ACCESSORIES & EQUIPMENT

Body Cavity Sealing and Undercoating - Operating Fluids

1.0 GENERAL INFORMATION ON PRESERVATION MEASURES

The classic quality of BMW automobiles is based on the long-term comprehensive research and testing, the design, the applied materials and the manufacturing procedures in modern production plants.

BMW recommends cleaning the engine, engine compartment, vehicle underside, axles and engine/transmission at least twice annually, and then waxing the car or repairing the wax coating. This should be performed before or after the period of salt usage on streets.

New cars parked outdoors should be waxed at BMW centers before delivery to customers. This is to avoid deposits damaging to the paint finish, such as air-born rust particles, chemical dust, oil saturated soot, sulfur dioxide (acid) rain, etc. settling on the horizontal surfaces. Bird and insect droppings as well as tree resin could mar the paint finish, forming spots, swelling and pitting in the paint coat.

Wax films on the engine, engine compartment and A pillars (hinge areas) are intentional and prevent corrosion. Such wax film should not be removed.

Unwaxed cars should be washed at least once each week. Parked cars must never be protected with plastic or other nonporous material covers. This will damage the paint finish due to condensed water in conjunction with plastic softener diffusion and scratching.

2.0 BODY CAVITY SEALING

It is only necessary to rewax or seal the affected area after repairing the body.

Only BMW approved products may be used to comply with the six year warranty against rust perforation. These products protect cavities effectively and permanently against corrosion. Their excellent coating and waterproofing properties let them flow into all inaccessible corners and folds for unsurpassed overall protection.

Underbody and Body Cavity Sealing Compound

For sealing of body cavities, such as doors, A-pillars, front, side and cross members, etc.

(Former BMW Part No. 81 22 9 407 479)

3M Part No. 8891

Wurth Part No. 892080

Also: Wurth "Brushable Seam Sealer", Part No. 8901021.

3.0 BODY CORROSION PROTECTION

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To comply with the six year warranty against rust, specially selected waxes and additives produce an elastic, temperature-proof, corrosion inhibiting protectant. The corrosion protection thickness should measure a maximum of 30 microns, but can be varied as desired by repeating the spraying procedures accordingly.

Procedure:

Clean underside of car to remove grease, oil and dirt. Cover rotating parts and parts not undercoated, such as driveshaft, brake discs, brake hoses, springs, exhaust pipes, etc.

After completion of body repairs, the affected areas must have corrosion protection reapplied. This applies, also, if the BMW Annual Check shows that the corrosion protection has to be repaired.

UNDERBODY SEALING

Quick-drying, rubber-based, paintable. Compatible with PVC-based undercoat, front apron and door sill coatings. (Former BMW Part Nos. 81 22 9 407 001, 81 22 9 407 521/522)

3M Part No. 8883

Wurth Part No. 892072

Loctite Part No. 81833 (or PX135EA)

CRC Part No. Siloo 28A

Also: Wurth "Body Seal, beige", Part No. 0892091 U.

BODY SEALANT, LIGHT

Sealing compound for all joints and seams, can be painted over. Good adhesion, free of shrinkage, resistant to heat and cold temperatures, permanently elastic.

(Former BMW Part Nos. 81 22 9 400 013 and 81 22 9 407 313)

3M Part No. 8361

Wurth Part No. 893430

SEAM SEALER, WHITE

Elasto-plastic sealing compound based on polyacrylate.

Applications: Protection of door and hood panel seams.

(Former BMW Part No. 81 22 9 407 675)

3M Part No. 8361

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Wurth Part No. 890100025

Also: Wurth "Gray Seam Sealer", Part No. 089228 U.

TRANSPARENT WAX

Prevents corrosion on painted and non-painted metal surfaces. Serves mainly for treating edges and folded-over seams. (Former BMW Part No. 81 22 9 400 711)

3M Part No. 8892

Wurth Part No. 893082

ANTI-CHIP COMPOUND

Sprayable coating compound for outside and inside. For sealing, noise-insulation and as protection against flying stones.

Quick-drying can be painted over, permanently elastic, heat and cold-resistant.

(Former BMW Part Nos. 81 22 9 407 001 and 81 22 9 407 416)

3M Part No. 8964

Wurth Part No. 893075

Loctite Part No. 81833/PX135EA

4.0 OTHER FLUIDS

ADHESIVE REMOVER

(Former BMW Part No. 81 22 9 407 388)

3M Part No. 8984

RUST REMOVER

(Former BMW Part No. 81 22 9 407 121)

Wurth Part No. 89091801

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ACCESSORIES & EQUIPMENT

Body Equipment - Operating Fluids

1.0 ADHESIVES/SEALANTS FOR GLASS

Sikaflex 255 Adhesive is a single component polyurethane with a minimum curing time of 4 hours at 72°F/22° C and 38% relative humidity.

The windshield or rear window must be installed within 10 minutes of applying the adhesive or a skin will form on the adhesive's surface and reduce the adhesive effectiveness.

Sikaflex 255, BMW Part No. 81 22 9 407 497 Cold Kit, or

Sika Ultrafast, BMW Part No. 83 19 9 407 714 in conjunction with Heater, BMW Part No. 83 19 9 407 820.

2.0 OTHER FLUIDS

Cleaning E53 black glossy exterior ornamental trim please use Meguiar's Mirror Glaze Number 9 Professional Swirl Remover 2.0

Glass treatment, all models: Aquapel® Glass Treatment, BMW Part No. 83 19 9 408 523.

3.0 CONTACT CEMENT

A powerful adhesive for leather and leatherette, rubber moldings, felt linings, insulating materials, convertible top adhesive, etc.

(former BMW Part No. 81 22 9 407 524)

3M 1357High Performance Contact Adhesive

4.0 INSTANT ADHESIVE FOR RUBBER, METAL AND PLASTIC SURFACES.

Applications: Rubber profiles on windows, doors, bumpers (soft and hard rubber), seals, inner covers, buttons and controls (plastic/plastic, plastic/steel), circuit elements (electronics), rear lights, turn indicators, ornamental strips and moldings.

(former BMW Part No. 81 22 9 407 143)

BMW PART NUMBER SPECIFICATION

3M	Part No. 8155
Loctite	Part No. 49450

5.0 LOCTITE 380

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Black cyanacrylate adhesive for joining metals, but also rubber, PVC etc.

Particularly recommended for attaching rubber door seals on the BMW 5 Series (E34). (former BMW Part No. 81 22 9 407 394)

BMW PART NUMBER SPECIFICATION

3M	Part No. 8155
Wurth	Part No. 893 4103
Loctite	Part No. 38050

6.0 GLASS ADHESIVE

BMW Part No. 81 22 9 407 497.

7.0 PREMIUM LEATHER CARE KIT

BMW Part No. 81 11 024 455.

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ACCESSORIES AND EQUIPMENT

Body Equipment - SI Techniques - X3

INTERIOR MIRROR WITH DIGITAL COMPASS

E70, E83, E90, E91, E92, E93



Fig. 1: Interior Mirror With Digital Compass
Courtesy of BMW OF NORTH AMERICA, INC.

INTRODUCTION

A digital compass in the interior mirror is offered as an optional extra (option 4NA) for the following BMW vehicles: 3 Series and X3 and X5.

> Up to 09/2006

A small LC display at top right in the interior mirror indicates the point of the compass in which the direction of travel is pointing: e.g. **SW** for South West.

> From 09/2006

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The display is effected with transmitted light technology. An LC display (window) is no longer needed. The display can be deactivated.

The compass offers an additional benefit especially in the USA. In large cities the streets are frequently arranged according to the points of the compass. The points of the compass are also marked on signposts. The compass also makes orientation in European cities easier.

NOTE: Option 4NA only in conjunction with option 430 or 431.

Option 4NA "Interior mirror with digital compass" is offered only in conjunction with the following option:

- Option 430 "Interior mirror and exterior mirrors with automatic antiglare control"
- Option 431 "Interior mirror with automatic antiglare control"

Option 4NA **cannot** be combined with option 449 "Interior mirror with toll function for Japan".

Option 4NA **cannot** be combined with option 802 "Korea version".

Option 4NA **cannot** be combined with option 5AC "Main-beam assistant".

BRIEF DESCRIPTION OF COMPONENTS

The following components deliver signals for the digital compass:

- **Magnetic field sensor**

  > up to 09/2006

  The magnetic field sensor is installed in the mirror base. The magnetic field sensor measures the current alignment of the magnetic field. The signal is sent to the control electronics for the compass in the interior mirror.

  > from 09/2006

  The magnetic field sensor is on the PCB in the interior mirror.

- **Control electronics for the compass**

  The interior mirror is electrically connected to the roof control panel (FZD).

  The control electronics for the compass are integrated into the board for the interior mirror. The signals from the magnetic field sensor are received by the control electronics. The LCD display is activated directly by the control electronics.

The following components are controlled:

- **Display in interior mirror**

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> up to 09/2006

The LC display (window) is situated at top right in the interior mirror.

The points of the compass are presented digitally on the LCD display (LCD: Liquid Crystal Display). The display is divided into eight compass points.

> from 09/2006

The point of the compass is displayed in transparent light technology in the interior mirror as well. The display is likewise situated at top right in the interior mirror. The display is divided into 8 points of the compass.

SYSTEM FUNCTIONS

The following system functions for the digital compass are described:

- Display
- Brightness control of display
- Adjustment of magnetic field zones and calibration
- from 09/2006: Further adjustments
- up to 09/2006: Fault display

Display

The 8 points of the compass are digitally displayed by abbreviations.

> From 09/2006

The display is available in English and German (delivery status: English LHD)

N: North

NE: North East

E: East

SE: South East

S: South

SW: South West

W: West

NW: North West

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The changeover between displays is carried out as follows:

- The current vehicle position is the center of a 360° circle.
- The eight points of the compass divide these 360° into sixteen 22.5° segments.
- The display changes over if the direction of travel changes by more than 22.5°.

Brightness control of display

2 photocells in the electrochromic interior mirror record the surrounding brightness (1 photocell for the surrounding brightness coming from the front, 1 photocell for the surrounding brightness coming from the rear).

The photocells deliver the signals for the display brightness control.

The brightness of the display is adjusted by the interior mirror control electronics to suit the surrounding brightness.

Adjustment of magnetic field zones and calibration

The worldwide magnetic field zones are permanently stored in the interior mirror. The magnetic field zones represent the deviations in relation to an ideal magnetic field for earth. The orientation "North" is precisely determined by the magnetic field zones.

The current magnetic field zone may be adjusted according to the geographic location. For example, Germany is located in magnetic field zone "8".

A vehicle has its own magnetic field. This makes it possible for the magnetic field sensor to measure an overlapping of the magnetic field with the earth's magnetic field. This overlapping is "worked out" by calibrating the compass.

A changed magnetic field is normally calibrated "automatically".

The vehicle's magnetic field may change under the following special circumstances:

- Powerful vibration during an accident
- Very large external magnetic field - e.g. if a vehicle passes under a train when travelling through an underpass

However, a manual calibration may speed up the automatic calibration.

For procedure to be followed when setting the magnet field zones as well as manual calibration: see notes for service staff.

from 09/2006: Further adjustments

Different time-based adjustment menus can be obtained by means of the adjustment button:

- 0 to 3 seconds: Display ON/OFF

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- 3 to 6 seconds: Adjustment of magnetic field zones (0 -15)
- 6 to 9 seconds: Calibration (C)
- 9 to 12 seconds: Left-hand drive or right-hand drive (L or R)
- 12 to 15 seconds: English or German (E or O)

Release the adjustment button when the correct menu is obtained. Select values in the menu by pressing briefly. After approx. 5 seconds the value is stored and the menu is automatically exited.

up to 09/2006: Fault display

The LC matrix for the LCD display lights up completely if a system fault develops. A fault is displayed under the following conditions:

- If the vehicle is highly magnetized (2,200-2,500 milligauss), the measuring range of the magnetic field sensor will be exceeded.
- If a fault develops in the circuitry of the magnetic field sensor.

NOTE: regarding the physical unit "gauss".

Gauss is the unit of measurement for magnetic flux density.

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ACCESSORIES AND EQUIPMENT

Body Equipment - Special Tools - X3

51 BODY EQUIPMENT

51 0 010 TEST GAUGE FOR WINDSCREEN AND REAR WINDOW INSTALLATION

Minimum set: Mechanical tools

Note: (replaces special tool 51 3 210 from 06/2005)

Series: E38, E38/3, E39, E39PL, E39tou, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E68, E70, E81, E83, E85, E86, E87, E90, E91, E92, E93, R50, R52, R53, R56, RR1, RR2

SI number: 1 10 05 (189)

Order number: 51 0 010

Test gauge for windscreen and rear window installation

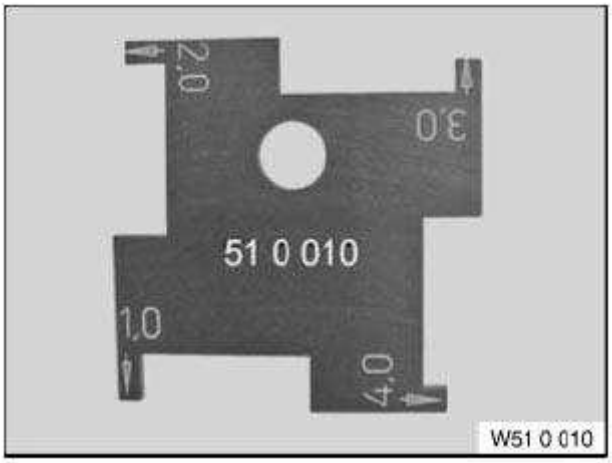


Fig. 1: Test Gauge For Windscreen And Rear Window (51 0 010)
Courtesy of BMW OF NORTH AMERICA, INC.

51 0 040 HOOD/BONNET STAY (2 X)

Minimum set: Mechanical tools

Note: For locking hood/bonnet in assembly position

Series: E83

Storage location: C48

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SI number: 1 24 03 (040)

Order number: 51 0 040

Hood/bonnet stay (2 x)

51 0 101 SUPPORT, RIGHT

Note: Gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 101

Support, right

51 0 102 SUPPORT, LEFT

Note: Gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 102

Support, left

51 0 103 BRIDGE

Note: Gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 103

Bridge

51 0 104 WINDSCREEN/REAR WINDOW LOCATING FIXTURE

Note: Gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 104

Windscreen/rear window locating fixture

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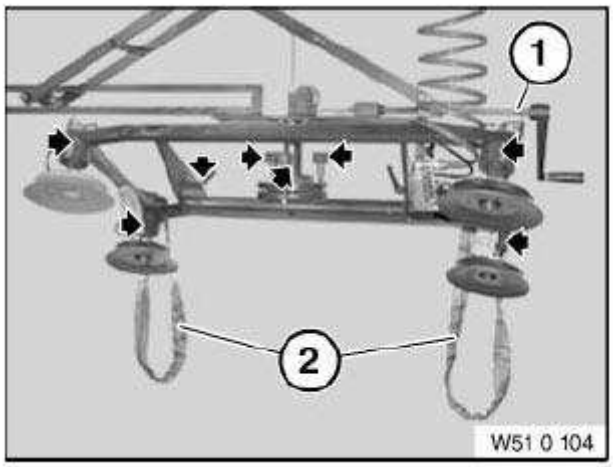


Fig. 2: Windscreen/Rear Window Locating Fixture (51 0 104)
Courtesy of BMW OF NORTH AMERICA, INC.

51 0 105 SIDE WINDOW LOCATING FIXTURE

Note: for gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 105

Side window locating fixture

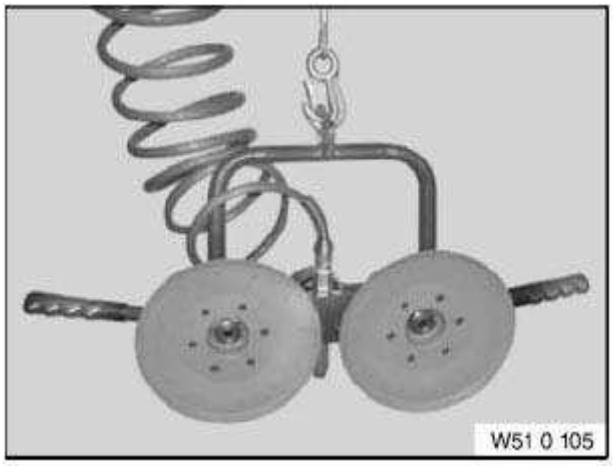


Fig. 3: Side Window Locating Fixture (51 0 105)
Courtesy of BMW OF NORTH AMERICA, INC.

51 0 106 VACUUM PUMP

Note: for gantry crane

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SI number: 6 04 03 (046)

Order number: 51 0 106

Vacuum pump

51 0 107 HOISTING WINCH

Note: for windscreen/rear window locating fixture on gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 107

Hoisting winch

51 0 108 HOISTING WINCH

Note: for side window locating fixture on gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 108

Hoisting winch

51 0 109 SUCTION CUP

Note: Gantry crane

SI number: 6 04 03 (046)

Order number: 51 0 109

Suction cup

51 0 300 PRESSURE ROLLER

Note: For pressing sound insulation into doors, various rubber seals and trims

Series: E46, E52, E53, E60, E61, E63, E64, E65, E66, E67, E70, E83, E85, E86, E87, E90, E91, E92, E93, R50, R52, R53, R56, RR1

SI number: 01 07 06 (271)

Order number: 51 0 300

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Pressure roller

Consisting of:

1 = 51 0 301 Handle

2 = 51 0 302 Roller

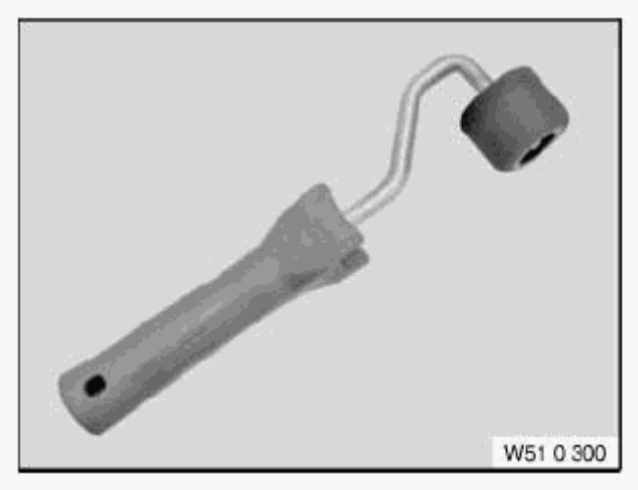


Fig. 4: Pressure Roller (51 0 300)
Courtesy of BMW OF NORTH AMERICA, INC.

51 0 310 CLIP RELEASE TOOL

Note: For releasing trim panels and headliners.

Series: E52, E53, E60, E61, E63, E64, E65, E66, E67, E68, E70, E81, E83, E85, E86, E87, E90, E91, E92, E93

SI number: 1 03 07 337

Order number: 51 0 310

Clip release tool

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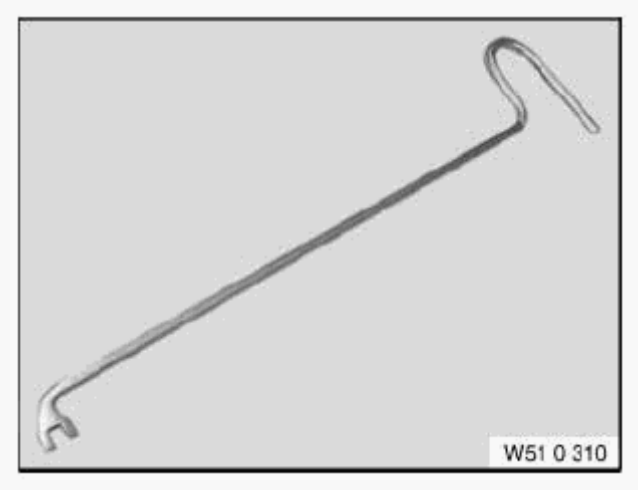


Fig. 5: Clip Release Tool (51 0 310)
Courtesy of BMW OF NORTH AMERICA, INC.

51 2 100 CLAMPING LEVER

Note: For torsion bar springs of rear lid. Torsion bar spring for seat tilt adjustment (E46, E53, E83 and E84).

Series: E12, E21, E23, E24, E28, E30, E46, E46/16, E46/2, E46/3, E46/5, E53, E83, E85

Storage location: B5, C5

Order number: 51 2 100

Clamping lever

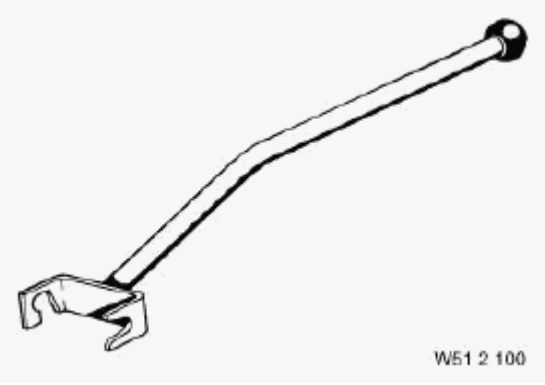


Fig. 6: Clamping Lever (51 2 100)
Courtesy of BMW OF NORTH AMERICA, INC.

51 2 190 DOOR LOCK TENSIONER

Minimum set: Mechanical tools

Note: For pretensioning front and rear door locks during installation. Change to tool through use of noise-

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optimized locks from 02/2004. Illustration items: 1 = Knurled nut 51 2 191 2 = Support 51 2 192 3 = Guard 51 2 196 4 = Mandrel 51 2 197

Series: E60, E61, E63, E64, E65, E66, E67, E70, E81, E83, E85, E86, E87, E90, E91, E92, E93, RR1

Storage location: B44, C44

SI number: 1 06 02 (864)

Order number: 51 2 190

Door lock tensioner

Consisting of:

1 = 51 2 191 Knurled nut

2 = 51 2 192 Support

3 = 51 2 196 Guard

Note: replaces guard 51 2 193

4 = 51 2 197 Mandrel

Note: replaces mandrel 51 2 194

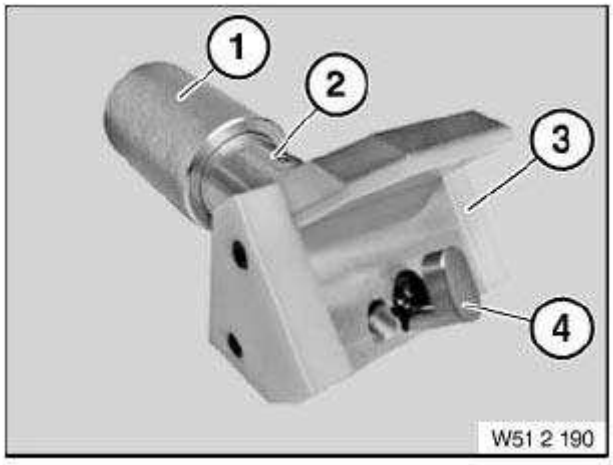


Fig. 7: Door Lock Tensioner (51 2 190)
Courtesy of BMW OF NORTH AMERICA, INC.

51 2 196 PROTECTION

Note: Replaces protection 51 2 193

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Order number: 51 2 196

Protection

51 2 197 DRIFT

Note: Replaces drift 51 2 194

Order number: 51 2 197

Drift

51 2 220 TORX

Minimum set: Mechanical tools

Note: For removing door handles and window glass

Series: E60, E61, E63, E64, E83, E93, R52, RR2

Storage location: B47, C47

SI number: 1 08 03 (988)

Order number: 51 2 220

Torx

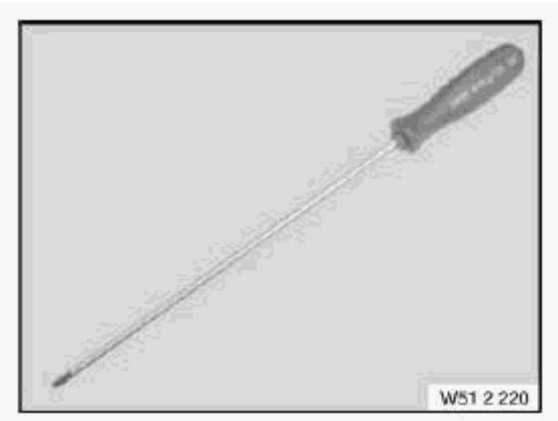


Fig. 8: Torx (51 2 220)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 010 SUCTION LIFT (2 X)

Minimum set: Mechanical tools

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Note: For removing and installing window glass

Series: E12, E21, E23, E24, E28, E30, E30/C, E30tou, E31, E32, E32/3, E34, E34tou, E36, E36/2, E36/3, E36/5, E36/7, E36/C, E36tou, E38, E38/3, E39, E39PL, E39tou, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E68, E70, E81, E83, E85, E86, E87, E90, E91, E92, E93, R50, R52, R53, R56, RR1, RR2

SI number: 1 05 86(604)

Order number: 51 3 010

Suction lift (2 x)

Consisting of:

1 = 51 3 011 Suction cup

Note: With elongated hole, suspension moveable about all axes

2 = 51 3 012 Suction cup

Note: With bore, suspension only moveable in longitudinal direction

3 = 51 3 013 Grab handle

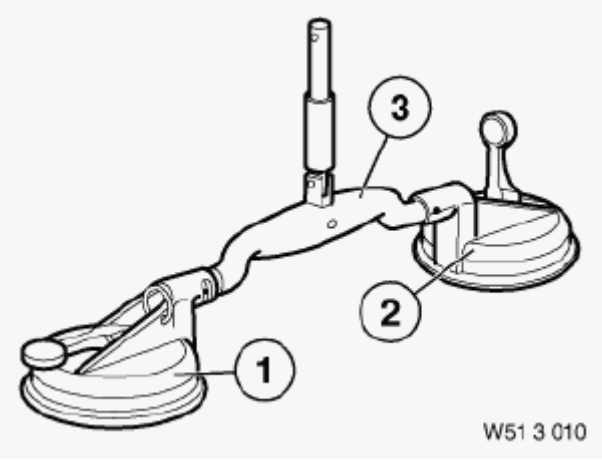


Fig. 9: Suction Lift (2 x) (51 3 010)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 090 CLAMPING STRAP

In conjunction with: 51 3 010

Note: For installing rear side windows

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Series: E30tou, E34tou, E39, E39tou, E61, E83, E91, RR1

SI number: 1 04 93 (664)

Order number: 51 3 090

Clamping strap

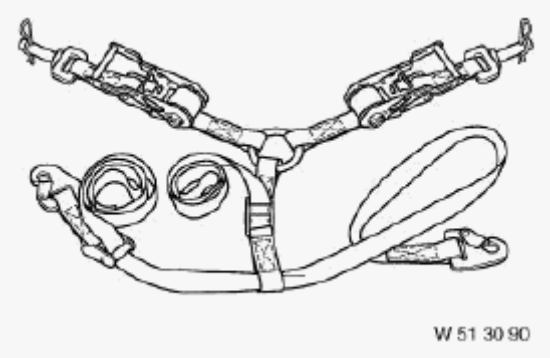


Fig. 10: Clamping Strap (51 3 090)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 180 LEVER

Note: For removing fixed rear side windows and for removing elasto-belt.

Series: E34, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E60, E61, E70, E83, E87, E90

Storage location: B4

Order number: 51 3 180

Lever

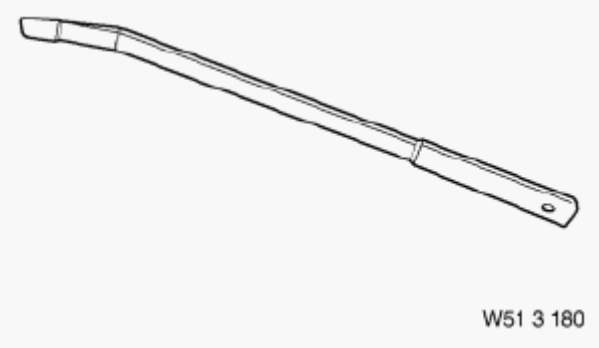


Fig. 11: Lever (51 3 180)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 210 GAUGE

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Note: For adjusting cemented windscreen to fit Replaced by special tool 51 0 010

Series: E38, E39, E60, E61, E63, E64, E65, E66, E67, E83, E85, E87, E90, E91, R50, R52, R53, RR1

Storage location: C5

SI number: 1 10 96(097)

Order number: 51 3 210

Gauge

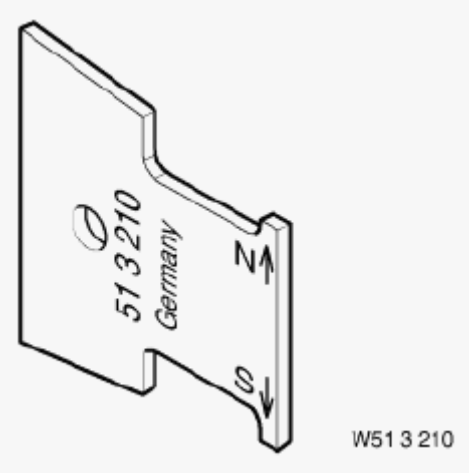


Fig. 12: Gauge (51 3 210)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 220 HAND-HELD SUCTION CUP

Note: For lifting out side windows

Series: E36, E36/2, E36/3, E36/5, E36/7, E36/C, E36tou, E38, E38/3, E39, E39PL, E39tou, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E70, E83, E85, E87, E90, E91, E92, E93, R50, R52, R53, R56, RR1

SI number: 1 17 00(623)

Order number: 51 3 220

Hand-held suction cup

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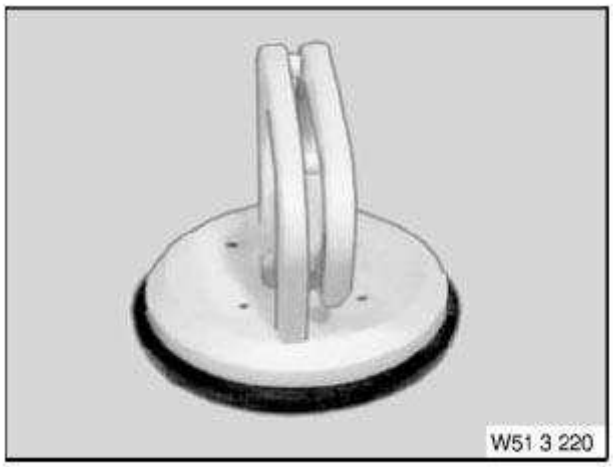


Fig. 13: Hand-Held Suction Cup (51 3 220)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 270 PULL HANDLES

Note: Cutting wire pull handles fore removing rear, quarterlight and side windows

Series: E36, E38, E39, E46, E52, E53, E60, E61, E63, E64, E65, E66, E67, E70, E83, E85, E86, E87, E90, E91, E92, E93, R50, R52, R53, RR1, RR2

SI number: 1 13 03 (001)

Order number: 51 3 270

Pull handles

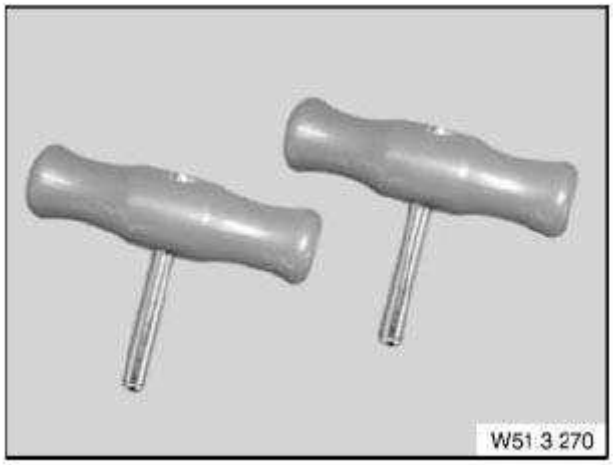


Fig. 14: Pull Handles (51 3 270)
Courtesy of BMW OF NORTH AMERICA, INC.

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ACCESSORIES AND EQUIPMENT

Body Equipment - Tightening Torques - X3

31 ROOF OUTER SKIN

41 31 ROOF

ROOF - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Retaining plate, roof rack, to body	R56	M5x11		5 Nm

41 31 ROOF

ROOF - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Roof to body	E86	M6x12		8 Nm

41 31 CONVERTIBLE TOP COMPARTMENT LID

CONVERTIBLE TOP COMPARTMENT LID - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Hinge to convertible top compartment lid	RR2	M8		20 Nm

33 FRONT TRIM PANEL

41 33 FRONT TRIM PANEL

FRONT TRIM PANEL - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Front panel to support carrier	E87 / E90 / E91	M6		10 Nm
	E92 / E93	M6		12 Nm
	E85 / E86	M8x18		19 Nm
2AZ Headlight holder to front panel	E87	M6x18		8 Nm
	E90 / E91	M6x18		4.5 Nm
	E92 / E93	M6x18		6 Nm
3AZ Headlight holder to side panel, front	E87 / E90 / E91 / E92 / E93	Sheet metal screw ST4.8x22		2.5 Nm
	E90 / E91 / E92 / E93	M6		6 Nm

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35 SIDE PANELS

41 35 SIDE PANELS

SIDE PANELS - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Front side panel to body	E63 / E64	M6x22 10.9		12 Nm
	E83	ST6.3x14		7 Nm
	E60 / E61 / E85 / E86 / E87 / E90 / E91 / E92 / E93	M6		7.6 Nm
2AZ Front side panel to body	E63 / E64	M6 nut		5 Nm
	E60 / E61	M6 nut		7.6 Nm
3AZ Front side panel to body	E60 / E61	Sheet metal screw ST4.8x19		7.6 Nm
4AZ Combination holder, side panel, front, to body	E87 / E92	M6		7.6 Nm
5AZ Side panel, rear, to body	E85 / E86	M6		7.6 Nm
6AZ Side panel, front, to module carrier/bumper carrier	E70	M6x16		8 Nm
7AZ Front side panel to body Area, A-pillar	E70	M6x16		6 Nm
8AZ Front side panel to body Area, sill	E70	Sheet metal screw ST4.8x19		2.5 Nm
9AZ Front side panel to body Area, cowl panel	E70	M5x20		2.5 Nm
10AZ Module carrier, top, to support carrier	E70	M6x26		8 Nm
11AZ Module carrier, bottom, to engine carrier	E70	M6 nut		8 Nm

51 FRONT SIDE DOORS

41 51 FRONT DOORS

FRONT DOORS - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Hinge pin	E83	M10x56		10 Nm
	E60 / E61 / E85 / E86 / E70	M8 nut		27 Nm
	E63 / E64	M6x22 8.8		10.5 Nm
	E87 / E90 / E91 / E92 / E93	M10x1.25		25 Nm
2AZ Door to door				

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hinge	E63 / E64	M8 nut		20 Nm
	E60 / E61	M8x28		20 Nm
	E70	M8x28		20 Nm
	E83	M8 nut		18.5 Nm
	E85 / E86 / E87 / E90 / E91 / E92 / E93	M8 nut		20 Nm
3AZ Door hinge to body	E63 / E64	M10x35 10.9		46 Nm
	E60 / E61 / E70	M12x36 8.8		66 Nm
	E83	M10x35 10.9		56 Nm
	E85 / E86	M10x35 10.9		30 Nm
4AZ Door plug connection to body	E60 / E61 / E63 / E64 / E70 / E83 / E85 / E86 / E87 / E90 / E91 / E92	M5x16		3 Nm

41 51 DOORS

DOORS - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Hinge pin	RR	M8 nut		27 Nm
2AZ Door to door hinge	RR2	M8x25		24 Nm
3AZ Door hinge to body	RR2	M12x36		66 Nm
4AZ Rear door to hinge	RR1	M8x28		28 Nm
5AZ Hinge, rear door, to body	RR1	M8x24		28 Nm
6AZ Door plug connection to body	RR	M5x16		3 Nm

52 REAR SIDE DOORS

41 52 REAR SIDE DOORS

REAR SIDE DOORS - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Hinge pin	E83	M10x56		10 Nm
	E60 / E61 / E70	M8 nut		27 Nm
	E87 / E90 / E91	M10x1.25		25 Nm
2AZ Door to door hinge	E83	M8 nut		18.5 Nm
	E60 / E61	M8x25		24 Nm
	E70	M8x28		20 Nm
	E87 / E90 / E91	M8 nut		20 Nm
		M10x35		

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3AZ Door hinge to body	E83	10.9		56 Nm
	E60 / E61 / E70	M12x36 8.8		66 Nm
4AZ Door plug connection to body	E60 / E61 / E70 / E83 / E87 / E90 / E91	M5x16		3 Nm
5AZ Crash reinforcement to inner door panel	E70	M8x20		18.5 Nm

61 FRONT LID

41 61 ENGINE BONNET/HOOD

ENGINE BONNET/HOOD - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	E63 / E64	M8 8.8		18.5 Nm
	E83 / E87 / E90 / E91 / E92 / E93	M8		15 Nm
	E60 / E61	M8x24 8.8		18.5 Nm
	E85 / E86 / E70	M8		20 Nm
2AZ Bonnet/hood hinge to body	E63 / E64	M8 8.8		18.5 Nm
	E83	M8x20 10.9		15 Nm
	E83 / from 05/2006	M8x30 10.9		25 Nm
	E60 / E61	M8x24 8.8		18.5 Nm
	E85 / E86 / E87 / E90 / E91 / E92 / E93 / E70	M8		20 Nm
3AZ Threaded pin, spacer	E70	M6		14 Nm

41 61 ENGINE BONNET/HOOD

ENGINE BONNET/HOOD - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	RR1 / RR2	M8		20 Nm
2AZ Bonnet/hood hinge to body	RR1 / RR2	M8		20 Nm

62 REAR LID

41 62 REAR LID

REAR LID - TIGHTENING TORQUES

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	Type	Thread	Tightening specification	Measure
1AZ Rear lid to rear lid hinge	E63	M6x22		10 Nm
	E64	M8x24		18.5 Nm
	E61	ASA nut M8		20 Nm
	E61	M10 nut		38 Nm
	E60	M8x19.5 8.8		18.5 Nm
	E83 / E85 / E86	M8		20 Nm
	E70 / E87	M8		18.5 Nm
	E90 / E92	M8		15 Nm
	E91	M8		30 Nm
	E93	M8x25		20 Nm
2AZ Adjustment, rear lid hinge	E91	M8		20 Nm
3AZ Rear lid hinge to body	E61 / E83 / E85 / E86 / E90 / E92	M8		20 Nm
	E60 / E64 / E87	M8 nut		18.5 Nm
	E63 / E70	M8		18.5 Nm
	E91	M8 nut		20 Nm
4AZ Hinge pin	E60	M8 nut		18.5 Nm
5AZ Grounding cable strap to hinge	E87	M5 nut		4.4 Nm
6AZ Rear lid, bottom, to rear lid hinge, bottom	E70	M8x22		18.5 Nm
7AZ Rear lid hinge, bottom, to body	E70	M8x22		18.5 Nm
8AZ Setscrew to rear lid hinge	E70			18.5 Nm
9AZ Stop, rear lid to body	E70	M12x1.5		16 Nm
	E70	M6 nut		8 Nm

41 62 REAR LID

REAR LID - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Rear lid to rear lid hinge bracket	E46 Touring	M8x18 10.9		20 Nm
2AZ Rear lid hinge bracket to rear lid hinge	E46 Touring	M8x13 10.9		20 Nm
3AZ Nut of guide of adjustable buffer	E46 Touring	M12x1		15 Nm
	E83	M12x1.5		15 Nm
	E46			

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4AZ Lock nut of adjustable buffer	Touring	M8		15 Nm
	E83	M8		10 Nm
5AZ Rear window hinge bracket to rear window hinge	E46 Touring	M8x1x13 10.9		30 Nm
6AZ Rear window to rear window hinge bracket	E46 Touring	M8x16 8.8		16 Nm

41 62 REAR LID

REAR LID - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Hinge to rear lid/hinge to upper rear lid section	RR1 / RR2	M8		18.5 Nm
2AZ Hinge, rear lid, to body/hinge, upper rear lid section, to body	RR1 / RR2	M8		18.5 Nm
3AZ Setscrews, hinge lower rear lid section	RR2	M10, countersunk screw		36 Nm
	RR2	M10, hexagon screw		27 Nm
4AZ Hinge bracket to lower rear lid section	RR2	M8		18.5 Nm
5AZ Hinge, lower rear lid section, to body	RR2	M8		20 Nm
6AZ Grounding cable strap to hinge	RR2	M6		8 Nm

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ACCESSORIES AND EQUIPMENT

Exterior/Interior Trim - Repair Instructions - X3

00 GENERAL

51 00 ... INSTRUCTIONS ON STICKING FILM

1. **General notes**
   - Bonding at room and object temperature of 18 to 25°C.
   - Newly painted parts may only be bonded after a drying time of at least 24 hours.
   - Optimal attachment of the film to the background surface is achieved after approx. 48 hours. Film must not be exposed to mechanical strain beforehand (car wash, strength test, etc.).
2. **Auxiliary materials and tools**
   - Spirit, plastic squeegee, needle, cleaning cloth
   - Low-surface-tension water

   NOTE: Mixture ratio: 3 drops low-surface-tension detergent to 1 liter tap water.

3. **Preparations**
   - If necessary, heat defective/old film with hot air blower and detach
   - Remove all remnants of adhesive or clean new part thoroughly
   - Clean the areas to be bonded with spirit immediately before bonding to remove silicone and grease residues.

   NOTE: Observe ventilation time greater than 1 minute.

4. **Bonding**
   1. Moist bonding
      - Thoroughly moisten the background surface to be bonded with low-surface-tension water.
      - Pull off the backing film, position the film on the background surface and slide into position.

      NOTE: In the case of small-size film, the backing film can be pulled off completely and the adhesive side of the film can be moistened with low-surface-tension water.

      - Press film down with plastic squeegee in overlapping strokes from inside outwards.
      - Remove remaining water with a clean cloth.
      - If necessary, carefully and slowly pull off protective film flat.
      - Check film for bubbles and folds. If necessary, remove bubbles or folds with plastic squeegee or pierce with a needle and force out air or water.
   2. Dry bonding

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- Pull off backing film on adhesive side.
- Align film in correct position on car.
- Press film down with plastic squeegee in overlapping strokes (watch out for formation of bubbles and folds).
- If necessary, carefully and slowly pull off protective film flat.
- If necessary, pierce bubbles with a needle and force out air with plastic squeegee.

51 00 ... NOTES ON BONDING/ATTACHING COMPONENTS WITH DOUBLE-SIDED ADHESIVE TAPE

1. **General notes**
   - Bonding at room and object temperature of 18 to 25°C.
   - Newly painted parts may only be bonded after a drying time of at least 24 hours.
   - Optimal bonding/attachment to the background surface is achieved after approx. 48 hours. Components must not be exposed to mechanical strain beforehand (car wash, strength test, etc.).
   - Do not touch bonding area.
   - It is not the length of time that pressure is applied but rather the level of pressure applied that is crucial.
   - Detaching the adhesive tape after pressing destroys the adhesive layer.
   - After being pressed on gently, adhesive tape can be pulled off again up to 3 times.
2. **Auxiliary materials and tools**
   - Spirit, fluff-free cleaning cloths
   - Pressure roller
3. **Preparations**
   - Remove all remnants of adhesive or clean new part thoroughly
   - Clean the areas to be bonded with spirit immediately before bonding to remove silicone and grease residues.

NOTE: Observe ventilation time greater than 1 minute.

4. **Bonding**
   1. Components without pre-fitted adhesive tape
      - Pull off liner* from adhesive tape.
      - Position adhesive tape on component and stick on.
      - Press down adhesive tape over entire bonding area.
      - Continue with Point 4.2

      * Liner is the protective film on the adhesive tape

   2. Components with pre-fitted adhesive tape
      - Pull off liner on adhesive side.

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- Align component in correct position on vehicle.
- Press down component over entire bonding area.

51 00 ... SAFETY INSTRUCTIONS FOR WORKING ON CARS WITH AIRBAG SYSTEMS

WARNING: If work is carried out in area of airbag systems, e.g. on:

- **Door trim panels**
- **Interior trims**
- **Instrument panel etc.**

the ignition must be turned off in each case.

- **The ignition must always be off.**
- **The ignition key must be removed from the ignition lock.**

This eliminates the risk of injury.

51 00 ... SERVICE POSITION OF ENGINE HOOD/BONNET

Special tools required:

- **51 0 040 HOOD/BONNET STAY (2 X)**
- 51 2 160
- 51 2 170
- 51 2 180
- 51 2 240

NOTE: Only the special tool pertaining to the model series can be selected.

SPECIAL TOOL CHART

Model series	Special tool
E46, R50, R52, R53	51 2 160
E53, E60, E61, E63, E64, E81, E85, E86, E87, E90, E91, E92, E93	51 2 170
E65, E66, E67	51 2 180
E83	51 0 040
E70	51 2 240

WARNING: Risk of injury and damage!
Engine hood/bonnet must be held by a second person helping.

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NOTE: The illustrations below serve as examples for all corresponding vehicles. The operation is described on the left side; proceed in the same way for the right side.

Special tool can only be used on housing (1) of gas spring strut (thick part).

**NOTE: Gas spring strut can also be installed the other way round (housing on hood/bonnet).
Special tool can be used in both directions.**

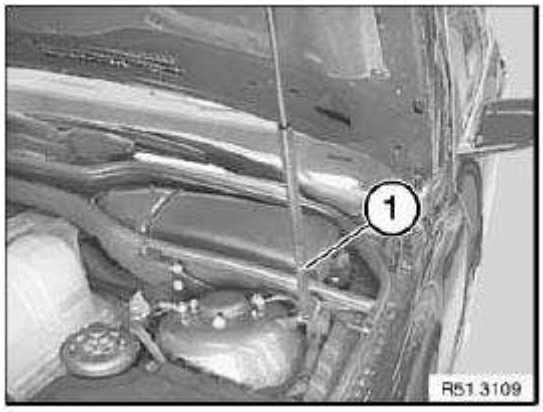


Fig. 1: Rubber Pad, Catches, Spring And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Release gas spring strut on left/right housing side.

Slide special tool (1) over housing (2) of gas spring strut.

Clip ball socket of special tool on ball stud.

Proceed in same way on other side.

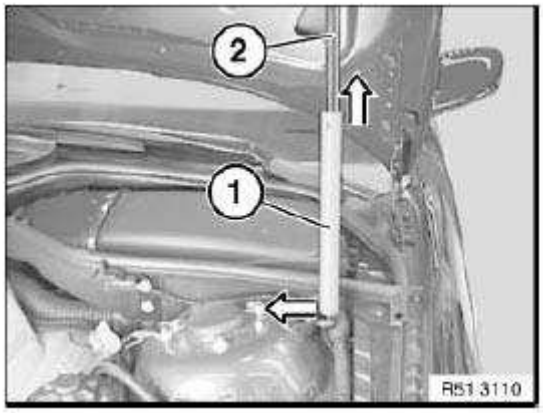


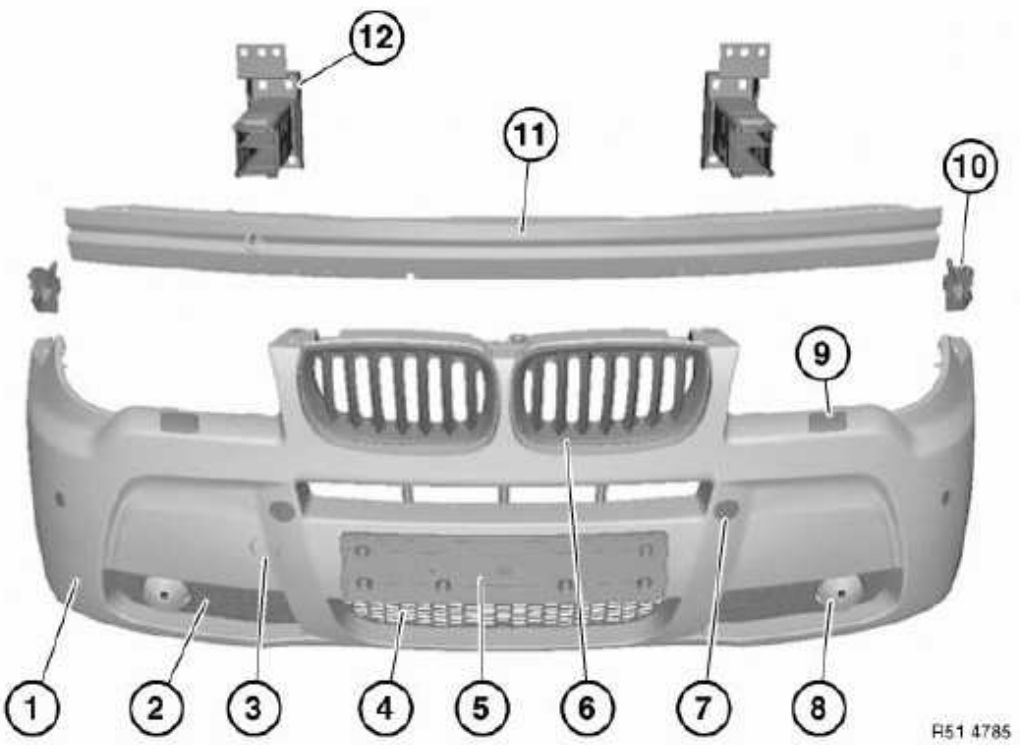
Fig. 2: Special Tool And Housing

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Courtesy of BMW OF NORTH AMERICA, INC.

11 FRONT BUMPER

51 11 .. OVERVIEW OF FRONT BUMPER (M TECHNIC AERODYNAMIC KIT)

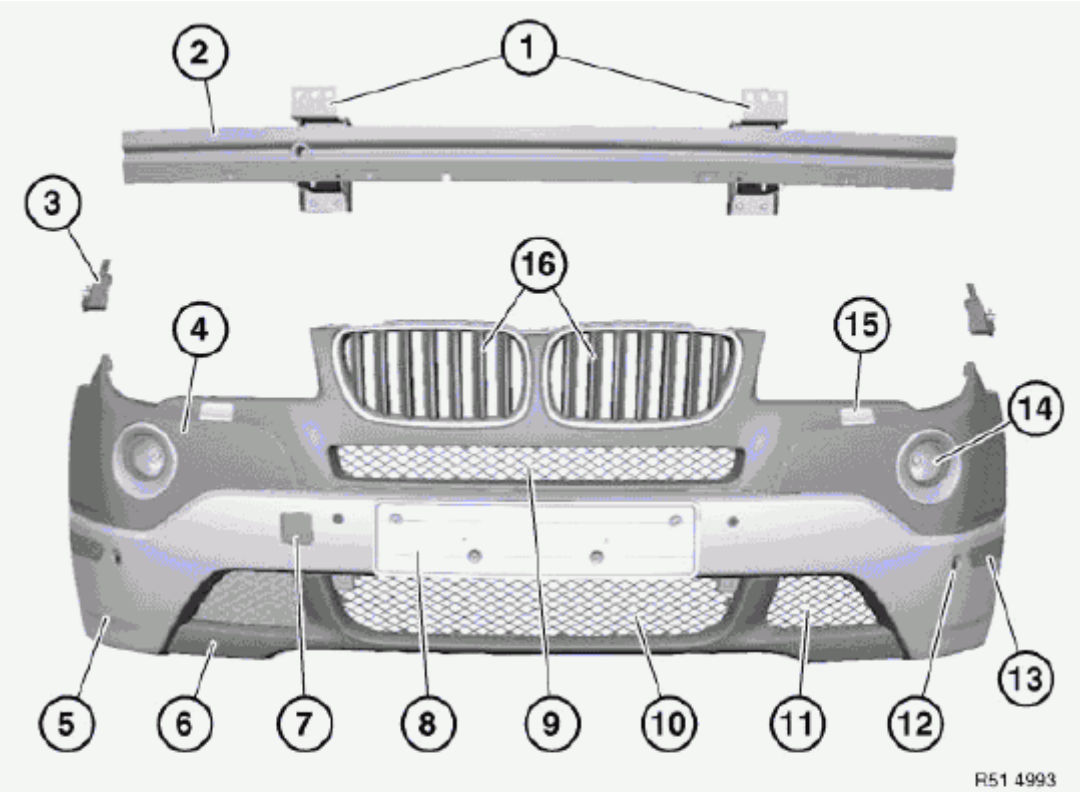


1	Bumper trim	7	Ultrasonic transducer
2	Trim, fog lamp	8	Fog lamp
3	Cover on towing eye	9	Cover, headlight washer system/high-pressure nozzles
4	Grille	10	Holder, side
5	Holder for license plate	11	Front carrier
6	Middle front radiator grille	12	Deformation element

Fig. 3: Front Bumper (M Technic Aerodynamic Kit) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... OVERVIEW OF FRONT BUMPER (FROM 09/2006)

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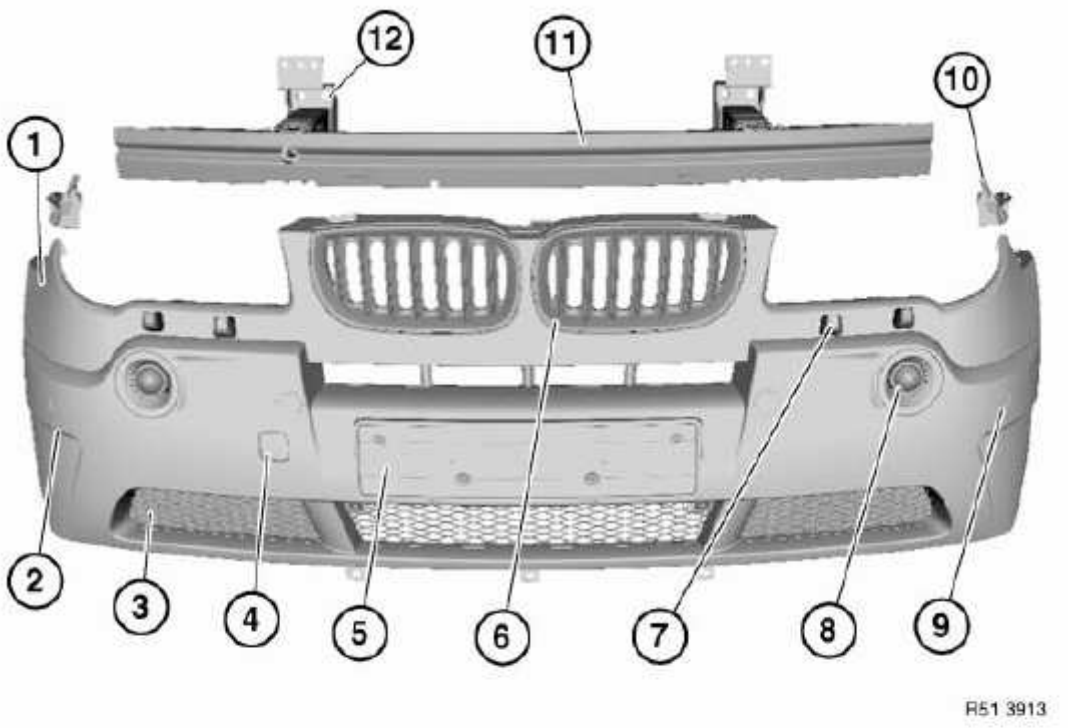


1	Deformation element	9	Top (upper) grille
2	Carrier	10	Middle grille
3	Holder, side	11	Side grille
4	Bumper trim upper section	12	Ultrasonic transducer
5	Bumper trim	13	Side marker (US only)
6	Bumper trim lower section	14	Fog lamp
7	Cover on towing eye	15	Cover, headlight washer
8	Holder for license plate	16	Middle front radiator grille

Fig. 4: Front Bumper (From 09/2006) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... OVERVIEW OF FRONT BUMPER (UP TO 08/2006)

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1	Bumper trim upper section	7	Spray nozzles
2	Bumper trim lower section	8	Fog lamp
3	Grille	9	Ultrasonic transducer
4	Cover on towing eye	10	Holder, side
5	Holder for license plate	11	Front carrier
6	Middle front radiator grille	12	Deformation element

Fig. 5: Front Bumper (Up To 08/2006) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... REMOVING AND INSTALLING/REPLACING COVER FOR HEADLIGHT WASHER SYSTEM ON LEFT OR RIGHT (FROM 09/2006)

Slowly pull out spray nozzle (1) by cover (2).

IMPORTANT: Risk of damage!
When releasing cover (2), grip spray nozzle (1) firmly and then allow to slide back slowly

Release cover (2) sideways from spray nozzle (1).

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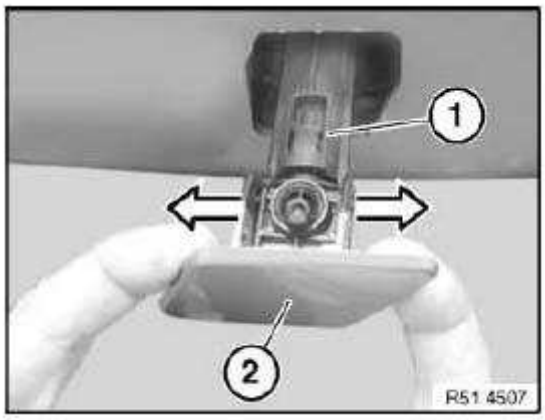


Fig. 6: Cover And Spray Nozzle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on cover (2) must not be damaged.

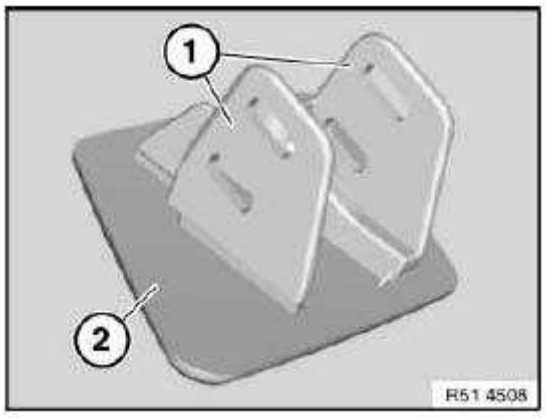


Fig. 7: Guides And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... REMOVING AND INSTALLING/REPLACING FRONT COVER FOR HEADLIGHT WASHER SYSTEM ON LEFT OR RIGHT (M TECHNIC AERODYNAMIC KIT)

Slowly pull out spray nozzle (1) by cover (2).

IMPORTANT: Risk of damage!
When releasing cover (2), grip spray nozzle (1) firmly and then allow to slide back slowly

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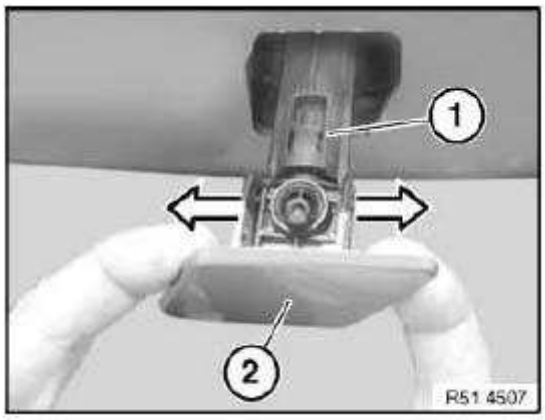


Fig. 8: Cover And Spray Nozzle
Courtesy of BMW OF NORTH AMERICA, INC.

Release cover (2) sideways from spray nozzle (1).

Installation:

Guides (1) on cover (2) must not be damaged.

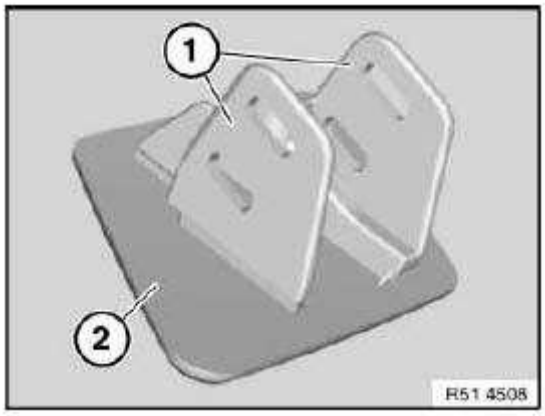


Fig. 9: Guides And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT FRONT FOG LAMP TRIM (M TECHNIC AERODYNAMIC KIT)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Release catches (1) on trim (2) with special tool 00 9 317 and remove trim (2).

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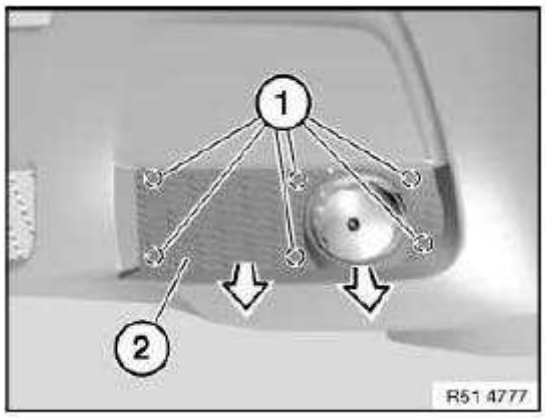


Fig. 10: Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retaining lugs (1) on trim (3) must not be damaged.

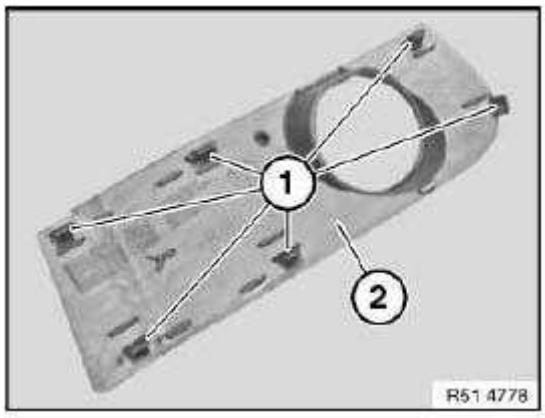


Fig. 11: Lugs And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 050 REMOVING AND INSTALLING / REPLACING CARRIER FOR FRONT BUMPER TRIM

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (from 09/2006)**

Release cable holders (1) from carrier (3).

Disconnect plug connections (2) for fanfare horns.

If necessary, feed out line for headlight washer system.

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Installation:

If necessary, replace cable holders (1).

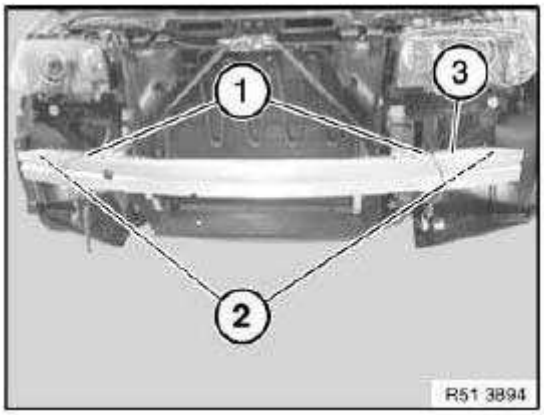


Fig. 12: Cable Holders And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw connection (1).

Remove screws and shims (3).

Remove carrier (2).

Tightening torque: 51 11 5AZ, see **51 11 FRONT BUMPER**

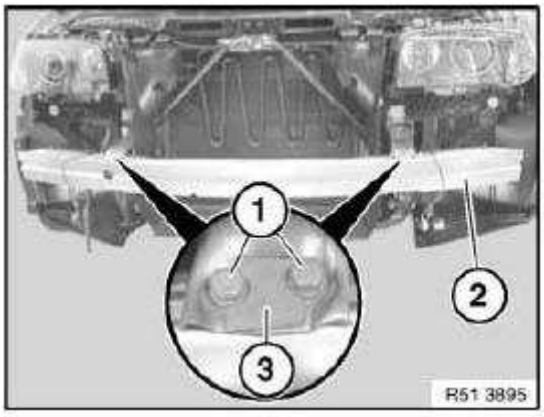


Fig. 13: Screw Connection, Shims And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

A. Release nuts (2) and remove fanfare horns (1).
B. Release screws or rivets (3) and remove holder (4)

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NOTE: Depending on build date, different holders (4) are installed with different attachments:

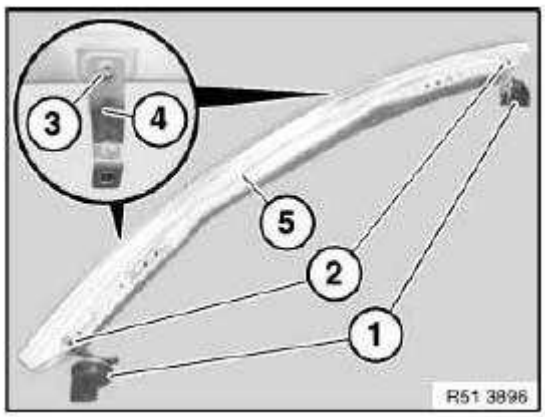


Fig. 14: Nuts, Rivets And Fanfare Horns
Courtesy of BMW OF NORTH AMERICA, INC.

Standard bumper:

- Holder (4) at front riveted to carrier (5)

M Technic aerodynamic kit up to 02/2006:

- Holder (4) at rear screwed to carrier (5)

M Technic aerodynamic kit from 03/2006:

- Holder (4) at front screwed to carrier (5)

51 11 140 REMOVING AND INSTALLING/REPLACING BUMPER TRIM UPPER SECTION (FROM 09/2006)

Necessary preliminary tasks:

- Remove both fog lamps, see **63 17 060 REMOVING AND INSTALLING (REPLACING) LEFT OR RIGHT FRONT FOG LAMP**
- Remove top grille, see **51 11 182 Removing and installing/replacing upper grille in bumper trim (from 09/2006)**
- Remove both middle radiator grilles, see **51 13 001 Removing and installing/replacing front radiator grille, middle left or right**

Version with headlight washer system:

- Remove both covers for headlight washer system, see **51 11 ... Removing and installing/replacing cover for headlight washer system on left or right (from 09/2006)**

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Release catches (1) on back of bumper trim (2).

Remove bumper trim upper section (3).

Installation:

Catches (1) must not be damaged.

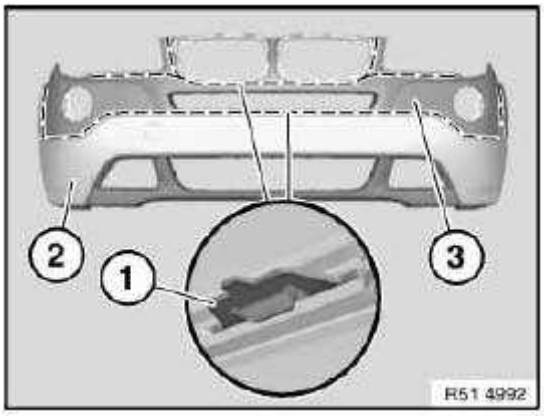


Fig. 15: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 140 REMOVING AND INSTALLING/REPLACING BUMPER TRIM UPPER SECTION (UP TO 09/2006)

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**
- Remove both fog lamps, see **63 17 060 REMOVING AND INSTALLING (REPLACING) LEFT OR RIGHT FRONT FOG LAMP**
- Remove radiator grille for bumper trim, see **51 11 180 Removing and installing/replacing grille in bumper trim (M Technic aerodynamic kit)**
- Remove center insert for bumper trim, see **51 11 145 Removing and installing/replacing center insert for bumper trim**

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Release screws (1).

Unhook catches (2) on bumper trim (3).

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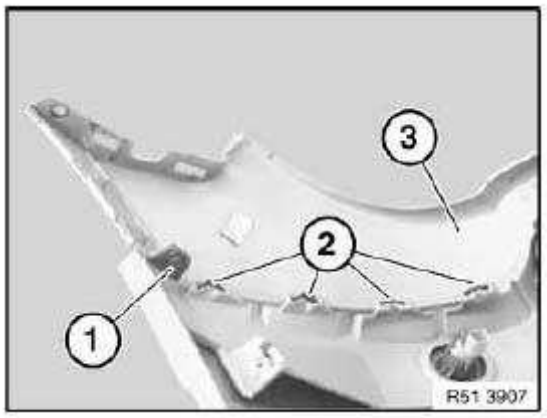


Fig. 16: Catches, Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release catches (1) and remove upper section of bumper trim (2).

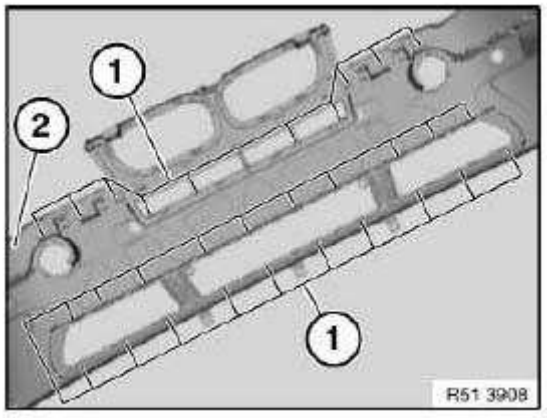


Fig. 17: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty metal nuts (1) on upper section of bumper trim (2).

Replacement:

Remove center radiator grille, see **51 13 001 Removing and installing/replacing front radiator grille, middle left or right**

Version with headlight washer system:

If necessary, remove spray nozzles (3), see **61 67 045 REMOVING AND INSTALLING/REPLACING SPRAY NOZZLES FOR LEFT OR RIGHT HEADLIGHT CLEANING SYSTEM**

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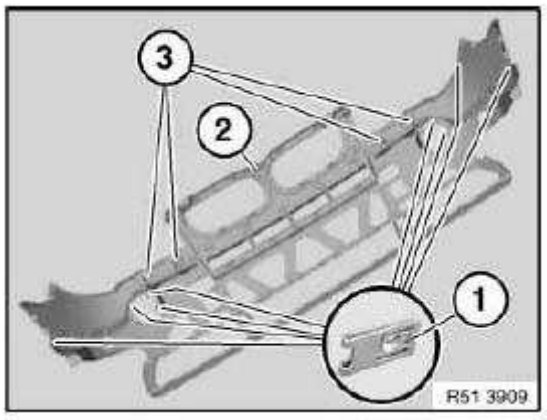


Fig. 18: Metal Nuts And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 141 REMOVING AND INSTALLING/REPLACING BUMPER TRIM LOWER SECTION (FROM 09/2006)

Necessary preliminary tasks:

- Remove middle grille, see **51 11 180 Removing and installing/replacing grille in bumper trim (M Technic aerodynamic kit)**
- Remove both side grilles, see **51 11 185 Removing and installing/replacing side grille in bumper trim (from 09/2006)**

Release catches (1) on back of bumper trim (2).

Remove bumper trim lower section (3).

Installation:

Catches (1) must not be damaged.

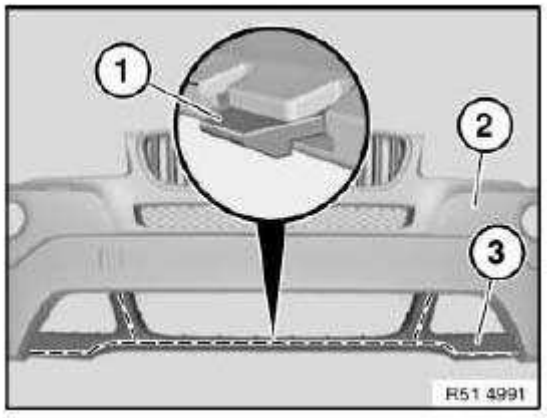


Fig. 19: Catches And Bumper Trim

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Courtesy of BMW OF NORTH AMERICA, INC.

51 11 141 REMOVING AND INSTALLING/REPLACING BUMPER TRIM LOWER SECTION (UP TO 09/2006)

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**
- Remove both fog lamps, see **63 17 060 REMOVING AND INSTALLING (REPLACING) LEFT OR RIGHT FRONT FOG LAMP**
- Remove radiator grille for bumper trim, see **51 11 180 Removing and installing/replacing grille in bumper trim (M Technic aerodynamic kit)**
- Remove center insert for bumper trim, see **51 11 145 Removing and installing/replacing center insert for bumper trim**

Release screws (1) on left/right.

Unhook catches (2) on left/right from bumper trim (3).

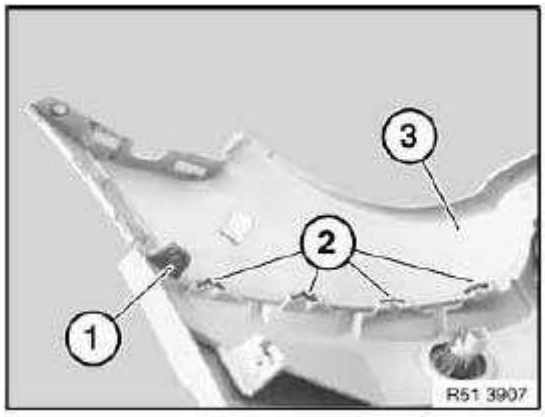


Fig. 20: Catches, Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release catches (1) and remove lower section of bumper trim (2).

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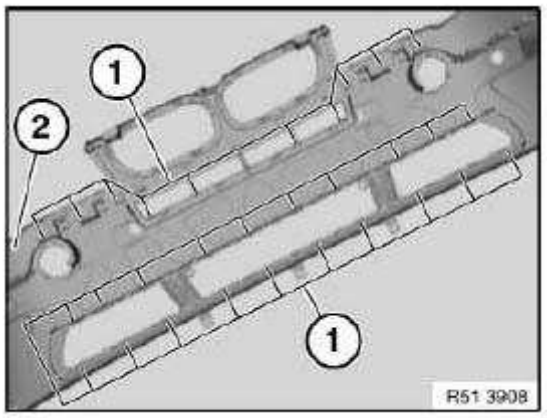


Fig. 21: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Lever cover (1) in direction of arrow out of lower section of bumper trim (2).

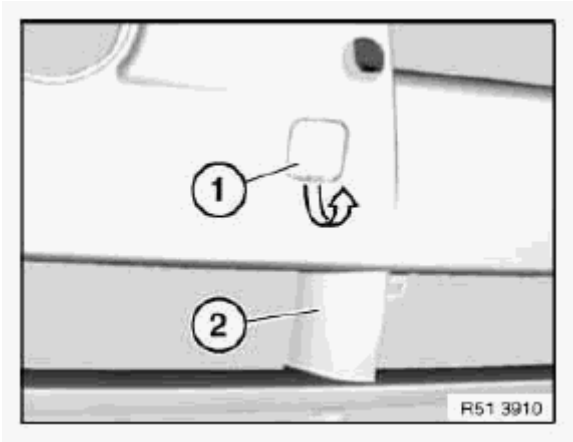


Fig. 22: Cover And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on lower section of bumper trim (2) must not be damaged.

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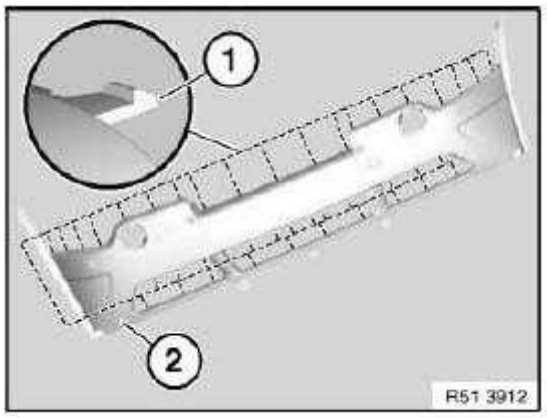


Fig. 23: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty metal nuts (1) on lower section of bumper trim (3).

When replacing with Park Distance Control version:

Remove ultrasonic transducer (2) from lower section of bumper trim (3).

Remove locators (4) and spacer rings (5).

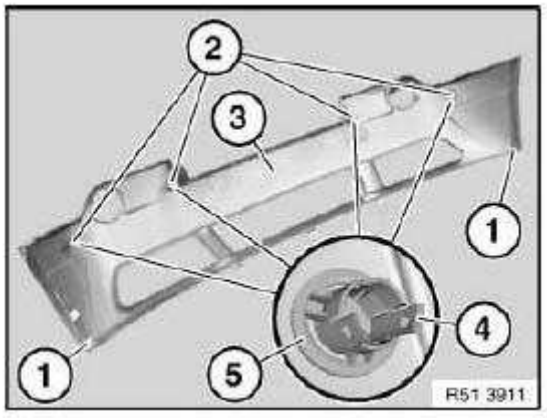


Fig. 24: Locators, Spacer Rings And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, cut out openings for ultrasonic sensors (2) on lower section of bumper trim (1) at moldings.

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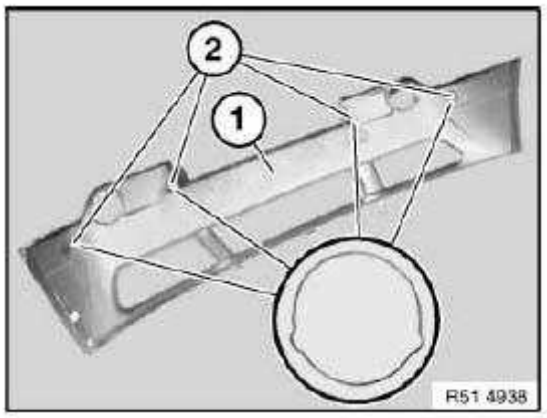


Fig. 25: Ultrasonic Sensors And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 145 REMOVING AND INSTALLING/REPLACING CENTER INSERT FOR BUMPER TRIM

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**
- Remove center radiator grille, see **51 13 001 Removing and installing/replacing front radiator grille, middle left or right**

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Version with headlight washer system:

Release lock (1).

Feed hose (2) in direction of arrow out of holder (3).

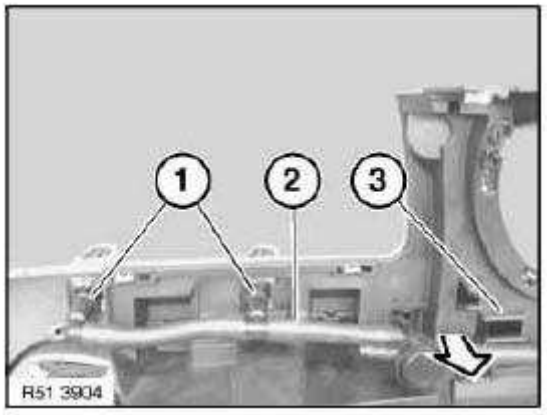


Fig. 26: Hose And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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Release catches (1) and remove center insert (2) in direction of arrow.

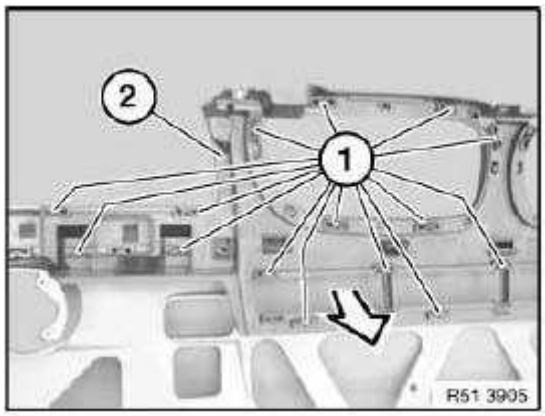


Fig. 27: Catches And Centre Insert
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on bumper trim (2) must not be damaged.

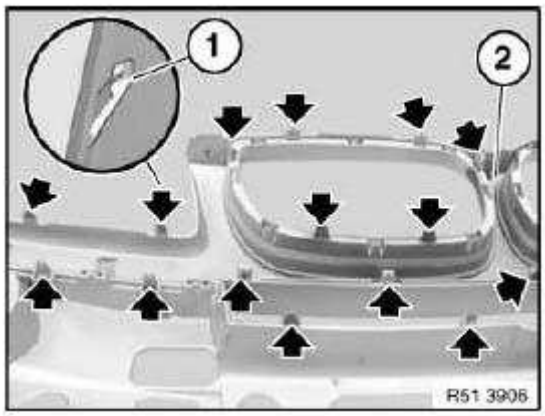


Fig. 28: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM (FROM 09/2006)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Release screws (1).

Remove air duct (2).

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Installation:

Make sure air duct (2) is in correct position.

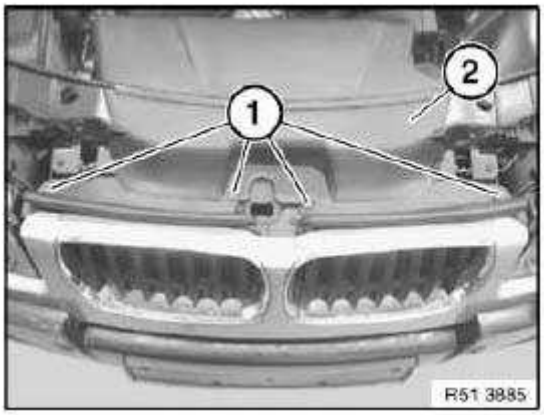


Fig. 29: Air Duct And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bumper trim (2).

Installation:

Height adjustment, refer to Gap dimensions, body.

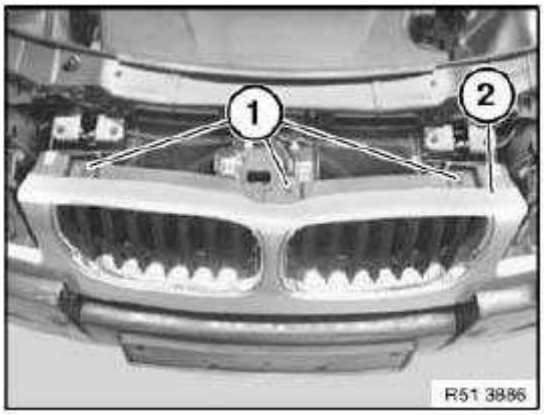


Fig. 30: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Release screws (2) on wheel arch cover.

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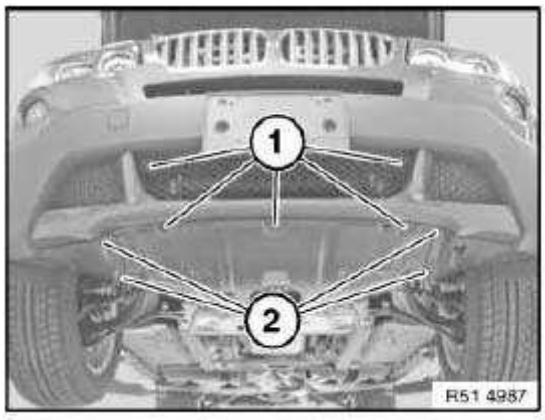


Fig. 31: Screws And Wheel Arch Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release retaining elements (1 to 3) on wheel arch cover (4).

Lever out wheel arch cover (4) at side.

Installation:

Make sure wheel arch cover (4) is in correct position.

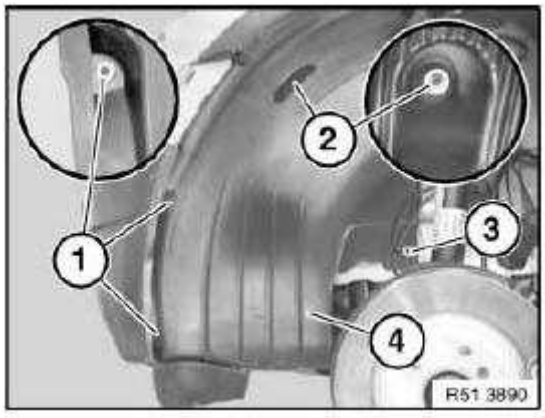


Fig. 32: Retaining Elements And Wheel Arch Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on bumper trim (2).

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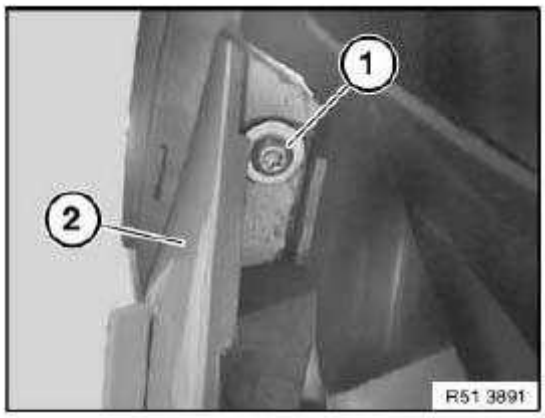


Fig. 33: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage bumper trim when pulling off.

Lever out bumper trim (1) with special tool 00 9 317 in direction of arrow.

Version without headlight cleaning system:

Pull bumper trim (1) forwards a little.

If necessary, disconnect plug connections on ultrasonic sensors and/or front fog lamps.

Remove bumper trim (1) towards front with aid of a 2nd person.

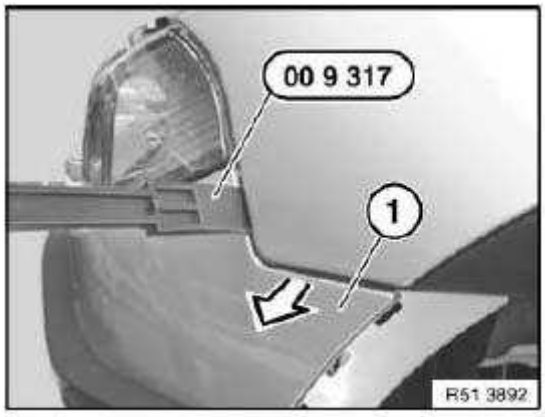


Fig. 34: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Version with headlight washer system:

NOTE: Have a rubber plug on hand.
Pull bumper trim (3) forwards a little.

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Unlock hose (1), detach and seal pump outlet (2).
Remove bumper trim (3) towards front with aid of a 2nd person.

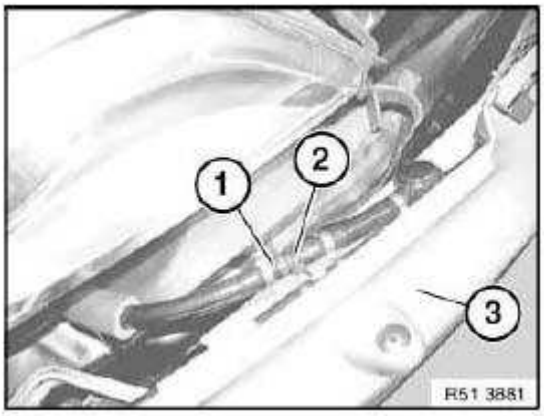


Fig. 35: Hose, Bumper Trim And Seal Pump Outlet
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tabs (1) on bumper trim (2) must not be damaged.

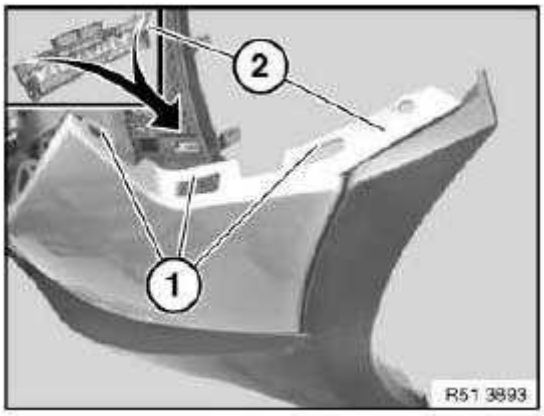


Fig. 36: Tabs And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM (UP TO 09/2006)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Release screws (1).

Remove air duct (2).

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Installation:

Make sure air duct (2) is in correct position.

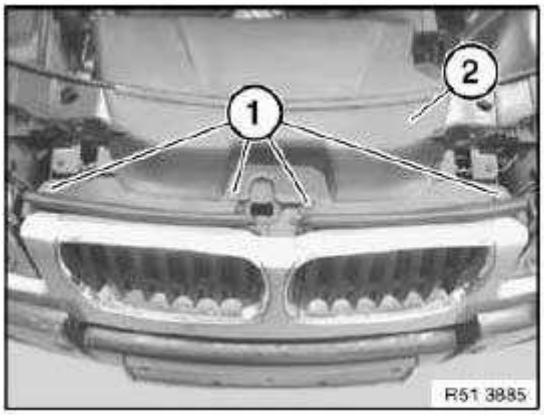


Fig. 37: Air Duct And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bumper trim (2).

Installation:

Height adjustment, refer to Gap dimensions, body.

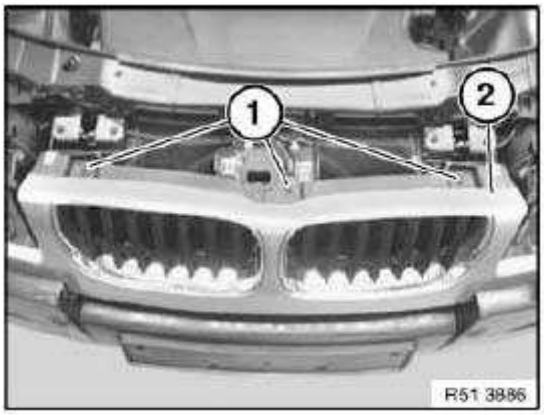


Fig. 38: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Lever trim (1) with special tool 00 9 317 out of bumper trim (2) in direction of arrow.

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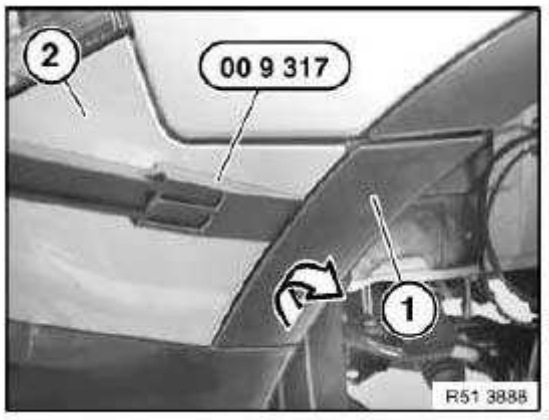


Fig. 39: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

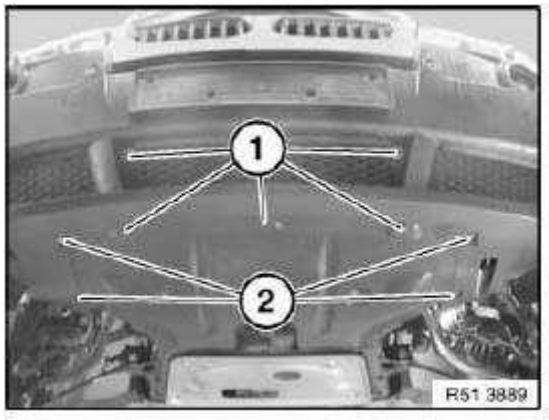


Fig. 40: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 to 3) on wheel arch trim (4).

Lever out wheel arch trim (4) at side.

Installation:

Make sure wheel arch trim (4) is in correct position.

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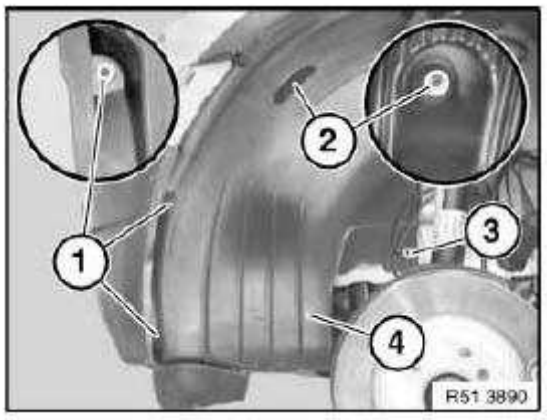


Fig. 41: Retaining Elements And Wheel Arch Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on bumper trim (2).

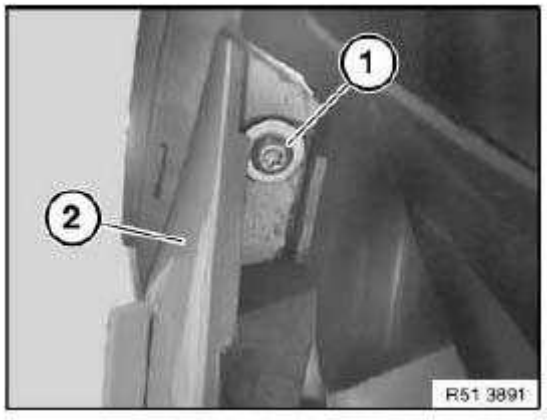


Fig. 42: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage bumper trim when pulling off.

Lever out bumper trim (1) with special tool 00 9 317 in direction of arrow.

Version without headlight cleaning system:

Pull bumper trim (1) forwards a little.

If necessary, disconnect plug connections on ultrasonic sensors and/or front fog lamps.

Remove bumper trim (1) towards front with aid of a 2nd person.

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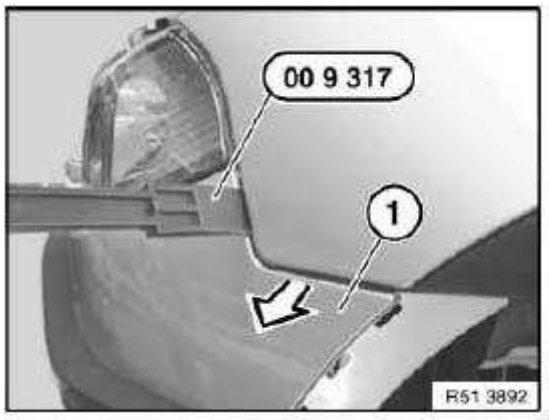


Fig. 43: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Version with headlight washer system:

NOTE: Have a rubber plug on hand.

Pull bumper trim (3) forwards a little.

Unlock hose (1), detach and seal pump outlet (2).

Remove bumper trim (3) towards front with aid of a 2nd person.

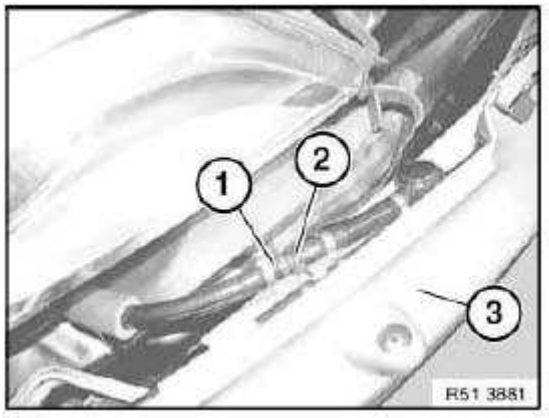


Fig. 44: Hose, Bumper Trim And Seal Pump Outlet
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tabs (1) on bumper trim (2) must not be damaged.

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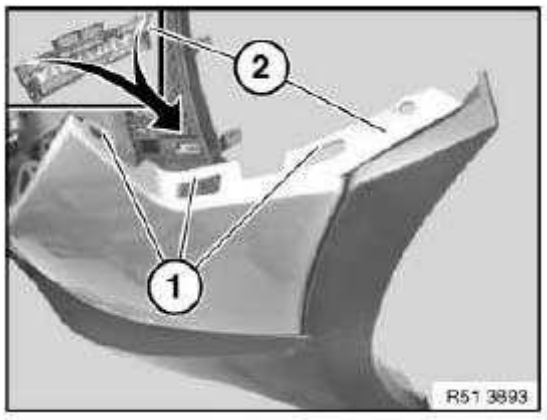


Fig. 45: Tabs And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 156 REMOVING AND INSTALLING/REPLACING FRONT BUMPER TRIM (M TECHNIC AERODYNAMIC KIT)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove both fog light trims, see **51 11 ... Removing and installing/replacing left or right front fog lamp trim (M Technic aerodynamic kit)**

Version with headlight washer system:

- Remove both covers for headlight washer system, see **51 11 ... Removing and installing/replacing cover for headlight washer system on left or right (from 09/2006)**

Release screws (1).

Remove air duct (2).

Installation:

Make sure air duct (2) is in correct position.

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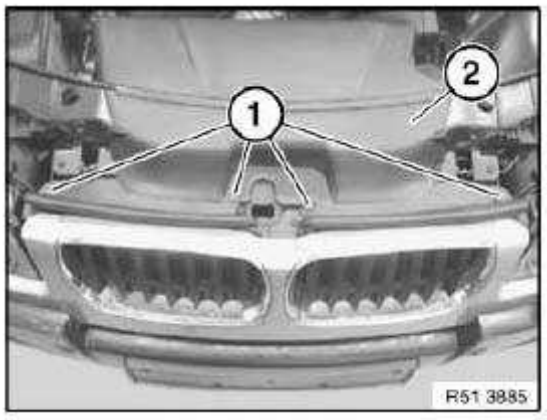


Fig. 46: Air Duct And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bumper trim (2).

Installation:

For adjustment, refer to Body gap dimensions.

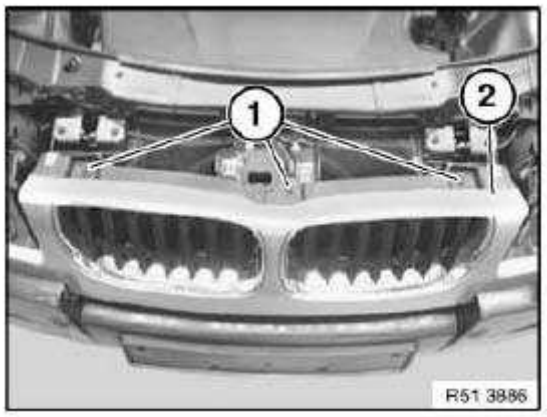


Fig. 47: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

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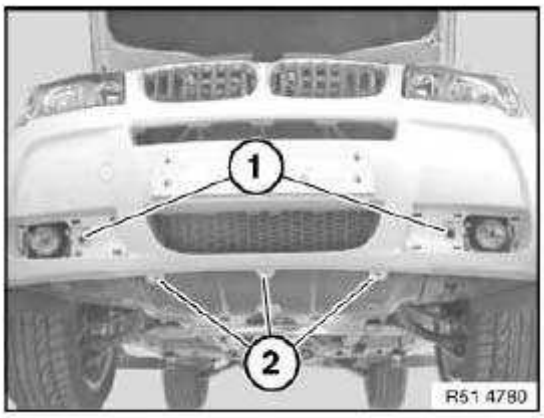


Fig. 48: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws or rivets (1 to 3) on wheel arch trim (4).

Lever out wheel arch trim (4) at side.

Installation:

Make sure wheel arch trim (4) is in correct position.

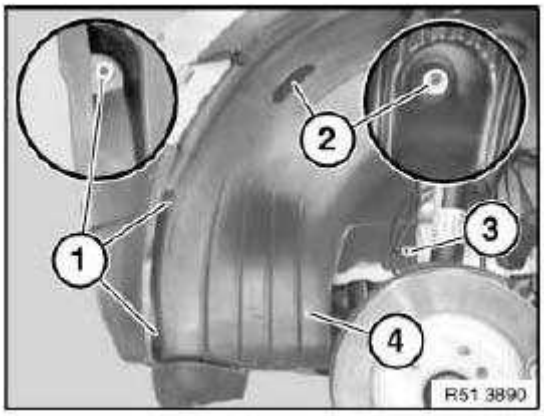


Fig. 49: Retaining Elements And Wheel Arch Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on bumper trim (2).

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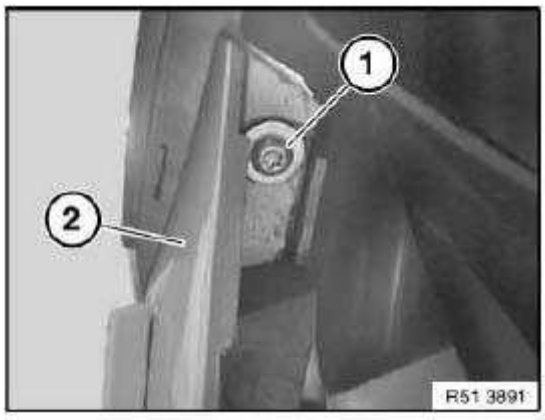


Fig. 50: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage bumper trim when pulling off.

Lever out bumper trim (1) with special tool 00 9 317 in direction of arrow.

Pull bumper trim (1) forwards a little.

If necessary, disconnect plug connections on ultrasonic sensors and/or front fog lamps.

Remove bumper trim (1) towards front with aid of a 2nd person.

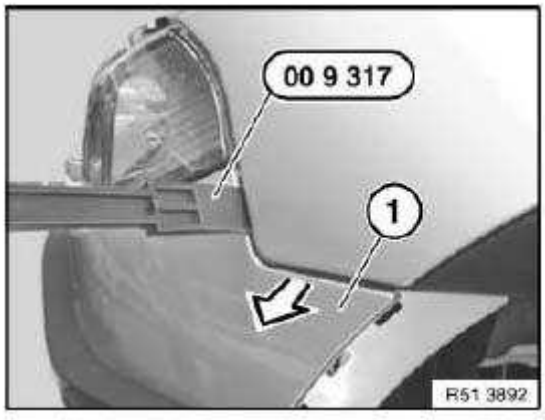


Fig. 51: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tabs (1) on bumper trim (2) must not be damaged.

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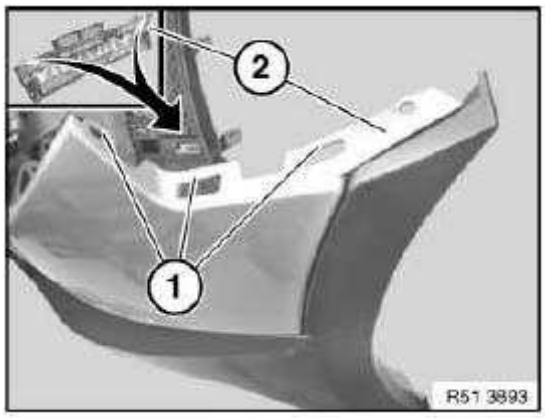


Fig. 52: Tabs And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 157 REPLACING FRONT BUMPER TRIM

Necessary preliminary tasks:

- Unscrew and remove license plate
- Remove holder for license plate, see **51 11 158 Replacing baseplate for license plate**
- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**
- Remove upper section of bumper trim, see **51 11 140 Removing and installing/replacing bumper trim upper section (from 09/2006)**
- Remove lower section of bumper trim, see **51 11 141 Removing and installing/replacing bumper trim lower section (from 09/2006)**

Build date from 09/2006:

- If necessary, remove side marker
- If necessary, remove spray nozzles
- If necessary, remove ultrasonic transducer

51 11 158 REPLACING BASEPLATE FOR LICENSE PLATE

Unscrew and remove license plate.

Release screws (1) and remove baseplate (2) for license plate.

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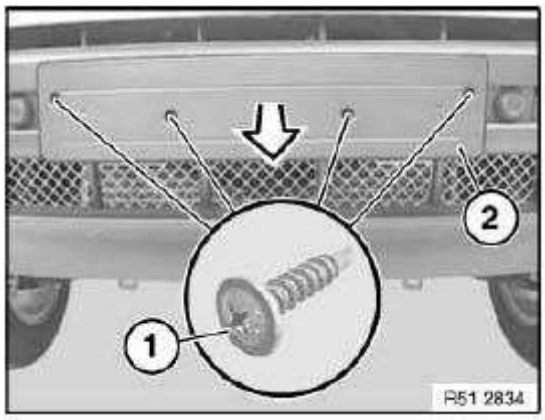


Fig. 53: Screws And Baseplate
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 180 REMOVING AND INSTALLING/REPLACING GRILLE IN BUMPER TRIM (M TECHNIC AERODYNAMIC KIT)

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Release catches (1) and remove grille (2).

Installation:

Catches (1) on bumper trim (3) must not be damaged.

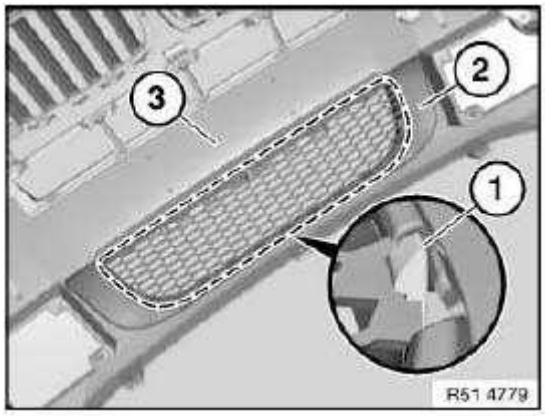


Fig. 54: Catches, Grille And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 180 REMOVING AND INSTALLING/REPLACING MIDDLE TRIM GRILLE IN BUMPER TRIM (UP TO 09/2006)

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Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Release catches (1) and remove grille (2).

Installation:

Catches (1) must not be damaged.

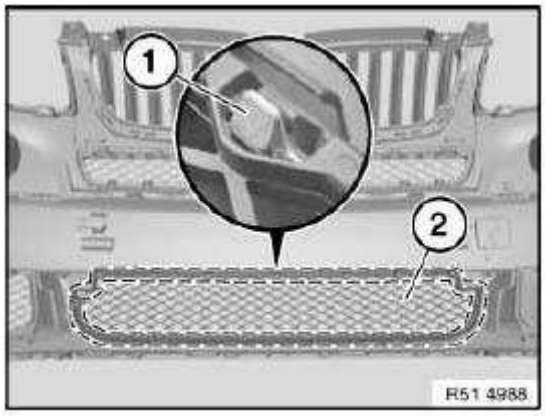


Fig. 55: Catches And Grille
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 180 REMOVING AND INSTALLING/REPLACING TRIM GRILLE FOR BUMPER TRIM (UP TO 09/2006)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Unhook grille (1) from bumper trim (2) with special tool 00 9 317 in direction of arrow.

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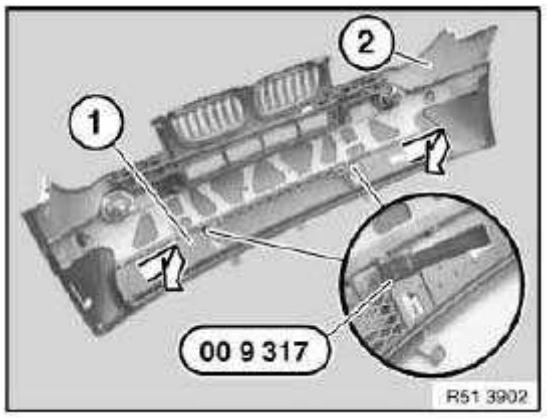


Fig. 56: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Hooks (1) of trim (2) must not be damaged.

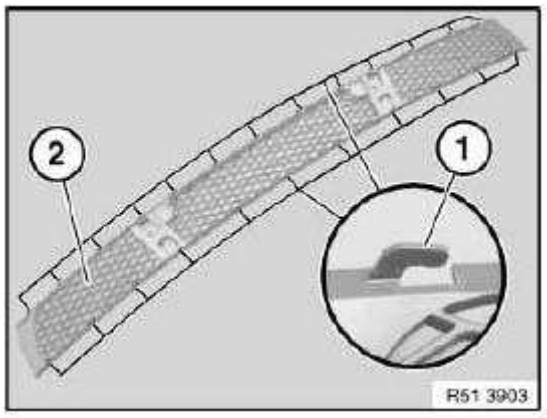


Fig. 57: Hooks And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 182 REMOVING AND INSTALLING/REPLACING UPPER GRILLE IN BUMPER TRIM (FROM 09/2006)

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Release catches (1) and remove grille (2).

Installation:

Catches (1) must not be damaged.

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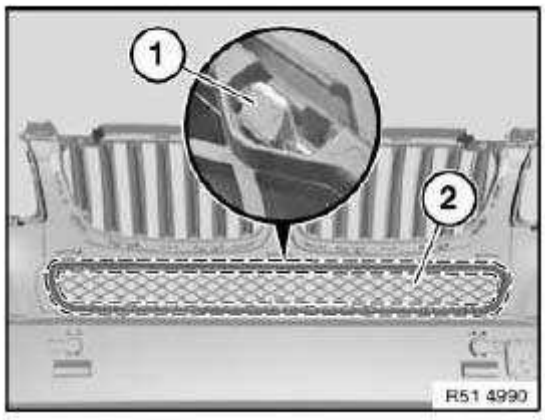


Fig. 58: Catches And Grille
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 185 REMOVING AND INSTALLING/REPLACING SIDE GRILLE IN BUMPER TRIM (FROM 09/2006)

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Release catches (1) and remove grille (2).

Installation:

Catches (1) must not be damaged.

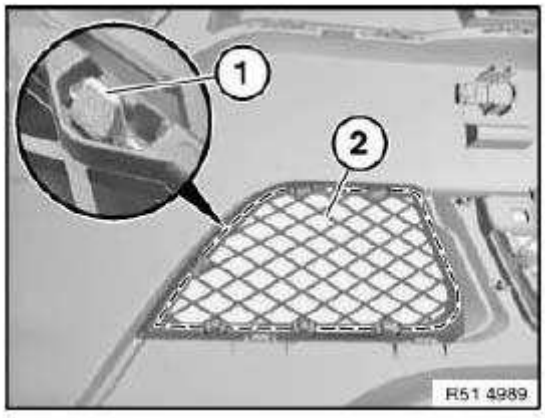


Fig. 59: Catches And Grille
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 701 REPLACING LEFT OR RIGHT BRACKET FOR FRONT BUMPER

Necessary preliminary tasks:

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- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Version with M Technic aerodynamic kit:

- Remove headlight bracket, see **51 11 710 Removing and installing/replacing left or right headlight bracket (M Technic aerodynamic kit)**

Release screws (1) and feed out and remove bracket (2) in direction of arrow.

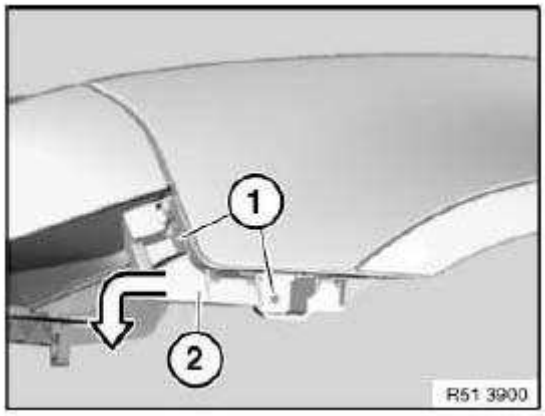


Fig. 60: Screws And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on bracket (2) must not be damaged.

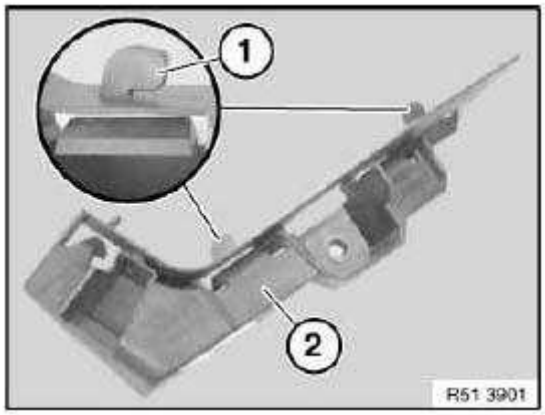


Fig. 61: Guides And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 710 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT HEADLIGHT BRACKET (M TECHNIC AERODYNAMIC KIT)

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Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Version with headlight washer system:

- Remove high-pressure nozzle, see **61 67 083 REMOVING AND INSTALLING/REPLACING HIGH - PRESSURE NOZZLE OF LEFT OR RIGHT HEADLIGHT WASHER SYSTEM (M AERODYNAMIC KIT)**

Release screws (1) and remove bracket (2).

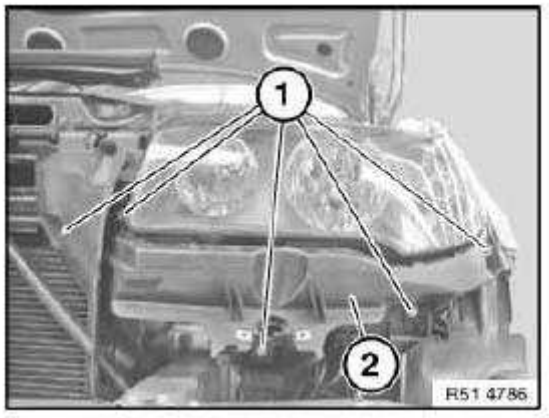


Fig. 62: Screws And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 770 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT DEFORMATION ELEMENT FOR FRONT BUMPER

Necessary preliminary tasks:

- Remove carrier for bumper trim at front, see **51 11 050 Removing and installing / replacing carrier for front bumper trim**

Release screws (1).

Feed air duct (2) out of tension strut (3).

Installation:

Make sure air duct (2) is in correct position.

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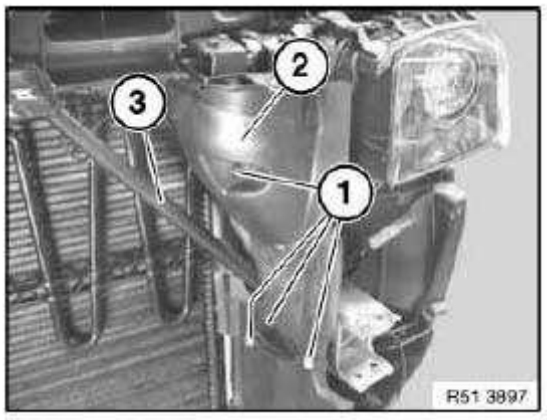


Fig. 63: Air Duct And Tension Strut
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on deformation element (2).

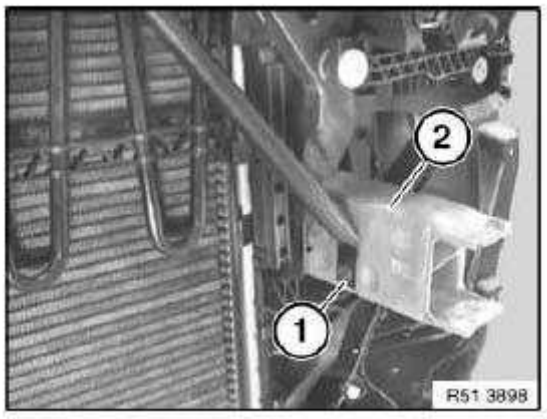


Fig. 64: Screw And Deformation Element
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: For height adjustment, mark position of deformation element (4).

Release bolts (1) on supplementary cooler bracket.

Release bolts (2).

Release nuts (3) and remove deformation element (4).

Installation:

Height adjustment, refer to Gap dimensions, body.

Tightening torque: 51 11 6AZ, see **51 11 FRONT BUMPER**

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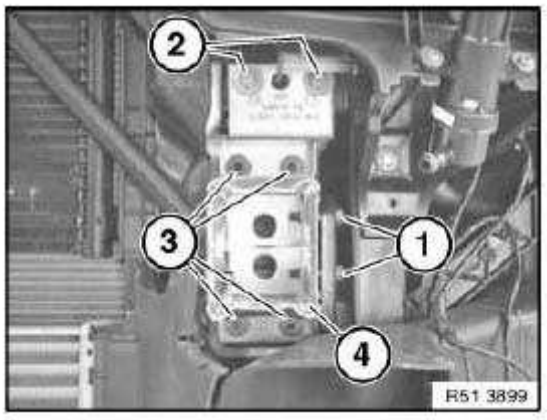
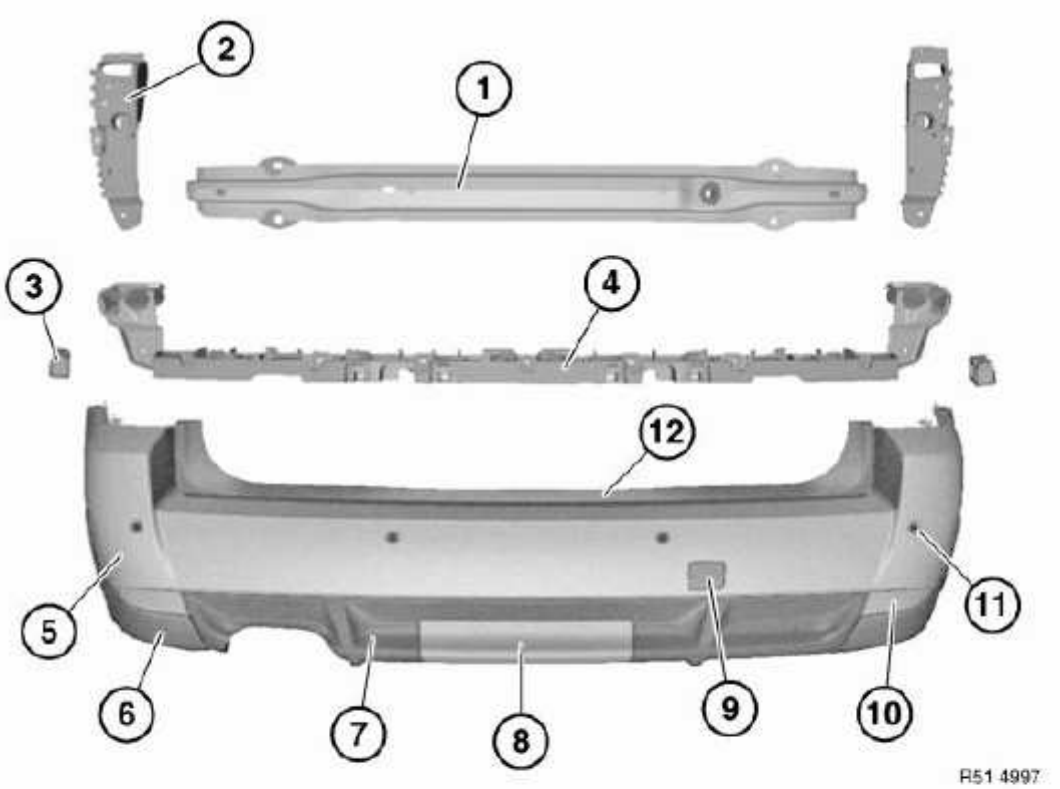


Fig. 65: Nuts, Bolts And Deformation Element
Courtesy of BMW OF NORTH AMERICA, INC.

12 REAR BUMPER

51 12 ... OVERVIEW OF REAR BUMPER (FROM 09/2006)

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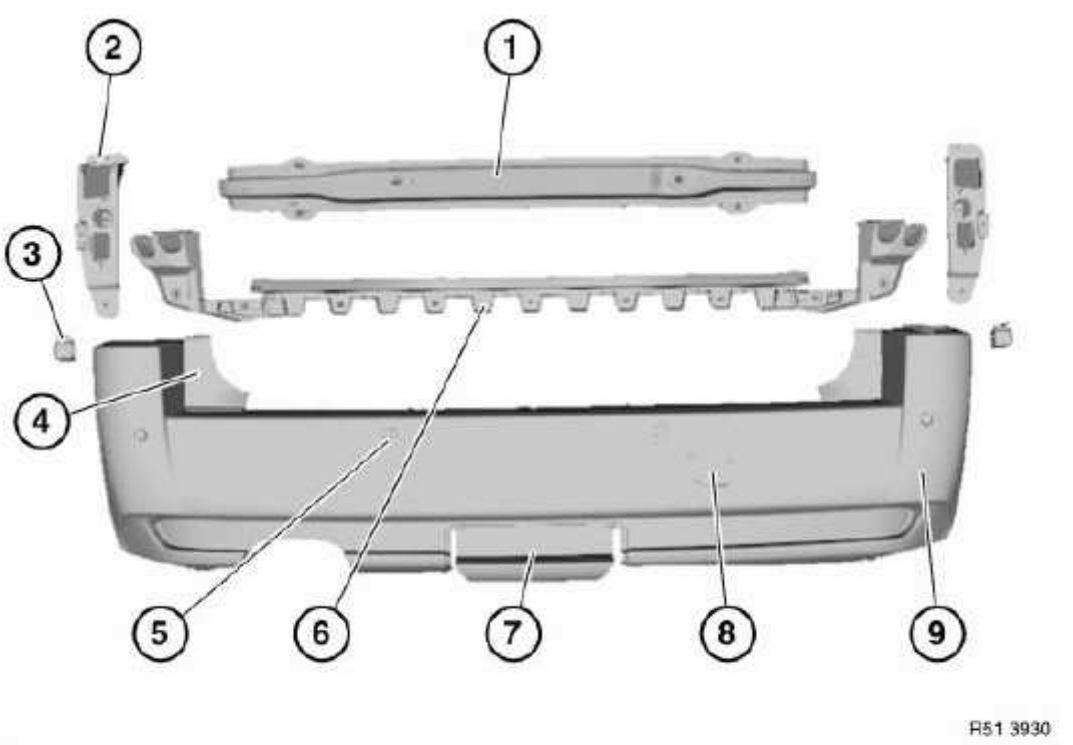


1	Carrier	7	Trim, rear
2	Holder, side	8	Cover, trailer tow hitch
3	Guide, side	9	Cover on towing eye
4	Guide, middle	10	Reflector
5	Bumper trim	11	Ultrasonic transducer
6	Trim, side	12	Trim, loading sill

Fig. 66: Rear Bumper (From 09/2006) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 ... OVERVIEW OF REAR BUMPER (UP TO 09/2006)

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1	Carrier, rear	6	Guide, middle
2	Holder, side	7	Cover, trailer tow hitch
3	Guide, side	8	Cover on towing eye
4	Cover/trim, loading sill	9	Bumper trim, rear
5	Ultrasonic transducer, rear		

Fig. 67: Rear Bumper (Up To 09/2006) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 ... REMOVING AND INSTALLING/REPLACING DIFFUSER ON REAR BUMPER TRIM (M TECHNIC AERODYNAMIC KIT)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing/replacing rear bumper trim (M Technic aerodynamic kit)**

Release catches (1) on reverse side of bumper trim (2) with special tool 00 9 317 and remove diffuser (3).

Installation:

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Catches (1) must not be damaged.

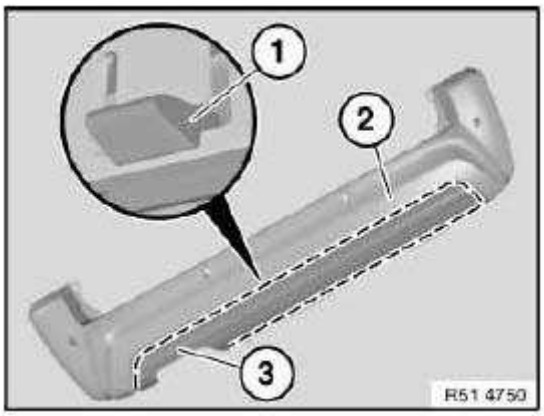


Fig. 68: Catches And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, remove rear reflector.

Version with trailer coupling:

Remove rib (1) from diffuser (2) with diagonal cutting pliers.

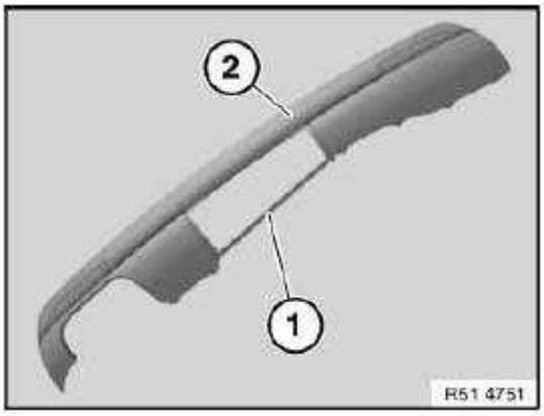


Fig. 69: Rib And Diffuser
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 ... REMOVING AND INSTALLING/REPLACING TRIM FOR BUMPER TRIM AT REAR

Special tools required:

- 00 9 322 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

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Necessary preliminary tasks:

- Remove both rear reflectors

Release clip (1) on left/right.

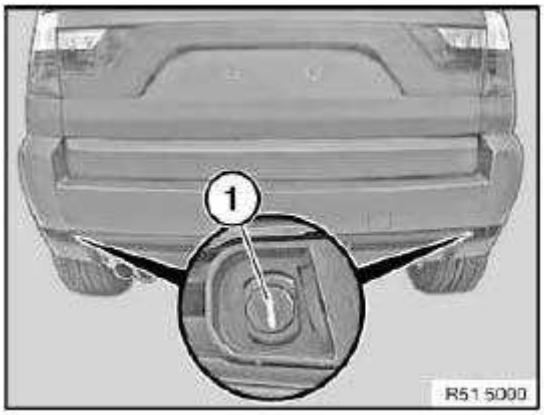


Fig. 70: Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Release trim (1) at catches (2).

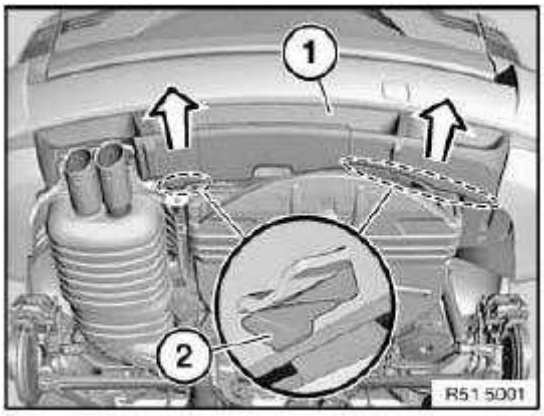


Fig. 71: Trim And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 00 9 322 between trim (1) and bumper trim (2) and press down catches (3).

Unclip trim (1) towards rear.

Pull trim (1) towards rear slightly and release all further catches (3) with special tool 00 9 322.

Installation:

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Catches (3) must not be damaged.

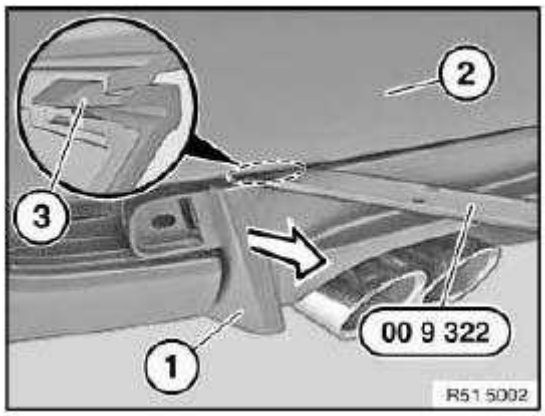


Fig. 72: Special Tool (00 9 322)
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 ... REMOVING AND INSTALLING/REPLACING TRIM ON LOADING SILL FOR REAR BUMPER (M TECHNIC AERODYNAMIC KIT)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Unclip trim (1) over entire length with special tool 00 9 317 towards top and remove towards rear.

Installation:

If necessary, replace faulty retainers (2).

Install trim (1) with fitted retainers (2).

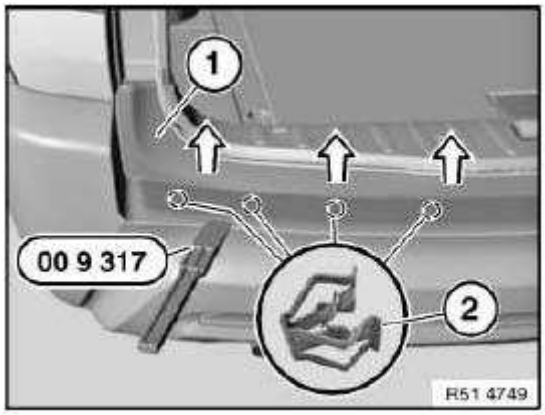


Fig. 73: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

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51 12 050 REMOVING AND INSTALLING / REPLACING CARRIER FOR REAR BUMPER TRIM

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Release nuts (1) on left and right.

Remove carrier (2).

Tightening torque: 51 12 3AZ, see **51 12 REAR BUMPER**

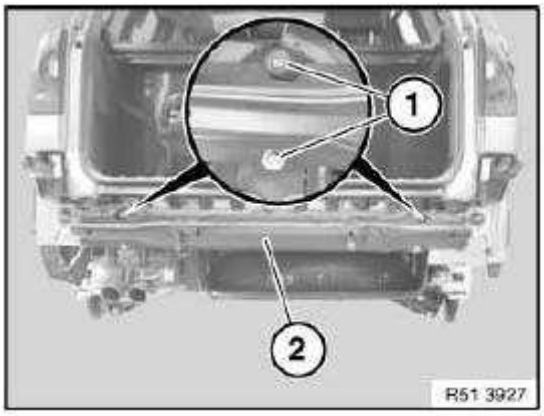


Fig. 74: Carrier And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 080 REMOVING AND INSTALLING/REPLACING TRIM ON LOADING SILL FOR REAR BUMPER (FROM 09/2006)

NOTE: Trim (1) is if necessary secured to bumper with double-sided adhesive tape (3).

Lever out trim (1) from bumper (2).

Installation:

Make sure trim (1) is correctly seated on bumper (2).

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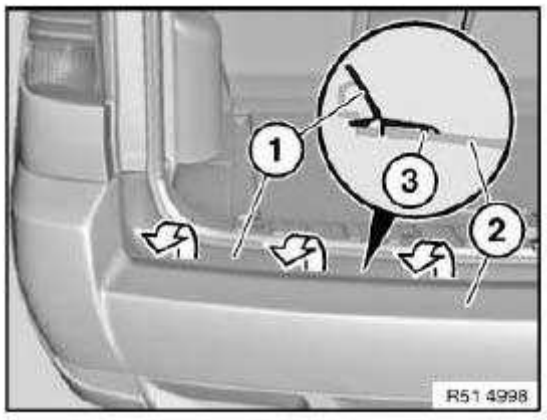


Fig. 75: Trim And Bumper
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Engage trim (1) in bumper (2).

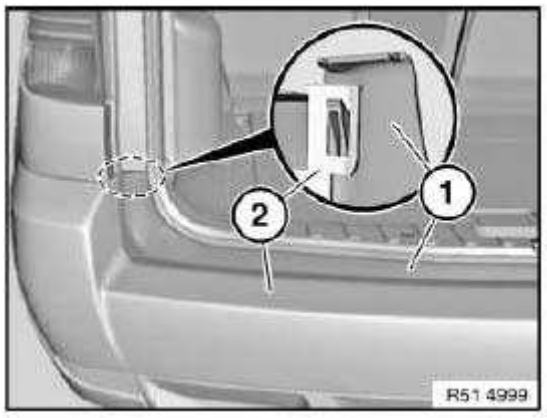


Fig. 76: Trim And Bumper
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 156 REMOVING AND INSTALLING REAR BUMPER TRIM (FROM 09/2006)

Necessary preliminary tasks:

- Remove trim on loading sill, see **51 12 080 Removing and installing/replacing trim on loading sill for rear bumper (from 09/2006)**

Release screws (1) on bumper trim (2).

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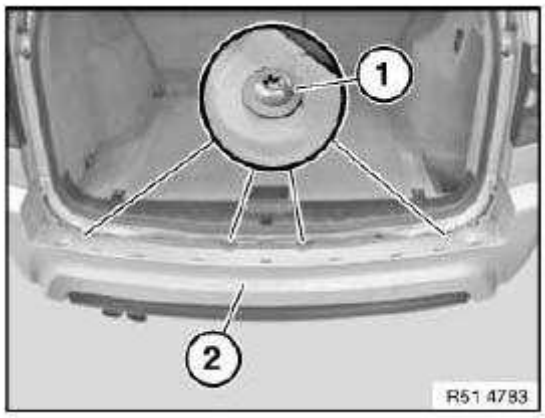


Fig. 77: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and nut (2) on left and right.

Installation:

Make sure wheel arch trim (3) is in correct position.

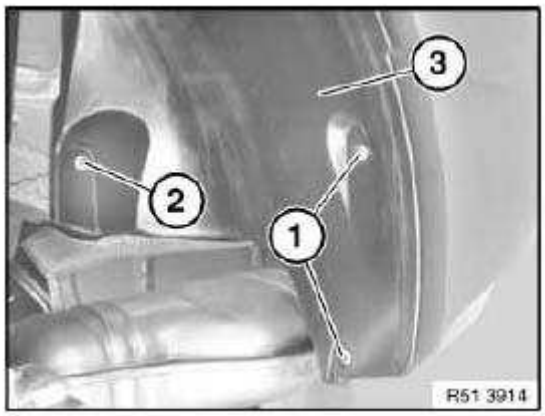


Fig. 78: Screws, Nut And Wheel Arch Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Press wheel arch trim slightly to one side and release screw (1) on bumper trim (2) on left and right.

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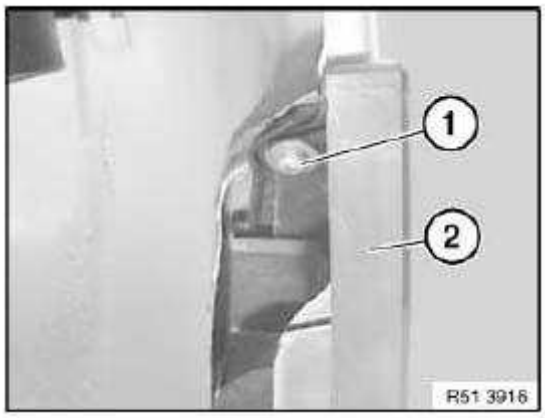


Fig. 79: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bracket (2).

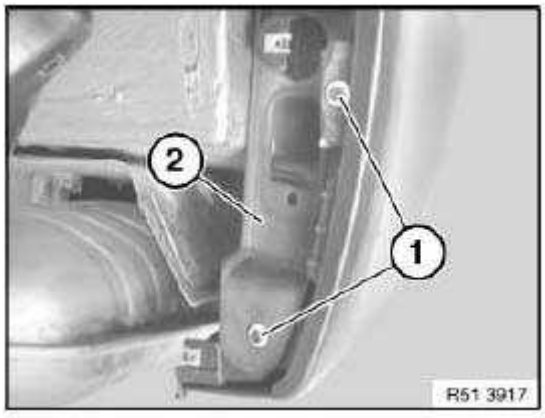


Fig. 80: Screws And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Release nuts (2) and feed bracket out of stud.

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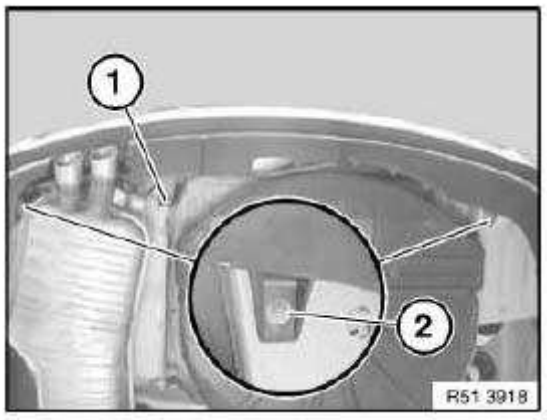


Fig. 81: Nut And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not detach bumper trim (1) at sides in outward direction.

