



# SERVICE BULLETIN No.1156

Circulate to listed addressees

<b>COACH MODEL</b>	: C2045 "Enhanced"
<b>BULLETIN TYPE</b>	: Field Change Program
<b>MANUAL &amp; SECTION</b>	: Maintenance Manual: Chapter 11 – Body and accessories Spare Parts Manual: Section 733409 – Glass and accessories
<b>PARTS BOOK REVISION</b>	: No
<b>DATE</b>	: April 12, 2005
<b>SUBJECT</b>	: <b>Passenger window conversion – front page update</b>
<b>TERMS &amp; CONDITION</b>	: Refer to the Warranty Information in this Bulletin.

**THIS FRONT PAGE SUPERSEDES SB1156 FRONT PAGE DATED FEBRUARY 14, 2005**

## **APPLICATION:**

The Field Change Program subject of this Bulletin is applicable to the following units:

Model	Engine	VIN	Procedure part
C2045	Detroit Diesel	45930 45934, 45955 45980, 45983, 45992 45999, 46503 46507, 46516 46520, 46523	all
		45981 45982, 45984 45991, 46501 46502, 46508 46515, 46521 46522	1 4, 6, 11 12
	Cummins	45440 45455	

## **DESCRIPTION:**

1. To improve passenger comfort on the above-mentioned units, this Bulletin offers a solution to address passenger window hinge noise.
2. In production, the passenger window installation has been revised. Following the new specification, the number of windows, which can be opened with an emergency handle, has been reduced from six *per side* to four *per side* (see Figure 12). The field coaches listed above should be converted as per procedure in this Bulletin to comply with the new specification.
3. As a preventive measure the passenger windows remaining operational on the coaches mentioned should have the emergency exit handles checked for pulling force.  
If the force required to pull these handles exceeds 20 lbf (90 N), the window on which they are installed, should have new outer seals fitted as explained further in this Bulletin.

*Service personnel: please read, initial and circulate.*

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician

## **PARTS AND PRODUCTS:**

### **1. Kit VH 10928756 To check window catches:**

<b>Part No.</b>	<b>Description</b>	<b>Qty.*</b>
VH 660291200	Bolt, Allen, M6 x 30 mm	4
VH 660611605	Rivet, 4 x 18.3 mm	90
VH 10893950	Spacer for B-type window catch, 1 mm	12
VH 10895595	Spacer for B-type window catch, 1 mm, 82 mm wide	12
VH 10893956	Spacer for B-type window catch, 2 mm	12
VH 10885729	Spacer for B-type window catch, 3 mm	12
VH 10885730	Spacer for B-type window catch, 6 mm	12
VH 10895195	Catch, window	2
VH Tool	Gauge, yellow	1
VH Tool	Gauge, red	1
VH 660193035	Sika® - 205, cleaner	#
VH 10877484	Sikaflex® 222, adhesive, U.V. resistant, black	#

\*Quantities per coach

### **2. To address window hinge noise:**

<b>Part No.</b>	<b>Description</b>	<b>Qty.*</b>
VH 660192813	Tape, fabric, black	1 roll

\*Quantity per coach

### **3. Kit VH 10928758 - To remove the emergency handle and permanently lock a passenger emergency window:**

<b>Part No.</b>	<b>Description</b>	<b>Qty.*</b>
VH 10914171	Clamp, cable	1
Local purchase	Loctite 2701, thread adhesive	#
VH 10903559	Molding, rubber	35-7/16 inch
Local purchase	Loctite 454, adhesive, rubber	#
VH 660284956	Bolt, M4 x 0.7 x 16 mm, stainless	1
VH 660209902	Nut M4	2
VH 660637501	Lock washer	2
VH 629101100	Spring	1
VH 660877053	Decal, emergency exit, pointing to the right	1
VH 660877052	Decal, emergency exit, pointing to the left	1

\*Quantity per window

### **4. Kit VH 10909875 - To install new outer passenger window seals:**

<b>Part No.</b>	<b>Description</b>	<b>Qty.*</b>
VH 10909875	Seal, window outer, self-adhesive	20 ft
Local purchase	Degreaser, isopropyl alcohol	20 ft

\*Quantity per coach

Parts supply: refer to the Warranty Information in this Bulletin.

Parts and products disposition: discard according to applicable environmental regulations.

## **PROCEDURE:**

### **1. General:**

- The jobs described should be executed by technicians experienced in body and trim repair.

