



SERVICE BULLETIN No.1106

For ABC Customer Care & Parts Source - staff only

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COACH MODEL	: C2045 with sliding lift door
BULLETIN TYPE	: Field Change Program
MANUAL & SECTION	: Maintenance Manual: Chapter 11 – Body and accessories Spare Parts Manual: Section 730609 – Doors: accessories Spare Parts Manual: Section 732709 – Doors: accessories
PARTS BOOK REVISION	: Yes
DATE	: June 21st, 2002
SUBJECT	: Lift door conversion
TERMS & CONDITIONS	: Parts and labor allowance will be provided as per warranty information in this Bulletin.

APPLICATION:

The product change subject of this Bulletin is should be introduced on following units:

Model	Engine	VIN	Apply procedure
C2045	Cummins	45261, 45301 → 45305, 45310 → 45344, 45346 → 45365, 45369 → 45370	1 → 6
	Detroit Diesel	45765 → 45826 except 45814 & 45815 45814 & 45815	1 → 6 1 → 4

DESCRIPTION:

1. The sliding lift door opening mechanism has been revised in production. The new linkage allows the door to be opened from the inside with the emergency door handle, also when the door is locked from the outside. To facilitate adjustment of the linkage, the actuating rods have been provided with turnbuckle adjusters. The appropriate procedure in this Bulletin shows how the old mechanism can be converted to the new standard.

Description continued on next page.

Service personnel: please read, initial and circulate.

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician

2. Beginning with unit #45355, an improved door seal subassembly is being used at the bottom of the sliding lift door. The rubber seal against which the door comes to rest has been changed. A new type of closing rubber provides a better wind seal, resulting in reduced wind noise. The old and new seal rubber extrusions are shown in Figures 28 and 29, respectively. A procedure to replace the old subassembly by the new has been included in this Bulletin.
3. Changes have also been made to the lower lift door operating mechanism, and to the position of the lift door proximity switch. The former product improvement allows for better access to the lift emergency operating system. The door proximity switch has been relocated to avoid bending of the switch actuating lever. Proper procedures to convert coaches in the field to the new installation have been included in this Bulletin.

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PARTS (also refer to Figures 20 and 21):**Sliding door conversion parts (mechanical)**

Part No.	Description	Qty.
VH 10781141	Pull rod, emergency handle to lever	1
VH 10785233	Guide for VH 10781141	1
VH 10785232	Base plate for VH 10785233	1
VH 660282101	Flat head screw, 5x0.8x16 mm	2
VH 10765453	Push rod, door lock cam to lever	1
VH 10785180	Washer, push rod to lever, fiber	1
VH 660635608	Snap ring for VH 10765453	2
VH 10779707	Lever	1
VH 10781482	Push/pull rod, lever to upper rotary latch	1
VH 10779945	Door lock cam support	1
VH 10652072	Rod end, snap-on (spare)	3

Sliding door conversion parts (insulation/trim)

Part No.	Description	Qty.
VH 10785612	Insulation, middle door frame area, oblong	1
VH 10785608	Insulation, middle door frame area, oblong, cut-back	1
VH 10785625	Insulation, lower door frame area, trapezoidal, cut-back	1
VH 10785621	Insulation, lower door frame area, triangular, small	1
VH 10785623	Insulation, lower door frame area, triangular, large	1
VH 10785622	Insulation, lower door frame area, triangular, cut-back	1
VH 10785570	Self-tapping screw retainer, channel	1
VH 10785613	Insulation, lower door frame area, L-shaped, 7/8 inch thick	1
VH 10785614	Insulation, lower door frame area, trapezoidal, 7/8 inch thick	1
VH 10783104	Door lock closing panel, ABS, 361x316 mm (14-7/32x12-7/16 inch)	1
VH 10554546	Velcro strip, 3-15/16 inch (100 mm)	2
VH 10779497	Proximity switch trigger	1
VH 660280110	Self-tapping screw for VH 10779497, 4.8x25 mm	1

Threshold kick strip/door seal conversion parts

Part No.	Description	Qty.
VH 660053507	Door seal	#
VH 10767688	Kick strip	1

Parallel door conversion parts

Part No.	Description	Qty.
VH 10789242	Tie rod, upper, spring loaded	1
VH 10786869	Door bracket for VH 10789242	1
VH 10786907	Spacer for VH 10786869, 14x6.5x5 mm	1
VH 10735820	Guide pin mounting bracket	2
VH 10787147	Guide pin catch	2
VH 660274506	Self-tapping screw for VH 10787147, 3.5x13 mm, stainless	8
VH 10786835	Striker bolt bracket	1
VH 10786878	Shim for VH 10786835, 2 mm	#
VH 10793025	Roller arm, modified	1
VH 660002000	Roller arm guide	1
VH 660611600	Rivet, 4x14 mm	2

Sundries

Adhesive, e.g.: Sika-tack VH 660193040 and Sika 221 VH10521585.

- Old and new parts are interchangeable, but only the new will be offered for service replacement.
- Parts may be obtained from your nearest ABC Companies Parts Source dealer.
- Always use genuine maintenance products and parts. Do not accept imitations.
- Parts and products disposition: discard according to applicable environmental regulations.

PROCEDURE 1: TO REMOVE / INSTALL THE SLIDING LIFT DOOR

1. **General:**

- The time required to remove and install a sliding door is approximately 1 hour.
- This job should be executed by an experienced body repair technician with the aid of an assistant.

2. **Special tools, equipment or services:**

- To lift and/or hold the door into position during removal/installation, this job requires the use of a portable crane and a straddle harness or sling.

3. **Preparations:**

- Park the coach on a *level* surface, apply the parking brake and shut down the engine.
- Switch off all systems and turn off the battery master switch.
- Put a "DO NOT OPERATE" tag on the instrument panel.
- Read the entire procedure before beginning to work.

***NOTE:** To avoid readjustment of the sliding door, do not interchange doors between coaches. Production tolerances may necessitate the door to be realigned for a proper fit if doors are being swapped.*

4. **To remove the sliding lift door:**

- 1) Open the door fully.
- 2) Undo and remove the machine screws securing the hinge covers. Remove the covers.
- 3) Close the door. Mark the relative position of the middle and lower hinges by spraying some aerosol paint on the hinge outline and bolts. Reopen the door.
- 4) Support the door using a straddle harness or sling and a portable crane. Make sure the door is in balance BEFORE removing the hinge bolts.

CAUTION: This component weighs 155 lbs (70 kg). To avoid personal injury and/or damage to the vehicle or component, work with an assistant to handle it.

- 5) Undo and remove the lower hinge locator bolt (see Figure 1). Undo and remove the bolts securing the lower hinge. Remove, mark and recover the lower hinge to door spacer.

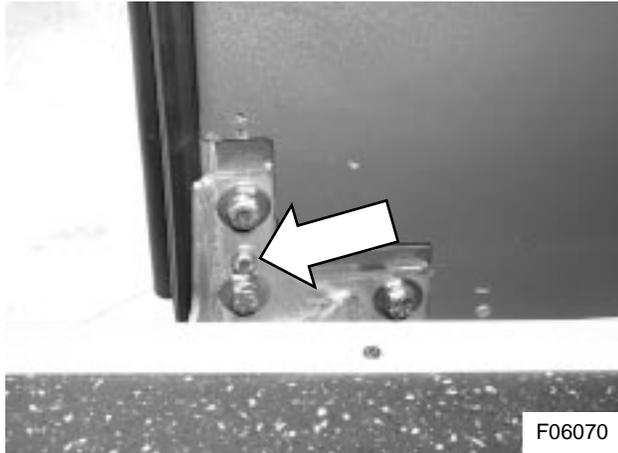


Figure 1: Lower hinge and locator bolt

- 6) Check that the door is still properly strapped in and in balance.
- 7) Undo and remove the bolts securing the middle hinge. Remove, mark and recover the middle hinge to door spacer. Recheck the door balance.
- 8) Withdraw the door upper guiding pin from the door guide rail. Lower the door onto the shop floor, remove the straddle harness and install the door on trestles with the trim facing up.

5. To install the sliding lift door:

- 1) Reinstallation of the door is the reverse to removal.
- 2) When reinstalling the door, make sure it is properly strapped in and in balance in the straddle harness at all times until all hinge bolts have been run-up.
- 3) Align the door hinges and bolt holes, using the paint marks as a reference. Tighten the hinge bolts to a torque of 15.5 ft.lbf (21 Nm). Remove the straddle harness.

Procedure 1 complete.

PROCEDURE 2: TO REPLACE THE DOOR LOCK MECHANISM OF GENERATION 1 AND GENERATION 2 SLIDING DOORS

1. General:

- The time required to change the sliding door lock mechanism is approximately 1 hour.
- An experienced body repair technician should execute this job.
- An experienced welder should execute the welding part of this procedure.

2. Special tools, equipment or services:

- This job requires the use of MIG welding equipment and a spare emergency door handle VH 660174808 if this part has not been fitted.

3. Preparations:

- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. Basic safety rules for MIG welding:

The following information pertaining to welding should be read before beginning any such procedure. The prohibitions and requirements contained herein must be followed during such procedure.

- Welding must be done only by a qualified and experienced person.
- It is the responsibility of the welder to make sure that his/her personal safety equipment and the welding equipment he/she is using are in a condition which will not endanger his/her health and safety or the health and safety of others.
- Adequate ground contact and barriers must be positioned as required to protect components from damage due to heat, contact by weld spatter, arcing or other potentially damaging events associated with welding.
- Never look at the arc unless wearing a suitable helmet or face shield.
- Do not permit bystanders, unless they are wearing protective gear.
- Wear protective clothing and gloves.
- Make certain the MIG welder is properly grounded.
- Never weld while standing in water or on damp ground.
- Have adequate ventilation.
- Do not adjust machine settings while the machine is under load.
- Keep cables tight in the sockets.
- Do not attach ground clamps to painted parts.
- Take great care when handling hot metal.
- Make sure there is nothing flammable near the working area.
- Always have a fire extinguisher of the correct type available.

5. To remove the door linkage of generation 1 sliding doors (see Figure 7):

- 1) If an emergency door handle is fitted, undo the Allen set screw and remove the handle (see 1, Figure 2).
- 2) Undo and remove the self-tapping screws securing the panel which covers the emergency door handle linkage (see 2, Figure 2).

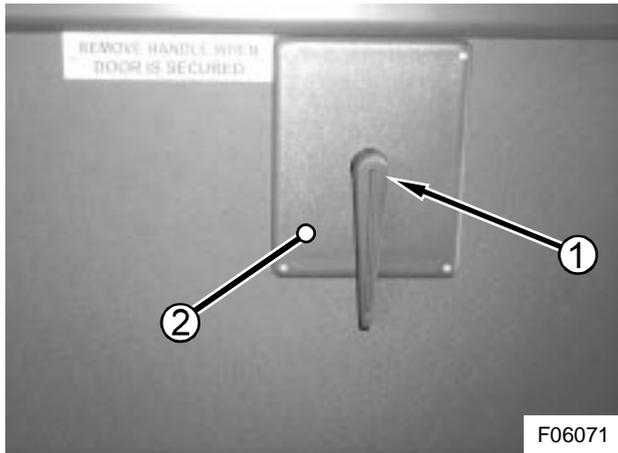


Figure 2: Emergency door handle (1) and linkage cover plate (2)

- 3) Undo and remove the screws securing the ABS panel covering the door lock linkage (see Figure 3). Remove and discard the panel.

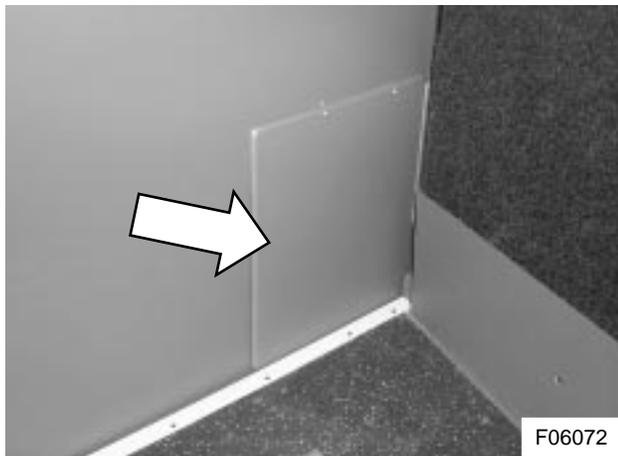


Figure 3: Door lock linkage cover panel

- 4) Undo and remove the side mounted self-tapping screws securing the main trim panel to the doorframe.
- 5) Remove and discard all insulation panels inside the door.
- 6) Undo and remove the three flat head Allen screws securing emergency handle cam assembly VH 660174811 (see Figure 5) to the door frame.
- 7) Undo the snap-on rod end, connecting pull rod VH 10777018 to lever VH 10777022 (see Figure 7). Withdraw the pull rod and the emergency handle cam assembly.

