the movement of a slide-out	Check / fix security pin functionality. Check / remove any object around the slide-out.
10 <sup>2</sup>	SldO Mot SpeedB Ctr	Shorted High	Wiring harness shorted to 12v or 24v	Fix wiring harness
		Current Above normal	Security pin or object stop the movement of a slide-out	Check / fix security pin functionality. Check / remove any object around the slide-out.
11	SldO Remote Led	Shorted High	LED or wiring harness shorted to 12v or 24v	Fix LED or wiring harness
		Shorted Low	Led or wiring harness shorted to ground	Fix LED or wiring harness
		Open Circuit	LED is broken. Bad connection on control pad. Wiring harness is cut.	Check / fix remote LED or connection Check /fix wiring harness
		Current Above normal	Led or wiring harness shorted to 12v or 24v	Fix Led or wiring harness
12	SldO Seal Inf Sol	Shorted High	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
		Shorted Low	Solenoid or wiring harness shorted to ground	Fix solenoid or wiring harness

<sup>2</sup> For SID items 9 & 10 (*SldO Mot SpeedX Ctr*) it should be noted that standard Prevost slide-outs are now only wired to "SpeedA Ctr output". "SpeedB Ctr output" can be used as a spare in the event output A fails.

**SECTION 26b: X3 SERIES SLIDE-OUT**

SID #	FAULT MESSAGE	TEXT	PROBABLE CAUSE	CORRECTIVE ACTION
		Open Circuit	Solenoid is broken or open. Bad connection on solenoid or bloc valve. Wiring harness is cut.	Check / fix solenoid or connection  Check /fix wiring harness
		Current Above normal	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
13	SldO Seal Def Sol	Shorted High	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
		Shorted Low	Solenoid or wiring harness shorted to ground	Fix solenoid or wiring harness
		Open Circuit	Solenoid is broken or open. Bad connection on solenoid or bloc valve. Wiring harness is cut.	Check / fix solenoid or connection.  Check /fix wiring harness
		Current Above normal	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
14	SldO Vacc Gen Sol	Shorted High	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
		Shorted Low	Solenoid or wiring harness Shorted to ground	Fix solenoid or wiring harness
		Open Circuit	Solenoid is broken or open. Bad connection on solenoid or bloc valve. Wiring harness is cut.	Check / fix solenoid or connection  Check / fix wiring harness
		Current Above normal	Solenoid or wiring harness shorted to 12v or 24v	Fix Solenoid or wiring harness
15	SldO Mot Neg Rly	Shorted High	Relay coil or wiring harness shorted to 12v or 24v	Fix relay coil or wiring harness
		Shorted Low	Relay coil or wiring harness shorted to ground	Fix relay coil or wiring harness
		Open Circuit	Relay coil is broken or open. Bad connection on relay. Wiring harness is cut.	Check / fix relay coil or connection Check / fix wiring harness
		Current Above normal	Relay coil or wiring harness shorted to 12v or 24v	Fix relay coil or wiring harness
16	SldO Mot Pos Rly	Shorted High	Relay coil or wiring harness shorted to 12v or 24v	Fix relay coil or wiring harness
		Shorted Low	Relay coil or wiring harness shorted to ground	Fix relay coil or wiring harness
		Open Circuit	Relay coil is broken or open. Bad connection on relay. Wiring harness is cut.	Check / fix relay coil or connection Check / fix wiring harness
		Current Above normal	Relay coil or wiring harness shorted to 12v or 24v	Fix relay coil or wiring harness
17	SldO Open Sw	Shorted High	Switch or wiring harness shorted to 12v or 24v	Fix switch or wiring harness
18	SldO Close Sw	Shorted High	Switch or wiring harness shorted to 12v or 24v	Fix switch or wiring harness
19	SldO Limit In Se	Shorted High	Sensor or wiring harness shorted to 12v or 24v	Fix sensor or wiring harness
20	SldO Limit Out Se	Shorted High	Sensor or wiring harness shorted to 12v or 24v	Fix sensor or wiring harness
21	SldO Secu Pin Sol	Shorted High	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
		Shorted Low	Solenoid or wiring Harness shorted to ground	Fix solenoid or wiring harness

SID #	FAULT MESSAGE	TEXT	PROBABLE CAUSE	CORRECTIVE ACTION
		Open Circuit	Solenoid is broken or open. Bad connection on solenoid or bloc valve. Wiring harness is cut.	Check / fix solenoid or connection.  Check / fix wiring harness
		Current Above normal	Solenoid or wiring harness shorted to 12v or 24v	Fix solenoid or wiring harness
22	SldO Limit In Out	Mechanical Or Electrical Fault	<b>Standard Prevost slide-out:</b> In Limit and Out Limit are seen at the same time. In Limit or Out Limit problem.	Check / replace in limit or out limit sensors Fix wiring harness.
23	Limit Sensor 5 V supply	Shorted Low	5v I/O-BE output is less than 2v. Wiring harness is open or shorted to ground.	Check 5v output on I/O-BE / replace I/O-BE module. Fix wiring harness.
		Mechanical Fault	Bad sensor adjustment	





**MAINTENANCE  
INFORMATION**

**MI18-31A**


DATE :	July 2018	SECTION :	26 SLIDE-OUT
SUBJECT :	<b>SLIDE OUT REMOVAL PROCEDURE</b>		

Revision: A

2019-07-17

***IMPORTANT NOTICE***  
*This modification is recommended by PrevoSt to increase your vehicle's performance. Note that no reimbursement will be awarded for carrying out this modification.*

**APPLICATION**

Model	VIN	
H3-45 VIP motorhomes Model Year : 2019-	From 2PCV33496 <u>KC710295</u> .	
X3-45 VIP motorhomes Model Year : 2019-	From 2PCBS3490 <u>KC736462</u>	
X3-45 VIP commercial use Model Year : 2019-	From 2PCCS3491 <u>LC736492</u>	


**DESCRIPTION**

This procedure is for the removal of the PrevoSt slide-outs.

**MATERIAL**

- Two straight 4x4 beams of sufficient length for the slide-out, wood or metal.
- Soft, clean material carpet or blanket.

**PROCEDURE**

 **DANGER**

Park vehicle safely, apply parking brake, stop engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button.

## PREPARATION



### CAUTION

Prepare scissor lift tables with a combined *minimum* Safe Working Load (SWL) rating of **2000 lb (1 ton)** to support the slide-out room.

This SWL value takes into account the largest model of slide-out. It also includes any flooring and trim that may be installed. Slide out must be empty for the procedure.



### CAUTION

Two 4x4 beams will be placed transversally under the room (Figure 1). Beams should be cut to length to support the maximum width of the room while clearly avoiding the rounded corner trim, (⚠ in Figure 1).

Upon placement of the beams under the room, place the outer beam inside to avoid the room exterior finish panel (⚠ in Figure 1). Place the inner beam as far inside as possible.

Prepare clean, soft material to place on top of the beams to avoid damaging the underside of the room.