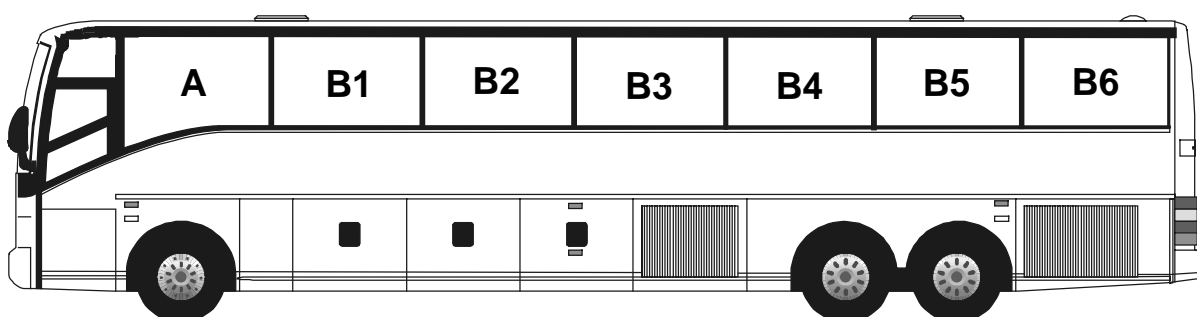
### **2. Special tools, equipment or services:**

- A scaffold or a scissors lift is required (minimum size 5 ft high x 10 ft long x 5 ft wide).

### **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.

### **4. Procedure application:**



**Figure 1: C2045 passenger windows – left hand side**

**A: Fixed window**

**B: Emergency windows, which can openend with a handle**

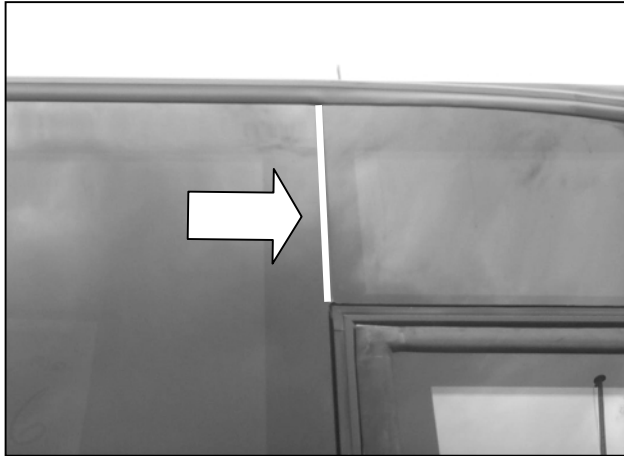
<b>Job</b>	<b>Cover hinge</b>	<b>Check latches</b>	<b>Remove spacers</b>	<b>Remove handle</b>	<b>Check tension</b>	<b>Replace seal</b>
<b>Procedure</b>	<b>part 7</b>	<b>Part 8</b>	<b>part 9</b>	<b>Part 10</b>	<b>part 11</b>	<b>part 12</b>
<b>Window</b>	A	A	A	-	-	-
	B1	B1	-	-	B1	B1*
	B2	B2	-	-	B2	B2*
	B3	B3	-	B3	-	
	B4	B4	-	-	B4	B4*
	B5	B5	-	-	B5	B5*
	B6	B6	-	B6	-	-

\*If tension out of spec.

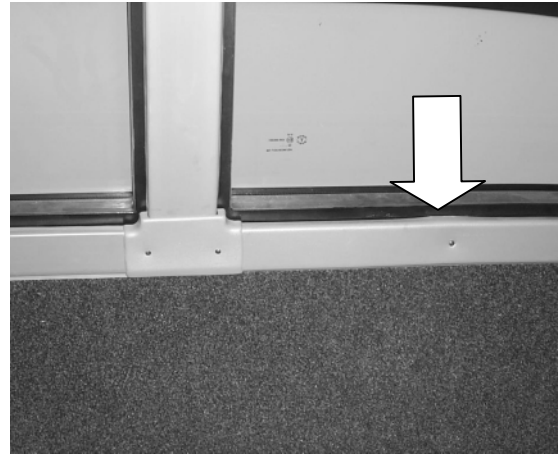
### **5. To open an A-type window:**

- 1) In order to be able to open this type of window, on the outside of the coach, cut through the adhesive seal indicated in Figure 2.

- 2) To get access to the A-type window latches, inside the coach remove the bottom curved molding (see Figure 3).



**Figure 2: Cut through A-type window adhesive seal (RH side window shown).**



**Figure 3: Remove A-type window bottom curved molding**

- 3) A-type windows have no release cable.  
Remove the rubber molding from the bottom channel of the window frame (see Figure 4).
- 4) Undo and remove the retaining screws fixing the slider.  
Recover the hardware.
- 5) The window can now be opened.  
To close and lock the window, proceed in reverse order, making sure to install the slider so that it covers at least 2/3rds of the catch (See Figure 7).



**Figure 4: A-type windows have no release cable – remove retaining screws fixing slider.**

## 6. To open B-type window:

To open this type of window, simply pull the emergency handle.

## 7. To address the passenger window hinge noise:

**CAUTION:** Passenger windows have a considerable weight. To avoid personal injury and/or damage to the vehicle or component, use adequate lifting equipment and work with an assistant to handle them.