NOTE: Snap-on rod end operation is shown in Figure 4

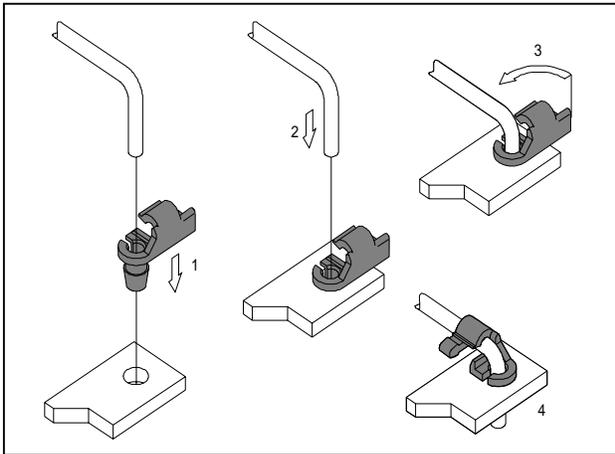


Figure 4: Snap-on rod end operation. Removal is reverse to installation

- 8) Remove the snap ring securing emergency handle pull rod VH 10777018 to the cam assembly (see Figure 5). Discard the pull rod and the snap ring.

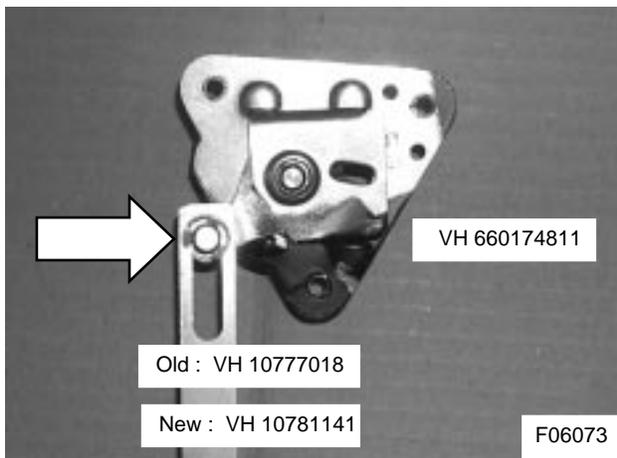


Figure 5: Emergency handle cam assembly and pull rod

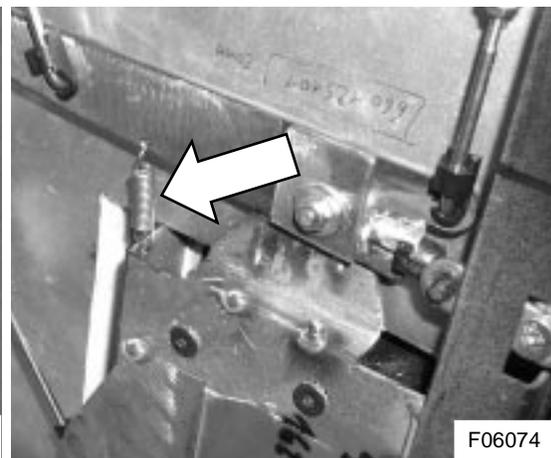
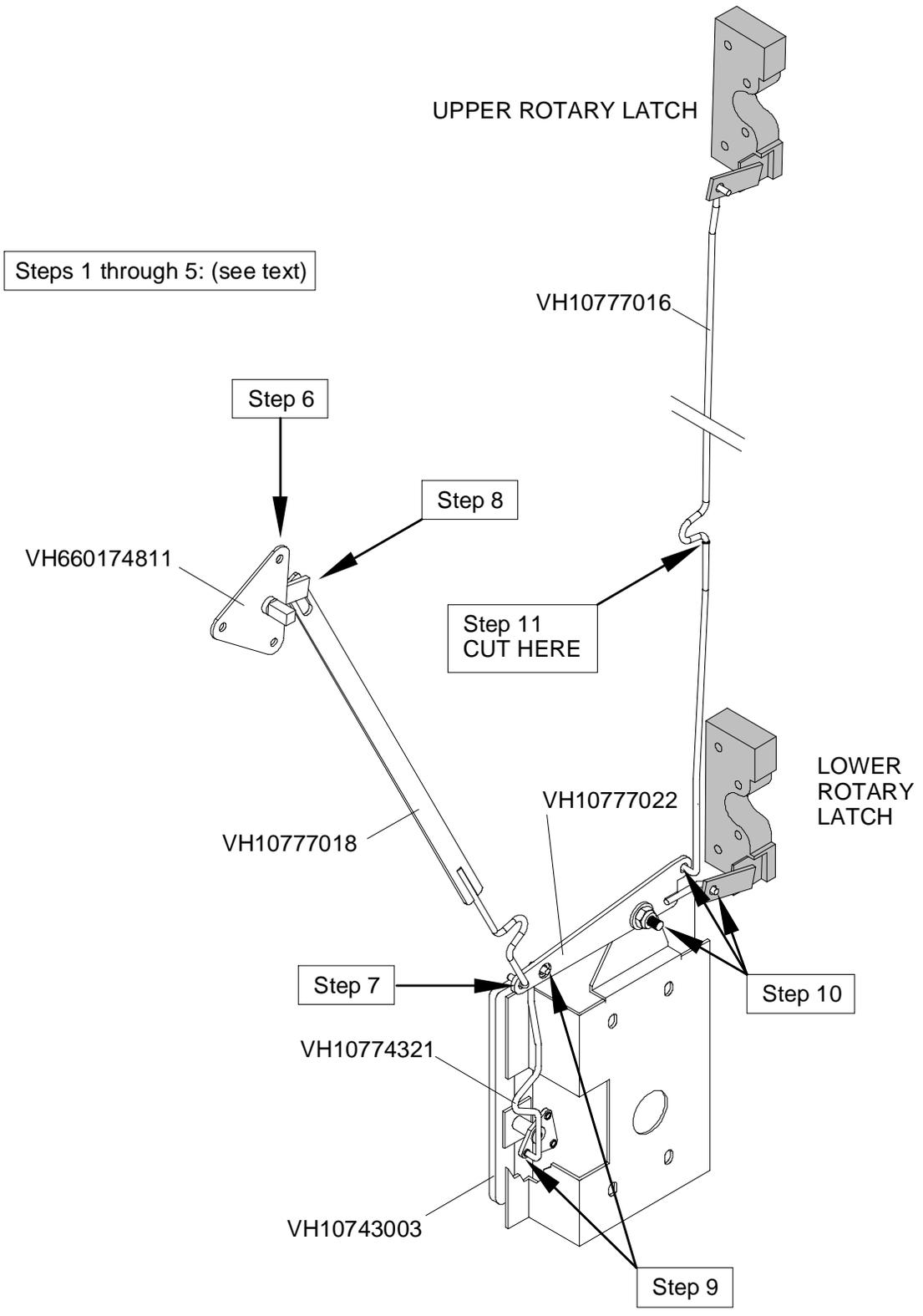


Figure 6: Lever return spring

- 9) Undo the snap-on rod ends and remove rod VH 10774321 (see Figure 7) connecting the door lock cam to lever VH 10777022. Discard the rod.
- 10) Undo and remove the self-locking nut and washers securing lever VH 10777022 to its pivot shaft. Undo the snap-on rod ends connecting the lever to push/pull rod VH 10777016 and the lower rotary latch (see Figure 7). Remove the lever return spring shown in Figure 6. Remove and discard the lever.
- 11) Using an angle grinder, cut-off push/pull rod VH 10777016 just below the U-bend (see Figure 7).

Removal of sliding door generation 1 linkage complete.

Figure 7: Generation 1 linkage removal



6. To remove the door linkage of generation 2 sliding doors (see Figure 13):

- 1) If an emergency door handle is fitted, undo the Allen set screw and remove the handle (see 1, Figure 8).
- 2) Undo and remove the self-tapping screws securing the panel which covers the emergency door handle linkage (see 2, Figure 8).

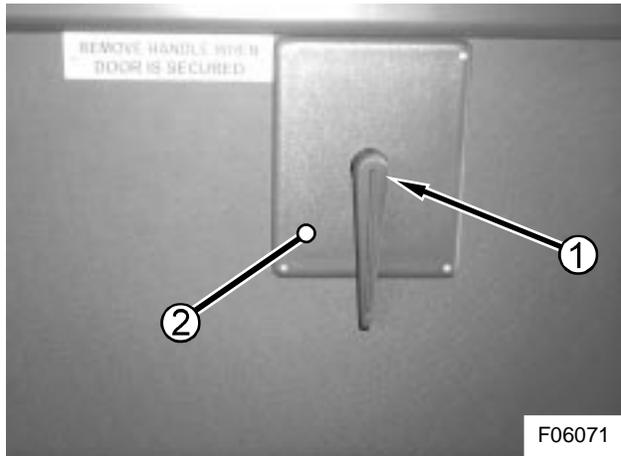


Figure 8: Emergency door handle (1) and linkage cover plate (2)

- 3) Undo and remove the screws securing the ABS panel covering the door lock linkage (see Figure 9). Remove and discard the panel.

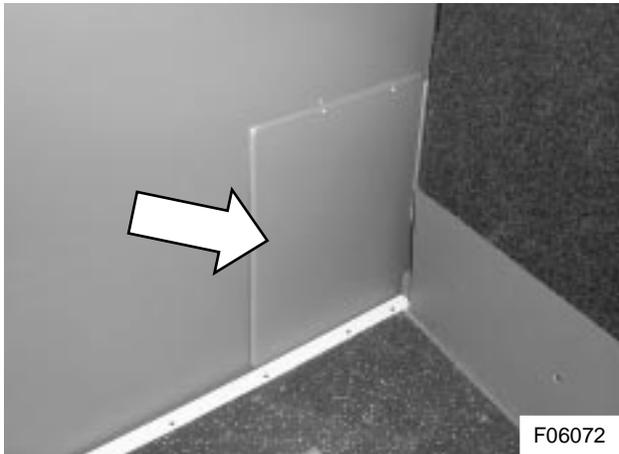


Figure 9: Door lock linkage cover panel

- 4) Undo and remove the side mounted self-tapping screws securing the main trim panel to the doorframe.
- 5) Remove and discard all insulation panels inside the door.
- 6) Undo and remove the three flat head Allen screws securing emergency handle cam assembly VH 660174811 (see Figure 11) to the door frame.
- 7) Undo the snap-on rod end, connecting pull rod VH 10777018 to lever VH 10777022 (see Figure 13). Withdraw the pull rod and the emergency handle cam assembly.

NOTE: Snap-on rod end operation is shown in Figure 10

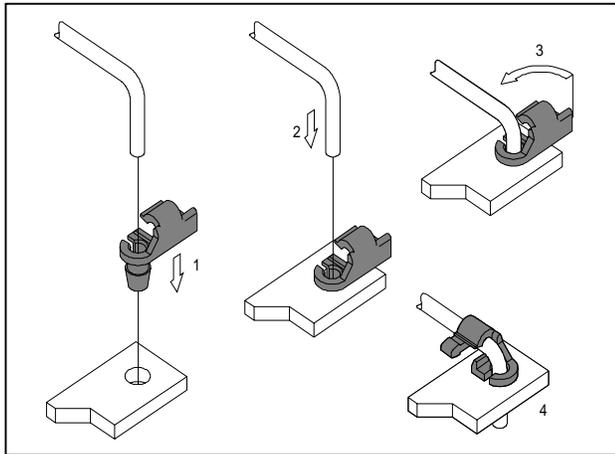


Figure 10: Snap-on rod end operation. Removal is reverse to installation

- 8) Remove the snap ring securing emergency handle pull rod VH 10777018 to the cam assembly (see Figure 11). Discard the pull rod and the snap ring.

