

SECTION 18: BODY

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1. VEHICLE EXTERIOR

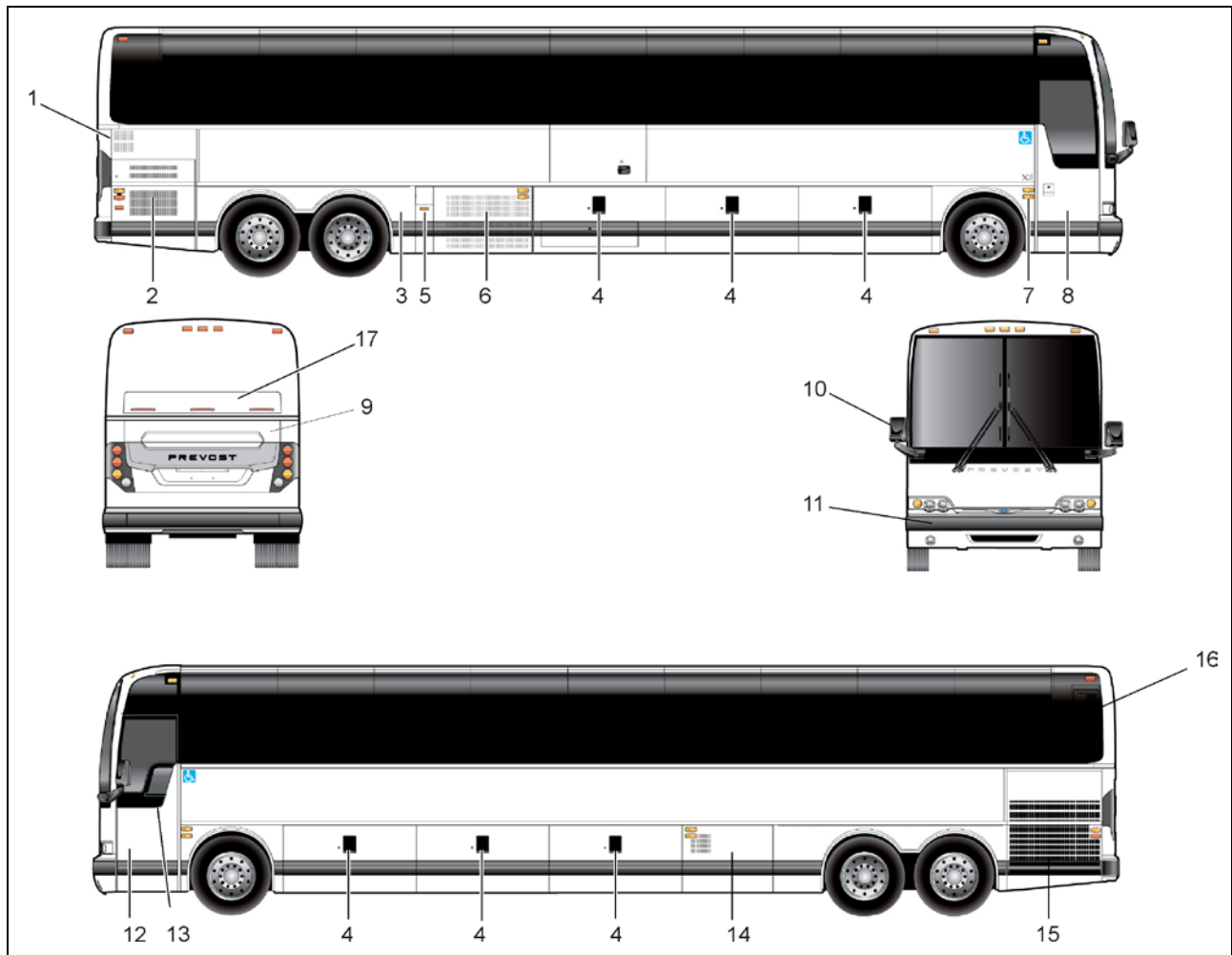


FIGURE 1: X3 COACHES EXTERIOR VIEW

18606

- | | |
|--------------------------------------|---|
| 1. Engine air intake | 10. Rear-view mirror |
| 2. Engine compartment R.H. side door | 11. Reclining bumper |
| 3. Hinged rear fender | 12. Front electrical and service compartment |
| 4. Baggage compartment | 13. Driver's power window |
| 5. Fuel filler door | 14. Evaporator or baggage compartment |
| 6. Condenser or baggage compartment | 15. Radiator door |
| 7. Entrance door switch | 16. Catalytic Converter access door |
| 8. Entrance door | 17. Slide-Out (Optional) |
| 9. Engine compartment rear door | 18. Exhaust Aftertreatment System access door |

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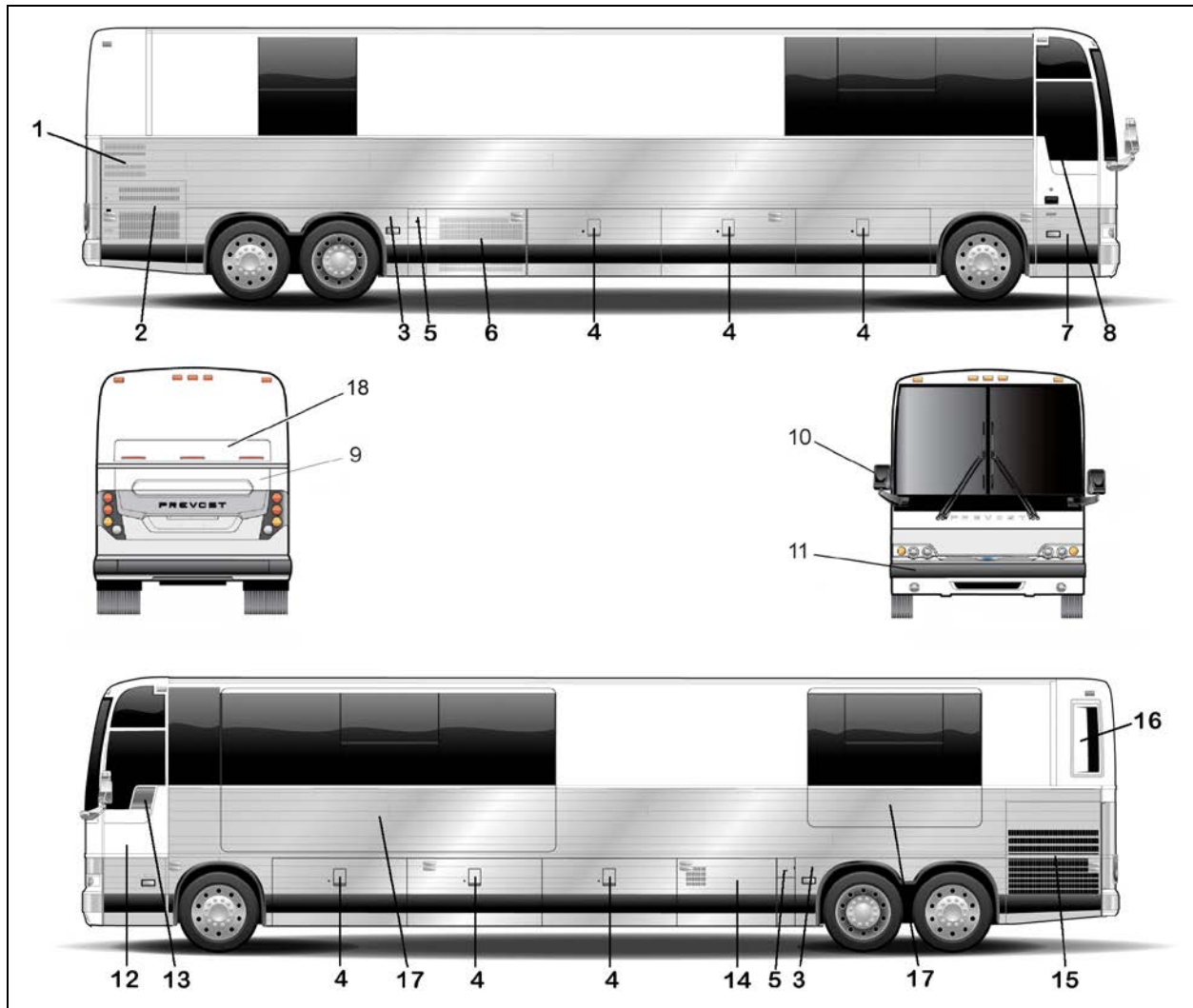


FIGURE 2: X3-45 VIP MOTORHOME EXTERIOR VIEW (TYPICAL)

- | | |
|--------------------------------------|---|
| 1. Engine air intake | 10. Rear-view mirror |
| 2. Engine compartment R.H. side door | 11. Reclining bumper |
| 3. Hinged rear fender | 12. Front electrical and service compartment |
| 4. Baggage compartment | 13. Driver's power window |
| 5. Fuel filler door | 14. Evaporator or baggage compartment |
| 6. Condenser or baggage compartment | 15. Radiator door |
| 7. Entrance door | 16. Catalytic Converter access door |
| 8. Entrance door power window | 17. Slide-Out (Optional) |
| 9. Engine compartment rear door | 18. Exhaust Aftertreatment System access door |

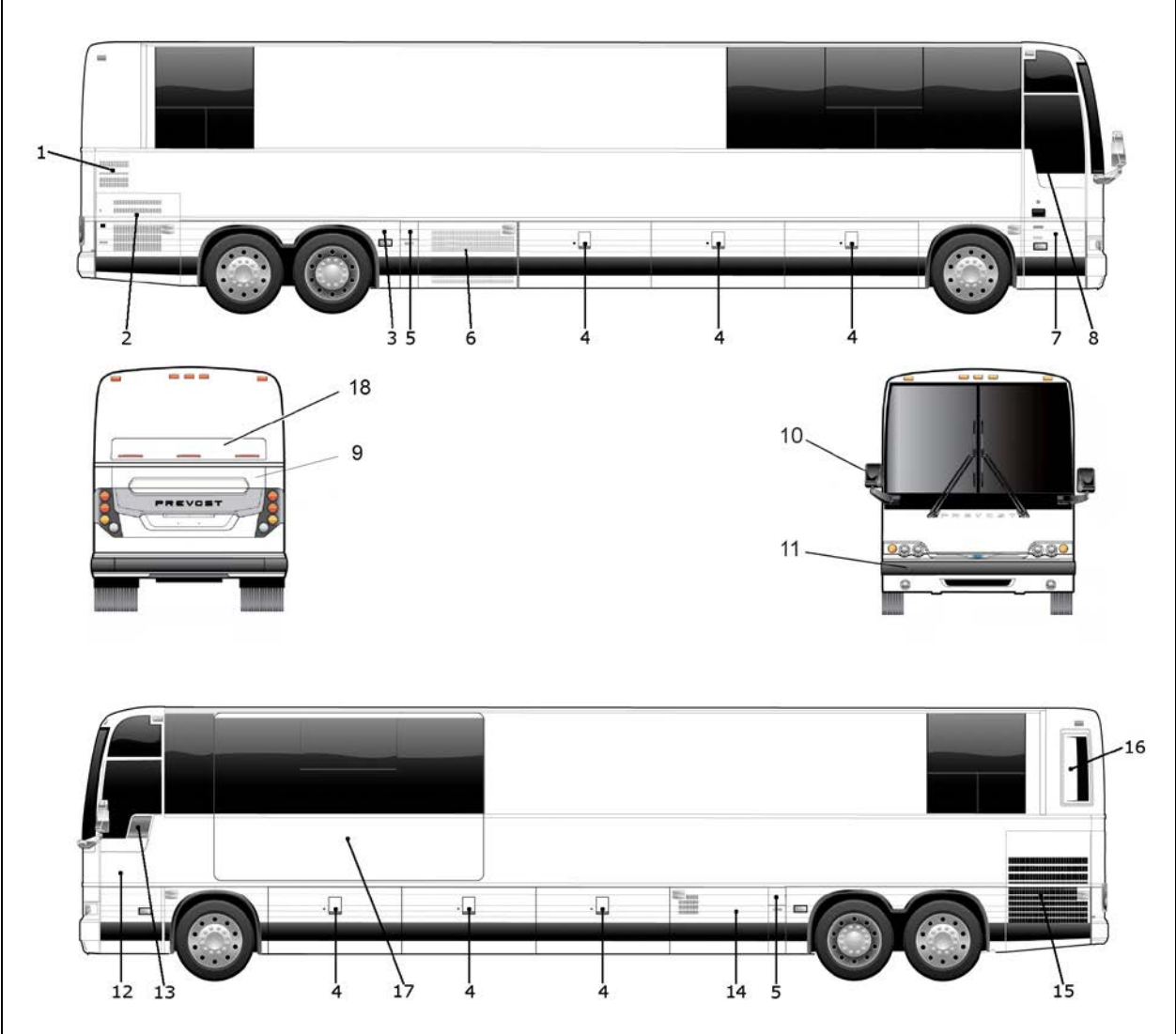


FIGURE 3: X3-45 VIP COMERCIAL USE VEHICLE EXTERIOR VIEW (FRONT SLIDE-OUT)

- | | |
|--------------------------------------|---|
| 1. Engine air intake | 10. Rear-view mirror |
| 2. Engine compartment R.H. side door | 11. Front reclining bumper |
| 3. Hinged rear fender | 12. Front electrical and service compartment |
| 4. Baggage compartment | 13. Driver's power window |
| 5. Fuel filler door | 14. Evaporator compartment |
| 6. Condenser compartment | 15. Radiator door |
| 7. Entrance door | 16. Catalytic Converter access door |
| 8. Entrance door power window | 17. Front Slide-Out (Optional) |
| 9. Engine compartment rear door | 18. Exhaust Aftertreatment System access door |

2. VEHICLE STRUCTURE

The body of the X Series vehicles 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 Prevest 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 "*Owner'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.

3.2 PREVENTIVE MAINTENANCE SCHEDULE

NOTE

TECTYL 185 GW rust inhibitor may have been applied on your vehicle underbody as an option, if this is the case, 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.

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3.3 RUST INHIBITOR APPLICATION

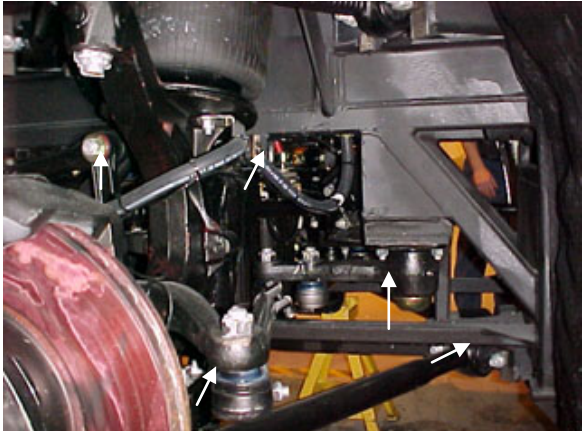
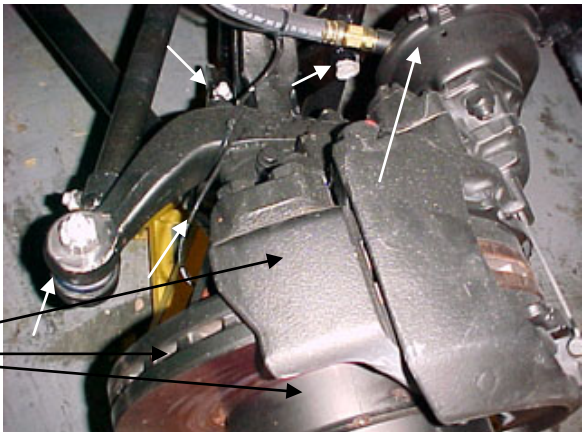
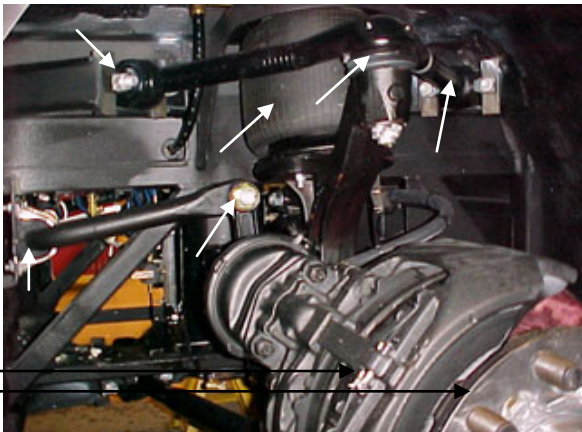
Material: Tectyl 185 GW R1KG21

Safety Rules: Use safety glasses

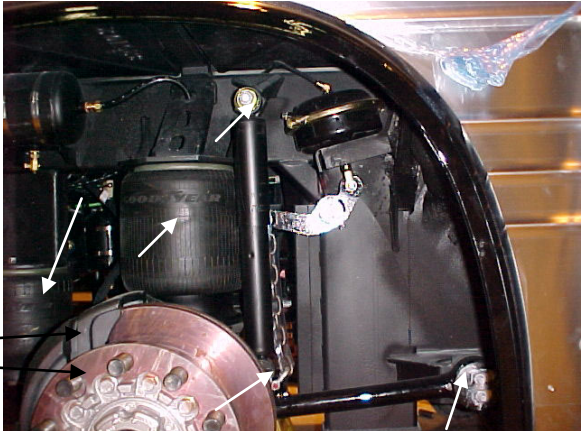
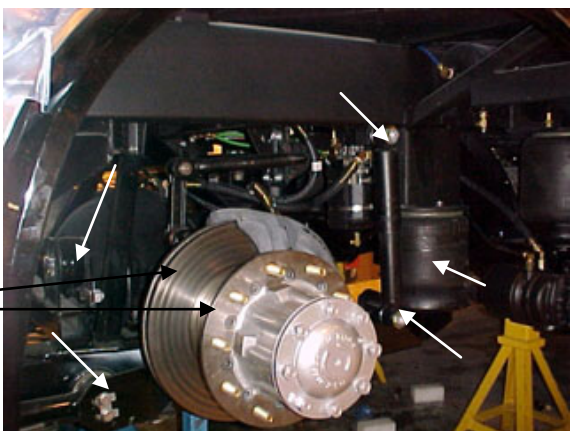
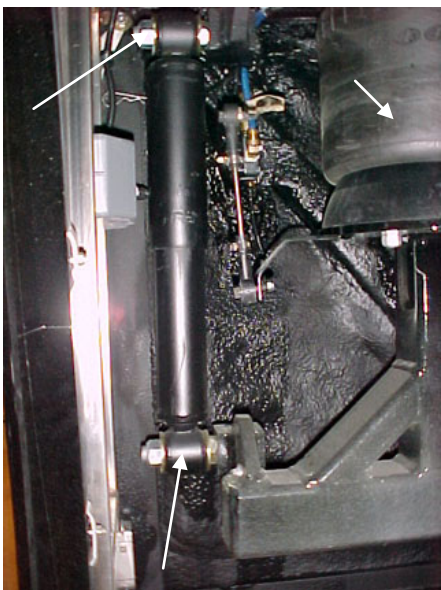
Supplied air hood

Solvent-resistant rubber gloves

1.0 Wash both wheelhousing mechanical parts before masking.	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.
2.0 Dry all water sprayed parts. Surface temperature and dew point must be respected before applying rust inhibitor.	Air pressure system may be used, refer to annex 1 for surface temperature and dew point.
3.0 Front wheelhousing a) Mask all rubber joints. Braking system must also be protected (refer to arrows). Commercial aluminum foil may be used for masking.	
3.1 Front wheelhousing Front view	

<p>3.2 Front wheelhousing</p>	
<p>3.3 Front wheelhousing</p> <p>(Entire braking system)</p>	
<p>4.0 Rear wheelhousing</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>	

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<p>4.1 Rear wheelhousing</p> <p>(Entire braking system)</p>	
<p>4.2 Rear wheelhousing</p> <p>(Entire braking system)</p>	
<p>4.3 Rear wheelhousing</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. Minimum required thickness is 10 mils wet or 5 mils dry.</p>

7.0 Remove all masking material 30 minutes after application.	
---	--

ANNEX 1

1. Check and confirm that dew point and surface temperature are in accordance with the following criteria:

Surface temperature > 10°C

Surface temperature > or = to dew point + 3°C

<i>NOTE</i>

<i>Use the following table to determine dew point.</i>
--

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

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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.

Preheat the area to be repaired using heat lamps. Mix desired quantities of resin and

Section 18: BODY

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 (Figure 4).

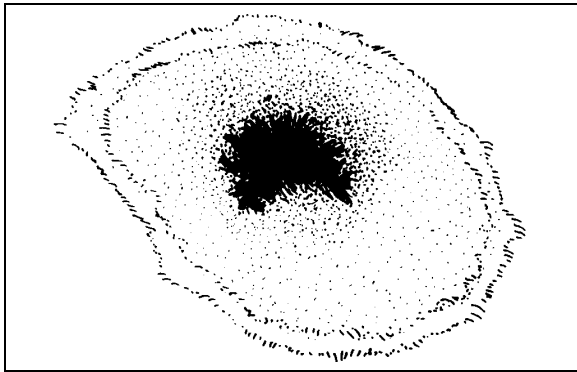


FIGURE 4: FIBERGLASS REPAIR

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 (Figure 5).

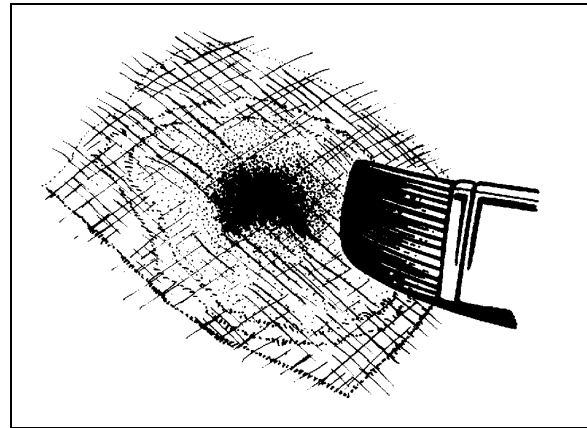


FIGURE 5: FIBERGLASS REPAIR

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 (Figure 6).

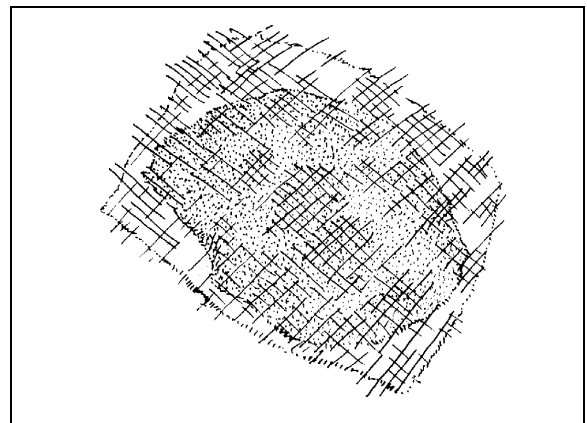


FIGURE 6: FIBERGLASS REPAIR

18091

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

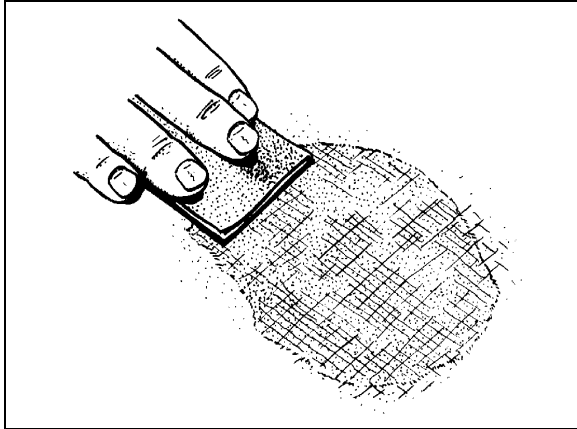


FIGURE 7: FIBERGLASS REPAIR 18092

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

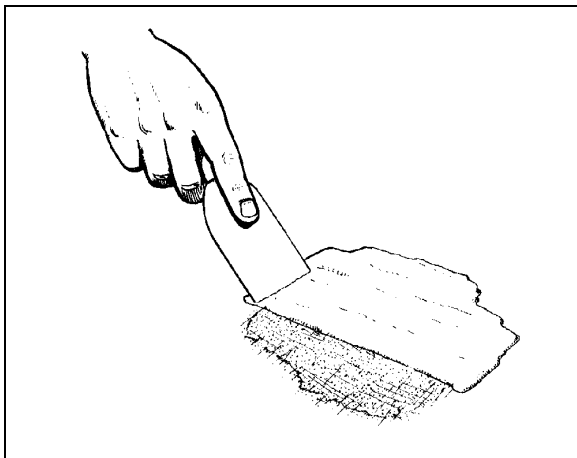


FIGURE 8: FIBERGLASS REPAIR 18093

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.

Prevost 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)".

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

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CAUTION

Be sure to heed all paint manufacturer's recommendations, especially concerning paint dilution and application.

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

	Aluminum and / or Stainless Steel	Fiberglass	Comments
Surface Preparation	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.
Cleaning	STANDOX silicone remover ST-16203		
Priming	STANDOX Reactive Etch Primer ST-13908 * Wait 30 minutes then apply STANDOX HS primer ST-15161	STANDOX Non-Stop Füllprimer ST-11000 (68-2973)	Refer to product Technical Data sheet for proper mixing
Basecoat	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
Clearcoat	Axalta Imron Clear 8430 S Allow 16 hours for drying		Refer to product Technical Data sheet for proper mixing

NOTE

Product listing above is based on factory applied products. Local VOC (Volatile Organic Compound) regulations may vary, consult your paint supplier and use a VOC compliant product that matches the factory recommendations if required to do so.

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.

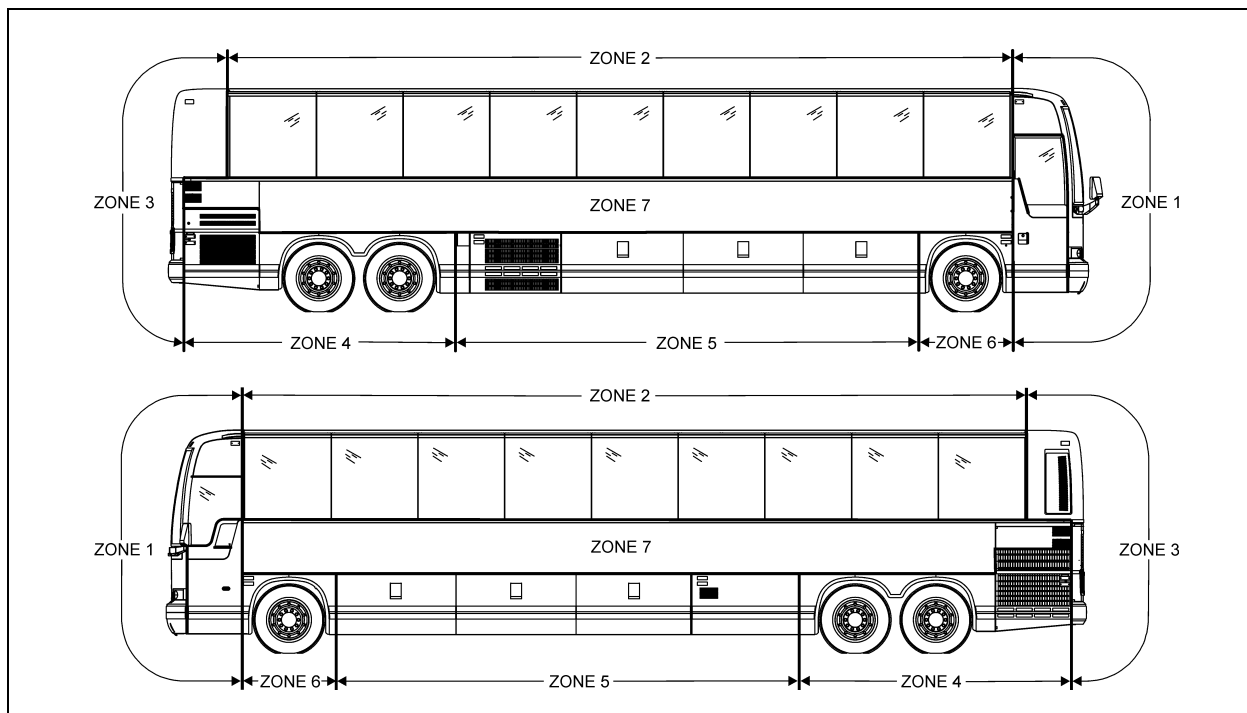


FIGURE 9: X3 COACHES ZONING

18623

6.1 ZONE 1

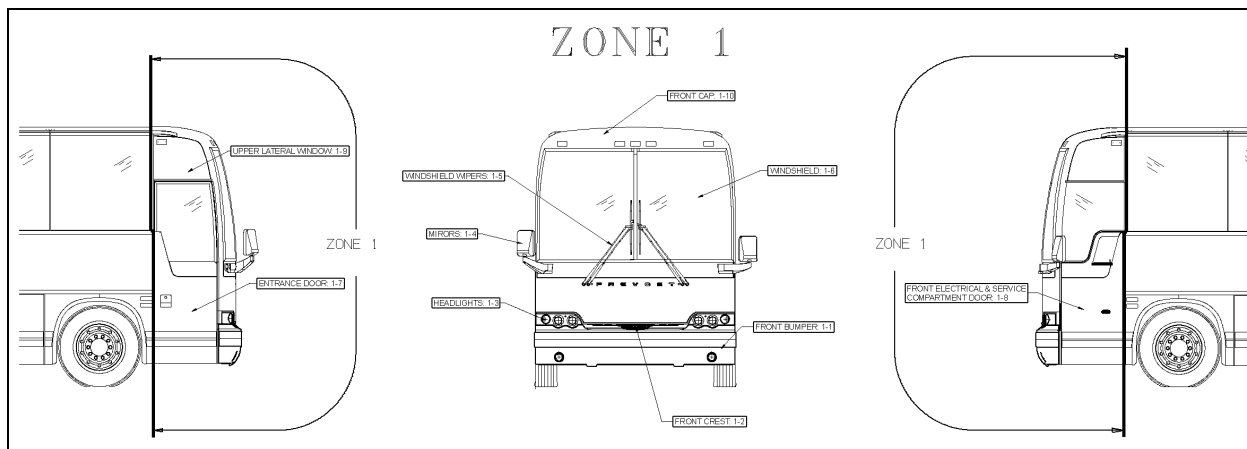


FIGURE 10: ZONE 1

18624

6.1.1 Front Bumper

The front bumper is hinged to give access to the spare wheel and tire compartment. Pull the handle located in the front service compartment to open the spare wheel and tire 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 remove the two bolts on each bumper side to separate the bumper from the spare wheel 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.

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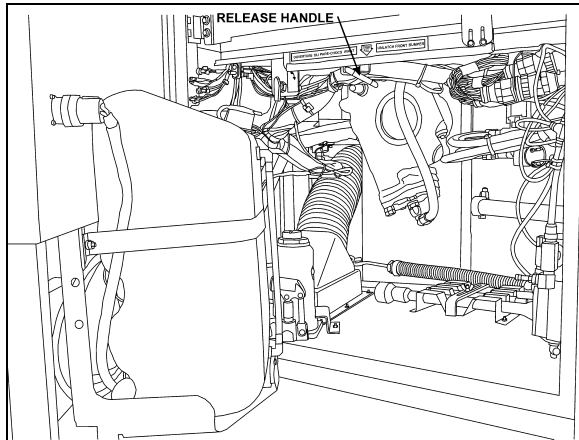


FIGURE 11: FRONT BUMPER RELEASE HANDLE 18613

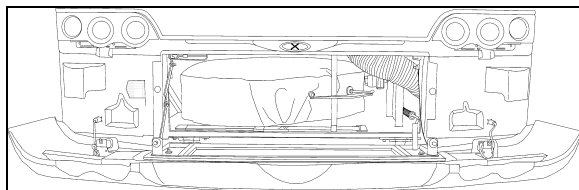


FIGURE 12: FRONT BUMPER 18614

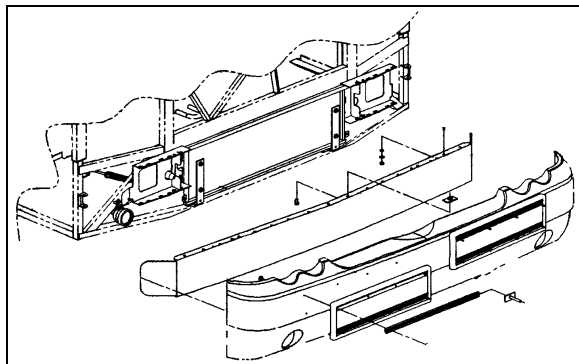


FIGURE 13: FRONT BUMPER REMOVAL 18665

6.1.2 Front Crest

- Use a Chix cloth and anti-silicone to clean the surface where the crest will be applied.

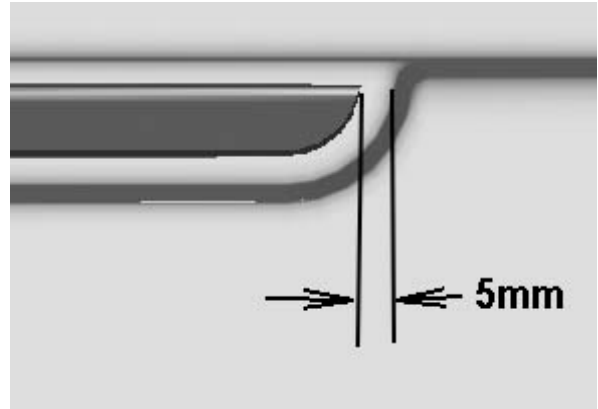


CAUTION

Do not exceed the crest dedicated surface.



- Peel the back from the self-adhesive crest side pieces.



- Peel the back from the self-adhesive crest center piece. Center crest and apply.
- Compress the crest three pieces using your hands.



6.1.3 Headlights

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

6.1.4 Rear View Mirrors (Ramco)

Your vehicle is equipped with two exterior mirrors.

The mirrors may be equipped with an optional electric heating system which serves to minimize ice and condensation on the mirror glass in extreme weather conditions. Integral thermostats are installed in both mirrors to avoid continuous heating. Use the appropriate switch on the dashboard to activate the defroster system on both mirrors simultaneously. 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.

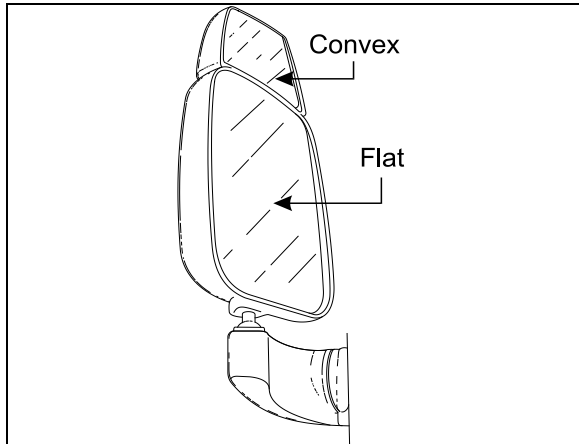


FIGURE 14: REAR VIEW MIRROR (RAMCO) 18398A

- **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.

- **Heated / Remote Controlled Rear View Mirrors**

Heated/remote controlled external rear view mirrors may be provided to prevent the mirrors from frosting up in cold weather.

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.

The mirror heat switch is located to the left of the driver on the dashboard. This switch must be activated before the mirror heating element will energize. Once energized, the mirror heating element is kept at a sustained temperature (between 60-80°F) by a thermostat. Refer to wiring diagram annexed in the technical publication box.



CAUTION

Do not attach stick-on type convex mirror accessories to the heated mirror glass. This could impede uniform heat distribution on the mirror surface which could break the mirror.

Mirror Control

The remote control pointer knob(s) for the mirror(s) 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.

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

Assembly

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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.

6.1.5 Windshield Wipers

Refer to Paragraph "Windshield Wipers and Washers", included in Section 23: Accessories of the Maintenance Manual for complete information on windshield wipers.

6.1.6 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 (Figure 15).
- 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.

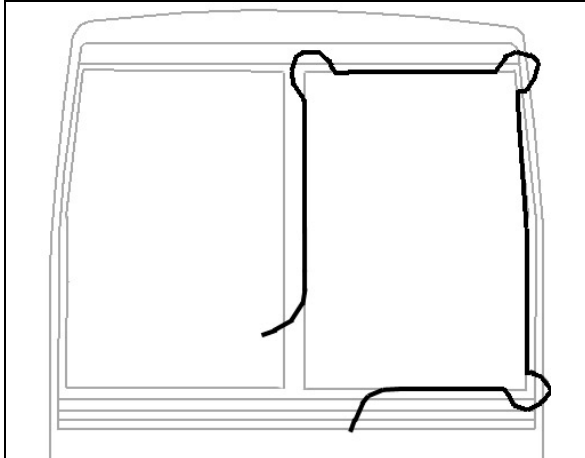


FIGURE 15: WINDSHIELD INSTALLATION USING ROPE

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.
- Apply Sika 221 black (Figure 16) 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.

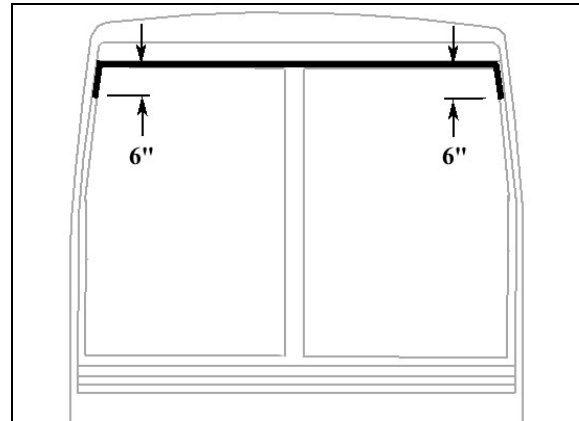


FIGURE 16: APPLICATION OF SIKA 221 BLACK

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

6.1.7 Entrance Door

An air operated "sedan type" entrance door, with an air door cylinder and damper assembly are installed under the right hand dash. The opening and closing door speed cycle is adjustable by a damper mounted in parallel with the door cylinder on the door hinge. Door activation is controlled by a panel (Figure 17), located near the defroster and wiper motors. The accessory air reservoir supplies air to this system.