**CAUTION:** This part of the procedure involves working on a scaffold or scissors lift. Service personnel who do not feel confident about working on heights should abstain from doing so.

**CAUTION:** Observe safe shop practices at all times.

**NOTE:** Protect the surface surrounding the windows against scratches, nicks and dents.

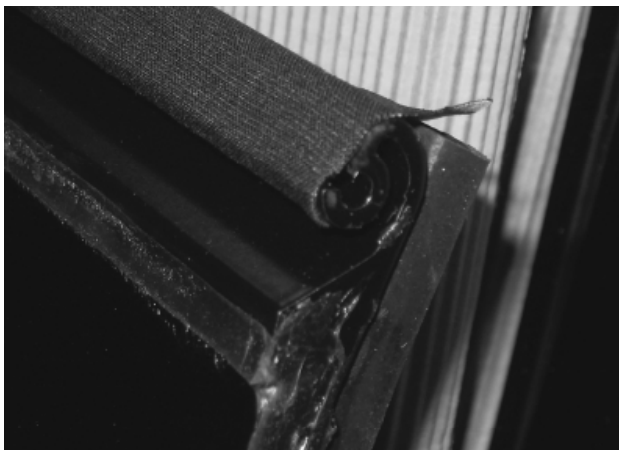
1) Unhinge and remove the affected window as follows:

- Open the window.
- Tilt the window outwards.
- Using a long 4 mm Allen wrench, unscrew the two Allen bolts securing the keeper to the center of the upper window frame channel(see Figure 5).  
Remove the bolts and keeper.
- Tilt, lift and withdraw the window from the body-mounted hinge.



**Figure 5: Keeper securing passenger emergency window**

2) Cover the hinge (part attached to window) with fabric tape (Figure 6).



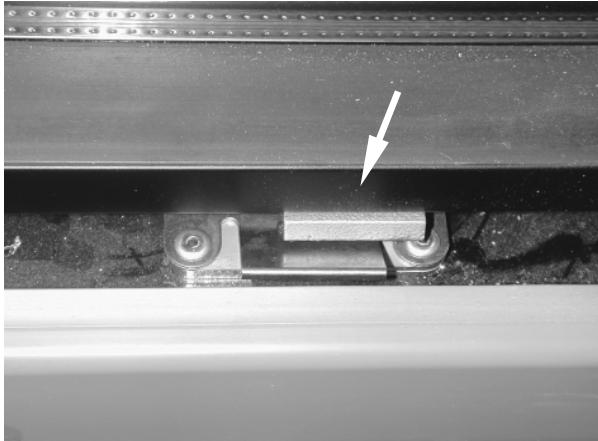
**Figure 6: Window hinge covered with fabric tape (window part)**

- 3) Reinstall the window in reverse order of removal.  
Secure window with keeper.  
Keep the window unlocked for further jobs.

## 8. To check window catches:

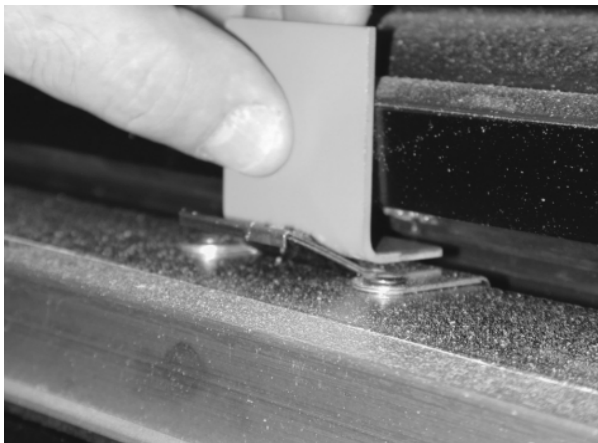
Make the following checks:

- 1) Check the fore-aft position of the window catches: the slider should cover at least 2/3rds of the catch (check with window open and emergency handle in the closed position (Figure 7).

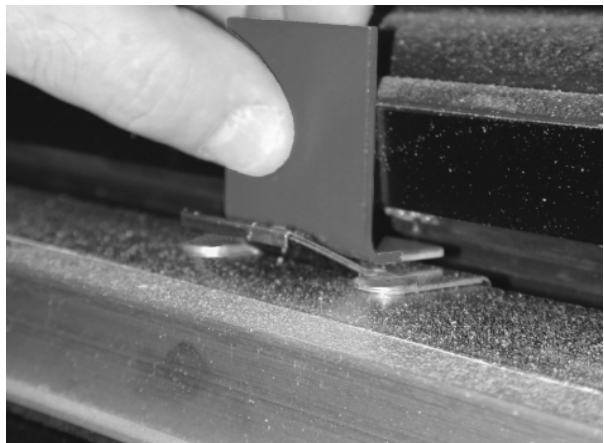


**Figure 7: Slider should cover at least two-thirds of catch when closed**

- 2) Check the catch installation height.  
The yellow gauge (2 mm) should fit between the heads of the rivets securing the catch and the slider (see Figure 8)  
The red gauge (3 mm) should not fit between the heads of the rivets securing the catch and the slider (see Figure 9)



**Figure 8: 2 mm yellow gauge should fit between the rivet heads and the slider**



**Figure 9: 3 mm Red gauge should not fit between the rivet heads and the slider**

- 3) If the catch position is out of spec, take corrective measures as follows:
  - Fore-aft position incorrect and installation height correct:  
Drill-out the rivets and relocate the catch using the original spacers.  
Fill the obsolete rivet holes with adhesive.

