1.0 SEALING COMPOUNDS

Seam Sealer, Sikaflex 221 may be used to seal adjoining sheet metal parts which create creaking noises due to interactive contact. High-adhesion, polyurethane-based, black-colored.

Sikaflex 221 Sealer

BMW Part No. 81 22 9 407 533

Other sealants for body panels are found in Group 97 (Body Cavity Sealings and Undercoatings).

2.0 LUBRICANTS

BMW offers several lubricants which are formulated for specific components. Some of these lubricants also appear in the "Universal Lubricants" group.

3.0 DOOR HINGES AND PIVOTS

Moly spray for quieting squeaks and similar noises. (former BMW Part No. 81 22 9 400 720)

BMW PART NUMBER SPECIFICATION

3M	Part No. 8876
Loctite	Part No. 24378

4.0 DOOR BRAKES

Grease for any sliding contact area, especially door brake mechanisms. (former BMW Part No. 81 22 9 407 629)

BMW PART NUMBER SPECIFICATION

3M	Part No. 8878
Loctite	Part No. 20029

5.0 DOOR LOCKS

Lock cylinder lubricant prevents locks from jamming in sub-freezing temperatures. Insert tip of spray can directly into keyslot.

(former BMW Part No. 81 22 9 407 421)

BMW PART NUMBER SPECIFICATION

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3M	Part No. 8878
Wurth	Part No. 893051
Loctite	Part No. 20029

6.0 (HKL) AUTOMATIC TRUNK LID LIFT HYDRAULIC FLUID

E65/E66 Automatic Trunk Lid Lift Hydraulic Fluid

BMW Part No. 51 24 7 066 901

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BODY

41 0 CONTENTS OF BODY, GENERAL

General information -> , see **QUALITY STANDARD**.

-> **WORKSHOP EQUIPMENT**.

Safety regulations -> , see **SAFETY AT WORK**.

-> **INFORMATION ON HAZARDS**.

-> **Information on VEHICLE PROTECTION**.

Materials -> , see **MATERIALS SCIENCE**.

-> **Use of materials** , see **IN OUTER SHELL**.

-> **Expendable materials** , see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

Handling electrical/electronic equipment, airbags and restraint systems

-> see, **HANDLING ELECTRICAL** and **electronic circuitry equipment and optical fibres 61 00 ... NOTES ON HANDLING OPTICAL FIBERS** .

HANDLING AIRBAGS AND RESTRAINT SYSTEMS.

-> **EMC screws**

Body dimensions -> Frame dimensions

-> **Gap dimensions**

Cavity bulkhead -> Installation of shaped parts , see **41 00 ... Installing a cavity acoustic baffle (expanded)** or **41 00 ... Installing a cavity acoustic baffle (not expanded)** or **41 00 ... Installing a cavity acoustic baffle with 2-component PU cavity foam**.

-> **Position of shaped parts**

Vehicle identification number -> , see **VEHICLE IDENTIFICATION NUMBER, GENERAL**.

-> **Stamping vehicle identification number** , see **41 00 ... Stamping vehicle identification number**.

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Repair techniques -> Repair stage 1

All work which provides only for replacement of screwed/bolted components and planishing operations

-> Repair stage 2

Repairs involving bonding and riveting

-> Repair stage 3

Repairs involving welding

Painting -> General Information , see **41 00 ... Gun for cavity sealing**.

-> Information/warning labels

-> Sectional painting , see **41 00 ... Information/warning labels**.

41 00 ... BONDING ALUMINUM ON STEEL

IMPORTANT: Conform with safety precautions , see 41 00 ... Information on hazards or 41 00 ... Safety at work.

The procedure applies only to E70, E71.

Overview of topics

1. Equipment
2. Best before date of consumables
3. Grinding and cleaning
4. Gluing coat
5. Hardening times
6. Disposing of adhesive

2.0 Best before date of consumables

- The adhesive cartridge is marked with a date.
- Do not use the adhesive after this date.

3.0 Grinding and cleaning

3.1 Steel surface

- 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.

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- Allow cleaned surfaces to dry for approx. 5 minutes.

  Adhesive areas must be completely dry.

3.2 Aluminum surface

- **Do not grind/sand adhesive surfaces!**

  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.
- Do not use any compressed-air-operated cartridge guns.
- Insert adhesive cartridge in cartridge 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 components and secure in position.
- Remove excessive glue with paper or cloths.

4.1 Bonding in conjunction with rivets

- Ensure there is a sufficient gap between the adhesive and the bores for the blind rivets (approx. 10 mm). Risk of damage to replaceable head of riveting tongs by emerging adhesive.
- 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.

5.0 Hardening times

- Vehicle is permitted to be lifted with the lifting platform from the straightening bench directly after bonding/riveting. Only raise the vehicle at the jacking points provided for this purpose.

  Do not subject bonded parts to load for 12 hours at a minimum temperature of 15°C (room temperature).

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- Vehicle strength for driving applications is achieved after:

  An additional 36 hours at a minimum temperature of 15°C (room temperature).

- Do not use radiant heaters for hardening. Risk of adhesive being destroyed at temperatures of > or = 120° C.
- Remove contamination caused by residual adhesive immediately.

Hardened adhesive can only be removed by machine.

6.0 Disposing of adhesive

- 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 ... BONDING STEEL ON STEEL

IMPORTANT: Conform with safety precautions , see 41 00 ... Information on hazards and 41 00 ... Safety at work,

Overview of topics

1. Equipment
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 K1** , see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.
- Adhesive gun (standard cartridge gun)
- Spatula for applying adhesive

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2.0 Expiration 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.

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 > or = 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.

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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 ... CARRYING OVER HOLE PATTERN

When replacing a body component, it is necessary to carry over the hole pattern from the existing body to the new component. The following pictures are a schematic representation of carrying over the hole pattern on the example of the front wheel arch.

Necessary preliminary tasks:

Adjust new part to fit with straightening attachment.

Insert paper stencil (1) between new component (2) and engine carrier and secure with adhesive tape (3).

Carry over contour (4) of new component to stencil.

Remove new component.

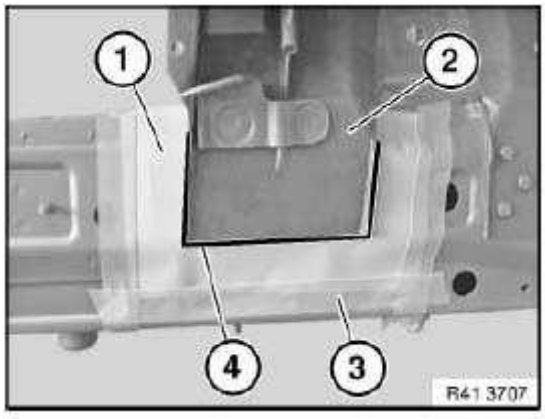


Fig. 1: Identifying Paper Stencil, Component And Adhesive Tape
Courtesy of BMW OF NORTH AMERICA, INC.

(1) = contour of new component.

Carry over positions of holes (2) to stencil by pressing down with thumbs.

Remove stencil.

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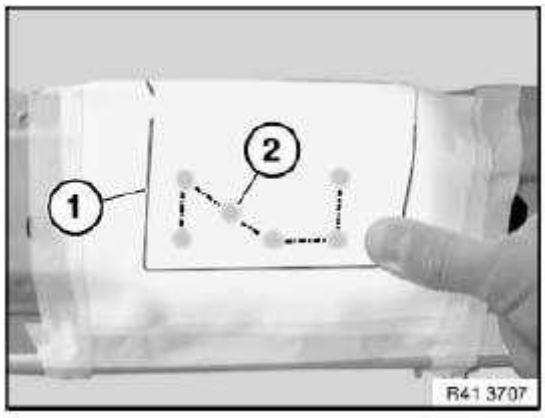


Fig. 2: Identifying Holes (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

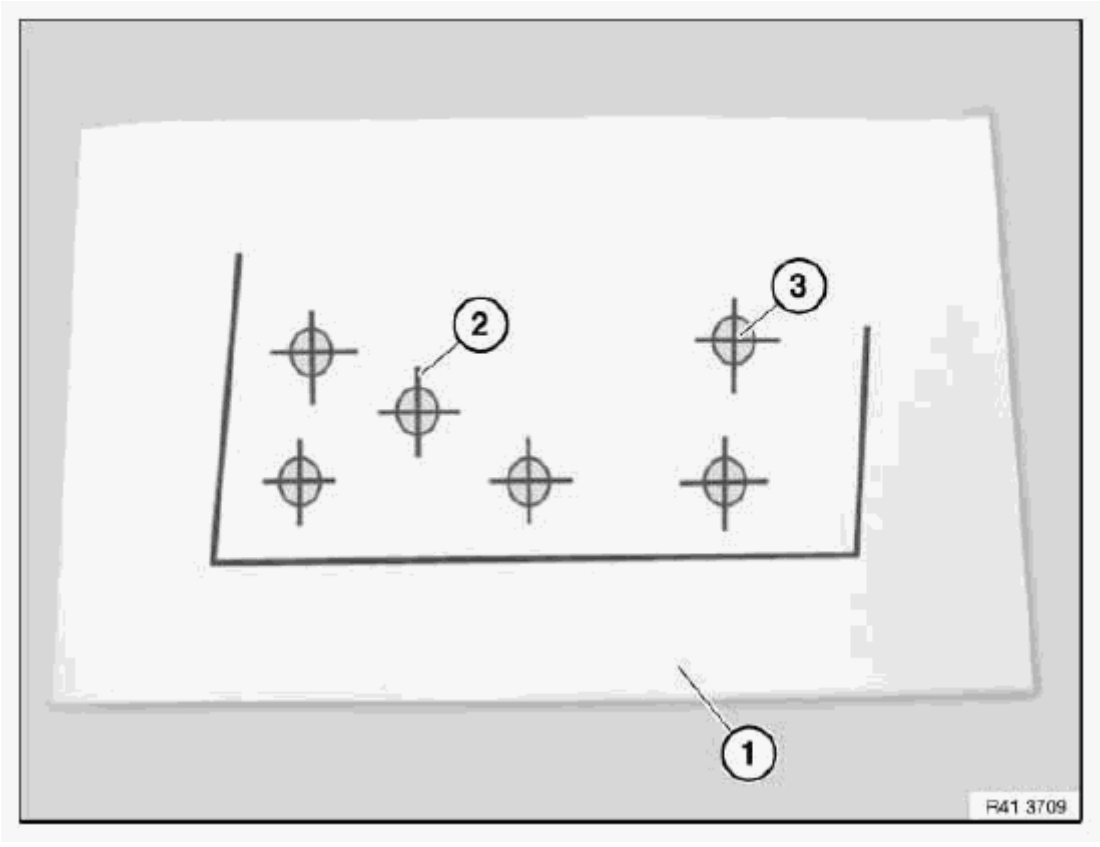


Fig. 3: Identifying Holes (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Lay stencil (1) on a flat surface.

Mark centrepoints of holes with crosses (2).

Then pierce paper through centrepoints (3) of holes with a pointed object.

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Align stencil (1) according to contours (2) to inside of new component and secure with adhesive tape (3).

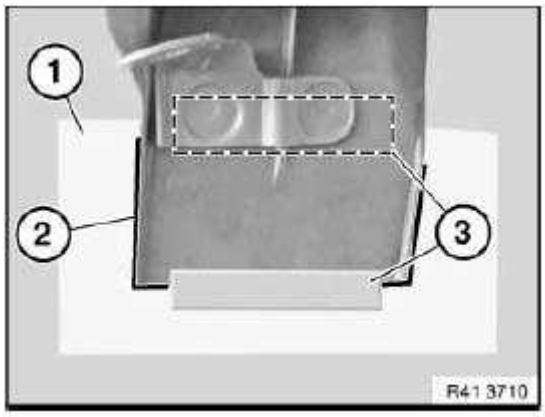


Fig. 4: Identifying Stencil And Adhesive Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Turn over new component.

IMPORTANT: Crosses must not be visible in this view!

Set punch marks at pierced centrepoints (1).

Grip directly under punch marks for marking with punch.

Remove stencil (2).

Drill holes to approx. 3 - 4 mm dia. at punch marks (1).

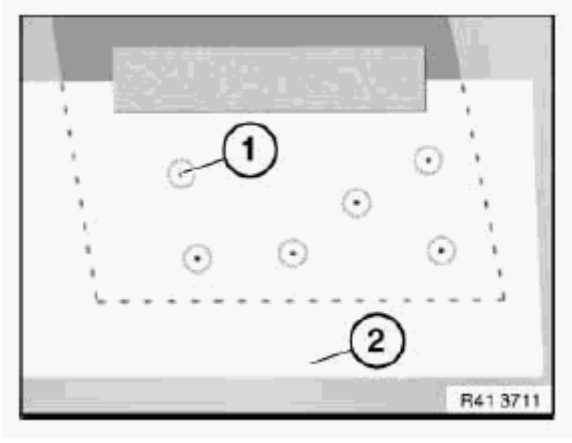


Fig. 5: Identifying Stencil And Punch Marks
Courtesy of BMW OF NORTH AMERICA, INC.

Position new component (1) with straightening attachment on vehicle.

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Drill out holes (2) to 6.7 mm dia.

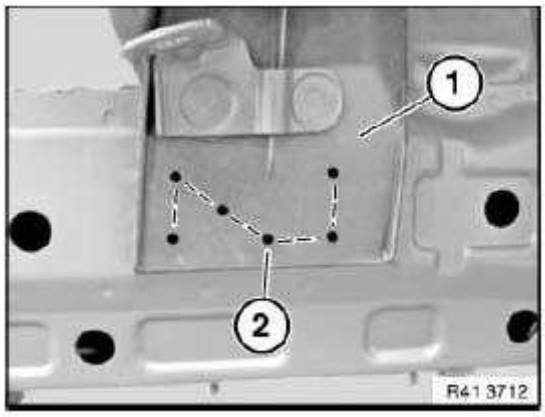


Fig. 6: Identifying Holes And Component
Courtesy of BMW OF NORTH AMERICA, INC.

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. The products recommended by BMW are optimized with regard to corrosion protection, see 41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC).**

1.0 Removing sealing materials

IMPORTANT:

- **Do not burn off PVC material (sealing compound) 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.

Use the cavity protection spray only for smaller-scale straightening work where the parts in question are easily

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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.

IMPORTANT: Incorrectly performed cavity protection can, especially in the case of steel/aluminum 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 aluminum parts

New doors, lids and side panels made of aluminum are not sealed with cavity protection agent.

After all straightening work on aluminum components, the cavities affected must be sealed with cavity protection agent after being painted.

After all welding work (E52 only) on aluminum 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:

- < or = 1000 mm ± 1.5 mm
- < or = 1000 mm ± 2.5 mm

The control points shown serve to check the body and the straightening attachment.

The specified dimensions/measurements always refer to the centrepoint of the bore/screw.

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Underbody view 1

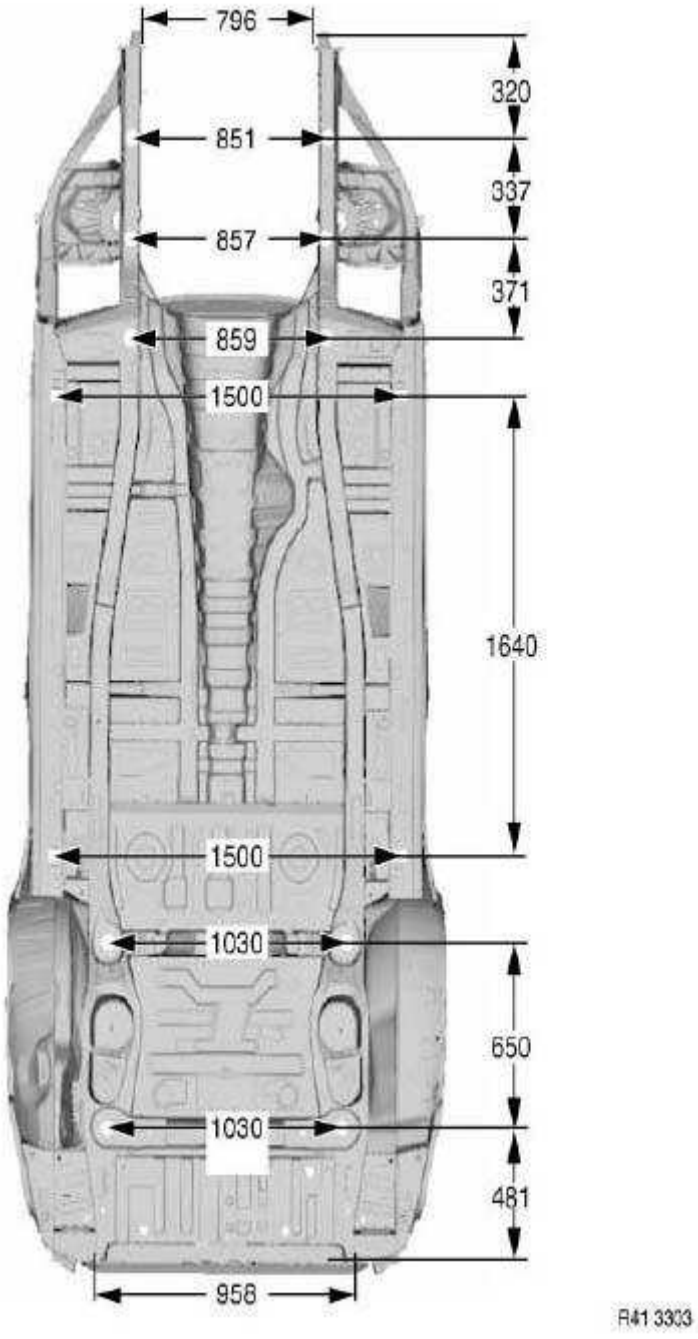


Fig. 7: Identifying Underbody Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Underbody view 2

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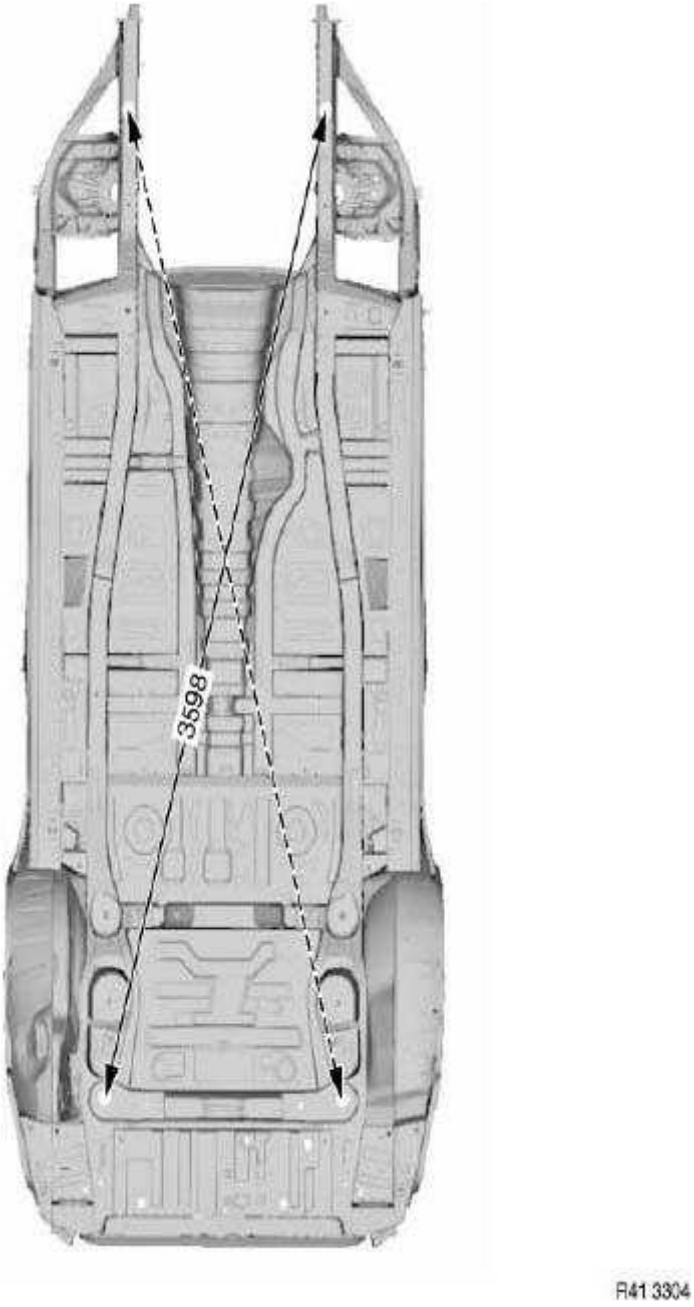


Fig. 8: Identifying Underbody Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Top view, front end

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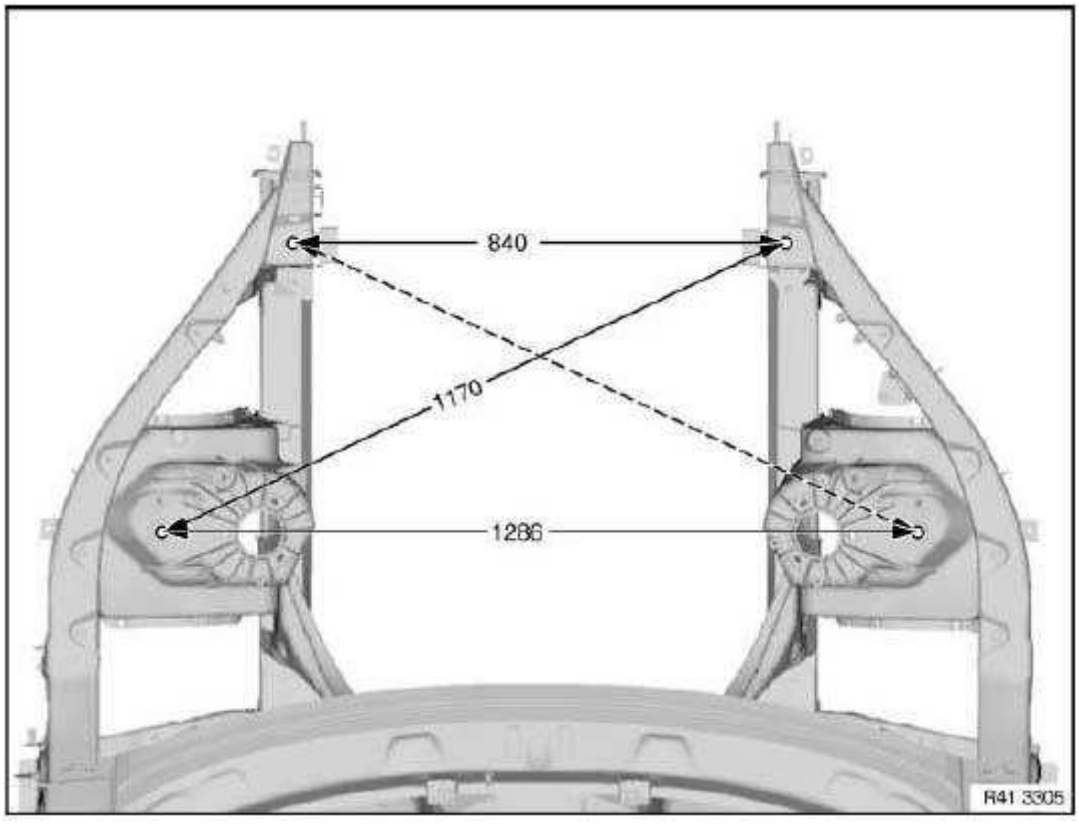


Fig. 9: Identifying Front End Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

The specified dimensions refer to removed assemblies.

View, B-pillar

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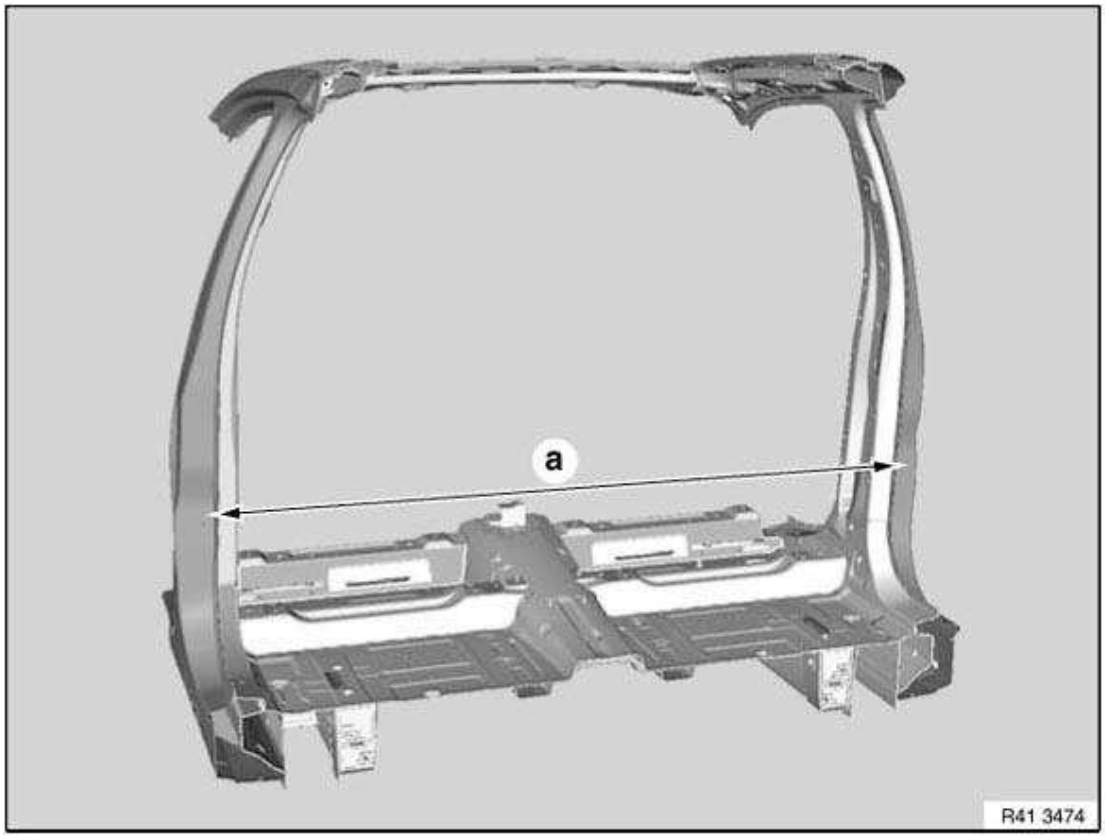


Fig. 10: Identifying B-Pillar Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Applicable to X5 only:

Measurement a=1639 mm between screw-on points of door brakes.

Applicable to X6 only:

Measurement a=1636 mm between screw-on points of door brakes.

41 00 ... GAP DIMENSIONS, BODY

The dimensions specified in this document are applicable at an object temperature of 20°C. The aim of adjustment is to achieve a uniform join.

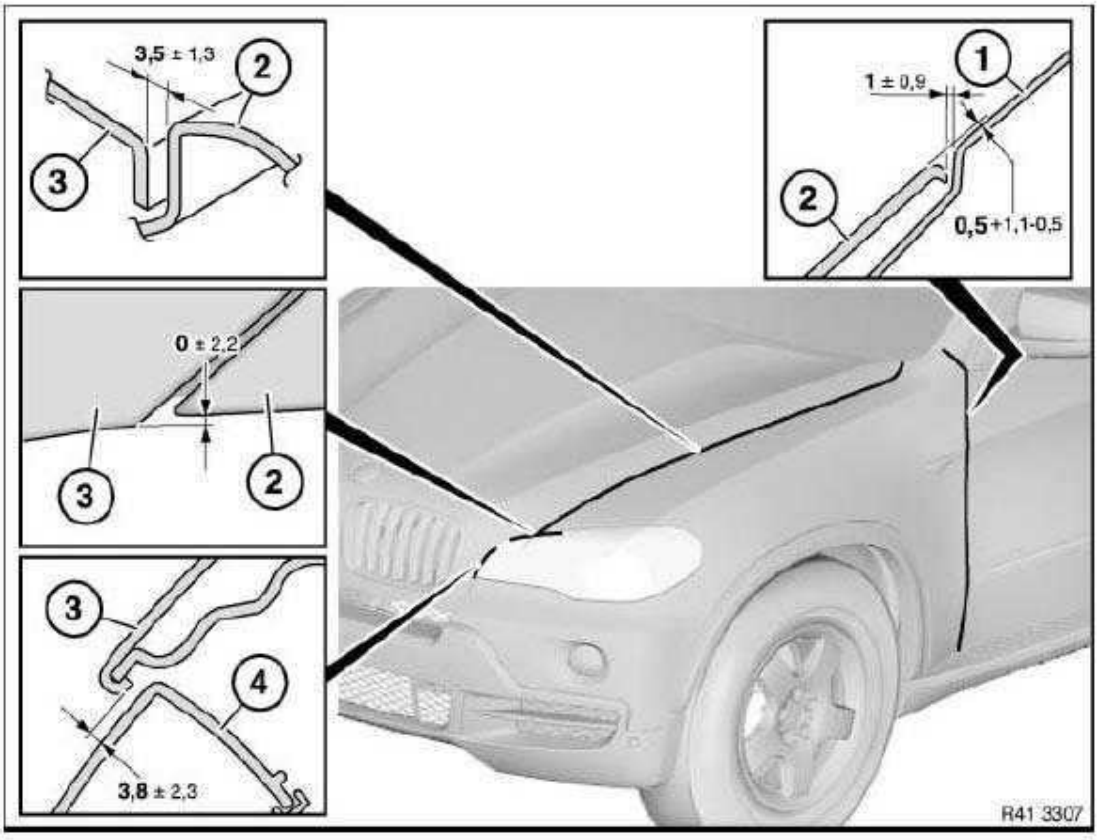
Symmetry of the gaps between left and right sides of the vehicle has top priority.

The door gaps must not deviate between the front and rear gap by more than 1.0 mm.

No gap dimension are specified for components which cannot be adjusted.

Dimensions in mm

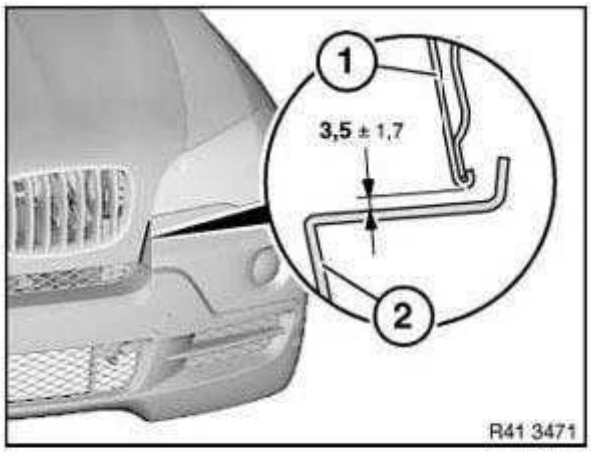
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1. A-pillar
2. Side wall, front
3. Front lid
4. Headlights

Fig. 11: Identifying Body Gap Dimensions (1 Of 4)
Courtesy of BMW OF NORTH AMERICA, INC.

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1. Front lid
2. Side wall, front

Fig. 12: Identifying Body Gap Dimensions (2 Of 4)
Courtesy of BMW OF NORTH AMERICA, INC.

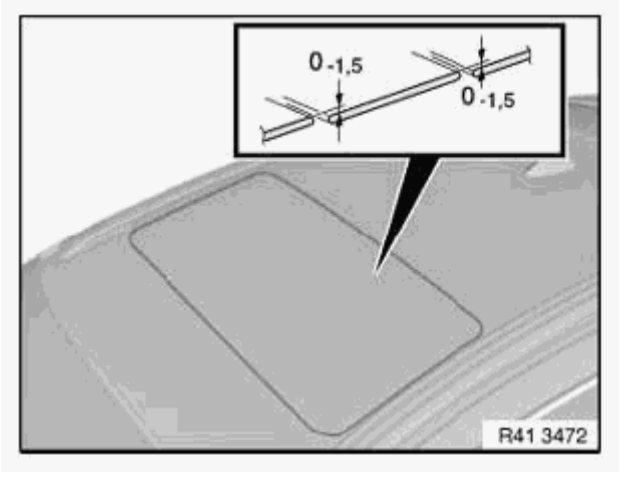
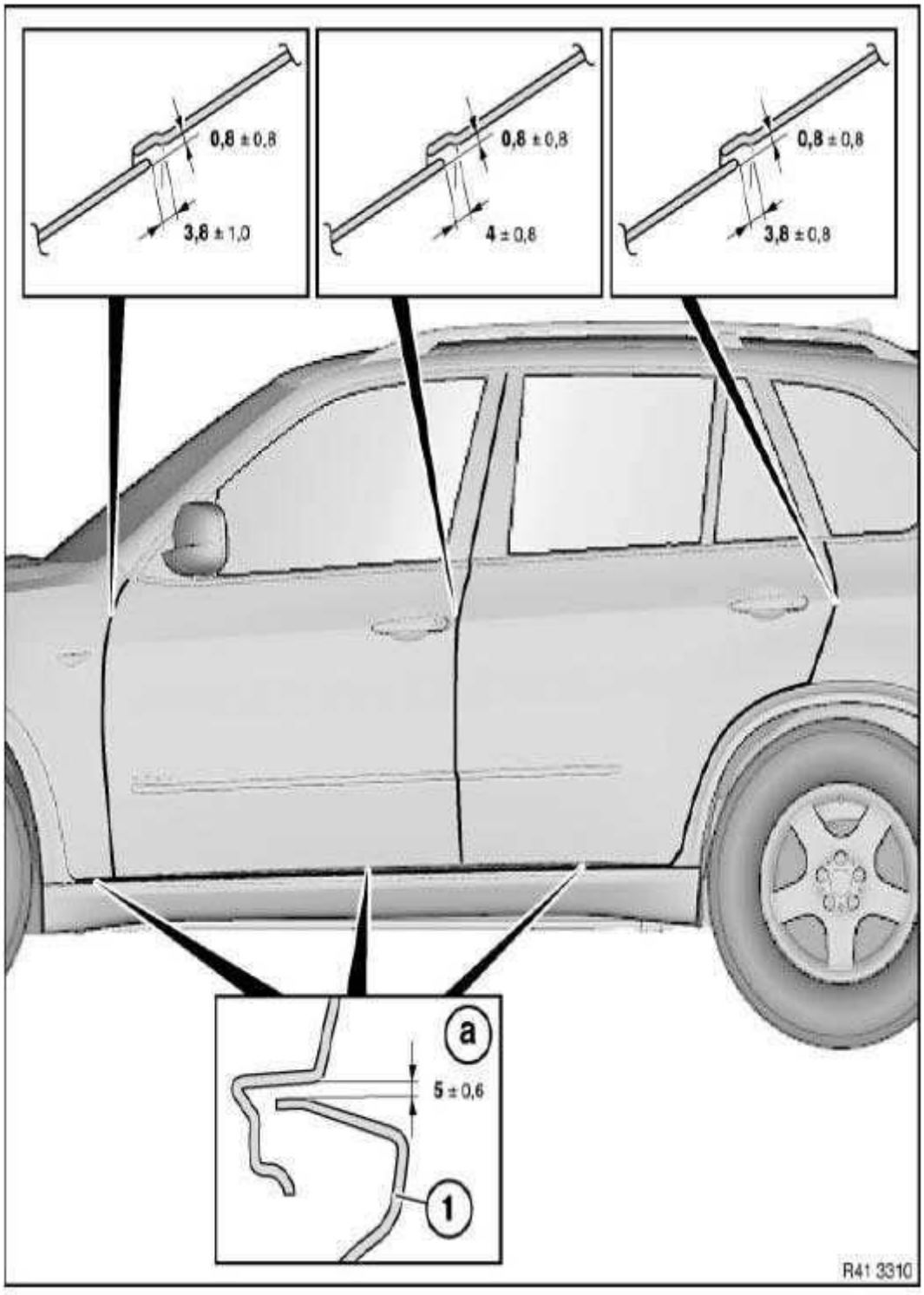


Fig. 13: Identifying Body Gap Dimensions (3 Of 4)
Courtesy of BMW OF NORTH AMERICA, INC.

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1. Cover, sill

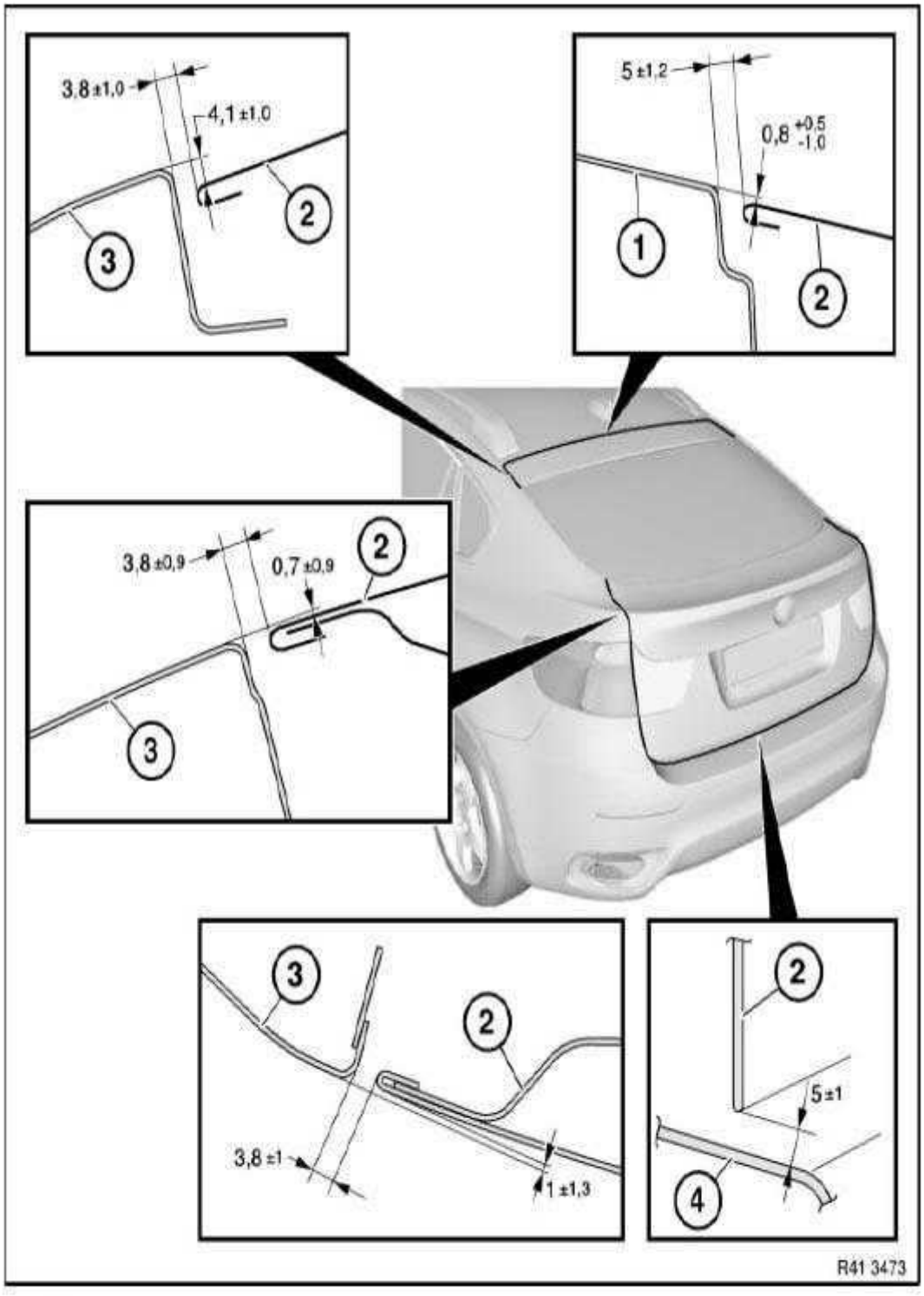
Fig. 14: Identifying Body Gap Dimensions (4 Of 4)
Courtesy of BMW OF NORTH AMERICA, INC.

Only on version with aluminum running board:

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Dimension a = 7.0±0.6 mm

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1. Outer skin on roof
2. Rear lid
3. Rear side panel
4. Rear lid, top/bottom

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Fig. 15: Identifying Body Gap Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... GENERAL CEMENTING INSTRUCTIONS

IMPORTANT: Conform with safety precautions , see 41 00 ... Information on hazards and 41 00 ... Safety at work.

- 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: isohexane

Expiry date of adhesive

- The adhesive cartridge is marked with a date.
- Do not use the adhesive 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 colors). 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 ALUMINUM PARTS

1.0 Recommended tools and equipment

Grinding on the outer shell:

- To carry out grinding work by hand or machine, you must use the recommended tools and equipment.

The work area can be cleaned with conventional extractor systems (low dust concentration).

Grinding work on the structure (except Z8):

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- To carry out grinding work by hand or machine, you must use the recommended tools and equipment.

The work area can be cleaned with conventional extractor systems (low dust concentration).

Z 8 Spaceframe structure:

- To carry out machine grinding on the structure, you must use the recommended device with grinding dust extractor facility.

The work area must be cleaned with the recommended explosion-proof extractor system.

High dust concentration, **explosion hazard!**

2.0 Grinding outer shell and structure

Do not use any abrasives (grinding wheels, paper, etc.) which contain iron (risk of corrosion).

Always replace abrasives which have already been used to treat steel (risk of corrosion).

Use stainless steel wire brushes only (risk of corrosion).

Reduce speed of grinding machines. Excessive speeds cause a smearing effect.

Do not use coarse abrasive grains (only > or = 80).

Do not grind notches into the material (risk of cracking).

Do not grind the material thin.

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 ... GUN FOR CAVITY SEALING

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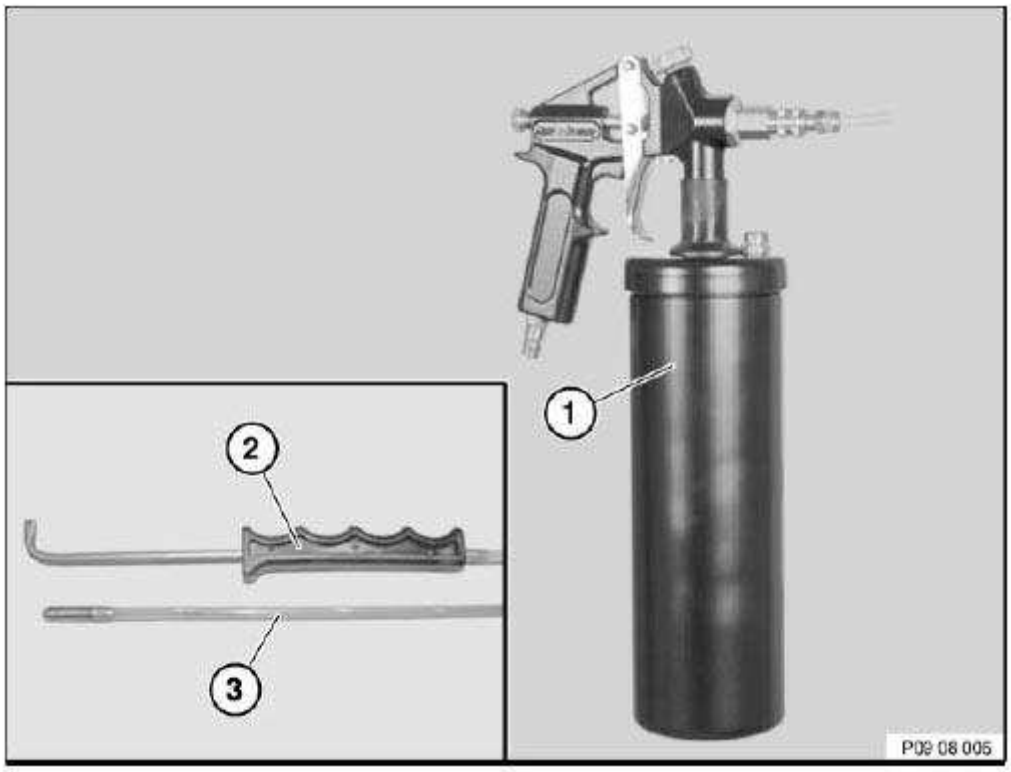


Fig. 16: Identifying Vessel Gun, Angle Nozzle And Round Spray Nozzle
Courtesy of BMW OF NORTH AMERICA, INC.

1.0 Scope of delivery

- Owner's Handbook
- Pressure vessel gun (1) for cavity sealing
- Spray set, consisting of spray hoses: angle nozzle (2) and round spray nozzle (3)

IMPORTANT: Before start-up, read Owner's Handbook and safety instructions.

2.0 Start-up

- Open pressure vessel and introduce cavity sealant in form of a 1-litre can. Close pressure vessel.
- Connect spray hose to quick-connect coupling.
- Connect apparatus to compressed air supply.

Working pressure 2-6 bar, max. 8 bar!

3.0 Mode of operation

NOTE: Unlike previous apparatus, it is possible here to alter the spray pattern with the air flow control screw (large knurled screw)!

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- Twisting the air flow control screw in decreases the air flow and thus reduces the material spray mist.

  This facilitates optimum working when preserving open components/surfaces.

- Twisting the air flow control screw out increases the air flow and thus the material spray mist (for closed cavities).
- The trigger lever has two stages.

  Stage 1 - discharge of air only.

  Stage 2 - discharge of air and material.

- After finishing work, press the first stage to clean the spray hose with compressed air.
- When storing, remember to twist the air flow control screw closed to prevent the material from drying out.
- Clean the gun prior to extended periods of non-use (approx. 2 weeks and upwards).
- To ensure that the spray hoses function properly, do not store the hoses coiled up e.g. in the frame side member area!

Store spray hoses stretched out.

4.0 Application examples

- Use the matching spray hoses for the different cavities or surfaces.
- Example - doors and lids:

  Spray hose with angle nozzle. Reduce air flow to keep spray mist to a minimum.

- Example - frame side member:

  Long spray hose with round spray nozzle. Depending on the type, increase the air flow slightly.

- Always keep the spray mist to a minimum so as to avoid fouling and bad smells.

5.0 Safety instructions

- Do not inhale spray mist.
- Use only in well ventilated rooms.
- Working pressure max. 8 bar.

41 00 ... HANDLING AIRBAGS AND RESTRAINT SYSTEMS

1.0 Airbags and restraint systems

- On vehicles with airbags and restraint systems, observe the relevant **safety instructions** , see **72**

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SAFETY PRECAUTIONS AND GENERAL INFORMATION .

- 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, see **12 00 ... INSTRUCTIONS FOR DISCONNECTING AND CONNECTING BATTERY** .

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** , see **12 00 ... INSTRUCTIONS FOR DISCONNECTING AND CONNECTING BATTERY** . 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, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

- 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 > or = 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** , see **61 00 ... NOTES ON HANDLING OPTICAL FIBERS** .

41 00 ... INFORMATION/WARNING LABELS

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Missing or damaged information/warning labels (e.g. tire inflation pressure) must be replaced.

--> Overview of **installation locations** , see **00 00 ... INFORMATION/WARNING LABELS** .

41 00 ... INFORMATION ON HAZARDS

1.0 Aluminum

HAZARDS INFORMATION

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.

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IMPORTANT: Do not use combustible or contaminated coverings.

41 00 ... INSTALLATION SOLUTION FOR STRAIGHT SHANK/HEXAGON RIVET NUT

Protection measures!

- Wear protective goggles
- Wear protective gloves

Straight shank rivet nut

IMPORTANT: Risk of damage!
Failure to comply with these instructions may result in the drill bit slipping and causing significant paintwork damage.

1. Mark position of bore and then punch-mark component

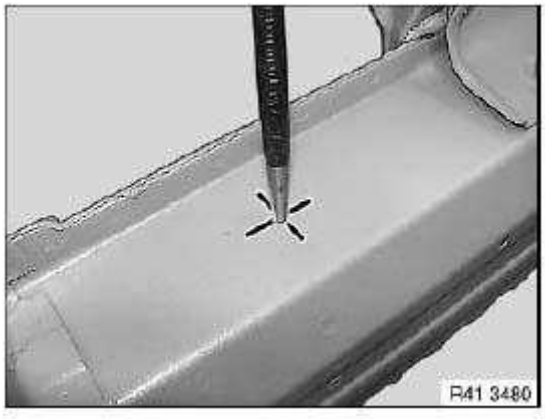


Fig. 17: Applying Punch-Mark For Bore
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: If the determined drill bit diameter is not observed:

- **the knurling on the straight shank rivet nut is rendered useless**
- **the component will be damaged when the straight shank rivet nut is inserted**

Determining suitable drill bit:

Depending on the rivet nut shank diameter, the next drill bit diameter higher (5/10 step) can be used.

E.g. with a shank diameter of 10.1 mm, the 10.5 mm drill bit can be used. The 11.0 mm drill bit must not be used.

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2. Drill bore with determined drill bit and deburr, pilot-drill with a smaller drill bit if necessary



Fig. 18: Drilling Bore
Courtesy of BMW OF NORTH AMERICA, INC.

3. Clean component, eliminate paintwork damage if necessary



Fig. 19: Identifying Hole
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: To avoid corrosion, stop chips/swarf by means of cavity sealing. Follow instructions on corrosion protection , see 41 00 ... Corrosion protection.

4. Preserving cavity

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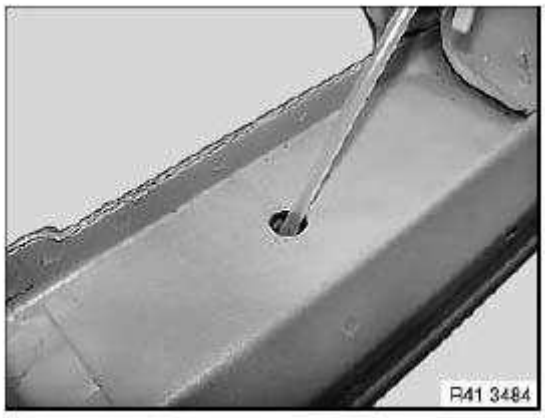


Fig. 20: Preserving Cavity
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Follow manufacturer's operating instructions.
Make sure straight shank rivet nut correctly contacts component.

5. Set straight shank rivet nut with hand rivet gun

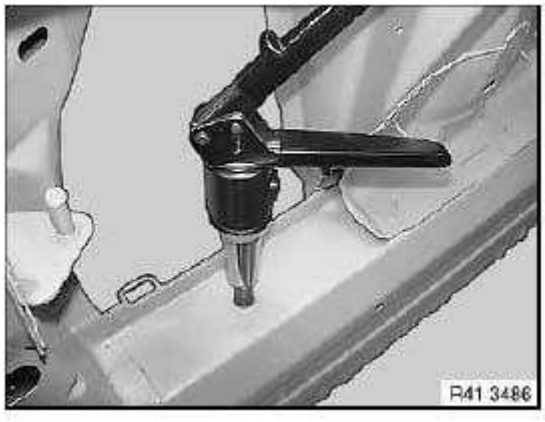


Fig. 21: Setting Straight Shank Rivet Nut With Hand Rivet Gun
Courtesy of BMW OF NORTH AMERICA, INC.

Hexagon rivet nut (up to M8 thread)

IMPORTANT: Follow manufacturer's operating instructions.
Make sure hexagon rivet nut correctly contacts component.

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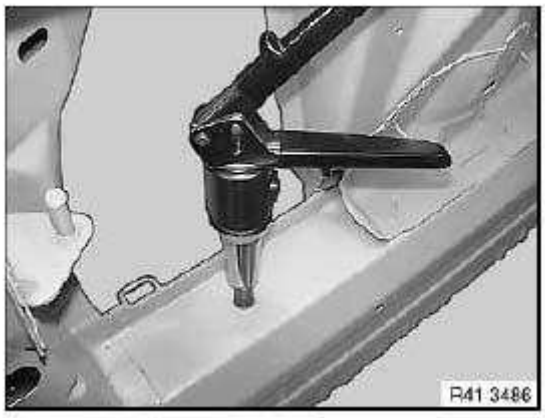


Fig. 22: Setting Straight Shank Rivet Nut With Hand Rivet Gun
Courtesy of BMW OF NORTH AMERICA, INC.

1. Set hexagon rivet nut with hand rivet gun

Hexagon rivet nut (from M10 thread)

IMPORTANT: Ensure correct screw length. The complete thread length of the rivet nut must be used for installation.
Make sure hexagon rivet nut correctly contacts component.
Replace screw after use.

1. Insert screw (tensile strength min. 10.9) with body washer into hexagon rivet nut
2. Insert hexagon rivet nut into pre-punched hexagon hole and install by turning screw

Notes on installation:

Rivet nut is upset (screw very difficult to move).

Rivet nut is contracted (screw comparatively easy to move).

Rivet nut is pressed onto the component (screw slowly becomes difficult to move). Procedure is finished with the fitting of the relevant component and its tightening torque.

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Fig. 23: Identifying Rivet Nut
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... INSTALLING A CAVITY ACOUSTIC BAFFLE (EXPANDED)

NOTE: Carry over schematic representation to the relevant vehicle type.
The following repair represents the procedure for an already expanded cavity acoustic baffle.
The cavity acoustic baffle 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 a bead approx. 15 mm high (2) of **window glass adhesive** to contact surface (1), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

Fit, secure and weld up new part.

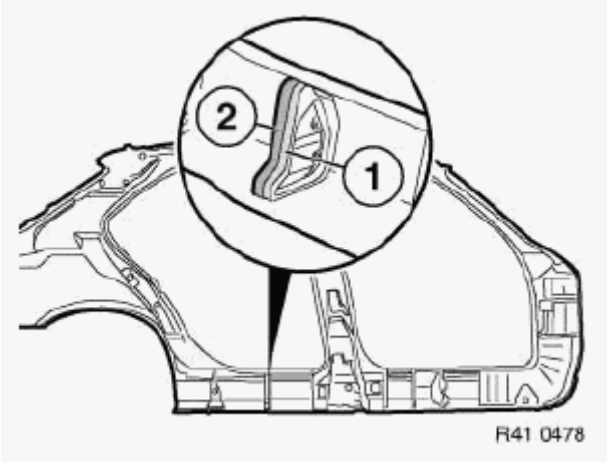


Fig. 24: Identifying Contact Surface And Window Glass Adhesive
Courtesy of BMW OF NORTH AMERICA, INC.

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WARNING: Ensure adequate ventilation over entire processing period.

41 00 ... INSTALLING A CAVITY ACOUSTIC BAFFLE (NOT EXPANDED)

**NOTE: Carry over schematic representation to the relevant vehicle type.
The following repair represents replacement of a cavity acoustic baffle.
Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).**

Sand contact surface of cavity acoustic baffle (1) with coarse-grained abrasive paper (grain 50 - 100).

Clean contact surface (1) with spirit.

Apply a bead approx. 15 mm high of **window glass adhesive** to contact surface (1), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

Attach cavity acoustic baffle in specified position (see old part).

Fit, secure and weld up new part.

WARNING: Ensure adequate ventilation over entire processing period.

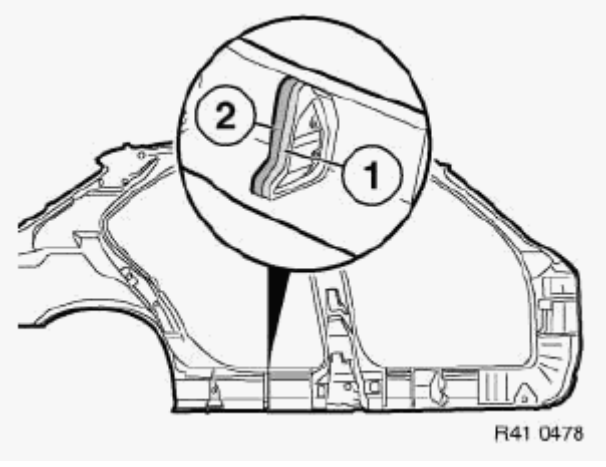


Fig. 25: Identifying Contact Surface And Window Glass Adhesive
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... INSTALLING A CAVITY ACOUSTIC BAFFLE WITH 2-COMPONENT PU 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:

- 2-component PU foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.
- Ideal for use as insulating and sealing compound.

Information on dangers/hazards

- Avoid eye and skin contact.

  Wear protective goggles, solvent-resistant protective gloves and protective clothing.

- Do not inhale.

Apply in well ventilated rooms only.

WARNING: Application time after mixing: within 8 minutes!

- **Completely empty open can after use.**

- Remaining amounts which are not used can cause the can to explode on account of a chemical reaction (buildup of heat)!

  Alternatively, cool the can containing the non-removed remaining amount for several hours in cold water.

- Do not eat, drink or smoke during this operation.

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- Keep heat and ignition sources well away.
- Read the manufacturer's information on hazards/dangers (printed on the can) prior to application.

Application instructions

- Use by date on can.

  Do not use the spray can after the Use by date on the can has expired. After the Use by date the properties of the cavity foam will no longer meet the requirements of the BMW Group.

- Cavity sealing of repair area possible after an air drying time of 1 hour.
- Backing surface must be

  clean and free from

  dust,

  grease,

  oil and stripping agent.

- Application temperature at least 15°C. Optimally 20°C.
- **IMPORTANT: Foam expands many times over as it sets (change in volume).**

- 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.
- Tape off open passages to visible areas with adhesive tape to prevent foam from escaping.
- Setting takes approx. 30 minutes. Mechanical processing (e.g. drilling, cutting, etc.) is then possible.
- Cavity sealing of repair area possible after an air drying time of 1 hour.
- Remove fresh, non-hardened PU foam with adhesive cleaner 208.

  Sourcing reference: BMW Parts Service.

  Hardened PU foam can only be removed by mechanical means (machine).

- Excess, hardened PU foam can be disposed of as residual waste.

  Cans which are not entirely empty and unused whose Use by date has expired are classed as hazardous waste.

  Observe country-specific waste-disposal regulations.

- Observe the manufacturer's application instructions (printed on the can).

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41 00 ... MATERIALS SCIENCE

1. Aluminum

1.1 Chassis and suspension components

Read and observe the **Notes on chassis and suspension components** before handling aluminum, see **31 00 ... INSTRUCTIONS (CHASSIS COMPONENTS MADE OF ALUMINUM)** and **33 00 ... INSTRUCTIONS (CHASSIS COMPONENTS MADE OF ALUMINUM)** .

1.2 Material influences

MATERIAL INFLUENCES

Causes	Effects/remedies
A galvanic element is created under the effects of moisture by contact with materials such as copper, tin, nickel, iron and zinc.	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 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.

1.3 Machining properties

MACHINING PROPERTIES

Properties of aluminum compared with steel	Effects
Aluminum parts are magnetically neutral.	Attachment with magnetic tools/working aids is not possible.

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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.**
Aluminum shows no annealing colors.	The melting point is 650°C. Once the melting temperature has been reached, the material begins to flow without any further indications. 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.**

1.4 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.

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NOTE: **Damaged threads may be repaired with Helicoil thread inserts. Comply with the procedure described in the example, see 31 00 ... NOTES ON REPAIRING THREADS and 33 00 ... NOTES ON REPAIRING THREADS .**

REPAIRING THREADS PROCEDURE

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	See repair elements
		Rear	M12x1.5x18
	E65, E66, E67	All	M12x1.5x18
	E70, E71	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18
	E81, E82, E87, E88	All	M12x1.5x18
	E90, E91, E92, E93	All	M12x1.5x18
	E92 with S65	All	M10x1.5x15
Bracket, control arm, to engine carrier	E46, E85, E86	All	M10x1.5x15
Rear axle carrier to frame side member	E46	All	M12x1.5x18
	E53	All	M14x1.5x21
	E60, E61	All	M14x1.5x21
	E63, E64	All	M14x1.5x21
	E65, E66, E67	All	M14x1.5x21
	E70, E71	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18
	E81, E82, E87, E88	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 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-weld cutter.

     NOTE: **Because the weld spots may have surface-hardened, grind them if necessary with an angle grinder and paper grinding disk.**

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- Heat connecting flange with a hot air blower.

CAUTION: Extract vapors 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 aluminum parts
   - Remove **punch rivets or blind rivets** , see **41 00 ... Riveting aluminum 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 vapors and gases.
   -
   - 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):**

   Sheet steel panels made from high- and super-high-strength materials make great demands on the tools used.

   Only with special carbide milling cutters can weld spots be drilled out on these sheet panels.

   Use BTR/BOR milling cutters only in conjunction with Vario Drill spot-weld remover.

   - **Procedure:**

   Set punch mark in center of weld spot. Set 8 mm dia. weld spot drill bit on punch mark and drill through

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top metal sheet.

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:**

Laser weld seams are used in the roof outer skin area.

- **Procedure:**

Roughly cut roof outer skin in the roof channel to improve accessibility.

Place angle grinder with grinding disc on laser weld seam and grind through top metal sheet. Be careful not to cut through and damage sheet metal underneath. Remove sheet metal flange.

41 00 ... OVERVIEW OF CONSUMABLES (ELECTRONIC PARTS CATALOGUE - EPC)

1.0 Adhesives

ADHESIVES REFERENCE

	Designation in repair instruction	Designation EPC	Part number EPC	Application examples
	Window glass adhesive	Bonding and sealing compound for car window glass	83 19 0 152 031	Installation of cavity bulkheads
K1	Adhesive	2C EP repair adhesive	83 19 0 413 015	Front end E60, front wheel arch E70, side frame E65, rear apron/tail panel F01/E89/MINI, rear side panels and roof outer skin MINI
K2	Adhesive	Dow Betamate 2816		Roof outer skin F01, F02
K3	Adhesive	Adhesive set Sikaforce 7888	83 19 0 417 144	Carbon-fibre reinforced plastic roof M6
K4	Adhesive	2C repair adhesive	83 19 0 452 262	Clip repair roof strip F01

2.0 Rivets

RIVETS REFERENCE

	Designation in repair instruction	Designation EPC	Part number EPC	Application examples

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N1	Rivet Hemlock 813	Blind rivet Hemlock 813	83 19 0 301 414	Engine carrier, wheel arch, E60
N2	Rivet Hemlock 815	Blind rivet Hemlock 815	83 19 0 301 419	Engine carrier, wheel arch, E60
N3	Rivet	Blind rivet Avibulb	83 19 0 301 421	Support carrier E60
N4	Punch rivet			Rear apron/tail panel F01, E89, MINI; roof outer skin MINI; rear side panels MINI

3.0 Primer

PRIMER REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Primer, potlife 5 hours	2C spray HS-AK filler grey	51 91 0 432 612	Corrosion protection of newly welded sheet panels
	Primer, potlife 8 hours	2C spray EP priming filler	51 91 0 432 615	Corrosion protection of newly welded sheet panels
	Welding primer	INOX spray, welding primer	83 40 0 409 992	Welding flanges internal only

4.0 Sealing compounds

SEALING COMPOUNDS REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Sealing compound	Polyurethane sealing compound white	83 19 0 414 598	Roof bow, gap seal
	Sprayable sealing compound	Seam seal	83 42 0 428 349	Flange seal, front wheel arch
	IMPORTANT: **Due to insufficient adhesion, polyurethane-based sealing compounds and sprayable sealing compounds must not be intermixed.**			
	Underseal	Underseal Grey	51 91 0 42 7673	Surface application, e.g. rear wheel arch
	Underseal	Underseal AQUA black (waterbased)	51 91 0 427 675 US version: 51 91 0 427 677	Surface application, e.g. rear wheel arch
	IMPORTANT:			

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	Due to insufficient adhesion, grey underseal and AQUA underseal (water-based) must not be intermixed.

5.0 Cavity sealing

CAVITY SEALING REFERENCE

	Designation in repair instruction	Designation EPC	Part number EPC	Application examples
	Cavity sealant	Cavity sealant spray	83 42 0 428 190 83 42 0 428 351	Minor straightening work with good accessibility
	Cavity sealant	Cavity preserevation	83 42 0 428 348 83 42 0 428 352	Major straightening work, e.g. frame side members, engine carriers, pillars, side panels

6.0 Cavity foam

CAVITY FOAM REFERENCE

	Designation in repair instruction	Designation EPC	Part number EPC	Application examples
	Cavity foam	Cavity foam	83 42 9 410 694	Cavity bulkhead
	Structural foam	Structural foam	83 19 0 007 361 US version: 83 19 0 445 721	E61 inner section of wheel arch, MINI R56 roof outer skin

41 00 ... OVERVIEW OF CONSUMABLES (ELECTRONIC PARTS CATALOGUE - EPC)

1.0 Adhesives

ADHESIVES REFERENCE

	Designation in repair instruction	Designation EPC	Part number EPC	Application examples
	Window glass adhesive	Bonding and sealing compound for car window glass	83 19 0 152 031	Installation of cavity bulkheads
K1	Adhesive	2C EP repair adhesive	83 19 0 413 015	Front end E60, front wheel arch E70, side frame E65, rear apron/tail panel F01/E89/MINI, rear side panels and roof outer skin MINI
K2	Adhesive	Dow Betamate 2816		Roof outer skin

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				F01, F02
K3	Adhesive	Adhesive set Sikaforce 7888	83 19 0 417 144	Carbon-fibre reinforced plastic roof M6
K4	Adhesive	2C repair adhesive	83 19 0 452 262	Clip repair roof strip F01

2.0 Rivets

RIVETS REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
N1	Rivet Hemlock 813	Blind rivet Hemlock 813	83 19 0 301 414	Engine carrier, wheel arch, E60
N2	Rivet	Hemlock 815 Blind rivet Hemlock 815	83 19 0 301 419	Engine carrier, wheel arch, E60
N3	Rivet	Blind rivet Avibulb	83 19 0 301 421	Support carrier E60
N4	Punch rivet			Rear apron/tail panel F01, E89, MINI; roof outer skin MINI; rear side panels MINI

3.0 Primer

PRIMER REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Primer, potlife 5 hours	2C spray HS-AK filler grey	51 91 0 432 612	Corrosion protection of newly welded sheet panels
	Primer, potlife 8 hours	2C spray EP priming filler	51 91 0 432 615	Corrosion protection of newly welded sheet panels
	Welding primer	INOX spray, welding primer	83 40 0 409 992	Welding flanges internal only

4.0 Sealing compounds

SEALING COMPOUNDS REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Sealing compound	Polyurethane sealing compound white	83 19 0 414 598	Roof bow, gap seal

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	Sprayable sealing compound	Seam seal	83 42 0 428 349	Flange seal, front wheel arch
	IMPORTANT: **Due to insufficient adhesion, polyurethane-based sealing compounds and sprayable sealing compounds must not be intermixed.**			
	Underseal	Underseal Grey	51 91 0 42 7673	Surface application, e.g. rear wheel arch
	Underseal	Underseal AQUA black (waterbased)	51 91 0 427 675 US version: 51 91 0 427 677	Surface application, e.g. rear wheel arch
	IMPORTANT: **Due to insufficient adhesion, grey underseal and AQUA underseal (water-based) must not be intermixed.**			

5.0 Cavity sealing

CAVITY SEALING REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Cavity sealant	Cavity sealant spray	83 42 0 428 190 83 42 0 428 351	Minor straightening work with good accessibility
	Cavity sealant	Cavity preserevation	83 42 0 428 348 83 42 0 428 352	Major straightening work, e.g. frame side members, engine carriers, pillars, side panels

6.0 Cavity foam

CAVITY FOAM REFERENCE

	Designation in repair instruction	**Designation EPC**	**Part number EPC**	**Application examples**
	Cavity foam	Cavity foam	83 42 9 410 694	Cavity bulkhead
	Structural foam	Structural foam	83 19 0 007 361 US version: 83 19 0 445 721	E61 inner section of wheel arch, MINI R56 roof outer skin

41 00 ... POSITION OF SHAPED PARTS FOR CAVITY ACOUSTIC BAFFLE

Cavity sealing is carried out in specific body areas in order to reduce internal noise and to reduce condensate.

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To do this, shaped parts are inserted in the cavities. These shaped parts adapt themselves optimally due to heating of the body to approx. 180°C by expansion to the shape of the cavities.

Because it is not possible to heat the body to this extent for a body repair, a **different procedure** has been specified for this situation, see**41 00 ... Installing a cavity acoustic baffle (expanded)** and**41 00 ... Installing a cavity acoustic baffle (not expanded)** and **41 00 ... Installing a cavity acoustic baffle with 2-component PU cavity foam**.

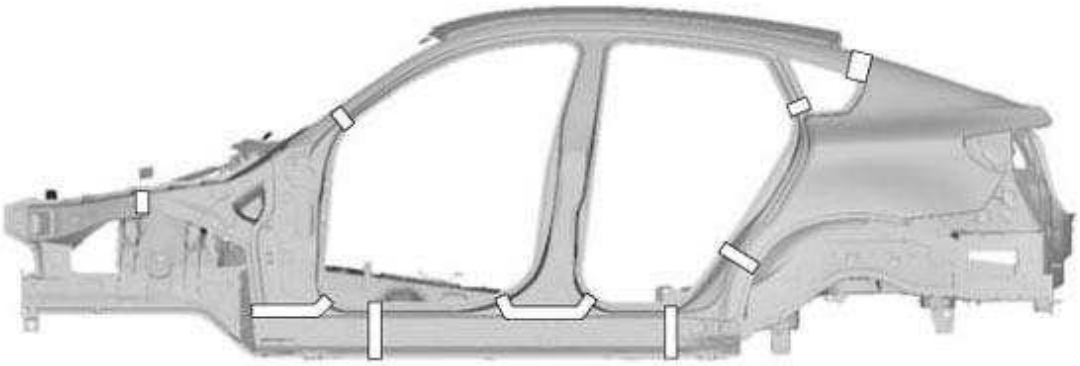


Fig. 26: Position Of Shaped Parts For Cavity Acoustic Baffle
Courtesy of BMW OF NORTH AMERICA, INC.

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 Description repairs.

41 00 ... REPAIR SOLUTION FOR STRAIGHT SHANK/HEXAGON RIVET NUT

Protection measures!

- Wear protective goggles
- Wear protective gloves

IMPORTANT: To prevent the material from tapering, do not drill out the rivet head.

1. Carefully spot-drill rivet head with a larger drill bit/countersink

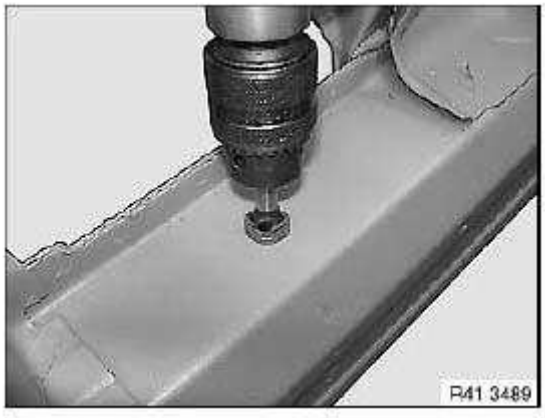


Fig. 27: Drilling Rivet Head
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Avoid paintwork damage

2. Knock rivet head away with a chisel



Fig. 28: Removing Rivet Head With Chisel
Courtesy of BMW OF NORTH AMERICA, INC.

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3. Drive through rivet shank into cavity, remove if necessary



Fig. 29: Identifying Rivet Shank Into Cavity
Courtesy of BMW OF NORTH AMERICA, INC.

4. Clean component, eliminate paintwork damage if necessary



Fig. 30: Identifying Hole
Courtesy of BMW OF NORTH AMERICA, INC.

If the rivet shank can be removed:

IMPORTANT: To avoid corrosion, stop chips/swarf by means of cavity sealing. Follow instructions on corrosion protection , see 41 00 ... Corrosion protection.

5. Preserving cavity

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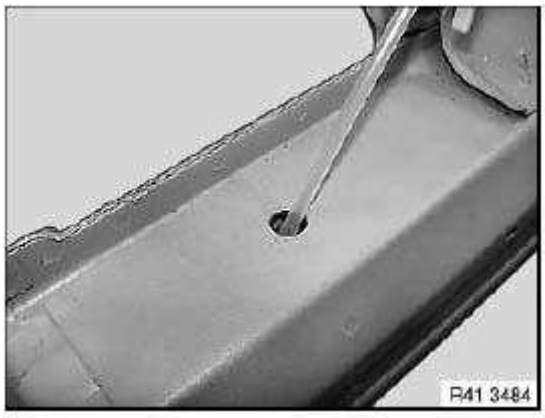


Fig. 31: Preserving Cavity
Courtesy of BMW OF NORTH AMERICA, INC.

If the rivet shank cannot be removed:

WARNING: Risk of injury!
Observe notes on cavity foam , see 41 00 ... Installing a cavity acoustic baffle with 2-component PU cavity foam.

IMPORTANT: To avoid corrosion and rattling noises, stop chips/swarf and rivet nut shank with cavity foam.
Remove foam remnants with isohexane (cleaning-grade petroleum spirit).

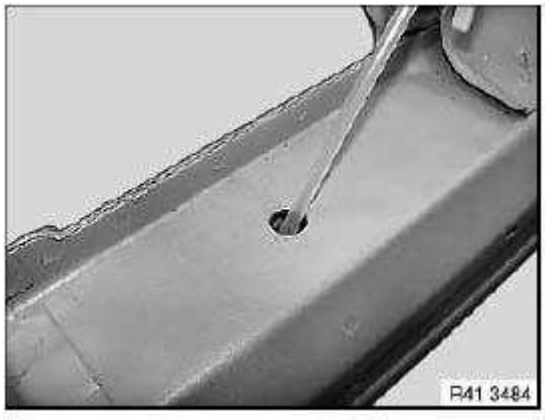


Fig. 32: Preserving Cavity
Courtesy of BMW OF NORTH AMERICA, INC.

5. Stop rivet shank by means of specific foaming

NOTE: Fit rivet nut as quickly as possibly, ideally before the cavity foam hardens.

Hexagon rivet nut (up to M8 thread), straight shank rivet nut:

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IMPORTANT: Follow manufacturer's operating instructions.
Make sure rivet nut correctly contacts component.

6. Set rivet nut with hand rivet gun

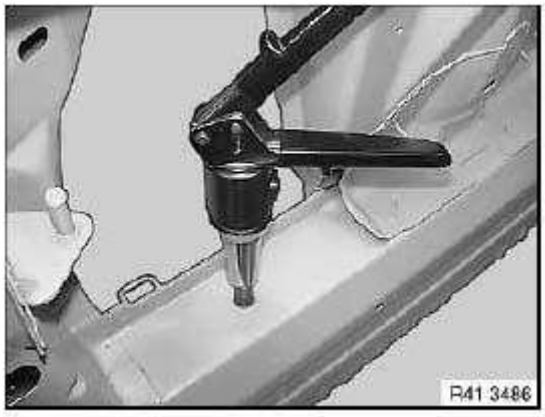


Fig. 33: Setting Straight Shank Rivet Nut With Hand Rivet Gun
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: According to the manufacturer, the pictured tool is suitable up to an M8 thread.

Hexagon rivet nut (from M10 thread):

IMPORTANT: Ensure correct screw length. The complete thread length of the rivet nut must be used for installation.
Make sure hexagon rivet nut correctly contacts component.
Replace screw after use.

6. Insert screw (tensile strength min. 10.9) with body washer into hexagon rivet nut
7. Insert hexagon rivet nut into pre-punched hexagon hole and install by turning screw

Notes on installation:

Rivet nut is upset (screw very difficult to move).

Rivet nut is contracted (screw comparatively easy to move).

Rivet nut is pressed onto the component (screw slowly becomes difficult to move). Procedure is finished with the fitting of the relevant component and its tightening torque.

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Fig. 34: Identifying Rivet Nut
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... RIVETING ALUMINUM PARTS

1.0 Recommended tools and equipment

- Stud welding apparatus with gas bottle containing inert gas (82 % argon, 18 % CO_2).
- Stainless steel stud (sourcing reference via BMW Parts Service picture board Aluminum and steel/bonding and welding)
- Universal riveting tool
- Riveting tongs for blind rivet nuts and blind rivet studs.

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

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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 punch rivet remnants in the aluminum (risk of corrosion).
- Clean vehicle to remove 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 chips and rivet remnants (risk of corrosion).

3.0 Blind riveting in conjunction with bonding

- 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 instruction for rivet size.
- 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 (0.2 mm bigger than the outside diameter of the rivet. Example 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 **sealing compound** (risk of corrosion), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.
- Seal cavities with **cavity sealant** (risk of corrosion), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

5.0 Setting blind rivet nuts and blind rivet studs

- Studs welded as standard are always replaced by blind rivet studs.
- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet studs).
- Blind rivet nuts and studs must have a special coating for anti-corrosion purposes (sourcing reference: BMW Parts Service).

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Use the blind rivet nuts and studs supplied in the case of the manual riveting tool for steel only!

- Insert blind rivet nuts or studs 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 event, set a clip nut (sourcing reference: BMW Parts Service). This nut tightens itself automatically when screwed to the component.
- Seal blind rivet nuts and blind rivet studs with **sealing compound** (risk of corrosion), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

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

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).

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- 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.

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 and 41 00 ... Safety at work.

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Handling electrical/electronic equipment, airbags and restraint systems , see 41 00 ... Handling airbags and restraint systems and 41 00 ... Handling electrical and electronic equipment.
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

- **41 0 000**
- **41 1 190**
- **41 1 191**
- **41 1 192 BODY - SPECIAL TOOLS**

NOTE: If the stamped vehicle identification number is removed during repair work, it must be stamped in again.

Read and comply with **General Information** , see **41 00 ... Vehicle identification number, general**

Necessary preliminary tasks:

- Remove **front right spring strut** , see **31 31 000 REMOVING AND INSTALLING COMPLETE LEFT OR RIGHT SPRING STRUT SHOCK ABSORBER** .

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Special tool kit **41 1 190** for stamping vehicle identification number consists of:

Guide plate **41 1 191**

Counter-plate **41 1 192**

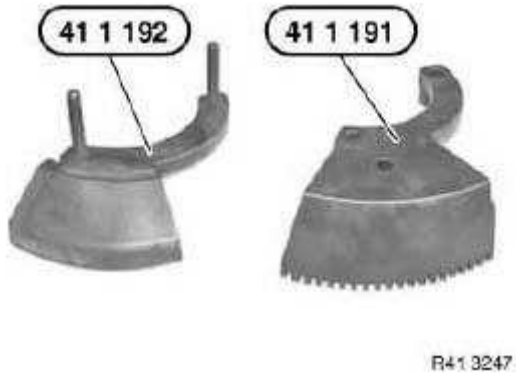


Fig. 35: Identifying Guide Plate And Counter-Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Position counter-plate **41 1 192** at bottom on spring strut dome.

Position guide plate **41 1 191** at top on spring strut dome and tighten down screws (1).

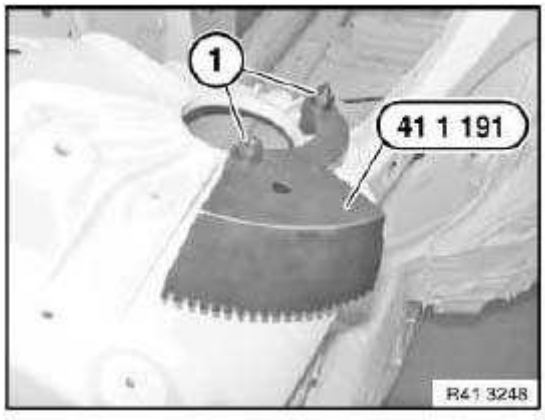


Fig. 36: Identifying Special Tool (41 1 191)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: The illustration is a schematic representation and is to be applied to the relevant vehicle type.
Insert punch numbers 41 0 000 (1) individually into guide plate (2) and stamp vehicle identification number.

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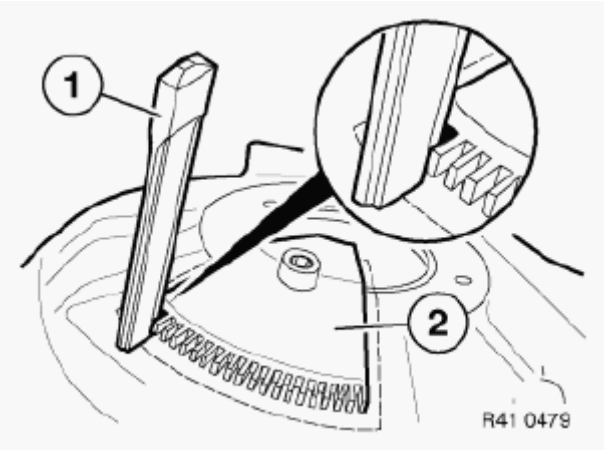


Fig. 37: Identifying Punch Numbers And Guide Plate
Courtesy of BMW OF NORTH AMERICA, INC.

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 ALUMINUM PARTS

1.0 Recommended tools

- Use only those tools specially intended for aluminum repairs.
- Do not use any tools that have already been used for steel repairs (contact corrosion).
- Do not use any sharp-edged tools (notch effect).

2.0 Straightening outer shell

- "Cold" straightening: Press dents out from their center and smooth in an outwards 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 or hot air blower. Then quench the material with a wet cloth. Heating can only be detected by warpage of the material. The color of the paint does not change.
- In the case of damaged areas which are only accessible from one side, stud welding can be used. The aluminum stud welded on in the center of the damaged area is beaten out with a hammer until the dent is eliminated. The stud is then ground off.
- Avoid notching and cracking.
- Avoid hardening and overstretching.

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- Avoid heating and overheating the outer shell over large areas.

3.0 Straightening structure

- **Reshaping or heating extruded sections and cast parts is not permitted!**

  Failure to comply with this requirement would have the following results:

  In the case of reshaping, weld seams (E52) or glued connections (E60, E61, E63, E64) tear in the surrounding area.

  In the case of reshaping, the material loses up to 40 % of its original strength.

  In the case of heating, the material loses up to 40 % of its original strength.

  The adhesive is destroyed at temperatures > or = 120°C (E60, E61, E63, E64).

  Extruded sections and cast parts which show visible or measurable signs of deformation must be replaced.

  Perform the check for deformation with the aid of the straightening system.

  For optical testing, strip adjoining components in cases of doubt.

  Extruded sections are used in the E52 as engine carriers, door pillars, frame side members, etc.

  Extruded sections are used in the E60, E61, E63, E64 as engine carriers.

  Cast parts are used in the E60, E61, E63, E64, E70, E71 as spring supports.

- Exceptions on the E60, E61, E63, E64:

  Support carrier and bulkhead may be straightened if they do not have any cracks, sharp-edged damage or holes. After repair work, check parts again for cracks.

  Examine adjoining adhesive flanges for peeling off. If necessary, seal and preserve with **sealing compound** , see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

  Observe the frame alignment control dimensions for the support carrier.

  Any repairs to the bulkhead if cracked outside the approved repair scopes are only permitted after consultation with and approval by BMW. Should you have any questions, please contact the country-specific Hotline.

- Reshaping of extruded sections and cast parts may only be used to achieve optimum joining of connecting faces (e.g. when bulkhead is damaged). Reshaped parts must be replaced.
- Repairs which affect the mounting points of mechanical assemblies and chassis components must be carried out on the straightening bench. Use the vehicle-specific straightening attachment set or vehicle-

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specific data sheet.

Straightening attachment supports and data 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.

41 00 ... STRAIGHTENING STEEL PARTS

1.0 Recommended tools

Only use those tools designed for steel repairs.

2.0 Straightening outer shell

- "Cold" straightening: Press dents out from their center 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

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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!

  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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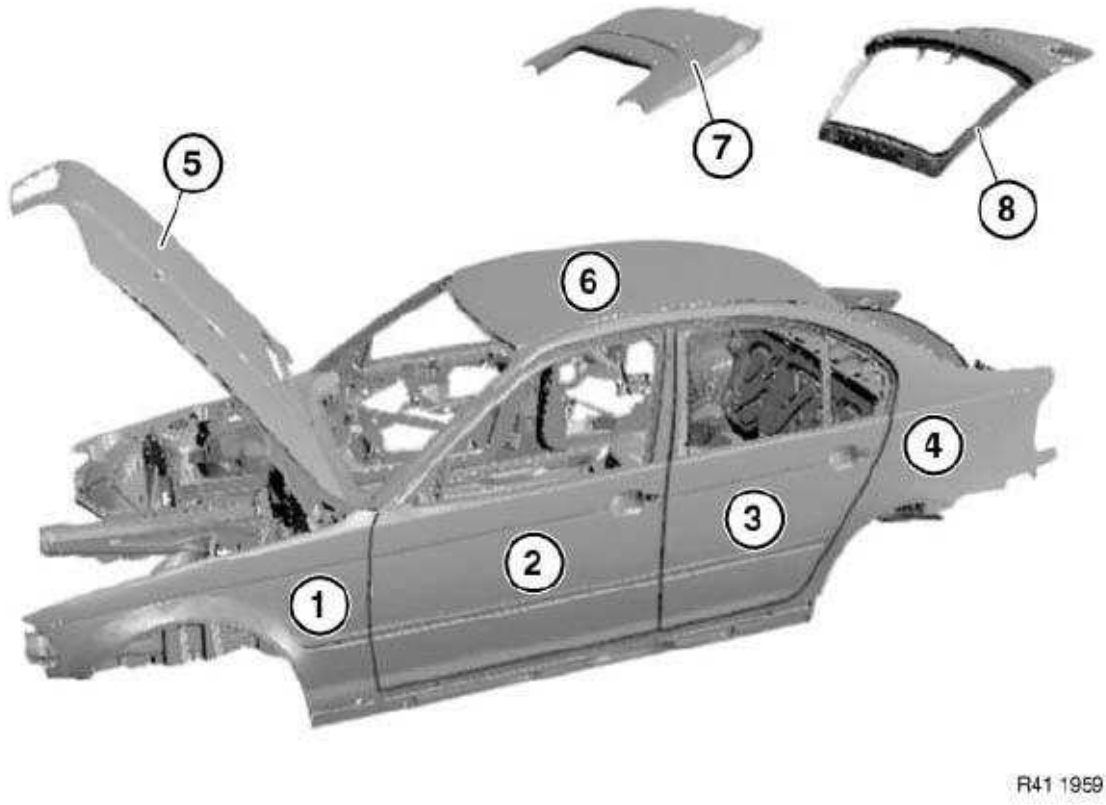


Fig. 38: Identifying Body Components
Courtesy of BMW OF NORTH AMERICA, INC.

All components not listed in the table below are composed of established sheet steel qualities.

VEHICLE MATERIAL 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)
	E89	Aluminium
(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
(5) Engine hood	E46/2 (M3)	Aluminium
	E52 (Z8)	Aluminium

	E60, E61, E63, E64	Aluminium
	E65, E66, E70, E71	Aluminium
	E85 (Z4)	Aluminium
	E92 (M3)	Aluminium
	E89	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)
	E89	Aluminium
(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

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IMPORTANT: Comply with the following topics from "Body, General":
Safety regulations , see 41 00 ... Information on hazards and 41 00 ... Safety at work
Handling electrical/electronic equipment, airbags and restraint systems , see 41 00 ... Handling airbags and restraint systems and 41 00 ... Handling electrical and electronic equipment.

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 (see **WORKSHOP EQUIPMENT**).
  - Steel welding wire - G3SI1 (SG2) or alternatively G4SI1 (SG3)
  - Welding mask
  - Gas bottle containing inert gas (82 % argon, 18 % CO2)
- Resistance pressure spot welding:
  - Spot-welding apparatus (see **WORKSHOP EQUIPMENT**).
  - 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

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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.

  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!

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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.
  - 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.

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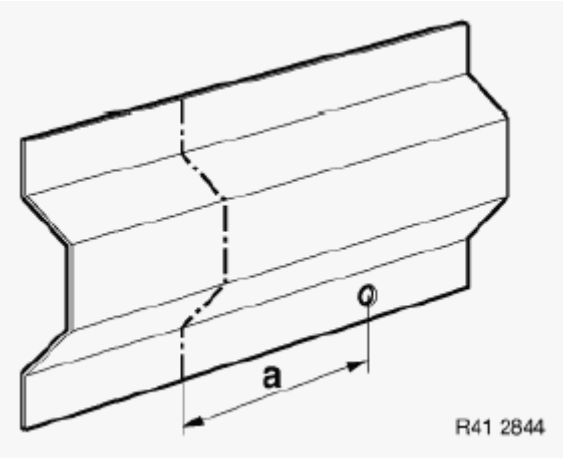


Fig. 39: Applying Mark On Part
Courtesy of BMW OF NORTH AMERICA, INC.

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.

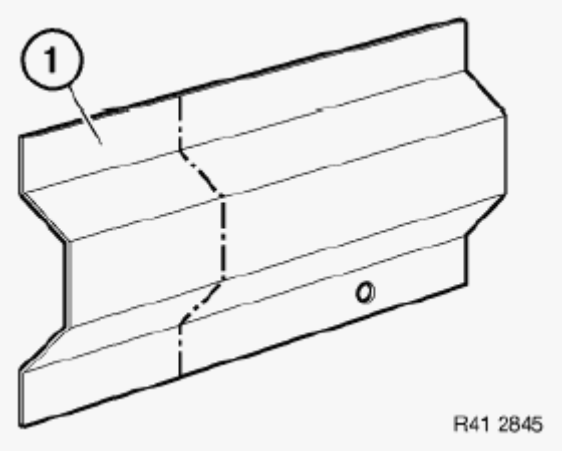


Fig. 40: Identifying Cutting Part
Courtesy of BMW OF NORTH AMERICA, INC.

Clean inner and outer sides of connecting areas (1) on new part and (2) on body.

Coat inner sides with welding primer.

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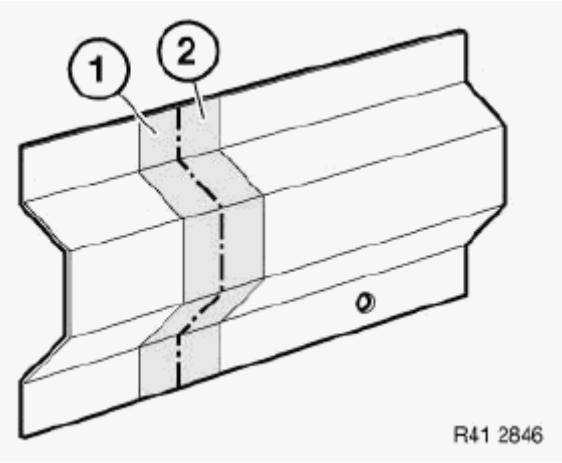


Fig. 41: Identifying Inner And Outer Sides Of Connecting Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Drill holes (1) and (2) at distance of 25 mm to each other.

Hole diameter approx. 8 mm.

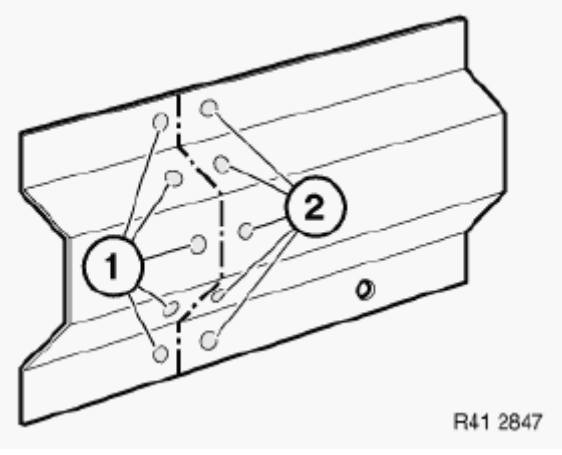


Fig. 42: Identifying Drill Holes
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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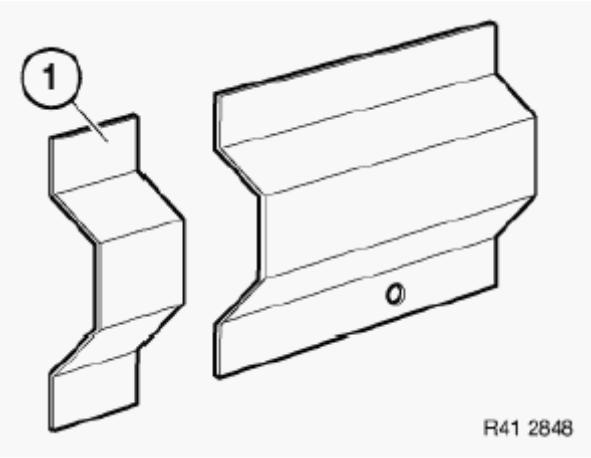


Fig. 43: Identifying Reinforcement Plates
Courtesy of BMW OF NORTH AMERICA, INC.

Push reinforcement plate (1) into component on body up to half way and plug-weld (3).

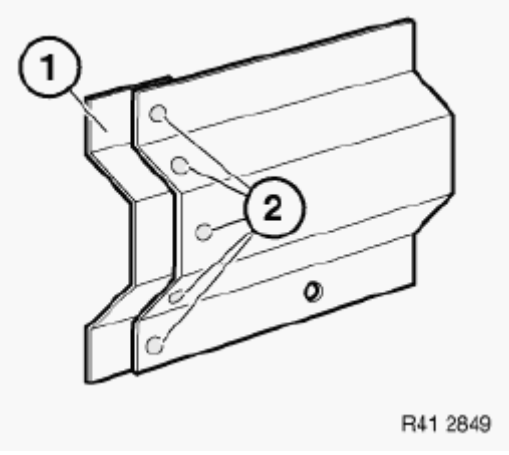


Fig. 44: Identifying Reinforcement Plate And Holes
Courtesy of BMW OF NORTH AMERICA, INC.

