SECTION 18: BODY

ILLUSTRATIONS

1. VEHICLE EXTERIOR

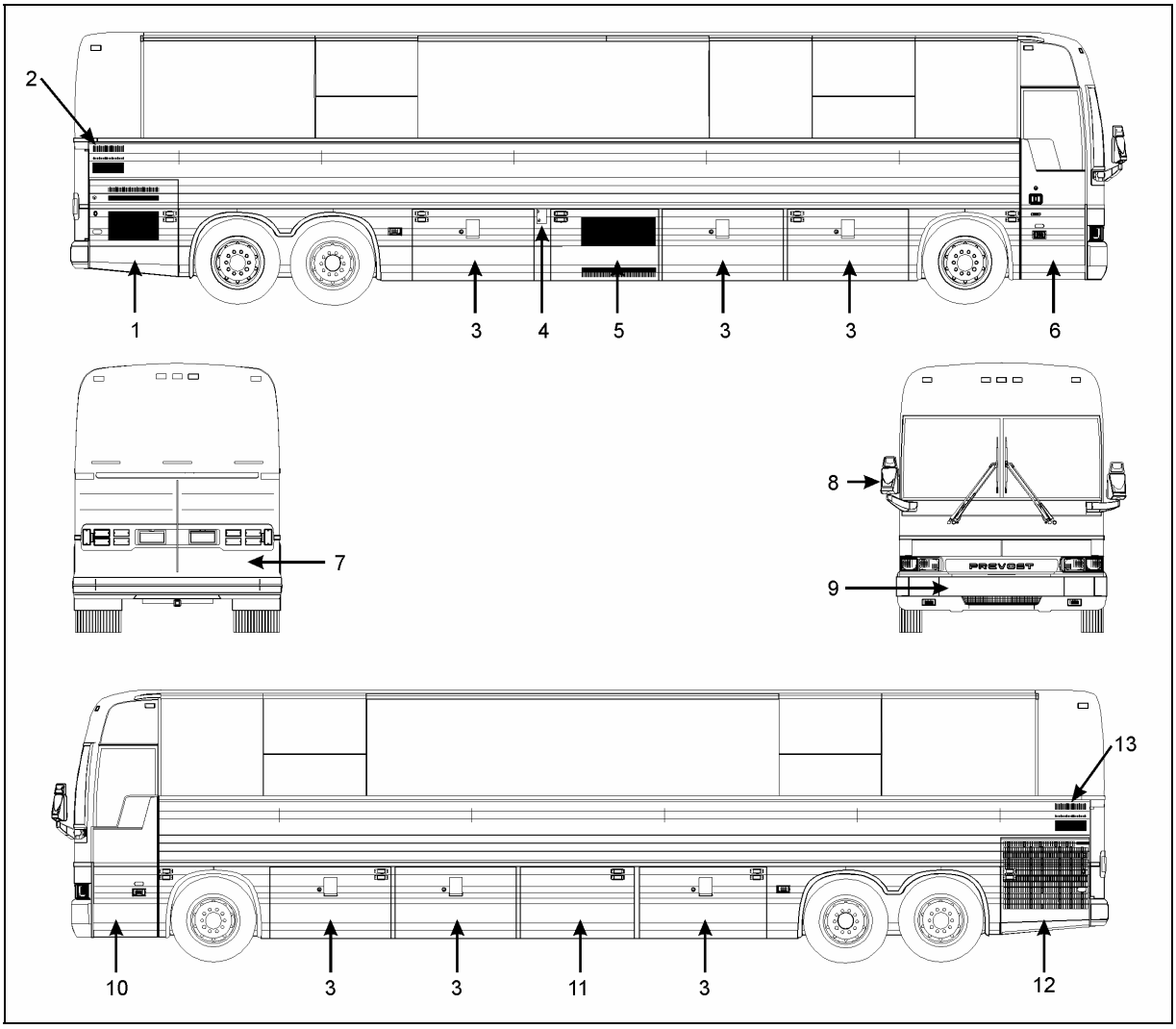

FIGURE 1: XL2-40 CONVERTED VEHICLE EXTERIOR VIEW (TYPICAL) 18365

1. Engine compartment R.H. side door
2. Engine air intake duct
3. Baggage compartment
4. Fuel filler door
5. Condenser or Baggage compartment
6. Entrance door
7. Engine compartment rear doors
8. Rear-view mirror
9. Reclining bumper
10. Front service compartment
11. Evaporator or Baggage compartment
12. Radiator door
13. Engine air intake duct

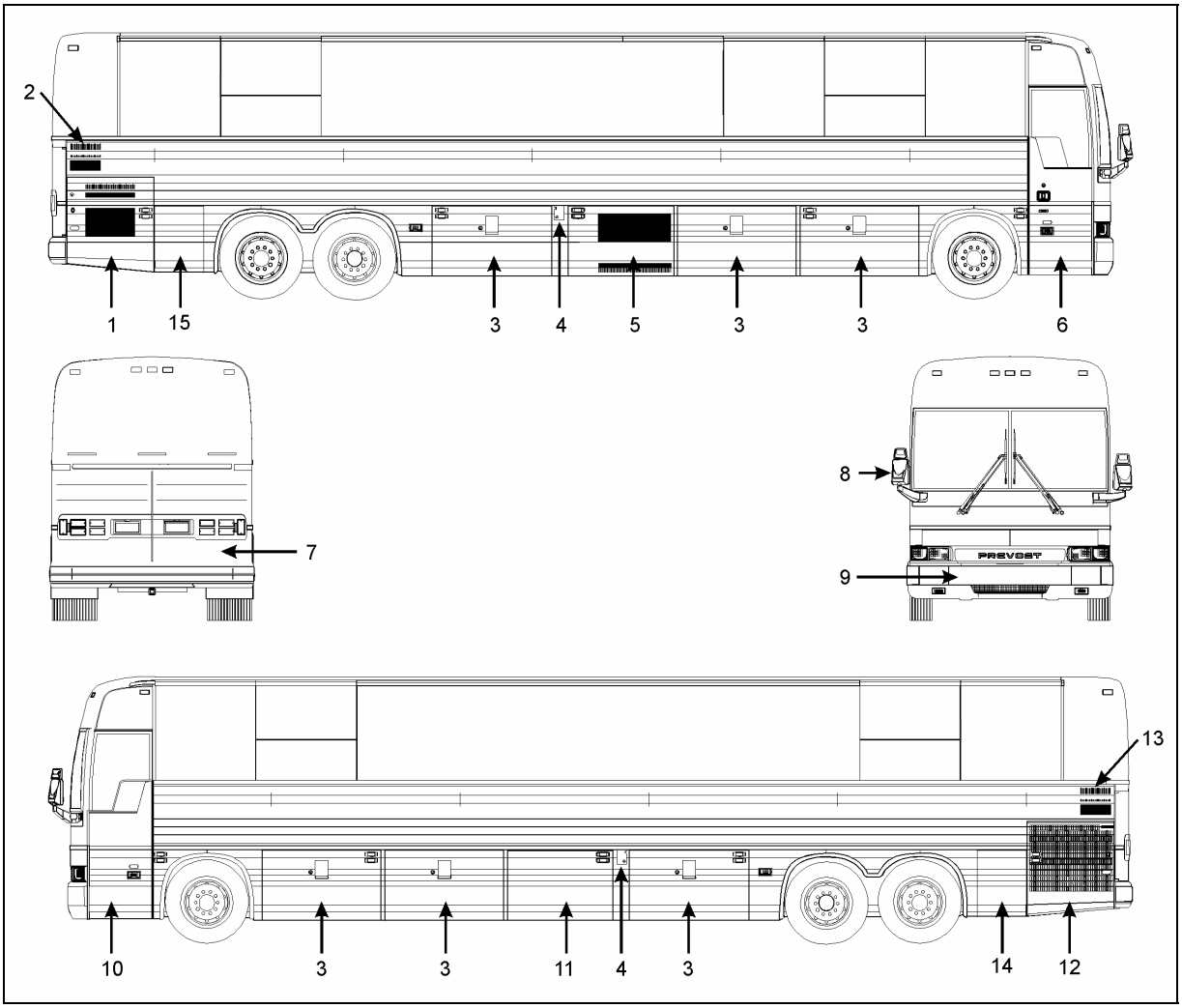

FIGURE 2: XL2-45 CONVERTED VEHICLE EXTERIOR VIEW (TYPICAL) 18362

1. Engine compartment R.H. side door
2. Engine air intake duct
3. Baggage compartment
4. Fuel filler door
5. Condenser or Baggage compartment
6. Entrance door
7. Engine compartment rear doors
8. Rear-view mirror
9. Reclining bumper
10. Front service compartment
11. Evaporator or Baggage compartment
12. Radiator door
13. Engine air intake duct
14. L.H. side rear service compartment
15. R.H. side rear service compartment

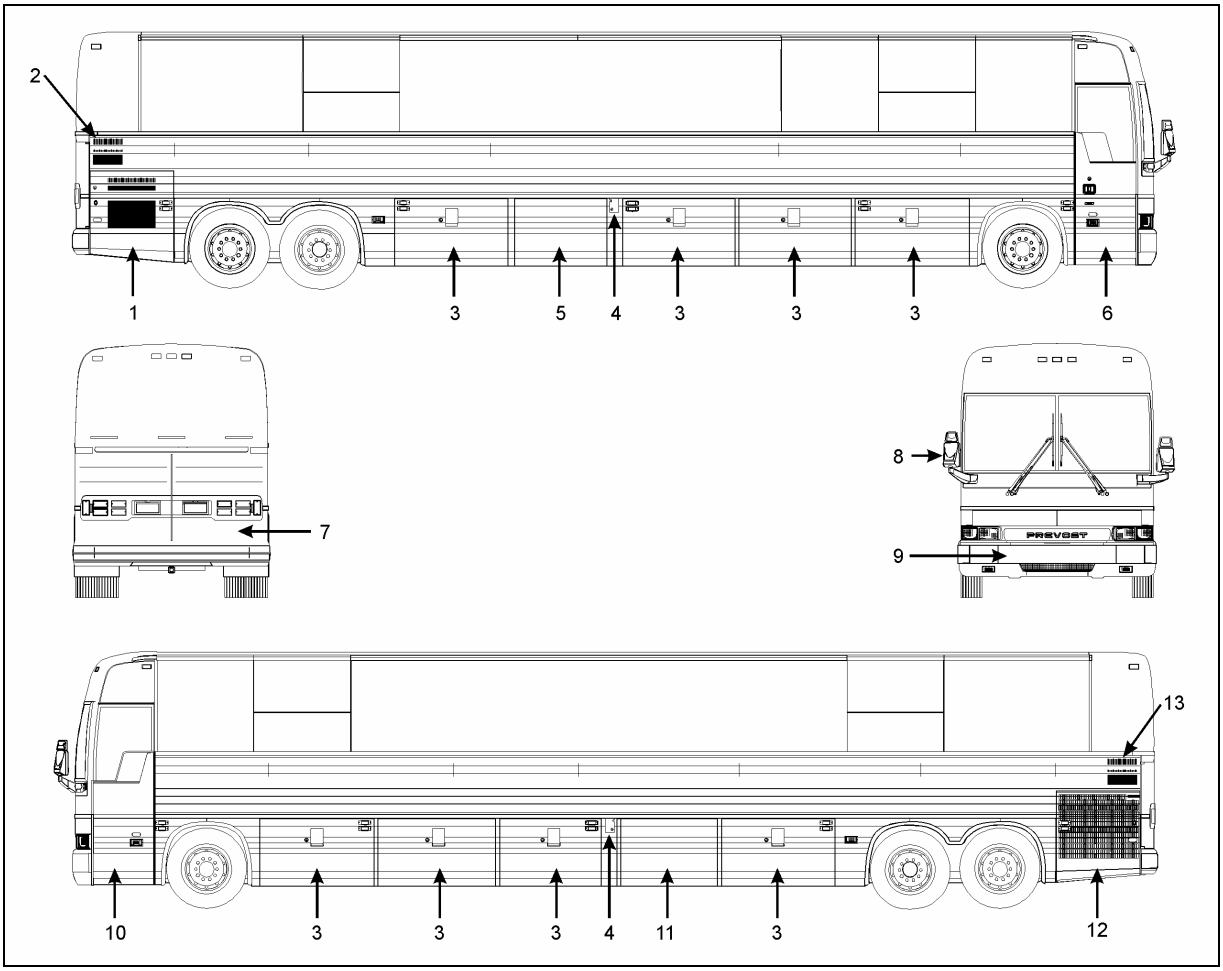

FIGURE 3: XL2-45E CONVERTED VEHICLE EXTERIOR VIEW (TYPICAL) 18369

1. Engine compartment R.H. side door
2. Engine air intake duct
3. Baggage compartment
4. Fuel filler door
5. Condenser or Baggage compartment
6. Entrance door
7. Engine compartment rear doors
8. Rear-view mirror
9. Reclining bumper
10. Front service compartment
11. Evaporator or Baggage compartment
12. Radiator door
13. Engine air intake duct

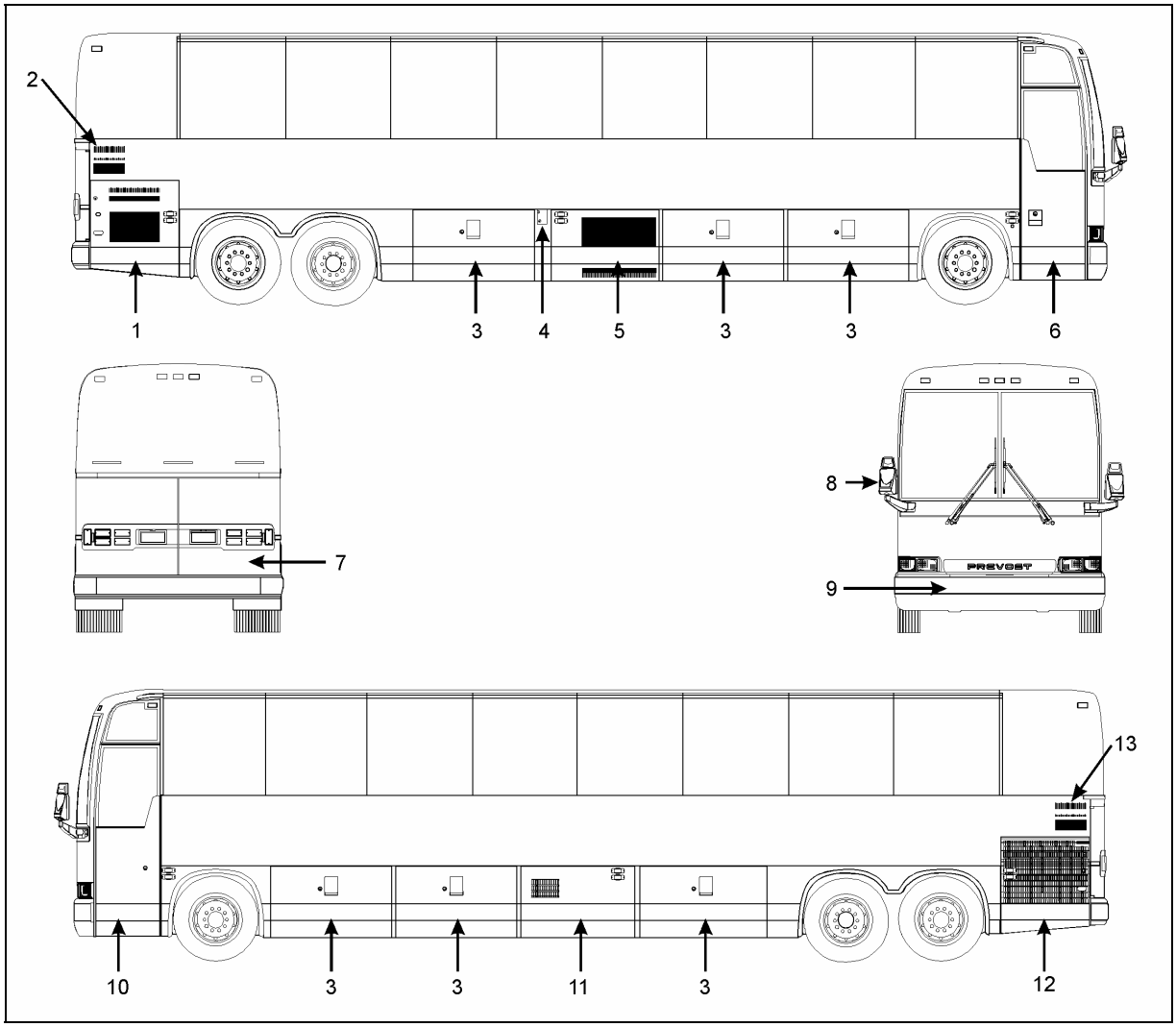

FIGURE 4: XL2-40 COACH EXTERIOR VIEW (TYPICAL) 18364

1. Engine compartment R.H. side door
2. Engine air intake duct
3. Baggage compartment
4. Fuel filler door
5. Condenser compartment
6. Entrance door
7. Engine compartment rear doors
8. Rear-view mirror
9. Reclining bumper
10. Front service compartment
11. Evaporator compartment
12. Radiator door
13. Engine air intake duct

