
GROUP 2

BODY AND BUMPERS

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GENERAL INFORMATION

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MAINTENANCE AND ADJUSTMENTS

PAINT MAINTENANCE

To remove heavy concentrations of road dirt and grime, it is recommended that the car be washed using an automotive shampoo or mild soap, and cold to lukewarm water. Use of harsh soaps or detergents is not advised. In areas where salt is used on the roads during the winter months, more frequent **washing** is recommended.

Use of cleaners and polishes are required if no high luster is obtainable by waxing. To protect the paint finish, sparingly apply several coats of wax. Each coat should be thoroughly rubbed to remove any surplus wax.

Once the car is properly waxed, road dirt may easily be removed by use of cold to lukewarm water and a sponge. Dry by use of a chamois.

CHROME MAINTENANCE

Chrome parts should be washed with water and a mild detergent. If rust or salt corrosion should appear, they may be removed with Buick Rust Eraser or equivalent. Do not use scouring powders or stiff brushes.

STAIN REMOVAL

Before attempting to remove spots or stains from upholstery fabrics, determine as accurately as possible: (1) Nature and age of the spot or stain. (2) The affect of stain removing agents on the color, structure and general appearance of the fabric.

For best results, stains should be removed from upholstery as soon as possible after they have been made. If they are allowed to stand for some time, they often become set, and removal becomes more **difficult** and frequently impossible.

There are three basic types of acceptable cleaners available to car owners: (1) Volatile cleaners, (2) Synthetic detergents, (3) Neutral soap (non-alkaline).

The volatile cleaners are recommended since they have great solvent powers for grease, oils and general road grime. Synthetic detergents generally loosen stains satisfactorily, however, the use of improper type detergents (containing **bleach**) involves risk of damage to the color or finish of fabrics.

Precautions For Cleaning Fabrics

Do not use laundry soap or detergents containing **bleaches**. The use of these agents tends to weaken fabric and to change its color. **Do not use** too much cleaning fluid. Some interior trim assemblies are **pad-**

ded with rubber, and volatile cleaners are generally solvents for rubber. The application of too much cleaner may destroy these rubber pads. **Do not use** volatile cleaners on vinyl coated fabrics.

Procedure For Cleaning Vinyl Fabrics With Synthetic Detergents

1. Make a solution of the synthetic detergent in lukewarm water, working up a thick, frothy suds.
2. With a clean cloth or sponge, dampened with lukewarm water, apply suds only to the surface of the upholstery using light to medium pressure, repeating several times, applying more suds with a clean portion of the cloth or sponge.
3. With a second clean cloth, dampened with lukewarm water, rub over the area with medium pressure to remove excess detergent and loose material.
4. With a clean dry cloth, wipe off all excess moisture. A vacuum cleaner may also be used.
5. Allow the upholstery to dry partially; then repeat the above treatment if necessary to remove stain.
6. When the upholstery is satisfactorily cleaned, allow to dry completely before using.

Instructions for the Removal of Specific Stains From Automotive Upholstery Materials

Some types of stains and **soilage**, including blood, ink, chewing gum, etc., require special consideration for satisfactory results. For **these**, and other stains, specific instructions are outlined in succeeding paragraphs. It must be expected, particularly where water treatment is specified, that discoloration and finish disturbance may occur. In some cases fabric disturbance may be considered preferable to the stain itself. By following the procedures outlined below, reasonably satisfactory results can be expected.

1. **Battery Acids.** Apply ordinary household ammonia water with a brush or cloth to the affected **area**, saturating it thoroughly. Permit the ammonia water to remain on the spot about a minute, so that it will have ample time to neutralize the acid. Then rinse the spot by rubbing with a clean cloth saturated with cold water.

This treatment will suffice for both old and new stains. However, no type of treatment will repair **damage to fibers** resulting from the **action** of the acids on the **fibers** particularly after the spot has dried.

2. **Blood.** Do not use hot water or soap and water

on blood stains since they will set the stain, thereby making its removal practically impossible.

Rub the stain with a clean cloth saturated with cold water until no more of the stain will come out. Care must be taken so that clean portions **of cloth** are used for rubbing the stain.

This treatment should remove all of the stain. If it does not, apply a small amount of household ammonia water to the stain with a cloth or brush. After a lapse of about one minute, continue to rub the stain with a clean cloth dipped in clear cold water.

If the stain remains after the use of water and ammonia, a thick paste of corn starch and cold water may be applied to the stained area. Allow the paste to remain until it has dried and absorbed the stain. Then pick off the dry starch. Brush the surface to remove starch particles that remain. For heavy stains, several applications of starch paste may be necessary.

3. **Candy.** Candy stains, other than candy containing chocolate, can be removed by rubbing the affected area with a cloth soaked with very hot water. If the stain is not completely removed, rub area lightly (after drying) with a cloth wet with a volatile cleaner. This will usually remove the stain.

Candy stains resulting from cream and fruit-filled chocolates can be removed more easily by rubbing with a cloth soaked in lukewarm soap-suds (mild neutral soap) and scraping, while wet, with a dull knife. This treatment is followed with a rinsing by rubbing the spot with a cloth dipped in cold water.

Stains resulting from chocolate or milk chocolate can be removed by rubbing the stain with a cloth wet with lukewarm water. After the spot is dry, rub it lightly with a cloth dipped in a volatile cleaner.

4. **Chewing Gum.** Harden the gum with an ice cube, and scrape off particles with a dull knife. If gum cannot be removed completely by this method, moisten it with a volatile cleaner and work it from the fabric with a dull knife, while gum is still moist.

5. **Fruit, Fruit Stains, Liquor and Wine.** Practically all fruit stains can be removed by treatment with very hot water. Wet the stain well by applying hot water to the spot with a clean cloth. Scrape all excess pulp, if present, off the fabric with a dull knife; then rub vigorously with a cloth wet with very hot water. If the stain is very old or deep, it may be necessary to pour very hot water directly on the spot, following this treatment with the scraping and rubbing. Direct application of hot water to fabrics is not recommended for general use since discoloration usually results.

If the above treatments do not remove stain, allow

fabric to dry thoroughly; then rub lightly with a clean cloth dipped in a volatile cleaner. This is the only further treatment recommended.

Soap and water are not recommended since they will probably set the stain and cause a permanent discoloration. Drying the fabric by means of heat (such as the use of an iron) is not recommended.

6. **Grease and Oil.** If grease has been spilled on the material, as much as possible should be removed by scraping with a dull knife or spatula before further treatment is attempted.

Grease and oil stains may be removed by rubbing lightly with a clean cloth saturated with a volatile cleaner. Be sure all motions are toward the center of the stained area to decrease the possibility of spreading the stain.

7. **Ice Cream.** The same procedure is recommended for the removal of ice cream stains as that used in removing fruit stains.

If the stain is persistent, rubbing the spot with a cloth wet with soap suds (mild neutral soap) may be used to some advantage after the initial treatment with hot water. This soap treatment should be followed with a rinsing, by rubbing with a clean cloth wet with cold water. After this dries, rubbing lightly with a cloth wet with volatile cleaner will clear up the last of the stain, by removing fatty or oily matter.

8. **Vomit.** Sponge with a clean cloth, dipped in clear cold water. After most of the stain has been removed in this way wash lightly with soap (mild neutral), using a clean cloth and lukewarm water. Then rub with another clean cloth dipped in cold water. If any of the stain remains after this treatment, gently rub clean with a cloth moistened with a volatile cleaner.

9. **Shoe Polish and Dressings.** On types of shoe dressing which contain starch or dextrine or some water soluble vehicle, allow the polish to dry; then brush the spot vigorously with a brush. This will probably be all the treatment that is necessary. If further treatment is required moisten the spot with cold water and after it has dried, repeat the brushing operation.

Paste or wax type shoe polishes may require using a volatile cleaner. Rub the stain gently with a cloth wet with a volatile cleaner until the polish is removed. Use a clean portion of the cloth for each rubbing operation and rub the stained area from outside to center.

10. **Tar.** Moisten the spot lightly with a volatile cleaner, and then remove as much of the tar as possible with a dull knife. Follow this operation by rubbing the spot lightly with a cloth wet with the cleaner until the stain is removed.

II. **Urine.** Sponge the stain with a clean cloth saturated with soap suds (mild neutral soap) and rinse well by rubbing the stain with a clean cloth dipped in cold water. Then saturate a clean cloth with a solution of one part household ammonia water and five parts water. Apply the cloth to the stain and allow solution to remain on affected area for one minute; then rinse by rubbing with a clean wet cloth.

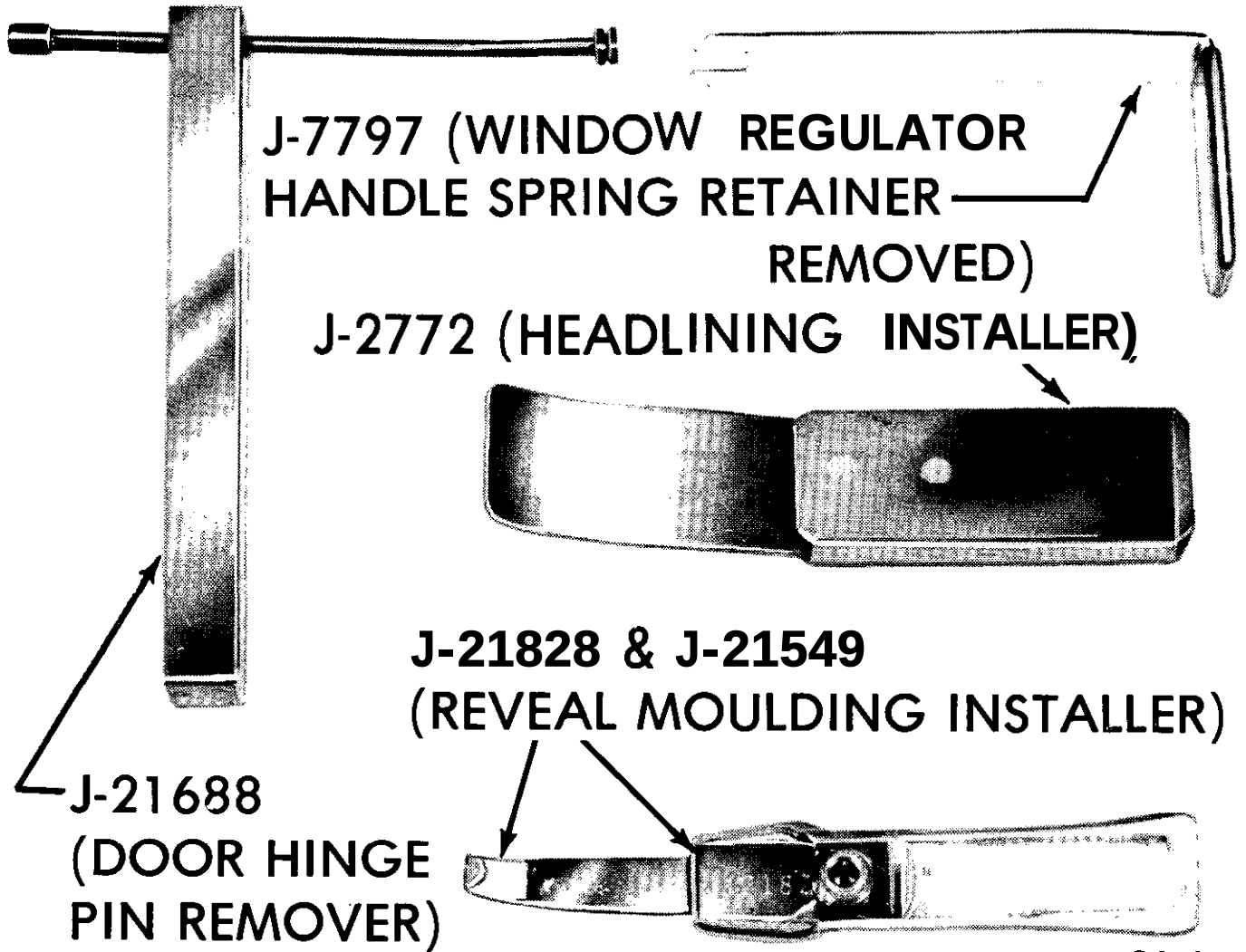
I,?. **Lipstick.** The compositions of different brands of lipsticks vary, making the stains very difficult to remove. In some instances a volatile cleaner may remove the stain. If some stain remains after repeated applications of the volatile cleaner, it is best to leave it rather than try other measures.

SPECIFICATIONS

BOLT TORQUE SPECIFICATIONS

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SPECIAL BODY TOOLS



OPEL 1900, MANTA AND GT FRAME AND BODY MOUNTINGS

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MAINTENANCE AND ADJUSTMENTS: (Not Applicable)	
MAJOR REPAIR: (Not Applicable)	
SPECIFICATIONS:	
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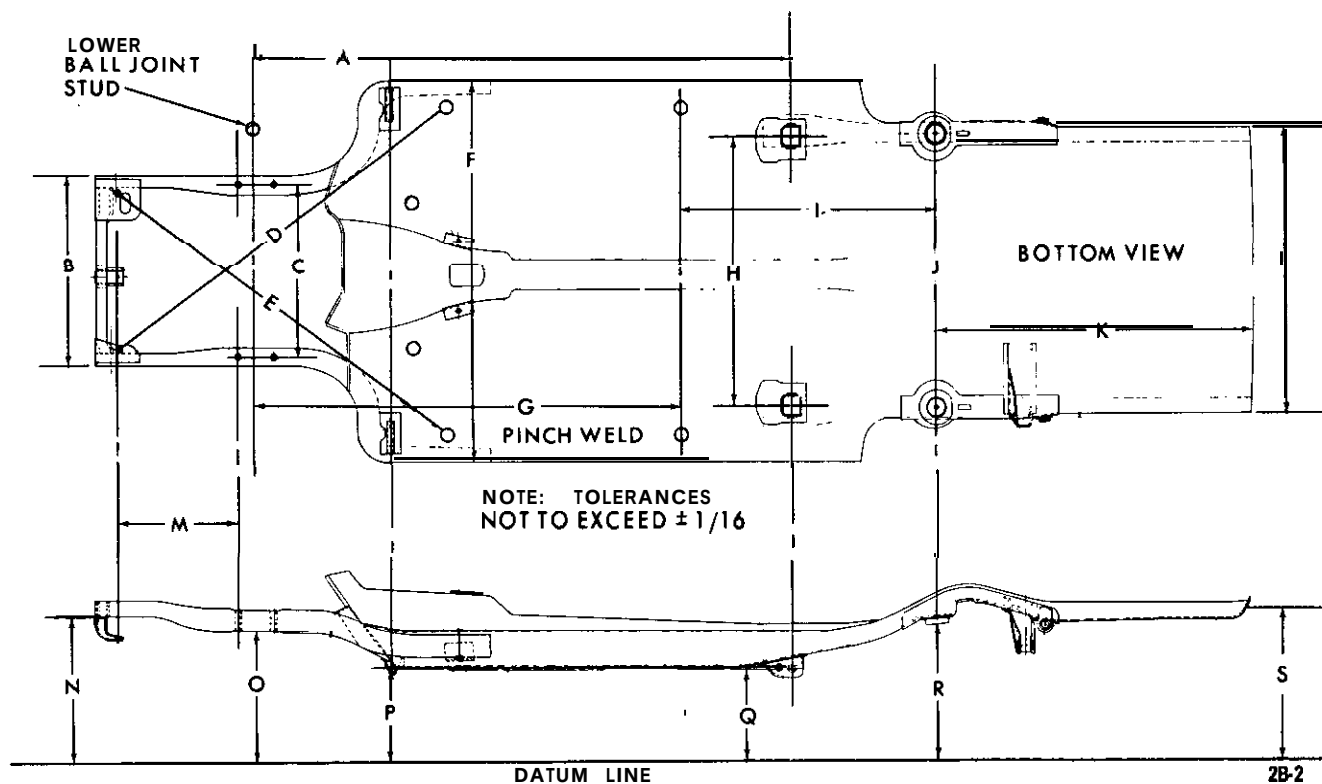


Figure 2B-2 GT Frame Details

GT FRAME MEASUREMENTS

A	72"	From centerline of lower ball joint stud to centerline of front lower arm bushing.
B	25-1/4"	Outside of left frame horn to outside of right frame horn.
C	22-3/4"	Centerline of front crossmember right attaching bolt holes to centerline of front crossmember left attaching bolt holes.
D	50-5/16"	From centerline of hole in radiator support to right front frame horn reinforcement to centerline of left front underbody drain hole.
E	50-5/16"	From centerline of hole in radiator support to left front frame horn reinforcement to centerline of right front underbody drain hole.
F	49-7/8"	From rear outside edge of right front frame rail to rear outside edge of left front frame rail.
G	59-1/8"	From centerline of lower ball joint stud to centerline of second side drain hole.
H	35-3/4"	Centerline of right lower control arm to centerline of left lower control arm.
I	32"	Centerline of second side underbody drain hole to centerline of rear spring seat.
J	36-1/8"	Centerline of right spring seat to centerline of left spring seat.
K	28-19/32"	Centerline of spring seat to bumper bracket bolt hole on outside of lower tail panel.
L	39-1/8"	Outside edge of right rear frame rail to outside edge of left rear frame rail.
M	15-7/8"	Centerline of radiator support bolt hole to centerline of front crossmember front attaching bolt holes.
N	12-2/32"	Lower edge of front frame horn to datum line.
O	10-3/4"	Frame rail mating surface for front crossmember to datum line.
P	6"	Front portion of underbody to datum line.
Q	6"	Rear portion of underbody to datum line.
R	11-5/16"	Center of spring seal to datum line.
S	16-1/4"	Centerline of rear bumper bracket to lower tail panel bolt to datum line.