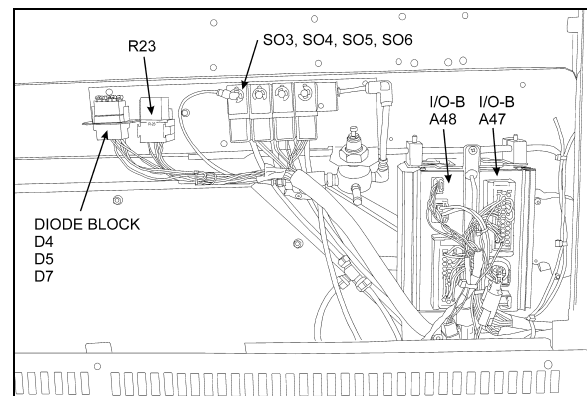


FIGURE 17: ENTRANCE DOOR & WIPER CONTROL PANEL

06619

The door is held in the closed position during coach operation by a two air cylinder locking mechanisms (Figure 19). Air cylinders with return spring in the cylinder body are used. Air cylinders are controlled by an electrically operated solenoid valve energized by a rocker switch located under the right hand dashboard.

To open the door, initial movement of the rocker switch energizes the air lock solenoid valve, venting the door locking cylinders. The return locking spring pulls the door lock away from the

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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 cylinder, “the air cylinder close solenoid valve” exhausts air from the rod side of the cylinder.

To close the door, initial movement of the switch energizes the “air cylinder close solenoid valve” and air flows to the cylinder by its rod side port. The “air cylinder open solenoid valve” exhausts air from cylinder. When the reed switch signals the door as closed, 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 22 of the wiring diagram.

• Operation

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

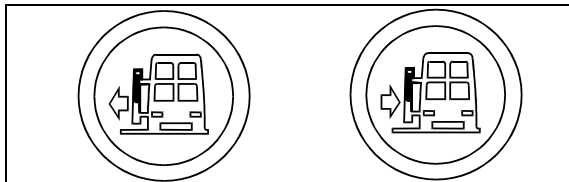


FIGURE 18: ENTRANCE DOOR OPERATING BUTTONS
06464

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 (Figure 20).

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.

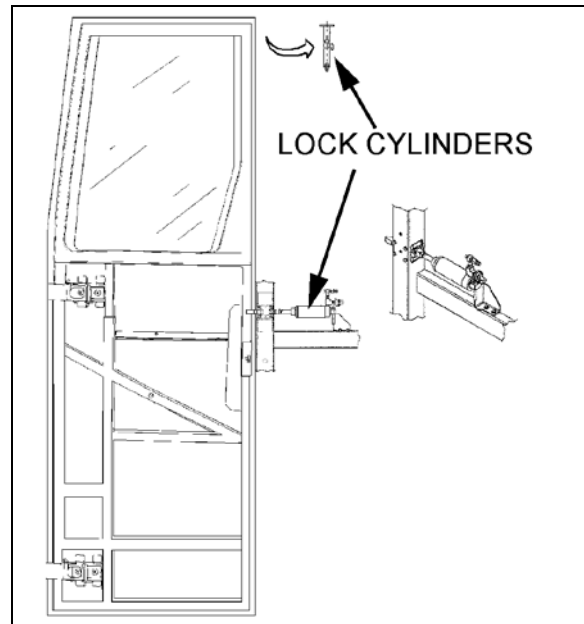


FIGURE 19: COACH ENTRANCE DOOR

18642

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. The door can be stopped in any position by releasing the switch. The door is not locked in position when not fully opened or closed.

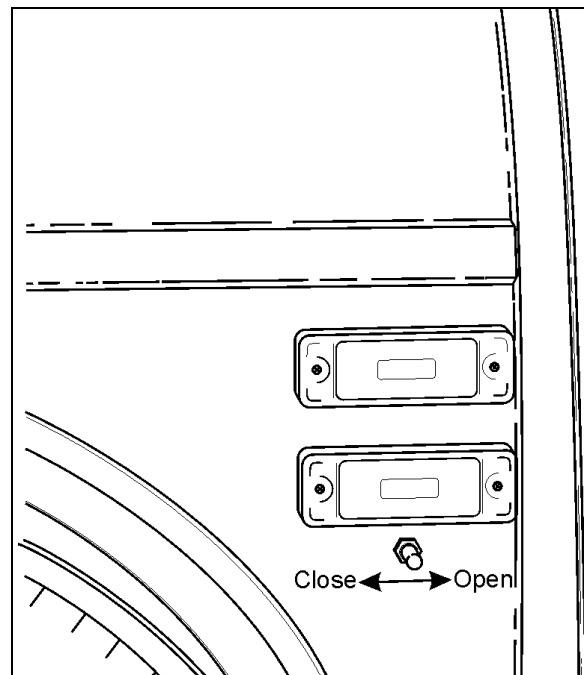


FIGURE 20: ENTRANCE DOOR CONTROL SWITCH

18599

If the door has been locked with the key, a lever on the door can be moved to unlock.

- **Emergency Exit Valves**

From inside the vehicle, an emergency exit valve located near the door on the dash panel, releases the pressure from the lock cylinder. From the exterior, an emergency exit valve located in the front service compartment, also releases the air from the lock cylinder.

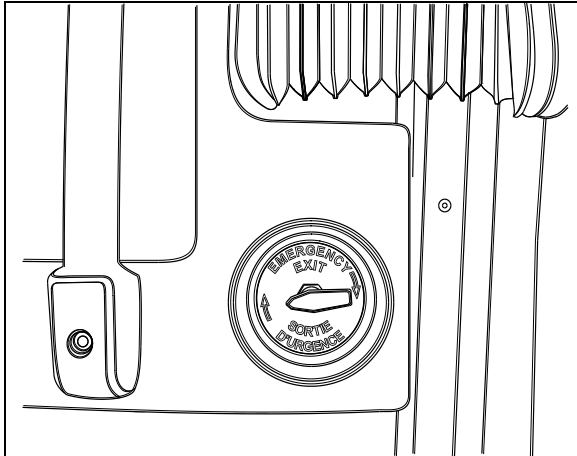


FIGURE 21: INTERIOR UNLATCH AIR VALVE 18330

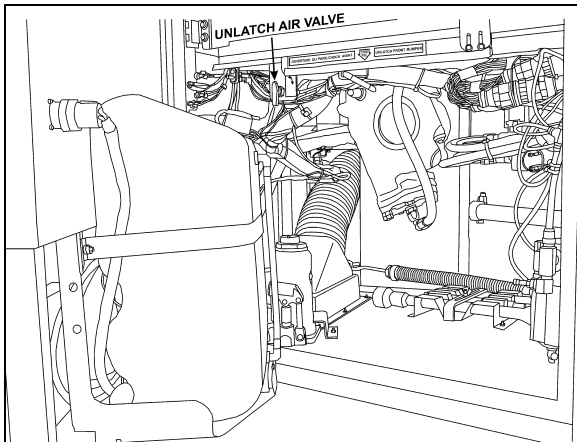


FIGURE 22: EXTERIOR UNLATCHES AIR VALVE 12209

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 two panels located next to the door hinge, as well as the door's upper hinge control.



CAUTION

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

To adjust opening and closing cycle speed on damper (Figure 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 (Figure 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.

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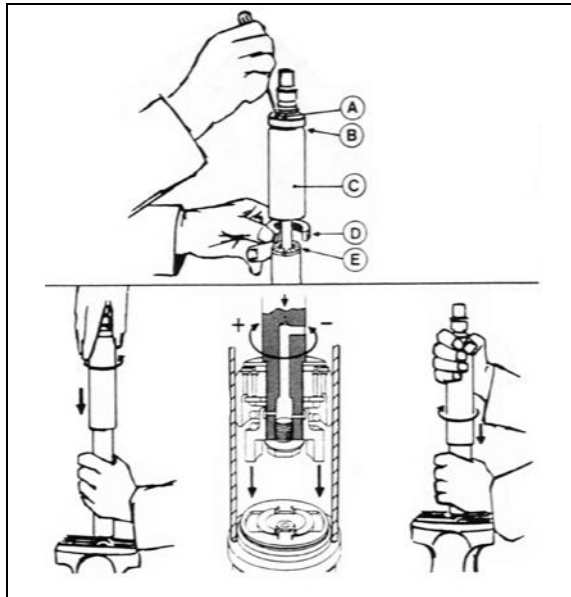


FIGURE 23: DAMPER

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 (Figure 23).

- Reinstall panels and entrance door hinge cover.

• Horizontal And Vertical Adjustment

Before attempting to correct any 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:

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

NOTE

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

- Remove the Allen button head screw and the washer retaining the rod end with bearing to the upper hinge. See figure 24.
- Support the door with a wooden block and a hydraulic jack.

- 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.

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

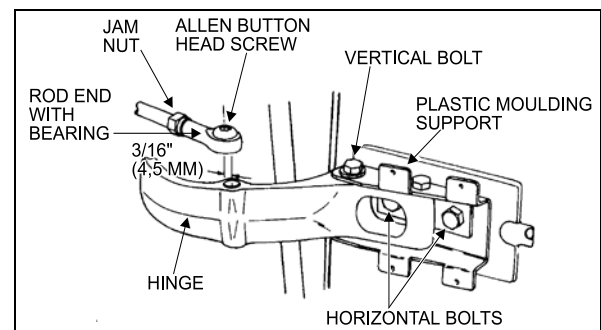


FIGURE 24: UPPER DOOR HINGE

18058

Seal Compression Adjustment

- Turn the emergency exit valve to the "UNLOCK" position and close the door.
- 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 25).

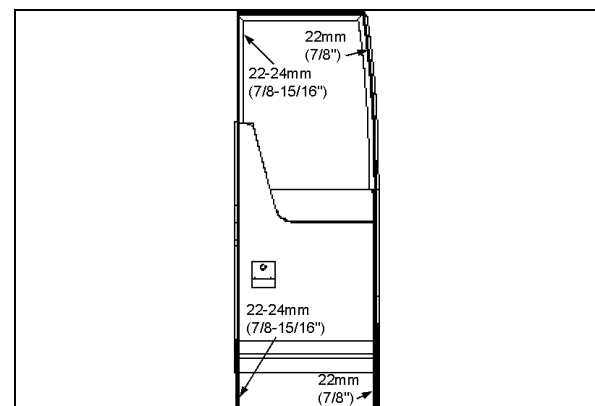


FIGURE 25: SEAL COMPRESSION ADJUSTMENT

18632

NOTE

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

3. 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 or anti-silicone.



WARNING

Wear rubber gloves and do not smoke when cleaning.

5. Peel off 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 conical roller on top of the new seal all around 3 times.

• Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
DOOR WILL NOT OPEN FROM EXTERIOR SWITCH.	Manual door locks engaged.	Release manual door locks.
	Upper and lower solenoid locks do not disengage.	Check voltage at solenoid locks when door is open. If the voltage is 24 volts then replace solenoid #641217. Else, check circuit power.
	Relay module do not receive current.	Reset breaker "ON" or check batteries power supply.
	Opening solenoid door does not receive current.	Check voltage at opening solenoid door. If the voltage is 24 volts then replace it. Else replace control relay.
	Switch malfunction.	Replace switch.
DOOR WILL NOT CLOSE FROM EXTERIOR SWITCH.	Switch malfunction.	Replace switch.
	Solenoid failure.	Check voltage at solenoid. If the voltage is 24 volts then replace solenoid. Else replace control relay.
DOOR WILL NOT OPEN FROM INTERIOR SWITCH.	Manual door locks engaged.	Release manual door locks (open position) from vehicle exterior.
	Upper and lower solenoid locks do not disengage.	Check voltage at solenoid locks when door is open. If the voltage is 24 volts then replace solenoid #641217. Else, check circuit power and replace control relay.
	Module relay does not receive electric current.	Reset breaker "ON" or check batteries power supply.
	Door opening solenoid does not receive current.	Check voltage at door opening solenoid. If the voltage is 24 volts then replace it. Else replace control relay.
	Switch malfunction.	Replace switch.
DOOR WILL NOT CLOSE FROM INTERIOR SWITCH.	Upper lock stays engaged	Lubricate upper lock assembly. Check wear and replace parts if necessary.
	Switch malfunction.	Replace switch.
DOOR WILL NOT CLOSE FROM INTERIOR SWITCH.	Switch malfunction.	Replace switch.
	Door closing solenoid does not receive electric current.	Check voltage at door closing solenoid. If the voltage is 24 volts then replace it. Else replace control relay.

Section 18: BODY

SYMPTOM	PROBABLE CAUSE	REMEDY
DOOR WILL NOT OPEN AFTER DRAINING AIR FROM SYSTEM BY EMERGENCY VALVE(S).	Manual door locks engaged.	Release manual door locks (open position) from vehicle exterior.
	Damper cylinder blocks the door.	Adjust or replace damper cylinder.
	The upper lock blocks the door.	Adjust upper lock. Lubricate upper latch bolt. Adjust upper latch height.
DOOR LOCKS STAY ENGAGED WHEN DOOR IS OPEN.	Power supply is cut at solenoid.	Place switch in open position.
	Lock solenoid does not disengage.	Check voltage at solenoid lock when door is OPEN. If the voltage is 24 volts then replace solenoid #641217. Else, check circuit power and replace control relay.
DOOR LOCKS DO NOT LOCK WHEN DOOR IS CLOSED.	Emergency valve is open.	Close emergency valve.
	Lock solenoid stays electrified.	Check latch bolt ground on door frame. If needed clean locks for better contact. Check ground circuit.
	Lock solenoid works in reverse.	Reverse air hoses at solenoid locks.
	Relay does not function.	Replace relay.

• Lubrication

Part	Lubricant	Frequency
<ul style="list-style-type: none"> ▪ Latches ▪ Upper door catch ▪ Door cylinder rod end with bearing grease fitting 	<i>Low temperature grease</i>	Every six months
<ul style="list-style-type: none"> ▪ Door locking mechanism 	<i>White grease</i>	Every six months
<ul style="list-style-type: none"> ▪ Key hole ▪ Damper pins ▪ Hinges 	<i>Low viscosity oil</i>	Every six months

• Entrance Door Body Panel and Window

Window

For the removal of entrance door window, you will need:

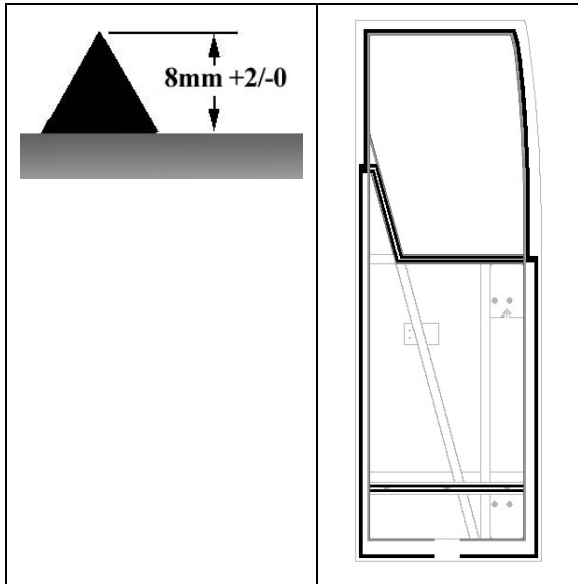
Pneumatic hammer tool (Zip Gun);
Razor sharp window scraper;
"Olfa" knife;
Face shield.

- Open entrance door.
- Mark the position of the entrance door window for future reference.
- Remove interior finishing panel.
- From inside of vehicle, cut Sika bead around window perimeter using a "Zip gun" while another person hold the window from the outside.

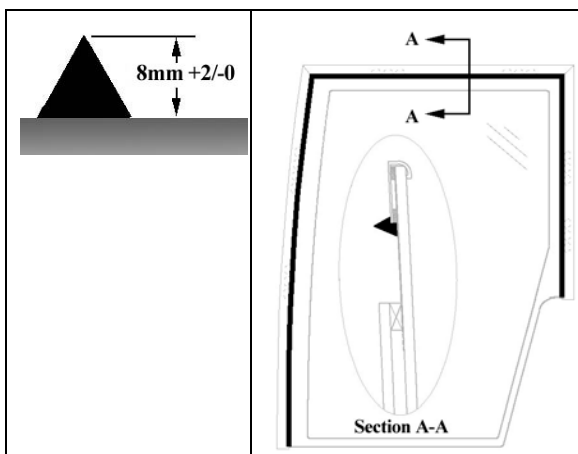
NOTE

Wear ear plugs during this operation.

- Then, move outside of vehicle and cut Sika bead to free window while somebody else hold the window from the inside.
- Carefully remove window from frame, ask for help if needed.
- Using a razor sharp window scraper, remove Sika bead and double-face self-adhesive tape residue from window frame.
- Clean window using window cleaner.
- Apply Sika Aktivator around window perimeter.
- Clean door frame using anti-silicone.
- Using a scratch pad "Scotch Brite", scratch the perimeter of the window frame where the adhesive will be applied.
- Clean door frame again using anti-silicone.
- Apply some Sika 206 G+P onto door frame.
- Apply Sika 255 onto door frame structure.



- Apply Sika 255 at junction of frame and window.



- Install and center window onto door frame. Using your hands, compress window.
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Apply masking tape before applying Sika glue to protect paint and adjacent surfaces during surface treatment

Body Panel

For the removal of entrance door body panel, you will need:

Pneumatic hammer tool (Zip Gun);
Razor sharp window scraper;

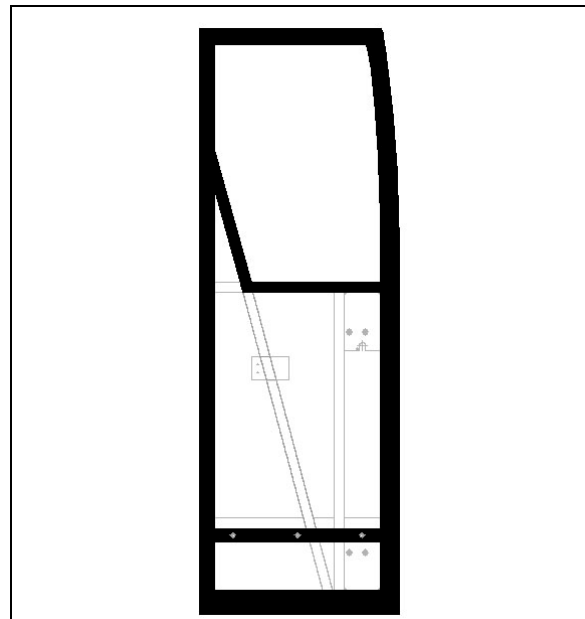
- Open entrance door.

- Remove interior finishing panels to access rub rail fixing bolts, then remove rub rail.
- Remove door lock and interior lighting.
- Using the “**Zip Gun**”, cut Sika bead located ¼ inch (7-8 mm) from each body panel edge.

NOTE

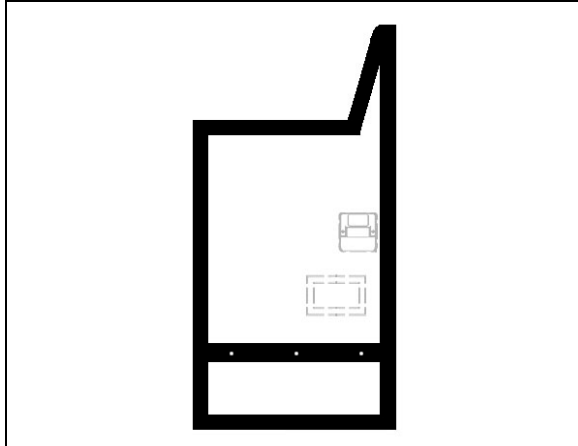
Wear ear plugs during this operation.

- Separate body panel from door.
- Using a razor sharp window scraper, remove from door frame Sika bead and double-face self adhesive tape residue.
- 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.



- Using a scratch pad “Scotch Brite”, scratch the perimeter of the body panel where the adhesive will be applied.
- Clean body panel using anti-silicone.
- Apply some Sika 206 G+P onto body panel.

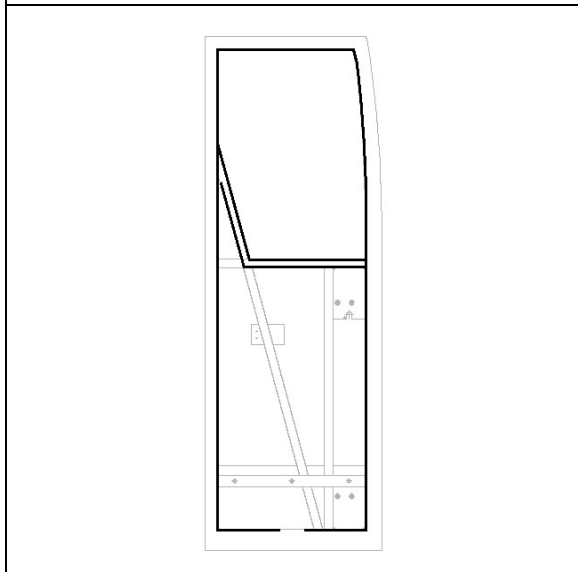
Section 18: BODY



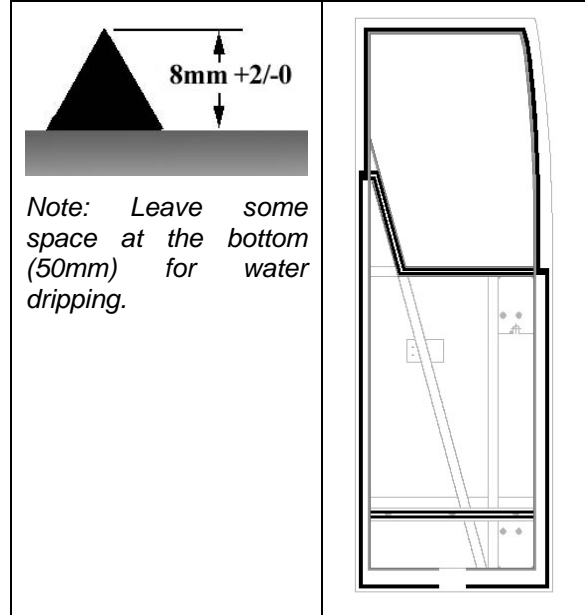
- Apply 1/8 x1/4 double face self-adhesive tape onto door frame.

NOTE

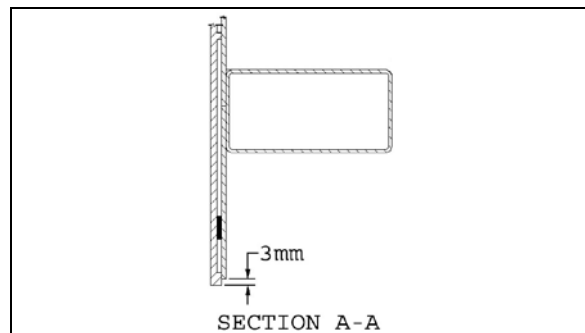
Leave some space at the bottom (50mm) for water dripping



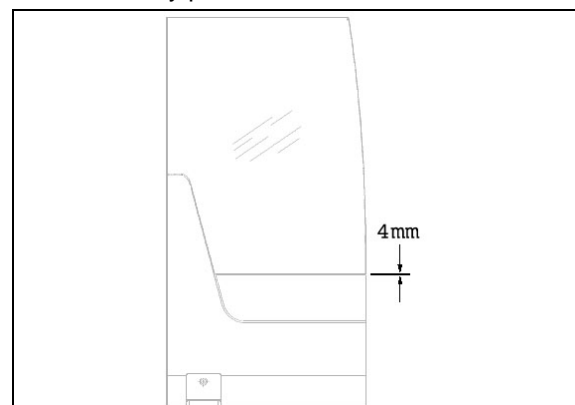
- Apply Sika 255 onto door frame structure.



- Install and center fiber glass body panel onto door frame leaving an excess of 3mm all around the frame.

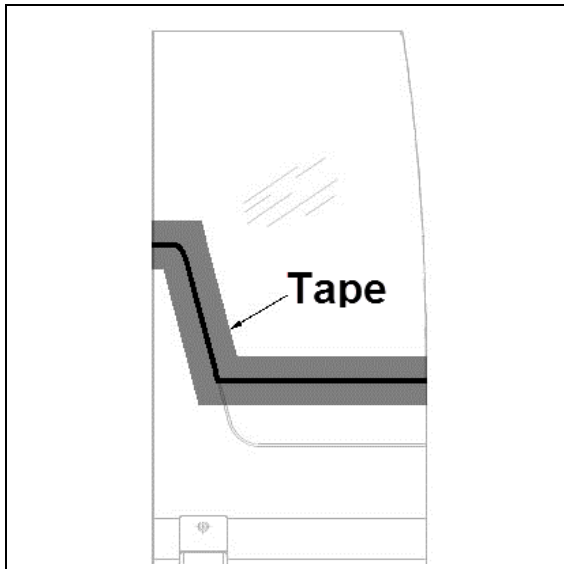


- Line-up body panel with window. There must be a gap of 4±2mm between window and body panel.



- Apply some masking tape 1mm from window edge and body panel.

- Fill the gap between window and body panel with Sika 255.
- Smooth down the joint with a plastic scraper then remove masking tape.
- Wet Sika joint using water to accelerate the curing process and put the finishing touch with your finger.



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

6.1.8 Front Electrical & Service Compartment Door Body Panel and Window

Door Body Panel

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

Pneumatic hammer tool (Zip Gun);

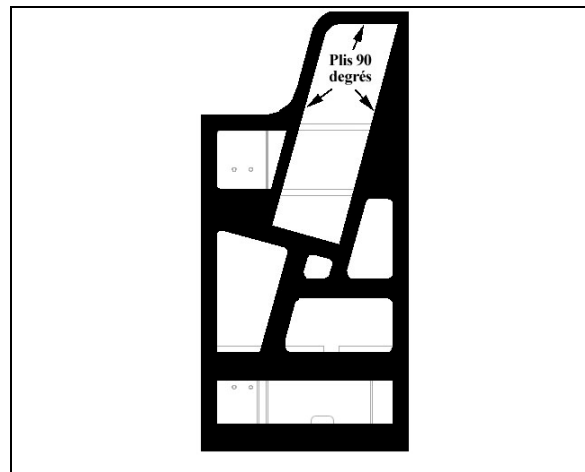
Razor sharp window scraper;

- 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.

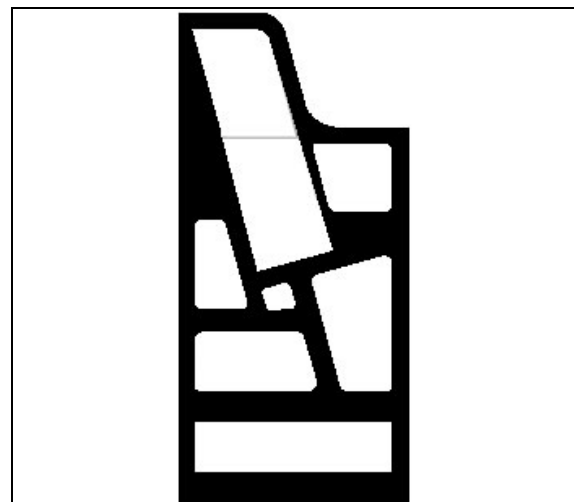
NOTE

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.

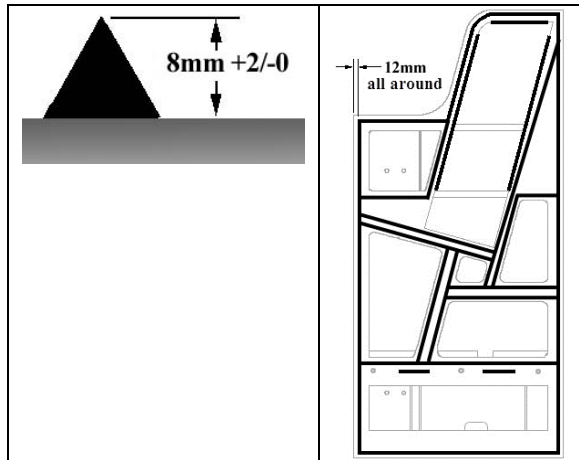


- Prepare new body panel using a scratch pad “Scotch Brite”.
- Use a tack cloth to remove any dust or residue from the body panel surface.
- Clean body panel using anti-silicone.
- Apply some Sika 206 G+P onto body panel.

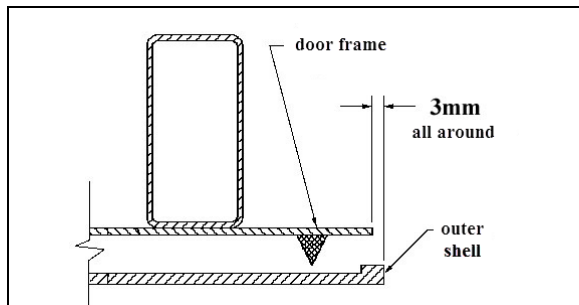


Section 18: BODY

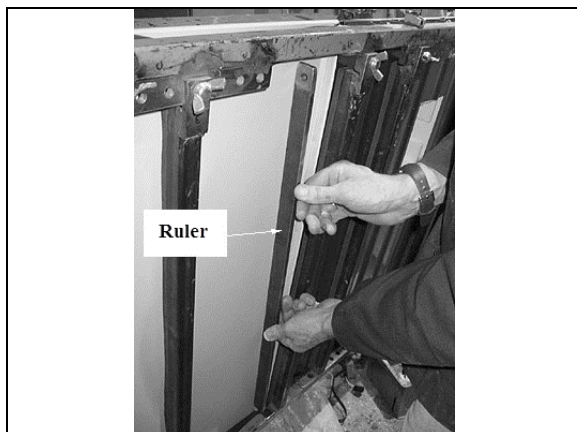
- Apply an even coat of Sika 255 onto the door frame.



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

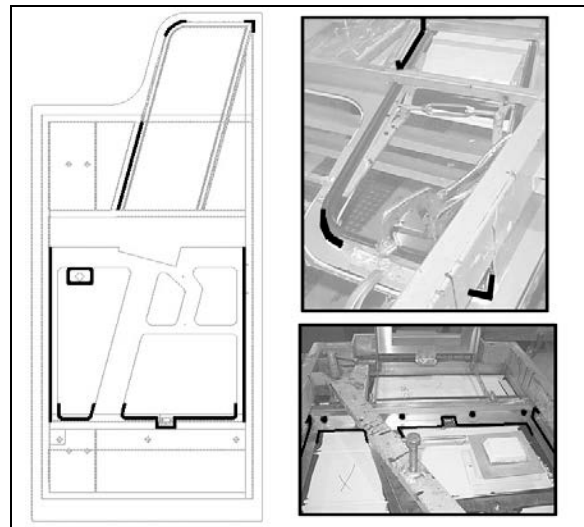


- Check body panel flatness using a 2-foot ruler (must be within 2mm).



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

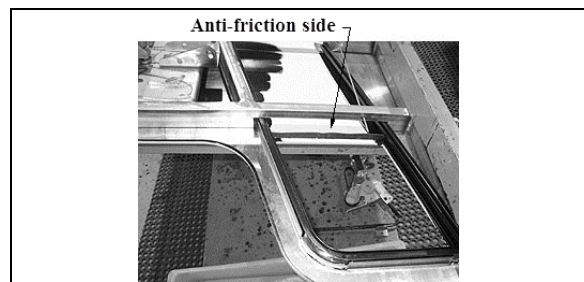
- From the inside of the door, apply some Sika 221 between door body panel and frame and on welding spots as per figure.



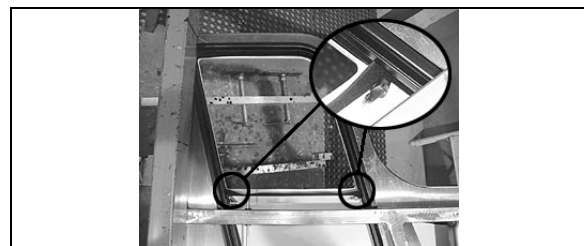
- Apply some #680066 glue inside fiber glass groove and fix power window wiper.

NOTE

Anti-friction side must be on glass side.



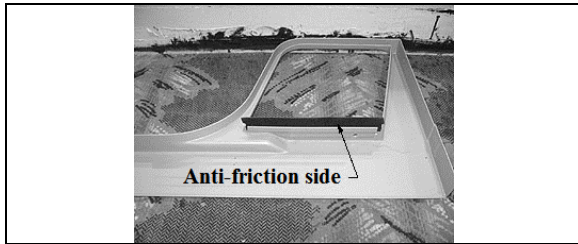
- From inside the door, apply some Sika 252 at the corners of window wiper.



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

NOTE

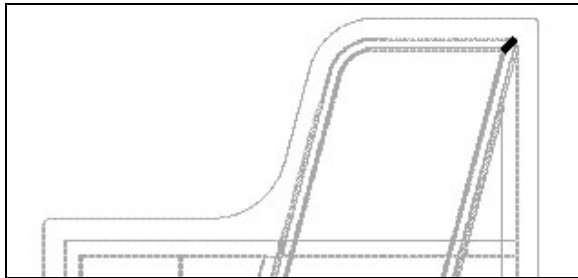
Anti-friction side must be on glass side.



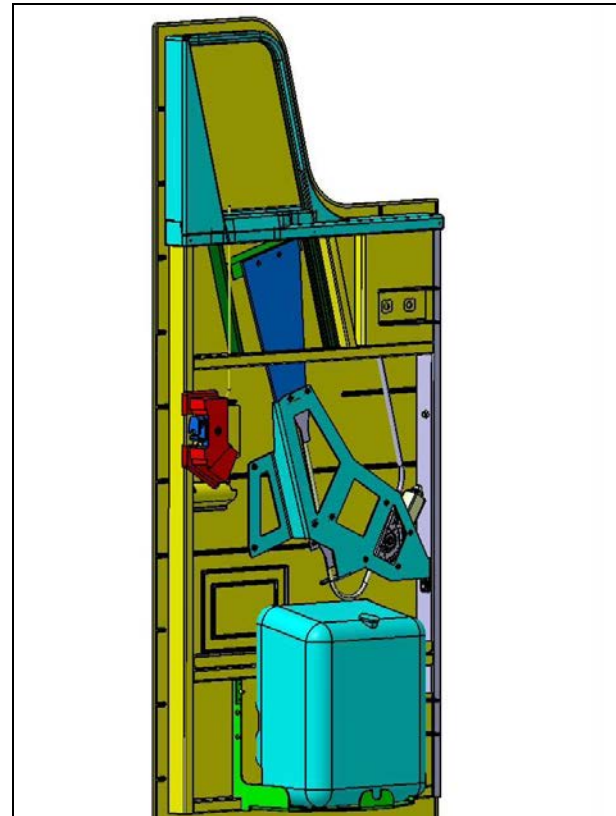
- Discard waste according to applicable environmental regulations, use dangerous waste containers.

Electrical Power Window

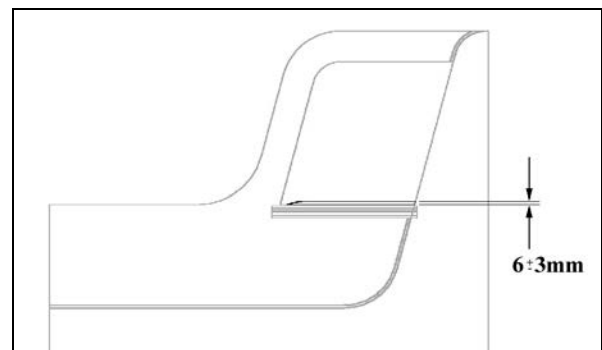
- Insert 2 seals in the window frame.
- Apply some #680066 glue at the intersection of the 2 seals and also sparingly in order to fix the seal to the window frame.



- Clean window using window cleaner.
- Insert window into frame.
- Secure window pane to raising mechanism.



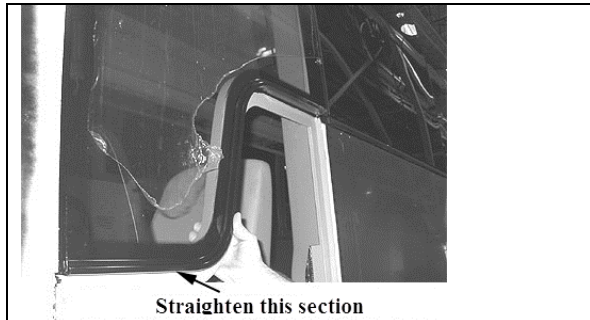
- Adjust window travel ($6\pm 3\text{mm}$ above window wiper).



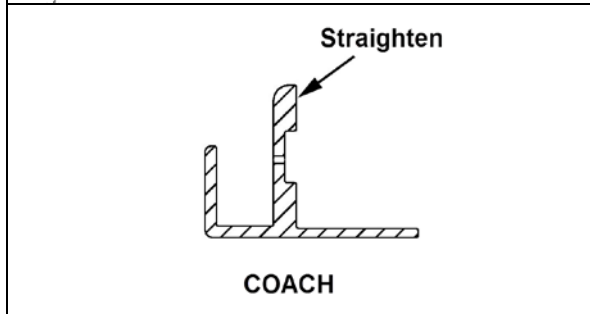
Driver's Window Gutter

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

Section 18: BODY

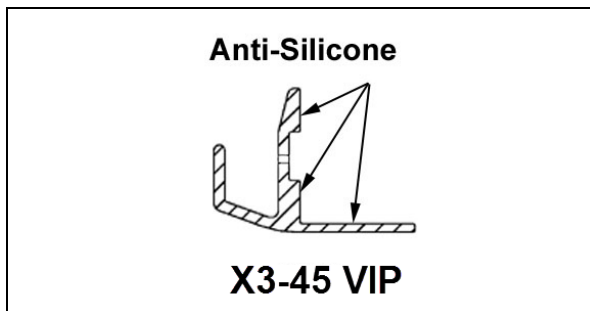


Straighten this section



COACH

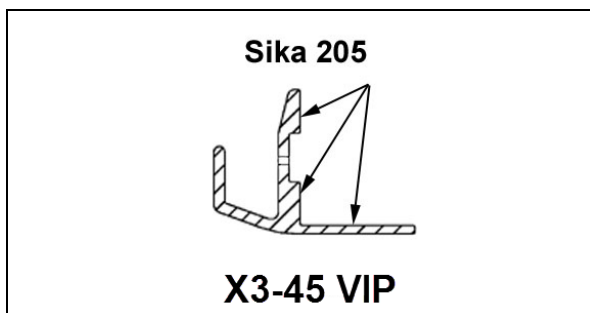
- Apply anti-silicone inside right angle.



