

Section 2

BODY EXTERIOR

METAL REPAIRS – STEEL CAGE STRUCTURE

REPAIRS – MINOR

Small holes, dings, gouges, etc. can be repaired using conventional auto body repair techniques such as spot putty, body filler, fiberglass, etc.

REPAIRS – MAJOR

Aluminum panels on steel-cage vehicles are attached to the steel structure using the modern technology of urethane foam bonding.

NOTE: When repairing exterior metal do not remove any more metal than is required to repair the damage. Do not remove entire side wall. Remove only damaged area.

STEEL STRUCTURE REPAIR

Refer to Figure 2-1.

1. Remove all outside attached components and moldings from area where panel is to be replaced.
2. Remove damaged exterior metal.
3. Repair damaged steel structure and re-weld.
4. Re-insulate area with urethane foam. When foam has hardened, finish to match contour of undamaged area.
5. Measure and cut aluminum metal patch to fit area where damaged metal was removed. Metal patch must match original contour.
6. Install foam tape over all steel structure areas where metal aluminum metal patch will be fastened. Tape acts as an insulator and stops dissimilar metal corrosion. Tape also keeps metal smooth.
7. Install aluminum metal patch to steel cage structure with rivets or screws.

NOTE: Match existing crimps. Re-align if necessary.

8. Smooth down all rivets or screw heads flush with metal patch.

9. Tape seams using duct tape where metal meets or overlaps.
10. Use standard overlay procedure as follows and overlay entire area.

OVERLAY PROCEDURE

When exterior aluminum panels have been damaged but the steel structure is still in proper position or after the steel structure has been repaired, the overlay process is applicable.

Refer to Figure 2-1.

NOTE: Steps 2 & 3 and 7 & 8 do not apply to units that use body moldings over the seams in the side metal.

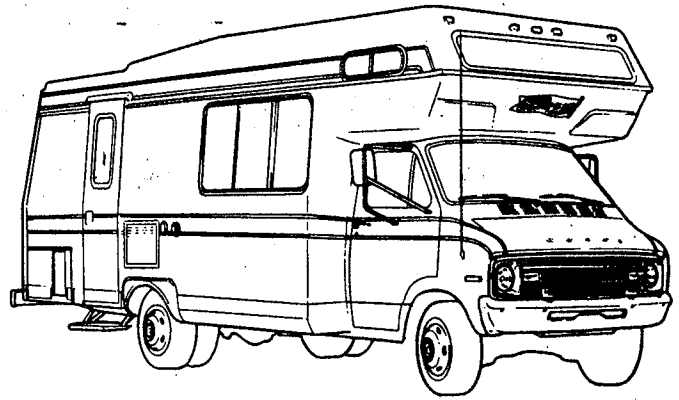
1. Remove all outside attached components and moldings from area where panel is to be replaced.
2. One inch from "S"-Lock, scribe a deep mark into the aluminum metal using a utility knife.

NOTE: The upper panel cannot be replaced without replacing the lower panel.

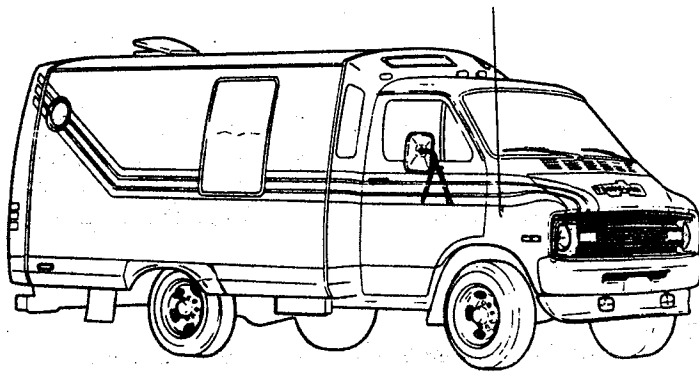
3. Using vise-grip pliers, pull out strip of aluminum from "S"-Lock.
4. Measure and cut new panel to fit damaged area. When vehicle is covered with ribbed aluminum, the replacement panel must be cut to match so that crimp lines of new panel will be positioned directly over crimp lines in existing metal.

NOTE: When replacing lower body metal, clean and rustproof to prevent corrosion prior to installation of new metal.

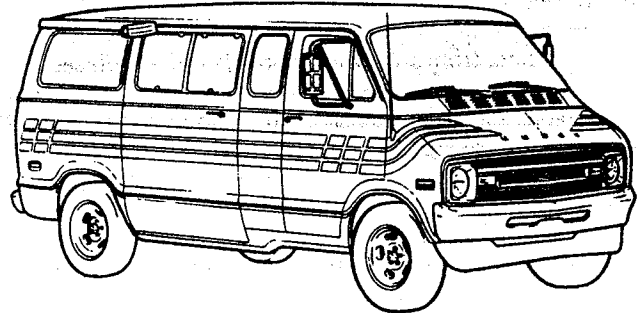
5. Clean mating surfaces of vehicle and replacement panel with solvent.
6. Brush mating surfaces with contact cement and allow to dry.



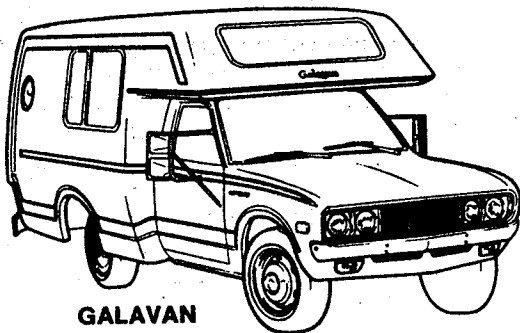
GRAND SLAM



TRANS-VAN



TUG BUGGY VAN

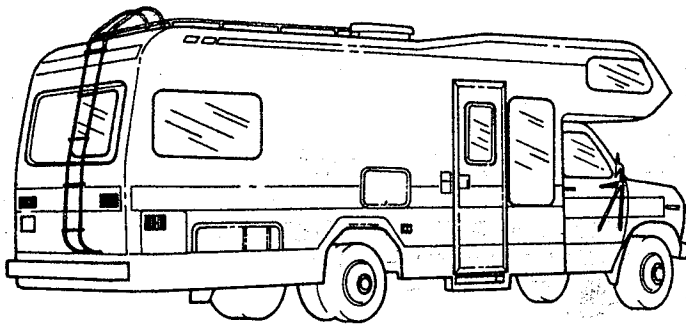
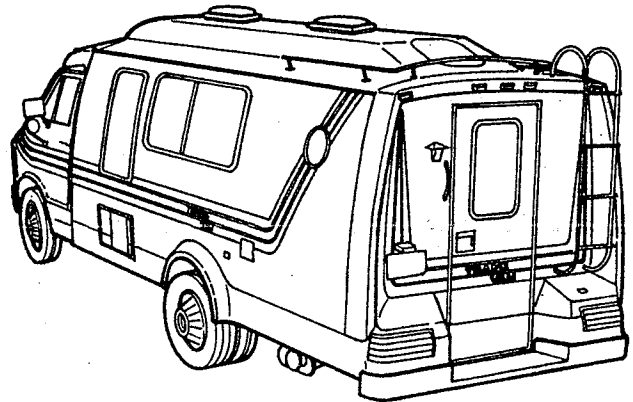


GALAVAN

VARIOUS MODELS BUILT BY CHAMPION HOME BUILDERS

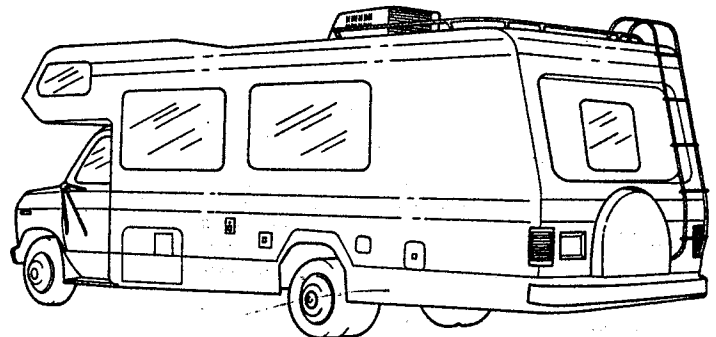


TRANS-VAN

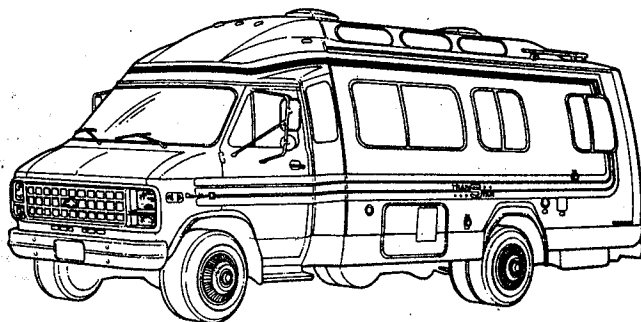
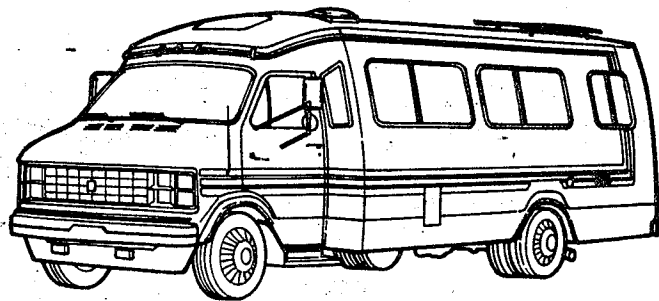
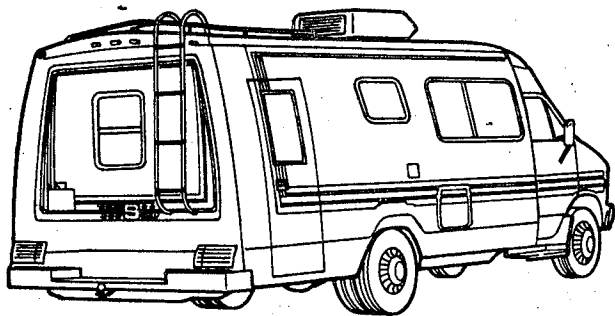


CHAMPION MINI

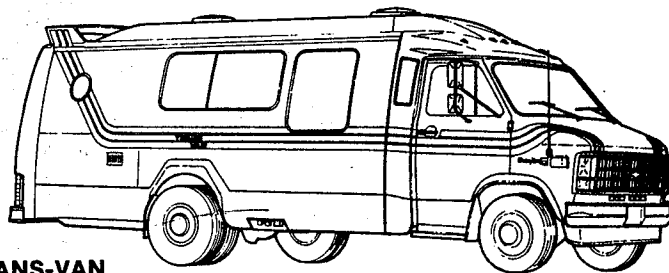
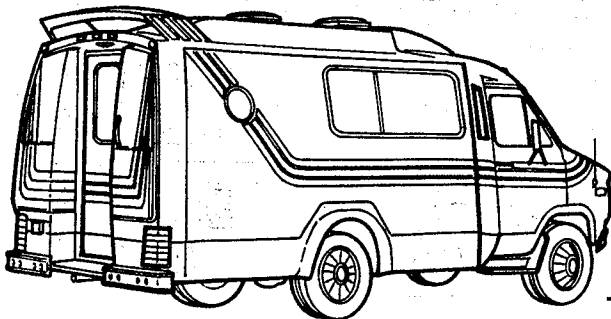
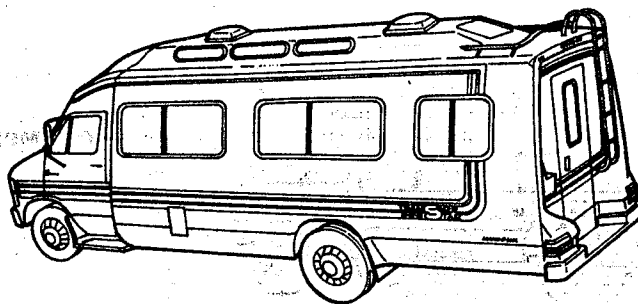
TITAN MINI



VARIOUS MODELS BUILT BY CHAMPION HOME BUILDERS

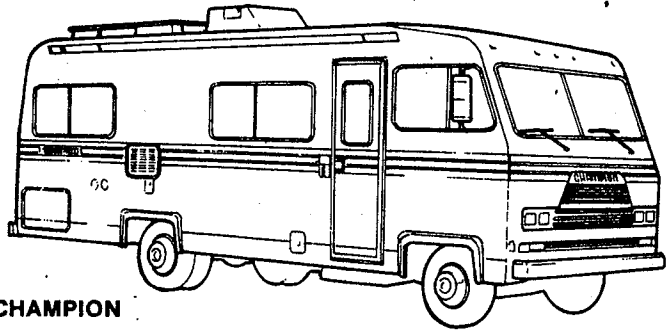
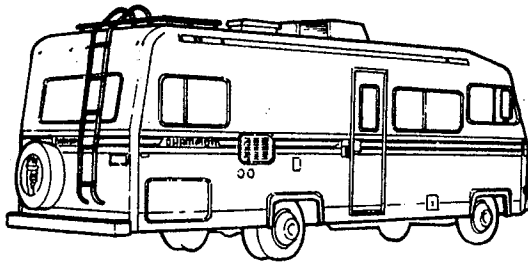


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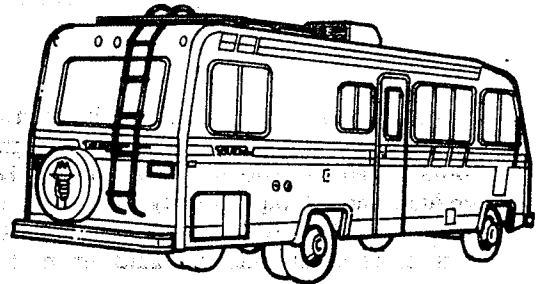
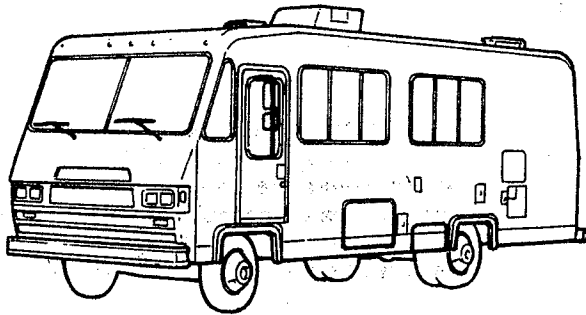
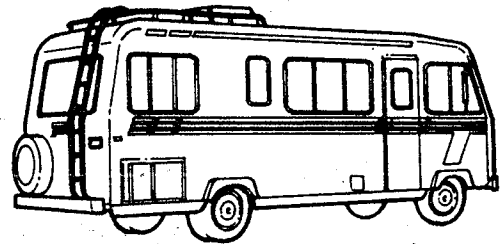
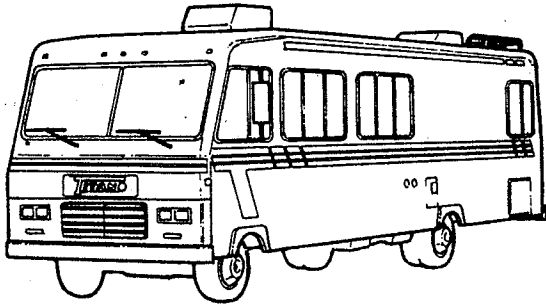


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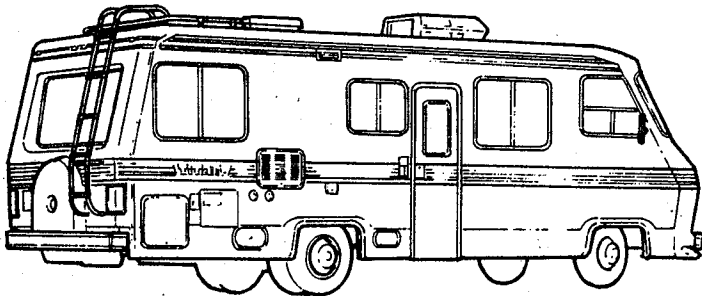
VARIOUS MODELS BUILT BY CHAMPION HOME BUILDERS (CONT.)