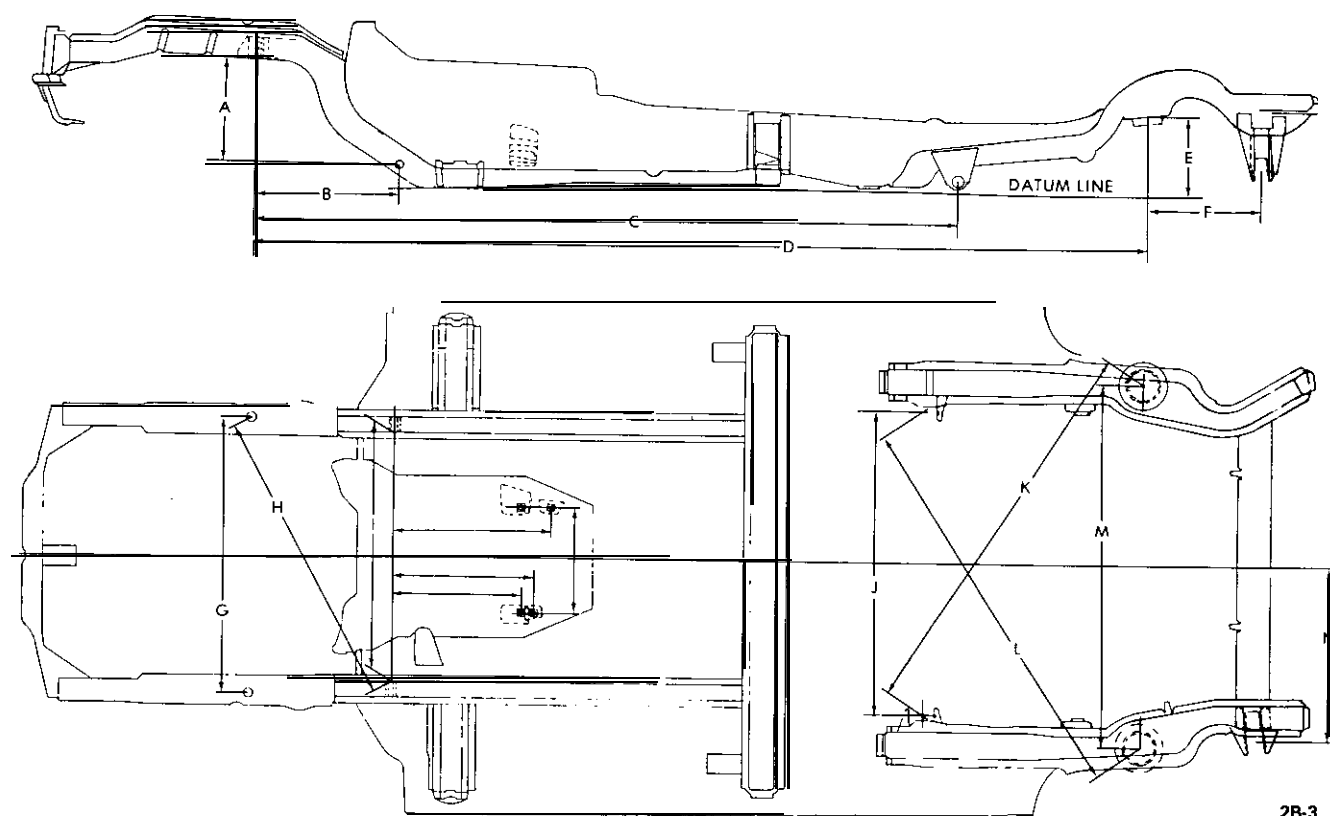


Figure 2B-3 Opel 1900 Manta Frame Details

1900 — MANTA 1900 — MANTA FRAME MEASUREMENTS

A	10-9/16"	Mating surface of frame rail to horizontal line from center of front crossmember to frame support bolt hole.
B	14-9/16"	Centerline of front crossmember attaching bolt hole to centerline of front crossmember to frame support bolt hole.
C	71-7/16"	Centerline of front crossmember attaching bolt hole to center of lower control arm to frame bolt hole.
D	90-1/2"	Centerline of front crossmember attaching bolt hole to center of rear spring seat.
E	8-3/16"	Rear spring seat to datum line.
F	11-5/8"	Center of spring seat to center of track rod to body attaching bolt hole.
G	27-9/16"	Centerline of front crossmember right attaching bolt hole to centerline of front crossmember left attaching bolt hole.
H	30"	Centerline of right front frame bolt hole to centerline of left front crossmember to frame support bolt hole (inboard side of frame rail).
I	24-3/4"	Distance between frame rails at front crossmember to frame support bolt holes.
J	30-9/16"	Centerline to centerline of torque tube support to frame bolt holes.
K-L	38-1/2"	Center of spring seat to center of torque tube support to frame bolt hole (inboard side of frame).
M	36-3/8"	Centerline of right spring seat to centerline of left spring seat.
N	17-5/16"	Centerline of car to centerline of track rod to body attaching bolt.

WINDOWS AND WINDOW MOLDINGS

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Rear Quarter Window • 1900 • Manta	2C-12
Rear Quarter Window • GT	2C-12
Rear Quarter Window Lock	2C-12
SPECIFICATIONS: (Not Applicable)	

MAJOR REPAIR

REMOVAL AND INSTALLATION OF WINDSHIELD REVEAL MOLDING

1. Remove reveal molding escutcheon. Starting at one end, pull molding out of rubber channel. See Figure 2C-2.

2. Prior to installation, place molding in water and heat up to approximately 113 • 122 degrees F.

3. With Tools J-2 1828 and J-2 1549, insert new reveal molding and install escutcheon.

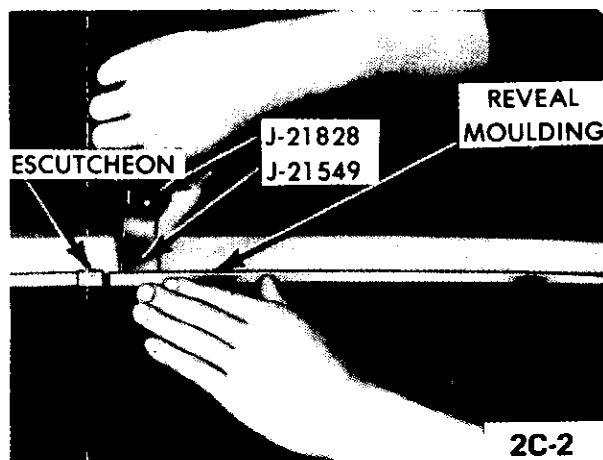


Figure 2C-2 Removing Reveal Molding

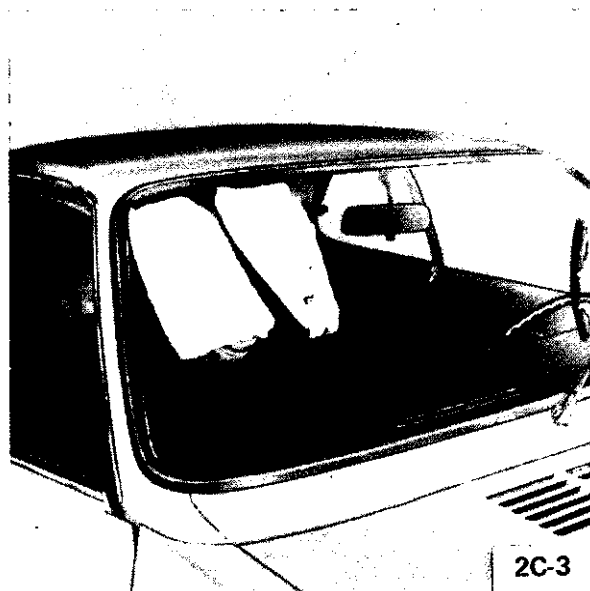


Figure 2C-3 Pushing Windshield Out

REMOVAL AND INSTALLATION OF WINDSHIELD OR BACK WINDOW-WINDSHIELD SHOWN

1. Flap back windshield wiper arms,
2. Beginning at one end, pull molding out of rubber channel.
3. Beginning at one corner, push out windshield together with rubber channel. See Figure 2C-3.



Figure 2C-4 Fitting Rubber Channel on Windshield

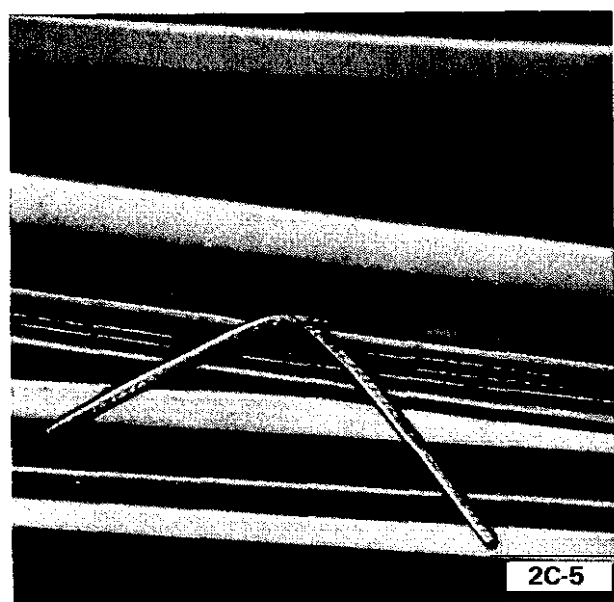


Figure 2C-5 String Inserted Into Rubber Channel

4. Place new windshield on glass holding fixture and tit new rubber channel. See Figure 2C-4.

5. Insert a thick string into large sealing lip of rubber channel so that both ends are crossed at bottom center of windshield. See Figure 2C-5.

6. With a sealer gun, coat outside of pinchweld flange with sealing compound. See Figure 2C-6.

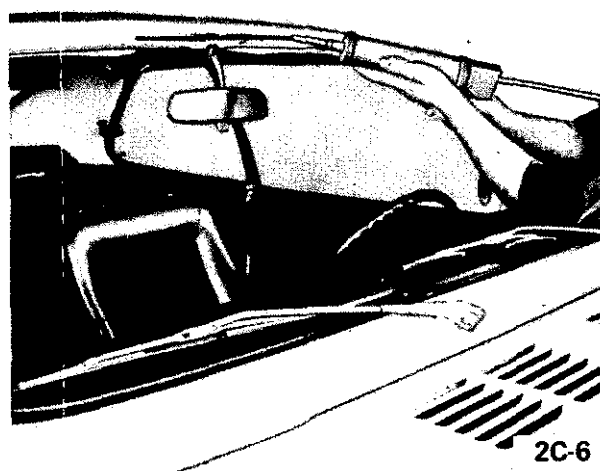


Figure 2C-6 Applying Sealer on Pinchweld Flange

7. Place windshield in body opening and, with inserted string, pull rubber channel lip over pinchweld flange, always tapping windshield from outside with a striking pad. See Figure 2C-7.

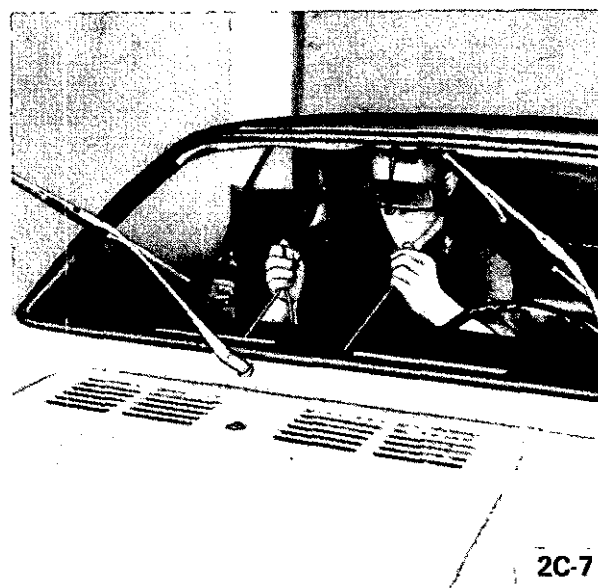


Figure 2C-7 Pulling Rubber Channel Lip Over Pinchweld Flange

8. With a sealer gun, apply window sealing compound between outside of windshield and rubber channel. See Figure 2C-8.

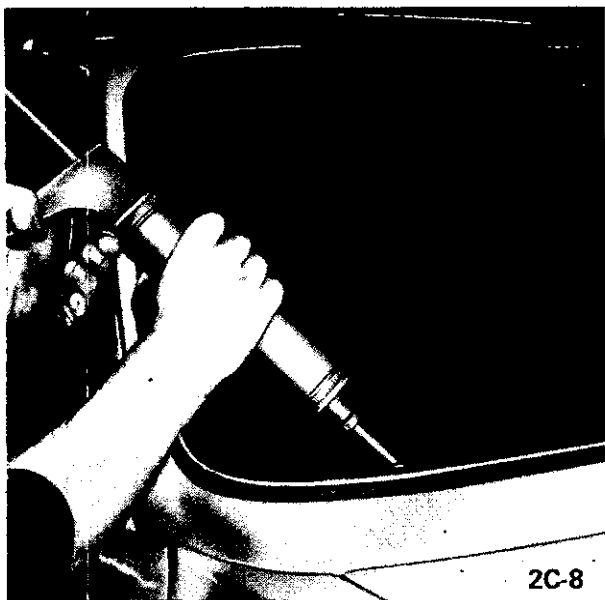


Figure 2C-8 Applying Sealing Compound Outside of Windshield

REMOVAL AND INSTALLATION OF FRONT DOOR SASH WINDOW

1. Remove and install door trim pad.
2. Remove and install lock knob.



Figure 2C-9 Removing Glass

3. Remove and install door inside handle.
4. Remove and install door **belt reveal** molding.
5. Scribe position of window lifter guide rail screws.
6. For unscrewing window lifter guide rail, block sash window or support it with the hand.
7. Tilt window and take it out of door. See Figure 2C-9.

REMOVAL AND INSTALLATION OF ORNAMENTAL BAR AT THE REAR QUARTER WINDOW

Removal

1. Unscrew chromed molding and remove rear quarter window. See Figure 2C-10.

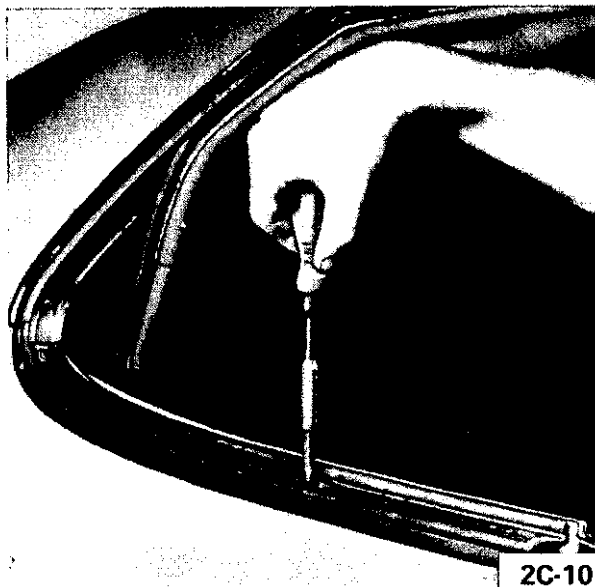


Figure 2C-10 Removing Chromed Molding

2. In the area of the rear quarter window, pull weatherstrip out of metal profile and remove sealing strip.
3. Unscrew metal profile and remove ornamental bar.

Installation

1. Install ornamental bar and fasten metal profile.
2. Install sealing strip and weatherstrip into metal profile.

3. Install quarter window and fasten chromed molding. See Figure 2C-10.

REMOVAL AND INSTALLATION OF REAR QUARTER WINDOW OPEL 1900. MANTA

1. Unscrew rear quarter window lock. See Figure 2C-11.

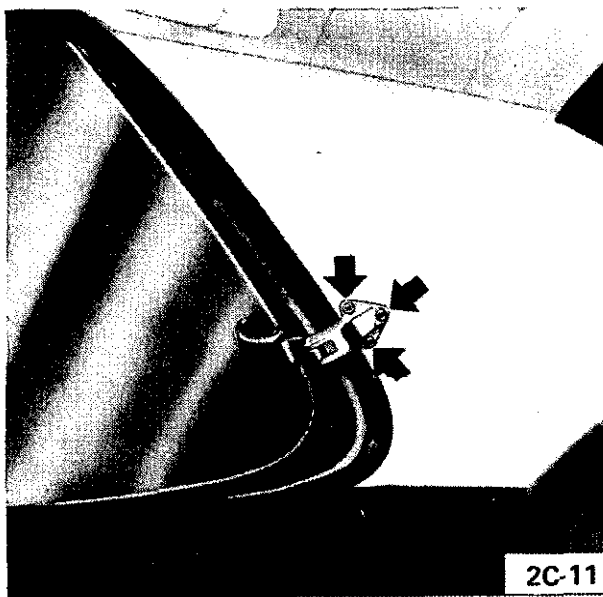


Figure 2C-11 Quarter Window Lock Attaching Screws

2. Unscrew window hinge from lock pillar while holding window. See Figure 2C-12.

3. On installation, seal hinges with a plastic compound.

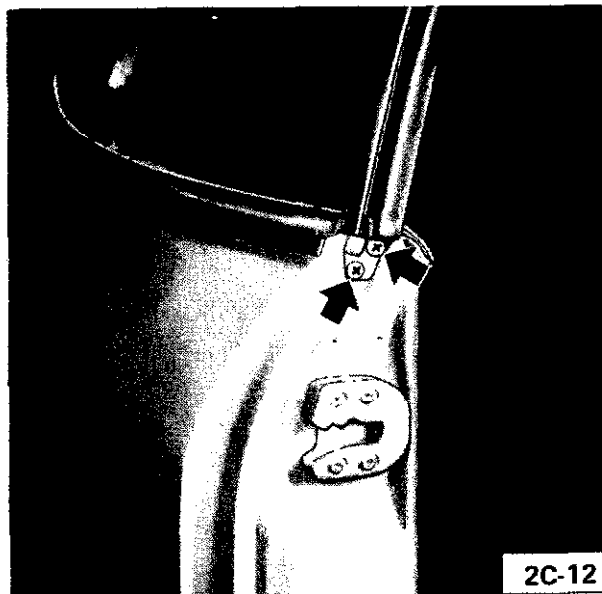


Figure 2C-12 Quarter Window Hinge Attaching Screws

4. Carefully push rail off window. On rear quarter window lock, drill off pin and unscrew retainer from window. See Figure 2C-13.