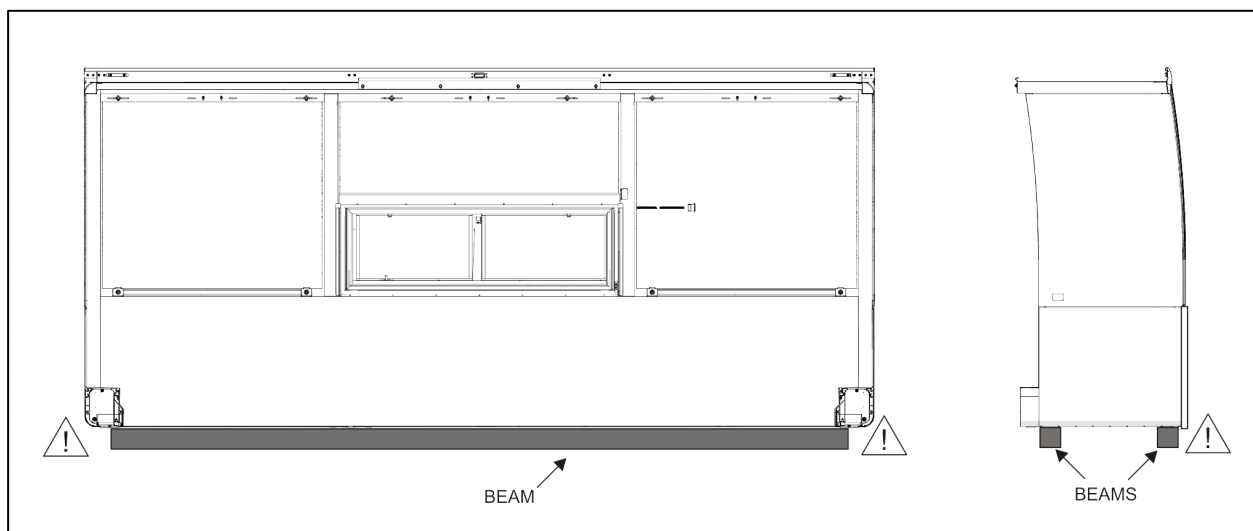


FIGURE 1: BEAM PLACEMENT

## ROOM PREPARATION

1. From the inside of the vehicle, remove any capping or trims hiding linear bearings at the bottom of the slide-out on both sides.
2. Then remove the room extrusion end caps. (Figure 2)

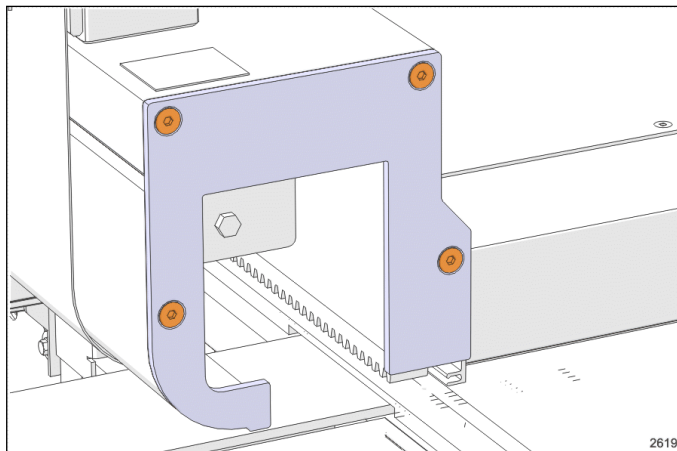


FIGURE 2: EXTRUSION END CAP

3. Once the room is fully extended, remove the screw and tab holding the flexible plastic rail cover in place. (Figure 3) *Perform this on both sides.*

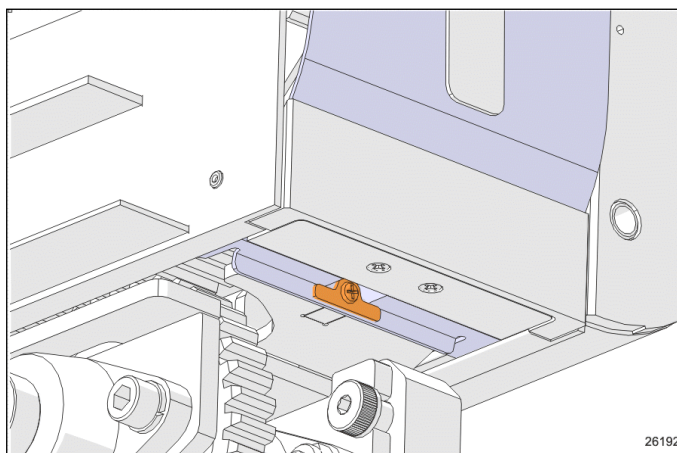


FIGURE 3: TAB AND MOUNTING SCREW

4. Remove the upper inner stopper (Figure 4).

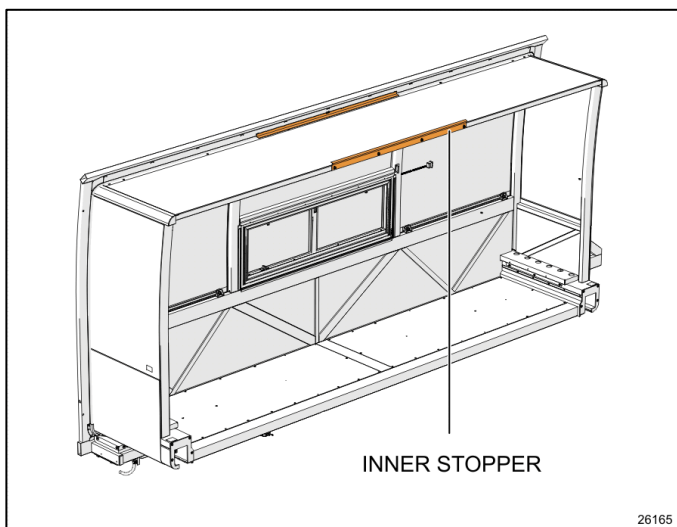


FIGURE 4: UPPER INNER STOPPER

- Remove the two nuts holding the extension stopper (perform on both sides). (Figure 5)

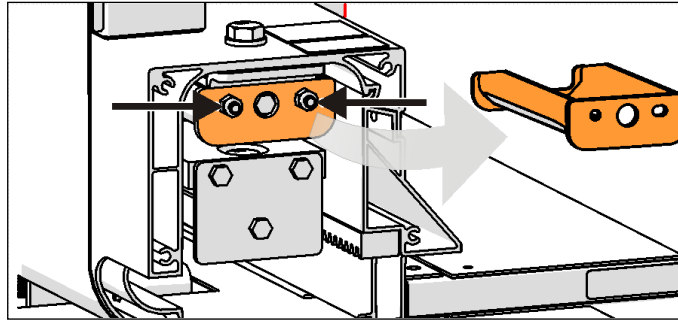


FIGURE 5 EXTENSION STOPPER REMOVAL

- The room can now be extended further.

Do not remove any additional stoppers.  
Heed the safety warning below.

