

# SECTION 18: BODY

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1. VEHICLE EXTERIOR

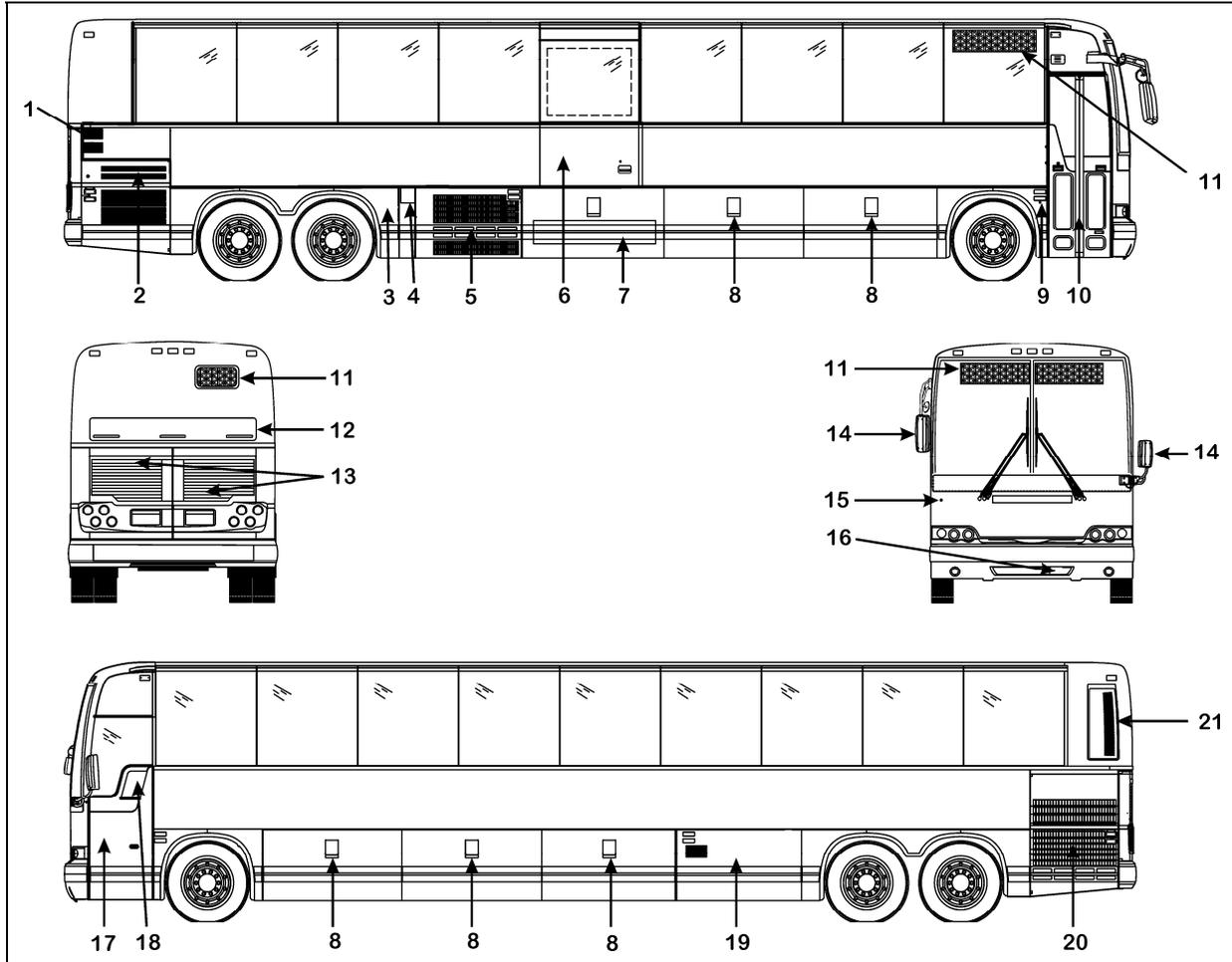


FIGURE 1: X3 COACHES EXTERIOR VIEW

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- |                                                 |                                                                  |
|-------------------------------------------------|------------------------------------------------------------------|
| 1. Engine air intake                            | 13. Engine compartment rear doors                                |
| 2. Engine compartment curb-side door            | 14. Rear-view mirrors                                            |
| 3. Hinged rear fender                           | 15. Transmission retarder OFF indicator light                    |
| 4. Fuel filler door                             | 16. Front towing air supply connectors access door               |
| 5. Condenser compartment                        | 17. Front electrical and service compartment                     |
| 6. Wheelchair access door                       | 18. Driver's power window                                        |
| 7. Lift mechanism access door                   | 19. Evaporator compartment and engine coolant heater compartment |
| 8. Baggage compartment                          | 20. Radiator door                                                |
| 9. Entrance door control switch                 | 21. Catalytic converter access door                              |
| 10. Bi-fold entrance door                       |                                                                  |
| 11. Electronic destination sign or route number |                                                                  |
| 12. Exhaust aftertreatment system access door   |                                                                  |

## 2. VEHICLE STRUCTURE

The body of the X3-45 coaches is an integral structure made of 14, 16 and 18 gauge welded and braced high tensile steel and stainless steel members. All stainless exterior panels are glued to anti-corrosion coated members. The complete structure is protected against corrosion prior to assembly. The front and rear caps are made of molded fiberglass. The main roof is made of high tensile aluminum panels riveted to the roof structure. The floor is made of 2 layers of ½" (13 mm) thick plywood separated by a 1/8" (3 mm) insulation to reduce power train and road noises.

### Welding

Since welding is a procedure that may be carried out either as specific instructions from Prévost or by an independent decision of the owner, the following information pertaining to welding should be read before beginning any welding procedure. The prohibitions and requirements outlined below must be followed during welding procedure:

1. Welding must be done only by a qualified and experienced person.
2. Adequate ground contacts and shields must be positioned as required to protect components from damage due to heat, contact by weld splatter, arcing, or other potentially damaging events associated with welding.
3. The following precautions are to be taken to protect the electronic control components. Refer to section 00, paragraph 3: "PRECAUTIONS TO BE OBSERVED BEFORE WELDING" in this manual.
4. Always wear the appropriate safety equipment.
5. Weld in clean and well ventilated area, and always have an appropriate fire extinguisher within your reach.

## 3. VEHICLE EXTERIOR MAINTENANCE

Regular washing to remove dust and dirt is recommended. See *"Operator's Manual"* for more details on washing and cleaning your vehicle.

### 3.1 CORROSION PREVENTION

Preventive maintenance is a key factor in avoiding corrosion and must be considered as part of the regular service intervals. The entire

underside of the vehicle is sprayed with a heavy application of asphalt base undercoating.

The operating environment the vehicle is subjected to will largely influence the amount of dirt and corrosion that will accumulate over a given period. Corrosion is one of the most costly factors of part failure and shortened part life. It is, however, an item that can be controlled when it is conscientiously looked after and the proper steps are taken in a timely manner.

Certain areas of the coach are more vulnerable to corrosion than others, and it is these areas that should be addressed. For example, the rear baggage compartment bulkhead in the rear wheelhousing area contains many key components and should be examined regularly for corrosion. Other areas include the front wheelhousing area and the engine compartment.

Road splash will affect undercarriage, condenser coil and engine compartment. These areas must be thoroughly cleaned to remove dirt accumulations from flanges, channels and ledges. These places accumulate dirt and salt and hold it in direct contact with steel and aluminum surfaces. Use an understructure high pressure spray as part of a regular wash. Damaged undercoating or paint should be promptly repaired before corrosion can start.

Frequency of wash periods depends on operating conditions. During periods of exposure to salt, daily washing as described above is recommended. If underbody parts show evidence of rust or corrosion, treat as follows:

1. Remove dirt, grease and oil by solvent washing.
2. Remove corrosion as well as all loose coating by cleaning with a wire brush or sandblasting.



### CAUTION

Sandblasting can be used for cleaning bulkheads, brackets and other structural members. It should not be used for exterior side paneling. Extreme care should be taken not to sandblast excessively.

3. Apply correct primer, paint and undercoating after removing all corrosion to prevent further damage.

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### 3.2 PREVENTIVE MAINTENANCE SCHEDULE

**NOTE**

*TECTYL 185 GW rust inhibitor has been applied on your vehicle underbody, follow this procedure thoroughly. For future application of product, refer to paragraph 3.3 in this section.*

DESCRIPTION	INTERVALS		MAINTENANCE	CORRECTIVE ACTION	REFERENCE
	MONTHS	KM MILES			
BODY, EXTERNAL WINDOW FRAME	6	40 000 25 000	VISUALLY INSPECT SEALING BEADS CONDITION	REPAIR OR REPLACE SEALING BEADS IF NECESSARY	
VEHICLE UNDERBODY	12	100 000 60 000	USE A LOW PRESSURE SPRAY TO CLEAN UNDERSTRUCTURE AND VISUALLY INSPECT FOR CALCIUM DEPOSIT, CORROSION OR ANY DIRT ACCUMULATED ONTO EXPOSED SURFACES. VISUALLY INSPECT SEALING BEADS CONDITION.  VISUALLY INSPECT IF UNDERFLOOR IS PEELING. VISUALLY INSPECT WHEELHOUSING COATING.  MAKE SURE DISCHARGE TUBES ARE FREE FROM OBSTRUCTIONS	APPLY UNDERCOATING LOCALLY AS NECESSARY.  APPLY UNDERCOATING LOCALLY AS NECESSARY  REMOVE ANY OBSTRUCTION OR REPLACE DEFECTIVE TUBE	
SUSPENSION AND UNDERSTRUCTURE	12	100 000 60 000	VERIFY THE CONDITION OF ALL SUSPENSION AND UNDERSTRUCTURE FASTENERS AND CLAMPS	TIGHTEN OR REPLACE DEFECTIVE OR MISSING FASTENERS	
FLOOR COVERING	3	20 000 12 500	VISUALLY INSPECT IF FLOOR COVERING IS SHOWING SIGNS OF DETERIORATION SUCH AS CUTS, BURNS, ETC. ALSO, VISUALLY INSPECT SEALANT ALONGSIDE TRACKS. INSPECT WALL PANELS FROM BOTTOM TO WINDOWS	REPAIR OR REPLACE DEFECTIVE COVERING. MAKE SURE PROPER SEALANT IS USED.	
FLOOR CLEANING			CLEAN FLOOR COVERING AS NECESSARY		



### WARNING

Failure to follow this preventive maintenance schedule will result in warranty void.

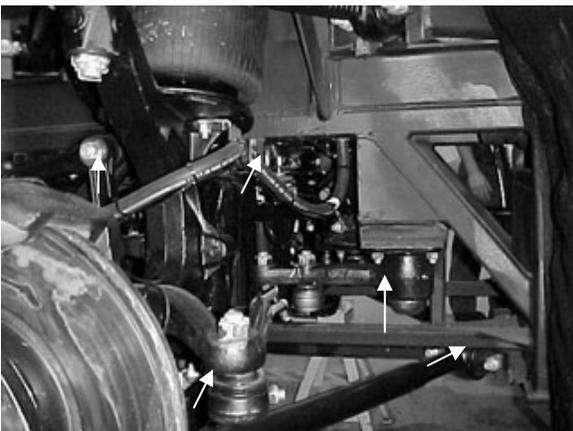
### 3.3 RUST INHIBITOR APPLICATION

Material: Tectyl 185 GW R1KG21

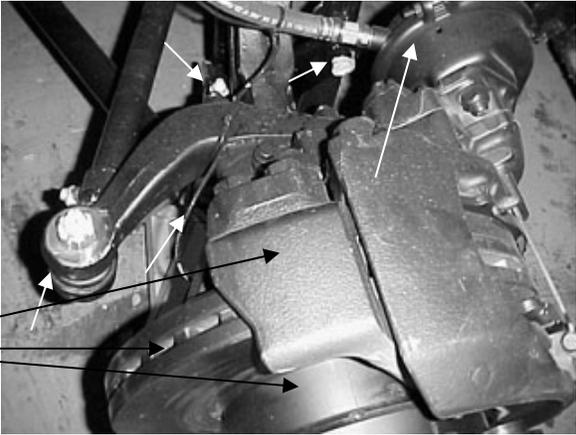
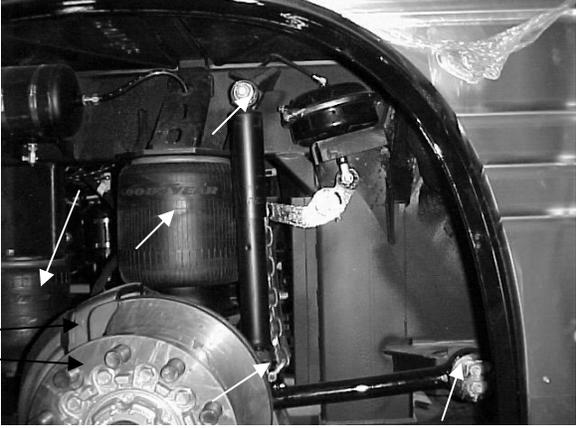
Safety Rules: Use safety glasses

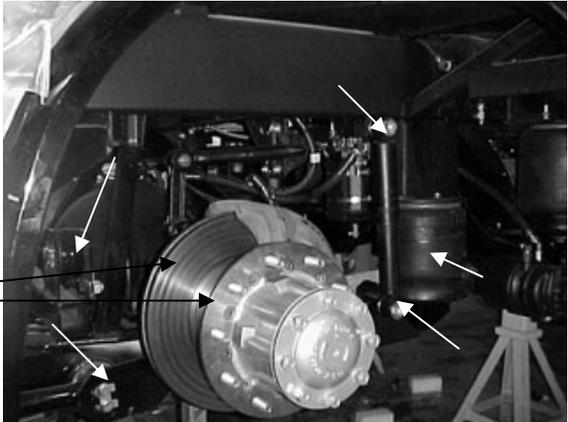
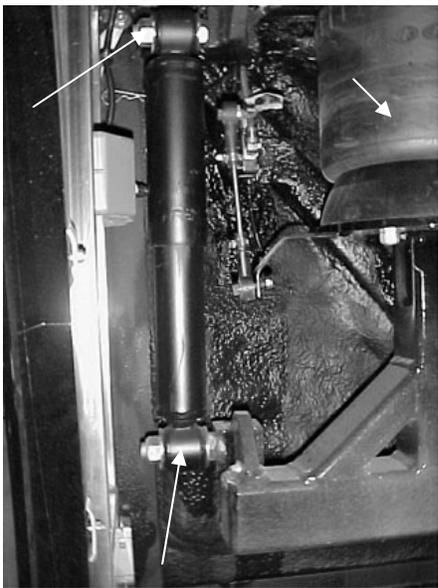
Supplied air hood

Solvent-resistant rubber gloves

<p>1.0 Wash both wheelhousing mechanical parts before masking.</p>	<p>A water-hose nozzle is recommended. Water may be hot to reduce washing time especially during winter. If parts are soiled with oil, clean using R1KG21. Avoid rubber parts.</p>
<p>2.0 Dry all water sprayed parts. Surface temperature and dew point must be respected before applying rust inhibitor.</p>	<p>Air pressure system may be used, refer to annex 1 for surface temperature and dew point.</p>
<p><b>3.0 Front wheelhousing</b>  a) Mask all rubber joints. Braking system must also be protected (refer to arrows). Commercial aluminum foil may be used for masking.</p>	
<p><b>3.1 Front wheelhousing</b>  Front view</p>	
<p><b>3.2 Front wheelhousing</b></p>	

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<p><b>3.3 Front wheelhousing</b></p> <p>(Entire braking system)</p>	
<p><b>4.0 Rear wheelhousing</b></p> <p>a) Mask all rubber joints. Braking system must also be protected (refer to arrows). Commercial aluminum foil may be used for masking</p> <p>(Entire braking system)</p>	
<p><b>4.1 Rear wheelhousing</b></p> <p>(Entire braking system)</p>	

<p><b>4.2 Rear wheelhousing</b></p> <p>(Entire braking system)</p>	
<p><b>4.3 Rear wheelhousing</b></p>	
<p>5.0 Close off wheelhousing using masking paper.</p>	<p>Prevent rust inhibitor from coming in contact with paint. To close off wheelhousing, a polythene sheet may be used.</p>
<p>6.0 Apply TECTYL 185 GW black rust inhibitor onto wheelhousing mechanical parts.</p>	<p>A spray gun and pumping system are required to apply the rust inhibitor. If the application is done inside a paint room, select high speed ventilation. <b>Minimum required thickness is 10 mils wet or 5 mils dry.</b></p>
<p>7.0 Remove all masking material 30 minutes after application.</p>	

**ANNEX 1**

1. Check and confirm that dew point and surface temperature are in accordance with to the following criteria:  
 Surface temperature > 10°C  
 Surface temperature > or = to dew point + 3°C

**NOTE**  
 Use the following table to determine dew point.

2. Check and confirm that TECTYL temperature is between 10°C and 35°C.

**Section 18: BODY**

**DEW POINT**

	Relative Humidity (%)									
	10	20	30	40	50	60	70	80	90	100
Temp (c)										
0	---	-16	-11	-8	-5	-3	-1	0	1	3
1	---	-15	-10	-7	-5	-3	-1	1	2	4
2	---	-14	-10	-6	-4	-1	0	2	3	5
3	---	-13	-9	-5	-3	-1	1	2	4	6
4	---	-13	-8	-5	-2	0	2	4	5	7
5	---	-11	-7	-4	-1	1	3	5	6	8
6	---	-11	-8	-3	0	2	4	6	7	9
7	-18	-10	-6	-2	0	2	5	6	8	10
8	-17	-9	-5	-1	1	4	6	7	9	11
9	-16	-9	-4	-1	2	4	6	9	10	12
10	-16	-8	-3	0	3	5	7	10	11	13
11	-15	-7	-3	1	4	6	9	10	12	14
12	-14	-6	-1	2	5	7	10	11	13	15
13	-14	-6	-1	2	6	8	10	12	14	16
14	-13	-5	0	4	6	9	11	14	15	17
15	-12	-4	1	4	7	10	12	14	16	18
16	-11	-4	1	5	9	11	13	15	17	19
17	-10	-3	2	6	9	12	14	16	18	20
18	-10	-2	3	7	10	13	15	17	19	21
19	-9	-1	4	8	11	14	16	18	20	22
20	-9	0		5	9	12	15	17	19	21 23
21	-8	0		5	10	13	16	18	20	22 24
22	-7	1		6	11	14	16	19	21	23 25
23	-6	2		7	11	15	17	20	22	24 26
24	-6	2		8	12	16	19	21	23	25 27
25	-5	3		9	13	16	20	22	24	26 28
26	-4	4		10	14	17	20	23	25	27 29
27	-4	5		11	15	19	21	24	26	28 30
28	-3	6		11	16	19	22	25	27	29 31
29	-2	6		12	17	20	23	26	28	30 32
30	-1	7		13	17	21	24	27	29	31 33
31	-1	8		14	19	22	25	27	30	32 34
32	0	9		15	20	23	26	29	31	33 35

#### 4. COMMON FIBERGLASS REPAIR PROCEDURE

All repairs to fiberglass parts consist of filling the damaged area with fiberglass cloth and resin or strand fiberglass and resin. The repair is allowed to harden, and then finishing operations may be performed. Use of the various materials is determined by the type of repair to be made. Large holes, torn sections and separate joints require the adhesive qualities of the resin and the reinforcing qualities of the fiberglass. Small dents, scratches or pits can be repaired using resin and strand fiberglass and filler mixed into paste. Instructions for either mix are explained under their respective headings in this section. For best results when making repairs, temperature should be between 70 and 75 °F (21-24 °C). Some people experience a skin reaction to resins. In such cases, wipe resin off with denatured alcohol or a good thinner. Use of protective hand cream is recommended.



#### WARNING

Always wear a respirator and goggles when grinding or sanding.

Extreme care must be taken if the sander is electrically operated, as dust from some resins is combustible when subjected to sparks or open flames. The proper tool for sanding resin is a low speed, air driven disc sander with a water attachment or a dry sander having a vacuum bag. Either will eliminate flying glass and resin dust.

The following additional tools and materials will assist in making repairs: hacksaw blade, assorted files, emery paper or cloth (150 or finer), scissors or tin snips, wax paper or cellophane sheets, a 3" (75 mm) paint roller, paint brush, putty knife, acetone and one or more heat lamps.

##### 4.1 REPAIR USING FIBERGLASS CLOTH

Where necessary, sand paint away around damaged area and scrape away undercoating, if any, and wipe clean with solvent. Grind or file the damaged area to form a "V" at the broken or cracked portion. Sides of "V" should have a shallow pitch for maximum bonding area.

#### NOTE

*Roughening the surface improves adhesion of resin.*

If part is warped from original shape, use clamping equipment to straighten the surface. Preheat area to be repaired with one or two heat lamps placed 18 to 24 inches (450-610 mm) from repair.



#### CAUTION

Temperature should not exceed 140 °F (60 °C) during 30 minutes in order to avoid distortion.

Cut fiberglass cloth with scissors or tin snips, 1 to 3 inches (25-75 mm) larger than area to be repaired. Build area to desired height.

Mix resin and hardener following instructions on their containers. Saturate layers of fiberglass with mixture and place laminates over damaged area. Smooth out wrinkles and make sure general contour of area is maintained. Bubbles and wrinkles can be eliminated with a roller.



#### CAUTION

The pot life of the mix is approximately 15 minutes. Any accidental contamination to the skin, clothing, tools, etc. must be removed within this period. Use acetone to remove uncured resin.

Heat resin material again by placing heat lamps 18 to 24 inches (450-610 mm) from repaired area. Allow 12 to 15 minutes for repair to cure. After repair is cured, grind, file or sand to contour. Files other than body files may be more suitable. Featheredge and finish sanding.

If small pits or irregularities appear after making repair, correct by using a liberal amount of chopped strand or filler mixed with resin to form a paste. Refer to heading "*Repair using Fiberglass Paste*" in this section.

##### 4.2 REPAIR USING FIBERGLASS PASTE

Fiberglass paste is used for repairing small dents, scratches, and pits. Paste is made by mixing resin, hardener and fiberglass strand or filler to the consistency of putty. Where it may be necessary, sand paint away around damaged area. On underside of coach, scrape away undercoating from damaged area, and wipe clean with solvent.

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Preheat the area to be repaired using heat lamps. Mix desired quantities of resin and hardener according to manufacturer's instructions. Add powdered fiberglass strand into mixture to thicken it into a putty state.

### **NOTE**

*If repair is made on a vertical surface, adding powdered filler material to mixture will reduce tendency of hot resin to flow or run.*

Apply the material with a putty knife or similar object, building material up to the desired contour. For deep filling and on vertical surfaces, several layers of material may be used.

A hacksaw blade, held flat to adjacent contour and then moved in a sawing action across the repair when the resin is in a gel state, will remove excess resin from repair. Finish repair with the same procedure as when using fiberglass cloth.

### 4.3 TYPICAL FIBERGLASS REPAIR PROCEDURE

Remove all loose particles or damaged material using a power sander or rasp. Clean area, overlapping hole approximately 1" to 1-½" (25-40 mm) all around. Remove all dirt, grease and paint from area to ensure good bonding surface. Feather the cleaned area all around (Fig. 4).

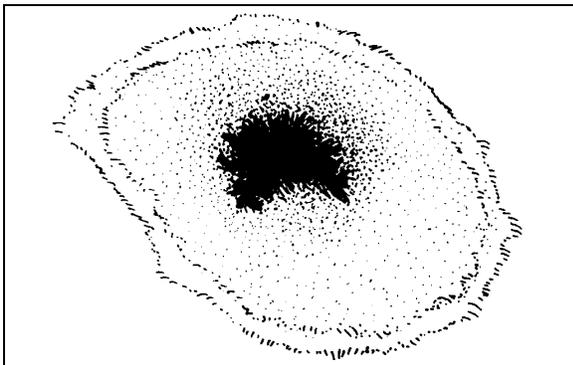


FIGURE 2: FIBERGLASS REPAIR

18089

Cut a piece of fiberglass mat slightly larger than area being repaired. Impregnate mat with general purpose polyester resin catalyzed normally. Use a clean paint brush to apply the polyester resin. Apply impregnated mat over hole and press onto surface with brush to obtain good adherence. Another coat of general purpose polyester resin can be applied at this time (Fig. 5).

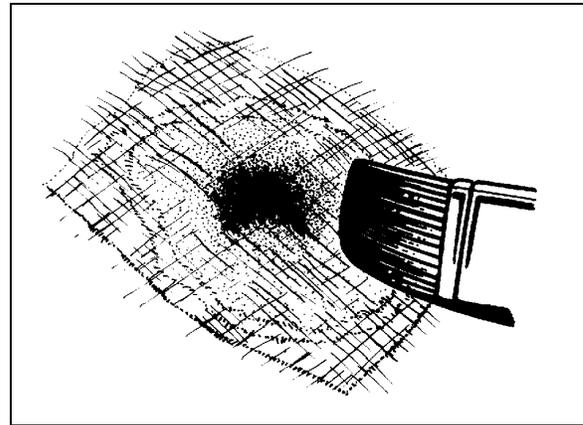


FIGURE 3: FIBERGLASS REPAIR

18090

### **NOTE**

*Remove all air between surfaces being joined. Allow area to harden and sand surface to remove any wax.*

Apply another mat, followed by a cloth patch, and another mat. All layers must be thoroughly impregnated with polyester resin, brushed well and free of air. Apply more layers of mat and cloth as required until the desired strength and thickness is obtained, minimum two 1-½ oz (43 g) mats and one 9 oz (255 g) cloth (Fig. 6).