- Fore-aft position correct and Installation height incorrect:  
Drill-out the rivets securing the window catches.  
Using spacers, adjust the catch height until the red gauge (3 mm) fits between the slider and the catch base plate (no rivets installed).  
Secure the catch with rivets VH 660611605 to the coach frame.  
Re-check the catch position for the proper gap using the yellow and red gauge:

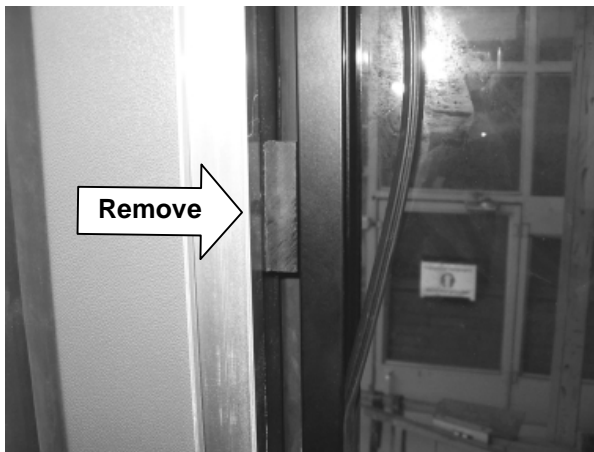
the yellow gauge (2 mm) should fit between the rivet head and the slider.  
the red gauge (3 mm) should no longer fit between the rivet head and the slider.

Fill the obsolete rivet holes with adhesive.

- Fore-aft position and installation height incorrect:  
Drill-out the rivets, relocate the catch and adjust height with spacers as explained below.  
Fill the obsolete rivet holes with adhesive.

## 9. To remove window spacers (A-type window only):

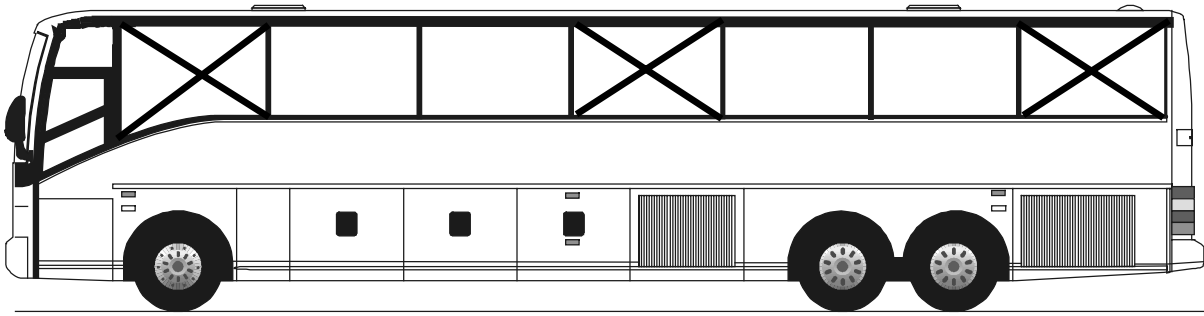
- 1) Check if any spacers (see Figure 10) have been installed between the window posts and the window frame. If present, remove them.



**Figure 10: Spacer installed between window post and frame**

- 2) Reinstall window trim and moldings as required.
- 3) Close the window.
- 4) Repair the exterior window seal as follows:
  - Mask-off the area next to the gap, using masking tape.
  - Using a scraper, remove all sealant from the affected seam.
  - Using a blowgun, remove any debris and dust from the gap.
  - Thoroughly clean the gap with VH 660193035 Sika® - 205, cleaner.
  - Wipe-off excess cleaner with a clean rag. Allow remainder to evaporate
  - For the sealant to give maximum performance, it is imperative that the contacting surfaces are clean, dry, and free of dust, old adhesive, grease and oil.
  - Fill the gap evenly with VH 10877484 Sikaflex® 222 black UV resistant adhesive.
  - Using a clean plastic spreader, wipe-off excess adhesive and spillover.
  - Remove the masking tape. Wipe-off any adhesive remaining on the paintwork next to the gap with VH 660193035 Sika® - 205 cleaner.
  - Allow adhesive to cure.