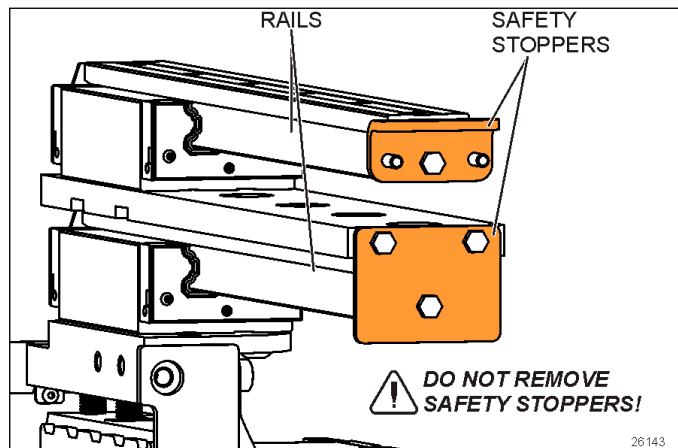


FIGURE 6: SAFETY STOPPERS ON RAILS



## DANGER

Safety stoppers are bolted to the rail ends. (Figure 6)

Never remove these stoppers.

These prevent the room from sliding out of the bearings.

Without these stoppers, the room could slide completely out of the bearings, therefore posing a risk of death and significant damage to the vehicle's components

- Deflate the seal by using the relieving shut-off valve located on the pneumatic component panel. Confirm by the pressure gage

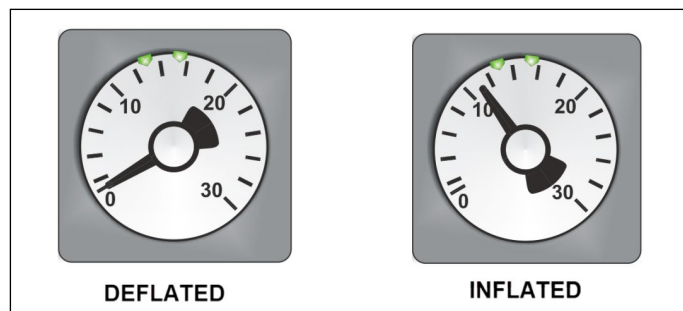


FIGURE 7: INFLATABLE SEAL PRESSURE GAGE



## ROOM REMOVAL



### CAUTION

Failure to deflate the seal may result in seal damage.

8. Place scissor lift tables level with 4x4 beams placed on top and ready to receive the room. Leave room for fork lift placement in the center.
9. Confirm proper placement of beams according to PREPARATION instructions.
10. Using a cordless drill with a 10 mm hexagonal socket, drive the motor extension to further extend the slide-out room until the gears leave the rack gear.
11. Finish by pushing out the room evenly on both sides by hand. A minimum of two persons are required
12. Support the slide-out room with the prepared scissor lift tables.

13. Remove the six bolts securing the rail to the slide-out structure.

14. At reassembly, tighten to **130lb-ft**

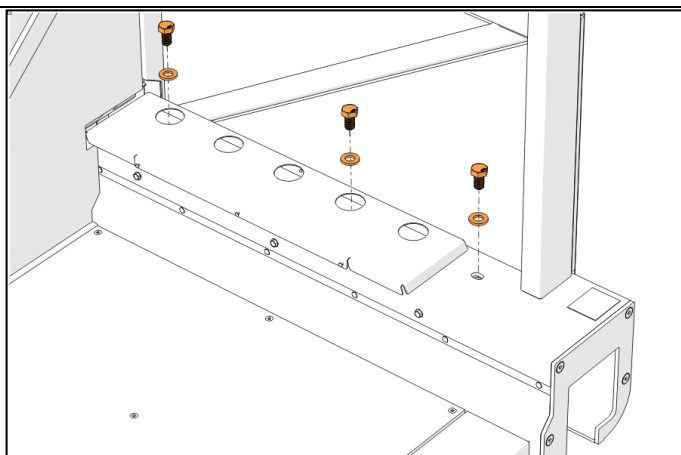


FIGURE 8: RAIL BOLTS (6X)

15. The rail housing interior dimensions provides enough clearance around the rail assembly to pull the room outwards. (Figure 9)

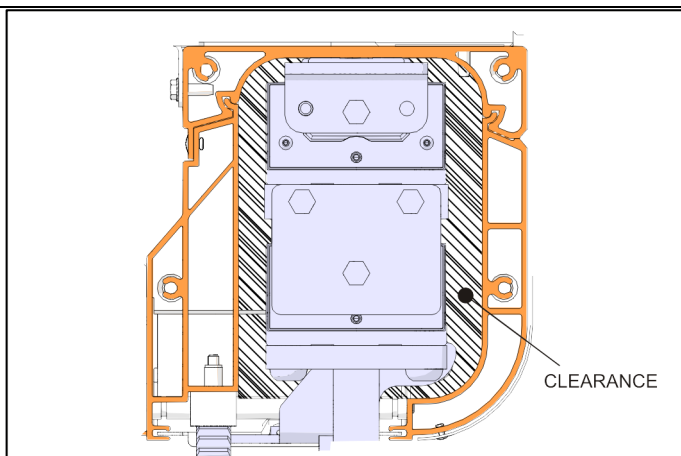


FIGURE 9: CLEARANCE AROUND THE RAIL, END VIEW

16. With a suitable fork lift placed in the center, raise the room just slightly by the beams.
17. Inspect to make sure the rails are released from the structure.
18. Slowly pull the room straight out while keeping level.(Figure 10)