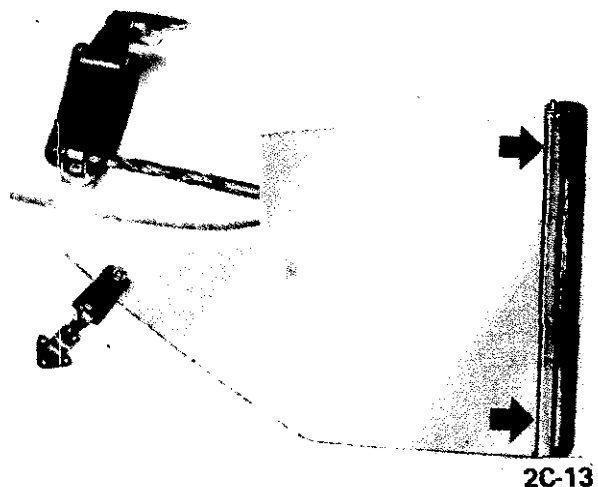


Figure 2C-13 Drilling Off Quarter Window Lock Pin

REMOVAL AND INSTALLATION OF HINGED REAR QUARTER WINDOW - GT

Removal

1. Remove three screws securing lock to rear quarter pillar. See Figure 2C-14. Swing window outward and lift off rear quarter window. Care should be taken that window does not fall off pivots when swung outward.

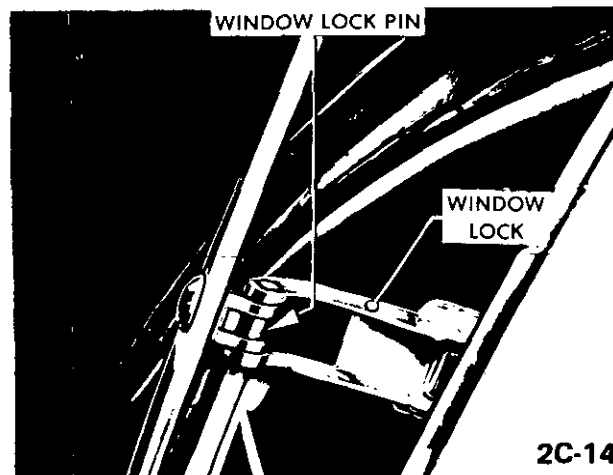


Figure 2C-14 Rear Quarter Pillar Lock - GT

2. Remove frame from glass

Installation

1. Install frame to glass.

2. Install lock to rear quarter pillar, securing with three (3) screws.

DOORS

CONTENTS

Subject	Page No.
DESCRIPTION AND OPERATION: (Not Applicable)	
DIAGNOSIS: (Not Applicable)	
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Door	2D-21
SPECIFICATIONS:	

MAJOR REPAIR

REMOVAL AND INSTALLATION OF DOOR LOCK STRIKER

1. Mark position of old striker on lock pillar and unscrew striker, using Tool J-23659. See Figure 2D-2.
2. Place new striker in installation position and temporarily tighten striker, observing marking on lock pillar. Close door and check whether this can be done without exerting any force. If this is not the case, adjust striker accordingly.
3. Tighten attaching screws, using Tool J-23659, and check for proper operation.

REMOVAL AND INSTALLATION OF WINDOW REGULATOR HANDLE

1. Insert Tool J-7797 between handle and nylon disc. See Figure 2D-3.
2. With the two fork-shaped ends of the tool, slide lock spring outwards. See Figure 2D-4.
3. Place lock spring of new handle in installation position and install it onto window regulator shaft.
4. With the window in closed position, the window regulator handle should point upwards towards the front at an angle of approximately 45 degrees.

REMOVAL AND INSTALLATION OF FRONT DOOR TRIM PAD

1. Remove window regulator handle.



Figure 2D-2 Door Striker

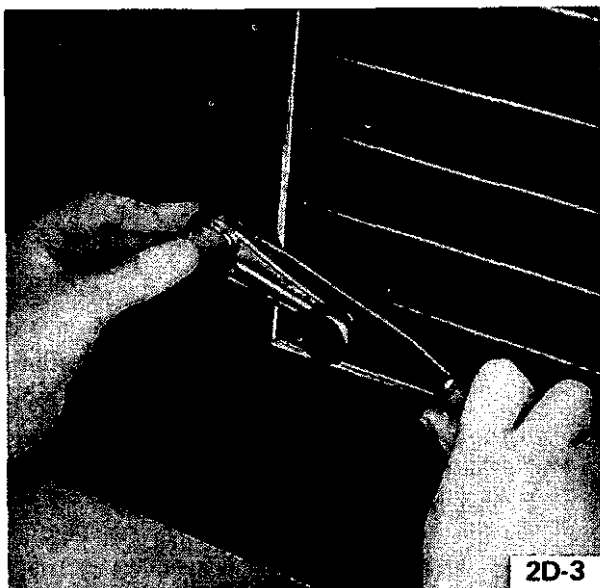


Figure 2D-3 Inserting Tool Between Handle and Nylon Disc

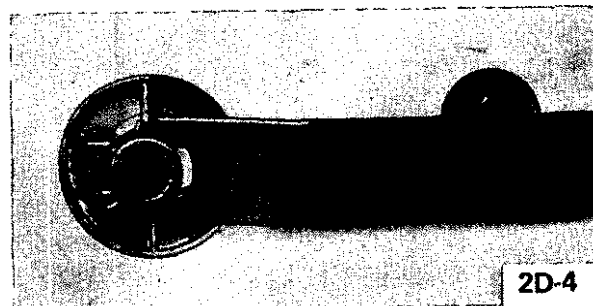


Figure 2D-4 Position of Tool on Slide Lock Spring

2. Remove door inside handle escutcheon.
3. Remove lock knob.
4. Remove arm rest. See Figure 2D-5.

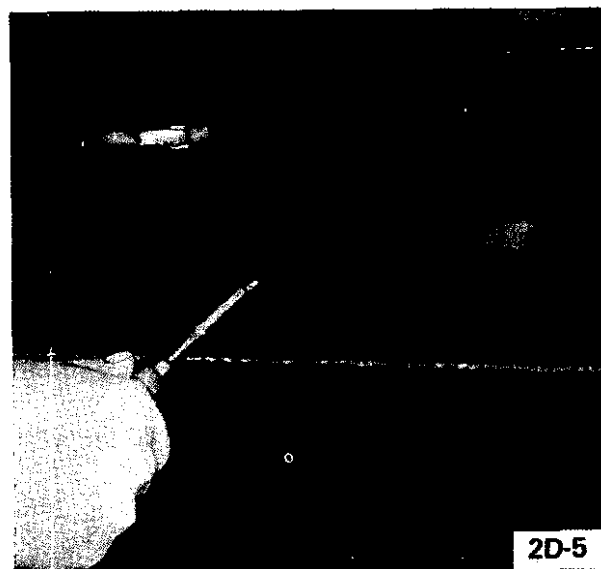


Figure 2D-5 Removing Arm Rest

5. Remove door trim pad.
6. Prior to installation of trim pad, make sure that

the water deflector foil is inserted in lower door slot. See Figure 2D-6. Reverse procedure for installation.

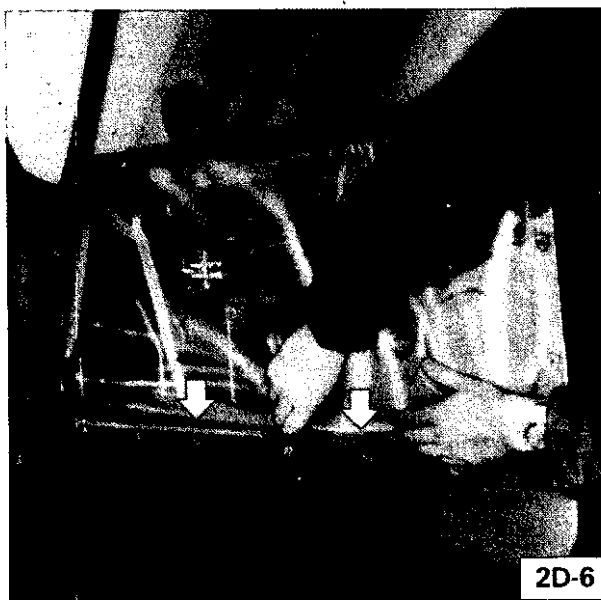


Figure 2D-6 Installing Water Deflector

REMOVAL AND INSTALLATION OF FRONT DOOR INSIDE HANDLE WITH SUPPORT

1. Remove door trim pad.
2. Unscrew support and unhook connecting rod out of door lock. See Figure 2D-7.

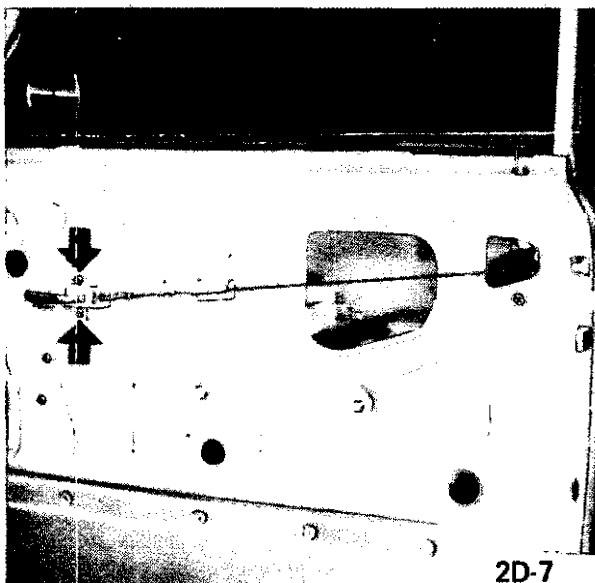


Figure 2D-7 Removing Support

3. Unhook connecting rod out of old support and hook into new support and door lock.

4. Screw support onto door inner panel so that it can be shifted in both holes. Adjust remote control so that the connecting rod has a clearance at the door lock of .02 inch (0.5 mm).

5. Tighten support to door inner panel.

6. Install door trim pad

REMOVAL AND INSTALLATION OF FRONT DOOR BELT REVEAL MOLDING

1. Bend up ends of molding.
2. With a wooden wedge, pry off molding towards the top. See Figure 2D-8.

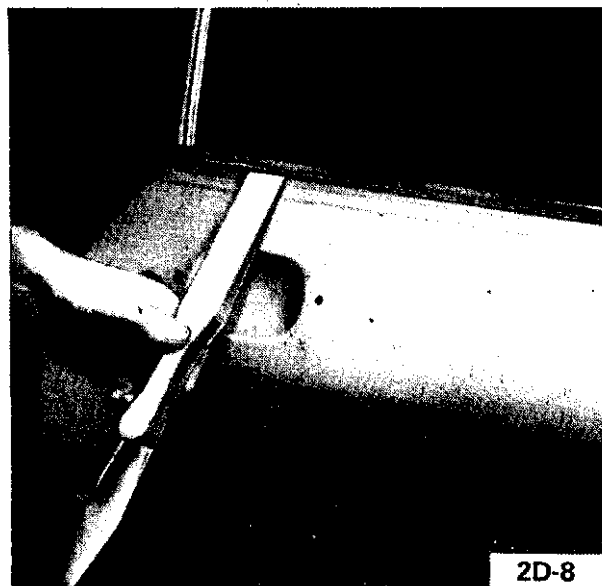


Figure 2D-8 Removing Molding

3. Check retaining clamps in outer door panel for proper position and tight seat. Push new molding onto retaining clamps and bend both ends inwards.

REMOVAL AND INSTALLATION OF FRONT DOOR WINDOW LIFTER

Removal

1. Remove door trim pad.

2. Remove door lock knob.
3. Remove door inside handle.
4. Adjust sash window so that the main lever with toothed segment are in alignment with the front retaining plate. See Figure 2D-9.

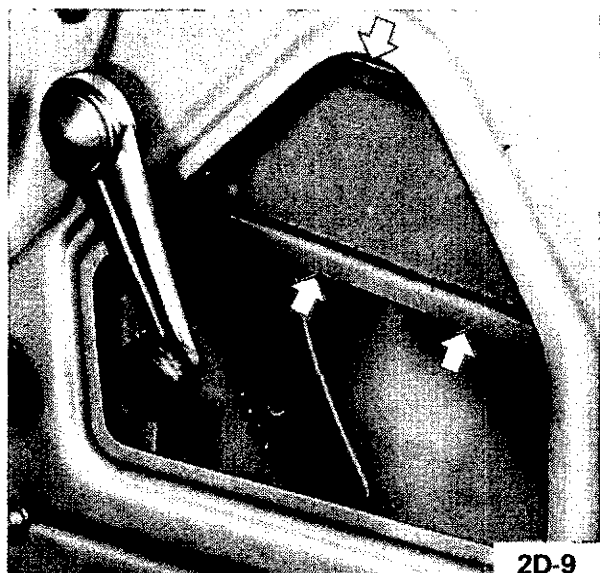


Figure 2D-9 Aligning Main Lever With Front Retaining Plate

5. On Models 57, 57L and 57R, scribe position of screw at the plastic support of window rail and unscrew.
6. Block sash window in door interior.
7. Scribe position of window lifter guide rail screws. See Figure 2D-10.

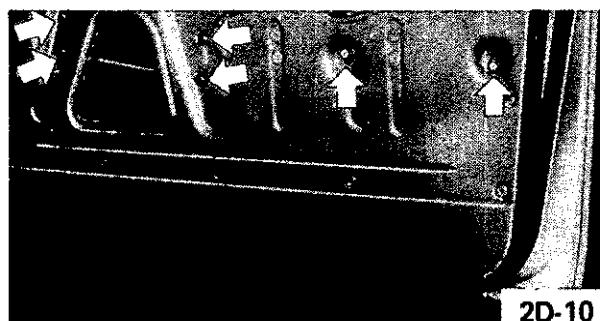


Figure 2D-10 Guide Rail Screws

8. Unscrew window lifter and let it down slowly.
9. Slide window upwards and block it.

10. Remove window lifter through opening in inner door panel upper part. See Figure 2D-11.

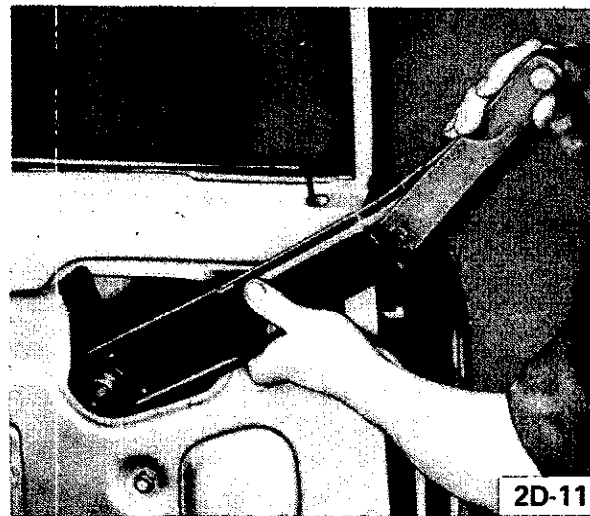


Figure 2D-11 Removing Window Lifter

Installation

1. Install window lifter through opening in inner door panel tipper part. See Figure 2D-11.
2. Block window upwards.
3. Secure window lifter.
4. On Models 57 and 57R, secure plastic support of window rail.
5. Install inside door handle.
6. Install door lock knob.
7. Install door trim pad.

REMOVAL AND INSTALLATION OF FRONT DOOR LOCK

Removal

1. Remove door trim pad.
2. Remove door lock knob.
3. Remove door inside handle.
4. On lock side, scribe position of guide rail bolt, unscrew bolt, push guide rail downwards, and remove it through access hole. See Figure 2D-12.
5. Remove door lock and install new one. See Figure 2D-13.



Figure 2D-12 Guide Rail Bolt



Figure 2D-14 Engaging Actuating Lever

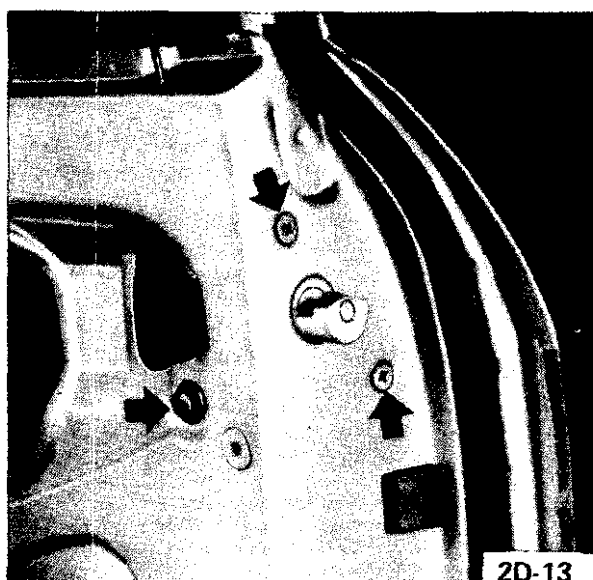


Figure 2D-13 Lock Retaining Screws

6. On Models 57, 57L and 57R, do not unscrew window guide rail. Unscrew lock and, with actuating lever engaged, remove lock from behind guide rail. See Figure 2D-14.