CHAMPION



TITAN



VARIOUS MODELS BUILT BY CHAMPION HOME BUILDERS (CONT.)

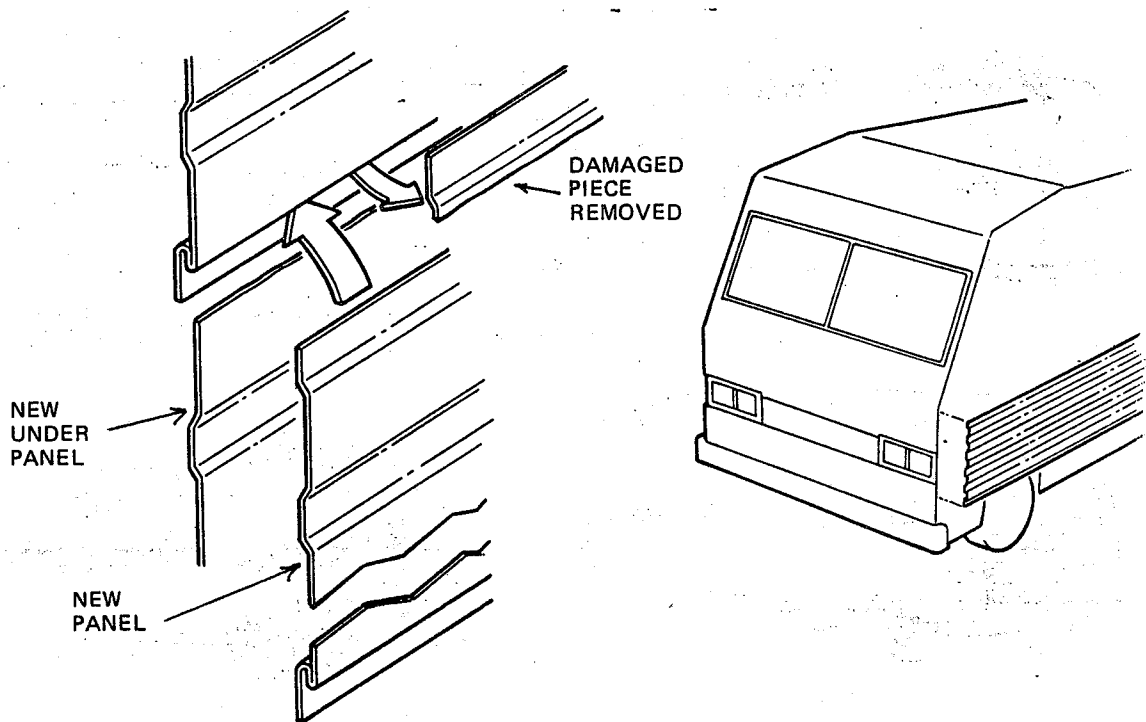


FIGURE 2-1 Steel structure repair

NOTE: Follow adhesive manufacturer's instructions and allow contact cement to dry thoroughly. Contact cement should be a solvent base product and of high quality. A warm, dry atmosphere is ideal for using a contact cement. If conditions are cold or of high humidity, apply heat to contact cement with infra-red lights to dry the adhesive.

7. Position one edge of replacement panel into "S"-Lock. Slide to proper lateral position.
8. Press panel into place and attach bottom "S"-Lock of new panel to each stud with a small pop rivet.
9. Using a rag wrapped into a ball, apply pressure to entire replacement panel surface and down each crimp line to bond panels together.
10. Cut out openings in aluminum and re-install attachments, moldings, windows, etc.
11. Paint replaced metal.

NOTE: Area to be painted is masked and sanded and loose paint is removed. Fiberglass panels may require extra sanding.

Color strips are painted in multiple layers. Paint is applied starting with lighter colors. Darker colors are added allowing the over-spray to create blended effect. Overcoatings are transparent and complete coverage should not be expected on first pass.

DOORS

The following illustration and instructions apply to access, compartment, entrance and cargo doors.

The entire door assembly and its mounting frame, locks, latches, windows, etc., are treated as an assembly. Replacement assembly includes all components except screws for attaching assembly to vehicle. Individual components such as door windows, door locks, etc., can be purchased separately.

ACCESS, COMPARTMENT AND GENERATOR DOORS

Refer to Figure 2-2.

Removal

1. Remove all screws or pop rivets attaching frame to vehicle.

2. Lift out door assembly.

Replacement

1. Apply ribbon sealer to door frame mounting flange.
2. Position door assembly into opening and secure with screws or pop rivets.

NOTE: Do not force the door frame into the openings. The openings should be trimmed to size to prevent the door from binding.

LOCKS AND LATCHES – ACCESS AND COMPARTMENT DOORS

Refer to Figure 2-2.

Removal

1. Open compartment door.
2. Remove latch arm.
3. Remove nuts or spring clip securing assembly to door.

Replacement

Reverse procedure.

ENTRANCE AND CARGO DOORS

Refer to Figures 2-3, 2-4, 2-5.

Removal

1. Remove all screws attaching door frame to vehicle.
2. Lift out door assembly from vehicle opening.

Replacement

1. Door assembly is provided with spacers between door and door frame. Do not remove spacers until after door is installed.
2. Set assembly into opening and secure with screws.

NOTE: Prior to installing screws make sure door fits opening. Check body for any warpage. Install shims under body sheet metal to insure door mates with flat body sidewall.

3. Open door and remove spacers.

NOTE: For door window replacement see windows.

SIDE AND REAR WINDOWS

WINDOW REPLACEMENT – INSIDE FASTENING

Refer to Figure 2-6.

NOTE: Motor home windows may have either a one piece snap-in flexible vinyl garnish molding or a one piece aluminum retainer molding, or an

eight piece garnish molding consisting of four screw attached corners and four snap-in place top, bottom and side moldings.

Removal

1. From inside of vehicle either remove the one snap-in flexible vinyl molding with a screw driver - or - remove four 90° corner moldings by removing screws and unsnap top, bottom and side moldings.
2. Remove screws securing window frame to window clip.
3. Remove window by applying steady pressure at edges from inside vehicle. This requires two men, one inside and one outside of the vehicle.
4. Clean off all sealer from vehicle window opening with wooden scraper. (Do not damage paint.)

Installation

1. Apply ribbon sealer to replacement window mounting flange.
2. Position window into opening and secure corners with screws through window clip and into flange.
3. Install screws to secure perimeter of window. Lightly tighten screws.
4. Once all screws are in place and lightly tightened repeat tightening until all screws are snug.

CAUTION: Do not torque screws excessively or unequally.

5. Snap one piece flexible vinyl molding in place or snap top, bottom and side moldings in place and re-attach corner moldings with screws.
6. Remove excess ribbon sealer from windows and wipe surface clean.
7. Apply clear silicone sealer along entire outside perimeter of window.

NOTE: For window and windshield removal in motor home bodies manufactured by an automotive company refer to manufacturer's body manual.

WINDOW REPLACEMENT – MISCELLANEOUS

BUNK, BUBBLE, DOOR, PORTHOLE, ROOF, ETC.

Refer to Figure 2-6.

Removal & Replacement

1. All windows can be removed by removing the screws from the inside garnish molding that hold the window in place.
2. Remove window by applying steady pressure from inside of motor home.