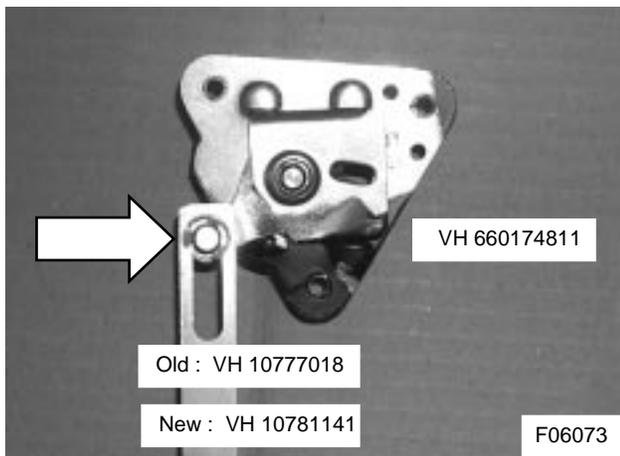


Figure 11: Emergency handle cam assembly and pull rod

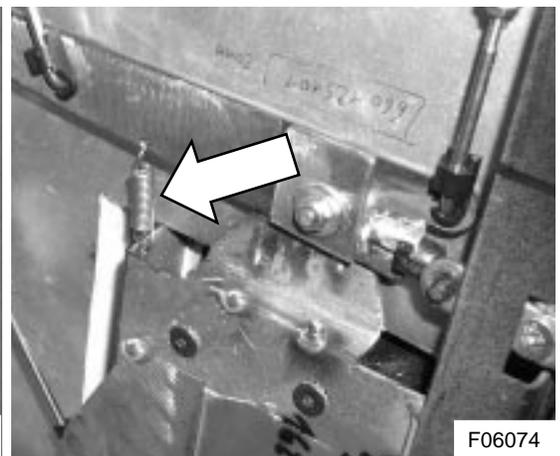
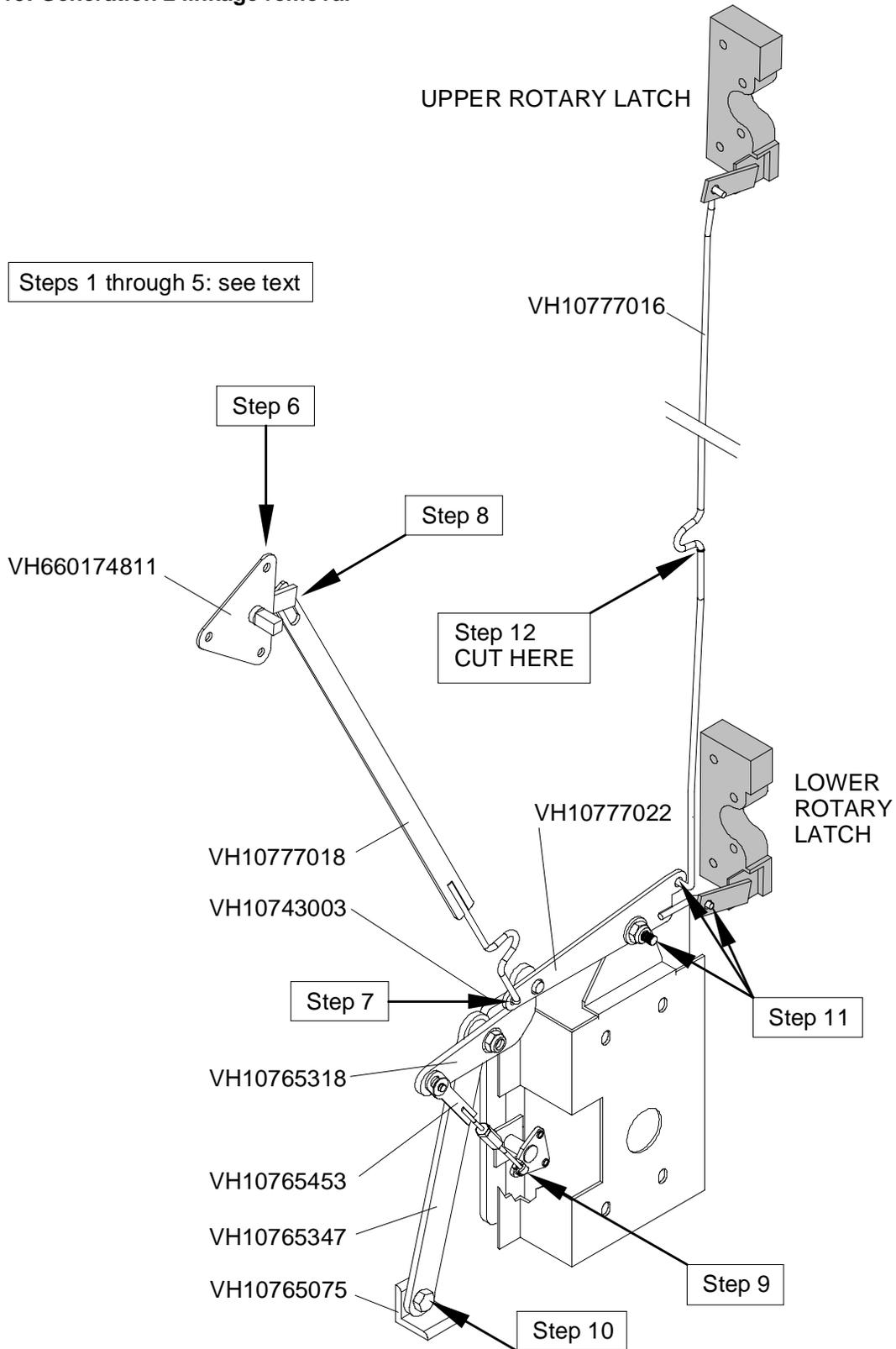


Figure 12: Lever return spring

- 9) Undo the snap-on rod end and disconnect actuating rod VH 10765453 (see Figure 13) from the door lock cam.
- 10) Undo and remove the lower pivot pin securing lever VH 10765347 (see Figure 13) to the welded on bracket.
- 11) Undo and remove the bolt, self-locking nut and washers securing lever VH 10777022 to its pivot shaft. Undo the snap-on rod ends connecting the lever to push/pull rod VH 10777016 and the lower rotary latch (see Figure 13). Remove the lever return spring shown in Figure 12. Remove and discard the linkage.
- 12) Using an angle grinder, cut-off push/pull rod VH 10777016 just below the U-bend (see Figure 13).

Removal of sliding door generation 2 linkage complete.

Figure 13: Generation 2 linkage removal



7. To install the new door linkage (see Figure 20):

- 1) Install insulation panel VH 10785613 to surround the door lock housing (see Figure 21). Check that the diameter of the main pivot hole of lever VH 10779707 is 8.1 mm (see 2, Figure 14). Rectify if necessary. Connect the lower actuating rod of lever VH 10779707 to the operating lever of the lower rotary latch using a snap-on rod end (see 1, Figure 14).

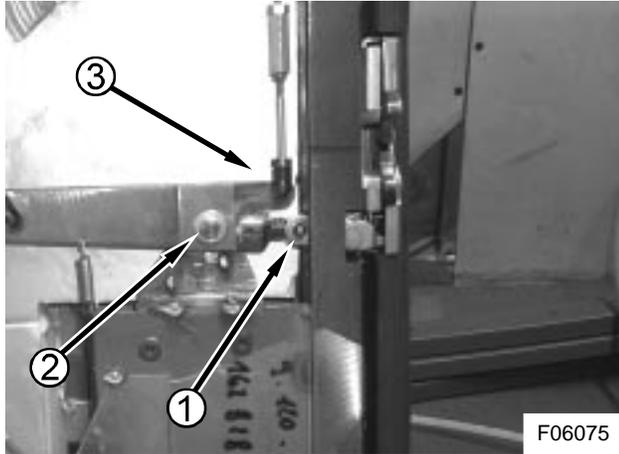


Figure 14: Lever, upper and lower connections to rotary latches.

- 2) Install lever VH10779707 on its pivot shaft using washers as required (see 2, Figure 14). Secure with a new self-locking M6 nut. Tighten the nut for minimum endplay but allow the lever to operate without binding.
- 3) Connect push/pull rod VH 10781482 to the upper actuating arm of the lever using a snap-on rod end (see 3, Figure 14).

CAUTION: Before welding push/pull rod VH 91201000 to rod VH 10781482, make sure the rods are perfectly aligned, so they can operate freely, without binding. Allow sufficient slack for adjustment of the turnbuckle.

NOTE: When installing the turnbuckle actuating rods, it may be necessary to disassemble them first. Allow sufficient slack for adjustment during reassembly.

- 4) Weld the bent part of push/pull rod VH 91201000, which is still connected to the upper rotary latch assembly, to the flat end of push/pull rod VH10781482 (see Figure 15).

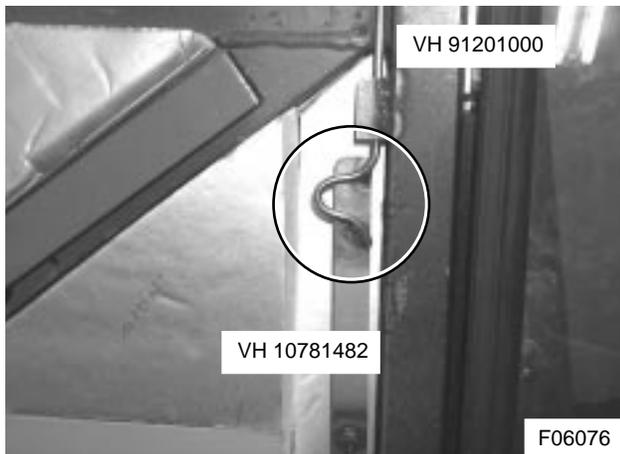


Figure 15: Push/pull rod weld

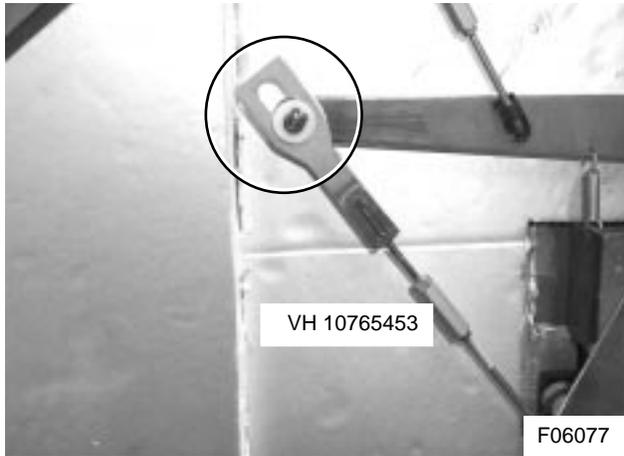


Figure 16: Lever to door lock cam linkage

- 5) Slip the slotted part of door lock cam to lever rod VH 10765453 over the pivot pin of the lever. Install fiber washer VH 10785180 in the slot. Secure with snap ring VH 660635508 (see Figure 16).
- 6) Connect the elbow of the rod to the door lock cam with a snap-on rod end. It may be necessary to disassemble the rod first.
- 7) Slip the slotted part of new emergency handle pull rod VH 10781141 over the pivot pin of the emergency handle cam assembly and secure with the snap ring (see Figure 5).
- 8) Reinstall the cam assembly with the flat head Allen bolts. Tighten to a torque of 6 ft.lbf (8 Nm). Reinstall the emergency handle for checking purposes.
- 9) Connect emergency handle pull rod VH 10781141 to lever VH 10779707 with a snap-on rod end, as shown in Figure 13.
- 10) Using base plate VH 10785232 as a template, mark and drill two mounting holes (diameter 4.25 mm) in the door frame. Tap with an M5 tap to accept flat head screws VH 660282101 (see Figure 17).
Install the base plate and guide VH 10785233. Make sure that there is no binding of the rod and that it can move freely. Tighten the screws to a torque of 6 ft.lbf (8 Nm).