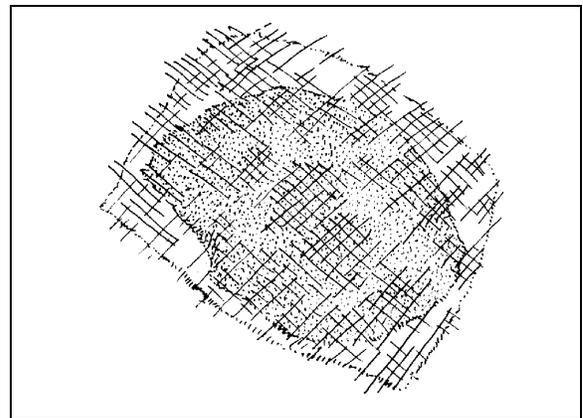


FIGURE 4: FIBERGLASS REPAIR

18091

Allow area to harden and contour the area with coarse sandpaper #100 (Fig. 7).

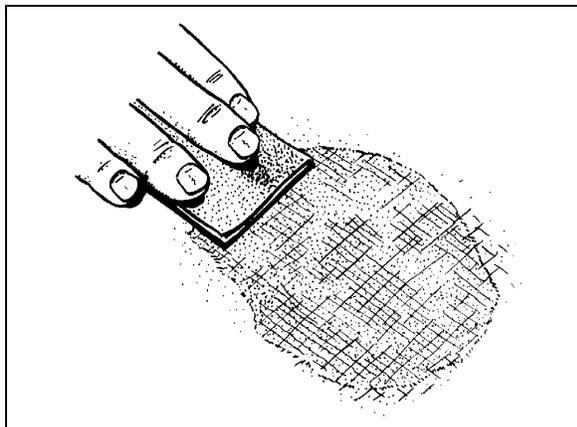


FIGURE 5: FIBERGLASS REPAIR

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Cover the area with a layer of resin putty and allow drying for approximately 15 to 20 minutes (Fig. 8).

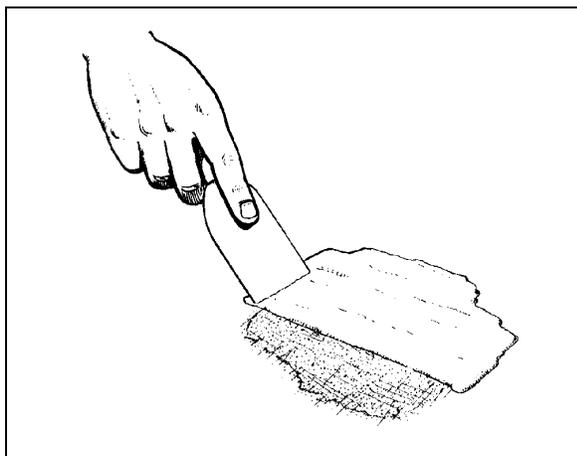


FIGURE 6: FIBERGLASS REPAIR

18093

Smooth off surface with coarse sandpaper #100 to desired shape. Further smooth surface with fine sandpaper #120 until repaired surface matches surrounding area paneling. Prime and paint the area to match surrounding paintwork.

## 5. COMMON PAINTING PROCEDURE

### 5.1 NEW PAINT CARE

Our paint supplier recommends that you follow these simple precautions the first months of your new vehicle's life.



### CAUTION

Apply these recommendations after repainting vehicle.

### During the first 30 days:

- Do not use a commercial bus wash. Stiff brushes or sponges could mar the finish and damage the surface. Wash the vehicle by hand only and with cool water and a very mild bus wash solution. Be careful to use only a soft cloth or sponge;
- Wash vehicle in the shade, never in direct sunlight;
- Do not "dry wipe" vehicle –always use clean water. Dry wiping could scratch the finish;
- Avoid extreme heat and cold. Park vehicle in the shade whenever possible;
- Do not park under trees which drop sap or near factories with heavy smoke fallout. Tree sap and industrial fallout may mar or spot a freshly painted surface;
- Trees are also likely to attract birds. Bird droppings are highly acidic and will damage a freshly painted surface. Bird droppings, tree sap and industrial fallout should be washed off as soon as possible;
- Do not spill oil, gasoline, antifreeze, transmission fluid or windshield solvent on new finish. IMMEDIATELY rinse off any such spill with clean water, DO NOT WIPE;
- Do not drive on gravel roads. Paint finish easily chips during the first 30 days;
- Do not scrape ice or snow from the surface. A snow scraper can act like a paint scraper if the finish is new. Brush off loose material with a soft snow brush.

### During the first 90 days:

- Do not wax or polish the vehicle. This will allow the finish to dry and harden completely.

### 5.2 PAINT TOUCHUP

When paint touchup or partial repainting is necessary, refer to the vehicle's paint scheme for color codes and paint brand.

Prévost recommends using the original paint brand to ease color matching.

In the event you sand through to the gelcoat surface you should prime the area with Standox "Non Stop Fill Primer (ST-11000)".

## Section 18: BODY

If you sand through to metal surface, first prime with Standox "Etch Primer (ST-11858)" then with Standox "Non Stop Fill Primer (ST-11000)".

 <b>CAUTION</b>
<p>Be sure to heed all paint manufacturer's recommendations, especially concerning paint dilution and application.</p>

### 5.3 PAINTING

The standard paint used on the exterior of the vehicle is Standox Basislack. It is a high gloss polyurethane enamel finish designed for exposure to extreme conditions. Other types of paint may be called for as options by owner but are not dealt with in this section.

#### 5.3.1 Safety

Care should be exercised in storing, handling, mixing, and applying paint and chemicals listed in this manual. The topcoat, primer, solvent, catalysts, accelerators, and cleaners are highly volatile and/or toxic if not properly used. Observe all safety instructions marked on the different packaging, as well as the following:

1. Do not smoke in the paint room or in adjacent area exposed to residue fumes.
2. Wear respirators approved by the governing safety and health regulations.
3. Maintain adequate ventilation at all times.
4. Dispose of any leftover paint mix properly.
5. Wear rubber gloves, rubber apron, and face shield during all phases of paint and chemical handling

#### 5.3.2 Surface Preparation And Paint Application

	<b>Aluminum and / or Stainless Steel</b>	<b>Fiberglass</b>	<b>Comments</b>
<b>Surface Preparation</b>	Sand using P-150 grit sandpaper. It is recommended to sandblast rivets and panel edges with OLIMAG 35-70 blast media.	Sand using P-180 or P-240 sandpaper.	Do not use paint remover over aluminum or fiberglass.
<b>Cleaning</b>	STANDOX silicone remover ST-11654 (68-2989)		
<b>Priming</b>	STANDOX Reactive Etch Primer ST-13908 * Wait 30 minutes then apply STANDOX Non-Stop Füllprimer ST-11000 (68-2973)	STANDOX Non-Stop Füllprimer ST-11000 (68-2973)	Refer to product Technical Data sheet for proper mixing
<b>Basecoat</b>	Refer to paint scheme or coach record for proper color code and paint brand. We recommend using the same paint brand to ease color matching.		Refer to product Technical Data sheet for proper mixing
<b>Clearcoat</b>	STANDOX 2K MS Rapid Clear ST-11760 (68-2979) Allow 16 hours for drying		Refer to product Technical Data sheet for proper mixing

If assistance or technical information on STANDOX products is needed, please dial: 1 (800) 551-9296

**6. X3-45 COACHES EXTERIOR FINISHING AND BODY REPAIR**

The following procedures explain the steps to be followed for proper repair, installation and replacement for various doors, panels and windows. The paragraph divides the vehicle into zones to facilitate the search; each zone is then sub-divided into components.

Refer to the appropriate zone then component for complete procedure.

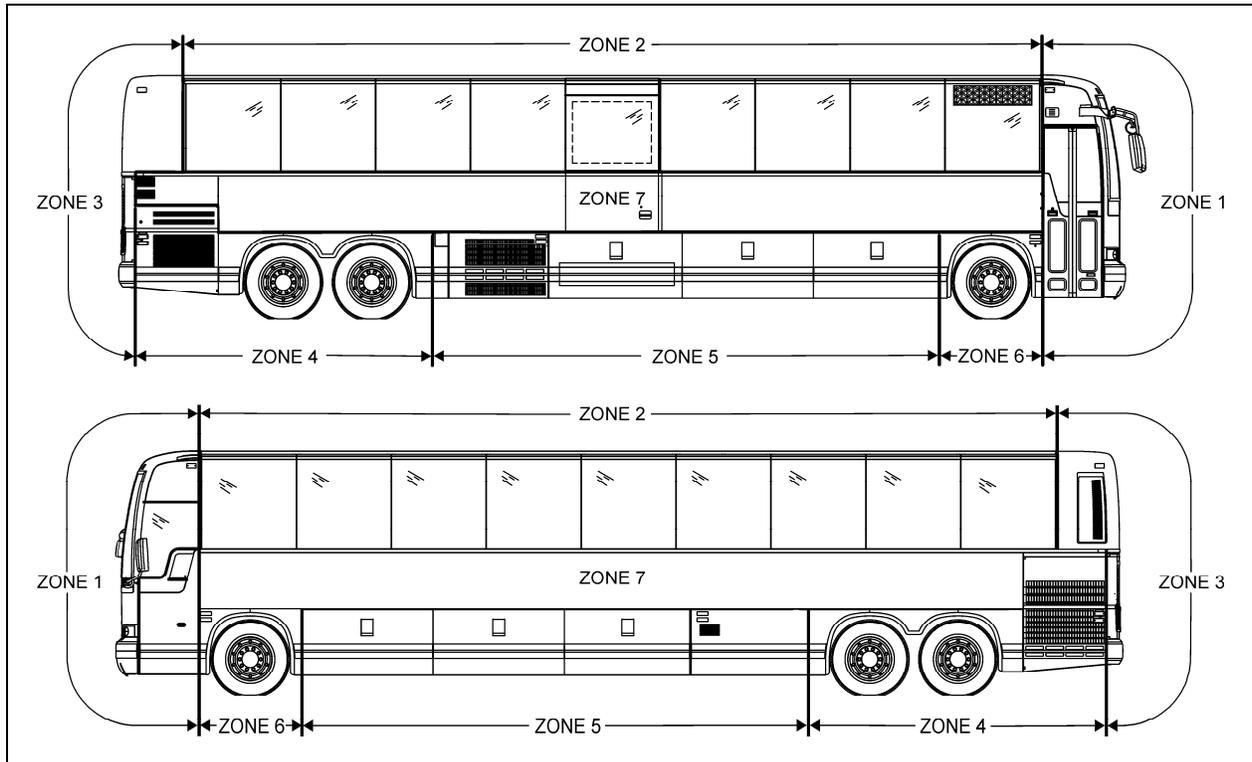


FIGURE 7: X3 COACHES ZONING

18623

**6.1 ZONE 1**

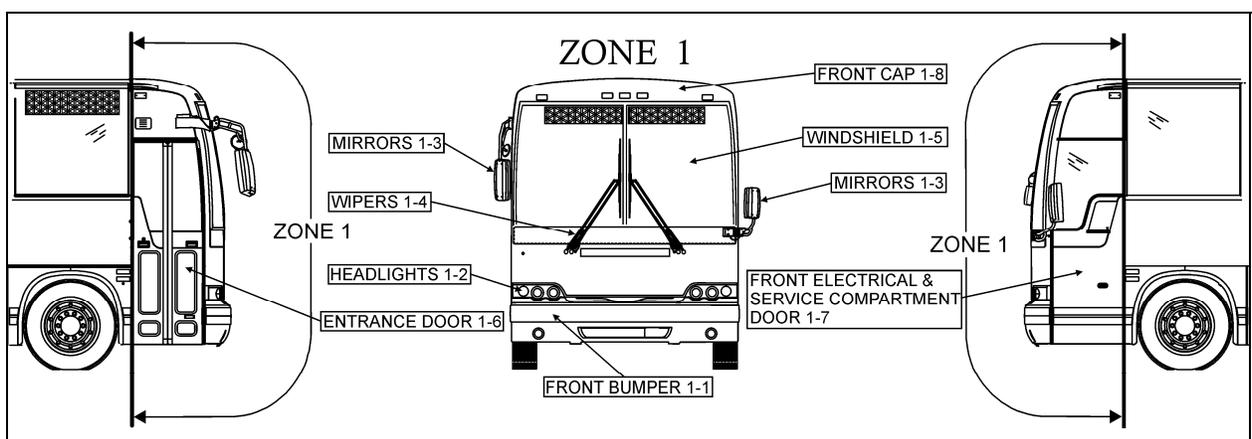


FIGURE 8: ZONE 1

18624

**6.1.1 Front Bumper**

The front bumper is hinged to give access to the steering gear and front towing quick connectors for maintenance purposes. Pull the handle

located in the front service compartment to open the front bumper compartment. Bumper must first be tilted down before its removal. Two people are required to remove and install the front bumper. Safely support the bumper and

## Section 18: BODY

remove the two bolts on each bumper side to separate the bumper from the compartment door. To install bumper, reverse the removal procedure.



### WARNING

Front bumper is heavy. Use proper lifting equipment to support the bumper during the removal and installation operations to avoid personal injury.

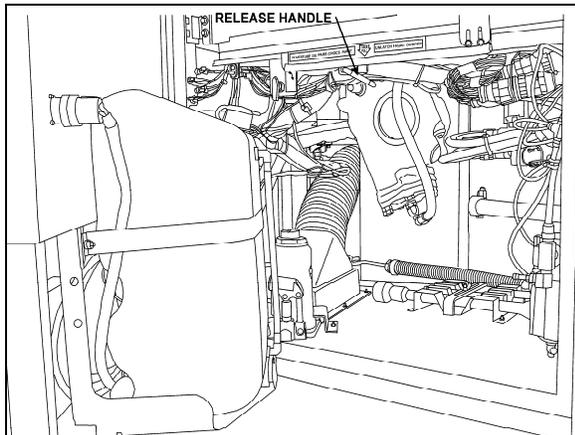


FIGURE 9: FRONT BUMPER RELEASE HANDLE 18613

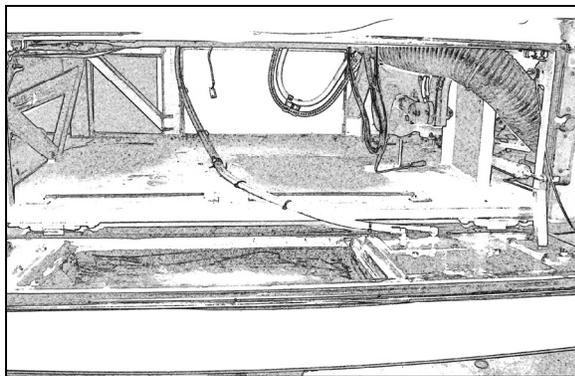


FIGURE 10: FRONT BUMPER COMPARTMENT 18614

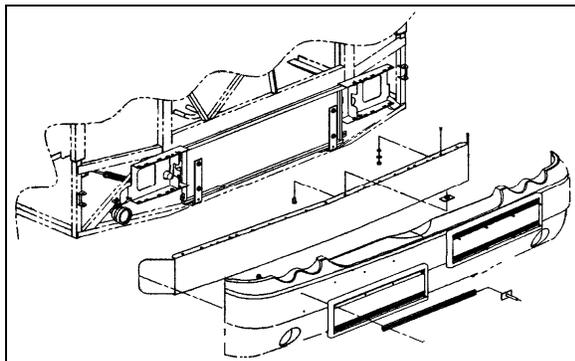


FIGURE 11: FRONT BUMPER REMOVAL 18565

### 6.1.2 Headlights

Refer to Paragraph Headlights, included in Section 06: Electrical of the Maintenance Manual for complete information on headlights.

### 6.1.3 Rear View Mirrors (Rosco)

Your vehicle is equipped with two Rosco exterior mirrors.

The mirrors can easily be adjusted by using the remote controls located on the L.H. side control panel. The mirrors have easy to replace glass in case of breakage. Remote control motors can also be replaced.

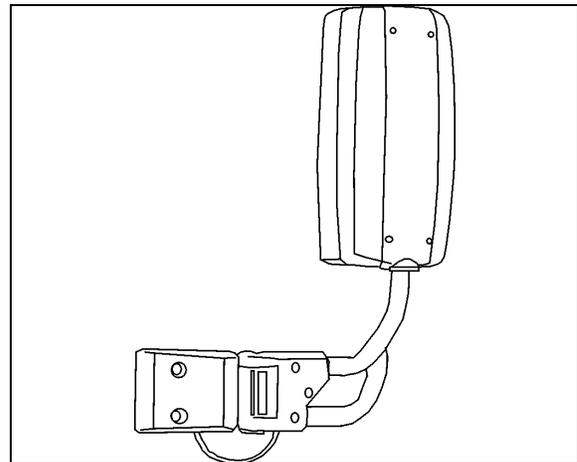


FIGURE 12: REAR VIEW MIRROR (ROSCO) 18398A

#### • Adjustment

At the base of the mirror arm, loosen the mounting bolt to swing arm in or out.

To pivot the mirror head, loosen the setscrews on each side of the ball stub at the base of the mirror head to facilitate the adjustment.

#### • Disassembly

At end of mirror arm, loosen the setscrews to relieve tension on the ball stem. Remove the ball stem from the arm.

Remove the four screws fastening the mirror arm base to the coach.

#### • Assembly

Mount the mirror arm base to the coach. Insert the ball stem into the mirror arm and tighten the socket setscrews.

**NOTE**

Position the ball cup halves so the joint between them lies on the centerline of the arm. Ensure that the setscrews are not on the joint between the cup halves.

- **Replacement of Mirror Glass**

Remove the broken glass.

Position new glass in mirror head and press to lock the Velcro in place.

- **Remote Controlled Rear View Mirrors**

The remote controlled external rear view mirrors attach to support arms using a pivot collar secured by setscrews. Loosening the setscrews allows the whole head assembly to turn on the support arm for initial adjustment. A mounting bolt and washer hold the arm support to the mounting bracket. The arm support can be moved to position the mirror head into or away from the coach body.

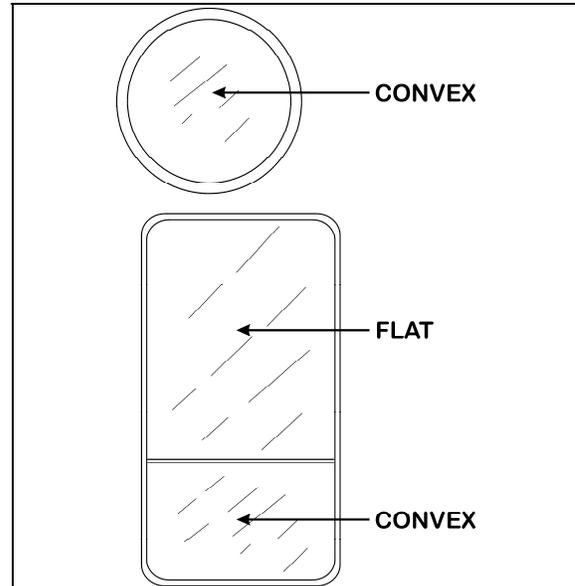
- Mirror Control

The remote control pointer knob(s) for the mirrors is (are) mounted on the L.H. side control panel. The harness to the mirror head runs through the arm support. The remote motor is mounted to the mirror head behind the mirror glass.

Turn pointer knob to the left for mirror head adjustments and to the right for convex mirror adjustment, then push down on either of the button's (4) sides to adjust the selected mirror viewing angle.

- Disassembly

At end of mirror arm, loosen the setscrews to relieve tension on the ball stud. Remove the ball stud. Remove the ball stud from the arm and gently pull the harness out until the connector is exposed.



**FIGURE 13: OUTSIDE REAR-VIEW MIRROR**

Remove the four screws fastening the mirror arm base to the coach. Slide the harness free of the mirror arm base.

- Assembly

Attach a stiff wire (snake) to the end of the harness and insert the wire through the mirror arm base and arm, gently pull the harness through the arm and disconnect the "snake".

Connect the mirror head harness. Insert the harness connector back into the mirror arm. Insert the ball stud into the mirror arm and tighten the socket setscrews.

**NOTE**

Position the ball cup halves so the joint between them lies on the centerline of the arm. Ensure that the setscrews are not on the joint between the cup halves.

- Convex & Flat Mirror Removal

The mirror glass assembly is mounted to the control mechanism or to mirror base with Velcro strips. Remove the mirror glass by gently pulling the lens to release the Velcro. Disconnect the heater grid at the two connectors.

Connect the connectors of the new mirror's grid to the harness. Install the lens by positioning the lens in the mirror frame and pressing to lock the Velcro in place.

## Section 18: BODY

### 6.1.4 Windshield Wipers

Refer to Paragraph 3 WINDSHIELD WIPERS AND WASHERS, included in Section 23: Accessories of the Maintenance Manual for complete information on windshield wipers.

### 6.1.5 Windshield

For the removal or installation of windshield, you will need:

A rope,

A plastic spatula to lift the rubber seal lip,

A metal rod or screwdriver to clean the seal groove,

A filler insertion tool,

Goggles and protective gloves.

- From inside of vehicle, remove center post and interior finishing panels surrounding the windshield. In this case, we are replacing the R.H. side windshield.
- From outside of vehicle, remove filler located inside rubber seal to ease damaged windshield removal.
- From inside of vehicle, push against the top L.H. side corner of windshield for the removal of a R.H. side windshield. If the L.H. side windshield had to be removed, you would have to push against the top R.H. side corner.

#### **NOTE**

*We are referring to the L.H and R.H. side as viewed from the inside of the vehicle.*

- At the same time, another person gradually lifts the rubber lip from the vehicle exterior using a plastic spatula from top to bottom.
- Remove the entire damaged windshield and broken glass if applicable.
- If applicable, using a screwdriver or metal rod, remove black butyl sealant residue from rubber seal then clean with Sika 205.

#### • Windshield Installation

#### **NOTE**

*Rubber seal may have to be replaced if it was used on several windshield replacements.*

- Spray rubber seal with soapy water to ease windshield insertion.
- Insert rope into rubber extrusion leaving enough length at each corner to make a loop. Spray soapy water onto rope and rubber extrusion (Fig. 14).
- Slide windshield into rubber seal groove starting with the bottom curved side edge. Using a plastic spatula, move the rubber seal lip aside to gradually insert the windshield into the groove.
- Spray soapy water on a regular basis to ease this operation.
- Using the same type of plastic spatula, repeat the same operation from inside of vehicle, gradually inserting the windshield into the groove.

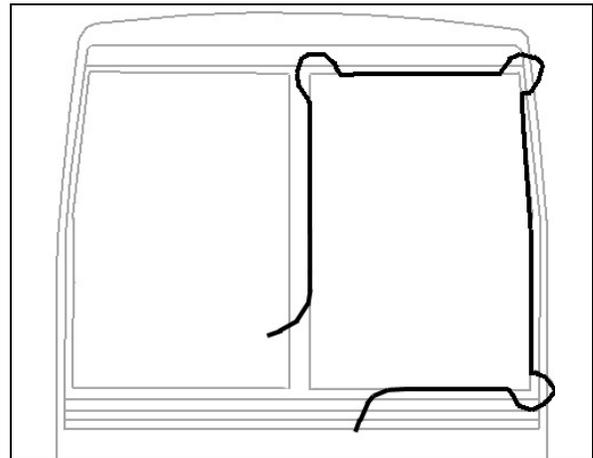


FIGURE 14: WINDSHIELD INSTALLATION USING ROPE

#### **NOTE**

*Make sure windshield bottom edge is well inserted into the rubber seal groove before proceeding with the sides.*

- Then, working from both sides of windshield bottom to top, gradually move the rubber seal lip aside to insert the windshield into the groove. Use also soapy water on the inside of vehicle to insert the windshield into the rubber seal groove.
- Insert the top curved corner then finish with the top of windshield.
- At the top of windshield, clean surface between fiberglass and rubber extrusion using Sika 205 (Fig. 16).
- Apply Sika 221 black between fiberglass and rubber extrusion

- Spray filler and rubber seal groove generously with soapy water.
- Using the special filler insertion tool, insert the filler into the rubber seal groove.
- Gradually insert filler into the rubber seal groove ensuring to leave a 2 inch excess length at the filler extremity.
- Every 6 inches or so, it is important to compress the filler due to its tendency to contract during drying process.
- When filler insertion is almost complete, cut filler leaving ¼" of excess length to thwart filler contraction over time then insert filler into groove.

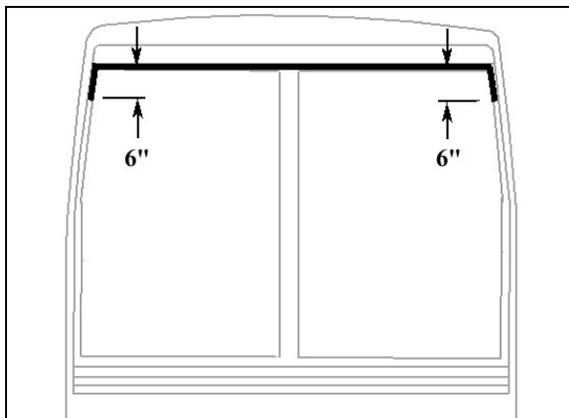


FIGURE 15: APPLICATION OF SIKA 221 BLACK

- Reinstall center post and interior finishing panels.
- Clean windshield surface of butyl residue.