Pull off bumper trim (1) for side panel in direction of arrow.

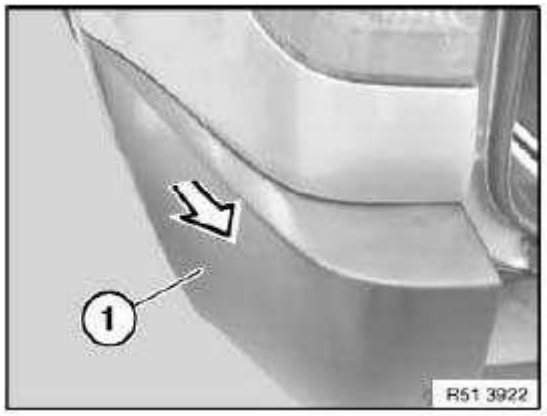


Fig. 82: Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out bumper trim (1) in direction of arrow and remove with aid of a 2nd person.

NOTE: Version with Park Distance Control:

If necessary, pull off bumper trim (1) a little and disconnect plug connections of ultrasonic transducers.

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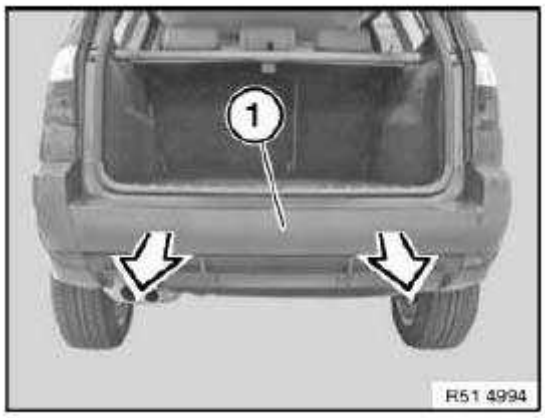


Fig. 83: Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 156 REMOVING AND INSTALLING REAR BUMPER TRIM (UP TO 09/2006)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Release screws (1) and nuts (2).

Installation:

Make sure wheel arch trim (3) is in correct position.

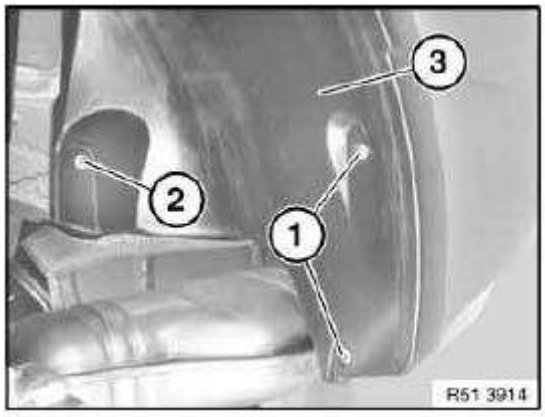


Fig. 84: Screws, Nut And Wheel Arch Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Press wheel arch trim slightly to one side and release screw (1) on bumper trim (2).

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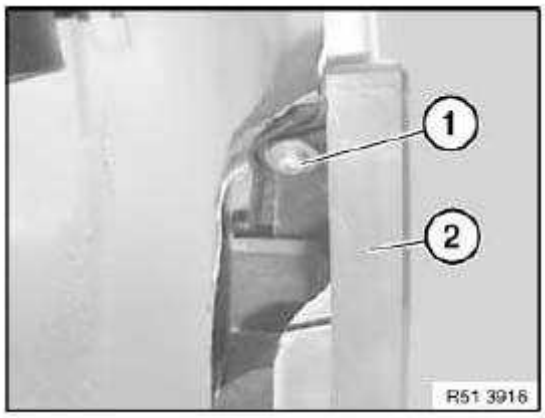


Fig. 85: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bracket (2).

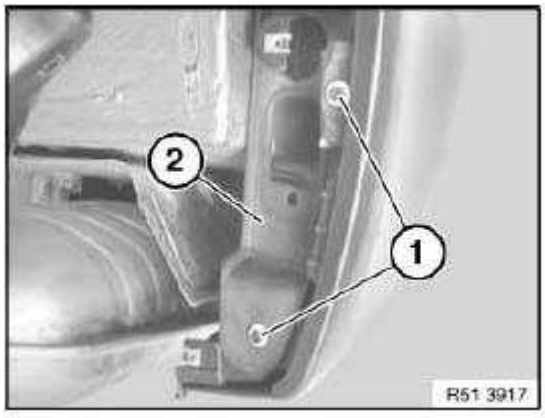
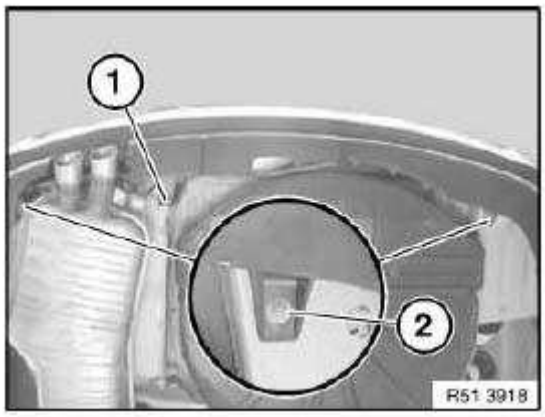


Fig. 86: Screws And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) and nuts (2).



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Fig. 87: Nut And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out trim (1) with special tool 00 9 317 in direction of arrow.

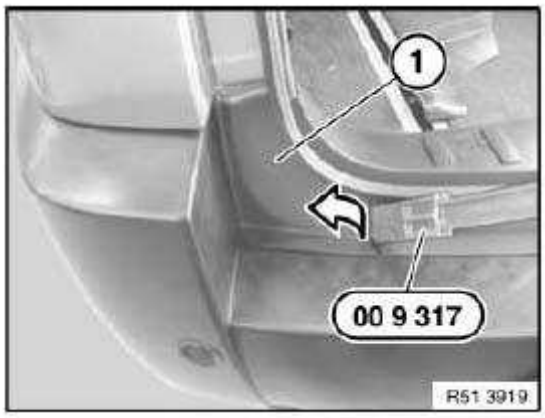


Fig. 88: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catch (1) and guides (2) of trim (3) must not be damaged.

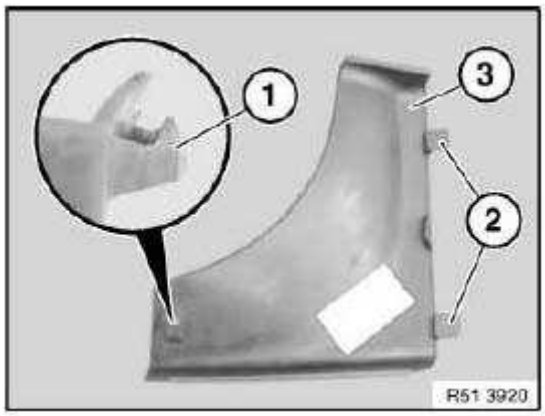


Fig. 89: Catch, Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on bumper trim (2) on left and right.

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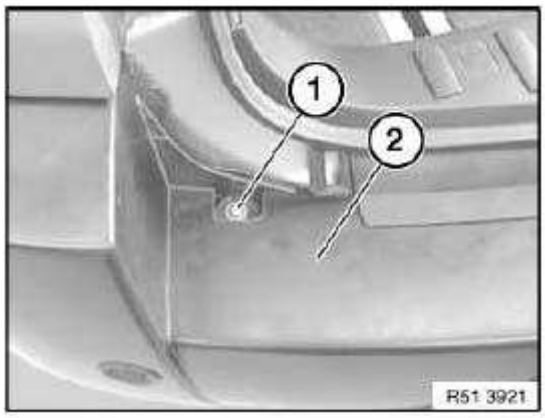


Fig. 90: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not detach bumper trim (1) at sides in outward direction.

Pull off bumper trim (1) for side panel in direction of arrow.

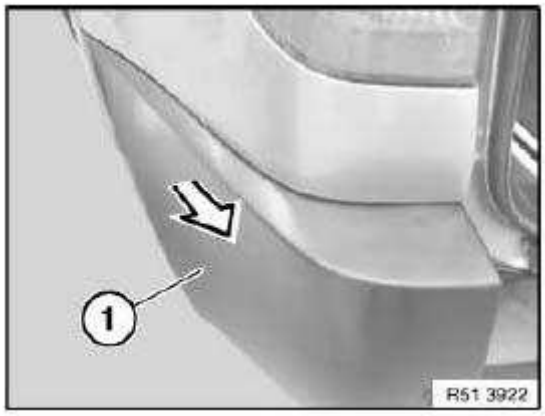


Fig. 91: Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out bumper trim (1) in direction of arrow and remove with aid of a 2nd person.

NOTE: Version with Park Distance Control:
If necessary, pull bumper trim off a little and disconnect plug connections of ultrasonic transducers (2).
Remove bumper trim (1) with aid of a second person.

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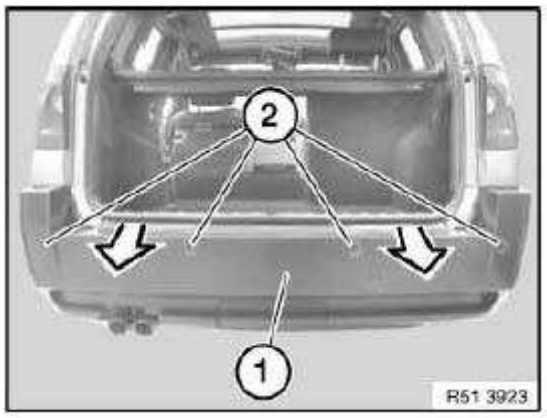


Fig. 92: Ultrasonic Transducers And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 156 REMOVING AND INSTALLING/REPLACING REAR BUMPER TRIM (M TECHNIC AERODYNAMIC KIT)

Necessary preliminary tasks:

- Remove trim on loading sill, see **51 12 080 Removing and installing/replacing trim on loading sill for rear bumper (from 09/2006)**

Release screws (1) on bumper trim (2).

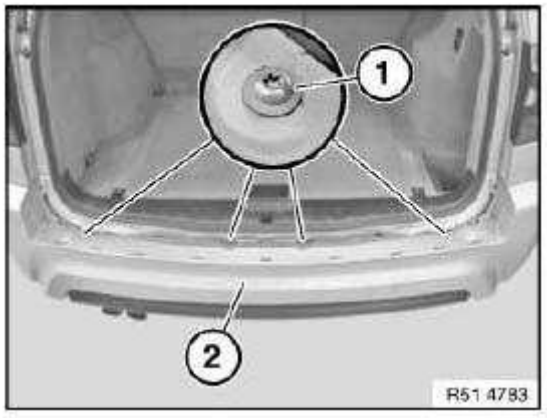


Fig. 93: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and nut (2) on left and right.

Installation:

Make sure wheel arch trim (3) is in correct position.

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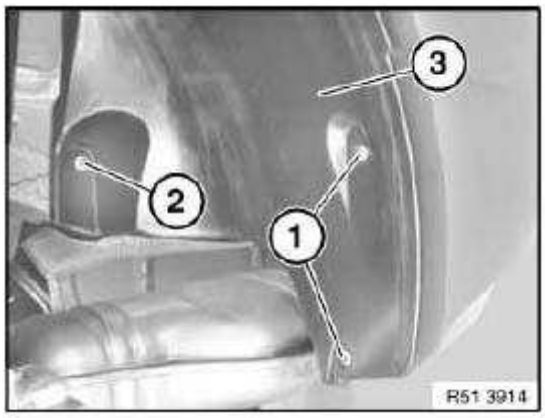


Fig. 94: Screws, Nut And Wheel Arch Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Press wheel arch trim slightly to one side and release screw (1) on bumper trim (2) on left and right.

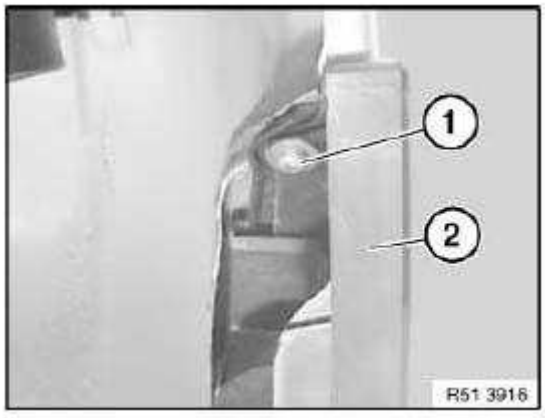
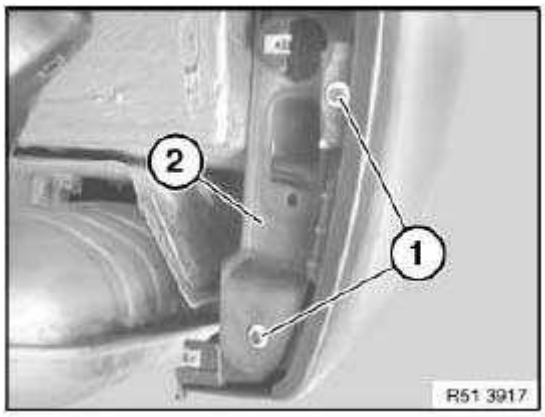


Fig. 95: Screw And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on bracket (2).



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Fig. 96: Screws And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Release nuts (2) and feed bracket out of stud.

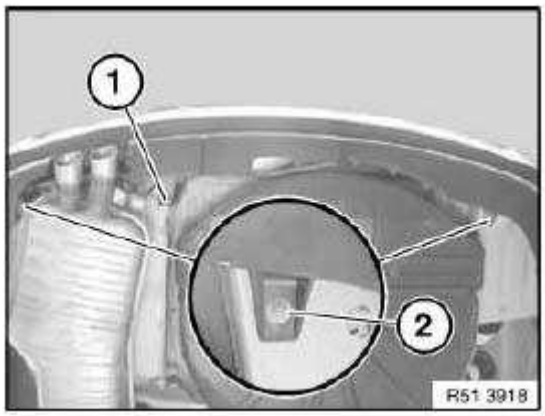


Fig. 97: Nut And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not detach bumper trim (1) at sides in outward direction.

Pull off bumper trim (1) for side panel in direction of arrow.

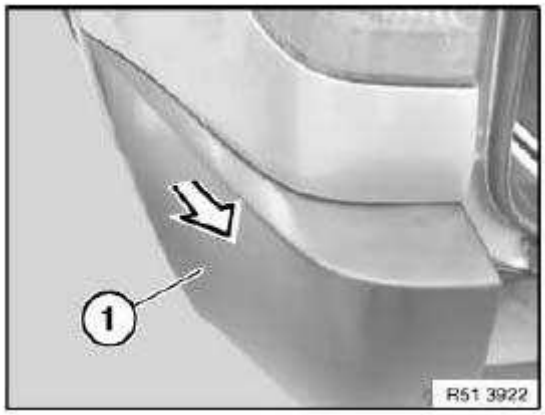


Fig. 98: Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out bumper trim (1) in direction of arrow and remove with aid of a 2nd person.

NOTE: Version with Park Distance Control:
If necessary, pull off bumper trim (1) a little and disconnect plug connections of

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ultrasonic transducers (2).

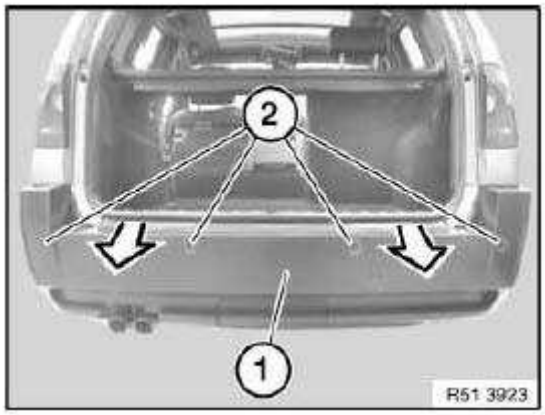


Fig. 99: Ultrasonic Transducers And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 157 REPLACING REAR BUMPER TRIM

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing rear bumper trim (from 09/2006)**

Version with M Technic aerodynamic kit:

- Remove diffuser, see **51 12 ... Removing and installing/replacing diffuser on rear bumper trim (M Technic aerodynamic kit)**

Build date from 09/2006:

- Remove trims on left and right, see **51 12 185 Removing and installing/replacing trim for bumper trim on left or right**
- Remove rear trim, see **51 12 ... Removing and installing/replacing trim for bumper trim at rear**

Remove cover cap (1) for tow lug.

If necessary, remove flap for towing hitch (2)

Version with Park Distance Control (PDC):

Remove all ultrasonic transducers (3).

Build date up to 09/2006: Remove locators (4) and spacer rings (5).

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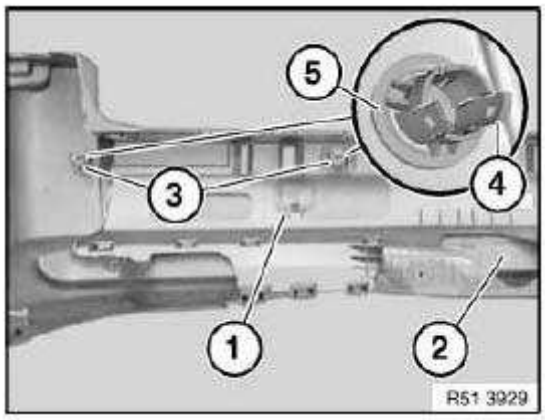


Fig. 100: Cover Cap, Towing Hitch, Locators And Spacer Rings
Courtesy of BMW OF NORTH AMERICA, INC.

Version with PDC up to build date 09/2006:

Cut out openings for ultrasonic sensors (1) on lower section of bumper trim (2) at moldings.

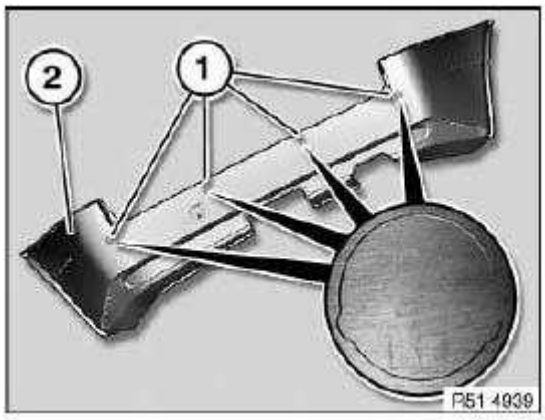


Fig. 101: Ultrasonic Sensors And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, remove impact absorber (1).

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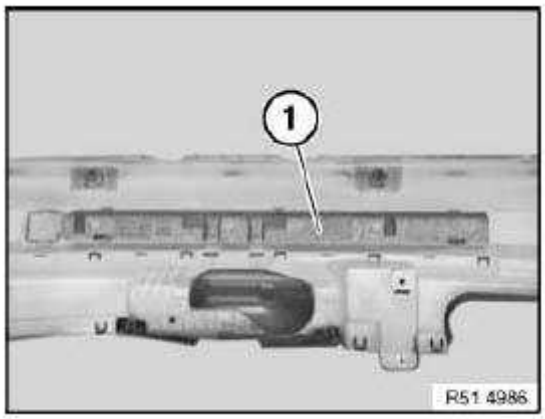


Fig. 102: Impact Absorber
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 185 REMOVING AND INSTALLING/REPLACING TRIM FOR BUMPER TRIM ON LEFT OR RIGHT

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing rear bumper trim (from 09/2006)**
- Remove rear reflector

Release clip (1).

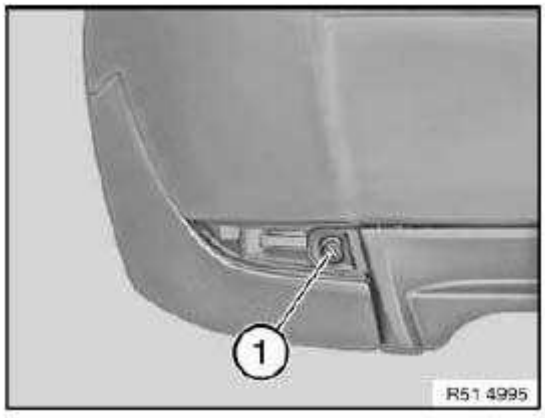


Fig. 103: Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Release catches (1) and remove trim (2).

Installation:

Catches (1) must not be damaged.

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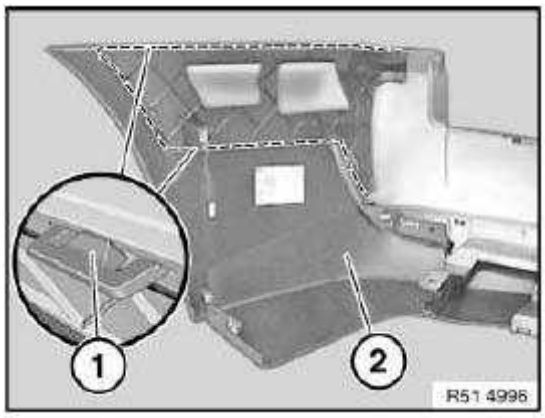


Fig. 104: Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 801 REPLACING BRACKET FOR REAR BUMPER AT LEFT OR RIGHT

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing rear bumper trim (from 09/2006)**

If necessary, disconnect plug connection at RDC trigger transmitter.

Release screw (1) and remove bracket (2).

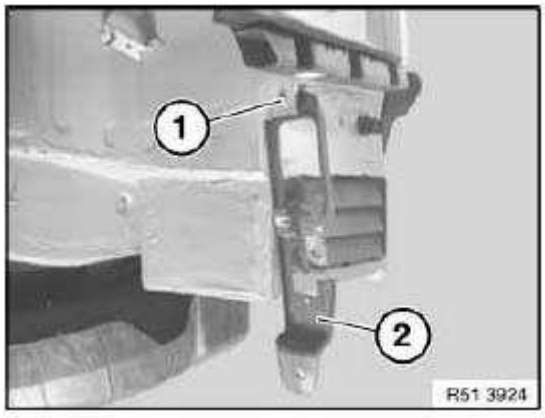


Fig. 105: Screw And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty metal nuts (1) on bracket (2).

Replacement:

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If necessary, remove RDC trigger transmitter.

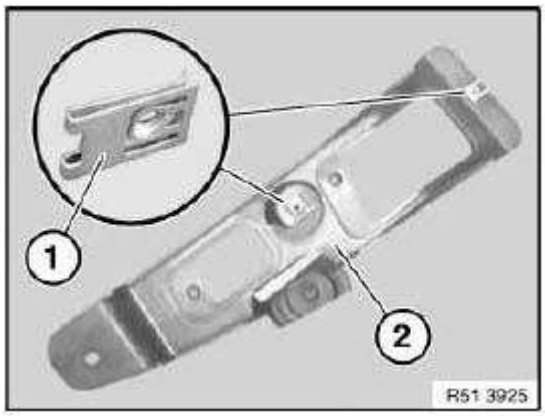


Fig. 106: Metal Nuts And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 825 REMOVING AND INSTALLING/REPLACING GUIDE FOR REAR CENTER BUMPER

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing rear bumper trim (from 09/2006)**

Version with Park Distance Control:

If necessary, release cable holders (1) and lay cable to one side.

Unfasten screws (2).

Remove guide (3).

Installation:

If necessary, replace damaged cable straps (1).

Tightening torque: 51 12 10AZ, see **51 12 REAR BUMPER**

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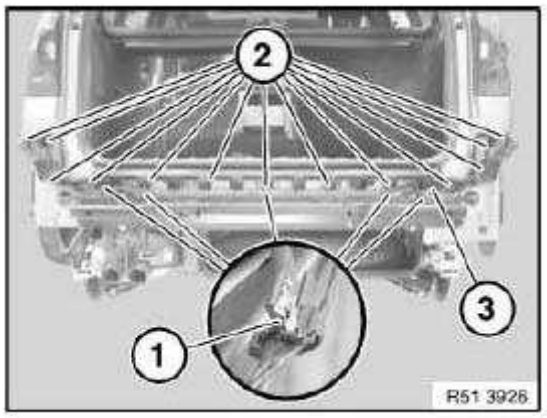


Fig. 107: Cable Straps, Guide And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 828 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT GUIDE FOR REAR BUMPER

Necessary preliminary tasks:

- Remove rear bumper trim, see **51 12 156 Removing and installing rear bumper trim (from 09/2006)**

Release screws (1).

Remove guide (2).

Tightening torque: 51 12 9AZ, see **51 12 REAR BUMPER**

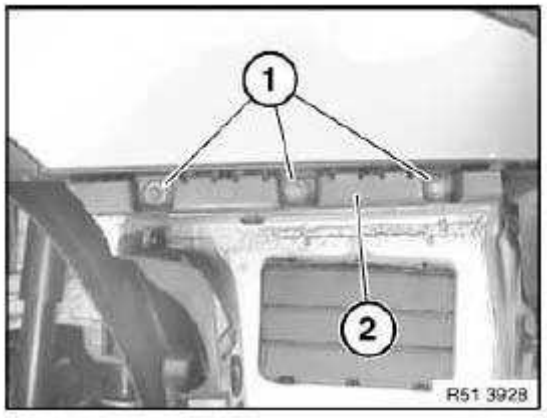


Fig. 108: Guide And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

13 TRIM, COVERS, HANDLE TRIM

51 13 ... REPLACING FRONT RADIATOR GRILL, MIDDLE LEFT OR RIGHT

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NOTE: Representation created using the E85 as an example. There may be differences in detail in the case of other vehicle models.

Lever out upper catches (3) and separate inner section (2) from chrome ring (1).

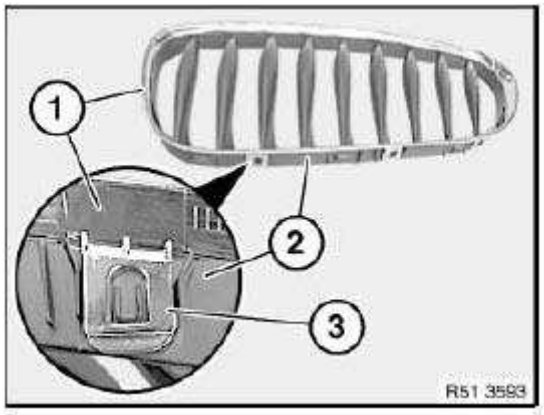


Fig. 109: Upper Catches And Chrome Ring
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check inner section (1) for damage.

Retaining lugs (3) and (4) along line (2) must not be damaged.

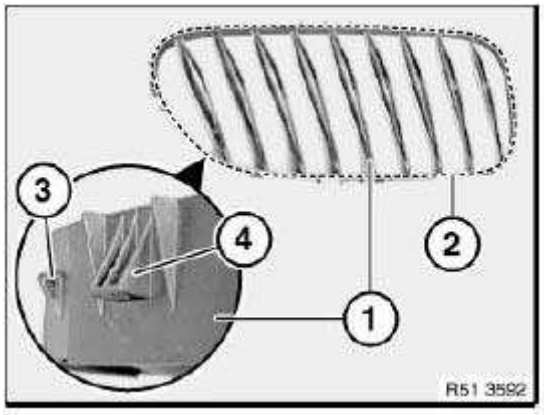


Fig. 110: Lugs And Inner Section
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check chrome ring (1) for damage.

Catches (4) and guides (3) along line (2) must not be damaged.

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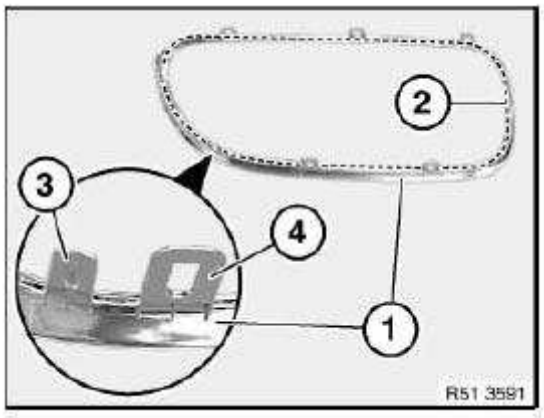


Fig. 111: Catches, Chrome Ring And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Assemble chrome ring (1) and inner section (2).

Make sure catch (3) is correctly assembled.

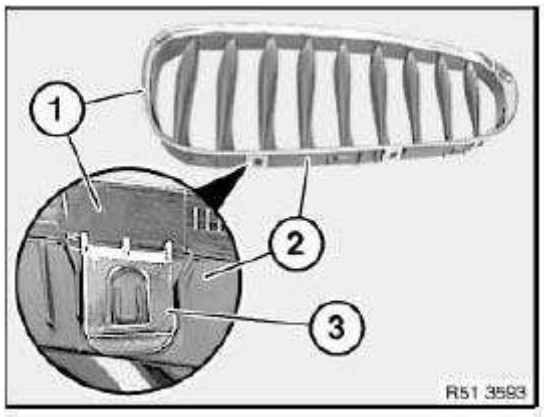


Fig. 112: Upper Catches And Chrome Ring
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 001 REMOVING AND INSTALLING/REPLACING FRONT RADIATOR GRILLE, MIDDLE LEFT OR RIGHT

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**

Lever out catches (1) and (2) and remove front grille (3) towards front.

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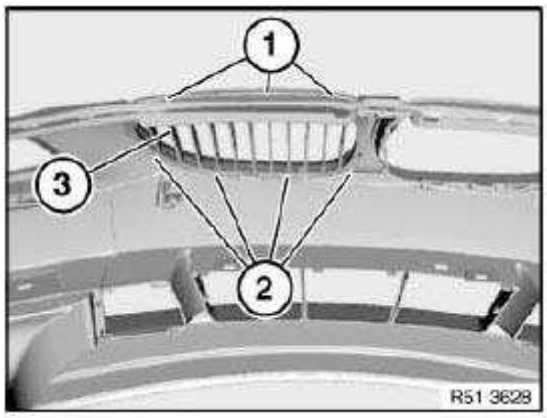


Fig. 113: Catches And Front Grille
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

All catches and guides on front grille (2) must not be damaged.

Press on chrome ring to push front radiator grille (2) into bumper trim.

Fixtures (1) must engage correctly.

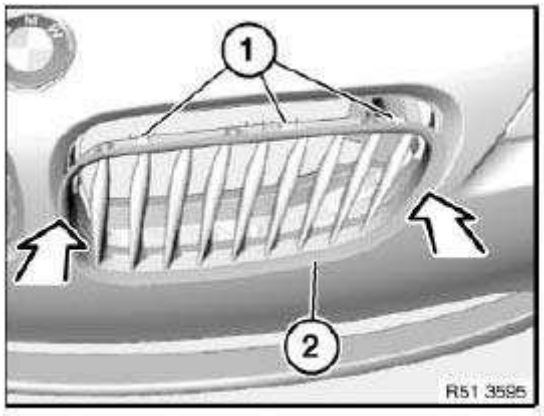


Fig. 114: Radiator Grille And Fixtures
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

- Replace front radiator grille, middle left or right, see **51 13 ... Replacing front radiator grill, middle left or right**

51 13 115 REMOVING AND INSTALLING/REPLACING COWL PANEL COVER

Necessary preliminary tasks:

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- Remove both windscreen wiper arms, see **61 61 100 REMOVING AND INSTALLING/REPLACING BOTH WINDSCREEN WIPER ARMS**
- Remove microfilter for passenger compartment ventilation, see **64 31 010 REPLACING MICROFILTER FOR INTERIOR VENTILATION**

Unclip cover (1) on cowl panel.

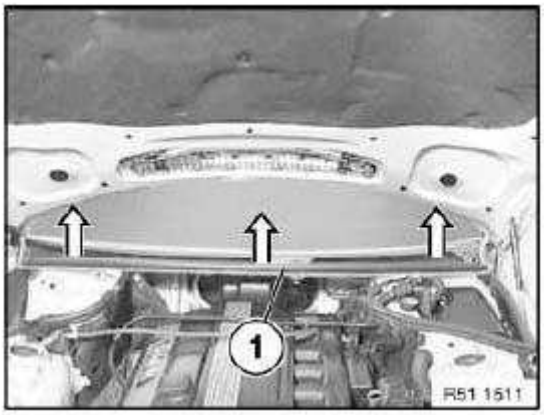


Fig. 115: Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1) on cover (3).

Ensure retainers (2) are correctly seated.

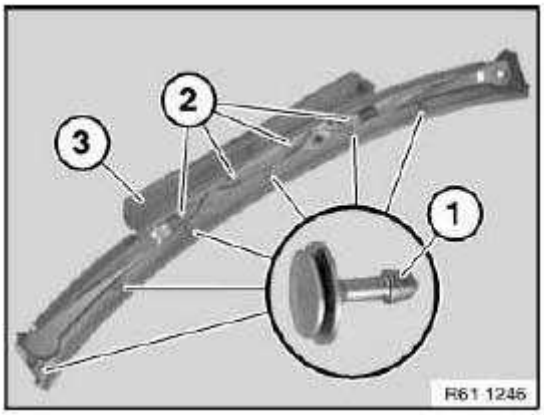


Fig. 116: Clips And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, remove seal (1) from cover (2) for cowl panel.

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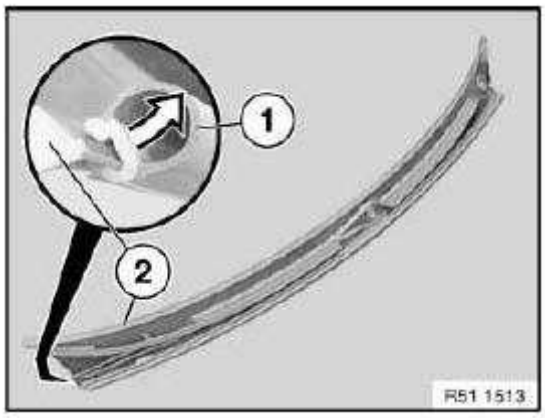


Fig. 117: Seal And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 280 REMOVING AND INSTALLING/REPLACING TRIM STRIP ON ROOF FRAME AT LEFT OR RIGHT

Special tools required:

- 00 9 321 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- If necessary, remove railing, see **51 13 305 Removing and installing/replacing left or right rail**

Lever out trim strip (1) with special tool 00 9 321 starting at rear.

Unclip trim strip (1) up to front and if necessary pull out of seal (2) towards rear.

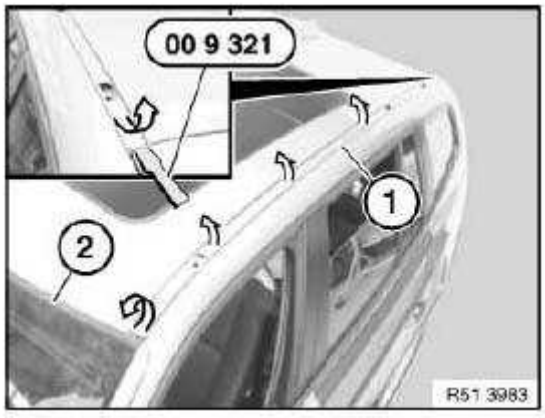


Fig. 118: Special Tool (00 9 321)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Catches (1) of clips (2) must not be damaged.

If necessary, replace clips (2).

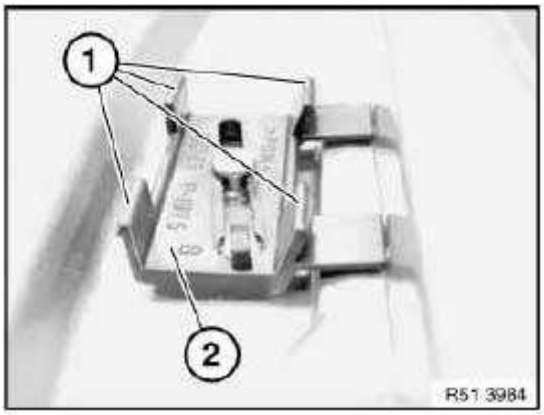


Fig. 119: Catches And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of trim strip (3) must not be damaged or missing:

1. Seals
2. End piece, front/rear

Replacement:

Moisten seals (1) with water and slide into trim strip (3).

Fit end pieces (2) at front and rear.

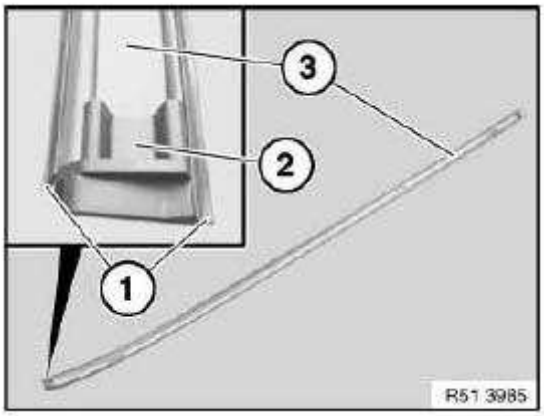


Fig. 120: Seals And Trim Strip
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

E83 only: Push trim strip (2) at front into seal (1).

Trim strip (2) must be flush with edge (3) at rear.

Clip trim strip (2) into place completely.

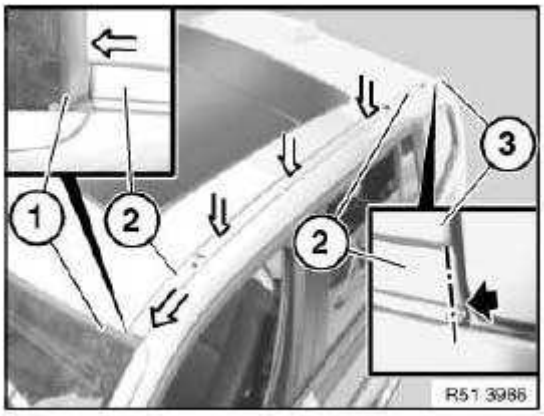


Fig. 121: Trim Strip And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 305 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT RAIL

WARNING: Read and comply with safety regulations for handling airbag modules and pyrotechnical belt tensioners, see 51 00 ... Safety instructions for working on cars with airbag systems

Incorrect handling can activate airbag and cause injury.

Disconnect battery.

Necessary preliminary tasks:

- Remove roofliner, see **51 44 002 Removing and installing roofliner (on version without panorama sunroof)**
- Partially remove head airbag, see **72 12 045 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT AHPS2 HEAD AIRBAG (VERSION WITHOUT SLIDE/TILT SUNROOF)**

Detach water drainage hose (1 and 2).

Release screws (3) on holder (4).

Lever out cover (5) underneath.

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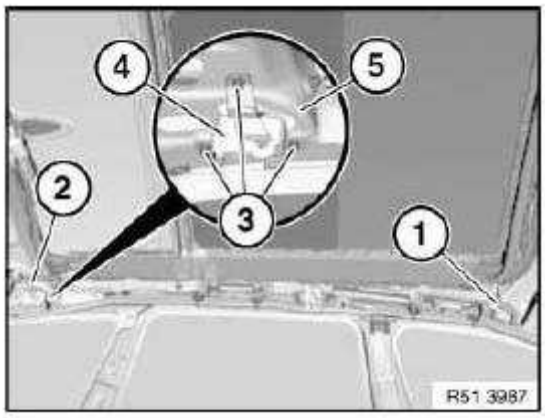


Fig. 122: Water Drainage Hose, Screws And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts (1 and 2).

Installation:

A. Tighten down nuts (1) to tightening torque: 51 13 3AZ, see **51 13 TRIM PARTS, COVERS, HANDLE TRIM**
B. Adhere to settling time, refer to 51 13 3AZ, see **51 13 TRIM PARTS, COVERS, HANDLE TRIM**
C. Tighten down nut (1) at rear and middle again to tightening torque 51 13 3AZ.
D. Release nut (2) at front and tighten down again to tightening torque 51 13 3AZ plus angle of rotation.

IMPORTANT: Observe tightening specifications without fail (water ingress).

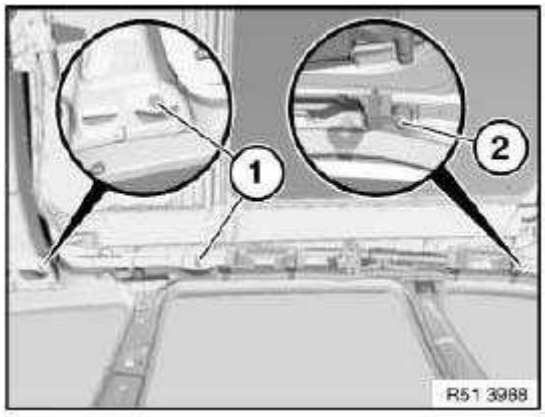


Fig. 123: Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Remove rail (1) in direction of arrow.

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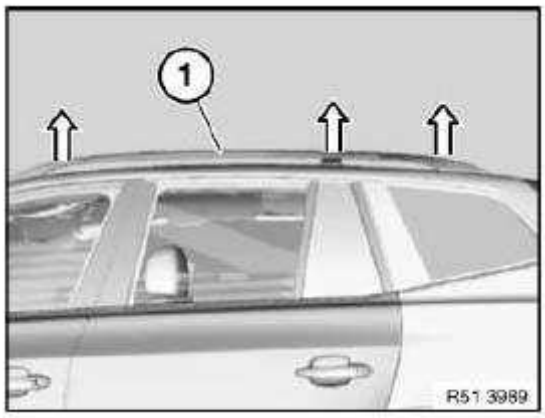


Fig. 124: Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (2) on rail (3) must not be damaged.

IMPORTANT: Replace foam seals (1) after each removal.

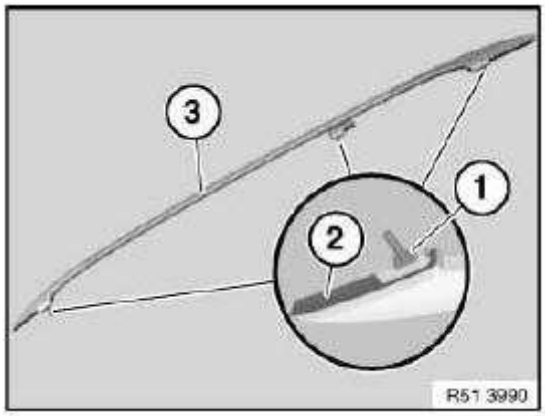


Fig. 125: Seal And Rail
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 402 REMOVING AND INSTALLING/REPLACING HANDLE STRIP (ON REAR LID)

Necessary preliminary tasks:

- Remove rear finisher trim, see **51 13 420 Removing and installing/replacing center rear-end trim section**

Release catches (1 and 2) on handle strip (3).

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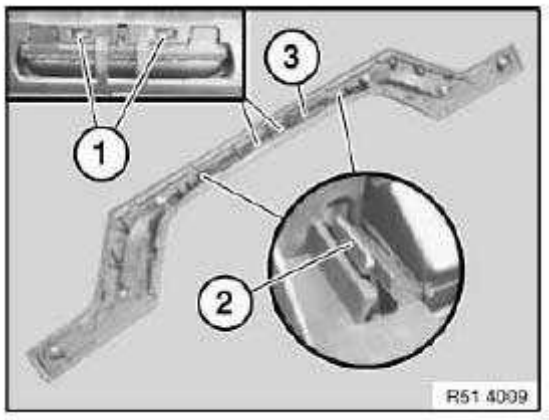


Fig. 126: Catches And Handle Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Feed handle strip (1) in direction of arrow out of rear finisher (2).

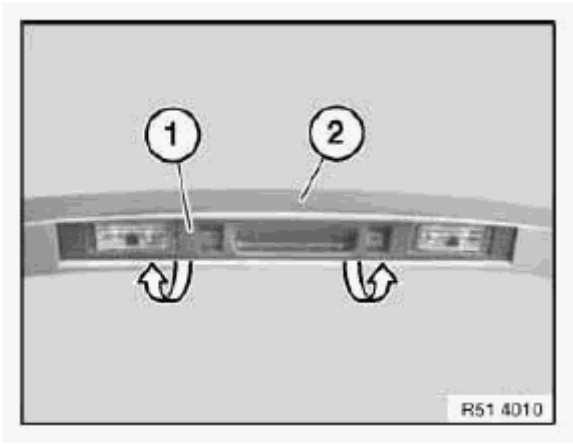


Fig. 127: Handle Strip And Rear Finisher
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) on handle strip (2) must not be damaged.

Replacement:

If necessary, replace seal (1).

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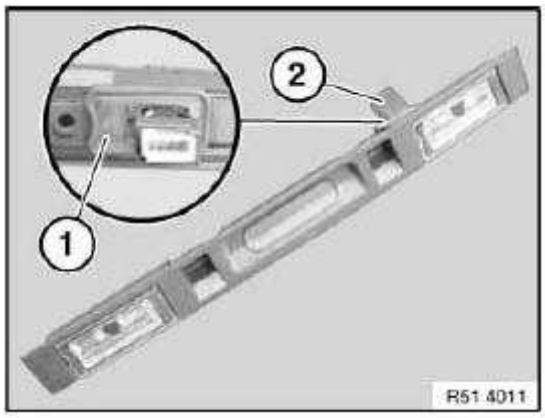


Fig. 128: Seal And Handle Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, lever out license plate lights (1) at openings (2) in direction of arrow and remove from handle strip (3).

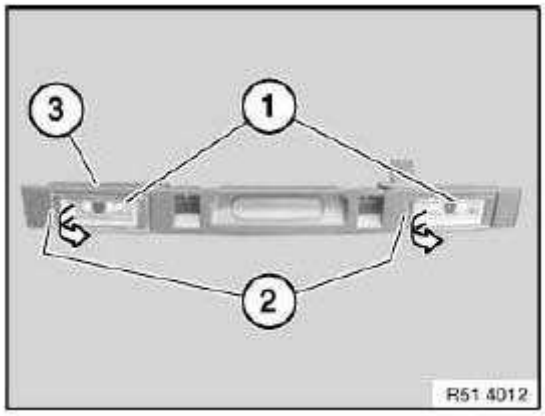


Fig. 129: License Plate Lights And Handle Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 412 REMOVING AND INSTALLING (REPLACING) LOWER TRIM ON REAR LID

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

IMPORTANT: Build date from 09/2006 (painted lower trim):
Due to the risk of damage to the lower trim, the clips must be cut through from the inside.
During replacement, the lower trim can be removed from the outside (see Fig. 131).

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Build date from 09/2006 (painted lower trim):

Remove panel for rear lid, see **51 49 008 Removing and installing/replacing panel for rear lid**

Cut through all clips (1) from the inside.

Unclip and remove lower trim from the outside.

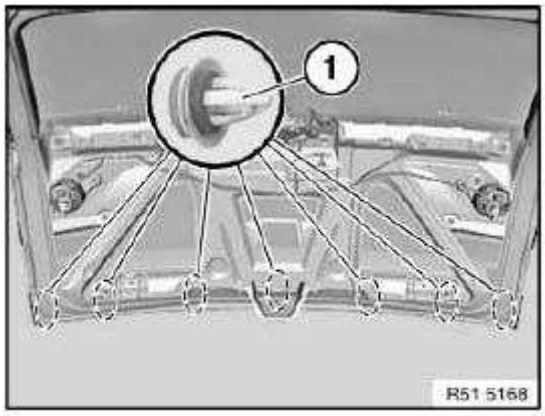


Fig. 130: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Build date up to 09/2006 or M aerodynamic kit:

Open rear lid.

Unclip clips (1) for trim (2) with special tool 00 9 317.

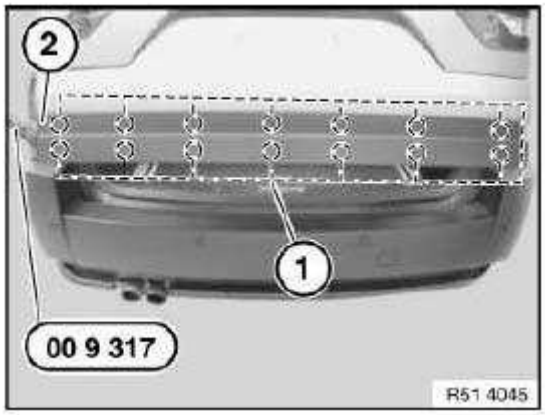


Fig. 131: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Following parts must not be damaged or missing:

1 Clips with seal
3 Seal

If necessary, replace faulty parts.

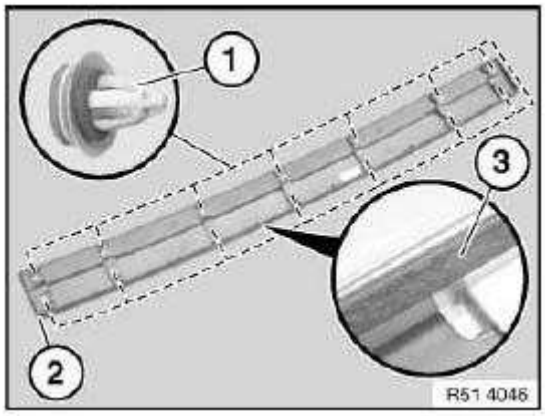


Fig. 132: Clips With Seal
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 420 REMOVING AND INSTALLING/REPLACING CENTER REAR-END TRIM SECTION

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove number/license plate.

Release screws (1).

Tightening torque: 51 13 4AZ, see **51 13 TRIM PARTS, COVERS, HANDLE TRIM**

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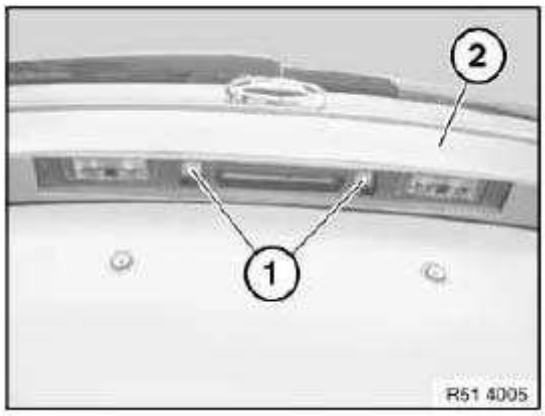


Fig. 133: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Attach adhesive tape (1) underneath center rear-end trim section (2) (risk of damage).

Unclip clips (3) with special tool 00 9 317.

Pull off center rear-end trim section (2) in direction of arrow a little.

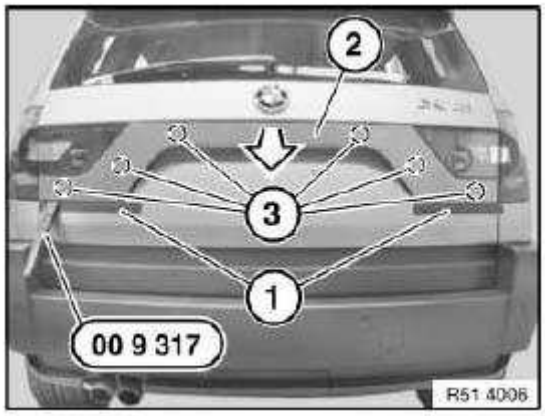


Fig. 134: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1) at center rear-end trim section (2).

Remove center rear-end trim section (2).

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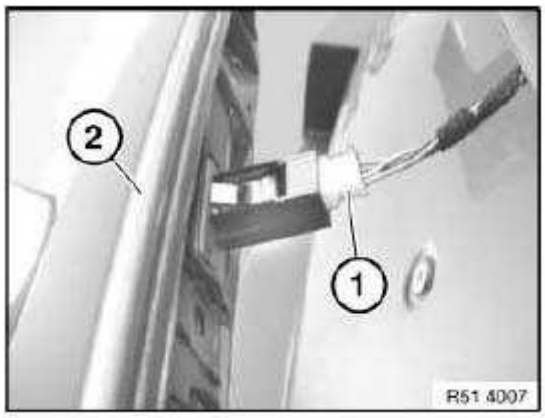


Fig. 135: Centre Rear-End Trim Section And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Fit all clips (1) with sealing ring.

If necessary, replace faulty clips (1).

Replacement:

Remove handle strip (3).

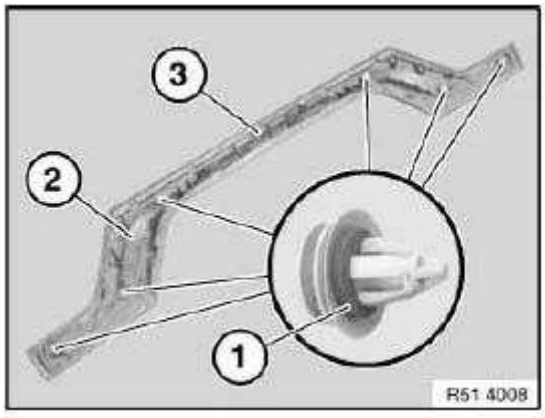


Fig. 136: Handle Strip And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

14 BMW EMBLEMS, MODEL EMBLEMS

51 14 ... INSTRUCTIONS FOR ATTACHING NUMBER/LETTER DESIGNATION COMBINATION

NOTE: The model designation is attached with adhesive and cannot be re-used. The model designation must be attached at room temperature.

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The model designation must be removed at stove - enameling temperatures exceeding 80°C.

NOTE: The following work steps are described using the "316 i" as the example.

Removing:

Coat nylon string or strong yarn with tensides (e.g. washing-up liquid).

Cut through adhesive layer and remove model designation (1) from rear lid (2).

Remove remainder of adhesive layer with adhesive remover (sourcing reference: BMW Parts Service).

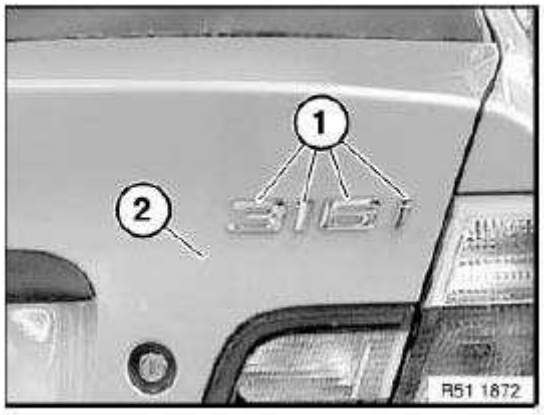


Fig. 137: Model Designation And Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Assembly:

Number and letter combinations (1) of the model designation are not connected to each other and are supplied on a carrier film (2).

IMPORTANT: Adhesive areas must be dry and free of dust and grease.
Once it has been cleaned, do not touch the adhesive area with bare hands.

Remove liner (3) (protective strip for adhesive surface).

Press on model designation firmly.

Remove carrier film (2).

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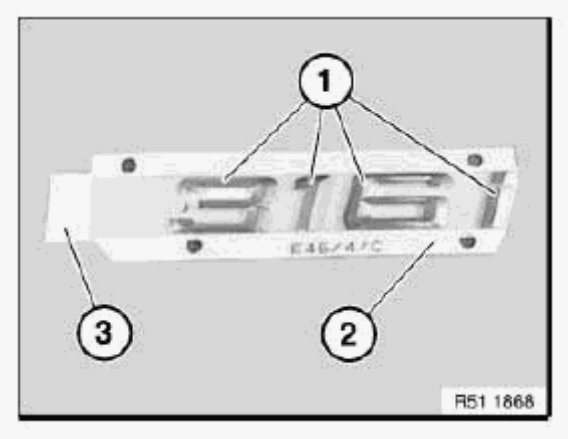


Fig. 138: Carrier Film And Liner
Courtesy of BMW OF NORTH AMERICA, INC.

51 14 000 REMOVING AND INSTALLING/REPLACING FRONT BMW BADGE

Special tools required:

- 00 9 318 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Lever out badge with special tool 00 9 318 and remove towards top.

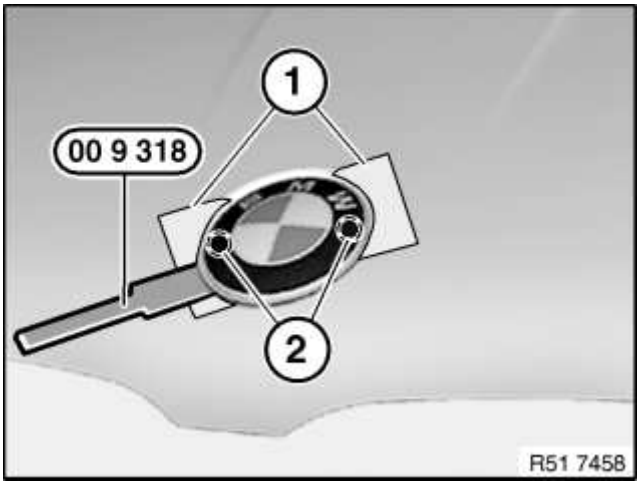


Fig. 139: Special Tool (00 9 318)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of badge (1) must not be damaged or missing:

2 Guide pins
3 Grommets

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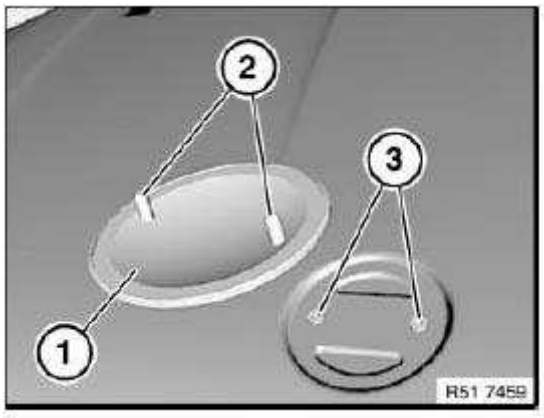


Fig. 140: Guide Pins And Grommets
Courtesy of BMW OF NORTH AMERICA, INC.

51 14 008 REPLACING (REMOVING AND INSTALLING) NUMBER/LETTER COMBINATION ON FRONT LEFT OR RIGHT SIDE PANEL

IMPORTANT: The "Instructions for number/letter combination cementing" serve as the basis for these repair instructions and must be followed without fail., see 51 14 ... Instructions for attaching number/letter designation combination

NOTE: Procedure and dimensions are also mandatory for right side, outer edge of number is then positioned.

NOTE: Number/letter combination is stuck on at a height level with turn indicator.

Stick on adhesive tape (1) for contour edge (2) to side panel up to turn indicator lamp.

Mark measurement "B" from side edge (3) on adhesive tape.

Dimensions:

A= 30 mm

B= 22 mm

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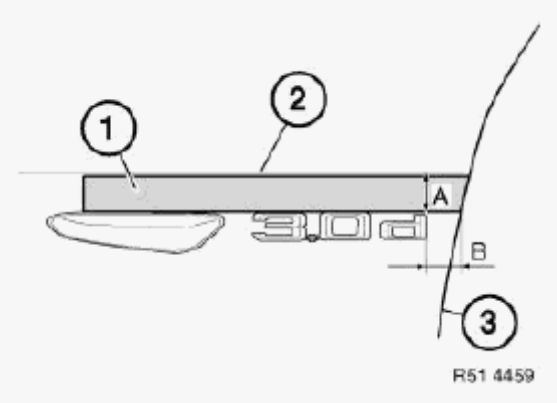


Fig. 141: Adhesive Tape And Contour Edge
Courtesy of BMW OF NORTH AMERICA, INC.

51 14 010 REMOVING AND INSTALLING/REPLACING REAR BMW BADGE

Operation is identical to:

51 14 000 Removing and installing/replacing front BMW badge

51 14 110 REMOVING AND INSTALLING/REPLACING REAR MODEL DESIGNATION

IMPORTANT: The "Instructions for number/letter combination cementing" serve as the basis for these repair instructions and must be followed without fail, see 51 14 ... Instructions for attaching number/letter designation combination

Stick on top edge of adhesive tape (1) to bottom edge of rear lid (2) at distance "A" and "B".

Mark measurement "C" from side edge (3) measured on top edge of adhesive tape.

Dimensions:

A= 50 mm

B= 55 mm

C= 77 mm

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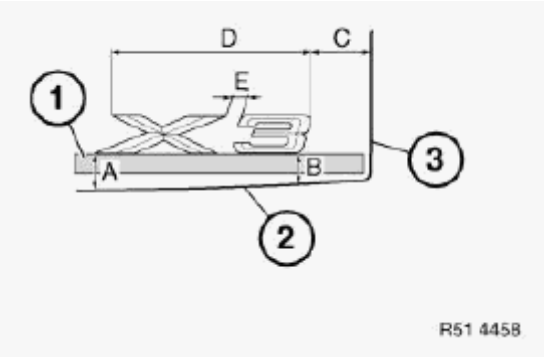


Fig. 142: Adhesive Tape And Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Measurements "D" and "E" are for information purposes only, as they are determined by carrier film.

D= 15.6 mm

E = 170 mm

16 MIRRORS/COVERS/ASHTRAYS/SHELVES/TRAYS

51 16 ... CALIBRATING COMPASS IN INTERIOR REARVIEW MIRROR

NOTE: It may be necessary to alter the magnetic deflection zone if the vehicle is more than two ranges away from the set deflection zone.

For numbers of magnetic deflection zone, refer to Owner's Handbook.

If may be necessary to calibrate the compass if:

- vehicle battery has been disconnected for an extended period of time
- "C" appears in compass display
- there is no compass display

Setting magnetic deflection zone:

- Switch ignition on.
- Using a suitable tool (1), press pushbutton in area (A) of mirror (2) until a number appears in compass display (B)
- Press pushbutton repeatedly until number of desired zone appears
- Wait until direction display appears
- Magnetic deflection zone is now set

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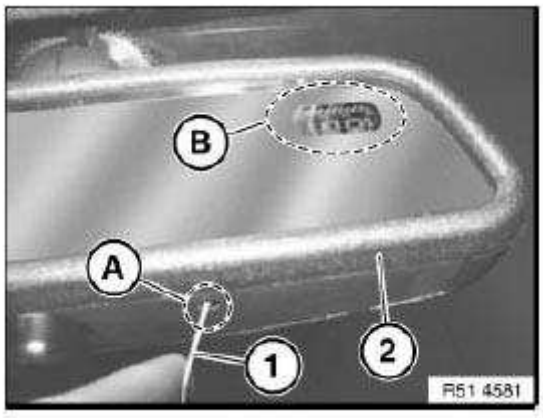


Fig. 143: Suitable Tool And Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

Calibrating compass:

- Switch ignition on.
- Using a suitable tool (1), press pushbutton in area (A) of mirror (2) until "C" appears in compass display (B)
- Drive vehicle 2 to 3 times in a circle at approx. 10 mph
- Calibration process is completed when direction display appears

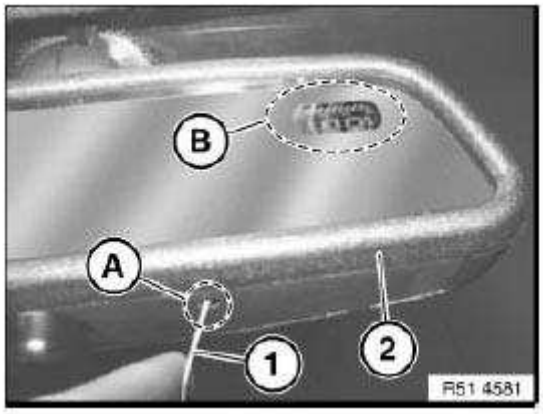


Fig. 144: Suitable Tool And Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... CEMENTING OF MIRROR BASE

Material Requirements:

Repair set for cementing of mirror base (Sourcing Reference: BMW Parts Service)

Primer XW 775 (Sourcing Reference: BMW Parts Service)

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1. Preparations
    1. Cement at room temperature and make sure that, in cold weather, the window glass and base are brought to room temperature in the workshop long enough to prevent moisture forming on the surface.
    2. Mark location of the mirror mount on the outside of the windshield.

       Scratch off cement residue on glass and base with a sharp tool.

    3. Clean cement area on window and base with clean non-fluffing cloth and alcohol/cetone and allow to dry! Never use paint thinners!
2. Primer Coat

   Apply colorless, diluted primer to surface of windshield intended for cementing with help of cotton buds (Q-Tips or similar).

   Specified ventilation time at least 10 minutes, maximum 1 hour

3. Cement Coat
    1. Mixing Cement

       Trim off sealing tips on containers of cement and hardener using a knife.

       Make sure that both openings are equal in size, as otherwise there would be mistakes in mixing.

       The sealing cap for subsequent plugging of the double injector is located between both pistons of the injector.

       Break off sealing cap.

       The required amount of cement and hardener is removed by applying light pressure on the pistons.

       The mixing ratio for cement and hardener is 1 : 1 (weight and volume). It is important that the same volumes of cement and hardener are removed (increase size of openings if necessary).

       Both components react chemically with each other. Thorough, intensive and homogenous mixing is a requirement for this reaction and for the quality of cementing.

       Consequently both components must be mixed in such a way that there is a uniform, ream-free color mixture.

    2. Application

       At 20 ... 25°C the mix can be processed after approx. 5 ... 10 minutes (pot time).

       Apply thin (approx. 0.5 mm), uniform coat of cement on base with spatula and press base onto glass in such a way that cement obtains good contact with windshield across the entire surface area.

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NOTE: The temperature for the hardening process should not be lower than +18°C.

3. Fixing Bonded Parts

   Epoxide resin cement does not have an initial strength property. It is therefore necessary to fix all bonded parts (cement tape or similar). The joining and fixing of bonded parts must be accomplished within the potlife). Check that the arresting button is located correctly on the mirror base to ensure that the mirror, when it is attached, is seated straight.

   (Long side of mirror base hexagon parallel to upper edge of window).

4. Hardening of cement

   Hardening speed depends on the ambient temperature.

   For this reason, the mirror base must be secured with adhesive tape or similar for at least 3 ... 4 hours.

   After 12 hours have elapsed, clip mirror into place as soon as possible.

4. Working Hygiene

CAUTION: Cement is dangerous for health when vapors are inhaled or through contact with the skin.

As is the case for all epoxide resins, sensitive persons might be confronted with an allergy through contact with the skin.

If the product gets on the skin, wash off with soap and water immediately.

If it gets in an eye, rinse the eye thoroughly in water and consult doctor.

Make sure that the room is well ventilated and gloves are worn for the application of cement.

51 16 ... REMOVING AND INSTALLING/REPLACING COVER FOR CENTER ARMREST (STORAGE COMPARTMENT WITH CD CHANGER)

Necessary preliminary tasks:

- Remove storage compartment, see **51 16 200 Removing and installing/replacing storage compartment (with CD changer)**

Release screws (1).

Remove cover (2) towards top.

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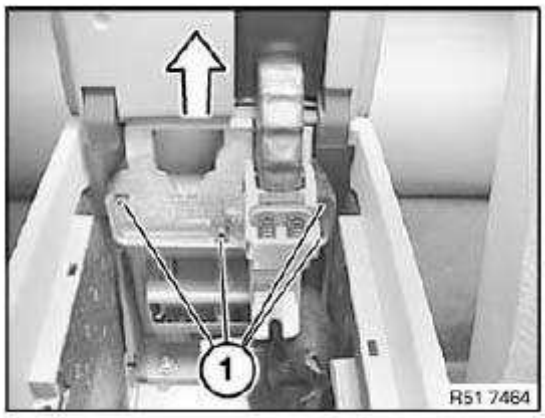


Fig. 145: Cover And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement (version without telephone):

Remove insert (1) and release screws (2) underneath.

Unclip trim (3) towards top.

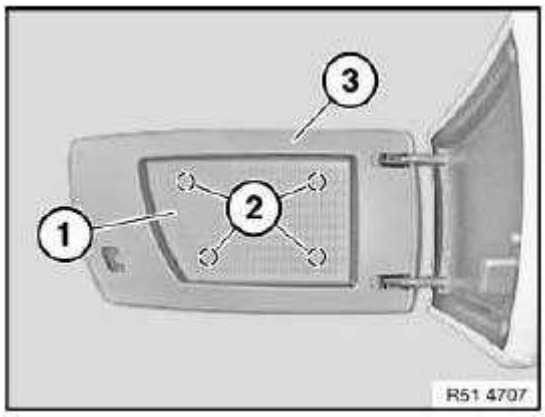


Fig. 146: Insert, Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement (version with telephone):

Remove eject box.

Remove insert (1) and release screws (2).

Unclip trim (3) towards top.

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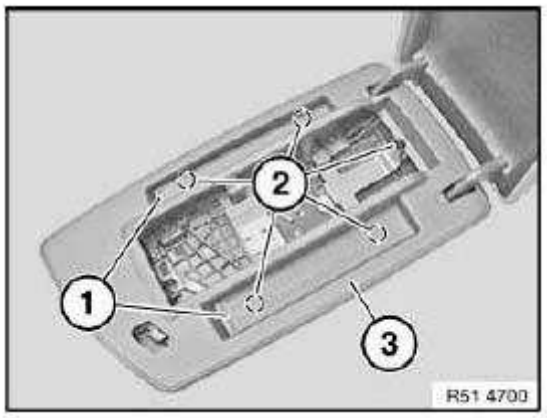


Fig. 147: Insert, Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 000 REMOVING AND INSTALLING/REPLACING MIRROR ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Press cover (1) and guide rubber (2) to one side.

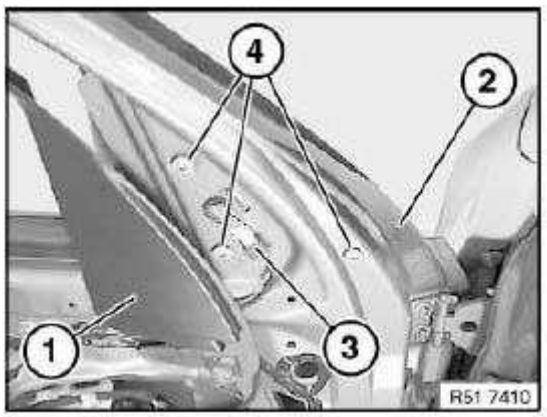
Disconnect plug connection (3).

Release screws (4).

Tightening torque: 51 16 1AZ, see **51 16 MIRRORS, FINISHERS, ASHTRAYS, CONSOLES**

Replacement:

Due to the self-tapping screws, the tightening torque of the new mirror is increased by 2 Nm.



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Fig. 148: Cover, Plug Connection And Guide Rubber
Courtesy of BMW OF NORTH AMERICA, INC.

Remove mirror (1) outwards.

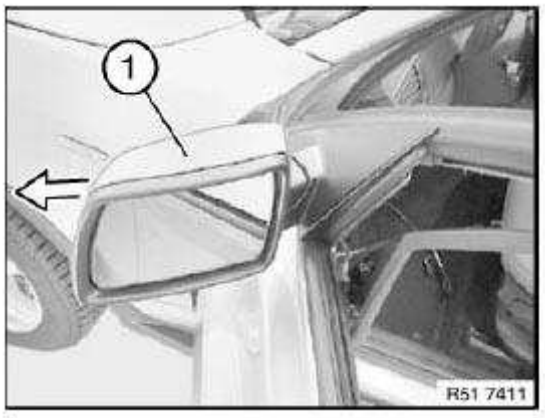


Fig. 149: Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Sound insulation (1) on mirror (2) must not be damaged.

Check function.

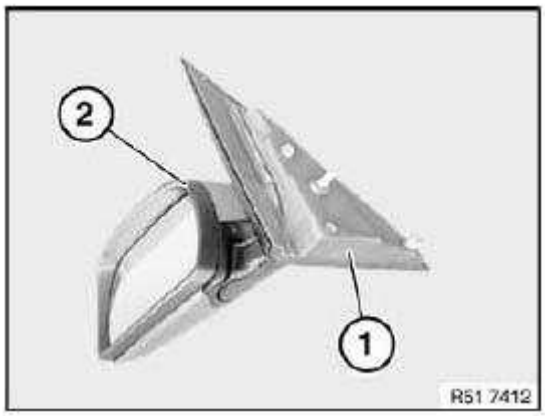


Fig. 150: Sound Insulation And Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

- If necessary, convert mirror glass, see **51 16 026 Replacing mirror glass**
- If necessary, convert housing on door mirror, see **51 16 040 Removing and installing/replacing housing on left or right door mirror**

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- If necessary, convert retaining ring on door mirror, see **51 16 045 Removing and installing/replacing retaining ring on left or right door mirror**

51 16 026 REPLACING MIRROR GLASS

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

WARNING: Move mirror glass with hand carefully and slowly.
If mirror glass is damaged:
Wear protective goggles and cut-proof gloves.
Risk of injury by flaking-off glass splinters.

IMPORTANT: Bring door mirror to room temperature to prevent catches from breaking off.

Press mirror glass (1) on side vehicle by hand to full extent.

NOTE: Secure mirror glass (1) against falling out.

Unclip mirror glass (1) from outer side with special tool 00 9 317 all round.

Unlock and disconnect associated plug connections, remove mirror glass (1).

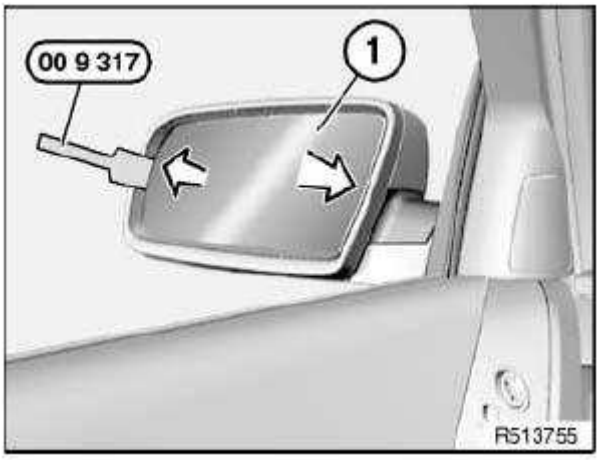


Fig. 151: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retaining lugs (1) must not be damaged.

Fit mirror glass (2) with retaining lugs (1) flush on mirror adjusting drive and clip into place.

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Ensure correct locking.

Make sure mirror adjusting drive functions correctly.

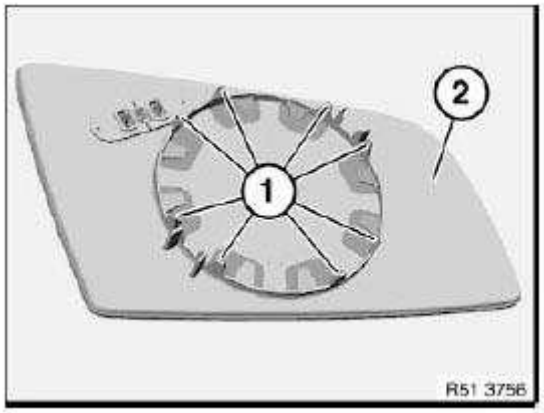


Fig. 152: Mirror Glass And Retaining Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 040 REMOVING AND INSTALLING/REPLACING HOUSING ON LEFT OR RIGHT DOOR MIRROR

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove mirror glass, see **51 16 026 Replacing mirror glass**

NOTE: Retaining ring (1) and housing (2) are engaged against each other in area (A).

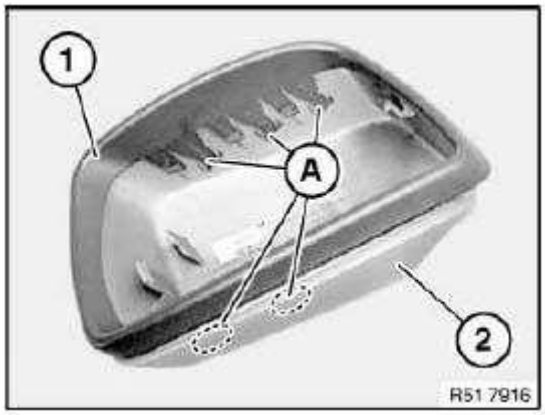


Fig. 153: Retaining Ring And Housing
Courtesy of BMW OF NORTH AMERICA, INC.

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Release catch (1) and carefully snap housing (2) forwards out of retaining ring (3).

If necessary, use special tool 00 9 317 as an aid.

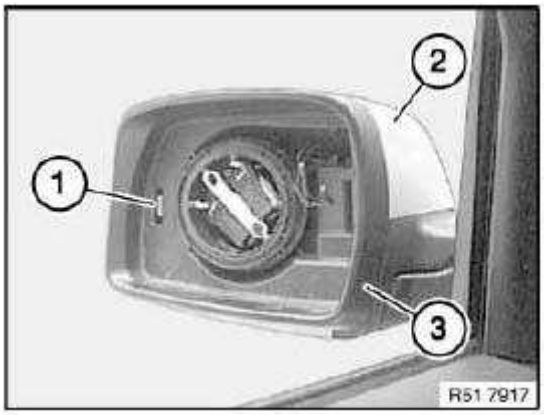


Fig. 154: Catch And Snap Housing
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1 to 3) must not be damaged.

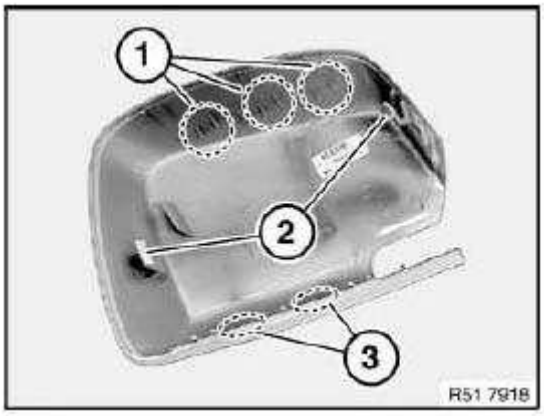


Fig. 155: Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 045 REMOVING AND INSTALLING/REPLACING RETAINING RING ON LEFT OR RIGHT DOOR MIRROR

Necessary preliminary tasks:

- Remove housing on door mirror, see **51 16 040 Removing and installing/replacing housing on left or right door mirror**

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Release catches (1) and remove retaining ring (2) towards rear.

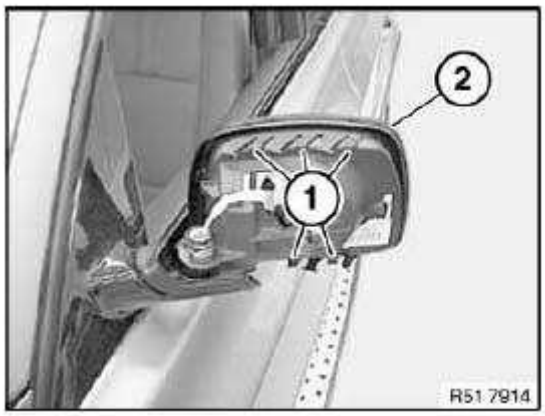


Fig. 156: Catches And Retaining Ring
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1 and 2) must not be damaged.

1. Retaining ring catches on door mirror
2. Retaining ring catches on housing

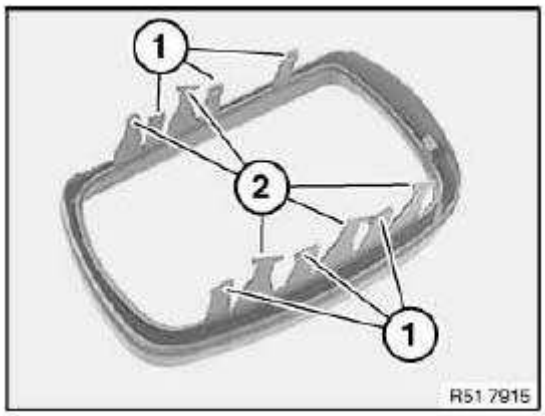


Fig. 157: Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 060 REMOVING AND INSTALLING/REPLACING INTERIOR REARVIEW MIRROR (OVERVIEW)

NOTE: Version with cable (X) for:

- Automatic dim action (electro-chrome technology) for interior rearview mirror
- Fogging sensor

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- Remote control (infrared or radio)
- Autobeam
- Garage door opener
- Compass
- Rain sensor

Version without cable (X) with full foot (1), see **51 16 060 Removing and installing/replacing interior rearview mirror (with full foot)**

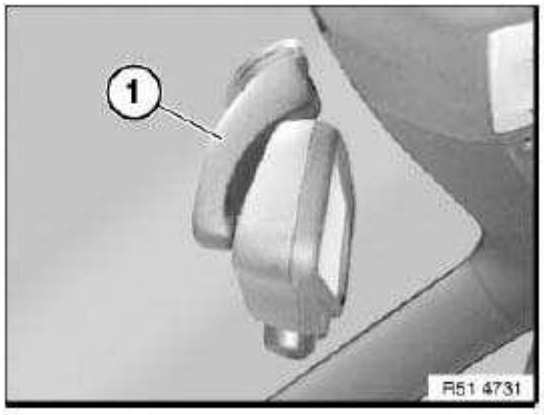


Fig. 158: Full Foot
Courtesy of BMW OF NORTH AMERICA, INC.

Version with cable (X) and plug trim cover (1).

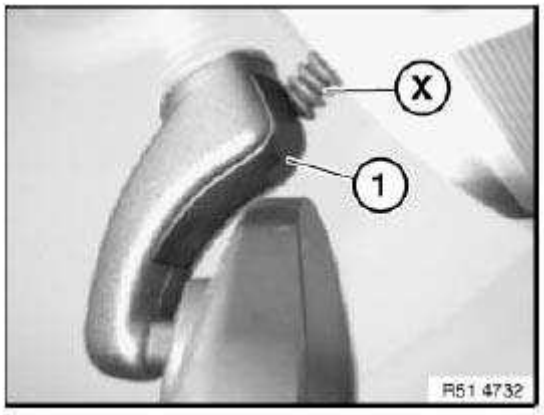


Fig. 159: Cable And Plug Trim Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Version with mirror arm end caps (1), see **51 16 060 Removing and installing/replacing interior rearview mirror (with mirror arm end caps)**

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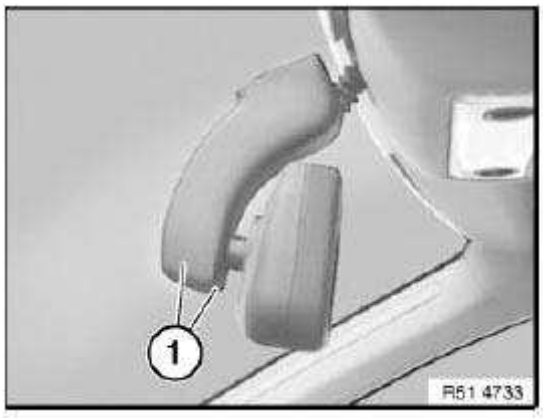


Fig. 160: Mirror Arm End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Version with rain sensor, see **51 16 060 Removing and installing/replacing interior rearview mirror (with rain sensor)**

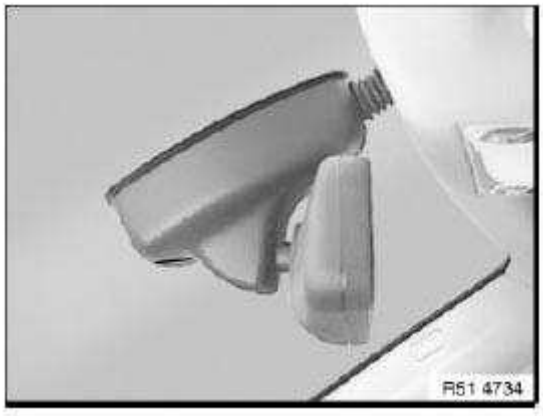
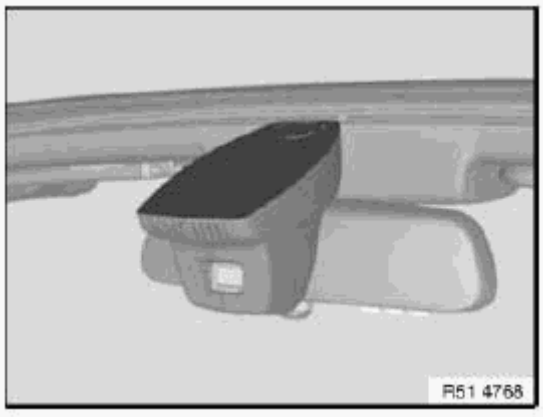


Fig. 161: Rain Sensor
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Autobeam.



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Fig. 162: Autobeam
Courtesy of BMW OF NORTH AMERICA, INC.

Version with toll mirror for Japan, see **51 16 060 Removing and installing/replacing interior rearview mirror (with Japanese toll mirror)**

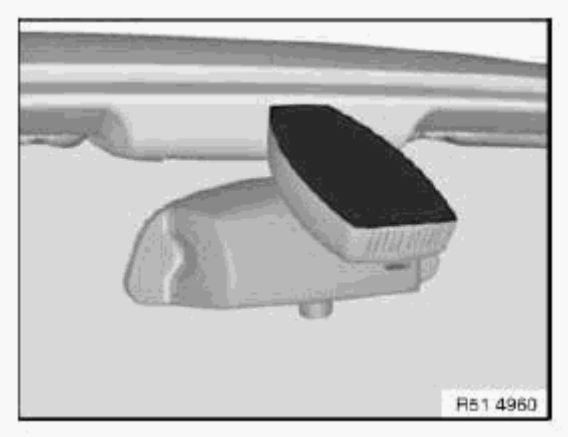


Fig. 163: Toll Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 060 REMOVING AND INSTALLING/REPLACING INTERIOR REARVIEW MIRROR (WITH JAPANESE TOLL MIRROR)

IMPORTANT: Work may only be carried out at a room/object temperature of 18 ... 28°C. If this cannot be guaranteed (cold/hot countries), it is necessary to equalize the temperature of the windscreen, mirror foot and rearview mirror (e.g. car left to stand indoors or in the shade for at least 30 minutes).

Version with remote control for central locking:

If necessary, disconnect negative lead from battery.

Version with compass:

Check compass function if replacing or after disconnecting interior mirror plug connection or battery.

If necessary, calibrate compass in interior rearview mirror, see **51 16 ... Calibrating compass in interior rearview mirror**

E60 Security version:

Rain sensor is not installed, cable connection is tied back in roofliner.

IMPORTANT: To avoid breaking windscreen:
Screw rearview mirror off mirror mount.

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Mirror must not be pulled or pressed off towards front or rear.

Press on end caps (1) and at same time pull them apart; this releases clip connection of both caps (1).

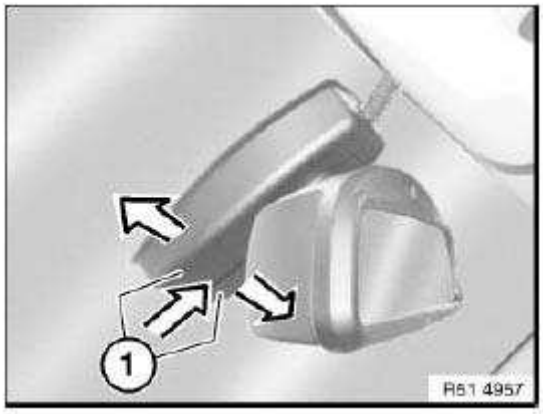


Fig. 164: Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Turn mirror (1) to right and left and feed out end caps (2).

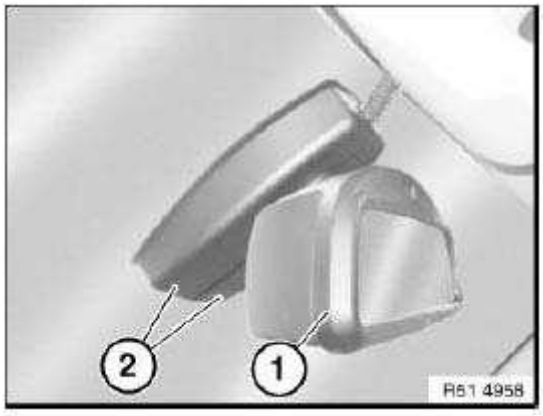


Fig. 165: Mirror And Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) and guides (2) of end caps (3) must not be damaged, replace if necessary.

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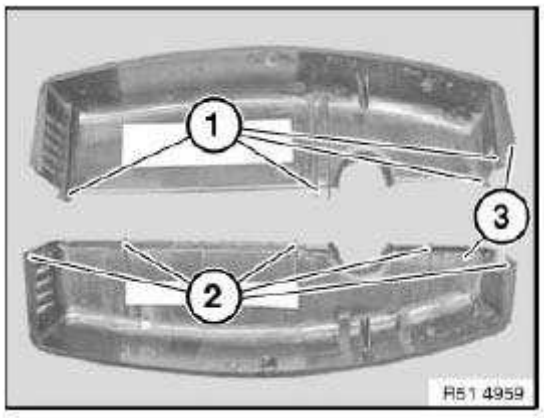


Fig. 166: Catches And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plugs (1 and 2).

NOTE: Pay attention to cable guide for rain sensor.

E60 Security version:

Rain sensor is not installed, cable connection is tied back in roofliner.

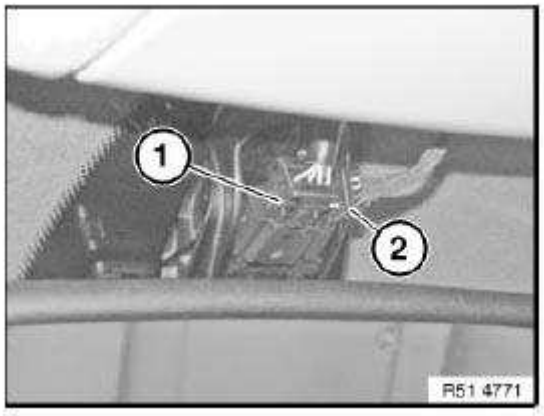


Fig. 167: Plugs
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not pull or press rearview mirror off towards front or rear.
Because of altered mirror foot, rearview mirror must be twisted off.

Twist mirror foot approx. 45° to right until mirror foot is released from mirror mount.

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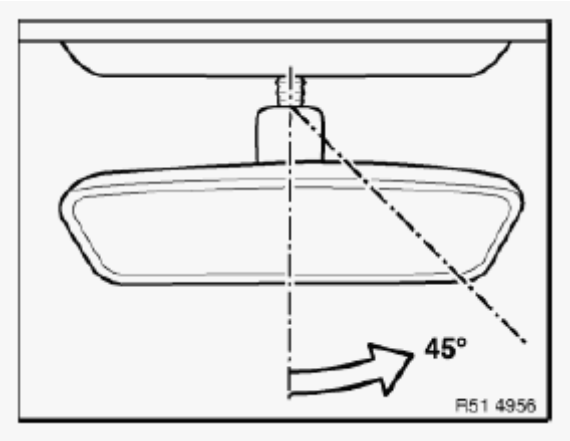


Fig. 168: Mirror Foot Angle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

1. Twist mirror foot by approx. 45° and fit to mirror mount.
2. Turn mirror foot until it engages on mirror base.

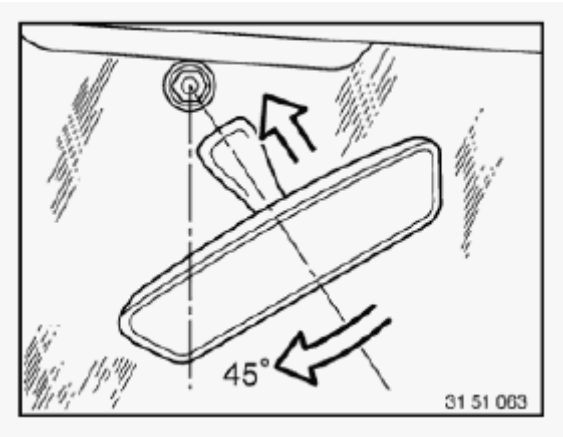


Fig. 169: Mirror Foot Angle
Courtesy of BMW OF NORTH AMERICA, INC.

Only replace with version with remote control for central locking:

If necessary, initialize all transmitters (ignition keys), refer to Owner's Handbook.

51 16 060 REMOVING AND INSTALLING/REPLACING INTERIOR REARVIEW MIRROR (WITH FULL FOOT)

IMPORTANT: Work may only be carried out at a room/object temperature of 18 ... 28°C. If this cannot be guaranteed (cold/hot countries), it is necessary to equalize the temperature of the windscreen, mirror foot and rearview mirror (e.g. car left to stand indoors or in the shade for at least 30 minutes).

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IMPORTANT: To avoid breaking windscreen:
Snap out (press) rearview mirror only in direction of travel towards windscreen.
Do not under any circumstances twist the mirror foot when removing.
Twisting the mirror off the mirror mount will damage the rear catch.
If the rear catch is damaged, the mirror will be loose when installed and must be replaced.

IMPORTANT: Risk of damage!
Do not pull off rearview mirror (1) from windscreen against direction of travel and or snap out by turning.

Snap out interior mirror (1) from mirror mount (2) towards front with increasing pressure (not abruptly) and remove.

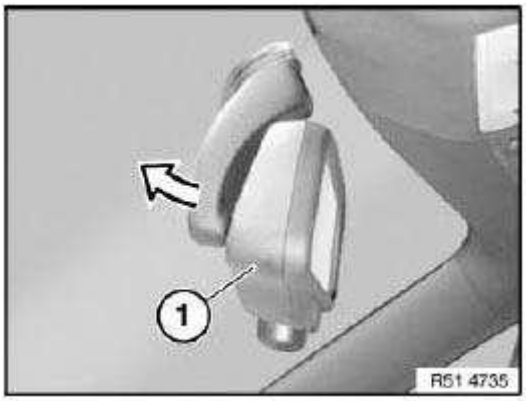
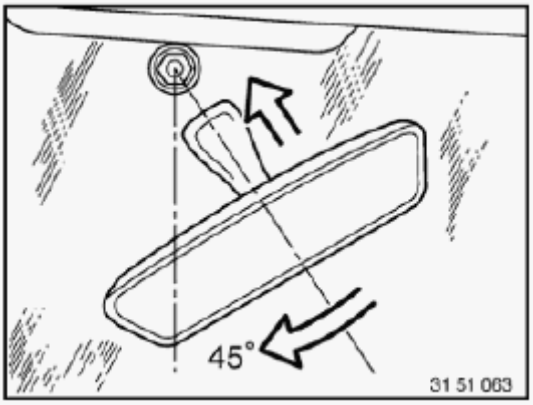


Fig. 170: Interior Mirror And Mirror Mount
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

1. Twist mirror foot by approx. 45° and fit to mirror mount.
2. Turn mirror foot until it engages on mirror base.



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Fig. 171: Mirror Foot Angle
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 060 REMOVING AND INSTALLING/REPLACING INTERIOR REARVIEW MIRROR (WITH MIRROR ARM END CAPS)

IMPORTANT: Work may only be carried out at a room/object temperature of 18 ... 28°C.
If this cannot be guaranteed (cold/hot countries), it is necessary to equalize the temperature of the windscreen, mirror foot and rearview mirror (e.g. car left to stand indoors or in the shade for at least 30 minutes).

Version with remote control for central locking:

If necessary, disconnect negative lead from battery.

Version with compass:

Check compass function if replacing or after disconnecting interior mirror plug connection or battery.

If necessary, calibrate compass in interior rearview mirror, see **51 16 ... Calibrating compass in interior rearview mirror**

IMPORTANT: To avoid breaking windscreen:
Snap out (press) rearview mirror only in direction of travel towards windscreen.
Do not under any circumstances twist the mirror foot when removing.
Twisting the mirror off the mirror mount will damage the rear catch.
If the rear catch is damaged, the mirror will be loose when installed and must be replaced.

NOTE: Do not exert any pressure on mirror foot when removing end caps (1).

Press end caps (1) towards mirror housing (2); this releases clip connection of both caps (1).

In order not to create any tension at the mirror foot, simultaneously apply counterpressure to the mirror housing when removing the end caps.

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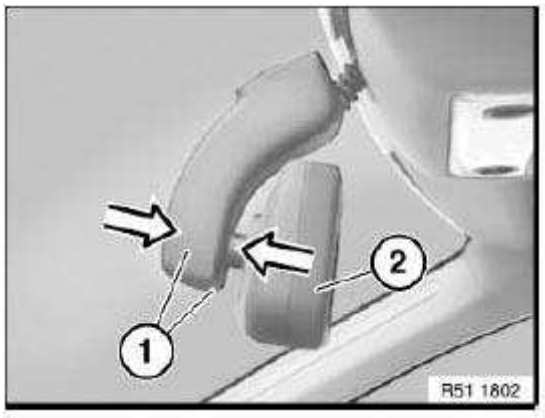


Fig. 172: End Caps And Mirror Housing
Courtesy of BMW OF NORTH AMERICA, INC.

Twist mirror (1) at an angle towards front and right/top.

Swivel left end cap (2) off ball neck in direction of arrow; this detaches the engagement clip (3) from the metal foot.

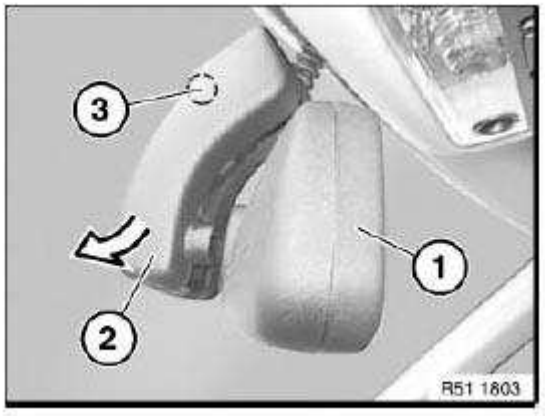


Fig. 173: Mirror And End Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Twist mirror (1) at an angle towards front and left/top.

Swivel right end cap (2) off ball neck in direction of arrow; this detaches the engagement clip from the metal foot.

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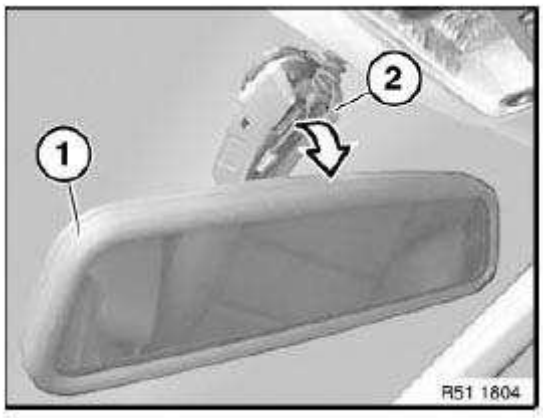


Fig. 174: Mirror And End Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) and retaining hooks (2) of end caps (3) must not be damaged, replace if necessary.

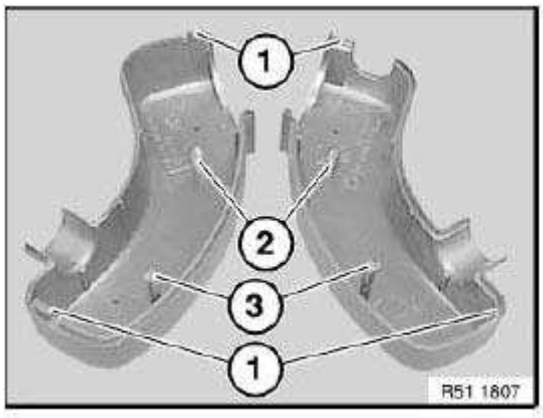


Fig. 175: Clips, Hooks And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Version with cable (X):

Disconnect plug connection (1).

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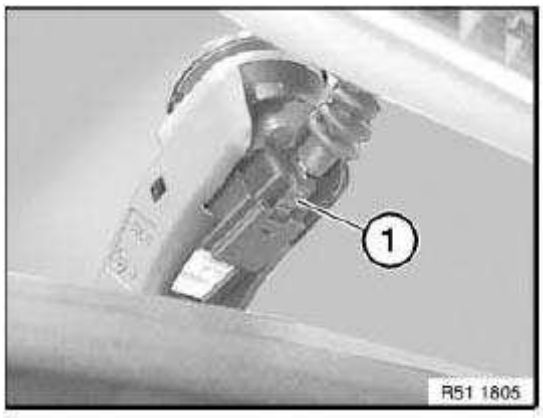


Fig. 176: Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not pull off rearview mirror (1) from windscreen against direction of travel and or snap out by turning.

Snap out interior mirror (1) from mirror mount (2) towards front with increasing pressure (not abruptly) and remove.

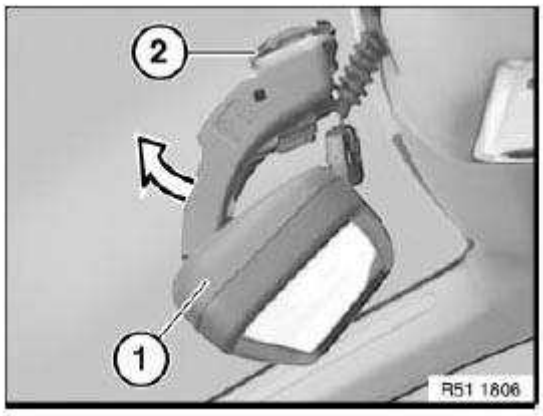


Fig. 177: Interior Mirror And Mirror Mount
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

1. Twist mirror foot by approx. 45° and fit to mirror mount.
2. Turn mirror foot until it engages on mirror base.

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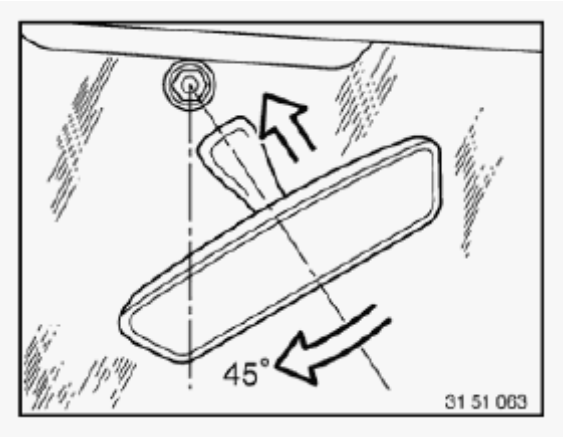


Fig. 178: Mirror Foot Angle
Courtesy of BMW OF NORTH AMERICA, INC.

Only replace with version with remote control for central locking:

Initialize all transmitters (ignition keys), refer to Owner's Handbook.

51 16 060 REMOVING AND INSTALLING/REPLACING INTERIOR REARVIEW MIRROR (WITH RAIN SENSOR)

IMPORTANT: Work may only be carried out at a room/object temperature of 18 ... 28°C. If this cannot be guaranteed (cold/hot countries), it is necessary to equalize the temperature of the windscreen, mirror foot and rearview mirror (e.g. car left to stand indoors or in the shade for at least 30 minutes).

Version with remote control for central locking:

If necessary, disconnect negative lead from battery.

Version with compass:

Check compass function if replacing or after disconnecting interior mirror plug connection or battery.

If necessary, calibrate compass in interior rearview mirror, see **51 16 ... Calibrating compass in interior rearview mirror**

E60 Security version:

Rain sensor is not installed, cable connection is tied back in roofliner.

IMPORTANT: To avoid breaking windscreen:
Snap out (press) rearview mirror only in direction of travel towards windscreen.
Do not under any circumstances twist the mirror foot when removing.
Twisting the mirror off the mirror mount will damage the rear catch.

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If the rear catch is damaged, the mirror will be loose when installed and must be replaced.

Press on end caps (1) and at same time press them apart; this releases clip connection of both caps (1).

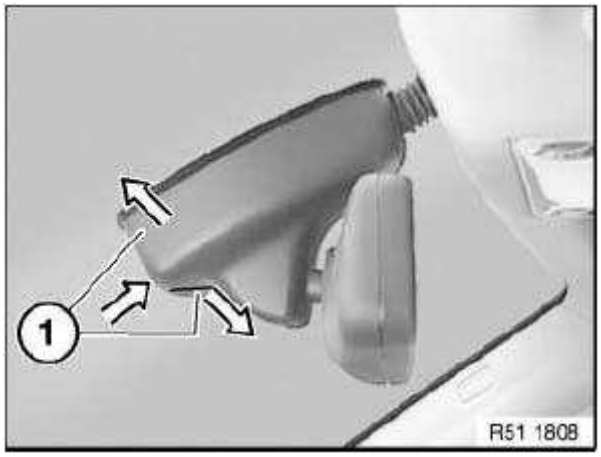


Fig. 179: End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Twist mirror (1) at an angle towards front and right/top.

Swivel left end cap (2) off ball neck in direction of arrow; this detaches the engagement clip (3) from the metal foot.

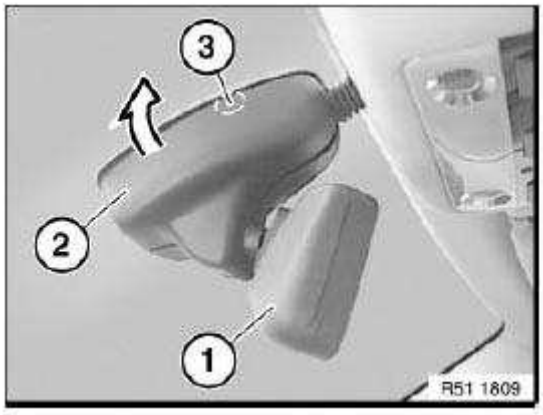


Fig. 180: Mirror And Left End Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Twist mirror (1) at an angle towards front and left/top.

Swivel right end cap (2) off ball neck in direction of arrow; this detaches the engagement clip from the metal foot.

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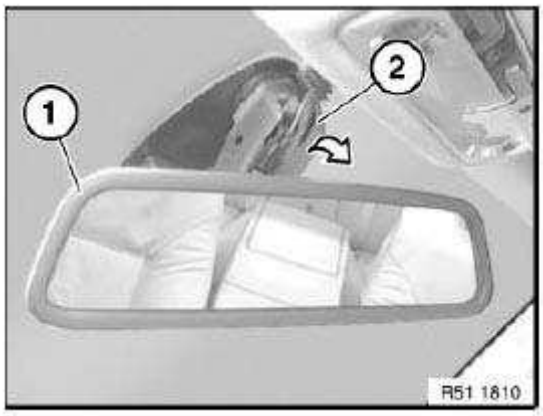


Fig. 181: Mirror And Right End Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) and retaining hooks (2) of end caps (3) must not be damaged, replace if necessary.

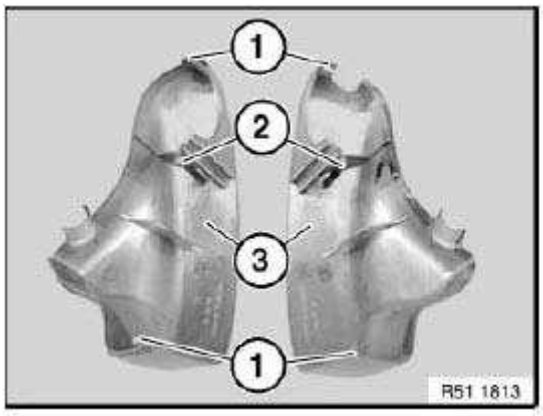


Fig. 182: Clips, Retaining Hooks And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

NOTE: Pay attention to cable guide (2) for rain sensor.

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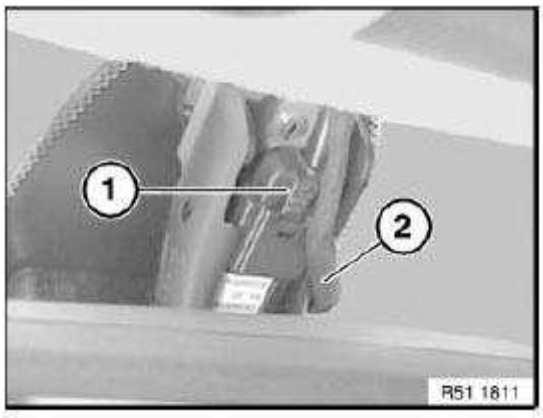


Fig. 183: Plug Connection And Cable Guide
Courtesy of BMW OF NORTH AMERICA, INC.

E60 Security version:

Rain sensor is not installed, cable connection is tied back in roofliner.

IMPORTANT: Risk of damage!
Do not pull off rearview mirror (1) from windscreen against direction of travel and or snap out by turning.

When snapping out, do not damage control unit (3) for rain sensor.

E60 Security version:

Rain sensor is not installed.

Snap out interior mirror (1) from mirror mount (2) towards front with increasing pressure (not abruptly) and remove.

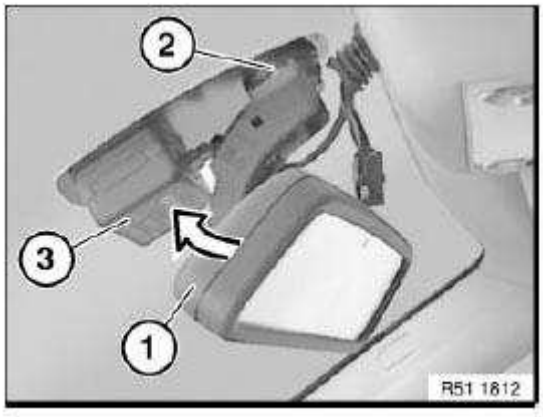


Fig. 184: Interior Mirror And Mirror Mount
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

1. Twist mirror foot by approx. 45° and fit to mirror mount.
2. Turn mirror foot until it engages on mirror base.

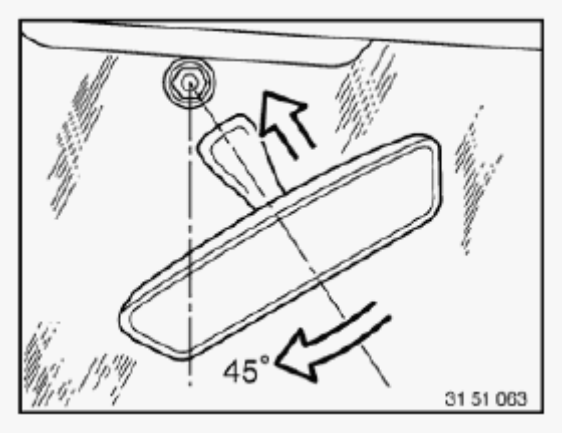


Fig. 185: Mirror Foot Angle
Courtesy of BMW OF NORTH AMERICA, INC.

Only replace with version with remote control for central locking:

If necessary, initialize all transmitters (ignition keys), refer to Owner's Handbook.

51 16 080 REMOVING AND INSTALLING OR REPLACING SUN VISOR AND LEFT OR RIGHT COUNTER SUPPORT

NOTE: The operation is shown on the left side; proceed in the same way for the right side.

Fold down sun visor (5).

Lever out trim (2) on counter support (1) and release screw underneath.

Release screws (3) on holder (4).

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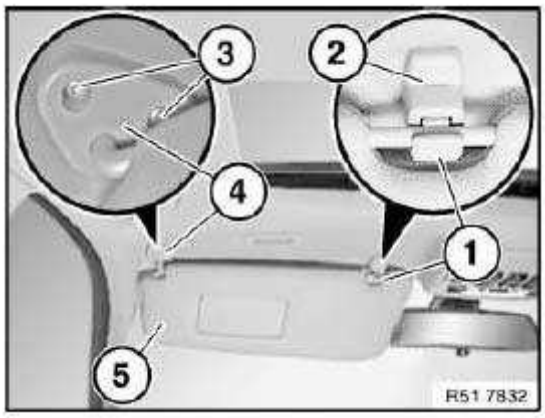


Fig. 186: Trim And Counter Support
Courtesy of BMW OF NORTH AMERICA, INC.

Lift out sun visor (1).

If necessary, pull out cable (2) slightly and disconnect plug connection (3).

Installation:

Perform function check on lighting.

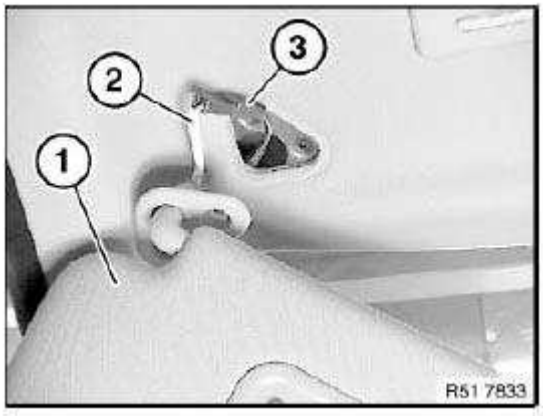


Fig. 187: Sun Visor, Cable And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 194 REMOVING AND INSTALLING/REPLACING FRONT SIDE LEFT OR RIGHT CUP HOLDER

Special tools required:

- 00 9 318 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

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- Remove right glovebox, see **51 16 366 Removing and installing right glovebox with housing**
- Remove right fresh-air grill, see **64 22 136 REMOVING AND INSTALLING/REPLACING RIGHT FRESH-AIR GRILL**

Release screw (1) on instrument panel at bottom.

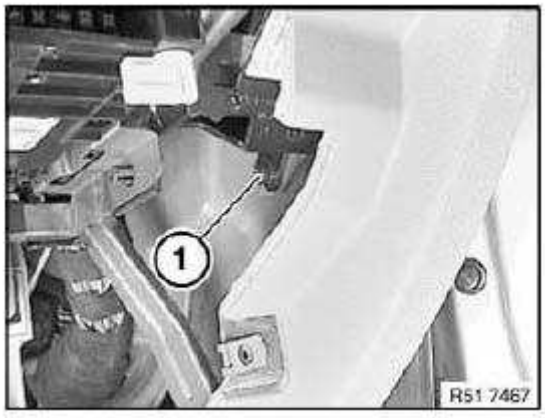


Fig. 188: Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip cup holder (1) with special tool 00 9 318 all round and remove in direction of arrow.

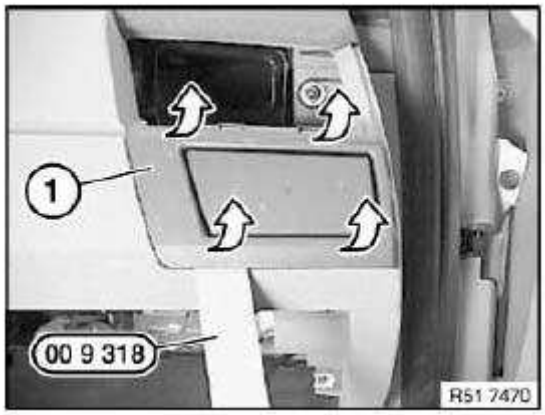


Fig. 189: Special Tool (00 9 318)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on cup holder (2) must not be damaged or missing.

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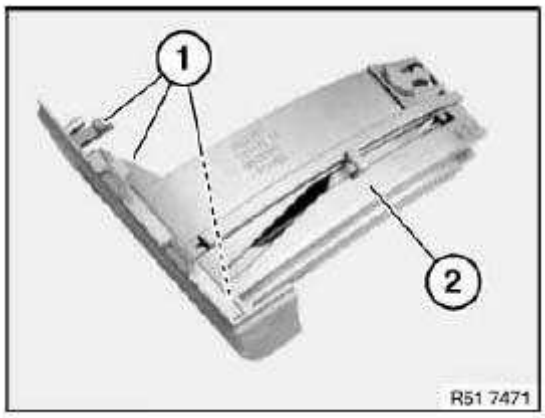


Fig. 190: Catches And Cup Holder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 196 REMOVING AND INSTALLING/REPLACING COVER FOR CENTER ARMREST

NOTE: On version with CD changer, operation is described in: Removing and installing/replacing cover for center armrest (storage compartment with CD changer), see 51 16 ... Removing and installing/replacing cover for center armrest (storage compartment with CD changer)

Open cover for center armrest.

Lift out storage compartment (1).

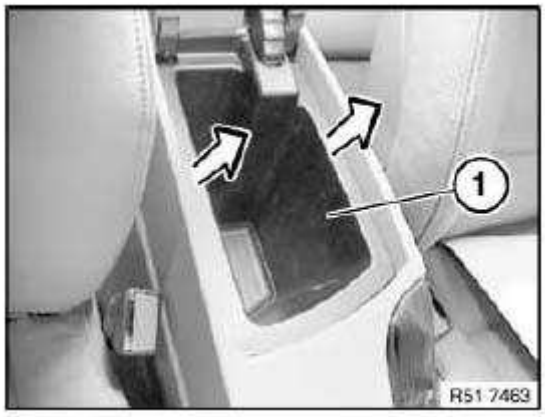


Fig. 191: Storage Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

Version with telephone:

Disconnect plug connection (1).

Release protective sleeve (2) and disconnect plug connection underneath.

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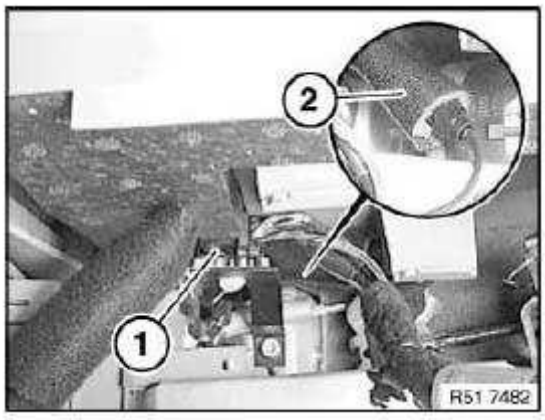


Fig. 192: Protective Sleeve And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove cover (2) towards top.

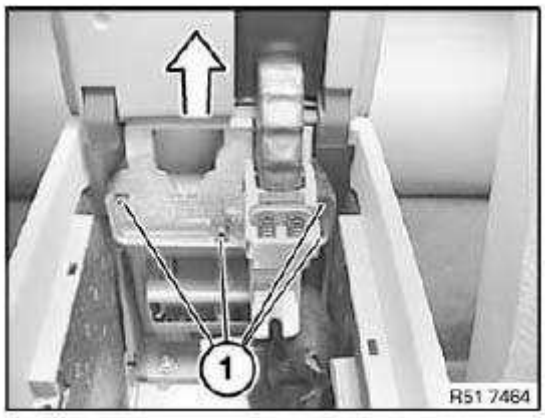


Fig. 193: Cover And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement (version without telephone):

Remove insert (1) and release screws (2) underneath.

Unclip trim (3) towards top.

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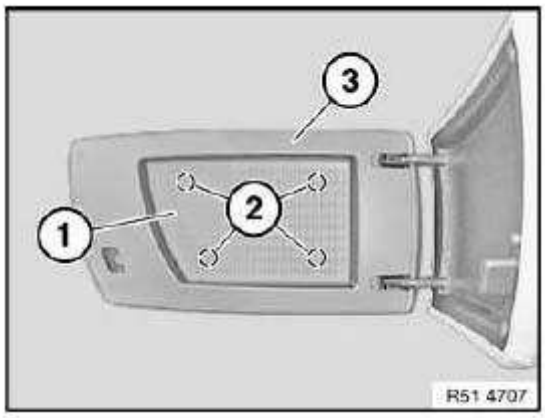


Fig. 194: Insert, Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement (version with telephone):

Remove eject box.

Remove insert (1) and release screws (2).

Unclip trim (3) towards top.

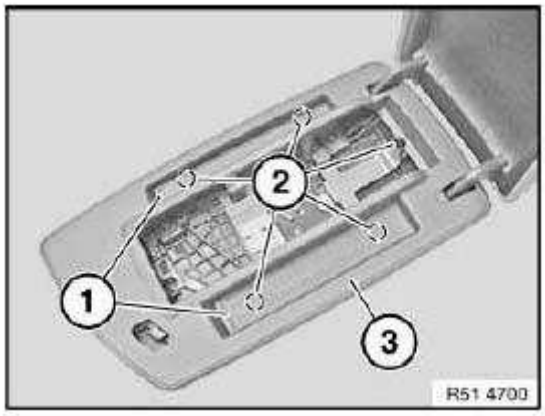


Fig. 195: Insert, Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 200 REMOVING AND INSTALLING STORAGE COMPARTMENT

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

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- Remove function carrier, see **51 45 106 Removing and installing/replacing function carrier on instrument panel trim**

Open cover for center armrest.

Lift out storage compartment (1).

NOTE: For purposes of clarity, all the following operations are shown with the center armrest removed.

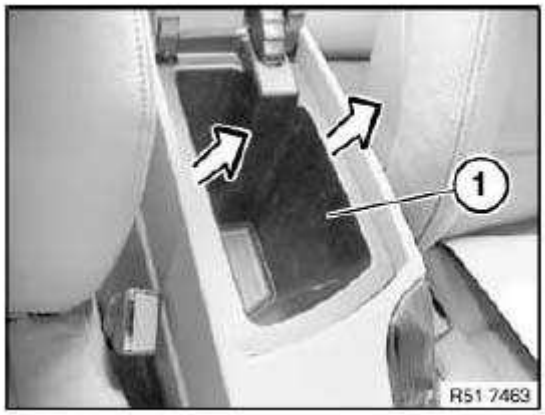


Fig. 196: Storage Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

Unclip catches (2) on housing for cigarette lighter (3).

Remove housing (3) in direction of arrow.

Installation:

Catches (2) must not be damaged

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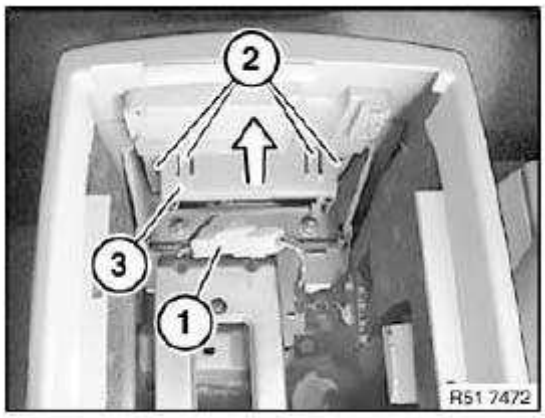


Fig. 197: Catches, Plug Connection And Cigarette Lighter
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts (1) and screws (2) on rear storage compartment.

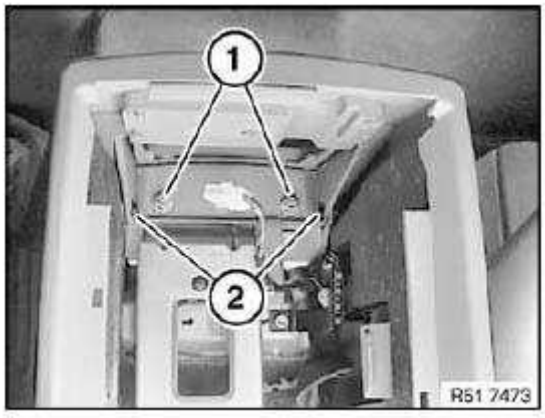
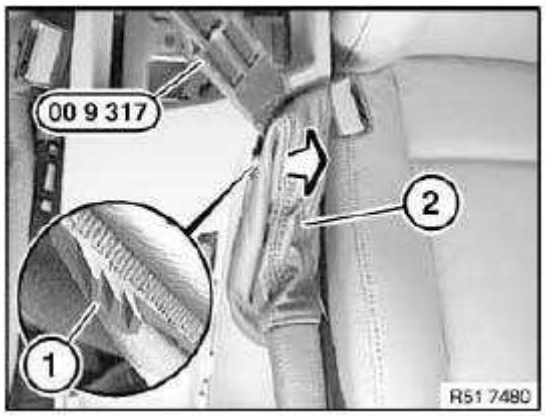


Fig. 198: Nuts And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip catches (1) on gaiter (2) with special tool 00 9 317. Pull off gaiter (2) towards top.



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Fig. 199: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

Feed out storage compartment (3) past gaiter (4) and remove towards top rear.

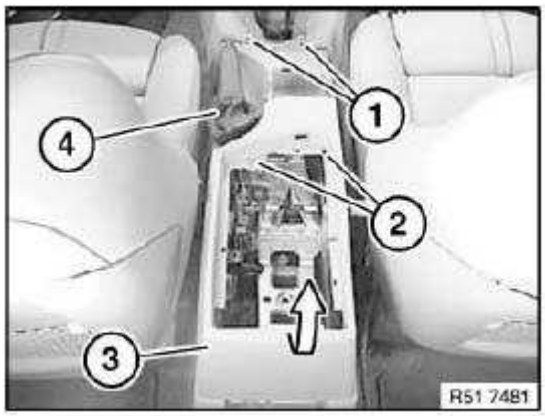


Fig. 200: Storage Compartment, Past Gaiter And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 200 REMOVING AND INSTALLING/REPLACING STORAGE COMPARTMENT (WITH CD CHANGER)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove function carrier, see **51 45 106 Removing and installing/replacing function carrier on instrument panel trim**

Unclip trim (1) towards top.

Remove compartment (2).

Installation:

Clips (3) must not be damaged.

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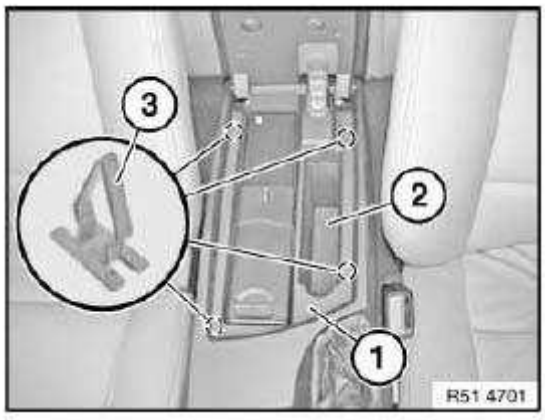


Fig. 201: Trim, Compartment And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

When installing compartment (1), make sure guides (2) are inserted into guides (3) on storage compartment (4).

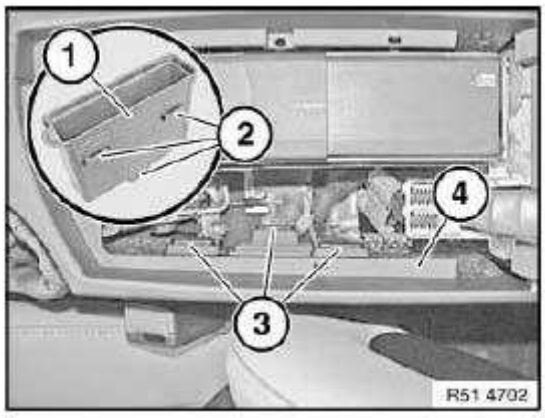


Fig. 202: Compartment, Guides And Storage Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

Version with telephone:

Disconnect plug connection (1).

Release protective sleeve (2) and disconnect plug connection underneath.

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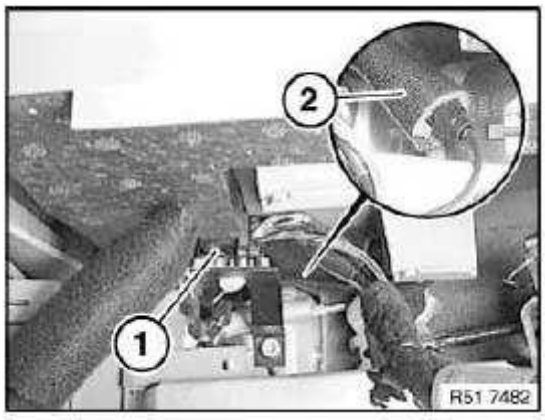


Fig. 203: Plug Connection And Protective Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip catches (1) on gaiter (2) with special tool 00 9 317.

Detach gaiter (2) with handle towards front.

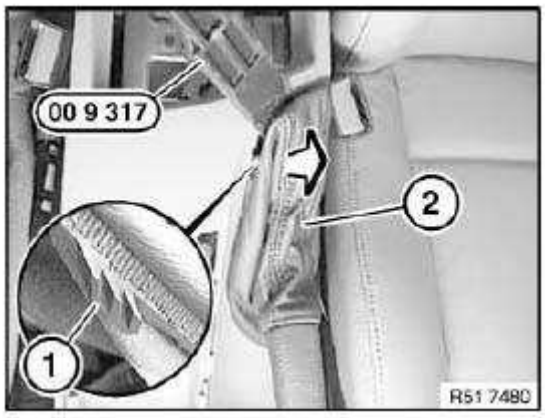


Fig. 204: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully snap out trim (1) towards rear.

Disconnect associated plug connection and remove trim light (1).

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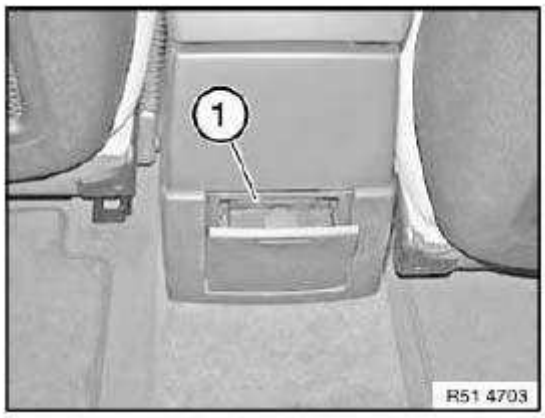


Fig. 205: Trim Light
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts (1) and screws (2) on rear storage compartment.

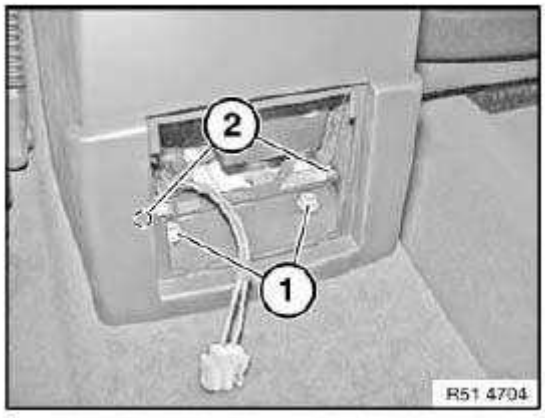


Fig. 206: Nuts And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

Feed out storage compartment (3) upwards over handbrake lever (4) and remove.

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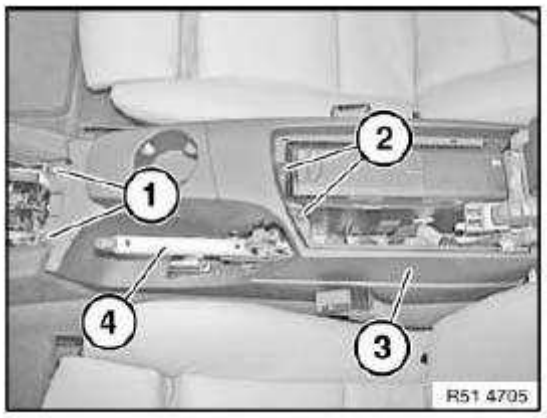


Fig. 207: Storage Compartment And Handbrake Lever
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 201 REPLACING STORAGE COMPARTMENT

Necessary preliminary tasks:

- Remove storage compartment, see **51 16 200 Removing and installing storage compartment**
- Remove drinks holder, see **51 16 202 Removing and installing/replacing front cup holder**
- Remove cover for center armrest, see **51 16 ... Removing and installing/replacing cover for center armrest (storage compartment with CD changer)**

51 16 202 REMOVING AND INSTALLING/REPLACING FRONT CUP HOLDER

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Lever out cup holder (1) with special tool 00 9 317 in direction of arrow and remove.

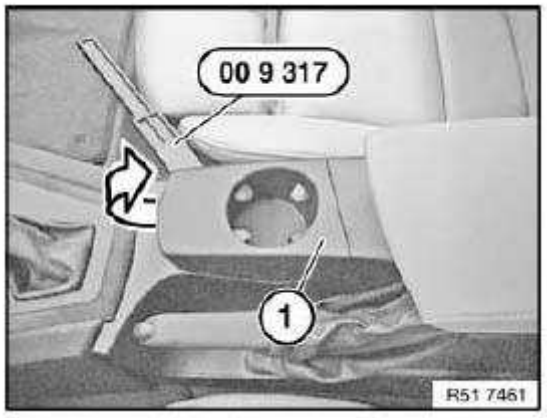


Fig. 208: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Guides (1) and catches (2) must not be damaged.

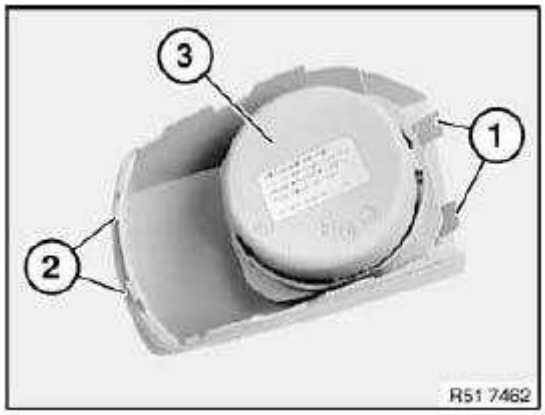


Fig. 209: Guides And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 210 REMOVING AND INSTALLING/REPLACING TRIM FOR PRESELECTOR LEVER

Necessary preliminary tasks:

- Apply parking brake
- Move selector lever into N position
- Remove gaiter for shift block

Unclip trim for preselector lever (1) towards top.

Disconnect associated plug connections and remove trim for preselector lever (1).

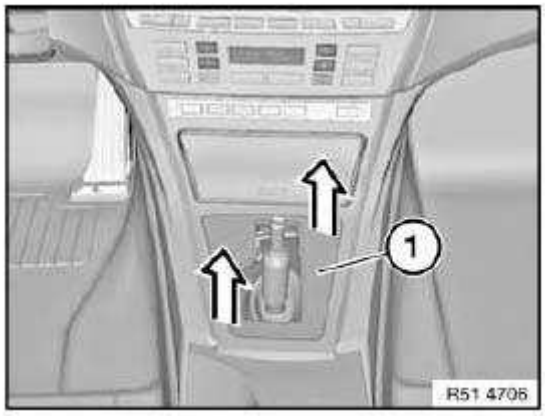


Fig. 210: Preselector Lever
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Retainers (1) must not be damaged or missing.

Make sure retainers (1) are correctly seated in appropriate mounts of trim for preselector lever (2).