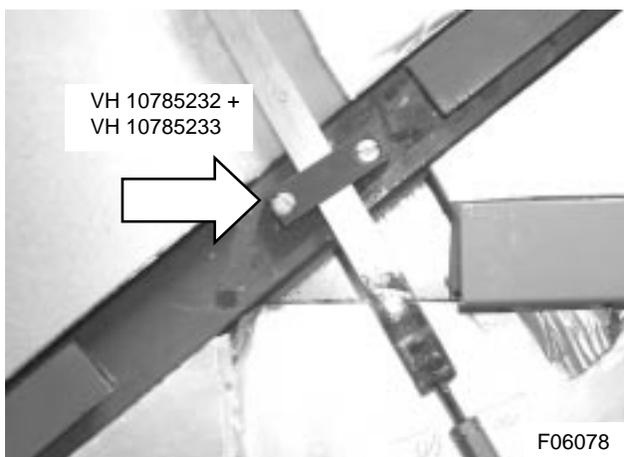


Figure 17: Emergency handle pull rod guide

- 11) Reinstall the lever return spring (see Figure 6).
- 12) Install cam support VH 10779945. Make sure the recess in the bracket cylinder fits snugly over the cam washer. Spot weld the support to the door lock mounting bracket. Figure 18 shows the installation completed.

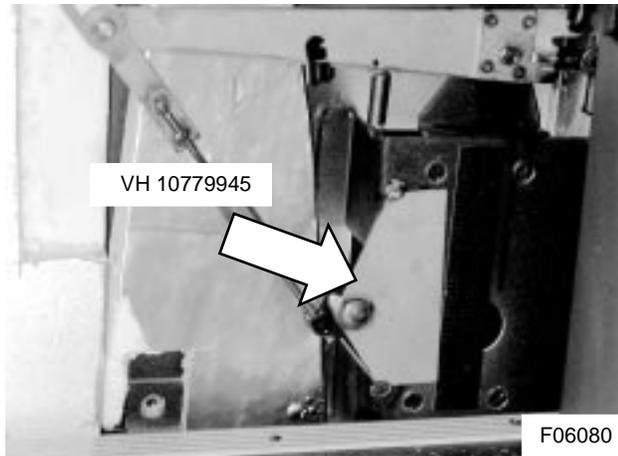


Figure 18: Door lock cam support bracket installation

Installation new sliding door linkage complete.

8. To adjust the sliding door lock mechanism:

NOTE: For the door lock mechanism to operate properly and reliably, it is important to check that the entire linkage can move freely, without binding or stress. The linkage length should be accurately adjusted, as should the timing between the opening of the upper and the lower rotary latches. The turnbuckles allow fine-tuning of the linkage operation.

Adjust the rods with the push/pull turnbuckles as follows:

- 1) Adjust rod VH 10765453 so that it is possible to easily slip your fingers behind the paddle of the door lock, without any of the rotary latches unlocking (position 2, Figure 19). The bottom latch should open between position two of the paddle and the full stop position (position 3, Figure 19), ie when the paddle butts against the door lock housing. Secure the turnbuckle with the jam nuts.
- 2) Adjust the length of push/pull rod VH 10781482 so that the upper rotary latch opens BEFORE the lower one when the door lock paddle is being pulled. The lower rotary latch should unlock last. Secure the turnbuckle with the jam nuts when adjustment has been completed.
- 3) Adjust the length of emergency handle pull rod VH 10781141 so that, with the emergency handle pointing down, the pivot pin on the cam rests against the lower part of the slot. Secure the turnbuckle with the jam nuts when adjustment has been completed.

Figure 19 overleaf.

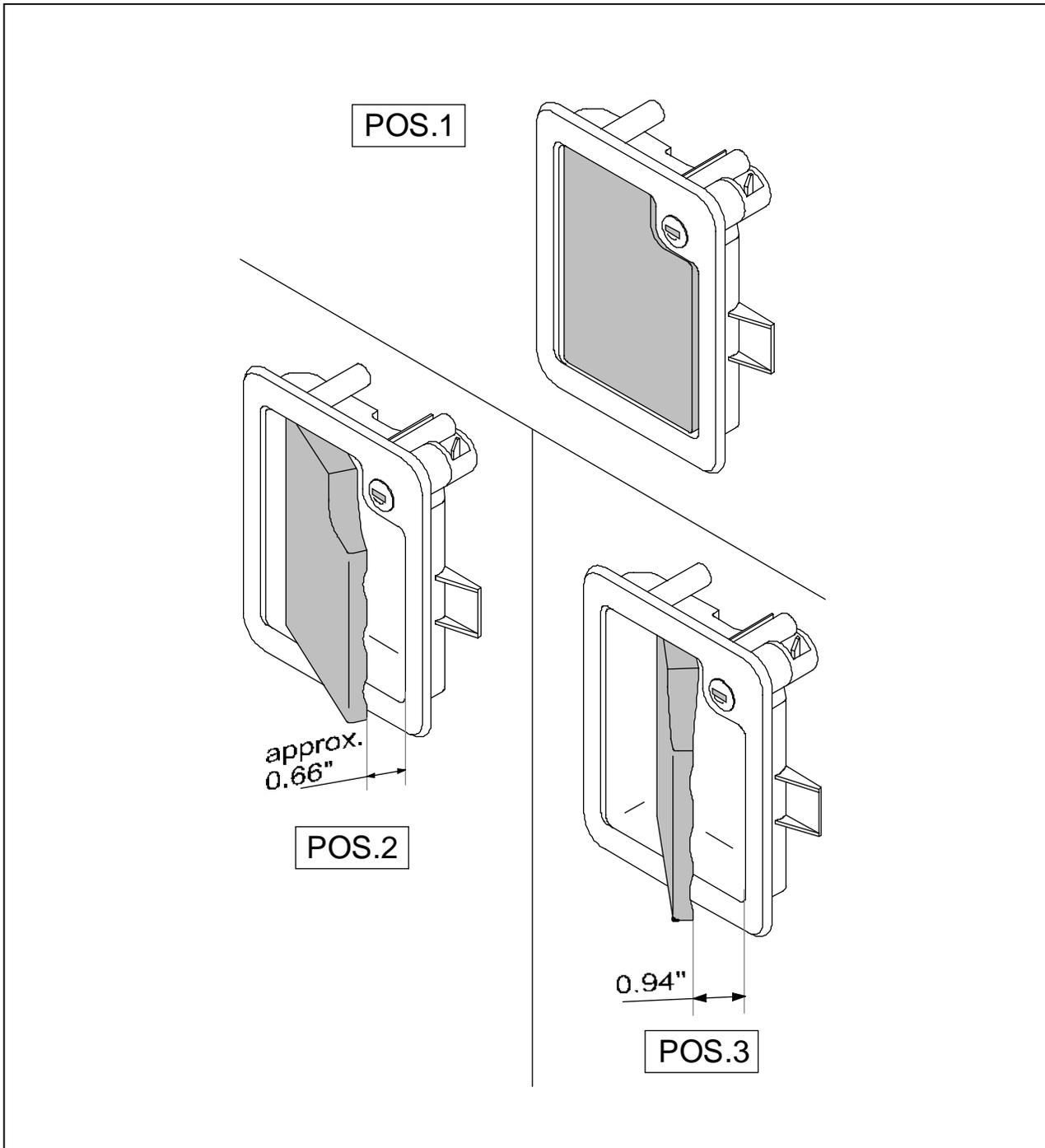


Figure 19: The three critical positions of the door lock paddle operation

The linkage conversion is now completed. Check the operation of the door lock mechanism with the door locked from the outside. It should be possible to open the rotary latch assemblies using the emergency handle. Operate the linkage very slowly and check that the upper rotary latch assembly releases first.

Adjustment of sliding door linkage complete.

Figure 20: New linkage installation

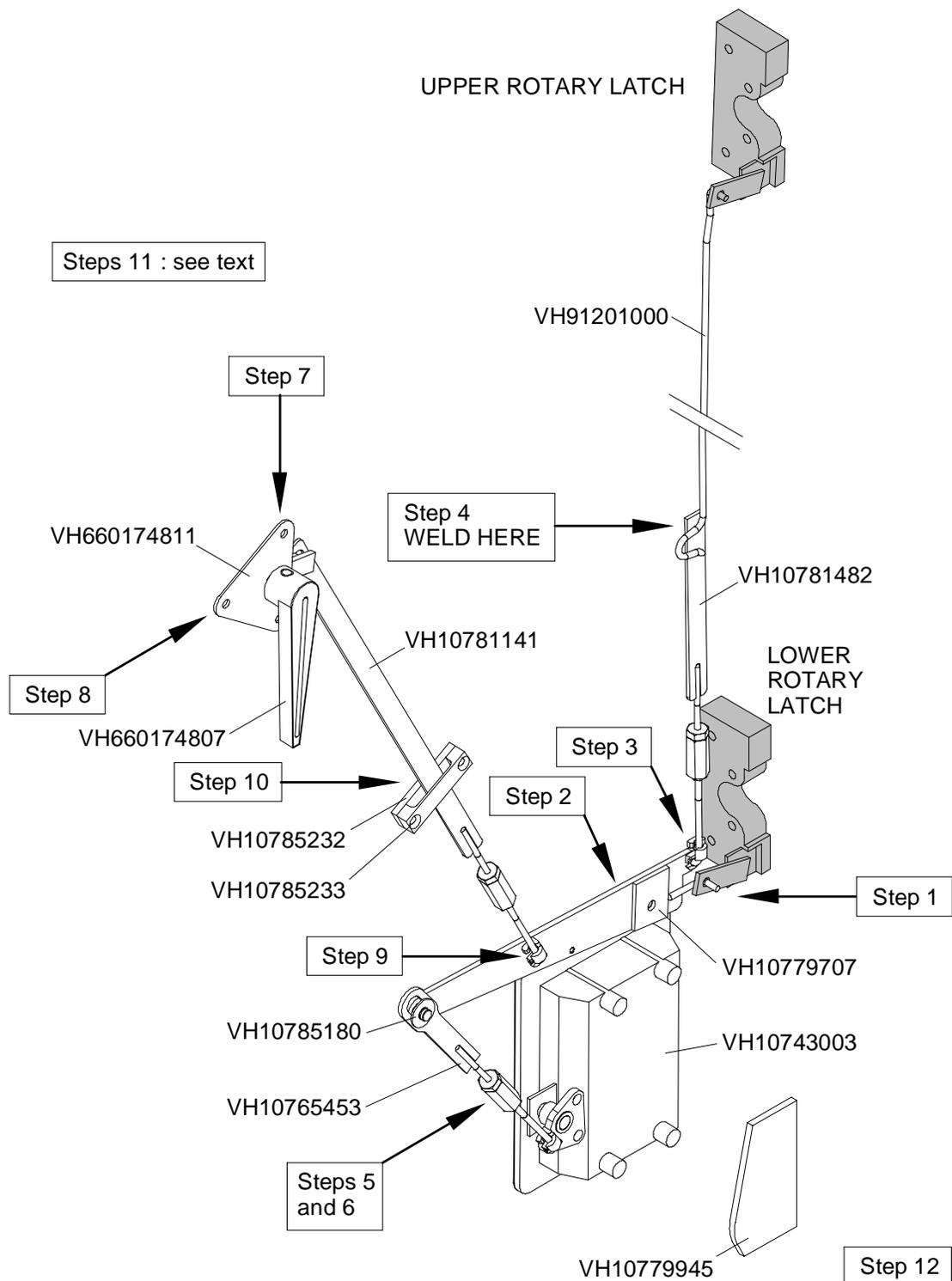
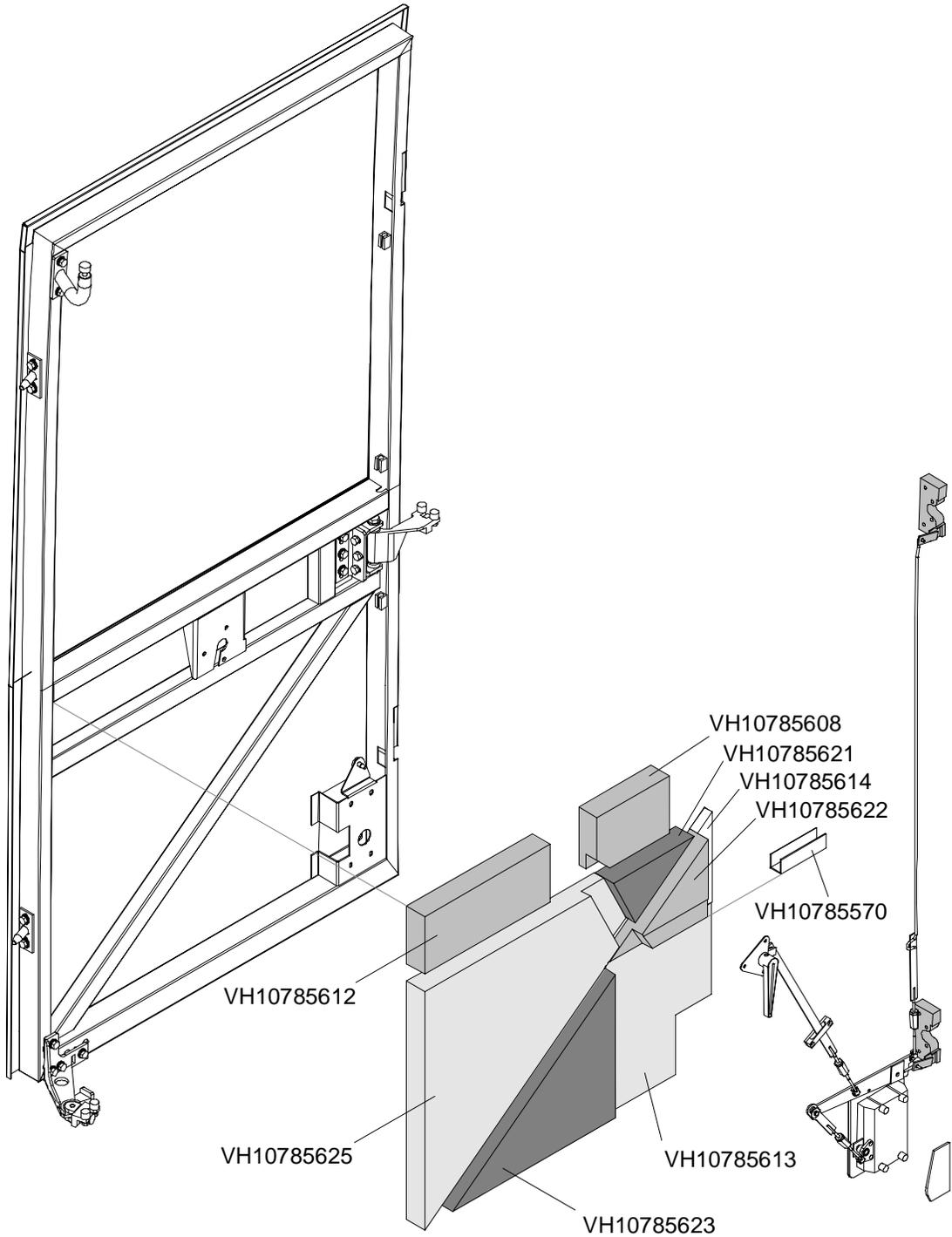