Installation

1. Install window guide rail, if removed.
2. Engage actuating lever and install lock. See Figure 2D-14.

3. Install guide rail through access hole and install bolt and rail bolt. See Figure 2D-12.

4. Install inside door handle.

5. Install door lock knob.

6. Install **door** trim pad.

REMOVAL AND INSTALLATION OF FRONT DOOR LOCK CYLINDER

Removal

1. Remove door trim pad.

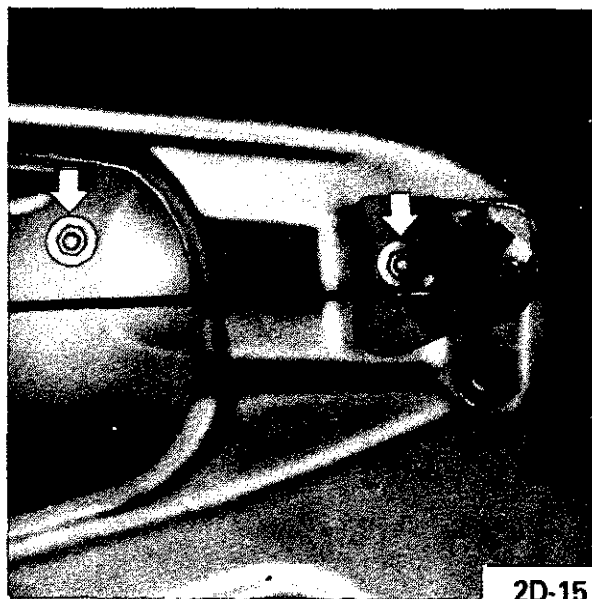


Figure 2D-15 Outside Door Handle Hex. Nuts

2. With window closed, unscrew hex nut and remove door outside handle. See Figure 2D-15.
3. Clamp door outside handle in a vise provided with protective jaws.
4. With a screwdriver, lift cylinder lock ring out of handle. See Figure 2D-16.



Figure 2D-16 Removing Cylinder Lock Ring Out of Handle

5. Pull lock cylinder out of door outside handle.

Installation

1. Clamp outside door handle in a vise and protect handle with pieces of wood.
2. Install lock cylinder into outside door handle.
3. Install lock ring into handle. See Figure 2D-16.
4. With window closed, install outside handle and hex nut. See Figure 2D-15.
5. Install door trim pad.

REMOVAL AND INSTALLATION OF FRONT DOOR WEATHERSTRIP

1. From below, grind the peen off door check link pin and drive out pin. See Figure 2D-18.
2. Remove weatherstrip from front door.

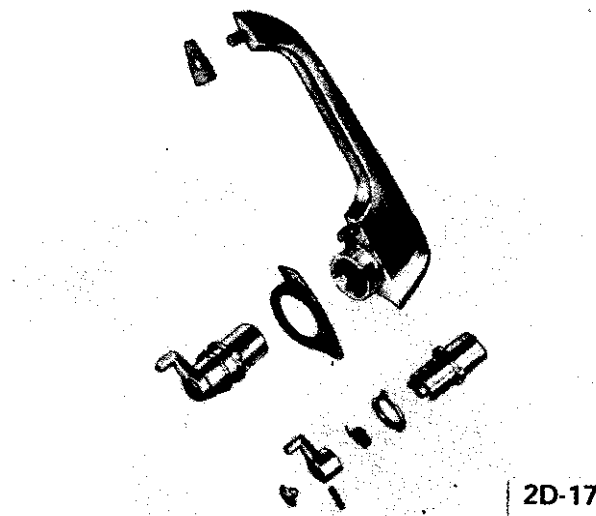


Figure 2D-17 Outside Handle - Exploded View

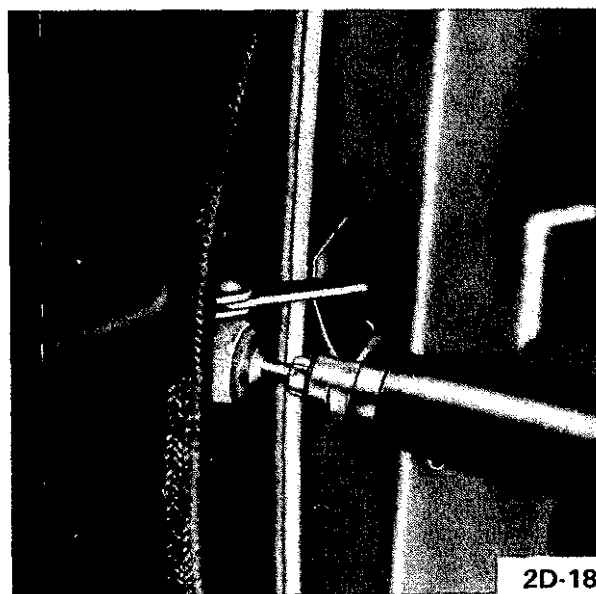


Figure 2D-18 Grinding Peen Off Of Link Pin

3. Button in new weatherstrip in the door area and push it in the metal profile in the area of the window frame. See Figure 2D-19.
4. Install door check link and rivet pin.

REMOVAL AND INSTALLATION OF FRONT DOOR

1. Remove door trim pad.
2. Remove lock knob.

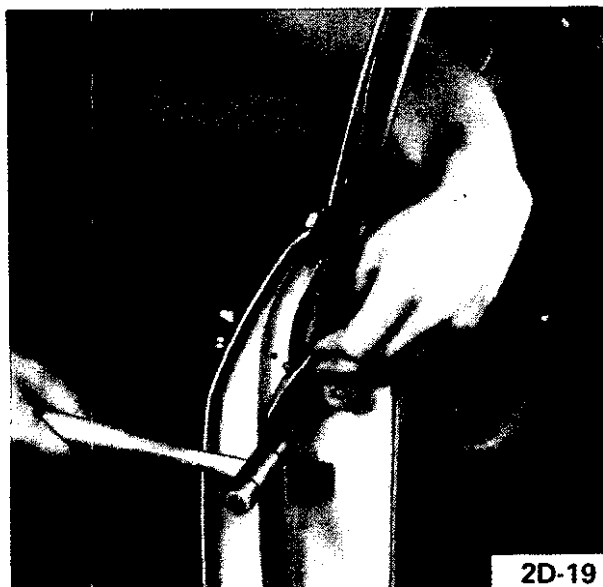


Figure 2D-19 Installing Weatherstrip

3. Remove door inside handle.
4. Remove door belt reveal molding.
5. Remove window lifter.
6. Remove sash window guide rails.
7. Remove door lock.
8. Remove door outside handle,
9. Grind off door check link pin and remove door check link.

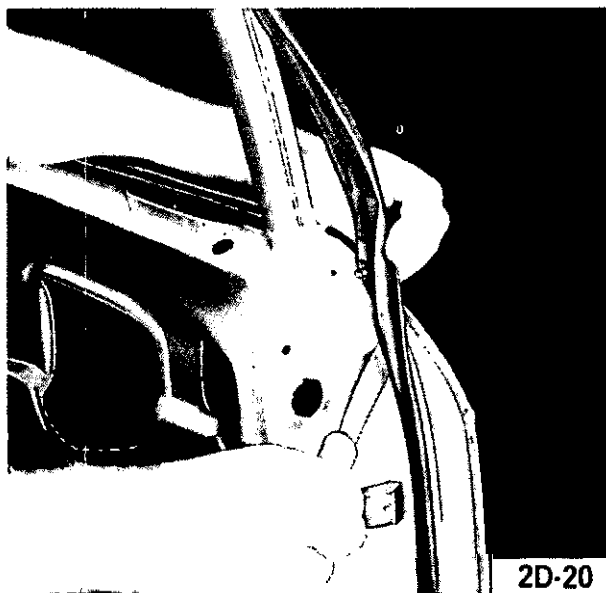


Figure 2D-20 Removing Door Weatherstrip

10. Remove door weatherstrip, using a clip remover. See Figure 2D-20.

11. Remove door rubber bumper.

12. Drive out upper and lower door hinge sleeve and remove door, using Tool J-21688. See Figure 2D-21.

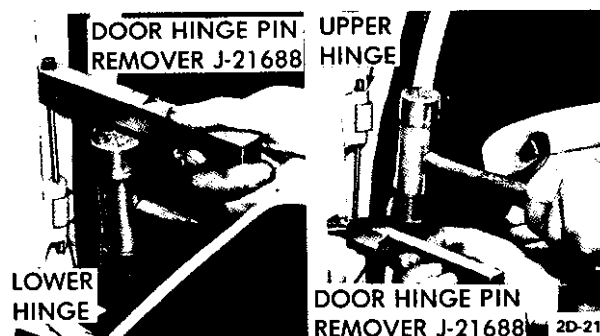


Figure 2D-21 Removing Hinge Pin

13. Install door and rivet door check link pin.

14. Reverse procedure for installation.

REMOVAL AND INSTALLATION OF REAR DOOR SASH WINDOW

1. Remove and install door trim pad. See Figure 2D-22.

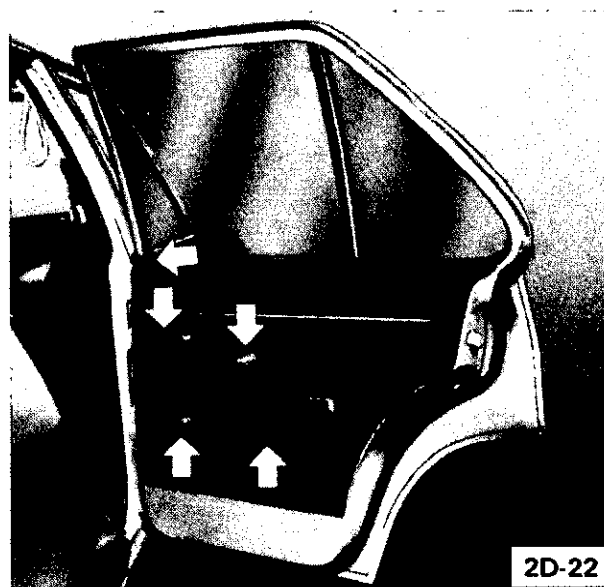


Figure 2D-22 Trim Pad Items

2. Completely open sash window and unscrew window guide rail in the places shown in Figure 2D-23.

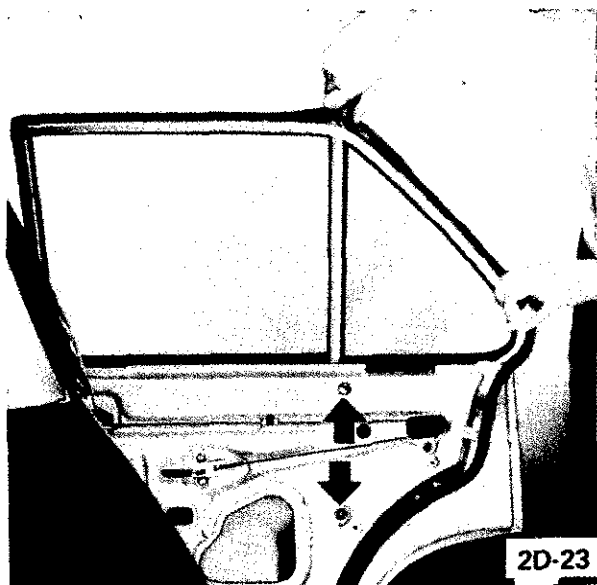


Figure 2D-23 Guide Rail Screws

3. Pull guide rail towards the top out of door.
4. Position sash window so that cable retainer can be unscrewed through access hole. Pull out sash window towards the top.
5. Push sash channel off window glass. See Figure 2D-24.



Figure 2D-24 Sash Channel

6. Place new window glass and new filler into sash channel.

REMOVAL AND INSTALLATION OF REAR DOOR WINDOW REGULATOR

1. Remove door trim pad.

2. Remove door sash window.

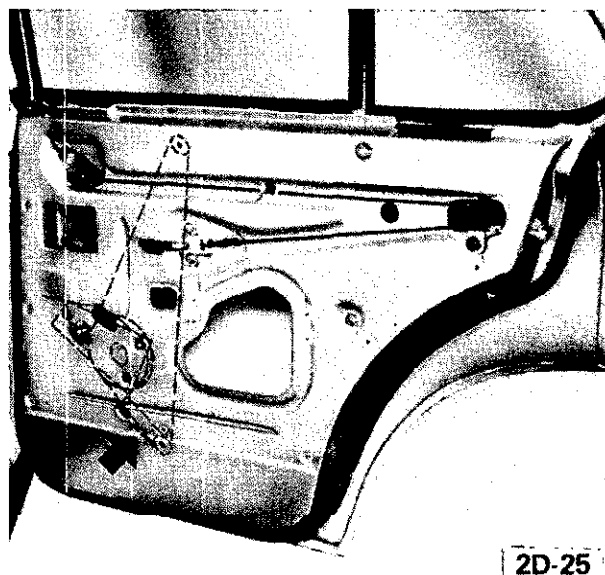


Figure 2D-25 Cable and Pully Location

3. Loosen sheave adjustable bracket. Unscrew window regulator from inner door panel and remove regulator and cable through access hole. See Figure 2D-26.

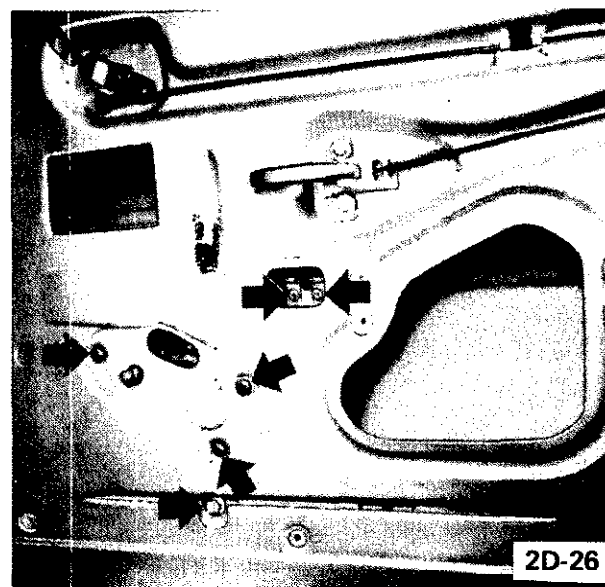


Figure 2D-26 Regulator Attaching Screws

Installation - Left Door

In counterclockwise direction, wind cable onto pulley up to the shoulder and clamp it behind lug. See Figure 2D-27.

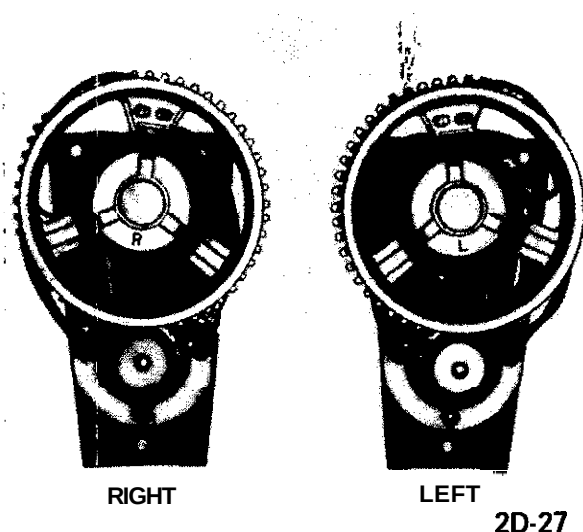


Figure 2D-27 Cables Wound On Regulators

Installation - Right Door

In clockwise direction, wind cable onto pulley up to the shoulder and clamp it behind lug. See Figure 2D-27.

REMOVING AND INSTALLING TAILGATE HINGES

Removal

1. Remove screws securing hinge trim panel covering tailgate hinges and lift out trim panel. See Figure 2D-28.
2. Disconnect battery, remove tailgate trim pad, and withdraw wiring from tailgate.
3. Mark position of tailgate hinges on tailgate, remove bolts securing tailgate to hinges and lift off tailgate.