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

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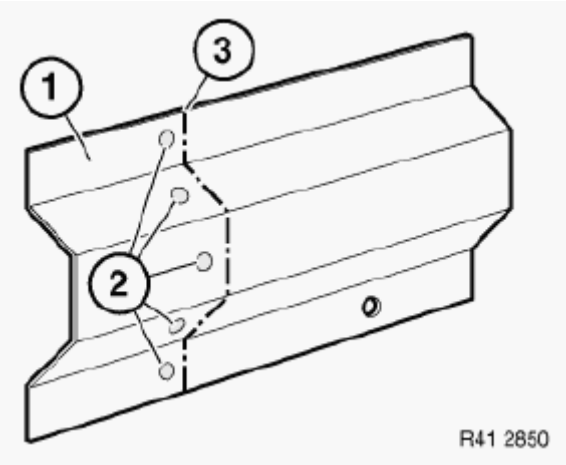


Fig. 45: Identifying Plug-Weld And MAG Weld Joint
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... WORKING WITH 2-COMPONENT PU CAVITY FOAM

Properties of cavity foam:

- 2-component PU foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.
- Ideal for use as insulating and sealing compound

Information on dangers/hazards

- Avoid eye and skin contact.

  Wear protective goggles, solvent-resistant protective gloves and protective clothing.

- Do not inhale.

  Apply in well ventilated rooms only.

  WARNING: Application time after mixing: within 8 minutes!

- **Completely empty open can after use.**

- Remaining amounts which are not used can cause the **can to explode** on account of a chemical reaction (buildup of heat)!

  Alternatively, cool the can containing the non-removed remaining amount for several hours in cold water.

- Do not eat, drink or smoke during this operation.

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- Keep heat and ignition sources well away.
- Read the manufacturer's information on hazards/dangers (printed on the can) prior to application.

Application instructions

- Use by date on can.

  Do not use the spray can after the Use by date on the can has expired. After the Use by date the properties of the cavity foam will no longer meet the requirements of the BMW Group.

- Cavity sealing of repair area possible after an air drying time of 1 hour.
- Backing surface must be

  clean and free from

  dust,

  grease,

  oil and stripping agent.

- Application temperature at least 15°C. Optimally 20°C.
- Remove fresh, non-hardened PU foam with adhesive cleaner 208.

  Sourcing reference: BMW Parts Service.

  Hardened PU foam can only be removed by mechanical means (machine).

- Excess, hardened PU foam can be disposed of as residual waste.

  Cans which are not entirely empty and unused whose Use by date has expired are classed as hazardous waste.

  Observe country-specific waste-disposal regulations.

- Observe the manufacturer's application instructions (printed on the can).

IMPORTANT: Foam expands many times over as it sets (change in volume).

- Setting takes approx. 30 minutes. Mechanical processing (e.g. drilling, cutting, etc.) is then possible.

41 00 ... WORKSHOP EQUIPMENT

Minimum workshop equipment requirements in order to ensure the correct and expert performance of body repairs:

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The tools listed below **must be used.**

WORKSHOP EQUIPMENT REFERENCE

	Steel		Aluminium	
Tool)	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			x (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	

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

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with materials and material combinations designated for future use in BMW Group vehicles return negative results (see Table Group 1). All previous application before the withdrawal of the recommendation shall remain unaffected.

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 INFORMATION

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.

41 05 800 RELEASING BONDED FOLDED SEAM CONNECTIONS

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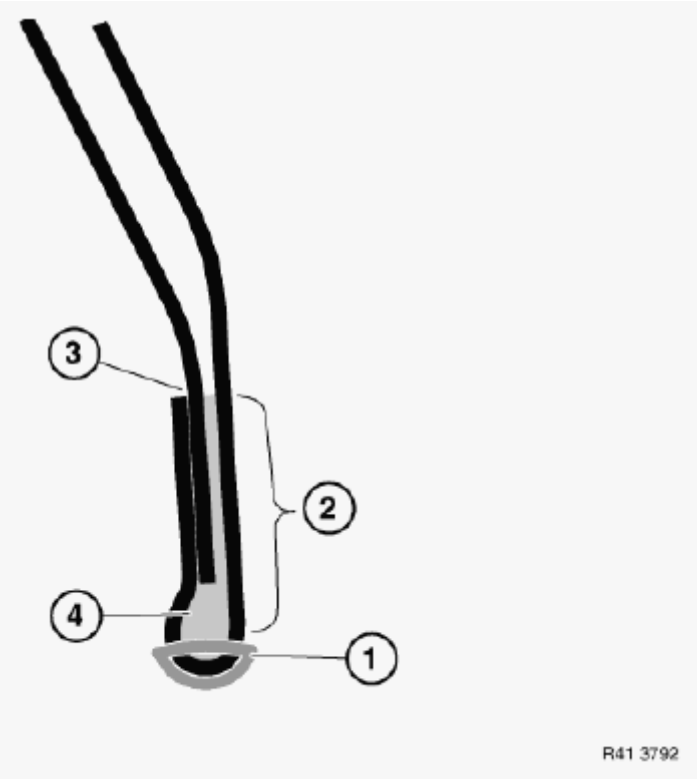


Fig. 46: Identifying Bead Edge On Wheel Arch Bend
Courtesy of BMW OF NORTH AMERICA, INC.

- Remove area (1) of bead edge on wheel arch bend with a one-hand angle grinder and rough grinding wheel.
- Heat area (2) with hot air blower.

CAUTION: Extract vapors and gases.

- Release connection flange with chisel.
- Grind adhesive residue (4) off wheel arch connection flange.

CAUTION: Wear a grinding dust mask.

- Remove remnants of sealing material in area (3).

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

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painting reasons.

Touching-up areas are taken into account.

SUPPORT MEMBERS

41 11 015 REPLACING ENGINE CARRIER WITH WHEEL ARCH, LEFT

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

The steel-aluminium mixed construction is used on the vehicle.

Observe specific **procedure** , see **41 00 ... Bonding aluminum on steel**.**41 00 ... Riveting aluminum parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only **approved spot-welding apparatus** for repairs, see **41 00 ... Workshop equipment**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Wheel arch, front
- (2) Engine carrier
- (3) Support, wheel arch
- (4) Reinforcement, support carrier

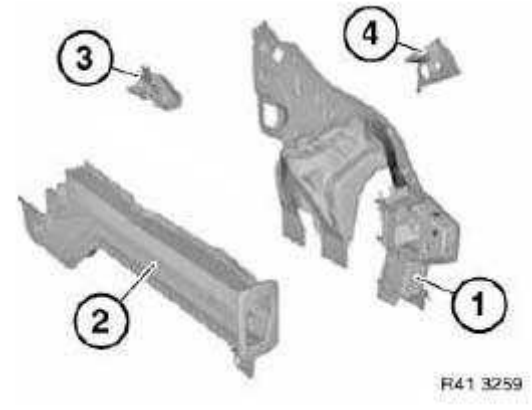


Fig. 47: Identifying Wheel Arch, Engine Carrier, Support And Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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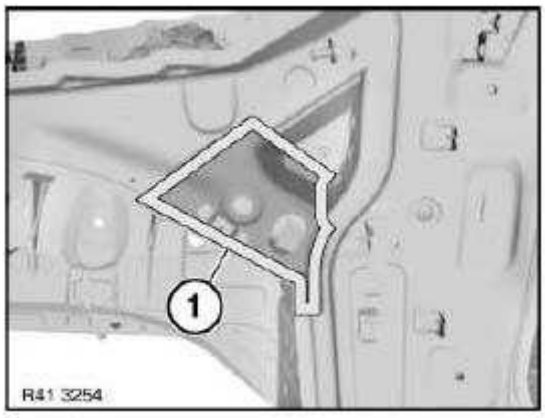


Fig. 48: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with measurement a and cut support carrier.

Measurement a=50 mm before 20 mm dia. bore

Open weld joints in area (1).

Installation:

Weld in **reinforcement plate** at severance cut.

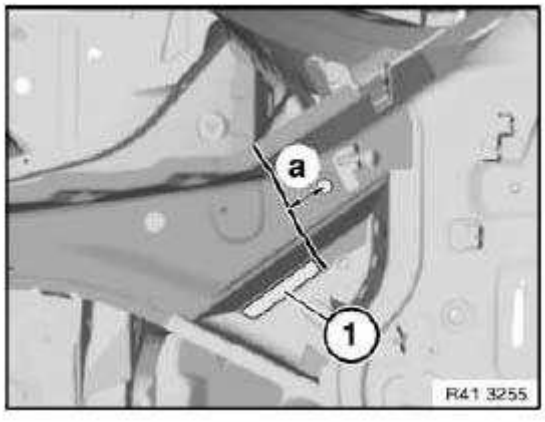


Fig. 49: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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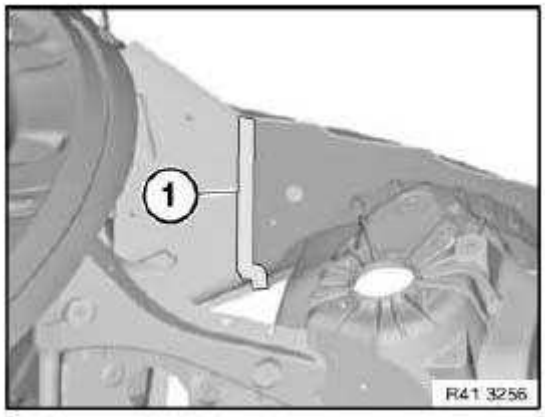


Fig. 50: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement a and cut engine carrier.

Measurement a=50 mm before 20 mm dia. bore

Open weld joints in area (2).

Installation:

Weld in **reinforcement** plate at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Open weld joints in area (1).

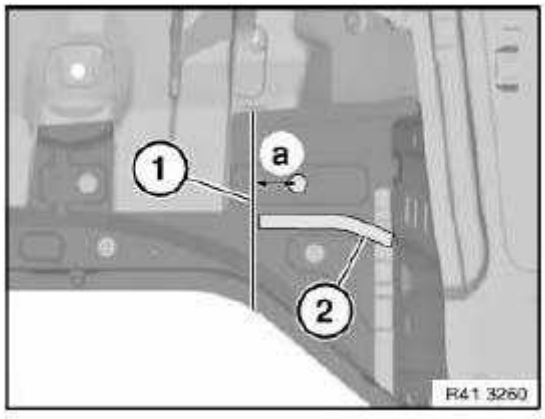


Fig. 51: Identifying Weld Joint Areas And Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

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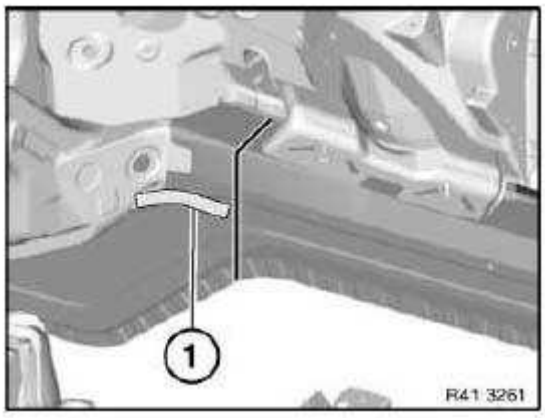


Fig. 52: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in area (2).

Open **adhesive joints** in areas (2) and (3), see **41 00... Opening adhesive bonds**.

Installation:

Use 19 rivets (size 815) in area (1).

Use 4 rivets (size 815) in area (2).

Glue new component with **adhesive K1** , see **41 00 ... Bonding aluminum on steel**

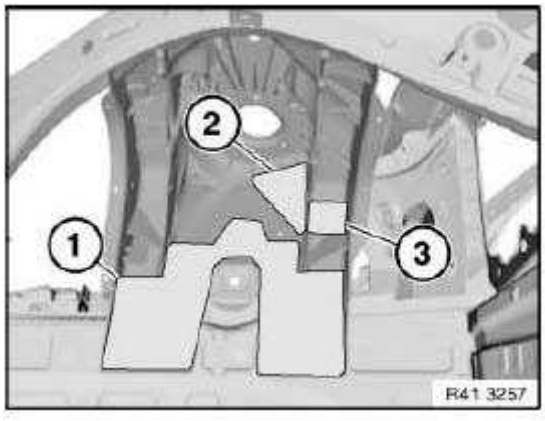


Fig. 53: Identifying Rivets Area And Adhesive Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: To avoid contact corrosion, do not grind the new part in the area of the adhesive surfaces , see 41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC).

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Clean adhesive areas with isopropanol, acetone or spirit.

Preparation of new part:

Mark engine carrier in accordance with severance cut on vehicle and cut.

IMPORTANT: Cut outer metal sheet only.
Do not cut through reinforcement (1).

Cut weld joints on both sides in areas (2).

Adjust new part to fit with straightening attachment or universal mount.

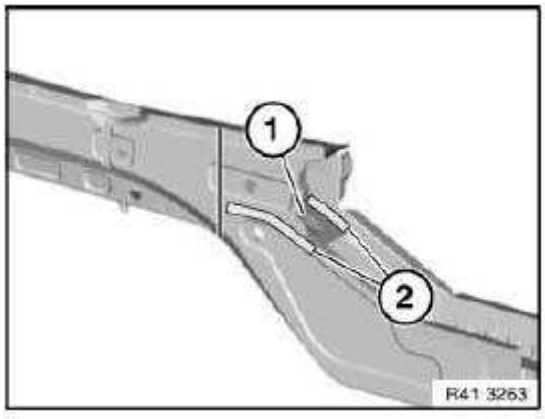


Fig. 54: Identifying Weld Joint Areas And Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Adjust wheel arch support (1) to fit in conjunction with wheel arch (2).

Remove wheel arch (2).

Weld new part (1) in areas (3).

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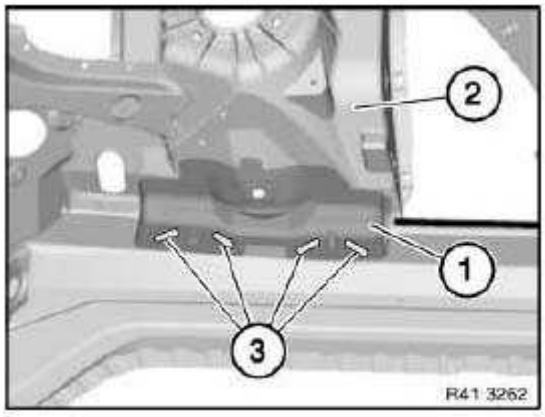


Fig. 55: Identifying Wheel Arch Support And Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in area (1).

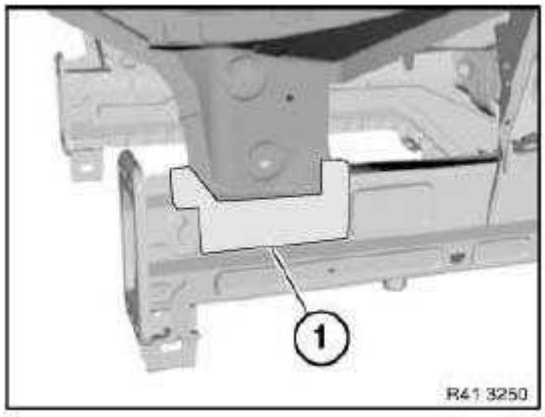


Fig. 56: Identifying Weld Part Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in areas (1).

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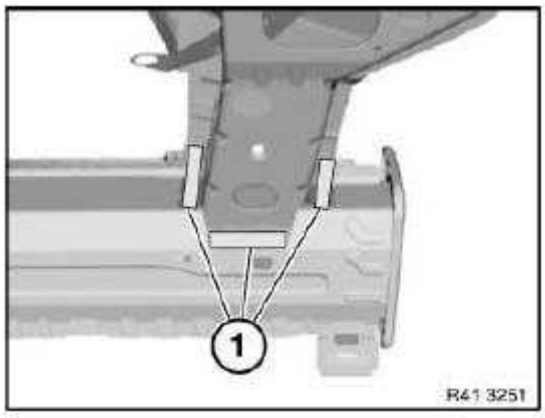


Fig. 57: Identifying Weld Part Areas
Courtesy of BMW OF NORTH AMERICA, INC.

41 11 028 REPLACING LEFT ENGINE CARRIER (PARTIAL REPLACEMENT BEFORE FRONT AXLE)

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only **approved spot-welding apparatus** for repairs, see **41 00 ... Workshop equipment**.

Place vehicle on straightening bench.

- (1) Engine carrier, front

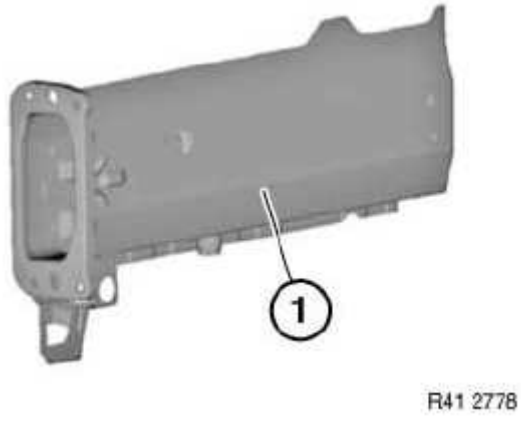


Fig. 58: Identifying Engine Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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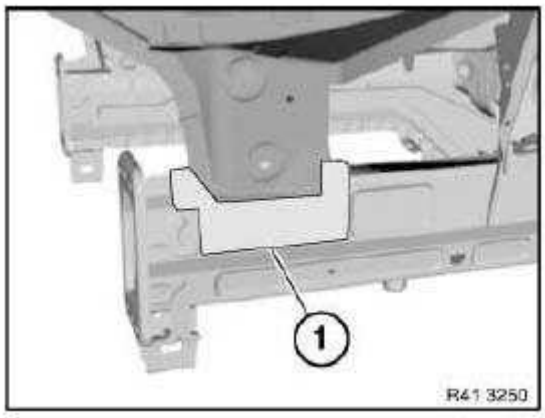


Fig. 59: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

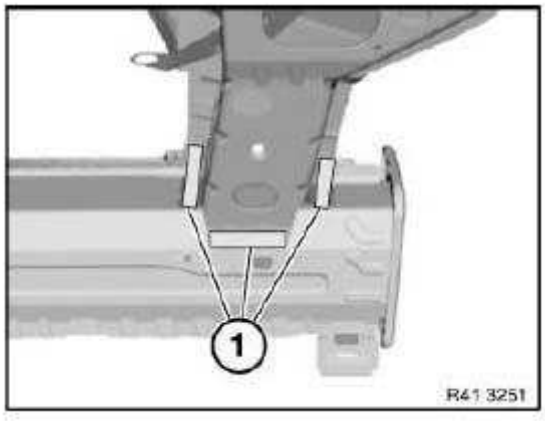


Fig. 60: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: For purposes of clarity, picture shows the support carrier removed.

Mark severance cut in accordance with measurement a and cut.

Measurement a=150 mm from bore dia. 20 mm

Preparation of new part:

Mark severance cut in accordance with vehicle and cut.

Installation:

Adjust new part to fit with straightening attachment or universal mount.

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Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Internal reinforcement plate in engine carrier is no longer welded. To avoid grinding noises, maintain a gap of approx. 3 mm.

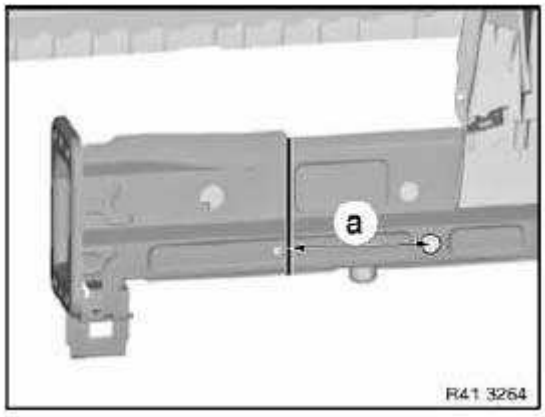


Fig. 61: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 11 150 SIDE MEMBER COVER

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** , see **41 00 ... Spot-weld bonding steel parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs, see **41 00 ... Workshop equipment**!

Following new body parts are required:

- (1) B-pillar with entrance
- (2) Shaped part, entrance, outer (not shown)

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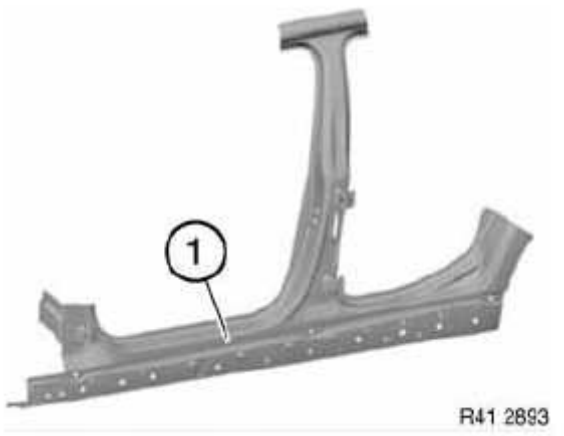


Fig. 62: Identifying B-Pillar With Entrance
Courtesy of BMW OF NORTH AMERICA, INC.

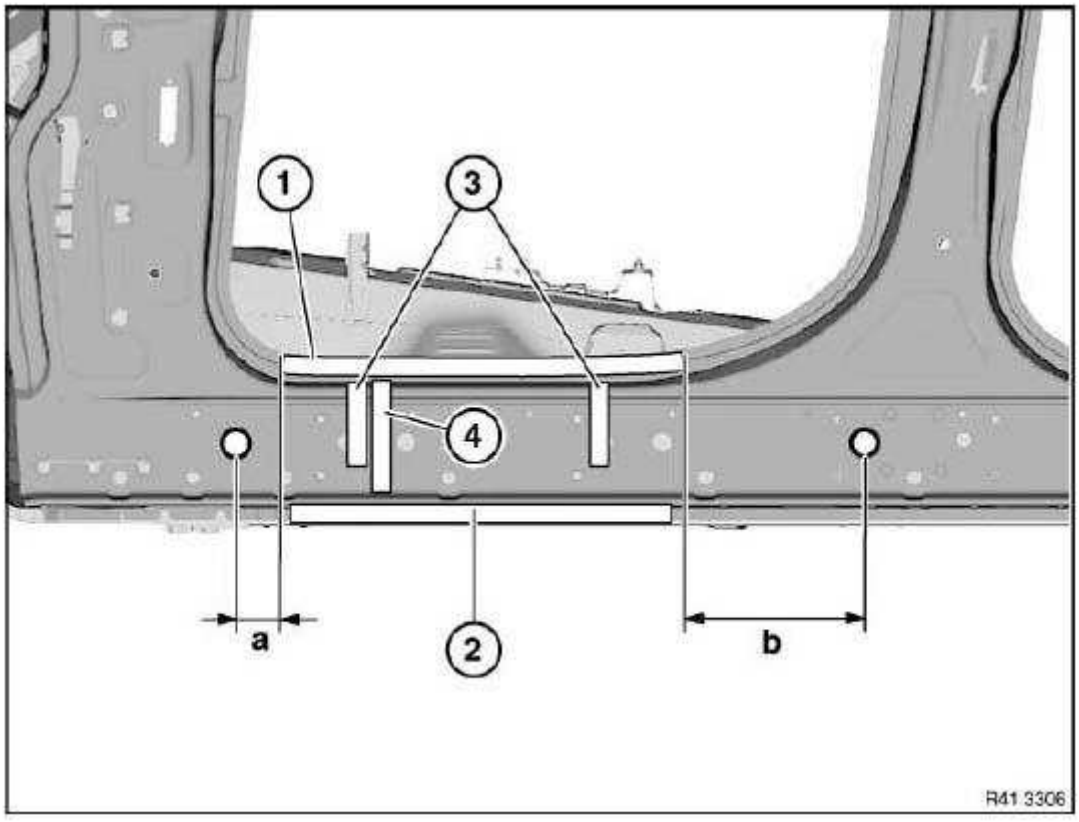


Fig. 63: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer plate only for following severance cuts.

Measurement a = approx. 50 mm behind hole dia. 25 mm.

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Measurement b = approx. 250 mm before hole dia. 20 mm.

Open weld joints in areas (1) and (2).

Open adhesive bonds in areas (3). Open one welding spot in each case.

Installation:

Mark new part in accordance with severance cuts on vehicle and cut.

Apply **window glass adhesive** to cavity acoustic baffle (4), see **41 00 ... Installing a cavity acoustic baffle (expanded)** and **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Apply **adhesive** in areas (3), see **41 00 ... Bonding steel on steel**. Welding spots omitted in areas (3).

Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Bond and rivet new part in area (2), see **41 00 ... Bonding steel on steel**.

Use Hemlock 813 blind rivet (sourcing reference: BMW Parts Service picture board - Aluminum and steel/bonding and welding).

Double number of rivets with respect to welding spots in area (2).

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**

Spot-weld bonding is used on this vehicle. Observe specific **procedure** , see **41 00 ... Spot-weld bonding steel parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Place vehicle on straightening bench.

Following new body parts are required:

- (1) B-pillar with entrance
- (2) Shaped part, B-pillar, inner (not shown)

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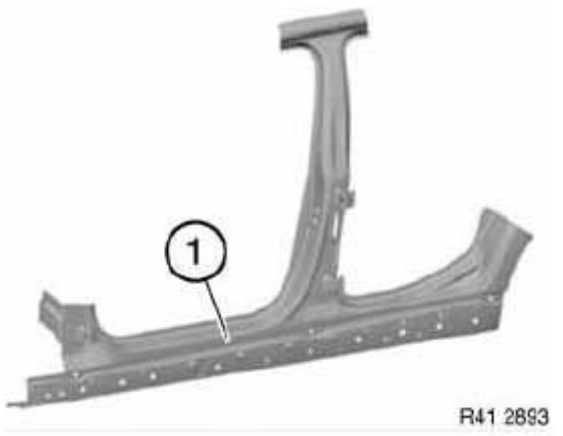


Fig. 64: Identifying B-Pillar With Entrance
Courtesy of BMW OF NORTH AMERICA, INC.

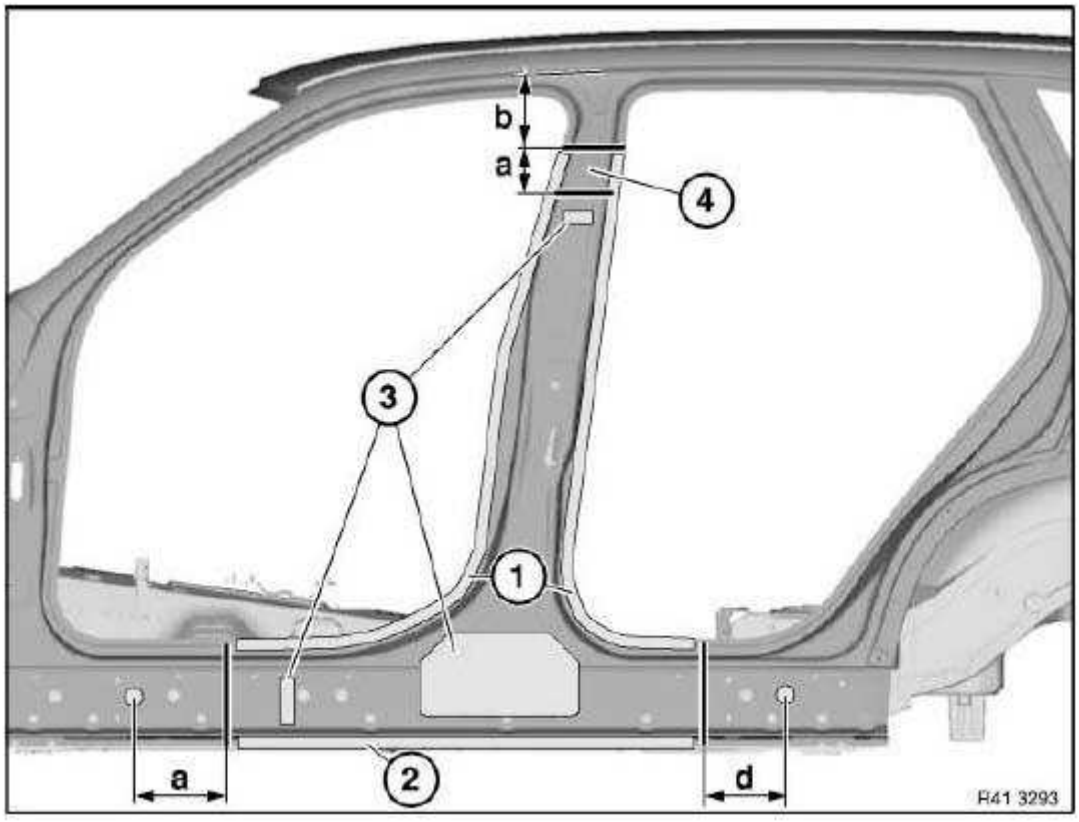


Fig. 65: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer plate only for following severance cuts.

Measurement a = approx. 200 mm behind hole dia. 25 mm.

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Measurement b = approx. 150 mm from roof edge.

Measurement c = approx. 80 mm below cut b.

Measurement d = approx. 200 mm from centrepoint of hole dia. 25 mm.

Open weld joints in areas (1) and (2).

Open adhesive bonds in areas (3).

Installation:

Cut out metal section (4) is needed again for sealing.

Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Bond and rivet new part in area (2), see **41 00 ... Bonding steel on steel**.

Use Hemlock 813 blind rivet (sourcing reference: BMW Parts Service picture board - Aluminum and steel/bonding and welding).

Double number of rivets with respect to welding spots in area (2).

Mark severance cut in accordance with specified measurement and cut.

IMPORTANT: Cut outer metal plate only for following severance cut.
Measurement a = 190 mm from roof edge.

Installation:

Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

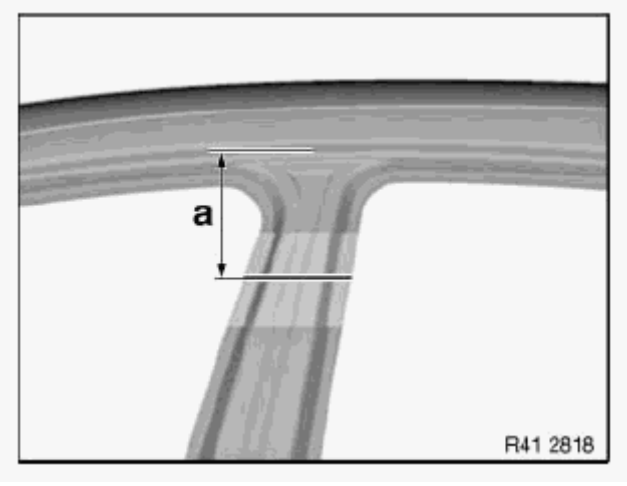


Fig. 66: Identifying Cut Mark Area

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Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: View from inside

Open weld joints in area (1).

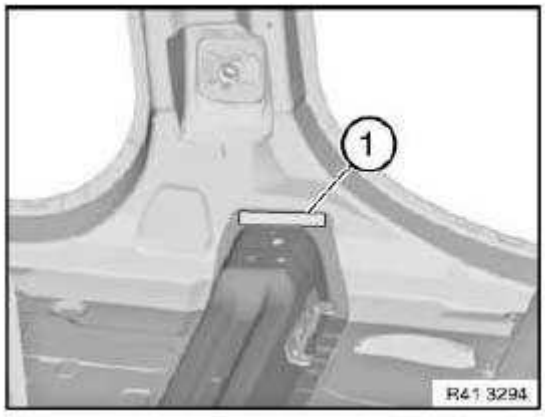


Fig. 67: Identifying Weld Joint Areas (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

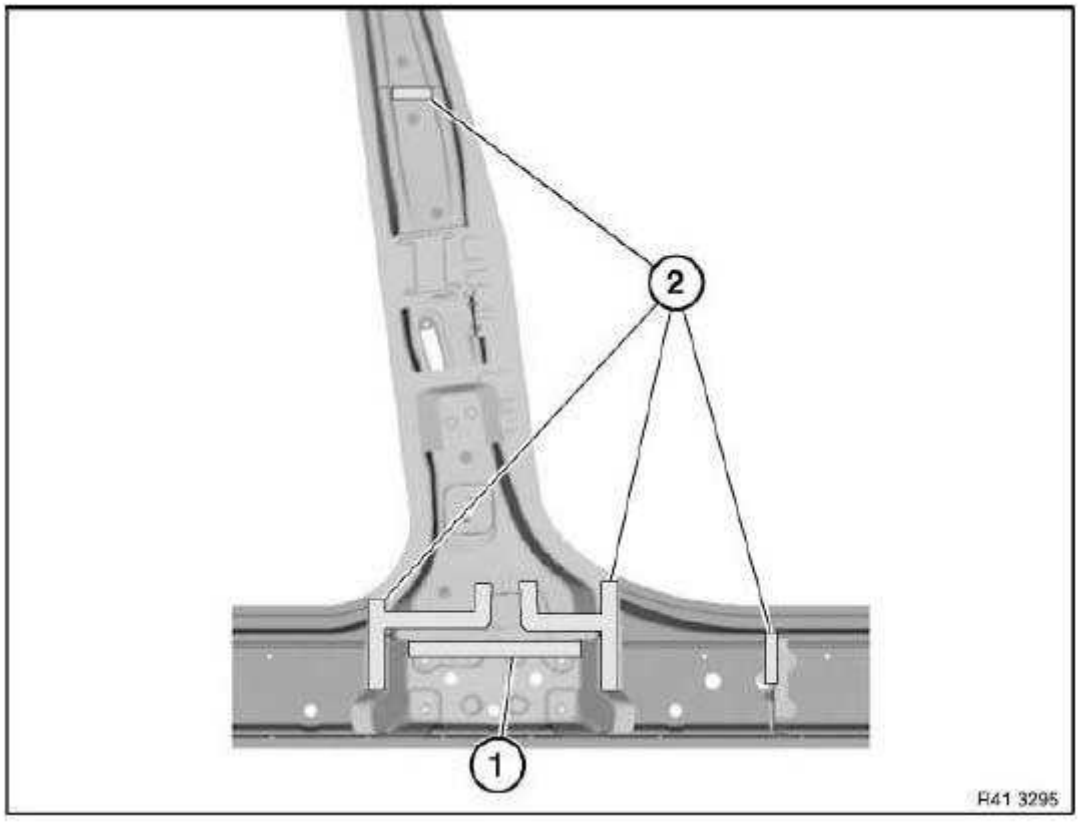


Fig. 68: Identifying Weld Joint Areas (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation information:

Mark new part in accordance with severance cuts on vehicle and cut.

Apply **window glass adhesive** to cavity acoustic baffle (1), see **41 00 ... Installing a cavity acoustic baffle (expanded)41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Apply **adhesive** in areas (2), see **41 00 ... Bonding steel on steel**.

Adjust new part to fit with straightening attachment or universal mount.

41 11 516 REPLACING LEFT SUPPORT CARRIER

Read contents of **Body, General** , see **41 0 Contents of Body, General**

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only **approved spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**.

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Support carrier, wheel arch, front,

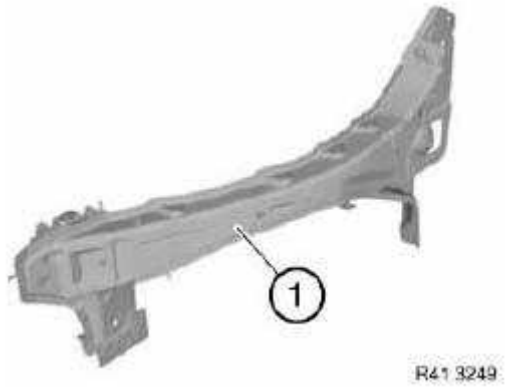


Fig. 69: Identifying Support Carrier, Wheel Arch, Front,
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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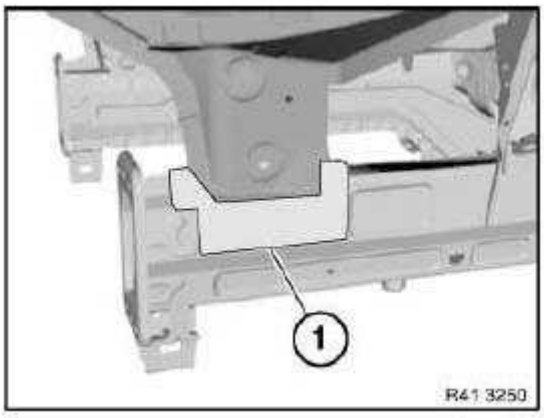


Fig. 70: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

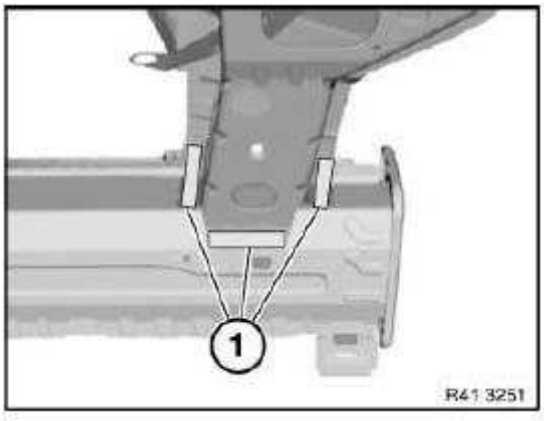


Fig. 71: Identifying Weld Joint Areas
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage to spring strut dome!

Mark severance cut in accordance with measurement a and cut support carrier.

Measurement a=50 mm before 20 mm dia. bore

Installation:

Adjust new part to fit with straightening attachment or universal mount.

Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

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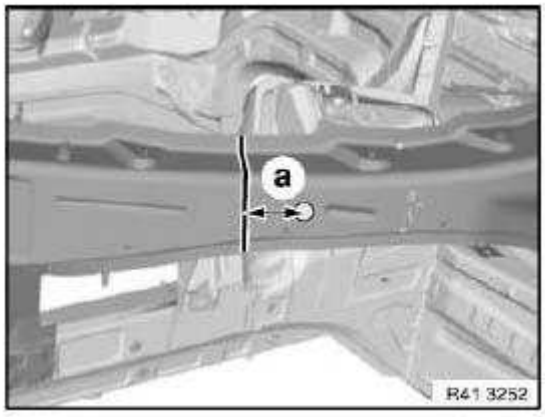


Fig. 72: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

LUGGAGE COMPARTMENT FLOOR

41 12 535 REPLACING COMPLETE REAR LUGGAGE COMPARTMENT FLOOR (TAIL PANEL REMOVED)

Read contents of **Body, General.** , see **41 0 Contents of Body, General**

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Spot-weld bonding is used on this vehicle. Observe specific **procedure**

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Place vehicle on straightening bench.

Following new body parts are required:

- (1) Wheel arch, rear left and right
- (2) Side member, rear left and right
- (3) Side member, top left and right
- (4) Luggage compartment floor

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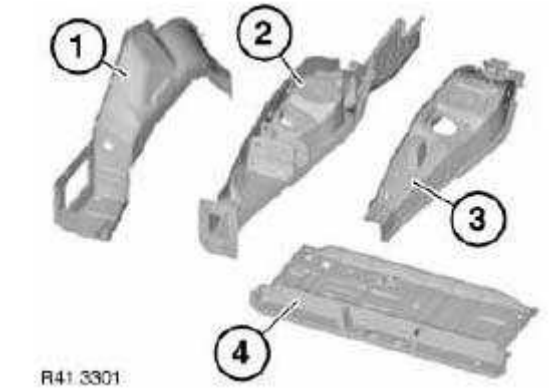


Fig. 73: Identifying Wheel Arch, Side Member And Luggage Compartment Floor
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints in area (1).

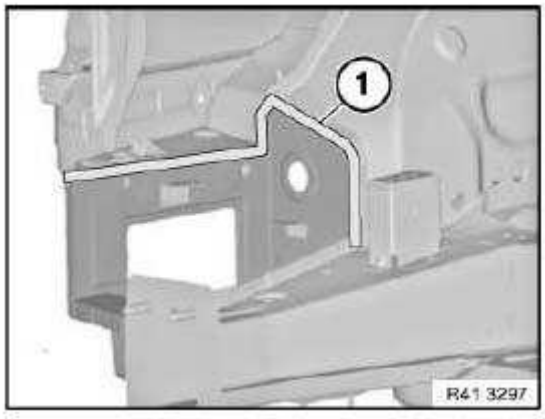


Fig. 74: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints in area (1).

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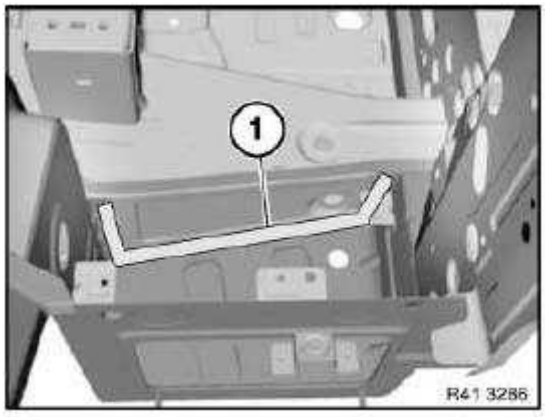


Fig. 75: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints in area (1).

Remove middle lashing rail mounting (2).

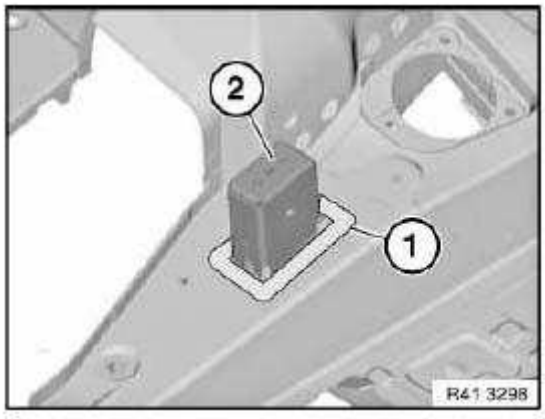


Fig. 76: Identifying Weld Joints Area And Middle Lashing Rail Mounting
Courtesy of BMW OF NORTH AMERICA, INC.

View from below:

Open weld joints in area (1).

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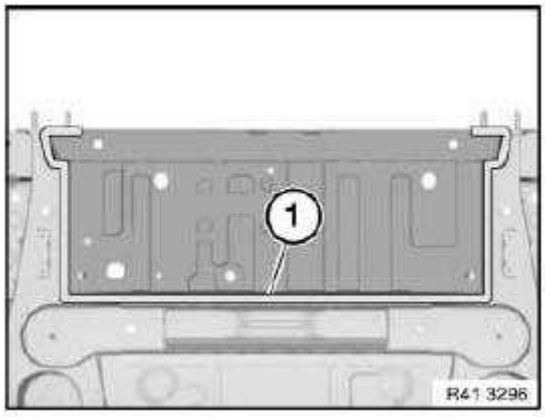


Fig. 77: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Mark severance cut (1) in accordance with measurement a and cut.

Dimension a = 10 mm

Open weld joints in area (2).

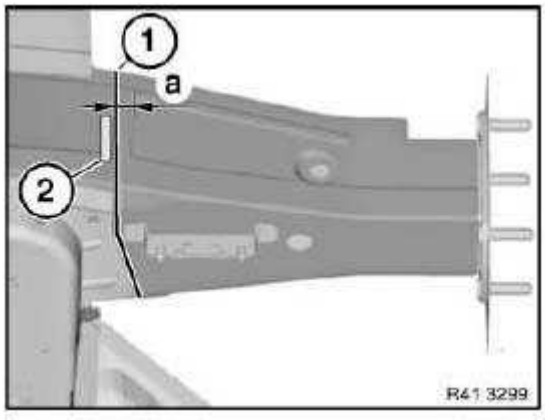


Fig. 78: Identifying Cut Mark Area And Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side

of the vehicle. Mark severance cut (1) in accordance with previous severance cut and cut.

Installation:

Adjust new parts to fit with straightening attachment or universal mount.

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Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.

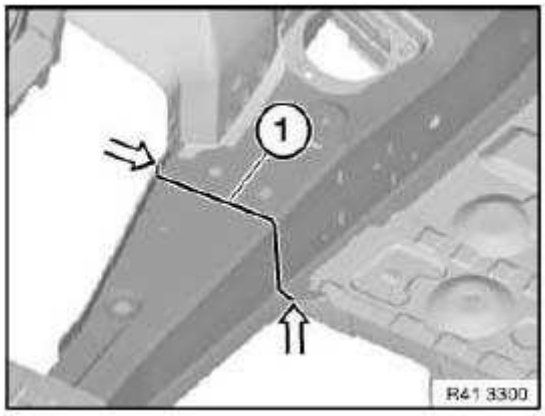


Fig. 79: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

WHEEL WELLS

41 14 021 REPLACING FRONT LEFT WHEEL ARCH

This instruction is only applicable the first time the wheel arch is replaced! Repeated replacement is only permitted after consultation with and approval by BMW. Should you have any questions, please contact the country-specific Hotline.

If the wheel arch has not yet been replaced, this can be recognized from the punch rivets (1) fitted at the factory.

If replacing the wheel arch, replace the punch rivets with blind rivets (2).

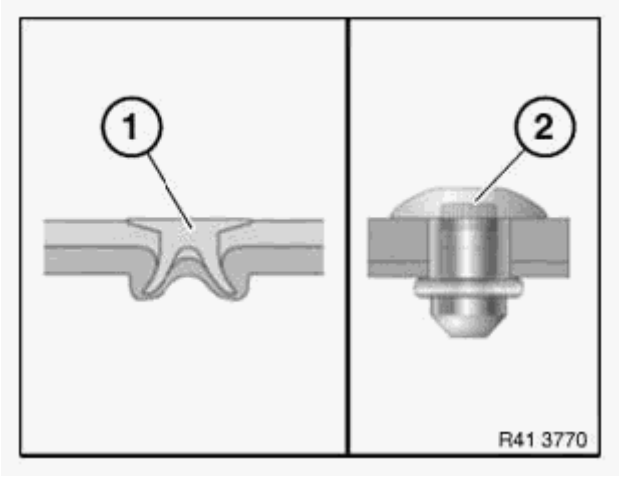


Fig. 80: Identifying Punch Rivets And Blind Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

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The steel-aluminium mixed construction is used on the vehicle.

Observe specific **procedure** , see **41 00 ... Bonding aluminum on steel** and **41 00 ... Riveting aluminum parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only **approved spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**.

Place vehicle on straightening bench.

- (1) Wheel arch, front
- (2) Reinforcement, support carrier

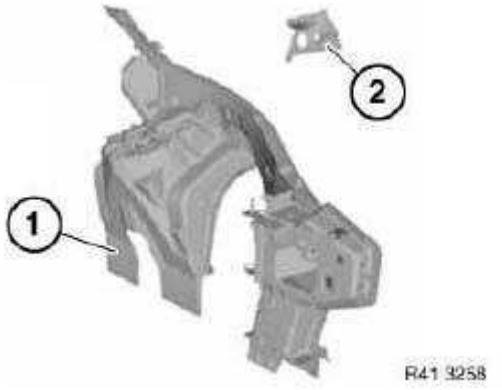


Fig. 81: Identifying Wheel Arch And Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

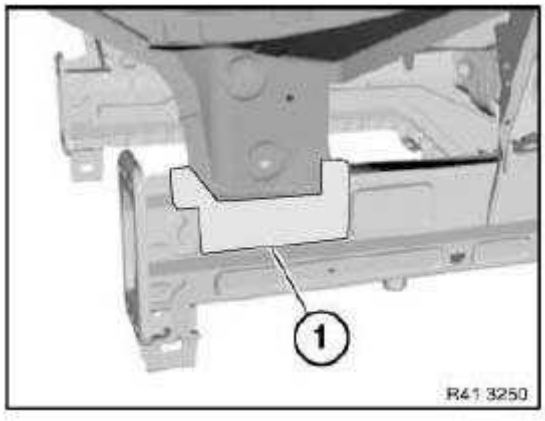


Fig. 82: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

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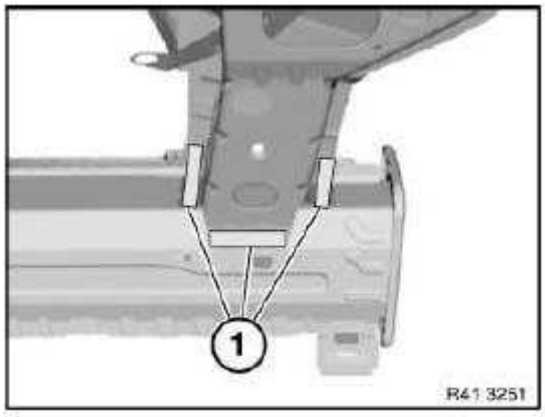


Fig. 83: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

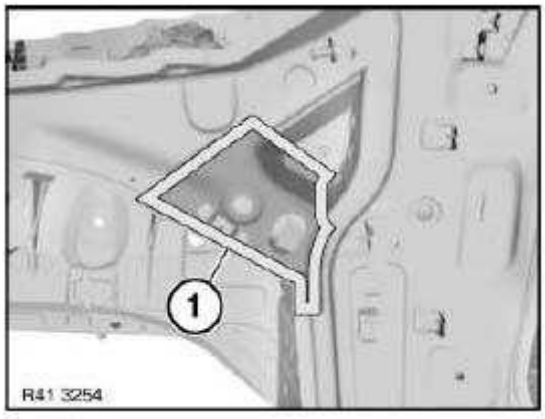


Fig. 84: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with measurement a and cut support carrier.

Measurement a=50 mm before 20 mm dia. bore

Open weld joints in area (1).

Installation:

Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

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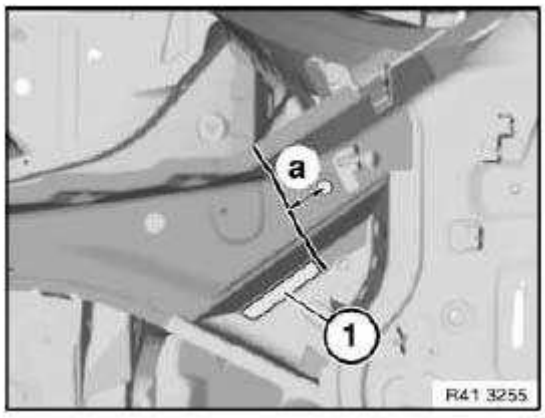


Fig. 85: Identifying Cut Mark Area And Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

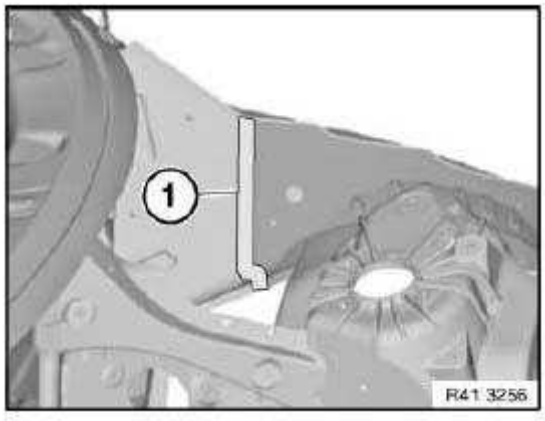


Fig. 86: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in areas (1) to (3).

Open **adhesive joints** in areas (1) to (4), see **41 00... Opening adhesive bonds**.

Installation:

Adjust new part to fit with straightening attachment or universal mount.

In areas (2) and (3) carry over new rivet holes from engine carrier to wheel arch and drill.

Use 11 **N2 rivets** in areas (2) and (3), see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

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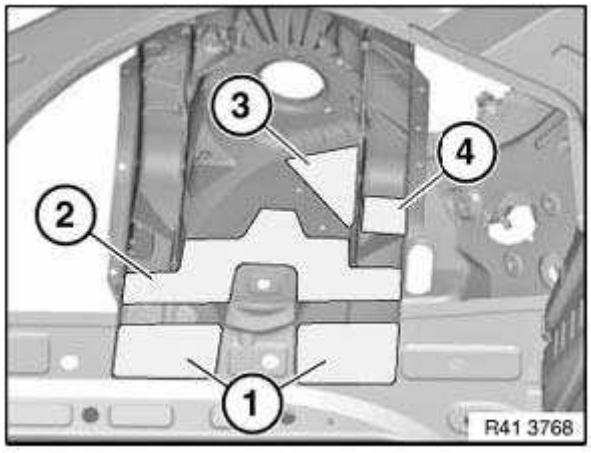


Fig. 87: Identifying Riveted Joints Area And N2 Rivets Areas
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: To avoid contact corrosion, do not grind the new wheel arch part in the area of the adhesive surfaces , see 41 00 ... Bonding aluminum on steel.
Grind bonding surfaces on engine carrier blank.

Clean bonding surfaces with isopropanol or isohexane.

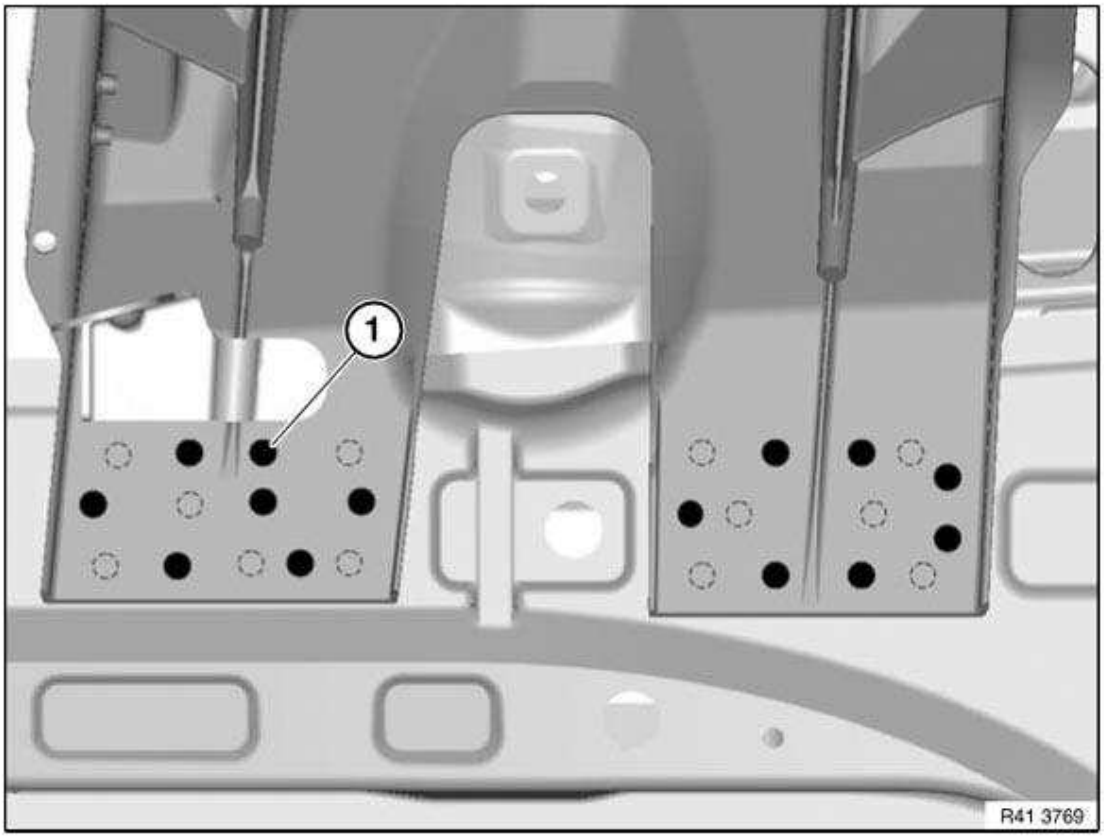


Fig. 88: Identifying Holes

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Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

New rivet positions are required for strength reasons.

Drill new rivet holes (1) as shown in picture.

In so doing, maintain a minimum distance of 10 mm to lower component edge.

Use 14 **N2 rivets** , see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**

Glue new component with **adhesive K1** , see **41 00 ... Overview of consumables (Electronic Parts Catalogue - EPC)**.

Installation:

For accessibility reasons, move rivet (1) 15 mm forwards (2).

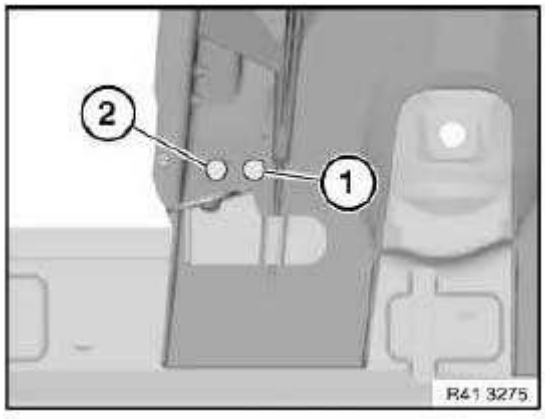


Fig. 89: Identifying Rivet Holes And Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

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**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** , see **41 00 ... Bonding aluminum on steel** and **41 00 ... Riveting aluminum parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Following new body parts are required:

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- (1) Reinforcement, C-pillar, bottom
- (2) Wheel arch, outer, rear
- (3) Reinforcement, D-pillar, inner
- (4) Shaped parts, wheel arch (not pictured)

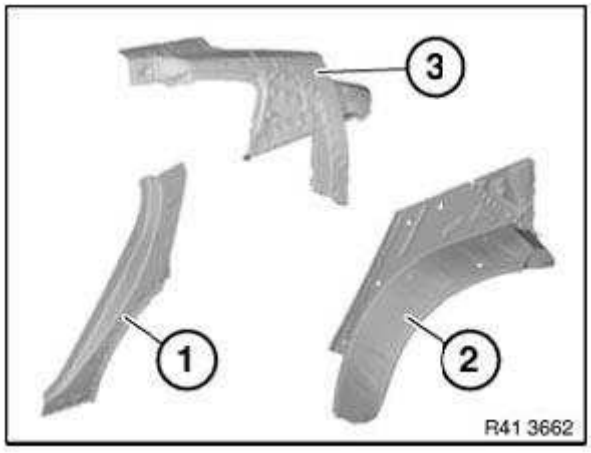


Fig. 90: Identifying Reinforcement, Wheel Arch, Rear Reinforcement And Shaped Parts
Courtesy of BMW OF NORTH AMERICA, INC.

41 14 503 REPLACING REAR RIGHT OUTER WHEEL ARCH SECTION (SIDE PANEL REMOVED)

Read contents of **Body, General** , see **41 0 Contents of Body, General**

Spot-weld bonding is used on this vehicle. Observe specific **procedure**

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Following new body parts are required (refer to **ELECTRONIC PARTS CATALOGUE EPC**):

- (1) Wheel arch, rear, outer half
- (2) Reinforcement, C-pillar, bottom
- (3) Shaped parts, wheel arch (not pictured)

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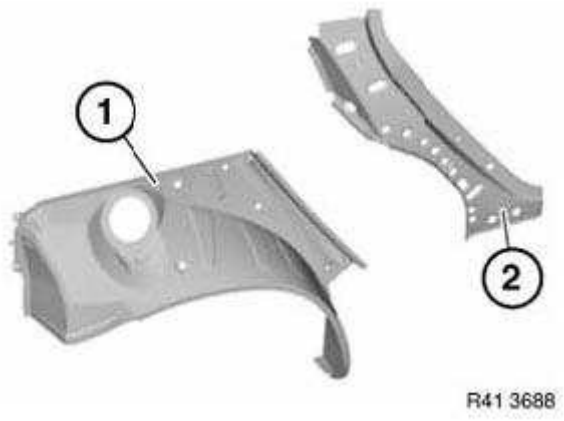


Fig. 91: Identifying Wheel Arch, Reinforcement And Shaped Parts
Courtesy of BMW OF NORTH AMERICA, INC.

Remove **cavity acoustic baffle** (1), see **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Open weld joints in area (2).

Remove reinforcement on C pillar.

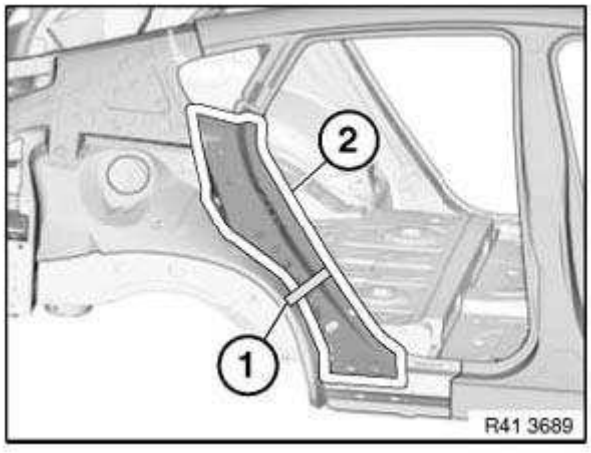


Fig. 92: Identifying Weld Joints Area And Cavity Acoustic Baffle
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 20 mm

Open weld joints in area (2).

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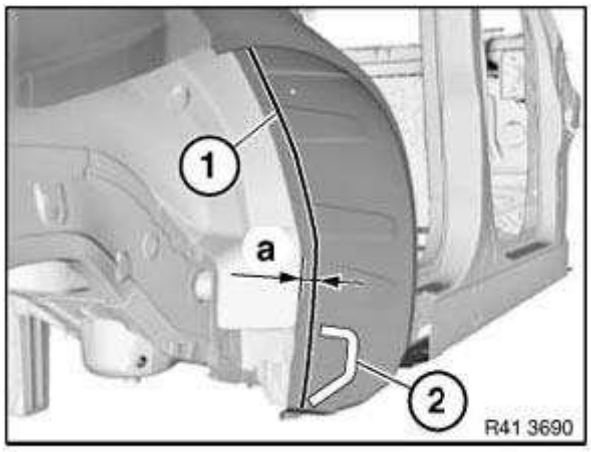


Fig. 93: Identifying Cut Mark Area And Weld Joints Area (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

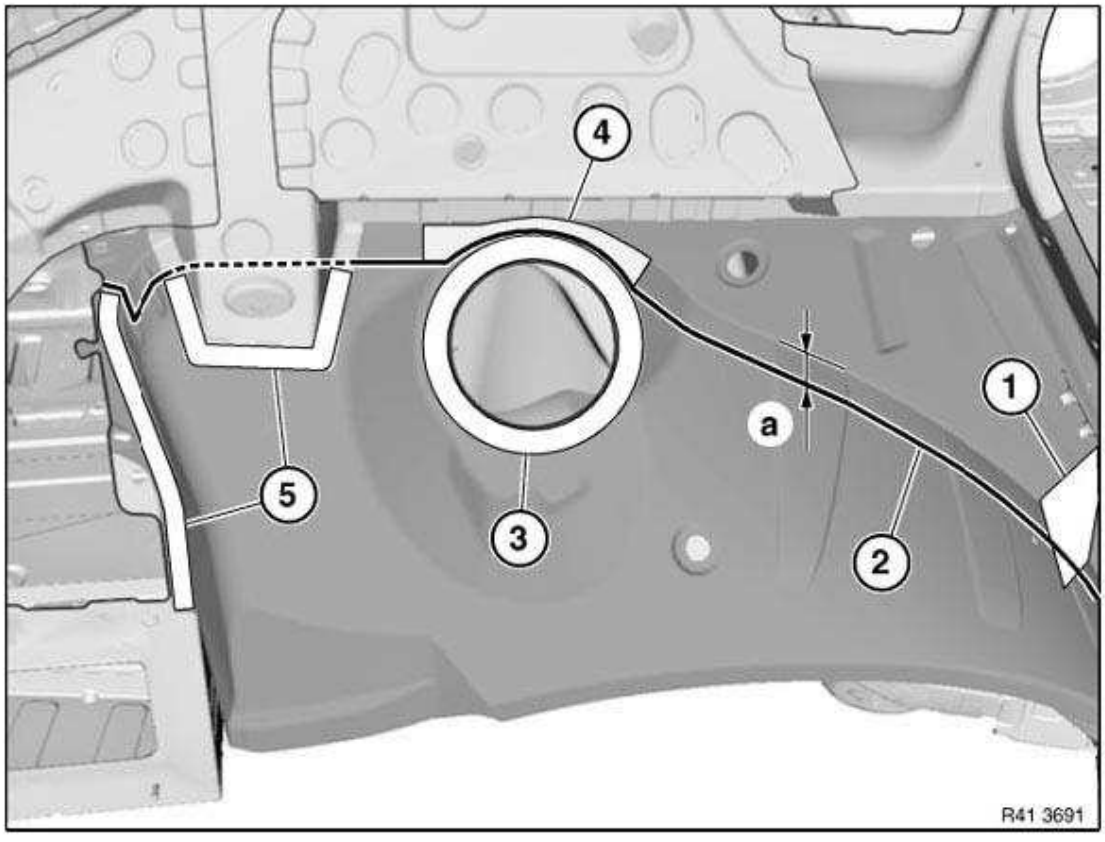


Fig. 94: Identifying Cut Mark Area And Weld Joints Area (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Remove **cavity acoustic baffle** (1), see **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Mark severance cut (2) in accordance with measurement and cut.

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Measurement a = 20 mm distance from radius.

IMPORTANT: Severance cut in area (3) not permitted!
Adapt measurement a to component shape in area (4).

Open weld joints in area (5).

Remove section for outer wheel arch section.

Preparation of new part:

Mark new part in radius (1) and cut.

Installation:

- Fit new part from below and adjust to fit in conjunction with side panel.



Fig. 95: Identifying Radius Part
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**

Spot-weld bonding is used on this vehicle. Observe specific **procedure** , see **41 00 ... Spot-weld bonding steel parts**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Place vehicle on straightening bench.

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Following new body parts are required (refer to **ELECTRONIC PARTS CATALOGUE EPC**):

- (1) Wheel arch, outer, rear
- (2) Reinforcement, C-pillar, bottom
- (3) Rear wheel arch
- (4) Reinforcement, D-pillar, inner
- (5) C-pillar reinforcement
- (6) Shaped parts, wheel arch (not pictured)
- (7) Shaped part, D-pillar, outer

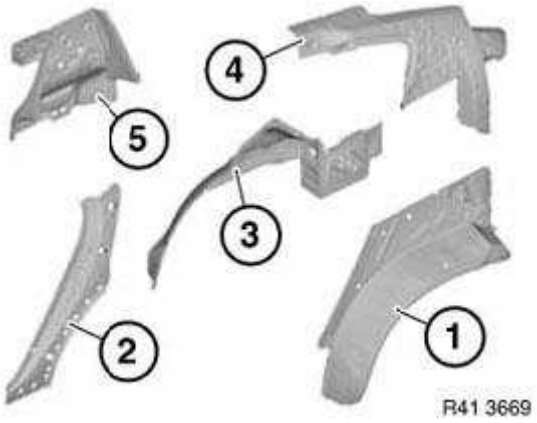


Fig. 96: Identifying Rear Wheel Arch, Reinforcement, Innerc-Pillar Reinforcement And Shaped Part
Courtesy of BMW OF NORTH AMERICA, INC.

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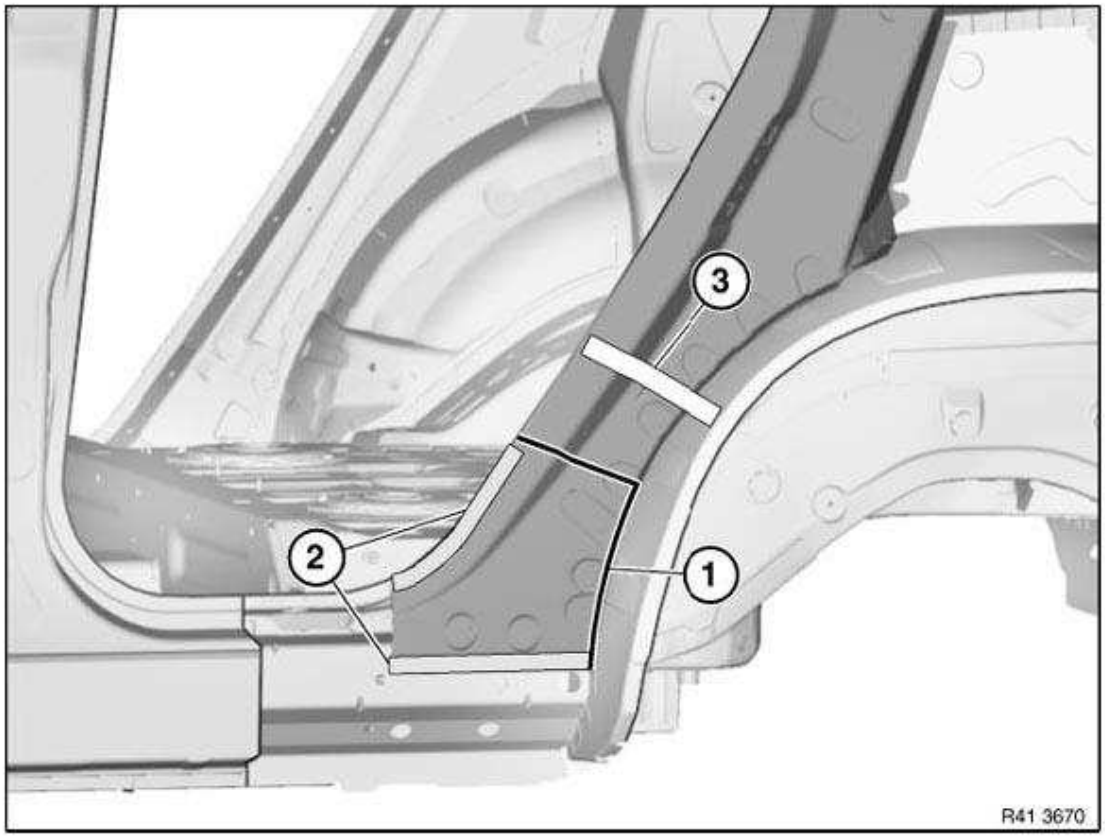


Fig. 97: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Roughly cut C-pillar reinforcement along line (1).

Open weld joints in areas (2).

Remove sheet section.

Installation:

Replace both **cavity acoustic baffles** (3), see **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Open weld joints in area (1).

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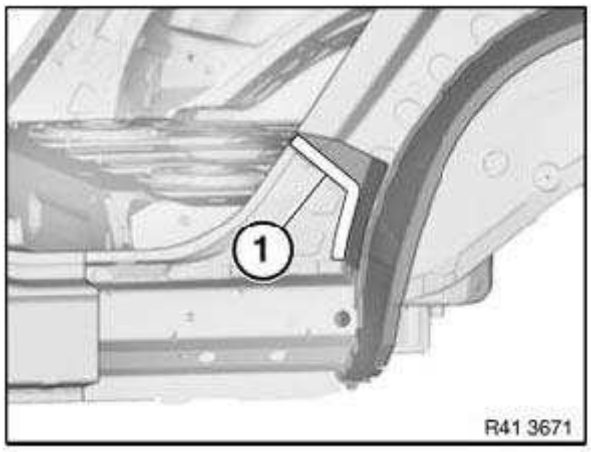


Fig. 98: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 20 mm

Open weld joints in area (2).

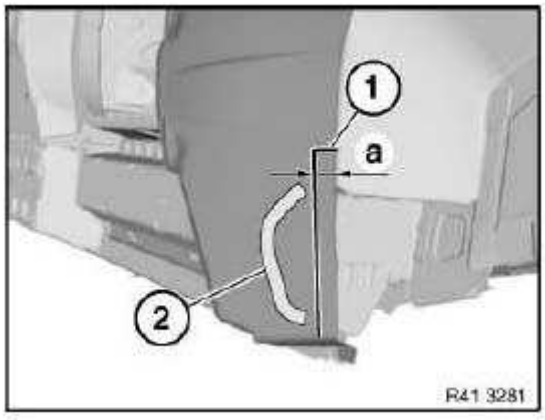


Fig. 99: Identifying Cut Mark Area And Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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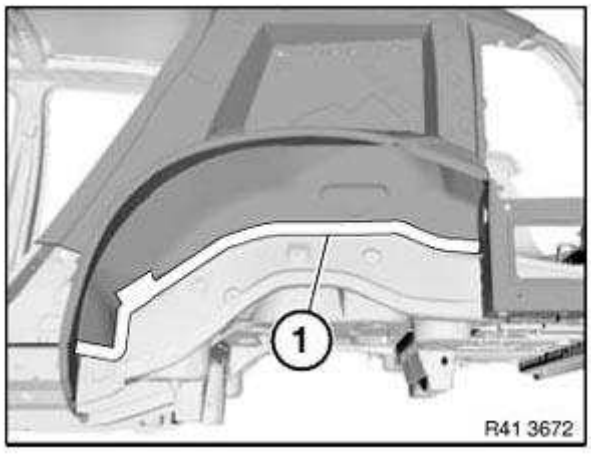


Fig. 100: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Roughly cut rear wheel arch along line (1).

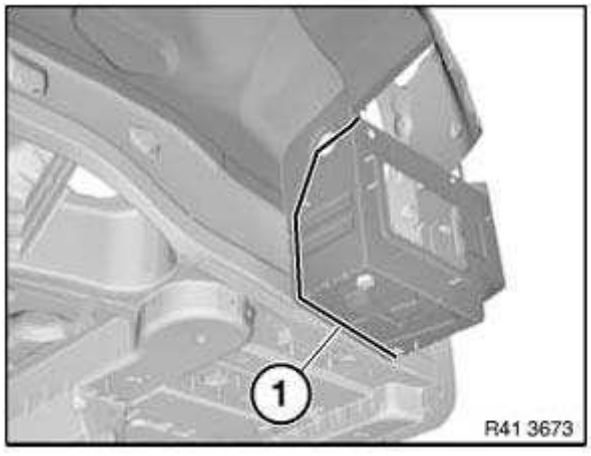


Fig. 101: Identifying Cut Rear Wheel Arch Along Line
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Roughly cut rear wheel arch along line (2).

Remove wheel arch section.

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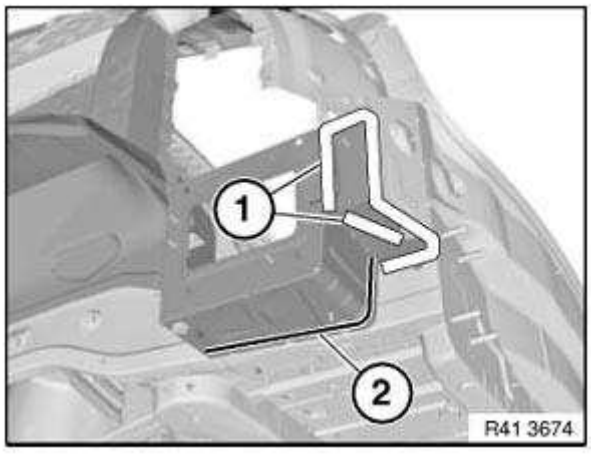


Fig. 102: Identifying Weld Joints Area And Cut Rear Wheel Arch Along Line
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

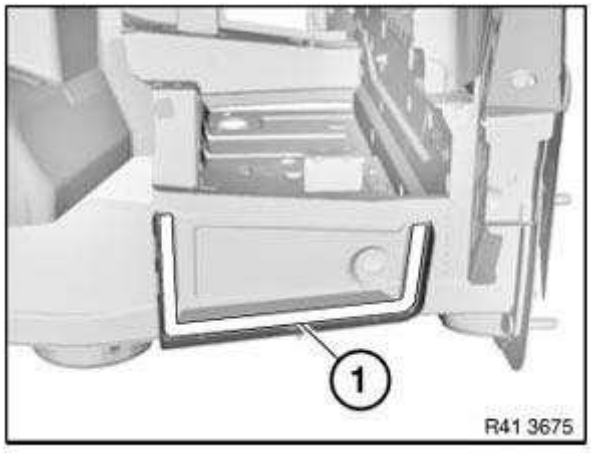


Fig. 103: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

View from vehicle interior:

Open weld joints in area (1).

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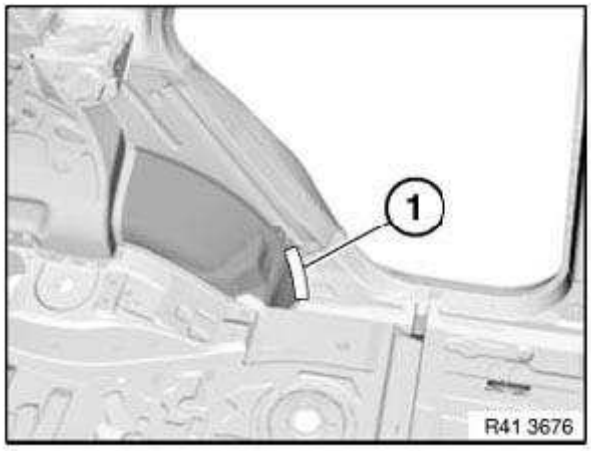


Fig. 104: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Roughly cut mounting for inertia reel unit along line (1).

Open weld joints in area (2).

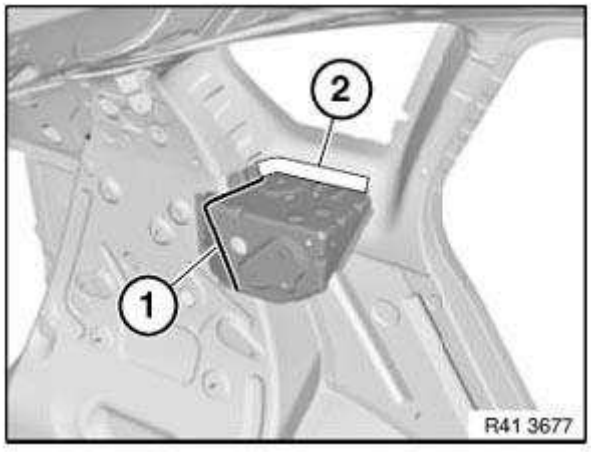


Fig. 105: Identifying Weld Joints Area (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

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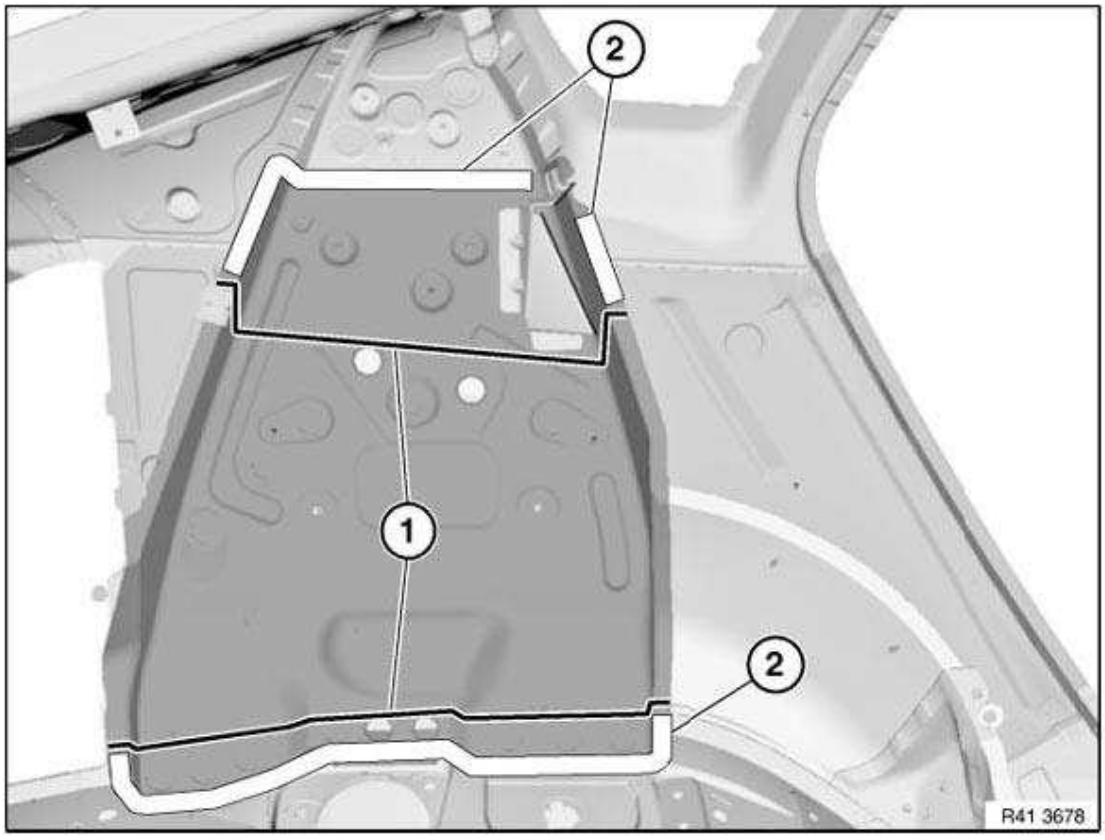


Fig. 106: Identifying Weld Joints Area (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Roughly cut C-pillar reinforcement along lines (1).

Open weld joints in areas (2).

Remove sheet sections.

Roughly cut wheel arch along line (1).

Open weld joints in area (2).

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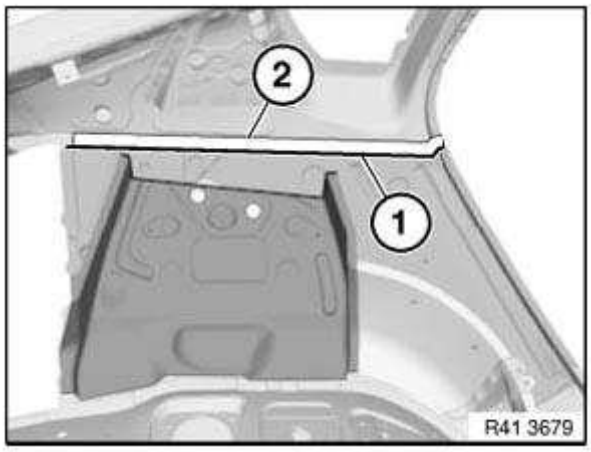


Fig. 107: Identifying Weld Joints Area And Cut Wheel Arch Along Line
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut (1) in accordance with measurement and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 70 mm from roof edge.

Open welding spot joints in areas (2).

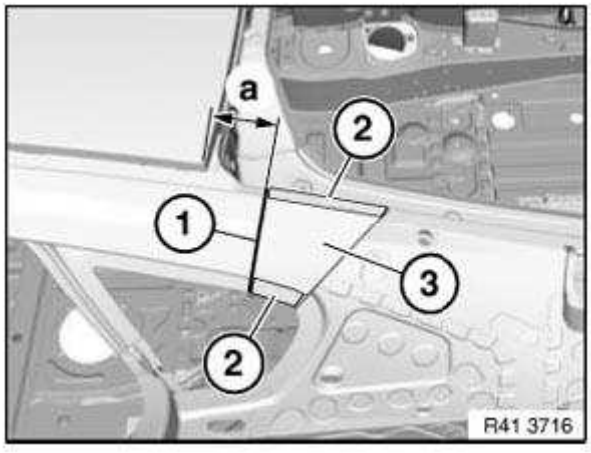


Fig. 108: Identifying Cut Mark Area And Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Remove metal section (3).

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Perform only severance cut (1) on new part.

Roughly mark severance cuts (1) and cut.

Open weld joints in areas (2).

Remove sheet section.

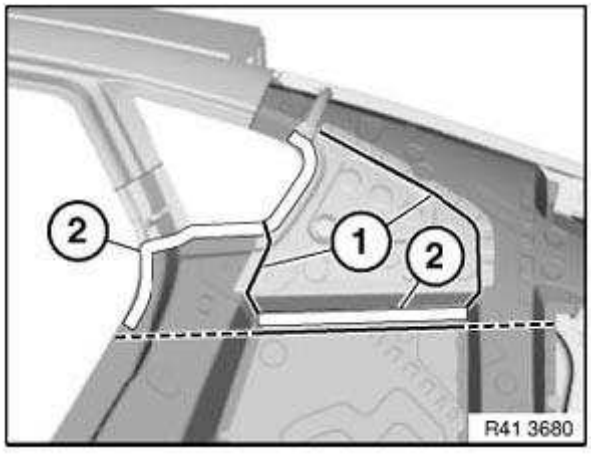


Fig. 109: Identifying Weld Joints Area, Mark Severance Cuts And Metal Section
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Installation:

Replace **cavity acoustic baffle** (2), see **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

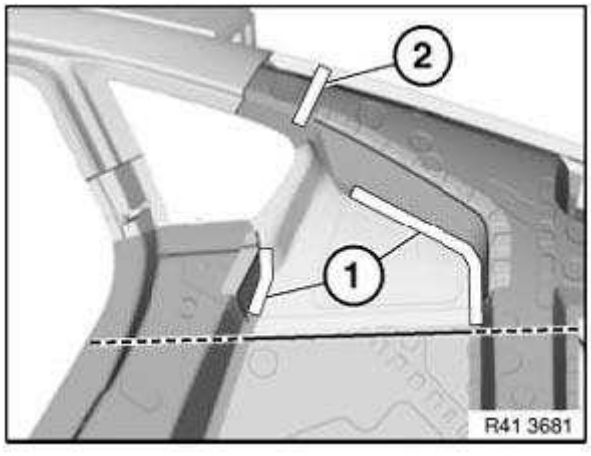


Fig. 110: Identifying Weld Joints Area And Cavity Acoustic Baffle
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

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Roughly mark severance cuts (2) and cut.

Remove sheet sections.

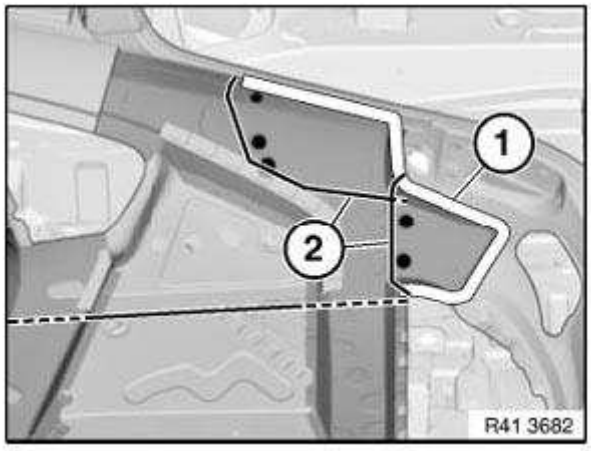


Fig. 111: Identifying Weld Joints Area And Mark Severance Cuts (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

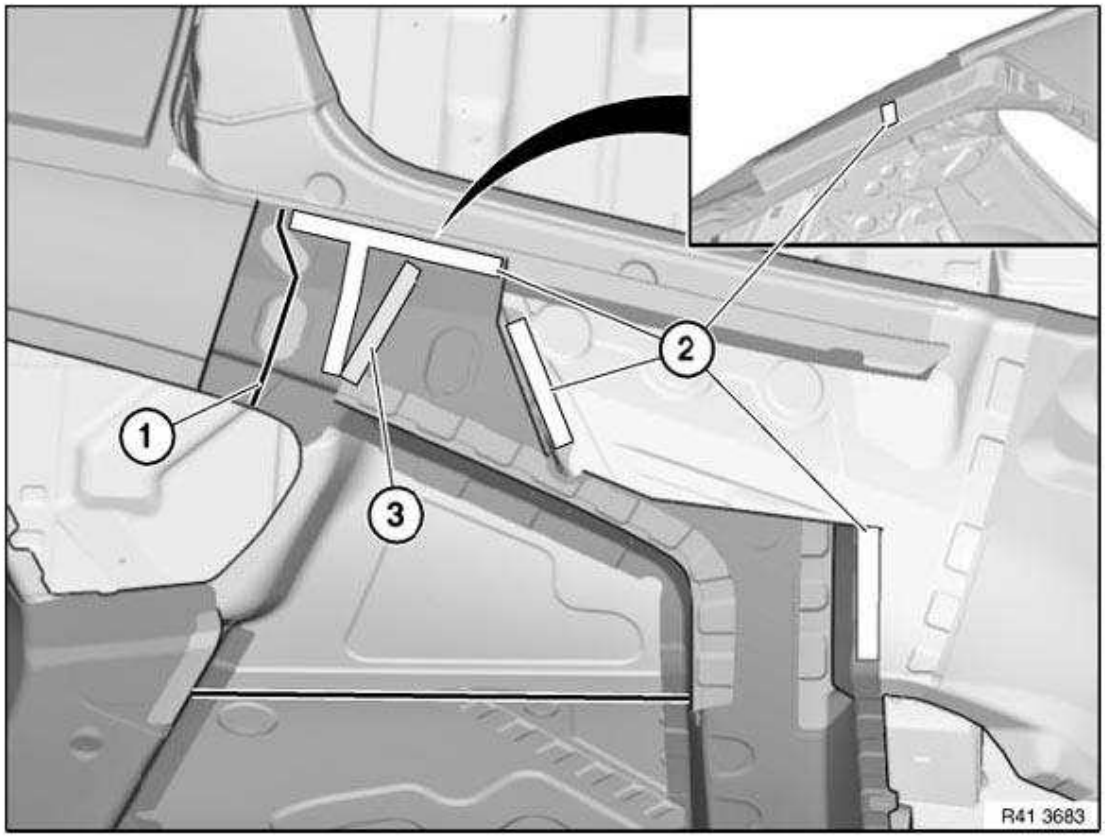


Fig. 112: Identifying Weld Joints Area And Mark Severance Cuts (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

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Roughly cut D-pillar reinforcement along line (1).

Open weld joints in areas (2).

Remove remaining parts of wheel arch.

Installation:

Apply window glass adhesive to **cavity acoustic baffle** (3), see **41 00 ... Installing a cavity acoustic baffle (expanded)**.

Preparation of new part:

Mark new part (rear wheel arch outer half) in accordance with severance cut on vehicle + 20 mm extra material and cut (1).

Weld new part in area (2) overlapping.

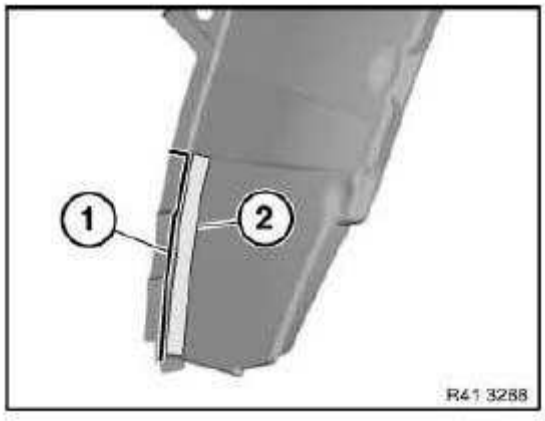


Fig. 113: Identifying Cut Mark Area And Weld New Part Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Open weld joints in area (1) and remove bulkhead plate.

Mark severance cut (2) in accordance with body and cut.

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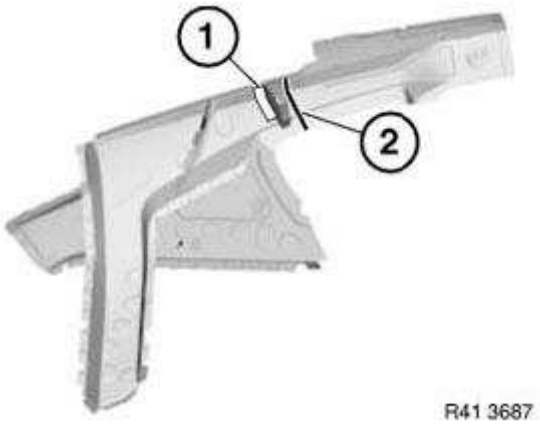


Fig. 114: Identifying Cut Mark Area And Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new components in areas (1) additionally.

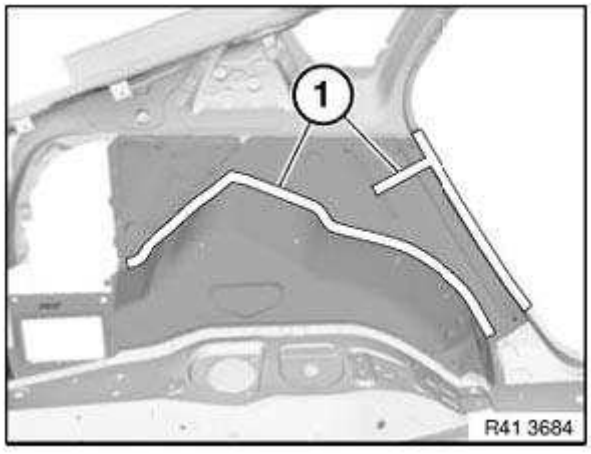


Fig. 115: Identifying Weld New Components Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new components in areas (1) additionally.

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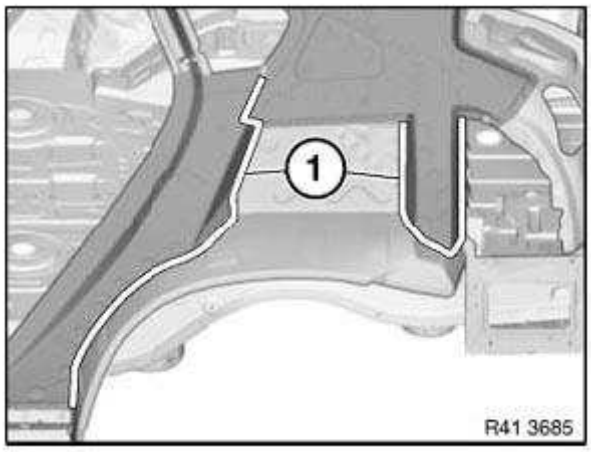


Fig. 116: Identifying Weld New Components Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Weld new components in areas (1) additionally.
- Adjust new components in conjunction with side panel to fit with straightening attachment or universal mount.