Figure 21: New door insulation



9. To install the new door insulation – To install proximity switch trigger VH 10779497:

- 1) Glue self-tapping screw retaining channel VH 10785570 to insulation panel VH 10785621 with Sika Tack (see Figure 22). Allow adhesive to cure.

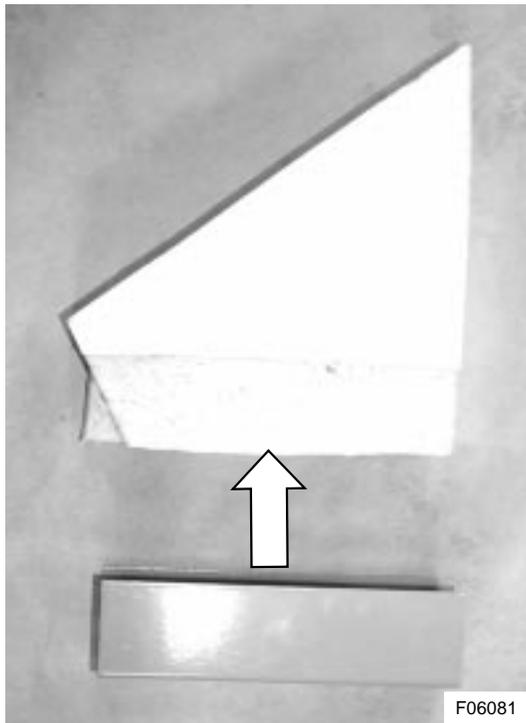


Figure 22: Machine screw retaining channel glued to insulation panel VH 10785621

- 2) Install the insulation panels as shown in Figure 21. These panels have been cut for a tight fit. There is no need to glue the panels to the door skin.
- 3) Install proximity switch reflector VH 10779497 as shown in Figure 23. Distance from the door bottom channel to the reflector: 2-61/64 inch (75 mm). Secure with a self-tapping screw.

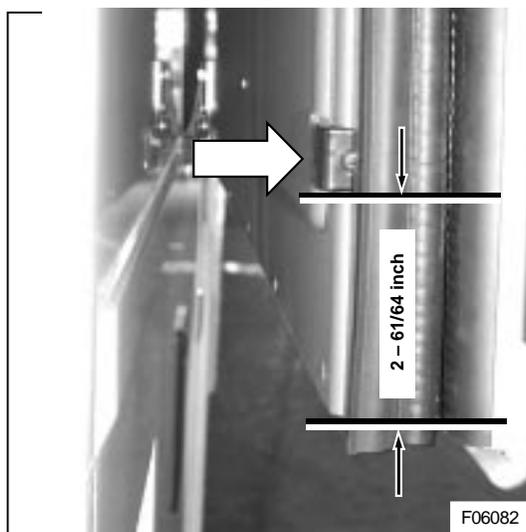


Figure 23: Proximity switch trigger installation

*Installation of door insulation and proximity switch trigger complete.
Procedure 2 complete.*

POCEDURE 3: TO MODIFY AND INSTALL DOOR TRIM PANEL VH 10773338. TO INSTALL DOOR LOCK CLOSING PANEL VH 10783104

1. General:

- The time required to install door trim panel VH 10783104 and closing panel VH 10783104 is approximately 0.5 hour.
- This job should be executed by an experienced body repair technician.

2. Special tools, equipment or services:

- To modify the ABS trim panel, a high speed cutter is required.

3. Preparations:

- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. To install the door trim:

- 1) Using a high speed cutter, enlarge the door lock access opening in the main trim panel to 19-3/4 inch (400 mm), measured from the bottom edge of the panel, and 12-19/32 inch (320 mm) from the right hand (door lock) edge of the panel. The opening should measure 11-7/32 inch wide by 13 inch high (285x330 mm – see Figure 24).

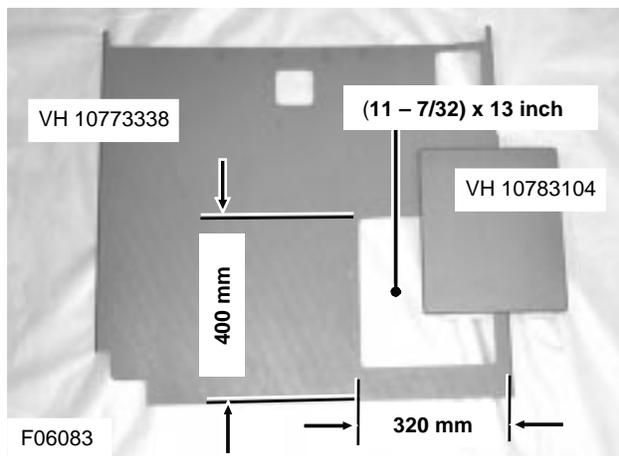


Figure 24: Modified main trim panel VH 10773338 and door lock closing panel VH 10783104

- 2) Install the main trim panel in reverse order to removal, using the salvaged self-tapping screws to secure the panel.
- 3) Trial fit the closing panel (see Figure 25). The right hand edge should be approximately 25/32 inch (20 mm) from the doorpost. The bottom edge of the panel should be approximately 2-11/64 from the bottom edge of the door. Referring to the dimensions in Figure 26, drill two holes in the panel and the U-channel behind it to suit the recovered self-tapping screws (1, Figure 25).

- 4) Remove the closing panel and install Velcro strips on the door lock housing and the back of the panel (2, Figure 25).
- 5) Reinstall the cover panel (3, Figure 25) and secure with the self-tapping screws (see 4, Figure 25).

Procedure complete.

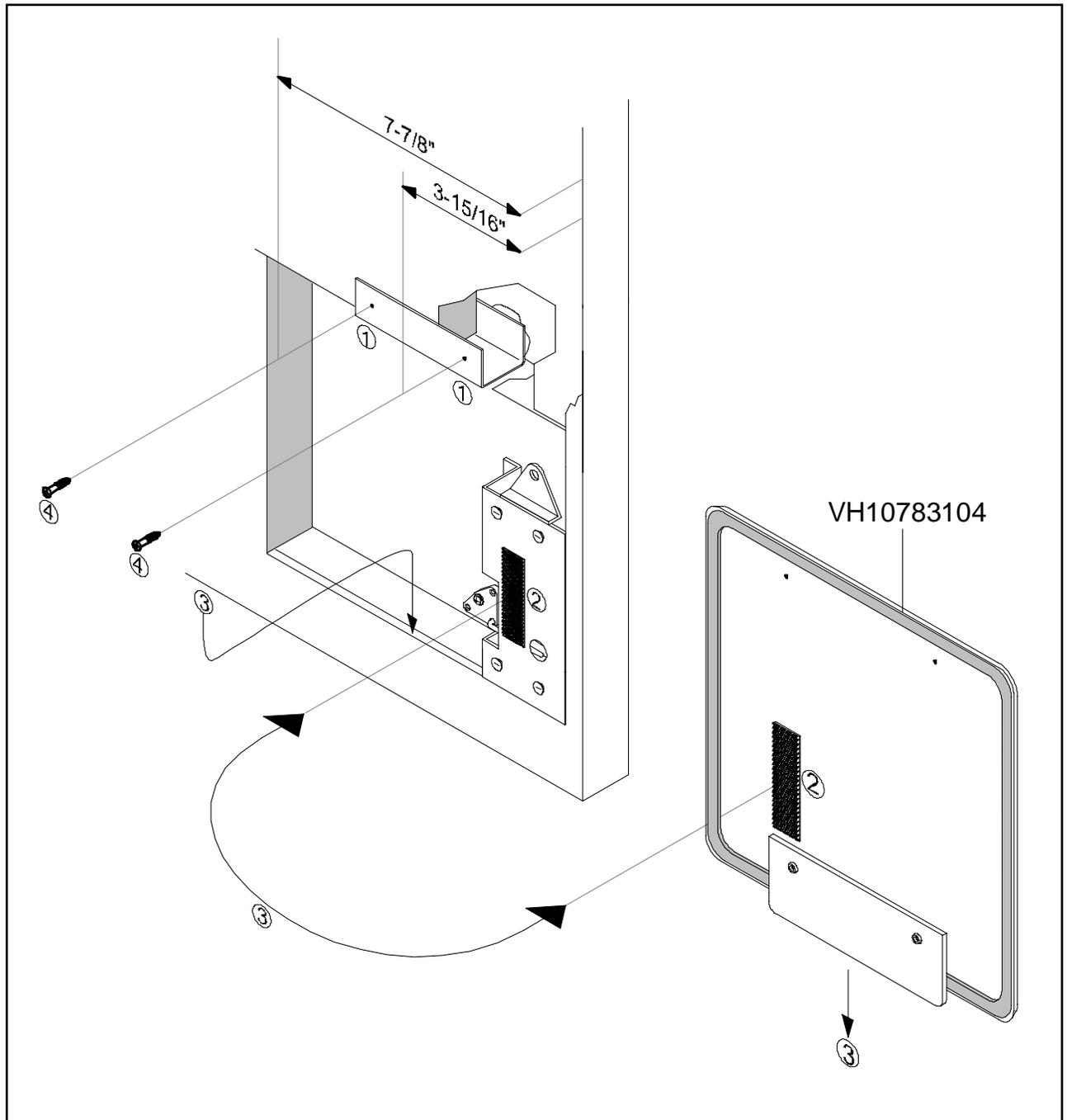


Figure 25: Trim closing panel installation

PROCEDURE 4: TO REPLACE THE THRESHOLD KICK STRIP – TO INSTALL THE NEW SLIDING LIFT DOOR BOTTOM SEAL – TO ADD SLIDING LIFT DOOR DRAIN HOLES

1. General:

- The time required to replace the threshold kick strip, fit the sliding lift door bottom seal and drill the drain holes is approximately 0.5 hour.
- This job should be executed by an experienced body repair technician.