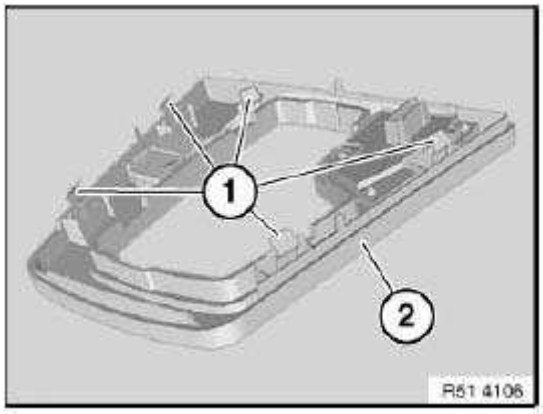


Fig. 211: Retainers And Preselector Lever
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 340 REMOVING AND INSTALLING/REPLACING LOCK FOR RIGHT GLOVEBOX

Open glovebox.

Release screws (1).

Remove lower section (3) and upper section (2) of lock.

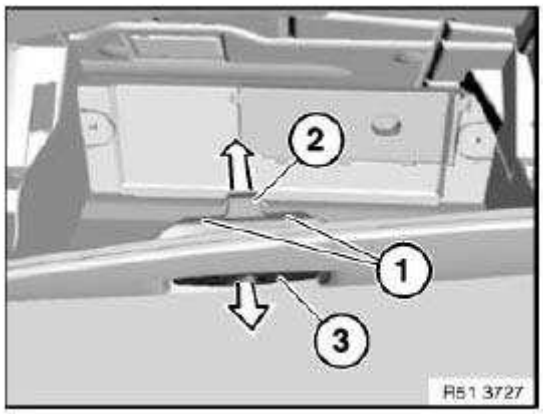


Fig. 212: Lower Section And Upper Section Of Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Insert ignition key (1) in lock cylinder (3).

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Turn ignition key (1) slightly, carefully raise catches (2) and pull out lock cylinder (3) with ignition key (1) in direction of arrow.

If necessary, force catches (2) open.

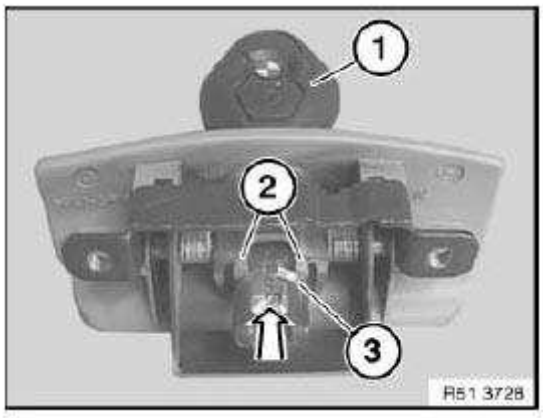
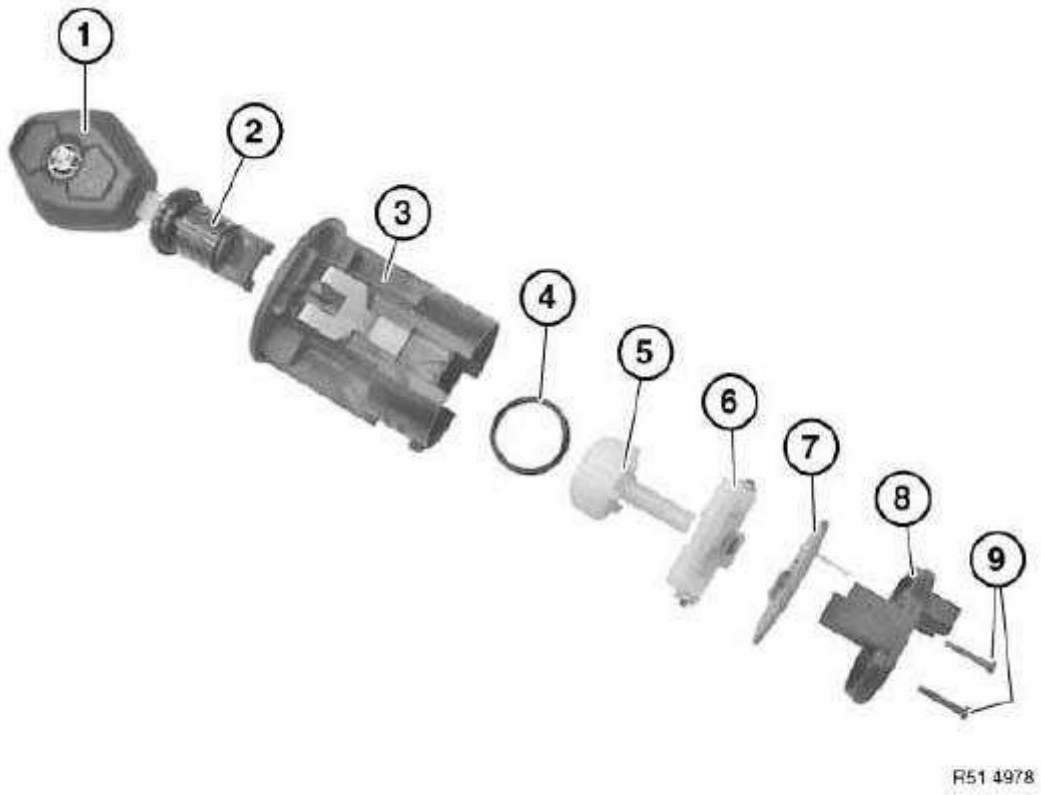


Fig. 213: Ignition Key, Catches And Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 342 REMOVING AND INSTALLING/REPLACING LOCK CYLINDER FOR PASSENGER AIRBAG DEACTIVATION

Individual parts, switch for passenger airbag deactivation

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1	Ignition key	6	Switch unit
2	Lock cylinder	7	PCB
3	Switch housing	8	Housing cover
4	Sealing ring	9	Screws
5	Guide		

Fig. 214: Individual Parts, Switch For Passenger Airbag Deactivation
Courtesy of BMW OF NORTH AMERICA, INC.

Necessary preliminary tasks:

- Remove switch for passenger airbag deactivation

Release screws (1).

Remove housing cover (2) and PCB (3) underneath.

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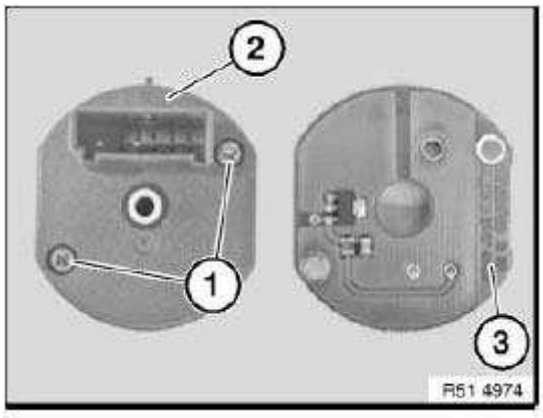


Fig. 215: Housing Cover, Screws And PCB
Courtesy of BMW OF NORTH AMERICA, INC.

Remove switch unit (1) in upward direction.

Installation:

Switch unit (1) can only be installed in one position.

PCB (4) can be inserted turned through 180°.

Position of magnet sensor (3) of PCB (4) must match up with permanent magnet (2) of switch unit (1).

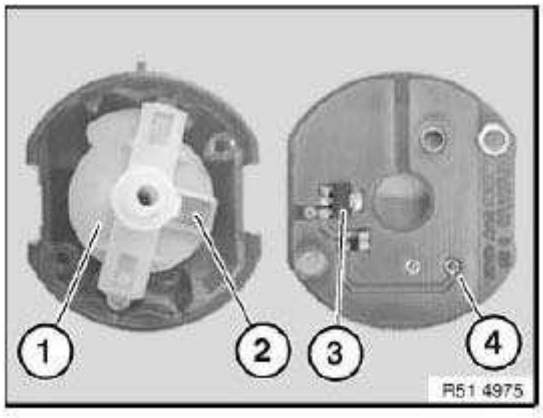


Fig. 216: Magnet Sensor, PCB And Switch Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Remove guide (1) in upward direction.

Installation:

Guide (1) can only be installed in one position.

Fit seal (2) on guide (1) and insert in switch housing.

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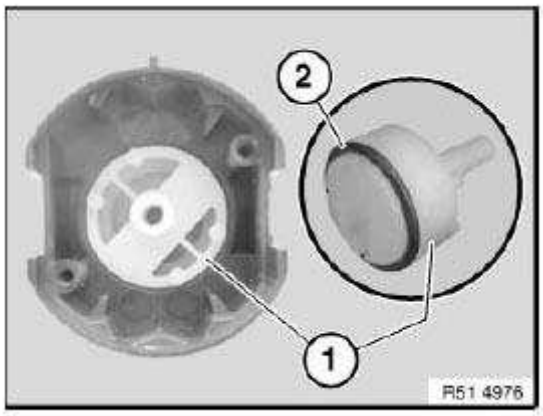


Fig. 217: Seal And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Ignition key must be inserted in lock cylinder, otherwise this will be destroyed when removed.

Insert ignition key in lock cylinder (2).

Carefully release catches (1) in outward direction and press out lock cylinder (2) with ignition key.

Installation:

Lock cylinder (2) can only be inserted in "ON" or "OFF" switch position.

Lock cylinder

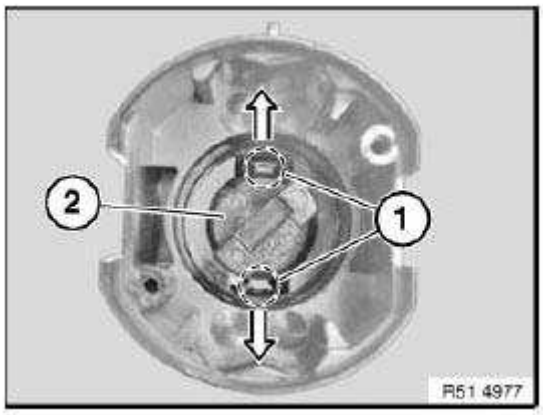


Fig. 218: Catches And Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 360 REMOVING AND INSTALLING RIGHT GLOVEBOX

NOTE: Open glovebox.

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Unclip pin (1) from retaining strap (2).

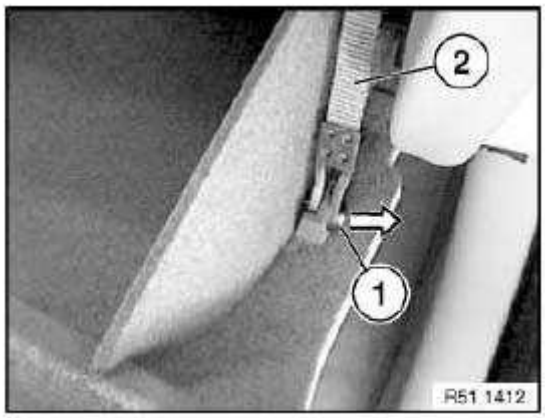


Fig. 219: Pin And Retaining Strap
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip pin (1) from shock absorber (2).

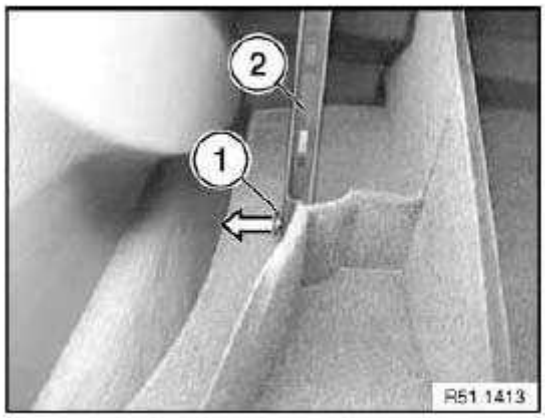


Fig. 220: Pin And Shock Absorber
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Close glovebox (3) and secure against falling out.

Release screws (1) and remove counter-support (2).

Open glovebox (3) and remove.

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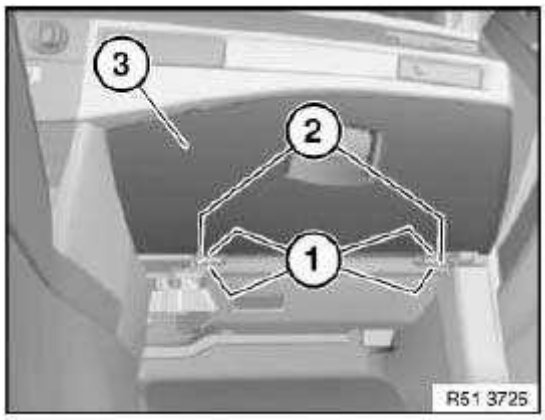


Fig. 221: Screws, Glovebox And Counter-Support
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure counter-support (1) is correctly seated on chamfered faces of shaft (2).

If necessary, turn shaft (2) accordingly.

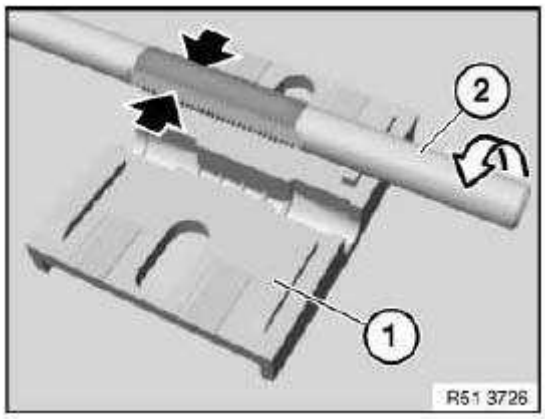


Fig. 222: Counter-Support And Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 361 REPLACING RIGHT GLOVEBOX

Necessary preliminary tasks:

- Remove right glovebox, see **51 16 366 Removing and installing right glovebox with housing**
- Remove lock for right glovebox, see **51 16 340 Removing and installing/replacing lock for right glovebox**

Release screws (1).

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Remove holders (2) from glovebox (3).

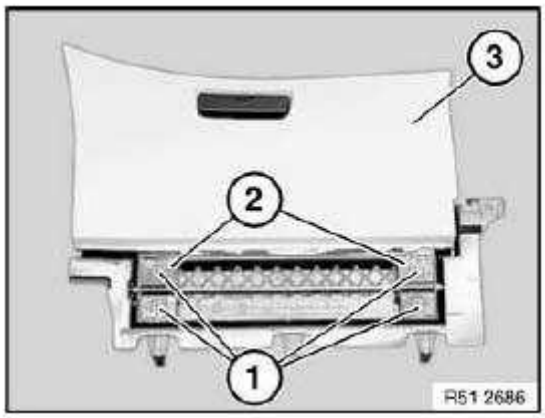


Fig. 223: Holders, Screws And Glovebox
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1).

Detach adhesive tape (2).

Feed out cable (3) with glovebox (4).

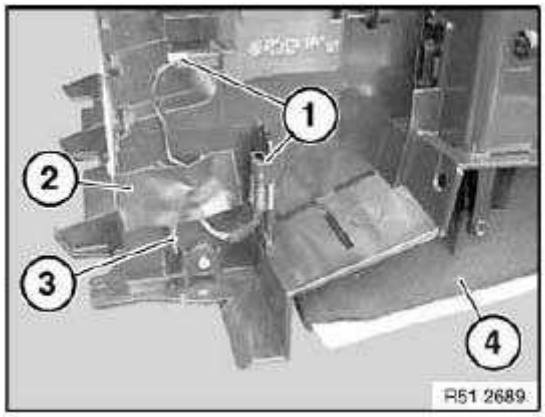


Fig. 224: Plug Connections, Cable And Glovebox
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 366 REMOVING AND INSTALLING RIGHT GLOVEBOX WITH HOUSING

Open glovebox.

Lever glovebox light (1) out of opening (2).

Disconnect plug connection and remove glovebox light (1).

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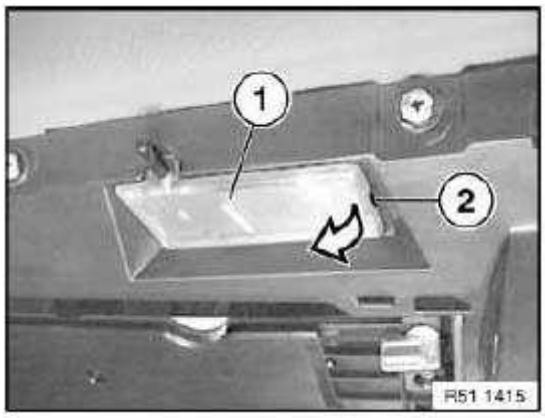


Fig. 225: Glovebox Light
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip pin (1) from retaining strap (2).

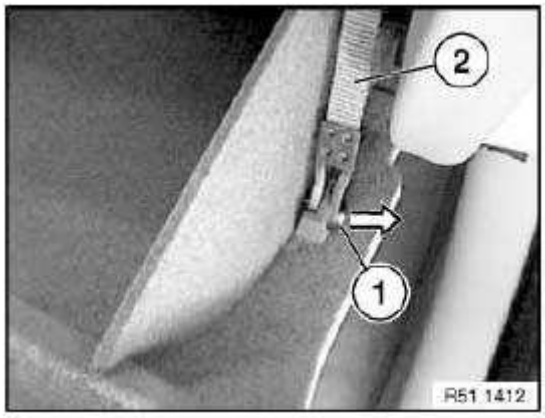
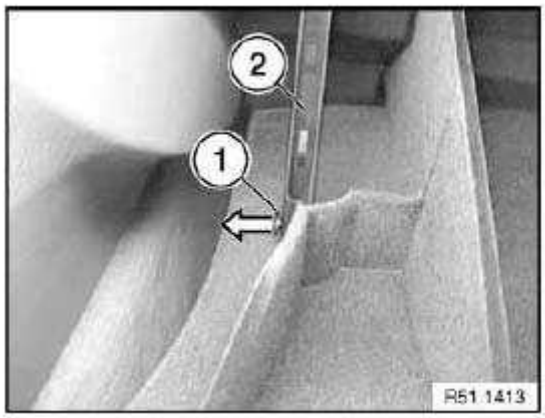


Fig. 226: Pin And Retaining Strap
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip pin (1) from shock absorber (2).



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Fig. 227: Pin And Shock Absorber
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Pull off glovebox (2) with insert towards front and position downwards.

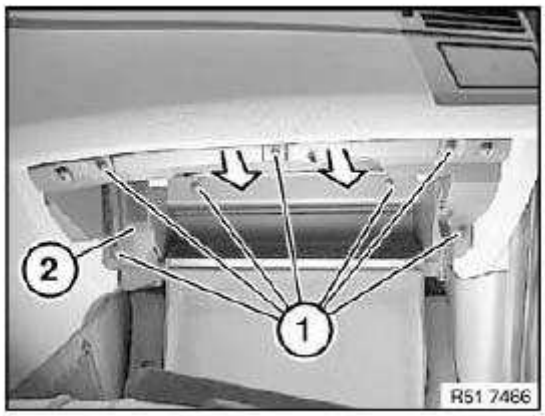


Fig. 228: Glovebox And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Feed cables (1) and (2) out of guides on glovebox carrier (3).

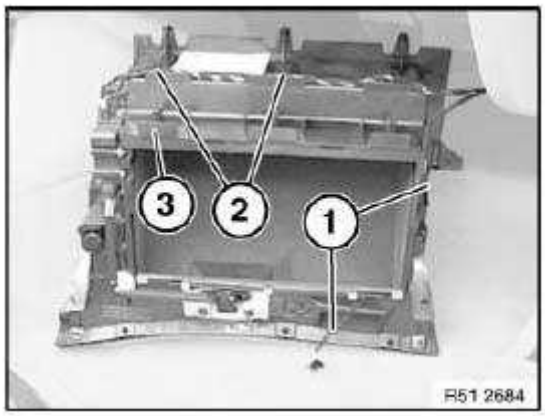


Fig. 229: Cables And Glovebox Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1) and (2).

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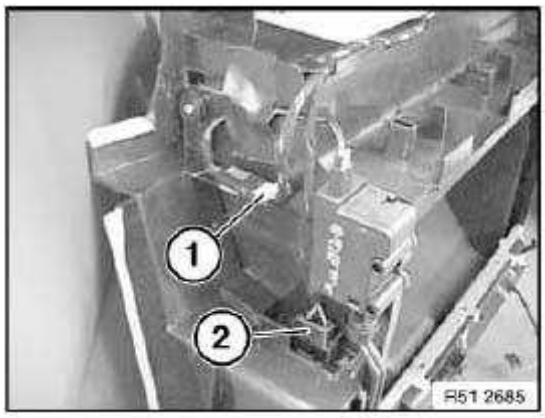


Fig. 230: Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 450 REMOVING AND INSTALLING/REPLACING REAR LEFT/RIGHT GRAB HANDLE

Operation is identical to:

51 16 480 Removing and installing or replacing front grab handle

51 16 480 REMOVING AND INSTALLING OR REPLACING FRONT GRAB HANDLE

Carefully lever out trims (1).

Release screws underneath and remove grab handle (2).

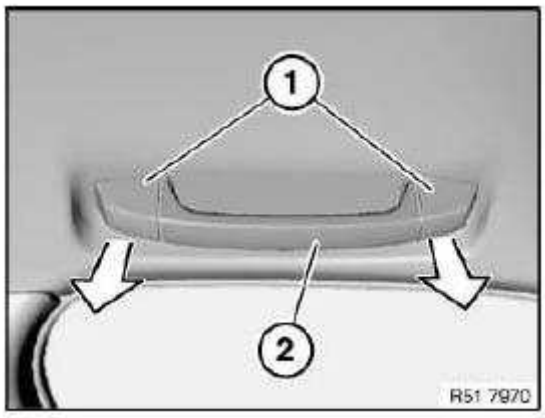


Fig. 231: Grab Handle And Trims
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: When replacing or when lowering or removing the roofliner, it is necessary to remove the intermediate plate (1) beforehand.

If necessary, pull off door seal (2) and feed out intermediate plate (1).

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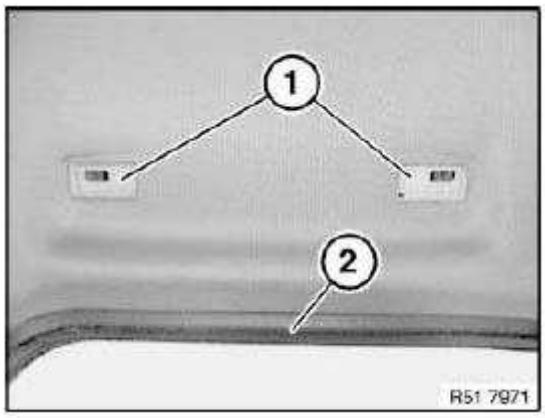


Fig. 232: Door Seal And Intermediate Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Intermediate plate (2) must be installed in correct position. Guide in area (A) of grab handle (1) must fit in groove in area (B) of intermediate plate (2).

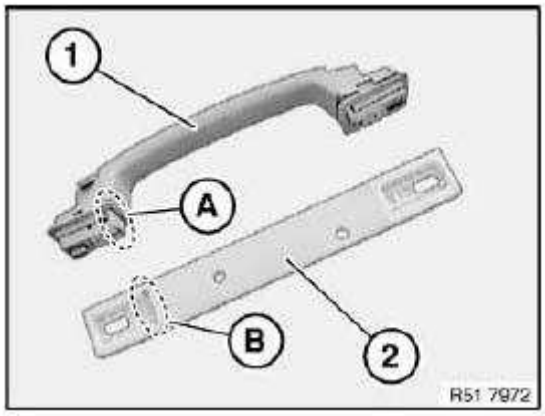
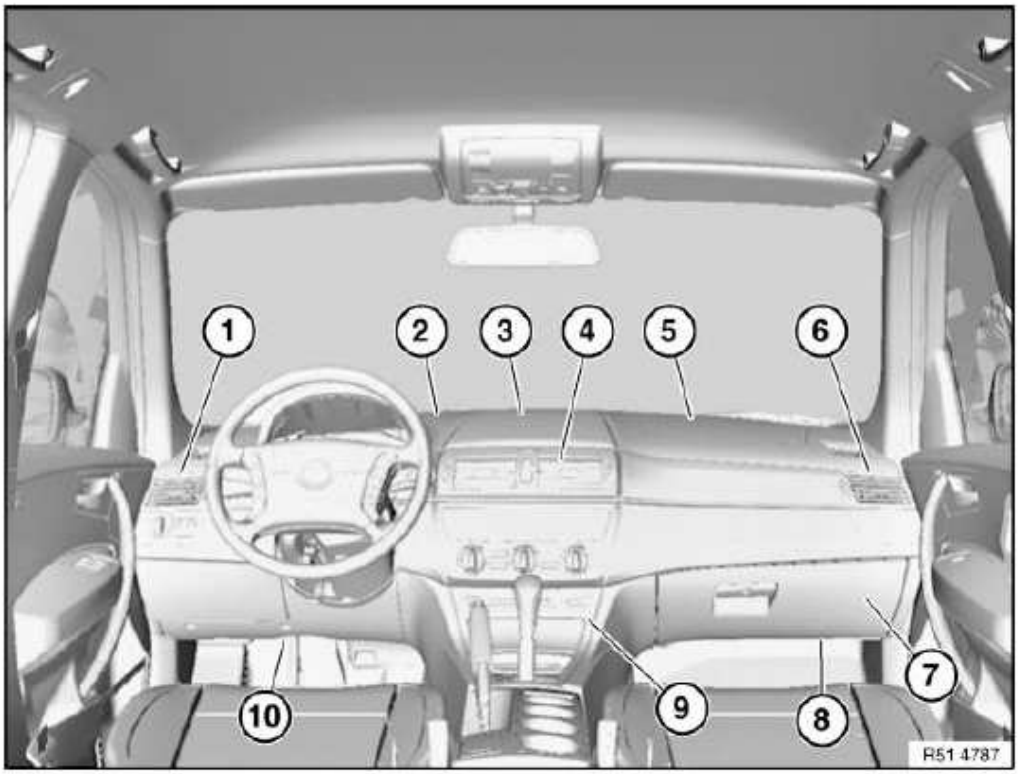


Fig. 233: Grab Handle And Intermediate Plate
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 .. OVERVIEW OF INSTRUMENT PANEL

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1	Fresh-air grille, left	6	Fresh-air grille, right
2	Dashboard trim panel	7	Glovebox
3	Storage compartment in instrument panel	8	Instrument panel trim, bottom right
4	Fresh-air grille, middle	9	Function carrier on instrument panel trim
5	Airbag cover, passenger side	10	Panel for pedals

Fig. 234: Instrument Panel Components
Courtesy of BMW OF NORTH AMERICA, INC.

17 LIDS

51 17 400 REMOVING AND INSTALLING/REPLACING BUMP STOP WITH EJECTOR FOR FILLER FLAP

Release cover (1).

Press catches (2) together and pull out ejector (3).

Installation:

Install ejector (3) with fitted cover (1).

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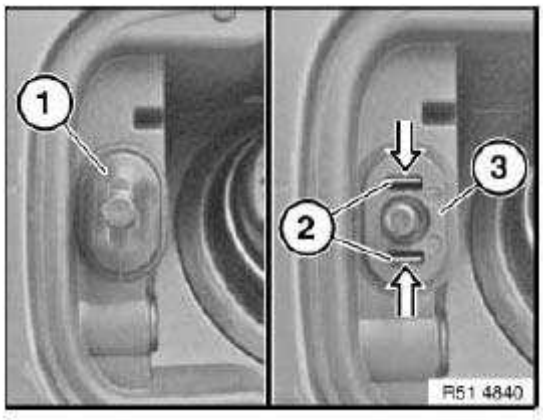


Fig. 235: Catches, Cover And Ejector
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on ejector (2) must not be damaged.

Make sure cover (3) is correctly seated on ejector (2).

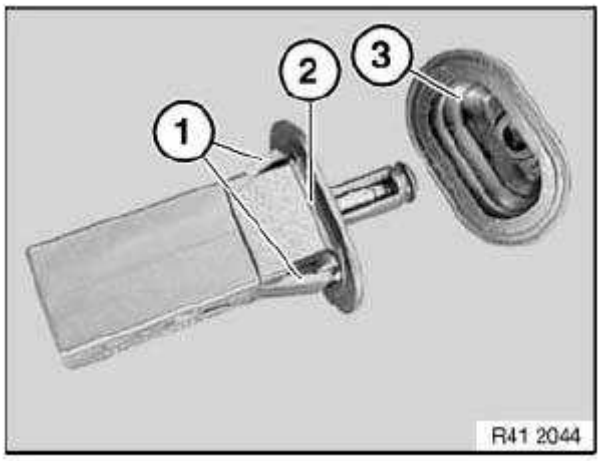


Fig. 236: Catches, Cover And Ejector
Courtesy of BMW OF NORTH AMERICA, INC.

21 FRONT DOOR LOCKS, HANDLES, FITTINGS

51 21 ... REMOVING WINDOW CAVITY COVER STRIP WITH SPECIAL TOOL 00 9 324 AT FRONT OR REAR

Special tools required:

- 00 9 318 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**
- 00 9 324 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

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Open complete door window glass.

Front door:

Insert special tool 00 9 324 at front (at A-pillar) in window cavity (1) (letters TOP pointing upwards).

Rear door:

Insert special tool 00 9 324 at rear (at C-pillar) in window cavity (2) (letters TOP pointing upwards).

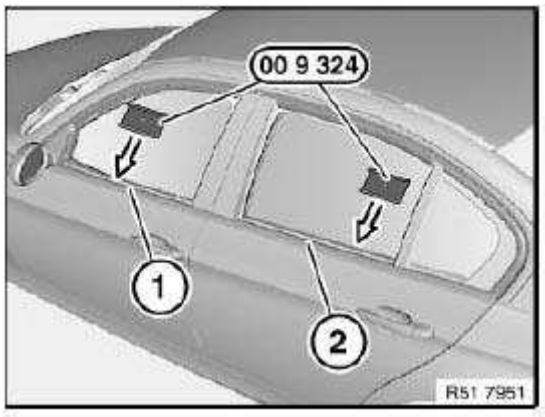


Fig. 237: Special Tool (00 9 324)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: For purposes of clarity, picture shows inner door panel and door window glass removed.

Special tool 00 9 324 must be correctly guided under window cavity cover strip (1).

2 Short leg, bottom
3 Long leg, top (TOP)

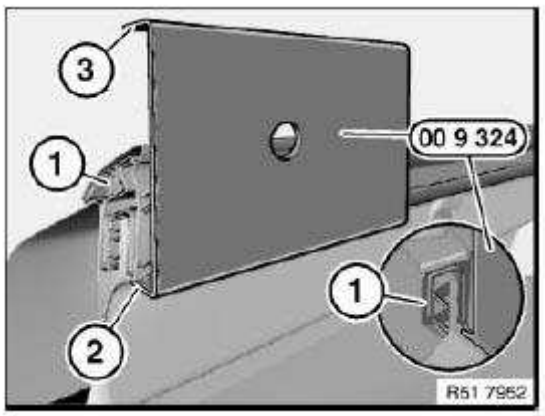


Fig. 238: Special Tool (00 9 324)

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Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Start at the front or rear, depending on the model.

IMPORTANT: Risk of damage!
Raise window cavity cover strip (3) no more than 5 mm in each levering operation, otherwise the strip will be bent.

Position special tool 00 9 318 on door trim panel (1).

Slide screwdriver (2) into special tool 00 9 324 and lever window cavity cover strip (3) upwards no more than 5 mm.

Guide special tools 00 9 324 and 00 9 318 towards front/rear and lever out window cavity cover strip (3) in the process.

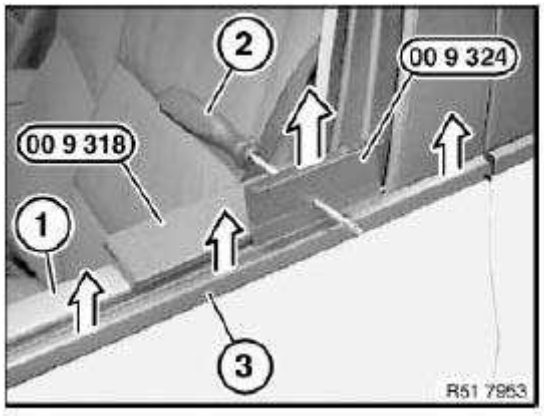


Fig. 239: Special Tool (00 9 318) And (00 9 324)
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 003 REPLACING DOOR DETENT (LOCK STRIKER), FRONT LEFT OR RIGHT

Release screws (1) and remove door detent (3).

Installation:

Basic adjustment via crosswire on B-pillar (4) and notches (2) on door detent (3).

Tightening torque: 51 21 3AZ, see **51 21 FRONT DOOR LOCKS**

Adjust door detent.

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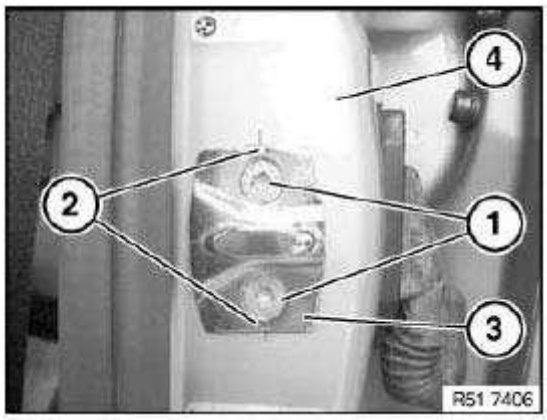


Fig. 240: B-Pillar, Notches And Door Detent
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 004 ADJUSTING FRONT LEFT OR RIGHT DOOR DETENT (LOCK WEDGE)

Operation is described in:

41 51 004 ADJUSTING FRONT LEFT OR RIGHT DOOR

51 21 090 REMOVING AND INSTALLING/REPLACING DOOR LOCK IN LEFT OR RIGHT FRONT DOOR

Special tools required:

- **51 2 190 DOOR LOCK TENSIONER**

Necessary preliminary tasks:

- Close door windows
- Detach sound insulation in rear area only, see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**

Security version:

- Remove complete sound insulation

Disconnect Bowden cable at bottom (1) and top (3) from door lock (2).

IMPORTANT: Bowden cable must be correctly located in mounts on door lock (2). Seal (4) must be correctly positioned on Bowden cable.

NOTE: The operations for "Removing Bowden cable from door lock" end here.

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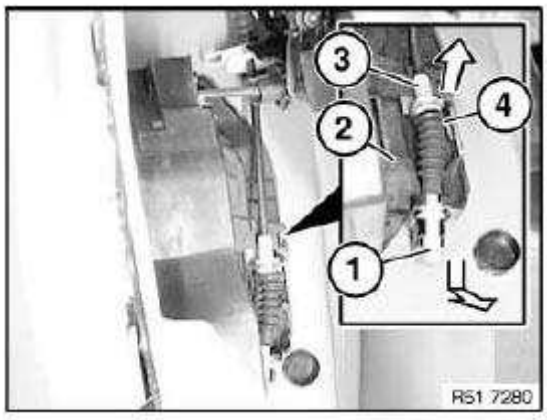


Fig. 241: Bowden Cable, Door Lock And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock plug connection (1) at lugs (2) and detach from door lock (3).

Unclip locking rod (4) from door lock (3).

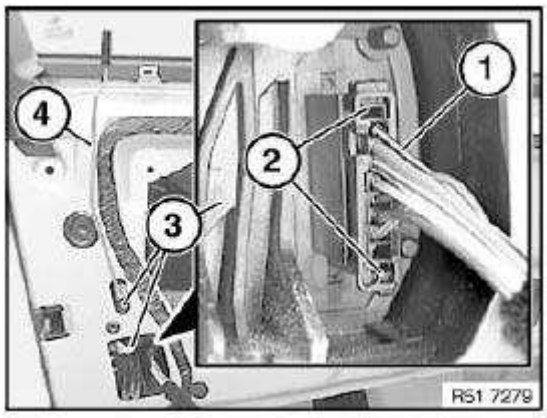


Fig. 242: Plug Connection And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Soft Close Automatic:

Disconnect plug connection (1).

Unfasten cable tie (2).

Release screw (3) and nuts (4).

Tightening torque: 51 21 11AZ, see **51 21 FRONT DOOR LOCKS**

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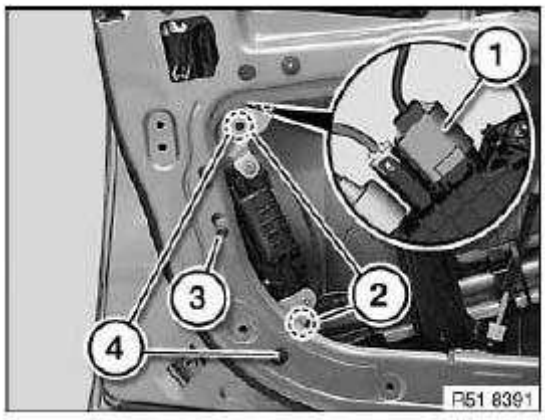


Fig. 243: Plug Connection, Cable Tie, Screw And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage door lock seal during removal.

Release screws (1).

Feed out door lock (2) from inside.

IMPORTANT: To avoid leakage and electrical malfunction:
Pull door lock (2) with special tool into corner (3), see Fig. 247 and Fig. 248.

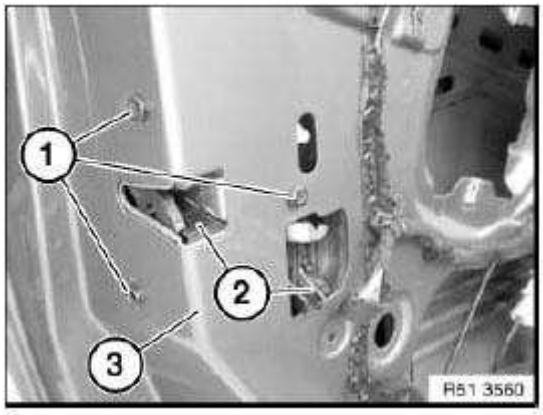


Fig. 244: Door Lock, Corner And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Driver's door only:

Installation:

Insert inside door lock (1) correctly into paddle (2) of lock cylinder (3).

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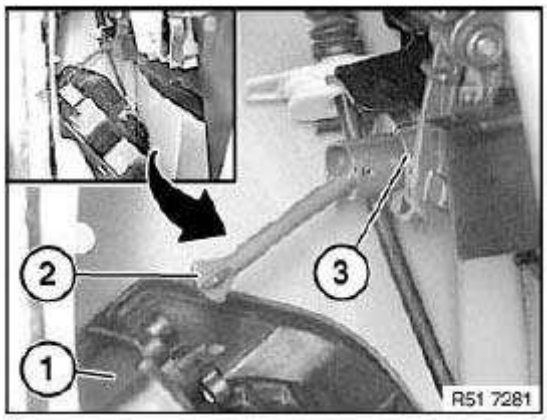


Fig. 245: Inside Door Lock, Paddle And Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) on door lock (2) must not be damaged.

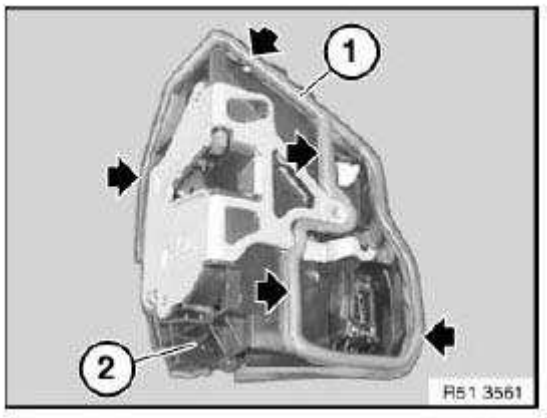


Fig. 246: Seal And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Install door lock and insert screws (1), do not tighten down.
- Slide special tool 51 2 190 into opened rotary latch until latch engages in first stage.

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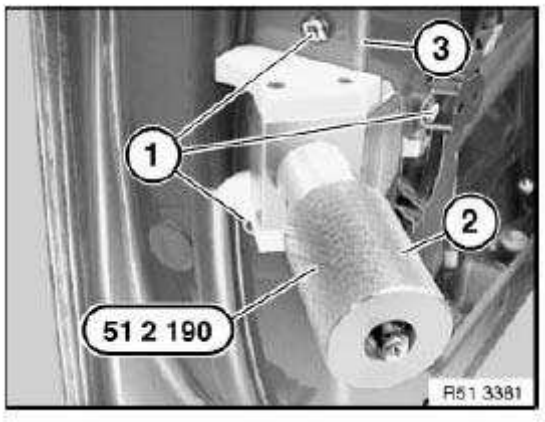


Fig. 247: Door Lock, Corner And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Pretension door lock (1) with knurled screw (2) until special tool 51 2 190 just contacts corner points (3).

IMPORTANT: To tension door lock (1), it is only permitted to turn knurled screw (2) by a further 1 to 1.5 turns (max.) (risk of damage).
Door lock seal must rest uniformly on inner door plate (water ingress).

- Tighten down door lock screws 51 21 1AZ, see **51 21 FRONT DOOR LOCKS**

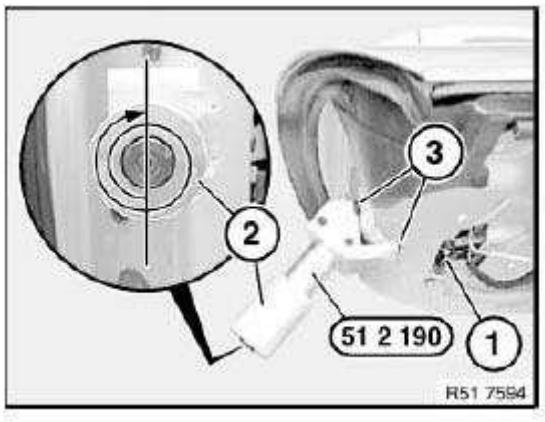


Fig. 248: Door Lock, Corner And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement with Soft Close Automatic:

Release nuts (1) and remove bracket (2).

Tightening torque: 51 21 12AZ, see **51 21 FRONT DOOR LOCKS**

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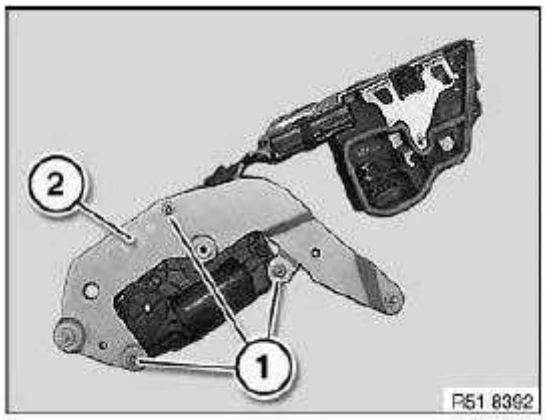


Fig. 249: Nuts And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 125 REMOVING AND INSTALLING/REPLACING CARRIER FOR LEFT OR RIGHT OUTSIDE DOOR HANDLE WITH LOCK CYLINDER

Necessary preliminary tasks:

- Remove cover on outside handle, see **51 21 180 Removing and installing/replacing cover on outside handle**
- Disconnect Bowden cable from door lock, see **51 21 090 Removing and installing/replacing door lock in left or right front door**

Driver's side only:

- Remove door lock on front door, see **51 21 090 Removing and installing/replacing door lock in left or right front door**

NOTE: Version with Comfort Access/CA:
CA sensor (4) must not be damaged.

Unlock catches (2) on carrier (1).

Press lock cylinder (5) behind door outer skin (3).

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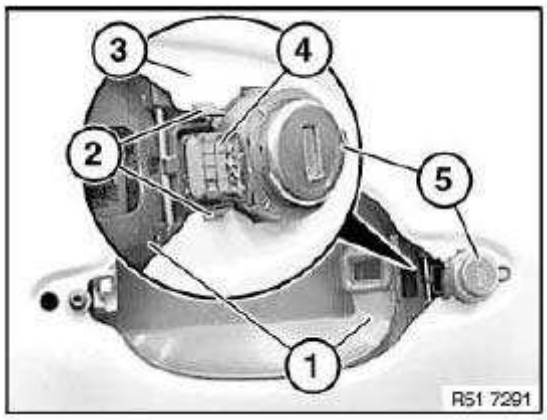


Fig. 250: Catches, Carrier, Lock Cylinder And Door Outer Skin
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, disconnect plug on CA module.

Pull carrier (3) towards rear/top until screw (1) of sheet metal slot (2) is free.

Remove carrier (3) for outside door handle.

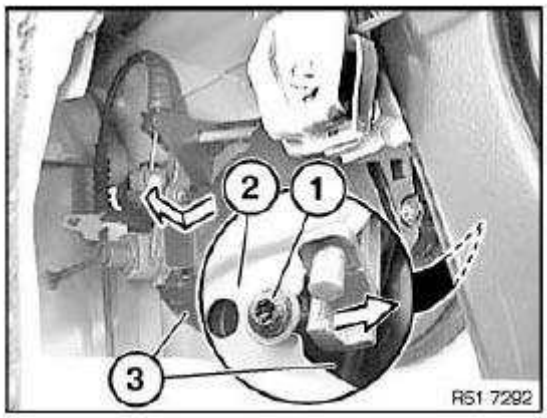


Fig. 251: Carrier, Screw And Sheet Metal Slot
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seals (1) on carrier (3) must not be damaged.

IMPORTANT: Water drainage channel (2) must not be fouled/clogged.

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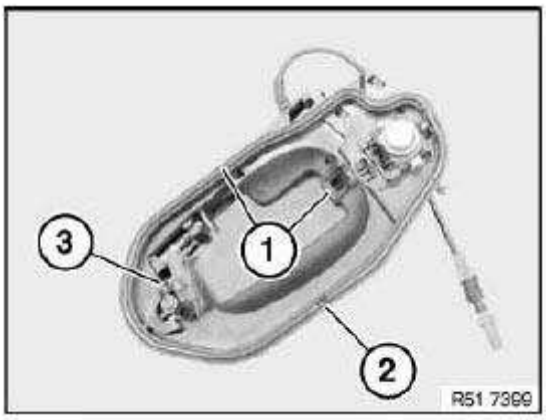


Fig. 252: Seals And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

- Remove Bowden cable for outside door handle on front door, see **51 21 233 Removing and installing/replacing Bowden cable for outside door handle on left or right front door**

Version with Comfort Access/CA:

- Carry out programming/coding using appropriate BMW service tool.

51 21 126 REMOVING AND INSTALLING/REPLACING CARRIER FOR LEFT OR RIGHT OUTSIDE DOOR HANDLE WITHOUT LOCK CYLINDER

NOTE: Operation is (except for tasks relating to removing door lock) identical to:

- **51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder**.

51 21 140 REMOVING AND INSTALLING/REPLACING COMPLETE LOCK CYLINDER IN LEFT OR RIGHT FRONT DOOR

Operation is identical to:

51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder

51 21 170 REMOVING AND INSTALLING OR REPLACING OUTSIDE HANDLE FROM LEFT OR RIGHT FRONT DOOR

Special tools required:

- **51 2 220 TORX**

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Necessary preliminary tasks:

- Remove cover on outside handle, see **51 21 180 Removing and installing/replacing cover on outside handle**

Removal:

NOTE: Installation is described separately from removal.

Remove plate (1).

Installation:

If necessary, replace faulty trim (1).

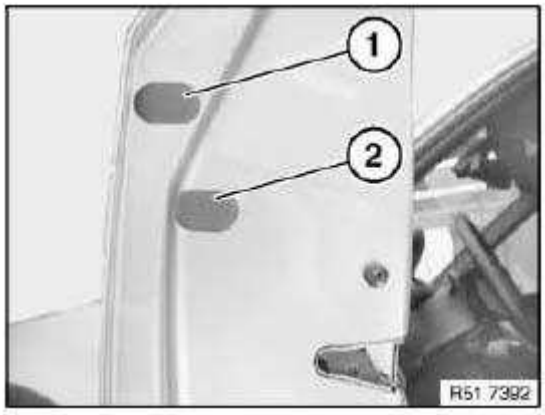


Fig. 253: Plate And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Protect bore (1) against scratching (risk of corrosion).

IMPORTANT: If screw (3) is not correctly secured, the lock mechanism can jump back and the sound insulation must be removed.

Pull outside handle (2) outwards/upwards and hold.

Using special tool 51 2 220 , turn screw (3) in counterclockwise direction and thereby secure outside handle (2).

Tightening torque: 51 21 5AZ, see **51 21 FRONT DOOR LOCKS**

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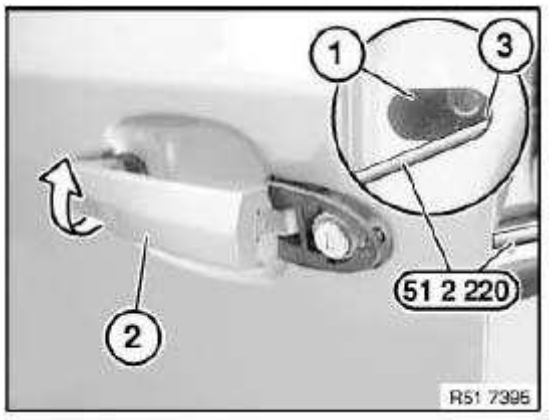


Fig. 254: Special Tool (51 2 220)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: For removal, outside handle (1) must remain secured with a screwdriver.

A. Pull off outside handle (1) from rear lock actuator (2).
B. Pull off outside handle (1) downwards/outwards (in direction of arrow) from front lock actuator (3).

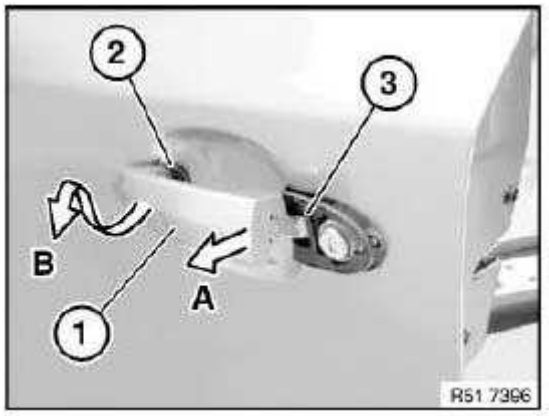


Fig. 255: Outside Handle, Front Lock Actuator And Rear Lock Actuator
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts on outside handle (4) must not be damaged or missing:

1. Rear mounting
2. Front mounting
3. Felt strip (if available for refitting/replacement no longer required)

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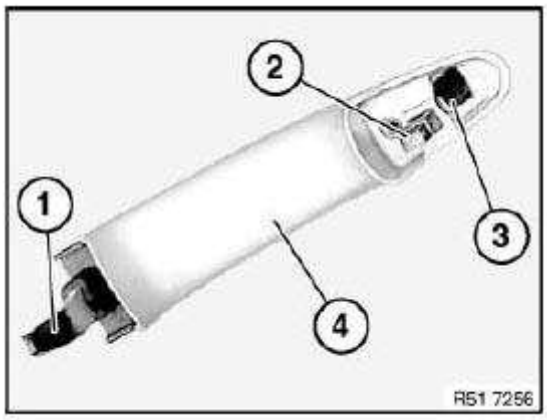


Fig. 256: Outside Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Insert outside handle with bore hole correctly in mounting (1).

Snap rear mounting on outside handle correctly into lock actuator (2).

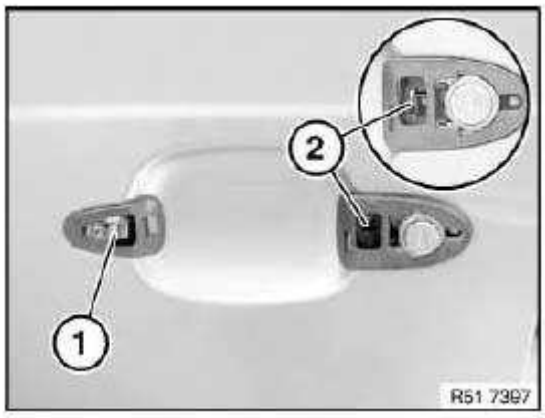


Fig. 257: Mounting And Lock Actuator
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Remove seals (2 and 3) in direction of arrow.

If necessary, replace faulty seals (2 and 3).

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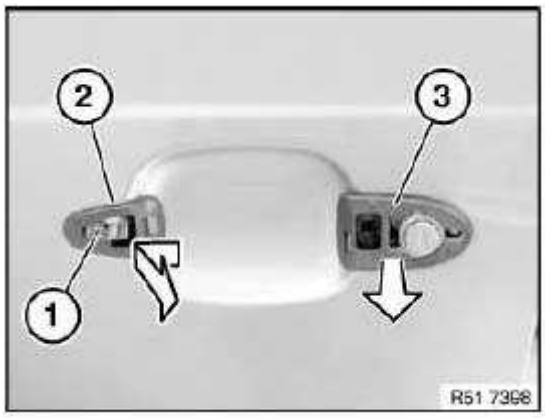


Fig. 258: Seals And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Protect bore (1) against scratching (risk of corrosion).

IMPORTANT: If screw (3) is not correctly secured, the lock mechanism can jump back and the sound insulation must be removed.

Grip outside handle (2) and, using special tool 51 2 220 , screw down screw (3) in clockwise direction.

Tightening torque: 51 21 5AZ, see **51 21 FRONT DOOR LOCKS**

Carry out function check only with door open.

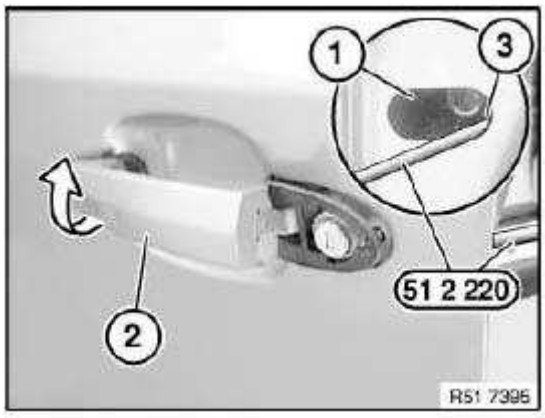


Fig. 259: Special Tool (51 2 220)
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 180 REMOVING AND INSTALLING/REPLACING COVER ON OUTSIDE HANDLE

Remove trim (1).

Installation:

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If necessary, replace faulty trim (1).

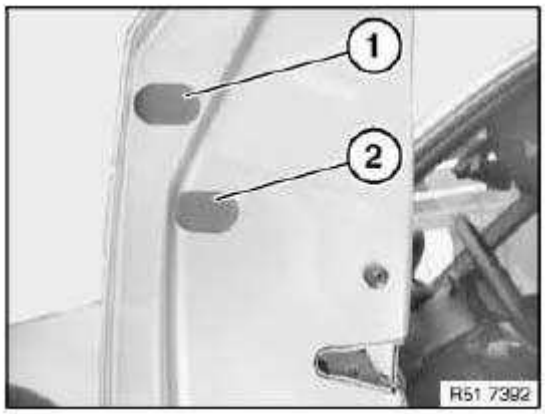


Fig. 260: Plate And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

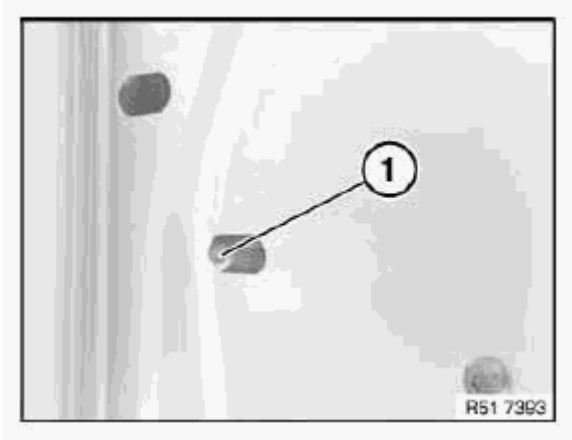


Fig. 261: Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off cover (1) in direction of arrow.

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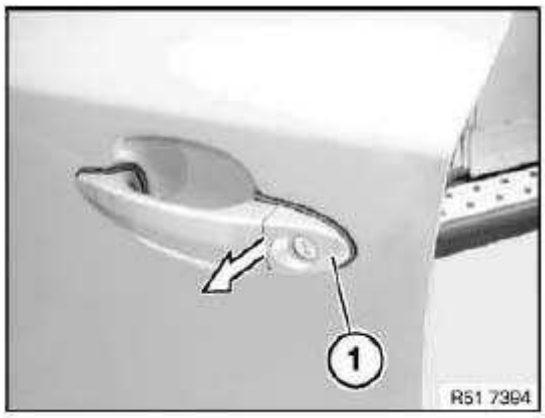


Fig. 262: Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out catches (1) and detach cover (2) from filler element (3).

Installation:

Catches (1) of cover (2) must not be damaged.

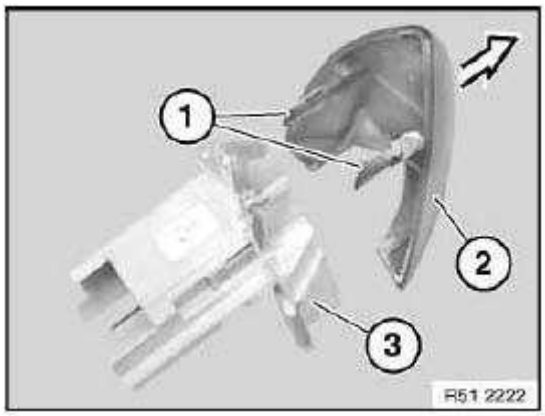


Fig. 263: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 200 REMOVING AND INSTALLING/REPLACING OUTSIDE HANDLE AND LOCK ACTUATION OF LEFT OR RIGHT FRONT DOOR

NOTE: Operation is described in:

- **51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder**

51 21 225 REMOVING AND INSTALLING OR REPLACING INSIDE DOOR OPENER IN LEFT OR RIGHT FRONT DOOR

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Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Unhook Bowden cable for release lever:

- Tighten release lever (1).
- Lever out lock (2).
- Detach Bowden cable (3) towards rear/top.

Installation:

For fitting, press release lever (1) fully onto door trim panel.

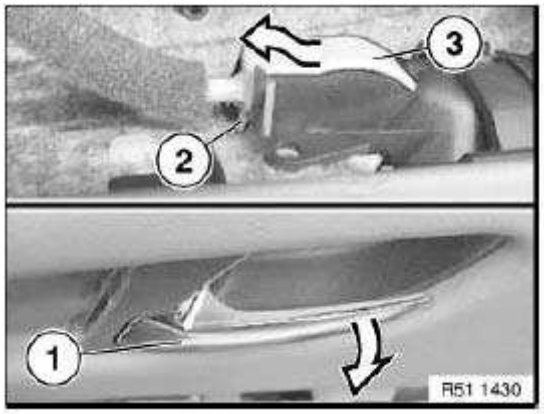


Fig. 264: Bowden Cable And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Drive out spindle (1) in upward direction.

Remove door opener (3).

Installation:

Spindle (1) must be flush with housing (2).

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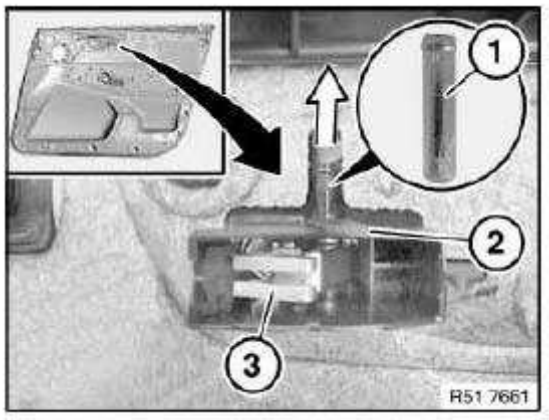


Fig. 265: Spindle, Housing And Door Opener
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 233 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

- Remove carrier for outside door handle, see **51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder**

Lever holder (2) out of catch (3).

Disconnect Bowden cable (1) from fixtures (4 and 5) and detach from carrier (6).

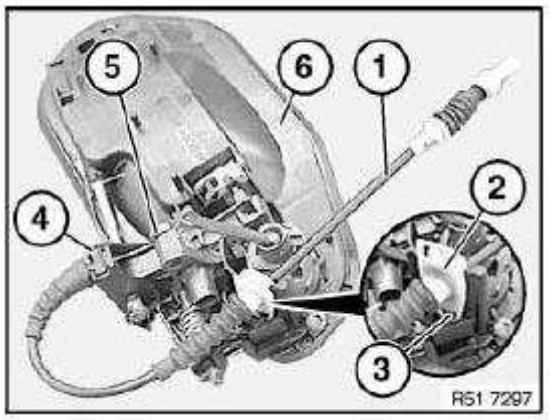


Fig. 266: Bowden Cable And Fixtures And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 235 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR INSIDE DOOR OPENER ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

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- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Unhook Bowden cable for release lever:

- Tighten release lever (1).
- Lever out lock (2).
- Detach Bowden cable (3) towards rear/top.

Installation:

For fitting, press release lever (1) fully onto door trim panel.

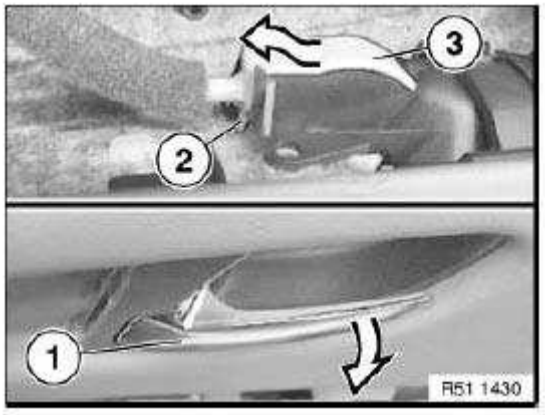


Fig. 267: Bowden Cable And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 280 REMOVING AND INSTALLING OR REPLACING DOOR BRAKE ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

- Close door windows
- Remove sound insulation in front area only, see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**

Release screw (1) on door retainer (2).

Lever out seal (3) in direction of arrow.

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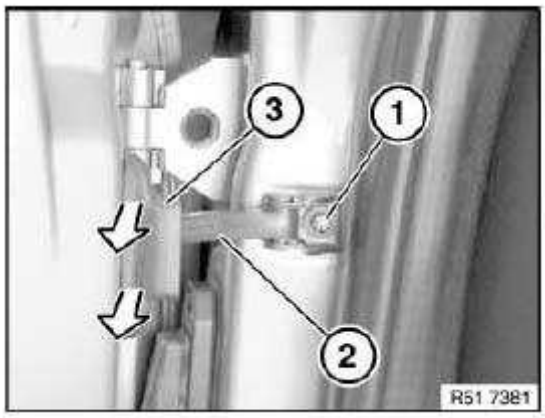


Fig. 268: Screw, Seal And Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Feed out seal (1) in direction of arrow.

Fold back screw plate (2) in direction of arrow.

Release screws (3) and feed out door retainer (4) to inner door panel.

Installation:

Seal (1) must not be damaged.

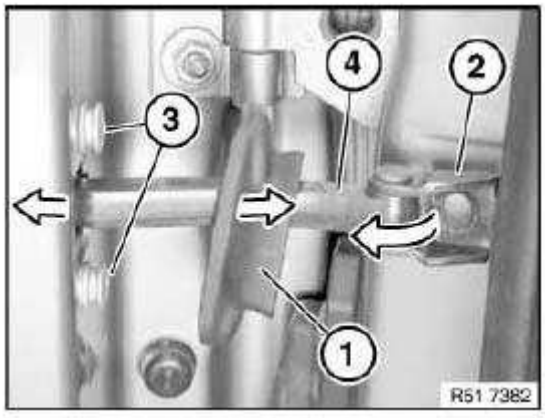


Fig. 269: Screws, Door Retainer And Screw Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

To install door retainer (1), fold back screw plate (2) in direction of arrow.

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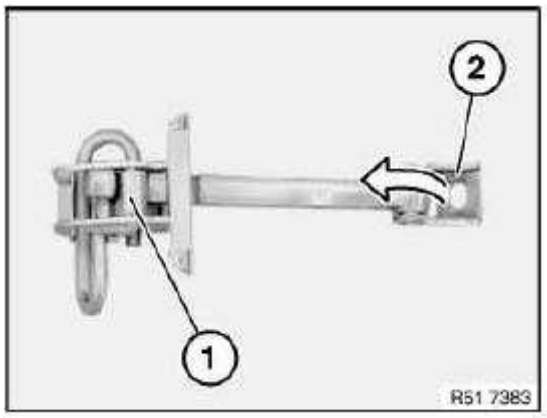


Fig. 270: Door Retainer And Screw Plate
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 300 REMOVING AND INSTALLING OR REPLACING WINDOW CAVITY COVER STRIP ON OUTSIDE OF LEFT OR RIGHT FRONT DOOR

Special tools required:

- 00 9 324 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

IMPORTANT: Observe procedure for using special tool 00 9 324. , see 51 21 ... Removing window cavity cover strip with special tool 00 9 324 at front or rear

IMPORTANT: If reusing the existing window cavity cover strip (1), make sure it is not bent.

Lever out window cavity cover strip (1) with special tool 00 9 324 (starting at B-pillar).

Slide window cavity cover strip (1) towards rear and feed out of guide (2) and door mirror (3).

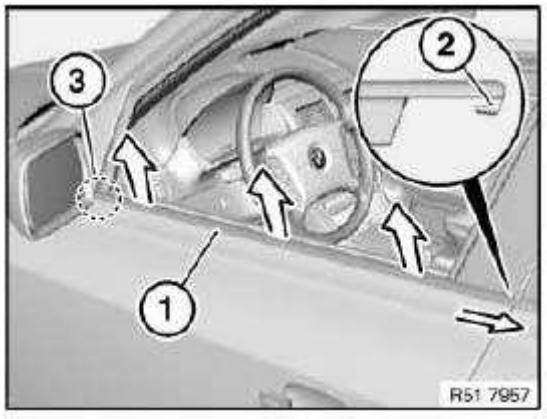


Fig. 271: Window Cavity Cover Strip, Guide And Door Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Coat window cavity cover strip (1) with water before fitting.

Feed in window cavity cover strip (1) first at guide (2) and door mirror (3), and then press into door.

Window cavity cover strip (1) must be flush at rear to door edge.

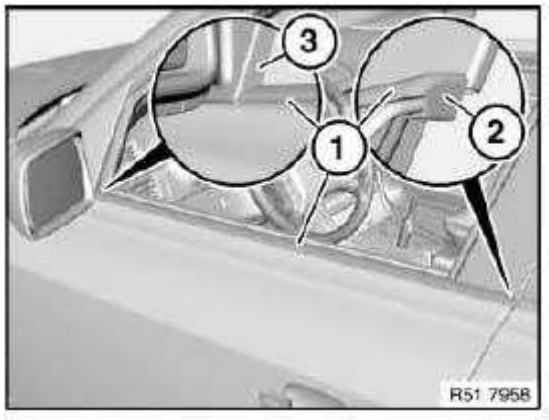


Fig. 272: Window Cavity Cover Strip, Guide And Door Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 330 REMOVING AND INSTALLING/REPLACING WINDOW CAVITY COVER STRIP ON INNER FRONT DOOR

Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Release expander rivet (1) on cover (2).

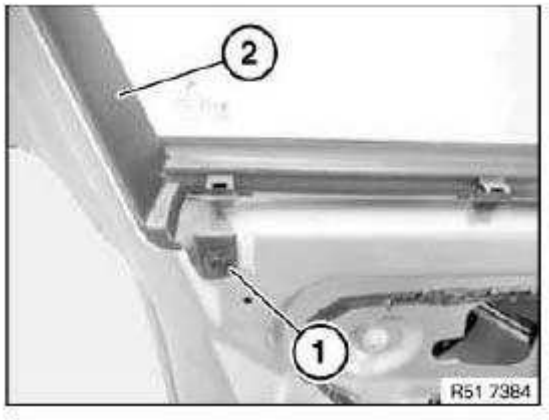


Fig. 273: Expander Rivet And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

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Lever out cover (1) at rear slightly.

Start at rear with removal of window cavity cover strip (2).

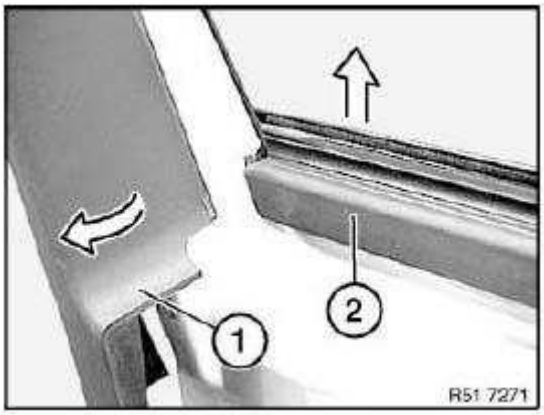


Fig. 274: Window Cavity Cover Strip And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off window cavity cover strip (1) towards top.

Installation:

If necessary, replace faulty clips (2).

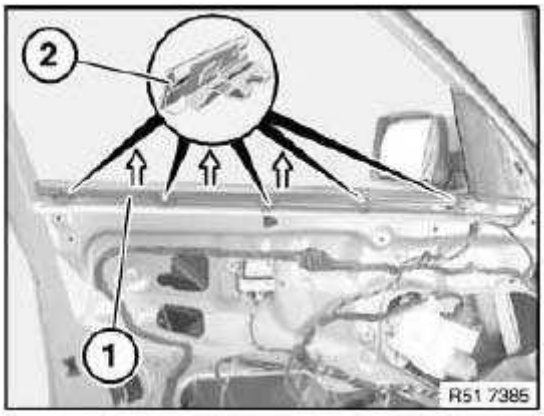


Fig. 275: Window Cavity Cover Strip And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Insert window cavity cover strip (1) below cover (2).

Foam (3) on window cavity cover strip (1) must not be damaged.

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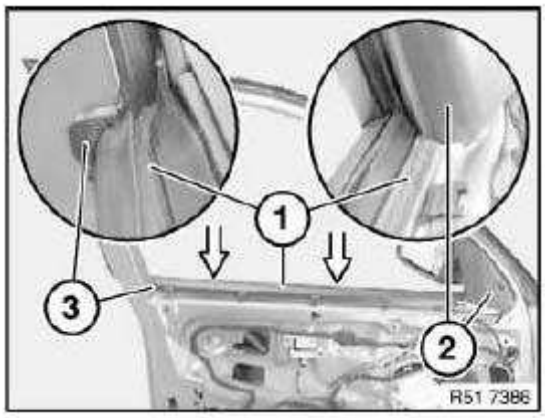


Fig. 276: Window Cavity Cover Strip And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Coat window cavity cover strip (1) with water before fitting.

Start with installation at front.

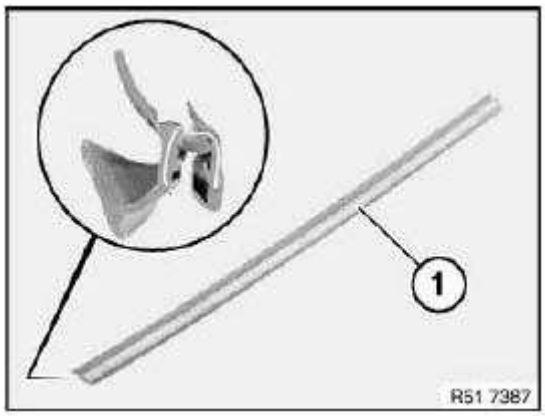


Fig. 277: Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 360 REPLACING SEAL FOR DOOR SEAM/ROOF FRAME ON LEFT OR RIGHT FRONT DOOR

Operation is identical to:

51 32 211 Replacing front left or right rubber guide for left or right door window

51 21 370 REMOVING AND INSTALLING/REPLACING COVER AT BOTTOM LEFT OR RIGHT ON FRONT DOOR

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Detach cover (1) in direction of arrow from front door (2).

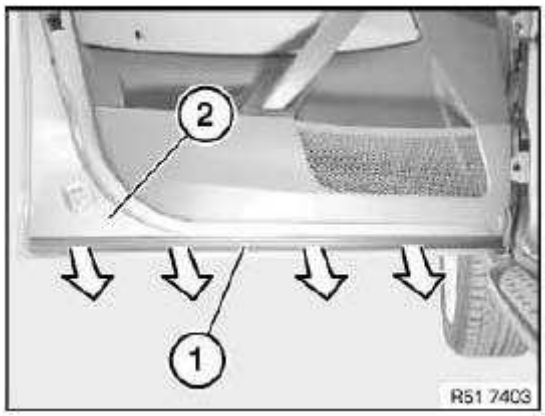


Fig. 278: Cover And Front Door
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) of cover (2) must not be damaged.

Cover (2) has an aluminium insert (3).

Only press on catches (1) when installing otherwise cover (2) will become uneven.

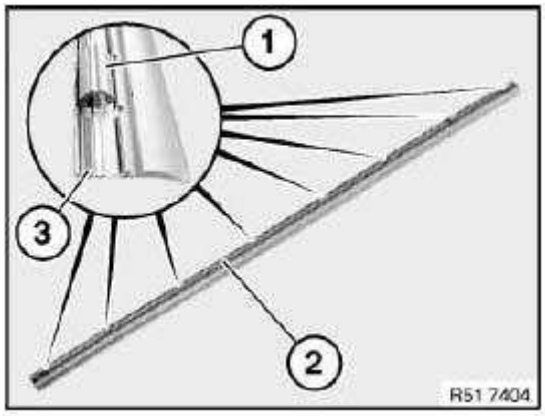


Fig. 279: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

22 REAR DOOR LOCKS, HANDLES, FITTINGS

51 22 001 REPLACING DOOR DETENT (LOCK STRIKER), REAR LEFT OR RIGHT

Special tools required:

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- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Operation up to "cover on rear door detent" is identical to:

Replacing front left or right door detent, see **51 21 003 Replacing door detent (lock striker), front left or right**

Unclip cover (1) with special tool 00 9 317 from door detent (2) and remove towards front.

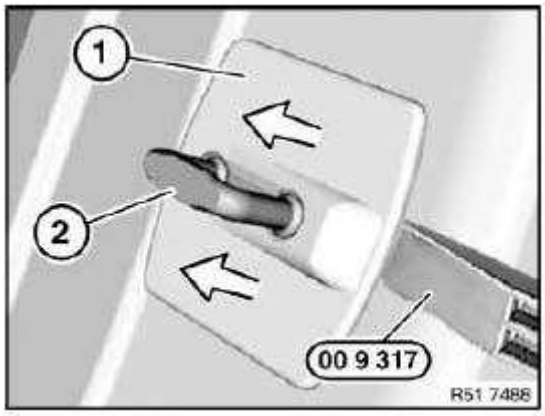


Fig. 280: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on cover (2) must not be damaged.

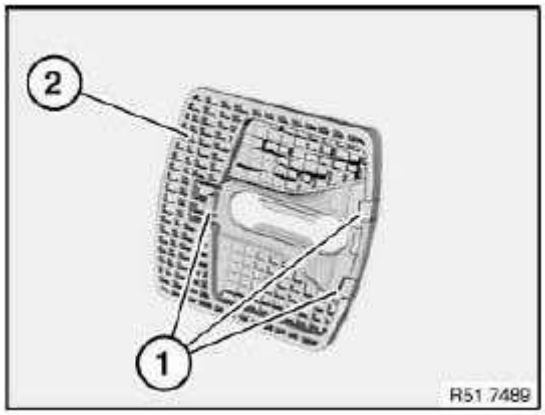


Fig. 281: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 004 ADJUSTING REAR LEFT OR RIGHT DOOR DETENT (LOCK WEDGES)

Operation is described in:

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41 51 004 ADJUSTING FRONT LEFT OR RIGHT DOOR

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

Special tools required:

- **51 2 190 DOOR LOCK TENSIONER**

Necessary preliminary tasks:

- Remove sound insulation in rear area only, see **51 48 070 Removing and installing/replacing sound insulation on left or right rear door**

Disconnect Bowden cable at bottom (1) and top (3) from door lock (2).

IMPORTANT: Bowden cable must be correctly located in mounts on door lock (2). Seal (4) must be correctly positioned on Bowden cable.

NOTE: The operations for "Removing Bowden cable from door lock" end here.

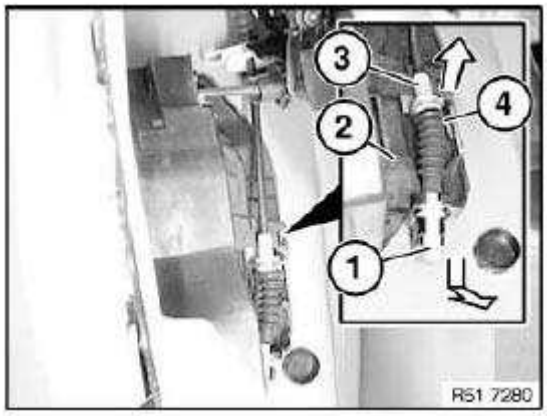


Fig. 282: Bowden Cable, Door Lock And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock plug connection (1) at lugs (2) and detach from door lock (3).

Unclip locking rod (4) from door lock (3).

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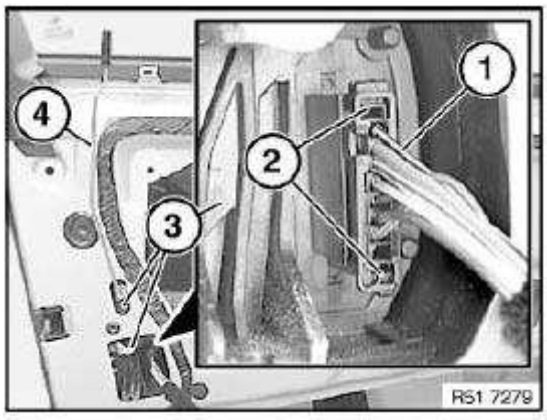


Fig. 283: Plug Connection And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage door lock seal during removal.

Release screws (1).

Remove door lock (2) from inside.

IMPORTANT: To avoid leakage and electrical malfunction:
Pull door lock (2) with special tool into corner (3), see Fig. 286 and Fig. 287.

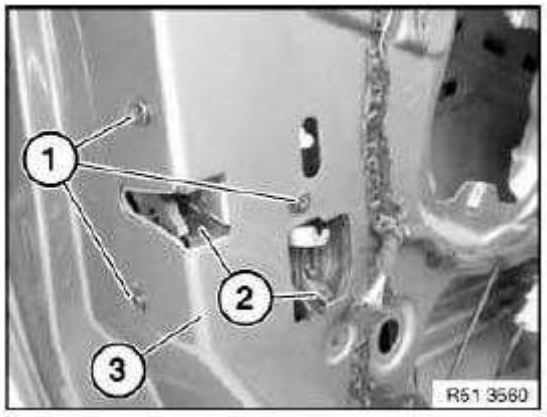


Fig. 284: Door Lock And Corner
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) on door lock (2) must not be damaged.

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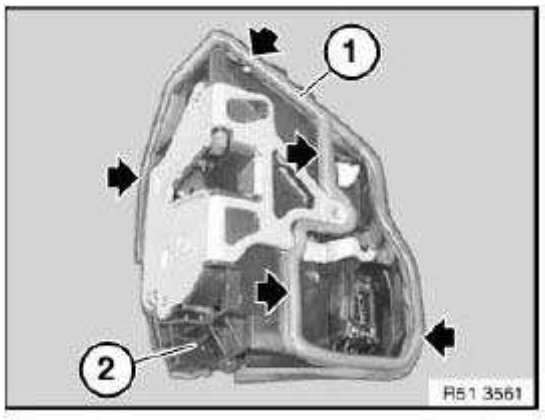


Fig. 285: Seal And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Install door lock and insert screws (1), do not tighten down.
- Slide special tool 51 2 190 into opened rotary latch until latch engages in first stage.

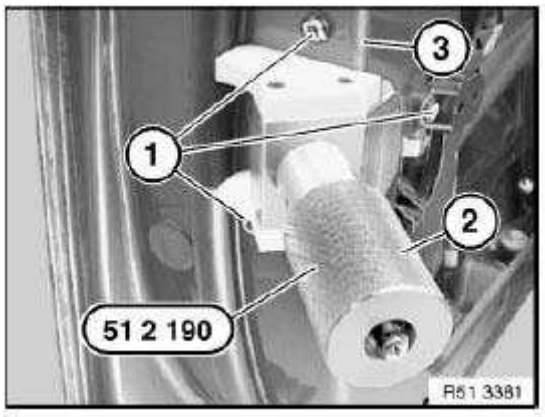


Fig. 286: Door Lock, Corner And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Pretension door lock (1) with knurled screw (2) until special tool 51 2 190 just contacts corner points (3).

IMPORTANT: To tension door lock (1), it is only permitted to turn knurled screw (2) by a further 1 to 1.5 turns (max.) (risk of damage).
Door lock seal must rest uniformly on inner door plate (water ingress).

- Tighten down door lock screws, tightening torque: 51 21 1AZ, see **51 21 FRONT DOOR LOCKS**

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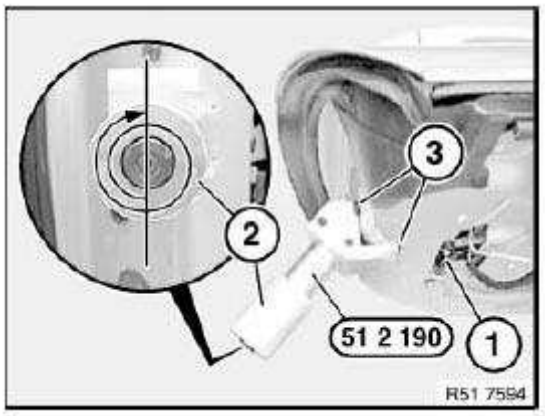


Fig. 287: Door Lock, Corner And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check function of child lock (1) on door lock (2).

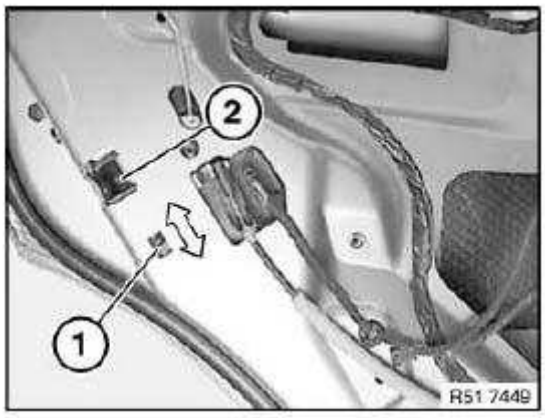


Fig. 288: Child Lock And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 126 REMOVING AND INSTALLING/REPLACING CARRIER FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove outside handle on rear door, see **51 22 170 Removing and installing / replacing outside handle on left or right back door**
- Disconnect Bowden cable from door lock, see **51 21 090 Removing and installing/replacing door lock in left or right front door**

Release screw (1) on carrier (5).

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Feed out seals (2 and 3) in direction of arrow and remove.

Unlock catches (4) on carrier (5).

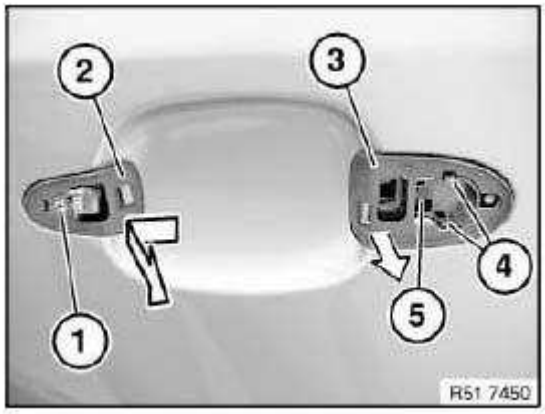


Fig. 289: Catches, Carrier, Seals And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Pull carrier (3) towards rear/top until screw (1) of sheet metal slot (2) is free.

Remove carrier (3) for outside door handle.

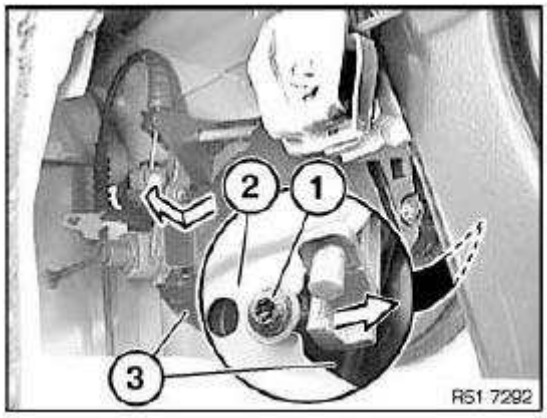


Fig. 290: Carrier, Screw And Sheet Metal Slot
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seals (1) on carrier (3) must not be damaged.

IMPORTANT: Water drainage channel (2) must not be fouled/clogged.

Replacement:

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If necessary, remove Bowden cable for outside door handle, see **51 22 233 Removing and installing/replacing Bowden cable for outside door handle on left or right rear door**

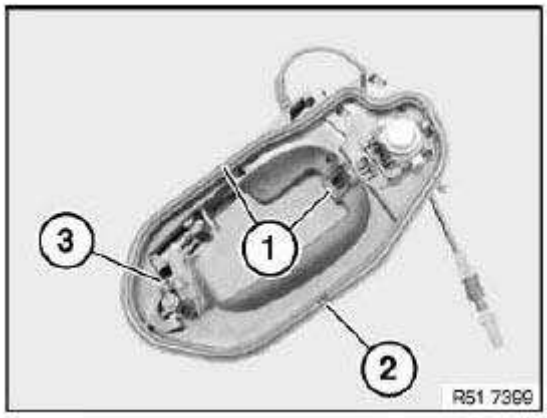


Fig. 291: Seals And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 170 REMOVING AND INSTALLING / REPLACING OUTSIDE HANDLE ON LEFT OR RIGHT BACK DOOR

Special tools required:

- **51 2 220 TORX**

Necessary preliminary tasks:

- Remove cover on front outside handle, see **51 22 180 Removing and installing/replacing cover on outside handle, left or right**

Removal:

NOTE: Installation is described separately from removal.

Remove plate (1).

Installation:

If necessary, replace faulty trim (1).

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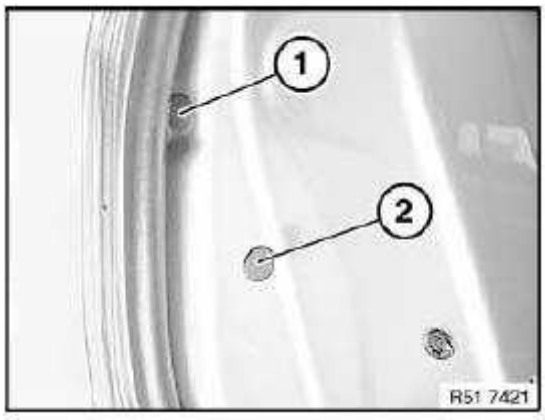


Fig. 292: Plate And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Protect bore (1) against scratching (risk of corrosion).

IMPORTANT: If screw (3) is not correctly secured, the lock mechanism can jump back and the sound insulation must be removed.

Pull outside handle (2) outwards/upwards and hold.

Using special tool 51 2 220 , turn screw (3) in counterclockwise direction and thereby secure outside handle (2).

Tightening torque: 51 22 5AZ, see **51 22 REAR DOOR LOCKS**

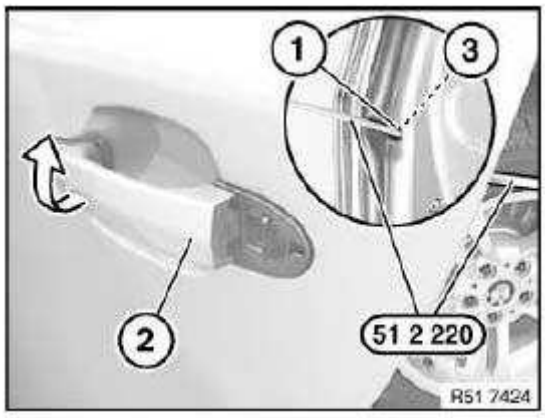


Fig. 293: Special Tool (51 2 220)
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: For removal, the outside handle (1) must remain secured with a screwdriver (4).

A. Pull off outside handle (1) from rear lock actuator (2).
B. Pull off outside handle (1) downwards/outwards (in direction of arrow) from front lock actuator (3).

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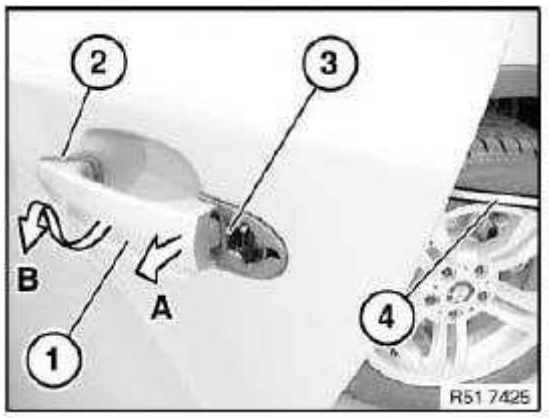


Fig. 294: Outside Handle And Rear Lock Actuator
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts on outside handle (4) must not be damaged or missing:

1. Rear mounting
2. Front mounting
3. Felt strip (if available for refitting/replacement no longer required)

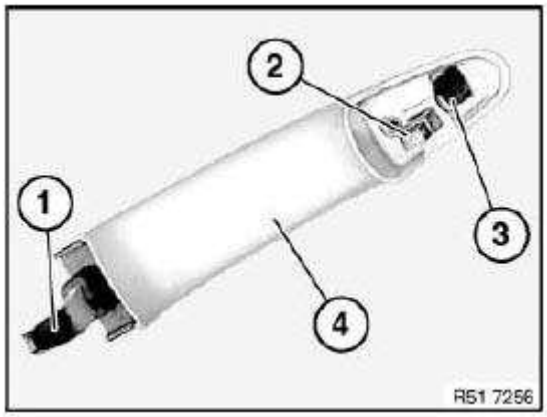


Fig. 295: Outside Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Insert outside handle with bore hole correctly in mounting (1).

Snap rear mounting on outside handle correctly into lock actuator (2).

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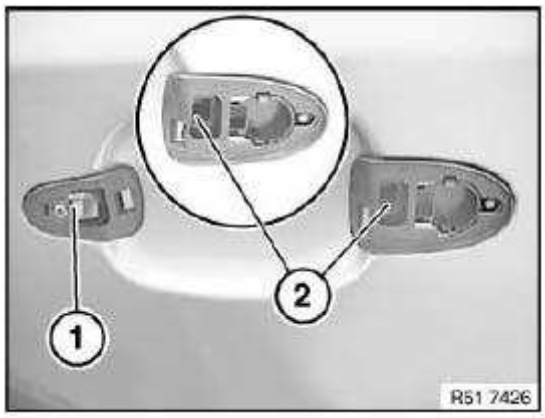


Fig. 296: Mounting And Lock Actuator
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Remove seals (2 and 3) in direction of arrow.

If necessary, replace faulty seals (2 and 3).

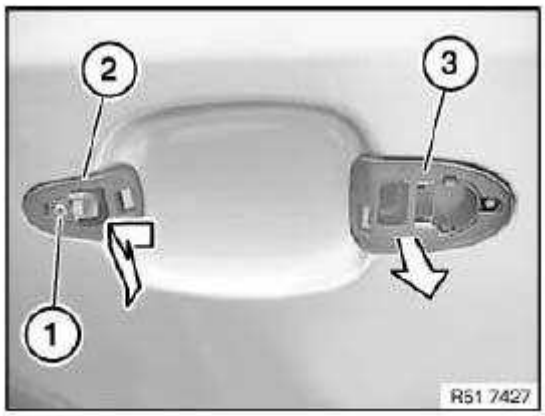


Fig. 297: Seals And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Protect bore (1) against scratching (risk of corrosion).

IMPORTANT: If screw (3) is not correctly secured, the lock mechanism can jump back and the sound insulation must be removed.

Grip outside handle (2) and, using special tool 51 2 220 , screw down screw (3) in clockwise direction.

Tightening torque: 51 22 5AZ, see **51 22 REAR DOOR LOCKS**

Carry out function check only with door open.

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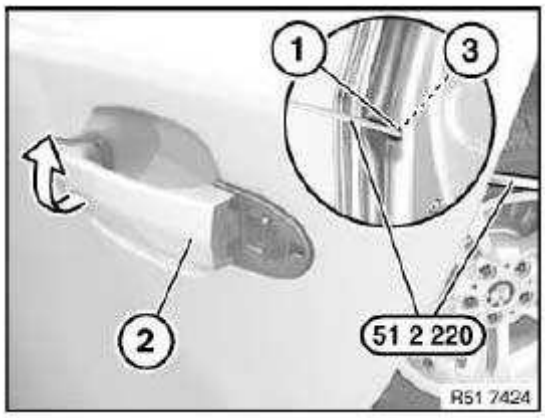


Fig. 298: Special Tool (51 2 220)
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 180 REMOVING AND INSTALLING/REPLACING COVER ON OUTSIDE HANDLE, LEFT OR RIGHT

Remove trim (2).

Installation:

If necessary, replace faulty trim (2).

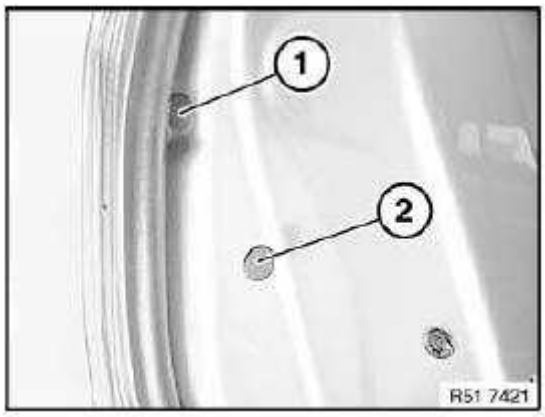


Fig. 299: Plate And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

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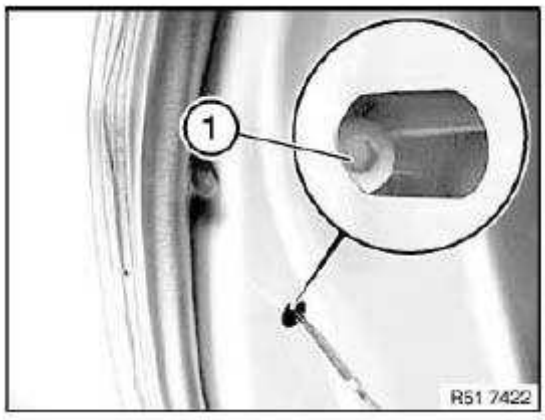


Fig. 300: Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off cover (1) in direction of arrow.

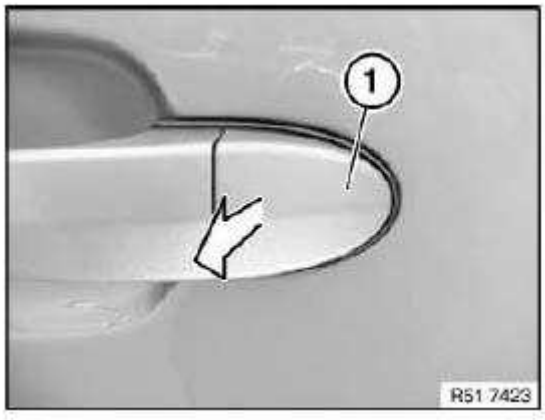


Fig. 301: Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out catches (1) and detach cover (2) from filler element (3).

Installation:

Catches (1) of cover (2) must not be damaged.

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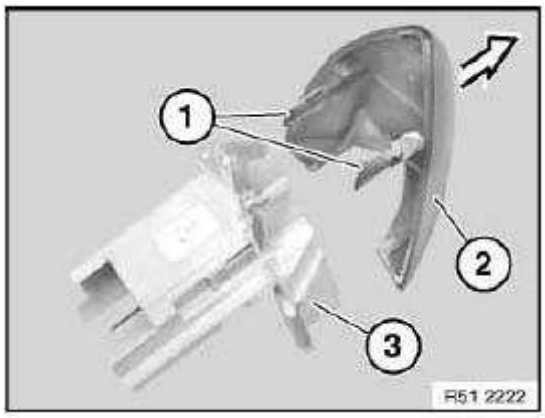


Fig. 302: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 225 REMOVING AND INSTALLING/REPLACING INSIDE DOOR OPENER OF REAR LEFT OR RIGHT DOOR

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Unhook Bowden cable for release lever:

- Tighten release lever (1).
- Lever out lock (2).
- Detach Bowden cable (3) towards rear/top.

Installation:

For fitting, press release lever (1) fully onto door trim panel.

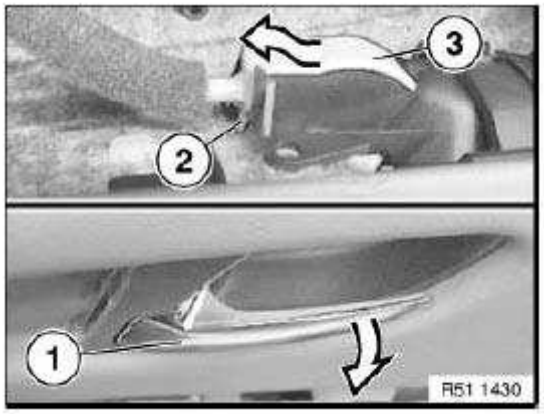


Fig. 303: Bowden Cable And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

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Drive out spindle (1) in upward direction.

Remove door opener (3).

Installation:

Spindle (1) must be flush with housing (2).

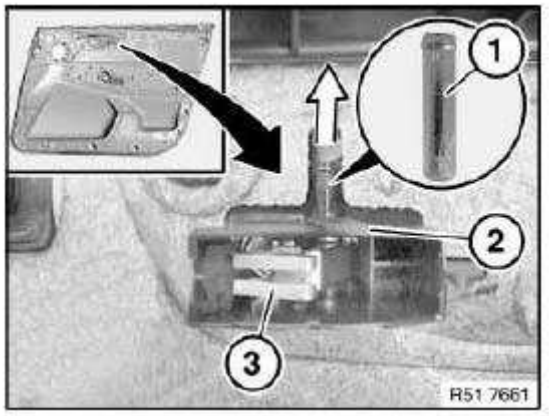


Fig. 304: Spindle, Housing And Door Opener
Courtesy of BMW OF NORTH AMERICA, INC.

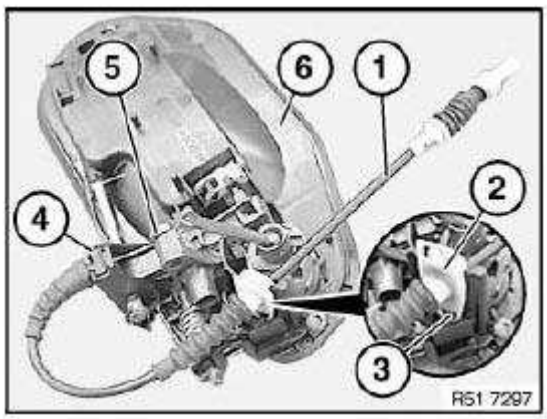
51 22 233 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove carrier for outside door handle, see **51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder**

Lever holder (2) out of catch (3).

Disconnect Bowden cable (1) from fixtures (4 and 5) and detach from carrier (6).



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Fig. 305: Bowden Cable And Fixtures And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 235 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR INSIDE DOOR OPENER ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Unhook Bowden cable for release lever:

- Tighten release lever (1).
- Lever out lock (2).
- Detach Bowden cable (3) towards rear/top.

Installation:

For fitting, press release lever (1) fully onto door trim panel.

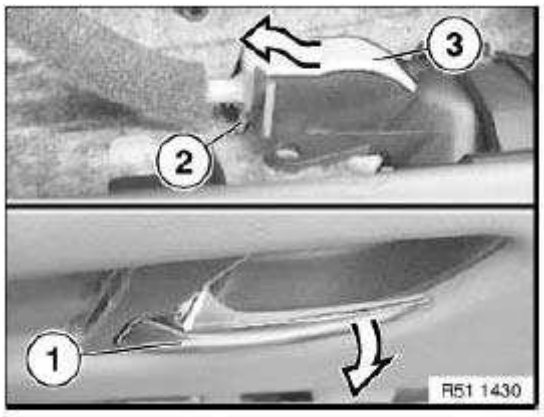


Fig. 306: Bowden Cable And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 280 REMOVING AND INSTALLING/REPLACING DOOR RETAINER ON REAR LEFT OR RIGHT DOOR

Necessary preliminary tasks:

- Raise the door window.
- Remove sound insulation in front area only, see **51 48 070 Removing and installing/replacing sound insulation on left or right rear door**

Release screw (1) on door retainer (2).

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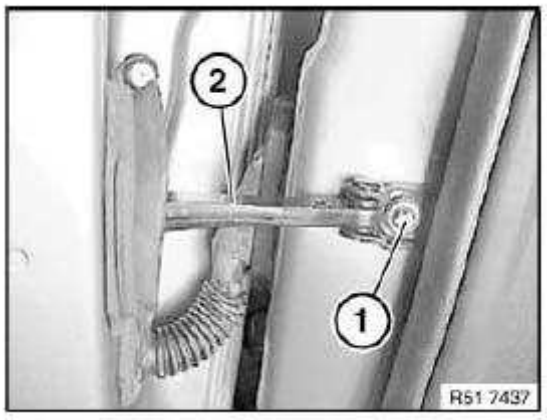


Fig. 307: Screw And Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on inner door panel (2).

Feed out door retainer (3) to inner door panel.

If replacing seal:

If necessary, pull off seal (4) in direction of arrow.

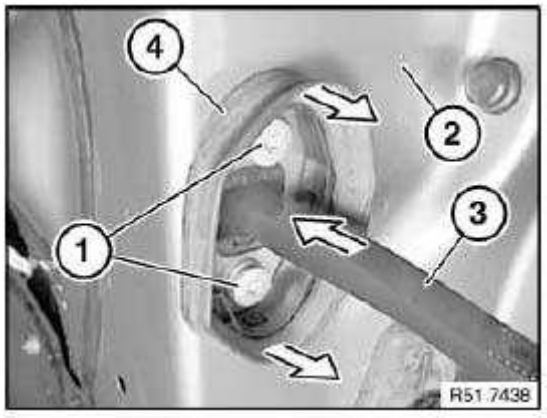


Fig. 308: Screws, Door Retainer And Inner Door Panel
Courtesy of BMW OF NORTH AMERICA, INC.

If replacing seal:

If necessary, unclip catches (1) on cover (2) and remove in direction of arrow.

Installation:

Catches (1) on cover (2) must not be damaged.

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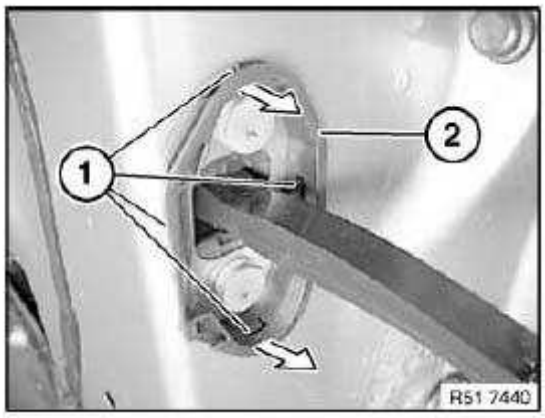


Fig. 309: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Fold back screw plate (2) in order to install door retainer (1).

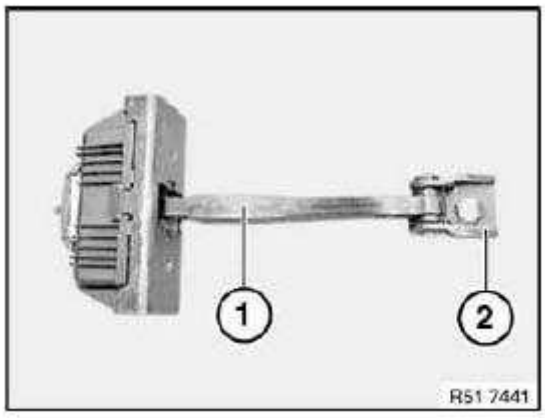


Fig. 310: Back Screw Plate And Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 300 REMOVING AND INSTALLING/REPLACING WINDOW CAVITY COVER STRIP ON REAR DOOR ON LEFT OR RIGHT

Special tools required:

- 00 9 324 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

IMPORTANT: Observe procedure for using special tool 00 9 324. , see 51 21 ... Removing window cavity cover strip with special tool 00 9 324 at front or rear

IMPORTANT: If reusing the existing window cavity cover strip (1), make sure it is not bent.

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Lever out window cavity cover strip (1) with special tool 00 9 324 (starting at B-pillar).

If necessary, carefully lever out window cavity cover strip (1) in area of fixed side window with assembly wedge.

NOTE: Carefully feed guides (2 and 3) of window cavity cover strip (1) out of rear door.

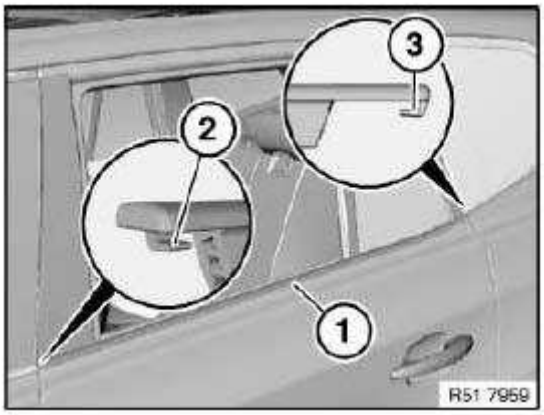


Fig. 311: Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Coat window cavity cover strip (1) with water before fitting.

Feed guides (2 and 3) of window cavity cover strip (1) into rear door first.

Window cavity cover strip (1) must be flush at front and rear with door edge.

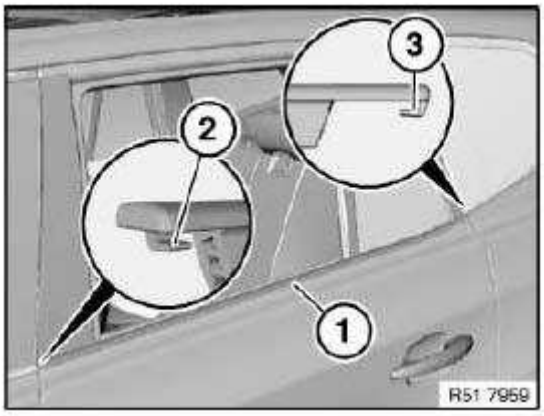


Fig. 312: Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 330 REMOVING AND INSTALLING/REPLACING WINDOW CAVITY COVER STRIP ON

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INSIDE REAR DOOR

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Pull window cavity cover strip (1) off rear door.

Installation:

If necessary, replace faulty clips (2).

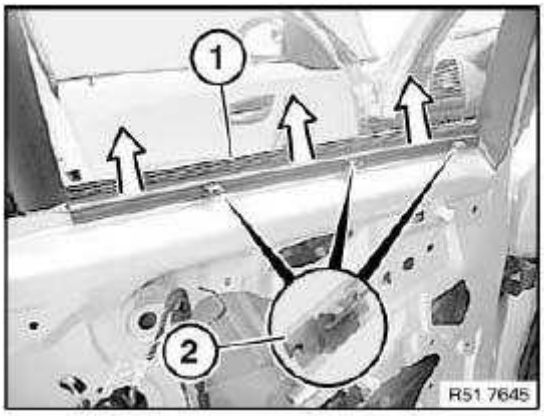


Fig. 313: Window Cavity Cover Strip And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 351 REPLACING WINDOW CAVITY SEAL ON INNER LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Pull window cavity seal (1) off rear door.

Installation:

If necessary, replace faulty retainer (2).

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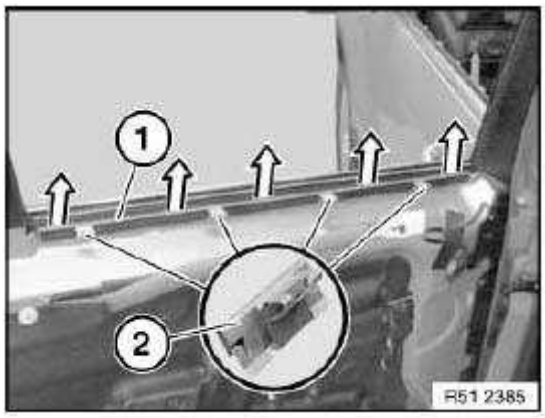


Fig. 314: Window Cavity Seal And Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 360 REPLACING SEAL FOR DOOR SEAM/ROOF FRAME ON LEFT OR RIGHT REAR DOOR

Operation is identical to:

51 34 211 Replacing rubber guide for rear left or right door window

51 22 370 REMOVING AND INSTALLING/REPLACING COVER AT BOTTOM LEFT OR RIGHT ON REAR DOOR

Detach cover (1) in direction of arrow from rear door (2).

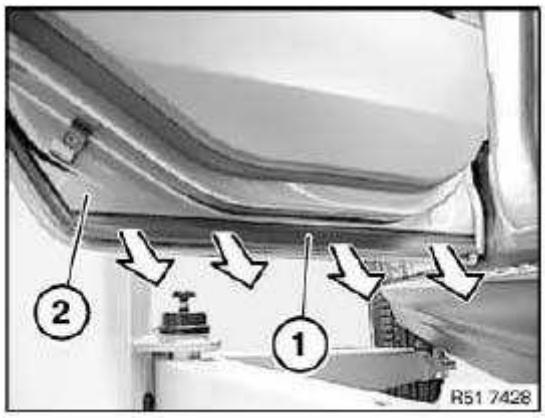


Fig. 315: Cover And Rear Door
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) of cover (2) must not be damaged.

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Cover (2) has an aluminium insert (3).

Only press on catches (1) when installing, otherwise cover (2) will become uneven.

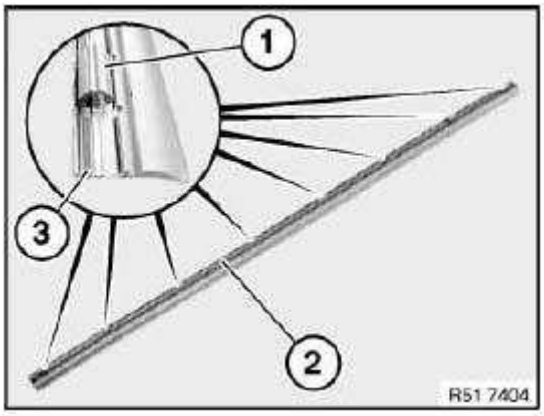


Fig. 316: Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

23 HOOD LATCH, LOCKS

51 23 ... ADJUSTING/REPLACING BUMP STOPS

The illustrations are schematic representations and are to be applied to the relevant vehicle type.

Version 1:

Following parts must not be damaged:

- Bump stop

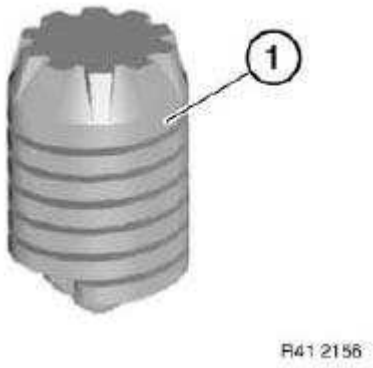


Fig. 317: Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Adjust bump stop (1) to correct height by turning left or right.

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Version 2:

Replace damaged bump stops:

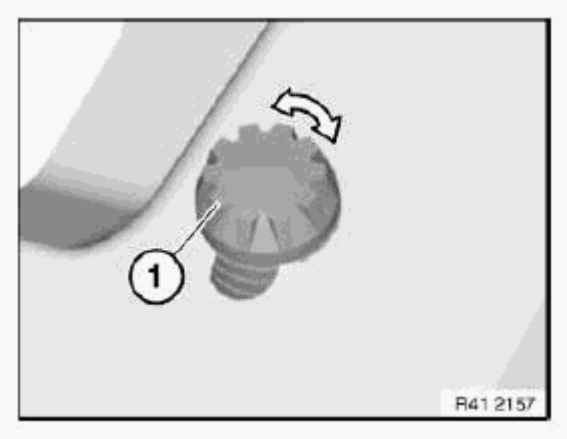


Fig. 318: Adjusting Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

- Bump stop with ejector



Fig. 319: Bump Stop With Ejector
Courtesy of BMW OF NORTH AMERICA, INC.

Press ejector (1) into bump stop and, in this position, twist approx. 90° counterclockwise with a Phillips screwdriver.

This locks the ejectors (1) in the bump stops.

Adjust bump stop (2) to correct height by turning left or right.

Unlock the ejector (1) again after completing adjustment.

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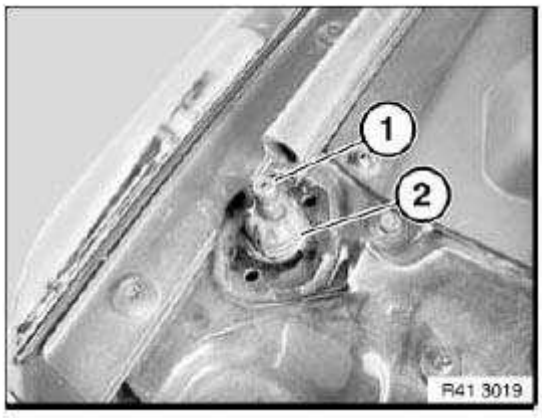


Fig. 320: Ejectors And Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Version 3:

Replace damaged bump stops:

- Bump stop

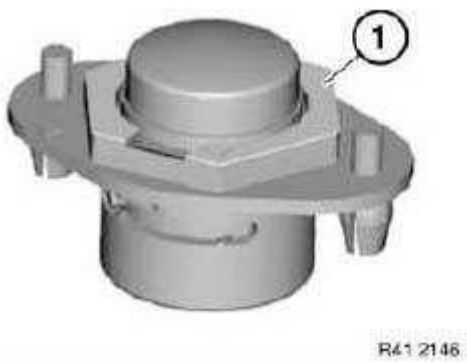


Fig. 321: Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Turn lock (1) 45° counterclockwise.

Pull bump stop (2) upwards.

Close lid slowly until it is at the same height as the side panel.

Open lid and turn lock (1) clockwise.

Installation:

Press bump stop into panel and drive in expanding pins (3).

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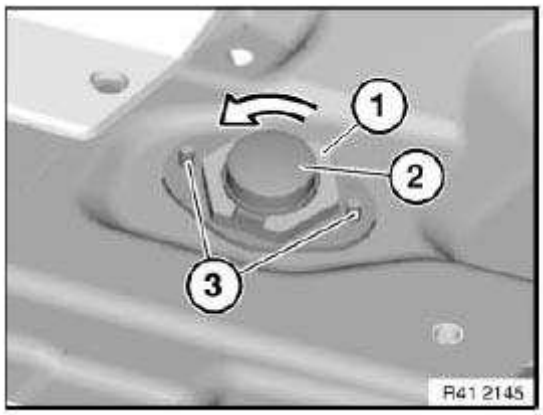


Fig. 322: Bump Stop And Lock
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 ... REMOVING/INSTALLING BALL SOCKETS WITH CLIP

WARNING: Risk of injury! When installed, the gas pressurised shock absorber is under preload. Minimise preload as far as possible before removing.

IMPORTANT: Never lift off ball socket with engaged retainer.

Disassembly/assembly:

1. Push on retainer in direction of groove with screwdriver
2. Lift off ball socket from ball pin
3. Slide retainer back
4. Fit ball socket on ball stud and snap into place with force

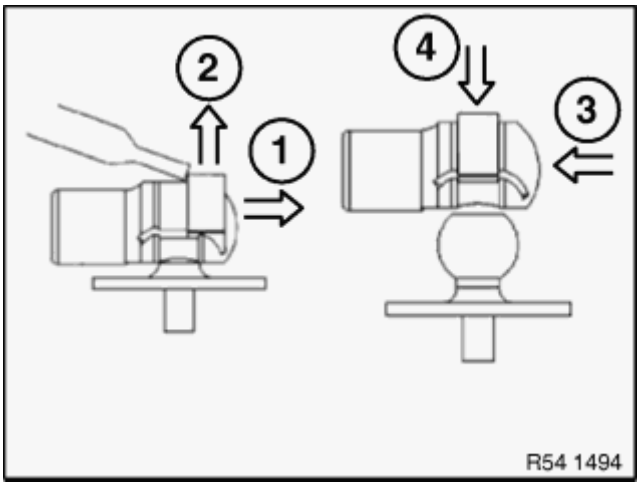


Fig. 323: Identifying Ball Socket With Clip
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation: Replace overstretched clips. Pack grease into two opposite positions in socket. The grease spreads after installation on the ball pin all round in the ball socket.

51 23 004 ADJUSTING HOOD/BONNET LOCK

Operation is identical to:

- **41 61 014 ADJUSTING ENGINE BONNET/HOOD**

51 23 100 REMOVING AND INSTALLING/REPLACING RIGHT ENGINE HOOD LOCK

Operation is identical to:

51 23 110 Removing and installing/replacing left engine hood lock

51 23 110 REMOVING AND INSTALLING/REPLACING LEFT ENGINE HOOD LOCK

Necessary preliminary tasks:

- Remove front bumper trim, see **51 11 156 Removing and installing front bumper trim (up to 09/2006)**
- Remove front air duct, see **51 11 770 Removing and installing/replacing left or right deformation element for front bumper**

NOTE: Engine hood lock (2) shown without attachment parts for purposes of clarity.

Disengage Bowden cable (1) in direction of arrow from engine hood lock (2).

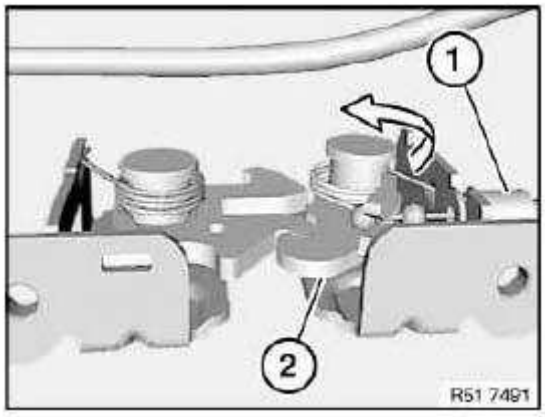


Fig. 324: Bowden Cable And Engine Hood Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and remove engine hood lock (2) at an angle towards front.

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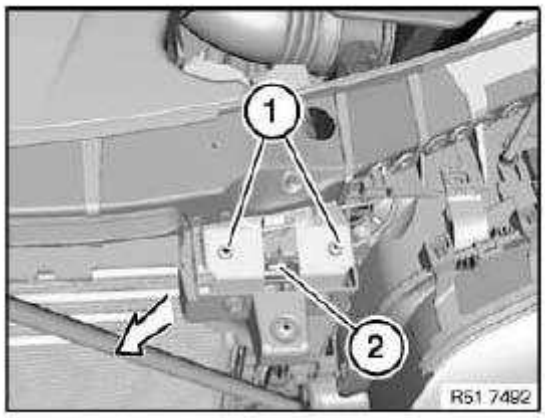


Fig. 325: Screws And Engine Hood Lock
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 131 ADJUSTING LEFT OR RIGHT STRIKER ON ENGINE HOOD

Operation is described in:

- **41 61 014 ADJUSTING ENGINE BONNET/HOOD**

51 23 160 REMOVING AND INSTALLING/REPLACING ARRESTER HOOK ON ENGINE HOOD

Raise bonnet/hood lid.

Release screws (1) and remove arrester hook (2).

Tightening torque: 51 23 1AZ, see **51 23 HOOD/BONNET LOCKS**

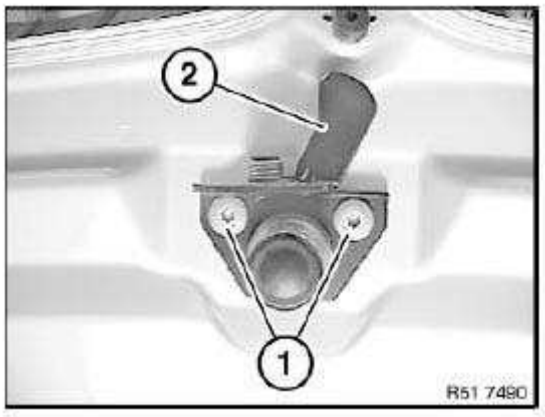


Fig. 326: Screws And Arrester Hook
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 211 REMOVING AND INSTALLING/REPLACING CABLE FOR FRONT ENGINE HOOD/BONNET LOCKS (TO PASSENGER COMPARTMENT)

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Necessary preliminary tasks:

- Remove trim panel for pedal assembly, see **51 45 185 Removing and installing/replacing trim for pedal assembly**
- Remove footwell side trim panel on A-pillar, see **51 43 070 Removing and installing/replacing side trim panel, footwell, on A-pillar, left**
- Disengage cable for front engine hood/bonnet locks (to locks), see **51 23 212 Removing and installing/replacing cable for front engine hood locks (to locks)**
- Partially detach front carpet lining

Disengage Bowden cable (1) from release lever (2) and feed out in direction of arrow.

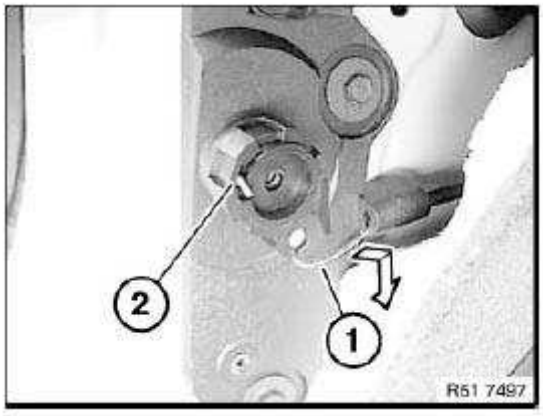


Fig. 327: Bowden Cable And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on equipment carrier cover (2).

Feed out equipment carrier cover (2) in direction of arrow and remove.

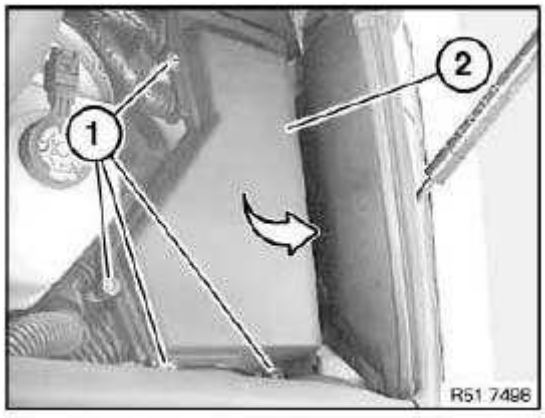


Fig. 328: Screws And Carrier Cover
Courtesy of BMW OF NORTH AMERICA, INC.

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Feed Bowden cable (1) in direction of arrow out of clip (2).

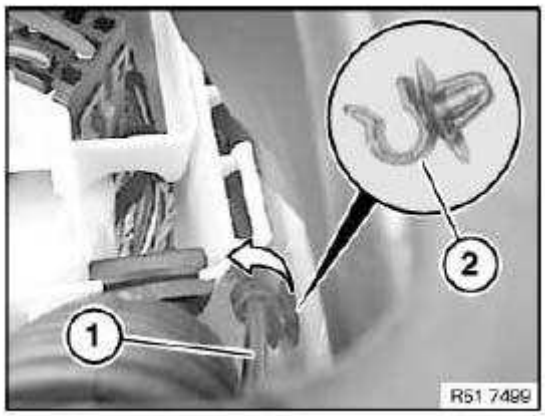


Fig. 329: Bowden Cable And Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Feed out Bowden cable (1) in direction of engine compartment.

IMPORTANT: Check that grommet (2) is correctly seated (water ingress).

Installation:

Lay Bowden cable (1) without kinks.

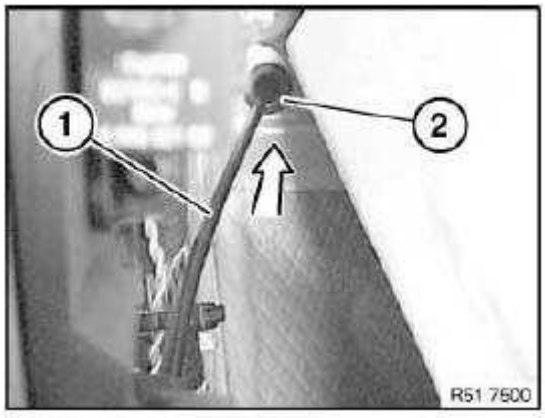


Fig. 330: Bowden Cable And Grommet
Courtesy of BMW OF NORTH AMERICA, INC.

Feed grommet (1) in direction of arrow out of bulkhead (2) and remove Bowden cable (3) towards front.

Installation:

Check that grommet (1) is correctly seated

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Lay Bowden cable (3) without kinks.

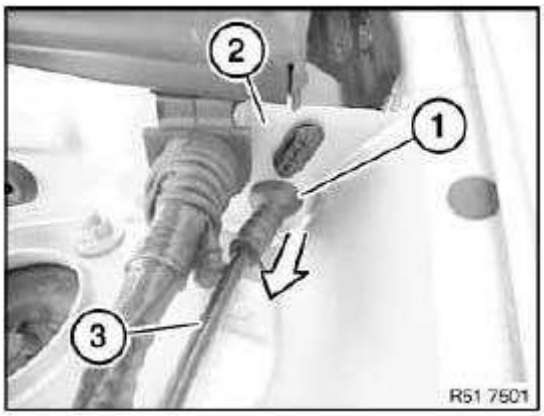


Fig. 331: Bowden Cable, Bulkhead And Grommet
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 212 REMOVING AND INSTALLING/REPLACING CABLE FOR FRONT ENGINE HOOD LOCKS (TO LOCKS)

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove engine hood locks on left and right, see **51 23 100 Removing and installing/replacing right engine hood lock**

Lever out cover (1) from clutch (2) in direction of arrow and remove.

Lever out Bowden cable (3) in direction of arrow.

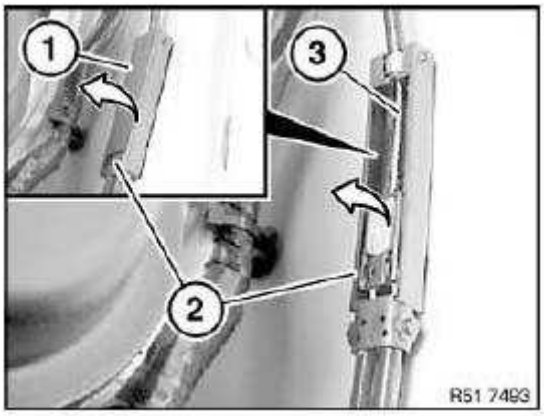


Fig. 332: Cover, Clutch And Bowden Cable

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Courtesy of BMW OF NORTH AMERICA, INC.

Unclip cable for engine hood locks (1) with special tool 00 9 317 in direction of arrow and feed out of front panel.

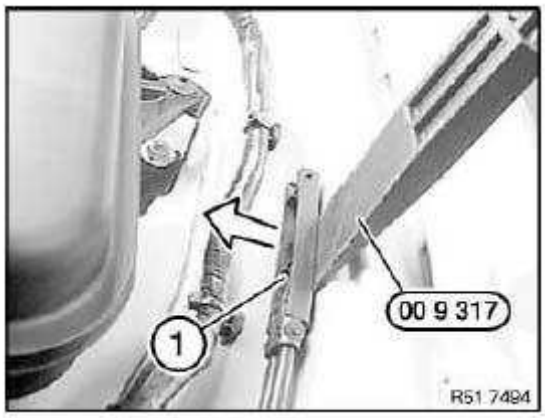


Fig. 333: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1 and 2) on cable for engine hood locks (3) must not be damaged.

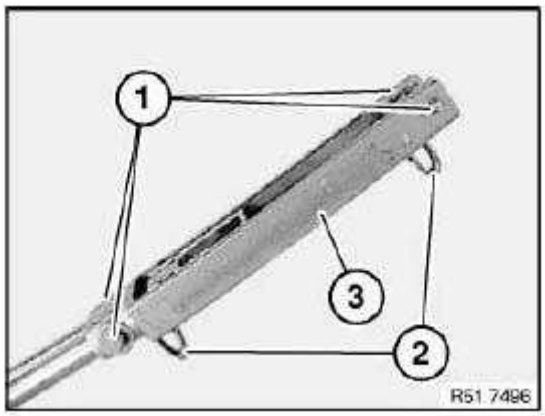


Fig. 334: Catches And Engine Hood Locks
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 265 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT GAS STRUT FOR ENGINE BONNET/HOOD

WARNING: Risk of injury and damage!
For the following tasks, you must take the appropriate measures to support the engine bonnet/hood.
As an alternative, you can enlist the help of a second person to hold the

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bonnet/hood.

Raise bonnet/hood lid.

Removing gas spring strut at top and bottom:

1. Push retainer spring to end of gas spring strut.
2. Remove gas spring strut from ball head.

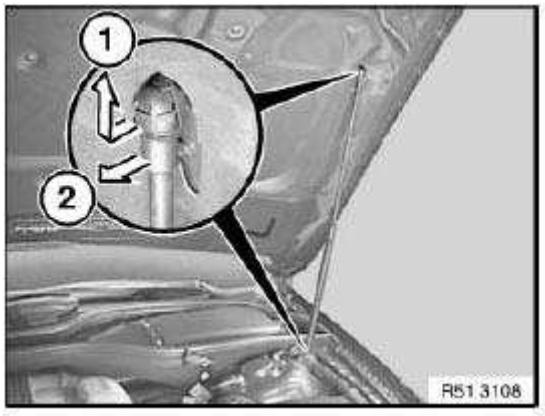


Fig. 335: Retainer Spring And Gas Spring Strut
Courtesy of BMW OF NORTH AMERICA, INC.

24 TRUNK LATCH, LOCKS

51 24 004 ADJUSTING REAR LID LOCK

Necessary preliminary tasks:

- Remove trim on tail panel at top, see **51 46 050 Removing and installing/replacing top trim on rear apron**

Prerequisite:

Rear lid must be correctly adjusted to fit; if necessary, adjust rear lid, see **41 62 014 ADJUSTING REAR LID**

For ideal adjustment, refer to Body gap dimensions.

Screw in buffer stops for rear lid on left/right completely.

NOTE: Operation is described in:

- **Removing and installing/replacing buffer stops on rear lid, see 51 24 165 Removing and installing/replacing side left or right buffer stops on rear lid**

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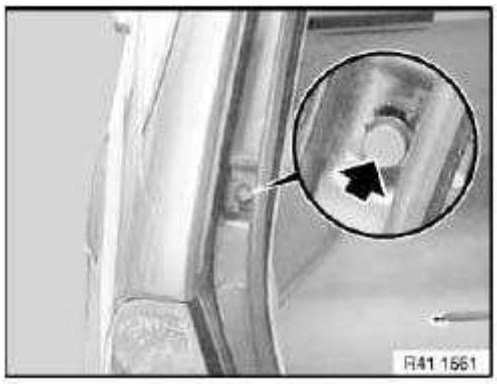


Fig. 336: Locating Buffer Stops
Courtesy of BMW OF NORTH AMERICA, INC.

Check fulcrum pads on lower section of rear lid lock for damage and replace if necessary.

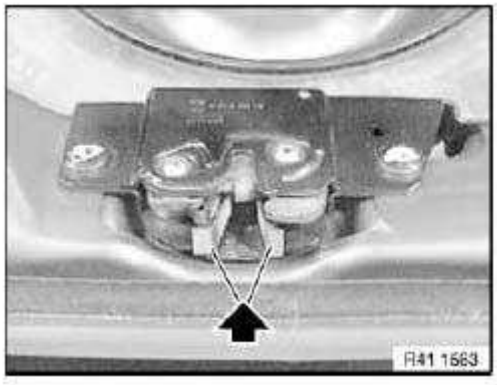


Fig. 337: Locating Fulcrum Pads
Courtesy of BMW OF NORTH AMERICA, INC.

Check striker (1) on rear lid for damage, replace if necessary.

Unclip cover (2).

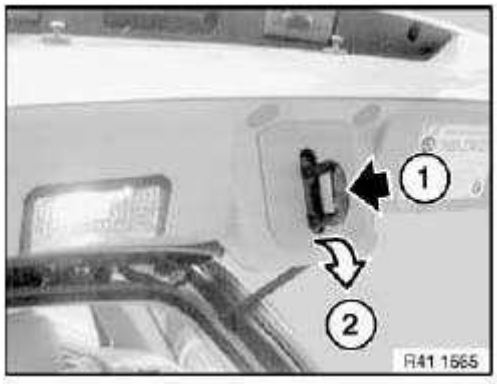


Fig. 338: Locating Striker And Cover

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Courtesy of BMW OF NORTH AMERICA, INC.

Loosen screws on striker until it is just able to move and centers itself.

IMPORTANT: Striker must not scrape against the lower section of the rear lid lock.

Close trunk lid.

This automatically adjusts the striker correctly.

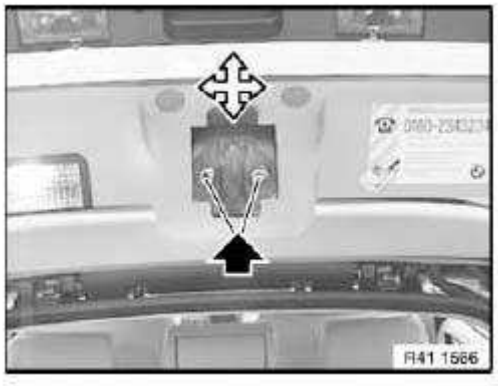


Fig. 339: Locating Striker
Courtesy of BMW OF NORTH AMERICA, INC.

Open trunk lid.

Tighten down screws on striker.

Check adjustment of rear lid and striker, repeating adjustment if necessary.