Anti-Silicone

X3-45 VIP

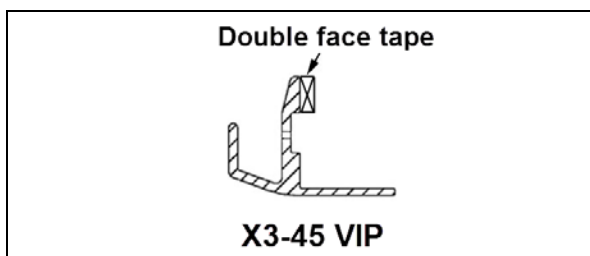
- Apply Sika 205 inside right angle.



Sika 205

X3-45 VIP

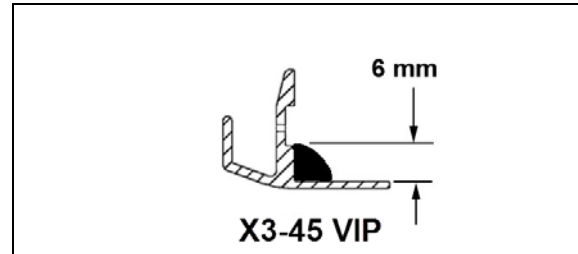
- Apply 1/16 x 1/4 double face self-adhesive tape onto gutter.



Double face tape

X3-45 VIP

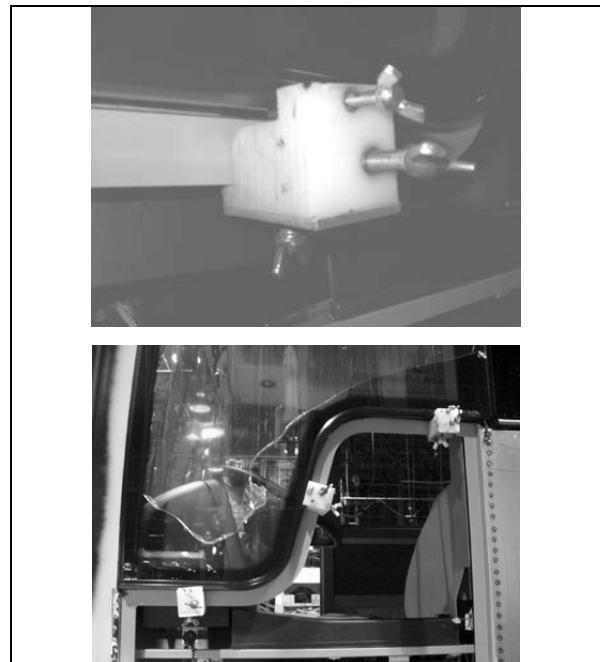
- Peel the back from double face self-adhesive tape.
- Apply Sika 252 inside right angle.



6 mm

X3-45 VIP

- 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.



• Upper Lateral Window

For the removal of driver's window or upper lateral window, you will need:

Pneumatic hammer tool (Zip Gun);
Razor sharp window scraper;
“Olfa” knife;
Face shield.

- In the case of driver’s window only, open front service compartment door.
- Mark the position of the driver’s window for future reference.
- From inside of vehicle, cut Sika bead around window perimeter using a “Zip gun” while another person hold the window from the outside.

NOTE

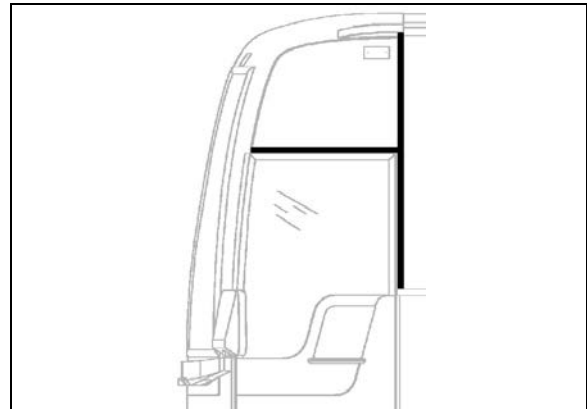
Wear ear plugs during this operation.

- Then, move outside of vehicle and cut Sika bead to free window while somebody else hold the window from the inside.
- Carefully remove window from frame, ask for help if needed.
- Using a razor sharp window scraper, remove from window frame Sika bead and double-face self adhesive tape residue.
- First of all, check Sika 205 cleaner expiration date.
- Before applying Sika cleaner, fold “Chix” cloth twice for proper width.
- Apply an even coat onto the inside of window frame and allow drying for 2 minutes (maximum 2 hours).
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Apply masking tape before applying Sika glue to protect paint and adjacent window during surface treatment.

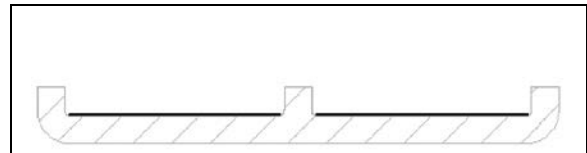
For gluing of upper lateral window, refer to procedure **SAV00632**.

• **Glued Molding Installation**

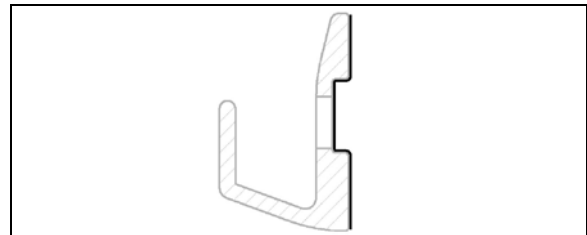
- Clean window gluing area using window cleaner.
- Apply Sika Aktivator onto gluing area making sure to avoid Sika adhesive if it is not cured yet.



- Apply anti-silicone onto molding.
- Apply Sika 205.



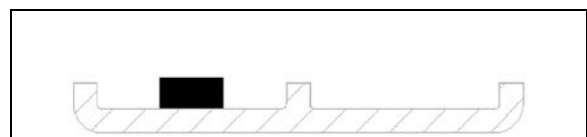
- Clean gutter using anti-silicone.



- To seal screw holes, remove screw, apply Sika 205 inside the hole then apply Sika 252.

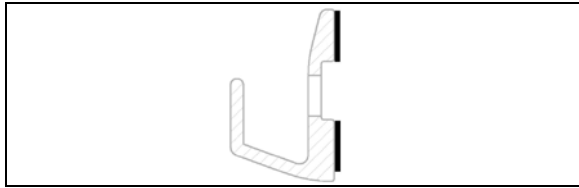


- Apply a double-face self adhesive tape 1/8 by 1/4 inch inside the molding onto the whole length.

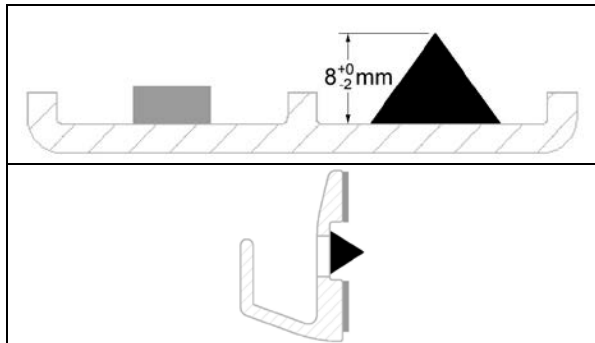


Section 18: BODY

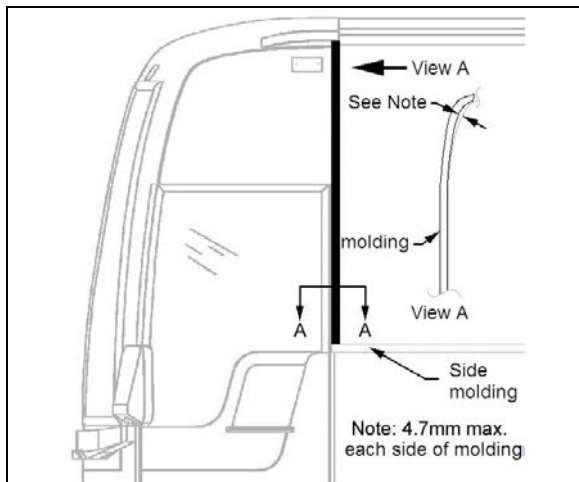
- Apply a double-face self adhesive tape 1/32 by 1/4 inch onto the whole length of the gutter.



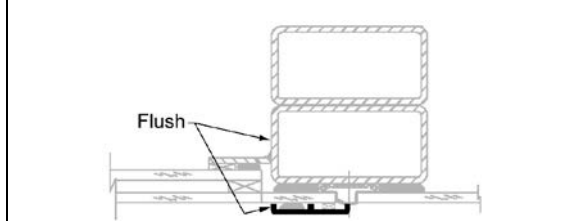
- Apply Sika 252 inside the moldings onto the whole length.



- Position and fix vertical molding. Lean vertical molding against lateral molding. Make sure vertical molding lines up with structural tubing.

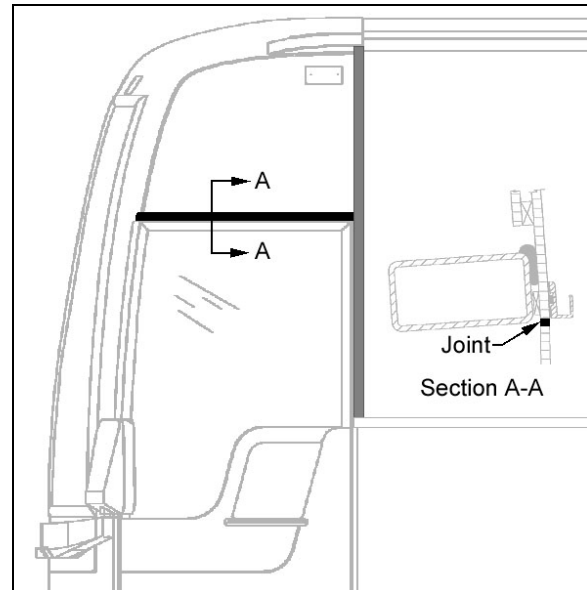


SECTION VIEW A-A

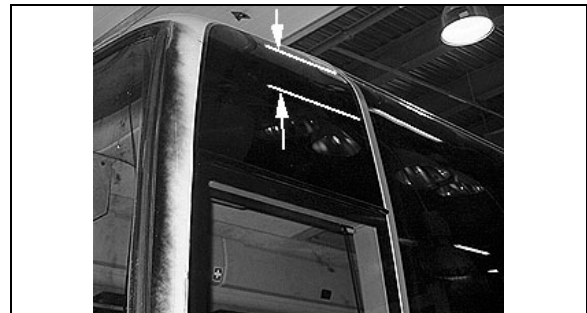


- Position and fix horizontal molding (gutter). Lean gutter against vertical molding.

Position gutter just above Sika finishing joint.



- Apply masking tape on each side of vertical molding. Apply Sika 252 to fill the gap between molding and windows.
- Smooth down the joint with finger.
- If required, clean surfaces using Sika 208.



6.1.9 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 Prevost service center near you. For minor damages, refer to section 4 "Fiberglass Repair" and section 5 "Painting".

6.2 ZONE 2

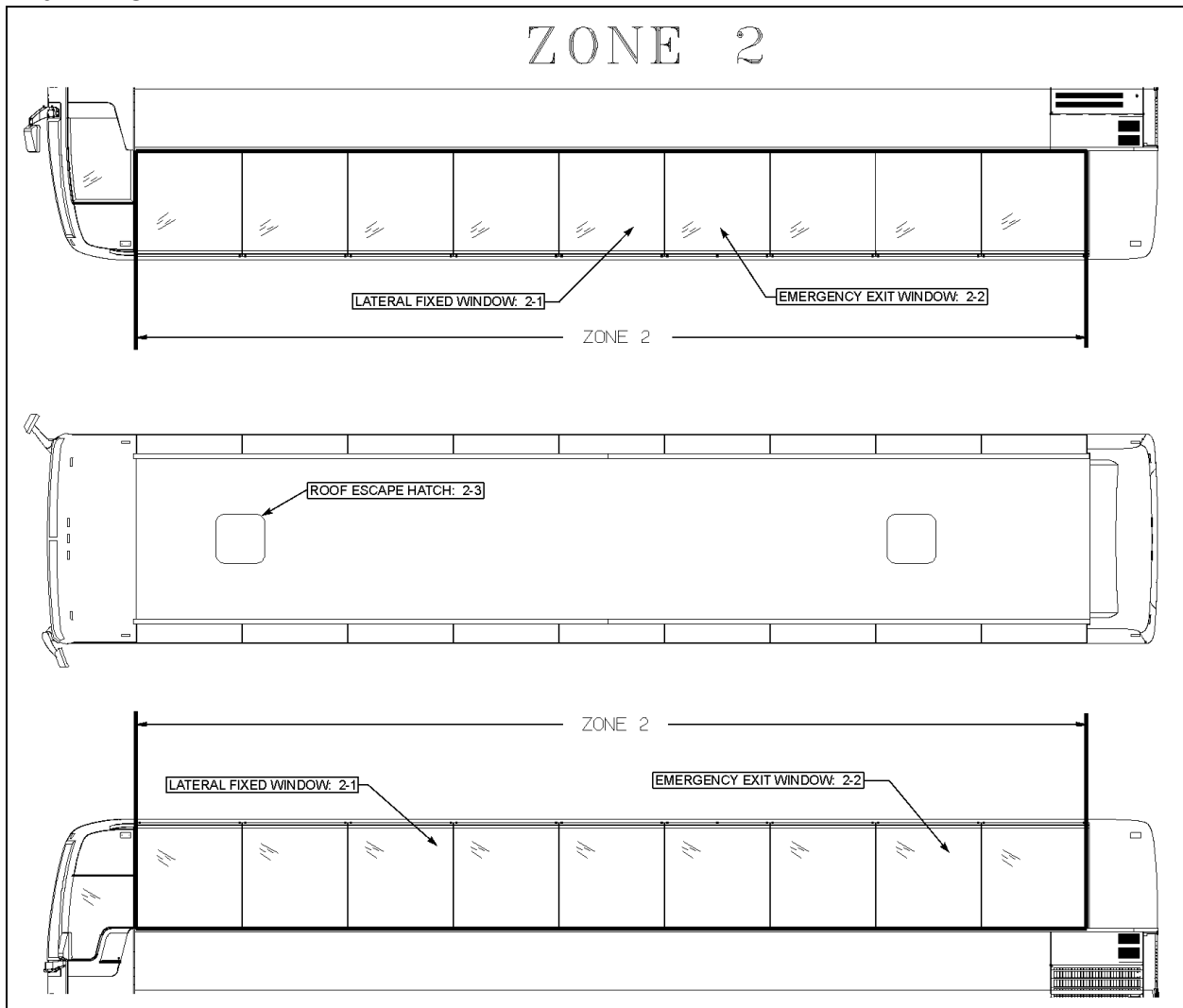


FIGURE 26: ZONE 2

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 the removal or installation of a fixed side window, 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

Section 18: BODY

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.

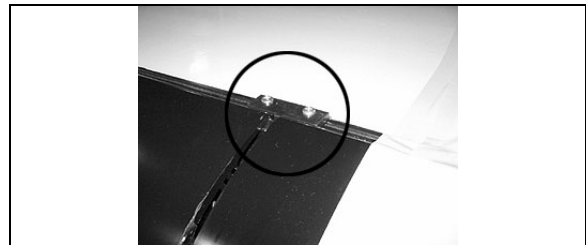
- Install window.



CAUTION

To prevent damaging the Sika joint, do not raise the window once it has 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 a temperature above 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 27. 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 as support. It is recommended to use a wooden support, or even better, a padded surface.

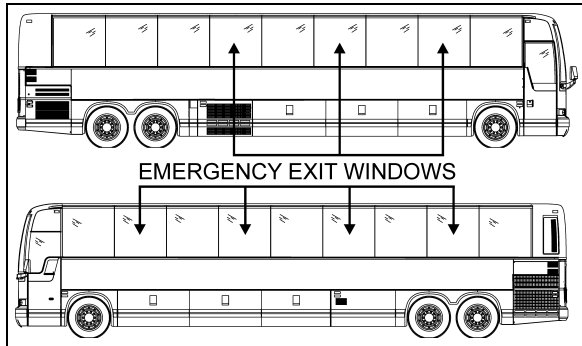


FIGURE 27: X3-45 COACH

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 (Figure 28).

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 requirement of twenty pound maximum resistance to be sure to comply with FMVSS No 217.

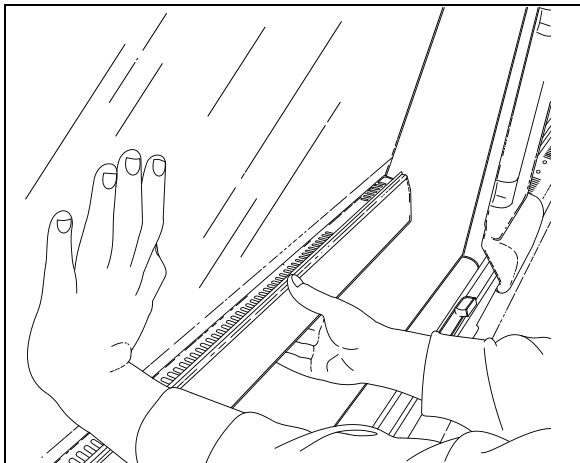


FIGURE 28: EMERGENCY EXIT WINDOW

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 can be equipped with one or two escape hatches. The escape hatch is 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.

Section 18: BODY



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 29.



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 (Prevost # 681285) in the gap between the seal ends.
4. Apply Sikaflex 221 sealant (Prevost # 680532) along the outline of the escape hatch on the roof of vehicle.

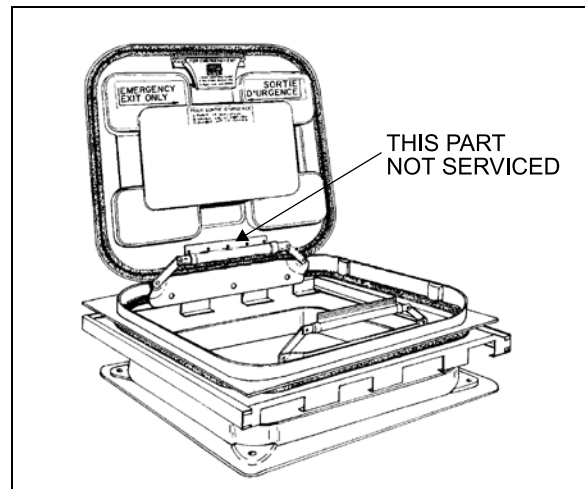


FIGURE 29: ESCAPE HATCH

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.

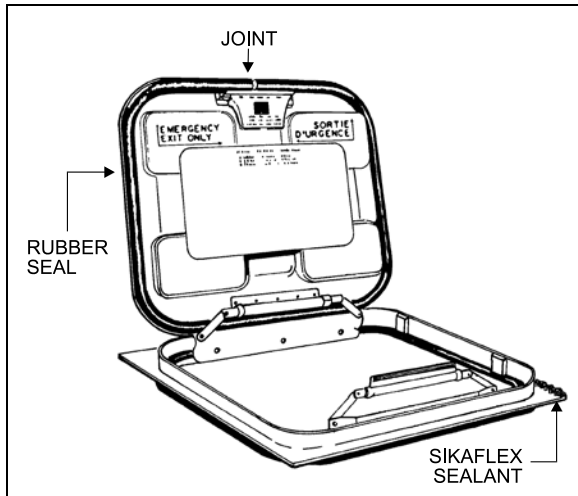


FIGURE 30: ESCAPE HATCH

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.

Section 18: BODY

6.3 ZONE 3

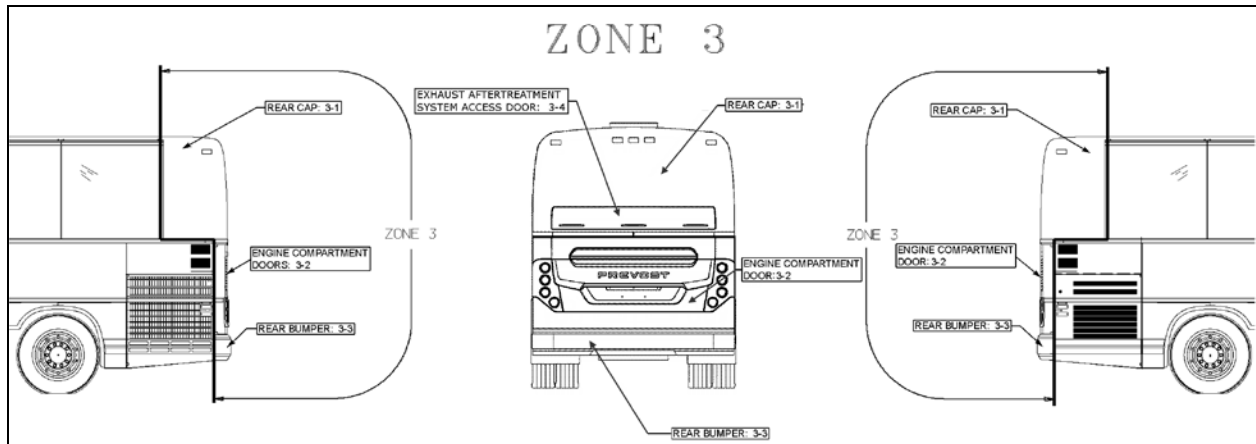


FIGURE 31: ZONE 3

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 Prevost 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 Door

The engine compartment door may be adjusted for proper fit by untightening support bolts:

NOTE

Consult the "BODY PANEL AND WINDOW SPACING DIAGRAM" for proper door gaps adjustment. (Figure 46 Page 65 of this section)

1. To adjust the door VERTICAL position, loosen the bolts (4 on each side) holding the door supporting arm and gas springs bracket to the vehicle structure (Figure 32).
2. To adjust the door LATERAL position, loosen the bolts (3 on each side) holding the door supporting arm and gas springs bracket to the door (Figure 32).
3. Adjust the door FORE & AFT position by screwing/unscrewing the rubber door stops on each side of the door opening (Figure 32).

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

To adjust the latch mechanism 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.

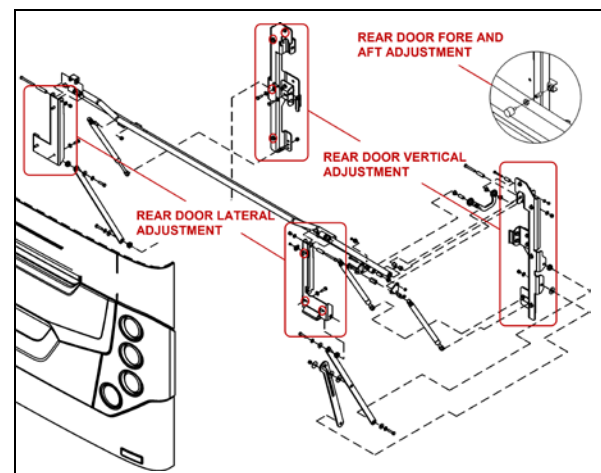


FIGURE 32: ENGINE COMPARTMENT DOOR

18633_1

6.3.3 Rear Bumper

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

To install bumper, reverse the procedure.

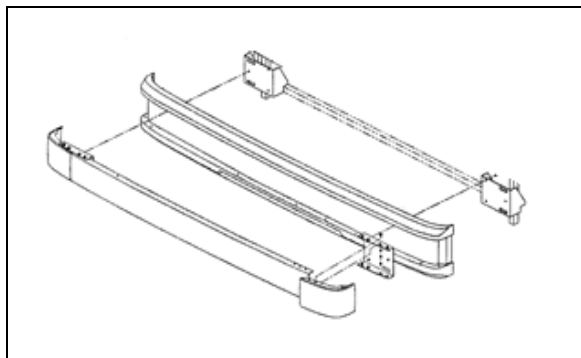


FIGURE 33: REAR BUMPER

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

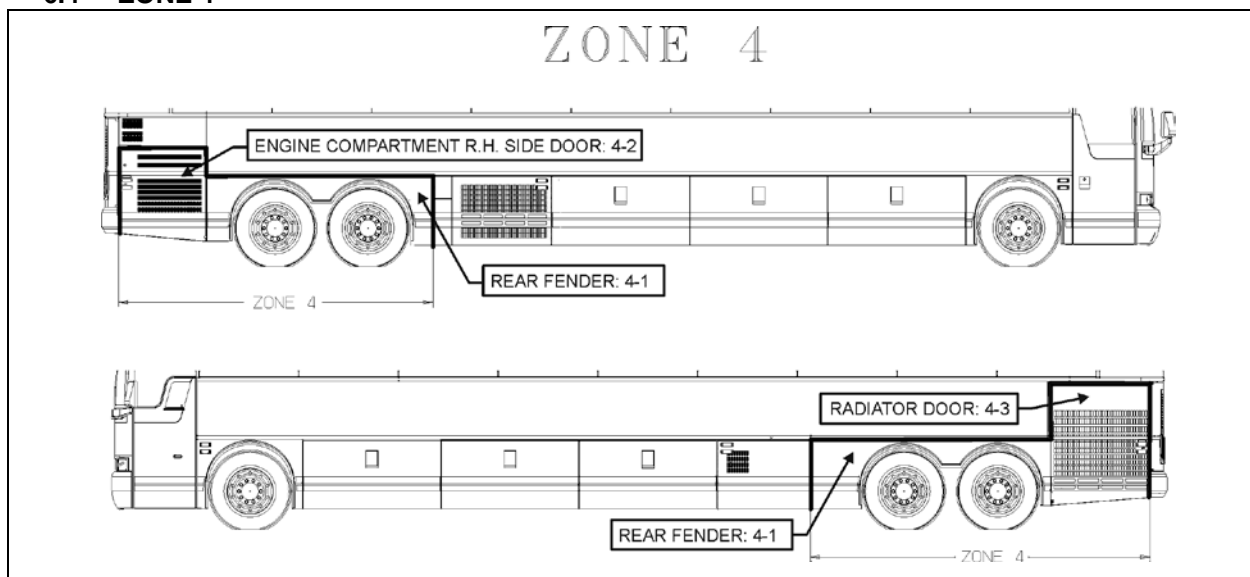


FIGURE 34: ZONE 4

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, Figure 35) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".
2. Loosening the bolts (2, Figure 35) allows the door to be shifted "LEFT or RIGHT" and "UP or DOWN".

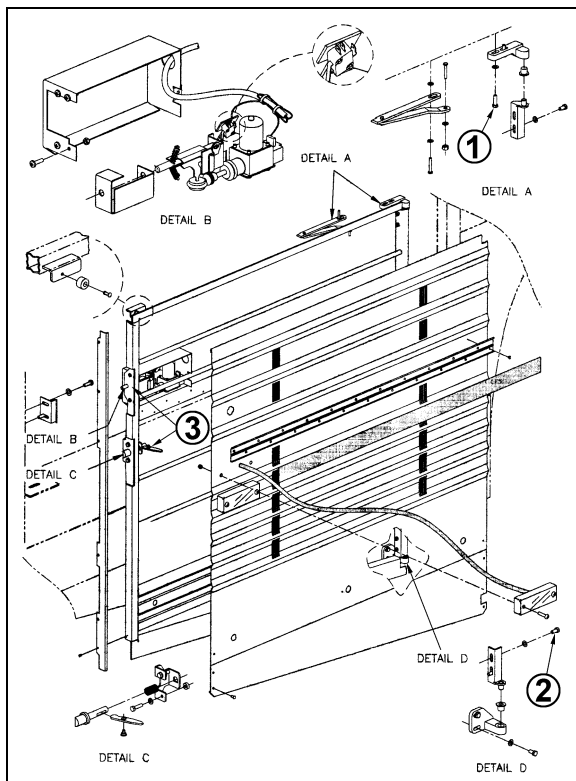


FIGURE 35: ENGINE COMPARTMENT R.H. SIDE DOOR 18635

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

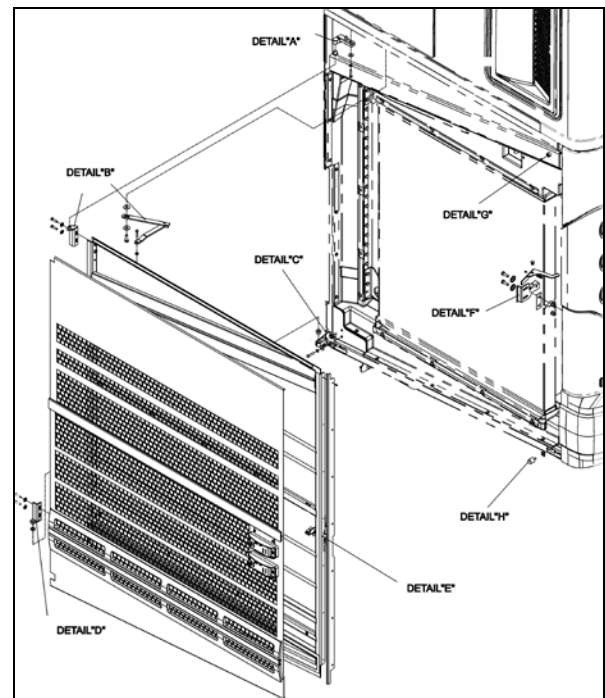


FIGURE 36: RADIATOR DOOR

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, Figure 37) and the striker pin: open the door to access the striker pin.

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

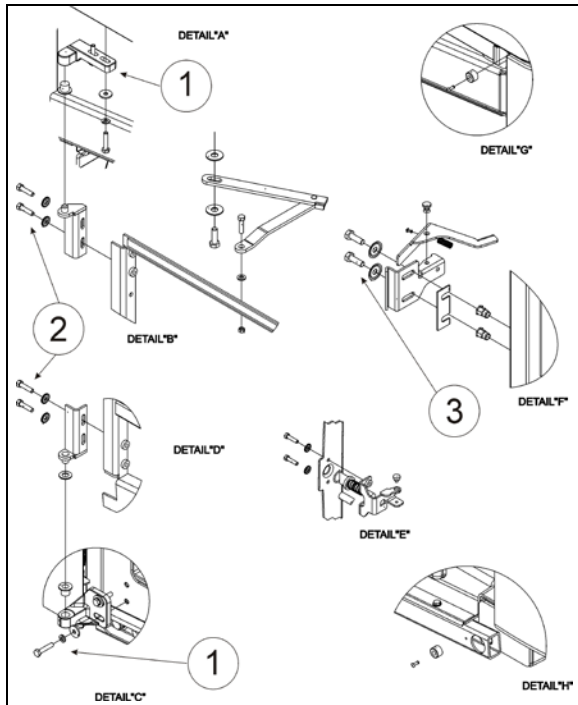


FIGURE 37: RADIATOR DOOR DETAILS 18636_2

NOTE

The striker pin must engage at least 13/32" (10mm). Add spacers between the latch and the vehicle body to adjust the engagement.

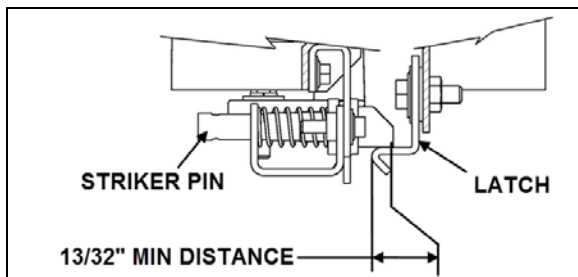
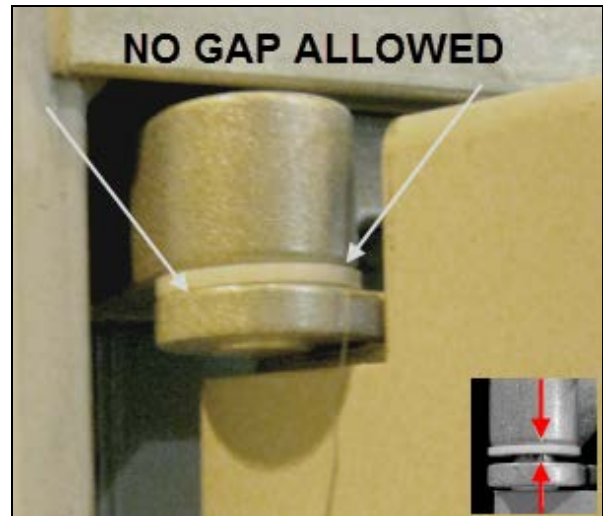


FIGURE 38: STRIKER PIN ENGAGEMENT 18695

NOTE

There should be no gap between the washer and the hinge upper and lower halves.



6.5 ZONE 5

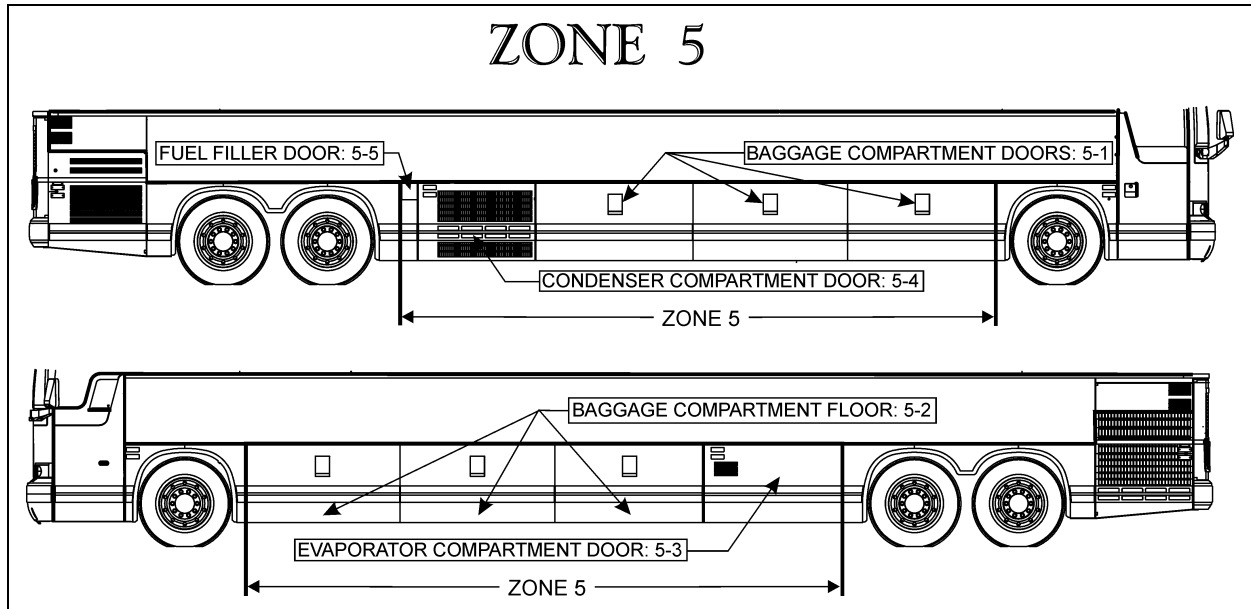
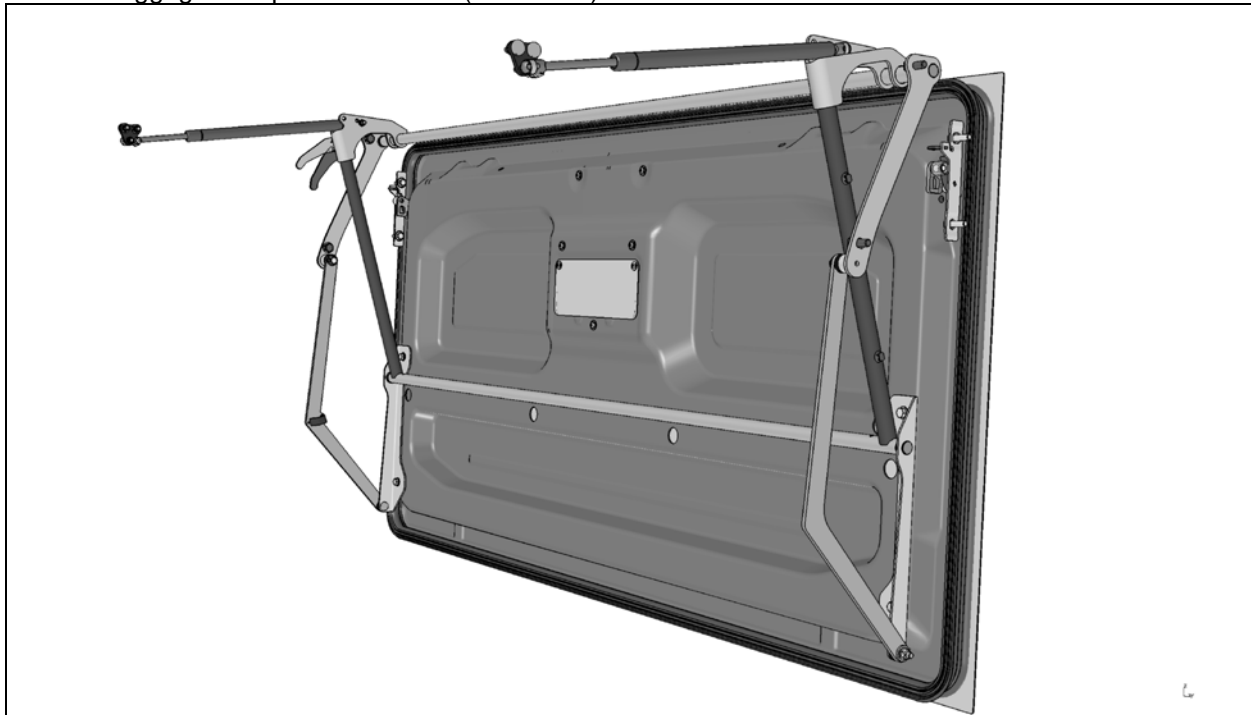


FIGURE 39: ZONE 5

18628

6.5.1 Baggage Compartment Doors (Aluminum)



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

A drill with drill bits;

Pneumatic hammer tool (Zip Gun);

Razor sharp window scraper or putty knife;

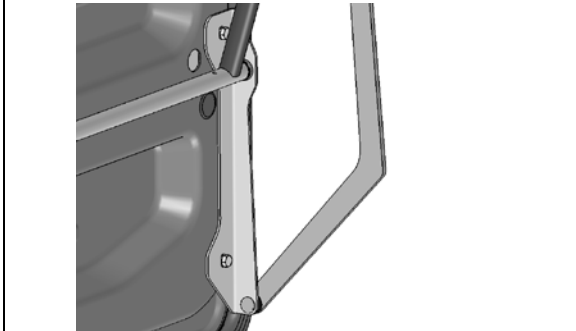
➤ Open damaged compartment door and unfasten rub rail fixing bolts. Remove rub rail.

➤ 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 Panel replacement**
 - Refer to SAV10054-67.
- **Baggage Compartment Door Adjustment**
 1. Adjust door to get a 6mm gap at the top.
 2. All adjustments are to be made with door closed, unless specified.