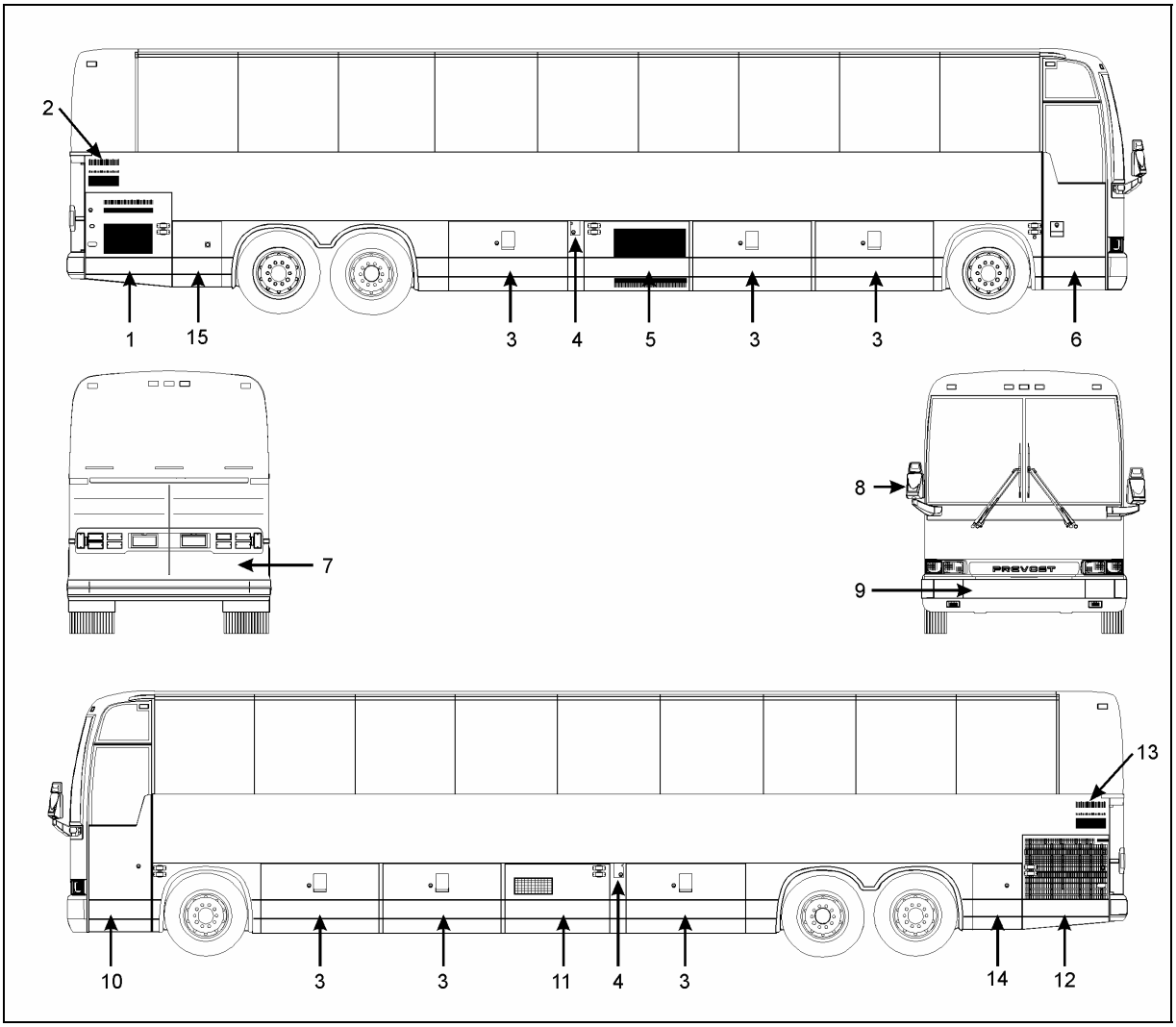

FIGURE 5: XL2-45 COACH EXTERIOR VIEW (TYPICAL) 18367

1. Engine compartment R.H. side door
2. Engine air intake duct
3. Baggage compartment
4. Fuel filler door
5. Condenser compartment
6. Entrance door
7. Engine compartment rear doors
8. Rear-view mirror
9. Reclining bumper
10. Front service compartment
11. Evaporator compartment
12. Radiator door
13. Engine air intake duct
14. L.H. side rear service compartment
15. Main Power compartment

2. STRUCTURE

The body of the XL2 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

The following welding rods should be used when making welding repairs to the structure:

Application	Diameter	A.W.S.
Stainless steel to stainless steel or high strength steel alloy, light gauge	3/32" (2,4 mm)	No 308
Stainless steel to stainless steel or high strength alloy, heavy gauge	1/8-5/32" (3,2-4 mm)	No 308
High strength steel alloy to high strength steel alloy, light gauge	3/32-1/8" (2,4-3,2 mm)	No 6011
High strength steel alloy to high strength steel alloy, heavy gauge	3/32-5/32" (2,4-4 mm)	No 7018

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

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

3. EXTERIOR MAINTENANCE

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

3.1 CORROSION PREVENTION

Preventive maintenance is a key factor in avoiding corrosion and must be considered as part of the regular service intervals. The entire underside of the vehicle is sprayed with a heavy application of asphalt base undercoating.

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

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

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

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

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

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

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

4. FIBERGLASS REPAIR

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, 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 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 hardener according to manufacturer's instructions. Add powdered fiberglass strand into mixture to thicken it into a putty state.

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

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

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

4.3 TYPICAL FIBERGLASS REPAIR PROCEDURE

Remove all loose particles or damaged material using a power sander or rasp. Clean area, overlapping hole approximately 1" to 1-½" (25-40 mm) all around. Remove all dirt, grease and paint from area to ensure good bonding surface. Feather the cleaned area all around (Fig. 6).

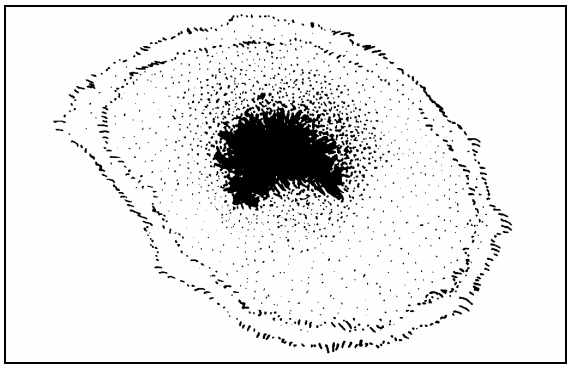

FIGURE 6: FIBERGLASS REPAIR 18089

Cut a piece of fiberglass mat slightly larger than area being repaired. Impregnate mat with general purpose polyester resin catalyzed normally. Use a clean paint brush to apply the polyester resin. Apply impregnated mat over hole and press onto surface with brush to obtain good adherence. Another coat of general purpose polyester resin can be applied at this time (Fig. 7).

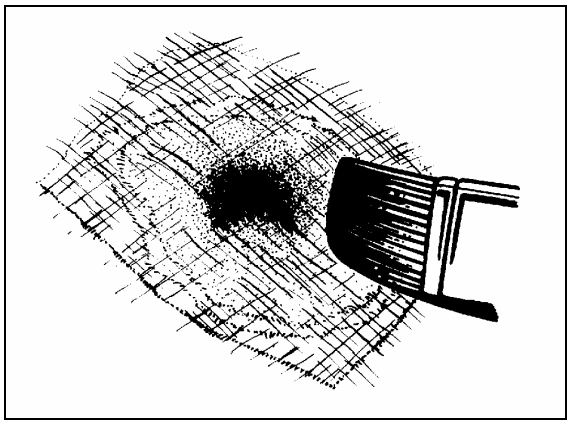

FIGURE 7: FIBERGLASS REPAIR 18090

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

Apply another mat, followed by a cloth patch, and another mat. All layers must be thoroughly impregnated with polyester resin, brushed well and free of air. Apply more layers of mat and cloth as required until the desired strength and thickness is obtained, minimum two 1-½ oz (43 g) mats and one 9 oz (255 g) cloth (Fig. 8).

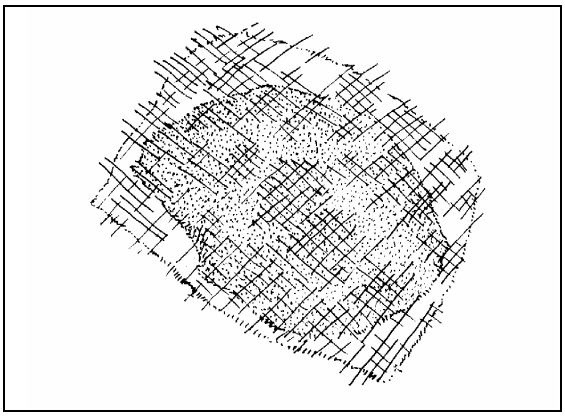

FIGURE 8: FIBERGLASS REPAIR 18091

Allow area to harden and contour the area with coarse sandpaper #100 (Fig. 9).

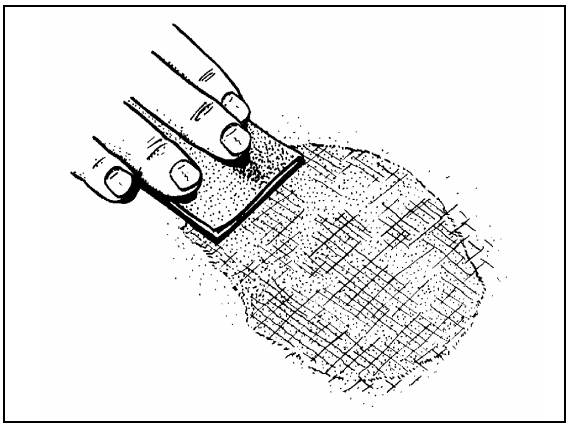

FIGURE 9: FIBERGLASS REPAIR 18092

Cover the area with a layer of resin putty and allow to dry for approximately 15 to 20 minutes (Fig. 10).

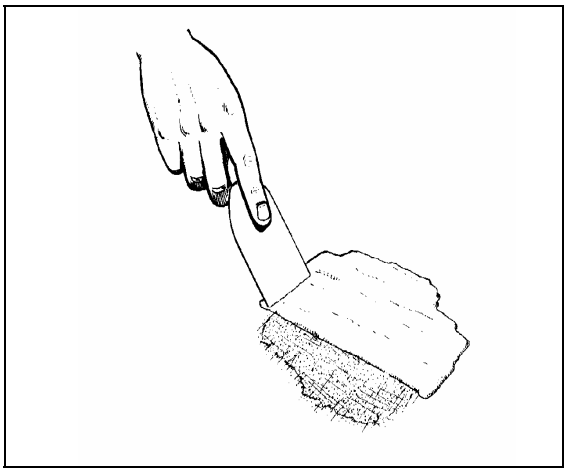

FIGURE 10: FIBERGLASS REPAIR 18093

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. PAINTING

5.1 NEW PAINT CARE

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

Caution: *Apply these recommendations after repainting vehicle.*

During the first 30 days:

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

During the first 90 days:

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

5.2 PAINT TOUCHUP

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

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

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

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

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 packagings, 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-11654 (68-2989)		
Priming	STANDOX Reactive Etch Primer ST-13908 * Wait 30 minutes then apply STANDOX Non-Stop Füllprimer ST-11000 (68-2973)	STANDOX Non-Stop Füllprimer ST-11000 (68-2973)	Refer to product Technical Data sheet for proper mixing
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	STANDOX 2K MS Rapid Clear ST-11760 (68-2979) Allow 16 hours for drying		Refer to product Technical Data sheet for proper mixing

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

6. BODY REPAIR

Note: *The purpose of this procedure is to explain the steps to be followed in order to get a good adherence. These steps are of the uppermost importance to obtain 100 % adherence. For a complete description of the procedure, refer to the applicable video.*

6.1 FRONT FACE

6.1.1 Prévost Car Embossed Body Panel

Removal

For removal of embossed body panel, you will need :

Olfa knife,
Razor sharp window scraper.

- Lower spare wheel compartment door.
- Insert from underneath a knife with a thin sharp blade (Olfa type), cut lower Sika bead (refer to figures 11 and 12).

Note: *Sika bead is located 1 inch (25 mm) from bottom of body panel.*

- Make several passes with the knife to ensure Sika bead is truly cut which will facilitate bending of the body panel.
- Bend body panel upwards in order to access the upper bead. Upper bead is located about ¼" (4 mm) from top of body panel.
- Cut upper bead and double-face self adhesive tape.
- Use a sharp scraper type tool to remove the Sika bead and double-face self adhesive tape residue from the fiber glass surface.

Note: *To ensure maximum adherence of Sika glue, do not leave any Sika bead or double-face self adhesive tape residue.*

Caution: *You only have 10 minutes to install the body panel once the adhesive is applied before the adhesive starts to dry.*

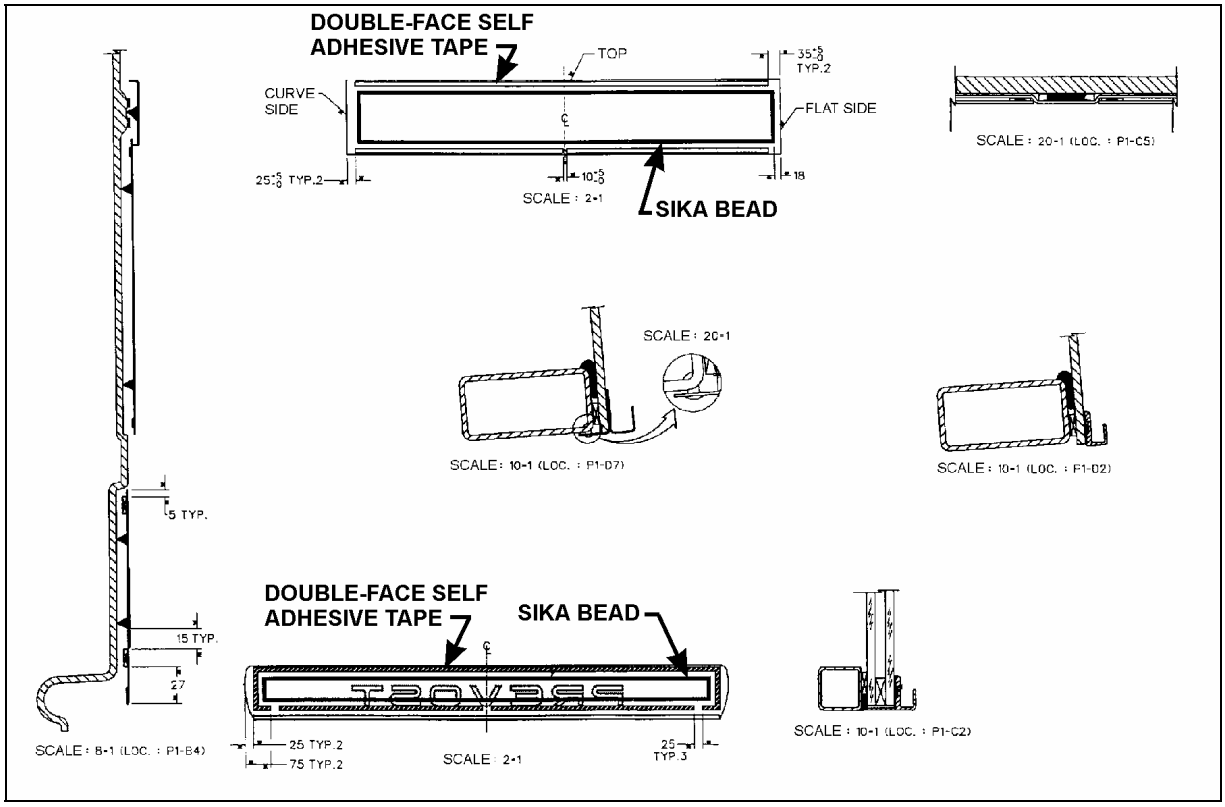

FIGURE 11: FRONT FACE BODY PANELS INSTALLATION

Installation

Preparation of stainless steel surface.

The purpose of this procedure is to show you the proper way to install the Prévost embossed body panel onto the XL2 vehicle.

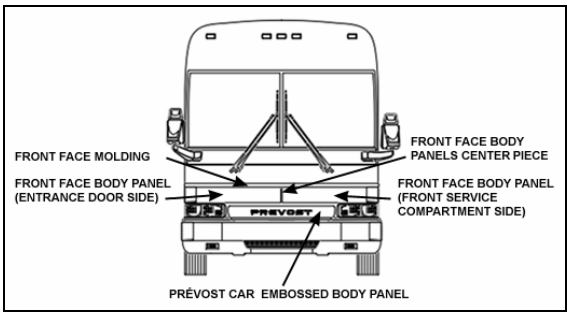

FIGURE 12: VIEW OF FRONT FACE

First of all you must prepare the stainless steel panel surface ("Gelcoat" scratch side) before installing it onto the fiber glass surface.

You will need for this preparation:

Latex gloves, because we will be using adhesive.
"Scotch Brite" pad for scratching.
Tack cloth for removing any residue from scratching.
"Sika cleaner 205" for stainless steel surface treatment. Allow 2 minutes for drying in the case of stainless steel. It is important to check the expiration date on product.
You will be using "Chix" cloth for the application of "Sika cleaner 205".
Once the surface is treated, you will apply a double-face self adhesive tape "Pro-foam 1/8 by ½" to mechanically hold the stainless steel body panel in position until the adhesive is cured.
And you will be using "SiKaflex 252" adhesive sealant.

Refer to figure 11 for more information on procedure.

- First of all, remove protective plastic lamination.
- Using a scratch pad "Scotch Brite", scratch a 2 inch wide surface around the perimeter of the panel where the adhesive will be applied. The purpose being to create scratches onto the surface to increase adherence.
- Use a tack cloth to remove any dust or residue.
- Before applying Sika cleaner, fold "Chix" cloth twice for proper width. Apply an even coat onto the treated surface. Allow 2 minutes for drying in the case of stainless steel.
- After this treatment, a bluish tint will appear on the stainless steel surface due to alcohol evaporation and salt deposits which will increase adherence.