#### 6.1.6 Bi-Fold Entrance Door

An air operated “bi-fold type” entrance door, with an air door cylinder and damper assembly installed under the right hand dash for the R.H. door panel opening. Another air door cylinder is installed behind the wall to the right of the first curb-side passengers’ seat for the L.H. door panel opening. The opening and closing door speed cycle is adjustable by a damper mounted in parallel with the R.H. door panel cylinder on the door hinge. Door activation is controlled by a panel (Fig. 16), located near the defroster and wiper motors. The accessory air reservoir supplies air to this system.

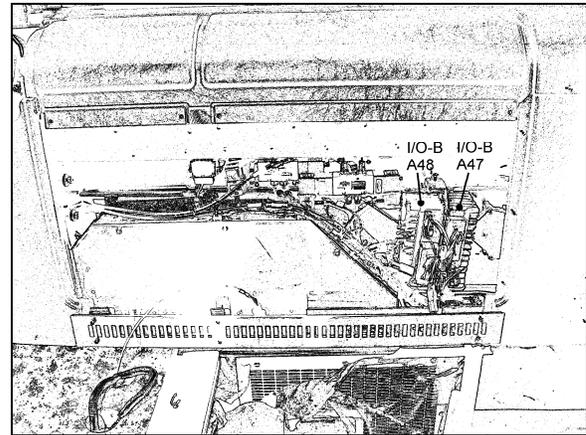


FIGURE 16: ENTRANCE DOOR & WIPER CONTROL PANEL

06619

The door is held in the closed position during coach operation by a two air cylinder locking mechanisms (Fig. 17).

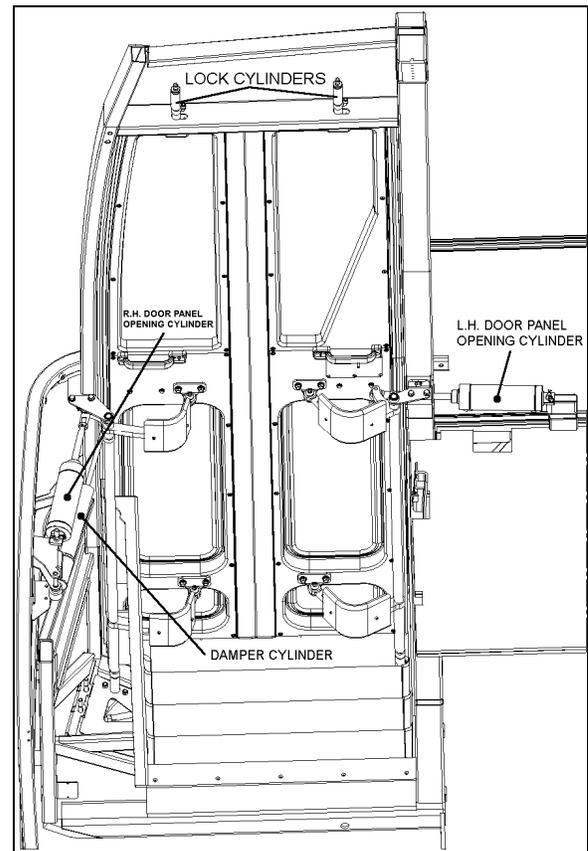


FIGURE 17: ENTRANCE DOOR - VIEW FROM INSIDE

Air cylinders with return spring in the cylinder body are used. Air cylinders are controlled by an electrically operated solenoid valve energized by a multiplex module located under the right hand dashboard.

## Section 18: BODY

To open the door, initial action from multiplex module output de-energizes the air lock solenoid valve, venting the door locking cylinders. The return locking spring pulls the door lock away from the latch, unlocking the door. Door movement starts only when pressure in the central air door lock is below 10 psi. The “air cylinder open solenoid valve” opens and allows air to flow to the door cylinders, “the air cylinder close solenoid valve” exhausts air from the rod side of the cylinders.

To close the door, initial movement of the switch energizes the “air cylinder close solenoid valve” and air flows to the cylinders by their rod side ports. The “air cylinder open solenoid valve” exhausts air from cylinders. When entrance door latch is grounded with the door frame, the air lock solenoid valve is de-energized and loads the door lock cylinders. The cylinder moves the door lock in a position which engages a latch on the entrance door, holding the door positively closed.

Emergency exit valve, which opens the air valve circuit should be used only in emergencies, or when the door control system does not function properly.

Refer to the air system schematic diagram annexed at the end of section 12, “Brakes” and to page 29.1 of the wiring diagram.

### • Operation

Lock or unlock the bi-fold entrance door from outside the vehicle by turning the key in the door lock (counterclockwise to lock, clockwise to unlock). The entrance door can be unlocked from the inside using the small lever located on the door.

The air-operated door is controlled from inside the coach by two push-button switches located on the R.H. dashboard.

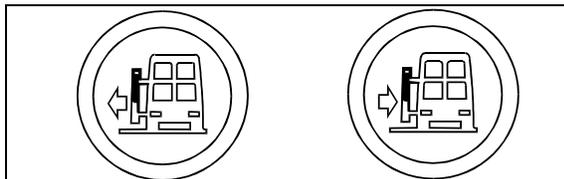


FIGURE 18: ENTRANCE DOOR OPERATING BUTTONS  
06464

From the inside, open the door by pressing the door opening switch (L.H. button) on the R.H. dashboard panel. The door will open to full open position within 5 seconds.

Close by pressing and holding the door closing switch (R.H. button) on the dashboard. If the closing switch is released before the door is fully closed, the door will stop in that position.

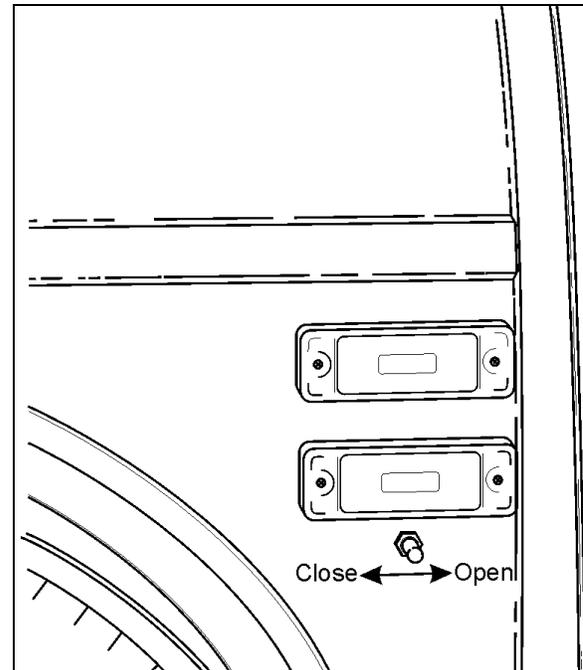


FIGURE 19: ENTRANCE DOOR CONTROL SWITCH 18599

Opening and closing of the door from outside the coach is accomplished by a momentary toggle switch located under the front R.H. side marker light (Fig. 19).

To close the door, the switch must be pushed towards the rear of the coach and held in position until the door has completed its movement. The door can be closed to any position by releasing the switch (or button, if inside) when the desired position is attained. However, the door is not locked in any position other than fully closed. The door can then be closed further by pushing or pulling on the door.

To open the door, the switch must be pushed towards the front of the coach and held in position. When the door reaches the fully opened position, the system will keep pressure in the cylinder locking the door in that position.

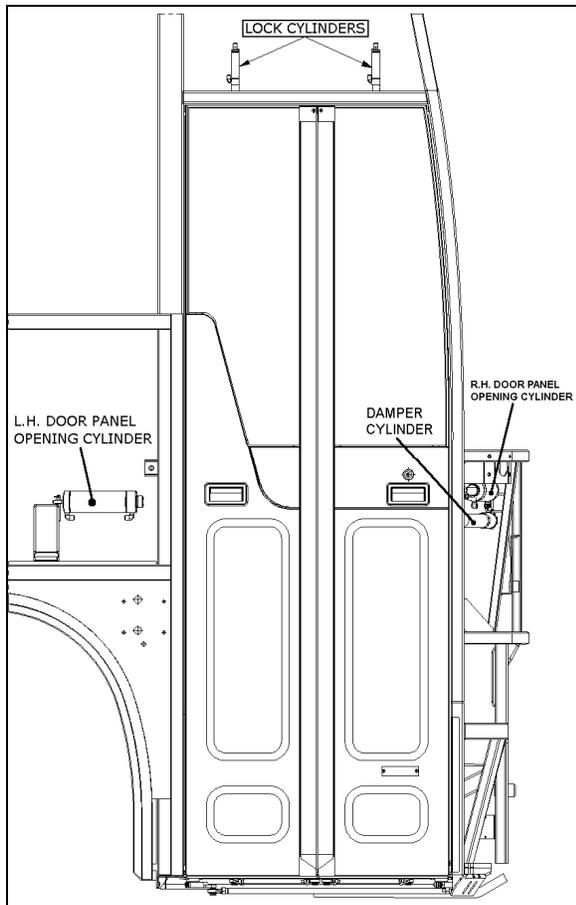


FIGURE 20: ENTRANCE DOOR - VIEW FROM OUTSIDE

- **Emergency Exit Valves**

From inside the vehicle, an emergency exit valve located on the dashboard R.H. side, releases the pressure from the lock cylinders. From the exterior, an emergency exit valve located in the front service compartment, also releases the air from the lock cylinders.

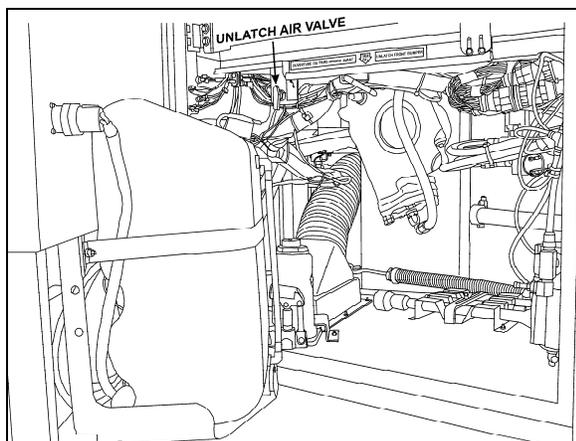


FIGURE 21: EXTERIOR UNLATCH AIR VALVE 12209

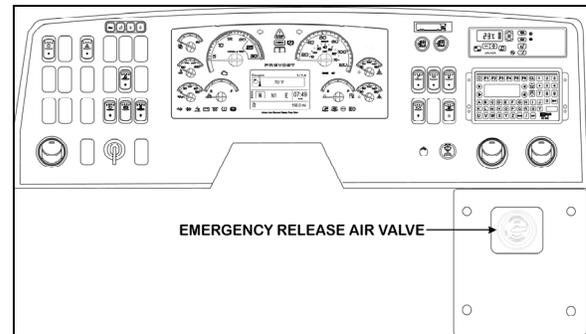


FIGURE 22: INTERIOR UNLATCH AIR VALVE 18330

### Without Air and/or Without Electricity

If the air pressure drops while the coach has or hasn't any electricity, the spring loaded cylinders will unlatch the door. In such a case, unlock the door by moving the lever on the door or by using the key, then open the door manually.

### With Air but Without Electricity

From inside the vehicle, turn the emergency exit valve to the "UNLOCK" position. Move the lever. From the exterior, turn the emergency exit valve to the "UNLOCK" position. Open the door. Close it, lock with the key and reset the outside emergency exit valve to the "NORMAL" position.

- **Door Cycle Speed Adjustment**

To do any adjustment, remove the panels located next to the R.H door panel hinges.



## CAUTION

It is important to make sure that damper does not reach end of stroke when bi-fold entrance door is completely closed or opened. The door cylinders must stop the door on opening. Screw or unscrew rod end to adjust if necessary.

To adjust opening and closing cycle speed on damper (Fig. 23):

1. Remove the damper from the vehicle and hold it vertically with the lower eye or pin attachment in a vice. Use clamp plates to prevent damage.
2. Fully close the damper while turning the dust cap or piston rod slowly CCW until it is felt that the cams of the adjusting nut engage in the recesses of the foot valve assembly (Fig. 23).

**NOTE**

In figure 23, if there is an indentation (B) in the dust cap (C) and the cover shows two holes (A), the damper is fitted with a bump rubber (D). If so, fully extend the damper and insert a round bar or screwdriver through the holes. Push the bump rubber down and remove. Remove the split plastic collar (E) (if fitted) from the piston rod.

3. The damper may have already been adjusted. Therefore check whether the damper is adjusted or not by keeping it closed and gently turning further CCW, counting at the same time the half-turns until a stop is felt. Stop turning and do not force.
4. While keeping the damper closed, make two CW half-turns. In case of prior adjustment, add the number of half-turns previously counted. The total range is about five half-turns. Pull the damper out vertically without turning for at least 3/8" (1cm) to disengage the adjusting mechanism. The dust cap or piston rod may now be turned freely.
5. The damper can now be refitted in the vehicle.

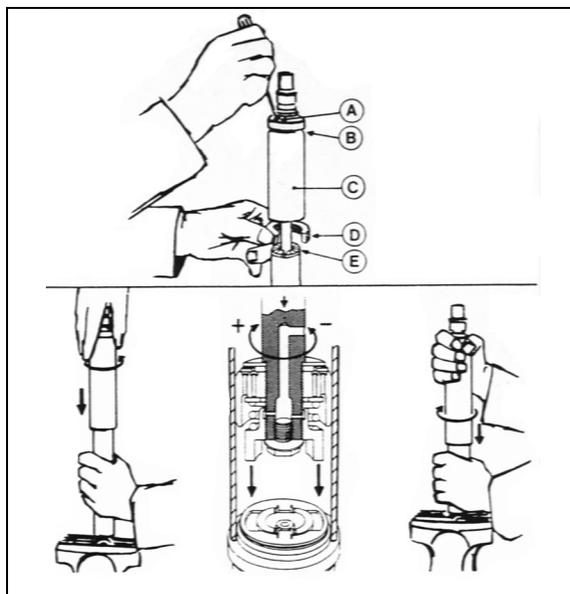


FIGURE 23: DAMPER

18643

**NOTE**

Where a bump rubber was installed, refit same inside the dust cap and by fully closing the damper, the rubber will seat again at top of the dust cap. Refit the split plastic collar E (Fig. 23).

6. Reinstall panels and R.H. entrance door panel hinge cover.

• **Entrance Door Panel Adjustments**

Before attempting to correct any bi-fold entrance door operating problem by adjusting any part of the air cylinder assembly, first perform the following mechanical checks and procedure.

Check around the perimeter of the door for binding. If any binding is found, adjust as follows:

- Horizontal and vertical adjustment
1. Support the door panel with a wooden block and a hydraulic jack.
  2. Unfasten the bolts fixing the door panel plates. See figure 24

**NOTE**

Ask an assistant to help you to perform the following adjustments.

3. Adjust the door horizontally and vertically with the jack. Tighten the bolts. Remove the jack and the wooden block.

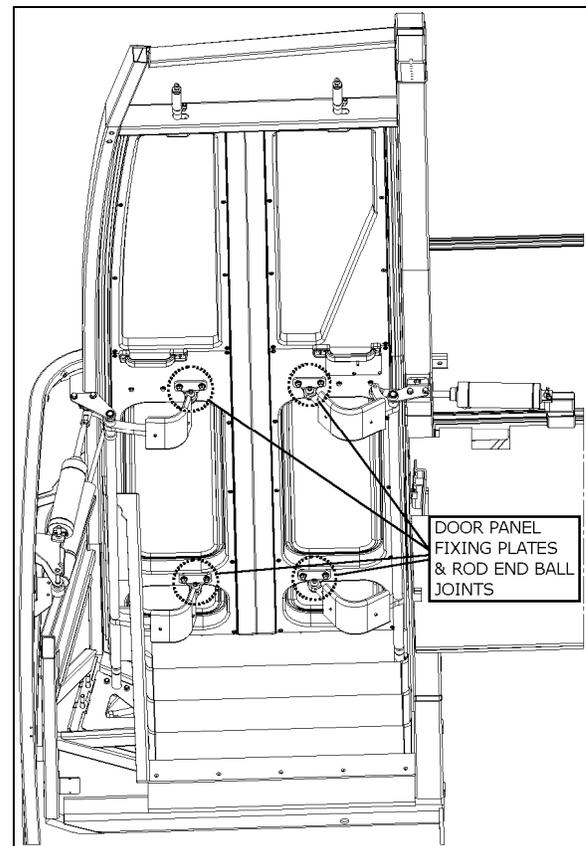


FIGURE 24: DOOR PANEL ADJUSTMENTS

- Depth adjustment
1. Support the door panel with a wooden block and a hydraulic jack.
  2. Unfasten and then disconnect rod ends from door panel fixing plates. Screw or unscrew rod end in order to adjust door panel depth.
  3. Tighten the bolts. Remove the jack and the wooden block

6.1.7 Front Electrical & Service Compartment Door

• Door adjustment

Check around the perimeter of the door for binding. If any binding is found, adjust as follows:

1. Remove the screws and the plastic molding covering each of the hinges.

**NOTE**  
Ask an assistant to help you to perform the following adjustments.

2. Remove the Allen button head screw and the washer retaining the rod end with bearing to the upper hinge. See figure 25.
3. Support the door with a wooden block and a hydraulic jack.

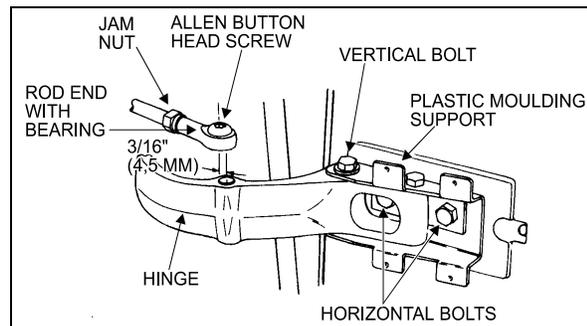


FIGURE 25: UPPER DOOR HINGE 18058

4. Loosen the horizontal bolts retaining the door to the hinges. Adjust the door horizontally and vertically with the jack. Tighten the bolts to 30-36 Lbf-ft (40-50 Nm). Remove the jack and the wooden block.

**CAUTION**  
Make sure the front side door does not interfere with the exterior panel.

5. Pull and fasten the rod end to the hinge with the washer and the button screw.
6. Screw the plastic moldings covering the hinges.

• Seal Compression Adjustment

1. From the outside of vehicle, insert a straight edge in the gap along the door outside perimeter. Measure the distance between the door frame and the door outside surface at the door four corners (refer to figure 26).

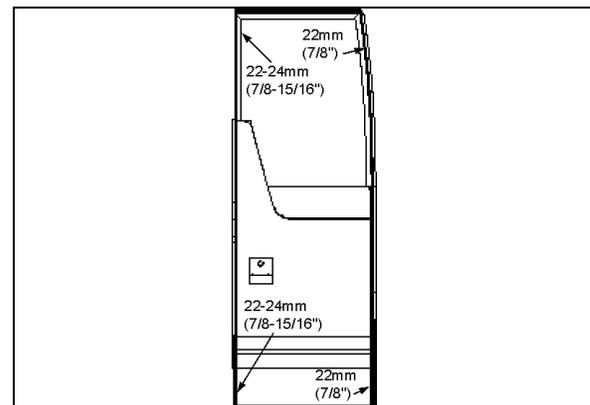


FIGURE 26: SEAL COMPRESSION ADJUSTMENT 18632

**NOTE**  
The front measurements are the most important. If required, ask an assistant to help you to perform the following adjustments.

2. If required loosen the bolts retaining the door to the hinges. Adjust the bolts to obtain the proper seal compression.

• Door Seal Replacement

1. Inspect the seal; if cracked or torn, it must be replaced:
2. Remove the old seal and with a sharp edge knife, scrape tape left on the fiberglass door surface.
3. Sand the surface of the door where a new seal will be applied with 240 grit sandpaper.
4. Clean the surface with alcohol.

**WARNING**  
Wear rubber gloves and do not smoke when cleaning.

## Section 18: BODY

5. Peel of protective paper from the seal. Position the seal flush with the top, sides and lower edges of the door.
6. Progress slowly all around the door.
7. Cut the seal and glue both ends with LOCTITE 414 glue.
8. To assure bonding, press a small roller on top of the new seal.

### • Lubrication

Part	Lubricant	Frequency
Latches Upper door catch Door cylinder rod end with bearing grease fitting	Low temperature grease	Every six months
Door locking mechanism	White grease	Every six months
Key hole Damper pins Hinges	Low viscosity oil	Every six months

### • Body Panel and Window

For the removal of front electrical & service compartment door body panel, you will need:

Pneumatic "Zip gun" type tool;

Razor sharp window scraper;

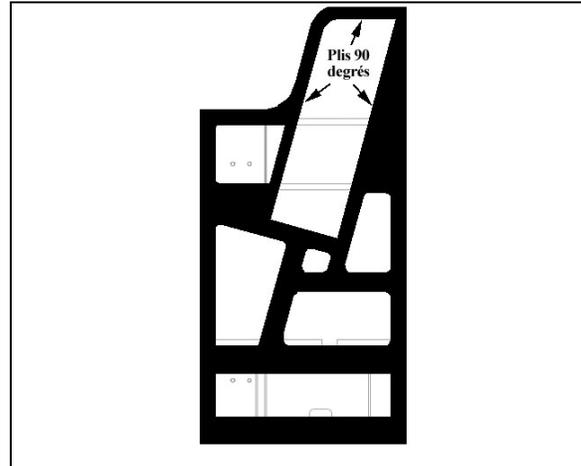
- Open service door.
- Remove interior finishing panels to access rub rail fixing bolts, then remove rub rail.
- Remove windshield washer reservoir, door lock and power window connector.
- Using the "Zip Gun", cut Sika bead located ¼ inch (7-8 mm) from each body panel edge.

#### **NOTE**

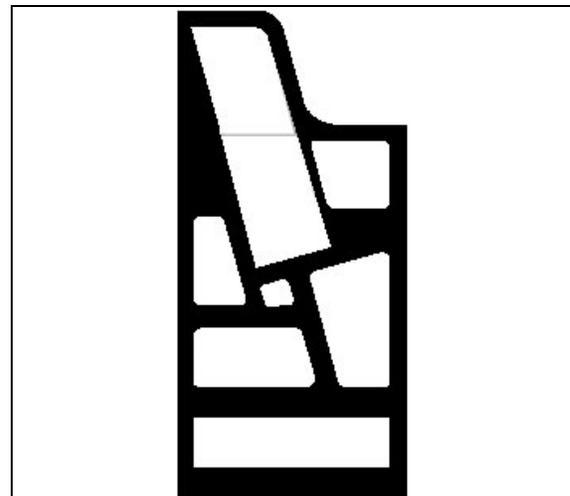
*Wear ear plugs during this operation.*

- Separate body panel from door.
- Using a razor sharp window scraper, remove from door frame Sika bead and double-face self adhesive tape residue.
- Clean door frame using anti-silicone.
- Using a scratch pad "Scotch Brite", scratch the perimeter of the door frame where the adhesive will be applied.
- Clean door frame again using anti-silicone.

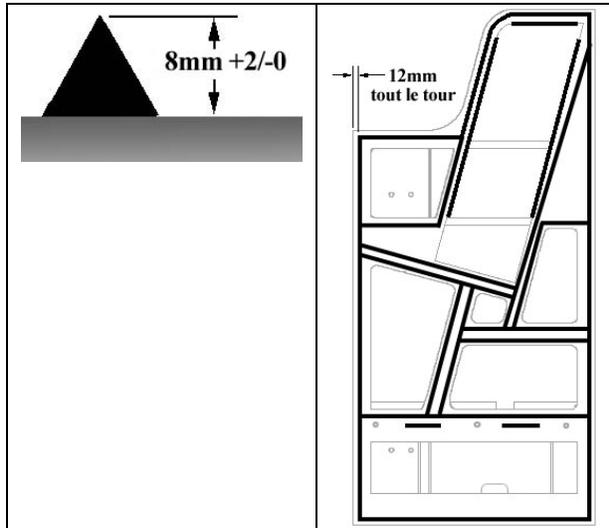
- Apply some Sika 206 G+P onto door frame.



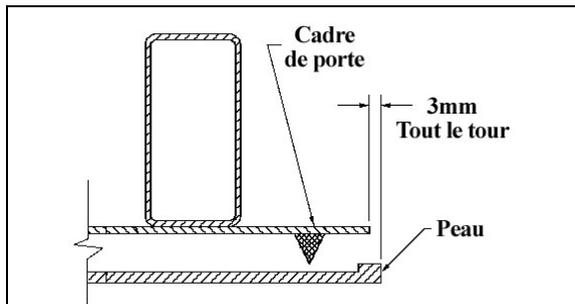
- Prepare new body panel using a scratch pad "Scotch Brite".
- Use a tack cloth to remove any dust or residue from the body panel surface.
- Clean body panel using anti-silicone.
- Apply some Sika 206 G+P onto body panel.