**10. To remove the emergency handle and permanently lock a passenger window:**



**Figure 11: C2045 passenger windows** –The windows, which are permanently locked according to the new spec, have been marked with a cross. Left hand side shown only. Both left-hand side and right-hand side windows should be converted

***NOTE:** For maintenance purposes it remains possible to open the window, but the window molding needs to be removed first to operate the locking mechanism.*

**CAUTION:** Passenger windows have a considerable weight. To avoid personal injury and/or damage to the vehicle or component, use adequate lifting equipment and work with an assistant to handle them.

**CAUTION:** This part of the procedure involves working on a scaffold or scissors lift. Service personnel who do not feel confident about working on heights should abstain from doing so.

***NOTE:** Protect the surface surrounding the windows against scratches, nicks and dents.*

**CAUTION:** Observe safe shop practices at all times.

1) Unhinge and remove the window to be converted as follows:

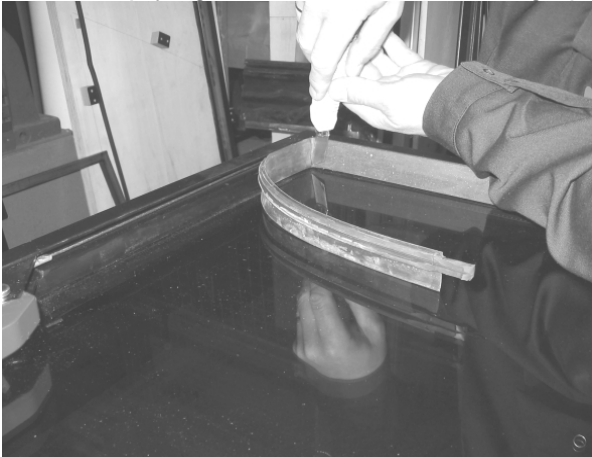
- Open the window using the emergency handle.
- Tilt the window outwards.
- Unscrew the two Allen bolts securing the keeper to the upper window channel (see Figure 12). Remove the bolts and keeper.
- Tilt, lift and withdraw the window from the body-mounted hinge.



**Figure 12: Keeper securing passenger emergency window**

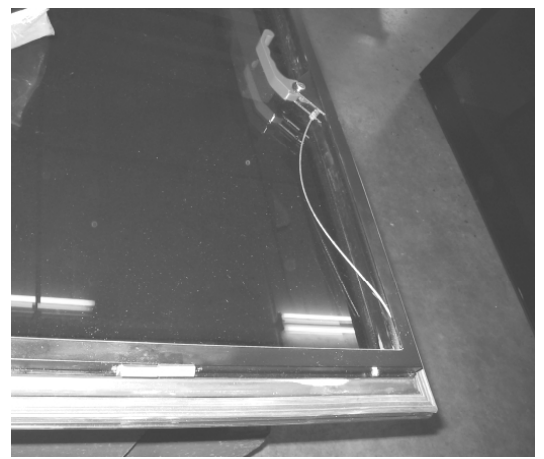
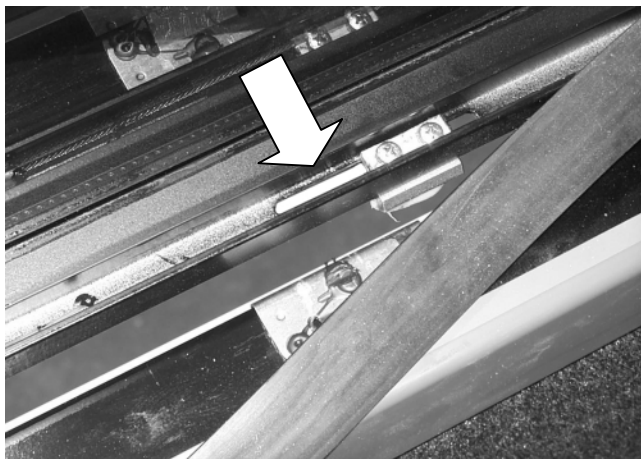
- 2) Install the window inside up on a clean and soft working surface.
- 3) Working from the handle to the upper and lower corners, pry loose the rubber molding. Cut-off the molding at the upper and lower corners as shown in Figure 13.

Remove and discard the rubber, which has been cut off.  
Continue prying loose the bottom molding up to the first slider.