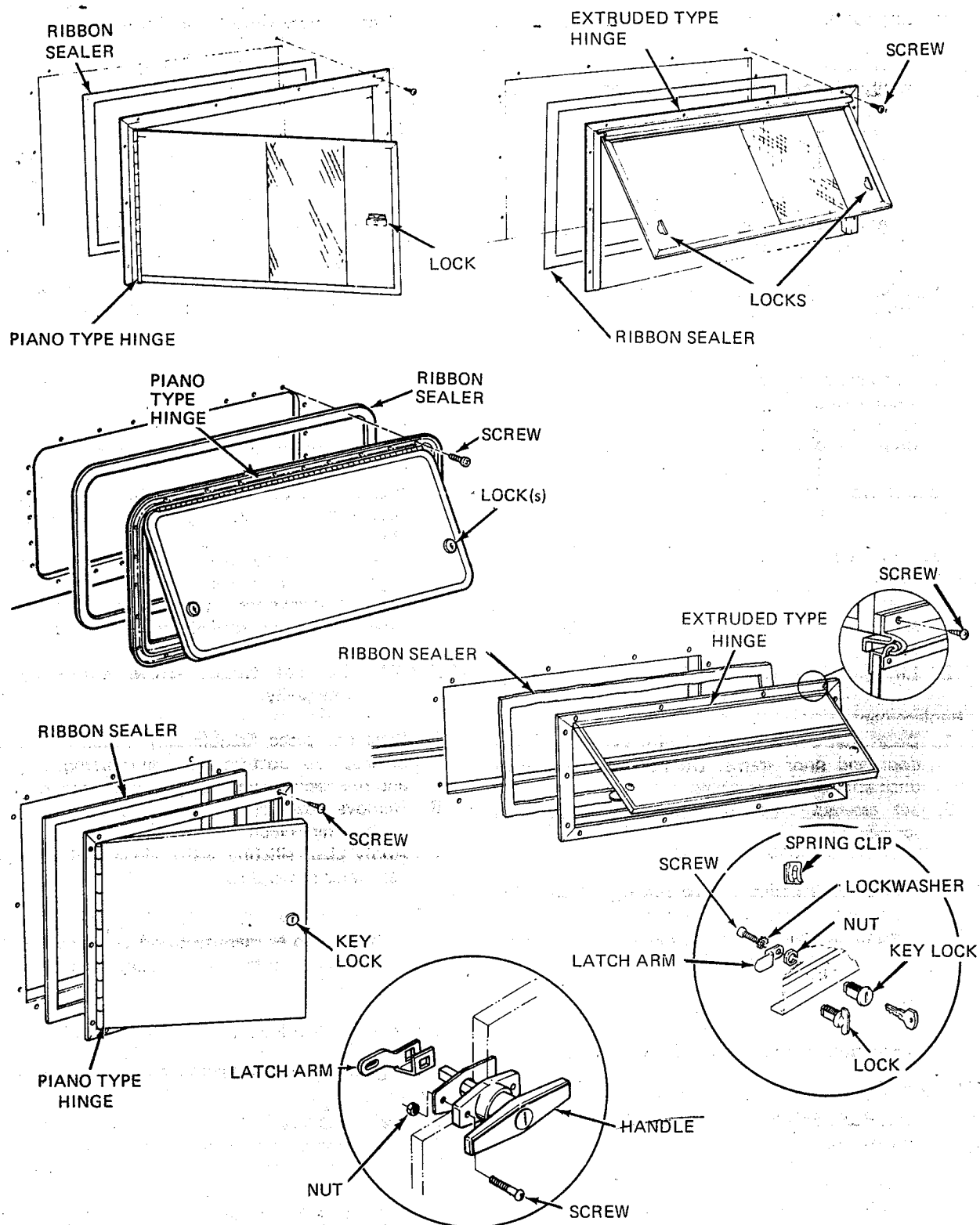


FIGURE 2-2 Access compartment and generator doors

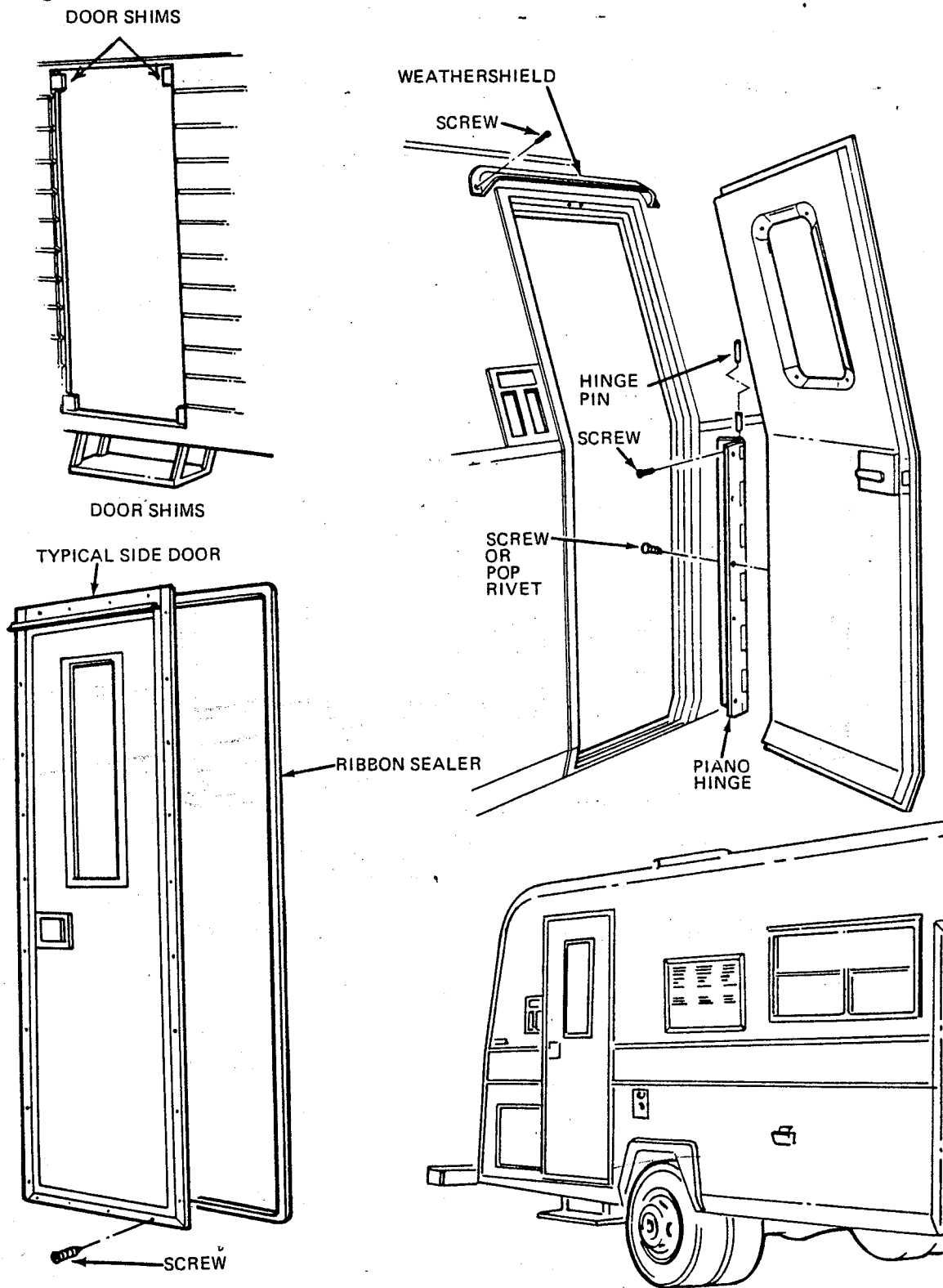


FIGURE 2-3 Entrance and cargo doors

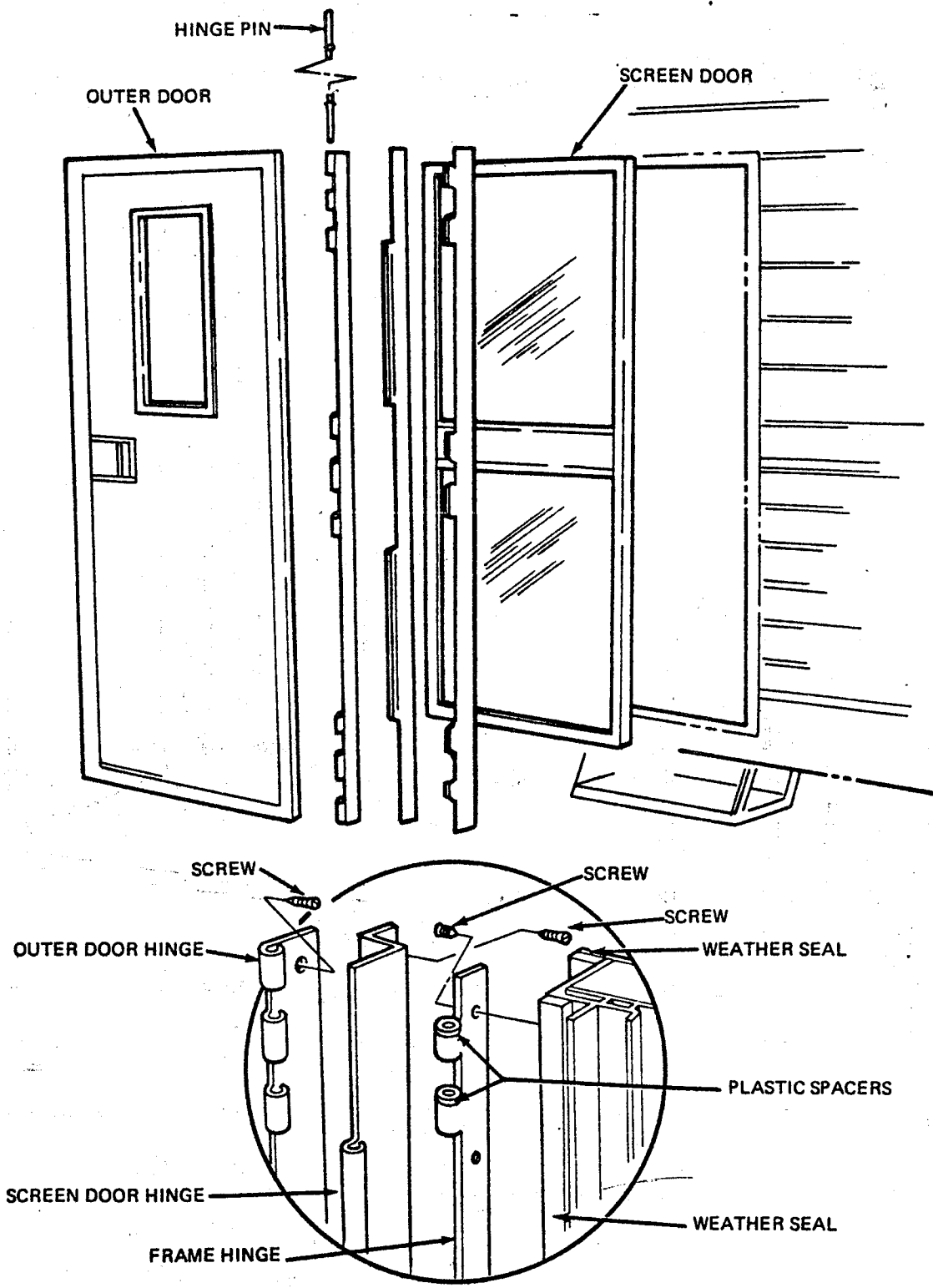


FIGURE 2-4 Entrance and cargo doors

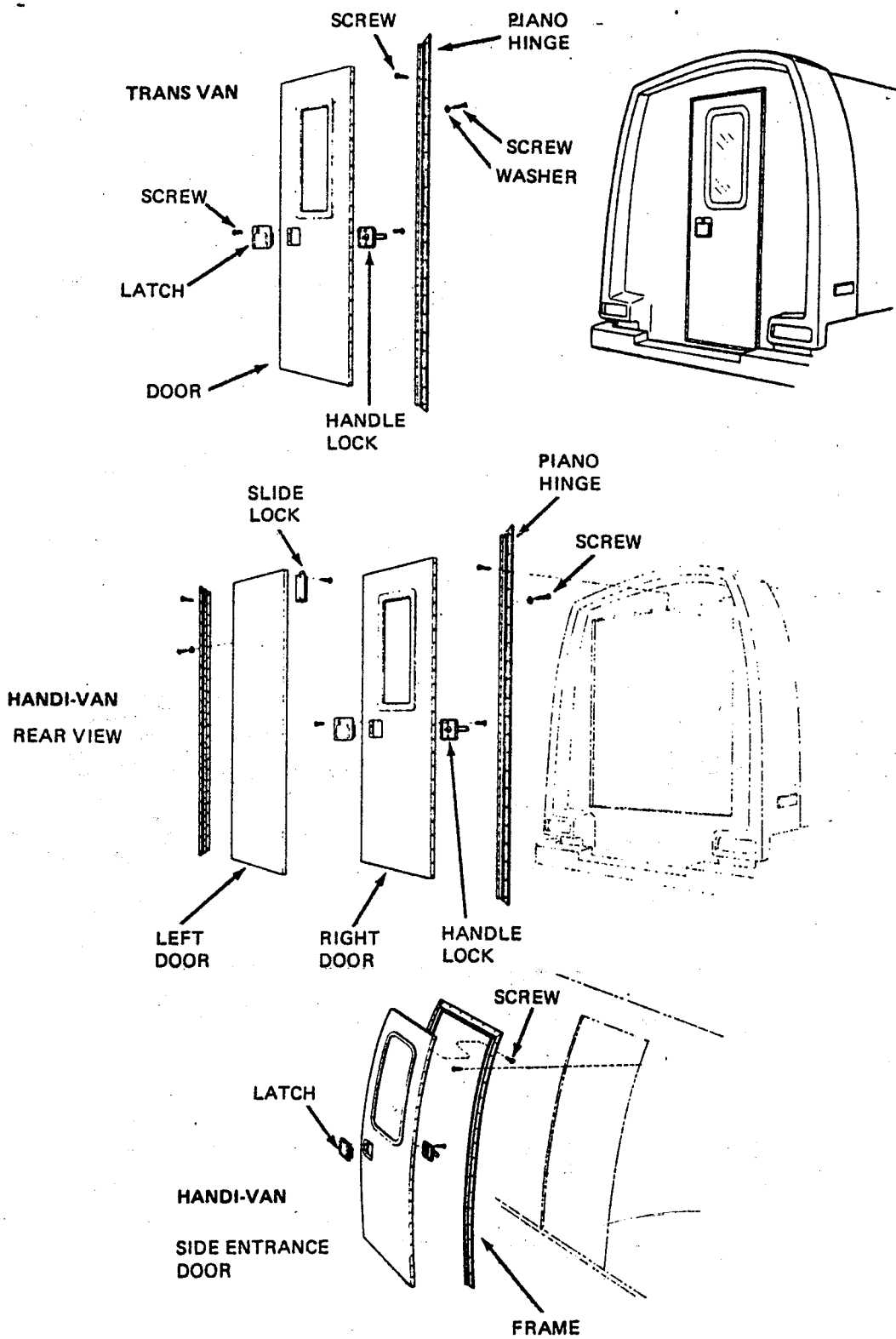
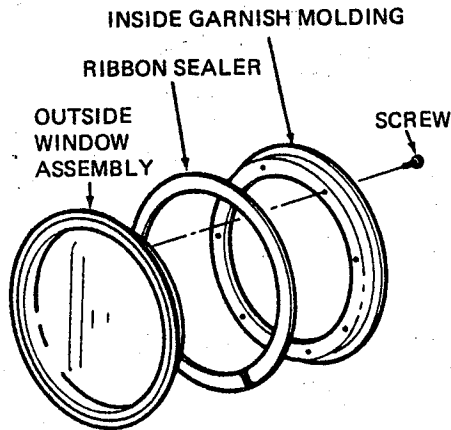
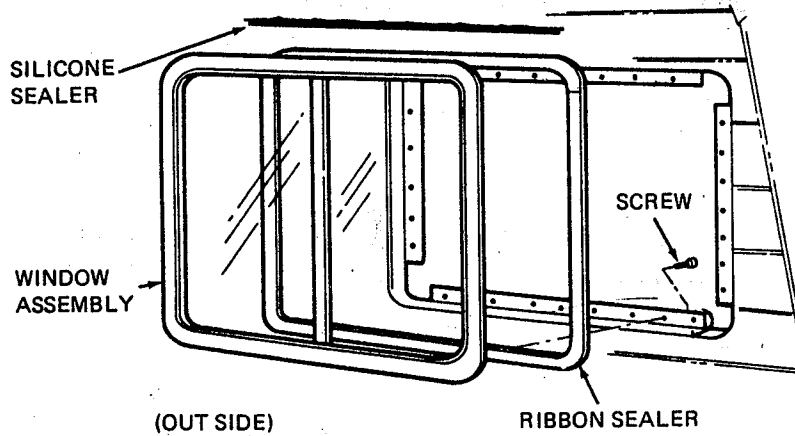
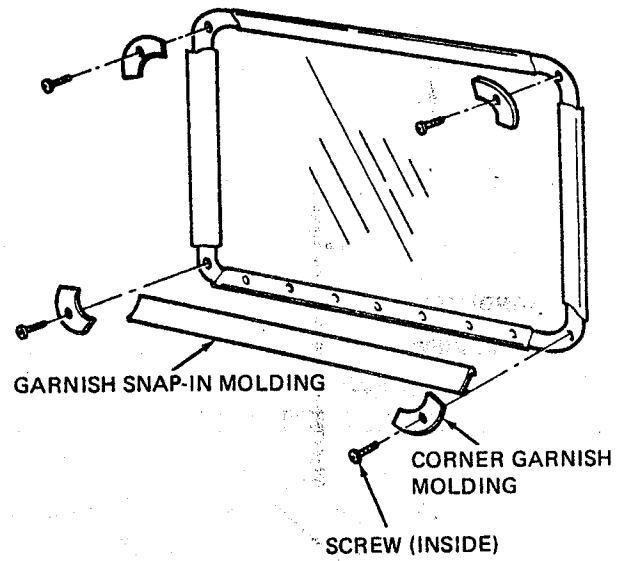
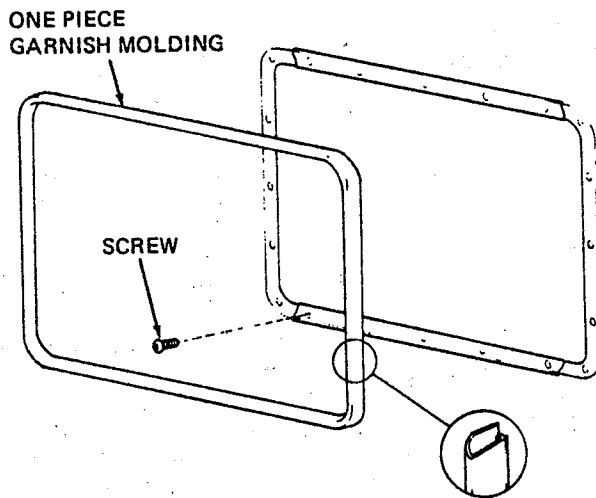
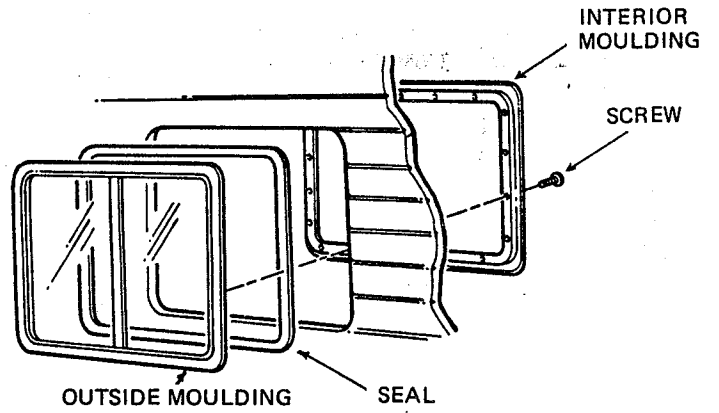


FIGURE 2-5 Handi-Van and Trans-Van doors



TYPICAL OF ROUND AND SQUARE FIXED WINDOWS



(OUT SIDE)

RIBBON SEALER

FIGURE 2-6 Side windows

3. Clean off all remaining sealant from around vehicle window opening with wood scraper.
4. Apply ribbon sealer around flange face of replacement window.
5. Install window. One man holds window in position from outside of motor home while another man reinstalls garnish molding.
6. Reseal around perimeter of window with silicone sealer.

SUNROOF

Refer to Figure 2-7.

1. Apply putty tape to underside of flange on sunroof frame.
2. From the outside insert sunroof through hole in fiberglass roof.
3. Insert locking clips and channels as shown.
4. Tighten screws locking sunroof in place.
5. Install interior garnish moldings.