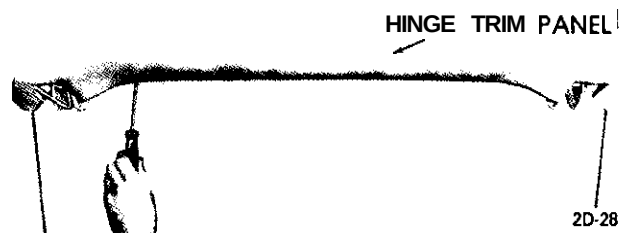


Figure 2D-28 Removing Tailgate Hinge Trim Panel

4. Release and remove torque rods. See Figure 2D-29.

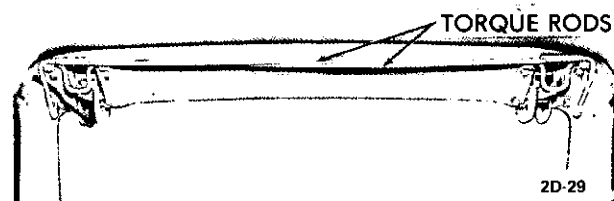


Figure 2D-29 Tailgate Torque Rods

5. Remove bolts securing tailgate hinges to roof panel and lift out tailgate hinges.

Installation

1. Install tailgate hinges to roof panel and secure with bolts.
2. Install torque rods. Installation of torque rods may be facilitated by using vise-grip pliers to work torque rod end over catch.
3. Install tailgate to tailgate hinges.
4. Install wiring to tailgate
5. Install tailgate trim pad and tailgate hinges panel covering.
6. Connect battery

REAR COMPARTMENT LID

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SPECIFICATIONS: (Not Applicable)	

MAJOR REPAIR

REMOVAL AND INSTALLATION OF LUGGAGE COMPARTMENT LID WEATHERSTRIP

1. Detach old weatherstrip and clean sealing surface.
2. Coat new weatherstrip and contacting surface with rubber cement, and allow cement to dry for a few minutes.

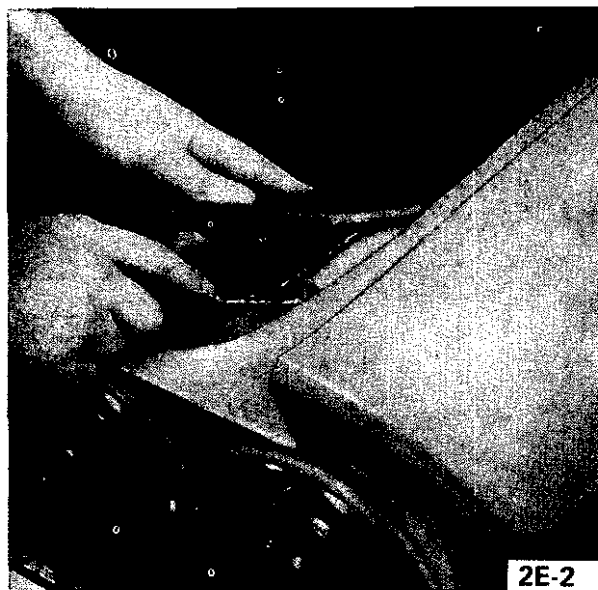


Figure 2E-2 installing Luggage Compartment Lid Weatherstrip

3. Install new weatherstrip with rubber cement. See Figure 2E-2.

REMOVAL AND INSTALLATION OF LUGGAGE COMPARTMENT LID LOCK CYLINDER

Removal

1. Remove luggage compartment lid lock. See Figure 2E-3.

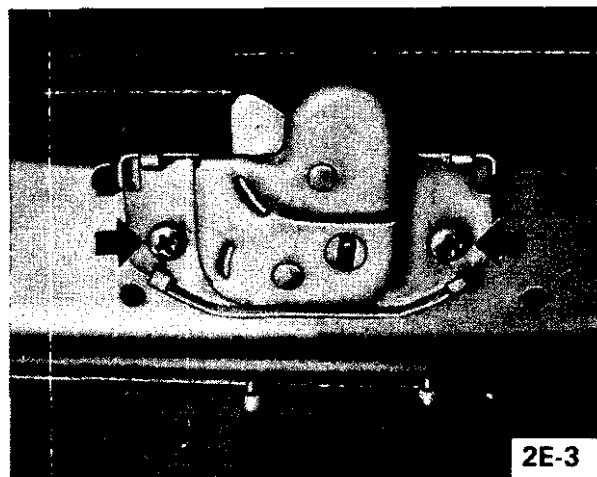


Figure 2E-3 Lid Lock Attaching Screws

2. With luggage compartment lid in almost horizontal position, unscrew lock cylinder nut, using a 13/16

inch deep socket, and remove it, together with intermediate ring. See Figure 2E-4.

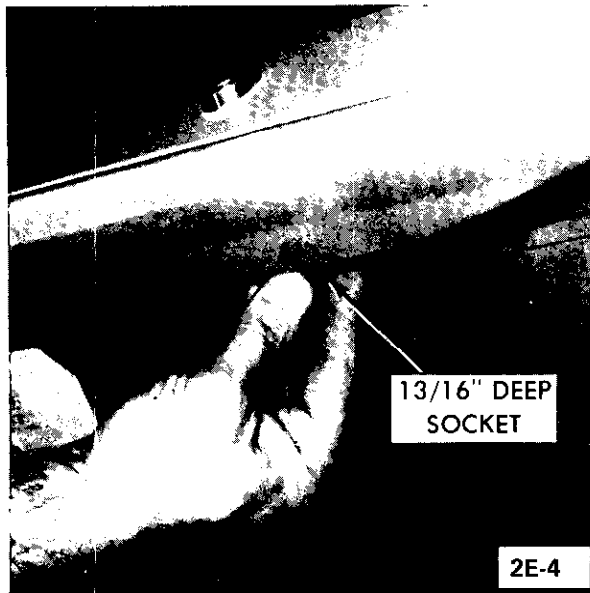


Figure 2E-4 Removing Lock Cylinder Nut

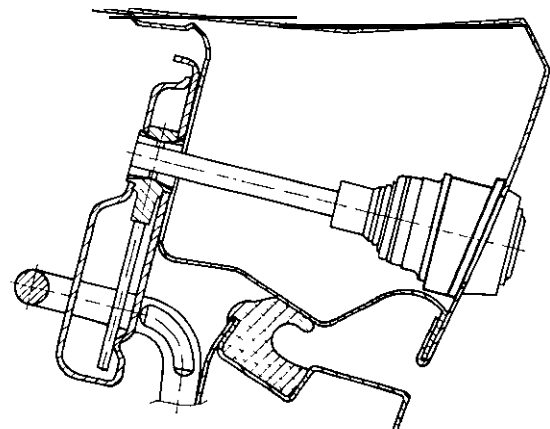
Installation

1. Install lock cylinder nut, together with intermediate ring, and fasten with a 13/16 inch deep socket. See Figure 2E-96.
2. Install luggage compartment lock so that the lock cylinder rod rests in opening of the lock. See Figure 2E-5.

REMOVAL AND INSTALLATION OF LUGGAGE COMPARTMENT LID

Removal

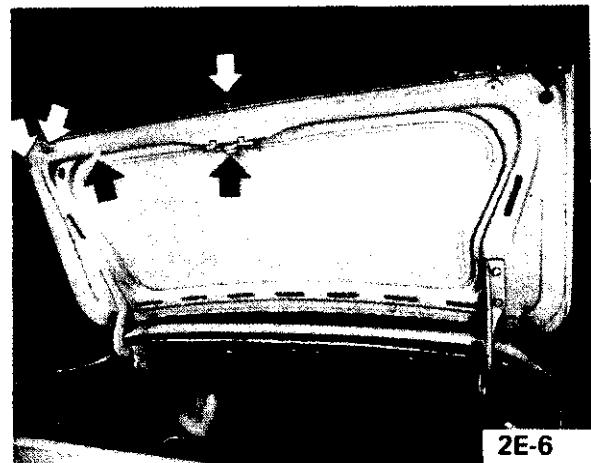
1. With a wooden wedge, remove letters and ornament.
2. From below, push ornament out of luggage compartment lid.



2E-5

Figure 2E-5 Lock Cylinder Rod Location

3. Remove rubber bumpers, lamp, lid lock, and lock cylinder. See Figure 2E-6.



2E-6

Figure 2E-6 Rubber Bumpers Lamp and Lock Location

4. Unscrew luggage compartment lid from hinges.
5. The luggage compartment lid must **be** aligned so that the gaps **between** lid and adjacent surfaces are almost equal.

ROOF AND SUN ROOF

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DIAGNOSIS

SUN ROOF DIAGNOSIS

CONDITION	CAUSE	CORRECTION
Sun roof does not operate parallel.	Transporter cable lengths equal.	Close sun roof, slide sun roof frame to rear, remove crank handle and cable crank. Check that sun roof bears against sun roof opening velvet strip and that lifter' portion of rear lifter guides is positioned approximately 90 degrees to guide rails. Turn cable crank fully clockwise and reinstall into cable box.
	Transporter cables damaged or worn.	Replace cables. Both cables must be replaced if either one is damaged or worn.

Condition	Cause	Correction
Sun roof lifts up on one side only.	Lifter wedge welded to under-side of sun roof panel does not run up ramp welded in center of sun roof track.	Remove sun roof panel and bend lifter wedge so that it squarely hits ramp. The only adjustment for the ramp is the angle of the rear portion. This should be adjusted so that the wedge smoothly rides up the ramp.
	Transporter cable or drive pinion damaged.	If the transporter cable is worn or damaged, replace both cables. If drive pinion worn or damaged, replace drive pinion and also both transporter cables.
Sun roof scrapes on car roof when closing sun roof.	Lifters do not lie flat.	Close sun roof, slide sun roof frame to the rear and open and close sun roof slightly noting operation of lifters. Rework if necessary, plastic lifter cushion with tile to permit lifter to lie flat. Sparingly lubricate lifter guide.
Sun roof frame becomes detached.	Attaching clips have lost elasticity.	Install new clips
Water enters car interior.	Water drain hoses blocked.	Clean hoses with compressed air or a flexible steel cable. NOTE: To clear rear water drain hoses, the sun roof panel and frame must be removed. Blowing out of rear drain hoses from trunk compartment hose end is not recommended due to possibility of soiling car interior.
	Bent water drain hoses	Attempt to straighten drain hoses by working a suitable tube or cable through hose. Replace hose if above corrective action is not satisfactory.
	Rear water drain hoses have been pulled out of rubber grommets.	Apply a small amount of rubber cement to rear water drain hoses and reinsert into rubber grommet located in luggage compartment floor panel.
	Velvet strips on front and rear of sun roof do not seal properly.	Check sun roof for correct height adjustment. If height adjustment is correct, but a tight seal does not exist, relocate velvet strip upward for better seal, or replace velvet strip.

MAINTENANCE AND ADJUSTMENTS

ADJUSTING HEIGHT OF SUN ROOF PANEL

Adjust height of sun roof as follows:

1. Opel sun roof to half open position and pry apart sun roof frame from sun roof panel (see Figure 2F-1).

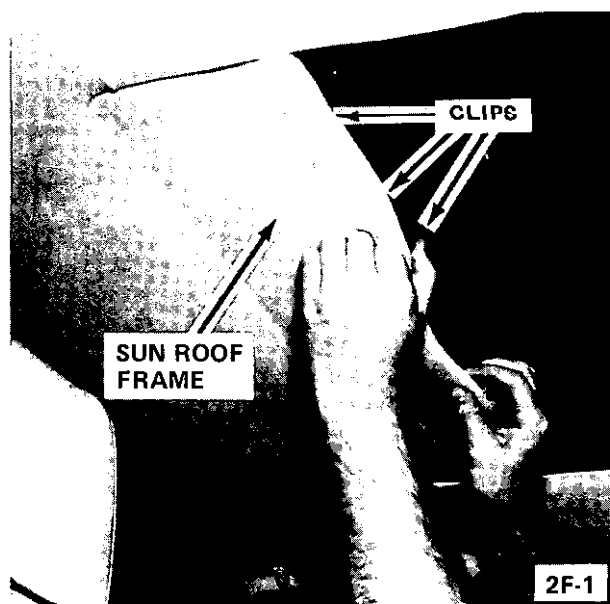


Figure 2F-1 Separating Sun Roof Frame From Sun Roof Panel

2. Push detached sun roof frame rearward until it contacts car roof stop.

NOTE: If difficulty is encountered when pushing sun roof frame to rear due to the frame hooking into the sun roof panel, close sun roof until lifters come into operation. The sun roof frame should now easily slide rearward.

ADJUSTMENT FRONT OF SUN ROOF

To adjust height of front of sun roof proceed as follows:

1. Close sun roof.
2. Loosen screws securing front guides to front of sun roof panel (see Figure 2F-2). Rotate height adjustment ring until desired height is attained.
3. Readjust guides outward so that guides just touch sides of rails and are not wedged or cocked against rail sides and tighten screws. Recheck height adjustment.

NOTE: The guides should lightly contact the guide

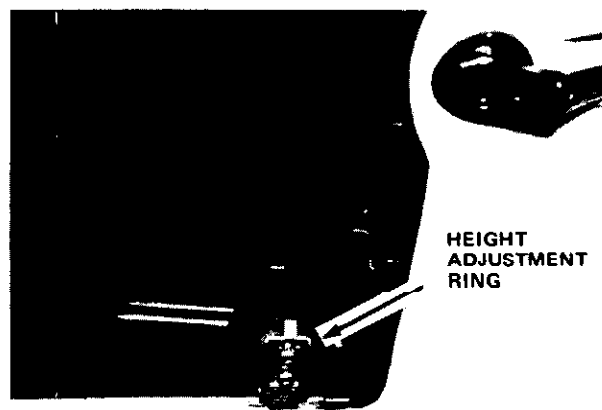


Figure 2F-2 Sun Roof Front Guide

rail and should have a clearance of no more than 0.02 inch.

ADJUSTMENT. REAR OF SUN ROOF

To adjust height of rear of sun roof proceed as follows:

1. Completely close sun roof and check that the rear sun roof lifter guides from approximately a 90 degree angle with respect to the guide rail and that the lifter contacts the guide stop (see Figure 2F-3). If this is

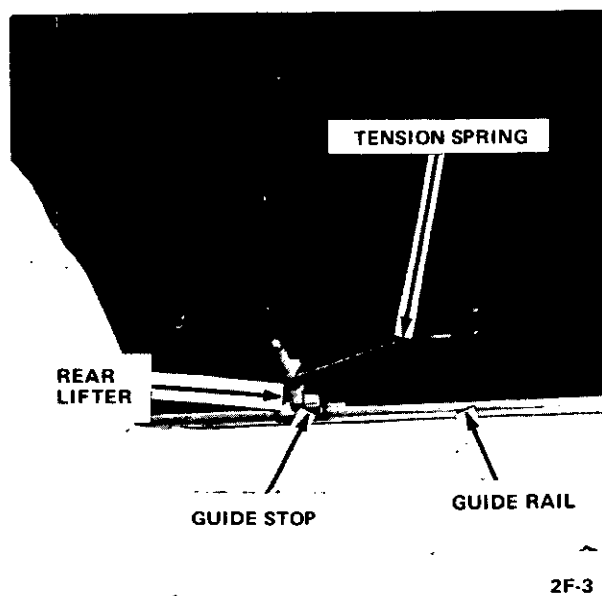


Figure 2F-3 Rear Sun Roof Lifter 90 Degrees to Guide Rail

not the case, take off crank handle and cable crank (see Figure 2F-4) and physically reposition lifters to be approximately 90 degrees to guide rails and to contact guide stops. Rotate cable crank to its fully clockwise limit **and** reinstall.

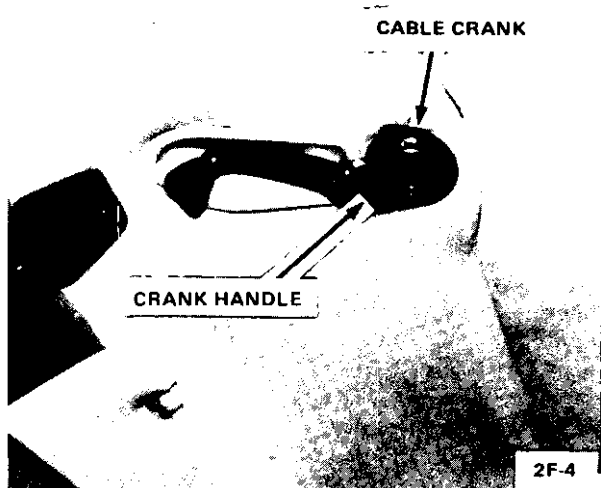


Figure 2F-4 Sun Roof Cranking Handle and Cable Crank

2. Open sun roof until rear lifters lay in a horizontal position (see Figure 2F-5), loosen lifter pin nut and turn lifter pin adjusting screw accordingly to lower or raise lifter pin in slot of lifter.

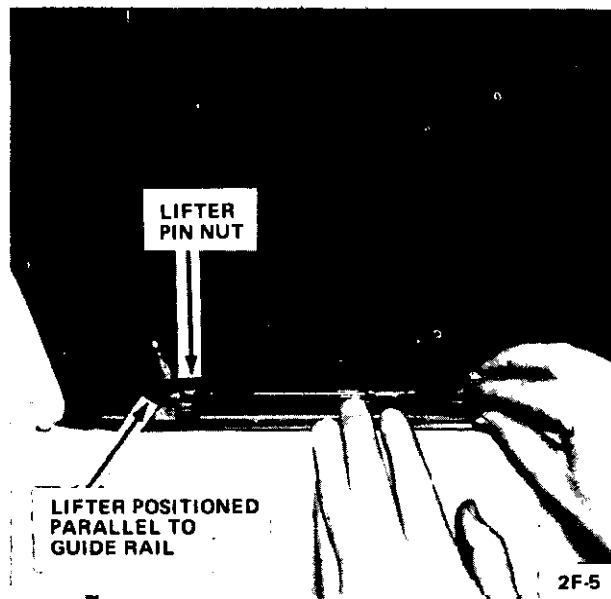


Figure 2F-5 Lifter Pin Adjusting Screw

3. Hold lifter pin adjusting screw down and tighten lifter pin nut.

4. Recheck operation of sun roof and note that lifter contacts stop when lifter is approximately 90 degrees to guide rail.

Pull sun roof frame forward and reattach to sun roof panel.