- Apply an even coat of Sika 255 onto the door frame.



- Position body panel onto door frame and compress with your hands. Use a ruler.

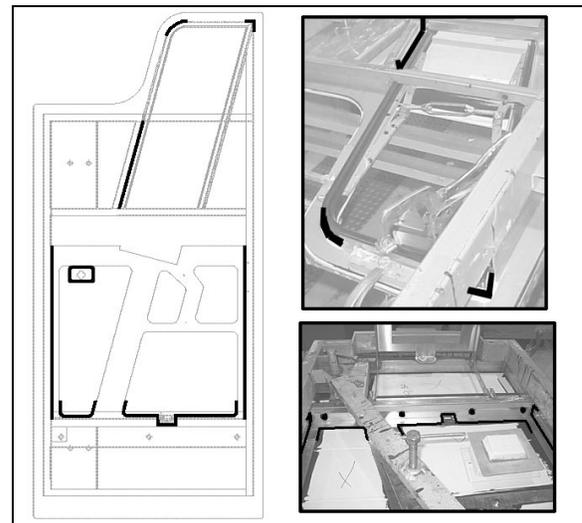


- Check body panel flatness using a 2-foot ruler (must be within 2mm).



- Check proper power window sliding inside window frame.
- If applicable, remove excess of Sika adhesive all around door frame using Sika 208.

- From the inside of the door, apply some Sika 221 between door body panel and frame and on welding spots as per figure.



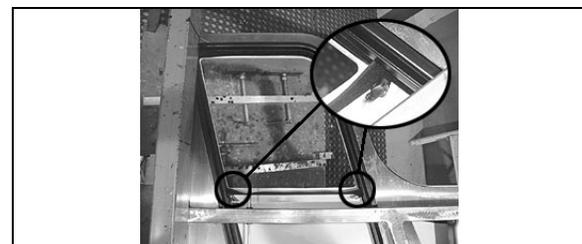
- Apply some #680066 glue inside fiber glass groove and fix power window wiper.

**NOTE**

*Anti-friction side must be on glass side.*



- From inside the door, apply some Sika 252 at the corners of window wiper.

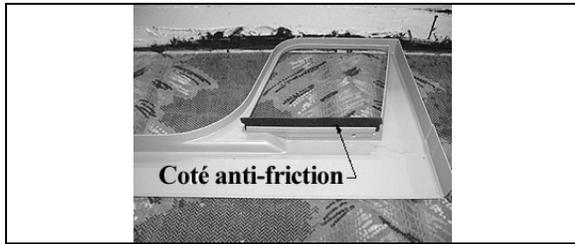


- Apply some #680066 glue inside finishing panel groove and fix power window wiper.

**NOTE**

*Anti-friction side must be on glass side.*

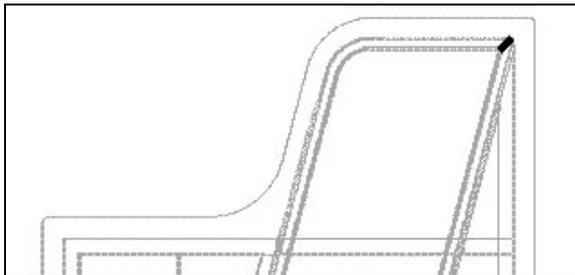
## Section 18: BODY



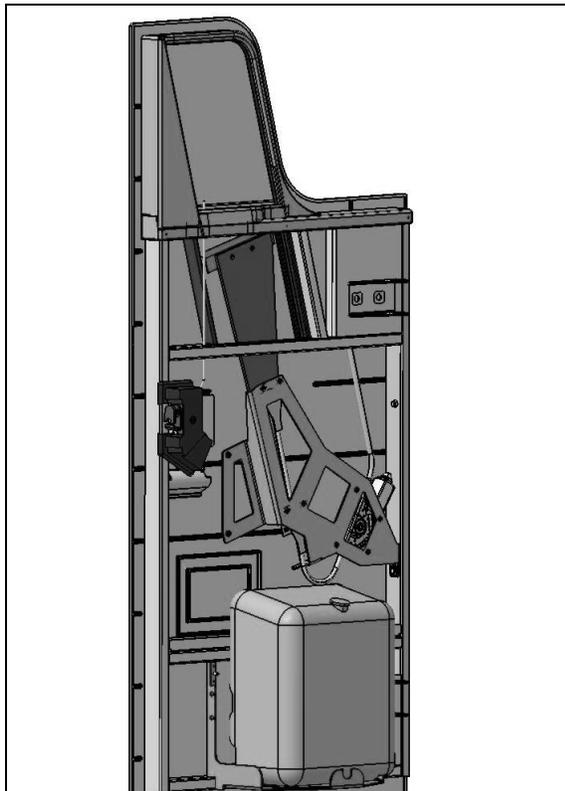
- Discard waste according to applicable environmental regulations, use dangerous waste containers.

### Electrical Power Window

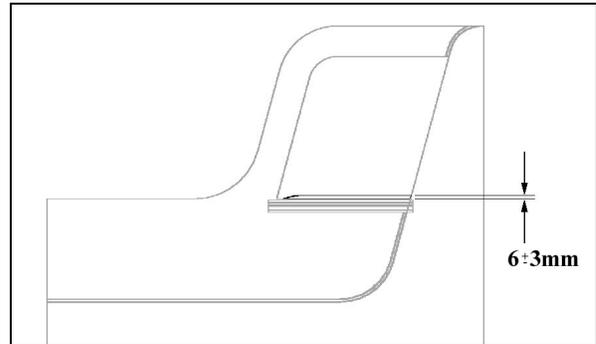
- Insert 2 seals in the window frame.
- Apply some #680066 glue at the intersection of the 2 seals and also sparingly in order to fix the seal to the window frame.



- Clean window using window cleaner.



- Insert window into frame.
- Secure window pane to raising mechanism.
- Adjust window travel ( $6\pm 3\text{mm}$  above window wiper).



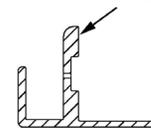
### Driver's Window Gutter

- Dry fit the gutter on the vehicle. If required, straighten up gutter using a hammer and a wooden block.



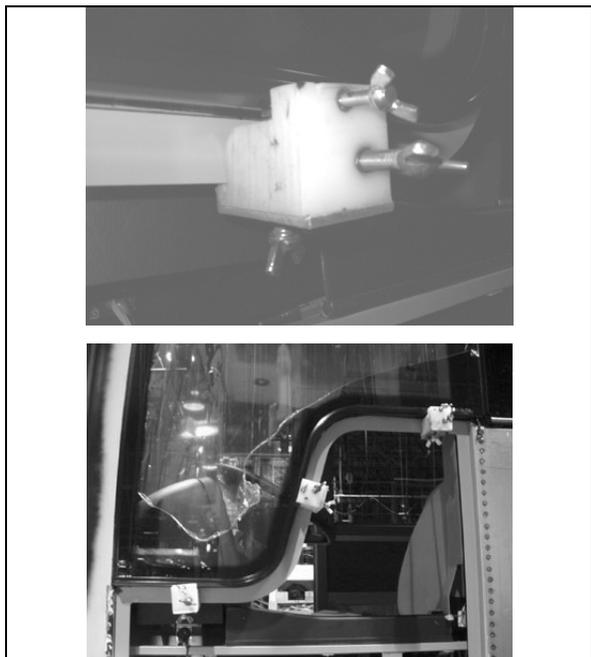
**Straighten here**

**Straighten**



- If applicable, remove plastic film at the bottom of driver's window.
- Remove excess of Sika underneath driver's window.
- Clean bottom of driver's window using window cleaner.
- Apply Sika Aktivator at the bottom of driver's window.
- Install gutter under driver's window then compress in order to fix double face self-adhesive tape.

- Install 3 clamps and allow curing for 4 hours.



#### 6.1.8 *Front Cap*

The fiberglass front cap does not need any maintenance except painting as needed. It is held in place with adhesive. If ever it has to be replaced, make an appointment at a Prévost service center near you. For minor damages, refer to section 4 "Fiberglass Repair" and section 5 "Painting".

6.2 ZONE 2

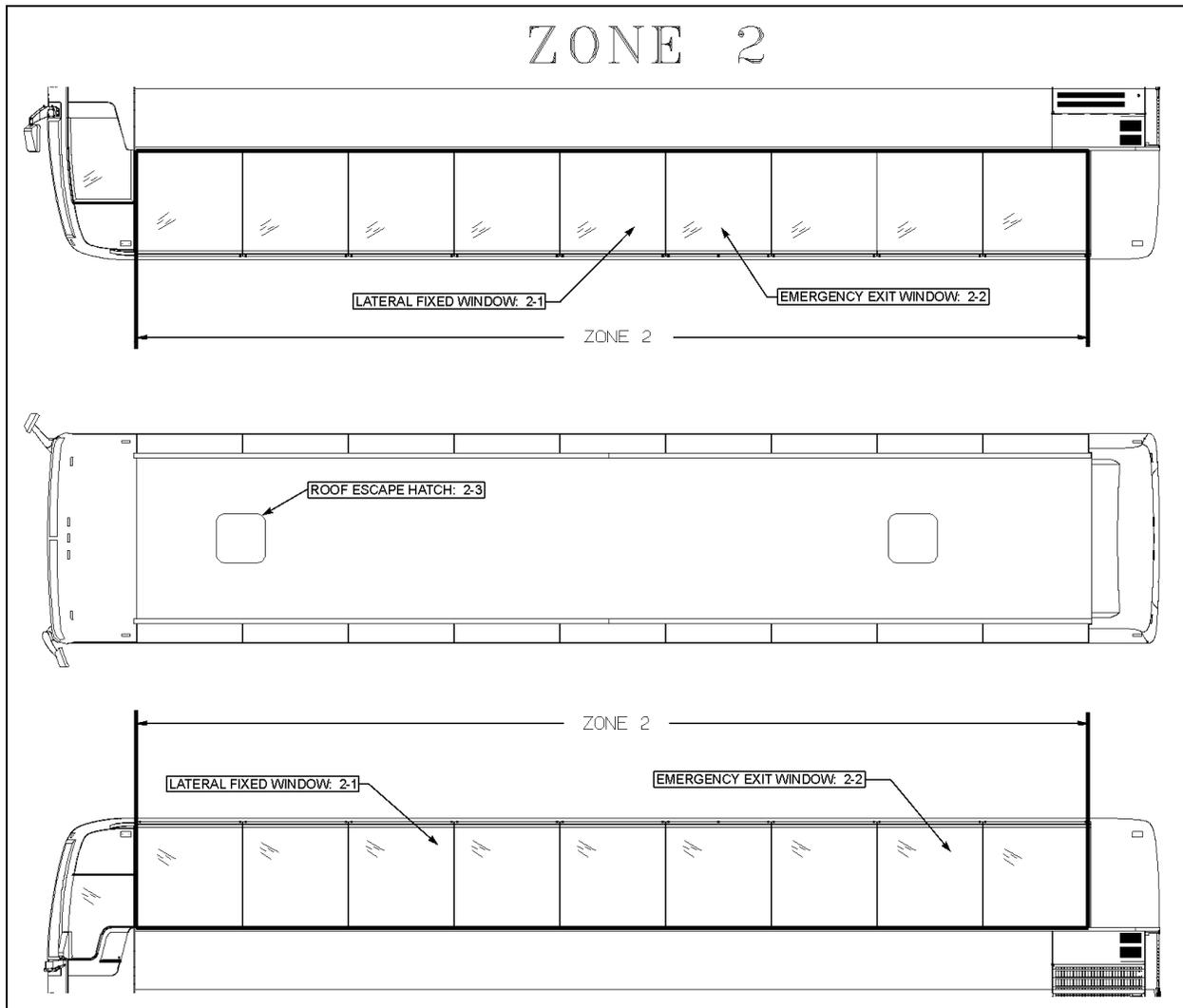


FIGURE 27: ZONE 2

18625

6.2.1 Lateral Fixed Window

Nine passenger side windows are provided on each side on X3-45. They are made of fixed, single or double-glazed, heat absorbing AS-3 glass. Windows are mounted in painted aluminum extrusions, which hold the glass in place from the top rail of the coach. The extrusion also serves as a hinge to allow the window to swing open when needed. The single-glazed windows are made of tinted tempered safety glass, while the double-glazed windows are made of tinted tempered safety glass outside and clear tempered glass inside.

For fixed side window removal or installation, you will need:

Hammer or;

Drill equipped with a sharp pointed rod into which a small hole was drilled;

Braided windshield wire and a pair of handles;

Gloves, goggles or face shield.

- **Fixed Window Removal**

- Method A

- Apply a sticky plastic film onto window outside surface (thermos) and break window. For single pane, apply a sticky plastic film on both sides of window.

Method B

- Using a drill equipped with the special sharp pointed rod, drill through the window seal into one of the bottom corners, from a 30° angle with reference to the vehicle.
- This procedure requires accuracy and it is possible not to succeed on the first attempt. From the inside of vehicle, a second person ensures the rod passes through.
- Remove the rod, thread the wire into the small hole. Reinsert the rod and the wire into the hole far enough so that the person inside the vehicle can pull the rod using a pair of pliers.
- Attach the wire ends to the specially designed handles.
- Pull in turn from the inside and the outside of vehicle to gradually cut the Sika bead on the window perimeter.
- When you reach top corner, detach wire from the outside handle, secure it to a fish wire or rod and thread it underneath the aluminum molding behind the rivets.
- Detach wire from fish wire and continue cutting using the handle.
- Cut Sika bead until you come back to starting point, then you can remove the window by carefully pushing it out from the inside of vehicle.

• **Preparation of Structure and Installation of Window**

Preparation of Structure

- Remove old Sika adhesive.
- If primer was removed at the same time than Sika, perform the following steps:
  - \* Clean using anti-silicone.
  - \* Remove from structure old primer using a sander (120-150 grit).
  - \* Clean again using anti-silicone.
  - \* Apply 206 G+P primer.
- Reactivate 206 G+P primer.

Installation of Window

- Use window cleaner around window interior perimeter and edges to remove any oily film while inspecting for damages.
- Apply Sika Aktivator.
- Using a triangular nozzle (20mm X 10mm), apply Sika Ultrafast II onto structure.

**NOTE**

*You only have 8 minutes to install window once the SIKa ULTRAFast II product is applied.*

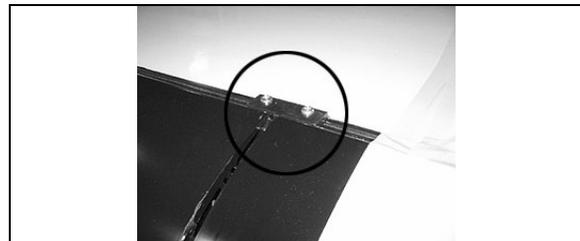
- Install window.



**CAUTION**

To prevent damaging the Sika joint, do not raise the window once it as touched the bead.

- Before compressing window against Sika joint, install two stops into the aluminum extrusion one inch from each window edge.



- Verify window alignment with reference to adjacent surfaces.
- Vehicle must remain stationary for 30 minutes at more than 23°C.

6.2.2 *Emergency Exit Windows*

Three of the windows on curb side of the X3-45 serve as emergency exits, while there are four on driver's side. See figure 28. Except for the top window side, the three other glass sides are unprotected, which causes the workers to be exceptionally careful when manipulating or installing such windows.

In addition, when it becomes necessary to lay down the unprotected edges of the glass window, never use a steel or concrete floor support. It is recommended to use a wooden support, even better, a padded surface.

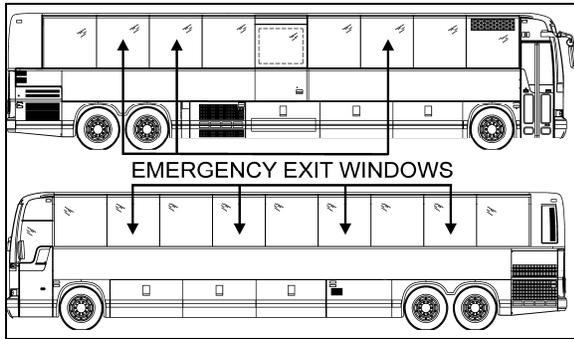


FIGURE 28: X3-45 COACH 18617

An emergency exit window can be opened by pulling the lower part of the release bar to disengage the safety latches, and then by pushing out the window frame (Fig. 29).

Emergency operating instruction decals are affixed under each emergency exit window. To close the window, pull back the window and push down the release bar.

• **Emergency Exit Release Bar**

The emergency exit release bar system is generally maintenance free. It has been designed to answer the twenty pound resistance criteria for opening the emergency window. If this handle should be replaced:

1. Remove the screws and bolts securing it to the emergency exit window;
2. Install a new release bar, reverse the procedure.

**NOTE**  
Check the legal twenty pound maximum resistance to be sure to comply with regulations.

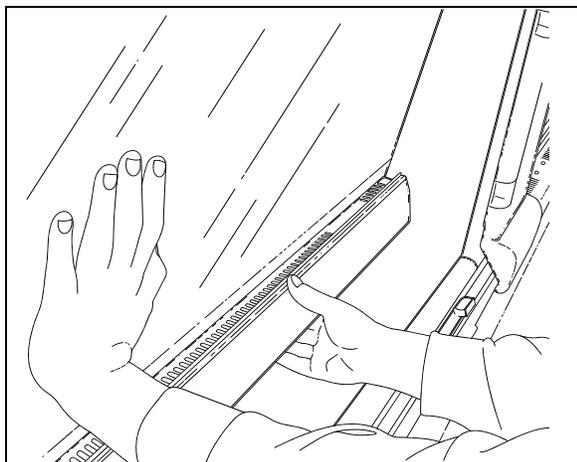


FIGURE 29: EMERGENCY EXIT WINDOW 18008

• **Emergency Exit Window Adjustment**

Emergency exit windows should be checked periodically for easy opening and closing. Pulling the lower part of the release bar with both hands placed near the safety latches should disengage both locks on the window simultaneously. The tension required to release the window should not exceed twenty pounds (9 kg) of force.

The release bar mechanism itself has been designed such as no adjustments are necessary.

If too much effort is required to disengage the locks when pulling the release bar or if the window doesn't close tightly or rattles, check for interference by foreign objects or nearby parts into mechanism, such as the microswitch, rubber seal, wires, etc. Correct situation immediately.

**NOTE**  
Tangs on the lock must be in a horizontal position.

• **Emergency Exit Window Replacement**

1. Lift the bar release system;
2. Remove the stop blocks from the top exterior of the window.
3. Push the glass window out ninety degrees (90°).

**WARNING**  
The window may fall out.

4. The window is free and can be unhooked.
- Reverse the procedure to install a new emergency exit window.

6.2.3 *Roof Escape Hatch*

The vehicle is equipped with two escape hatches. The escape hatches are designed to provide years of reliable service with a minimum of maintenance. All components are rust proof, and moving parts are Teflon coated to eliminate need for lubrication. Should water infiltrate the vehicle from the escape hatch, refer to the heading "Sealing" in this paragraph for procedures on how to seal this area.

**CAUTION**

Use of lubricants, paints, or other coatings such as graffiti deterring sprays is not recommended.

Suggested maintenance includes periodic inspection of fasteners for evidence of loosening due to tampering, and regular cleaning with mild soap and water.

Although there are other cleaning solutions available, some contain solvents and other chemicals that can attack the high strength materials used in the production of the escape hatch.

**CAUTION**

Ensure that cleaning solutions are compatible with the materials used on the escape hatch.

Graffiti removing cleaners often contain acetone, ether, lacquer thinner or other solvents known to destroy the high strength properties of many plastics. Use of these cleaners must be avoided. Graffiti-resisting coatings often leave a sticky residue that interferes with smooth up/down movement of the hatch mechanism. Some of these coatings also contain solvents that will reduce the strength of certain components.

**CAUTION**

Use of these coatings is at considerable risk and should be avoided.

- **Repair**

All components used in the production of the escape hatch are available as service parts, except for one hinge that represents a possible hazard when improperly reattached to a hidden tapping plate, itself often damaged whenever the hinge is damaged. The tapping plate is permanently laminated between the inner and outer cover assemblies, and it cannot be inspected or replaced. It is therefore necessary to replace the entire assembly following damage to the hinge. See figure 30.

**CAUTION**

Hinge assembly is critical and hinge should never be removed from cover assembly. Fasteners used in this assembly are special and have critical torque requirements and tamper-resistant heads to discourage tampering.

- **Sealing**

1. Open and tilt up the escape hatch cover.
2. Join the 2 ends of the rubber seal.

**CAUTION**

Seal joint should be toward rear of vehicle.

3. Apply rubber adhesive CA-40 (Prévoist # 681285) in the gap between the seal ends.
4. Apply Sikaflex 221 sealant (Prévoist # 680532) along the outline of the escape hatch on the roof of vehicle.

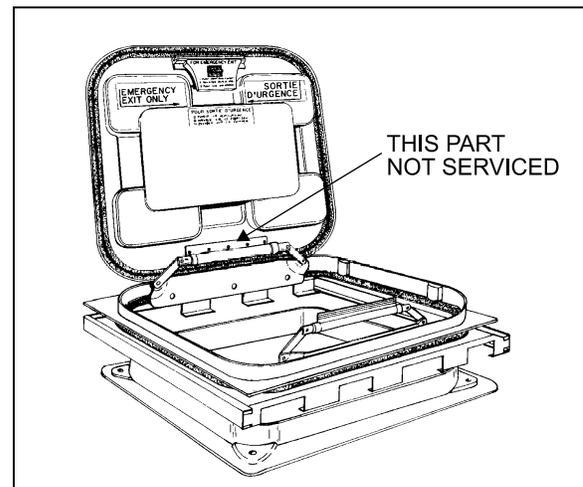


FIGURE 30: ESCAPE HATCH

18104

- **Escape Hatch Panel Assembly**

The frame of the escape hatch is riveted to the roof of the vehicle. The escape hatch panel assembly can be replaced as a unit and a new panel assembly installed in the existing frame. To remove the panel assembly, remove the 4 bolts fastening the 2 hinges to the escape hatch frame and retain the 4 flat washers. Reinstall the panel assembly by fastening the 2 hinges with the 4 bolts and flat washers removed earlier.

**CAUTION**

When installing, roof escape hatch's hinge must be toward the front of vehicle, to prevent the hatch from being ripped out if accidentally opened while vehicle is running.

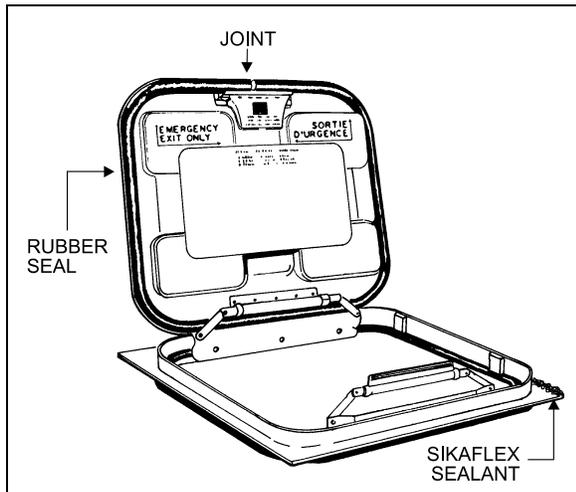


FIGURE 31: ESCAPE HATCH

18105

• **Escape Hatch Frame**

When necessary, the escape hatch frame can be removed and replaced in the following way:

1. Support the frame from inside the vehicle.
2. Remove rivets.
3. Cut the rubber seal with a sharp edge knife and remove the hatch frame.
4. On vehicle top, using the knife, remove as much as possible the remaining rubber seal.
5. Drill holes (if needed) in the new metal frame.
6. Clean both vehicle top and new hatch frame with SIKA 205.
7. Apply rubber adhesive SIKA 221 under the hatch frame surface.
8. Install the frame in place and fix it with rivets.
9. Remove excess adhesive and clean all around.

6.3 ZONE 3

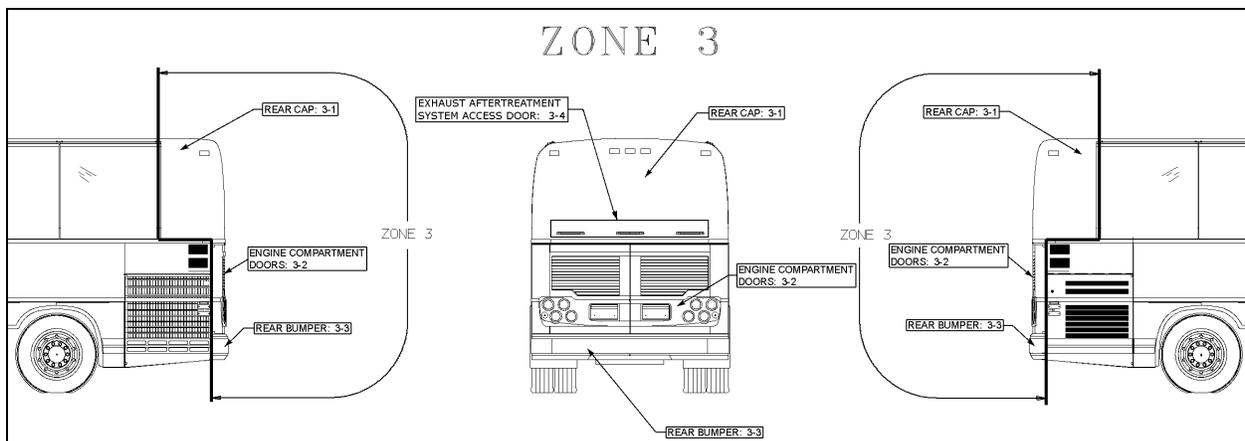


FIGURE 32: ZONE 3

18626

6.3.1 *Rear Cap*

The fiberglass rear cap does not need any maintenance except painting as needed. It is held in place with adhesive. If ever it has to be replaced, make an appointment at a Prévost service center near you. For minor damages, refer to Paragraph 4 "Common Fiberglass Repair Procedure" and Paragraph 5 "Common Painting Procedure".