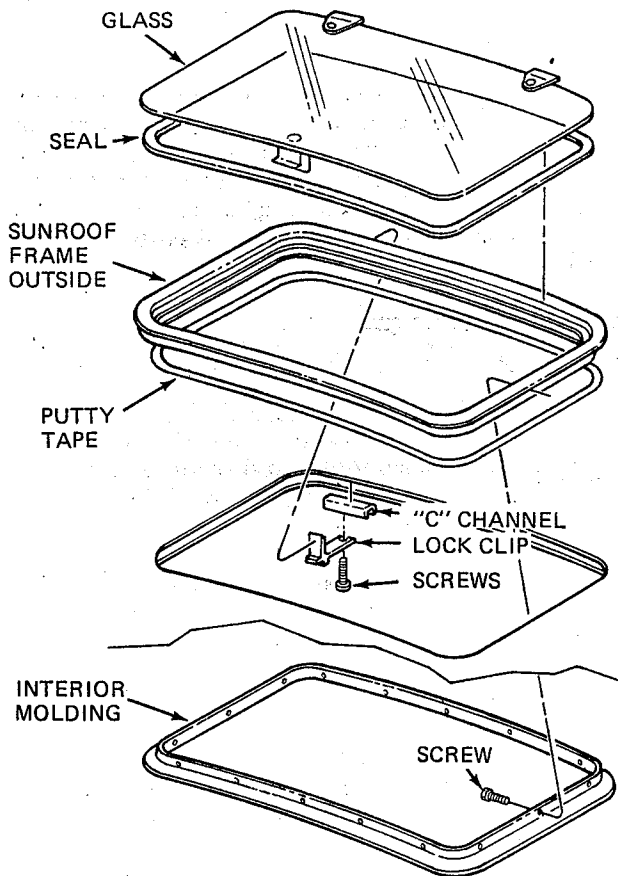


FIGURE 2-7 Sunroof

1983 SIDE WINDOWS (HEHR WINDOWS) 6900 SERIES SLIDING WINDOW

Refer to Figure 2-8.

If a drainage problem occurs, check both drain slots. Use a 1/2" wide by 1/16" to 1/8" thick probe (such as a steel rule or a popsicle stick); insert flat-ways into drain slots (on lower edge of window frame) to maximum penetration possible. If penetration is at least 3/4", drain slots are okay.

Repair

1. If glass is broken:
Remove vinyl glazing bead, remove all glass. Metal retainer clip can be removed with pliers.
2. If glass is intact:
Remove vinyl glazing bead, remove metal retainer clip; starting at end of clip, hammer wedge shaped tool into joint between clip and frame. See Figure 2-8. Pry clip out of frame with an outward and sideways pressure, using protective pad over painted surface.
3. Clean out old bedding compound.
4. Apply new bedding compound, install glass, setting blocks, metal clips (hammer and plastic or wood block required), and vinyl glazing bead.

GENERAL CARE

The vinyl tracks that the vent and screen slide on must be kept clean and clear of dust and sand. Vacuum and wipe clean with a soft cloth or sponge occasionally. For easier sliding, spray or wipe with silicone.

REMOVING THE SCREEN FRAME

Open vent completely. Remove that portion of the top screen track which is on the stationary side. Slide screen to the stationary side, lift up into space and remove screen.

RESCREENING

Remove the spline that holds the screen. On a thin piece of masonite or plywood which can be bent to fit the curvature of the screen, nail 1" blocks of wood 1/4" thick on the inside of each side (to hold the frame square and straight) with the side having the open groove upward. Place screen cloth over frame, place spline on top of cloth above the groove. Keep the screen taut in the direction you are working while forcing spline and cloth into groove. Trim the excess screen with a sharp edged razor or knife.

REPLACING THE SCREEN

Insert screen into space (on stationary side) then down

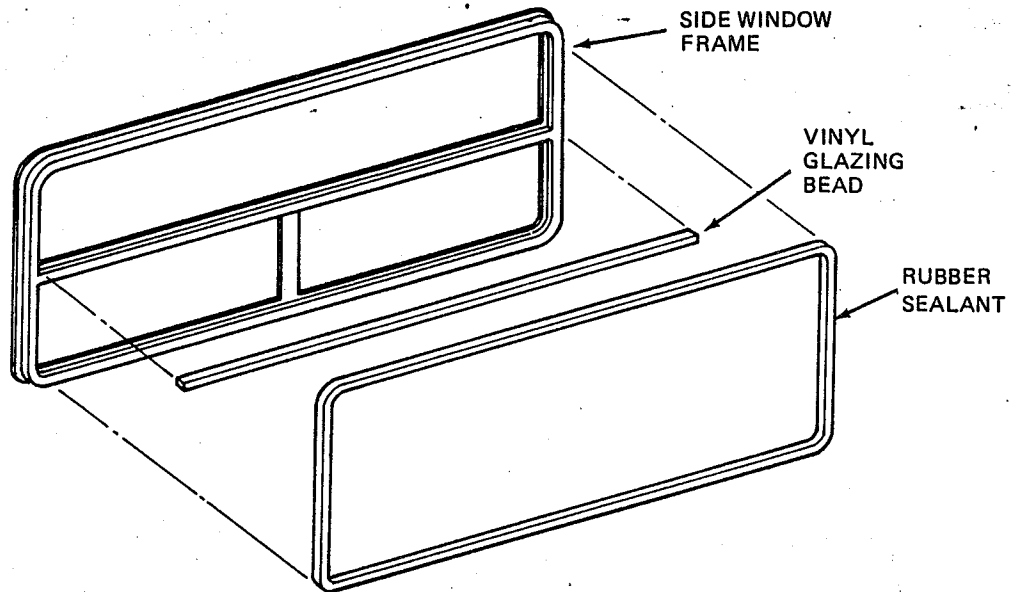


FIGURE 2-8 "Insert A" side window (Hehr)

into track. Slide it all the way to the vent side, and replace the removed portion of the TOP Screen Track.

REMOVING THE VENT

With the screen removed, remove that portion of the Top Vent Track, which is on the stationary side. Slide the vent to the stationary side, lift up into space and remove vent.

REPLACING THE VENT

Insert vent up into space (on stationary side) then down into track. Slide it all the way over the vent side, and replace the removed portion of the Top Vent Track. If vent is being replaced because of breakage, be sure all pieces of glass are removed from tracks and frame of window before replacing vent.

REPLACE AND REGLAZE STATIONARY SECTION

Lift the vinyl glazing bead at a corner and pull out by hand. (Note how the vinyl locks into the frame so you will know how to reinstall.) Remove cracked glass or bits of broken glass. Slide the vent to its open position. Pull the vent gasket out of the frame about 6" at the top and bottom. Remove the two screws that are holding the mullion, and with a hammer and a piece of 1 x 4 x 6, tap the mullion to the vent side about 3/4". Remove the back glazing tape and replace with new glass setting tape 1/8" thick and 1/4" wide or with a non-hardening glazing putty applied 1/8" thick.

The new piece of glass must overlap the aluminum frame 1/4" on all sides. Order replacement glass from General Motors or Hehr International, Inc., Chesaning, Michigan. After the glass has been centered in its frame, tap the mullion back to its original position. Replace the screws and the glazing bead. Reinstall the vent gasket.

4700 SERIES WINDOW

Refer to Figure 2-8.

Installation

Hole Cut Out

The hole cut out should be 5/16" larger than the inside dimensions (order size) of the window. The corner radius of the hole opening is 3-11/32."

Caulking

Caulk the outer flange of the window in the area that seals against the outside wall with a suitable non-hardening type of caulking.

Installing

The following procedure is recommended when installing the 4700 window:

1. Hole cut out must be exact. "Corner Blocks" for rounded corner holes should be of sufficiently hard material to prevent router bit from "digging" into corner.
2. Fit clamp ring in hole.

3. Place window in hole. (Be sure weep holes are at bottom.) Spacer blocks are provided to help "center" window in opening.
4. Visually check clamp ring/window alignment. Holes in clamp ring should align with screw groove in window frame.
5. Use No. 8 x 1/2" type "A" point screws to assemble clamp ring and window.
6. Install four "starter" screws — DO NOT DRIVE "HOME" — at outer (vertical) edges of window. In some cases, as with heavily corrugated exterior siding, it may help to use 5/8" or 3/4" long screws for these starter screws only. They can be used to pull window and clamp ring close enough together so that 1/2" screws will reach the screw groove in the frame.
7. Install remaining screws, using pointed awl to align ring with screw groove if necessary.
8. Use long shank bit on screwdriver to prevent damage to clamp ring (on all clamp rings for 1-1/4" wall thickness and over).
9. If clamp ring "tips", use wood block to tap into place.

SERVICING INSTRUCTIONS

GENERAL CARE

The vinyl tracks that the vent slides on must be kept clean and clear of dust and sand. Vacuum and wipe clean with a soft cloth or sponge occasionally, and spray or wipe with silicone for easier sliding.

REMOVING OUTSIDE SCREEN FRAME

Lift screen as high as it will go. Press down bottom clips and remove screen.

TO REPLACE OUTSIDE SCREEN

Place top of screen frame in top screen clips. Lift up screen and push bottom in by depressing bottom screen clips.

REMOVING INSIDE SCREEN

1. Slide screen to center of window.
2. Slide bottom screen clips to center of screen.
3. Lift screen up from center and swing out bottom.

REPLACING INSIDE SCREEN

Reverse process, starting by placing top of the screen in the upper window track first.

RESCREENING

Remove the spline that holds the screen in. On a table or board, nail 1" blocks of wood 1/4" thick on the inside of each side to hold the frame square and straight

with the side having open groove upward. Cut the fiber-glass screen cloth the same size as the overall size of the screen frame. Place cloth over frame, place spline on top of cloth above the groove. Keep the screen taut in the direction you are working while forcing spline and cloth into groove. Trim the excess screen with a sharp knife or razor blade.

REGLAZING SLIDING VENT AND STATIONARY SECTION

It is not necessary to remove the sliding sash from the window or the window from the wall. To remove glass, lift the vinyl glazing bead at a corner and pull out by hand. (Note how the vinyl locks into frame so you will know how to reinstall.) After the broken glass has been removed, remove the back glazing tape and replace with new glass setting tape 1/16" thick and 1/4" wide or by a non-hardening glazing putty applied 1/16" thick.

The new piece of glass should overlap the aluminum frame 1/4" on all sides. If original glass was safety glass, replacement must also be safety glass. A glass pattern can be made out of cardboard for the glass supplier. The radius of the round corner is 2-17/32". After the glass has been centered in its frame, start rolling and pressing the vinyl glazing bead in place, work from the corners toward the centers on each side.

LEAKS

It is important to realize that any ventilating window may permit water inside. This water must be trapped and provision made for draining it to the outside. On the 4700 series window, water is trapped by the frame; during a heavy downpour, especially while driving, water may be seen in the lower portion of the frame. Drainage is accomplished by means of two "weep" slots leading to the outside. These weep slots must be kept open. Each weep slot has a plastic protective baffle which should be left in place.

If water collects in the bottom channel and overflows:

1. Check weep slots for obstructions (dirt, sawdust, leaves, etc.).
2. If overflow occurs while driving, it is possible that a negative pressure (vacuum) has been created inside the vehicle which draws water through the window and prevents weep slots from functioning properly. Seek ways to relieve the vacuum; this will vary from unit to unit and can be discovered by some experimentation (such as opening a roof vent or "cracking" open a window toward rear of unit).

3. Check source of water:
 - a. If the window is a stationary (non-opening) and water is coming in around the edge of the glass, remove glazing bead and check condition of sealing tape; if not sealing, replace tape or caulk with liquid sealer.
 - b. If the water is coming inside between the window frame and clamp ring, it means that leaks are occurring somewhere between the window and exterior skin or possibly elsewhere in the exterior cladding of the unit, rather than through the window. Water will travel a long way inside the wall and then come out at the window opening.

WINDSHIELDS

WINDSHIELD – TWO PIECE

Refer to Figure 2-9.

Removal and Replacement

1. Remove windshield wiper arms. Refer to Figure 9-2.
2. Remove reveal moldings on outside of windshield.
3. Remove windshield by cutting around periphery with a cold knife.
4. Remove old sealant from pinchweld area and clean pinchweld.
5. Apply Butyl sealant around pinchweld area.
6. Install windshield and press in place.
7. Reinstall reveal moldings.
8. Reinstall windshield wiper arms.

WINDSHIELD – ONE PIECE

Refer to Figure 2-9.

Removal

1. Remove windshield wiper arms. Refer to Figure 9-2.
2. From inside of vehicle, remove four 90° corner garnish moldings by removing screws.
3. Unsnap garnish moldings from perimeter with a screw driver. Moldings are snapped in place over the window clip to secure.
4. Remove screws securing windshield frame to window clip.
5. Remove windshield by applying steady pressure at edges from inside the vehicle. Two men are recommended for windshield removal with one inside and one outside.
6. Clean off all sealer from vehicle windshield opening with wood scraper. (Do not damage paint.)

Installation

1. Apply ribbon sealer to mounting flange of replacement windshield assembly.
2. Using two men, position windshield into opening. Once positioned, one man holds windshield in opening from outside of vehicle while second man places screws through window clips to secure corners.
3. Install screws around perimeter of windshield. Lightly tighten all screws.
4. Repeat tightening until all screws are snug.

CAUTION: Do not torque screws excessively or unequally.

5. Snap garnish molding into place and re-attach corner moldings with screws.
6. Remove excess ribbon sealer from windshield and wipe surface clean.
7. Apply clear silicone sealer along entire outside perimeter of windshield.

WINDSHIELD – AUTOMOTIVE TYPE

Refer to Figure 2-9.

1. Remove rubber retainer.
2. Remove glass.
3. Reinstall glass and reinstall retainer.

NOTE: Special tool must be used to reinstall retainer.

ROOF VENTS

Refer to Figure 2-10.

REFRIGERATOR VENT – ROOF MOUNTED

Refer to Figure 2-10.

Removal

1. Remove vent cap by bending retaining clips with pliers.
2. Remove sealer from top of flange screws with scraper and remove screws.
3. Use putty knife between vent flange and roof to separate vent from roof.
4. Remove old sealer from vent flange.

Replacement

1. Apply ribbon sealer to back of vent flange.
2. Reinstall vent and attach with screws.
3. Cover flange, roof joint and attaching screws with roof sealer.
4. Position vent cap and bend tabs to secure.

STANDARD ROOF VENT AND ESCAPE HATCH

Refer to Figure 2-11.