MAJOR REPAIR

REMOVAL AND INSTALLATION OF SUN ROOF PANEL AND SUN ROOF FRAME

Removal of Sun Roof Panel

1. Open sun roof to half open position and pry loose sun roof frame from sun roof panel (see Figure 2F-1).

2. Push detached sun roof frame toward the rear until it contacts car roof stop.

NOTE: If **difficulty** is encountered when pushing sun roof frame rearward due to the frame hooking into sun roof panel, close sun roof panel completely and then proceed to push sun roof frame toward rear of car.

3. Close sun roof panel and then open it approximately one turn of operating crank.

4. Remove one of two screws holding each of front



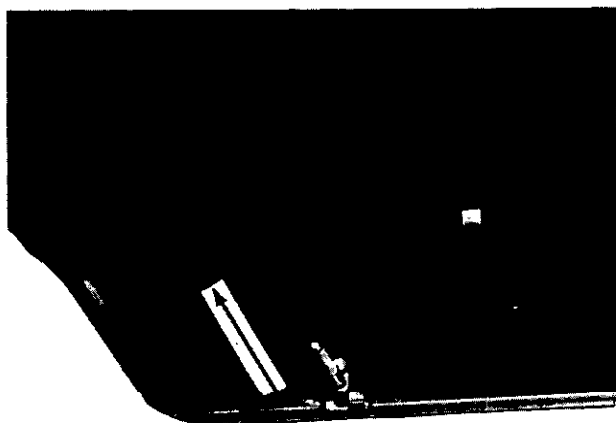
Figure 2F-6 Swinging Front Guide Inboard

guides to height adjustment rings, loosen second screw (see Figure 2F-6), and swing guides away from guide rail.

NOTE: When swinging front guides inboard, be careful not to change position of height adjustment rings. It is suggested that the position of the height adjustment rings be marked with a pencil prior to loosening of front guide attaching screws.

5. Retighten remaining screw holding front guide in position to prevent height adjustment rings from turning.

6. Turn lifter guide tension springs 90 degrees inboard and pull lifters out of sun roof panel brackets (see Figure 2F-7).



2F-7

Figure 2F-7 Pulling Rear Lifter Guide out of Sun Roof Panel Bracket

NOTE: Do not loosen lifter pin nut as this will change height adjustment on rear of sun roof.

7. Lift out sun roof panel.

Installation of Sun Roof Panel

1. Install sun roof panel onto guide rails and locate panel evenly in sun roof opening.

2. Reposition front guides in original position on guide rails. Be sure that they squarely contact guide rails and are not cocked.

NOTE: To achieve proper clearance of front guides to guide rail, the guides should lightly touch edge of

the guide rails and should have a clearance of no more than 0.02 inch.

3. Reconnect rear lifter guides onto sun roof panel brackets and reposition tension spring as shown in Figure 2F-3.

4. Crank sun roof fully closed and check that the rear lifters are at approximately 90 degrees with respect to guide rails and contact guide stops (see Figure 2F-3). If adjustment is required remove crank handle and cable crank (see Figure 2F-4) and physically reposition lifters to position described above. Rotate cable crank to its fully clockwise limit and reinstall.

5. Pull sun roof frame forward and reattach to sun roof panel.

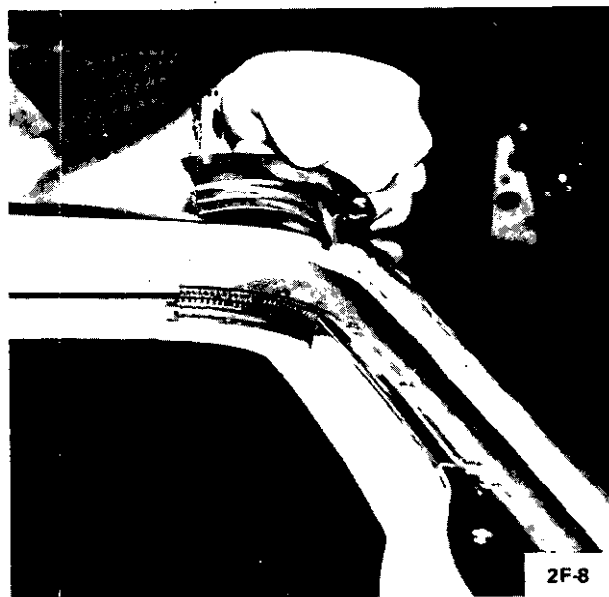
6. Open and close sun roof several times and recheck for smoothness of operation.

Removal of Sun Roof Frame

1. Remove sun roof panel.

2. Crank rear lifter guides to furthestmost rear position.

3. Remove screws securing upper corner plates in position and lift out upper corner plates (see Figure 2F-8).



2F-8

Figure 2F-8 Removing Upper Corner Plates

4. Remove screws securing left and right guide rails, lift up front ends of guide rails and insert wedge under forward guide rail ends. Slide out sun roof frame.

Installation of Sun Roof Frame

1. Slide sun roof frame into lower slot of guide rails, position fully rearward and reattach guide rails to roof.

NOTE: Be sure guide rail retainers at rear of guide rails are positioned with their dowels in bores of roof frame.

2. Install upper corner plates and secure in place..

3. Install sun roof panel.

REMOVAL AND INSTALLATION OF VELVET STRIP ON SUN ROOF OPENING, AND VELVET STRIP AND WEATHERSTRIP ON REAR OF SUN ROOF PANEL

Removal of Velvet Strip on Sun Roof Opening

1. Fully open sun roof.
2. Carefully pull off velvet strip using solvent to dissolve cement. Clean area thoroughly before installing new velvet strip.

Installation of Velvet Strip On Sun Roof Opening

1. Cut away for a distance of 1.5 inch the velvet material on velvet strip that will be on the outside when strip is cemented in position. Also cut off to this dimension the plastic cord ~~inside~~ ⁱⁿ velvet strip. Do not cut away velvet material on ~~inboard~~ ^{inboard} side of velvet strip which is to be cemented to sun roof opening.

2. Using **nitrile** vinyl trim adhesive (3M Vinyl Trim Adhesive, Permalastic Vinyl Trim Adhesive or equivalent) apply sparingly to both sun roof opening and side of velvet strip to be cemented.

3. Immediately install new velvet strip and position so that upper edge of velvet strip is flush with car roof.

4. Clean off excess cement being careful not to contact velvet strip.

Removal of Velvet Strip and Weatherstrip on Rear of Sun Roof Panel

1. Remove sun roof panel.
2. Carefully detach weatherstrip and velvet strip from sun roof panel using solvent as required to **dissolve** cement. Thoroughly clean area before installing new velvet strip and weatherstrip.

Installing Velvet Strip and Weatherstrip On Rear of Sun Roof Panel

1. Using **nitrile** vinyl trim adhesive (3M Vinyl Trim Adhesive, Permalastic Vinyl Trim Adhesive or equivalent) apply sparingly to vertical and horizontal contact areas at rear of sun roof panel (see Figure 2F-9) and also to side of velvet strip which will touch sun roof panel.

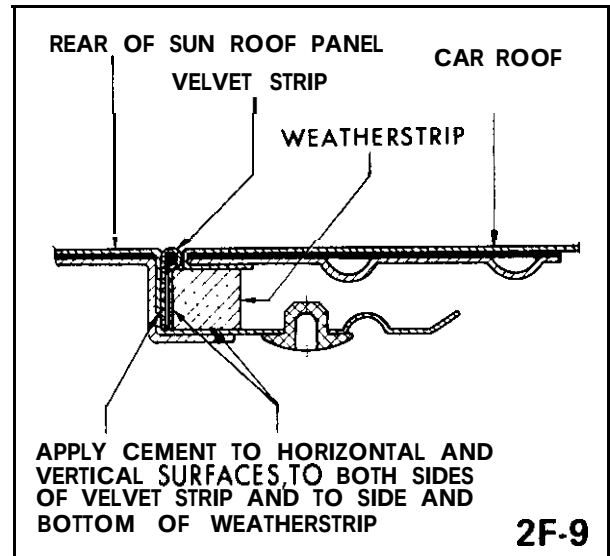


Figure 2F-9 Installing Velvet Strip and Weatherstrip on Rear of Sun Roof Panel

2. Immediately install new velvet strip and position so that top edge of velvet strip is flush with sun roof panel.
3. Apply cement to outboard edge of velvet strip and to top and bottom contact surfaces of weatherstrip, and install weatherstrip in position.
4. Clean off excess cement being careful not to contact velvet strip.
5. Install sun roof panel.

REMOVAL AND INSTALLATION OF REAR GUIDES AND CABLE

Removal of Rear Guides and Cable

1. Remove sun roof panel.
2. Crank rear lifter guides fully rearward and then remove crank handle and cable crank.

3. Unscrew and remove upper and lower corner plates (see Figure 2F-8).
4. Unscrew and remove left and right upper cable shields and pull cable ends out of cable box.
5. Pull cable and rear lifter guides out of left and right guide rails.

Installation of Rear Guides and Cable

1. Check both cables for wear or damage. If either cable is defective, replace both cables.
2. Check pinion on cable crank (see Figure 2F-10) for wear or damage. If replacement of pinion is required, also replace both cables.



Figure 2F-10 Cable Crank

3. Install cables and rear lifter guides into guide rails and work cables inward until they hit stops.
4. Unscrew and lift off cable box cover (see Figure 2F-11).
5. Insert cable ends into cable box and locate cable ends in respective lower cable shields.
6. Install cable box cover, right and left upper cable shields and right and left upper corner plates.
7. Temporarily install cable crank and crank handle. Crank rear lifter guides to closed position. Remove cable crank and crank handle.
8. Install sun roof panel and reposition front guides to original position on guide rails. Be sure front



Figure 2F-11 Cable Box

guides squarely touch guide rails and are not cocked. Also be sure sun roof panel is not cocked and is evenly located in opening.

NOTE: To achieve proper clearance of front guides to guide rail, the guides should lightly touch the edge of guide rails and should have a clearance of no more than 0.02 inch.

9. Reconnect rear lifter guides onto sun roof panel brackets and reposition tension spring as shown in Figure 2F-3.

10. Push sun roof panel forward so that it contacts roof panel velvet strip and manually raise rear lifters to their 90 degree position. Sun roof panel will now be fully closed.

11. Rotate cable crank to its limit in a clockwise direction and reinstall.

NOTE: Be sure that drive pinion of cable crank meshes with spirals of cable.

12. Reinstall cable crank and crank handle.
13. Pull sun roof frame forward and reattach to sun roof panel.
14. Open and close sun roof several times to recheck for smoothness of operation.

REMOVAL AND INSTALLATION OF DRIVE PINION

Removal

1. Position sun roof in fully closed position and take off crank handle and cable crank.

2. Press off snap ring holding drive pinion in place and remove drive pinion (see Figure 2F-10).

Installation

1. Install drive pinion reverse of removal.

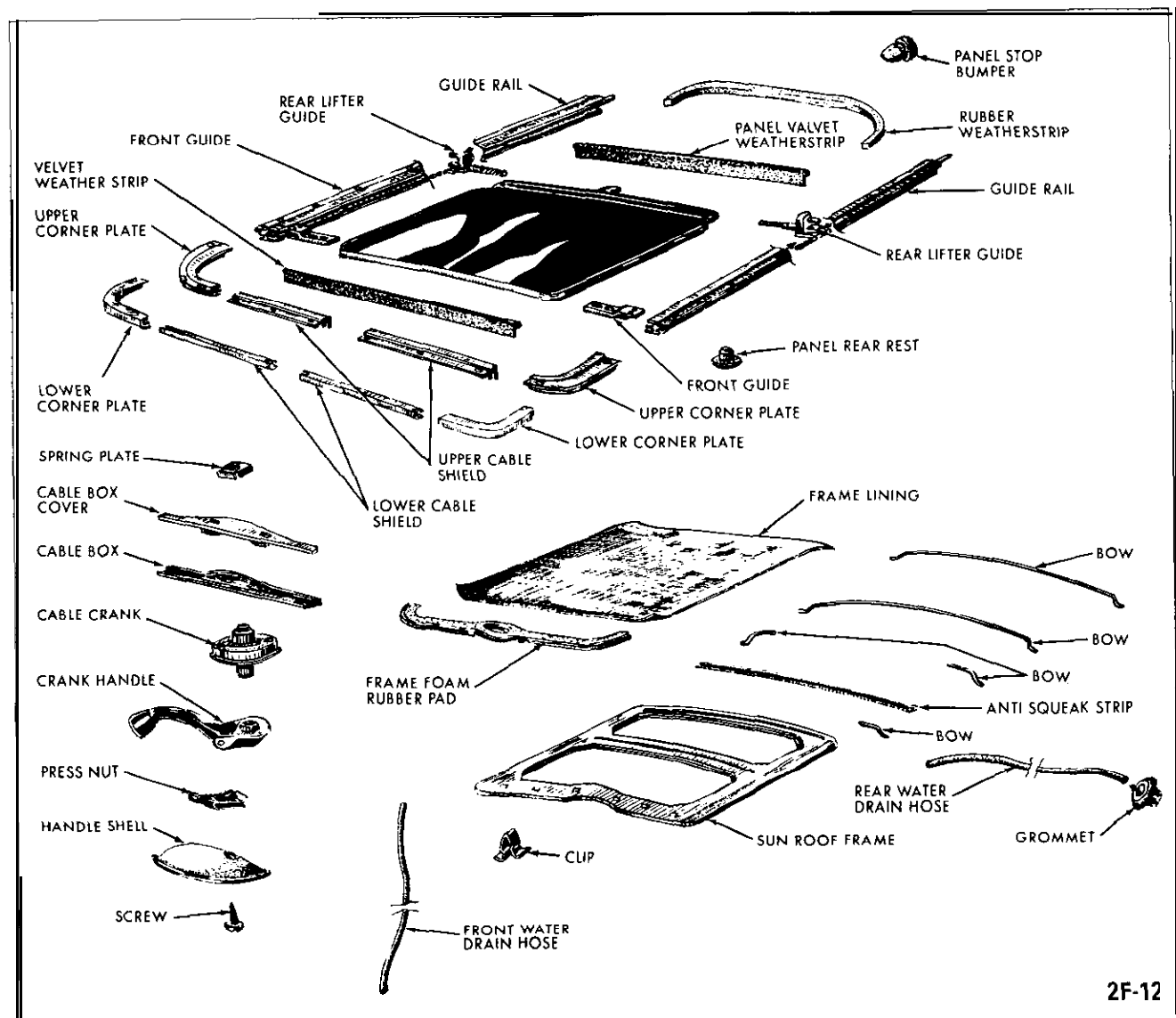
NOTE: If drive pinion is to be replaced, also replace both cables to insure smooth operation of sun roof.

2. Rotate cable crank to its limit in a clockwise direction and install reverse of removal procedure.

REMOVAL AND INSTALLATION OF FRONT AND REAR WATER DRAINAGE HOSES

Removal of Front Water Drainage Hose

1. Remove sun visor from side of car which will have drainage pipe taken out.
2. Partially detach pinchweld finishing strip from door opening involved.



2F-12

Figure 2F-12 Sun Roof (Exploded View)

3. Carefully detach a portion of headlining around window corner post involved.
4. Detach water drain hose from sun roof hose fitting.
5. Remove cowl side kickpads.
6. Pull out from upper end front water drain hose.

Installation of Front Water Drain Hose

1. Insert from above water drain hose (wider end upward) into door hinge pillar.

NOTE: Do not mistake front and rear water hoses. The front hose is thinner than the rear hose and is wider at the end which connects to hose fitting on sun roof. The rear hose is uniform over its entire length.

2. Work water drain hose downward through lower half of door hinge pillar and be sure hose terminates behind door sill flange at bottom of front fender.
3. Cement upper portion of water drain hose to sun roof hose fitting.
4. Cement detached portions of headlining into place by use of rubber cement or nitrile vinyl trim adhesive (3M Vinyl Trim Adhesive, Permalastic Vinyl Trim Adhesive or equivalent).
5. Complete installation reverse of removal procedures.

Removal of Rear Water Drain Hose

1. Remove rear seat and rear seat back.

2. Pry out plastic fasteners securing cardboard parcel shelf in position and remove shelf.
3. Remove rear quarter trim pad.
4. Detach headlining only as required from area around rear window pillar.
5. Pull out rear water drain hose.

Installation of Rear Water Drain Hose

1. Install rear water drain hose in original position. Insert hose from above and work downward. Cement both ends of hose in place.
2. Secure water drain hose in place along wheelhouse.
3. Complete installation reverse of removal procedures.

REMOVAL AND INSTALLATION OF LUGGAGE RACK

All 1973 luggage racks will be dealer installed, and are held to the roof at the 4 corners. Removal and installation is accomplished by removing the attaching screw at each corner. See Figure 2F-14.



