

41 Body

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41 Body

BODY JOBS ON CONVERTIBLES

This section only describes special repairs for convertibles. Repairs, which are identical or practically identical with those for sedans and/or four wheel drive models, are not described here.

41 35 110 Rear side panel, right — replace 41 - 301C

41-001

INTRODUCTION

This repair manual for body jobs is supplied for skilled workers and consequently it is assumed, that persons referring to this manual will be well qualified, conscientious workers with the necessary amount of responsibility.

Instructions are therefore limited to information on factory approved repair methods as well as related tips and working aids.

The described body repair jobs refer to the complete or partial replacement of parts with original BMW replacement parts or sections of replacement parts. Straightening and dent removal must be adapted to a pertinent damage scope. Concerned welding and spot welding seams must be inspected and, if necessary, repaired.

Refer to the cut out parts for the quantity and location of welding spots, inert gas welded seams and brazed connections. Use inert gas plug welding instead of spot welding in non-accessible areas.

Most pictures show a rough, unpainted bodyshell. Remove or cover all car parts, which are in the repair zone and are in danger of being subjected to heat, sparks or dust.

Disconnect the ground lead on the battery or body connection point. Protect electric leads against dangers of mechanical or thermal influence.

Conform with safety precautions for cars with SRS.

Conform with fire and accident prevention regulations.

Welding can be performed after removal of control units, if

- there is guarantee of about 1 meter (3 feet) distance between welding and ground connections and
 - there is guarantee of good electric connection between welding and ground points (no rubber mounts or anything similar).
- If not, thermal development must be considered especially in case of autogen welding (decisions must be made for each individual case).

In spite of continuous quality control in welding by the factory, it is still possible that some welded points could be faulty. They will be repaired in the factory subsequently, either with inert gas spot welding or, when not accessible, with 15 mm (0.590") long inert gas welded seams on the flange end. Consequently repaired welded seams on the body do not always indicate repairs by a third party.

For example: left engine carrier member resistance spot welded - right engine carrier member welding repaired with inert gas welding.

Important!

The steering gear must be inspected and maybe replaced after an accident or accident-similar driving conditions - see Service Information 32 01 88 (828).

Seal off all sealing seams, sealed in original state, with a body sealing compound immediately after repairing. Replace damaged anti-drumming insulation.

Seal new sheet metal parts or the cavities, seams, creases and folds produced by new sheet metal parts with a body sealing compound immediately.

Source of supply for workshop equipment, aids, sealing materials, cements and similar products:
HWB (a Business Division of BMW AG).

41-002.1

RECOMMENDED WORKING METHODS AND TOOLS

1. *Cutting Out Damaged Parts:*

Determine the location of mating surfaces with help of the replacement part before beginning with the work. Cut out damaged part roughly within the mating surfaces.

Caution!

Don't damage sheet metal located underneath.

Remove sealing compound, anti-drumming compound and, if applicable, paint to neutralize the connection points. Drill out spot welding. Make sure holes are drilled in the cut out part while drilling. Don't drill in the connection flanges remaining for installation of the new part.

Grind off welded seams with a disc grinder carefully. Heat brazed connections with an autogen gas torch (don't heat excessively!). Lift off scrap metal. Remove residual brazing solder with a steel brush. Straighten and grind all connection points thoroughly.

2. *Installing New Parts:*

Prepare connection points to pertinent repairing instructions.

Always perform repairs, which concern the suspension points of the engine, transmission, axles or running gear, on a straightening bench with the attachments belonging to the car type. There are also attachments for different body parts. Check curvature and dimensions of windshield and rear window by installing an original window. Refer to pertinent drawings for the gaps of doors, engine hood and trunk lid.

Coat mating surfaces intended for resistance spot welding with zinc dust paint. Only remove the protective paint from galvanized replacement parts. Drill 8 mm (0.315") dia. holes with same spacing as the drilled out welded spots in connections not accessible for the spot welding tongs and insert gas plug weld.

Produce inert gas welded seams according to the part cut out.

Produce brazed connections with as little as possible heat dispersion and without excessive heat. Procedures deviating from standard connections will be described in the repair manual. Grind down welded seams visible on outside surfaces.

Caution!

Don't grind down the sheet metal too thin.

Straighten and tin out irregularities. Tinning out is supposed to prepare the surface to such an extent, that only a coat of fine filler has to be applied prior to spraying on paint.

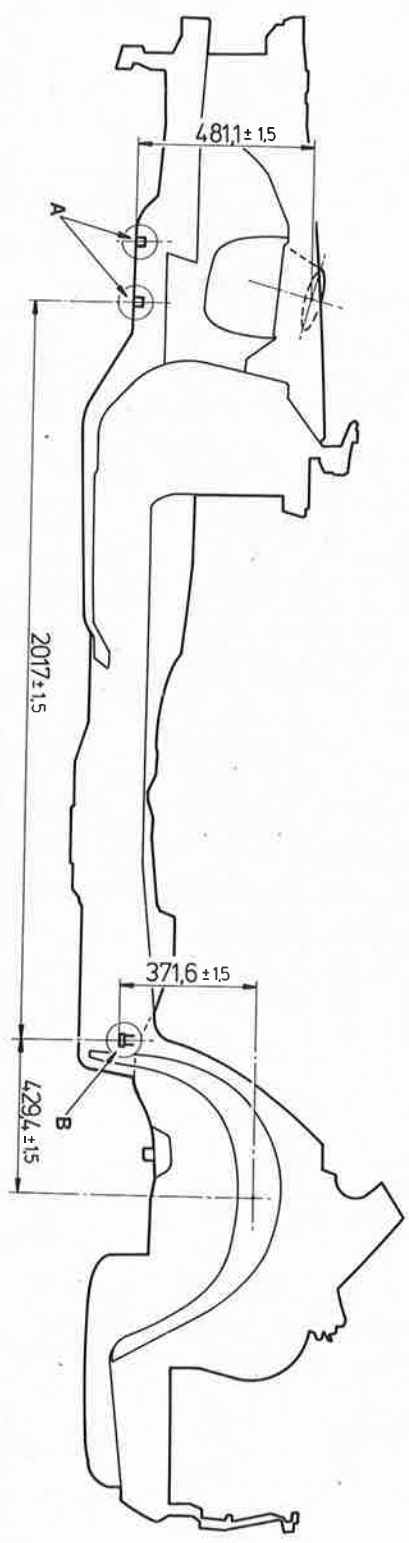
Seal off all welding seams, which had been sealed in original state, with a body sealing compound immediately after repairing.

Replace damaged anti-drumming compound. Seal new sheet metal parts or the cavities, seams, creases and folds produced by new sheet metal parts with a body cavity sealing compound immediately.

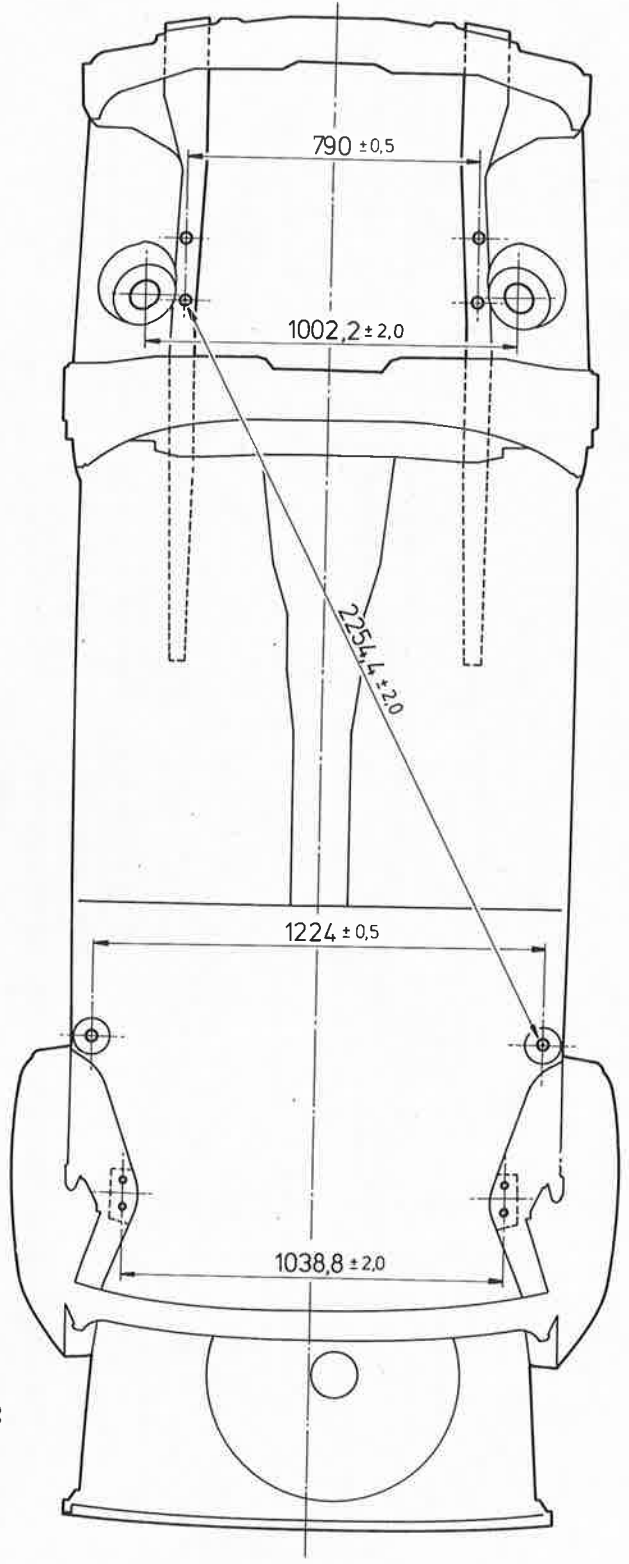
41-004

FRAME ALIGNMENT CONTROL DIMENSIONS - BMW 3 Series / E 30
- Sedans and Convertibles -

- A Front axle take-up
 - B Rear axle take-up
- All dimensions in mm



Note:
Only use the following values for a rough inspection. Repairs can only be carried out correctly with the approved set of attachments and a straightening bench.



41-006

DIE STAMPING CHASSIS NUMBER

The chassis number has to be die stamped new, if the old chassis number is destroyed or removed during body repairs.

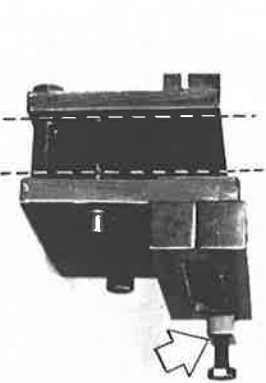
Note:

The chassis number can also be die stamped after finishing the assembly work. This requires removing the cover on the compartment wall and cover for the blower motor.



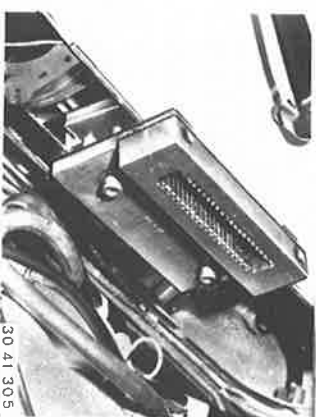
30 41 303

Assemble fixture 41 1 001 that smooth side of base plate faces stamp guide. Screw in bolts only enough that the spacing holders can be inserted later.



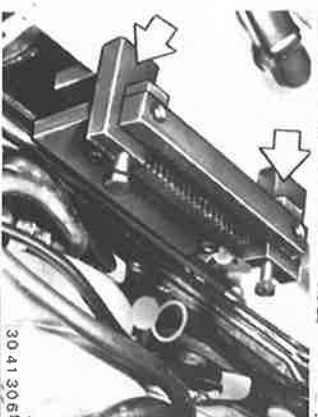
30 41 304

Apply fixture and place base plate on surface for the chassis number.

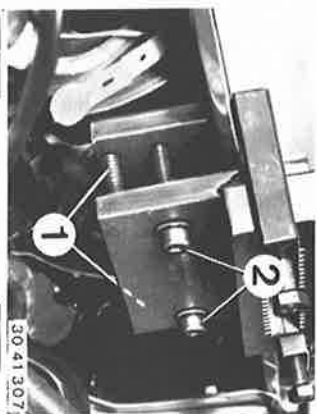


30 41 305

Apply and clamp down spacing holders 41 1 003 on the left and right sides.



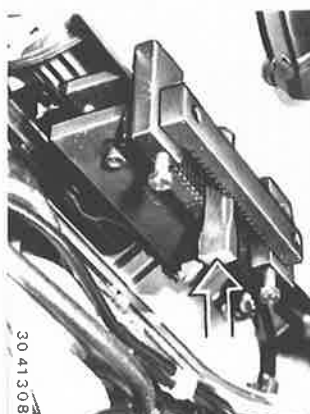
30 41 306



30 41 307

Align base plate for stamp guide parallel with bolts (1). Push up fixture completely. Tighten bolts (2).

Insert numbers 41 1 002 in fixture separately and knock in tight. If parts or the complete body is replaced in workshops, die stamp a "++" before and after the number instead of the BMW emblem for definite identification.



30 41 308

**SAFETY PRECAUTIONS WHEN REPAIRING GLASS FIBER REINFORCED
PLASTIC PARTS**

Grinding dust must be removed on site with suitable extraction and a vacuum cleaner or machines with integrated extraction.
Protective goggles and a mask must be worn during grinding operations.

Conform with the following points when working with and storing polyester resins.

Personal Protective Equipment:

Gloves, goggles.

Working Hygiene:

Good ventilation and regular washing of hands; no contact with food.

First Aid:

Take off dirty clothes immediately. If dust has gotten in eyes, rinse out thoroughly with water and go to a physician. Dab coated skin and wash thoroughly with water and soap. If great amount of vapors are inhaled, go outdoors in the fresh air and, if necessary, visit a physician.

Information on Toxicology:

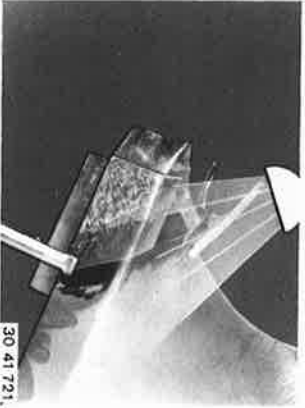
Systems containing styrol will irritate eyes, skin and the respiratory track. No damaging effects are known from decades of use as long as handling is correct.

Measures In Case of Fire:

Fire extinguishing agents: water mist (no water stream), powders, foam, CO₂ and halon.

Scrapping:

Never let it get into drink water systems.
It can be brought to a normal refuse station after hardening.

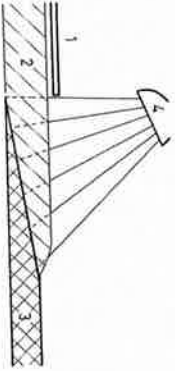


30 41 721

Aim an ultraviolet lamp on damaged surface. The hardening time will depend on the lamp version, scope and strength of laminate. Gain experience by making tests, if necessary. Hardening time for 1 mm (0.039") coat = approx. 2 minutes.

Important!

Chemical reaction produces heat, which could lead to self-destruction of the laminate. If necessary, interrupt the ultraviolet lamp treatment occasionally.



30 41 722

Note:
Ultraviolet radiation is only effective when applied direct. There is no hardening in zones of shade or on covered laminate. This can be exploited, in that some sections are covered and only certain surfaces are hardened, or are cemented. The remaining sections can then be molded and hardened separately.

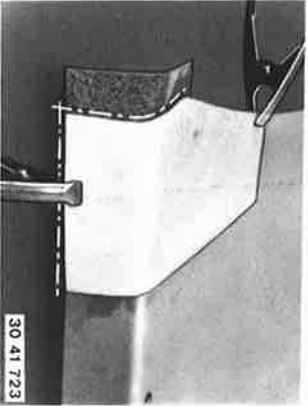
- 1 Cover
- 2 Repair material
- 3 GFP part
- 4 Ultraviolet lamp

Pull off foil.

Build up laminate to final thickness by cutting repair bandages to size, hardening and grinding inbetween as necessary.

Important!

Remove foil between layers. Harden the laminate with an ultraviolet lamp. Transfer the edge shape with a paper template from the other side.



30 41 723

Grind inside and outside of repaired area. Remove irregularities with a glass fiber putty.



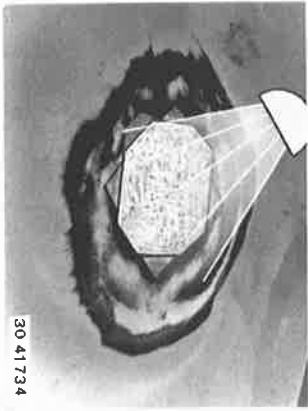
30 41 724

41-015



30 41 733

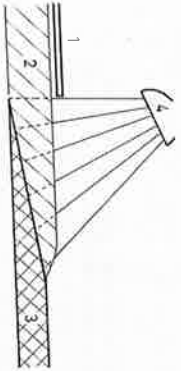
Note:
In case of large damage, cover the inside of the hole with the pulled off sheet and hold it with a piece of metal or something similar until hardening is finished.



30 41 734

Aim an ultraviolet lamp on the damaged surface. The hardening time will depend on the lamp version, scope and strength of laminate. Gain experience by making tests, if necessary. Hardening time for 1 mm (0.039") coat = approx. 2 minutes.

Important!
Chemical reaction produces heat, which could lead to self-destruction of the laminate. If necessary, interrupt the ultraviolet lamp treatment occasionally.



30 41 722

Note:
Ultraviolet radiation is only effective when applied direct. There is no hardening in zones of shade or on covered laminate. This can be exploited, in that some sections are covered and only certain surfaces are hardened, or are cemented. The remaining sections can then be molded and hardened separately.

- 1 Cover
- 2 Repair material
- 3 GFP part
- 4 Ultraviolet lamp

Pull off foil.

Build up laminate to final thickness by cutting repair bandages to size, hardening and grinding inbetween as necessary.

Important!
Remove foils between layers.
Harden the laminate with an ultraviolet lamp.



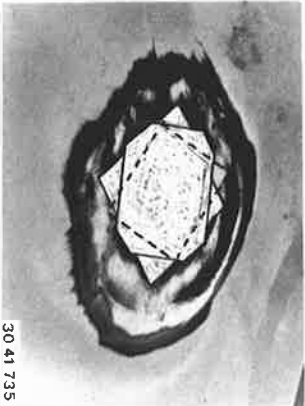
30 41 736

Grind the repaired area.
Remove irregularities with a glass fiber putty.



30 41 737

Repair the inside panel to the instructions for the outside.

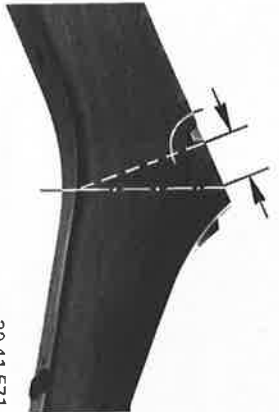


30 41 735

41-102

Transfer cut to new engine carrier.

Note:
Consider width of joint.



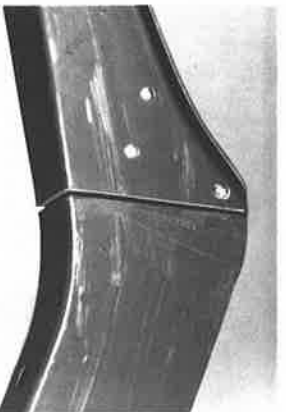
30 41 571

Drill out spot welds on inside and outside.



30 41 572

Cut through engine carrier on side and bottom.
Important!
Be careful not to damage sheet metal on inside.

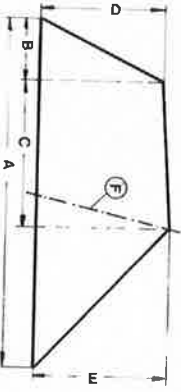


30 41 573

Straighten and grind mating surfaces.



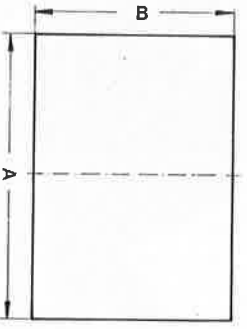
30 41 574



30 41 575

Prepare two sheet metal reinforcements for sides to sketch.
Sheet metal thickness = 1.8 mm (0.071").

- A = 120 mm (4.724")
- B = 21 mm (0.827")
- C = 50 mm (1.968")
- D = 44 mm (1.732")
- E = 47 mm (1.850")
- F = Cutting line on engine carrier

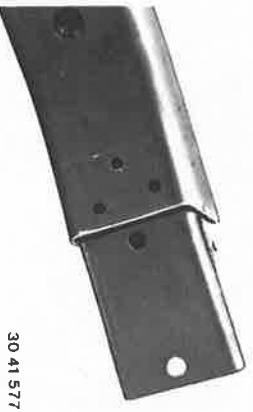


30 41 576

Prepare sheet metal reinforcement for bottom to sketch.
Adapt to curvature of carrier.
Sheet metal thickness = 1.8 mm (0.071").

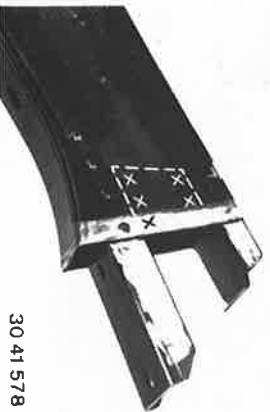
- A = 55 mm (2.165")
- B = 80 mm (3.150")

Mark location of and drill holes for plug spot welding in new engine carrier.



30 41 577

Match shape of reinforcement plates on inside and outside of new engine carrier.
Drill holes for plug spot welding.



30 41 578

41-104

41 11 015 REPLACING LEFT FRONT ENGINE CARRIER (WITH WHEEL HOUSE)

Refer to information on page 41 - 001. Remove or disconnect following parts. Battery on ground pole, bumper, upper and lower wheel house trim panels, all radiator grill sections, engine hood lock and catch, front spoiler, all headlights, front fog lamps when applicable, both bumper brackets, two-tone horns, heater wall seal, entrance cover, front seat, dashboard trim panel, carpet on A pillar, carpet in passenger compartment partially, footwell insulation sheet partially, brake booster with master cylinder, fuel filter, ignition coil, brake pipes partially, engine, front axle with transmission, engine wire harness partially, radiator trim panel and data plate.

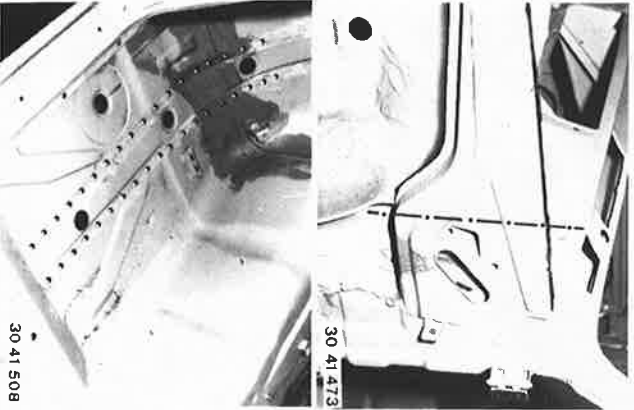
Remove both side panels.

Remove front panel with front wall - see 41 33 001.

Installation:

Check and adjust front wheel alignment.

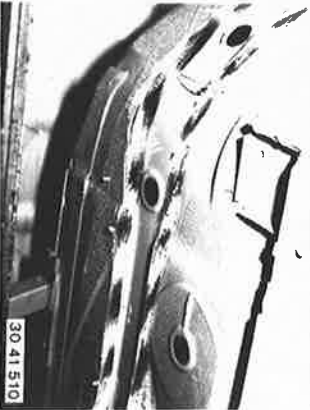
Remove wheel house - see 41 14 021.



Uncover spot welding seams on inside of car.
Drill off welding spots.



Uncover points of connection on end of engine carrier.
Drill off welding spots.
Grind off welding seam.
Remove engine carrier.



Straighten and grind points of connection.



Straighten and grind points of connection.



Grind points of connection on new engine carrier.

30 41 508

30 41 512

41-106

41 11 026 REPLACING FRONT ENGINE CARRIER SECTION AND LEFT FRONT CENTER SECTION (WITH WHEEL HOUSE)

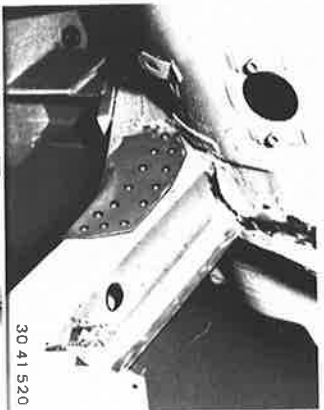
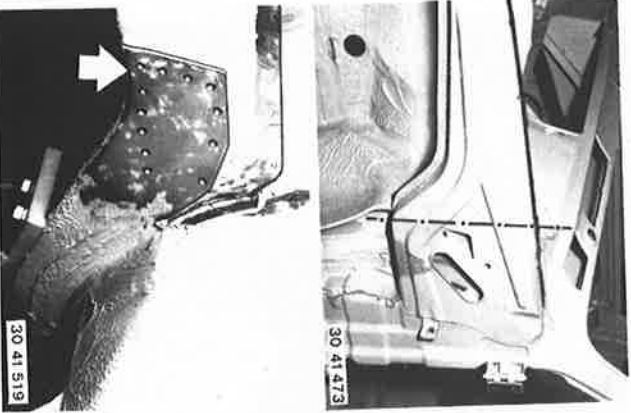
Refer to information on page 41 - 001.

Remove or disconnect following parts: Battery on ground pole, bumper, upper and lower wheel house trim panels, all radiator grill sections, engine hood lock and catch, front spoiler, all headlights, front fog lamps when applicable, both bumper brackets, two-tone horns, heater wall seal, entrance cover, front seat, dashboard trim panel, carpet on A pillar, passenger compartment carpet partially, footwell insulation sheet partially, brake booster with master cylinder, fuel filter, ignition coil, brake pipes partially, engine, front axle with transmission, engine wire harness partially, radiator trim panel, data plate. Remove both side panels. Remove front panel with front wall - see 41 33 001.

Installation:
Check and adjust front wheel alignment.

Remove wheel house - see 41 14 021.

Uncover points of connection.
Drill off welding spots.



Uncover points of connection.
Drill off welding spots.

Drill off welding spots.
Lift off engine carrier.



Straighten and grind points of connection.



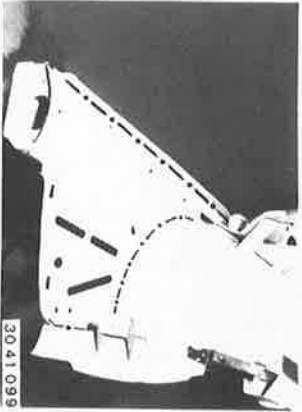
Grind points of connection on new engine carrier.



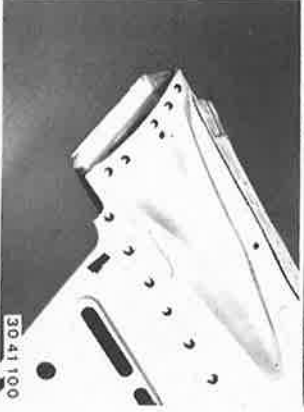
41-108

41 11 043/ REPLACING LEFT/RIGHT ENGINE CARRIER FRONT SECTION WITHOUT 044 WHEEL HOUSE

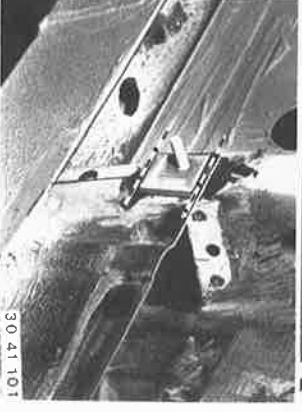
- Refer to information on page 41 - 001.
- Remove or disconnect following parts.
- Disconnect battery ground lead.
- Remove radiator grill, headlight, front fog light, two-tone horns, engine hood lock, data plate and radiator.
- Disconnect wire harness as required.
- Remove engine hood complete with hinge — see 41 61 000 / 41 61 050.
- Remove front bumper — see 51 11 000.
- Remove both front side panels — see 41 35 000.
- Replace front panel complete with front wall — see 41 33 001.



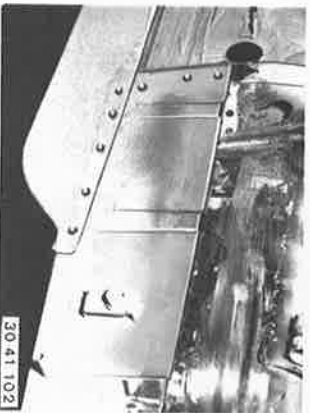
Cut out cover along line.



Cut off bracket.



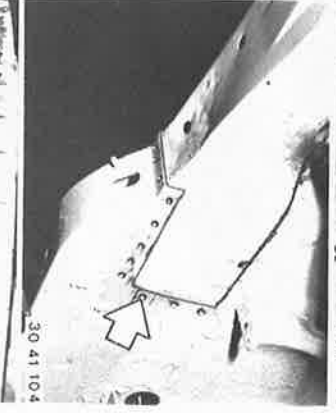
Drill off welding spots.



Drill off welding spots.



Drill off welding spots.
Take off engine carrier front section.



Remove scrap metal.
Straighten and grind mating surfaces.



41-110



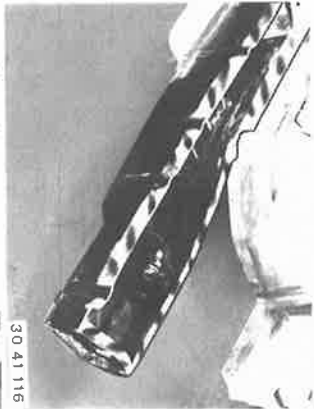
Grind and coat mating surfaces on cover plate with zinc dust paint.

30 41 114



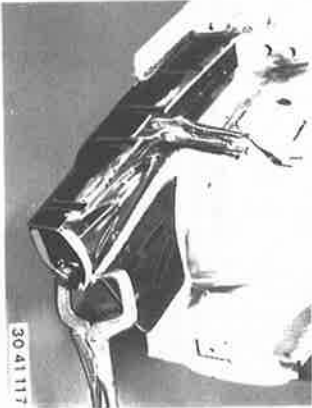
Drill holes for inert gas plug welding at joint between support and wheel house.

30 41 115



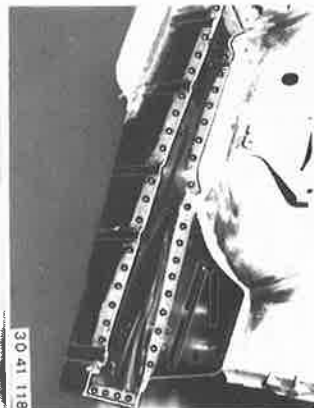
Grind and coat mating surfaces with zinc dust paint.

30 41 116



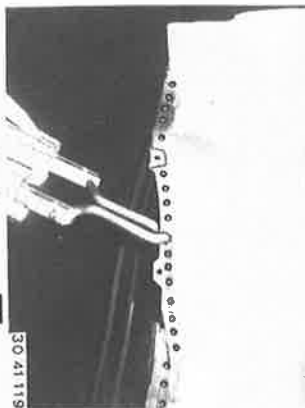
Install and clamp end plate.

30 41 117



Spot weld end plate.

30 41 118



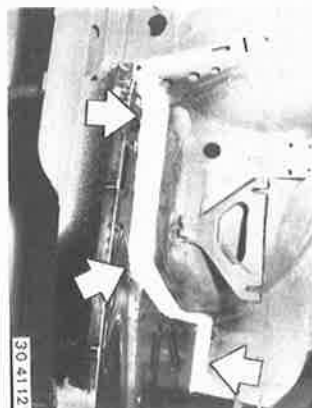
Inert gas plug spot weld end plate on wheel house support.

30 41 119



Seal joints with body sealing compound*. Spray an anti-drumming coat* on wheel house in engine carrier.

30 41 120



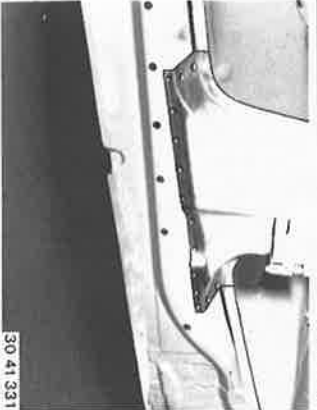
30 41 121

* Source: HWB

41-112



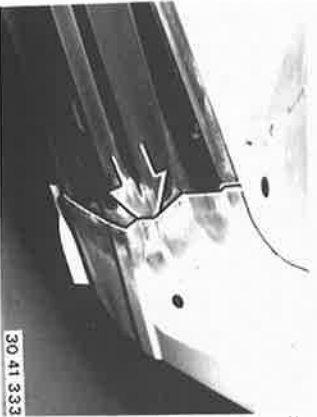
Drill off scrap metal. Straighten and grind mating surfaces. Coat mating surfaces required for spot welding with zinc dust paint.



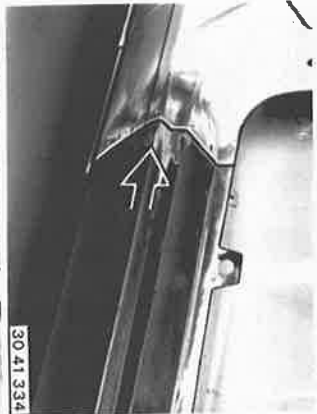
Straighten and grind mating surfaces on B pillar.



Grind mating surfaces on new cover. Coat mating surfaces required for spot welding with zinc dust paint.



Slide rear end of new cover underneath side panel about 25 mm (1") further than standard. If necessary, remove several welding spots on side panel.



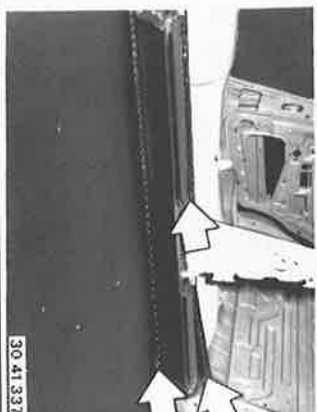
Push up front end of cover and slide it underneath the A pillar joint.



Install front and rear doors, and check gaps.



Spot weld cover at top and bottom.



41-114

41 11 121 REPLACING COVER FOR LEFT OR RIGHT SIDE MEMBER (PARTIAL REPLACEMENT WITHOUT REMOVAL OF DOOR)

Refer to information on page 41 - 001
Remove front seat **52 10 000**.
Remove inner and outer entrance rail plates, edge guard of front door opening and seat belt on entrance rail.
Fold back carpet partially.

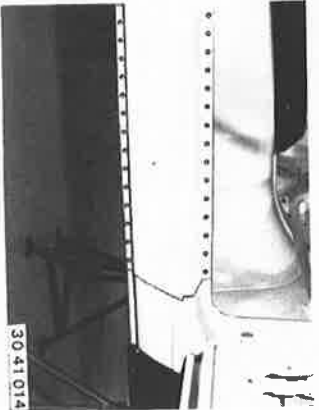
Mark cutting lines.
Cutting line must be at least distance A = 30 mm (1.181") away from B pillar connection.

Cut through cover.

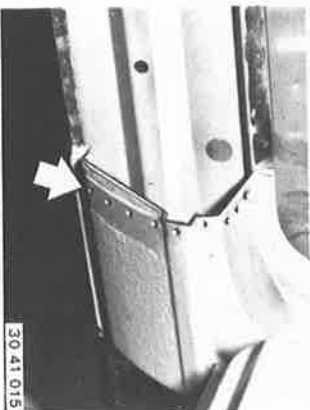
Cut through cover on connection of A pillar.



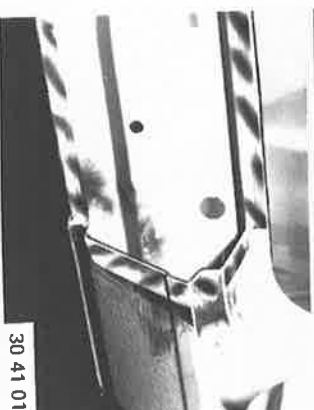
Drill out spot welds.
Lift off cover.



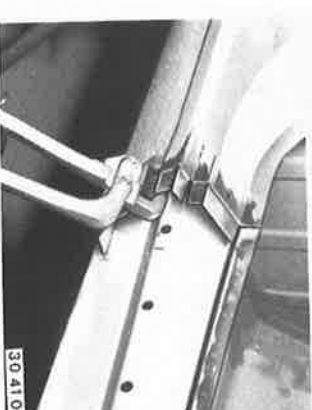
Drill out spot welds.
Remove scrap metal.
Note:
Cover is brazed along edge.



Straighten and grind mating surfaces.
Coat surfaces for spot welding with zinc dust paint.



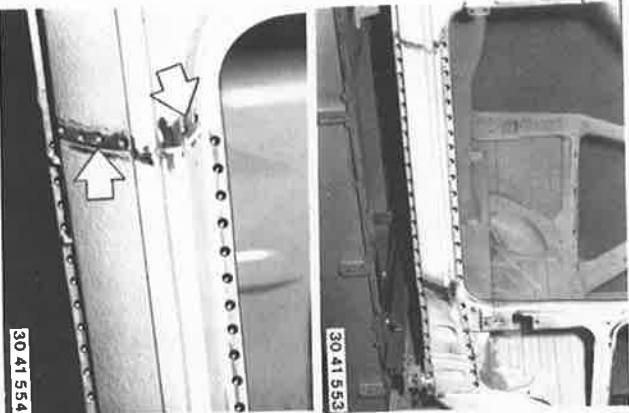
Make cut in rear of connecting surfaces and shoulder with a shouldering pliers.



41-116

41 11 510 REPLACING COVER FOR LEFT OR RIGHT SIDE MEMBER (REAR SIDE PANEL REMOVED) — TWO DOOR MODEL —

Refer to information on page 41 - 001.
Remove or disconnect following parts:
ground lead on battery, rear bumper, left tail light assembly, trunk mats, wall trim,
left wheel house trim, tail panel trim, trunk lid seal, rear window complete with
rubber frame, side window, rear seat cushion and backrest, front seat, side trim
panel, hatrack, entrance cover strip, front door pillar carpet, passenger compartment
carpets partially, roof liner partially, seat belt, door pillar trim, front door seals, door
striker, C pillar air extraction mask, rear side panel rubbing strip, left wheel house
cover, fuel tank complete, brace on floor assembly and wire harness in trunk
partially.



Remove side panel — see 41 35 101.
Make joints accessible.
Drill out spot welds.

Drill out spot welds.

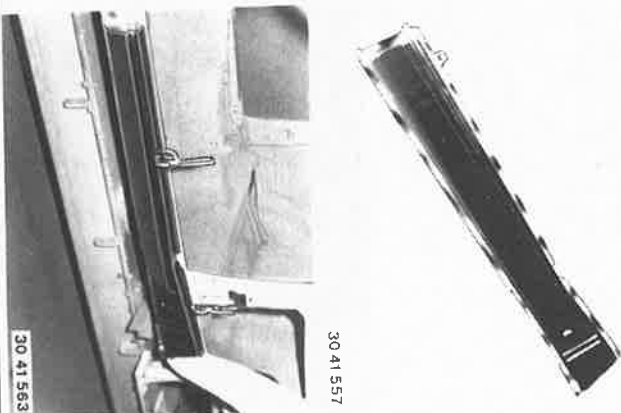


Remove brazing solder.
Pull out cover underneath front door pillar.

Straighten and grind mating surfaces.
Coat mating surfaces needed for spot welding
with zinc dust paint.

Grind mating surfaces on new cover.
Coat mating surfaces needed for spot welding
with zinc dust paint.

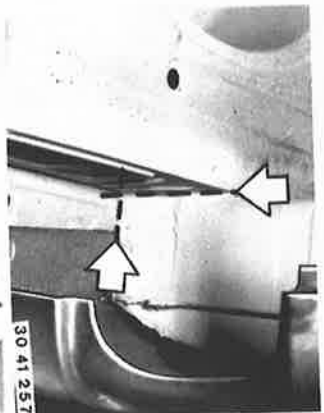
Set up and clamp cover.



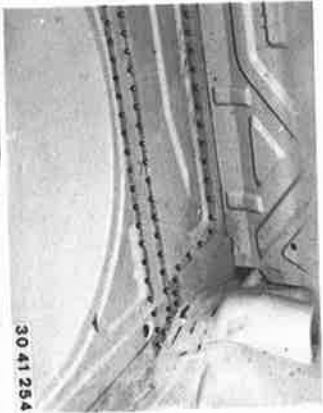
41-118

41 12 535 REPLACING COMPLETE REAR TRUNK FLOOR PLATE
— Tail Panel Removed —

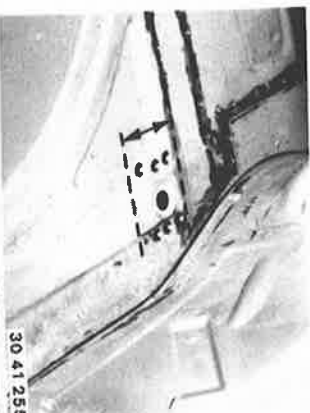
Refer to information on page 41 - 001.
Remove or disconnect following parts.
Final drive, right wheel house cover, fuel filler neck, complete fuel tank and, if applicable, heavy layer mat.



Cut off trunk floor plate on left and right wheel houses.



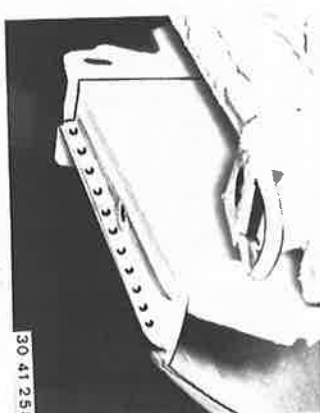
Uncover joints.
Drill off welding spots.



Drill off welding spots along side members about 80 mm (3.150") toward rear.



Cut off trunk floor plate at wheel house on left and right sides.



Uncover and drill off welding spots.



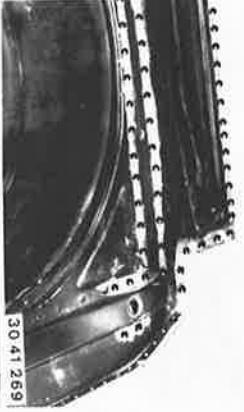
Uncover mating surfaces of left and right side members.
Drill off welding spots.
Lift out trunk floor plate complete with side members.



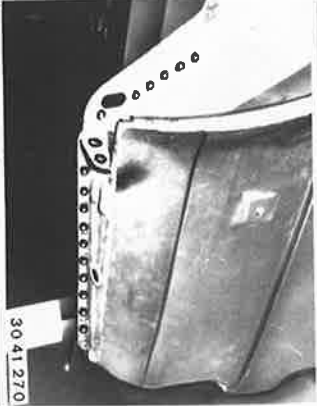
Remove scrap metal.
Straighten and grind mating surfaces.

41-120

Plug spot weld front of trunk floor plate, on cross member, side members and wheel houses.



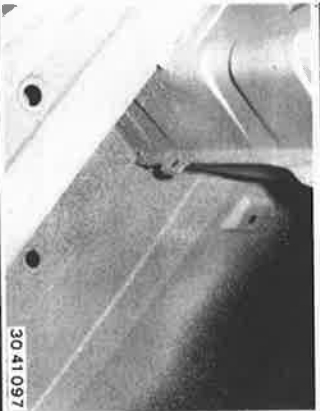
Spot weld cross panel on wheel houses.
Spot weld side panels.



Weld on reinforcement bracket.



Install tail panel.
Seal off all joints at top and bottom with a body sealing compound*.
Spray an anti-drumming compound* on underside of car, wheel houses and bottom of tail panel.



* Source: HWB

41-122

41 14 021 REPLACING LEFT FRONT WHEEL HOUSE

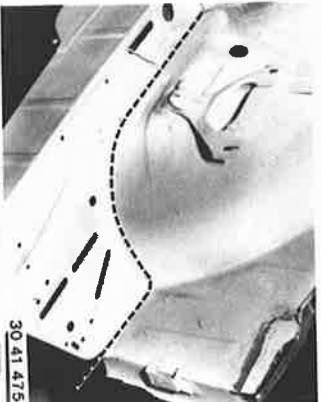
Refer to information on page 41 - 001.

Remove or disconnect following parts:
ground lead on battery, bumper, upper and lower wheel house trim, all radiator grill sections, engine hood lock, engine hood release, front spoiler, all headlights, front fog lamps if applicable, both bumper brackets, horns, heater wall seal, entrance cover strip, front seat, instrument panel trim, carpet on A pillar, passenger compartment carpets partially, footwell insulation sheet partially, brake booster with brake master cylinder, fuel filter, ignition coil, brake lines partially, engine, front axle and transmission, engine compartment wire harness partially, radiator trim, data plate.

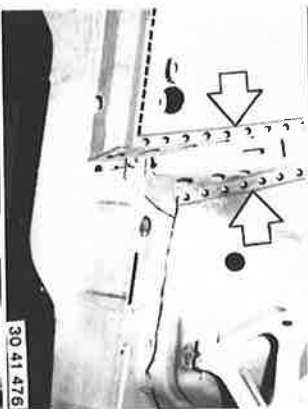
Check and adjust front wheel alignment.

Remove both side panels.

Remove front panel with front wall — see 41 33 001.



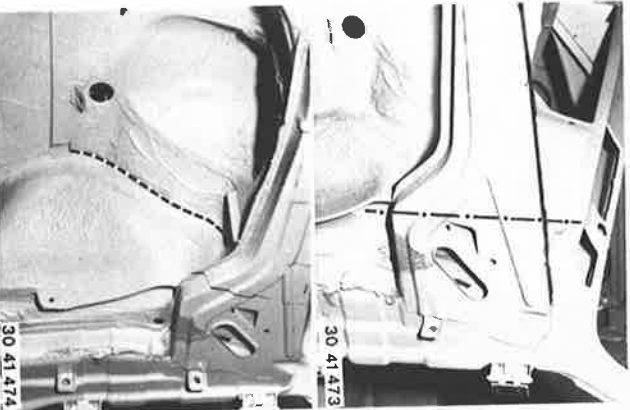
Cut off wheel house on end plate.



Cut off wheel house on engine carrier.
Drill out wheel house support.
Lift off wheel house.



Drill out spot welds.
Grind off welding seams.



Cut off wheel house on engine compartment wall.



Remove joint sealing compound.
Drill out spot welds.

41-124



Grind and coat mating surfaces with zinc dust paint.
Drill holes for plug spot welding in area of engine carrier.

30 41 487



Drill holes for plug spot welding in holder for engine hood lock.

30 41 488



Set up car on straightening bench.
Install, align and tack weld new wheel house.

30 41 489



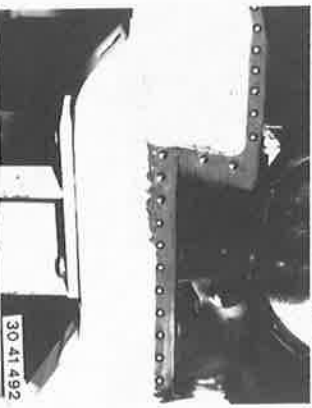
Spot weld wheel house on heater separating wall.

30 41 490



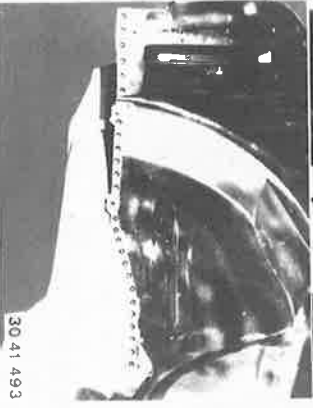
Plug spot weld areas not accessible for spot welding tongs.

30 41 491



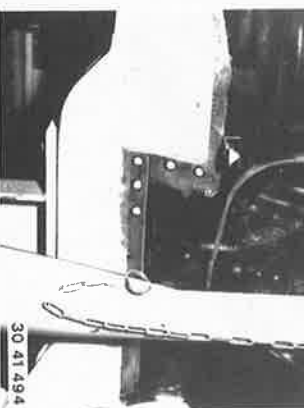
Spot weld wheel house on end plate.

30 41 492



Plug spot weld wheel house through provided holes.

30 41 493



30 41 494

41-126

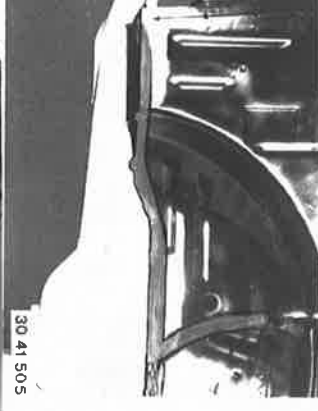
Braze wheel house and end plate on cowl panel.



After Installation of Front Panel:
Seal mating surfaces with a body sealing compound.

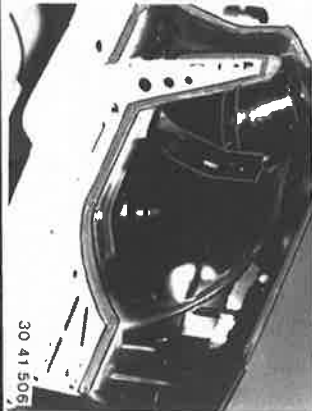


Seal mating surfaces with a body sealing compound.



Seal mating surfaces with a body sealing compound.

Spray out wheel house with an anti-drumming compound.



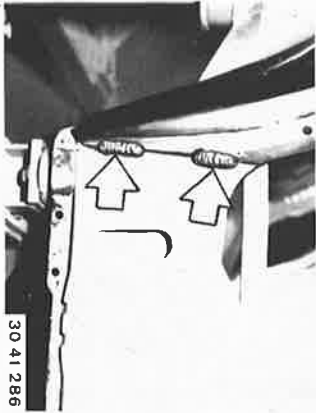
30 41 506

41-128

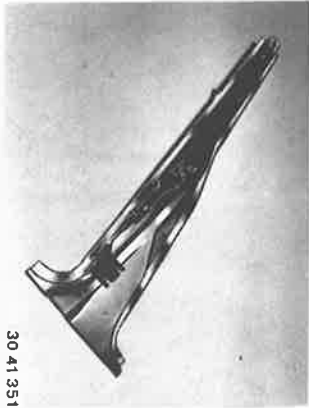
Plug spot weld mating surfaces not accessible for spot welding.



Inert gas weld wheel house outside section on cover for side member.



41-202



30 41 351

Grind mating surfaces on new B pillar.
Coat mating surfaces required for spot welding
with zinc dust paint.



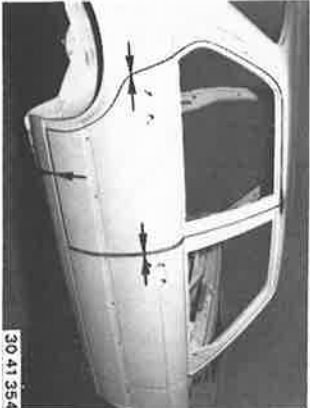
30 41 352

Clamp and tack weld B pillar.



30 41 353

Install rear door and check gaps.

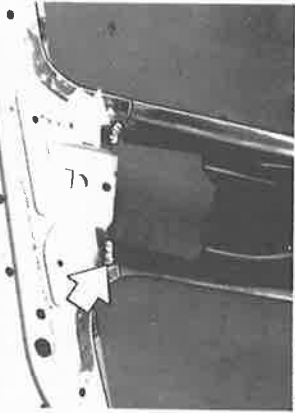


30 41 354



30 41 376

Inert gas weld end plate on roof frame.



30 41 377

Spot weld B pillar on end plate.



30 41 355

Plug spot weld joint on cover for side member.



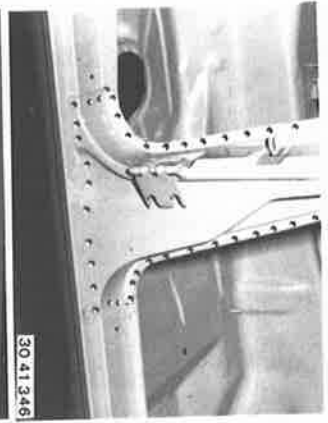
30 41 356

41-204

41 21 . . . REPLACING LEFT OR RIGHT CENTER DOOR PILLAR OUTER SECTION — Four Door Model —

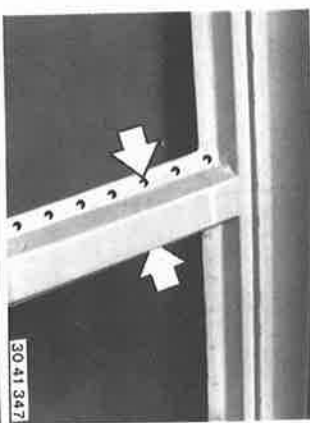
Refer to information on page 41 - 001.
Remove or disconnect following parts:
Rear door, front seat, B pillar plate, seat belt, front and rear entrance cover strips and cover plates, front and rear door opening edge guards as required, carpet on entrance, roof liner as required, rear seat cushion and backrest.

Drill off welding spots.



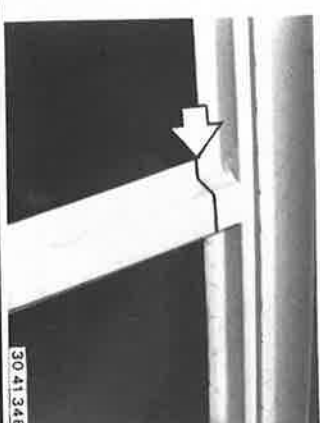
30 41 346

Drill off welding spots.

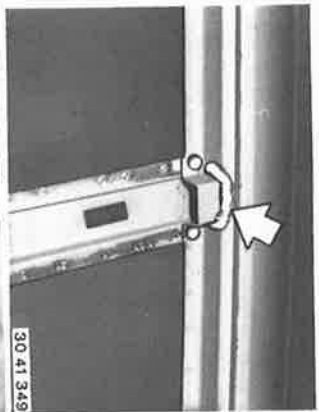


30 41 347

Cut through B pillar along line.
Caution!
Don't damage the end plate.
Lift off B pillar.



30 41 348



30 41 349

Heat brazing solder.
Remove scrap metal.
Note:
Apply coat of heat protection paste on roof and rain molding to avoid damaging the roof panel paint finish.



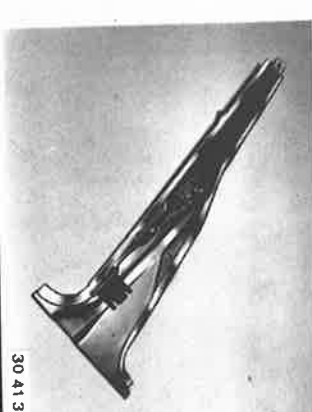
30 41 350

Straighten and grind mating surfaces.
Coat mating surfaces required for spot welding with zinc dust paint.



30 41 378

Grind mating surfaces on new B pillar.
Coat mating surfaces required for spot welding with zinc dust paint.



30 41 351

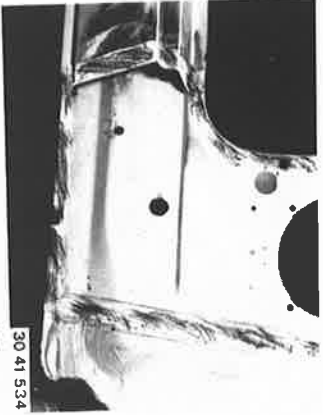
41-206

Seal joint on cover for side member with a joint sealing compound.



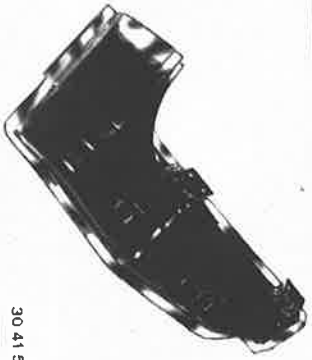
30 41 360

41-208



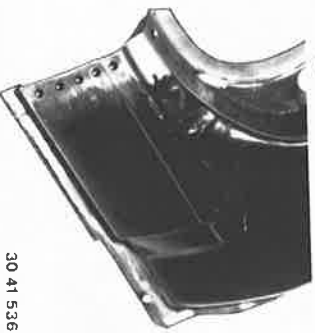
30 41 534

Remove scrap metal.
Straighten and grind mating surfaces.
Coat mating surfaces needed for spot welding
with zinc dust paint.



30 41 535

Grind mating surfaces on new door pillar.
Coat mating surfaces needed for spot welding
with zinc dust paint.



30 41 536

Drill holes for plug spot welding at joint with
entrance.



30 41 537

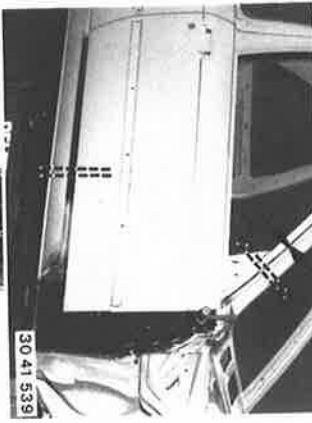
Use insulating tape* on bearing surface for
reinforcement.

* Source: HWB



30 41 538

Clamp and align door pillar.
Tack weld at several points.