Note: *Discard waste according to applicable environmental regulations, use dangerous waste containers. For more information on the application of double-face self adhesive tape near the top edge, refer to figure 11.*

- Draw a line 4 mm (¼ ") from the top edge, using a felt-tip pen.
- Align "Pro-Foam" self adhesive tape with the previously traced line and cut the end.
- The second application of "Pro-foam" self adhesive tape is near the bottom edge.
- Draw a line 27 mm (1") from bottom edge. Align "Pro-Foam" self adhesive tape with the previously traced line.
- Apply also a strip of self adhesive tape at each end of body panel.
- To prevent water accumulation, a 25 mm width dripping space must be provided underneath the "V" as well as two more at each end of the tape.

Sikaflex 252 Adhesive Sealant Application

- Check Sikaflex 252 adhesive sealant for expiration date.
- Sika bead is represented as checked lines, refer to figure 11 for more information.
- Sika bead must be uninterrupted to ensure maximum sealing. Cut ¼ of V shape nozzle length for proper flow of glue. Perforate cartridge tip.
- Apply Sika bead along the perimeter of body panel 15 mm (5/8") from double-face self adhesive tape.
- Once the body panel is compressed, the Sika bead will spread until it touches the tape.

Note: *Sika adhesive bead height must be greater than double-face self adhesive tape.*

- Peel the back from the self adhesive tape. In order to prepare fiber glass surface, scratch surface of the vehicle where the adhesive

will be applied, use a tack cloth to remove any dust or residue.

***Caution**: Do not damage painted surface.*

- Apply masking tape to protect paint during surface treatment.
- Apply an even coat of Sika 205 cleaner onto the complete surface.
- Allow at least 10 minutes for drying in the case of fiber glass.
- Lightly compress the perimeter of Prévost embossed body panel, avoiding the center, then compress using a dry erasable marker board brush so as not to scratch or damage the stainless steel surface. Ideally two persons should perform this installation.
- Remove masking tape.

6.1.2 Front Face Body Panel and Molding

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

- 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.
- Refer to figure 11 for more information on procedure.

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 the fiber glass surface.

Preparation of New Front Face Body Panel

- In order to prepare stainless steel panel, use a tack cloth to remove any dust or residue.
- Using a scratch pad "Scotch Brite", scratch a 2 inch wide surface around the perimeter of the panel where the adhesive will be applied.

***Note:** It is important to support underneath the curved surface so as not to change the angle of the body panel and therefore prevent deformation*

- Use again a tack cloth to remove any dust or residue from scratching.
- Check expiration date before applying Sika 205 cleaner.
- Fold "Chix" cloth twice for proper width.
- Apply an even coat onto the treated surface.
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Allow 2 minutes for drying in the case of stainless steel.
- Draw a line 5 mm from the top edge, using a felt-tip pen (refer to figure 11).
- Apply double-face self adhesive tape 1/16 x ¼, 5 mm from top.
- Draw a line 25 mm from curved side edge and 35 mm from flat side edge.
- Align "Pro-Foam" self adhesive tape with the previously traced lines.
- Cut a portion of self adhesive tape in the center of body panel for draining purposes.

Preparation of Front Face molding

- In order to prepare stainless steel molding, use a tack cloth to remove any dust or residue.
- Using a scratch pad “Scotch Brite”, scratch surface of the molding where the adhesive will be applied.

Note: *It is important to support underneath the curved surface so as not to change the angle of the molding and therefore prevent deformation*

- Use again a tack cloth to remove any dust or residue from scratching.
- Check expiration date before applying Sika 205 cleaner.
- Fold “Chix” cloth twice for proper width.
- Apply an even coat onto the treated surface.
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Allow 2 minutes for drying in the case of stainless steel.

Preparation of Vehicle Fiber Glass Surface

- In order to prepare fiber glass surface, scratch surface of the vehicle where the adhesive will be applied, use a tack cloth to remove any dust or residue.

Caution: *Do not damage painted surface.*

- Apply masking tape to protect paint during surface treatment.
- Apply an even coat of Sika 205 cleaner onto the two surfaces.
- Allow at least 10 minutes for drying in the case of fiber glass.
- Apply 1/8” by ½” double-face self adhesive tape onto each fiber glass boss where the front face molding will be installed.

Sikaflex 252 Adhesive Sealant Application

- Check Sikaflex 252 adhesive sealant for expiration date.
- Cut ¼ of V shape nozzle length for proper flow of glue. Perforate cartridge tip.
- Apply Sika bead along the perimeter of body panel ½” from double-face self adhesive tape.
- Peel the back from the self adhesive tape.

Caution: *You only have 10 minutes to install the body panel before the adhesive starts to dry.*

Front Face Body Panel Installation

- To hold in position the body panel during drying process, apply ¼ by 1/32” self adhesive tape onto the front face body panel center piece and peel back. Ideally two persons should perform this installation.
- Starting from the middle of the vehicle, compress the front face body panel using a dry erasable marker board brush so as not to scratch or damage the stainless steel surface.
- Open entrance door being careful not to move the body panel. Fix vertical stainless steel molding using 1/8” stainless steel rivets.
- Apply Sika bead between the two double-face self adhesive tape previously installed on each fiber glass boss.
- Install horizontal front face molding, aligning it with the door molding and compress using a dry erasable marker board brush.
- Remove masking tape.

6.1.3 Spare Wheel Compartment Door Body Panel

For the removal of spare wheel compartment door body panel,

You will need :

A hammer,
Screwdriver,
Locking pliers,
Putty knife,
Heat gun,
And isopropyl alcohol.

- Lower and remove front bumper.
- Remove spare wheel compartment door.
- First of all, using a lever or rigid screwdriver, pry loose body panel edge.

- Using a pair of locking pliers, gradually separate stainless steel body panel from door frame.
- Use the screwdriver to detach completely the stainless steel body panel from door frame.

Door Frame Preparation

- Start cleaning the door frame by removing double-face self adhesive tape.
- Use a heat gun and putty knife to remove the dried off Ciba 8535 epoxy glue residue.

Warning: *Make sure that heat gun nozzle does not get any closer than 4 inches from the surface.*

Warning: *Because of its great toxicity, care should be taken not to use a buffer or other sanding method for glue removal.*

- Then, using a scratch pad "Scotch Brite", scratch the perimeter of door frame where the adhesive will be applied.
- Wear latex gloves and use a "Chix" cloth with isopropyl alcohol in order to remove any residue from scratching left onto the stainless steel surface.

Note : *Apply evenly around the perimeter of the panel. Use two clothes, first one applies product while second one immediately dries surface off before product evaporation.*

Body Panel Preparation

- Using a scratch pad "Scotch Brite", scratch a 2 inch wide surface around the perimeter of the panel where the adhesive will be applied.
- Use a tack cloth to remove any dust or residue.
- Clean the perimeter of the panel using isopropyl alcohol. Use two clothes, first one applies product while second one immediately dries surface off before product evaporation.

Ciba 8535 Epoxy Glue Application

For this application, you will need a mixing nozzle for epoxy glue cartridges.

- Cut first part of mixing nozzle.
- Use "Ciba 8535" epoxy glue.
- Remove cartridge tip and install mixing nozzle.
- Heat Ciba glue cartridges to reduce viscosity and speed up process.
- Insert cartridges into the appropriate tool.
- Apply glue in center and around perimeter of frame.
- Apply self adhesive tar paper strips to reduce vibration. This should be done before applying glue to facilitate the installation.
- Once the application of glue is done, leave the mixing nozzle onto the Ciba cartridges for the preservation of glue. Next time you need this product, use a new mixing nozzle.

Stainless Steel Body Panel Installation

- Stainless steel body panel must be installed within 45 minutes.
- Align body panel with door frame and lightly press perimeter of body panel.
- Allow to dry for 6 hours before handling.

Note : *If for any reason you must remove the body panel from the door frame and the 6 hours have elapsed, you must wait* ***7 days*** *so that glue has time to cure.*

6.1.4 Windshield

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

A screwdriver or pneumatic driver tool,
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.
- Using a screwdriver or metal rod, remove black butyl sealant residue from rubber seal then clean.

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.
- 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.

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.
- From outside of vehicle, apply black butyl sealant around the perimeter of windshield between the rubber seal and the glass surface.
- 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.
- Reinstall center post and interior finishing panels.
- Clean windshield surface of butyl residue.

6.2 ENTRANCE DOOR OR FRONT SERVICE DOOR BODY PANEL

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

Pneumatic "Zip gun" type tool;
Razor sharp window scraper;

- Before removing body panel, you can to ease repair uninstall entrance door or front service 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 tack cloth to remove any dust or residue.

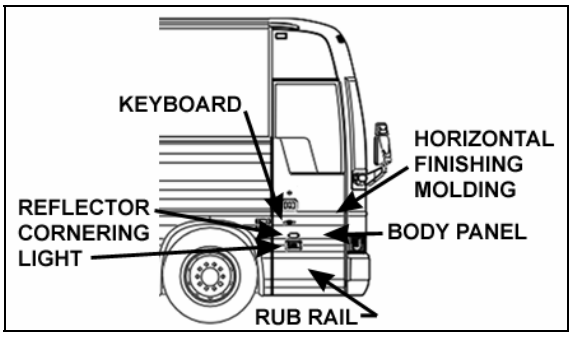

FIGURE 13: ENTRANCE DOOR BODY PANEL

Door Surface Preparation

- 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 door frame perimeter and allow to dry for 2 minutes (maximum 2 hours).
- Discard waste according to applicable environmental regulations, use dangerous waste containers.

Stainless Steel Body Panel Preparation

- Check that new body panel is the required one and is free of defects or scratches.
- Wear latex gloves and use a "Chix" cloth with isopropyl alcohol in order to remove any dirt or oily film left onto the stainless steel surface.

Note : *Apply evenly around the perimeter of the panel. Use two clothes, first one applies product while second one immediately dries surface off before product evaporation.*

- Using a scratch pad "Scotch Brite", scratch a 2 inch wide surface around the perimeter of the panel where the adhesive will be applied. The purpose being to create scratches onto the surface to increase adherence.
- Use again a tack cloth to remove any dust or residue.
- Before applying Sika cleaner, fold "Chix" cloth twice for proper width.
- Apply an even coat onto the treated surface.
- Allow 2 minutes for drying in the case of stainless steel (maximum 2 hours).
- Apply a double-face self adhesive tape 1/8 by ½ inch on each side and at the top of body panel and around cornering light. Apply tape 1/8 inch from body panel edges and flush with cornering light perimeter.
- Peel back from double-face self adhesive tape.

Sikaflex 252 Adhesive Sealant Application

- Check Sikaflex 252 adhesive sealant for expiration date.
- Using a "V" shape nozzle, apply Sika bead ¼ inch (6-7 mm) from double-face self adhesive tape on all three sides of body panel and around cornering light.
- Once the body panel is compressed, the Sika bead will spread until it touches the tape.

Note: *Sika adhesive bead height must be greater than double-face self adhesive tape.*

Note : *You only have 15 minutes to install body panel once the adhesive is applied.*

- Peel the back from the self adhesive tape.
- Carefully center and align body panel edges with the door fiber glass surface.
- Ideally two persons should perform this installation.
- Lightly compress the body panel along the double-face self adhesive tape, then compress using a dry erasable marker board brush so as not to scratch or damage the stainless steel surface.
- Apply masking tape on both body panel sides.
- Using a caulking nozzle and "SIKAFLEX 221" adhesive, fill the cavity to seal both body panel sides and around cornering light.
- Wearing surgical gloves, smooth down the joint with your finger.
- Remove masking tape and protective plastic lamination.

6.2.1 Entrance Door or Front Service Door Lower Body Panel

For the removal of entrance door or front service door lower body panel, you will need :

Pneumatic “Zip gun” type tool;
Razor sharp window scraper;

- Remove interior finishing panel to access rub rail fixing bolts, then remove rub rail.
- Remove two lower body panel fixing rivets.
- Using the “**Zip Gun**”, cut Sika bead located on each lower body panel side.
- Remove lower body panel.
- Remove Sika bead residue using a razor sharp window scraper.
- Use a tack cloth to remove any dust or residue.

Door Surface Preparation

- 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 door frame perimeter and allow to dry for 2 minutes.
- Discard waste according to applicable environmental regulations, use dangerous waste containers.

Stainless Steel Body Panel Preparation

- Check that new body panel is the required one and is free of defects or scratches.
- Wear latex gloves and use a “Chix” cloth with isopropyl alcohol in order to remove any dirt or oily film left onto the stainless steel surface.

Note : *Apply evenly around the perimeter of the panel. Use two clothes, first one applies product while second one immediately dries surface off before product evaporation.*

- Using a scratch pad “Scotch Brite”, scratch a 2 inch wide surface on each side of the panel where the adhesive will be applied. The purpose being to create scratches onto the surface to increase adherence.
- Use again a tack cloth to remove any dust or residue.
- Before applying Sika cleaner, fold “Chix” cloth twice for proper width.
- Apply an even coat onto the treated surface.
- Allow 2 minutes for drying in the case of stainless steel.

Sikaflex 252 Adhesive Sealant Application

- Check Sikaflex 252 adhesive sealant for expiration date.
- Using a “V” shape nozzle, apply Sika bead 1 inch (25 mm) from both lower body panel side edges.

Note : *You only have 15 minutes to install body panel once the adhesive is applied.*

- Insert lower body panel bottom edge under the door and underneath the upper panel and carefully center and align lower body panel side edges with the door fiber glass surface.
- Ideally two persons should perform this installation.
- Lightly compress the body panel along the Sika bead, then compress using a dry erasable marker board brush so as not to scratch or damage the stainless steel surface.
- Fix lower body panel using two rivets.
- Apply masking tape on both lower body panel sides.
- Using a caulking nozzle and “SIKAFLEX 221” adhesive, fill the cavity to seal both body panel sides.
- Wearing surgical gloves, smooth down the joint with your finger.
- Remove masking tape and protective plastic lamination.

6.3 BAGGAGE COMPARTMENT OR REAR SERVICE COMPARTMENT DOOR BODY PANEL

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

A drill with drill bits;
Pneumatic “Zip gun” type tool;
Razor sharp window scraper or putty knife;

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

- Unfasten bolts and disconnect cable if necessary in order to remove door from vehicle.
- Preferably install the door onto a work surface where it can be solidly fixed.

Door Lower Panel

Door lower panel is riveted only, not glued. If panel needs to be changed, remove fixing rivets using a drill and drill bits. Line up new panel and secure using 6 stainless steel rivets.

Body Panel Removal

- In the following procedure, only the door upper part needs to be changed.

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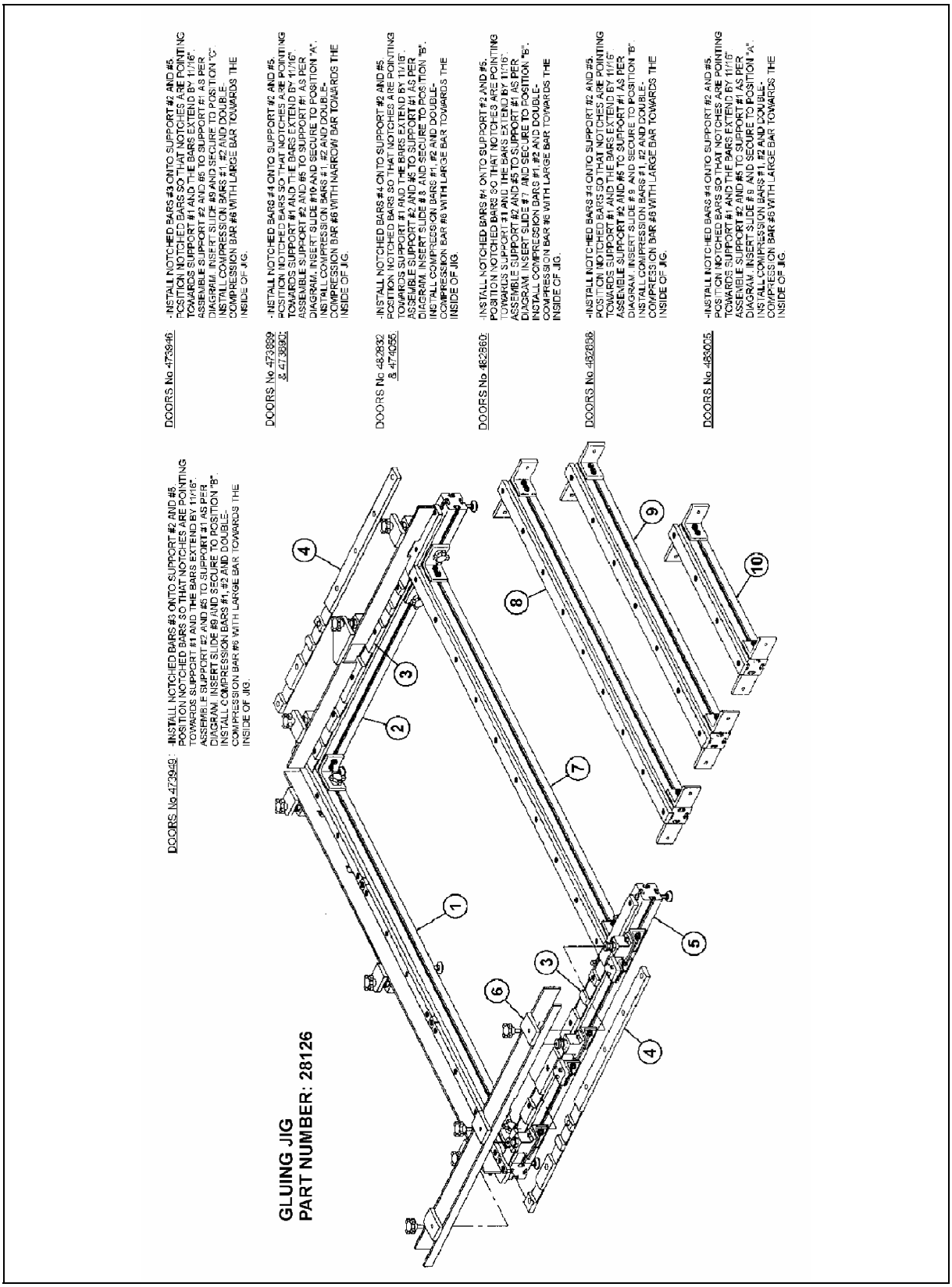


FIGURE 14: GLUING JIG SETUP DIAGRAM

- Using a drill with drill bits, remove the door upper part fixing rivets.
- 9 rivets are located in the door handle opening and 2 at the door upper edge.
- Using the “Zip Gun”, cut Sika bead located ½ inch from the door panel perimeter edge.
- Wearing gloves, goggles and ear plugs, pry loose body panel using a “Zip gun” or lever starting from the door lower part.
- Use a second person equipped with a pair of locking pliers to bend the body panel as you cut the Sika bead. Bend body panel enough to reach around the handle and continue to detach completely the stainless steel body panel from door frame
- Using the window scraper, remove any Sika bead or self adhesive tape residue left on the fiber glass.