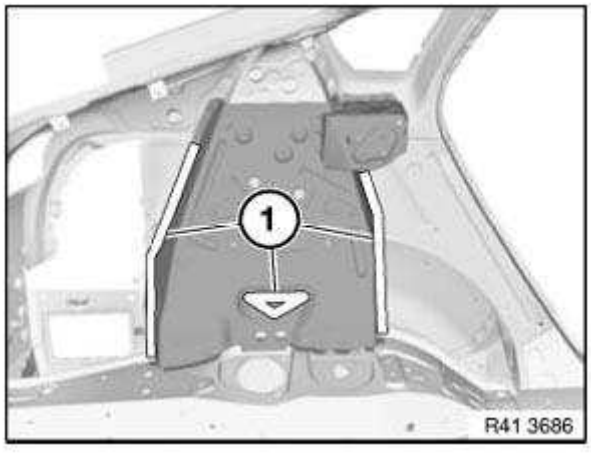


Fig. 117: Identifying Weld New Components Areas
Courtesy of BMW OF NORTH AMERICA, INC.

SIDE FRAME AND DOOR PILLAR

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 this vehicle. Observe specific **procedure** , see **41 00... Opening adhesive bonds** and **41 00 ... Spot-weld bonding steel parts**.

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Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Use only approved **spot-welding apparatus** for repairs**WORKSHOP EQUIPMENT**!

Place vehicle on straightening bench.

Following new body parts are required:

- (1) A-pillar, outer
- (2) Support carrier, wheel arch, outer
- (3) Shaped parts (not pictured)

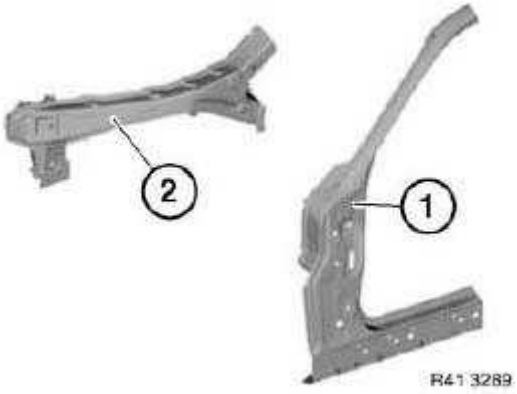


Fig. 118: Identifying A-Pillar And Support Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

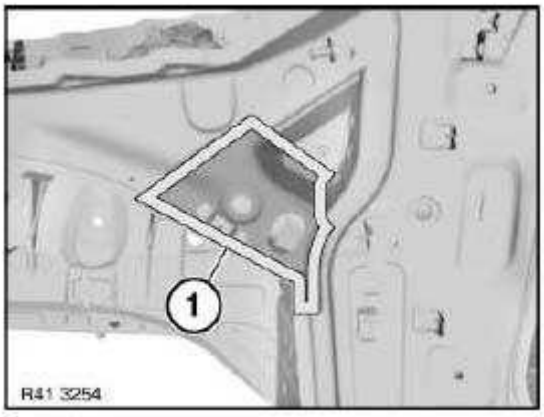


Fig. 119: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cut in accordance with measurement a and cut support carrier.

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Measurement a = approx. 50 mm in front of bore dia. 20 mm.

Open weld joints in area (1).

Installation:

Weld in **reinforcement plate** at severance cut, see **41 00 ... Welding in reinforcement plate (steel plate)**.

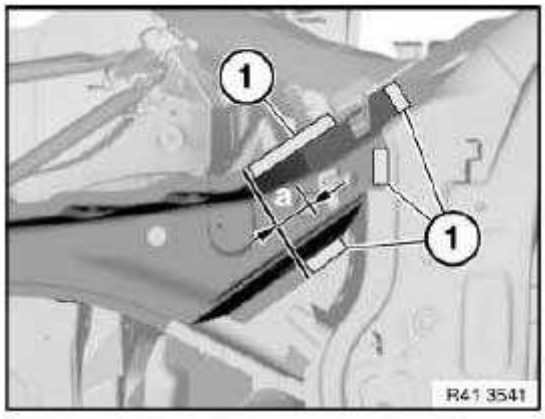
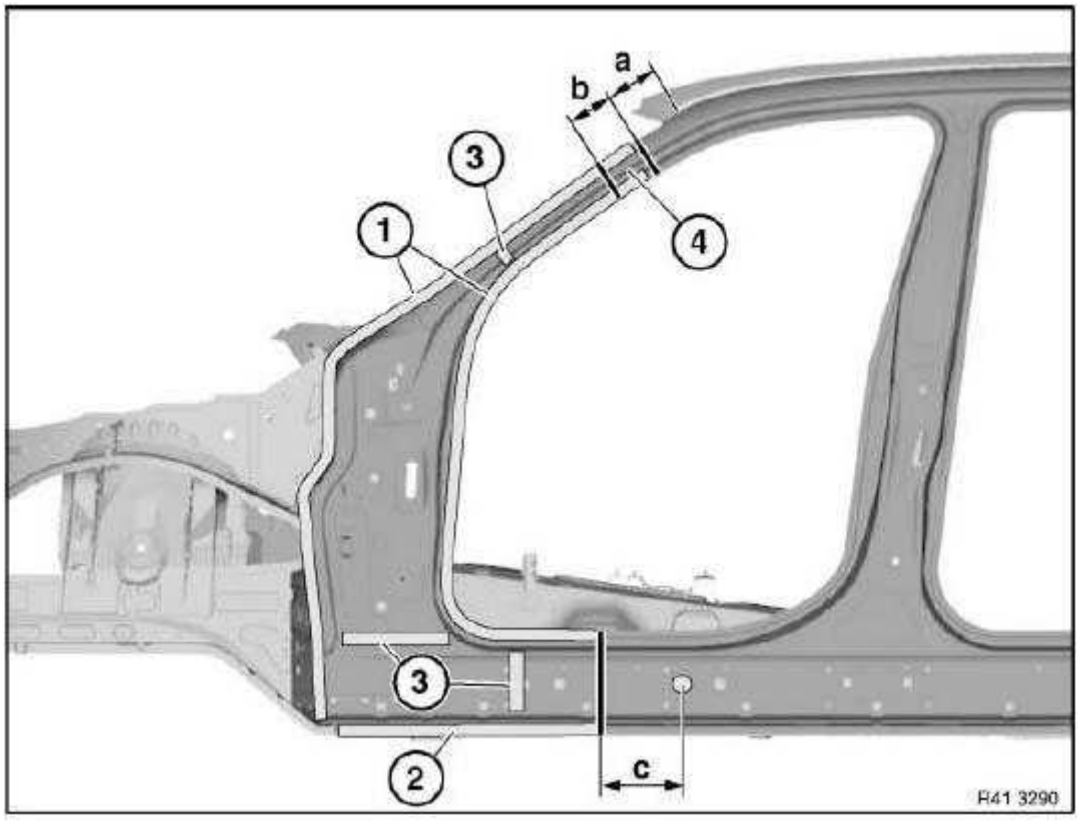


Fig. 120: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.



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Fig. 121: Identifying Cut Mark Area And Weld Joints Area
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 = 160 mm from roof edge.

Measurement b = 80 mm below severance cut a.

Measurement c = approx. 150 mm before hole dia. 25 mm.

Open weld joints in areas (1) and (2).

Installation:

Sheet panel (4) is needed again to seal cowl.

Apply window glass adhesive to **cavity acoustic baffles** (3), see **41 00 ... Installing a cavity acoustic baffle (expanded)** and **41 00 ... Installing a cavity acoustic baffle (not expanded)**.

Bond and rivet new part in area (2), see **41 00 ... Bonding steel on steel**.

Use Hemlock 813 blind rivet (sourcing reference: BMW Parts Service picture board - Aluminum and steel/bonding and welding).

Double number of rivets with respect to welding spots in area (2).

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. 200 mm from roof edge.

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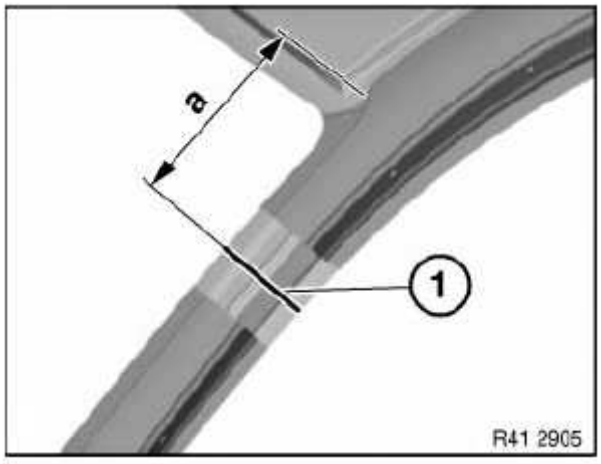


Fig. 122: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open adhesive bonds in areas (1).

Open weld joints in areas (2).

Feed out water drain hose for sliding sunroof (3).

Installation:

Do not weld new part in areas (2).

Make sure water drain hose is correctly seated.

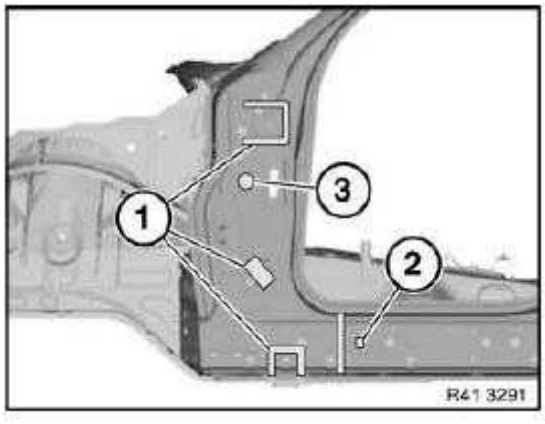


Fig. 123: Identifying Weld Joints Area And Adhesive Bonds Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

Mark new part in accordance with severance cuts above and cut.

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Installation:

Adjust new part to fit with straightening attachment or universal mount.

Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.

Apply **adhesive** in areas (1).

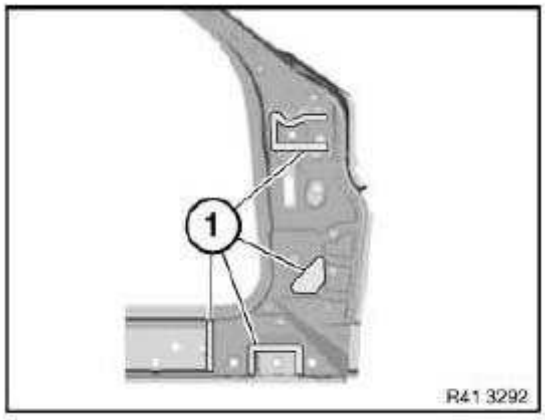


Fig. 124: Identifying Adhesive Areas
Courtesy of BMW OF NORTH AMERICA, INC.

ROOF OUTER SKIN

41 31 010 REPLACING ROOF OUTER SKIN (VERSION WITH SLIDE/TILT SUNROOF)

Read contents of **Body, General 41 0 Contents of Body, General**.

Use only approved **spot-welding apparatus** for repairs. See **WORKSHOP EQUIPMENT**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Following new body parts are required:

- (1) Roof outer skin, slide/tilt sunroof

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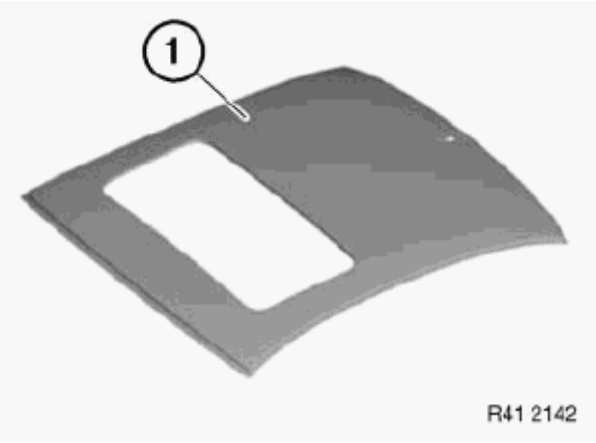


Fig. 125: Identifying Roof Outer Skin, Slide/Tilt Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open brazed joints in areas (1).

Open weld joints in areas (2).

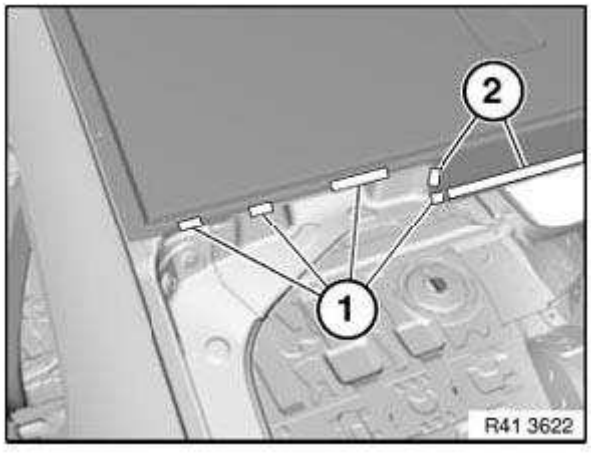


Fig. 126: Identifying Weld Joints Area And Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

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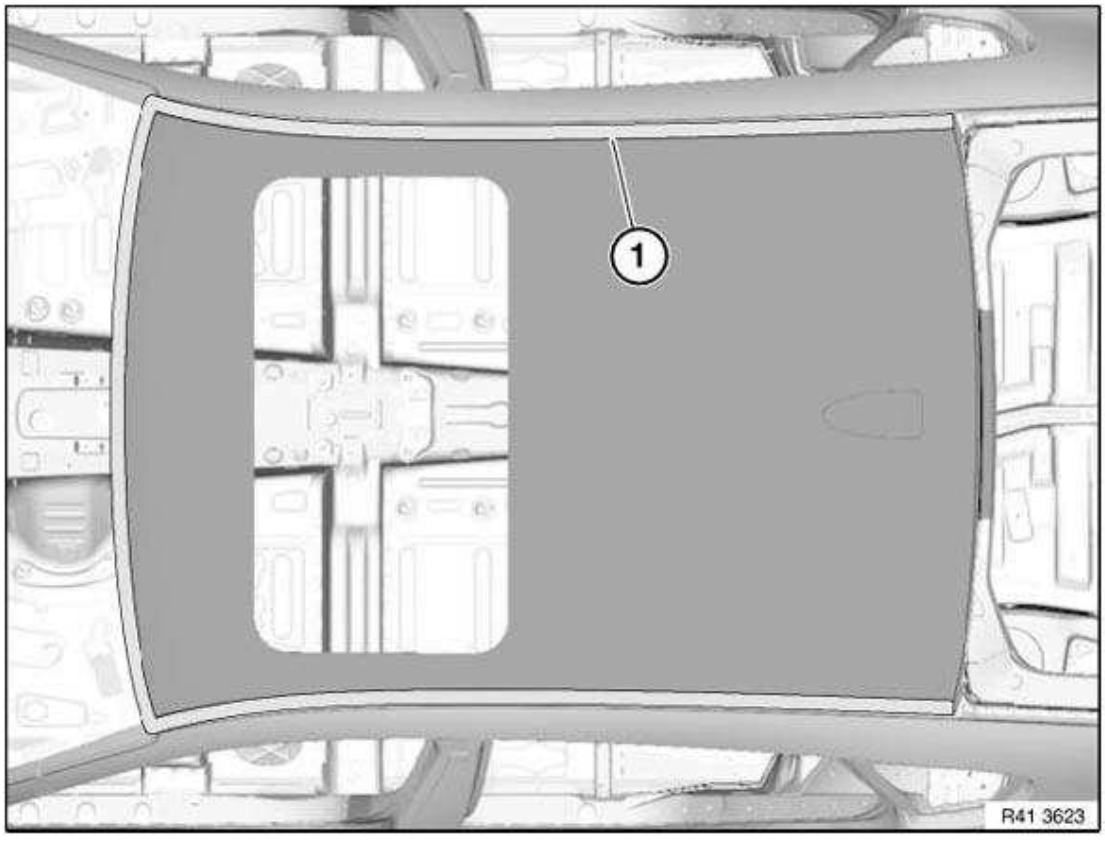


Fig. 127: Identifying Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Release **adhesive areas** (layout, see next work steps) and remove roof outer skin.

Installation:

Fit new part on body. Fit windscreen for positioning.

Seal weld seams with sealing compound.

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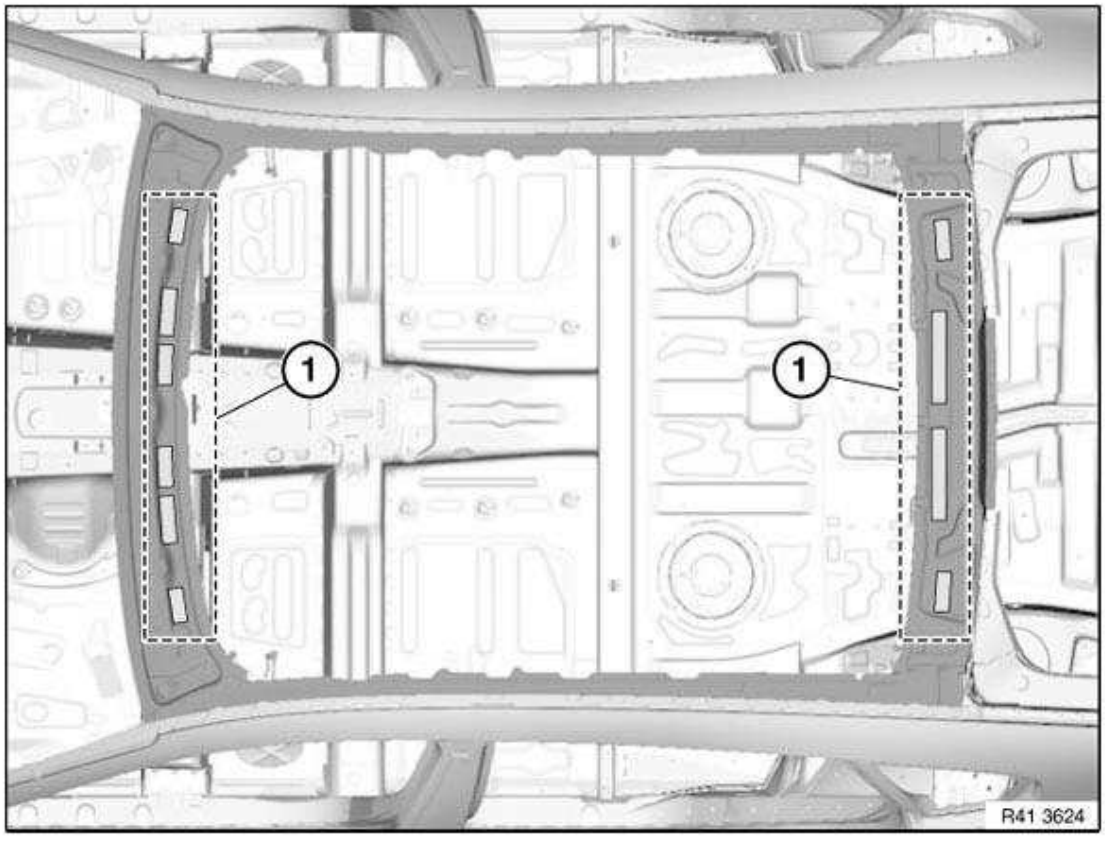


Fig. 128: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Apply sealing compound in areas (1).

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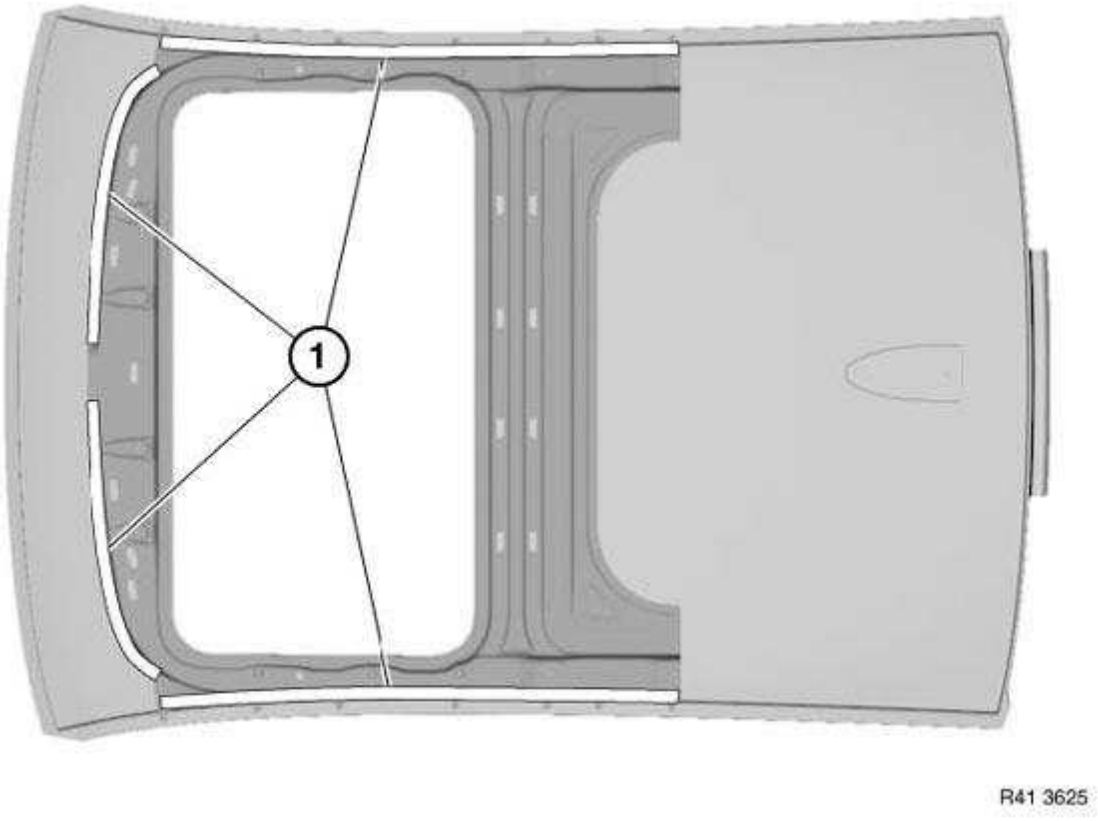


Fig. 129: Identifying Sealing Compound Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Apply **adhesive** in areas (1).

REAR TRIM PANEL

41 34 038 REPLACING OUTER TAIL PANEL SECTION

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Following new body parts are required:

- (1) Rear trim

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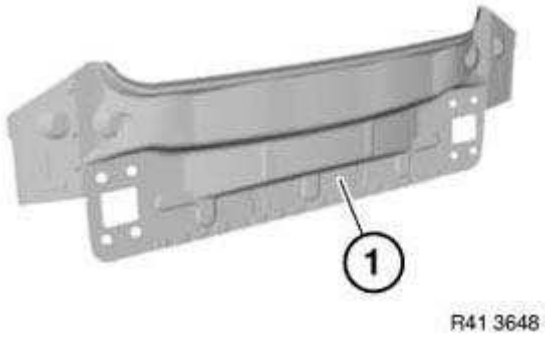


Fig. 130: Identifying Rear Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints (1).

Open brazed joints (2).

Open spot weld bonding joints (3).

Remove rear trim.

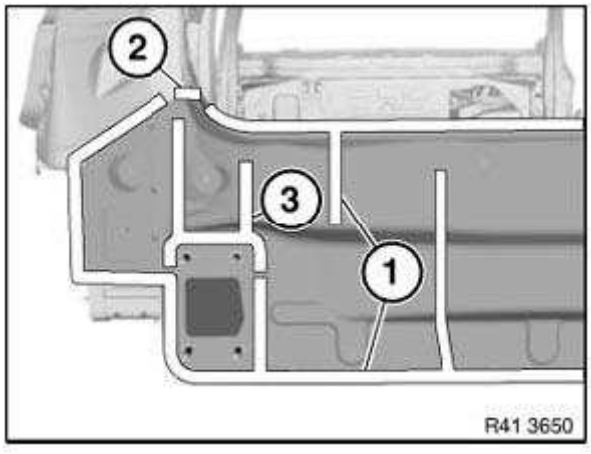


Fig. 131: Identifying Weld Joints Area And Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

41 34 060 REPLACING OUTER AND INNER TAIL PANEL SECTIONS

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

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Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Following new body parts are required:

- (1) Rear trim
- (2) Rear trim, inner

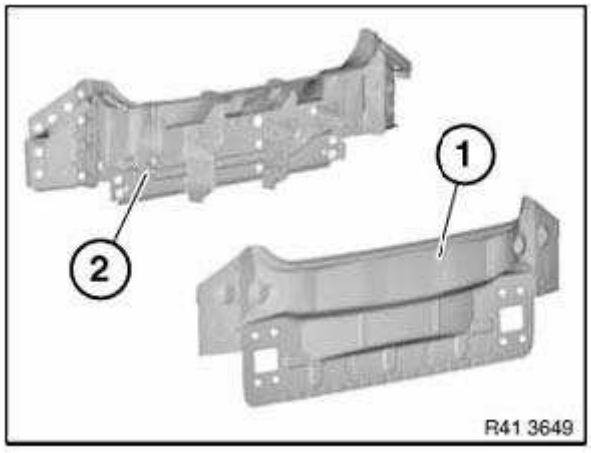


Fig. 132: Identifying Rear Trim And Rear Trim, Inner
Courtesy of BMW OF NORTH AMERICA, INC.

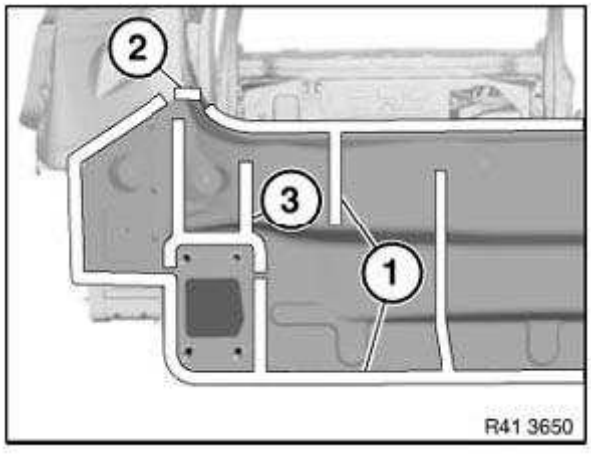
Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints (1).

Open brazed joints (2).

Open spot weld bonding joints (3).

Remove rear trim.



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Fig. 133: Identifying Weld Joints Area And Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints (1).

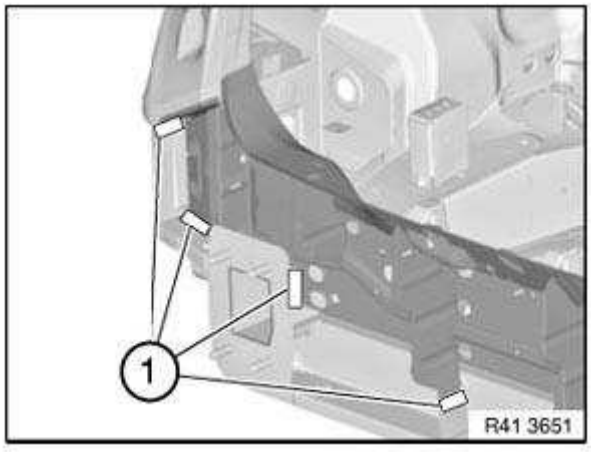


Fig. 134: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Open weld joints (1).

Remove inner rear trim.

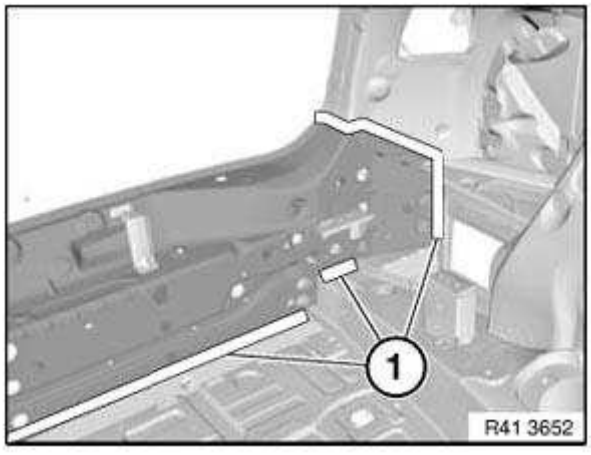


Fig. 135: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Insert inner rear trim (1) at an angle and bring into position.

Adjust rear lid to fit before welding new parts.

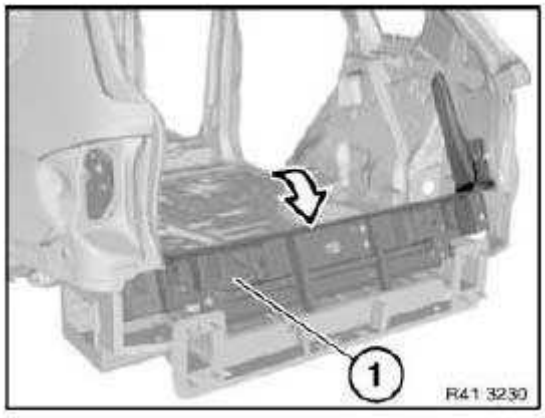


Fig. 136: Identifying Inner Rear Trim
Courtesy of BMW OF NORTH AMERICA, INC.

SIDE PANELS

41 35 010 REMOVING AND INSTALLING/REPLACING SIDE PANEL, FRONT LEFT OR RIGHT

Observe **gap dimensions**

CAUTION: Do not damage adjoining body parts.

Necessary preliminary tasks:

- Remove **front bumper trim** . See **51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM** .
- Remove **wheel arch cover at front** . See **51 71 038 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT WHEEL ARCH COVER (FRONT SECTION)** .
- Remove **trim for cover on side member** . See **51 71 447 REMOVING AND INSTALLING OR REPLACING PANEL FOR COVER ON LEFT OR RIGHT SIDE MEMBER** .
- Remove **trim on wheel arch** . See **51 71 470 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT LEFT OR RIGHT WHEEL ARCH** .
- Remove **gutter strip** . See **51 31 023 REMOVING AND INSTALLING LEFT OR RIGHT GUTTER STRIP ALONG WINDSCREEN** .
- Remove **auxiliary direction indicator** . See **63 13 200 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT AUXILIARY DIRECTION INDICATOR** .
- Release **high-pressure nozzle** for headlight washer system from side panel. See **61 67 100 REMOVING**

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AND INSTALLING/REPLACING HIGH-PRESSURE NOZZLE OF HEADLIGHT WASHER SYSTEM ON LEFT (OR RIGHT) .

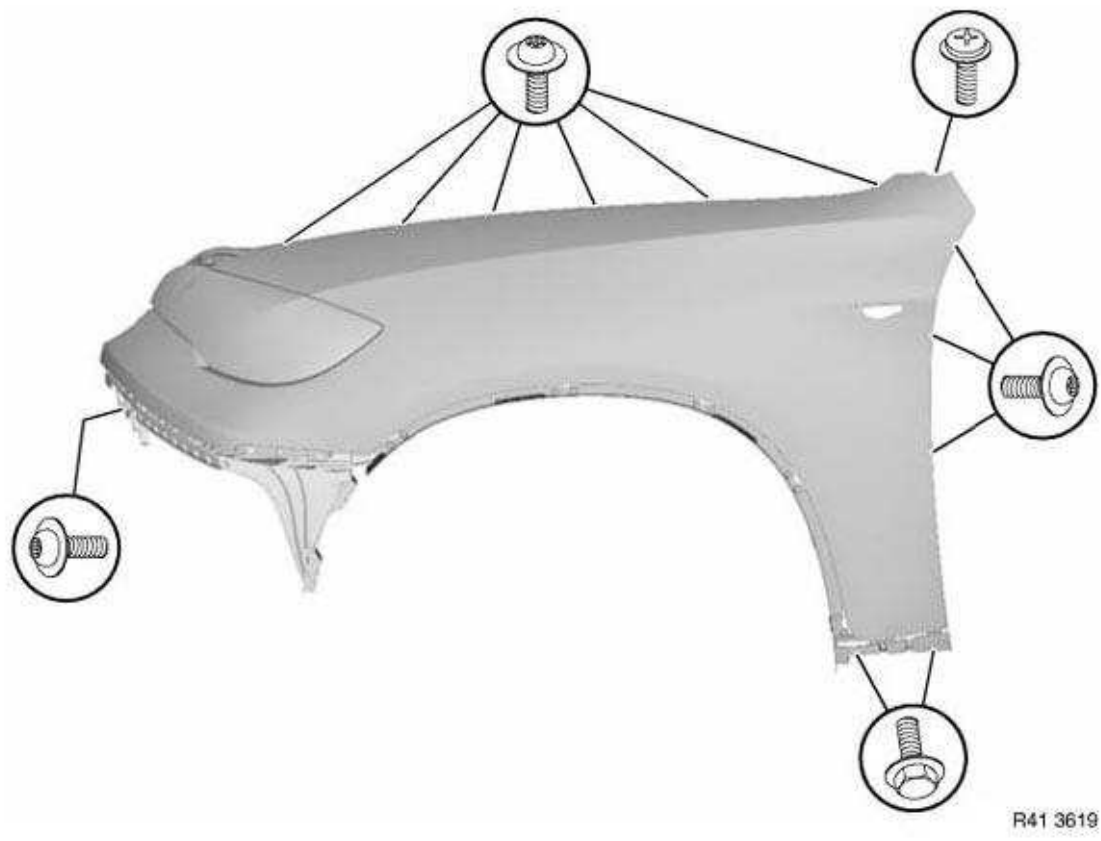


Fig. 137: Identifying Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

NOTE: Side panel and headlight are removed together.

Tightening torque **41 35 6AZ** , see **41 35 SIDE PANELS**

Tightening torque **41 35 7AZ** , see **41 35 SIDE PANELS** .

Tightening torque **41 35 8AZ** , see **41 35 SIDE PANELS** .

Tightening torque **41 35 9AZ** , see **41 35 SIDE PANELS** .

Release screw (1).

Tightening torque **41 35 6AZ** , see **41 35 SIDE PANELS** .

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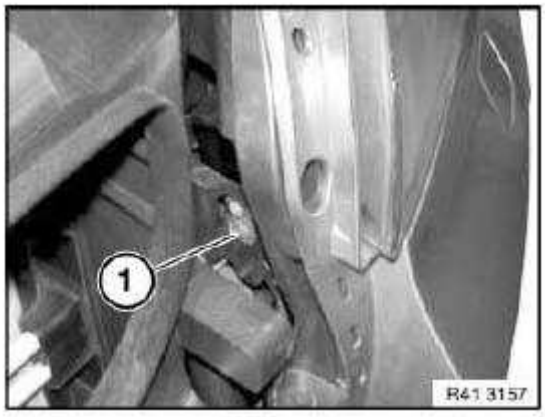


Fig. 138: Identifying Screw
Courtesy of BMW OF NORTH AMERICA, INC.

View of wheel arch from below:

Unlock plug (1) for headlight (2) and disconnect.

Release screws (3).

Tightening torque **41 35 6AZ** , see **41 35 SIDE PANELS** .

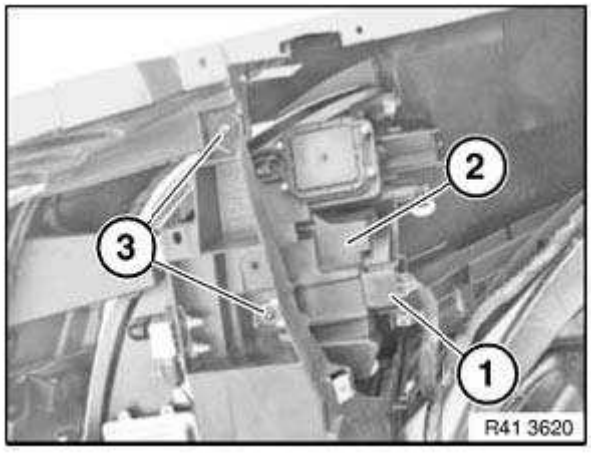


Fig. 139: Identifying Plug, Headlight And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out retainer (1) in direction of arrow.

Take off side panel.

NOTE: When the headlight is fitted, the side panel's center of gravity is very far forward!

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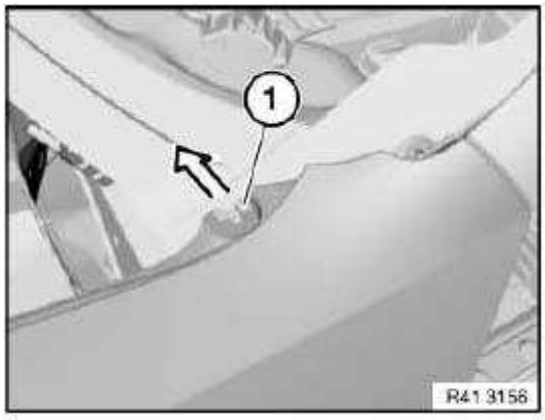


Fig. 140: Pulling Out Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts must not be damaged or missing:

- Spacer buffers (1)

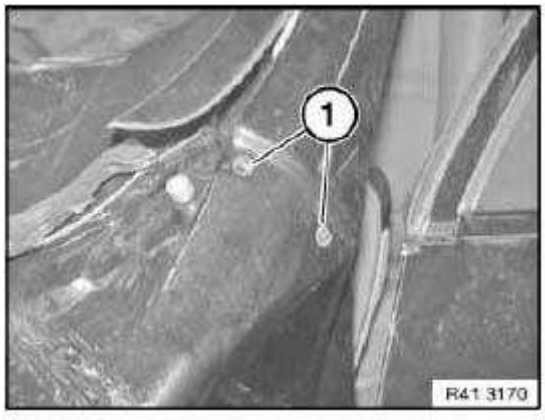


Fig. 141: Identifying Spacer Buffers
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove **headlight.** See **HEADLIGHTS** .

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**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

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Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Following new body parts are required:

- (1) Side frame, rear
- (2) Shaped part, D-pillar, outer (not shown)
- (3) Shaped part, C-pillar (not shown)
- (4) Shaped part, entrance, outer (not shown)

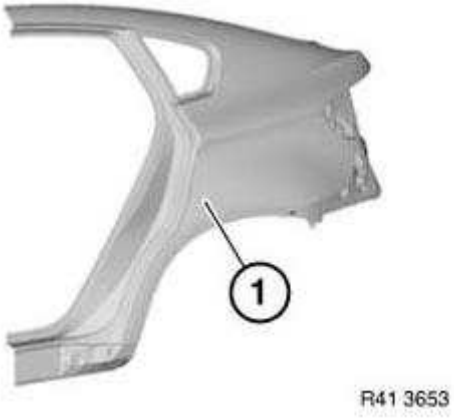


Fig. 142: Identifying Side Frame, Rear
Courtesy of BMW OF NORTH AMERICA, INC.

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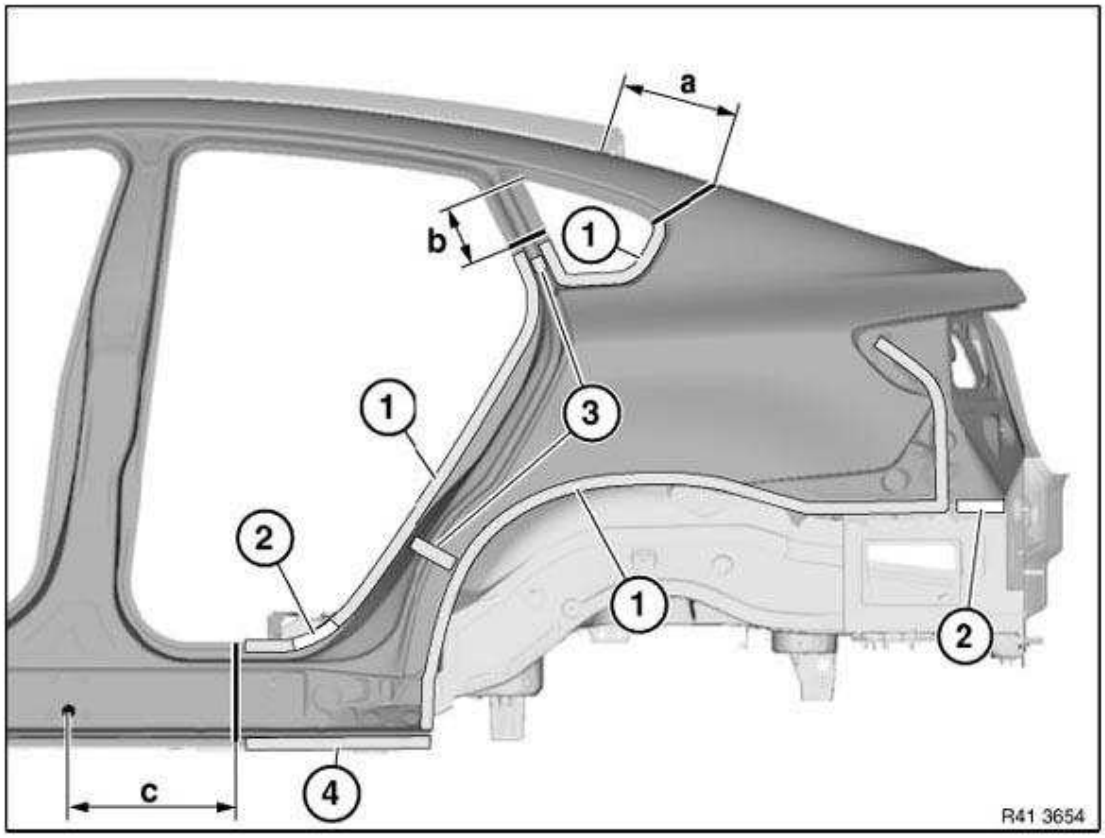


Fig. 143: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 260 mm from roof edge

Measurement b = approx. 130 mm

Measurement c = approx. 320 mm from centrepoint of hole dia. 20 mm

Open weld joints in areas (1).

Open spot-weld bonded joints in area (4)

Open adhesive bonds in areas (2).

Installation information:

- Apply window glass adhesive to **cavity acoustic baffles** (3).
- Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel**

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plate).

- **Bond** and rivet new part in area (4), see **41 00 ... Bonding steel on steel**.

Use Hemlock 813 blind rivet (sourcing reference: BMW Parts Service picture board - Aluminum and steel/bonding and welding).

Double number of rivets with respect to welding spots in area (4).

Open adhesive joints in areas (1) and (2).

Open weld joint in area (1).

Installation information:

Welding spot is omitted from area (1).

Apply window glass adhesive to **cavity acoustic baffle** (3).

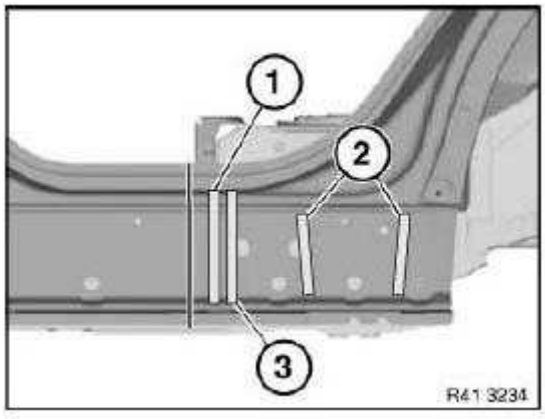


Fig. 144: Identifying Weld Joints Area And Cavity Acoustic Baffle
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Open brazed joints in areas (2).

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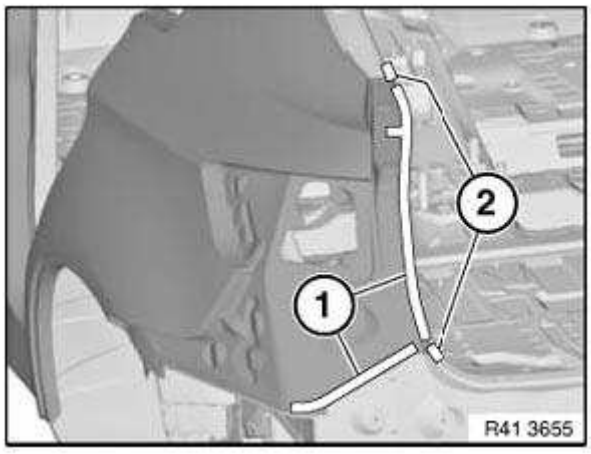


Fig. 145: Identifying Weld Joints Area And Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Take off side panel.

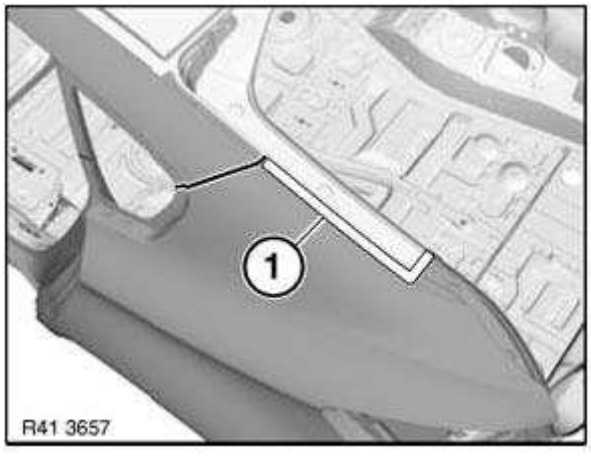


Fig. 146: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Braze new part in areas (1).

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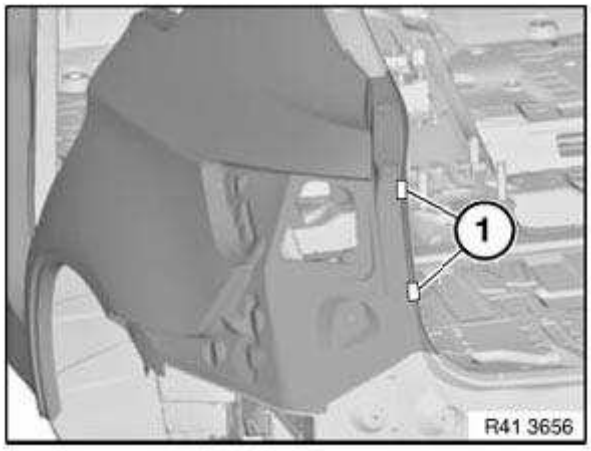


Fig. 147: Identifying New Part Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Apply **adhesive** in areas (1).

Installation:

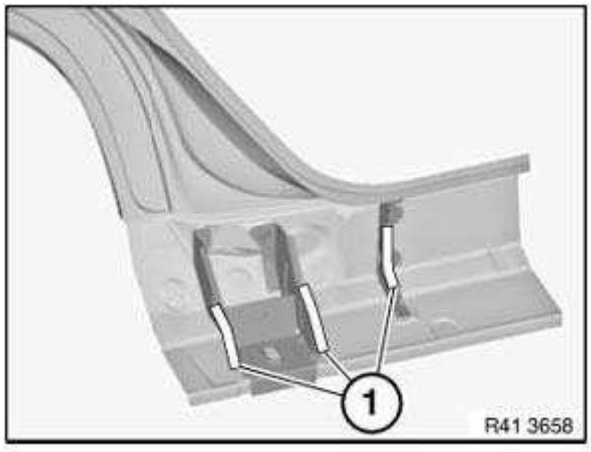


Fig. 148: Identifying Adhesive Areas (1 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

Apply **adhesive** in area (1).

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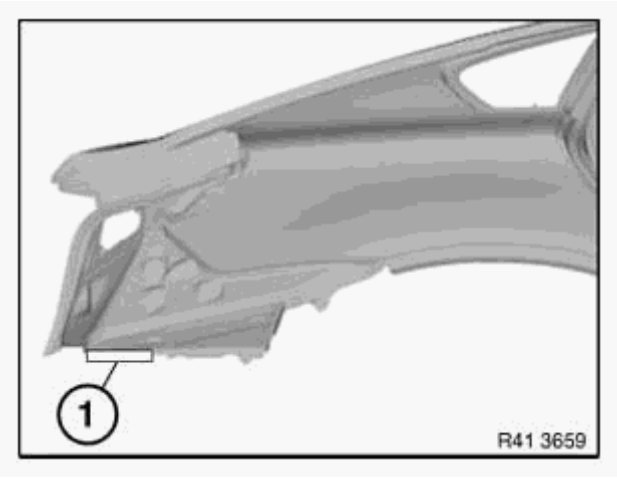


Fig. 149: Identifying Adhesive Areas (2 Of 2)
Courtesy of BMW OF NORTH AMERICA, INC.

41 35 102 REPLACING REAR LEFT SIDE PANEL (PARTIAL REPLACEMENT BEFORE LONGITUDINAL MEMBER COVER)

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Following new body parts are required:

- (1) Partial section, rear side panel
- (2) Shaped part, C-pillar (not shown)

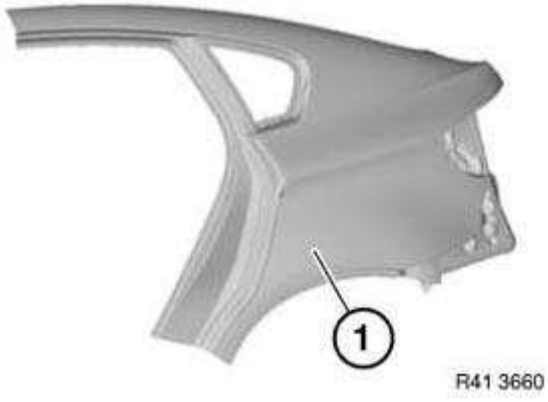


Fig. 150: Identifying Partial Section, Rear Side Panel
Courtesy of BMW OF NORTH AMERICA, INC.

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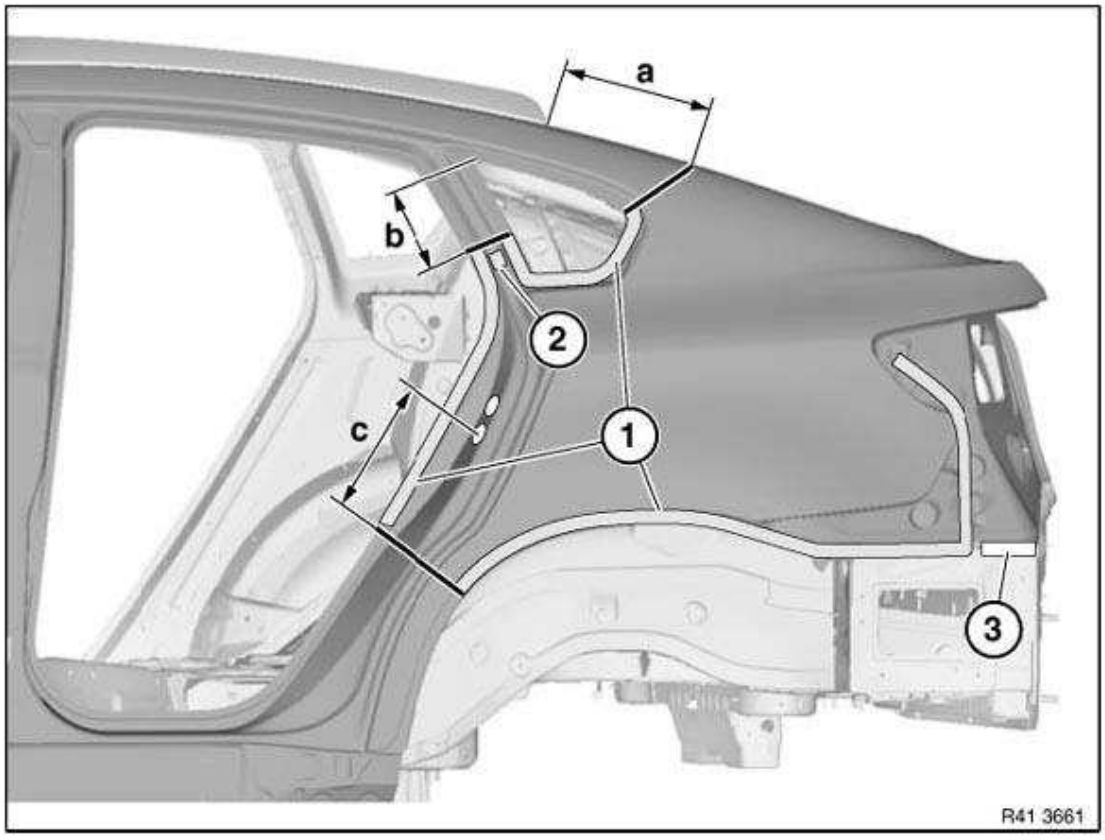


Fig. 151: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 260 mm from roof edge

Measurement b = 130 mm

Measurement c = approx. 190 mm from middle of lower lock striker screw point

Open weld joints in areas (1).

Open adhesive bond in area (3).

Installation information:

- Apply window glass adhesive to **cavity acoustic baffle** (2).
- Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.

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Open weld joints in areas (1).

Open brazed joints in areas (2).

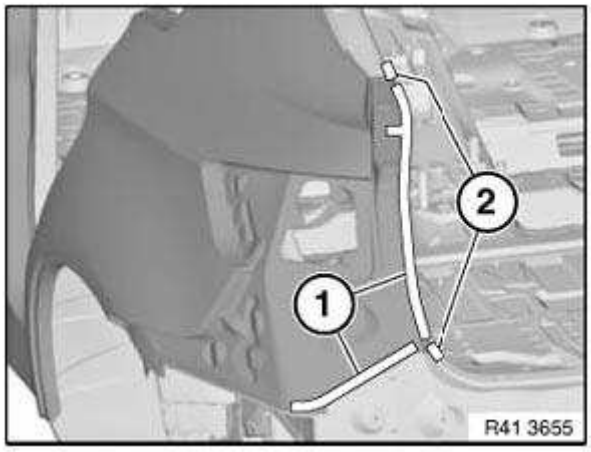


Fig. 152: Identifying Weld Joints Area & Brazed Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Take off side panel.

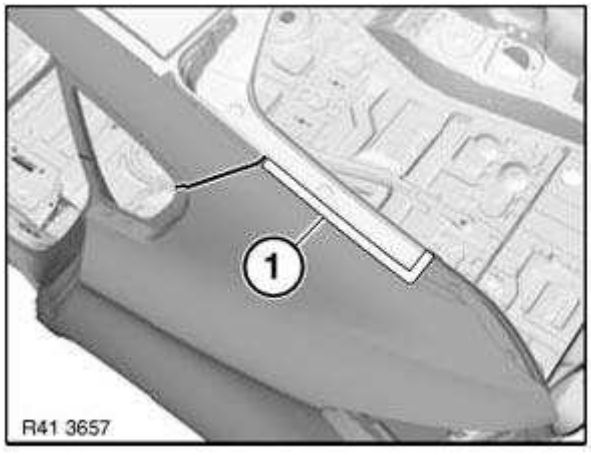


Fig. 153: Identifying Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Braze new part in areas (1).

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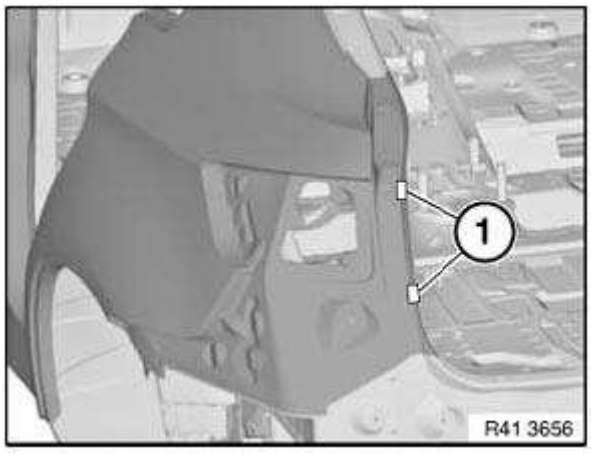


Fig. 154: Identifying New Part Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Apply **adhesive** in area (1).

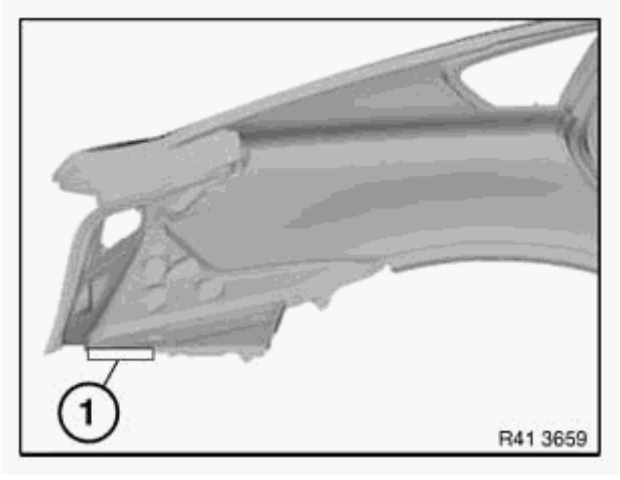


Fig. 155: Identifying Adhesive Area
Courtesy of BMW OF NORTH AMERICA, INC.

41 35 401 REPLACING REAR LEFT SIDE PANEL (PARTIAL REPLACEMENT, DOOR OPENING)

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Spot-weld bonding is used on this vehicle. Observe specific **procedure** .

Use only approved **spot-welding apparatus** for repairs, see **WORKSHOP EQUIPMENT**!

Remove or cover those vehicle components in the repair area which are susceptible to heat or dust.

Following new body parts are required:

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- (1) Side frame, rear
- (2) Shaped part, entrance, outer (not shown)

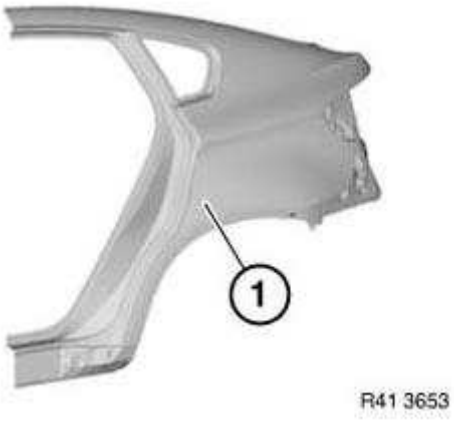


Fig. 156: Identifying Side Frame, Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 190 mm from middle of lower lock striker screw point.

Measurement b = approx. 320 mm from centrepoint of hole dia. 20 mm

Open weld joints in areas (1).

Open spot-weld bonded joints in area (3)

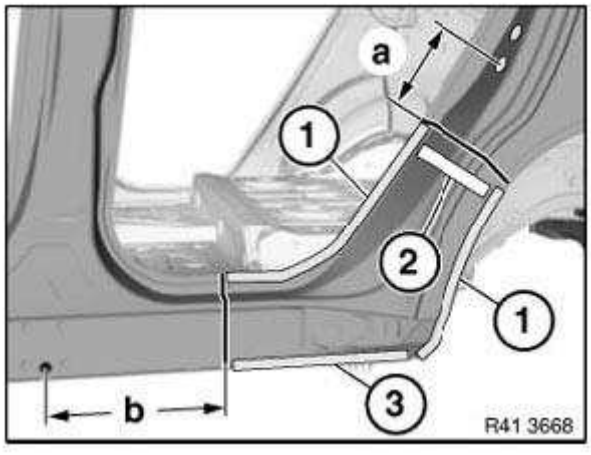


Fig. 157: Identifying Cut Mark Area
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation information:

- Apply window glass adhesive to **cavity acoustic baffle** (2).
- Weld in **reinforcing panels** at all severance cuts, see **41 00 ... Welding in reinforcement plate (steel plate)**.
- **Bond** and rivet new part in area (3), see **41 00 ... Bonding steel on steel**.

Use Hemlock 813 blind rivet (sourcing reference: BMW Parts Service picture board - Aluminum and steel/bonding and welding).

Double number of rivets with respect to welding spots in area (3).

Open adhesive joints in areas (1) and (2).

Open weld joint in area (1).

Installation information:

Welding spot is omitted from area (1).

Glue new part in areas (1) and (2).

Apply window glass adhesive to **cavity acoustic baffle** (3).

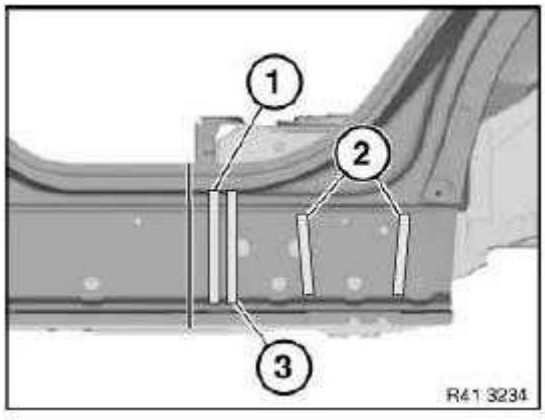


Fig. 158: Identifying Cavity Acoustic Baffle & Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Apply **adhesive** in areas (1).

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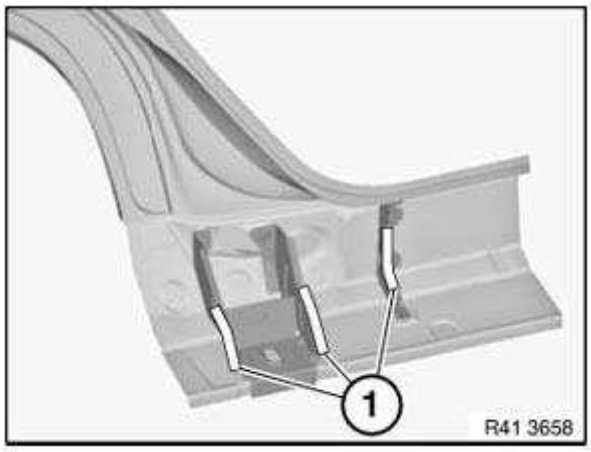


Fig. 159: Identifying Adhesive Areas
Courtesy of BMW OF NORTH AMERICA, INC.

41 35 575 REMOVING AND INSTALLING/REPLACING FRONT LEFT SIDE PANEL MODULE CARRIER

Necessary preliminary tasks:

- Remove **front side panel**
- Remove **airbag sensor** . See **65 77 532 REMOVING AND INSTALLING/REPLACING FRONT LEFT SENSOR (ACCELERATION SENSOR)** .

Release screws (1).

Tightening torque **41 35 10AZ** , see **41 35 SIDE PANELS** .

Slacken nut (2).

Tightening torque **41 35 11AZ** , see **41 35 SIDE PANELS** .

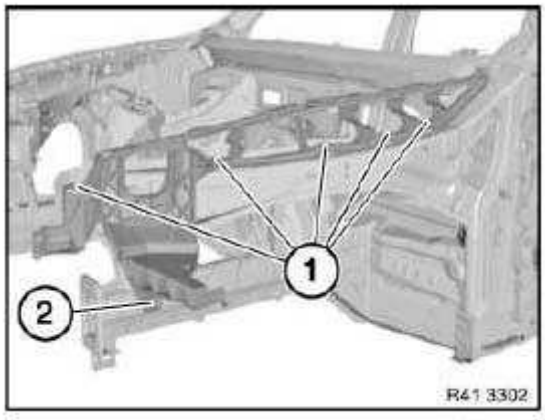


Fig. 160: Release Screw (1) & Slacken Nut (2)

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Courtesy of BMW OF NORTH AMERICA, INC.

FRONT SIDE DOORS

41 5. ... ADJUSTING DOOR

CAUTION: Do not damage adjoining body parts. Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.

NOTE: Observe gap dimensions. The door must be provided with all attachment parts for correct adjustment. Adjust screwed body parts from rear to front. The following illustrations are schematic representations and are to be applied to the relevant vehicle type.

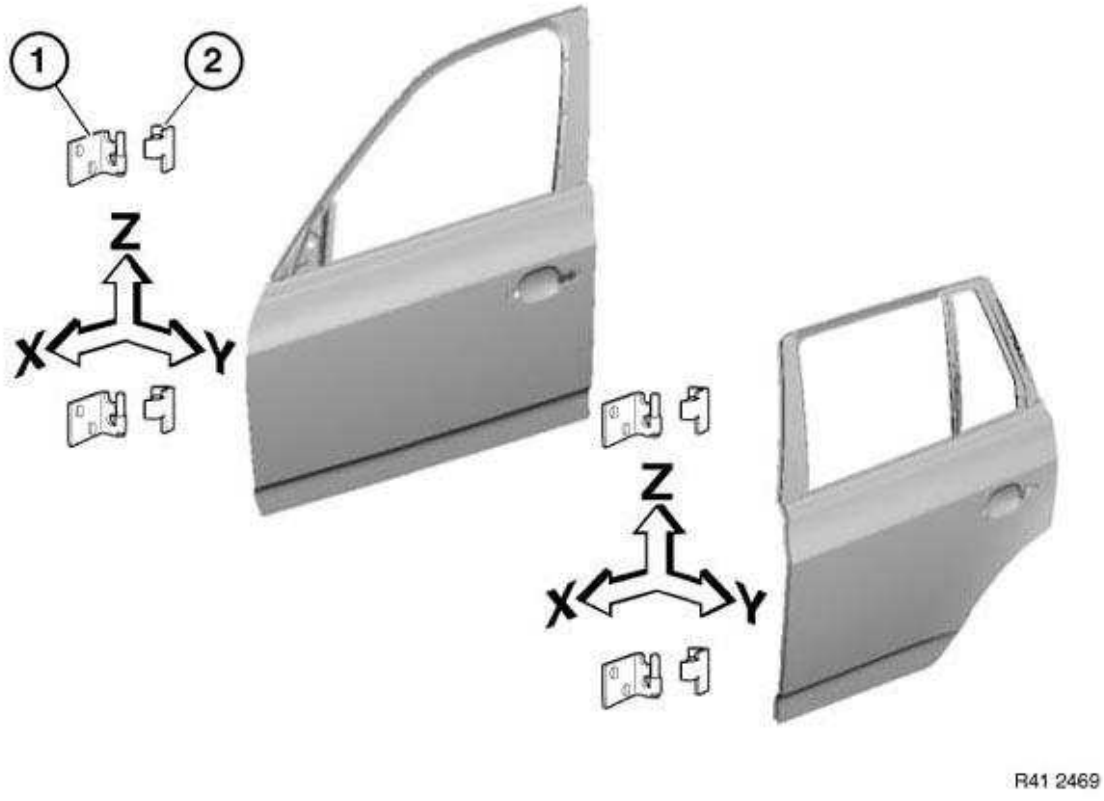


Fig. 161: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken lock striker, remove if necessary.

Slacken screws (2) on door until door can still just be moved.

Tightening torque **41 51 2AZ** , see **41 51 FRONT DOORS** .

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Tightening torque **41 52 2AZ** , see **41 52 REAR SIDE DOORS** .

If adjustment range is not sufficient, slacken screws (1) on body.

NOTE: Rear door screw connection accessible from inside only.

Tightening torque **41 51 3AZ** , see **41 51 FRONT DOORS** .

Tightening torque **41 52 3AZ** , see **41 52 REAR SIDE DOORS** .

Check that adjoining body parts are flush in terms of height and correct if necessary.

NOTE: Vertical adjustment of door must not be influenced by lock striker. When the door is closed, the lock striker must not touch or scrape against the door lock. Look out for scratches.

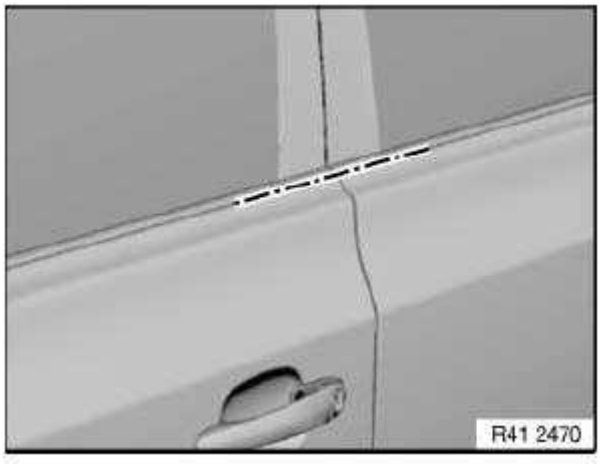


Fig. 162: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten down screws (1) until lock striker can still just be moved.

Move lock striker sideways in order to adjust transition between door and rear side panel.

Tightening torque **51 21 2AZ** , see**51 21 FRONT DOOR LOCKS HANDLES** .

NOTE: 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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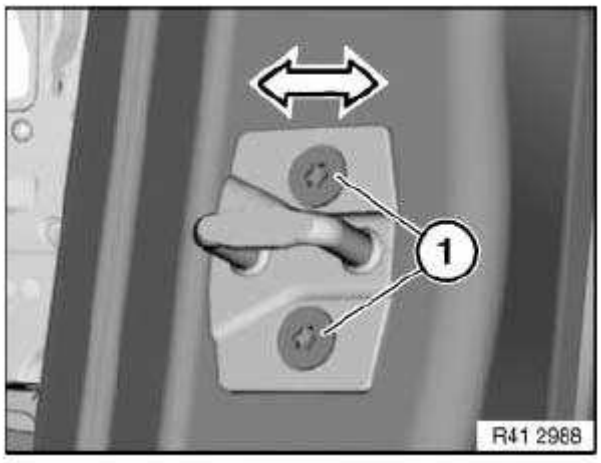


Fig. 163: Tighten Down Screws (1) Until Lock Striker Can Still Just Be Moved
Courtesy of BMW OF NORTH AMERICA, INC.

After installation

- Tighten all screws to specified torque.
- Touch up unpainted surfaces in the appropriate color.
- If necessary, adjust front door.

41 5. ... REMOVING AND INSTALLING DOOR

IMPORTANT: Do not damage adjoining body parts.

The illustrations are schematic representations and are to be applied to the relevant vehicle type.

Open door.

Release screw on connector frame.

Front door:

Tightening torque **41 51 4AZ** , see **41 51 FRONT DOORS** .

Rear door:

Tightening torque **41 52 4AZ** , see **41 52 REAR SIDE DOORS** .

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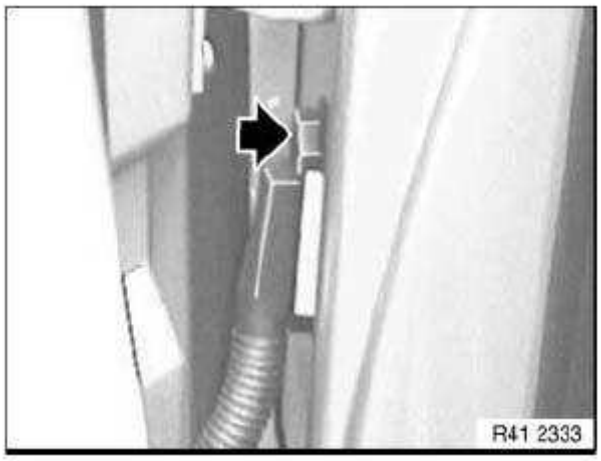


Fig. 164: Locating Screw On Connector Frame
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Secure door against closing.

Release screw (1) on door retainer.

Front door:

Tightening torque **51 21 3AZ** , see**51 21 FRONT DOOR LOCKS HANDLES** ..

Open door up to stop.

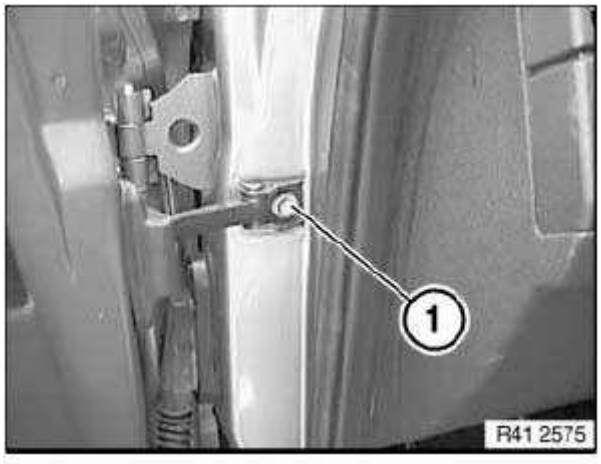


Fig. 165: Identifying Door Retainer Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts between both hinge elements at top and bottom.

Front door:

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Tightening torque **41 51 1AZ** , see **41 51 FRONT DOORS** .

Rear door:

Tightening torque **41 52 1AZ** , see **41 52 REAR SIDE DOORS** .

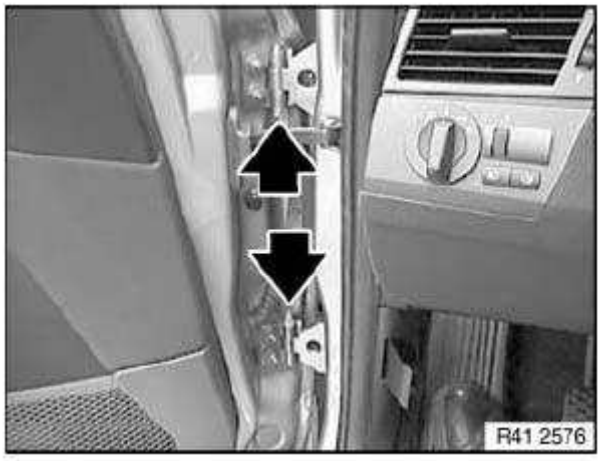


Fig. 166: Identifying Hinge Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Pull plug connection from door pillar, unlock by pulling out bar and detach.

Unhinge door by moving upwards and placing it on a suitable surface.

Installation:

If necessary, adjust door.

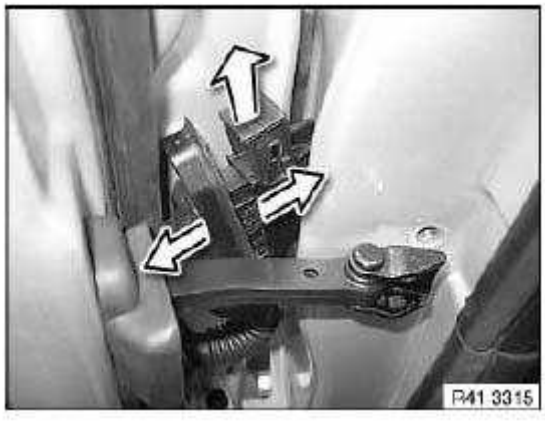


Fig. 167: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

REAR SIDE DOORS

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41 5. ... ADJUSTING DOOR

CAUTION: Do not damage adjoining body parts. Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.

NOTE: Observe gap dimensions. The door must be provided with all attachment parts for correct adjustment. Adjust screwed body parts from rear to front. The following illustrations are schematic representations and are to be applied to the relevant vehicle type.

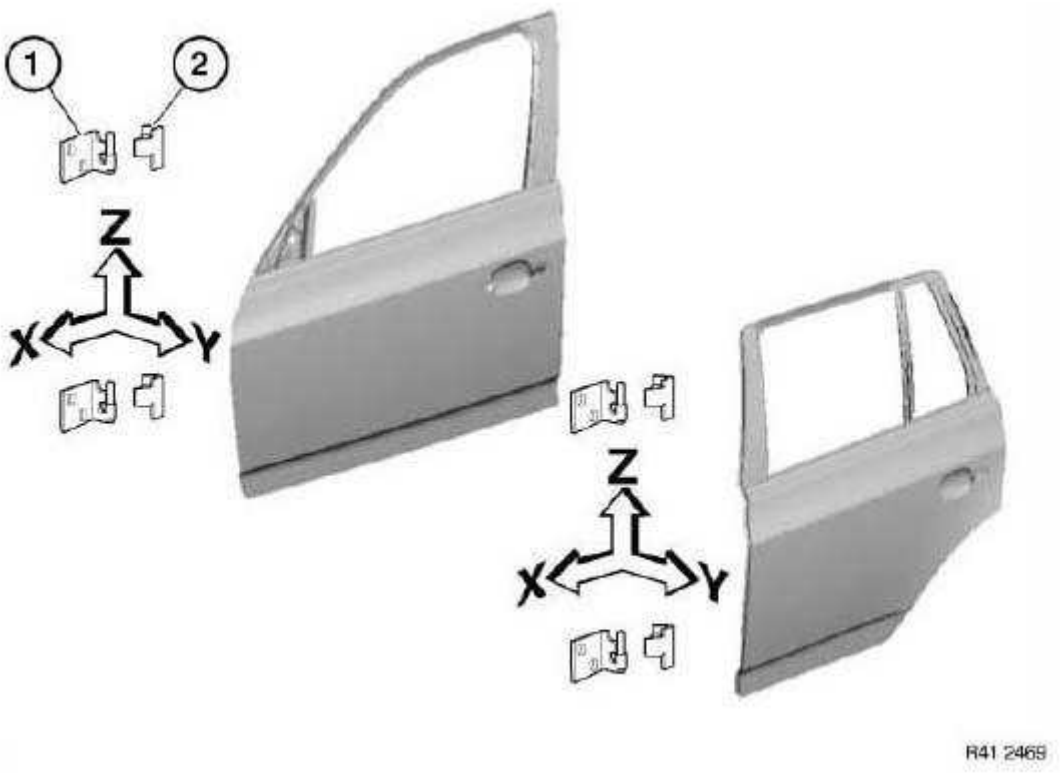


Fig. 168: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken lock striker, remove if necessary.

Slacken screws (2) on door until door can still just be moved.

Tightening torque **41 51 2AZ** , see **41 51 FRONT DOORS** .

Tightening torque **41 52 2AZ** , see **41 52 REAR SIDE DOORS** .

If adjustment range is not sufficient, slacken screws (1) on body.

NOTE: Rear door screw connection accessible from inside only.

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Tightening torque **41 51 3AZ** , see **41 51 FRONT DOORS** .

Tightening torque **41 52 3AZ** , see **41 52 REAR SIDE DOORS** .

Check that adjoining body parts are flush in terms of height and correct if necessary.

NOTE: Vertical adjustment of door must not be influenced by lock striker. When the door is closed, the lock striker must not touch or scrape against the door lock. Look out for scratches.

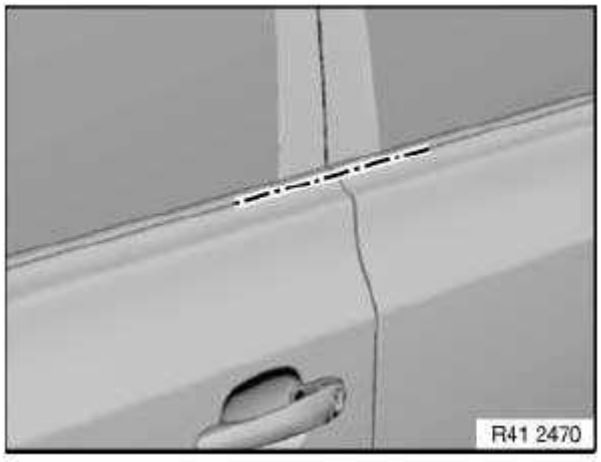


Fig. 169: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten down screws (1) until lock striker can still just be moved.

Move lock striker sideways in order to adjust transition between door and rear side panel.

Tightening torque **51 21 2AZ** , see**51 21 FRONT DOOR LOCKS HANDLES** ..

NOTE: 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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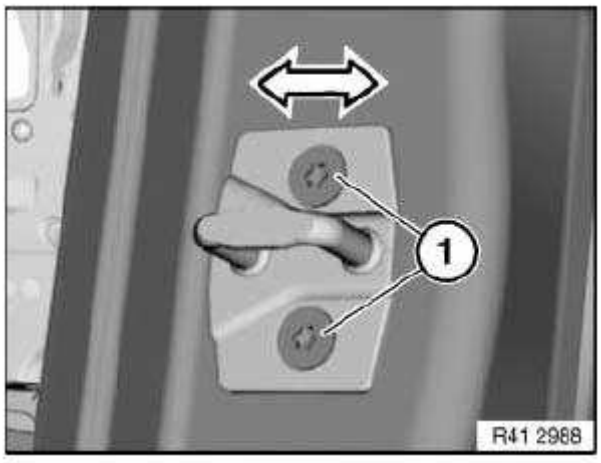


Fig. 170: Tighten Down Screws (1) Until Lock Striker Can Still Just Be Moved
Courtesy of BMW OF NORTH AMERICA, INC.

After installation

- Tighten all screws to specified torque.
- Touch up unpainted surfaces in the appropriate color.
- If necessary, adjust front door.

41 5. ... REMOVING AND INSTALLING DOOR

IMPORTANT: Do not damage adjoining body parts.

The illustrations are schematic representations and are to be applied to the relevant vehicle type.

Open door.

Release screw on connector frame.

Front door:

Tightening torque **41 51 4AZ** , see **41 52 REAR SIDE DOORS** .

Rear door:

Tightening torque **41 52 4AZ** , see **41 52 REAR SIDE DOORS** .

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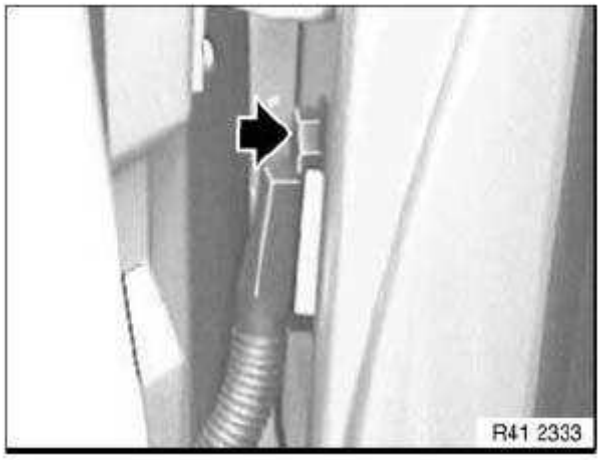


Fig. 171: Locating Screw On Connector Frame
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Secure door against closing.

Release screw (1) on door retainer.

Front door:

Tightening torque **51 21 3AZ** , see**51 21 FRONT DOOR LOCKS HANDLES** ..

Rear door:

Tightening torque **51 22 3AZ** , see**51 21 FRONT DOOR LOCKS HANDLES** ..

Open door up to stop.

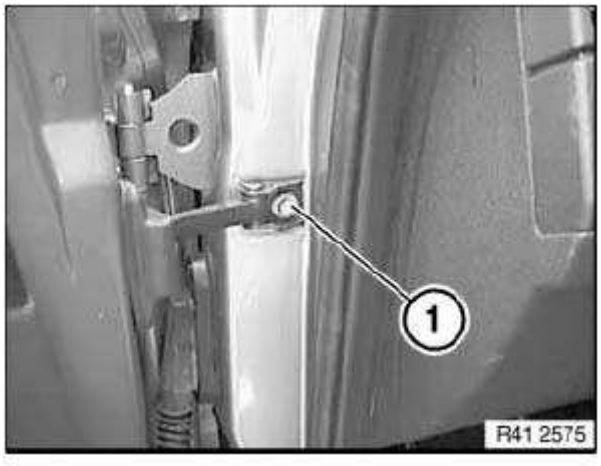


Fig. 172: Identifying Door Retainer Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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Release nuts between both hinge elements at top and bottom.

Front door:

Tightening torque **41 51 1AZ** , see **41 51 FRONT DOORS** .

Rear door:

Tightening torque **41 52 1AZ** , see **41 52 REAR SIDE DOORS** .

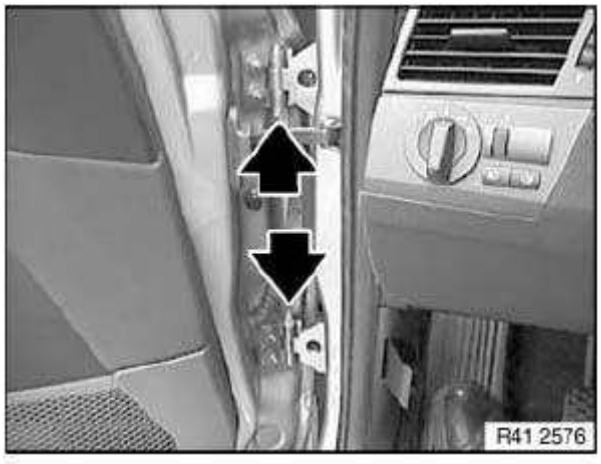


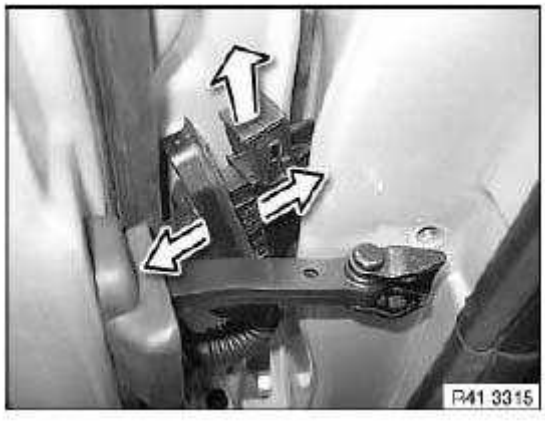
Fig. 173: Identifying Hinge Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Pull plug connection from door pillar, unlock by pulling out bar and detach.

Unhinge door by moving upwards and placing it on a suitable surface.

Installation:

If necessary, adjust door.



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Fig. 174: Adjusting Door
Courtesy of BMW OF NORTH AMERICA, INC.

41 52 101 REPLACING REAR LEFT OR RIGHT DOOR

Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Necessary preliminary tasks:

- Remove **rear door**

Following new body parts are required:

- (1) Door, rear
- (2) Crash reinforcement



Fig. 175: Identifying Door And Crash Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Feed in crash reinforcement (1).

Tighten down screws (2).

Tightening torque **41 52 5AZ** , see **41 52 REAR SIDE DOORS** .

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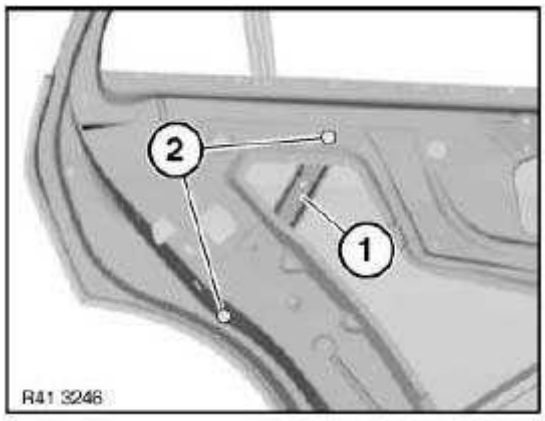


Fig. 176: Identifying Crash Reinforcement And Down Screws
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT LID

41 61 000 REMOVING AND INSTALLING HOOD/BONNET

WARNING: Danger of injury! Support engine hood in fully opened position with suitable apparatus.

IMPORTANT: Removal of the hood/bonnet must be carried out with the assistance of a second person.

NOTE: Carry over schematic representation to the relevant vehicle type.

Release nuts (1).

Tightening torque **41 61 1AZ** , see **41 61 ENGINE BONNET/HOOD** .

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**

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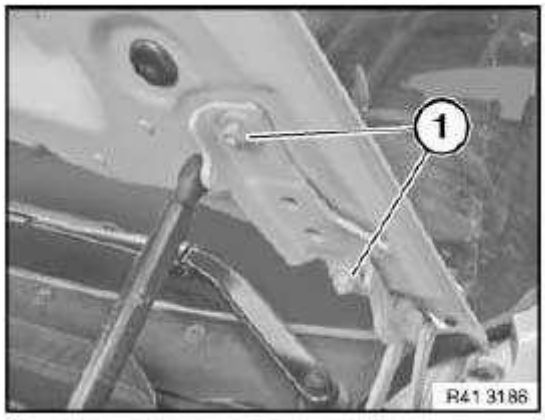


Fig. 177: Identifying Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

41 61 014 ADJUSTING ENGINE BONNET/HOOD

IMPORTANT: Do not damage adjoining body parts. Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.

NOTE: Observe gap dimensions. Carry over schematic representation to the relevant vehicle type.

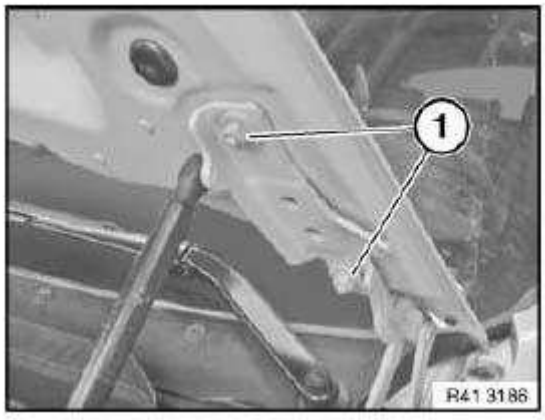
Slacken nuts (1) of hinges on left and right.

Hood lid must be able to be moved.

Tightening torque **41 61 1AZ** , see **41 61 ENGINE BONNET/HOOD** .

NOTE: If the adjustment range is not sufficient, release retaining screws of engine hood hinge on body and move hinge.

Tightening torque **41 61 2AZ** , see **41 61 ENGINE BONNET/HOOD** .



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Fig. 178: Slacken Nuts (1) Of Hinges On Left & Right
Courtesy of BMW OF NORTH AMERICA, INC.

Retaining hooks must snap into place in locks.

Adjust engine hood.

NOTE: Vertical adjustment of engine hood to side panel by means of stop pads.

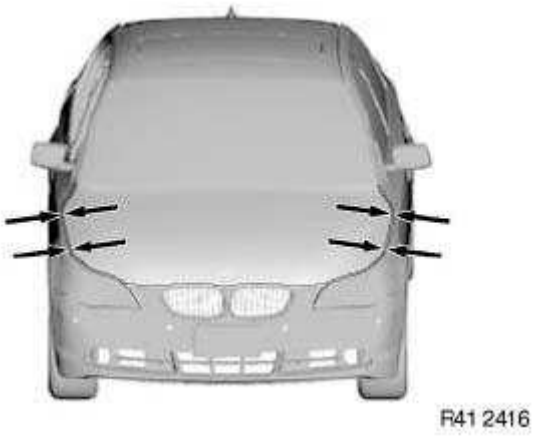


Fig. 179: Locating Stop Pads
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Adjust height of hood/bonnet to front bumper by turning nuts (1) on retaining hooks.

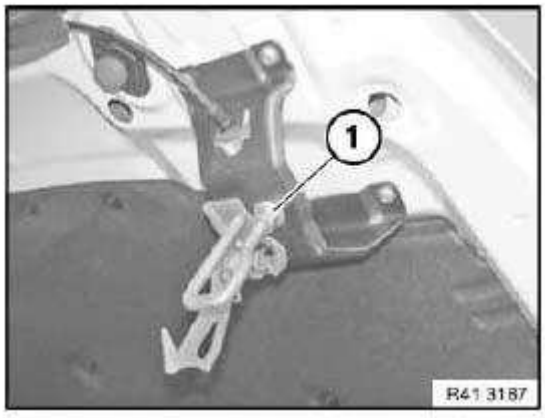


Fig. 180: Adjusting Height Of Hood/Bonnet
Courtesy of BMW OF NORTH AMERICA, INC.

If adjustment is necessary, remove **front grille** . See **51 11 182 REMOVING AND INSTALLING/REPLACING GRILLE IN BUMPER TRIM AT TOP** .

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Do not slacken nut (2).

Adjust hood/bonnet by turning spacers (1) on both sides.

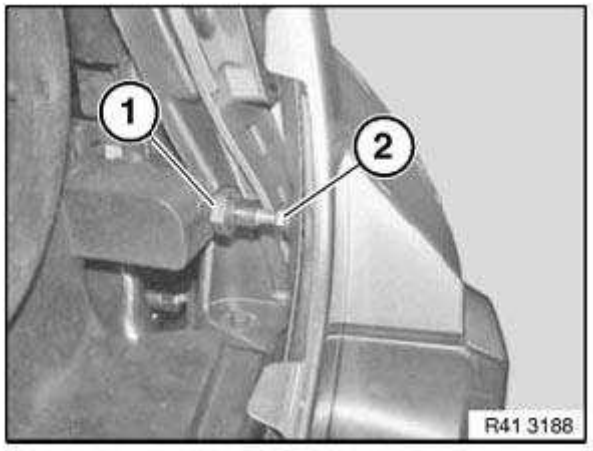


Fig. 181: Adjust Hood/Bonnet By Turning Spacers (1) On Both Sides
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Check function of retaining hook.

After installation

- Tighten all screws and nuts to specified torque.
- Touch up unpainted surfaces in the appropriate color.
- If necessary, adjust front side panels.

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 **panel for rear lid** . See **51 49 000 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID** .
- Disconnect all plug and socket cable connections on rear lid.

WARNING: Support rear lid in fully opened position with suitable apparatus. Risk of injury.

Slide stop spring (1) to end of gas-filled strut (2) and lever out gas strut. Set down gas strut.

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Repeat procedure on other side of car.

Version with automatic rear lid actuation:

Release **electric spindle drive** on rear lid only.

IMPORTANT: Risk of damage! Disconnect control unit for electric spindle drive.

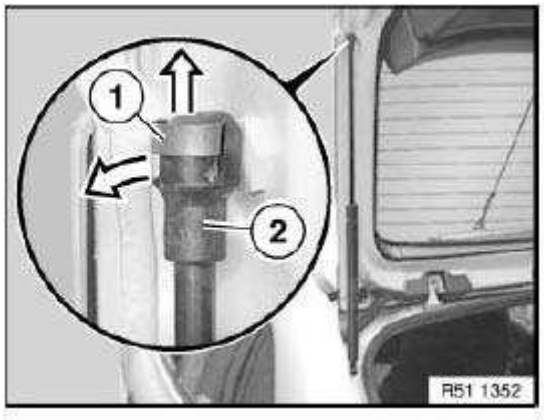


Fig. 182: Identifying Stop Spring And Gas-Filled Strut
Courtesy of BMW OF NORTH AMERICA, INC.