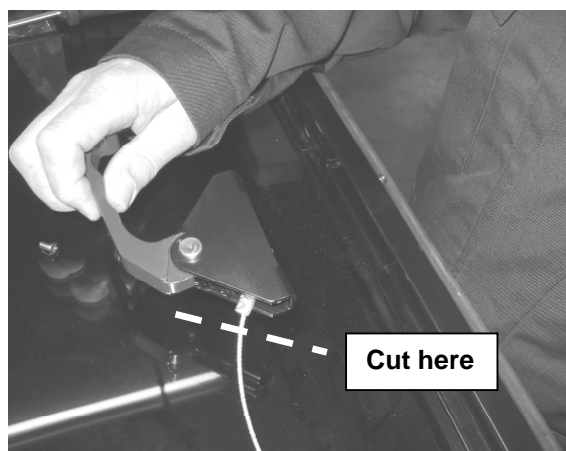
**Figure 13: Prying loose the molding above and below the handle and cutting it off at the corners**

- 4) Pull the emergency handle and install a wooden block in the slider slot to allow some slack at the handle (see Figures 14 and 15).



**Figures 14 and 15: Jam the slider in its slot to allow cable slack at the handle**

- 5) Cut the cable at the handle, just below the eye, using good quality cutter pliers (see dotted line Figure 16).

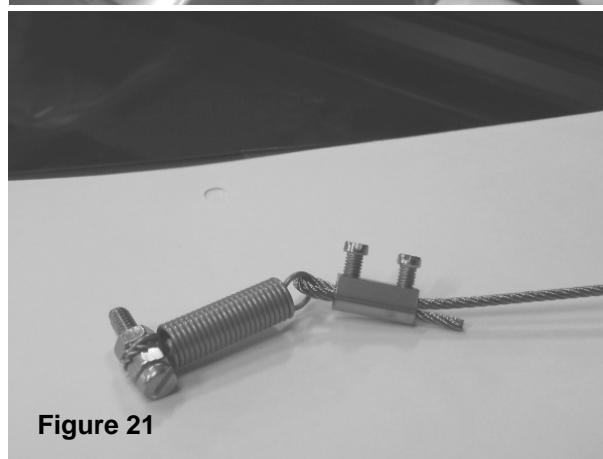
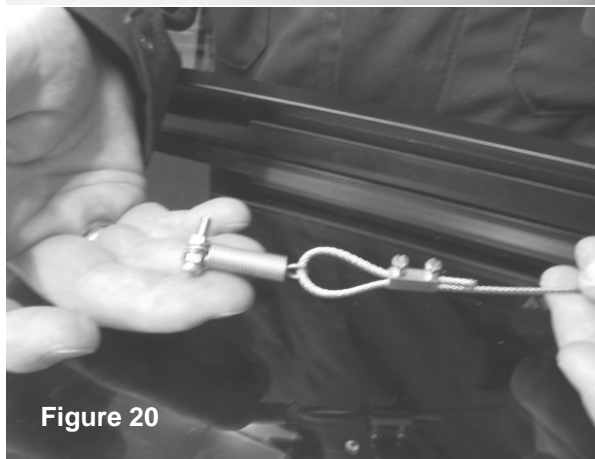
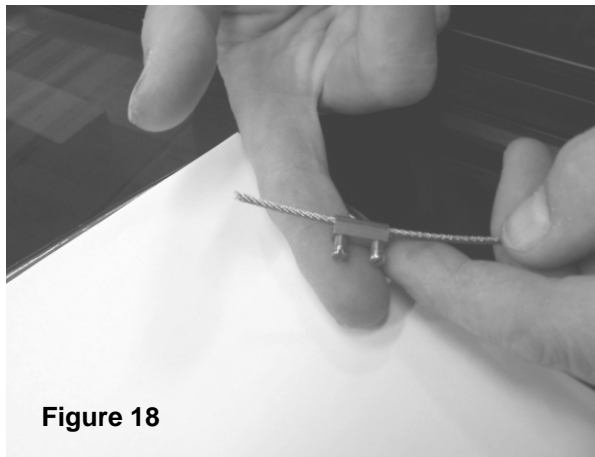