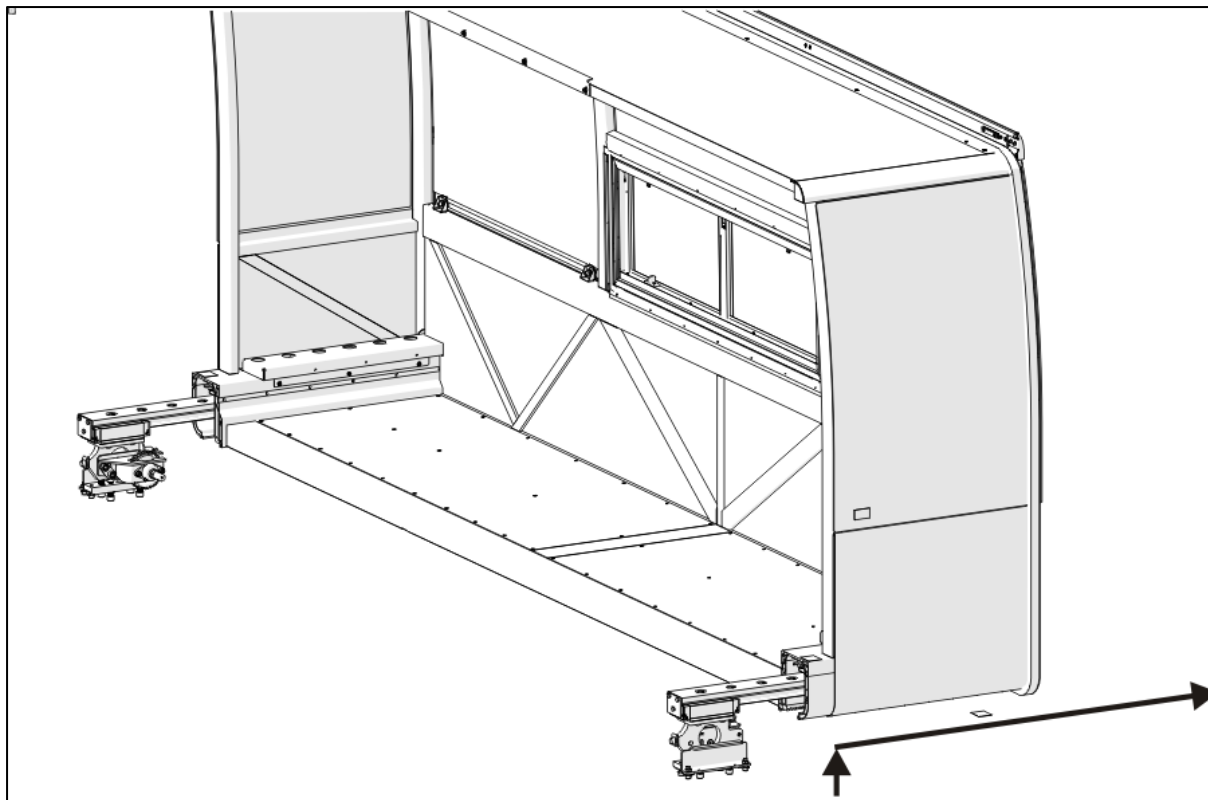


FIGURE 10: LIFTING AND PULLING THE ROOM OUT

19. Place room down on a level surface, on appropriate supports.

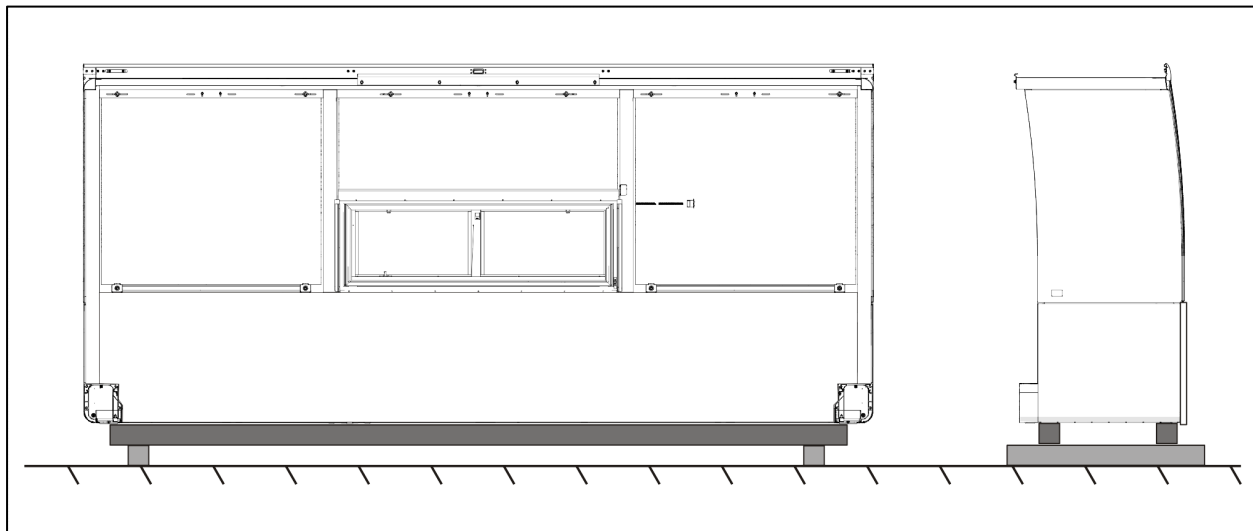


FIGURE 11: ROOM PLACED ON A LEVEL SURFACE

20. Installation is the reverse of removal

## PARTS / WASTE DISPOSAL

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## MAINTENANCE INFORMATION MI19-27A

DATE :	July 2019	SECTION :	26 SLIDE-OUT
SUBJECT :	TWO PART SLIDE-OUT SEAL INSTALLATION		

Revision: A      Roller tool # were G36374GA; G36373GA, are G36374;G36373      2019-08-22

### DESCRIPTION

Follow these instructions to perform the installation of *two-part slide-out seals* with clip-on inflatable seal. (Figure 1) This procedure should be performed by skilled technicians and may involve slide-out adjustments.

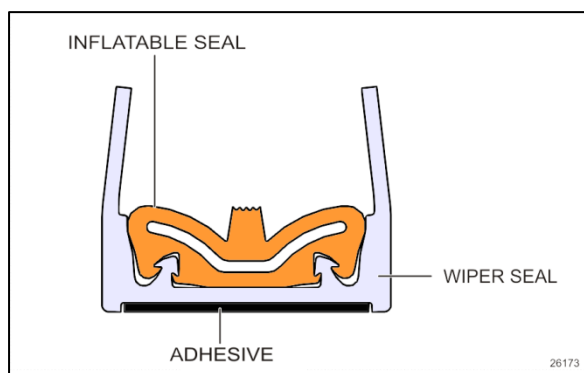


FIGURE 1: TWO-PART SLIDE-OUT SEAL

### MATERIAL

Required shop supplies:

Part No.	Description	Qty
680879	P-80 Grip-It Quick-Drying Temporary Lubricant, 1litre	1
682989	Anti-silicone Standox, 4 liter	1
683446	Primer, Sika 206 G+P, 1 liter	1
684685	Sealant Simson #ISR 70-03 / 310ml Cartridge	1
685332	3M Primer 94, 236ml	1

#### NOTE

Material can be obtained through regular channels.

## TOOLS



FIGURE 2: HOLLOW PUNCH, 1/2" (LEATHER PUNCH)

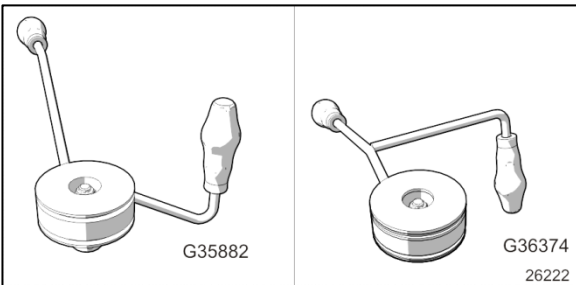


FIGURE 3: BASE WIPER SEAL ROLLER TOOLS

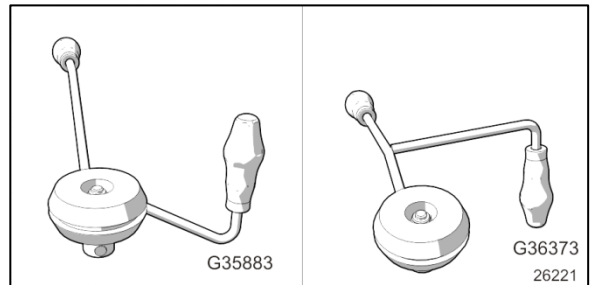


FIGURE 4: INFLATABLE SEAL ROLLER TOOLS

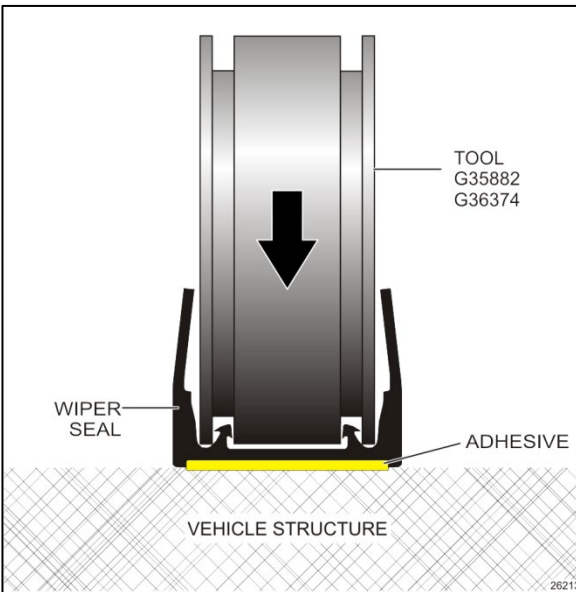


FIGURE 5: ROLLER TOOL (BASE WIPER SEAL)