6.3.2 *Engine Compartment Doors*

Engine compartment doors may be adjusted for proper fit by untightening hinge bolts:

1. Loosen the bolts, (1, 2 Fig. 33) holding the hinge to the vehicle structure to shift the door "UP or DOWN".
2. Loosening the bolts (3, Fig. 33) allows the door to be shifted "LEFT or RIGHT" and "IN or OUT".

3. Adjust the doors position depending on the gap needed between exterior finishing panels.
4. Tighten the bolts.
5. Check that the doors swing freely and close properly. It may be necessary to adjust the door latch to get proper fit and operation.

To adjust the latch mechanism (4, Fig. 33) and the striker pin:

1. Open the doors to access the striker pin.
2. Slightly loosen the striker pin.
3. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
4. Tighten the striker pin.
5. Check doors fit and operation.

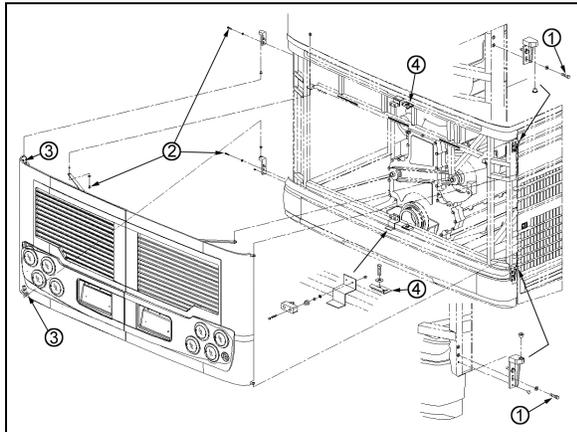


FIGURE 33: ENGINE COMPARTMENT DOORS 18633

### 6.3.3 Rear Bumper

Remove three bolts on each side holding bumper to vehicle and remove bumper.

To install bumper, reverse the procedure.

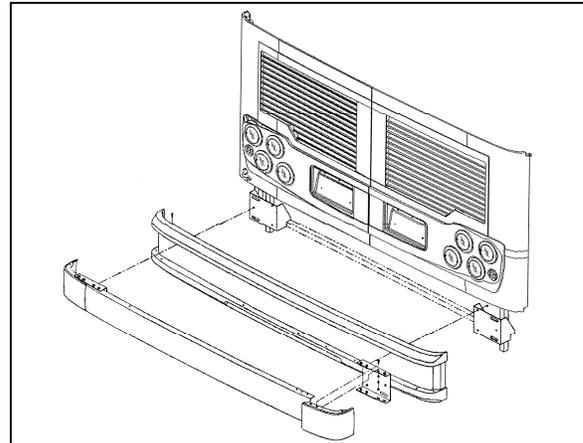


FIGURE 34: REAR BUMPER 18634

### 6.3.4 Exhaust Aftertreatment System Access Door

1. Open exhaust aftertreatment system access door.
2. Loosen the screws holding the panel to hinge assembly.
3. Adjust the door position according to distance required between exterior finishing parts.
4. Tighten the nuts.
5. Check that the door swings freely and closes properly.

## 6.4 ZONE 4

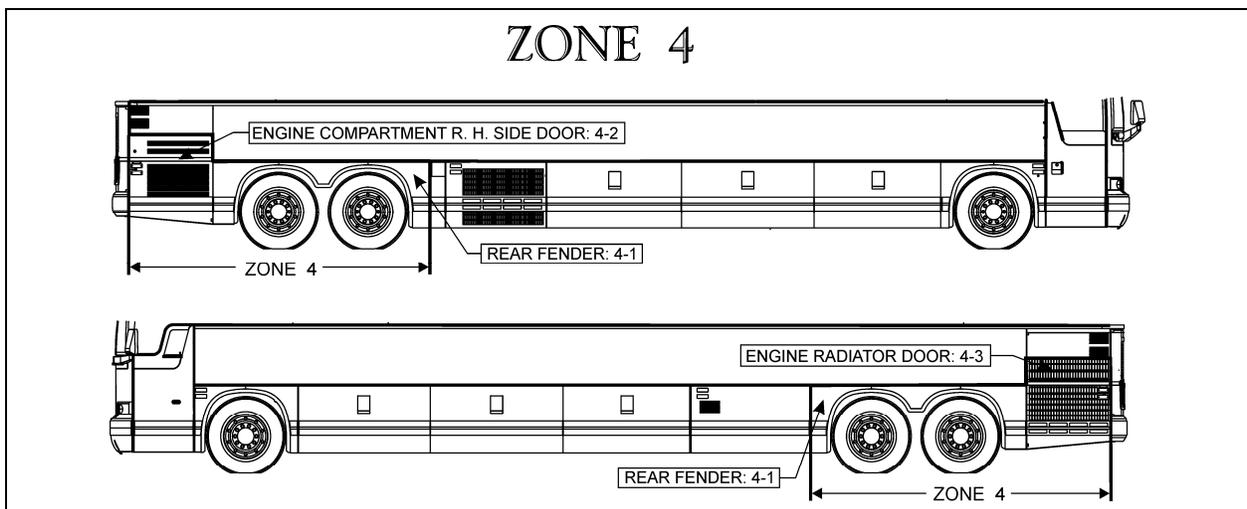


FIGURE 35: ZONE 4 18627

## Section 18: BODY

### 6.4.1 Rear Fender

On the "X3" series vehicle, rear fenders are hinged for maintenance on brakes and suspension. Each rear fender panel has two mechanical spring loaded holding devices fixing it to the vehicle's structure. Push the spring type rod sideways to disengage the lock.

### 6.4.2 Engine Compartment R. H. Side Door

Engine compartment R. H. side door may be adjusted for proper fit by untightening hinge bolts:

1. Loosen the bolts, (1, Fig. 36) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".
2. Loosening the bolts (2, Fig. 36) allows the door to be shifted "LEFT or RIGHT" and "UP or DOWN".

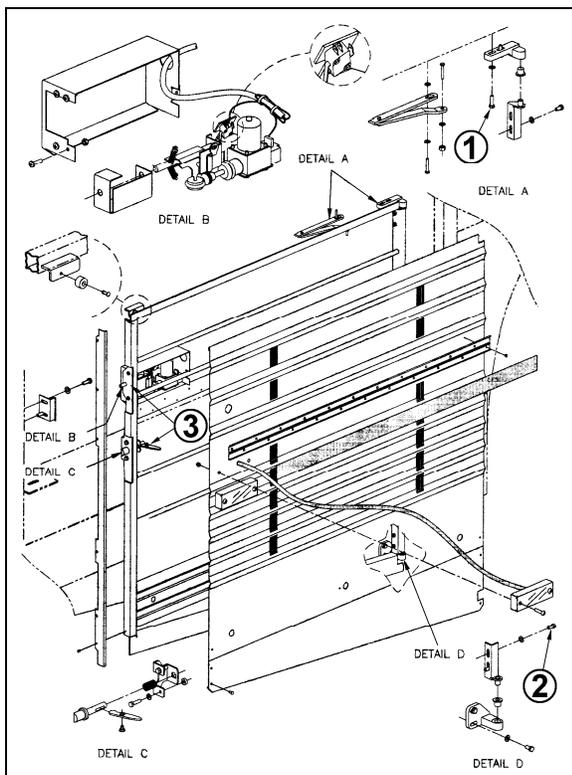


FIGURE 36: ENGINE COMPARTMENT R.H. SIDE DOOR 18635

3. Adjust the door position depending on the gap needed between exterior finishing panels.
4. Tighten the bolts.
5. Check that the door swings freely and closes properly. It may be necessary to

adjust the door latch to get proper fit and operation.

To adjust the latch mechanism (3, Fig. 35) and the striker pin:

1. Open the door to access the striker pin.
2. Slightly loosen the striker pin.
3. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
4. Tighten the striker pin.
5. Check door fit and operation.

### 6.4.3 Engine Radiator Door

Radiator door may be adjusted for proper fit by untightening hinge bolts:

1. Loosen the bolts, (1, Fig. 37) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".
2. Loosening the bolts (2, Fig. 37) allows the door to be shifted "LEFT or RIGHT" and "UP or DOWN".

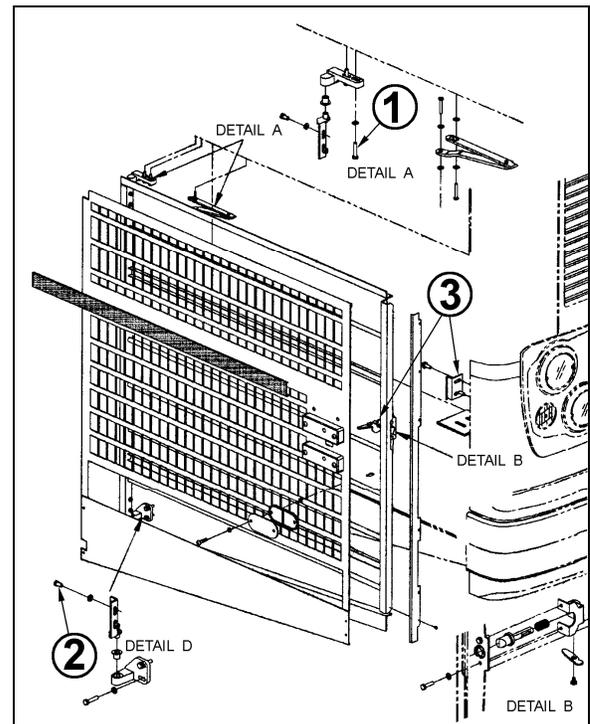


FIGURE 37: RADIATOR DOOR

18636

3. Adjust the door position depending on the gap needed between exterior finishing panels.
4. Tighten the bolts.

5. Check that the door swings freely and closes properly. It may be necessary to adjust the door latch to get proper fit and operation.

To adjust the latch mechanism (3, Fig. 37) and the striker pin:

1. Open the door to access the striker pin.
2. Slightly loosen the striker pin.
3. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
4. Tighten the striker pin.
5. Check door fit and operation.

## 6.5 ZONE 5

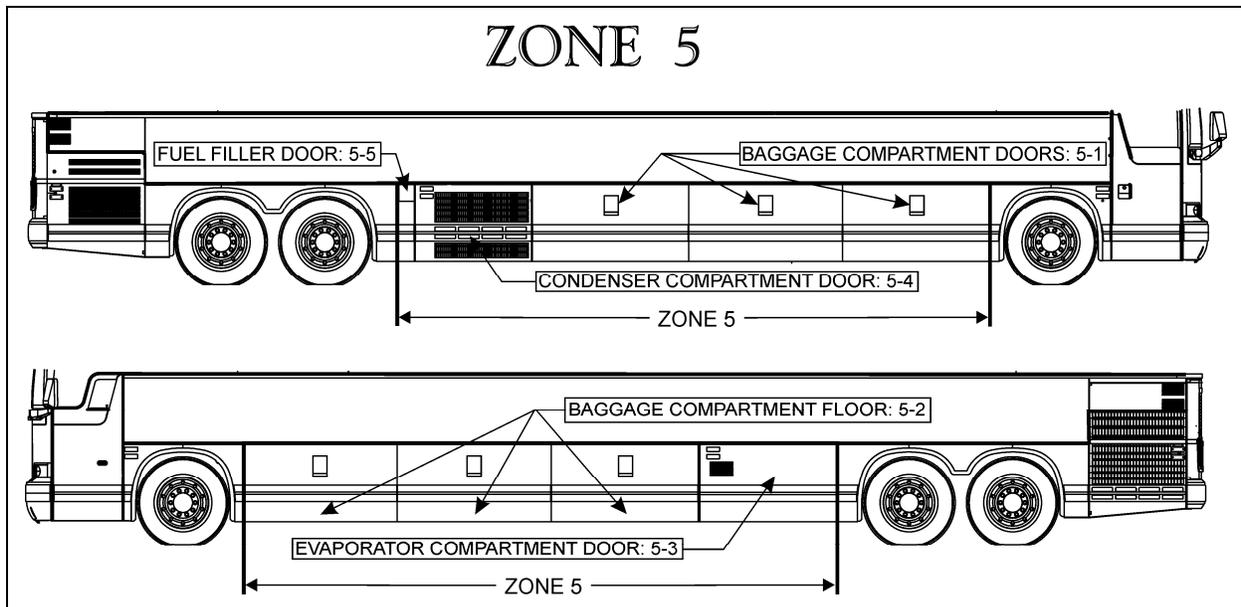


FIGURE 38: ZONE 5

18628

### 6.5.1 Baggage Compartment Doors

For the removal and installation of baggage compartment door stainless steel body panel, you will need:

A drill with drill bits;

Pneumatic “Zip gun” type tool;

Razor sharp window scraper or putty knife;

- Open damaged compartment door and unfasten rub rail fixing bolts. Remove rub rail.
- Unfasten bolts and disconnect cable if necessary in order to remove door from vehicle.
- Preferably install the door onto a work surface where it can be solidly fixed.

### • Door Lower Panel

#### Panel Removal

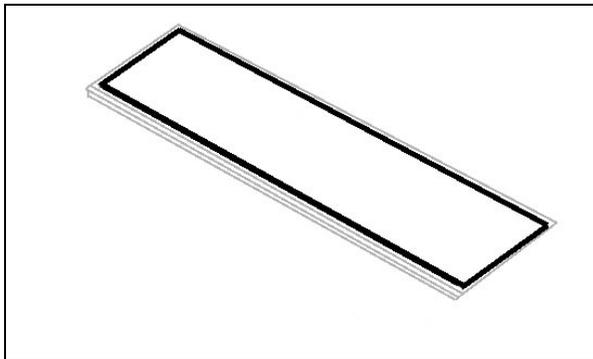
- Using the “Zip Gun”, cut Sika bead located ½ inch from the door panel perimeter edge.
- Wearing gloves, goggles and ear plugs, pry loose body panel using a “Zip gun” or lever starting from the door lower part.
- Using the window scraper, remove any Sika bead or self adhesive tape residue left on the door frame.

#### Lower Panel Preparation and Installation

- Use a Chix cloth and anti-silicone to remove any dust or residue from door frame.
- Prepare door frame using a scratch pad “Scotch Brite”.

## Section 18: BODY

- Clean door frame again using anti-silicone.
- Apply some Sika 206 G+P onto door frame.
- Clean door lower panel using anti-silicone.
- Prepare door lower panel using a scratch pad "Scotch Brite".
- Clean door lower panel again using anti-silicone.
- Apply some Sika 206 G+P onto door lower panel.
- Using a triangular nozzle (8mm X 9mm), apply some Sika 255 onto door lower panel.



- Position and install door lower panel onto frame.
- Compress and hold for 8 hours.

### • Door Upper Panel

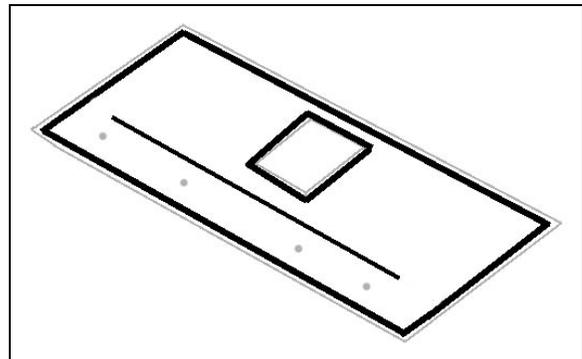
#### Upper Panel Removal

- From the back of the baggage compartment door, remove handle housing fixing screws (6).
- Remove lock access panel
- Wearing gloves, goggles and ear plugs, pry loose body panel using a "Zip gun" or lever starting from the door lower part.
- Cut Sika bead around handle housing.
- Using the window scraper, remove any Sika bead or self adhesive tape residue left on the door frame.

#### Upper Panel Preparation and Installation

- Use a Chix cloth and anti-silicone to remove any dust or residue from door frame.

- Prepare door frame using a scratch pad "Scotch Brite".
- Clean door frame again using anti-silicone.
- Apply some Sika 206 G+P onto door frame.
- Clean door upper panel using anti-silicone.
- Prepare door upper panel using a scratch pad "Scotch Brite".
- Clean door upper panel again using anti-silicone.
- Apply some Sika 206 G+P onto door upper panel.
- Using a triangular nozzle (8mm X 9mm), apply some Sika 255 onto door upper panel.



- Position and install door upper panel onto frame.

#### **NOTE**

*Use rub rail fixing holes for upper panel proper positioning.*

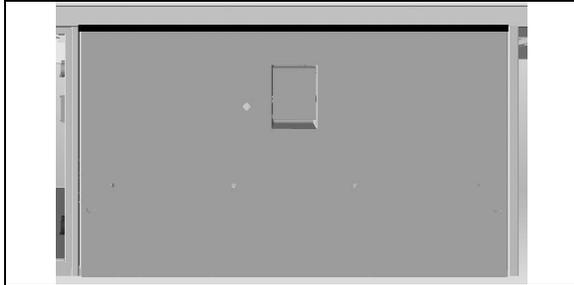
- Compress and hold for 8 hours.

#### Baggage Compartment Door Adjustment

- Adjust door to get a 7mm gap at the top.

#### **NOTE**

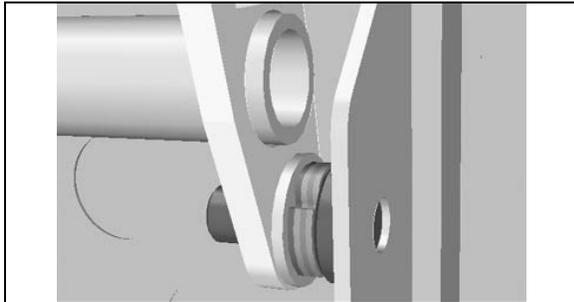
*Adjustment is made using the side plates.*



- Center door in the opening using the side plate shims.

**NOTE**

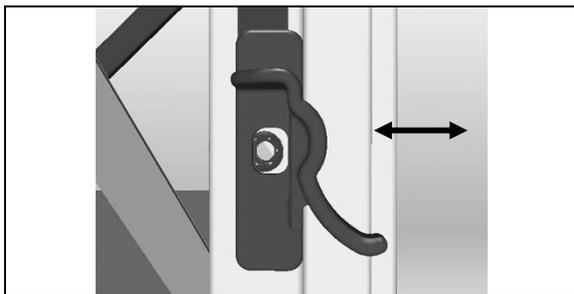
Adjustment is made using shims on the side plates. A total of 8 shims per door must be used e.g. 4 on L.H. side and 4 on R.H. side or 2 on L.H. side and 6 on R.H. side, etc.



- Adjust door position and evenness with reference to adjacent panels and doors.

**NOTE**

Adjustment is made by moving IN or OUT the lock plates. Adjust one corner at a time.



- Check handle adjustment. Handle must remain tight against its plastic housing.

**NOTE**

Adjustment is made by moving UP or DOWN the lock plates.



- Open baggage compartment door and adjust height using the catch plates.
- Tighten cylinder blocks fixing screws.

6.5.2 Baggage Compartment Floor

• **Repair of Mantex Urethane Covering**

Minor Repair

Use “Dupont IMRON” paint. Apply using a paint brush or roller depending on gravity.

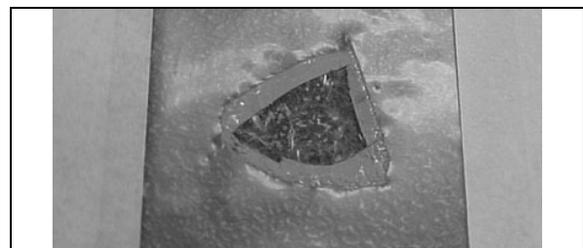
Paint Code: #J4099U

Major Repair (Hole)

Chamfer the whole perimeter of the damaged area. If applicable, remove loose covering. Remove dust and particles.

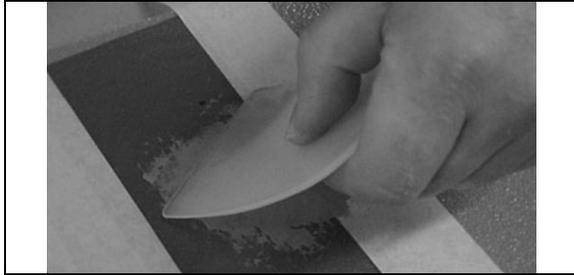


Cover and protect damaged area surroundings.



Using a plastic spatula, apply some Sika 221 grey onto the damaged area.

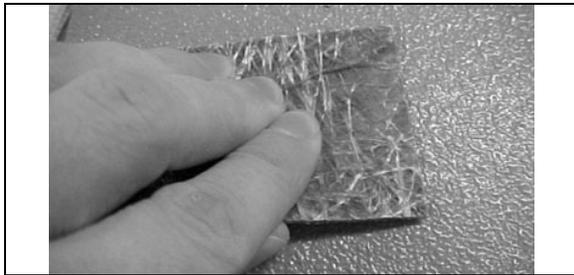
## Section 18: BODY



Remove masking tape and protection around damaged area.

Spray pure water onto Sika. Use a floor sample to create some texture onto the adhesive.

If possible spray some more water onto the adhesive to accelerate curing.

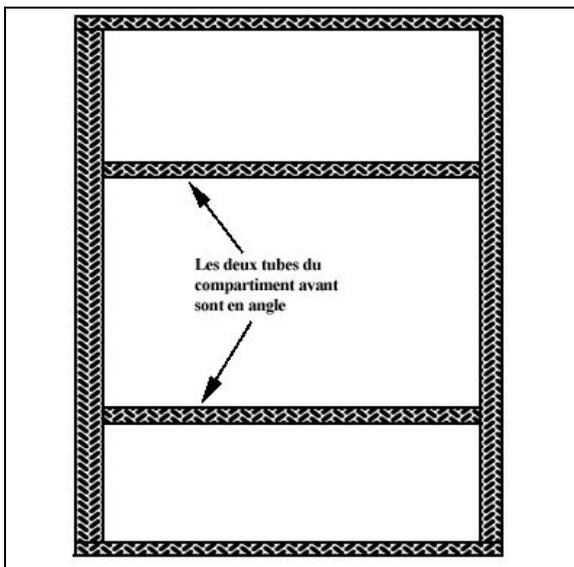


Allow drying for at least **2 hours** then repaint as per paragraph: Minor Repair.

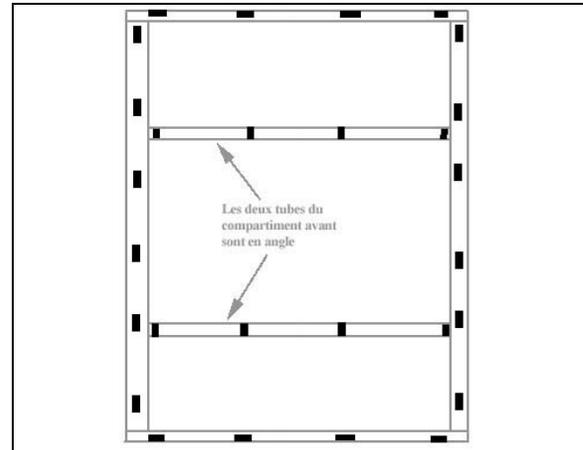
- **Baggage Compartment Floor Installation**

- Preparation and Installation

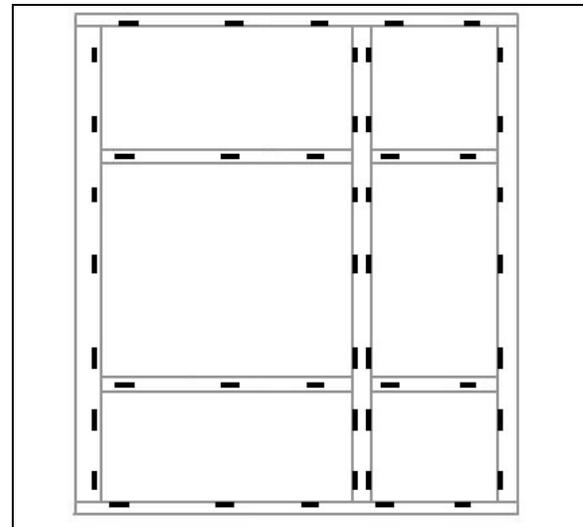
- Clean baggage compartment support structure using anti-silicone.