Removal

1. Remove screws holding inside trim frame in place and remove frame.

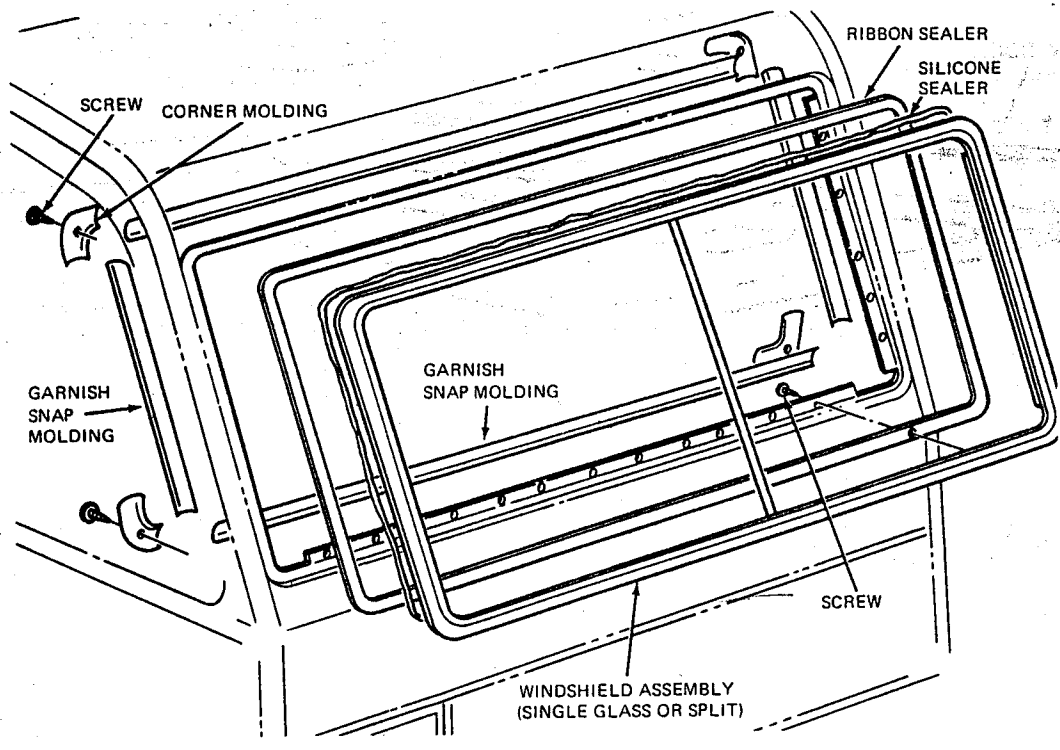
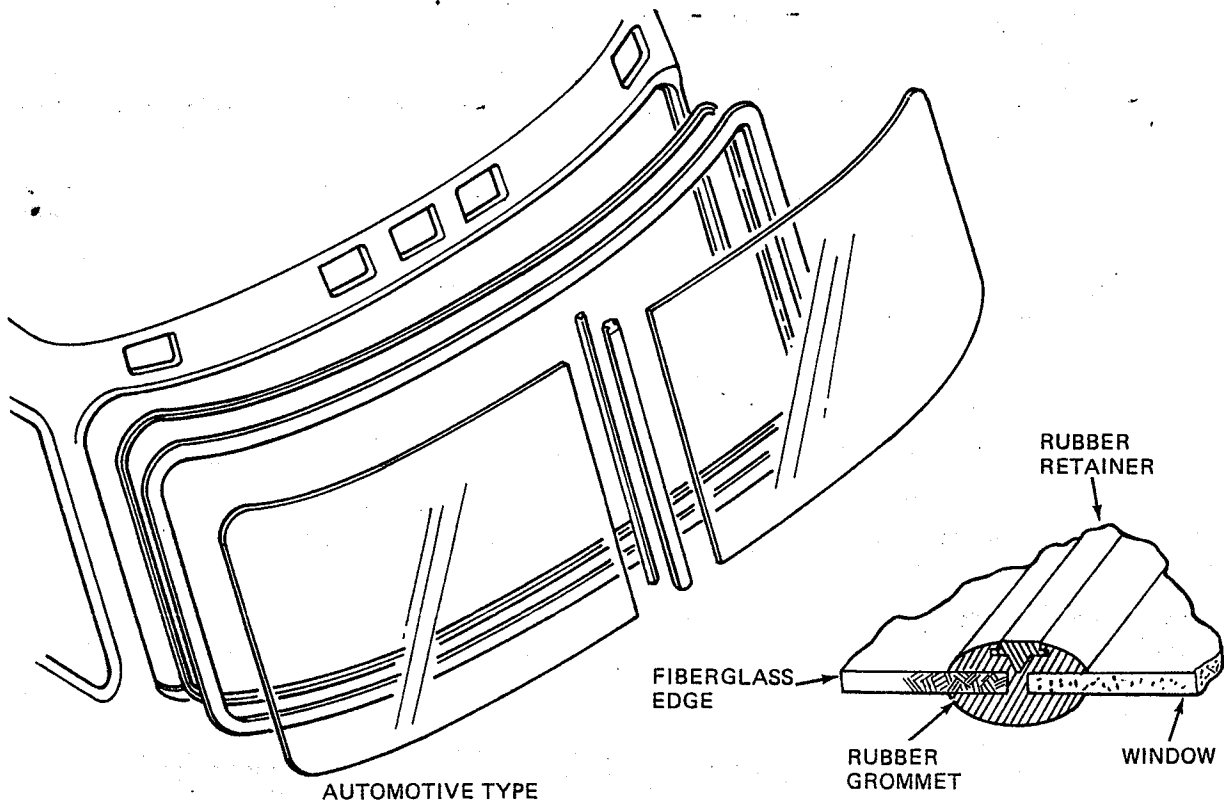


FIGURE 2-9 Windshields

2. Remove screws holding outside frame in place and remove vent assembly.
3. Clean off old sealer.

Replacement

1. Apply ribbon sealer to back area of outside frame.
2. Install in reverse order of above steps.
3. Reseal around outside frame with roof sealer.

**LUMA DOME VENT REPLACEMENT
POWER ROOF VENT REPLACEMENT**

Refer to Figure 2-11.

1. Same as standard roof vent procedure except wires must be disconnected and re-connected from electric motor. Before removing wires shut off electrical circuit.

ROOF VENT CRANK ASSEMBLY

Refer to Figure 2-11.

Removal

1. Remove crank handle by removing screw from inside motor home.
2. Remove screws holding screen. Remove screen.

3. Remove two screws holding crank assembly in place. Remove assembly.

Replacement

1. Replace assembly by following reverse order of steps listed above.

SOIL PIPE VENT CAP

Refer to Figure 2-10.

Removal

1. Cut away sealer between cap and pipe with a knife.
2. Remove roof sealer from top of flange screws with scraper and remove screws.
3. Use putty knife between vent cap and roof to separate vent from roof.
4. Remove old sealer from vent flange.

Replacement

1. Apply ribbon sealer to vent cap mounting face.
2. Install vent over pipe and attach to roof with screws.
3. Cover flange edge and screws with roof sealer.
4. Apply silicone rubber to top edge of cap to prevent water from flowing between cap and pipe.

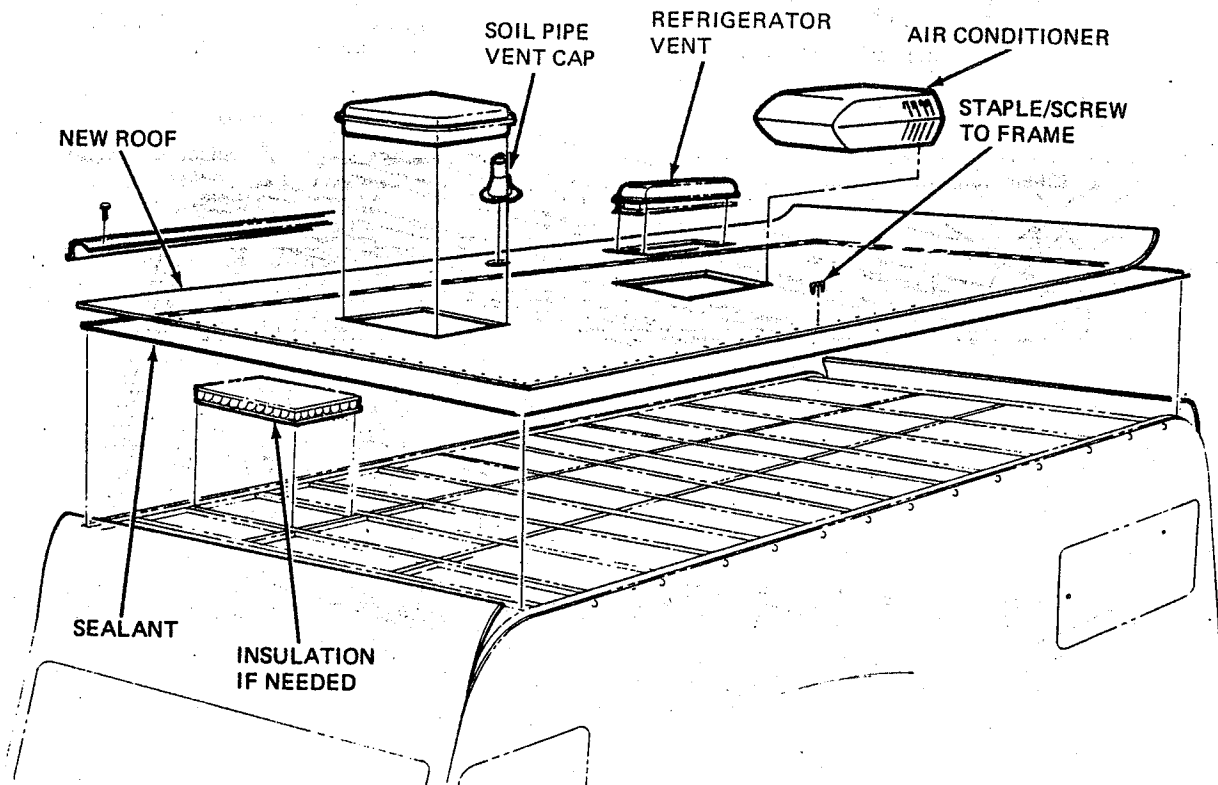


FIGURE 2-10 Typical one piece roof

EXTERIOR VENTS

HYDRO-FLAME AND DUO-THERM FURNACE VENT

See Figure 2-12.

CAUTION: Vents should be cool before removing.

Removal

1. Remove vent cap screws.
2. Remove 2 vent cap adapter screws and slip adapter from furnace exhaust pipe.

Installation

1. Secure vent cap adapter to exhaust pipe flange

- with two screws. Gasket must be compressed.
2. Apply ribbon sealer to vent cap mounting face.
3. Attach vent cap with screws.

REFRIGERATOR VENT (SIDE MOUNTED)

Removal and Replacement

1. Remove screws holding vent to side of motor home.
2. Remove vent by pulling out from side.
3. Remove old sealant.
4. Apply ribbon sealer to back of vent flange.
5. Reinstall vent and attach with screws.

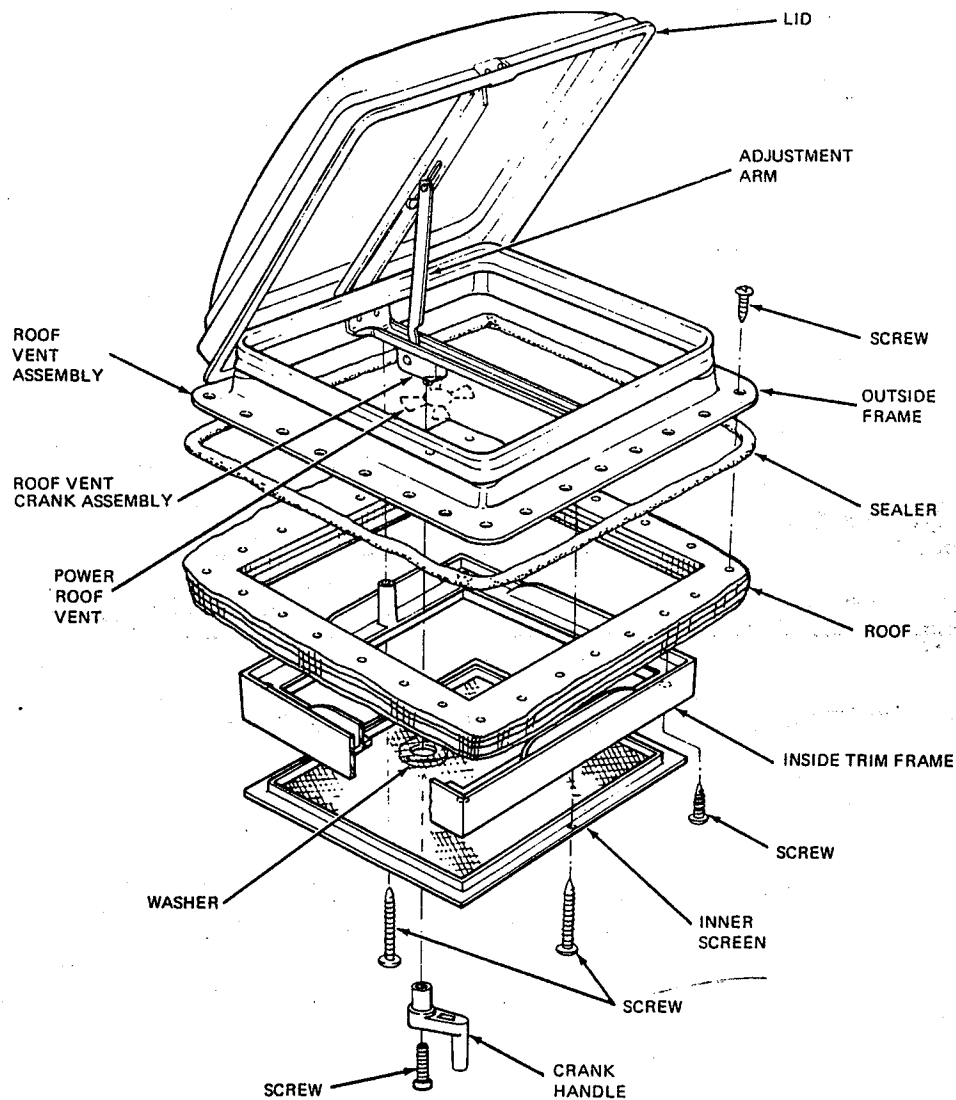


FIGURE 2-11 Standard roof vent and escape hatch

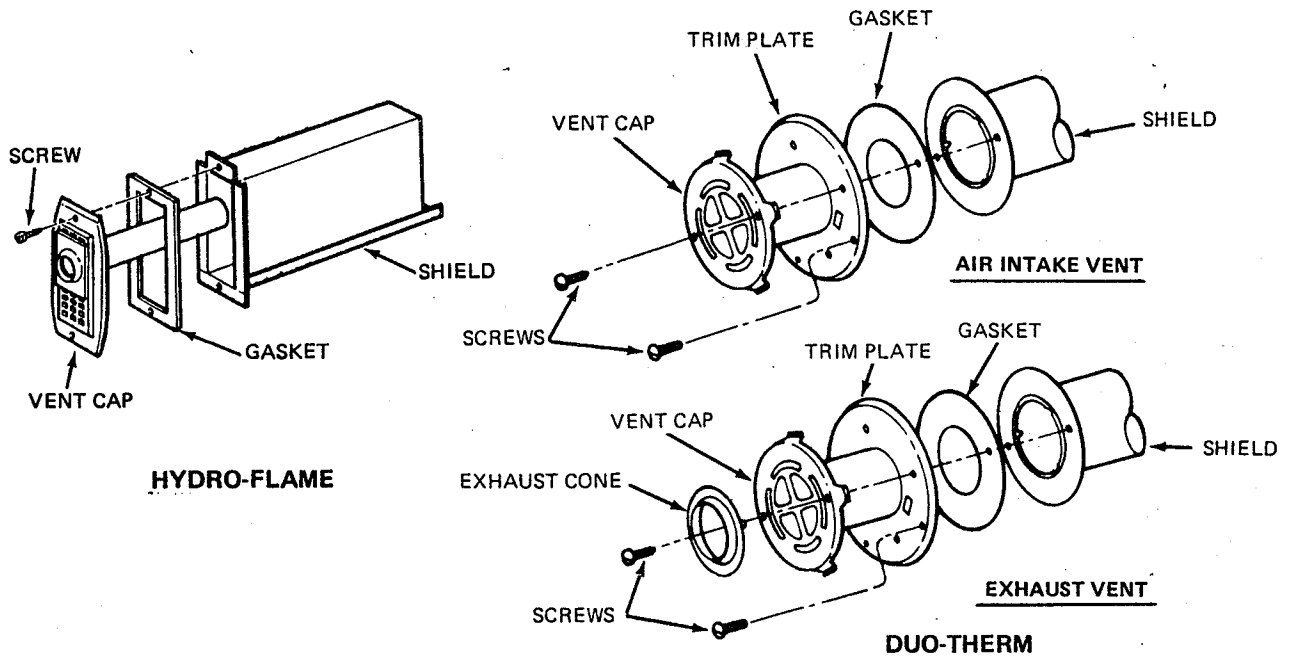


FIGURE 2-12 Furnace vents

BUMPERS

BUMPERS – FRONT & REAR

Refer to Figure 2-13.