Carry over the work step shown symmetrically to the other side of the vehicle.

Release grommet (1) from rear lid and feed out wiring harness.

Installation:

Make sure grommet is correctly seated (watertightness).

Release screws (2).

Tightening torque **41 62 1AZ** , see **41 62 REAR LID** .

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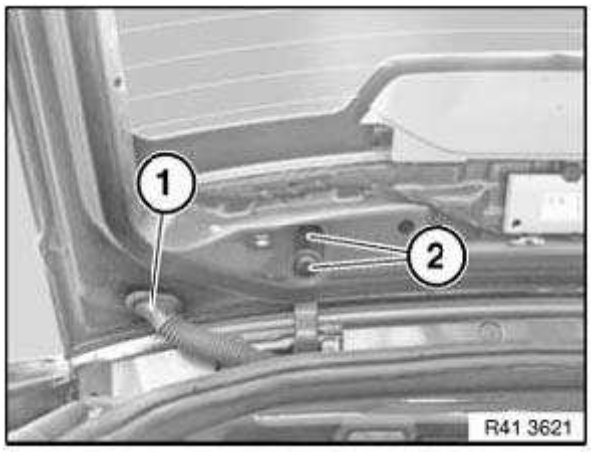


Fig. 183: Identifying Grommet And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Remove rear lid towards rear with a 2nd person helping.

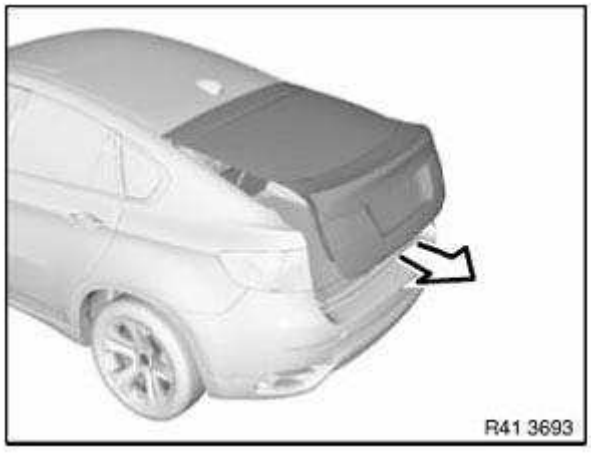


Fig. 184: Remove Rear Lid Towards Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Install rear lid at screw locations on hinge. This dispenses with the need for adjustment after installation.

If reversing camera optional extra installed:

Calibrate **reversing camera** . See **66 53 010 CALIBRATING REVERSING CAMERA** .

41 62 014 ADJUSTING REAR LID

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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Read contents of **Body, General** , see **41 0 Contents of Body, General**.

Observe **gap dimensions**

The rear lid must be provided with all attachment parts for correct adjustment.

Version with automatic rear lid actuation:

Shut down **automatic rear lid actuation**

IMPORTANT: Risk of damage to spindle drive: only move rear lid slowly by hand.

Necessary preliminary tasks:

- Remove **water gutter trim**
- Remove **trim for rear window frame** . See **REAR LID TRIM PANEL** .

Slacken screws (1) on rear lid hinge to rear lid until such stage that rear lid can still be moved.

Tightening torque **41 62 1AZ** , see **41 62 REAR LID** .

Adjust rear lid laterally and longitudinally.

When the rear lid is closed, the lock striker must not touch or scrape against the rear lid lock.

Height adjustment of rear lid to roof:

Slacken screws (2) and adjust rear lid.

Tightening torque **41 62 3AZ** , see **41 62 REAR LID** .

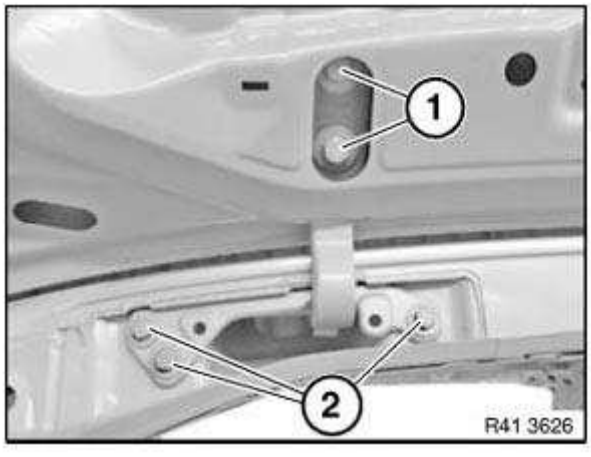


Fig. 185: Slacken Screws (2) And Adjust Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

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Check read lid wedge (1) on left and right for damage, replace if necessary.

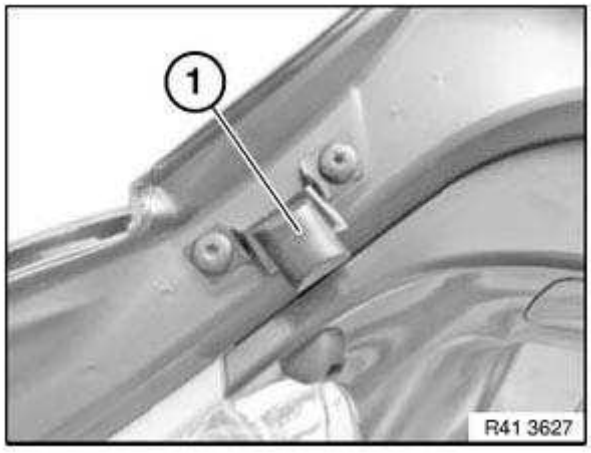


Fig. 186: Check Read Lid Wedge (1) On Left And Right For Damage
Courtesy of BMW OF NORTH AMERICA, INC.

Check rear lid stop (1) on body on left and right for damage, replace if necessary.

If necessary, adjust rear lid stop (1) to wedge.

Necessary preliminary tasks:

Remove **capping**

Slacken screws (2)

Slacken nuts (3).

Tightening torque **41 62 9AZ** , see **41 62 REAR LID** .

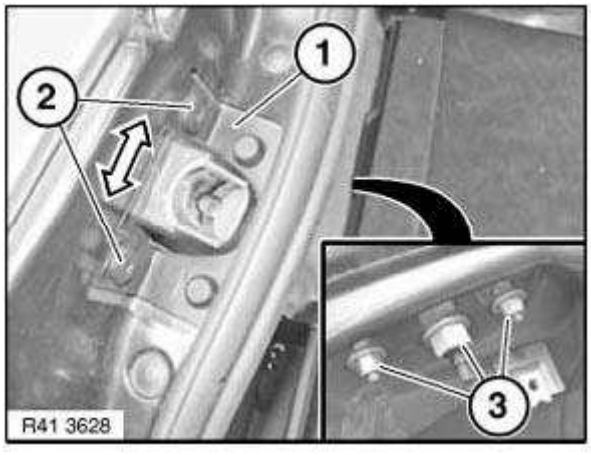


Fig. 187: Identifying Rear Lid Stop, Screws And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

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Adjusting height of rear lid in relation to side panel:

Remove rubber grommet (1).

Adjust stop (2) by turning screw underneath.

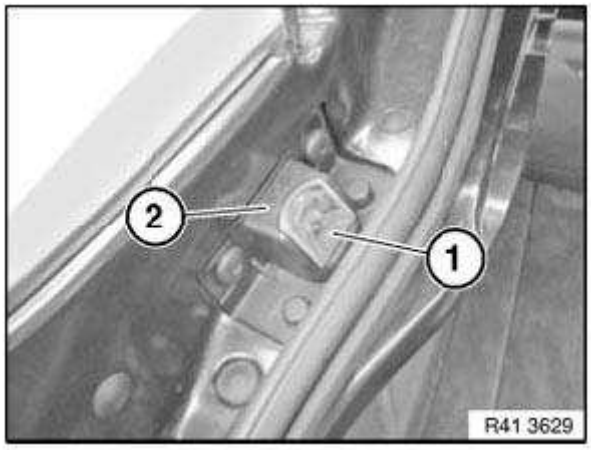


Fig. 188: Identifying Rubber Grommet And Stop
Courtesy of BMW OF NORTH AMERICA, INC.

After installation

- Tighten all screws and nuts to specified torque.
- Touch up unpainted surfaces in the appropriate color.
- **If reversing camera optional extra installed:**

Calibrate **reversing camera** . See **66 53 010 CALIBRATING REVERSING CAMERA** .

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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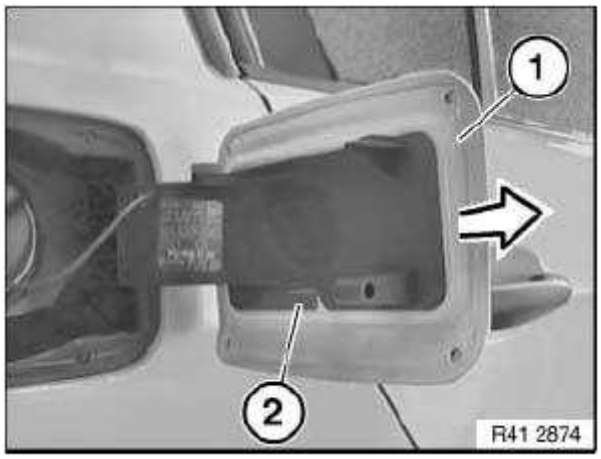


Fig. 189: Identifying Lock And Fuel Filler Flap
Courtesy of BMW OF NORTH AMERICA, INC.

41 63 003 REPLACING COVER BOWL

Necessary preliminary tasks:

- Remove right **rear wheel**
- Remove rear **right wheel arch trim** . See **51 71 041 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT WHEEL ARCH COVER** .
- Remove **flap for fuel filler neck**
- Remove **servodrive for tank filler flap** . See **67 11 555 REMOVING AND INSTALLING/REPLACING SERVODRIVE FOR TANK FILLER FLAP** .

NOTE: Carry over schematic representation to the relevant vehicle type.

IMPORTANT: Deformation of the sheet metal flanges in the side panel and the wheel arch results in permanent vehicle leakage. Carry out removal/installation with great care.

Following new body parts are required:

- (1) Filler bowl

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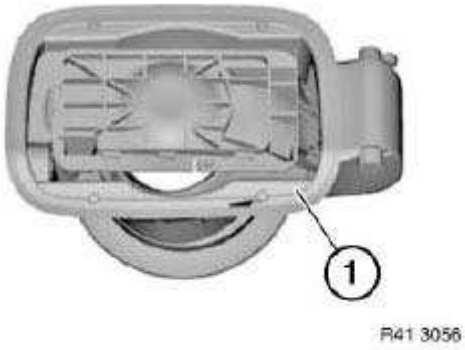


Fig. 190: Identifying Filler Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Release rubber collar (1) from cover bowl (2) by pressing inward.

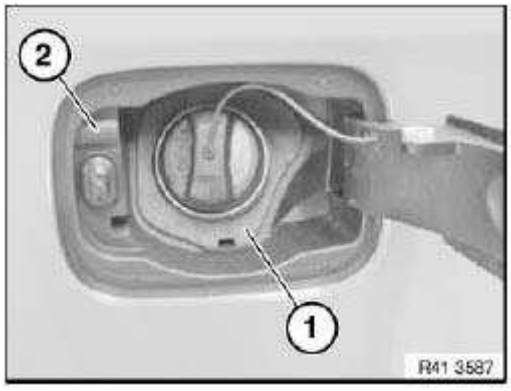


Fig. 191: Identifying Rubber Collar And Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Turn sleeve (1) through approx. 45° and pull out in direction of arrow.

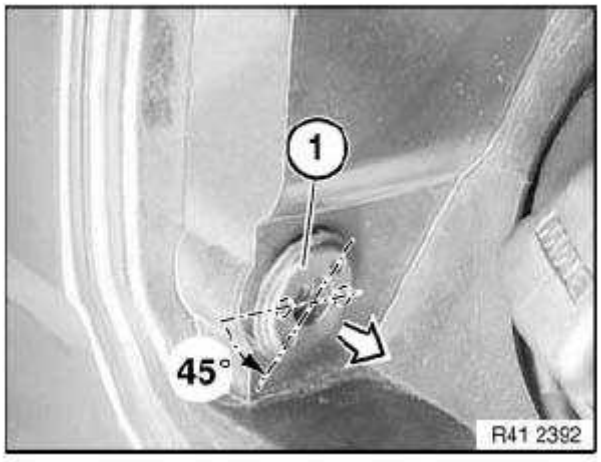


Fig. 192: Identifying Sleeve

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Courtesy of BMW OF NORTH AMERICA, INC.

Press retaining strap (1) inwards and remove.

Pierce markings (2) with a small screwdriver.

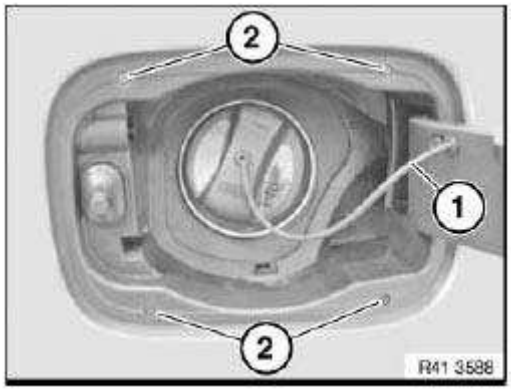


Fig. 193: Press Retaining Strap (1) Inward And Pierce Markings (2) With A Small Screwdriver
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Purposes of clarity, picture shows cover bowl removed.

Insert screwdriver to specified measurement a and unlock cover bowl catch.

Measurement a=5 mm

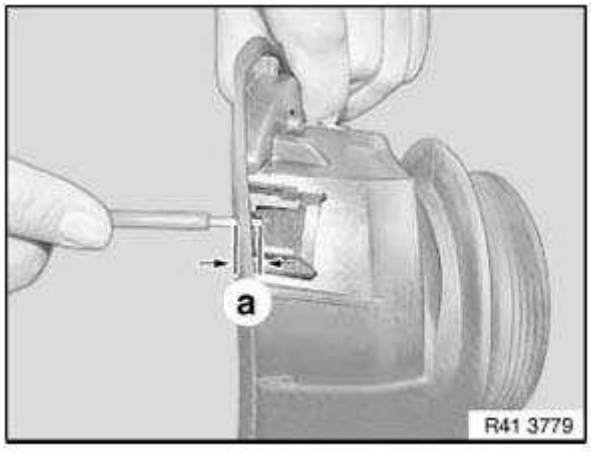


Fig. 194: Inserting Screwdriver To Unlock Cover Bowl Catch
Courtesy of BMW OF NORTH AMERICA, INC.

Keep cover bowl tensioned with pliers (2).

Unlock catches individually with screwdriver (1).

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Unlock catches in following order:

1. Top left
2. Bottom left
3. Top right
4. Bottom right

Move screwdriver in opposite direction at both lower catches.

Close hinge arm (1).

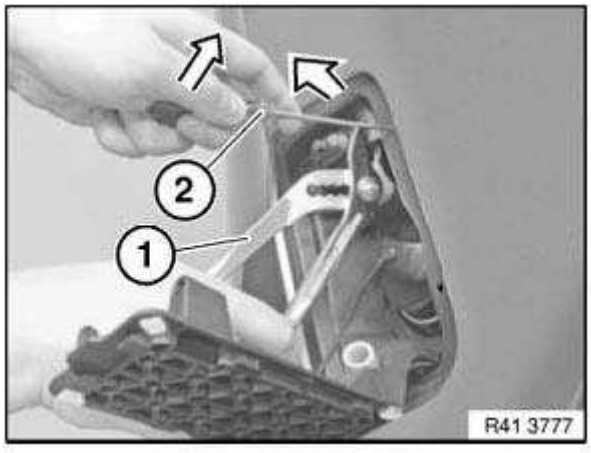


Fig. 195: Identifying Hinge Arm And Screwdriver
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage sheet metal flange of side panel.

Carefully twist out cover bowl (2) at first at rear in direction of arrow from side panel and remove.

Remove sealing sleeve from fuel filler pipe.

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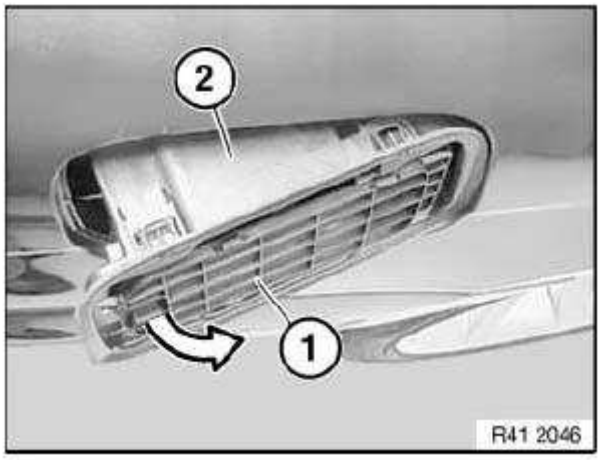


Fig. 196: Identifying Hinge Arm And Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Open hinge arm.

Turn sealing sleeve in area of hinge inwards and hold.

Insert cover bowl and engage sealing sleeve over fuel filler pipe.

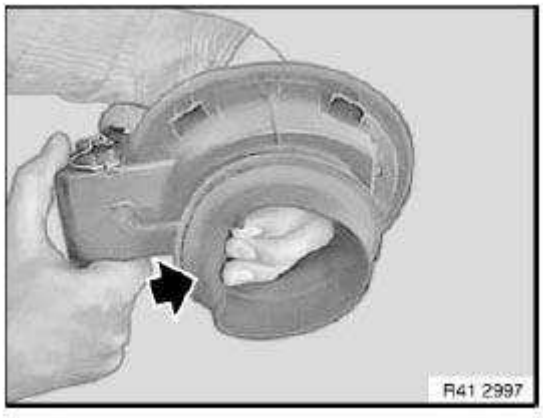


Fig. 197: Turning Sealing Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Using fitting aid (1), pull sealing lip (2) over sheet metal flange of wheel arch (3).

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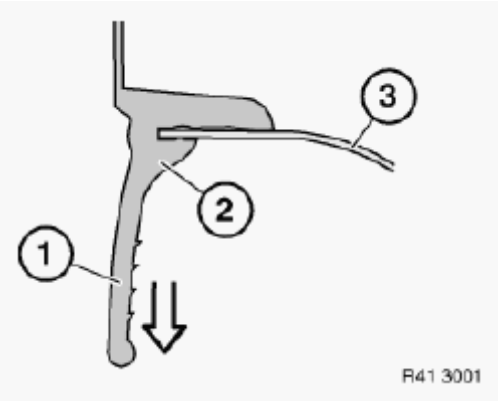


Fig. 198: Identifying Fitting Aid, Sealing Lip And Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Cover bowl must snap into place 4 times.

After installing, carefully check cover bowl at clips for secure seating.

There must be no discernible gap between the sealing lip of the cover bowl and the side panel in the area.

Make sure rubber sleeve (1) is correctly seated in areas (2) and (3).

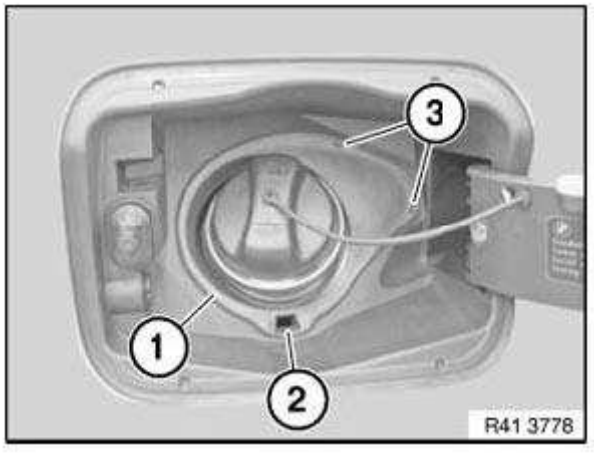


Fig. 199: Identifying Rubber Sleeve And Seated Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Illustrations shows fuel filler pipe removed.

Check that sealing lip is correctly seated.

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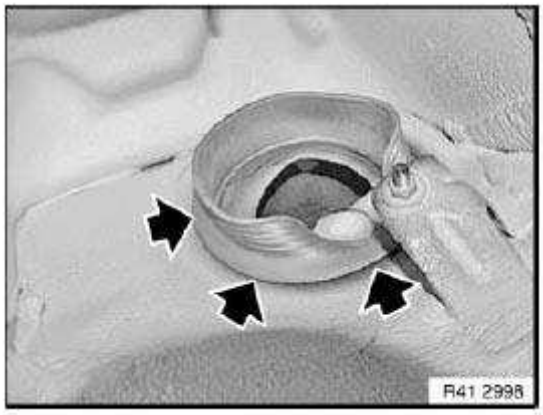


Fig. 200: Checking Sealing Lip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on ejector (2) must not be damaged.

Check protective cap (3) for correct seating.

(Watertightness!)

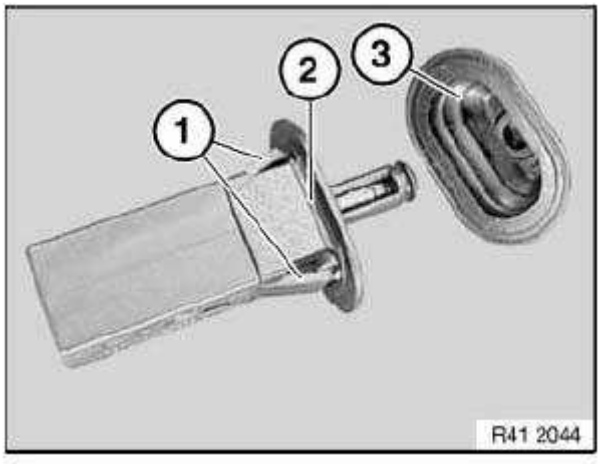


Fig. 201: Identifying Catches, Ejector And Protective Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locks (1) on left/right of cover (2) must not be damaged.

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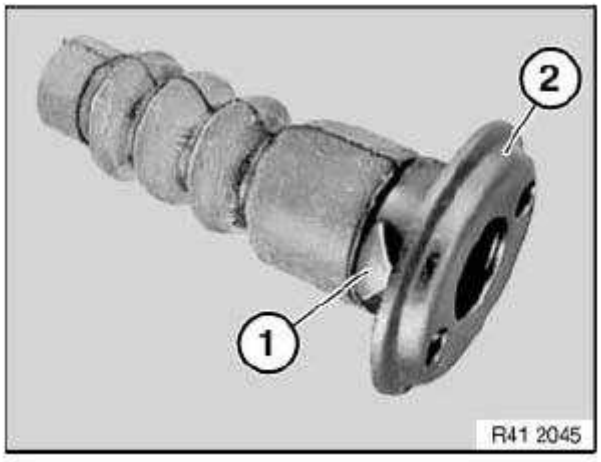


Fig. 202: Identifying Locks And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

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41 0 000 PUNCH NUMBERS/LETTERS/SPECIAL CHARACTERS

NOTE: For punch fixture 41 1 000 (41 1 002)

Order number: 41 0 000

Punch numbers/letters/special characters

Consisting of:

1 = 41 0 001 Punch number 1

2 = 41 0 002 Punch number 2

3 = 41 0 003 Punch number 3

4 = 41 0 004 Punch number 4

5 = 41 0 005 Punch number 5

6 = 41 0 006 Punch number 6

7 = 41 0 007 Punch number 7

8 = 41 0 008 Punch number 8

9 = 41 0 009 Punch number 9

10 = 41 0 011 Punch number 0

11 = 41 0 012 Punch letter A

12 = 41 0 013 Punch letter B

13 = 41 0 014 Punch letter C

14 = 41 0 015 Punch letter D

15 = 41 0 016 Punch letter E

16 = 41 0 017 Punch letter F

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17 = 41 0 018 Punch letter G

18 = 41 0 019 Punch letter H

19 = 41 0 021 Punch letter I

20 = 41 0 022 Punch letter J

21 = 41 0 023 Punch letter K

22 = 41 0 024 Punch letter L

23 = 41 0 025 Punch letter M

24 = 41 0 026 Punch letter N

25 = 41 0 027 Punch letter P

26 = 41 0 028 Punch letter R

27 = 41 0 029 Punch letter S

28 = 41 0 031 Punch letter T

29 = 41 0 032 Punch letter U

30 = 41 0 033 Punch letter V

31 = 41 0 034 Punch letter W

32 = 41 0 035 Punch letter X

33 = 41 0 036 Punch letter Y

34 = 41 0 037 Punch letter Z

35 = 41 0 038 Punch special character +

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SUPPORT MEMBERS

41 61 ENGINE BONNET/HOOD

ENGINE BONNET/HOOD-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	E63/E64	M8 8.8		18.5 Nm
	E81/E82/E83/E87/E88/E90/E91/E92/E93	M8		15 Nm
	E60/E61	M8x24 8.8		18.5 Nm
	E85/E86/E70/E71	M8, nut M8		20 Nm
	E89	M8 nut		18.5 Nm
2AZ Bonnet/hood hinge to body	E63/E64/E89	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
	E81/E82/E85/E86/E87/E88/E90/E91/E92/E93/E70/E71	M8		20 Nm
3AZ Threaded pin, spacer	E70/E71	M6		14 Nm

41 51 FRONT DOORS

FRONT DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightenir specificat
1AZ Hinge pin	E83	M10x56	
	E60/E61/E85/E86/E70/E71/E89	M8 nut	
	E63/E64	M6x22 8.8	

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	E81/E82/E87/E88/E90/E91/E92/E93	M10x1.25	
2AZ Door to door hinge	E63/E64/E81/E82/E87/E88/E90/E91/E92/E93	M8 nut	
	E83	M8 nut	
	E60/E61/E70/E71/E85/E86/E89	M8x28	
3AZ Door hinge to body	E63/E64	M10x35 10.9	
	E60/E61/E70/E71	M12x36 8.8	
	E83	M10x30 10.9	
	E85/E86	M10x35 10.9	
	E89	M12x23	
4AZ Door plug connection to body	E60/E61/E63/E64/E70/E71/E83/E85/E86/E87/E81/E82/E88/E90/E91/E92/E89	M5x16	

41 62 REAR LID

REAR LID-TIGHTENING TORQUE SPECIFICATIONS

	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
	E81/E87/E70	M8		18.5 Nm
	E71	M10 x 25 - 10.9		18.5 Nm
	E90/E92/E82/E88	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				

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body	E61/E83/E85/E86/E90/E92/E82/E88	M8		20 Nm
	E60/E64/E81/E87	M8 nut		18.5 Nm
	E63/E70/E71	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/E71	M6 x 21		6 Nm
	E70/E71	M6 nut		6 Nm
	E70/E71	M12x1.5		16 Nm

41 52 REAR SIDE DOORS

REAR SIDE DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	**Thread**	**Tightening specification**	**Measure**
1AZ Hinge pin	E83	M10x56		10 Nm
	E60/E61/E70/E71	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/E71	M8x28		20 Nm
	E87/E90/E91	M8 nut		20 Nm
3AZ Door hinge to body	E83	M10x35 10.9		56 Nm
	E60/E61/E70/E71	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/E71	M8x20		18.5 Nm

41 35 SIDE PANELS

SIDE PANELS-TIGHTENING TORQUE SPECIFICATIONS

	Type	**Thread**	**Tightening specification**	**Measure**

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1AZ Front side panel to body	E63/E64	M6 x 22 10.9		12 Nm
	E83	ST6.3x14		7 Nm
	E60/E61/E81/E82/E85/E86/E87/E88/E90/E91/E92/E93	M6		7.6 Nm
	E89	M6		8 Nm
2AZ Front side panel to body	E63/E64	M6 nut		5 Nm
	E60/E61	M6 nut		7.6 Nm
	E89	M6 nut		8 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	E81/E82/E87/E88/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/E71	M6x16		8 Nm
7AZ Front side panel to body Area, A-pillar	E70/E71	M6x16		6 Nm
8AZ Front side panel to body Area, sill	E70/E71	Sheet metal screw ST4.8x19		2.5 Nm
9AZ Front side panel to body Area, cowl panel	E70/E71	M5x20		2.5 Nm
10AZ Module carrier, top, to support carrier	E70/E71	M6x26		8 Nm
11AZ Module carrier, bottom, to engine carrier	E70/E71	M6 nut		8 Nm

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SIDE PANELS

41 51 FRONT DOORS

FRONT DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread
1AZ Hinge pin	E83	M10x56
	E60/E61/E85/E86/E70/E71/E89	M8 nut
	E63/E64	M6x22 8.8
	E81/E82/E87/E88/E90/E91/E92/E93	M10x1.25
2AZ Door to door hinge	E63/E64/E81/E82/E87/E88/E90/E91/E92/E93	M8 nut
	E83	M8 nut
	E60/E61/E70/E71/E85/E86/E89	M8x28
3AZ Door hinge to body	E63/E64	M10x35 10.9
	E60/E61/E70/E71	M12x36 8.8
	E83	M10x30 10.9
	E85/E86	M10x35 10.9
	E89	M12x23
	4AZ Door plug connection to body	E60/E61/E63/E64/E70/E71/E83/E85/E86/E87/E81/E82/E

41 52 REAR SIDE DOORS

REAR SIDE DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Hinge pin	E83	M10x56		10 Nm
	E60/E61/E70/E71	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/E71	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/E71	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/E71	M8x20		18.5 Nm

41 35 SIDE PANELS

SIDE PANELS-TIGHTENING TORQUE SPECIFICATIONS

	Type	**Thread**	**Tightening specification**	**Measure**
1AZ Front side panel to body	E63/E64	M6 x 22 10.9		12 Nm
	E83	ST6.3x14		7 Nm
	E60/E61/E81/E82/E85/E86/E87/E88/E90/E91/E92/E93	M6		7.6 Nm
	E89	M6		8 Nm
2AZ Front side panel to body	E63/E64	M6 nut		5 Nm
	E60/E61	M6 nut		7.6 Nm
	E89	M6 nut		8 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	E81/E82/E87/E88/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/E71	M6x16		8 Nm
7AZ Front side panel to body Area, A-pillar	E70/E71	M6x16		6 Nm
8AZ Front side panel to body	E70/E71	Sheet metal screw		2.5 Nm

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Area, sill		ST4.8x19		
9AZ Front side panel to body Area, cowl panel	E70/E71	M5x20		2.5 Nm
10AZ Module carrier, top, to support carrier	E70/E71	M6x26		8 Nm
11AZ Module carrier, bottom, to engine carrier	E70/E71	M6 nut		8 Nm

FRONT SIDE DOORS

41 51 FRONT DOORS

FRONT DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightenir specificat
1AZ Hinge pin	E83	M10x56	
	E60/E61/E85/E86/E70/E71/E89	M8 nut	
	E63/E64	M6x22 8.8	
	E81/E82/E87/E88/E90/E91/E92/E93	M10x1.25	
2AZ Door to door hinge	E63/E64/E81/E82/E87/E88/E90/E91/E92/E93	M8 nut	
	E83	M8 nut	
	E60/E61/E70/E71/E85/E86/E89	M8x28	
3AZ Door hinge to body	E63/E64	M10x35 10.9	
	E60/E61/E70/E71	M12x36 8.8	
	E83	M10x30 10.9	
	E85/E86	M10x35 10.9	
	E89	M12x23	
4AZ Door plug connection	E60/E61/E63/E64/E70/E71/E83/E85/E86/E87/E81/E82/E88/E90/E91/E92/E89	M5x16	

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to body				

REAR SIDE DOORS

41 52 REAR SIDE DOORS

REAR SIDE DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Hinge pin	E83	M10x56		10 Nm
	E60/E61/E70/E71	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/E71	M8x28		20 Nm
	E87/E90/E91	M8 nut		20 Nm
3AZ Door hinge to body	E83	M10x35 10.9		56 Nm
	E60/E61/E70/E71	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/E71	M8x20		18.5 Nm

FRONT LID

41 61 ENGINE BONNET/HOOD

ENGINE BONNET/HOOD-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	E63/E64	M8 8.8		18.5 Nm
	E81/E82/E83/E87/E88/E90/E91/E92/E93	M8		15 Nm
	E60/E61	M8x24 8.8		18.5 Nm
	E85/E86/E70/E71	M8, nut M8		20 Nm
	E89	M8 nut		18.5 Nm
2AZ Bonnet/hood	E63/E64/E89	M8 8.8		18.5 Nm

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hinge to body				
	E83	M8x20 10.9		15 Nm
	E83/from 05/2006	M8x30 10.9		25 Nm
	E60/E61	M8x24 8.8		18.5 Nm
	E81/E82/E85/E86/E87/E88/E90/E91/E92/E93/E70/E71	M8		20 Nm
3AZ Threaded pin, spacer	E70/E71	M6		14 Nm

REAR LID

41 61 ENGINE BONNET/HOOD

ENGINE BONNET/HOOD-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	E63/E64	M8 8.8		18.5 Nm
	E81/E82/E83/E87/E88/E90/E91/E92/E93	M8		15 Nm
	E60/E61	M8x24 8.8		18.5 Nm
	E85/E86/E70/E71	M8, nut M8		20 Nm
	E89	M8 nut		18.5 Nm
2AZ Bonnet/hood hinge to body	E63/E64/E89	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
	E81/E82/E85/E86/E87/E88/E90/E91/E92/E93/E70/E71	M8		20 Nm
3AZ Threaded pin, spacer	E70/E71	M6		14 Nm

41 51 FRONT DOORS

FRONT DOORS-TIGHTENING TORQUE SPECIFICATIONS

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	Type	Thread	Tightenir specificat
1AZ Hinge pin	E83	M10x56	
	E60/E61/E85/E86/E70/E71/E89	M8 nut	
	E63/E64	M6x22 8.8	
	E81/E82/E87/E88/E90/E91/E92/E93	M10x1.25	
2AZ Door to door hinge	E63/E64/E81/E82/E87/E88/E90/E91/E92/E93	M8 nut	
	E83	M8 nut	
	E60/E61/E70/E71/E85/E86/E89	M8x28	
3AZ Door hinge to body	E63/E64	M10x35 10.9	
	E60/E61/E70/E71	M12x36 8.8	
	E83	M10x30 10.9	
	E85/E86	M10x35 10.9	
	E89	M12x23	
4AZ Door plug connection to body	E60/E61/E63/E64/E70/E71/E83/E85/E86/E87/E81/E82/E88/E90/E91/E92/E89	M5x16	

41 62 REAR LID

REAR LID-TIGHTENING TORQUE SPECIFICATIONS

	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
	E81/E87/E70	M8		18.5 Nm
		M10 x 25 -		

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	E71	10.9		18.5 Nm
	E90/E92/E82/E88	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/E82/E88	M8		20 Nm
	E60/E64/E81/E87	M8 nut		18.5 Nm
	E63/E70/E71	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/E71	M6 x 21		6 Nm
	E70/E71	M6 nut		6 Nm
	E70/E71	M12x1.5		16 Nm

41 52 REAR SIDE DOORS

REAR SIDE DOORS-TIGHTENING TORQUE SPECIFICATIONS

	Type	**Thread**	**Tightening specification**	**Measure**
1AZ Hinge pin	E83	M10x56		10 Nm
	E60/E61/E70/E71	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/E71	M8x28		20 Nm
	E87/E90/E91	M8 nut		20 Nm
3AZ Door hinge to body	E83	M10x35 10.9		56 Nm
	E60/E61/E70/E71	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				

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inner door panel	E70/E71	M8x20		18.5 Nm

41 35 SIDE PANELS

SIDE PANELS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Front side panel to body	E63/E64	M6 x 22 10.9		12 Nm
	E83	ST6.3x14		7 Nm
	E60/E61/E81/E82/E85/E86/E87/E88/E90/E91/E92/E93	M6		7.6 Nm
	E89	M6		8 Nm
2AZ Front side panel to body	E63/E64	M6 nut		5 Nm
	E60/E61	M6 nut		7.6 Nm
	E89	M6 nut		8 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	E81/E82/E87/E88/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/E71	M6x16		8 Nm
7AZ Front side panel to body Area, A-pillar	E70/E71	M6x16		6 Nm
8AZ Front side panel to body Area, sill	E70/E71	Sheet metal screw ST4.8x19		2.5 Nm
9AZ Front side panel to body Area, cowl panel	E70/E71	M5x20		2.5 Nm
10AZ Module				

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carrier, top, to support carrier	E70/E71	M6x26		8 Nm
11AZ Module carrier, bottom, to engine carrier	E70/E71	M6 nut		8 Nm

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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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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.

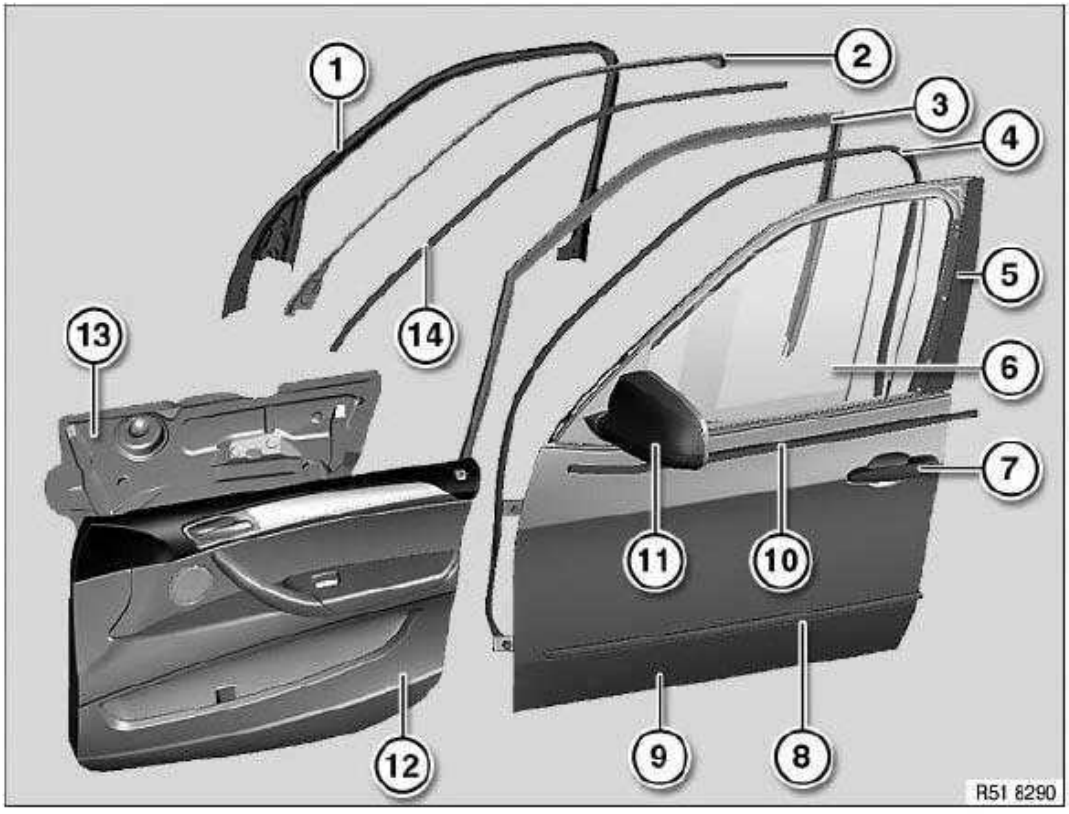
7.0 PREMIUM LEATHER CARE KIT

BMW Part No. 81 11 024 455.

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GENERAL

51 00 ... OVERVIEW OF FRONT DOOR

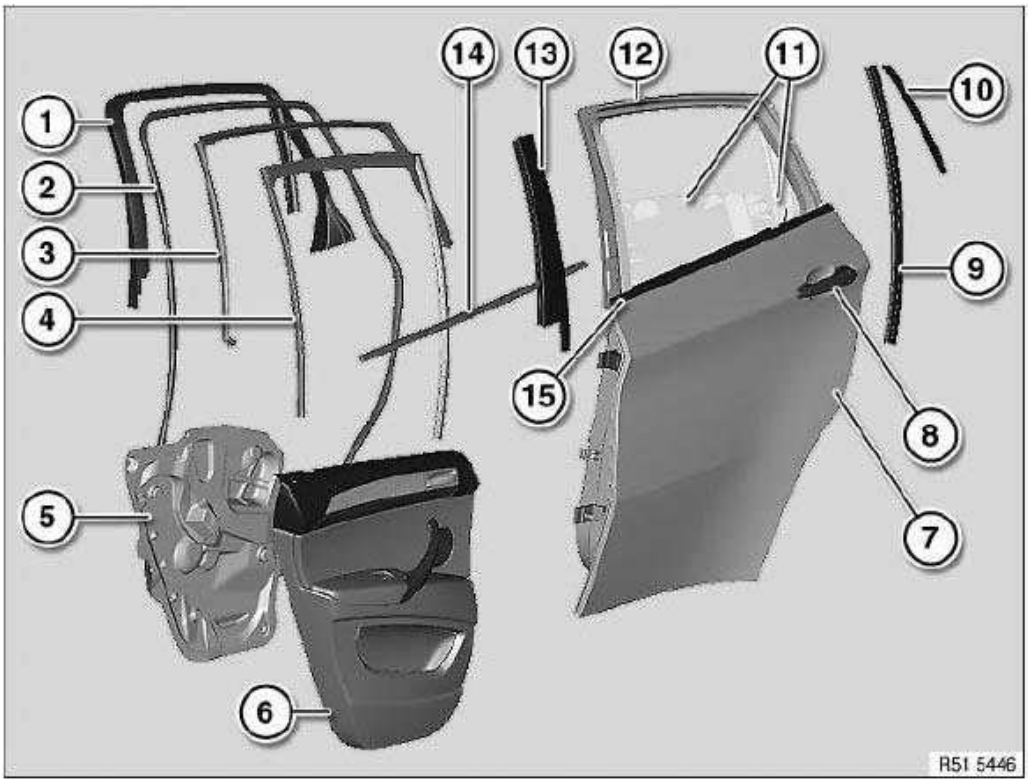


1	Inner cover on door window frame	8	Rubbing strip on front door X5 only
2	Seal for door seam/roof frame	9	Front door
3	Rubber guide for door window glass	10	Window cavity cover strip
4	Seal on front door	11	Outside mirror
5	Trim on window frame	12	Door trim panel
6	Windows	13	Acoustic insulation in front door
7	Door lock	14	Decorative strip on window frame

Fig. 1: Identifying Front Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 00 ... OVERVIEW OF REAR DOOR

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1	Inner cover on door window frame	9	Trims for window guide
2	Seal on rear door	10	Trims on window frame, rear
3	Seal for door seam/roof frame	11	Windows
4	Rubber guide for door window glass	12	Decorative strip on upper window frame
5	Acoustic insulation in rear door	13	Trim on window frame, front
6	Door trim panel	14	Window cavity seal
7	Rear door	15	Window cavity cover strip
8	Door lock		

Fig. 2: Identifying Rear Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

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

1. General notes

- Bonding at room and object temperature of 18°C 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.

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- 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

- Isohexane (spirit), adhesive remover (sourcing reference: BMW Parts Service)
- Fluff-free cleaning cloths
- Pressure roller

3. Preparations

- Remove all remnants of adhesive or clean new part thoroughly
- Clean the areas to be bonded immediately before bonding to remove silicone and grease residues.

NOTE: Observe ventilation time > or =1 minute.

4. Bonding

4.1 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

4.2 Components with pre-fitted adhesive tape

- Pull off liner* from adhesive side (if bonding area is large, do not pull off liner completely)
- Align component in correct position on vehicle
- Press down component over entire bonding area

* Liner is the protective film on the adhesive tape

51 00 ... NOTES ON FITTING WINDOW GUIDE SEALS

1. Work safety when handling anti-friction agent G13*

- Wear protective goggles, protective gloves and if necessary an apron.
- Do not eat, drink or smoke in the area of processing/application
- Ensure rooms are well ventilated.
- Keep heat and ignition sources well away
- In event of skin contact: Wash areas of skin affected with soap and water immediately, change work clothing which has been fouled with anti-friction agent immediately (keep spare work clothing in reserve)

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- In event of eye contact: Rinse eyes immediately with plenty of water and seek medical advice
- Observe safety data sheet (see Aftersales Assistance Portal (ASAP) - Service/Technology - Safety Data Sheet - 7-digit part number)

2. General notes

- Use only the BMW-approved anti-friction agent for fitting
- Application only at room and object temperatures between 18 and 25°C
- Anti-friction agent dries at different rates depending on the quantity, temperature and ventilation and becomes sticky
- Anti-friction agent can only be used for fitting and not for fault elimination (e.g. grating)
- Newly painted parts may only be brought into contact with the anti-friction agent after cooling
- Optimal bonding/attachment to the background surface is achieved after approx. 48 hours. The window guide seal must not be exposed to mechanical strain beforehand (car wash, strength test, etc.).

IMPORTANT: To avoid grating noises, do not use soapy water (low-surface-tension water with washing-up liquid) or antifriction agent containing silicone

3. Auxiliary materials and tools

- Spirit, cleaning cloth, plastic squeegee, needle
- Anti-friction agent G13* (manufactured by Zestron) part no. 83 23 0441 032

(*sourcing reference: BMW Parts Service)

4. Preparations

- Heat and remove anti-friction agent residues with a hot air blower or clean new part thoroughly
- Immediately prior to fitting, clean the work area with spirit in order to remove silicone and grease residues

NOTE: Air drying time approx. 1 minute

5. Installation

- Apply a thin coating of anti-friction agent to the reverse side of the window guide seal only
- Perform fitting within 30 minutes of applying anti-friction agent
- Anti-friction agent dries after fitting and becomes sticky

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**

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- **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**
- **51 2 160**
- **51 2 170**
- **51 2 180**
- **51 2 240** see **BODY EQUIPMENT - SPECIAL TOOLS** .

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

SPECIAL TOOL REFERENCE

Model series	**Special tools refer to BODY EQUIPMENT - SPECIAL TOOLS for tools below.**
E46, R50, R52, R53	**51 2 160**
E53, E60, E61, E63, E64, E71, E81, E82, E88, 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.

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

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hood/bonnet).
Special tool can be used in both directions.

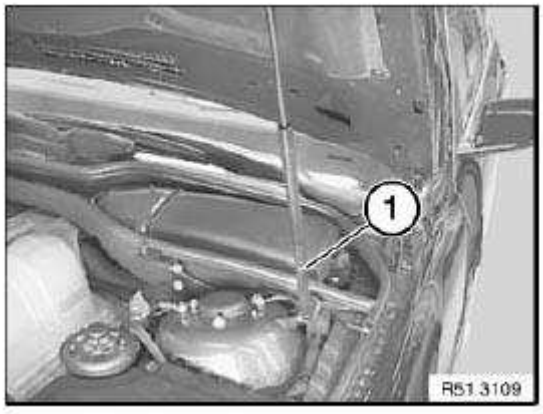


Fig. 3: Identifying Housing Of Gas Spring Strut (Thick Part)
Courtesy of BMW OF NORTH AMERICA, INC.

Release **gas spring strut** on left/right housing side, see **51 23 265 Removing and installing/replacing left or right gas strut for engine bonnet/hood**.

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.

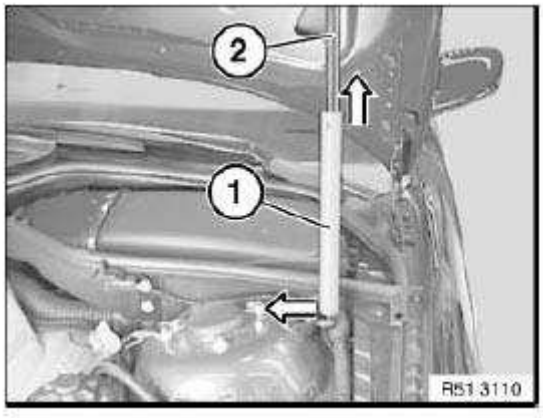
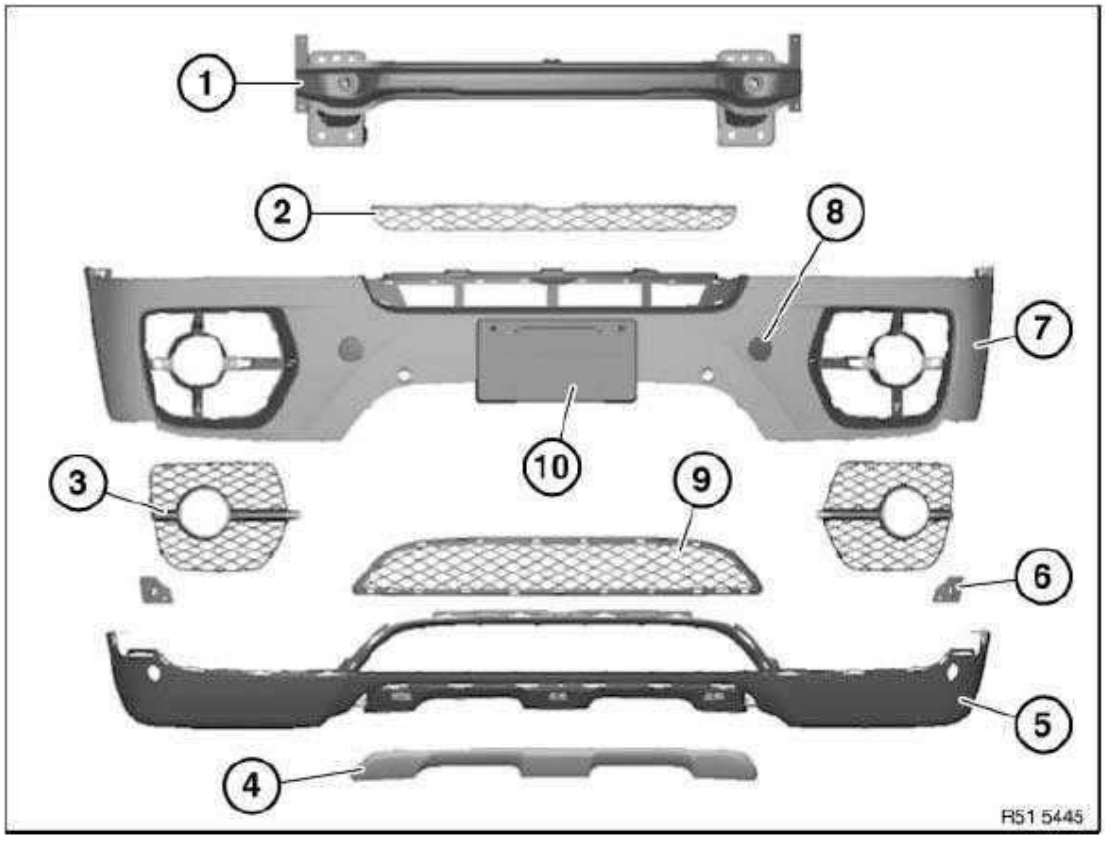


Fig. 4: Sliding Special Tool Over Housing Of Gas Spring Strut
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 ... OVERVIEW OF FRONT BUMPER

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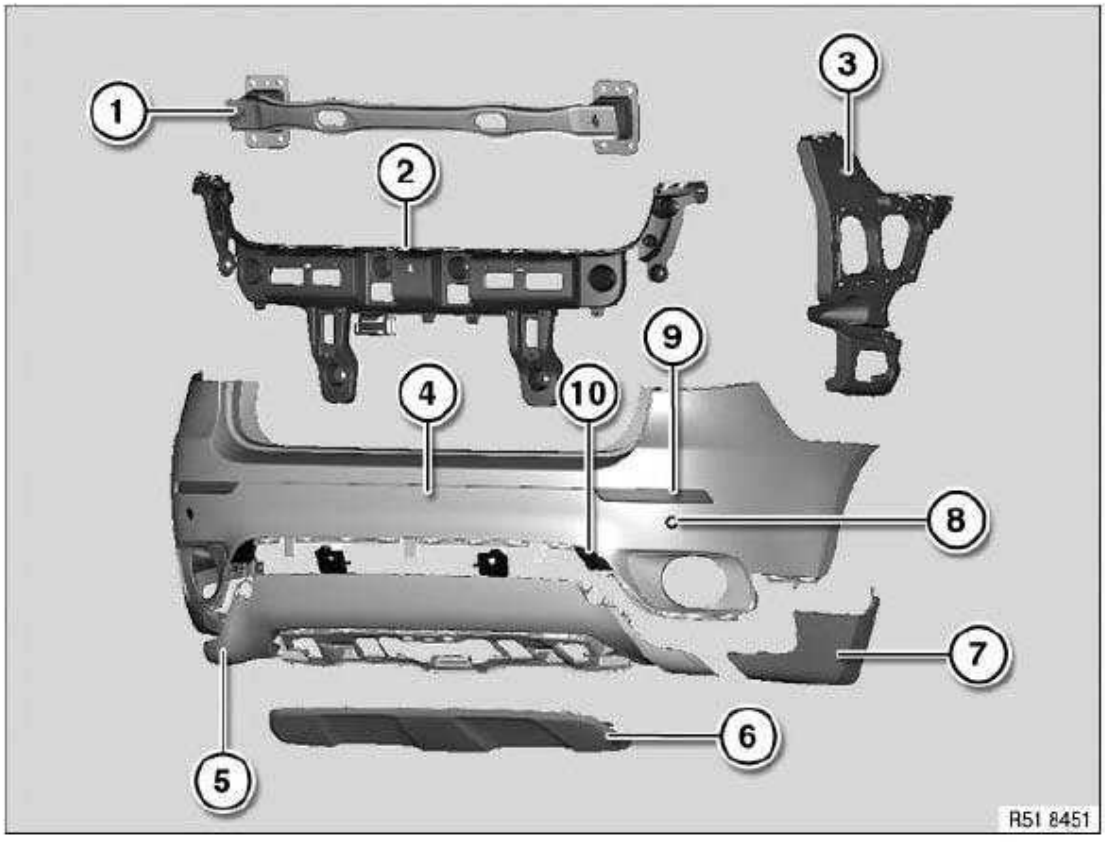


1	Front carrier	6	Ultrasonic transducer
2	Top (upper) grille	7	Bumper trim
3	Side trim grille	8	Cover on towing eye
4	Underride protection	9	Trim grille, middle bottom
5	Bumper trim, bottom	10	Holder for license plate

Fig. 5: Identifying Front Bumper Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 ... OVERVIEW OF REAR BUMPER

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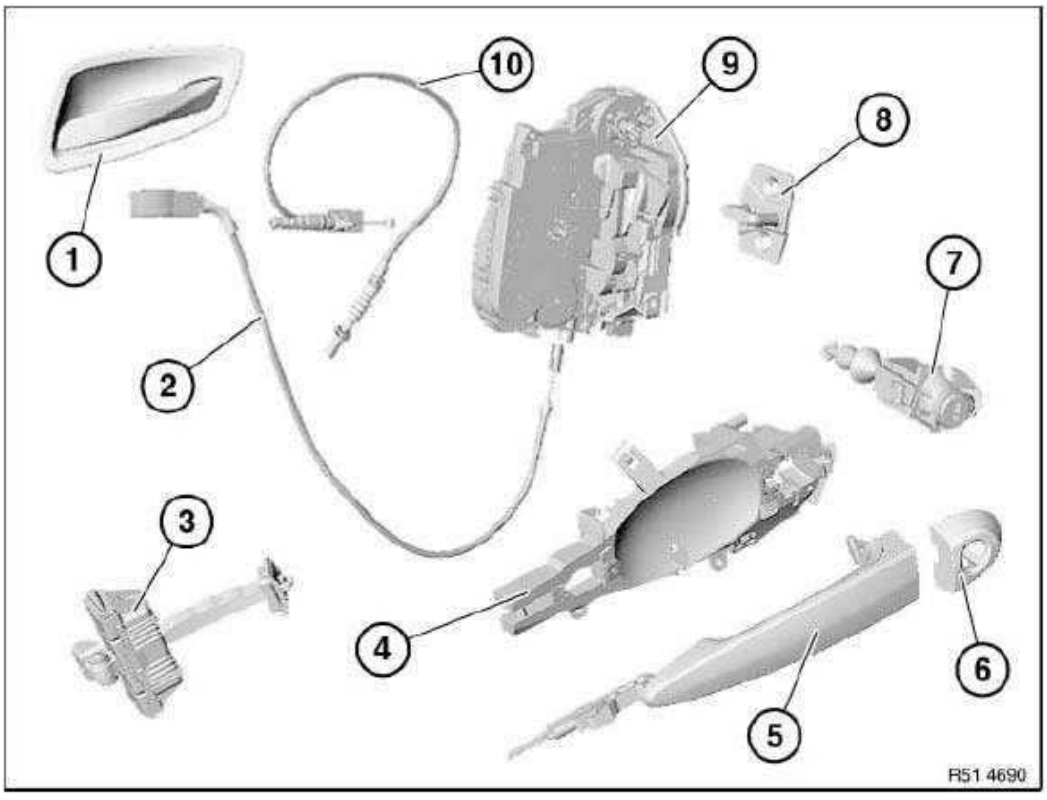


1	Carrier, rear	6	Lower trim
2	Guide for centre bumper	7	Bumper side section
3	Holder, side	8	Ultrasonic transducer
4	Bumper trim	9	Rear reflector with rear fog light
5	Bumper trim, bottom	10	Cover on towing eye

Fig. 6: Identifying Rear Bumper Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 ... OVERVIEW OF FRONT DOOR LOCKS

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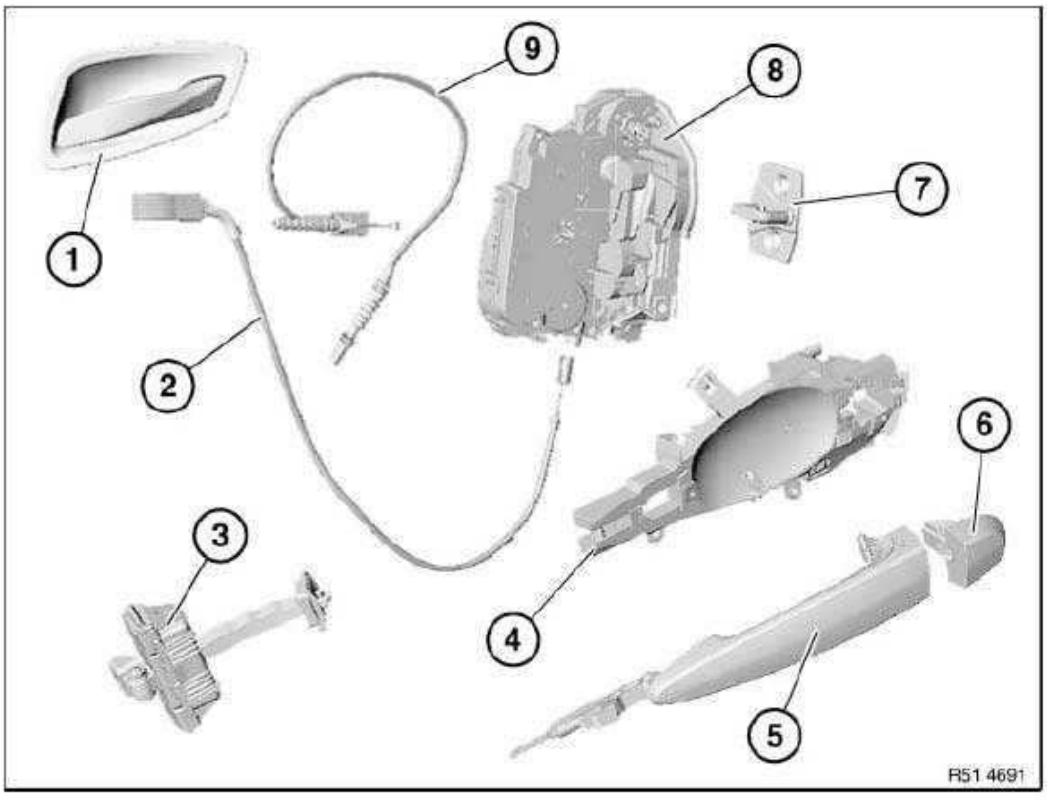


1	Door opener, inside	6	Cover on outside handle
2	Bowden cable for inside door opener	7	Lock cylinder (on driver's door only)
3	Door brake	8	Door detent (lock striker)
4	Carrier for outside door handle	9	Door lock
5	Outside handle on front door	10	Bowden cable for outside door handle

Fig. 7: Identifying Front Door Locks Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 ... OVERVIEW OF REAR DOOR LOCKS

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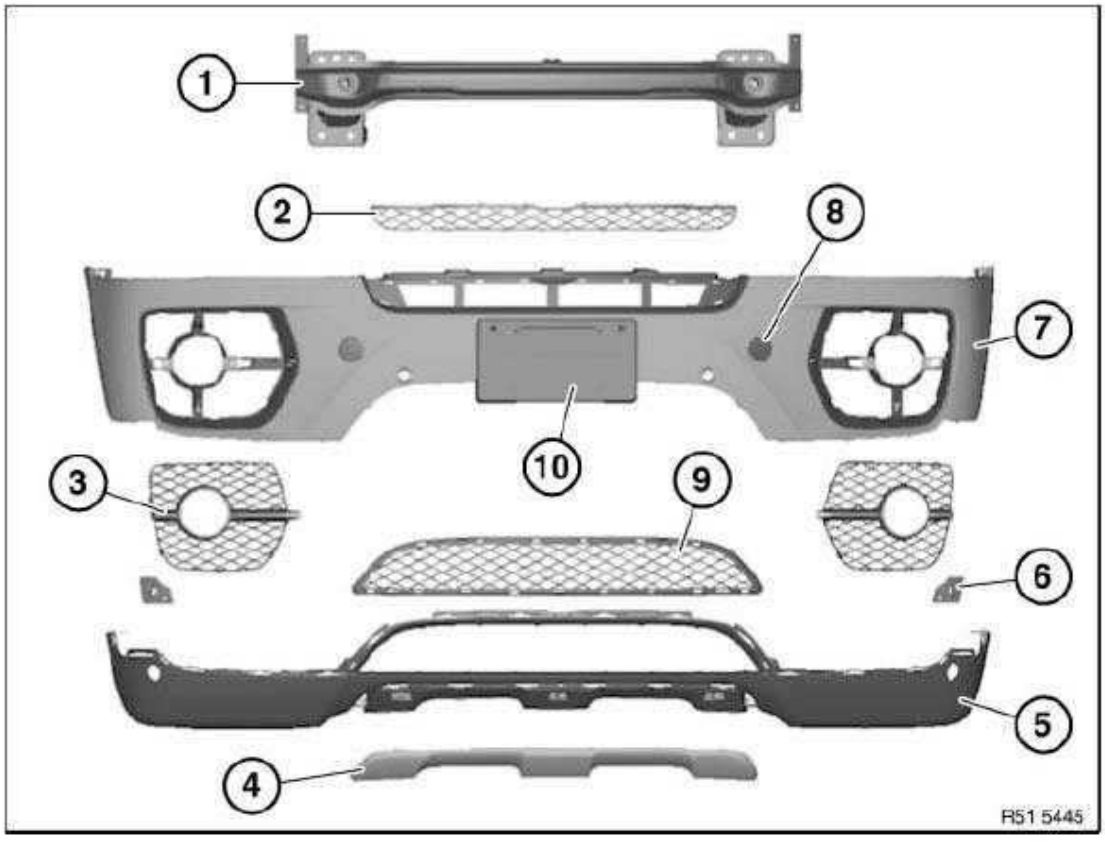
1	Door opener, inside	6	Cover on outside handle
2	Bowden cable for inside door opener	7	Door detent (lock striker)
3	Door brake	8	Door lock
4	Carrier for outside door handle	9	Bowden cable for outside door handle
5	Outside handle on front door		

Fig. 8: Identifying Rear Door Locks Components
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT BUMPER

51 11 ... OVERVIEW OF FRONT BUMPER

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1	Front carrier	6	Ultrasonic transducer
2	Top (upper) grille	7	Bumper trim
3	Side trim grille	8	Cover on towing eye
4	Underride protection	9	Trim grille, middle bottom
5	Bumper trim, bottom	10	Holder for license plate

Fig. 9: Identifying Front Bumper Components
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**.

Partially detaching brake air duct (depending on engine version):

Release expansion rivet (1).

Release screw (2).

Release catch (3).

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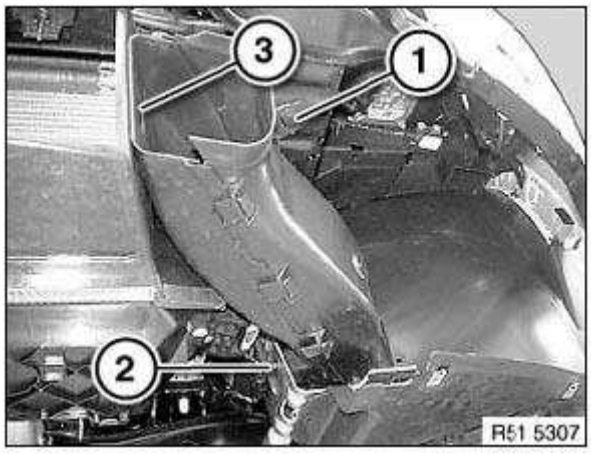


Fig. 10: Identifying Expansion Rivet, Screw And Catch
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1) on fanfare horn on left/right

If necessary, release hose holder (2) for headlight washer system.

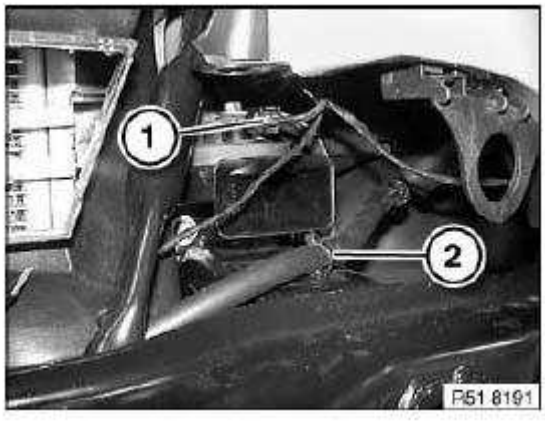


Fig. 11: Identifying Plug Connection And Hose Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Park Distance Control (PDC):

Release plug connection on right inner side of member by turning through 45°.

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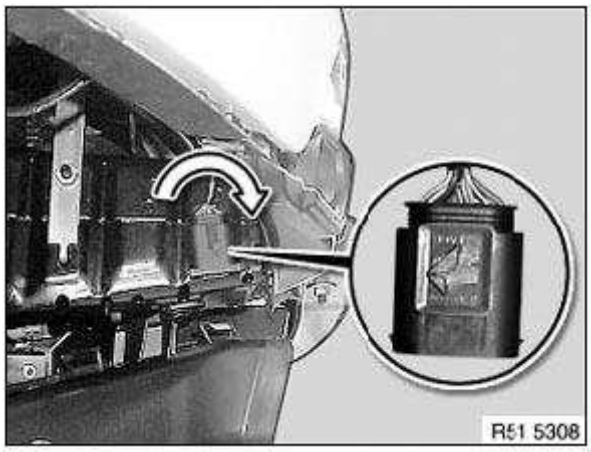


Fig. 12: Releasing Plug Connection On Right Inner Side Of Member By Turning
Courtesy of BMW OF NORTH AMERICA, INC.

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

IMPORTANT: Before releasing screws (3), make sure support member (4) is supported by a 2nd person helping.

Release screws (3) on left and right and feed out support member (4) in downward direction.

Tightening torque **51 11 2AZ** , see **51 11 FRONT BUMPER** .

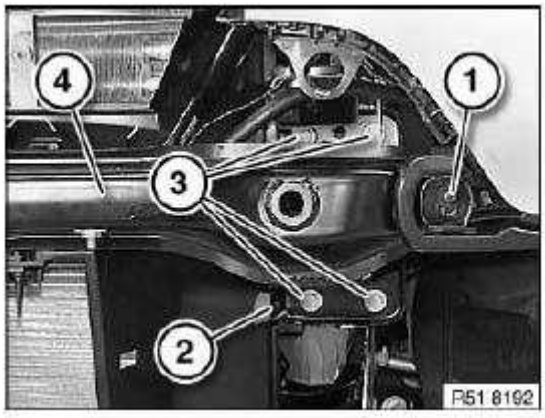


Fig. 13: Identifying Screws And Support Member
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts (1 and 2) on strut (3) on left/right.

Installation:

When installing carrier (4), make sure struts (3) on left and right are correctly fed in.

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

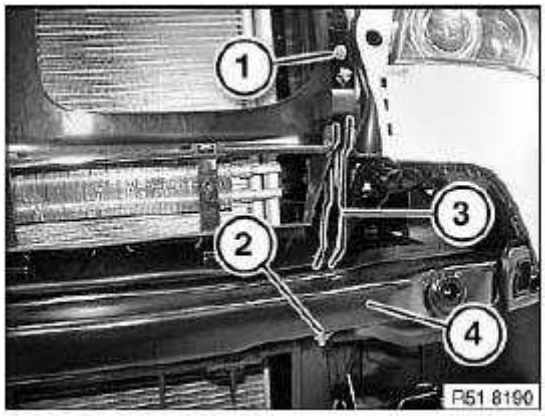


Fig. 14: Identifying Carrier, Struts And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Remove fanfare horns (1).

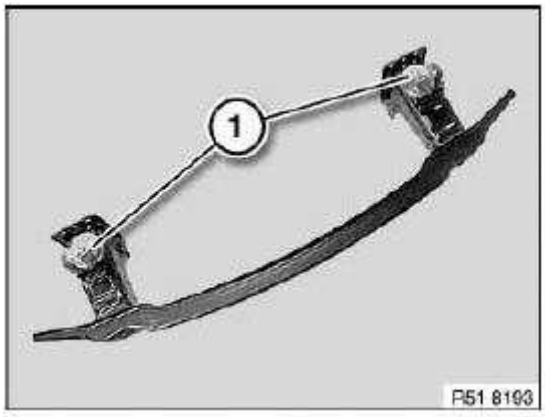


Fig. 15: Identifying Fanfare Horns
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM

NOTE: Pictures created using the X6 3.0 i as an example. There may be differences in detail in the case of other models.

Necessary preliminary tasks:

- Remove **front reflector** , see **63 14 080 REMOVING AND INSTALLING/REPLACING FRONT REFLECTOR** .
- Release **trim on front wheel arch** , see **51 71 470 Removing and installing/replacing trim on front**

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left or right wheel arch.

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

Release screws (1).

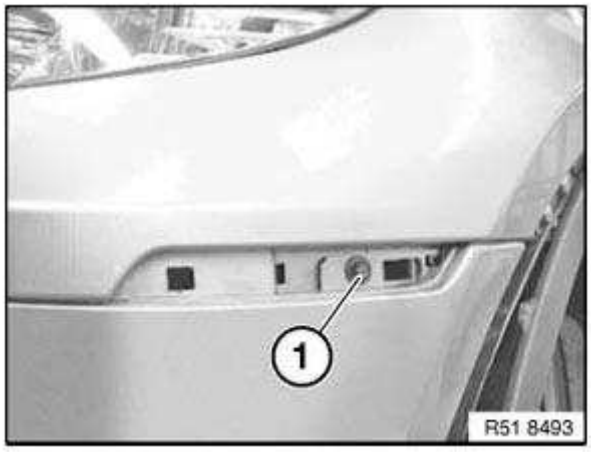


Fig. 16: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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

Release screws (1) on wheel arch trim (2).

Installation:

Make sure wheel arch trim (2) is in correct position.

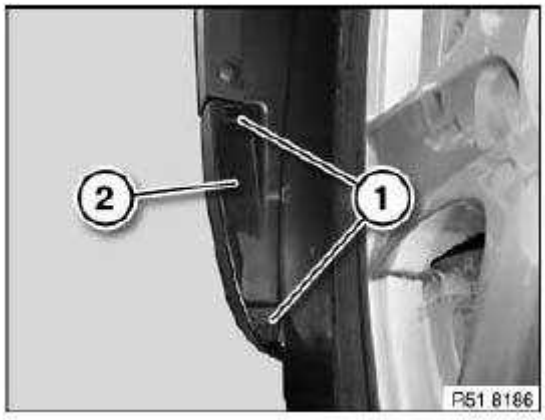


Fig. 17: Identifying Screws And Wheel Arch Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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Release screws (1).



Fig. 18: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

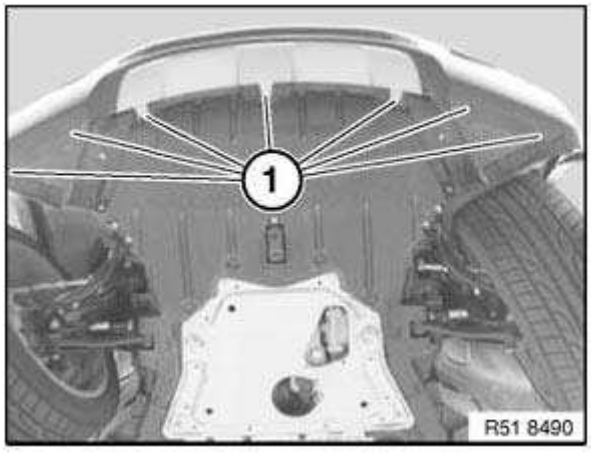


Fig. 19: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip bumper trim (1) with a 2nd person helping towards front from catch (2).

IMPORTANT: Do not damage bumper trim when pulling off.

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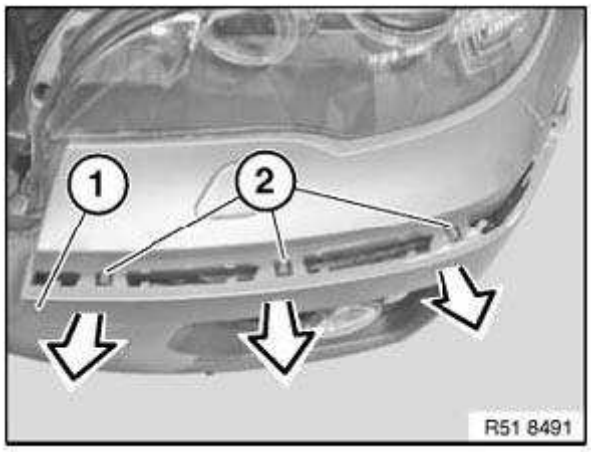


Fig. 20: Identifying Bumper Trim And Catch
Courtesy of BMW OF NORTH AMERICA, INC.

The 2nd person holds the bumper trim (1) while the plug connections for the fog lamps in area (2) and for Park Distance Control (PDC) in area (3) are disconnected.

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

Installation:

Height adjustment, refer to **GAP DIMENSIONS, BODY** .

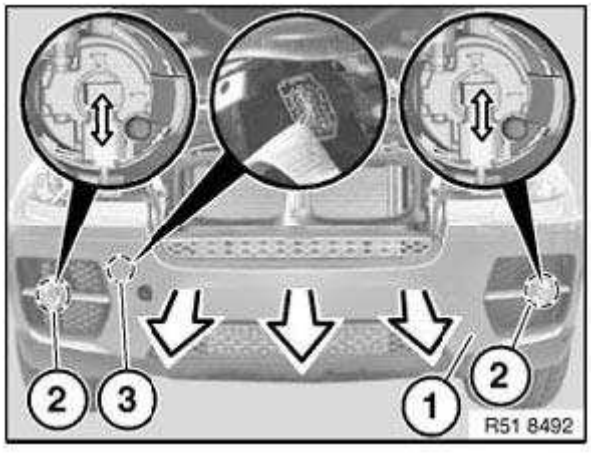


Fig. 21: Identifying Bumper Trim And Fog Lamps Area
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 157 REPLACING FRONT BUMPER TRIM

Necessary preliminary tasks:

- Remove **front bumper trim** , see **51 11 156 Removing and installing front bumper trim**.

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- Remove **license plate holder** , see **51 11 158 Replacing baseplate for license plate**.
- Remove **bottom middle grille** , see **51 11 180 Removing and installing/replacing grille in bumper trim (bottom middle)**.
- Remove **side grille** , see **51 11 185 Removing and installing/replacing grille (side) in bumper trim**.
- Remove **top grille** , see **51 11 182 Removing and installing/replacing grille in bumper trim at top**.
- Remove and install **fog lamps** , see **63 17 070 REMOVING AND INSTALLING/REPLACING LEFT FRONT FOG LAMP** .
- Remove **wiring harness** , see **61 12 062 REPLACING WIRING HARNESS FOR FRONT BUMPER** .
- If necessary, remove **ultrasonic transducer** , see **66 20 518 REMOVING AND INSTALLING/REPLACING A FRONT ULTRASONIC TRANSDUCER (CENTRE)** .
- Remove cover caps for tow lug

51 11 158 REPLACING BASEPLATE FOR LICENSE PLATE

Unscrew and remove license plate.

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

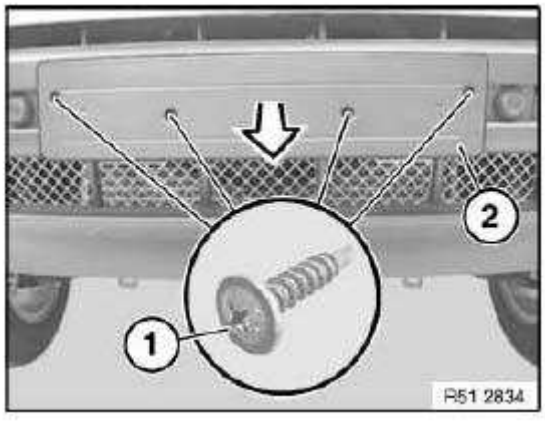


Fig. 22: Identifying Screws And Baseplate
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 160 REMOVING AND INSTALLING FRONT UNDERRIDE PROTECTION

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

NOTE: Pictures created using the X6 3.0 i US as an example. There may be differences in detail in the case of other models.

Release screws (1).

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Unclip catches (2) with special tool **00 9 317** and remove underride protection (3).

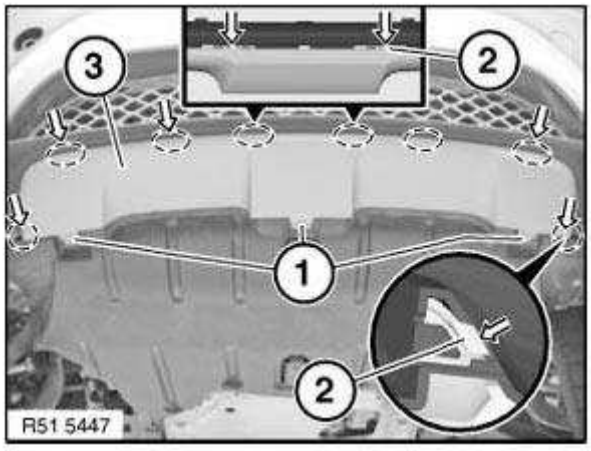


Fig. 23: Identifying Catches, Screws And Underride Protection
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on underride protection (2) must not be damaged.

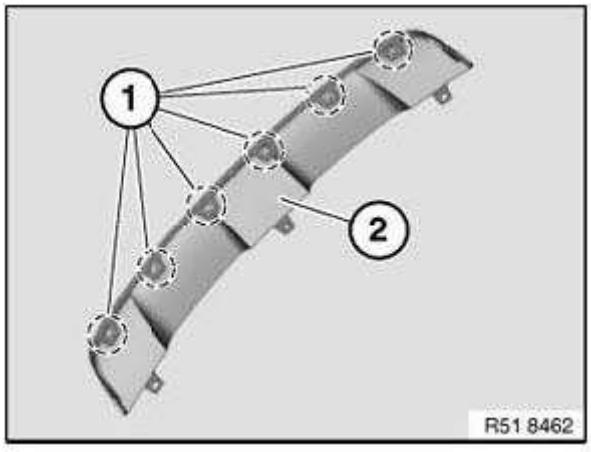


Fig. 24: Identifying Catches And Underride Protection
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 180 REMOVING AND INSTALLING/REPLACING GRILLE IN BUMPER TRIM (BOTTOM MIDDLE)

Necessary preliminary tasks:

- Remove **front bumper trim** , see **51 11 156 Removing and installing front bumper trim**.

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

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Installation:

Catches must not be damaged

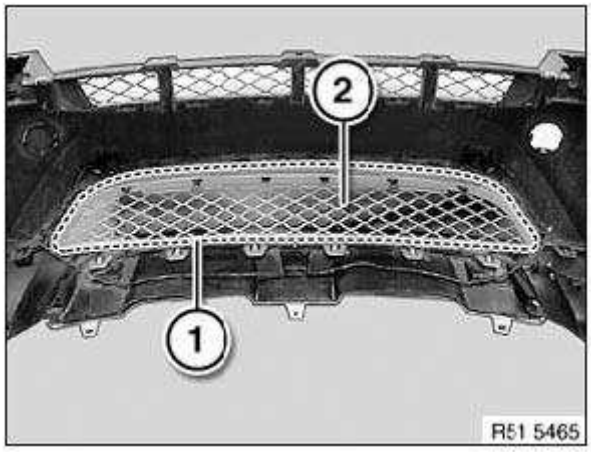


Fig. 25: Identifying Catches And Grille
Courtesy of BMW OF NORTH AMERICA, INC.

51 11 182 REMOVING AND INSTALLING/REPLACING GRILLE IN BUMPER TRIM AT TOP

Pull grille (1) towards front and release from catches (2).

Installation:

Catches (2) must not be damaged.

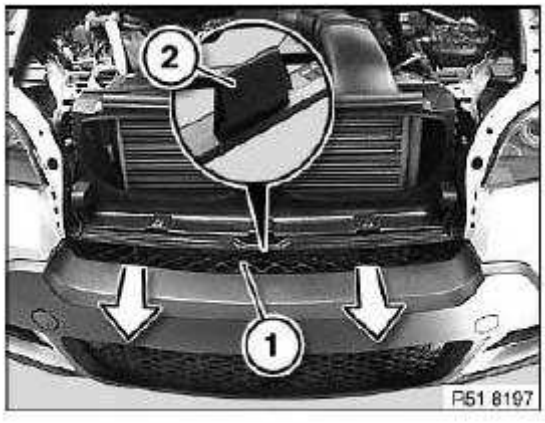


Fig. 26: Identifying Catches And Grille
Courtesy of BMW OF NORTH AMERICA, INC.

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

Special tools required:

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- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Fold trim bar (1) down and pull in direction of arrow from catches (2).

Installation:

Catches (2) must not be damaged.

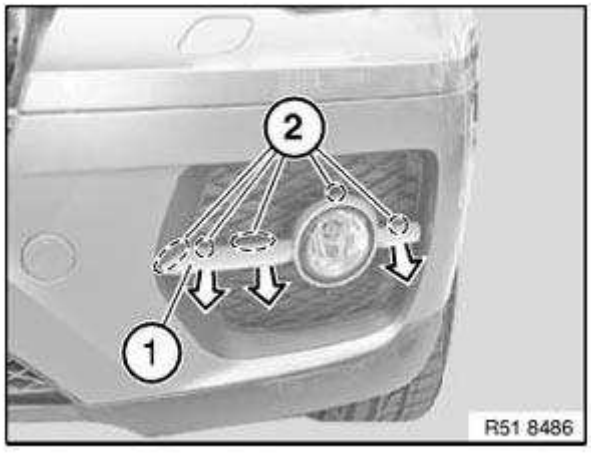


Fig. 27: Identifying Trim Bar And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip catches (1) with special tool **00 9 323** and remove trim grille (2) towards front.

Installation:

Catches (1) must not be damaged

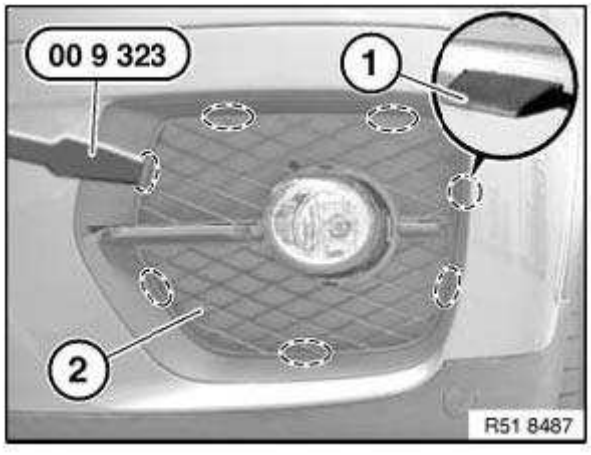
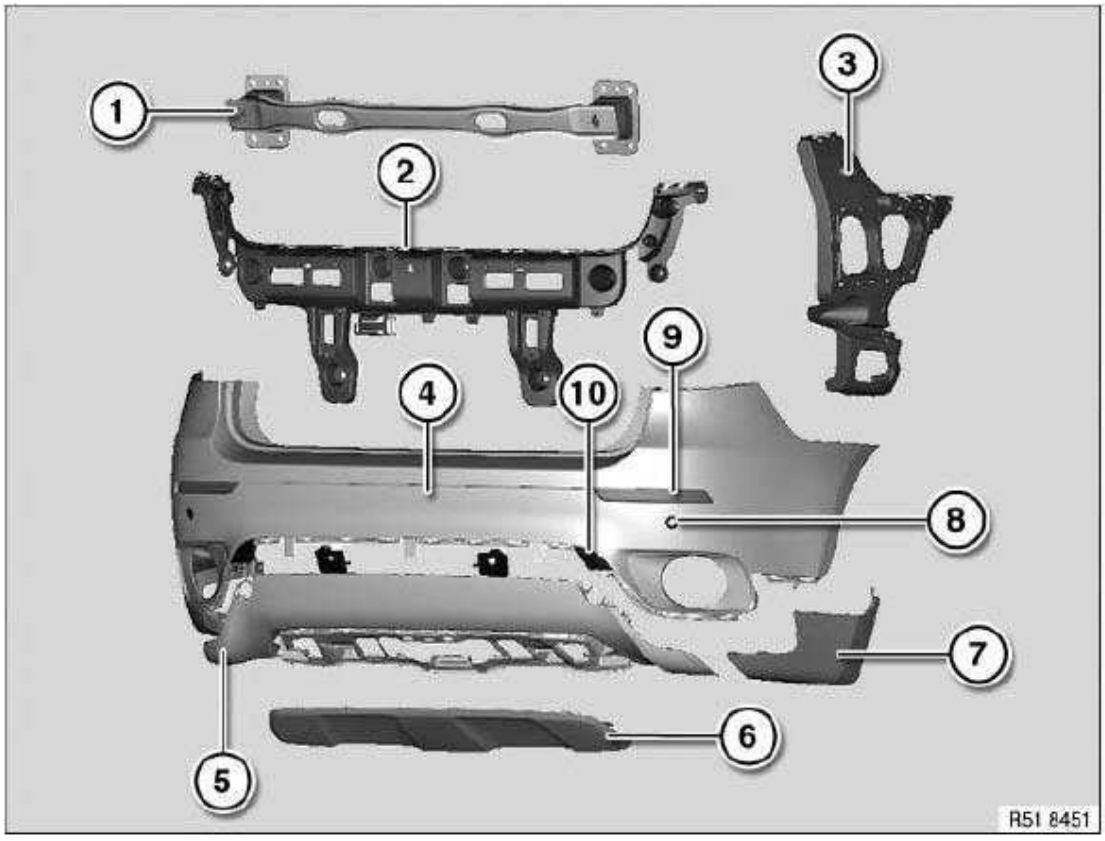


Fig. 28: Identifying Trim Grille And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

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REAR BUMPER

51 12 ... OVERVIEW OF REAR BUMPER



1	Carrier, rear	6	Lower trim
2	Guide for centre bumper	7	Bumper side section
3	Holder, side	8	Ultrasonic transducer
4	Bumper trim	9	Rear reflector with rear fog light
5	Bumper trim, bottom	10	Cover on towing eye

Fig. 29: Identifying Rear Bumper Components
Courtesy of BMW OF NORTH AMERICA, INC.

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

Necessary preliminary tasks:

- Remove **rear bumper trim** , see **51 12 156 Removing and installing rear bumper trim**.

Release nuts (1) on left and right.

Remove carrier (2).

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Installation:

Tightening torque **51 12 1AZ** , see **51 12 REAR BUMPER** .

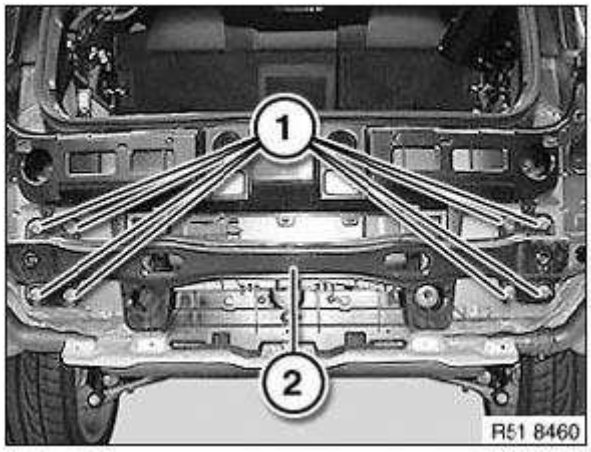


Fig. 30: Identifying Carrier And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 156 REMOVING AND INSTALLING REAR BUMPER TRIM

Necessary preliminary tasks:

- Remove **trim on bumper trim** , see **51 11 156 Removing and installing front bumper trim**.

Partially detach **rear wheel arch trim (1)** (see **51 71 478 Removing and installing/replacing trim on rear left or right wheel arch**). Unfasten screws (2 and 3).

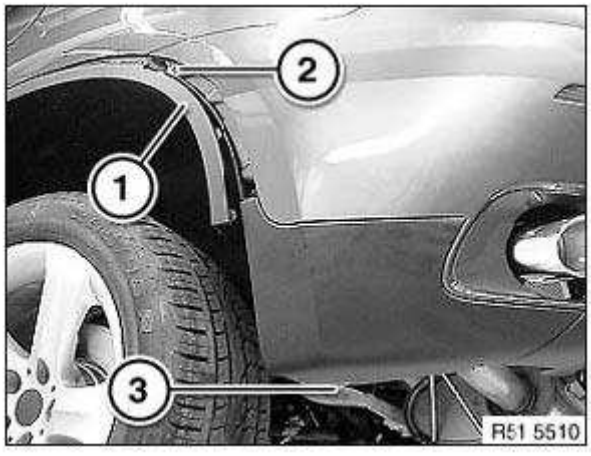


Fig. 31: Identifying Rear Wheel Arch Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2) on lower bumper trim section (3).

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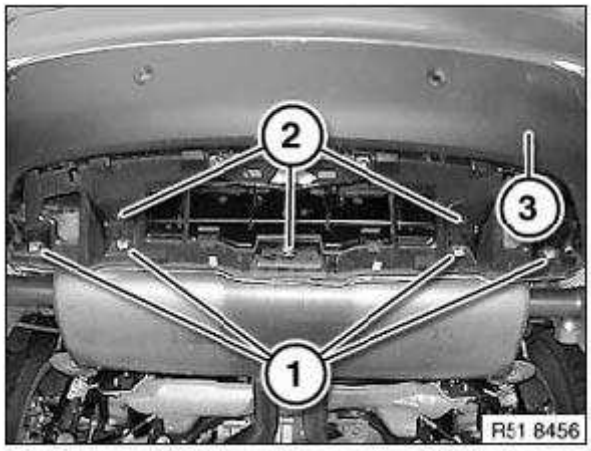


Fig. 32: Identifying Screws And Lower Bumper Trim Section
Courtesy of BMW OF NORTH AMERICA, INC.

Pull bumper trim (1) with a 2nd person helping on left and right in direction of arrow out of catches (2).

Installation:

Bumper trim (1) must be correctly fed in at catches (2).

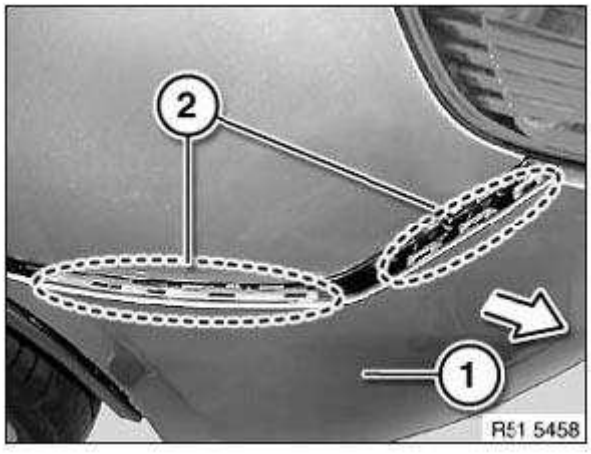


Fig. 33: Identifying Bumper Trim And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Pull bumper trim (1) forwards with a 2nd person helping and disconnect plug connection (2).

Remove bumper trim (1) in direction of arrow.

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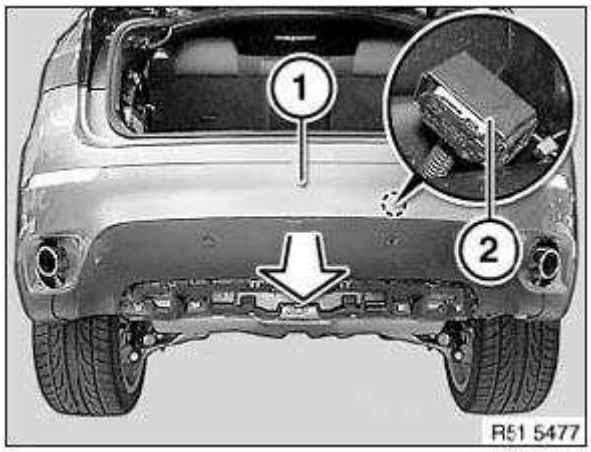


Fig. 34: Identifying Bumper Trim And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches in areas (A and B) and guide (1) on trim (2) must not be damaged.