2. Special tools, equipment or services:

- No special tools, equipment or services are required.

3. Preparations:

- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. To remove the old door seal and kick strip assembly:

- 1) Fully open the sliding door.
- 2) At the doorstep, undo and remove the self-tapping screw securing the cover of the proximity switch, which is installed next to the doorpost (see Figure 26). Remove the cover.

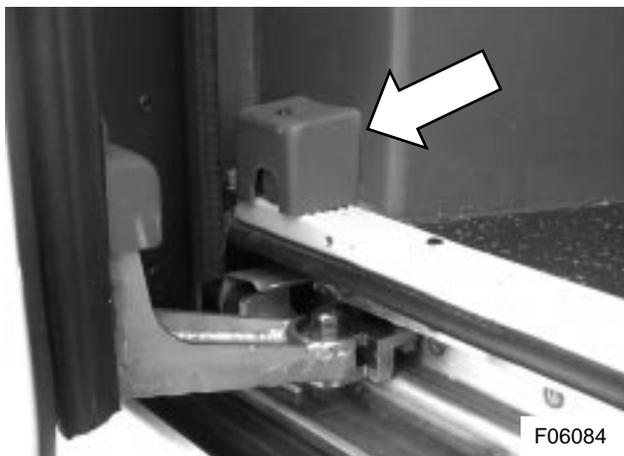


Figure 26: Proximity switch cover

- 3) Remove the door stops fore and aft (see Figure 28). Recover the stops.

CAUTION: When removing the kick strip, take care not to damage the proximity switch.

- 4) Undo and remove the self-tapping screws securing the kick strip (see Figure 28, page 24). Remove the kick strip.
- 5) Remove and discard the old seal. Remove any remaining adhesive from the doorstep floorboard with a scraper.

5. To install the new door seal and kick strip assembly:

- 1) Using the old kick strip as a template, mark the proximity switch cut-out on the replacement part. Cut-back the new strip to clear the switch.
- 2) Trim the kick strip length to suit the doorstep. Approximate overall length: 3 ft 1-31/64 inch (960 mm). Approximate length from doorpost (proximity switch side) to kink: 2ft 11-1/32 inch (890 mm).
- 3) Cut the new door seal to suit the longer straight part of the kick strip. Approximate length: 2ft 11-1/32 inch (890 mm).
- 4) Install the door seal on the kick strip as shown in Figure 29 (see overleaf).
- 5) Install the door seal/kick strip assembly on the doorstep. Secure with the salvaged self-tapping screws.
- 6) Reinstall the bump stops using black Sikaflex 221 or a similar polyurethane adhesive.
- 7) Reinstall the proximity switch cover.

6. To add the sliding door drain holes:

- 1) Add three 1/8 inch (3 mm) holes in the bottom channel of the sliding door as shown in Figure 27.
- 2) Coat the holes with zinc primer.



Figure 27: Sliding lift door drain holes

Procedure 4 complete.

OLD

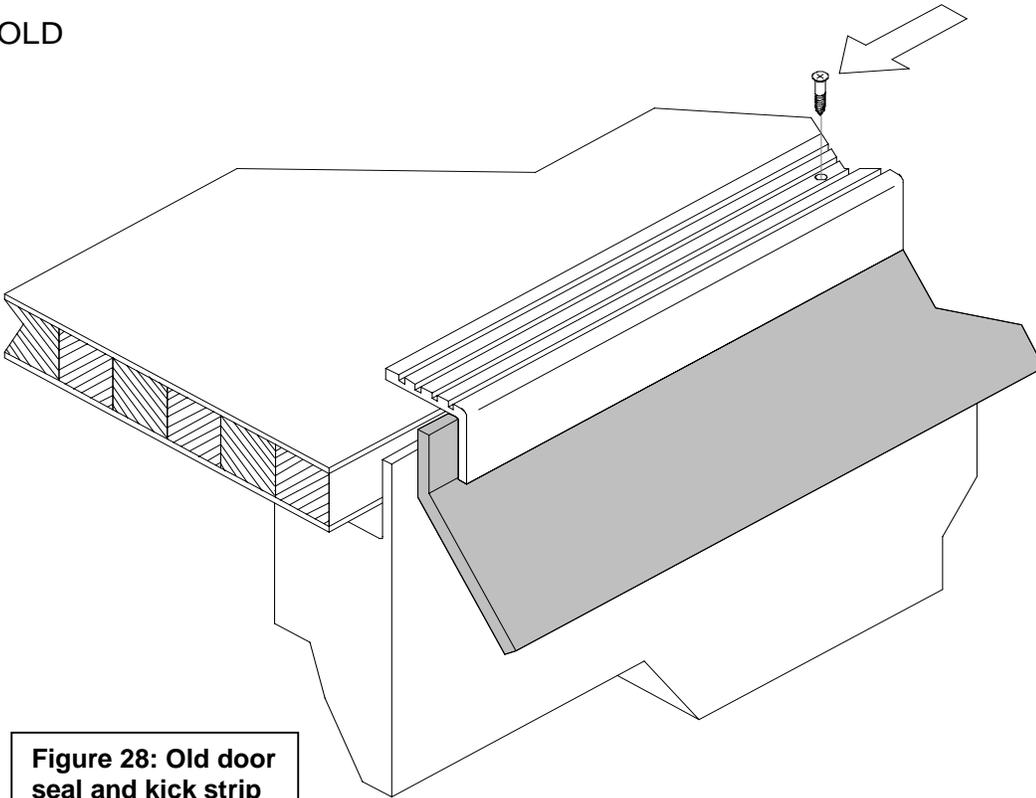


Figure 28: Old door seal and kick strip

NEW

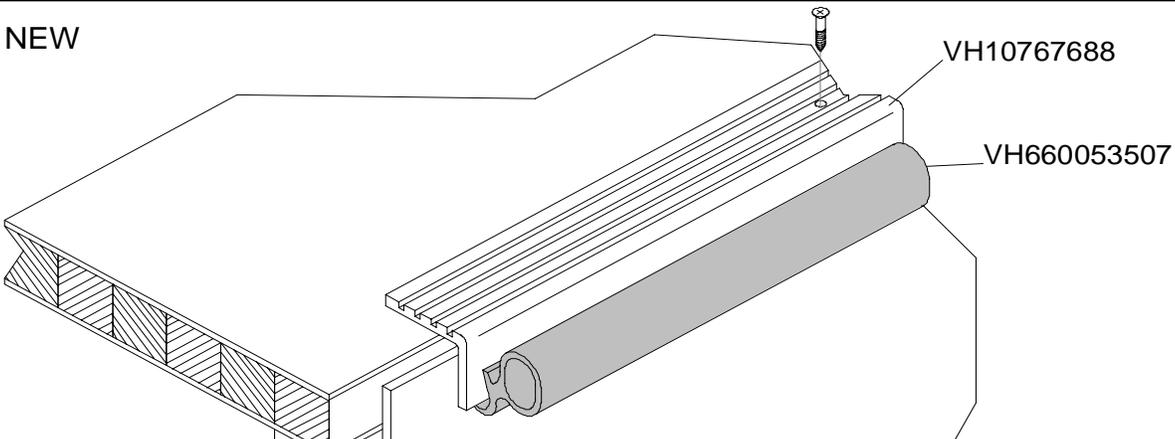
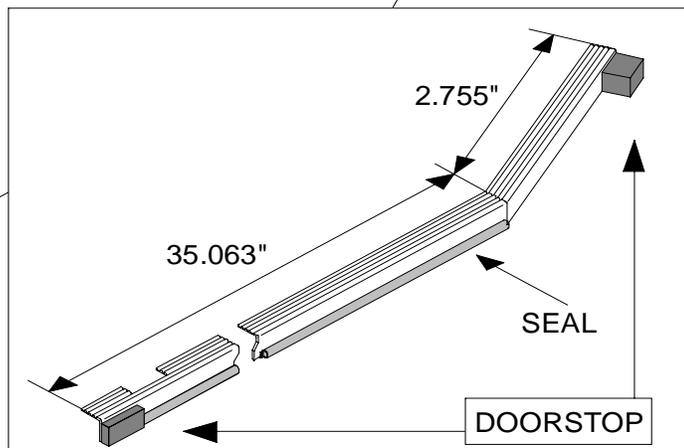


Figure 29: New door seal and kick strip



PROCEDURE 5: TO MODIFY AND ADJUST THE LOWER DOOR OPERATING MECHANISM

1. General:

- The time required to modify and adjust the lower door operating mechanism is approximately 1 hour.
- The changes include lowering of the pantograph hinges and the installation of:
 - 1) a new tie rod bracket.
 - 2) a new tie rod.
 - 3) new guide pin brackets.
 - 4) a new striker bolt bracket
 - 5) new guide pin catches
- This job should be executed by an experienced body repair technician

2. Special tools, equipment or services:

- No special tools, equipment or services are required.

3. Preparations:

- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. To adjust the door pantograph:

- 1) Open the access door to the waste tank. Undo the door hinge bolts of the upper and lower hinge. The hinge bolts are located in the channel, which borders the lift compartment (see Figure 30). Close the access door again.

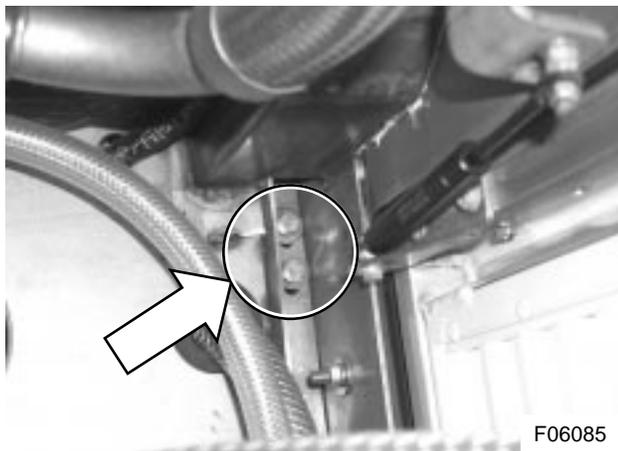


Figure 30: Hinge bolts. Upper hinge bolts shown only

- 2) Open the lift door. Adjust the pantograph mechanism until the distance from the bottom of the upper hinge to the upper compartment channel is 2-3/64 inch (52 mm). See Figure 31. With the hinges properly adjusted, tighten the hinge bolts to a torque of 15 ft.lbf (20 Nm).

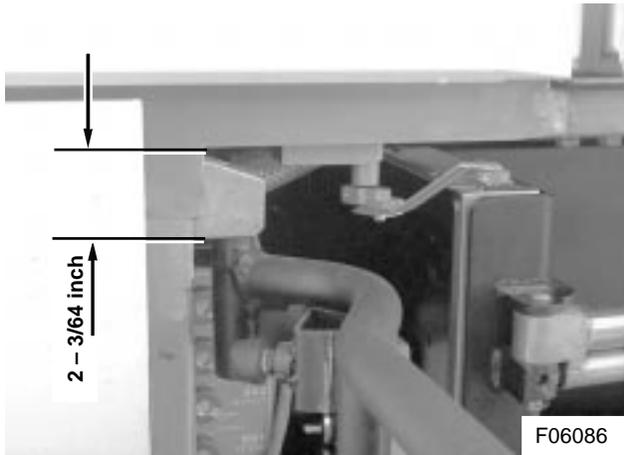


Figure 31: Upper pantograph hinge and installation distance

- 3) Undo the pantograph to doorframe mounting bolts. Readjust the position of the door panel so that the top line is flush with the adjacent body panels and doors (see Figure 32 for adjuster brackets). Retighten bolts to 6.5 ft.lbf (9 Nm).

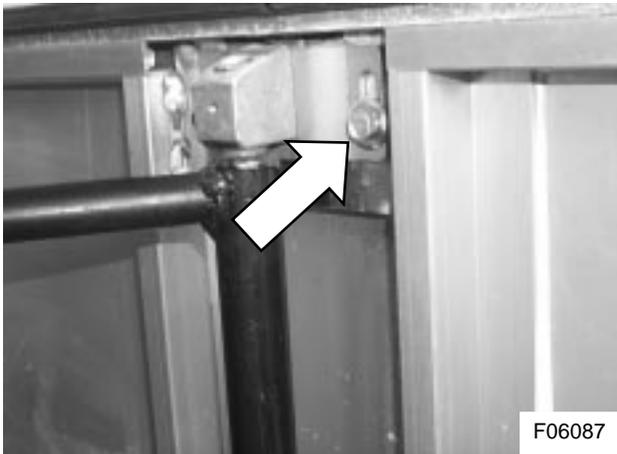


Figure 32: Height adjustable mounting brackets

Pantograph adjustment complete.