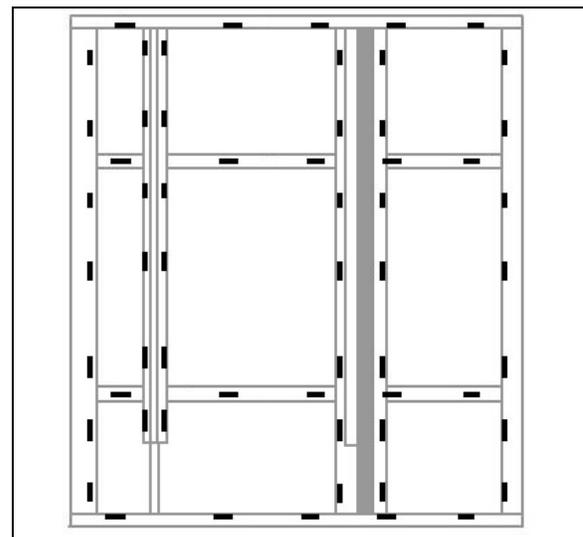
Glue spacers (790392) about 16-inch apart.



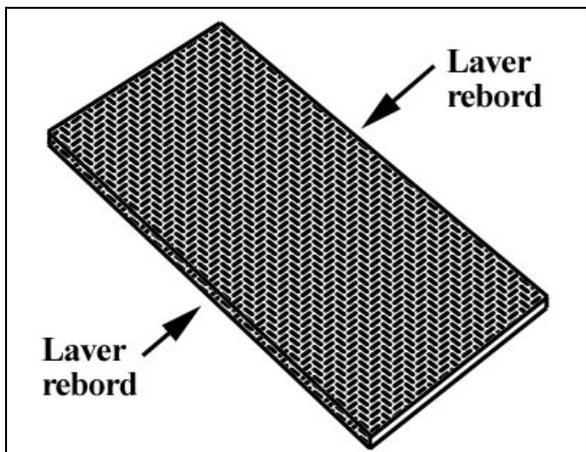
Rear baggage compartment without WCL.



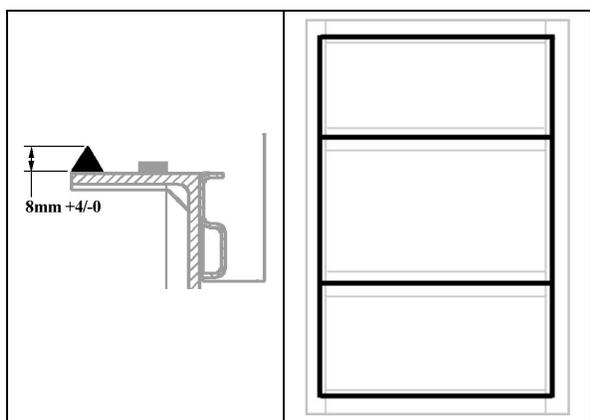
Rear baggage compartment equipped with WCL.



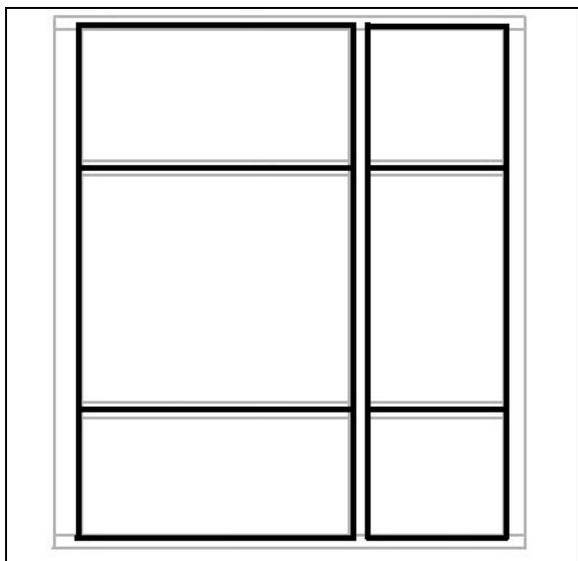
Prepare baggage compartment Mantex floor. Clean panel underside and edges.



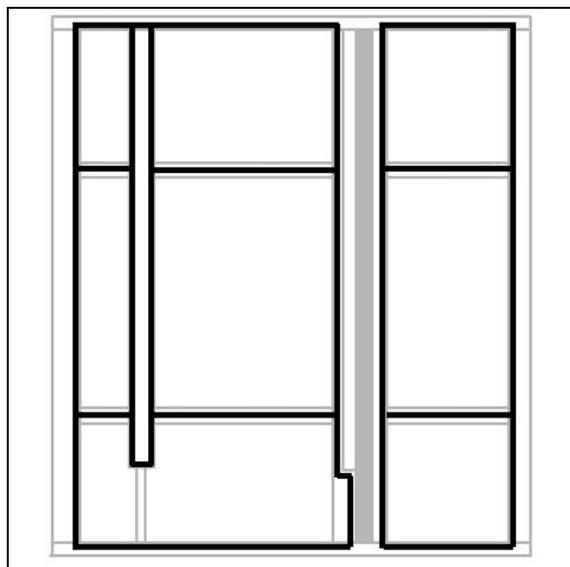
Using a triangular nozzle, apply "Simson" glue (685126) onto support structure.



Rear baggage compartment without WCL.



Rear baggage compartment equipped with WCL

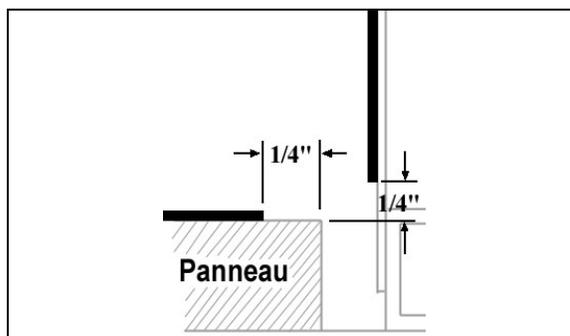


Carefully install panel onto support structure.

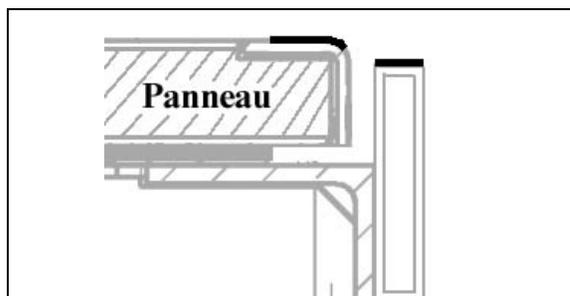
Evenly distribute and install conforming weights (6 to 8) (80 to 100 lbs **total**) onto panel for at least **4 hours**. Make sure panel does not move.

#### Finishing Joints

In the case of lateral finishing joint, apply some masking tape 1/4" from panel edge and 1/4" above panel.

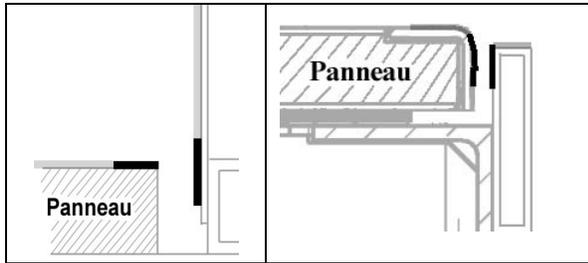


In the case of front finishing joint, apply some masking tape on each side of joint.

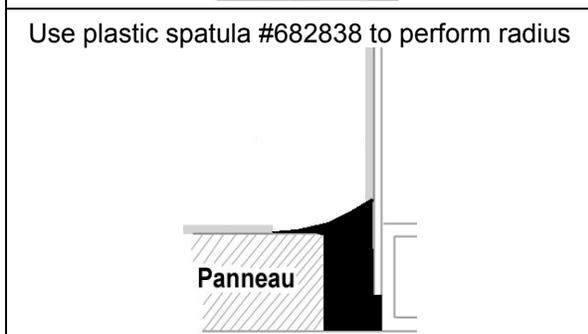
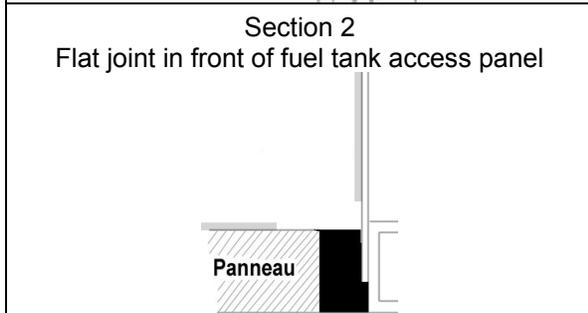
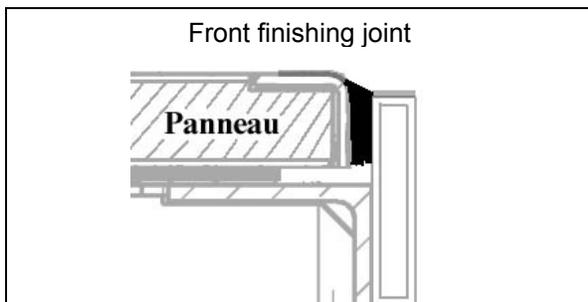
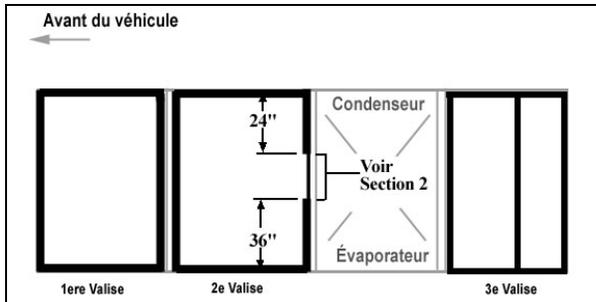


Clean with anti-silicone the area where the Simson glue will be applied.

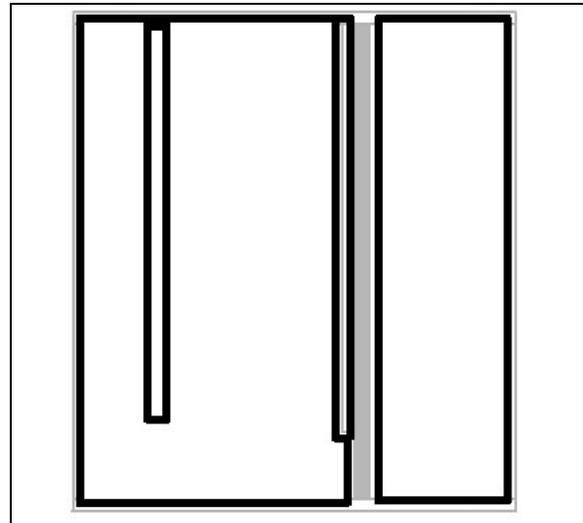
## Section 18: BODY



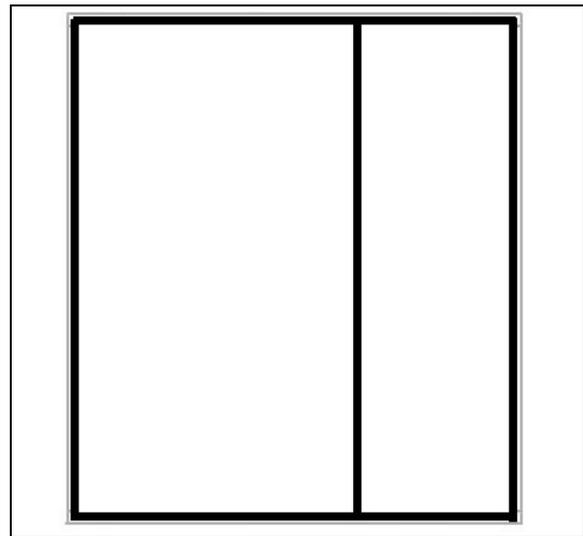
Apply some Simson glue to fill the gap.



Rear baggage compartment equipped with WCL



Rear baggage compartment without WCL.



Remove masking tape.

Smooth down joints using soapy water.

### 6.5.3 Evaporator Compartment Door

1. Open the evaporator door.
2. Loosen the screws fixing the hinge to hinge attachment or hinge to door assembly. Loosening the screws allows the evaporator door assembly to be shifted "LEFT or RIGHT" and "UP or DOWN" or "IN and OUT".
3. Adjust evaporator door assembly position at the hinge.
4. Tighten the screws.

5. Respect the required gap between exterior finishing panels.
6. Check that the door swings freely and closes properly. It may be necessary to adjust the door latch to get proper fit and operation.

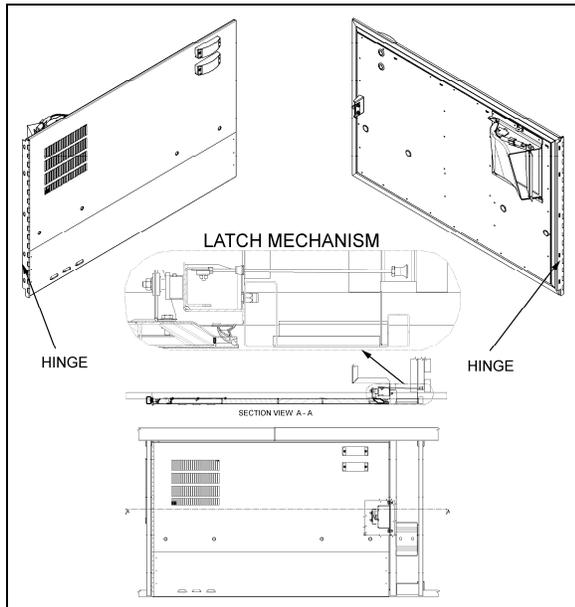


FIGURE 39: EVAPORATOR DOOR

18637

#### 6.5.4 Condenser Compartment Door

1. Open the condenser door.
2. Loosen the screws fixing the hinge to hinge attachment or hinge to door assembly. Loosening the screws allows the condenser door assembly to be shifted "LEFT or RIGHT" and "UP or DOWN" or "IN and OUT".
3. Adjust condenser door assembly position at the hinge.
4. Tighten the screws.
5. Respect the required gap between exterior finishing panels.
6. Check that the door swings freely and closes properly. It may be necessary to adjust the door latch to get proper fit and operation.

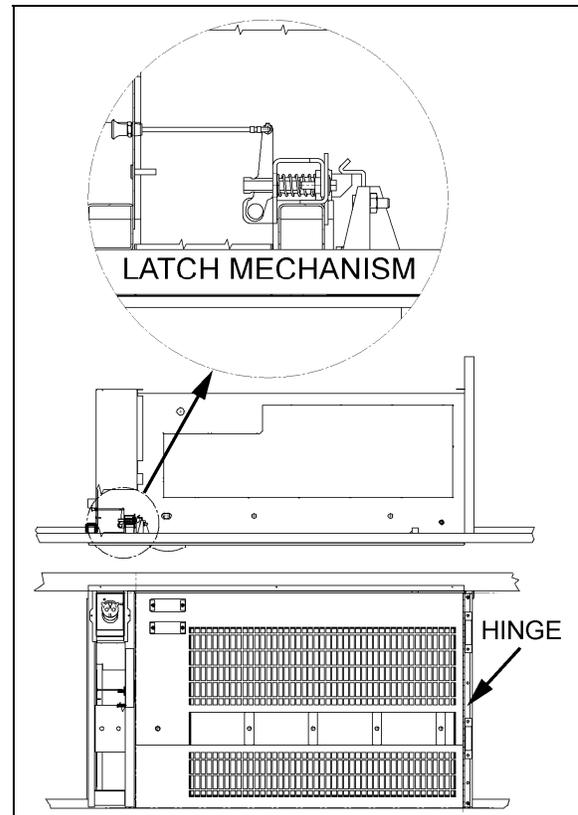


FIGURE 40: CONDENSER DOOR

18638

#### 6.5.5 Fuel Filler Door

1. Open the fuel filler door.
2. Loosen the screws holding the panel to hinge assembly.
3. Adjust the fuel filler door position according to distance required between exterior finishing panels.
4. Tighten the nuts.
5. Check that the door swings freely and closes properly.

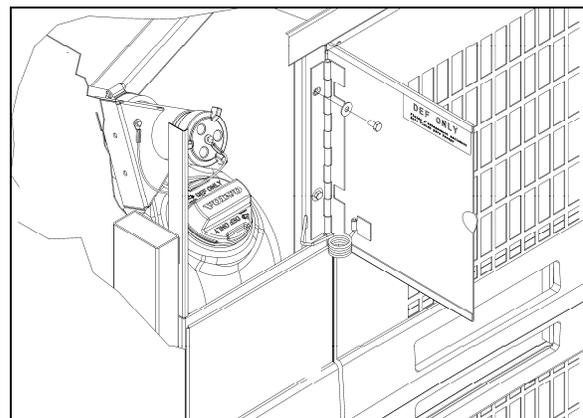


FIGURE 41: FUEL FILLER DOOR

03046

## Section 18: BODY

### 6.6 ZONE 6

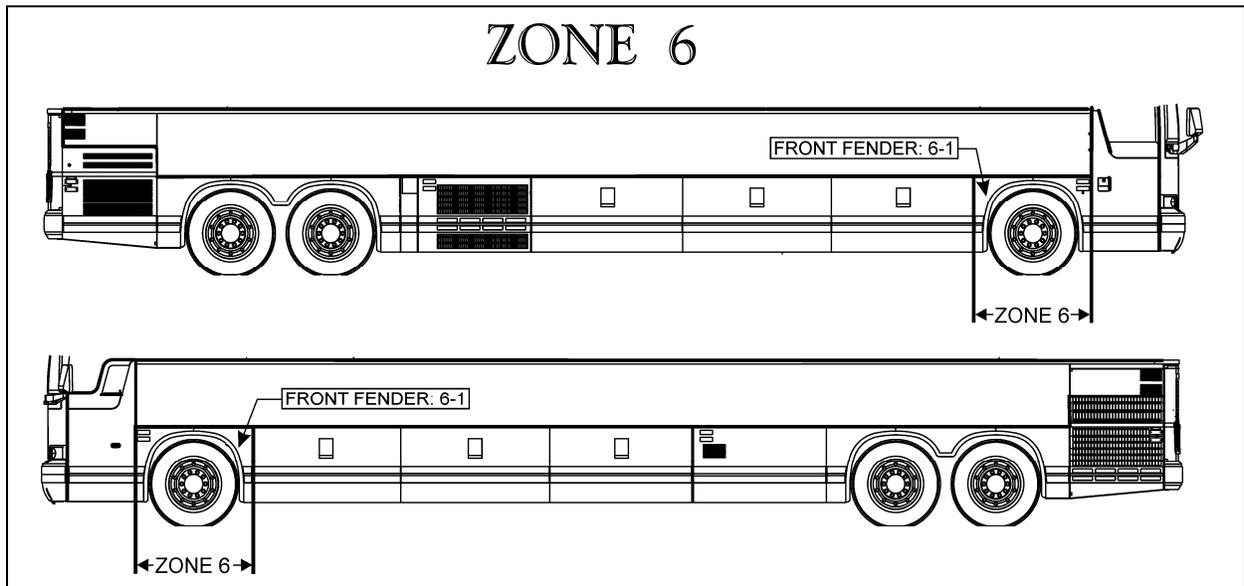


FIGURE 42: ZONE 6

18629

#### 6.6.1 Front Fender

Front fender may be removed using the following procedure:

Remove the nuts on the inside of the fender. Remove the fender from the vehicle. To reinstall, reverse the procedure.

### 6.7 ZONE 7

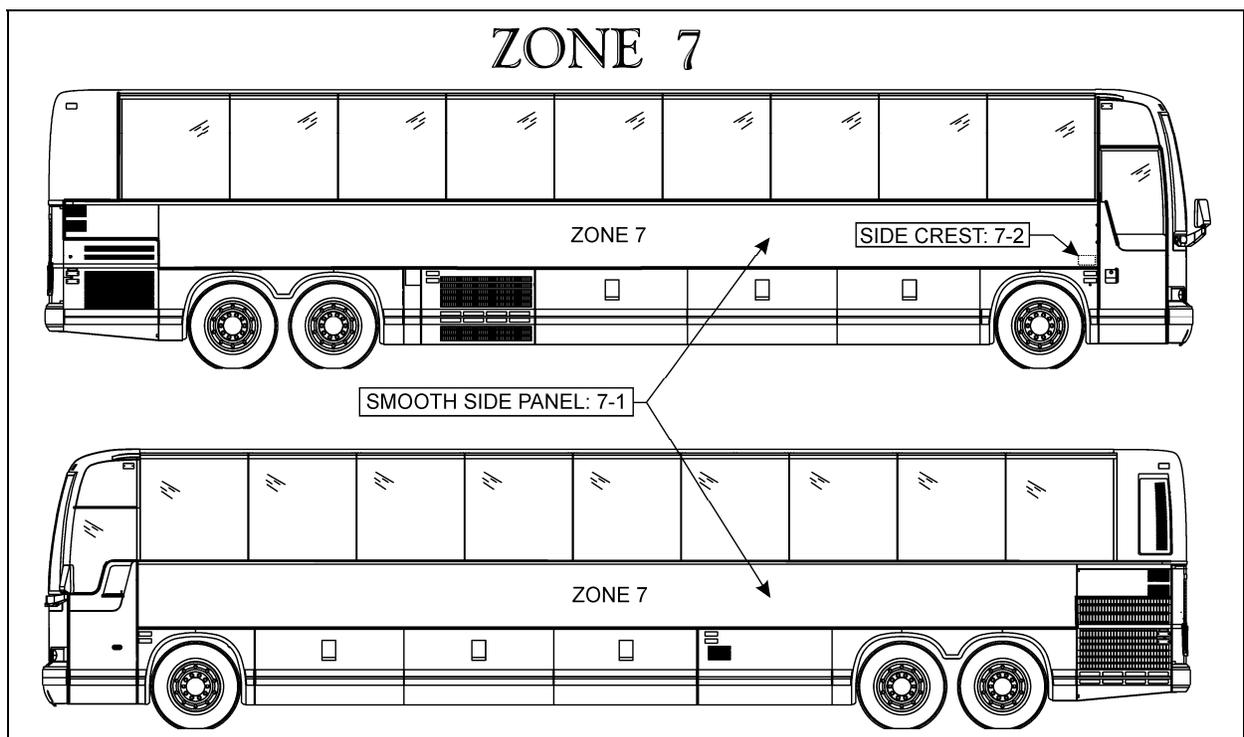


FIGURE 43: ZONE 7

18630

6.7.1 X3 Smooth Side Panel Replacement Procedure

**Material:**

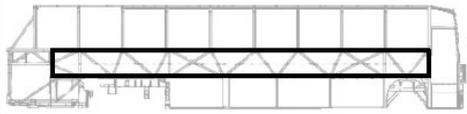
Anti-silicone (682989)	√	Scotchbrite gray (680226)	√	Sika 221 gray	√
CHIX cloth (682384)	√	Sika 205 1liter (683097)	√	Sika 252 black	√
Blue cloth (682383)	√				

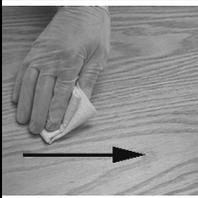
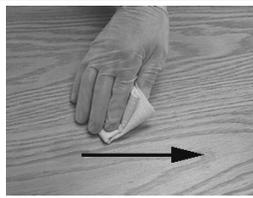
**Equipment:**

Glue gun	√	
Pencil	√	

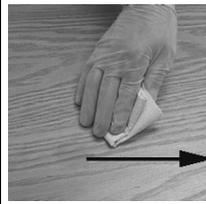
<b>SECTION 1 SMOOTH SIDE PANEL REMOVAL</b>		
1.00	<b>REMOVAL</b>	
	A) Remove finishing molding. Insert a screwdriver into snap-on finishing molding joint. Bend finishing molding enough to be able to fix a pair of locking pliers. Using the pair of locking pliers, pull the stainless steel molding and at the same time gradually cut Sika bead with a sharp knife.	Be careful not to damage the adjacent surfaces.
	B) Using a hammer and punch, drive out rivet shanks from top and bottom and from front and rear finishing molding supports. Use a #11 titanium drill bit to remove rivet heads.	
	C) Grind tig weld spots at each end of side panel.	
	D) Safely support or temporary fix side panel.	<b>Warning: Panel weights over 200 pounds</b>
	E) Insert a flat screwdriver between the side panel and the vehicle chassis, in the top left and right corners. Make sure to separate side panel from structure.	Be careful not to damage the adjacent surfaces.
	F) Use the c-clamp to separate the side panel from the back structural panel and at the same time gradually cut Sika bead with a sharp knife.	Ideally, the hoist or chain block must be fastened to the floor while pulling from a 45° angle so as not to damage the vehicle structure
	G) Remove as much glue as possible from the structure using a putty knife or pneumatic knife without damaging 206 G+P primer.	Never heat SikaFlex adhesive to remove.
	H) Check panel horizontal supports for straightness using a straight edge. Take measurements with a ruler.	Tolerance : 1mm towards the outside and 1.5mm towards the inside.

**Section 18: BODY**

<b>SECTION 2 PREPARATION OF SURFACES</b>		
<b>2.00</b>	<b>VEHICLE SURFACE PREPARATION</b>	
	A)	Clean using "anti-silicone" until all clothes come clean. See PR000001 section A.
	B)	Use the belt sander (grit coarse) Use a new paper on each vehicle side.
	C)	Clean using "anti-silicone" until all clothes come clean. See PR000001 section A.
	D)	Apply – Sika 205 See PR000001 section B.
		