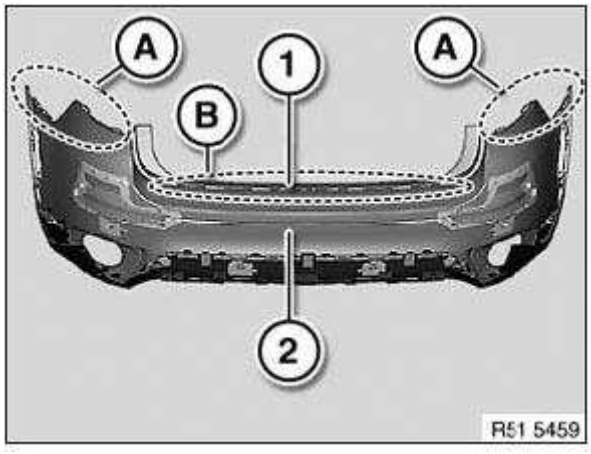


Fig. 35: Identifying Guide And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 157 REPLACING REAR BUMPER TRIM

NOTE: **Pictures created using the X6 3.0 i as an example. There may be differences in detail in the case of other models.**
Necessary preliminary tasks:

- **Remove rear bumper trim , see 51 12 223 Removing and installing/replacing trim for rear bottom middle bumper trim.**
- **Remove rear reflector with rear fog light , see 63 14 120 REMOVING AND INSTALLING/REPLACING REAR REFLECTOR (REAR FOG LIGHT) .**

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Version with Park Distance Control (PDC):

Remove **ultrasonic transducer (1)** , see **66 20 534 REMOVING AND INSTALLING/REPLACING REAR LEFT ULTRASONIC TRANSDUCER** or **66 20 535 REMOVING AND INSTALLING/REPLACING REAR RIGHT ULTRASONIC TRANSDUCER** or **66 20 536 REMOVING AND INSTALLING/REPLACING REAR MIDDLE LEFT ULTRASONIC TRANSDUCER** or **66 20 537 REMOVING AND INSTALLING/REPLACING REAR MIDDLE RIGHT ULTRASONIC TRANSDUCER** .

Unclip wiring harness (2).

Installation:

Check wiring harness for damage, replace if necessary.

Make sure wiring harness is correctly seated.

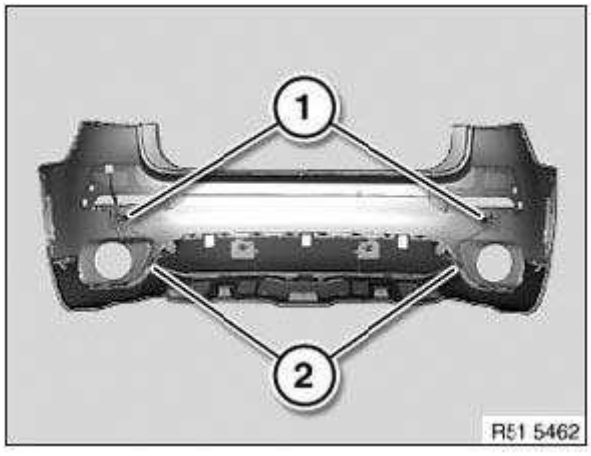


Fig. 36: Identifying Ultrasonic Transducer And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

Remove **panel from bumper side section (1)** , see **51 12 210 Removing and installing trim on rear left or right bumper side section**.

Remove **lower bumper trim section (2)** , see **51 12 162 Removing and installing/replacing rear bottom middle bumper trim**.

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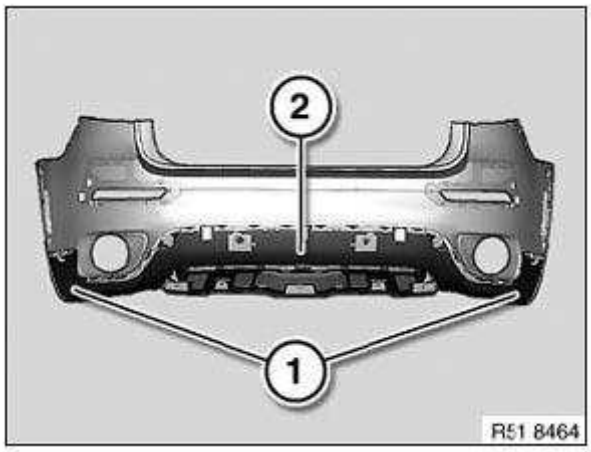


Fig. 37: Identifying Lower Bumper Trim Section And Bumper Side Section
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 162 REMOVING AND INSTALLING/REPLACING REAR BOTTOM MIDDLE BUMPER TRIM

Necessary preliminary tasks:

- Remove **trim for bumper trim** , see **51 12 223 Removing and installing/replacing trim for rear bottom middle bumper trim**.

Release expansion rivet (1).

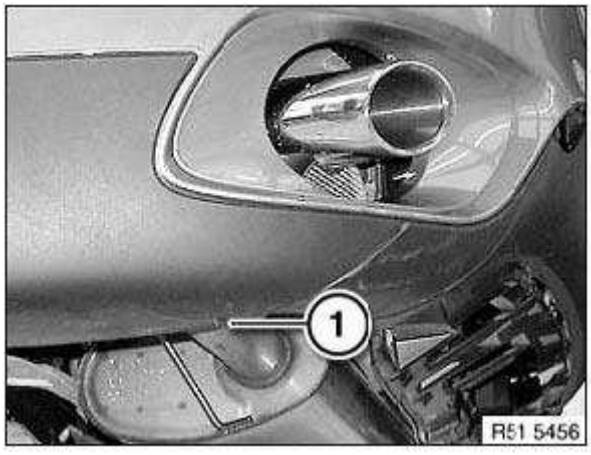


Fig. 38: Identifying Expansion Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Park Distance Control (PDC):

Remove **storage compartment in luggage compartment on right** , see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on left or right**.

Disconnect plug connection (1).

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Feed through cable (2) with grommet (3) in outward direction.

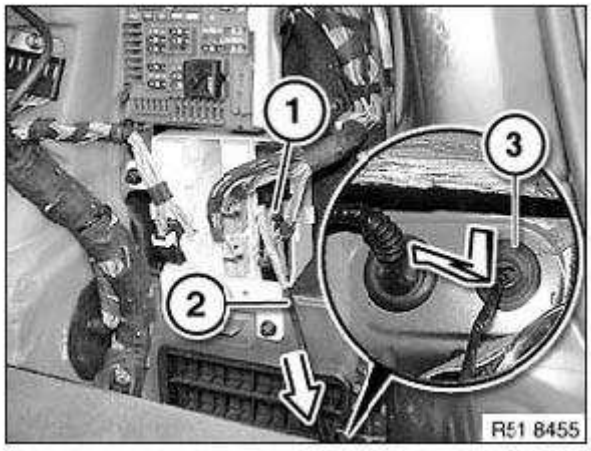


Fig. 39: Identifying Cable, Grommet And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

Unclip lower section (3) and remove.

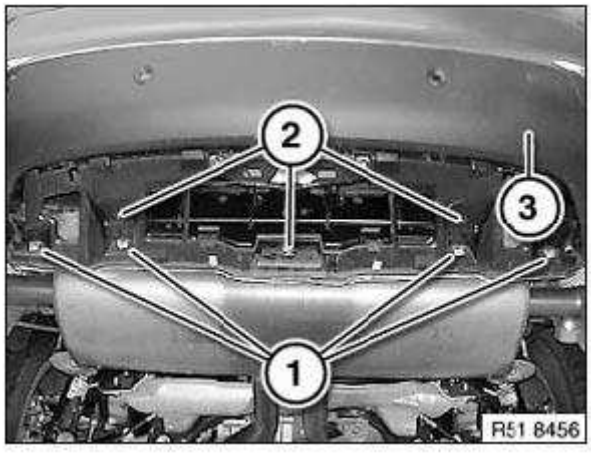


Fig. 40: Identifying Lower Section And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) must not be damaged

Replacement:

- Remove **ultrasonic transducer** , see **66 20 518 REMOVING AND INSTALLING/REPLACING A FRONT ULTRASONIC TRANSDUCER (CENTRE)** .

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- Remove wiring harness

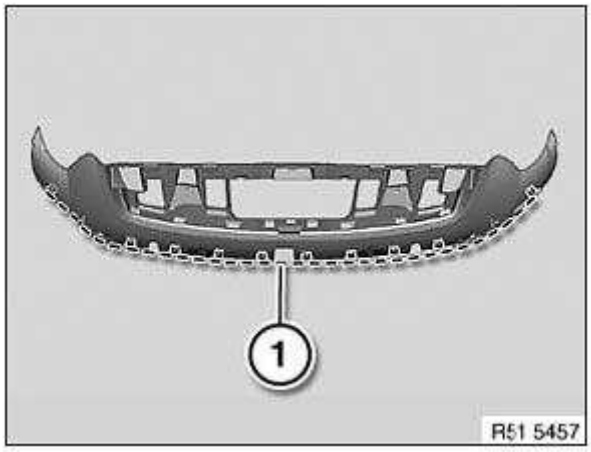


Fig. 41: Identifying Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 210 REMOVING AND INSTALLING TRIM ON REAR LEFT OR RIGHT BUMPER SIDE SECTION

Partially detach **rear wheel arch trim (1)** (see **51 71 478 Removing and installing/replacing trim on rear left or right wheel arch**).

Unfasten screws (2 and 3).

Release expansion rivet (4).

Installation:

If necessary, replace expander rivet (4).

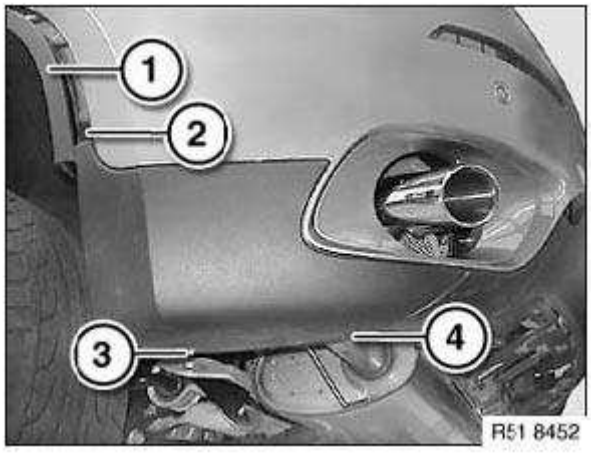


Fig. 42: Identifying Expander Rivet And Screws

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Courtesy of BMW OF NORTH AMERICA, INC.

Carefully detach trim (1) from catches (2).

Installation:

Catches on trim and bumper side section must not be damaged.

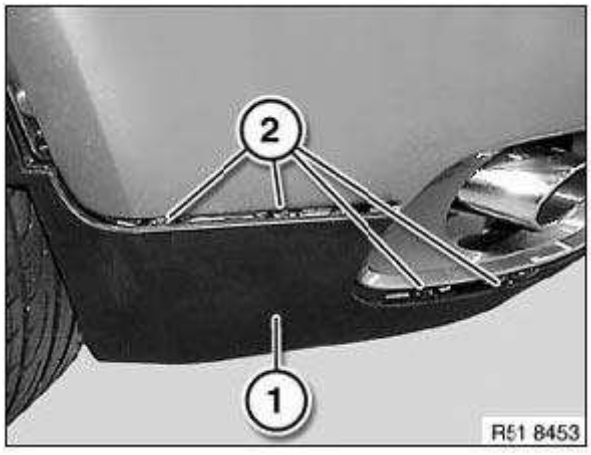


Fig. 43: Identifying Trim And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 12 223 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR BOTTOM MIDDLE BUMPER TRIM

Version with trailer tow hitch: Release screws (1) and remove tow hitch flap (2).

Unclip trim (3) all round from bumper trim.

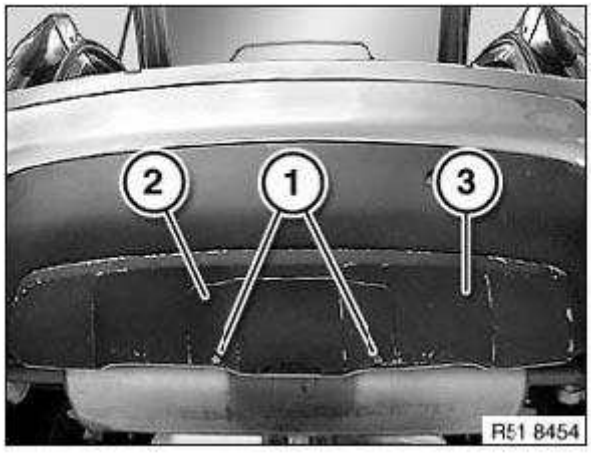


Fig. 44: Identifying Screws, Trim And Tow Hitch Flap
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Catches (1) and guides (2) on trim (3) must not be damaged.

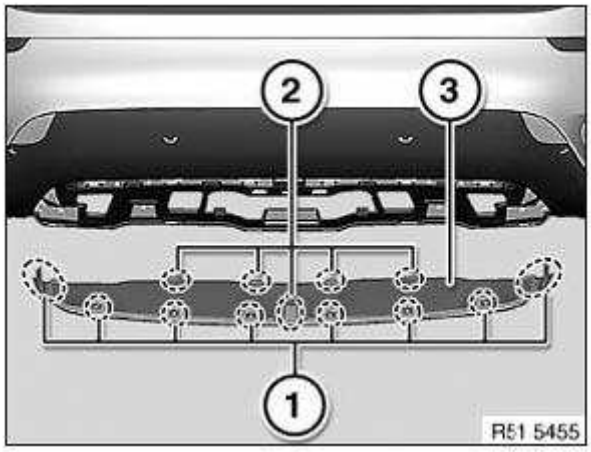


Fig. 45: Identifying Catches, Guides And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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**.

Release nuts (1) and (2).

Disconnect plug connection for comfort aerial/antenna (3).

Feed out holder (4) towards top.

Installation:

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

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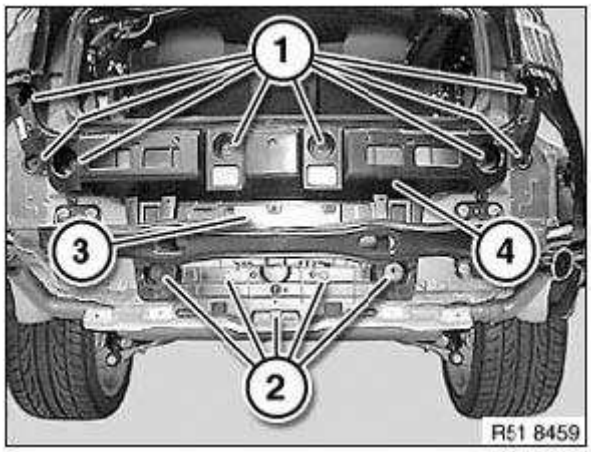


Fig. 46: Identifying Comfort Aerial/Antenna, Nuts And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides in area (A) of bracket (1) must not be damaged.

Replacement

Remove comfort aerial/antenna (2).

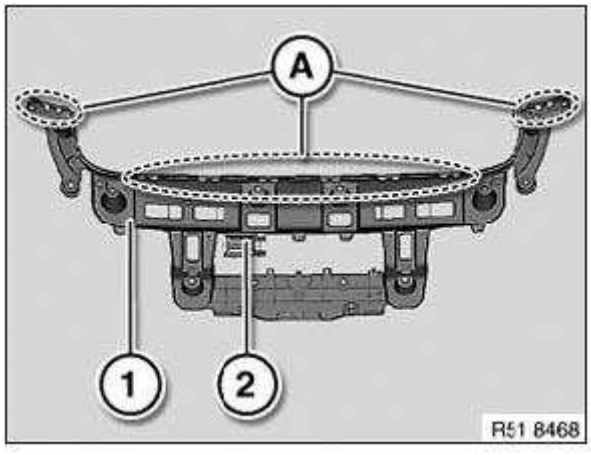


Fig. 47: Identifying Comfort Aerial/Antenna And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

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

Necessary preliminary tasks:

- Remove **rear bumper** , see **51 12 156 Removing and installing rear bumper trim**

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

Release screws (1 and 2).

Unscrew nuts (3).

Take off holder (4).

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

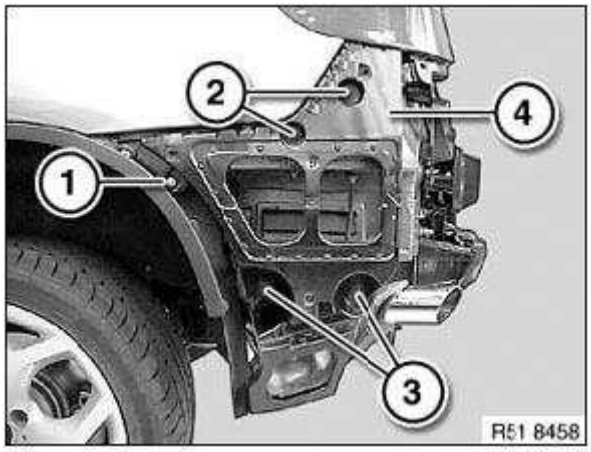


Fig. 48: Identifying Holder, Nuts And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides in area (A) of bracket (1) must not be damaged.

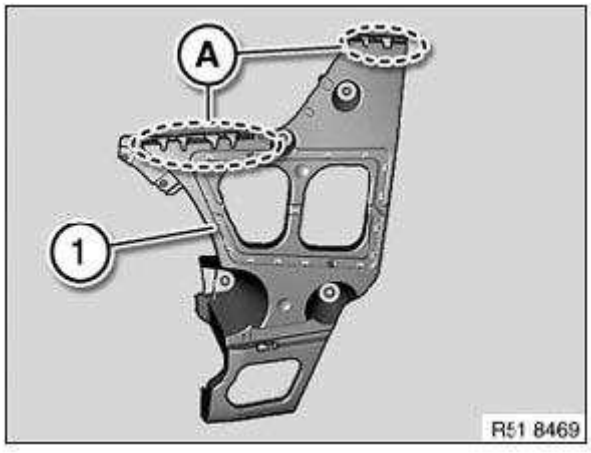


Fig. 49: Identifying Area And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

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TRIM COVERS HANDLE TRIM

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

Press down catches (1) and remove front radiator grille (2) from outside.

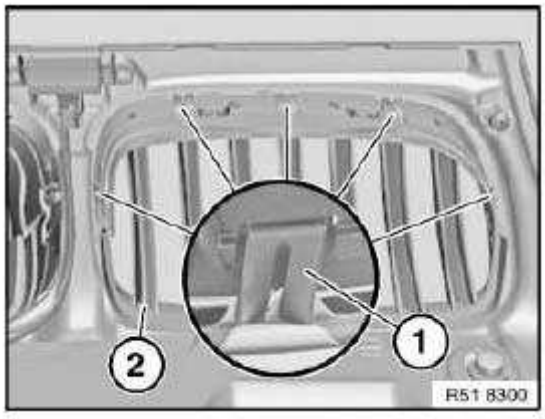


Fig. 50: Identifying Catches And Front Radiator Grille
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

Press on chrome ring to push front radiator grille (2) into bonnet/hood.

Fixtures (1) must engage correctly.

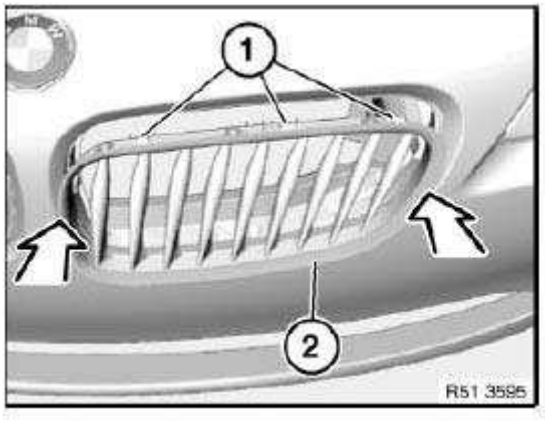


Fig. 51: Identifying Front Radiator Grille And Fixtures
Courtesy of BMW OF NORTH AMERICA, INC.

51 13 116 REMOVING AND INSTALLING/REPLACING COWL PANEL COVER

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Necessary preliminary tasks:

- Remove both **windscreen wiper arms** , see **61 61 081 REPLACING (REMOVING AND INSTALLING) LEFT OR RIGHT WINDSCREEN WIPER ARM** .
- Remove both **microfilter housing covers** , see **64 31 101 REMOVING AND INSTALLING/REPLACING LEFT MICROFILTER HOUSING COVER** or **64 31 106 REMOVING AND INSTALLING/REPLACING RIGHT MICROFILTER HOUSING COVER** .

Release clips (1).

Feed out cover (2) towards top.

Installation:

If necessary, replace faulty clips (1) and associated grommets in body.

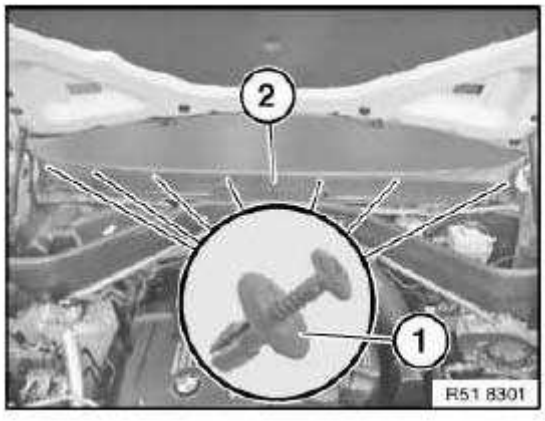


Fig. 52: Identifying Clips And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure grommets (1) are correctly seated on wiper pivots.

Grommets (1) for wiper pivots must not be damaged.

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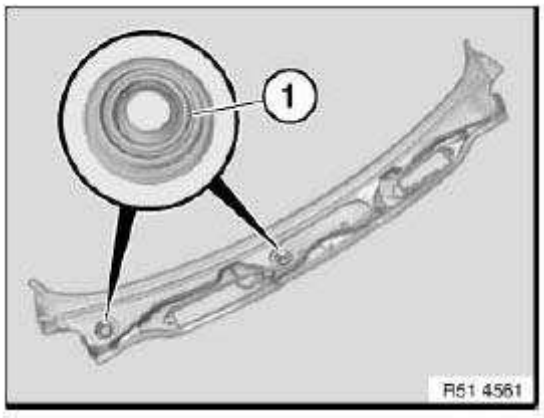


Fig. 53: Identifying Grommets
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Cowl panel cover (1) must be correctly guided on right and left under windscreen cover (2).

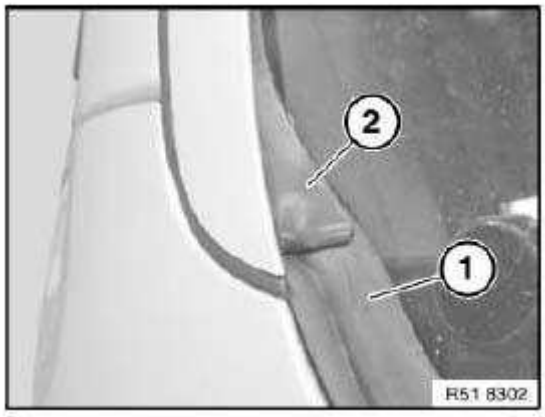


Fig. 54: Identifying Cowl Panel Cover And Left Under Windscreen Cover
Courtesy of BMW OF NORTH AMERICA, INC.

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

Special tools required:

- **00 9 321** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

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.

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

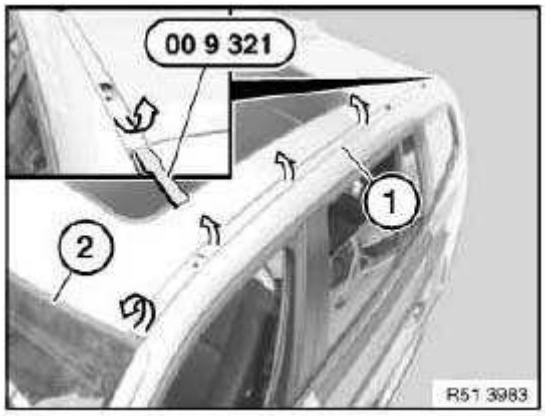


Fig. 55: Identifying Trim Strip And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

If necessary, replace clips (2).

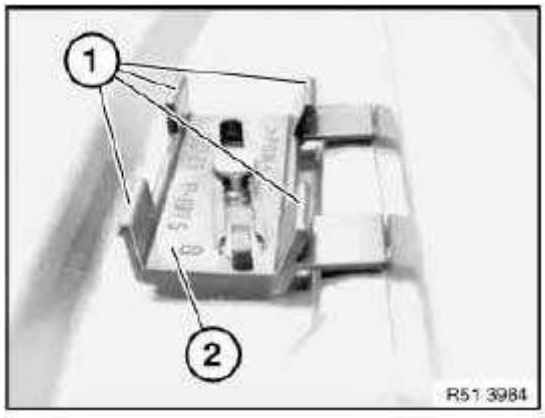


Fig. 56: Identifying Catches And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

1. Seals
2. End piece, front/rear

Replacement

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

Fit end pieces (2) at front and rear.

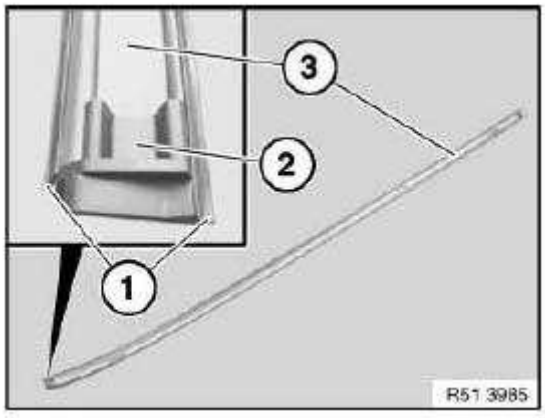


Fig. 57: Identifying Moisten Seals And End Pieces
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

E71 only: Modify support element (1) on front trim strip.

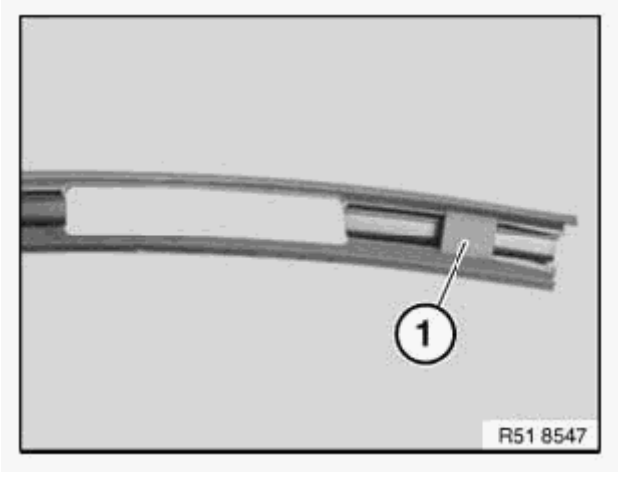


Fig. 58: Identifying Modify Support Element
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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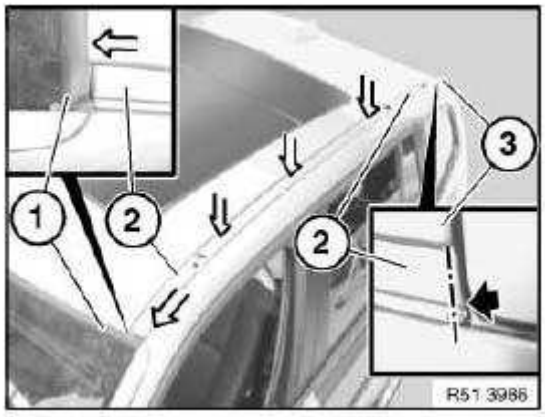


Fig. 59: Identifying Seal, Trim Strip And Flush With Edge
Courtesy of BMW OF NORTH AMERICA, INC.

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

Special tools required:

- **00 9 340** , see **00 9 340 DISASSEMBLY AID (2 PIECES)** .

Installation:

- Microencapsulated screws (Loctite) must be replaced and may not be reused
- Screw connection must be completed within 20 minutes (start of curing)
- Microencapsulated screws must not be retightened
- Clean thread of nut beforehand in event of repeated use

Front cover cap:

Slide special tool **00 9 340** centrally under front cover cap (1) and release catch.

Slide cover cap (1) forwards with a suitable tool.

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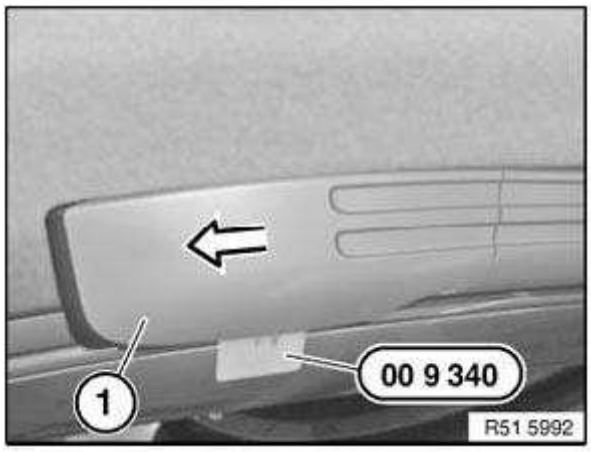


Fig. 60: Identifying Cover Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and catches (2) must not be damaged. If damaged, replace cover cap.

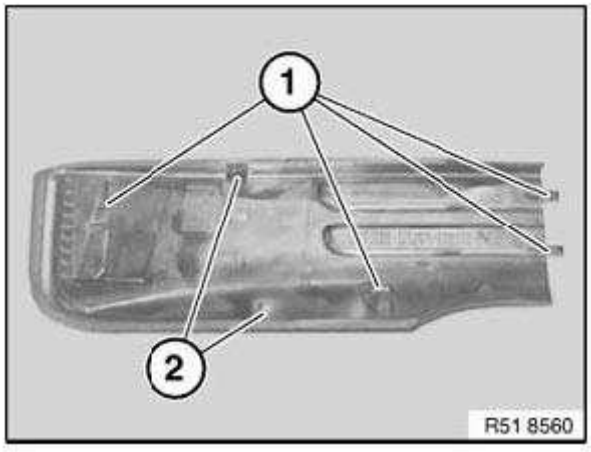


Fig. 61: Identifying Guides And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Rear cover cap:

Slide special tool **00 9 340** under rear cover cap (1) (observe position as per picture) and release catch.

Slide cover cap (1) back with a suitable tool.

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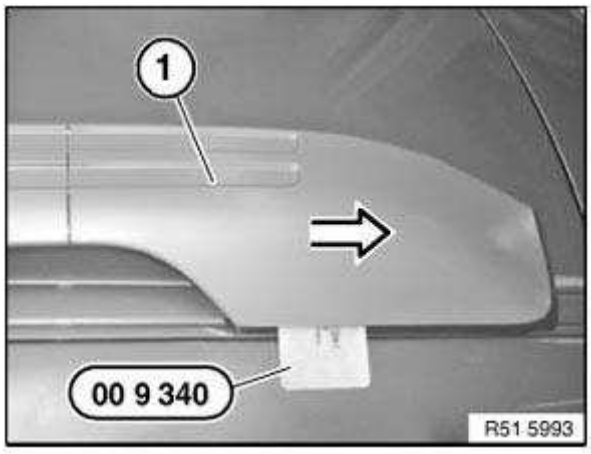


Fig. 62: Identifying Cover Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (2) on rail (3).

Remove rail (3).

Standard Torx screw is only supplied if expressly ordered.

Installation:

Replace screws (2) after each removal.

Tighten down screws to tightening torque **51 13 3AZ** , see **51 13 TRIM PARTS, COVERS, HANDLE TRIM** .

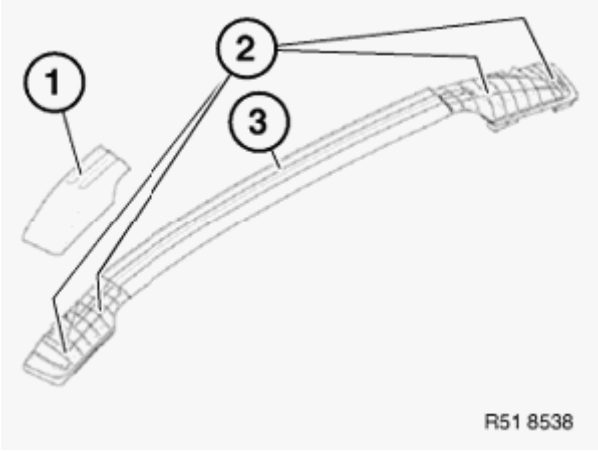


Fig. 63: Identifying Screws And Rail
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Clean contact surfaces and seal (2) before installation, check for damage, replace if necessary.

IMPORTANT: Risk of seal (2) being crushed when rail (3) is screwed down. Make sure seal is installed in correct position.

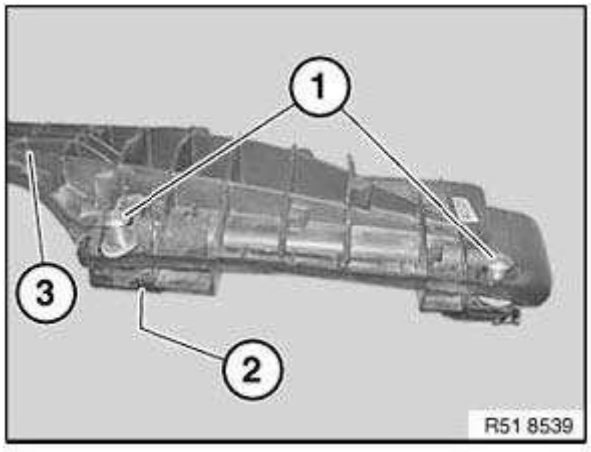


Fig. 64: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

BMW EMBLEM 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.
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).

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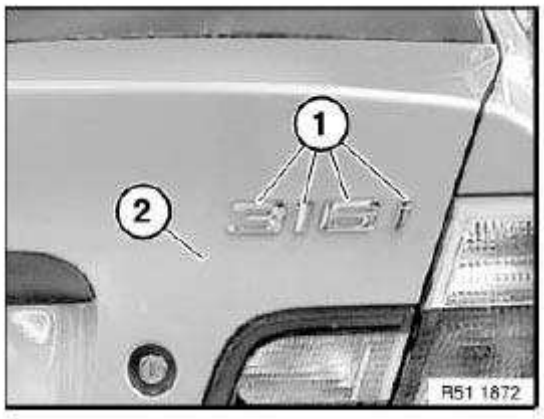


Fig. 65: Identifying Model Designation And Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

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).

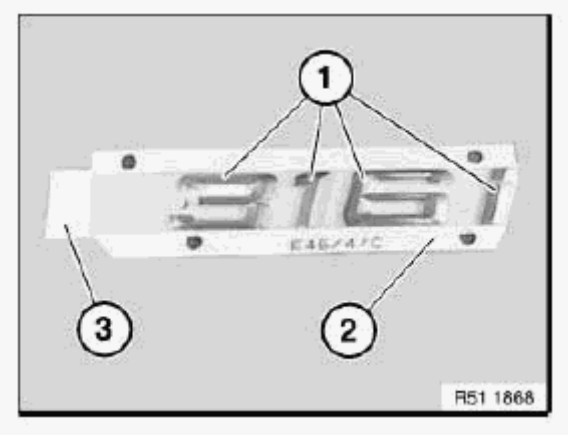


Fig. 66: Identifying Number And Letter Combinations, Carrier Film And Liner
Courtesy of BMW OF NORTH AMERICA, INC.

51 14 000 REMOVING AND INSTALLING/REPLACING FRONT BMW BADGE

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Special tools required:

- **00 9 318** , see **00 9 318 MULTIPURPOSE WEDGE** .

IMPORTANT: Risk of damage!

To avoid damaging the paintwork on the engine hood/bonnet, tape off edge areas (1) to sides of guide pins.

So as not to subject the BMW badge to excessive deformation, lever out the badge with special tool **00 9 318** at guide pins (2).

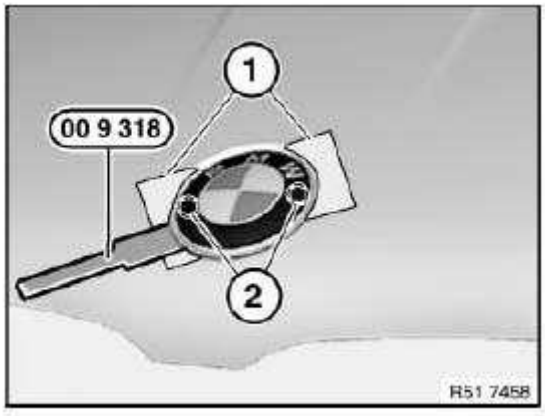
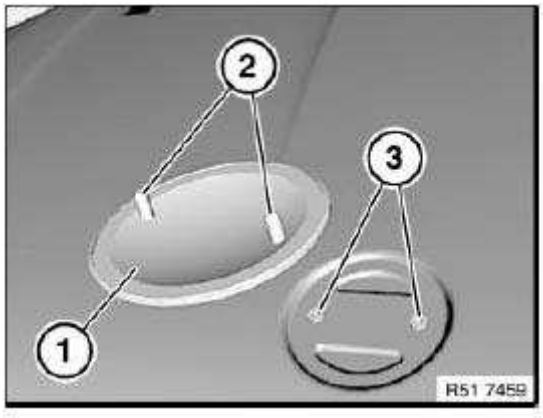


Fig. 67: Identifying Tape Off Edge Areas, Special Tool 00 9 318 And Guide Pins
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts must not be damaged or missing:

1. Badge
2. Guide pins
3. Grommets



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Fig. 68: Identifying Badge, Guide Pins And Grommets
Courtesy of BMW OF NORTH AMERICA, INC.

51 14 011 REPLACING REAR BMW BADGE

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

IMPORTANT: The Instructions on component cementing with double-sided adhesive tape serve as the basis for this repair instruction and must be observed without fail, see 51 31 ... Instructions on gluing windscreen.
The BMW badge must be replaced after it is removed.

Removing badge

Heat BMW badge (1) with hot air blower and carefully lever out with special tool **00 9 323** .

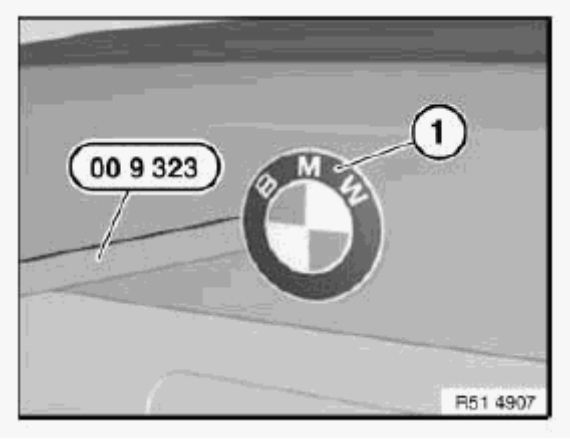


Fig. 69: Identifying BMW Badge
Courtesy of BMW OF NORTH AMERICA, INC.

Fitting badge

Installation:

Grommets (1) must not be damaged.

Pull liner* off adhesive tape (2), position badge over guide pins (3) and press down firmly.

* Liner is the protective film on a new badge.

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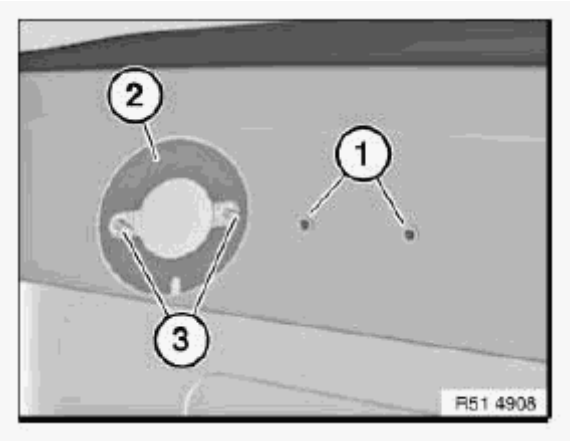


Fig. 70: Identifying Adhesive Tape And Badge Over Guide Pins
Courtesy of BMW OF NORTH AMERICA, INC.

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.

Mark dimensions (A and B) on rear lid.

A = 20 mm; B = 146 mm

Stick on model designation using markings.

NOTE: Measurement "C" is for information purposes only, as it is determined by carrier film.

C= 9.2 mm

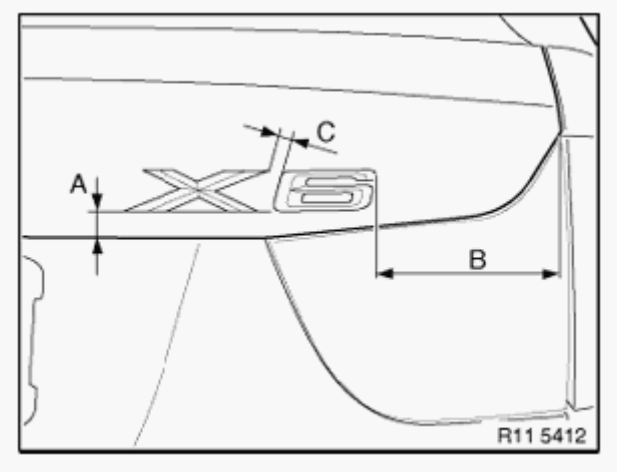


Fig. 71: Identifying Model Designation Dimension

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Courtesy of BMW OF NORTH AMERICA, INC.

MIRRORS, COVERS, ASHTRAYS, SHELVES, TRAYS

51 16 ... CALIBRATING COMPASS IN INTERIOR REARVIEW MIRROR (FROM 09/08)

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 clamped off for an extended period of time
- "C" appears in compass display
- there is no compass display

Adjusting magnetic field zone:

- Press and hold down setting button (A) on interior mirror (2) with a suitable tool (1) for 3-6 seconds. The currently set magnetic field zone is indicated in the compass display (B) (default setting "8" for Central Europe). Release setting button (A) briefly and select magnetic field zone (1-15) by pressing setting button (A) again. Release setting button (A) when the desired magnetic field zone is selected. The selection menu is automatically exited after approx. 5 seconds.
- **The compass must be recalibrated after the magnetic field zone has been changed.**

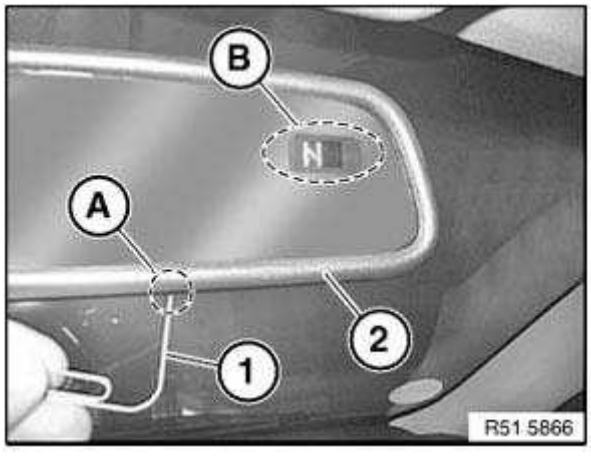


Fig. 72: Identifying Hold Down Setting Button And Compass Display
Courtesy of BMW OF NORTH AMERICA, INC.

Calibrating compass:

- Press and hold down setting button (A) on interior mirror (2) for 6-9 seconds. Release setting button (A) as soon as "C" is indicated in the compass display (B).

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- Drive vehicle 2 to 3 times in a full circle at approx. 7- 10 km/h. The circle must be at least twice the vehicle's turning circle. Calibration is complete as soon as a valid direction is displayed.
- **For Convertibles and vehicles with hardtops only:**

  The digital compass must be calibrated once with the soft top or hardtop closed and once with the soft top or hardtop open.

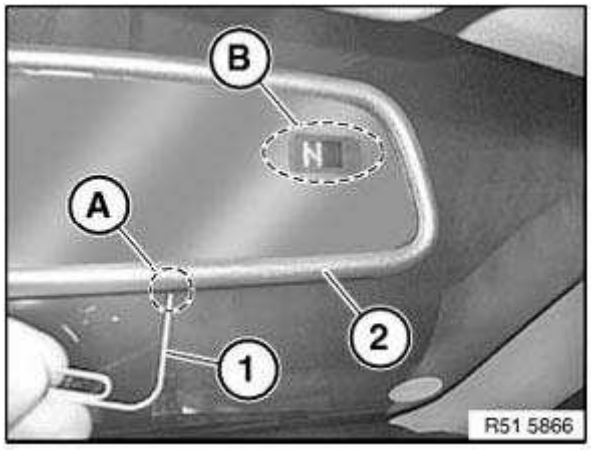


Fig. 73: Identifying Hold Down Setting Button And Compass Display
Courtesy of BMW OF NORTH AMERICA, INC.

Setting right-hand drive or left-hand drive vehicle:

- Press and hold down setting button (A) on interior mirror (2) for 9-12 seconds. The currently set vehicle type is indicated in the compass display (B) (default setting "L" for left-hand drive). Release setting button (A) briefly and select vehicle ("L" or "R") by pressing setting button (A) again. Release setting button (A) when the desired vehicle type is selected. The selection menu is automatically exited after approx. 5 seconds.
- **The compass must be recalibrated after the magnetic field zone has been changed.**

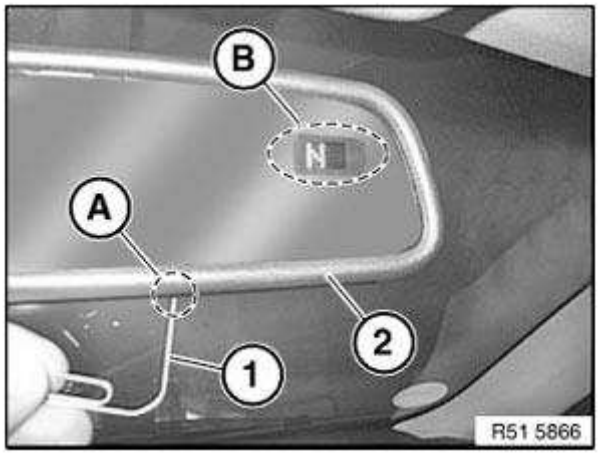


Fig. 74: Identifying Hold Down Setting Button And Compass Display

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Courtesy of BMW OF NORTH AMERICA, INC.

- Press and hold down setting button (A) on interior mirror (2) for 12-15 seconds. The currently set language is indicated in the compass display (B) (default setting "E" for English). Release setting button (A) briefly and select language (E for English or O for German) by pressing setting button (A) again. Release setting button (A) when the desired language is selected. The selection menu is automatically exited after approx. 5 seconds.
- **The compass must be recalibrated after the magnetic field zone has been changed.**

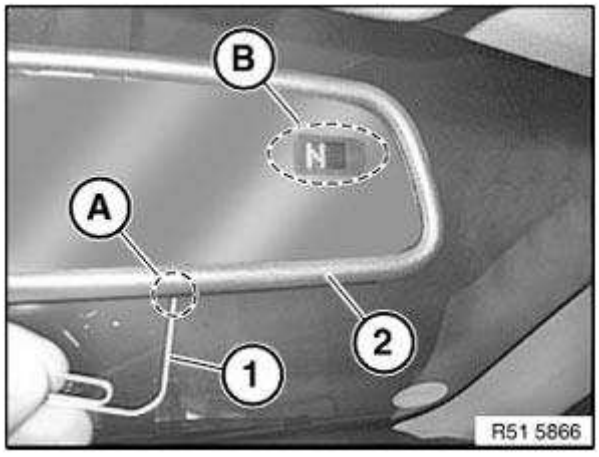


Fig. 75: Identifying Hold Down Setting Button And Compass Display
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... CALIBRATING COMPASS IN INTERIOR REARVIEW MIRROR (UP TO 09/08)

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 clamped off 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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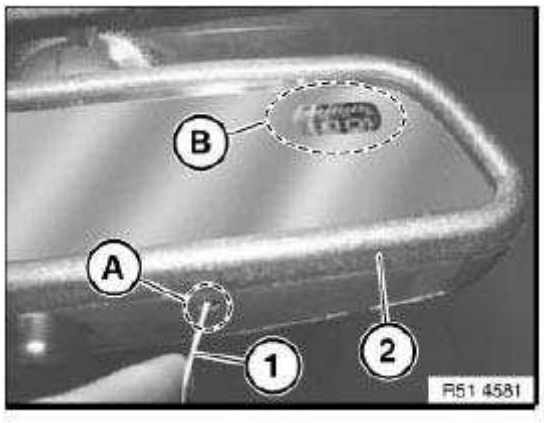


Fig. 76: Identifying Hold Down Setting Button And Compass Display
Courtesy of BMW OF NORTH AMERICA, INC.

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

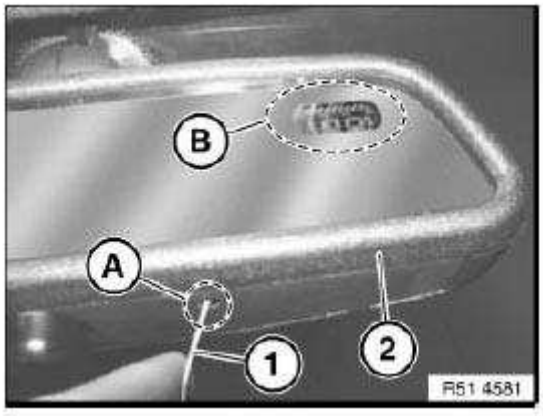


Fig. 77: Identifying Calibrating Compass In Interior Rearview Mirror (Up To 09/08)
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... GLUING OF MIRROR BASE

Material Requirements:

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

Primer XW 775 (Sourcing Reference: BMW Parts Service)

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1. Preparations
    1. Glue 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 glue residue on glass and base with a sharp tool.

    3. Clean glue area on window and base with clean non-fluffing cloth and alcohol/acetone and allow to dry!

    Never use paint thinners!

2. Primer coat

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

    Specified ventilation time at least 1 minutes, maximum 1 hour

3. Gluing coat
    1. Mixing Glue

       Cut off sealing tips on containers of glue 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 glue and hardener is removed by applying light pressure on the pistons.

       The mixture ratio of glue and hardener is 1: 1 (weight and volume). It is important that the same volumes of glue 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 gluing.

       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 glue on base with spatula and press base onto glass in

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such a way that glue obtains good contact with windshield across the entire surface area.

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

3. Fixing Bonded Parts

   Epoxy resin glue does not have an initial strength property. It is therefore necessary to fix all bonded parts (adhesive 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 glue

   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

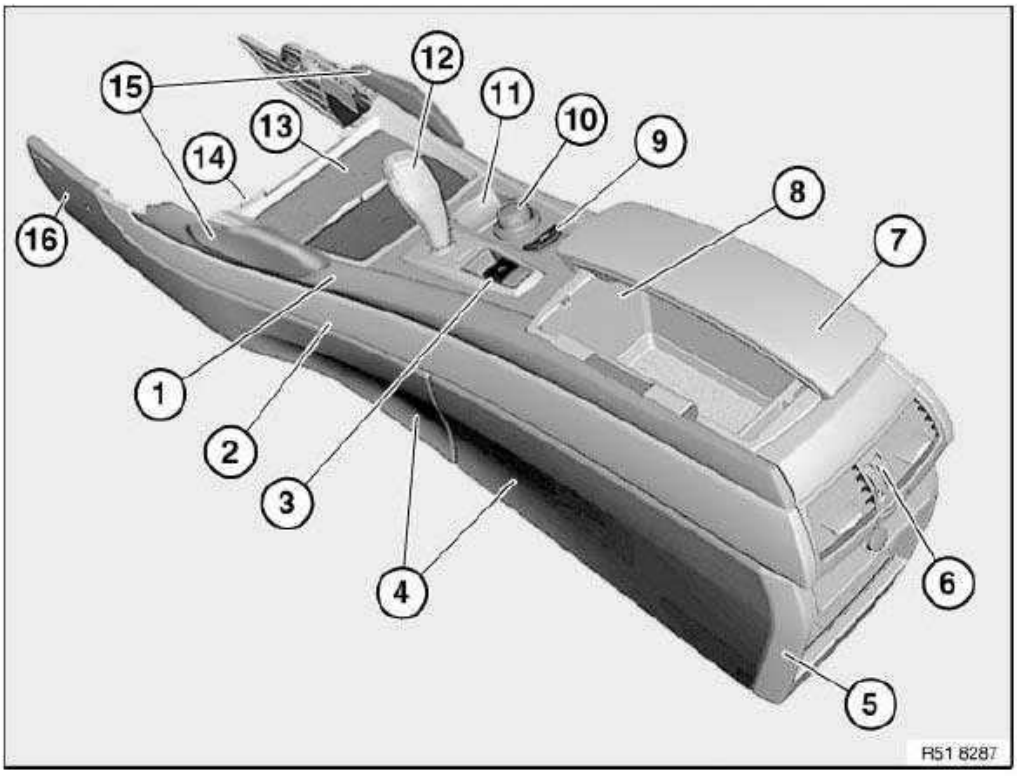
IMPORTANT: Glue is dangerous for health when vapors are inhaled or through contact with the skin.
As is the case for all epoxy resins, sensitive persons might be confronted with an allergy through contact with the skin.

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 glue.

51 16 ... OVERVIEW OF CENTER CONSOLE (STORAGE COMPARTMENT)

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1	Decorative trim on centre console	9	Button unit
2	Side trim on centre console	10	Controller
3	Switch for electromechanical parking brake	11	Centre console trim (gear selector switch)
4	Side carpet on storage compartment	12	Gear selector switch
5	Rear centre console trim	13	Cup holder, front
6	Fresh-air grille -rear cabin-	14	Trim on front cup holder
7	Centre armrest on storage compartment	15	Knee pads, left and right (E71)
8	Rear storage box	16	Centre console

Fig. 78: Identifying Centre Console (Storage Compartment) Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING INSERT FOR RIGHT GLOVEBOX

Release trim (1) at clips (2) towards inside.

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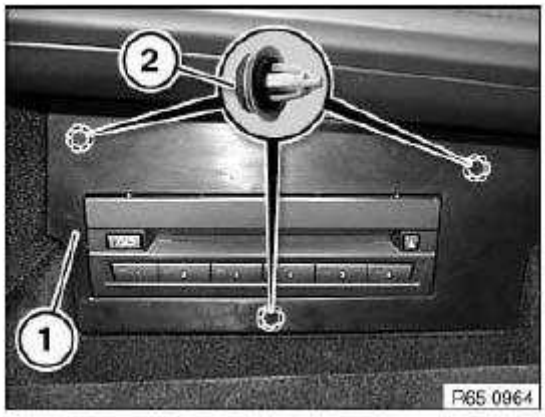


Fig. 79: Identifying Trim And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Remove insert (1) towards top.

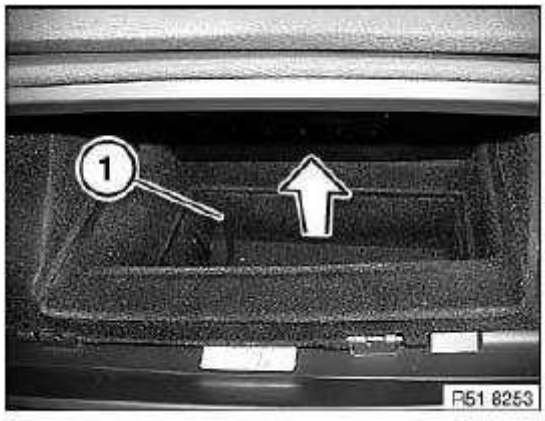
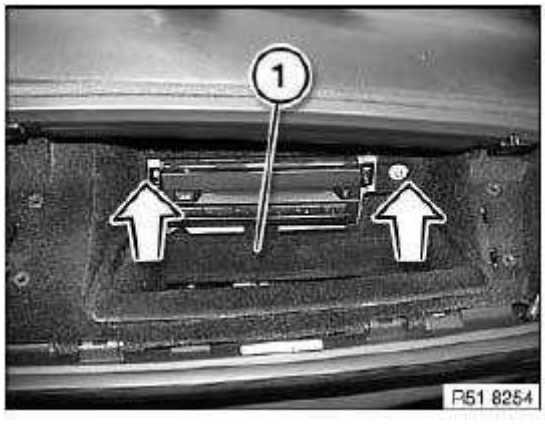


Fig. 80: Identifying Insert
Courtesy of BMW OF NORTH AMERICA, INC.

Reach into housing (1) and pull out towards top.



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Fig. 81: Identifying Housing
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING CUP HOLDER IN REAR CONSOLE

Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (2 and 3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

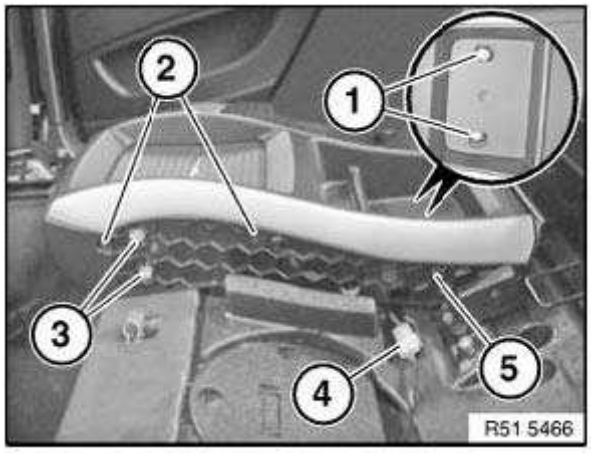


Fig. 82: Identifying Plug Connection, Centre Console And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release left and right screws (1).

Feed cup holder from below out of frame (2) in direction of arrow first at point A, then at point B.

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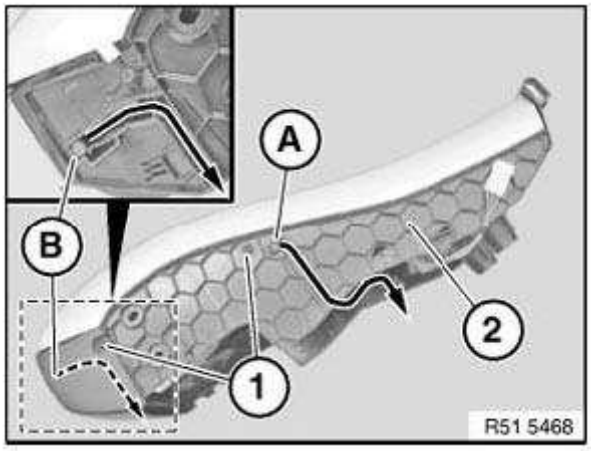


Fig. 83: Identifying Frame And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on cup holder (2) must not be damaged.

Make sure guides (1) are correctly engaged.

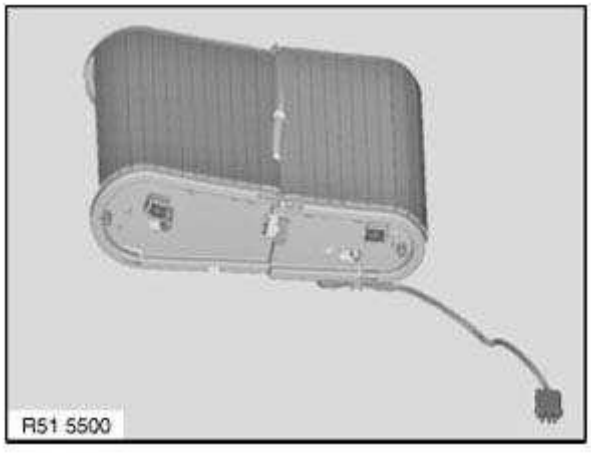


Fig. 84: Identifying Guides And Cup Holder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING DECORATIVE TRIM ON REAR CONSOLE ON LEFT/RIGHT

Necessary preliminary tasks:

- Remove **cup holder in rear console** , see **51 16 ... Removing and installing/replacing cup holder in rear console**.

Release screws (1).

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Feed out trim (2).

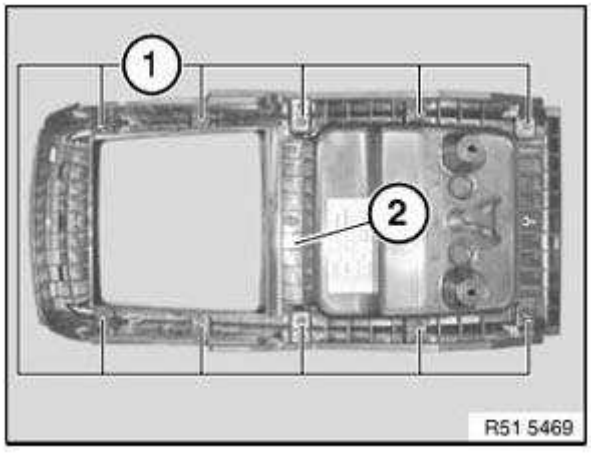


Fig. 85: Identifying Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retainers (1) on decorative trim (2) must not be damaged.

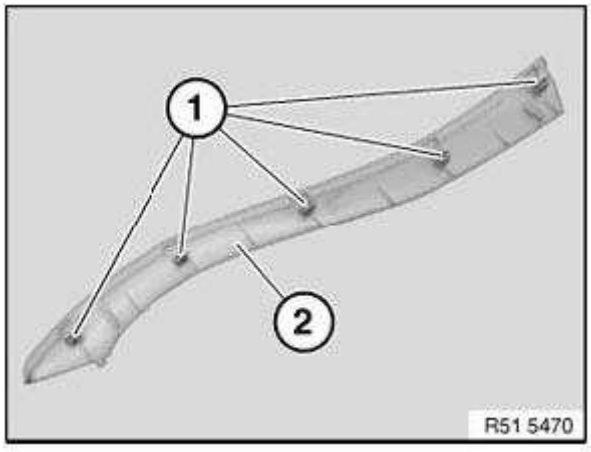


Fig. 86: Identifying Retainers And Decorative Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING FRONT TRIM ON REAR CONSOLE

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Necessary preliminary tasks:

- Remove **decorative trim from rear console on** left and right, see **51 16 ... Removing and**

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installing/replacing decorative trim on rear console on left/right.

Engage special tool **00 9 323** as illustrated and unclip trim (1) at carrier (2).

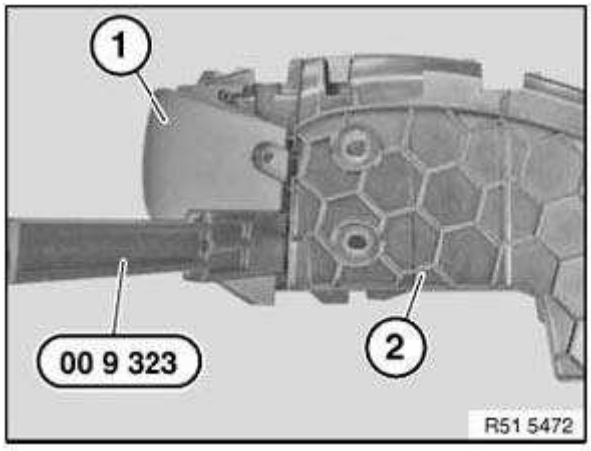


Fig. 87: Identifying Trim And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1), guide (2) and lugs (3) on trim (4) must not be damaged.

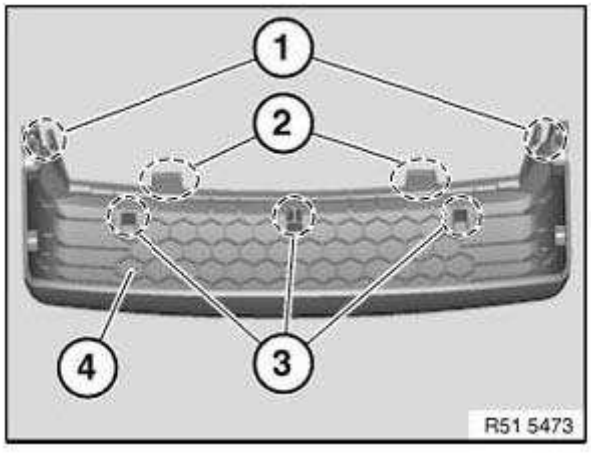


Fig. 88: Identifying Catches, Guide And Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING SIDE CARPET ON STORAGE COMPARTMENT (CENTER CONSOLE)

Necessary preliminary tasks:

Driver's side

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- Remove **trim for pedal assembly** , see **51 45 185 Removing and installing/replacing panel for pedals**.

Passenger side

- Remove **lower trim from instrument panel** , see **51 45 181 Removing and installing/replacing trim for instrument panel, bottom right**.

NOTE: Driver's seat removed for purposes of clarity.

Release screw (1).

Release retaining clips (3).

Feed side carpet (2) towards front out of center console.

Installation:

Replace faulty retaining clips (3) and retainers (4).

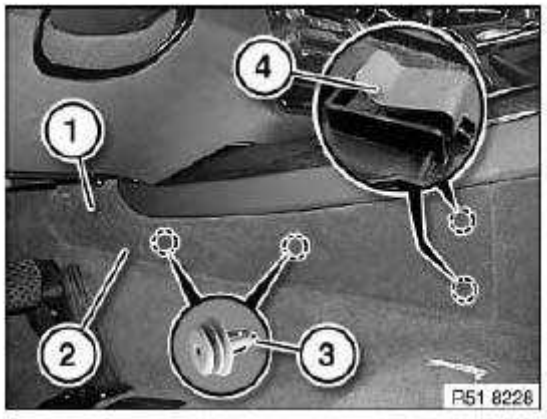


Fig. 89: Identifying Side Carpet, Retaining Clips And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Feed side carpet (1) towards front out of center console.

Installation:

Replace faulty retainers (2).

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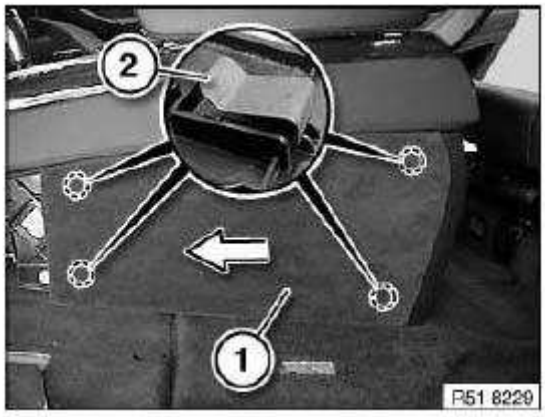


Fig. 90: Identifying Side Carpet And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING UPPER TRIM ON REAR CONSOLE

Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (2 and 3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

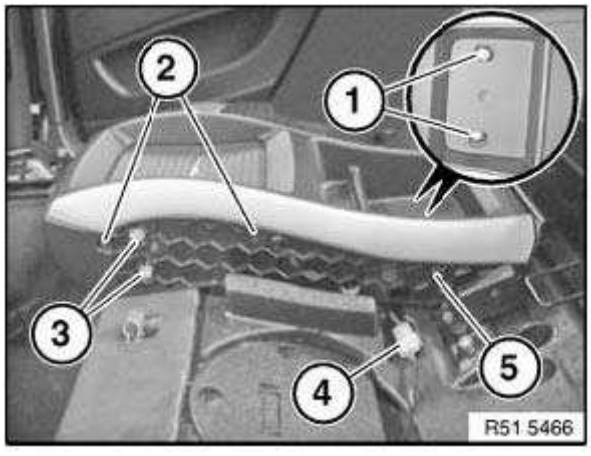


Fig. 91: Identifying Centre Console, Plug Connection And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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Release left and right screws (1).

Feed cup holder from below out of frame (2) in direction of arrow first at point A, then at point B.

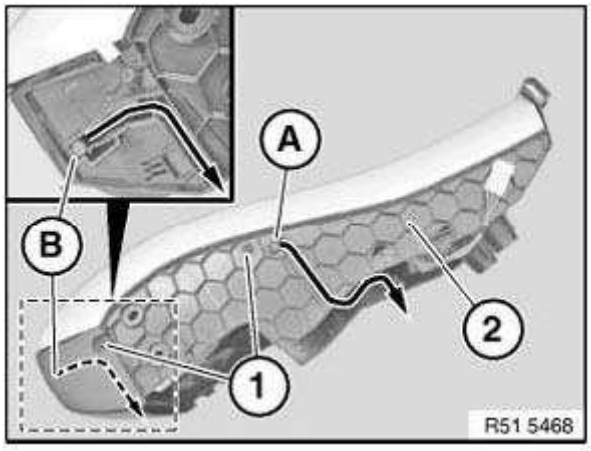


Fig. 92: Identifying Frame And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on frame (2).

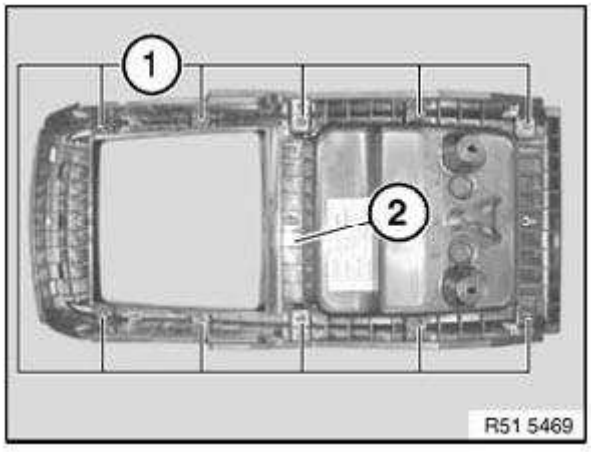


Fig. 93: Identifying Screws And Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Release trim (2) at retainers (3) from frame (1).

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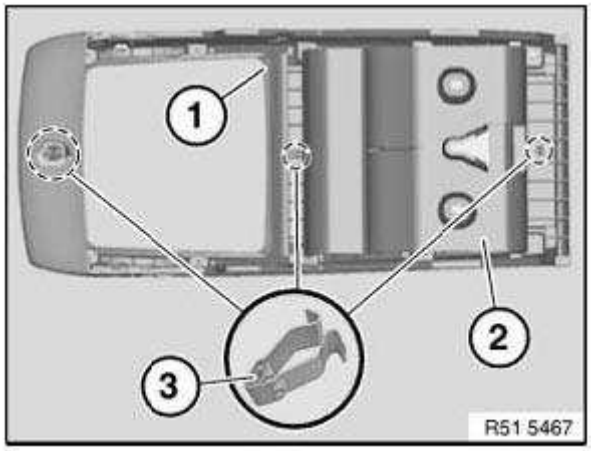


Fig. 94: Identifying Trim, Retainers And Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retainers (1) on trim (2) must not be damaged.

Make sure retainers (1) is correctly seated on lugs.

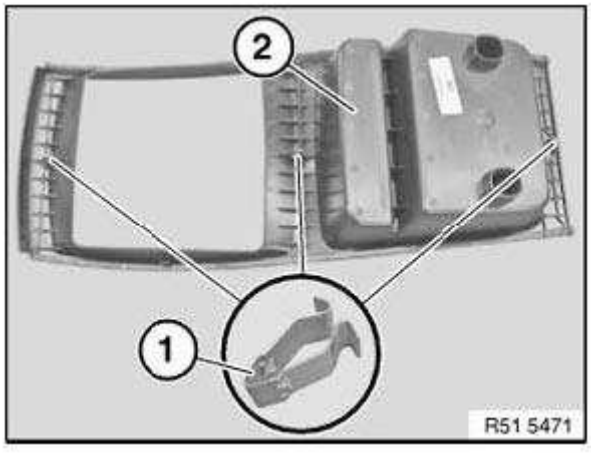


Fig. 95: Identifying Retainers And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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

Necessary preliminary tasks:

- Detach **cover on door window frame** in area of mirror, see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**.

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NOTE: Secure mirror against falling off.

Disconnect plug connection (1).

Press rubber guide (2) to one side and release screws (3).

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

Installation:

Make sure grommet for plug connection (1) is correctly seated

Replacement

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

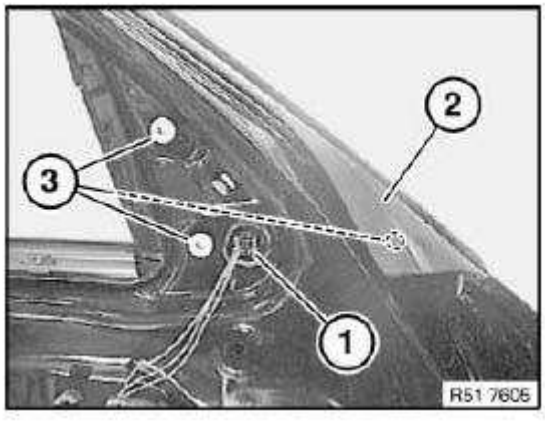


Fig. 96: Identifying Plug Connection, Rubber Guide And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Remove mirror (1) outwards.

Installation:

Check function.

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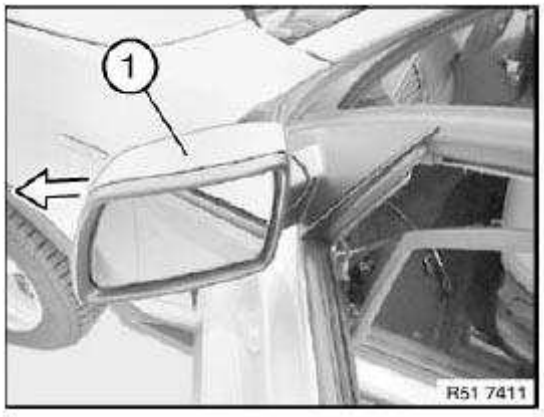


Fig. 97: Identifying Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Acoustic insulation (1) must not be damaged.

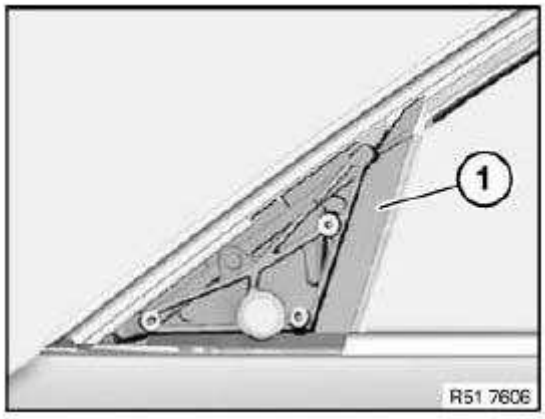


Fig. 98: Identifying Acoustic Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 026 REPLACING MIRROR GLASS FOR REAR-VIEW MIRROR (ON FRONT DOOR)

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

WARNING: **Move mirror glass with hand carefully and slowly.**

If mirror glass is damaged:

Wear protective goggles and cut-proof gloves.

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Risk of injury by flaking-off glass splinters.

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

Remove glue between mirror glass and edge of housing (risk of damage).

Secure mirror glass against falling out.

Press mirror glass (1) at top by hand to full extent.

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

Unclip mirror glass (1) at bottom with special tool **00 9 317** .

Disconnect associated plug connections and remove mirror glass (1).

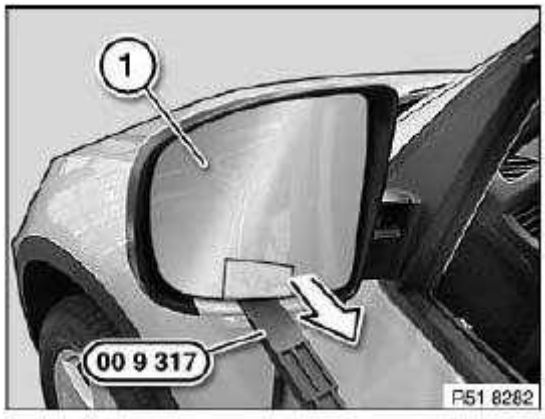


Fig. 99: Identifying Mirror Glass
Courtesy of BMW OF NORTH AMERICA, INC.

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.

Ensure correct locking.

Make sure mirror adjusting drive functions correctly.

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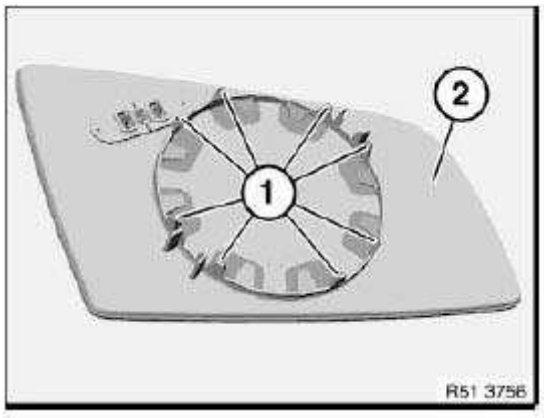


Fig. 100: Identifying Mirror Glass And Retaining Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

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

Necessary preliminary tasks:

- Remove **mirror glass** , see **51 16 026 Replacing mirror glass for rear-view mirror (on front door)**.

NOTE: Housing (2) is secured without play by four multitooth catches (1) on retaining ring (3).
Secure housing on outside mirror (2) against falling out.

Unlock multitooth catches (1) with a screwdriver.

Unclip housing (2) forwards from retaining ring (3) and remove.

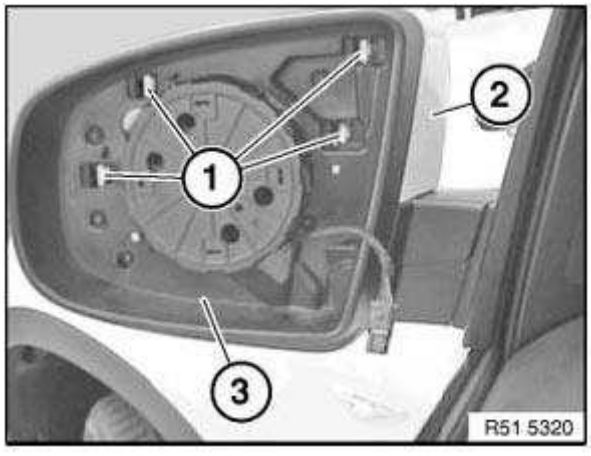


Fig. 101: Identifying Housing, Retaining Ring And Multitooth Catches
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Multitooth catches (1) and guide (2) on housing (3) must not be damaged.

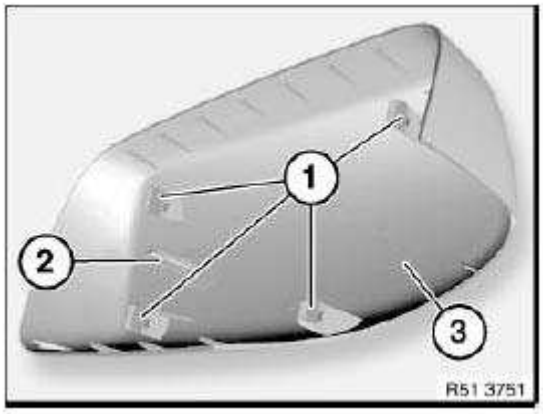


Fig. 102: Identifying Multitooth Catches, Guide And Housing
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locators (1) on retaining plate (2) must not be damaged.

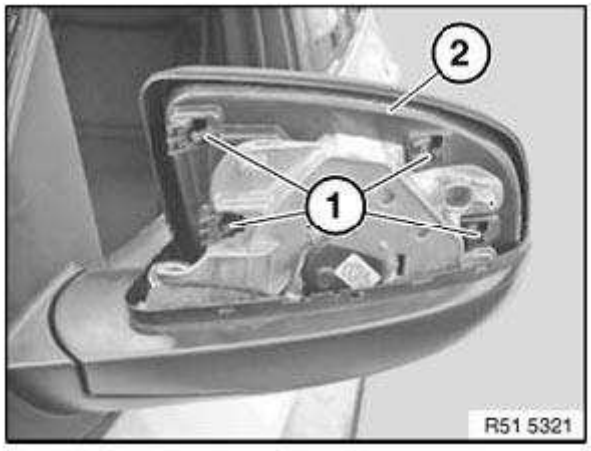


Fig. 103: Identifying Locators And Retaining Plate
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 041 REMOVING AND INSTALLING/REPLACING COVER CAP ON LEFT OR RIGHT OUTSIDE MIRROR

Necessary preliminary tasks:

- Remove **retaining ring on outside mirror** , see **51 16 045 Removing and installing or replacing retaining ring on left or right outside mirror**.

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Fold outside mirror (1) forwards.

Release screws (2).

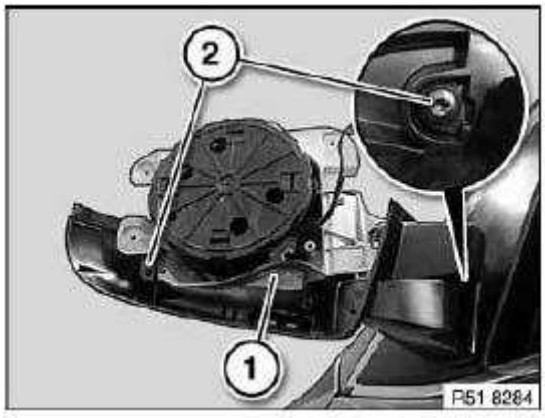


Fig. 104: Identifying Outside Mirror And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off cover cap (1) towards rear.

Installation:

Make sure cover cap (1) is correctly seated in areas (A and B).

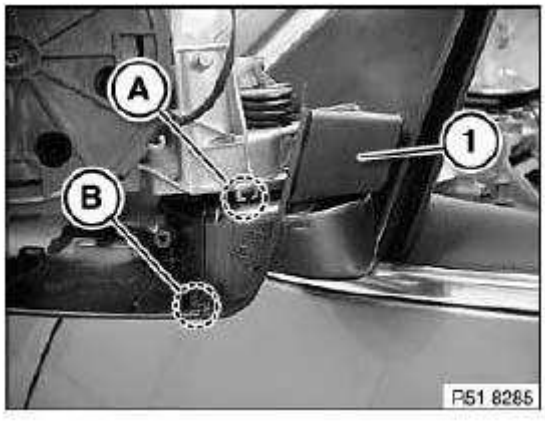


Fig. 105: Identifying Cover Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Version with outside mirror camera:

Release screw (1) and feed out holder (2).

Installation:

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Small picture with view of rear.

Holder (2) must be correctly seated in guides (3).

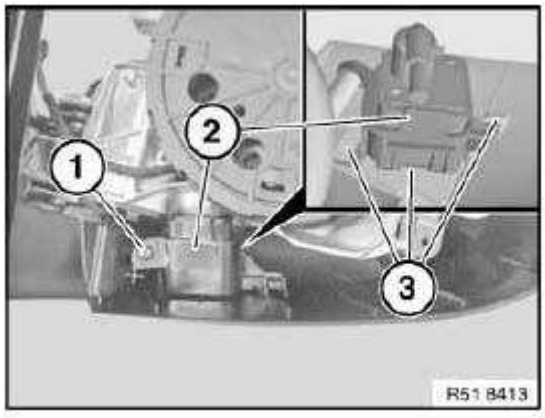


Fig. 106: Identifying Screw And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Fold outside mirror (1) back.

Lift cover cap (2) downwards over catch (3).

Feed cover cap (2) in direction of arrow out of outside mirror (1).

NOTE: Cover cap (2) must be bent slightly during removal.

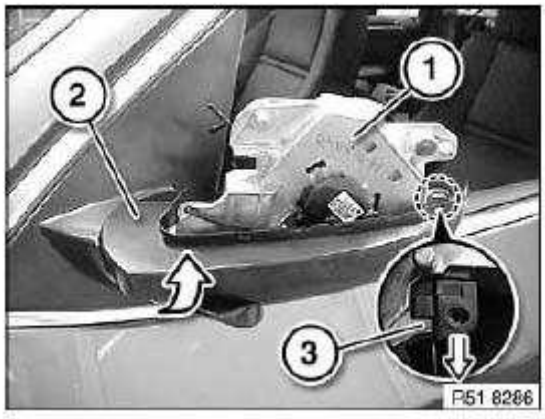


Fig. 107: Identifying Outside Mirror, Cover Cap And Catch
Courtesy of BMW OF NORTH AMERICA, INC.

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

Necessary preliminary tasks:

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

Release bolts (1).

Feed out retaining ring (2).

Installation:

Ensure correct cable routing.

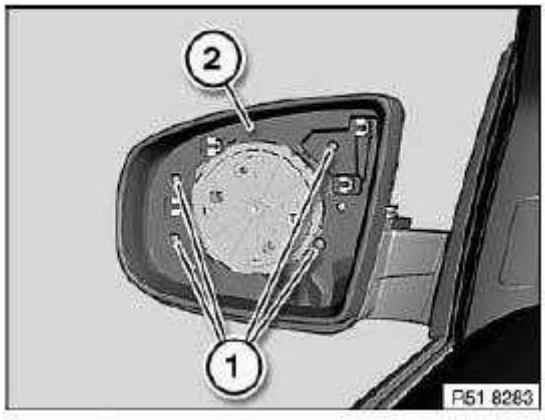


Fig. 108: Identifying Retaining Ring And Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

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

Version without cable (X) with full foot (1).

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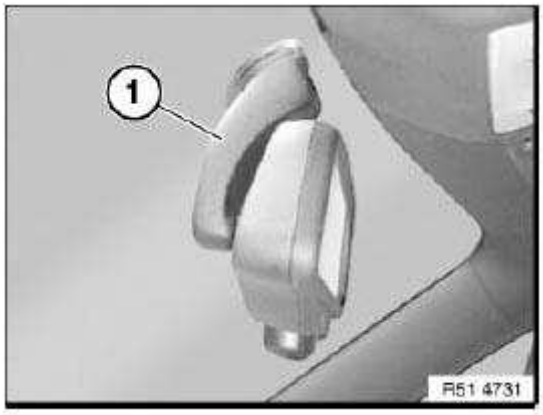


Fig. 109: Identifying Foot
Courtesy of BMW OF NORTH AMERICA, INC.

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

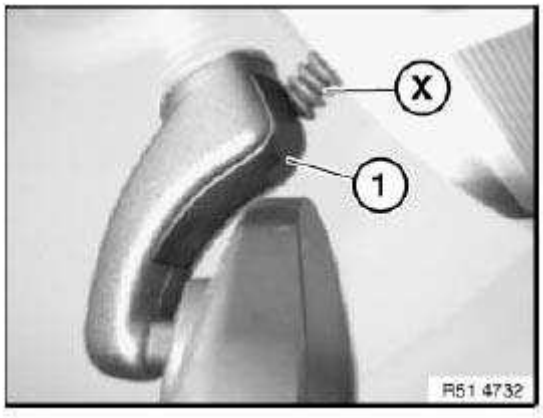
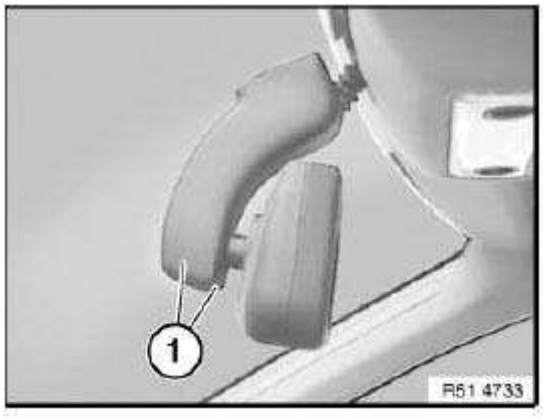


Fig. 110: Identifying Cable (X) And Plug Trim Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Version with mirror arm end caps (1).



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Fig. 111: Identifying Mirror Arm End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Version with rain sensor.

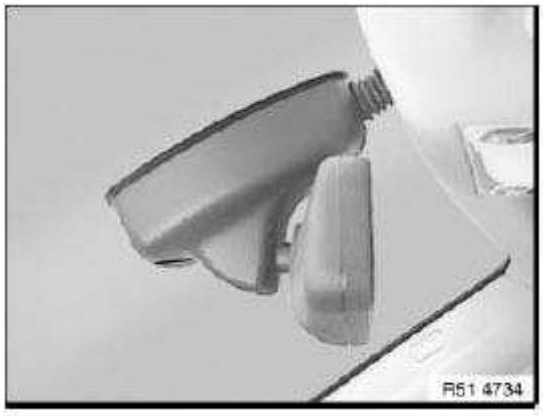


Fig. 112: Identifying Rain Sensor
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Autobeam.

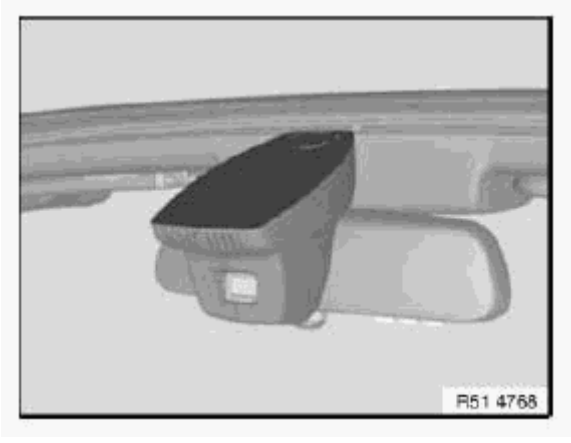


Fig. 113: Identifying Autobeam
Courtesy of BMW OF NORTH AMERICA, INC.

Version with toll mirror for Japan.

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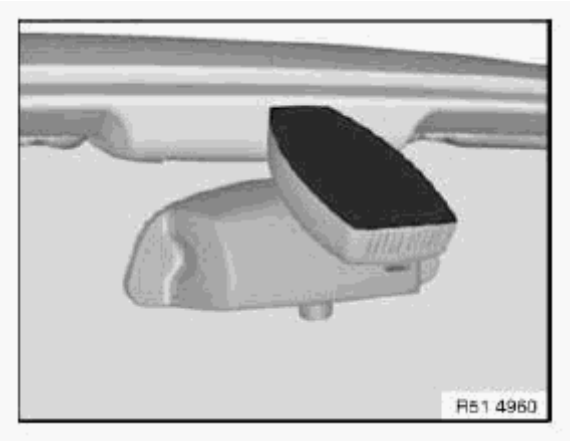


Fig. 114: Identifying Toll Mirror For Japan
Courtesy of BMW OF NORTH AMERICA, INC.

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

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, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

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.

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

Twist mirror (2) and detach end caps (1) from mirror and feed out.

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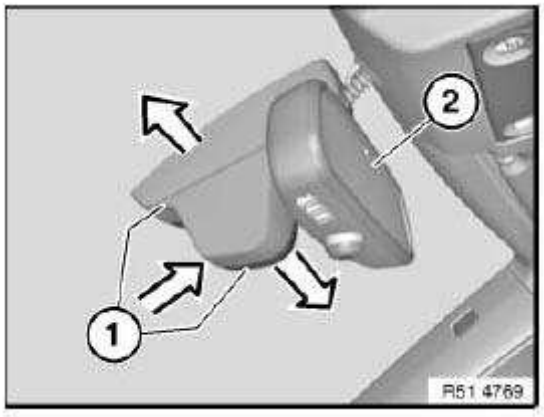


Fig. 115: Identifying Mirror And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retaining hooks (1 and 2) of end caps (3) must not be damaged.

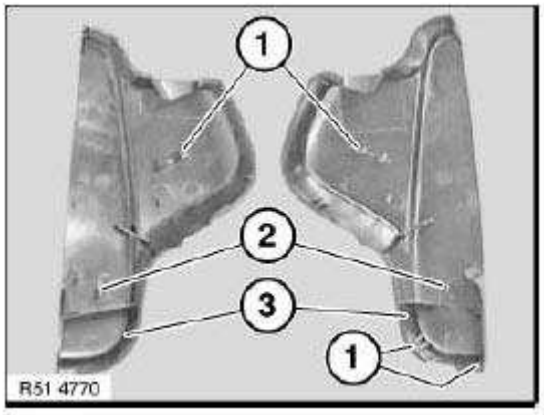


Fig. 116: Identifying Hooks And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1 and 2).

Installation:

If necessary, pay attention to cable routing for rain sensor.

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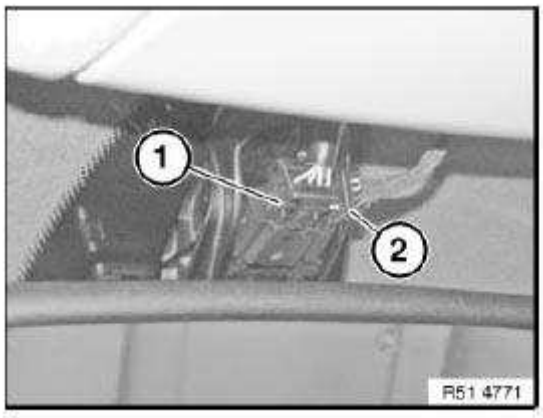


Fig. 117: Identifying Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not pull off rearview mirror (1) from windscreen against direction of travel and or snap out by turning.
When snapping out, avoid damaging rain sensor (3).

Carefully press mirror (1) forwards out of mirror base (2).

If mirror (1) rests on rain sensor (3), snap mirror (1) out in inward direction.