Body Panel Preparation

- Using a scratch pad “Scotch Brite”, scratch a 2 inch wide surface on the panel two sides and bottom part where the adhesive will be applied. The purpose being to create scratches onto the surface to increase adherence.
- Use a tack cloth to remove any dust or residue.
- Before applying Sika 205 cleaner, fold “Chix” cloth twice for proper width.
- Apply an even coat onto the treated surface.
- Allow 5 minutes for drying in the case of stainless steel.

Door Frame Preparation

- Using the window scraper, remove any Sika bead residue left on the door frame surface.
- 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 treated surface.
- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Allow 2 minutes for drying in the case of stainless steel.

Note: *In the case of baggage compartment door, apply wax paste around handle opening frame and at door frame upper part.*

Gluing Jig Installation

- For best results, it is important that gluing jig installation for baggage and rear service door be performed properly according to part number and dimensions.
- For more information, refer to gluing jig setup diagram (Fig. 14).

Rear Service Door

- Lay down stainless steel body panel into the gluing jig as per setup diagram. Ensure it is lined up and set square with the reference marks.
- Heat Sikaflex 255 adhesive for at least 15 minutes, apply adhesive as per previously removed panel.
- Carefully lay down door metallic frame onto the stainless steel body panel inserting the upper part into the panel curved lip.
- Install compression bars to compress and hold body panel during curing process.
- Once cured, apply masking tape on both body panel sides.
- Using a caulking nozzle and “SIKAFLEX 221” adhesive, fill the cavity to seal both body panel sides.
- Wearing surgical gloves, smooth down the joint with your finger.
- Remove masking tape and protective plastic lamination.

Baggage Compartment Door

- Install gluing jig for a baggage compartment door. Refer to the included setup diagram according to part number and door dimensions.
- Lay down stainless steel body panel into the gluing jig as per setup diagram. Ensure it is lined up and set square with the reference marks.
- Heat Sikaflex 255 adhesive for at least 15 minutes, apply adhesive as per previously removed panel.
- Apply Sika 221 around handle opening frame.

- Carefully lay down door metallic frame onto the stainless steel body panel inserting the upper part into the panel curved lip.
- Carefully flip door frame and body panel over and install 9 rivets in the door handle opening and 2 at door upper part.
- Flip door frame and body panel over again and install compression bars to compress and hold body panel during curing process.
- Once cured, apply masking tape on both body panel sides.
- Using a caulking nozzle and "SIKAFLEX 221" adhesive, fill the cavity to seal both body panel sides.
- Wearing surgical gloves, smooth down the joint with your finger.
- Remove masking tape and protective plastic lamination.

6.4 MTH SIDE PANEL REMOVAL AND INSTALLATION

For the removal and installation of stainless steel side panel, you will need :

Alcohol
Scotchbrite 7446 B
SikaFlex 221
SikaFlex 252
Ciba 8535 Adhesive
Rivets 1/8 (504107)
Screws #10-32x1" (500659)
Blue cloth (682383)
Thinner
Scotch Brite pad COARSE (680617) for the belt sander
Chix cloth

Belt sander
Locking pliers
Orbital sander
Screwdriver
C-clamps 6" to 8"
Waterproof gloves
Conforming jig
Goggles
Straight edge #28241
Drill
Air gun for SikaFlex and Ciba 8535 adhesive.
Go-No-Go jig #28258

Side Panel Removal

- Insert 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.

Note: *Be careful not to damage the adjacent surfaces.*

- Using a hammer and punch, drive out rivet shanks from top and bottom finishing molding supports. Use a #11 titanium drill bit to remove rivet heads.
- Use the pair of locking pliers to remove top and bottom finishing molding supports.
- 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 backers at each end.

Note: *Be careful not to damage the adjacent surfaces.*

- Use the c-clamp to peel the side panel from the back structural panel.
- Use a heat gun and putty knife to remove the dried off epoxy glue Ciba 8535 residue.

Warning: *Make sure that heat gun nozzle tip is at least 4" from surface.*

Because of its great toxicity, care should be taken not to use a buffer or other sanding method for glue removal.

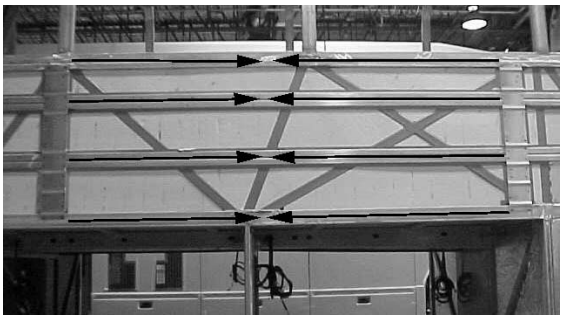
- Check panel horizontal supports for straightness using a straight edge. Take measurements with a ruler.

Note: *Tolerance : 1mm towards the outside and 1.5mm towards the inside (tool #28241).*

Vehicle Surface Preparation

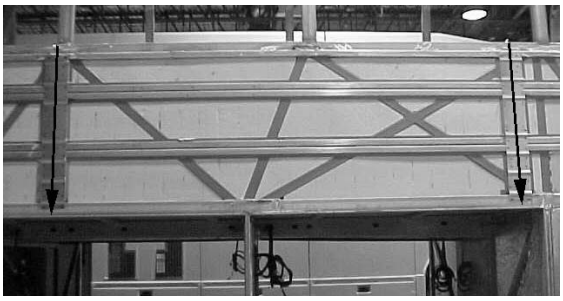
- Inspect all surfaces of the vehicle where the adhesive will be applied. Make sure no primer, masking tape, grease etc. residue is present. Use paint thinner if applicable to remove residue.
- Clean horizontal supports with paint thinner where the adhesive will be applied. Using the arrows as a reference, clean as per picture.

Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*



- Clean vertical "backers" with paint thinner.

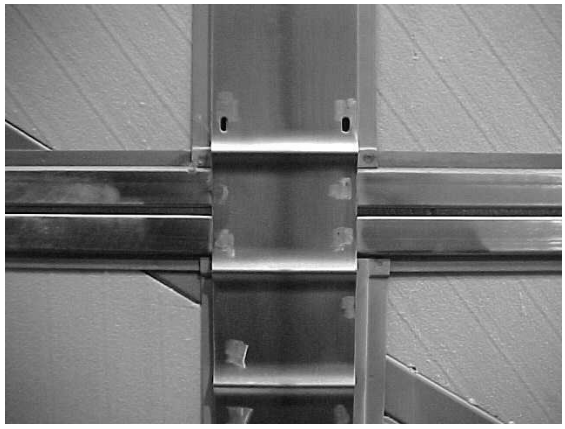
Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*



- Use a belt sander with COARSE grit pad to sand top and bottom horizontal tubes as well as horizontal supports.

Note: *Make sure the whole surface is sanded (100%). Use a new belt for each vehicle.*

- Use the orbital sander to sand vertical backers (Scotch Brite grit 7446B) or use a disc grinder with a 2" coarse grit disc. Sand a 1 7/8" to 2 ¼" width surface.



Note: *Make sure to sand each backer side only. Use a new Scotch Brite pad for each vehicle.*

- Use isopropyl alcohol in order to remove any residue from scratching left onto the stainless steel panel. Using the arrows as a reference, clean as per previous pictures.

Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*

Side Panel Positioning

- Install side panel onto the vehicle, align and center panel with adjacent panels and temporary fix using two 1/8 '' rivets at top (2 for side panels and 3 for engine air intake panels).

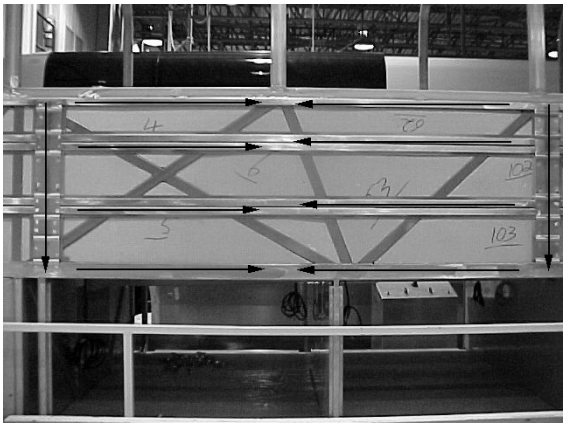
Note: *Make sure that side panel is centered or that gap is between 3 and 4.5 mm with adjacent panels.*

- Install conforming jig vertical supports onto the panel and drill holes into the temporary fixed vertical supports.
- Remove vertical supports and side panel.

Vehicle Surface Preparation

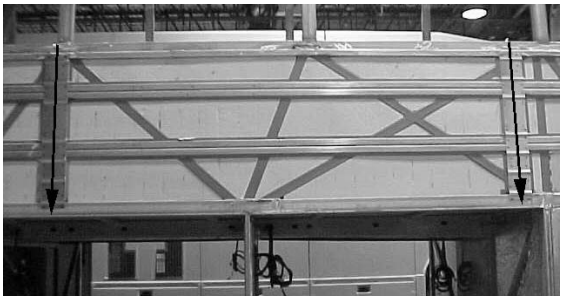
- Use isopropyl alcohol in order to remove any residue from scratching left onto the stainless steel panel. Using the arrows as a reference, clean as per picture.

Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*



- Clean vertical "backers" with isopropyl alcohol.

Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*



- Install a neoprene foam tape at the center of panel horizontal supports and at each end if needed.

- Repeat treatment with alcohol as per first steps.

Note: *Change cloth as soon as it becomes soiled. Use two cloths (Use a Chix cloth to apply thinner and a blue cloth to immediately dry surface off before product evaporation.*

- Install panel on the workstation.

Note: *Check that new panel is the required one and is free of defects or scratches.*

- Use a tack cloth to remove any dust or residue from the panel thus preventing contamination of glue or prepared surfaces.
- Wear latex gloves and use cloths with isopropyl alcohol in order to remove any dirt or oily film left onto the stainless steel surface.

Note: *Use two cloths (Use a Chix cloth to apply alcohol and a blue cloth to immediately dry surface off before product evaporation).*
Allow sufficient time for product to evaporate.

- Use an orbital sander or belt sander (coarse grit) to scratch contact surfaces where the adhesive will be applied. Scratch the inside of creases by hand using a scratch pad Scrotch Brite.

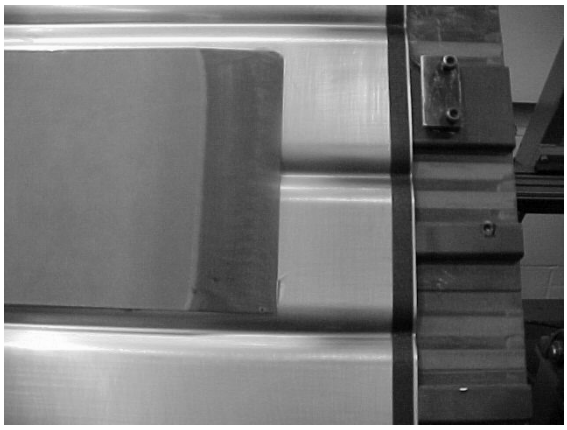
Note: *Use 7446B grit pad. Use a new Scotch Brite pad for each vehicle.*

- Use isopropyl alcohol in order to remove any residue from scratching left onto the stainless steel panel. Repeat until cloth is clean.

Note: *Use two cloths (Use a Chix cloth to apply alcohol and a blue cloth to immediately dry surface off before product evaporation).*
Allow sufficient time for product to evaporate.

- Install a neoprene foam tape at each side panel end. Make sure foam tape reaches bottom of creases.

Note: *Install neoprene foam tape 1 mm from panel edge.*



Preparation of Ciba 8535 Epoxy Glue Cartridges

- Before applying glue, heat Ciba glue cartridges to reduce viscosity and speed up process. Make sure glue temperature is correct and you have sufficient cartridges.

Note: *You need about 7 cartridges for a large side panel. Use a constant and controlled source of heat. Maximum temperature is 120 °F.*

- Perforate cartridge tip and install mixing nozzle. Cut mixing nozzle at 3rd notch.
- Insert cartridge into the gun.

Engine Air Intake Panel Installation

To know the time allotted between glue application and final installation; refer to table at the end of paragraph 6.4.

Always check color of glue before applying (charcoal grey). If the color turns black or white during application, remove this portion using a putty knife and clean with alcohol.

- If more than one hour has elapsed between the first cleaning with isopropyl alcohol and the application of glue or if in doubt, clean panel and vehicle surface again using isopropyl alcohol.

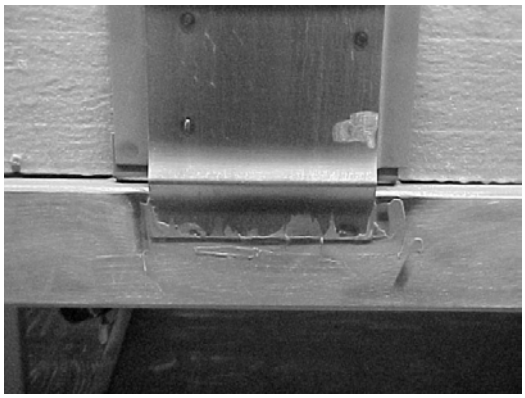
Note: *Use two cloths (Use a Chix cloth to apply alcohol and a blue cloth to immediately dry surface off before product evaporation).*
Allow sufficient time for product to evaporate.

- Before applying glue, heed this procedure:

  If a new mixing nozzle is used, install mixing nozzle onto the cartridge and insert into the gun. Take a sample of glue before applying. When changing cartridge without changing the mixing nozzle, take a sample of glue then install mixing nozzle onto the cartridge.

- Apply beads (¼″ minimum dia.) (Ciba 8535) as per picture.

- Seal each vertical "backer" end.



- Seal top and bottom part of vertical backer using Ciba 8535.
- Apply Ciba glue onto the engine air intake panel.

Note: *Check size of bead using go-no-go jig #28258 (bead of glue must touch three sides of jig).*

- Install air intake panel using rivets and conforming jigs.

Side Panel Installation

To know the time allotted between glue application and final installation; refer to table at the end of paragraph 6.4.

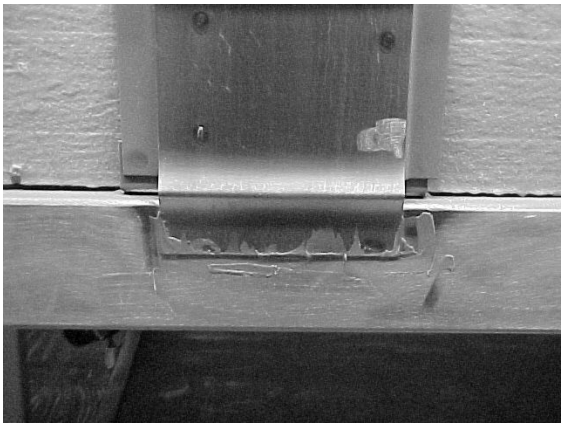
Always check color of glue before applying (charcoal grey). If the color turns black or white during application, remove this portion using a putty knife and clean with alcohol.

- If more than one hour has elapsed between the first cleaning with isopropyl alcohol and the application of glue or if in doubt, clean panel and vehicle surface again using isopropyl alcohol.

Note: *Use two cloths (Use a Chix cloth to apply alcohol and a blue cloth to immediately dry surface off before product evaporation).*

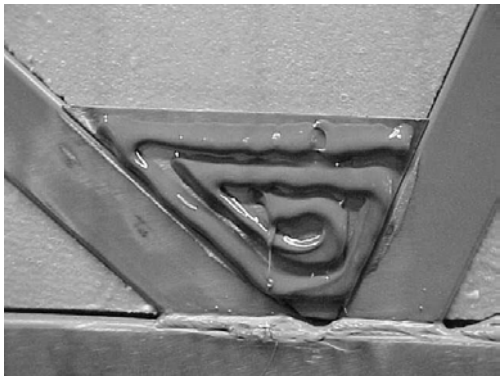
Allow sufficient time for product to evaporate.

- Seal each vertical "backer" end.



- Seal top and bottom part of vertical backer using Ciba 8535.
- If applicable, apply Ciba 8535 adhesive bead onto the awnings reinforcement plate (minimum height of 3/16″).