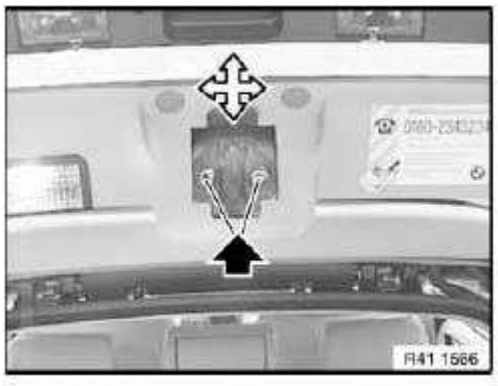


Fig. 340: Locating Striker
Courtesy of BMW OF NORTH AMERICA, INC.

Adjust buffer stops on rear lid.

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NOTE: Operation is described in:

- **Removing and installing/replacing buffer stops on rear lid, see 51 24 165 Removing and installing/replacing side left or right buffer stops on rear lid**

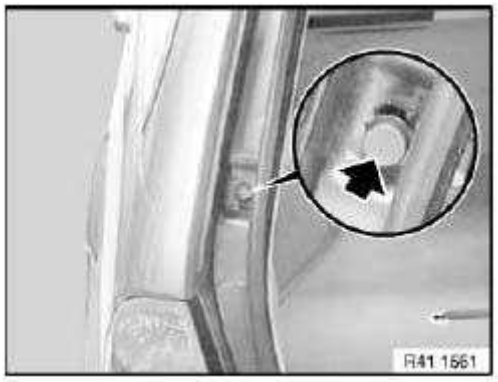


Fig. 341: Locating Buffer Stops
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 105 REMOVING AND INSTALLING/REPLACING REAR LID LOCK (LOWER SECTION OF LOCK)

Necessary preliminary tasks:

- Remove trim on tail panel, see **51 46 050 Removing and installing/replacing top trim on rear apron**

Installation:

Mark position of lower section of rear lid lock on tail panel.

Release screws (1) on lower section of lock (2).

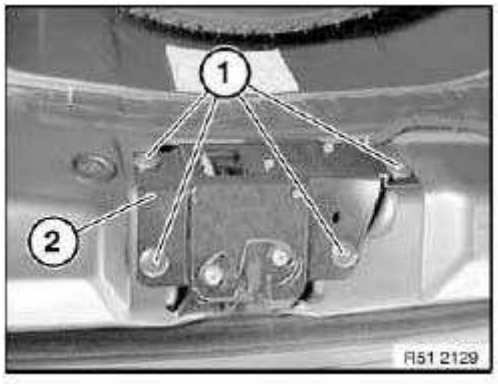


Fig. 342: Screws And Lower Section Of Lock
Courtesy of BMW OF NORTH AMERICA, INC.

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Disconnect plug connection (1) on actuator drive (2) and remove lower section of lock (3).

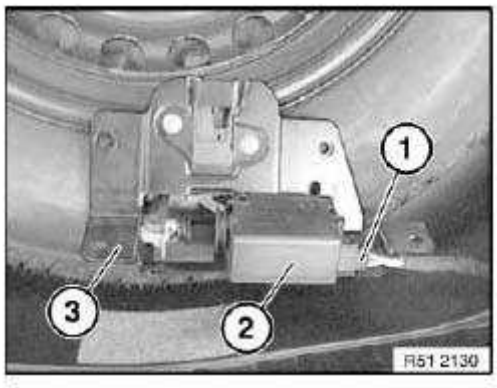


Fig. 343: Plug Connection, Actuator Drive And Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Release screws (1) for actuator drive (2).

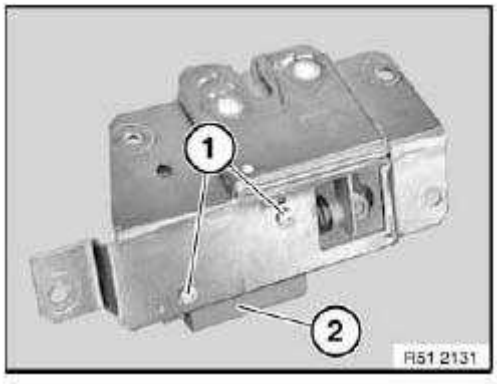


Fig. 344: Screws And Actuator Drive
Courtesy of BMW OF NORTH AMERICA, INC.

Remove emergency release mechanism (2) of actuator drive (1) from mount (3) on rear lid lock (4).

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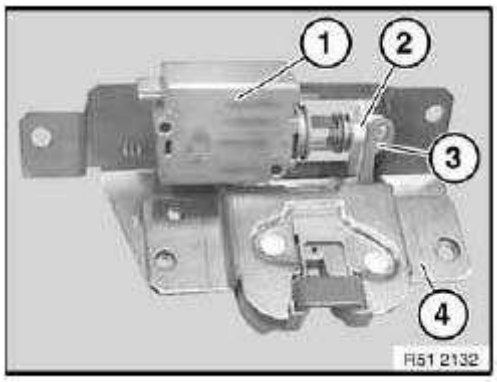


Fig. 345: Emergency Release Mechanism, Actuator Drive, Mount And Rear Lid Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Only if replacing actuator drive:

Detach emergency release lever (1) from actuator drive (2).

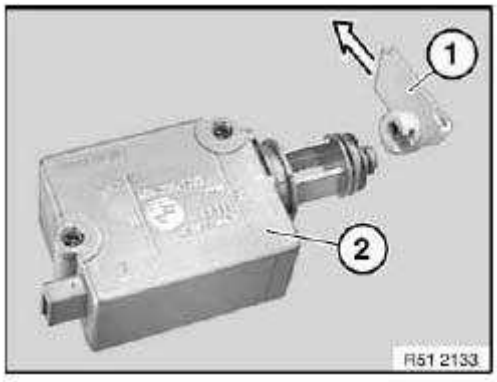


Fig. 346: Emergency Release Lever And Actuator Drive
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 130 REMOVING AND INSTALLING/REPLACING STRIKER FOR REAR LID LOCK (TOURING)

Necessary preliminary tasks:

- Open rear lid.

Remove trim (1) on rear lid.

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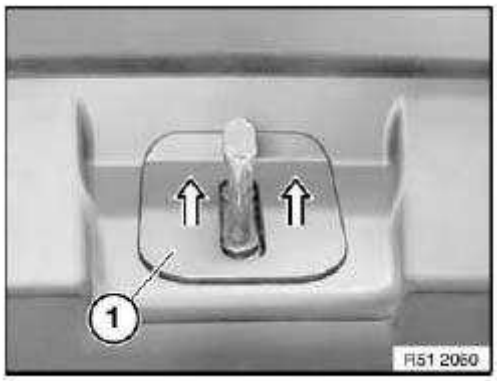


Fig. 347: Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on striker (2).

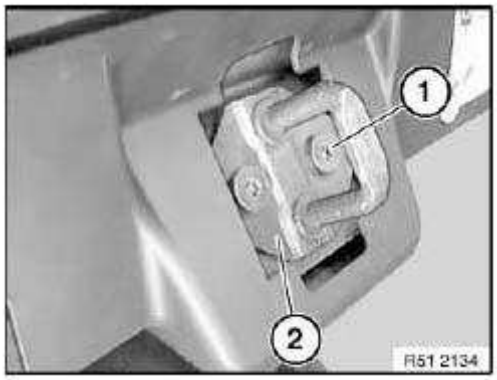


Fig. 348: Screw And Striker
Courtesy of BMW OF NORTH AMERICA, INC.

Screw threaded pin (1) into threaded plate of striker (2).

Unscrew bolt (3).

Remove striker (2) from rear lid panel (4).

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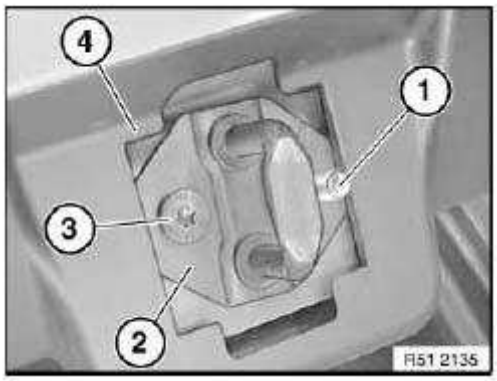


Fig. 349: Threaded Pin, Striker And Rear Lid Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Threaded pin (1) remains in threaded plate (2) until striker is fitted.

IMPORTANT: Do not close trunk lid, risk of damage.

Installation:

Adjust striker to lower section of trunk lid lock.

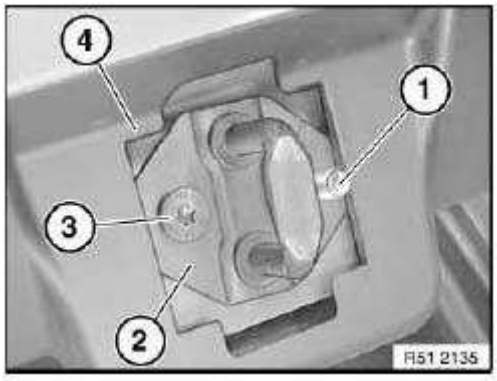


Fig. 350: Threaded Pin, Striker And Rear Lid Panel
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Striker and rear lid lock must not be greased.

51 24 145 REMOVING AND INSTALLING/REPLACING BUTTON FOR REAR LID ACTUATION

Operation is identical to:

- **51 13 402 Removing and installing/replacing handle strip (on rear lid)**

51 24 165 REMOVING AND INSTALLING/REPLACING SIDE LEFT OR RIGHT BUFFER STOPS ON REAR LID

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Necessary preliminary tasks:

- Remove panel for roof pillar at rear (D-pillar), see **51 43 252 Replacing trim panel for rear left or right roof pillar (D-pillar)**

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Adjustment, refer to:

Last 3 work steps.

Release lock nut (1) on buffer stop.

NOTE: Grip guide in water gutter.

Release nut (2) on buffer stop guide.

Installation:

1. Tightening torque: 41 62 4AZ, see **41 62 REAR LID**
2. Tightening torque: 41 62 3AZ, see **41 62 REAR LID**

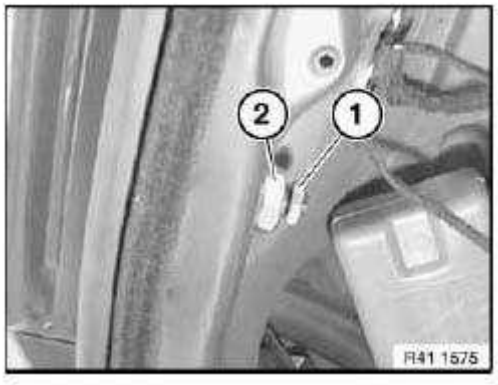


Fig. 351: Lock Nut And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Remove buffer stops outwards.

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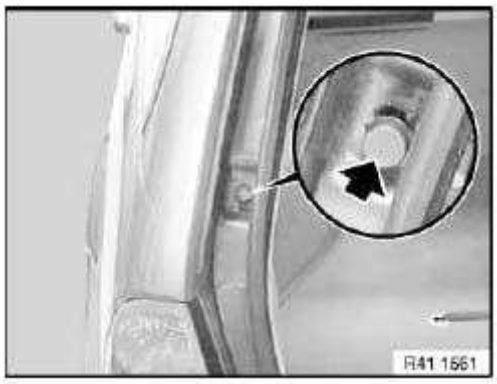


Fig. 352: Locating Buffer Stops
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of buffer stops must not be missing or damaged:

1. Adjustable buffer stop
2. O-ring
3. Guide
4. Guide O-ring
5. Guide nut
6. Lock nut

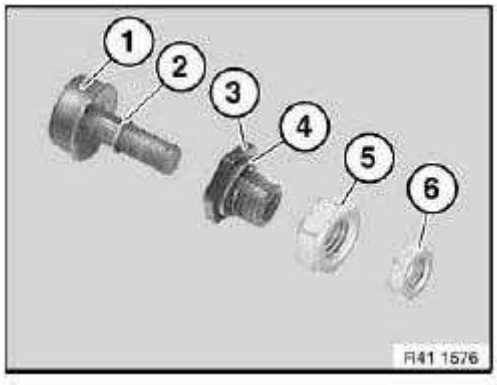


Fig. 353: Adjustable Buffer Stop, O-Ring, Guide, Guide Nut And Lock Nut
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Both O-rings must be fitted (water ingress).

Adjusting buffer stops:

If necessary, release lock nut (1) on buffer stop.

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NOTE: Nut (2) on guide remains tightened down.

Use Allen key to bring adjustable buffer stop into contact with rear lid and then pretension by 1 turn.

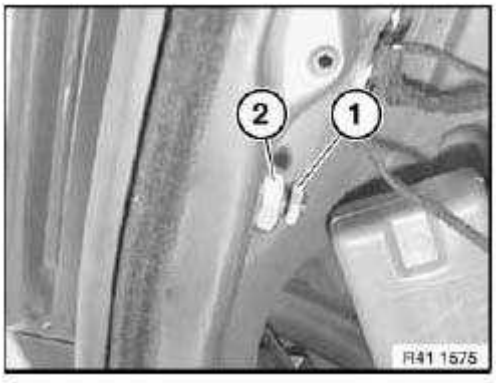


Fig. 354: Lock Nut And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew buffer stop until closed rear lid rests on buffer stops on left/right sides.

IMPORTANT: The rear lid must not be higher than the side panels, otherwise there is preload on height adjustment!

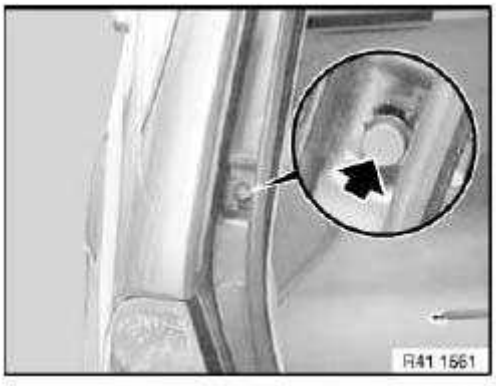


Fig. 355: Locating Buffer Stops
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: If the pretension results in poor rear lid closing comfort, the pretension can be turned back to 0.5 turns.

IMPORTANT: Rear lid must not generate any noises while engine is idling (pay particular attention to this in diesel models).

51 24 300 REMOVING AND INSTALLING OR REPLACING LEFT OR RIGHT GAS STRUT FOR REAR LID

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WARNING: Support rear lid in fully opened position with suitable apparatus. Risk of injury.

Make a written record of the installation position of the gas pressure support(s) before removing.

Slide stop spring (1) to end of gas pressure spring (2) and lever out gas pressure spring. Repeat the procedure at the other end of the gas strut (2) and remove.

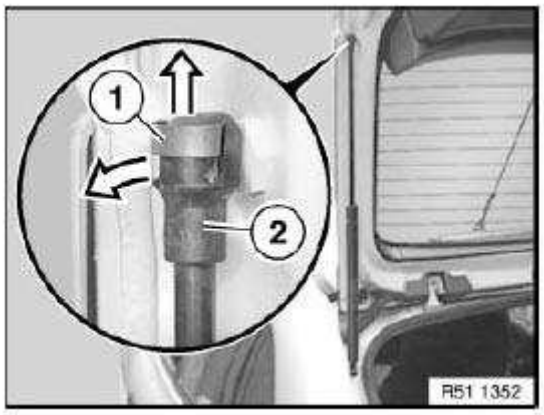


Fig. 356: Stop Spring And Gas Pressure Spring
Courtesy of BMW OF NORTH AMERICA, INC.

31 FRONT AND REAR WINDOW

51 31 ... INSTRUCTIONS ON GLUING WINDSCREEN

IMPORTANT: The following topics were included or amended in March 2005:

Storage temperature of all adhesive products of 5°C to 25°C must be observed.

Special instructions for hot processing must be observed:

- Temperature of cartridge oven must be checked every morning with DIS or GT1
- Temperature of cartridge < 80°C results in the formation of bubbles/blisters (gluing/cementing not permitted)
- Insufficient heating (< 1 hour) results in the formation of bubbles/blisters (gluing/cementing not permitted)
- Heating time or a cartridge max. 8 hours
- Mistake in mixing in event of an interruption in application >1 minute (gluing/cementing not permitted)
- A test bead of 50...70 mm must be rejected after an interruption in application
- Cartridge may only be heated up once; if the lower label is black, this adhesive may only still be used cold without accelerator while adhering to the Best before date.

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These instructions are not applicable to door window cementing (door "center") on the E38/L7:

Work steps for removing and installing windscreens:

- is displayed at the end of this document by clicking on the "framed cross-reference"

General:

The windscreen and rear window (also the rear side windows if necessary) are bonded to the body. This gluing will increase the torsional strength of the vehicle. To obtain perfect bonding, comply with the installation procedure described in the following.

It is possible to tow or drive without windscreen or rear window.

The windscreen must be secured with yellow plastic adhesive tape (sourcing reference: BMW Parts Service) after being installed. The paint must be completely hardened after painting work.

- Set down window glass and process on BMW-approved X-universal stand.
- In winter, the vehicles must stand in a room with a temperature of at least 15°C.

On-the-job safety:

When working with adhesive products (adhesive, cleaning agent, bonding agent etc.):

- Wear protective goggles, protective gloves and if necessary an apron.
- Ensure rooms are well ventilated.
- Change work clothing contaminated with adhesive immediately.
- Change work clothing contaminated with solvents and swelling agents immediately (keep spare work clothing on hand).
- Take skin protection measures, provide washing facilities including hot water, use silicone-free skin creams
- Provide eye bath facilities, change water regularly (once a month).
- Comply with the relevant safety regulations
- Do not eat, drink or smoke in areas of PUR processing.

Replacement of windscreens:

Version with head-up display (HUD):

- Marking for HUD must be present on the windscreen

Version with front passenger airbag:

- Stick on reminder label

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Tools for cutting through adhesive bead:

TOOLS FOR CUTTING THROUGH ADHESIVE BEAD

Type	Model	Order/part number
Special cutter (manufacturer: Fein) with oscillating blade	Pneumatically operated Electrically operated	81 43 9 429 183 81 43 9 427 786
BMW blade set	All required blades	81 43 9 428 596
Blade (U-shape)	19.5 mm (1) 24 mm 36 mm 45 mm	6 39 03 118 01 3 6 39 03 076 01 6 6 39 03 079 01 2 6 39 03 154 01 0
Blade (straight with stop roller)	16 to 35 mm (adjustable) 10 mm (fixed)(1) 14 mm (fixed)	6 39 03 143 01 3 6 39 03 189 01 0 6 39 03 082 01 6
"Roll Out 2000"	Wire cutting system (1)	81 62 0 301 76 8
Scalpel	for heavy-duty applications (1)	
Handles for cutting wire	Self-locking (1)	special tool 51 3 270
(1) Not included in BMW blade set		

Storage temperature:

Storage temperature of all adhesive products of 5°C to 25°C must be observed.

Adhesive:

The BMW-approved 1-component polyurethane adhesive must be used for bonding.

- Adhesive cartridge* (part number BMW 83 19 0 152 031, MINI 83 19 0 152 032)

* Sourcing reference: BMW Parts Service

Adhesive is applied to window glass with cartridge gun (pneumatically or electrically operated, sourcing reference: BMW Workshop Equipment and Planning Documentation).

When using accelerator (hot processing):

- Temperature (min. 80 ± 5°C) of cartridge oven must be checked every morning. Connect temperature sensor to DIS or GT1 (in conjunction with MIB (Measurement Interface Box))
- Heat adhesive for at least 1 hour in cartridge oven (sourcing reference: BMW Parts Service) to 80 ± 5°C
  - Write date and time on adhesive when inserting into cartridge oven

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    - Insufficient heating (< 1 hour) results in the formation of bubbles/blisters (gluing/cementing not permitted)
    - Temperature < 80 ± 5°C results in the formation of bubbles/blisters (gluing/cementing not permitted)
- Remove cured adhesive prior to further processing.
- Mistake in mixing in event of an interruption in application >1 minute (gluing/cementing not permitted)
    - A test bead of 50...70 mm must be rejected after an interruption in application
- Best before dates of accelerator and adhesive must not be more than 3 months apart
    - Best before date >3 months results in the formation of bubbles/blisters (gluing/cementing not permitted)

Sealed adhesive:

- May only be stored for a maximum of 8 hours once it has been heated up to 80 ± 5°C.
- The adhesive will be damaged if this time is exceeded (gluing/cementing not permitted)
- Damaged adhesive must not be used and must be disposed of in compliance with national regulations
- Cartridge may only be heated up once
    - If the lower label is black, this adhesive may only still be used cold without accelerator while adhering to the Best before date.

IMPORTANT: Not all window glass may be bonded with accelerator (hot processing). If hot processing is not permitted, this is described in the relevant document.

Adhesive Best before date:

Repair kit and adhesive cartridges are marked with a date (Best before).

The adhesive cannot be used after this date.

Adhesive disposal:

Pure hardened adhesive is handled as normal waste.

The adhesive is disposed of in paper bags so that it can react with moisture.

Non-hardened adhesive, cartridges and mixtures of adhesive and solvents and the like must be disposed of as special waste.

Accelerator:

Accelerator is screwed onto the adhesive cartridge and contains a reaction paste which is mixed with the heated adhesive.

IMPORTANT: The accelerator may only be paired with the adhesive cartridge of an unopened

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package (bubbling). Adhesive and accelerator must be paired while taking into account the Best before dates.
The accelerator may no longer be used if the Best before dates are more than 3 months apart.

Bonding agent (activator):

The BMW-approved bonding agents must be used to treat bonding areas:

- "Glass Activator 1" (on glass ceramic material)
- "Paint Activator A" (on sheet metal flange or residual adhesive bead)

Bonding agent Best before date:

Repair kit and bonding agent are marked with a date (Best before).

- The bonding agent may only be used up to this date (if not already opened previously).
- Once it has been opened (locking ring broken), use for 1 week only even if the Best before date has not been reached.

NOTE: Write the date on the bottle when opening the bonding agent for the first time.

Close the bottle immediately after extracting the bonding agent (reaction with air).

Removal of window glass:

IMPORTANT: As of E63 and E87 it will only be possible to remove the rear window with the " Roll Out 2000".

Cover side panels, roof antenna and if necessary interior trim with protective covers.

Tape off body with fabric adhesive tape (e.g. Tesa) in areas where the oscillating blade could damage the window glass or the paint.

When using cutting wire, pull cutting wire ends through special tool 51 3 270, bend and tape off with fabric adhesive tape (e.g. Tesa) (risk of injury and damage).

When removing the windscreen:

- Wear protective goggles and gloves.

Cut through adhesive bead of window glass:

- with "Roll Out 2000"* (wire cutting system); no paint is damaged here in the case of narrow gaps, see **51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000"**

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- with special cutter* and oscillating blade*
- *Sourcing reference: BMW Workshop Equipment and Planning Documentation

Prior to each use, regrind the blade with a grinding stone while the machine is running (new blades also).

Avoid damage to paintwork on body cutout.

Guide blade carefully between body and window glass.

Run blade of knife parallel to glass.

Cut through adhesive bead as closely as possible to window glass.

To remove adhesive bead in body cutout (and on window glass if reusing):

- Use a scalpel for heavy-duty applications
- Cut off residual adhesive to a thickness of approx. 0.5 mm
- Remove residual bead only briefly before bonding

Damage to paintwork in body aperture:

To ensure long-term corrosion protection, it is absolutely essential to touch up damage to paintwork!

The "BMW Color System" painting handbook forms the basis of these repair instructions and must be observed without fail.

Touch up damage to paintwork on body cutout with BMW multibase filler.

Grind out scratches in non-visible areas and touch up with BMW multibase filler. Grind extensive areas of damage down to the bare metal and coat with BMW multibase filler.

Hardening time:

- With infrared, at least 10 minutes
- Without infrared for at least 60°C, at least 30 minutes
- Without infrared for at least 20°C, at least 24 hours

If a complete build-up of paint is required in the visible area:

- Tape off primed bonding flange before applying top coat

IMPORTANT: Observe hardening time of BMW multibase filler otherwise a perfect bond cannot be guaranteed!

Treatment of glued area in body:

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TREATMENT OF GLUED AREA IN BODY

Glue	Treatment
Bonding and sealing compound for car window glass	a. Clean with spirit (available in pharmacies). b. Observe an air drying time of at least 1 minute (at least 15 minutes when applied to residual bead) c. Apply "Paint Activator A" to paint and residual bead d. Observe an air drying time of at least 1 minute (at least 10 minutes when applied to residual bead)

IMPORTANT: Do not use Sika remover 208 for cleaning in the bonding area.

Preparation for assembly:

Prepare plastic nozzle(s) for shaping adhesive bead (when not using the standard nozzle), can be cut to size during the air drying time.

Lay a test bead of approx. 50 mm - watch out for formation of bubbles/blisters when hot cementing; if OK, apply immediately to window glass.

- Interruption must be < 5 second (incorrect mixture ratio).

Cartridge must be vertical to window glass.

Black ceramic material impermeable to UV light is located on the peripheral zone of the inside edge of the window to protect the adhesive bead.

Glass ceramic material must not be damaged and must be treated as follows.

Treatment of glass ceramic surface (inside of window):

TREATMENT OF GLASS CERAMIC SURFACE

Adhesive (with part numbers)	Treatment
Hot cementing: - BMW 83 19 0 147 370, MINI 83 19 0 147 372 Cold cementing: - BMW 83 19 0 147 369, MINI 83 19 0 147 371 Adhesive cartridge: - BMW 83 19 0 152 031, MINI 83 19 0 152	a. Clean with spirit (available in pharmacies). b. Observe an air drying time of at least 1 minute c. Apply a thin coating of "Glass Activator 1" d. Observe an air drying time of at least 10 minutes

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Version with inspection window for vehicle identification number in windscreen only (all except US/GB):

- Seal inspection window (bottom left) with Sika primer 206 G+P

Adhesive quantities:

Approx. 1 1/4 adhesive cartridges are needed to cement 7 Series windscreens.

In the case of hot cementing (with accelerator), the missing residual bead is applied from a second adhesive cartridge (not contained in the repair kit) but while cold and without accelerator (bubbling).

Minimum hardening period is thus not increased.

IMPORTANT: If a second cartridge is required for cementing:

- **First apply cold adhesive to cowl panel at bottom (skin formation time)**
- **Accelerator from repair kit must not be used with the second cartridge (bubbling)**

Bubbling results in leakage and insufficient bonding strength (torsional rigidity, passenger airbag).

Effect of differing adhesive quantities:

EFFECT OF DIFFERING ADHESIVE QUANTITIES

Too little adhesive:	Too much adhesive:
○ Windscreen rests too low in body cutout ○ Strains/tensions may occur (windscreen breakage) ○ Insufficient squeezing of adhesive bead (leaking)	○ Windscreen rests too high in body cutout ○ Wind noise may occur ○ Strains/tensions may occur (windscreen breakage) ○ Fouling of add-on parts by emerging adhesive ○ Adhesive on uninsulated strainer pressure lines of antenna(s) (interference of reception)

Spacer buffers:

Before sticking on new spacer buffers, remove all remaining traces of old spacer buffers completely.

Position of spacer buffers must be observed exactly.

Incorrectly fitted spacer buffers will result in:

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- Windscreen glass breakage
- Leakage (if the spacer buffer is in the adhesive area)
- Wind noises

Assembly:

To prevent a pressure increase in the vehicle interior when the doors are closed:

- Open a window/IT

IMPORTANT: After the adhesive bead has been applied, the window glass must be fitted within 5 to 10 minutes (depending on air humidity, temperature and use of accelerator).
After 5 to 10 minutes the adhesive bead forms a skin which can no longer guarantee a perfect bond.
To secure the windscreen, use only the yellow plastic adhesive tape (sourcing reference: BMW Parts Service, part number 83 19 9 410 979).
The glass will slip down if other adhesive tapes are used.
Windscreen slippage will result in leaks and wind noises.

Remove adhesive residue immediately with adhesive remover (Sika remover 208, sourcing reference: BMW Parts Service). Do not press out the window glass again.

Hardened adhesive can only be removed by machine.

Check height of windscreen/rear window with special tool 51 0 010 or 51 3 210. Assemble car.

Hardening:

The adhesive hardens as it reacts with air humidity (with accelerator also due to mixed-in reaction paste) at room temperature.

Minimum hardening time (table) is obtained from 22°C and 38 % relative air humidity.

At ambient temperatures above 23°C and 50 % relative air humidity (hot countries), the adhesive open time is shortened to approx. 5 minutes (skin formation time).

The adhesive hardening process is interrupted completely at ambient temperatures below 5°C. In this event, there will be no increase in the strength of the adhesive bond.

Do not subject the vehicle to load on one side during the minimum hardening time (see table, without passenger airbag), such as e.g.:

- one wheel on kerb
- lifting platform
- etc.

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Maneuvering inside garage/workshop:

- only permitted on level ground
- do not under any circumstance driver over access ramps, e.g. into multi-store car parks

Remove adhesive tapes after hardening time.

If you fail to adhere to the minimum hardening times (see table, without passenger airbag):

- leaks and wind noises will occur when the windscreen is moved

Glues and their minimum hardening times:

GLUES AND THEIR MINIMUM HARDENING TIMES

Glue	Minimum hardening time "without passenger airbag" (after which vehicle can be moved)	Minimum hardening time "with passenger airbag" (countries where seatbelt use is not required by law)
Hot processing with accelerator	2 hours	3 hours(1)
Cold processing	9 hours	20 hours(1)

NOTE:

(1) Vehicles with passenger airbag:

The vehicle can be handed over to the customer after the hardening period (vehicle can be moved, adhesive-dependent) with the following warning:
Once the windscreen glass has been bonded, all occupants must travel with their seatbelts attached for "... hours"!
The time is taken from the "Minimum hardening period" table for countries where seatbelt use is not required by law.

IMPORTANT: If the minimum hardening time is not adhered to:

- the front passenger together with the windscreen may fall out of the vehicle in the event of an accident after the front passenger airbag has been triggered

Locate leaks:

- by spraying water underneath sealing lips
- with ultrasonic leak detector (sourcing reference: BMW Parts Service)

If necessary, seal leakage with appropriate nozzle.

Version with GPS navigation system 1 (up to 9/97):

After installation of rear window:

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- Recalibrate magnetic field sensor

Version with rain sensor or rain/light sensor:

Removing rain sensor or rain/light sensor, refer to repair instructions.

After replacing windscreen:

- Initialize rain sensor or rain/light sensor

Version with fogging sensor:

After replacing windscreen:

Replace fogging sensor, refer to repair instructions.

Version with head-up display (HUD):

Before bonding, install windscreen with seal(s) and check HUD; if necessary, press expanding foam tape down with hand roller.

After bonding windscreen, check and if necessary adjust HUD.

Work steps for removing and installing windscreens:

refer to repair instructions.

NOTE: If no document is displayed after you have clicked on a "framed cross-reference":

It is not necessary or permitted for the model selected in the TIS.

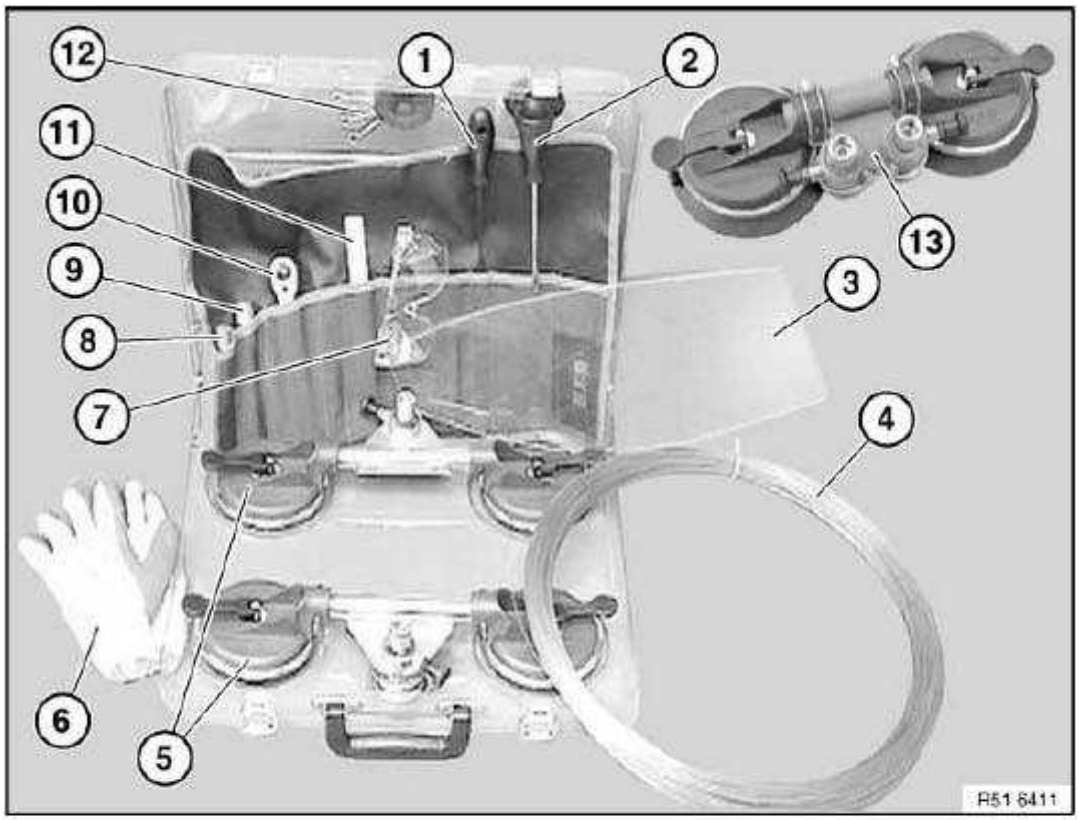
51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000"

Special tools required:

- **51 3 270 PULL HANDLES**

Windscreen removal system "Roll Out 2000"

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1	Wire starter	8	Extension (short)
2	Parabolic tool	9	Extension (long)
3	Plastic washer	10	Reversible ratchet
4	Wire cutting roller	11	Plastic wedge
5	Windlasses	12	Guide needles
6	Protective gloves	13	Windlass with double coil
7	Protective goggles		

Fig. 357: Windscreen Removal System "Roll Out 2000"
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Using the "Roll Out 2000" system (sourcing reference: BMW Workshop Equipment and Planning Documentation) minimizes paintwork and ergonomic damage as well as damage that is hazardous to health.

WARNING: Follow safety instructions for working on cars with airbag systems (risk of injury), see 51 00 ... Safety instructions for working on cars with airbag systems

IMPORTANT: Take care when handling sharp-edged tools and cutting wire (risk of damage to head airbag).

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IMPORTANT: Always keep both suckers dry and clean to ensure their optimum adhesion on the windscreen.
Lubricate coil if interlock rattling becomes too loud.
Always wear protective goggles and gloves for your own safety.

Preparatory work:

- To avoid paintwork damage, tape off working area over large area at outlet of wire starter (2) with fabric adhesive tape (1)
- Cut off required length (A) from cutting wire

  (A) = Window diagonal x 4

- Check whether wire can get caught on rivets or retainers; if necessary, insert guide needles in bonding joint and guide cutting wire past

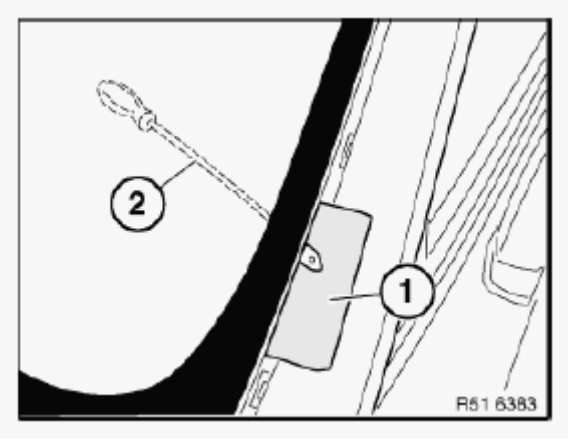


Fig. 358: Wire Starter And Fabric Adhesive Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Pulling cutting wire into car:

- Push wire starter (2) from inside at a suitable point through adhesive bead
- Feed wire end (1) into hole of wire starter (2) and bend back
- Pull in both wires in succession crossways

NOTE: Crossing the wires cuts through the adhesive bead completely.

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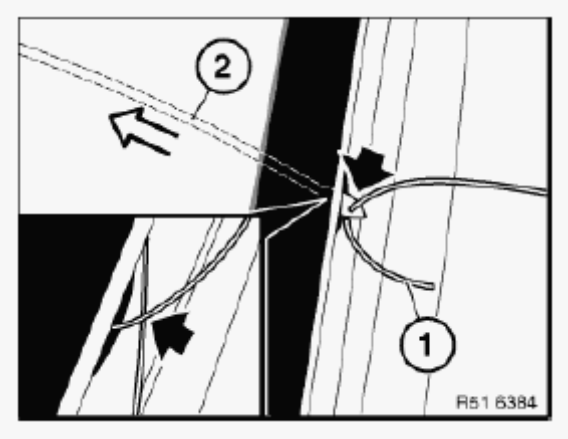


Fig. 359: Wire End And Wire Starter
Courtesy of BMW OF NORTH AMERICA, INC.

Laying cutting wire around windscreen:

- Starting from pull-in point, lay wire eyelet created on the outside counterclockwise around the windscreen
- Pull excess wire into car interior

IMPORTANT: Make sure the cutting wire is located at all four corner points below the windscreen.
Check that the cutting wire is not caught on retainers or body.
Secure window on outside with adhesive tape against slipping

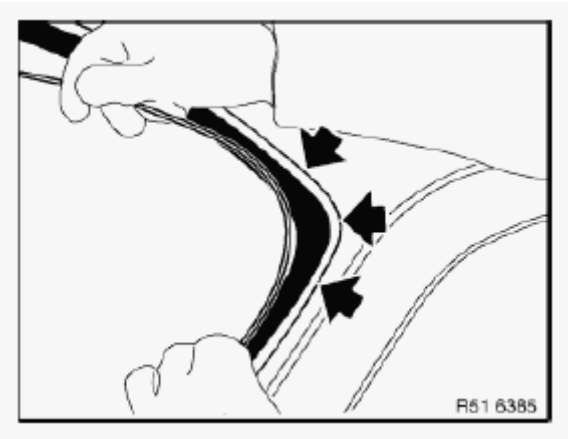


Fig. 360: Laying Cutting Wire Around Windscreen
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Windows (1) with fitted seals (3) or sprayed-on surrounds:

- Moisten cutting wire (4) and seals (3) on window (1) with water
- Insert cutting wire (4) in bend (without kinking) between window (1) and body cutout (2)

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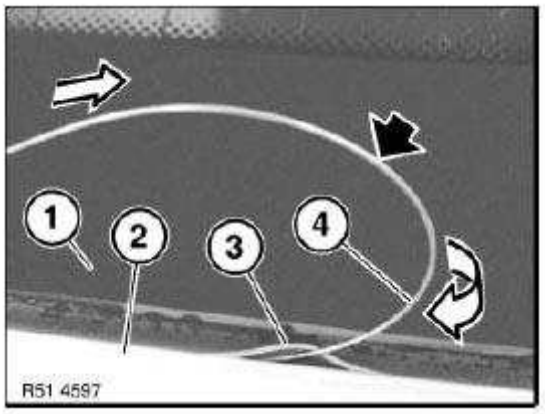


Fig. 361: Cutting Wire, Seals And Window
Courtesy of BMW OF NORTH AMERICA, INC.

Protecting car interior:

- To avoid damage and if necessary dirt, protect A-pillars, roof and instrument panel by means of parabolic tool (1) or plastic washer (2)
- Move parabolic tool (1) during removal so that wire cannot get caught
- Always guide plastic washer (2) between wire and panel

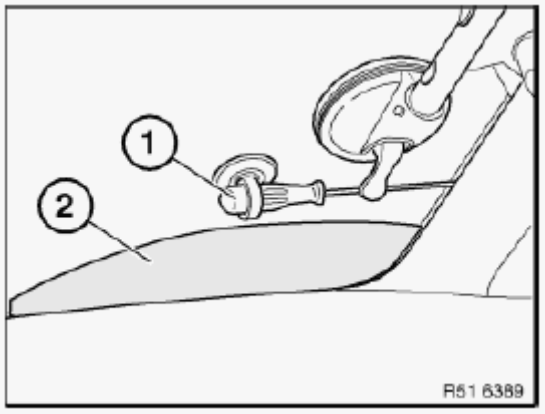


Fig. 362: Parabolic Tool And Guide Plastic Washer
Courtesy of BMW OF NORTH AMERICA, INC.

Starting removal:

- Place windlass (1) on windscreen
- Feed wire end into coil of windlass (1)

NOTE: Coil can only be turned in one direction.

- Make sure the wire is always situated in the guide channel of the windlass (1)

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- Fit reversible ratchet (2) on coil and tension wire
- Start by cutting lower adhesive bead
- Grip second wire end in special tool 51 3 270

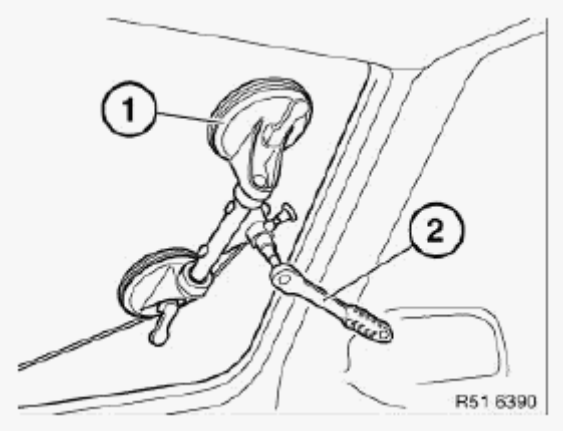


Fig. 363: Windlass And Reversible Ratchet
Courtesy of BMW OF NORTH AMERICA, INC.

Moving windlass:

- Before moving windlass, remove reversible ratchet, extension and parabolic tool
- Release sucker on windlass
- Pull and hold black locking button (1)
- Turn windlass and move with sucker
- Refit reversible ratchet, parabolic tool and if necessary extension
- When cutting the corner points, make sure the wire is situated in the guide channel of the windlass; this makes the cutting job easier

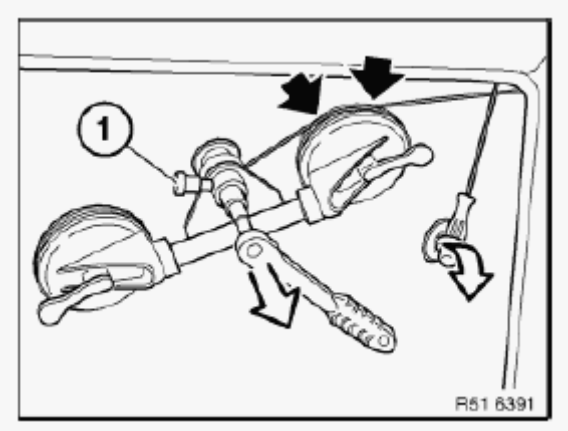


Fig. 364: Black Locking Button
Courtesy of BMW OF NORTH AMERICA, INC.

Installing second windlass:

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- Secure second windlass by suction on windscreen
- Feed second wire end into coil
- Cut left side and top left corner point, as described above
- Finish removal
- Remove "Roll Out 2000"

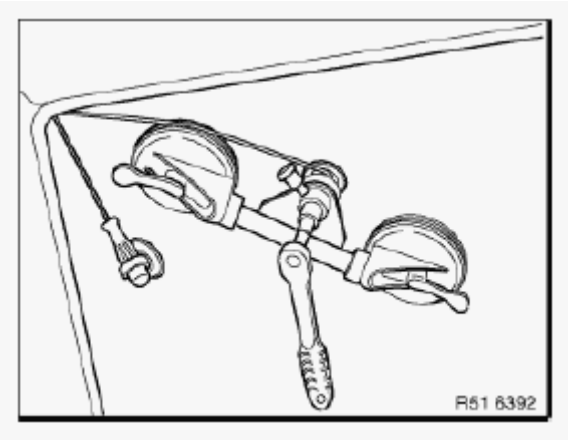


Fig. 365: Securing Second Windlass
Courtesy of BMW OF NORTH AMERICA, INC.

Windlass with double coil:

For use with small windows.

- Attach windlass firmly to window so that both coils are turned away from application point of wire
- Feed either the upper wire end into the lower coil or the lower wire end into the upper coil
- Fit reversible ratchet on coil and tension wire
- Cut through approx. 10 cm of bonding joint

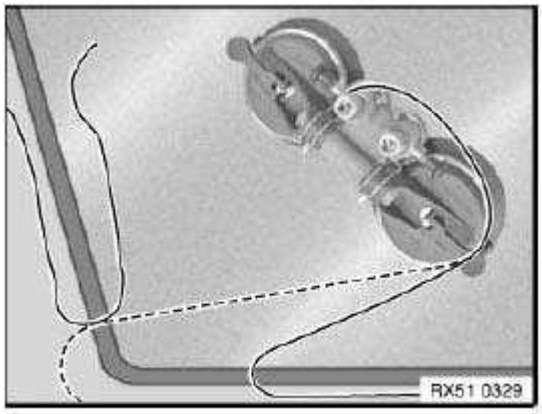


Fig. 366: Windlass With Double Coil
Courtesy of BMW OF NORTH AMERICA, INC.

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- Feed other wire end into free coil so that the wires cross
- Continue cutting bonding joint by alternately using the coils
- Both wires meet ahead of both coils when removal is completed
- Remove "Roll Out 2000"

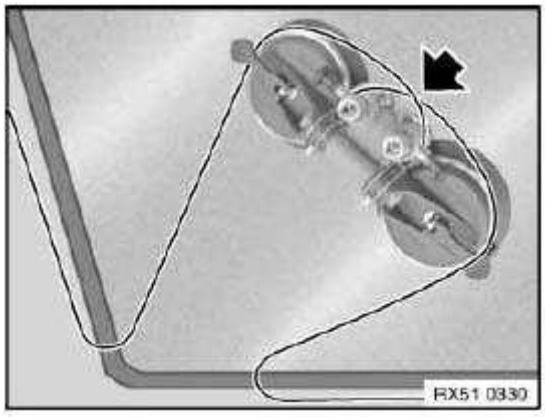


Fig. 367: Locating Cutting Bonding Joint
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 000 REMOVING AND INSTALLING / REPLACING WINDSCREEN

IMPORTANT: The "Instructions for window cementing" serve as the basis for these repair instructions and must be followed without fail, see 51 31 ... Instructions on gluing windscreen

51 31 015 REPAIRING DAMAGE TO WINDSCREENS CAUSED BY PITTING (STONE CHIPS) (CLEAR AND TINTED LAMINATED SAFETY GLASS)

Field of vision (no repairs acceptable):

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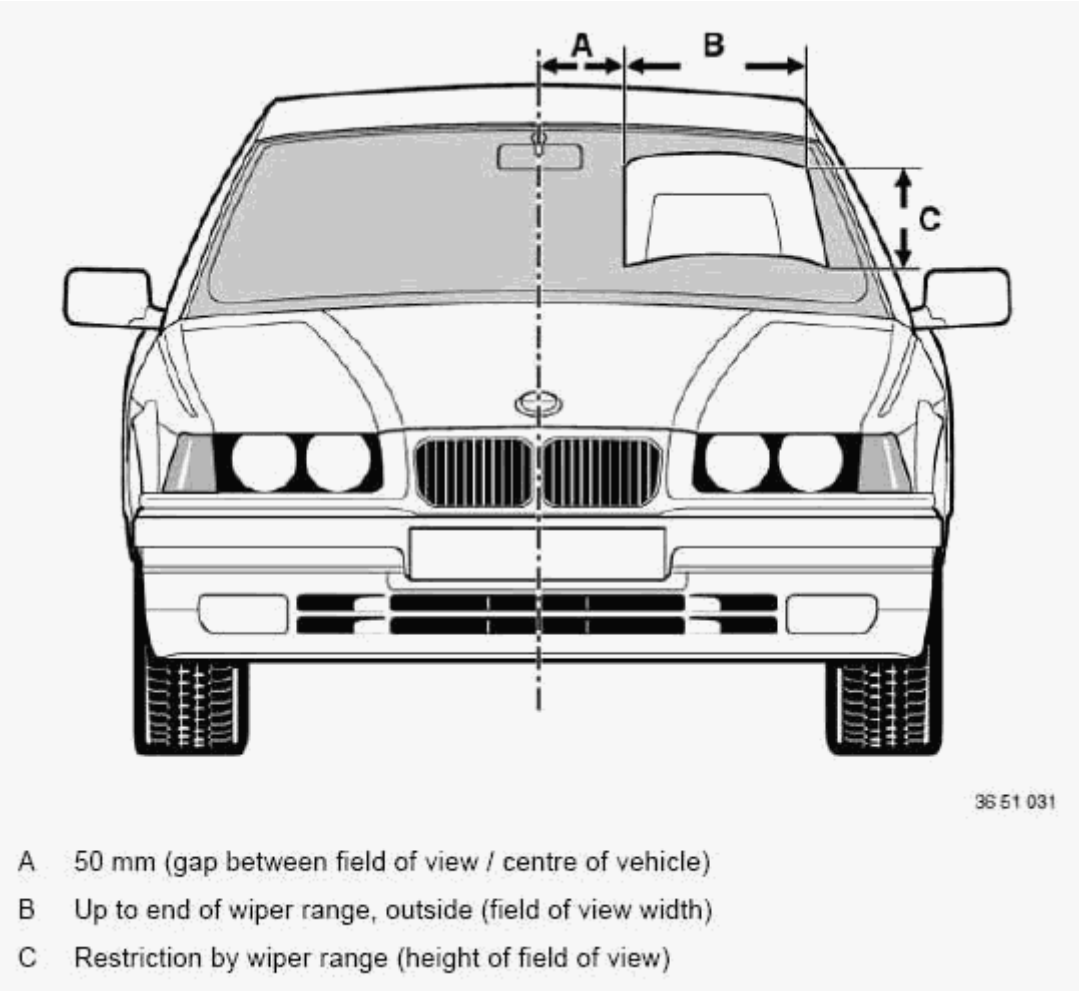


Fig. 368: Field Of Vision
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Repairs must only be carried out outside of the field of vision (refer to sketch).

51 31 021 REMOVING AND INSTALLING/REPLACING RUBBER FRAME FOR WINDSCREEN (TOP)

Necessary preliminary tasks:

- Remove both gutter strips on windscreen, see **51 31 030 Removing and installing or replacing left or right gutter along windshield**

IMPORTANT: Rubber frame (1) features an aluminium section inlay (2).
Detach adhesive tape on outside from windscreen and at top from roof outer skin.
Carefully unwind rubber frame (1) (windscreen breakage).

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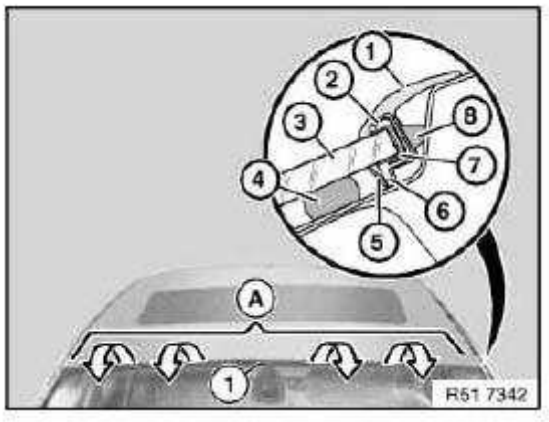


Fig. 369: Rubber Frame And Aluminium Section Inlay
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Spacers (8) are attached to rubber frame (1).

Tear-off lip (5) may be stuck to adhesive (4).

When rubber frame (1) is removed, tear-off lip (5) can tear off and remain in vehicle.

Attach adhesive tape correctly in area (A).

3 Windscreen
6 Bridge
7 Pinched butyl

Installation:

In area (A) on left/right:

- there is no sealing lip (5)
- there is adhesive tape (7) for windscreen (8)
- buffer stop is molded on

When replacing without removing windscreen:

Detach tear-off lip (3) from rubber frame (1).

If adhesive leaks over tear-off lip (3), this area must be cut out partially.

To facilitate installation, coat rubber frame (1) and body cutout with water.

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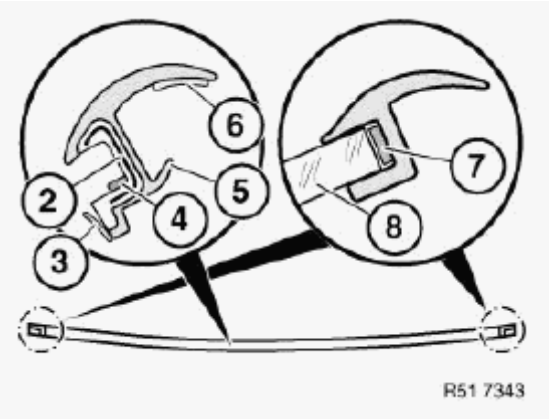


Fig. 370: Tear-Off Lip, Rubber Frame, Adhesive Tape And Windscreen
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement with removed/new windscreen:

Fit rubber frame (1) with tear-off lip (3).

2 Aluminum strip
4 Butyl
6 Adhesive tape (for attaching to roof at top)

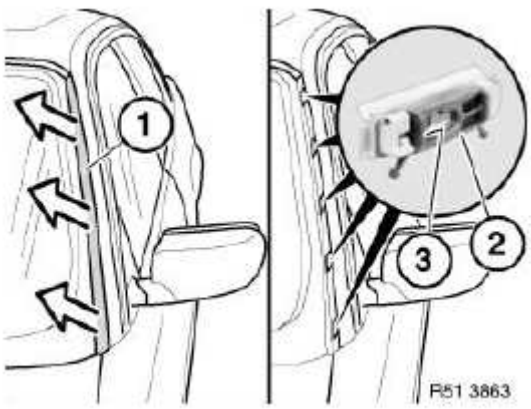
51 31 030 REMOVING AND INSTALLING OR REPLACING LEFT OR RIGHT GUTTER ALONG WINDSHIELD

Unclip gutter strip (1) towards top.

IMPORTANT: Replace clips (2) after each removal.
Note part number.

Installation:

Locks (3) of clips (2) must not be damaged.



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Fig. 371: Gutter Strip, Locks And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 200 REMOVING AND INSTALLING/REPLACING REAR WINDOW

IMPORTANT: The "Instructions for window cementing" serve as the basis for these repair instructions and must be followed without fail, see 51 31 ... Instructions on gluing windscreen

32 FRONT MANUALLY OPERATED WINDOWS

51 32 160 REMOVING AND INSTALLING/REPLACING HOUSING COVER ON INNER LEFT OR RIGHT DOOR WINDOW FRAME

Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Release expansion rivets (1).

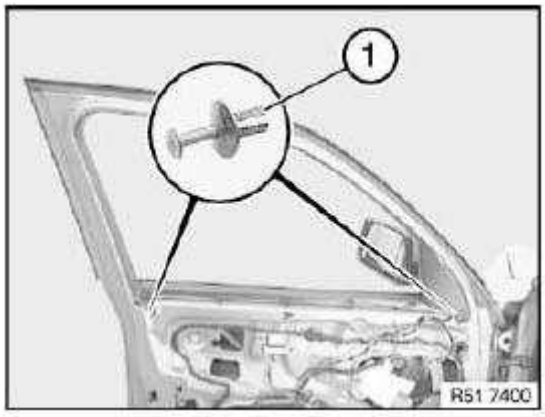


Fig. 372: Expansion Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip cover (1) on front door

A. inwards from retainer (2),
B. lever out and remove

IMPORTANT: Cover (1) must not be kinked (risk of damage).

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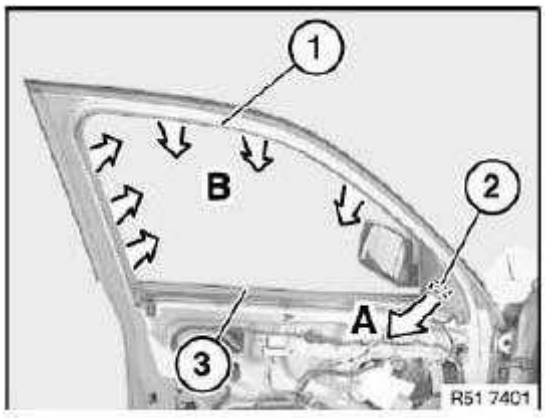


Fig. 373: Cover And Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of cover (3) must not be damaged or missing:

1. Retainer
2. Sound insulation

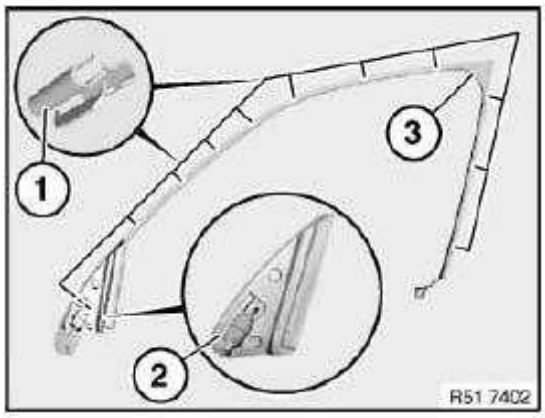


Fig. 374: Sound Insulation, Retainer And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 170 REMOVING AND INSTALLING / REPLACING DOOR WINDOW GLASS, FRONT LEFT OR RIGHT

Necessary preliminary tasks:

- Open door window to 105 mm.
- Remove sound insulation in front door, see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**
- Remove outer window cavity cover strip, see **51 21 300 Removing and installing or replacing window**

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cavity cover strip on outside of left or right front door

Door window glass (1) must be opened to dimension (A).

A = approx. 105 mm

IMPORTANT: Disconnect plug connection (2) from power window motor (3) (risk of trapping).

Lever out catches (4) with screwdriver (5) in direction of arrow.

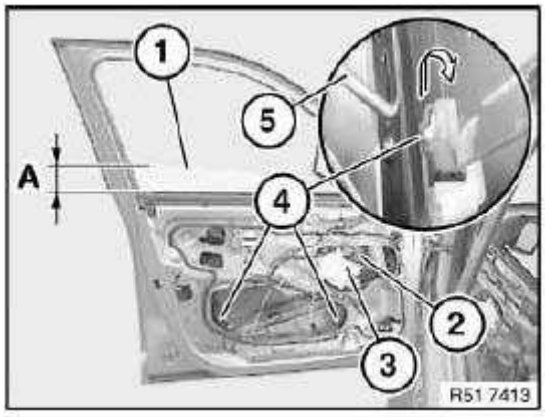


Fig. 375: Door Window Glass, Plug Connection And Power Window Motor
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catch (4) must be correctly clipped into place.

Carry out function check on power window unit and anti - trapping protection.

If necessary, normalize power window unit.

Installation:

Following parts of window guide (3) must not be damaged or missing:

1. Catch
2. Buffer stop

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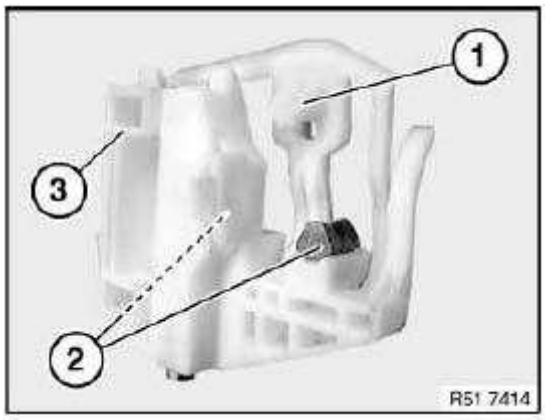


Fig. 376: Buffer Stop, Catch And Window Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Turn door window glass and lift out towards rear/top.

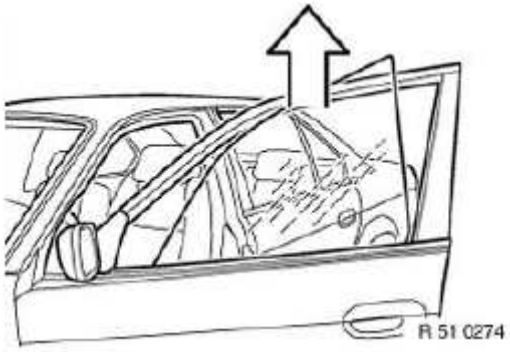


Fig. 377: Lifting Door Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 211 REPLACING FRONT LEFT OR RIGHT RUBBER GUIDE FOR LEFT OR RIGHT DOOR WINDOW

Necessary preliminary tasks:

- Remove front door window glass, see **51 32 170 Removing and installing / replacing door window glass, front left or right**
- Remove window cavity cover strip on outside of front door, see **51 21 300 Removing and installing or replacing window cavity cover strip on outside of left or right front door**
- Remove mirror, see **51 16 000 Removing and installing/replacing mirror on left or right front door**
- Remove cover on inside of door window frame, see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**
- Partially detach trim on front door window frame, see **51 32 420 Removing and installing/replacing trim on front door window frame, left or right**

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Detach trim (1).

Feed rubber guide (2) on front door

A. upwards out of guide (3),
B. feed out of window guide rails and remove.

Installation:

Insert rubber guide at front/bottom into window guide rail.

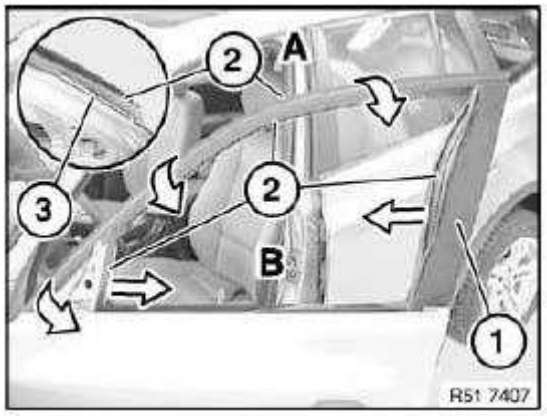


Fig. 378: Rubber Guide, Trim And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Sound insulation (1) in front door (2) must be fitted and must not be damaged.

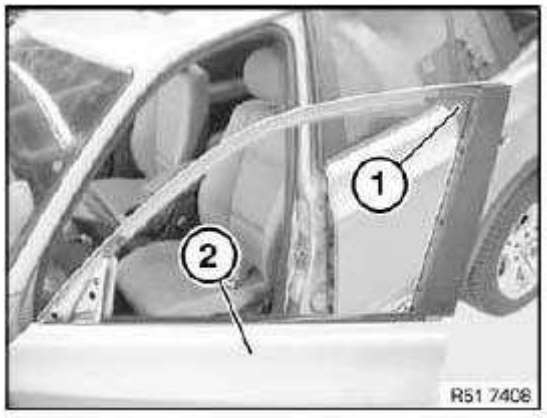


Fig. 379: Sound Insulation And Front Door
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Rubber guide (1) must not be damaged in corners (2).

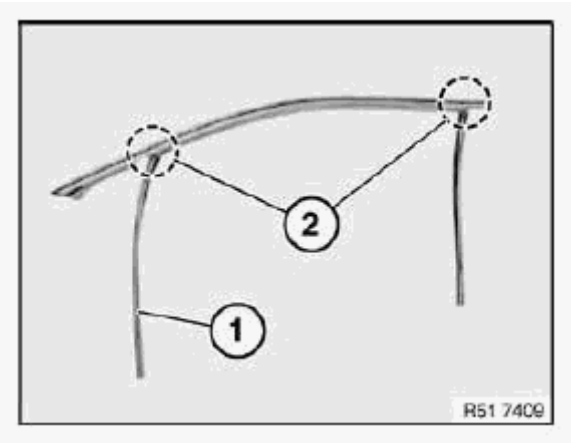


Fig. 380: Rubber Guide And Corners
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 420 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT DOOR WINDOW FRAME, LEFT OR RIGHT

Necessary preliminary tasks:

E83 only:

- Remove window cavity cover strip on outside of front door, see **51 21 300 Removing and installing or replacing window cavity cover strip on outside of left or right front door**

Partially detach rubber window seal (1) at rear.

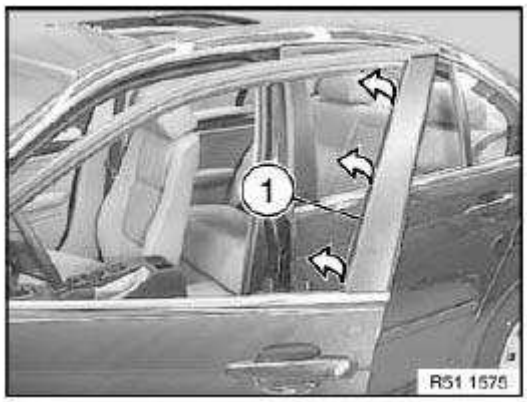


Fig. 381: Rubber Window Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove finisher (2) and press approx. 3 mm towards rear.

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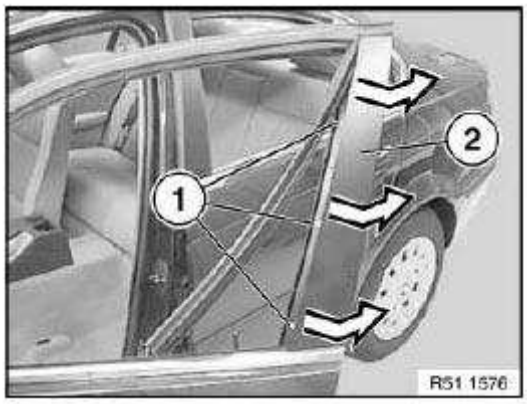


Fig. 382: Finisher And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Remove trim (1) towards top.

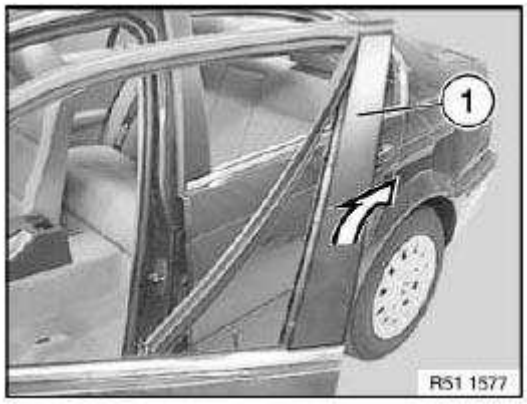


Fig. 383: Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts must not be damaged or missing:

1. Plastic nuts
2. Sound insulation
3. Seal

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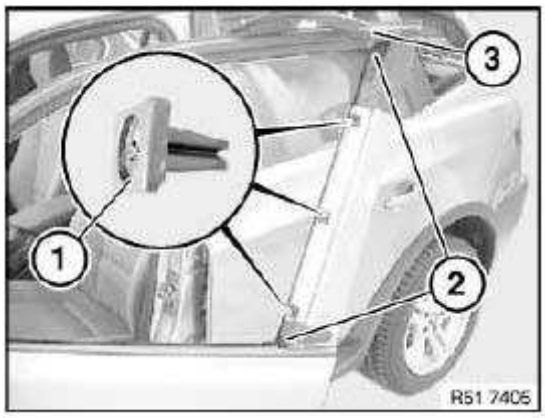


Fig. 384: Sound Insulation, Plastic Nuts And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check trim (1) for damage, replace if necessary.

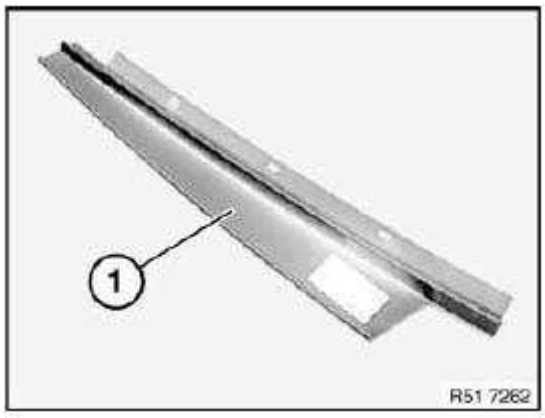


Fig. 385: Trim
Courtesy of BMW OF NORTH AMERICA, INC.

33 FRONT ELECTRICALLY OPERATED WINDOWS

51 33 000 REMOVING AND INSTALLING (REPLACING) POWER WINDOW UNIT IN LEFT OR RIGHT FRONT DOOR

NOTE: When removing door lock, snap door window glass out only, do not remove, secure in door window frame.

Necessary preliminary tasks:

- Remove front door window glass, see **51 32 170 Removing and installing / replacing door window glass, front left or right**

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Unscrew nuts (1).

Feed out rear section of power window unit (2) in direction of arrow.

Installation:

Tightening torque: 51 33 2AZ, see **51 33 POWER WINDOWS, FRONT**

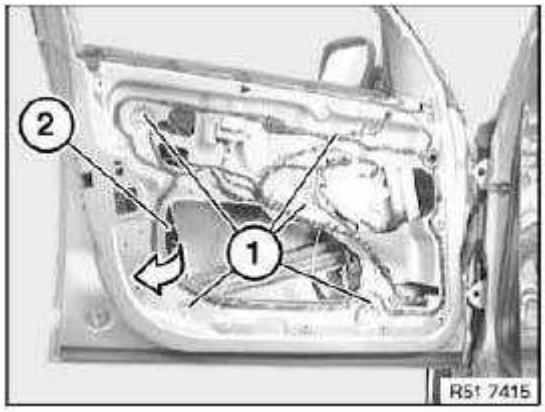


Fig. 386: Power Window Unit And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: The work step "Removing and installing/replace door lock" ends here.

Feed out front section of power window unit (1) with flat motor (2) in direction of arrow from front door.

Replacement:

Remove flat motor for power window unit, see **67 62 000 REMOVING AND INSTALLING / REPLACING FLAT MOTOR FOR FRONT LEFT OR RIGHT POWER WINDOW UNIT**

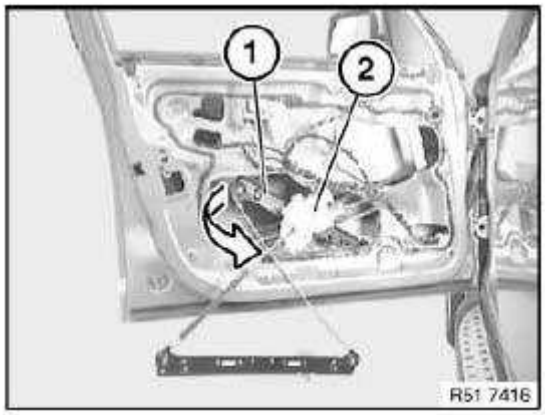


Fig. 387: Power Window Unit And Flat Motor
Courtesy of BMW OF NORTH AMERICA, INC.

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34 REAR MANUALLY OPERATED WINDOWS

51 34 ... REMOVING AND INSTALLING/REPLACING TRIM ON WINDOW FRAME OF REAR DOOR (REAR), LEFT OR RIGHT

Necessary preliminary tasks:

- Remove cover on door window frame (rear door), see **51 34 160 Removing and installing/replacing housing cover on inner left or right door window frame**

Remove rubber guide (1) from trim (2).

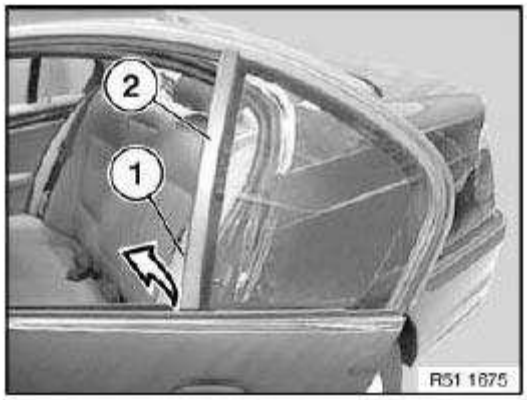


Fig. 388: Rubber Guide And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Grip trim firmly and release screws (1).

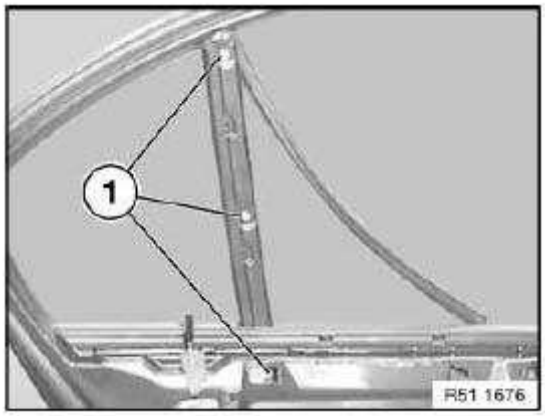


Fig. 389: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Push trim (1) downwards from rubber guide (2) and remove towards top.

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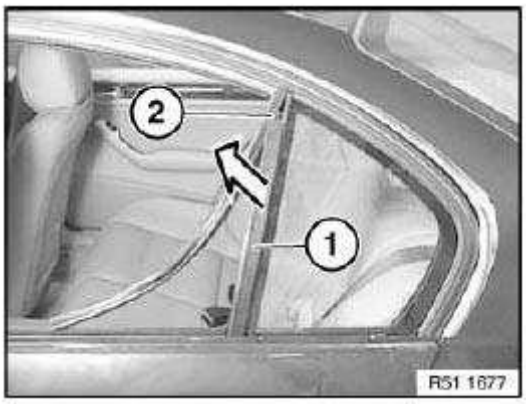


Fig. 390: Trim And Rubber Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Threads (1) of trim (2) must not be damaged.

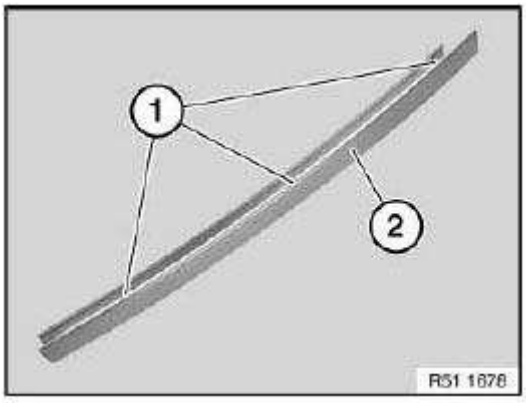


Fig. 391: Threads And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Foam section (1) must be fitted.

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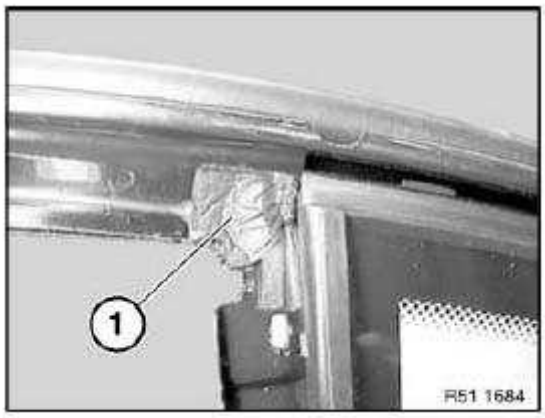


Fig. 392: Foam Section
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 160 REMOVING AND INSTALLING/REPLACING HOUSING COVER ON INNER LEFT OR RIGHT DOOR WINDOW FRAME

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Open door window.
- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Release expansion rivets (1).

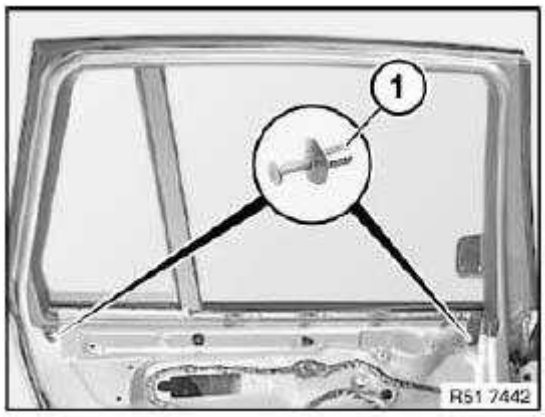


Fig. 393: Expansion Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out fixed cover (1) in area of door window with special tool 00 9 317.

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Unclip rest of cover (1) in direction of arrow, lever out and remove.

NOTE: Do not tear off cover (1) in area (2).

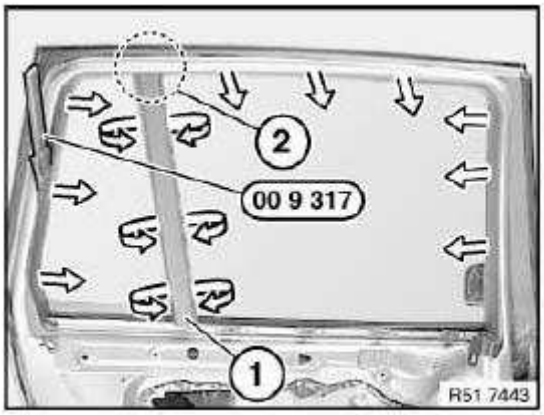


Fig. 394: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of cover (1) must not be damaged or missing:

2 Connection point
3 Clips
4 Guides

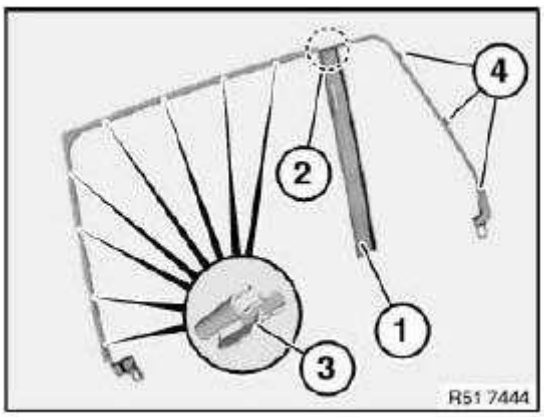


Fig. 395: Connection Point, Clips And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 171 REPLACING REAR LEFT OR RIGHT DOOR WINDOW

Necessary preliminary tasks:

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- Open door window to 105 mm.
- Remove sound insulation in rear door, see **51 48 070 Removing and installing/replacing sound insulation on left or right rear door**
- Remove outer window cavity cover strip, see **51 21 300 Removing and installing or replacing window cavity cover strip on outside of left or right front door**
- Remove cover on door window frame, see **51 34 160 Removing and installing/replacing housing cover on inner left or right door window frame**
- Remove trim on rear door window frame, see **51 34 ... Removing and installing/replacing trim on window frame of rear door (rear), left or right**
- Remove rubber guide for rear door window glass, see **51 34 211 Replacing rubber guide for rear left or right door window**

Open door window glass (1) down to distance (A)

A = approx. 105 mm



Fig. 396: Door Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Disconnect plug connection (1) from power window motor (2) (risk of trapping).

Lever out catches (3) with screwdriver (4) in direction of arrow.

Installation:

Catch (3) must be correctly clipped into place.

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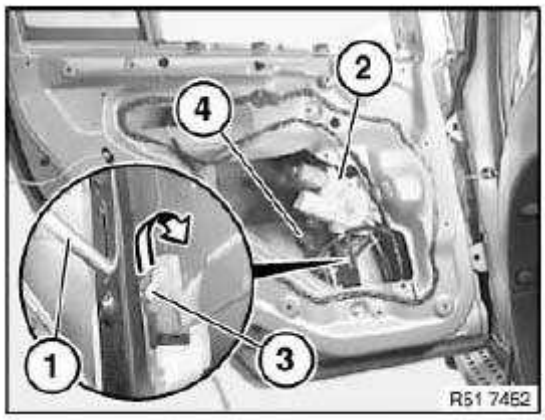


Fig. 397: Plug Connection, Catches And Power Window Motor
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of window guide (3) must not be damaged or missing:

1. Catch
2. Buffer stop

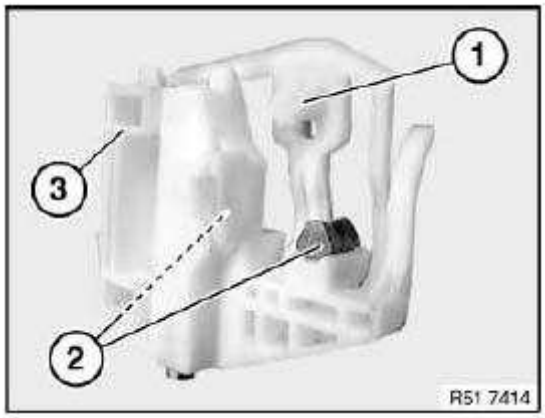


Fig. 398: Buffer Stop, Catch And Window Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Remove door window glass (1) towards top.

Installation:

Door window glass does not need to be adjusted.

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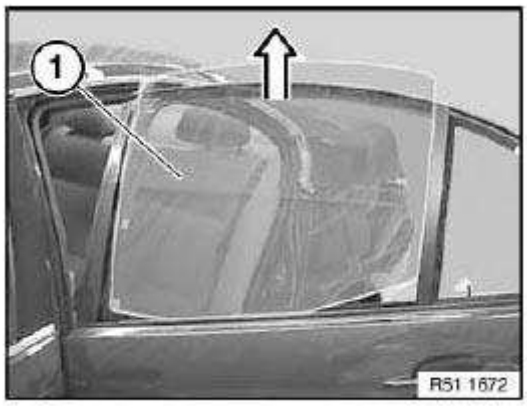


Fig. 399: Door Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 191 REPLACING LEFT OR RIGHT FIXED DOOR WINDOW IN REAR WINDOW FRAME

IMPORTANT: The "Instructions for window cementing" serve as the basis for these repair instructions and must be followed without fail, see 51 31 ... Instructions on gluing windscreen

51 34 211 REPLACING RUBBER GUIDE FOR REAR LEFT OR RIGHT DOOR WINDOW

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove cover on inside door window frame, see **51 34 160 Removing and installing/replacing housing cover on inner left or right door window frame**

NOTE: Rubber guide must be replaced after every complete removal.

Lever out rubber guide (1) on door window frame at front (2) with special tool 00 9 317.

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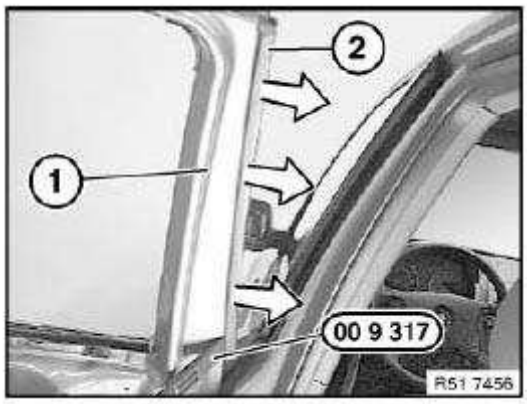


Fig. 400: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Feed out rubber guide (1) towards top.

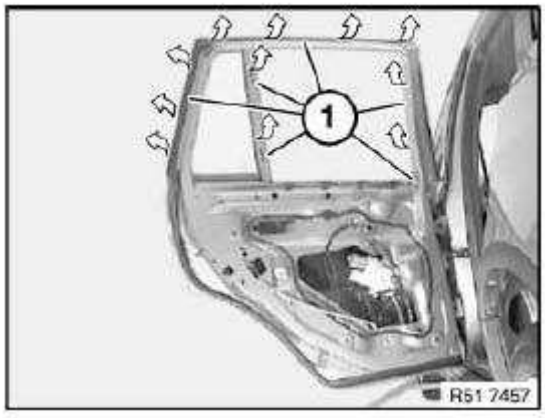


Fig. 401: Door Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Close door window glass (1) a little.

Push rubber guide (2) onto door window glass (1) and into window guide (3).

Moisten rubber guide (2) with water.

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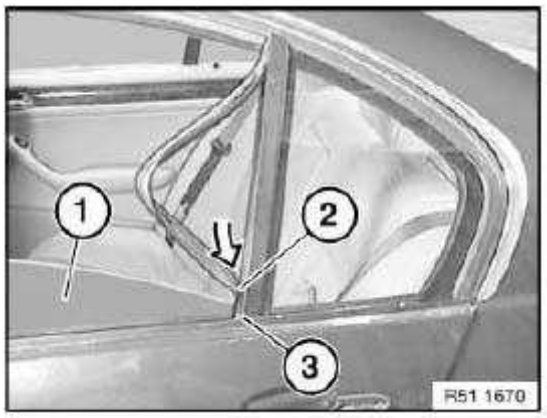


Fig. 402: Rubber Guide, Door Window Glass And Window Guide
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 420 REMOVING AND INSTALLING/REPLACING TRIM ON WINDOW FRAME OF REAR DOOR (FRONT), LEFT OR RIGHT

NOTE: For removal and installation only, not for adjustment:

Necessary preliminary tasks:

- Remove window cavity cover strip on outside of rear door
- Open door window.

Partially detach rubber seal (1) and rubber guide (2).

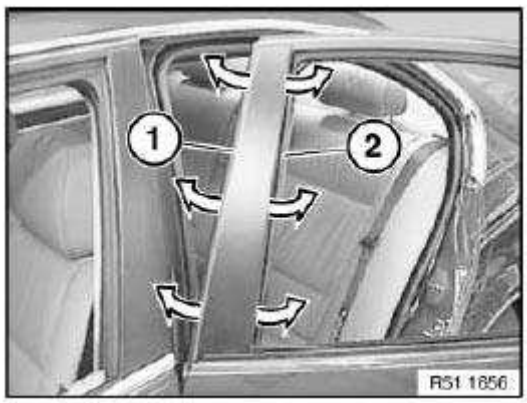


Fig. 403: Rubber Seal And Rubber Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Detach trim (2) towards front/top.

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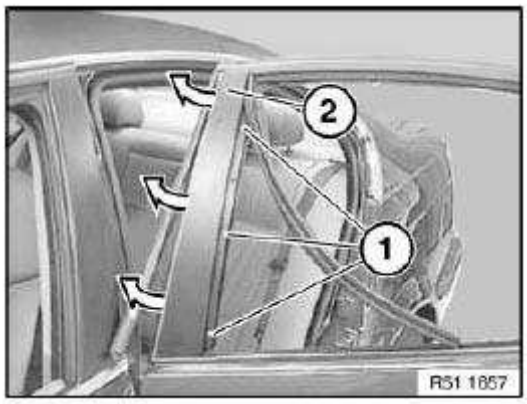


Fig. 404: Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty plastic nuts (1).

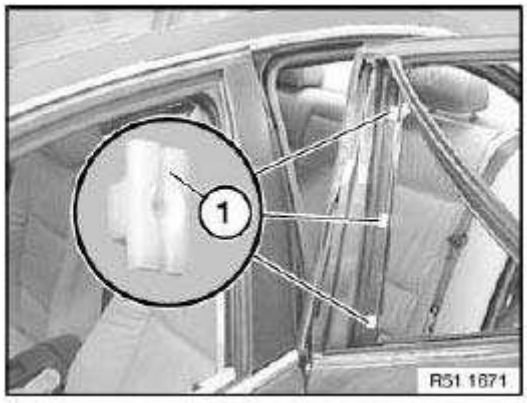


Fig. 405: Plastic Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Trim (1) must not be damaged.

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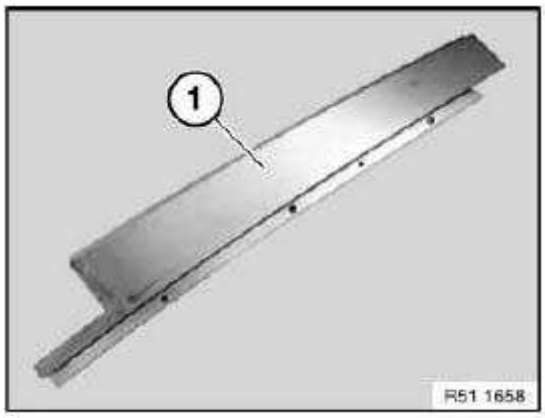


Fig. 406: Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Acoustic insulation pieces (1) must be fitted on window frame (2) (rattling noises).

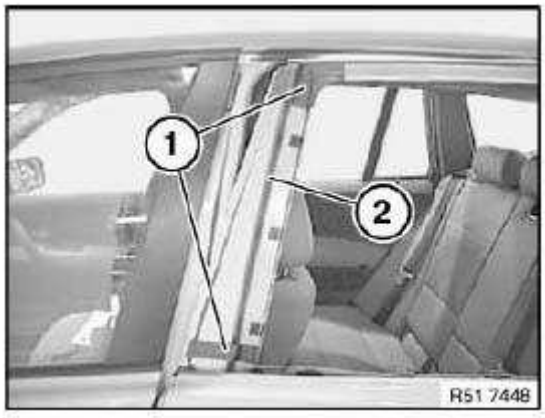


Fig. 407: Acoustic Insulation Pieces And Window Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

To prevent wind noises.

Check gap with a 0.05 mm feeler gauge.

Slide feeler gauge between B-pillar trims on front and rear doors.

When the finishers are correctly adjusted, it must be possible to feel a slight suction resistance over the entire length of the finisher.

If the gap is too big, this may result in wind noises.

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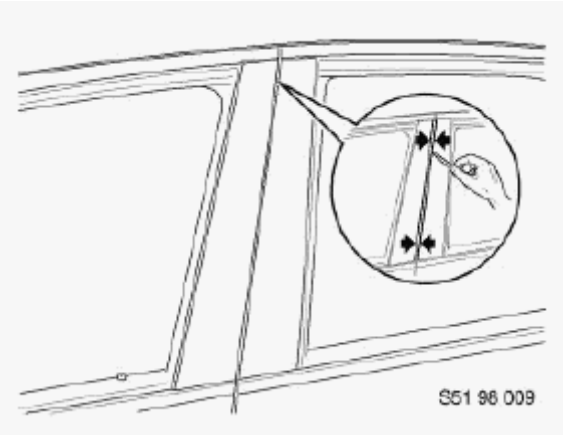


Fig. 408: Feeler Gauge Between B-Pillar Trims On Front And Rear Doors
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, release screws (1).

Press trim (2) towards front and tighten down screws (1).

If gap is still too big, adjust trim on window frame of front door, see **51 32 420 Removing and installing/replacing trim on front door window frame, left or right**

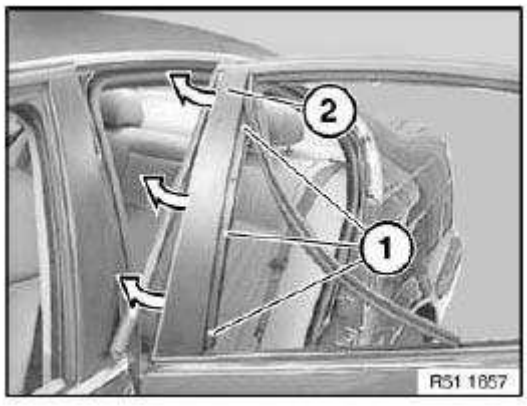


Fig. 409: Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 425 REMOVING AND INSTALLING/REPLACING TRIM ON WINDOW FRAME OF REAR DOOR, REAR LEFT OR RIGHT

Necessary preliminary tasks:

- Detach rubber guide for rear door window glass in area of trim, see **51 34 211 Replacing rubber guide for rear left or right door window**

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E1 and E83 only:

- Remove outer window cavity cover strip, see **51 21 300 Removing and installing or replacing window cavity cover strip on outside of left or right front door**

Release screws (1).

Remove trim (2) towards rear.

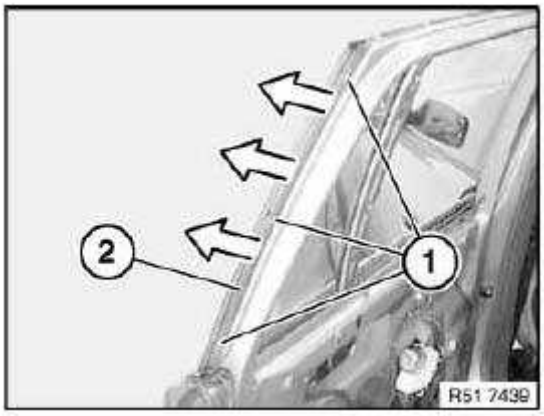


Fig. 410: Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

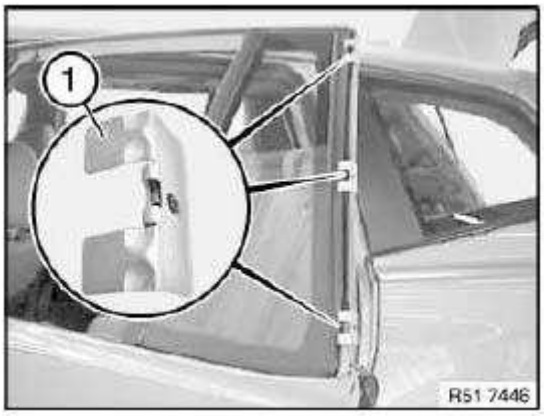


Fig. 411: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

E83 and E91 only:

Installation:

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Fit rubber guide (1) before screwing trim (2) into place.

Make sure trim (2) is correctly seated on rubber guide (1) (area A) and on window glass (3).

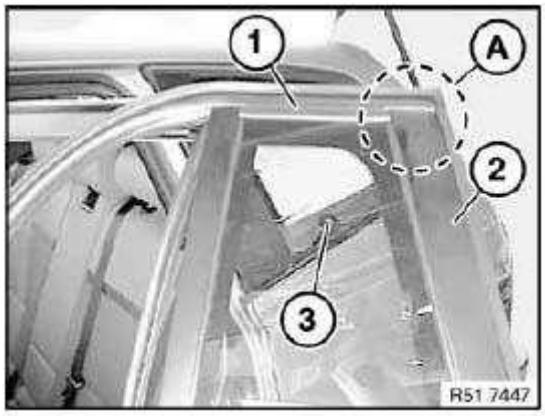


Fig. 412: Rubber Guide, Trim And Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

36 HINGED WINDOW

51 36 ... FIRMLY TENSIONING REAR LEFT OR RIGHT SIDE WINDOW

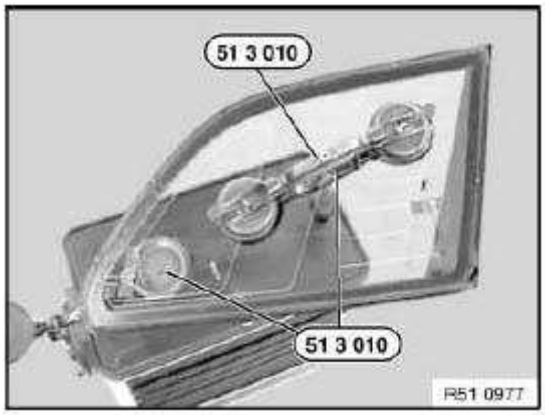
Special tools required:

- **51 3 010 SUCTION LIFT (2 X)**
- **51 3 090 CLAMPING STRAP**

Dampen down suction faces.

Fit special tool 51 3 010 to tool trolley and secure side window.

Secure special tool 51 3 010 (without joint) to inside of window.



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Fig. 413: Special Tool (51 3 010) And (51 3 090)
Courtesy of BMW OF NORTH AMERICA, INC.

Secure special tool 51 3 010 (without joint) opposite to inside of window.

Secure special tool 51 3 090 (tensioning belt) at top to special tool 51 3 010 (1). Hook tensioning belt at bottom diagonally in lashing eyes and pull tight (2).

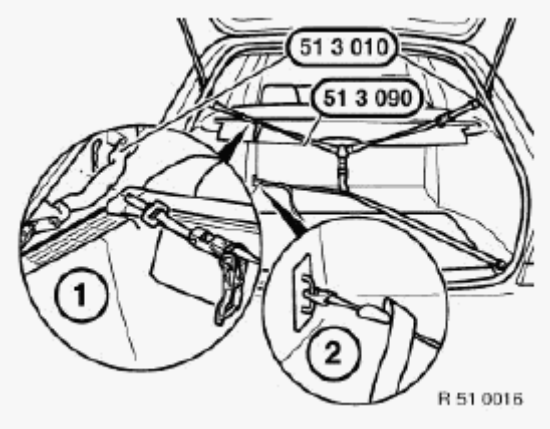


Fig. 414: Special Tool (51 3 010) And (51 3 090)
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten middle belt tensioner (4) so that special tool 51 3 090 is at a 90° angle to side window.

Tighten top belt tensioner (3) until eye can be pulled approx. 20 mm toward rear (4).

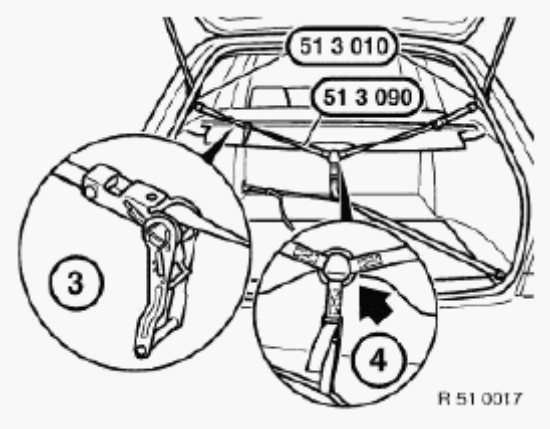


Fig. 415: Special Tool (51 3 010) And (51 3 090)
Courtesy of BMW OF NORTH AMERICA, INC.

51 36 030 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT TRIM ON C-PILLAR (OUTSIDE ON REAR SIDE WINDOW)

Raise trim (1) at rear approx. 2 mm and pull off in stages by approx. 2 mm from top downwards from door window (2) in direction of arrow.

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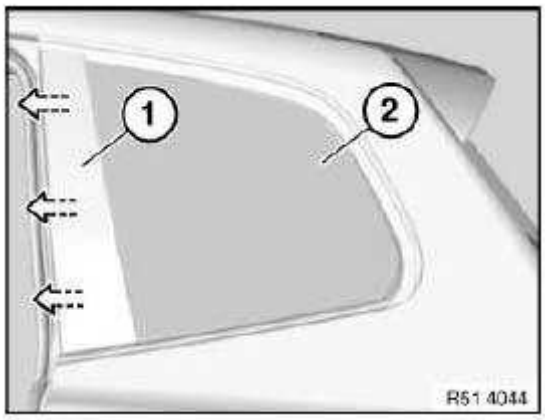


Fig. 416: Trim And Door Window
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Fold (1) and retaining lug (2) of trim (3) must not be bent up.

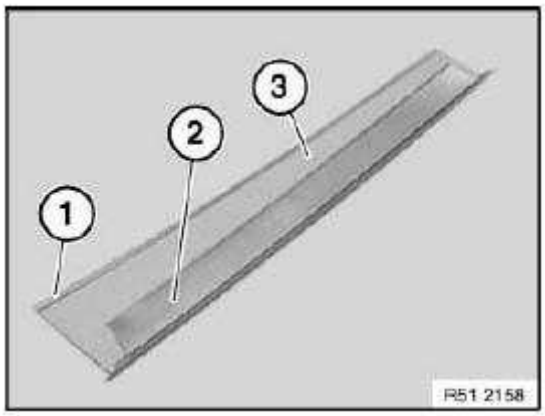


Fig. 417: Fold, Lug And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 36 040 REMOVING AND INSTALLING/REPLACING STRIP ON SIDE WINDOW AT REAR BOTTOM LEFT OR RIGHT

Special tools required:

- 00 9 318 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Carefully lever out strip (1) with special tool 00 9 318, starting at front, in direction of arrow.

Installation:

Clean bonding area with adhesive remover (sourcing reference: BMW Parts Service).

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Air drying time: 1 minute

**IMPORTANT: Adhesive areas must be dry and free of dust and grease.
Once it has been cleaned, do not touch the adhesive area with bare hands.**

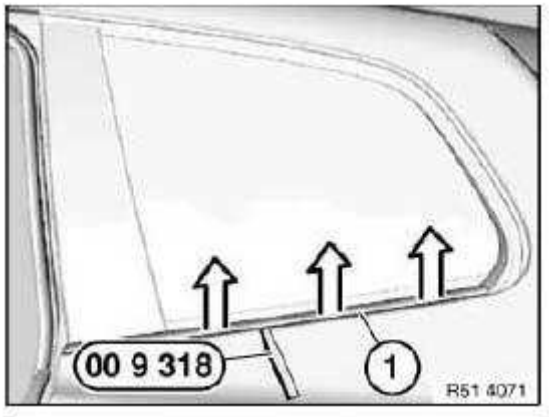


Fig. 418: Special Tool (00 9 318)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Stick double-sided adhesive tape (1) (sourcing reference: BMW Parts Service) on middle of strip (2).

Remove protective film.

Press strip (2) firmly onto body (3).

Manual contact pressure: approx. 10 N/cm2

NOTE: Firm thumb pressure creates approx. 50 Nm/cm 2.

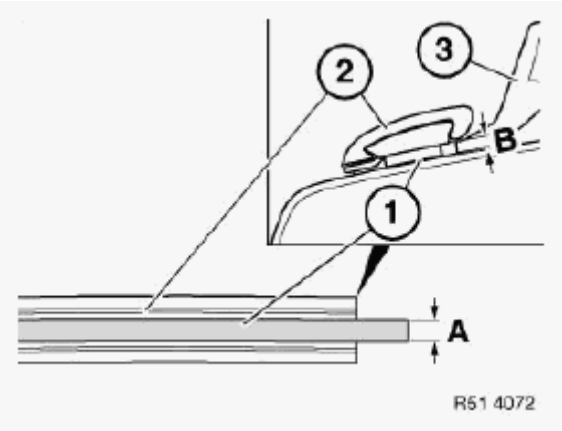


Fig. 419: Double-Sided Adhesive Tape And Strip
Courtesy of BMW OF NORTH AMERICA, INC.

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Double-sided adhesive tape (1):

Measurement

a=7.0 mm

Measurement

b=0.8 mm

Replacement:

Adhesive tape (1) already attached to strip (2).

51 36 070 REMOVING AND INSTALLING / REPLACING LEFT OR RIGHT REAR SIDE WINDOW

IMPORTANT: The "Window cementing instructions" serve as the basis for this repair instruction and must be observed without fail, see 51 31 ... Instructions on gluing windscreen

37 ELECTRICAL POWER WINDOWS, BODY

51 37 000 REMOVING AND INSTALLING/REPLACING COMPLETE REAR LEFT OR RIGHT POWER WINDOW UNIT

Necessary preliminary tasks:

- Remove rear door window glass, see **51 34 171 Replacing rear left or right door window**

Unclip cable holder (1) from power window motor (2).

Unscrew nuts (3).

Tightening torque: 51 35 2AZ, see **51 35 POWER WINDOWS, REAR**

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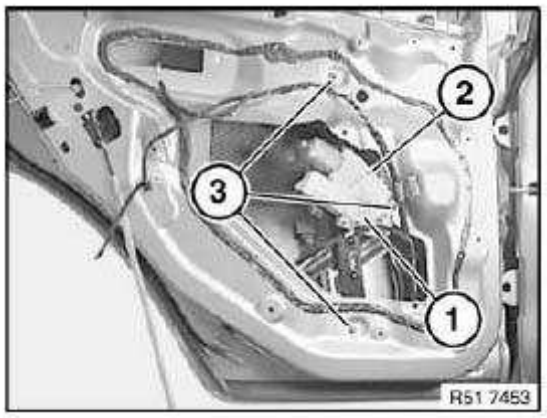


Fig. 420: Cable Holder And Power Window Motor
Courtesy of BMW OF NORTH AMERICA, INC.

Feed power window unit (1) in direction of arrow out of rear door.

Replacement:

Remove flat motor

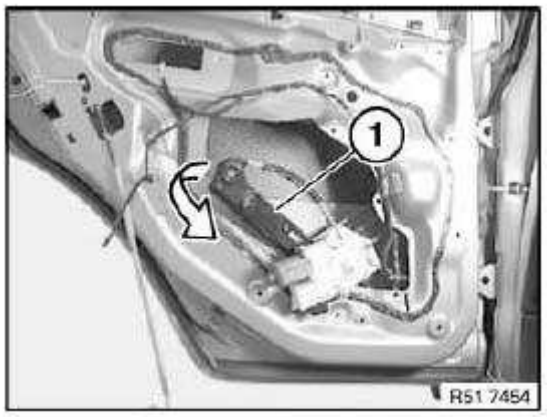


Fig. 421: Power Window Unit
Courtesy of BMW OF NORTH AMERICA, INC.

51 37 261 REMOVING AND INSTALLING/REPLACING WINDOW CAVITY COVER STRIP FOR DOOR WINDOW, REAR LEFT OR RIGHT

Necessary preliminary tasks:

- Remove roller cover for luggage compartment, refer to Owner's Manual
- Fold rear seat backrest forwards
- Remove panel for roof pillar at rear (C-pillar), see **51 43 251 Removing and installing/replacing trim panel for rear left or right roof pillar (C - pillar)**
- Remove panel for roof pillar at rear (D-pillar), see **51 43 252 Replacing trim panel for rear left or right**

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roof pillar (D-pillar)

- Release covers on seat belt at top rear, see **72 11 100 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT SEAT BELTS**

Release screw (1) on window cavity cover strip (2).

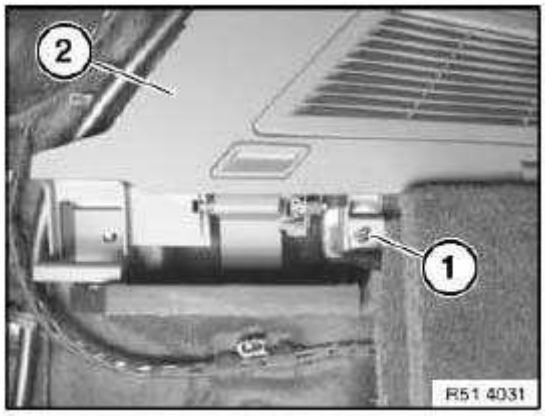


Fig. 422: Screw And Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Remove window cavity cover strip (1) towards top.

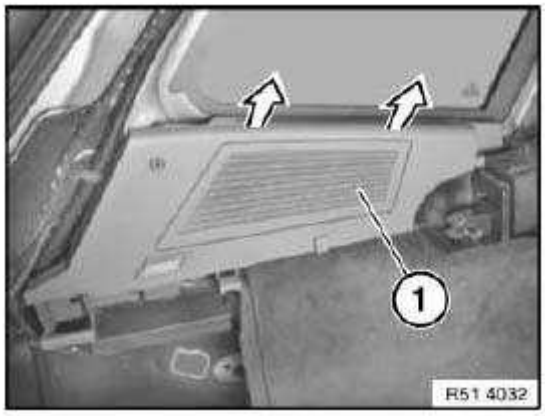


Fig. 423: Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on window cavity cover strip (2) must not be damaged.

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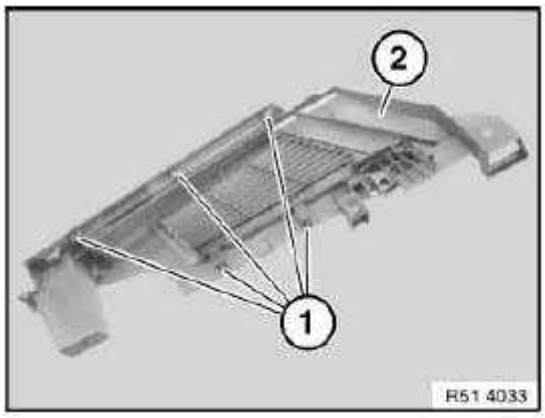


Fig. 424: Guides And Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

41 FRONT DOOR TRIM PANEL WITH ARM REST

51 41 000 REMOVING AND INSTALLING LEFT OR RIGHT FRONT DOOR TRIM PANEL

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

WARNING: Model with side airbag:
Follow safety instructions for working on cars with airbag systems (risk of injury), see 51 00 ... Safety instructions for working on cars with airbag systems
Side airbag is mounted on door trim panel:
Disconnect battery.

IMPORTANT: Do not use any sharp-edged tools to remove the panel - risk of damage to airbag.

Lever out airbag emblem (1) and clip (2) with special tool 00 9 317 and release screw underneath.

Lever out clip (3) and cover on door handle (4), see **51 41 017 Removing and installing/replacing cover on door handle, front left or right**

Release screws underneath.

Tightening torque: 51 41 1AZ, see **51 41 FRONT DOOR TRIM PANEL WITH ARMRESTS**

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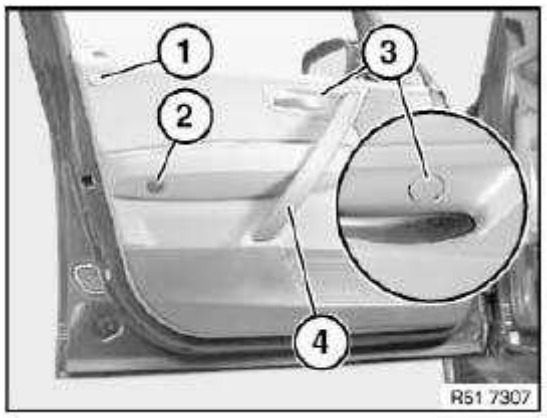


Fig. 425: Airbag Emblem And Clip
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Start by unclipping door trim panel (2) at bottom.

Unclip clips (1) of door trim panel with special tool 00 9 317 (trim panel wedge).

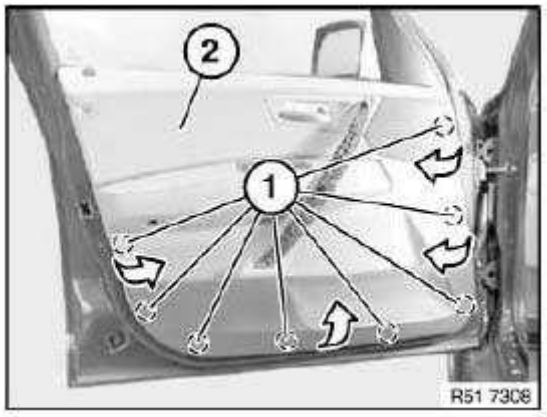


Fig. 426: Door Trim Panel And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip door trim panel (1) at top from retainers (2).

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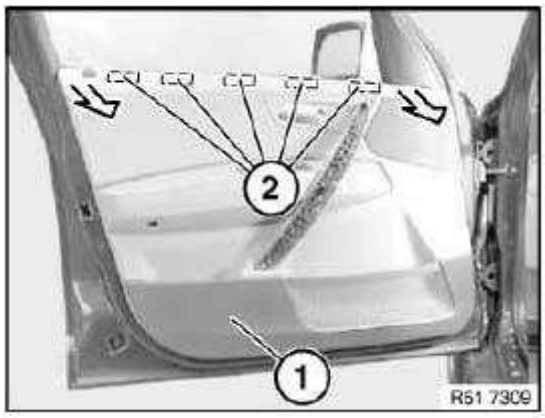


Fig. 427: Door Trim Panel And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Unhook Bowden cable (1) from door lock (2).

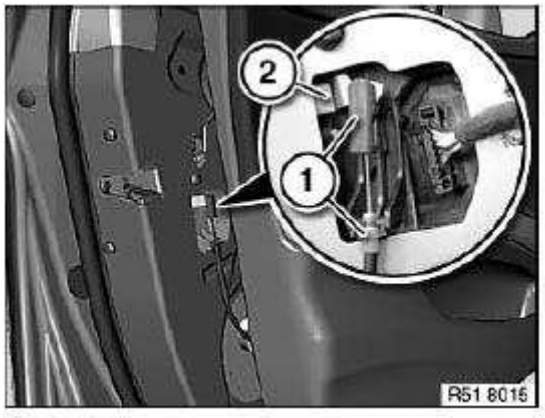


Fig. 428: Bowden Cable And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Model with side airbag:

WARNING: Disconnect plug connection on side airbag.

Disconnect remaining plug connections.

Version with speaker:

If necessary, disconnect plug connection (1).

Remove door trim.

Installation:

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Connect all plugs to original locations.

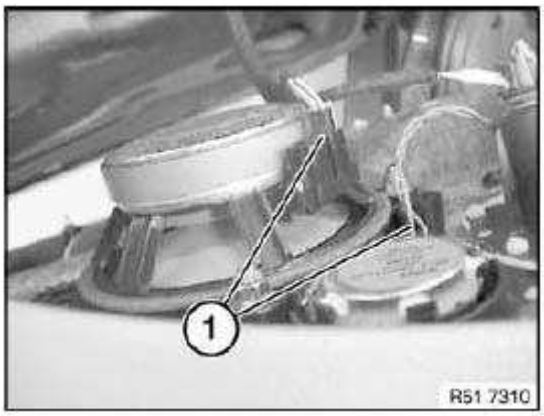


Fig. 429: Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) are longer than the other clips.

Clips (1) are gray, the other clips are white.

Fit all clips with sealing ring.

If necessary, replace faulty clips.

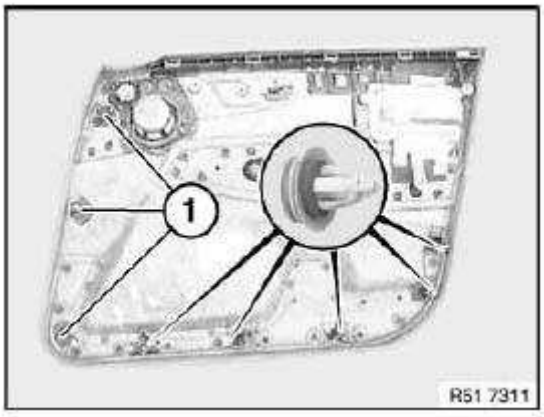


Fig. 430: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

After assembling the door trim panel proceed as follows:

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- Open door window.
- Lock with vehicle key.
- Check for ease-of-movement on retaining button linkage
- If necessary, align linkages

51 41 017 REMOVING AND INSTALLING/REPLACING COVER ON DOOR HANDLE, FRONT LEFT OR RIGHT

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Lever out cover (1) with special tool 00 9 317.

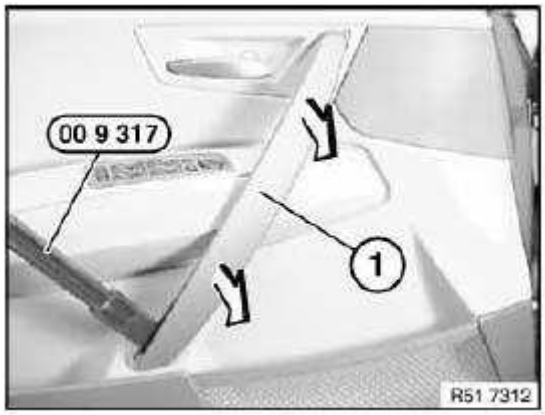
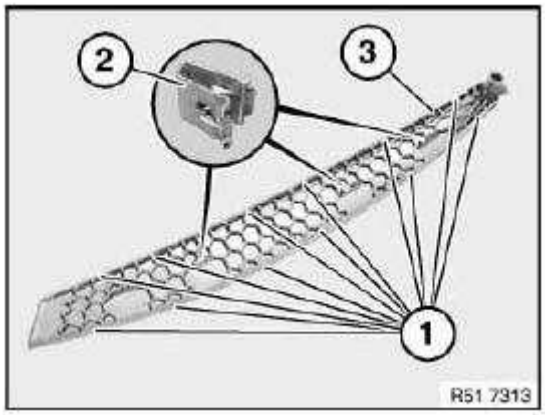


Fig. 431: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) and retainers (2) on cover (3) must not be damaged.



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Fig. 432: Catches, Retainers And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 41 018 REPLACING SPEAKER TRIM ON FRONT LEFT OR RIGHT DOOR TRIM PANEL

Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**
- Remove speaker

Removal on initial fitting:

Open welding spots (1).

Release catches (2) and remove speaker trim.

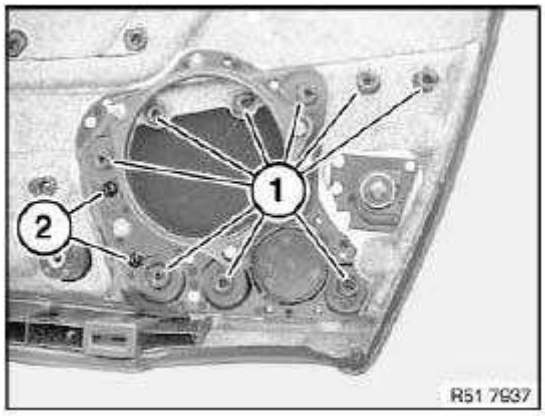


Fig. 433: Welding Spots And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Removal of repair solution:

Release locking washers (1).

Release catches (2) and remove speaker trim.

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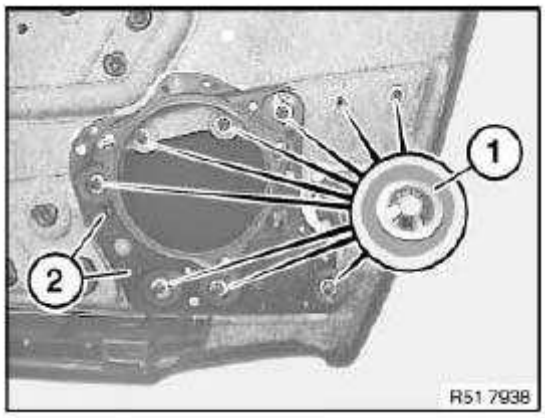


Fig. 434: Locking Washers And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Shorten plastic pins (1) by measurement (A).

A = 9 mm

Snap speaker trim (2) into door trim panel.

Push locking washers (3) onto plastic pins.

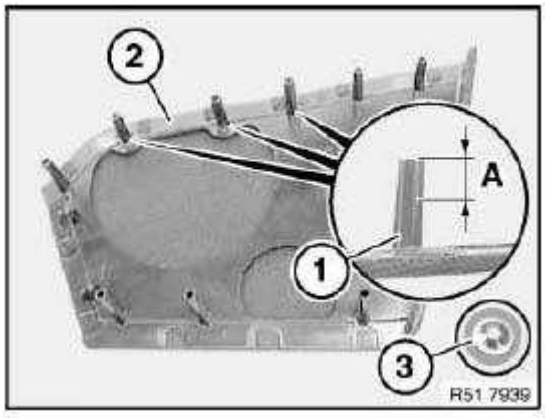


Fig. 435: Speaker Trim, Locking Washers And Plastic Pins
Courtesy of BMW OF NORTH AMERICA, INC.

42 REAR DOOR TRIM PANEL WITH ARM REST

51 42 000 REMOVING AND INSTALLING LEFT OR RIGHT REAR DOOR TRIM PANEL

Special tools required:

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- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

WARNING: Model with side airbag:
Follow safety instructions for working on cars with airbag systems (risk of injury), see 51 00 ... Safety instructions for working on cars with airbag systems
Side airbag is mounted on door trim panel:
Disconnect battery.

IMPORTANT: Do not use any sharp-edged tools to remove the panel - risk of damage to airbag.

If necessary, lever out airbag emblem (1) and clip (2) with special tool 00 9 317 and release screw underneath.

Tightening torque: 51 42 4AZ, see **51 42 REAR DOOR TRIM PANEL WITH ARMRESTS**

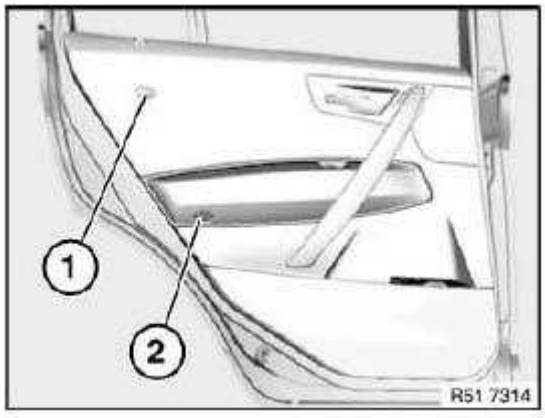


Fig. 436: Airbag Emblem And Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out clip (3) and cover on door handle (2), see **51 42 017 Removing and installing/replacing cover on door handle, rear left or right**

Release screws underneath.

Tightening torque: 51 42 1AZ, see **51 42 REAR DOOR TRIM PANEL WITH ARMRESTS**

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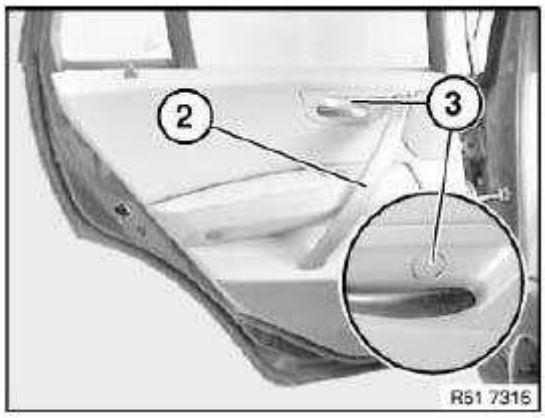


Fig. 437: Clip And Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Start by unclipping door trim panel (2) at bottom.

Unclip clips (1) of door trim panel with special tool 00 9 317.

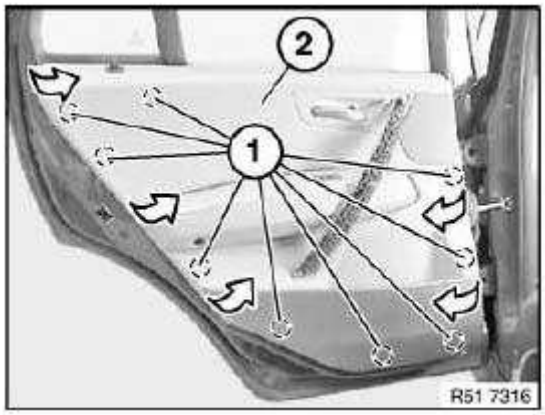


Fig. 438: Door Trim Panel And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip door trim panel (1) at top from retainers (2).

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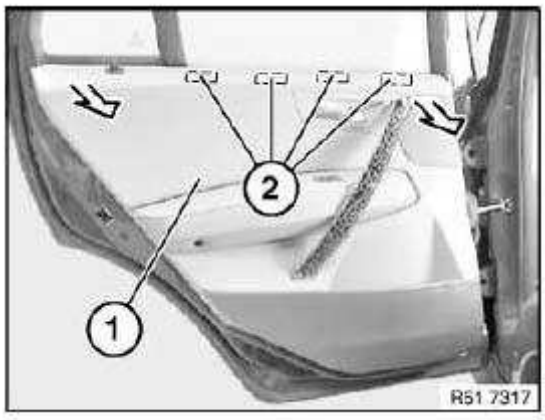


Fig. 439: Door Trim Panel And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Unhook Bowden cable (1) from door lock (2).

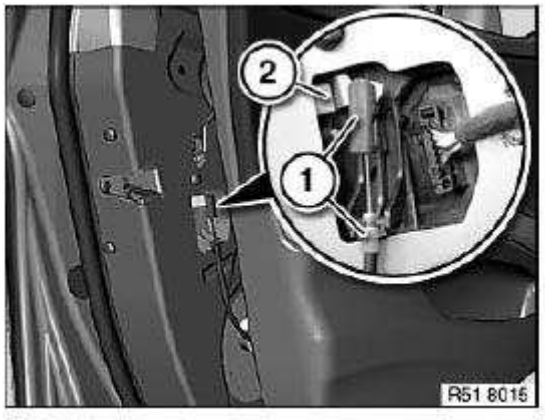


Fig. 440: Bowden Cable And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Model with side airbag:

WARNING: Disconnect plug connection on side airbag.

Disconnect remaining plug connections.

Version with speaker:

If necessary, disconnect plug connection (1).

Remove door trim.

Installation:

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Connect all plugs to original locations.

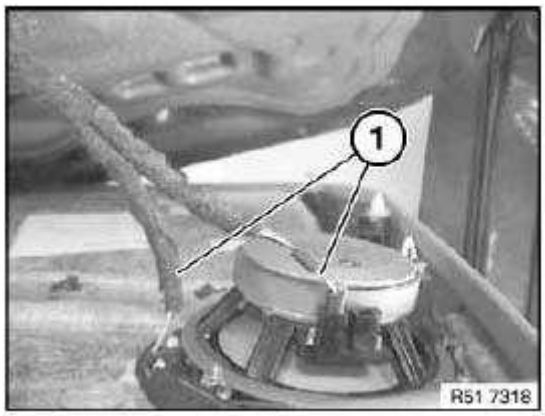


Fig. 441: Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

All clips (1) are white.

If necessary, replace faulty clips (1).

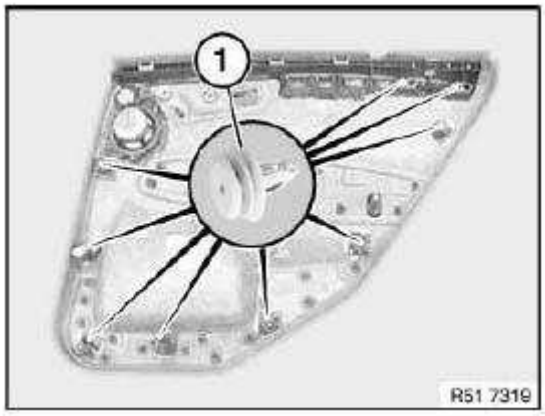


Fig. 442: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

After assembling the door trim panel proceed as follows:

- Open door window.
- Lock with vehicle key.
- Check for ease-of-movement on retaining button linkage
- If necessary, align linkages

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51 42 001 REPLACING LEFT OR RIGHT REAR DOOR TRIM PANEL

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**
- Remove rear speaker
- Remove airbag module from rear door, see **72 12 015 REMOVING AND INSTALLING/REPLACING AIRBAG MODULE ON LEFT OR RIGHT REAR DOOR**

51 42 017 REMOVING AND INSTALLING/REPLACING COVER ON DOOR HANDLE, REAR LEFT OR RIGHT

Operation is identical to:

Removing cover on door handle, front left or right, see **51 41 017 Removing and installing/replacing cover on door handle, front left or right**

51 42 018 REPLACING SPEAKER TRIM ON REAR LEFT OR RIGHT DOOR TRIM PANEL

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**
- Remove speaker

Removal on initial fitting:

Open welding spots (1).

If necessary, lever out cover (2), release catch underneath and remove speaker trim.

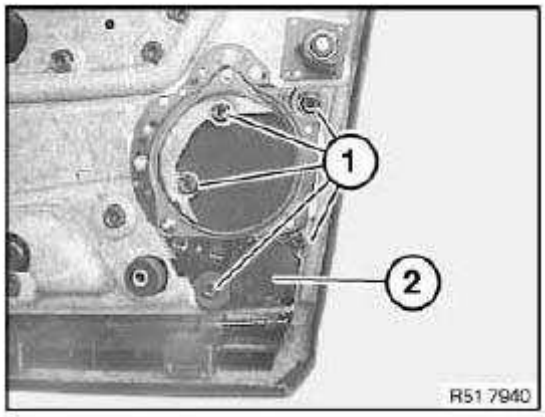


Fig. 443: Welding Spots And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Removal of repair solution:

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Release locking washers (1).

If necessary, lever out cover (2), release catch underneath and remove speaker trim.

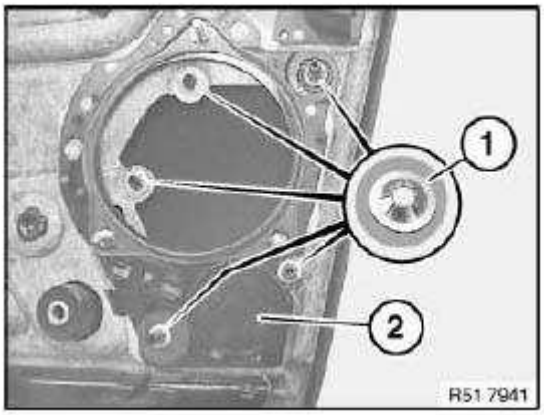


Fig. 444: Locking Washers And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Shorten plastic pins (1) by measurement (A).

A = 9 mm

Snap speaker trim (2) into door trim panel.

Push locking washers (3) onto plastic pins.

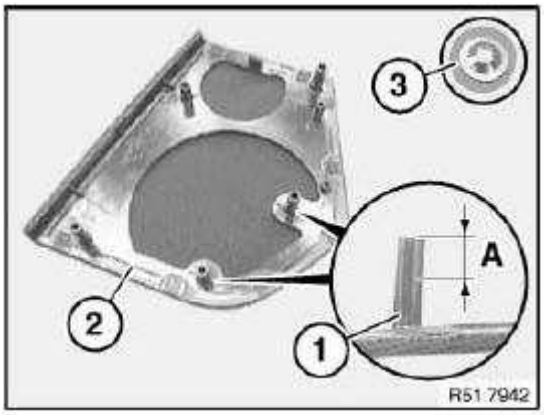


Fig. 445: Plastic Pins And Speaker Trim
Courtesy of BMW OF NORTH AMERICA, INC.

43 SIDE COVERING WITH ARMRESTS

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51 43 070 REMOVING AND INSTALLING/REPLACING SIDE TRIM PANEL, FOOTWELL, ON A-PILLAR, LEFT

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove front entrance cover strip, see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**
- Remove trim panel for pedal assembly, see **51 45 185 Removing and installing/replacing trim for pedal assembly**

Detach mucket (1) in area of footwell trim.

Release screw (2) and remove release lever (3).

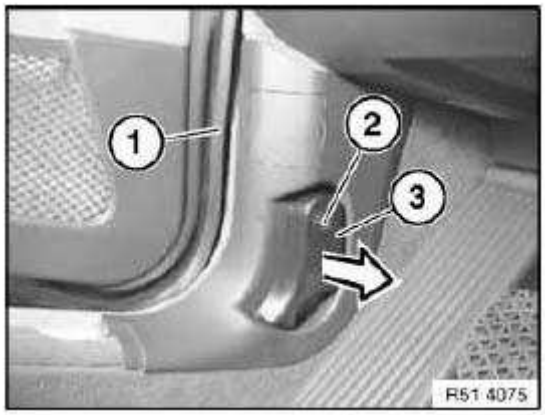


Fig. 446: Mucket, Screw And Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Unclip clips (2) with special tool 00 9 317.

Remove trim panel (3) towards inside.

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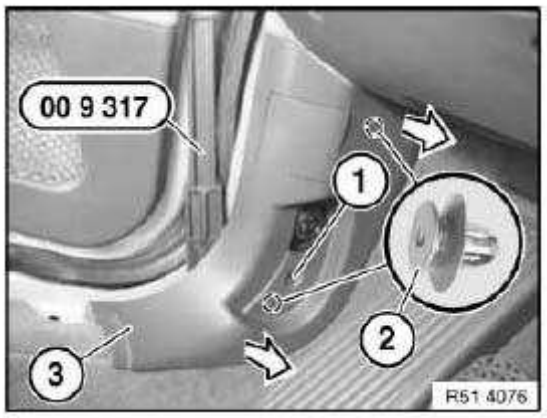


Fig. 447: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) on trim panel (2) must not be damaged.

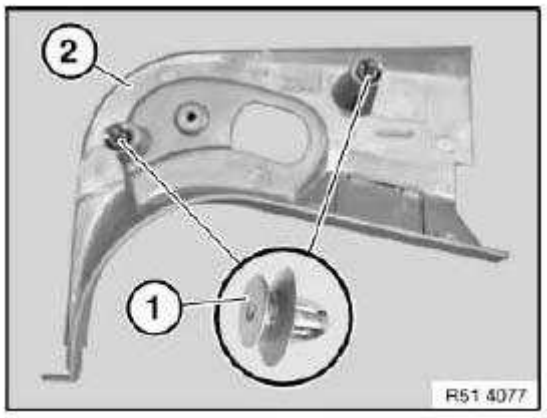


Fig. 448: Clips And Trim Panel
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 075 REMOVING AND INSTALLING/REPLACING SIDE TRIM PANEL, FOOTWELL, ON A-PILLAR, RIGHT

Necessary preliminary tasks:

- Remove front entrance cover strip, see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**

Release door mucket (1) in area of footwell side trim panel on A-pillar on right (2).

Unclip footwell side trim panel on A-pillar on right (2) in direction of arrow from retaining points (3).

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Remove footwell side trim panel on A-pillar on right (2).

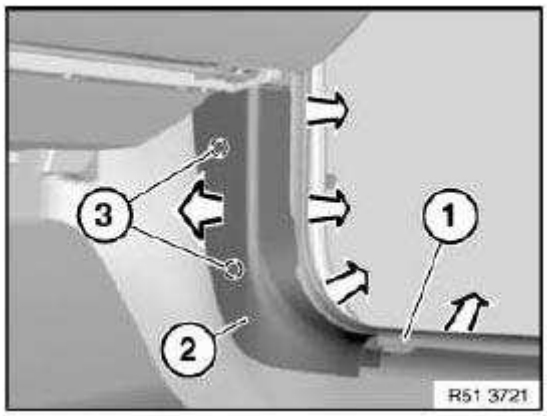


Fig. 449: Door Mucket And Footwell Side Trim Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, lever out clips (1) remaining in bores.

If necessary, replace faulty clips (1).

Place footwell side trim panel on A-pillar on right (2) preinstalled with clips (1) on associated bores and clip into place.

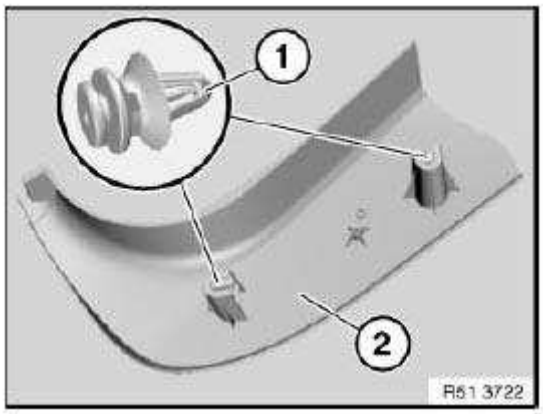


Fig. 450: Footwell Side Trim Panel And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 148 REMOVING AND INSTALLING OR REPLACING TRIM ON LEFT OR RIGHT DOOR PILLAR (TOP)

Necessary preliminary tasks:

- Remove panel for door pillar (bottom), see **51 43 150 Removing and installing or replacing trim for**

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left or right door pillar (bottom)

Release seatbelt screw (1) on front seat and feed out seatbelt strap (2).