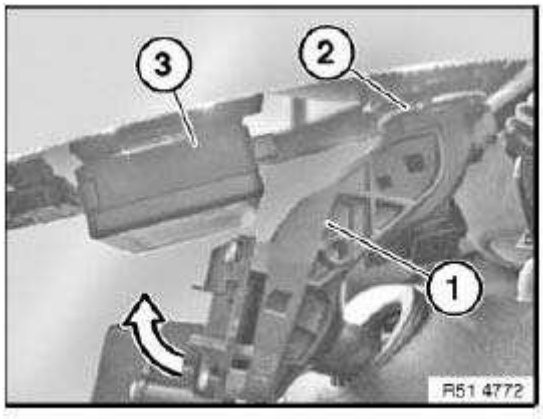


Fig. 118: Identifying Mirror, Rain Sensor And Snap Mirror
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

1. Twist mirror foot by approx. 45° and fit to mirror mount.
2. Turn mirror foot until it can be felt to engage on mirror base.
3. Visually inspect for positive locking.

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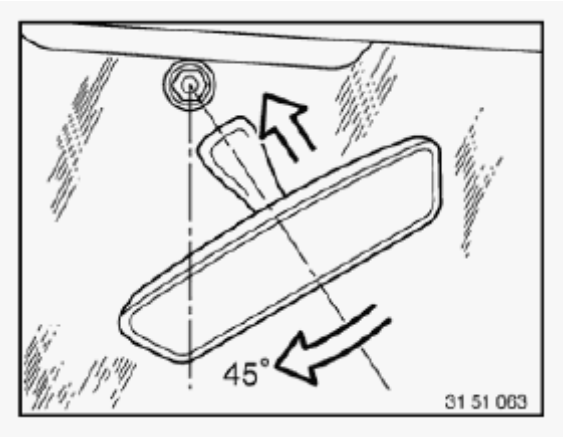


Fig. 119: Twisting Mirror Foot By Approx. 45°
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Normalization or initialization is not necessary.
Autobeam is automatically aligned under the following conditions:

- Driving on a motorway/ordinary road at night for approx.

  50 km and

- Clearly visible road markings

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 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, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

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**

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rearview mirror (up to 09/08)

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.

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).

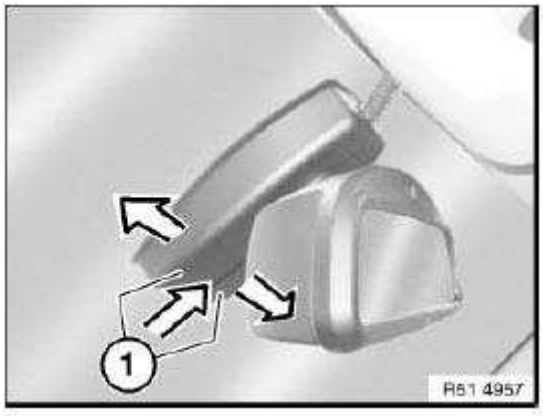


Fig. 120: Identifying End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

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

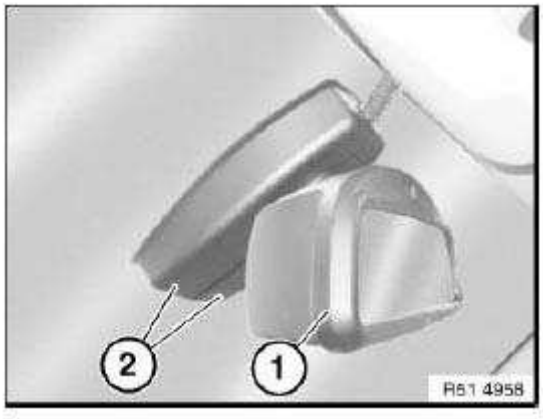


Fig. 121: Identifying Mirror And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

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

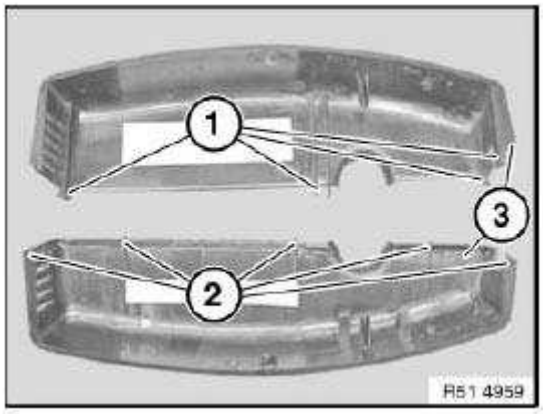


Fig. 122: Identifying Catches, Guides And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

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.

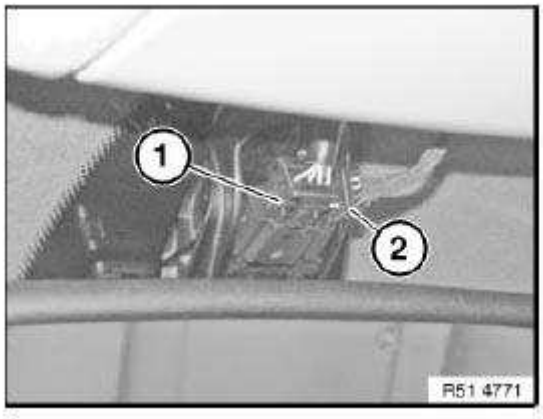


Fig. 123: Identifying Plugs
Courtesy of BMW OF NORTH AMERICA, INC.

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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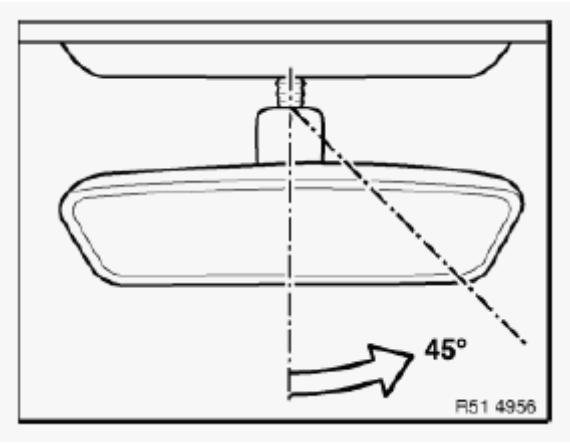


Fig. 124: Twisting Mirror Foot Approx. 45° To Right
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

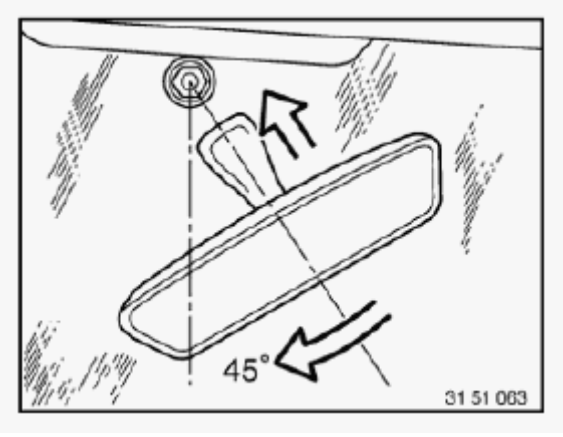


Fig. 125: Twisting Mirror Foot By Approx. 45°
Courtesy of BMW OF NORTH AMERICA, INC.

Only in case of replacement 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 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).

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Version with remote control for central locking:

If necessary, disconnect negative lead from battery, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

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 (up to 09/08).**

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.
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).

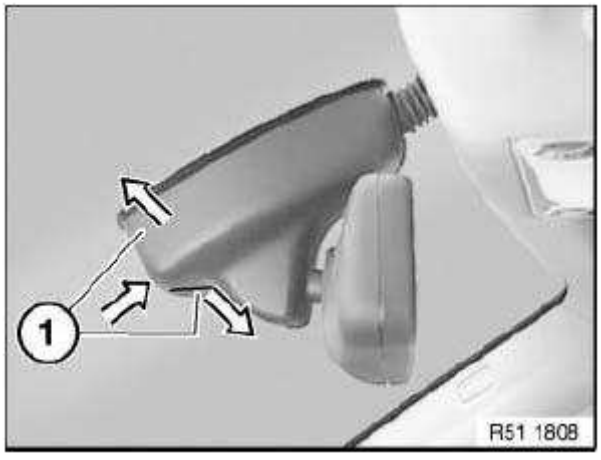


Fig. 126: Identifying End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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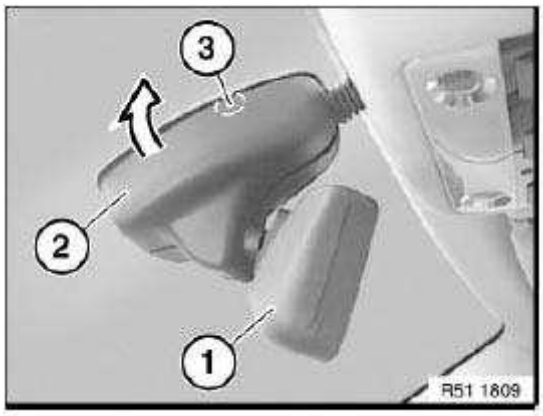


Fig. 127: Identifying Mirror, Left End Cap And Engagement Clip
Courtesy of BMW OF NORTH AMERICA, INC.

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.

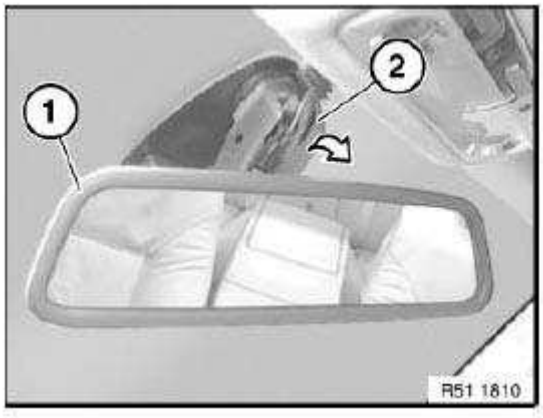


Fig. 128: Identifying Mirror And Right End Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

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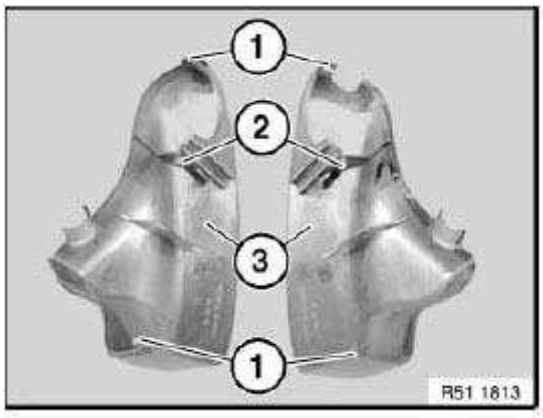


Fig. 129: Identifying Clips, Retaining Hooks And End Caps
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

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

E60 Security version:

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

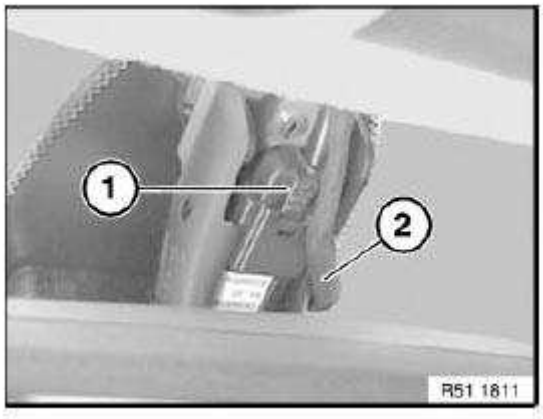


Fig. 130: Identifying Plug Connection And Cable Guide
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not pull off rearview mirror (1) from windscreen against direction of travel and or snap out by turning.
When snapping out, do not damage control unit (3) for rain sensor.

E60 Security version:

Rain sensor is not installed.

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

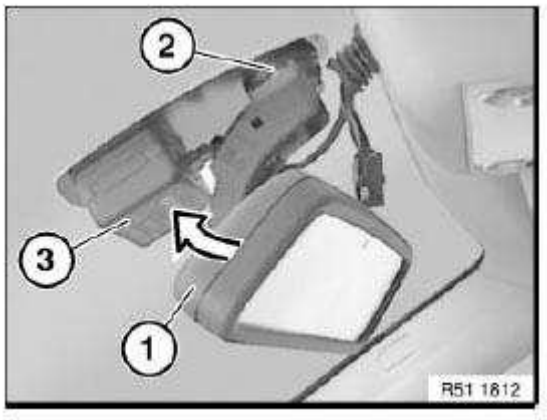


Fig. 131: Identifying Interior Mirror And Mirror Mount
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

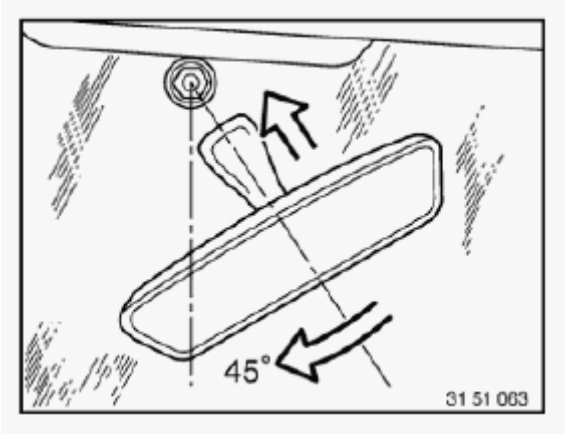


Fig. 132: Twisting Mirror Foot By Approx. 45°
Courtesy of BMW OF NORTH AMERICA, INC.

Only in case of replacement 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

Fold down sun visor (1).

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Lever out trim (3) on counter support (2) and release screw underneath.

Lever out cover (5) on joint and release screws (4).

Disconnect both light plug connections and remove sun visor (1).

Installation:

Cover (5) and trim (3) must not be damaged.

Perform function check on lighting.

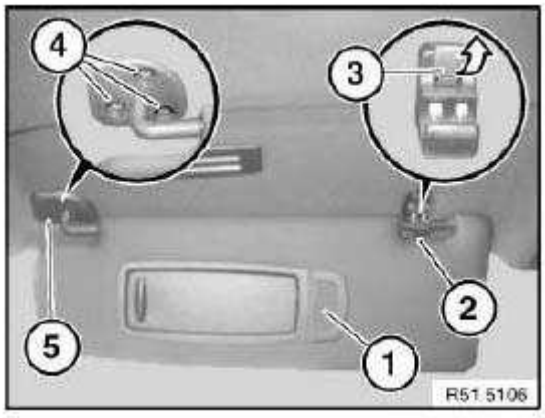


Fig. 133: Identifying Cover, Sun Visor, Counter Support And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 130 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT KNEE PAD

Necessary preliminary tasks:

- Remove **trim from cup holder at front** , see **51 16 193 Removing and installing/replacing trim on front cup holder**.

Release screws (1).

Lift knee pad (2) out of center console.

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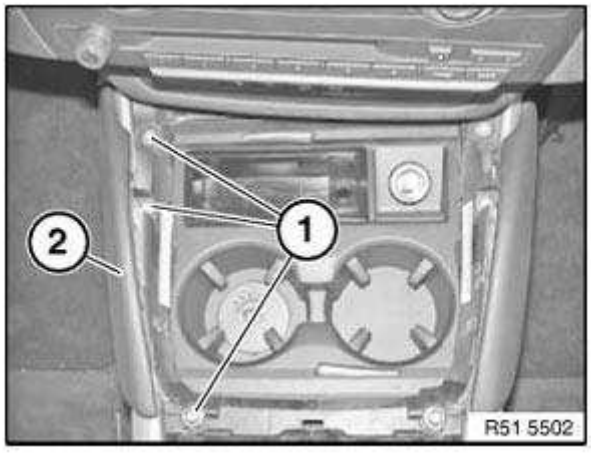


Fig. 134: Identifying Knee Pad And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 160 REMOVING AND INSTALLING/REPLACING CENTER CONSOLE TRIM (GEAR SELECTOR SWITCH)

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE**

Necessary preliminary tasks:

- Remove **knob for controller** , see **61 31 192 REPLACING KNOB FOR CONTROLLER** .

IMPORTANT: Risk of damage!
Carry out the following operation carefully so as to avoid damage.
Tape off decorative trim on center console in working area.

Lever center console trim (1) with special tool **00 9 317** out of center console and remove.

Installation:

Replace faulty retaining clips (2).

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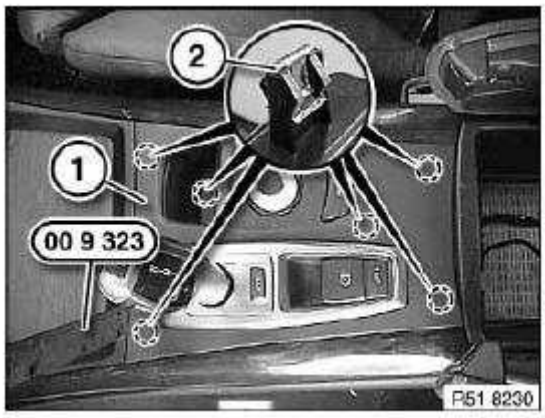


Fig. 135: Identifying Retaining Clips And Lever Centre Console Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 163 REMOVING AND INSTALLING/REPLACING REAR CENTER CONSOLE TRIM

Necessary preliminary tasks:

- Remove **side carpet from storage compartment** on left and right, see **51 16 ... Removing and installing/replacing side carpet on storage compartment (center console)**.

NOTE: Driver's seat removed for purposes of clarity.

Release left and right screws (1).

Lift retaining tabs (2) on left and right over catches and remove rear center console trim (3) from center console.

Installation:

Make sure wiring harnesses are correctly routed.

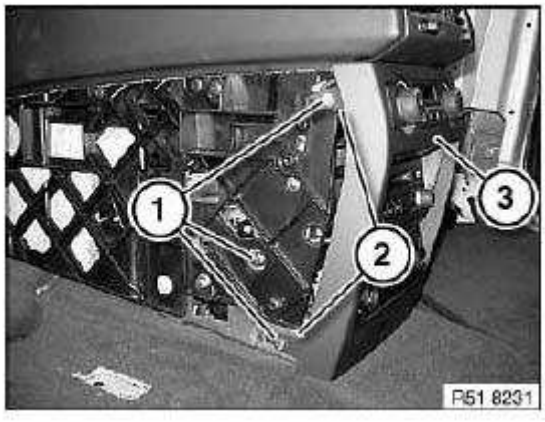


Fig. 136: Identifying Retaining Tabs, Screws And Rear Centre Console Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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Disconnect plug connections (1) and remove rear center console trim (2).

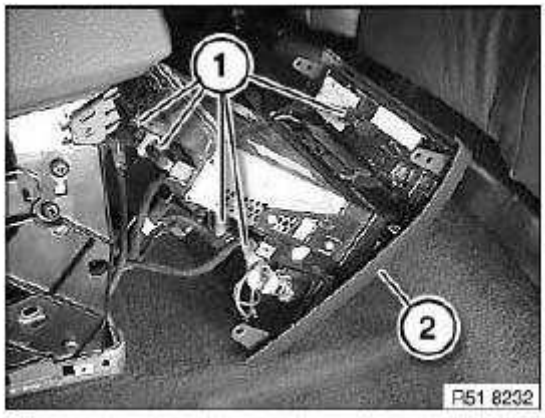


Fig. 137: Identifying Plug Connections And Rear Centre Console Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove **socket trim in center console (rear)** , see **61 34 ... REMOVING AND INSTALLING/REPLACING SOCKET IN CENTRE CONSOLE (REAR)**

If necessary, remove **control panel for rear-cabin A/C system** , see **64 11 395 REMOVING AND INSTALLING CONTROL PANEL FOR REAR CABIN A/C SYSTEM**

If necessary, remove **DVD player in rear console** , see **65 12 265 REMOVING AND INSTALLING/REPLACING DVD PLAYER IN REAR CONSOLE**

51 16 165 REMOVING AND INSTALLING/REPLACING COMPLETE CENTER CONSOLE

Necessary preliminary tasks:

- Remove **side carpet from storage compartment** on left and right**51 16 ... Removing and installing/replacing side carpet on storage compartment (center console)**
- Remove **fresh-air grille in rear cabin** , see **64 22 191 REMOVING AND INSTALLING/REPLACING REAR CABIN FRESH-AIR GRILLE**
- Remove **gear selector switch carrier** (not when **Releasing center console)** , see **61 31 342 REMOVING AND INSTALLING/REPLACING GEAR SELECTOR SWITCH**
- Remove **AV connecting socket trim** (not when **Releasing center console)** , see **61 31 133 REMOVING AND INSTALLING/REPLACING AV CONNECTION SOCKET**

IMPORTANT: Read and comply with notes on handling wiring harnesses and cables, see 61 00 ... NOTES ON HANDLING WIRING HARNESSES AND CABLES .

NOTE: Driver's seat removed for purposes of clarity.

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E70:

Release left and right screws (1).

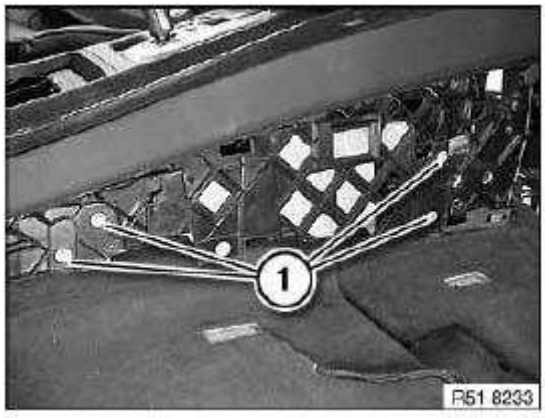


Fig. 138: Identifying Left And Right Screws
Courtesy of BMW OF NORTH AMERICA, INC.

E71:

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

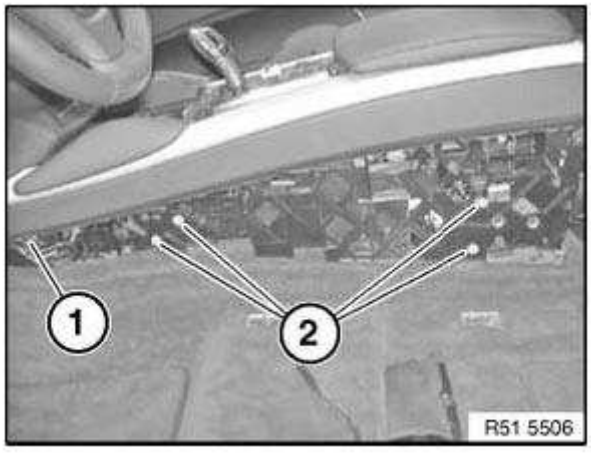


Fig. 139: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) and pull center console (2) approx. 50 mm towards rear.

NOTE: The operation Releasing center console ends here.

Version with rear compartment monitor:

Disconnect plug connection (3).

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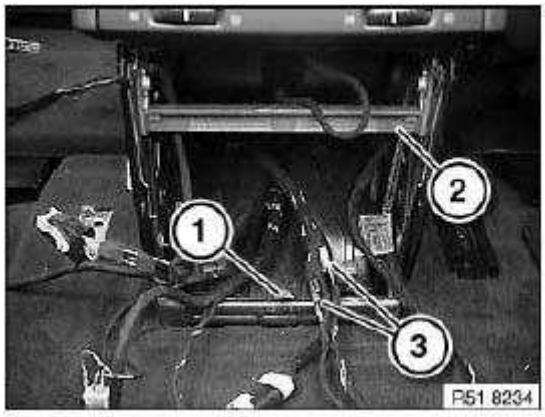


Fig. 140: Identifying Screw, Plug Connection And Centre Console
Courtesy of BMW OF NORTH AMERICA, INC.

Feed air duct (1) out of center console (3).

Release cable holder for cable (2) from center console (3).

Installation:

Make sure air duct (1) is correctly seated on center console (3).

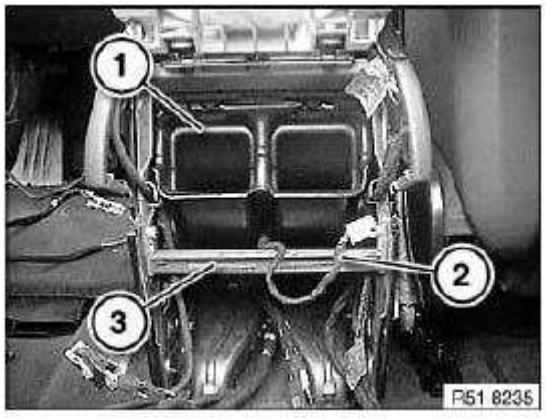


Fig. 141: Identifying Air Duct, Cable And Centre Console
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

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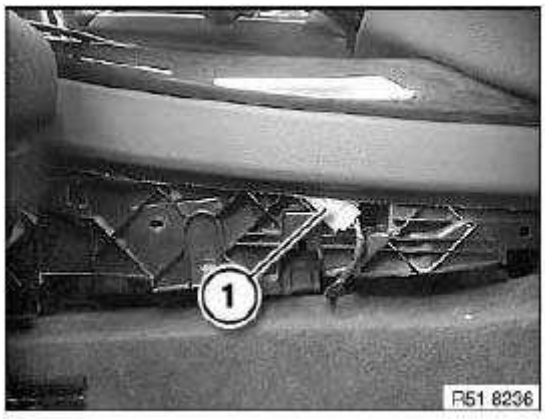


Fig. 142: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Version with eject box: 84 11 519 REMOVING AND INSTALLING OR REPLACING EJECT BOX

Expose plug connections for eject box wiring harness and disconnect.

Pull center console (1) towards rear/top, feed out wiring harnesses (2) and (3) and remove center console (1).

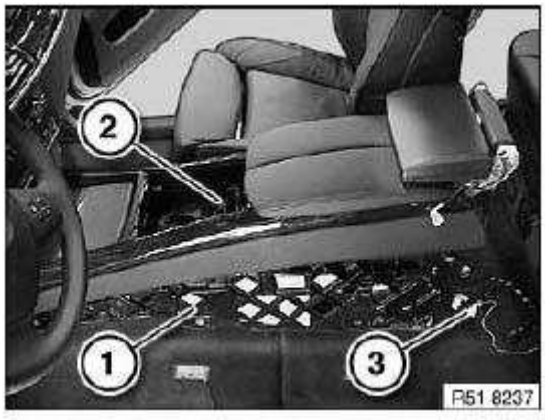


Fig. 143: Identifying Centre Console, Wiring Harnesses And Centre Console
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

If necessary, remove **rear-cabin monitor** , see **65 50 121 REMOVING AND INSTALLING REAR CABIN MONITOR (COMPLETE)**

Remove **rear storage box** , see **51 16 240 Removing and installing/replacing rear storage box**

Remove **side trim on center console** , see **51 16 227 Removing and installing/replacing trim on center console at side left or right**.

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Remove **front cup holder** , see **51 16 202 Removing and installing/replacing front cup holder**.

51 16 176 REMOVING AND INSTALLING/REPLACING CENTER ARMREST ON STORAGE COMPARTMENT ON LEFT OR RIGHT

Special tools required:

- **00 9 322** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS**

Necessary preliminary tasks:

- Remove **storage box** , see **51 16 240 Removing and installing/replacing rear storage box**

If necessary, release dummy plate (2) at catches (3) and remove from storage box (1).

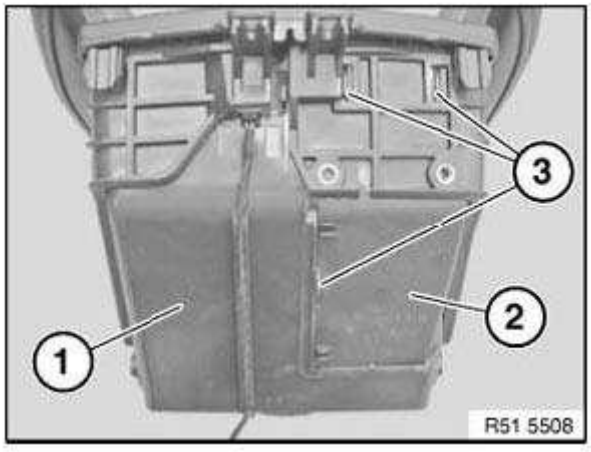


Fig. 144: Identifying Dummy Plate, Catches And Storage Box
Courtesy of BMW OF NORTH AMERICA, INC.

Release retaining lugs (2) with special tool **00 9 322** .

Feed center armrest (1) in direction of arrow out of storage box (4).

Installation:

Retaining lugs (2) and guides (3) must not be damaged.

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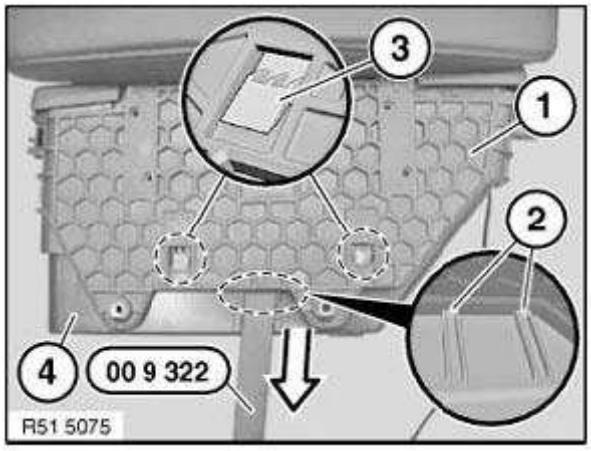


Fig. 145: Identifying Retaining Lugs, Centre Armrest And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 193 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT CUP HOLDER

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)**

Necessary preliminary tasks:

- Remove **center console trim (gear selector switch)** , see **51 16 160 Removing and installing/replacing center console trim (gear selector switch)**
- Release **center console** , see **REMOVING COMPLETE CENTRE CONSOLE**

Release catches (2) with special tool **00 9 323** .

Feed out trim on cup holder (1) towards rear.

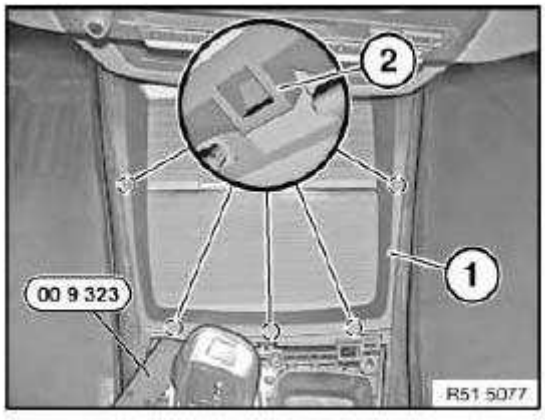


Fig. 146: Identifying Catches And Cup Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

First feed trim on cup holder into guides (1), then press down onto center console.

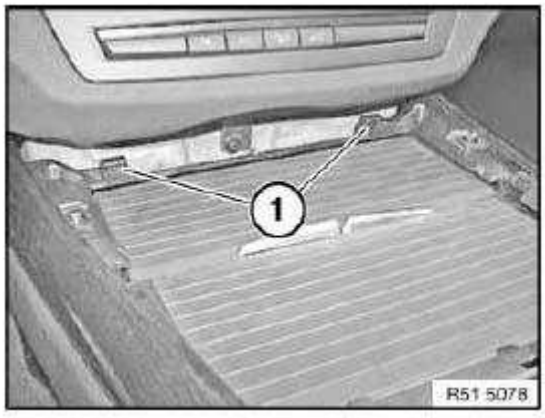


Fig. 147: Identifying Cup Holder Into Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 202 REMOVING AND INSTALLING/REPLACING FRONT CUP HOLDER

Necessary preliminary tasks:

- Remove **center console** , see **51 16 165 Removing and installing/replacing complete center console**.
- Remove **side trim from center console** on left and right, see **51 16 227 Removing and installing/replacing trim on center console at side left or right**.

Release screws (1).

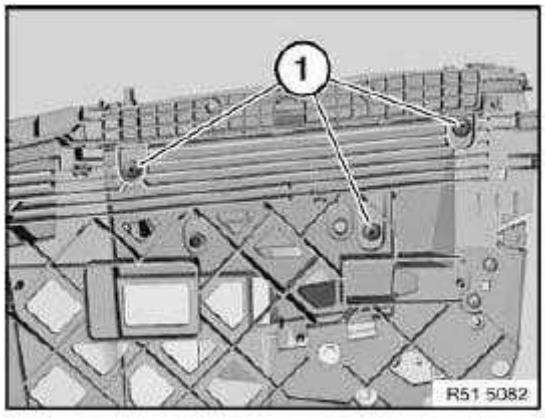


Fig. 148: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

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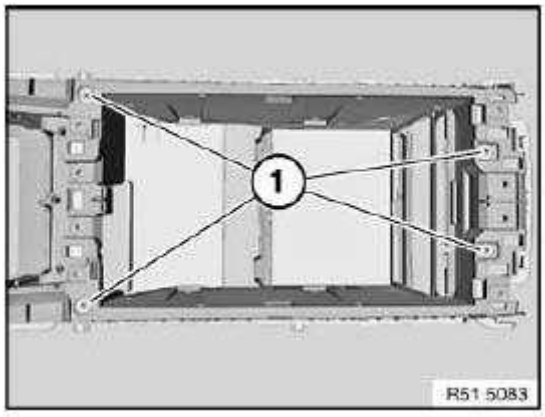


Fig. 149: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

E71 only:

Release left and right screws (1).

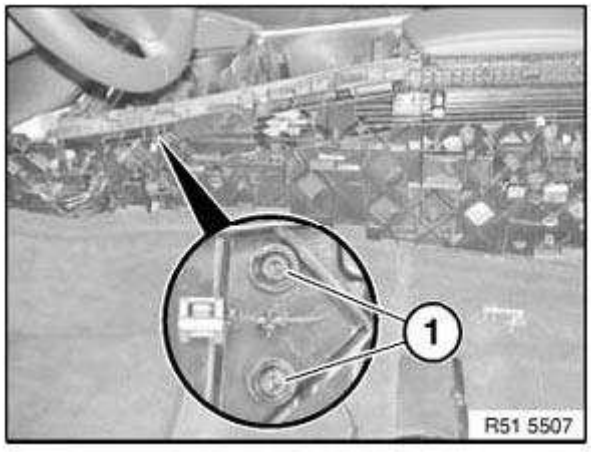


Fig. 150: Identifying Left And Right Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and (2) and remove center console function carrier (3).

Remove front cup holder (4).

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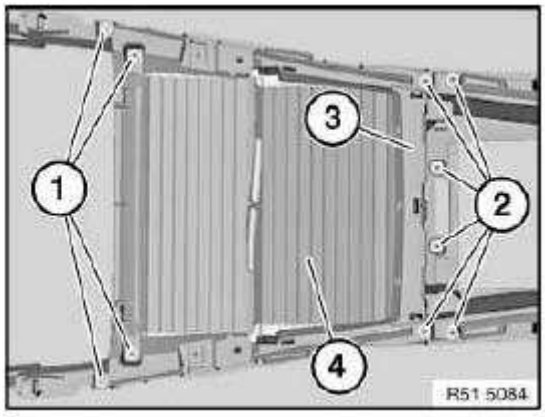


Fig. 151: Identifying Screws, Centre Console Function Carrier And Front Cup Holder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 225 REMOVING AND INSTALLING/REPLACING DECORATIVE TRIM ON CENTER CONSOLE ON LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **trim from cup holder** , see **51 16 193 Removing and installing/replacing trim on front cup holder**.
- Remove **rear storage box** , see **51 16 240 Removing and installing/replacing rear storage box**.
- **E71:**

Remove knee pad, see **51 16 130 Removing and installing/replacing left or right knee pad**.

Release screws (1).

Lift decorative trim on center console (2) up and out of center console and feed towards rear out of guide (4).

Installation:

Replace faulty retainers (3).

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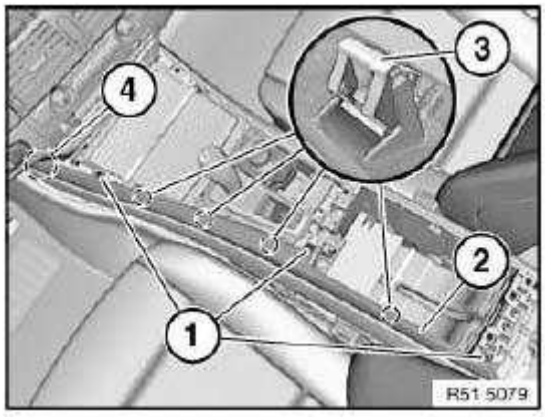


Fig. 152: Identifying Centre Console, Screws, Guide And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and (2) on decorative trim (3) must not be damaged.

Guides (1) and (2) must be correctly positioned in center console during fitting.

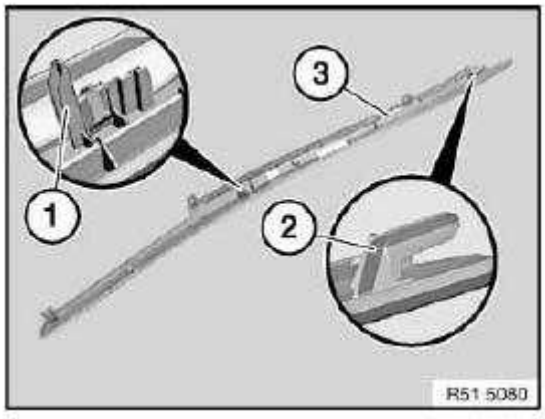


Fig. 153: Identifying Guides And Decorative Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 227 REMOVING AND INSTALLING/REPLACING TRIM ON CENTER CONSOLE AT SIDE LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **side decorative trim from center console** , see **51 16 225 Removing and installing/replacing decorative trim on center console on left or right**.

NOTE: Driver's seat removed for purposes of clarity.

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Lever trim (1) with a suitable tool out of center console.

Feed out trim (1) in area (3) towards rear.

Installation:

Replace faulty retainers (2).

Feed in trim (1) first in area (3), then press down in direction of center console.

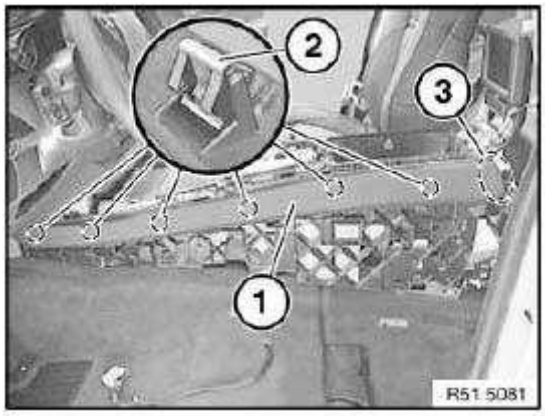


Fig. 154: Identifying Trim, Area And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 240 REMOVING AND INSTALLING/REPLACING REAR STORAGE BOX

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Necessary preliminary tasks:

- Remove **side carpet from storage compartment** on left and right, see **51 16 ... Removing and installing/replacing side carpet on storage compartment (center console)**.
- Remove **center console trim (gear selector switch)** , see **51 16 160 Removing and installing/replacing center console trim (gear selector switch)**.
- Remove **AV connecting socket trim** , see **61 31 133 REMOVING AND INSTALLING/REPLACING AV CONNECTION SOCKET** .
- **Version with rear-cabin monitor:**

  Remove **trim from rear cabin monitor at front** , see **65 50 150 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR CABIN MONITOR BASE AT FRONT AND REAR** .

- **Version with eject box:**

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Remove eject box, see **84 11 519 REMOVING AND INSTALLING OR REPLACING EJECT BOX** .

Version without rear cabin monitor:

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

Installation:

Replace faulty retainers (2).

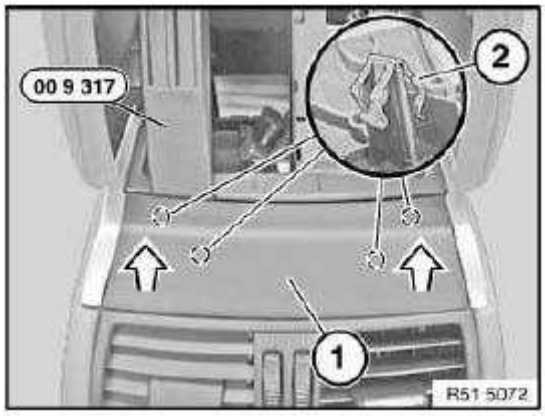


Fig. 155: Identifying Trim And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Release left and right screws (1).

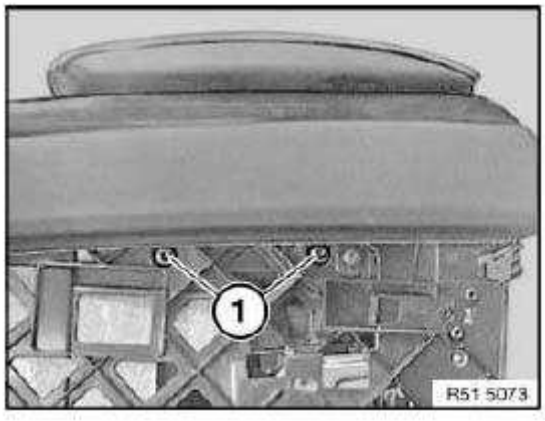


Fig. 156: Identifying Left And Right Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and raise storage box (2).

If necessary, disconnect plug connection for **storage box LED.** , see **63 31 178 REMOVING AND INSTALLING/REPLACING LED FOR STORAGE BOX**

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Remove storage box (2).

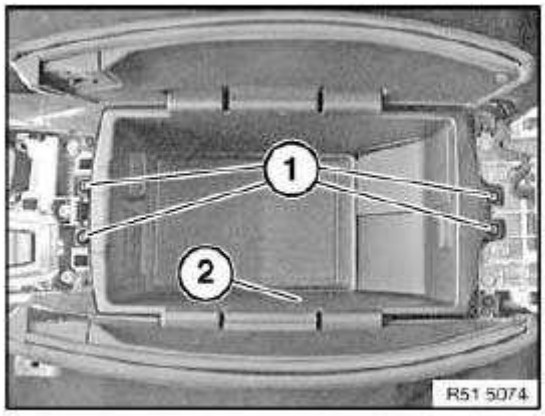


Fig. 157: Identifying Screws And Storage Box
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove **center armrest from storage compartment** on left and right, see **51 16 176 Removing and installing/replacing center armrest on storage compartment on left or right**.

If necessary, remove **storage box LED** , see **63 31 178 REMOVING AND INSTALLING/REPLACING LED FOR STORAGE BOX** .

51 16 270 REMOVING AND INSTALLING COMPLETE REAR SECTION OF REAR CONSOLE

Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

Only release screws (2) on left and right if:

- **Front trim, rear console** , see **51 16 ... Removing and installing/replacing front trim on rear console**.
- **Cup holder, rear console** , see **51 16 ... Removing and installing/replacing cup holder in rear console**.

are removed.

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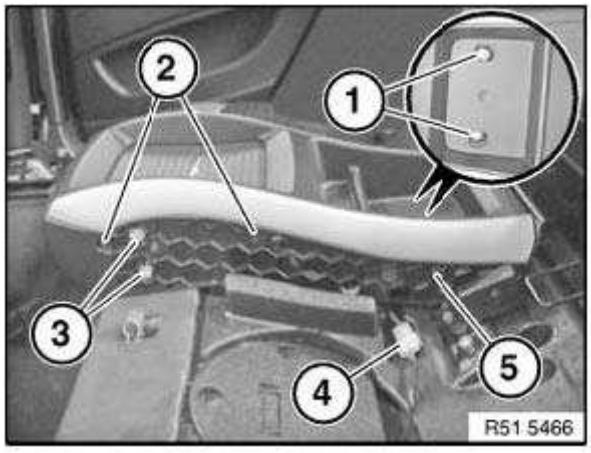
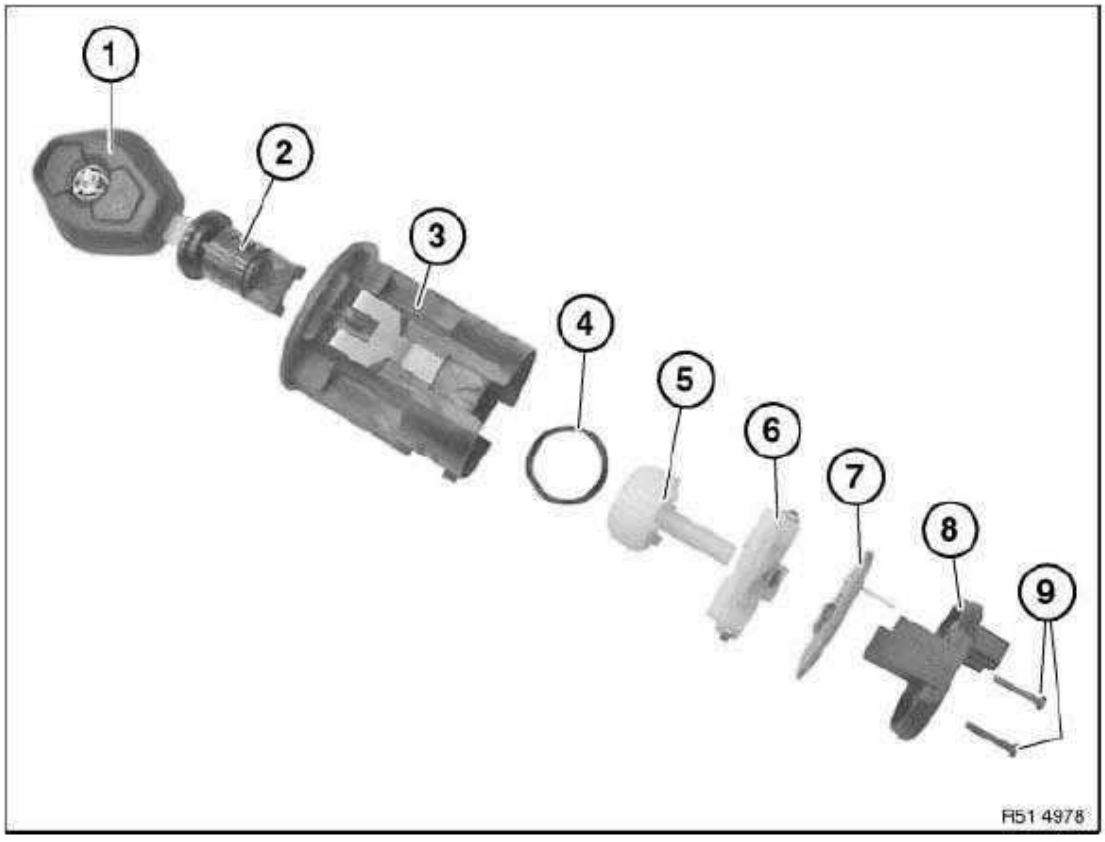


Fig. 158: Identifying Centre Console, Plug Connection And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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. 159: Identifying Passenger Airbag Deactivation Switch Components
Courtesy of BMW OF NORTH AMERICA, INC.

Necessary preliminary tasks:

- Remove **switch for passenger airbag deactivation** , see **61 31 038 REMOVING AND INSTALLING (REPLACING) SWITCH FOR PASSENGER AIRBAG DEACTIVATION** .

Release screws (1).

Remove housing cover (2) and PCB (3) underneath.

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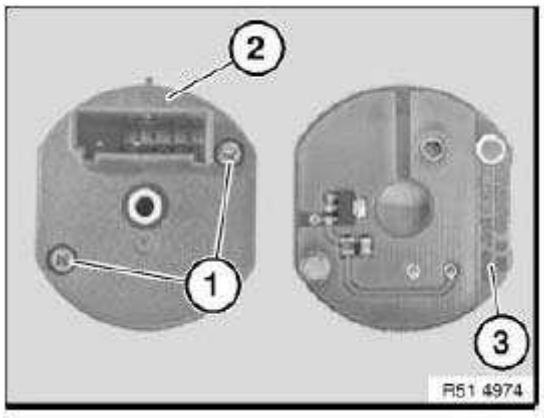


Fig. 160: Identifying Housing Cover And PCB
Courtesy of BMW OF NORTH AMERICA, INC.

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).

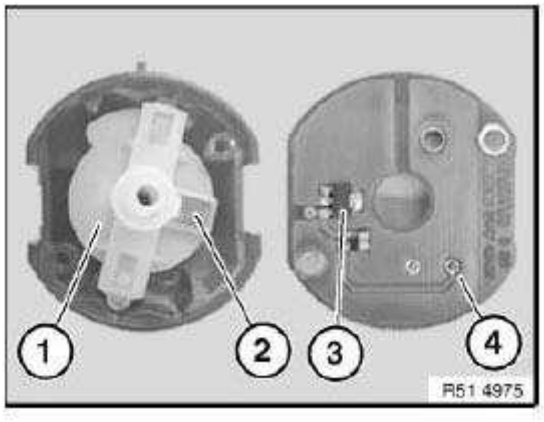


Fig. 161: Identifying Magnet Sensor, PCB, Permanent Magnet And Switch Unit
Courtesy of BMW OF NORTH AMERICA, INC.

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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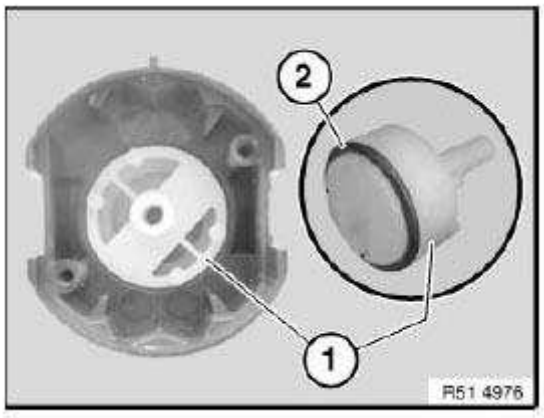


Fig. 162: Identifying Seal And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

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

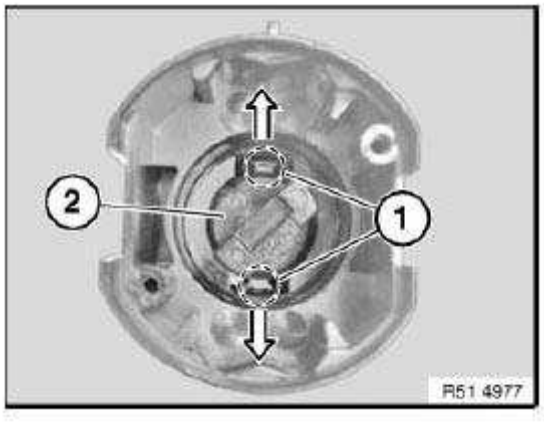


Fig. 163: Identifying Catches And Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 360 REMOVING AND INSTALLING RIGHT GLOVEBOX

Necessary preliminary tasks:

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- Remove **Central Information Display** , see **65 50 057 REMOVING AND INSTALLING REPLACING CENTRAL INFORMATION DISPLAY (CID)** .
- Remove **right fresh-air grille** , see **64 22 135 REMOVING AND INSTALLING OR REPLACING LEFT FRESH-AIR GRILLE** .
- Remove **insert for glovebox** , see **51 16 ... Removing and installing insert for right glovebox**.

Lever out cover (1) and release screw underneath.

Unfasten screws (2 and 3).

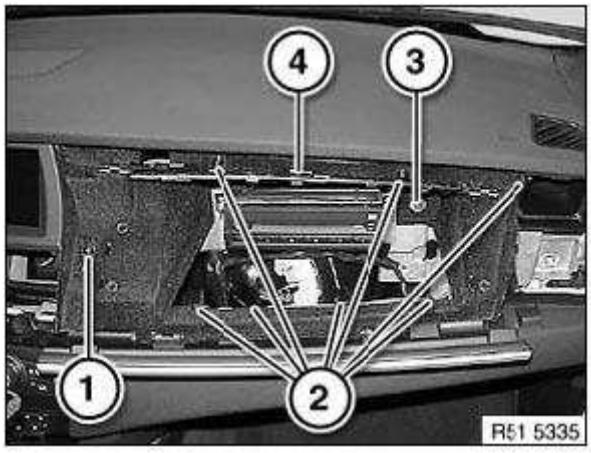


Fig. 164: Identifying Cover And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Disengage Bowden cable (1) on left and right at lock (2).

Unclip light (4) and disconnect plug connection.

Installation:

Carry out function check on emergency release mechanism.

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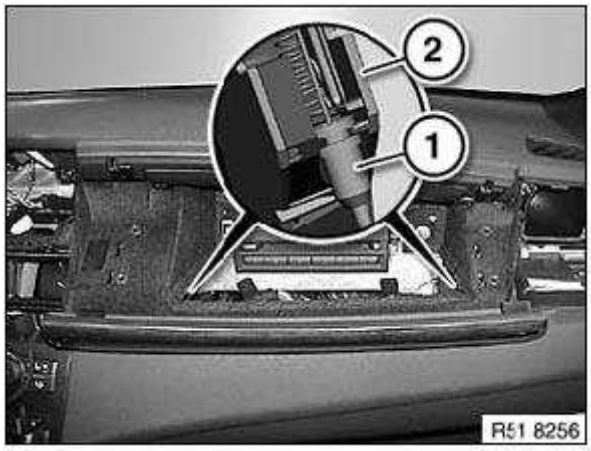


Fig. 165: Identifying Bowden Cable, Lock And Light
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out glovebox (1) slightly.

Disconnect all plug connections (2) and detach cable from glovebox.

Disengage Bowden cable (3) on left and right at lock (4).

Remove glovebox (1).

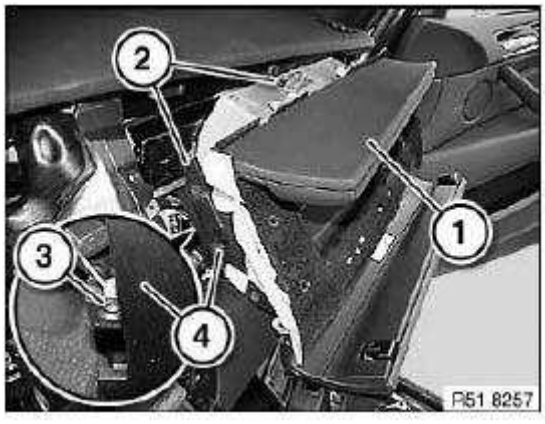


Fig. 166: Identifying Bowden Cable, Lock And Glovebox
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Engage Bowden cable head (1) before inserting glovebox on left and right.

Feed in spacer (2) after inserting glovebox.

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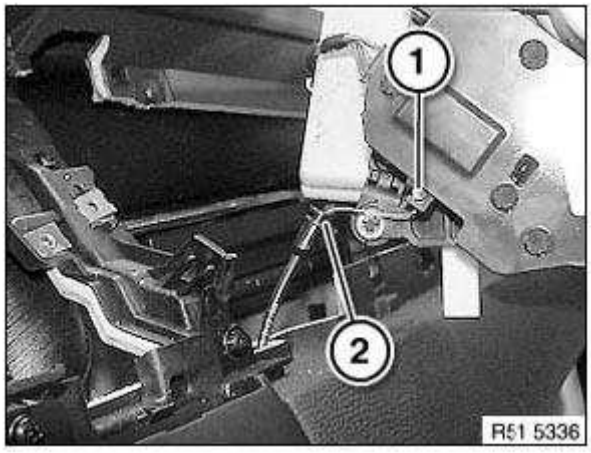


Fig. 167: Identifying Bowden Cable Head And Spacer
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 371 REMOVING AND INSTALLING/REPLACING UPPER GLOVEBOX LID

Special tools required:

- **00 9 322** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

Unclip trim (1) with special tool **00 9 322** towards bottom and feed out of glovebox lid (2).

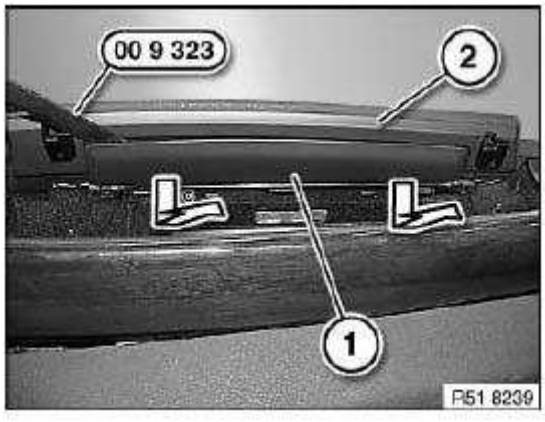


Fig. 168: Identifying Trim And Glovebox Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and catches (2) on trim (3) must not be damaged.

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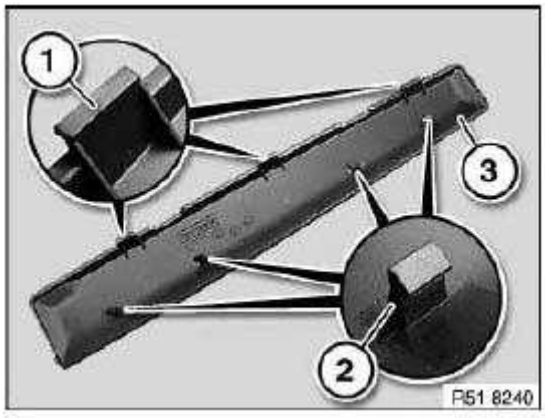


Fig. 169: Identifying Guides, Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Feed glovebox lid (2) out of hinge (3).

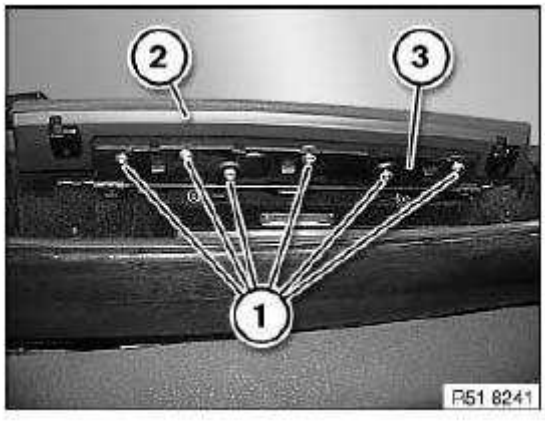


Fig. 170: Identifying Glovebox Lid And Hinge
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Threads (1) and guides (2) on glovebox lid (3) must not be damaged.

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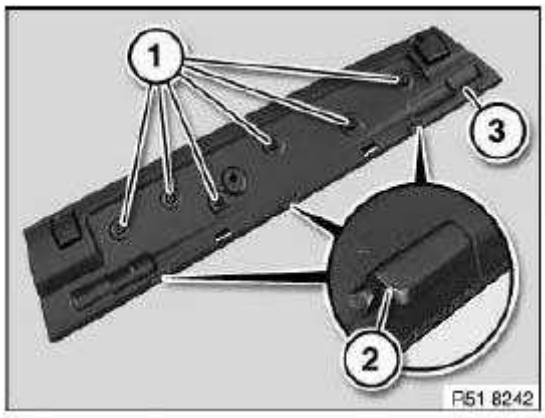


Fig. 171: Identifying Threads, Guides And Glovebox Lid
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 372 REMOVING AND INSTALLING/REPLACING LOWER GLOVEBOX LID

Necessary preliminary tasks:

- Remove **glovebox** , see **51 16 360 Removing and installing right glovebox**.

Close glovebox lid.

Release tab washer (1) and remove pin (2).

Installation:

Replace tab washer (1) and pin (2).

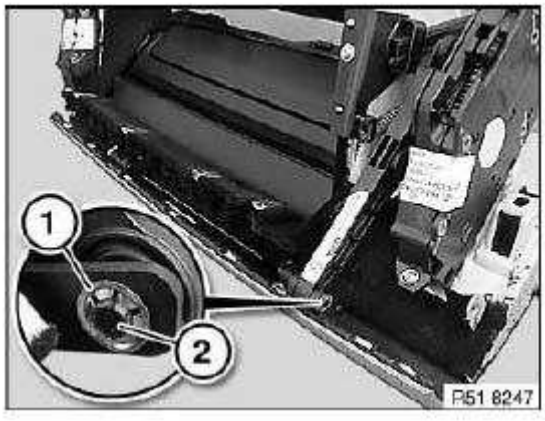


Fig. 172: Identifying Tab Washer And Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Drive out shaft (1) in direction of arrow until knurled area (2) is exposed.

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Pull out shaft (1) completely and remove glovebox lid.

Installation:

Check that shaft (1) is securely seated.

If necessary, fit flap fastening set.

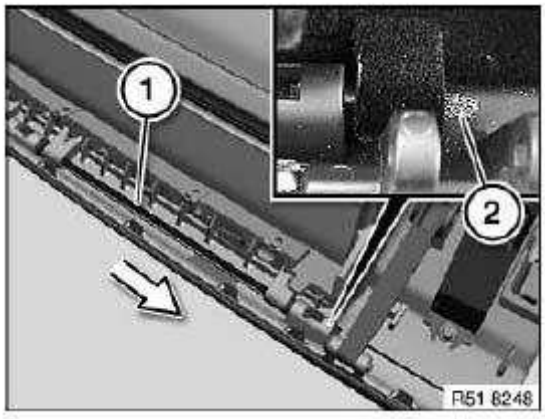


Fig. 173: Identifying Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty bushings (1).

Markings (2) on bushing (1) and glovebox lid (3) must line up.

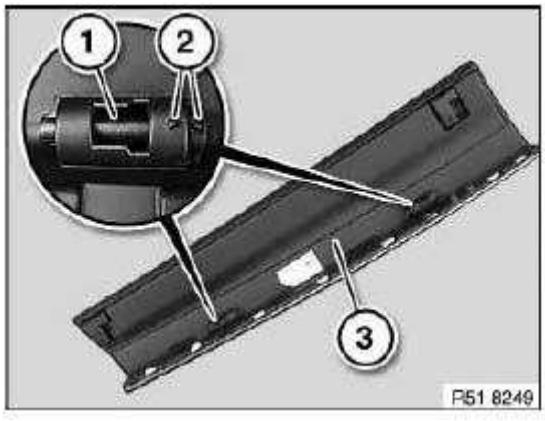


Fig. 174: Identifying Markings, Bushing And Glovebox Lid
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 373 REMOVING AND INSTALLING/REPLACING LOCK FOR GLOVEBOX LID ON LEFT OR RIGHT

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Necessary preliminary tasks:

- Remove **glovebox** , see **51 16 360 Removing and installing right glovebox**

Release screws (1).

Remove lock (2).

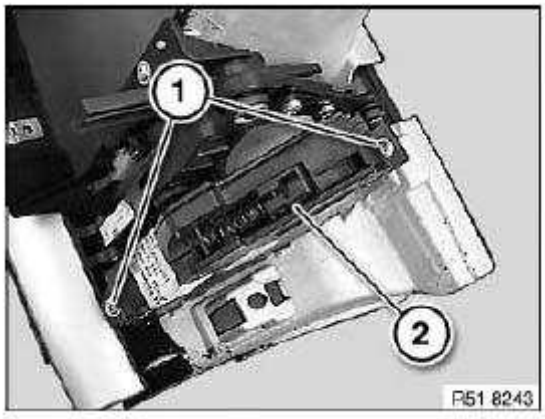


Fig. 175: Identifying Lock And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Grommets (1) on glovebox (2) must not be damaged.

Lock must be correctly inserted into grommets (1).

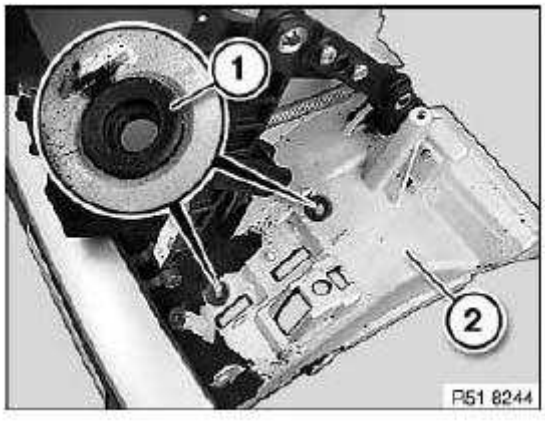


Fig. 176: Identifying Grommets And Glovebox
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 375 REMOVING AND INSTALLING/REPLACING KINEMATIC UNIT FOR GLOVEBOX LID

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Necessary preliminary tasks:

- Remove **lock for glovebox lid** on left, see **51 16 373 Removing and installing/replacing lock for glovebox lid on left or right**.

NOTE: Kinematic unit for glovebox lid consists of reversing lever and damping element with spring.

Close glovebox lid.

Release tab washer (1) and remove pin (2).

Release pin (3).

Remove reversing lever (4).

Installation:

Replace tab washer (1) and pin (2).

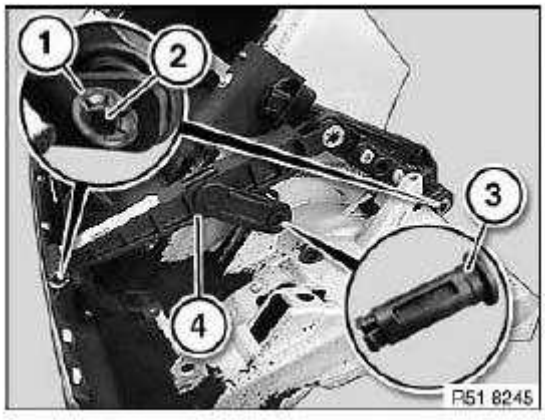


Fig. 177: Identifying Tab Washer, Reversing Lever And Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect spring (1).

Release screw (2).

Feed damping element (3) out of holder (4).

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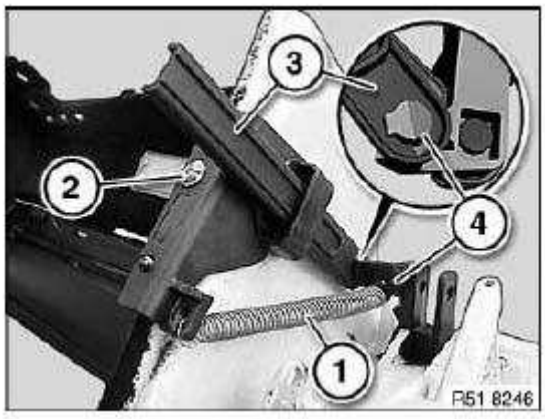


Fig. 178: Identifying Damping Element, Holder, Spring And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 378 REMOVING AND INSTALLING/REPLACING HINGE FOR UPPER GLOVEBOX LID

Necessary preliminary tasks:

- Remove **glovebox** , see **51 16 360 Removing and installing right glovebox**.
- Remove **upper glovebox lid** , see **51 16 371 Removing and installing/replacing upper glovebox lid**.

Close glovebox lid.

Release tab washer (1) and remove pin (2).

Open glovebox lid.

Disconnect spring (3).

Release screw (4).

Feed out damping element (5).

Installation:

Replace tab washer (1) and pin (2).

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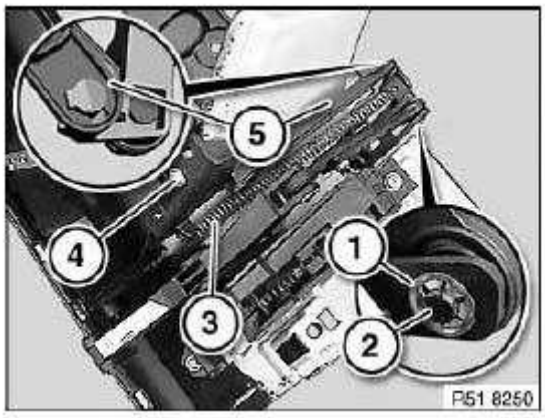


Fig. 179: Identifying Tab Washer, Damping Element And Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Take off holder (2).

Feed out hinge (3).

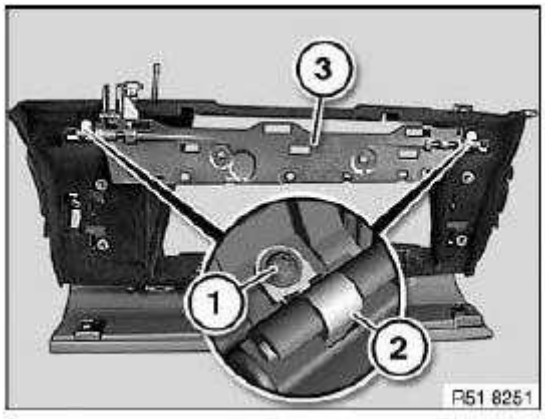


Fig. 180: Identifying Hinge, Holder And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Spring (1) must not be damaged.

If necessary, pull out shaft (2) and replace faulty bushings (4).

Markings (3) on bushing (4) and hinge must line up.

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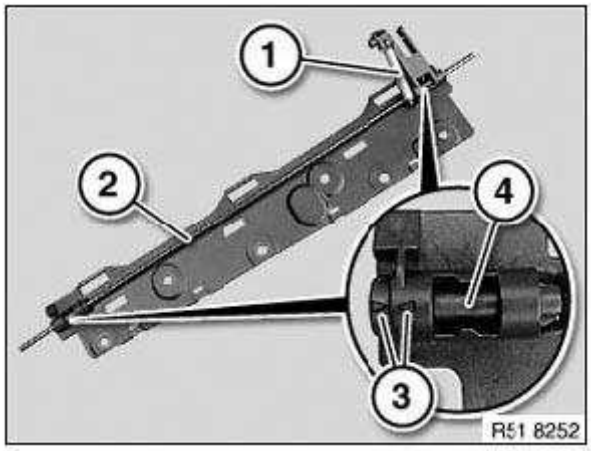


Fig. 181: Identifying Markings, Bushing, Shaft And Spring
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 405 REMOVING AND INSTALLING/REPLACING ROLLER SUN BLIND ON SIDE WINDOW OF LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove **rear door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.

Release 4 bolts (1).

E71:

1. only 3 screws present.

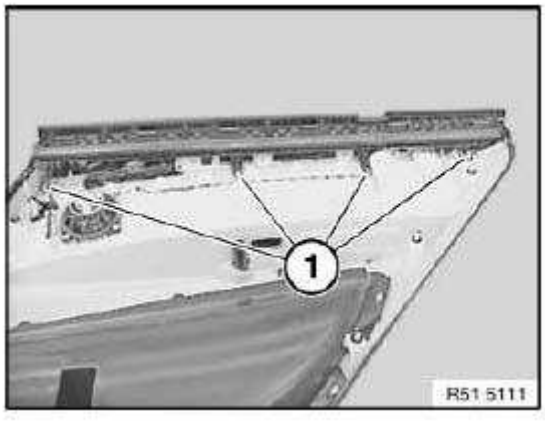


Fig. 182: Identifying Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Release catches (1 and 2) and pull off roller sun blind (3) towards bottom.

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E71:

1. only 6 catches present.
2. only 5 catches present.

Installation:

Catches (1 and 2) must not be damaged.

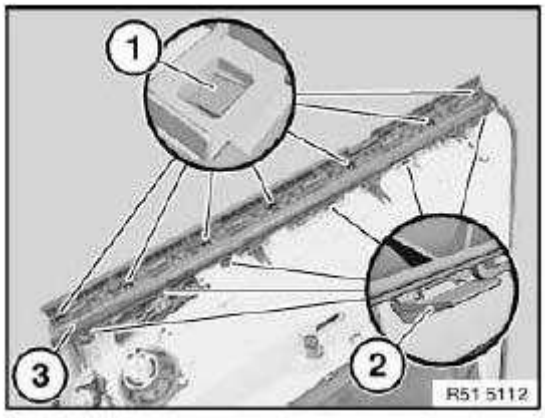


Fig. 183: Identifying Catches And Roller Sun Blind
Courtesy of BMW OF NORTH AMERICA, INC.

Fold up handle (1) and feed out with roller sun blind (2) through frame (3).

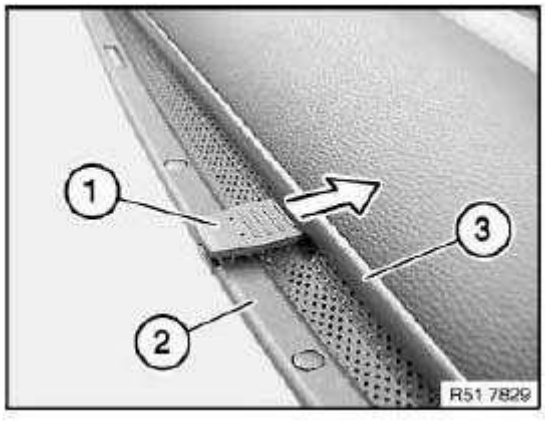


Fig. 184: Identifying Handle, Roller Sun Blind And Frame
Courtesy of BMW OF NORTH AMERICA, INC.

61 31 334 REMOVING AND INSTALLING OR REPLACING GRIP TRIM FOR GEAR SELECTOR SWITCH

Special tools required:

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- **64 1 030** , see **64 1 030 RELEASE HOOK** .

Turn circlip (1) in direction of arrow and remove.

Installation:

Make sure circlip (1) is correctly seated.

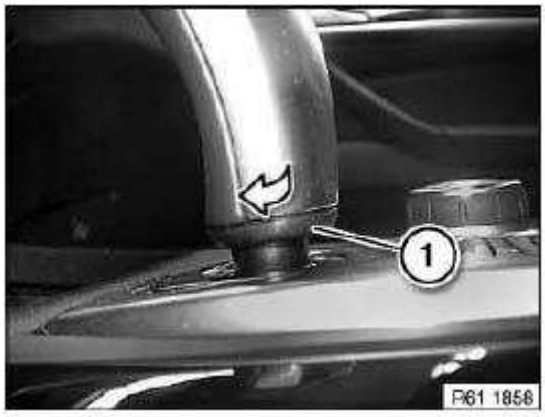


Fig. 185: Identifying Circlip
Courtesy of BMW OF NORTH AMERICA, INC.

Feed special tool 64 1 030 from below into trim (1) and carefully pull off trim (1) in direction of arrow.

Remove symbol plate (2).

Installation:

To facilitate fitting, secure pushbutton (3) with adhesive tape on trim (1).

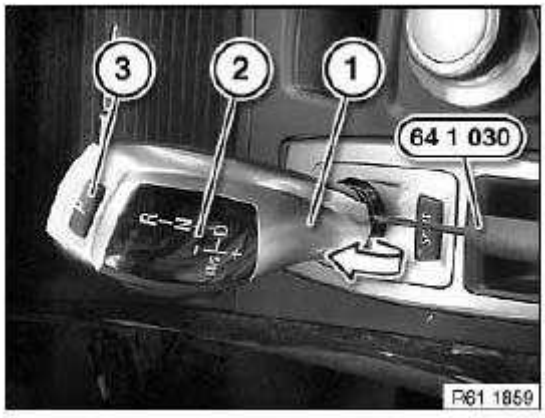


Fig. 186: Identifying Symbol Plate, Pushbutton And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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61 31 336 REMOVING AND INSTALLING/REPLACING TRIM FOR GEAR SELECTOR SWITCH

Necessary preliminary tasks:

- Remove **center console trim** , see **51 16 160 Removing and installing/replacing center console trim (gear selector switch)**.

Release screws (1) and raise trim for gear selector switch (2) slightly. Tightening torque **61 31 3AZ** , see **61 31 SWITCH** .

Disconnect plug connection underneath and remove trim for gear selector switch (2).

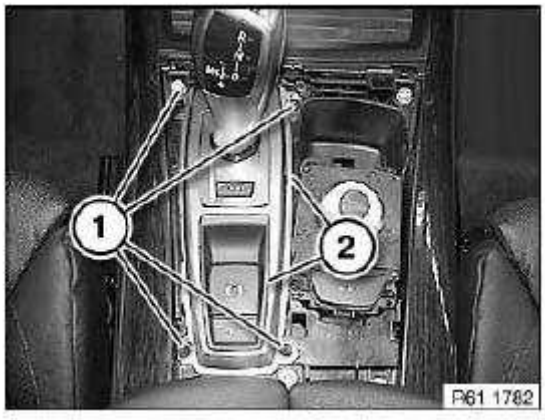


Fig. 187: Identifying Screws, Gear Selector Switch And Gear Selector Switch
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove **switch for electromechanical parking brake** , see **61 31 172 REMOVING AND INSTALLING/REPLACING SWITCH FOR ELECTROMECHANICAL PARKING BRAKE** .

LIDS

41 63 003 REPLACING COVER BOWL

Necessary preliminary tasks:

- Remove right **rear wheel** , see **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove rear right **wheel arch trim** , see **51 71 041 Removing and installing/replacing rear left or right wheel arch cover**.
- 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** .

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NOTE: Carry over schematic representation to the relevant vehicle type.

IMPORTANT: Deformation of the sheet metal flanges in the side panel and the wheel arch results in permanent vehicle leakage. Carry out removal/installation with great care.

Following new body parts are required (refer to Electronic Parts Catalogue ETK):

- Filler bowl

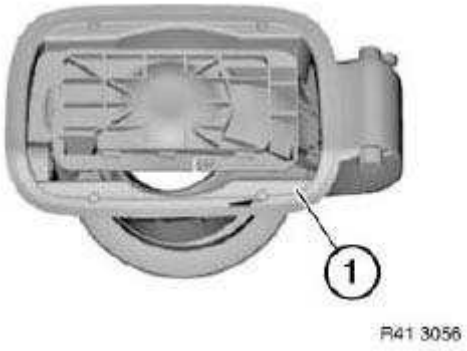


Fig. 188: Identifying Filler Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Release rubber collar (1) from cover bowl (2) by pressing inward.

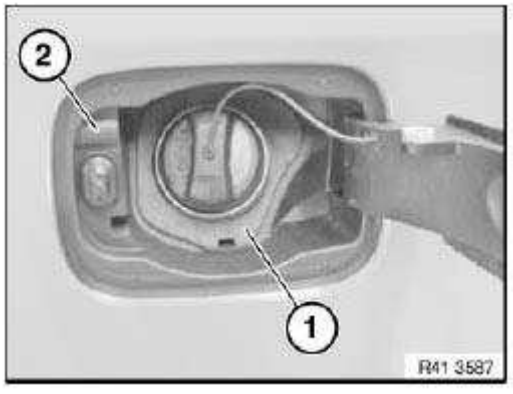


Fig. 189: Identifying Rubber Collar And Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Turn sleeve (1) through approx. 45° and pull out in direction of arrow.

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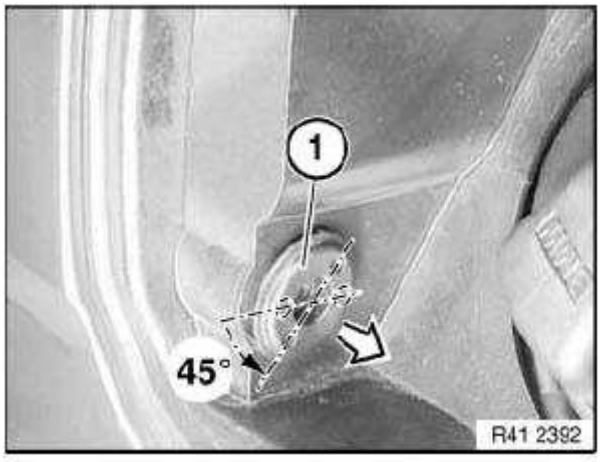


Fig. 190: Identifying Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Press retaining strap (1) inwards and remove.

Pierce markings (2) with a small screwdriver.

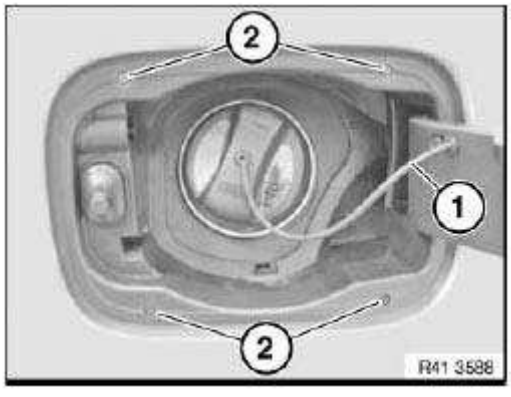


Fig. 191: Identifying Retaining Strap And Pierce Markings
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: For purposes of clarity, picture shows cover bowl removed.

Insert screwdriver to specified measurement a and unlock cover bowl catch.

Measurement a=5 mm

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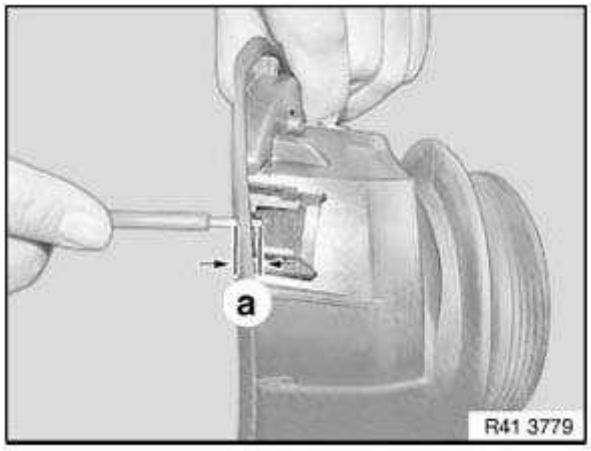


Fig. 192: Inserting Screwdriver To Unlock Cover Bowl Catch
Courtesy of BMW OF NORTH AMERICA, INC.

Keep cover bowl tensioned with pliers (2).

Unlock catches individually with screwdriver (1).

Unlock catches in following order:

1. Top left
2. Bottom left
3. Top right
4. Bottom right

Move screwdriver in opposite direction at both lower catches.

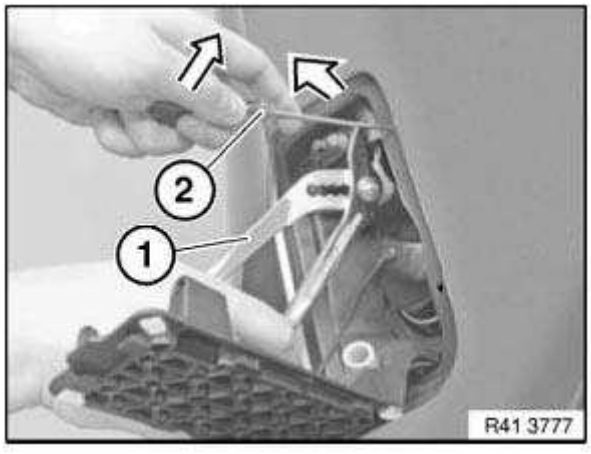


Fig. 193: Unlocking Catches With Screwdriver And Pliers
Courtesy of BMW OF NORTH AMERICA, INC.

Close hinge arm (1).

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IMPORTANT: Do not damage sheet metal flange of side panel.

Carefully twist out cover bowl (2) at first at rear in direction of arrow from side panel and remove.

Remove sealing sleeve from fuel filler pipe.

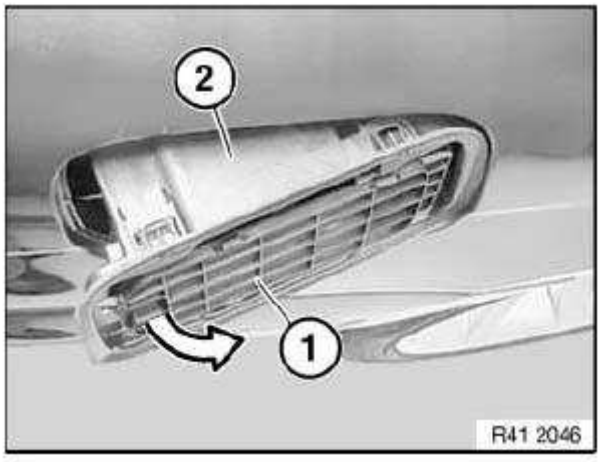


Fig. 194: Identifying Hinge Arm And Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Open hinge arm.

Turn sealing sleeve in area of hinge inwards and hold.

Insert cover bowl and engage sealing sleeve over fuel filler pipe.

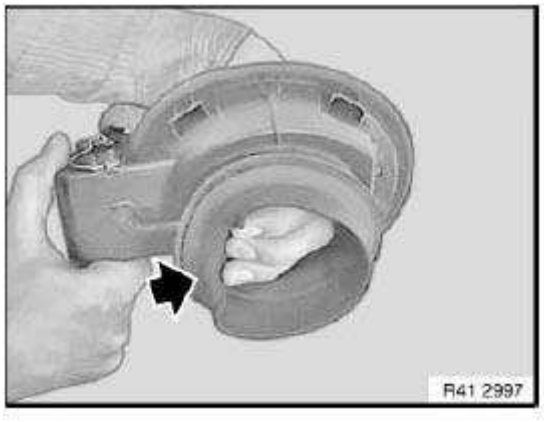


Fig. 195: Inserting Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Using fitting aid (1), pull sealing lip (2) over sheet metal flange of wheel arch (3).

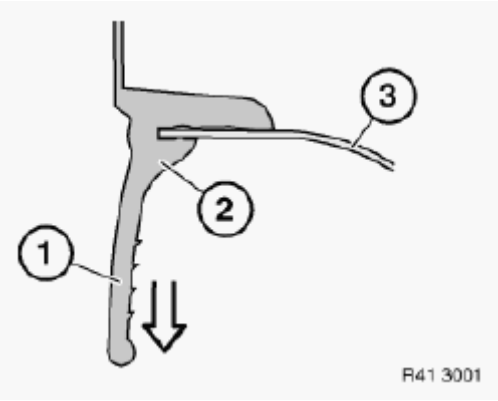


Fig. 196: Identifying Fitting Aid, Sealing Lip And Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Cover bowl must snap into place 4 times.

After installing, carefully check cover bowl at clips for secure seating.

There must be no discernible gap between the sealing lip of the cover bowl and the side panel in the area.

Make sure rubber sleeve (1) is correctly seated in areas (2) and (3).

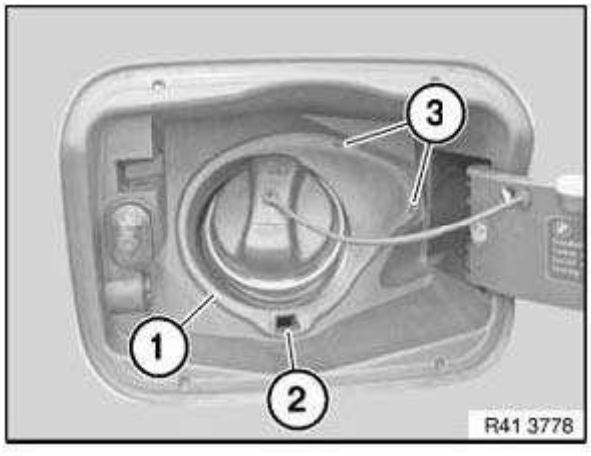


Fig. 197: Identifying Rubber Sleeve And Seated In Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Illustrations shows fuel filler pipe removed.

Check that sealing lip is correctly seated.

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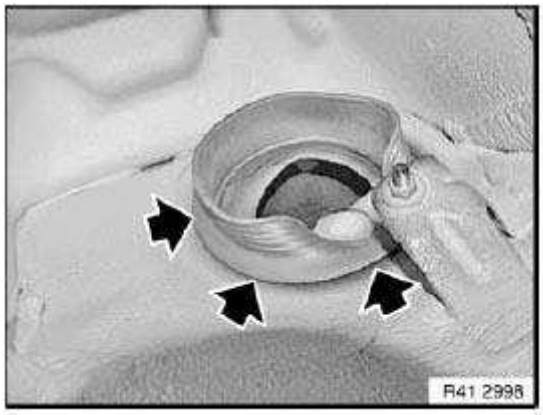


Fig. 198: Checking Sealing Lip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on ejector (2) must not be damaged.

Check protective cap (3) for correct seating. (Watertightness!)

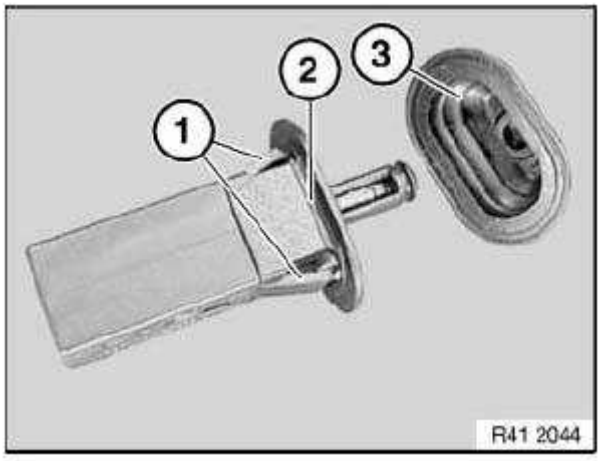


Fig. 199: Identifying Catches, Ejector And Protective Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locks (1) on left/right of cover (2) must not be damaged.

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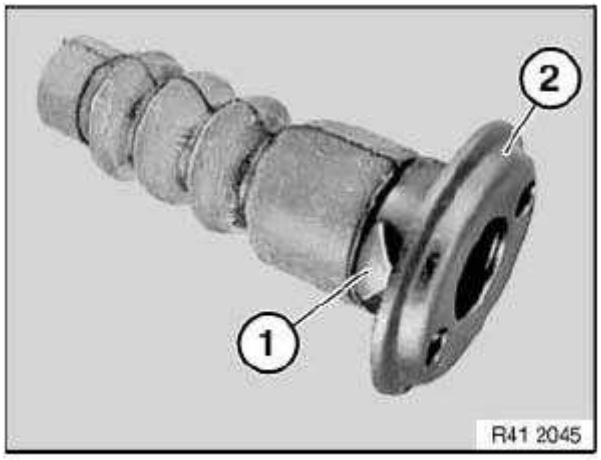


Fig. 200: Identifying Locks And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING CUP HOLDER IN REAR CONSOLE

Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (2 and 3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

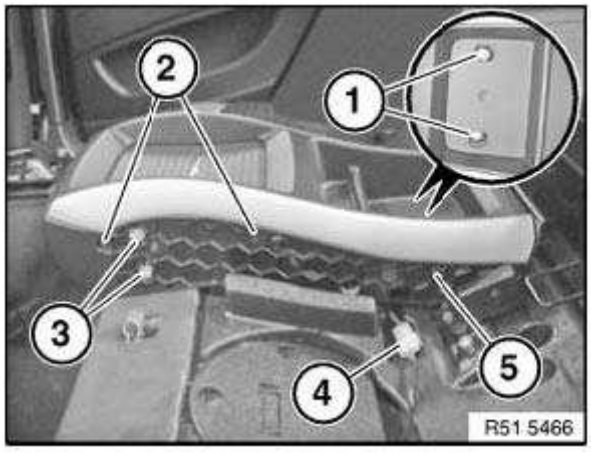


Fig. 201: Identifying Centre Console, Plug Connection And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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Release left and right screws (1).

Feed cup holder from below out of frame (2) in direction of arrow first at point A, then at point B.

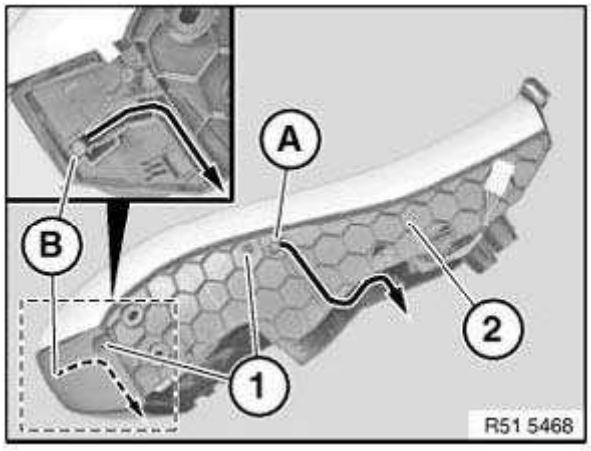


Fig. 202: Identifying Frame And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) on cup holder (2) must not be damaged.

Make sure guides (1) are correctly engaged.

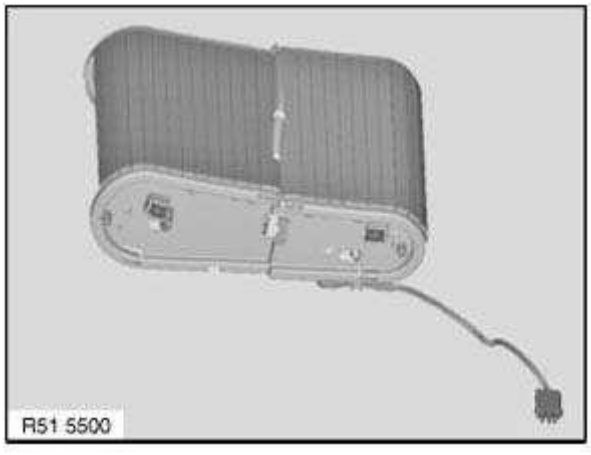


Fig. 203: Identifying Guides And Cup Holder
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING DECORATIVE TRIM ON REAR CONSOLE ON LEFT/RIGHT

Necessary preliminary tasks:

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- Remove **cup holder in rear console** , see **51 16 ... Removing and installing/replacing cup holder in rear console**.

Release screws (1).

Feed out trim (2).

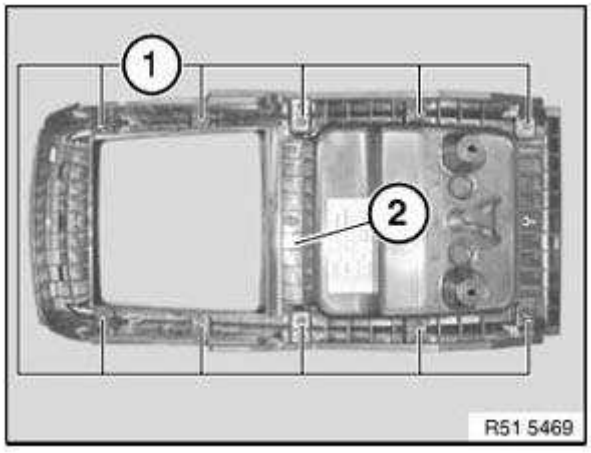


Fig. 204: Identifying Trim And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retainers (1) on decorative trim (2) must not be damaged.