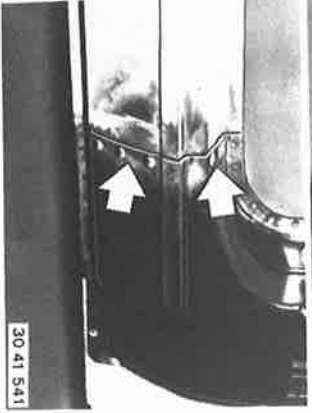
30 41 539

Install door and check gap and plane to
entrance and cowl panel.
Note:
Use washers if door is too low.



30 41 540

Spot weld door pillar.

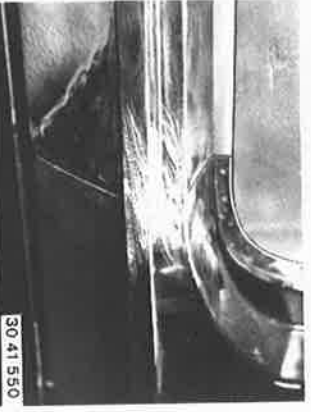


30 41 541

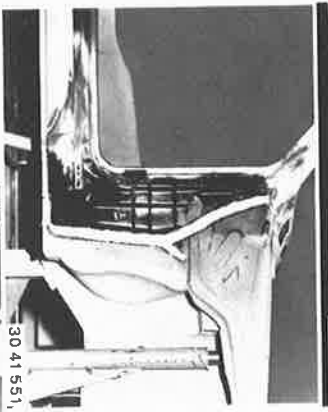
Plug spot weld joint with entrance.

41-210

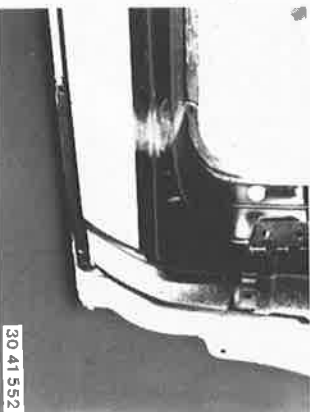
Grind mating surface, timing if necessary.



Seal all joints with a joint sealing compound*

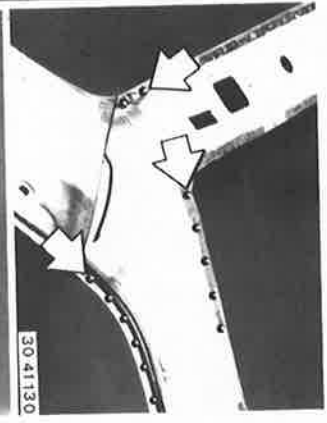


Replace anti-drumming coat on entrance and in wheel house.

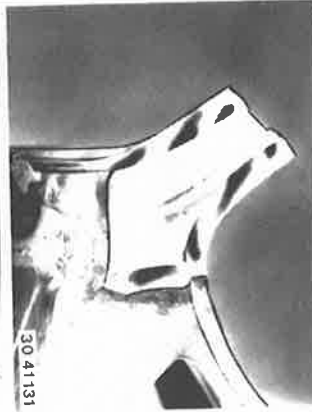


* Source: HWB

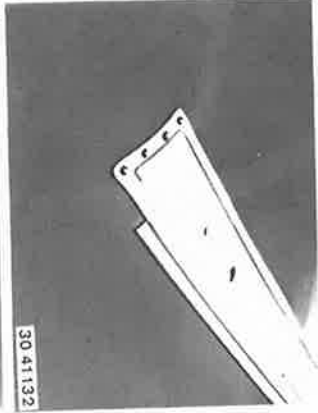
41-212



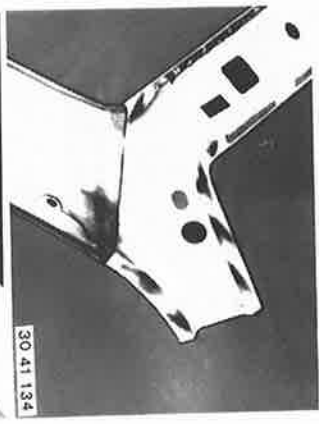
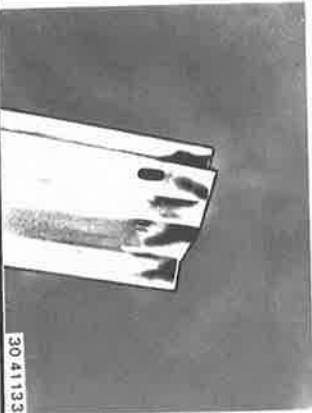
Drill off welded spots.



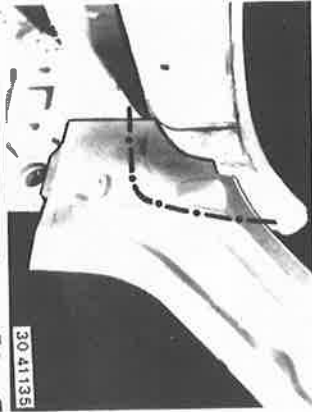
Remove scrap metal.
Straighten and grind mating surfaces.



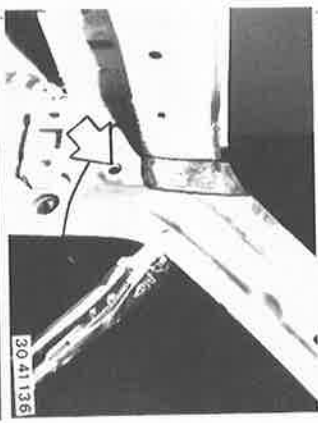
Remove scrap metal.
Straighten and grind mating surfaces.



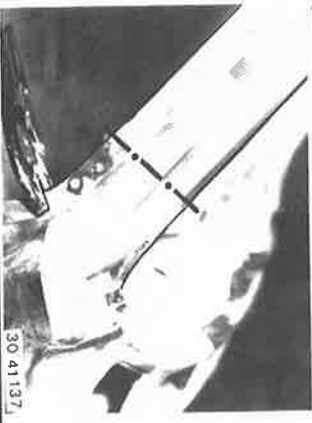
Remove scrap metal.
Straighten and grind mating surfaces.



Cut new panel for cowl to size, that hole in new part can be aligned with old hole.



Clamp on panel and align according to hole and seams.



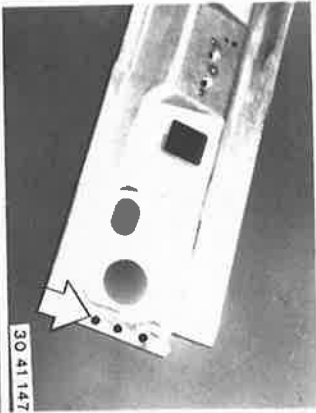
Mark cutting point on panel.
Take off and cut panel to size.
Grind mating surfaces.
Coat mating surfaces needed for spot welding with zinc dust paint.

41-214



Grind mating surfaces on cover plate.
Coat mating surfaces needed for spot welding
with zinc dust paint.

30 41 146



Drill holes for plug spot welding in rear mating
surface.

30 41 147



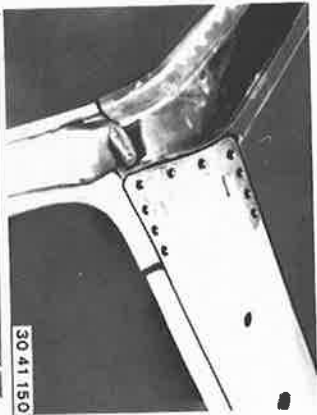
Install and clamp cover plate.
If necessary, install roof brace to check roof
frame.

30 41 148



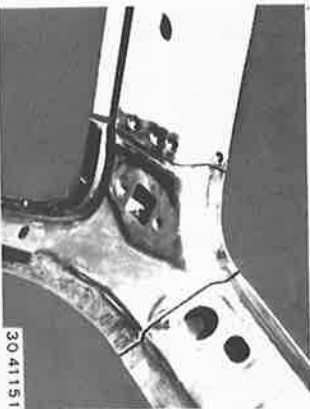
Install and clamp outside roof panel.
Check seat of outside roof panel.
Lift off outside roof panel again.

30 41 183



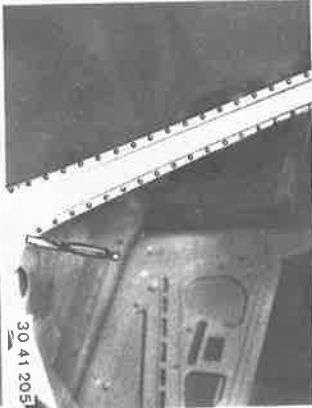
Plug spot weld or spot weld front roof frame
with roof frame on sides.

30 41 150



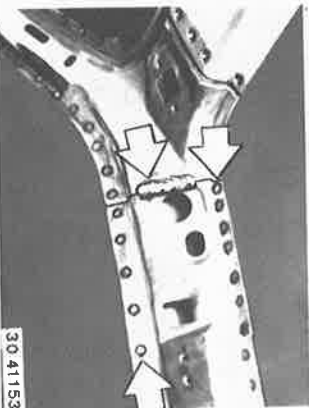
Plug spot weld or spot weld front roof frame with
cowl panel and roof frame on sides.

30 41 151



Spot weld cowl panel on cowl.

30 41 205



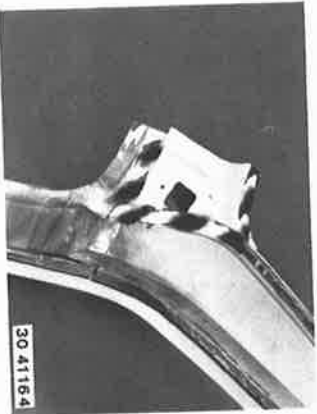
Spot weld end plate.
Inert gas weld mating surface to cowl panel.

30 41 153

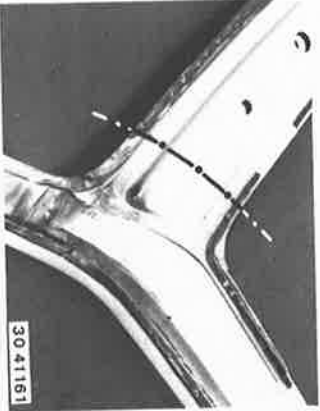
41-216

41 22 541 REPLACING FRONT ROOF
FRAME
— ROOF PANEL REMOVED —

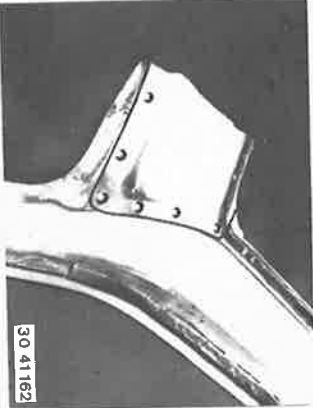
Refer to information on page 41 - 001.



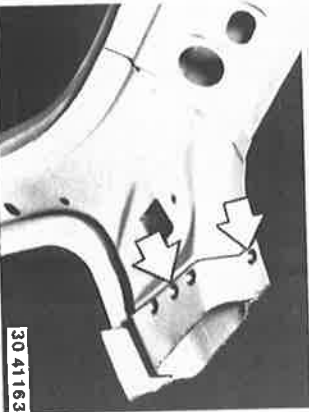
Remove scrap metal.
Straighten and grind mating surfaces.
Coat mating surfaces needed for spot welding
with zinc dust paint.



Cut through roof frame on left and right sides.



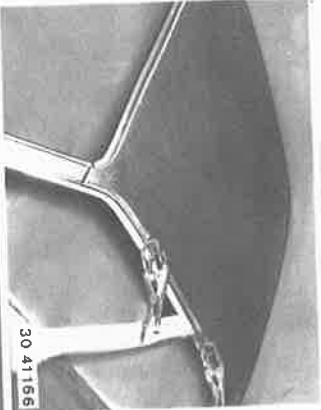
Drill off welded spots on left and right sides.



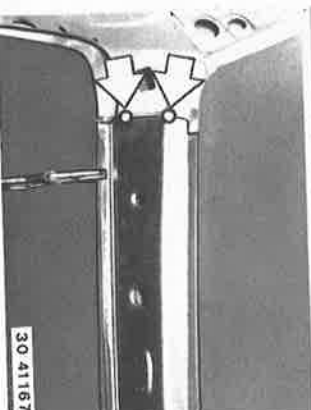
Drill off welded spots.



Install and clamp roof panel.



Install and tack weld roof frame inside section.



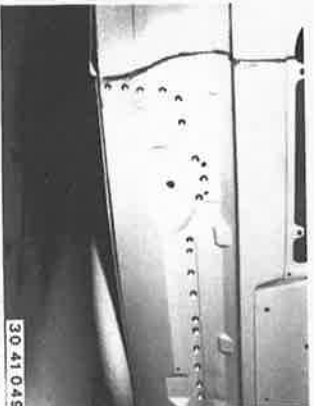
Grind mating surfaces on new parts.
Coat mating surfaces needed for spot welding
with zinc dust paint.

41-309

41 34 041 REPLACING TAIL PANEL

Refer to information on page 41-001

- Remove rear bumper.
- Unscrew tail and license plate lights.
- Disconnect wire harness partially.
- Unscrew lock lower section with lock cylinder and license plate.
- Unscrew final muffler holder.
- Pull off trunk lid seal partially.
- Remove trunk mat and spare wheel.



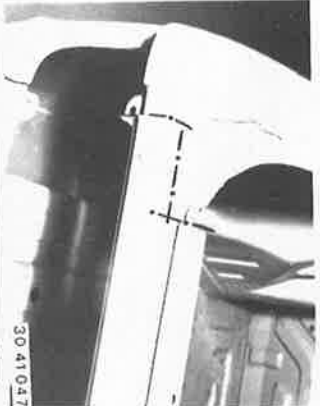
Drill off welding spots.
Take off tail panel.

Remove scrap metal.

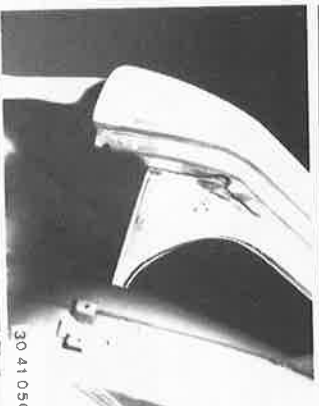
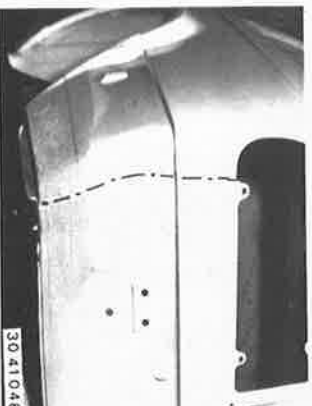


Note:
To limit tail panel painting to a minimum, the cut can also be made in the tail light opening.
Distance A = 265 mm (10.433").

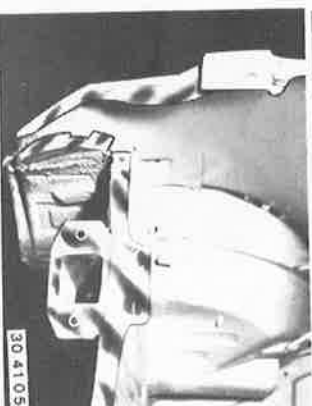
Cut off left and right tail panel along line.



Cut off tail panel along line on left and right sides.



Remove scrap metal.
Coat surfaces for spot welding with zinc dust paint.

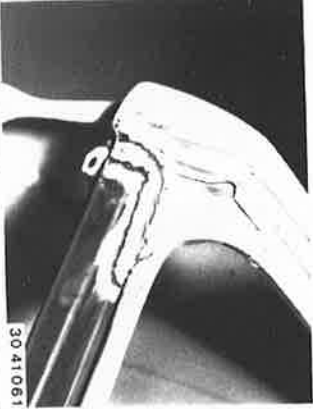


Grind mating surfaces on new tail panel.
Coat surfaces for spot welding with zinc dust paint.



41-311

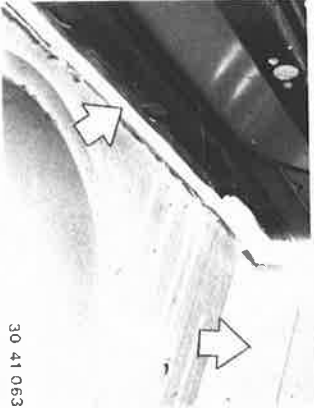
Brace reinforcement corner on tail panel.



Grind down all welded joints.



Coat all welded joints with body sealing compound* and spray with anti-drumming compound*.

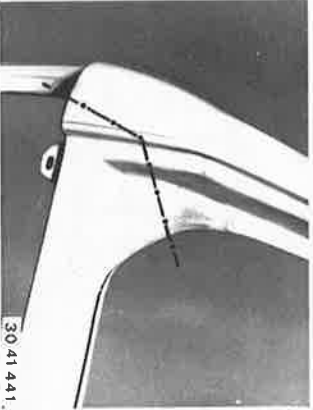


Spray an anti-drumming compound* on the side panel/tail panel joint underneath the bumper.

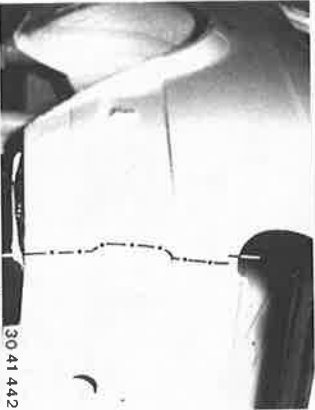


* Source: HWB

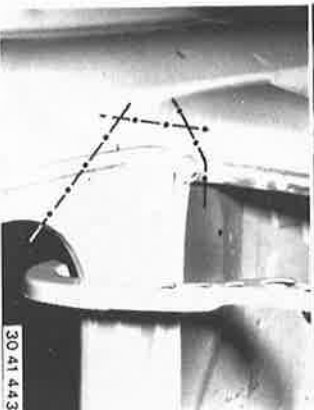
41-313



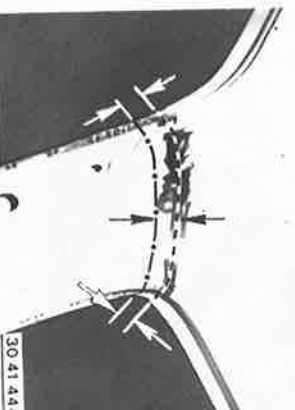
Cut off side panel along line.



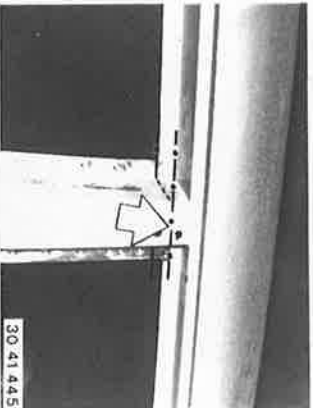
Cut off side panel along line.



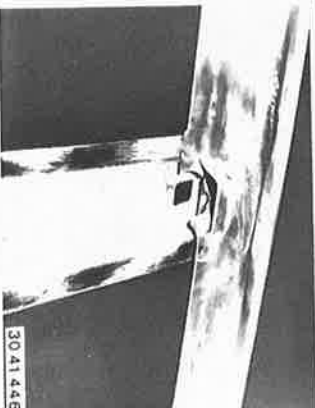
Cut off side panel along line.



Uncover brazed roof joint.
Cut through side panel about 10 mm (0.394") below joint.



Cut through side panel in area of B pillar at top.
Caution!
Don't cut the end plate.
Lift off side panel.



Remove scrap metal (brazing solder).
Straighten and grind mating surfaces.

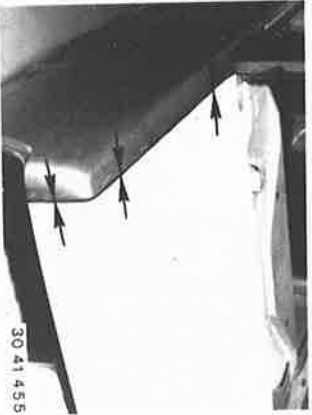


Remove scrap metal (brazing solder).
Straighten and grind mating surfaces.

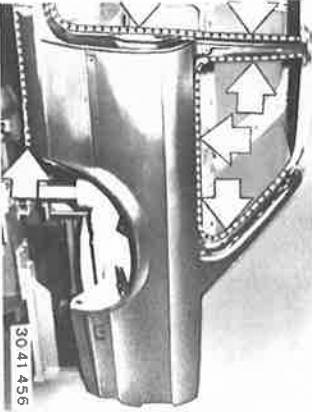


Remove scrap metal (brazing solder).
Straighten and grind mating surfaces.

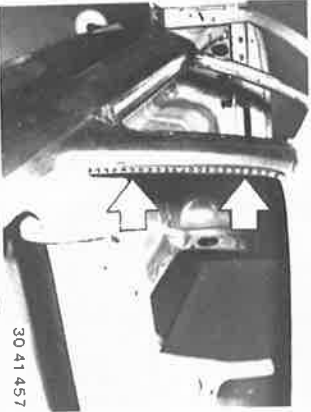
41-315



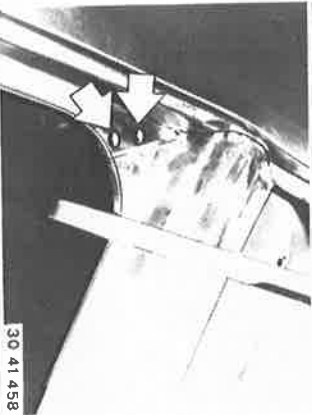
Install trunk lid and check gap.



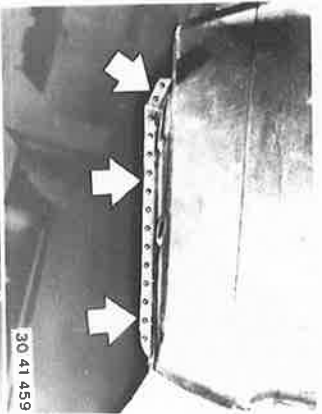
Spot weld side panel.



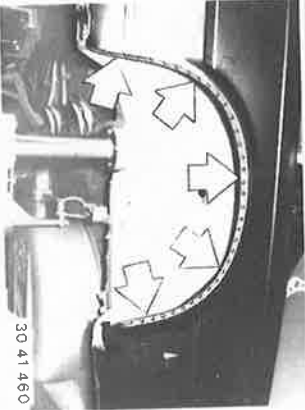
Spot weld side panel.



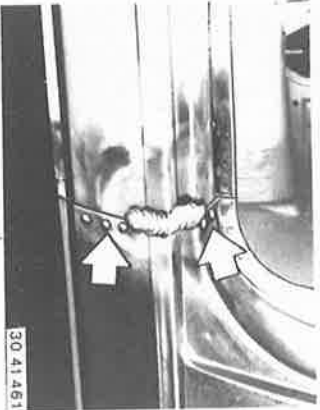
Spot weld side panel in area of trunk.



Spot weld side panel.



Spot weld side panel in wheel opening.



Plug spot weld side panel on entrance cover strip.
Braze on outside edge.



Braze roof joint.

30 41 458

30 41 457

30 41 456

30 41 455

30 41 459

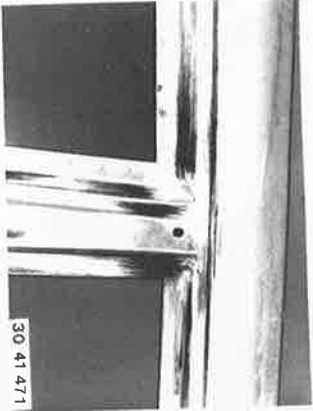
30 41 460

30 41 461

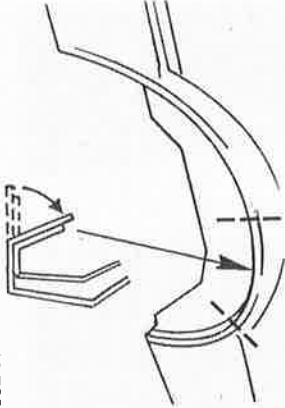
30 41 462

41-317

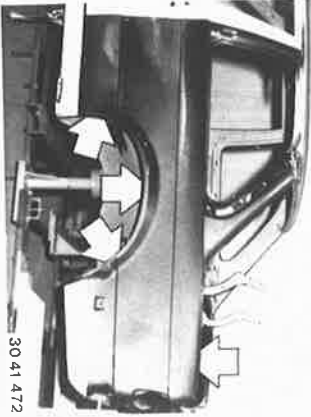
Grind joint, tinning if necessary.



Important!
The spot welded flange in the rear area of the wheel opening must be cringed on cars beginning with 1988 models or when using wider tires.
Compare with opposite side if necessary.

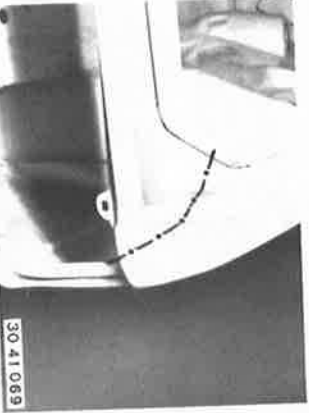


Seal all joints with a joint sealing compound.
Replace damaged anti-drumming coat in wheel house, on bottom of side panel or in trunk.



41-319

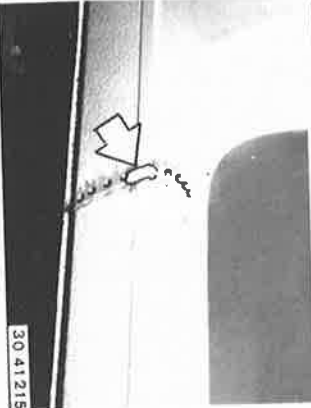
Cut off side panel on tail panel.



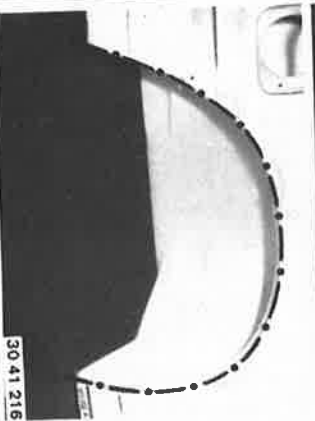
Cut off side panel along line.



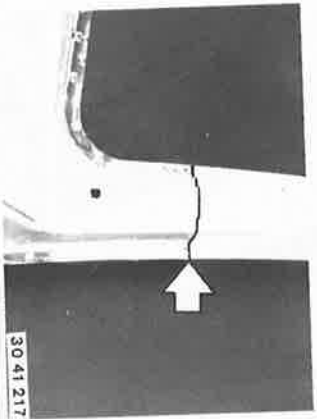
Clear joint and drill off welded spots.
Remove brazing solder.



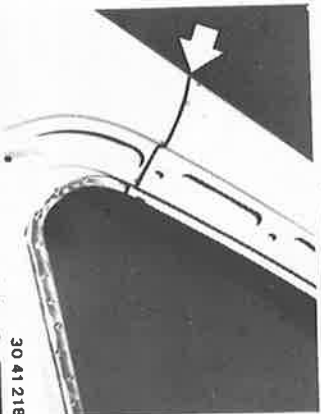
Grind off edge.



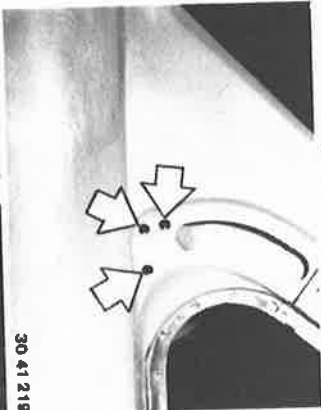
Cut through B pillar to end plate along marked cutting line.



Cut off side panel along line.
Caution!
Don't cut through guide plate for forced air extraction.



Drill off welded spots.



Cut off side panel on guide plate.
Remove side panel.

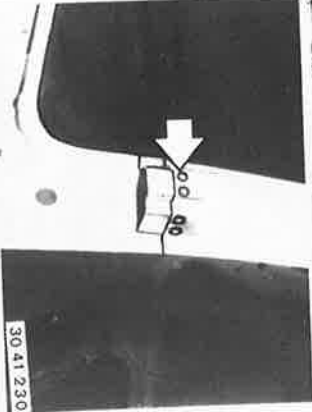


41-321

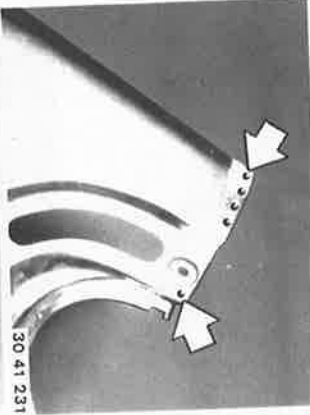
Cut brace to size, sliding half of it into C pillar and spot welding.



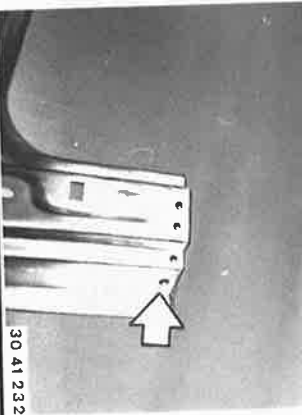
Cut brace to size, sliding half of it into B pillar and spot welding.



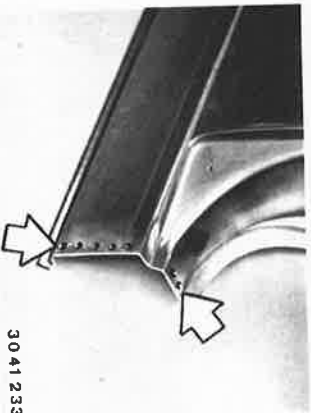
Drill holes for plug spot welding in C pillar joint.



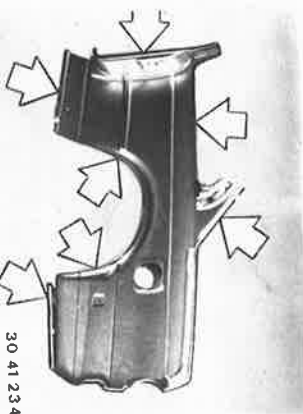
Drill holes for plug spot welding in B pillar joint.



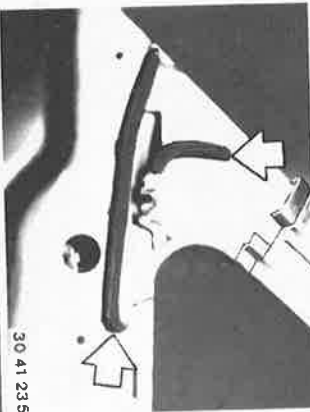
Drill holes for plug spot welding in entrance joint.



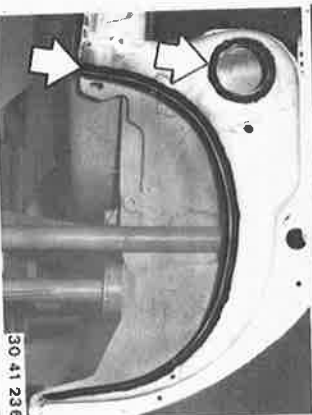
Grind mating surfaces on new side panel. Coat mating surfaces needed for spot welding with zinc dust paint.



Use body sealing compound on bearing surfaces of air guide plates.

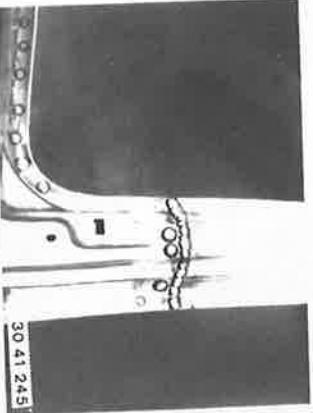


Apply coat of body sealing compound on bearing surface for fuel filler neck and on edge of wheel opening.

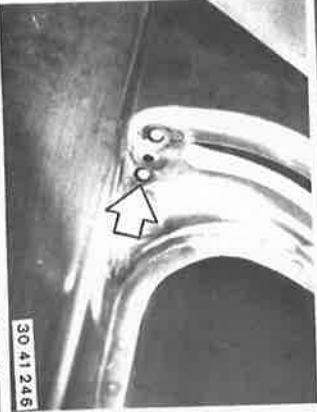


41-323

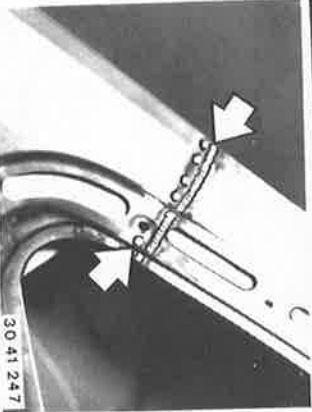
Plug spot weld joint on B pillar.
Inert gas weld joint.



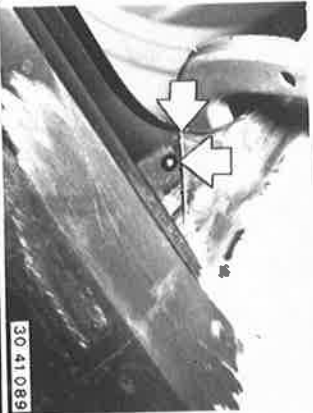
Inert gas plug weld cowl panel.



Plug spot weld joint on C pillar.
Inert gas weld joint.



Spot weld side panel on trunk opening edge.



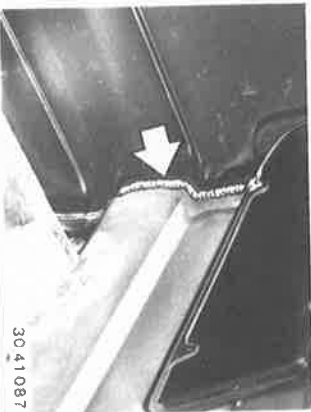
Braze joint.



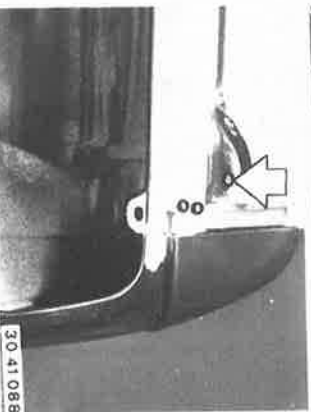
Inert gas weld side panel on tail panel.



Autogen weld connecting panel on tail panel
and side panel.



Spot weld tail panel on side panel.

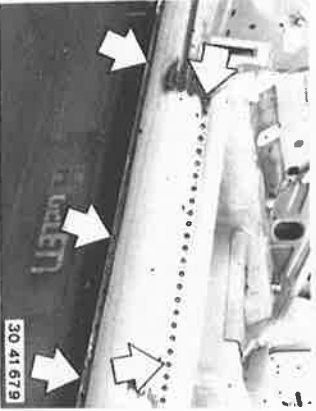


41-101C

41 11 520 REPLACING COVER FOR
LEFT OR RIGHT SIDE
MEMBER
(Rear Side Panel and Door Pillar
Removed)
— Convertible —

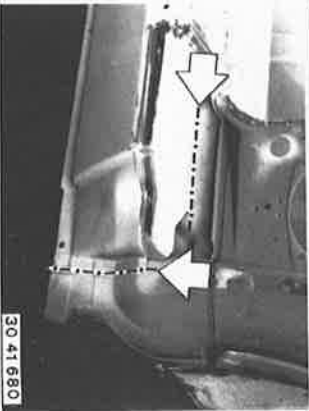
Refer to information on page 41 - 001.
Remove or cover up all car parts, which are
located in the repair area or subjected to heat,
sparks and dust.
Remove front side panel.
Remove rear side panel — see 41 35 111.
Remove door pillar with reinforcement — see
41 21 501.

Drill out spot welds.



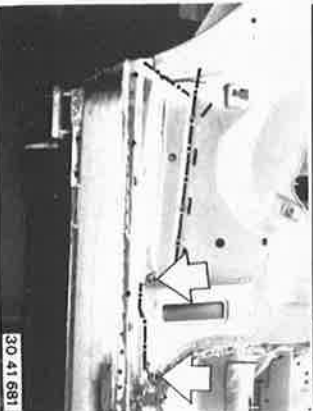
30 41 679

Grind off welding bead.



30 41 680

Drill out spot welds.
Grind off welding beads.



30 41 681



30 41 682

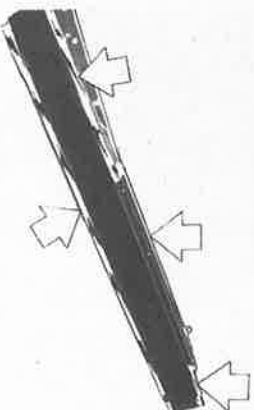
Grind off edge.
Lift off cover.
Important!
Don't damage the end plate.

Straighten and grind all mating surfaces.



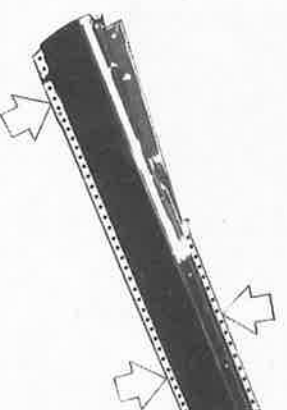
30 41 683

Grind mating surfaces on new cover.



30 41 684

Sheet metal panels are too thick for perfect
resistance spot welding with workshop
equipment.
Drill holes in all mating surfaces required for
plug spot welding.
Take spacing between holes from removed
part.



30 41 685

41-103C

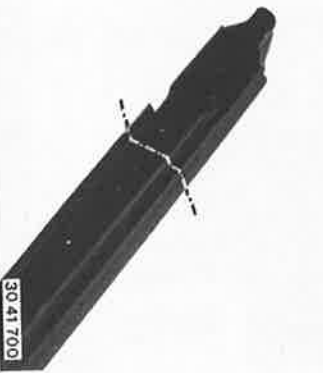
Plug spot weld connection on wheel house at rear.



After Installation of Door Pillar with Reinforcement and Rear Side Panel:
Seal off connections with body sealing compound.
Spray on anti-drumming compound on the wheel house, trunk floor plate and entrance from underneath.

41-105C

Make cutting line on new cover and cut off.



30 41 700

Fit in cover, cutting to size if necessary.



30 41 701

Mark location of and drill plug spot welding holes required for reinforcement strips.
Distance A = 30 mm (1.181").
Four holes each at top.
Six holes each at bottom.

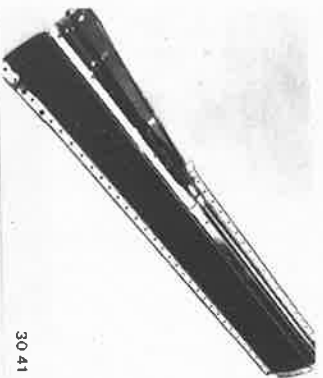


30 41 702

Lift off section panel.
Grind mating surfaces.
Deburr holes.

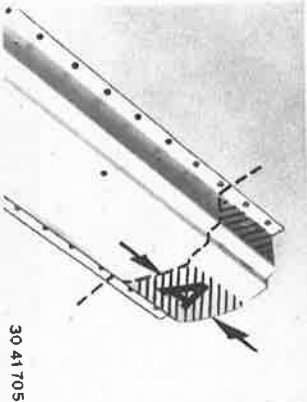


30 41 703



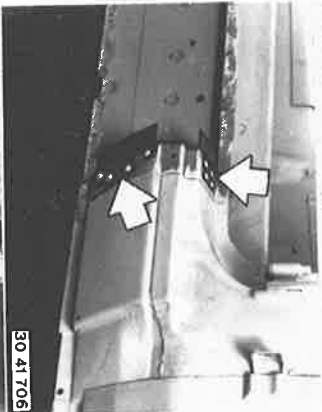
30 41 704

The sheet metal panels are too thick for perfect resistance spot welding with workshop equipment.
Drill holes for plug spot welding in all mating surfaces required for spot welding.
Take spacing between holes from the removed part.
Grind mating surfaces.
Deburr holes.



30 41 705

Prepare strips from the cut off cover for reinforcements.
A = 60 mm (2.362")



30 41 706

Slide in reinforcement strips half way, align and plug spot weld.

Clamp down and tack weld cover.



30 41 707

41-107 C

41 12 570 REPLACING TRUNK FLOOR
PLATE (Partial Replacement in
Front of Cross Member)
(Tail Panel Removed)
— Convertible —

Refer to information on page 41 - 001.
Remove or cover up all car parts, which are
located in the repair area or subjected to heat,
sparks and dust.

Make left and right connections accessible.



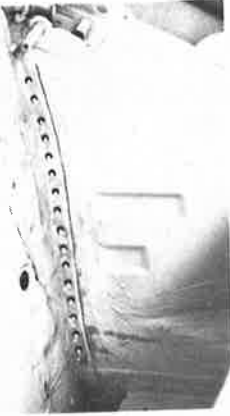
30 41 607

Mark cutting lines at height of transition on
left and right sides.

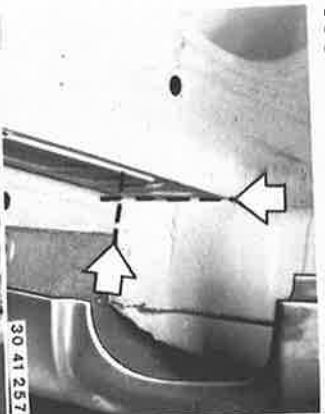


30 41 606

Drill out spot welds on left and right sides.



30 41 609



30 41 257

Cut off trunk floor plate from wheel house on
left and right sides.

Make left and right spot welding accessible and
drill out spot welds.



30 41 258

Drill out spot welds on side members forward
up to cutting line and approx. 80 mm (3.150")
toward rear.



30 41 612

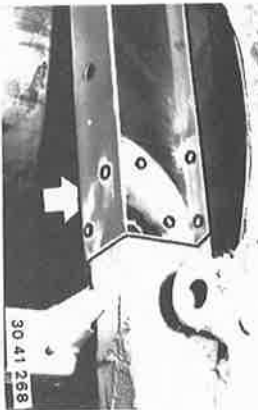
Make connections accessible.
Drill out spot welds.



30 41 611

41-109 C

Plug spot weld both side members.



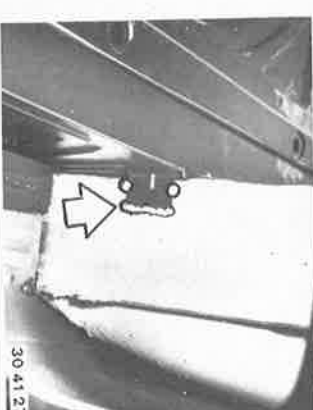
Plug spot weld front end of trunk floor plate on cross member, side members and wheel houses.



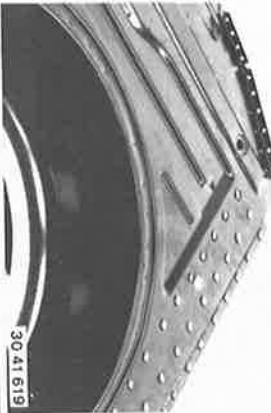
Spot weld connector on wheel house and side panel at left and right sides.



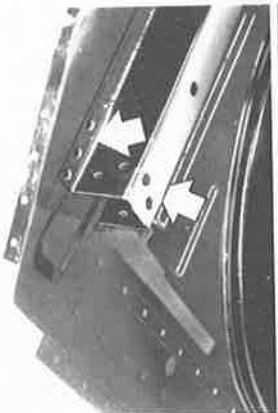
Weld on reinforcement brackets if necessary.



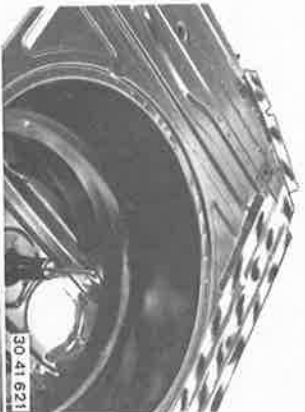
Lift off trunk floor plate.
Drill plug spot welding holes in mating surfaces which are not accessible for spot welding (cross member, partial replacement panel, wheel house).
Spacing between holes = 40 mm (1.575").



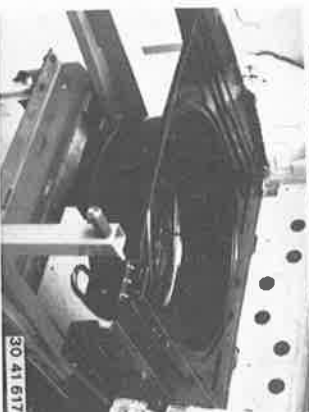
Drill plug spot welding holes in mating surfaces for side members.
Note:
Drill the holes in the flanges of side members through the trunk floor plate.



Grind all mating surfaces.
Coat mating surfaces required for spot welding with zinc dust paint.



Insert trunk floor plate and align on straightening bench.



41-111C

41 12 585 REPLACING TRUNK FLOOR
PLATE (Partial Replacement
Behind Cross Member)
(Tail Panel Removed)
— Convertible —

Refer to information on page 41 - 001.
Remove or cover up all car parts, which are
located in the repair area or subjected to heat,
sparks and dust.

Uncover connections on left and right sides.



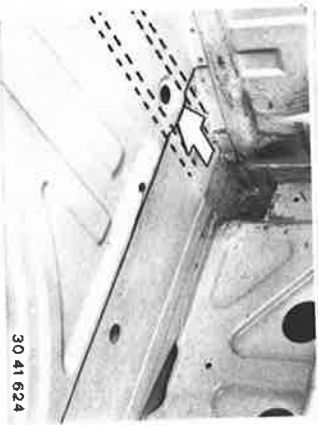
30 41 607

Mark cutting line behind flange of the cross
member.
(Cutting line is approximately along edge of
bead.)



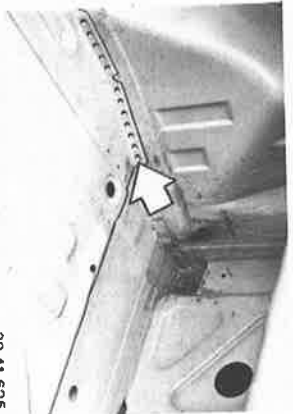
30 41 623

Cut off trunk floor plate along line.
Important!
Don't damage the side members.



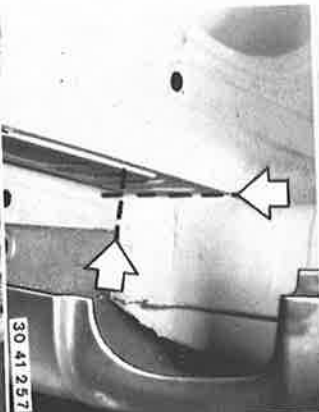
30 41 624

Drill out spot welds on left and right sides.



30 41 625

Cut off trunk floor plate at wheel house on
left and right sides.



30 41 257

Uncover and drill out spot welds on left and
right sides.



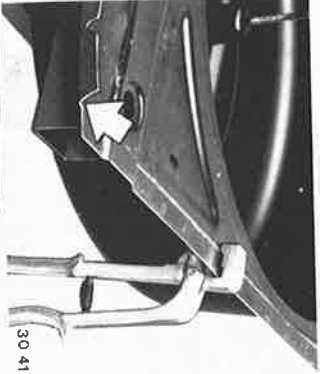
30 41 258

Drill out spot welds along side members
approx. 80 mm (3.150") toward rear.



30 41 626

41-113C



30 41 633

Shoulder overlap upwards.
Notch wheel house spot welding flange on left and right sides.



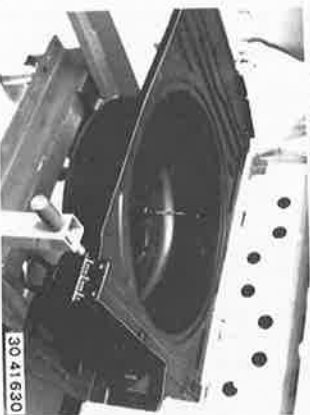
30 41 634

Drill plug spot welding holes in mating surfaces which are not accessible for spot welding.
Spacing between holes = 40 mm (1.575").



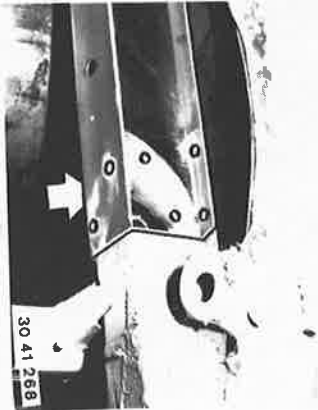
30 41 635

Grind all mating surfaces.
Coating mating surfaces required for spot welding with zinc dust paint.



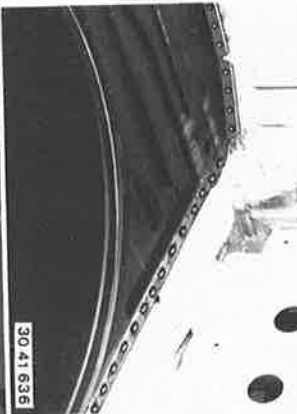
30 41 630

Insert trunk floor plate and align on straightening bench.



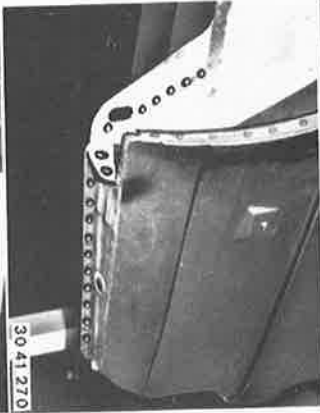
30 41 258

Plug spot weld both side members.



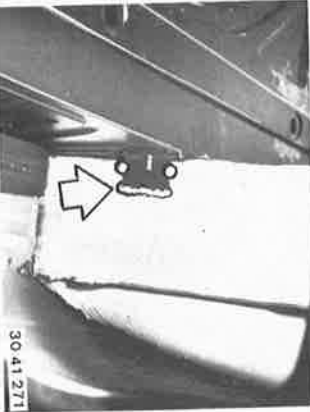
30 41 636

Plug spot weld trunk floor plate on the cross member, side members and wheel houses.



30 41 270

Spot weld connector on wheel house and side panel at left and right sides.



30 41 271

Weld on reinforcement brackets, if necessary.

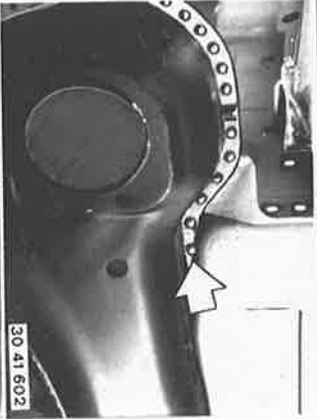
41-117C



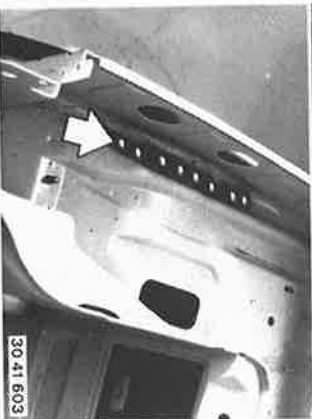
Drill plug spot welding holes through the reinforcement and wheel house outer section in area of the front reinforcement.



Plug spot weld reinforcement and wheel house outer section on the wheel house inner section.
Tack weld wheel house on the entrance cover strip.



Plug spot weld areas which are accessible for plug spot welding.



Plug spot weld the top box through provided holes.



Inert gas weld wheel house outer section with the inner section in area of the top box by producing beads.



Weld bottom of wheel house on the end plate.

After Installation of Side Panel:
Seal off joints with a body sealing compound.
Spray an antirunning compound on the wheel house.

41-325

41 35 291 REPLACING RIGHT REAR SIDE PANEL (PARTIAL REPLACEMENT UP TO WINDOW LINE)
— Four Door Model —

Refer to information on page 41-001. Remove or disconnect following parts. Complete trunk trim, trunk lid seal, rear bumper, right tail light assembly, upper tail panel plate, spare wheel, rear seat cushion and backrest, hatrack, rear window with frame, entrance cover strip with plate, roof liner as required, carpet as required, rear seat belt, rear door edge guard, door striker, C pillar plate, rear wheel, wheel house cover, expansion tank, fuel tank and thrust strut mountings.

Remove brazing solder.
Drill off welding spots.

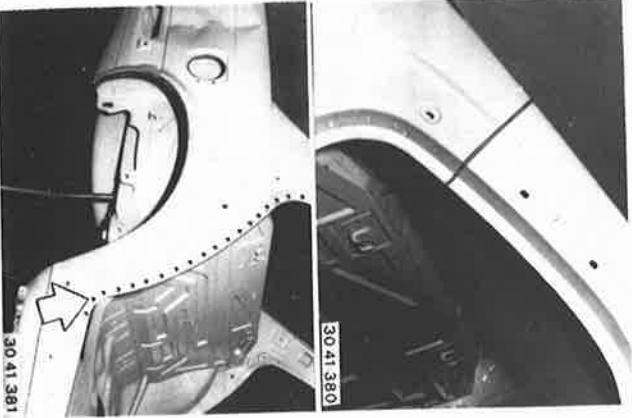
Uncover and drill off welding spots.



Cut out side panel along line.



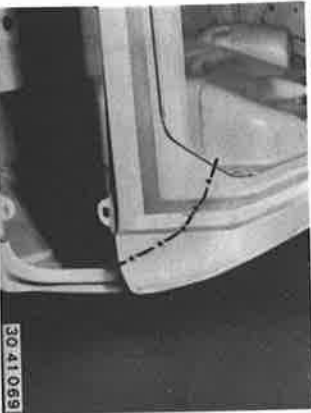
Cut off side panel along line from tail panel.



Uncover and drill off welding spots.

Determine cutting line for partial replacement. Cut through side panel along cutting line up to end plate.

Caution!
Don't damage or bend the end plate.
Note:
Make cut in such a manner that the paint finish to the roof can be touched up.

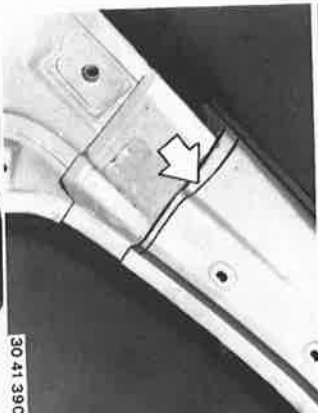


41-327

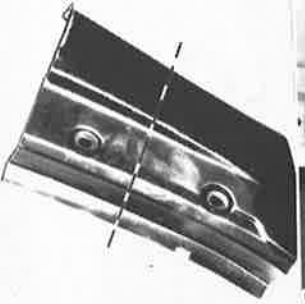
Mount side panel and mark cutting point.



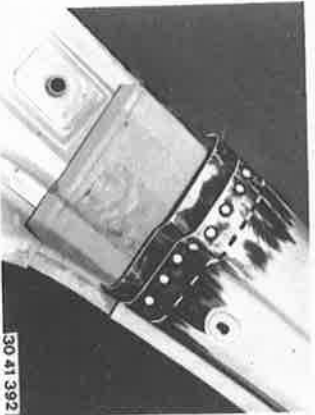
Remove scrap metal on C pillar.
Caution!
Don't damage end plate on inside.



Prepare an approx. 50 mm (2") wide brace from a section of the new side panel.



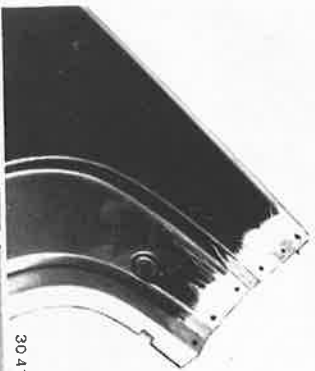
Slide half of brace into C pillar and spot weld.



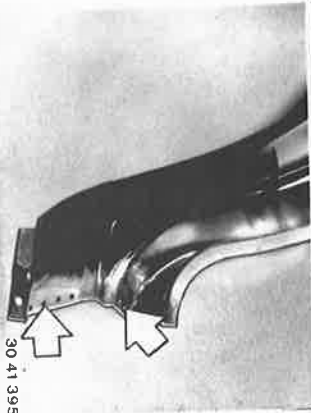
Grind mating surfaces on new side panel.
Coat mating surfaces required for spot welding with zinc dust paint.



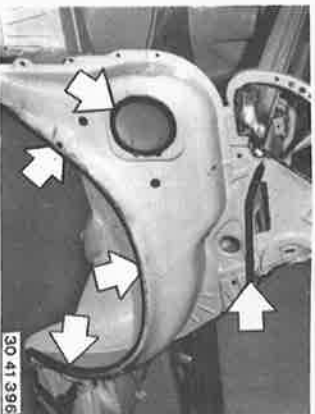
Drill holes for plug spot welding in C pillar joint.



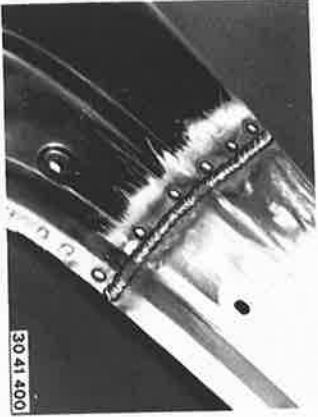
Drill holes for plug spot welding in entrance joint.