**Figure 16: Withdrawing the handle**

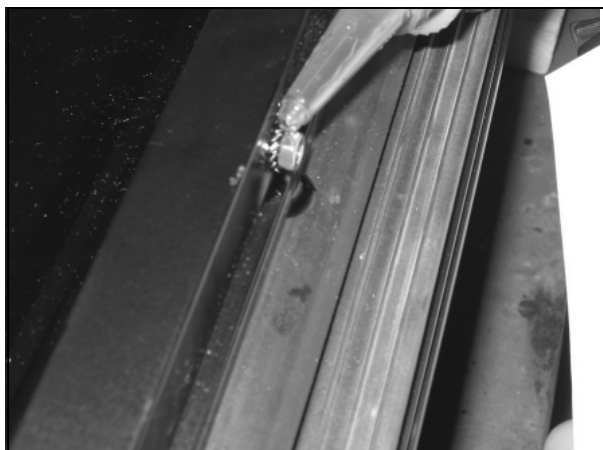


**Figure 17: Removing the bolts**

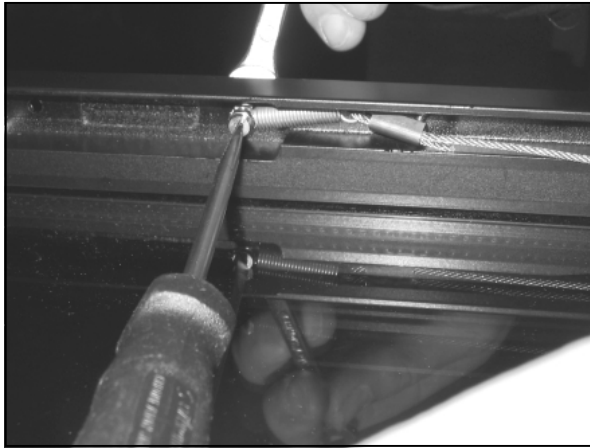
- 6) Undo and remove the two bolts and nuts securing the handle to the window frame. Withdraw the handle (see Figure 17).
- 7) Assemble the cable end, spring VH 629101100, bolt, lock washers, nuts and cable clamp VH 10914171 as shown in Figures 18 through 21.



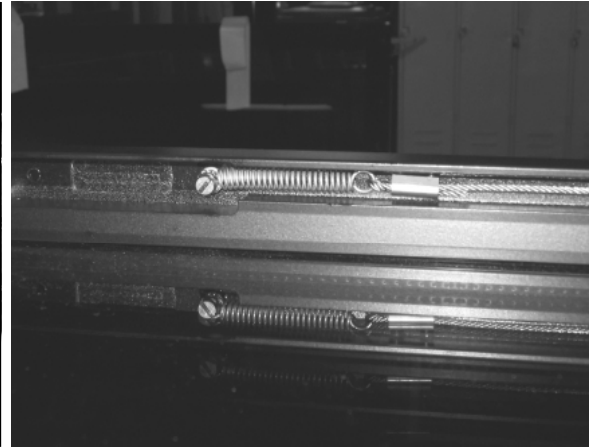
- 8) Apply some Loctite 2701 on the clamp bolts and in the clamp bore. Secure bolts hand tight.
- 9) Install the spring and cable assembly in the lower handle mounting hole (see Figures 22 and 23). Apply some Loctite 2701 on the thread, run-up a lock washer and nut and secure hand tight.



**Figure 22: Installing the spring and cable assembly in the lower mounting hole**



**Figure 23: Securing the spring and cable assembly**



**Figure 24: Spring and cable assembly straight in channel**

- 10) Remove the wooden block from the slider slot and check that the spring and cable assembly runs straight in the channel (see Figure 24).
- 11) Cut rubber molding VH 10903559 to length (approximately 35-7/16 inch (900 mm)). Apply some Loctite 424 adhesive in the lever mounting area. Starting at the upper corner, install the molding by pressing it in the channel. Cut-off excess rubber (Figures 25 through 28).



**Figure 25**



**Figure 26**



**Figure 27**



**Figure 28**

- 12) Reinstall the window and keeper in reverse order to removal.

13) Repeat steps 1 through 12 for the remaining windows as illustrated in Figure 11.

14) Re-label the emergency exit decals as required.

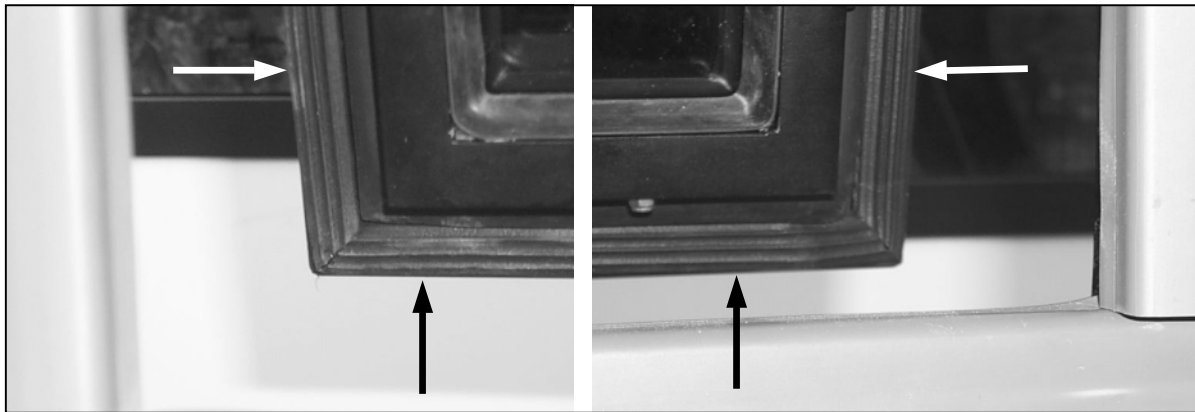
#### 11. To check handle pulling force:

Using precision spring scales, measure the force required to pull the emergency exit handle to open the window as shown in Figure 29. Value should not exceed 20 lbf (90 N).