<b>2.05</b>	<b>SIDE PANEL PREPARATION</b>	
	A)	Clean using "anti-silicone" until all clothes come clean. See PR000001 section A.
	B)	Use the belt sander (grit coarse) Use a new paper on each vehicle side panel.
	C)	Clean using "anti-silicone" until all clothes come clean. See PR000001 section A.
	D)	Apply – Sika 205 See PR000001 section B.
		

<b>PR000001 Section A Alcohol or Anti-silicone</b>	
	<b>1. Apply</b>  <b>CHIX cloth</b>
	<b>2. Dry immediately</b>  <b>Blue cloth</b>
<b>3. Allow to dry</b>	
<b>Mandatory</b>	<b>Minimum time : Wait for product to evaporate</b> <b>After 2 hours: Start cleaning operation again</b>
<b>Before applying any other product</b>	If surface seems dusty, greasy or with finger marks, start cleaning operation again.

# Section B Sika 205



**1. Apply**

CHIX cloth

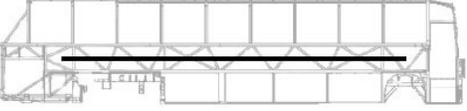
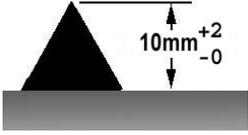
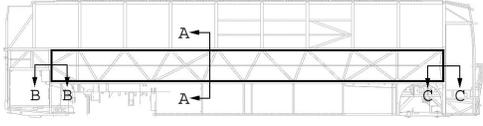
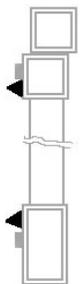
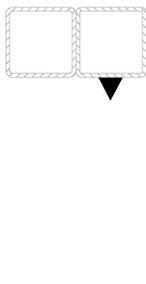
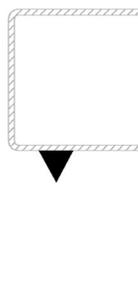
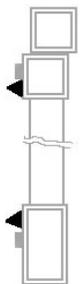
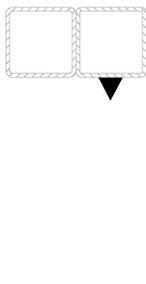
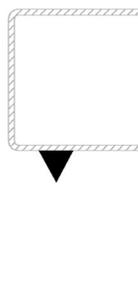
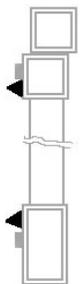
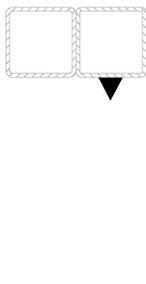
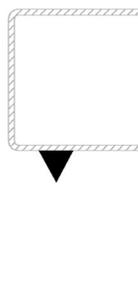
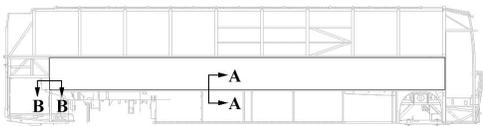
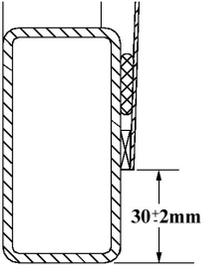
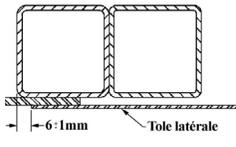
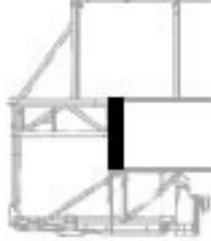
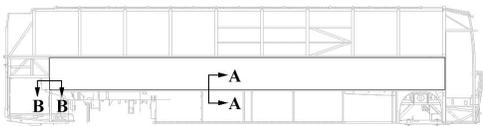
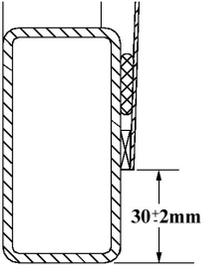
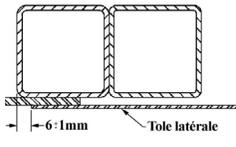
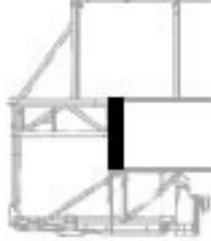
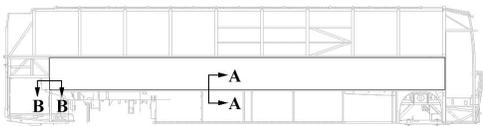
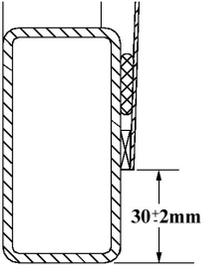
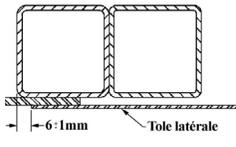
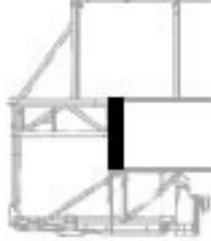
**2. Allow drying**

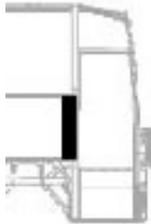
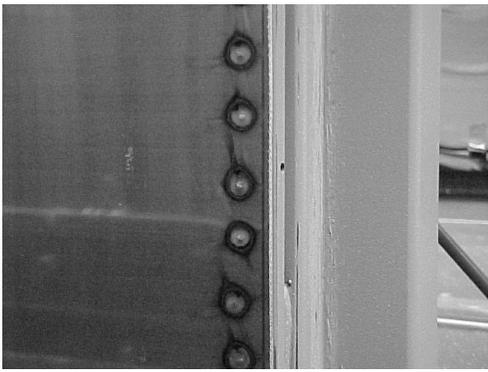
<b>Mandatory</b>	<b>Minimum time</b>	- For a smooth surface (aluminum, stainless steel, fiber glass (gelcoat side), etc.):	<b>2 minutes</b>
		- Pour a porous surface (fiber glass (non gelcoat side), etc.)	<b>10 minutes</b>
<b>After 2 hours : Reactivate surface with Sika 205</b>			
<b>Before applying any other product</b>	If surface seems dusty, greasy or with finger marks, start operation again.		

## SECTION 3 SIDE PANEL INSTALLATION

3.00	A)	Using a pencil, mark the double-face self adhesive tape position onto vehicle side.	
	B)	Apply 1/8 X 1/2" double-face tape as per marking.	
	C)	Compress tape	
	D)	Remove protective film from double-face self adhesive tape center section.	

## Section 18: BODY

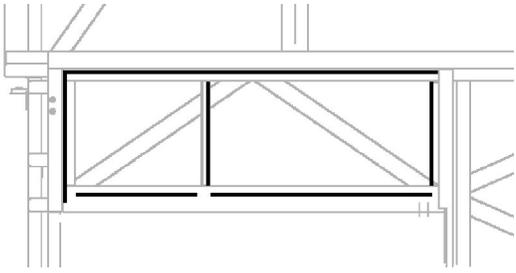
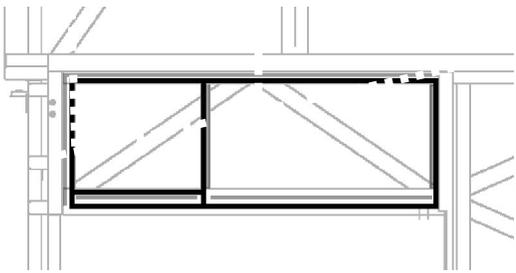
3.05	Install 1/8 X 1/2" foam tape onto middle reinforcement then compress.																					
3.10	<p>Apply Sika 252</p>  <ul style="list-style-type: none"> <li>- Onto vehicle surface</li> <li>- Cut nozzle as per template</li> <li>- Use the guide for the application</li> </ul> <p>Bead must be continuous for the whole perimeter.</p>	 <table border="1" data-bbox="954 546 1437 892"> <thead> <tr> <th data-bbox="954 546 1107 588">Section A-A</th> <th data-bbox="1107 546 1279 588">Section B-B</th> <th data-bbox="1279 546 1437 588">Section C-C</th> </tr> </thead> <tbody> <tr> <td data-bbox="954 588 1107 892">  </td> <td data-bbox="1107 588 1279 892">  </td> <td data-bbox="1279 588 1437 892">  </td> </tr> </tbody> </table>	Section A-A	Section B-B	Section C-C																	
Section A-A	Section B-B	Section C-C																				
																						
3.15	<table border="1" data-bbox="284 898 938 1869"> <tbody> <tr> <td data-bbox="284 898 360 1060">A)</td> <td data-bbox="360 898 938 1060">Install side panel onto support jig.</td> </tr> <tr> <td data-bbox="284 1060 360 1407">B)</td> <td data-bbox="360 1060 938 1407">Position side panel in front of vehicle structure</td> </tr> <tr> <td data-bbox="284 1407 360 1543">C)</td> <td data-bbox="360 1407 938 1543">Perform final adjustment to make sure that side panel is true and square</td> </tr> <tr> <td data-bbox="284 1543 360 1806">D)</td> <td data-bbox="360 1543 938 1806">Sand rear of side panel 2" wide</td> </tr> <tr> <td data-bbox="284 1806 360 1869">E)</td> <td data-bbox="360 1806 938 1869">Perform tig spot welding (1" apart)</td> </tr> </tbody> </table>	A)	Install side panel onto support jig.	B)	Position side panel in front of vehicle structure	C)	Perform final adjustment to make sure that side panel is true and square	D)	Sand rear of side panel 2" wide	E)	Perform tig spot welding (1" apart)	<table border="1" data-bbox="938 898 1448 1869"> <tbody> <tr> <td colspan="2" data-bbox="938 898 1448 1060">  </td> </tr> <tr> <td data-bbox="938 1060 1193 1407"> <p><b>Section A-A</b></p>  </td> <td data-bbox="1193 1060 1448 1407"> <p><b>Section B-B</b></p>  </td> </tr> <tr> <td colspan="2" data-bbox="938 1407 1448 1543"> <ul style="list-style-type: none"> <li>- 30 mm. ± 2 with reference to bottom tubing</li> <li>- 6 mm ± 1 with reference to vertical tubing</li> </ul> </td> </tr> <tr> <td colspan="2" data-bbox="938 1543 1448 1806">  </td> </tr> <tr> <td colspan="2" data-bbox="938 1806 1448 1869"> <p>Quantity of "tig spot": 30 minimum.</p> </td> </tr> </tbody> </table>			<p><b>Section A-A</b></p> 	<p><b>Section B-B</b></p> 	<ul style="list-style-type: none"> <li>- 30 mm. ± 2 with reference to bottom tubing</li> <li>- 6 mm ± 1 with reference to vertical tubing</li> </ul>				<p>Quantity of "tig spot": 30 minimum.</p>	
A)	Install side panel onto support jig.																					
B)	Position side panel in front of vehicle structure																					
C)	Perform final adjustment to make sure that side panel is true and square																					
D)	Sand rear of side panel 2" wide																					
E)	Perform tig spot welding (1" apart)																					
																						
<p><b>Section A-A</b></p> 	<p><b>Section B-B</b></p> 																					
<ul style="list-style-type: none"> <li>- 30 mm. ± 2 with reference to bottom tubing</li> <li>- 6 mm ± 1 with reference to vertical tubing</li> </ul>																						
																						
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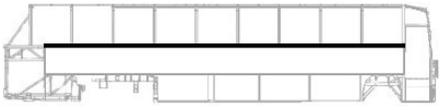
3.20	A)	Install pulling equipment at the other end of side panel	
	B)	Make a final adjustment in height	
	C)	Sand front of side panel 2" wide	
	D)	Pull side panel so that panel moves 1/8"	Make sure the equipment pulls along the whole width of side panel
	E)	Perform tig spot welding	Quantity of "tig spot": 30 minimum.
3.30	Remove pulling equipment		
3.40	A)	Remove protective film from double-face self adhesive tape.	
	B)	Compress top and bottom section of side panel	
3.50	A)	Cut excess of side panel. Make sure that cut is parallel with tubing.	
	B)	Grind side panel end to line up with door tubing.	
3.60	To seal each panel end, apply masking tape on each side of side panel joint. Use a caulking nozzle and grey Sikaflex 221 adhesive to fill the cavity between the panel and vehicle structure. Clean using Sika 205. Allow 5 minutes minimum for drying.		

**Section 18: BODY**

	Wear surgical gloves and smooth down the joint with your finger.	
--	------------------------------------------------------------------	--

<b>SECTION 4 ENGINE AIR INTAKE PANEL INSTALLATION</b>		
4.00	Make sure that sealing of structure has been performed properly	
4.05	Prepare vehicle surface as for side panel.	Refer to step # 2.00
4.10	Prepare air intake panel as for side panel	Refer to step # 2.05

4.15	Install foam tape 1/8" X 1/4" onto structure, as shown in picture	
4.20	Install foam tape 1/16" X 1/4" onto air intake panel pleat	
4.25	Apply a bead of 252 onto structure as per picture Important: Make sure bead is continuous Triangular bead: 10mm x 8mm	
4.30	Install panel onto structure	Use a jig to make sure that panel is lined up with engine door tubing.
4.40	Use a brush to compress Sika bead	

5.00 *	<b>Finition Joint</b>		
	A)	Install a protective tape onto the tubing above welding	
	B)	Apply Sika 205 Use a plastic spatula inside a Chix cloth to ensure that Sika 205 reaches as far as the corner. See PR000001 section B.	
	C)	Apply Sika 252 black at the junction of both tubing. Smooth down the joint	
D)	Remove protective tape		

6.7.2 Side Crest

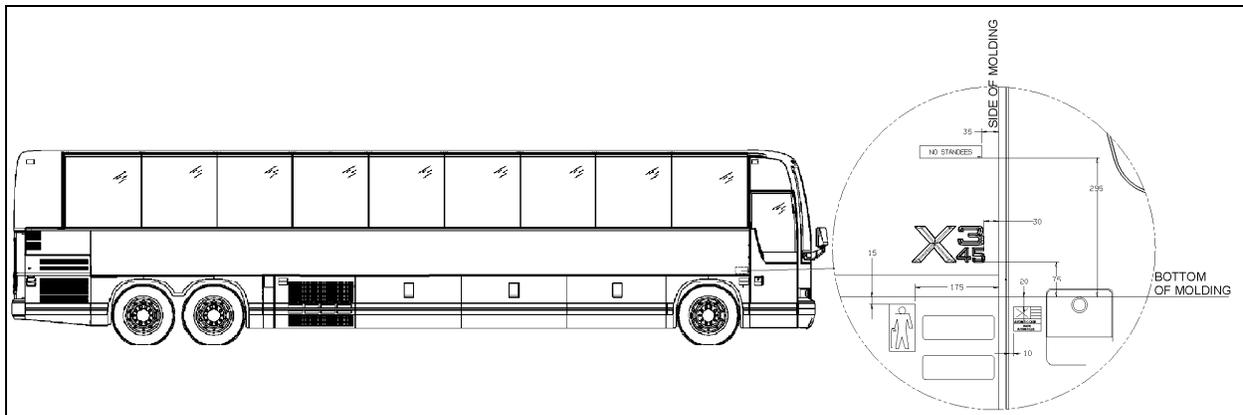


FIGURE 44: SIDE CREST POSITIONING

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- Clean vehicle surface using anti-silicone where the side crest and stickers will be applied.
- Using hands apply and compress side crest.
- Apply required stickers.

# Section 18: BODY

## 6.8 BODY PANEL AND WINDOW SPACING

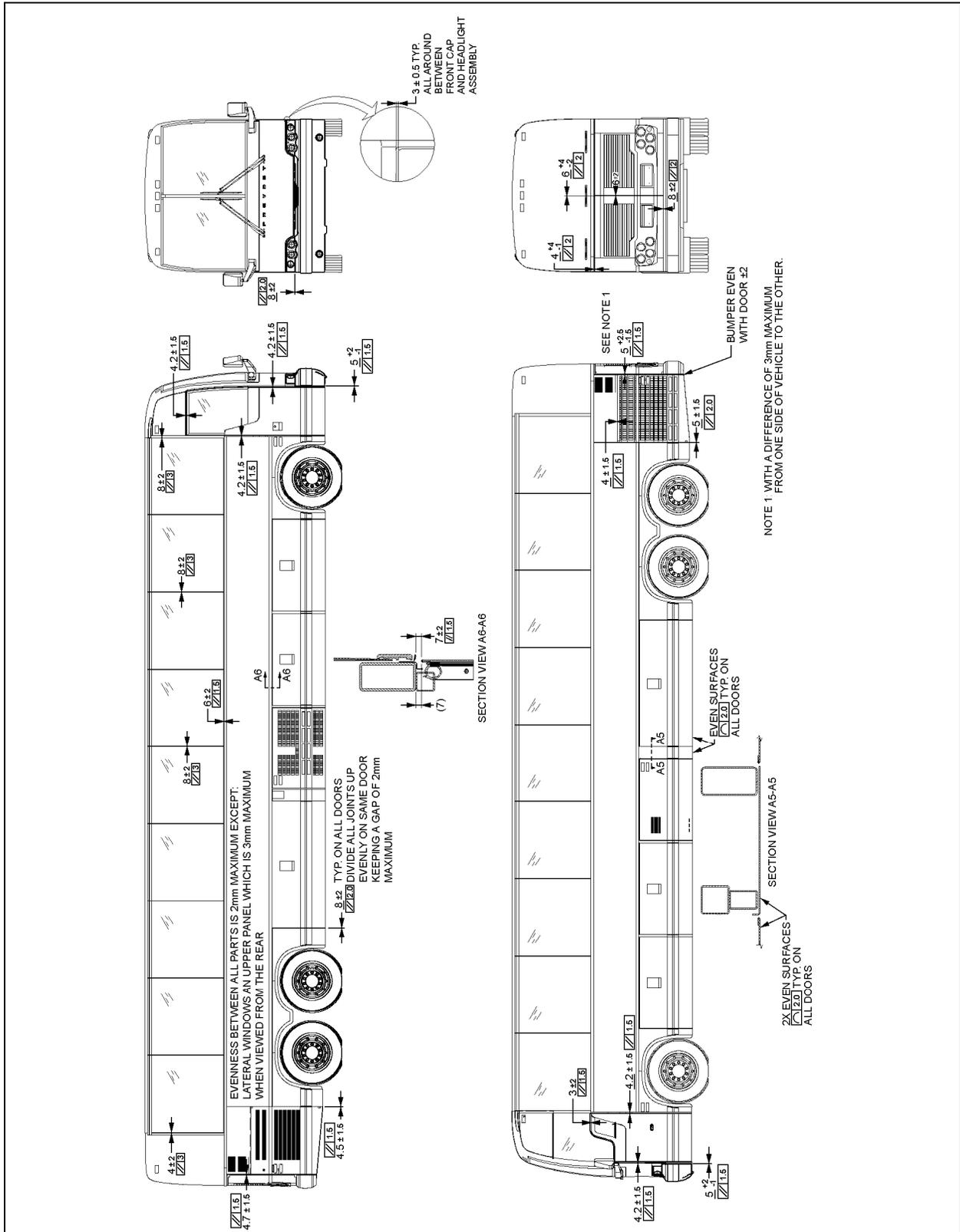


FIGURE 45: BODY PANEL AND WINDOW TYPICAL

18631

## 6.9 PASSENGER SEATS

X3 coaches are equipped with Torino G 4ONE seat models:

Each pair of seats is built on a welded steel frame fastened to the side wall and on a track-mounted pedestal.

The "Torino G" seats have 3 armrests. The aisle and center armrests can be folded up and down manually, while the window armrest is fixed.

### 6.9.1 Rotating Seats

1. Remove 1 wing nut holding each seat bottom cushion from under the seat frame.
2. Lift front part of cushions and remove cushions.
3. Remove 4 wing screws fastening seat assembly to seat frame.
4. Pull seat toward aisle and rotate.
5. Align mounting holes and reinstall 4 wing screws.
6. Reinstall seat bottom cushions with wing nuts.

### 6.9.2 Removing Fixed Seats

#### **NOTE**

*Seats on one row are not interchangeable with seats of the other row.*

To remove fixed seats, proceed as follows:

1. Remove 1 nut holding each seat bottom cushion from under the front part of the seat frame.
2. Lift front part of cushions and remove cushions.
3. Remove 4 finishing screws holding plastic cover between side wall and seat frame.
4. Remove 2 cap screws, nuts, and washers holding seat frame to side wall and retain the 2 holding brackets. See figure 46.
5. Remove 2 nuts and washers holding seat frame to pedestal rods. See figure 47.

#### **NOTE**

*Bottom end of rod is coated with Loctite and threaded in a steel block which slides in the floor track. Removal of rod is possible if loosened from block. Otherwise, slide rod and block assembly to the front end of track after removing all seats located in front.*

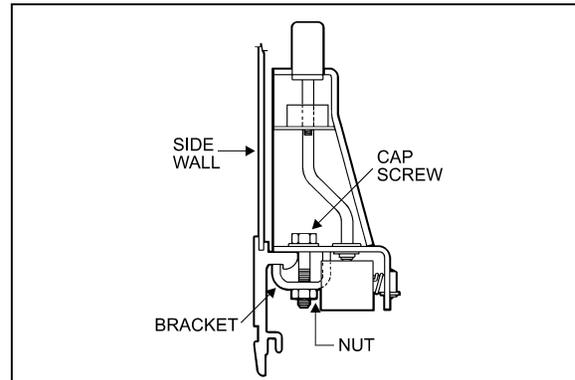


FIGURE 46: ARMREST

18106

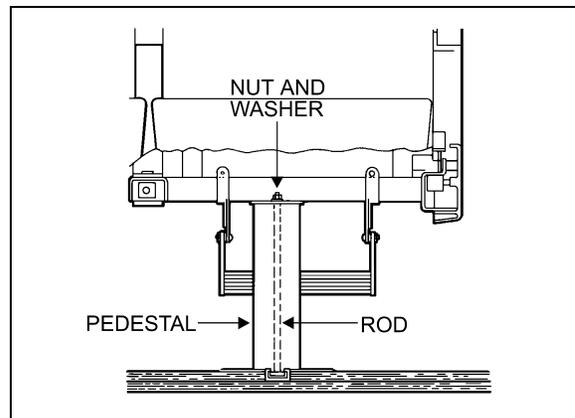


FIGURE 47: SEAT PEDESTAL ASSEMBLY

18107

6. Remove seat assembly.
7. Reverse the above procedure to install seat assembly.

#### **NOTE**

*On newer vehicles, the rod consists of a carriage bolt inserted in a square plate sliding in the floor track. Removal is possible only by the front or rear end of track.*

### 6.9.3 Upholstery Maintenance

Coach seats are lightweight, with foam-padded backs and cushions. For both appearance and wearability, best results are obtained if upholstery is cleaned at regular intervals before dirt, dust and grit have been ground into the

## Section 18: BODY

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fabric. Seat fabric is made of 50% wool, 33% cotton, 9% nylon, and 8% acrylic.

- **Routine Cleaning**

All that is required to remove the dirt is a gentle beating with the hand or the back of a brush. This will bring the dirt to the surface where it is easily removed with a vacuum or brush in the direction of the pile which can easily be recognized by running a hand lightly over the pile. If the fabric becomes excessively dirty, particles of grit will cause gradual wear, reducing the life span of the fabric.

- **Dry Cleaning**

If covers are to be removed for cleaning, dry cleaning is recommended since washing might cause some shrinkage, preventing the covers from being reapplied to the seats without damage. Other than spot cleaning the covers while they are in place, dry cleaning is not recommended, since the resulting fumes could be hazardous in the confines of the coach and the solvent could be detrimental to the foam padding of the seats.

- **Cleaning With Covers in Place**

The most effective and economical method to clean the fabric seat covers is by washing with either an approved foam upholstery cleaner or with a mild household detergent.

Thoroughly vacuum the upholstery. Remove any spots or stains before the seats are washed to avoid a cleaning ring.

Dilute household detergent or liquid foam cleaner according to directions on the container. Pour a small quantity into a flat pan and work into a thick foam with a sponge or brush.

Apply only the foam to the fabric with a sponge or brush. Clean a small area of the fabric at a time with the foam. DO NOT SOAK. Rub vigorously. Sponge the suds from the fabric with a clean sponge or cloth moistened with water. Rinse the sponge or cloth often and change the water when it becomes dirty.

Allow the upholstery to dry completely before the coach goes back into service. To speed up drying, excess moisture can be blown off the fabric with compressed air.



### CAUTION

Oil in the air line will soil the fabric. Blow the line clear and test air discharge against a plain white piece of paper. It is also effective to press the edge of a flat hardwood stick down on the cushion and slowly draw it across the fabric.

Even very soiled areas can be returned to their original appearance by a thorough cleaning, but a regular schedule of cleaning that keeps the upholstery reasonably clean at all times will greatly enhance the life span of upholstery.

## 6.10 TARABUS FLOOR COVERING REPAIR OR REPLACEMENT

On X3-45 coaches equipped with “Gerflor Natura Cedar 8813” covering, it is possible to replace or repair this covering. The purpose of this paragraph is to explain the steps to be followed to ensure the best results and adherence.