NOTE

Vertical adjustment is achieved by moving the door along the mounting plate slots.

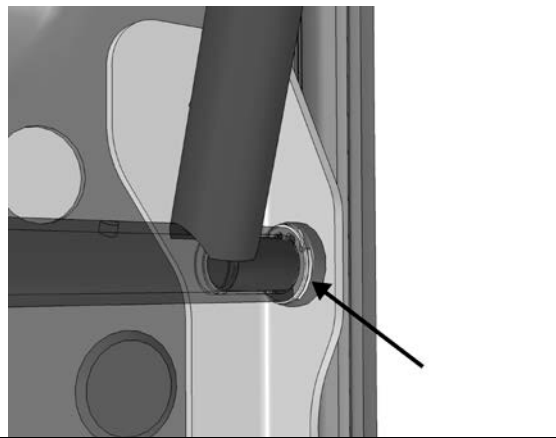
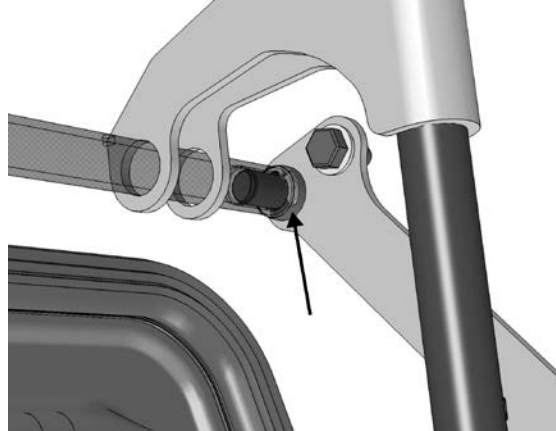


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- Center door in the opening using the retaining rings.

NOTE

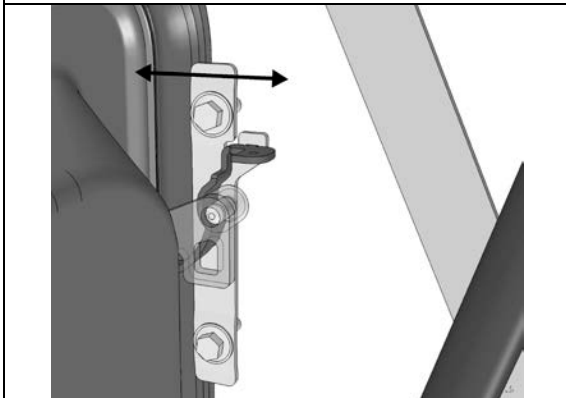
Lateral adjustment is made by adding/removing retaining rings in these locations.



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

NOTE

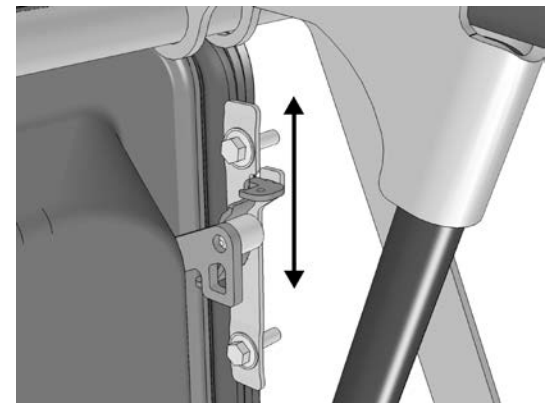
Adjustment is made by moving IN or OUT the lock plates. Adjust one corner at a time.



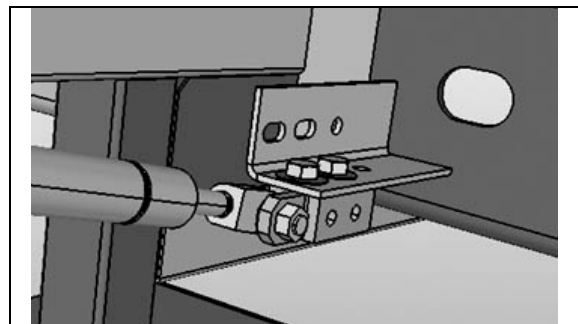
- Check handle adjustment. Handle must remain tight against its plastic housing.

NOTE

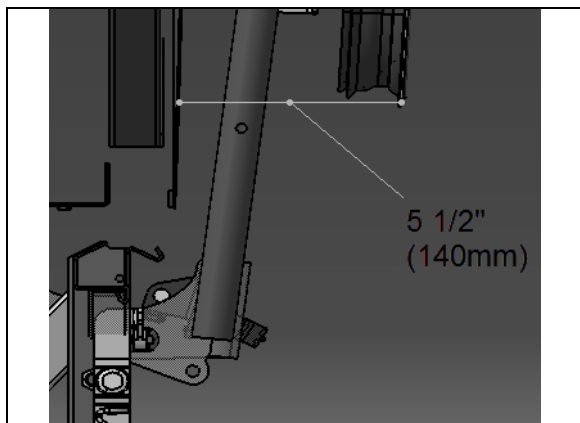
Adjustment is made by moving UP or DOWN the lock plates.



- Open baggage compartment door and adjust using the cylinder mounting block.

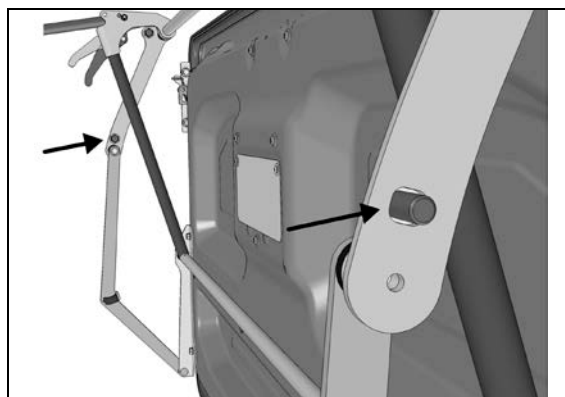


- Door should be adjusted in reference to neighboring doors.
- Target is to have 5 1/2" (140mm) from bus body panel to door panel and +/- 2mm vertically between doors.

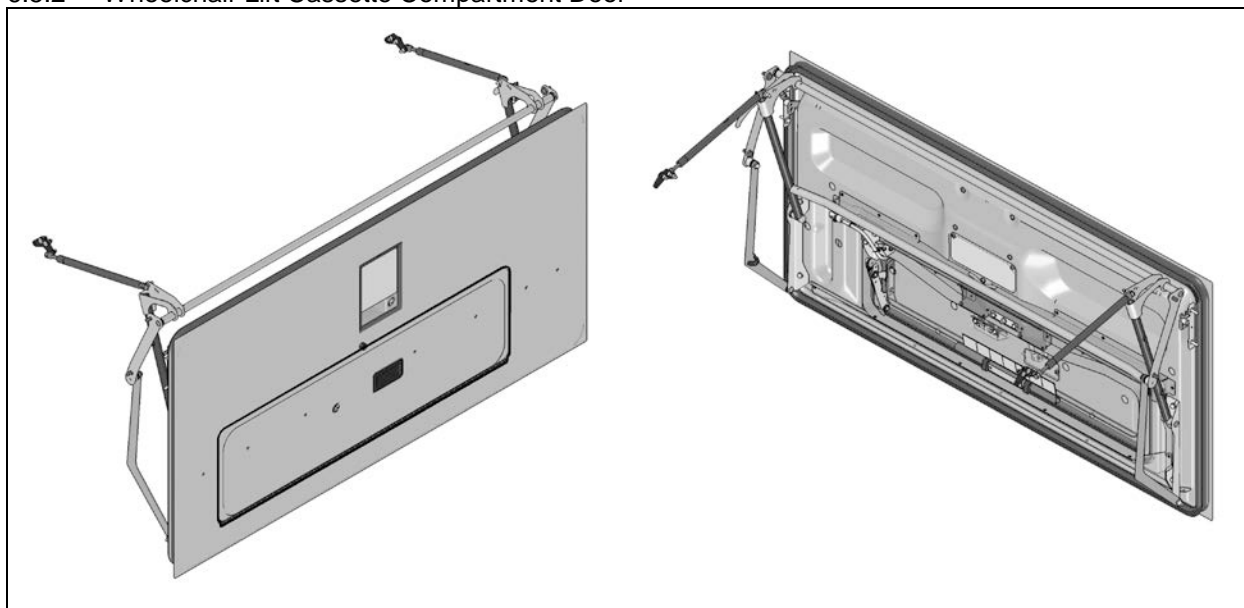


9. Tighten cylinder block fixing screws.

10. Door bottom edge compression can be adjusted by moving in or out the pantograph arms at this location.



6.5.2 Wheelchair Lift Cassette Compartment Door



For the removal and installation of a wheelchair lift (WCL) cassette compartment door body panel, you will need:

A drill with drill bits;

Pneumatic hammer tool (Zip Gun);

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 Panel replacement**

- Refer to SAV10054-67.

- **Compartment Door Adjustment**

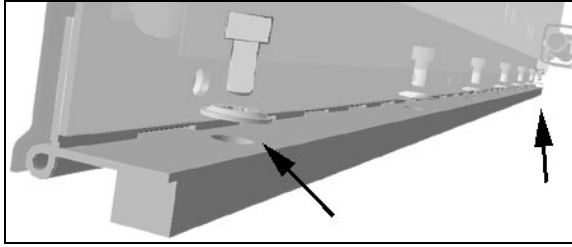
- Refer to baggage compartment door procedure.

- **WCL Cassette Door Adjustment**

The small door has a piano hinge on its lower edge.

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1. Install only two of the mounting screws, at each end to adjust the door.

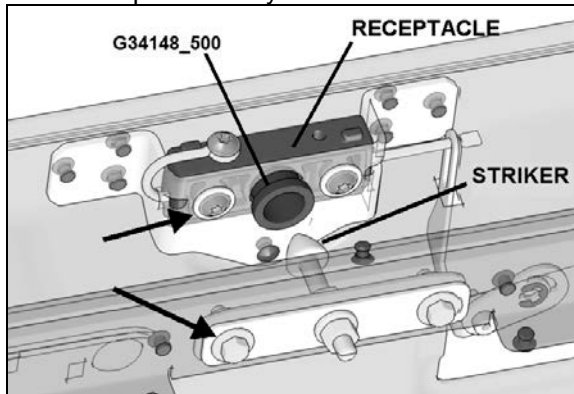


2. Close door and adjust in opening. A 1mm maximum difference between left and right measured gap is accepted.
3. Door should close flush with the larger door panel. Maximum flatness deviation within 1mm.
4. Install the remaining screws and seal with liquid Teflon #680098.

- **WCL Cassette Door latch adjustment**

To allow adjustment of the latch mechanism, lightly tighten the retaining hardware on receptacle and striker support (arrows).

1. Place centering tool G34148_500 in the receptacle cavity.



2. Close the door to center the latch mechanism.
3. Tighten screws
4. Check that the door swings freely and closes properly without interference or excessive force

6.5.3 Baggage Compartment Floor

- **Repair of Mantex Urethane Covering**

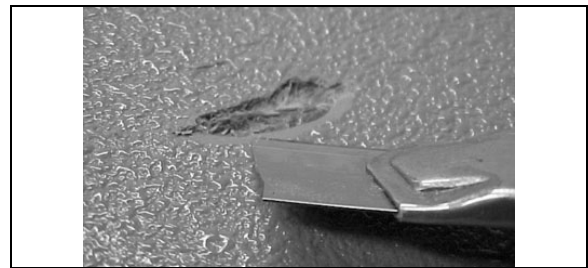
Minor Repair

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

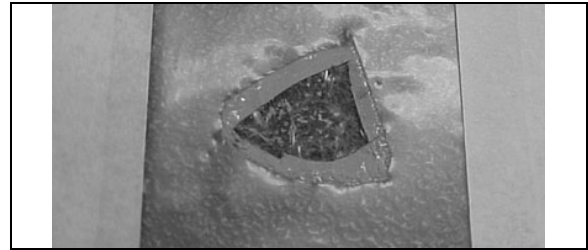
Paint Code: #J4099U

Major Repair (Hole)

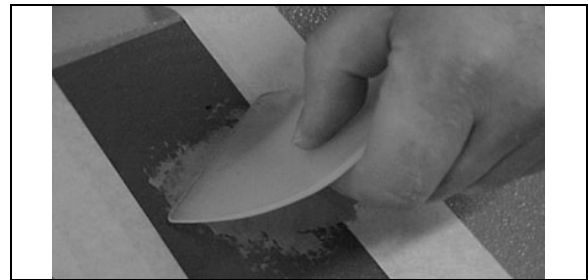
Chamfer the whole perimeter of the damaged area. If applicable, remove loose covering. Remove dust and particles.



Cover and protect damaged area surroundings.



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



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.

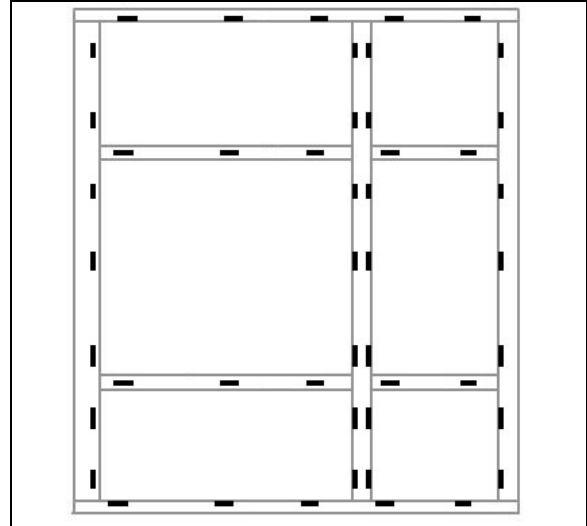


Allow drying for at least **2 hours** then repaint as per paragraph: Minor Repair.

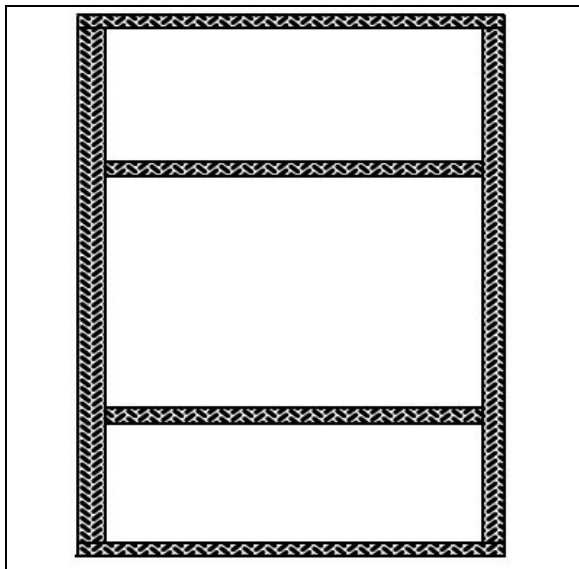
- **Baggage Compartment Floor Installation**

Preparation and Installation

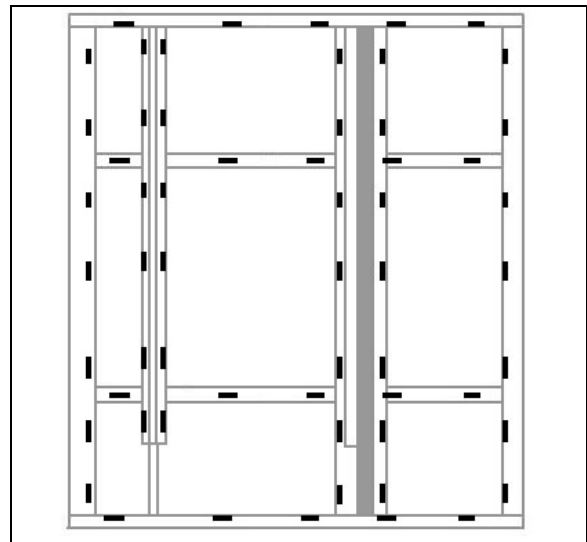
Clean baggage compartment support structure using anti-silicone.



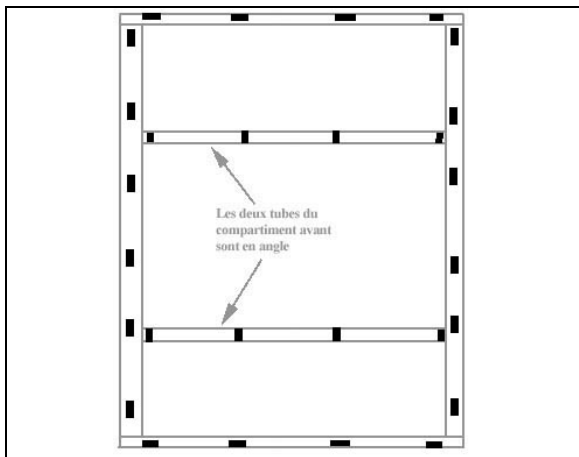
Rear baggage compartment equipped with WCL



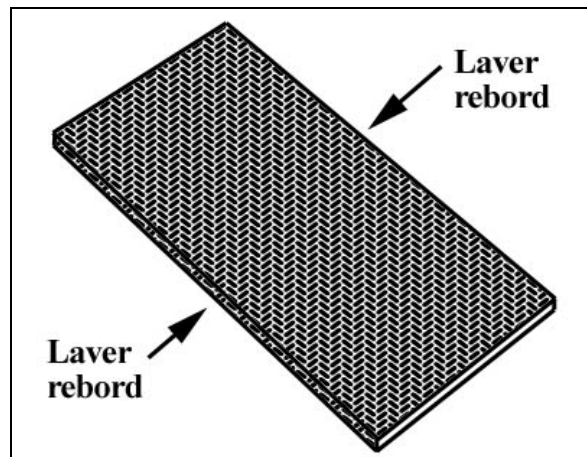
Glue spacers (790392) about 16-inch apart.



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

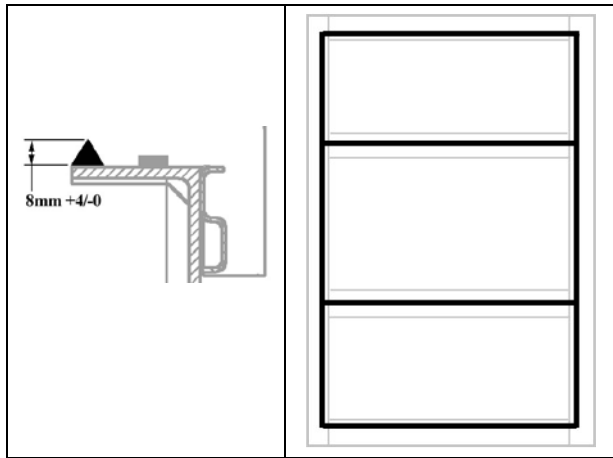


Rear baggage compartment without WCL.

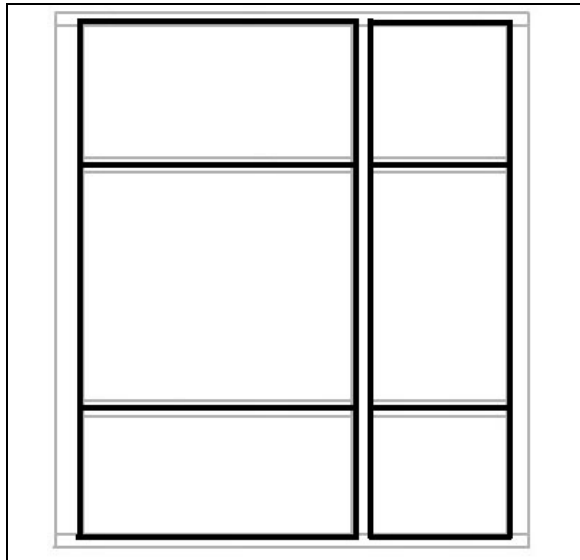


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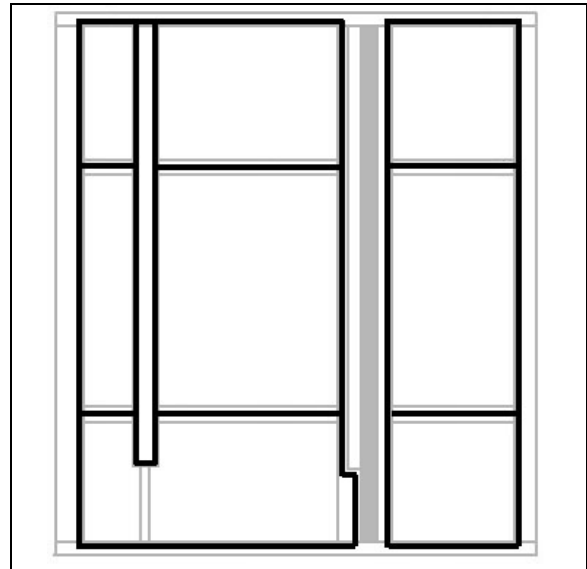
Using a triangular nozzle, apply "Simson" glue (685126) onto support structure.



Rear baggage compartment without WCL.



Rear baggage compartment equipped with WCL

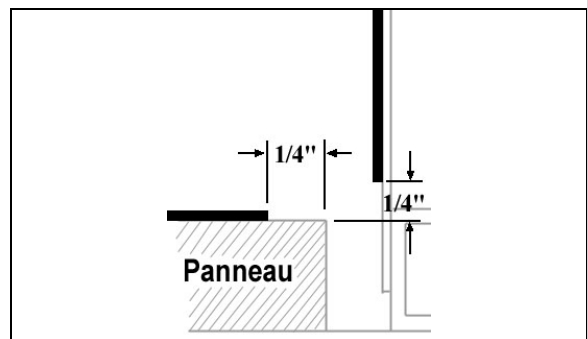


Carefully install panel onto support structure.

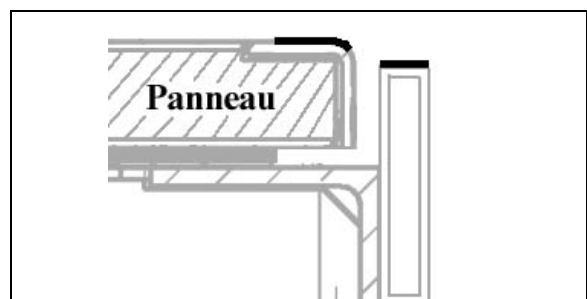
Evenly distribute and install conforming weights (6 to 8) (80 to 100 lbs **total**) onto panel for at least **4 hours**. Make sure panel does not move.

Finishing Joints

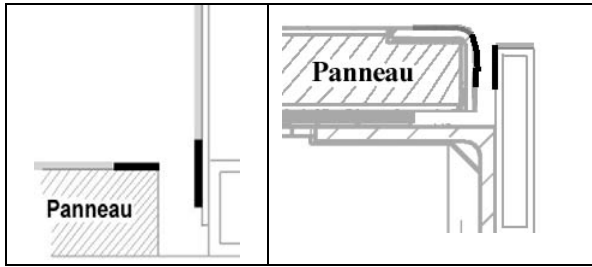
In the case of lateral finishing joint, apply some masking tape $\frac{1}{4}$ " from panel edge and $\frac{1}{4}$ " above panel.



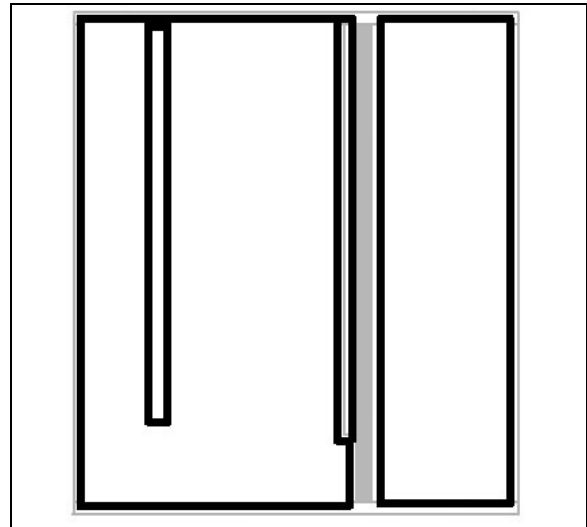
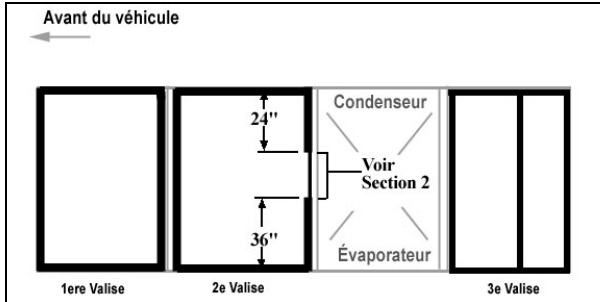
In the case of front finishing joint, apply some masking tape on each side of joint.



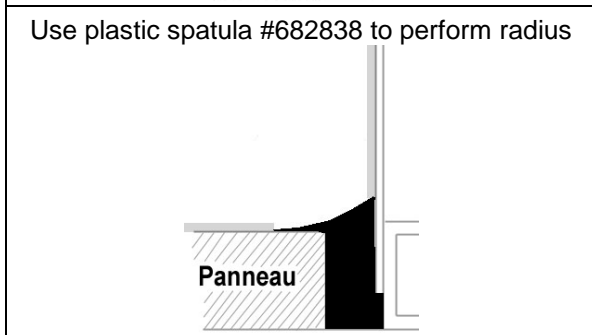
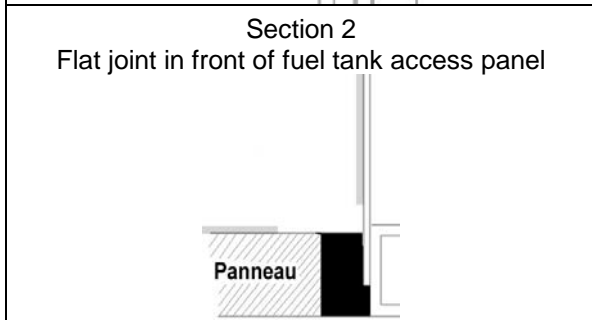
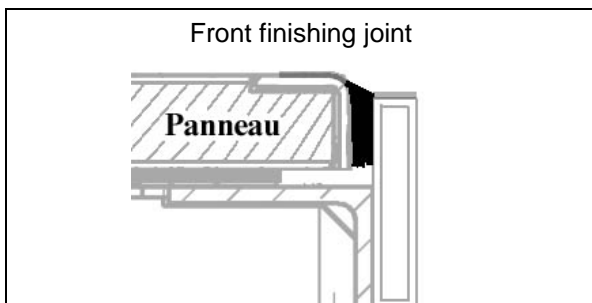
Clean with anti-silicone the area where the Simson glue will be applied.



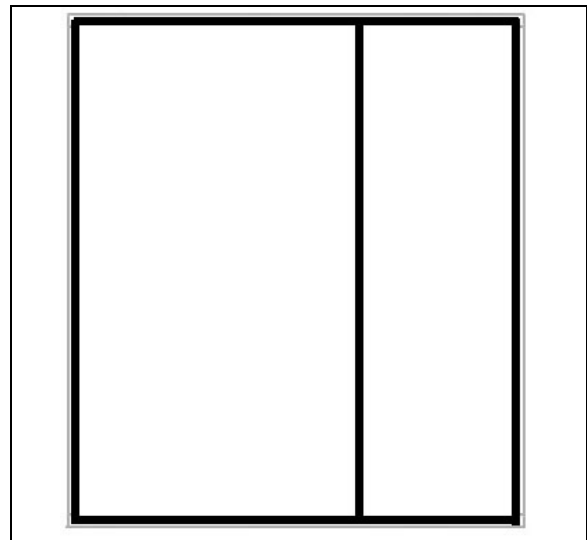
Apply some Simson glue to fill the gap.



Rear baggage compartment without WCL.



Rear baggage compartment equipped with WCL



Remove masking tape.

Smooth down joints using soapy water.

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6.5.4 Evaporator Compartment Door

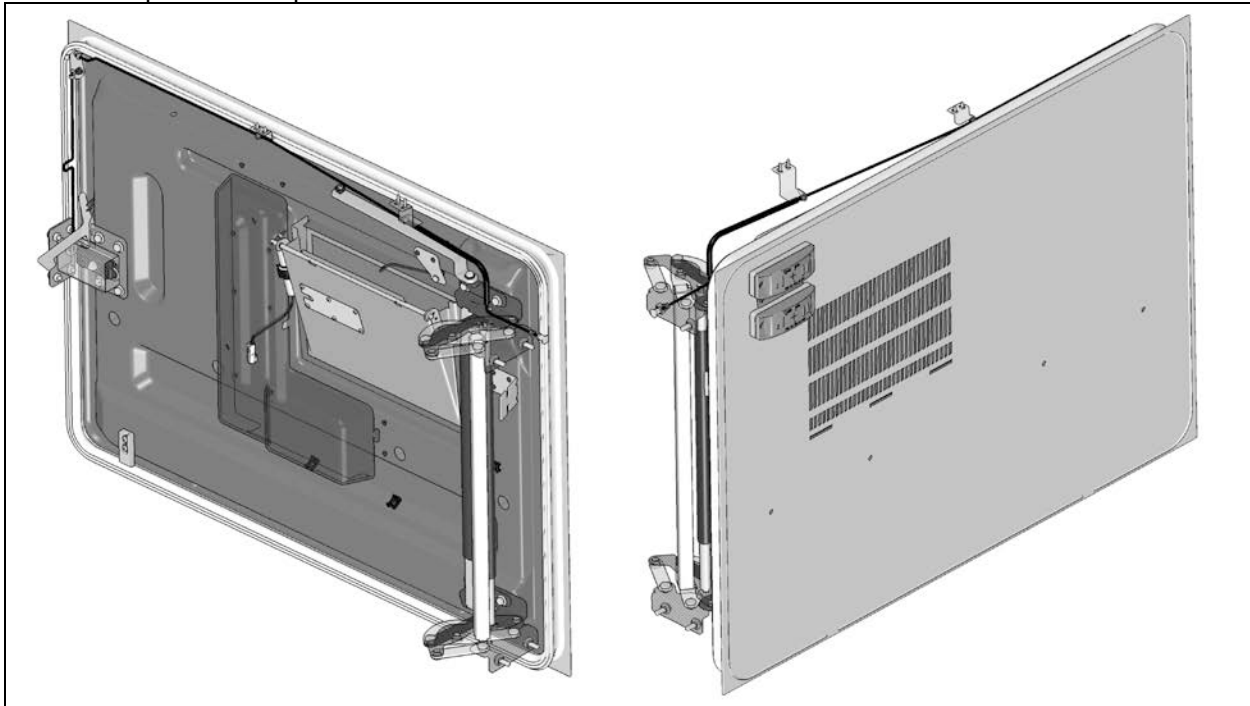


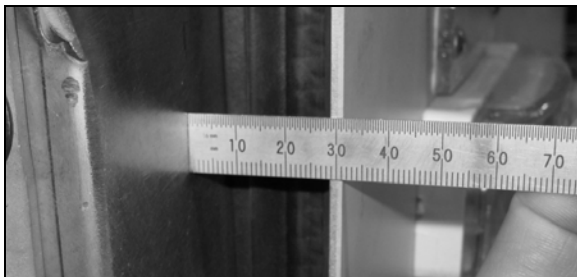
FIGURE 40: EVAPORATOR DOOR (ALUMINUM)

For the adjustment of an evaporator door, you will need:

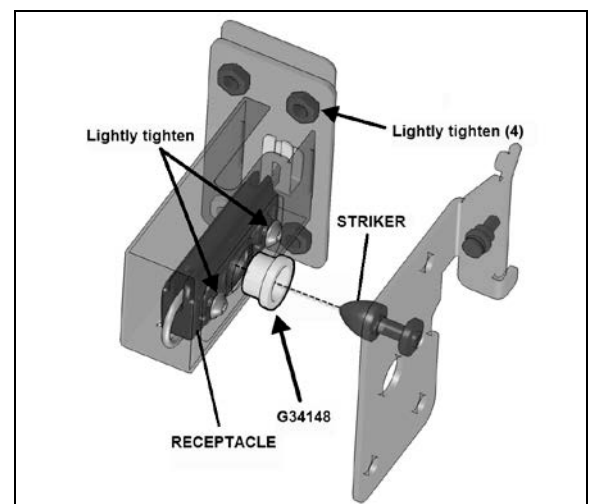
- Centering tool G34148_500

- **Door adjustment**

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. Door exterior panel on hinge side should be positioned at 29mm +/- 2mm measured from bus frame out.

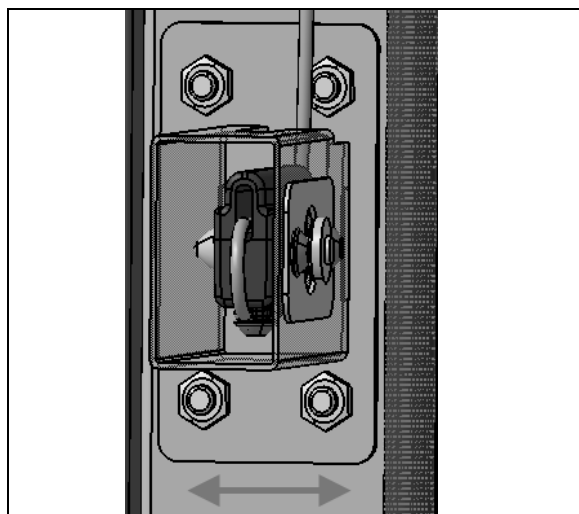
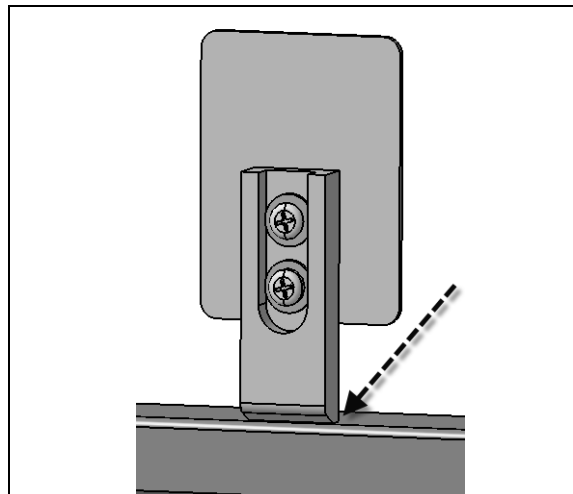
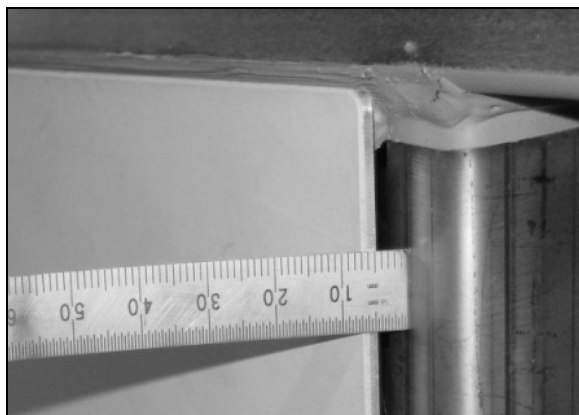


5. Respect the required gap between exterior finishing panels.
6. Tighten the hinge screws.
7. To allow adjustment of the latch mechanism, lightly tighten the retaining hardware on receptacle and receptacle support to frame.
8. Place centering tool G34148_500 in the receptacle cavity.



9. Close door to center the latch assembly.

10. Tighten the Receptacle screws only.
11. .Door exterior panel on latch side should be positioned at 8mm +1mm from frame. Make the adjustments by moving the receptacle support.

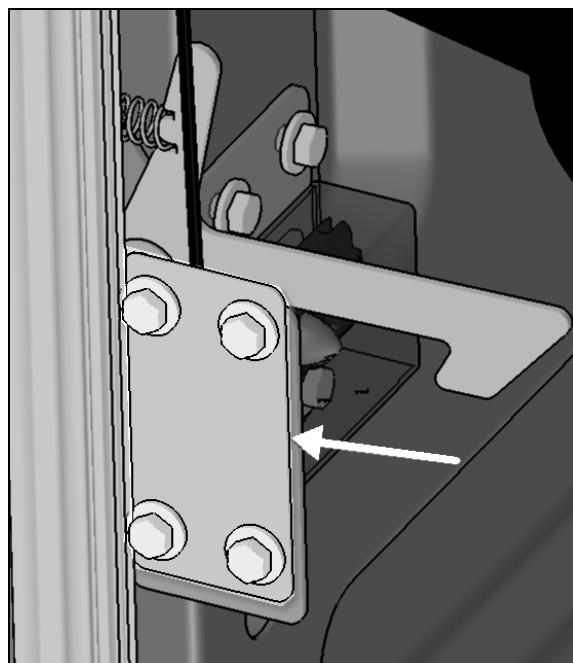


14. Check that the door swings freely and closes properly.

- **Door release in the event of a latch failure.**

If the door release mechanism is damaged or ceases to function for any reason, the door can be released by removing these screws on the fore wall of the fender side

12. Make sure that backing plate is parallel to structure before tightening hardware
13. Make sure that skid bar only touches slightly bus structure at bottom. The door should not move up when closing.