If the pulling force exceeds 20 lbf., the effort required can be lowered by replacing the window outer seals (see Figures 30 and 31) by seals which are thinner, more flexible and offer less resistance than the OE seals, without detrimental effect regarding noise and moisture ingress.



Figure 29



Figures 30 and 31: Outer emergency window seals, left right and bottom

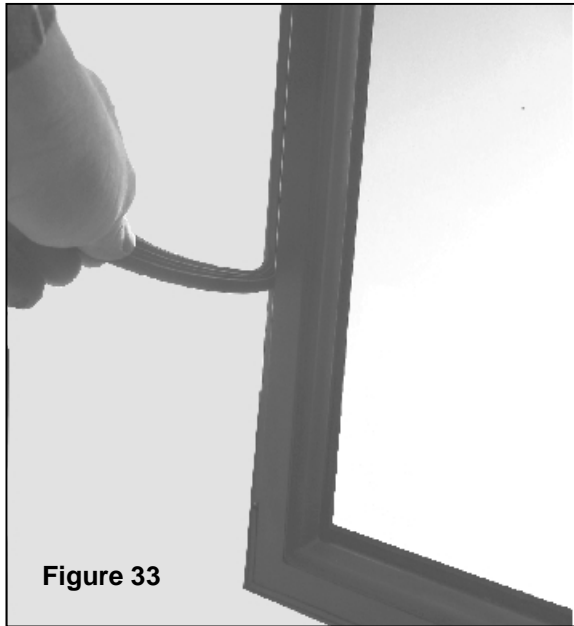
#### 12. To install new outer passenger window seals:

- 1) Tilt the window until it's almost horizontal. Support the window with a suitable stand.
- 2) At the top of the window, about 2 inches from the outer edge, vertically cut through the outer seal (see Figure 32).



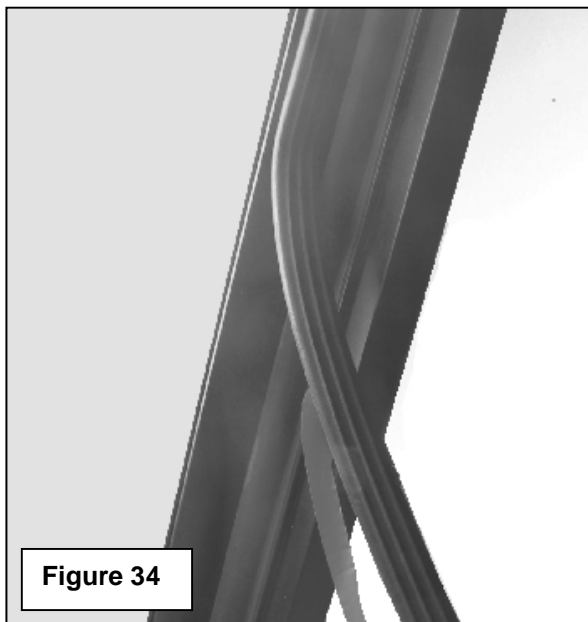
Figure 32: Cutting the outer seal at the top of the window (LH side shown)

- 3) Starting at the bottom of the window, peel off and remove the old seal. Remove any remains of adhesive and rubber. Degrease contact surface with isopropyl alcohol (see Figure 33).



**Figure 33**

- 4) Starting at the top, install the new, self-adhesive outer seal by pressing it on the window outer edge (see Figure 34). At the bottom, cut to size at a 45° angle. The left and right hand seals should make a perfect joint with the bottom seal.



**Figure 34**

- 5) Repeat steps 3 through 4 for the remaining OE outer seal.
- 6) Remove the window stand and close the window.
- 7) Check again the force required to pull the emergency exit handle.

*Procedure complete.*

## **DISCLAIMER:**

The procedures contained herein are not exclusive. Van Hool cannot possibly know, evaluate, or advise the transportation industry of all conceivable ways in which a procedure may be undertaken or of the possible consequences of each such procedure. Other procedures may be as good, or better, depending upon the particular circumstances involved.

Each carrier who uses the procedures herein must first satisfy itself thoroughly that neither the safety of its employees or agents, nor the safety or usefulness of any products, will be jeopardized by any procedure selected.

## **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:**

### **1. Claim references:**

- Causal part: VH 10802545
- Job code: O 08068N: repair sections 1, 2 and 3.  
O 08077N: repair section 3 only.

### **2. Terms and conditions:**

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

#### **Parts:**

- Supply: parts will be supplied free of charge through regular channels.
- Disposition: discard parts according to applicable environmental regulations.

#### **Labor allocation:**

- Repair sections 1 and 2: 9.0 (nine) hours of labor will be awarded per coach repaired.
- Repair: section 3: 0.5 (one half) hour of labor will be awarded per window repaired.

**Field Change Program expiration date:** Service Bulletin issue date + 1 year

**Claim submission:** Contact ABC Customer Care & Parts Source for guidance.