5. To replace the tie rod and door bracket:

- 1) Undo and remove the nuts securing the door tie bar ball joints to the door and the upper compartment channel (see Figure 33, page 27). Remove and discard the tie rod.
- 2) Undo and remove the bolts securing the tie rod mounting bracket to the door (see Figure 34, page 27).
- 3) Trial fit the new tie rod mounting bracket. Install it snugly in the corner of the doorframe and run-up the bolts.
This bracket has an extra mounting hole in the top flange. With a scribe, mark the outline of this hole on the doorframe channel (see Figure 35, page 27). Remove the bracket.

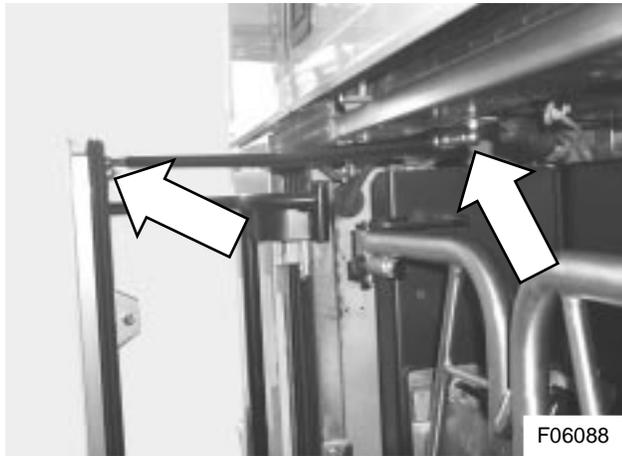


Figure 33: Tie rod ball joint location

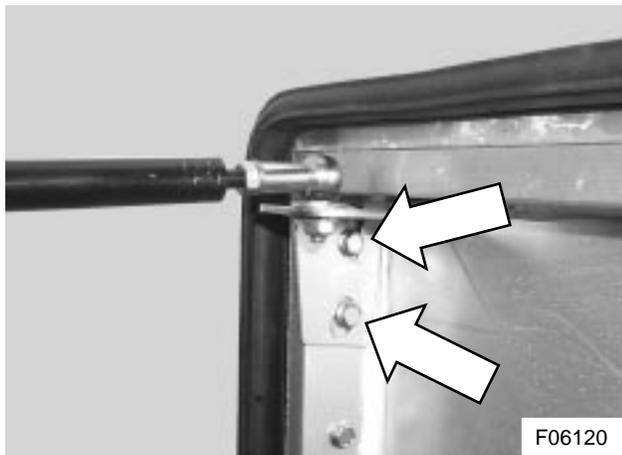


Figure 34: Tie rod mounting bracket bolts

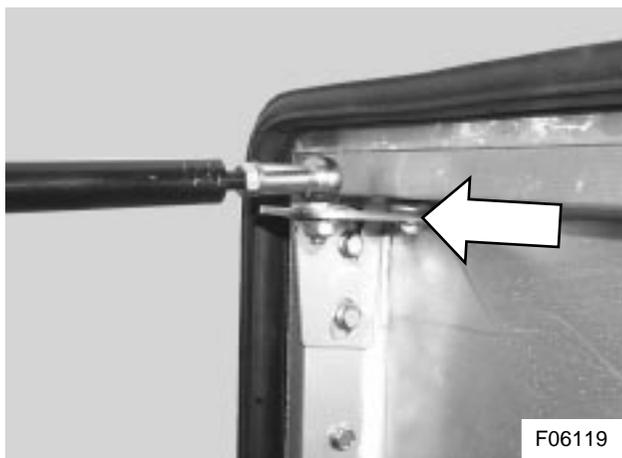


Figure 35: Additional mounting bolt and spacer.

- 4) Center punch, drill and tap a hole in the scribed area on the channel, to accept a M6x1x16 mm flange bolt. Reinstall the bracket, with spacer VH 10786907 fitted between bracket and upper channel as shown in Figure 35. Run-up the bolts and tighten to a torque of 6.5 ft.lbf (9 Nm).
- 5) Install the new tie rod, the ball joints positioned as shown in Figures 34 and 35, page 28. The spring loaded end of the tie rod should be pointing to the coach mounting bracket. Tighten ball joint nuts to a torque of 6.5 ft.lbf (9 Nm).

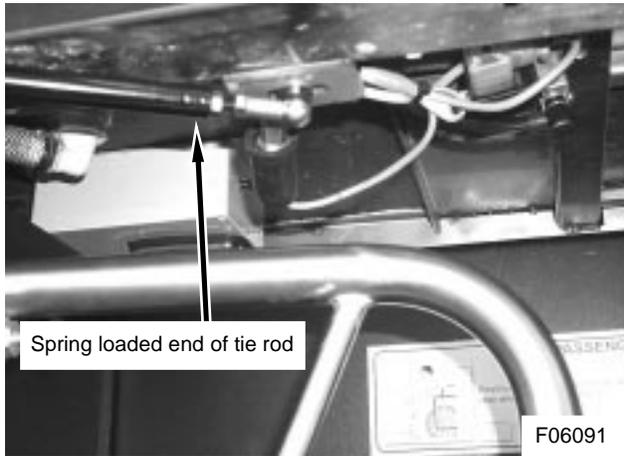


Figure 36: Tie rod installation, coach side

Tie rod and door bracket replacement complete.

6. To replace the guide pin brackets and guide pin catches:

- 1) Undo and remove the flange bolts securing the upper and lower guide pin brackets to the doorframe (see Figure 37).



Figure 37: Guide pin brackets and mounting bolts

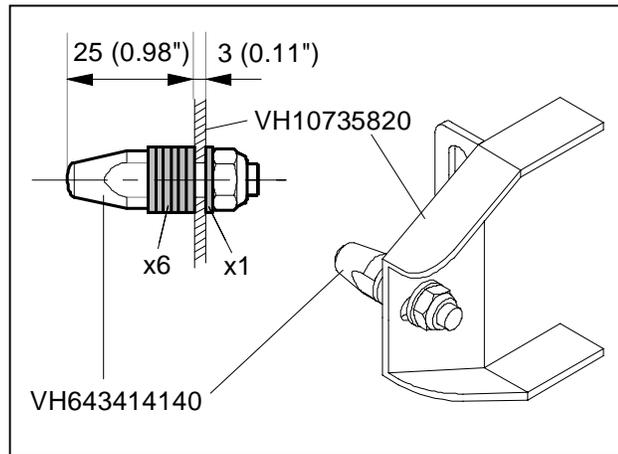


Figure 38: Guide pins, installation dimensions

- 2) Remove the pins, nuts and washers from the old guide pin bracket assemblies. Discard the old brackets and any plastic spacers, if present.
- 3) Reassemble the guide pin hardware with the new brackets. Install washers between the blunt part of the pin and the bracket as shown in Figure 38. Do not use plastic spacers.
- 4) Reinstall the brackets on the door frame. Tighten bolts to a torque of 6.5 ft.lbf (9 Nm).

- 5) Undo and remove the self-tapping screws securing the old guide pin catches to the door post of the lift compartment. Remove and discard these catches.
- 6) Install the new guide pin catches as shown in Figure 39. The new catches have four screw holes and a straight edge. Mark, centerpunch and drill the holes to accept the self-tapping screws. Install the screws.



Figure 39: New guide pin catch installation

Guide pin bracket and catch replacement complete.

7. To replace the striker bolt bracket:

- 1) Undo and remove the two bolts securing the old striker bolt bracket to the lift compartment pillar. Remove the bracket and striker bolt assembly. Recover the shims.
- 2) Undo and remove the striker bolt from the bracket. Discard the bracket.
- 3) Assemble the striker bolt and the new bracket. Tighten the striker bolt to a torque of 35 ft.lbf (45 Nm).
- 4) Reinstall the new striker bolt assembly using the recovered shims and fasteners. Approximately 4 two millimeter shims will be required (see Figure 40). Tighten the bracket mounting bolts to a torque of 15 ft.lbf (20 Nm).



Figure 40: New striker bolt assembly installation

8. To adjust the door:

Before adjusting the lower door, check that:

- The pantograph hinges have properly adjusted (see “4. To adjust the pantograph”)
- The door panel is properly aligned
- The guide pin length is 1 inch (25 mm)

1) Undo the gas strut ball joint nut, securing the strut to the doorframe (see Figure 41).

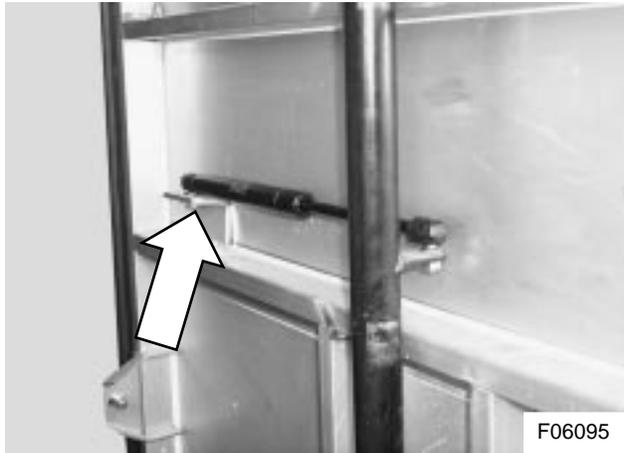


Figure 41: Gas strut installation

2) Withdraw the door bumpstop on the pantograph fully (see Figure 42). Secure with jamnut.

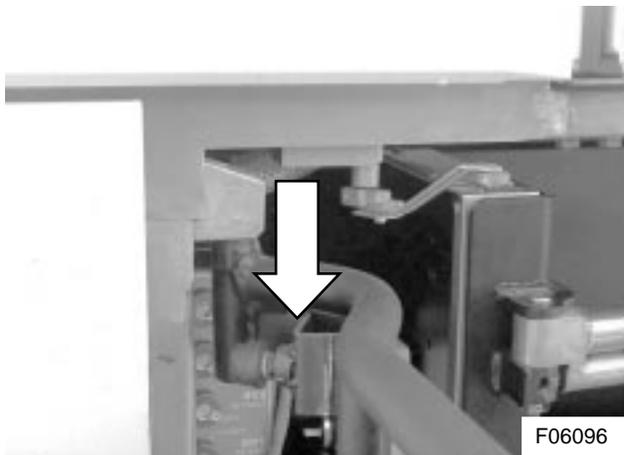


Figure 42: Door bumpstop

3) Undo the chassis to door tie rod ball joint nuts. Adjust the springloaded tie rod referring to Figures 43.1 and 43.2 on page 31.

NOTE: It may be necessary change the position and/or length of the tie rod in order to achieve the proper clearance.

Figure 43.1 shows the door slightly open on one side with the guide pins close to the catches. The tie rod body to jam nut clearance should be 0 inch.

Figure 43.2 shows the door fully closed. The tie rod body to jam nut clearance should be 0.23 inch with the guide pins fully seated.