Apply a coat of body sealing compound on the bearing surfaces of the wind guide plate, tank filler neck and wheel opening.



41-329



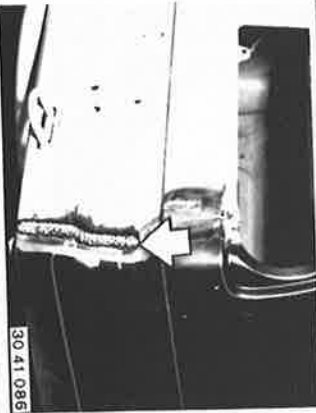
Plug spot weld connection on C pillar.
Inert gas weld joint.



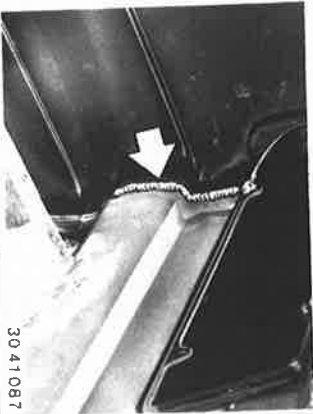
Spot weld side panel in trunk lid opening.



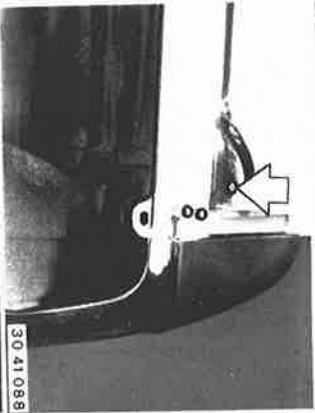
Braze joint.



Weld side panel on tail panel (with an inert gas welder).
Grind down welding seam.



Weld web on tail panel and side panel from inside (with autogen welder).



Spot weld tail panel on side panel.



Braze and grind down joint between side panel and tail panel.



Grind down joint on entrance, tinning if necessary.

41-331

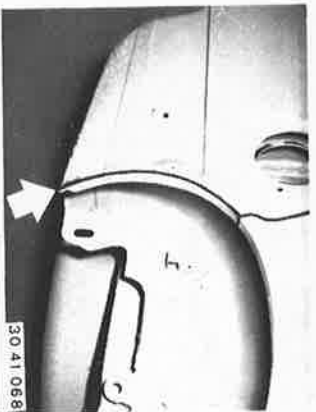
41 35 338 REPLACING RIGHT REAR SIDE PANEL (PARTIAL REPLACEMENT UP TO WHEEL HOUSE)

Refer to information on page 41 - 001. Remove bumper assembly, tail lights, trunk mat, rear trim panel, right wheel house trim panel, tail panel trim panel, tail panel plate, trunk lid seal, fuel tank assembly, right wheel house cover, fuel filler neck and right expansion tank.

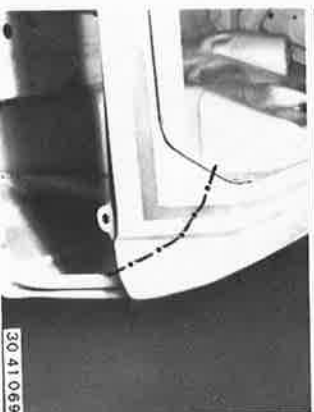
Draw cutting line for partial replacement.

Cut off side panel along the line.

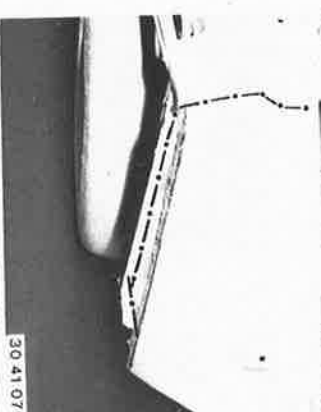
Cut off side panel along the line.



Cut off side panel around the wheel opening.

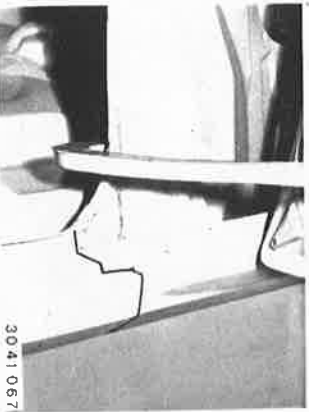


Cut off side panel on the tail panel.



Cut off side panel on tail panel and trunk side section. Take off side panel section.

Remove scrap metal.



30 41 067

30 41 066

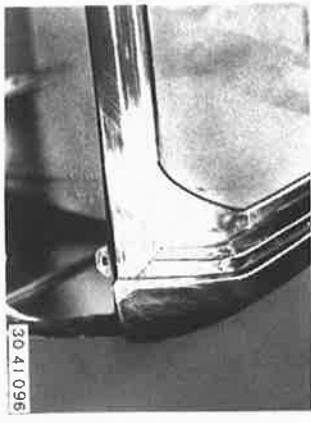
30 41 065

30 41 070

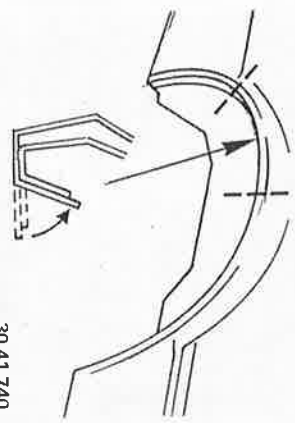
30 41 071

41-335

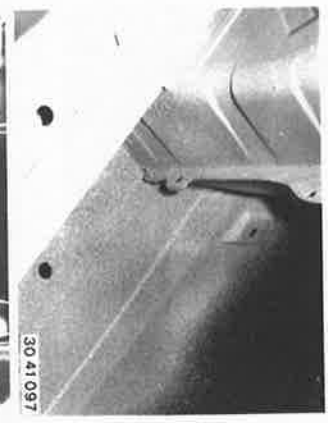
If applicable, tin upper tail panel connecting joint.



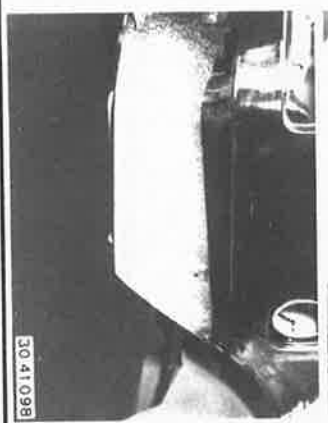
Important!
The spot welding flange in the rear area of the wheel housing opening must be cringed on cars beginning with 1988 models or when using wider tires.
Compare with opposite side if necessary.



Seal all joints with body sealing compound*.
Spray with anti-drumming compound*.



Spray an anti-drumming compound* on side panel/tail panel joint underneath the bumper.

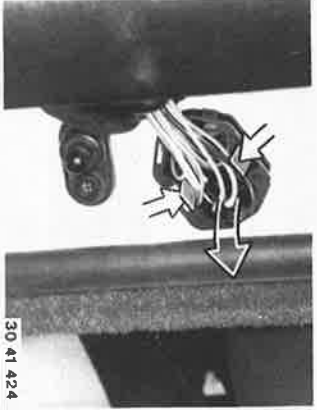


* Source of Supply: HMB

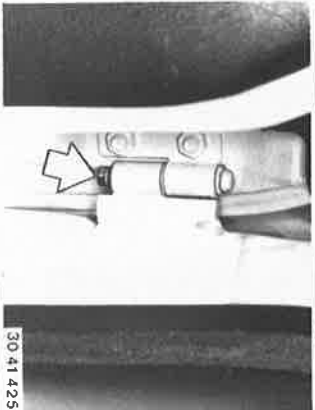
41-503

41 51 080 REMOVING AND INSTALLING
LEFT OR RIGHT FRONT DOOR
— Unhinging Door Version —

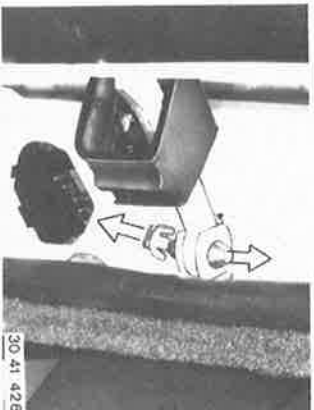
Disconnect plug for A pillar.



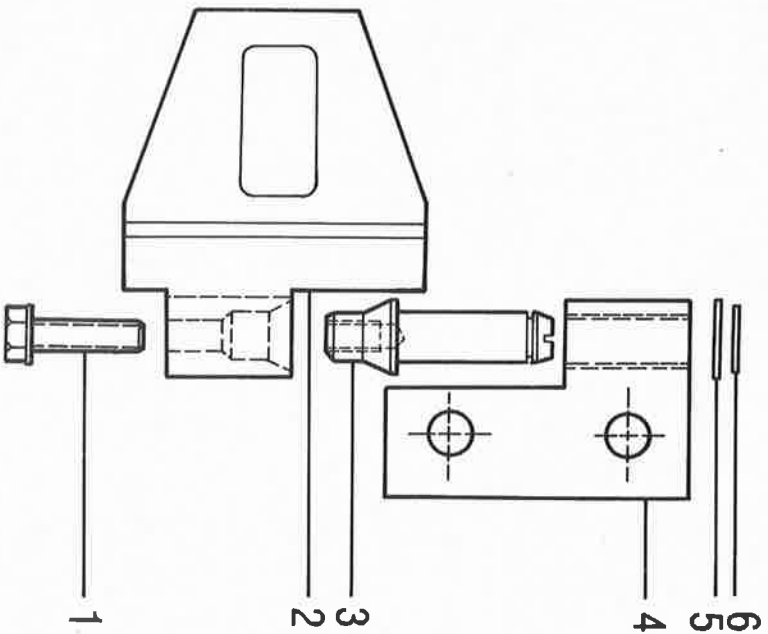
Unscrew bolts at top and bottom.



Lift off rubber cap.
Pull off retainer.
Press out pin.
Caution!
Be careful not to damage the side panel or
outside of the door when opening the door.



Unhinge front door from above.



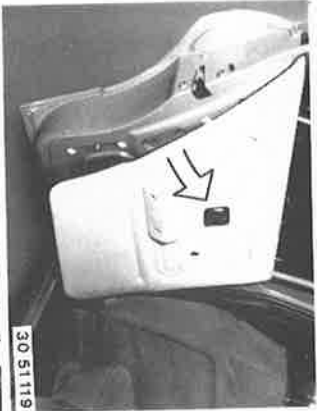
30 41 432

- 1 Bolt
 - 2 Body end hinge*
 - 3 Hinge pin
 - 4 Door end hinge with bearing sleeve*
 - 5 Washer
 - 6 Lock washer
- * Sketch shows the top hinge.
The bearing surface is inversed on the
bottom hinge.

41-505

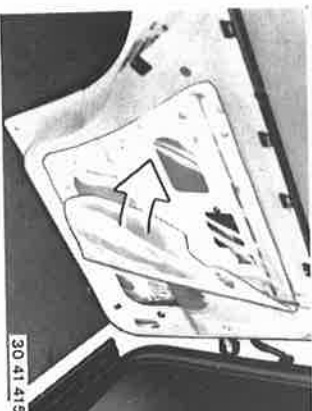
41 52 004 ADJUSTING LEFT OR RIGHT REAR DOOR

Adjusting Rear Door on Hinges:
Remove door trim panel — see 51 42 001.



30 51 119

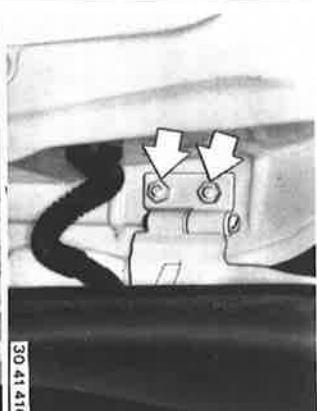
Pull off plastic sheet on door as required.
Replace damaged plastic sheet.



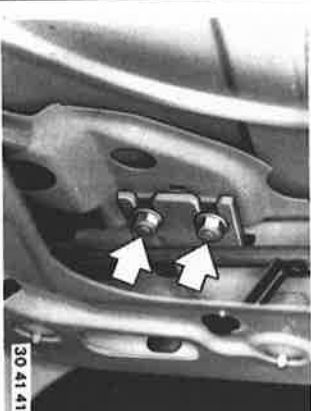
30 41 415

Loosen top bolts.
Note:
Engine hood, trunk lid and doors are fitted and bolted in an unfinished body shell. Subsequent adjustments could uncover unpainted surfaces. These unpainted surfaces must be touched up with paint of same color.

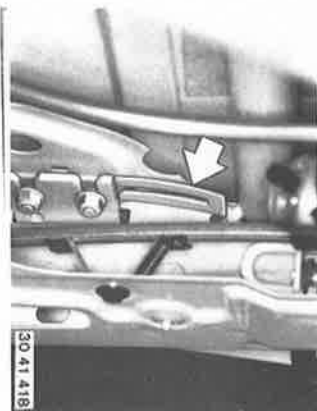
Loosen bottom bolts.



30 41 416

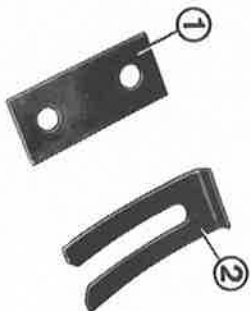


30 41 417



30 41 418

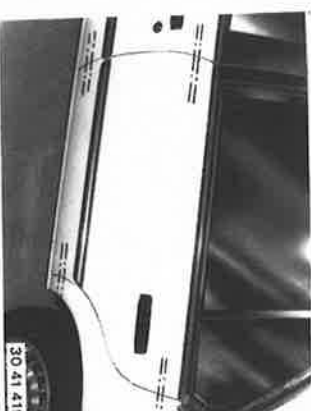
Adjust door panel outside surface to be in same plane with that of front door.



Note:
Make basic adjustments with 1 mm (0.039") thick washers (1).
Final adjustments are made with washers (2) available optionally 0.5 mm (0.020") and 1.0 mm (0.039") thick.

30 41 408

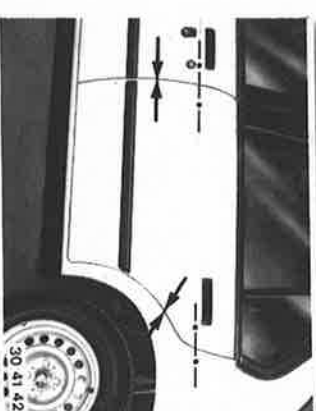
Note:
To prevent wind noise and stone damage or to eliminate optical irregularities (tolerances in the curvature), the outside surface may be "adjusted deeper" than the front door by max. 1 mm (0.039").



30 41 419

Adjust door forward and back in such a manner, to have an uniform gap at front and rear.
Adjust height of door according to embossed edge.

Note:
Loosen striker of door lock, if necessary.

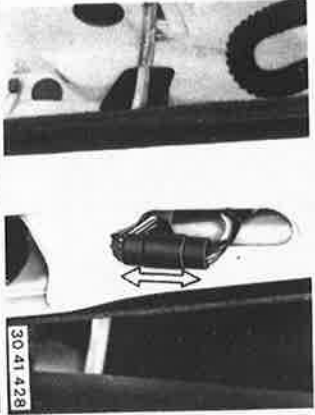


30 41 420

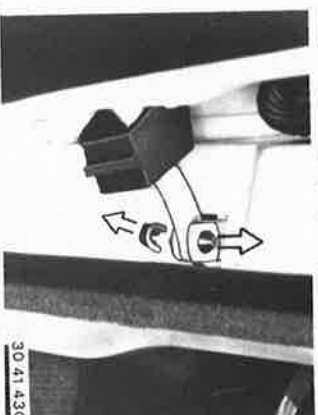
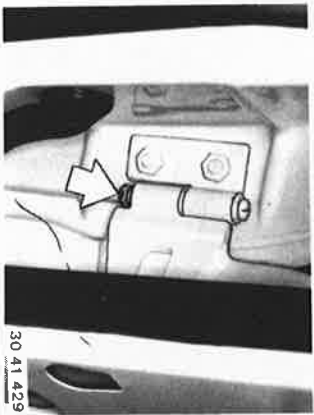
41 - 507

41 52 080 REMOVING AND INSTALLING LEFT OR RIGHT REAR DOOR — Unhinging Door Version —

Note:
The plug in the B pillar of cars with power windows or central locks must be disconnected.
Remove plate for B pillar — see 51 43 150.
Pull door wire harness out of B pillar.



Unscrew bolts at top and bottom.



Lift off rubber cap.
Pull off retainer.
Press out pin.
Open front door.
Caution!
Be careful not to damage outside of door and pillar (B) when opening the rear door.

Unhinge rear door from above.



41-601

41 61 014 ALIGNING ENGINE HOOD

Note: Engine hood, trunk lid and doors are fitted and bolted in an unfinished body shell. Subsequent adjustments could uncover unpainted surfaces.

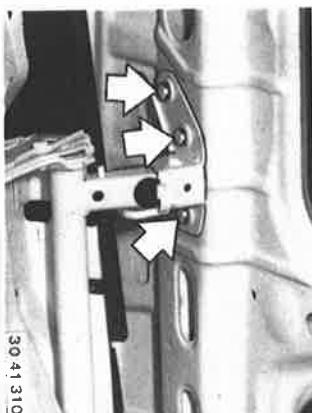
These surfaces must be touched up with paint of same color.

Adjusting Engine Hood in Body Opening: Screw in left and right stop pads completely.

Installation:

Unscrew stop pads after finishing adjustments to have engine hood rest on them with slight tension and in same plane with side panels.

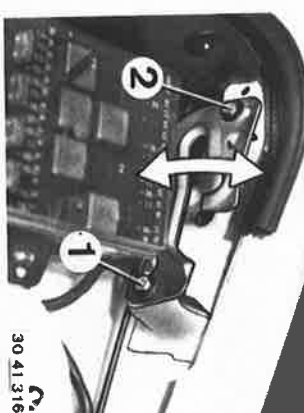
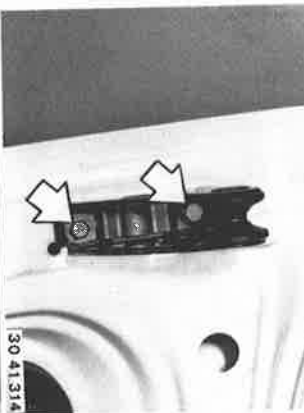
Loosen bolts on left and right sides.



Align engine hood to side panels at front and sides.

Engine Hood Height at Front End:

Loosen bolts (1 and 2) on left and right sides. Adjust console up or down with screw (2).



Adjust height of engine hood that hood is approx. 1 mm (0.039") deeper than the side panels.

Adjusting Rear Guide Roller:

Loosen bolts.

Adjust holder laterally until guide roller slides into catch perfectly. Check gap between side panel and engine hood on left and right sides.

Engine Hood Height at Rear End:

Loosen bolts (1 and 2). Adjust catch with bolt (2) in such a manner that surface of closed engine hood is in same plane with side panels.

51 Body Equipment

51 00	Instructions for repairing plastic bumpers	51 - 110
	Front bumper survey - solid plastic version	51 - 112
	Front bumper survey - solid plastic version (M 3)	51 - 113
51 11 000	Front bumper - remove and install	51 - 114
071	Front bumper side section, left or right - replace	51 - 115
163	Front bumper impact absorbers - replace	51 - 116
167	Front bumper rubber guard - replace	51 - 116
	Rear bumper survey (M 3)	51 - 120
51 12 000	Rear bumper - remove and install	51 - 121
170	Rear bumper impact absorbers - replace	51 - 122
190	Rear bumper upper cover plate - remove and install	51 - 123
201	Rear bumper side section, left or right - replace	51 - 124
421	Rear bumper rubber guard - replace	51 - 125
51 13 000	Radiator grill center section - remove and install	51 - 130
040	Radiator grill side section - remove and install	51 - 130
076	Air inlet grill for heater - remove	51 - 130
311	Rain molding strip, left or right - replace	51 - 131
51 14 000	BMW emblem, front - remove and install	51 - 140
010	BMW emblem, rear - remove and install	51 - 140
110	Rear model sign - replace	51 - 141
51 15 300	Rubbing strip on left or right front side panel - remove and install or replace	51 - 150
330	Rubbing strip on left or right front door - remove and install or replace	51 - 150
360	Rubbing strip on left or right rear door - remove and install or replace	51 - 150
390	Rubbing strip on left or right rear panel - remove and install or replace	51 - 150
51 16 000	Mirror on left or right front door - remove and install	51 - 160
026	Mirror glass - replace	51 - 160
060	Mirror on inside of car - remove and install	51 - 161
200	Center console - remove and install	51 - 162
360	Glove box, right - remove and install	51 - 164
450/480	Grab handle - remove and install	51 - 164
51 21 003	Front door striker, left or right - replace	51 - 210

51 Body Equipment

51 31	...	Rear window installation (M 3)	51 - 316
51 32	020	Repairing stone damage on laminated safety glass windshields (clear and tinted)	51 - 319/A
154		Window regulator in front door, left or right - remove and install or replace	51 - 320
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51 34	020	Front door window (fixed) - remove and install or replace	51 - 325
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171		Window regulator in rear door, left or right - remove and install or replace	51 - 340
191		Rear door window, left or right - adjust	51 - 341
51 36	050	Rear door window, left or right - replace	51 - 342
071		Rear side window, left or right - remove and install	51 - 344
545		Rear side window, left or right - replace	51 - 360
51 37	000	Ornamental strips on rear side window - replace (side window removed)	51 - 361
154		Power window, rear, left or right - remove and install	51 - 370
		Rear side window, left or right - adjust	51 - 372

51 Body Equipment

51 71 446	Trim panel for cover on side member – replace	51 - 714
456	Stone guard panel, rear – replace	51 - 716
412	Rear spoiler – Install	51 - 756
414	Rear spoiler – Install (M-Technic)	51 - 757
...	Footrest – Install (M-Technic)	51 - 759
51 ...	Central locks with double-lock – description / troubleshooting	51 - 800
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	B. Locking not possible	51 - 805
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	6. No function when operating double-lock	51 - 808
	Power windows – description / troubleshooting	51 - 810
	Troubleshoot:	
	1. Failure of entire system	51 - 811
	2. No function when operating push button for power window in driver's door	51 - 812
	3. No function when operating push button for power window in left rear door (on center console)	51 - 813

Procedures:

1. Clean the area to be repaired with a cement remover.

Note:

Let cleaned surface dry at room temperature about 10 minutes before application of the repair material.

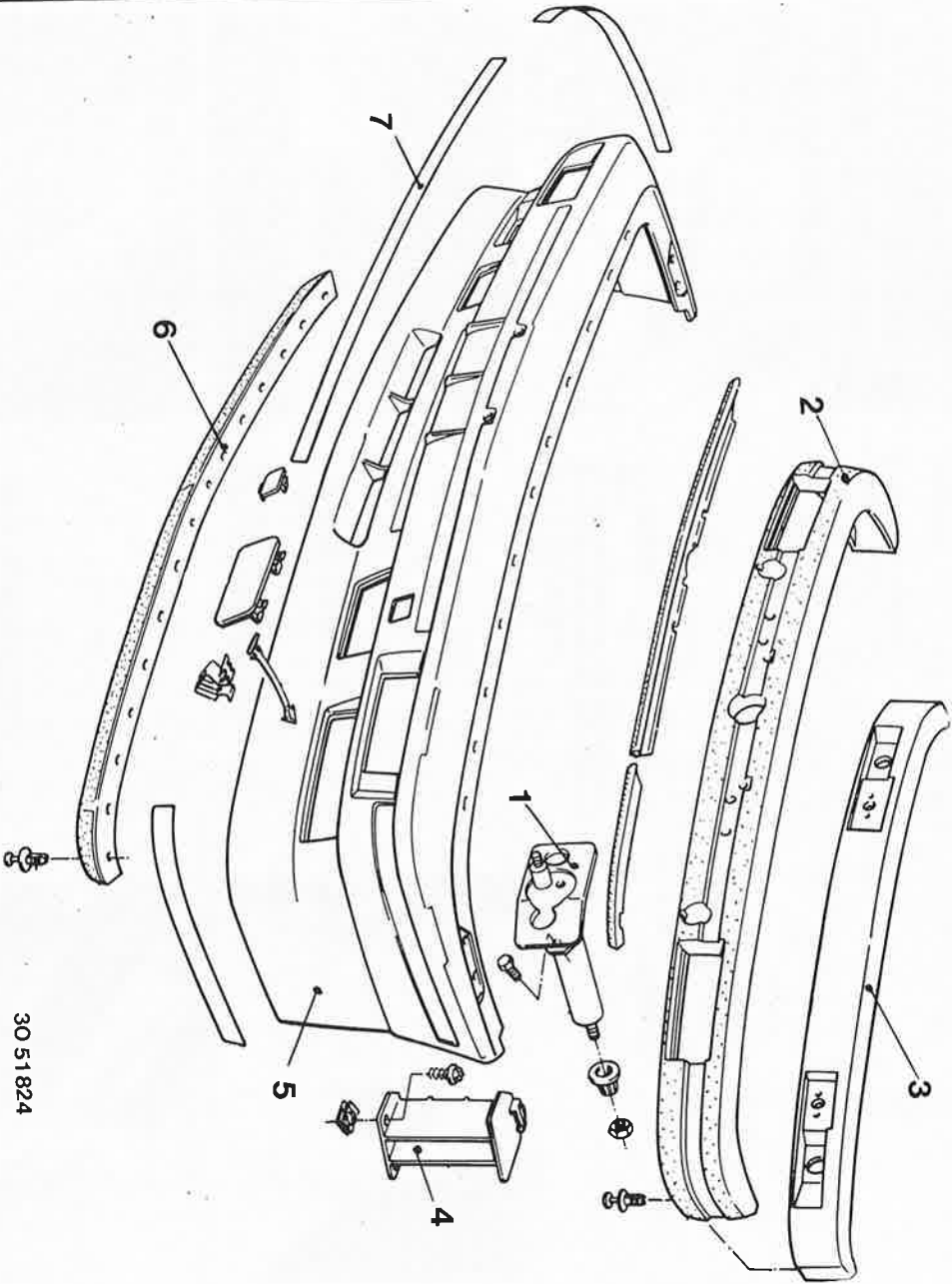
2. Grind down repair surface (grain size P 80).
Grind damaged surface in V-shape (grain size P 36).
If damage continues through the plastic, clean the back side of the repair surface with a cement remover and grind (grain size P 36).
3. Remove grinding abrasion.
4. Paste aluminum adhesive tape above the damaged surface on the front.
5. Cut glass grid fabric to size for the repair surface.
6. Mix repair material to the instructions supplied with it.
7. Apply a coat of repair material on the back of the repair surface. Apply the glass grid fabric, cover it with repair material and let it harden at room temperature about 20 minutes.
8. Pull off aluminum adhesive tape and, if necessary, grind down and clean the repaired surface again.
9. Apply coat of repair material on the front and let it harden.
10. Grind down the repaired surface (grain size P 80) and smooth with grain size P 180.

Important!

It is absolutely necessary to use the specified grain size grinding materials in order to guarantee perfect results (thermal development).

51-113

FRONT BUMPER ASSEMBLY DRAWING - M 3

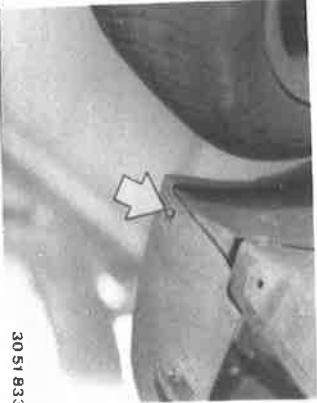


- 1 Bracket with mounting parts
- 2 Foam rubber inlet
- 3 Bumper carrier
- 4 Bracket on side panel
- 5 Bumper trim panel
- 6 Spoiler
- 7 Ornamental strip

30 51 824

51-115

BMW M 3:
Unscrew screws of engine splash guard.

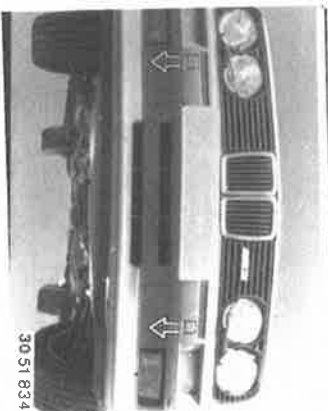


30 51 833

Lift out covers.
Unscrew bolts.

Installation:
Tightening torque*:

Pull off electric leads on turn signals, front fog lamps and temperature sensor.
Lift out bumper.



30 51 834

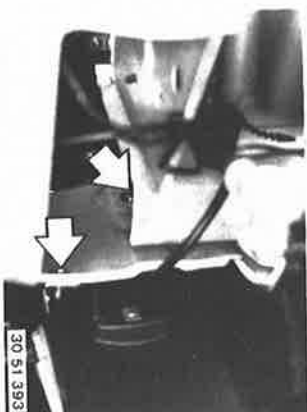
51 11 071 REPLACING LEFT OR RIGHT FRONT BUMPER SIDE SECTION

Remove front bumper – see 51 11 000.
Unscrew light.
Pull off plug.



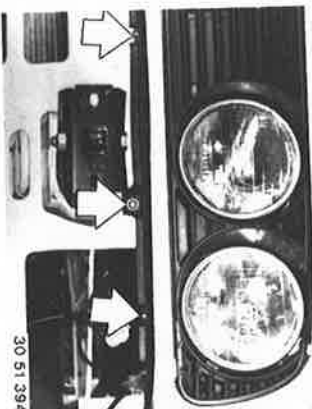
30 51 392

Unscrew bolts.



30 51 393

Unscrew bolts.
Take off side section of bumper.

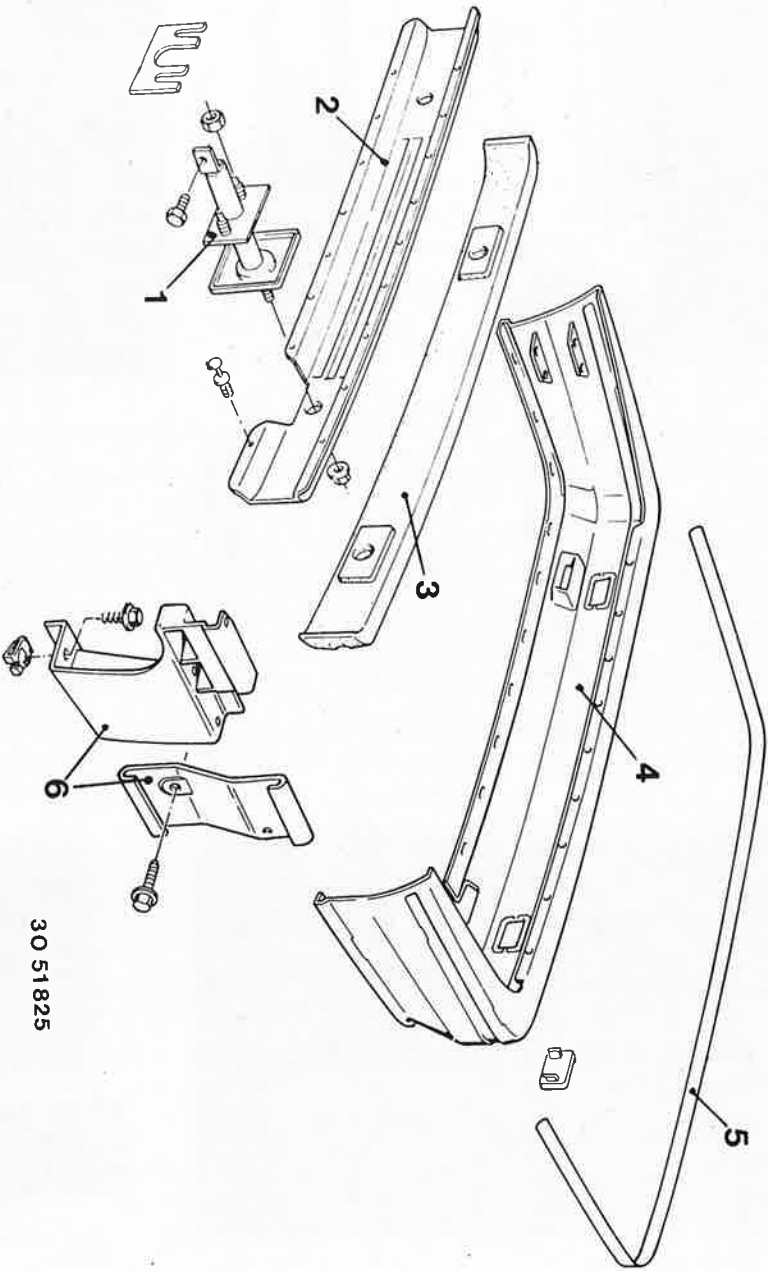


30 51 394

* See Specifications

51-120

REAR BUMPER ASSEMBLY DRAWING - M 3

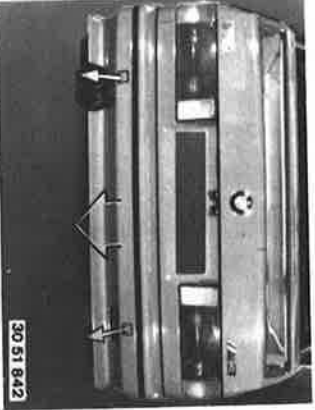


30 51825

- 1 Bracket with mounting parts
- 2 Bumper carrier
- 3 Foam rubber inlet
- 4 Bumper trim panel
- 5 Ornamental strip
- 6 Bracket on side panel

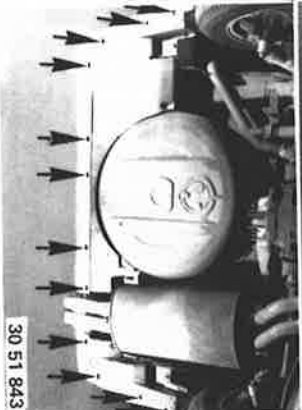
51-122

BMW M 3:
Unscrew screws.



30 51 842

Lift out cover.
Unscrew bolts.
Installation:
Tightening torque.



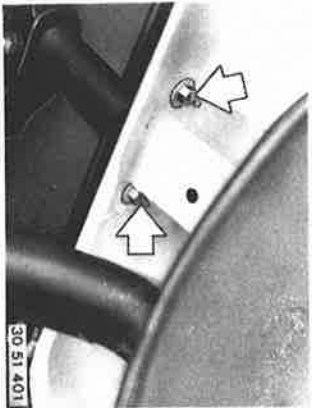
30 51 843

Lift out bumper.

**51 21 170 REPLACING BOTH IMPACT
ABSORBERS FOR REAR
BUMPER**

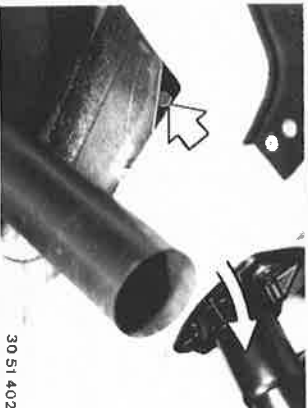
Remove rear bumper – 51 12 000.

Left Absorber:
Unscrew bolts.



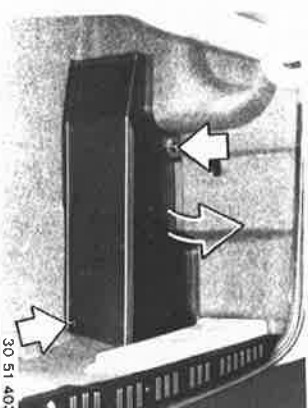
30 51 401

Unscrew bolt.
Remove absorber.



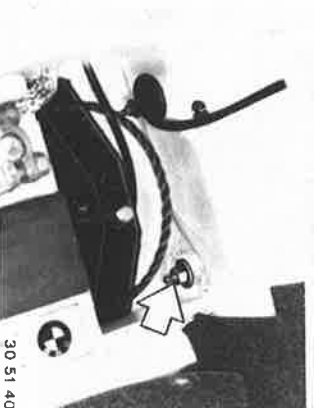
30 51 402

Right Absorber:
If applicable, unscrew cover and
remove panel.



30 51 403

Unscrew screw.



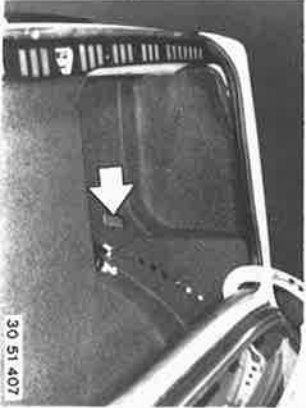
30 51 404

* See Specifications

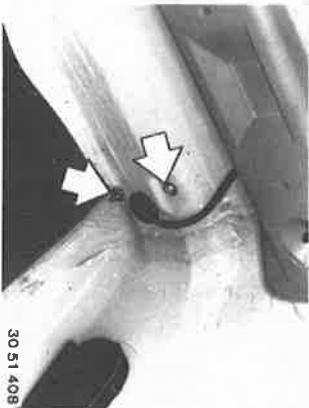
51-124

51 12 201 REMOVING AND INSTALLING LEFT OR RIGHT REAR BUMPER SIDE SECTION

Left Side:
Disconnect battery ground lead.
Unscrew bolt.



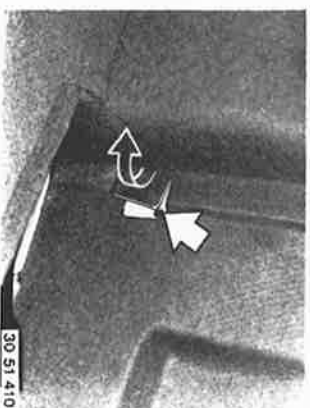
**If applicable, lift out tail light.
Lift out trim panel partially.
Unscrew bolts.**



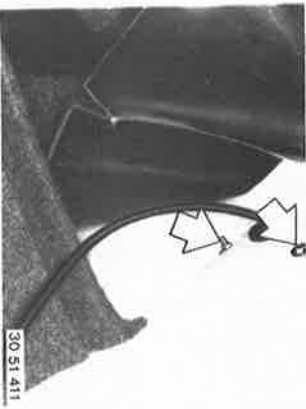
**Unscrew bolts.
Take off bumper side section and pull
off plug.**



Right Side:
Unscrew bolt.



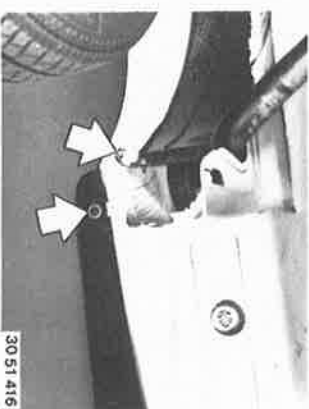
Unscrew bolt.



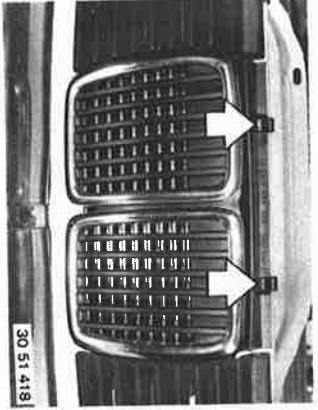
Unscrew bolts.



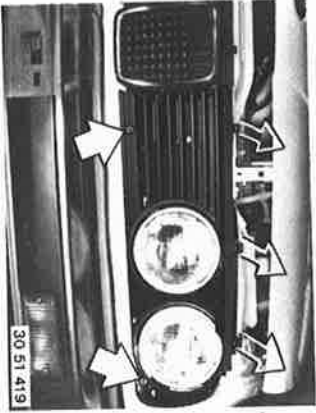
**Unscrew bolts.
Take off bumper side section and pull
off plug.**



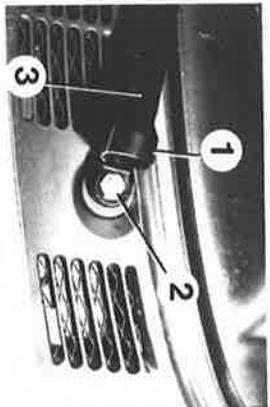
51-130



51 13 000 REMOVING AND INSTALLING
RADIATOR GRILL CENTER
SECTION
Open engine hood.
Remove clamps.
Remove grill.



51 13 040 REMOVING AND INSTALLING
RADIATOR GRILL SIDE
SECTION
Lift off clamps.
Unscrew screws.
Remove grill.



51 13 076 REMOVING HEATER AIR
INLET GRILL
Lift out cover (1).
Unscrew nut (2).
Take off windshield wiper arm (3).



Lift out grill.



51-140

51 14 000 REMOVING AND INSTALLING FRONT BMW EMBLEM

Lift out emblem carefully.



Installation:
Replace plastic clip, if necessary.
Use Terostat tape.

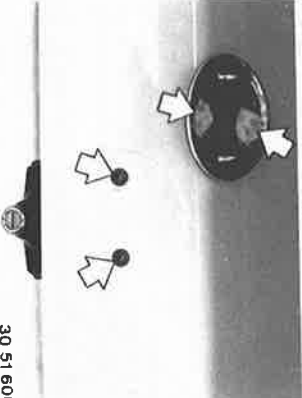


51 14 010 REMOVING AND INSTALLING REAR BMW EMBLEM

Lift out emblem carefully.

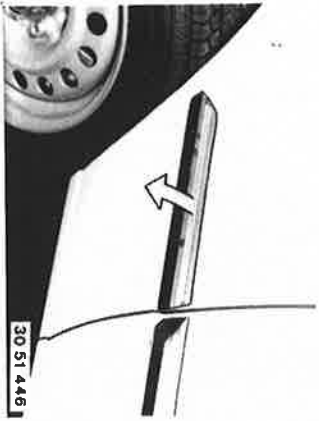


Installation:
Replace plastic clip, if necessary.
Use Terostat tape.



51-150

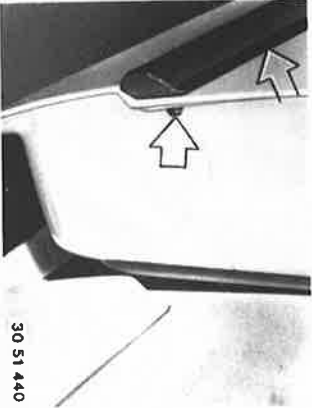
51 15 300 REMOVING AND INSTALLING
OR REPLACING RUBBING
STRIP ON LEFT OR RIGHT
FRONT SIDE PANEL



30 51 446

Pull off rubbing strip.
Installation:
Replace clips, if necessary.

51 15 330 REMOVING AND INSTALLING
OR REPLACING RUBBING
STRIP ON LEFT OR RIGHT
FRONT DOOR

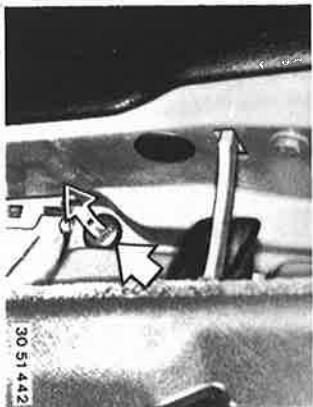


30 51 440

Unscrew screw.
Pull off rubbing strip.

Installation:
Replace clips, if necessary.
First engage rubbing strip in the bevelled
clip and then press on.

51 15 360 REMOVING AND INSTALLING
OR REPLACING RUBBING
STRIP ON LEFT OR RIGHT
REAR DOOR

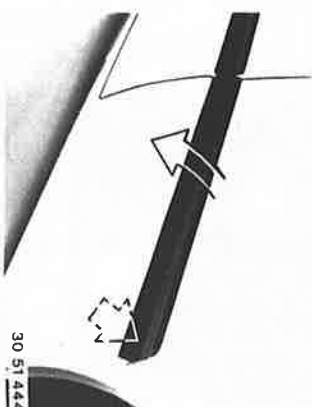


30 51 442

Lift out plug.
Unscrew screw.

Pull off rubbing strip.
Installation:
Replace clips, if necessary.
First engage the rubbing strip in the bevelled
clip and then press on.

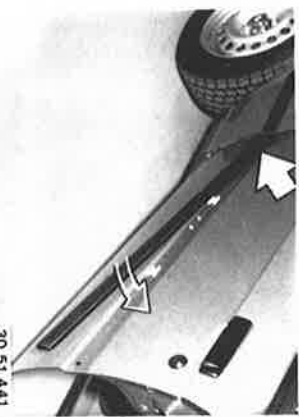
51 15 390 REMOVING AND INSTALLING
OR REPLACING RUBBING
STRIP ON LEFT OR RIGHT
REAR SIDE PANEL



30 51 444

Unscrew screw.
Pull off rubbing strip.

Installation:
Replace clips, if necessary.
First engage rubbing strip in the bevelled
clip and then press on.



30 51 441

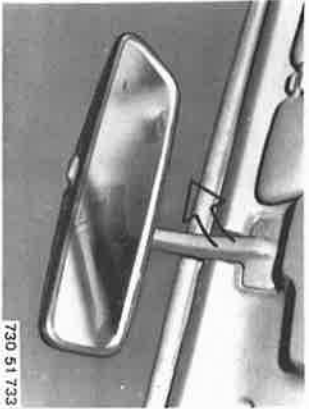


30 51 445

51-161

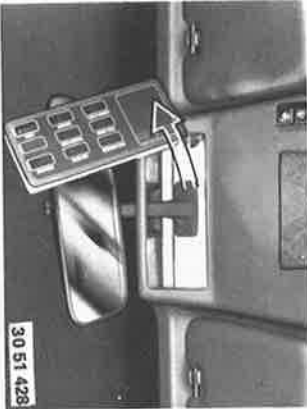
51 16 060 REMOVING AND INSTALLING INSIDE MIRROR

Lift off mirror.



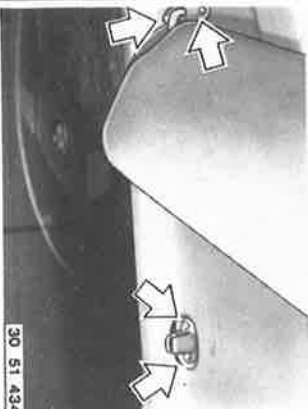
730 51 733

Installation:
If applicable, lift out display panel in cars with check control.



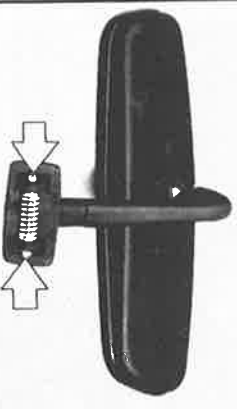
30 51 428

Installation:
If applicable, remove front roof liner plate (see 51 44 150) in cars with front roof liner plate without check control.



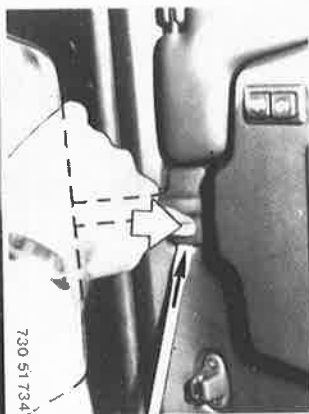
30 51 434

Installation:
Spring must be pressed together.



28 51 638

Installation:
Apply mirror diagonally and, if necessary, press on with handle of a hammer.



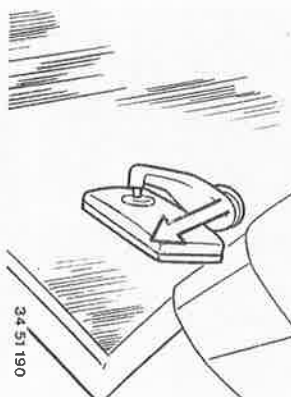
730 51 734

BMW Convertibles:
Pull mirror down off of the mirror socket.

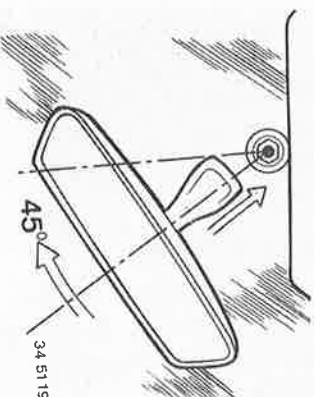


30 51 706

- Installation:*
1. Mount mirror base on mirror socket with an approx. 45° turn.
 2. Turn mirror base until it engages on the mirror socket.



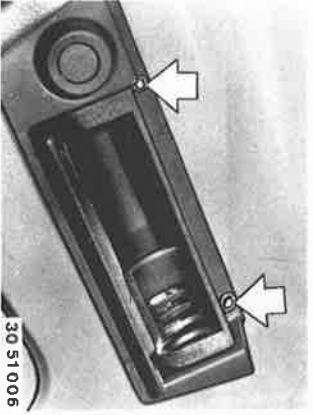
34 51 190



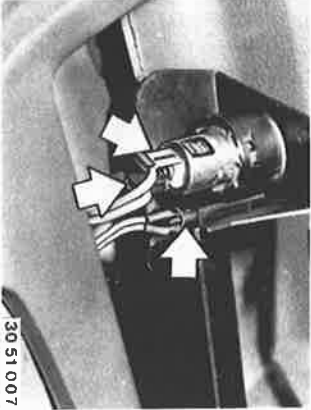
34 51 191

51-163

Unscrew bolts.
Lift out ashtray console.



Pull off ashtray light and wires for cigar lighter.



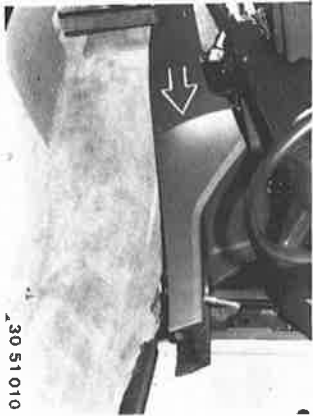
Unscrew bolt.



Remove retainers by turning clockwise and anticlockwise 90°.



↓ Pull out tray toward rear.



51-210

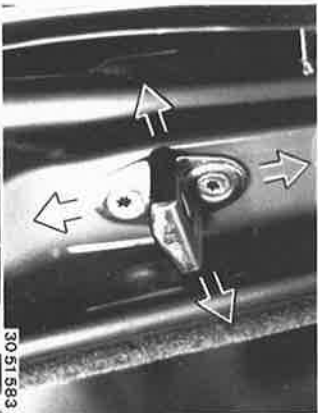
51 21 003 REPLACING LEFT OR RIGHT FRONT DOOR STRIKER

If applicable, mark installed position.
Unscrew bolts.

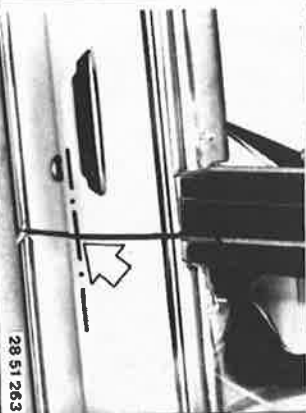


Four Door Model:
If applicable, remove B pillar trim – see
51 43 150.
Two Door Model:
If applicable, remove side trim panel – see
51 43 000.

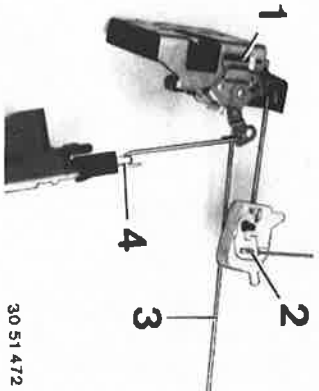
Installation:
Tighten striker bolts lightly in middle
position.
Close door with opened door handle.
This aligns the striker.



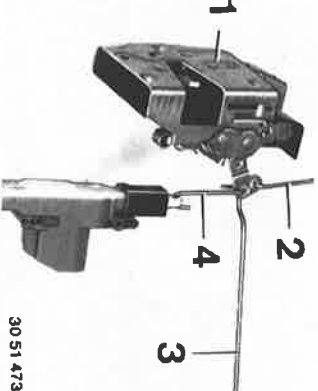
Tighten striker bolts.
Close door.
Check, correcting if necessary.
Edge of front door must be in same plane
with rear door or side panel.



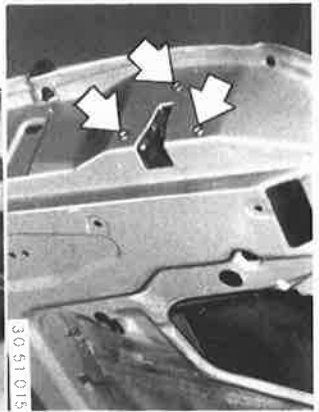
51-212



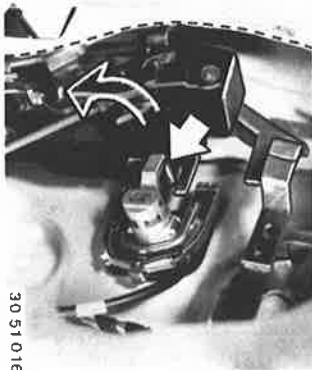
- Two Door Arrangement:
- 1 = Lock
 - 2 = Locking linkage
 - 3 = Door remote control linkage
 - 4 = Drive/connecting link



- Four Door Arrangement:
- 1 = Lock
 - 2 = Locking linkage
 - 3 = Door remote control linkage
 - 4 = Drive/connecting link



Unscrew bolts.



Disengage lock in lever on the lock cylinder.
Remove lock complete with remote control.

Convertibles:
Remove lock cylinder — see 51 21 140.

Installation:
Lubricate lock with grease*.

* Source: HWB

51-214

Driver's Door:

Installation:
Check for correct fit of spring in cars with central locks and unlocking arrest.



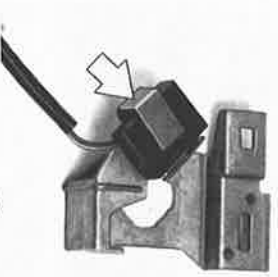
30 51 570

Installation:
Place drive for microswitch on holder.



30 51 474

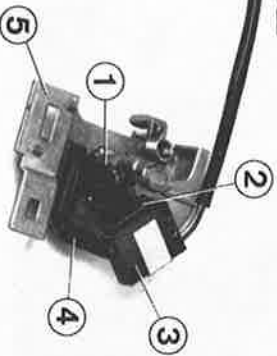
Installation:
Plug in microswitch and secure it with a clamp.



30 51 475

Driver's Door Lock Cylinder Layout:

- 1 = Lock cylinder
 - 2 = Drive for microswitch
 - 3 = Microswitch
 - 4 = Clamp
 - 5 = Holder
- Checking Microswitch:
Switch pressed = approx. 0 ohm
Switch opened = approx. ∞ ohms
Troubleshoot central locks — see page 51 - 800.



30 51 476

Front Passenger's Door:

Installation:
Place drive for microswitch on holder in cars with central locks.



30 51 070

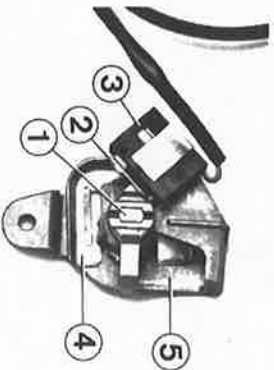
Plug in microswitch and secure it with a clamp.



30 51 071

Front Passenger's Door Lock Cylinder Layout:

- 1 = Lock cylinder
 - 2 = Drive for microswitch
 - 3 = Microswitch
 - 4 = Clamp
 - 5 = Holder
- Checking Microswitch:
Switch pressed = approx. 0 ohm
Switch opened = approx. ∞ ohms
Troubleshoot central locks — see page 51 - 800.

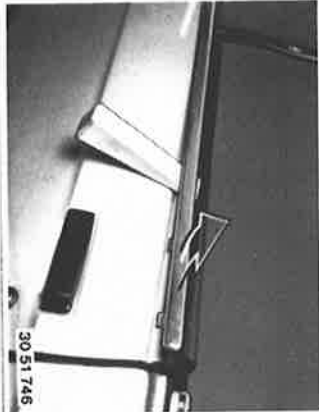


30 51 493

51-216

51 21 300
OR REPLACING OUTSIDE
WINDOW RECESS COVER
STRIP

If applicable, remove outside mirror — see
51 16 000.
Lift out cover strip from above carefully.

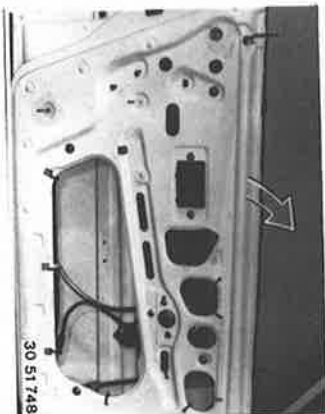


Installation:
Replace damaged clips.



51 21 330
OR REPLACING INSIDE
WINDOW RECESS COVER
STRIP

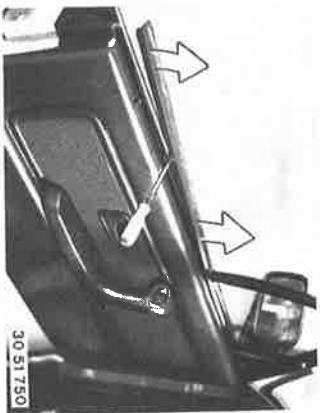
Remove door trim panel — see 51 41 001.
Lift out cover strip.