MTH W5 ONLY



- Apply glue beads onto the side panel. Do not forget to fill the first panel and last panel creases.

Note: *Check size of bead using go-no-go jig #28258 (bead of glue must touch three sides of jig).*

- Apply Ciba 8535 beads onto each horizontal support.

Note: *Check size of bead using go-no-go jig #28258 (bead of glue must touch three sides of jig).*

- Carefully install panel onto the vehicle and hold it in place using the pre-drilled holes and 1/8” rivets. Check positioning using backers.

Note: *Make sure that side panel is centered or that gap is between 3 and 4.5 mm with adjacent panels.*
Do not apply pressure at center of panel when installing.

- Fix conforming jig vertical supports onto the panel using the pre-drilled holes and screws. If needed, use snap-on finishing molding supports as shims.

Note: *28 psi ±2 air pressure and check gap between panels.*

- Install horizontal pressure bars onto the vertical supports. When installing last panel, write down time and date of installation.
- Wait allotted curing period (refer to table).
- Remove conforming jigs. To ensure side panel upper joint watertightness, apply masking tape on side panel near the edge. Use a caulking nozzle and Sikaflex 252 adhesive to seal the joint.

Note: *Clean using Sika 205. Allow 5 minutes minimum for drying.*
Wear surgical gloves and smooth down the joint with your finger.

- Clean excess of Ciba glue in the joints.
- Remove temporary installed 1/8” rivets.
- If the first or last side panel was replaced, the vertical joint must be redone. 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 back plate.

Note: *Clean using Sika 205. Allow 5 minutes minimum for drying.*
Wear surgical gloves and smooth down the joint with your finger.

Molding Supports Preparation And Installation

- Using locating jigs, drill 1/8 inch holes and fasten screws to temporary fix molding support.
- In the case of bottom molding support, use a #11 drill bit, drill rivet holes into the molding support every 4 inches.

Note: *Make sure new holes do not fall into previous holes.*

- In the case of top molding support, use a #11 drill bit, drill rivet holes into the molding support every 8 inches.

Note: *Make sure new holes do not fall into previous holes.*

- Remove molding supports and metal burrs.
- Bottom molding support. Apply Sika 205 cleaner on back of molding support and on vehicle surface.

Note: *Allow 5 minutes minimum for drying. Because Sika 205 cleaner can stain stainless steel, make sure to apply locally only.*

- If applicable, apply Sika 221 into engine air intake panel top rivet holes (installed at section 6 point 5.00).
- Top molding support. If applicable, verify the presence of foam tape at bottom of fiber-glass panel. Foam tape prevents friction between top molding and fiberglass.
- Top molding support. Install and rivet.
- Bottom molding support. Apply Sika 221 into the support cavity on the overall length. Install and rivet.
- Apply Sika 205 inside snap-on molding support.

Note: *Allow 5 minutes minimum for drying.*

Snap-On Finishing Moldings Installation

- Apply Sika 205 inside snap-on molding.

Note: *Allow 5 minutes minimum for drying.*

- Apply a 1 foot long Sika 252 adhesive bead at each molding support end and one every 5 feet or so.

Note: *Use a triangular nozzle. Sika bead height must be higher than molding support edges..*

- Install snap-on finishing molding onto molding support.

Note: *Do not press against center of finishing molding when installing, use edges only.*

Note: *When installing a stainless steel panel onto an aluminum structure, you have a maximum of **3 hours** between sanding and the application of glue.*

TABLE OF ALLOTTED CURING PERIODS

(NO HEAT CONFORMING JIGS)

Room Temperature	Conforming Jig Installation Time	Complete stop of vehicle (without moving)	Time before moving vehicle $\pm 10^{o}$F with room temperature	Polishing after the application of adhesive or before vehicle back in operation	Time allotted between glue application and final installation
87^{O}F	4 HRS	8HRS	8HRS	16HRS	25m

77°F	6HRS	12HRS	12HRS	24HRS	45m
72°F	7HRS	14HRS	14HRS	28HRS	50m
67°F	8HRS	16HRS	16HRS	32HRS	1HR
<67°F	*NO APPLICATION OF ADHESIVE IS ALLOWED*				

6.5 LATERAL FIXED WINDOW

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 30º 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**.
- 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.
- Before starting window frame treatment, make sure window frame is truly clean and free of pieces of glass.
- 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 window frame and allow to dry for 10 minutes.
- 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.

Window Surface Treatment

- Use “Spray Away” or “ESSEX GC-800” window cleaner (Prévost #683926) around window perimeter and edges to remove any oily film while inspecting for damages.
- Wipe clean using a dry cloth.
- Repeat previous step using a second dry cloth to ensure window is truly clean and allow to dry for 1 minute.
- Install two stops into the aluminum extrusion one inch from each window edge.

Preparation Of Window When Using Sikatack Ultrafast 2 Adhesive

- Check “SIKA 205” product expiration date.
- Before applying Sika cleaner, fold “Chix” cloth twice for proper width.
- Apply an even coat onto the window casement and allow to dry for 2 minutes.
- Apply Sika 206 G+P primer onto the window casement and allow to dry for 10 minutes.

Fixed Side Window Installation Using Sikatack Ultrafast 2

- Use “Sikatack Ultrafast 2” adhesive.
- Check product expiration date.
- Always heat adhesive first for 15 minutes in an oven.

Note : *You only have 10 minutes to install window once the SIKA ULTRAFAST 2 product is applied.*

- Using a triangular nozzle, apply a Sikatack Ultrafast 2 bead on all of window frame perimeter. Apply a second bead on frame top.
- Two persons may then install window by inserting the top part into the aluminum extrusion and then carefully rest the window casement against the frame aligning the bottom part.
- Install two stops into the aluminum extrusion one inch from each window edge.

Window Temporary Fixing Using Sikatack Ultrafast 2 Adhesive

1st Method

- From the outside, lean a straight edge against each window side to guide the person in charge of the suction jig installation. The window must be on the same level than the adjacent one(s).
- From the inside, remove finishing molding, install the cups onto the glass surface, 6 inches from bottom of window and screw down the jig ends onto the frame metallic structure to adjust depth.

Note *: The person outside the vehicle must guide throughout this procedure.*

- Finally, maximum watertightness is achieved when you notice the bead running over towards the inside.
- Allow drying for at least 6 hours.

2nd Method

- From the outside, use a ram or a jack equipped with a padded surface at one end and secured to the other end.
- This equipment must be easily adjustable and compress the window against the frame.
- Lean the padded surface 6 inches from the bottom of window, use a straight edge and adjust the equipment so that the window is level with the adjacent one(s).
- Finally, maximum watertightness is achieved when you notice the bead running over towards the inside.

- Allow drying for at least 6 hours.

6.6 DRIVER'S WINDOW AND UPPER LATERAL WINDOW

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

Pneumatic «Zip gun» type tool;
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 to dry 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.

Window surface treatment

- Use Spray Away or "ESSEX GC-800" window cleaner (Prévost #683926) around window perimeter and edges to remove any oily film while inspecting for damages.
- Wipe clean using a dry cloth.
- Repeat previous step using a second dry cloth to ensure window is truly clean and allow to dry for 1 minute.
- Check "SIKA 205" product 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 to dry for 2 minutes.

Driver's Window Installation

- Use "Sikatack Ultrafast 2" adhesive.
- Check product expiration date.
- Always heat adhesive first for 15 minutes in an oven.

Note : *You only have 10 minutes to install window once the SIKA ULTRAFAST 2 product is applied.*

- Apply a double-face self adhesive tape 1/8 by ¼ inch inside window frame to prevent glue from reaching the inside of the vehicle and to mechanically hold the window until the adhesive is cured. Peel the back from the tape.
- To support the window, position two "Quick Grip" type pliers at the base of the frame.
- Using the caulking nozzle, seal the top edge with SIKA ULTRAFAST 2.
- Change for a triangular nozzle with a 15 mm opening, apply a Sika bead on all 4 window edges beside the double-face self adhesive tape.
- Center and align the window base using the two pliers while pressing firmly the window perimeter against the frame.
- If this has not been done already, apply masking tape near the window edge adjacent to front face before doing finishing joint. Using a caulking nozzle and Sika Utrafast 2 adhesive, complete a finishing joint and scrape the excess with a plastic scraper.

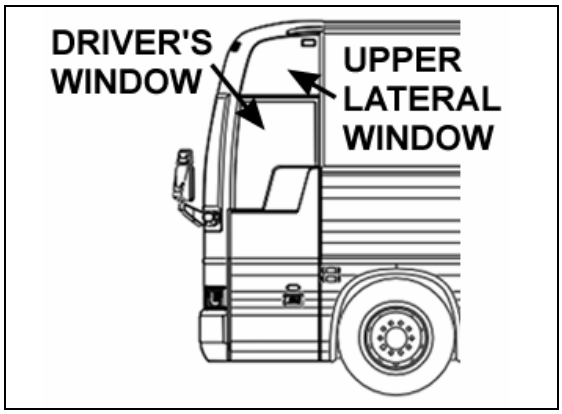


FIGURE 15: DRIVER'S OR UPPER LATERAL WINDOW

- Complete a second finishing joint at the window top making sure there are no cavity.
- Carefully remove masking tape.
- Wet "Ultrafast 2" adhesive every 15-20 minutes using water to accelerate the curing process.
- Do not move the vehicle for 2 hours.

Upper Lateral Window Installation

- Use "Sikatack Ultrafast 2" adhesive.
- Check product expiration date.
- Always heat adhesive first for 15 minutes in an oven.

Note : *You only have 10 minutes to install window once the SIKA ULTRAFAST 2 product is applied.*

- Apply a double-face self adhesive tape 1/8 by ¼ inch inside window frame to prevent glue from reaching the inside of the vehicle and to mechanically hold the window until the adhesive is cured. Peel the back from the tape.
- Remove the lens from the clearance light.
- Change for a triangular nozzle with a 15 mm opening, apply a Sika bead on all 4 window edges beside the double-face self adhesive tape.
- Center the window while pressing firmly the window perimeter against the frame.
- If this has not been done already, apply masking tape before doing finishing joint. Using a caulking nozzle and Sika Utrafast 2 adhesive, complete a finishing joint and scrape the excess with a plastic scraper.
- Carefully remove masking tape.
- Wet "Ultrafast 2" adhesive every 15-20 minutes using water to accelerate the curing process.
- Do not move the vehicle for 2 hours.

6.7 ENGINE COMPARTMENT DOOR BODY PANEL

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

A pneumatic "Zip gun" type tool,
Razor sharp window scraper to remove Sika adhesive residue,
A pair of locking pliers,
And isopropyl alcohol.

- Remove damaged engine compartment door from vehicle (refer to Maintenance Manual, in this section).
- 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.

Caution: *Do not damage painted surface.*

- Use the "Zip gun" to detach completely the stainless steel body panel from door frame.
- 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.*

Note: *Refer to figure 16 for more information on procedure.*

Door Frame Preparation

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

Note : *Make sure not to get any Sika cleaner onto the surrounding painted surfaces.*

- Discard waste according to applicable environmental regulations, use dangerous waste containers.
- Allow 2 minutes for drying in the case of fiber glass (maximum 2 hours).

Body Panel Preparation

- Check that new body panel is the required one and is free of defects or scratches.
- Wear latex gloves and use a “Chix” cloth with isopropyl alcohol in order to remove any dirt or oily film left onto the stainless steel surface.

Note : *Apply evenly around the perimeter of the panel. Use two clothes, first one applies product while second one immediately dries surface off before product evaporation.*

- Then, using a scratch pad “Scotch Brite”, scratch the perimeter of door where the adhesive will be applied.

Note : *It is important to support underneath the curved surface so as not to change the angle of the body panel and therefore prevent deformation.*

- Use a tack cloth to remove any dust or residue.
- Apply an even coat of Sika cleaner onto the treated surface and allow 2 minutes (max. 2 hours) for drying in the case of stainless steel.
- Refer to figure 15 and apply a double-face self adhesive tape 1/16 by ½ inch.
- Always leave a length of self adhesive tape on each side of the body panel, sufficient enough to be able to peel the back from the tape when installing the body panel.

Sikaflex 221 Adhesive Application

- Use a “V” shape nozzle, cut the tip and apply Sika bead ¾ inch (15 mm) from double-face self adhesive tape.
- Before applying body panel, draw a line onto the door fiber glass surface, 3 mm from bottom of body panel curved side edge.

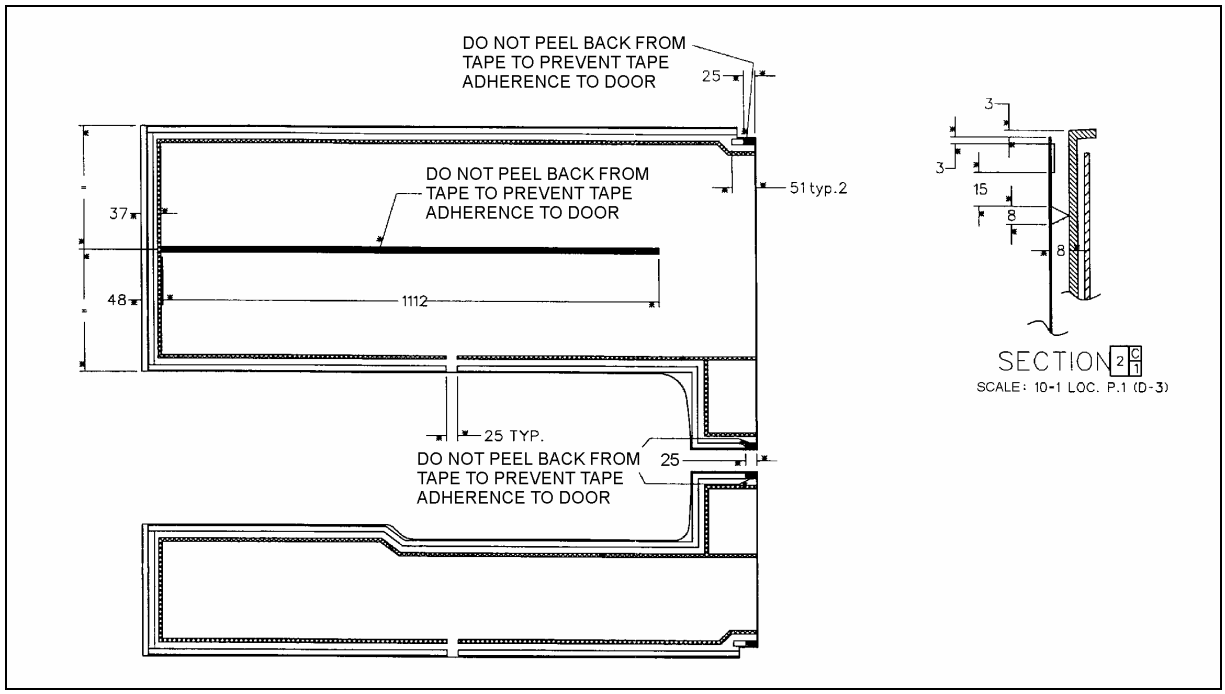


FIGURE 16: ENGINE COMPARTMENT DOOR BODY PANEL INSTALLATION

- Ideally two persons should perform this installation.
- Carefully center and align body panel with the line located 3 mm from bottom while the second person keep the self adhesive tape extremities outside the body panel.
- Peel the back from the self adhesive tape located underneath the curved side and fix the body panel using the special positioning pliers.
- Once the curved side edge is aligned with the line located 3 mm from bottom, lightly compress the body panel along the double-face self adhesive tape starting from the top towards the bottom, peeling the back from the tape at the same time.
- Repeat for each body panel side.
- Finally, compress using a dry erasable marker board brush so as not to scratch or damage the stainless steel surface.

7. ENTRANCE DOOR

7.1 COACH 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 (Fig. 17). Door activation is controlled by a relay panel, located near the defroster and wiper motors. The accessory air reservoir supplies air to this system.

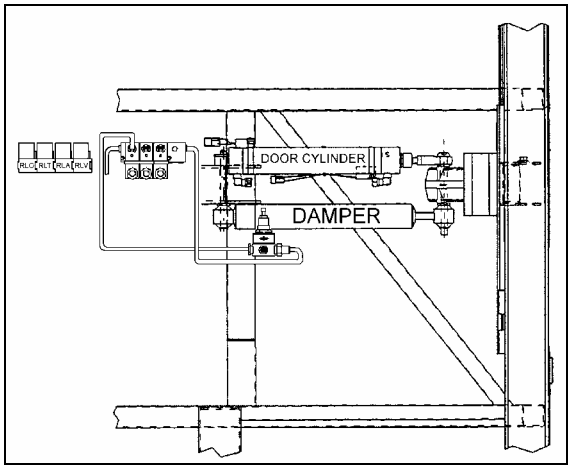


FIGURE 17: DOOR CYLINDER AND DAMPER

The door is held in the closed position during coach operation by a two air cylinder locking mechanisms (Fig. 18). 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 de-energizes the air lock solenoid valve, venting the door locking cylinders. The return locking spring pulls the door lock away from the latch, unlocking the door. Door movement starts only when pressure in the central air door lock is below 10 psi. The “air cylinder open solenoid valve” opens and allows air to flow to the door 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 entrance door latch is grounded with the door frame, the air lock solenoid valve is de-energized and loads the door lock cylinders. The cylinder moves the door lock in a position which engages a latch on the entrance door, holding the door positively closed.
Emergency exit valve, which opens the air valve circuit should be used only in emergencies, or when the door control system does not function properly.

Refer to the air system schematic diagram annexed at the end of section 12, “Brakes” and to page 22 of the wiring diagram.