**MATERIAL**

Part No	Description	Qty
680028	Adhesive, Tarabus Floor Covering (White)	A/R
684655	Adhesive, Contact (3M)	3.8L
684654	Adhesive, Contact (3M)	18.9L
680532	Sikaflex 221 Gray	A/R

**NOTE**

*Material can be obtained through regular channels.*

1. Remove number of passenger seats required to perform repair.
2. Cut and remove damaged section of floor covering.

**NOTE**

*It would be preferable to cut under two rows of seats so that repair is not as noticeable.*

3. Clean plywood using a scraper.

**NOTE**

*Make sure that no staples are sticking out beyond surface. Adjacent plywood sheets must be leveled.*

4. Fill up holes and imperfections using MAPI PRP 110 then sand.
5. Remove dirt and adhesive residue.

**CAUTION**

Do not leave floor covering folded down except temporarily during installation.

6. Apply floor covering adhesive (680028) onto plywood using a serrated spreader with 1/8-inch serration. If required, apply contact adhesive (3M) (684655 or 684654) onto aluminum molding and also onto section of floor covering, which will be in contact with molding (refer to figure 47).

**NOTE**

*Allow adhesive to dry (3 to 5 minutes).*

7. Compress floor covering using a roller so as to remove any trapped air bubble.
8. Apply Sikaflex 221 gray sealant (680532) alongside passenger seat fixing tracks (refer to figure 48).

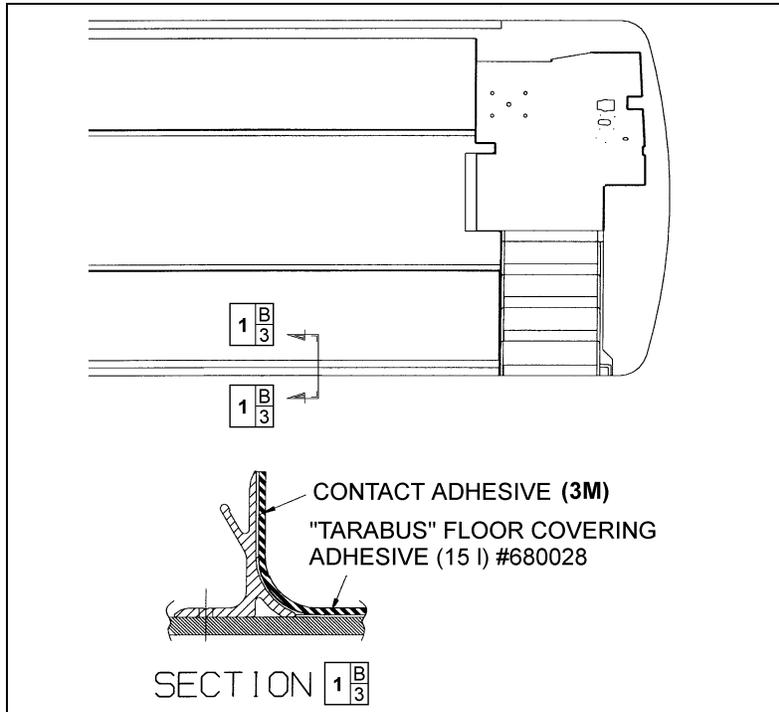


FIGURE 48: TARABUS FLOOR COVERING ADHESIVE APPLICATION 18640

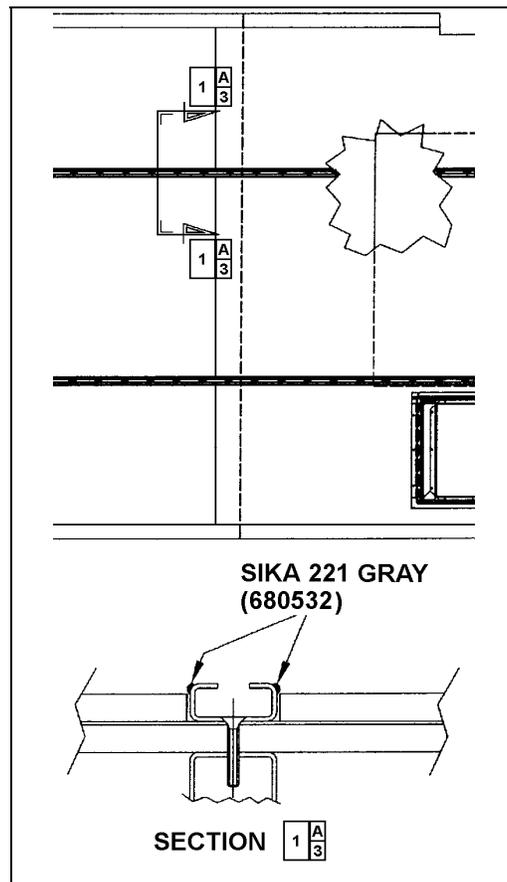


FIGURE 49: APPLICATION OF SIKA 221 GRAY 18641

6.10.1 Front Steps Replacement Procedure

**MATERIAL**

Part No	Description	Qty
682989	Anti-silicone	A/R
683097	Sika 205 (1 liter)	A/R
685101	Sika Remover 208	A/R
683916	Sika 215 (1 liter)	A/R

1. Cut and remove damaged step(s).
2. Remove dirt and adhesive residue.

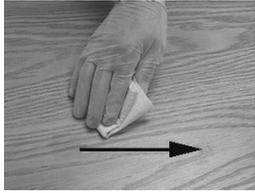
**NOTE**  
*In wintertime, condensation and cold temperature may greatly influence bonding parameters. Working area must be at a temperature sufficient to prevent reaching condensation point. Mechanically preheat working area (heat lamp or heat gun) or wait until vehicle reaches room temperature.*

**PREPARATION OF “TARABUS” FLOOR COVERING**

1. Sand under step using “Scotchbrite”.
2. Clean using anti-silicone (refer to Section A).

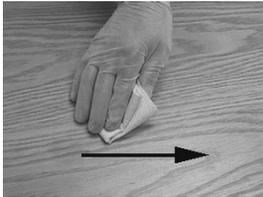
<b>Section A Alcohol or Anti-silicone</b>	
	<p><b>1. Apply</b></p> <p>CHIX cloth</p>
	<p><b>2. Dry immediately</b></p> <p>Blue cloth</p>
<b>3. Allow drying</b>	
<b>Mandatory</b>	<b>Minimum time : Wait for product to evaporate</b>
	<b>After 2 hours: Start cleaning operation again</b>
<b>Before applying any other product</b>	If surface seems dusty, greasy or with finger marks, start cleaning operation again.

3. Apply Sika Primer 215 (refer to Section D).

<b>Section D Sika Primer 215</b>		
	<b>1. Shake bottle to mix product</b> <b>2. Apply a thin layer</b>	
	<div style="border: 1px dashed black; padding: 2px; display: inline-block;">CHIX cloth</div>	
<b>3. Allow drying</b>		
<b>Mandatory</b>	<b>215</b>	<b>Minimum time : 20 minutes</b> <b>After 2 hours : Remove dust using damp cloth (pure water)</b>
<b>Before applying any other product</b>		If surface seems dusty, dust using damp cloth. If surface seems greasy or with finger marks, reactivate with Aktivator.

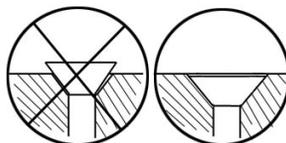
**PREPARATION OF FIBERGLASS**

1. Clean using anti-silicone (refer to Section A).
2. Apply Sika 205 (refer to Section B).

<b>Section B Sika 205</b>			
	<b>1. Apply</b>		
	<div style="border: 1px dashed black; padding: 2px; display: inline-block;">CHIX cloth</div>		
<b>2. Allow drying</b>			
<b>Mandatory</b>	<b>Minimum time</b>	- For a smooth surface (aluminum, stainless, steel, fiberglass (gelcoat side), etc.): - For a porous surface (fiberglass (non gelcoat side), etc.)	<b>2 minutes</b>  <b>10 minutes</b>
<b>After 2 hours : Reactivate surface with Sika 205</b>			
<b>Before applying any other product</b>		If surface seems dusty, greasy or with finger marks, start operation again.	

**X3 VEHICLES FRONT STEPS GLUING**

1. Use step nosing to measure and cut necessary length of white safety strip.
2. Use a screw to check depth of countersinking in step nosing. Screw top must not stick out beyond the aluminum surface. Countersink if needed.



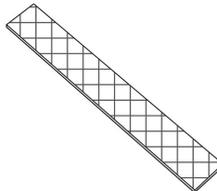
3. Apply some Sika 252 onto the step; make sure to cover the whole surface of the step. Use a serrated spreader with 1/8-inch serration to spread Sika.
4. Apply a bead of Sika 221 onto the perimeter of the step.
5. Install step and press with hands. If Sika overflows, clean with Sika 208. Repeat previous stages for each step if applicable.
6. Remove protective film from double-coated self adhesive tape located underneath step nosing, position step nosing then press. Drill and fix using screws.



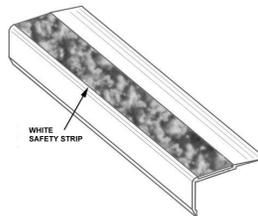
7. Clean top of step nosing using Sika 205 (refer to Section B).



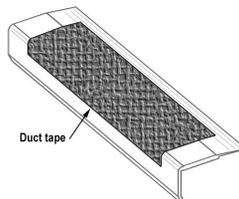
8. Apply some Sika 221 onto white safety strip, spread with a spatula to cover the whole surface.



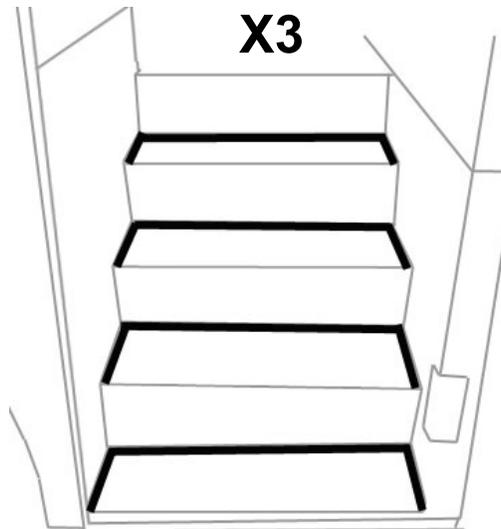
9. Position white safety strip then press using hands. If Sika overflows, clean with Sika 208.



10. Temporarily fix white safety strip with a piece of duct tape, leaving 1 to 2 inches free at each end.

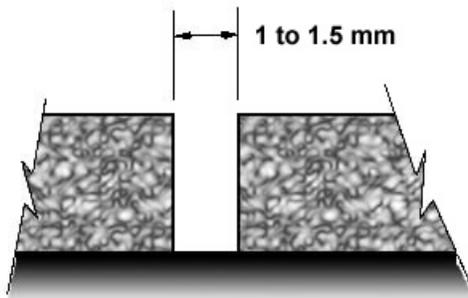


11. Apply some masking tape onto the step perimeter, clean using Sika 205 (refer to Section B) then apply a bead of Sika 252 black. Smooth out the joints then remove masking tape.
12. Install weights onto the steps. Minimum waiting time: 2 hours.



6.10.2 Welding Of Joint Between White Safety Strip And "Tarabus" Floor Covering

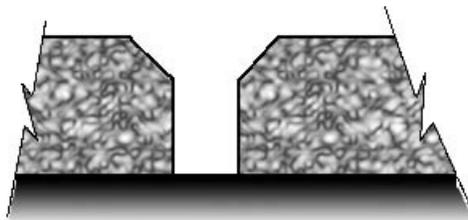
1. Pre-heat welding torch;  
Set welding torch to position #4.5 (temperature of 500 °C),  
Heating time: 5 minutes.
2. Before welding, visually ensure that a 1 to 1.5 mm gap exists between white safety strip and "Tarabus" floor covering. Use a knife if this is not the case.



**NOTE**

There should be no excess of adhesive on top of surfaces, clean if required using "All-Sol".

3. Chamfer the joint.



**NOTE**

The chamfer width must always be less than the filler bead diameter (between 2.5 and 3 mm).

4. Use chamfer knife. **Be careful not to overcut or to cut to the side to prevent damaging “Tarabus” covering.**



5. Add (about 6 inches) some length to the required length of filler bead to make the joint then cut.
6. Take position with welding torch. The proper position is with a slight slope to the rear.



7. Once the welding torch is ready, insert the filler bead into the nozzle and immediately start welding. Move in a regular manner while pressing slightly with torch.



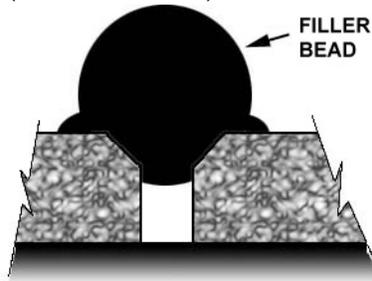
8. The heel of the fast nozzle must not lean against “Tarabus” covering (always parallel to the surface).



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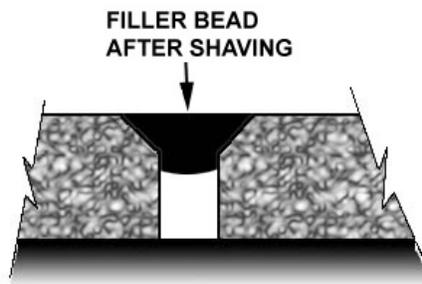
9. Allow cooling down of filler bead (about 5 minutes).



10. Shave filler bead to make it level to the floor. Use supplied knife designed for that purpose.

**NOTE**

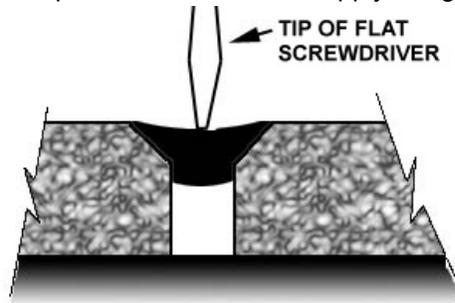
*To facilitate the cut, you can spray some soapy water onto the joint.*



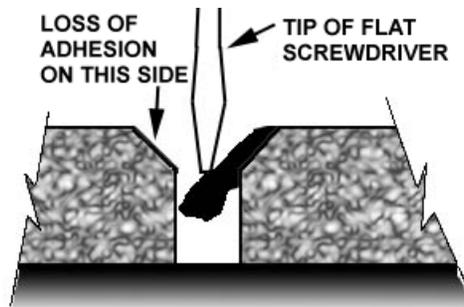
**CAUTION**

The procedure for turning the torch off must absolutely be followed. If this step is not taken, the element may burn.

11. Set temperature potentiometer to "0" position. Fan will evacuate residual heat. Leave the torch in operation as it is for 3 minutes.
12. Perform adhesion test using the tip of a flat screwdriver; apply a slight pressure on the joint.



13. If welding was not performed properly, there will a loss of adhesion on one side. If this is the case, repair the joint.



6.10.3 Repair Of A Welded Joint

**NOTE**

*In wintertime, condensation and cold temperature may greatly influenced bonding parameters. Working area must be at a temperature sufficient to prevent reaching condensation point. Mechanically preheat working area (heat lamp or heat gun) or wait until vehicle reaches room temperature.*

- Using a knife, remove portion of joint to be repaired.

**NOTE**

*Loss of adhesion may be local. If this is the case, repair may also be local.*

- Chamfer the joint again as indicated in paragraph 6.10.2, Section: Welding Of Joint Between White Safety Strip And "Tarabus" Floor Covering.
- Re-weld the joint as indicated in paragraphs 6, 7 and 8. Use your thumb to hold the filler bead end.



**WARNING**

Nozzle is hot.



- Always add an extra inch of filler bead at the beginning and at the end of repair.
- Perform steps indicated in paragraphs 9, 10 and 11.

**7. VEHICLE JACKING POINTS**

The vehicle can be lifted by applying pressure under body jacking points or front and drive axle jacking points. When it is necessary to lift the vehicle, care should be taken to ensure that the pressure is applied only on the specified areas. Equipment for lifting the front of the vehicle must have a combined lifting capacity of at least 20,000 lb. (9 100 kg). Equipment for lifting the rear of the vehicle must have a combined lifting capacity of at least 40,000 lb. (18 200 kg).



**WARNING**

DO NOT tow or jack vehicle with people on board.



**WARNING**

When it is necessary to raise the vehicle, care should be taken to ensure that pressure is applied only at the points indicated in figures 50 to 54.



**WARNING**

Extra lift capacity may be required if luggage or any other type of load (e.g. extra equipment) are onboard the vehicle.



**CAUTION**

The suspension of the vehicle must be in the normal ride position before jacking.

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Ten jacking points are located on the vehicle: two are located on each side of the frame and two are located under each axle. Refer to the following illustrations for the location of jacking points.

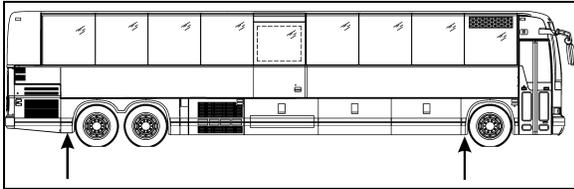


FIGURE 50: JACKING POINTS ON FRAME

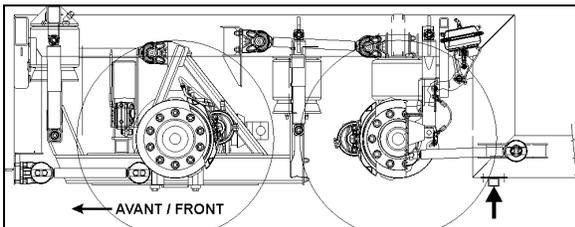


FIGURE 51: REAR END JACKING POINTS

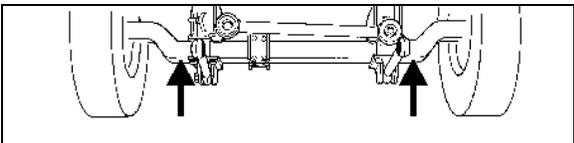


FIGURE 52: JACKING POINTS ON I-BEAM FRONT AXLE

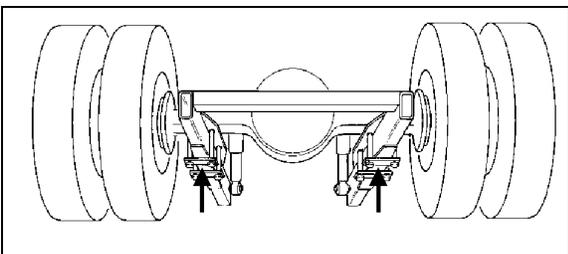


FIGURE 53: JACKING POINTS ON DRIVE AXLE OEH3B762



### CAUTION

Always unload or retract the tag axle before jacking the vehicle from the front and drive axle jacking points to prevent damage to suspension components.

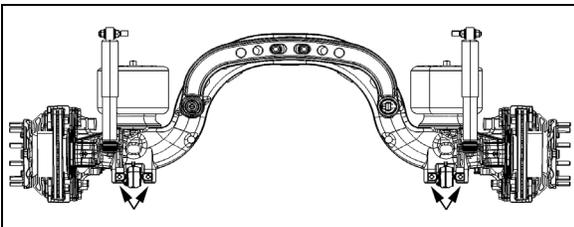


FIGURE 54: JACKING POINTS ON TAG AXLE OEH3B764



### WARNING

The jacking points on the tag axle must be used for raising the tag axle only.

Several kinds of hydraulic jacks can be used. Only jack at the specified jacking points. Jack must support the following capacities:

Front axle: 20,000 lb. (9 100 kg);

Drive axle: 40,000 lb. (18 200 kg).

#### 7.1 HYDRAULIC JACK

To raise: turn release valve clockwise. Insert handle in socket and raise vehicle by pumping.

To lower: remove handle and turn the release valve slowly counterclockwise.

Always keep ram and extension screw retracted when jack is not in use.

Service: Check oil level when jack fails to raise to full height. Lower ram completely with release valve open and jack in upright position, remove filler plug and refill to level of filler hole with hydraulic jack oil. **Never use brake fluid.**



### DANGER

Jack is intended for lifting only. Do not get under the vehicle or load for any reason unless it is properly supported with safety stands and securely blocked.



### DANGER

Do not overload jack above rated capacity. Prevent "side loading", make sure load is centered on ram. Do not push or tilt load off jack.

## 8. TOWING THE VEHICLE

### 8.1 LIFTING FROM THE FRONT

To prevent damage to the vehicle, use the two tow eyes fixed to the vehicle frame between the front axle and the front bumper. Use only a solid link tow bar and a safety chain to tow the vehicle.

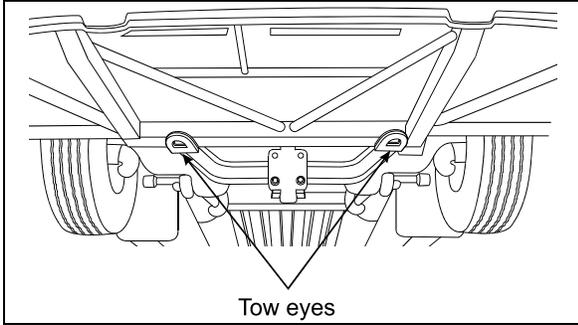


FIGURE 55: TOW EYES UNDER VEHICLE 18401

- Disconnect driveshaft or remove both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to Rockwell's "Maintenance manual no.5" annexed at the end of Section 11: Rear Axle of the maintenance manual.



**CAUTION**

To prevent damage to the drive train components, disconnect axle shafts or driveshaft before towing. Do not attempt to push or pull-start a vehicle equipped with an automatic transmission.

**Failure to disconnect the driveshaft, remove the drive axle shafts or lift the drive wheels off the ground before towing can cause serious transmission damage and void the warranty.**

- The towed vehicle must be lifted from under the front end only. The tow truck must be equipped with the proper lifting equipment to reach under the tow eyes or the front axle since no other lifting points are recommended. Lifting and towing from any other point are unauthorized as it may cause serious damage to the structure. Do not unload or raise the tag axle when lifting and towing to prevent overloading the drive axle.



- Raise the front of the coach then install wooden blocks underneath front tires.
- Install axle forks and supports onto tow bar, position axle forks around beam and into tow eyes, insert chains into tow eyes to secure.



**DANGER**

Do not carry passengers while the coach is being towed.

- The coach can also be towed by installing axle forks on the front axle.

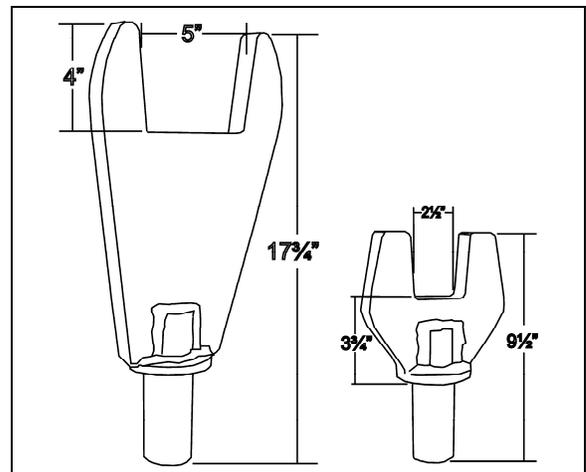


FIGURE 56: AXLE FORKS



- Install chains around tow bar and front axle.



**CAUTION**

Make sure a safe distance (27-28") is kept between the front of the coach and the tow truck. This space ensures that coach does not suffer damages when being towed.



- Flip down the access door located in the front bumper, connect an auxiliary air supply to the two quick connectors so the emergency/ parking brakes don't apply while towing.

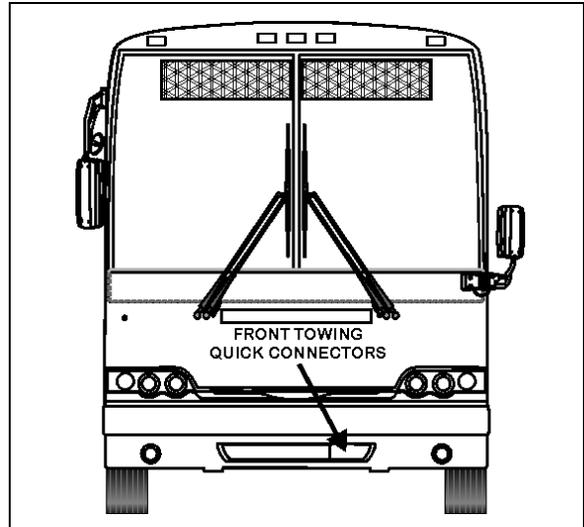


FIGURE 57: FRONT TOWING AIR SUPPLY CONNECTORS

8.2 TOWING WITH A FRONT FLAT TIRE

- In case of a flat tire, drive coach over a wooden block to be able to slide the tow bar underneath.



- Repeat previous steps for attaching tow bar to tow eyes or front axle using axle forks and chains.



### 8.3 MOVING A VEHICLE FROM THE REAR

The vehicle should not be towed from the rear unless an emergency situation occurs. If the vehicle has to be moved over a short distance as in a parking lot:

- Chock front vehicle wheels.



- Lift the vehicle rear end. Slide axle forks and supports onto tow bar and install onto engine cradle.



### CAUTION

To prevent damage to the vehicle structure, it is not recommended to tow the vehicle from the rear. In case of damage to the drive train components, use a low bed semi-trailer to support the rear end.



### DANGER

Do not carry passengers while the coach is being towed.



### CAUTION

Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.