Some bumpers are welded assemblies. If damaged, cut off where welded to chassis and reweld new bumper in place.

FORMED STEEL BUMPER

Refer to Figure 2-13.

1. Remove license plate bracket and accessories.
2. Unbolt old bumper.
3. Attach new bumper.

NOTE: Bumper must be parallel to body.

4. Replace license plate and accessories.

BUMPER COVERS

Aluminum

Refer to Figure 2-13.

Removal & Replacement

1. Remove license plate bracket mounting screws and bracket.
2. Drill out pop rivets attaching cover to bumper and remove cover.
3. Position replacement cover on bumper.
4. Drill pop rivet holes through cover and bumper.
5. Pop rivet cover to bumper.
6. Position license plate bracket.
7. Mark mounting holes and drill.
8. Re-attach license plate bracket.

SPARE TIRE MOUNT

Refer to Figure 2-13.

Installation

1. Clamp mount to rear bumper bracket and align vertically.
2. Weld mount to frame extension.
3. Drill hole through mount and bumper bracket.
4. Install safety bolt and tack weld bolt head and nut to adjacent member.

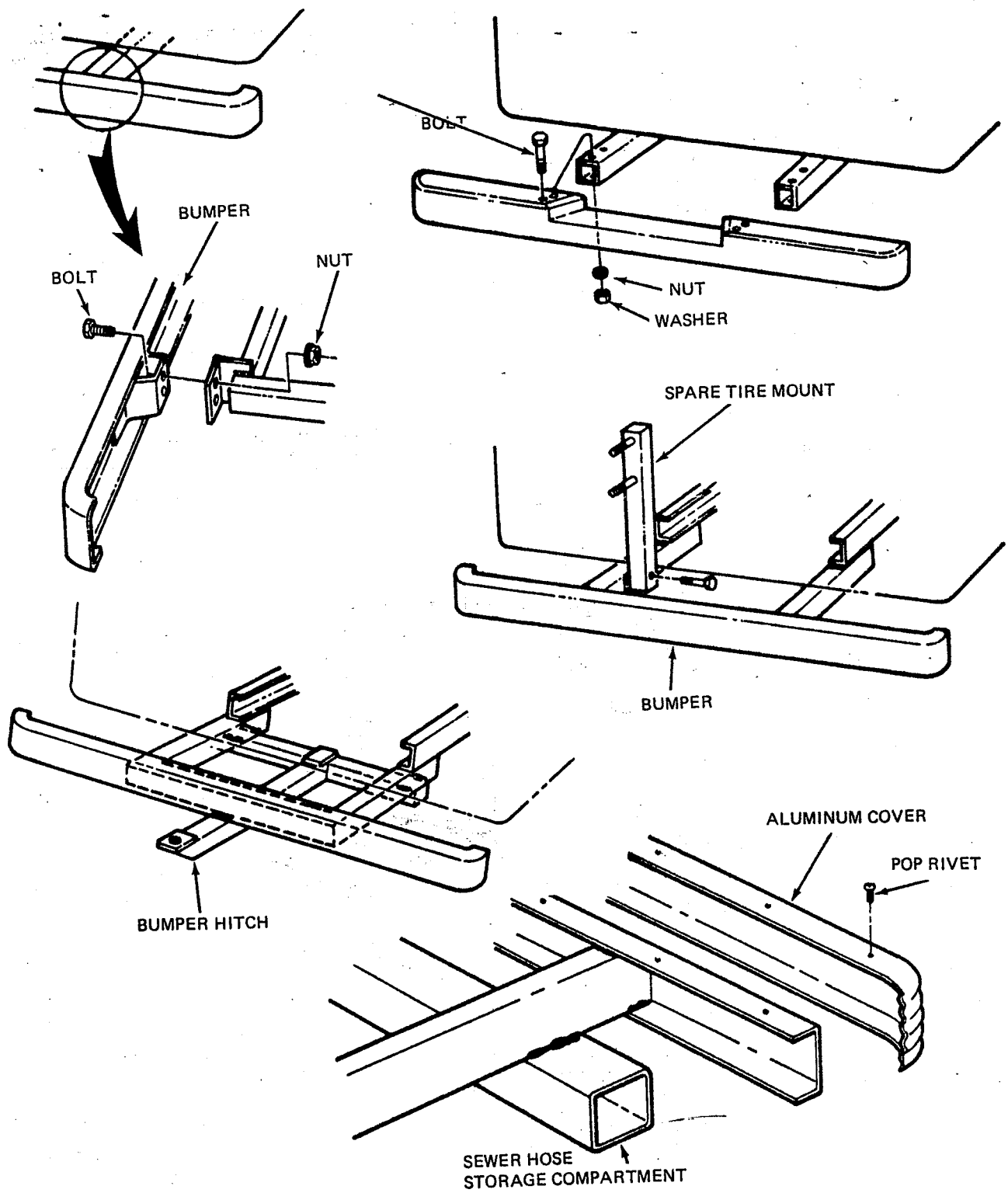


FIGURE 2-13 Bumper cover

GRILLS

FIBERGLASS FRONT END REMOVAL AND REPLACEMENT

NOTE: On the TRANS-VAN, TRANSTAR, GALAVAN, GRAND SLAM and BANTAM models it is recommended the grill be replaced according to the chassis manufacturer's instructions. On CHAMPION, TITAN and CONCORD models, the following instructions apply.

1. Remove headlights and parking lamps (refer to Section 5).
2. Drill out pop rivets attaching fiberglass front to steel frame.

NOTE: On 1983 models the front end is a one piece unit. It will be necessary to remove the overhead console, windshield, wiper assem-

blies and disconnect the dash panel to facilitate removal. On some 1982 models it will be necessary to remove the windshield and wiper arms.

3. Remove grill.
4. Install new grill with pop rivets or bolts.

STEPS

ENTRANCE DOOR STEP (RETRACTABLE)

Refer to Figure 2-14

Removal and Replacement

1. Cut step from body supports.
2. Disconnect handle linkage by removing cotter pins.
3. Re-weld new step in position.
4. Reconnect linkage.

WARNING: Make sure step is fully extended and handle fully locked.

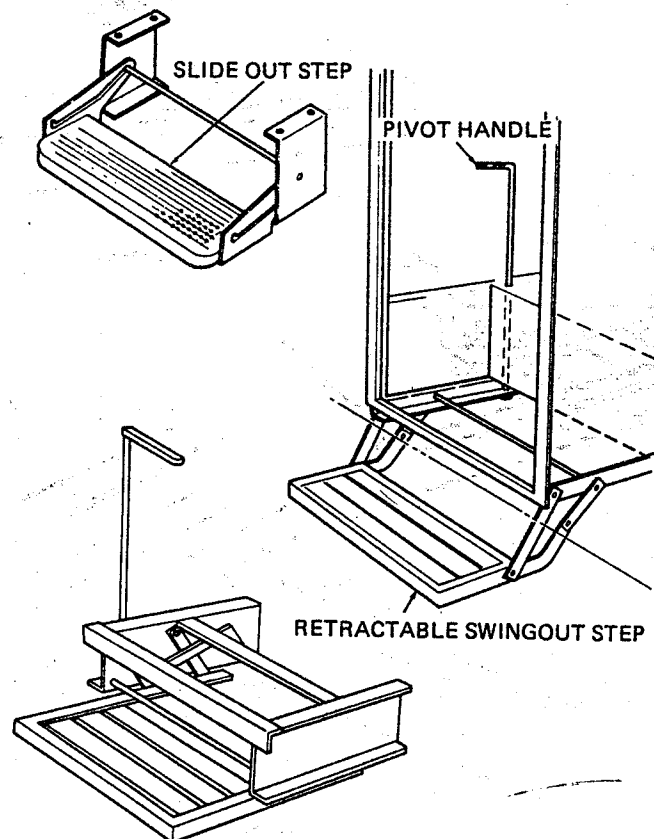


FIGURE 2-14 Entrance door steps

MOLDINGS – CORNER, ROOF AND SIDE

CORNER, ROOF AND RADIUS MOLDINGS

Refer to Figure 2-15.

All moldings are attached as shown to the supporting steel or wood structure by pop rivets or screws.

DIRECT ATTACHMENT

Refer to Figure 2-15.

Removal & Replacement

Roof moldings in this example are directly attached to structure with screws or pop rivets. Removal is accomplished by removing screws or pop rivets. When replacing molding apply ribbon sealer to clean mating surface before installing screws or pop rivets.

J-RAIL AND FASTENERS ATTACHMENT

Refer to Figure 2-16.

Removal

Corner molding is attached along one side with screws or pop rivets. Other edge is snapped into J-Rail. To remove, unfasten screws or pop rivets. At J-Rail, run a narrow knife between molding and J-Rail to break

silicone sealer bond. Molding can then be pulled away with a pair of pliers. Remove silicone sealer from J-Rail and ribbon sealer from vehicle.

Replacement

1. Cut molding to proper length.
2. Apply ribbon sealer to vehicle at mounting face.
3. Snap in new molding and secure with screws or pop rivets.
4. Seal along J-Rail with silicone rubber.

MOLDINGS – WHEEL WELL TRIM

Refer to Figure 2-17.

Replacement

Remove screws or pop rivets attaching damaged molding and lift off. Replace with new molding and secure in same manner as original.

NOTE: Cab-To-Body seals on units including Trans-Van, Galavan, Grand Slam and Bantam Motor Home should be repaired by a Champion Service Center or Qualified Dealer.

NOTE: The front collar section of the Trans-Van should be repaired or replaced by a Champion Service Center or qualified dealer.

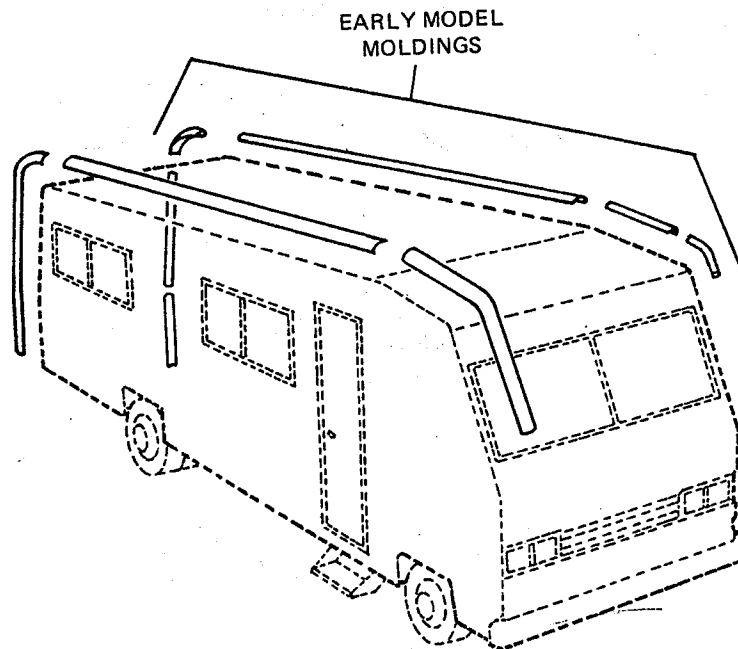


FIGURE 2-15 Corner, roof & radius moldings

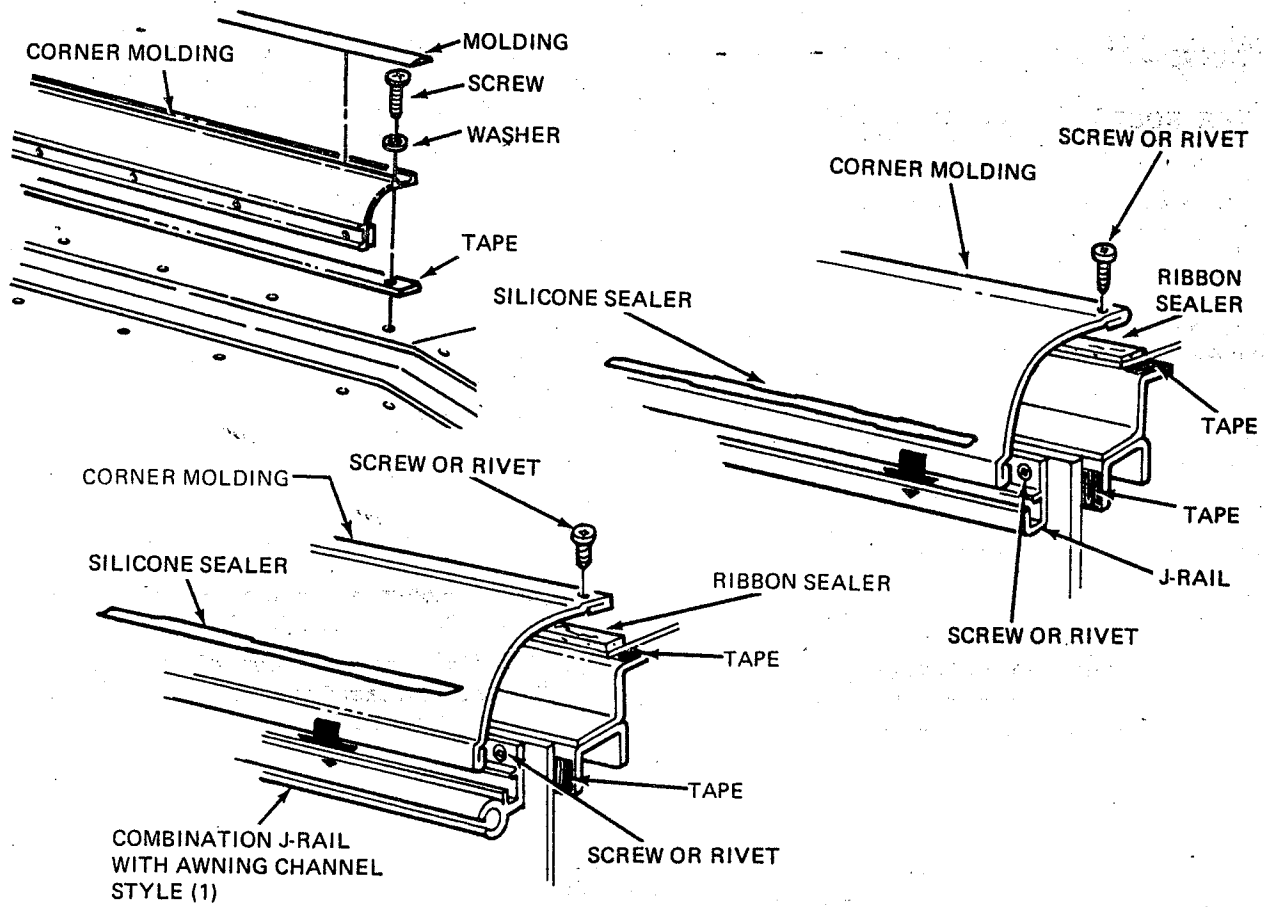


FIGURE 2-16 Cross section of moldings fastening to J-rail (all models)

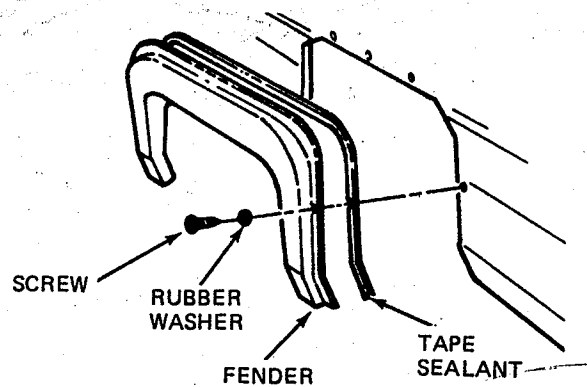


FIGURE 2-17 Fender installation

TRANS-VAN COLLAR

Refer to Figure 2-18

Removal

1. Drill out all rivets and remove all screws from outside.
2. Remove driver and passenger seats.
3. Remove carpet bars from inside.
4. Remove headliners.
5. Remove all rivets and screws from inside.
6. Lift up collar.
7. Disconnect light wires.
8. Remove collar.