Tightening torque: 72 11 1AZ, see **72 11 SEAT BELTS**

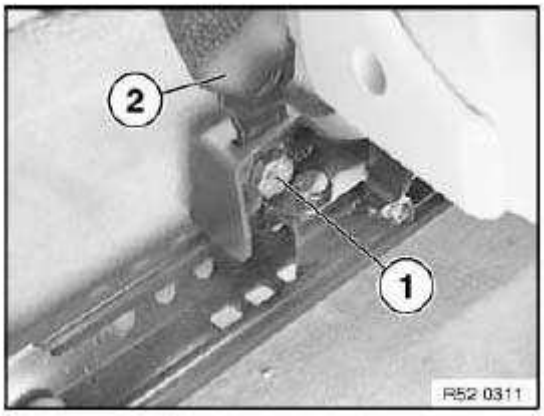


Fig. 451: Seatbelt Screw And Seatbelt Strap
Courtesy of BMW OF NORTH AMERICA, INC.

Release expansion rivets (1) on panel (2).

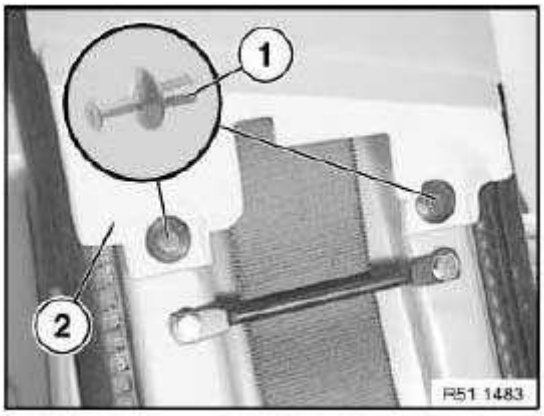


Fig. 452: Expansion Rivets And Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off panel (1) towards bottom.

Feed out seatbelt strap (2).

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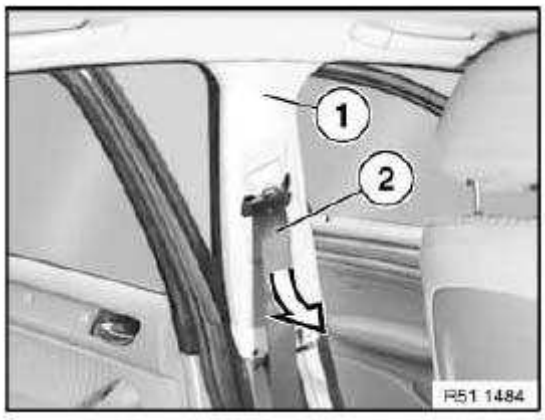


Fig. 453: Panel And Seatbelt Strap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locator (1) and guide (2) on trim (3) must not be damaged.

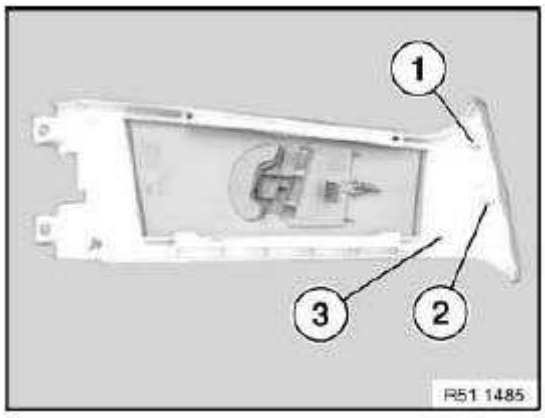


Fig. 454: Locator, Guide And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 150 REMOVING AND INSTALLING OR REPLACING TRIM FOR LEFT OR RIGHT DOOR PILLAR (BOTTOM)

Necessary preliminary tasks:

- Remove front entrance cover strip, see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**

Snap trim (2) out of clips (1) at bottom.

Feed out trim (2) for door pillar from entrance cover strip (3).

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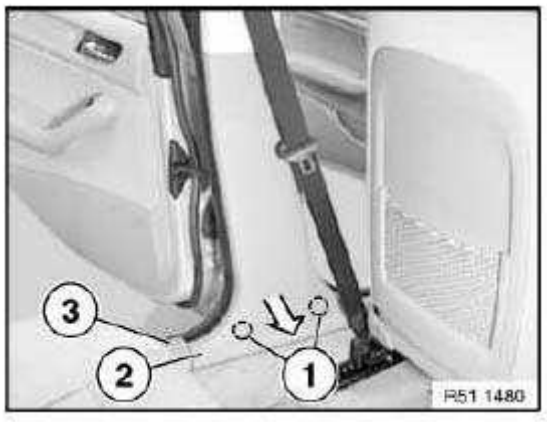


Fig. 455: Trim And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Partially detach mucket in area of B-pillar panel.

Carefully feed out bottom trim (1) from top trim (2).

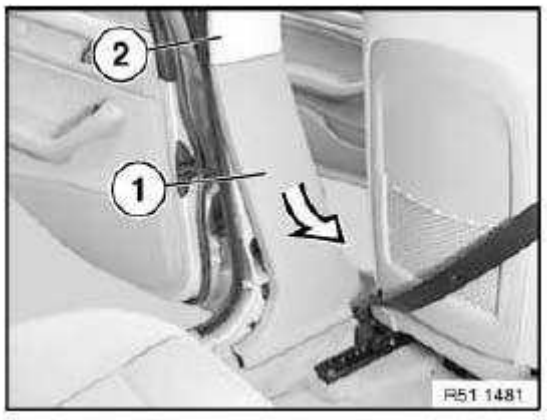


Fig. 456: Bottom Trim And Top Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

Guides (2) on trim (3) must not be damaged.

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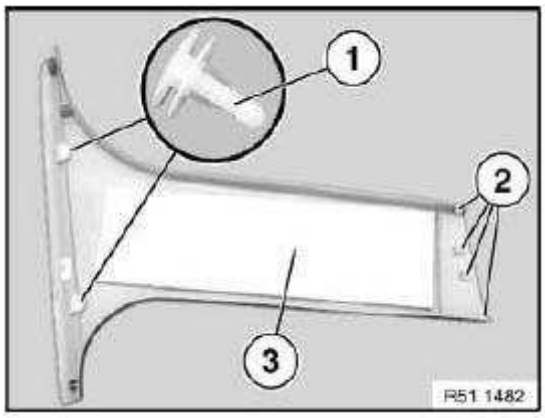


Fig. 457: Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 201 REMOVING AND INSTALLING/REPLACING PANEL FOR ROOF PILLAR AT FRONT (A-PILLAR), LEFT OR RIGHT

WARNING: Follow safety instructions for working on cars with airbag systems (risk of injury), see 51 00 ... Safety instructions for working on cars with airbag systems

IMPORTANT: Do not use any sharp-edged tools to remove trim (risk of damage to head airbag).

Detach mucket (1) in area of panel (6).

Unclip protective cap (2) and remove.

Release screw (3).

Tightening torque: 51 43 2AZ, see **51 43 SIDE TRIM PANEL WITH ARMRESTS**

Unclip panel (6) at fastening point (4).

Feed out panel (6) from instrument panel (5) and remove.

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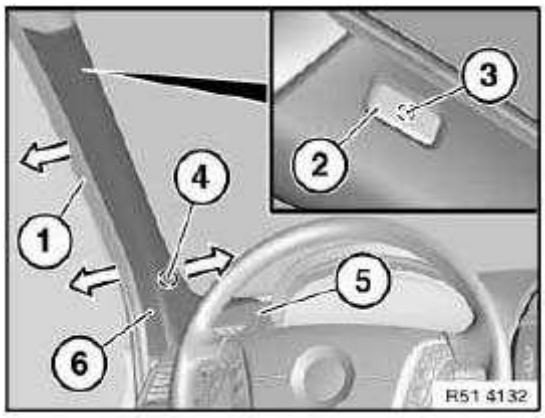


Fig. 458: Mucket, Panel, Protective Cap And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, lever out clip (1) remaining in bore.

If necessary, replace faulty clip (1).

Make sure guides (3) of panel (2) are correctly seated in associated mountings.

Position panel (2) preinstalled with clip (1) on associated bore and clip into place.

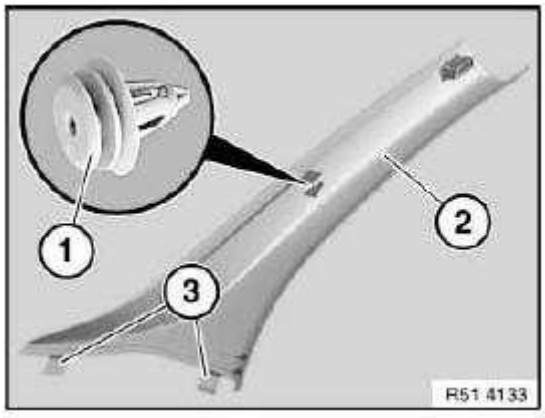


Fig. 459: Guides, Clips And Panel
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 251 REMOVING AND INSTALLING/REPLACING TRIM PANEL FOR REAR LEFT OR RIGHT ROOF PILLAR (C - PILLAR)

Detach mucket (1) in area of trim panel for roof pillar (4).

Lever out trim (3) and remove.

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Release screw (2), tightening torque: 51 43 1AZ, see **51 43 SIDE TRIM PANEL WITH ARMRESTS**

Unclip trim panel for roof pillar (4) from mounting point (5) in direction of arrow.

Feed trim panel for roof pillar (4) upwards out of mounting (6) and remove.

NOTE: Make sure trim panel for roof pillar (4) is correctly seated in mounting (6).

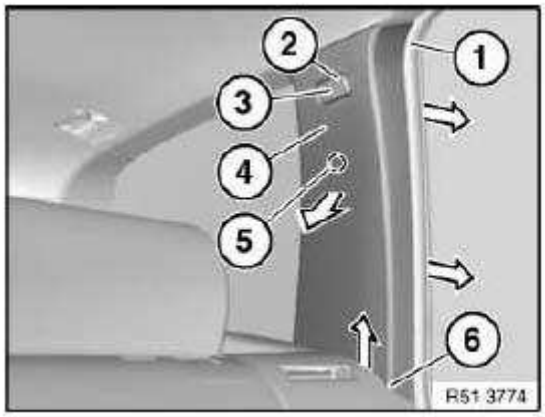


Fig. 460: Roof Pillar, Mounting Point And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, lever out clip (1) remaining in bore.

If necessary, replace faulty clip (1).

Feed in trim panel for roof pillar (2) preassembled with clip (1) first at bottom, then position on associated bore and clip into place.

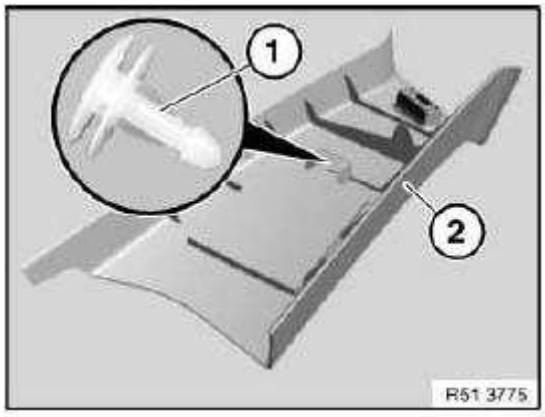


Fig. 461: Roof Pillar And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

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51 43 252 REPLACING TRIM PANEL FOR REAR LEFT OR RIGHT ROOF PILLAR (D-PILLAR)

Necessary preliminary tasks:

- Remove flap in luggage compartment panel, see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**
- Remove luggage compartment light, see **63 31 080 REMOVING AND INSTALLING/REPLACING LUGGAGE COMPARTMENT LIGHT (D-PILLAR)**

Detach mucket (1) in area of trim panel for roof pillar (4).

Remove screws (2) and (3).

Unclip trim panel for roof pillar (4) at mounting points (5) in direction of arrow.

Feed trim panel for roof pillar (4) upwards out of trim (6) and remove.

Installation:

Make sure trim panel for roof pillar (4) is correctly seated in trim (6).

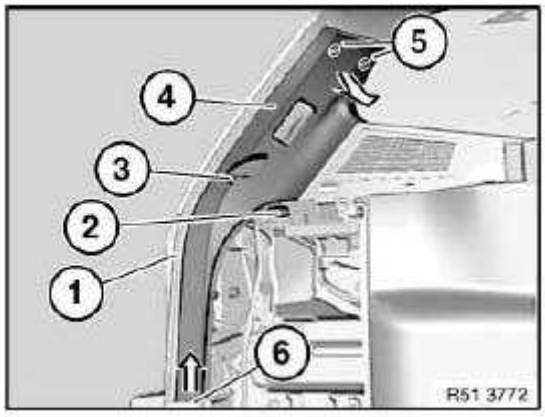


Fig. 462: Roof Pillar, Trim, Mucket And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, lever out clips (1) remaining in bore.

If necessary, replace faulty clips (1).

Feed in trim panel for roof pillar (2) preassembled with clips (1) first at bottom, then position on associated bores and clip into place.

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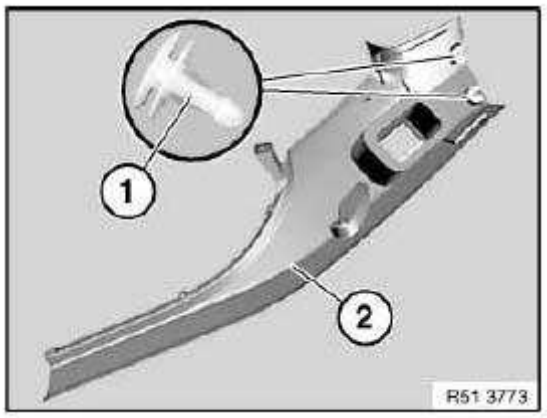


Fig. 463: Roof Pillar And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

44 ROOF TRIM PANEL

51 44 ... REMOVING AND INSTALLING FRONT ROOFLINER TRIM

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Unclip trim (1) with special tool 00 9 317 in direction of arrow.

Disconnect associated plug connections and remove trim (1).

Installation:

Make sure all-round catches of trim (1) are correctly seated.

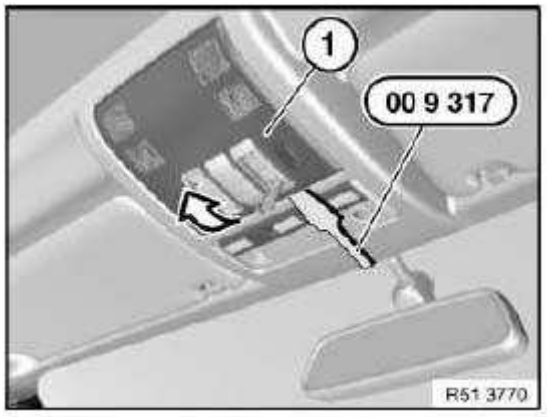


Fig. 464: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

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IMPORTANT: Disconnecting the plug connection for the hands-free microphone or emergency SOS call button results in fault memory entries in the telephone control unit (limitation in the emergency SOS call system).

After fitting, read out fault memory and if necessary delete entries.

51 44 002 REMOVING AND INSTALLING ROOFLINER (ON VERSION WITHOUT PANORAMA SUNROOF)

Except for the steps relating to the panorama sunroof, the work is identical to:

51 44 013 Removing and installing roofliner (on version with panorama sunroof)

51 44 013 REMOVING AND INSTALLING ROOFLINER (ON VERSION WITH PANORAMA SUNROOF)

Necessary preliminary tasks:

- Remove both sun visors and counter supports, see **51 16 080 Removing and installing or replacing sun visor and left or right counter support**
- Remove all handles, see **51 16 450 Removing and installing/replacing rear left/right grab handle**
- Remove both trim panels for front roof pillar (A-pillar trim panel), see **51 43 201 Removing and installing/replacing panel for roof pillar at front (A-pillar), left or right**
- Remove both trim panels for top door pillar (B-pillar trim panel), see **51 43 148 Removing and installing or replacing trim on left or right door pillar (top)**
- Remove both trim panels for rear roof pillar (C-pillar trim panel), see **51 43 251 Removing and installing/replacing trim panel for rear left or right roof pillar (C - pillar)**
- Remove both trim panels for rear roof pillar (D-pillar trim panel), see **51 43 252 Replacing trim panel for rear left or right roof pillar (D-pillar)**
- Remove trim on front roofliner, see **51 44 ... Removing and installing front roofliner trim**
- Remove front and rear head restraints
- Remove all ceiling lights

Version with dividing net mounts:

If necessary, remove all dividing net mounts:

Unclip trim (1) towards bottom and remove.

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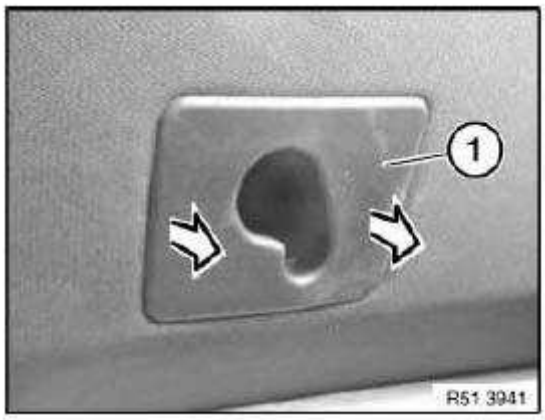


Fig. 465: Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guide (1) and catches (2) of trim (3) must not be damaged.

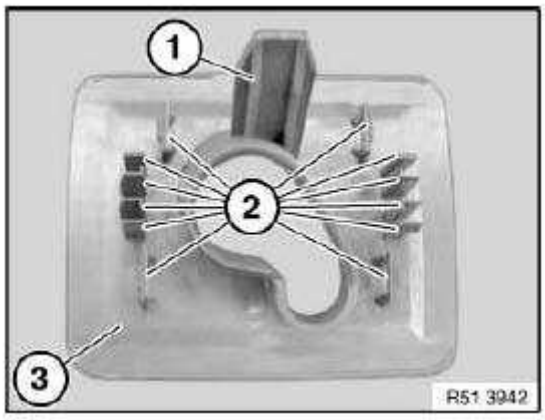


Fig. 466: Guide, Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

- Move both front seat backrests as far back as possible.
- Remove roller cover from luggage compartment.
- Fold both rear-seat backrests forward.
- Pull off mucket of front and rear doors.

IMPORTANT: The following tasks must be carried out with a second person assisting: Unclip clips (1) in sunroof frame area towards bottom.

Extend rear roofliner towards bottom out of guide.

Turn headliner and remove towards rear.

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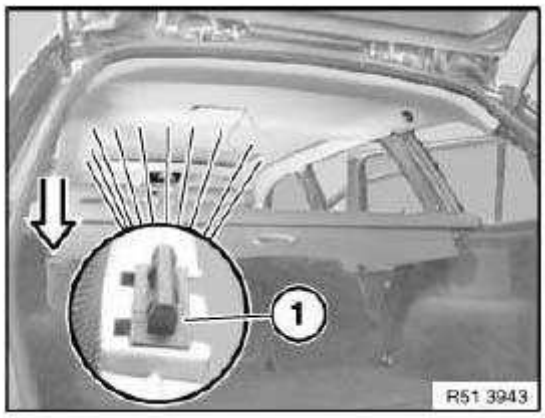


Fig. 467: Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) and guide (2) must not be damaged.

If necessary, replace clips (1) and guide (2).

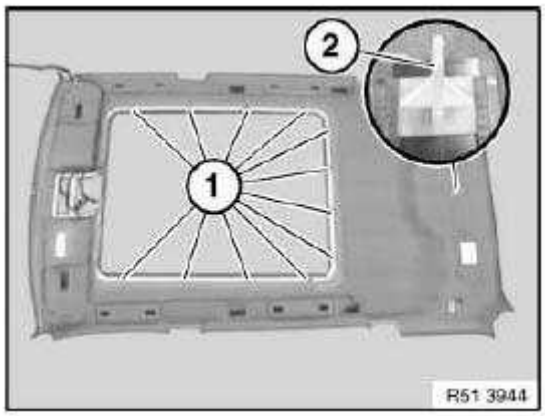
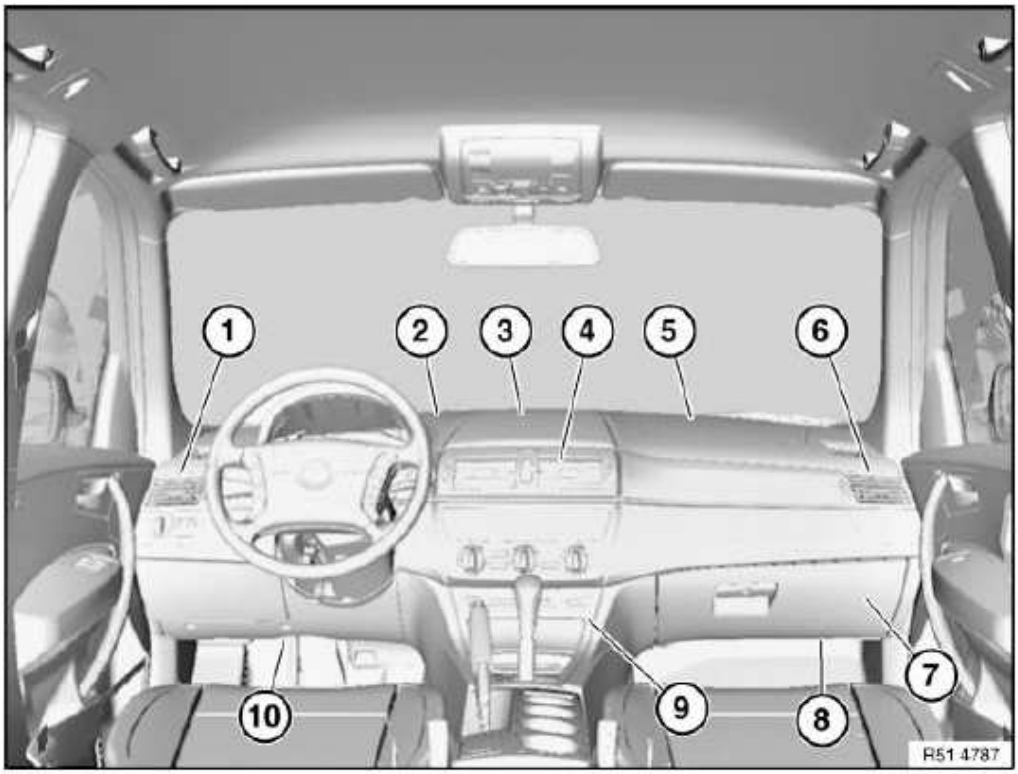


Fig. 468: Clips And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

45 INSTRUMENT CLUSTER TRIM PANEL

51 45 .. OVERVIEW OF INSTRUMENT PANEL

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1	Fresh-air grille, left	6	Fresh-air grille, right
2	Dashboard trim panel	7	Glovebox
3	Storage compartment in instrument panel	8	Instrument panel trim, bottom right
4	Fresh-air grille, middle	9	Function carrier on instrument panel trim
5	Airbag cover, passenger side	10	Panel for pedals

Fig. 469: Instrument Panel Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 ... REMOVING AND INSTALLING STORAGE TRAY IN INSTRUMENT PANEL

Necessary preliminary tasks:

- Remove center fresh air grill, see **64 22 162 REMOVING AND INSTALLING/REPLACING CENTER FRESH-AIR GRILL**

Release screws (1).

Feed storage tray in instrument panel (2) in direction of arrow out of upper guides (3) and remove.

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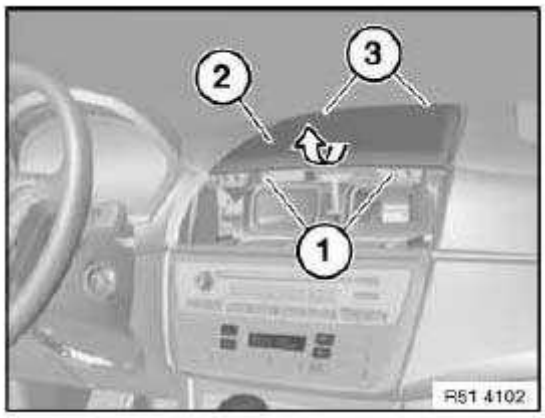


Fig. 470: Instrument Panel, Screw And Upper Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 ... REMOVING AND INSTALLING/REPLACING BOTTOM RIGHT TRIM FOR INSTRUMENT PANEL

NOTE: Move front passenger seat completely towards rear.

Press bottom right instrument panel trim (1) forwards slightly and feed downwards out of guides (2).

Disconnect associated plug connection and remove bottom right instrument panel trim (1).

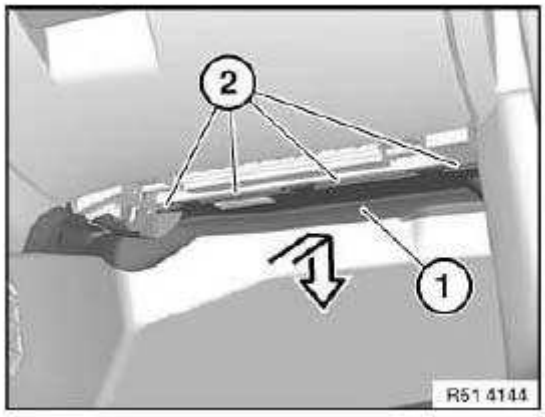


Fig. 471: Instrument Panel Trim And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Attachments (1) on bottom right instrument panel trim (2) must not be damaged.

Replacement:

Press catches (3) and remove footwell light (4).

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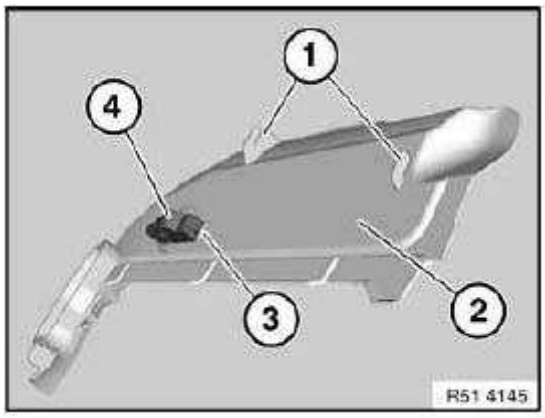


Fig. 472: Catches, Instrument Panel Trim And Footwell Light
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 030 REMOVING AND INSTALLING INSTRUMENT PANEL TRIM

NOTE: Observe the following instructions to facilitate removal of the instrument panel trim:

- **Move front seats back completely and lower**
- **Move steering column into "lower" and "extended" position**

Necessary preliminary tasks:

- Remove both trims for front roof pillar, see **51 43 201 Removing and installing/replacing panel for roof pillar at front (A-pillar), left or right**
- Remove fixture for steering column stalks, see **61 31 005 REMOVING AND INSTALLING/REPLACING FIXTURE FOR STEERING COLUMN STALK**
- Remove instrument cluster, see **62 11 280 REMOVING AND INSTALLING (REPLACING) INSTRUMENT CLUSTER**
- Remove light operator unit, see **61 31 037 REMOVING AND INSTALLING/REPLACING LIGHT CONTROL UNIT**
- Remove footwell side trim panel on A-pillar left, see **51 43 070 Removing and installing/replacing side trim panel, footwell, on A-pillar, left**
- In appropriate version:
  - Remove storage compartment in instrument panel, see **51 45 ... Removing and installing storage tray in instrument panel**
  - Remove Central Information Display, see **65 50 055 REMOVING AND INSTALLING/REPLACING CENTRAL INFORMATION DISPLAY**
- Remove radio receiver, see **65 11 045 REMOVING AND INSTALLING/REPLACING RADIO/NAVIGATION CONTROL PANEL**
- Remove finisher for preselector lever, see **51 16 210 Removing and installing/replacing trim for preselector lever**

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- Remove storage compartment, see **51 16 200 Removing and installing storage compartment**
- Remove right glovebox with housing, see **51 16 366 Removing and installing right glovebox with housing**
- Remove front right cup holder, see **51 16 194 Removing and installing/replacing front side left or right cup holder**
- Remove footwell side trim panel from right A-pillar, see **51 43 075 Removing and installing/replacing side trim panel, footwell, on A-pillar, right**
- Remove trim for instrument panel, bottom left, see **51 45 ... Removing and installing/replacing bottom right trim for instrument panel**
- Remove airbag module on front passenger side, see **72 12 000 REMOVING AND INSTALLING / REPLACING AIRBAG MODULE ON PASSENGER SIDE**

Open locks (1) and pull down fuse carrier (2).

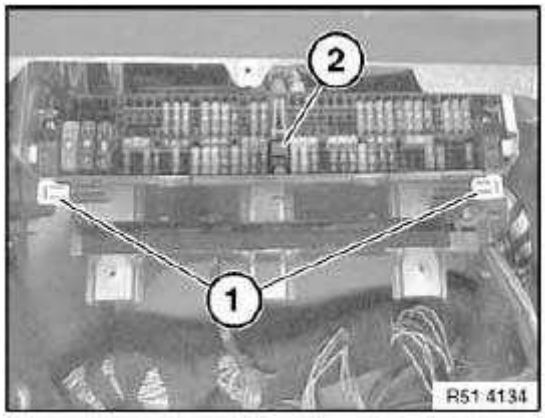


Fig. 473: Locks And Fuse Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Open cover for passenger airbag (2).

NOTE: The mounting plate may fall into the passenger footwell when screws (1) are released.

Release screws (1), tightening torque: 72 12 10AZ, see **72 12 AIRBAG MODULES**

Remove complete passenger airbag cover (2) with associated mounting plate.

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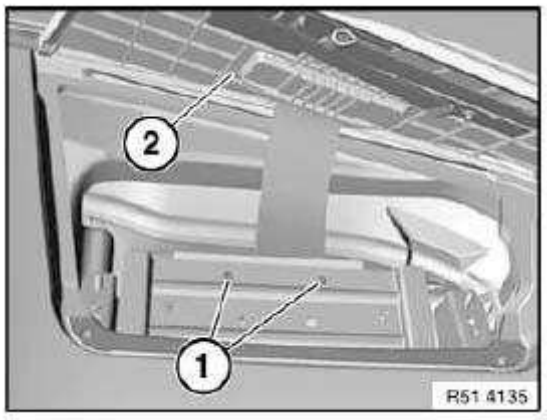


Fig. 474: Passenger Airbag Cover And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure mounting plate (1) is correctly seated in retaining strap (2) of passenger airbag cover.

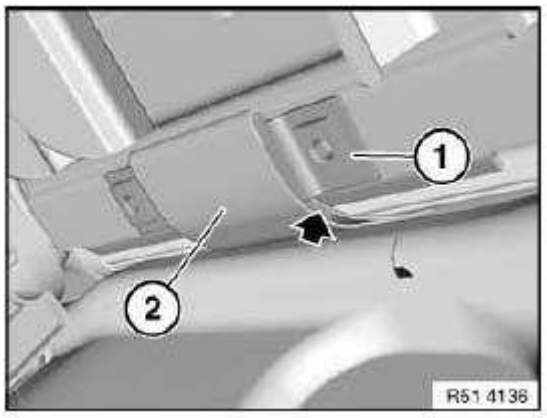


Fig. 475: Mounting Plate And Retaining Strap (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

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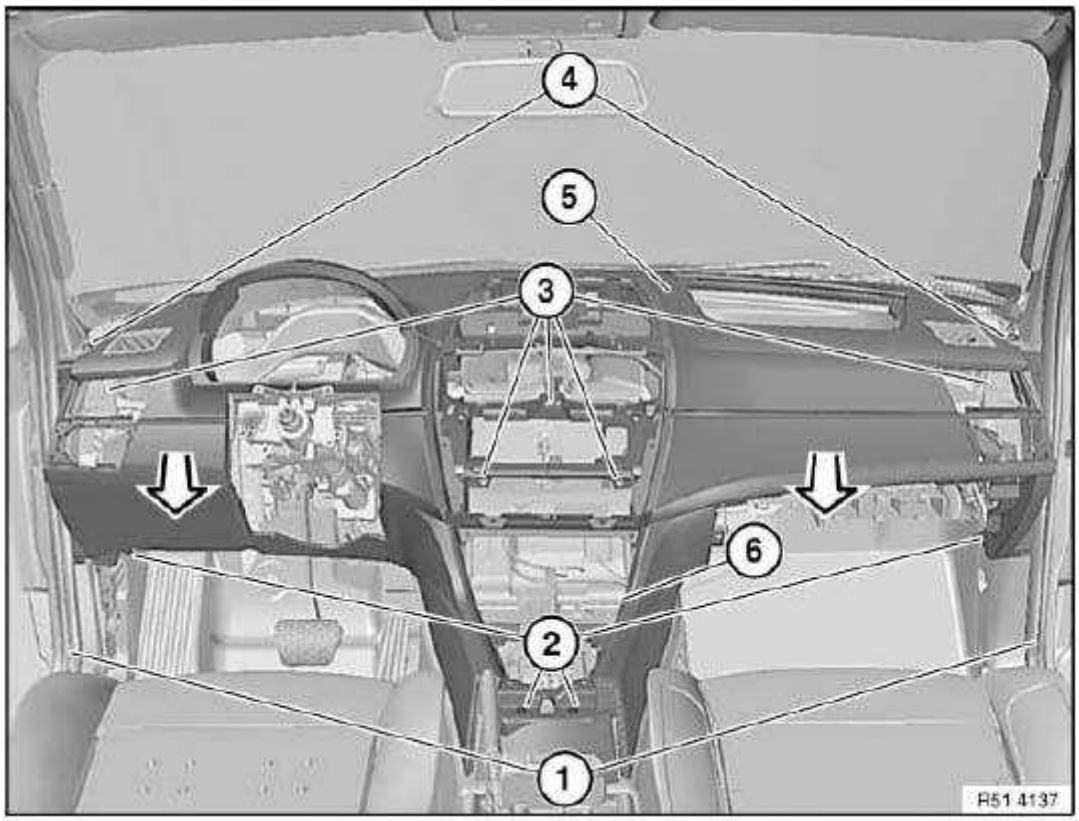


Fig. 476: Mounting Plate And Retaining Strap (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Release mucket (1) in area of instrument panel trim (5).

Release screws (2).

Unscrew nuts (3).

Disconnect plug connection for solar sensor (6).

Pull back trim for instrument panel (5) and remove.

Installation:

Make sure foam insulation (4) is correctly seated before fitting instrument panel trim (5).

Installation:

Make sure guides (1) and (2) of instrument panel trim (3) are correctly seated in associated mountings.

Make sure seals are correctly seated on air ducts.

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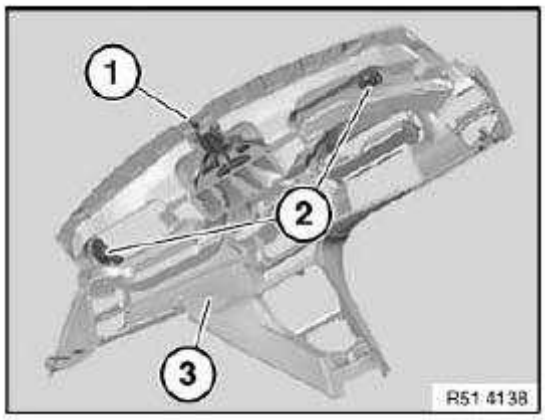


Fig. 477: Guides And Instrument Panel Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 031 REPLACING INSTRUMENT PANEL TRIM

Necessary preliminary tasks:

- Remove instrument panel trim, see **51 45 031 Replacing instrument panel trim**

Release screws (1) on gap cover for steering column (2).

Carefully pull off light switch wiring harness (3) secured with double-sided adhesive tape.

Installation:

Re-lay light switch wiring harness (3) in designated notch of instrument panel trim (4).

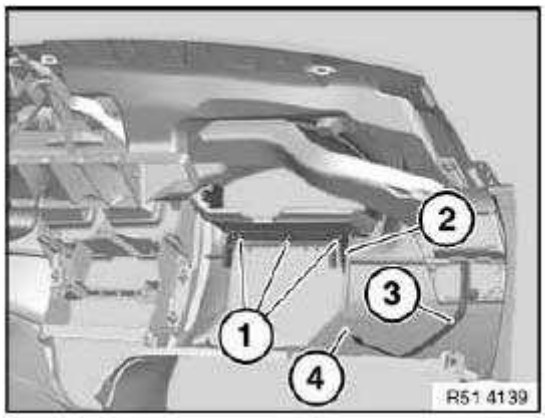


Fig. 478: Light Switch Wiring Harness And Instrument Panel Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

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Remove trim from cutout for instrument cluster (2).

Remove gap cover for steering column (3).

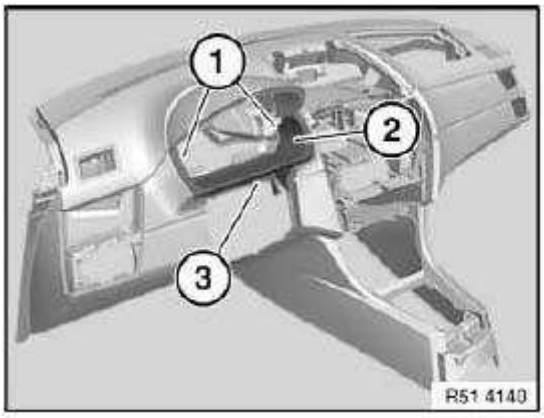


Fig. 479: Instrument Cluster And Steering Column
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, release screws (1) and remove trim (2).

Remove all metal nuts (3) from instrument panel trim (4).

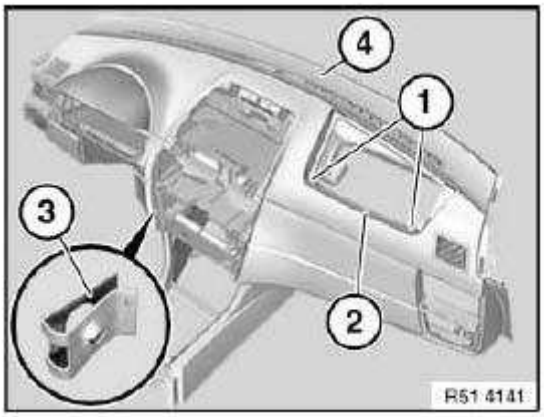


Fig. 480: Screws And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 055 REMOVING AND INSTALLING/REPLACING AIRBAG COVER ON PASSENGER SIDE

Special tools required:

- **64 1 020 RELEASE HOOK**

WARNING: **Each time the passenger airbag is triggered, it is necessary to replace its airbag cover.**

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We cannot guarantee that the retaining straps of the airbag cover will not be damaged when the airbag is triggered.
If a damaged airbag cover is reused, we cannot guarantee that the retaining straps will work properly.

Necessary preliminary tasks:

- Disconnect battery negative lead

Lever out airbag cover (1) with special tool 64 1 020.

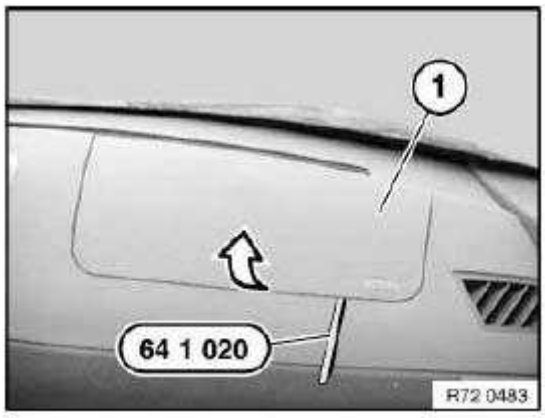


Fig. 481: Special Tool (64 1 020)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: If necessary, remove felt.

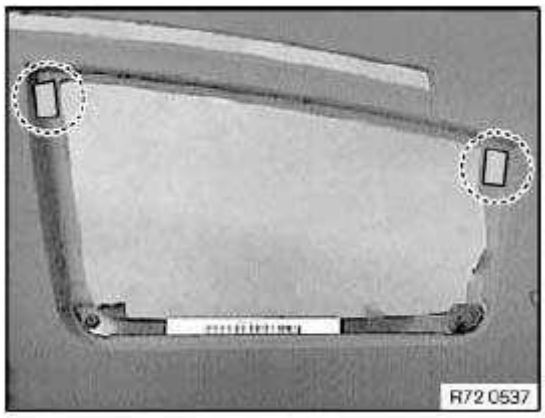


Fig. 482: Airbag Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Remove adhesive residue and clean adhesive area with isopropanol.

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Apply 5 mm dia. butylene tape (Terostat 2460) on left and right in groove.

A = 30 mm ± 2

B = 15 mm +5/-0

C = 40 mm ± 2

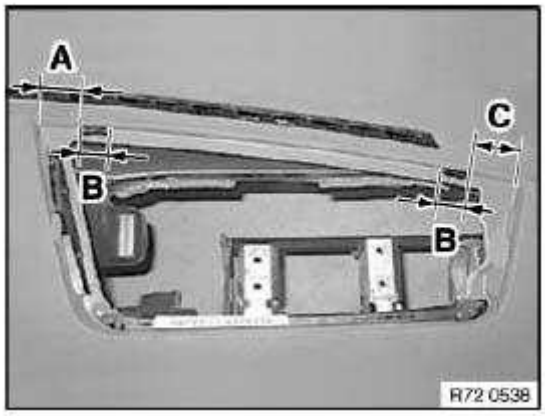


Fig. 483: Adhesive Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clean adhesive area on airbag cover (3) with isopropanol.

Remove backing paper from butyl.

Lug (2) of airbag cover (3) must snap into groove (1) in instrument panel.

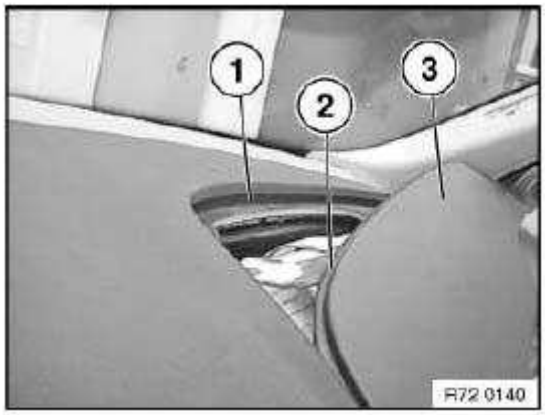


Fig. 484: Airbag Cover And Groove
Courtesy of BMW OF NORTH AMERICA, INC.

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Release screws (1) and remove airbag cover (2).

Tightening torque: 72 12 10AZ, see **72 12 AIRBAG MODULES**

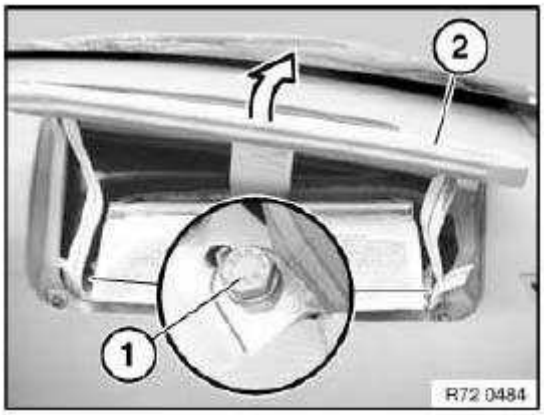


Fig. 485: Screws And Airbag Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure turning lock of fitting (1) is correctly seated in bore hole.



Fig. 486: Lock Of Fitting
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 106 REMOVING AND INSTALLING/REPLACING FUNCTION CARRIER ON INSTRUMENT PANEL TRIM

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

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Version with automatic transmission:

- Remove trim for preselector lever, see **51 16 210 Removing and installing/replacing trim for preselector lever**

  Version with manual transmission:

- Remove gaiter for gear lever

Lever out retainers (1) in direction of arrow and remove.

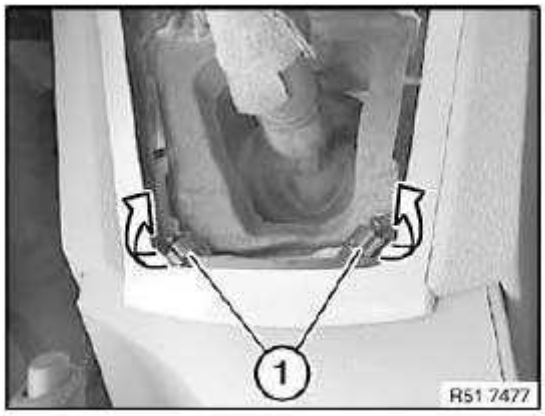


Fig. 487: Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip trim (1) with special tool 00 9 317 in lower area only.



Fig. 488: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on trim (2).

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Fig. 489: Screws And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and pull trim (2) forwards slightly.

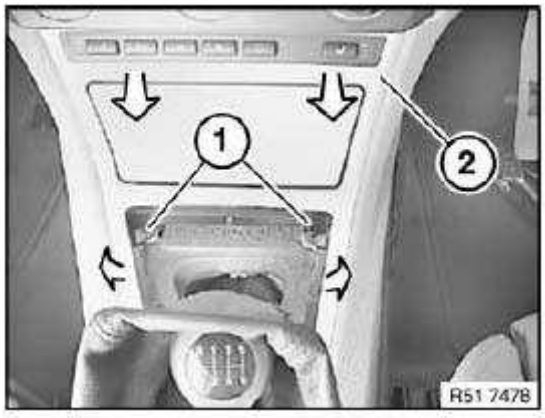


Fig. 490: Screws And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Depending on version, disconnect plug connections (1 and 2) and remove trim (3).

Replacement:

Remove switch unit in center console, see **61 31 057 REMOVING AND INSTALLING/REPLACING SWITCH UNIT IN CENTER CONSOLE**

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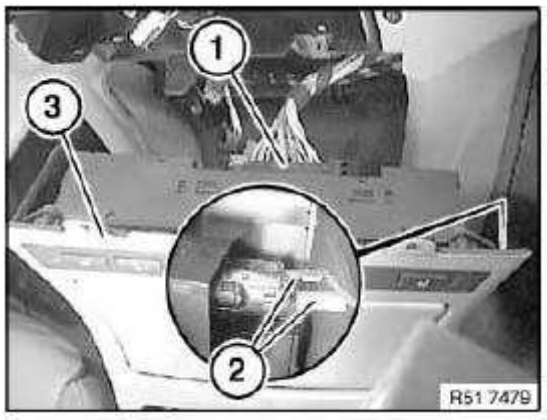


Fig. 491: Plug Connections And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 185 REMOVING AND INSTALLING/REPLACING TRIM FOR PEDAL ASSEMBLY

Release screws (1).

Unclip trim for pedal assembly (4) at retaining points (2).

Remove rotary clip (3) and pull back trim for pedal assembly (4) in direction of arrow.

Disconnect associated plug connections and remove trim for pedal assembly (3).

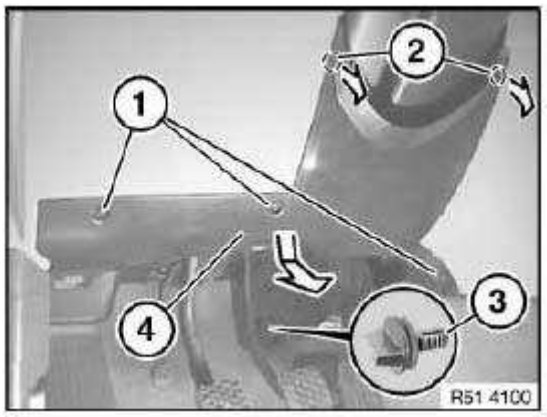


Fig. 492: Rotary Clip And Pedal Assembly
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locator tabs (1) of trim for pedal assembly (2) must not be damaged.

Replacement:

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- Unclip gong (3) and remove.
- Remove footwell light (4).

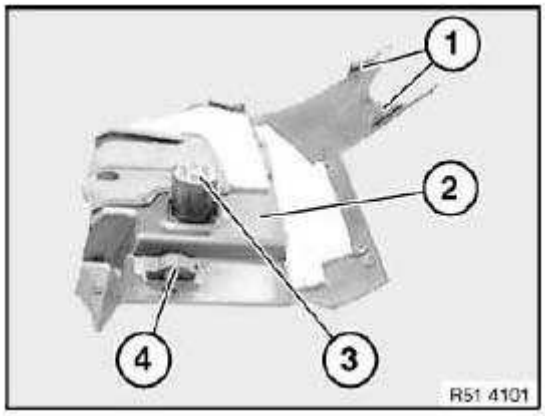


Fig. 493: Tabs, Pedal Assembly And Footwell Light
Courtesy of BMW OF NORTH AMERICA, INC.

46 PARCEL SHELF TRIM PAN/ROLLER SUN BLIND

51 46 050 REMOVING AND INSTALLING/REPLACING TOP TRIM ON REAR APRON

Necessary preliminary tasks:

- Remove luggage compartment floor trim (luggage compartment mat), see **51 47 102 Removing and installing/replacing luggage compartment floor trim panel**
- Remove both trims for roof pillars at rear (D-pillar), see **51 43 252 Replacing trim panel for rear left or right roof pillar (D-pillar)**

Release screws (1).

Lever out protective caps (3) at openings (2), remove and release screws underneath.

Lever out trim (4) inwards/upwards.

Installation:

If necessary, replace damaged protective caps (3).

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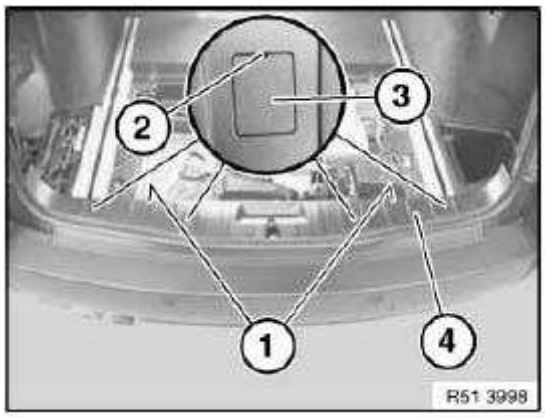


Fig. 494: Protective Caps And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

47 FLOOR/LUGGAGE COMPARTMENT/ENGINE COMPARTMENT/TRIM PANELS

51 47 ... REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT UNDERBODY PANELLING

Necessary preliminary tasks:

- Remove tension strut, see **33 32 170 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT TENSION STRUT**

Release screws (1).

Release expander rivet (2) and remove cover (3).

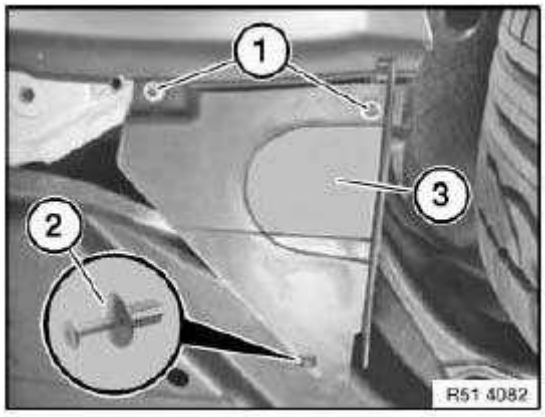


Fig. 495: Expander Rivet, Screws And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws (1) and nuts (2).

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Release expander rivets (3).

Feed out underbody panelling (4) in direction of arrow and remove.

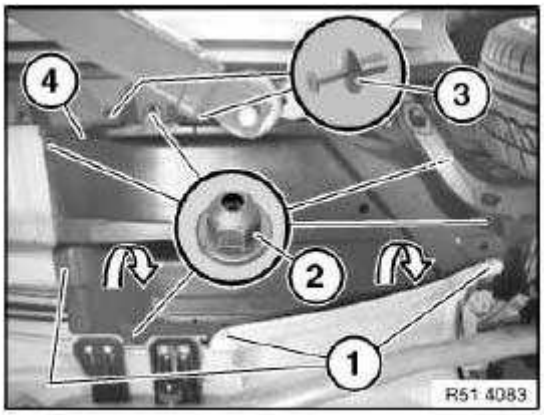


Fig. 496: Expander Rivets, Underbody Panelling And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 ... REMOVING AND INSTALLING/REPLACING STORAGE COMPARTMENT IN LUGGAGE COMPARTMENT ON RIGHT

Necessary preliminary tasks:

- Remove flap in luggage compartment panel on right, see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**
- Remove right luggage compartment wheel arch trim, see **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**

Release screws (1) and remove storage compartment (2) in direction of arrow.

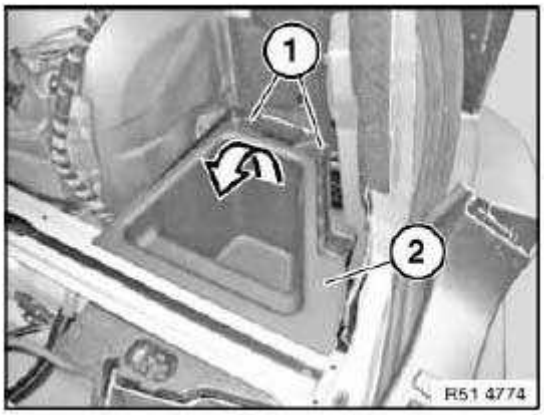


Fig. 497: Screws And Storage Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

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51 47 000 REMOVING AND INSTALLING/REPLACING FRONT (INSIDE) LEFT OR RIGHT ENTRANCE COVER STRIP

Remove entrance cover strip (1) with clips (2) towards top.

If necessary, lever out clips from floor plate.

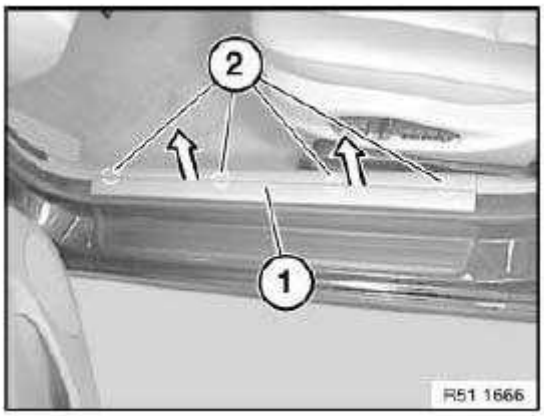


Fig. 498: Entrance Cover Strip And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Push clips (1) onto entrance cover strip (2).

If necessary, replace faulty clips (1).

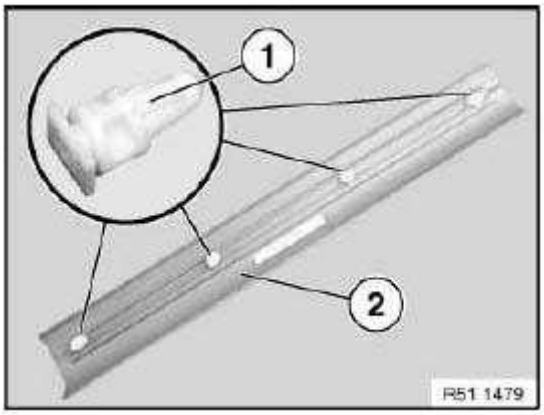


Fig. 499: Clips And Entrance Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 030 REMOVING AND INSTALLING/REPLACING REAR (INSIDE) LEFT OR RIGHT ENTRANCE COVER STRIP

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Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove rear seat (through-loading system)

Unclip clips (1) on entrance cover strip (2) with special tool 00 9 317.

Remove entrance cover strip (2) towards top rear.

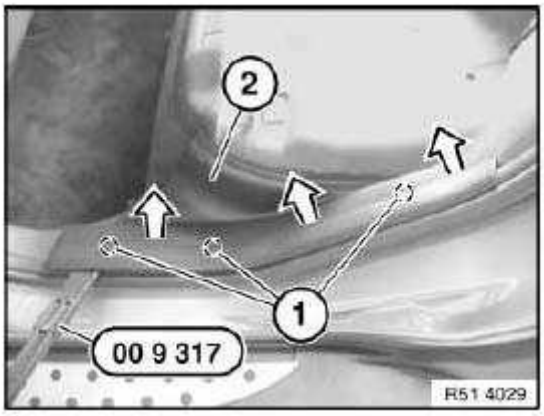


Fig. 500: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) and guide (2) on entrance cover strip (3) must not be damaged.

If necessary, replace faulty clips (1).

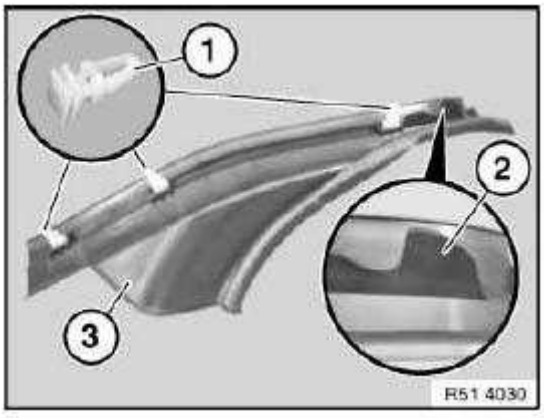


Fig. 501: Clips, Guide And Entrance Cover Strip

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Courtesy of BMW OF NORTH AMERICA, INC.

51 47 102 REMOVING AND INSTALLING/REPLACING LUGGAGE COMPARTMENT FLOOR TRIM PANEL

Unlock luggage compartment floor trim panel (1) at handle (2) and remove in direction of arrow.

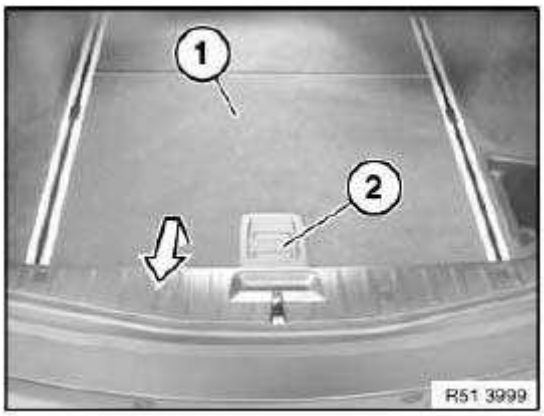


Fig. 502: Luggage Compartment Floor Trim Panel And Handle
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 131 REPLACING FRONT TRIM FOR LUGGAGE COMPARTMENT FLOOR

Necessary preliminary tasks:

- Remove backrest for rear seat
- Remove rear luggage compartment floor trim, see **51 47 102 Removing and installing/replacing luggage compartment floor trim panel**

Release expander rivets (1) and nuts (2) and remove trim (3) in direction of arrow.

Installation:

If necessary, replace faulty expander rivets (1) and/or nuts (2).

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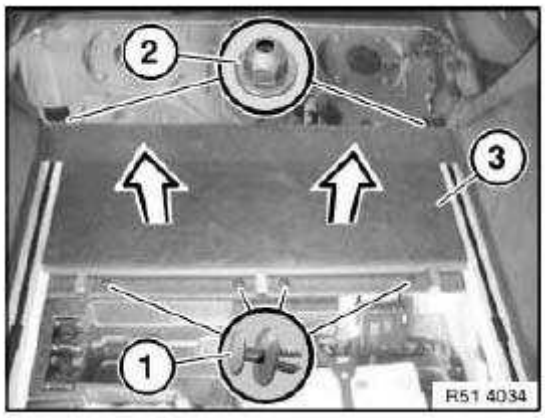


Fig. 503: Expander Rivets, Nuts And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and catches (2) on trim (4) must not be damaged.

Replacement:

If necessary, detach sound insulation (3) from trim (4) and fit on new part.

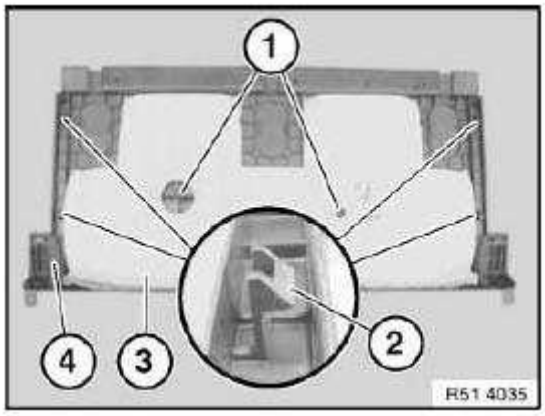


Fig. 504: Guides, Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 135 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT LASHING RAIL IN LUGGAGE COMPARTMENT FLOOR

Necessary preliminary tasks:

- Remove inner window cavity cover strip, see **51 37 261 Removing and installing/replacing window cavity cover strip for door window, rear left or right**
- Remove rear luggage compartment floor trim, see **51 47 102 Removing and installing/replacing**

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luggage compartment floor trim panel

- Remove front trim for luggage compartment floor, see **51 47 131 Replacing front trim for luggage compartment floor**
- Remove top trim from tail panel, see **51 46 050 Removing and installing/replacing top trim on rear apron**
- Remove luggage compartment wheel arch trim on left or right, see **51 47 151 Removing and installing / replacing left luggage compartment wheel arch trim**

Right side only:

- Remove storage compartment in luggage compartment on right, see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on right**

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Release screws (1).

Lashing rail (2):

A. Slide approx. 2 cm towards rear
B. Feed out towards top front

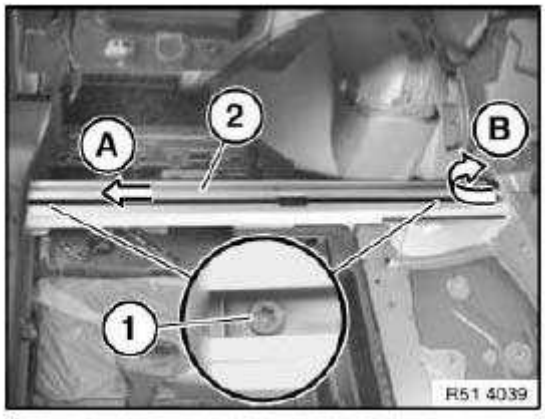


Fig. 505: Rail And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, remove reinforcement plate (1) with guide (2) from lashing rail (3) and fit on new part.

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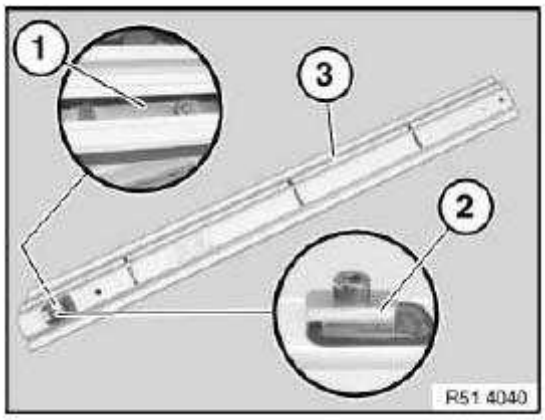


Fig. 506: Reinforcement Plate, Guide And Lashing Rail
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 151 REMOVING AND INSTALLING / REPLACING LEFT LUGGAGE COMPARTMENT WHEEL ARCH TRIM

Necessary preliminary tasks:

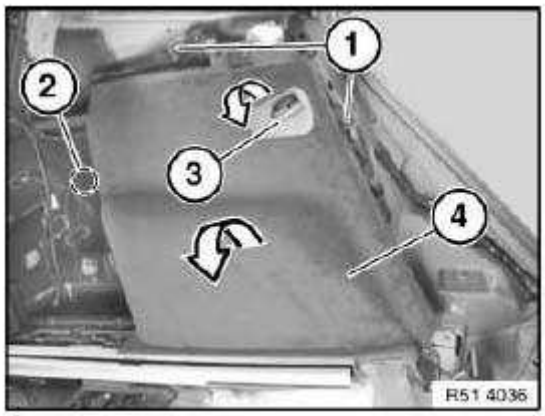
- Remove inner window cavity cover strip, see **51 37 261 Removing and installing/replacing window cavity cover strip for door window, rear left or right**
- Remove front trim for luggage compartment floor, see **51 47 131 Replacing front trim for luggage compartment floor**

Release screws (1).

Right side only: Release screw in area (2).

Lever out trim (3) in direction of arrow and remove.

Feed luggage compartment wheel arch trim (4) at top out of roller sun blind mounting and remove from passenger compartment in direction of arrow.



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Fig. 507: Luggage Compartment Wheel Arch Trim, Trim And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and catches (2) on trim (3) must not be damaged.

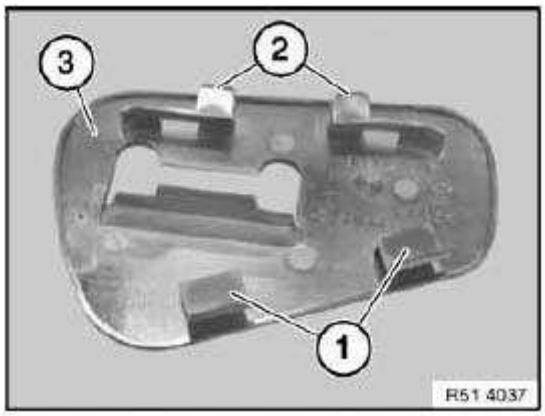


Fig. 508: Guides, Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, detach sound insulation (1) from trim (2) and fit on new part.

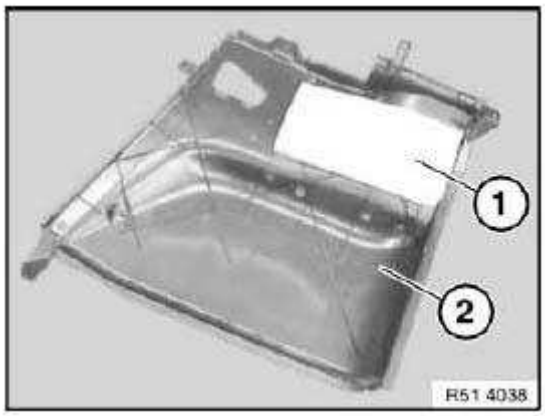


Fig. 509: Sound Insulation And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 161 REMOVING AND INSTALLING/REPLACING RIGHT LUGGAGE COMPARTMENT WHEEL ARCH TRIM

Operation up to work on 12 V socket is identical to:

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Removing and installing/replacing left luggage compartment wheel arch trim, see **51 47 151 Removing and installing / replacing left luggage compartment wheel arch trim**

Lever out socket (1) in direction of arrow and pull off a little.

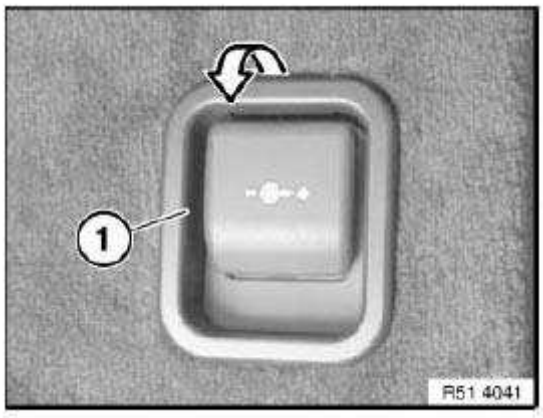


Fig. 510: Socket
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1) on socket (2).

Remove socket (2).

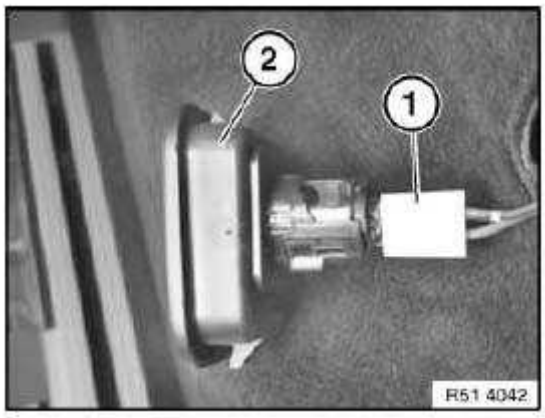


Fig. 511: Plug Connection And Socket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guide (1) and catches (2) on socket (3) must not be damaged.

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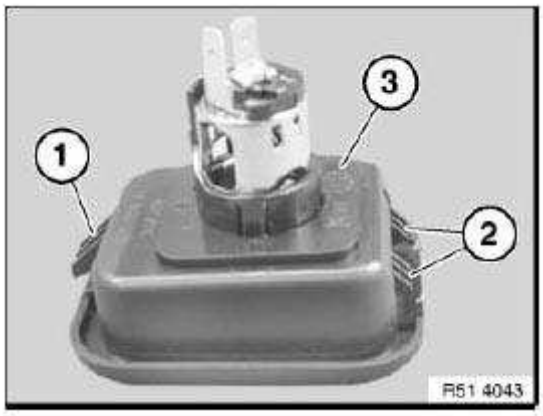


Fig. 512: Guide, Catches And Socket
Courtesy of BMW OF NORTH AMERICA, INC.

If replacing 12 V socket:

Open cover (1) of socket housing.

Turn socket insert (2) approx. 30° to right.

Turn socket insert (2) under tension back into initial position and pull out of socket housing.

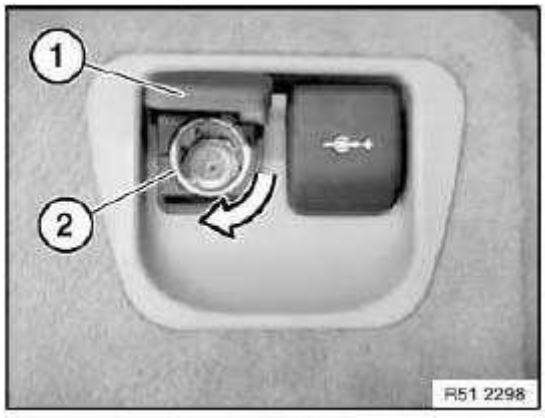


Fig. 513: Cover And Socket Insert
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Align socket insert (1) with retaining lugs (2) to groove (3) of socket housing and slide in until it is felt snapping into place.

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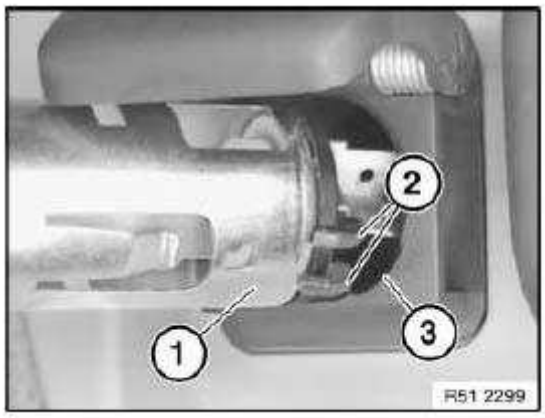


Fig. 514: Socket Insert, Retaining Lugs And Groove
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 172 REMOVING AND INSTALLING/REPLACING FLAP IN LUGGAGE COMPARTMENT TRIM, LEFT OR RIGHT

Press button (1), open flap in luggage compartment trim (2) and remove.

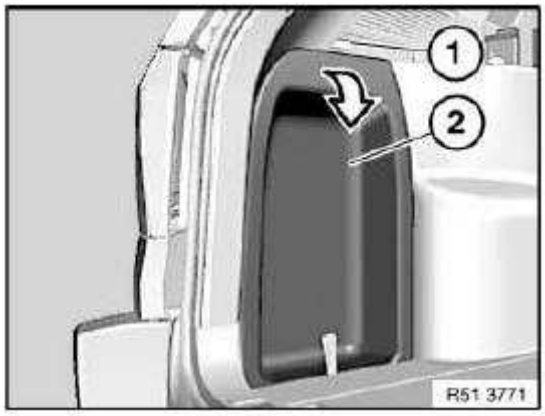


Fig. 515: Button And Luggage Compartment Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 315 REMOVING AND INSTALLING/REPLACING FRONT CARPET FOR PASSENGER COMPARTMENT

Necessary preliminary tasks:

- Remove instrument panel trim, see **51 45 030 Removing and installing instrument panel trim**
- Remove left/right front seat
- Remove front left/right entrance cover strip, see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**
- Remove accelerator pedal module

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Cut out carpet (1) at cutting edge (2) on left/right.

IMPORTANT: Make the cut as far as possible in the direction of the middle of the car to ensure that the cutting edges are covered by the storage compartment/instrument panel.
Pay attention to cables when cutting (risk of damage).

If necessary, guide cable back through carpet (1).

Feed out carpet (1) towards rear/top.

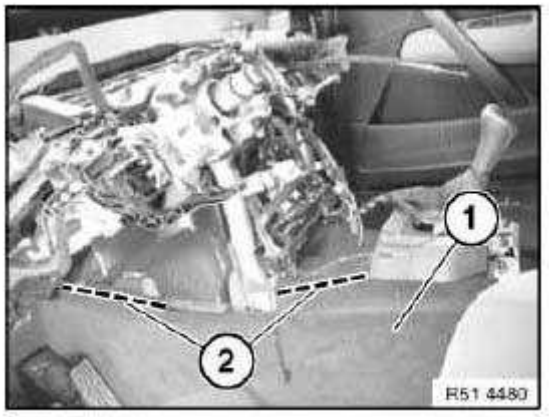


Fig. 516: Carpet And Cutting Edge
Courtesy of BMW OF NORTH AMERICA, INC.

Cutting edges (1) shown on removed carpet (2).

Replacement:

Place removed carpet on new carpet and carry over cuts to new carpet.

Installation:

Apertures (3) serve as alignment points for fitting the carpet (2).

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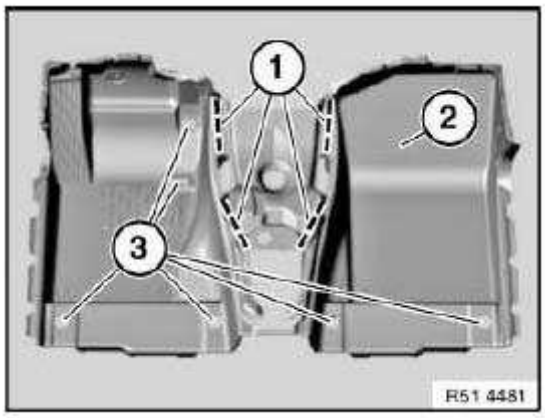


Fig. 517: Carpet, Apertures And Cutting Edge
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Detach stowage net (1).

Remove clips (2) for stowage net (1).

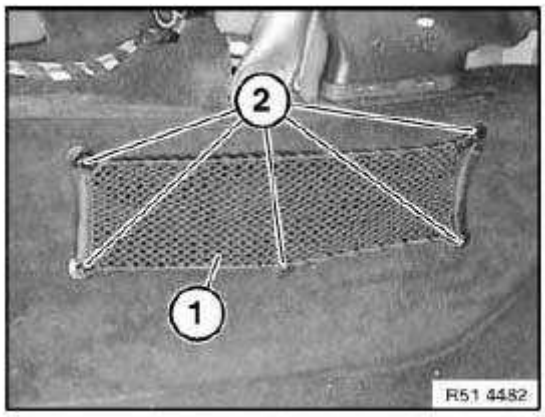


Fig. 518: Clips And Stowage Net
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 440 REMOVING AND INSTALLING/REPLACING REAR CARPET ON SEAT PAN

Necessary preliminary tasks:

- Remove left/right front seat
- Remove rear seat
- Remove handbrake lever
- Remove trim panel for door pillars on left/right, see **51 43 150 Removing and installing or replacing trim for left or right door pillar (bottom)**

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- Remove front inside entrance cover strip, see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**
- Remove entrance cover strip at rear inside, see **51 47 030 Removing and installing/replacing rear (inside) left or right entrance cover strip**
- Remove airbag control unit, see **65 77 016 REMOVING AND INSTALLING/REPLACING AIRBAG CONTROL UNIT**

Remove holder (1) for storage compartment.

Feed out cable (2) through carpet (3) and lay back.

Remove carpet (3).

Installation:

Make sure openings for air duct and attachment points are correctly positioned.

Make sure cable (2) is in correct position.

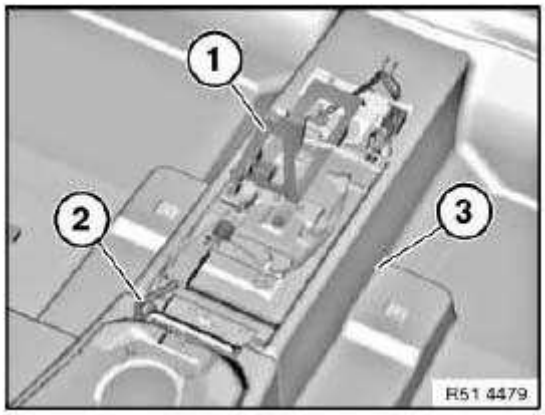


Fig. 519: Cable, Carpet And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 490 REMOVING AND INSTALLING / REPLACING FRONT UNDERBODY PROTECTION

NOTE: Illustration created using 3.0d as an example. There may be differences in detail in the case of other models.

Release expansion rivet (1).

Unfasten screws (2).

Pull out underbody protection (3) towards rear.

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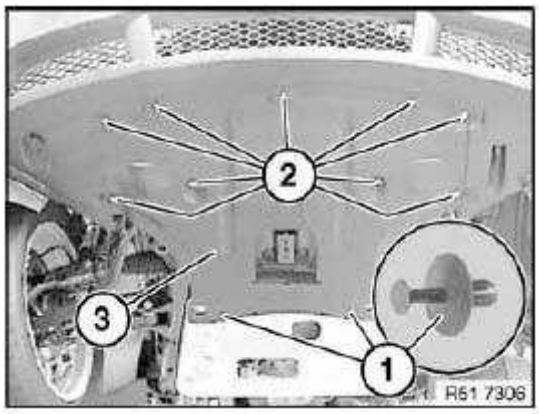


Fig. 520: Underbody Protection, Expansion Rivet And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION

NOTE: Illustration created using 3.0d as an example. There may be differences in detail in the case of other models.

Unfasten screws (1) and nuts (2).

Feed out assembly underside protection (3) towards rear and remove.

Installation:

Ensure correct seating.

Centre assembly underside protection (3) and tighten down with screws (1) and nuts (2).

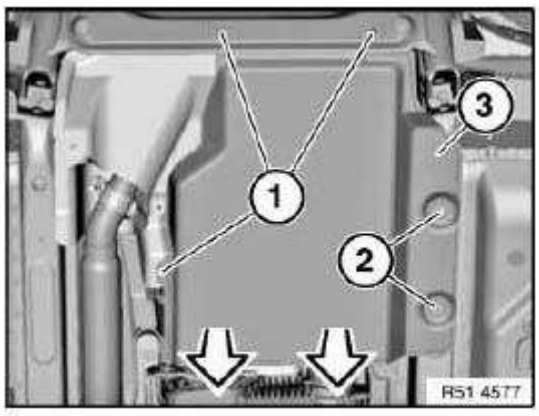


Fig. 521: Centre Assembly Underside Protection, Screws And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

48 FRONT LID INSULATION LINING

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51 48 001 REMOVING AND INSTALLING/REPLACING INSULATION LINING ON HOOD/BONNET

NOTE: Illustration created using the E87 as an example. There may be differences in detail in the case of other vehicle models.

Release threaded rivets (1) on insulation lining (2).

Remove insulation lining (2).

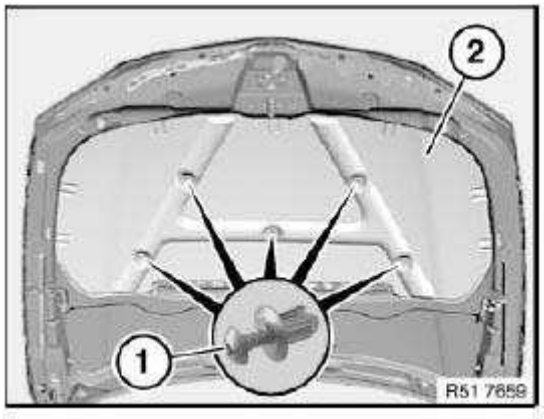


Fig. 522: Threaded Rivets And Insulation Lining
Courtesy of BMW OF NORTH AMERICA, INC.

51 48 060 REMOVING AND INSTALLING/REPLACING SOUND INSULATION IN LEFT OR RIGHT FRONT DOOR

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove front door trim panel, see **51 41 000 Removing and installing left or right front door trim panel**

Using special tool 00 9 317, lever out sealing bead (1) of sound insulation (2) completely or if necessary partially.

Disconnect plug connection (3) at door lock.

Feed wires (4) out of sound insulation (2).

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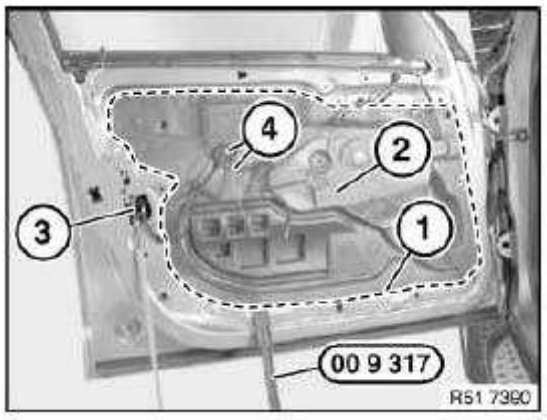


Fig. 523: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

In case of replacement or partial detachments, lay butylene tape (sourcing reference: BMW Parts Service) depending on the conditions on inner door panel or sound insulation.

Seal cable penetrations with butylene tape.

NOTE: Position of butylene tape (1) on inner door plate.

IMPORTANT: Do not damage Bowden cable (2) and lock knob control rod (3).

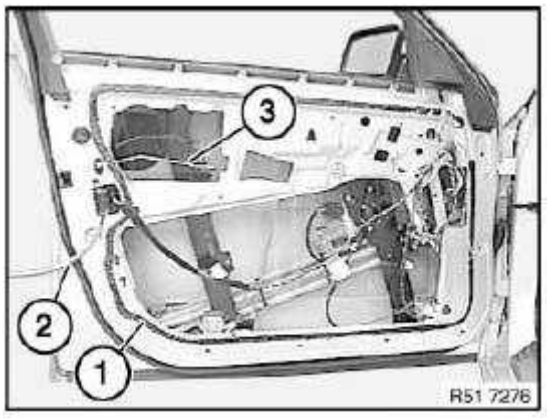


Fig. 524: Butylene Tape, Bowden Cable And Lock Knob Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Position of butylene tape (1) on sound insulation (2).

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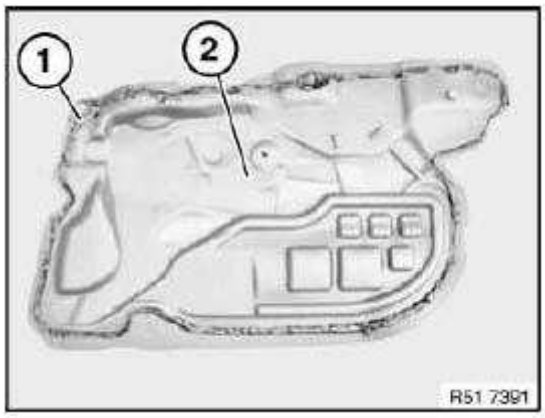


Fig. 525: Butylene Tape And Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: A marking (2) is provided all round on the sound insulation (1). Butylene tape (3) rests on or inside the marking (2).

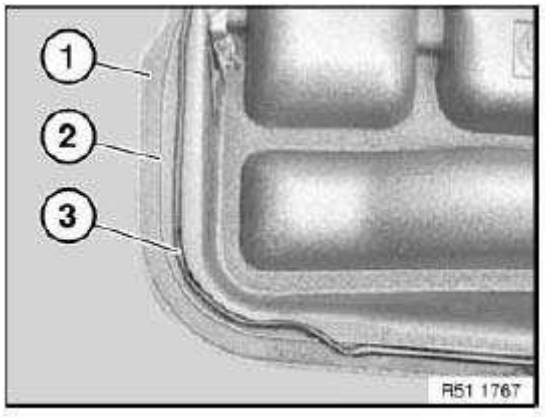


Fig. 526: Butylene Tape And Marking
Courtesy of BMW OF NORTH AMERICA, INC.

Clean bonding area with adhesive remover (sourcing reference: BMW Parts Service).

Air drying time: 1 minute

IMPORTANT: Adhesive areas must be dry and free of dust and grease. Once it has been cleaned, do not touch the adhesive area with bare hands.

Lay single row of 6 mm dia. butylene tape or double row of 3 mm dia. tape (sourcing reference: BMW Parts Service) in specified adhesive area.

Heat butylene tape (hot air blower) and press down firmly on sound insulation all round.

Contact pressure with hand roller: approx. 30 N/cm 2

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Manual contact pressure: approx. 10 N/cm2

NOTE: Firm thumb pressure has approx. 50 N/cm 2

51 48 070 REMOVING AND INSTALLING/REPLACING SOUND INSULATION ON LEFT OR RIGHT REAR DOOR

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove rear door trim panel, see **51 42 000 Removing and installing left or right rear door trim panel**

Disconnect plug connection (1).

Unclip clip (2).

Using special tool 00 9 317 (trim panel wedge), lever out sealing bead (3) of sound insulation (4) completely or if necessary partially.

Feed wires (5) out of sound insulation (4).

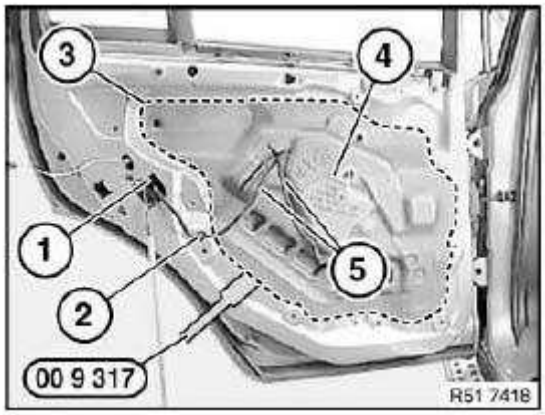


Fig. 527: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

In case of replacement or partial detachments, lay butylene tape (sourcing reference: BMW Parts Service) depending on the conditions on inner door panel or sound insulation.

Seal cable penetrations with butylene tape.

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NOTE: Position of butylene tape (1) on inner door plate.

IMPORTANT: Do not damage Bowden cable (2) and lock knob control rod (3).

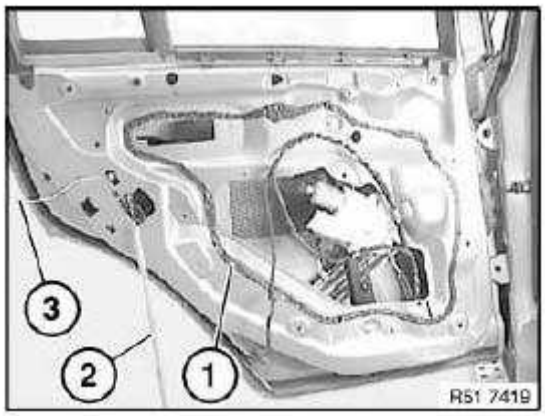


Fig. 528: Bowden Cable, Butylene Tape And Lock Knob Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Position of butylene tape (1) on sound insulation (2).

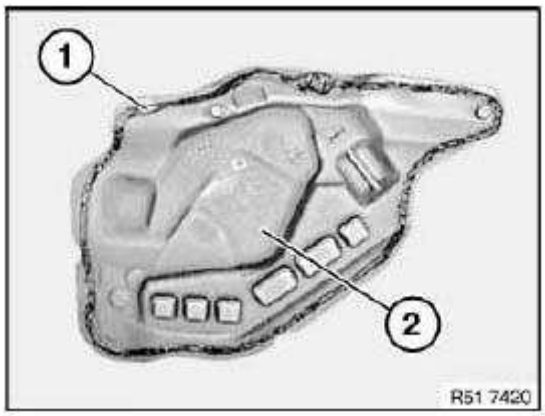


Fig. 529: Butylene Tape And Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: A marking (2) is provided all round on the sound insulation (1). Butylene tape (3) rests on or inside the marking (2).

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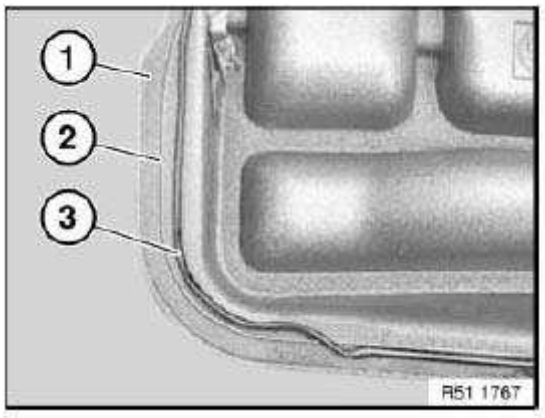


Fig. 530: Butylene Tape And Marking
Courtesy of BMW OF NORTH AMERICA, INC.

Clean bonding area with adhesive remover (sourcing reference: BMW Parts Service).

Air drying time: 1 minute

IMPORTANT: Adhesive areas must be dry and free of dust and grease.

Once it has been cleaned, do not touch the adhesive area with bare hands.

Lay single row of 6 mm dia. butylene tape or double row of 3 mm dia. tape (sourcing reference: BMW Parts Service) in specified adhesive area.

Heat butylene tape (hot air blower) and press down firmly on sound insulation all round.

Contact pressure with hand roller: approx. 30 N/cm 2

Manual contact pressure: approx. 10 N/cm 2

NOTE: Firm thumb pressure has approx. 50 N/cm 2

49 REAR LID TRIM PANEL

51 49 003 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR WINDOW FRAME ON LEFT OR RIGHT

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Necessary preliminary tasks:

- Remove trim for rear window frame at top, see **51 49 015 Removing and installing/replacing trim for**

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rear window frame at top

Unclip trim (1) with special tool 00 9 317 from retainers (2) and remove in direction of arrow.

Installation:

If necessary, detach clips (2) from trim (1) and insert in rear lid.

If necessary, replace faulty clips (2).

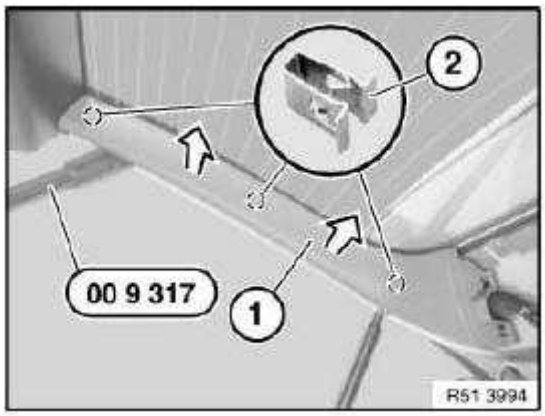


Fig. 531: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on trim (2) must not be damaged.

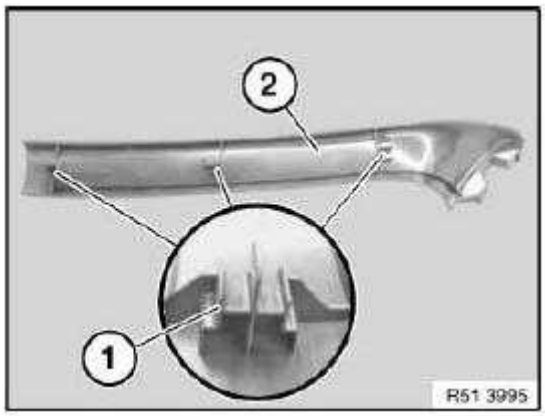


Fig. 532: Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 49 008 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID

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Necessary preliminary tasks:

- Remove luggage compartment light, see **63 31 080 REMOVING AND INSTALLING/REPLACING LUGGAGE COMPARTMENT LIGHT (D-PILLAR)**

Release expansion rivets (1).

Installation:

If necessary, replace faulty expander rivets (1).

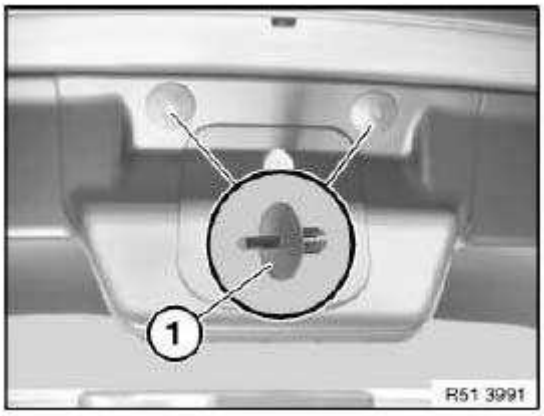


Fig. 533: Expander Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Unclip clips (2) and remove trim (3) towards bottom.

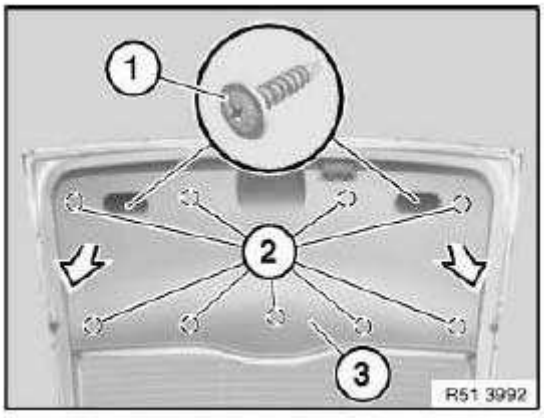


Fig. 534: Clips And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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All clips (1) are white.

If necessary, replace faulty clips (1).

Remove insulating mat (2) from old trim (3) and insert in new trim.

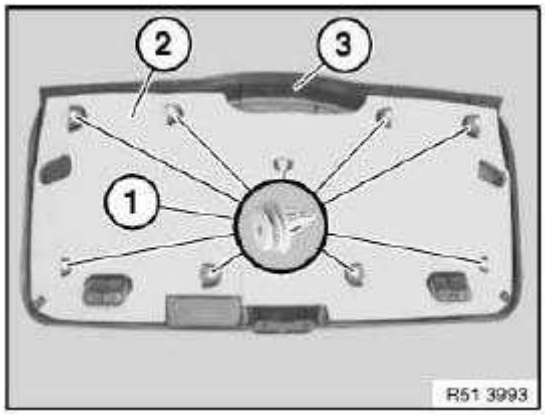


Fig. 535: Insulating Mat And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 49 015 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR WINDOW FRAME AT TOP

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

Unclip trim (1) with special tool 00 9 317 from retainers (2) and remove in direction of arrow.

Installation:

If necessary, detach clips (2) from trim (1) and insert in rear lid.

If necessary, replace faulty clips (2).

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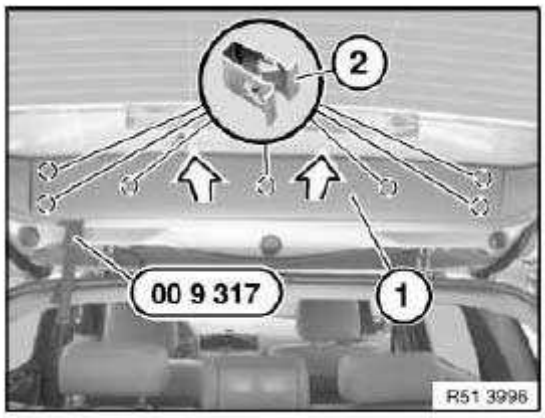


Fig. 536: Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

.Guides (1) on trim (2) must not be damaged.

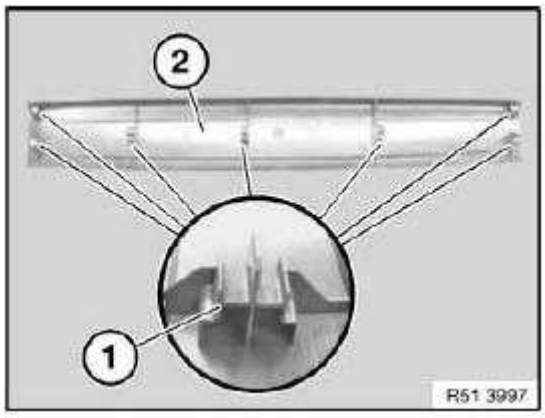


Fig. 537: Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

71 GASKETS/SEALS/LOOSE BODY PARTS

51 70 ... FITTING SEALS

NOTE: All seals on the vehicle must be removed with the utmost care. Incorrect fitting may result in among other things wind noises and water ingress, and may compromise closing and opening comfort.

The following instructions always apply:

- Seals which are attached to the side frame can be removed and fitted as often as desired.
- Seals must not be damaged or cracked.

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- The clamping area must be pressed together by hand to such an extent that rigid attachment to the side flange is still possible. The sides of the seal are permitted to touch each other slightly. A fully compressed seal is not permitted.

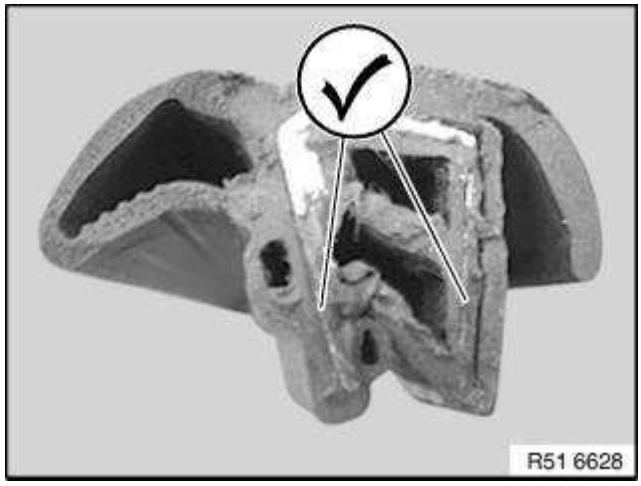


Fig. 538: Identifying Sides Of Seal (Good Seal)
Courtesy of BMW OF NORTH AMERICA, INC.

- A special tool to press the clamping area together is not needed. Careful fitting by hand is sufficient.
- The seals must always be fitted over their full extent. There is no defined pressing force.
- If seals are repeatedly removed and fitted in the rear lid area, a new seal must be fitted (water ingress in event of sheet flaws).
- Seals must be checked after fitting for correct seating. If necessary, the seals must be lifted over the adjacent components with a suitable tool. Adjacent components must not be damaged.
- Seals must be replaced when the metal insert in the seal is visible (corrosion).

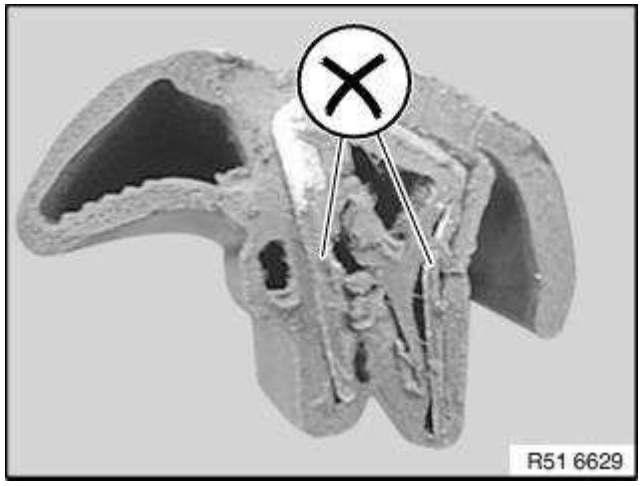


Fig. 539: Identifying Sides Of Seal (Bad Seal)
Courtesy of BMW OF NORTH AMERICA, INC.

- The clamping area must be uniform.

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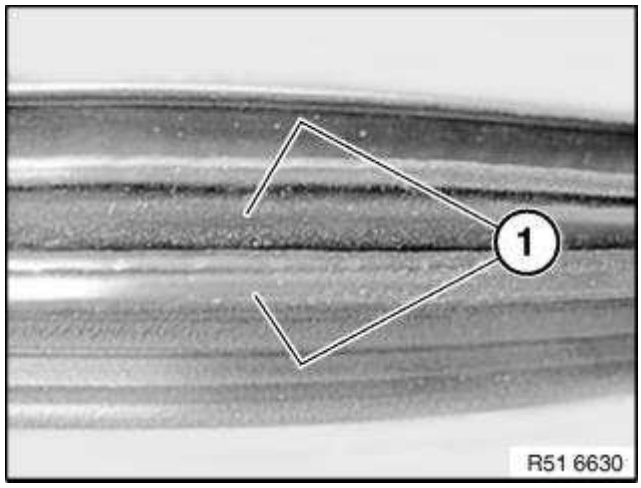


Fig. 540: Clamping Area Must Be Uniform
Courtesy of BMW OF NORTH AMERICA, INC.

- Joint seals which are fitted with plastic clips must rest rigidly on the body. Otherwise, the clips or the joint seal must be replaced.

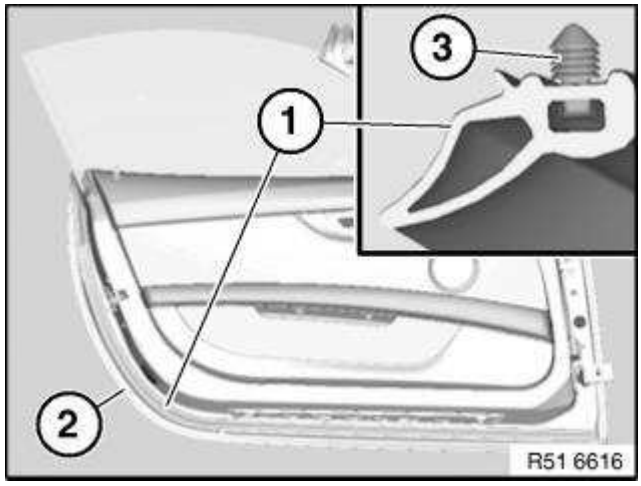


Fig. 541: Joint Seals Fitted With Plastic Clips Must Rest Rigidly On Body
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 040 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT WHEEL ARCH COVER

Necessary preliminary tasks:

- Remove front wheel

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Drill off blind rivets (1).

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Unfasten screws (2).

Carefully feed out wheel arch cover (3).

Installation:

Ensure wheel arch cover (3) is correctly seated.

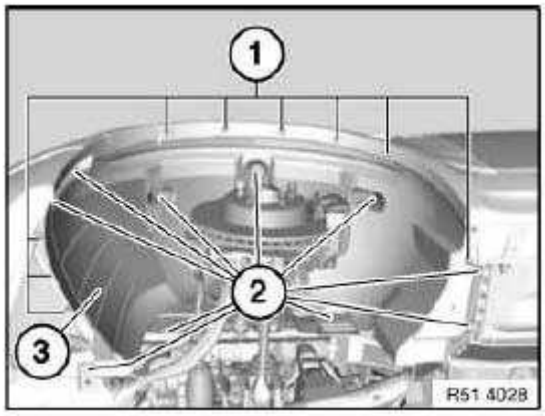


Fig. 542: Wheel Arch Cover, Rivets And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 041 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT WHEEL ARCH COVER

Necessary preliminary tasks:

- Remove rear wheel

NOTE: The operation is described on the left side; proceed in the same way for the right side.

Drill off blind rivets (1).

Unfasten screws (2) and nuts (3).

Carefully feed out wheel arch cover.

Installation:

Make sure wheel arch cover is correctly seated.

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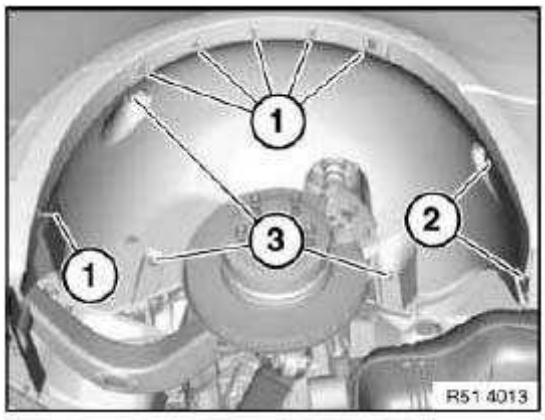


Fig. 543: Screws, Rivets And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 080 REMOVING AND INSTALLING/REPLACING HEATER BULKHEAD

Necessary preliminary tasks:

- Remove microfilter for passenger compartment ventilation, see **64 31 010 REPLACING MICROFILTER FOR INTERIOR VENTILATION**

Unclip retainers (1) and feed cable out of cable duct.

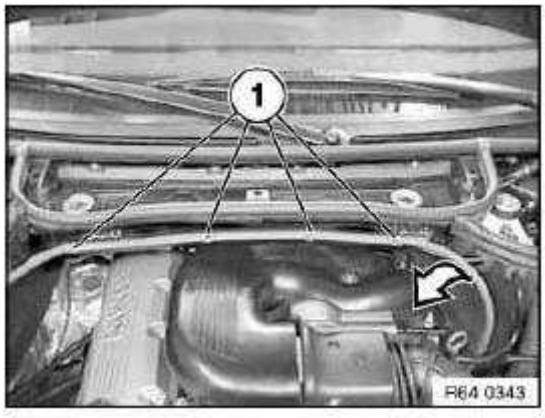


Fig. 544: Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and remove microfilter housing towards front.

Installation:

Seals on microfilter housing must not be damaged or missing.

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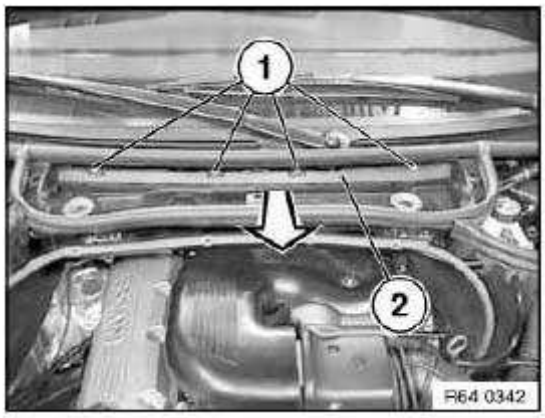


Fig. 545: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Detach rubber strip (1).

Release locks (2) and pull side trim forwards a little.

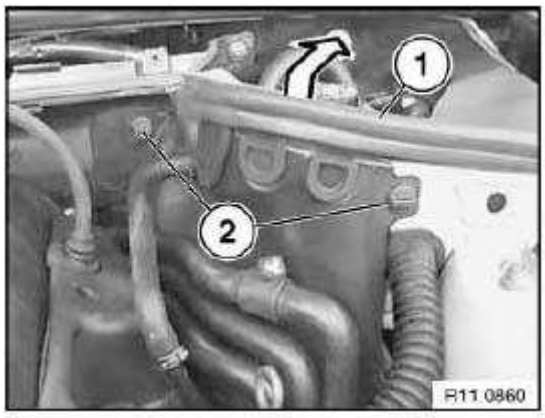


Fig. 546: Rubber Strip And Locks
Courtesy of BMW OF NORTH AMERICA, INC.

Remove screws (1) and (2).

Lift out heater bulkhead.

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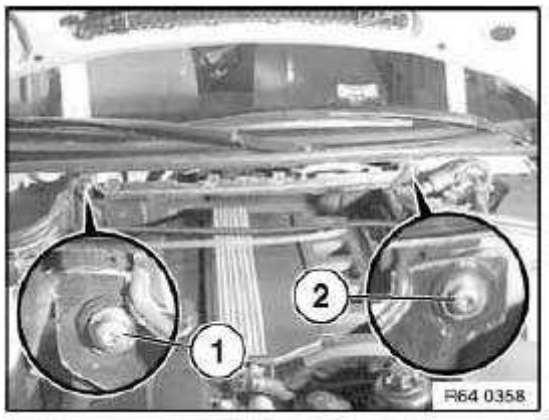


Fig. 547: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 200 REMOVING AND INSTALLING / REPLACING SEAL ON REAR DOOR, LEFT OR RIGHT

NOTE: Follow repair instructions for bonded seals, see 54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS

Detach seal (1) from rear door (2).

Clean adhesive area.

Installation:

- Pull protective film (liner) off seal to half-way point
- Feed seal at top into rubber guide (3)
- Gently press seal without stretching
- Check positioning of seal, correct if necessary and firmly press.
- Pull remaining protective film (liner) off seal.
- Press remaining seal without stretching.
- Check positioning of seal, correct if necessary and firmly press.

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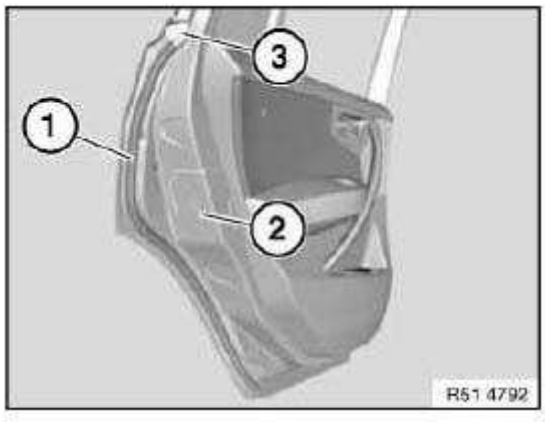


Fig. 548: Seal And Rear Door
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT:
- **Do not grip bonding surface.**
- **It is not the length of pressing in time but rather the level of pressing (approx. 10 ... 15 N/cm2) which is decisive here.**
- **Separation of seal after pressing destroys the adhesive layer.**

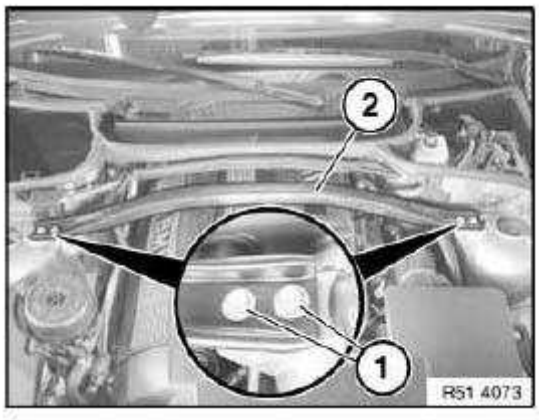
NOTE: After being pressed on gently, seal can be pulled off again up to 3 times. Do not dirty adhesive area.

51 71 373 REMOVING AND INSTALLING/REPLACING TENSION STRUT ON SPRING STRUT DOME

IMPORTANT: Vehicles must not be driven without tension struts. Driving without tension struts may damage the vehicle body.

Release screws (1) and remove tension strut (2).

Tightening torque: 51 71 4AZ, see **51 71 SEALS AND LOOSE BODY PARTS**



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Fig. 549: Screws And Tension Strut
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 407 REPLACING REAR SPOILER

Necessary preliminary tasks:

- Remove rear spoiler, see **51 71 412 Removing and installing rear spoiler**
- Remove auxiliary brake light, see **63 25 000 REMOVING AND INSTALLING/REPLACING AUXILIARY BRAKE LIGHT**
- If necessary, remove aerial/antenna
- If necessary, remove spray nozzle for rear window washer unit, see **61 62 110 REMOVING AND INSTALLING/REPLACING SPRAY NOZZLE FOR REAR WINDOW WIPER**

51 71 412 REMOVING AND INSTALLING REAR SPOILER

Necessary preliminary tasks:

- Remove trim for rear window frame at top, see **51 49 015 Removing and installing/replacing trim for rear window frame at top**

Detach hose in area (1).

Disconnect plug connection (2).

Unclip lines at points (3).

Disconnect plug connection (4).

Press rubber grommet (5) upwards out of rear lid (6).

Installation:

Make sure rubber grommet (5) is correctly seated.

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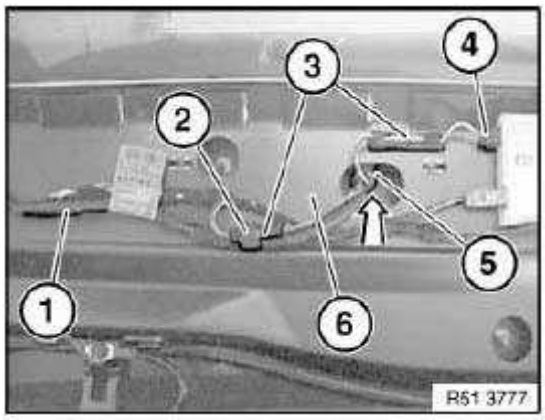


Fig. 550: Rubber Grommet, Rear Lid And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out rubber plug (1).

Unscrew nuts (2).

Tightening torque: 51 71 2AZ, see **51 71 SEALS AND LOOSE BODY PARTS**

IMPORTANT: Carefully remove rear spoiler (3) in upwards direction from rear lid (4) (with aid of a 2nd person) and place on a clean surface.

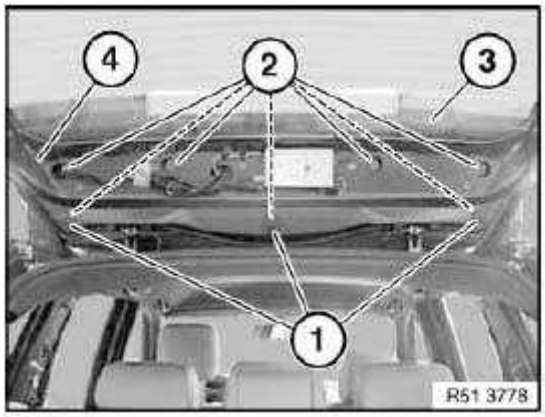


Fig. 551: Rubber Plug, Nuts And Rear Spoiler
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Lines may get caught as they are pulled out. If necessary, support lines as the are being fed out.

Installation:

Sealing washers (1) and side buffer stops must not be damaged.

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Make sure there is a uniform gap all round.

If necessary, carry out height adjustment of rear spoiler (3) using adjusting screws (2).

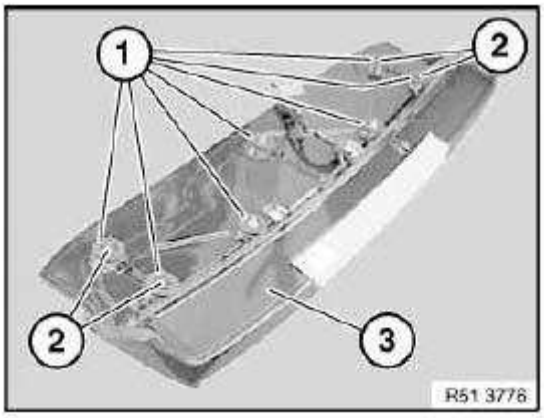


Fig. 552: Rear Spoiler, Adjusting Screws And Washers
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 470 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT LEFT OR RIGHT WHEEL ARCH

Necessary preliminary tasks:

- Remove cover on sill, see **51 71 472 Removing and installing/replacing cover on left or right sill**

  Build date up to 09/2004:

- Remove trim on front side panel

Release blind rivets (1) and expander rivet (2).

Snap out trim (4) at clips (3) and feed out.

Installation:

If necessary, replace expander rivet (2) and/or clip (3).

Make sure trim (4) is correctly seated on underbody protection and bumper.

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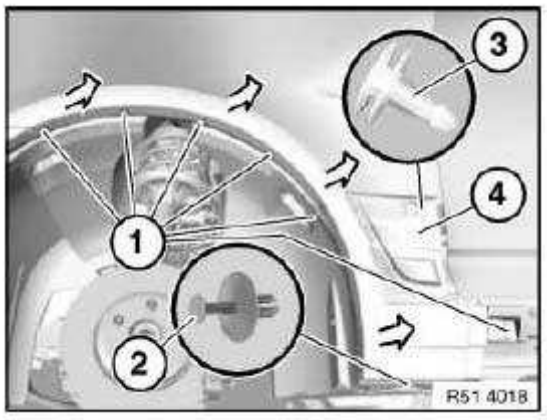


Fig. 553: Blind Rivets, Clip And Expander Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

Version with M Technic aerodynamic kit:

Release blind rivets (1) and screw (2).

Snap out trim (4) at clips (3) and feed out.

Installation:

If necessary, replace faulty clips (3).

Make sure trim (4) is correctly seated on underbody protection and bumper.

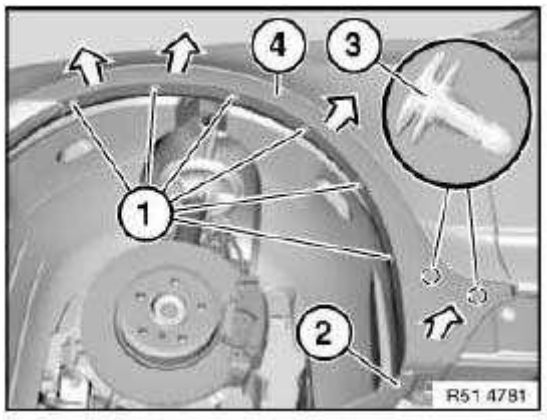


Fig. 554: Blind Rivets, Trim And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 472 REMOVING AND INSTALLING/REPLACING COVER ON LEFT OR RIGHT SILL

Necessary preliminary tasks:

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- Remove trim on rear wheel arch, see **51 71 478 Removing and installing/replacing trim on rear left or right wheel arch**

Release blind rivet (1) and screw (2) on cover (3).

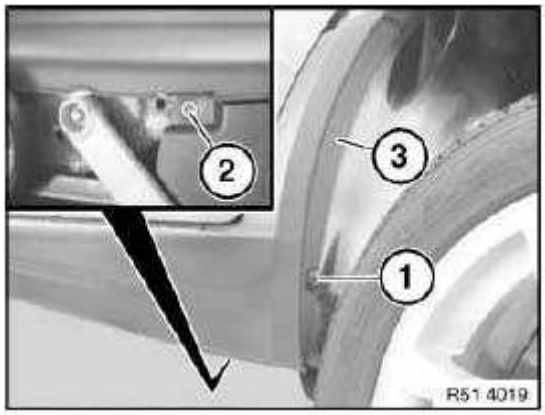


Fig. 555: Blind Rivet, Screw And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release all blind rivets (1) on cover (2).

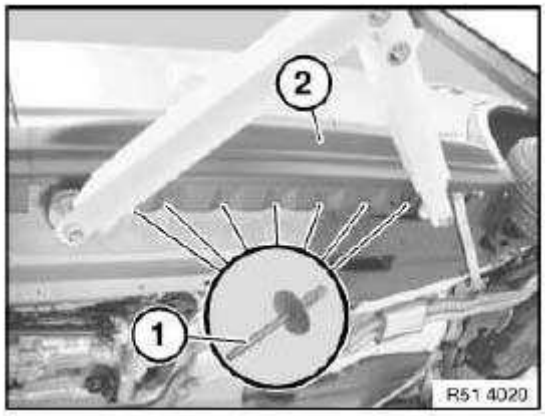


Fig. 556: Blind Rivets And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Version without M Technic aerodynamic kit:

Unclip cover (1) from running board (2) starting at rear and remove.

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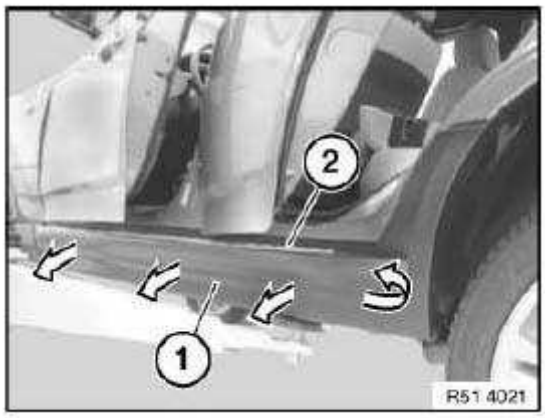


Fig. 557: Cover And Running Board
Courtesy of BMW OF NORTH AMERICA, INC.

Version with M Technic aerodynamic kit:

Snap cover (1) out of clips (2) and feed out towards bottom rear.

Installation:

If necessary, replace faulty clips (2).

Feed cover (1) correctly into trim on front wheel arch.

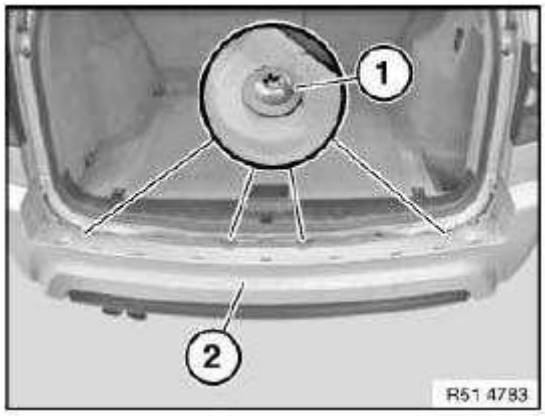


Fig. 558: Screws And Bumper Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and clips (2) on cover (3) must not be damaged.

If necessary, replace faulty clips (2).

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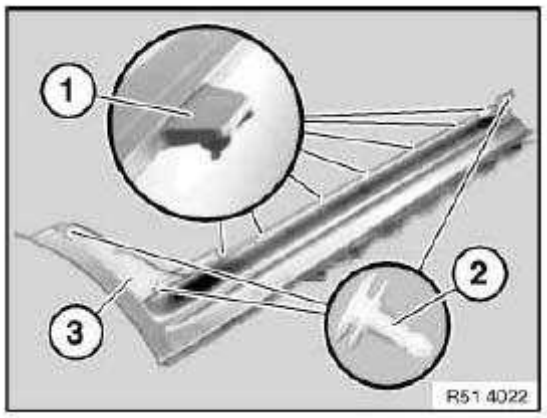


Fig. 559: Guides, Clips And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Version with M Technic aerodynamic kit:

To avoid chafing marks on cover (2), stick protective film (1) onto cover (2).

If necessary, stick protective film (1) in a moist bonding process, see **51 00 ... Instructions on sticking film** onto cover (2).

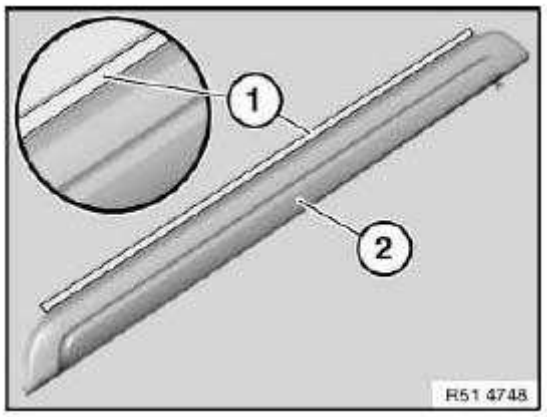


Fig. 560: Protective Film And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 473 REMOVING AND INSTALLING/REPLACING TAKE-UP FOR COVER ON LEFT OR RIGHT SILL

Special tools required:

- 00 9 317 **00 9 310 ASSEMBLY WEDGES (SET IN PLASTIC CASE)**

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Necessary preliminary tasks:

- Remove cover on sill, see **51 71 472 Removing and installing/replacing cover on left or right sill**

Drill out blind rivet (1).

Loosen screws (2).

Installation:

Tightening torque: 51 71 16AZ, see **51 71 SEALS AND LOOSE BODY PARTS**

Feed take-up (4) in direction of arrow out of trim (3).

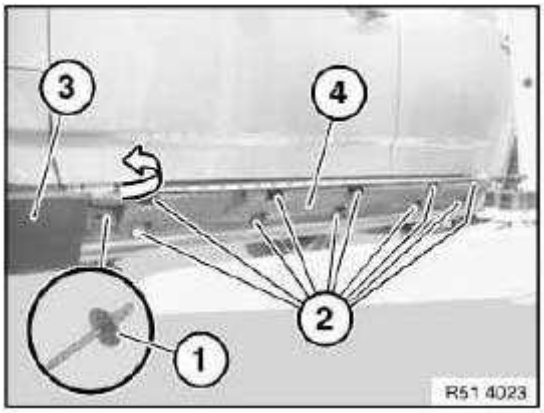


Fig. 561: Blind Rivet, Trim And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, release screws (1) on running board (2).

Feed out running board (2) in direction of arrow.

Installation:

Guides (3) on take-up (4) must not be damaged.

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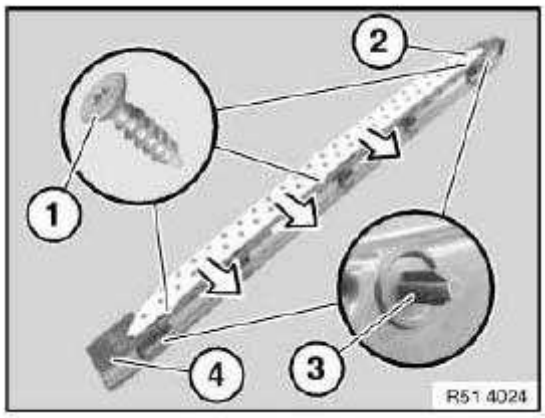


Fig. 562: Guides And Running Board
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace nuts (1) on take-up (2).

Guides (3) on running board (4) must not be damaged.

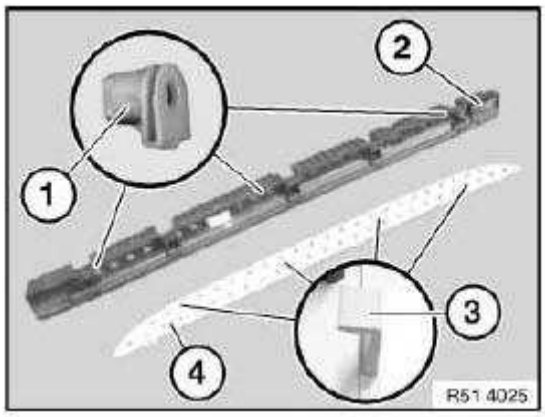


Fig. 563: Guides, Running Board And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, unclip clips (1) on cover (2) with special tool 00 9 317.

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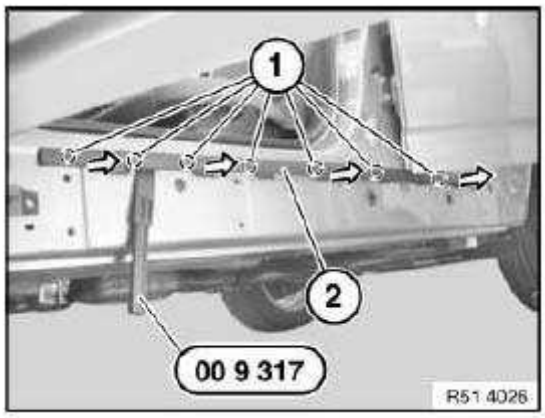


Fig. 564: Clips And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1) on cover (2).

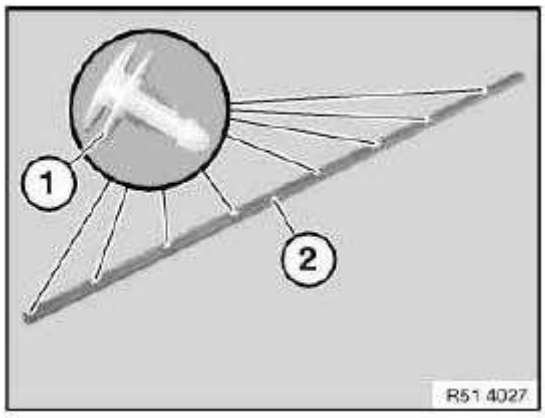


Fig. 565: Clips And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 478 REMOVING AND INSTALLING/REPLACING TRIM ON REAR LEFT OR RIGHT WHEEL ARCH

Release blind rivets (1) and remove trim (2) towards top rear.

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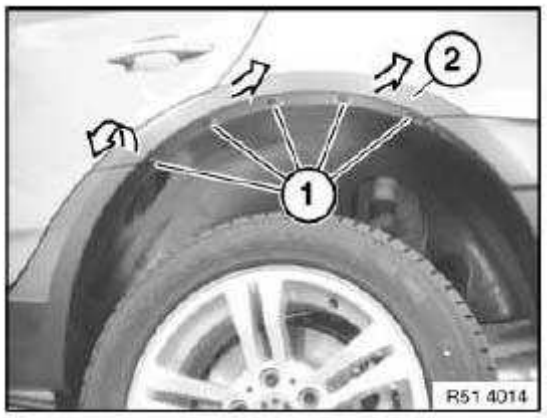


Fig. 566: Blind Rivets And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on trim (2) must not be damaged.

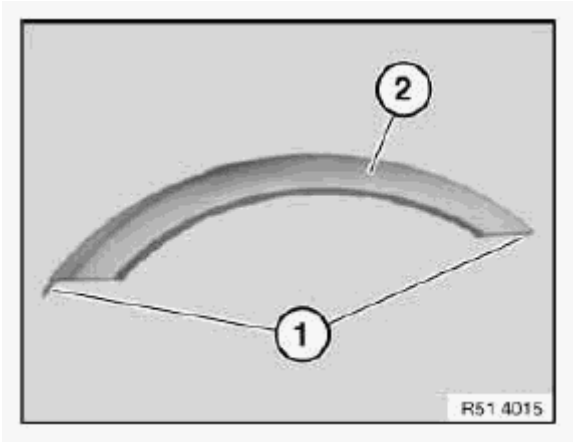


Fig. 567: Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Version with M Technic aerodynamic kit:

Release blind rivets (1).

Release trim (3) from clips (2) and feed out of sill and bumper.

Installation:

If necessary, replace faulty clips (2).

Trim (3) must be correctly fed into sill trim and bumper.

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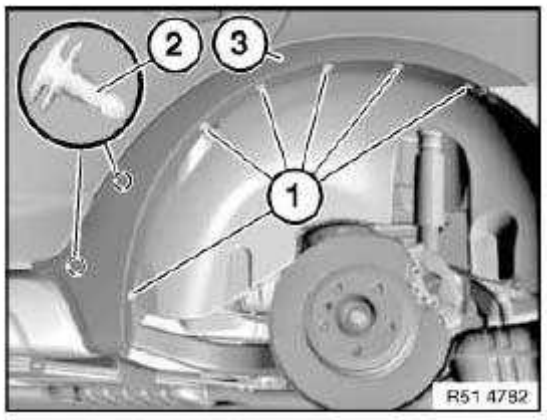


Fig. 568: Trim, Clips And Blind Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 495 REMOVING AND INSTALLING/REPLACING EMERGENCY WHEEL PAN

Necessary preliminary tasks:

- Remove emergency wheel (refer to Owner's Manual)

Pull up emergency wheel pan and secure with handle (1).

Release plastic nut (3).

Release screw (2).

Extend handle (1) sideways.

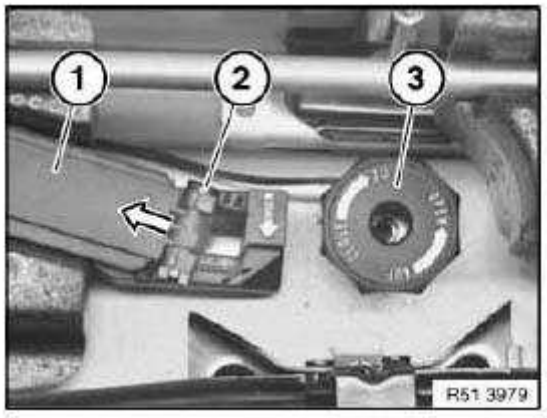


Fig. 569: Plastic Nut, Handle And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Turn holder (1).

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Grip emergency wheel pan and release plastic nut (2).

Lower emergency wheel pan onto floor.

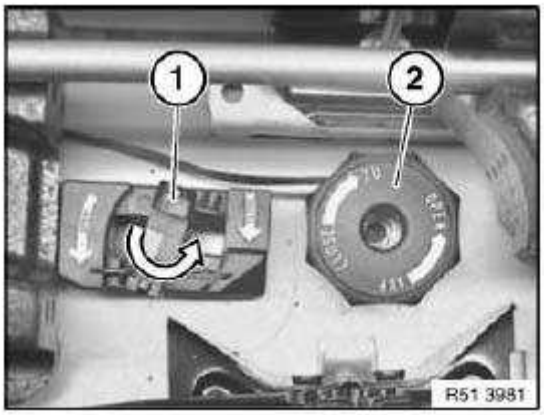


Fig. 570: Holder And Plastic Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Lift vehicle.

Release screws (1).

Remove emergency wheel pan (2) towards bottom.

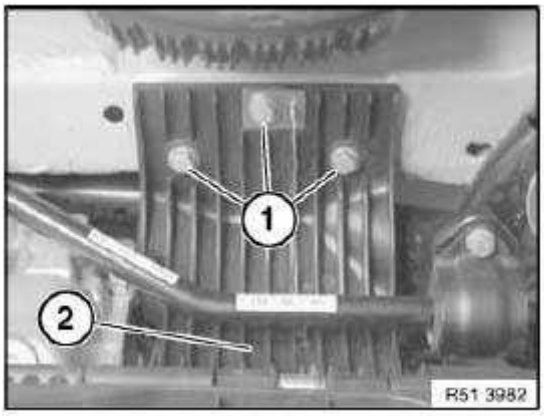


Fig. 571: Emergency Wheel Pan And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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ACCESSORIES AND EQUIPMENT

Exterior Body Panels - Repair Instructions - X3

00 BODY

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-> 41 00 ... Workshop equipment

Safety regulations -> 41 00 ... Safety at work

-> 41 00 ... Information on hazards

-> 41 00 ... Information on vehicle protection

Materials -> 41 00 ... Materials science

-> 41 00 ... Use of materials in outer shell

Handling electrical/electronic equipment, airbags and restraint systems -> 41 00 ... Handling electrical and electronic equipment

-> 41 00 ... Handling airbags and restraint systems

Body dimensions -> 41 00 ... Frame alignment control dimensions, body

-> Gap dimensions

Cavity bulkhead -> 41 00 ... Installation of a cavity seal with cavity foam

-> Position of shaped parts

Vehicle identification number -> 41 00 ... Vehicle identification number, general

-> 41 00 ... Stamping vehicle identification number

Repair techniques -> Straightening -> **41 00 ... Straightening steel parts**

-> Grinding ->

-> 41 00 ... Grinding steel parts

-> Cutting repairs -> **41 00 ... Welding in reinforcement plate (steel plate)**

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-> Welding and soldering ->

-> **41 00 ... Welding and soldering steel parts**

-> **41 00 ... Opening weld joints**

-> Bonding -> **41 00 ... General cementing instructions**

-> **41 00 ... Bonding steel parts**

-> **51 31 ... INSTRUCTIONS ON GLUING WINDSCREEN**

-> **41 00 ... Spot-weld bonding steel parts**

-> **41 00 ... Opening adhesive bonds**

-> Riveting -> **41 00 ... Riveting aluminium parts**

-> **41 00 ... Riveting steel parts**

-> Repair elements -> **41 00 ... Notes on repairing threads**

Painting -> 41 00 ... Corrosion protection

-> **41 00 ... Information / warning labels**

41 00 ... BONDING PLASTIC PARTS

IMPORTANT: Conform with safety precautions! See 41 00 ... Information on hazards

Plastic repair box:

(Sourcing reference through BMW Parts Service picture board 83-0288 Plastic repair box)

Detailed information can be found in the:

- Current painting handbook
- ASAP portal

41 00 ... BONDING STEEL PARTS

IMPORTANT: Conform with safety precautions! See 41 00 ... Information on hazards

Overview of topics:

1. Equipment

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2. Expiry date of adhesive
3. Grinding and cleaning
4. Gluing coat
5. Hardening times
6. Aftertreatment of bonding surfaces
7. Disposing of adhesive

1.0 Equipment

- Emery paper
- Cleaning agent: Isopropanol, acetone or spirit
- Adhesive cartridge (sourcing reference via BMW Parts Service picture board Aluminium and steel/bonding and welding)
- Adhesive gun (standard cartridge gun)
- Spatula for applying adhesive

2.0 Expiry date of adhesive:

- The adhesive cartridge is marked with a date.
- Do not use the adhesive after this date.