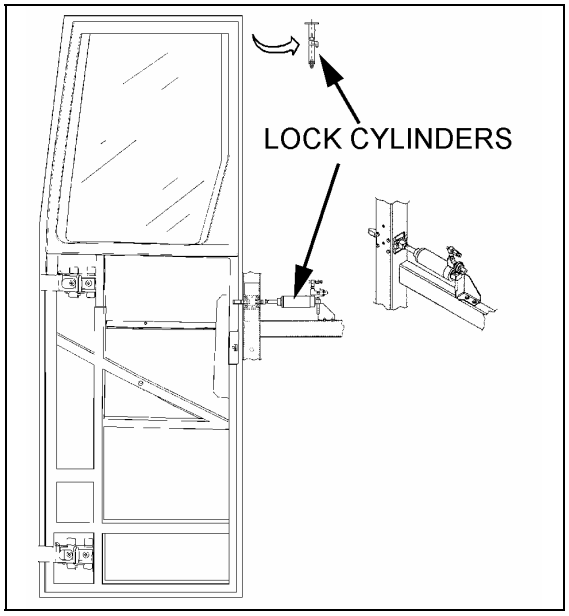


FIGURE 18: COACH ENTRANCE DOOR

7.1.1 Operation

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

Opening and closing of the door from outside the coach is accomplished by a momentary toggle switch located near the coach model nameplate (Fig. 19).

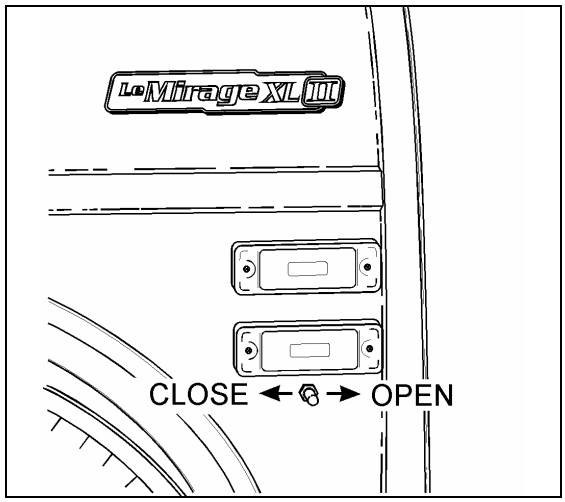


FIGURE 19: ENTRANCE DOOR CONTROL SWITCH

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.

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.

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

7.1.2 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.

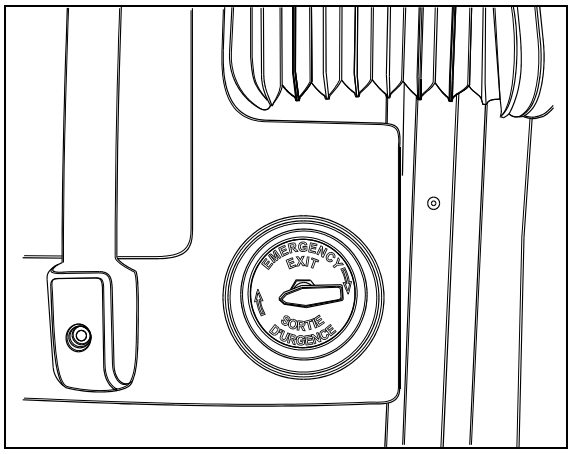


FIGURE 20: EMERGENCY EXIT VALVE 18321

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.

7.1.3 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 (Fig. 21):

1. Remove the damper from the vehicle and hold it vertically with the lower eye or pin attachment in a vice. Use clamp plates to prevent damage.
2. Fully close the damper while turning the dust cap or piston rod slowly CCW until it is felt that the cams of the adjusting nut engage in the recesses of the foot valve assembly (Fig. 21).

Note: *In figure 21, 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.

Note: *Where a bump rubber was installed, refit same inside the dust cap and by fully closing the damper, the rubber will seat again at top of the dust cap. Refit the split plastic collar E (Fig. 21)*

5. The damper can now be refitted in the vehicle.
6. Reinstall panels and entrance door hinge cover.

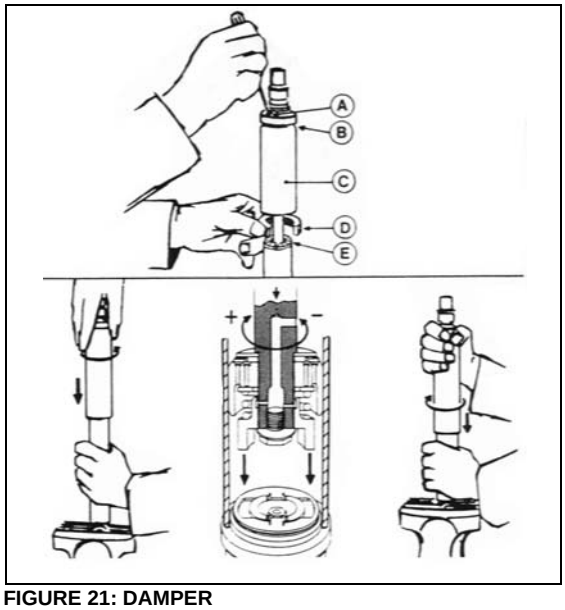


FIGURE 21: DAMPER

7.1.4 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:

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

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

2. Remove the Allen button head screw and the washer retaining the rod end with bearing to the upper hinge. See figure 22.
3. Support the door with a wooden block and a hydraulic jack.
4. Loosen the horizontal bolts retaining the door to the hinges. Adjust the door horizontally and vertically with the jack. Tighten the bolts to 30-36 ft-lbf (40-50 N•m). Remove the jack and the wooden block.

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

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

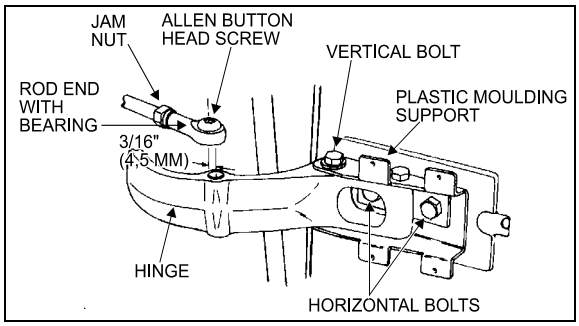


FIGURE 22: UPPER DOOR HINGE 18058

7.1.5 Seal Compression Adjustment

1. Turn the emergency exit valve to the "UNLOCK" position and close the door.
2. 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 23).

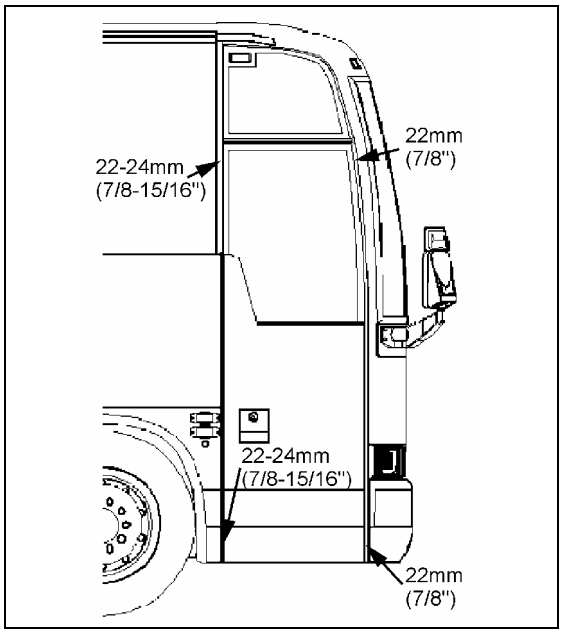


FIGURE 23: SEAL COMPRESSION ADJUSTMENT

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.

7.1.6 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.

Caution: *Wear rubber gloves and do not smoke when cleaning.*

5. Peel of protective paper from the seal. Position the seal flush with the top, sides and lower edges of the door.
6. Progress slowly all around the door.
7. Cut the seal and glue both ends with LOCTITE 414 glue.

8. To assure bonding, press a small roller on top of the new seal.

7.1.7 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.
	Upper lock stays engaged	Lubricate upper lock assembly. Check wear and replace parts if necessary.
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.
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 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.

7.1.8 Lubrication

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

7.2 ENTRANCE DOOR (MTH)

There are three ways of unlocking the entrance door from the inside of vehicle. The two first consist in actuating the rocker switch on the dashboard, but this last operation will also unlock the baggage compartments. Finally, you can unlock the door by sliding its lock lever to the left. If the orange tab on the door lock lever is visible, the door is unlocked.
You may lock/unlock the entrance door from the outside with the lock key provided with the vehicle. Turn key CCW to lock and CW to unlock the entrance door.

7.2.1 Keyless entry system

With this system, you can lock or unlock the entrance door as well as the baggage and service compartment doors. The keyboard is located below the entrance door handle. The module is pre-programmed by the manufacturer and this code can not be deleted. Moreover, you can program your own entry code. Refer to the "Owner's Manual" for instructions on how to program your own entry code.
When you use the keyless entry system, the keyboard and stepwell lights illuminate. Do not push the buttons with a key, pencil or any other hard object as it could damage the buttons.
Although each button is provided with two digits separated by a vertical line, there is only one contact per button. Always press the center of the button (between the two digits, on the vertical line).
If you let more than five seconds pass between each button press, the system shuts down, and you have to enter your code again. If the keyless entry system does not work properly, use the key to lock or unlock entrance or compartment doors. To know more about the keyless system, refer to the "Owner's Manual".

Note: *You must unlock the entrance door before you unlock with the appropriate key any baggage or service compartment doors.*

7.2.2 Door adjustment

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

7.2.3 Horizontal and Vertical Adjustments

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

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

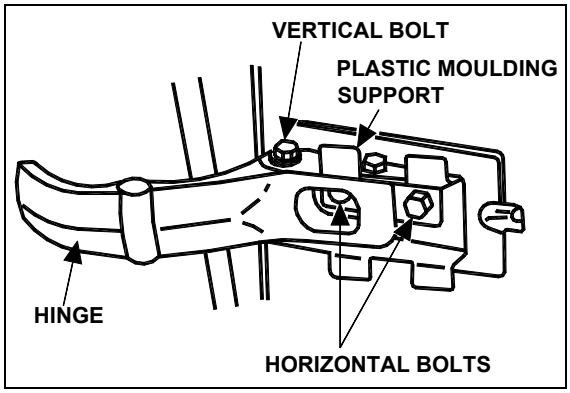


FIGURE 24: ENTRANCE DOOR (MTH) 18058

2. Support the door with a wooden block and a hydraulic jack.
3. 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 ft-lbf (40-50 N•m). Remove the jack and the wooden block.
4. Check door fit.
5. Using the screws, fasten the plastic trim to cover the hinges.

7.2.4 Seal Compression Adjustment

1. 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 23).

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

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

7.2.5 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.

Caution: *Wear rubber gloves and do not smoke when cleaning.*

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

7.2.6 Door Lubrication

Part	Lubricant	Frequency
Latches Upper door catch	Low temperature grease	Every six months
Door locking mechanism	White grease	Every six months
Key hole Hinges	Low viscosity oil	Every six months

7.2.7 Door Latch mechanism

Generally, when the latch mechanism malfunctions, a number of causes may be responsible for this situation. No single procedure will correct this situation. It is best to remove the protective cover and to look for binding, used or bent parts. Operate the latch mechanism and try to find where any binding occurs. Replacing a part or slightly bending a rod should be enough. Remember, having a global understanding of the mechanical activity will generally lead you to the cause of the problem, and ultimately to an easy repair.

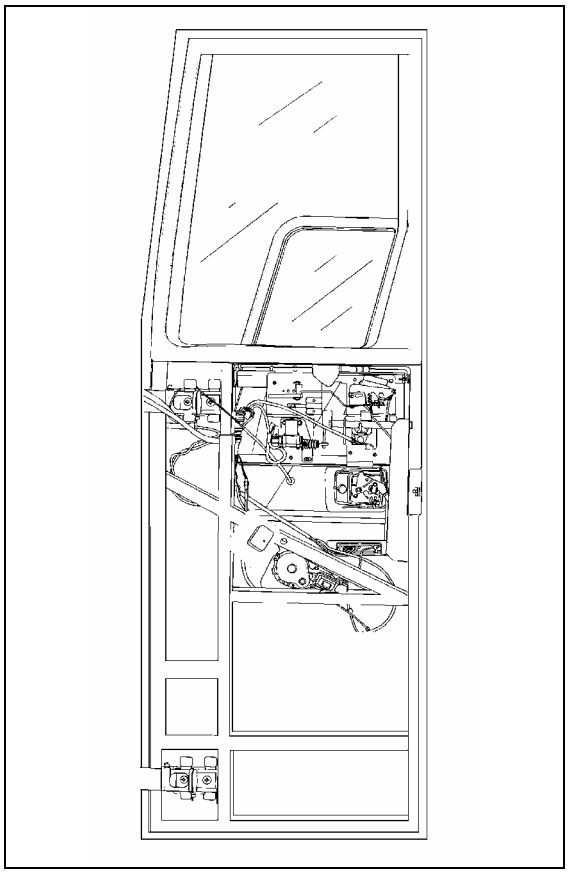


FIGURE 25: ENTRANCE DOOR (MTH, TYPICAL)

8. BUMPER REMOVAL AND INSTALLATION

8.1 FRONT BUMPER

The front bumper is hinged to give access to the spare wheel and tire compartment. Pull the handle forwards 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.*

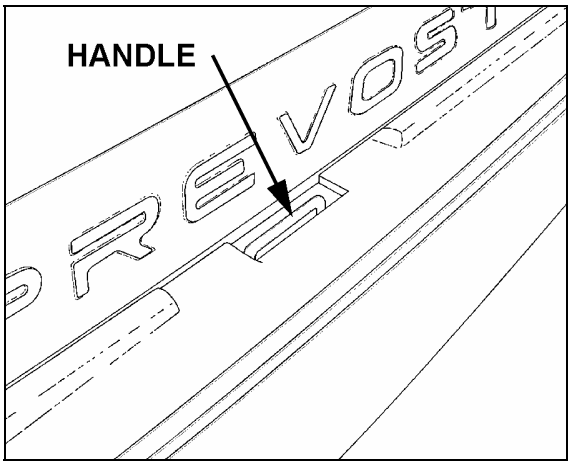


FIGURE 26: FRONT BUMPER HANDLE

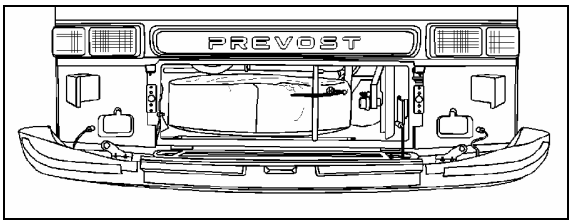


FIGURE 27: FRONT BUMPER

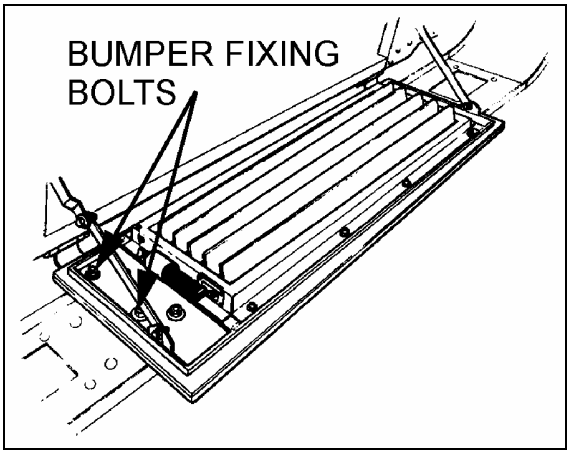


FIGURE 28: FRONT BUMPER REMOVAL

8.2 REAR BUMPER REMOVAL

MTH and coach model rear bumpers are very similar, so is their removal and installation.

1. Remove three bolts on each side holding bumper to vehicle and remove bumper.
2. To install bumper, reverse the procedure.

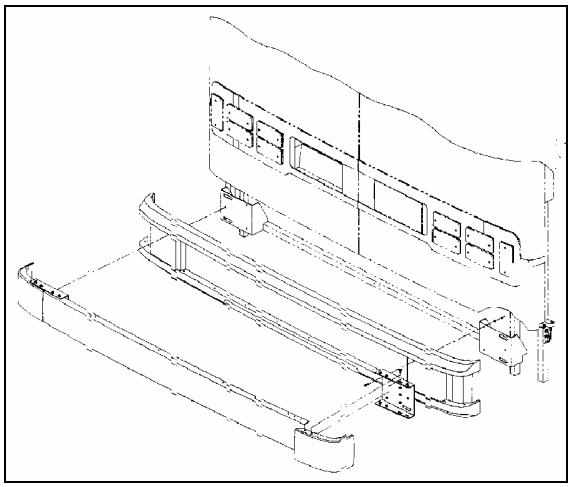


FIGURE 29: REAR BUMPER

9. DRIVER'S OR ENTRANCE DOOR POWER WINDOW

Driver's and entrance door power windows are similar, only the door opening mechanism is different. If the window or regulator is defective, it must be replaced. The following instructions refer to figure 30 or 31:

9.1 DRIVER'S POWER WINDOW

9.1.1 Window Removal and Installation

1. Open the door and remove the door finishing panel.
2. Remove the screws holding the window to the lifting mechanism. Move aside the holding plate.
3. Lower the window completely to detach from the opening.
4. Reverse the procedure to install.