NOTE: Collar is normally foamed in place. Cut foam from collar and body with knife.

NOTE: On unmodified units install steel braces and foam.

Installation

1. Install collar with rivet area facing the front of vehicle.
2. Connect light wires.

3. Install "U" channel molding to front edge.
4. Apply sealant tape between front edge and roof.
5. Install collar using "T" rivets on front edge of collar from inside of vehicle.
6. Fasten back of collar and insert molding.
7. Seal outside of all seams.
8. Install headliner, carpet bars and seats.

FENDER REPLACEMENT (EXCEPT '83 TITAN)

Refer to Figure 2-17.

1. Remove screws.
2. Remove fender.
3. Replace fender using special fender screws and sealant tape.

NOTE: Do not overtighten fender screws.

FENDER REPLACEMENT - '83 TITAN

Lower fender panel is one piece fiberglass. Repair using normal fiberglass repair procedures.

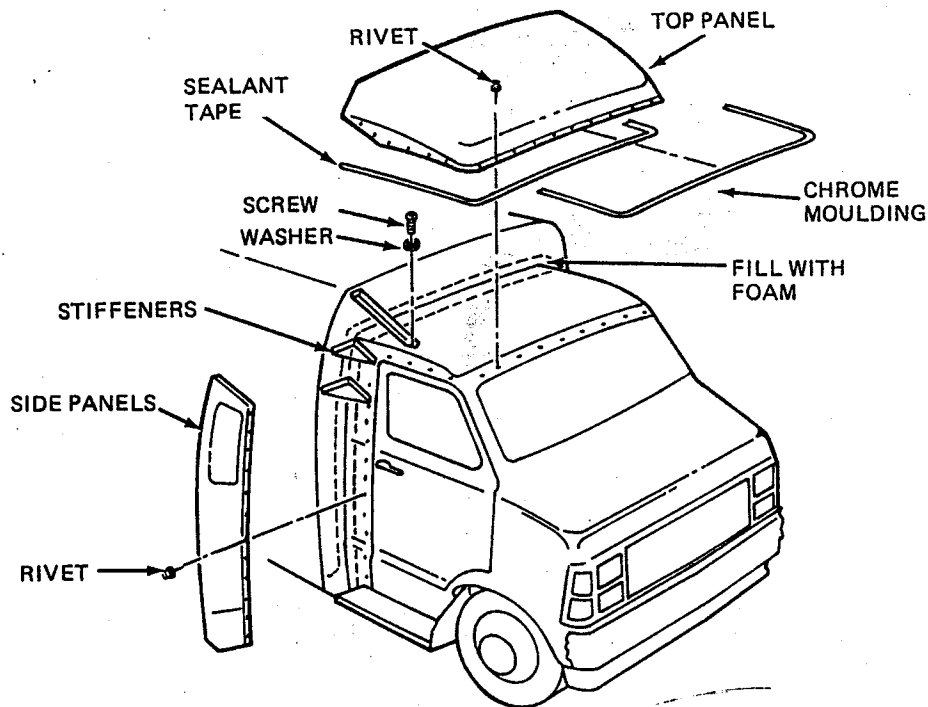


FIGURE 2-18 Trans-Van collar

FIBERGLASS REAR END REPLACEMENT

Refer to Figure 2-19.

1. Remove lights, windows and accessories.
2. Remove insert molding around edges and all screws.
3. Remove rear end.
4. Replace reversing procedure.

FIBERGLASS REPAIRS

Refer to Figure 2-20.

1. Minor damage to fiberglass, body or roof, can be repaired using automotive patching techniques and repair kit.
2. Major damage to fiberglass body or roof should be repaired at a Champion Service Center or at a qualified dealer.

ROOF METAL REPAIR

ROOF SWEEPS

Repair & Replacement

Basic techniques for repair of sweep are exactly the same as those used for side metal repairs. They can be

repaired using the overlay method, inside foam buildup or conventional fastener attachment methods.

ROOF SWEEP OVERLAY PROCEDURE — STEEL STRUCTURE

1. Remove upper corner moldings. Refer to corner molding removal in this section.
2. Remove lights. Refer to light removal, section 5.
3. Remove rear window or windshield. Refer to window removal in this section.
4. Locate and cut holes for clearance lights in new sweep.
5. Clean mating surfaces then apply contact adhesive to new sweep and to surface of damaged sweep.
6. Apply ribbon sealer on underside of new sweep.
7. Run light wires through holes in new sweep.
8. Starting at top, position new sweep and roll down over damaged sweep. Apply contact pressure to securely bond sweep together. Fasten along perimeter with screws.

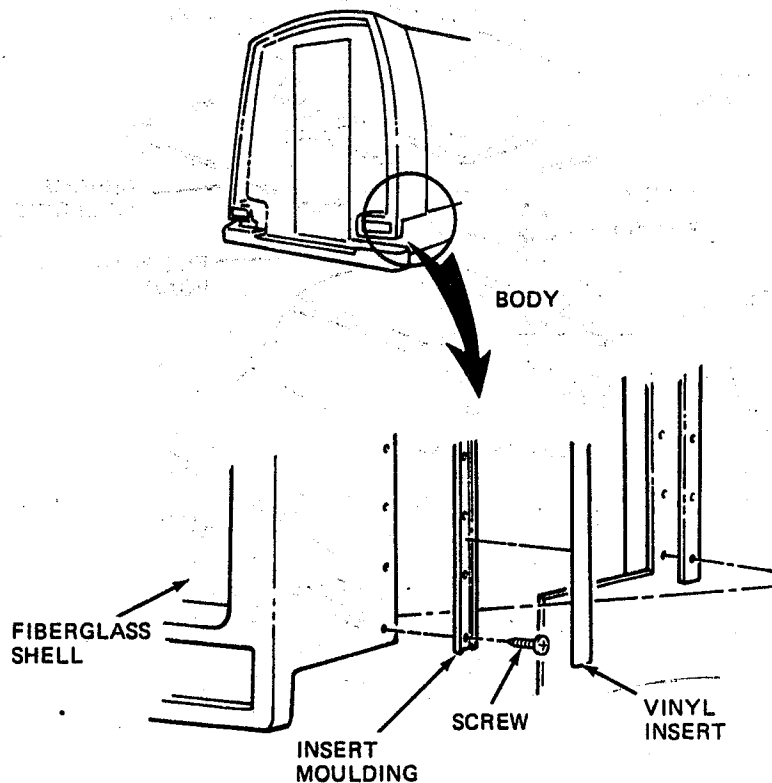


FIGURE 2-19 Fiberglass rear end replacement

MINOR DAMAGE ONLY
USE AUTOMOTIVE REPAIR KIT

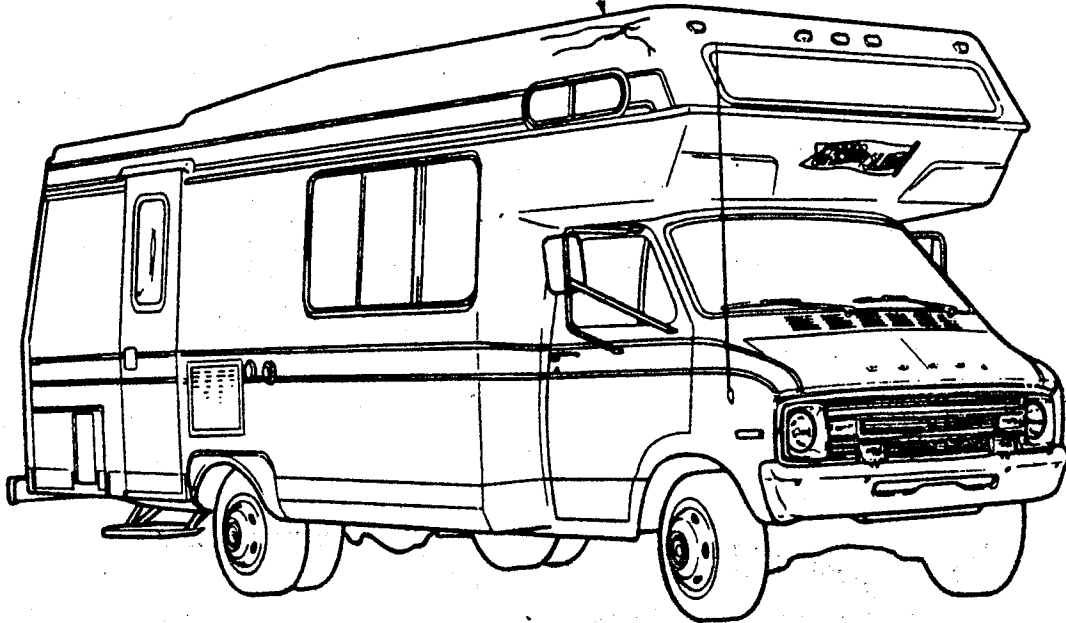


FIGURE 2-20 Fiberglass (minor) repair

9. Apply ribbon sealer around lights and re-install.
10. Apply ribbon sealer on underside of molding and re-install.
11. Re-install windows or windshield. See windshield replacement in this section.
12. Use recommended roof sealer to seal all seams on sweep.

ENTIRE ROOF REPLACEMENT

Refer to Figure 2-10.

1. Remove all roof vents and attachments.
2. Scrape off old sealer from all "S" locks.
3. Remove all sealer from perimeter where screws attach roof to sweeps and corner radius. Clean these seams with solvent to TOTALLY remove old sealer.
4. Apply butyl tape to these seams. Leave paper liner on up side of tape.
5. Apply a uniform light coat of black bond roof coating to entire roof surface.
6. Remove paper liner from butyl tape.
7. Position one piece roof on vehicle. Align one side and fasten with (3) screws at front center and rear.
8. If necessary, trim any overhanging metal along other side. Metal should extend to outside edge of butyl tape.
9. Using vise grip pliers, pull metal taut at a corner and fasten.
10. Secure other corner removing all wrinkles from metal. It may be necessary to re-fasten initial edge to remove wrinkles.
11. Once wrinkles are removed, press out any air bubbles and then secure perimeter with screws.
12. From inside of vehicle using an ice pick or scratch awl, pierce a hole at each corner of all openings.

13. From top side using pierced corner holes as guide, lay out and cut openings to size.
14. Re-install and seal all vents and attachments.
15. Trim excess butyl tape from all edges until tape is flush with new roof metal.
16. Apply roof sealer to all fasteners and edges of roof metal with putty knife or paint brush.

ROOF PATCHING

Refer to Figure 2-21.

If only one area of roof is damaged, it is not necessary to replace the entire roof. A patch can be applied over the damaged section.

When roof is of one piece construction, it is necessary that the patch extend from rafter to rafter, front to rear and 4" on either side of damaged section.

1. Remove any vents or attachments from patch area.

2. Make a smooth surface by cutting away any damaged metal on the original roof.
3. Fill area with fiber glass insulation. Stuff insulation under edge of damaged sections and depress insulation to form a saucer area approximately 3/4" deep.
4. Fill depression with foam (from Froth Pak) covering depression and extending approximately 1 to 2 inches beyond edge of hole.
5. When foam has hardened, remove excess with a hand saw until surface is flush with surrounding roof area.
6. Determine patch size and cut from .030 thick aluminum roof metal.
7. Clean roof patch area with solvent.
8. Apply contact cement to roof area.
9. Apply butyl tape to underside perimeter of patch. Leave paper liner on exposed side of tape.
10. Apply contact cement to patch contact surface. Allow to dry until tacky.

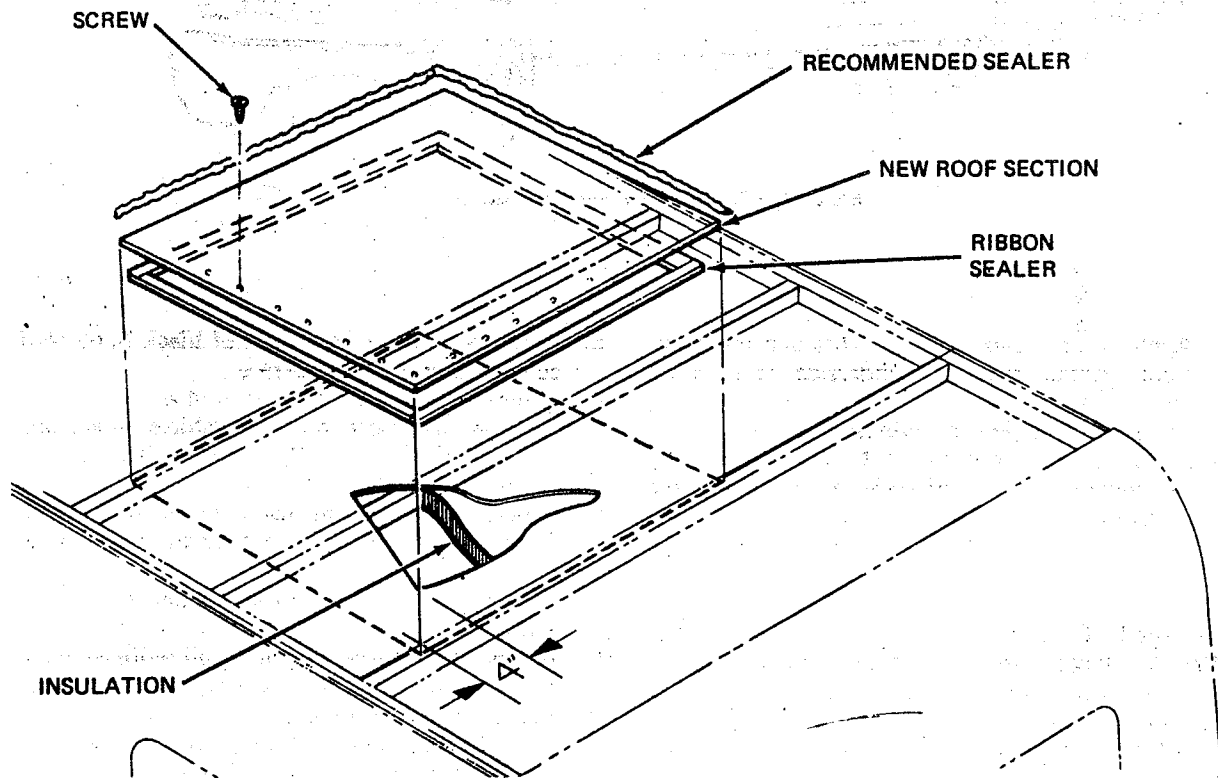


FIGURE 2-21 Roof patching

11. Remove paper liner from butyl tape and position patch above opening in proper location. Lower one edge until tape comes into contact with the roof. Press edge tightly in position and gradually lower patch into total contact with roof. Apply pressure to insure bond between mating surfaces.
12. Fasten patch to roof metal and rafters with sheet metal screws approximately 1/2 inch in from edge of patch. Space screws approximately one inch apart.
13. Cut off extruded butyl tape from edge of patch with a utility knife.
14. From inside vehicle pierce a hole at four corners of each opening required in patch area using an ice pick or scratch awl.
15. From outside of vehicle, using pierced holes as locators, lay out and cut required openings.
16. Install vents and attachments as required.
17. Apply roof sealer over screws and edge of patch. Feather edge using a putty knife or paint brush.