Installation:
Check for correct fit of cover strip in clips.



Conversion:
Lift out cover strip.
Installation:
Check for correct fit of cover strip in clips.



51-221

51 22 090 REMOVING AND INSTALLING LEFT OR RIGHT REAR DOOR LOCK

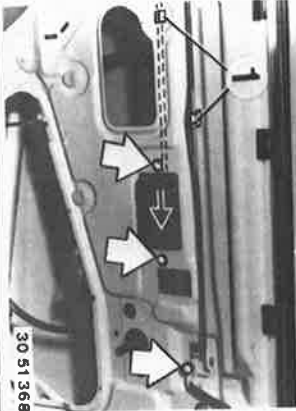
Shut window.
Remove door trim panel — see 51 42 001.
Pull off plastic sheet.
Installation:
Replace damaged plastic sheet.



30 51 122

Unscrew bolts and unclip both holders (1).
Disconnect door remote control.

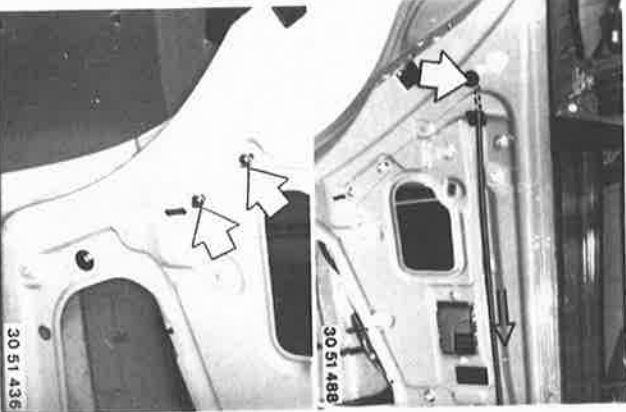
Installation:
Pre-load remote control lightly.



30 51 368

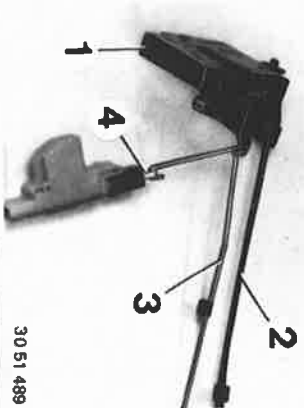
Disconnect catch button linkage.

Installation:
Pull linkage forward and press into clip at same time.



30 51 488

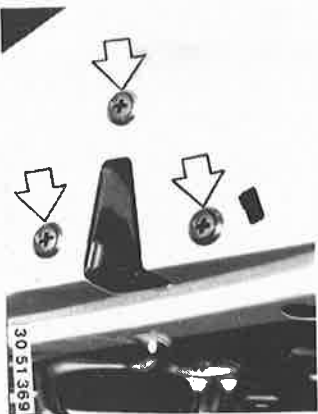
Cars with Central Locks:
Unscrew bolts.
Pull off plug.
Disconnect drive.
Installation:
Adjust drive — see 51 26 010.



30 51 489

Rear Door Lock Arrangement:
1 Lock
2 Catch button linkage
3 Remote control
4 Drive/connecting linkage

Unscrew bolts and remove door lock.

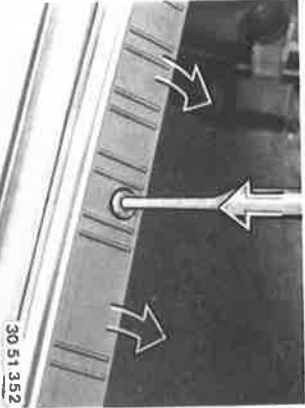


30 51 369

51-240

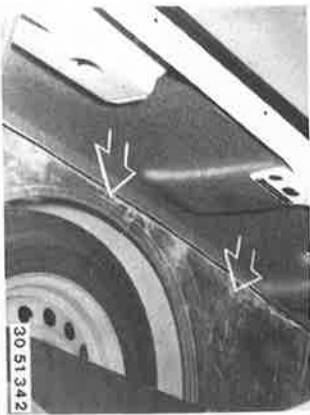
51 24 100 REMOVING AND INSTALLING/ REPLACING TRUNK LID LOCK

Cars with Trunk Plate:
Push out pins of clips downward and remove plate.



30 51 352

Fold back trunk mat.
Lift rear wall trim panel at bottom slightly and pull out.

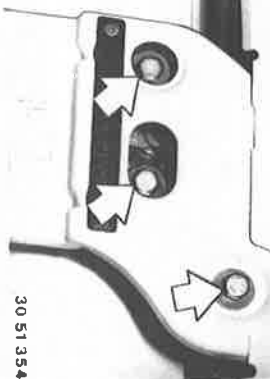


30 51 342

Unscrew screws.

Installation:

Take out lock from side.
Prevent lock cylinder from falling out.



30 51 354

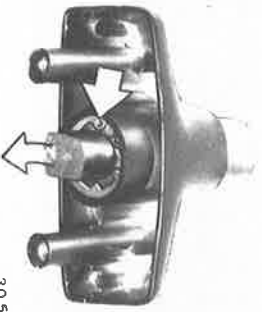
Remove lock cylinder.

Lift out circlip.

Pull out lock cylinder toward rear.

Installation:

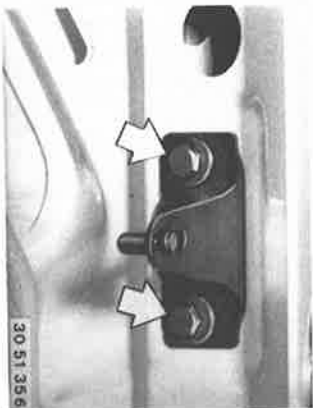
Check that circlip fits in groove correctly.



30 51 355

51 24 130 REMOVING AND INSTALLING/ REPLACING LOCKING BAR FOR TRUNK LID LOCK

Unscrew screws.



30 51 356

Installation:
The locking bar can be adjusted in height (a) and plane (b).



30 51 357

51-250

51 25 ... REMOVING AND INSTALLING OR REPLACING LOCKING ELEMENT

Lift out trim panel.



Lift out circlip.
Disconnect cable.

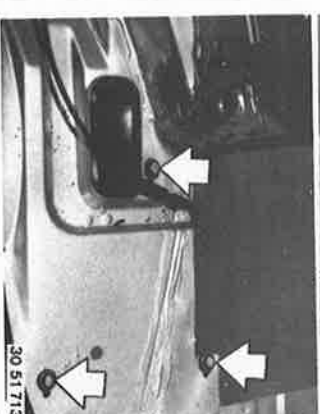
Note:
Only open one lid after disconnecting a
cable (danger of damage).



Shut trunk lid.
Open the top lid.
Lift out circlip.
Disconnect cable.



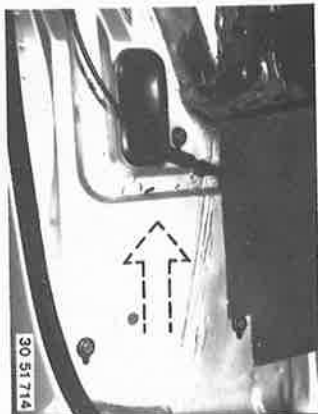
Unscrew bolts.
Lift out locking element.



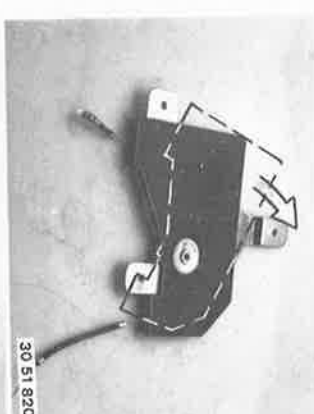
Adjusting Lock:
Tighten lock only finger tight.
Connect cables.
Shut the trunk lid.

Open the top lid.
Adjust lock in slots in forward direction until
the cables are tight.
Screw on lock tight.

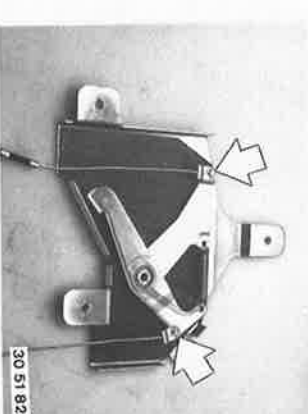
Checking Function:
Trunk lid and top lid must not interfere with
each other when opened.



Note:
The plastic cover must be turned carefully to
replace the cables.



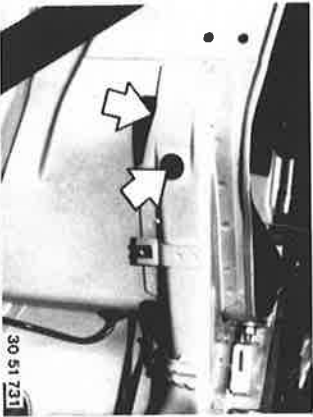
The lock is shown in the picture without a
plastic cover for better understanding.
If applicable, lift out retainer and remove the
cable.



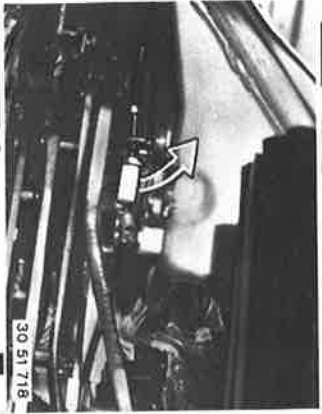
51-252

51 25 . . . REMOVING AND INSTALLING OR REPLACING TOP LID LOCK

Remove trim panel — see 51 43 000.
Unscrew screws.

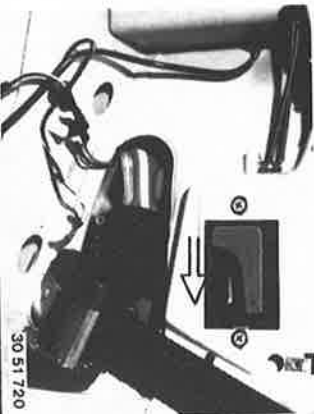


Disconnect cable.

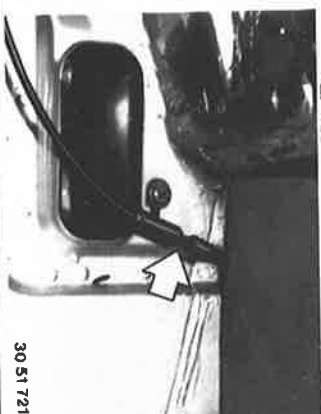


Installation:

1. Preload the short cable lightly by adjusting the remote control.



2. Preload the long cable lightly by adjusting.



51-261

51 26 010 REPLACING SWITCH FOR LEFT OR RIGHT REAR DOOR LOCK (DRIVE)

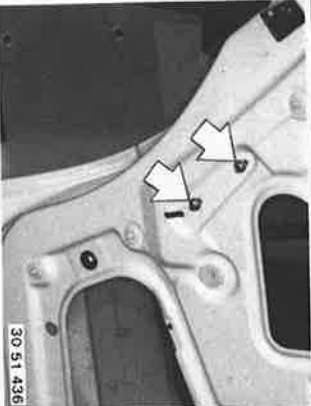
Remove door trim panel — see 51 42 001.
Pull off plastic sheet.

Installation:
Replace damaged plastic sheet.



Unscrew screws.
Pull off plug.
Disengage drive.

Installation:
Check drive identification — see 51 26 000.

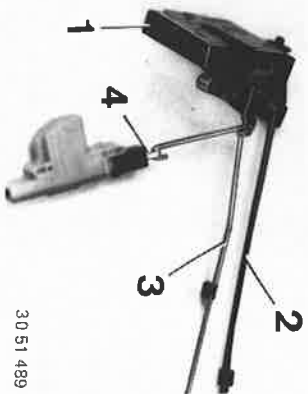


Troubleshooting central locks — see page 51 - 800.

Installation:

1. Lock in LOCKED position.
2. Locking linkage in LOCKED position.
3. Engage drive in connecting link and hold in installed position with a screw (screw is not tightened).
4. Screw in second screw.
Compress drive (position A), pull down lightly (linkage play) and then tighten screw to 2 Nm (1.4 ft. lbs.).
5. Tighten the screw installed first.

730 51 645

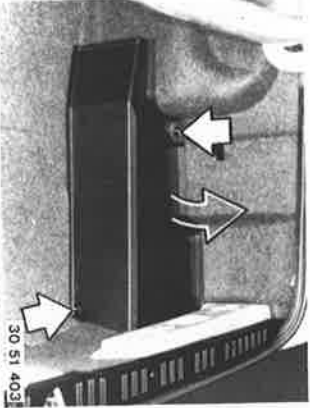


Rear Door Lock Arrangement:
1 = Lock
2 = Locking linkage
3 = Door remote control linkage
4 = Drive/connecting link

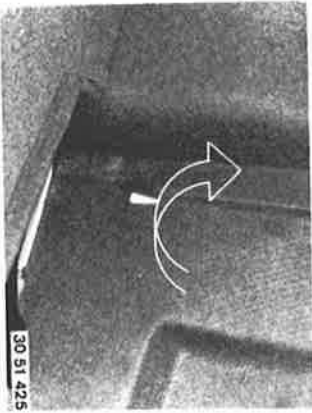
51-263

51 26 025 REPLACING SWITCH FOR
FUEL TANK FLAP LOCK
(DRIVE)

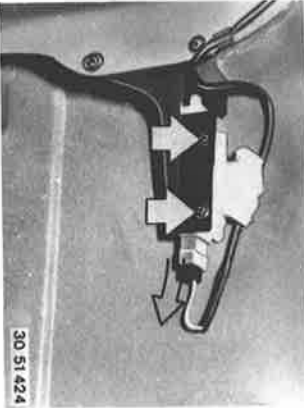
If applicable, remove battery cover.



Lift out trim panel.

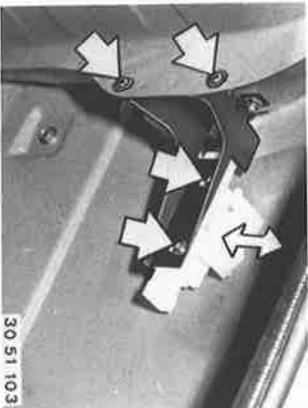


Unscrew screws.
Pull off plug.
Remove drive.



Installation:
Flat side faces down.

Align drive to tank flap and tighten screws.



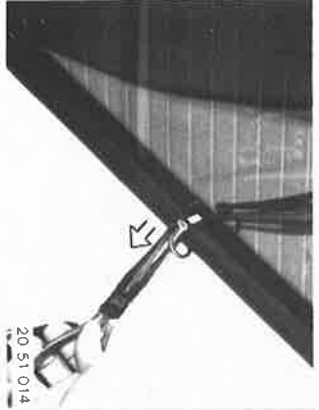
51-311

51 31 221 REPLACING REAR WINDOW

Pull off connections for rear window defogger.

Installation:

Check function.



Remaining procedures are identical with those described in 51 31 011.

If the rear window had been broken, remove rear seat cushion and clean automatic seat belt reel to remove glass splitters.

51-313

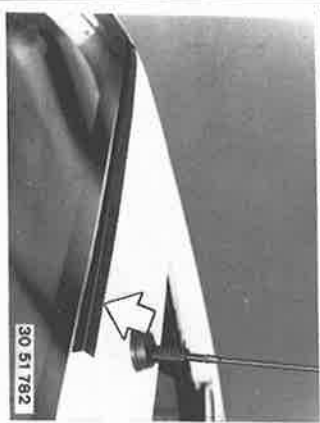
51 31 . . . REMOVING AND INSTALLING WINDSHIELD - M 3

Lift out front roof liner plate and A pillar trim. Remove windshield wipers. Also refer to other sections of repair manual. Lift out rubber seal.



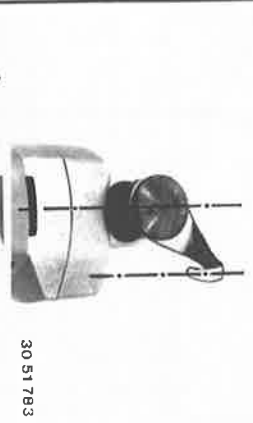
30 51 781

Protect body with tape.



30 51 782

Mount knife* on tool*. The knife must be parallel to axis of the tool.



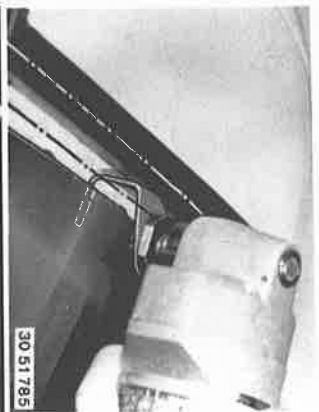
30 51 783

Guide in knife between the body and window carefully.



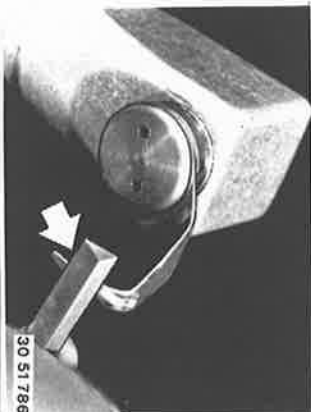
30 51 784

* Source of Supply: HWB



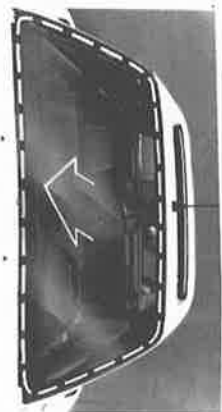
30 51 785

Guide traverse of knife parallel to window.



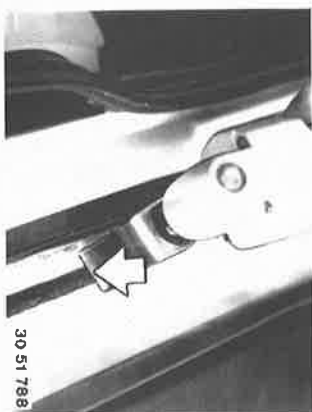
30 51 786

If applicable, regrind the knife while the machine is running. Also refer to operating instructions.



30 51 787

Cut through cement bead all around and lift out window with Special Tool 51 3 010*.



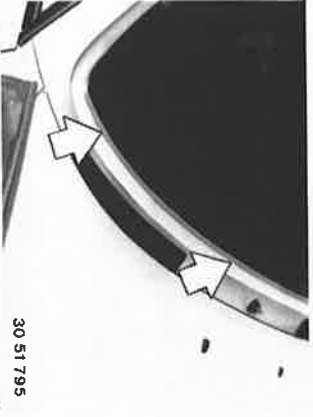
30 51 788

Cut off residual cement on body opening surface with the knife* to about 0.5 mm (0.020").
 Note:
 Touch up damage on paint finish with zinc dust paint and enamel.

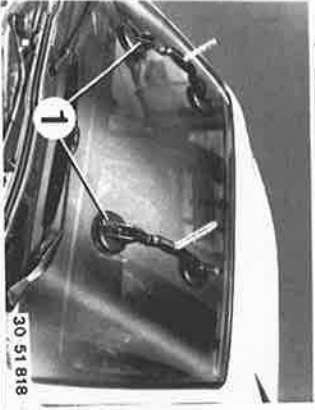
* Source of Supply: HWB

51-315

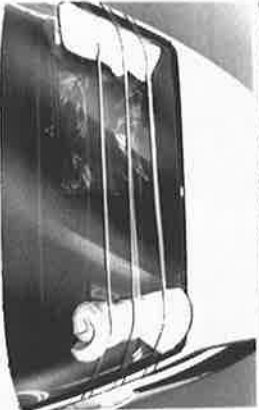
Place rubber in bottom area of the body opening.



Apply Special Tools 51 3 010 (1) on the window and fit window in body opening carefully, and then press on.



Check for uniform spacing between body and rubber frame all around, preloading window with adhesive tape and rolls of foam rubber if necessary.



Note:
Leaks can be detected by spraying water underneath the sealing lip or with an ultrasonic tester and eliminated from inside of the car with a pertinent nozzle (in repair kit*). This nozzle must be cut off to size to have the opening needed.

* Source of Supply: HMB

51-317



30 51 802

Guide traverse of knife parallel to the window.



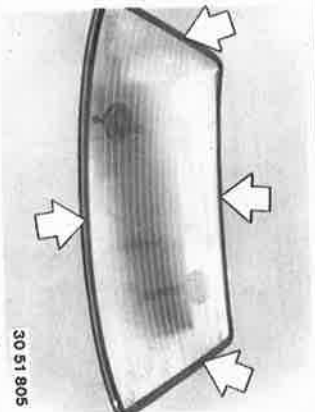
30 51 786

Cut through cement bead all around and lift out window with Special Tool 51 3 010.



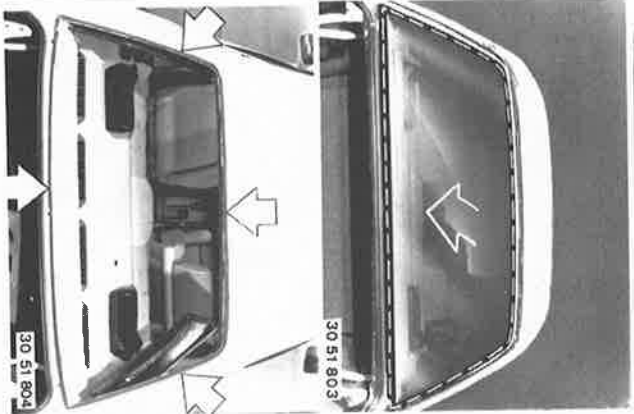
30 51 789

Raising Window:
Reduce residual cement with the knife* to about 0.5 mm (0.020").



30 51 805

Brush a coat of primer* on window and body in area of the cementing surface.
Note:
Air drying time at least 10 minutes.



30 51 803

30 51 804

Reduce residual cement on body opening surface to about 0.5 mm (0.020") with the knife*.
Note:
Touch up damaged paint finish with zinc dust paint and enamel.



30 51 806

Moisten adhesive strip backing with water to make installation easier.



30 51 807

Clips must be installed by hand when raising the window.
Pull off backing on adhesive strips.

* Source of Supply: HWB

* Source of Supply: HWB

51-319

Fit in and press on window carefully with Special Tool 51 3 010.



30 51 792

Selecting Nozzle:

Shape of cement bead:
 $a = 10 \text{ mm (0.394")}$
 $b = 12 \text{ mm (0.472")}$



30 51 793

Open cartridge* and place it in the gun.
 Screw on nozzle for low cement beads.

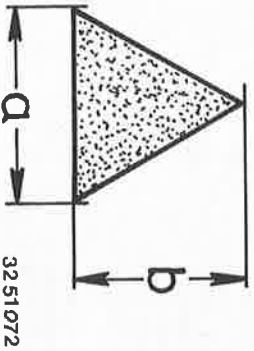
Note:
 Check use date of cement.



30 51 817

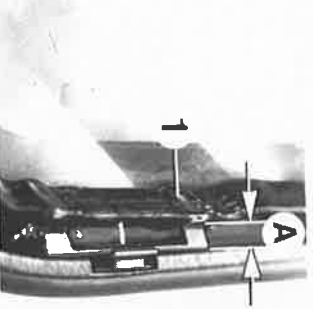
Check for uniform spacing between body and ornamental strip.
 If applicable, precoat window with adhesive tape and rolls of foam rubber or Special Tool 51 3 010.

Note:
 Leaks can be detected by spraying water underneath ornamental strips or with an ultrasonic tester and eliminated with a pertinent nozzle from the repair kit* from the inside of the car.
 Nozzle must be cut to size to have an appropriate opening.



32 51 072

Produce cement bead (1) on window all around.
 Distance A to edge of window = approx. 5 mm (0.197").



30 51 816

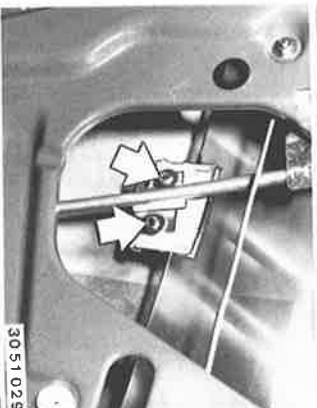
* Source of Supply: HMB

* Source of Supply: HMB

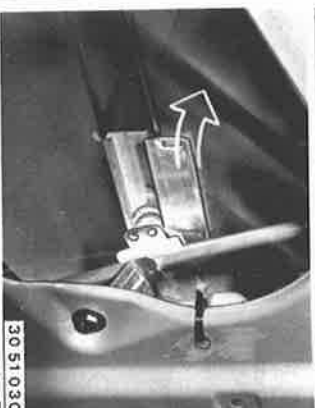
51-320



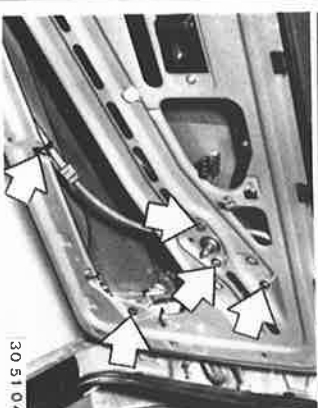
51 32 020 REMOVE AND INSTALLING OR REPLACING WINDOW REGULATOR IN LEFT OR RIGHT FRONT DOOR
 Remove and install door trim panel 51 41 001
 Pull off plastic sheet.
Installation:
 Replace damaged plastic sheet.



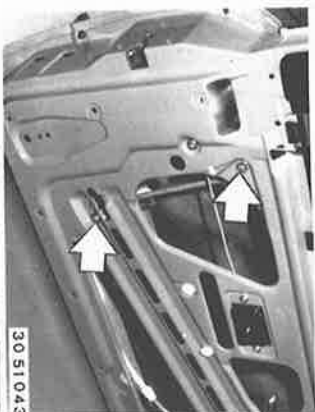
Position door window that mounting bolts can be loosened.
Note:
 Hold door window glass tight.
Installation:
 Adjust door window 51 32 154.



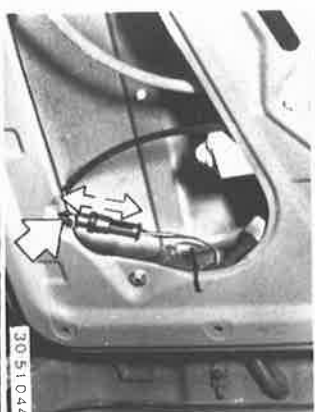
Swing front end of window glass out of guide roller.
 Lower door window glass.



Unscrew bolts.
 Cut off strap.



Unscrew bolts.



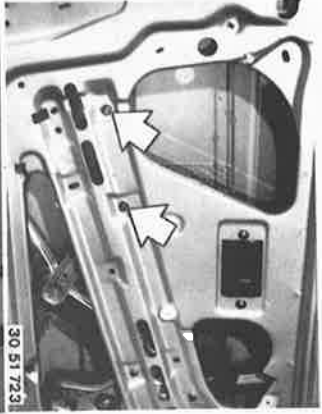
Version with Electric Windows:
 Unscrew clamp.
 Disconnect plug.



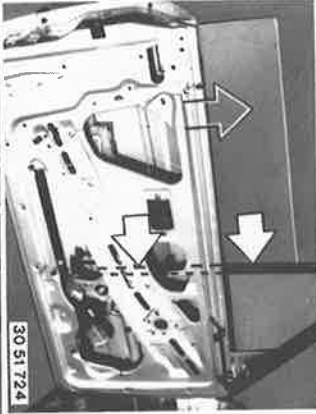
Remove window regulator.

51-322

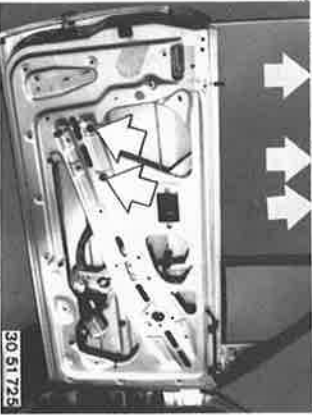
Operate window to half-open position.
Loosen screws.



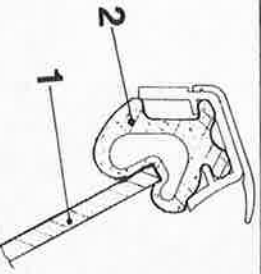
Shut window, while pressing against the front guide rail.
Window glass must be parallel in the guide rail.



Tighten screws.
Check that there is easy movement as well as the system on the top, correcting if necessary.



Installation:
The window glass (1) must bear on rubber seal (2) as shown.

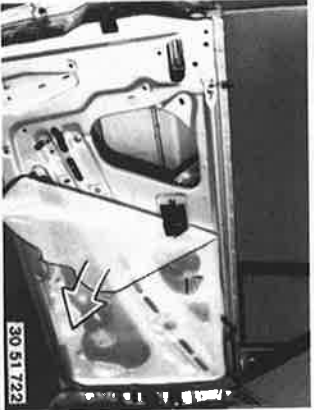


30 51 700

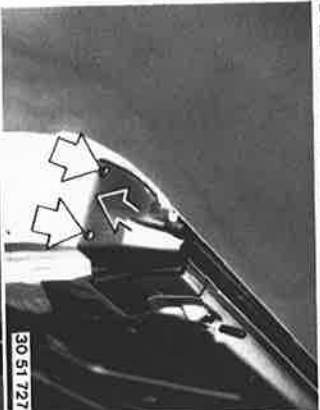


Limitation of window movement is adjusted with the stop.

51-324



Convertible:
Remove door trim panel — see 51 41 001.
Pull off plastic sheet.
Installation:
Replace damaged plastic sheet.



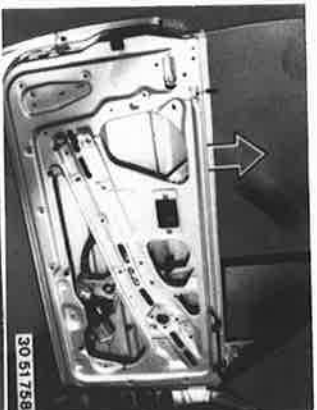
Lift out spreader rivets.
Remove trim panel.
Installation:
Use new spreader rivets, if necessary.



Remove outside window recess cover — see 51 21 300.
Run down the window — unscrew screws.
Installation:
Adjust window — see 51 32 154.



Pull off plug and slide window regulator forward out of the guides.
Installation:
Guide guiding rollers of window regulator into rails of window glass.
Align mounting holes of window regulator.



Pull out window glass from above.



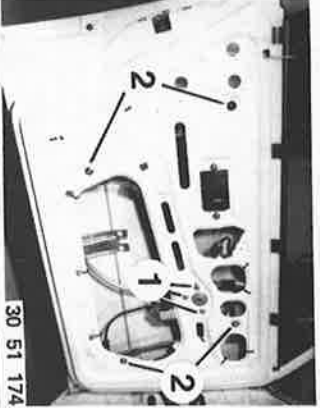
Installation:
Insert window glass at inclination — turn slightly — and slide down parallel.

51-330

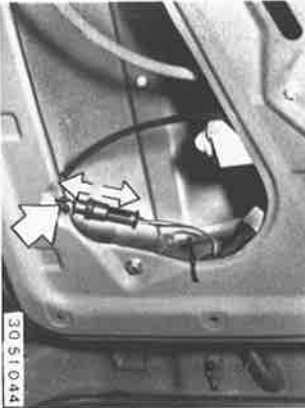
51 33 000 REMOVING AND INSTALLING POWER WINDOW REGULATOR IN LEFT OR RIGHT FRONT DOOR

Procedures are identical with those described
in 51 32 020.

Plus:
Mounting (1) with 3 nuts.

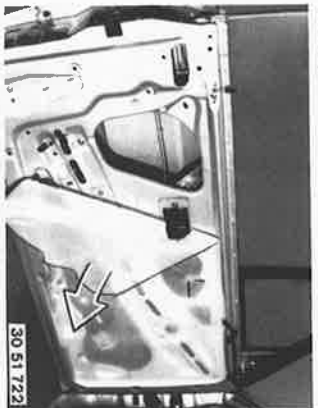


30 51 174



30 51 044

Disconnect plug.
Installation:
If applicable, secure wires with wire strap.



30 51 722

Convertibles:
Remove door trim panel — see 51 41 001.
Pull off plastic sheet.

Installation:
Replace damaged plastic sheet.



30 51 728

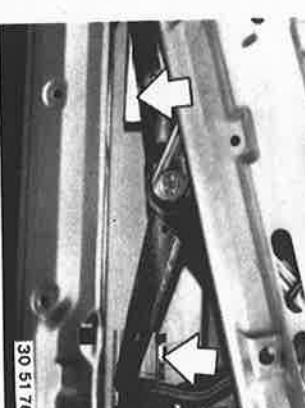
Run the window down.
UnscREW screws.
Installation:
Adjust window — see 51 32 154.

Pull off plug and slide window regulator
forward out of the guides.
Lift out complete window regulator.



30 51 729

Installation:
Guide guiding rollers of window regulator
into rails of window glass.
Align mounting holes of window regulator.



30 51 760

51-341

51 34 154 ADJUSTING LEFT OR RIGHT REAR DOOR WINDOW

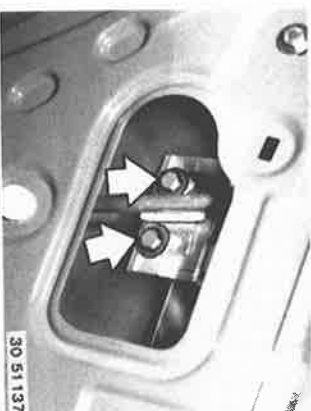
- Remove rear door trim panel 51 42 001.
- Pull off plastic sheet partially.
- Installation:*
- Replace damaged plastic sheet.



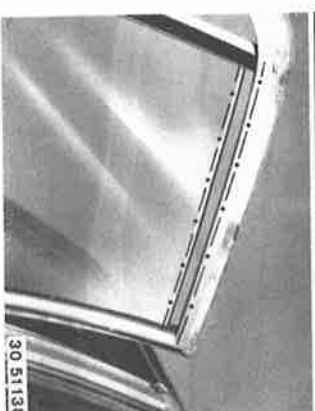
- Close window.
- Loosen screw.
- Tighten window regulator screws without tension.



Loosen screws.



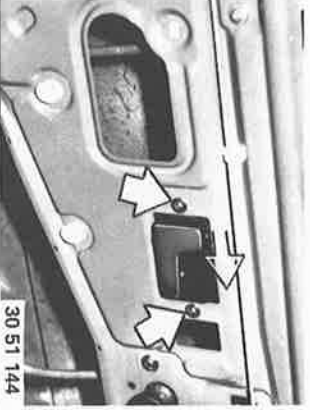
- Align window in slots in such a manner to have a uniform gap between the window glass and window frame at top.
- Tighten screws.



51-343

Unscrew door remote control.
Loosen clip and let remote control hang down.

Installation:
Preload door remote control slightly.

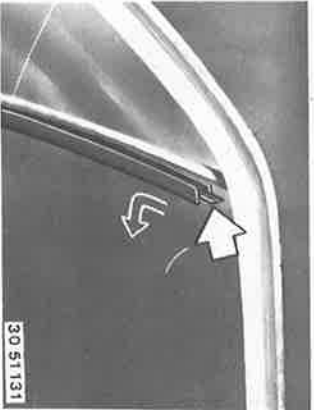


Unscrew screws.

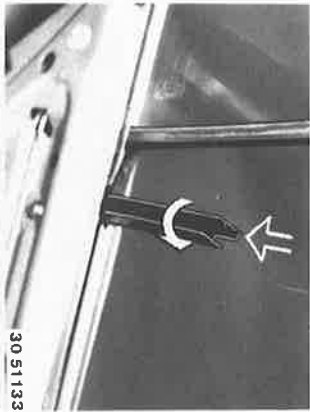


Loosen guide rail on rubber frame of fixed window and disconnect in retainer at top.

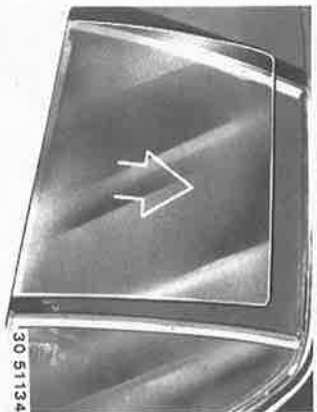
Installation:
Coat rubber frame with relaxed water to make installation easier.



Installation:
The beads on the rubber frame must engage in bores of window guide.



Turn and push down guide rail.



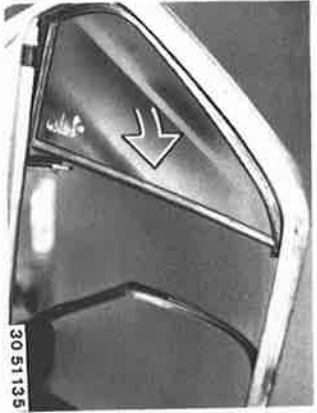
Pull out window glass from above.



51-345

Tilt window with rubber frame out of window frame.

Installation:
Cast rubber frame with relaxed water to make installation easier.

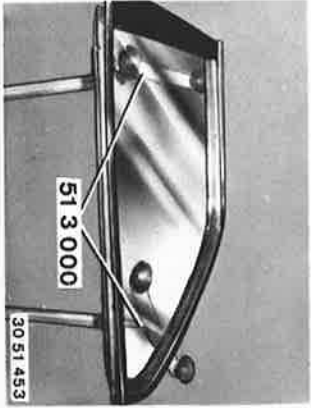


30 51 135

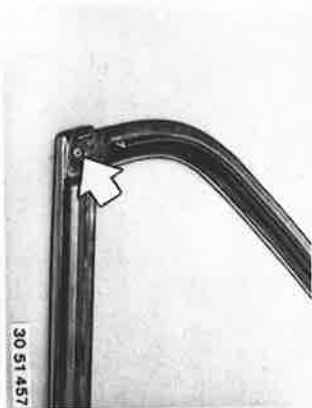
51-361

51 36 545 REPLACING ALL STRIPS ON
REAR SIDE WINDOW
— Side Window Removed —

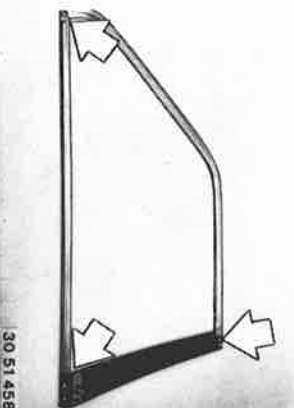
Place special tool window holders in toolbox.
Mount window glass.



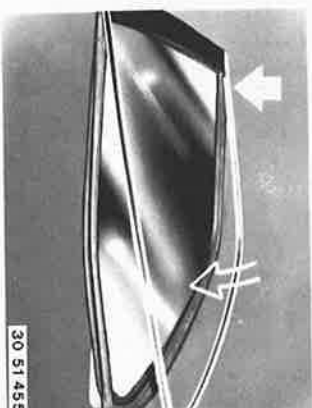
Lift out ornamental frame.
If applicable, drill out rivet and insert a new
ornamental strip.



Rivet ornamental strips together.



Installation:
Check rubber frame, replacing if necessary.
Insert ornamental strips, beginning at upper
window edge.
If necessary, rub in rubber frame with a
lubricant*.

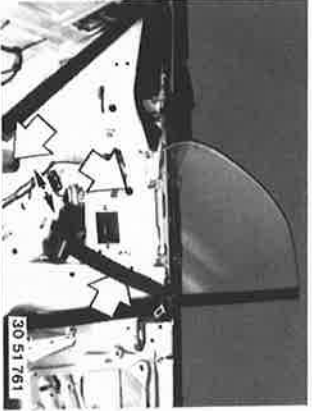


* See Specifications

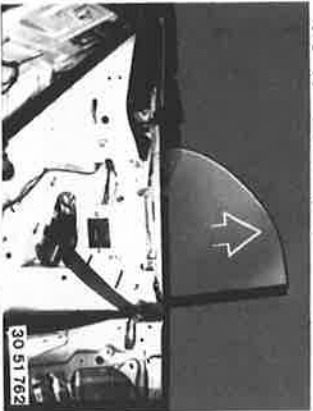
51-371

51 37 000 REMOVING AND INSTALLING OR REPLACING WINDOW REGULATOR

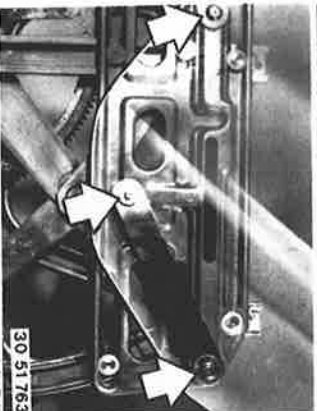
Remove trim panel — see 51 43 000.
Window closed.
Disconnect plug.
Unscrew screws.



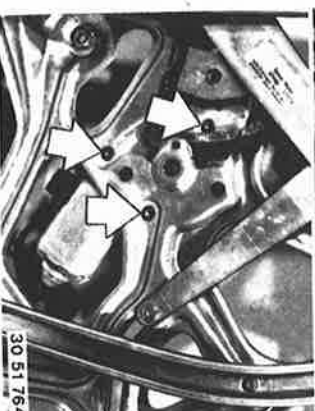
Remove complete window regulator from
above.
Installation:
Adjust rear window regulator — see
51 37 . . .



Unscrew screws.
Remove window glass.



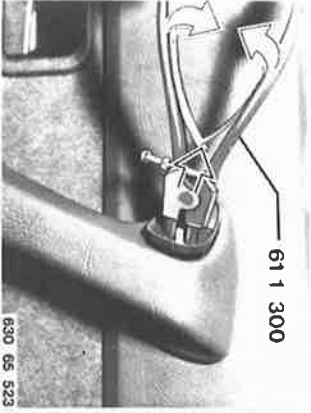
Unscrew screws.
Remove power window motor.



51-410

51 41 001 REPLACING LEFT OR RIGHT FRONT DOOR TRIM PANEL

Pull off outside mirror adjusting button.
Lift out mirror switch with Special Tool 61 1 300.
Pull off plug.



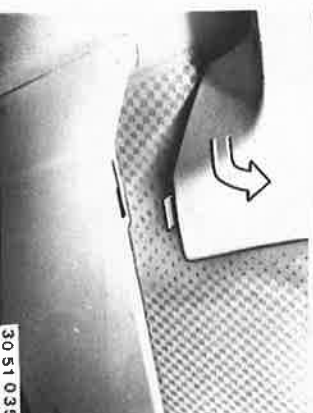
Unscrew screw.



Unscrew screws.



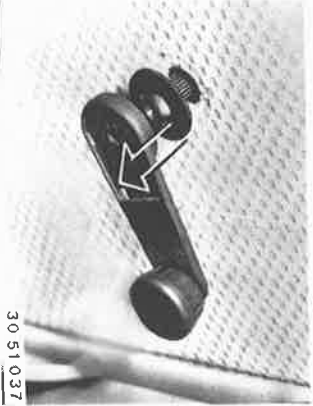
Pull armrest forward and disengage.



Lift off cover.
Pull off lock or unscrew screw.



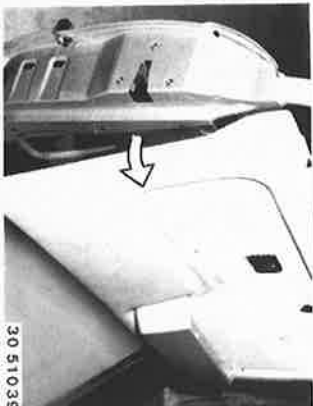
Pull off window winder and washer.
Installation:
Window winder faces forward with window raised fully.



Pull off mask toward rear.



Door window lowered.
Lift door trim panel out of clips.
Installation:
Check clips, replacing if necessary.

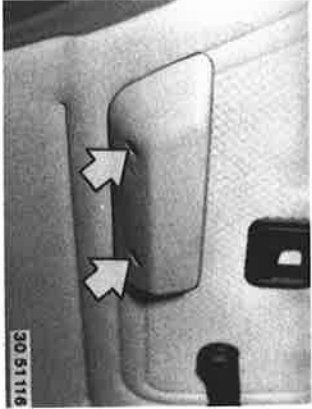


51-420

51 42 001 REPLACING LEFT OR RIGHT REAR DOOR TRIM PANEL

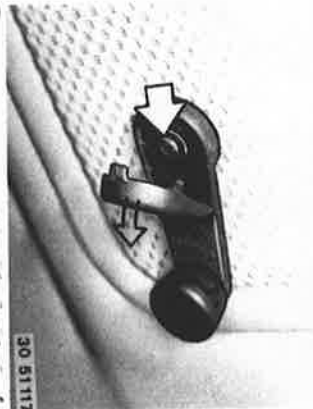
Unscrew screws.

Important!
An additional screw holds the armrest on the trim panel from behind.



30 51 116

Lift off cover.
Remove lock or unscrew screw.



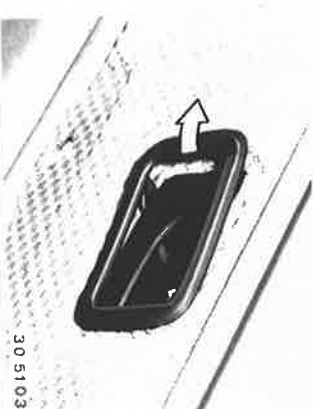
30 51 117

Pull off winder and washer.



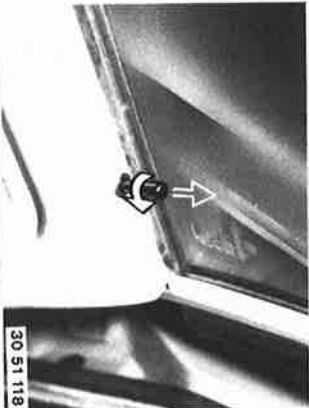
30 51 037

Pull off mask toward rear.



30 51 038

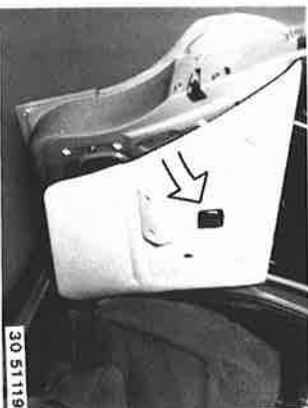
Unscrew catch button.



30 51 118

Door window lowered.
Lift off door trim panel with armrest.

Installation:
Check clips, replacing if necessary.



30 51 119

Lift door trim panel out of clamps.

Note:
Window recess seal will also be pulled off.

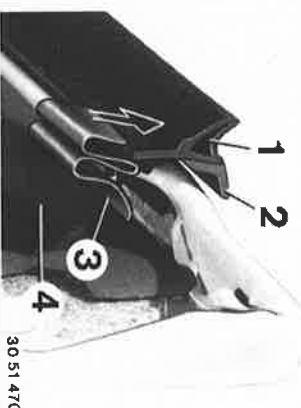


30 51 120

Installation:

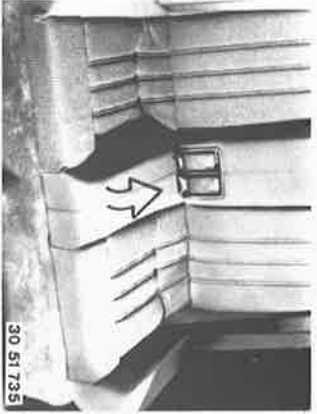
Check for correct fit of clips.

- 1 Window recess seal
 - 2 Ornamental strip
 - 3 Clip
 - 4 Door trim panel
- Install door trim panel complete with window recess seal after lowering door window,

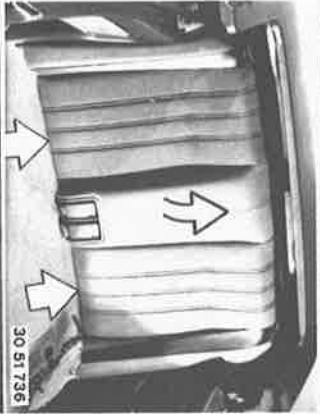


30 51 470

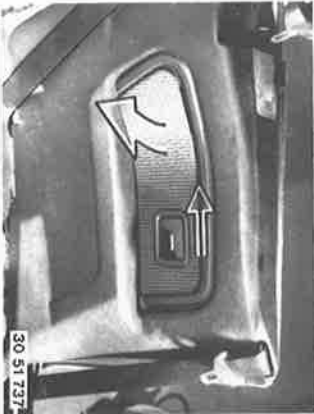
51-431



Convertibles:
Lift out the rear seat cushion.
Installation:
Seat cushion must engage in the openings.



Unscrew bolts.
Pull out seat backrest from above.
Installation:
Engage backrest in holders (top).



If applicable, lift out plate.
Pull off trim.



Unscrew bolt.
Lift out seat belt.



Installation:
Check for correct fit of spring.



Unscrew screws.
Window open.



Pull off door weatherstrip.
Lift out trim.
If applicable, pull off speaker wires.

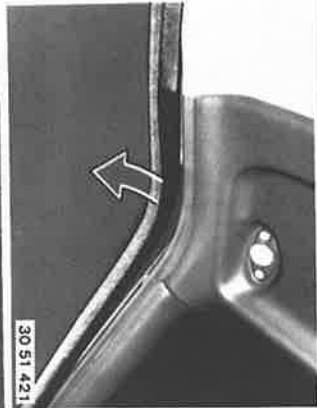
51-440

51 44 150 REMOVING AND INSTALLING FRONT ROOF LINER PLATE

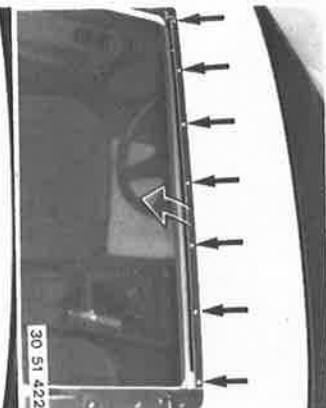
If applicable, remove check control
62 14 070.
If applicable, remove sun roof lid.



Pull off door weatherstrip partially on left and
right sides.
Unscrew screws.
Remove sun visors and holders.



Cars with Sun Roof:
Open roof.
Unscrew screws.
Take off strip.
Installation:
Use Terostat tape* in strip.



Pull off plate cover.
Unscrew screws.
Take off plate.

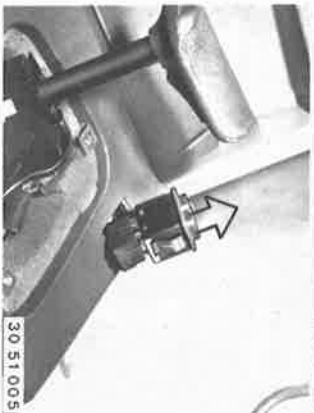


* Source: HWB

51-451



Automatic Transmission:
Lift out plate.
Unscrew bolts.
Remove trim.



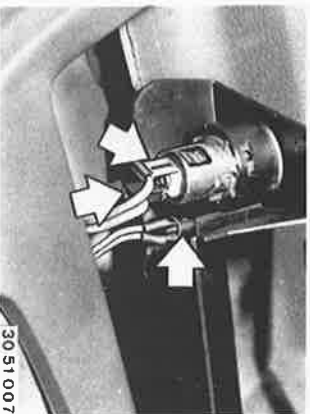
Cars with Electric Windows:
Lift out switch (1).
Pull off plug (2) on switch (1).



Remove insulation sheet.
Unscrew nut.



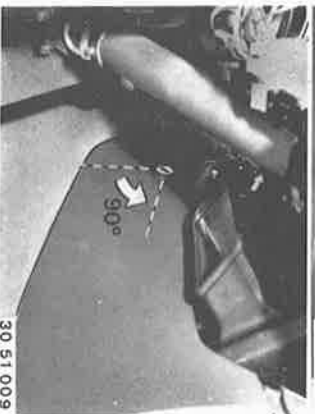
Unscrew bolts.
Lift out ashtray console.



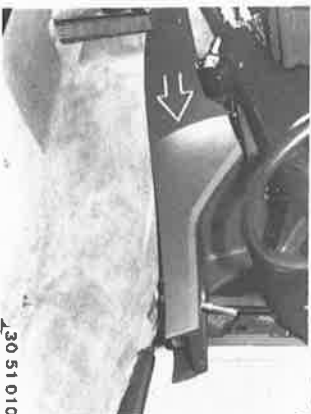
Pull off ashtray light and wires for cigar lighter.



Unscrew bolt.



Pull out tray toward rear.



Remove retainer by turning anticlockwise and clockwise 90°.

30 51 006

30 51 011

30 51 005

30 51 004

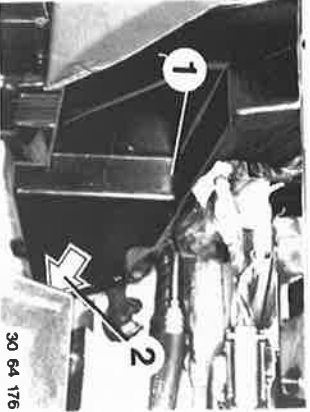
30 51 010

30 51 009

30 51 008

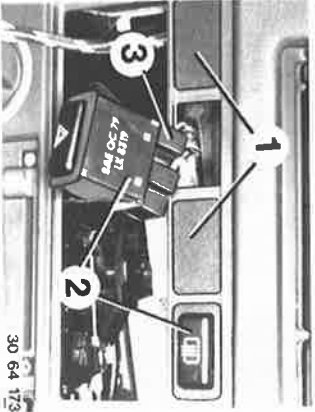
30 51 007

51-453



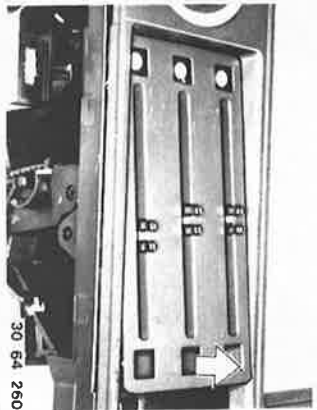
30 64 176

Unscrew screw (2).
Take off trim panel (1).



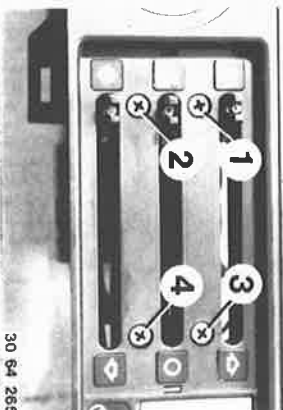
30 64 173

Remove radio operating mask or radio.
Pull masks (1) or switch (2) out of control panel.
Pull off plugs (3) on switches (2).



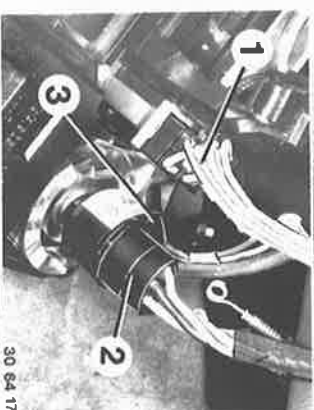
30 64 260

Pull off heating and ventilating controls.
Lift out sliding control lever.
Pull off mask plate.



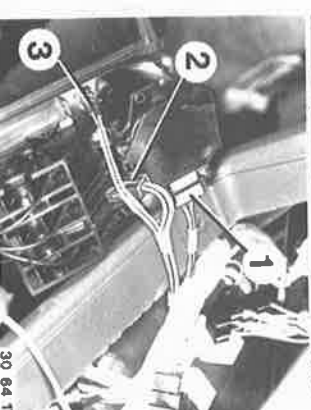
30 64 255

Pull off plug (1) on air conditioner switch.
Pull off plug (2) on blower switch.



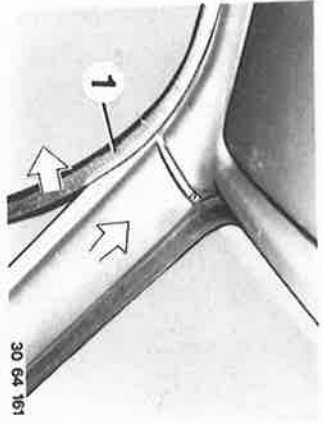
30 64 171

Pull off plug (1) on temperature control housing.
Pull off plug (2) on sliding control lever.
Pull off bulb holder (3).
Pull off plug on clock.
Lay control unit aside.



30 64 170

51-455



Pull off edge guard (1) on body in area of left and right A pillars.
Pull away both column casings from A pillars and remove from above.

30 64 161

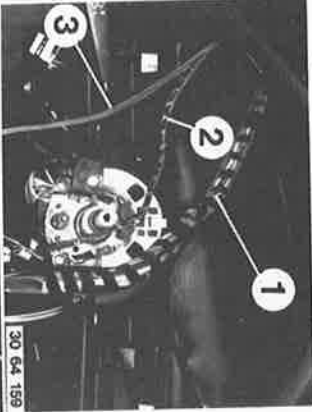
Open both wire straps.



30 64 160

Disconnect wire harnesses (1 ... 3) underneath the instrument panel and pull back into footwell.