Section 18: BODY

6.5.5 Condenser Compartment Door

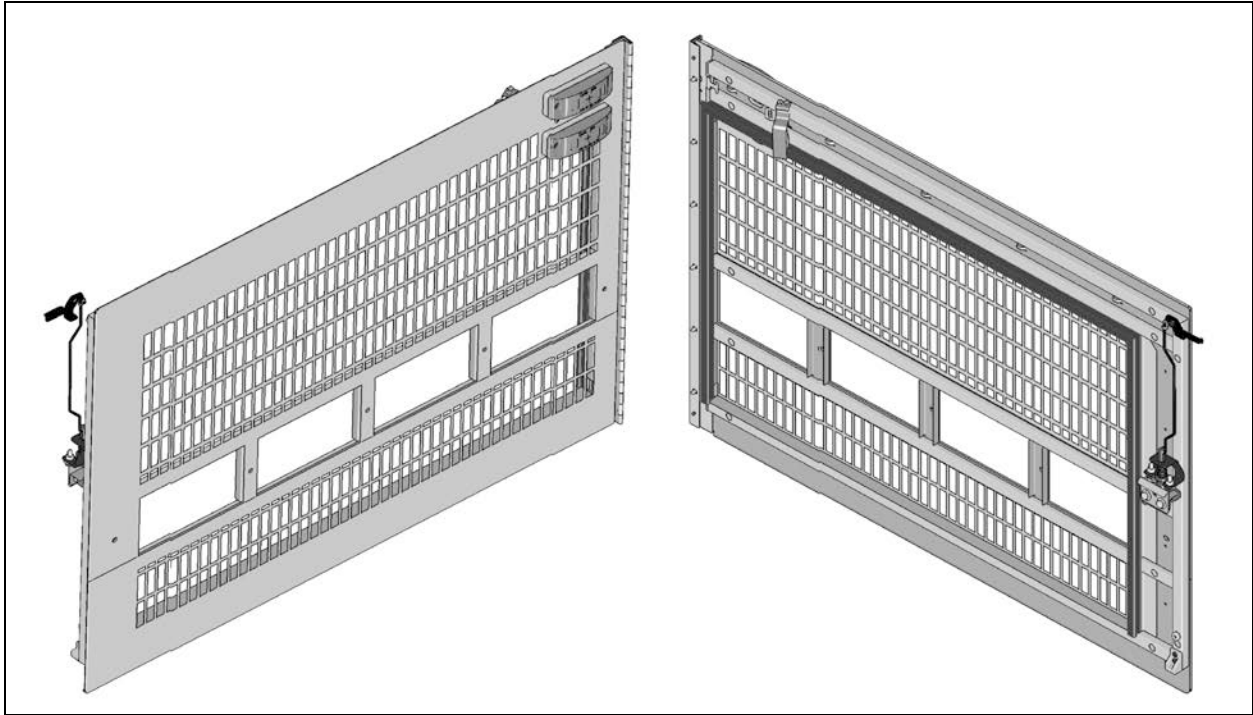


FIGURE 41: CONDENSER DOOR

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. Respect the required gap between exterior finishing panels.
5. Tighten the screws.
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.

5. Check that the door swings freely and closes properly.

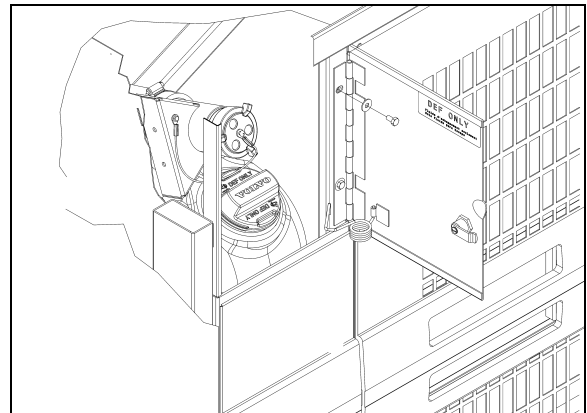


FIGURE 42: FUEL FILLER DOOR

03046

6.5.6 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.

6.6 ZONE 6

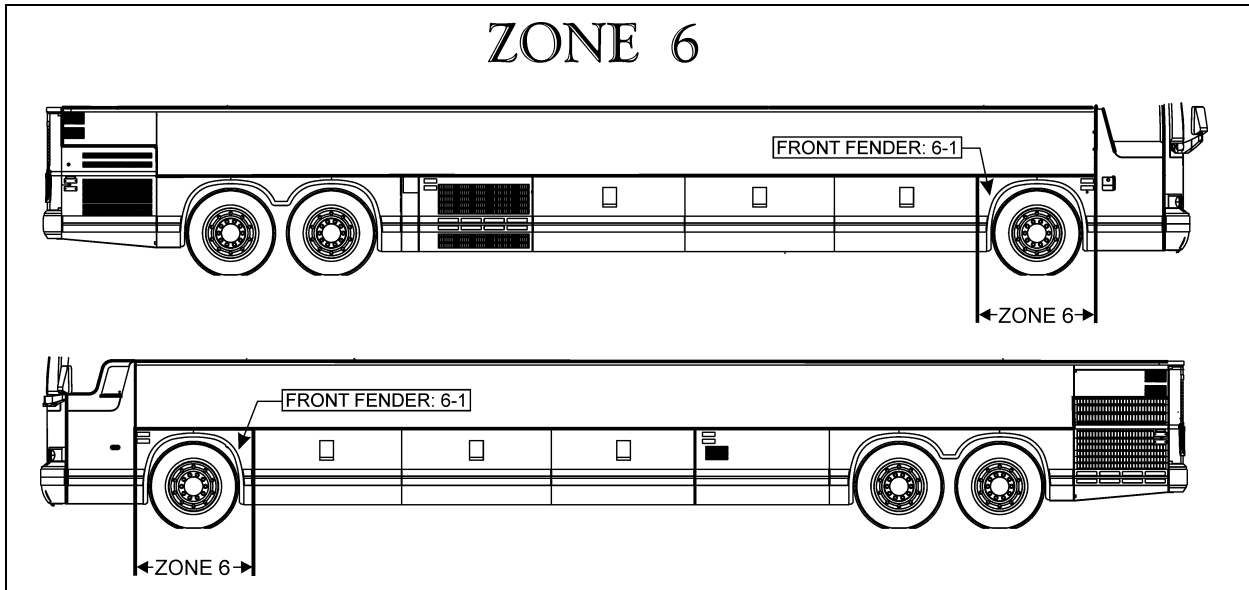


FIGURE 43: ZONE 6

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

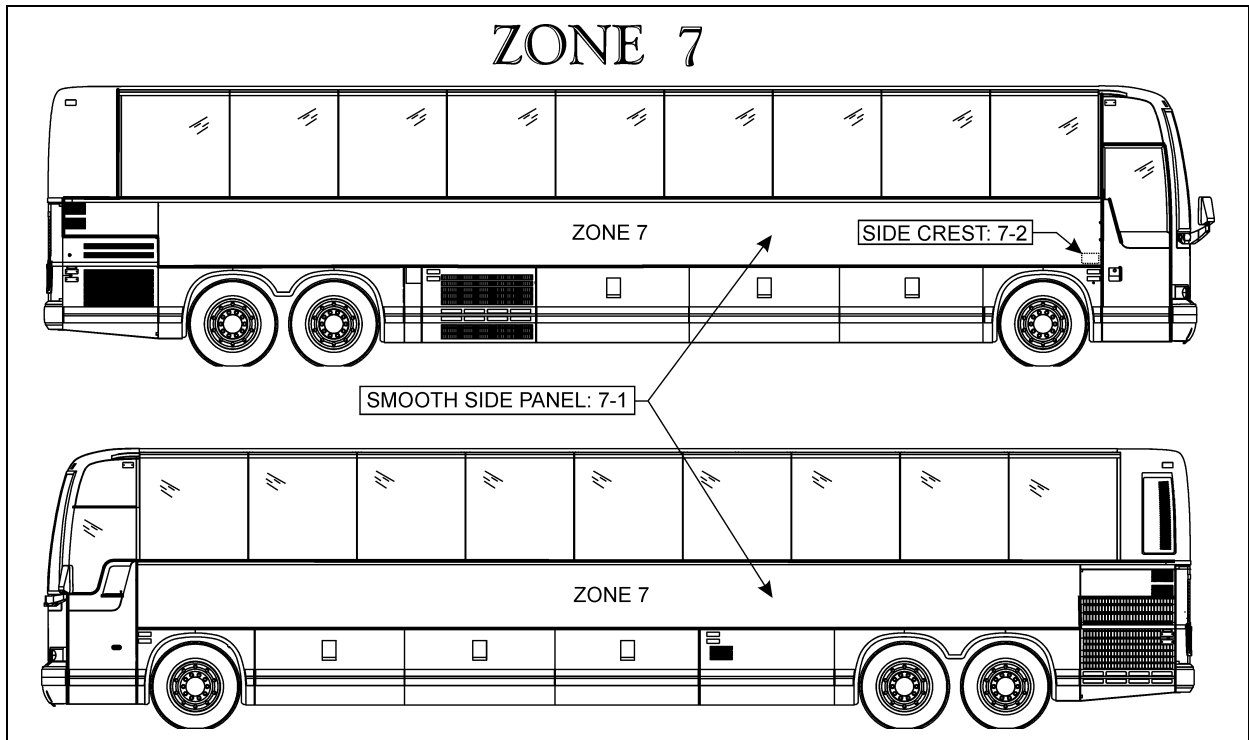


FIGURE 44: ZONE 7

18630

Section 18: BODY

6.7.1 X3 Smooth Side Panel Replacement Procedure

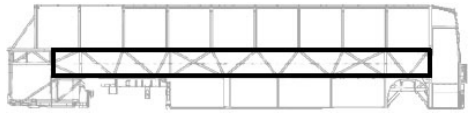

Material:



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

Equipment:

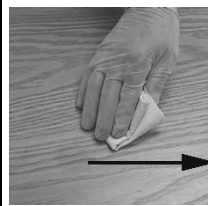
Glue gun	√	
Pencil	√	

SECTION 1 SMOOTH SIDE PANEL REMOVAL		
1.00	REMOVAL	
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.	Warning: Panel weights over 200 pounds
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 2 PREPARATION OF SURFACES			
2.00	VEHICLE SURFACE PREPARATION		
	A)	Clean using "anti-silicone" until all clothes come clean. See SAV00001 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 SAV00001 section A.	
D)	Apply – Sika 205 See SAV00001 section C.		
2.05	SIDE PANEL PREPARATION		
	A)	Clean using "anti-silicone" until all clothes come clean. See SAV00001 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 SAV00001 section A.	
D)	Apply – Sika 205 See SAV00001 section C.		

SAV00001 Section A Alcohol or Anti-silicone	
 <p>1. Apply</p> <p>CHIX cloth</p>	 <p>2. Dry immediately</p> <p>Blue cloth</p>
3. Allow to dry	
Mandatory	<p>Minimum time : Wait for product to evaporate</p> <p>After 2 hours: Start cleaning operation again</p>
Before applying any other product	If surface seems dusty, greasy or with finger marks, start cleaning operation again.

Section B Sika 205



1. Apply

CHIX cloth

2. Allow drying

Mandatory	Minimum time	- For a smooth surface (aluminum, stainless, steel, fiber glass (gelcoat side), etc.):	2 minutes
		- Pour a porous surface (fiber glass (non gelcoat side), etc.)	10 minutes

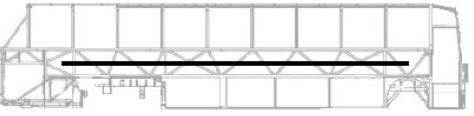
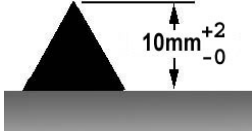
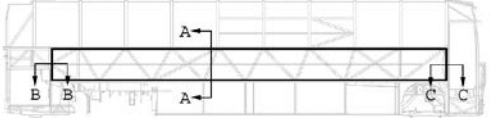


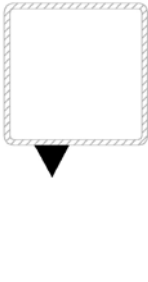


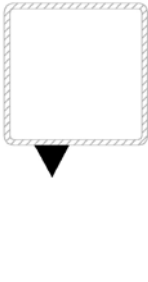


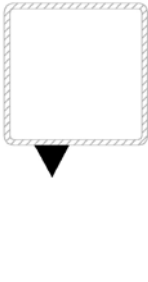
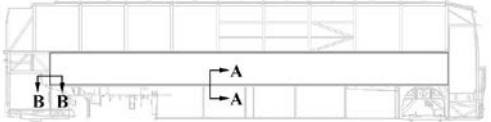
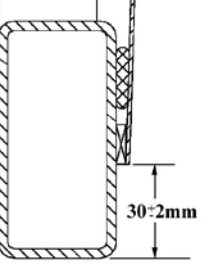
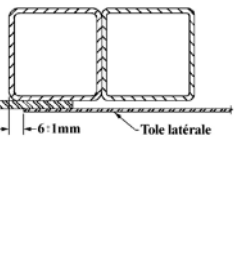
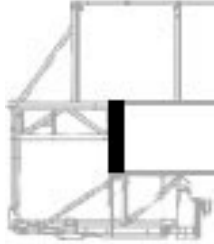
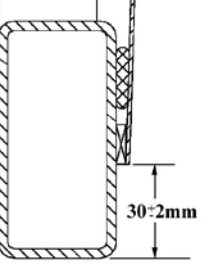
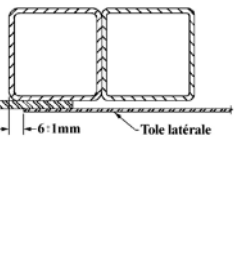
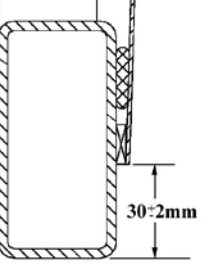
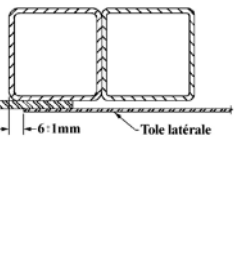
After 2 hours : Reactivate surface with Sika 205

Before applying any other product




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.	

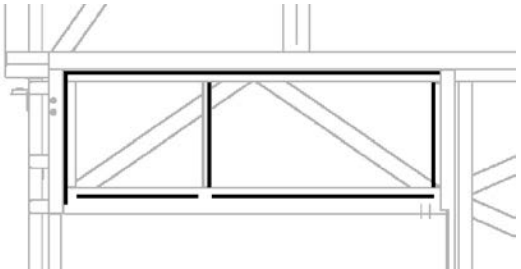

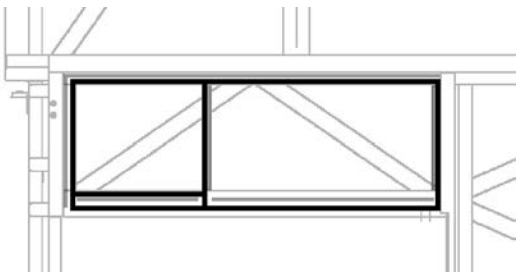
3.05	Install 1/8 X 1/2" foam tape onto middle reinforcement then compress.								
3.10	<p>Apply Sika 252</p>  <ul style="list-style-type: none"> - Onto vehicle surface - Cut nozzle as per template - Use the guide for the application <p>Bead must be continuous for the whole perimeter.</p>	 <table border="1" data-bbox="954 541 1448 894"> <tr> <td data-bbox="954 541 1109 590">Section A-A</td> <td data-bbox="1109 541 1279 590">Section B-B</td> <td data-bbox="1279 541 1448 590">Section C-C</td> </tr> <tr> <td data-bbox="954 590 1109 894">  </td> <td data-bbox="1109 590 1279 894">  </td> <td data-bbox="1279 590 1448 894">  </td> </tr> </table>		Section A-A	Section B-B	Section C-C			
Section A-A	Section B-B	Section C-C							
									
3.15	<p>A) Install side panel onto support jig.</p> <p>B) Position side panel in front of vehicle structure</p> <p>C) Perform final adjustment to make sure that side panel is true and square</p> <p>D) Sand rear of side panel 2" wide</p> <p>E) Perform tig spot welding (1" apart)</p>	 <table border="1" data-bbox="954 1056 1448 1402"> <tr> <td data-bbox="954 1056 1193 1104">Section A-A</td> <td data-bbox="1193 1056 1448 1104">Section B-B</td> </tr> <tr> <td data-bbox="954 1104 1193 1402">  </td> <td data-bbox="1193 1104 1448 1402">  </td> </tr> </table> <ul style="list-style-type: none"> - 30 mm. ± 2 with reference to bottom tubing - 6 mm ± 1 with reference to vertical tubing  <p>Quantity of "tig spot": 30 minimum.</p>		Section A-A	Section B-B				
Section A-A	Section B-B								
									

Section 18: BODY





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.		

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

SECTION 4 ENGINE AIR INTAKE PANEL INSTALLATION		
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	

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5.00 *	Finition Joint		
	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 SAV00001 section C.	
	C)	Apply Sika 252 black at the junction of both tubing. Smooth down the joint	
	D)	Remove protective tape	

6.7.2 Side Crest

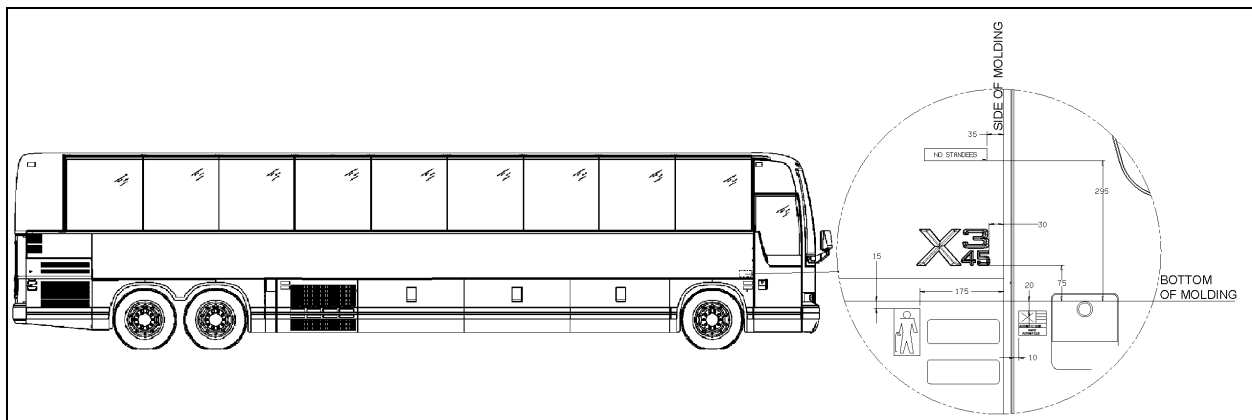


FIGURE 45: SIDE CREST POSITIONING

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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.

6.8 BODY PANEL AND WINDOW SPACING

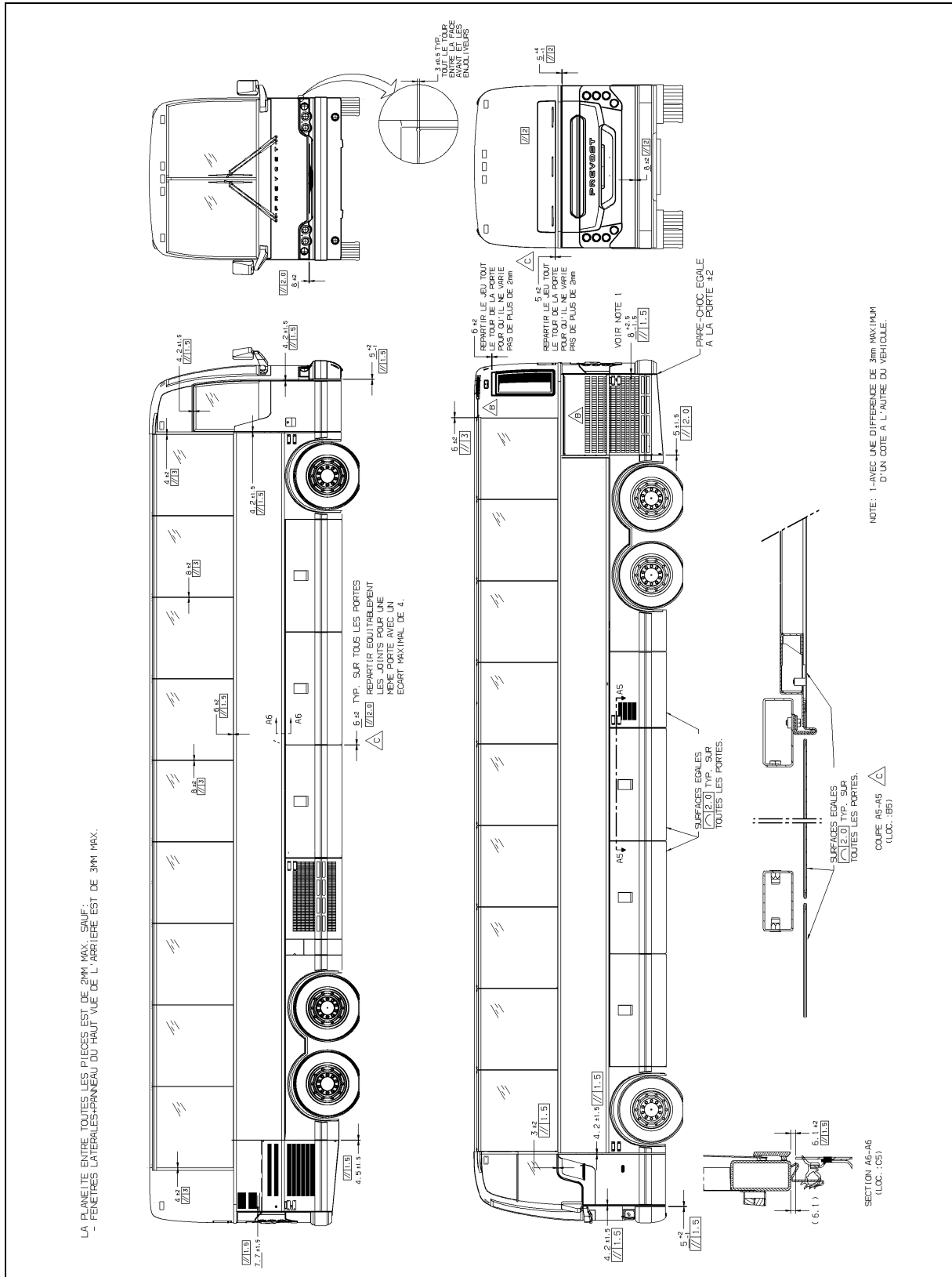


FIGURE 46: BODY PANEL AND WINDOW SPACING

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6.9 PASSENGER SEATS

X3 coaches can be equipped with any of 3 basic seat models and installed in a variety of seating arrangements:

1. The "Tourismo 2" seat is the base model and is available in heights of 40" (102 cm) and 42" (107 cm). Seating arrangement includes 2 card tables which can be folded and removed, and pivoting seats ahead of each card table. Each pair of seats is built on a welded steel frame fastened to the side wall and on a track-mounted pedestal.
2. The "Silhouette" seat is an optional model with each pair also built on a welded steel frame and mounted the same way as the "Tourismo 2" seat. Standard seating arrangement with "Silhouette" seat includes 2 card tables and 2 pivoting seats. Seating capacity is the same as with the "Tourismo 2" seat.
3. The "V.I.P." seat model is an optional seat. "V.I.P." seats are mounted on one row of paired seats built on a common frame on one side of the vehicle, and a row of single seats on the other side of the vehicle with an off-center aisle. Each "V.I.P." seat has its own set of armrests.

Each seat has a easily removable bottom cushion. Upholstery is clipped on the cushion frame for cleaning or replacement. To remove the fabric, simply unclip from the frame. The "Tourismo 2" and "Silhouette" 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 47.
5. Remove 2 nuts and washers holding seat frame to pedestal rods. See figure 48.

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.

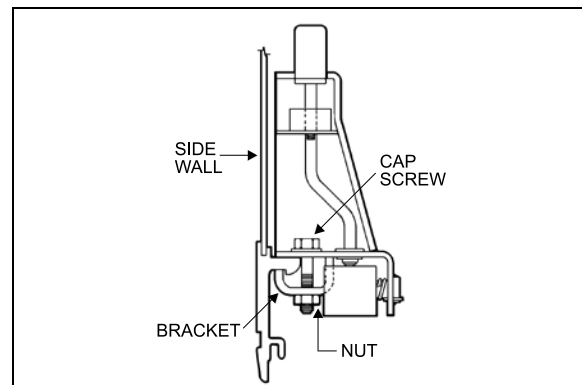


FIGURE 47: ARMREST

18106

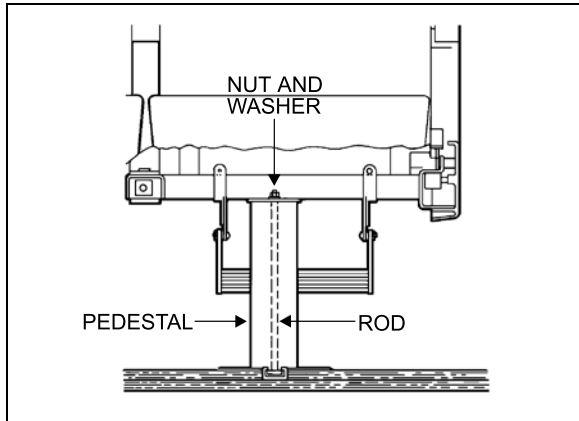


FIGURE 48: SEAT PEDESTAL ASSEMBLY 18107

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 durability, best results are obtained if upholstery is cleaned at regular intervals before dirt, dust and grit have been ground into the 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.

Section 18: BODY

6.10 TARABUS FLOOR COVERING REPAIR OR REPLACEMENT

On X3-45 coaches equipped with “Tarabus” 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 49).

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 50).

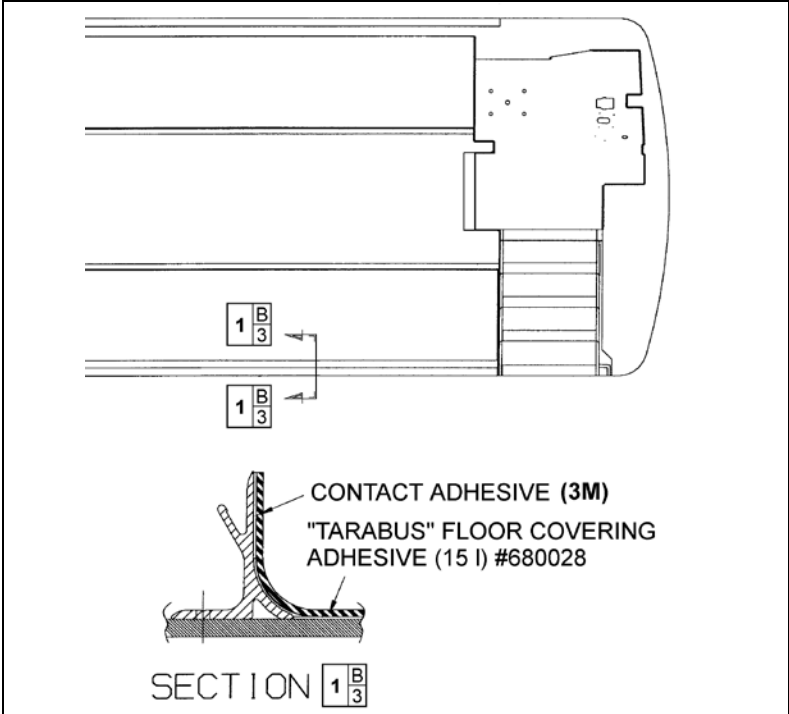


FIGURE 49: TARABUS FLOOR COVERING ADHESIVE APPLICATION 18640

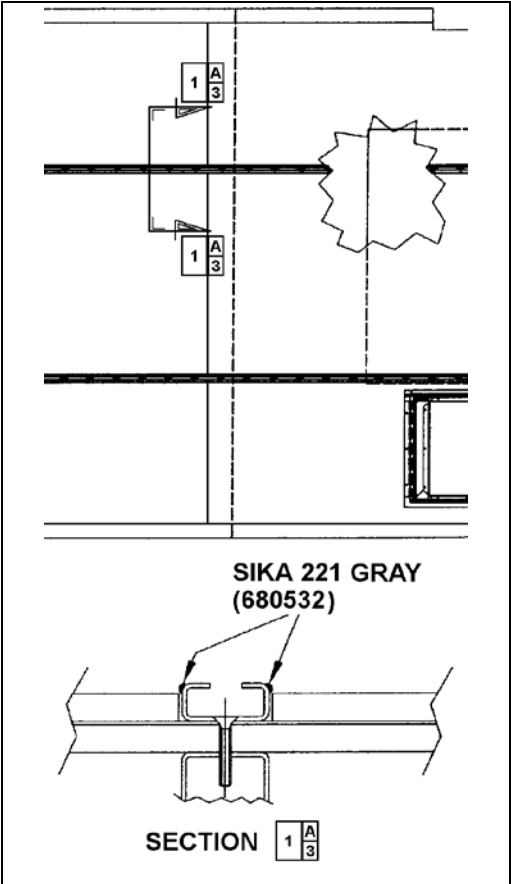


FIGURE 50: APPLICATION OF SIKI 221 GRAY 18641

Section 18: BODY

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

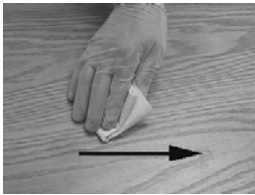
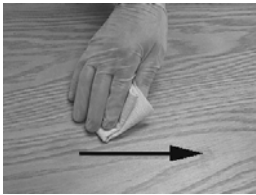
1. Cut and remove damaged step(s).
2. Remove dirt and adhesive residue.

NOTE

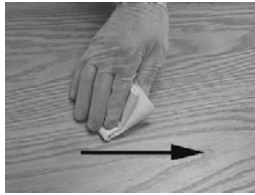
In wintertime, condensation and cold temperature may greatly influence bonding parameters. Working area must be at a temperature sufficient to prevent reaching condensation point. Mechanically preheat working area (heat lamp or heat gun) or wait until vehicle reaches room temperature.

PREPARATION OF “TARABUS” FLOOR COVERING

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

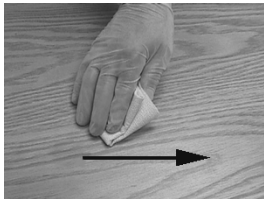
Section A Alcohol or Anti-silicone	
	1. Apply <div style="border: 1px dashed black; background-color: yellow; padding: 2px; display: inline-block;">CHIX cloth</div>
	2. Dry immediately <div style="border: 1px dashed black; background-color: cyan; padding: 2px; display: inline-block;">Blue cloth</div>
3. Allow drying	
Mandatory	Minimum time : Wait for product to evaporate After 2 hours: Start cleaning operation again
Before applying any other product	If surface seems dusty, greasy or with finger marks, start cleaning operation again.

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

Section D Sika Primer 215		
	<ol style="list-style-type: none"> 1. Shake bottle to mix product 2. Apply a thin layer 	
	<div style="border: 1px dashed black; background-color: yellow; padding: 2px; display: inline-block;">CHIX cloth</div>	
3. Allow drying		
Mandatory	215	Minimum time : 20 minutes After 2 hours : Remove dust using damp cloth (pure water)
Before applying any other product		If surface seems dusty, dust using damp cloth.
		If surface seems greasy or with finger marks, reactivate with Aktivator.

PREPARATION OF FIBERGLASS

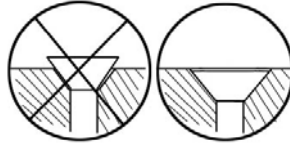
1. Clean using anti-silicone (refer to Section A).
2. Apply Sika 205 (refer to Section B).

Section B Sika 205			
	<ol style="list-style-type: none"> 1. Apply 		
	<div style="border: 1px dashed black; background-color: yellow; padding: 2px; display: inline-block;">CHIX cloth</div>		
2. Allow drying			
Mandatory	Minimum time	- For a smooth surface (aluminum, stainless, steel, fiberglass (gelcoat side), etc.):	2 minutes
		- For a porous surface (fiberglass (non gelcoat side), etc.)	10 minutes
After 2 hours : Reactivate surface with Sika 205			
Before applying any other product		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.

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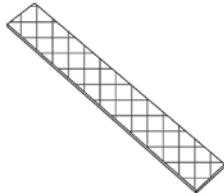
3. Apply some Sika 252 onto the step; make sure to cover the whole surface of the step. Use a serrated spreader with 1/8-inch serration to spread Sika.
4. Apply a bead of Sika 221 onto the perimeter of the step.
5. Install step and press with hands. If Sika overflows, clean with Sika 208. Repeat previous 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.



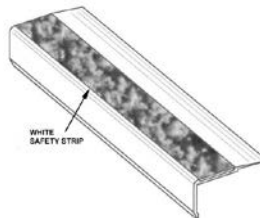
7. Clean top of step nosing using Sika 205 (refer to Section B).



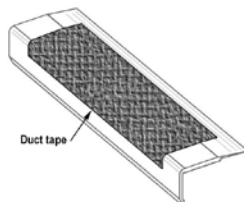
8. Apply some Sika 221 onto white safety strip, spread with a spatula to cover the whole surface.



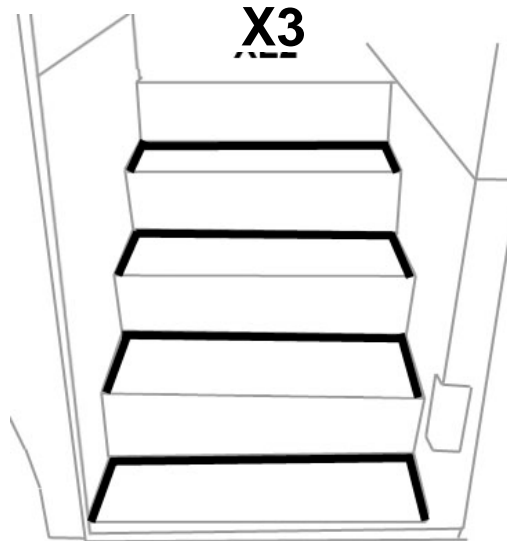
9. Position white safety strip then press using hands. If Sika overflows, clean with Sika 208.



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

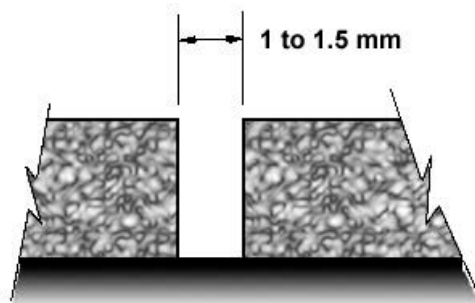


11. Apply some masking tape onto the step perimeter, clean using Sika 205 (refer to Section B) then apply a bead of Sika 252 black. Smooth out the joints then remove masking tape.
12. Install weights onto the steps. Minimum waiting time: 2 hours.



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

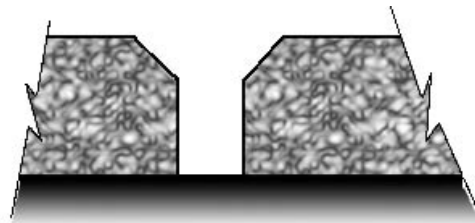
1. Pre-heat welding torch;
Set welding torch to position #4.5 (temperature of 500 °C),
Heating time: 5 minutes.
2. Before welding, visually ensure that a 1 to 1.5 mm gap exists between white safety strip and "Tarabus" floor covering. Use a knife if this is not the case.



NOTE

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

3. Chamfer the joint.



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<i>NOTE</i>

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.



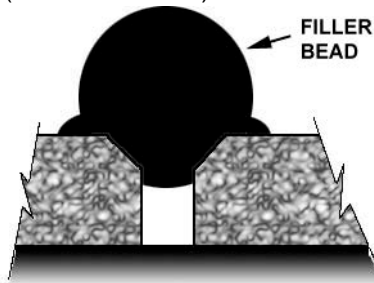
7. Once the welding torch is ready, insert the filler bead into the nozzle and immediately start welding. Move in a regular manner while pressing slightly with torch.



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



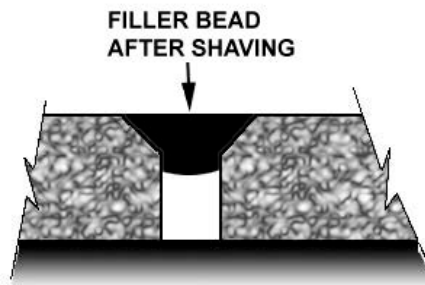
9. Allow cooling down of filler bead (about 5 minutes).



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.



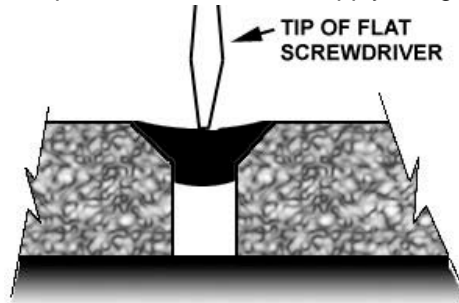
CAUTION

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

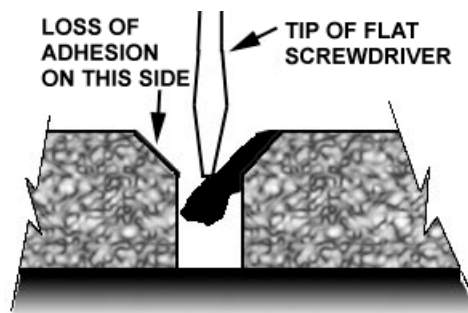
11. Set temperature potentiometer to “0” position. Fan will evacuate residual heat. Leave the torch in operation as it is for 3 minutes.

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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 be 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 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.

1. 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.

2. Chamfer the joint again as indicated in paragraph 6.10.2, Section: Welding Of Joint Between White Safety Strip And "Tarabus" Floor Covering.
3. 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.



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

7. X3-45 VIP 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 pertaining to X3-45 VIP. 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.