NOTE: All roof seams must be resealed annually using an approved sealant.

Body seams and window seams should also be resealed at the time of roof sealing.

When resealing, check and tighten any loose screws.

Check mounting bolts on air conditioner for tightness and vent caps for cracking.

Body of vehicles can be washed with car wash soap and be polished with any automotive polish.

LOCKS – ENTRANCE DOORS

Refer to Figure 2-22.

Removal

1. Remove screws as indicated in Item 1.
2. Remove inside plate.
3. Remove alignment bolts and screws indicated as Item 2.
4. Remove latch plate.
5. Remove lock assembly from door.
6. If striker plate is to be removed, remove screws as indicated as Item 3.

Replacement

1. Reverse order of steps listed above.
2. Make sure alignment bolts fit properly with striker plate.

GASOLINE FILL

Refer to Figure 2-23.

Removal

1. Remove gas cap.
2. Remove screws attaching plastic bezel or fill door assembly to body and fill spout.
3. Insert putty knife between body and bezel or door assembly to separate from body.

Replacement

1. Drill opening in bezel or replacement fill door assembly to fit fill spout.
2. Apply ribbon sealer to back face of bezel.
3. Position spout thru hole in bezel, and insert bezel into vehicle opening and secure with screws.
4. Where fill spout is equipped with a flange, attach to bezel with screws. For those units without flanges, from underneath vehicle apply foam or silicone rubber around pipe and bezel mating edge for additional support.

CITY WATER FILL

Refer to Figure 2-24.

Bezel and Compartment Assembly Type

1. Remove screws attaching assembly to side panel.
2. Insert putty knife between side panel and assembly and work around entire perimeter until assembly separates from side panel.
3. Pull unit out from side panel. Unscrew flare nut from assembly.

Replacement

1. Screw flare nut on assembly and tighten securely.
2. Apply ribbon sealer to mounting surface of assembly.
3. Position into opening and secure with screws.

FRESH WATER FILL

Refer to Figure 2-25.

Bezel and Compartment Assembly Type

Removal

1. Remove screws attaching assembly to side panel.
2. Insert putty knife between side panel and assembly and work around perimeter until assembly separates from side panel.
3. Pull assembly away from side panel and disconnect hoses from back face of assembly.

Replacement

1. Apply ribbon sealer to mounting face of assembly.
2. Reverse order of removal.

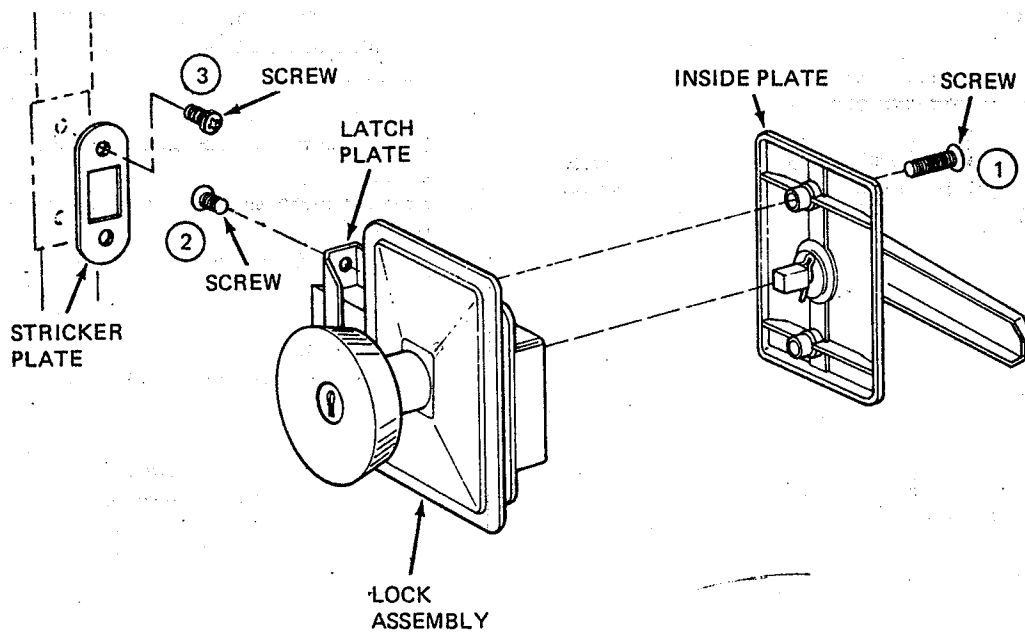
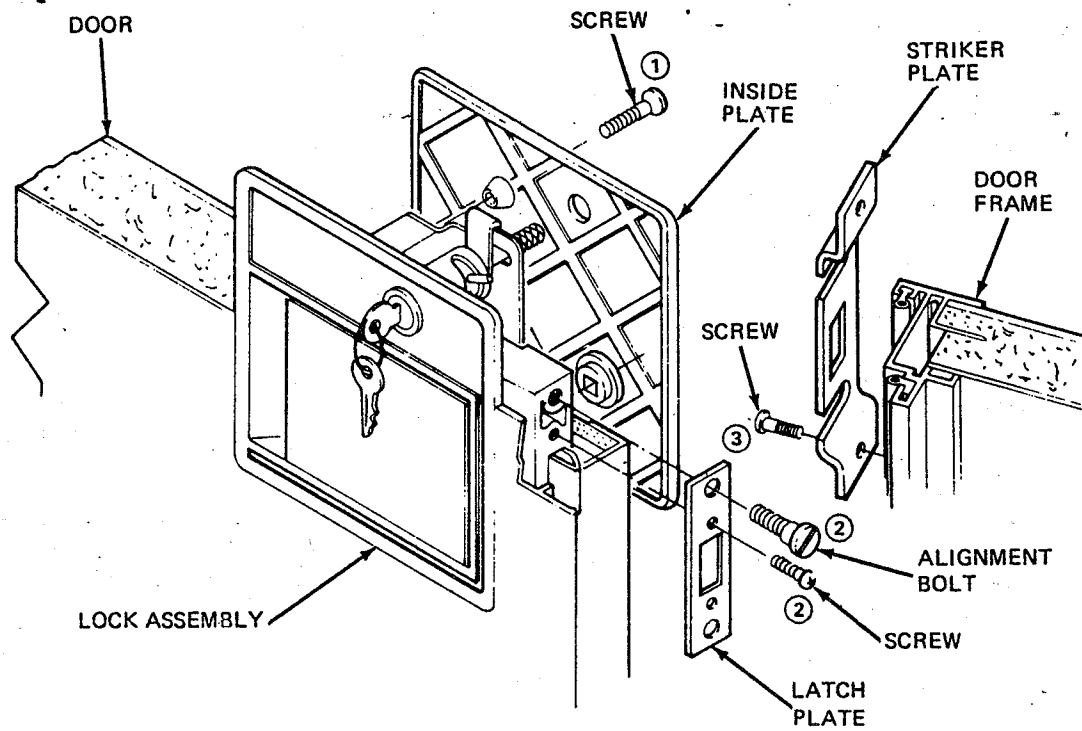


FIGURE 2-22 Entrance door lock replacement (all models)

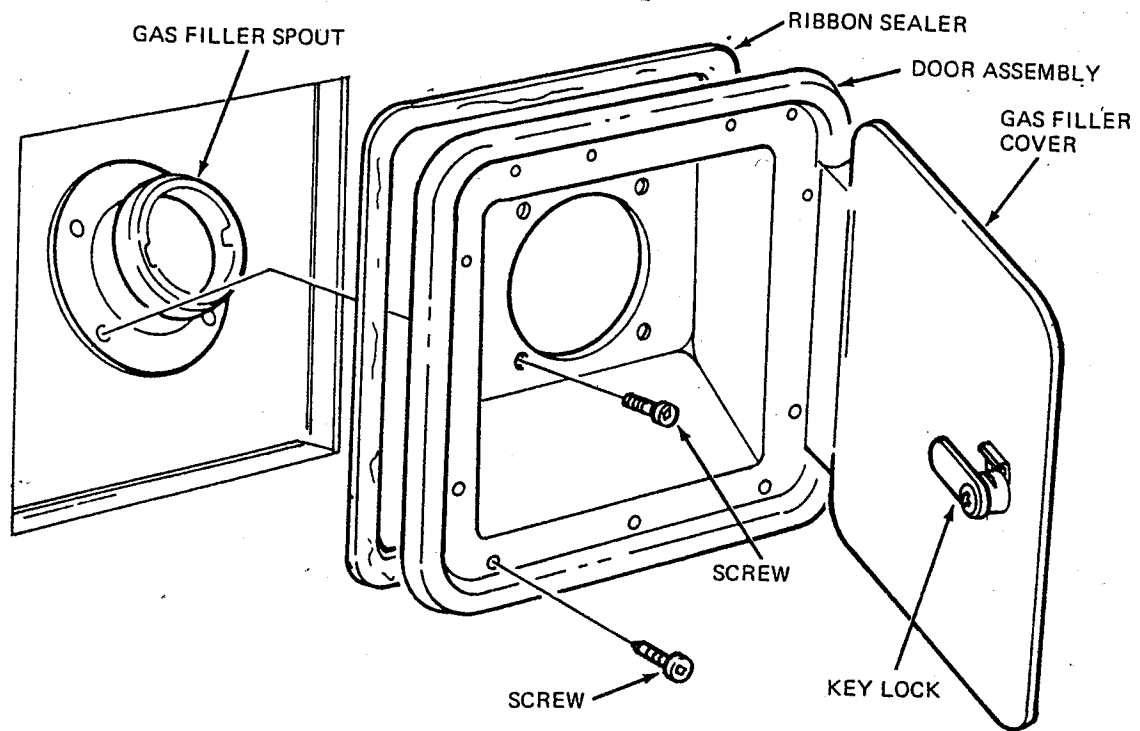


FIGURE 2-23 Gasoline fill

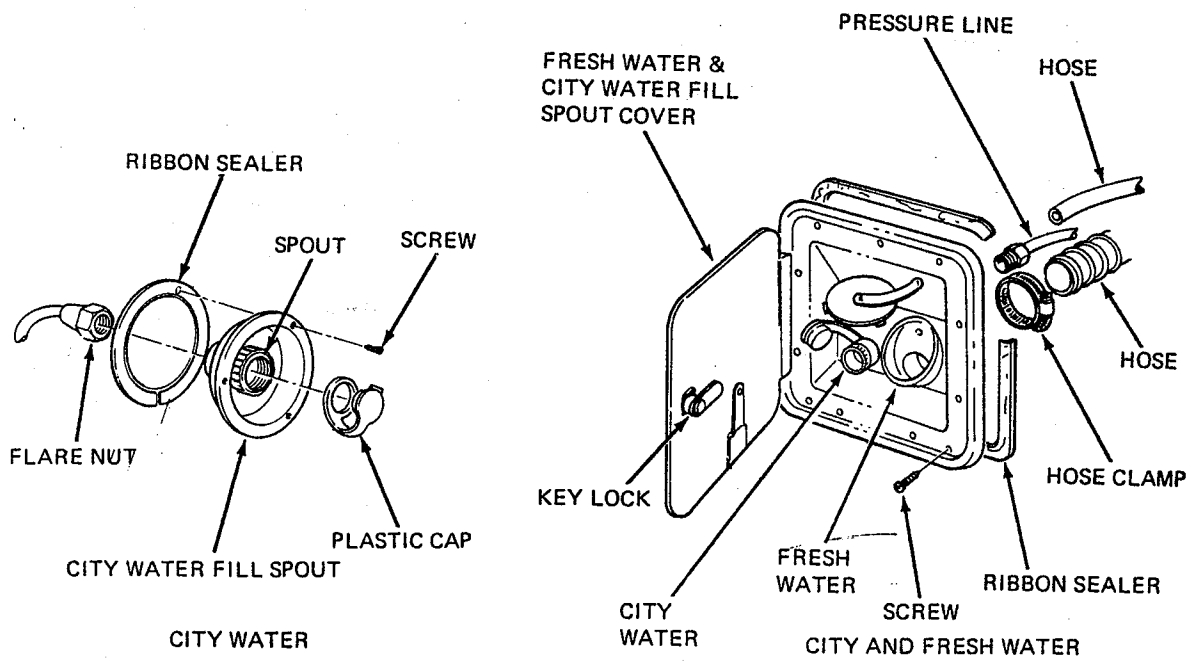


FIGURE 2-24 Water fills

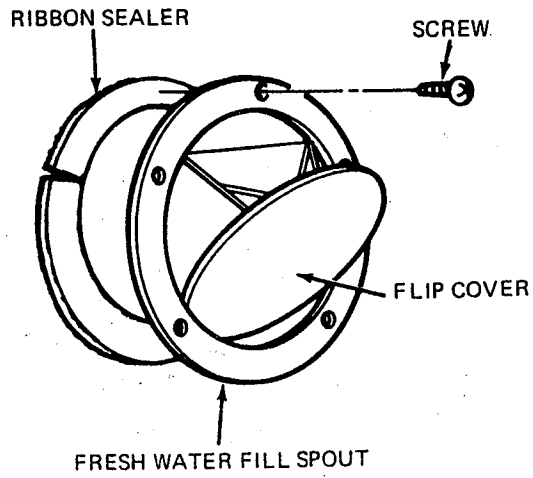


FIGURE 2-25 *Fresh water fill*