- 1 = Instrument panel wire harness
- 2 = Radio wire harness
- 3 = Radio speaker wire

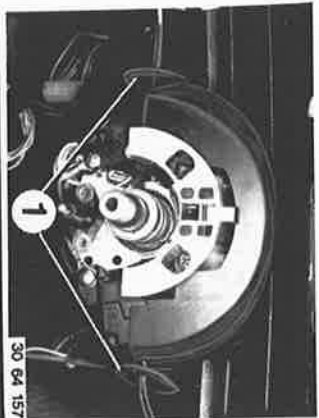


30 64 159

Remove shim (1).

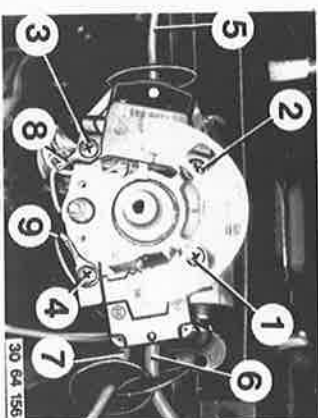


30 64 158



30 64 157

Remove upper steering column casing.
Installation:
Use rubber washers (1) behind casing.



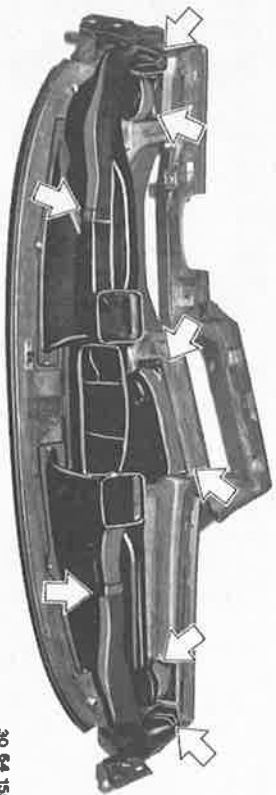
30 64 156

Unscrew bolts (1 ... 4) and remove control levers (5 ... 7).

- 5 = Turn signal lever
- 6 = Wiper lever
- 7 = Cruise control lever

Installation:
Also secure ground wires (8 and 9).
Both tabs of cruise control lever must engage in bores.

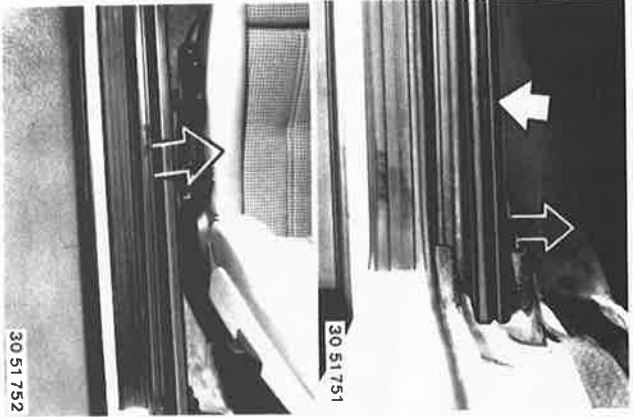
Remove instrument panel.
Installation:
Make sure air ducts fit properly.



30 64 155

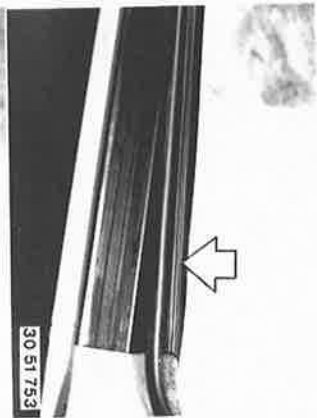
51-471

Convertibles:
Lift off cover on seat belt.
Lift out clips.

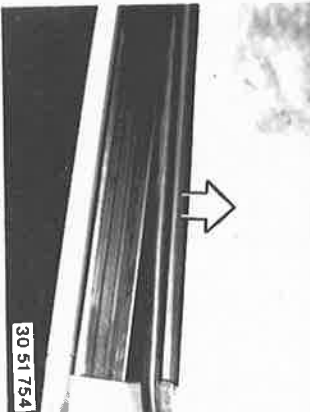


Remove cover.

51 47 030 REMOVING AND INSTALLING
OR REPLACING LEFT OR
RIGHT REAR ENTRANCE
COVER STRIP



Pull out expander rivet.



Lift out cover.



Compress and lift out clips with a pliers.



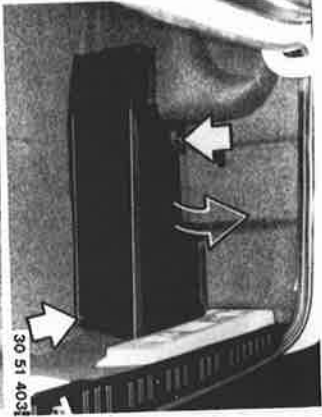
Installation:
It applicable, slide on and align new clips.

30 51 051

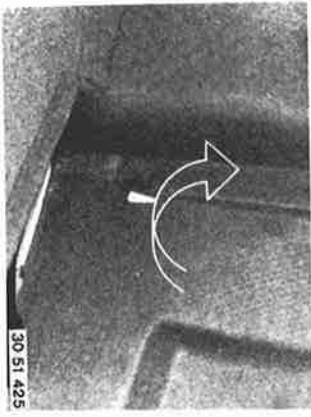
51-473

51 47 220 REMOVING AND INSTALLING TRUNK TRIM PANEL ON RIGHT SIDE PANEL

If applicable, remove battery cover.
Remove trim panel for trunk separating wall
— see 51 47 140.

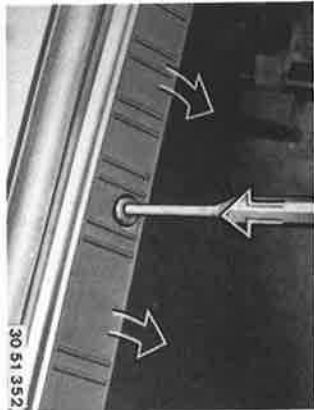


Lift out trim panel.

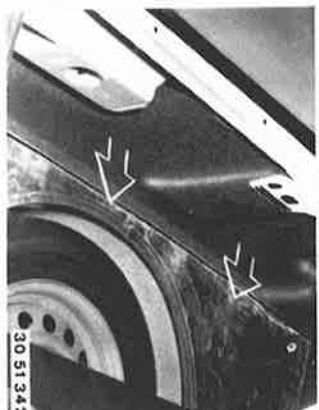


51 47 240 REMOVING AND INSTALLING TRUNK TRIM PANEL ON TAIL PANEL

Push down pins of clips.
Take off plate.



Lift out trim panel.



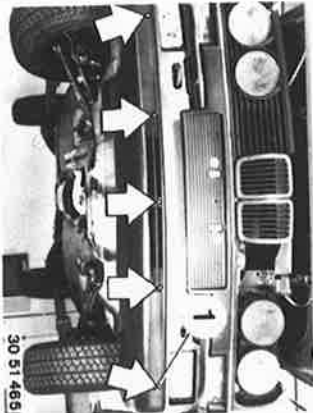
51-710

51 71 404 REMOVING AND INSTALLING FRONT SPOILER

Unscrew bolts on left and right sides.



Unscrew bolts.
Take off spoiler.
If applicable, pull off temperature sensor (1).



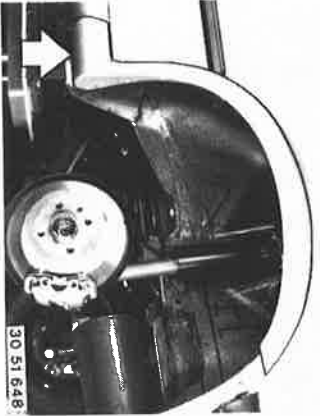
Installation:
Tighten plastic nut on holding screw about
two turns.
Slide in spoiler left and right.

51-712

51 71 440 REPLACING PLATE ON REAR SIDE PANEL

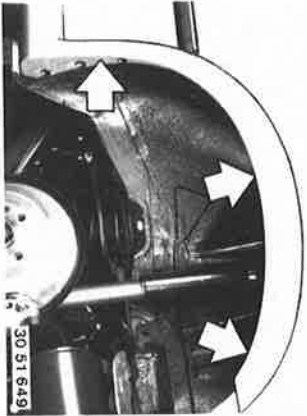
Unscrew screw.

Installation:
Insert new screw and self-tapping nut.



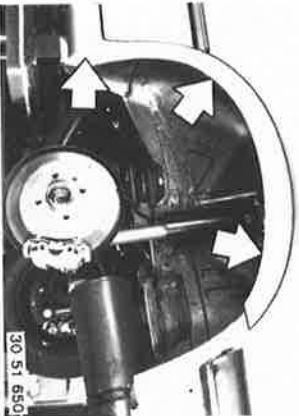
Lift out plastic rivets in wheel house.

Installation:
Install plastic rivets with Special Tool
.....



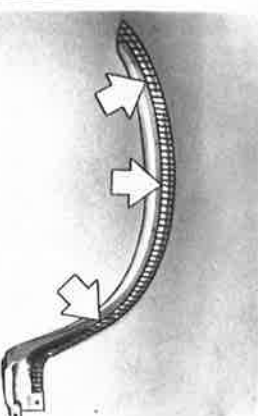
Pull off plate.

Installation:
Clip in and align plate.



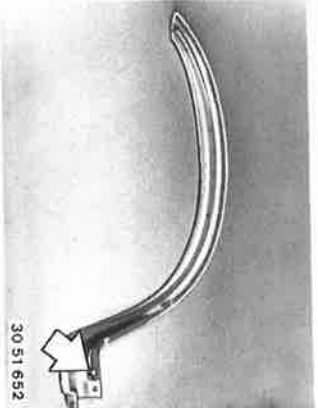
Pull off sealing cord.

Installation:
Pull new sealing cord into plate.



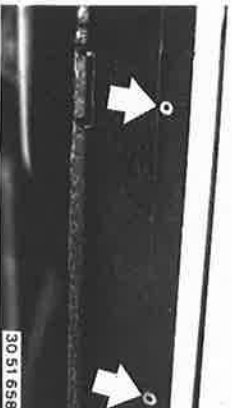
Lift out plug.

Installation:
Insert new plug in side panel.



Lift out grommet.

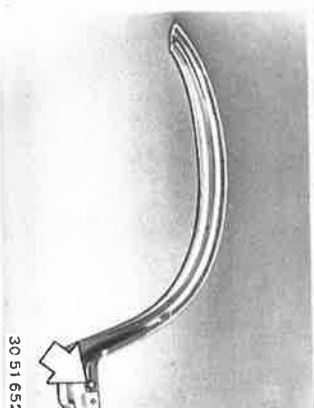
Installation:
Insert new grommet.
Grommet must be softened in water for some time prior to installation.



Installation:
Drill holes in new part when replacing the side panel.
Insert plug in plate.

Insert grommet in side member.

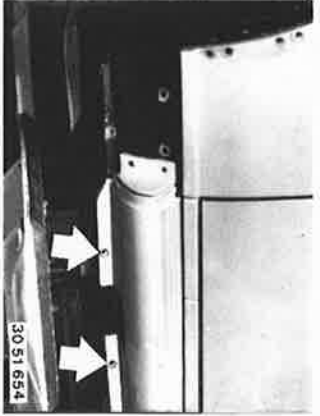
Installation:
Grommet must be softened in water for some time prior to installation.



51-714

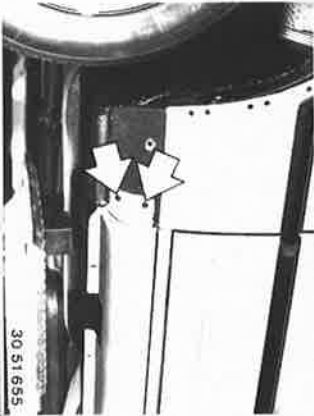
51 71 446 REPLACING TRIM PANEL FOR COVER ON SIDE MEMBER

Remove plate on front side panel – see 51 71 434.
Remove plate on rear side panel – see 51 71 440.
Unscrew clamps.



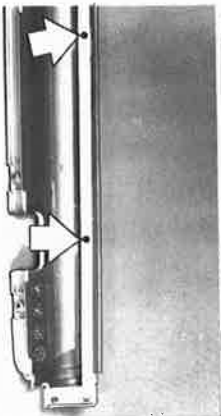
Lift out expansion rivets at front and rear.
Pull off trim panel.

Installation:
Pull protective sheet off of sealing cord.



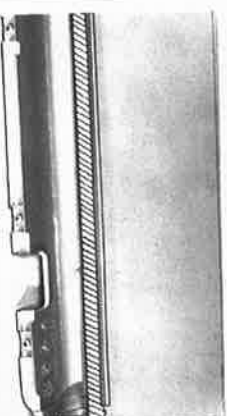
Lift out plugs.

Installation:
Insert new plugs in trim panel.

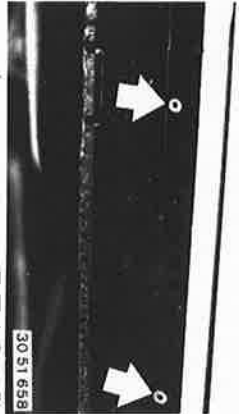


Pull off sealing cord.

Installation:
Pull new sealing cord into trim panel (two layers).

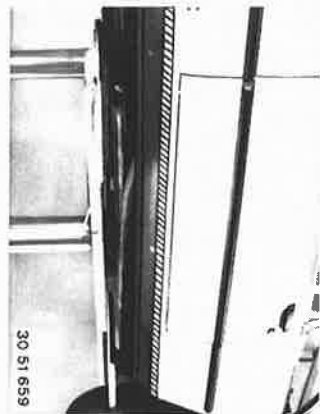


30 51 657



Lift out grommets.

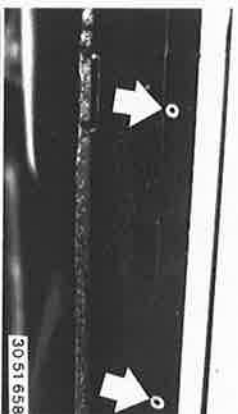
Installation:
Insert new grommets.
Grommets must be softened in water for some time prior to installation.



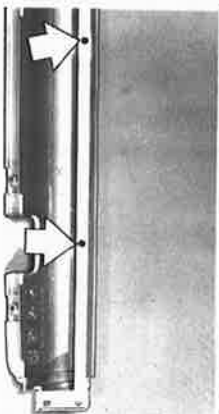
Installation:
Holes must be drilled in new part prior to painting when replacing the side member.
Align drilling template to the same distance at front and rear, and paste it on along the edge.
Punch mark centers, drill 9 mm (0.354") dia. holes, deburr and coat edges of holes with zinc dust paint.
Pull off the drilling template.

Insert grommets in side member.

Installation:
Grommets must be softened in water for some time prior to installation.



Insert plugs in trim panel.



30 51 656

51-716

51 71 456 REPLACING REAR FLYING STONE GUARD

Remove rear bumper - see 51 12 000.
Lift out plastic rivets in wheel house.

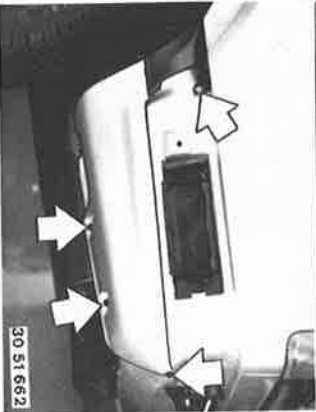
Installation:
Install plastic rivets with Special Tool
.....



30 51 661

Lift out expansion rivets.
Pull off guard.
Lift out grommets for expansion rivets.

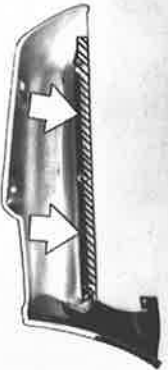
Installation:
Insert new grommets and expansion rivets.



30 51 662

Pull off sealing cord.

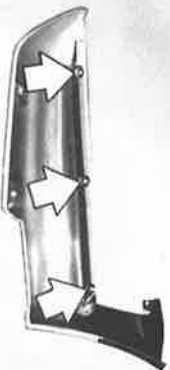
Installation:
Pull new sealing cord into guard.



30 51 663

Lift out plugs.

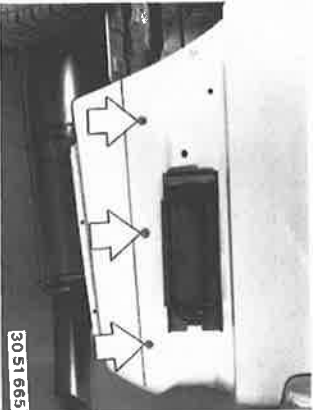
Installation:
Insert new plugs in guard.
Install seal.



30 51 664

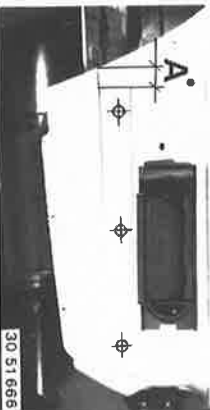
Lift out grommets.

Installation:
Insert new grommets.
Grommets must be softened in water for some time prior to installation.



30 51 665

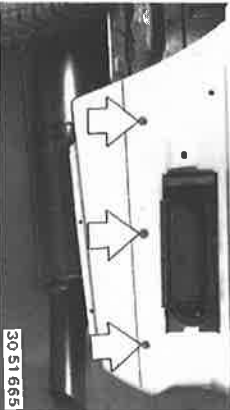
Installation:
Holes must be drilled in new part prior to painting when replacing the rear side panel.
Paste on drilling template along the edge.
Distance A = 29.5 mm (1.161").
Punch centers, drill 9 mm (0.354") dia. holes, deburr and coat edges of holes with zinc dust paint.
Pull off drilling template.



30 51 666

Insert grommets in side panel.

Installation:
Grommets must be softened in water for some time prior to installation.



30 51 665

Insert grommets in flying stone guard.

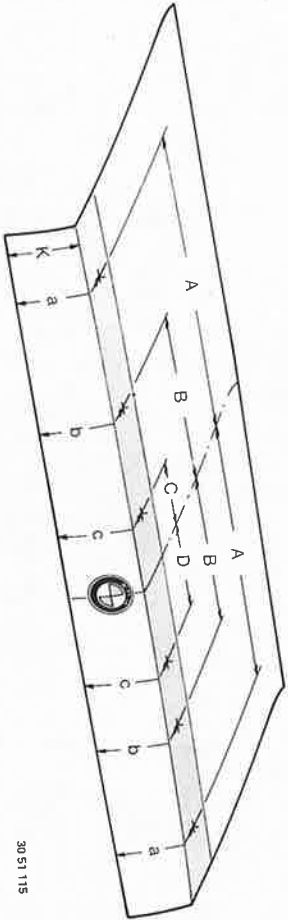


30 51 664

51-756

51 71 412 INSTALLING REAR SPOILER

Install adhesive tape (approx. 30 mm (1.181") wide) at distance K to the trunk lid edge over the entire width. Mark center point of bore from the middle of the trunk lid and trunk lid edge (measuring tape), punch and drill (7.5 mm (0.295") diameter).



30 51 115

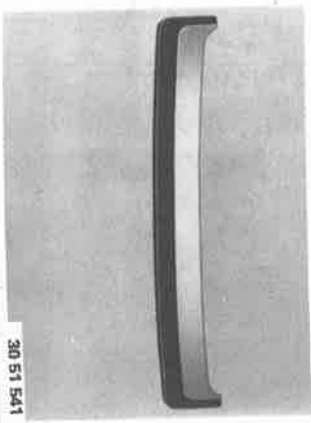
- | | |
|----------------------|---------------------|
| A = 565 mm (22.244") | a = 125 mm (4.921") |
| B = 346 mm (13.622") | b = 127 mm (5.000") |
| C = 118 mm (4.646") | c = 129 mm (5.079") |
| D = 130 mm (5.118") | |

Pull off adhesive tape carefully. Deburr edges of holes and coat with zinc dust paint. Screw on rear spoiler with the supplied cap nuts.

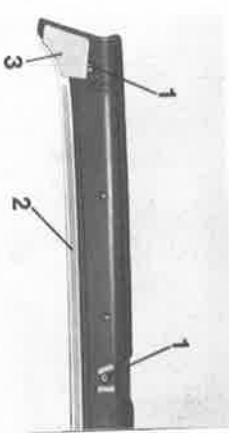
Painting Information:
Procedures for painting BMW plastic parts.

51-758

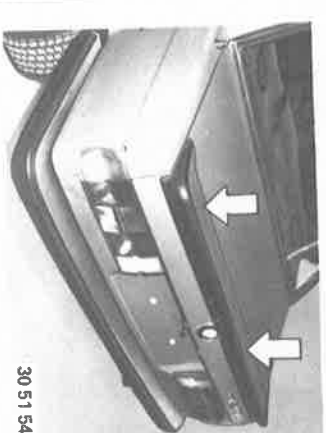
Remove plastic sheet on adhesive tape and install panel on the rear spoiler.



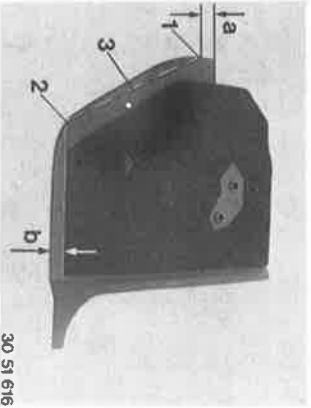
Screw on panel with three screws (1). Paste on adhesive strips (2) and adhesive parts (3).



Pull plastic sheet off of adhesive strips and insert M-Technic rear spoiler in holes, screwing on with plastic nuts and insulators.

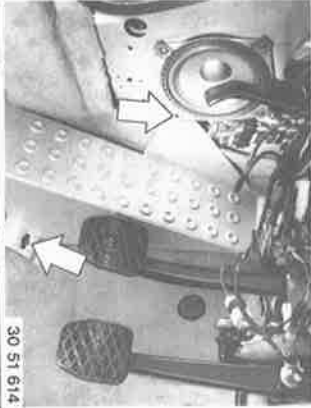


51-770



30 51 616

Remove spacing clips in cars with front radio speakers.
Push mounting tab of footrest underneath the speaker mount.
Mark location of hole on carpet and punch through the carpet with a mandrel.



30 51 614

Install side trim panel and mount the footrest with self-tapping screw (1).
Screw in turnlock (2).
Reinstall dashboard trim panel at bottom.

It is recommended to cover the turnlock with BMW mats.



30 51 615

TROUBLESHOOTING CENTRAL LOCKS

Test Requirements: Battery charged, at least 11 V. — no —> Check other connected electrical equipment: —> On-board computer, burglar alarm, door lock heating.

fuse no. 27 okay?

yes

Looks and lock cylinders in perfect mechanical condition.
All tests made against vehicle ground.
Tests on plug connections should be made on both sides of plug.
Tests made with BMW service tester or digital tester II.
Check installed position (see print) of control unit/impact switch.

1. Failure of Entire System: Locking is not possible from the driver's door, passenger's door or trunk lid with the central locking system unlocked.

Does pin 3 (red/black) of control unit — no —> Is there voltage in socket 15 (red/black) of — yes —> Repair wire harness.
have voltage? driver's door/body plug?
With connected plug $U > 11$ V. $U > 11$ V.

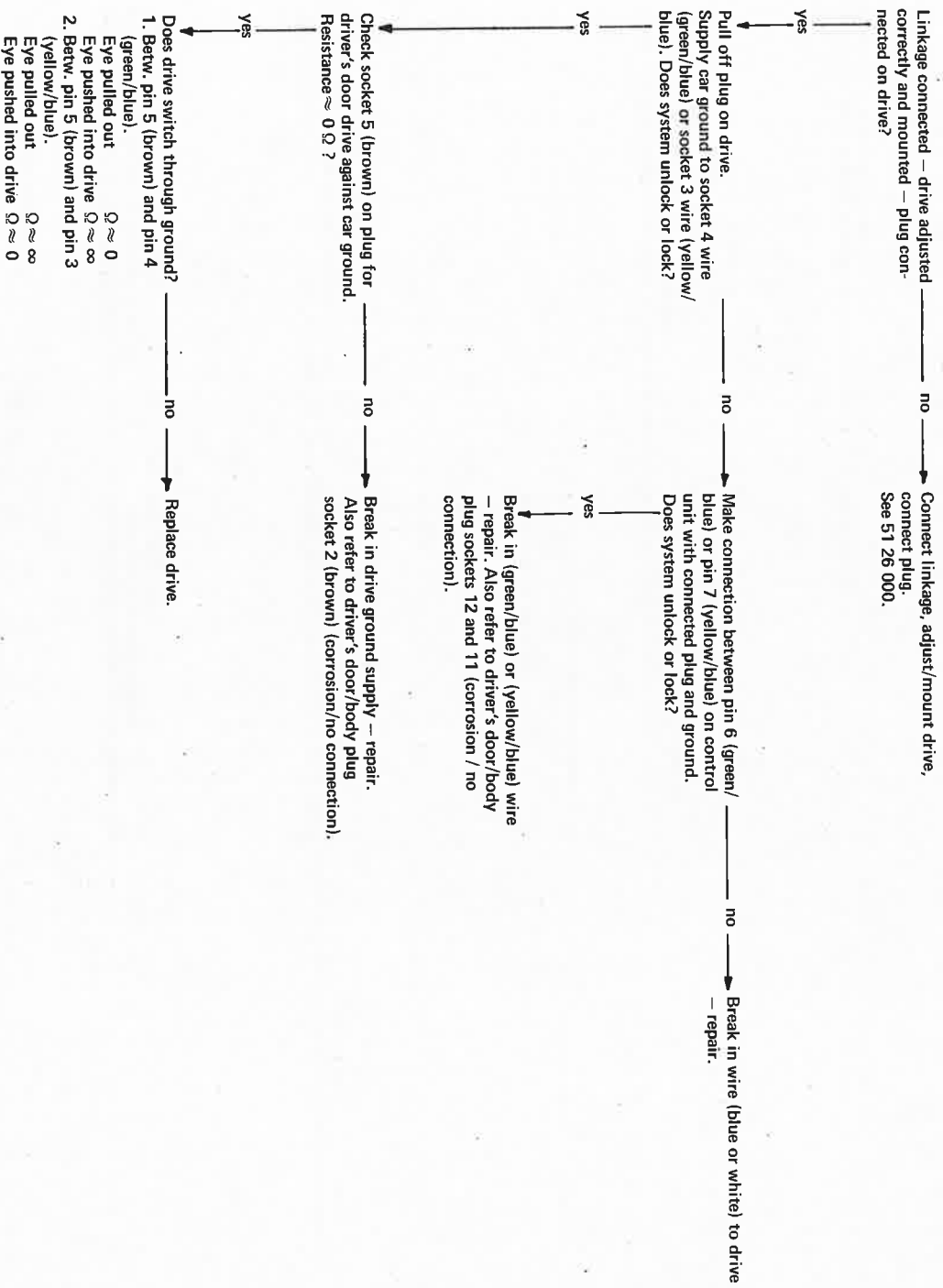
yes

no

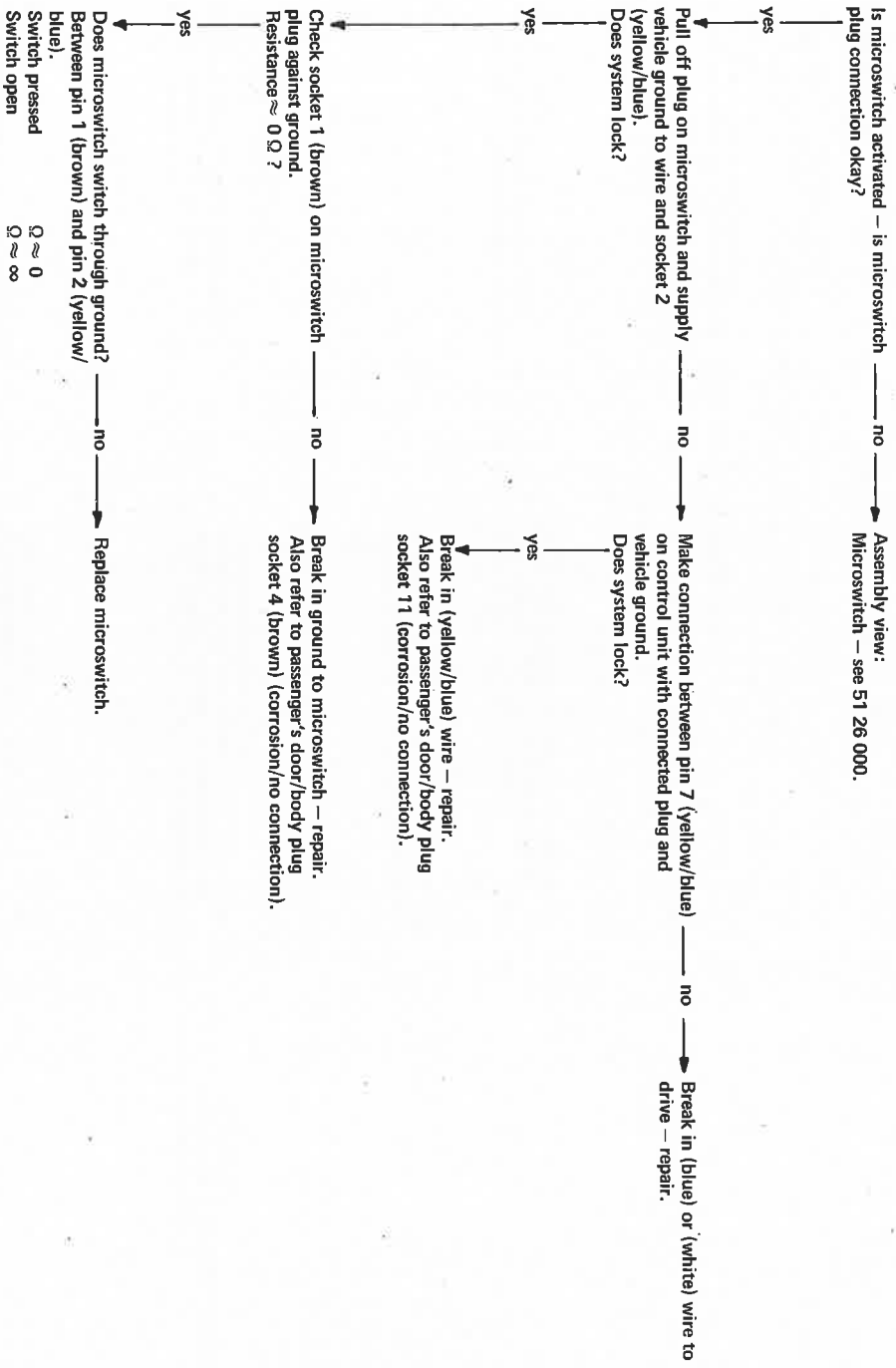


2. No Function When Operating Driver's Door Lock (Unlocking - Locking)

- See Test Requirements -



B. Locking Not Possible



51-807

5. No Function of One or Both Rear Doors (Unlocking - Locking - Arresting)

- See Test Requirements -

Linkage connected - drive adjusted - no -> Connect linkage - adjust/mount drive
correctly and mounted - plug connected - connect plug.
on drive correctly? See 51 26 010

yes

Pull off plug on drive. - no -> Pull off plug on control unit and check wires - no -> Repair wires.
Measure voltage: (blue/white and black) for breaks.
Wire (blue) while locking briefly > 9 V.
Wire (white) while unlocking briefly > 9 V.
Wire (black) while arresting briefly ≈ 1 V.
Voltage values correct? $\Omega \approx 0 ?$

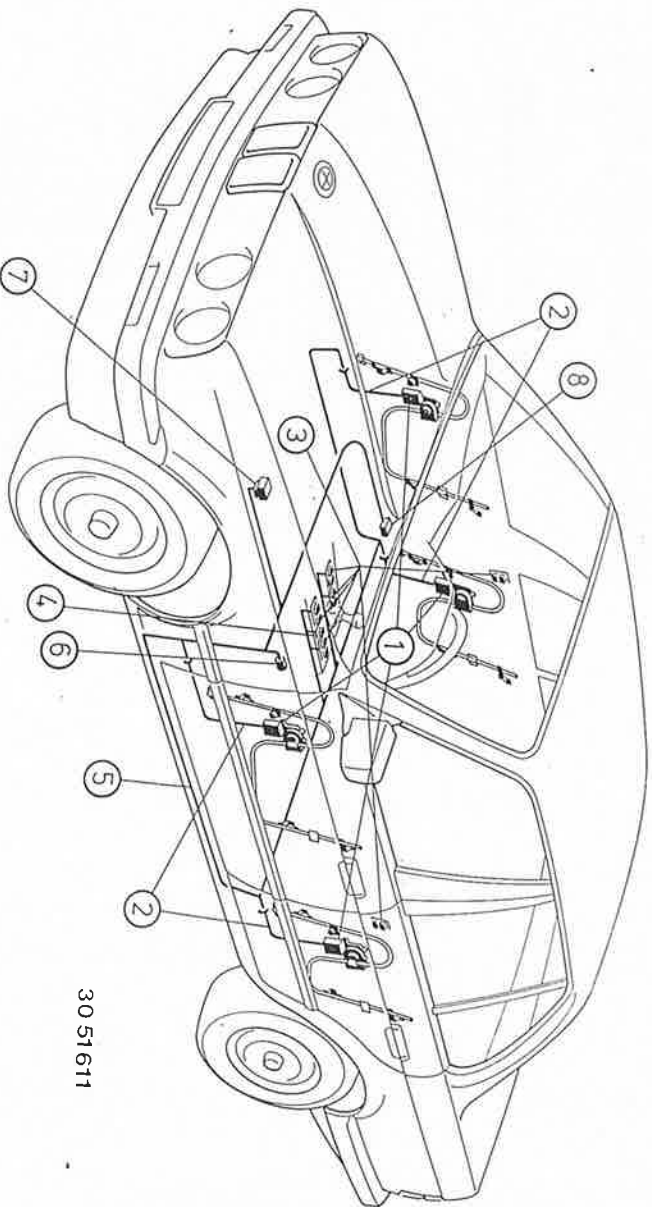
yes

Replace drive.

51-810

POWER WINDOWS – DESCRIPTION

- 1 Window motor
- 2 Door wire harness
- 3 Control switch
- 4 Child safety lock
- 5 Main wire harness
- 6 Connection on special equipment plug
- 7 Relay K 5 in fuse box or behind instrument panel at bottom left in case of service installation of holder on special equipment plug
- 8 Safety switch



30 51 611

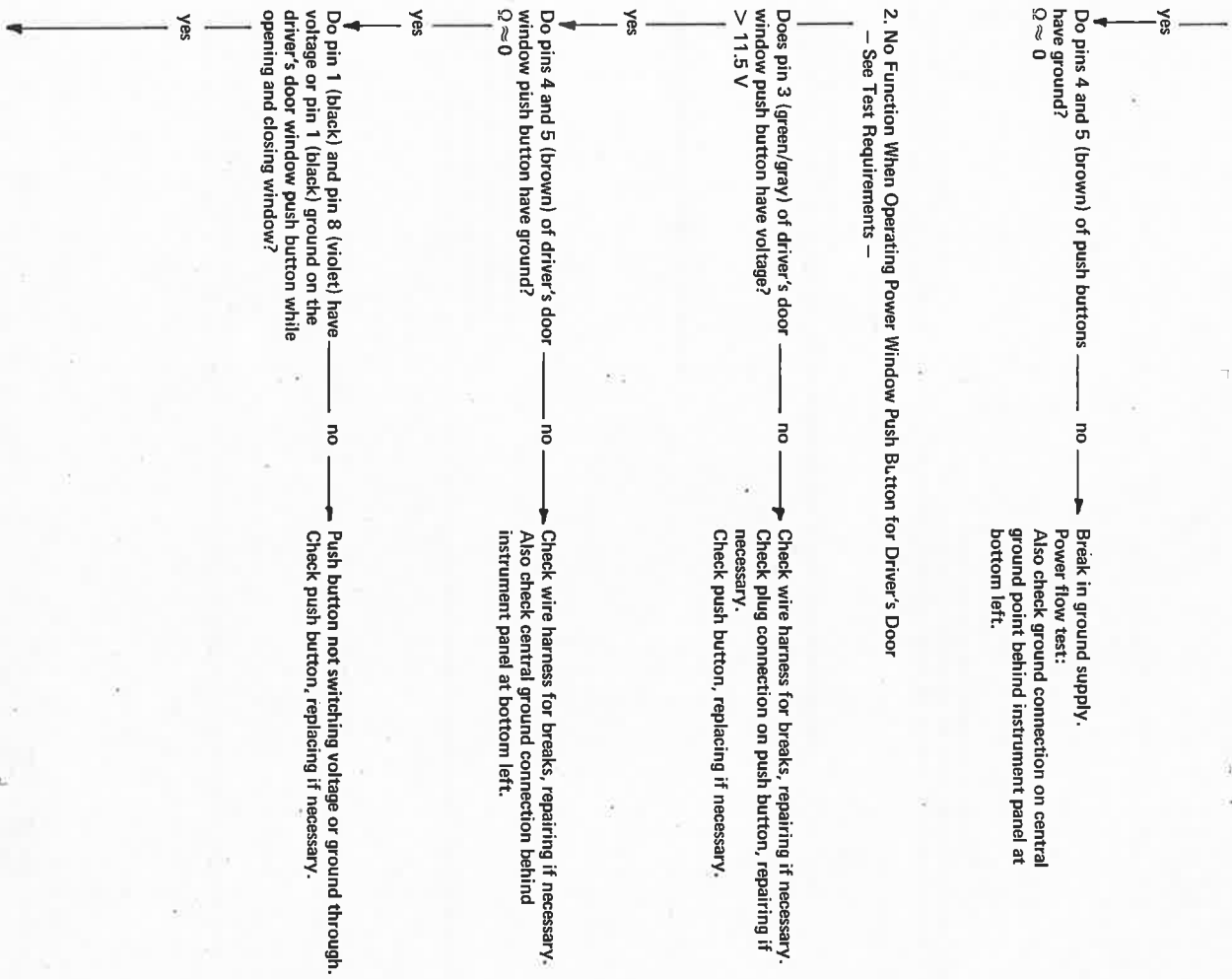
Power windows can be operated with the

- a) push buttons in the center console or
- b) push buttons in the trim panels of the rear doors.

This is possible with the ignition key in position 2.

Operation with the push buttons in the trim panels of the rear doors can be stopped by pressing the "child safety lock" push button in the center console.

The system is protected against excessive loads by a safety switch in the instrument panel.



51-814

yes → Do pins 4 and 5 (brown) of left rear door window push button have ground?
 $\Omega \approx 0$ → no → Check wire harness for breaks, repairing if necessary. Also check central ground connection behind instrument panel at bottom left.

yes → Is there voltage on pin 1 (blue/green) and pin 8 (black) or ground on pin 1 (blue/green) of left rear door window push button while opening and closing?
no → Push button not switching voltage or ground through. Check push button, replacing if necessary.

yes → Is there voltage or ground in sockets 1 or 5 of plug connection between power window and body in the left B pillar while operating the left rear door window push button?
no → Check wire harness for breaks, repairing if necessary.

yes → Is there power flow between pins 4 and 1 or pins 5 and 8 of the left rear door window push button (not pressed)?
no → Check push button, replacing if necessary.

yes →

52 Seats

52 10 000	Front seat — remove and install	52 - 101
100	Seat rails (outer or inner) on front seat — remove and install or replace	52 - 101
210	Reclining mechanism on left or right front seat — remove and install or replace	52 - 102
450	Back panel on left or right front seat backrest — remove and install	52 - 103
52 20 000	Rear seat cushion and backrest — remove and install	52 - 201

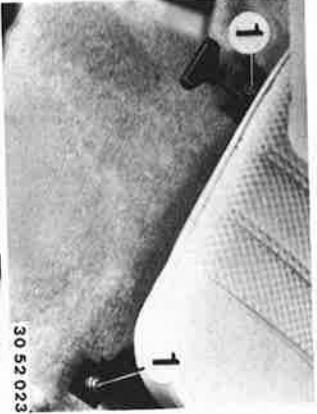
54 Hood, Sun Roof

54 12 004	Sun roof — adjust	54 - 1
020	Sun roof winder — remove and install	54 - 2
050	Sun roof winder recess plate — remove and install	54 - 2
100	Sun roof lid — remove and install	54 - 3
120	Sun roof lid seal — replace	54 - 3
130	Sun roof lid liner frame — remove and install or replace	54 - 3
230	Sun roof gearbox (manual) — remove and install or replace	54 - 4
240	Sun roof drive cables (manual) — replace	54 - 5
241	Sun roof drive cables (electric) — replace	54 - 6
250	Sun roof gate, left or right — replace	54 - 7
54 13 010	Sun roof motor/gearbox — remove and install or replace	54 - 8
012	Sun roof motor/gearbox microswitch — replace	54 - 8
	Sun roof — troubleshoot	54 - 9
54 21	Hardtop — install	54 - 14
...	Hardtop — repair	54 - 14/1
	Convertible Top:	
	General Information	54 - 15
54 31 020	Convertible top (canvas) — replace	54 - 16

52-101

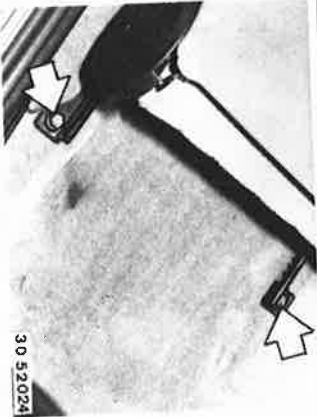
52 10 000 REMOVING AND INSTALLING FRONT SEAT

Push back seat.
Pull off caps.
Unscrew nuts (1).



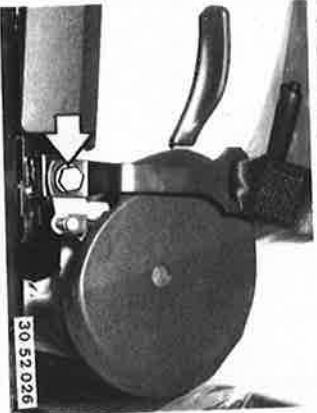
30 52 023

Push seat forward.
Pull off caps.
Unscrew nut and bolt.



30 52 024

4 Doors:
Pull off cap.
Unscrew seat belt.
Installation:
Tightening torque*.



30 52 026

52 10 100 REMOVING AND INSTALLING OR REPLACING SEAT RAIL (OUTER OR INNER) ON LEFT OR RIGHT FRONT SEAT

Remove front seat — see 52 10 000.
Unscrew bolt.
Compress springs and pull out pin.

Installation:
Tightening torque*.
Always replace pin.



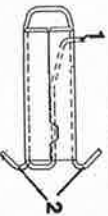
30 52 012

52 1 100

Saxtonia Pin Shown Removed:
Guide in tongue of Special Tool 52 1 100 — arrest (1) is deactivated — and drive out pin.
Installation:
Always replace pin.
Drive in pin against stop with the special tool mandrel.
Check whether arrest (1) has engaged and stops (2) are not damaged.



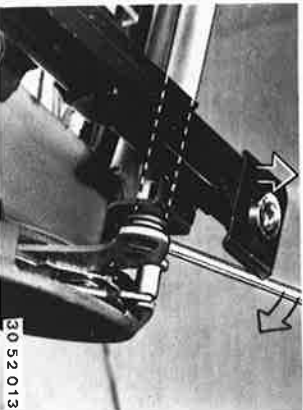
30 52 034



52 1 100

30 52 035

Disconnect linkage rod.
Lift connecting tube out of square hole in control lever with a screwdriver.



30 52 013

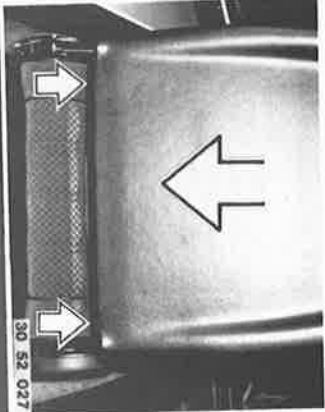
* See Specifications

* See Specifications

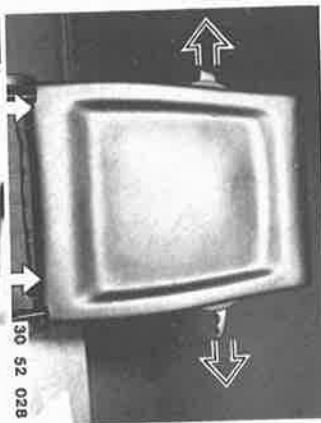
52 - 103

52 10 450 REMOVING AND INSTALLING
BACK PANEL FOR LEFT OR
RIGHT FRONT SEAT BACKREST

BMW 318 i:
Unscrew screws and pull back panel down.



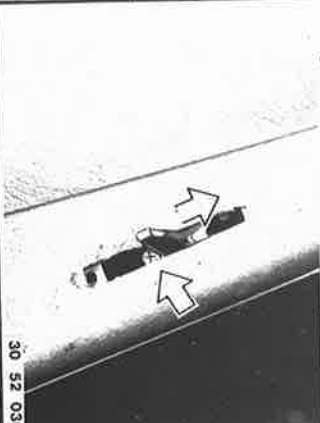
BMW sport seat:
Unscrew screws.
Pull off handles.



Lift out plates from underneath.



Inside Handle on Passenger's Side:
Unscrew screws and lift out holder from above.
Push up back panel and remove over outside
handle.



54 Hood, Sun Roof

54 12 004	Sun roof - adjust	54 - 1
020	Sun roof winder - remove and install	54 - 2
050	Sun roof winder recess plate - remove and install	54 - 2
100	Sun roof lid - remove and install	54 - 3
120	Sun roof lid seal - replace	54 - 3
130	Sun roof lid liner frame - remove and install or replace	54 - 3
230	Sun roof gearbox (manual) - remove and install or replace	54 - 4
240	Sun roof drive cables (manual) - replace	54 - 5
241	Sun roof drive cables (electric) - replace	54 - 6
250	Sun roof gate, left or right - replace	54 - 7
54 13 010	Sun roof motor/gearbox - remove and install or replace	54 - 8
012	Sun roof motor/gearbox microswitch - replace	54 - 9
54 21	Sun roof - troubleshoot	54 - 14
...	Hardtop - install	54 - 14
...	Hardtop - repair	54 - 14/1
Convertible Top:		
General Information		
54 31 020	Convertible top (canvas) - replace	54 - 15
		54 - 16

54-1

54 12 004 ADJUSTING SUN ROOF

Description:

This sun roof can be operated as a

- A) sliding roof and
- B) lifting roof.

Switching to lift is only possible with the lid closed.

For electric sun roofs by way of a microswitch with the control switch in "close" position. For manual sun roofs after overcoming a pressure point.

Ideal Sun Roof Lid Settings:

Height:

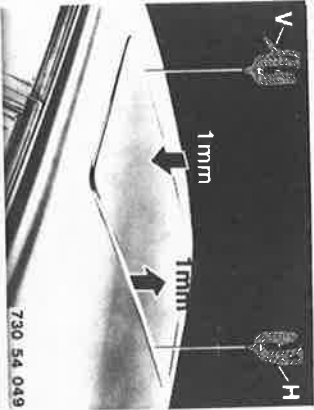
Front = 1 mm (0.040") deeper than roof panel.
Rear = 1mm (0.040") higher than roof panel.

Axial Setting:

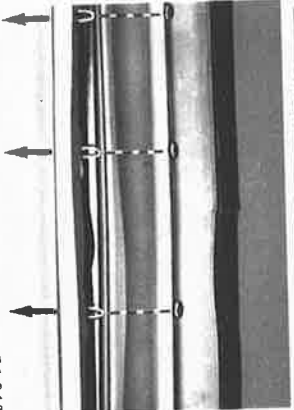
Equal distance at front and rear between lid and roof – approx. 0.2 mm (0.008"), check with plastic gauge.

Check Velvet Strips:

V = Front with sealing lip
H = Rear without sealing lip



730 54 049



30 54 010

Open sun roof lid about 5 cm (2").
Press off front roof liner frame.
Close sun roof lid and slide back roof liner frame completely.

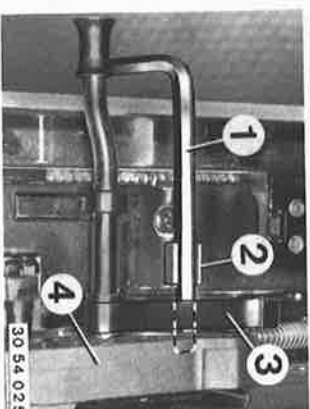
Installation:

Close sun roof lid.
Pull roof liner frame forward uniformly.
Open sun roof lid slightly, while holding roof liner frame by hand.
Press in holding clamps for front roof liner frame.



30 54 024

Sun roof closed = position 0.
Lock sun roof in position 0 on left and right sides with a 4 mm key (1).

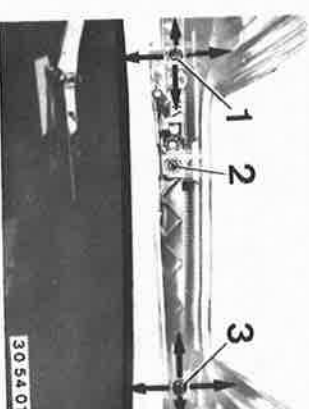


30 54 025

Note:
Place key (1) in holder of guide pin (2) and insert in hole of operating lever (3) and gate (4).

Loosen screws (1 ... 3) on left and right sides with Special Tools 00 2 102/103.
Slide and adjust sun roof in slots.

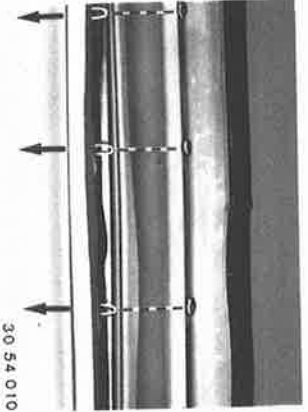
Note:
Replace self-locking screws.
Tightening torque: 3.5 Nm (2.5 ft. lbs.)



30 54 011

54-3

54 12 100 REMOVING AND INSTALLING SUN ROOF LID

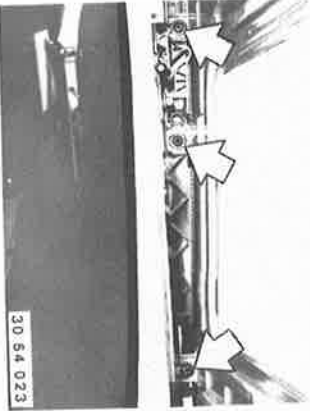


Close sun roof lid but for about 5 cm (2").
Press off front roof liner frame.
Close sun roof lid and slide back roof liner frame completely.

Installation:
Close sun roof lid.
Pull roof liner frame forward uniformly.
Open sun roof lid slightly, while holding roof liner frame by hand.
Press in holding clamps for front roof liner frame.

Unscrew bolts on left and right sides with Special Tools 00 2 102/103.
Lift off sun roof lid.

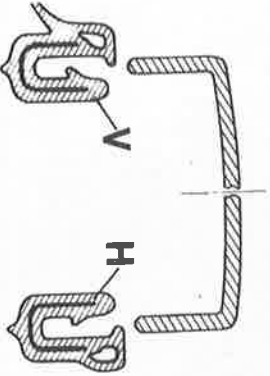
Installation:
Adjust sun roof 54 12 004.
Replace self-locking bolts.



54 12 120 REPLACING SEAL FOR SUN ROOF LID

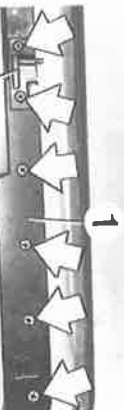
Remove and install sun roof lid 54 12 100.
Pull off seal on lid.

Installation:
Install seals with adhesive*.
V = Short front velvet strip (sealing lip faces forward)
H = Long rear velvet strip



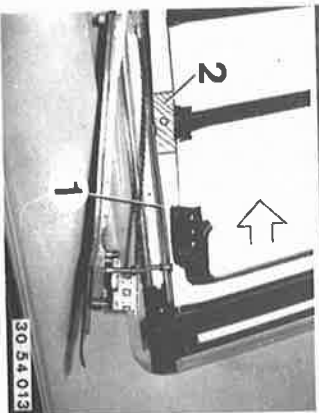
54 12 130 REMOVING AND INSTALLING OR REPLACING ROOF LINER FRAME FOR SUN ROOF LID

Remove and install sun roof lid 54 12 100.



Unscrew screws on left and right sides.
Remove cover rails (1) and guide pins (2).
Guide pins (2) are marked with L for left or R for right.

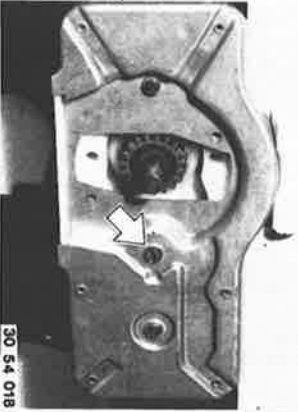
Pull cables out of guides.
Pull roof liner frame forward and remove.
If applicable, unriver and rivet connecting rods (1).
Use a piece of tape on both sides in area of rivets (to avoid rattling noise).



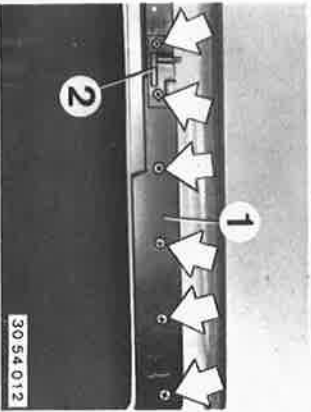
54-5

54 12 240 REPLACING BOTH DRIVE CABLES FOR MANUAL SUN ROOF

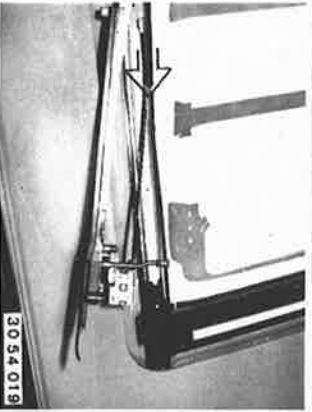
Remove and install sun roof lid 54 12 100. Remove and install recess plate 54 12 050.



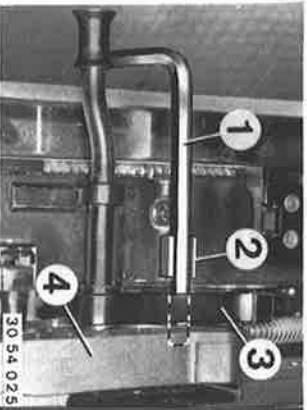
Loosen bolt.



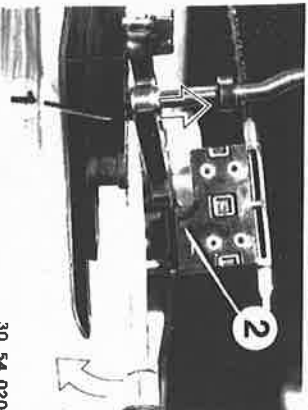
Unscrew left and right bolts. Remove cover rails (1) and guide pins (2). Guide pins (2) are marked L = left or R = right.



Pull drive cables out of guide tubes. If applicable, loosen gear mounting bolts further to make drive cables accessible.



Installation:
Place 4 mm hexagon key (1) in holder of guide pin (2) on left and right sides and insert in holes of operating lever (3) and gate (4). Set gear to 0 (pressure point) and tighten bolts.

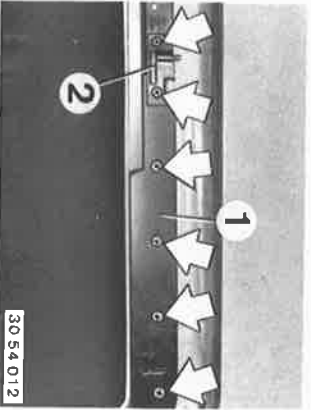


Press gate (1) off of drive cable (2). Drive cables (2) are marked L = left or R = right.

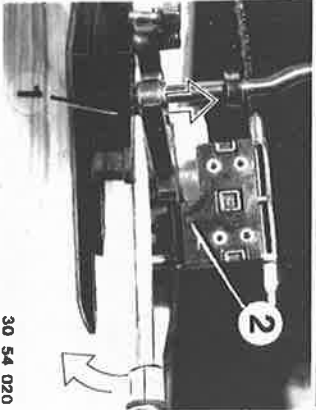
54-7

54 12 250 REPLACING LEFT OR RIGHT GATE FOR SUN ROOF

Remove and install sun roof lid 54 12 100.
Unscrew bolts.
Unscrew left and right bolts.
Take off cover rails (1) and guide pins (2).
Guide pins (2) are marked L = left or R = right.



30 54 012



30 54 020

Pull cable out of guide.
Press gate (1) off of drive cable (2).
Transfer and lubricate slides with grease*.