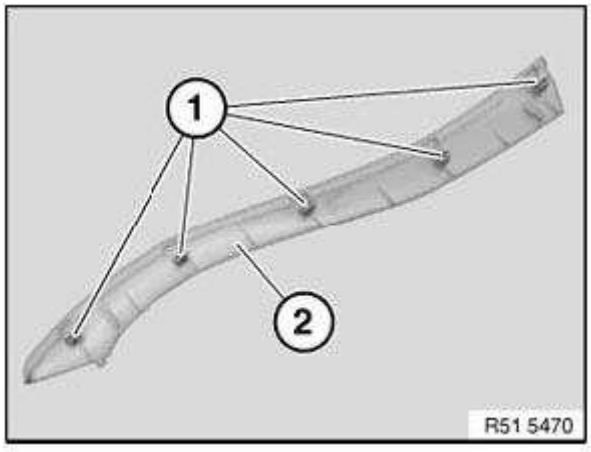


Fig. 205: Identifying Retainers And Decorative Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING FRONT TRIM ON REAR CONSOLE

Special tools required:

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- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Necessary preliminary tasks:

- Remove **decorative trim from rear console** on left and right, see **51 16 ... Removing and installing/replacing decorative trim on rear console on left/right**.

Engage special tool **00 9 323** as illustrated and unclip trim (1) at carrier (2).

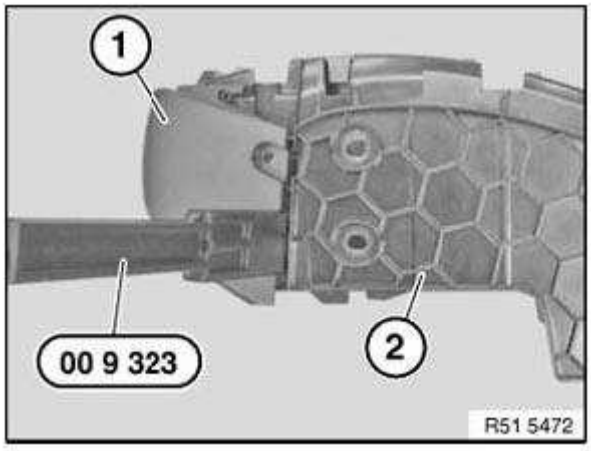


Fig. 206: Identifying Trim And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1), guide (2) and lugs (3) on trim (4) must not be damaged.

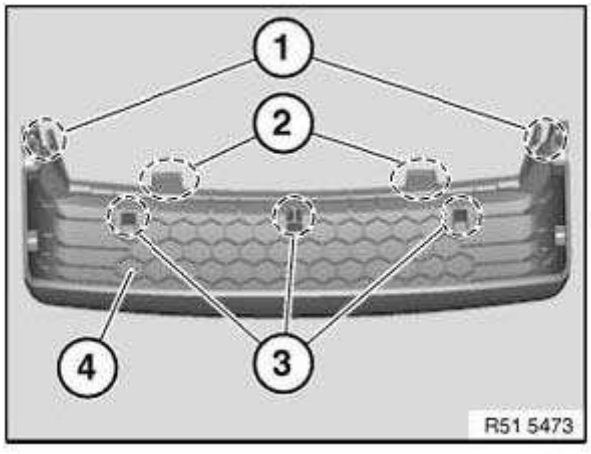


Fig. 207: Identifying Catches, Guide And Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 ... REMOVING AND INSTALLING/REPLACING UPPER TRIM ON REAR CONSOLE

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Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (2 and 3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

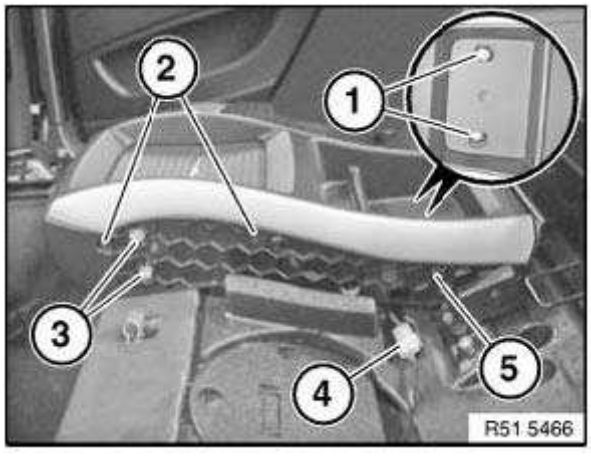


Fig. 208: Identifying Centre Console, Plug Connection And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release left and right screws (1).

Feed cup holder from below out of frame (2) in direction of arrow first at point A, then at point B.

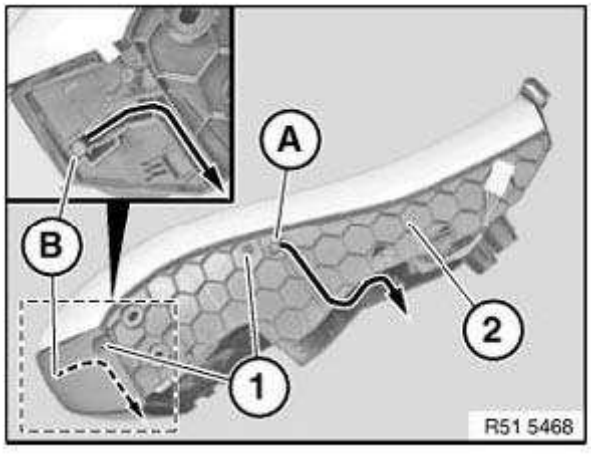


Fig. 209: Identifying Frame And Screws

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Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on frame (2).

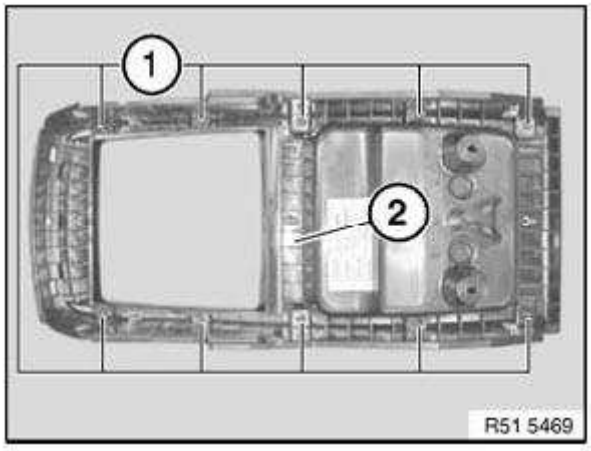


Fig. 210: Identifying Frame And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release trim (2) at retainers (3) from frame (1).

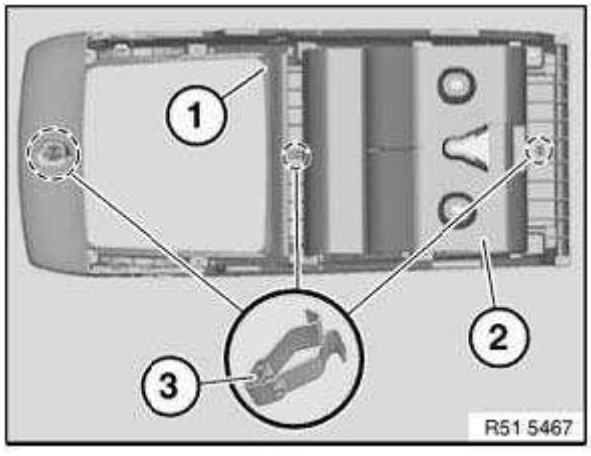


Fig. 211: Identifying Trim, Retainers And Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retainers (1) on trim (2) must not be damaged.

Make sure retainers (1) is correctly seated on lugs.

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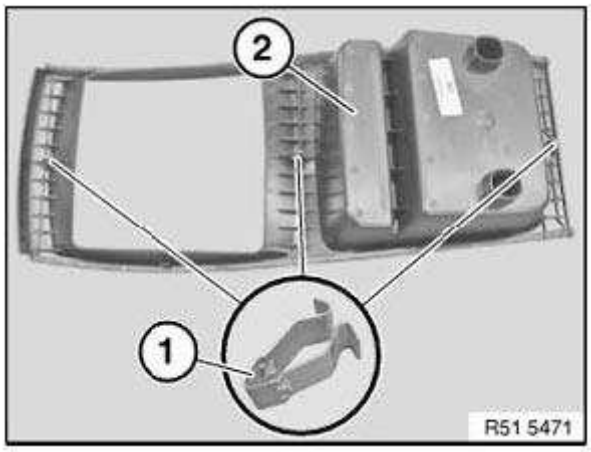


Fig. 212: Identifying Retainers And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 16 270 REMOVING AND INSTALLING COMPLETE REAR SECTION OF REAR CONSOLE

Necessary preliminary tasks:

- Remove **rear seats** , see **52 26 000 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT REAR SEAT** .

Release screws (1) under rubber insert.

Release screws (3) on left and right sides.

Disconnect plug connection (4).

Lift out center console (5).

Only release screws (2) on left and right if:

- **Front trim, rear console** , see **51 16 ... Removing and installing/replacing front trim on rear console**.
- **Cup holder, rear console** , see **51 16 ... Removing and installing/replacing cup holder in rear console**.

are removed.

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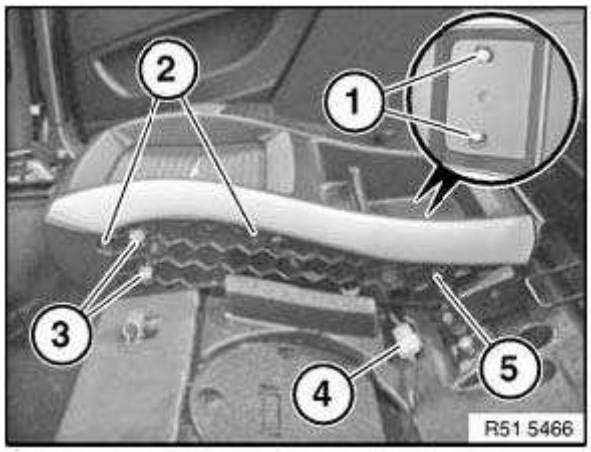


Fig. 213: Identifying Centre Console, Plug Connection And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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).

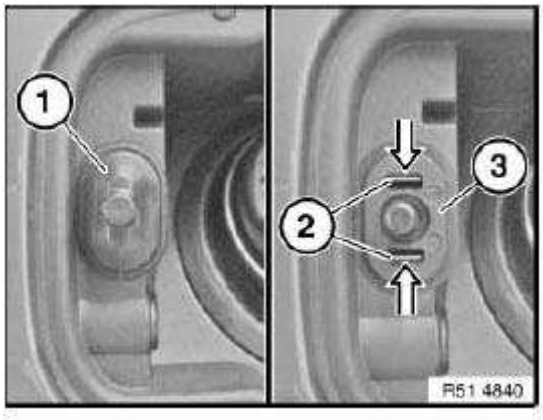


Fig. 214: Identifying Catches, Ejector And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) on ejector (2) must not be damaged.

Make sure cover (3) is correctly seated on ejector (2).

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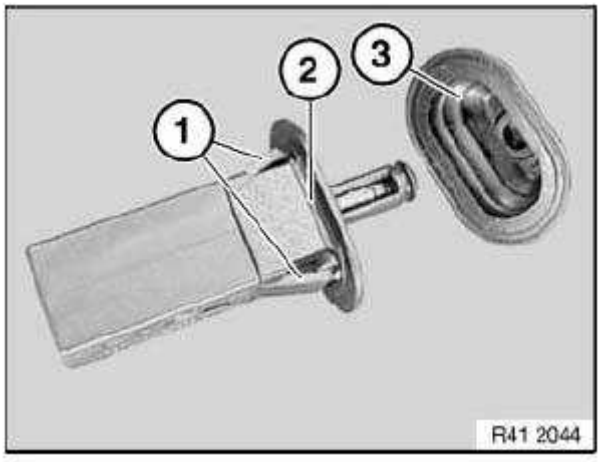
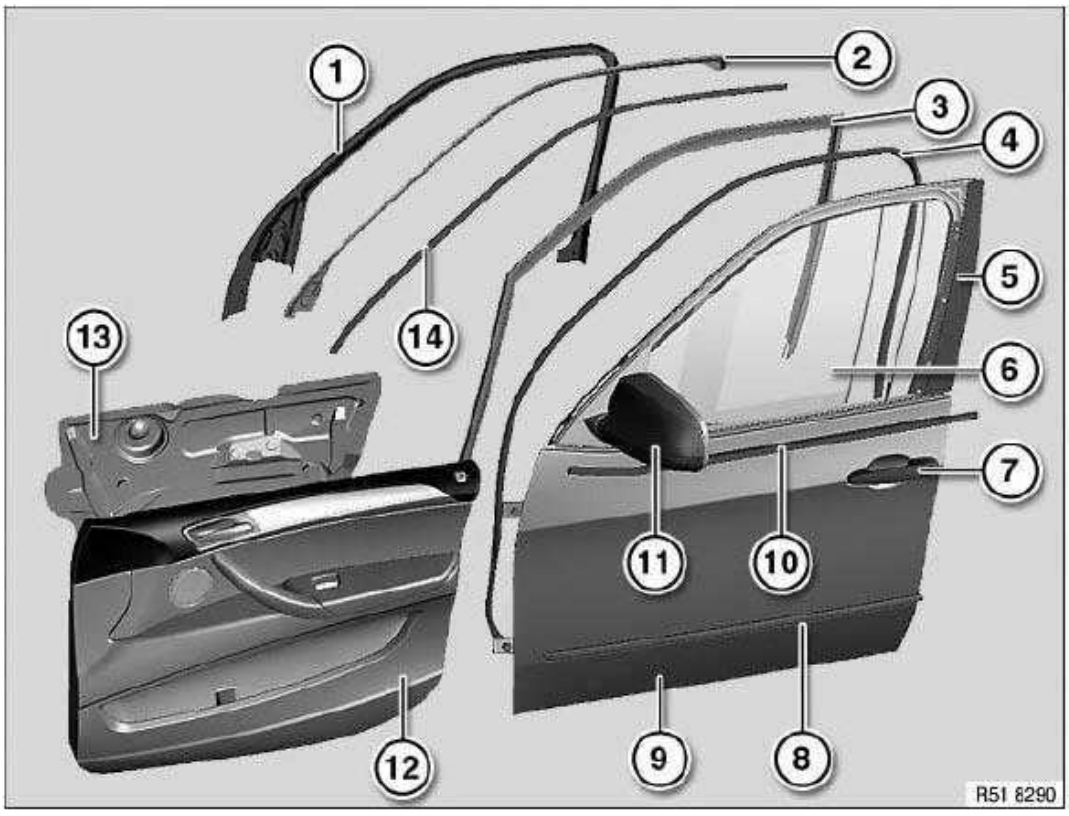


Fig. 215: Identifying Catches, Ejector And Protective Cap
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT DOOR LOCKS, HANDLES, FITTINGS

51 00 ... OVERVIEW OF FRONT DOOR

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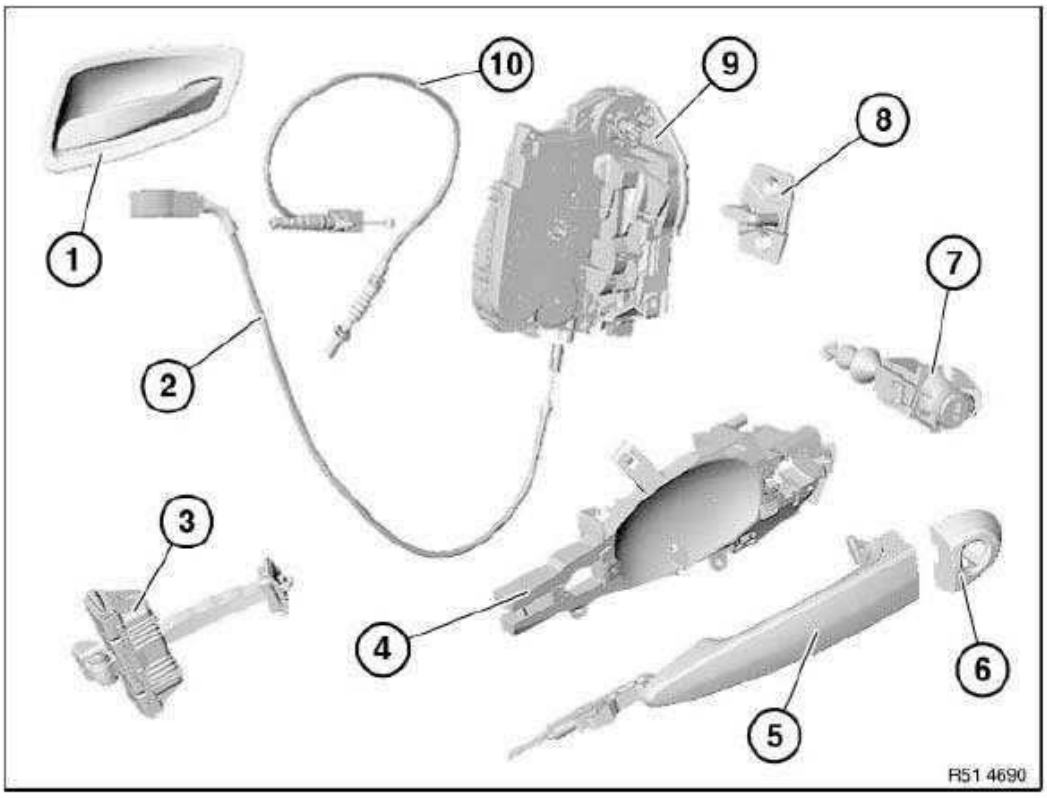


1	Inner cover on door window frame	8	Rubbing strip on front door X5 only
2	Seal for door seam/roof frame	9	Front door
3	Rubber guide for door window glass	10	Window cavity cover strip
4	Seal on front door	11	Outside mirror
5	Trim on window frame	12	Door trim panel
6	Windows	13	Acoustic insulation in front door
7	Door lock	14	Decorative strip on window frame

Fig. 216: Identifying Front Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 ... OVERVIEW OF FRONT DOOR LOCKS

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1	Door opener, inside	6	Cover on outside handle
2	Bowden cable for inside door opener	7	Lock cylinder (on driver's door only)
3	Door brake	8	Door detent (lock striker)
4	Carrier for outside door handle	9	Door lock
5	Outside handle on front door	10	Bowden cable for outside door handle

Fig. 217: Identifying Front Door Locks Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 ... REMOVING WINDOW CAVITY COVER STRIP WITH SPECIAL TOOL 00 9 324 AT FRONT OR REAR

Special tools required:

- **00 9 318**
- **00 9 324** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

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).

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Rear door:

Insert special tool **00 9 324** at rear (at C-pillar) in window cavity (2) (letters TOP pointing upwards).

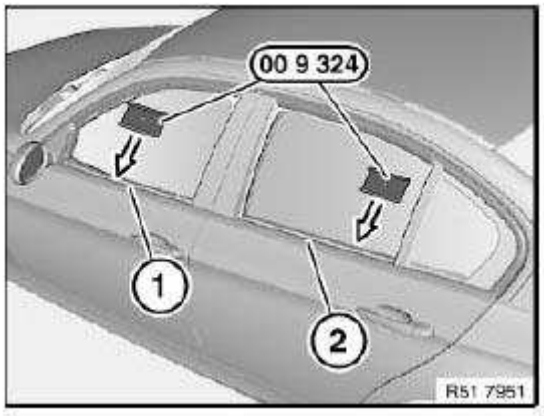


Fig. 218: Identifying Window Cavity
Courtesy of BMW OF NORTH AMERICA, INC.

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)

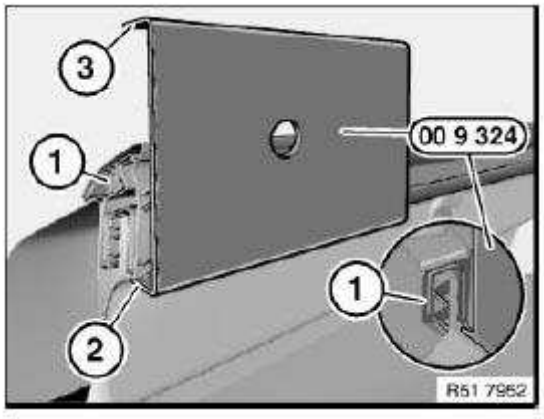


Fig. 219: Identifying Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Start at the front or rear, depending on the model.

IMPORTANT: Risk of damage!

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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.

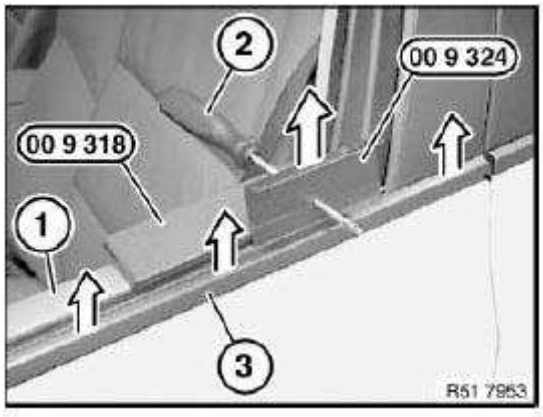


Fig. 220: Identifying Screwdriver And Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 003 REPLACING DOOR DETENT (LOCK STRIKER), FRONT LEFT OR RIGHT

Release screws (1) and remove door detent (2).

Installation:

If necessary, carry out basic adjustment by way of notches (3) on door detent (2).

Notches (3) must be vertical to B-pillar.

Tightening torque **51 21 2AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

Adjust door detent , see **41 5. ... ADJUSTING DOOR** .

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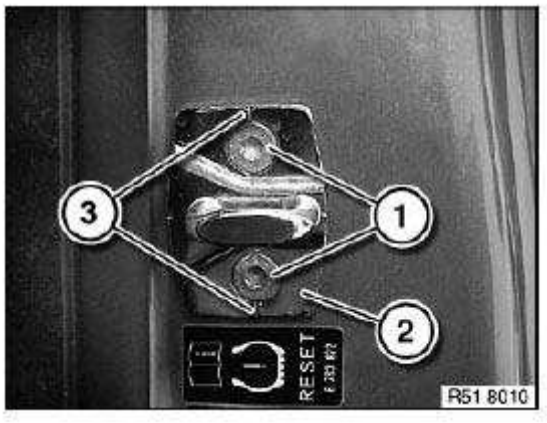


Fig. 221: Identifying Screws, Door Detent And Notches
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 004 ADJUSTING FRONT LEFT OR RIGHT DOOR DETENT (LOCK WEDGE)

Operation is described in:

Adjusting left or right front door. , see **41 5. ... ADJUSTING DOOR** .

51 21 090 REMOVING AND INSTALLING/REPLACING DOOR LOCK IN LEFT OR RIGHT FRONT DOOR

Special tools required:

- **51 2 190** , see **51 2 190 DOOR LOCK TENSIONER** .

Necessary preliminary tasks:

- Remove rear section of **power window unit** , see **51 33 000 Removing and installing (replacing) power window unit in left or right front door**.

  Driver's side only:

- Remove **cover on outside handle** , see **51 21 181 Removing and installing/replacing cover on outside handle with lock cylinder**.

Disconnect Bowden cable at bottom (1) and top (3) from door lock (2).

If necessary, release cable holder on door lock (2).

Installation:

Bowden cable must be correctly engaged in locators in door lock (2).

Bowden cable must be laid without kinks in bend to door lock (2).

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Seal (4) must be correctly fitted on Bowden cable.

IMPORTANT: Door cannot be opened if Bowden cable (1) is incorrectly laid.

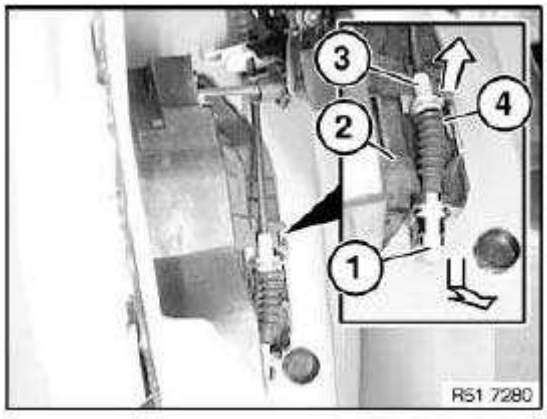


Fig. 222: Identifying Door Lock, Bowden Cable And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip lock knob control rod (1).

Unlock and disconnect plug connection (2) at lugs (3).

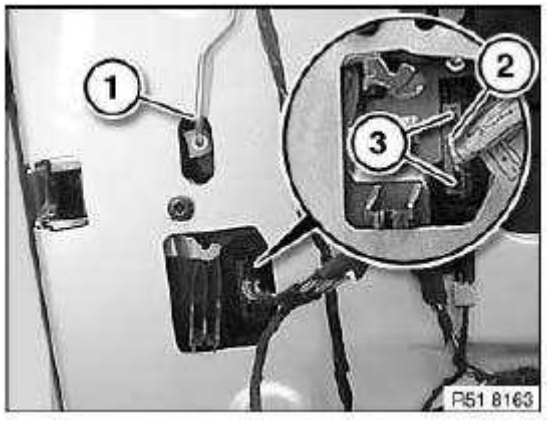


Fig. 223: Identifying Lock Knob Control Rod And Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Soft Close Automatic:

Disconnect plug connection (1).

Release screws (2).

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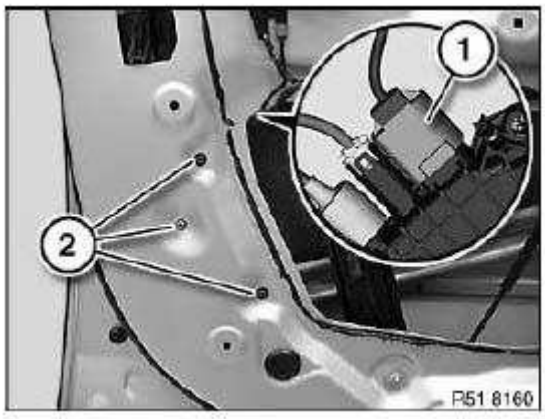


Fig. 224: Identifying Plug Connection And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage door lock seal when removing.

Release screws (1).

Remove door lock (2) from inside.

IMPORTANT: To avoid leaking and electrical malfunction:
Pull door lock (2) with special tool into corner (3).

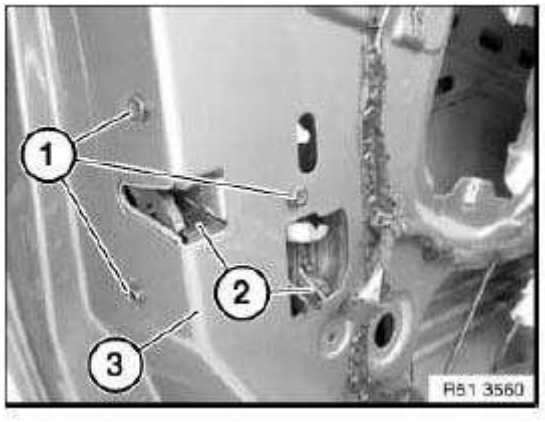


Fig. 225: Identifying Door Lock, Corner And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) on door lock (2) must not be damaged.

Adapter switching socket (4) must be correctly engaged.

Door wiring harness must be correctly laid in guide (2).

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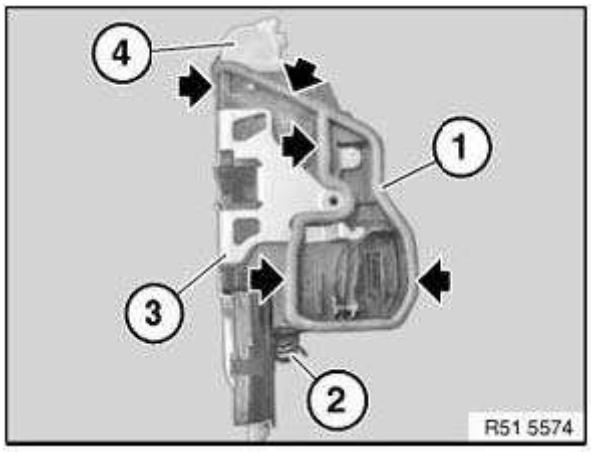


Fig. 226: Identifying Seal, Door Lock And Switching Socket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Version with Soft Close Automatic:

Make sure Soft Close Automatic drive (1) is installed in correct installation position. Control line (3) must not be twisted around Bowden cable (2).

Make sure control line (3) is correctly laid in guides (4).

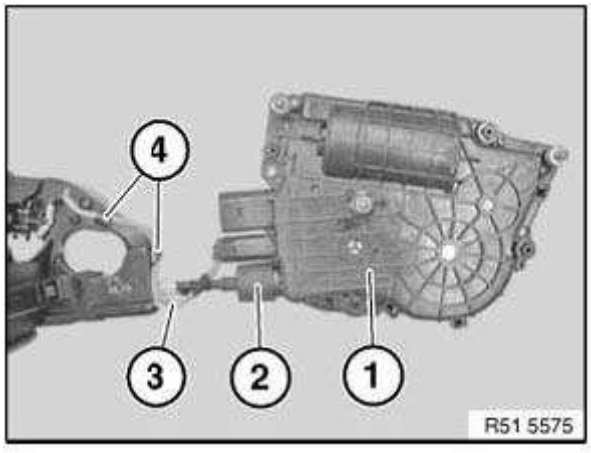


Fig. 227: Identifying Control Line, Soft Close Automatic Drive And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

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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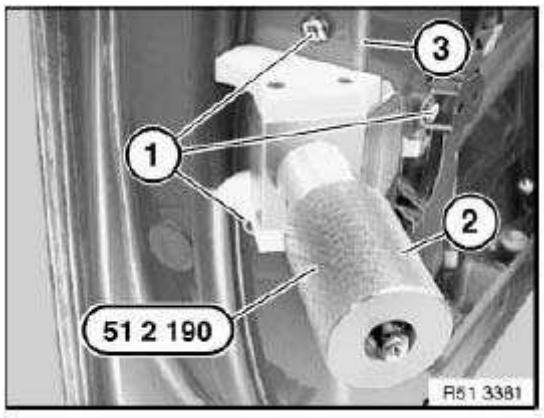


Fig. 228: Identifying Door Lock Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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).

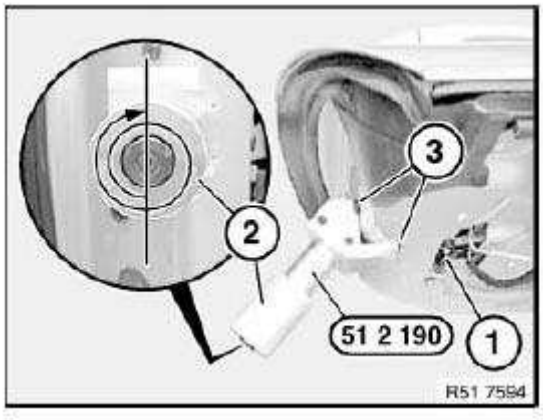


Fig. 229: Identifying Door Lock And Knurled Screw
Courtesy of BMW OF NORTH AMERICA, INC.

- Tighten down door lock screws, tightening torque **51 21 1AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

51 21 125 REMOVING AND INSTALLING/REPLACING CARRIER FOR LEFT OR RIGHT OUTSIDE DOOR HANDLE WITH LOCK CYLINDER

Necessary preliminary tasks:

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- Remove **outside handle** , see **51 21 170 Removing and installing or replacing outside handle from left or right front door**
- Remove **sound insulation** , see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**
- If necessary, close door window glass

Release Bowden cable (1) from door lock (2).

Installation:

Bowden cable (1) must be correctly engaged in locators in door lock (2).

Bowden cable (1) must be laid without kinks in bend to door lock (2).

IMPORTANT: Door cannot be opened if Bowden cable (1) is incorrectly laid.

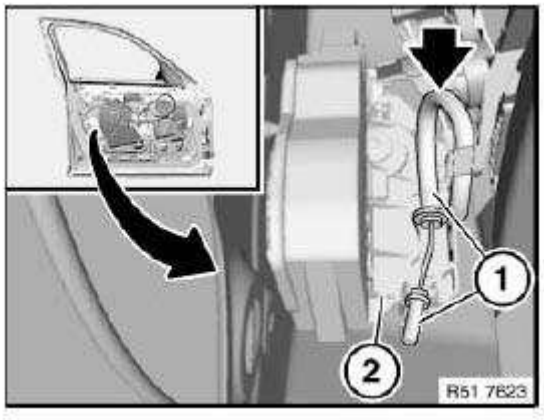


Fig. 230: Identifying Bowden Cable And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Remove seals (1) in direction of arrow.

Release screw (2).

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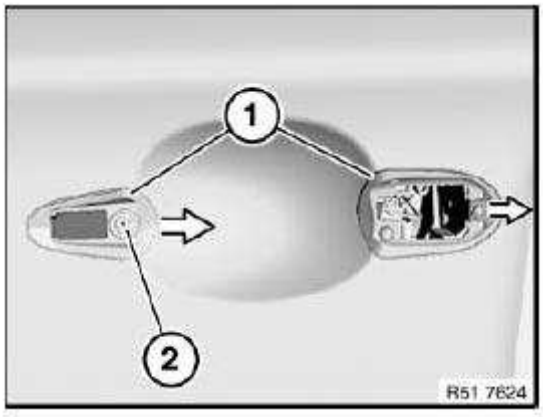


Fig. 231: Identifying Seals And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, release cable holder on carrier (1).

Remove inner carrier (1) in direction of arrow and feed out of door.

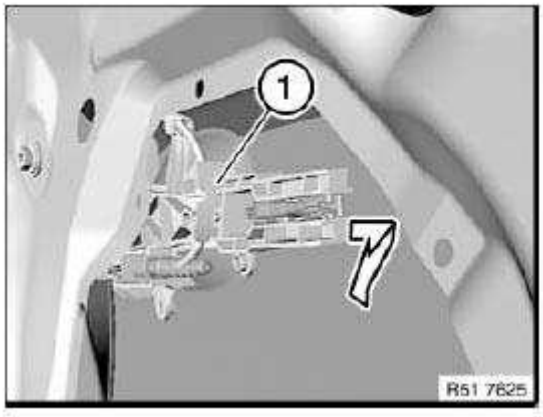


Fig. 232: Identifying Inner Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

If necessary, release cable connector (1).

Feed Bowden cable (2) out of carrier (3).

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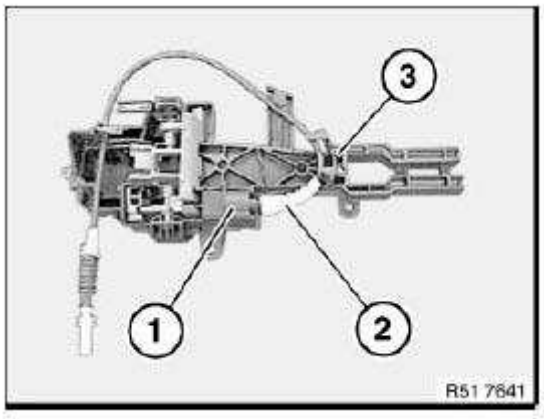


Fig. 233: Identifying Bowden Cable And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 126 REMOVING AND INSTALLING/REPLACING CARRIER FOR LEFT OR RIGHT OUTSIDE DOOR HANDLE WITHOUT LOCK CYLINDER

Operation is identical to:

- Removing and installing/replacing **carrier for outside door handle with lock cylinder** , see **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

Lever out cap (1) and release screw underneath.

Installation:

If necessary, replace faulty trim (1).

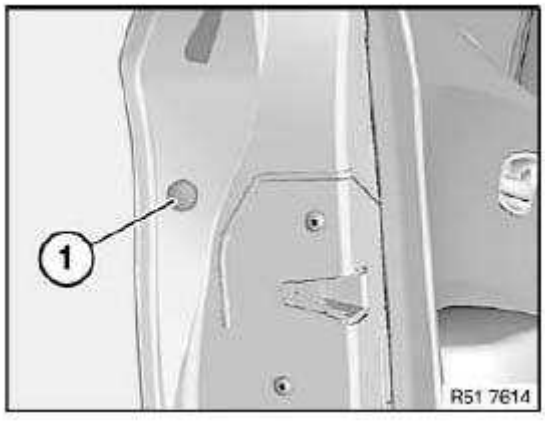


Fig. 234: Identifying Cap On Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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Insert ignition key into lock cylinder.

Turn ignition key slightly and pull off cover (1) in direction of arrow with outside door handle (2) opened slightly.

Installation:

Lock cylinder must be correctly seated in door lock.

Check function of lock cylinder.

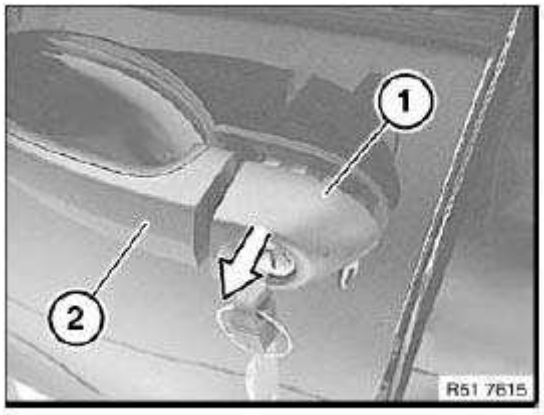


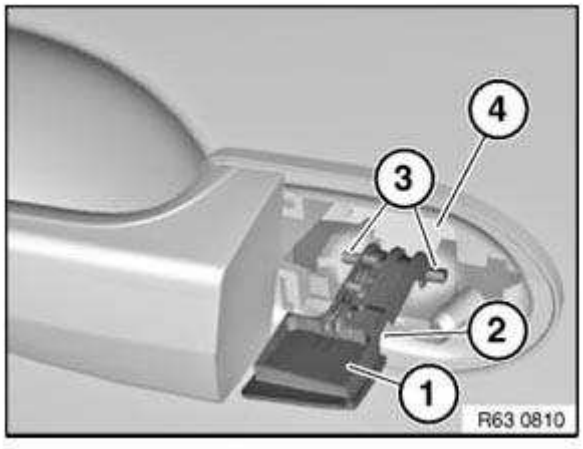
Fig. 235: Identifying Cover And Outside Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Version with light package:

Installation:

Make sure outside door handle light (1) is correctly positioned in area (2).

Guides (3) of outside door handle light (1) must be correctly seated in carrier for outside door handle (4).



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Fig. 236: Identifying Guides, Outside Door Handle Light And Outside Door Handle (4)
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Remove catches (1) and detach cover (2) from lock cylinder (3).

Installation:

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

Paddle (4) of lock cylinder (3) must not be damaged.

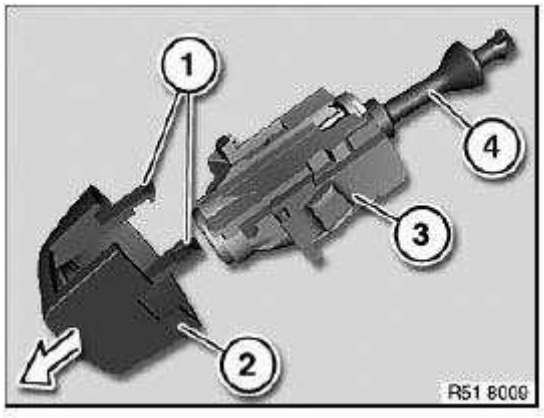


Fig. 237: Identifying Catches, Cover Paddle And Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 150 BLOCKING, IF NECESSARY INITIALIZING, CAR KEY IN IMMOBILIZER CONTROL MODULE

NOTE: Execution in diagnosis system:
->Service functions->
->Body->
->Locking and security functions->
->Remote control key

51 21 170 REMOVING AND INSTALLING OR REPLACING OUTSIDE HANDLE FROM LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

- Remove **cover on outside handle** , see **51 21 180 Removing and installing/replacing cover on outside handle** or **51 21 181 Removing and installing/replacing cover on outside handle with lock cylinder**.

If necessary, lay outside door handle light (1) slightly to one side.

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Pull out outside handle (2) and feed out in direction of arrow.

Version with Comfort Access/CA:

Carefully feed out outside handle (2) and disconnect associated plug connection.

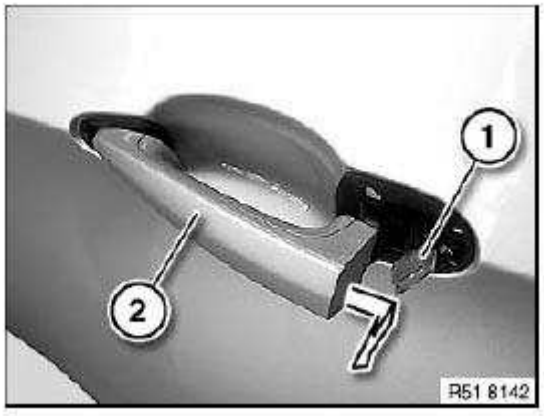


Fig. 238: Identifying Outside Door Handle Light And Outside Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locator (1) must not be damaged.

Version with Comfort Access/CA:

Seal (2) must not be damaged.

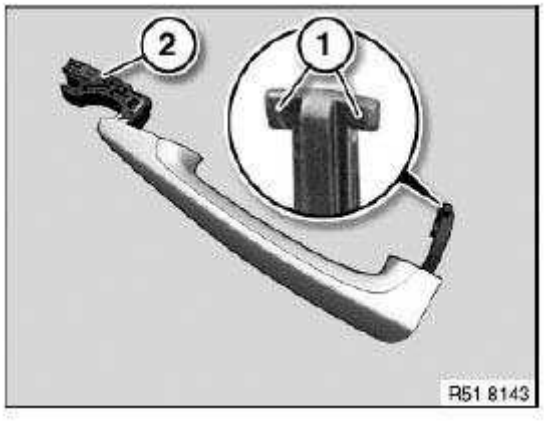


Fig. 239: Identifying Locator And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seals (1 and 2) must not be damaged.

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If necessary, pull lock actuator (3) outwards until it engages retaining clasp (4).

Install outside handle and insert correctly into lock actuator (3).

Outside handle is in the correct position only after the cover has been fitted on the outside handle.

Carry out function check only with door open.

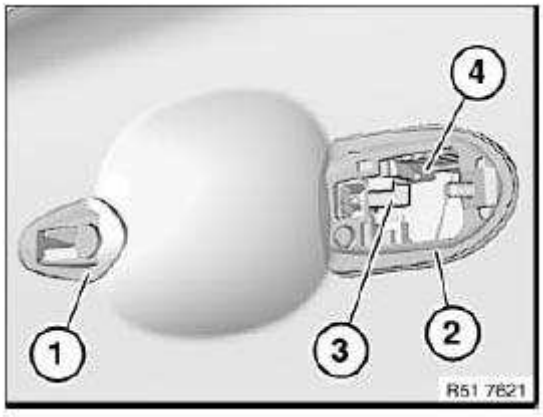


Fig. 240: Identifying Lock Actuator And Retaining Clasp
Courtesy of BMW OF NORTH AMERICA, INC.

If replacing version with comfort access/CA:

Reset CAS control unit with diagnosis system or by disconnecting and connecting battery, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

51 21 180 REMOVING AND INSTALLING/REPLACING COVER ON OUTSIDE HANDLE

Lever out cap (1) and release screw underneath.

Installation:

If necessary, replace faulty trim (1).

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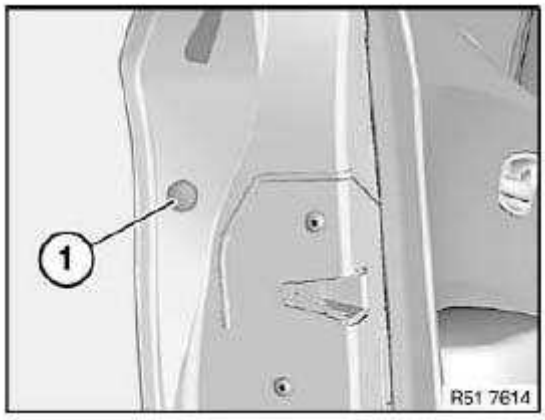


Fig. 241: Identifying Cap On Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off cover (1) in direction of arrow with outside door handle (2) opened slightly.

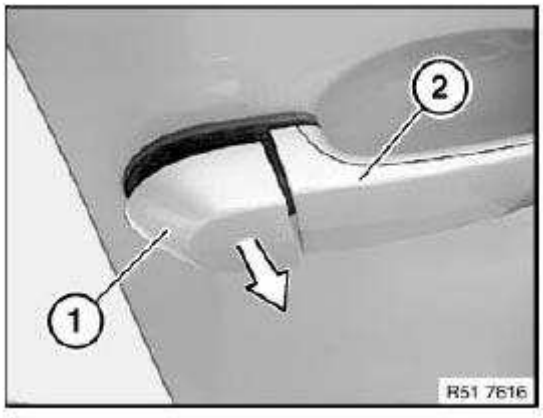


Fig. 242: Identifying Cover And Outside Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Version with light package:

Installation:

Make sure outside door handle light (1) is correctly positioned in area (2).

Guides (3) of outside door handle light (1) must be correctly seated in carrier for outside door handle (4).

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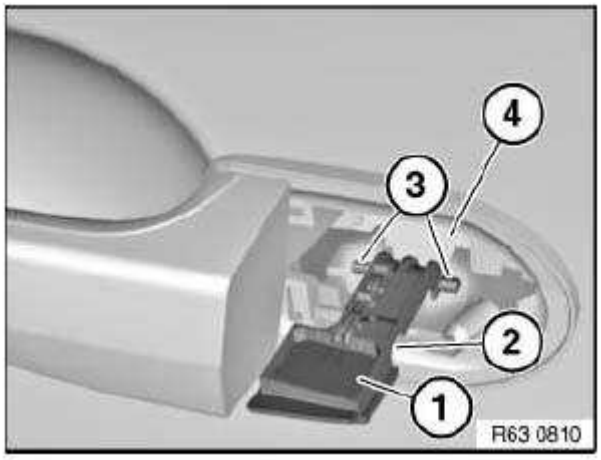


Fig. 243: Identifying Guides, Outside Door Handle Light And Outside Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) must not be damaged.

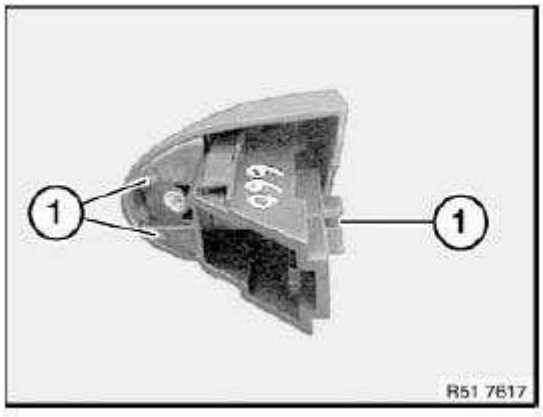


Fig. 244: Identifying Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 181 REMOVING AND INSTALLING/REPLACING COVER ON OUTSIDE HANDLE WITH LOCK CYLINDER

Operation is identical to:

Removing and installing/replacing **complete lock cylinder** in left or right front door, see **51 21 140 Removing and installing/replacing complete lock cylinder in left or right front door** or **51 21 180 Removing and installing/replacing cover on outside handle**.

51 21 225 REMOVING AND INSTALLING OR REPLACING INSIDE DOOR OPENER IN LEFT OR RIGHT FRONT DOOR

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Operation is identical to:

Removing and installing/replacing **decorative strip** on front left or right door trim panel, see **51 41 030 Removing and installing/replacing decorative strip on front left or right door trim panel**.

51 21 233 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT FRONT DOOR

Operation is described in:

Removing and installing/replacing **carrier for left or right outside door handle.** , see **51 21 125 Removing and installing/replacing carrier for left or right outside door handle with lock cylinder**.

51 21 235 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR INSIDE DOOR OPENER ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

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

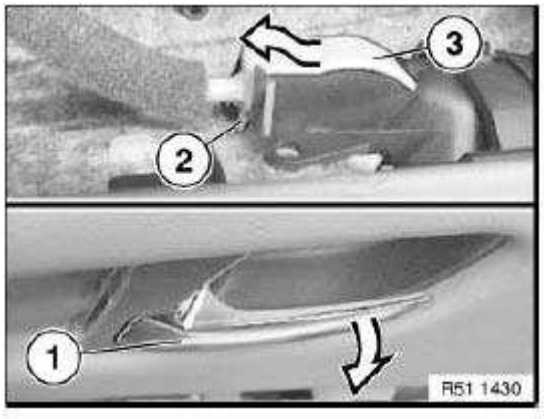


Fig. 245: Identifying Bowden Cable And Release Lever
Courtesy of BMW OF NORTH AMERICA, INC.

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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** or **51 48 070 Removing and installing/replacing sound insulation on left or right rear door**.

NOTE: Secure front door against falling closed.

Lever out seal (1).

Unfasten screws (2 and 3).

Installation:

E60/E61 tightening torque:

(2) **51 21 9AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

(3) **51 21 10AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

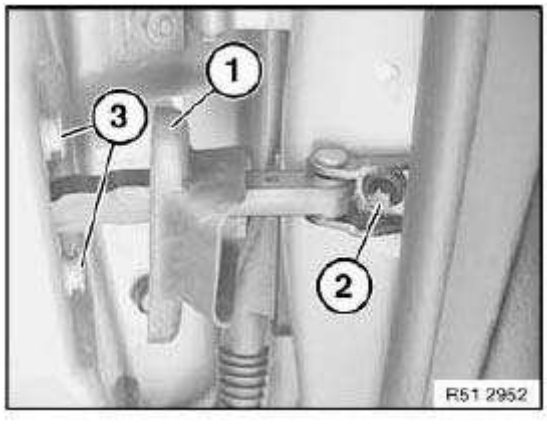


Fig. 246: Identifying Seal And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

E70 tightening torque:

(2) **51 21 3AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

(3) **51 21 4AZ** , see **51 21 FRONT DOOR LOCKS HANDLES** .

Remove door brake (1) via cutout (2).

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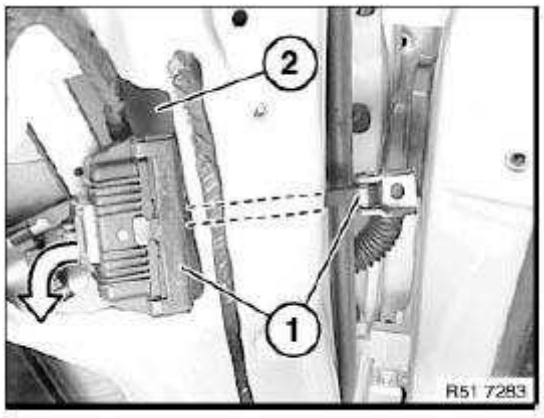


Fig. 247: Identifying Door Retainer And Cutout
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts of door retainer (3) must not be damaged:

1. Hinge
2. Thread

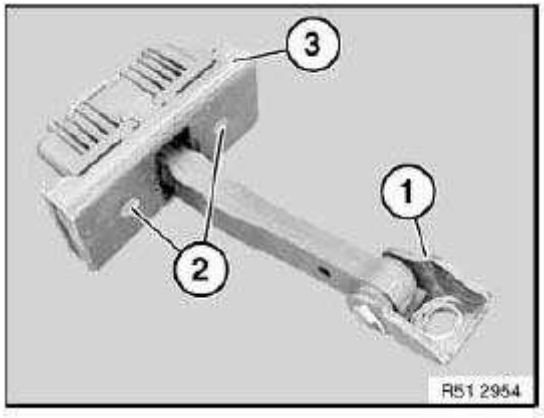


Fig. 248: Identifying Parts Of Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) must not be damaged.

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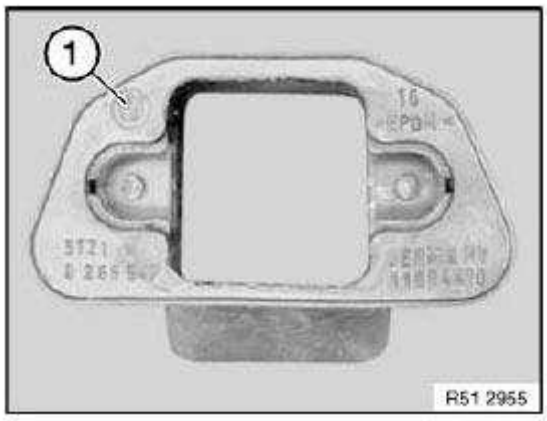


Fig. 249: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

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** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS**

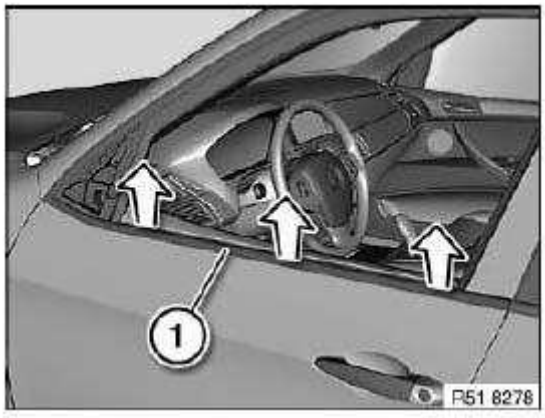
IMPORTANT: Observe procedure for using special tool 00 9 324 , see 51 21 ... Removing window cavity cover strip with special tool 00 9 324 at front or rear.

Necessary preliminary tasks:

- Remove **mirror** , see **51 16 000 Removing and installing or replacing mirror on left or right front door**.

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).



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Fig. 250: Identifying Window Cavity Cover Strip
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/replacing front left or right door trim panel**

IMPORTANT: The "Instructions on fitting window guide seals" serve as the basis for this repair instruction and must be observed without fail, see 51 00 ... Notes on fitting window guide seals.

Lever out cover (1) at rear slightly.

Start at rear with removal of window cavity cover strip (2).

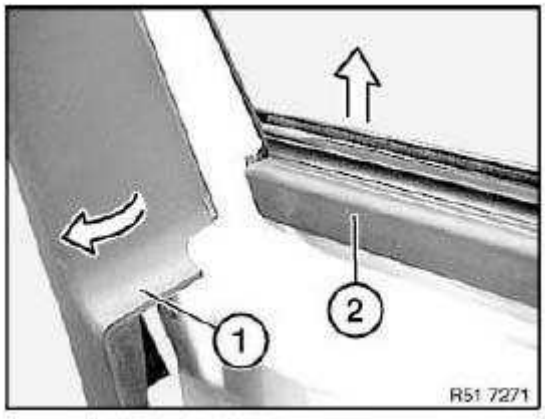


Fig. 251: Identifying Window Cavity Cover Strip And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off window cavity cover strip (1) towards top.

Installation:

If necessary, replace faulty retainers (3).

Insert window cavity cover strip (1) below cover (2).

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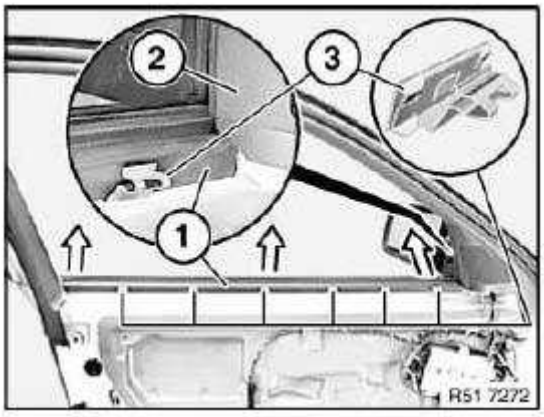


Fig. 252: Identifying Cover And Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Moisten window cavity cover strip (1) prior to fitting with **approved anti-friction agent** , see **51 00 ... Notes on fitting window guide seals**.

Start with installation at front.

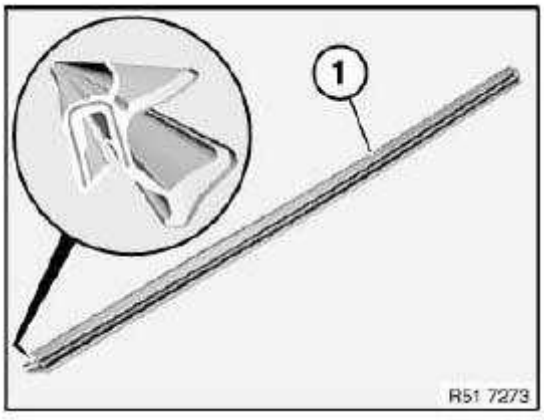


Fig. 253: Identifying Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 360 REPLACING SEAL FOR DOOR SEAM/ROOF FRAME ON LEFT OR RIGHT FRONT DOOR

Lever out plastic rivet (3).

Lever seal (2) out of decorative strip (1).

Installation:

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Seal (2) must be correctly seated on decorative strip (1) and front door (4).

Decorative strip (1) must match trim (5).

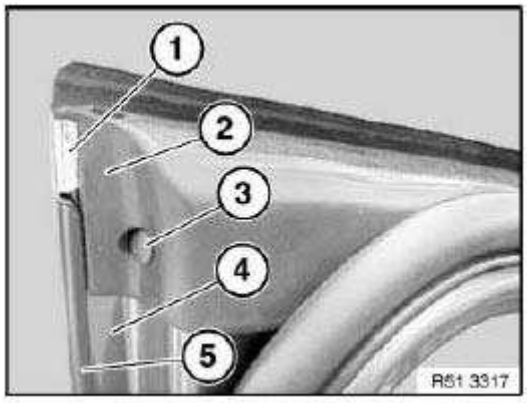


Fig. 254: Identifying Decorative Strip, Plastic Rivet, Seal And Match Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out seal (1) from rear to front.

Installation:

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

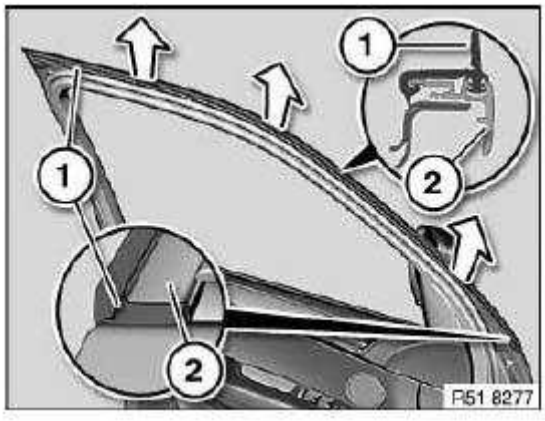
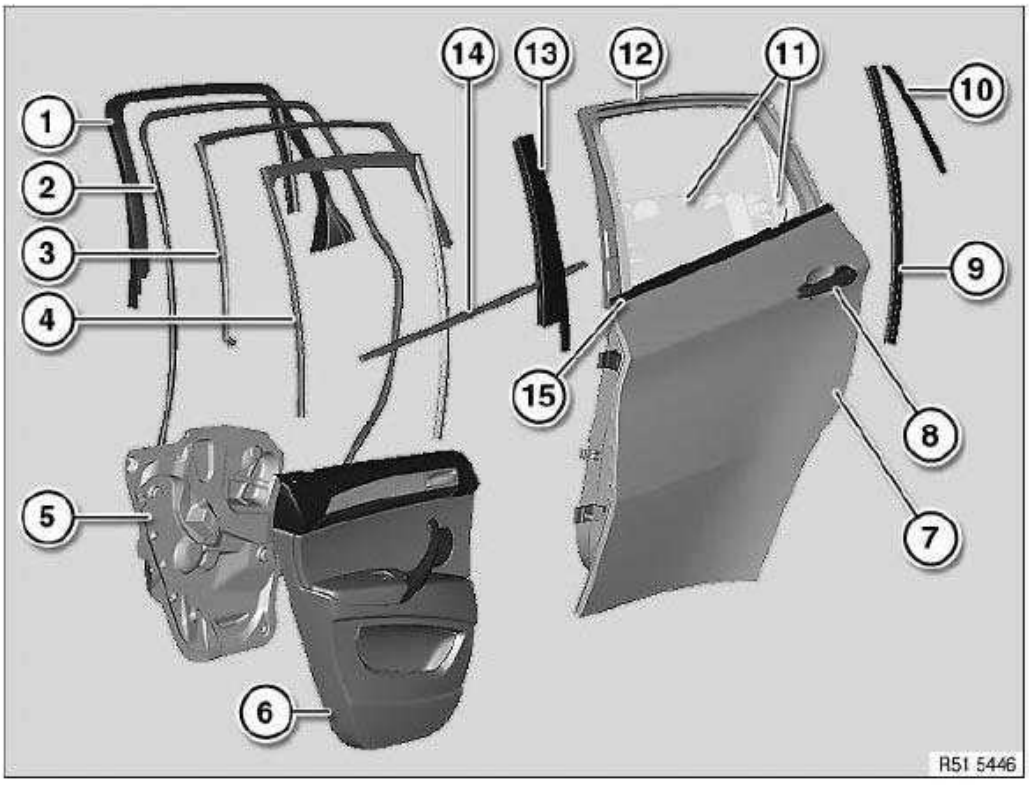


Fig. 255: Identifying Seal And Trim Strip
Courtesy of BMW OF NORTH AMERICA, INC.

REAR DOOR LOCKS, HANDLES, FITTINGS

51 00 ... OVERVIEW OF REAR DOOR

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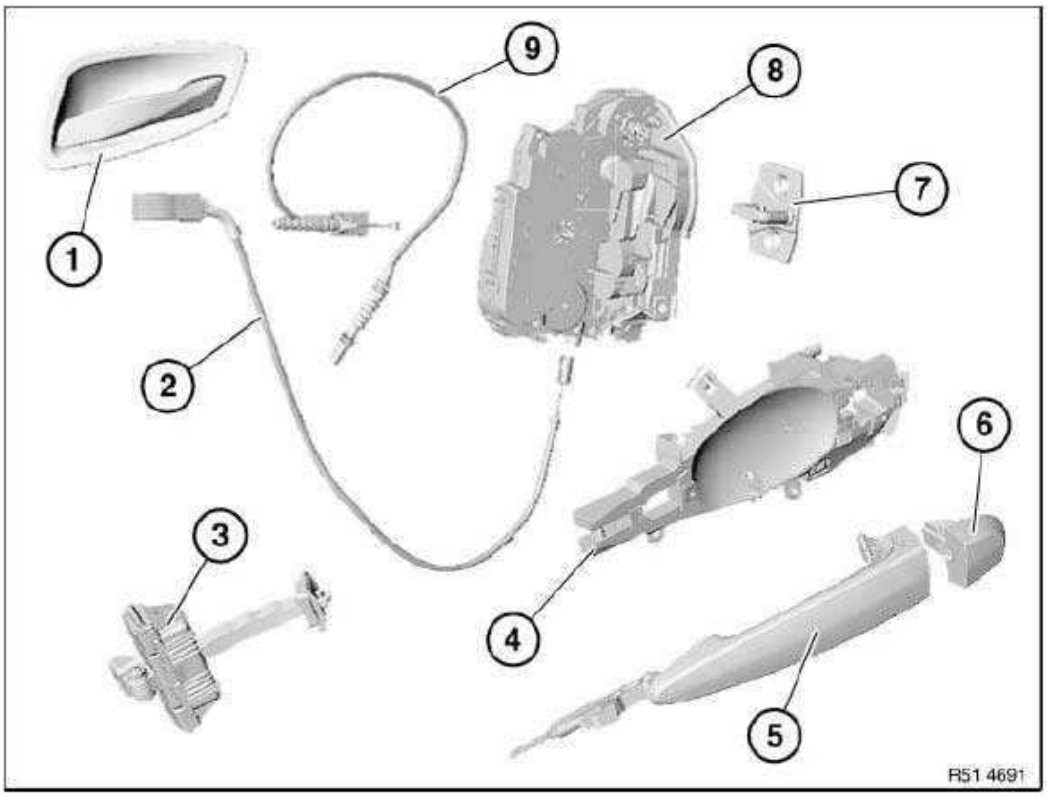


1	Inner cover on door window frame	9	Trims for window guide
2	Seal on rear door	10	Trims on window frame, rear
3	Seal for door seam/roof frame	11	Windows
4	Rubber guide for door window glass	12	Decorative strip on upper window frame
5	Acoustic insulation in rear door	13	Trim on window frame, front
6	Door trim panel	14	Window cavity seal
7	Rear door	15	Window cavity cover strip
8	Door lock		

Fig. 256: Identifying Rear Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 ... OVERVIEW OF REAR DOOR LOCKS

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1	Door opener, inside	6	Cover on outside handle
2	Bowden cable for inside door opener	7	Door detent (lock striker)
3	Door brake	8	Door lock
4	Carrier for outside door handle	9	Bowden cable for outside door handle
5	Outside handle on front door		

Fig. 257: Identifying Rear Door Locks Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 001 REPLACING DOOR DETENT (LOCK STRIKER), REAR LEFT OR RIGHT

Operation is identical to:

Replacing **front door detent.** , see **51 21 003 Replacing door detent (lock striker), front left or right**.

51 22 004 ADJUSTING REAR LEFT OR RIGHT DOOR DETENT (LOCK WEDGES)

Operation is described in:

Adjusting left or right rear door. , see **41 5. ... ADJUSTING DOOR** .

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

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Special tools required:

- **51 2 190** , see **51 2 190 DOOR LOCK TENSIONER**

Necessary preliminary tasks:

- Remove **sound insulation** , see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**.
- **E70 Security:** Slacken screws for protective mat

Disconnect Bowden cable to outside handle at bottom (1) and top (3) from door lock (2).

Installation:

Bowden cable must be correctly engaged in locators in door lock (2).

Bowden cable must be laid without kinks in bend to door lock (2).

Seal (4) must be correctly fitted on Bowden cable.

IMPORTANT: Door cannot be opened if Bowden cable (1) is incorrectly laid.

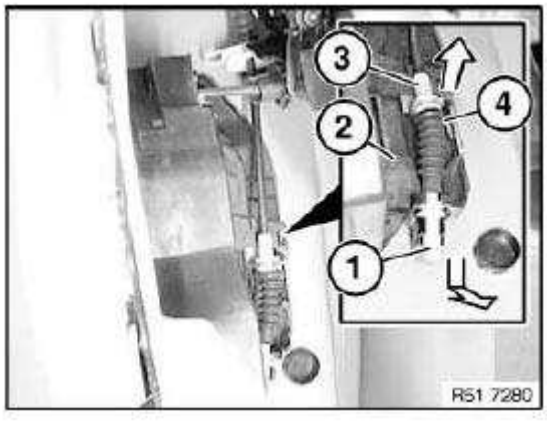


Fig. 258: Identifying Door Lock, Bowden Cable And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

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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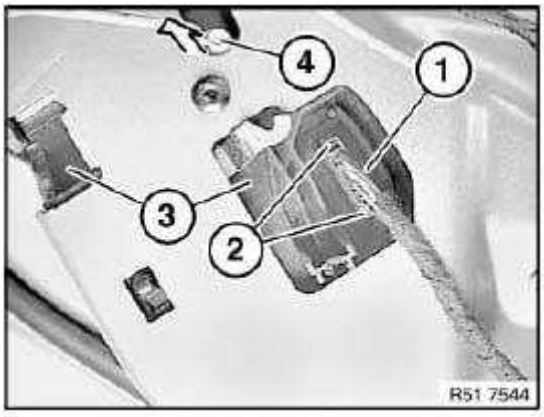


Fig. 259: Identifying Locking Rod, Plug Connection And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Version with Soft Close Automatic:

Disconnect plug connection (1).

Release screws (2).

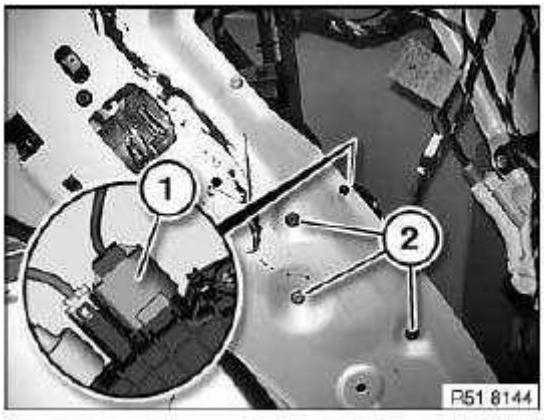


Fig. 260: Identifying Plug Connection And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Do not damage door lock seal during removal.

Release screws (1).

Remove door lock (2) from inside and carefully feed out.

IMPORTANT: To avoid leaking and electrical malfunction:
Pull door lock (2) with special tool into corner (3), see Fig. 264 and Fig. 265.

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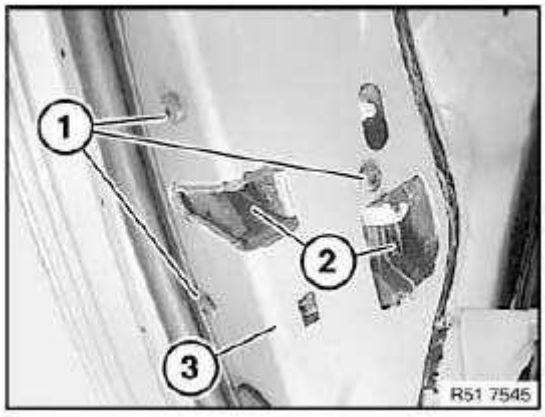


Fig. 261: Identifying Door Lock, Corner And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) on door lock (3) must not be damaged.

Adapter switching socket (4) must be correctly engaged.

Door wiring harness must be correctly laid in guide (3).

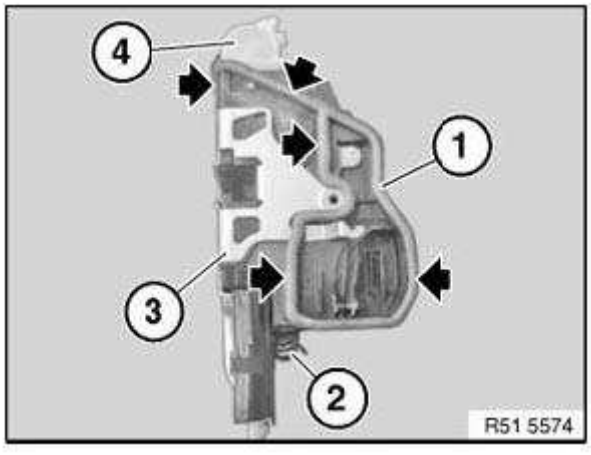


Fig. 262: Identifying Seal, Switching Socket And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Version with Soft Close Automatic:

Make sure Soft Close Automatic drive (1) is installed in correct installation position. Control line (3) must not be twisted around Bowden cable (2).

Make sure control line (3) is correctly laid in guides (4).

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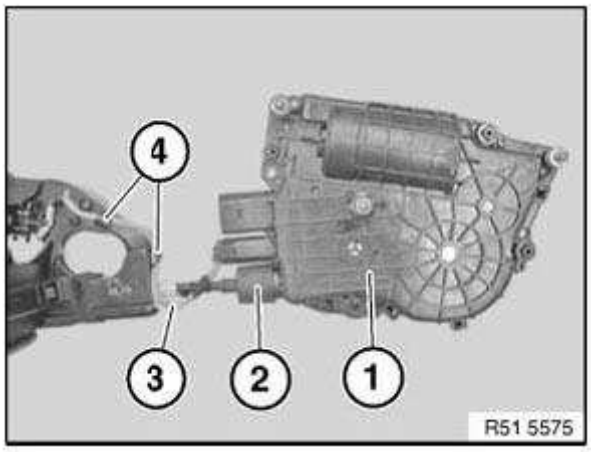


Fig. 263: Identifying Control Line, Soft Close Automatic Drive And Guides
Courtesy of BMW OF NORTH AMERICA, INC.

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.

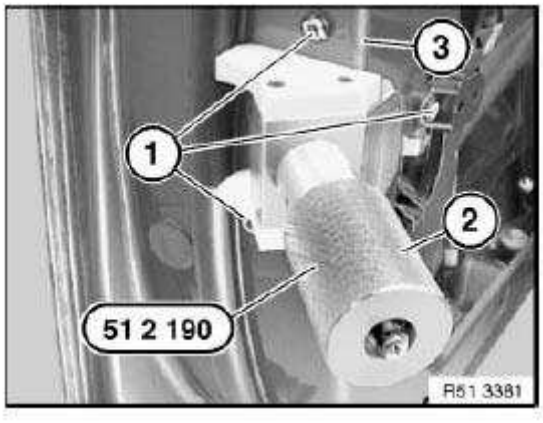


Fig. 264: Identifying Door Lock Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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 22 1AZ** , see **51 22 REAR DOOR LOCKS** .

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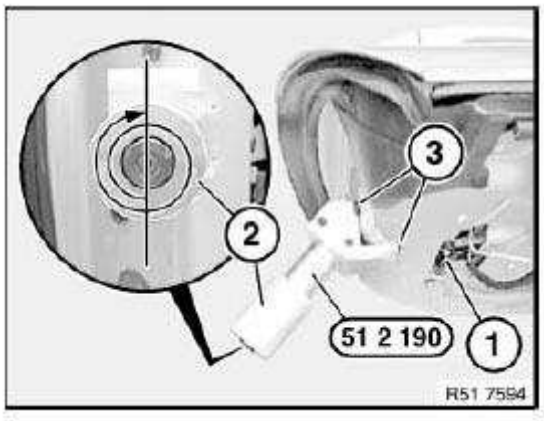


Fig. 265: Identifying Door Lock And Knurled Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Carry out function check of child lock (1) and door lock (2) with door opened.

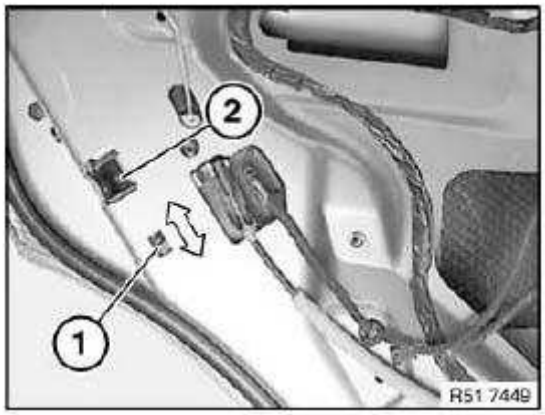


Fig. 266: Identifying Child Lock And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 126 REMOVING AND INSTALLING/REPLACING CARRIER FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove **outside handle** , see **51 21 170 Removing and installing or replacing outside handle from left or right front door**.
- Remove **sound insulation** , see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**.

Disconnect Bowden cable at bottom (1) and top (2) from door lock (2).

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Installation:

Bowden cable must be correctly engaged in locators in door lock (2).

Bowden cable must be laid without kinks in bend to door lock (2).

Seal (4) must be correctly fitted on Bowden cable.

IMPORTANT: Door cannot be opened if Bowden cable (1) is incorrectly laid.

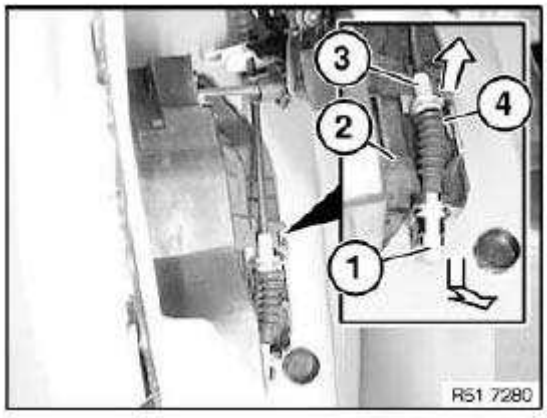


Fig. 267: Identifying Door Lock, Bowden Cable And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Remove seals (1) in direction of arrow.

Release screw (2).

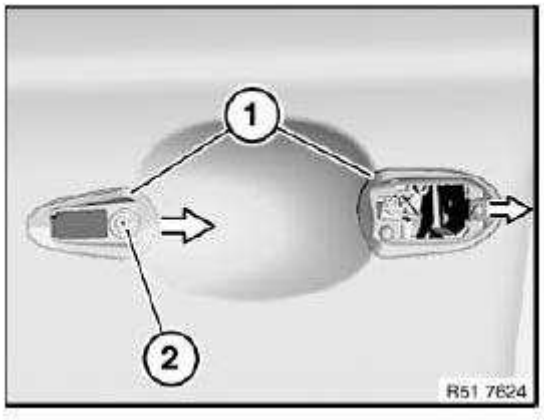


Fig. 268: Identifying Seals And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, release cable holder for outside door handle light from carrier (1).

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Remove carrier (1) in direction of arrow and feed out.

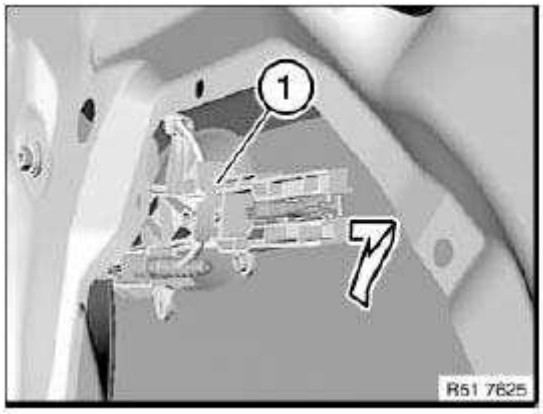


Fig. 269: Identifying Inner Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

If necessary, release cable connector (1).

Feed Bowden cable (2) out of carrier (3).

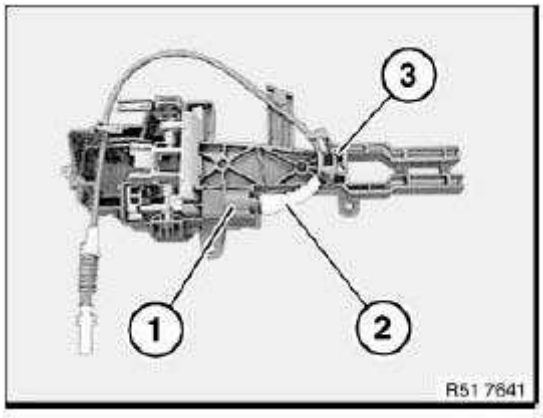


Fig. 270: Identifying Bowden Cable And Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 170 REMOVING AND INSTALLING/REPLACING OUTSIDE HANDLE ON LEFT OR RIGHT BACK DOOR

Necessary preliminary tasks:

- Remove **cover on outside handle** , see **51 21 181 Removing and installing/replacing cover on outside handle with lock cylinder** or **51 21 180 Removing and installing/replacing cover on outside handle**.

If necessary, lay outside door handle light (1) slightly to one side.

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Pull out outside handle (2) and feed out in direction of arrow.

Version with Comfort Access/CA:

Carefully feed out outside handle (2) and disconnect associated plug connection.

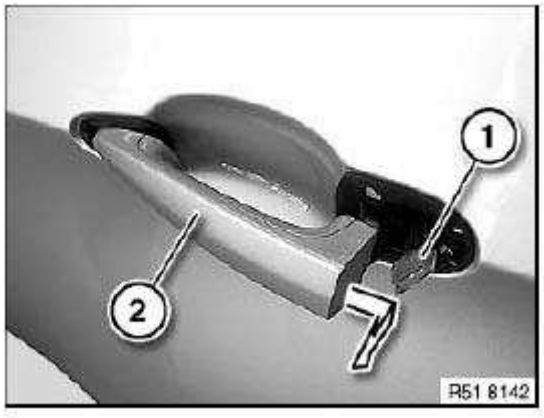


Fig. 271: Identifying Outside Door Handle Light And Outside Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Locator (1) must not be damaged.

Version with Comfort Access/CA:

Seal (2) must not be damaged.

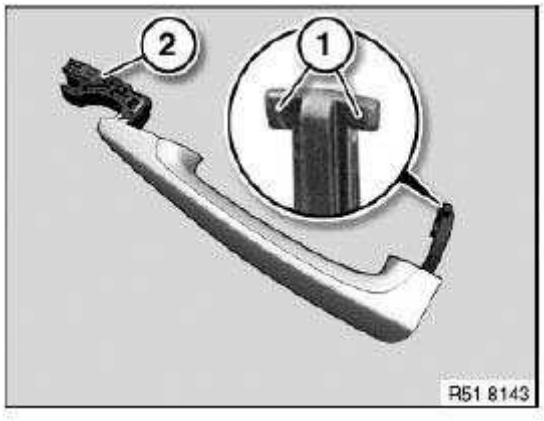


Fig. 272: Identifying Locator And Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seals (1 and 2) must not be damaged.

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If necessary, pull lock actuator (3) outwards until it engages retaining clasp (4).

Install outside handle and insert correctly into lock actuator (3).

Outside handle is in the correct position only after the cover has been fitted on the outside handle.

Carry out function check only with door open.

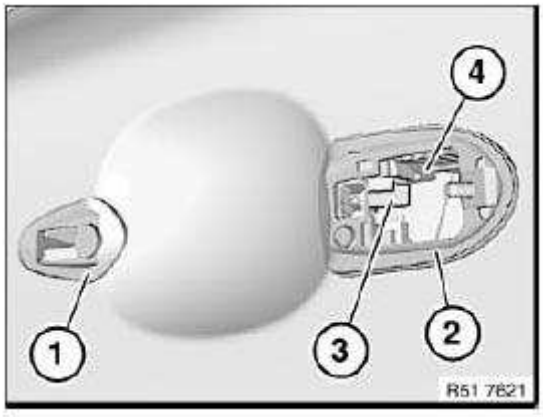


Fig. 273: Identifying Lock Actuator And Retaining Clasp
Courtesy of BMW OF NORTH AMERICA, INC.

If replacing version with comfort access/CA:

Reset CAS control unit with diagnosis system or by disconnecting and connecting battery, see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

51 22 180 REMOVING AND INSTALLING/REPLACING COVER ON OUTSIDE HANDLE, LEFT OR RIGHT

Lever out cap (1) and release screw underneath.

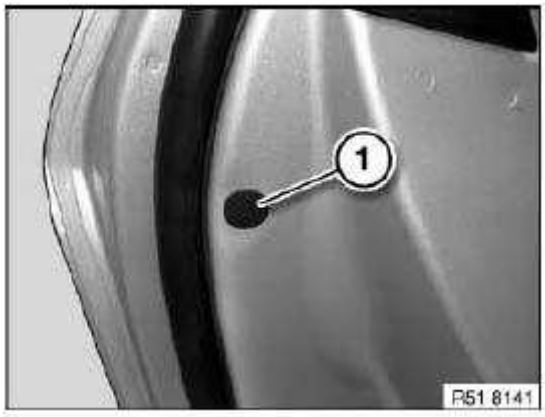


Fig. 274: Identifying Cap
Courtesy of BMW OF NORTH AMERICA, INC.

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Pull out cover (1) in direction of arrow with outside door handle (2) opened slightly.

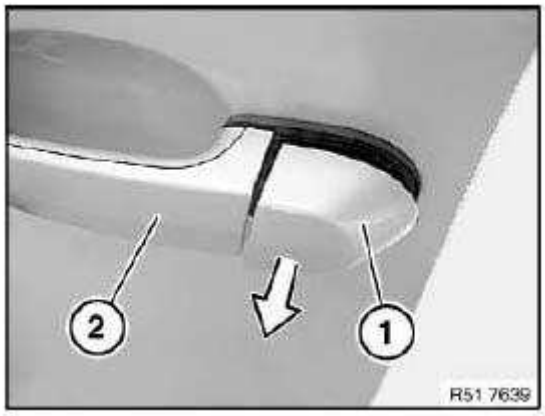


Fig. 275: Identifying Cover And Outside Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Version with light package:

Installation:

Make sure door handle light (1) is correctly positioned in area (2).

Guides (3) must be correctly seated in carrier for outside door handle (4).

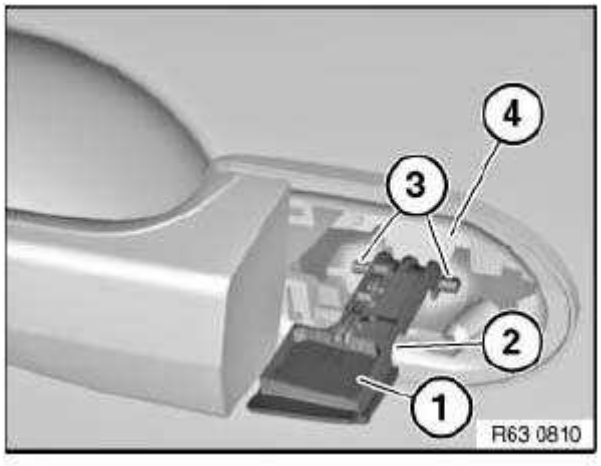


Fig. 276: Identifying Guides, Outside Door Handle Light And Outside Door Handle
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) must not be damaged.

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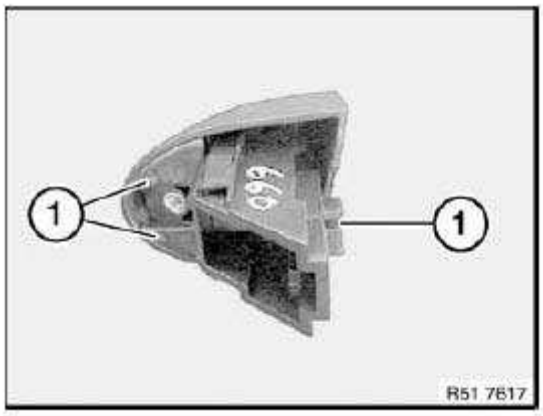


Fig. 277: Identifying Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 225 REMOVING AND INSTALLING/REPLACING INSIDE DOOR OPENER OF REAR LEFT OR RIGHT DOOR

Operation is identical to:

Removing and installing/replacing decorative strip on rear left or right door trim panel, see **51 42 030 Removing and installing/replacing decorative strip on rear left or right door trim panel**.

51 22 233 REMOVING AND INSTALLING/REPLACING BOWDEN CABLE FOR OUTSIDE DOOR HANDLE ON LEFT OR RIGHT REAR DOOR

Operation is described in:

Removing and installing/replacing **carrier for outside door handle** on left or right rear door, see **51 22 126 Removing and installing/replacing carrier for outside door handle on left or right rear door**.

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 (replacing) rear left or right 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:

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For fitting, press release lever (1) fully onto door trim panel.

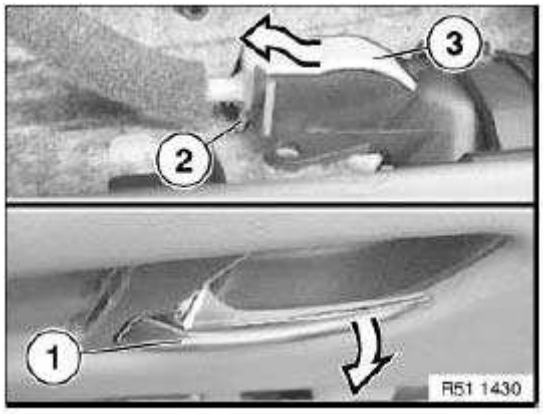


Fig. 278: Identifying Bowden Cable And Release Lever
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 280 REMOVING AND INSTALLING/REPLACING DOOR RETAINER ON REAR LEFT OR RIGHT DOOR

NOTE: Operation up to "grommet on rear door retainer" is identical to:

- Removing and installing/replacing **door retainer on left or right front door** , see **51 21 280 Removing and installing or replacing door brake on left or right front door**.

If necessary, detach grommet (1) from rear door retainer (2) in direction of arrow.

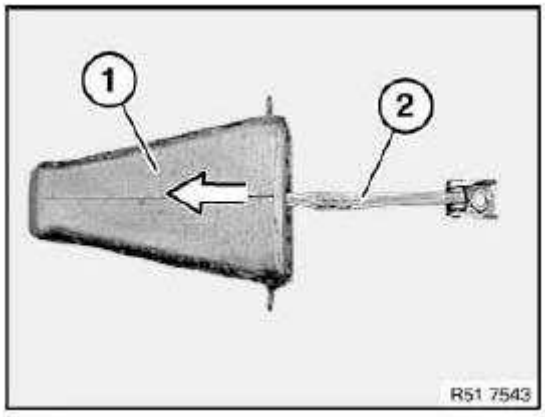


Fig. 279: Identifying Grommet And Rear Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 300 REMOVING AND INSTALLING/REPLACING WINDOW CAVITY COVER STRIP ON REAR DOOR ON LEFT OR RIGHT

Special tools required:

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- **00 9 317**
- **00 9 324** **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS**

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).

At same time raise window cavity cover strip (1) with special tool **00 9 317** in area of B-pillar.

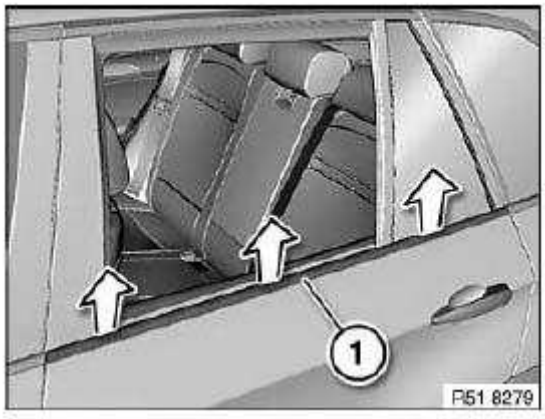


Fig. 280: Identifying Window Cavity Cover Strip
Courtesy of BMW OF NORTH AMERICA, INC.

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 (replacing) rear left or right door trim panel**.

Pull window cavity seal (1) off rear door.

Installation:

If necessary, replace faulty retainer (2).

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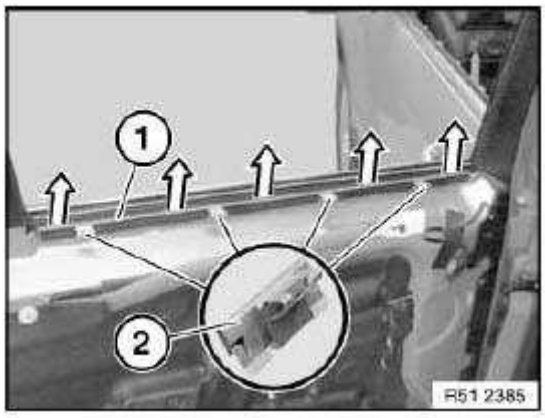


Fig. 281: Identifying Window Cavity Seal And Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

51 22 360 REPLACING SEAL FOR DOOR SEAM/ROOF FRAME ON LEFT OR RIGHT REAR DOOR

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

IMPORTANT: The "Instructions on fitting window guide seals" serve as the basis for this repair instruction and must be observed without fail, see 51 00 ... Notes on fitting window guide seals.

Lever out seal (1) on door window frame at front (2) with special tool **00 9 317** .

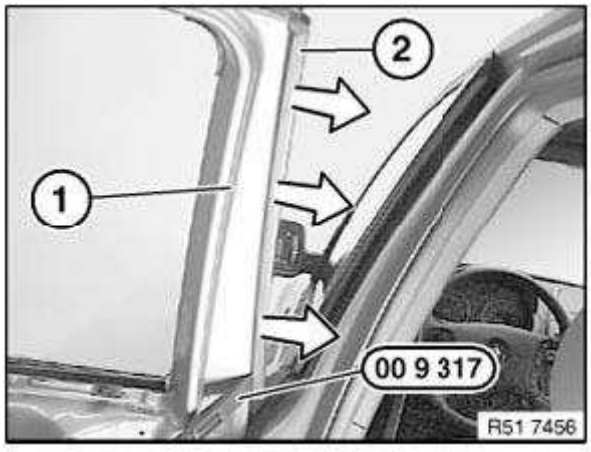


Fig. 282: Identifying Tape Off Edge Areas, Special Tool 00 9 318 And Guide Pins
Courtesy of BMW OF NORTH AMERICA, INC.

Starting at rear, pull off seal (1) towards front.

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Installation:

Moisten seal prior to fitting with **approved anti-friction agent.** , see **51 00 ... Notes on fitting window guide seals**.

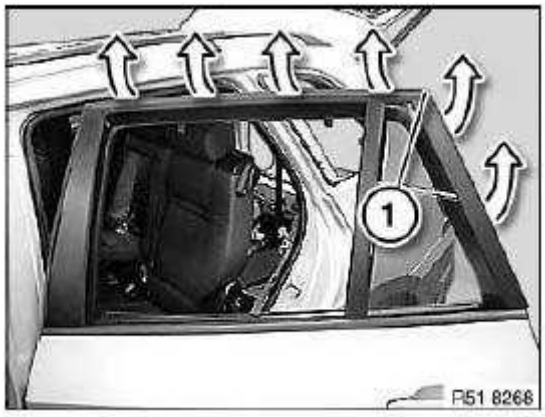


Fig. 283: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

HOOD LATCH LOCK

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:

- (1) Bump stop

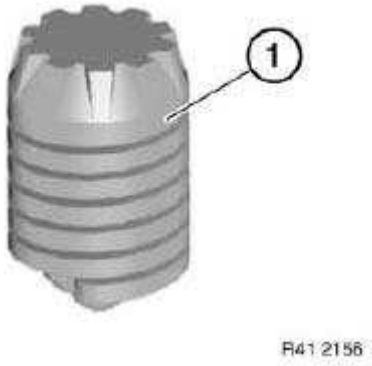


Fig. 284: Identifying Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Adjust bump stop (1) to correct height by turning left or right.