Figure 2F-14 Luggage Rack

SEATS, INTERIOR TRIM AND HEADLINING

CONTENTS

Subject	Page No.
DESCRIPTION AND OPERATION: (Not Applicable)	
DIAGNOSIS: (Not Applicable)	
MAINTENANCE AND ADJUSTMENTS: (Not Applicable)	
MAJOR REPAIR:	
Removal and Installation	
Front Seat	2G-33
Rear Seat	2G-33
Glove Compartment Lock	2G-34
Front Side Panel Trim Pad	2G-34
Headlining	2G-35
Rear Side Panel Trim Pad	2G-37
SPECIFICATIONS: (Not Applicable)	

MAJOR REPAIR

REMOVAL AND INSTALLATION OF FRONT SEAT

1. Pull hook out of seat lock. See Figure 2G-2.
2. Tilt seat towards the front and unscrew. See Figure 2G-3.



Figure 2G-2 Pulling Hook Out of Seat Lock

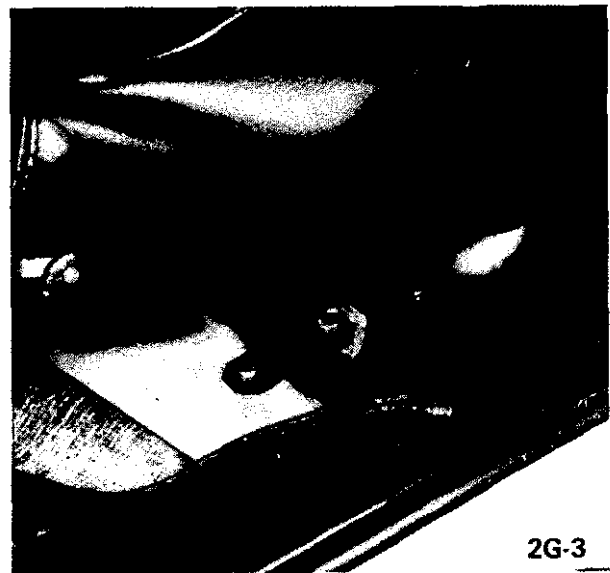


Figure 2G-3 Seat To Underbody Attachment

REMOVAL AND INSTALLATION OF REAR SEAT BACK

1. Push seat towards seat back and unhook it towards the top. See Figure 2G-4.
2. Unscrew safety belt on left and right side and bend up metal tabs below seat back. See Figure 2G-5.

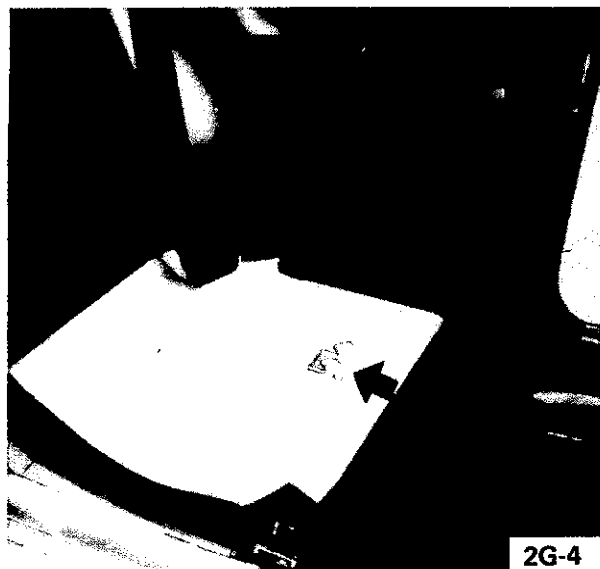


Figure 2G-4 Seat to Underbody Hook

a $\frac{13}{16}$ inch deep socket, and remove. See Figure 2G-6.

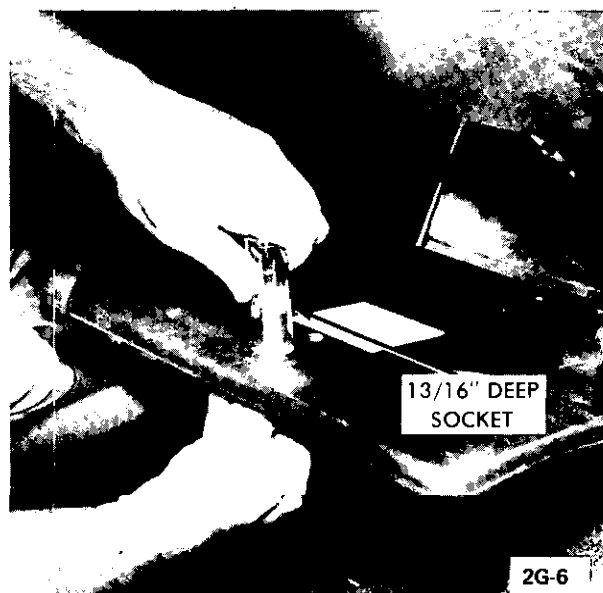


Figure 2G-6 Removing Glove Compartment Lock

2. Install new glove compartment lid lock.

REMOVAL AND INSTALLATION OF FRONT SIDE PANEL TRIM PAD

1. Lift up door sill shield and pull off sealing strip up to the instrument panel cover. See Figure 2G-7.

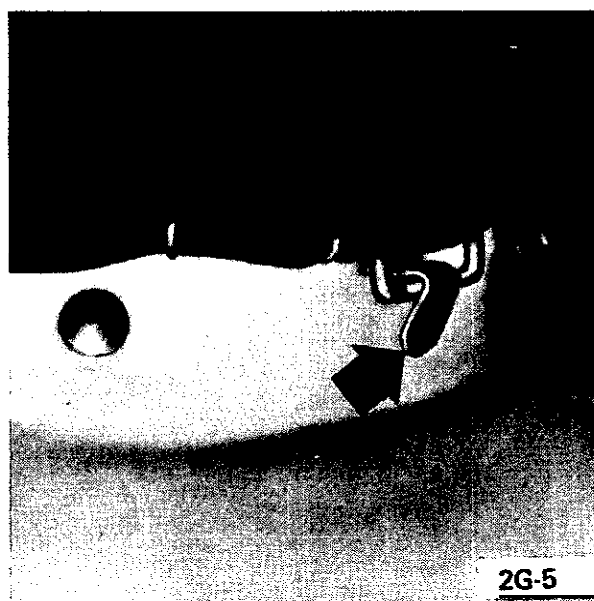


Figure 2G-5 Seat Back Metal Tabs

3. Remove seat back towards the top.

REMOVAL AND INSTALLATION OF GLOVE COMPARTMENT DOOR LOCK

1. Unscrew nut of glove compartment lid lock, using



Figure 2G-7 Pulling Off Sealing Strip

2. Push off side panel trim pad. Trim pad is held in position by a retaining button.

REMOVAL AND INSTALLATION OF HEADLINING

Removal

1. Disconnect battery.
2. Lift out rear seat cushion (sedans only).
3. From trunk area, loosen tabs holding cardboard against rear seat cross brace and lift out cardboard (sedans only).
4. Pry up two tabs holding lower portion of rear seat back in position, swing back of seat forward and lift out (sedans only).
5. From trunk area pry out parcel shelf plastic retainers and lift out parcel shelf (sedans only).
6. Remove rear-view mirror, sun visors, interior lamp, assist straps and coat hooks. Remove front and rear windows on all but Wagon Models. On Wagons, remove the front window and the quarter windows.
7. Work door opening pinchweld finishing strip away from pinchweld as far as necessary to expose edge of headlining.
8. Start at: left or right windshield pillar and pry headlining loose.
9. Roll back headlining to expose metal tabs securing headlining listing wire to roof and unhook headlining front listing wire from metal tabs using a blunt edge tool.
10. Pull loose the edges of headlining cemented to door openings, rear quarter window openings, rear quarter pillar and from under rear window rubber channel. On rear quarter pillars, slightly bend down cardboard of rear quarter trim pad to facilitate removal. During removal, special care should be taken not to tear headlining at seams.
11. After edges of headlining have been pulled loose, tilt remaining listing wires with headlining forward or rearward and pull listing wires free from side roof rails. Lift out headlining and listing wires.

Installation

1. Check secureness of noise insulation pad on inside of roof panel and recement as necessary using asphalt cement. If headlining is to be replaced, insert listing wires into headlining according to their markings. Progressing from the front listing wire to the rear wire, the left ends of the wires are color coded as follows:

1st listing wire • No marking, wire is thinner than other wires

2nd listing wire • Red

3rd listing wire • Blue

4th listing wire • Green

5th listing wire • Brown

6th listing wire • White

2. Install 1st listing wire ends into retainer slots inside roof rails and hook listing wire into six metal tabs above windshield. Lightly bend tabs with a hammer as shown in Figure 2G-8.

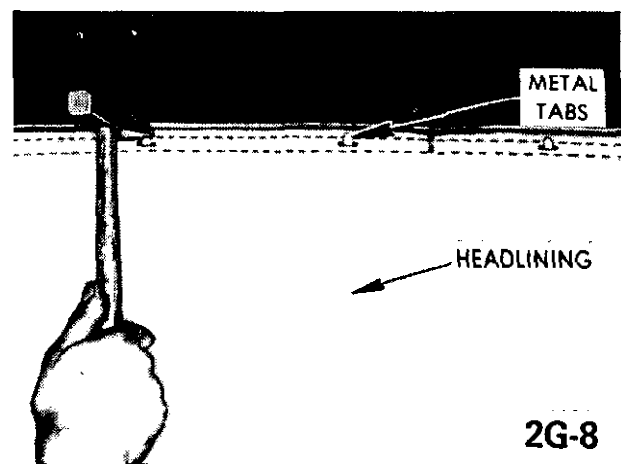


Figure 2G-8 Headlining With 1st Listing Wire Hooked Onto Metal Tabs

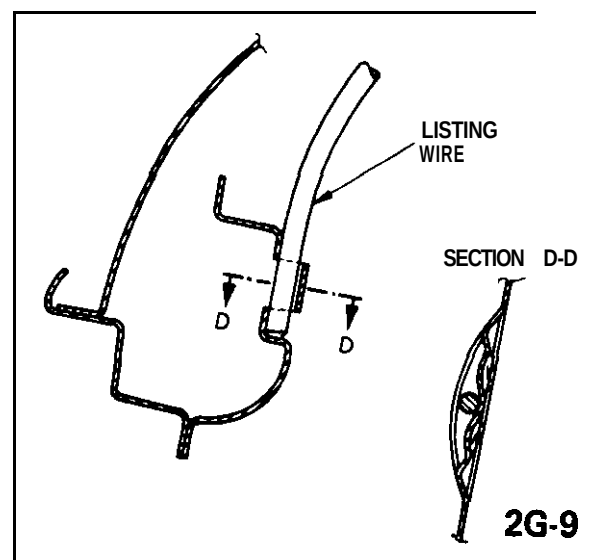
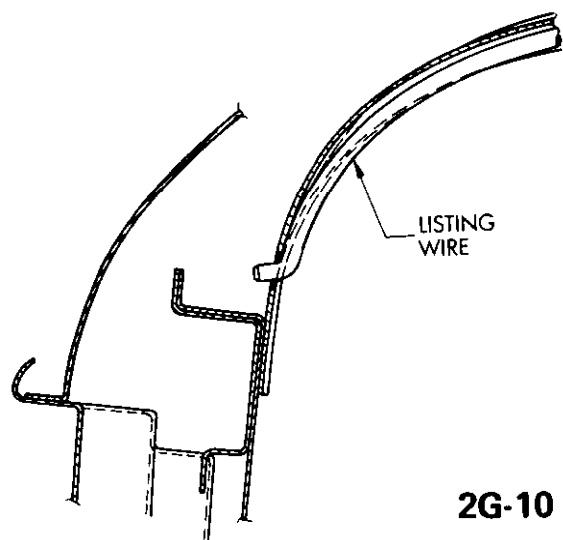


Figure 2G-9 2nd and 5th Listing Wire Attachment

3. Install and align the remaining **five** listing wires. If required, caulk retainers of 2nd and 5th listing wires so that wires run in a straight line transversally under the roof. See Figure 2G-9.



2G-10

Figure 2G-10 3rd. 4th and 6th Listing Wire Attachment

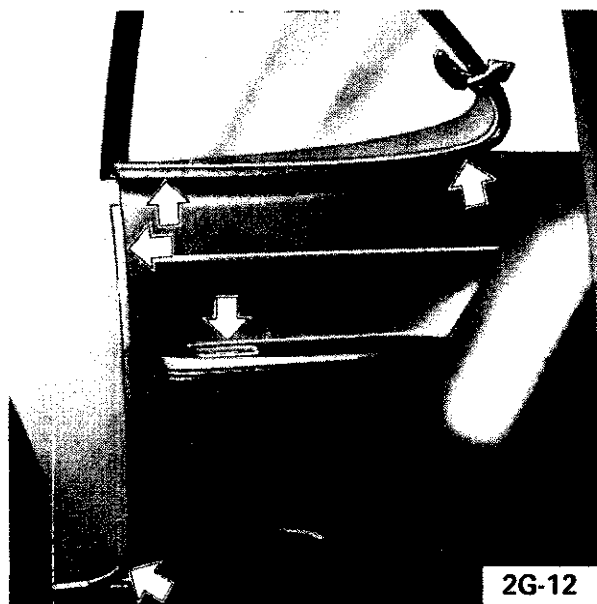
4. Lightly pull headlining **towards** the rear and cement to the rear roof frame cross member and then to the rear quarter pillars using rubber cement. When pulling headlining toward rear be sure that the listing wires are not pulled out of line. A folded cloth

should be used to smooth **down** cemented portions of headlining.

5. Cut off surplus headlining along rear window, rear quarter windows, and windshield, leaving enough to fit under **rubber** channels.

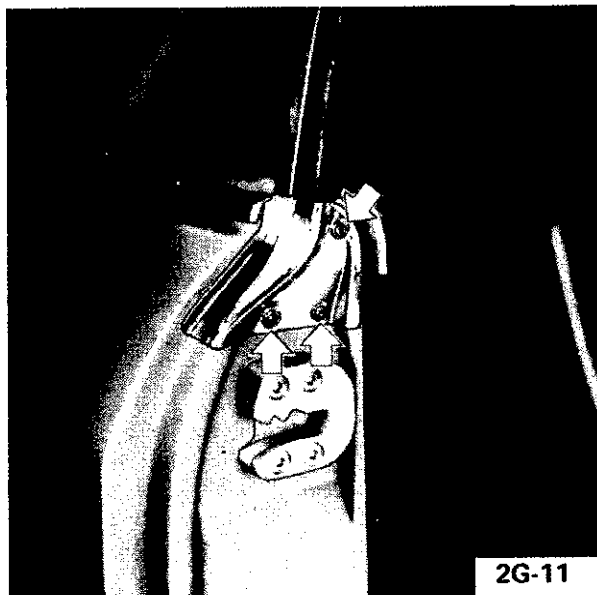
6. Cement surplus material to pinchweld flanges.

7. Cut off excess headliner around door openings and cement trimmed edge to pinchweld flange using rubber cement.



2G-12

Figure 2G-12 Quarter Window and Lock Pillar Sealing Strip



2G-11

Figure 2G-11 Lock Pillar Shield Attaching Screws



2G-13

Figure 2G-13 Trim Pad and Retaining Button

8. If wagon, install front window and quarter windows. If other than wagon, install front and rear windows.

9. Install coat hooks, assist straps, interior lamp, sun visors, and rear view mirror.

10. Install parcel shelf and plastic retainers (sedans only).

11. Install rear seat back into position and bend over tabs holding lower portion of seat back (sedans only).

12. In trunk area **install** cardboard against rear seat, cross brace, and bend over tabs (sedans only).

13. Install rear seat cushion (sedans only).

14. Connect battery.

REMOVAL AND INSTALLATION OF REAR SIDE PANEL TRIM PAD

1. Unscrew shield on lock pillar. See Figure 2G- 11.

2. Pull off sealing strip on lock pillar and rear quarter window. See Figure 2G- 12.

3. Remove ash tray.

4. Remove rear seat and push retaining button out of trim pad. See Figure 2G-13.

5. Pull out trim pad towards the front.

6. Prior to installation, press together sealing strip ends to obtain a tight seat.

BUMPERS

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Subject	Page No.
DESCRIPTION AND OPERATION:	
Protective Moldings	2H-38
DIAGNOSIS: (Not Applicable)	
MAINTENANCE AND ADJUSTMENTS: (Not Applicable)	
MAJOR REPAIR:	
Removal and Installation	
1900 • Manta	2H-38
GT	2H-39
Trailer Hitch Installation	2H-41
SPECIFICATIONS: (Not Applicable)	

DESCRIPTION AND OPERATION

PROTECTIVE MOLDINGS

All 1973 Opel bumpers are equipped with rubber protective moldings as standard equipment. The moldings are easily removed by removing the attaching nuts located on the inboard side of the bumper.

MAJOR REPAIR

REMOVAL AND INSTALLATION OF FRONT BUMPER AND BUMPER GUARDS (OPEL 1900 • MANTA)

Removal

1. Remove bumper attaching screws on inside • left and right • and from left and right brackets. See Figure 2H-2.

2. From the front, unscrew bumper guard attaching screws. See Figure 2H-2.

Remove bumper and bumper guards.

Installation

1. Attach bumper guards to bumper.

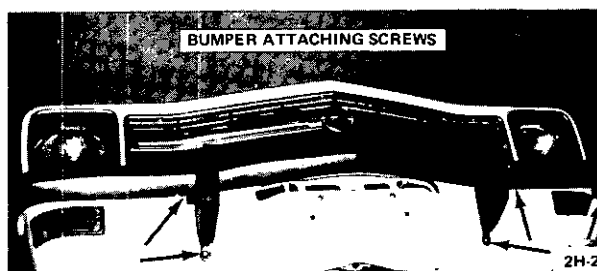


Figure 2H-2 Bumper Attaching Screws

2. From the front, secure bumper guards with attaching screws. See Figure 2H-2.

3. Install attaching bolts on left and right brackets, and on left and right inside. See Figure 2H-2.

REMOVAL AND INSTALLATION OF FRONT BUMPER BRACKETS (OPEL 1900 • MANTA)

The front bumper brackets are attached with three screws. Removal of the three screws will allow removal and installation of the front bumper brackets. See Figure 2H-3.