* HMB No. 81 22 9 407 171

54-9

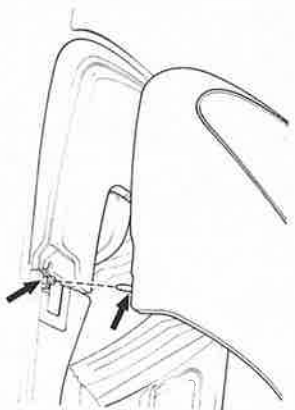
TROUBLESHOOTING SLIDING/LIFTING SUN ROOF

Condition	Cause	Correction
<p>Rattling noise</p>	<ul style="list-style-type: none"> a) Maladjusted b) Guide tubes knocking against each other c) Roof liner frame knocking against sun roof lid when open d) Connector for water drain knocking on guide rail e) Too much play of sliding shoes and upper guiding pin. 	<ul style="list-style-type: none"> a) Adjust sun roof b) Wrap tape around guide tubes c) Paste foam rubber on corners of sun roof frame d) Paste tape on rivets and guide linkage e) see Service-Information 54 01 84 (298)
<p>Sun roof can be lifted, but does not slide</p>	<ul style="list-style-type: none"> a) Pins on gate holders bent 	<ul style="list-style-type: none"> a) Replace gate holders
<p>Sun roof lifts onesidedly</p>	<ul style="list-style-type: none"> a) Drive cables maladjusted in position 0 b) Rear guide turns on drive cable 	<ul style="list-style-type: none"> a) Adjust drive cables in position 0 b) Lock drive cable in front of and behind guide with punch marks or by squeezing
<p>Grinding noise when opening and closing</p>	<ul style="list-style-type: none"> a) Sliding rails and plastic parts lubricated 	<ul style="list-style-type: none"> a) Remove grease and/or replace sliding shoes
<p>Grinding noise when lifting</p>	<ul style="list-style-type: none"> a) Front seal dry b) Contact force on front seal excessive 	<ul style="list-style-type: none"> a) Lubricate seal with vaseline b) Adjust lid
<p>Water leaking through roof liner area</p>	<ul style="list-style-type: none"> a) Sun roof maladjusted in position 0 b) Seals loose/damaged c) Wrong seal installed (front/rear seals differ in shape) d) Drain hoses plugged e) Guide rails and cover plates seal insufficiently on roof frame f) Corners in rear roof opening leak g) Hose outlets plugged with sealing compound foam 	<ul style="list-style-type: none"> a) Adjust sun roof in position 0 b) Paste/replace seals c) Install original spare parts d) Clean drain hoses e) Seal guide rails and cover plates f) Seal corners g) Clean hoses

54 - 14

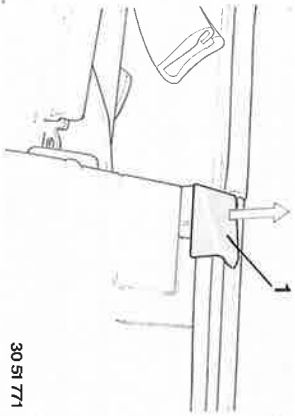
54 21 ... INSTALLING HARDTOP

Mount hardtop with pins in the take-ups.



30 51 776

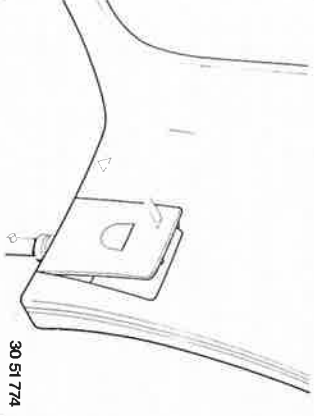
Adjust distance between hardtop and body to 5 ... 6 mm (0.197 to 0.236"). Turn the locking screw with an open-end ring wrench until the lock is noticed to engage. Engage the front locks.



30 51 771

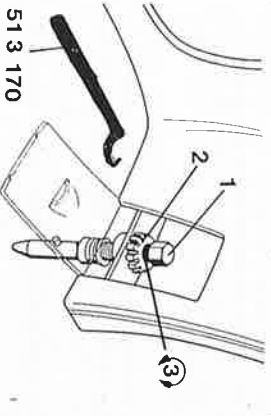
Wind down side windows completely. Fold in top. Close top lid. Pull out plug (1).

Fold down covers for rear fasteners on the hardtop.



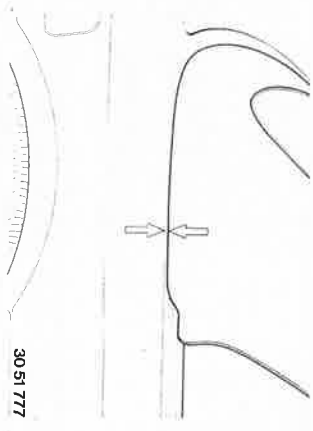
30 51 774

- 1 Locking screw
- 2 Knurled nut for locking with Special Tool 51 3 170
- 3 Adjusting screw

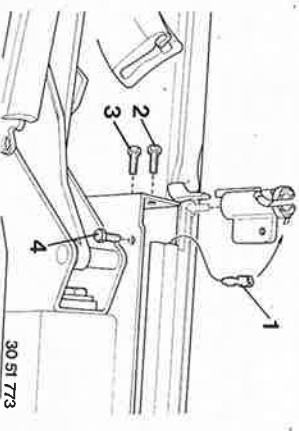


51 3 170

30 54 050



30 51 777



30 51 773

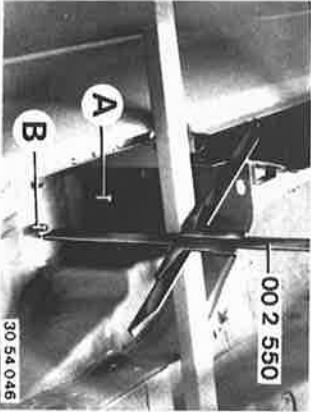
Note for Hardtop Take-ups:
Connect lead (1) for rear window defogger. Screw on left and right hardtop take-ups each with three screws (2 ... 4).
Note:
Lock bolts with Loctite.
Lubricate slip contacts with light coat of contact grease.

Procedures:

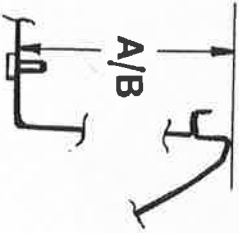
1. Place repair patches on the damaged surface and hold them in position with adhesive tape. Cut out patches and roof skin together with a saddler's knife (at right angles to the surface being repaired).
2. Remove old cement and clean the repair surface.
3. Repair damaged joint in the honeycomb structure with a fiber filler and harden with ultraviolet light. Then apply a coat of final filler and harden with ultraviolet light.
Note:
If damage is deeper, apply the filler in layers and harden with ultraviolet light.
4. Grind and clean repair surface.
5. Mix cement and hardener in ratio of 15 to 1.
6. Apply a thin coat of the mixed cement on the repair surface and back of patches.
7. Allow about 15 minutes drying time for the cement.
8. Apply patches (edges butted) and press on firmly with a rubber roller.
Important!
If applicable, remove any cement squeezed out on the sides (don't smear it!).
9. Dip a glass rod in Plastisol and coat the butt edges thoroughly.
10. Allow about 15 minutes drying time for the butt edges (dust dry).
11. Clean part of or the entire hardtop with an alcoholic solution (2%) or watery solution on soap basis.
12. Paint part of or the entire hardtop with clear lacquer.

54 - 16

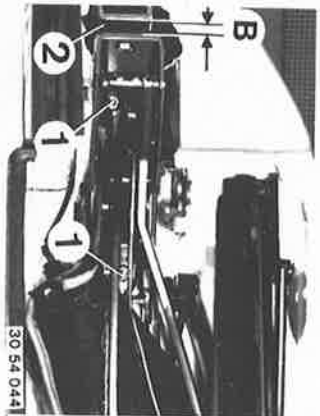
Adjusting Top:
Place rails on left and right side panels. Rails must bear on metal — pull off the rubber partially.



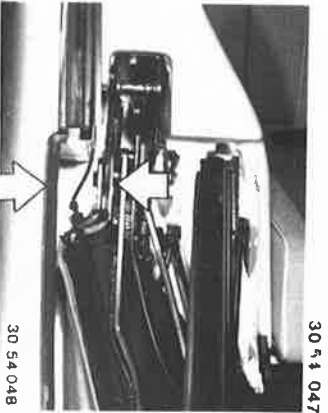
Measure distance from side panel (lower edge of rail) to bearing surface of top console at both threaded pins with Special Tool 00 2 550.



Adjust distance
A = 181 mm (7.128") - front threaded pin
B = 159 mm (6.260") - rear threaded pin
with shims which are available 1 mm (0.039") thick.



Hold top with nuts (1) — it must still be possible to move the top.
Close the top and adjust distance (B) on the front mounting points with shims (2), which are available in thicknesses of 1 mm (0.039").
Tighten top nuts.

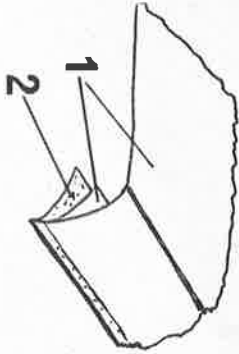


Center the top to the side panels.

30 54 048

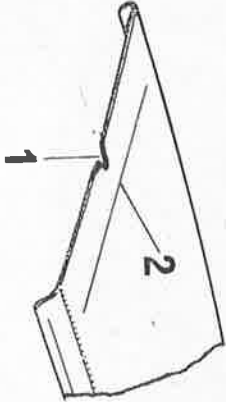
54 - 18

Note:
Secure window protection on inside and outside with masking tape. Refer to instructions for application of cement*.



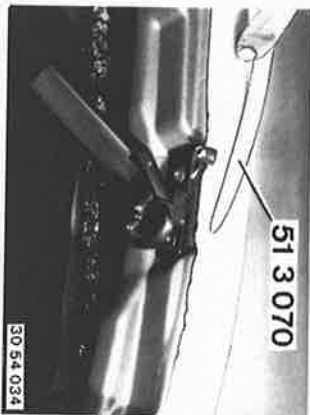
30 54 026

The control banners (2) permit alignment of top edges and must only be cemented after top (1) has been cemented on the frame.



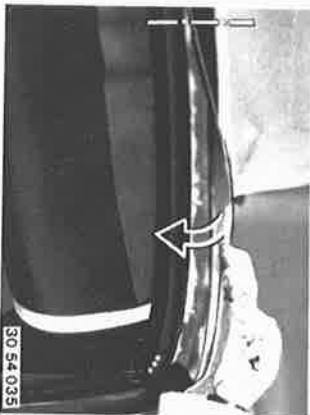
30 54 027

Cement the top, beginning at center (1). Mark (2) must run precisely along the front frame edge.



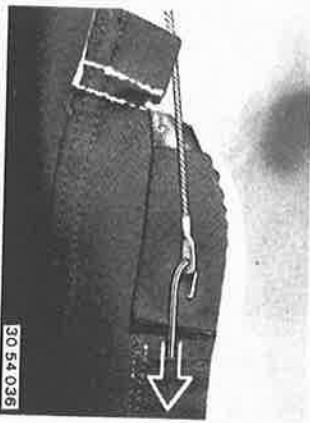
30 54 034

Press on top without folds with Special Tool 51 3 070. Apply sealing compound* along the rail and on corners. Mount rail and pull on rubber part.



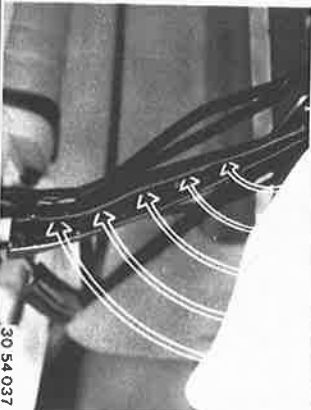
30 54 035

Cement top on frame at rear. Check center mark and proceed from the center.



30 54 036

Pull in cable with a piece of welding wire and connect it on the spring.



30 54 037

Cement the top.

* Source of Supply: HWB

* Source of Supply: HWB

72 Equipment and Accessories for Body

72 11 030	Seat belt, front — remove and install or replace	72 - 110
102	Seat belt, rear — remove and install or replace	72 - 112
	Seat belts — inspect	72 - 115
54 12 490	Wind deflector — install	72 - 120

72 - 110

72 11 030 REMOVING AND INSTALLING OR REPLACING FRONT SEAT BELT (COMPLETE)

Remove front seat 52 10 000.

Pull off cap.

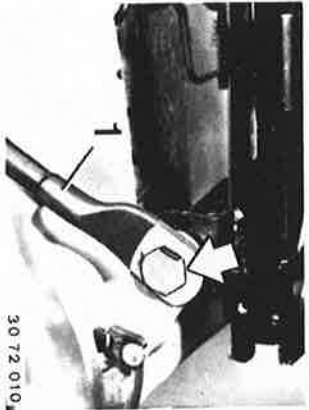
Unscrew lower strap (1).

If applicable, pull off plug.

Check switch — see test list for seat belts.

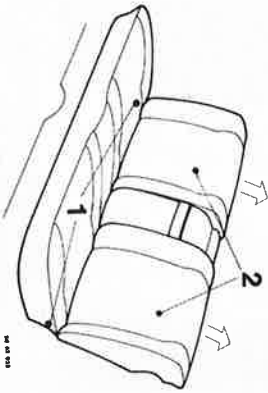
Installation:

Tightening torque*.



30 72 010

Two Door:
Lift out rear seat cushion from above.
Unscrew bolts (1) and lift backrest out of
holders (2).



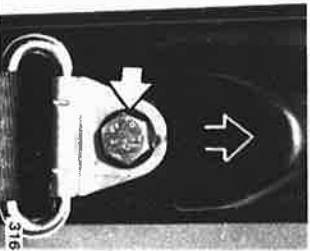
30 72 011

Disconnect side trim panel (3 clips) and pull
up out of clamps.



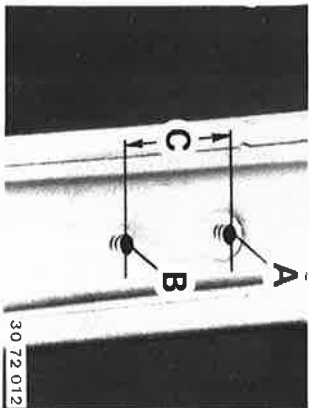
30 72 011

Pull off cap and unscrew bolts.



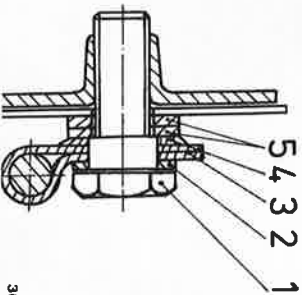
316 72 012

* See Specifications



30 72 012

The belt reversing holder can be mounted at
point A or B, depending on the size of the
person.
Cut out B pillar trim for bore B.
C = approx. 50 mm (2").

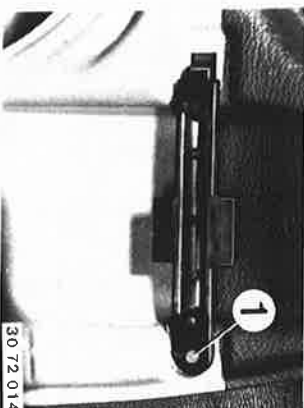


30 72 013

Installed Order:

- 1 Bolt
 - 2 Washer (plastic)
 - 3 Upper strap
 - 4 Washer (plastic)
 - 5 Washers (two)
- Tightening torque*.
Since 1985 Models:
Washers (2 and 4) omitted.

Drive out pin (1) and take off slide.



30 72 014

Unscrew bolt (1) and detach belt strap.
Unscrew bolt (2) and remove automatic reel.

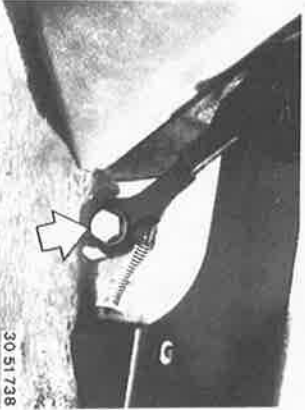
Installation:
Centering pin engages in bore.
Tightening torque*.



30 72 015

* See Specifications

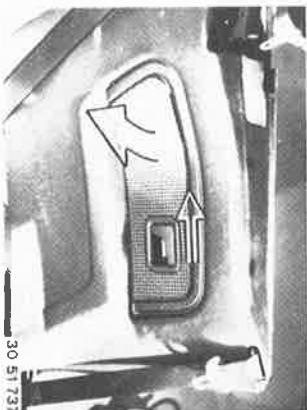
72-112



Convertible:
Lift out plate.
Unscrew screw.
Lift out the seat belt.
Installation:
Tightening torque*.

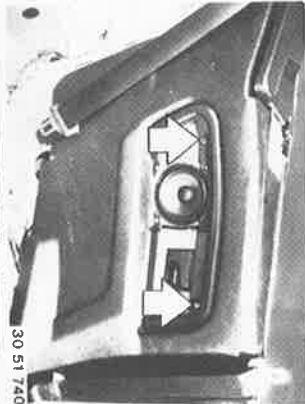


Installation:
Check for correct fit of spring.

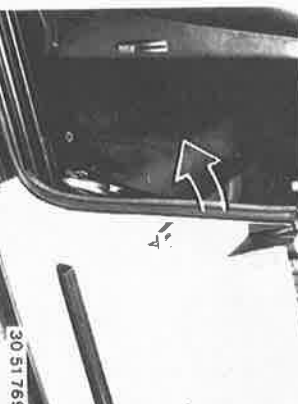


Pull off trim.

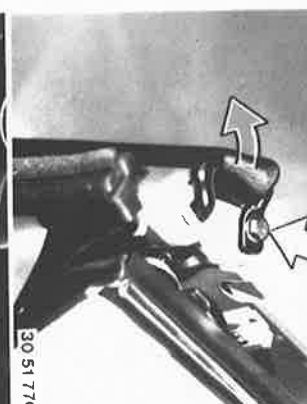
Remove complete rear seat — see 52 20 000.
If applicable, lift out plate.



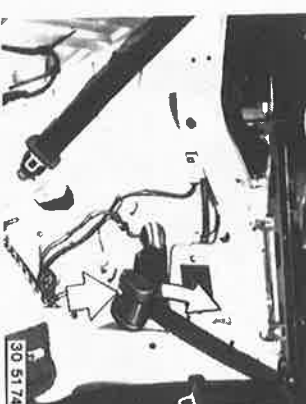
Unscrew screws.
Window opened.



Pull off rubber seal on door.
Lift out trim.
If applicable, pull off speaker wires.



Unscrew screw.
Take off stirrup.



Unscrew bolt.
Remove automatic reel.
Installation:
Tightening torque*.

* See Specifications

30 51 737

30 51 738

30 51 739

30 51 740

30 51 742

30 51 769

30 51 770

* See Specifications

72-114

Convertible:
Remove rear seat cushion and backrest — see 52 20 000.
Uncrew bolt:
Installation:
Tightening torque*.



Lift out trim.



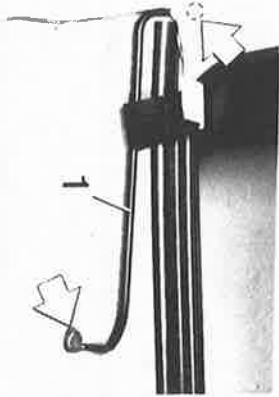
Uncrew bolts.
Remove automatic reel and reverser.
Installation:
Tightening torque*.



* See Specifications

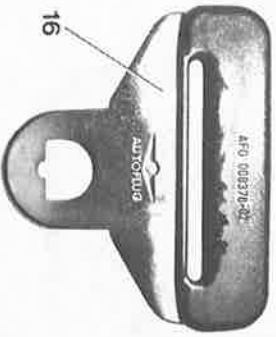
72-116

To fasten a seat belt the insert must be inserted in the lock lightly and heard to engage with a click. The insert must be ejected out of the lock by spring pressure when pressing the "PRESS" button. Replace the seat belt, if the lock trim is missing or damaged. The lower strap must also be replaced when replacing a seat belt. In the case of a seat-integrated seat belt, the stop of the lower strap could be deformed on the seat rail in a collision. Straightening attempts on the seat and seat rail are not approved.

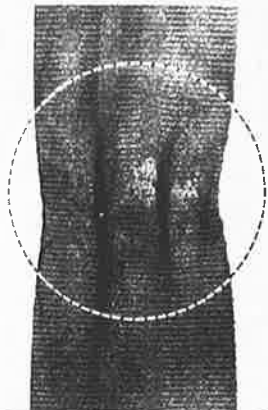


30 72 021

A deformed slide (1) has to be replaced.



The seat belt has to be replaced, if traces of wear are found in the plastic sleeve of the belt opening above the belt insert (16).



730 72 056

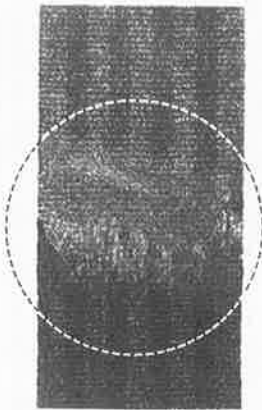
Seat Belts:
Use a luke warm soap solution or commercial fine laundry detergent to clean seat belt straps. Seat belt straps may never be cleaned chemically or dyed.

Replace an automatic seat belt in case of

- creases (illustrated)
- fringing
- pinches

- tears or cuts
- melting (illustrated)
- seam damage on end of belt strap in area of holding or swinging fitting

Spray a seat belt with universal spray, HWB No. 8 122 947 005, to improve retraction of belt in reel (reduces friction, especially on the belt reversing holder).



730 72 055

72-118

Is mounting tab on belt reversing holder free of deformation? no yes → Replace complete automatic seat belt.

yes

Is fully pulled out belt strap free of pinches, melt spots, cuts, creases, tears and fringing? no yes → Replace complete automatic seat belt.

yes

Is seam on end of belt strap free of damage? no yes → Replace complete automatic seat belt.

yes

Does spring pressure eject the belt insert out of the lock when operating the "PRESS" button while seat belt is fastened? no yes → Replace complete automatic seat belt.

yes

Is a fastened seat belt locked when stopping a car from a speed twice as fast as walking with brakes applied fully? no yes → Replace complete automatic seat belt.

yes

Is a fully pulled out belt strap free of serious dirt and spots? no yes → Seat belt must be replaced, if dirt and spots cannot be removed with a commercial fine laundry detergent.

yes

Is the front tongue of the reclining mechanism or seat rails free of deformation in the case of seat-integrated seat belts? no yes → Replace damaged parts and the complete automatic seat belt.

yes

Is there a warning signal with the driver's door closed, seat belt fastened (click heard) and ignition turned on? yes no → Check switch in seat belt lock.
Measure resistance on belt lock plug.
Belt lock engaged $\approx 00\ \Omega$
Belt lock not engaged $\approx 0\ \Omega$

no

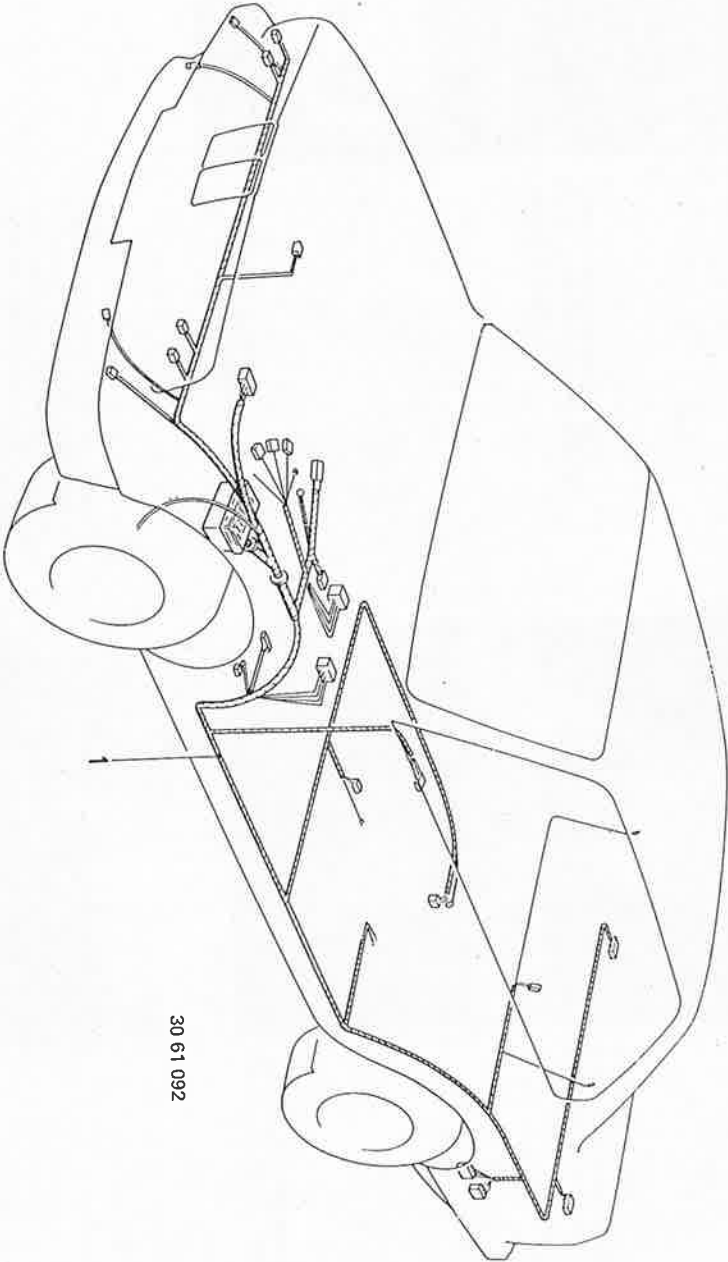
Automatic seat belt is okay!

61 Electrical System

61 10	...	Main wire harness – layout drawing	61 - 1
100	...	Main wire harness – replace	61 - 2
61 13	...	Plugs – remove and install	61 - 4
...	...	20-pin round male plug	61 - 5
...	...	8-pin round male plug	61 - 5
...	...	35 and 55-pin connecting plugs	61 - 6
021	...	Fuse/relay plate – replace	61 - 101
61 21	010	Battery – remove and install	61 - 201
015	...	Degassing tank – remove and install or replace	61 - 201
61 31	016	Turn signal/headlight dimmer switch – replace	61 - 301
020	...	Steering lock/ignition switch – remove and install	61 - 301
028	...	Light switch – remove and install	61 - 302
040	...	Wiper switch – remove and install	61 - 302
045	...	Intensive cleaning control unit – replace	61 - 303
051	...	Heater (blower) switch – remove and install	61 - 303
060	...	Rear window defogger switch – remove and install	61 - 303
070	...	Front/rear fog light switch – remove and install	61 - 303
080	...	Hazard light switch – remove and install	61 - 303
085	...	Air conditioner switch – replace	61 - 304
095	...	Door lock heating control unit – remove and install or replace	61 - 304
105	...	Power window automatic cutout – replace	61 - 304
115	...	Power window control switch – replace	61 - 304
205	...	Central lock impact switch – replace	61 - 304
210	...	Door contact switch, left or right – remove and install	61 - 305
250	...	Trunk light contact switch – remove and install	61 - 305
255	...	Power mirror switch – replace	61 - 305
260	...	Transmission switch – replace	61 - 305
265	...	Program switch for automatic transmission control (EH) – replace	61 - 305
270	...	Backup light switch – replace	61 - 306
280	...	Oil pressure switch – remove and install	61 - 306
282	...	Engine oil level switch – replace	61 - 307
310	...	Stop light switch – replace	61 - 307
313	...	Brake pad wear sensor – replace	61 - 307
315	...	Brake fluid level switch – replace	61 - 307
320	...	Parking brake indicator lamp switch – replace	61 - 307/1
330	...	Glove box light switch – remove and install	61 - 308
360	...	Turn signal/hazard light flasher (relay) – remove and install	61 - 308
370	...	Wipe/wash control unit – replace	61 - 308
382	...	Coolant level switch – replace	61 - 308
390	...	Check control bulb tester (for tall and stop lights) – replace	61 - 309
475	...	Power sun roof switching-over relay – replace	61 - 309
492	...	Washing fluid level switch – replace	61 - 309
...	...	Relay in power distributor – replace	61 - 310
61 33	040	Two-tone horn, left or right – remove and install	61 - 310
61 61	270	Windshield wiper console – remove and install	61 - 601

61-1

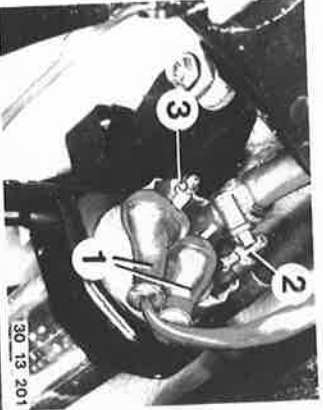
MAIN WIRE HARNESS LAYOUT DRAWING



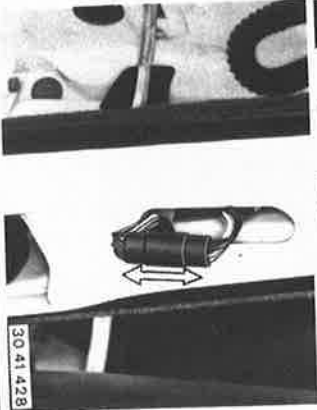
30 61 092

61-3

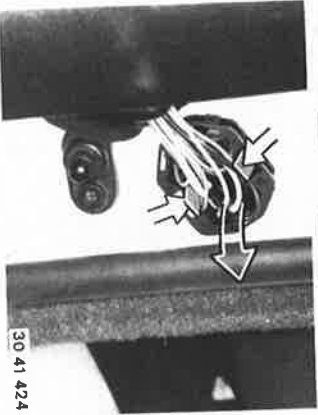
Disconnect wires on electric fuel pump and run in.



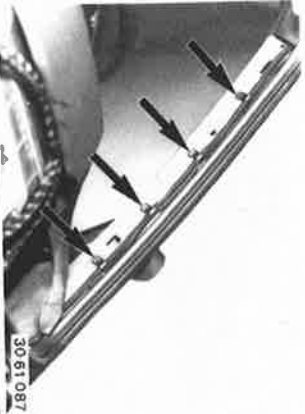
Four Door Cars:
If applicable, disconnect wires for power windows or central locks in the B pillar and lift wires out of left and right B pillars.



Disconnect plugs in left and right A pillars and lift wires out of A pillars.



If applicable, loosen clips and run wires for check control into the left footwell.



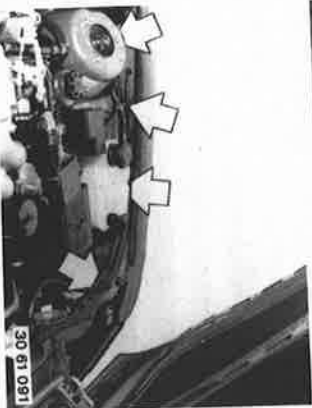
Loosen all clips and lift wire harness out of side member.



Loosen straps.
Disconnect engine wire harness on main wire harness.
Loosen positive lead up to the power distributor.



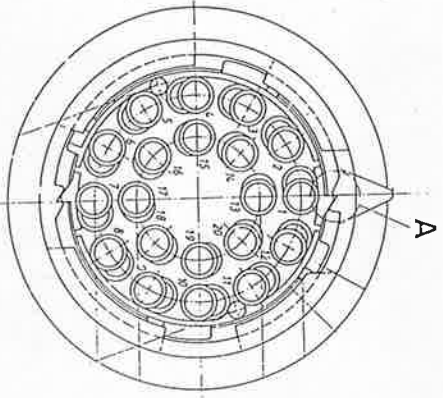
Disconnect wires on turn signals, headlights, coolant level switch and brake fluid level switch.
Loosen straps and lead wire harness to the power distributor.



61-5

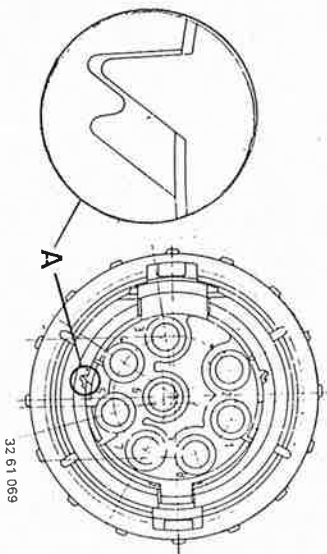
61 13 ... 20 PIN ROUND MALE PLUG

Turn plug to final catch position A and press out contact pin or sleeve with special tool.



32 61 070

61 13 ... 8 PIN ROUND MALE PLUG



32 61 069

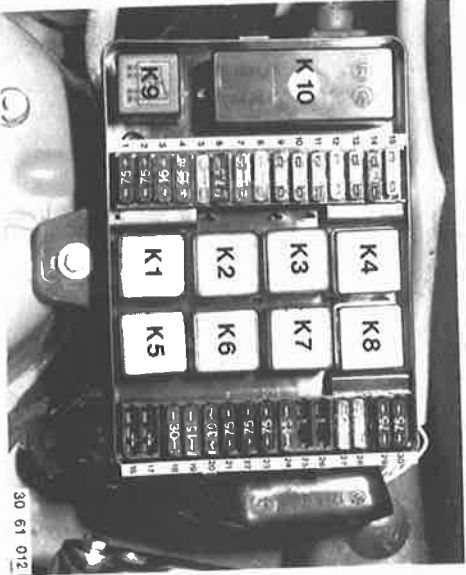
Turn plug to final catch position A and press out contact pin or sleeve with special tool.

61-101

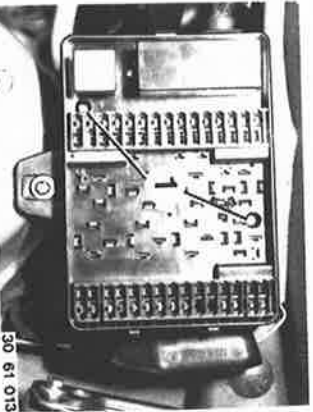
61 13 021 REPLACING FUSE/RELAY PLATE



Take off cover.
Pull out all relays and fuses.



30 61 012



Unscrew bolts (1).
Lift fuse/relay plate.
Disconnect all wires.

Installation:
See wiring diagram for connections.

Fuse No. *	Amperes	Description
1	7.5	High beam, left
2	7.5	High beam, right
3	15	Extra fan 1960 F
4	15	Turn signal indicator, clock light
5	(25) 30	Wipers/washer
6	7.5	Stop lights, cruise control
7	15	Two-tone horns
8	(25) 30	Rear window defogger
9	15	Engine electrics
10	7.5	Instruments, fasten seat belt warning light and buzzer, back up lights, check control
11	15	Main and aux. fuel pump
12	7.5	Radio and instruments
13	7.5	Low beam, left
14	7.5	Low beam, right
15	-	-
16	-	-
17	30	Power sliding roof, electric window lift
18	30	Extra fan 210° F
19	7.5	Mirror operation and heating
20	30	Heater blower, air conditioner
21	7.5	Interior lights, radio memory, glove box, rechargeable flashlight, clock, trunk light, fasten seat belt buzzer, ignition key warning buzzer, instrument panel lights, on-board computer
22	7.5	Left rear light, front position light left, front side marker light left
23	7.5	Right rear light, front position light right, rear side marker light, license plate lights
24	15	Hazard warning lights
25	-	-
26	-	-
27	(25) 30	Central locking system, door lock heating, on-board computer
28	(25) 30	Cigar lighter, power antenna
29	7.5	Left front fog lamp
30	7.5	Right front fog lamp

Values in brackets () until 9/84.

Relay *	Description
K 1	Extra fan speed I
K 2	Two-tone horns
K 3	High beams
K 4	Low beams
K 5	Power sliding roof, electric window lift
K 6	Extra fan speed II
K 7	Heater blower
K 8	Front fog lamps
K 9	
K 10	Intensive cleaner control unit

Spare Fuses (in Cover):

- 2 x 7.5 A
- 1 x 15 A
- 1 x 30 A

* Stamped in cover

61 - 201

61 21 010 REMOVING AND INSTALLING BATTERY

- a) Installed in Engine Compartment:
 - Disconnect ground lead.
 - Take cap off of positive pole.
 - Disconnect positive lead.



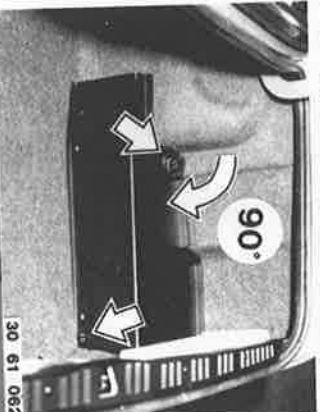
30 61 080

- Unscrew bolt.
- Remove holder and lift out battery.



30 61 061

- b) Installed in Trunk:
 - Turn fasteners 90° and lift out trim panel.



30 61 062

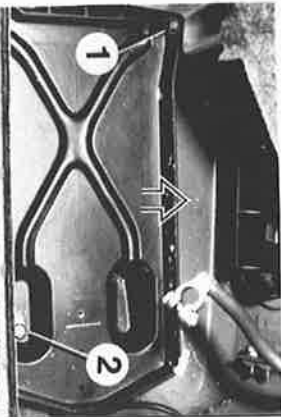
- Disconnect ground and positive leads.
- Unscrew holder.
- Pull off vent hose.
- Lift out battery.



30 61 063

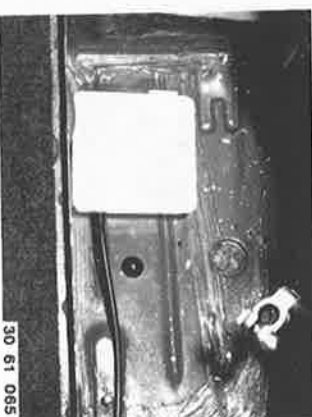
61 21 015 REMOVING AND INSTALLING OR REPLACING DEGASSING TANK

- Remove battery 61 21 010 - b).



30 61 064

- Unscrew and remove bolt (1) with nut and washer.
- Unscrew and remove nut (2) with washer.
- Lift out intermediate plate.



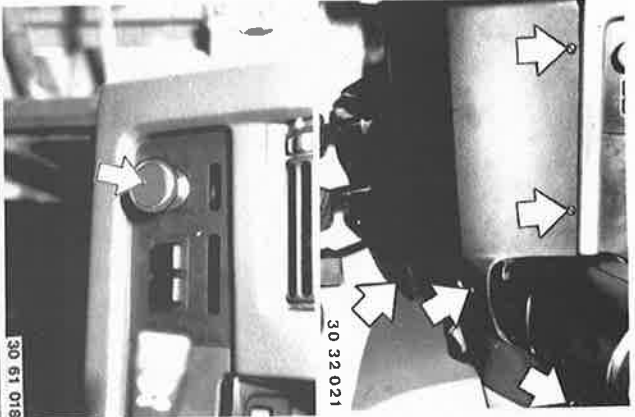
30 61 065

- Lift out degassing tank.
- Caution!* Degassing tank contains battery acid.

61-302

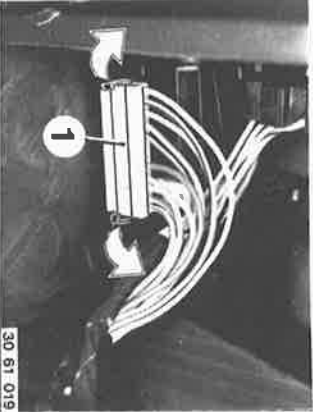
61 31 028 REMOVING AND INSTALLING LIGHT SWITCH

Disconnect battery ground lead.
Unscrew trim panel.



Unscrew control knob.

Pull off plug (1).

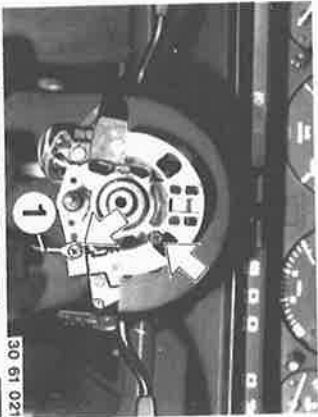


Pull out light switch.



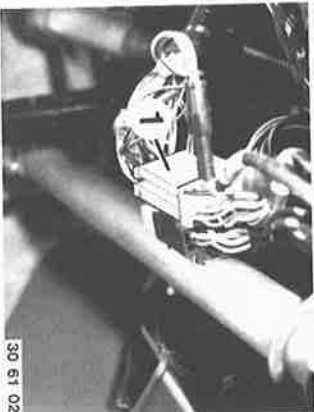
61 31 040 REMOVING AND INSTALLING WIPER SWITCH

Disconnect battery ground lead.
Remove steering wheel 32 33 000.
Remove instrument panel trim at bottom left
— 51 45 180.
Remove lower steering column casing section
— 32 31 020.



Unscrew screws.
Take off wiper switch.
Installation:
Also mount ground wire (1).

Cut off wire straps.
Disconnect plug (1).



61-304

61 31 095 REMOVING AND INSTALLING OR REPLACING DOOR LOCK HEATING CONTROL UNIT

Remove left front door trim panel 51 41 001. Control unit is located in door at height of the door handle.
 Unscrew nut.
 Disconnect plug.



30 61 080

61 31 105 REPLACING POWER WINDOW AUTOMATIC CUTOFF

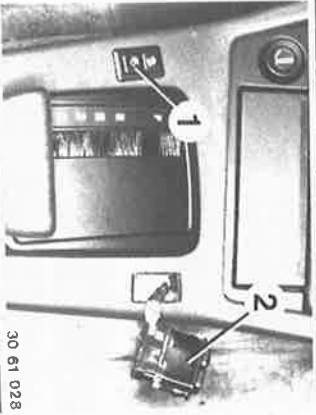
Pry out switch with a small screwdriver.
 Pull off plug.



30 61 027

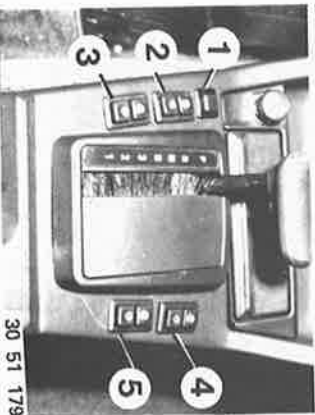
61 31 115 REPLACING POWER WINDOW SWITCH

Pry out switch with a small screwdriver.
 Ull off plug.
 Two Door:
 1 = Driver's door
 2 = Passenger's door



30 61 028

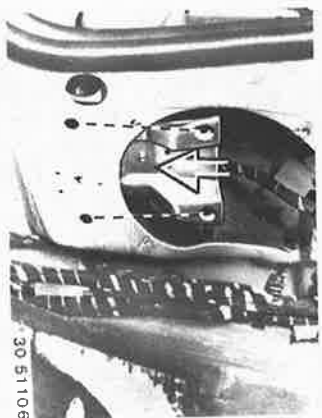
Four Door:
 1 = Child safety lock
 2 = Driver's door
 3 = Rear door - left
 4 = Passenger's door
 5 = Rear door - right



30 51 179

61 31 205 REPLACING IMPACT SWITCH FOR CENTRAL LOCKS

(Testing — see Group 51)
 Take radio speaker out of left A pillar.
 Pull off carpet.
 Unscrew screws and take impact switch with holder out of opening for radio speaker.
 Disconnect plug.



30 51 106

Unscrew screws.
 Take impact switch off of holder.

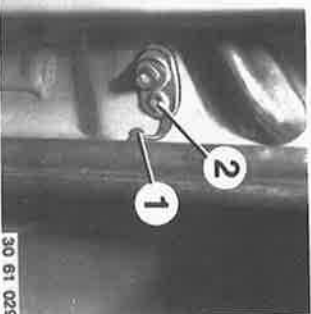
Installation:
 Retaining tab must protrude into bore of holder.



30 51 104

61 13 210 REMOVING AND INSTALLING LEFT OR RIGHT DOOR CONTACT SWITCH

Lift off cover (1).
 Unscrew screw (2).
 Remove switch.
 Pull off plug.



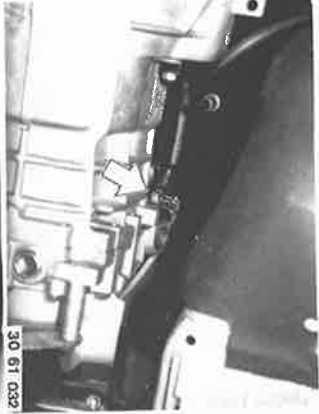
30 61 029

61-306

61 31 270 REPLACING BACKUP LIGHT SWITCH

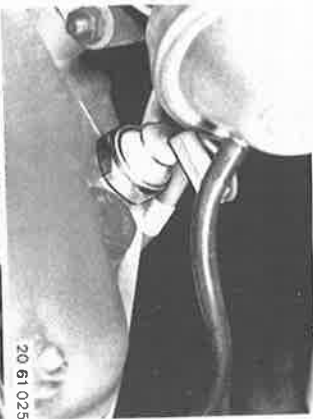
5 Speed Manual Transmission:
Pull off plug.
Unscrew switch.

Automatic Transmission:
Backup light switch is integrated in transmission switch.



61 31 280 REMOVING AND INSTALLING OIL PRESSURE SWITCH

M 10 Engine:
Pull off plug.
Unscrew switch.

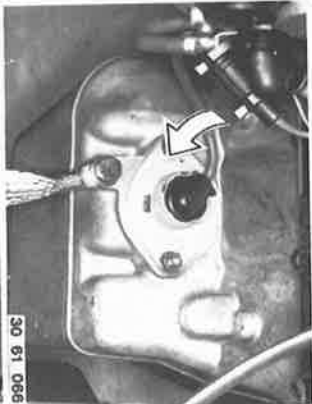


M 20 Engine:
Pull off plug.
Unscrew switch.

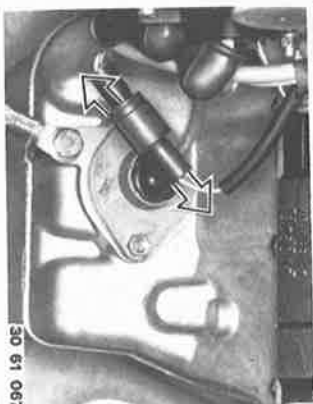


61 31 282 REPLACING ENGINE OIL LEVEL SWITCH

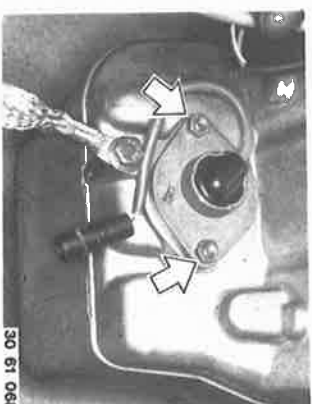
Air cleaner was removed for better presentation.
Pull plug out of holder.



Disconnect plug.



Unscrew nuts.
Lift level switch and let oil flow out of switch back into oil pan.



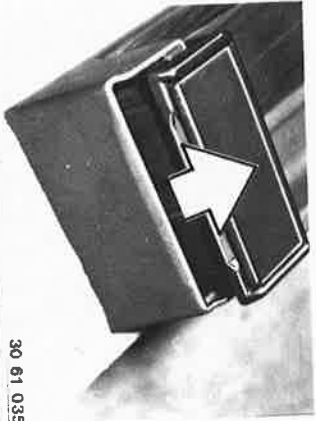
Check seal, replacing if necessary.



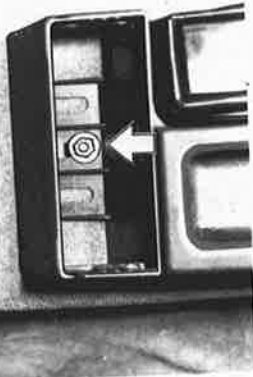
61-30711

61 31 320 REPLACING PARKING BRAKE
INDICATOR LAMP SWITCH

Lift out ashtray.



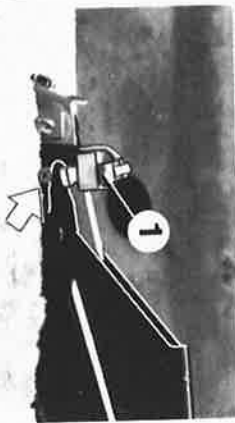
Unscrew screw.



Pull up parking brake lever.
Lift console and push forward.

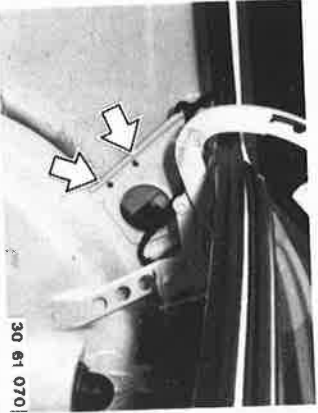


Push down spring (1) and pull out
wires.
Unscrew screw.
Remove switch.



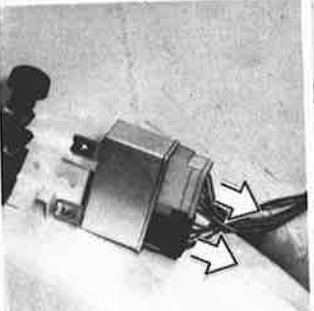
61-309

61 31 390 REPLACING CHECK CONTROL BULB TESTER (for Tail and Stop Lights)
 Remove trunk trim panel on left side wall — 51 47 210.



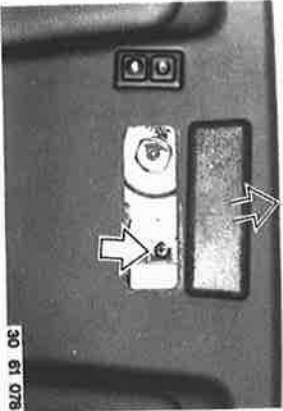
30 61 070

Unscrew screws.



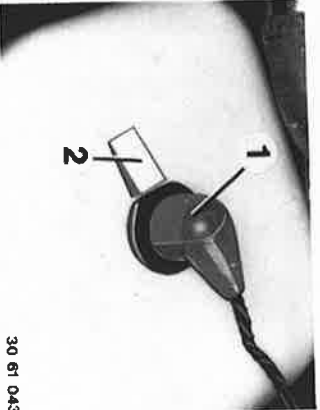
30 61 071

Pull off plug on bulb tester and remove bulb tester.



30 61 078

61 31 475 REPLACING POWER SUN ROOF SWITCHING-OVER RELAY
 Lift off cover.
 Unscrew screw and pull out relay.
Installation:
 Connect wires that colors match.



30 61 043

61 31 492 REPLACING WASHING FLUID LEVEL SWITCH
 Remove washing fluid tank, if full.
 Pull off plug with cap (1).
 Pull out level switch.
Installation:
 Flat side faces connector (2).



30 61 013

61 31 ... REPLACING RELAYS IN POWER DISTRIBUTOR

Relay As Stamped in Cover	Description
K 1	Extra fan stage I
K 2	Two-tone horns
K 3	High beams
K 4	Low beams, rear fog lights
K 5	Seat heating, power sun roof, power windows
K 6	Extra fan stage II
K 7	Heater blower, rear window defogger, power mirrors
K 8	Front fog lamps
K 9	Rear fog lights (F, CH)
K 10	Intensive cleaning control unit

61 - 601

61 61 270 REMOVING AND INSTALLING WINDSHIELD WIPER CONSOLE COMPLETE WITH WIPER MOTOR

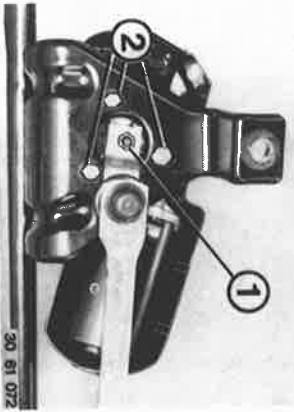
Remove heater motor 64 11 210.
Remove bracket (1).



Disconnect plug (1).



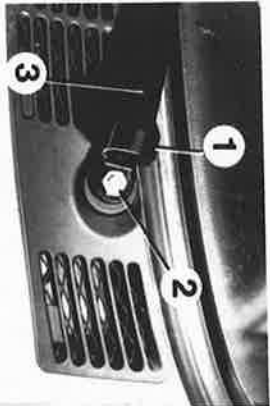
In Installed State:
Unscrew nut (1) and pull off linkage.
Unscrew bolts (2) and lift out motor.



Open clamps (1) on blower shell at front and rear, left and right.
Disconnect air circulation flap (2) on left and right sides.
Lift out blower shell.



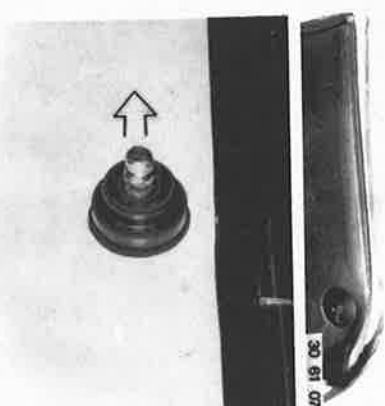
Removing Both Wiper Arms:
Lift out cover (1).
Unscrew nut (2).
Take off wiper arm (3).



Lift out grill.
Disconnect both linkages on left mount.



Take off cover



On Both Mounts:
Unscrew nut (1).
Take off washer (2).
Remove console.



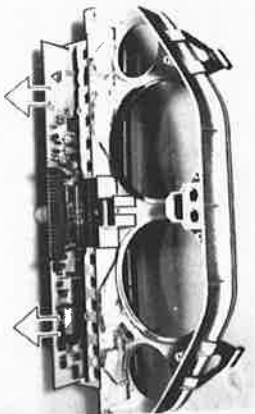
62 Instruments

62 11 030	Service indicator printed circuit — replace	62 - 1
090	Temperature gage — remove and install or replace	62 - 2
130	Fuel gage — remove and install or replace	62 - 2
62 12 000	Speedometer — remove and install	62 - 3
62 13 000	Tachometer — remove and install	62 - 4
050	Clock — remove and install	62 - 4
62 14 070	Check control — remove and install	62 - 5
62 16 000	Fuel level transmitter for fuel gage — check or replace	see Group 16
071	Sender for speedometer — replace	62 - 5
62 21 000	Instrument carrier assembly — remove and install	62 - 6
62 99 . . .	Light bulbs in instrument carrier — replace	62 - 6
	Troubleshooting — service indicator	62 - 51
	Troubleshooting — economy control	62 - 61
	Troubleshooting — check control	62 - 71

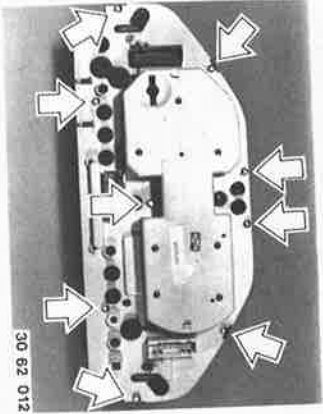
62-1

62 11 030 REPLACING PRINTED CIRCUIT FOR SERVICE INDICATOR

Remove and install instrument carrier assembly 62 21 000.

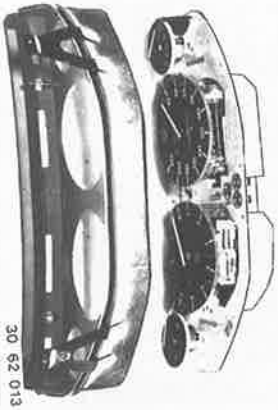


Pull printed circuit out of housing

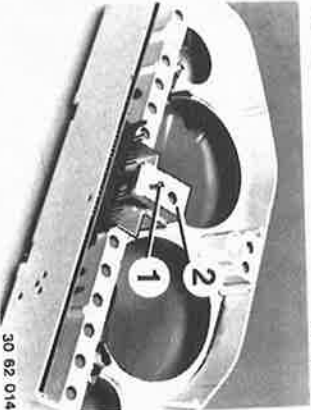


Unscrew bolts.

Take instruments with carrier out of housing.



Unscrew bolt (1).
Remove light duct (2).



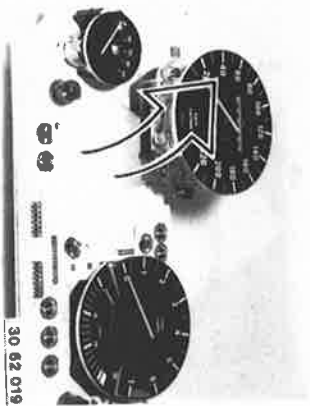
30 62 014

62-3

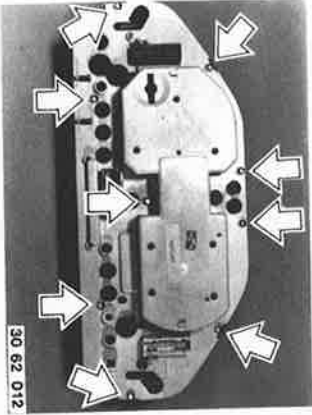
62 12 000 REMOVING AND INSTALLING SPEEDOMETER

Remove and install instrument carrier assembly 62 21 000.

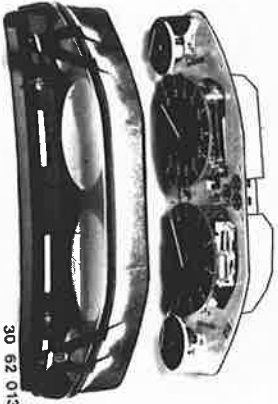
Remove speedometer.