3.0 Grinding and cleaning:

- For better adhesion, remove oxide film, rust, paint and scale from the adhesive areas with a wire brush or emery paper.
- Clean adhesive areas with isopropanol, acetone or spirit.
- Allow cleaned surfaces to dry for approx. 5 minutes.

  Adhesive areas must be completely dry.

4.0 Adhesive application:

- Processing temperature of adhesive cartridge 15°C - 25°C.
- Insert adhesive cartridge in adhesive gun, remove cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube.
- Allow approx. 10 cm of mixed adhesive to emerge and then apply the mixed adhesive first on one side of the adhesive area.
- After applying the adhesive, check whether an adhesive component has emerged at the back of the cartridge. If yes, break off the bonding procedure. Clean new component. Use new adhesive cartridge. Contact national hotline.
- Use a spatula to spread the adhesive over the adhesive area. Thickness of layer approx. 2 mm (dependent on adhesive gap).
- Potlife of mixed adhesive approx. 2 hours. A change of mixer is only necessary if over a period of 1 hour no material has flowed through the mixer.
- Join, secure and rivet and/or weld new parts in accordance with repair instructions.
- Remove excessive glue with paper or cloths.

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5.0 Hardening times:

The hardening time is:

- Either 48 hours at a minimum of 15°C (room temperature) up to vehicle operational strength.
- Or 1 hour in the spraying booth (booth temperature 80°C/ object temperature 60°C) up to vehicle operational strength
- Do not use radiant heaters for hardening. Risk of adhesive being destroyed at temperatures of greater than 120°C.
- Do not apply load to glued parts until they have hardened!

6.0 Aftertreatment of bonding surfaces:

- Seal all bonding surfaces with cavity sealant.

7.0 Disposing of adhesive:

- Small amounts of mixed and hardened adhesive residue can be disposed of as domestic waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

41 00 ... CORROSION PROTECTION

NOTE: Following repairs, the corrosion protection work already begins with the correct removal of the PVC undercoating, antinoise compound and seam seals.

1.0 Removing sealing materials:

IMPORTANT:

- **Do not burn off PVC material with a gas burner or similar or heat to temperatures above 180°C. This would generate highly corrosive hydrochloric acid and release harmful fumes.**
- **The new lining does not form a satisfactory bond with burnt PVC material which means that subsequent sub-surface rust may set in.**

Remove PVC material with a rotating steel brush, or heat PVC to maximum 180°C with a hot air blower and scrape off with a spatula.

2.0 Corrosion protection of sheet-metal parts:

All weld joints sealed off with body sealing compound in original state must be primed and sealed off again thoroughly after repairing. Replace damaged or removed antinoise compounds.

NOTE: Spray gun required for body sealing compound (order no. 81 49 0 300 887).

Concluding cavity protection is the most important part of all corrosion protection measures.

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Use the cavity protection spray only for smaller-scale straightening work where the parts in question are easily accessible. Use the HRS spray gun with pressure container for all other repairs. Cavity protection agent is available in different container sizes.

Use the relevant probes with tubes for the different cavity areas.

Required tools are featured on the Workshop Equipment Planning CD (WEP).

IMPORTANT: Incorrectly performed cavity protection can, especially in the case of steel/aluminium joints, give rise to a non-calculable product liability and safety risk.

The best repair is worth nothing if the subsequent cavity protection measures are not conscientiously carried out.

2.1 Cavity protection of steel parts:

New doors and lids must be sealed with cavity protection agent after being painted.

New sheet-metal parts or cavities, weld seams and folds formed by new sheet-metal parts must be sealed with cavity protection agent after being painted.

The cavities affected must be sealed with cavity protection agent after all straightening work.

2.2 Cavity protection of aluminium parts:

New doors, lids and side panels made of aluminium are not sealed with cavity protection agent.

After all straightening work on aluminium components, the cavities affected must be sealed with cavity protection agent after being painted.

After all welding work (E52 only) on aluminium components, the cavities affected must be sealed with cavity protection agent after being painted.

Cavities, seams and folds formed from new sheet-metal parts must be sealed with cavity protection agent after being painted.

41 00 ... FRAME ALIGNMENT CONTROL DIMENSIONS, BODY

Dimensions in mm.

Measurement tolerances:

- less than 1000 mm ± 1 mm
- Greater than 1000 mm ± 2 mm

The control points shown serve to check the body and the straightening attachment.

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The specified dimensions/measurements always refer to the centrepoint of the bore/screw.

Underbody view 1

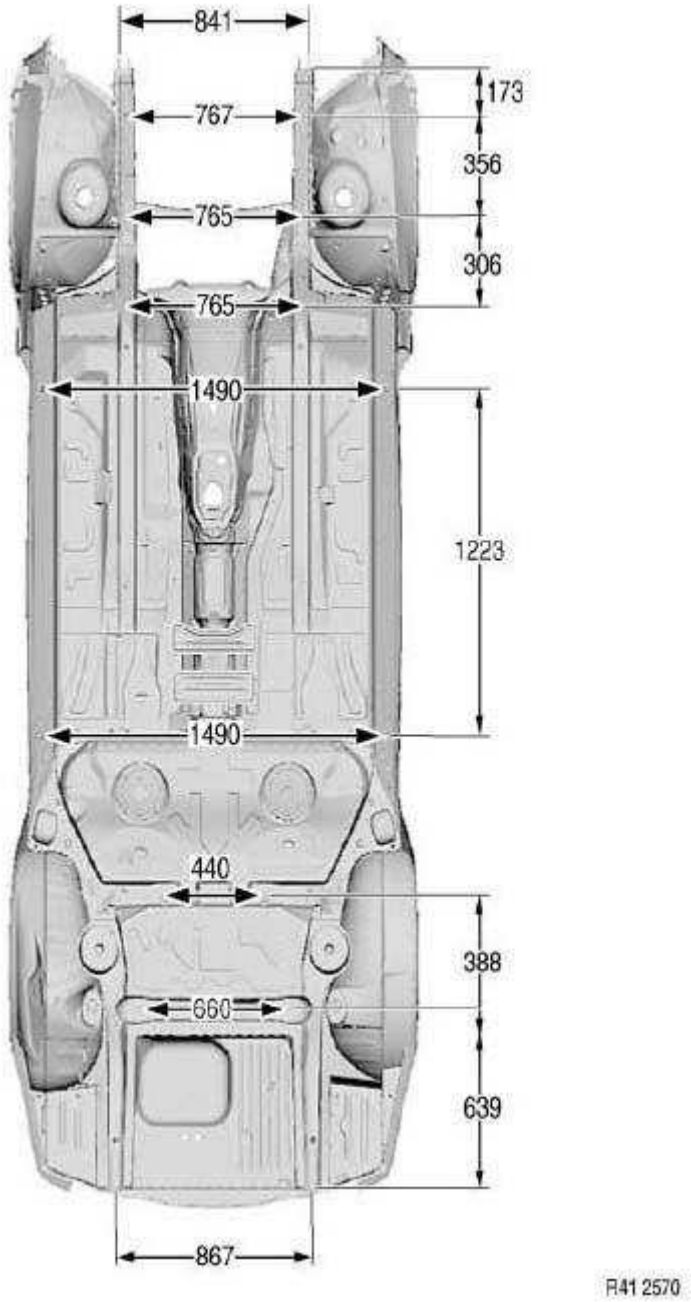


Fig. 1: Frame Alignment Control Dimensions - Underbody View (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Underbody view 2

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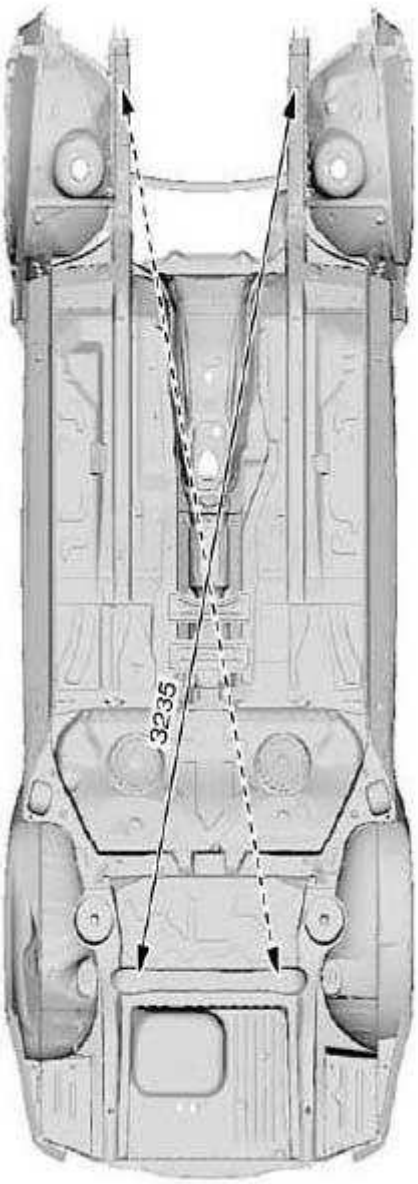


Fig. 2: Frame Alignment Control Dimensions - Underbody View (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Top view, front end

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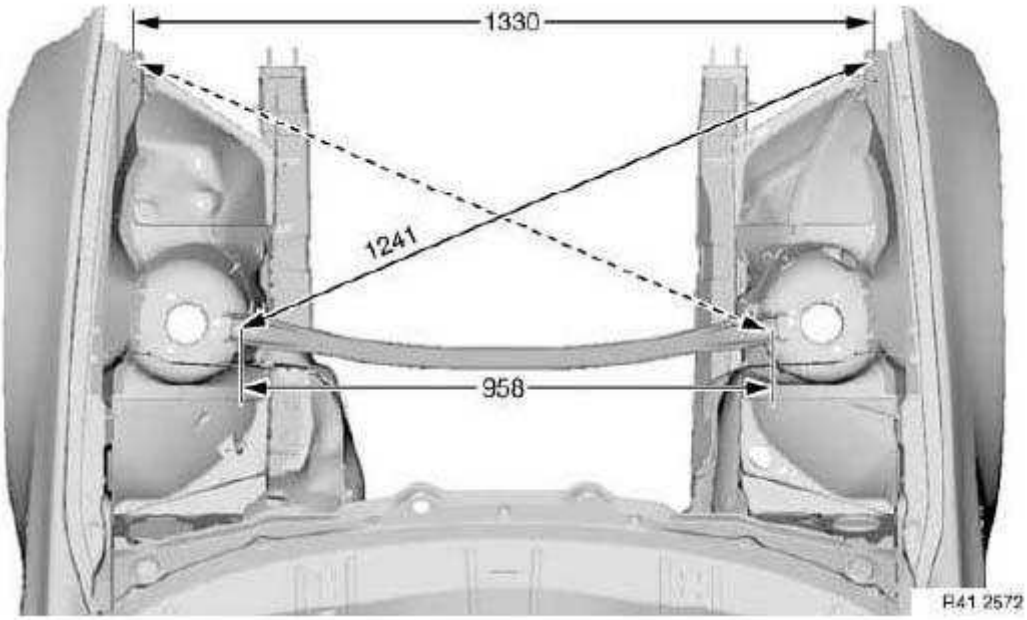


Fig. 3: Frame Alignment Control Dimensions - Top View, Front End
Courtesy of BMW OF NORTH AMERICA, INC.

View, B-pillar



Fig. 4: Frame Alignment Control Dimensions - View, B-pillar
Courtesy of BMW OF NORTH AMERICA, INC.

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Measurement a=1533 mm between screw-on points of door brakes.

41 00 ... GENERAL CEMENTING INSTRUCTIONS

IMPORTANT: Conform with safety precautions! See 41 00 ... Information on hazards

- The bonding surfaces must be kept free of all types of dirt and contamination. Avoid leaving fingerprints.
- Cleanliness is the golden rule for all bonds!
- Cleaning agent: Isopropanol, acetone or spirit

Expiry date of adhesive and primer

- The adhesive cartridge and the primer are marked with a date.
- Do not use the adhesive or primer after this date.

2-component adhesive application:

- Insert adhesive cartridge in adhesive gun, remove cap and allow some adhesive to emerge. Strip adhesive components uniformly and attach mixing tube.
- Allow approx. 1 mixer length of mixed adhesive to emerge (there must be no smearing of colours). Only then apply the mixed adhesive to one side of the bonding surface.

Adhesive disposal:

- Hardened adhesive is disposed of as normal waste.
- Empty adhesive cartridges are disposed of as normal waste.
- Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

41 00 ... GRINDING STEEL PARTS

1.0 Recommended tools and equipment

- Tools are recommended for manual grinding work.
- Machines/equipment are recommended for machine grinding work.

2.0 Grinding outer shell and structure

Always replace abrasives which have already been used to treat aluminum (risk of corrosion).

Do not grind the material thin.

41 00 ... HANDLING AIRBAGS AND RESTRAINT SYSTEMS

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1.0 Airbags and restraint systems

- On vehicles with airbags and restraint systems, observe the relevant safety instructions, see **41 0 Contents of Body, General**.
- During straightening work on the body, you will be exposed to the risk of accidental airbag triggering when the battery is connected.

Due to this potential hazard, it is essential to disconnect the battery negative lead prior to welding and straightening work. Prior to disconnecting the negative lead, interrogate the fault memories of the control units if necessary.

41 00 ... HANDLING ELECTRICAL AND ELECTRONIC EQUIPMENT

1.0 Battery

- There is a risk of explosion when welding or grinding work is carried out in the vicinity of the battery. The battery must be removed. Prior to removing the battery, interrogate the fault memories of the control units if necessary.

2.0 Control units

- The following hazards are present when the battery is connected:
  - Damage to control units during welding work on the body.
  - Accidental triggering of airbags during straightening work on the body.

Due to these potential hazards, it is essential to disconnect the battery negative lead prior to welding and straightening work. Prior to disconnecting the negative lead, interrogate the fault memories of the control units if necessary.

- Control units are designed for a temperature of 65°C. The temperatures in a spraying booth do not pose any problems. If a vehicle is inside the spraying booth at an indicated temperature of 80°C, the actual temperature of the vehicle will be greater than 60°C (object temperature).
- Protects control units against the effects of heat at temperatures > 65°C (e.g. during welding and drying with an infrared radiator or hot air blower).

3.0 Electric cables and wiring harnesses

- Protect electric cables and wiring harnesses against damage (e.g. during straightening and grinding work).
- Protect electric cables and wiring harnesses against the effects of heat at temperatures > 65°C (e.g. during welding and drying with an infrared radiator or hot air blower).
- Do not kink electric cables.

4.0 Optical fibers

- Follow instructions for handling optical fibers.

41 00 ... INFORMATION / WARNING LABELS

Missing or damaged information/warning labels (e.g. tyre inflation pressure) must be replaced.

--> Overview of installation locations, see **00 00 ... INFORMATION/WARNING LABELS**

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41 00 ... INFORMATION ON HAZARDS

1.0 Aluminum

INFORMATION ON HAZARDS CHART

Hazards / effects	Measures / regulations
Repair stage 1: (replacement of bolted parts, dent removal) Repair stage 2: (structural repairs with bonding and riveting)	○ When a vehicle outer shell is ground, aluminum dust accumulates in small amounts. This dust can be removed with conventional extractor systems.
Repair stage 3: (structural repairs with welding) ○ Explosion hazard due to high concentration of fine aluminum dust. Arising e.g. during straight-through grinding of coated parts in the base material and large-surface grinding of bright-finish parts. ○ Explosion hazard due to swirling up of fine aluminum dust in cavities. Created by the necessary, thorough cleaning of machining surfaces and tools before and after machining aluminum.	○ Avoid high concentration of fine aluminum dust by means of continuous extraction. ○ Use explosion-proof extractor systems. ○ Do not use compressed air when cleaning the work bay. ○ Avoid swirling up dust when cleaning the work area.
○ Spontaneous combustion of fine aluminum dust when ignition and fire sources are drawn in. E.g.: hot splinters, grinding sparks, cigarettes etc.	○ Do not operate ignition and fire sources in the intake area of extractor systems.

41 00 ... INFORMATION ON VEHICLE PROTECTION

○ Vehicle components which are situated in the repair area or exposed to heat, flying sparks or dust must be removed or covered.

IMPORTANT: Do not use combustible or contaminated coverings.

41 00 ... INSTALLATION OF A CAVITY SEAL WITH CAVITY FOAM

IMPORTANT: The cavity foam may only be use for cavity sealing at the points at which cavity sealing is present as standard!

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The following repair represents the replacement of a shaped part for the cavity seal by the use of cavity foam.

This type of cavity sealing is used at points at which shaped parts cannot be used for repairs.

This is the case when large amounts of heat occur (e.g. due to welding, soldering or tin-plating) in the direct vicinity or at the point of the standard cavity sealing.

It is not possible here to install shaped parts for the cavity seal because of the fire risk!

To replace shaped parts with cavity foam at further locations, adopt the procedure shown here and adapt it to the relevant conditions.

It must be ensured that the cavity is completely sealed off.

NOTE: Check the accessibility for the spraying pipe of the cavity foam to the affected cavity after removing the damaged part.

Properties of cavity foam:

- 2K-PUR foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.

IMPORTANT: Observe processing instructions and safety precautions on the spray can!

- **Use by date on can.**

  Do not use the spray can after the use-by date has expired as the properties of the cavity foam would no longer meet the requirements of the BMW Group.

- **Before applying to the vehicle, fill a clearly visible cavity of corresponding size with foam on a used part.**

  This enables an optimal dosage (i.e. spraying time) to be specified for filling the cavity on the vehicle with foam.

- **Backing surface must be clean and free from dust, grease, oil and stripping agent.**
- **Tape off open passages to visible areas with adhesive tape to prevent foam from escaping.**
- **Application time after mixing: within 8 minutes.**
- **Do not eat, drink or smoke during this operation.**
- **Completely empty open can after use.**

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- **Cavity sealing of repair area possible after an air drying time of 1 hour.**

41 00 ... INSTALLING A CAVITY BULKHEAD (EXPANDED)

NOTE: Carry over schematic representation to the relevant vehicle type.

The following repair represents the procedure for an already expanded cavity bulkhead.

The cavity bulkhead remains on the body in this instance.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).

Clean contact surface (1) with spirit.

Apply an approx. 15 mm high bead (2) of original BMW window adhesive to contact surface (1).

Fit, secure and weld up new part.

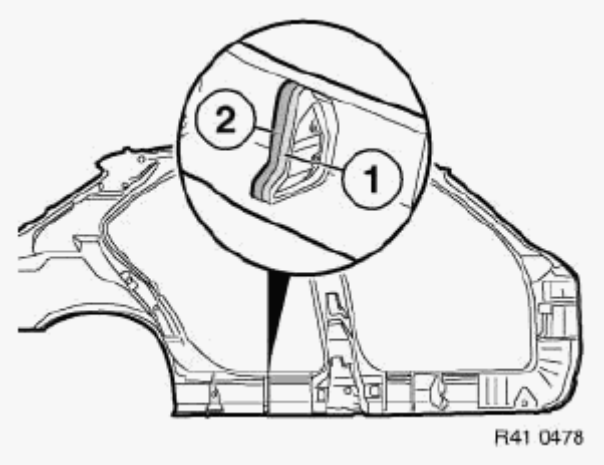


Fig. 5: High Bead And Contact Surface
Courtesy of BMW OF NORTH AMERICA, INC.

WARNING: Ensure adequate ventilation over entire processing period.

41 00 ... INSTALLING A CAVITY BULKHEAD (NOT EXPANDED)

NOTE: Carry over schematic representation to the relevant vehicle type.

The following repair represents replacement of a cavity bulkhead.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying

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welding primer etc.).

Sand contact surface of cavity bulkhead (1) with coarse-grained abrasive paper (grain 50 - 100).

Clean contact surface (1) with spirit.

Apply an approx. 15 mm high bead of original BMW window adhesive to contact surface (1).

Attach cavity bulkhead in specified position (see old part).

Fit, secure and weld up new part.

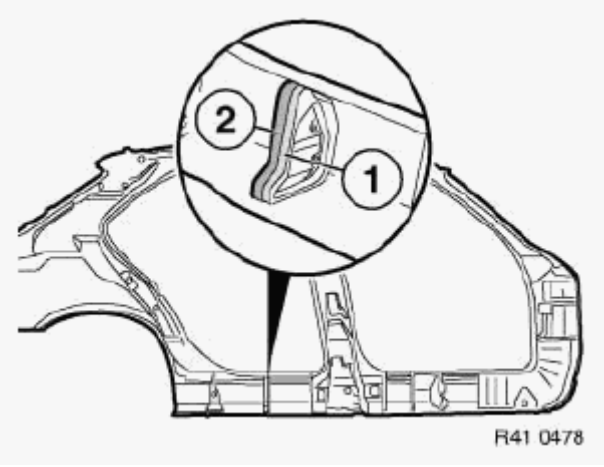


Fig. 6: High Bead And Contact Surface
Courtesy of BMW OF NORTH AMERICA, INC.

WARNING: Ensure adequate ventilation over entire processing period.

41 00 ... MATERIALS SCIENCE

1. **Aluminum**
    1. **Chassis and suspension components**

       Read and observe the Notes on chassis and suspension components before handling aluminum.

    2. **Material influences**

       MATERIAL INFLUENCES REFERENCE

Causes	Effects / remedies
	This plating process causes aluminium to be removed from the joint. This results in surface corrosion or pitting. New parts and accessory parts which have been

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A galvanic element is created under the effects of moisture by contact with materials such as copper, tin, nickel, iron and zinc.	approved by the BMW Group for aluminum (screws, washers, nuts etc.) have undergone special surface treatment. Such parts must not be replaced by conventional parts. **NOTE:** **Damaged parts lose this protection and must be specially coated or replaced.** **Damage caused by contact corrosion is excluded from the warranty.**
Materials also used for work on steel components can implant steel particles in the softer surface of an aluminium component.	Surface corrosion or pitting occurs. A separate tool kit is available for processing/machining aluminum.
Surfaces are attacked when fluxing agents are used.	Soldering is not permitted for joining aluminum components. Risk of corrosion from chemical factors.
Aluminum/steel grinding dust from adjoining work areas.	This results in surface corrosion. Erection of protective barriers.

3. **Machining properties**

MACHINING PROPERTIES CHART

Properties of aluminum compared with steel	**Effects**
Aluminum parts are magnetically neutral.	Attachment with magnetic tools/working aids is not possible.
Elasticity is only 1/3 as high. Elongation failure is approx. 50% slighter.	Convertibility is limited in comparison with steel. Overstretching the material results in strain-hardening and an increased tendency of cracking.
Electrical conductivity is almost 4 times higher.	Electric welding procedures require different equipment (MIG welding).
Material expansion during heating is twice as high.	The material expands more markedly. Shorter heat treatment is necessary for removing dents.
Thermal conductivity is 3 times higher.	Heat is drained more quickly. Adjoining working areas are affected more heavily e.g. during welding.
Microstructural change between 200°C and 250°C.	Elongation characteristics and thus plasticity are improved. Strength is reduced. **IMPORTANT:** **No heat treatment when working on the vehicle structure!** **Temperature cannot be monitored to sufficiently exact levels in garages.**
	The melting point is 650°C. Once the melting temperature has been reached, the material begins to flow without any further indications.

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Aluminum shows no annealing colors.	The temperature can only be estimated by means of the paint coloring and the surface warpage. **IMPORTANT:** **Do not use thermal applicators. Not suitable for garage use because the paint runs too quickly.**

4. **Mounting**

MOUNTING REFERENCE

Characteristic features of aluminum	Special measures
Corrosion (ageing) in damp environments.	Store aluminum parts in a dry place.
Contact corrosion in event of contact e.g. with steel parts.	Always store aluminum parts separately or in isolation from steel parts.
Susceptibility to paint infiltration.	Do not damage protective surface layer since this would cause oxidation. Failure to comply with this requirement would result in more painting work.

41 00 ... NOTES ON REPAIRING THREADS

IMPORTANT: Install Helicoil thread inserts so that they are flush with the original thread.

NOTE: Damaged threads may be repaired with Helicoil thread inserts. Comply with the procedure described in the example.

SCREW/BOLT SPECIFICATION

Screw/bolt connection	Vehicle	Screw/bolt fastening point(s)	Helicoil thread insert
Front axle carrier to engine carrier	E46	All	M12x1.5x18
	E53	All	M12x1.5x18
	E60, E61, E63, E64	Front, middle	
		Rear	M12x1.5x18
	E65, E66, E67	All	M12x1.5x18
	E70	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18
	E81, E87	All	M12x1.5x18
	E90, E91, E92, E93	All	M12x1.5x18
Bracket, control arm, to engine carrier	E46, E85, E86	All	M10x1.5x15
	E46	All	M12x1.5x18

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Rear axle carrier to frame side member	E53	All	M14x1.5x21
	E60, E61	All	M14x1.5x21
	E63, E64	All	M14x1.5x21
	E65, E66, E67	All	M14x1.5x21
	E70	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18
	E81, E87	All	M12x1.5x18
	E90, E91, E92, E93	All	M12x1.5x18
Bearing block, trailing arm to side member	E46, E83, E85, E86	All	M12x1.5x18

41 00 ... OPENING ADHESIVE BONDS

1. Opening spot-weld bonds
   - Set punch mark in centre of weld spot. Set 8 mm dia. weld spot drill bit on punch mark and drill through top metal sheet.

     Or open weld spot with Vario Drill spot welding cutter.

     NOTE: Because the weld spots may have surface-hardened, grind them if necessary with an angle grinder and paper grinding disk.

   - Heat connecting flange with a hot air blower.

     CAUTION: Extract vapours and gases.

   - Release connection flange with chisel.
   - Grind off residual adhesive from connecting flange.

     CAUTION: Wear a grinding dust mask.

2. **Opening adhesive bonds on aluminium parts**
   - Remove punch rivets or blind rivets, see **41 00 ... Riveting aluminium parts**.
   - Roughly cut out damaged component. The component can be peeled with the aid of pliers. If necessary, heat bonding flange with hot air blower.

     CAUTION: Heat only the damaged component with a hot air blower. Extract vapours and gases.

   -

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- Grind off residual adhesive from connecting flange.

  CAUTION: Wear a grinding dust mask.

- If engine carrier part replacement on the GRAV is carried out repeatedly, cut the damaged part at the existing cutting line. Heat bonding flanges with a hot air blower. Peel off remnants of expander elements with pliers.

3. Opening adhesive bonds on carbon-fibre-reinforced plastic parts

   Procedure is described in detailed in the relevant repair instructions.

41 00 ... OPENING WELD JOINTS

1. **Opening weld spots (resistance pressure spot welding):**
   - Set punch mark in center of weld spot. Set 8 mm dia. weld spot drill bit on punch mark and drill through top metal sheet.

     Or open weld spot with Vario Drill spot welding cutter.

     NOTE: Because the weld spots may have surface-hardened, grind them if necessary with an angle grinder and paper grinding disk.

2. **Opening laser weld seams:**
   - Place angle grinder with grinding disk on laser weld seam and grind through top metal sheet. Be careful not to cut through and damage sheet metal underneath.

41 00 ... QUALITY STANDARD

- The overall requirements relating to a vehicle can only be implemented by including "all" components. This applies in particular to the body. With regard to an optimum crash result, it is necessary to maintain the structural measures.

  It is absolutely essential to observe the procedures set out in the repair instructions. Any deviation from these procedures will only be permitted after prior consultation with and approval by BMW. Should you have any questions, please contact the country-specific Hotline.

  The use of non-approved repair steps or tools may have serious consequences for the structure of the vehicle (e.g. in the event of a crash). In the end, this can result in safety and product liability risks which cannot be calculated.

  Corrosion protection measures during and after repairs are absolutely essential to maintain the value of the vehicle.

- Use only genuine BMW parts and approved auxiliary devices, materials and operating fluids when

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carrying out repairs.

41 00 ... RIVETING ALUMINIUM PARTS

1.0 Recommended tools and equipment

- Stud welding apparatus with gas bottle containing inert gas (82 % argon, 18 % CO 2)
- Stainless steel stud
- Universal riveting tool
- Hand riveting tool for blind rivet nuts and blind rivet bolts

2.1 Extracting punch rivets:

- Grind off paint and dark grey coating of punch rivets.
- Position bolt centrally on the rivet and weld on vertically. The area in which the bolts are welded on should be between the two grounding terminals. Position both terminals, if possible, on the top side of the metal plate on which the rivet is located.
- Extract bolt with welded-on rivet using universal riveting tool. Use a large plastic nose piece if not otherwise specified in the repair instructions. Check plastic nose piece prior to use for wear.
- Plastic nose piece must rest on sheet metal all round; if necessary, grind off plastic noise piece in collision area.

  Do not push riveting tool forcefully onto special-steel bolts.

  Do not use riveting tool to bend special-steel bolts.

- Pay particular attention to central positioning of the bolt when using the small plastic mouthpiece.
- Follow the equipment manufacturer's instructions for use.

2.2 Drilling out punch rivets:

Only if extraction proves repeatedly unsuccessful or the rivet cannot be accessed with the universal riveting tool.

- Drill out rivets with a 6 mm dia. carbide drill bit.
- Punch rivets can be drilled out on both sides. When drilling from the protruding rear side, spot-drill the rivet shank only and remove the rest with a rivet punch.
- Use a drift punch to remove all punch rivet remnants in the aluminium (risk of corrosion).
- Clean vehicle to remove all traces of chips (risk of corrosion).

2.3 Drilling out blind rivets:

Only when a part is repeatedly replaced.

- Drill out **rivet head only** with 6 mm dia. metal drill bit. Knock out rivet remnants with a drift. Use existing 6.7 mm hole for blind rivet.
- Clean vehicle to remove all traces of chips and rivet remnants (risk of corrosion).

3.0 Blind riveting in conjunction with bonding

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- The standard punch rivets are always replaced by blind rivets in conjunction with bonding.
- The required strength of the connection is only achieved through a combination of bonding and riveting.

4.0 Setting blind rivets:

- Refer to repair instructions for rivet size (size 13 or size 15 with 6.5 mm dia. or 4.0 mm dia.).
- Position blind rivets in the same locations as the extracted punch rivets. Exceptions are described in the relevant repair instruction. If necessary, carry over the positions of the rivets to the new component.
- Drill holes (4.2 mm dia. for 4 mm rivet and 6.7 mm dia. for 6.5 mm rivet).
- Apply adhesive.
- Insert blind rivet. The riveting direction is the same as the line of vision in the picture shown in the repair instruction (e.g. from wheel arch into engine carrier).
- Universally rivet blind rivet with riveting tongs.
- Seal blind rivet with PU sealing material (risk of corrosion).
- Seal cavities with preserving agent (risk of corrosion).

5.0 Setting blind rivet nuts and blind rivet bolts:

- Standard stud welding is always replaced by blind rivet bolts.
- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet bolts).
- For corrosion reasons, blind rivet nuts and bolts must have a special coating.

  Use the blind rivet nuts and bolts supplied in the case of the manual riveting tool for steel only!

- Insert blind rivet nuts or bolts and tighten down with the riveting tool.
- It will no longer be possible to set a blind rivet nut if the drilled hole is too big. In this case, set a clip nut. This nut tightens itself automatically when screwed to the component.
- Seal blind rivet nuts and bolts with PU sealing material (risk of corrosion).

41 00 ... RIVETING STEEL PARTS

1.0 Recommended tools and equipment

- Manual riveting tool for blind rivet nuts and bolts.

2.0 Setting blind rivet nuts and blind rivet bolts:

- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet bolts).
- Blind rivet nuts and bolts must have a special coating for corrosion reasons.

  Use the blind rivet nuts and bolts supplied in the case of the manual riveting tool for steel only!

- Insert blind rivet nuts or bolts and tighten down with the riveting tool.

41 00 ... SAFETY AT WORK

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1.1 Working with aluminum dust:

- Wear a fine dust mask.
- E52 only: Use an explosion-proof extractor system.
- Note national regulations.

1.2 Removing sealing materials

- Hydrochloric acid is created when PVC sealing material is heated to temperatures in excess of 180° C.
- Remove PVC sealing material with a rotating wire brush only or heat material with a hot air blower to max. 180°C and remove with a spatula.
- Ensure that all enclosed areas are well ventilated or are provided with direct extractor facilities.

1.3 Arc welding and brazing:

IMPORTANT: The extremely bright arc during welding may cause serious injury to the eyes if appropriate protective measures are not taken.

- Use a special welding screen* for the relevant welding process (MAG or MIG).
- Partition off the work bays with beam protection screens*.
- Use a welding-emissions extractor facility*.
- The welder must wear protective clothing* and gloves* which are suitable for welding (i.e. flameproof).
- A fire extinguisher must be located within reach of the welding area.
- Do not carry out any welding work in the proximity of a fuel tank e.g. when it is installed.
- Note national regulations.

1.4 Working with adhesive products (adhesives, cleaning agents, primers etc.):

IMPORTANT: Handling adhesives can trigger off allergic skin and breathing reactions.

- Do not eat, drink or smoke during this operation.
- Avoid direct contact with eyes and skin.
- Wear protective goggles, protective gloves and if necessary an apron.
- Ensure that all enclosed areas are well ventilated or are provided with direct adhesive fume extractor facilities.
- Work clothing which has been contaminated with adhesive or solvent must be changed immediately.
- After finishing work, wash your hands and apply protective skin cream.
- Always keep an eye bath on hand, change the water regularly (once a month).
- Store adhesive products in a secure cabinet only.
- Keep adhesive products away from naked flames and other ignition sources.
- Protect adhesive products against strong heat sources and direct sunlight.
- Note national regulations.

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First Aid:

In the event of eye contact, flush immediately with running water for approx. 10-15 minutes and, if necessary, visit eye specialist.

In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. If necessary, consult a doctor.

If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.

If adhesive fumes are inhaled, ensure a constant supply of fresh air, keep calm, keep respiratory tracts unobstructed and consult a doctor.

41 00 ... SPOT-WELD BONDING STEEL PARTS

IMPORTANT: Comply with the following topics from "Body, General":
Safety regulations, see 41 00 ... Information on hazards.
Handling electrical/electronic equipment, airbags and restraint systems, see 41 00 ... Handling airbags and restraint systems.
Welding steel parts, see 41 00 ... Welding and soldering steel parts.

- The spot-weld bonding process is used starting from the E65 to increase vehicle rigidity. In partial bodywork areas, a 1-component adhesive is applied to the spot flanges and this is followed by resistance pressure spot welding. The adhesive is hardened only after the paint drying process (at approx. 180°C).
- In the case of repairs, adhesive is not applied to the spot flanges. The number of welding spots is doubled as a substitute for the omitted adhesive.
- The following processes are used as a substitute for spot-weld bonding:
  - MAG welding (**M** etal **A** ctive **G** as welding)
  - Resistance pressure spot welding (referred to in the following and in the repair instructions as spot welding).
- Adhesive is not applied between the spot flanges on new parts in the case of 2 - or multi-sheet joints. Areas which cannot be reached by the spot-welding tongs can be joined by MAG spot welding. The number of welding spots is doubled as a substitute for the omitted adhesive.

  Exceptions (e.g. E65) are described in the relevant repair instructions. Apply welding spots to existing welding spots on new part. This is necessary because the adhesive between the spot flanges of the new part acts as an insulator.

  CAUTION: Extract smoke and fumes during welding work.

-

41 00 ... STAMPING VEHICLE IDENTIFICATION NUMBER

Special tools required:

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- **41 0 000 PUNCH NUMBERS/LETTERS/SPECIAL CHARACTERS**
- **41 1 130 FIXTURE**
- 41 1 131 **41 1 130 FIXTURE**
- 41 1 132 **41 1 130 FIXTURE**
- 41 1 133 **41 1 130 FIXTURE**

NOTE: If the stamped vehicle identification number is removed during repair work, it must be stamped in again.

Read and comply with General Information .

Necessary preliminary tasks:

- Remove battery positive terminal

Special tool kit 41 1 130 for stamping vehicle identification number consists of:

Basic body 41 1 131

Die-plate 41 1 132

Spindle 41 1 133

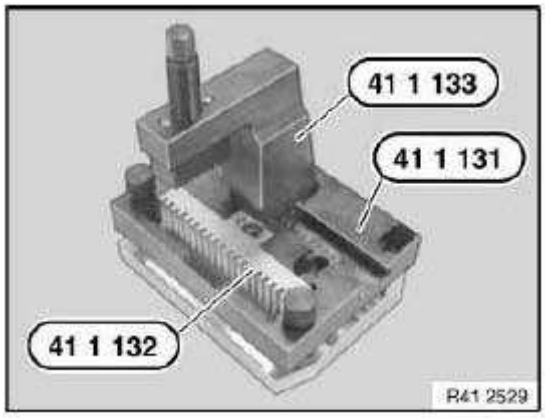


Fig. 7: Special Tool
Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 41 1 130 over assembly compartment partition wall (1).

Tighten screws (2).

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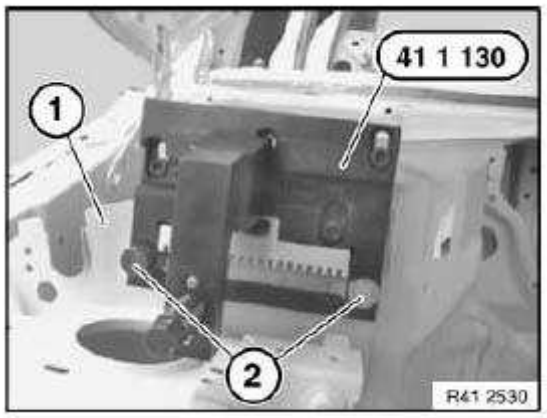


Fig. 8: Compartment Partition Wall And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Insert stamp numbers 41 0 000 individually into die-plate.

Position spindle 41 1 133 centrally over stamp number 41 0 000 and tighten spindle to 20 Nm.

Repeat procedure for each number.

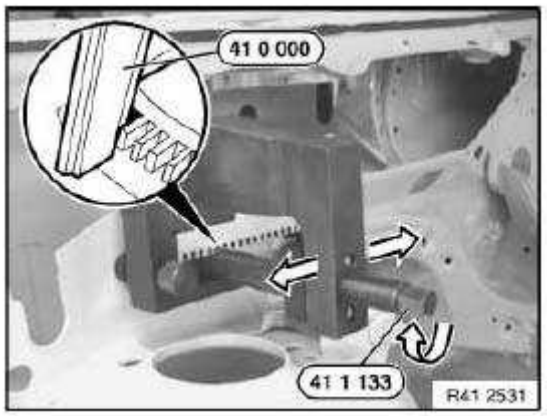


Fig. 9: Special Tool (41 0 000 And 41 1 133)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: In the event of component or body replacement by the workshops/garages, clearly delimit the vehicle identification number at front and rear by stamping a "+" in place of the BMW emblem.

Note national regulations.

41 00 ... STRAIGHTENING STEEL PARTS

1.0 Recommended tools

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Only use those tools designed for steel repairs.

2.0 Straightening outer shell

- "Cold" straightening: Press dents out from their centre and smooth in an inwards direction with gentle taps.

  In the case of small, soft dents (hail and parking damage), this is also possible without damaging the paintwork. This work requires a special tool and a trained worker.

- "Hot" straightening: Heat dents in their central point only with a gas flame until bright red hot. Then quench the material with a wet cloth.
- Stud welding can be used in the case of damage where access is only possible from one side. Weld on the stud in the middle of the damaged area. The steel pin or shim is driven out using a hammer until the depression is removed. The stud, pin or shim is then ground or twisted off.
- Avoid cracking.
- Avoid hardening and overstretching.
- Avoid heating and overheating the outer shell over large areas.
- If, after steel parts have been straightened, the surface shows no dents larger than 2 mm, these dents may be touched up with knifing filler.

  Dents larger than 2 mm must be treated with filling solder.

  NOTE: Only applicable within the European Union!

  European used-car regulations prohibit the use of tin containing lead in motor vehicles introduced after 01.07.2003!

- For safety vehicles, follow the special notes and information in the repair instructions.

3.0 Straightening structure

- Repairs affecting the mounting points of assemblies and chassis/suspension components must be carried out on the straightening bench with the matching straightening attachment set or specification sheet for the vehicle.

  Straightening attachments and specification sheets are also available for the top section, e.g.: door pillars, convertible top mounts, cowl, rear lid hinges, etc.

- Check windshield and rear window apertures for curvature by inserting the original glass.
- Take the gap dimensions for doors, engine hood and rear lid from the vehicle-specific gap dimension diagram.
- Bearing body components such as e.g. engine carriers, door pillars, frame side members etc. with deformations which can no longer be returned to their original shape by "cold straightening" must be replaced.

  Heating bearing body components for better reshaping is not permitted!

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Failure to comply with this requirement would result in a loss of original strength of up to 40 %.

- High-strength and super-high-strength steel plates as a rule cannot be reshaped. Reshaping only serves as a preparatory measure to replacing the component in order to achieve optimal joining of the connection points.
- **The body must be anchored as follows for reshaping:**

  If using vehicle-specific/universal straightening attachment sets (Carbench/ Celette), it is necessary to secure the body **additionally** with 4 retaining clips to the spot flange of entrance or to the 4 jacking points. The spot flange (if available) is to be preferred.

  If using universal electronic or mechanical straightening systems (Car-O-liner/ Celette), it is necessary to secure the body with 4 retaining clips to the spot flange of entrance or to the 4 jacking points. The spot flange (if available) is to be preferred. **In addition** anchor at least 2 points with the securing set.

  Failure to comply with these instructions will result in damage to the body during reshaping in non-damaged areas. Vehicle-specific straightening attachments and universal mounts may be damaged.

41 00 ... USE OF MATERIALS IN OUTER SHELL

The following illustration is a schematic representation of all the body variants.

Apply this illustration to the relevant vehicle.

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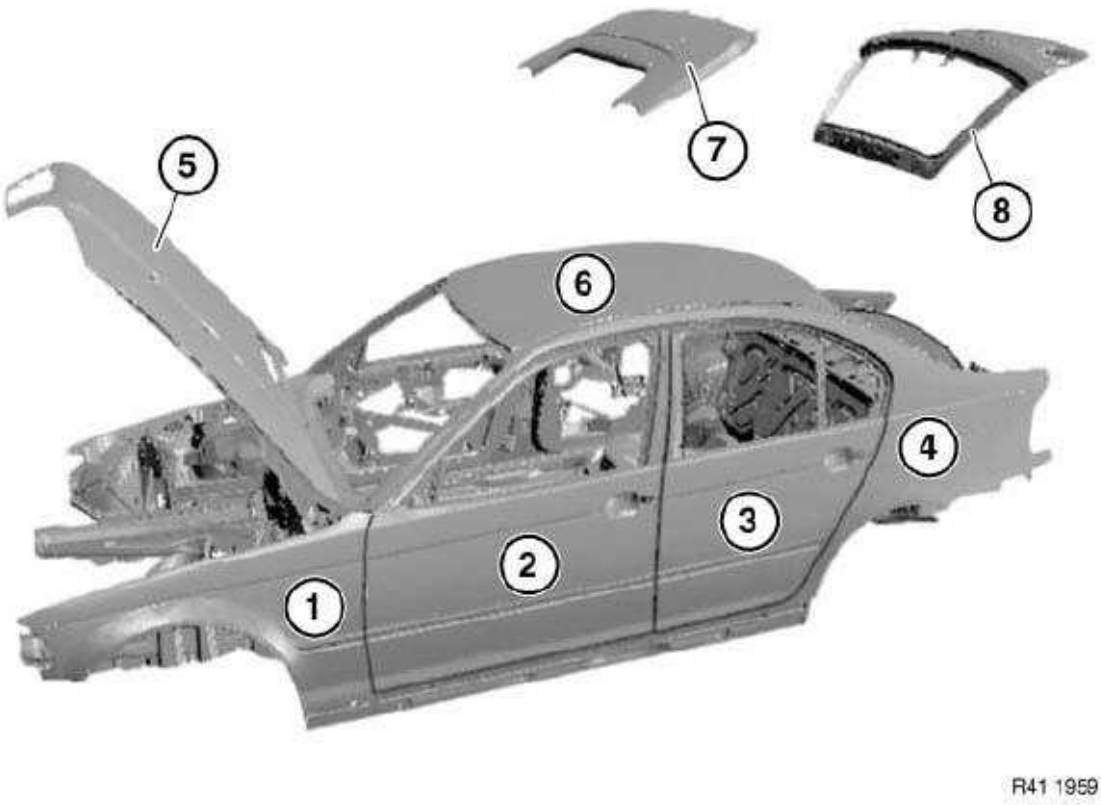


Fig. 10: Side Panel, Front Panel And Engine Hood
Courtesy of BMW OF NORTH AMERICA, INC.

All components not listed in the table below are composed of established sheet steel qualities.

COMPONENTS MATERIALS CHART

Component	Vehicle	Material
(1) Side panel, front	E52 (Z8)	Aluminium
	E60, E61	Aluminium
	E63, E64	Plastic (thermoplastic)
	E65, E66:	Aluminium
	E70, E92, E93	Plastic (thermoplastic)
(2) Front door	E36/C (M3)	Aluminium or steel
	E36/2 (M3)	Aluminium or steel
	E52 (Z8)	Aluminium
	E63, E64	Aluminium
(4) Side panel, rear	E52 (Z8)	Aluminium
(5) Engine hood	E38 (750i)	Aluminium or steel
	E46/C (M3)	Aluminium
	E46/2 (M3)	Aluminium
	E52 (Z8)	Aluminium
	E60, E61, E63, E64	Aluminium

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	E65, E66, E70	Aluminium
	E85 (Z4)	Aluminium
(6) Hardtop/ roof	E36/C	Aluminium
	E36/7 (Z3)	Plastic (glass fibre / epoxy resin)
	E46/C	Aluminium
	E46/2 (M3 CSL)	Plastic (CFK)
	E52 (Z8)	Plastic (PU)
	E85 (Z4)	Plastic (SMC)
	E63 (M6)	Plastic (CFK)
(7) Soft top lid	E46/C	Magnesium
	E64	Plastic (SMC)
(8) Rear lid	E46/2 (M3 CSL)	Plastic (SMC)
	E52 (Z8)	Aluminium
	E63, E64	Plastic (SMC)

41 00 ... VEHICLE IDENTIFICATION NUMBER, GENERAL

The vehicle identification number must be stamped with a special tool. There are different special tool numbers and stamping procedures for the various vehicles. Refer to the relevant repair instructions.

In repair work, the vehicle identification number is always stamped into a replacement vehicle identification number surface. The replacement surface is usually situated under the original VIN surface.

The IGEF number (bodyshell number) is omitted when the wheel arch is replaced.

In the event of component or body replacement by the BMW garages/workshops, clearly delimit the vehicle identification number at front and rear by stamping a + in place of the BMW emblem.

If a VIN is stamped into the replacement surface in addition to the original VIN (e.g. if the original VIN has been tampered with), the following applies: The original VIN must be crossed out. To do so, stamp the letter I from the punch digits lengthways through the original VIN.

IMPORTANT: Do not use an angle grinder in conjunction with a cutting disk!

The protective film used as standard is omitted after the VIN has been manually stamped in. Paint area in accordance with BMW Painting Handbook. Ensure that layer thicknesses are small.

Observe country-specific regulations.

41 00 ... WELDING AND SOLDERING STEEL PARTS

IMPORTANT: Comply with the following topics from "Body, General":
Safety regulations, see 41 00 ... Information on hazards.
Handling electrical/electronic equipment, airbags and restraint systems, see 41

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00 ... Handling airbags and restraint systems.

A. **Welding steel parts:**

1. **General information**
   - The following procedures are used for repairs:
     - MAG welding (**M** etal **A** ctive **G** as welding)
     - Resistance pressure spot welding (referred to in the following and in the repair instructions as spot welding).
   - Take the number and location of weld spots and MAG weld seams from the separated part. Replace areas inaccessible to spot-welding tongs with MAG plug/spot welds at the same distance. Diameter of bores for plug/spot welds 8 mm.
   - In the case of emissions extraction, observe a minimum distance of 30 cm for MAG welding during the welding process. Otherwise the inert gas would be drawn off.
   - Follow the equipment manufacturer's instructions for use.
2. **Work materials**
   - MAG welding:
     - Steel welding apparatus.
     - Steel welding wire - G3SI1 (SG2) or alternatively G4SI1 (SG3)
     - Welding mask
     - Gas bottle containing inert gas (82 % argon, 18 % CO 2)
   - Resistance pressure spot welding:
     - Spot-welding apparatus.
     - Protective goggles
3. **Preparations for MAG and spot-welding**
   - Remove the paint coating in an area of approx. 30 mm around the weld seam or spot.
     - The zinc coating underneath must be removed during the MAG welding operation.
     - It is not necessary to remove the zinc coating underneath during spot-welding.
   - Remove the paint coating on the reverse side of the weld seam or spot.
     - Contaminants will otherwise enter the weld pool via the root of the weld seam.
     - An insufficient electron flow prevents an optimum spot-weld joint.
   - Coat all metal overlaps and weld spot flanges with welding primer.
   - To determine the optimum electrode contact force for spot-welding, carry out spot-weld shear tests on sample metal sheets.
   - In order to keep the electron flow short during MAG welding on the body, you must if possible attach the ground terminal directly to the component to be welded.
4. **Welding**
   - During MAG welding, the weld gap must be kept as small as possible. The larger the weld gap, the lower will be the strength of the joint.
   - During spot-welding, the metal flanges to be joined must be placed as close together as possible without gaps.

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The larger the gap, the lower will be the strength of the joint.

Minimum gap between welding spots 25 mm.

5. **Subsequent treatment of weld joints:**
   - When grinding a weld seam, do not grind thin the base material next to the seam.
   - After joining, clean all weld seams and spots with a stainless steel wire brush.
   - Remove burnt paint with a stainless steel wire brush.
   - All weld joints sealed off with body sealing compound in original state must be primed and sealed off again thoroughly after repairing. Replace damaged or removed antinoise compounds.

B. **Soldering steel parts:**

1. **General information**
   - The following procedures are used for repairs:
     - Gas brazing
     - Tinning
   - The MIG soldering procedure is not used in repairs for strength reasons. MIG soldered/brazed seams used in series production are replaced in repairs by MAG weld seams.
   - Areas brazed in vehicle production are joined during repairs with the same procedure.
   - It is possible when straightening steel parts to correct irregularities smaller than 2 mm with filler.

     If in exceptional cases the irregularities are in excess of 2 mm, these areas must be tinned.

     Only visible areas of the outer skin and on the support carrier must be tinned.

     All areas which have covers on the vehicle are not to be tinned.

     NOTE: Only applicable within the European Union!
     European used-car regulations prohibit the use of tin containing lead in motor vehicles introduced after 01.07.2003!

2. **Work materials**
   - Gas brazing:
     - Tube pack and torch (gas torch)
     - Brazing solder
     - Gas bottles (oxygen and acetylene)
     - Welding goggles
   - Tinning:
     - Tube pack and torch (torch for tinning)
     - Tinning paste
     - Tin

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- Gas bottle (acetylene)
- Protective goggles

3. **Preparations for brazing/tinning**
   - Heat brazed joints to be opened with an autogenous flame. Lift off remaining metal and remove remaining brazing solder with a wire brush.
   - Remove the paint and zinc coating in an area of approx. 30 mm around the seam to be soldered.
   - Remove the paint and zinc coating in the tin-plating area and approx. 30 mm beyond.
4. **Brazing/tinning**
   - Execute brazed seam without overheating the solder and with low heat dissipation. If necessary, use heat protecting paste.
5. **Subsequent treatment of brazed joints:**
   - Remove burnt residual zinc completely. Straighten, grind and tin visible connection points.
   - Remove burnt paint with a stainless steel wire brush.

41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)

In the case of a partial replacement piece, a body component is cut at a point described in the repair instructions.

A reinforcement plate is welded in to ensure sufficient strength.

Follow notes for welding steel parts, see **41 00 ... Welding and soldering steel parts**.

NOTE: The following illustrations serve as general illustrations of reinforcement plate repair work. They are applicable to all cutting repairs.

Mark component in accordance with distance A and cut.

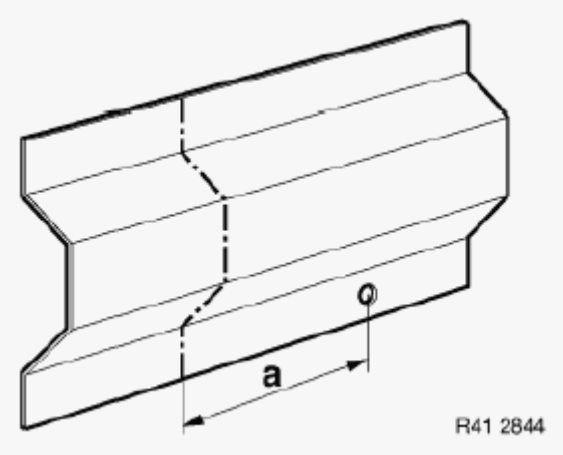


Fig. 11: Welding In Reinforcement Plate - Mark Component In Accordance With Distance And Cut
Courtesy of BMW OF NORTH AMERICA, INC.

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Cut new part (1) in accordance with cut and if necessary adjust to fit with straightening attachment or universal mount.

Installation:

Adhere to a gap at severance cut of approx. one to max. two material thicknesses in order to ensure welding with the reinforcement plate and to facilitate a more tolerant fit.

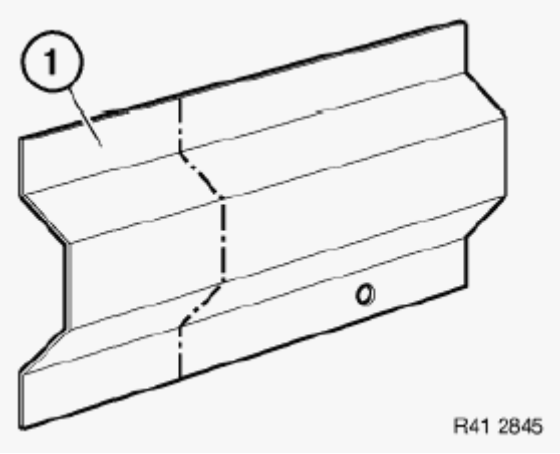


Fig. 12: Welding In Reinforcement Plate - Cut Part
Courtesy of BMW OF NORTH AMERICA, INC.

Clean inner and outer sides of connecting areas (1) on new part and (2) on body.

Coat inner sides with welding primer.

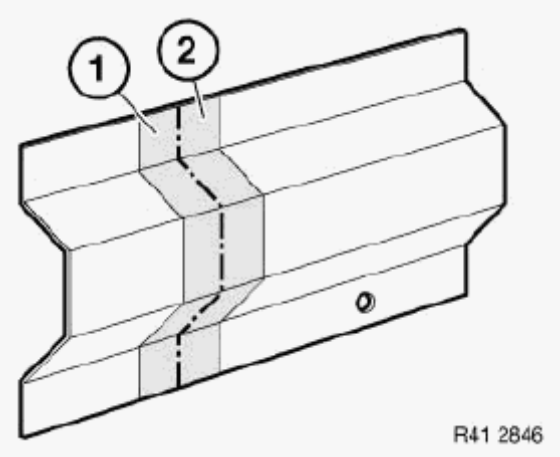


Fig. 13: Welding In Reinforcement Plate - Areas Part And Body
Courtesy of BMW OF NORTH AMERICA, INC.

Drill holes (1) and (2) at distance of 25 mm to each other.

Hole diameter approx. 8 mm.

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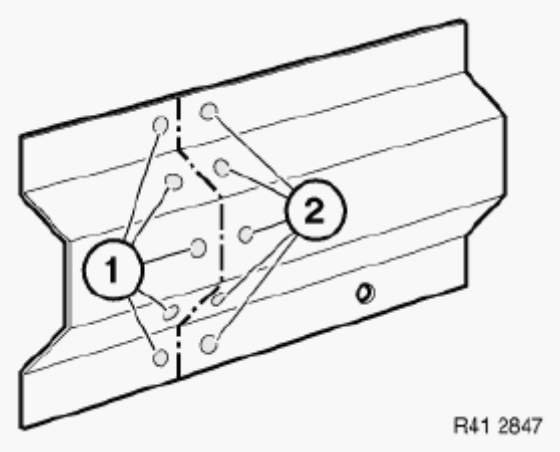


Fig. 14: Welding In Reinforcement Plate - Drill Holes
Courtesy of BMW OF NORTH AMERICA, INC.

Make reinforcement plate (1) from trim of new part.

If necessary, make further reinforcement plates.

Length of reinforcement plates is min. 40 mm.

Coat reinforcement plates (1) and (2) on both sides with welding primer.

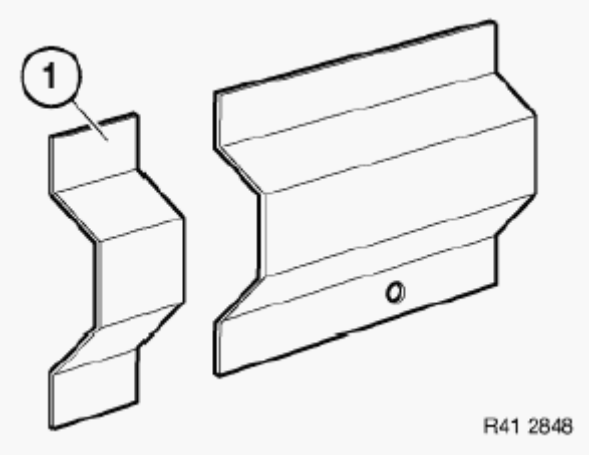


Fig. 15: Welding In Reinforcement Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Push reinforcement plate (1) into component on body up to half way and plug-weld (3).

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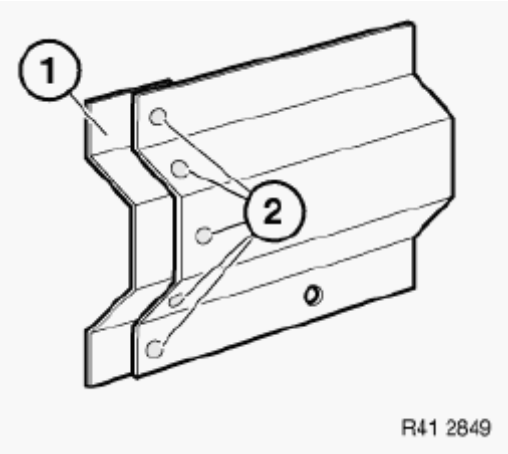


Fig. 16: Reinforcement Plate And Welding Primer
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, adjust new part (1) to fit with straightening attachment or universal mount and plug-weld (2).

MAG weld joint (3).

Grind and clean weld seam and plug weld spots.

Only visible areas of the outer skin and worn areas on the support carrier must be tinned.

All areas which have covers on the vehicle are not to be tinned.

NOTE: Only applicable within the European Union!

European used-car regulations prohibit the use of tin containing lead in motor vehicles introduced after 01.07.2003!

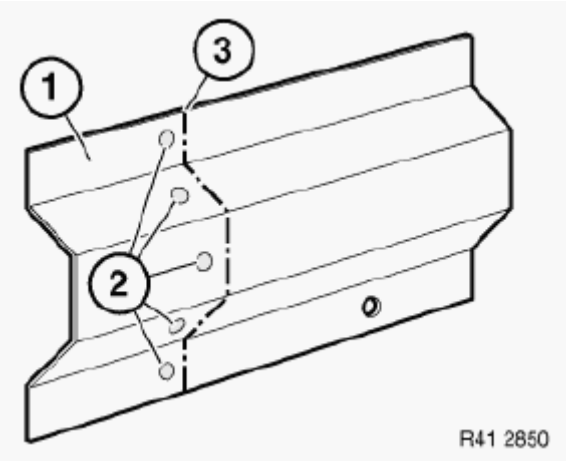


Fig. 17: MAG Weld Joint And Plug-weld
Courtesy of BMW OF NORTH AMERICA, INC.

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41 00 ... WORKSHOP EQUIPMENT

Minimum workshop equipment requirements in order to ensure the correct and expert performance of body repairs:

The tools listed below **must be used** .

TOOLS MATERIALS SPECIFICATION

	Steel		Aluminium	
Tool(1)	Structure	Outer skin	Structure	Outer skin
Bodywork tool assortment	x	x		
Aluminium bodywork tool assortment			x	x
Bodywork saw	x	x		
Single-handed grinder	x	x	x	x
Welding spot remover	x	x		
MAG welding apparatus	x	x		
MIG welding apparatus			(E52 only)	
Spot welding apparatus	x	x		
Gas welder		x		
Straightening system	x		x	
Stud welding apparatus			x	
Flame coating set			x	
Universal riveting tool			x	

(1) See Aftersales Assistance Portal (ASAP) - Service/Technical - Workshop equipment (Start BMW) - Shop Workshop equipment or under www.bmwgroup-wep.com

IMPORTANT: In vehicles from model year 2001, higher-tensile and high-tensile steels are used in certain areas.
It is essential to check whether the spot-welding apparatus used conforms to the technical requirements of the currently recommended welding sets. Should you have any questions, please contact the country - specific Hotline.
The use of technically obsolete equipment may have serious consequences for the structure of the vehicle (e.g. in the event of a crash). In the end, this can result in safety and product liability risks which cannot be calculated.

Use and restrictions:

Definition of Recommendation:

All currently recommended spot welding sets comply with the requirements relating to reliable welding of today's and future BMW Group vehicles. A spot welding unit will loose its recommendation as soon as tests with materials and material combinations designated for future use in BMW Group vehicles return negative results. All previous application before the withdrawal of the recommendation shall remain unaffected.

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DEVICE DESIGNATION MANUFACTURER CHART

	Device designation	Manufacturer
Group 1 Devices currently no longer recommended	CR500	Car-O-Liner
	Spot9000	Tecna
	ATL 400V	Wielander & Schill
Group 2 Devices currently recommended (March 2007)	MIDIspot QSVM9000	Celette
	MIDIspot QSVM9000	Elmatech
	CR600	Car-O-Liner
	Multispot MI-100 Control	Elektron

Application options and restrictions of above devices.

VEHICLE GROUP REFERENCE

Vehicle	Group 1	Group 2
E93	x Except A-pillar, B-pillar, sill	x
E70	x Except B-pillar	x
E64	x Except A-pillar, B-pillar, sill	x

NOTE: (March 2007)

All models not listed can be repaired using the Group 1 and Group 2 devices.

99 00 ... GENERAL INSTRUCTIONS ON PAINTING

General instructions and classification of paint stages are described on the KSD-CD (notes-general information on flat rate unit data, passenger car explanation for FR specifications for painting).

The marked area serves as the starting point for painting. This area may differ from the illustration for technical painting reasons.

Touching-up areas are taken into account.

11 SUPPORT MEMBERS

41 11 005 REPLACING LEFT CROSS-MEMBER MOUNTING

Read contents of Body, General, see **41 0 Contents of Body, General**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Mounting, cross-member

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Fig. 18: Mounting, Cross-Member
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

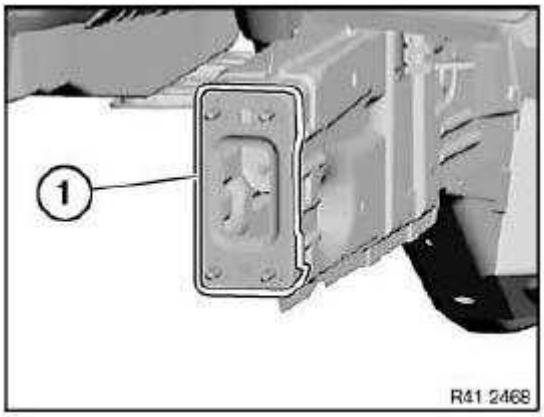


Fig. 19: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 11 028 REPLACING FRONT LEFT ENGINE CARRIER (PARTIAL REPLACEMENT BETWEEN FRONT AXLE TAKE-UPS)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Engine carrier, front
- (2) Mounting, cross-member

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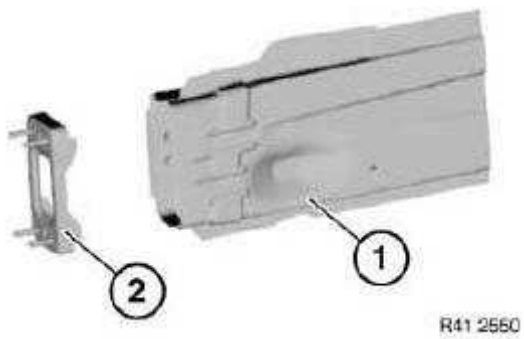


Fig. 20: Engine Carrier, Front And Mounting, Cross-Member
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with specified measurements and cut.

NOTE: Reuse metal section (3) if it is undamaged.

Measurement a=60 mm from center of 12 mm dia. bore

Measurement b=215 mm

Open weld joints in area (2).

Remove metal section (3).

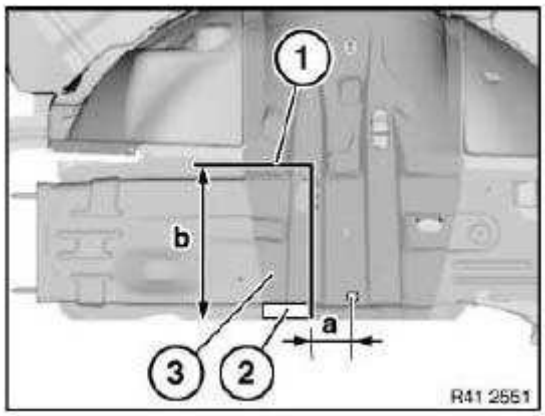


Fig. 21: Mark Severance Cut Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld in reinforcement plate, see **41 00 ... Welding in reinforcement plate (steel plate)** at severance cut (1).

Plug weld, see **41 00 ... Welding and soldering steel parts** in area (2) additionally.

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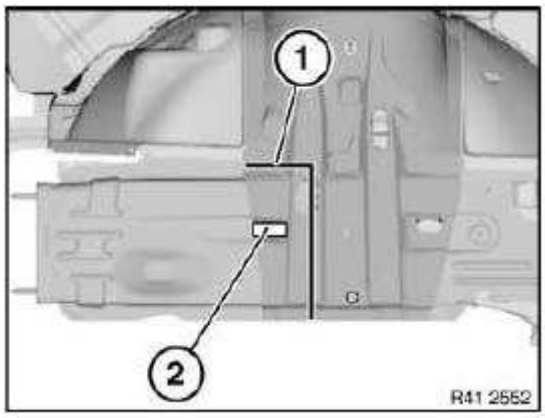


Fig. 22: Severance Cut And Plug Weld In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

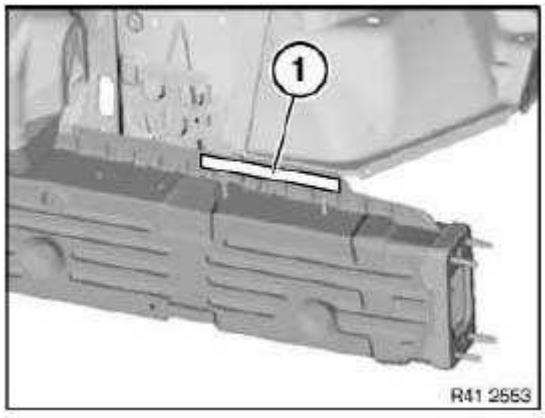


Fig. 23: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

Measurement a=190 mm

NOTE: Right side only:

Measurement a=180 mm

Installation:

Weld in reinforcement plate, see **41 00 ... Welding in reinforcement plate (steel plate)** at severance cut (1).

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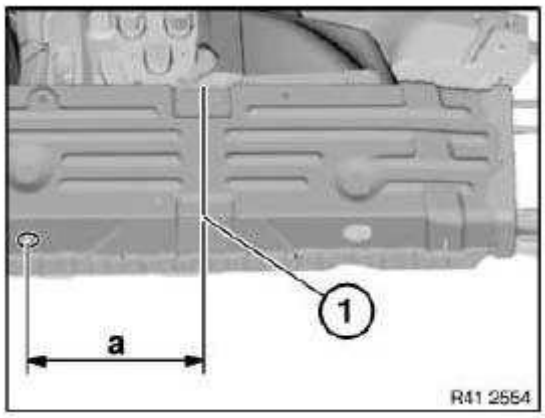


Fig. 24: Mark Severance Cut Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark severance cut (1) in accordance with vehicle and cut.

Installation:

Adjust all new parts to fit with straightening attachment or universal mount.

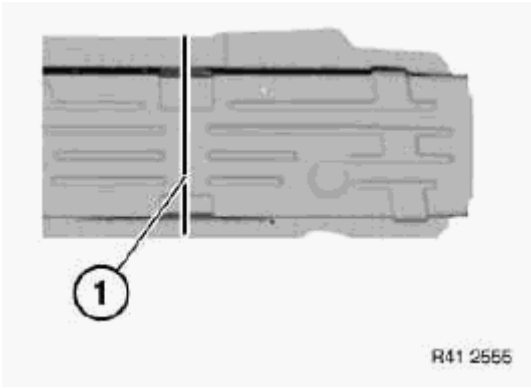


Fig. 25: Mark Severance Cut
Courtesy of BMW OF NORTH AMERICA, INC.

Weld new component in area (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

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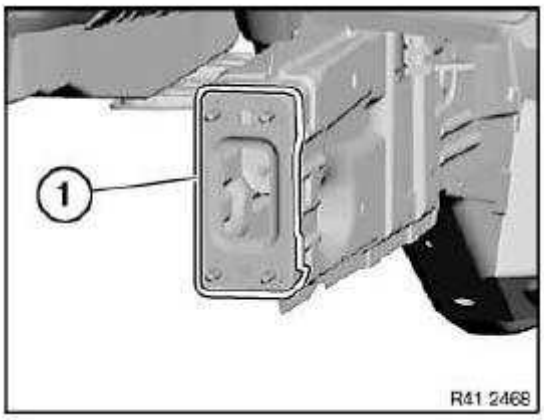


Fig. 26: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 11 048 REPLACING FRONT LEFT ENGINE CARRIER

Read contents of Body, General, see **41 0 Contents of Body, General**.

Use only approved spot-welding apparatus for repairs, see **41 00 ... Workshop equipment**

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Engine carrier, complete
- (2) Mounting, cross-member
- (3) Connection, outer
- (4) Reinforcement, bulkhead
- (5) Support carrier, bulkhead
- (6) Partition wall, assembly compartment
- (7) Reinforcement, partition wall (right side only - not shown)

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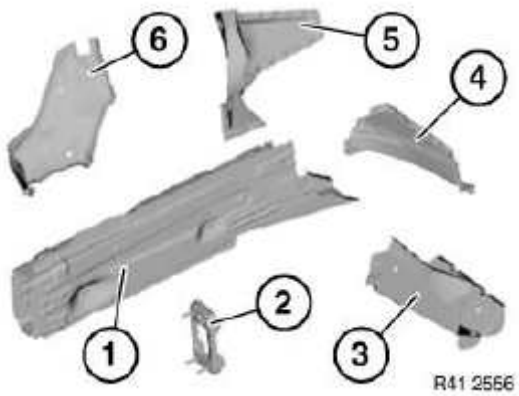


Fig. 27: Engine Carrier, Complete And Partition Wall, Assembly Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

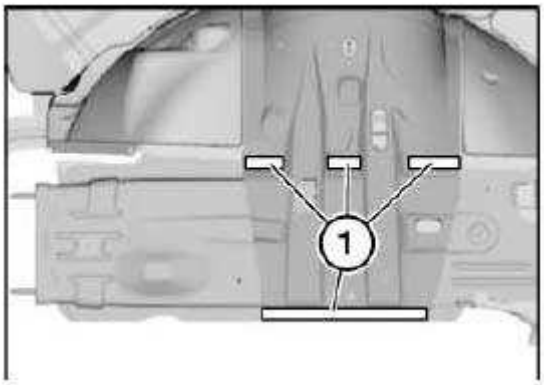


Fig. 28: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

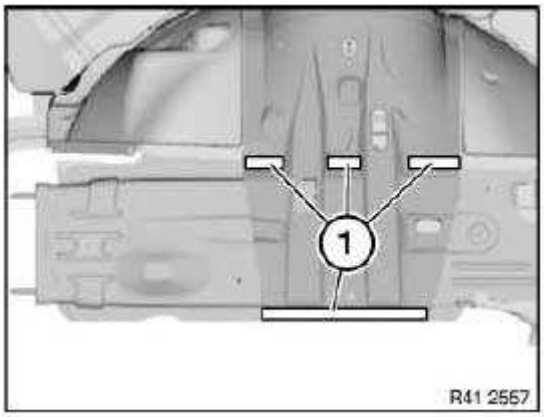


Fig. 29: Weld Joints In Areas

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Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

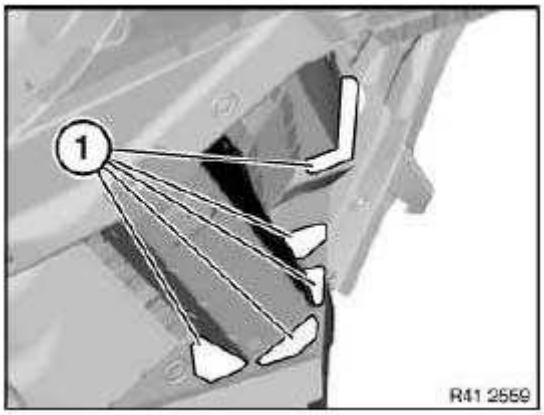


Fig. 30: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

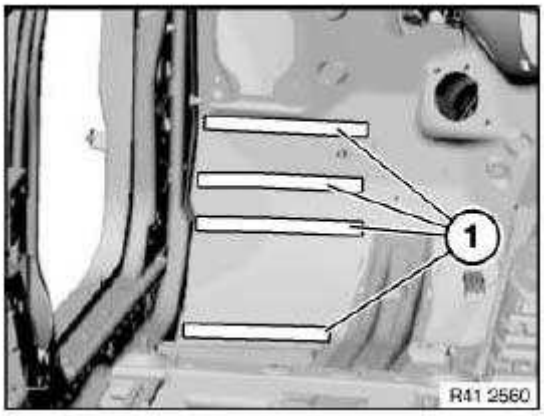


Fig. 31: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

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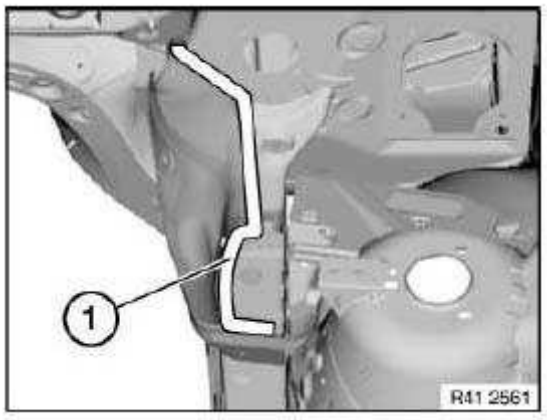


Fig. 32: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurements a and b and cut bulkhead support carrier.

Measurement a=95 mm

Measurement a=120 mm

Open weld joints in area (2).

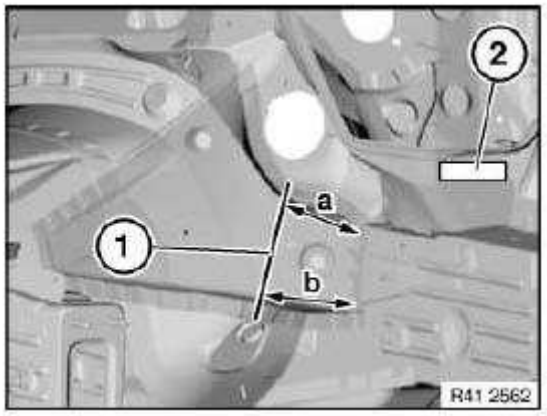


Fig. 33: Mark Severance Cut Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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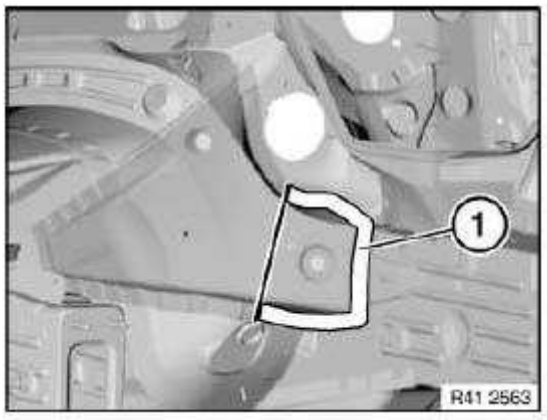


Fig. 34: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Right side only:

Open weld joint in area (1).

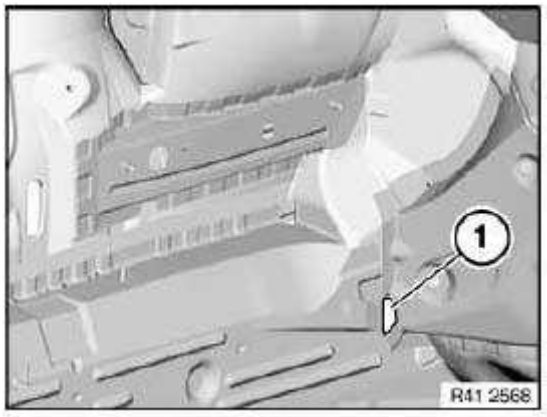


Fig. 35: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

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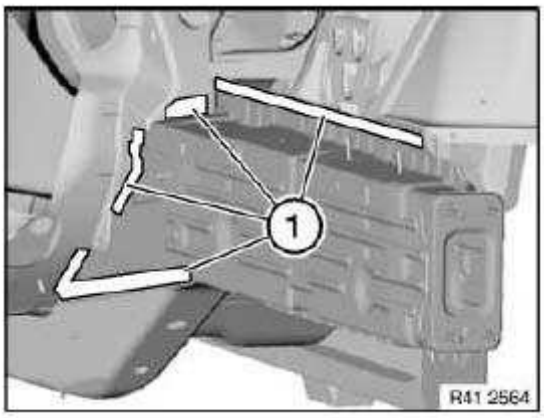


Fig. 36: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

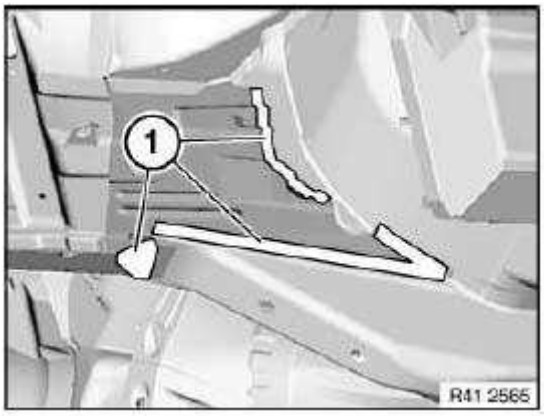


Fig. 37: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Weld new component in area (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

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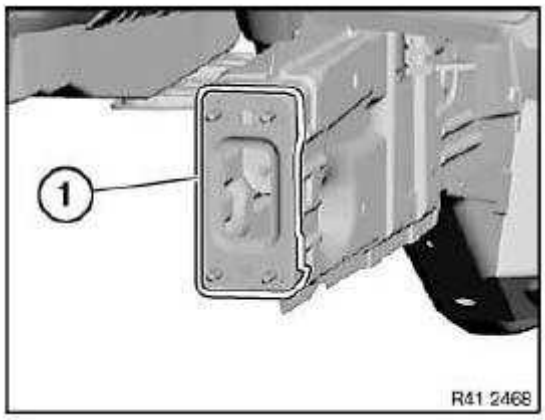


Fig. 38: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 11 301 REPLACING COVER FOR LONGITUDINAL MEMBER WITH LEFT DOOR PILLAR (PARTIAL REPLACEMENT B - PILLAR)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) B-pillar with entrance
- (2) Shaped part, B-pillar, inner

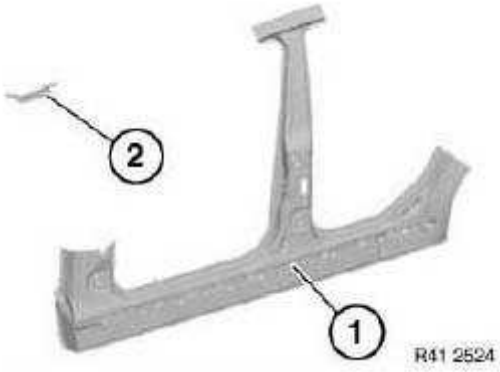


Fig. 39: B-Pillar With Entrance And Shaped Part, B-Pillar, Inner
Courtesy of BMW OF NORTH AMERICA, INC.

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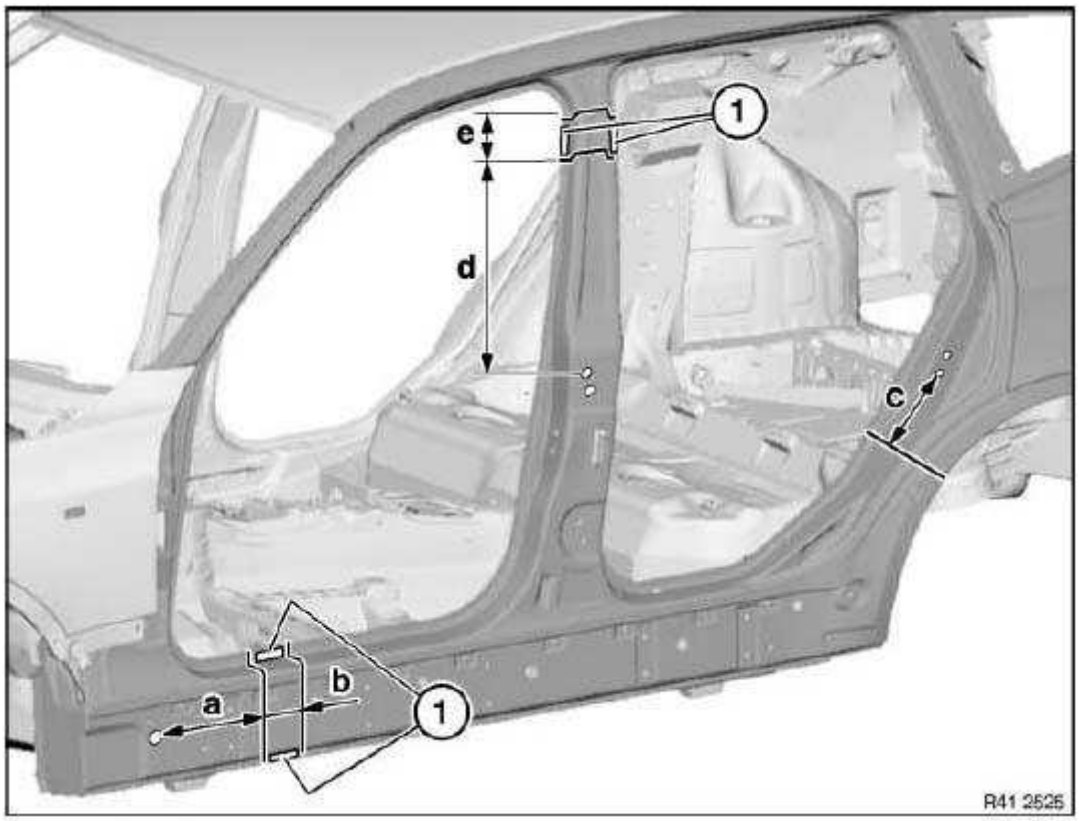


Fig. 40: Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer plate only for following severance cuts.

Measurement a = approx. 220 mm behind hole dia. 20 mm.

Measurement b = approx. 60 mm behind cut a.

Measurement c = approx. 200 mm from middle of lower lock striker screw point.

Measurement d = approx. 450 mm above upper door hinge mounting.

Measurement e = approx. 80 mm above cut d.

Open weld joints in areas (1).

Installation:

Weld in reinforcing panels, see **41 00 ... Welding in reinforcement plate (steel plate)** at all severance cuts.

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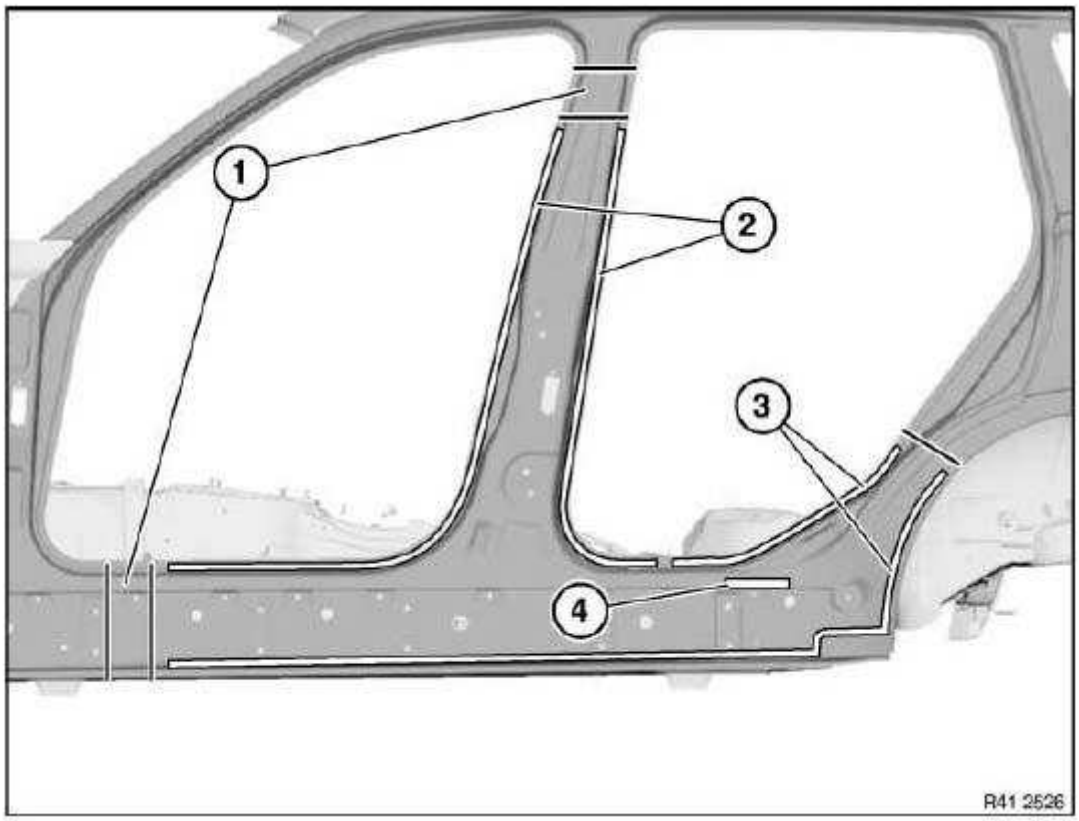


Fig. 41: Metal Sections And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Remove metal sections (1).

Open weld joints in areas (2) and (3).

Longitudinal member cover is bonded to inner frame in area (4).

IMPORTANT: Cut two metal plates in areas (2).
Cut outer metal plate only in areas (3).

Installation:

Cut-out metal sections (1) are required again for sealing.

Mark severance cut in accordance with specified measurement and cut.

IMPORTANT: Cut outer metal plate only for following severance cut.

Measurement a = 490 mm above upper door hinge mounting.

Installation:

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Weld in reinforcement plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

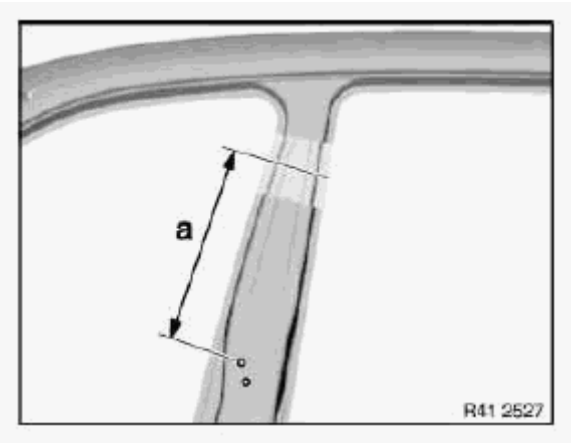


Fig. 42: Reinforcement Plate At Severance Cut Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with specified measurement and cut.

Measurement a = 250 mm behind hole dia. 20 mm.

Installation:

Weld in reinforcement plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

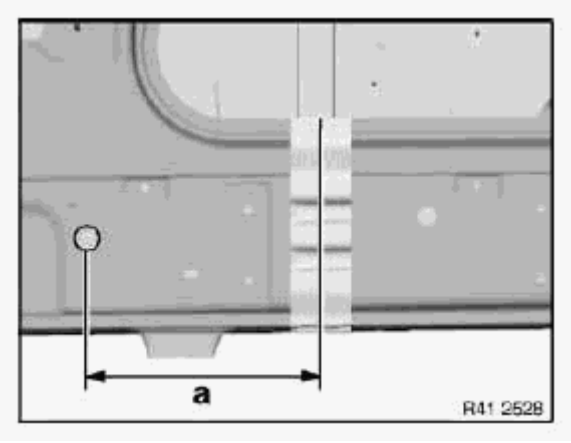


Fig. 43: Reinforcement Plate At Severance Cut Dimension (Behind Hole)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: View from inside

Open weld joints in areas (1).

Open adhesive bond in area (2).

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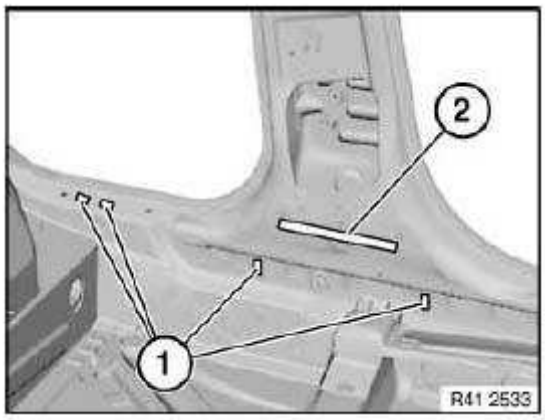


Fig. 44: Weld Joints And Adhesive Bond In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: View from below

Open weld joints in areas (1).

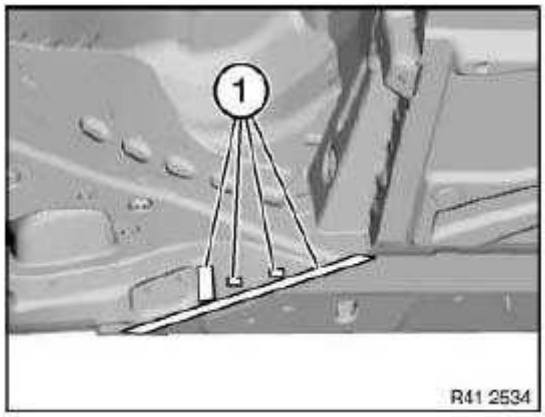


Fig. 45: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

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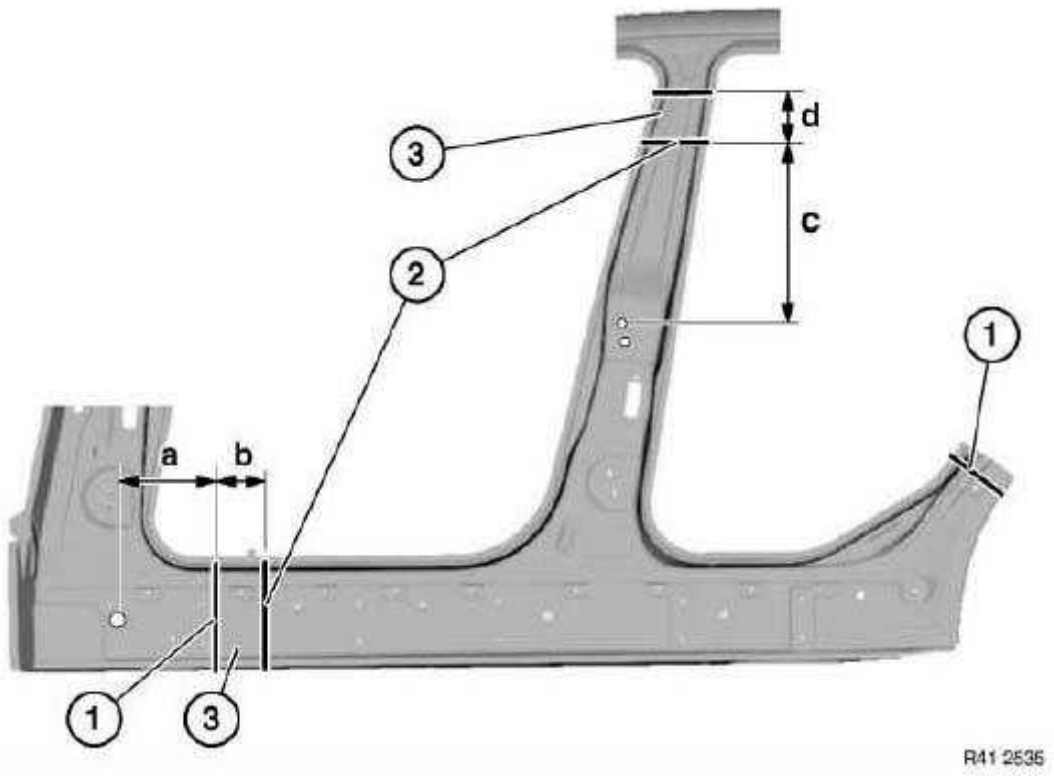


Fig. 46: Sheet Panel On Weld Joints Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark severance cuts (1) on new part in accordance with previous severance cuts and cut.

IMPORTANT: Cut outer plate only for severance cuts (2).

Measurement a = approx. 220 mm behind hole dia. 20 mm.

Measurement b = approx. 60 mm behind cut a.

Measurement c = approx. 450 mm above upper door hinge mounting.

Measurement d = approx. 80 mm above cut d.

Open weld joints on sheet panel (3) and remove component.

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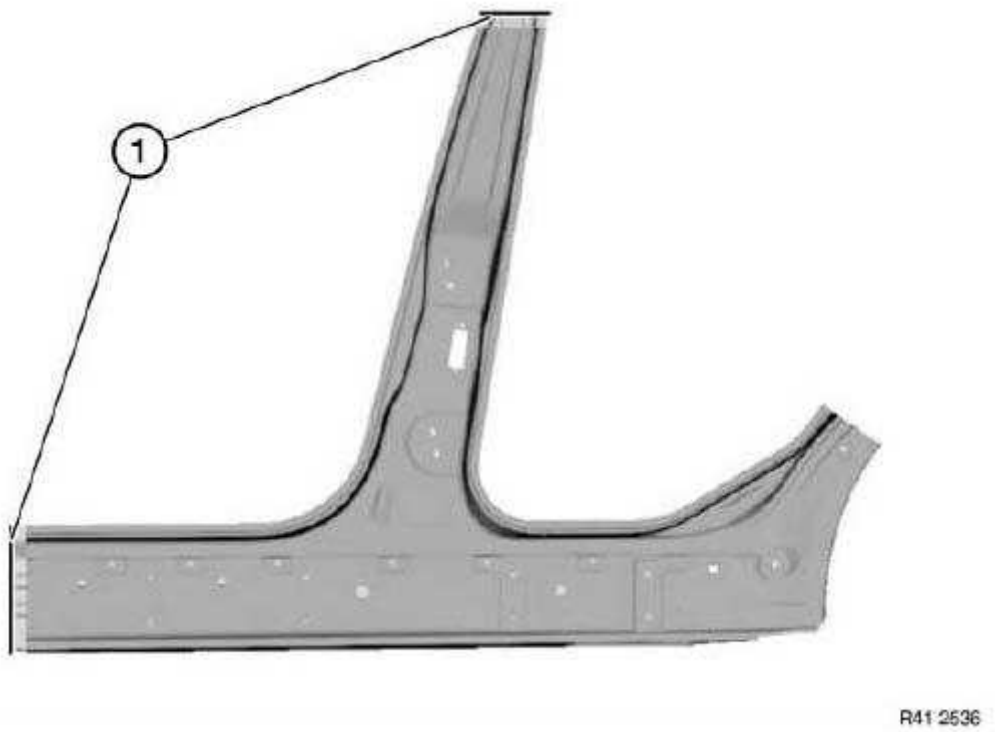


Fig. 47: Mark Severance Cuts
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark severance cuts (1) on new part in accordance with severance cuts on vehicle and cut.

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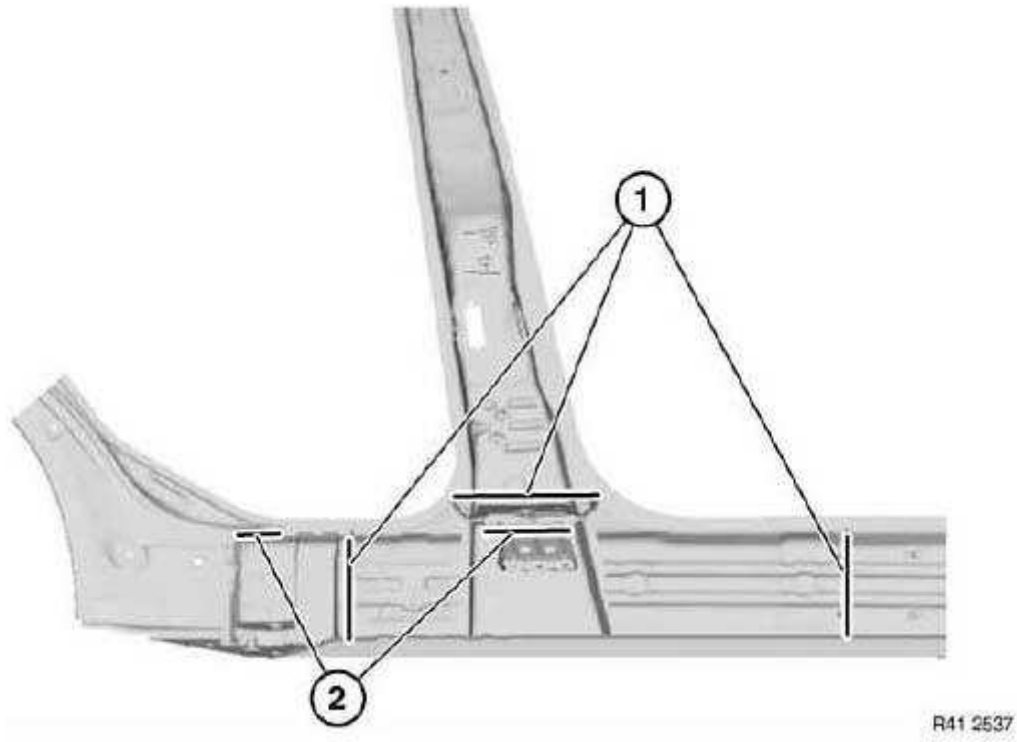


Fig. 48: Mark Severance Cuts And Adhesive In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Apply window glass adhesive, see **41 00 ... Installing a cavity bulkhead (expanded)** to cavity acoustic baffles (1).

Apply adhesive, see **41 00 ... Bonding steel parts** in areas (2).

Installation information:

Adjust new part to fit with straightening attachment or universal mount.

41 11 620 REPLACING REAR AXLE TAKE-UP CROSS-MEMBER AT REAR (LUGGAGE COMPARTMENT FLOOR COMPLETELY REMOVED)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Cross-member, rear axle take-up, rear

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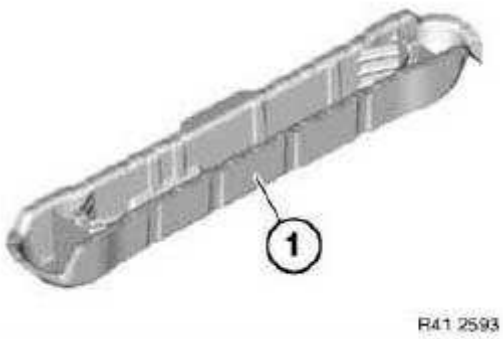


Fig. 49: Cross-Member, Rear Axle Take-Up, Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

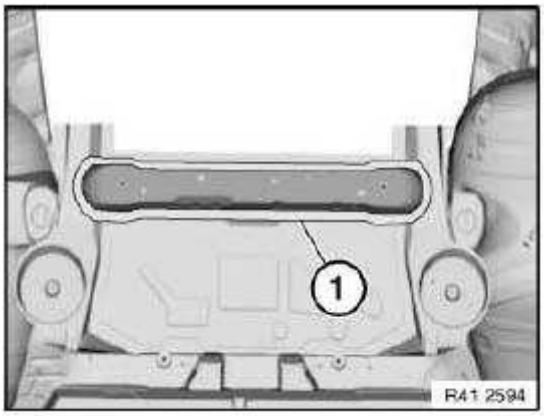


Fig. 50: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

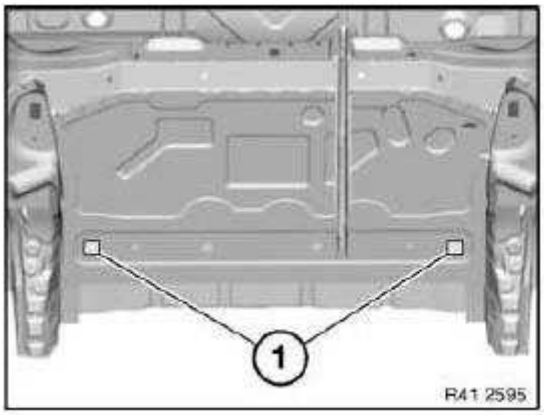


Fig. 51: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

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12 LUGGAGE COMPARTMENT FLOOR

41 12 535 FOR DETAILS OF STRIPPING-DOWN AND RIGGING WORK. PLACE VEHICLE ON STRAIGHTENING BENCH.

Read contents of Body, General, see **41 0 Contents of Body, General**.

compartment floor (tail panel removed)

Following new body parts are required:

- (1) Luggage compartment floor
- (2) Luggage compartment floor, right
- (3) Rear axle carrier, upper section, right
- (4) Rear axle carrier, lower section, right
- (5) Cross-member, rear axle take-up, rear
- (6) Rear axle carrier, upper section, left
- (7) Rear axle carrier, lower section, left
- (8) Luggage compartment floor, left

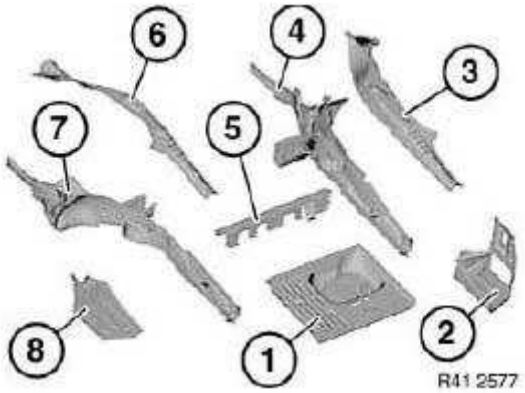


Fig. 52: Luggage Compartment Floor And Rear Axle Carrier, Section
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Installation:

Adjust new component (2) to fit to body in accordance with paint impressions.

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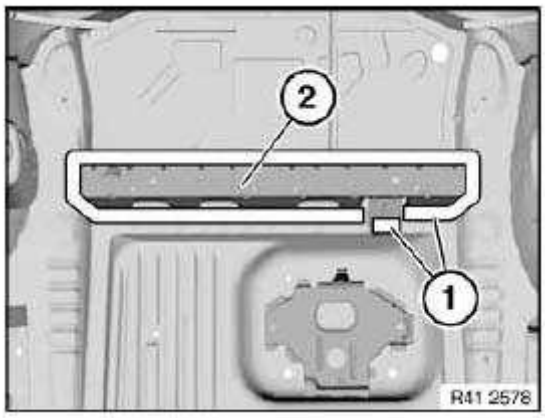


Fig. 53: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld in area (2) additionally.

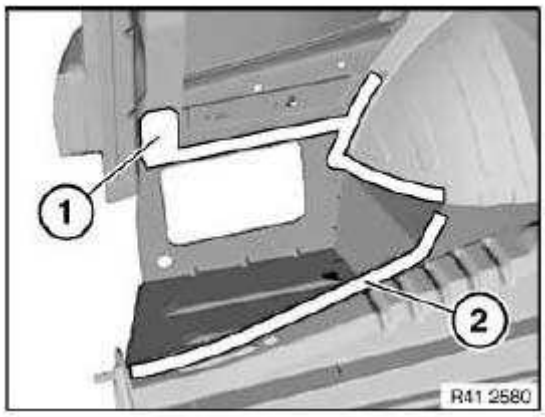


Fig. 54: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld new component in area (2) additionally.

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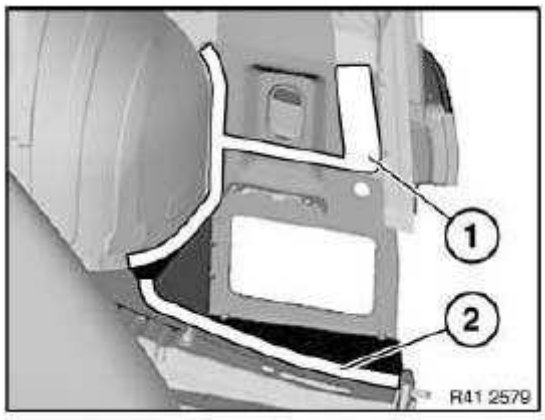


Fig. 55: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld new component in areas (2) additionally.

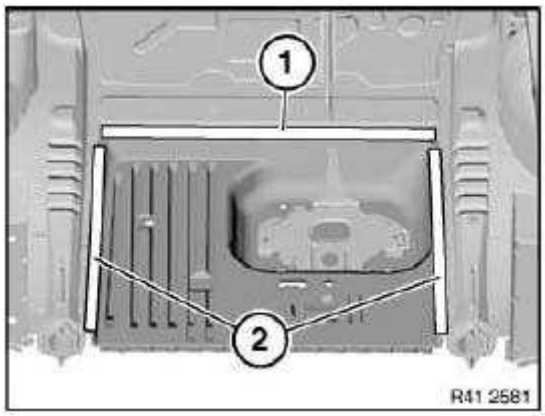


Fig. 56: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with measurement a and cut rear axle carrier upper section (1) on both sides of vehicle.

Measurement a=220 mm from edge of square hole.

Installation:

Weld in reinforcement plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

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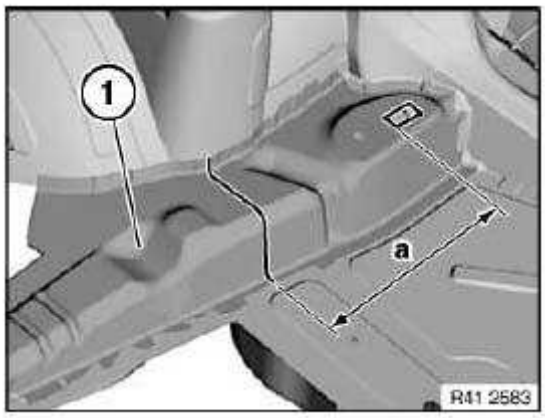


Fig. 57: Cut Rear Axle Carrier Upper Section Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1) on both sides of vehicle.

Installation:

Weld new component in areas (2) additionally.

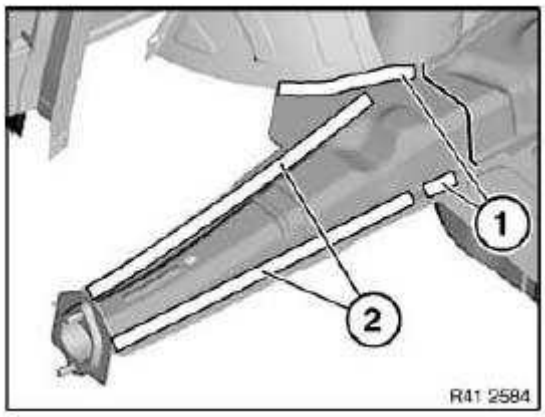


Fig. 58: Weld Joints And New Component In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with measurement a and cut rear axle carrier lower section (1) on both sides of vehicle.

Measurement a=140 mm from center point of bore with dia.

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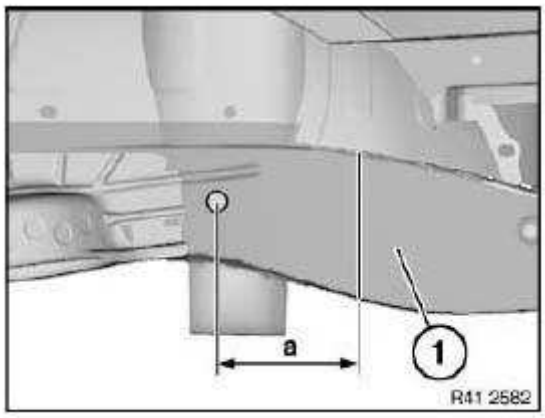


Fig. 59: Cut Rear Axle Carrier Lower Section Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Adjust new parts to fit with straightening attachment or universal mount.

Before welding in, also adjust tail panel, rear lid and rear lights to fit.

Weld reinforcement (1) in area (2) from inside additionally.

Weld in reinforcement plate, see **41 00 ... Welding in reinforcement plate (steel plate)** in area (3).

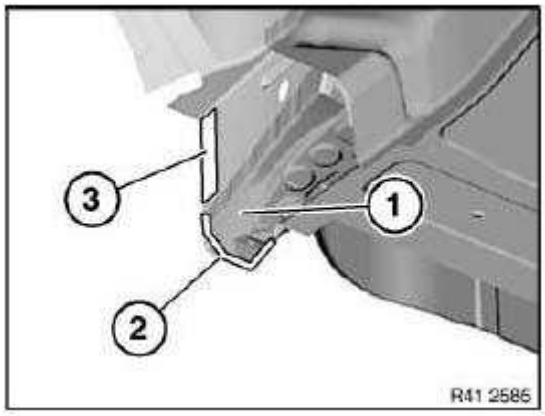


Fig. 60: Weld Reinforcement In Area
Courtesy of BMW OF NORTH AMERICA, INC.

14 WHEEL WELLS

41 14 015 REPLACING ENGINE CARRIER WITH WHEEL ARCH, LEFT

Read contents of Body, General, see **41 0 Contents of Body, General**.

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Use only approved spot-welding apparatus, see **41 00 ... Workshop equipment** for repairs.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Wheel arch, front left
- (2) Reinforcement, bulkhead
- (3) Partition wall, assembly compartment
- (4) Support carrier, bulkhead
- (5) Support, engine carrier, rear
- (6) Reinforcement, partition wall, right (not shown)

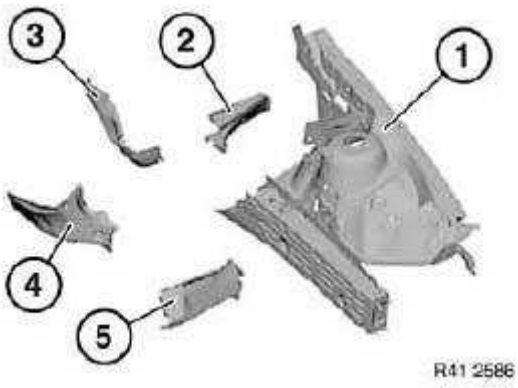
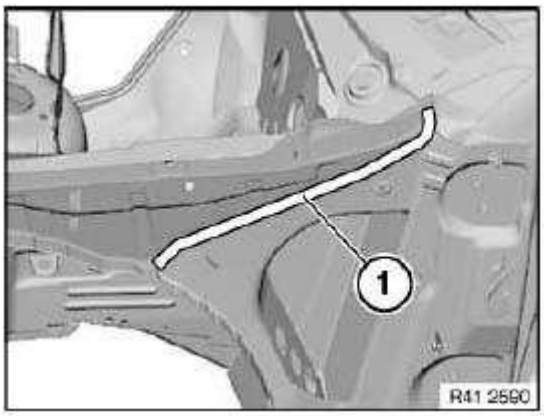


Fig. 61: Wheel Arch, Front Left And Partition Wall, Assembly Compartment
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

NOTE: Cut outer metal sheet only.



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Fig. 62: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

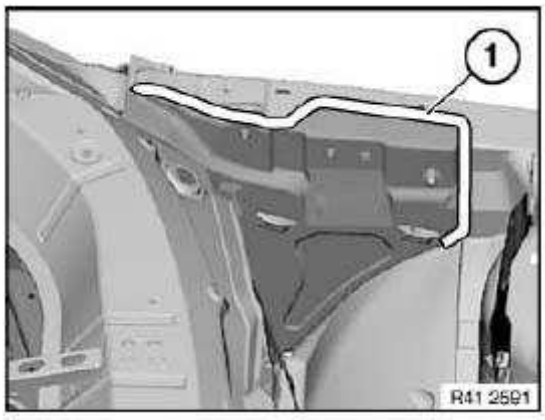


Fig. 63: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

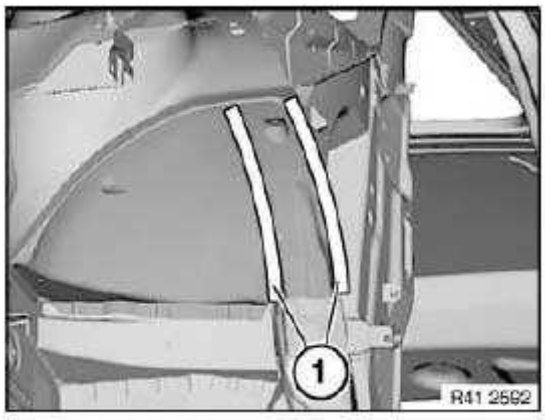


Fig. 64: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Installation:

Weld new component in area (2) additionally.

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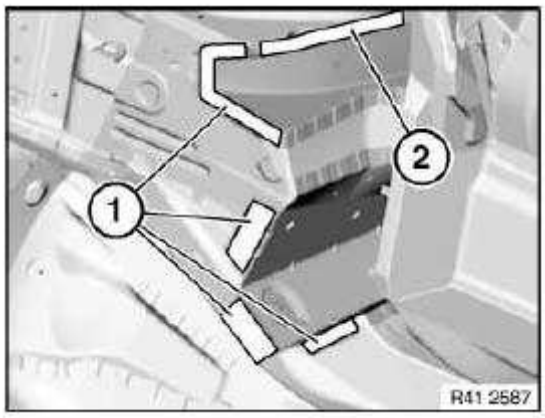


Fig. 65: Weld Joints And New Component In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

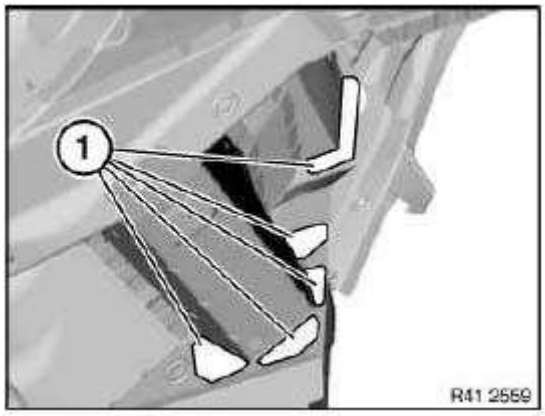
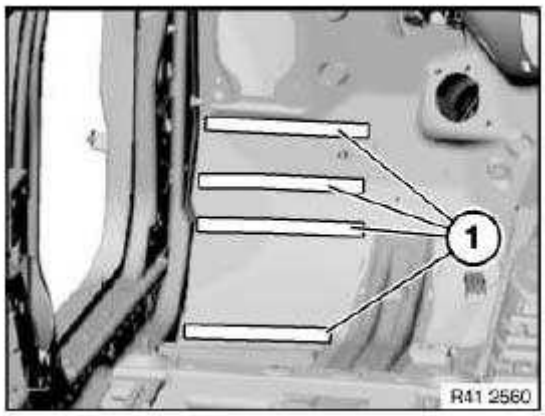


Fig. 66: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).



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Fig. 67: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

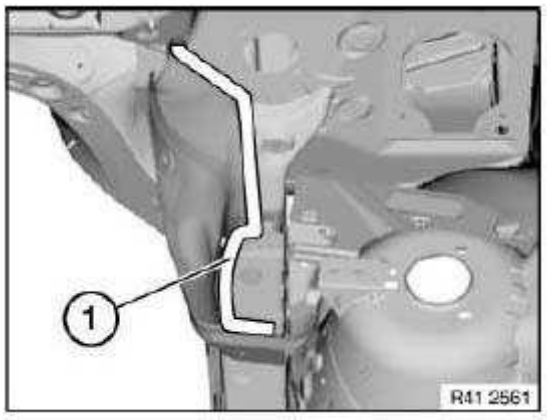


Fig. 68: Weld Joints In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurements a and b and cut bulkhead support carrier.

Measurement a=95 mm

Measurement a=120 mm

Open weld joints in area (2).

Installation:

Weld in reinforcing panel, see **41 00 ... Welding in reinforcement plate (steel plate)** at severance cut (1).

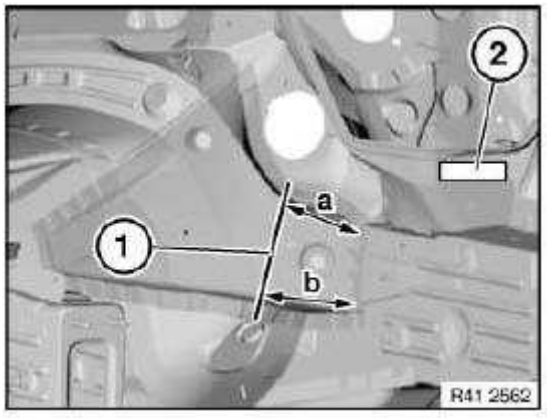


Fig. 69: Mark Severance Cut Measurement
Courtesy of BMW OF NORTH AMERICA, INC.

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NOTE: Right side only:

Open weld joints in areas (1) and (2).

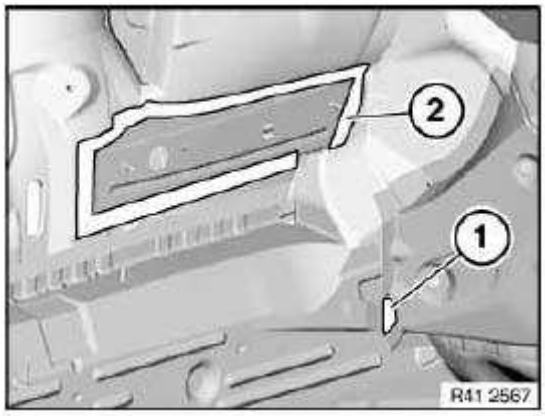


Fig. 70: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Right side only:

Open weld joints in area (1).

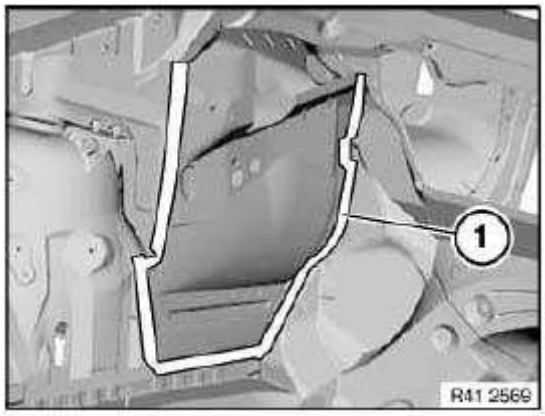


Fig. 71: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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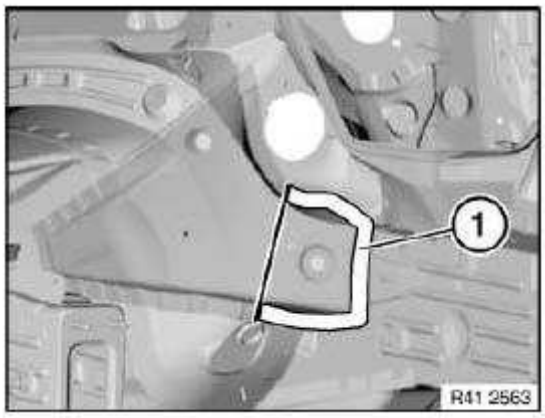


Fig. 72: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

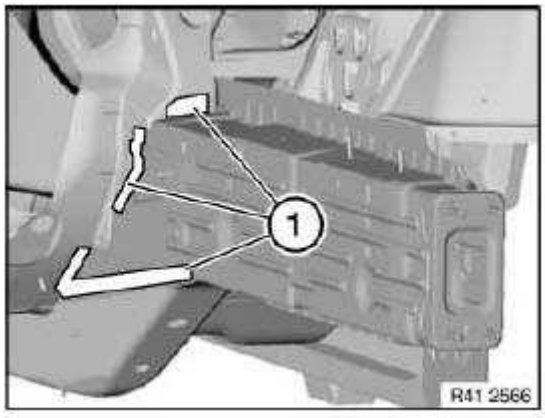
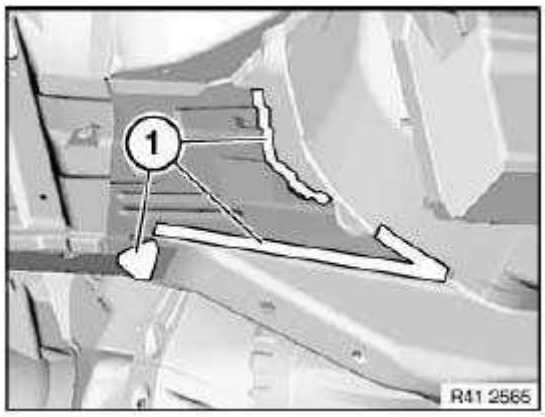


Fig. 73: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).



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Fig. 74: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Open weld joints in areas (1).

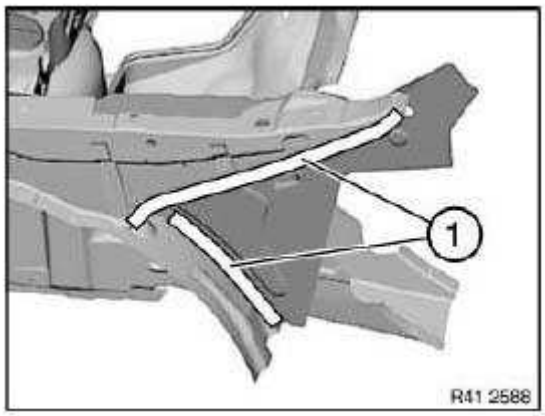


Fig. 75: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Open weld joints in area (1).

Remove plate (2).

Installation:

Adjust new parts to fit with straightening attachment or universal mount.

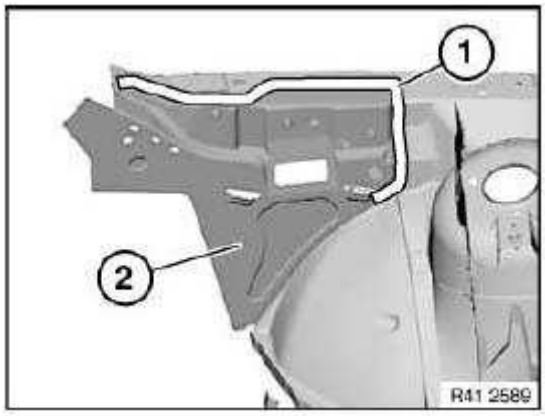


Fig. 76: Weld Joints In Area And Plate
Courtesy of BMW OF NORTH AMERICA, INC.

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Weld new component in area (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

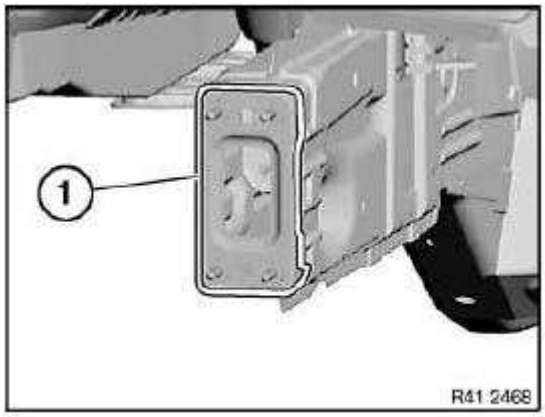


Fig. 77: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 14 502 REPLACING REAR LEFT OUTER WHEEL ARCH SECTION (REAR LEFT SIDE PANEL REMOVED)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Following new body parts are required:

- (1) C-pillar reinforcement
- (2) Inner side frame
- (3) Rear outer entrance shaped part
- (4) Rear entrance shaped part

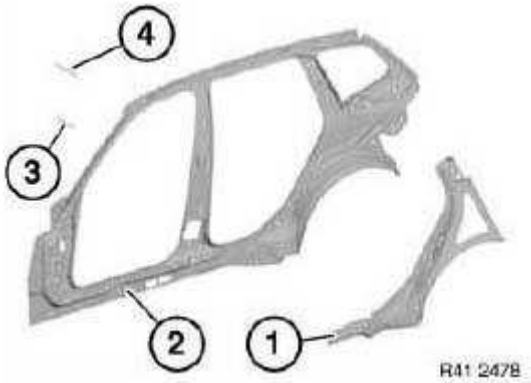


Fig. 78: C-Pillar Reinforcement, Inner Side Frame And Rear Outer Entrance Shaped Part
Courtesy of BMW OF NORTH AMERICA, INC.

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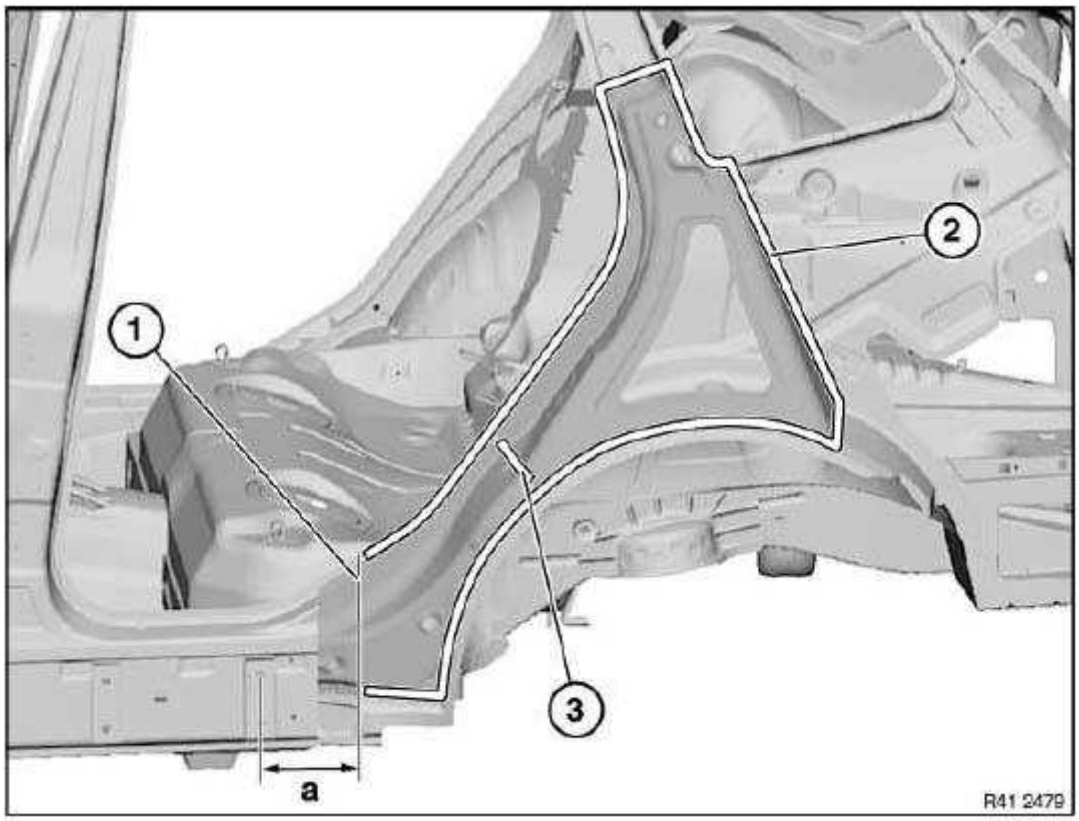


Fig. 79: Mark Severance Cut And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 160 mm from M8 threaded hole

Open weld joints in area (2).

Remove inner and outer cavity acoustic baffles (3).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles in area (3), see **41 00 ... Installing a cavity bulkhead (expanded)**

  Weld in reinforcing panels at all severance cuts., see **41 00 ... Welding in reinforcement plate (steel plate)**.

Open weld joints in areas (1).

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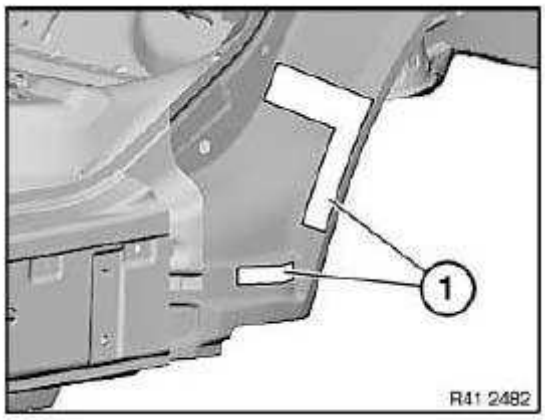


Fig. 80: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Cut wheel arch along line (1).

Installation:

Adjust new part in conjunction with side panel to fit.

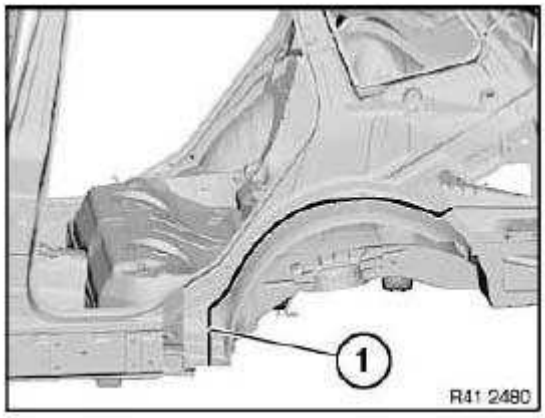


Fig. 81: Cut Wheel Arch Along Line
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark new part in accordance with severance cut on vehicle + 20 mm extra material and cut (1).

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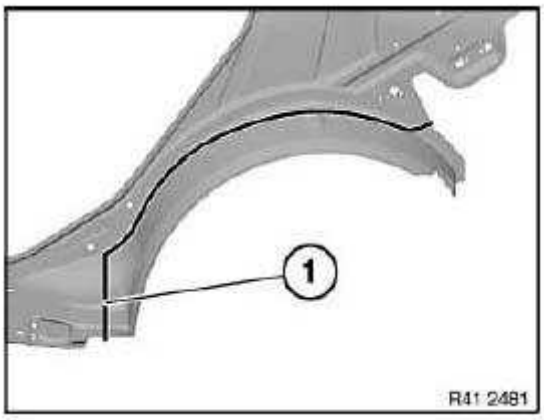


Fig. 82: Extra Material And Cut
Courtesy of BMW OF NORTH AMERICA, INC.