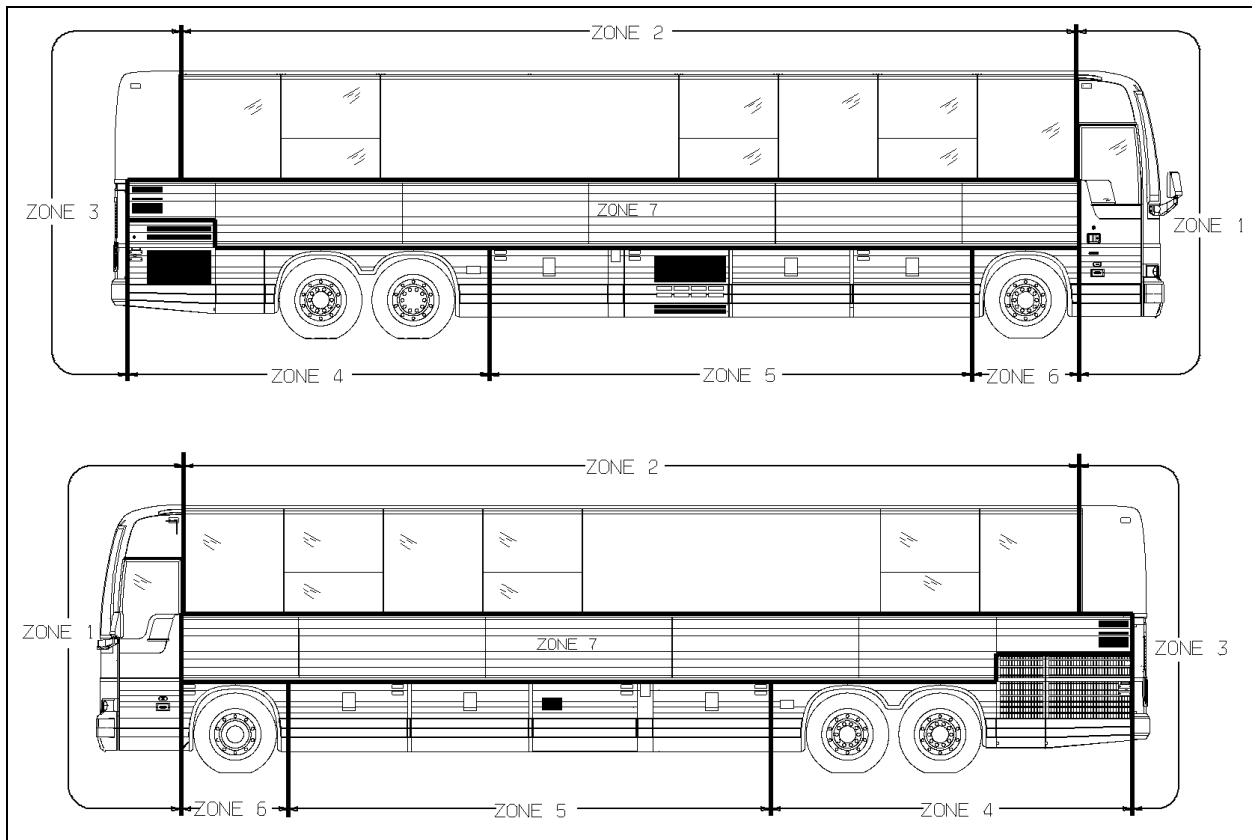


FIGURE 51: X3-45 VIP ZONING

Section 18: BODY

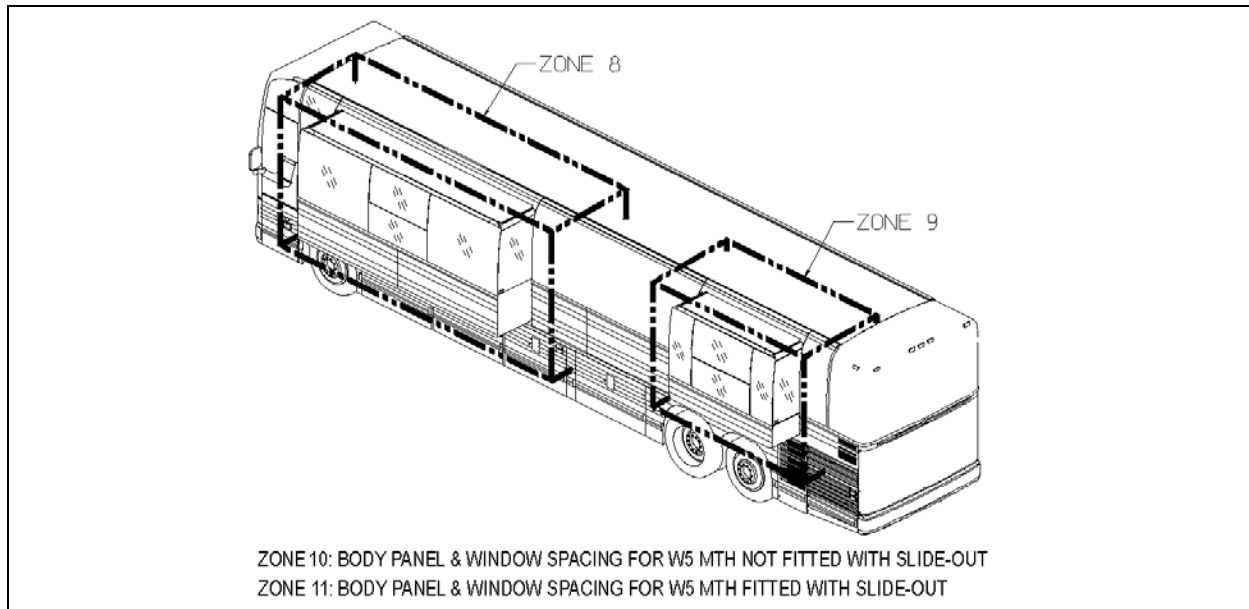


FIGURE 52: X3-45 VIP FITTED WITH SLIDE-OUT

7.1 ZONE 1

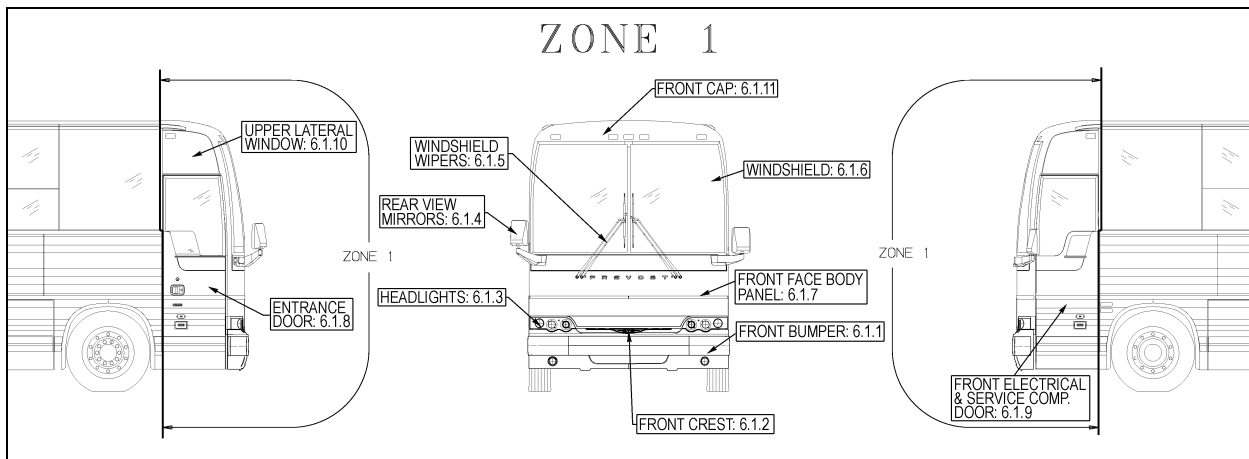


FIGURE 53: ZONE 1

7.1.1 Front Bumper

The front bumper can be tilted downward to give access to the bumper compartment. Pull the release handle located inside front service compartment to unlock. Tilt down the entire bumper assembly to access the compartment. Push the bumper back up firmly in place to lock in position.

Two people are required to remove and install the front bumper. Safely support the bumper and remove the two bolts on each bumper side to separate the bumper from the spare wheel 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.

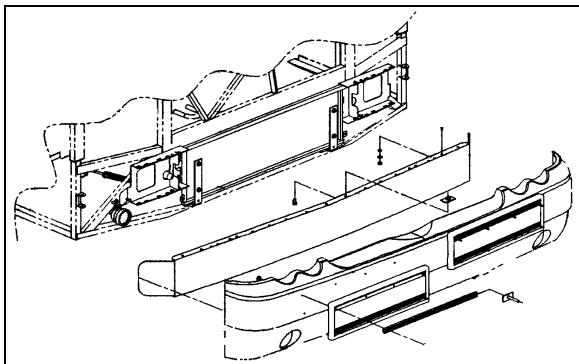


FIGURE 54: FRONT BUMPER REMOVAL



WARNING

The compartment behind the bumper is not designed for storage. Never store loose objects in this compartment since they can interfere with the steering linkage mechanism.

Use care when opening or closing the reclining bumper compartment to prevent personal injury.

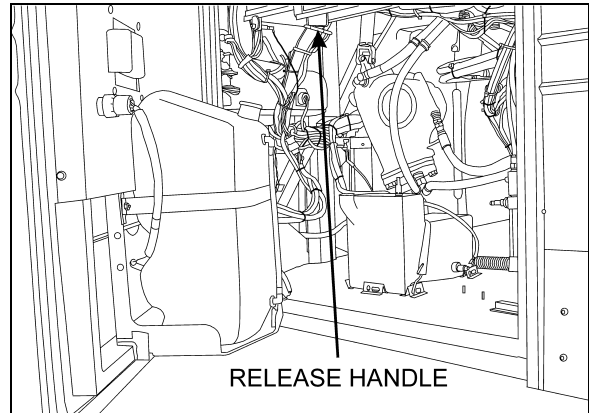


FIGURE 55: FRONT BUMPER RELEASE HANDLE 18613

For gluing of front bumper panel refer to procedure **SAV00198**.

7.1.2 Front Crest

* Use a Chix cloth and anti-silicone to clean the surface where the crest will be applied.

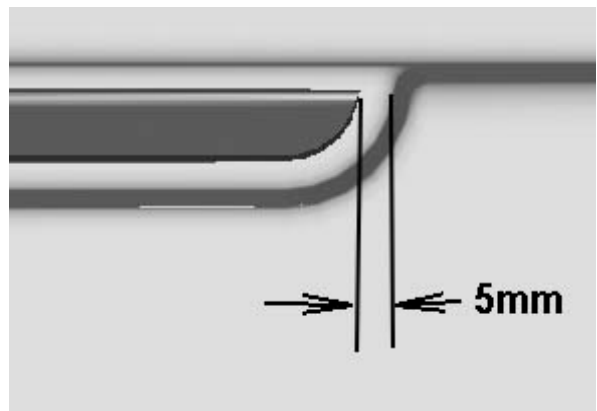


CAUTION

Do not exceed the crest dedicated surface.



* Peel the back from the self-adhesive crest side pieces.



* Peel the back from the self-adhesive crest center piece. Center crest and apply.

* Compress the crest three pieces using your hands.



7.1.3 Headlights

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

7.1.4 Rear View Mirrors

Your vehicle is equipped with two exterior mirrors.

The mirrors may be equipped with an optional electric heating system which serves to minimize ice and condensation on the mirror glass in extreme weather conditions. Integral thermostats are installed in both mirrors to avoid continuous heating. Use the appropriate switch on the dashboard to activate the defroster system on both mirrors simultaneously. 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.

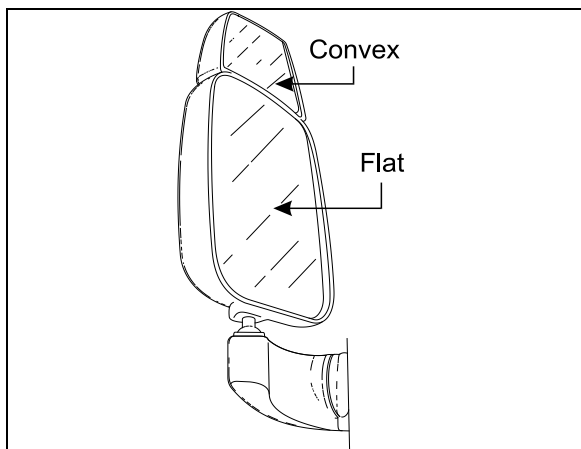


FIGURE 56: REAR VIEW MIRROR (RAMCO) 18398A

❖ 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.

❖ Heated / Remote Controlled Rear View Mirrors

Heated/remote controlled external rear view mirrors may be provided to prevent the mirrors from frosting up in cold weather.

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.

The mirror heat switch is located to the left of the driver on the dashboard. This switch must be activated before the mirror heating element will energize. Once energized, the mirror heating element is kept at a sustained temperature (between 60-80°F) by a thermostat. Refer to wiring diagram annexed in the technical publication box.

**CAUTION**

Do not attach stick-on type convex mirror accessories to the heated mirror glass. This could impede uniform heat distribution on the mirror surface which could break the mirror.

- 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.

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.

7.1.5 Windshield Wipers

Refer to Paragraph 23.7 Windshield Wipers and Washers, included in Section 23: Accessories of the Maintenance Manual for complete information on windshield wipers.

7.1.6 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.

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❖ 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 (Figure 57).
- 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.

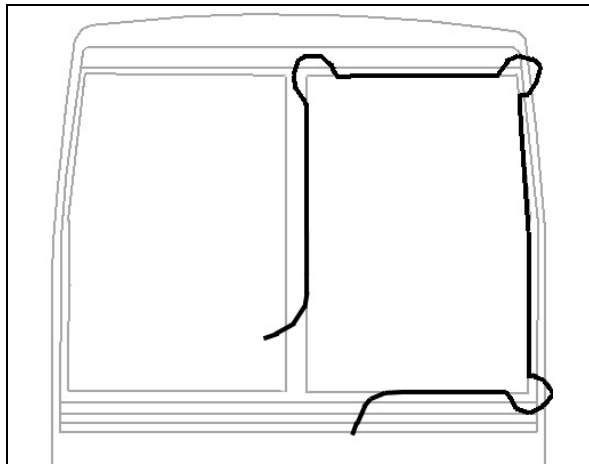


FIGURE 57: WINDSHIELD INSTALLATION USING ROPE

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.
- Apply Sika 221 black (Figure 58) 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 $\frac{1}{4}$ " of excess length to thwart filler contraction over time then insert filler into groove.

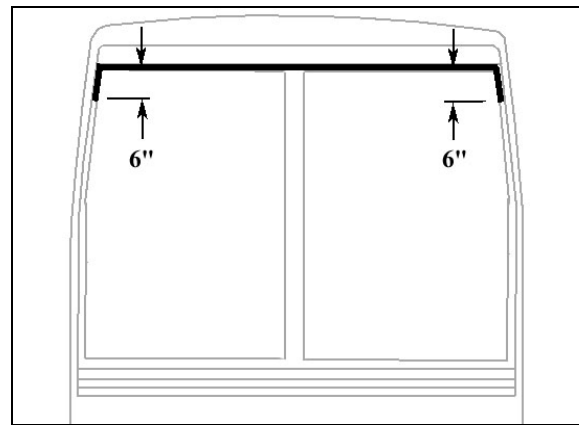


FIGURE 58: APPLICATION OF SIKA 221 BLACK

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

7.1.7 Front face Body Panel

For removal of front face body panel and molding, you will need:

Drill with drill bits,
Lever or similar tool,
Olfa knife,
"C"-clamp,
Razor sharp window scraper.

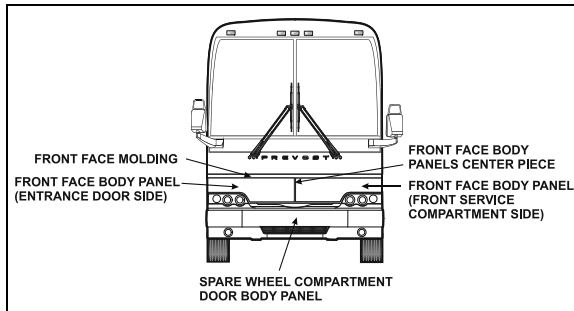
❖ **Front Face Molding Removal**

FIGURE 59: VIEW OF FRONT FACE

- First of all, pry loose the front face molding using the lever. Save molding if only the body panel needs to be changed.
- Using the Olfa knife, cut the Sika bead and the double-face self-adhesive tape. Remove the Sika bead and self-adhesive tape residue with the scraper.

❖ **Front Face Body Panel Removal**

- Using a drill and a 1/8" drill bit remove the rivets fixing the vertical molding. The stainless steel molding is located on the entrance door or service door frame side depending on body panel to be removed.
- Using the Olfa knife, cut the Sika bead and the double-face self-adhesive tape. Remove the Sika bead and self-adhesive tape residue with the scraper.
- Pry loose the front face body panel using the lever.
- While somebody cuts the Sika bead and double-face self-adhesive tape, another person pulls the body panel using the "C"-clamp to exert tension.
- Using the window scraper, remove any Sika bead or self-adhesive tape residue left on fiber glass surface.

❖ **Front Face Molding Installation**

For gluing of front face molding, refer to procedure **SAV00212**.

❖ **Front face Body Panel Installation**

For gluing of front face body panels, refer to procedure **SAV470047**.

7.1.8 Entrance Door

For the removal of entrance door body panel, you will need:

Pneumatic hammer tool (Zip Gun);

Razor sharp window scraper;

- Before removing body panel, you can to ease repair uninstall entrance door from vehicle. If applicable, remove reflector, keyless system keyboard and cornering light.
- You must also remove horizontal finishing molding located underneath the window. This molding is glued and will have to be replaced because it will be damaged at removal.
- Remove interior finishing panel to access rub rail fixing bolts, then remove rub rail.
- Using the "Zip Gun", cut Sika bead located ¼ inch (7-8 mm) from each body panel edge and around cornering light.
- Separate body panel from door.
- Remove from door surface Sika bead and double-face self-adhesive tape residue using a razor sharp window scraper.
- Use a Chix cloth and anti-silicone to remove any dust or residue.

For assembly, gluing or finishing joints of entrance door, refer to procedure **SAV280020**.

For gluing of entrance door horizontal finishing molding, refer to procedure **SAV00213**.

For the installation of entrance door, refer to procedure **SAV280022**.

7.1.9 Front Electrical & Service Compartment Door

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

Pneumatic hammer tool (Zip Gun);

Razor sharp window scraper;

- Before removing body panel, you can to ease repair uninstall front electrical & service door from vehicle. If applicable, remove reflector and cornering light.
- You must also remove horizontal finishing molding located underneath the window. This molding is glued and will have to be replaced because it will be damaged at removal.
- Remove interior finishing panel to access rub rail fixing bolts, then remove rub rail.

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- Using the “**Zip Gun**”, cut Sika bead located ¼ inch (7-8 mm) from each body panel edge and around cornering light.
- Separate body panel from door.
- Remove from door surface Sika bead and double-face self-adhesive tape residue using a razor sharp window scraper.
- Use a Chix cloth and anti-silicone to remove any dust or residue.

For assembly, gluing or finishing joints of front electrical & service compartment door, refer to procedure **SAV280021**.

For gluing of driver’s window, refer to procedure **SAV290013**.

For gluing of front electrical & service compartment door horizontal finishing molding, refer to procedure **SAV00213**.

For the installation of front electrical & service compartment door, refer to procedure **SAV280022**.

7.1.10 Upper Lateral Window

For the removal of driver’s window or upper lateral window, you will need:

Pneumatic hammer tool (Zip Gun);
Razor sharp window scraper;
“Olfa” knife;
Face shield.

- In the case of driver’s window only, open front service compartment door.
- Mark the position of the driver’s window for future reference.
- From inside of vehicle, cut Sika bead around window perimeter using a “Zip gun” while another person hold the window from the outside.

<i>NOTE</i>

<i>Wear ear plugs during this operation.</i>
--

- Then, move outside of vehicle and cut Sika bead to free window while somebody else hold the window from the inside.
- Carefully remove window from frame, ask for help if needed.
- Using a razor sharp window scraper, remove from window frame Sika bead and double-face self-adhesive tape residue.

- First of all, check Sika 205 cleaner expiration date.
- Before applying Sika cleaner, fold “Chix” cloth twice for proper width.
- Apply an even coat onto the inside of window frame and allow drying for 2 minutes (maximum 2 hours).
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Apply masking tape before applying Sika glue to protect paint and adjacent window during surface treatment.

For gluing of upper lateral window, refer to procedure **SAV290016**.

7.1.11 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 Prevest service center near you. For minor damages, refer to paragraph 4 "Common Fiberglass Repair procedure" and paragraph 5 "Common Painting Procedure".

7.2 ZONE 2

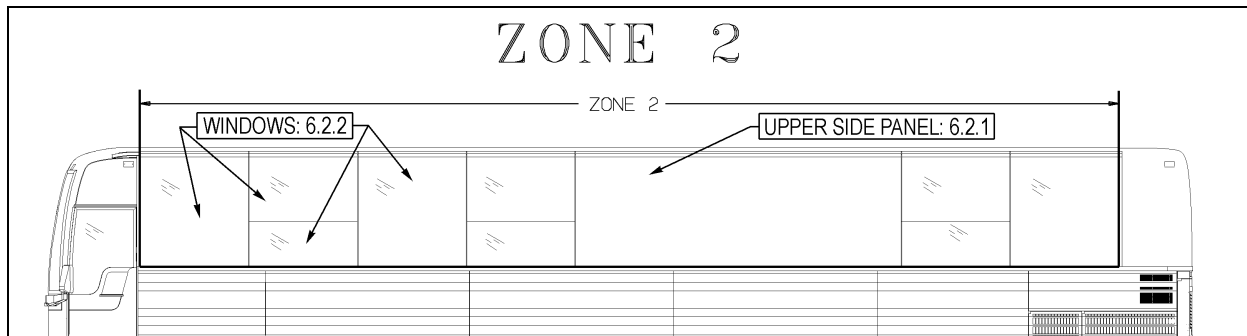


FIGURE 60: ZONE 2

7.2.1 Upper Side Panel

For structure preparation, refer to procedure **SAV00035**.

For installation of upper side panel neoprene foam tapes, refer to procedure **SAV00036**.

For installation of upper side panel, refer to procedure **SAV00041**.

7.2.2 Fixed Windows

Depending on the method chosen for fixed side window removal or installation, you may need:

- * Drill equipped with a sharp pointed rod into which a small hole was drilled;
- * Razor sharp window scraper;
- * Braided windshield wire and a pair of handles;
- * Gloves, goggles or face shield.

Fixed Window Removal**1st Method****NOTE**

This method is used only in the case of a regular fixed side window. For the fixed upper portion of awning or sliding windows, you must use method number 2.

- Apply a sticky plastic film onto all of window outside surface for safety reason.
- 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.

2nd Method

- Apply a sticky plastic film onto all of window outside surface.
- To limit as much damage as possible, remove any interior molding in the way. Install a plastic film on the window interior surface and secure using masking tape onto all of window perimeter.

NOTE

Do not stretch plastic film and leave enough play to be able to push window out without tearing the plastic film.

- Using a ball peen hammer, hit one of the window bottom corners from the **outside**.

Section 18: BODY

- Carefully push window out and lift it up sufficiently to separate it from the aluminum molding.
- Attach the windshield wire to a fish wire and thread it underneath the aluminum molding behind the rivets.
- Detach wire from fish wire and continue cutting using the handle.
- Make a notch at each window top corner to make sure you pass underneath the remaining pieces of glass.
- Remove the aluminum molding and clean up the frame using the window scraper.

For gluing of lateral fixed window behind driver, refer to procedure **SAV00046**.

For gluing of lateral fixed half-window, refer to procedure **SAV00045**.

For the installation of awning or sliding window, refer to procedure **SAV00038**.

For gluing of lateral fixed window, refer to various procedures: **SAV00037** for gluing vertical and bottom rubber seals; **SAV00043** for the installation of lateral fixed window and **SAV00044** for making the Simson joint around fixed windows.

7.2.3 Electric Awning Windows

The electric awning windows are connected directly on the batteries 24 V DC terminal block. As a result, they can be operated regardless of the state open or close of the master switch.

Window Removal

Replacement awning window does not include a new motor. If in working order, transfer the motor of the replaced window to the replacement window. If not, the motor can be bought separately. When replacing the window, keep the components in working order as spare parts.

1. Push the vertical latch handle downwards to release the track and then open the window using the horizontal latch handle.
2. Take out the screw at the lower end of the track to let free the swiveling arm roller.
3. Unplug connectors. Dismount the gas spring from the window.
4. Loosen the set screws #5 (figure 61) (rotate the arm to get to the second set screw) and

disengage the swiveling arm from the motor shaft extension.

5. Push the glass window out ninety degrees (90°).



CAUTION

The window may fall out.

6. The window is free and can be unhooked.
7. Reverse procedure to install a new one.

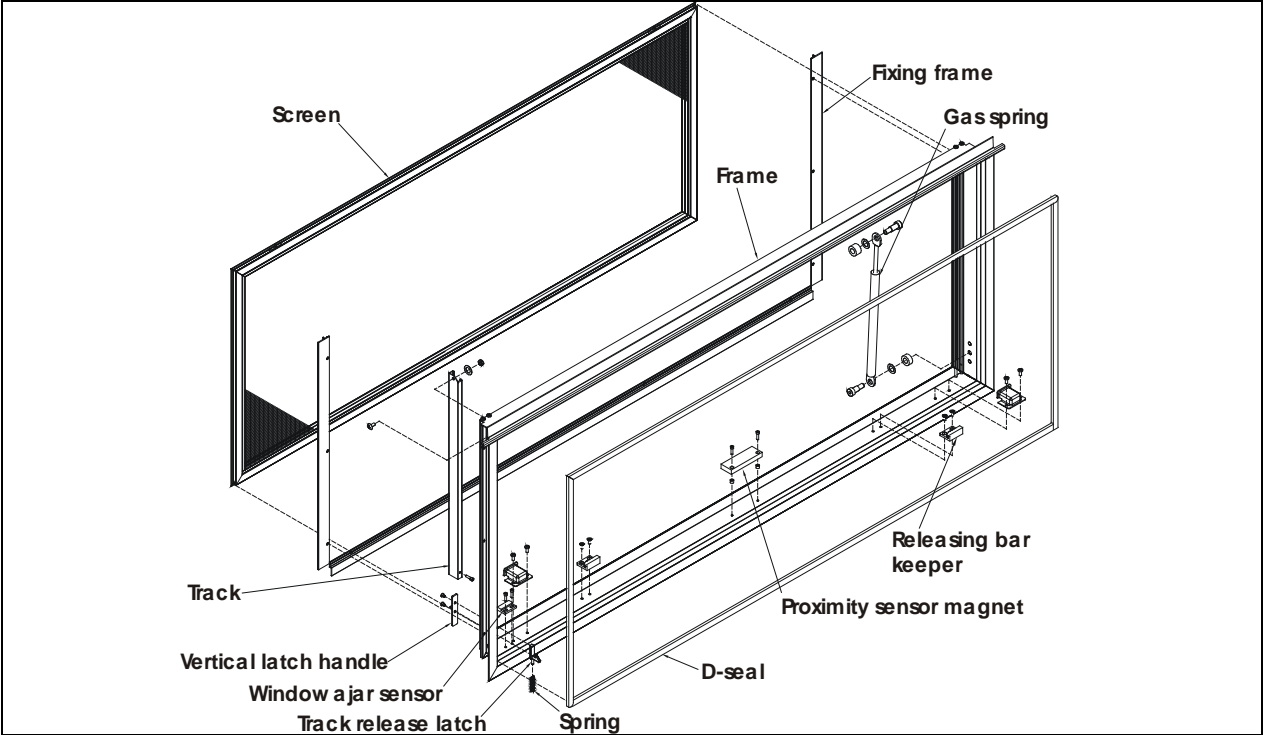


FIGURE 61: ELECTRIC AWNING WINDOW EXPLODED VIEW (FRAME) 18586

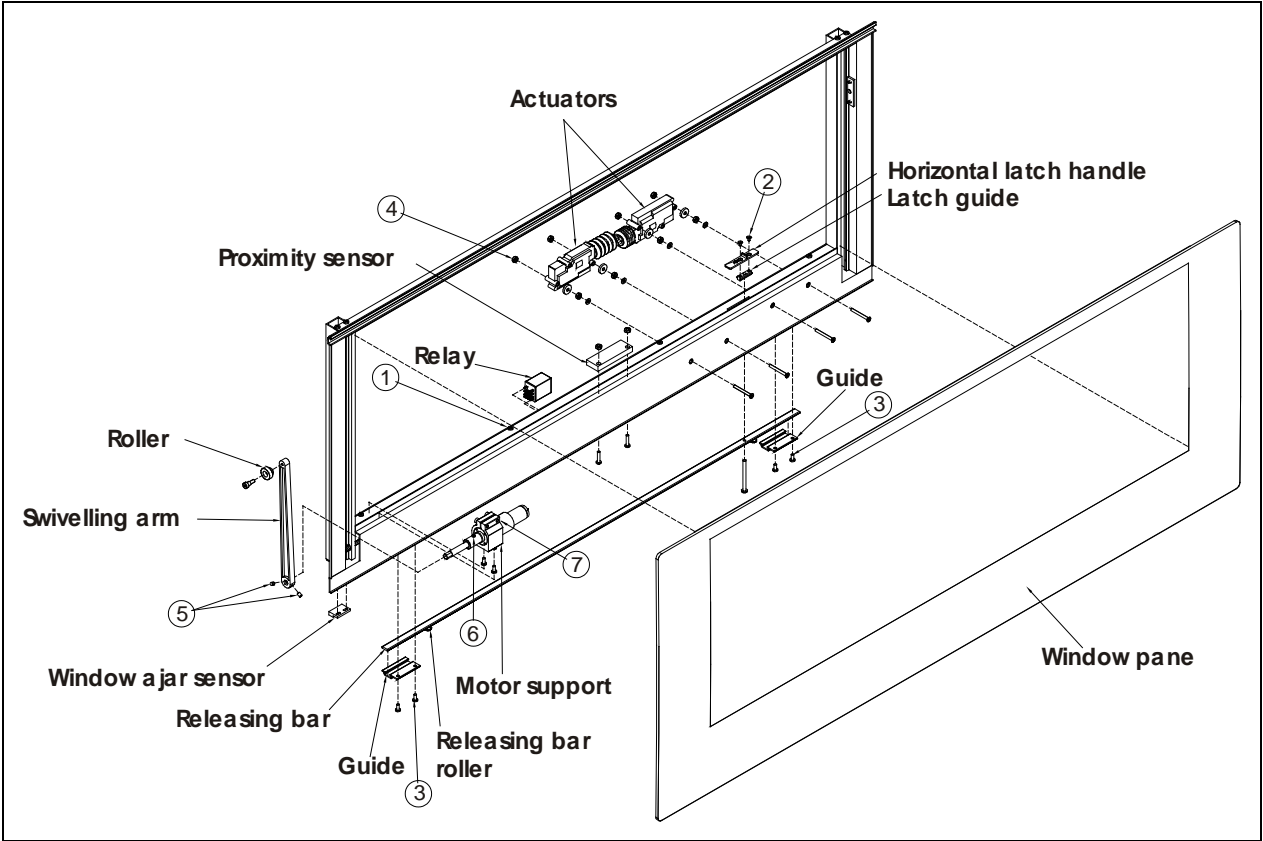


FIGURE 62: ELECTRIC AWNING WINDOW EXPLODED VIEW (SASH) 18583

Section 18: BODY

Actuator Replacement

1. Push the vertical latch handle downwards to release the track and then unlatch the window using the horizontal latch handle.
2. Remove actuator access cover by taking out screws #1 (8x).
3. Take out screws #2 (2x) and remove horizontal latch handle and guide.
4. Take out the guide screws #3 (4x) and remove releasing bar.
5. Unplug connectors from defective actuator, unscrew nuts #4 (2x) and remove the actuator.
6. Reverse operations for reinstallation.

Motor Replacement

1. Push the vertical latch handle downwards to release the track and then unlatch the window using the horizontal latch handle
2. Take out the screw at the lower end of the track to let free the swiveling arm roller.
3. Remove actuator access cover by taking out screws #1 (8x).
4. Loosen the set screws #5 (rotate the arm to get to the second set screw) and disengage the swiveling arm from the motor shaft extension.
5. Unplug motor connector and dismount motor and support assembly.
6. The shaft extension is glued to the motor shaft. It has to be heated to break the binding to permit removal. Loosen set screw #6 and remove the shaft extension. Also loosen screw #7 and remove motor from the support.

Reverse operations for reinstallation.

ELECTRIC AWNING WINDOW – CONVERTER CHECKLIST	
Check the electrical circuit & proximity sensor	<p>A: The latching system will not operate without power.</p> <p>Is there electrical power to the latching circuit? The horizontal latch handle, on the sill sash will be seen to move if there is power on this circuit, or it can be checked with an electrical tester. If there is no power to this circuit when the window is closed and either rocker switch are switched "ON", there is a problem with the electrical system.</p> <p>B: The Proximity Sensor on the sash may not be switching power to the latching circuit if the magnet is not getting close enough to the switch OR the Proximity Sensor may be broken (or stuck in one position).</p> <p>Is the proximity sensor switching when the window is closed?</p>
Check the release force required to operate the horizontal latch handle	<p>A: If the pull force required to move the latch is more than 20lbs the window will not latch properly. Average pull force during testing by manufacturer is 12lbs -15lbs.</p> <p>What is the force required to release the handle? Check using a force gauge (same test done by manufacturer).</p>
Check Installation	<p>A: If the window is too tightly installed OR if the sequence for tightening the clamping frame screws is incorrect the window may not close properly.</p> <p>Was the window installed correctly?</p> <p>Was the correct sequence (see below) used when tightening the clamping frame screws?</p> <div style="text-align: center;"> </div> <p>B: Removing the shipping blocks before the window is installed can create major problems.</p>

	<p>Were the shipping blocks in place during installation?</p> <p>C: Failure to remove the shipping blocks after installation can create interference between sash and frame.</p> <p>Have the shipping blocks been removed after installation?</p> <p>D: The window is misaligned or not installed squarely.</p> <p>Is there interference with any coach parts?</p> <p>Is there proper clearance between the bottom of the outer glass and the belt-line trim / seal?</p>
<p>Check for missing parts or misaligned parts</p>	<p>A: The frame and sash are misaligned.</p> <p>Is there any interference between the sash and frame?</p> <p>Is there clearance between the sash and the rocker switch covers?</p> <p>B: Releasing bar guides are missing.</p> <p>Check that the releasing bar guides are installed. There should be 4 installed on H windows, and 3 installed on XL2 windows.</p>

7.2.4 Electric Sliding Windows

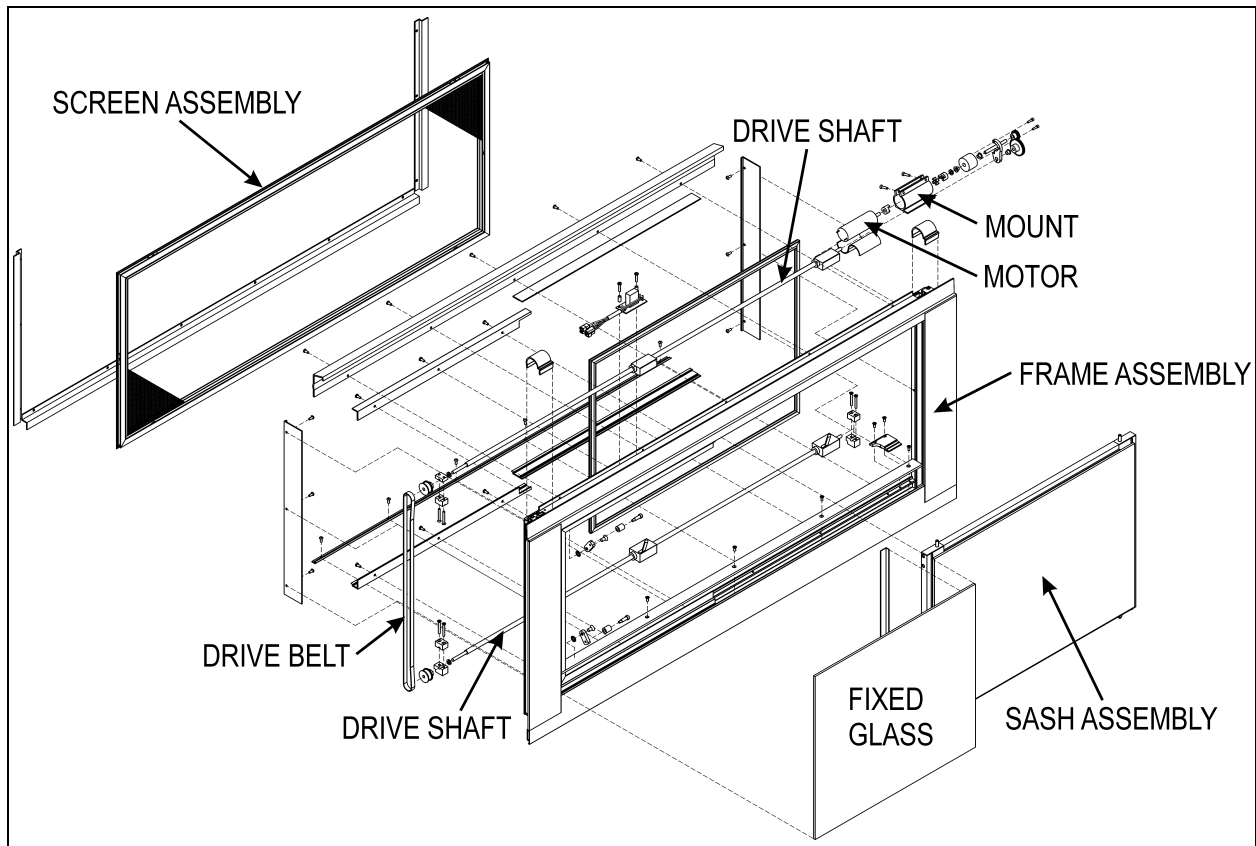


FIGURE 63: ELECTRIC SLIDING WINDOW EXPLODED VIEW

Section 18: BODY

Sash Removal

1. Remove the Screen Assembly
2. Pull down on both release latches simultaneously and rotate the sash inwards approximately 10 degrees.(Figure 64)



FIGURE 64: REMOVING THE SASH

3. Lift the sash up and out to disengage the bottom of the sash from the window frame. (Figure 65)



FIGURE 65: DISENGAGING THE BOTTOM OF THE SASH

Installation

1. Align the leading edge of the slot on the lower cam follower block with the sash stop. Use the power toggle switch to obtain the correct alignment. (Figure 66)

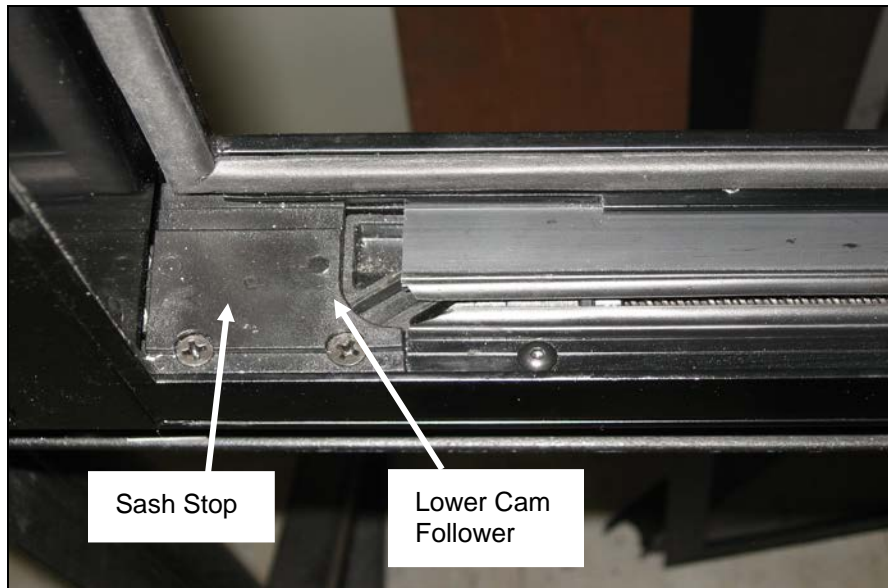


FIGURE 66: PROPER ALIGNMENT

2. Position the left hand lower corner of the sash over the front cam follower block (Figure 67)



FIGURE 67: POSITIONING THE LOWER LEFT CORNER OF THE SASH

3. Engage the sash pin with the leading edge of the slot of the cam follower block. Do the same at the rear of the sash.
4. Pull down on the release latches and rotate the sash inwards until it is parallel with the window frame.
5. Release the latches to engage the latch pins with the upper cam follower blocks.
6. Confirm that both latches are in the closed (latched) position. The upper edge of the latch opening must be aligned with upper edge of the sash opening (Figure 68)

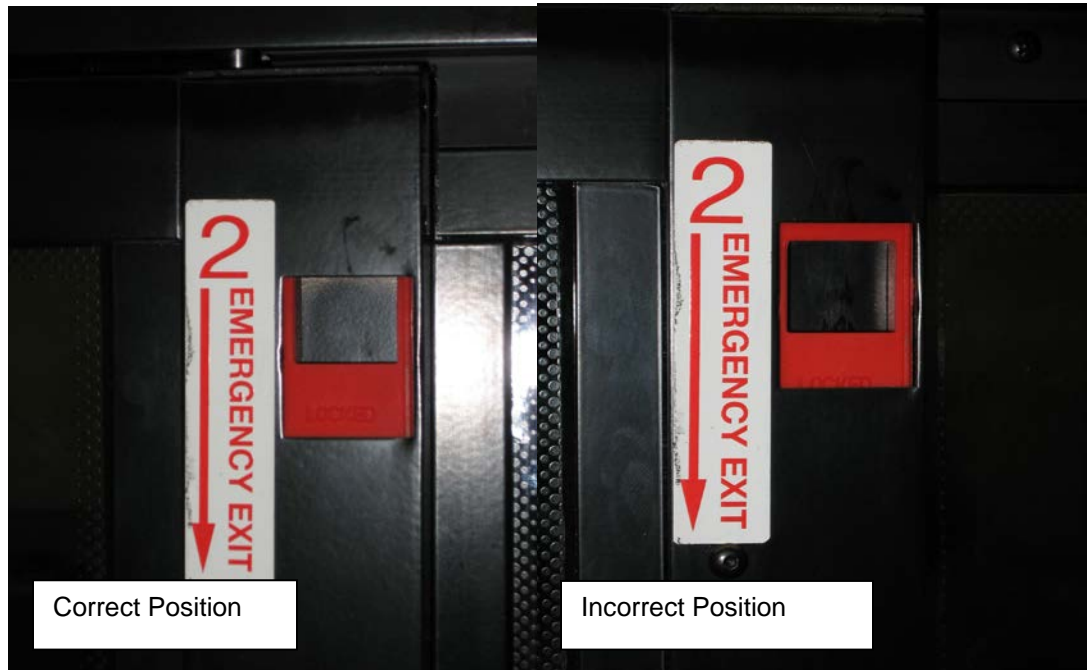


FIGURE 68: RELEASE LATCH PROPER POSITION

7. * Failure to confirm this step may lead to the sash becoming disengaged with the frame and could result in personal injury.
8. Operate the window to confirm that it opens and closes properly.
9. Install the screen assembly.