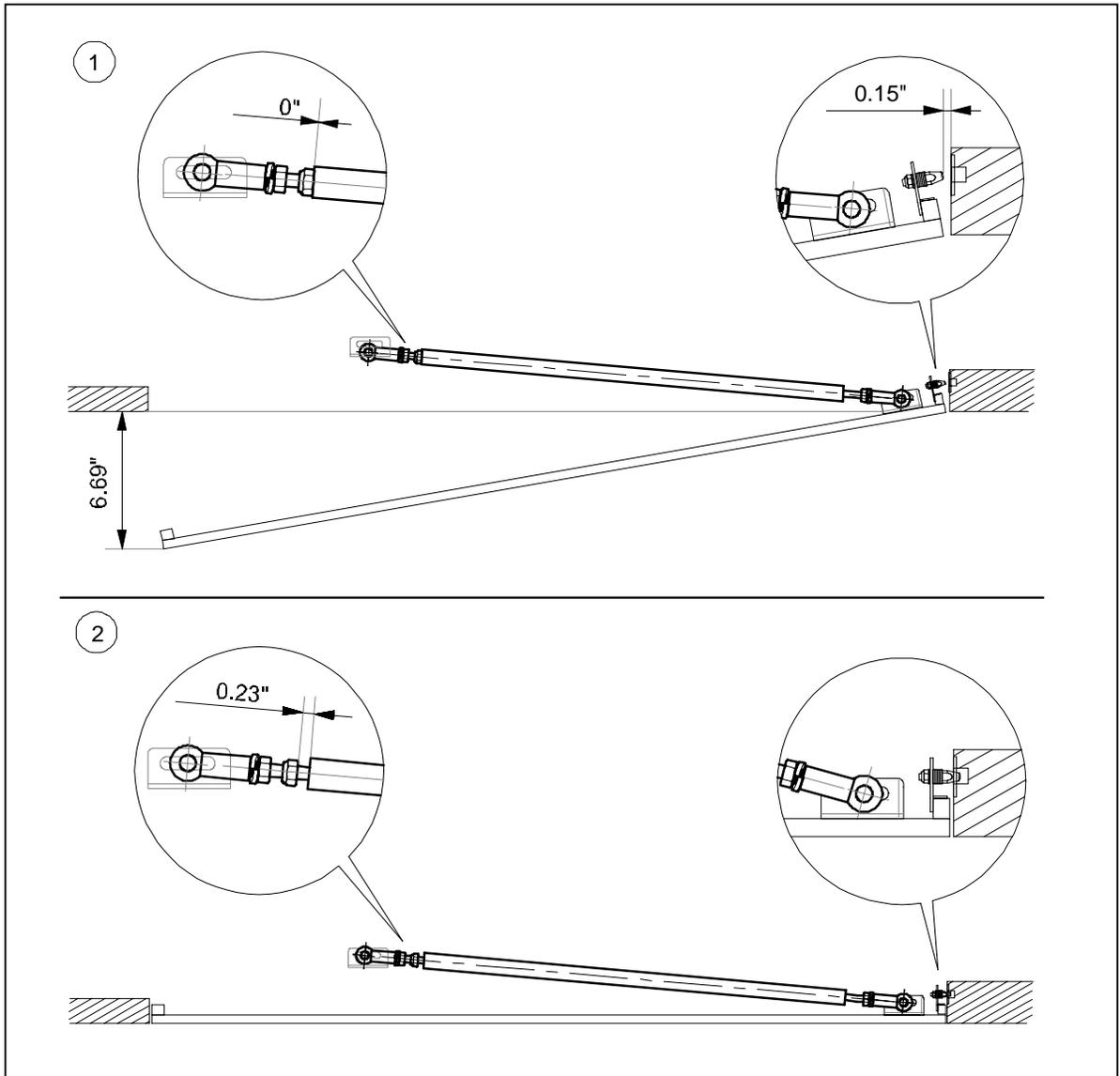


Figure 43: Parallel opening door adjustment references

- 4) Adjust the striker bolt and rotary latch positions for proper operation without binding by adding or removing shims (see Figures 40 and 44).

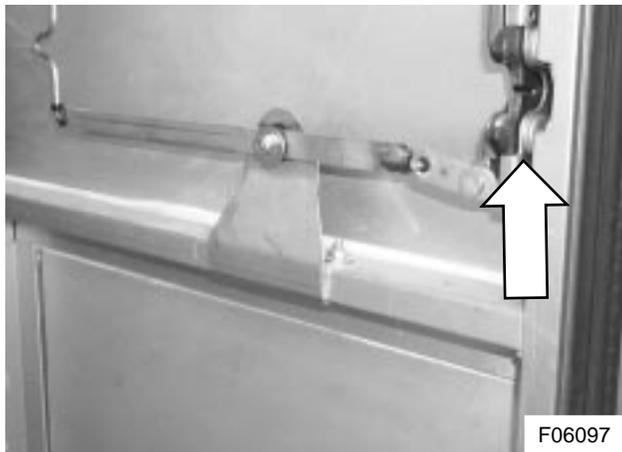


Figure 44: Rotary latch adjuster shims

- 5) Fully open the door, so that the pantograph end stop rests against the coach chassis. Adjust the gas strut length, so that the strut rod is fully extended minus 1/8 inch (3 mm) to allow enough slack for the bumpstop to compress. Tighten the gas strut securing nut.

*Parallel door adjustment complete.
Procedure 5 complete.*

PROCEDURE 6: TO RELOCATE THE LOWER DOOR PROXIMITY SWITCH

1. General:

- The time required to relocate the lower door proximity switch is approximately 0.5 hour.
- This job should be executed by an experienced automotive electrician.
- For more information refer to the Electrical Wiring Diagram Booklet that comes with the coach.

2. Special tools, equipment or services:

- To install the switch in its new position, an insert fastener set is required.

3. Preparations:

- Read the entire procedure before beginning to work.

CAUTION: Observe safe shop practices at all times.

4. To relocate proximity switch VH 660764615:

- 1) In the lift compartment, locate the proximity switch on the bulkhead panel (see Figure 45).



Figure 45: Old location of proximity switch VH 660764615 next to lift compartment side post

- 2) Undo and remove the two machine screws and spacers securing the switch housing to the compartment wall. Discard the screws and spacers.
- 3) Remove any wire clamps, so that the switch can be relocated to its new position (see Figure 46).



Figure 46: New location of proximity switch VH 660764615

- 4) Undo the Allen bolt securing the roller arm clamp to the shaft of the switch. Remove the roller arm assembly.
- 5) Remove the roller arm from the clamp by unscrewing and removing the Allen bolt and clamping plate. Note the position of the clamping plate. Discard the old roller arm.
- 6) New arm VH 10793025 replaces the old, straight arm (see the dimensions in Figure 47 as a reference).

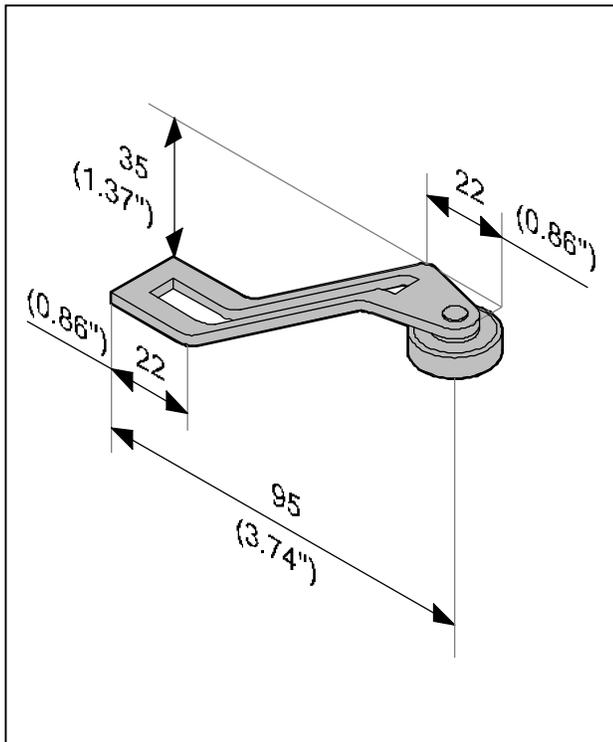


Figure 47: New shape of roller arm VH 10793025

- 7) Assemble the new roller arm with the clamping plate and clamp, and adjust the arm to full length. Tighten the Allen bolt to a torque of 30 in.lbf (3.5 Nm).
- 8) With a scribe, mark the position of the new switch mounting holes on the upper lift compartment channel. Refer to Figure 48 for the correct dimensions.

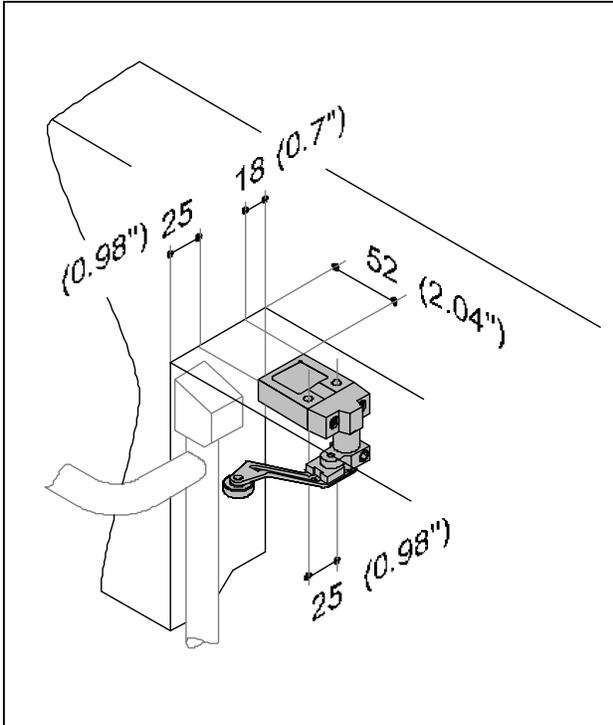


Figure 48: New switch installation dimensions (in mm and inches)

- 9) Drill two holes suitable for M5x0.8 threaded inserts. Install the inserts. Secure the switch to the upper channel with two M5x0.8x25 mm bolts. Tightening torque 6 ft.lbf (8 Nm).
- 10) Stow away excess switch wiring with tie wraps.
- 11) Install the roller arm assembly on the shaft with the wheel pointing down. The arm should be biased some 30° towards the front of the coach (see Figure 49). Tighten the Allen bolt to a torque of 30 in.lbf (3.5 Nm).

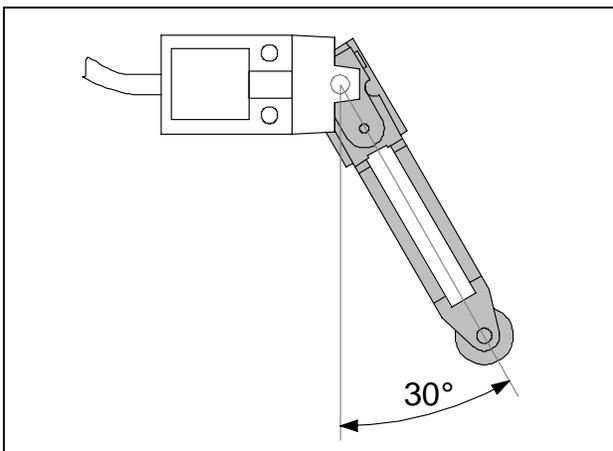


Figure 49: Roller arm position on switch shaft

- 12) Install the roller arm guide on the door frame referring to dimensions in Figure 50. Drill two 4,5 mm holes and secure the bracket with rivets VH 660611600.

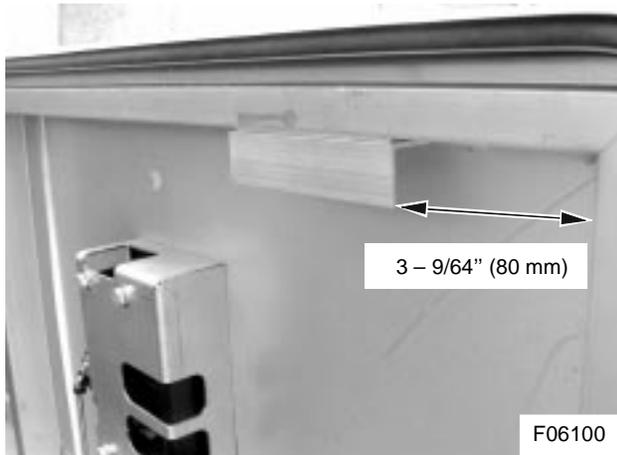


Figure 50: Roller arm guide installation dimensions

- 13) Check the switch operation. The roller wheel should contact the upper horizontal tubing of the door frame, and operate in the direction of the door motion.

Procedure 6 complete.

SERVICE INFORMATION:

Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

WARRANTY INFORMATION:

- Causal part: VH 10776880
- Job code: O08040N
- Parts disposition: discard according to applicable environmental regulations.

Van Hool will accept warranty claims for this repair as follows:

- Parts: Parts may be obtained through regular channels.
- Labor allocation: 7.5 hours per coach
- Contingency: 2.5 hours per coach
- Expiration date: December 31st, 2002

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