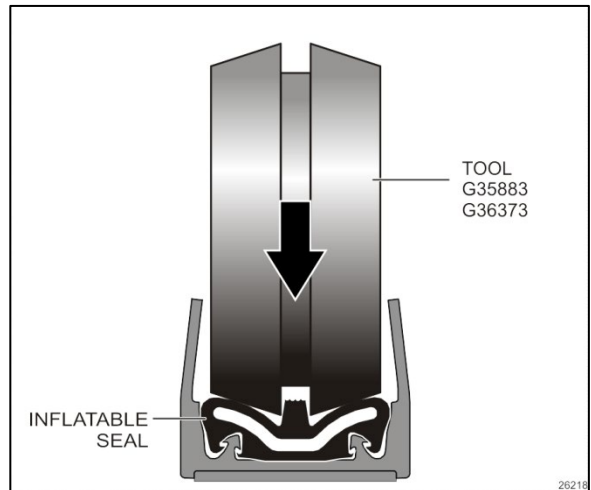


FIGURE 6: ROLLER TOOL (INFLATABLE SEAL)

### NOTE

If the wiper seal does not have pre-cut holes, consult [IS16080](#). The drain and air supply holes must be marked on the vehicle prior to installation and punched out in the base wiper seal after installation using a hollow punch. This will ensure proper draining of the seal and allow passage of the inflatable seal hose to the vehicle air supply.

## OVERVIEW

Estimated labor: 4 hours

Allow time for Primer curing and inflatable joint settle-in time: up to 28 hours

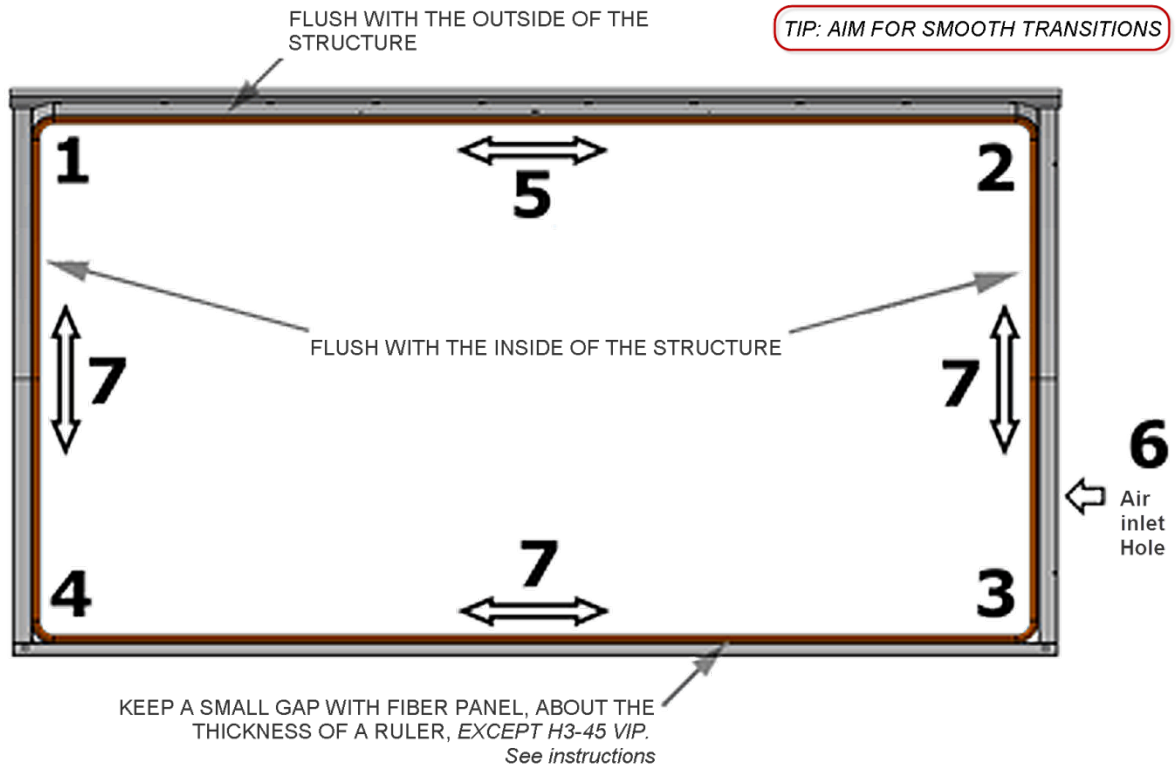


FIGURE 7: SEAL INSTALLATION POSITION AND SEQUENCE OVERVIEW

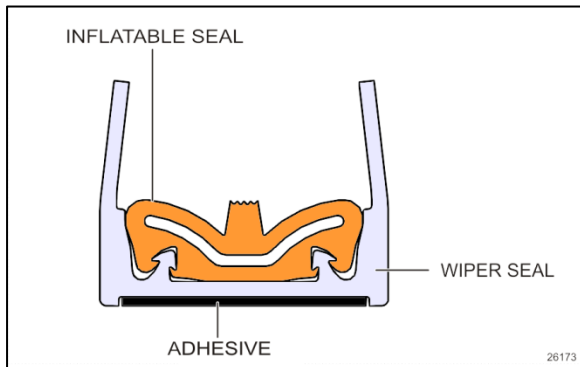


FIGURE 8: TWO-PART SEAL ASSEMBLY

## PROCEDURE



### DANGER

Park vehicle safely, apply parking brake, stop engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

Lock out & Tag out (LOTO) must be performed during set-up, maintenance or repair activities. Refer to your local procedure for detailed information regarding the control of hazardous energy.

## PREPARATION

1. Inspect gaps all around the slide-out. Gaps must be between 17 and 27mm.
2. Adjust gaps to reach the values above. Refer to maintenance manual for procedure.