7.3 ZONE 3

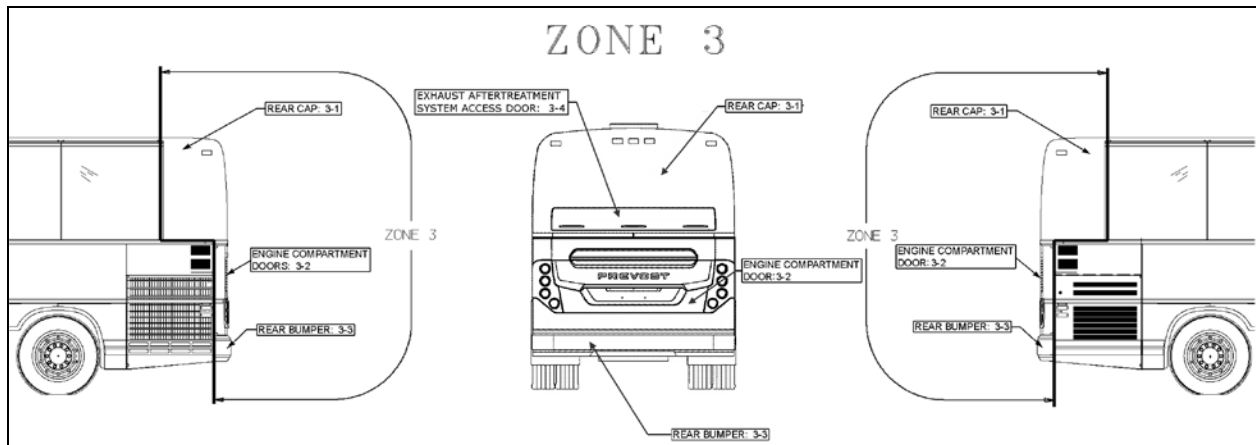


FIGURE 69: ZONE 3

7.3.1 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 Prevost service center near you.

For minor damages, refer to Paragraph 4 "Common Fiberglass Repair Procedure" and Paragraph 5 "Common Painting Procedure".

7.3.2 Engine Compartment Doors

❖ Engine Compartment Doors Adjustment

The engine compartment door may be adjusted for proper fit by untightening support bolts:

NOTE

Consult the "BODY PANEL AND WINDOW SPACING DIAGRAM" for proper door gaps adjustment. (Figure 46 Page 65 of this section)

1. To adjust the door VERTICAL position, loosen the bolts (4 on each side) holding the door supporting arm and gas springs bracket to the vehicle structure (Figure 70).
2. To adjust the door LATERAL position, loosen the bolts (3 on each side) holding the door supporting arm and gas springs bracket to the door (Figure 70).
3. Adjust the door FORE & AFT position by screwing/unscrewing the rubber door stops on each side of the door opening (Figure 70).
4. Check that the door swings freely and close properly. *It may be necessary to adjust the door latch to get proper fit and operation.*

To adjust the latch mechanism 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.

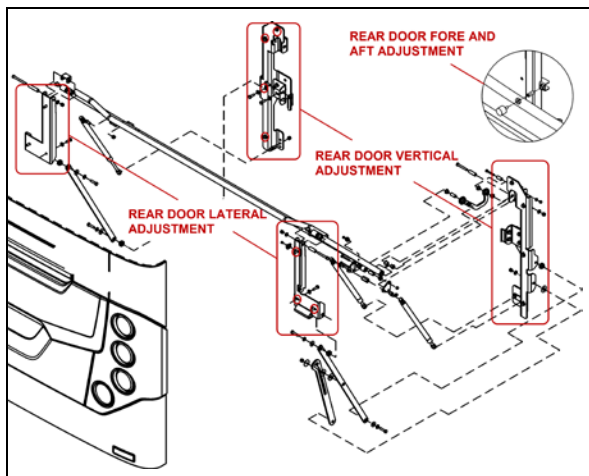


FIGURE 70: ENGINE COMPARTMENT DOOR

18633_1

❖ Engine Compartment Door Body Panel Removal

For the removal of engine compartment door body panel, you will need:

Pneumatic hammer tool (Zip Gun);
Razor sharp window scraper;
A pair of locking pliers;
Isopropyl alcohol.

- Remove damaged engine compartment door from vehicle.
- Install the damaged door onto an appropriate support.
- Wearing gloves, goggles and ear plugs, pry loose body panel using a "Zip gun" or lever starting from the edge opposite the curved side.
- Use the "Zip gun" to detach completely the stainless steel body panel from door frame.



CAUTION

Do not damage painted surface.

- Use a second person equipped with a pair of locking pliers to pull the body panel as you cut the Sika bead.



WARNING

Be very careful when pulling the body panel, somebody could get hurt if the body panel suddenly detach from the door surface without notice.

- Using the window scraper, remove any Sika bead or self-adhesive tape residue left on the fiber glass surface.

For gluing of engine compartment doors molding, refer to procedure **SAV00211**.

For engine compartment door body panel installation, refer to procedure **SAV280032**.

Section 18: BODY

7.3.3 Rear Bumper

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

To install bumper, reverse the procedure.

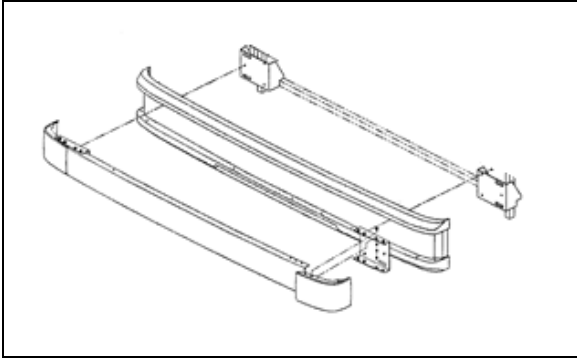


FIGURE 71: REAR BUMPER

7.4 ZONE 4

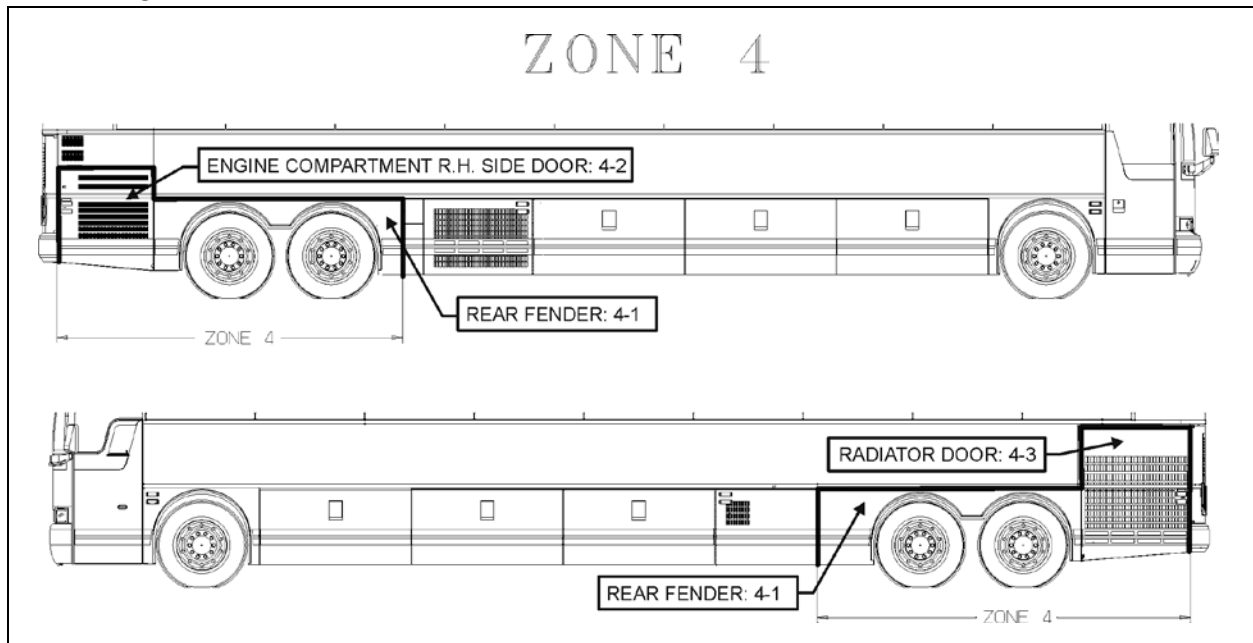


FIGURE 72: ZONE 4

7.4.1 Rear Fender

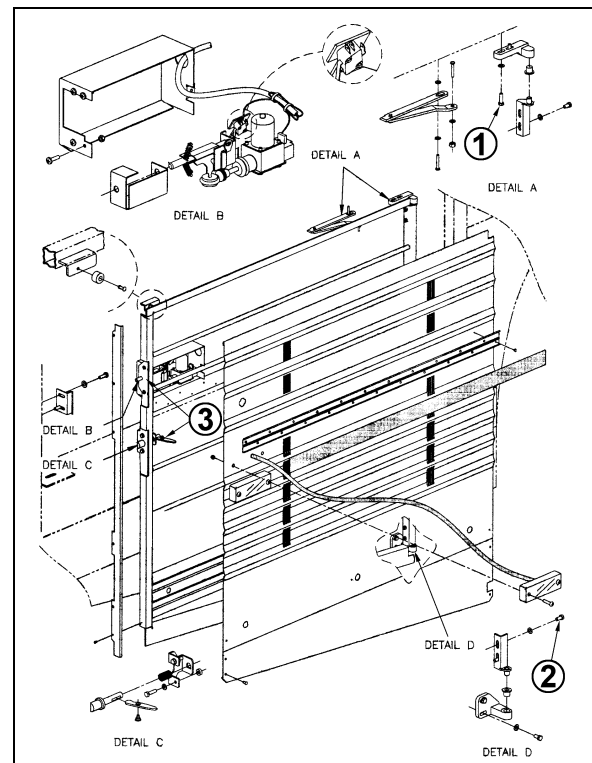
On X3-45 VIP vehicles, rear fenders are hinged for maintenance on brakes and suspension. Each rear fender panel has two mechanical spring loaded holding devices fixing it to the vehicle's structure. Push the spring type rod sideways to disengage the lock.

For the installation of rear fender body panel, refer to procedure **SAV470046**.

7.4.2 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, Figure 73) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".
2. Loosening the bolts (2, Figure 73) allows the door to be shifted "LEFT or RIGHT" and "UP or DOWN".
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.

FIGURE 73: ENGINE COMPARTMENT R.H. SIDE DOOR¹⁸⁶³⁵

To adjust the latch mechanism (3, Figure 73) and the striker pin:

6. Open the door to access the striker pin.
7. Slightly loosen the striker pin.

Section 18: BODY

8. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
9. Tighten the striker pin.
10. Check door fit and operation.

For gluing of engine compartment R.H. side door finishing molding, refer to procedure **SAV00210**.

7.4.3 Engine Radiator Door

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

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

1. Loosen the bolts, (1, Figure 74) holding the hinge to the vehicle structure to shift the door "LEFT or RIGHT".
2. Loosening the bolts (2, Figure 74) allows the door to be shifted "UP or DOWN".

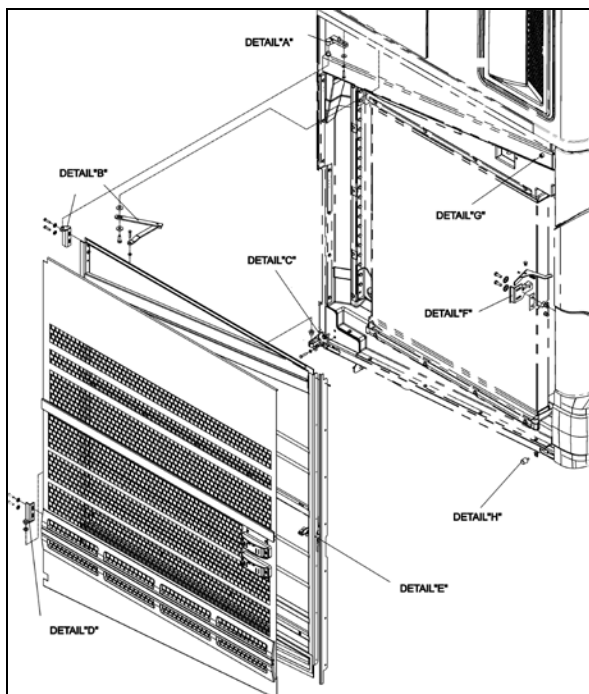


FIGURE 74: RADIATOR DOOR

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3. Adjust the door position depending on the gap needed between exterior finishing panels (See 6.8, BODY PANEL AND WINDOW SPACING).
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, Figure 75) and the striker pin:

1. Open the door to access the striker pin latch.
2. Slightly loosen the latch on the vehicle.
3. Adjust the latch position to allow easy door closing.
4. Tighten the striker pin latch bolts.
5. Check door fit and operation.

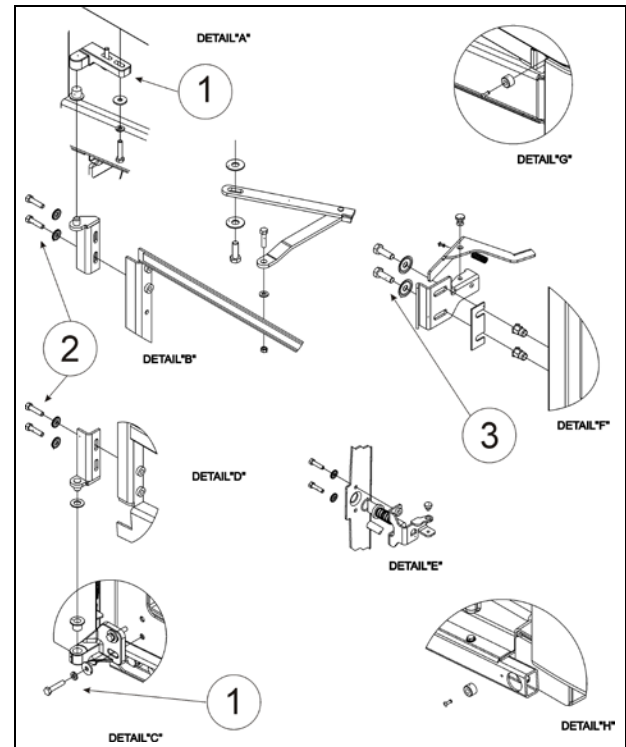


FIGURE 75: RADIATOR DOOR DETAILS

18636_2

NOTE

The striker pin must engage at least 13/32" (10mm). Add spacers between the latch and the vehicle body to adjust the engagement.

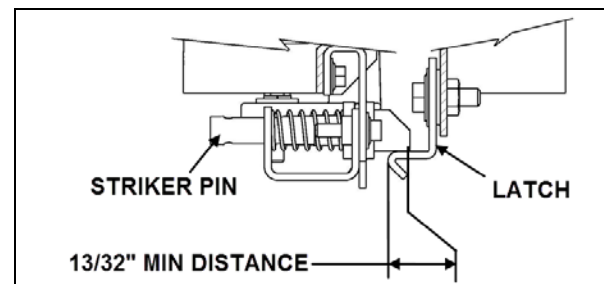
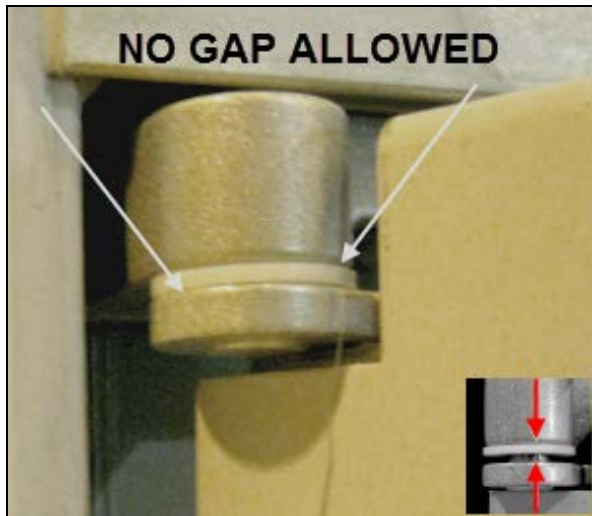


FIGURE 76: STRIKER PIN ENGAGEMENT

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NOTE

There should be no gap between the washer and the hinge upper and lower halves.



7.5 ZONE 5

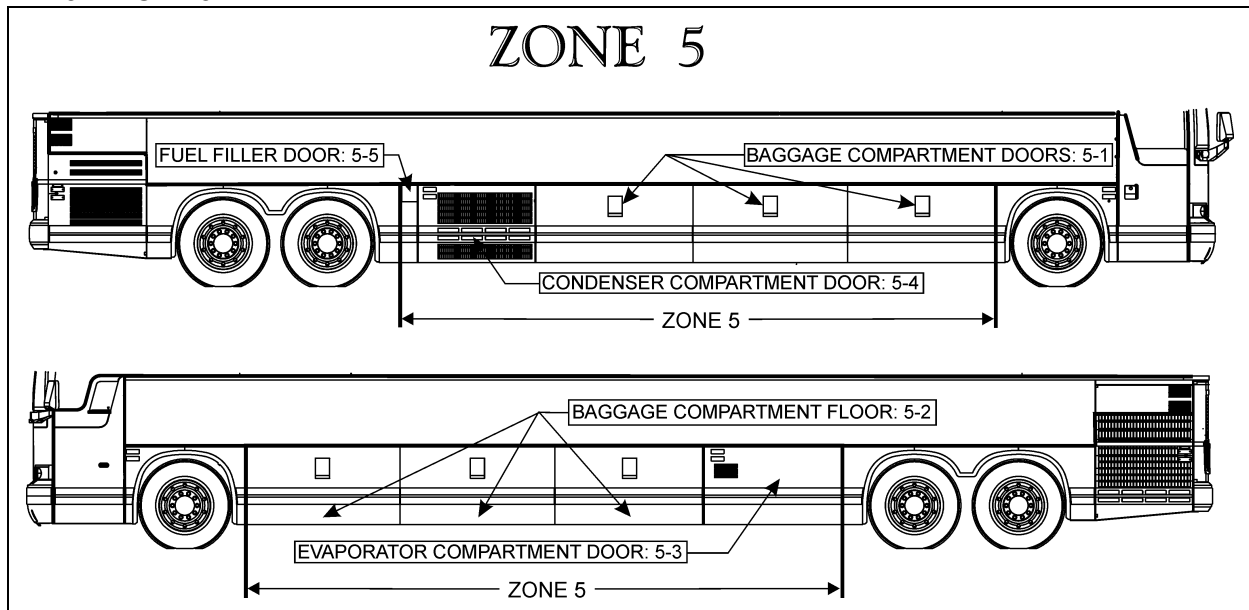
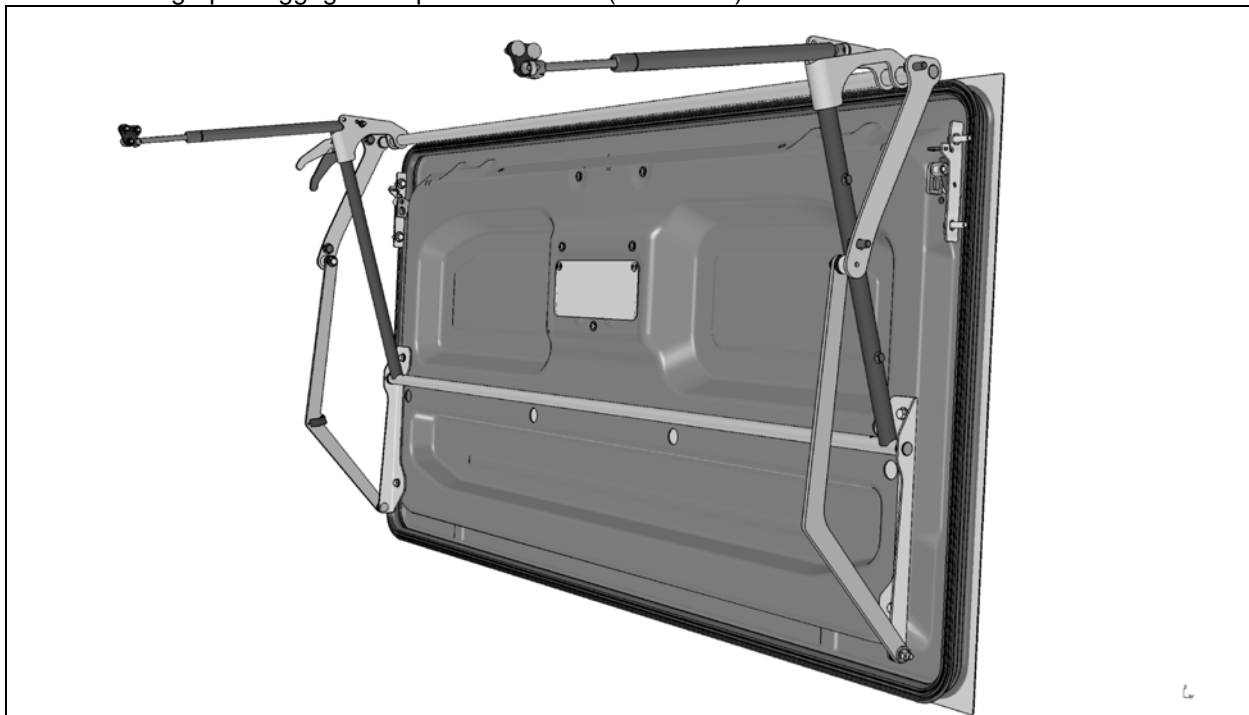


FIGURE 77: ZONE 5

7.5.1 Pantograph Baggage Compartment Doors (Aluminum)



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

- A drill with drill bits;
- Pneumatic hammer tool (Zip Gun);
- 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 Panel replacement**

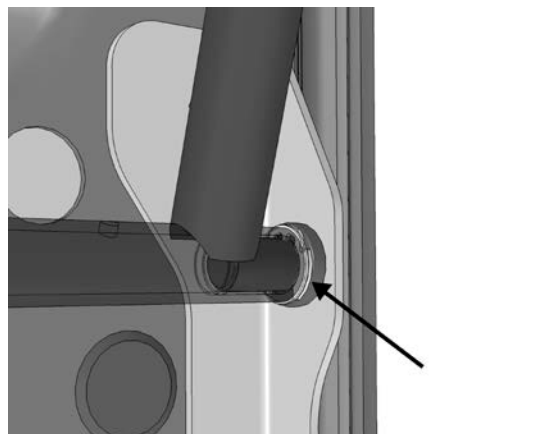
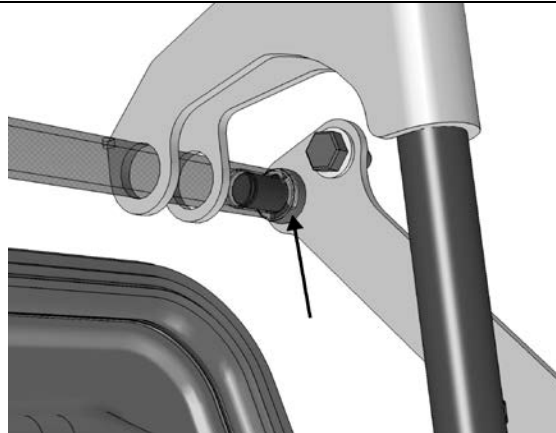
- Refer to SAV10054-67.

- **Baggage Compartment Door Adjustment**

11. Adjust door to get a 6mm gap at the top.
12. All adjustments are to be made with door closed, unless specified.
13. Center door in the opening using the retaining rings.

NOTE

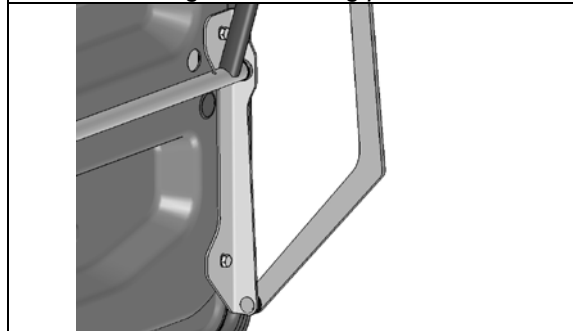
Lateral adjustment is made by adding/removing retaining rings in these locations.



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

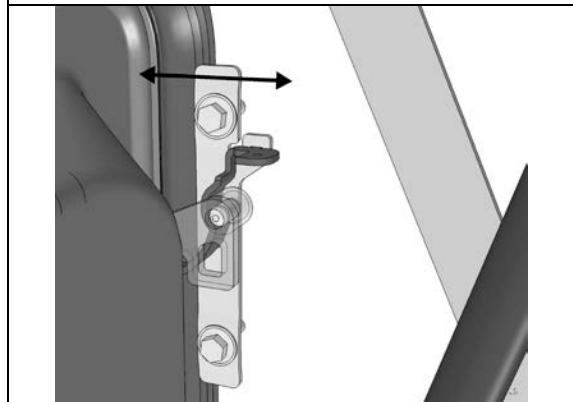
NOTE

Vertical adjustment is achieved by moving the door along the mounting plates slots.



NOTE

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

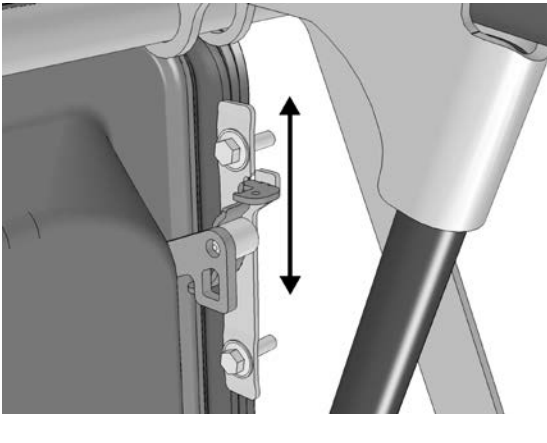


15. Check handle adjustment. Handle must remain tight against its plastic housing.

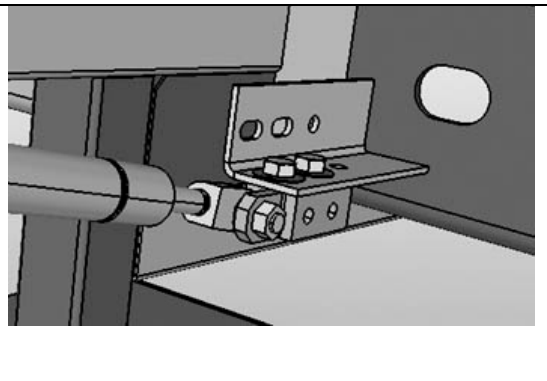
Section 18: BODY

NOTE

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

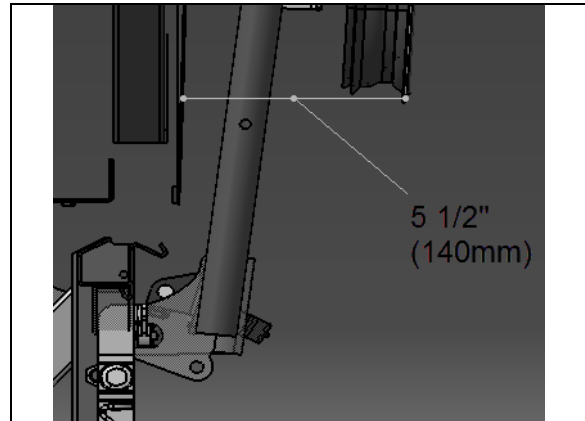


16. Open baggage compartment door and adjust using the cylinder mounting block.



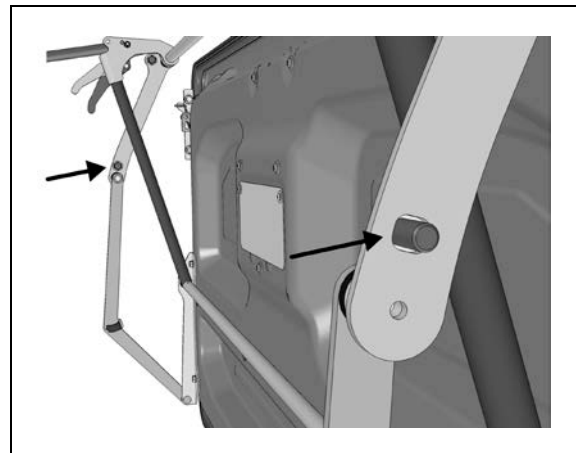
17. Door should be adjusted in reference to neighboring doors.

18. Target is to have 5 1/2" (140mm) from bus body panel to door panel and +/- 2mm vertically between doors.

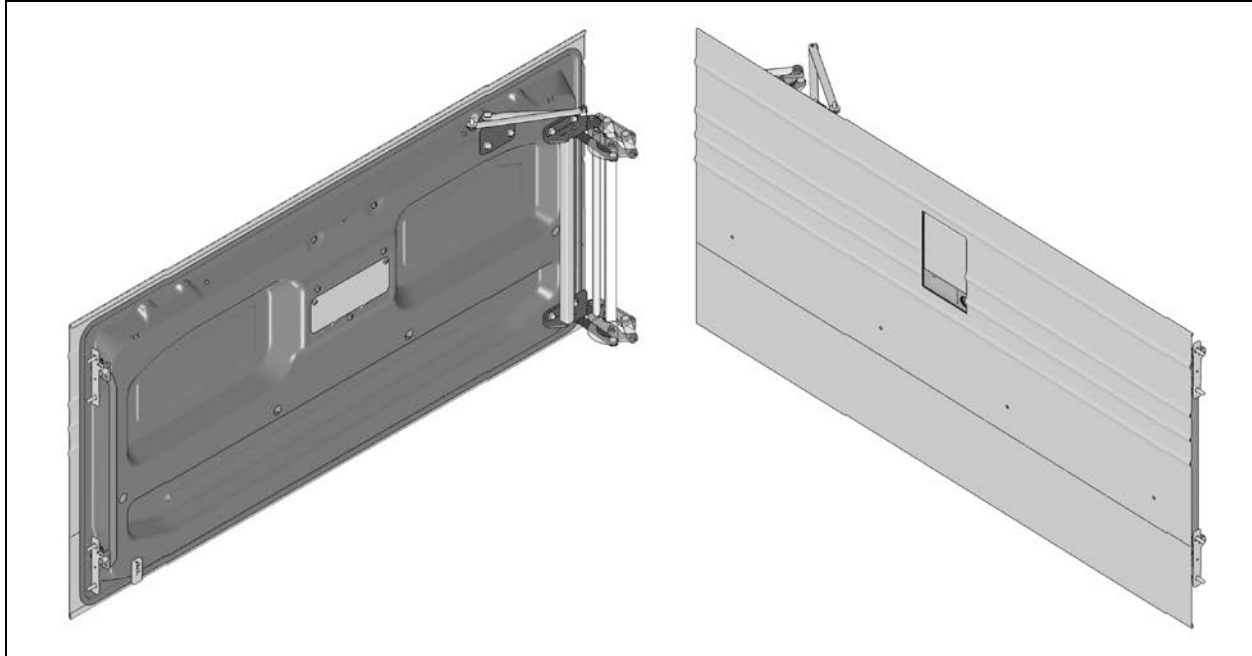


19. Tighten cylinder block fixing screws.

20. Door bottom edge compression can be adjusted by moving in or out the pantograph arms at this location.



7.5.2 Hinged Baggage Compartment Doors (Aluminum)

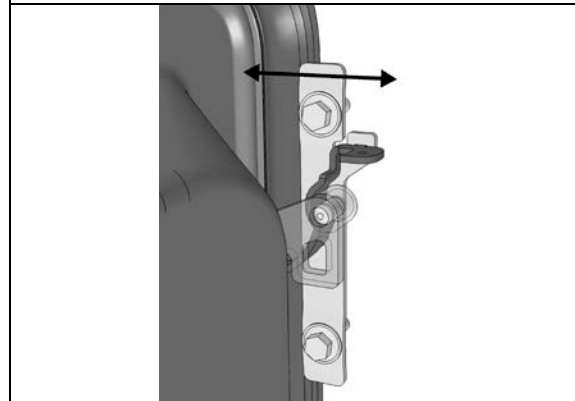


- **Door Adjustment**

1. Open the door.
2. Loosen the screws fixing the hinge to hinge attachment or hinge to door assembly. Loosening the screws allows the 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. Depending on location, door exterior panel on hinge side should be positioned at 29mm +/- 2mm measured from bus frame out **or** 5mm +1mm if measurement is taken from small square tube on frame.
7. Tighten the hinge screws.
8. 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.



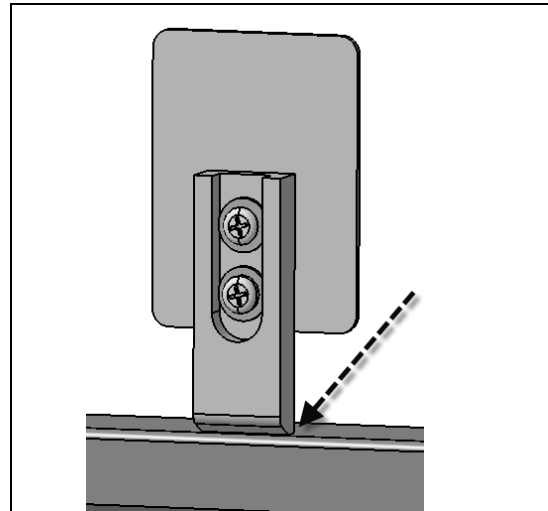
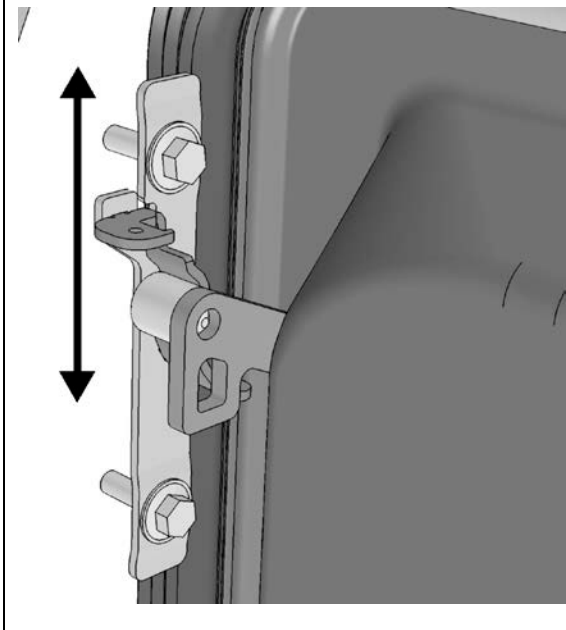
5. Adjust door to get a 6mm gap at the top.
6. Respect the required gap between exterior finishing panels.