9.1.2 Regulator Removal and installation

1. Open the door and remove the door finishing panel.
2. Remove the screws holding the window to the lifting mechanism. Move aside the holding plate.
3. Unfasten the two bolts fixing the regulator assembly. Disconnect connector from regulator.
4. Reverse the procedure to reinstall.

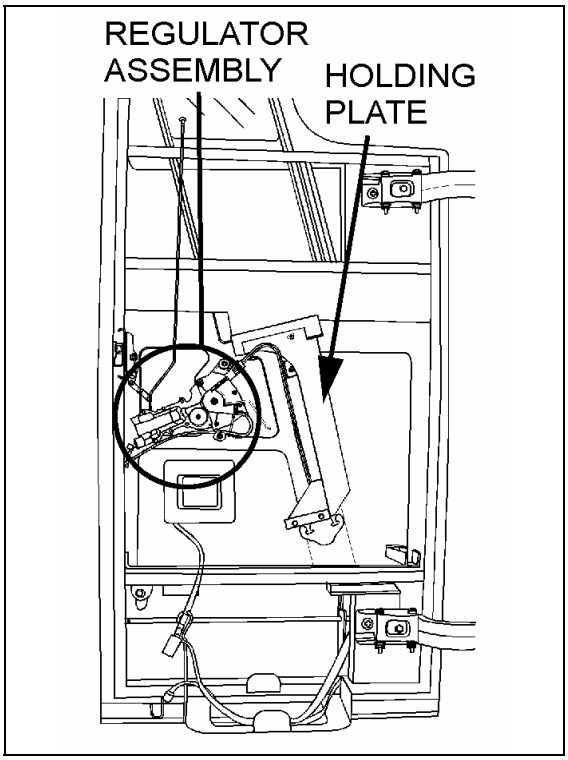


FIGURE 30: DRIVER'S POWER WINDOW

9.2 ENTRANCE DOOR POWER WINDOW

9.2.1 Window Removal and Installation

1. Open the door and remove the door finishing panel.
2. Remove the four bolts fixing the entrance door locking mechanism support to the door.
3. Remove the screws holding the window to the lifting mechanism. Move aside the holding plate.
4. Remove the assembly by slipping it under the vehicle structural members.
5. Lower the window completely to detach from the opening.
6. Reverse the procedure to reinstall.

9.2.2 Regulator Removal and Installation

1. Open the door and remove the door finishing panel.
2. Remove the screws holding the window to the lifting mechanism. Move aside the holding plate.
3. Unfasten the two bolts fixing the regulator assembly. Disconnect connector from regulator.
4. Remove the regulator assembly by slipping it under the vehicle structural members.
5. Reverse the procedure to reinstall.

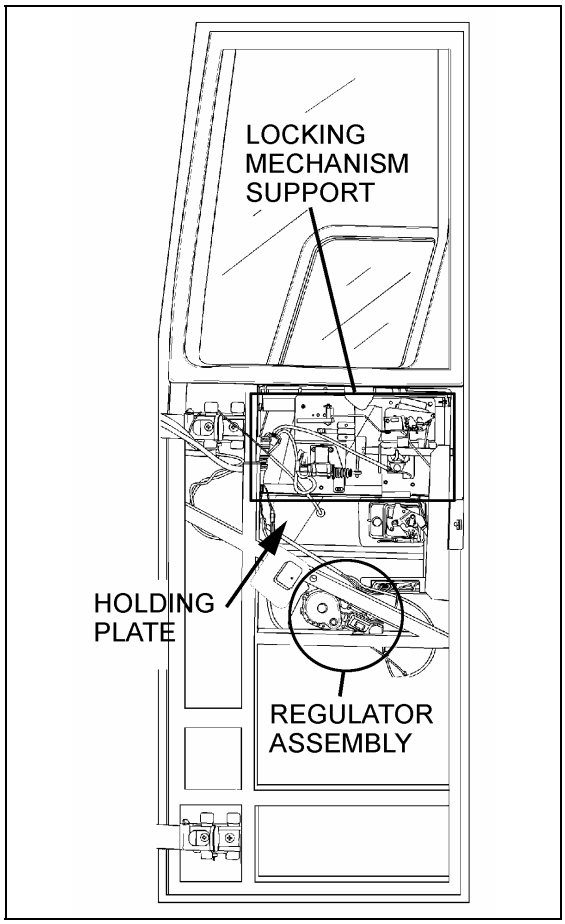


FIGURE 31: ENTRANCE DOOR POWER WINDOW

10. 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 section for procedures on how to seal this area.

Caution: *Use of lubricants, paints, or other coatings such as graffiti deterring sprays are 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.*

10.1 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 32.

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.*

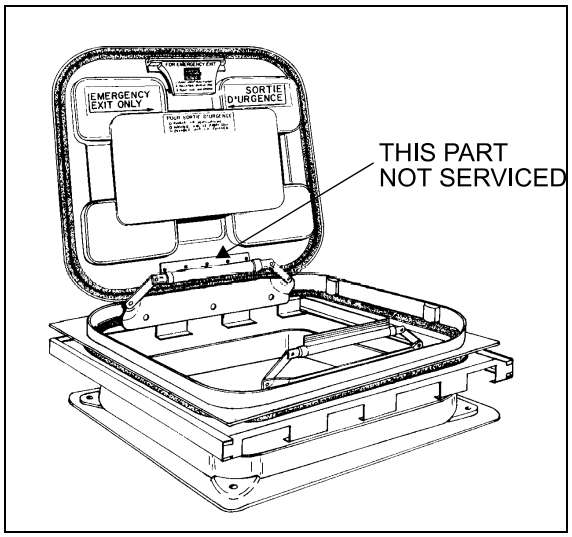


FIGURE 32: ESCAPE HATCH 18104

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

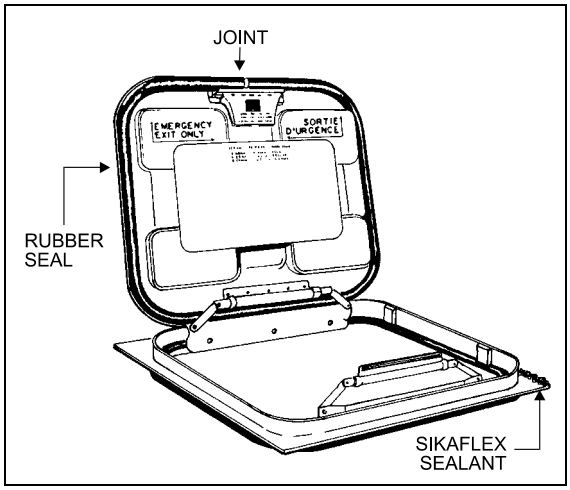


FIGURE 33: ESCAPE HATCH 18105

10.3 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.*

10.4 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.

11. PASSENGER SEATS

XLII-40 and XLII-45 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 cusion 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.

11.1 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.

11.2 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 24.
5. Remove 2 nuts and washers holding seat frame to pedestal rods. See figure 25.

Note: *Bottom end of rod is coated with Locktite 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.*

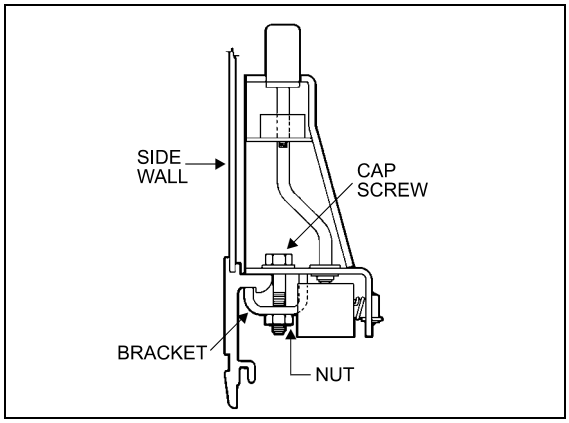


FIGURE 34: ARMREST 18106

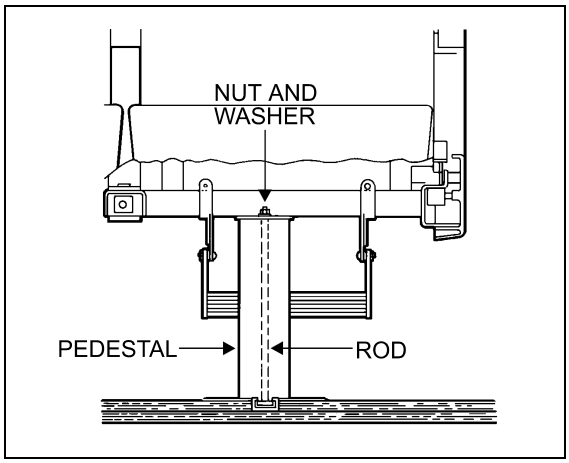


FIGURE 35: SEAT PEDESTAL ASSEMBLY 18107

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.*

11.3 UPHOLSTERY MAINTENANCE

Coach seats are lightweight, with foam-padded backs and cushions. For both appearance and wearability, best results are obtained if upholstery is cleaned at regular intervals before dirt, dust and grit have been ground into the fabric. Seat fabric is made of 50% wool, 33% cotton, 9% nylon, and 8% acrylic.

11.3.1 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 become excessively dirty, particles of grit will cause gradual wear, reducing the life span of the fabric.

11.3.2 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.

11.3.3 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.

12. COACH SIDE WINDOWS

Eight passenger side windows are provided on each side on XL2-40, while the XL2-45 have nine. 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.

12.1 EMERGENCY EXIT WINDOWS

Three of the windows on each side serve as emergency exits on the XLII-40, while there are three of them on curb side of the XLII-45, and four on driver's side. See figures 36 and 37. Except for the top window side, the three other glass sides are unprotected, which causes the workers to be exceptionally careful when manipulating or installing such windows. In addition, when it becomes necessary to lay down the unprotected edges of the glass window, never use a steel or concrete floor support. It is recommended to use a wooden support, even better, a padded surface.

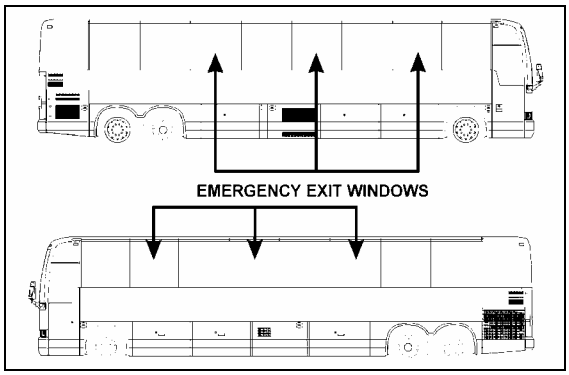


FIGURE 36: XL2-40 COACH 18418

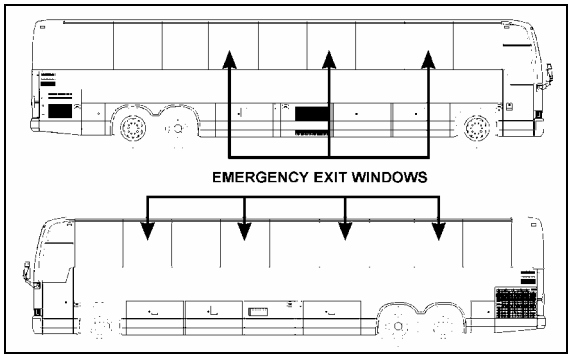


FIGURE 37: XL2-45 COACH 18419

An emergency exit window can be opened by pulling the lower part of the release bar to disengage the safety latches, and then by pushing out the window frame (Fig. 38).
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.

12.1.1 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. to install a new release bar, reverse the procedure.

Note: *Check the legal twenty pound maximum resistance to be sure to comply to regulations.*

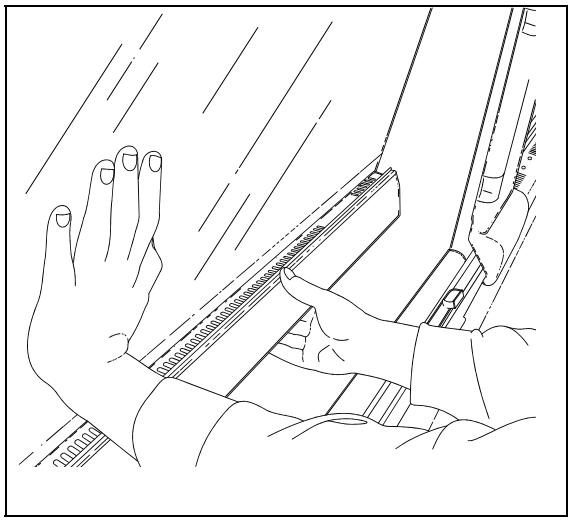


FIGURE 38: EMERGENCY EXIT WINDOW

12.1.2 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.*

12.1.3 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.
5. Reverse the procedure to install a new emergency exit window.

13. BODY PANELS AND DOORS

Each of the doors should be checked for proper operation. This includes latching. Also, inspect each of the doors for damage, missing, or loose parts. Repair or replace those parts as needed. Unless otherwise noted, body panels and doors should be aligned and centered with surrounding panels. In general, a gap of ¼ inch (6 mm) is desirable between panels.

14. BAGGAGE COMPARTMENT DOORS

The baggage compartment doors on the vehicle are of identical design. The doors are pantograph, vertical-lift type and are fully sealed. Each door has a flush-mounted latch handle. To open, lift latch handle, then pull door outward and up. The door is held open by 2 gas-charged cylinders. To close, leave latch handle in the open position, pull downward on door and push down on latch to secure door. The door lower arm is spring loaded to secure effort required to close the door (Fig. 39).

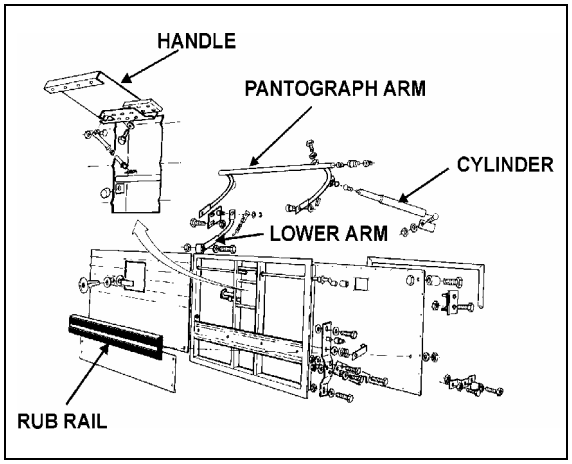


FIGURE 39: BAGGAGE COMPARTMENT DOOR 18145

If a door does not remain in the fully open position, one or both cylinders on that door is (are) defective. To test the cylinders, first support the door in the open position with proper equipment. Disconnect the rod end of one cylinder and retract the rod. If strong resistance is felt, the cylinder is in good condition and can be reinstalled. If the rod retracts with little effort, the cylinder is defective and should be replaced

at once. Use the same procedure to test the other cylinder on that door.

14.1 DOOR REMOVAL

Caution: *Two people are required to remove the baggage compartment doors.*

1. Maintain the door halfway open by placing a wooden block between one of the pantograph arms and the upper frame.
2. Remove cap screw, lock washer and flat washer retaining lower arm to door
3. Remove spring pins and lock washers fastening the pantograph arms to the door.

Warning: *Support the door properly to prevent it from falling.*

4. Spread the pantograph arms away from the door and remove door.
5. Inspect all pivot points and bushings for wear and damage. Check tension of gas-charged cylinders and replace if necessary.

14.2 PANTOGRAPH ARMS REMOVAL AND INSTALLATION

1. Disconnect rod end of gas-charged cylinders from the pantograph arms.
2. Loosen jam nut and cap screw locking the horizontal member of the pantograph to the pivot pin.
3. Slide pantograph assembly to the right and remove assembly from the vehicle.
4. To install, perform the removal instructions in reverse.

14.3 DOOR INSTALLATION

1. Use a wooden block to support the pantograph arms horizontally.
2. Support the door and insert each pantograph arm into the pivot pins on the side of the door.
3. Install washer and spring pin to fasten each arm to its pivot pin.
4. Fasten lower arm to the door with flat washer, lock washer and cap screw.
5. Remove wooden block and close baggage compartment door.

Door should be adjusted to leave a gap of 3/16" (5 cm) above the top edge of the door. To adjust, loosen the bolts retaining lock plate support and position the door correctly. Tighten the bolts after the adjustment.
If the baggage door locks to tightly or too loosely, the position of the catch striker is misadjusted. To adjust, loosen the catch striker retaining bolts, position the striker correctly and tighten the retaining bolts.
If the lower part of the baggage door does not close evenly with the side of the vehicle, adjust the lock plates by loosening their retaining bolts and positioning the locking plates correctly (Fig. 40).

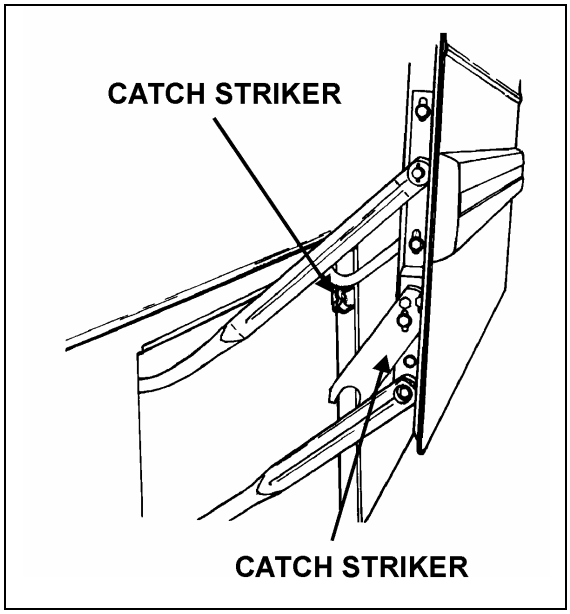


FIGURE 40: BAGGAGE DOOR CATCH STRIKER 18146

15. ENGINE COMPARTMENT DOORS

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

1. Loosen the bolts, (1, 2 Fig. 41) holding the hinge to the vehicle structure to shift the door "UP or DOWN".
2. Loosening the bolts (3, Fig. 41) allows the door to be shifted "LEFT or RIGHT" and "IN or OUT".