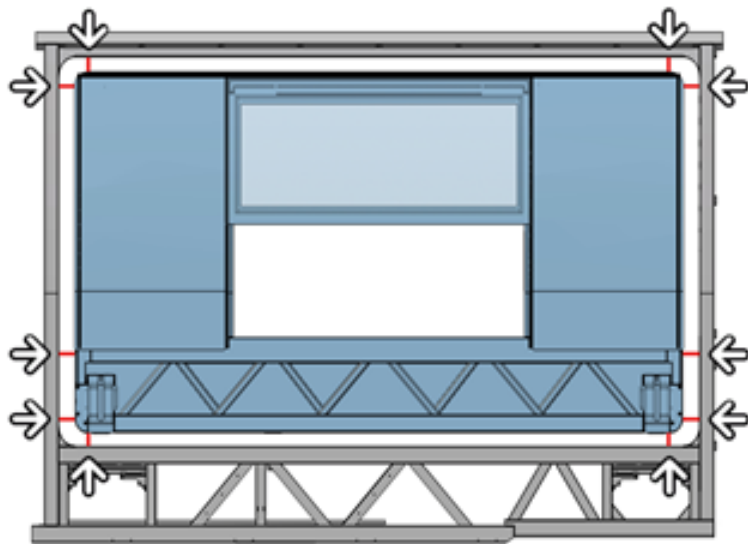


FIGURE 9

3. Retract the slide-out 2" inside the vehicle. Consult maintenance manual for procedure.  
*Heed the cautionary notes outlined in the manual before retracting.*
4. Remove the old slide-out seal.
5. Thoroughly clean the bonding surface receiving the seal adhesive with anti-silicone. Surface must be smooth, without any glue or paint residue.
6. Scuff the bonding surface with a very fine abrasive pad.
7. Clean the structure again with anti-silicone.
8. Mask the slide-out edge and vehicle opening all around to protect the vehicle finish.
9. Apply Sika 206 G+P. Apply all around the bonding surface. Minimum drying time: 4 hours.



10. Ensure Sika 206 is dry and clean.

11. Apply 3M Primer 94 at the 4 corners; *Apply with very light pressure* to avoid peeling or damaging the Sika 206 primer.



FIGURE 10



FIGURE 11

12. On the wiper seal corners locate the small rib identifying the corner mid-point. Make it more visible by marking the corners with a paint marker.

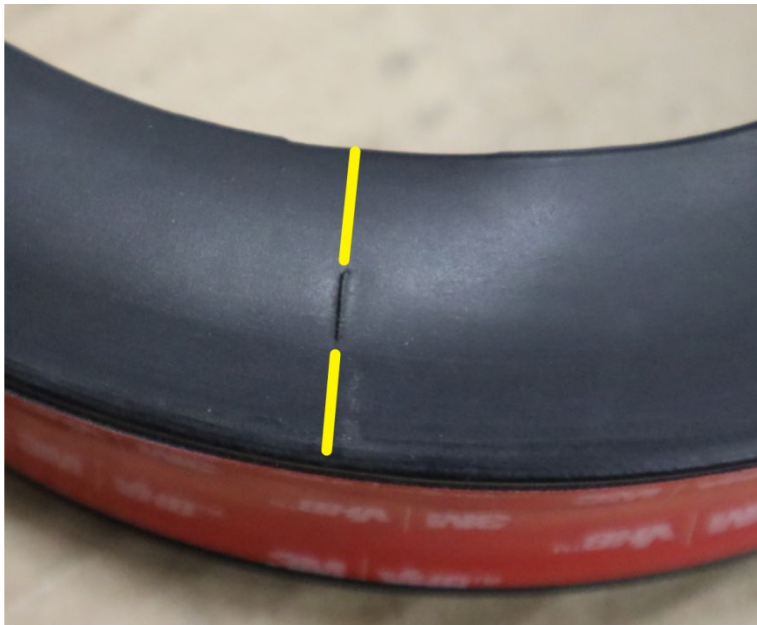


FIGURE 12

13. Also mark the midpoint of each corner on the structure.

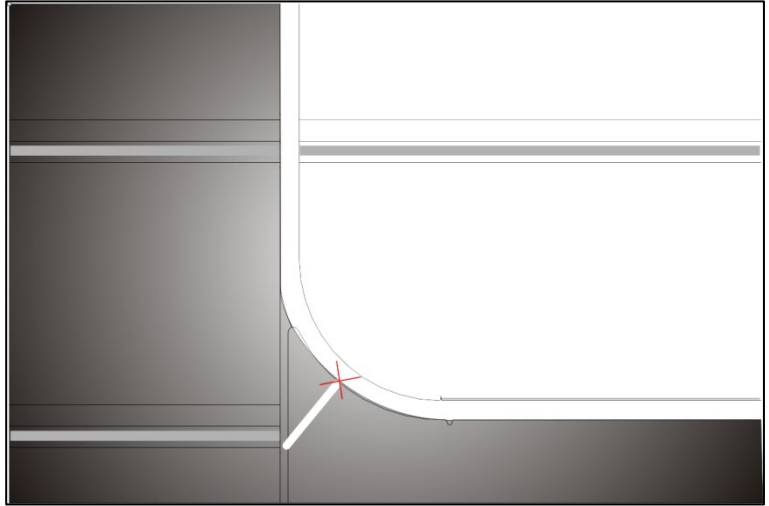


FIGURE 13: CORNER MID POINT

14. Mark the position of the drain holes in the structure.
15. Place the drain and air inlet holes aligned with the provision on the structure.
- If there are no holes in the wiper seal, refer to IS-16080.

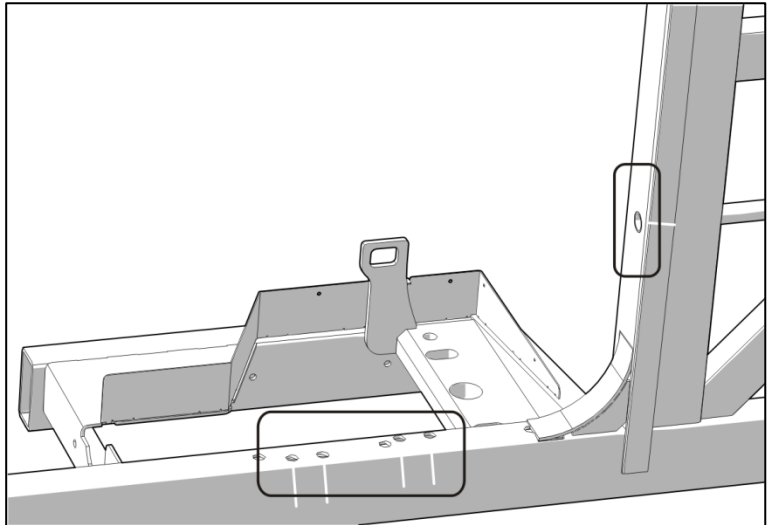


FIGURE 14: DRAIN HOLES AND AIR INLET. POSITION MAY VARY.

## BASE WIPER SEAL INSTALLATION Two people required from this point.

16. *One upper corner at a time*, remove the adhesive protecting film on approximately 8 inches.

**Warning:** Bonding occurs instantly!

17. Align the corner marks.  
18. Place the seal corner as flush as possible to the *exterior side of the structure*. (Figure 6)



FIGURE 15



FIGURE 16

19. Support the upper part of the seal with masking tape.



FIGURE 17

20. Test fit to align air inlet holes with structure.  
21. Remove the adhesive protecting film on approximately 8 inches.  
22. Align air inlet holes in base and structure and bond base to structure.