Section 18: BODY

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

NOTE

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



10. Make sure that skid bar only touches slightly bus structure at bottom. The door should not move up when closing.

7.5.3 Condenser Compartment Door

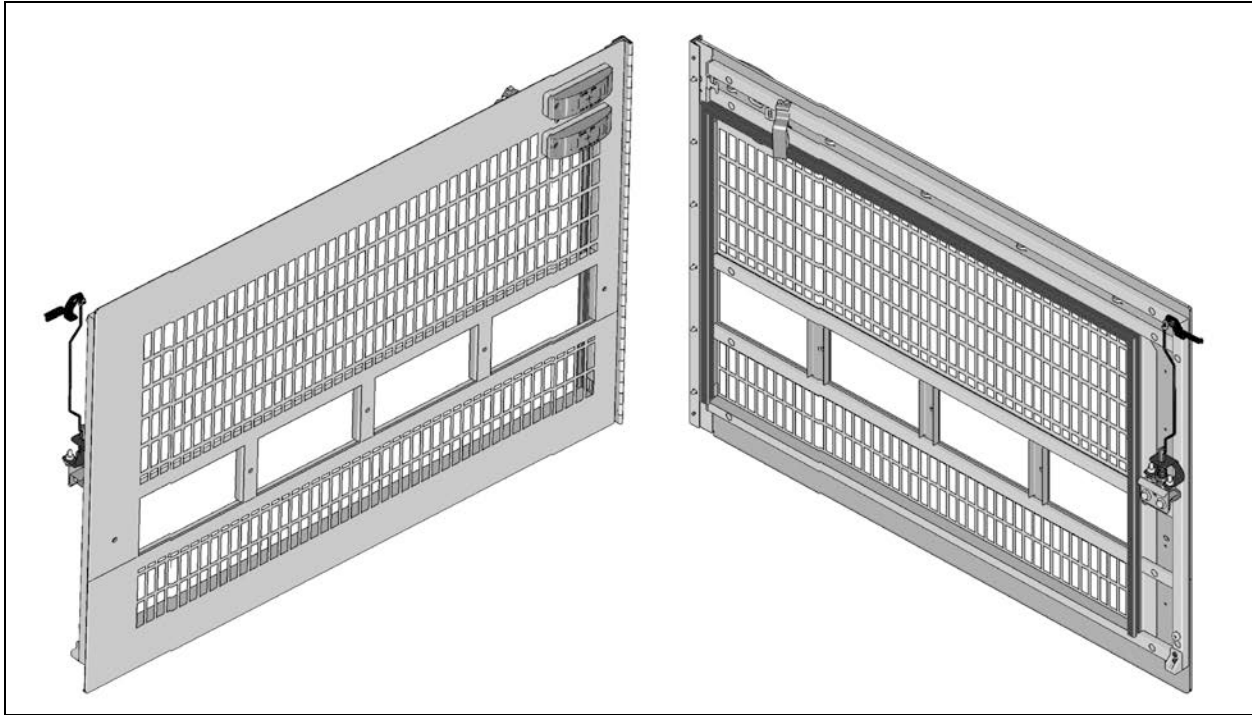


FIGURE 78: CONDENSER DOOR

- **Door Adjustment**

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. Respect the required gap between exterior finishing panels.
5. Tighten the screws.
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.

Section 18: BODY

7.5.4 Evaporator Compartment Door (Aluminum)

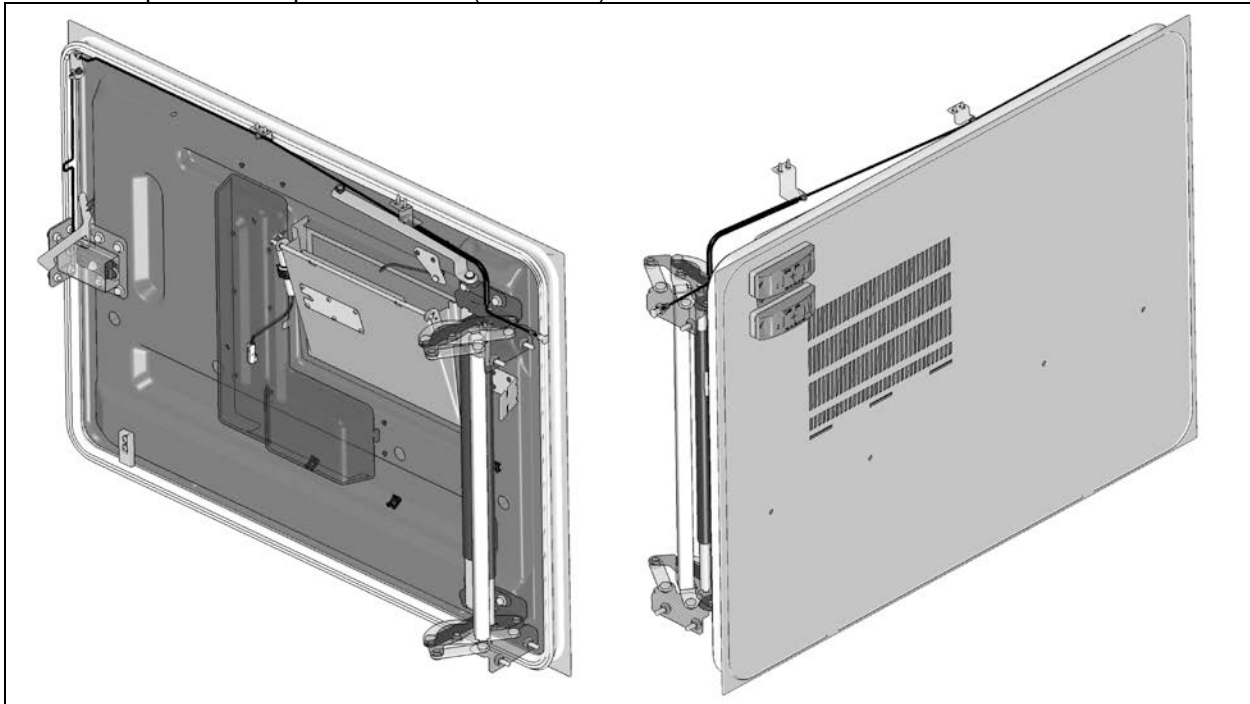


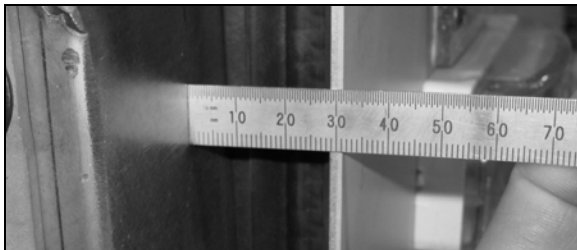
FIGURE 79: EVAPORATOR DOOR (ALUMINUM)

For the adjustment of an evaporator door, you will need:

- Centering tool G34148_500

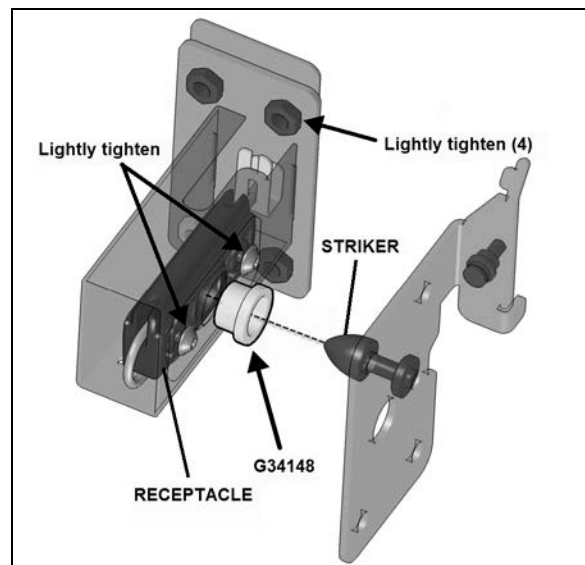
• Door Adjustment

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. Door exterior panel on hinge side should be positioned at 29mm +/- 2mm measured from bus frame out.



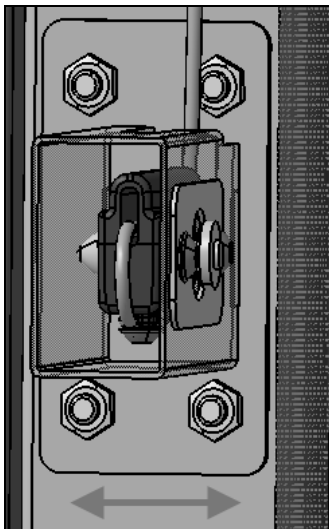
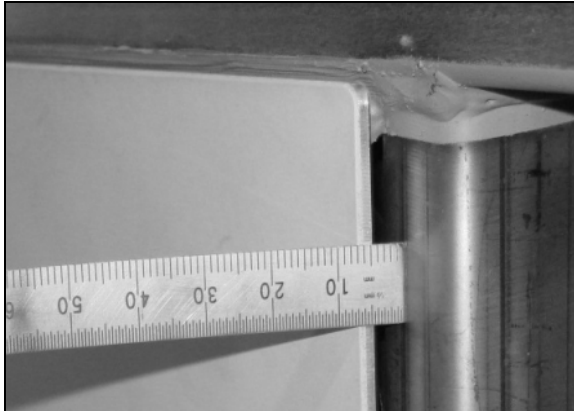
5. Respect the required gap between exterior finishing panels.

6. Tighten the hinge screws.
7. To allow adjustment of the latch mechanism, lightly tighten the retaining hardware on receptacle and receptacle support to frame.
8. Place centering tool G34148_500 in the receptacle cavity.

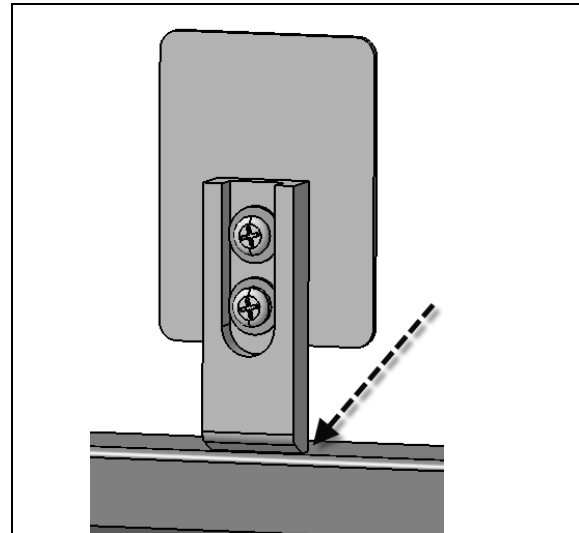


9. Close door to center the latch assembly.
10. Tighten the receptacle screws only.

11. .Door exterior panel on latch side should be positioned at 8mm +1mm from frame. Make the adjustments by moving the receptacle support.



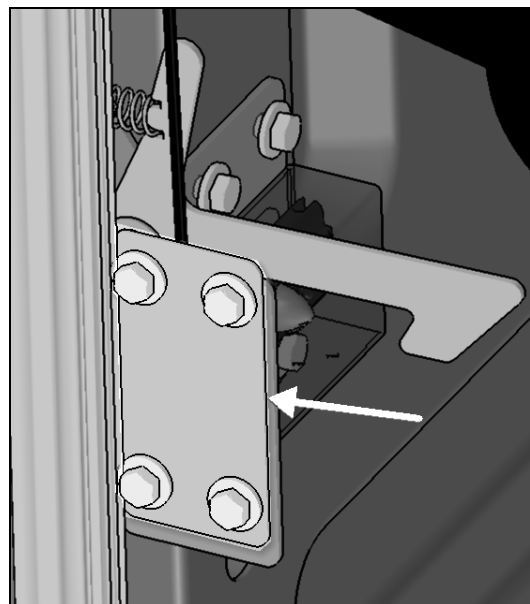
12. Make sure that backing plate is parallel to structure before tightening the retainer support hardware
13. Make sure that skid bar only touches slightly bus structure at bottom. The door should not move up when closing.



14. Check that the door swings freely and closes properly.

- **Door release in the event of a latch failure.**

If the door release mechanism is damaged or ceases to function for any reason, the door can be released by removing these screws on the fore wall of the rear fender side



Section 18: BODY

7.5.5 Fuel Filler Door

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

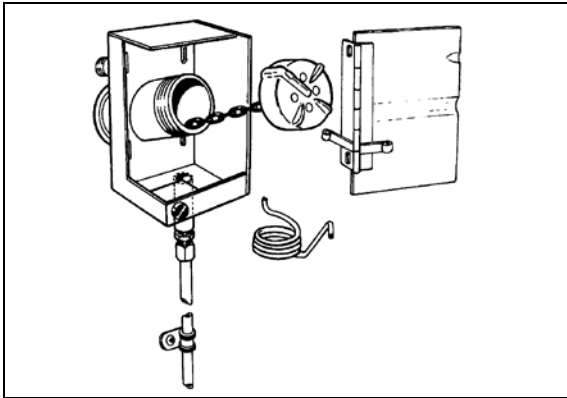


FIGURE 80: FUEL FILLER DOOR

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7.6 ZONE 6

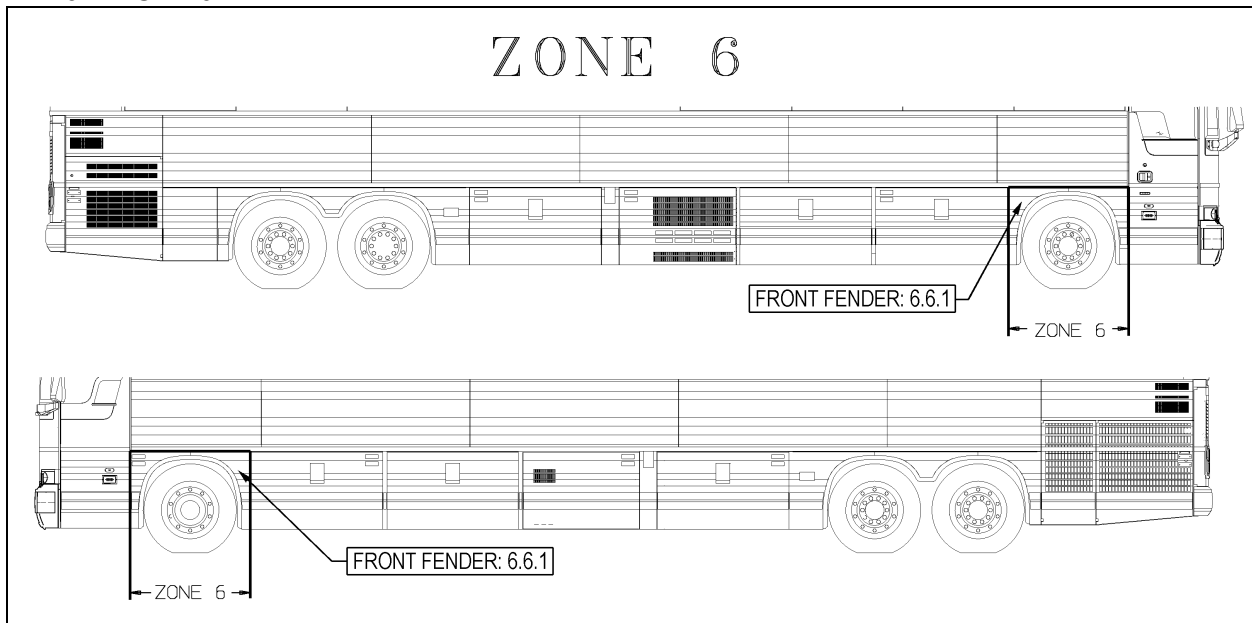


FIGURE 81: ZONE 6

7.6.1 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.

For the installation of front fender body panel, refer to procedure **SAV470024**.

7.7 ZONE 7

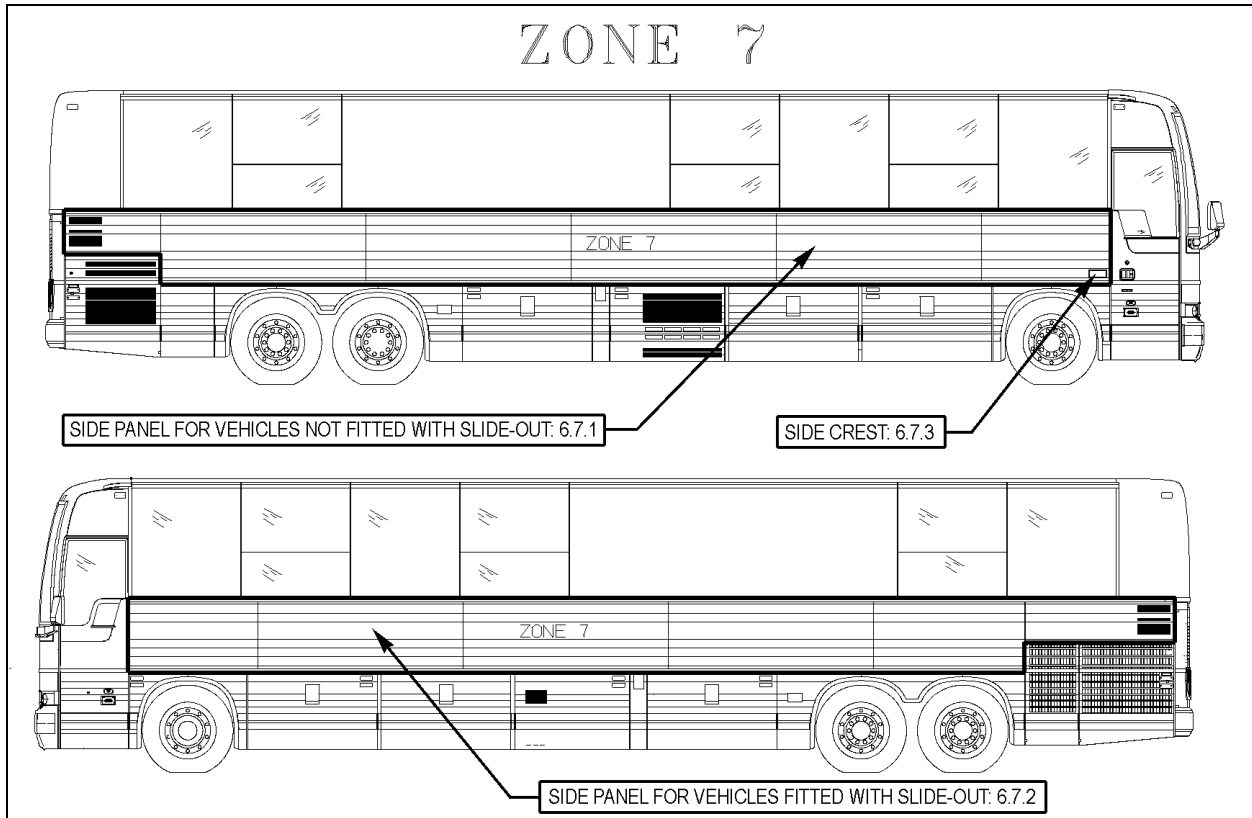


FIGURE 82: ZONE 7

7.7.1 Side Panel for Vehicles Not Fitted With Slide-Out

❖ Removal

<p>Remove top and bottom finishing moldings. 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.</p>	<p>Be careful not to damage the adjacent surfaces You need to remove the finishing molding support and rivets in the case of engine air intake panel.</p>
<p>Insert a flat screwdriver between the side panel and the vehicle chassis, in the top left and right corners.</p>	
<p>Use the c-clamp to peel the side panel from the back structural panel as far as the middle and at the same time gradually cut Sika bead with a sharp knife. Do the same for the other corner.</p>	<p>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</p>

Section 18: BODY

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.
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.

For the structure preparation before the installation of a ridged side panel, refer to procedure **SAV00027**.

For gluing of ridged side panels, refer to procedure **SAV00028**.

For sealing the side panels' upper portion, refer to procedure **SAV00030**.

For gluing of horizontal finishing molding, refer to procedure **SAV00208**.

7.7.2 Side Panel for Vehicles Fitted With Slide-Out

❖ Removal

Refer to paragraph 7.7.1 for procedure.



CAUTION

Because most junction panels are only riveted and not spot welded, be careful when removing a side panel not to damage adjacent panels.

For the slide-out junction panel preparation before the installation of a ridged side panel, refer to procedure **SAV00031**.

For gluing of ridged side panels on vehicles fitted with slide-out, refer to procedure **SAV00029**.

7.7.3 Side Crest

- 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.

7.8 ZONE 8

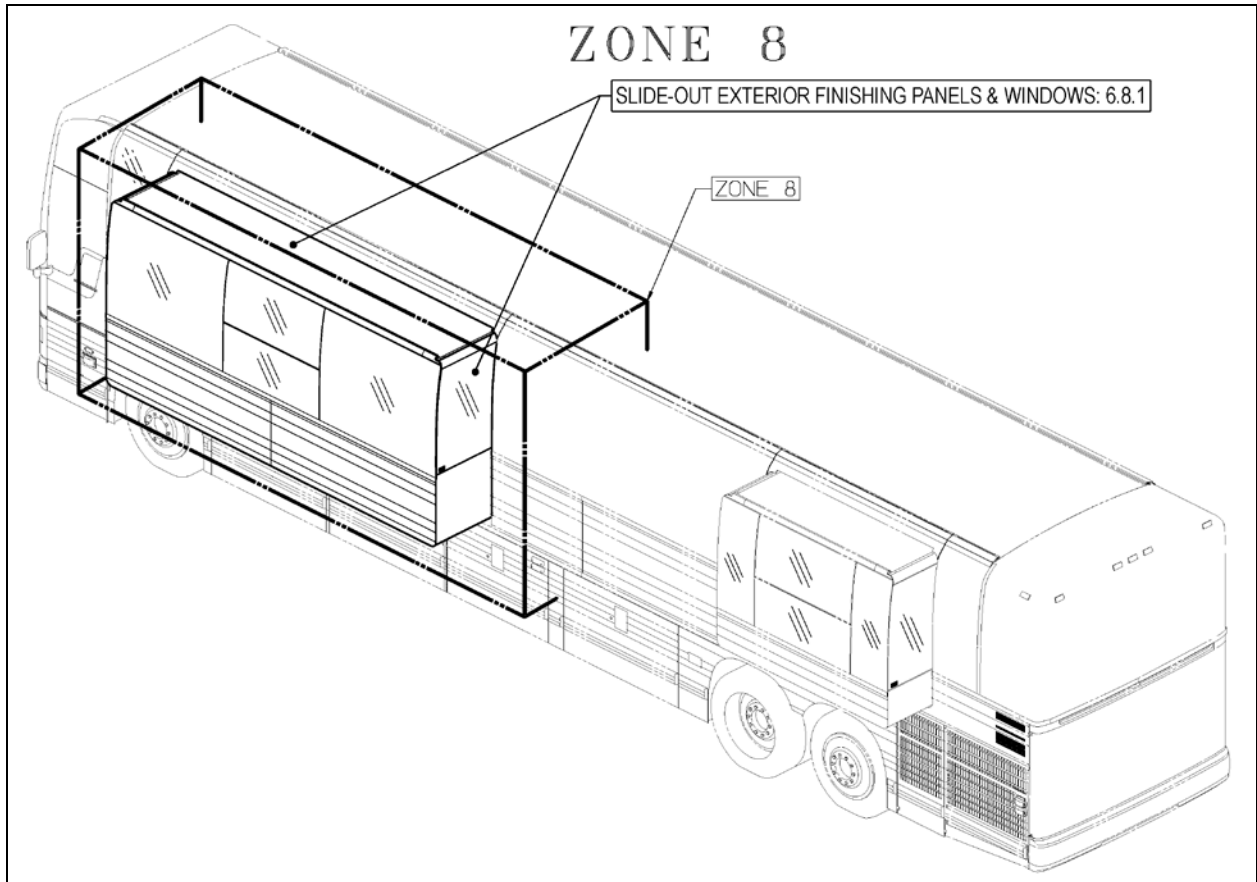


FIGURE 83: ZONE 8

7.8.1 Slide-Out Exterior Finishing Panels & Windows

Refer to Maintenance Manual, Section 26: Paragraph 16 for the procedure on slide-out exterior finishing panels & windows.

7.9 ZONE 9

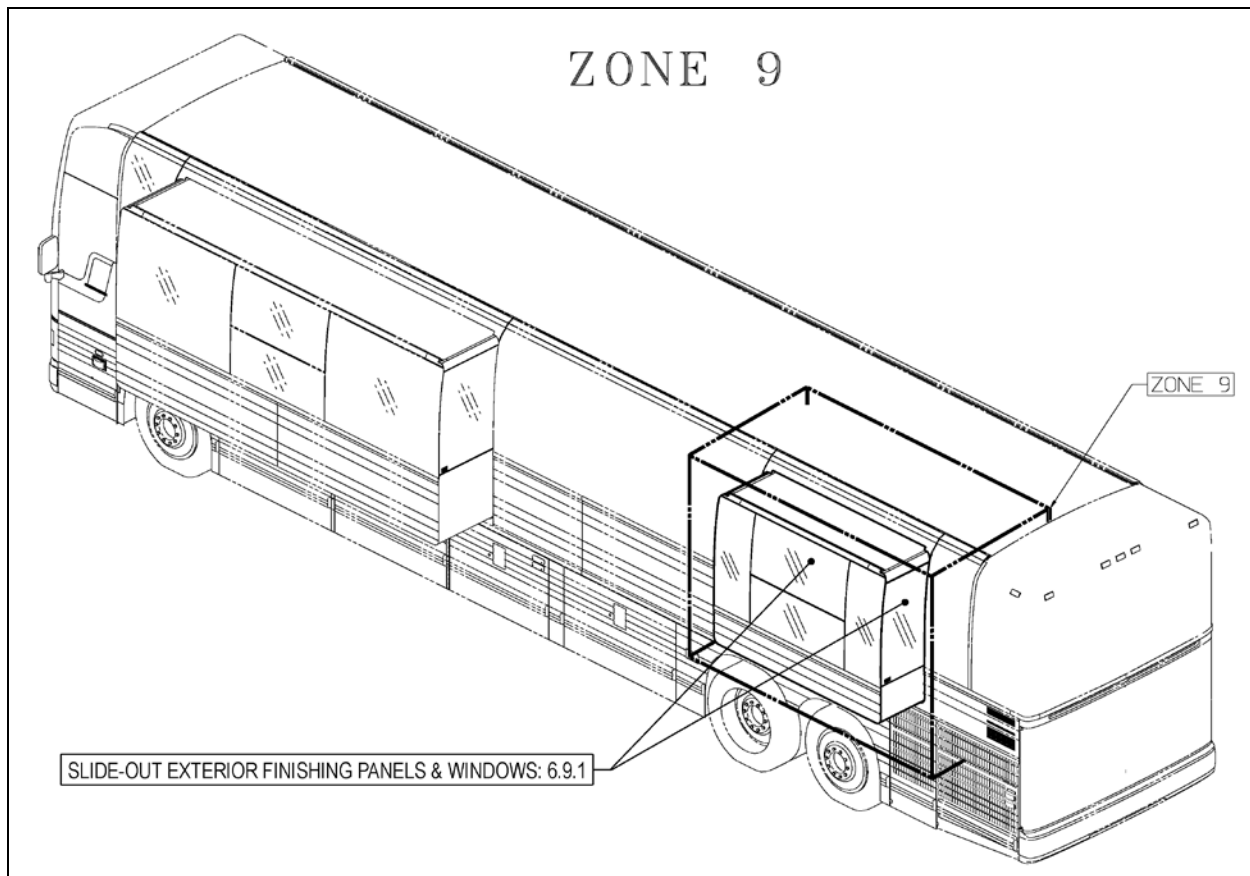


FIGURE 84: ZONE 9

7.9.1 Slide-Out Exterior Finishing Panels & Windows

Refer to Maintenance Manual, Section 26: Paragraph 16 for the procedure on slide-out exterior finishing panels & windows.

8. 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 88 to 94.



WARNING

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



CAUTION

The suspension of the vehicle must be in the normal ride position before jacking. The "Level Low" system on X3-45 VIP & XLII Bus Shells must be in the "DRIVE" position prior to turning the ignition key "OFF".

Twelve jacking points are located on the vehicle: three 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.

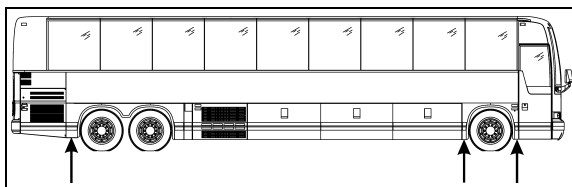


FIGURE 88: JACKING POINTS ON FRAME

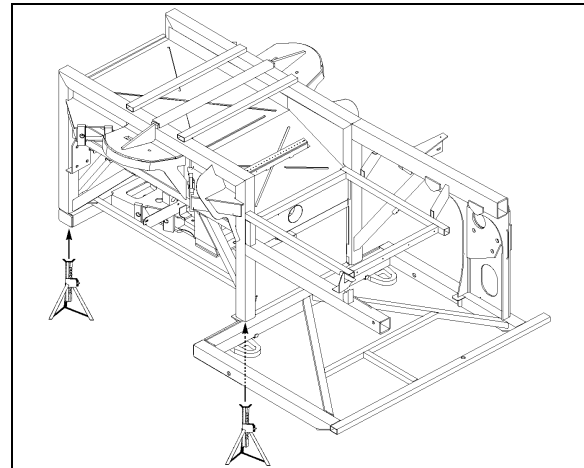


FIGURE 89: FRONT END JACKING POINTS 18592

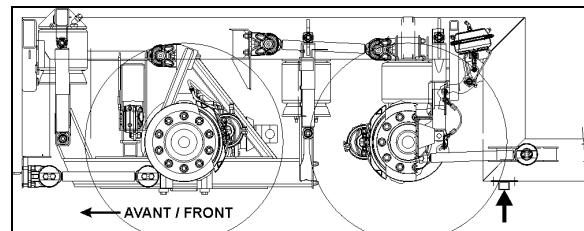


FIGURE 90: REAR END JACKING POINTS

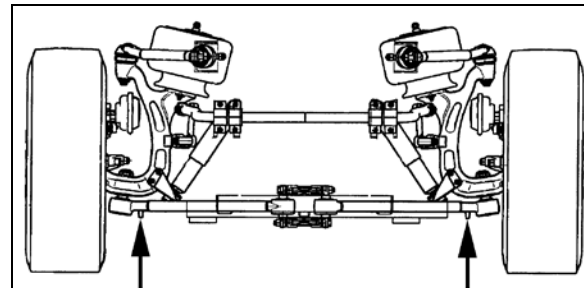


FIGURE 91: JACKING POINTS ON IND. SUSPENSION 16095

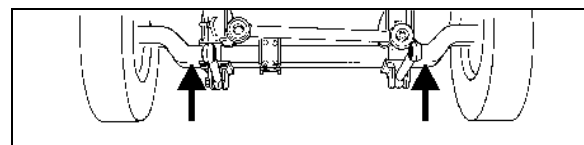


FIGURE 92: JACKING POINTS ON I-BEAM FRONT AXLE

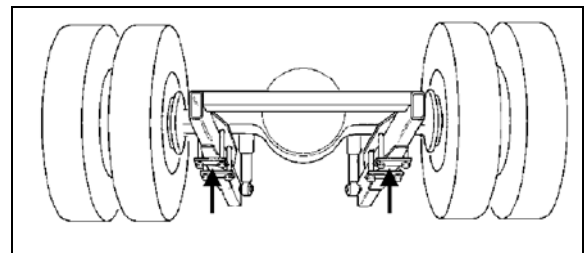


FIGURE 93: JACKING POINTS ON DRIVE AXLE OEH3B762

**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.

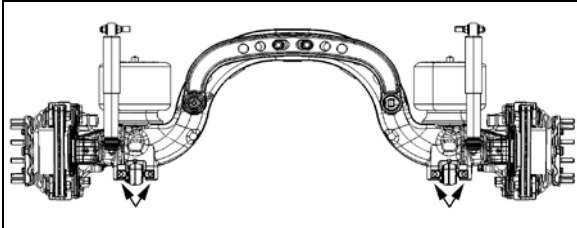


FIGURE 94: JACKING POINTS ON TAG AXLE OEH3B764

**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).

8.1 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.

9. TOWING THE VEHICLE

The vehicle can be transported on a low bed semi-trailer of adequate gross axle weight capacity. When transporting a vehicle, apply parking brake and shut down the engine. Block all wheels and secure vehicle with tie-downs. Check that overall height will clear obstacles on the route to follow, and obtain required permits.

The vehicle can also be towed by lifting the front axle or by towing from the front with all wheels on the ground. These two methods are described below under their respective headings. Whatever the method used, the vehicle should be towed by truck operators authorized and experienced in towing highway coaches.

Observe normal precautions including, but not limited to, the ones listed below when towing the vehicle:

- Make sure the parking brake is released before towing.
- Do not allow passengers to ride onboard the towed vehicle.
- Tow the vehicle at a safe speed as dictated by road and weather conditions.
- Accelerate and decelerate slowly and cautiously.

To prevent damage to the vehicle, use the two tow eyes located under the back bumper and/or fixed to the vehicle's frame between the front axle and the front bumper. Use only a solid link tow bar and a safety chain to tow the vehicle. If required, connect an auxiliary air supply to the vehicle so brakes can be operated while towing.

**WARNING**

During a towing operation, the driver should be alone inside the vehicle.



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 or automated mechanical 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..



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

9.1 LIFTING AND TOWING

The towed vehicle must be lifted from under the front axle only. The tow truck must be equipped with the proper lifting equipment to reach under 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.

1. Remove both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to Arvin Meritor "Maintenance manual no.5" annexed at the end of Section 11, Rear axle, in this manual for correct procedure.



CAUTION

Transmission lubrication is inadequate when towing. The drive axle shafts must be removed to avoid serious damage to the 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..

2. Operate the engine when towing to maintain brake system air pressure. If the engine cannot be operated, connect an external air

pressure line from the tow truck to the emergency fill valve in the engine compartment.

3. The emergency fill valve in the front service compartment does not supply air pressure to the brake system. The air pressure must be a minimum of 75 psi (520 kPa), and the line should be attached to the air line with a clip-on chuck.



WARNING

Do not tow the vehicle without external air pressure applied to the emergency fill valve if the engine does not operate. Without brake system air pressure, the brakes may apply automatically if system air drops below 40 psi (275 kPa). If failure prevents releasing the parking brakes with air pressure, disengage the parking brakes mechanically.

4. Lift the vehicle from under the front axle, and adequately secure the underside to the tow vehicle lifting attachment with chains.
5. Observe safety precautions when towing.

9.2 TOWING WITHOUT LIFTING



WARNING

When towing vehicle without lifting, use only a tow truck with a solid link tow bar and related equipment. All other means of towing are unauthorized. Tow only from the front of the vehicle.

1. Remove both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to Arvin Meritor "Maintenance manual no.5" annexed at the end of Section 11, Rear axle, in this manual for correct procedure.

**CAUTION**

Transmission lubrication is inadequate when towing. The drive axle shafts must be removed to avoid serious damage to the transmission.

**CAUTION**

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..

- Operate the engine when towing to maintain brake system air pressure. If the engine cannot be operated, connect an external air pressure line from the tow truck to the emergency fill valve in the engine compartment. The emergency fill valve in the front service compartment does not supply air pressure to the brake system. The air pressure must be a minimum of 75 psi (520 kPa), and the line should be attached to the air line with a clip-on chuck.

**WARNING**

Do not tow the vehicle without external air pressure applied to the emergency fill valve if the engine does not operate. Without brake system air pressure, the brakes may apply automatically if system air drops below 40 psi (275 kPa). If failure prevents releasing the parking brakes with air pressure, disengage the parking brakes mechanically.

- Position the tow truck so that the tow bar contacts the front bumper of the vehicle.
- Attach the tow truck chains only in the tow eyes of the vehicle under the bumper and take up all the slack.
- Attach safety chains as applicable.
- Observe safety precautions when towing.

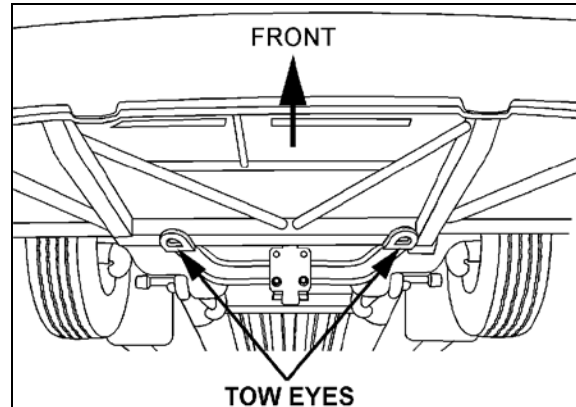


FIGURE 95: TOW EYES

9.3 Volvo I-Shift Alternate Towing Mode

If the standard towing procedure can't be followed due to road condition or local road regulations (tunnels, bridges, etc), follow the alternate procedure described below.

**CAUTION**

This procedure applies only to coaches with **D series Volvo I-Shift** transmissions (**AMT-D**) provided with alternate towing mode software.

Forward towing only! Reverse towing (backing-up) is not allowed with this procedure or damage to the gearbox will occur.

**CAUTION**

This procedure should not be used in replacement of the standard towing procedure.

This procedure does not have any indicator, therefore, if any of the steps below are not fulfilled, transmission damage may occur.

Applying the procedure will allow tow mode to be activated and vehicle to be towed without the removal of the driveshaft for whatever distance the vehicle needs to be towed.

Towing gear **3 HR** will be engaged if conditions below are fulfilled in the following sequence:

- Ignition key must be in the "ON" position
- Engine not running
- Adequate air pressure to the gearbox/
Vehicle must have electrical power
- Shift pad must be in neutral
- Vehicle must be towed **FORWARD** only

10. SPECIFICATIONS Door cylinder

Manufacturer..... Bimba
 Type Pneumatic
 I.D. 1½" (mm)
 Stroke 8" (mm)
 Prevost number 780595

Damper

Manufacturer..... Koni
 Prevost number 780565

Lock cylinder (upper)

Manufacturer..... Bimba
 Type Air, single action, 1/8 NPT, hexagonal rod
 I.D. 7/8" (22 mm)
 Stroke 1" (25 mm)
 Prevost number 641392

Lock cylinder (central)

Manufacturer..... Bimba
 Type Air, single action, ¼ NPT
 I.D. 1¾" (45 mm)
 Stroke 1" (25 mm)
 Prevost number 641209

Manifold solenoid

Manufacturer..... Norgren
 Type 4 ports, 1/8 NPT
 Voltage..... 24 VDC
 Power consumption 6 watts
 Maximum pressure 150 psi (1035 kPa)
 Prevost number 641448

Solenoid valve (Latching valve)

Manufacturer..... Humphrey
 Model 310
 Operating range 0 to 125 psi (0 to 860 kPa)
 Voltage..... 24 VDC
 Voltage tolerance +10%, -15% of rated voltage
 Power consumption 4 watts
 Leak rate (max allowed) 0.245 in³/min @ 100 psi (4cc/min @ 690 kPa)
 Type of operation Direct solenoid
 Lubrication Not required (factory pre-lubed)
 Filtration 40 micron recommended
 Prevost number 641412

Pressure switch assembly

Prevost number 452831