41 14 511 REPLACING COMPLETE REAR LEFT WHEEL ARCH (REAR LEFT SIDE PANEL REMOVED)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) C-pillar reinforcement
- (2) Inner side frame
- (3) Rear wheel arch
- (4) Rear outer entrance shaped part (not shown)
- (5) Rear entrance shaped part (not shown)
- (6) D-pillar shaped part (not shown)

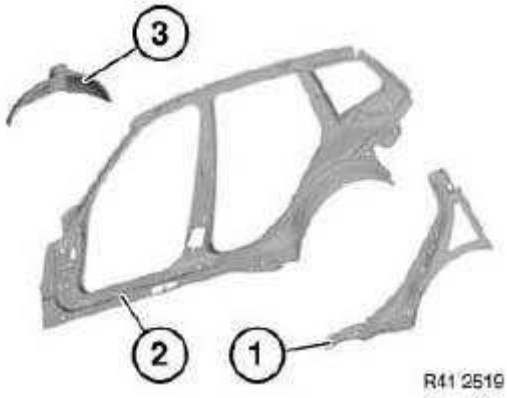


Fig. 83: C-Pillar Reinforcement, Inner Side Frame And Rear Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

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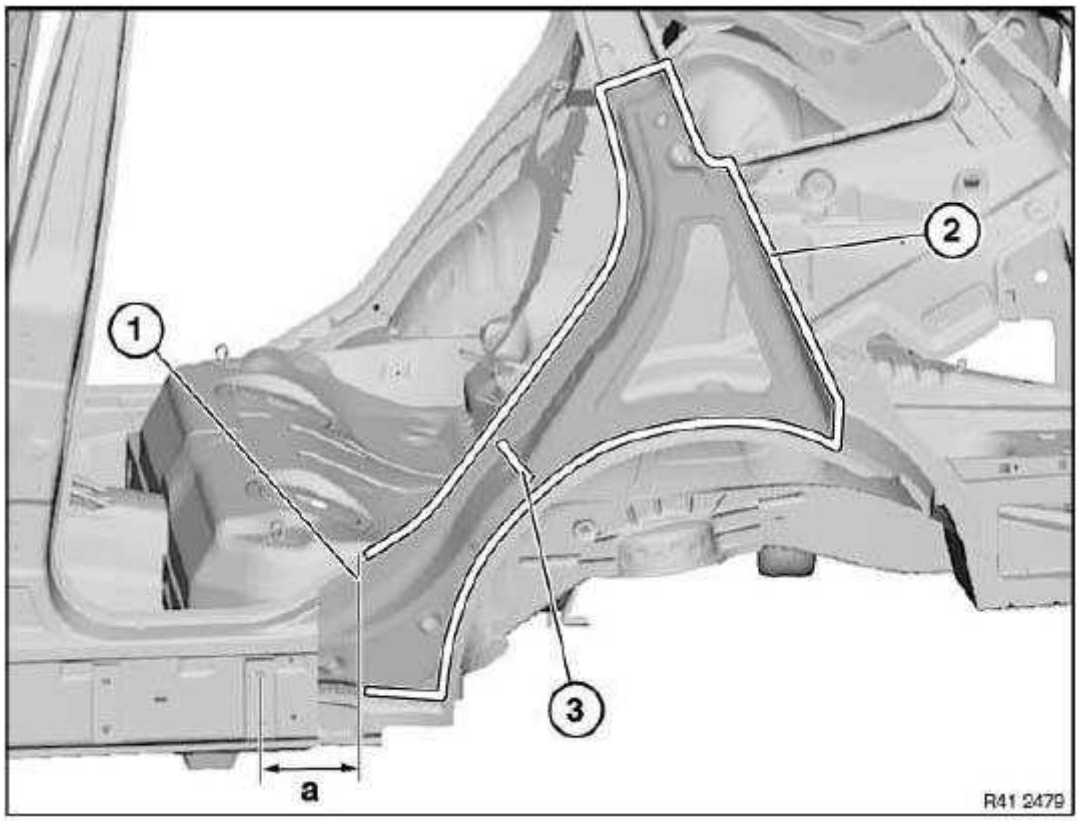


Fig. 84: Mark Severance Cut And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 160 mm from M8 threaded hole

Open weld joints in area (2).

Remove inner and outer cavity acoustic baffles (3).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles in area (3), see **41 00 ... Installing a cavity bulkhead (expanded)**.

  Weld in reinforcement plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Open weld joints in areas (1).

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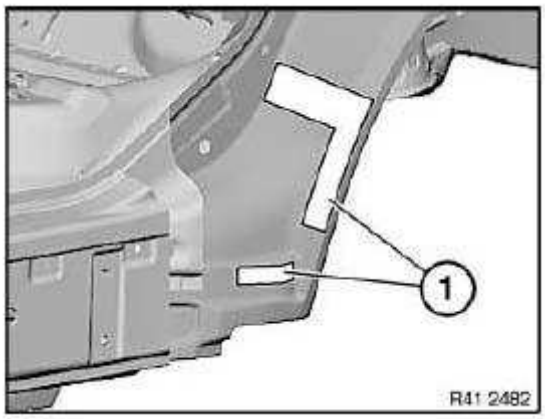


Fig. 85: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

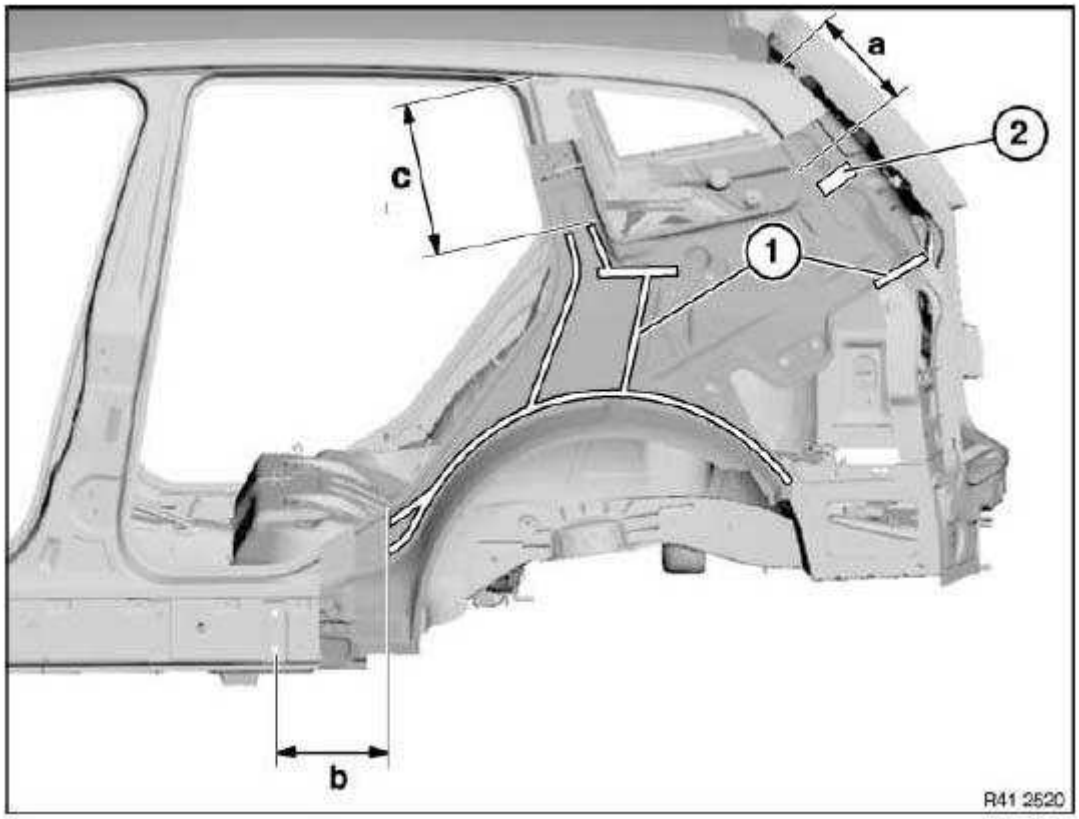


Fig. 86: Cavity Acoustic Baffles And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 210 mm from roof frame

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Measurement b = approx. 160 mm from M8 threaded hole

Measurement c = approx. 330 mm

Open weld joints in areas (1).

Remove cavity acoustic baffles (2).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles in area (3), see **41 00 ... Installing a cavity bulkhead (expanded)**.

  Weld in reinforcing panels at all severance cuts., see **41 00 ... Welding in reinforcement plate (steel plate)**.

  Adjust new part in conjunction with side panel to fit.

Open weld joints in area (1).

Installation:

Adjust new part to fit with straightening attachment or universal mount.

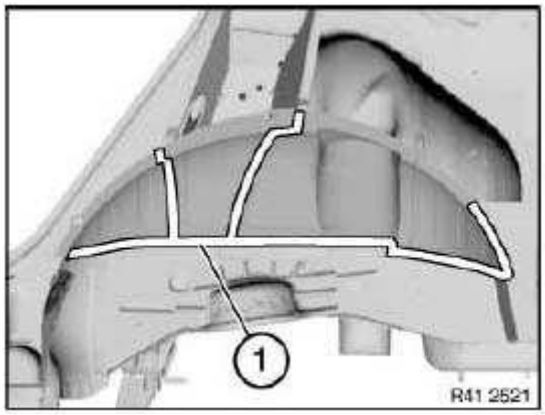


Fig. 87: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

21 SIDE FRAME AND DOOR PILLARS

41 21 510 REPLACING FRONT LEFT DOOR PILLAR (FRONT SIDE PANEL REMOVED)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Spot-weld bonding is used on the E83. Observe specific procedure, see **41 00 ... Opening adhesive bonds**.

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Place vehicle on straightening bench.

Following new body parts are required:

- (1) A-pillar, outer
- (2) Connecting plate, side frame

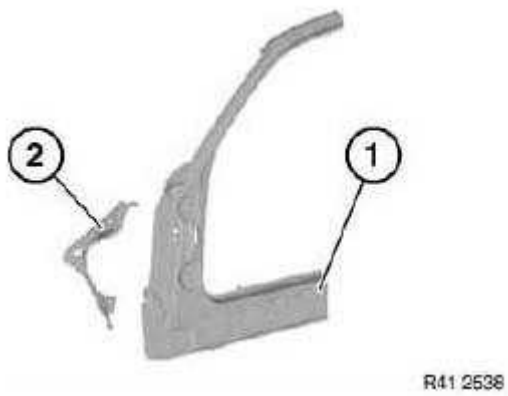


Fig. 88: A-Pillar, Outer And Connecting Plate, Side Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

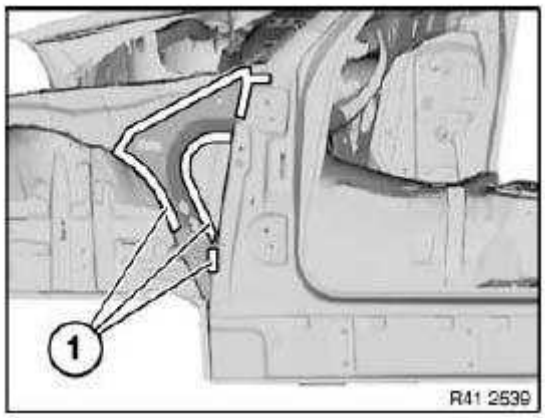


Fig. 89: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

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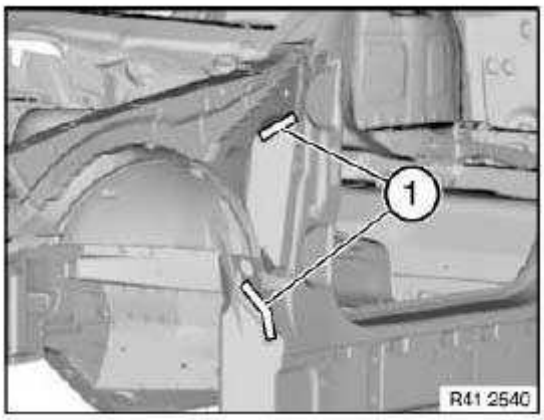


Fig. 90: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

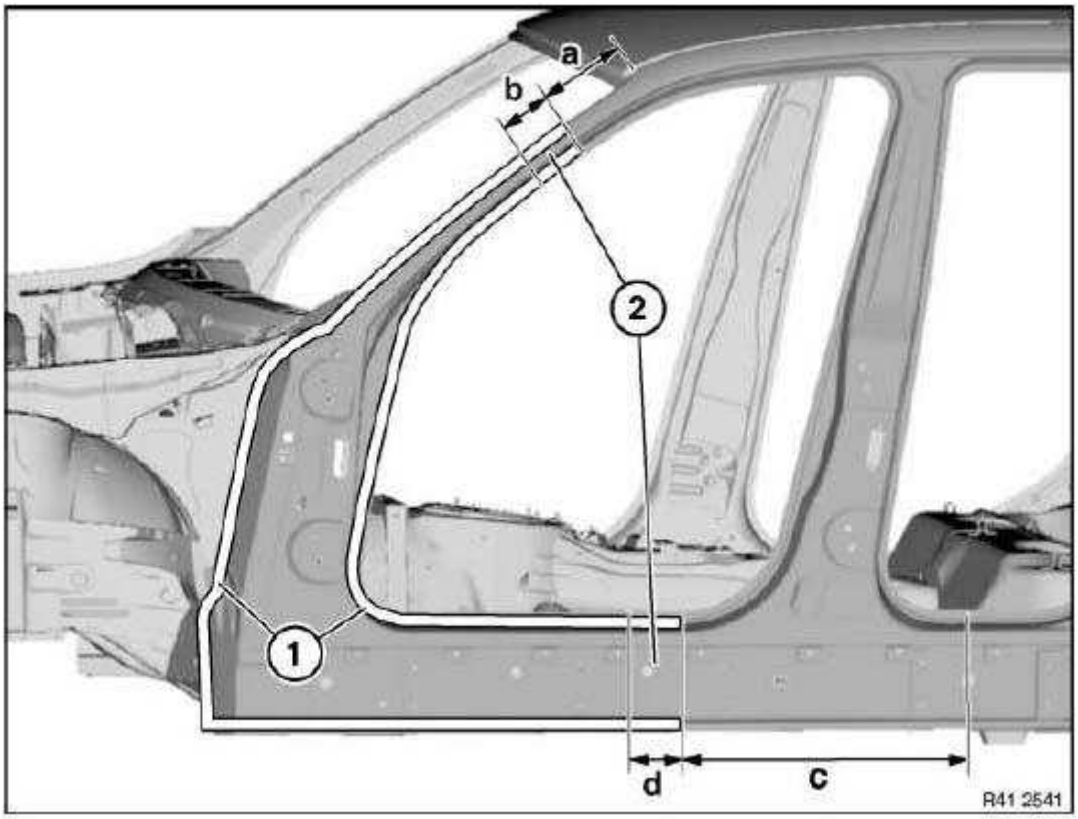


Fig. 91: Metal Section And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer plate only for following severance cuts.

Measurement a = approx. 150 mm from roof edge.

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Measurement b = approx. 80 mm below severance cut a.

Measurement c = approx. 560 mm before hole dia. 20 mm.

Measurement d = approx. 80 mm before severance cut c.

Open weld joints in areas (1).

Installation:

Metal sections (2) are needed again to seal cowl.

IMPORTANT: For following severance cut, do not damage sunroof water drain hose.

Mark severance cut (1) in accordance with measurement and cut.

Measurement a = approx. 190 mm from roof edge.

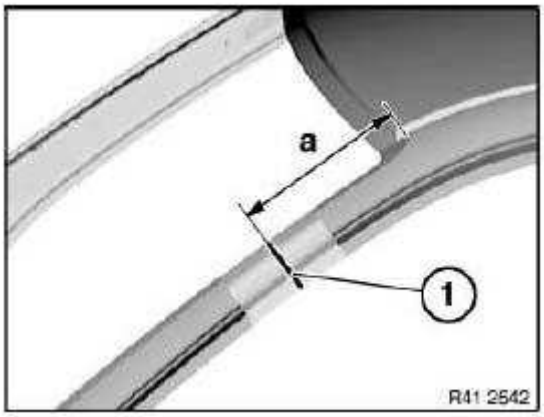


Fig. 92: Mark Severance Cut Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

Measurement a = approx. 600 mm before hole dia. 20 mm.

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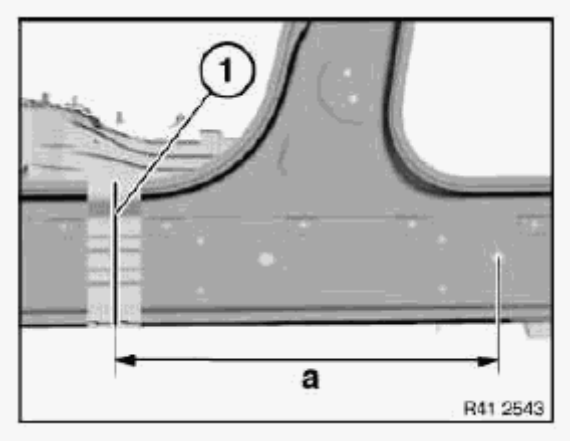


Fig. 93: Mark Severance Cut Dimension (Before Hole Dia)
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

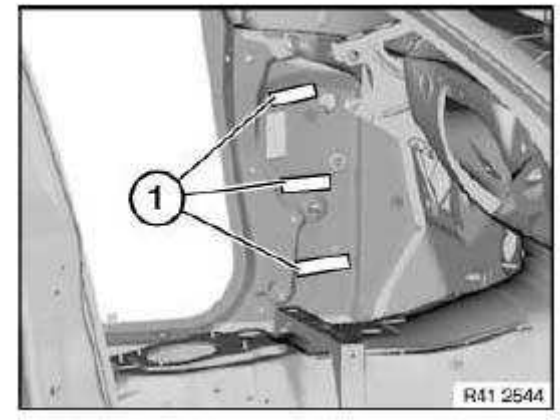
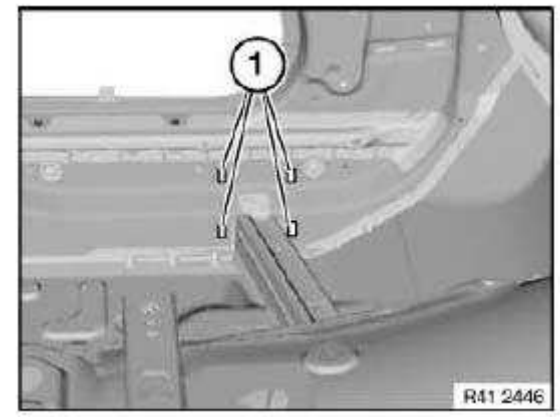


Fig. 94: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).



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Fig. 95: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark new part in accordance with severance cuts above and cut.

Installation:

Weld in reinforcing panels at all severance cuts., see **41 00 ... Welding in reinforcement plate (steel plate)**.

Apply window glass adhesive to cavity acoustic baffles (1), see **41 00 ... Installing a cavity bulkhead (expanded)**

Adjust new part to fit with straightening attachment or universal mount.

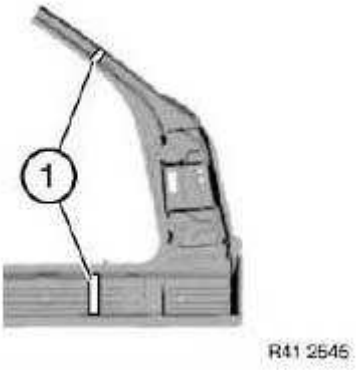


Fig. 96: Cavity Acoustic Baffles
Courtesy of BMW OF NORTH AMERICA, INC.

31 ROOF OUTER SKIN

41 31 010 REPLACING ROOF OUTER SKIN (VERSION WITH SLIDE/TILT SUNROOF)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Following new body parts are required:

- (1) Roof outer skin, slide/tilt sunroof

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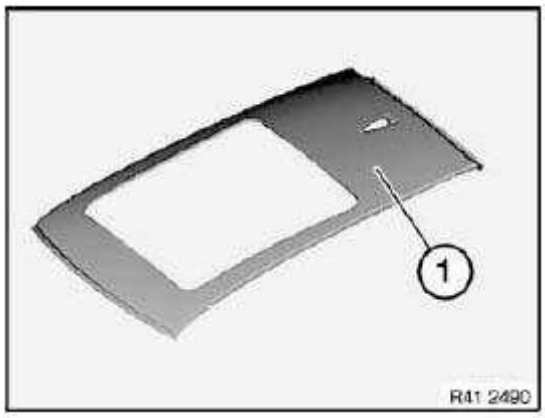


Fig. 97: Roof Outer Skin, Slide/Tilt Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

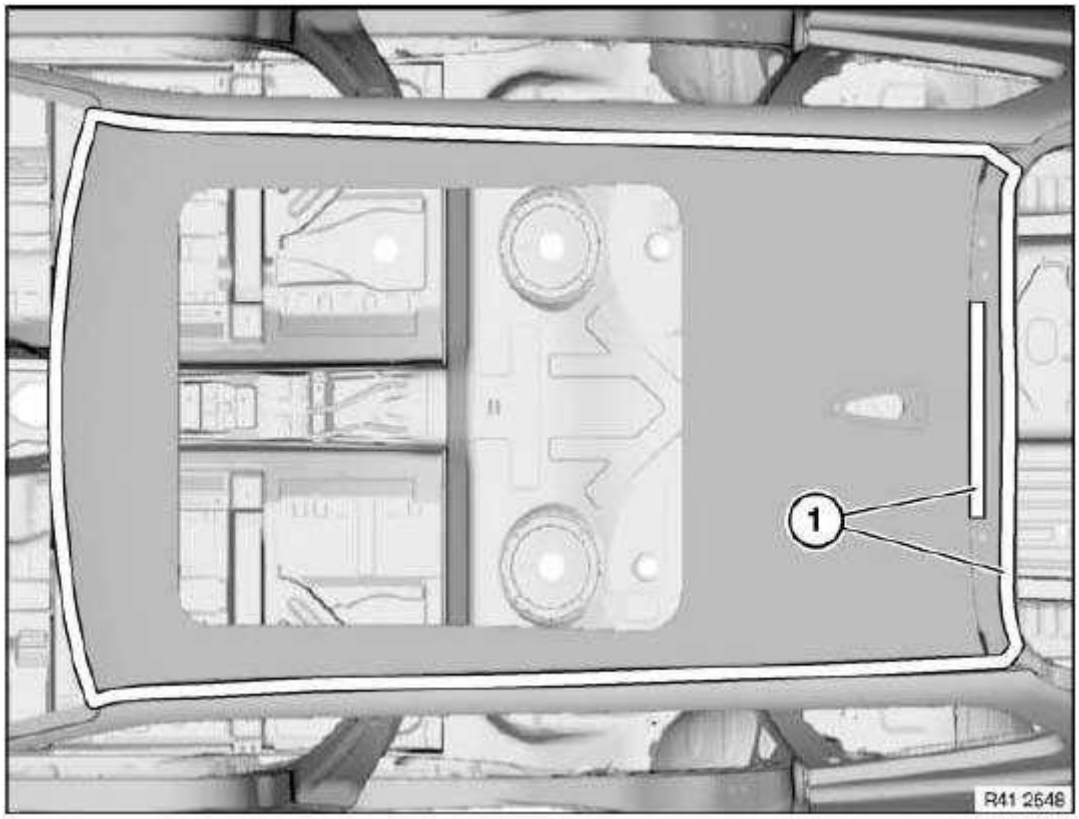


Fig. 98: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Release adhesive areas (layout, see next operation) and remove roof outer skin, see **41 00 ... Bonding steel parts**.

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Installation:

Fit new part on body. Fit windshield for positioning.

Seal weld seams with sealing compound.

Apply sealing compound in areas (1).

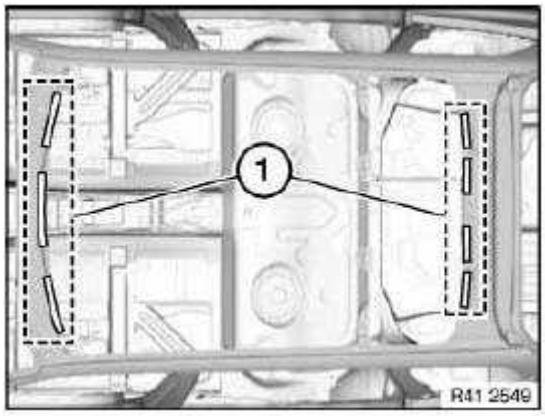


Fig. 99: Sealing Compound In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

33 FRONT TRIM PANEL

41 33 040 REPLACING FRONT PANEL

Read contents of Body, General, see **41 0 Contents of Body, General**.

Following new body parts are required:

- (1) Front panel

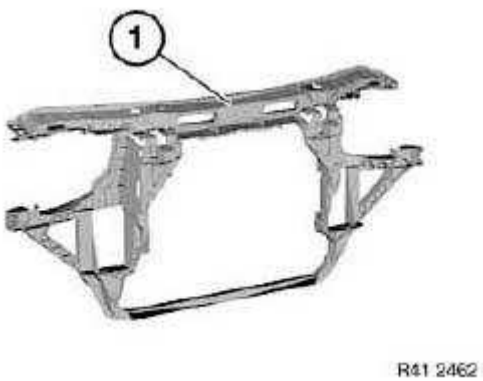


Fig. 100: Front Panel
Courtesy of BMW OF NORTH AMERICA, INC.

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Open screws (1) and (2).

Remove tension strut (3) with retaining hook counter support holder.

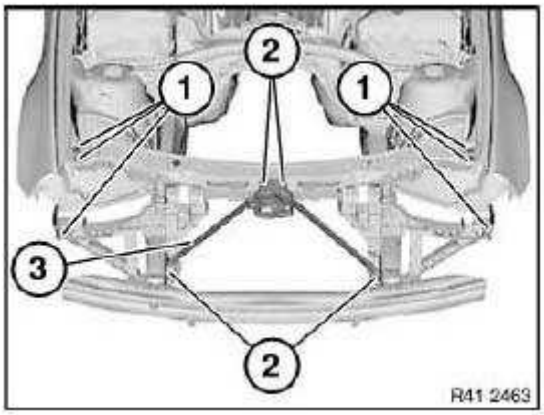


Fig. 101: Screws And Tension Strut
Courtesy of BMW OF NORTH AMERICA, INC.

Open screws in areas (1).

Remove bumper trim carrier (2) with deformation elements and front panel (3).

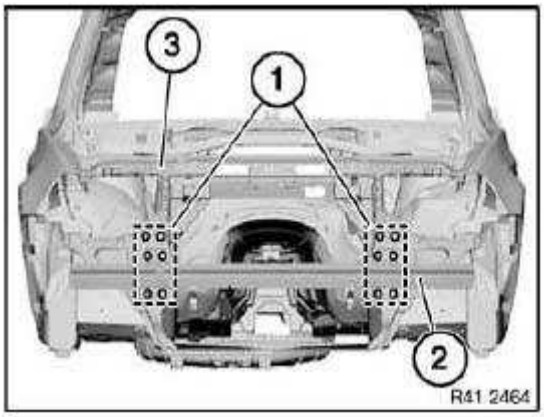


Fig. 102: Screws, Bumper Trim Carrier And Front Panel
Courtesy of BMW OF NORTH AMERICA, INC.

34 REAR TRIM PANEL

41 34 038 REPLACING OUTER SECTION OF TAIL PANEL

Read contents of Body, General, see **41 0 Contents of Body, General**.

Following new body parts are required:

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- Rear trim

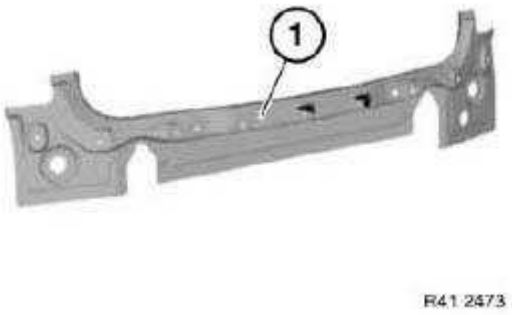


Fig. 103: Rear Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

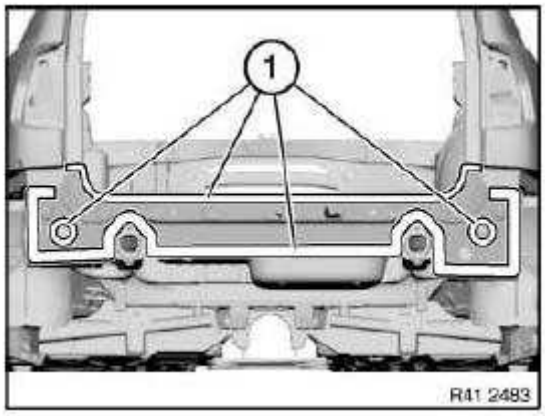


Fig. 104: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 34 041 REPLACING COMPLETE TAIL PANEL

Read contents of Body, General, see **41 0 Contents of Body, General**.

Following new body parts are required:

- (1) Rear trim
- (2) Rear trim, inner

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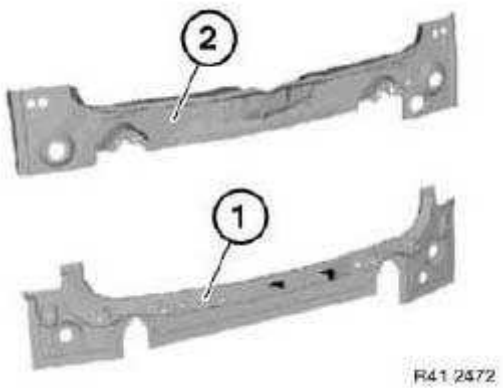


Fig. 105: Rear Trim And Rear Trim, Inner
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Carry over the following work steps symmetrically to the other side of the car.

Open weld joints in areas (1).

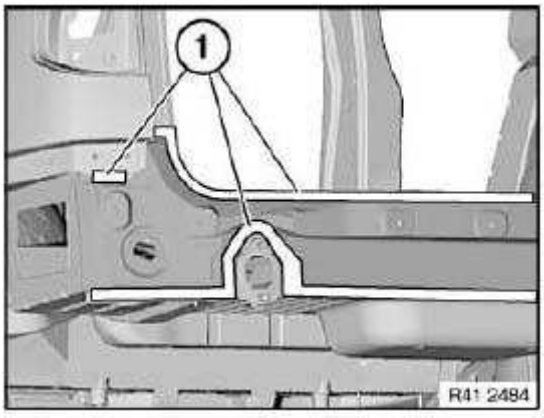


Fig. 106: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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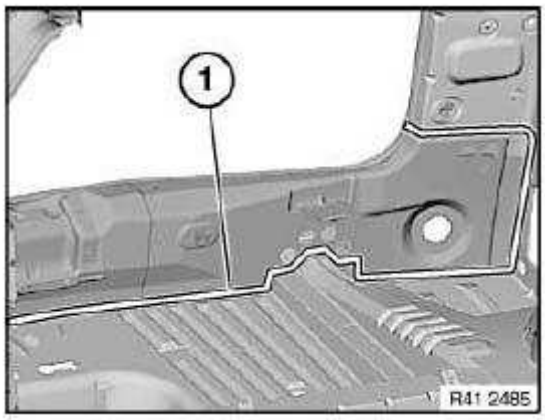


Fig. 107: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The two new components are fitted individually.

Slide in inner rear trim (2).

Bend open metal plate slightly in areas (1).

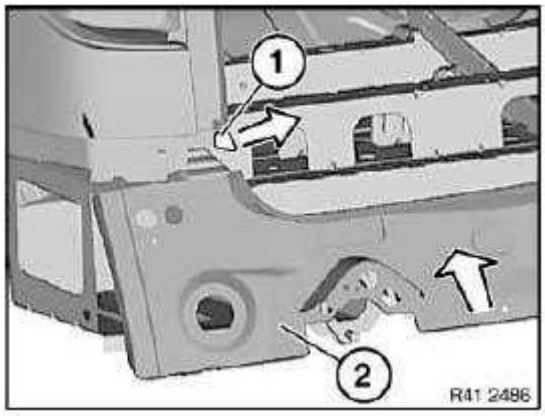


Fig. 108: Inner Rear Trim And Metal Plate Slightly In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Also weld rear trim (2) in areas (1).

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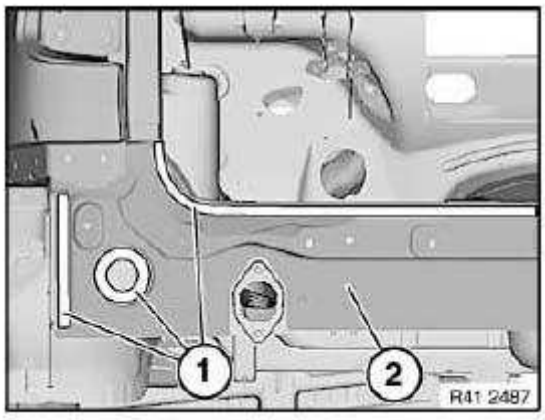


Fig. 109: Weld Rear Trim In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

35 SIDE PANELS

41 35 000 REMOVING AND INSTALLING/REPLACING SIDE PANEL, FRONT LEFT OR RIGHT

CAUTION: Do not damage adjoining body parts.

Installation information:

E83 gap dimensions serve as basis for adjustment tasks.

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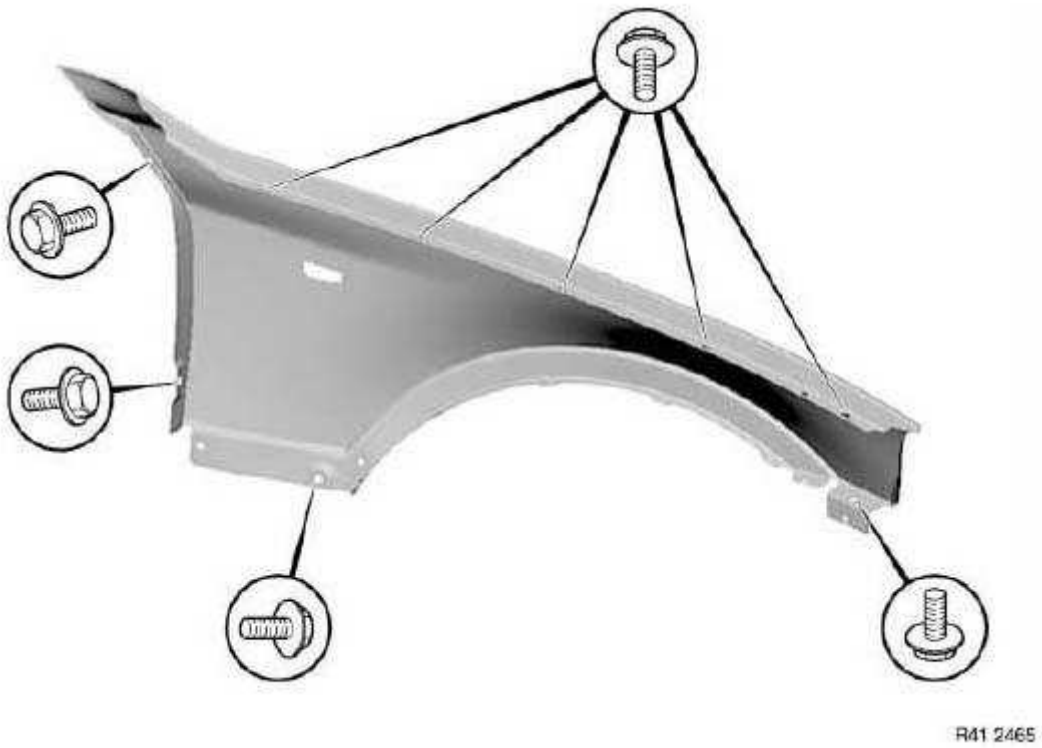


Fig. 110: Front Side Panel Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Interior view of front side panel

Open screws.

41 35 101 REPLACING REAR LEFT SIDE PANEL (PARTIAL REPLACEMENT, LONGITUDINAL MEMBER COVER BEFORE B-PILLAR)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Use only approved spot-welding apparatus for repairs, see **41 00 ... Workshop equipment**

Following new body parts are required:

- (1) Side panel, rear
- (2) D-pillar shaped part

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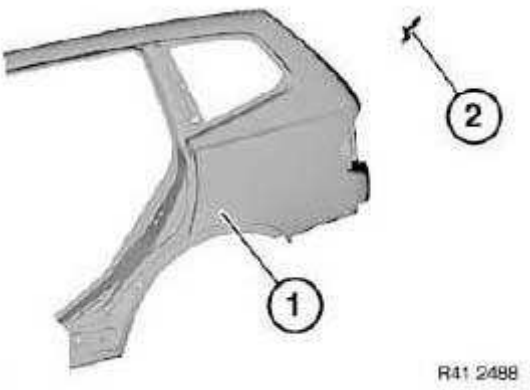


Fig. 111: Side Panel, Rear And D-Pillar Shaped Part
Courtesy of BMW OF NORTH AMERICA, INC.

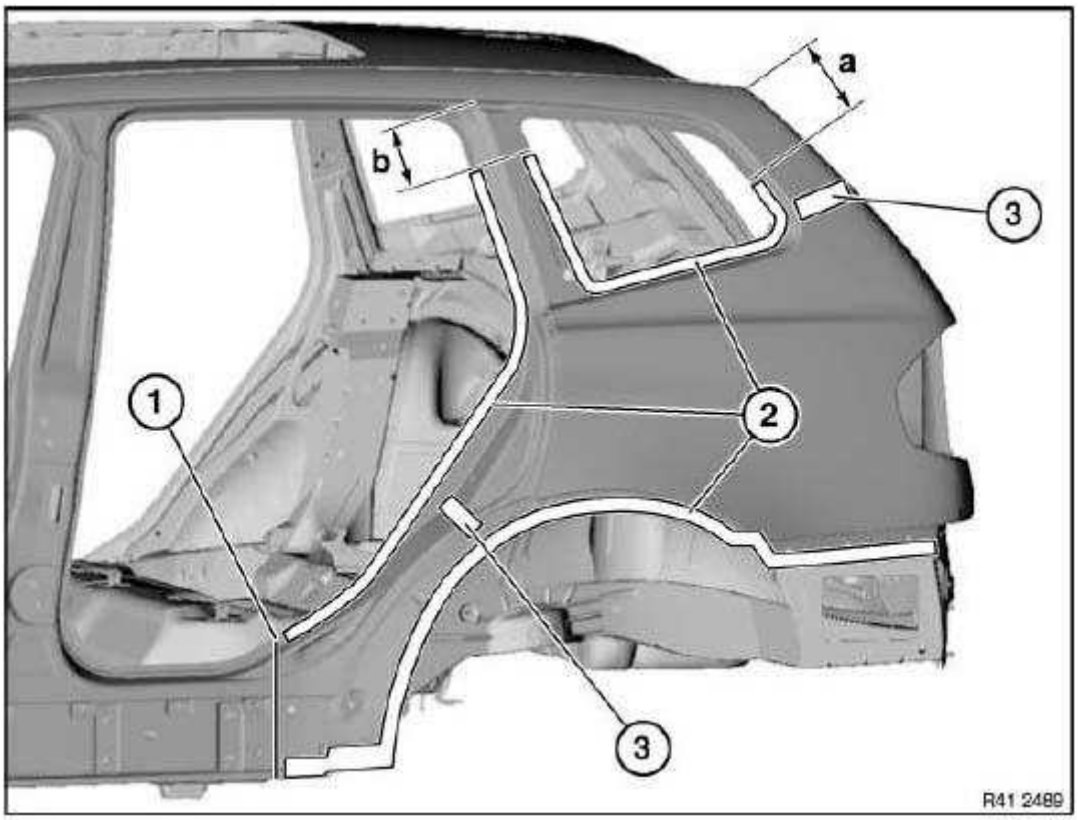


Fig. 112: Mark Severance Cut And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

Mark severance cut (1) in accordance with new part on vehicle.

IMPORTANT: Cut outer metal sheet only.

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Measurement a = approx. 120 mm from roof frame

Measurement b = approx. 140 mm

Open weld joints in areas (2).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles in area (3), see **41 00 ... Installing a cavity bulkhead (expanded)**.
- Weld in reinforcing panels at all severance cuts., see **41 00 ... Welding in reinforcement plate (steel plate)**.

Open weld joints in areas (1).

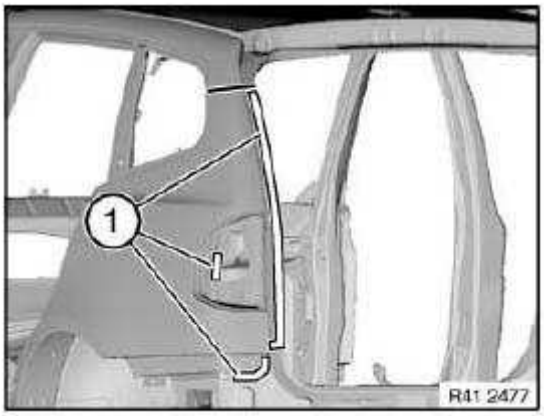


Fig. 113: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 35 105 REPLACING REAR LEFT SIDE PANEL (PARTIAL REPLACEMENT BEFORE LONGITUDINAL MEMBER COVER)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Use only approved spot-welding apparatus for repairs, see **41 00 ... Workshop equipment**

Following new body parts are required:

- (1) Side panel, rear
- (2) D-pillar shaped part (not shown)

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Fig. 114: Side Panel, Rear And D-Pillar Shaped Part (Not Shown)
Courtesy of BMW OF NORTH AMERICA, INC.

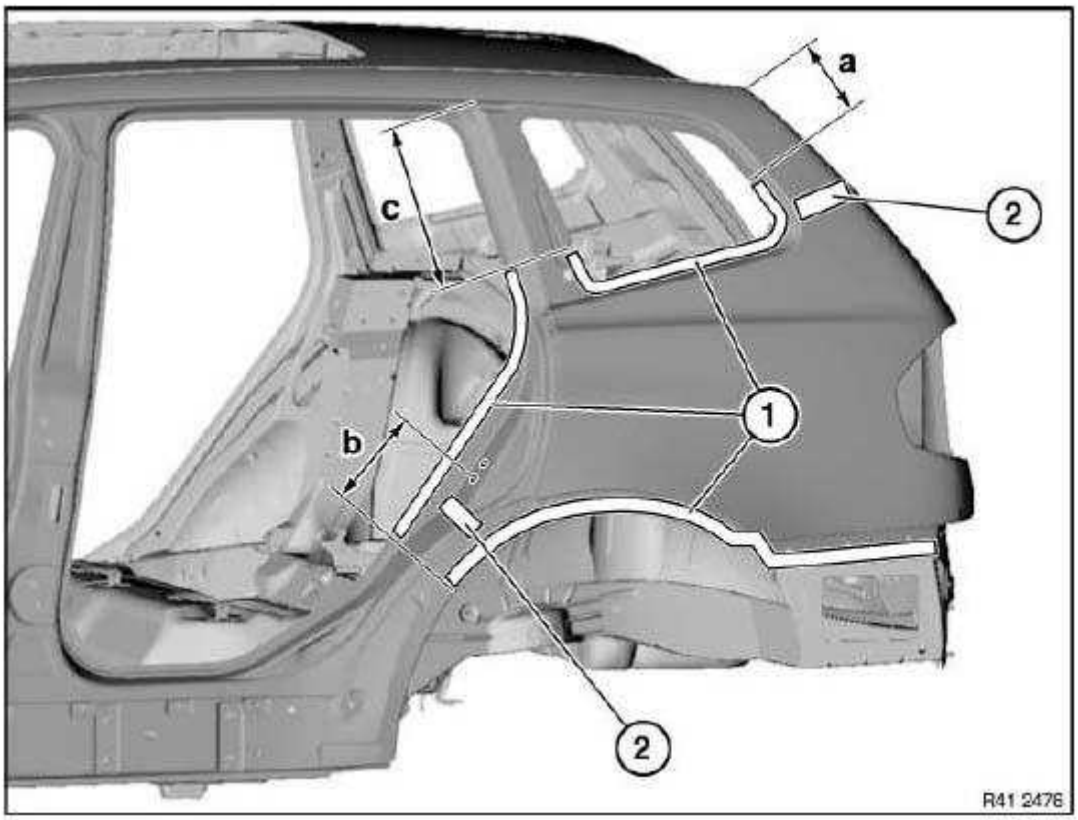


Fig. 115: Cavity Acoustic Baffles And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 120 mm from roof frame

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Measurement b = approx. 190 mm from middle of lower lock striker screw point.

Measurement c = approx. 290 mm

Open weld joints in areas (1).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles (2).
- Weld in reinforcement plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Open weld joints in areas (1).

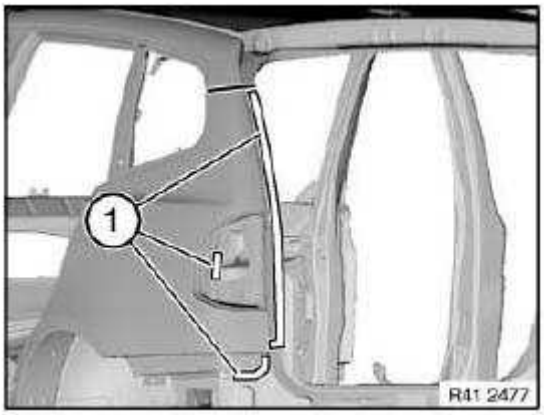


Fig. 116: Weld Joints In Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 35 401 REPLACING REAR LEFT SIDE PANEL (PARTIAL REPLACEMENT, DOOR OPENING)

Read contents of Body, General, see **41 0 Contents of Body, General**.

Use only approved spot-welding apparatus for repairs, see **41 00 ... Workshop equipment**

Following new body parts are required:

- (1) Side panel, rear

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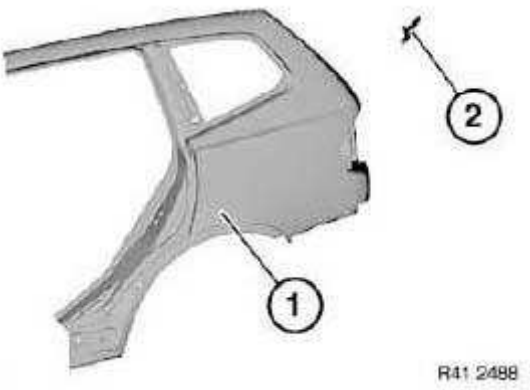


Fig. 117: Side Panel, Rear And D-Pillar Shaped Part
Courtesy of BMW OF NORTH AMERICA, INC.

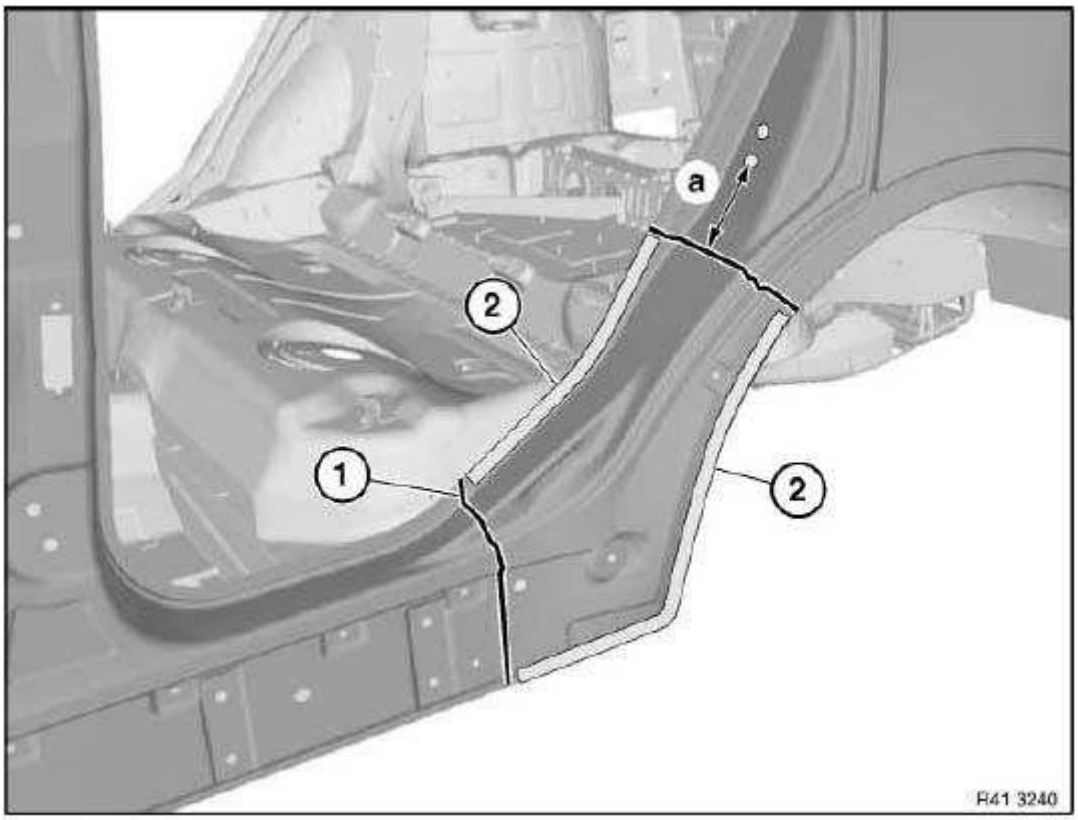


Fig. 118: Mark Severance Cut And Weld Joints In Areas Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

Mark severance cut (1) in accordance with new part on vehicle.

IMPORTANT: Cut outer metal sheet only.

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Measurement a = approx. 200 mm from middle of lower lock striker screw point.

Open weld joints in areas (2).

Installation information:

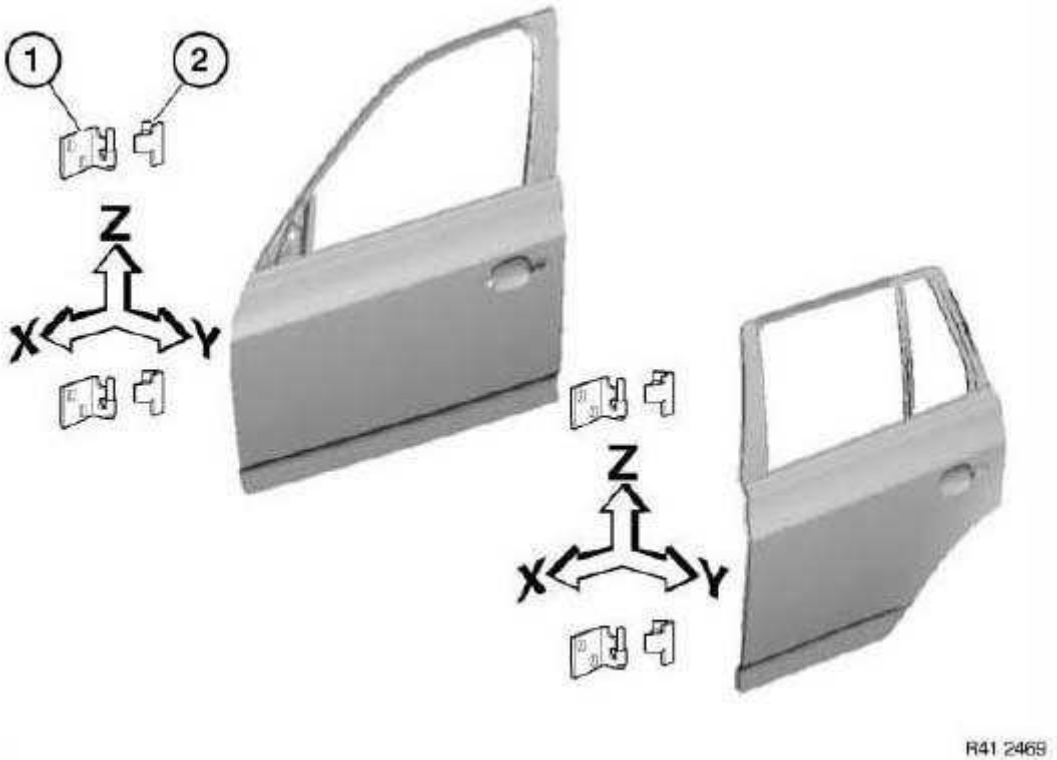
- Apply window glass adhesive to cavity acoustic baffle (3), see **41 00 ... Installing a cavity bulkhead (expanded)**.
- Weld in reinforcing panels at all severance cuts., see **41 00 ... Welding in reinforcement plate (steel plate)**.

51 FRONT SIDE DOORS

41 51 004 ADJUSTING FRONT LEFT OR RIGHT DOOR

NOTE: The gap dimensions serve as the basis for adjustment work.
Adjust screwed body parts from rear to front.
Make unpainted surfaces visible by also moving the hinges.
Touch these up in the appropriate color.

CAUTION: Do not damage adjoining body parts.
Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.



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Fig. 119: Gap Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken screws (1) and (2) on door hinges to be adjusted at top and bottom.

Adjust door according to specified gap dimension.

Check that adjoining body parts are flush in terms of height and correct if necessary.

After adjustment, tighten hinge screws and nuts.

Tightening torque: 41 51 2AZ, see **41 51 FRONT DOORS** .

Tightening torque: 41 51 3AZ, see **41 51 FRONT DOORS** .

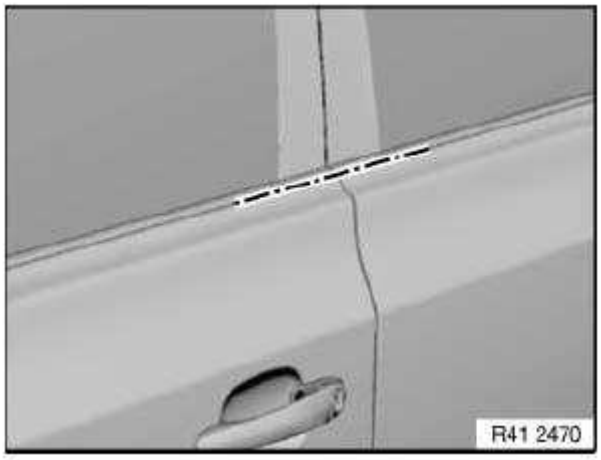


Fig. 120: Adjoining Body
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: If necessary, adjust lock striker.

Slacken screws (1), adjust lock striker and tighten screws.

NOTE: After slackening, lock striker should be positioned approx. 90° to door frame inner edge (2) and be movable.
When the door is closed, the lock striker must not touch or scrape against the door lock. Look out for scratches.

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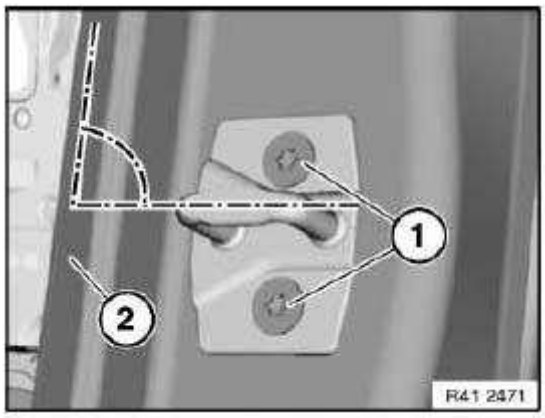


Fig. 121: Slacken Screws
Courtesy of BMW OF NORTH AMERICA, INC.

41 51 080 REMOVING AND INSTALLING FRONT LEFT OR RIGHT DOOR

IMPORTANT: Do not damage adjoining body parts.
Cars with side airbags:
Observe airbag safety regulations, see 41 00 ... Handling airbags and restraint systems.

The illustrations are schematic representations and are to be applied to the relevant vehicle type.

Open door.

WARNING: Side airbag is installed in door trim panel: Disconnect battery.

Release screw on connector frame.

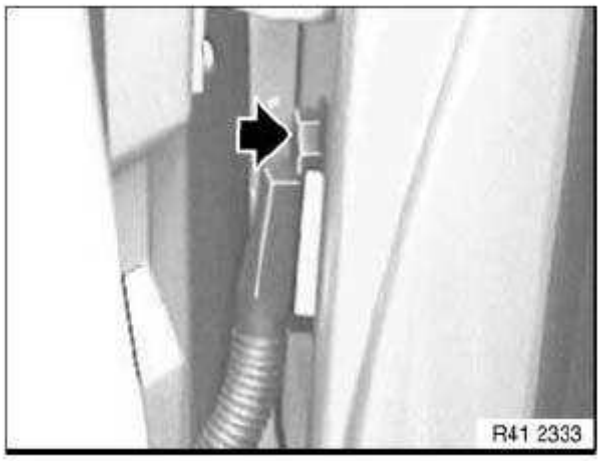


Fig. 122: Locating Screw On Connector Frame

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Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on door retainer.

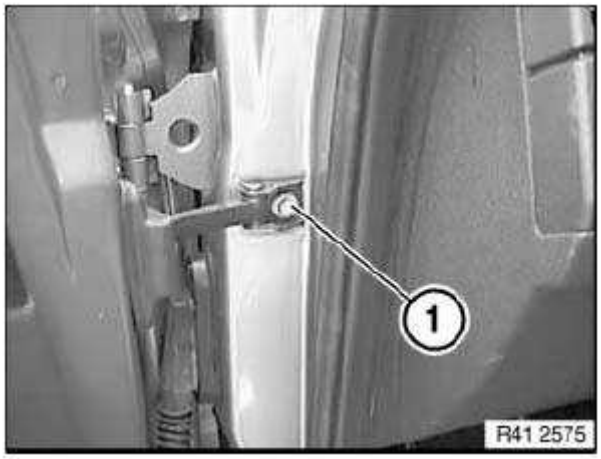


Fig. 123: Door Retainer Screw
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Secure door against falling out.

Release screws between both hinge elements at top and bottom.

Pull both screws out of hinges.

Tightening torque: 41 51 1AZ, see **41 51 FRONT DOORS** .

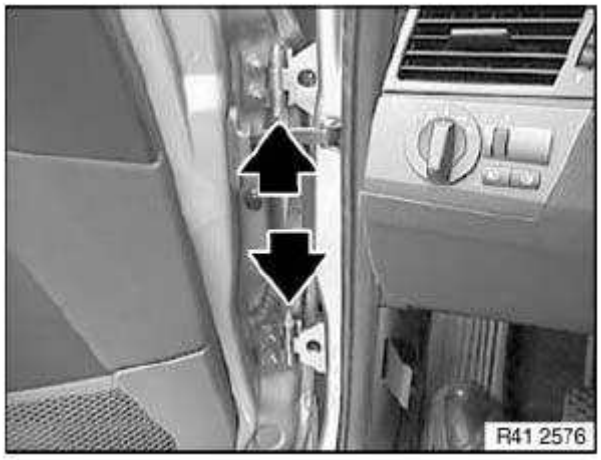


Fig. 124: Locating Screws Between Both Hinge Elements At Top And Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out door sideways and place it on a suitable surface.

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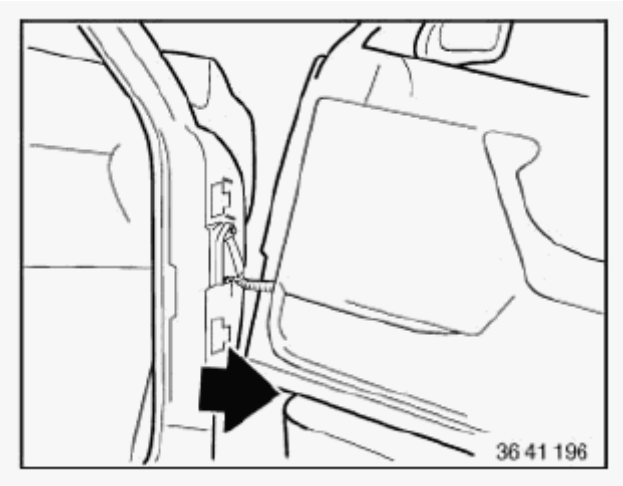


Fig. 125: Pulling Out Door Sideways
Courtesy of BMW OF NORTH AMERICA, INC.

Pull plug connection from door pillar, unlock by pulling out bar and detach.

Installation:

If necessary, adjust front door, see **41 51 004 Adjusting front left or right door**.

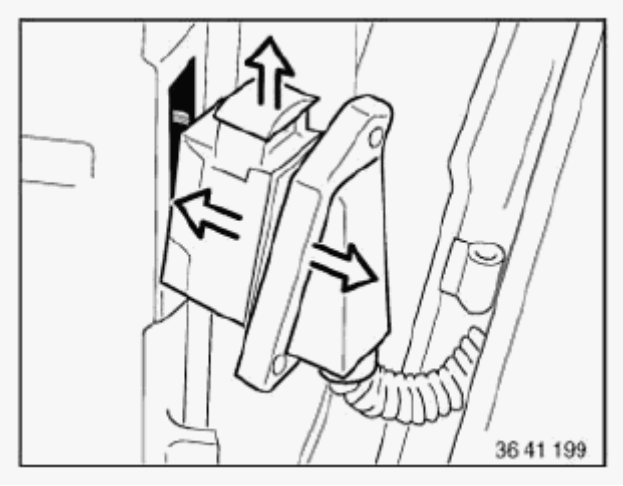


Fig. 126: Pulling Plug Connection From Door Pillar
Courtesy of BMW OF NORTH AMERICA, INC.

52 REAR SIDE DOORS

41 52 004 ADJUSTING REAR LEFT OR RIGHT DOOR

Procedure is identical to Adjusting front left or right door, see **41 51 004 Adjusting front left or right door**.

Door to hinge, tightening torque: 41 52 2AZ, see **41 52 REAR SIDE DOORS** .

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Hinge to body, tightening torque: 41 52 3AZ, see **41 52 REAR SIDE DOORS** .

41 52 080 REMOVING AND INSTALLING REAR LEFT OR RIGHT DOOR

Operation is identical to Removing and installing front left or right door, see **41 51 004 Adjusting front left or right door**.

Hinge pin, tightening torque: 41 52 1AZ, see **41 52 REAR SIDE DOORS** .

Door to hinge, tightening torque: 41 52 2AZ, see **41 52 REAR SIDE DOORS** .

Hinge to body, tightening torque: 41 52 3AZ, see **41 52 REAR SIDE DOORS** .

61 FRONT LID

41 61 000 REMOVING AND INSTALLING ENGINE HOOD

WARNING: Support engine hood in fully opened position with suitable apparatus. Risk of injury.

NOTE: Carry over schematic representation to the relevant vehicle type.

Loosen screws (1).

Unfasten screws (2).

Remove hood lid.

Installation:

Install engine hood at screw locations to on hinge. This dispenses with the need for adjustment after installation.

If this is not possible, adjust engine hood, see **41 61 014 Adjusting engine bonnet/hood**.

Tightening torque: 41 61 1AZ, see **41 61 ENGINE BONNET/HOOD** .

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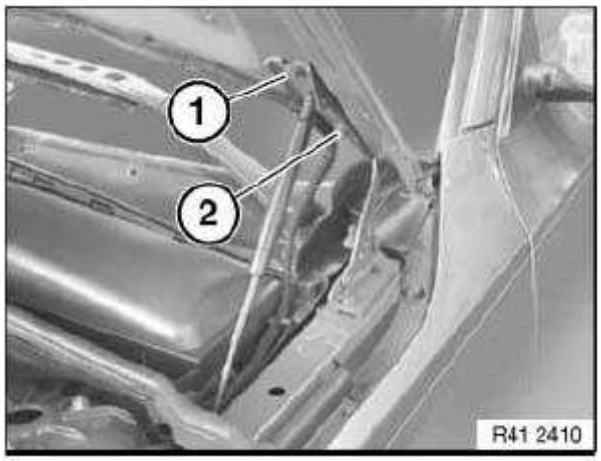


Fig. 127: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

41 61 014 ADJUSTING ENGINE BONNET/HOOD

Read contents of Body, General, see **41 0 Contents of Body, General**.

The specified gap dimensions serve as the basis for adjustment tasks.

Make unpainted surfaces visible by also moving the hinges.

Touch these up in the appropriate colour.

NOTE: Carry over schematic representation to the relevant vehicle type.

Loosen screws (1) and (2) on left and right hinges.

Hood lid must be able to be moved.

NOTE: If the adjustment range is not sufficient, release retaining screws of engine hood hinge on body and move hinge.

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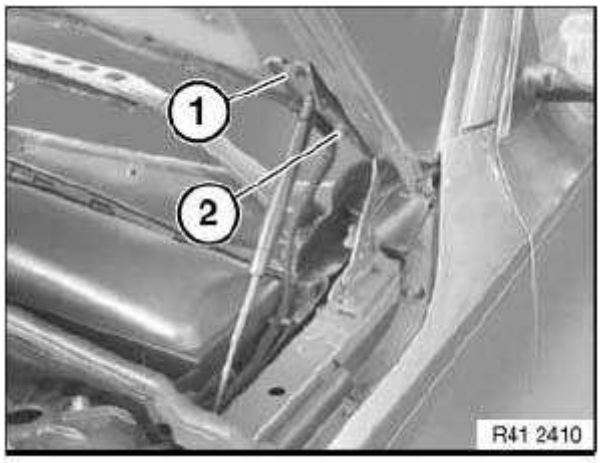


Fig. 128: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Locks and retaining hook must snap correctly into place.

Adjust engine hood.

NOTE: Vertical adjustment, see 51 23 ... ADJUSTING/REPLACING BUMP STOPS of engine hood to side panel by means of stop pads.

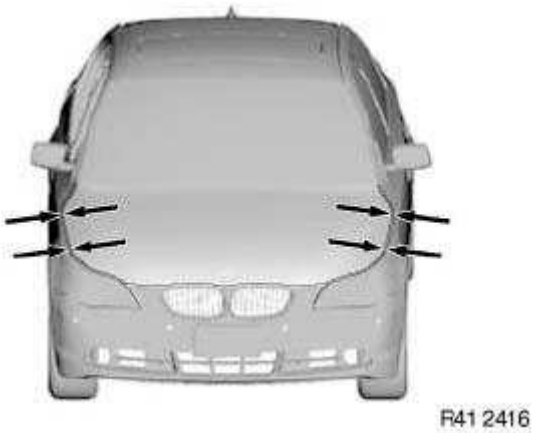


Fig. 129: Locating Engine Hood
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Height adjustment of hood lid to front wall:
Release screw (1) and remove cover (2).
Height adjustment by turning at closing hooks (3).

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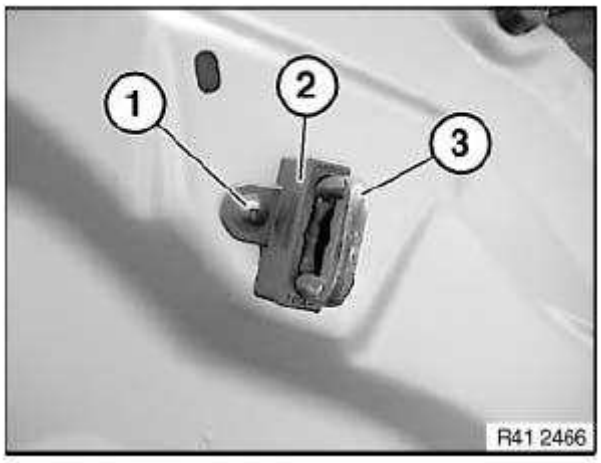


Fig. 130: Screws, Cover And Hooks
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten down all screw connections again.

Tightening torque: 41 61 1AZ, see **41 61 ENGINE BONNET/HOOD** .

IMPORTANT: Check function of retaining hook.

62 REAR LID

41 62 000 REMOVING AND INSTALLING REAR LID

Read contents of Body, General, see **41 0 Contents of Body, General**.

Necessary preliminary tasks:

- Remove trim for rear lid, see **51 49 008 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID** .
- Disconnect all plug and socket cable connections on rear lid.

Open screws (1) on rear lid hinge to rear lid.

Remove trunk lid.

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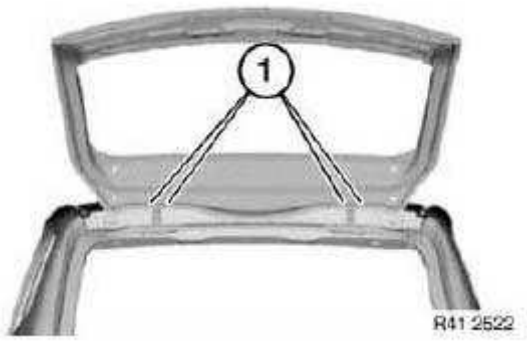


Fig. 131: Screws On Rear Lid Hinge To Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

41 62 014 ADJUSTING REAR LID

Read contents of Body, General, see **41 0 Contents of Body, General**.

The E83 gap dimensions serve as the basis for adjustment work.

Make unpainted surfaces visible by also moving the hinges. Touch these up in the appropriate color.

Release screws (1) on rear lid hinge to rear lid so that rear lid can still be moved.

If adjustment range is not enough, also slacken screws (2).

Adjust rear lid.

Adjust rear lid lock, see **51 24 004 ADJUSTING REAR LID LOCK** .

Retighten all screws.

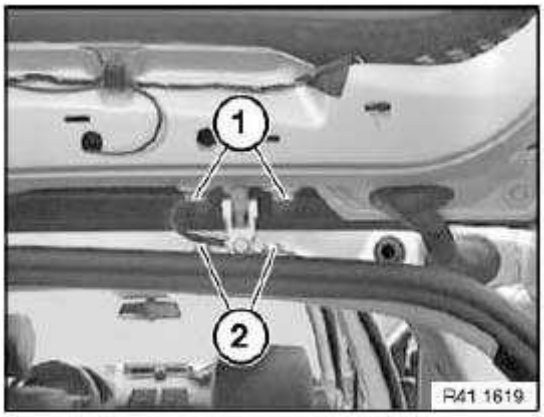


Fig. 132: Release And Slacken Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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41 62 519 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT HINGE FOR REAR LID

Read contents of Body, General, see **41 0 Contents of Body, General**.

Necessary preliminary tasks:

- Remove rear lid, see **41 62 000 Removing and installing rear lid**

Open screw connections (1) on car.

Remove hinge.

Installation:

Adjust rear lid on basis of E83 body gap dimensions.

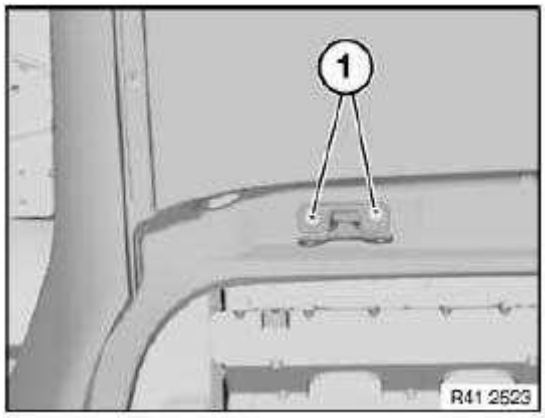


Fig. 133: Screw Connections On Car
Courtesy of BMW OF NORTH AMERICA, INC.

63 OTHER FLAPS

41 63 000 REMOVING AND INSTALLING FLAP FOR FUEL FILLER NECK

NOTE: The illustration is a schematic representation and is to be applied to the relevant vehicle type.

Open fuel filler flap.

Lever out lock (2) and detach fuel filler flap (1) in direction of arrow.

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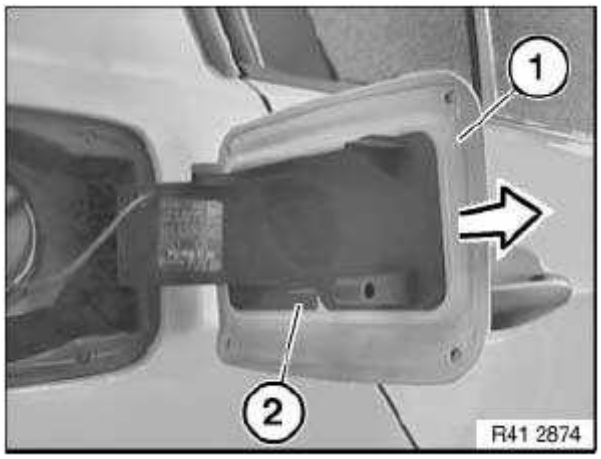


Fig. 134: Removing Lever Out Lock And Fuel Filler Flap
Courtesy of BMW OF NORTH AMERICA, INC.

41 63 003 REPLACING COVER BOWL

Necessary preliminary tasks:

- Remove flap for fuel filler neck, see **41 63 000 Removing and installing flap for fuel filler neck**
- Remove servodrive for tank filler flap, see **67 11 555 REMOVING AND INSTALLING/REPLACING SERVODRIVE FOR TANK FILLER FLAP** .

Turn cover (1) through approx. 45° and lever out in direction of arrow.

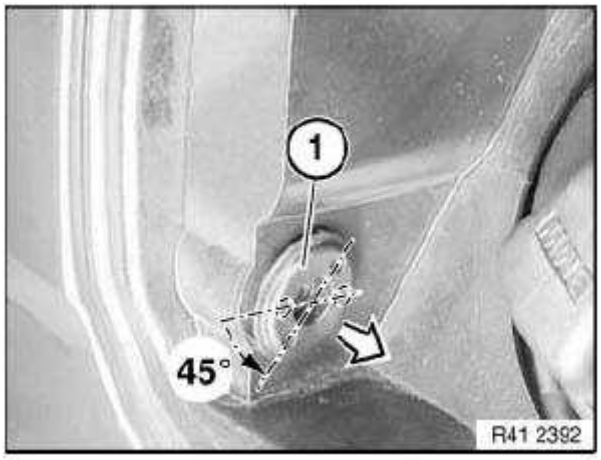


Fig. 135: Turning Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Press retaining strap (1) inwards and remove.

Remove cover (2).

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Remove rubber pad (3).

Insert a suitable tool through bores (3) and release catches.

Installation:

Make sure seal (4) is correctly seated.

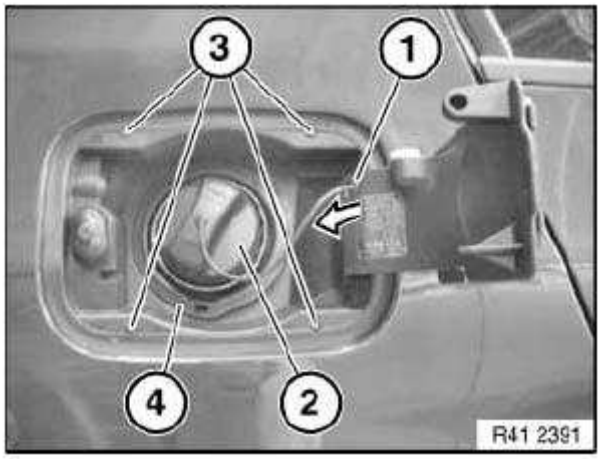


Fig. 136: Retaining Strap, Cover, Rubber Pad And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on ejector (2) must not be damaged.

Check protective cap (3) for correct seating.

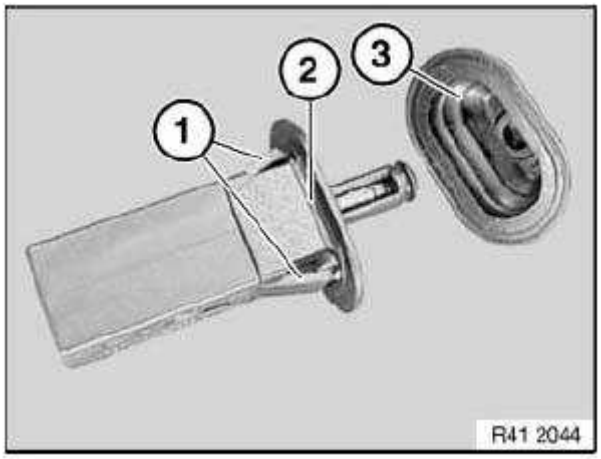


Fig. 137: Catches, Ejector And Protective Cap
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Locks (1) on left/right of cover (2) must not be damaged.

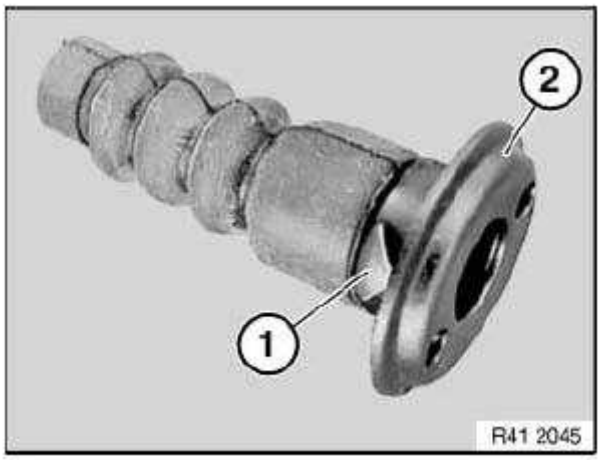


Fig. 138: Locks And Left/Right Of Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Close flap (1).

Twist cover bowl (2) in direction of arrow out of side panel and remove.

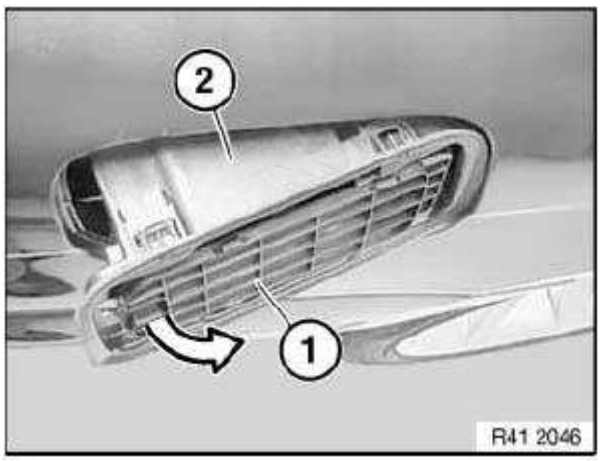


Fig. 139: Twisting Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts on cover bowl (6) must not be damaged or missing:

1. Rubber pad
2. Catches, top/bottom

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3. Spring
4. Catch
5. Guide

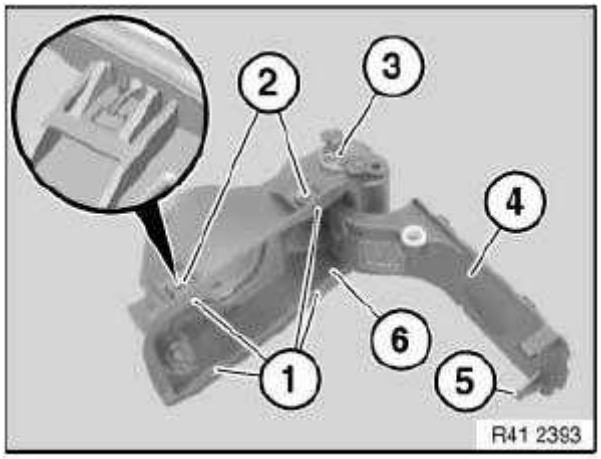


Fig. 140: Rubber Pad, Catches, Spring And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

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2000-06 ACCESSORIES & BODY, CAB

Panorama Glass Sunroof - SI Techniques - E53, E61, E83, E91

PANORAMA GLASS SUNROOF



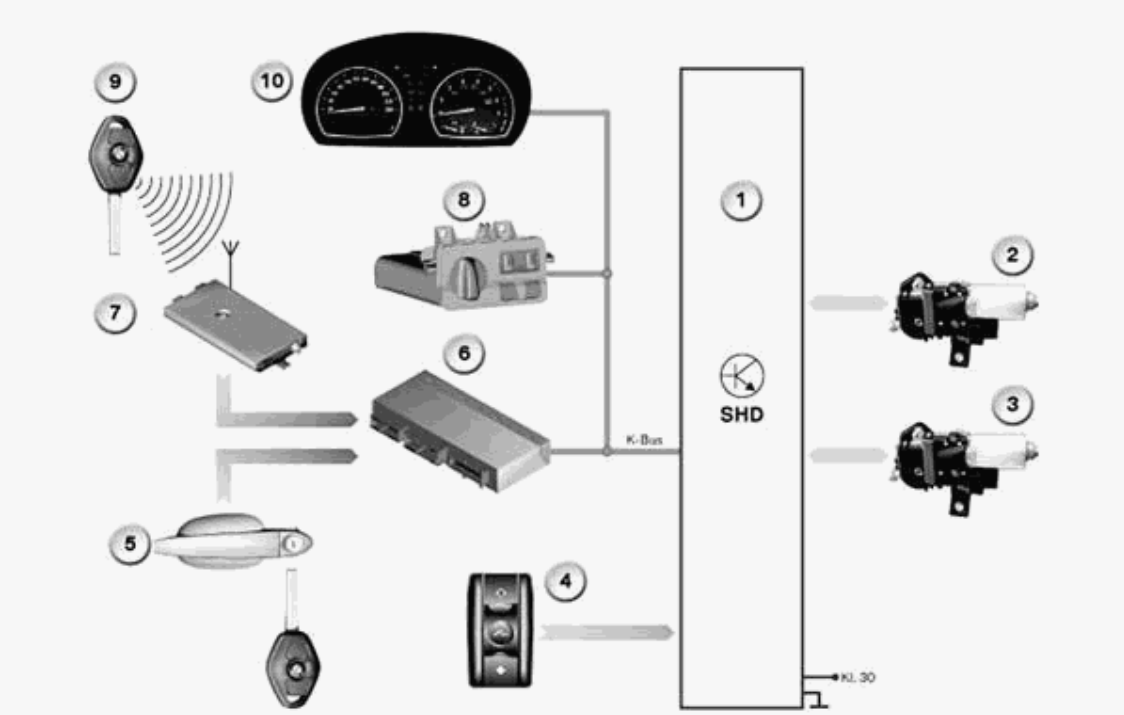
Fig. 1: Identifying Panorama Glass Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

INTRODUCTION

The fully automatic Panorama glass sunroof consists of 2 glass sunroofs and a 2-piece sliding visor. The front glass sunroof works like a sliding/tilting sunroof, the rear glass sunroof is a tilting glass sunroof. The Panorama glass sunroof is actuated in the usual way by its own control unit.

E53, E83

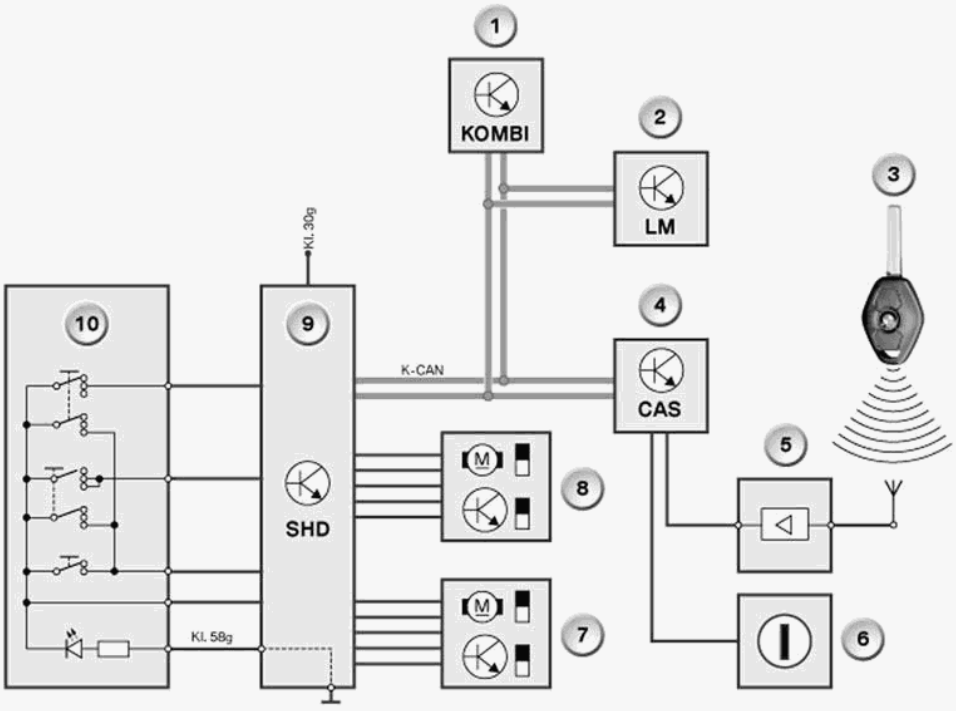
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Key	Explanation	Key	Explanation
1	SHD control unit	2	Electric motor for sliding/tilting glass sunroof and tilting glass roof
3	Electric motor for sliding visor and wind deflector	4	Panorama glass sunroof switch
5	Door lock cylinder	6	> E53: General module 3 > E83: General module 5
7	Aerial diversity	8	Light switch cluster (LSZ)
9	Remote control	10	Instrument cluster (KOMBI)
K-Bus	Body bus	Kl. 30	Terminal 30

Fig. 2: Identifying Panorama Glass Sunroof Components (E53 & E83)
Courtesy of BMW OF NORTH AMERICA, INC.

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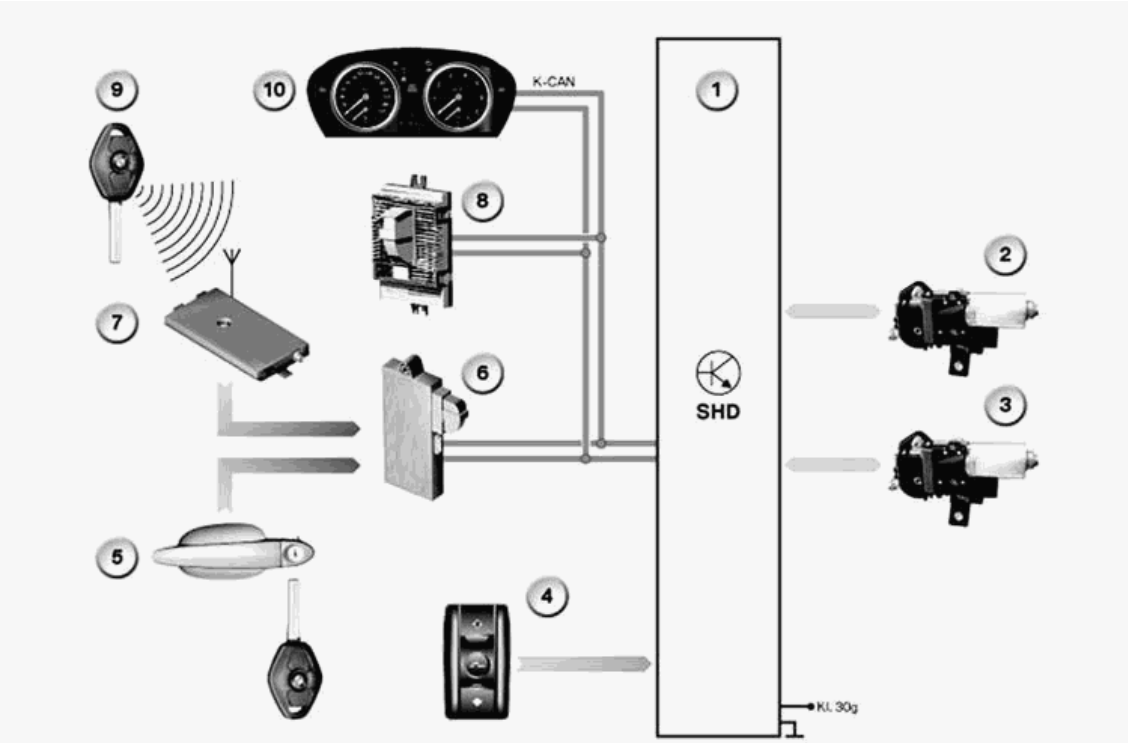
Key	Explanation	Key	Explanation
1	Instrument cluster (KOMBI)	2	Light switch cluster (LSZ)
3	Remote control	4	> E53: General module 3 (GM) > E83: General module 5 (GM)
5	Aerial diversity	6	Door lock cylinder
7	Electric motor for sliding visor and wind deflector	8	Electric motor for sliding/tilting glass sunroof and tilting glass roof
9	SHD control unit	10	Panorama glass sunroof switch
K-Bus	Body bus	Kl. 30	Terminal 30
Kl. 58g	Locating light in switch for Panorama glass sunroof		

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Fig. 3: Panorama Glass Sunroof Circuit Flow Diagram (E53 & E83)
Courtesy of BMW OF NORTH AMERICA, INC.

E61

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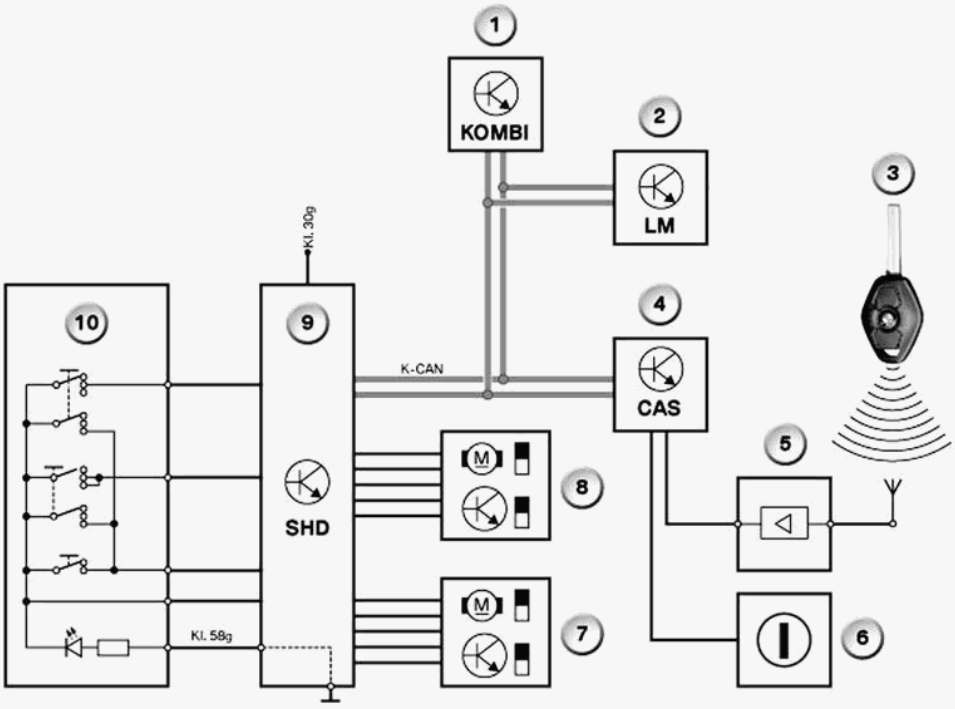


Key	Explanation	Key	Explanation
1	SHD control unit	2	Electric motor for sliding/tilting glass sunroof and tilting glass roof
3	Electric motor for sliding visor and wind deflector	4	Panorama glass sunroof switch
5	Door lock cylinder	6	Car Access System (CAS)
7	Aerial diversity	8	Light module (LM)
9	Remote control	10	Instrument cluster (KOMBI)
K-CAN	Body CAN	Kl. 30g	Terminal 30g active

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Fig. 4: Identifying Panorama Glass Sunroof Components (E61)
Courtesy of BMW OF NORTH AMERICA, INC.

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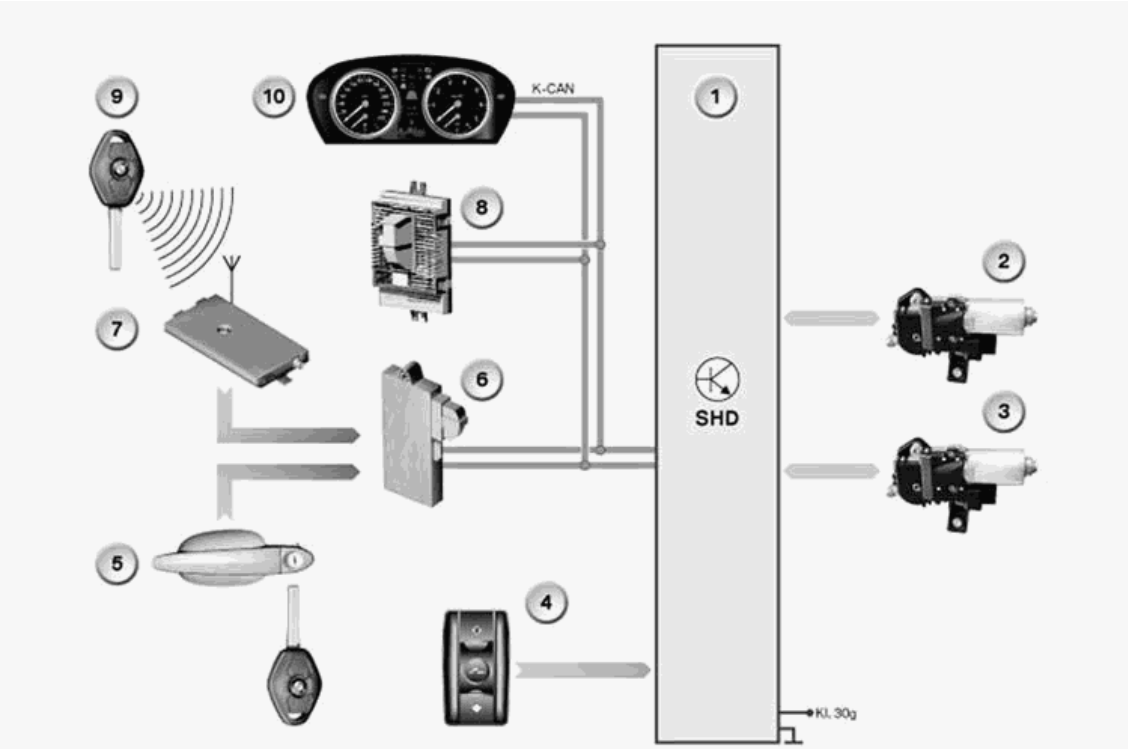
Key	Explanation	Key	Explanation
1	Instrument cluster (KOMBI)	2	Light module (LM)
3	Remote control	4	Car Access System (CAS)
5	Aerial diversity	6	Door lock cylinder
7	Electric motor for sliding visor and wind deflector	8	Electric motor for sliding/tilting glass sunroof and tilting glass roof
9	SHD control unit	10	Panorama glass sunroof switch
K-CAN	Body CAN	Kl. 30g	Terminal 30g active
Kl. 58g	Locating light in switch for Panorama glass sunroof		

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Fig. 5: Panorama Glass Sunroof Circuit Flow Diagram (E61)
Courtesy of BMW OF NORTH AMERICA, INC.

E91

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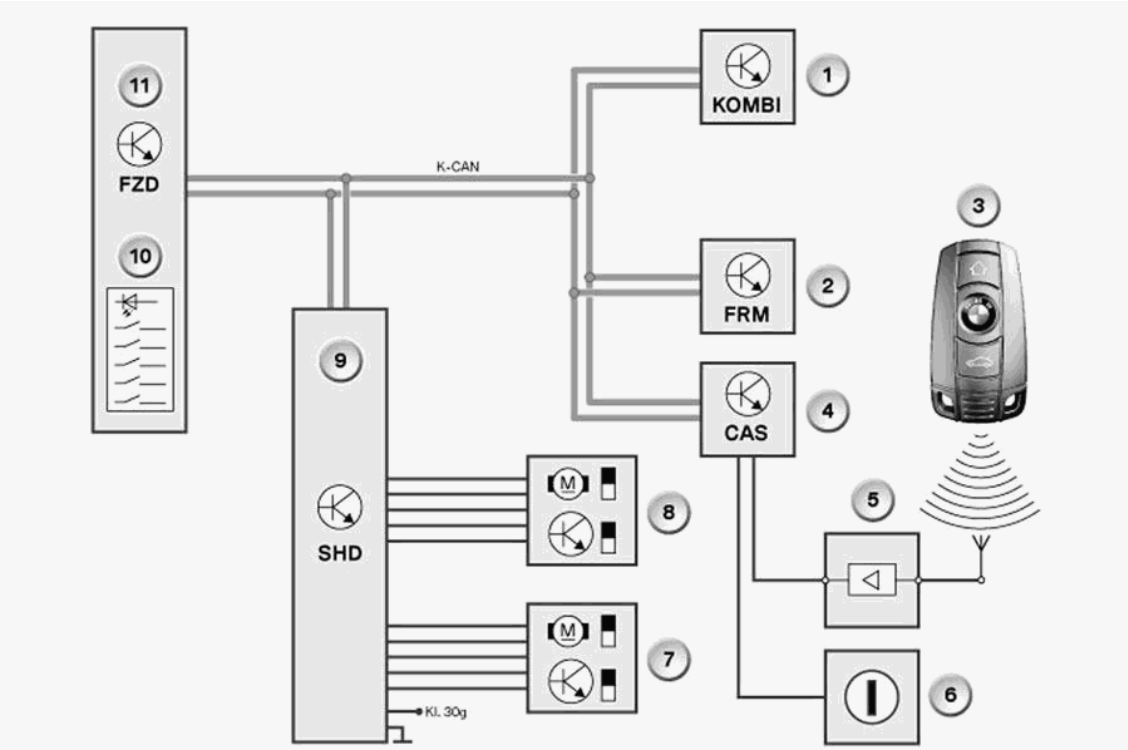


Key	Explanation	Key	Explanation
1	SHD control unit	2	Electric motor for sliding/tilting glass sunroof and tilting glass roof
3	Electric motor for sliding visor and wind deflector	4	Switch for Panorama glass sunroof in roof control panel (FZD)
5	Door lock cylinder	6	Car Access System (CAS)
7	Aerial diversity	8	Footwell module
9	Remote control	10	Instrument cluster (KOMBI)
K-CAN	Body CAN	Kl. 30g	Terminal 30g

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Fig. 6: Identifying Panorama Glass Sunroof Components (E91)
Courtesy of BMW OF NORTH AMERICA, INC.

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Key	Explanation	Key	Explanation
1	Instrument cluster (KOMBI)	2	Footwell module
3	Remote control	4	Car Access System (CAS)
5	Aerial diversity	6	Door lock cylinder
7	Electric motor for sliding visor and wind deflector	8	Electric motor for sliding/tilting glass sunroof and tilting glass roof
9	SHD control unit	10	Panorama glass sunroof switch
11	Roof control panel		
K-CAN	Body CAN	Kl. 30g	Terminal 30g

Fig. 7: Panorama Glass Sunroof Circuit Flow Diagram (E91)
Courtesy of BMW OF NORTH AMERICA, INC.

The Panorama glass sunroof is available as special equipment (option 402).

BRIEF DESCRIPTION OF COMPONENTS

The following components supply the input signals for the Panorama glass sunroof:

Panorama Glass Sunroof Switch

The switch is located in the control unit in the roof console.

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The switch can be moved in 3 directions (pushed forwards, pushed backwards, pushed upwards).

Installation Location

E53, E61, E83: The switch is integrated in the control panel in the roof console.

E91: The switch is integrated into the roof control panel (FZD).

How It Works

The switch for the Panorama glass sunroof does not engage. The switch has three operating directions:

- Open
- Close
- Tilt

NOTE: The "open" or "close" process for the sliding/tilting glass sunroof is interrupted when the comfort position is reached.

When the comfort position is reached as the sliding/tilting glass sunroof is opened or closed (sliding/tilting glass sunroof approx. 3/4 open), the "open" or "close" process is interrupted. The switch for the Panorama glass sunroof must be pushed again to continue the process.

The switch for the Panorama glass sunroof has a locating light (terminal 58g).

E53, E83 - The SHD control unit receives the information terminal 58g from the light switch cluster (LSZ) via the body bus. The control unit activates the LEDs (Light-Emitting Diodes) in the Panorama glass sunroof switch.

E61 - The SHD control unit receives the information terminal 58g from the light module (LM) via the Body CAN.

E91 - The SHD control unit receives the information terminal 58g from the footwell module (FRM) via the Body CAN.

Hall Sensors In Panorama Glass Sunroof Drive

There are 2 Hall sensors integrated in each of the two electric motors for the Panorama glass sunroof. The Hall sensors detect the motor speed. The signals are forwarded to the SHD control unit. These signals enable the control unit to recognize the position of the two glass sunroofs and of the 2-piece sliding visor. Moreover, the closing speed of each electric motor is used to calculate the closing force for the two glass sunroofs and for the sliding visor.

SHD Control Unit (Control Unit For Panorama Glass Sunroof)

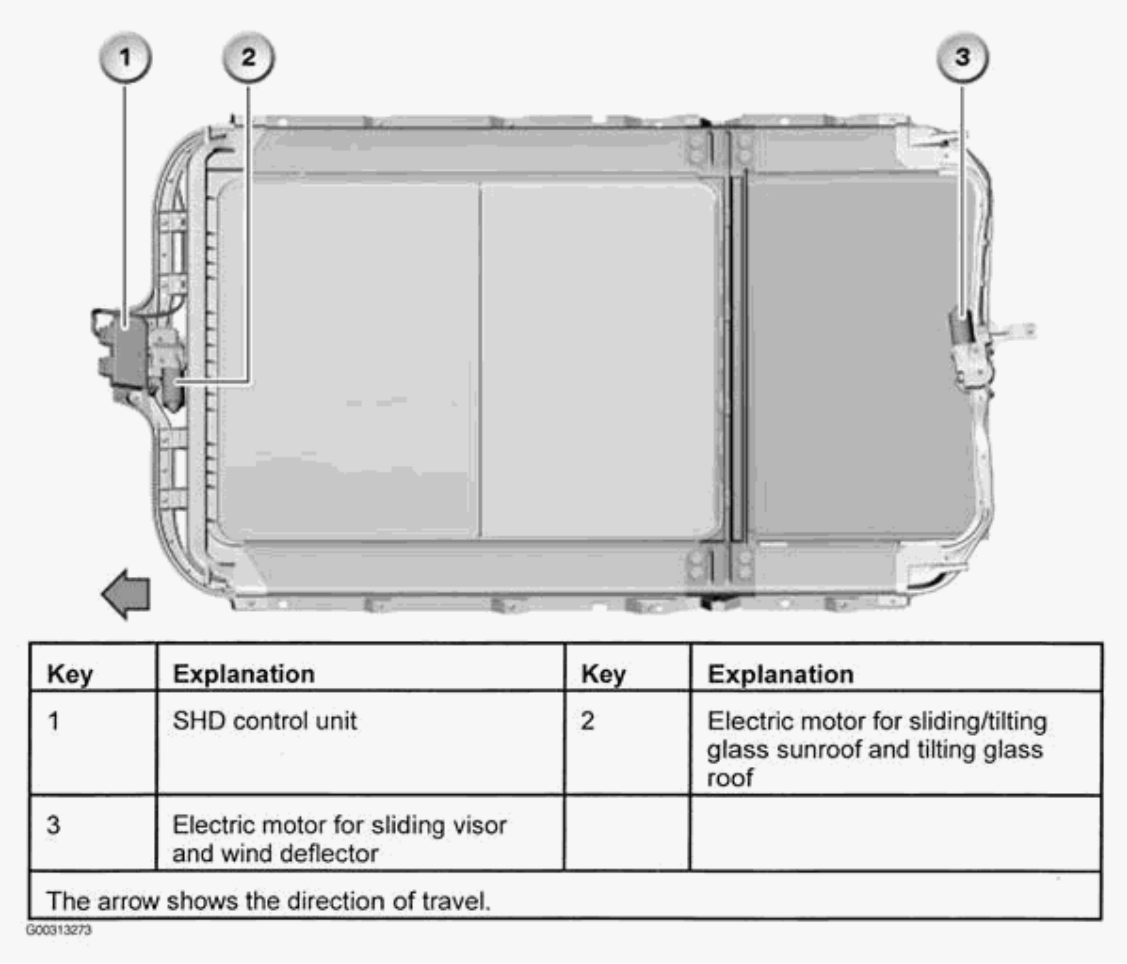
NOTE: The control units involved in the functions of the Panorama glass sunroof are as follows:

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The SHD control unit controls all the electrical functions of the Panorama glass sunroof.

Installation Location

E53, E83 - The SHD control unit is located next to the electric motor for the two glass sunroofs. The control unit is secured at the bottom to the Panorama glass sunroof frame.



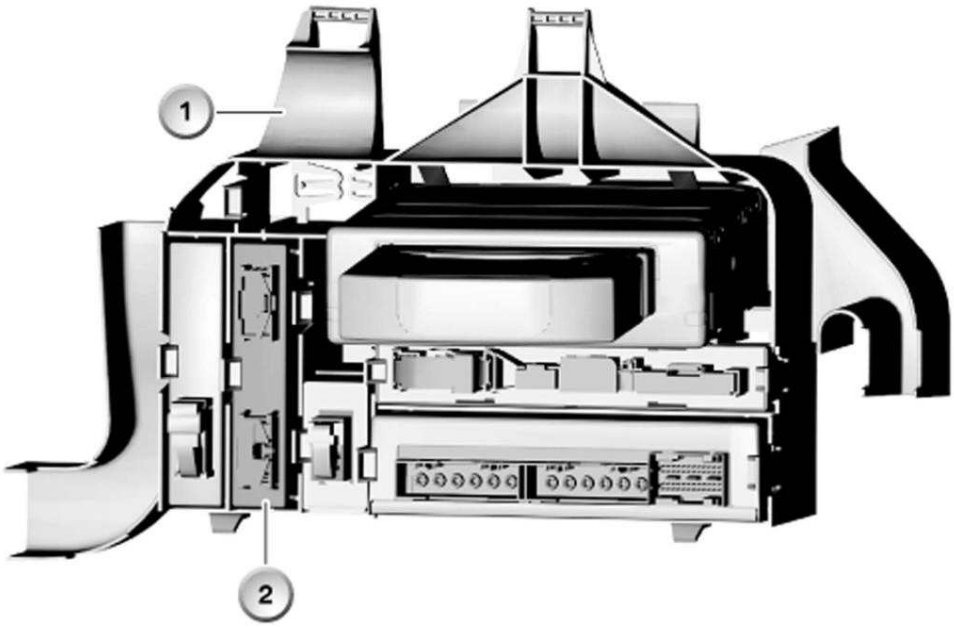
Key	Explanation	Key	Explanation
1	SHD control unit	2	Electric motor for sliding/tilting glass sunroof and tilting glass roof
3	Electric motor for sliding visor and wind deflector		
The arrow shows the direction of travel.			

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Fig. 8: Identifying SHD Control Module (E53 & E83)
Courtesy of BMW OF NORTH AMERICA, INC.

E61 - The SHD control unit is installed in the carrier behind the glove compartment.

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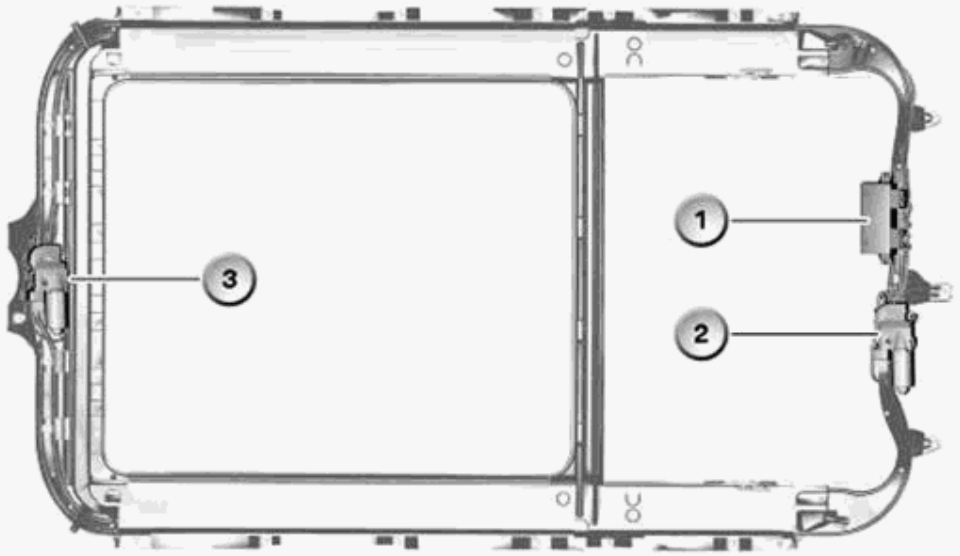
Key	Explanation	Key	Explanation
1	Device holder	2	SHD control unit

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Fig. 9: Locating SHD Control Module (E61)
Courtesy of BMW OF NORTH AMERICA, INC.

E91 - The SHD control unit is located next to the electric motor for the sliding visor. The control unit is secured at the bottom to the Panorama glass sunroof frame.

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Key	Explanation	Key	Explanation
1	SHD control unit	2	Electric motor for sliding visor and wind deflector
3	Electric motor for sliding/tilting glass sunroof and tilting glass roof		
The arrow shows the direction of travel.			

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Fig. 10: Identifying SHD Control Module (E91)
Courtesy of BMW OF NORTH AMERICA, INC.

Construction

The SHD control unit has a 16-pin plug connector to the vehicle electrical system and a 10-pin plug connector to the DC motors.

Pin Assignment For Connector X14044, 16-Pin

PIN ASSIGNMENT FOR CONNECTOR X14044, 16-PIN

Pin	Type	Explanation
1	V	Power supply (terminal 30)
2	M	Earth (terminal 31)
3	E/A	E61, E91: K-CAN High connection (Body CAN)
4	E/A	E61, E91: K-CAN Low connection (Body CAN)
5	E/A	E53, E83: Body bus
6	-	-

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7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	E	Negative wire for the Panorama glass sunroof switch and the LEDs
13	E	"Close" signal from the switch of the Panorama glass sunroof
14	E	"Open" signal from the switch of the Panorama glass sunroof
15	E	"Lift" signal from the switch of the Panorama glass sunroof
16	E	Positive wire for the LEDs in the Panorama glass sunroof switch
	A = Output E = Input E/A = Input and output M = Earth V = Supply For current specifications regarding pin assignment, please refer to BMW diagnosis system.	

Pin Assignment For Connector X14103, 10-Pin

PIN ASSIGNMENT FOR CONNECTOR X14103, 10-PIN

Pin	Type	Explanation
1	E	Motor contact for sliding/tilting glass sunroof and tilting glass sunroof
2	E	Motor contact for sliding/tilting glass sunroof and tilting glass sunroof
3	E	Motor contact for sliding visor
4	E	Motor contact for sliding visor
5	A	Negative wire (terminal 31) for the glass sliding/tilting sunroof and for the tilting glass sunroof
6	A	Hall sensor in electric motor for sliding/tilting glass sunroof and for tilting glass sunroof
7	A	Hall sensor in electric motor for sliding/tilting glass sunroof and for tilting glass sunroof
8	A	Negative wire (terminal 31) for the sliding visor
9	A	Hall sensor in the sliding visor motor
10	A	Hall sensor in the sliding visor motor
	A = Output E = Input For current specifications regarding pin assignment, please refer to BMW diagnosis system.	

GM: General Module 3 (E53) Or General Module 5 (E83)

The general module controls the convenience opening or closing function of the Panorama glass sunroof. The general module forwards the request (from the remote control, for example) to the SHD control unit via the body bus.

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CAS: Car Access System (E61, E91)

The CAS controls the convenience opening or closing function of the Panorama glass sunroof. The CAS forwards the request (from the remote control, for example) to the SHD control unit via the Body CAN.

CA: Comfort Access

Option 322 "Comfort Access" allows convenience closing of the Panorama glass sunroof without actively using the ID transmitter.

For further information, please refer to SI Technology (SBT) 66 04 04 093.

LSZ: Light Switch Cluster (E53, E83)

The light switch cluster sends the SHD control unit the request to switch on the locating light via the body bus (terminal 58g).

LM: Light Module (E61)

The light module sends the SHD control unit the request to switch on the locating light via the Body CAN (terminal 58g).

FRM: Footwell Module (E91)

The footwell module sends the SHD control unit the request to switch on the locating light via the Body CAN (terminal 58g).

FZD: Roof Control Panel (E91)

The roof control panel picks up the signals from the switch for the Panorama glass sunroof. In addition, the FZD control unit also converts the signal into a CAN message. The CAN message is forwarded to the SHD control unit via the K-CAN.

KOMBI: Instrument Cluster

The instrument cluster sends the road speed signal to the SHD control unit:

via the K-bus (body bus) on the **E53, E83**
via the K-CAN (Body CAN) on the **E61, E91**

The signal is needed to extend and retract the wind deflector and to adjust the closing force limitation.

Panorama Glass Sunroof Drive

NOTE: The following components are actuated for the purposes of the functions of the Panorama glass sunroof:

The drive consists of 2 DC motors with reduction gearing. One motor operates the two glass sunroofs, the other

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motor the sliding visor and the wind deflector.

Installation Location

The electric motors for the Panorama glass sunroof are installed from below on the Panorama glass sunroof frame. See **Fig. 8** .

Construction

The Panorama glass sunroof drive and the sliding visor and wind deflector drive consist of 2 technically identical DC motors with reduction gearing.

How It Works

Both electric motors are actuated by the SHD control unit. Two Hall sensors are integrated in the electric motor for each of the two glass sunroofs in the sliding visor motor. This allows the control unit to recognise the position of the glass sunroofs and of the sliding visor. The closing speed is used by the SHD control unit to calculate the closing force needed for the glass sunroofs and the sliding visor.

Wind Deflector

The wind deflector is extended to reduce noises inside the vehicle when the sliding/tilting glass sunroof is open. The wind deflector automatically extends depending on the road speed.

How It Works

The wind deflector is extended, depending on the road speed.

Signal path:

E53, E83: Instrument cluster -> Body bus -> SHD control unit
E61, E91: Instrument cluster -> Body CAN -> SHD control unit

The wind deflector has 2 positions:

- Wind Deflector Completely Extended
- Intermediate Position

When the sliding visor is fully open, the wind deflector extends fully with a net if the sliding/tilting glass sunroof is more than approx. 1/3 open. For this to happen, the sliding visor is disengaged from the sliding visor motor. The wind deflector is extended by the sliding visor motor. When a road speed of approx. 140 km/h is reached, the wind deflector is retracted to the intermediate position. When the speed drops below approx. 100 km/h again, the wind deflector is fully extended again. To prevent the wind deflector from extending and retracting in a haphazard manner, the wind deflector is actuated with a time lag.

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Wind deflector completely extended

1) Wind deflector

2) Net



Wind deflector in intermediate position

1) Wind defelctor

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Fig. 11: Identifying Wind Deflector Positions
Courtesy of BMW OF NORTH AMERICA, INC.

2-Piece Sliding Visor

E53, E61, E83: When driving with the Panorama glass sunroof tilted ("vent" position), a suction effect develops on the 2-piece sliding visor. This suction effect can lead to noise disturbance.

To minimize the suction effect, the rear piece of the 2-piece sliding visor is opened approximately 3 cm.

E91: The 2-piece sliding visor moves back approx.5 cm and forms an opening at the front.

SYSTEM FUNCTIONS

The Panorama glass sunroof comprises the following functions:

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- Opening And Closing
- Convenience Opening And Closing
- Emergency Closing
- Anti-Trap Function (Limits Closing Force)
- Safety Functions

Opening And Closing

The functions for opening and closing are as follows:

- Manual opening or closing

  Push the switch for the Panorama glass sunroof backwards to the first resistance point to open it, or forwards to close it.

  The glass sliding/tilting sunroof (front glass sunroof) keeps moving as long as the switch remains pushed.

- Automatic opening or closing
  - Automatic opening:

    Press the switch for the Panorama glass sunroof beyond the pressure point. The Panorama glass sunroof is partially opened automatically. That means: Depending on the initial position of the Panorama glass sunroof, the sliding visor is first opened fully. Then, if the switch is again pressed beyond the pressure point, the glass sliding/tilting sunroof is opened. When it is opened, the sliding/tilting glass sunroof automatically moves to the comfort position (sliding/tilting glass sunroof approx.3/4 open). The switch must be pushed again to completely open the glass sliding/tilting sunroof.

  - Automatic closing:

    The closing procedure is a reverse of the above. When the comfort position is reached during closing, the closing operation is interrupted and must be restarted.

- Automatic opening or closing with a double click

  Press the button for the Panorama glass sunroof beyond the pressure point to "Open" or "Close" twice within the space of 2 seconds. The Panorama glass sunroof completely opens or closes automatically. When this happens, the sliding visor and the sliding/tilting glass sunroof open or close together. However, the sliding visor always moves out-of-line with the sliding/tilting glass sunroof. This ensures that the sliding visor is always slightly more open than the sliding/tilting glass sunroof as the sliding/tilting glass sunroof is opened or closed.

- Tilt
  - Push the switch for the Panorama glass sunroof upwards until it reaches its mechanical stop. The front glass sliding/tilting sunroof and the rear tilting glass sunroof are automatically lifted from every other position as long as the switch remains pushed.

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- Press the switch for the Panorama glass sunroof up twice within the space of 2 seconds. The Panorama glass sunroof moves to the "Vent" position, regardless of the starting position. ("Vent" position means: both glass sunroofs are fully tilted, the rear section of the 2-piece sliding visor is opened approx.3 cm.)

NOTE: **Automatic closing is not possible if the anti-trap function fails.**
Automatic closing is not possible if the anti-trap function fails (on account of defective Hall sensor, for example). Closing is then only possible with the mechanical emergency mode.
Any fault data is then stored in the SHD control unit.

Convenience Opening And Closing

The controls that can be used for this purpose are as follows:

- Button on remote control (radio-control key)

  Press the button on the remote control to "unlock" or "lock" and hold it in this position until the Panorama glass sunroof reaches the desired position.

- Door lock on driver's door

  Use the mechanical key to turn the lock in the driver's door to the position for unlocking or locking, and hold it in this position until the Panorama glass sunroof reaches the desired position.

- Driver-side outside door handle and passenger-side outside door handle

  If the vehicle is equipped with Comfort Access (CA), **convenience closing** can be started using the outside door handle electronics in the bow handle.

The convenience opening/convenience closing function is stopped if the command is cancelled.

Emergency Closing

Emergency closing is a function for deliberate closure of the Panorama glass sunroof without anti-trap function (closing-force limitation). Emergency closing may be necessary if someone attempts to reach into the interior of the car or if mechanical difficulty is experienced in closing the Panorama glass sunroof.

Emergency closing can be activated when the car is stopped or travelling at a speed up to 16 km/h.

To activate emergency closing:

Push the switch for the Panorama glass sunroof in the "close" direction until it reaches its mechanical stop and hold it there. The Panorama glass sunroof is closed with maximum force and maximum speed without anti-trap function.

If the Panorama glass sunroof is blocked, the electric motor continues to run until the overheating protection is

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activated.

Anti-Trap Function (Closing-Force Limitation)

WARNING: Note Initialization
The Panorama glass sunroof has to be initialized in order for the anti-trap function to work correctly. The Panorama glass sunroof has to be initialized by service staff.

The anti-trap function is active over the entire range of movement in the closing direction.

The anti-trap function works as follows:

- The sliding/tilting glass sunroof and/or the sliding visor is opened approx.20 cm.
- When closing from the "tilt" position, the sunroof will return to the "tilt" position.

Anti-trap function does not in principle prevent trapping; instead, it limits the maximum permissible force applied to the trapped object (by limiting the closing force).

To prevent impermissibly high closing forces, there are 2 Hall sensors integrated in each of the electric motors. The speed of closure can be measured on the basis of the signals from these two Hall sensors. The closing force is calculated from the speed of closure.

The mechanical forces involved change with ambient temperature and as a result of ageing. For this reason, the closing forces required are adapted during the closing process.

Automatic closing is not possible if the anti-trap function fails (on account of defective Hall sensor, for example). Closing is then only possible with the mechanical emergency mode.

Safety Functions

- **Maximum Motor ON Time**

  If a motor runs in a single direction for longer than 15 seconds, the SHD control unit will deactivate the drive.

- **Overheating Protection**

  The heating up of the electric motors is computed in the SHD control unit. The outside temperature is available as a temperature signal (via the body bus or CAN). Moreover, there is a temperature sensor on the board of the SHD control unit. After a certain temperature threshold is reached the overheating protection is activated. The drive is switched off.

- **Emergency Operation**

  In emergency mode, the Panorama glass sunroof can only be moved in small steps.

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Emergency mode is possible in the following conditions:

- Encoding of the SHD control unit incorrect
- Implausible signal from a Hall sensor
- Initialization incomplete

NOTE: Mechanical emergency mode is possible
In case of an electrical defect, emergency mode of the Panorama glass sunroof is available.
There is no emergency mode for the sliding visor.

Notes For Service Staff

Service staff should note the following points:

- General information: Refer to **E53, E61, E83, E91 - GENERAL INFORMATION FOR SERVICE STAFF ON THE PANORAMA GLASS SUNROOF** .
- Diagnosis:
- Encoding/programming: Refer to **E53, E61, E83, E91 - ENCODING/PROGRAMMING THE PANORAMA GLASS SUNROOF** .
- Car and Key Memory:

E53, E61, E83, E91 - General Information For Service Staff On The Panorama Glass Sunroof

Initialising The Panorama Glass Sunroof The Panorama glass sunroof must be initialised after the following service operations:

- Replacement of SHD control unit
- Repair of the Panorama glass sunroof mechanics (e.g. if the Panorama glass sunroof has been mechanically moved using emergency mode or if a Panorama glass sunroof electric motor has been replaced)
- Other repairs to the Panorama glass sunroof (e.g. if the glass sunroof or sliding visor has been replaced)

Initialisation will calibrate the anti-trap function to the Panorama glass sunroof.

IMPORTANT: Anti-Trap Function Not Active The anti-trap function is not active during initialisation.

Initialisation is divided into the steps "normalisation" and "characteristic curve teach-in":

- During normalisation, the end stop for the Panorama glass sunroof and sliding visor in the "tilt" direction is learnt. The SHD control unit uses this information to calculate the end stops for opening and closing.
- When it is taught the characteristic map, the processor registers the mechanical forces required to close the Panorama glass sunroof.

Comply With The Following Procedure For Initialisation:

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- Terminal 15 ON
- Push the switch for the Panorama glass sunroof upwards in the "tilt" direction and hold it there.

NOTE: Hold the switch for the Panorama glass sunroof depressed during the initialisation. If the switch for the Panorama glass sunroof is released during initialisation, the procedure must be repeated.

- The process will start automatically after approx. 15 seconds. All positions for the Panorama glass sunroof are selected.
- The Panorama glass sunroof will be closed when initialisation is complete.
- Once the Panorama glass sunroof is again closed, the switch for the Panorama glass sunroof can be released. After a delay of approx. 5 seconds, which is needed to store data, the switch can again be used to operate the Panorama glass sunroof.

E53, E61, E83, E91 - Encoding/Programming The Panorama Glass Sunroof

The following step should be performed if the SHD control unit has been replaced:

- Encode the electronic control unit

IMPORTANT: Perform encoding after replacing the control unit If encoding is not performed, there is risk of malfunction (e.g.. anti-trap circuit) or of the battery becoming permanently discharged.

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ACCESSORIES AND EQUIPMENT

Slide/Tilt Roof and Convertible Top - SI Techniques - X3

PANORAMA GLASS SUNROOF

E53, E61, E83, E91



Fig. 1: Panorama Glass Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

INTRODUCTION

The fully automatic Panorama glass sunroof consists of 2 glass sunroofs and a 2 -piece sliding visor. The front glass sunroof works like a sliding/tilting sunroof, the rear glass sunroof is a tilting glass sunroof. The Panorama glass sunroof is actuated in the usual way by its own control unit.

- > E53, E83
- > E61
- > E91

The Panorama glass sunroof is available as special equipment (option 402).

BRIEF DESCRIPTION OF COMPONENTS

The following components supply the input signals for the Panorama glass sunroof:

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- **Panorama glass sunroof switch**

  The switch is located in the control unit in the roof console.

  The switch can be moved in 3 directions (pushed forwards, pushed backwards, pushed upwards).

- **Hall sensors in Panorama glass sunroof drive**

  There are 2 Hall sensors integrated in each of the two electric motors for the Panorama glass sunroof. The Hall sensors detect the motor speed. The signals are forwarded to the SHD control unit. These signals enable the control unit to recognize the position of the two glass sunroofs and of the 2 -piece sliding visor. Moreover, the closing speed of each electric motor is used to calculate the closing force for the two glass sunroofs and for the sliding visor.

The control units involved in the functions of the Panorama glass sunroof are as follows:

- **SHD control unit (control unit for Panorama glass sunroof)**

  The SHD control unit controls all the electrical functions of the Panorama glass sunroof.

- **GM: General module 3 (E53) or general module 5 (E83)**

  The general module controls the convenience opening or closing function of the Panorama glass sunroof. The general module forwards the request (from the remote control, for example) to the SHD control unit via the body bus.

- **CAS: Car Access System (E61, E91)**

  The CAS controls the convenience opening or closing function of the Panorama glass sunroof. The CAS forwards the request (from the remote control, for example) to the SHD control unit via the Body CAN.

- **CA: Comfort Access**

  Option 322 "Comfort Access" allows convenience closing of the Panorama glass sunroof without actively using the ID transmitter.

- **LSZ: Light switch cluster (E53, E83)**

  The light switch cluster sends the SHD control unit the request to switch on the locating light via the body bus (terminal 58g).

- **LM: Light module (E61)**

  The light module sends the SHD control unit the request to switch on the locating light via the Body CAN (terminal 58g).

- **FRM: Footwell module (E91)**

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The footwell module sends the SHD control unit the request to switch on the locating light via the Body CAN (terminal 58g).

- **FZD: Roof control panel (E91)**

  The roof control panel picks up the signals from the switch for the Panorama glass sunroof. In addition, the FZD control unit also converts the signal into a CAN message. The CAN message is forwarded to the SHD control unit via the K-CAN.

- **KOMBI: Instrument cluster**

  The instrument cluster sends the road speed signal to the SHD control unit.

  - > via the K-bus (body bus) on the **E53, E83**
  - > via the K-CAN (Body CAN) on the **E61, E91**

  The signal is needed to extend and retract the wind deflector and to adjust the closing force limitation.

The following components are actuated for the purposes of the functions of the Panorama glass sunroof:

- **Panorama glass sunroof drive**

  The drive consists of 2 DC motors with reduction gearing. One motor operates the two glass sunroofs, the other motor the sliding visor and the wind deflector.

- **Wind deflector**

  The wind deflector is extended to reduce noises inside the vehicle when the sliding/tilting glass sunroof is open. The wind deflector automatically extends depending on the road speed.

- **2-piece sliding visor**

  When driving with the Panorama glass sunroof tilted ("vent" position), a suction effect develops on the 2 -piece sliding visor. This suction effect can lead to noise disturbance.

- E53, E61, E83:

  To minimize the suction effect, the rear piece of the 2 -piece sliding visor is opened approximately 3 cm.

- E91 : The 2-piece sliding visor moves back approx. 5 cm and forms an opening at the front.

SYSTEM FUNCTIONS

The Panorama glass sunroof comprises the following functions:

- Opening and closing
- Convenience opening and closing

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- Emergency closing
- Anti-trap function (limits closing force)
- Safety functions

Opening and closing

The functions for opening and closing are as follows:

- Manual opening or closing

  Push the switch for the Panorama glass sunroof backwards to the first resistance point to open it, or forwards to close it.

  The glass sliding/tilting sunroof (front glass sunroof) keeps moving as long as the switch remains pushed.

- Automatic opening or closing
  - Automatic opening:

    Press the switch for the Panorama glass sunroof beyond the pressure point. The Panorama glass sunroof is partially opened automatically. That means: Depending on the initial position of the Panorama glass sunroof, the sliding visor is first opened fully. Then, if the switch is again pressed beyond the pressure point, the glass sliding/tilting sunroof is opened. When it is opened, the sliding/tilting glass sunroof automatically moves to the comfort position (sliding/tilting glass sunroof approx. 3/4 open). The switch must be pushed again to completely open the glass sliding/tilting sunroof.

  - Automatic closing:

    The closing procedure is a reverse of the above. When the comfort position is reached during closing, the closing operation is interrupted and must be restarted.

- Automatic opening or closing with a double click

  Press the button for the Panorama glass sunroof beyond the pressure point to "Open" or "Close" twice within the space of 2 seconds. The Panorama glass sunroof completely opens or closes automatically. When this happens, the sliding visor and the sliding/tilting glass sunroof open or close together. However, the sliding visor always moves out-of-line with the sliding/tilting glass sunroof. This ensures that the sliding visor is always slightly more open than the sliding/tilting glass sunroof as the sliding/tilting glass sunroof is opened or closed.

- Tilt
  - Push the switch for the Panorama glass sunroof upwards until it reaches its mechanical stop. The front glass sliding/tilting sunroof and the rear tilting glass sunroof are automatically lifted from every other position as long as the switch remains pushed.
  - Press the switch for the Panorama glass sunroof up twice within the space of 2 seconds. The Panorama glass sunroof moves to the "Vent" position, regardless of the starting position. ("Vent"

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position means: both glass sunroofs are fully tilted, the rear section of the 2-piece sliding visor is opened approx. 3 cm.)

NOTE: Automatic closing is not possible if the anti-trap function fails.

Automatic closing is not possible if the anti-trap function fails (on account of defective Hall sensor, for example). Closing is then only possible with the mechanical emergency mode.

Any fault data is then stored in the SHD control unit.

Convenience opening and closing

The controls that can be used for this purpose are as follows:

- Button on remote control (radio-control key)

  Press the button on the remote control to "unlock" or "lock" and hold it in this position until the Panorama glass sunroof reaches the desired position.

- Door lock on driver's door

  Use the mechanical key to turn the lock in the driver's door to the position for unlocking or locking, and hold it in this position until the Panorama glass sunroof reaches the desired position.

- Driver-side outside door handle and passenger-side outside door handle

  If the vehicle is equipped with Comfort Access (CA), **convenience closing** can be started using the outside door handle electronics in the bow handle.

The convenience opening/convenience closing function is stopped if the command is cancelled.

Emergency closing

Emergency closing is a function for deliberate closure of the Panorama glass sunroof without anti-trap function (closing-force limitation). Emergency closing may be necessary if someone attempts to reach into the interior of the car or if mechanical difficulty is experienced in closing the Panorama glass sunroof.

Emergency closing can be activated when the car is stopped or travelling at a speed up to 16 km/h.

To activate emergency closing:

Push the switch for the Panorama glass sunroof in the "close" direction until it reaches its mechanical stop and hold it there. The Panorama glass sunroof is closed with maximum force and maximum speed without anti-trap function.

If the Panorama glass sunroof is blocked, the electric motor continues to run until the overheating protection is activated.

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Anti-trap function (closing-force limitation)

WARNING: Note initialization

The Panorama glass sunroof has to be initialized in order for the anti-trap function to work correctly. The Panorama glass sunroof has to be initialized by service staff.

The anti-trap function is active over the entire range of movement in the closing direction.

The anti-trap function works as follows:

- The sliding/tilting glass sunroof and/or the sliding visor is opened approx. 20 cm.
- When closing from the "tilt" position, the sunroof will return to the "tilt" position.

Anti-trap function does not in principle prevent trapping; instead, it limits the maximum permissible force applied to the trapped object (by limiting the closing force).

To prevent impermissibly high closing forces, there are 2 Hall sensors integrated in each of the electric motors. The speed of closure can be measured on the basis of the signals from these two Hall sensors. The closing force is calculated from the speed of closure.

The mechanical forces involved change with ambient temperature and as a result of ageing. For this reason, the closing forces required are adapted during the closing process.

Automatic closing is not possible if the anti-trap function fails (on account of defective Hall sensor, for example). Closing is then only possible with the mechanical emergency mode.

Safety functions

- **Maximum motor ON time**

  If a motor runs in a single direction for longer than 15 seconds, the SHD control unit will deactivate the drive.

- **Overheating protection**

  The heating up of the electric motors is computed in the SHD control unit. The outside temperature is available as a temperature signal (via the body bus or CAN). Moreover, there is a temperature sensor on the board of the SHD control unit. After a certain temperature threshold is reached the overheating protection is activated. The drive is switched off.

- **Emergency operation**

  In emergency mode, the Panorama glass sunroof can only be moved in small steps. Emergency mode is possible in the following conditions:

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- Encoding of the SHD control unit incorrect
- Implausible signal from a Hall sensor
- Initialisation incomplete

NOTE: Mechanical emergency mode is possible

In case of an electrical defect, emergency mode of the Panorama glass sunroof is available.

There is no emergency mode for the sliding visor.

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ACCESSORIES AND EQUIPMENT

Slide/Tilt Roof and Convertible Top - Tightening Torques - X3

12 MECHANICAL SUN ROOF COMPONENTS

54 12 MECHANICAL SUN ROOF COMPONENTS

MECHANICAL SUN ROOF COMPONENTS - TIGHTENING TORQUES

Thread		Tightening specification	measure
	1AZ Glass lid to gate	Always use new nuts and bolts.	4 +/- 0.5 Nm
2AZ Cassette to body	M6	Self-tapping screw	5.4 +/- 0.5 Nm
		3AZ Cover, cross-member	3.5 +/- 0.5 Nm
	4AZ	Front floating roofliner to detent element	1.5 +/- 0.2 Nm
		5AZ Rear floating roofliner to detent element	1 +/- 0.2 Nm

13 ELECTRICAL SUN ROOF COMPONENTS

54 13 ELECTRIC SUN ROOF COMPONENTS

ELECTRIC SUN ROOF COMPONENTS - TIGHTENING TORQUES

	Type	Thread	Tightening specification	Measure
1AZ Drive to cassette	E31, E32, E34, E36, E38, E39, E46, E53, E83			2.8 Nm
	E34 Touring, E60, E61, E63, E65, E66, E81, E87			3.5 Nm
	E90, E92			3.8 Nm
	E91			2.5 Nm

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ACCESSORIES AND EQUIPMENT

Slide/Tilt Sunroof - Special Tools - X3

54 SLIDE-TILT SUNROOF AND COVERTIBLE TOP

54 1 100 PRESSING FIXTURE FOR PANORAMA SUNROOF GUIDE RAIL

Note: Is only supplied by Cartool in the event of a customer complaint - see PuMA measure. No special storage location is assigned to the special tool.

Series: E83

Order number: 54 1 100

Pressing fixture for panorama sunroof guide rail

54 1 110 CENTERING PINS

Note: Contents: 2 x For installing (centering) glass slide/tilt sunroof.

Series: E53, E61, E83, E91

SI number: 01 15 06 281

Order number: 54 1 110

Centering pins

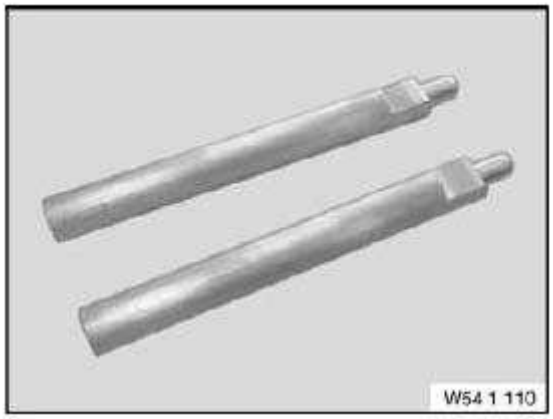


Fig. 1: Centering Pins (54 1 110)
Courtesy of BMW OF NORTH AMERICA, INC.