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

To adjust the latch mechanism (4, Fig. 41) and the striker pin:

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

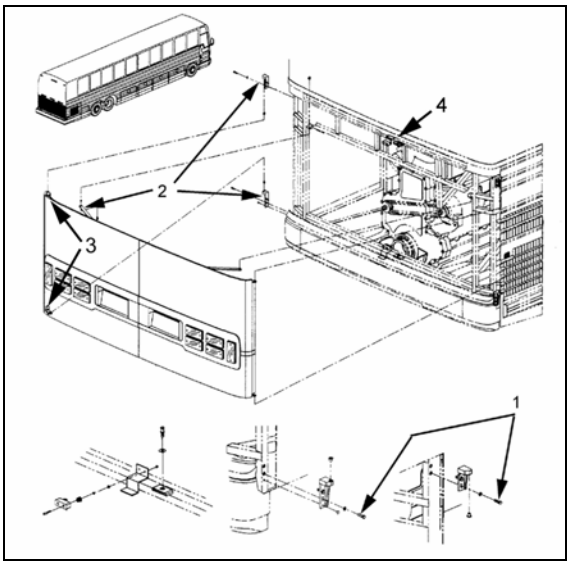


FIGURE 41: ENGINE COMPARTMENT DOORS

16. RADIATOR DOOR ADJUSTMENT

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

1. Loosen the bolts, (1, Fig. 42) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".
2. Loosening the bolts (2, Fig. 42) 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.

To adjust the latch mechanism (3, Fig. 42) 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.

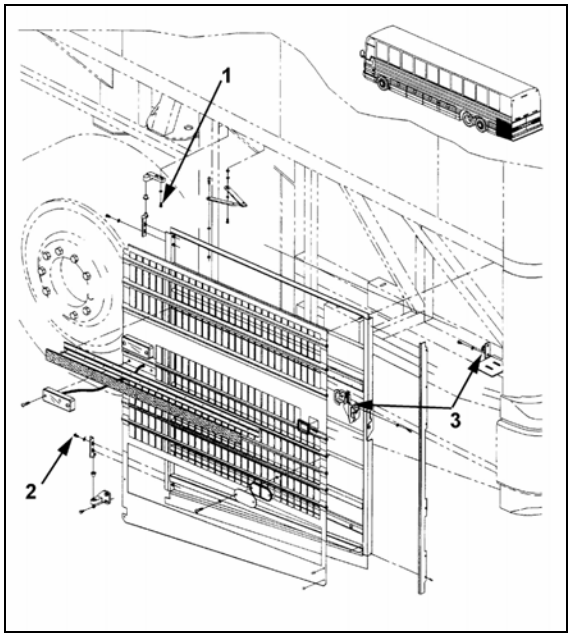


FIGURE 42: RADIATOR DOOR

17. ENGINE COMPARTMENT R. H. SIDE DOOR

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

1. Loosen the bolts, (1, Fig. 43) holding the hinge to the vehicle structure to shift the door "IN or OUT" and "UP or DOWN".

2. Loosening the bolts (2, Fig. 43) 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.

To adjust the latch mechanism (3, Fig. 43) 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.

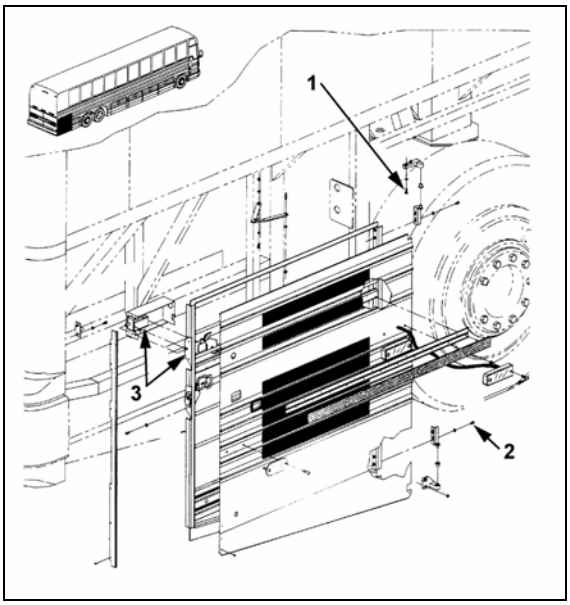


FIGURE 43: ENGINE COMPARTMENT R. H. SIDE DOOR

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

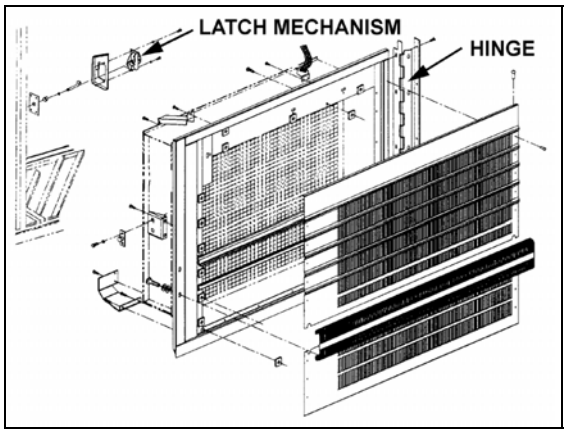


FIGURE 44: CONDENSER DOOR

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

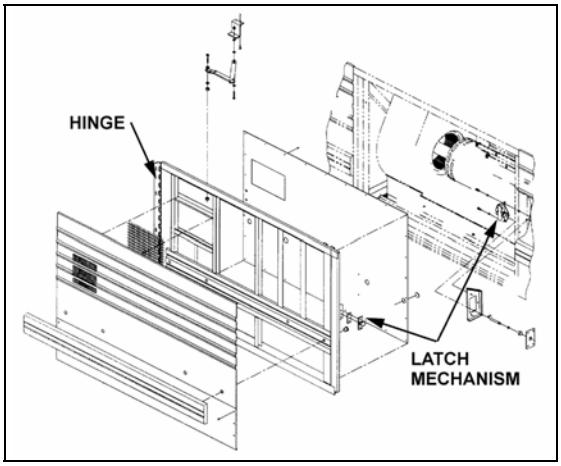


FIGURE 45: EVAPORATOR DOOR

20. 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 parts.
4. Tighten the nuts.
5. Check that the door swings freely and closes properly.

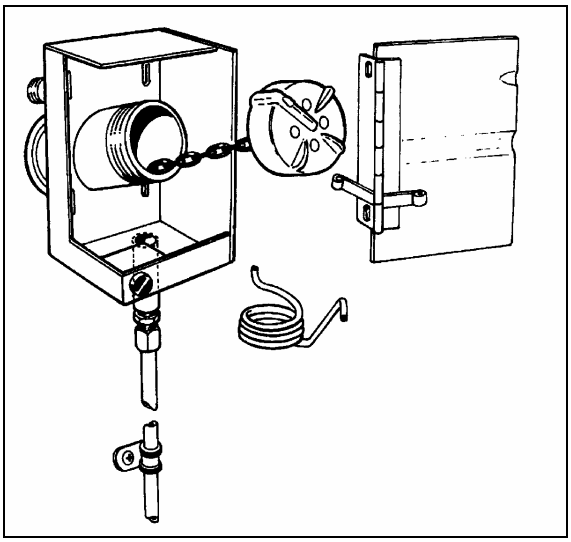


FIGURE 46: FUEL FILLER DOOR

21. FRONT SERVICE COMPARTMENT DOOR

For adjustment of the front service compartment door, refer to paragraph 7 in this section.

22. L.H. SIDE REAR SERVICE COMPARTMENT DOOR

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

To adjust the latch mechanism and the striker pin:

1. Open the door to access the striker pin.
2. Loosen slightly the striker pin.
3. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
4. Tighten the striker pin.

Check door fit and operation.

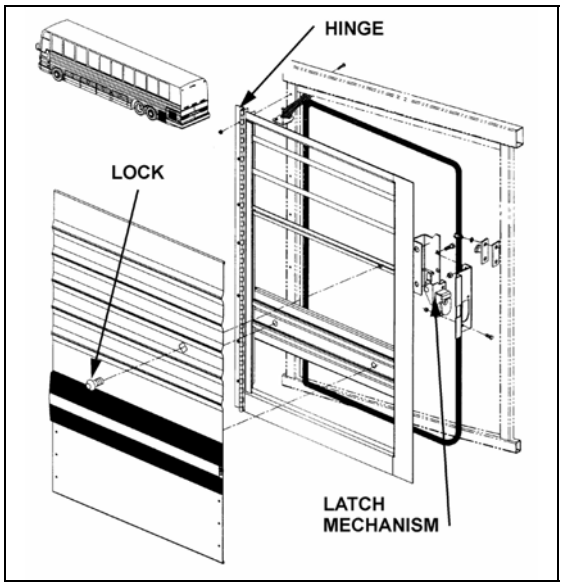


FIGURE 47: L.H. SIDE REAR SERVICE COMPARTMENT DOOR

23. R.H. SIDE REAR SERVICE COMPARTMENT OR MAIN POWER COMPARTMENT DOOR

To adjust the R. H. side rear service compartment (MTH) or main power compartment (Coaches) door:

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

To adjust the latch mechanism and the striker pin:

1. Open the door to access the striker pin.
2. Loosen slighly the striker pin.
3. Using a hammer, adjust the striker pin to center it in the door latch mechanism.
4. Tighten the striker pin.

Check door fit and operation.

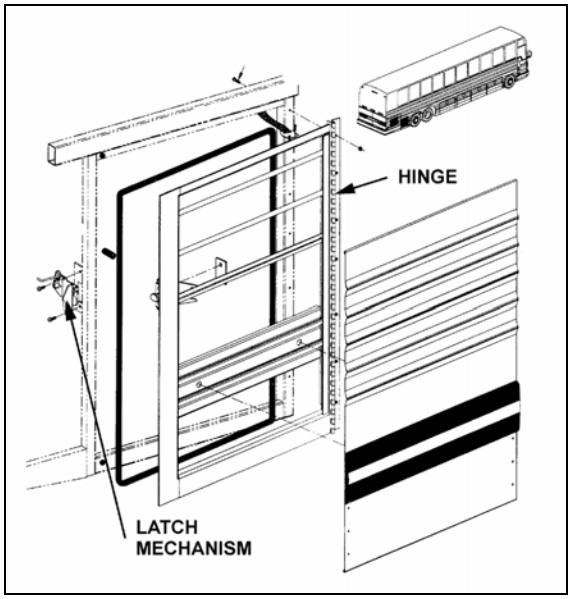


FIGURE 48: R.H. SIDE REAR SERVICE COMPARTMENT OR MAIN POWER COMPARTMENT DOOR

24. FENDERS

On the "XL2" 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.
Front rubber 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.

25. REAR CAP

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

26. FRONT CAP

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

27. SIDE PANELS

The XL2 series coaches have a one piece stainless steel panel on each side. A visual check must be performed every six (6) months. The verification is limited to a visual check around the perimeter of the side panel to see if there is any pealing off of the side panel.
In the affirmative stop driving the vehicle. Call Prévost Car Inc. immediately to take corrective action.

Warning: *DO NOT attempt to repair yourself. NEVER use rivets or mechanical fasteners of any kind to attach panel.*

28. 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.

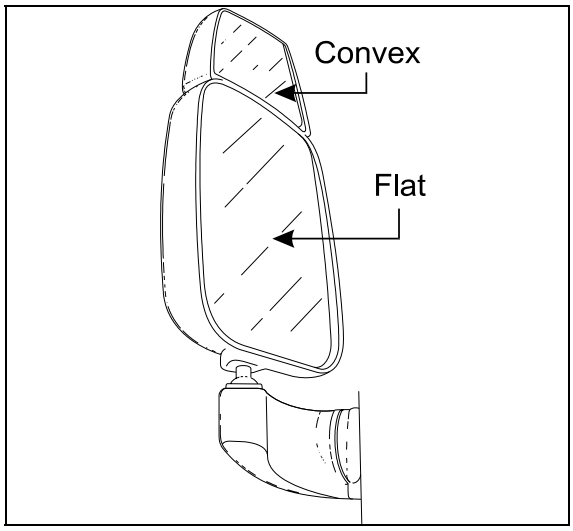


FIGURE 49: REAR VIEW MIRROR (RAMCO) 18398A

28.1 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.

28.2 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.

28.3 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.*

28.4 REPLACEMENT OF MIRROR GLASS

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

28.5 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.*

28.5.1 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.

28.5.2 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.

28.5.3 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.*

28.5.4 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.

29. 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 13,000 lb. (5 900 kg). Equipment for lifting the rear of the vehicle must have a combined lifting capacity of at least 25,000 lb. (11 400 kg).

Warning: *DO NOT tow or jack vehicle with people on board.*

Warning: *When it is necessary to raise the vehicle, care should be taken to ensure that pressure is applied only at the points indicated in figures 50, 51, 52, 53 and 54.*

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 a motorcoach 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 50: JACKING POINTS ON FRAME 11020

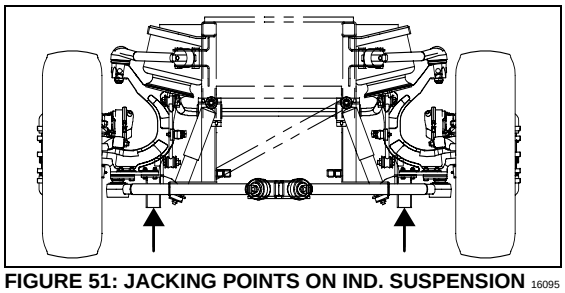


FIGURE 51: JACKING POINTS ON IND. SUSPENSION 16095

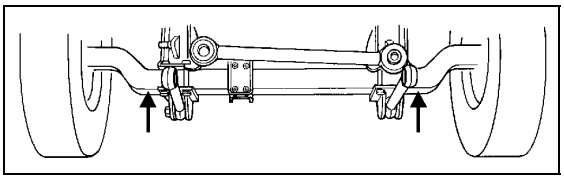


FIGURE 52: JACKING POINTS ON FRONT AXLE 18084

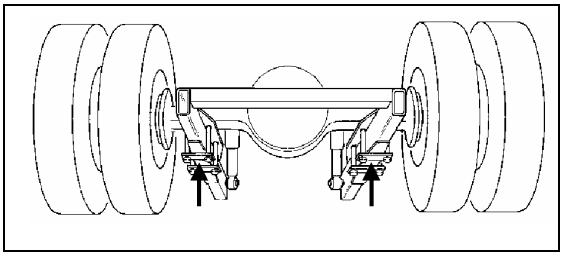


FIGURE 53: JACKING POINTS ON DRIVE AXLE OEH3B762

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

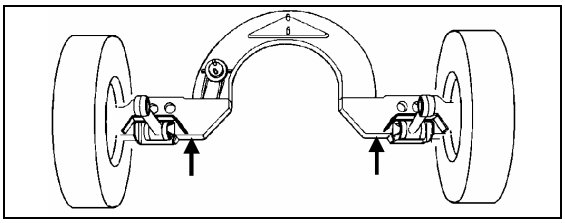


FIGURE 54: JACKING POINTS ON TAG AXLE OEH3B764

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

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

Front axle: 13,000 lbs. (5 900 kg);

Drive axle: 25,000 lbs. (11 365 kg).

29.1 HYDRAULIC JACK

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

Warning: *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.*

Warning: *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.*

30. 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.*

Note: *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.*

30.1 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 Rockwell's *"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. With either automatic or semi-automatic transmission, the drive axle shafts must be removed to avoid serious damage to the transmission.*

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.

Caution: *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.

30.2 TOWING WITHOUT LIFTING

Caution: *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 Rockwell's *"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. With either automatic, semi-automatic or manual transmission, the drive axle shafts must be removed to avoid serious damage to the transmission.*

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. 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.

Caution: *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.*

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

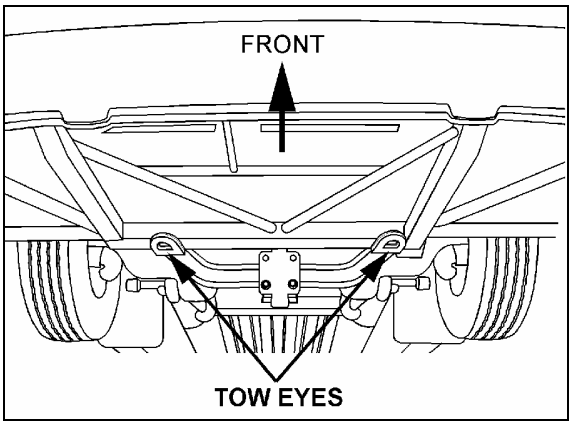


FIGURE 55: TOW EYES

31. SPECIFICATIONS

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

Damper
Manufacturer ..... Koni
Prévost 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)
Supplier number D-51127-A
Prévost number 641392

Lock cylinder (central)
Manufacturer ..... Bimba
Type ..... Air, single action, ¼ NPT
I.D. ..... 1¾" (45 mm)
Stroke ..... 1" (25 mm)
Supplier number 241-P
Prévost 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)
Prévost 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
Prévost number 641412

Pressure switch assembly
Prévost number 452831