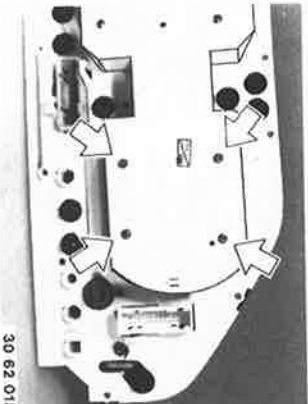
Unscrew screws.



Take instruments with carrier out of housing.



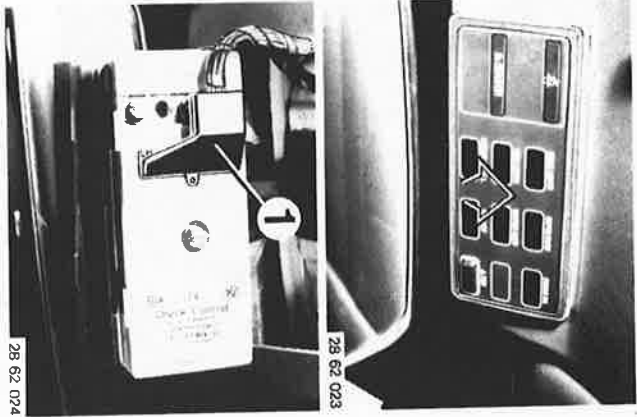
Unscrew bolt.



62 - 5

62 14 070 REMOVING AND INSTALLING
OR REPLACING CHECK
CONTROL

Lift check control out of plate.



Pull off plug (1).

62 16 071 REPLACING SENDER FOR
SPEEDOMETER

Pull off plug.
Unscrew screws (1 and 2).
Lift out sender.



62 - 51

TROUBLESHOOTING SERVICE INDICATOR

Defect	Cause	Correction
One or more LEDs not on, i.e. break in diode series (ignition turned on)	<ul style="list-style-type: none"> - LED defective 	<ul style="list-style-type: none"> - Replace LED series of service indicator (62 11 040)
Green LEDs on while engine is running or do not go out within 2 seconds after starting	<ul style="list-style-type: none"> - Brief break in term. 15 - Signal from term. 50 (starter) interrupted or too short - Engine push started (without starter) 	<ul style="list-style-type: none"> - Check term. 15 or term. 50 - Check blue plug connection on instrument cluster - Check plug connection inside cluster - Repeat starting > 0.5 sec. - Replace SI printed circuit board (62 11 030)
Undefined coming on (flashing) of LEDs	<ul style="list-style-type: none"> - SI printed circuit board defective - Loose contact in cluster or on plug connections 	<ul style="list-style-type: none"> - Replace SI printed circuit board (62 11 030) - Check plug connections on inside and outside of cluster
1 yellow LED, 1 red LED, OIL SERVICE and INSPECTION signs come on suddenly	<ul style="list-style-type: none"> - SI printed circuit board defective - Ground connections - Wrong relay installed - Z-diode in heater wire harness defective (only E 30) 	<ul style="list-style-type: none"> - Replace SI printed circuit board (62 11 030) - Replace SI printed circuit board for clock/tachometer or economy control - Check central ground point on body (battery neg. conn.), cleaning if necessary - Check central ground point underneath instrument carrier, cleaning if necessary - Horn relay, heater blower relay and low beam relay must be diode relays - Check Z-diode (in heater wire harness close to water valve)
Yellow LED, red LED and OIL SERVICE sign on	<ul style="list-style-type: none"> - Low discharging of buffer batteries 	<ul style="list-style-type: none"> - Check charging cycle: - Replace SI printed circuit board (62 11 030), if the INSPECTION sign does not light up after 1 minute. If applicable, replace SI printed circuit board for clock/tachometer or economy control.
Only INSPECTION sign on continuously	<ul style="list-style-type: none"> - Both buffer batteries discharged - SI printed circuit board defective 	<ul style="list-style-type: none"> - Check charging cycle and make reset - Replace SI printed circuit board (62 11 030) - Replace SI printed circuit board for clock/tachometer or economy control

SERVICE INDICATOR RESETTNG

All five green LEDs will come on after making an OIL SERVICE reset (regardless whether one green LED was still on or only the yellow OIL SERVICE sign).

The yellow and INSPECTION symbol lamps will come on when the green LEDs have gone out again.

TROUBLESHOOTING CHECK CONTROL

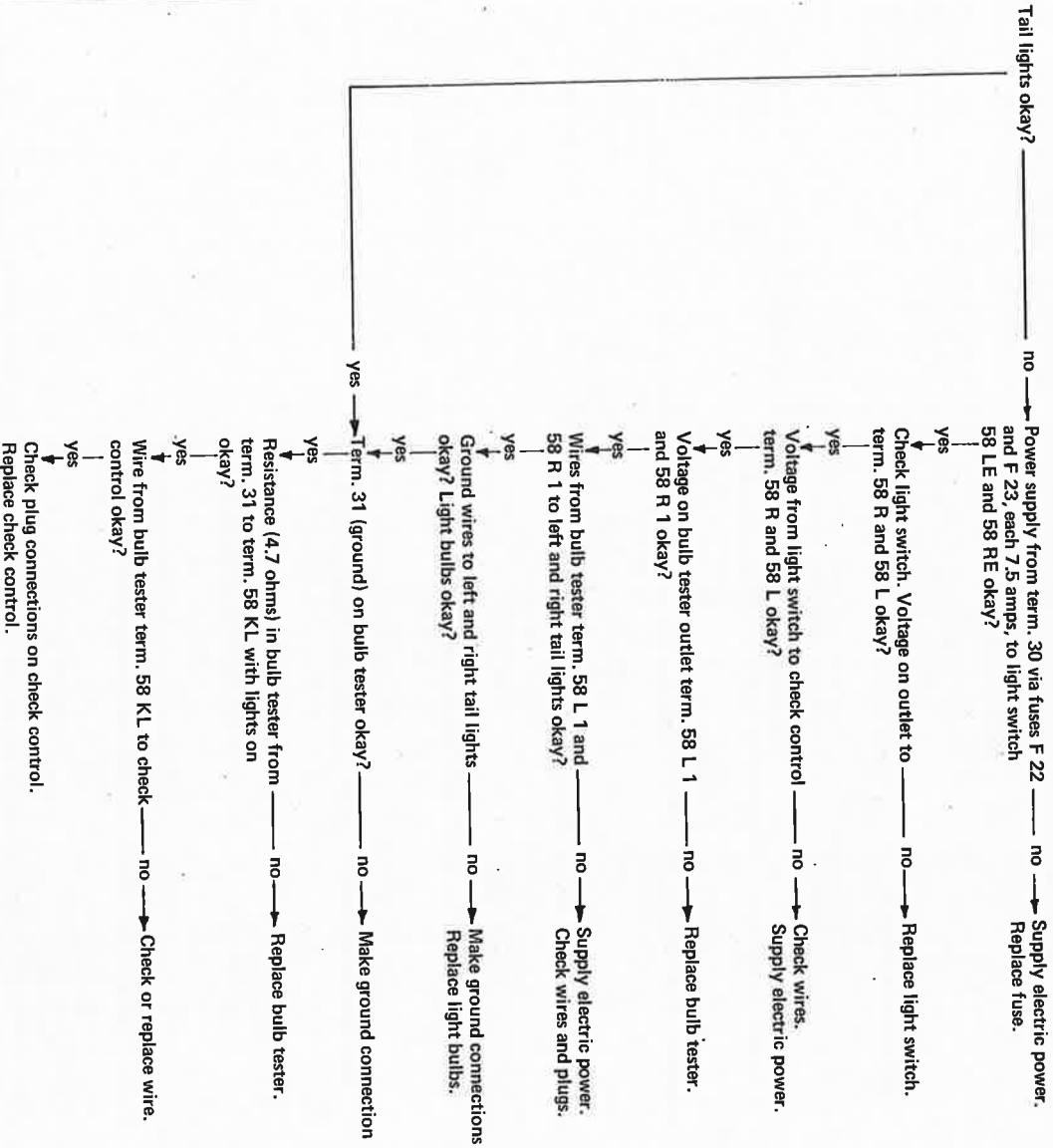
Checking Input Signals on Disconnected Plug of Check Control

Pin No. Designation	Wire Colors	Function on Car	Input Signals Test Results with Multimeter Pin Tester	Pin	Test Value
1 'R' Terminal 'R'	violet/gray	Ignition key in 'R'	1 (+)	-voltmeter-	9 (-) = UB
2 'ZHL' Central warning lamp	brown/yellow	Ignition turned on	2 connected with 9 (-) = central warning lamp on continuously		
3 'OH' (Japan) Overheat		Only E 28 On pin 5 for E 24/E 23	3 (-)	-voltmeter-	4 (+) = UB
4 '15' Terminal '15'	green/white	Ignition turned on	4 (+)	-voltmeter-	9 (-) = UB
5 'OX' (USA) Oxygen sensor	blue/white	Ignition turned on	5 (-)	-voltmeter-	4 (+) = UB
6 'AB' (USA) Air bag (+)			6 (+)	-voltmeter-	9 (-) = UB
7 'AB' (USA) Air bag (-)			7 (-)	-voltmeter-	4 (+) = UB
8 'FS' (USA) Fasten seat belts	brown/violet	Ignition turned on	8 (-)	-voltmeter-	4 (+) = UB
9 '31' Terminal '31'	brown	Ground	9 (-)	-voltmeter-	15 (+) = UB

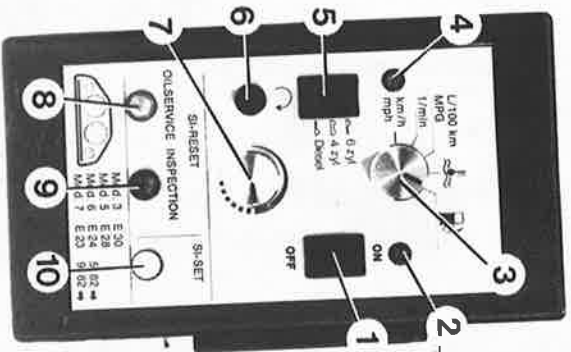
62-73

Pin No. Designation	Wire Colors	Function on Car	Input Signals		Test Value
			Test Results with Multimeter	Tester Pin	
20 'Ol dyn. Oil level dynamic	white	Oil level and transmitter okay Min. oil level and transmitter okay	20 -ohmmeter-	9 (-)	= 1 k-ohm = 0 ohm
21 '56b' Low beams	yellow	Low beams on	21 (+) -voltmeter-	9 (-)	= UB
22 'K' Low beam indicator	yellow/black	Low beams and bulb tester okay	22 -ohmmeter-	9 (-)	= 0 ohm
23 '54Sj' Fuse monitor	violet/white	Ignition key in 'R'	23 (+) -voltmeter-	9 (-)	= UB
24 '54KL' Stop light indicator	green/black	Stop lights and bulb tester okay	24 -ohmmeter-	9 (-)	= 4.7 ohms
25 '54' Stop lights	green/red	Brakes applied, stop lights okay	25 (+) -voltmeter-	9 (-)	= UB
26 'KKL' License plate light indicator	gray/violet	License plate lights and bulb tester okay	26 -ohmmeter-	9 (-)	= 4.7 ohms

TEST: TAIL LIGHTS

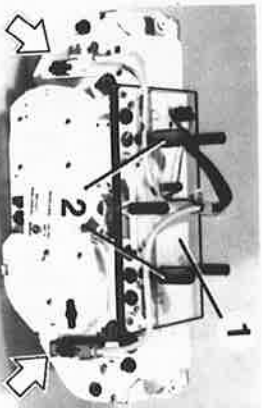


SIMULATOR FOR CHECKING INSTRUMENT CLUSTERS



30 62 033

- 1 ON /OFF switch
- 2 Power supply control lamp
- 3 Selector switch
- 4 Distance pulse control lamp
- 5 Tachometer changeover switch
- 6 Starting simulation button
- 7 Display range running off knob
- 8 Oil service reset button
- 9 Inspection reset button
- 10 SI running off and adjusting button



30 62 034

- 1 Checking Complete Instrument Cluster
- 1.1 Connecting Simulator
- 1.1.1 '3' Series Cars

Plug connection plate (1) of '3' series wire harness on instrument cluster and secure with clamps (2).

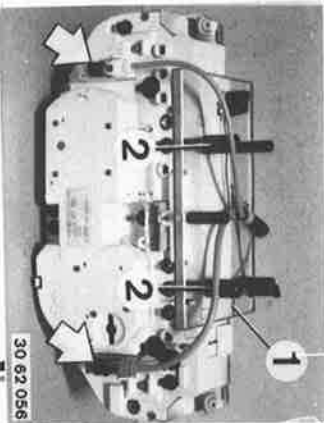
Caution!

Be careful not to bend the spring contacts when mounting the connection plate.

Connect blue and white plugs of wire harness on the instrument cluster.

Second Generation Service Indicators:

Connect blue and white plugs of wire harness on the instrument cluster.

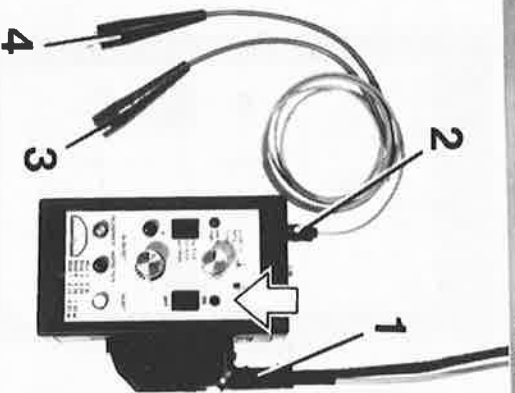


30 62 056

Connect lead (1) and power supply lead (2) on the simulator.

Connect red terminal (3) on B + and black terminal (4) on B - of a 12 V battery. Turn on the simulator with switch (1).

The red control lamp will not come on with battery voltage of < 11.5 V; the simulator is not ready for use.



30 62 035

Green LED (4) indicates the 100 meter pulse required for the service indicator (SI) and economy control (EC). The LED must come on and go out in 100 meter intervals (not for final display value).

(Not applicable to 2nd generation SI.)



1.2.2 Tachometer

Turn selector switch (3) to 1/min (rpm) position. Turn knob (7) against the left stop; tachometer needle points to 0.

Turn switch (5) to correct position!

Tachometer for

- 6 cylinder engines = 4 cyl
- 4 cylinder engines = 4 cyl
- diesel engines = Diesel

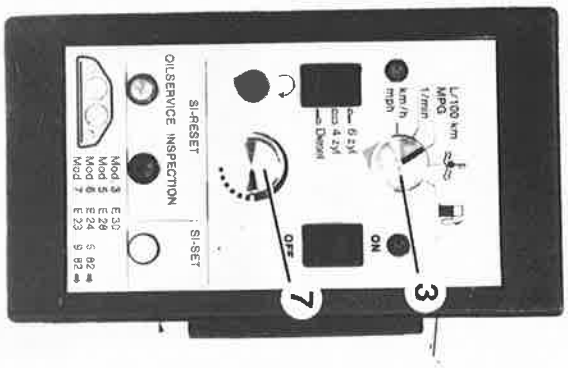
Turn knob (7) clockwise slowly; tachometer needle moves through display range.

If the green LEDs are still on at the beginning of the test, cancel them when the speed exceeds approx. 600 rpm.

(Only with the 2nd generation SI.)

Note:

The simulator is designed for a tachometer with a display range of 8,000 1/min (rpm). In case of tachometers with a display range of 5,000 1/min (rpm), the needle will fall back to an undefined display value after reaching the final display value and increasing the frequency further with knob (7). If the frequency is increased even more, the needle will move through the display range again from this display value on.



30 62 038

The set frequency can be measured on the yellow jack with a BMW Service Tester (multimeter 14) - see operating instructions of BMW Service Tester.

Yellow connection terminal
 FREQ in +
 in yellow jack;
 black connection terminal
 FREQ in -
 on B - of battery.

See Specifications for test values.

1.2.3 Economy Control (EC)

Turn selector switch (3) to L/100 km or MPG position.

Press and hold button pressed on connecting plate! (only with 2nd generation SI)

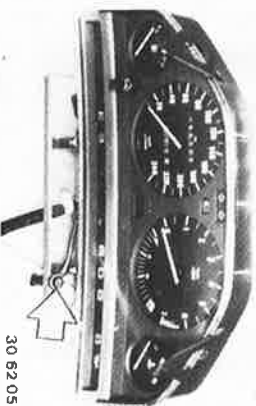
Turn knob (7) against left stop; needle of EC points to 0 (for L/100 km) or ∞ (for MPG).

Turn knob (7) clockwise slowly; the EC needle moves through the display range to approx. ∞ (for L/100 km) or to approx. 0 (for MPG).

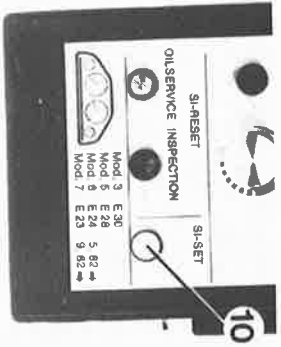
30 62 041

Button on connecting plate
 (2nd generation SI)

'3' Series



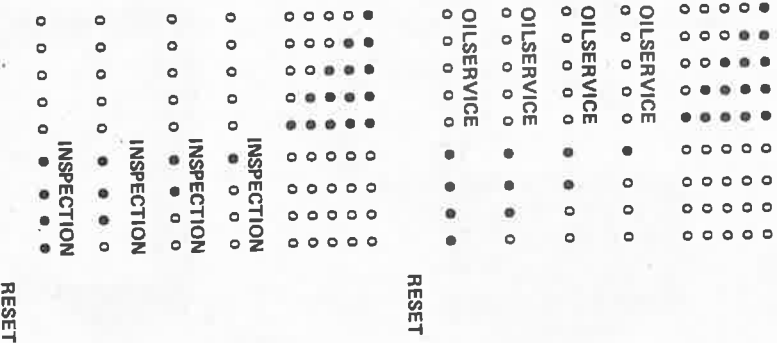
30 62 059



30 62 046

The SI can be adjusted with button (10).
The SI runs off at intervals of about 10 seconds by pressing button (10).

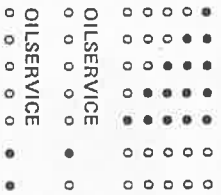
This diagram shows the run-off of SI.
Note:
The BMW 524 td has two OIL SERVICES between each inspection.



Chronological Run-off of Service Indicator (SI - 2nd Generation):

This sketch shows the run-off of 2nd generation SI.

Note:
BMW 524 td cars have two oil services after each inspection.



RESET

Resetting "OIL SERVICE"
"OIL SERVICE" sign and yellow (possibly red) LED on.

Brief reset (8) will cancel the display.

All five green LEDs come on.

Resetting "INSPECTION"

"INSPECTION" sign and yellow (possibly red) LED on.

Long reset (9) will cancel the display.

All five green LEDs come on.

The time counter is not influenced!
Time counter can be reset with a second reset (9).

RESET

Resetting "TIME SYMBOL"
"TIME SYMBOL" and one or more green LEDs on.

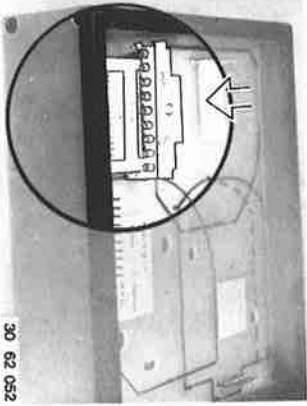
Long reset (9) will cancel the time symbol and time counter.
Green LEDs are not influenced!

Distance counter can be reset with a second reset (9).

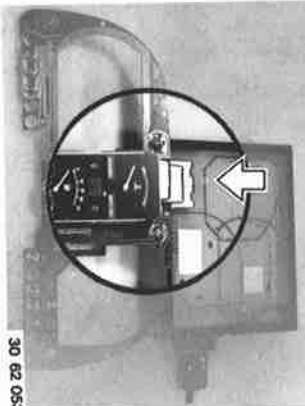
2.2.3 LEDs and Light Bulbs for SI Signs
(Not with 2nd Generation SI)

3' Series Cars:
Connect printed circuit board.

All LEDs and both light bulbs must come on.



30 62 052



30 62 053

5', 6' and 7' Series Cars:
Connect plug of printed circuit board.

All LEDs and both signs must light up.

63 Lights

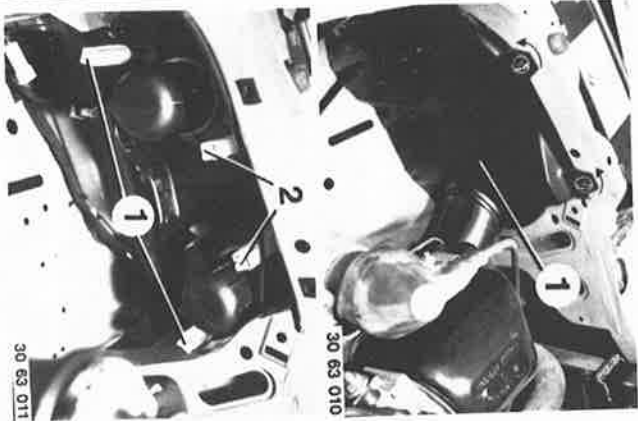
63 10 004	Headlights — aim	63-1
63 12 100	Double headlight assembly, left or right — remove and install	63-1
250	High beam headlight lamp, left or right — remove and install	63-2
280	Low beam headlight lamp, left or right — remove and install	63-2
63 21 180	Tail light assembly, left or right — remove and install	63-2a
63 99 001	Halogen light bulb for high beam headlight, left or right — replace	63-2a
071	Halogen light bulb for low beam headlight, left or right — replace	63-3
271	Light bulb for front turn signal, left or right — replace	63-3
...	Light bulb(s) for tail lights, left or right — replace	63-3
381	Additional stop light for convertibles — replace	63-4
381	Light bulb for high-mounted stop light — replace	63-4

63-1

63 10 004 AIMING HEADLIGHTS

Check tire pressure, correcting if necessary.
Load down rear seats of car with a person weighing about 70 kg (155 lbs.).
Car fuel tank full.
Check aiming of low and high beams with an optical aimer to operating instructions supplied with the equipment and adjust as close as possible to the upper limit of the tolerance range.
Conform with legislation in your country!

Correcting:
Remove headlight cover (1).



1 = Lateral control
2 = Vertical control



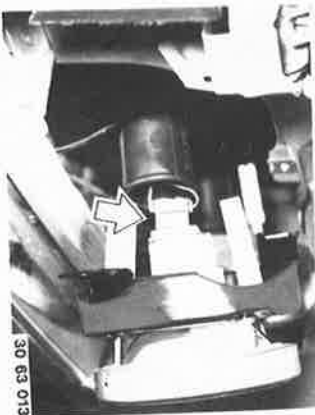
63 12 100 REMOVING AND INSTALLING LEFT OR RIGHT DOUBLE HEADLIGHT ASSEMBLY

Remove side radiator grill section — see 51 13 040.
Remove headlight cover (1).

Unscrew screws.



Pull off plugs on headlight.



63-2a

1988 Models On:
Open turning lock and lift out cover.



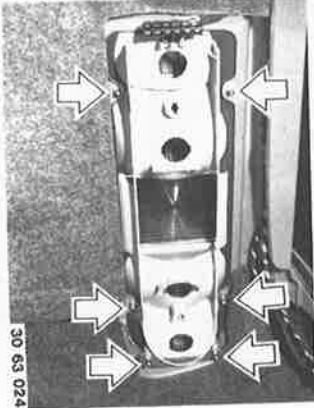
30 63 061

Compress clips and lift out plug.



30 63 063

Unscrew screws.
Take tail lights out of tail panel.



30 63 024

63 99 001 REPLACING HALOGEN LIGHT
BULB FOR LEFT OR RIGHT
HIGH BEAM HEADLIGHT

Pull off plug,
Turn and lift out light bulb.



32 63 039

Note:
Don't hold light bulb on the glass.
Light bulb type*.

Important!
Don't mix up light bulbs.

- 1 High beam
- 2 Low beam with reflector



32 63 040

63 99 071 REPLACING LIGHT BULB FOR
LEFT OR RIGHT LOW BEAM
HEADLIGHT

Pull off plug,
Turn and lift out light bulb.

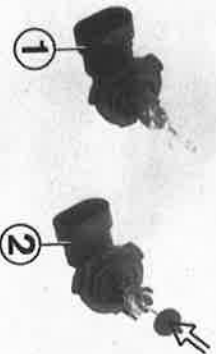


32 63 041

Note:
Don't hold light bulb on the glass.
Light bulb type*.

Important!
Don't mix up light bulbs.

- 1 High beam
- 2 Low beam with reflector



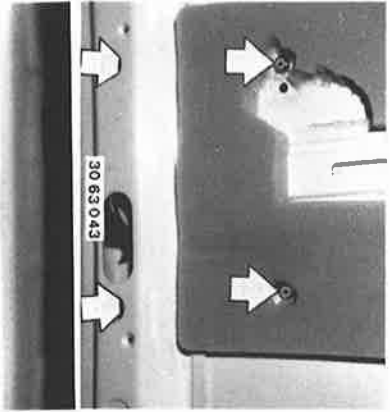
32 63 040

* See Specifications

63-4

63 99 381 REPLACING ADDITIONAL STOP LIGHT FOR CONVERTIBLES

Remove toolbox.
Unscrew screws and take off stop light.



Replacing Light Bulb for Additional Stop Light:
Unscrew screws and lift out lens.
Turn and lift out light bulb.



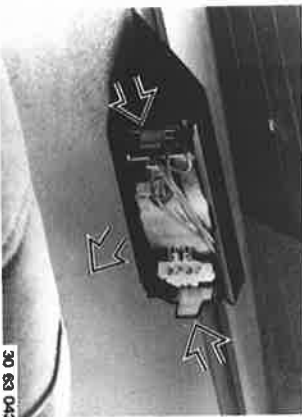
30 63 044

63 99 381 REPLACING LIGHT BULB FOR CENTER STOP LIGHT

Pull off cover at an angle.



Compress both tabs and pull out reflector.
Unscrew light bulb.



30 63 042

64 Heating and Air Conditioning

GENERAL INFORMATION:

Description of heater and air conditioner operation	64- 01
Component survey	64- 1
Air flow diagram	64- 2
Refrigerant circuit	64- 4
Discharging and charging air conditioner	64- 6
Safety precautions for handling refrigerants	64- 6

HEATER:

64 11 071 Cable for footwell ventilation — remove and install	64- 110
081 Cable for window ventilation — remove and install	64- 111
161 Cable for temperature mixing flap — replace	64- 112
191 Cable for fresh air flap — remove and install	64- 113
205 Heater housing — remove and install	64- 116
210 Heater blower — remove and install	64- 118
211 Heater switch — remove and install	64- 119
220 Resistor plate for blower motor — remove and install	64- 120
271 Water valve for heater housing — remove and install	64- 121
531 Heater core — remove and install	64- 123
64 23 000 Rear window fan — remove and install	64- 124

Description of Integrated Heating and Air Conditioning System

The heating system is an air side controlled unit, i.e. the temperature is regulated by the mixing ratio of cold and warm air with help of the temperature mixing flap.

All outlets can be heated. Flaps are operated via cables. The water flow rate through the heater is regulated by an electromagnetic water valve in the water return circuit. It is switched on and off by the temperature control via a track circuit with loop contact. The valve will be closed when the temperature control is set to $< 20^{\circ}\text{C}$ (68°F). The valve is open without electric power.

With air conditioning the refrigerant is injected via an expansion valve, which is located in the housing on the right side.

A mechanical thermostat switch, located on left side of the unit, is applied for protection against freezing.

With air conditioning the fresh air/bypass air can be operated for extremely fast cooling of the passenger compartment or elimination of disturbing odors.

The flaps are located in front of both blowers and are operated by two positioning motors.

Air conditioning equipment includes an additional, 2-speed, electric fan.

This fan always runs at least in 1st speed when the air conditioner is switched on.

Regardless of air conditioner operation 1st speed of extra fan is switched on as from a coolant temperature of 89°C (192°F) and switched off with a coolant temperature of 86°C (187°F) ... 180°F .

Regardless of air conditioner operation 2nd speed of extra fan is switched on as from a coolant temperature of 97°C (207°F) ... 214°F and switched off with a coolant temperature of 94°C (201°F) ... 194°F .

The drier has one high pressure and one low pressure safety switch.

The high pressure switch stops the compressor when reaching a coolant pressure of 25.5°C ... 17.7°C (363°psi ... 252°psi) and switches the compressor on again when coolant pressure drops to 22.5°C ... 20°C (320°psi ... 284°psi).

The low pressure switch stops the compressor when coolant pressure drops to 2.22°C ... 1.72°C (32°psi ... 24°psi) and switches the compressor on again when coolant pressure rises to 2.0°C ... 2.4°C (28°psi ... 34°psi).

These safety switches prevent damage in or on the air conditioning system.

Heating and Air Conditioning Controls

Consisting Of:

Temperature Control

The temperature control regulates the temperature regulating flap via a cable and opens the water valve at an angle of $\geq 20^{\circ}$.

Air Volume Control Switch

It switches the blower in 3 speeds via fixed resistors, which are located in the heater.

Air Up Control Lever

It operates via a cable the flap in the heater/air conditioner for air distribution to the windshield (defrost).

Air Center Control Lever

It operates via a cable the flap in the heater/air conditioner for air distribution out of the instrument panel nozzles (ventilation).

With air conditioning the control lever will also have a circuit breaking switch (track circuit) for the compressor. The compressor will be switched off with a flap opening of $< 20\%$, to avoid liquid knocks in the air conditioner which could destroy the compressor.

Air Down Control Lever

It operates via a cable the flap in the heater/air conditioner for air distribution down to the footwells.

With air conditioning the control lever will have the same compressor circuit breaking switch as for the air center control lever.

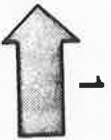
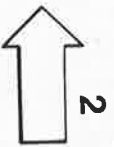
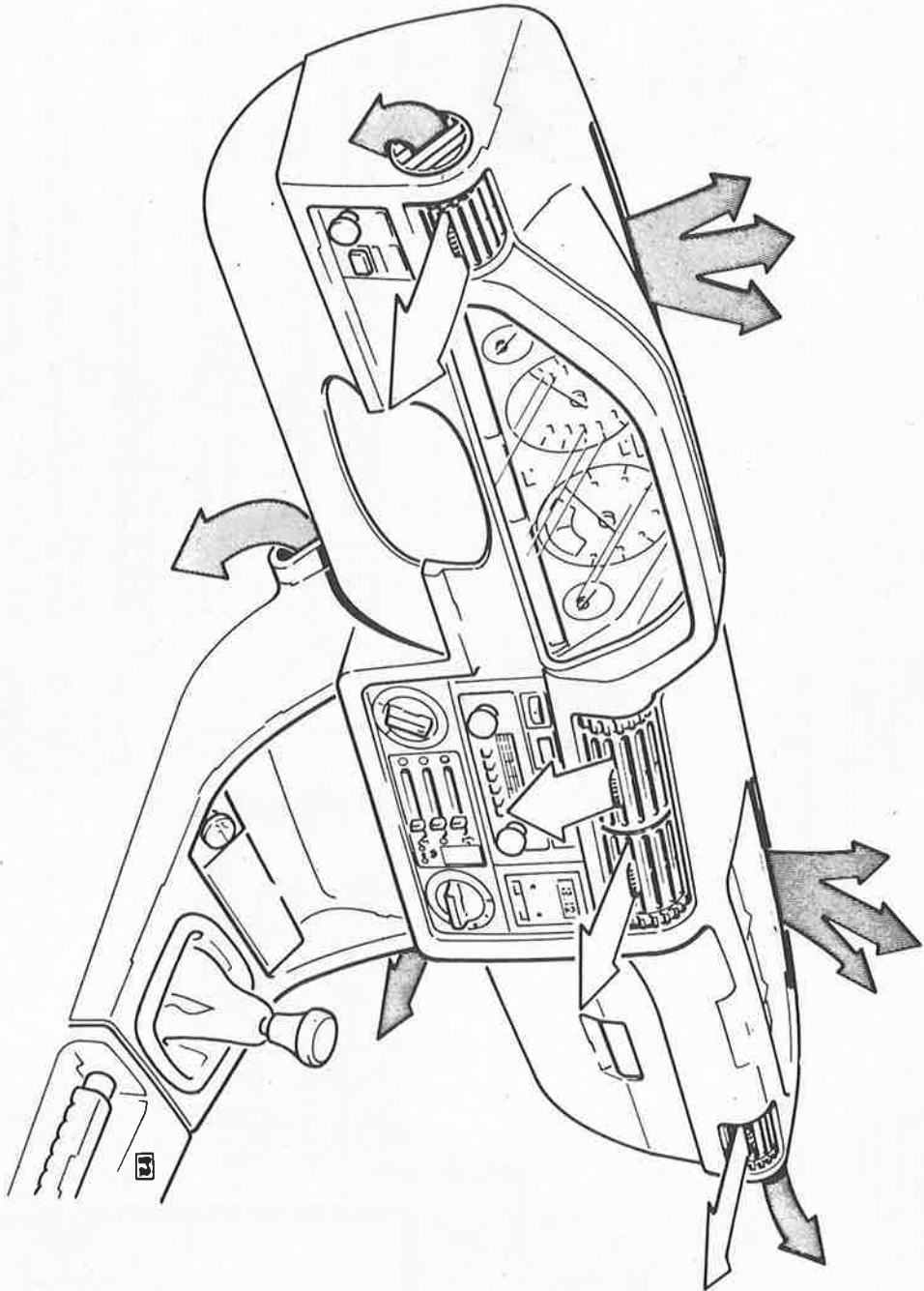
A/C Compressor Push Button Switch

Air conditioner is switched on and off with this push button switch.

When air conditioning is switched on, the heater blower motor will always run in at least 1st speed. When air conditioning is switched on, the additional fan will always run in at least 1st speed.

Fresh Air/Bypass Air Push Button Switch

When air conditioner is operated, it is used to switch to fresh air or bypass air circulation as desired. In the bypass air switch position the heater blower motor will always run in at least 1st speed.



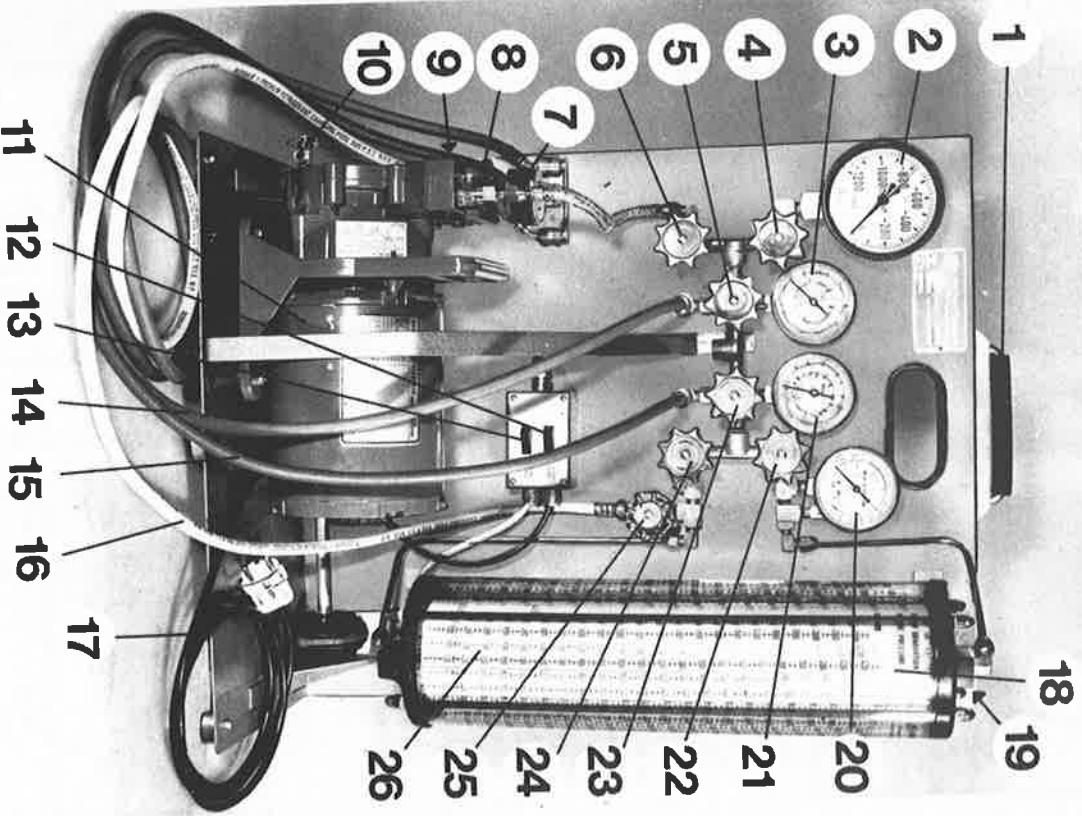
1 = Temperature controlled air

2 = Temperature controlled fresh air

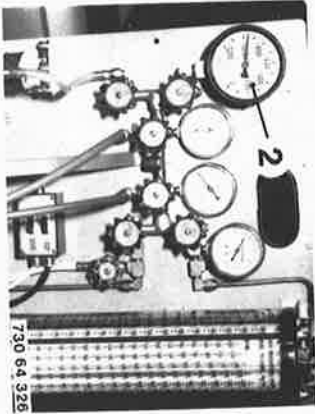
30 64 001

DISCHARGING AND CHARGING STATION

- 1 = Pull-out carrying handle
- 2 = Torimeter
- 3 = Low pressure gage
- 4 = Vacuum valve
- 5 = Charging valve "low pressure"
- 6 = Shut-off valve
- 7 = Filter
- 8 = Gas ballast valve
- 9 = Oil level sight glass
- 10 = Shut-off valve — compressor oil
- 11 = Vacuum pump
- 12 = Switch
- 13 = Switch
- 14 = Charging hose (blue) "low pressure"
- 15 = Charging hose (red) "high pressure"
- 16 = Charging hose (white)
- 17 = Power cord
- 18 = Volume scale
- 19 = Schrader valve
- 20 = Pressure gage "charging pressure"
- 21 = Pressure gage "high pressure"
- 22 = Charging valve "gas"
- 23 = Charging valve "high pressure"
- 24 = Charging valve "liquid"
- 25 = Charging valve "refrigerant"
- 26 = Charging cylinder



730 64 342



Check condition of the discharging and charging station before operation. Check level and grade of oil in the compressor. Also refer to the operating instructions supplied with the charging station.

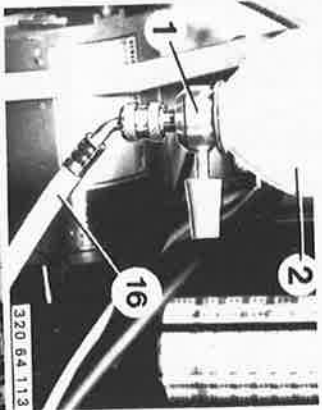
Caution!

Never leave high pressure on pressure gage (2) during the operating procedures — danger of destruction.

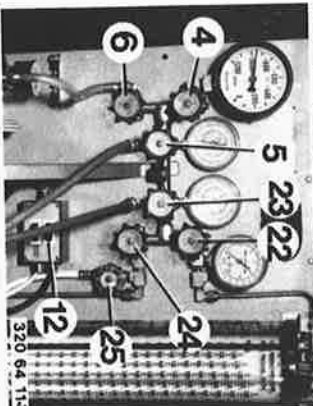
Note:

The air conditioner can also be discharged and charged with only one charging hose (high or low pressure).

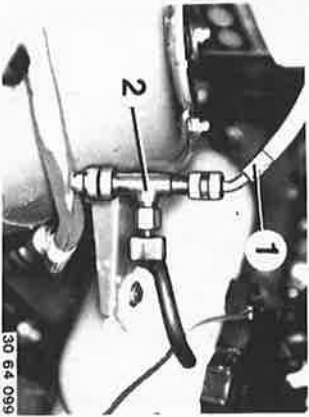
However, working with a valve core remover and two charging hoses will speed up discharging and charging procedures. Absolute cleanliness is required for the performance of work on an air conditioner. Wear protective clothing! Close all valves of the discharging station prior to starting the procedures. The following procedures are only applicable with the illustrated charging station.



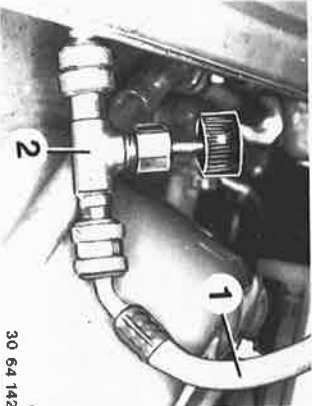
Connect the refrigerant cylinder (2) and charging hose (16) with charging valve (1). Charging valve (1) remains connected until the charging cylinder has been filled.



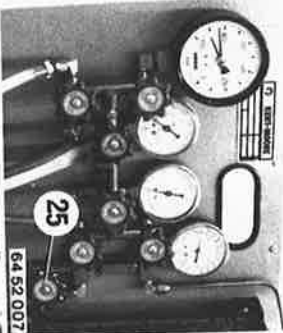
Open valves (4, 6 and 22). Turn on the pump with switch (12) and discharge the charging station. Close valve (22) and open valves (5 and 23). Discharge the air conditioner.



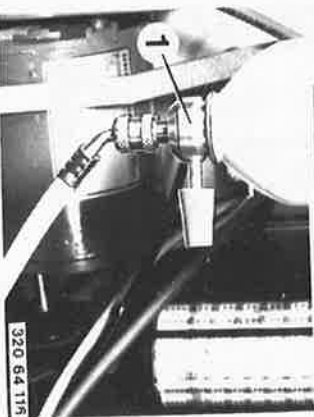
Remove the protective cap. Connect blue charging hose (1) on the low pressure side (thick pipe) of the air conditioner.



Remove the protective cap. Connect red charging hose (1) on the high pressure side (thin pipe or drier) of the air conditioner.

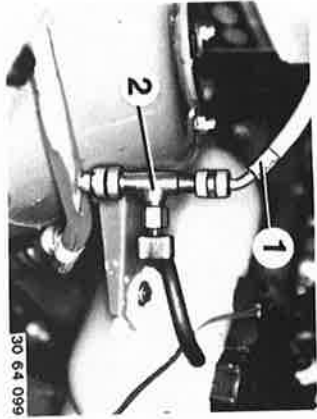


Open valve (25).



Open charging valve (1) and fill the charging cylinder with refrigerant while the air conditioner is still being discharged. Type and amount of refrigerant*.

* See label in engine compartment



30 64 099

Checking Air Conditioner:

Unscrew the protective cap.
Connect blue charging hose (1) with the valve core remover (2) on the low pressure side of the air conditioner.
Connect the high pressure hose in the same manner as the low pressure hose.

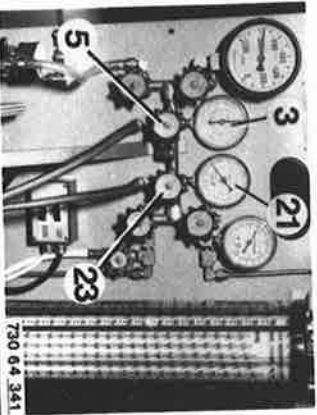


730 64 350

Insert the thermometer in the air outlet grill.

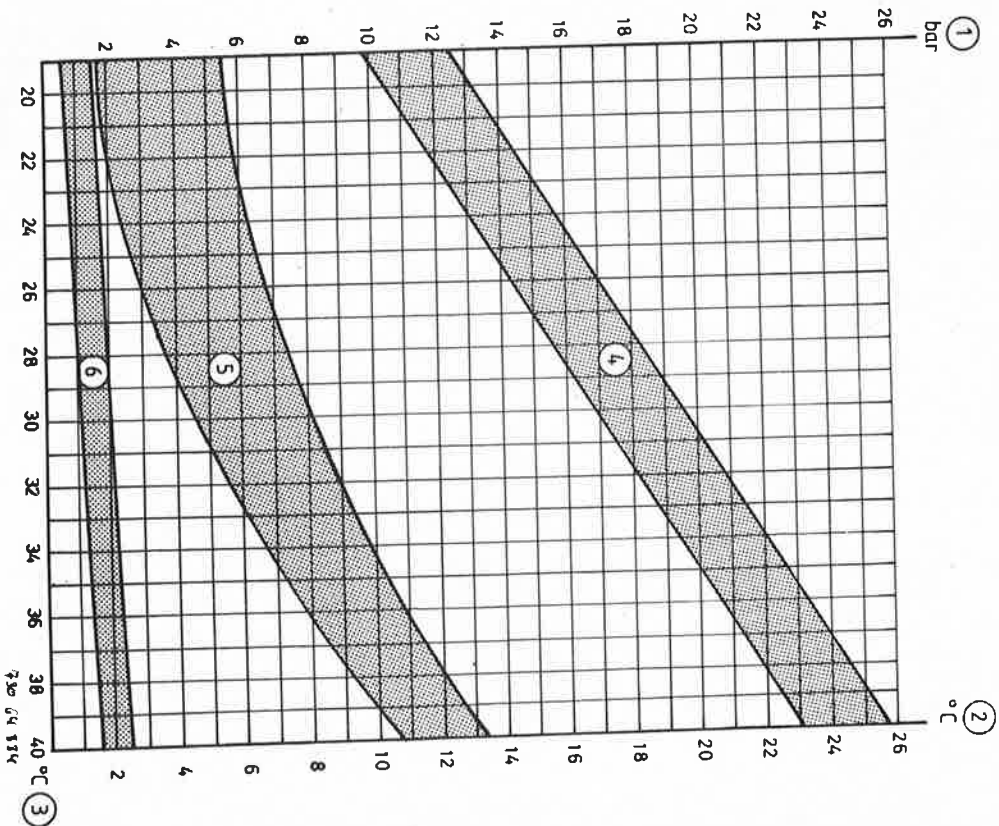
Testing Conditions:

1. Car parked in shade (indoors).
2. Air conditioner discharged and charged. Correct type and amount of oil in the compressor.
3. Engine running at 2,000 rpm and air conditioner switched on.
4. Doors shut.



730 64 341

Close all valves of the discharging and charging station.
Only open charging valve (5) or (23).
Read operating pressure values on low or high pressure gauges (3 or 21) and compare with the nominal value graph 730 64 334.
Always check only one pressure range.

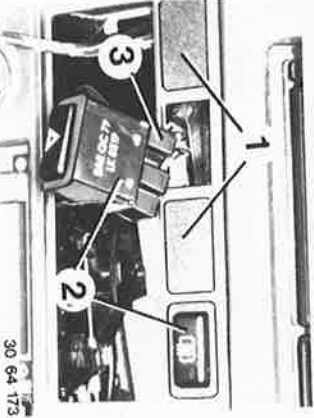


- (1) = Pressure scale in bar
- (2) = Temperature scale in degrees Celsius
- (3) = Temperature scale — ambient temperature — in degrees Celsius
- (4) = Tolerance range — high pressure range
- (5) = Tolerance range — center nozzle air outlet
- (6) = Tolerance range — low pressure range

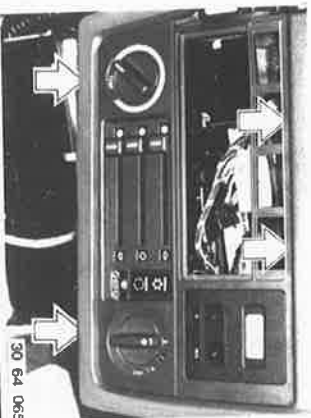
64 - 110

64 11 071 REPLACING CABLE FOR
FOOTWELL VENTILATION

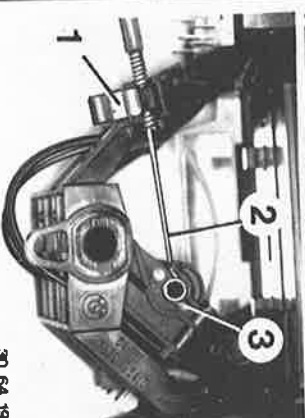
Disconnect battery ground lead.
Remove and install instrument panel trim at
left 51 45 180.
Remove and install tray 51 16 200.



Remove radio opening mask or radio.
Pull covers (1) or switches (2) out of control
panel.
Pull off plugs (3) on switches (2).

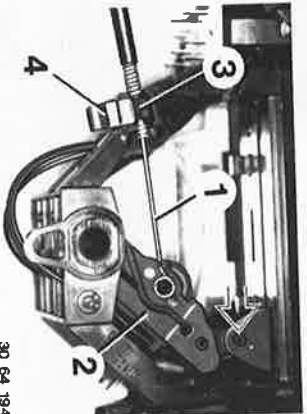


Unscrew bolts.
Pull out control panel slightly.

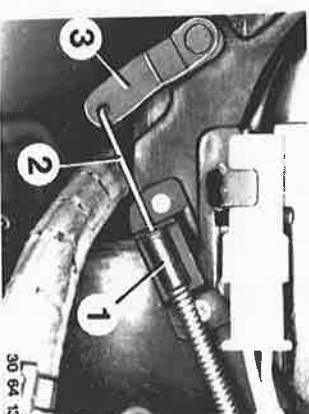


Lift out clamp (1).
Disconnect cable (2) on lever (3).

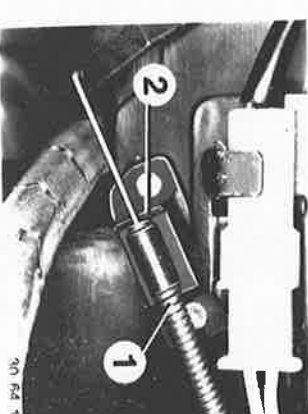
30 64 193



Installation:
Connect cable (1) on slide control (2).
Push slide control and air flap against stop.
Turn sleeve (3) until it can be placed in the
opening.
Lock cable with clamp (4).



Pull out clamp (1).
Disconnect cable (2) on lever (3) and remove.



Installation:
Cable sleeve (1) must be flush on stop (2).

30 64 132

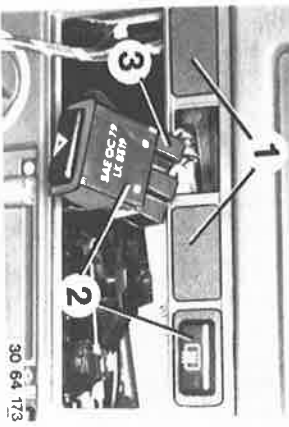
64-112

64 11 161 REPLACING CABLE FOR TEMPERATURE MIXING FLAP

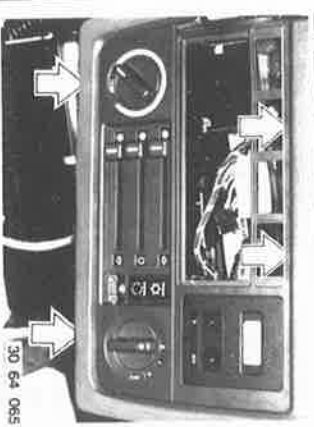
Disconnect battery ground lead.
Remove and install instrument panel trim on left side 51 45 180.
Remove and install tray 51 16 200.
Open glove box.
Disconnect pins (1) of both retaining straps.



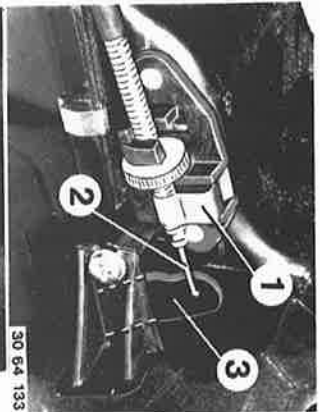
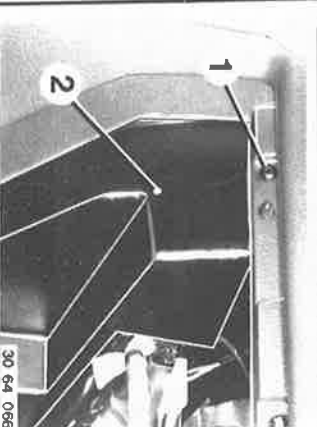
Remove radio opening mask or radio.
Pull opening covers (1) or switches (2) out of control panel.
Pull off plugs (3) on switches (2).



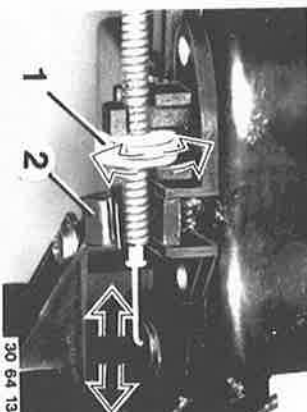
Unscrew screws.
Pull out control panel slightly.



Unscrew screw (1).
Take off trim panel (2).

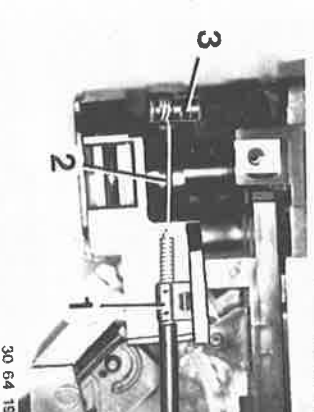


Lift out clamp (1).
Disconnect cable (2) on lever (3).



Installation:
Set temperature selection wheel to (cold or warm) stop.
Turn knurled nut (1) to also move temperature mixing flap to (cold or warm) stop.
Secure cable with clamp (2).

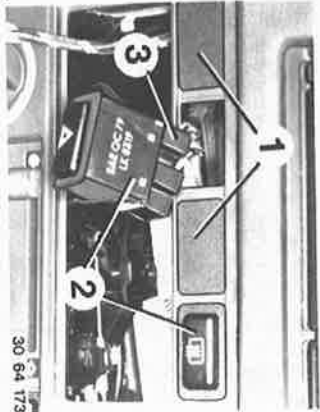
Pull out clamp (1).
Disconnect cable (2) on lever (3) and remove.



64-114

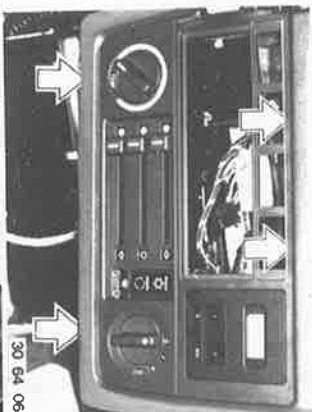
64 11 195 REMOVING AND INSTALLING OPERATING MOTOR FOR FRESH AIR/CIRCULATING AIR FLAPS

Disconnect battery ground lead.

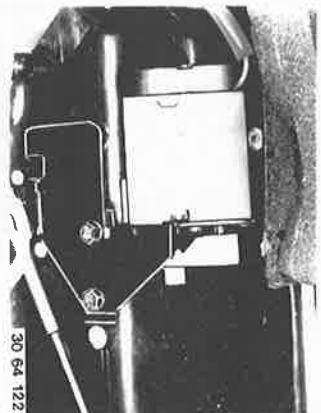
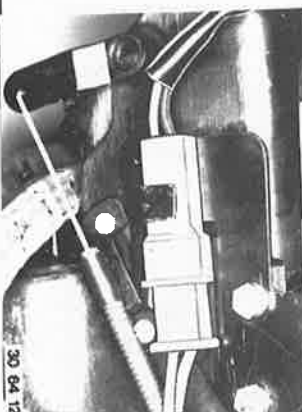


Remove mask for radio opening or radio.
Pull covers (1) or switches (2) out of control panel.
Pull plugs (3) off of switches (2).

Unscrew screws.
Pull out the control panel **slightly**.

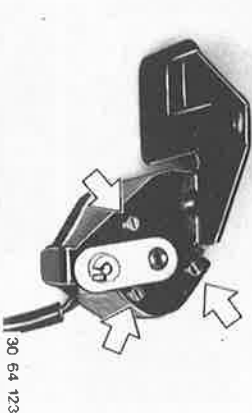


Disconnect plug.



Unscrew bolts and take off operating motor with holder.
Installation:
Engage holder in housing tab.

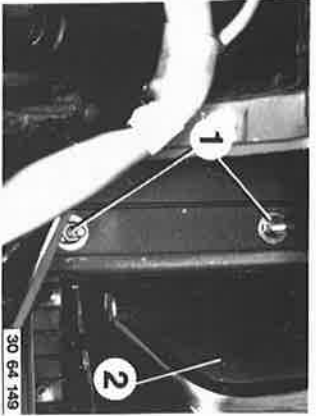
Unscrew bolts.
Take operating motor off of holder.



The length of the operating rod must be adjusted in such a manner, that the fresh air/circulating air flaps can be opened and closed completely by the operating motor.
Adjust by disconnecting on the operating motor and turning the operating rod in the ball head.

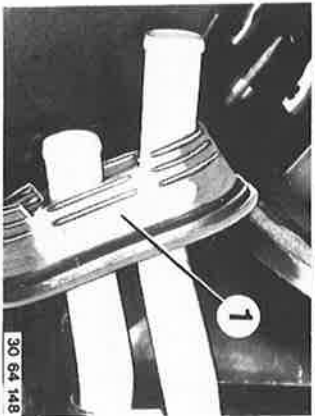


64 - 117

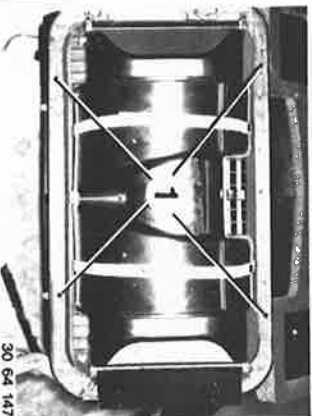


Unscrew left and right nuts (1).
Remove heater.