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ACCESSORIES AND BODY, CAB

Sliding/Tilt Sunroof - Repair Instructions - X3

10 SUNROOF

54 0 ... REPAIR INSTRUCTIONS FOR BONDED SEALS

1. **General information on handling rubber seal profiles:**
   - If seals reveal partly detached protective film on delivery, they must not be bonded.
   - Store seals at 15°C to 25°C.
   - If, during the handling, the protective film has come off before bonding, it can still be bonded.
   - Bonding at room and object temperature >20°C. Temperatures between 40 and 50°C significantly increase initial adhesion.
   - Seals, which are subjected to temperatures above 80°C after gluing, will be very difficult to remove.
2. **Damage pattern and repair**

   2.1 Partially detached bond (rubber-adhesive tape or adhesive tape-paint)
   - Up to 120 mm for retouching without auxiliary resources
   - Up to 200 mm repaired with pressing-on tools on straight surfaces

   a. Cleaning damaged areas:
   - Degrease bonded area with adhesive cleaner and remove other residues.

**NOTE: Use necessary cotton-or fluff-free paper towel once only.
When using solvent:
expose repair area to air for at least 2 minutes.**

   b. Applying adhesive:
   - With a fine nozzle, apply a wafer-thin bead to adhesive tape.

NOTE: Use contact adhesive (e.g. Terokal 2444)

**CAUTION: Avoid contact to skin!
Do not apply adhesive to visible painted surfaces.**

   c. Pressing on rubber seal:
   - Press down seal using contact pressure (forced pressure not necessary) for at least 1 minute.

CAUTION: Load can only be applied to the bond after a period of 2 minutes. This waiting time is absolutely essential.

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2.2 Larger defects (mechanical damage and larger separations of seal)

- A complete replacement of the rubber seal is necessary, see **54 13 050 Replacing seal for slide/tilt sunroof lid at rear**.

a. Peeling off damaged rubber seal:

- Pull off rubber seal slowly at an angle up to 20° under uniformly strong tension.

NOTE: Make sure the connection between adhesive tape and seal is retained.
If the connection between adhesive tape and seal is detached: Carefully and slowly detach adhesive tape at an angle of 20° from roof opening or lid.
If, in the case of older seals, you are peeling off using a hot air blower: Do not damage paintwork.
Do not detach rubber-adhesive tape connection if at all possible.

b. Cleaning bonded area:

- Degrease bonded area with adhesive cleaner and remove other residues.

NOTE: Use necessary cotton-or fluff-free paper towel once only.
When using solvent:
expose repair area to air for at least 2 minutes.

c. Detaching protective film from bonded area:

- Detach protective film from rubber seal in sections.

CAUTION: Once the protective film has been removed, do not under any circumstances touch the exposed bonded area.

d. Applying rubber seal:

- Apply rubber seal on roof opening edge beginning at rear center. Use upper lip as application edge. Press on seal continuously by hand. Carefully unwrap seal at radii without tension and press down (critical area).

NOTE: If positioned incorrectly, the seal can still be pulled off, repositioned and pressed on again.

e. Establishing seal joint:

- Mark contact point at joint by pressing down loose end on seal of already bonded end. Then cut and press down loose end at same height.

f. Pressing on seal:

- Press on seal using a roller
- Adhesive tape width up to 5 mm Application pressure approx. 5 N

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- Adhesive tape width up to 10 mm Application pressure approx. 10 N

Sliding sunroof seal only:

- Press against seal strongly with a roller. Application pressure approx. 70 N.

E36 sliding sunroof seal only:

- Application pressure approx. 30 N.
- Tear off tear-off lip at rear and side in area of narrower flange.

NOTE: Firm thumb pressure has approx. 35 N/cm 2

Checking rubber seal

- Check the bonded seals for correct positioning and perfect adhesion. The bonding can be checked by pressing back the sealing lip.
- The force required to peel off the seal immediately after gluing must be greater than 10 N/cm.

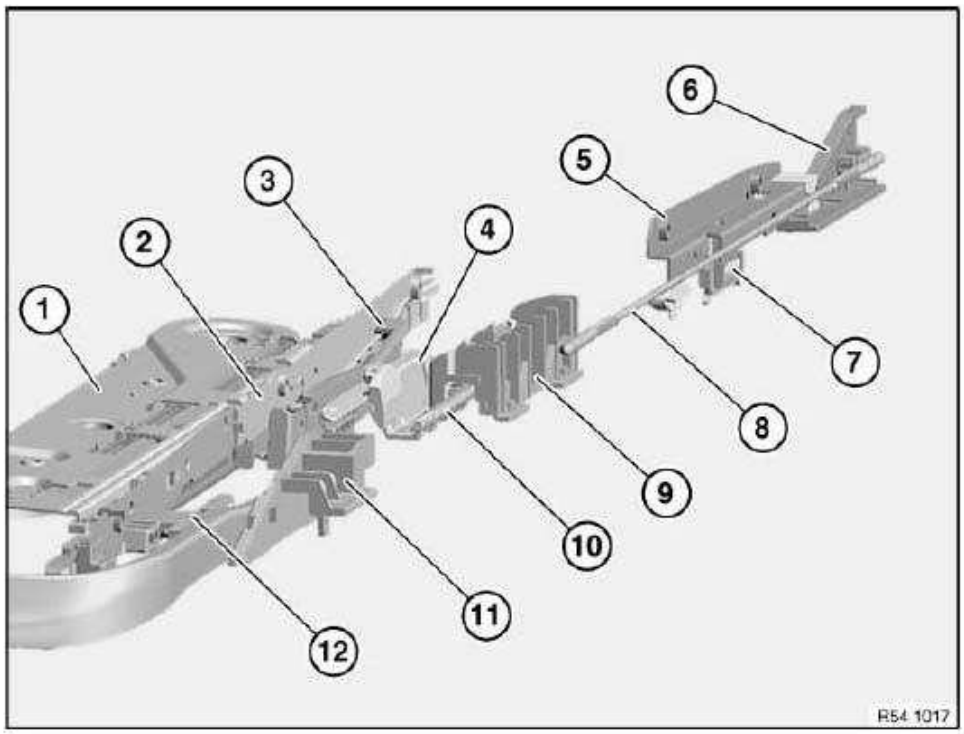
54 10 ... REMOVING AND INSTALLING/REPLACING DRIVE CABLE PLATE

Necessary preliminary tasks:

- Remove mechanism for glass cover at front, see **54 10 020 Removing and installing mechanism for front glass lid**.

Overview of glass lid mechanism:

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1	Floating roofliner mechanism	7	Spring retainer
2	Mechanism, front glass lid	8	Drive cable, rear glass lid (connecting link)
3	Drive wedge	9	Drive cable plate
4	Drive plate	10	Drive cable, front glass lid (connecting link)
5	Mechanism, rear glass lid	11	Control carriage, wind deflector
6	Control carriage, rear glass lid	12	Slide element

Fig. 1: Identifying Glass Lid Mechanism Components
Courtesy of BMW OF NORTH AMERICA, INC.

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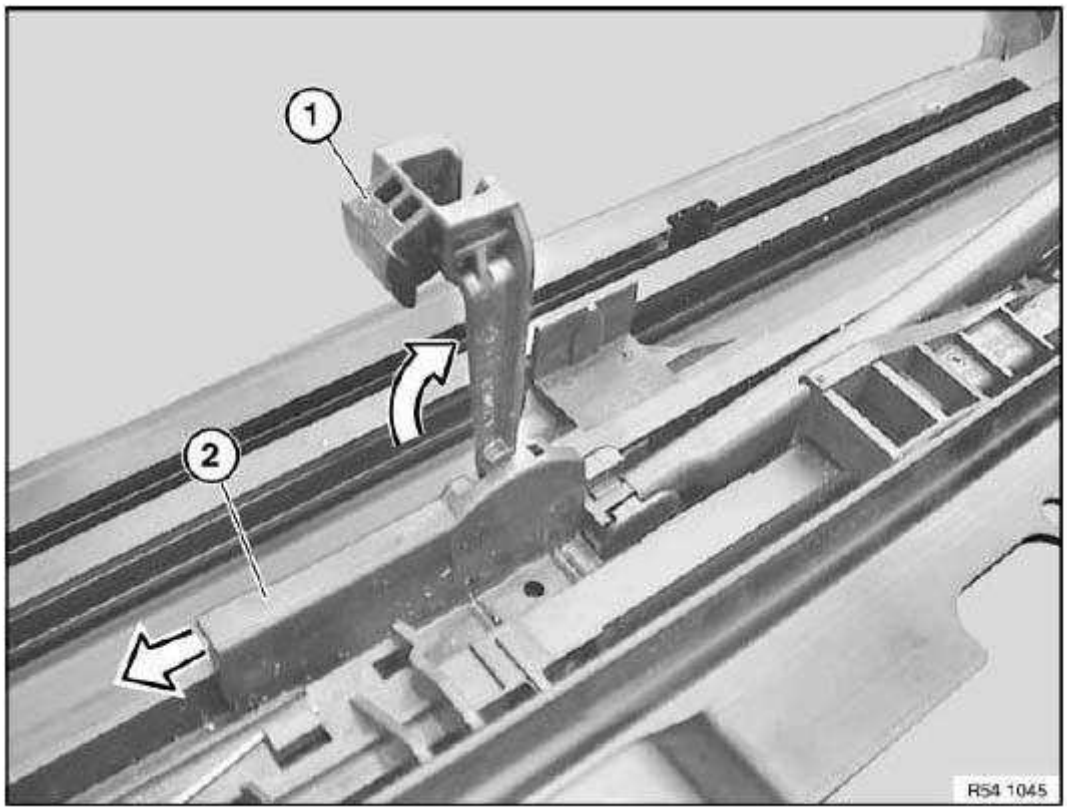


Fig. 2: Removing Drive Wedge
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, remove drive wedge (1).

If necessary, slide drive cable plate (2) towards rear and remove from guide rail.

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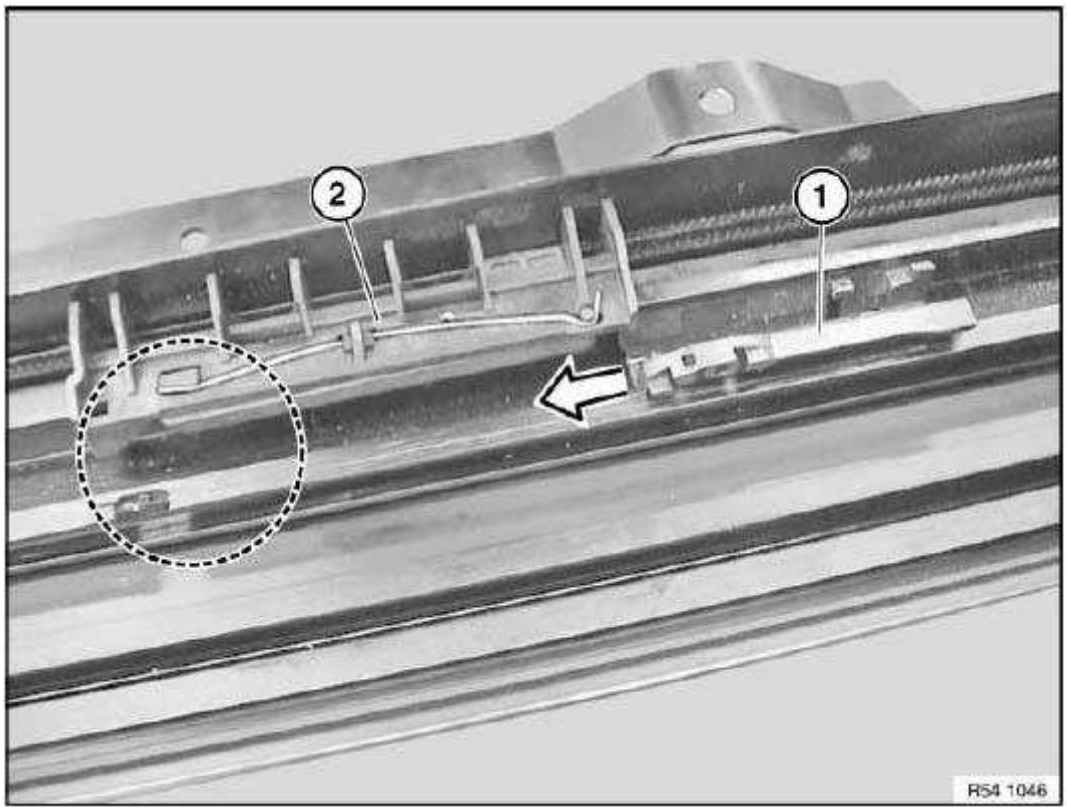


Fig. 3: Sliding Drive Cable Plate And Drive Wedge
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage when installing drive cable plate
The rear drive cable plate (2) must be engaged before the front drive cable plate (1) is installed.
Incorrect setting can be identified from spring position and lever position (marked area).
Check engagement of rear drive cable plate (2) in guide rail.
Slide in drive cable plate (1).

54 10 ... ELIMINATING FLOATING ROOFLINER CLICKING NOISES

Special tools required:

- **54 1 100**

IMPORTANT: The following measures describe how to eliminate clearly audible clicking noises when closing the floating roofliner. Only vehicles from the production period 10.12.05 to 10.02.06 may be affected.

Necessary preliminary tasks:

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- Remove **glass slide/tilt sunroof lid**.
- Close floating roofliner fully.

The following special tool is required: Pressing fixture 54 1 100 for panorama glass roof guide rail, comprising:

- Special tool 54 1 101 Pressing fixture
- Special tools 54 1 102 Flexible shaft

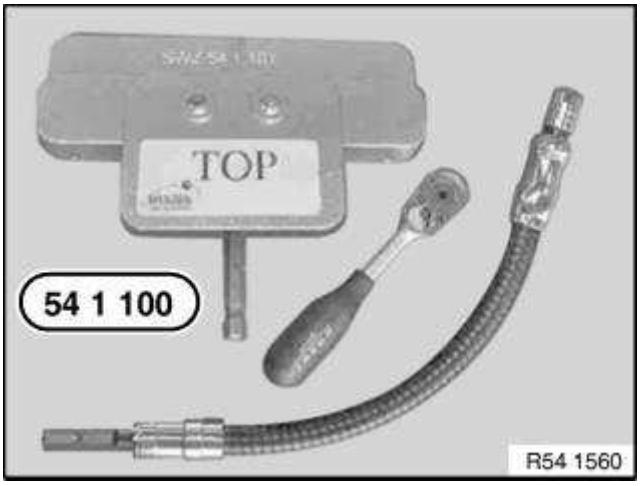


Fig. 4: Pressing Fixture 54 1 100 For Panorama Glass Roof Guide Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Approximate position of end fittings between floating roofliner and roof outer skin.

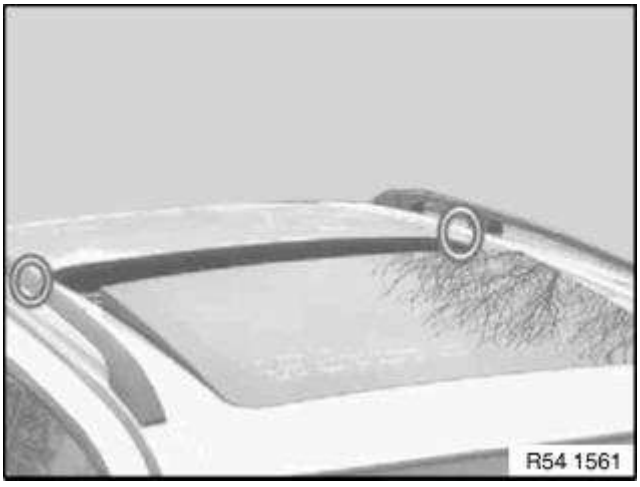


Fig. 5: Approximate Position Of End Fittings Between Floating Roofliner And Roof Outer Skin
Courtesy of BMW OF NORTH AMERICA, INC.

Place pressing fixture in guide rail and snap into guide rail opening by gently sliding forwards and back.

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IMPORTANT: Do not engage in rear position (measure ineffective).

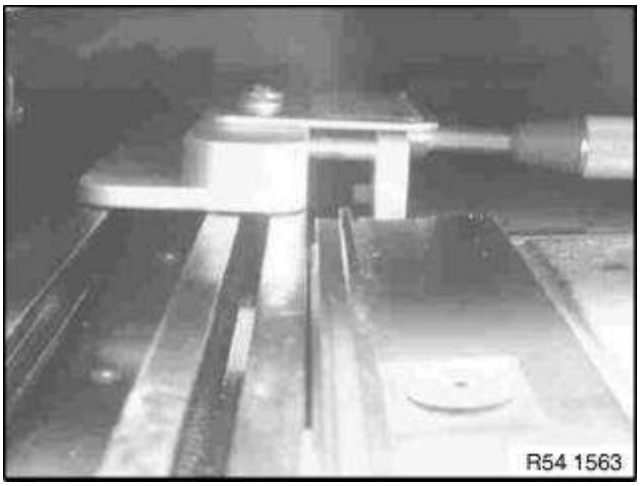


Fig. 6: Place Pressing Fixture In Guide Rail And Snap Into Guide Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Screw pressing fixture by means of reversible ratchet down to stop. End stop is thereby pressed into the guide rail.

IMPORTANT: A helper must press into the pressing fixture during the entire screwing process vertically onto the guide rail so that the pressing fixture does not jam.

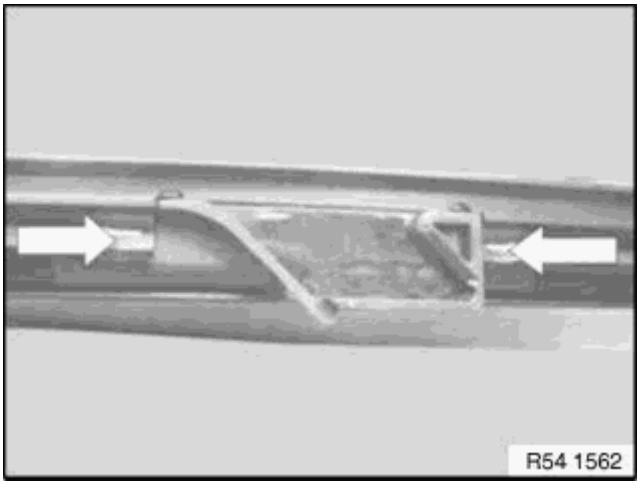


Fig. 7: Screw Pressing Fixture By Means Of Reversible Ratchet Down To Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Repeat the entire procedure on the other side.

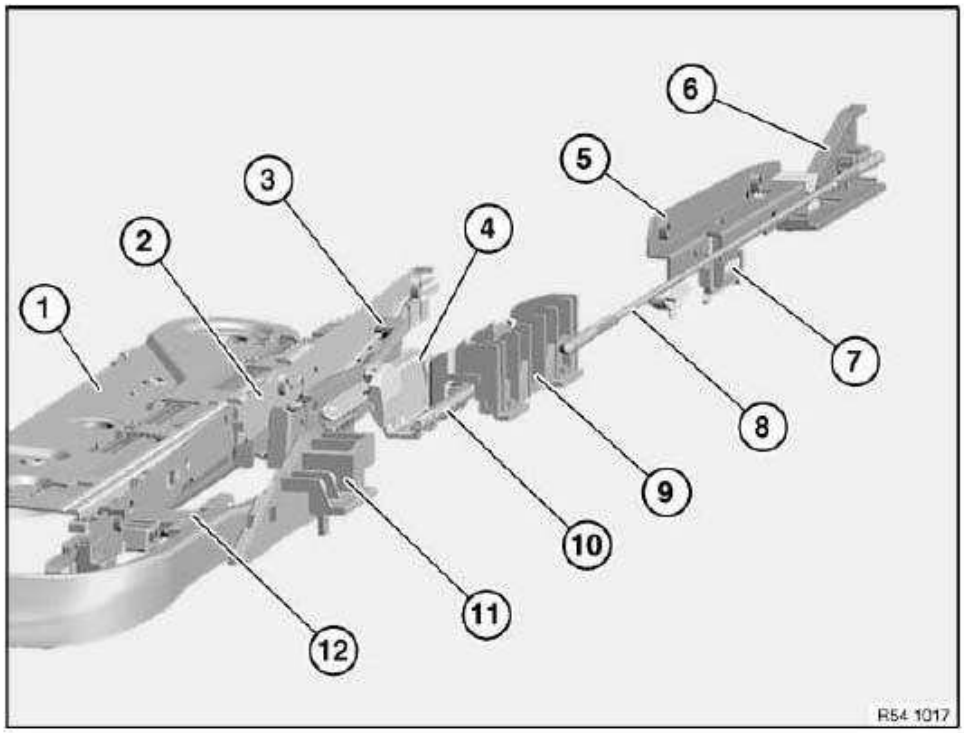
54 10 020 REMOVING AND INSTALLING MECHANISM FOR FRONT GLASS LID

Necessary preliminary tasks:

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- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove glass slide/tilt sunroof lid at front, see **54 10 170 Removing and installing front glass slide/tilt sunroof cover**.
- Remove glass slide/tilt sunroof lid at rear**54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.
- Remove front drip molding, see **54 13 100 Removing and installing/replacing drip molding**.
- Remove drive for slide/tilt sunroof actuation, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Overview of glass lid mechanism:



1	Floating roofliner mechanism	7	Spring retainer
2	Mechanism, front glass lid	8	Drive cable, rear glass lid (connecting link)
3	Drive wedge	9	Drive cable plate
4	Drive plate	10	Drive cable, front glass lid (connecting link)
5	Mechanism, rear glass lid	11	Control carriage, wind deflector
6	Control carriage, rear glass lid	12	Slide element

Fig. 8: Identifying Glass Lid Mechanism Components
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Always replace mechanism for glass slide/tilt sunroof in pairs. If necessary, lightly grease guide channel.

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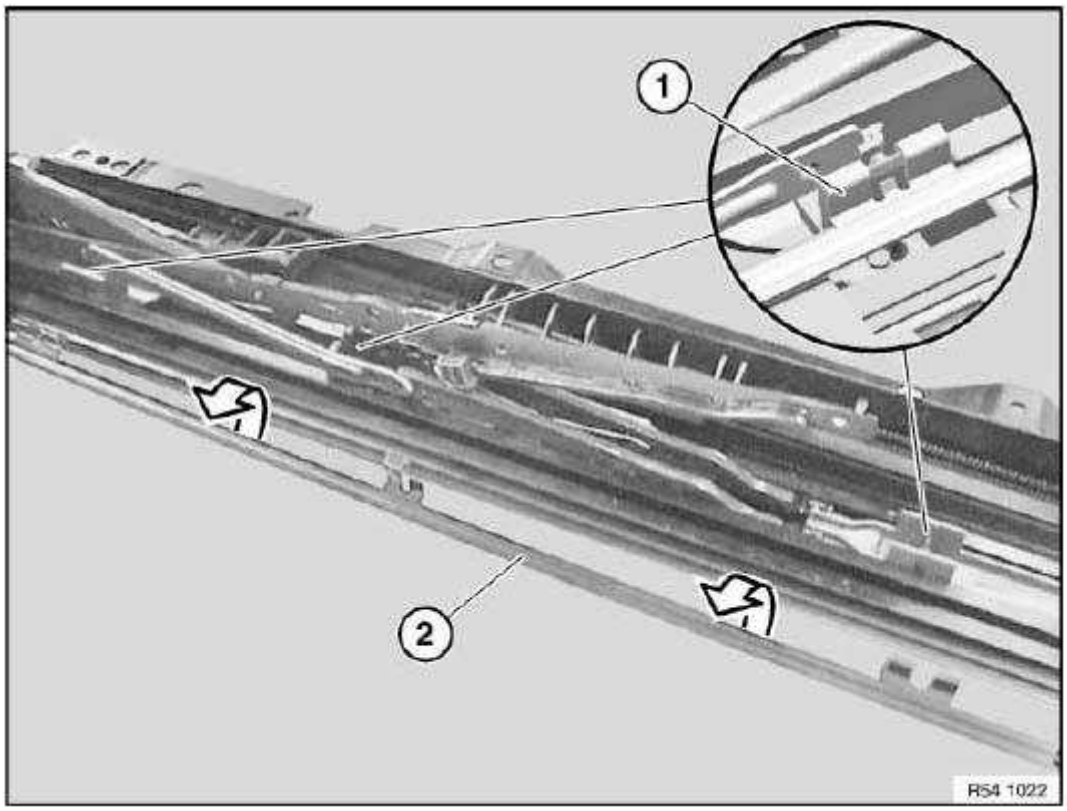


Fig. 9: Tabs Of Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Removing upper connecting link (return linkage):

Bend open tabs (1) of cover strip (2).

Remove cover strip (2).

Installation:

Cover strip determines alignment of mechanism.

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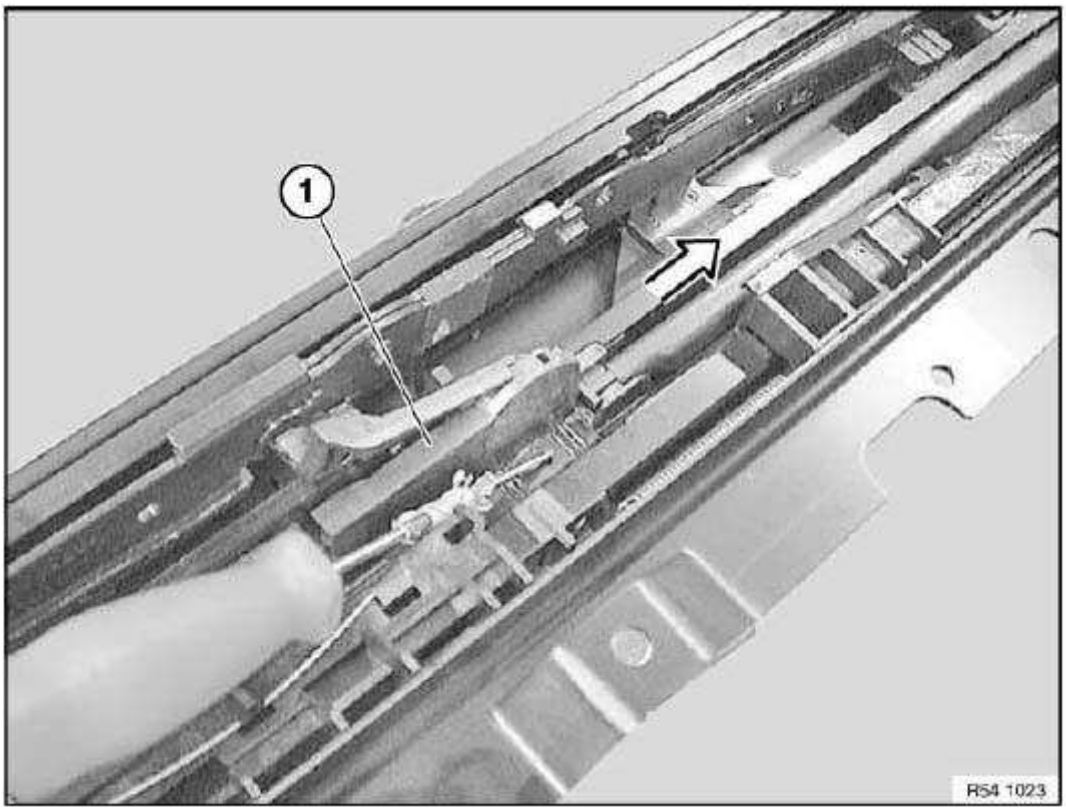


Fig. 10: Sliding Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, slide drive cable plate (1) fully forwards with a screwdriver (stop).

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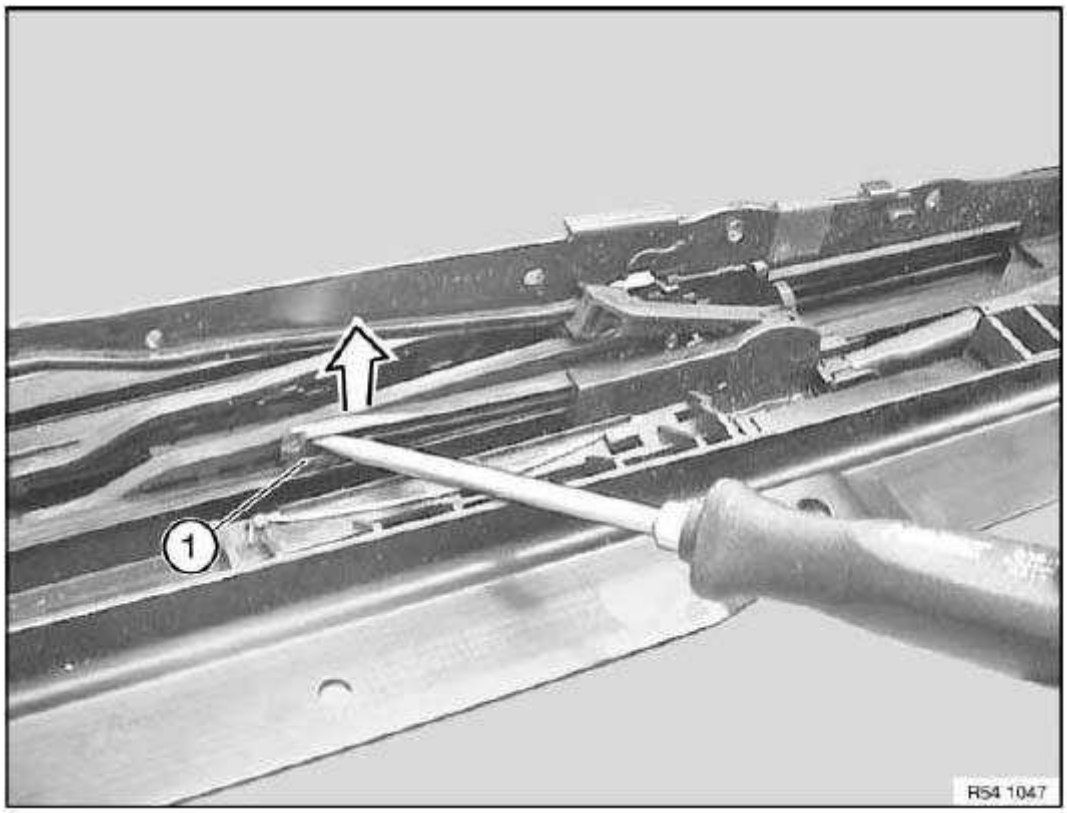


Fig. 11: Prying Out Locking Lever Of Detent Element
Courtesy of BMW OF NORTH AMERICA, INC.

Pry out locking lever (1) of detent element at front from guide rail (unlock).

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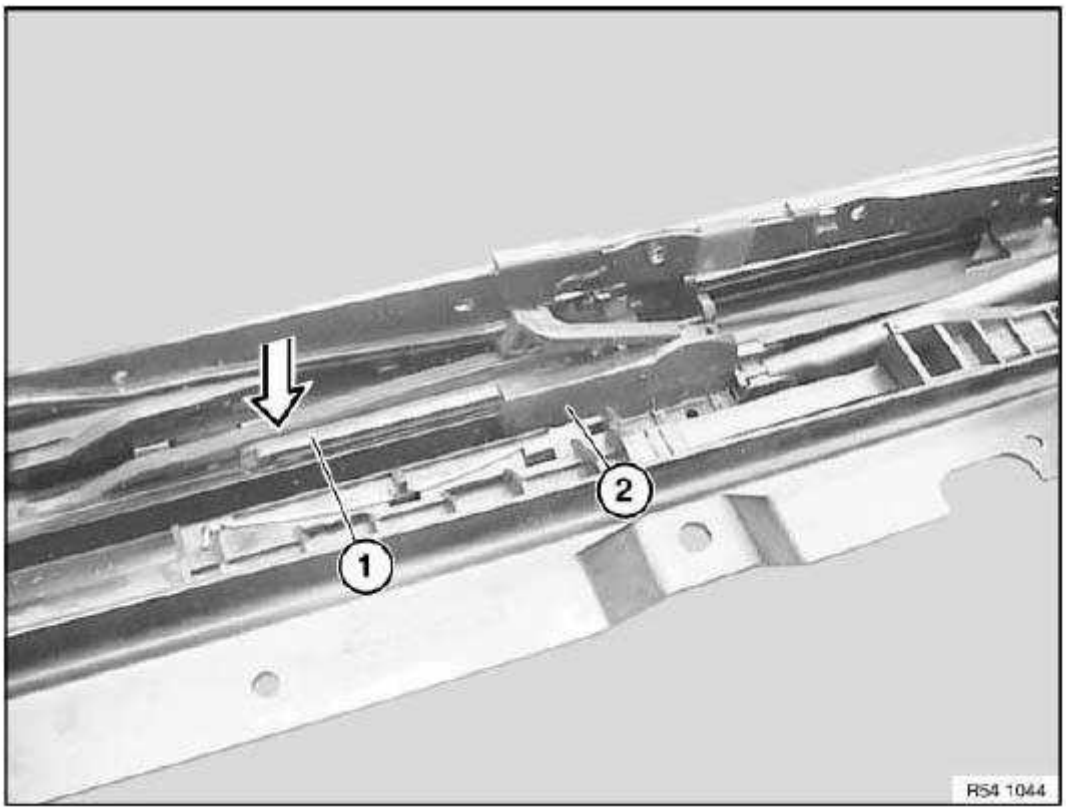


Fig. 12: Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Do not move drive cable plate (2) before locking lever (1) is engaged (risk of damage).

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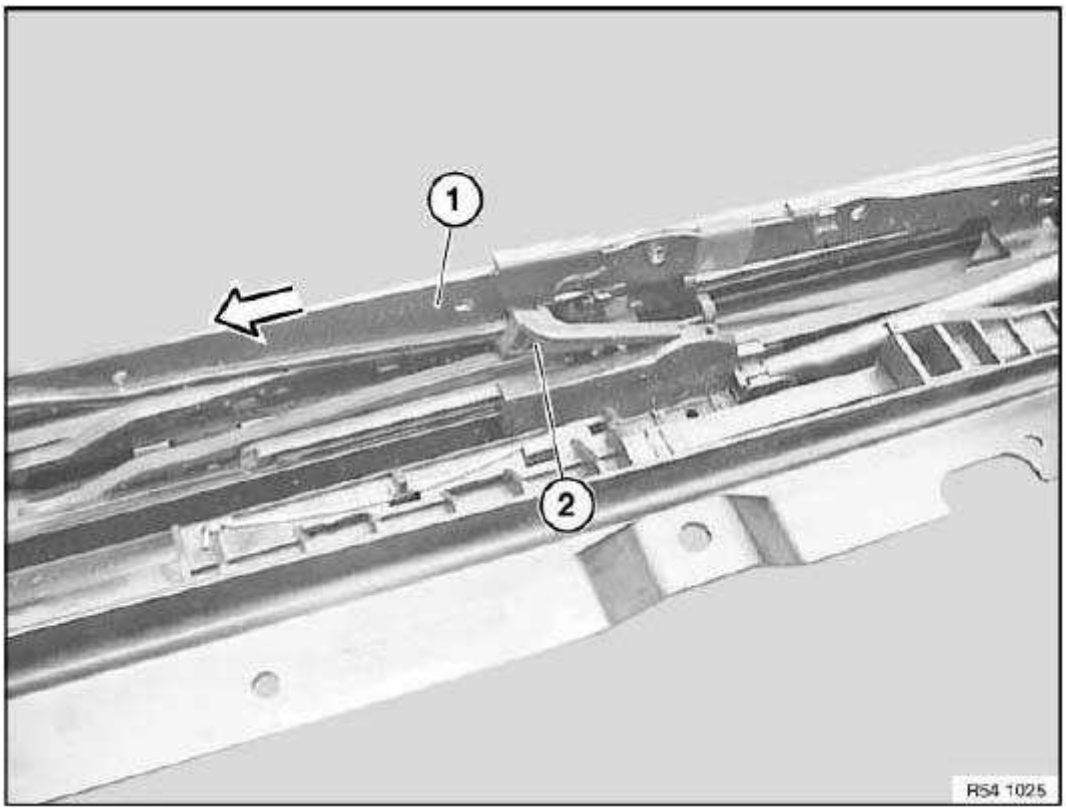


Fig. 13: Pulling Upper Connecting Link Towards Rear Out Of Drive Wedge
Courtesy of BMW OF NORTH AMERICA, INC.

Pull upper connecting link (1) towards rear out of drive wedge (2).

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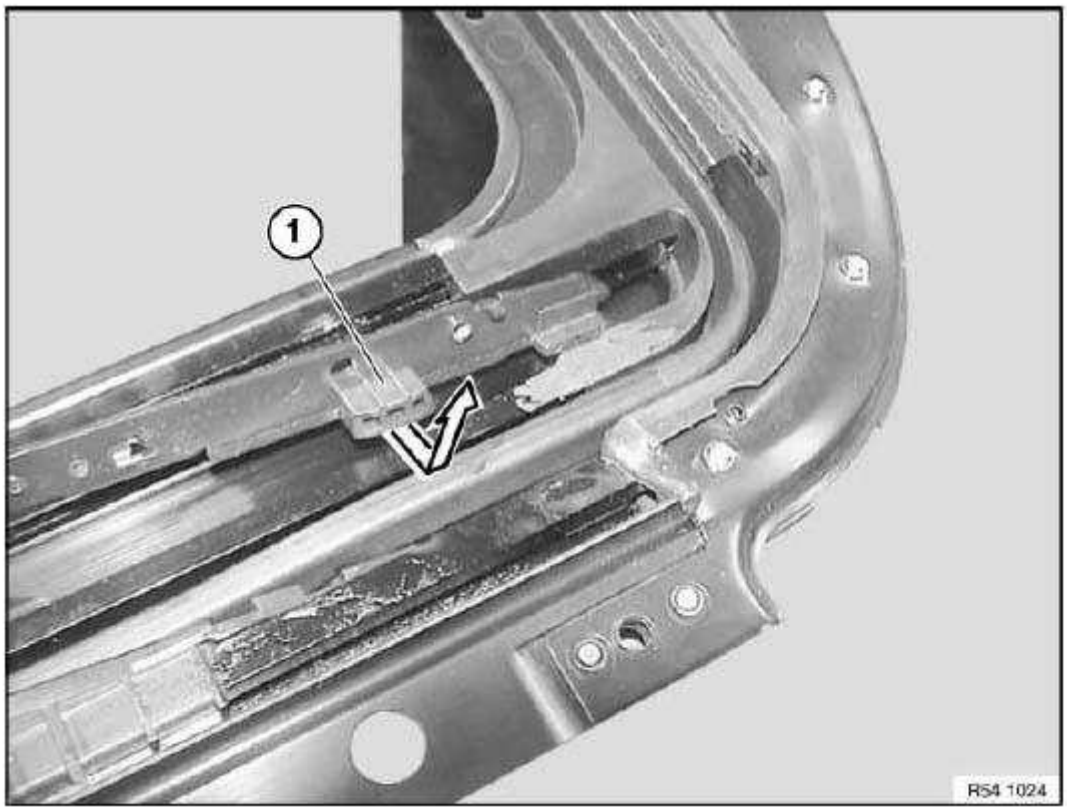


Fig. 14: Pulling Upper Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Feed upper connecting link (1) out of guide rail.

NOTE: If necessary, move mechanism (drive cable plate) approx. 2 cm towards rear. Upper detent element can be fed out and in more easily.

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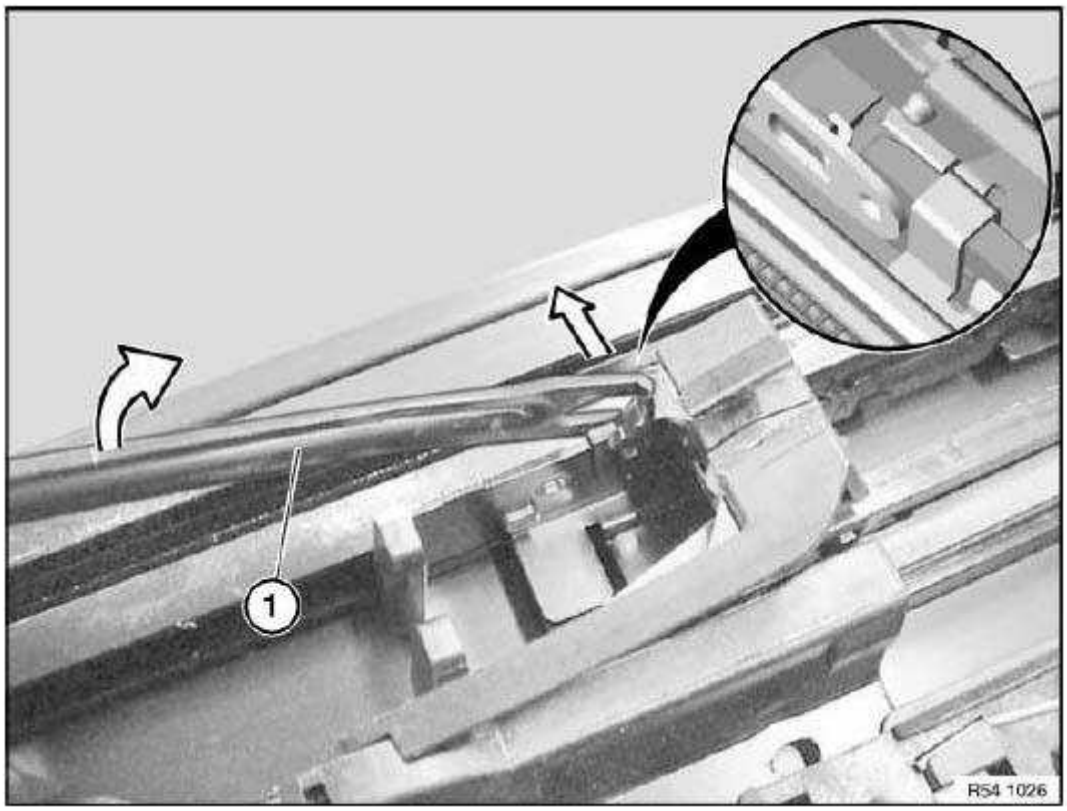


Fig. 15: Removing Upper Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Remove upper connecting link (1) in direction of arrow from lower connecting link.

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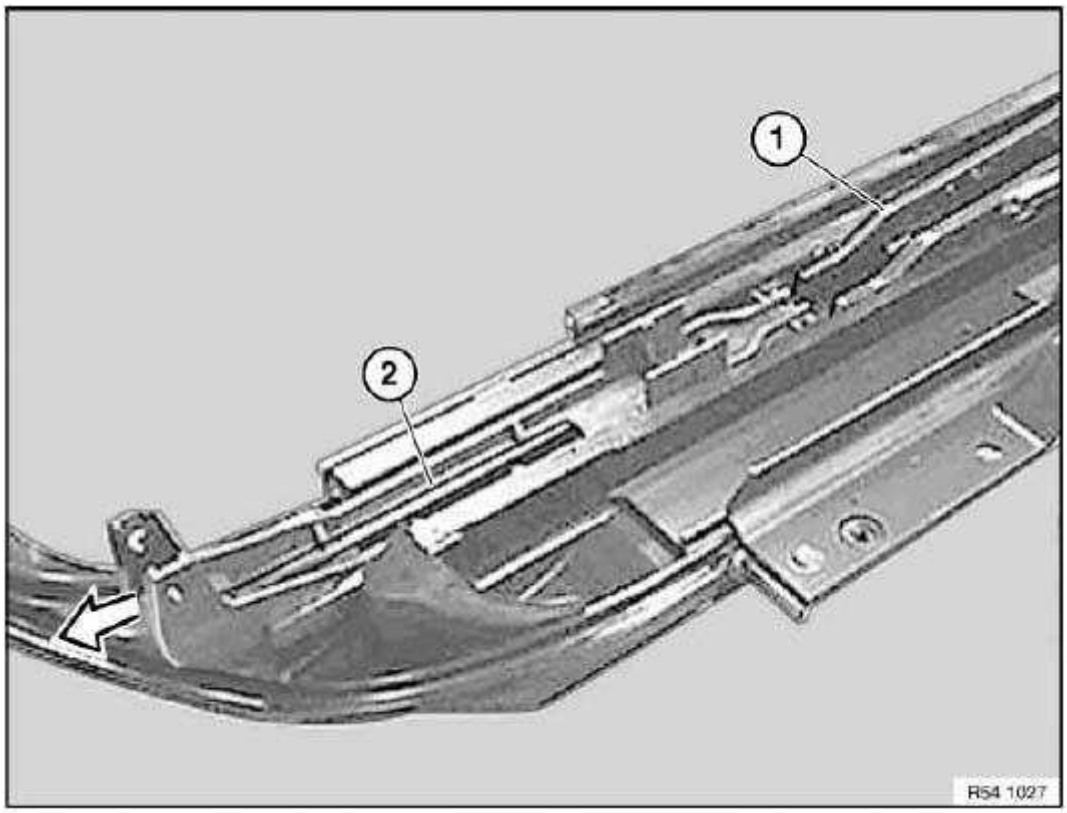


Fig. 16: Sliding Drip Molding Carrier With Lower Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Removing drip molding carrier and lower connecting link:

Slide drip molding carrier (2) with lower connecting link (1) towards rear and remove from guide rail.

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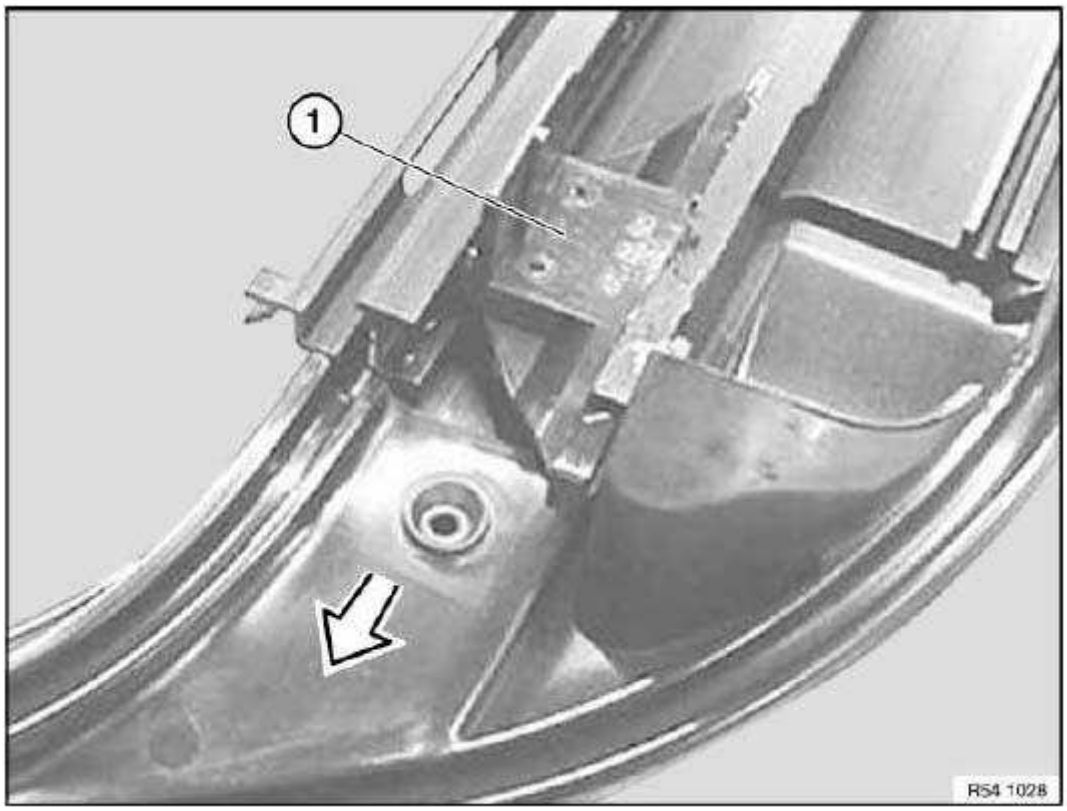


Fig. 17: Pushing Slide Element
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, push slide element (1) towards rear and remove from guide rail.

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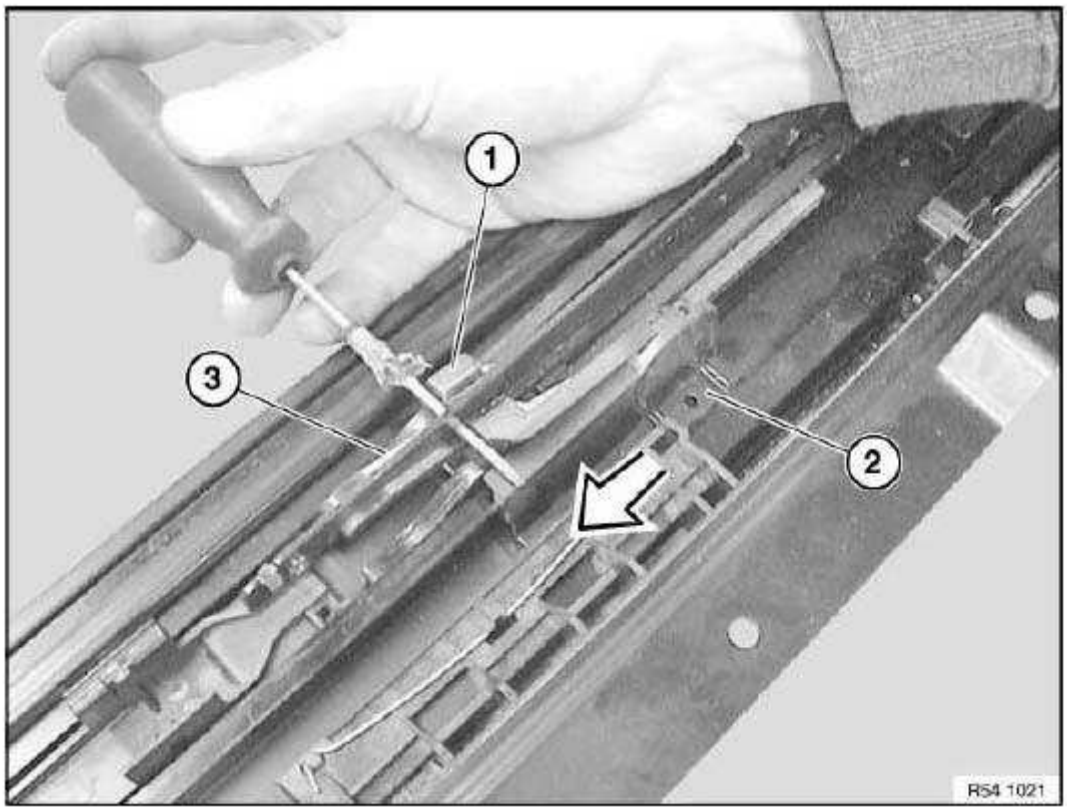


Fig. 18: Inserting Screwdriver Into Upper Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting mechanism before installing glass lid:

Insert screwdriver into upper connecting link (3).

Slide drive plate (2) towards rear until drive wedge (1) runs against screwdriver.

NOTE: Check that mechanical components on left and right sides have same status.

NOTE: Check smooth and noise-free running of kinematics.
Check function.

54 10 030 REMOVING AND INSTALLING MECHANISM FOR REAR GLASS LID

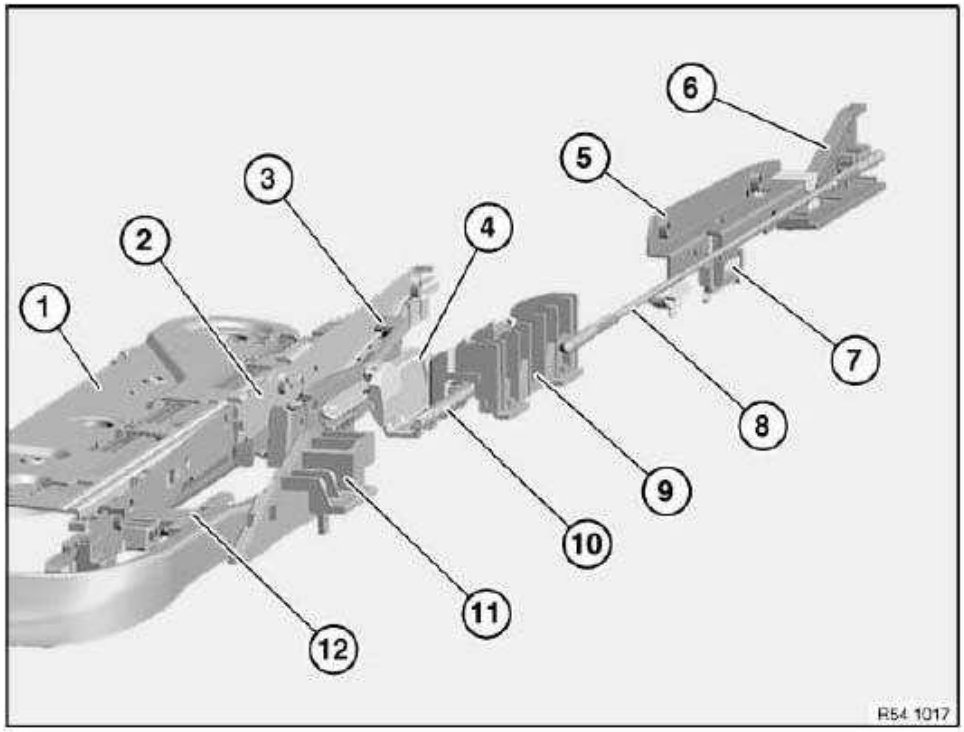
Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove glass slide/tilt sunroof lid at rear**54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.
- Remove rear drip molding, see **54 13 105 Removing and installing/replacing rear drip molding**.
- Remove drive units with gearing, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR**

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ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF) .

Overview of glass lid mechanism:



1	Floating roofliner mechanism	7	Spring retainer
2	Mechanism, front glass lid	8	Drive cable, rear glass lid (connecting link)
3	Drive wedge	9	Drive cable plate
4	Drive plate	10	Drive cable, front glass lid (connecting link)
5	Mechanism, rear glass lid	11	Control carriage, wind deflector
6	Control carriage, rear glass lid	12	Slide element

Fig. 19: Identifying Glass Lid Mechanism Components
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Always replace mechanism for glass slide/tilt sunroof in pairs. If necessary, lightly grease guide channel.

NOTE: Drip molding carrier cannot be removed without incurring damage. Break out tabs with a screwdriver and lever out carrier.
Installation:
Replace drip molding carrier and hook into place.

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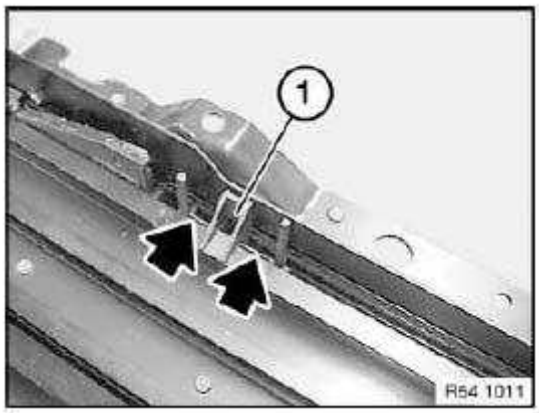


Fig. 20: [Tabs]
Courtesy of BMW OF NORTH AMERICA, INC.

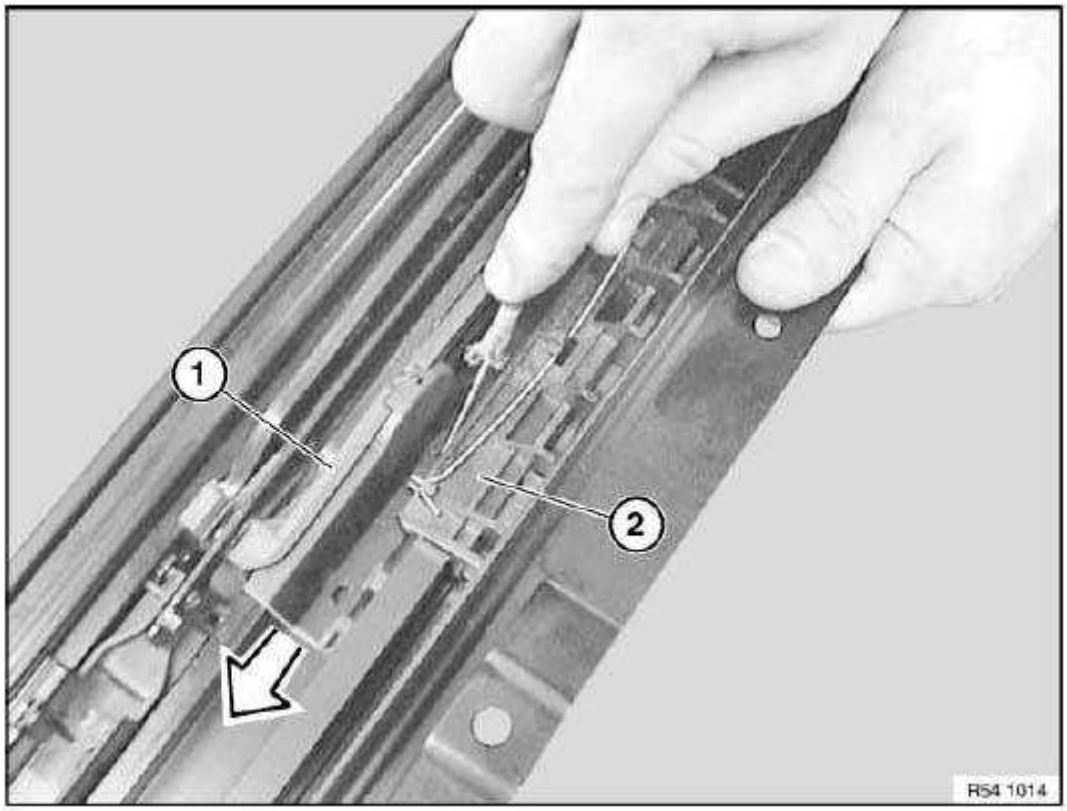


Fig. 21: Sliding Front Connecting Link
Courtesy of BMW OF NORTH AMERICA, INC.

Slide front connecting link (1) towards rear past drive cable plate (2).

If front glass lid is installed, move mechanism with lid.

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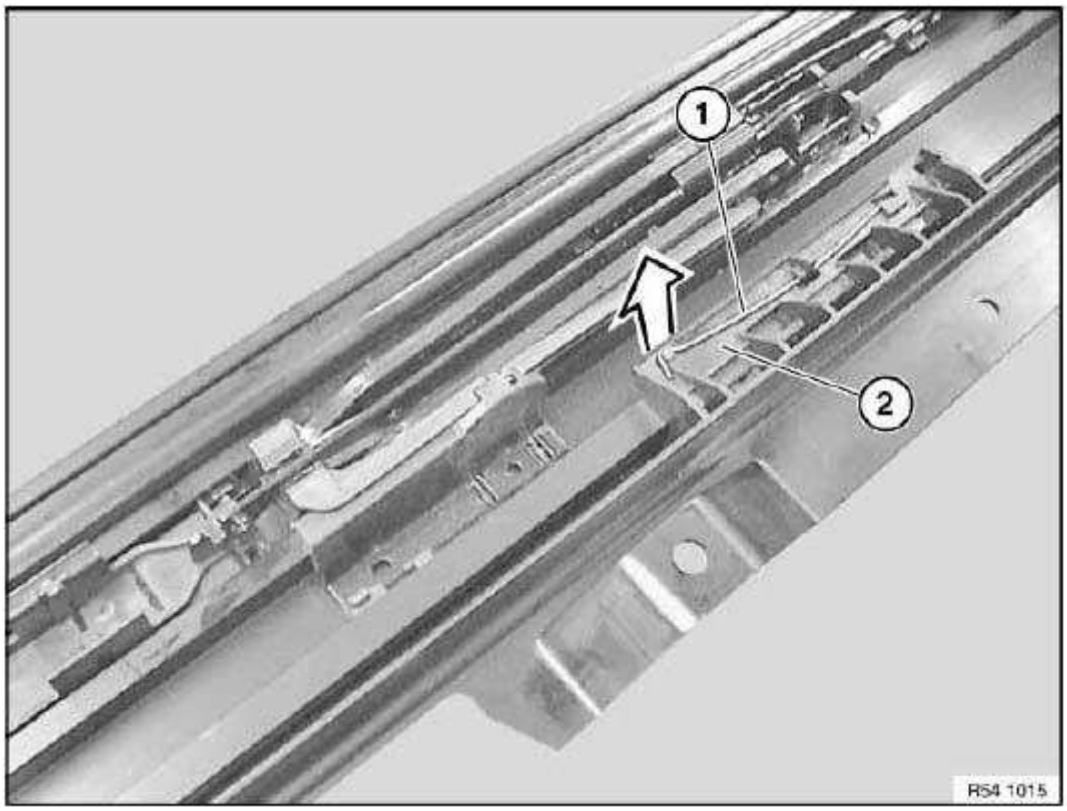


Fig. 22: Sliding Rear Connecting Line With Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out retaining bracket (1) from drive cable plate (2).

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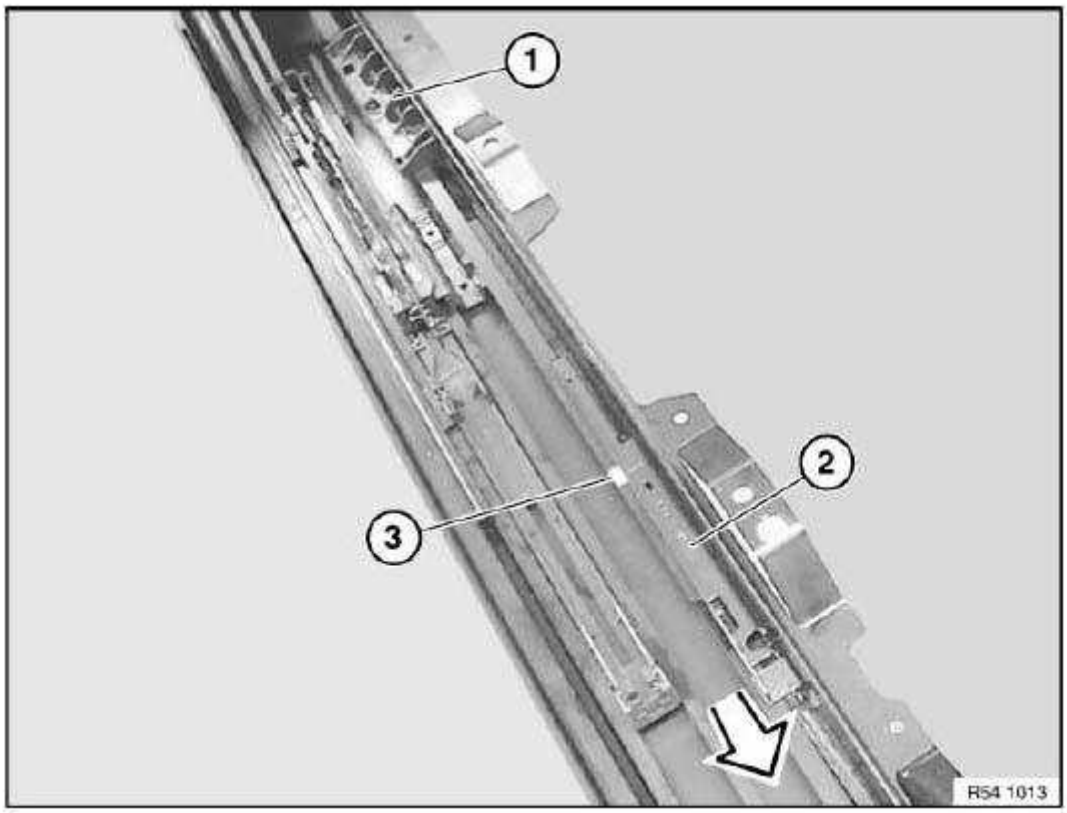


Fig. 23: Sliding Rear Connecting Line With Drive Cable Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Slide rear connecting line (2) with drive cable plate (1) towards rear until spring retainer (3) is exposed.

NOTE: Spring retainer (3) cannot be removed without incurring damage.

Lever out spring retainer (3) with screwdriver.

Installation:

Replace faulty spring retainer.

Continue sliding rear connecting link (2) with drive cable plate (1) towards rear out of guide channel and remove in succession.

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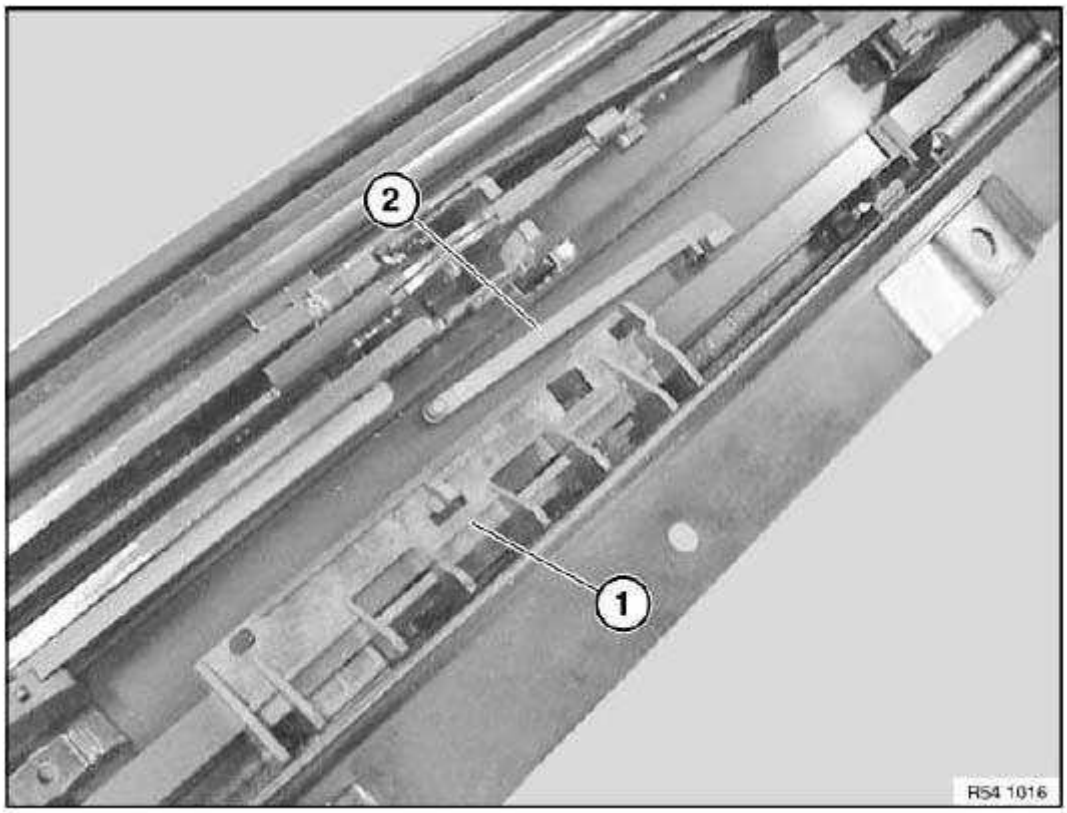


Fig. 24: Drive Cable Plate And Locking Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Slide drive cable plate (1) up against drive cable.

Install locking lever (2) and lock retaining bracket.

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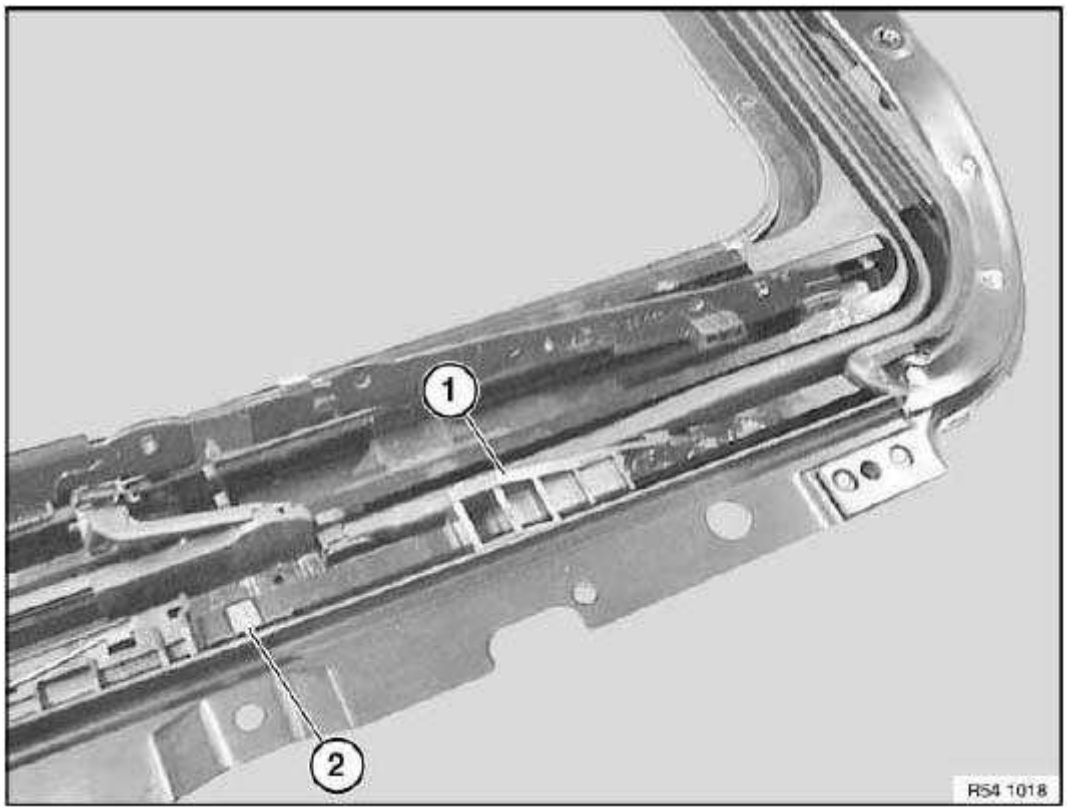


Fig. 25: Spring Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Removing control carriage for wind deflector:

NOTE: Spring retainer (2) cannot be removed without incurring damage.

Lever out spring retainer (2) with screwdriver.

Installation:

Replace faulty spring retainer.

Pull control carriage (1) for wind deflector towards rear out of rail and remove.

NOTE: Check smooth and noise-free running of kinematics.
Check function.

54 10 050 REMOVING AND INSTALLING/REPLACING MECHANISM FOR FLOATING ROOFLINER

Necessary preliminary tasks:

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- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove slider set for floating roofliner, see **54 10 070 Removing and installing/replacing slider set for floating roofliner**.
- Remove rear cross-member, see **54 13 150 Removing and installing rear cross - member**.

Unclip end stops (1) on left and right from guide channel.

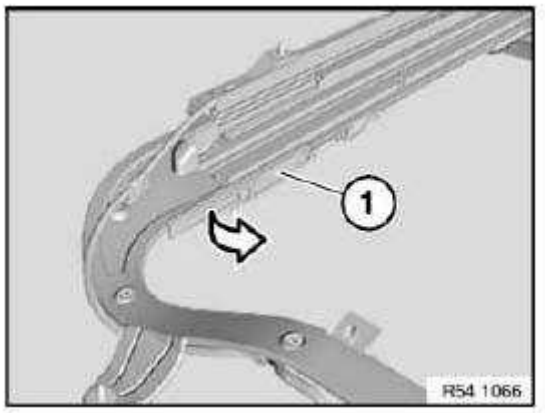


Fig. 26: Uncliping End Stops
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip floating roofliner cover plate (1) from slider for front sun shield.

Remove floating roofliner cover plate (1) upwards from locking lever (2).

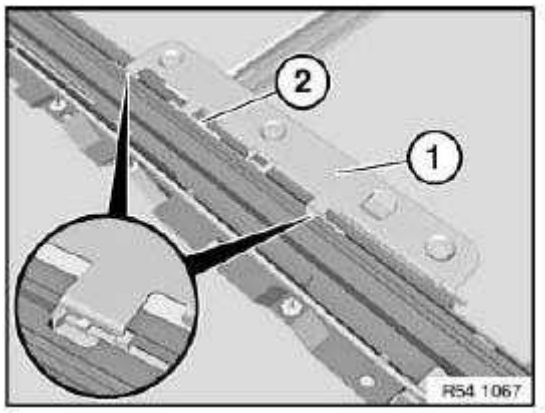


Fig. 27: Floating Roofliner Cover Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Pull mechanism for floating roofliner towards rear out of guide channel:

1. Sliders for floating roofliner
2. Locking lever for floating roofliner

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3. Rear drive cable plate with drive cable

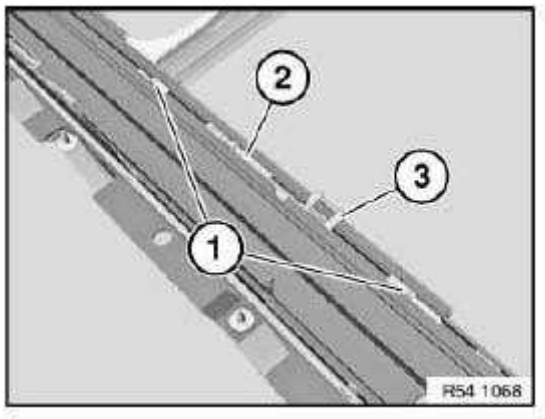


Fig. 28: Locking Lever For Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Ensure correct installation sequence:

1. Sliders for floating roofliner
2. Locking lever for floating roofliner
3. Rear drive cable plate with drive cable

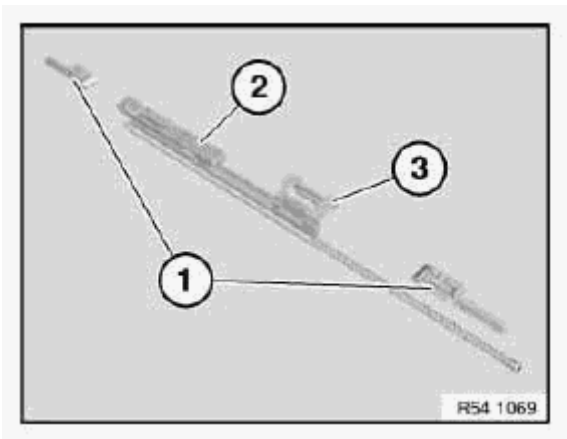


Fig. 29: Sliders For Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Slide in locking lever for floating roofliner (3) and slide up to recess in guide frame.

Open locking lever (1) with screwdriver.

Slide rear drive cable plate (2) into locking lever.

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NOTE: Correct insertion can be checked by pulling back the drive cable plate (2): Drive cable plate (2) and locking lever for floating roofliner (3) must execute a joint movement.
In addition, the correct spacing of locking lever (3) and drive cable plate (2) is determined by the floating roofliner cover plate.

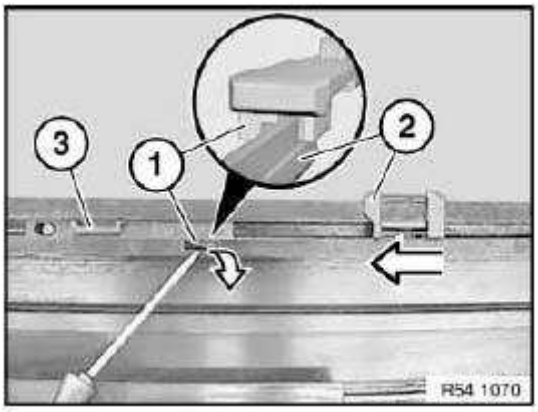


Fig. 30: Sliding In Locking Lever For Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 070 REMOVING AND INSTALLING/REPLACING SLIDER SET FOR FLOATING ROOFLINER

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove rear floating roofliner, see **54 13 070 Removing and installing/replacing both floating roofliners for glass slide/tilt sunroof**.
- Remove fan grille, see **54 13 070 Removing and installing/replacing both floating roofliners for glass slide/tilt sunroof**.
- Remove drive unit with gearing, see **67 61 517 REPLACING DRIVE WITH GEAR (REAR) FOR ACTUATING SLIDE/TILT SUNROOF** .

Unclip end stops (1) on left and right from guide channel.

Installation:

Engage end stops at front and clip into place by applying pressure.

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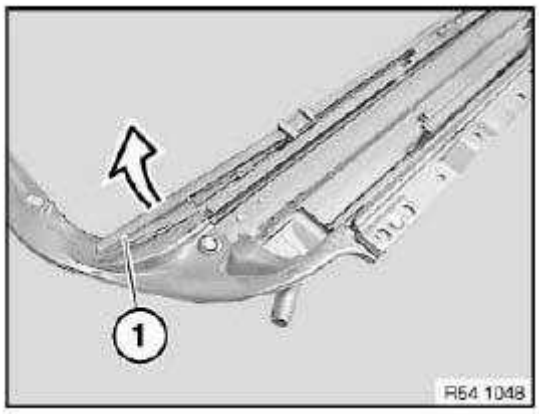


Fig. 31: Unclipping End Stops
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip slide block (1) on left and right (risk of damage).

Pull driver for rear floating roofliner (2) and slider set (3) towards rear out of guide.

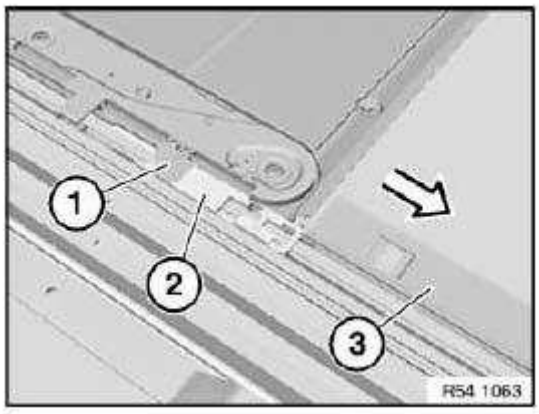


Fig. 32: Pulling Driver For Rear Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Disengage rocker arm (1) from driver for rear floating roofliner (2).

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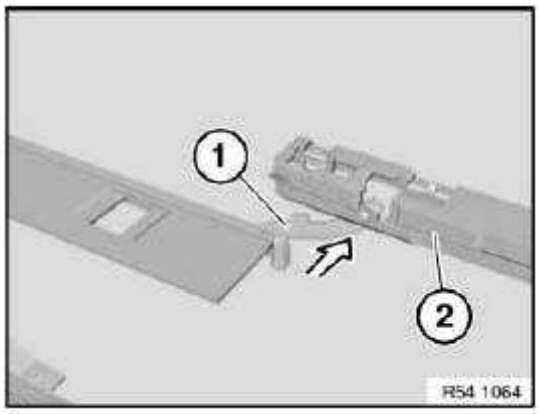


Fig. 33: Disengaging Rocker Arm From Driver For Rear Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Remove rocker arm (1) from rail and replace if necessary.

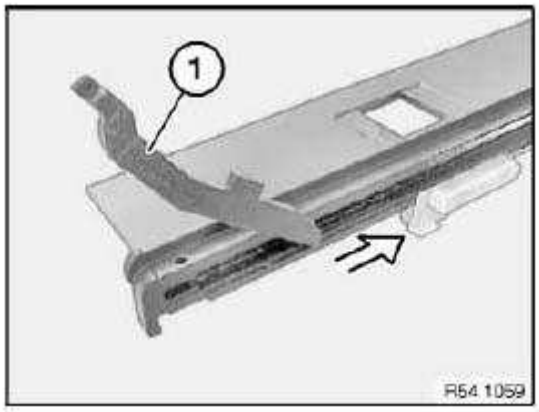


Fig. 34: Removing Rocker Arm From Rail
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 160 REPLACING LEFT OR RIGHT GAITER FOR GLASS SLIDE/TILT SUNROOF

Necessary preliminary tasks:

- Close glass slide/tilt sunroof

Detach gaiter (1) from guide.

Installation:

Gaiter cannot be removed without incurring damage.

Replace gaiter.

Check that aluminium section inlay is firmly seated on guide.

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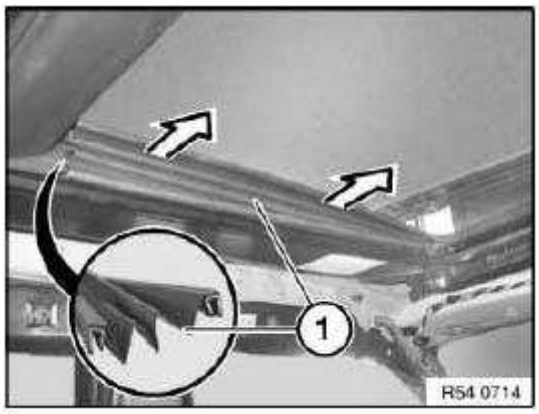


Fig. 35: Detaching Gaiter From Guide
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 170 REMOVING AND INSTALLING FRONT GLASS SLIDE/TILT SUNROOF COVER

Necessary preliminary tasks:

- Remove gaiter, see **54 10 160 Replacing left or right gaiter for glass slide/tilt sunroof**.

NOTE: The following steps can be carried out inside the vehicle with the glass roof panel fully closed.
Open floating roofliner fully.
Make sure that grease at the ends of the rail do not come into contact with the roofliner.
Not necessary for replacement:
Before removing the Torx screws, make a mark around the washers in order to ensure correct alignment during installation.

Remove and dispose of the Torx screws (1) securing the glass panel to the mechanism.

Installation:

Insert new Torx screws with Loctite and align washers to markings.

Tightening torque: 54 12 2AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

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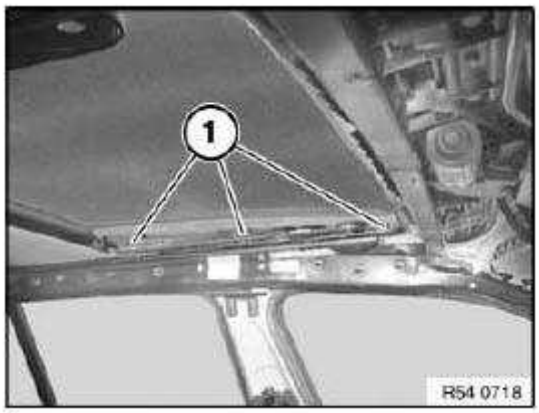


Fig. 36: Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: A second person is required to help in removing and installing the glass slide/tilt sunroof lid!

Lift out glass slide/tilt sunroof cover (1).

Installation:

Tape off installation area on left and right at roof aperture with fabric adhesive tape.

Install glass slide/tilt sunroof cover carefully (twist in) as seal can be damaged during installation.

Check glass slide/tilt sunroof cover for correct alignment and adjust if necessary, see **54 13 003 Adjusting glass slide/tilt sunroof lid**.

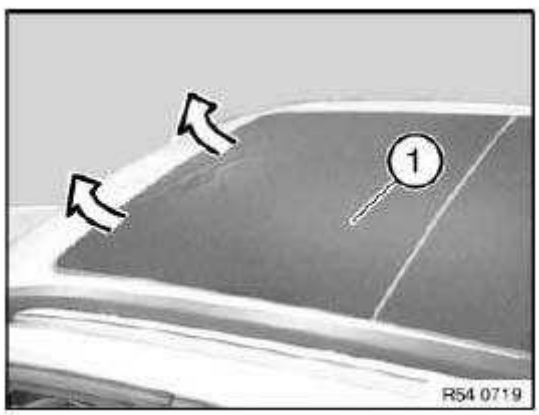


Fig. 37: Lifting Out Glass Slide/Tilt Sunroof Cover
Courtesy of BMW OF NORTH AMERICA, INC.

54 10 175 REMOVING AND INSTALLING REAR GLASS SLIDE/TILT SUNROOF COVER

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NOTE: The following steps can be carried out inside the vehicle with the glass roof panel fully closed.
Open floating roofliner fully.
Make sure that grease at the ends of the rail do not come into contact with the roofliner.
Not necessary for replacement:
Before removing the Torx screws, make a mark around the washers in order to ensure correct alignment during installation.

Remove and dispose of the Torx screws (1) securing the glass panel to the mechanism.

Installation:

Insert new Torx screws with Loctite and align washers to markings.

Tightening torque: 54 12 2AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

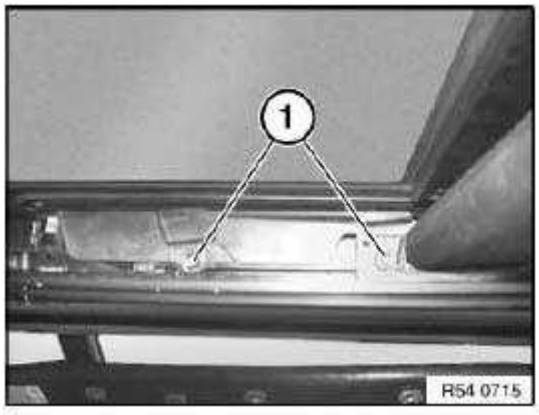


Fig. 38: Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: A second person is required to help in removing and installing the glass slide/tilt sunroof lid!

Lift out glass slide/tilt sunroof cover (1).

Installation:

Tape off complete edge area at roof aperture with fabric adhesive tape (risk of damage).

Install glass slide/tilt sunroof cover carefully (twist in) as seal can be damaged during installation.

Check glass slide/tilt sunroof cover for correct alignment and adjust if necessary, see **54 13 003 Adjusting glass slide/tilt sunroof lid**.

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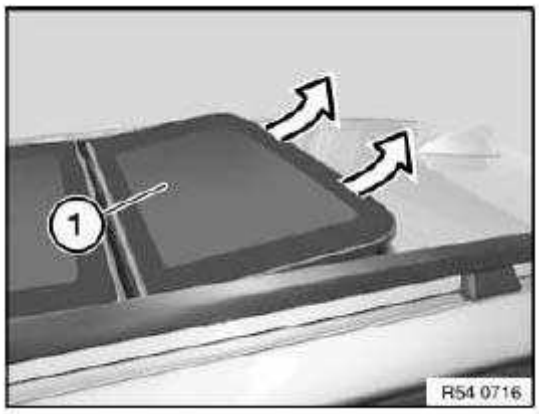


Fig. 39: Lifting Out Glass Slide/Tilt Sunroof Cover
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 130 REMOVING AND INSTALLING FRONT CROSS - MEMBER

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove control unit for glass slide/tilt sunroof, see **61 35 714 REMOVING AND INSTALLING/REPLACING CONTROL UNIT FOR SLIDE/TILT SUNROOF** .
- Remove drive, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

If necessary, release fabric adhesive tape and replace.

Installation:

Pitch cables must be correctly located in guide

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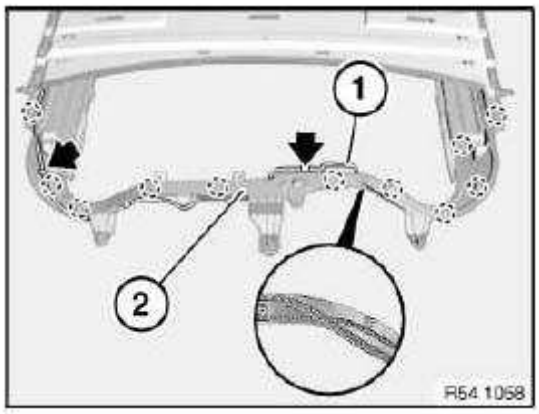


Fig. 40: Cross-Member And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 150 REMOVING AND INSTALLING REAR CROSS - MEMBER

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove control unit for glass slide/tilt sunroof, see **61 35 714 REMOVING AND INSTALLING/REPLACING CONTROL UNIT FOR SLIDE/TILT SUNROOF** .
- Remove drive, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

Installation:

Pitch cables must be correctly laid diagonally in guide.

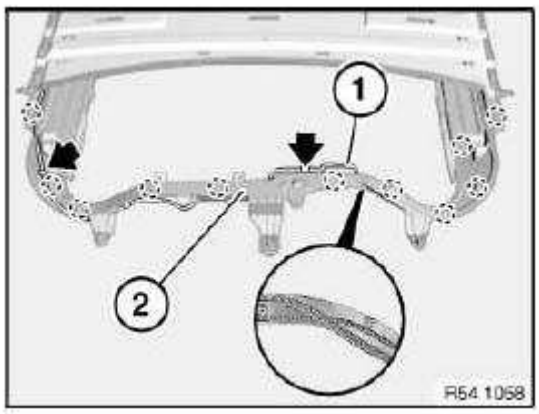


Fig. 41: Cross-Member And Wiring Harness

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Courtesy of BMW OF NORTH AMERICA, INC.

13 ELECTRICAL SUN ROOF COMPONENTS

54 0 ... NOTES ON PANORAMA GLASS ROOF (INITIALIZATION/NORMALIZATION/LEARNING OF CHARACTERISTIC CURVE)

NOTE: **Initialization comprises:**

- **Normalization**
- **Learning characteristic curve**

The mechanical end positions are recorded and stored during normalization.
The characteristic curve is learnt immediately after normalization.
When the characteristic curve is learnt, the mechanical closing forces of the panorama glass roof are recorded and stored for correct operation of the anti-trapping mechanism.

NOTE: **Then carry out an initialization :**

- **if the panorama glass roof has been mechanically moved by means of the emergency actuator**
- **in the event of malfunctions, e.g. no one-touch function, no opening or no comfort function possible**
- **after disengagement of the drive unit**
- **after work is carried out on the mechanism of the panorama glass roof**
- **after the control unit has been replaced**

WARNING: **There is no anti-trapping protection during initialization.**

NOTE: **Starting situation in accordance with following description:**

- **Panorama glass sunroof closed**
- **Floating roofliner completely open**

Normalization:

- Press and hold the switch in the "Lift" direction
- In the event of delayed starting or sudden stopping of the panorama glass roof, continue pressing the switch in the "Lift" direction

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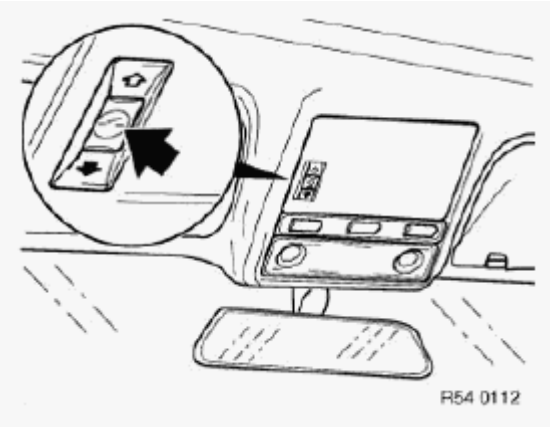


Fig. 42: Pressing Switch
Courtesy of BMW OF NORTH AMERICA, INC.

- After reaching the lift end position (A), keep the switch pressed for approx. 15 seconds further
- Normalization is completed when the panorama glass roof in lift end position (A) presses again briefly in the direction of position (B).

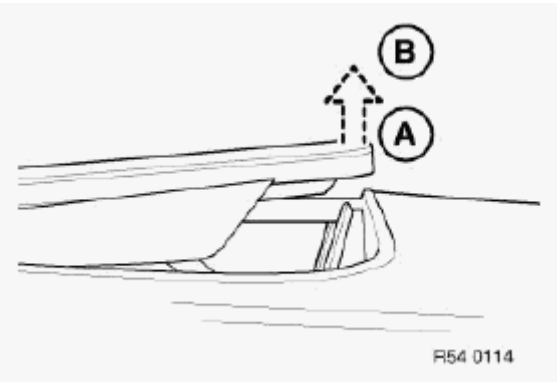


Fig. 43: Panorama Glass Roof In Lift End Position
Courtesy of BMW OF NORTH AMERICA, INC.

Learning characteristic curve:

E53/E61/E83 only:

The curve is learnt manually in the following steps:

- After normalization, keep switch pressed in "Lift" direction.
- The panorama glass roof stops for 5 seconds in the final raise position after normalization.
- Floating roofliner closes completely.
- Floating roofliner opens completely.
- The panorama glass roof then moves into the "Closed" position (learning of the "Closing from raising" curve)
- The panorama glass roof then moves into the "Open" end position and immediately back into the

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"Closed" position (learning of the "Closing" curve).

- Floating roofliner closes completely.
- Release switch.

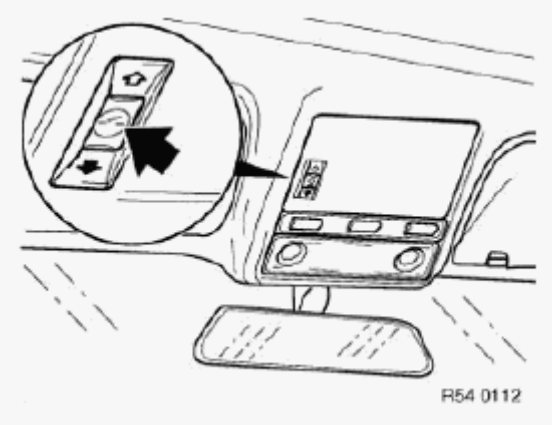


Fig. 44: Pressing Switch
Courtesy of BMW OF NORTH AMERICA, INC.

E63 only:

The curve is learnt manually in the following steps:

- After normalization, keep switch pressed in "Lift" direction.
- The panorama glass roof stops for 5 seconds in the final raise position after normalization.
- Floating roofliner closes completely.
- Floating roofliner opens completely.
- The panorama glass roof then moves into the "Closed" position (learning of the "Closing from raising" curve)
- Floating roofliner closes completely.
- Release switch.

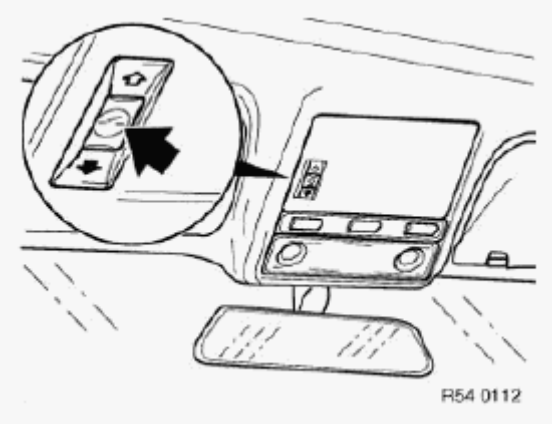


Fig. 45: Pressing Switch

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Courtesy of BMW OF NORTH AMERICA, INC.

NOTE:

- **The entire operation lasts approx. 75 seconds**
- **Learning of the curve is terminated when the switch is released**
- **If the switch is released in the meantime, the entire procedure must be repeated**
- **On completion of successful initialization, the corresponding messages in the check control and the control display go out**
- **Carry out function check (tip function, anti-trapping protection and, if necessary, comfort function)**

54 13 003 ADJUSTING GLASS SLIDE/TILT SUNROOF LID

Special tools required:

See **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

- 00 9 315
- 00 9 340

Necessary preliminary tasks:

- Remove gaiter, see **54 10 160 Replacing left or right gaiter for glass slide/tilt sunroof**.
- Close glass slide/tilt sunroof completely

If the glass slide/tilt sunroof is outside the adjustment tolerances, adjust as follows:

Adjusting glass slide/tilt sunroof unit:

Carry out the following step on one side first and then the other (first left, then right or vice versa):

- Insert Torx screws (1) on left/right so that glass roof panel can still just be adjusted
- Move glass slide/tilt sunroof lid as required
- Make sure all screws are tightened down.
- Tightening torque: 54 12 2AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .
- Repeat procedure on other side.

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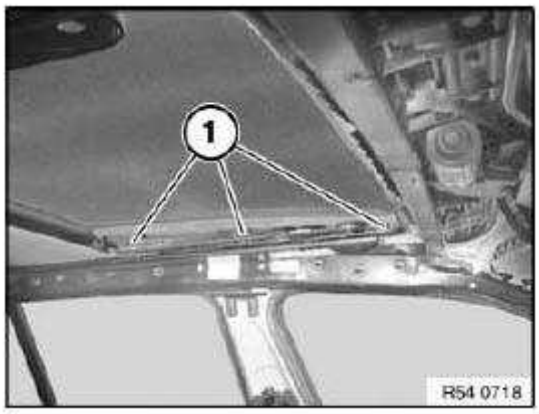


Fig. 46: Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Distance setting:

Distance A between body and glass lid (without seal):

A= 5.8 ± 0.3 mm all round

Check same gap of glass lid and body with special tool 00 9 340.

Slide special tool 00 9 340 or similar between seal and insert. It must be possible to slide the card against the same level of resistance.

Slide glass lid towards front or rear until ideal position is reached.

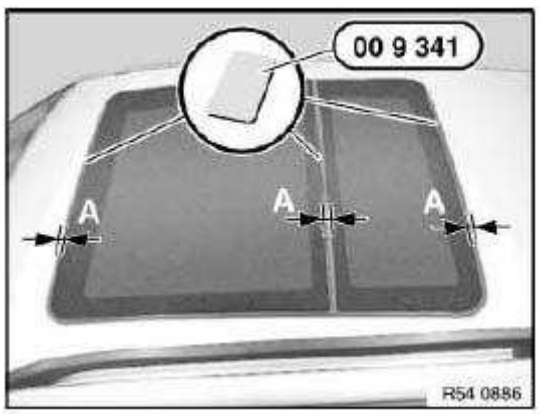


Fig. 47: Special Tool (00 9 341)
Courtesy of BMW OF NORTH AMERICA, INC.

Height adjustment:

NOTE: Front glass lid must be adjusted first.

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Check height of glass lid (1) in relation to body (2) with special tool 00 9 315.

Press glass lid (1) at front and rear towards top or bottom until ideal position is reached.

Height:

- Front edge of glass lid at front 0 to 1 mm under roof edge
- Rear edge of glass lid at front 0 to 0.5 mm over glass lid at rear
- Rear edge of glass lid at rear 0 to 1 mm over roof edge

Check function and adjustment.

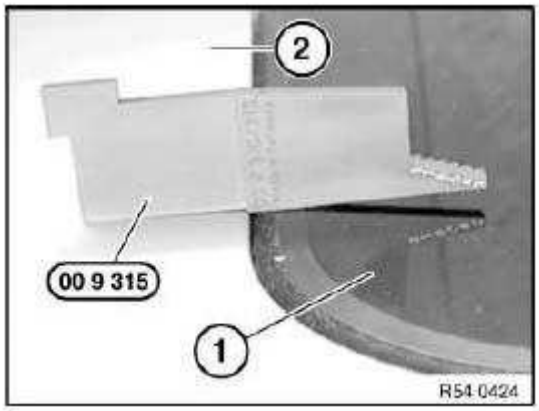


Fig. 48: Special Tool (00 9 315)
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 050 REPLACING SEAL FOR SLIDE/TILT SUNROOF LID AT REAR

Necessary preliminary tasks:

- Open glass slide/tilt sunroof

NOTE: Follow repair instructions for bonded seals on glass slide/tilt sunroof.

Detach seal (1) from slide/tilt sunroof lid.

Installation:

Clean bonding surface with adhesive remover (sourcing reference: BMW Parts Service).

Press seal without stretching (squashing).

IMPORTANT: Do not touch bonding surface.
Surface temperature greater than 20°C
Incorrect bonding of the seal will result in leakage.

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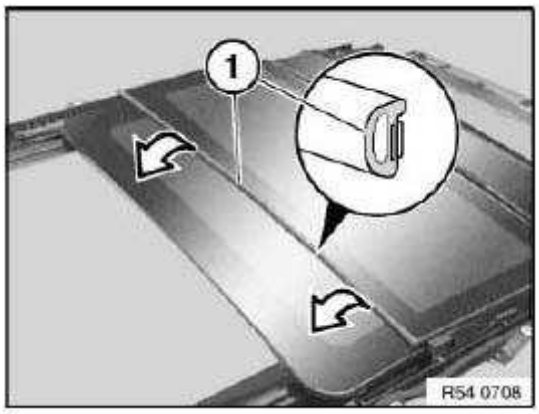


Fig. 49: Detaching Seal From Slide/Tilt Sunroof Lid
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 055 REPLACING SEAL FOR SLIDE/TILT SUNROOF FRAME

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof lid at rear, see **54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.
- Lower (open) glass slide/tilt sunroof lid at front

NOTE: Follow repair instructions for bonded seals on glass slide/tilt sunroof, see 54 0 ... Notes on panorama glass roof (initialization/normalization/learning of characteristic curve).

Pull off seal of sunroof cut-out at contact edge starting from body. (Peel off)

Installation:

Clean bonding surface with adhesive remover (sourcing reference: BMW Parts Service).

Press seal without stretching (squashing).

Stick on seal in sections.

Establish seal joint.

IMPORTANT: Do not touch bonding surface.
Surface temperature greater than 20°C
Incorrect bonding of the seal will result in leakage.

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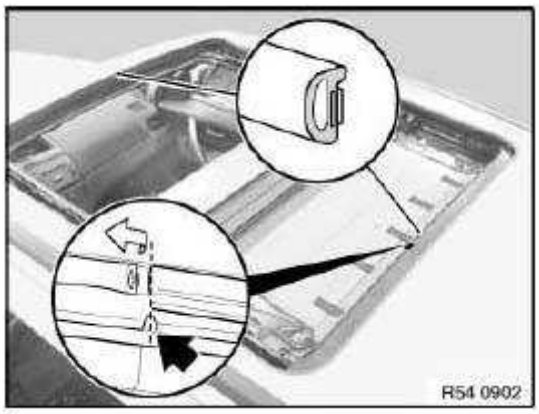


Fig. 50: Pulling Off Seal Of Sunroof Cut-Out
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 060 REMOVING AND INSTALLING/REPLACING FRONT FLOATING ROOFLINER FOR GLASS SLIDE/TILT SUNROOF

This operation is described in section on:

- Removing both floating roofliners for glass slide/tilt sunroof, see **54 13 070 Removing and installing/replacing both floating roofliners for glass slide/tilt sunroof**.

54 13 065 REMOVING AND INSTALLING/REPLACING REAR FLOATING ROOFLINER FOR GLASS SLIDE/TILT SUNROOF

This operation is described in section on:

- Removing both floating roofliners for glass slide/tilt sunroof, see **54 13 070 Removing and installing/replacing both floating roofliners for glass slide/tilt sunroof**.

54 13 070 REMOVING AND INSTALLING/REPLACING BOTH FLOATING ROOFLINERS FOR GLASS SLIDE/TILT SUNROOF

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof lid at rear, see **54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.

NOTE: Front and rear floating roofliners can be removed separately from each other. Make sure that grease on the rails does not come into contact with the floating roofliner.

Release screw (1).

Release clips (2) with rotary block.

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Remove fan plate (3).

Installation:

Do not tighten down screw (1), fan plate (3) should be able to move in Y-direction.

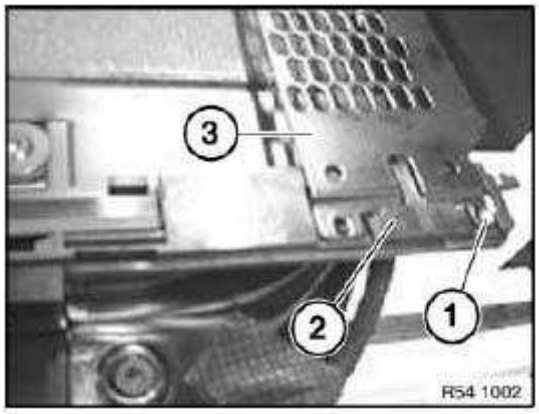


Fig. 51: Screw And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Front floating roofliner:

Open floating headliner approx. halfway.

Front rain channel must be situated between first and second screws.

Release screws (1).

Tightening torque: 54 12 10AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

Remove star shims.

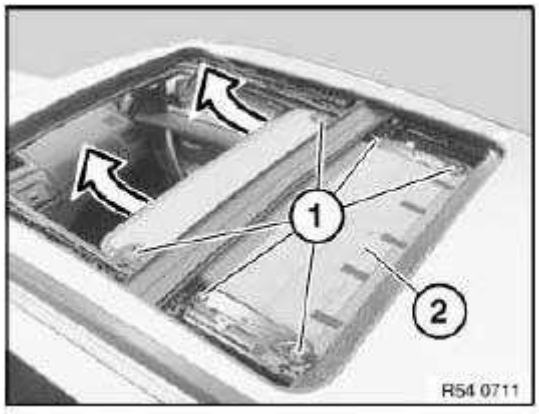


Fig. 52: Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Replace microencapsulated screws and insert with Loctite.

Make sure star shims are correctly positioned.

Pull out floating roofliner (2) in direction of arrow.

If necessary, press wind deflector downwards.

Installation:

Carefully raise floating roofliner mechanism.

Rear floating roofliner:

Close roofliner completely but not in fan position.

Release screws (1).

Remove tensioning springs (left side only) and washers.

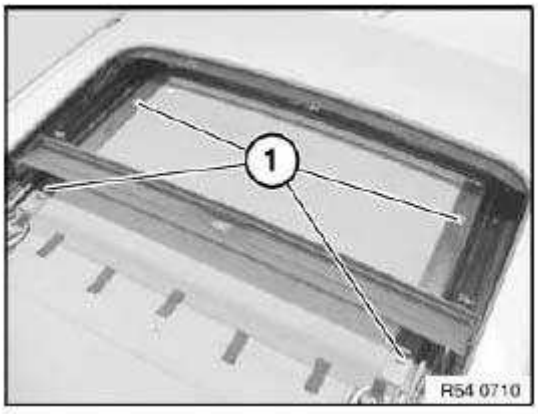


Fig. 53: Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Slide floating roofliner (4) in direction of arrow (1) between outer body skin and roofliner.

Slide floating roofliner (4) up to end of control rail (3).

Raise floating roofliner (4) and remove over control rail (3) in direction of arrow (2).

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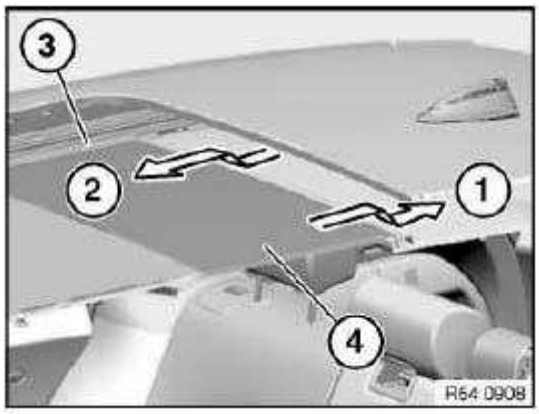


Fig. 54: Sliding Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

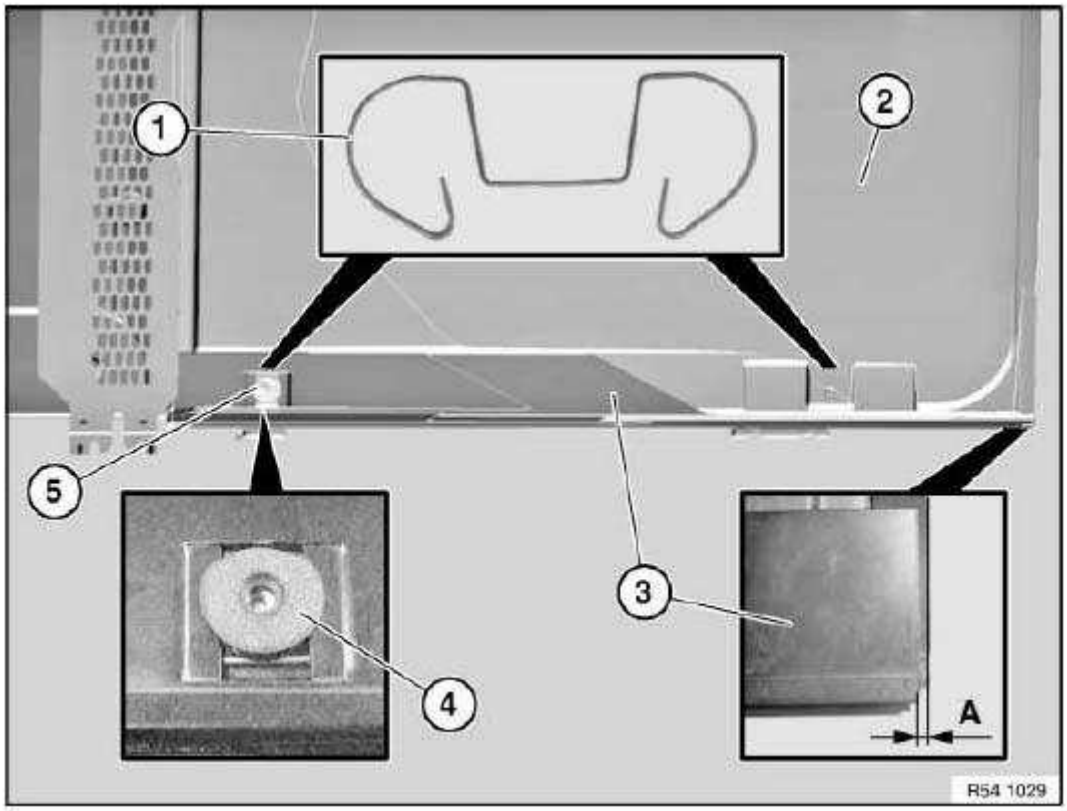


Fig. 55: Tension Spring And Floating Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tensioning springs (1) must rest correctly in recess of floating roofliner (2).

Adjust gap A = $3 \pm {}^{0.2}$ mm from control rail (3) to floating roofliner (2).

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Make sure washer (4) is correctly positioned with turning lock.

Replace microencapsulated screws (5) and insert with Loctite.

Tightening torque: 54 12 11AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

Performing function check:

- Floating roofliner must be able to move in control rail in X-direction.
- Floating roofliner is positioned on right and can be pressed towards left under spring tension.
- Floating roofliner springs back towards right into initial position.

54 13 080 REMOVING AND INSTALLING COMPLETE GLASS SLIDE/TILT SUNROOF

Special tools required:

- **54 1 110 CENTERING PINS**

Necessary preliminary tasks:

- Remove roofliner, see **51 44 013 REMOVING AND INSTALLING ROOFLINER (ON VERSION WITH PANORAMA SUNROOF)** .
- Open rear lid

E53 only:

- Partially remove rear-compartment head airbag.

IMPORTANT: Two persons are required to help in removing the glass slide/tilt sunroof.

E61/E83 only:

Remove holder for handles on left and right:

- Release screws.
- Remove holder.

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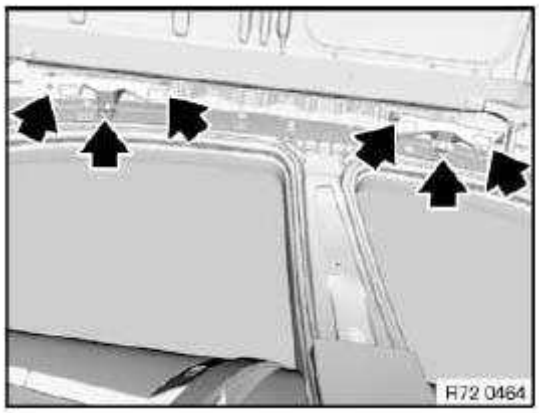


Fig. 56: Locating Screws And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

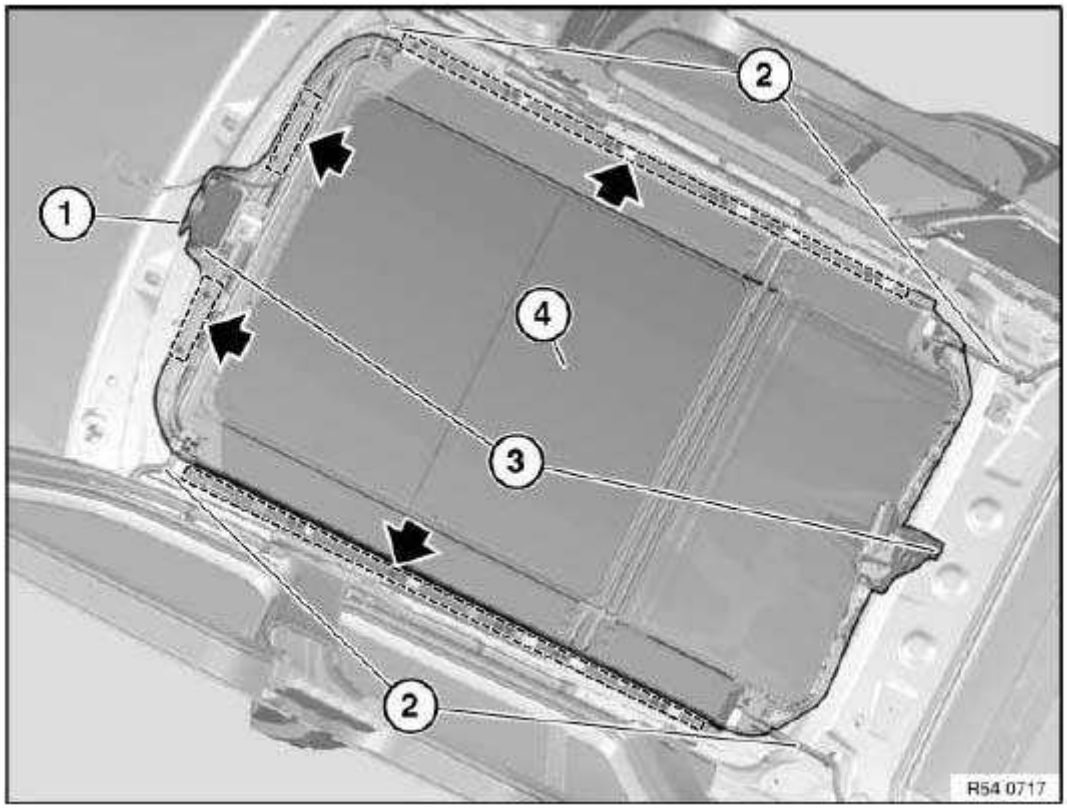


Fig. 57: Water Drain Hoses And Plug
Courtesy of BMW OF NORTH AMERICA, INC.

- Unlock and disconnect plug (1)
- Detach water drain hoses (2)

NOTE: Check hoses for damage and moisten with water before fitting

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- Release screws in marked area (when installing: fit washers on front side)

  Tightening torque: 54 12 6AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

- Helper must hold glass sunroof to prevent it falling out.
- Release screws (3) on and carefully lower slide/tilt sunroof (4).

IMPORTANT: Do not damage any surrounding parts when removing slide/tilt sunroof (4).

- Remove slide/tilt sunroof (4) completely (through rear lid at rear).

Installation:

If necessary, remove fabric adhesive tape.

To stop grating noises, secure all screws (1) prior to installation with plastic washers (2).

If the standard screws can no longer grip, use "repair screws" (have larger threads).

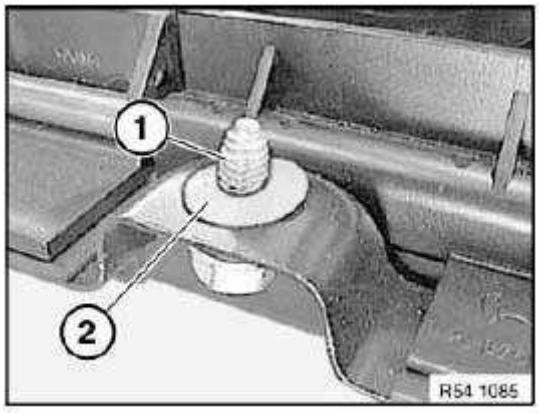


Fig. 58: Plastic Washers
Courtesy of BMW OF NORTH AMERICA, INC.

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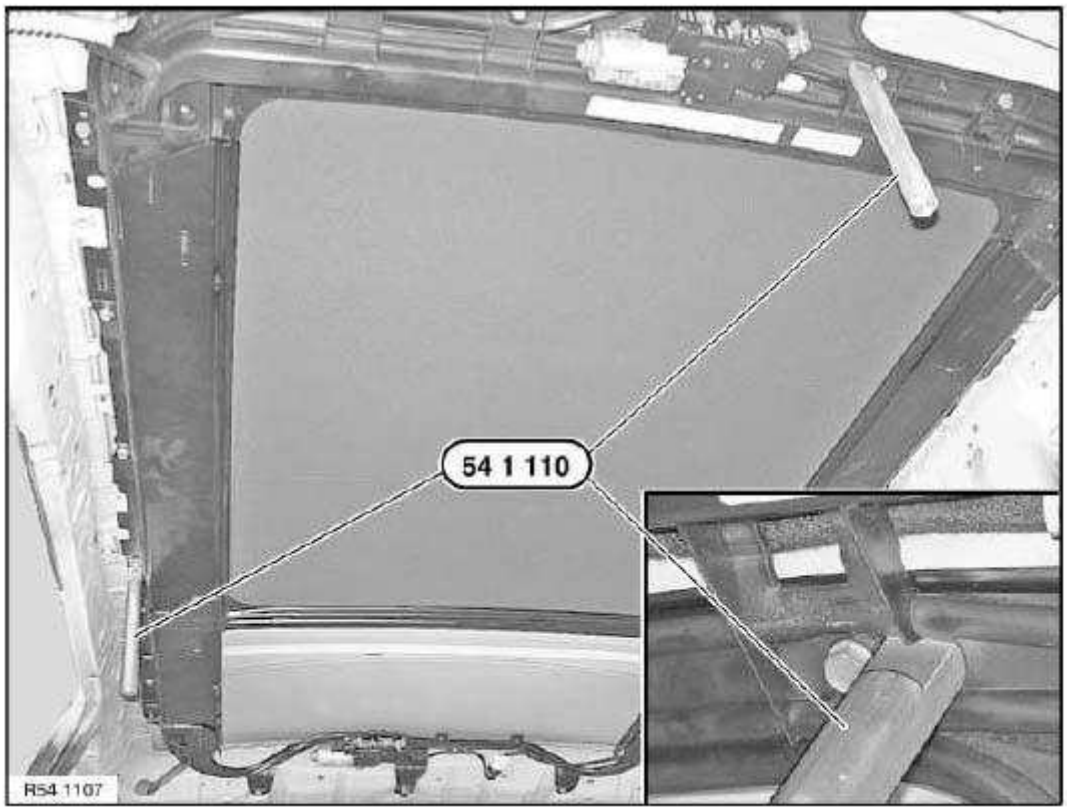


Fig. 59: Special Tool (54 1 110)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

To align panorama sunroof to body-cutout, insert screws and tighten loosely.

Panorama sunroof must still be able to move in the body-cutout.

On account of leaks, panorama sunroof must be exactly aligned to body-cutout.

Insert special tool 54 1 110 into centering bores up to stop in panorama sunroof and body.

Tighten down screws.

Tightening torque: 54 12 6AZ, see **54 12 MECHANICAL SUN ROOF COMPONENTS** .

E53 only:

Side centering bore omitted on body side.

Align panorama sunroof over front centering bore in longitudinal direction and align at sides over glass cover distance to body. (See next work step).

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**IMPORTANT: Do not crush any cables when fitting the glass slide/tilt sunroof.
Initialize glass slide/tilt sunroof, see 54 0 ... Notes on panorama glass roof (initialization/normalization/learning of characteristic curve)**

54 13 090 REMOVING AND INSTALLING/REPLACING WIND DEFLECTOR

Necessary preliminary tasks:

- Open slide/tilt sunroof

NOTE: Shown removed here for purposes of clarity.

Pull plastic strip (1) on net of wind deflector out of retainers (2).

IMPORTANT: Do not pull on the net so as to avoid tearing the net.

Installation:

If necessary, reinstall retainers in frame.

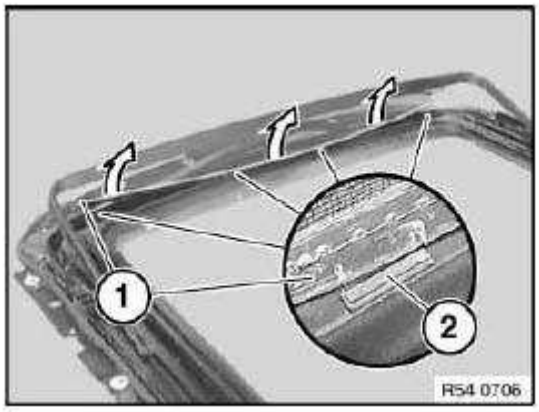


Fig. 60: Pulling Plastic Strip
Courtesy of BMW OF NORTH AMERICA, INC.

**IMPORTANT: Tape off paintwork in working area.
Avoid bending wind deflector (1).**

**NOTE: Pictures show removal on the left side, proceed in the same way for the right side.
Slide control carriage (4) for wind deflector with plastic wedge towards front.**

Carefully lift wind deflector (1) in direction of arrow with guide (2) out of rail (3).

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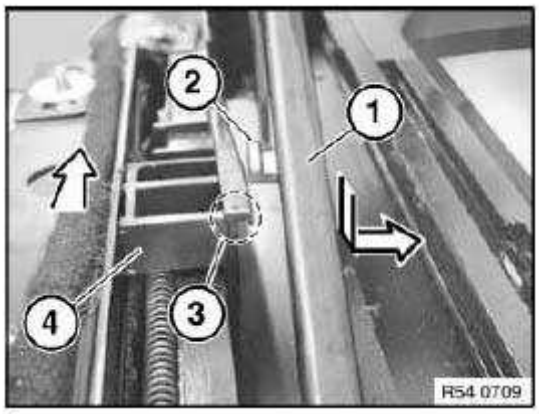


Fig. 61: Sliding Control Carriage And Wind Deflector
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure clamping elements are correctly seated.

Tilt wind deflector (1) into vertical position and remove.

Installation:

Make sure wind deflector (1) is correctly seated in pivot point (2).

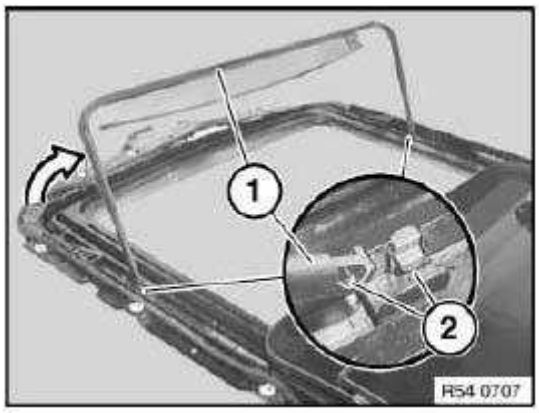


Fig. 62: Wind Deflector And Pivot Point
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 095 REPLACING/CLEANING NET FOR WIND DEFLECTOR

Necessary preliminary tasks:

- Open slide/tilt sunroof

Cleaning:

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The wind deflector net can be cleaned while installed as follows:

- Accelerate vehicle with glass slide/tilt sunroof open to over 5 km/h
- Stop vehicle and turn ignition key to position 2.

NOTE: This prevents the wind deflector from retracting, and thereby leaving it fully open.

Net is now accessible and easy to clean.

Replacement:

Pull plastic strip (1) out of retainers (2) on panorama glass sunroof and wind deflector.

Installation:

If necessary, reinstall retainers.

Clip new net into place.

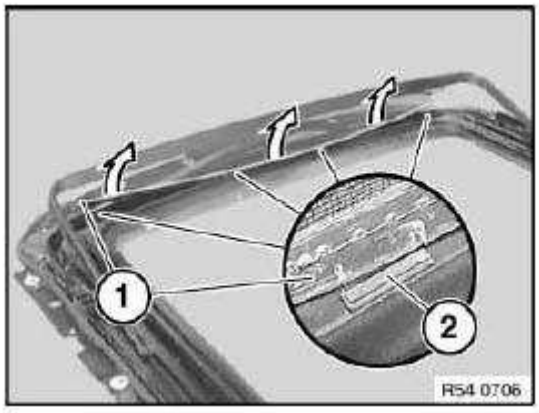


Fig. 63: Pulling Plastic Strip
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 100 REMOVING AND INSTALLING/REPLACING DRIP MOLDING

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove glass slide/tilt sunroof lid at rear**54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.
- Remove glass slide/tilt sunroof lid at front, see **54 10 170 Removing and installing front glass slide/tilt sunroof cover**.

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IMPORTANT: Risk of damage to drip molding carrier.

Carefully unclip drip molding (1) upwards out of carrier (2).

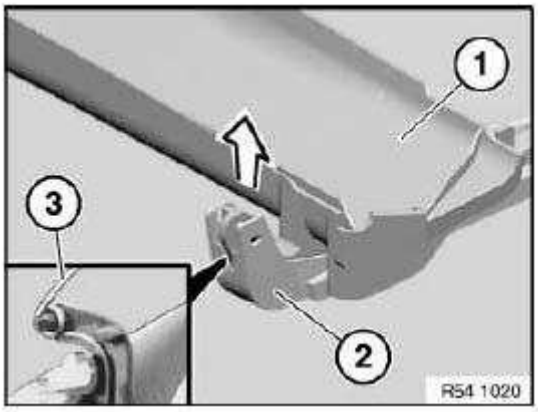


Fig. 64: Uncliping Drip Molding
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Attach spring (3) to drip molding pivot point.

Make sure spring is correctly positioned in drip molding.

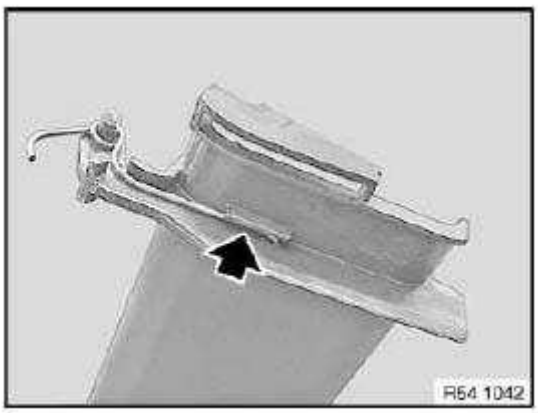


Fig. 65: Locating Spring
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Observe installation sequence:

1. Suspend spring in drip molding carrier
2. Press drip molding onto glass slide/tilt sunroof

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3. Clip pivot point (bearing) of drip molding into carrier

Check drip molding for spring tension.

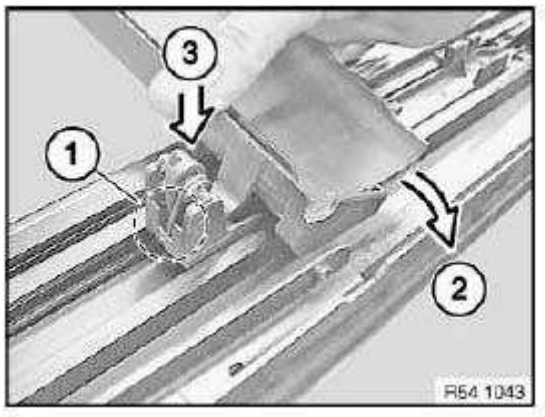


Fig. 66: Pressing Drip Molding Onto Glass Slide/Tilt Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 105 REMOVING AND INSTALLING/REPLACING REAR DRIP MOLDING

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove glass slide/tilt sunroof lid at rear**54 10 175 Removing and installing rear glass slide/tilt sunroof cover**.

Unlock tab (2) and remove drip molding (1) towards top.

NOTE: 2 springs are loosely connected to guide for drip molding.

Installation:

Make sure springs are reinstalled on drip molding carriers.

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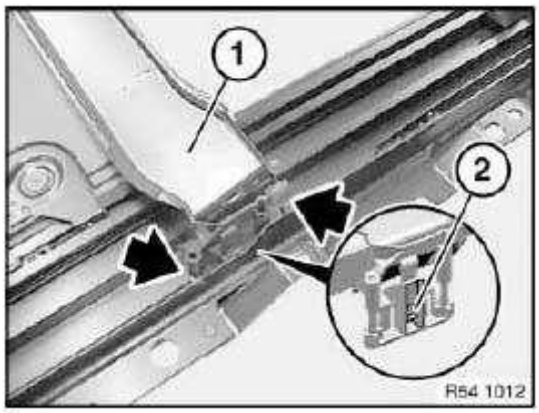


Fig. 67: Drip Molding
Courtesy of BMW OF NORTH AMERICA, INC.

Removing drip molding carrier:

NOTE: Drip molding carrier cannot be removed without incurring damage.

Break out tabs with a screwdriver and lever out carrier.

Installation:

Replace drip molding carrier and hook into place.

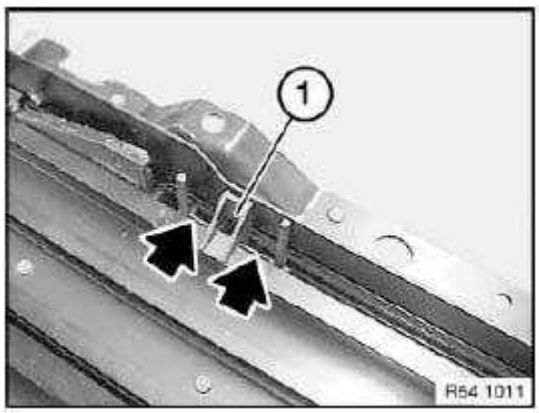


Fig. 68: [Tabs]
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 130 REMOVING AND INSTALLING FRONT CROSS - MEMBER

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove control unit for glass slide/tilt sunroof, see **61 35 714 REMOVING AND**

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INSTALLING/REPLACING CONTROL UNIT FOR SLIDE/TILT SUNROOF .

- Remove drive, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

If necessary, release fabric adhesive tape and replace.

Installation:

Pitch cables must be correctly located in guide

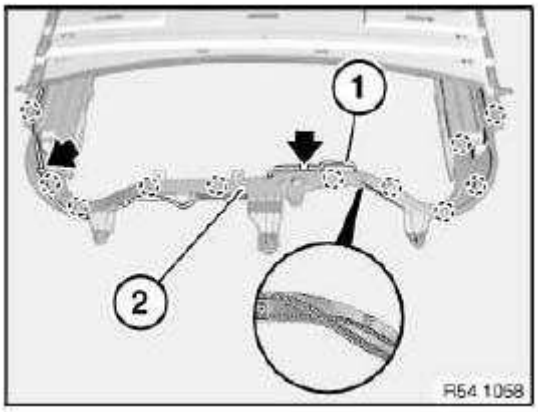


Fig. 69: Cross-Member And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

54 13 150 REMOVING AND INSTALLING REAR CROSS - MEMBER

Necessary preliminary tasks:

- Remove glass slide/tilt sunroof**54 13 080 Removing and installing complete glass slide/tilt sunroof**.
- Remove control unit, see **61 35 714 REMOVING AND INSTALLING/REPLACING CONTROL UNIT FOR SLIDE/TILT SUNROOF** .
- Remove drive, see **67 61 515 REPLACING DRIVE WITH GEAR (FRONT) FOR ACTUATING SLIDE/TILT SUNROOF (PANORAMA GLASS SUNROOF)** .

Release screws in marked area.

Feed cross-member (2) out of wiring harness (1) during removal.

Installation:

Pitch cables must be correctly laid diagonally in guide.

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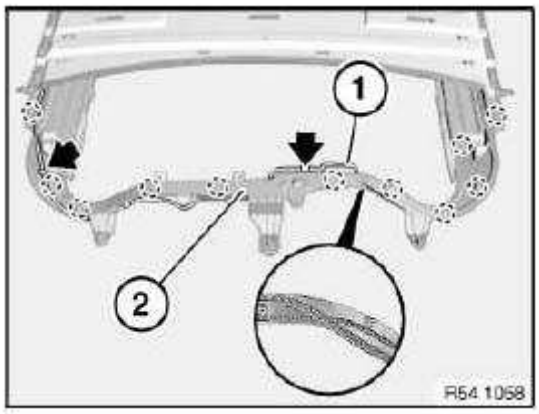


Fig. 70: Cross-Member And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

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ACCESSORIES & EQUIPMENT

Sunroof and Convertible Top - Operating Fluids

1.0 CONVERTIBLE TOP MATERIAL

Cleaning Kit consists of three fluids for periodic maintenance of the top's outer surface:

- Car Shampoo

  For cleaning the entire convertible top. Add 2 to 3 capfuls of shampoo to 2.5 gallons of water. Rinse with clean water.

- Glass Cleaner

  Cleans the plastic rear window as well as the vehicle's glass windows. Spray on, wipe off with dry cloth.

- Impregnating Spray

After cleaning the top, apply this spray over a large area about 12 inches from the surface to seal the top against possible leaks.

Convertible Top Cleaning Kit

BMW Part No. 83 12 9 407 806

Impregnating Spray

BMW Part No. 83 12 9 407 802

2.0 CONVERTIBLE TOP REAR (PLASTIC) WINDOW

REAR WINDOW CLEANER

Meguiar's Mirror Glaze Professional Plastic Cleaner #17 removes hairline scratches on the surface.

BMW Part No. 82 14 1 467 128.

REAR WINDOW POLISH

Meguiar's Mirror Glaze Professional Plastic Polish #10 restores and maintains clarity, leaves surface static-free.

BMW Part No. 82 14 1 467 129

CONTACT CEMENT

Attaching soft top material to zip-out rear window trim plastic channel on E30 and E36 convertibles. (former

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BMW Part No. 81 22 9 407 524)

3M 1357 High Performance Contact Adhesive

3.0 CONVERTIBLE TOP STORAGE LID ADHESIVE

E30 and E36 Convertible top storage lid covering adhesive

3M™ Super Trim Adhesive Yellow Part No. 08090

4.0 CONVERTIBLE TOP SEALING FRAME ADHESIVE

0 E36 Z3 Sealing Frame Adhesive

One roll of Bostik 3/4" x 1/8" Butyl Tape, available in cases of 12 rolls from Springfield Paper Specialties.

5.0 CONVERTIBLE TOP HYDRAULIC FLUID

BMW PART NUMBER SPECIFICATION

Model	BMW Part Number
E36/7	54 34 8 410 306
E46	54347117733
E52	54348234324
E85	54347117733
E64	54347717733
E93	54340394395

6.0 SUNROOF

Cassette Lubricant

BMW PART NUMBER SPECIFICATION

Wurth Glide Grease	Part No. 0893898

Loctite 380

5 Series Touring double panel sunroof repairs. (former BMW Part No. 81 22 9 407 394)

BMW PART NUMBER SPECIFICATION

3M	Part No. 8155
Wurth	Part No. 893 4103
Loctite	Part No. 38050

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