FIGURE 18

23. Test fit the lower corners. Align the corner marks.

**Note:** On H3-45 VIP vehicles, see Figure 18 for the bonding of the *lower section* of the seal.

24. Bond the lower corners.

25. Be sure to align the seal drain holes with the structure drain holes.

26. Progressively bond the remainder of the lower section.

27. **H3-45 VIP vehicles only.** Bond the lower part of the wiper seal flush to the inside of the tube round edge.

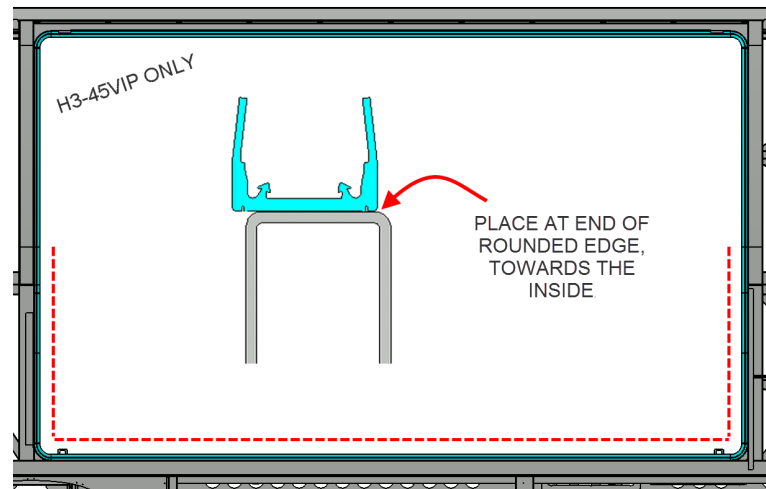


FIGURE 19: SPECIAL INSTRUCTION FOR H3-45VIP ONLY

28. Bond the upper section by starting at the middle. Evenly spread any excess or tension on both sides.

Make sure you are bonding flush to the exterior side of the structure. (Figure 6)



FIGURE 20

- 29. Test fit the remainder of the base wiper seal. Even out any slack or tension all around.
- 30. Visually inspect the corners marks and the air inlet hose to confirm everything is aligned.



FIGURE 21

- 31. Use roller tool all around.

- 32. Confirm that the drain holes in the structure are aligned with the openings in the seal base. If not, punch or cut-out the base using the marks.