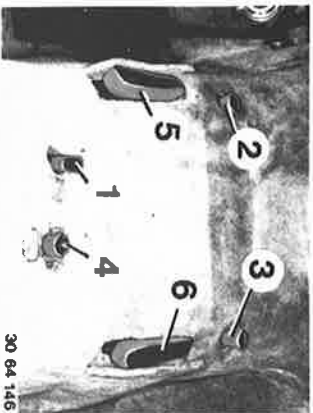
Note:
Close bypass flaps (2), because the heater can only be removed in this state.



Installation:
Make sure sleeve (1) has perfect fit in body wall.



Installation:
Check sealing frame (1), replacing if necessary.



Installation:
Condensation water drains (1 ... 3) must be connected on heater.
Check rubber mount (4), replacing if necessary.
Rear area heater ducts (5 and 6).

64-119

64 11 211 REMOVING AND INSTALLING BLOWER SWITCH

- 1) Cars without Radio:
Lift off radio opening mask.
Pull off control knob.



30 64 196

Unscrew nut.



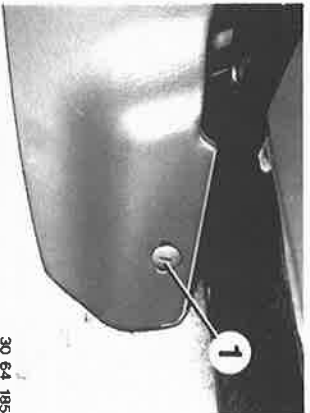
30 64 125

Remove blower switch.
Pull off plug on blower switch.



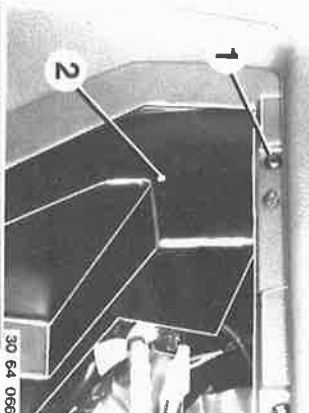
30 64 220

- 2) Cars with Radio:
Unscrew bolt (1).



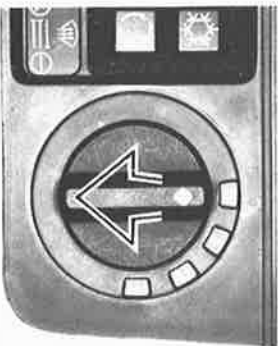
30 64 185

Open glove box.
Unscrew screw (1).
Take off trim panel (2).



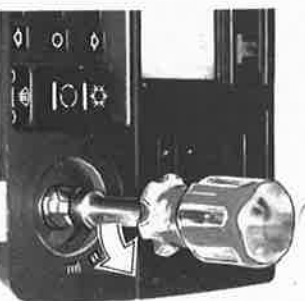
30 64 066

Pull off control knob.



30 64 196

Unscrew nut.
Pull off plug on blower switch.
Remove blower switch.



30 64 125

64-121

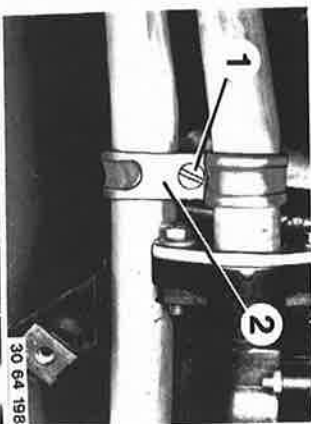
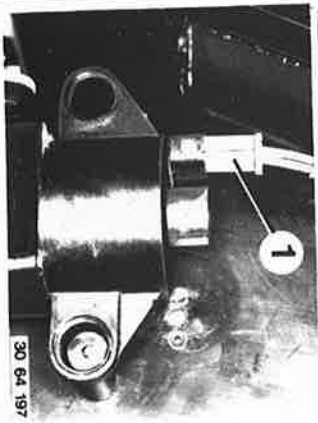
64 11 271 REMOVING AND INSTALLING
WATER VALVE FOR HEATER

Disconnect battery ground lead.
Remove and install instrument panel trim on
left side 51 45 180.
Remove and install tray 51 16 200.

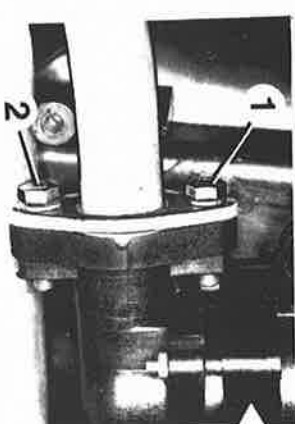


Drain coolant.
Disconnect both water hoses.
Installation:
Bleed cooling system.
Check coolant.

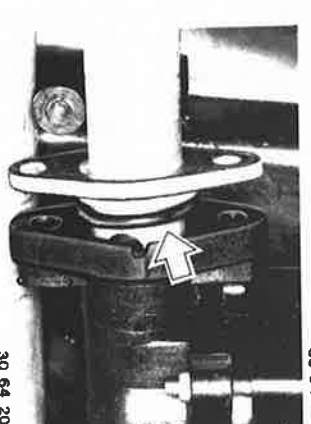
Pull off plug (1).



Unscrew bolt (1).
Take off clamp (2).



Unscrew bolts (1 and 2).



Installation:
Replace seal.

64-123

64 11 531 REMOVING AND INSTALLING HEATER CORE

Disconnect battery ground lead.
Remove and install tray 51 16 200.
Remove and install instrument panel trim on left side 51 45 180.



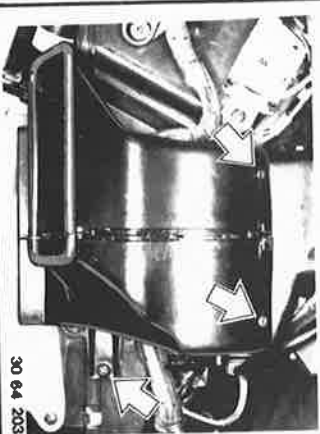
Drain coolant.
Loosen screw (1).



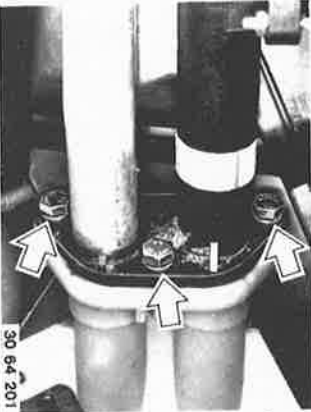
Remove connector (1) on left side between heater (3) and rear area heater duct (2).



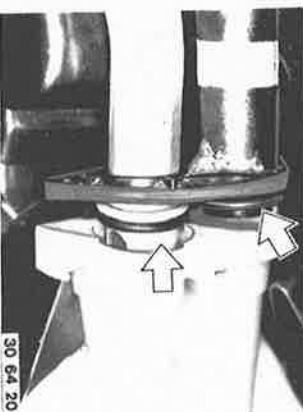
UnscREW screws.
Take off molded parts.



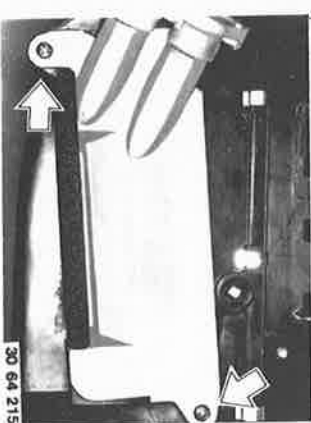
30 64 203



UnscREW bolts.



UnscREW bolts.
Pull heater core out of housing.



30 64 215

Installation:
Replace seals.

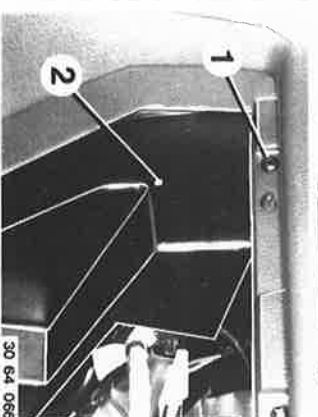
64-500

64 51 050 REMOVING AND INSTALLING EXPANSION VALVE

Disconnect battery ground lead.
Remove and install tray 51 16 200.
Remove and install instrument panel trim on
left side 51 45 180.

Discharge pressure in air conditioner with help
of a valve core remover.

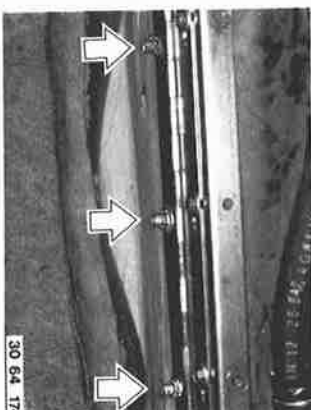
Installation:
Discharge, charge and check air conditioner for
leaks after installation.



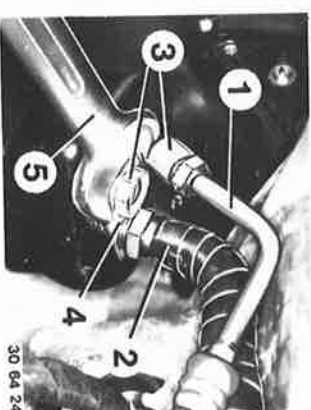
Open glove box.
Unscrew bolt (1).
Take off trim panel (2).



Disconnect pins (1) of both retaining straps.



Loosen nuts and remove glove box.



Disconnect lines (1 and 2).
Insert plugs (3) in open connections immediately.
Counterhold on expansion valve (4) with
wrench (5).
Installation:
Tightening torque*.
Replace seals.

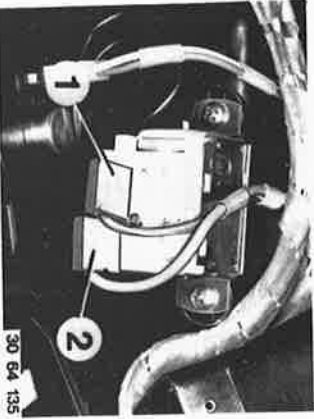
* See Specifications

64 - 502

64 51 150 REMOVING AND INSTALLING FREEZING PREVENTION SWITCH

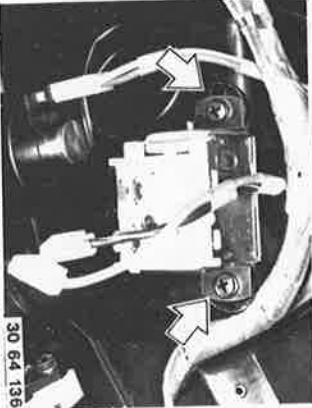
Disconnect battery ground lead.
Remove and install tray 51 16 200.
Remove and install instrument panel trim on
left side 51 45 180.

Pull off plugs (1 and 2).



30 64 135

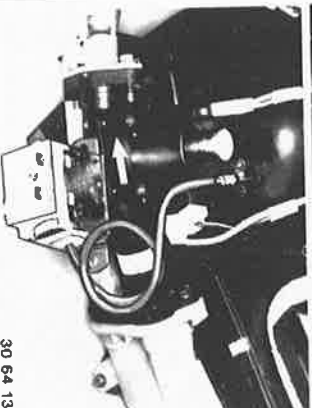
Unscrew screws.



30 64 136

Remove temperature switch, pulling
temperature sensor out of housing at same
time.

Note:
Don't bend temperature sensor.

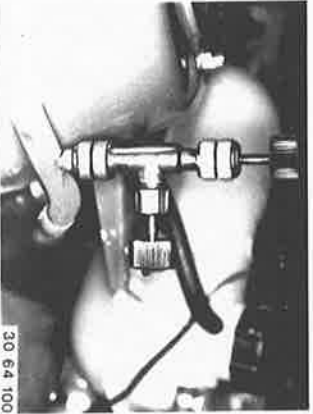


30 64 137

64 52 020 REMOVING AND INSTALLING COMPRESSOR

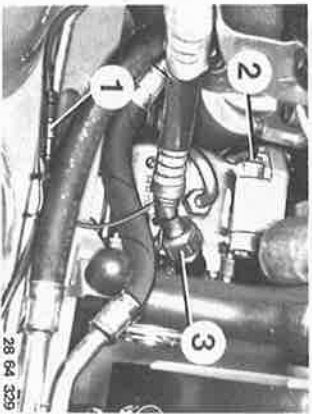
BMW 325 e:
Discharge pressure in air conditioner with help of a valve core remover.

Installation:
Discharge, charge and check air conditioner for leaks after installation.



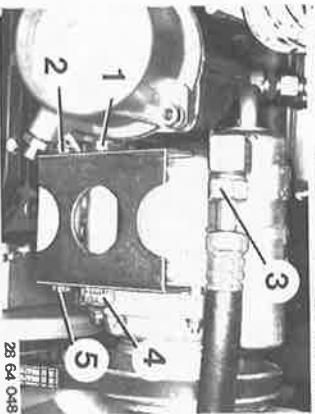
330 64 100

Remove air cleaner.
Disconnect plugs (1).
Unscrew nut (2).
Disconnect hose (3).
Insert plugs in open connections immediately.
Installation:
Tightening torque*.
Replace seal.



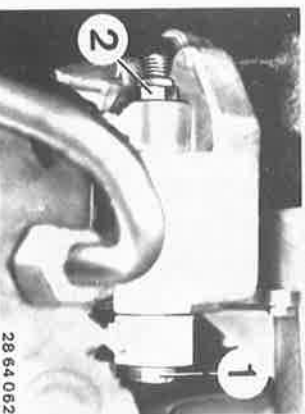
28 64 329

Unscrew nuts (1 and 2).
Disconnect hose (3).
Insert plugs in open connections immediately.
Remove bolts (4 and 5).
Installation:
Tightening torque*.
Replace seal.



28 64 048

Remove bolt (1).
Remove compressor.

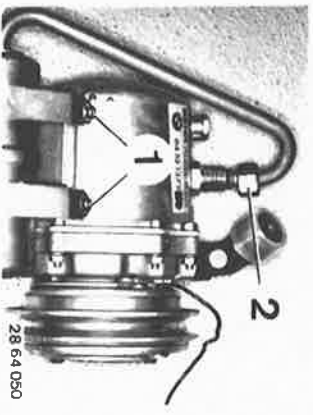


28 64 062

* See Specifications

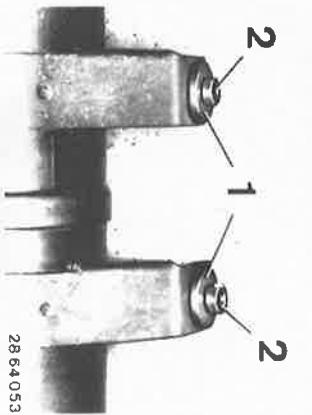
Unscrew bolts (1).
Unscrew nut (2) and take off stabilizer.

Installation:
Tightening torque*.
Replace seal.



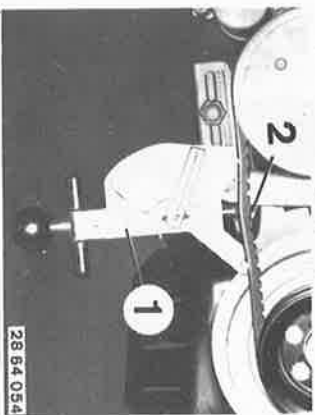
28 64 050

Installation:
Check rubber mounts (1), replacing if necessary.
Don't forget spacers (2).



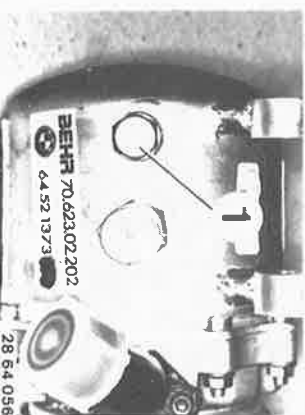
28 64 053

Installation:
Check drive belt tightness with tester (1).
Note:
Pulling hook (2) must always be on tip of a tooth.



28 64 054

Note:
Replace compressor oil.
Unscrew bolt (1).
Let oil run out of compressor.
Add oil - volume* and oil grade*.



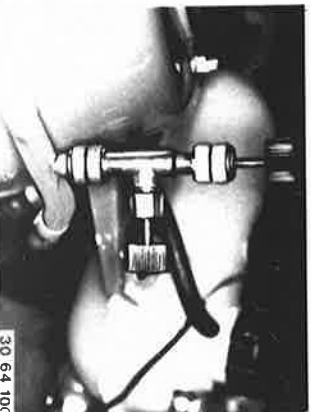
28 64 056

* See Specifications

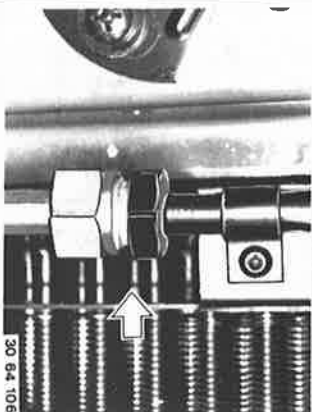
64 - 507

64 53 050 REMOVING AND INSTALLING CONDENSER

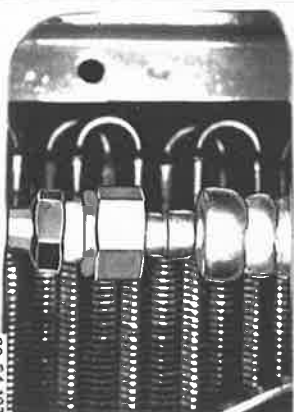
Remove engine fan.
Loosen radiator and push up to engine.
Discharge pressure in air conditioner with help of a valve core remover.
Installation:
Discharge, charge and check air conditioner for leaks after installation.



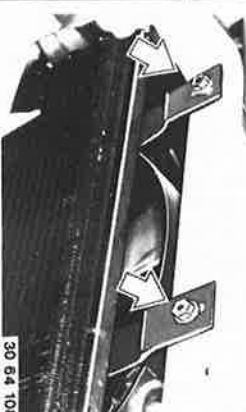
Remove right radiator grill section.
Disconnect pipe.
Insert plugs in open connections immediately.
Installation:
Tightening torque*.
Replace gasket.



Disconnect pipe.
Insert plugs in open connections immediately.
Installation:
Tightening torque*.
Replace gasket.

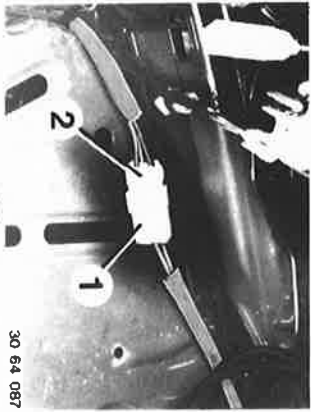


Unscrew bolts.
Remove condenser from above.

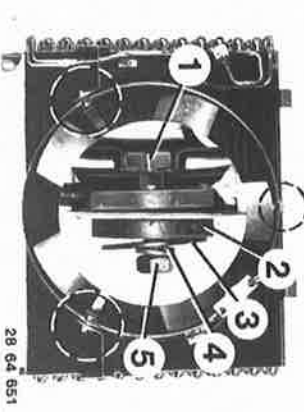


* See Specifications

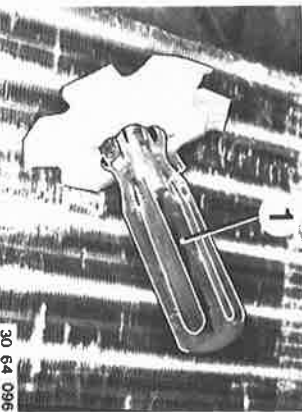
Connect plug (1) of extra fan with plug (2) of wire harness.



Unscrew bolts.
Take extra fan off of condenser.
1 = Bolts
2 = Rubber mount
3 = Washer
4 = Lock washer
5 = Nut



Note:
Straighten bent cooling fins on condenser with help of a special comb (1).

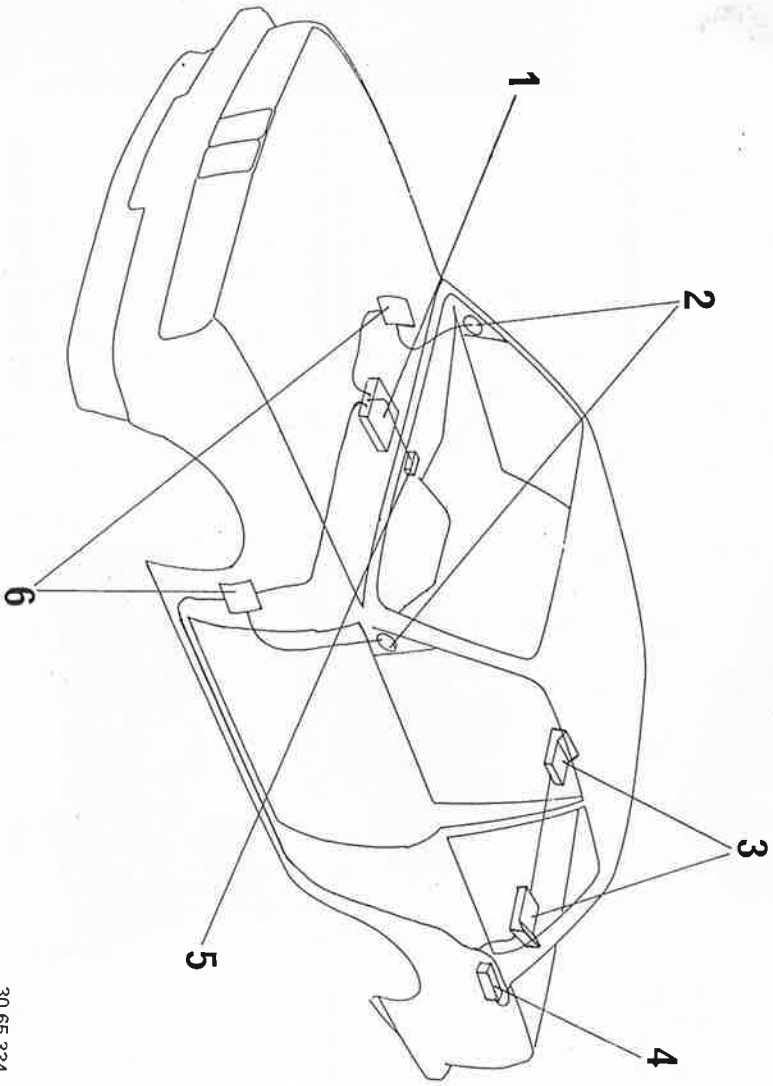


65 Radio and Special Equipment

65 12 000	Sound system layout	65 - 90
020	Radio speaker, front — remove and install	65 - 91
65 14 000	Radio speaker, rear — remove and install	65 - 92
65 21 100	Cassette box — service install	65 - 93
65 22 005	Retractable antenna, rear, left — install	65 - 101
040	Power antenna — install	65 - 151
65 71 000	Power antenna telescope — replace	65 - 191
	Cruise control — install	65 - 301

65-90

SOUND SYSTEM LAYOUT



- 1 Radio
- 2 High tuner
- 3 Speakers - rear

- 4 Amplifier
- 5 Speaker balance control
- 6 Speakers - front

30 65 334

65-91

65 12 000 REMOVING AND INSTALLING FRONT SPEAKER

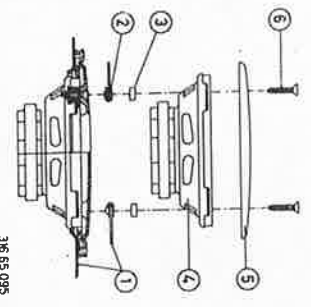
Unscrew screws.
Remove mask and speaker.
Pull off plugs.

Installation:

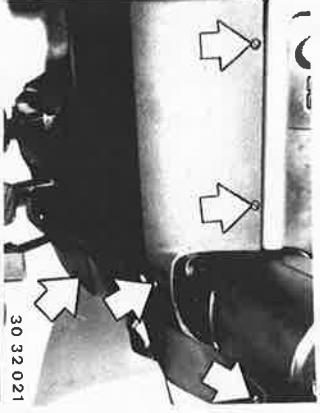
Install parts in correct order.

- 1 End plate of door beam
- 2 Self-tapping nut
- 3 Spacer
- 4 Speaker
- 5 Mask
- 6 Self-tapping screw

Since 9.85:
Remove trim panel.



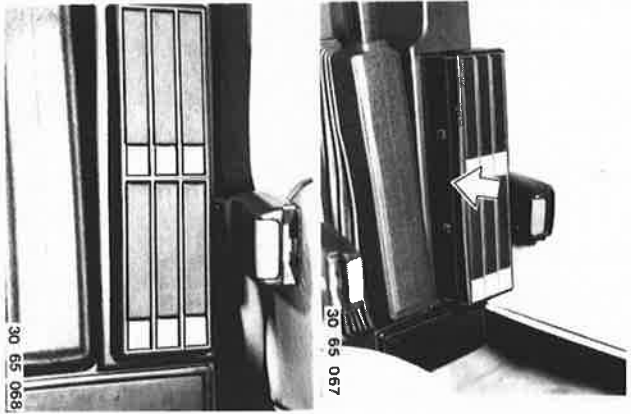
Sound System:
Lift out trim panel with high turner.
Disconnect plug.



Unscrew screws (1 and 2).
Pull off edge guard (3) partially.
Take off trim panel.

65-94

Place cassette insert in console.



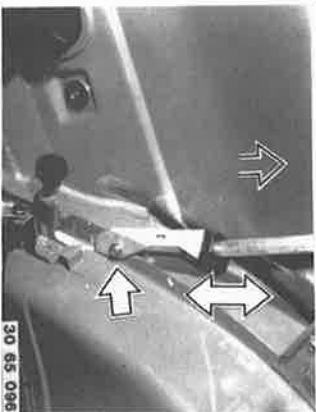
Using:
Pushing the white push buttons will unlock
the cassette holders and let the cassettes
slide out.

65-101 a

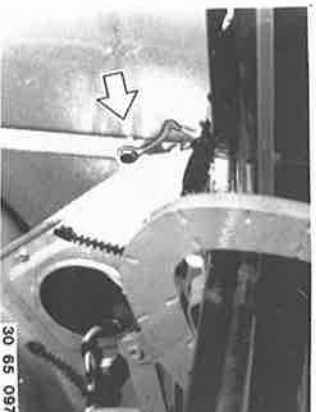
Plug-In Antenna:
Insert rubber grommet.



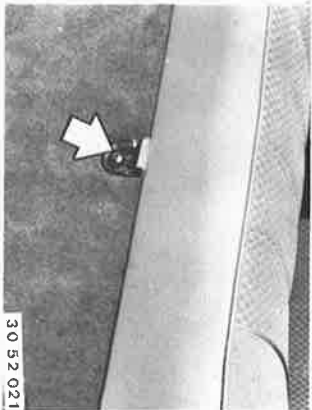
Press antenna into sealing grommet from underneath.
Adjust holder and secure with a self-tapping screw.



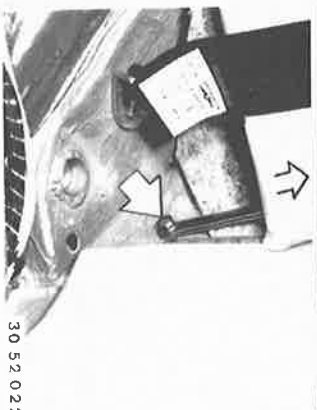
Mount ground strap on ground point with a M 6 x 10 screw.



Lift out seat cushion.
Cars with Bolted Version:
Pull off covers and unscrew bolts on left and right sides.

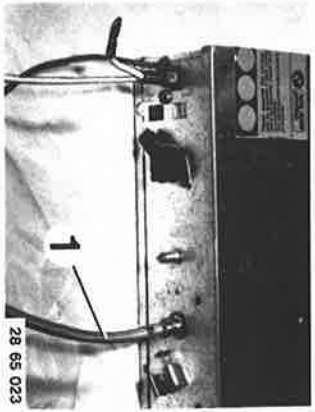


Unscrew left and right bolts.
Pull up and remove backrest.
Installation:
Engage backrest in (upper) holder.



65 - 103

Plug antenna wire (1) in jack of radio.

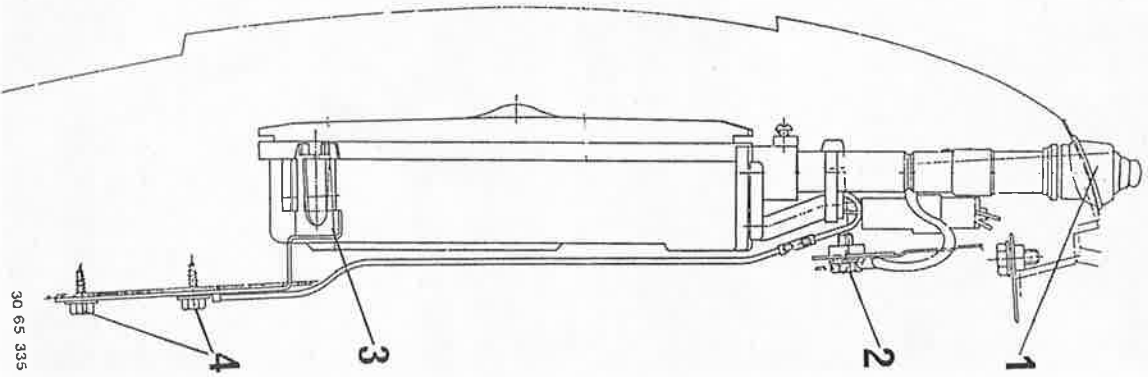


28 65 023

Re-install all removed parts.

65 - 151 a

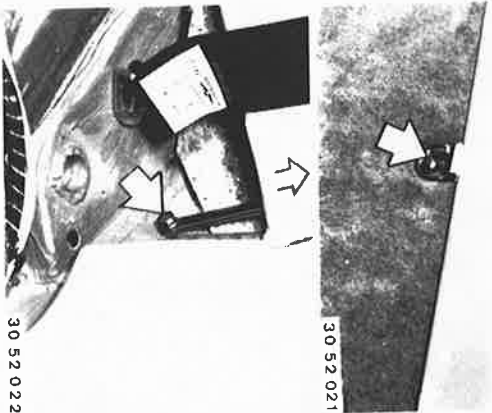
Plug-In Antenna:
Insert sealing grommet (1).
Mount antenna with holder (3) and bolts (4).
Mount ground wire with holder (2).



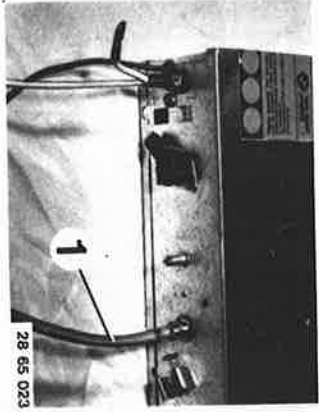
30 65 335

Lift out seat cushion.
Cars with Bolted Version:
Pull off covers and unscrew bolts on left and right sides.

Unscrew left and right bolts.
Pull up and remove backrest.
Installation:
Engage backrest in (upper) holder.



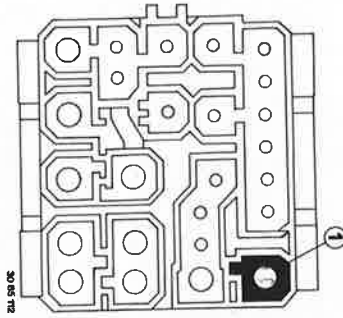
30 52 022



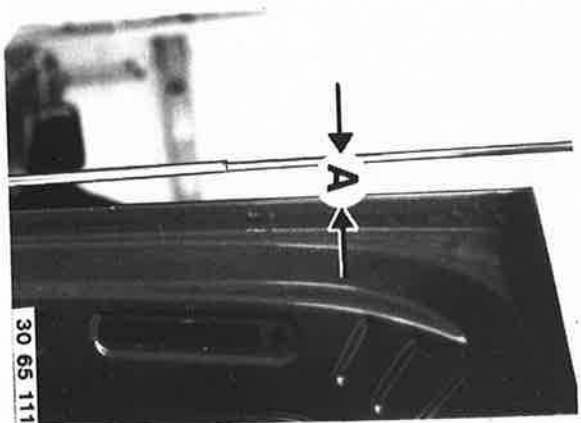
28 65 023

Plug white wire in "automatic antenna" connection and antenna wire (1) in jack of radio.

Plug red wire in "SA" connection (1).



Checking Operation:
The antenna should run out when radio is turned on.
Antenna will run in when switching off the radio.
Note:
Radio cannot be turned on when ignition key is turned to position "0".

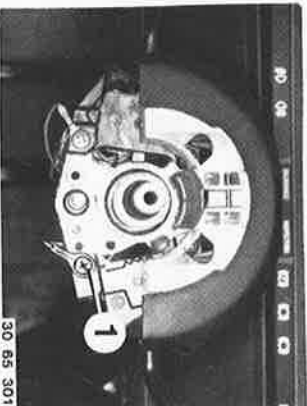


Check distance between run out antenna and raised trunk lid.
A = 18 mm (0.709").
Distance (A) can be corrected by adjusting antenna on mounting bracket.

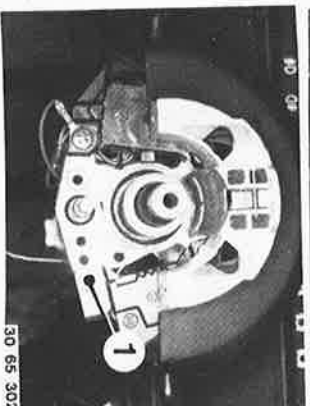
65 - 301

65 71 000 SERVICE INSTALLING CRUISE CONTROL

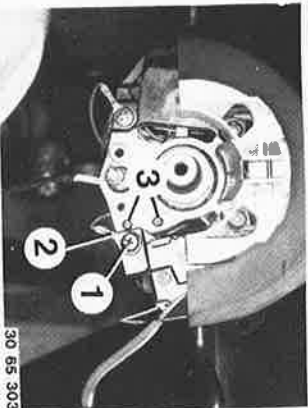
- Disconnect battery ground lead.
- Remove steering wheel 32 33 000.
- Remove instrument panel trim at bottom left.
 - 51 45 180.
 - Remove lower steering column casing section
 - 32 31 020.



Unscrew bolt (1).



Drill out tapped hole (1) to 5.5 mm (0.216") diameter.



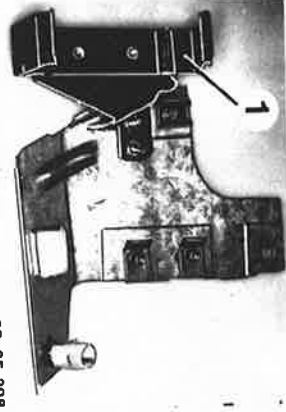
Mount selector switch with a M 5 x 15 screw (1) and a washer.
Also mount ground lead (2).
Both tabs must protrude into bores (3).



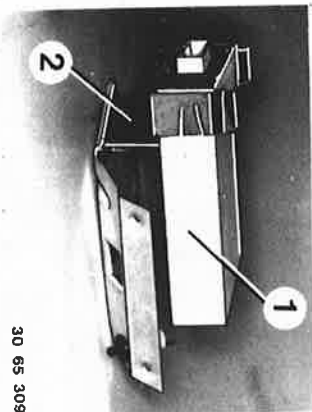
Route the wire harness along the standard wire harnesses.

65 - 303

Mount holder (1) for control unit with 4.2 x 13 mm self-tapping screws.

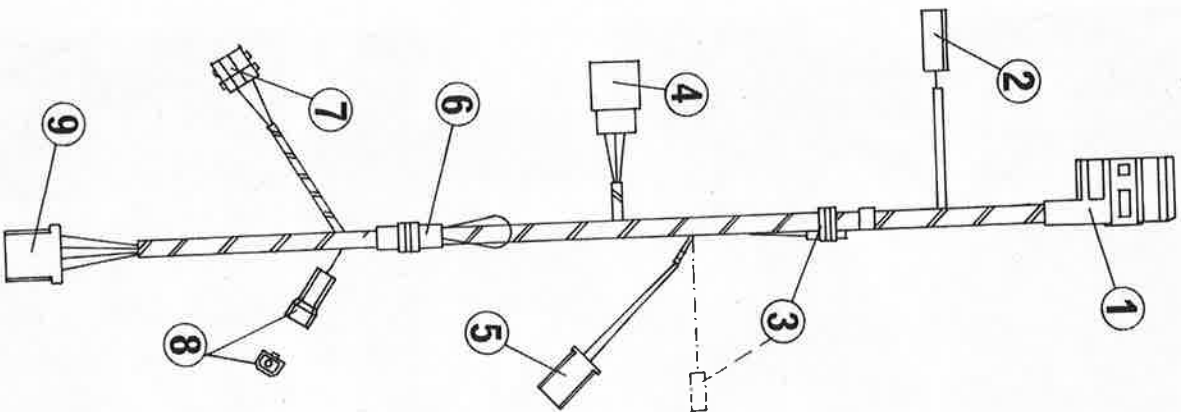


30 65 308



30 65 309

Slide control unit (1) into holder (2).



Route extra wire harness from installation kit from driver's side via center console to place of control unit installation.
Connect extra wire harness on control unit (see wire harness sketch).
Install holders.
Install casing and trim panels.

Explanations for Wire Harness Sketch:

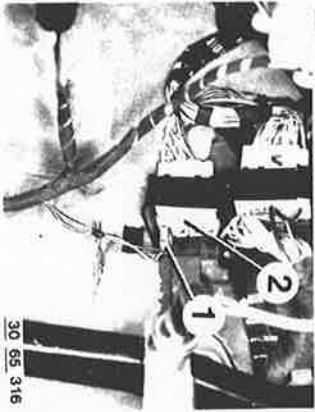
- 1 = Connection for control unit
- 2 = Connection for speedometer
- 3 = Connection for range indicator (only cars with automatic transmission)
- 4 = Connection for operating motor
- 5 = Connection for special equipment plug
- 6 = Wire bridge
- 7 = Connection for clutch switch
- 8 = Connection for ground
- 9 = Connection for selector switch

Connect ground wire of extra wire harness on ground point (1) (see wire harness sketch).



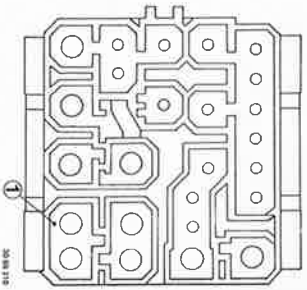
30 65 315

Connect plug (1) of extra wire harness on special equipment plug (2) (see wire harness sketch).



30 65 316

Note:
1 = Connection for cruise control



30 65 318

Mark location of holes on left front wheel house.

Distance 1 = 68 mm (2.677")

Distance 2 = 104 mm (4.094")

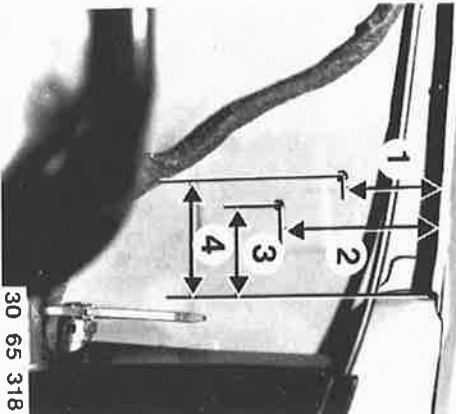
Distance 3 = 50 mm (1.968")

Distance 4 = 62 mm (2.441")

Punch mark points of intersection and drill

6 mm (0.236") diameter holes.

Debur and coat edges of holes with zinc dust paint.



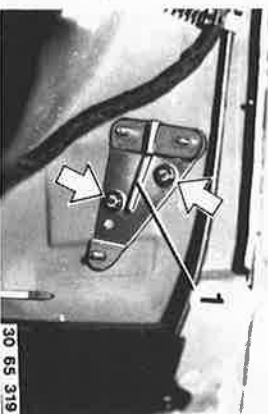
30 65 318

Take off splash guard (1).



30 65 102

Mount holder (1) with M 5 x 15 screws, spring washers and nuts.



30 65 319

65 - 307

OPERATION

The electronic cruise control operates in a range from approx. 45 km/h (28 mph) to almost top speed. The system regulates the car's speed to a stored road speed with a tolerance of approx. ± 2 km/h (1 mph).

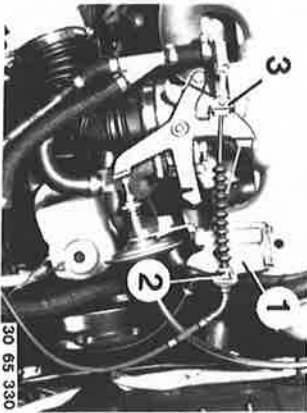
The system stops when the actual road speed drops below the set road speed by about 15%. This measure is provided to protect the engine against overloads from, for example, uphill trailer hauling. If the actual road speed increases by 6 to 8 km/h (4 to 5 mph) over the set road speed, a quick action clutch opens and the throttle moves into idle position. The clutch closes and the system operates again when the car reaches the set road speed.

Only BMW 325 e:
Attach holder (1) for cable.



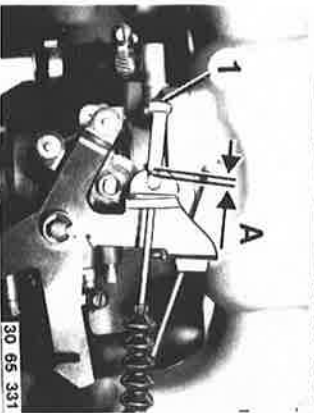
30 65 329

Guide cable through holder (1) and insert clamp (2) in holder.
Connect cable with white nipple bearing (3).

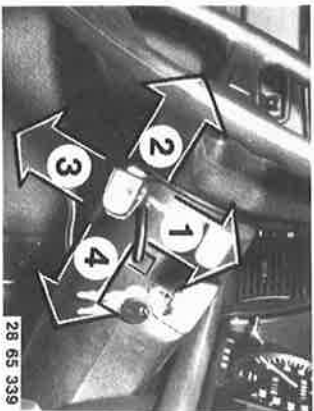


30 65 330

With throttle closed and operating motor unactivated (engine running at idle speed), adjust grip (A) to 1 ... 2 mm (0.040 ... 0.080") on knurled nut (1).



30 65 331



28 65 339

Brief Tripping to CONSTANT (4)

Instantaneous road speed is maintained and stored in memory.

Holding in CONSTANT (4)

Car accelerates until desired road speed is reached; release lever. Reached road speed is maintained and stored in memory.

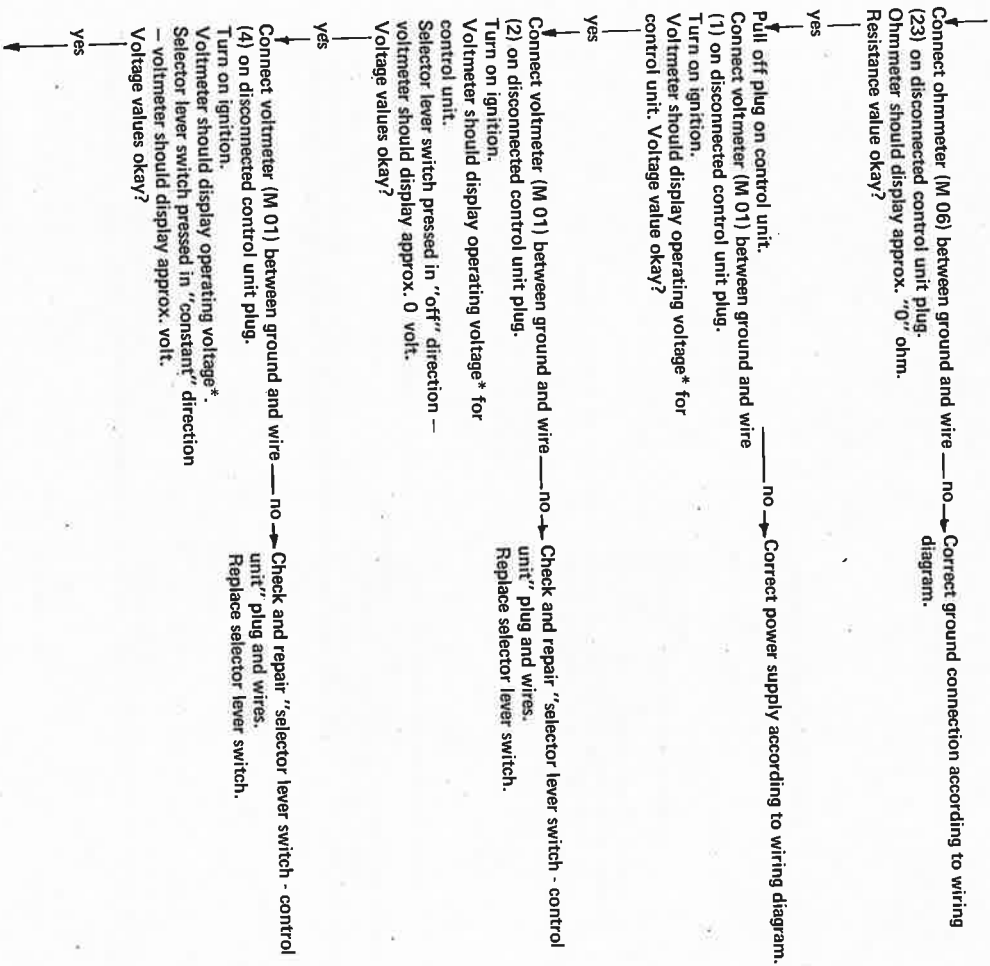
Pulling to CALL (2)

The control unit accelerates car to a previously stored road speed when lever is pulled in CALL direction.

Up — Down OFF (1/3)

Cruise control switched off.
Stored value is cancelled only after turning off the ignition.

65-352



* See Specifications

65 - 354

Connect frequency meter (M 14) on wires 3 and 6 — no → Check speed transmitter for speedometer, see — no → Check wires, repairing if necessary.
Group 62 in Repair Manual.

on disconnected control unit plug.
Lift car. Suspend car on trailing arms near wheels to avoid damage to halfshafts joint. Start engine. Accelerate briefly to speed of about 60 km/h (37 mph).

Frequency meter should display frequency*. Value okay?

yes

no → Replace control unit.

Connect control unit plug again. Following tests are made on 7-pin plug for "control unit - motor".

Connect voltmeter (M 01) on connection (4) and connection (3).

Turn on ignition. Voltmeter should display voltage*.

Voltage value okay?

yes

no → Replace operating motor.

Connect voltmeter (M 01) on connection (3) and connection (7).

Turn on ignition. Voltmeter should display voltage*.

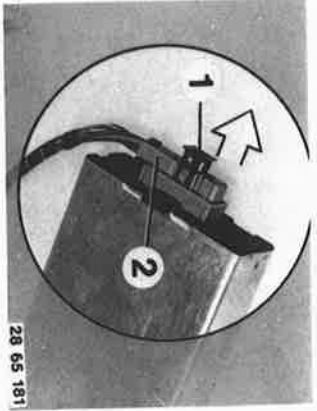
Voltage value okay?

yes

no →

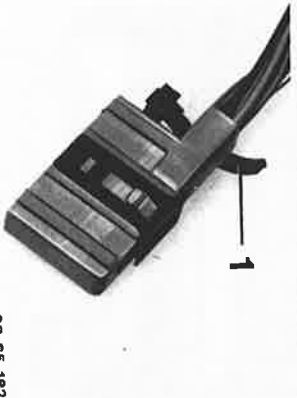
* See Specifications of Gr. 62

65 - 356



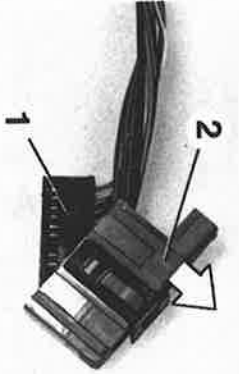
Important Information for 26 Pin Central Plug:
Pull back holding clip (1).
Pull off central plug (2).

Cut off wire strap (1).



28 65 182

Pull plug cartridge (1) out of housing (2).

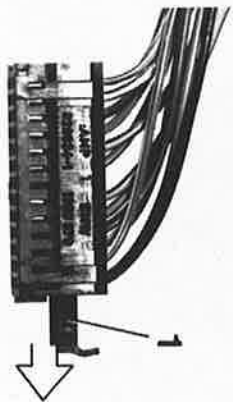


28 65 183

Testing on a disconnected central plug, e.g. for troubleshooting, can be performed with test clips on windows (1).



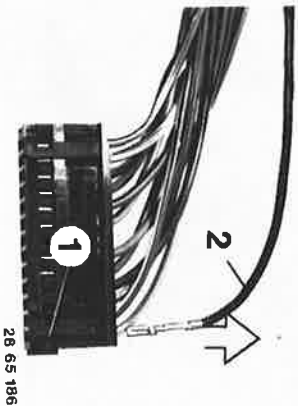
28 65 184



Pull out side control (1).

28 65 185

Push on pertinent wire window with a screwdriver and pull wire (2) out of plug receptacle.

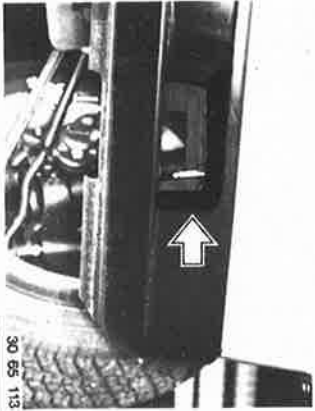


28 65 186

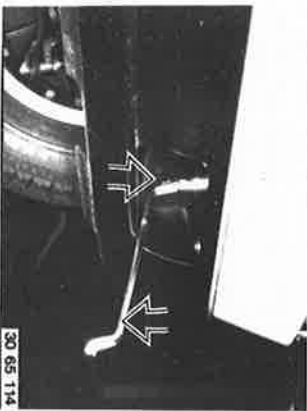
65 - 361

65 81 060 REMOVING AND INSTALLING AIR TEMPERATURE SENSOR

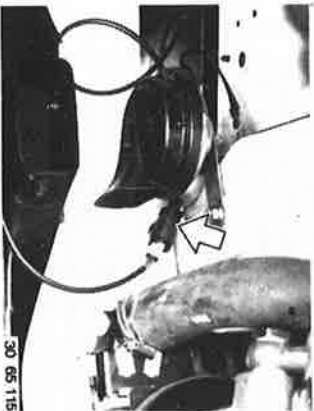
a) Before 9/85:
The temperature sensor is located in the air inlet opening of the front spoiler.



Press out temperature sensor with a bent 8 mm ring wrench.



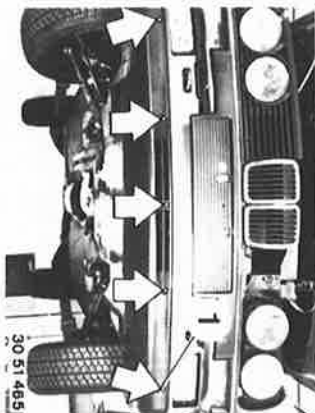
Pull plug out of holder and disconnect. (The front spoiler had been removed for better understanding, but this is not necessary to remove the temperature sensor.)



b) Since 9/85:
Unscrew front spoiler screws in left and right front wheel houses.



Unscrew screws.
Take off front spoiler.
Disconnect plug on temperature sensor (1).
Press out temperature sensor.



65-501

Malfunction Operation	Possible Defect	Test / Specification	Not as Specified Sources of Defect / Information
5. Ignition lock from position R display board background button lighting (with lights on) not working	<ul style="list-style-type: none"> - Term. 31 g, term. R, term. 58 power supply missing - Lights in BC II defective 	<ul style="list-style-type: none"> - Between pin 10 (= term. 31) and pin 5 (= term. R). Specification: 10 V (button board lighting only works with lights on) - Between pin 9 (= term. 31 g) and pin 8 (= term. 58 k). Specification: U = U battery, depending on switch position. 	<ul style="list-style-type: none"> - Break in wire - Replace light bulbs; depending on defect pull out light slider with a small pliers (check printed voltage data when testing externally) or light bulb for button lighting (12 V, 1.2 W).
6. None or wrong SPEED display	<ul style="list-style-type: none"> - Wrong coding plug* in BC II - Speed signal missing - Defect in input signal 	<ul style="list-style-type: none"> - See point 1 - Simulate speed signal on speed transmitter wire plug connection with BMW service test unit. - With simulation of 256 Hz, ignition on (engine not running), on BC II button SPEED and button SET-RES Displayed value see coding plug table*. 	<ul style="list-style-type: none"> - Follow signal up to BC II. - Replace BC II (see point 1).
7. None or wrong CON-SUMPTION display	<ul style="list-style-type: none"> - Wrong coding plug* in BC II - Defect in input signal - BC II defective 	<ul style="list-style-type: none"> - See point 1 - With engine running there must consumption signal on pin 17 and pin 10 (= B-). 	<ul style="list-style-type: none"> - Check signal from L-electronic control unit pin 12 or wire 11 from 2BE control unit with BMW service test unit. Scope test or BMW digital tester II: ms-test, possibly compare with signal of cyl. 1 or 2. - Replace BC II (see point 1).

* See Specifications

65-503

Malfunction Operation	Possible Defect	Test / Specification	Not As Specified Sources of Defect / Information
12. No activation of starter interlocking relay	<ul style="list-style-type: none"> - Defect in relay box, activation of interlock defective - Wires - BC II 	<p>Connect pin 11 and pin 10 (= B-) and turn ignition lock to R or 15: relay in relay box must operate.</p>	<p>See point 10, but between pin 6 and pin 11.</p>
13. No function of remote control	<ul style="list-style-type: none"> - Steering column switch defective - Wires - BC II 	<p>Ignition lock in R or 15. Pin 10 (= B-) connected briefly with pin 4 several times: Information in display must change each time.</p>	<p>Replace BC II (see point 1).</p> <ul style="list-style-type: none"> - Defect in steering column switch (check without BC II) - Wiring
14. Driving range function wrong	<ul style="list-style-type: none"> - Coding plug - Reserve volume balance - Speed signal - Consumption signal - Fuel level transmitter / reserve contact 	<ul style="list-style-type: none"> - See point 1 - See point 6 - See point 7 	<ul style="list-style-type: none"> - Connection from instrument cluster to BC II - Wires to instrument cluster

97 Body Cavity Sealing and Undercoating

97 00 010 Body cavity sealing for entire car 97 - 1

97-1

BODY CAVITY SEALING - 3 - E 30 SERIES

Sealing Preparations

- Underside of car must be clean and dry.
- If applicable, damaged PVC on underside including wheel housings and side panels must be repaired and treated with Tectyl.
- The thickness of undercoating should not exceed 250 μm (0.25 mm/0.010").
- Check car for paint finish damage and damage from flying stones and, if applicable, repair after consulting the customer.
- Sealing compounds and the car itself should have room temperature (approx. 20°C / 68°F).
- Check spray pattern of guns and nozzles.
- When drilling holes, dip the stepped drill bit in sealing compound to trap burrs.
- Remove dripping sealing compound.
- Insert plugs dipped in Tectyl in all drilled holes after finishing sealing.
- Spray engine sealing compound on engine and engine compartment to cover completely.
- When repairing body parts damaged in an accident or replacing the car body, body cavity sealing must be carried out immediately after painting and before installation of attachments, equipment, trim, etc.. If repair welding seams and joints are only accessible from one side, the side which produces a cavity has to be treated with wax. The same is applicable for the rear side panels, above the wheel housings up to the roof joint, as well as doors especially in the upper corner areas.

Body cavity sealing performed after body repairs must be confirmed on the annual inspection sheets (Owner's Manual)!

Sealing Procedures on Lifting Platform (wheels protected with covers available from HWB)

1. Front cross member, through side openings. H or F
2. Front side panels and wheel houses. N or RS
3. Engine carrier over entire length. N or RS
4. Front side panels in rear area from behind through provided opening. N or RS
5. All reinforcements of floor assembly in front seat area through provided openings. N or RS
6. Door beams from underneath in middle. N or RS
7. Doors twice each through provided openings as well as front door windw frame at rear (plates removed) T+N or F+RS
8. Left and right rear spring strut mounts through provided openings. N or RS
9. Side and cross members underneath trunk through provided openings. N or RS

Sealing Procedures without Lifting Platform

10. Engine hood braces and all member profiles of front panel through provided openings. H or F
11. Spring strut reinforcement. H or F
12. Wheel house reinforcements/cowl panel bottom. H+N or F+RS
13. A pillars, door contact switches removed (cars with radio: speakers removed). N or RS
14. Rear side panels and wheel houses through rubber rubbing strip holes (2-door models) or door beam/rear side panel joints (4-door models). N or RS
15. Rear side panels and wheel houses from trunk. N or RS
16. Trunk lid braces through provided openings. H or F

H = Hook-type probe
 N = Nylon probe
 T = Door probe
 RS = Round spray pattern slotted nozzle
 F = Flat spray pattern nozzle