REMOVAL AND INSTALLATION OF REAR BUMPER AND GUARDS (OPEL 1900 • MANTA)

1. Remove license plate lamp.

2. Remove bumper attaching screws and bumper brackets. See Figure 2H-4.

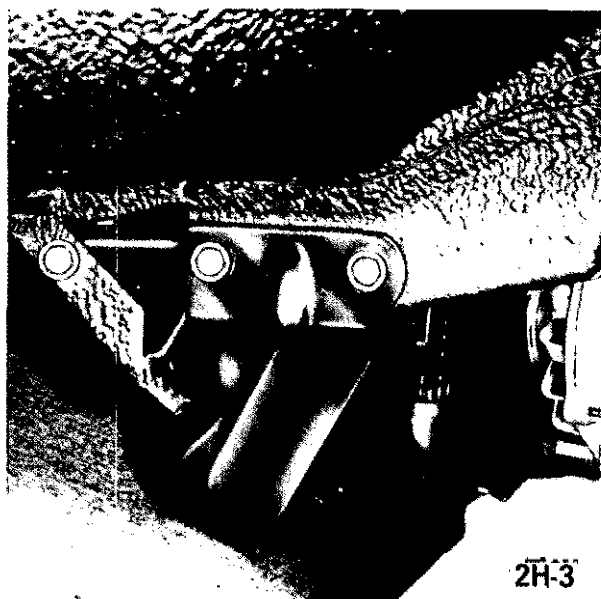


Figure 2H-3 Bumper Bracket Screws

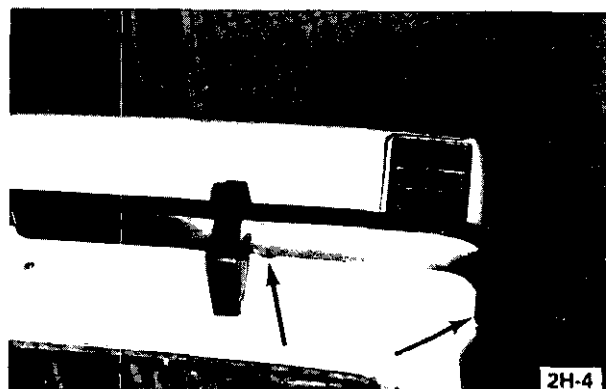


Figure 2H-4 Bumper Attaching Screws

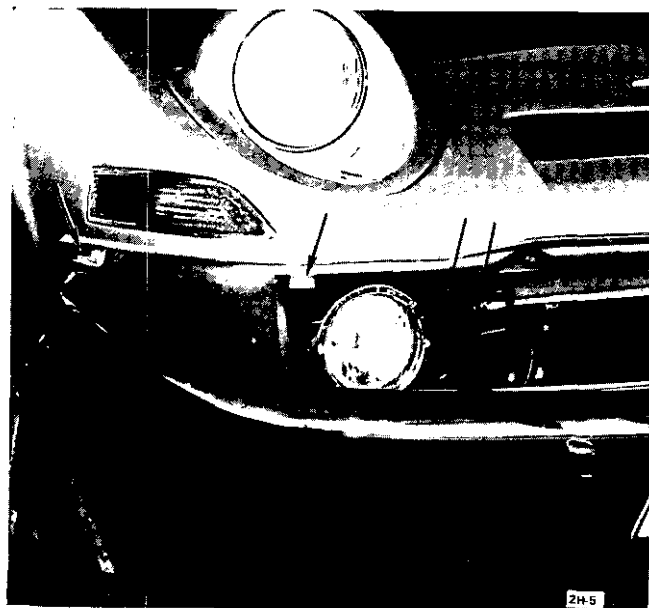


Figure 2H-5 Front Bumper Attaching Points

REMOVAL AND INSTALLATION OF FRONT BUMPER ASSEMBLY (GT)

Removal

1. Remove grille.
2. Disconnect bumper at points shown in Figure 2H-5 and remove bumper.

Installation

1. Install bumper and secure at points shown in Figure 2H-5.



Figure 2H-6 Removing Tail Lamp Assembly

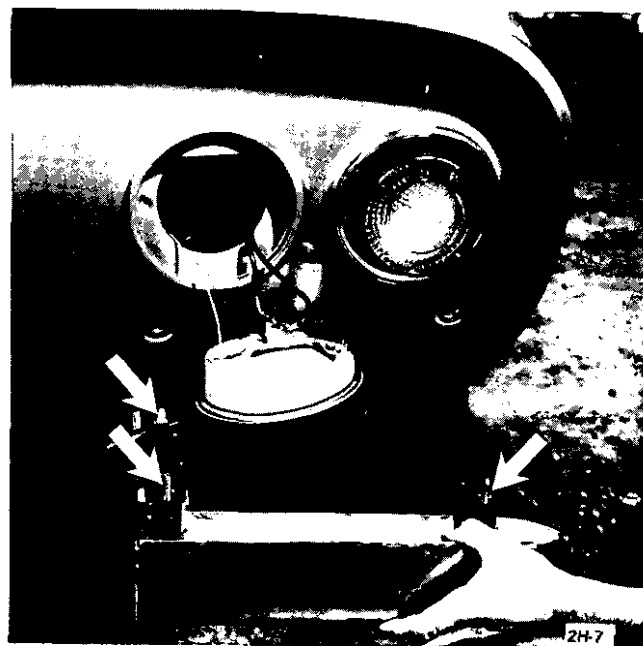


Figure 2H-7 Rear Bumper Attaching Points

2. Install grille.

REMOVAL AND INSTALLATION OF REAR BUMPER ASSEMBLY (GT)

Removal

1. Remove **tail** lamp assembly. See Figure **2H-6**.

2. Remove bumper attaching nuts accessible through lamp opening. See Figure **2H-7**.

Installation

1. **Install** bumper and secure with attaching nuts accessible through lamp opening. See Figure **2H-7**.
2. Install tail lamp assembly. See Figure **2H-6**.

INSTALLATION INSTRUCTIONS

1969 - 73 OPEL GT TRAILER HITCH LESS BALL

GROUP 7.068

STEP 1. REMOVE ONE RIGHT HAND AND ONE LEFT HAND TAIL LAMP ASSEMBLY,

STEP 2. PLACE TIE BAR (C) UNDER THE REAR BODY PANEL BY PULLING DOWN ON THE EXHAUST PIPES AND SLIDING THE TIE BAR OVER THE PIPES AND INTO POSITION. PLACE DRAW BAR (A) UNDER TIE BAR (C) AND FASTEN WITH A $\frac{1}{2} \times 2$ " HEX BOLT WITH LOCK WASHER AND NUT UNDER DRAW BAR (A), PLACE TIE BAR (B) UNDER DRAW BAR (A) AND SAFETY CHAIN PLATE (D) UNDER TIE BAR (B) AND FASTEN WITH A $\frac{1}{2} \times 2\frac{1}{4}$ " HEX BOLT WITH FLAT WASHER, LOCK WASHER AND NUT BELOW SAFETY CHAIN PLATE (D).

STEP 3. HOLD HITCH IN POSITION WITH TIE BAR (C) UNDER THE REAR BODY PANEL AND TIE BAR (B) BETWEEN THE BUMPER GUARDS. USING THE HOLES IN THE ENDS OF TIE BAR (C) AS A GUIDE, LOCATE, MARK AND DRILL TWO $\frac{1}{2}$ " HOLES IN THE VERTICAL PORTION OF THE REAR BODY PANEL. PLACE THE $\frac{3}{16}$ " SPACERS ON THE $\frac{1}{2} \times 1\frac{1}{2}$ HEX BOLTS AND BY REACHING THROUGH THE TAIL LAMP OPENINGS, INSERT THE BOLTS THROUGH THE BODY PANEL AND TIE BAR (C) AND FASTEN WITH LOCK WASHER AND NUT.

STEP 4. ALIGN TIE BAR (B) BETWEEN THE BUMPER GUARDS AND LOCATE, MARK AND DRILL A $\frac{1}{2}$ " HOLE THROUGH BOTH SIDES OF THE BUMPER GUARD USING THE HOLES IN TIE BAR (B) AS A GUIDE. MAINTAIN $\frac{1}{2}$ INCH MINIMUM CLEARANCE BETWEEN TOP OF DRAW BAR (A) AND BOTTOM OF BACK-UP LIGHT. FASTEN TIE BAR (B) TO THE BUMPER GUARDS WITH $\frac{1}{2} \times 3$ " BOLTS WITH TWO $\frac{1}{2}$ " SPACERS AND ONE $\frac{3}{8}$ " SPACER INSIDE EACH BUMPER GUARD. REPLACE TAIL LAMP ASSEMBLES.

TIGHTEN ALL $\frac{1}{2}$ " NUTS TO A MAXIMUM TORQUE OF 60 FOOT LBS.

INSTALL BALL USING A MAXIMUM TORQUE OF 150 FOOT LBS.

MAXIMUM GROSS WEIGHT 1000 LBS.
MAXIMUM TONGUE WEIGHT 100 LBS.

MOST STATES PROHIBIT OBSTRUCTION OF LICENSE PLATES. BALL SHOULD BE REMOVED WHEN NOT IN USE IF IT OBSTRUCTS A CLEAR VIEW.

2H-8

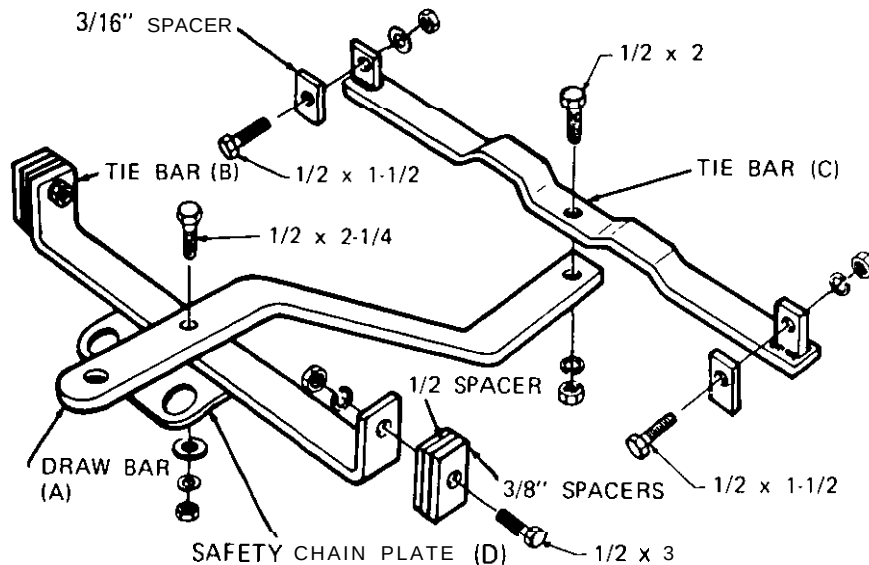


Figure 2H-8 GT Trailer Hitch Installation

INSTALLATION INSTRUCTIONS1971 - 72 - 73 OPEL 1900 SERIES S/WGROUP NO. 7.068

REMOVE LICENSE PLATE

STEP 1. ASSEMBLE HITCH AS ILLUSTRATED. HOLD HITCH IN POSITION WITH FLOOR PLATE RESTING AGAINST THE CROSS FRAME IN FRONT OF GAS TANK. CENTER DRAW BAR SUPPORT ON THE REAR BODY PANEL, RAISE UNTIL LEVEL.

STEP 2. MARK AND DRILL TWO 7/16" HOLES IN REAR BODY PANEL AND ATTACH AS SHOWN.

STEP 3. DRILL TWO 1/2" HOLES IN CROSS FRAME IN FRONT OF THE GAS TANK AND CONTINUE DRILLING UP THROUGH THE INNER FLOOR. NOTE: HOLD DRILL VERTICAL WHILE DRILLING THROUGH THE INNER FLOOR. ENLARGE BOTTOM HOLE SLIGHTLY TO ACCEPT SPACER.

STEP 4. ATTACH TRUNK PLATE AS ILLUSTRATED. PLACE THE FLOOR PLATES ON THE 2 1/2" CARRIAGE BOLTS AND INSERTS THROUGH THE OPENINGS IN THE BACK OF THE TRUNK WELL. INSERT SPACERS AS SHOWN AND COMPLETE INSTALLATION.

REPLACE LICENSE PLATE.

TIGHTEN ALL 1/2" NUTS TO A MAXIMUM TORQUE OF 60 FOOT LBS. AND 7/16" NUTS TO A MAXIMUM OF 45 FOOT LBS.

INSTALL BALL USING A MAXIMUM TORQUE OF 150 FOOT LBS.

MAXIMUM GROSS WEIGHT 100 LBS

MAXIMUM TONGUE WEIGHT 100 LBS.

MOST STATES PROHIBIT OBSTRUCTION OF LICENSE PLATES, BALL SHOULD BE REMOVED WHEN NOT IN USE IF IT OBSTRUCTS A CLEAR VIEW.

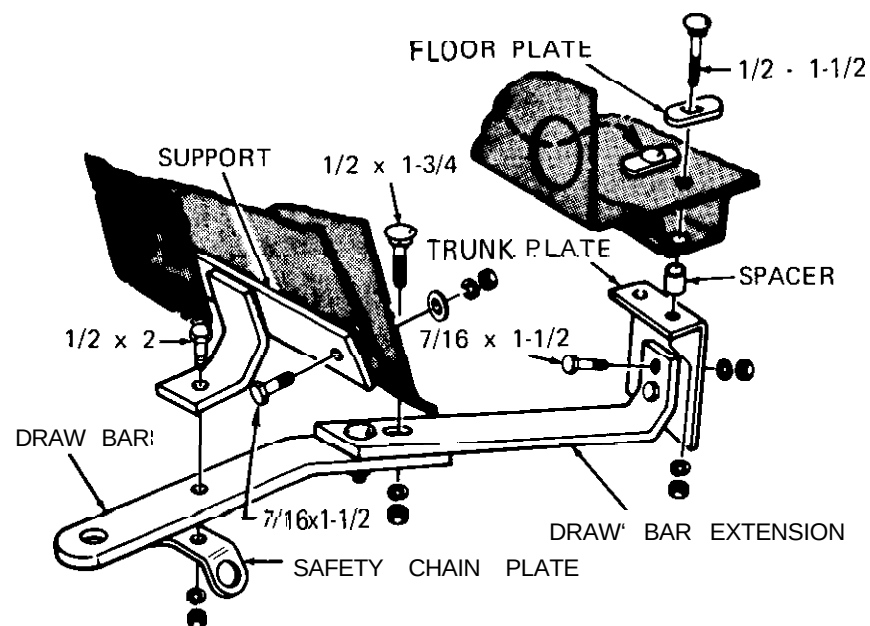
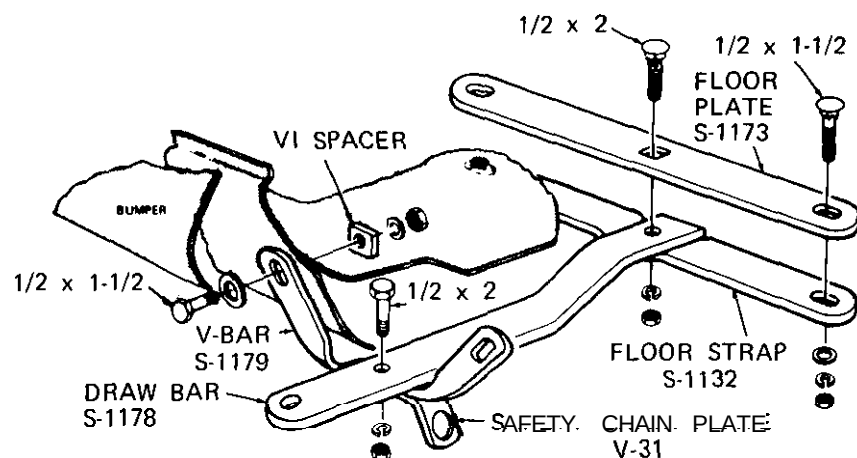


Figure 2H-9 Opel 1900 Wagon Trailer Hitch Installation



INSTALLATION INSTRUCTIONS 1971-72-73 OPEL 50 SER.. LESS S/WAGON CAR TRAILER HITCH LESS BALL

GROUP NO. 7.068

STEP 1. REMOVE LICENSE PLATE, ASSEMBLE V-BAR AND SAFETY CHAIN PLATE TO DRAW BAR AS ILLUSTRATED. HOLD HITCH IN POSITION WITH THE DRAW EAR LEVEL AND THE V-BAR RESTING ON THE REAR BODY PANEL. MARK AND DRILL TWO 1/2" HOLES THROUGH THE BODY AND ATTACH THE V-BAR AS ILLUSTRATED.

STEP '2. ALIGN THE ORAW BAR IN THE CENTER OF THE TRUCK FLOOR AND DRILL A 1/2" HOLE THROUGH THE FLOOR USING THE HOLE IN THE DRAW BAR AS A GUIDE. ATTACH THE FLOOR PLATE AND FLOOR STRAP AS ILLUSTRATED. DRILL THE TWO REMAINING HOLES IN THE FLOOR AND COMPLETE INSTALLATION AS ILLUSTRATED REPLACE LICENSE PLATE.

TIGHTEN ALL 1/2" NUTS TO A TORQUE OF 60 FOOT LBS. **INSTALL** BALL USING A TORQUE OF 150 FOOT LBS.

MAXIMUM GROSS WEIGHT 1000 LBS.

MAXIMUM TONGUE WEIGHT 100 LBS.

MOST STATES PROHIBIT OBSTRUCTION OF LICENSE PLATES. BALL SHOULD BE REMOVED WHEN NOT IN USE IF IT OBSTRUCTS A CLEAR VIEW.

2H-10

Figure 2H-10 Opel 1900 • Manta • Less Wagon -Trailer Hitch Installation