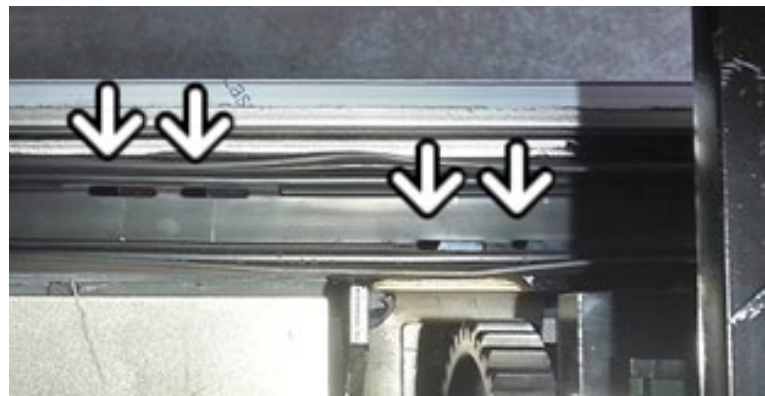


FIGURE 22

## Inflatable seal installation

33. Clean the base wiper seal to make sure it is free of debris.

34. Slip the inflation tube in the vehicle structure. Seal with #684685 Simpson ISR 70-03 sealer all round. (Figure 22)

35. Position the inflatable joint inside the base wiper. Even out any slack or tension all around.

**Note:** Support with tape in the upper section.

36. Between the air inlet and the nearest corner, locally clip the seal on the base. (Arrows, Figure 22)

**Note :** Dry clip! (no lubricant)

37. At the lower corner, insert seal in the bottom of the base, *without clipping*. (Figure 22)

**Note:** Follow this guideline for all corners; they will be clipped at the very end.

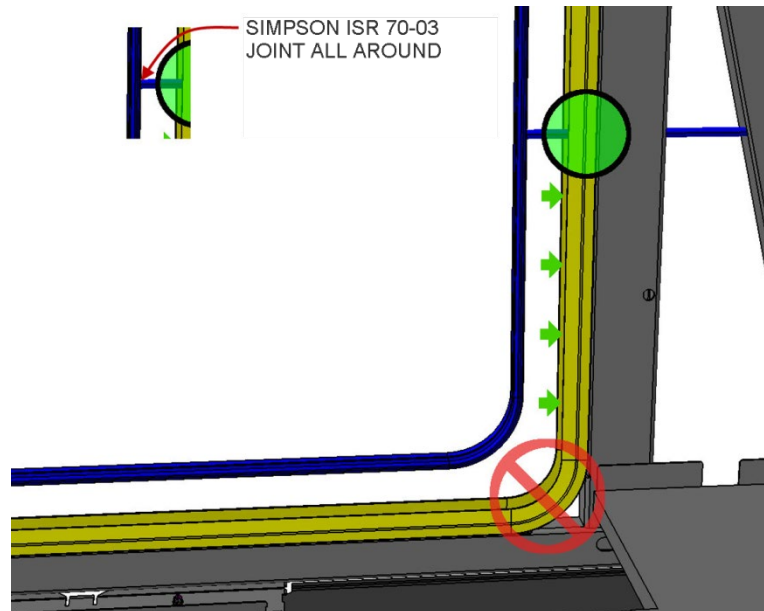


FIGURE 23: AIR INLET

38. Clip seal up to the corner tangent.

39. To avoid creases in the corner, stretch the seal as if it were too short in length compared with the base.

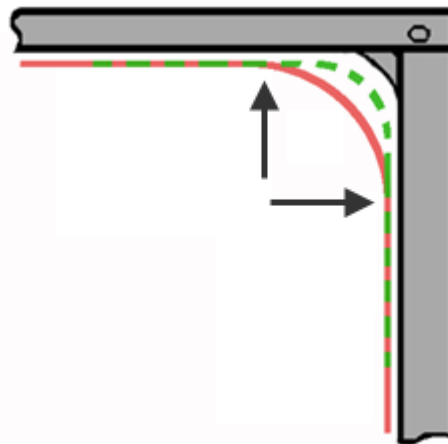


FIGURE 24

40. Spray a small amount of #680879 P80 lubricant in the base.

**Caution:** P80 application is only allowed in the straight sections, stopping one foot from the corners.



FIGURE 25

41. Begin by locally clipping the seal, at each 24 in.

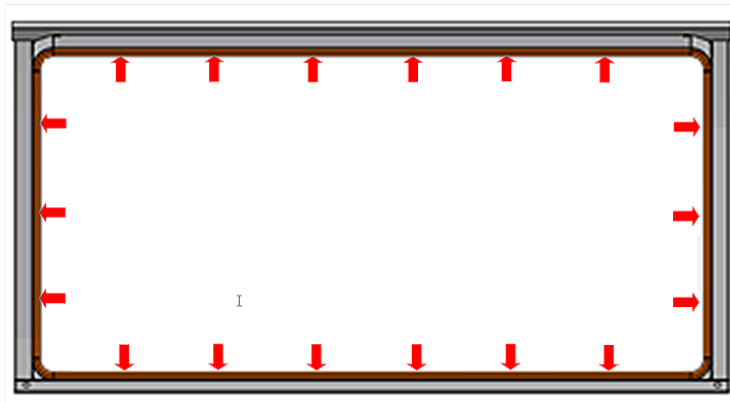


FIGURE 26

42. Insert the joint in the lower section.

43. Clip with the help of roller tool.

**Important:** Always start at the corner tangent (away from the corner) and roll towards the center.

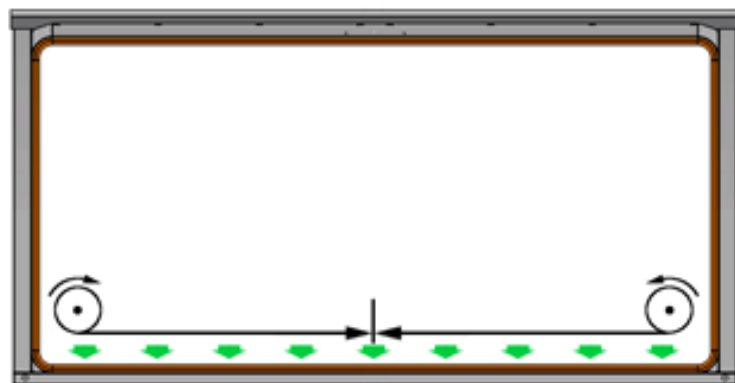


FIGURE 27

44. Repeat the same method on all remaining sides, skipping the corners.

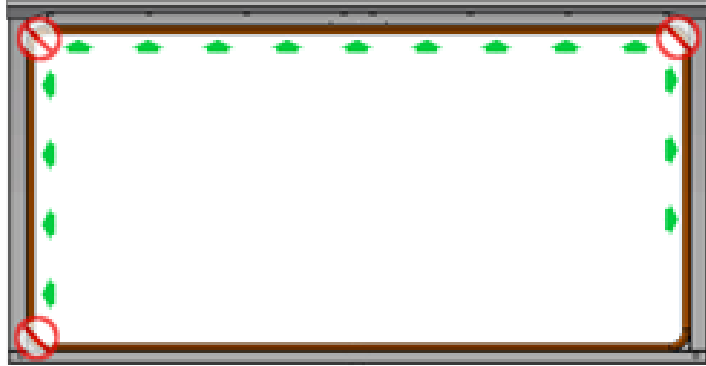


FIGURE 28

45. Clip the four corners

**Note:** *If the corner is too tight and needs a bit of slack, roll the sides from the outside towards the corner.*

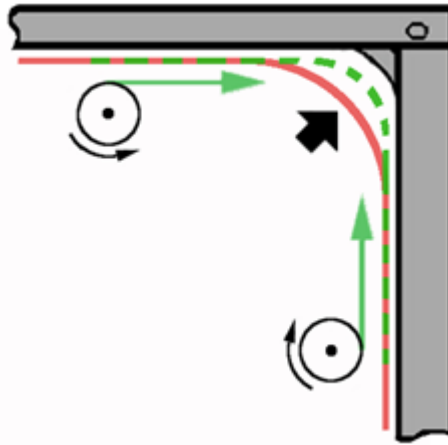


FIGURE 29

46. Confirm the seal is well clipped in the base by feeling with your fingers.

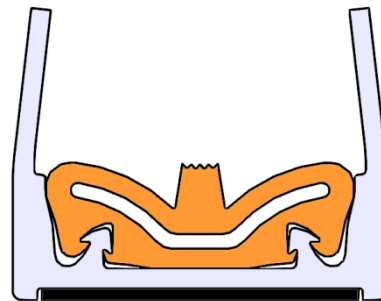


FIGURE 30

26173



## Inflation test

47. On the slide-out control panel, confirm air pressure is set to 15 psi  $\pm$  5 psi.
48. If not, adjust the pressure.
49. Move the green pegs on each side of the needle to indicate the new pressure range.

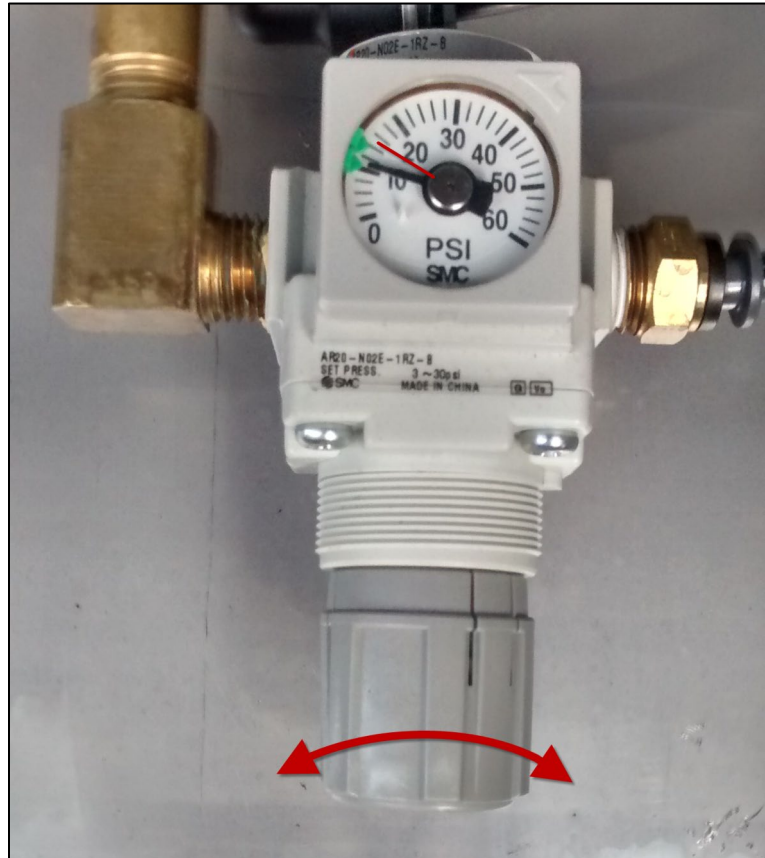


FIGURE 31: ADJUST TO 15 PSI  $\pm$  5 PSI

50. Connect the air inlet to the inflatable seal air supply, vehicle side.

**Caution:** *The seal air supply tube is soft; do not squeeze it with the cable ties.*



FIGURE 32

51. Extend the slide-out room.

52. Inflate the seal.

53. Confirm that the corners do not show any creases.

**IF THERE ARE CREASES:**

A. Return the room inward.

B. Unclip the inflatable seal from the corner plus along one or two feet on each side.

C. Clip the straight sections by rolling from the corner *towards the center*.

Make sure you are stretching the corner; it should be flush with the top of the base wiper seal.

D. Clip corner in.

**IF CORNERS ARE FREE FROM CREASES:**

54. Inflate the seal. Leave inflated for a settle-in period of 24h.

**Caution:** *Applied pressure should not exceed 15 psi ± 5 psi.*



FIGURE 33

**PARTS / WASTE DISPOSAL**

Discard according to applicable environmental regulations (Municipal/State[Prov.]/ Federal)

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