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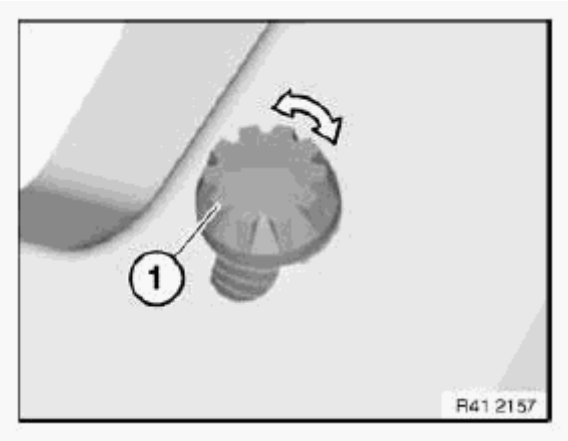


Fig. 285: Identifying Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Version 2:

Replace damaged bump stops (refer to EPC):

- (1) Bump stop with ejector

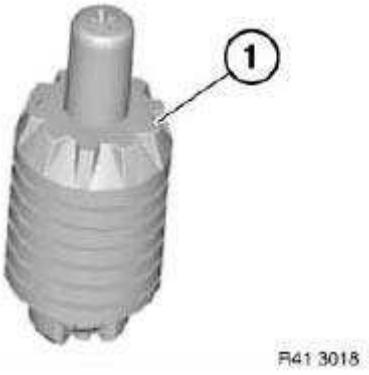


Fig. 286: Identifying Bump Stop With Ejector
Courtesy of BMW OF NORTH AMERICA, INC.

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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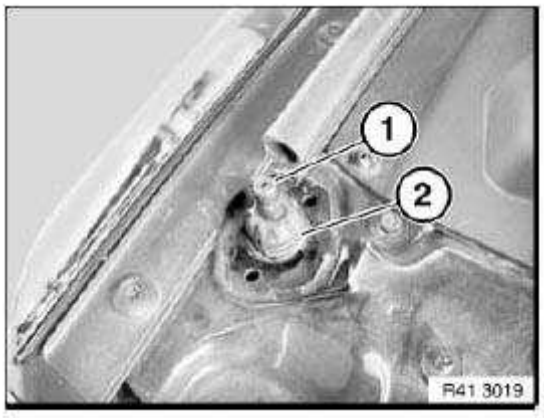


Fig. 287: Identifying Ejector And Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

Version 3:

Replace damaged bump stops (refer to EPC):

- (1) Bump stop

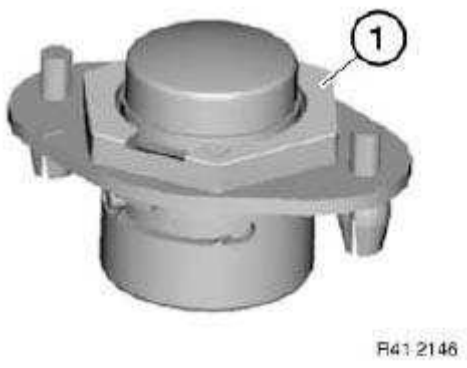


Fig. 288: Identifying Bump Stop
Courtesy of BMW OF NORTH AMERICA, INC.

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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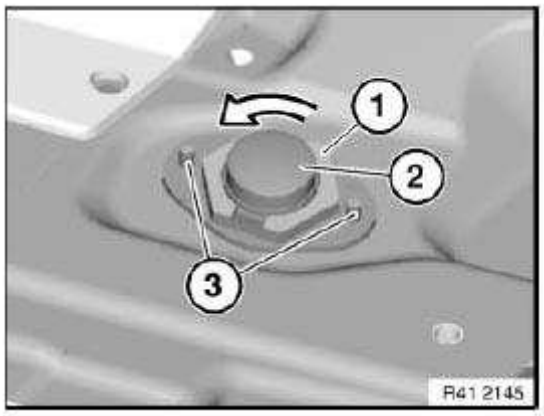


Fig. 289: Identifying Bump Stop And Lock
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 004Q ADJUSTING HOOD/BONNET LOCK

Operation is identical to:

- **Adjusting hood/bonnet** , see **41 61 014 ADJUSTING ENGINE BONNET/HOOD** .

51 23 100 REMOVING AND INSTALLING/REPLACING RIGHT ENGINE HOOD/BONNET LOCK

Unclip coupling (1) from side panel.

Lever out cover (2) at coupling (1).

Lever Bowden cable (3) out of coupling (1).

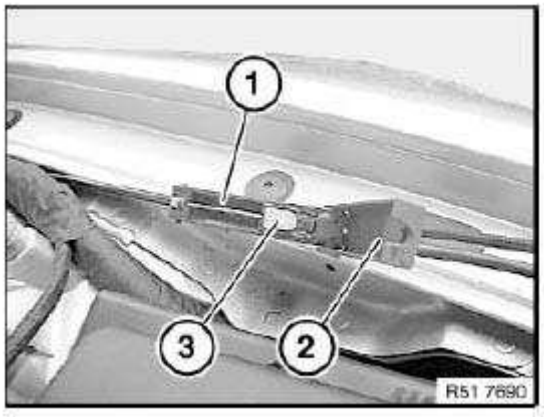


Fig. 290: Identifying Cable And Coupling
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out expander rivets on transverse reinforcement. Press lock (1) and raise intake duct (2). Detach intake duct (2) from air filter housing in direction of arrow and remove.

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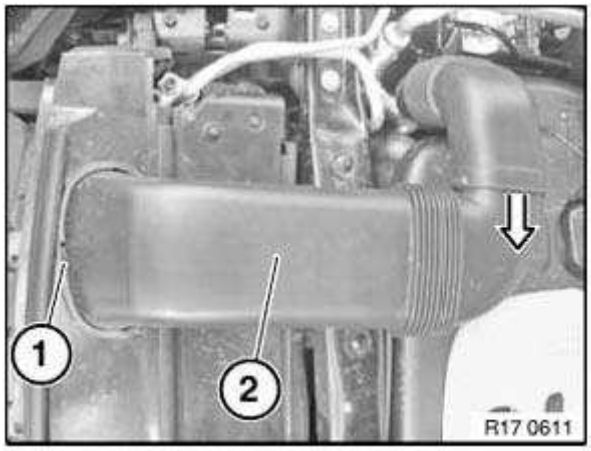


Fig. 291: Detaching Intake Duct From Air Filter Housing
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip Bowden cable (1) from holder (2) on transverse reinforcement.

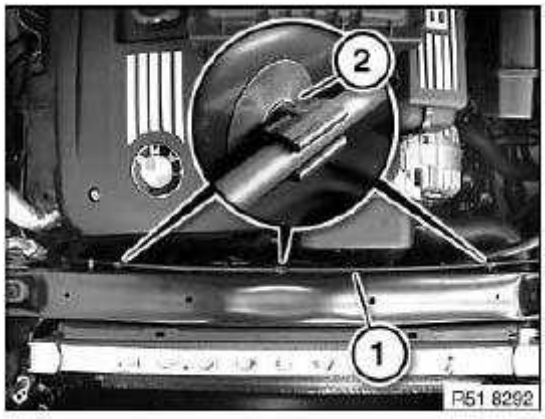


Fig. 292: Uncoupling Bowden Cable From Holder On Transverse Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws on left and right sides of transverse reinforcement (1). Tightening torque **51 71 4AZ** . Remove transverse reinforcement (1), see **51 71 SEALS AND LOOSE BODY PARTS** .

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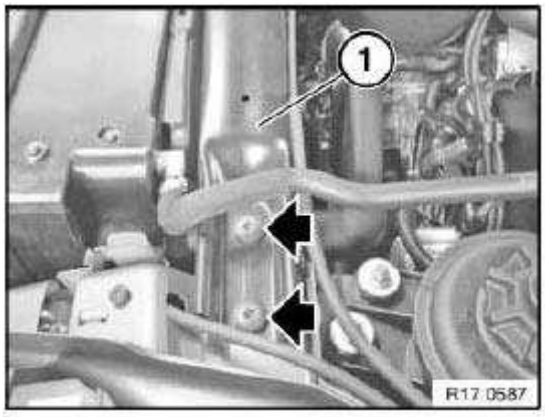


Fig. 293: Identifying Transverse Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Illustration shows A/C lines and module carrier cover removed for purposes of clarity.

Release screws (1).

Tightening torque **51 23 2AZ** , see **51 23 HOOD/BONNET LOCKS** .

Feed out hood/bonnet lock (2) through opening (3).

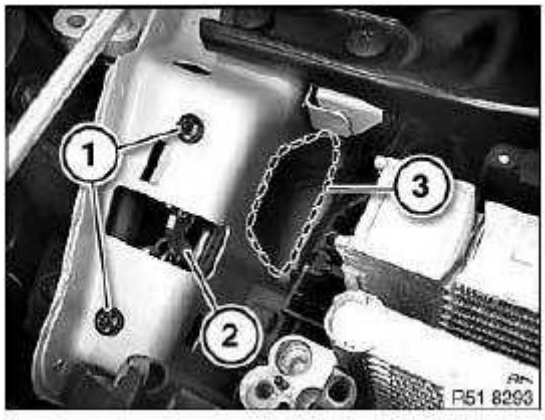


Fig. 294: Feeding Out Hood/Bonnet Lock Through Opening
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1), unclip plug and cable from body.

Disengage Bowden cable (1) in direction of arrow from hood/bonnet lock (3).

Replacement

Remove **switch (4).** , see **61 31 241 REMOVING AND INSTALLING/REPLACING BONNET/HOOD**

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CONTACT SWITCH .

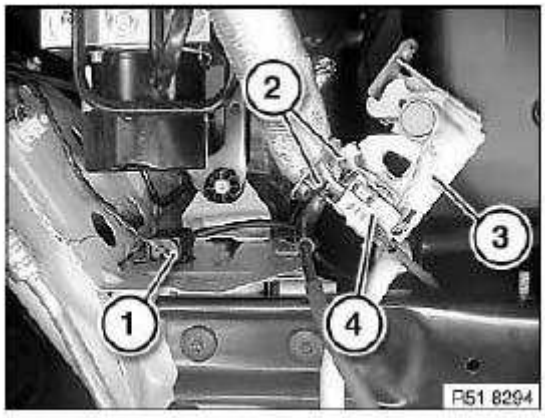


Fig. 295: Disengaging Bowden Cable
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 110 REMOVING AND INSTALLING/REPLACING LEFT HOOD/BONNET LOCK

Necessary preliminary tasks:

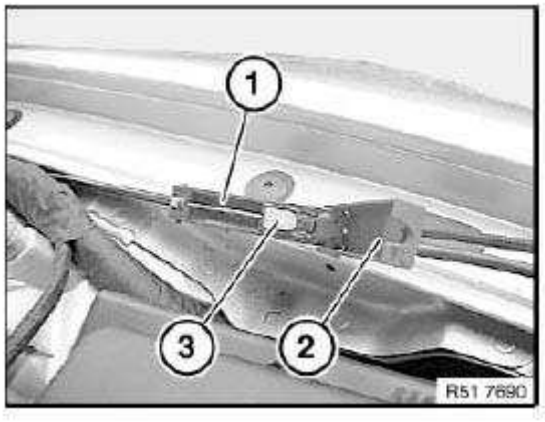
- Remove front **assembly underside protection** , see **51 47 490 Removing and installing/replacing front underbody protection**.
- Partially drain and top up **coolant** , see **17 00 005 DRAINING AND ADDING COOLANT (N54)** or **17 00 039 VENTING COOLING SYSTEM AND CHECKING FOR WATER LEAKS (N54)** .

Unclip coupling (1) from side panel.

Lever out cover (2) at coupling (1).

Lever cable (3) out of coupling (1).

NOTE: The operation "Disconnect cable for hood/bonnet lock" ends here.



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Fig. 296: Identifying Cable And Coupling
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out expander rivets on transverse reinforcement. Press lock (1) and raise intake duct (2). Detach intake duct (2) from air filter housing in direction of arrow and remove.

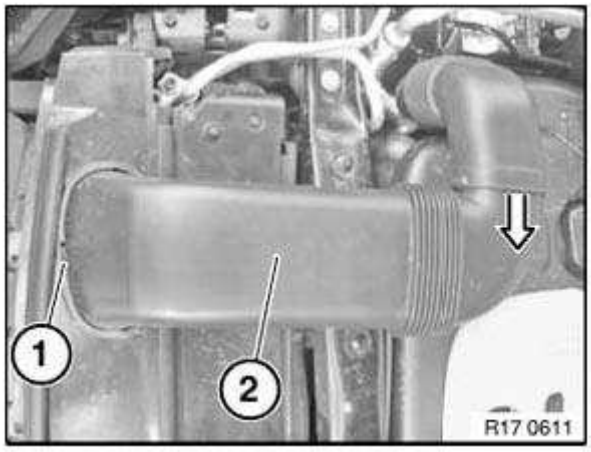


Fig. 297: Detaching Intake Duct From Air Filter Housing
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws on left and right sides of transverse reinforcement (1). Tightening torque **51 71 4AZ** , see **51 71 SEALS AND LOOSE BODY PARTS** . Remove transverse reinforcement (1).

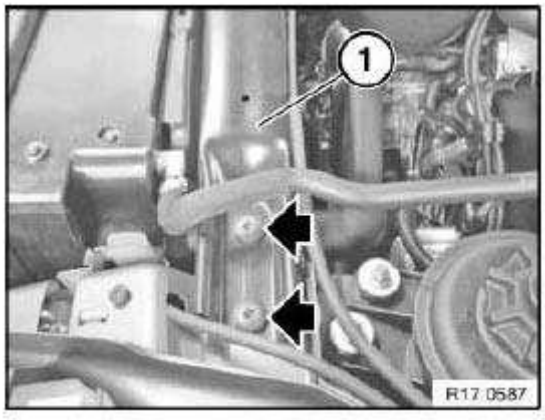


Fig. 298: Identifying Transverse Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock coolant hose (1) from radiator (2) and detach.

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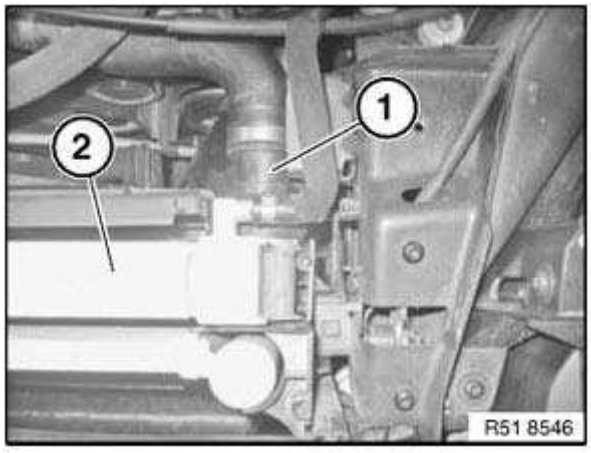


Fig. 299: Identifying Coolant Hose And Radiator
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Tightening torque **51 23 2AZ** , see **51 23 HOOD/BONNET LOCKS** .

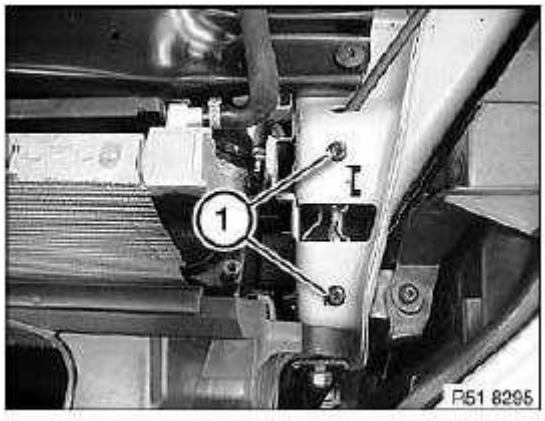


Fig. 300: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Attachment parts are shown removed for purposes of clarity.
Feed out hood/bonnet lock (1) through opening (2) towards rear.

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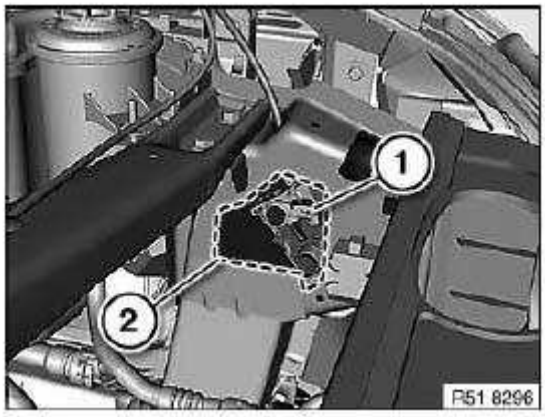


Fig. 301: Identifying Hood/Bonnet Lock And Through Opening
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Attachment parts are shown removed for purposes of clarity.
Disengage Bowden cable (1) in direction of arrow from engine hood lock (2).

IMPORTANT: After reinstalling, fill and vent the cooling system.

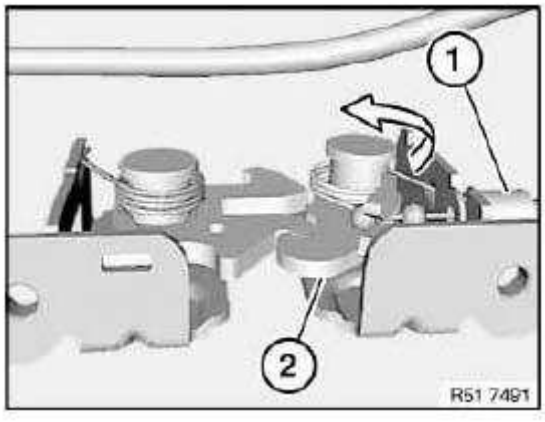


Fig. 302: Disengaging Bowden Cable
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 131 ADJUSTING LEFT OR RIGHT STRIKER ON ENGINE HOOD

Operation is described in:

- **Adjusting hood/bonnet** . See **41 61 014 ADJUSTING ENGINE BONNET/HOOD**

51 23 131 ADJUSTING LEFT OR RIGHT STRIKER ON ENGINE HOOD/BONNET

NOTE: Adjusting striker is described in:
Adjusting engine hood/bonnet

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Unfasten screws (1) and remove striker (2).

Tightening torque **51 23 3AZ** , see **51 23 HOOD/BONNET LOCKS** .

Left side only:

Disconnect Bowden cable (3).

Installation:

Adjusting hood/bonnet

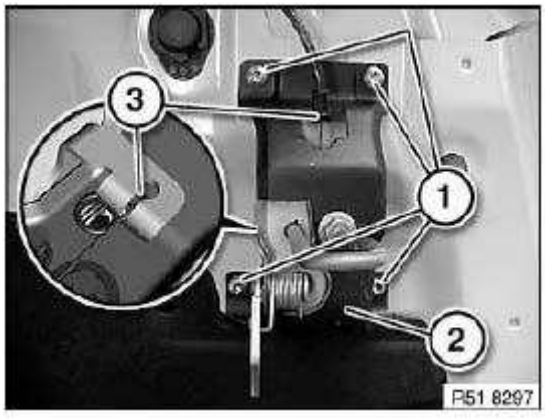


Fig. 303: Identifying Striker And Bowden Cable
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 201 REMOVING AND INSTALLING/REPLACING RELEASE MECHANISM FOR CATCH ON ENGINE HOOD/BONNET

Unhook Bowden cable (1) from striker (2).

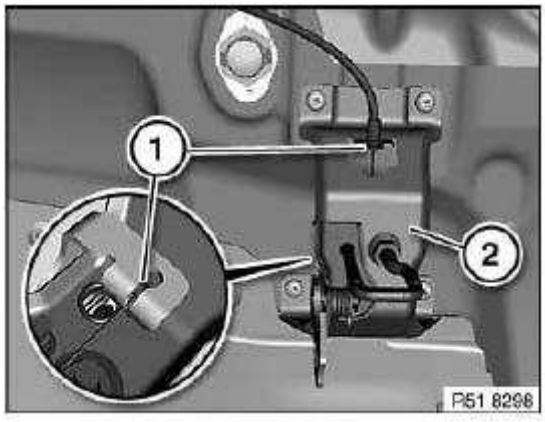


Fig. 304: Identifying Bowden Cable And Striker
Courtesy of BMW OF NORTH AMERICA, INC.

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Press catches (1) together.

Feed out release mechanism (2).

Installation:

Make sure Bowden cable is in correct position in area (3).

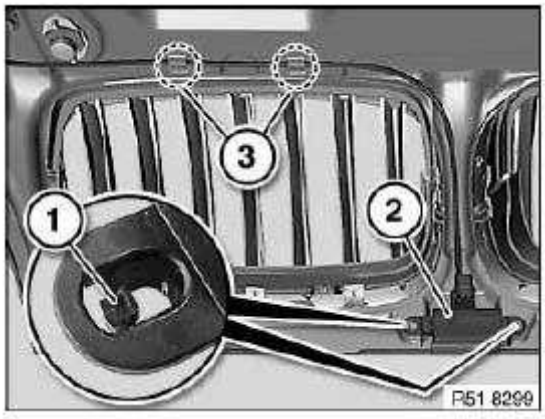


Fig. 305: Identifying Bowden Cable Correct Position Area
Courtesy of BMW OF NORTH AMERICA, INC.

51 23 212 REMOVING AND INSTALLING/REPLACING CABLE FOR FRONT HOOD/BONNET LOCKS (TO LOCKS)

Necessary preliminary tasks:

- Remove left/right **hood/bonnet locks** , see **51 23 110 Removing and installing/replacing left hood/bonnet lock** or **51 23 100 Removing and installing/replacing right engine hood/bonnet lock**

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 bonnet/hood.

Raise bonnet/hood lid.

Removing gas spring strut at top and bottom:

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1. Push retainer spring to end of gas spring strut.
2. Remove gas spring strut from ball head.

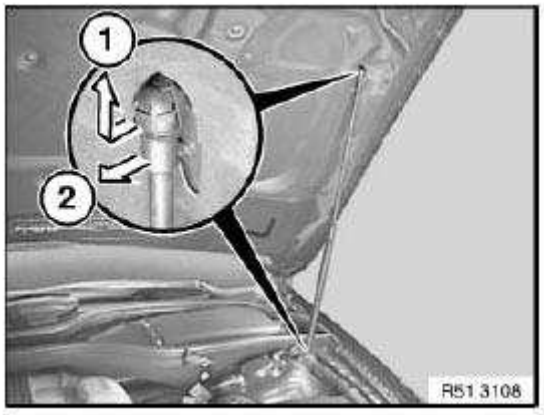


Fig. 306: Identifying Gas Spring Strut At Top And Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

TRUNK LATCH LOCK

51 24 004 ADJUSTING REAR LID LOCK

Necessary preliminary tasks:

- Remove **rear apron trim** , see **51 46 050 Removing and installing/replacing top trim on tail panel**.

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** .

Slacken nuts (1) on servo lock until such stage that they can still just be moved.

IMPORTANT: Lock pin (2) must not brush against upper rear lid lock section.

Close rear lid.

Servo lock centers itself in the process.

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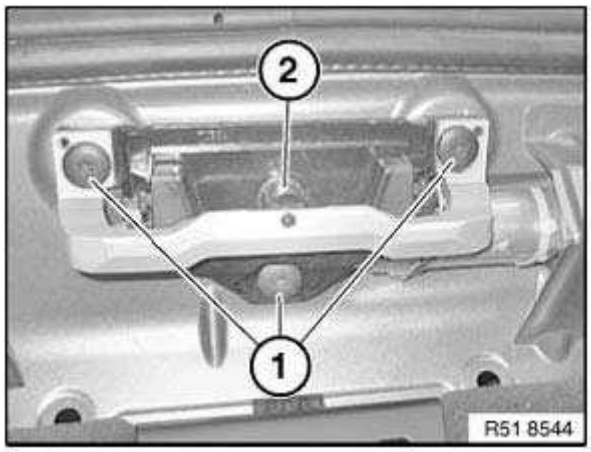


Fig. 307: Identifying Lock Pin And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check sliders (1) on servo lock for damage, replace if necessary.

Open rear lid.

Tighten down screws (2) on servo lock.

Check adjustment of rear lid and servo lock, repeating adjustment if necessary.

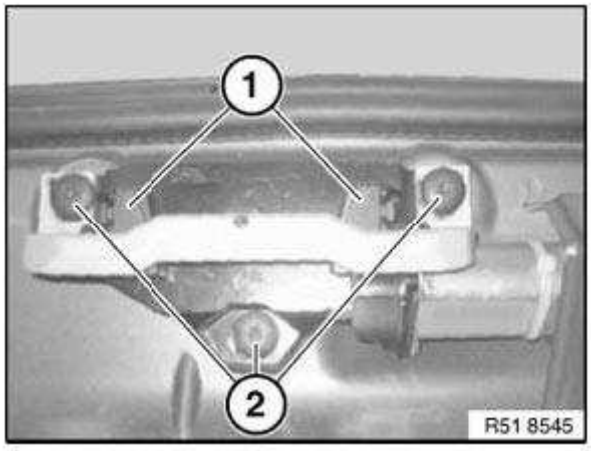


Fig. 308: Identifying Screws And Sliders
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 110 REMOVING AND INSTALLING/REPLACING REAR LID LOCK

Necessary preliminary tasks:

- Remove **panel for rear lid** , see **51 49 000 Removing and installing/replacing panel for rear lid**.

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Release screws (1).

Tightening torque **51 24 1AZ** , see **51 24 REAR LID LOCKS** .

Feed out lock (2), disconnect plug connection and remove lock (2).

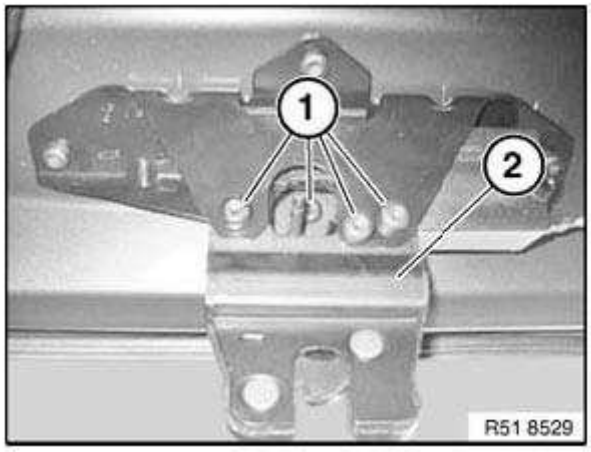


Fig. 309: Identifying Lock With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 145 REMOVING AND INSTALLING/REPLACING BUTTON FOR REAR LID ACTUATION

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Move special tool **00 9 323** under front edge of button (1) and lever out button (1).

Pull button (1) out of rear lid (2).

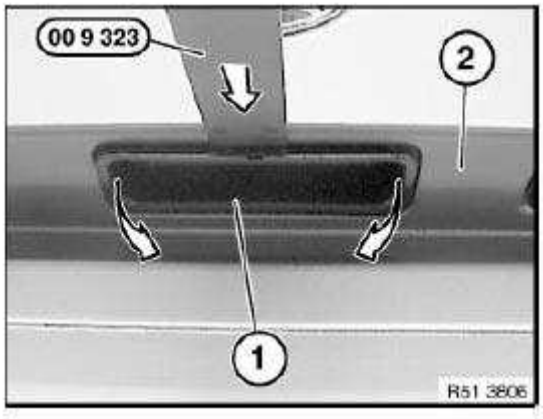


Fig. 310: Identifying Button And Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

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Disconnect plug (1) and remove button (2).

Installation:

Perform function check with rear lid open.

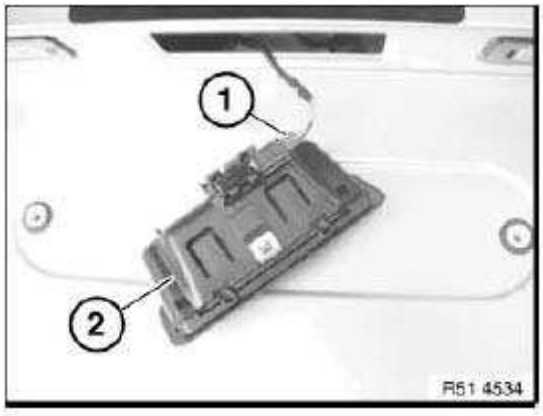


Fig. 311: Identifying Plug And Button
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Carefully release catches (1) and remove microswitch (2).

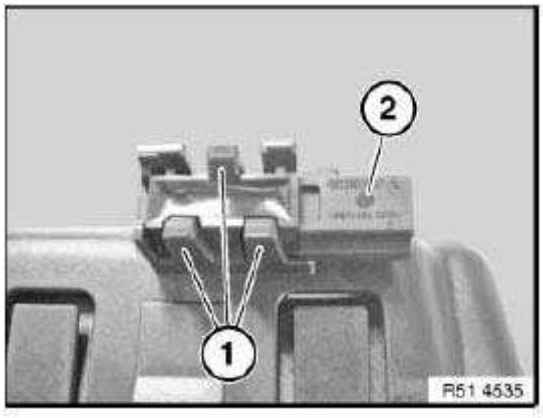


Fig. 312: Identifying Catches And Microswitch
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 165 REMOVING AND INSTALLING/REPLACING SIDE LEFT OR RIGHT REAR LID BUFFER STOPS

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

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Necessary preliminary tasks:

- Remove **luggage compartment capping** , see **51 47 156 Removing and installing/replacing left or right capping in luggage compartment**.

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

Lever out clips (1) with special tool **00 9 317** at **water gutter trim (2)** , see **51 71 387 Removing and installing/replacing rear water gutter trim (rear lid) on left or right**.

Detach mucket (3) along water gutter (2).

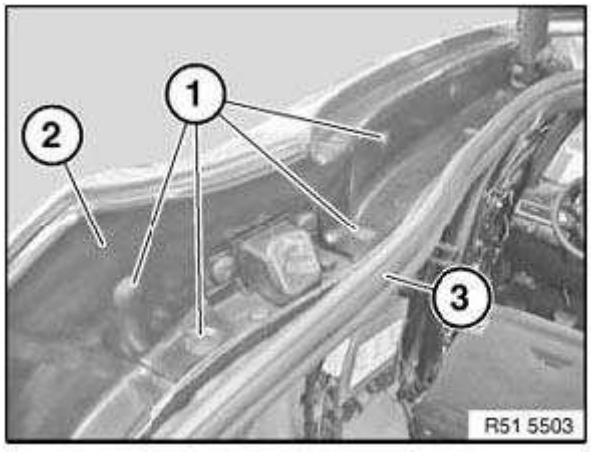


Fig. 313: Identifying Water Gutter With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (2) and nuts (3) on stop.

Installation:

Adjust both buffer stops (1) (work is described in **Adjusting rear lid).** , see **41 62 014 ADJUSTING REAR LID** .

Tightening torque for screws (2) **41 62 9AZ** , see **41 62 REAR LID** .

Tightening torque for nuts (3) **41 62 9AZ** , see **41 62 REAR LID** .

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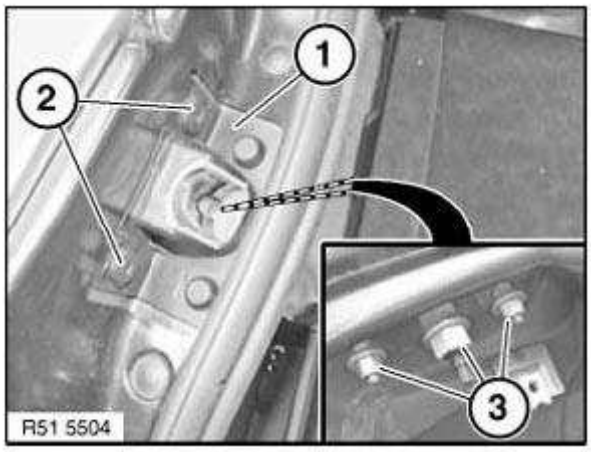


Fig. 314: Identifying Screws And Nuts On Stop
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 300 REMOVING AND INSTALLING OR REPLACING LEFT OR RIGHT GAS STRUT FOR REAR LID

> **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.

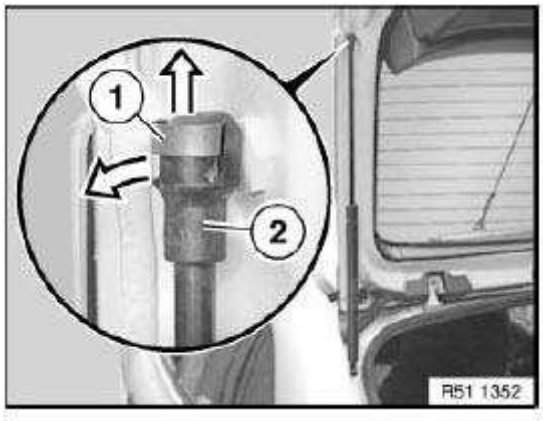


Fig. 315: Sliding Stop Spring To End Of Gas Pressure Spring And Lever Out Gas Pressure Spring
Courtesy of BMW OF NORTH AMERICA, INC.

51 24 400 REMOVING AND INSTALLING/REPLACING ELECTRIC SPINDLE DRIVE FOR REAR LID ON LEFT OR RIGHT

> **WARNING: Risk of injury!**

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Support rear lid in fully opened position with suitable apparatus.

IMPORTANT: Risk of damage!
Before starting work, read out and make a note of the set rear lid opening angle (refer to Owner's Handbook).

Necessary preliminary tasks:

- Remove **capping in luggage compartment** , see **51 47 156 Removing and installing/replacing left or right capping in luggage compartment**.

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

IMPORTANT: Risk of damage!
If you are not careful, the retaining spring may be bent to such an extent that the entire spindle drive will have to be replaced.

Press spindle drive (1) against ball pin (2) in order to relieve strain on retaining spring (3) at ball pin (2).

Insert screwdriver under retaining spring (4).

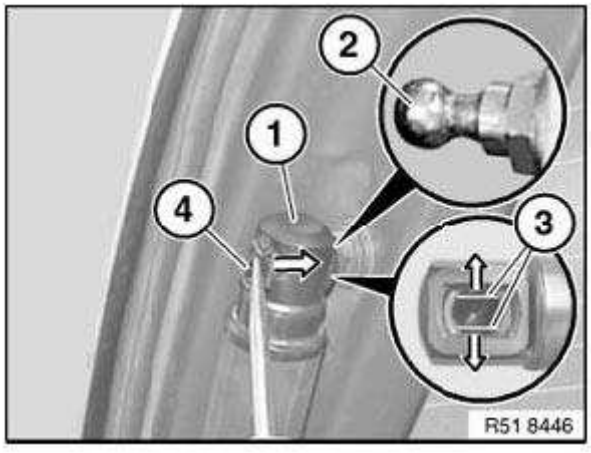


Fig. 316: Inserting Screwdriver Under Retaining Spring
Courtesy of BMW OF NORTH AMERICA, INC.

Pull out retaining spring (1) approx. 2-3 mm to open retaining spring at bottom (2).

Pull spindle drive (4) in direction of arrow from ball pin (3).

Repeat procedure at other end of spindle drive.

Remove spindle drive.

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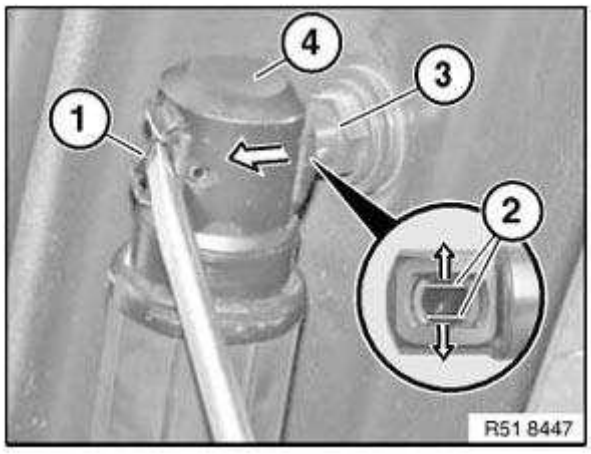


Fig. 317: Pulling Spindle Drive
Courtesy of BMW OF NORTH AMERICA, INC.

Remove cable from holders (1).

Remove quick ties (2).

Disconnect plug connection (3).

Release screw (4).

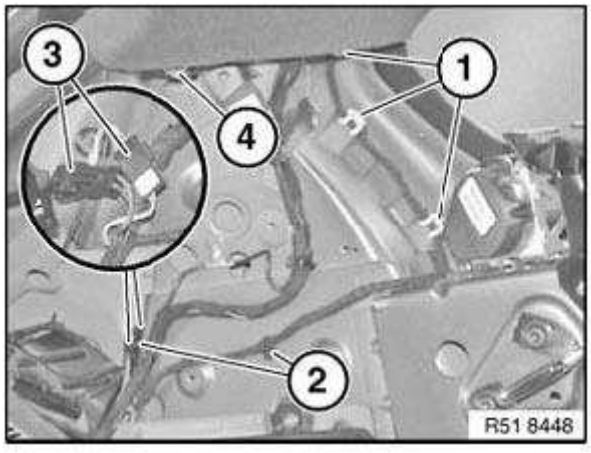


Fig. 318: Identifying Plug Connection And Quick Ties With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: To prevent the plug connections (1) from being skewed in the body, fit these plug connections with cable guide (2)* and feed out carefully.

*Cable guide (2) is included in the spindle drive spare part; if necessary, secure plug connections (1) with adhesive tape into a narrow strand.

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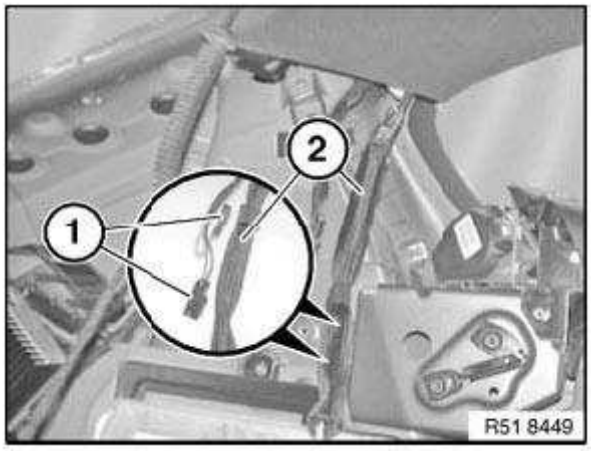


Fig. 319: Identifying Plug Connection And Quick Ties With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Feed wiring harness (1) with guide through correct opening (2) in body.

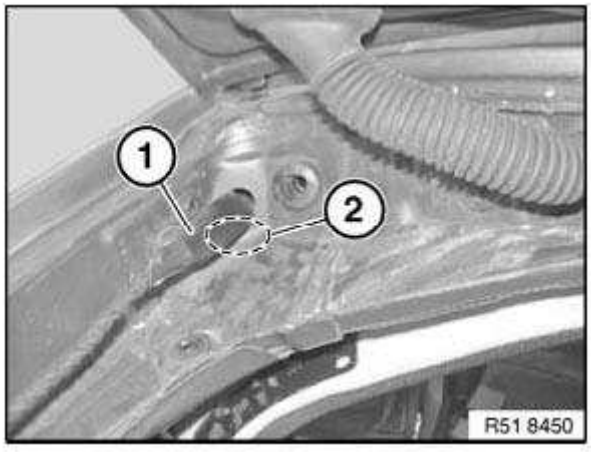


Fig. 320: Identifying Wiring Harness With Guide
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage!
Do not press on spindle drive at an angle or twisted.

Installation:

Press ball socket (1) onto ball pin (2) until retaining spring (3) engages correctly (clicking sound).

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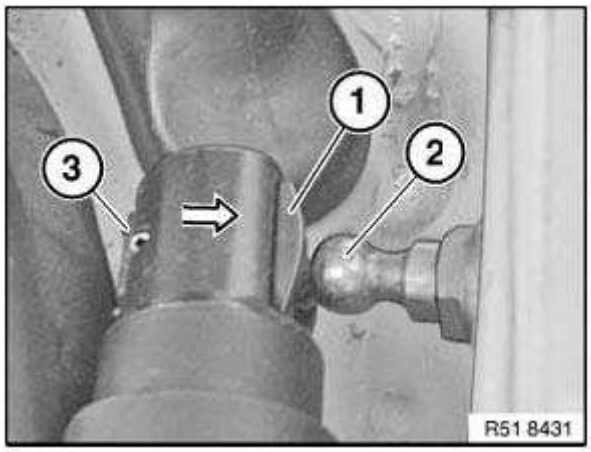


Fig. 321: Pressing Ball Socket Onto Ball Pin
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: If retaining spring (2) is damaged!

Release pins (1).

Remove spindle (4).

Remove ball socket (3).

Remove retaining spring (2) and replace if necessary.

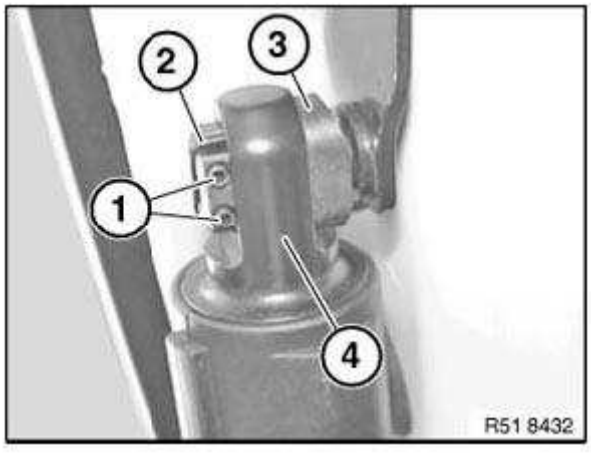


Fig. 322: Identifying Ball Socket And Retaining Spring With Spindle
Courtesy of BMW OF NORTH AMERICA, INC.

Concluding tasks:

- Mechanically teach in end stops for rear lid:
    1. Lower end stop: Close rear lid (lower end stop is determined when the rear lid contact of the rear

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lock changes from open to closed)

2. Upper end stop: Rear lid must be fully opened up to upper stop.

- After completing work, check adjustment of rear lid opening angle and re-establish adjustment if necessary.

FRONT AND REAR WINDOW

51 31 ... INSTRUCTIONS ON GLUING WINDSCREEN

IMPORTANT: The "1-hour" system will be introduced from 03/2009.

Two different adhesive systems are described and identified accordingly in the following:

"1-day system"

"1-hour system"

These instructions are not applicable to door window cementing (door "center") on the E38/L7:

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

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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, see **62 30 517 ADJUSTING HEAD-UP DISPLAY** .

Version with front passenger airbag:

- Stick on **reminder label** , see **00 00 ... INFORMATION/WARNING LABELS** .

Tools for cutting through adhesive bead

PART NUMBER REFERENCE

Type	**Type**	**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" , see **51 31 ... REMOVING WINDSCREEN WITH "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** , see **51 3 270 PULL HANDLES**
(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

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The BMW-approved 1-component polyurethane adhesive must be used for bonding.

- **1-day system:** Adhesive cartridge* (part number 83 19 0 152 031)

1-hour system :Adhesive cartridge* (part number 83 19 0 444 144)

* 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, 3-hour system)

- Temperature (min. 80 ± 5°C) of cartridge oven must be checked every morning. Connect temperature sensor to DIS (Diagnosis and Information System) or to ISID (Integrated Service Information Display), if necessary 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
  - 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).

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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 (3-hour system)

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 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:

1-day system

- "Glass Activator 1" (on glass ceramic material)
- "Paint Activator A" (on sheet metal flange or residual adhesive bead)

1-hour system

- "Glass Activator 2" (on glass ceramic material), yellow stick, BMW part number: 83 19 0 144 142
- "Paint Activator B" (on sheet metal flange), blue stick, BMW part number: 83 19 0 154 458

Prepare Glass Activator 2 and Paint Activator B for processing by shaking and snapping (breaking glass ampoule).

Apply Glass Activator (2) by pressing gently. There is no need for final wiping. Ventilation time approx. 2 minutes.

Apply Paint Activator B by pressingly gently. Then wipe dry with a paper towel (available in a set).

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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" , see 51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000".

Cover side panels, roof aerial 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, see **51 3 270 PULL HANDLES** , 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"**.
  - 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.

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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 (coating thickness 30 ... 40 µm).

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

TREATMENT OF GLUED AREA IN BODY

Adhesive	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 5 minutes (at least 15 minutes when applied to residual bead) c. **1-day system:** Apply "Paint Activator A" to paint and residual bead d. **1-hour system:** Apply "Paint Activator B" (blue stick) to paint

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	e. Observe an air drying time of at least 5 minutes (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.

1-day system: Treatment of glass ceramic surface (inside of window):

TREATMENT OF GLASS CERAMIC SURFACE

Adhesive (with part numbers)	Treatment
Hot cementing: - 83 19 0 147 370 Cold cementing: - 83 19 0 147 369 Adhesive cartridge: - 83 19 0 152 031	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

1-hour system: Treatment of glass ceramic surface (inside of window):

TREATMENT OF GLASS CERAMIC SURFACE

Adhesive (with part numbers)	Treatment
Glass Activator 2 (yellow stick):	a. Clean with spirit (available in pharmacies). b. Observe an air drying time of at least 5 minutes c. Apply a thin coating of "Glass Activator 2"

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○ 83 19 0 144 142	d. Observe an air drying time of at least 2 minutes

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 required to cement the windscreen on the following vehicles:

- 7 Series
- 5 Series from E60
- X5
- X3

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

ADHESIVE REFERENCE

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 aerial (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.

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Incorrectly fitted spacer buffers will result in:

- 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

IMPORTANT: 1-day system:
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.
1-hour system:
Once the adhesive bead has been applied, the windscreen must be installed within 7 minutes (depending on air humidity, temperature).
After 7 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 9 410 479).
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 , see **51 0 010 TEST GAUGE FOR WINDSCREEN AND REAR WINDOW INSTALLATION** .

Assemble car.

Hardening

The adhesive hardens as it reacts with air humidity (with accelerator also due to mixed-in reaction paste) at room temperature.

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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 curb
- lifting platform
- etc.

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

1-day system: Glues and their minimum hardening times

ADHESIVE REFERENCE

Adhesive	**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*
Cold processing	9 hours	20 hours*

1-hour system: Glues and their minimum hardening times

ADHESIVE REFERENCE

Adhesive	**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)**
Cold processing	1 hour	2 hours*
*		

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NOTE:
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:

- Recalibrate magnetic field sensor

- Refer to function description in ISID (Integrated Service Information Display)

Version with rain sensor, rain/light sensor or rain/light solar sensor

Remove complete rain sensor, rain/light sensor or rain/light solar sensor, see **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR** .

After replacing windscreen:

- Initialize rain sensor, rain/light sensor or rain/light solar sensor
- Refer to function description in ISID (Integrated Service Information Display)

Version with automatic air conditioning

After replacing windscreen:

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If fogging sensor is not mounted on new windscreen:

Replace fogging sensor, refer to **61 35 683 REPLACING OPTICAL ELEMENT FOR SOLAR RAIN/LIGHT SENSOR** or **64 11 970 REPLACING FOGGING SENSOR (UP TO 10/2008)** .

Version with head-up display (HUD)

When replacing windscreen in vehicles with rain/light solar sensor, replace this completely: refer to **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR** .

Before bonding, install windscreen with seal(s) and check **HUD** , see **62 30 517 ADJUSTING HEAD-UP DISPLAY** ; if necessary, press expanding foam tape down with hand roller.

After bonding windscreen, check and if necessary adjust HUD, see **62 30 517 ADJUSTING HEAD-UP DISPLAY** .

Work steps for removing and installing windscreens

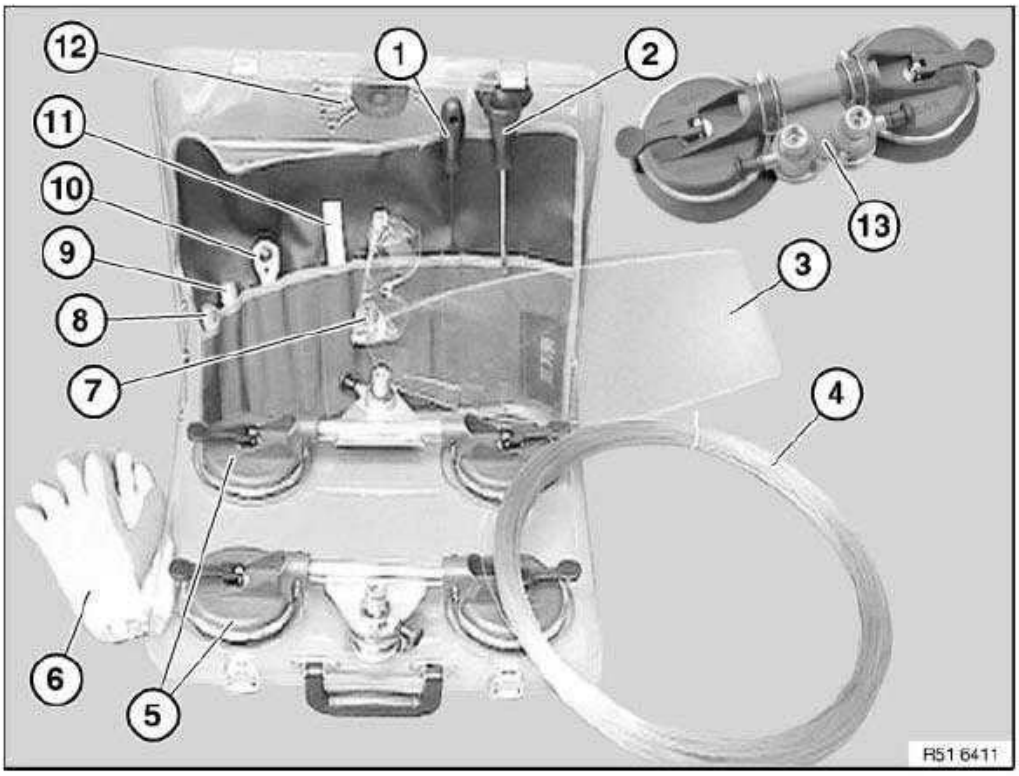
refer to **51 31 000 Removing and installing/replacing windscreen**.

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.

51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000"

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	Suction cup lifters	12	Guide needles
6	Protective gloves	13	Suction cup lifter with double spool
7	Protective goggles		

Fig. 323: Identifying Windscreen Components (Roll Out 2000)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Both paintwork and ergonomic and health-endangering damage is minimized with the "Roll Out 2000" system.

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 and window glass).

IMPORTANT: Always keep both suckers dry and clean to ensure their optimum adhesion on the windscreen.
Lubricate spool if interlock rattling becomes too loud.

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Always wear protective goggles and gloves for your own safety.

Mounting suction cup lifters on windscreen or rear window

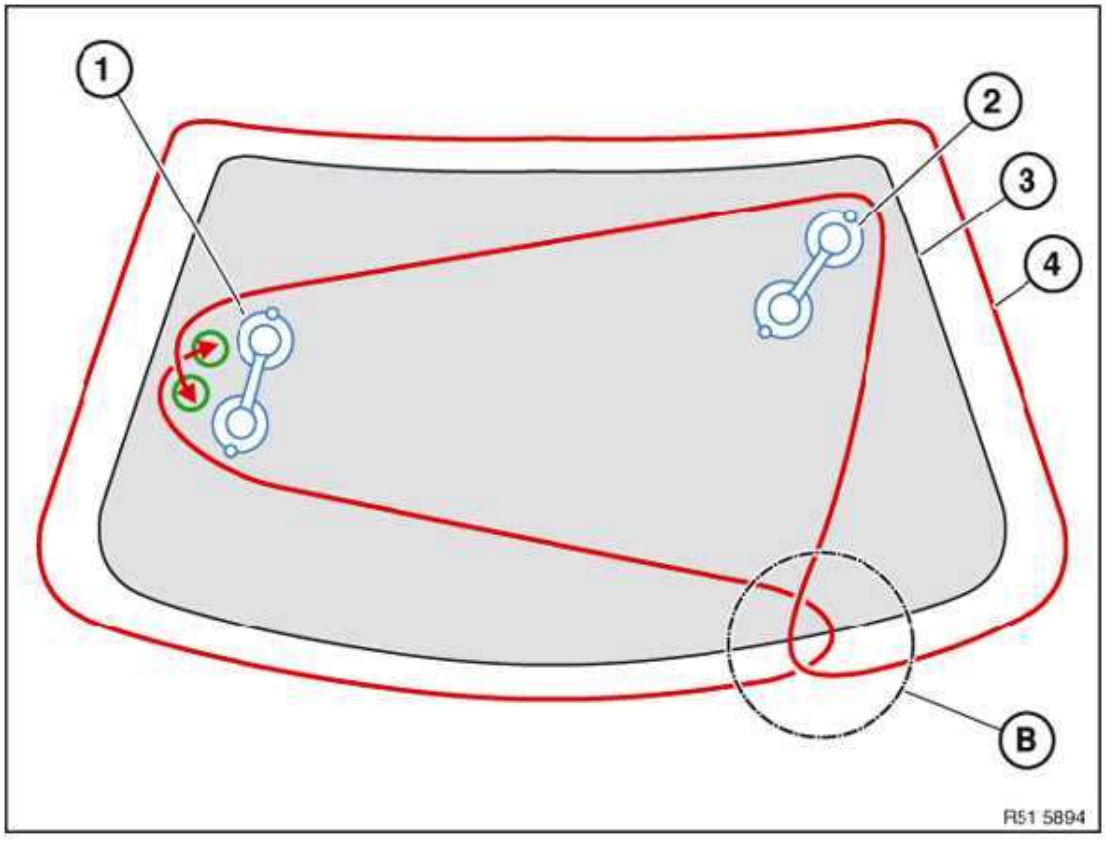


Fig. 324: Mounting Suction Cup Lifters On Windscreen Or Rear Window
Courtesy of BMW OF NORTH AMERICA, INC.

- Secure position of suction cup lifters as shown:
  1. Suction cup lifter with double spool
  2. Suction cup lifter with single spool
  3. Window glass
  4. Cutting wire

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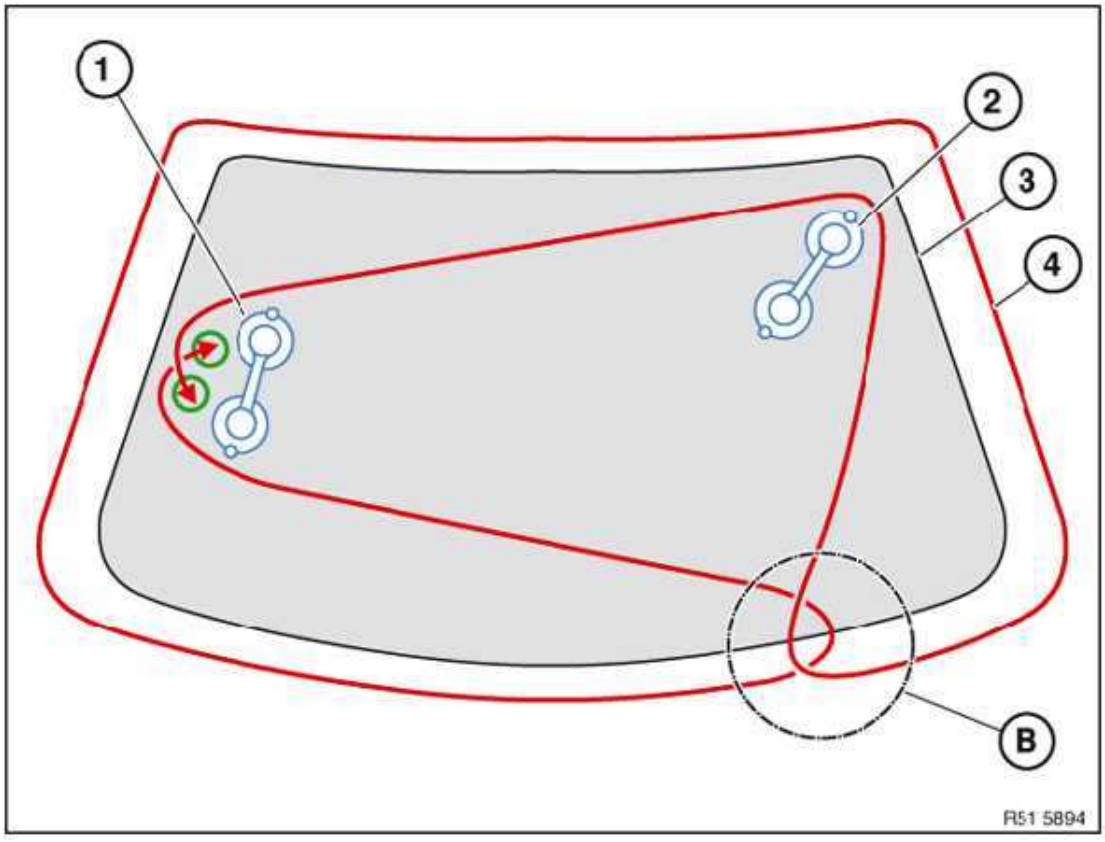


Fig. 325: Mounting Suction Cup Lifters On Windscreen Or Rear Window
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation work

- Cut off required length from cutting wire:

  Window glass diagonal x 6

- The cutting wire loops must lie on top of each other in area (B).

They must not get caught up in each other. (Otherwise no possibility of cutting the adhesive bead/wire tears.)

Overlapping of cutting wire loops approx. 10 cm.

Distance from right window edge approx. 30 cm.

Pulling cutting wire into car

- Cut off wire end (1) at an angle and thus pierce adhesive bead (2).
- Wire end must be bent to window glass.

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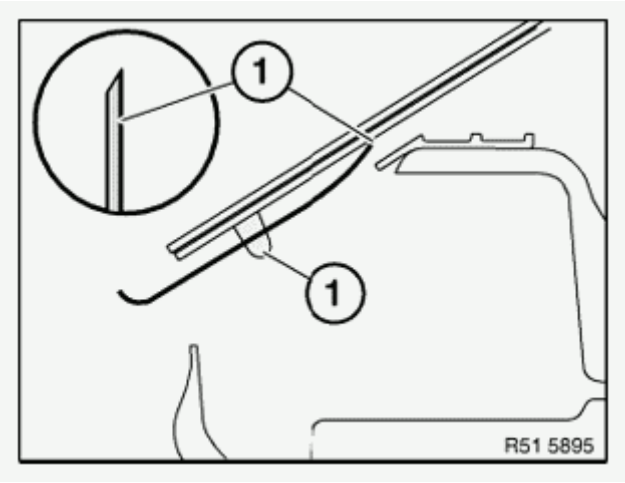


Fig. 326: Cutting Off Wire End At An Angle And Thus Pierce Adhesive Bead
Courtesy of BMW OF NORTH AMERICA, INC.

Laying cutting wire around windscreen

- Starting from pull-in point, lay wire eyelet created on the outside around the window glass
- 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 glass on outside with adhesive tape against slipping.

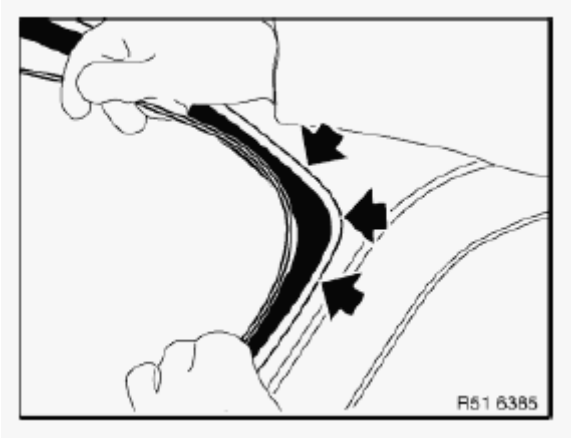


Fig. 327: Laying Wire Eyelet Created On Outside Around Window Glass
Courtesy of BMW OF NORTH AMERICA, INC.

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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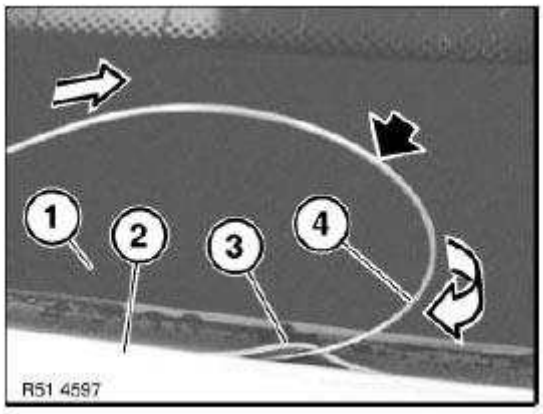


Fig. 328: Inserting Cutting Wire In Bend (Without Kinking) Between Window And Body Cutout
Courtesy of BMW OF NORTH AMERICA, INC.

Protecting car interior

- To avoid damage and if necessary dirt, protect A-pillars, roof and instrument panel trim (3) by means of plastic disc (1)
- Always carry plastic disc (1) between respective wire (2) being strained and trim panel components

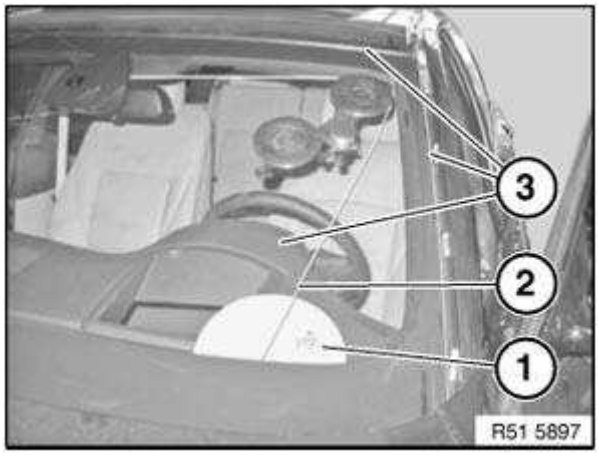


Fig. 329: Identifying Plastic Disc And Respective Wire
Courtesy of BMW OF NORTH AMERICA, INC.

Suspending wire in suction cup lifter with double spool

- Insert cutting wire (1) in spool (2) and thereby bend wire
- Insert second wire end in second spool and likewise bend
- Turn spool (2) by hand and wind up loose wire

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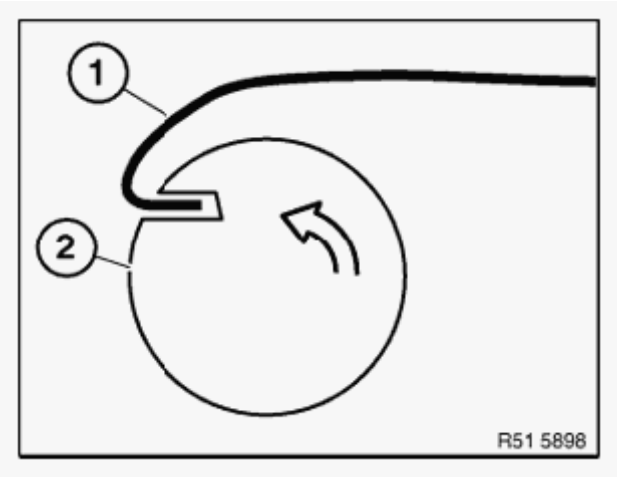


Fig. 330: Identifying Hold Down Setting Button And Compass Display
Courtesy of BMW OF NORTH AMERICA, INC.

Starting removal

NOTE: Spool can only be turned in one direction.

- Make sure the wire is always situated in the guide channel of the suction cup lifter (1)
- Fit reversible ratchet on spool (2) and tension wire
- Start by cutting lower adhesive bead
- Both wires meet ahead of both spools when removal is completed
- Remove "Roll Out 2000", see **51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000"**.
- Remove disc

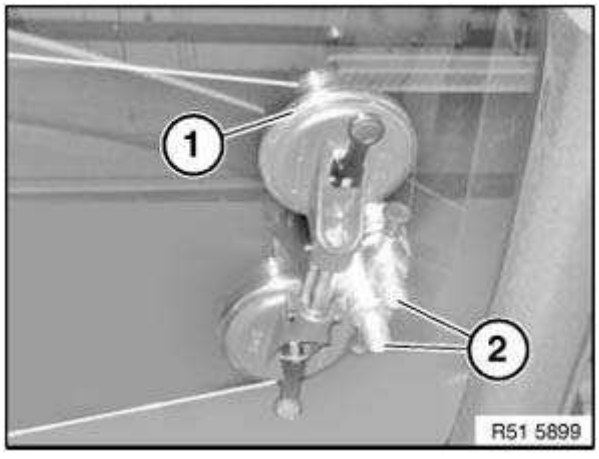


Fig. 331: Identifying Suction Cup Lifter And Spool
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 000 REMOVING AND INSTALLING/REPLACING WINDSCREEN

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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 31 000 REMOVING AND INSTALLING/REPLACING WINDSCREEN

Special tools required:

- **00 9 322**
- **51 0 010** , see **51 0 010 TEST GAUGE FOR WINDSCREEN AND REAR WINDOW INSTALLATION** .
- **51 3 010** , see **51 3 010 SUCTION LIFT (2 X)** .

IMPORTANT: The "Instructions on cementing windscreen" serve as the basis for this repair instruction and must be observed without fail, see 51 31 ... Instructions on gluing windscreen.
Cover front side panels with protective covers.

NOTE: Removal is performed with Roll Out 2000. Only use an oscillating blade when replacing the windscreen, see 51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000".

Necessary preliminary tasks:

- Remove **interior rear-view mirror** , see **51 16 060 Removing and installing/replacing interior rearview mirror (overview)**.
- Remove **panels for roof pillar** at front, see **51 43 201 Removing and installing/replacing trim for roof pillar at front (A-pillar), left or right**.
- Remove **cover for cowl panel** , see **51 13 116 Removing and installing/replacing cowl panel cover**.
- Remove **gutter strips** , see **51 31 021 Removing and installing/replacing rubber frame for windscreen (top)**.
- Remove **rubber frame for windscreen** , see **51 31 023 Removing and installing left or right gutter strip along windscreen**

Replacement

- If necessary, replace **rain/light sensor** , see **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR**
- If necessary, remove **solar rain/light sensor** , see **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR**
- If necessary, remove **fogging/condensation sensor** , see **64 11 970 REPLACING FOGGING SENSOR (FROM 10/2008)**
- If necessary, replace **optical element for solar rain/light sensor** , see **61 35 683 REPLACING OPTICAL ELEMENT FOR SOLAR RAIN/LIGHT SENSOR**
- If necessary, replace **solar rain/light sensor** , see **61 35 685 REPLACING RAIN/LIGHT SOLAR**

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SENSOR

- Tape off body cutout all round with fabric adhesive tape

Disconnect plug connections (1) on rain/light sensor and detach fogging/condensation sensor.

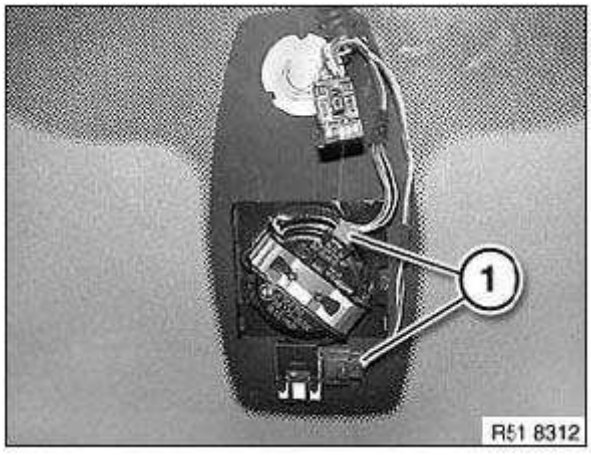


Fig. 332: Identifying Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only

Attach a 24 mm U-shape blade (sourcing reference: BMW Parts Service) to tool.

Regrind blade with a grinding stone while machine is running (new blades also).

Carefully insert blade between body cutout and windscreen.

Guide handle of knife parallel to windscreen.

Cut through adhesive bead as closely as possible to windscreen.



Fig. 333: Identifying U-Shape Blade
Courtesy of BMW OF NORTH AMERICA, INC.

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NOTE: When cutting is carried out at the bottom in the event of replacement, the engine bonnet/hood must be in the service position.

Move **engine bonnet/hood into service position.** , see **51 00 ... Service position of engine hood/bonnet**.

Cut through windscreen adhesive bead at bottom.

Lift out windscreen with special tools 51 3 010, see **51 3 010 SUCTION LIFT (2 X)** .

Pull off adhesive tapes all round.

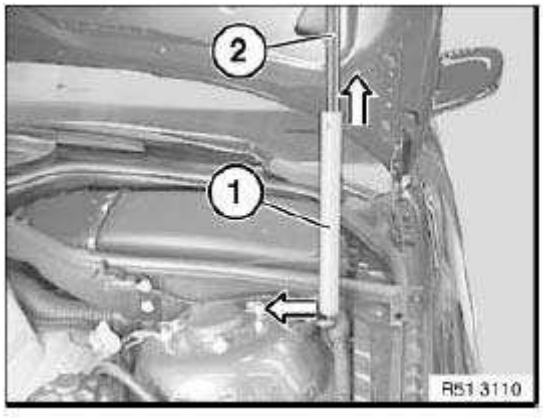


Fig. 334: Sliding Special Tool Over Housing Of Gas Spring Strut
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace defective expanding foam tape (1).

IMPORTANT: Press down expanding foam tape (1) shortly before installing windscreen () (with hand roller) or stick on. Relaxed expanding foam tape could crush cement bead (leaks, wind noises).

Replacement

Attach new expanding foam tape (1) to lower edge of defroster channel (2).

Expanding foam tape (1) may only be stuck up to corner points of defroster channel (2).

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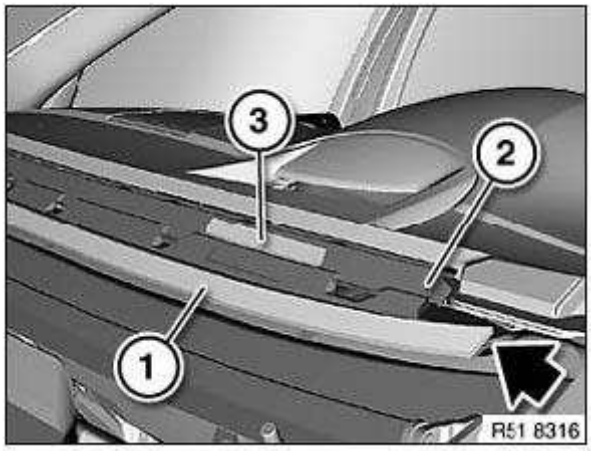


Fig. 335: Identifying Expanding Foam Tape To Lower Edge Of Defroster Channel
Courtesy of BMW OF NORTH AMERICA, INC.

Stick on expanding foam tape (3) (120 mm long) above vehicle identification number.

Fitting spacers

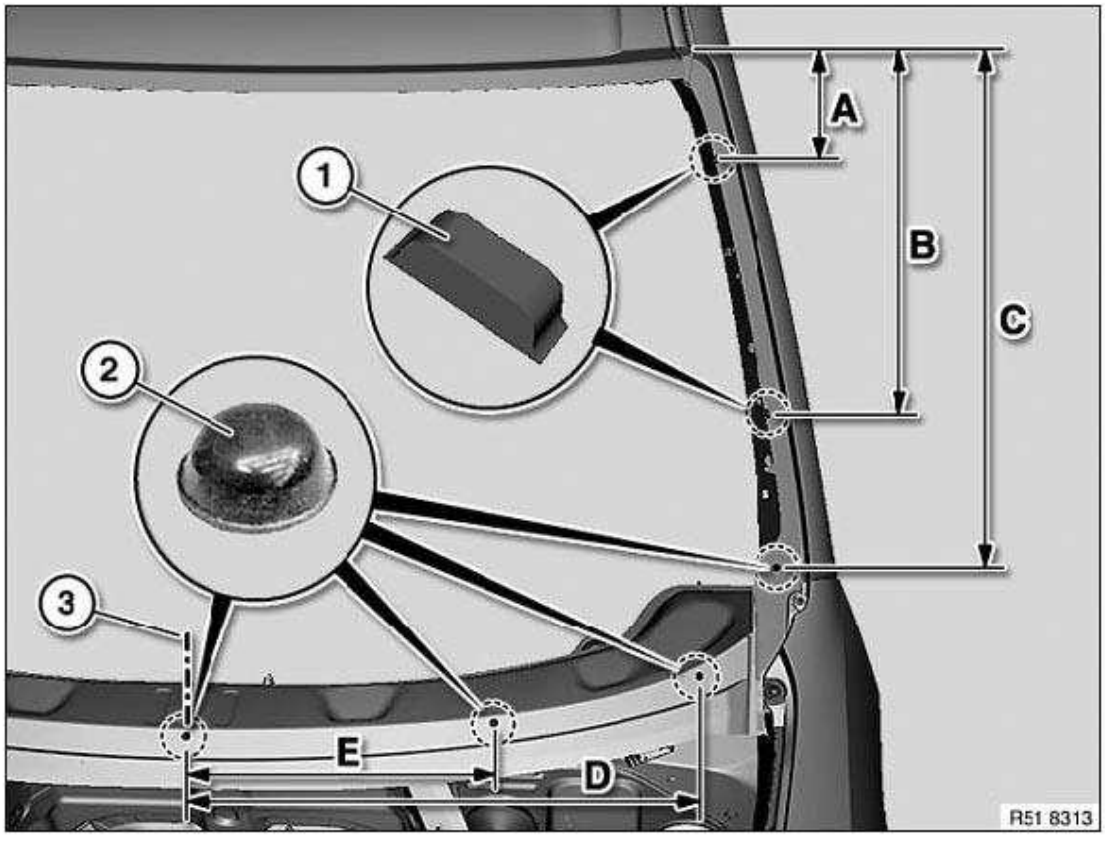


Fig. 336: Identifying Spacers Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

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Remove all spacers and remove remnants completely.

Pay attention precisely to installation position of spacers (1) and semicircular spacer buffers (2).

Dimensions (A to C) measured from roof edge.

Dimensions (D and E) measured from middle of vehicle (3).

A 150 mm

B 500 mm

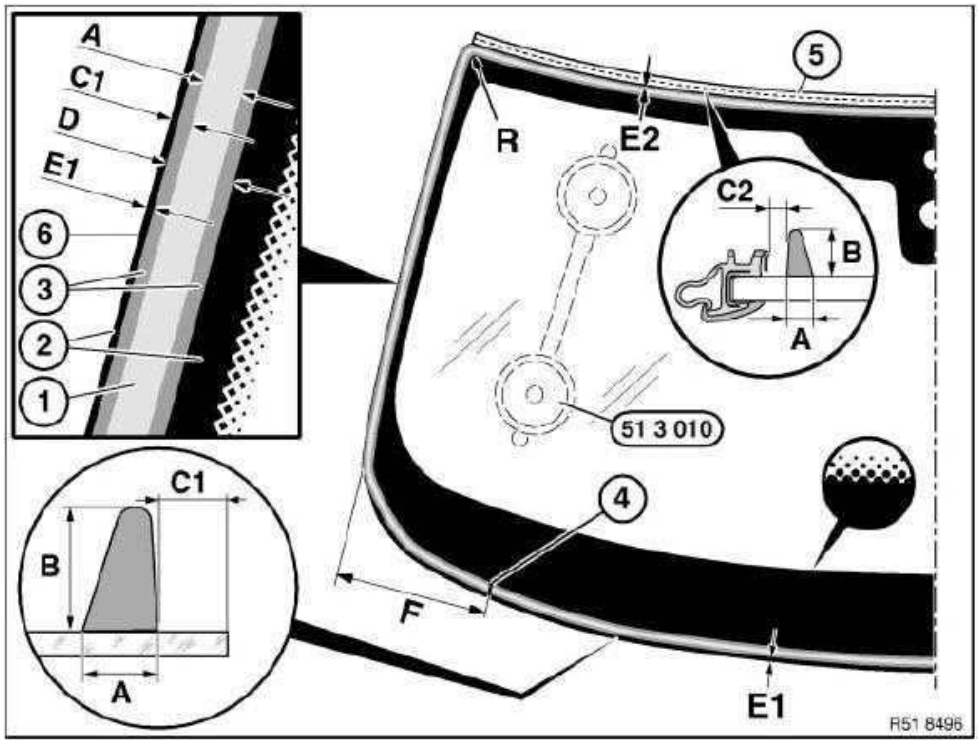
C 700 mm

D 680 mm

E 390 mm

Overview for windscreen cementing (E71)

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1	Adhesive bead	C1	4 ± 1 mm (spacing from 1 to 6)
2	Ceramic layer	C2	2 ± 1 mm (distance from 1 to 5)
3	Primer coat	D	20 $^{+2}$ mm (width of primer trace)
4	Application point of adhesive bead	E1	0 mm (spacing from 3 to 6)
5	Rubber frame, top	E2	0 mm (spacing from 3 to 5)
6	Windscreen outer edge	F	approx. 300 mm (spacing from 4 to 6)
A	8 ± 2 mm (width of adhesive bead)	R	approx. 15 mm (radius of 1)
B	12 $_{-2}$ mm (height of adhesive bead)		

Fig. 337: Overview For Windscreen Cementing (E71)
Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 51 3 010 twice to tool trolley. Moisten suction surfaces and tension windscreen from outside, see **51 3 010 SUCTION LIFT (2 X)** .

If reusing removed windscreen, remove residual adhesive down to 0.5 mm.

Install new rubber frame (5), paying attention to center markings in so doing.

If necessary, press expanding foam tape down with hand roller.

Virtually vertical part of adhesive bead (1) must be positioned to rubber frame (5) and windscreen outer edge (5).

Spread adhesive bead with special tool **00 9 322** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

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NOTE: Adhesive area for plastic adhesive tapes (1) must be free from grease and dust.

Stick two yellow plastic adhesive tapes (1) to roof at distance (A) from outside corners.

Length: 400 mm

A= 250 mm

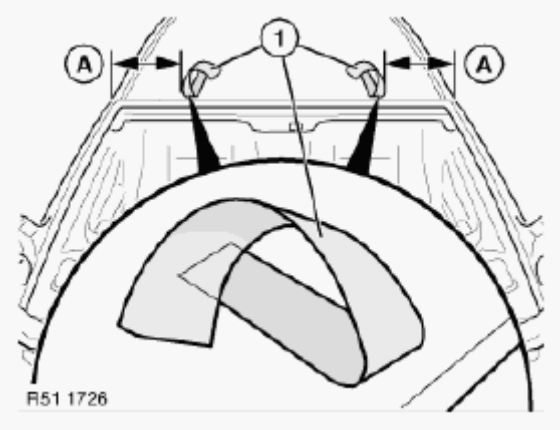


Fig. 338: Identifying Adhesive Tapes Distance
Courtesy of BMW OF NORTH AMERICA, INC.

Working on windscreen (1) carefully with special tool **51 3 010** , see **51 3 010 SUCTION LIFT (2 X)** :

- position at top
- align sides evenly
- insert at bottom and press down
- align seal at top according to dimension (A)

  A = 4 ± 1 mm

- secure in terms of height in this position at top with two yellow plastic adhesive tapes (2)

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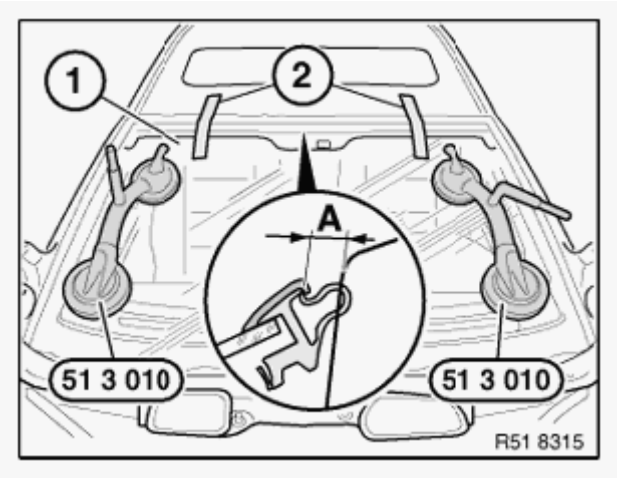


Fig. 339: Identifying Seal Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Preload on top of windscreen to prevent wind noise:

Windscreen (1) must be lower than roof outer skin (2). This is the only way to prevent wind noises.

Position special tool 51 0 010 in middle of vehicle depending on measurement (A) and check underprotrusion of windscreen (1), see **BODY EQUIPMENT - SPECIAL TOOLS** .

Windscreen underprotrusion (A):

A= 5±0.5 mm

X = Measurement stages 1 ... 4 mm

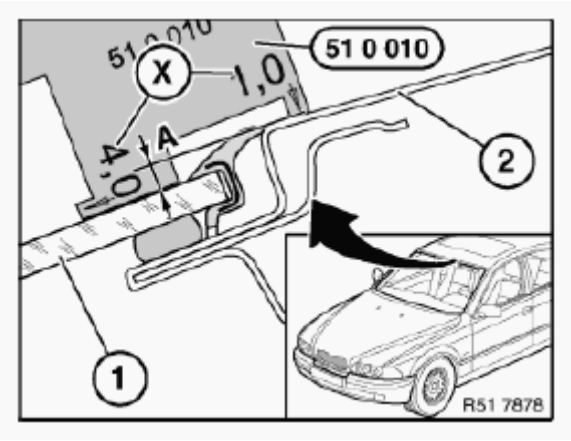


Fig. 340: Positioning Special Tool (51 0 010) In Middle Of Vehicle
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 015 REPAIRING DAMAGE TO WINDSCREENS CAUSED BY PITTING (STONE CHIPS) (CLEAR AND TINTED LAMINATED SAFETY GLASS)

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Field of vision (no repairs acceptable)

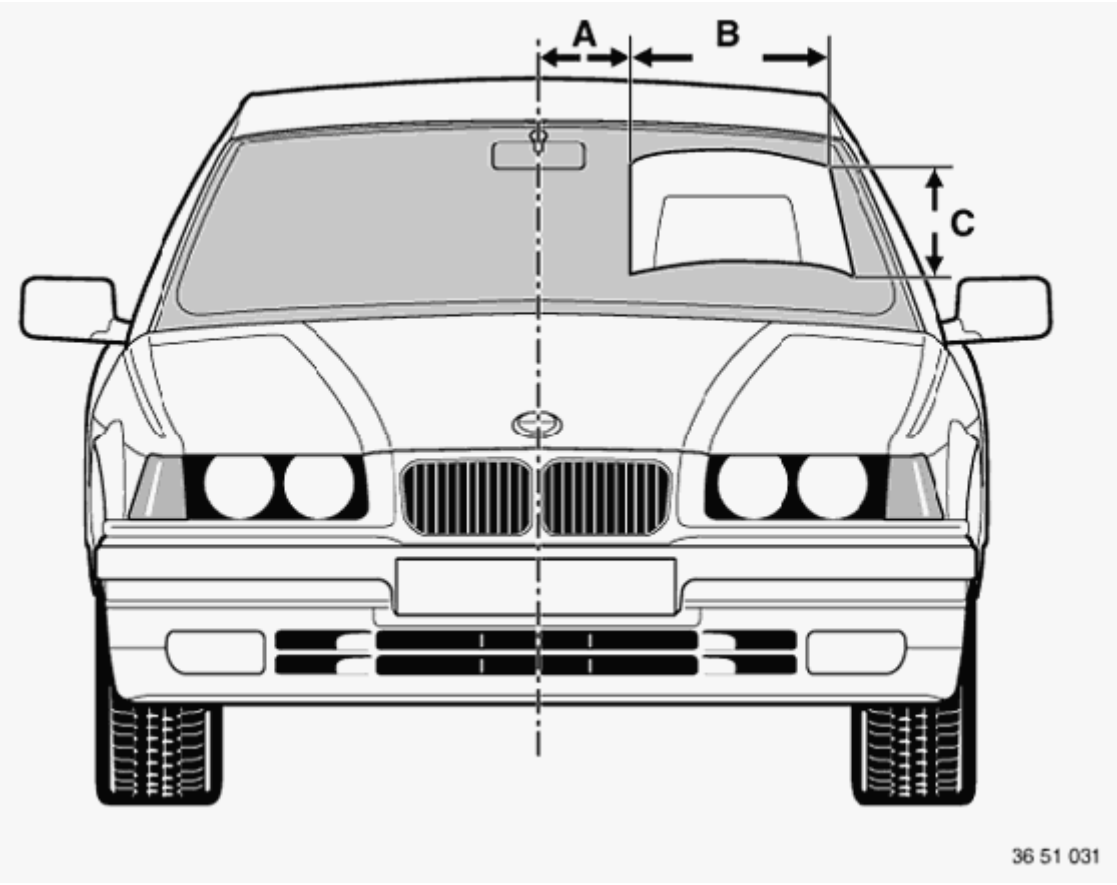


Fig. 341: Identifying Wiper Range
Courtesy of BMW OF NORTH AMERICA, INC.

A. 50 mm (gap between field of view/center of vehicle)
B. Up to end of wiper range, outside (field of view width)
C. Restriction by wiper range (height of field of view)

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 31 023 Removing and installing left or right gutter strip along windscreen**.

IMPORTANT: Rubber frame (1) features an aluminum section inlay (3).
Carefully unwind rubber frame (1) (windscreen breakage).

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NOTE: **Tear-off lip (2) can be stuck on adhesive.**
When rubber frame (1) is removed, tear-off lip (2) can tear off and remain in vehicle.

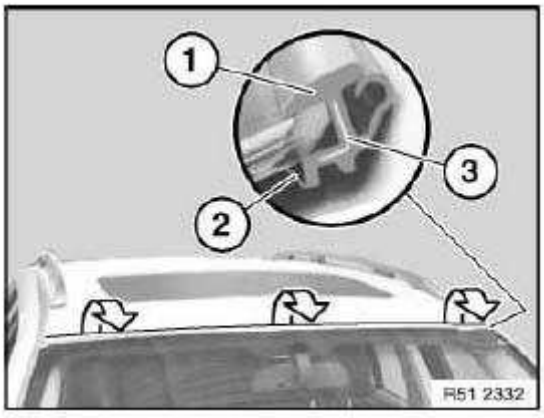


Fig. 342: Removing Rubber Frame
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement of rubber frame without windscreen removal

There is no tear-off lip (4) and no butylene tape (3) in area (A).

Detach tear-off lip (4) from rubber frame (1).

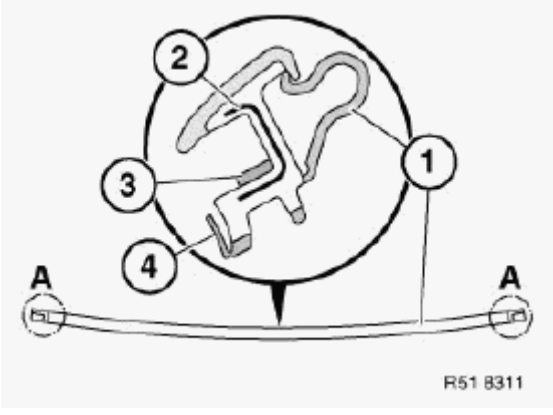
If adhesive leaks over tear-off lip (4), this area must be cut out partially.

To facilitate installation, coat rubber frame (1) and body cutout with water.

Install rubber frame (1), paying attention to center marking in so doing.

2 Aluminum strip

3 Butylene tape



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Fig. 343: Identifying Replacement Of Rubber Frame Without Windscreen
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement of rubber frame with removed or new windscreen

There is no tear-off lip (4) and no butylene tape (3) in area (A).

Install rubber frame (1) with tear-off lip (4), paying attention to center marking in so doing.

2 Aluminum strip

3 Butylene tape

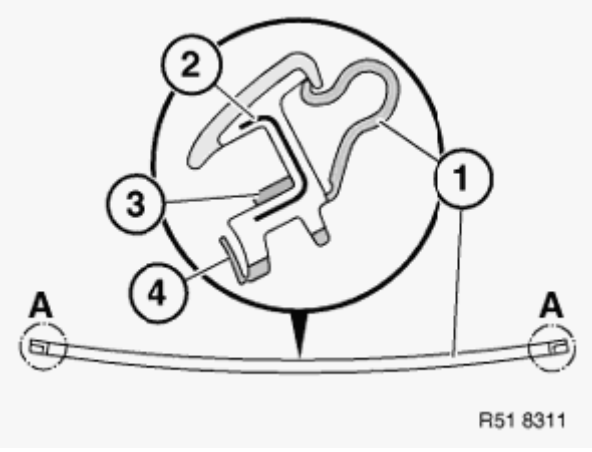


Fig. 344: Identifying Replacement Of Rubber Frame With Windscreen
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 023 REMOVING AND INSTALLING LEFT OR RIGHT GUTTER STRIP ALONG WINDSCREEN

Unclip gutter strip (1) towards top.

IMPORTANT: Replace clips (2) after each removal.
Pay attention to installation position in event of different-coloured clips (2).

Installation:

Locks (3) of clips (2) must not be damaged.

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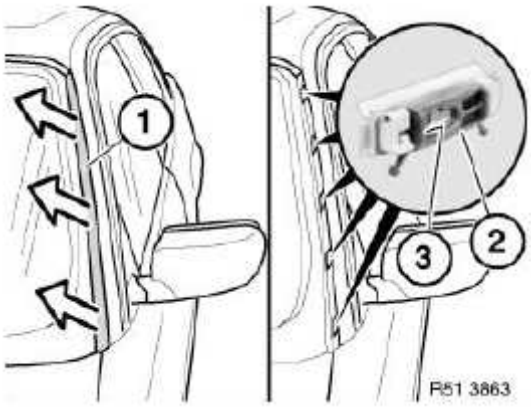


Fig. 345: Identifying Gutter Strip
Courtesy of BMW OF NORTH AMERICA, INC.

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.
- 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.

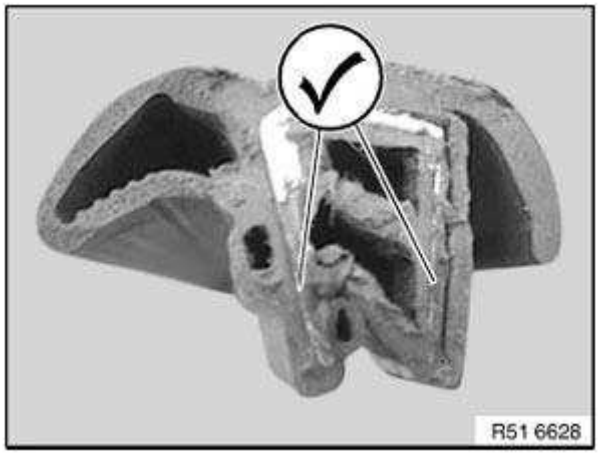


Fig. 346: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

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- 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.

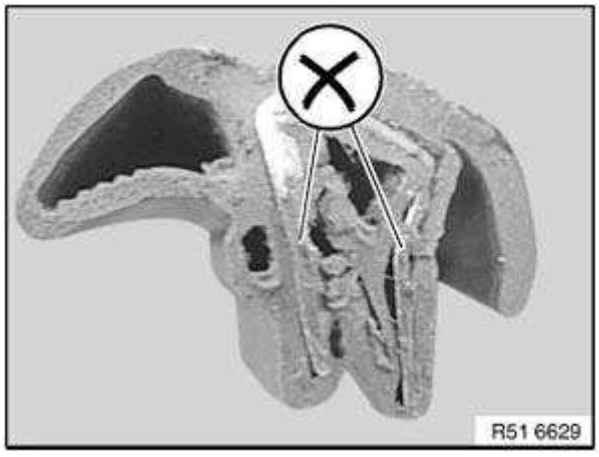


Fig. 347: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

- Seals must be replaced when the metal insert in the seal is visible (corrosion).
- The clamping area must be uniform.

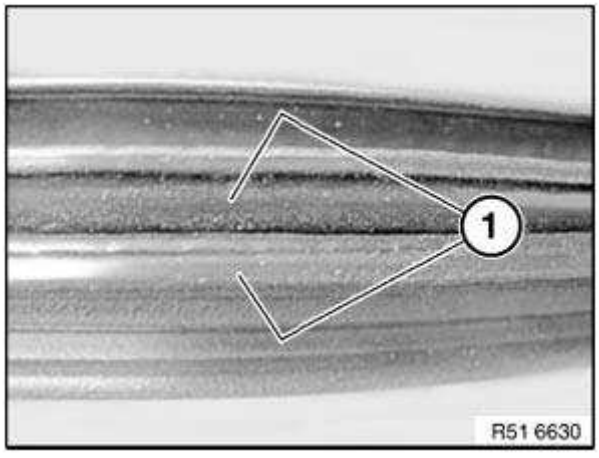


Fig. 348: Identifying Clamping Area
Courtesy of BMW OF NORTH AMERICA, INC.

- Joint seals which are fitted with plastic clips must rest rigidly on the body. Otherwise, the clips or the joint seal must be replaced.

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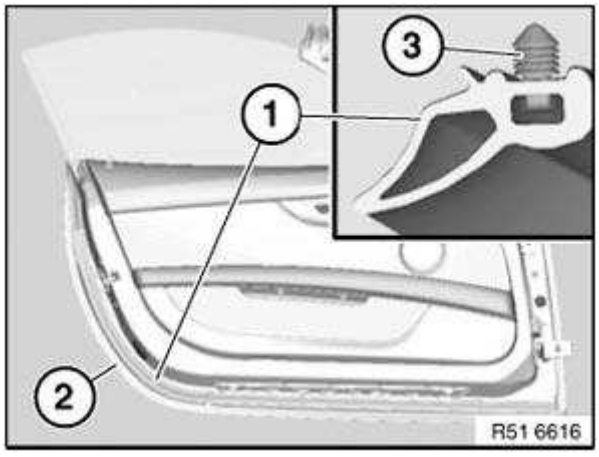
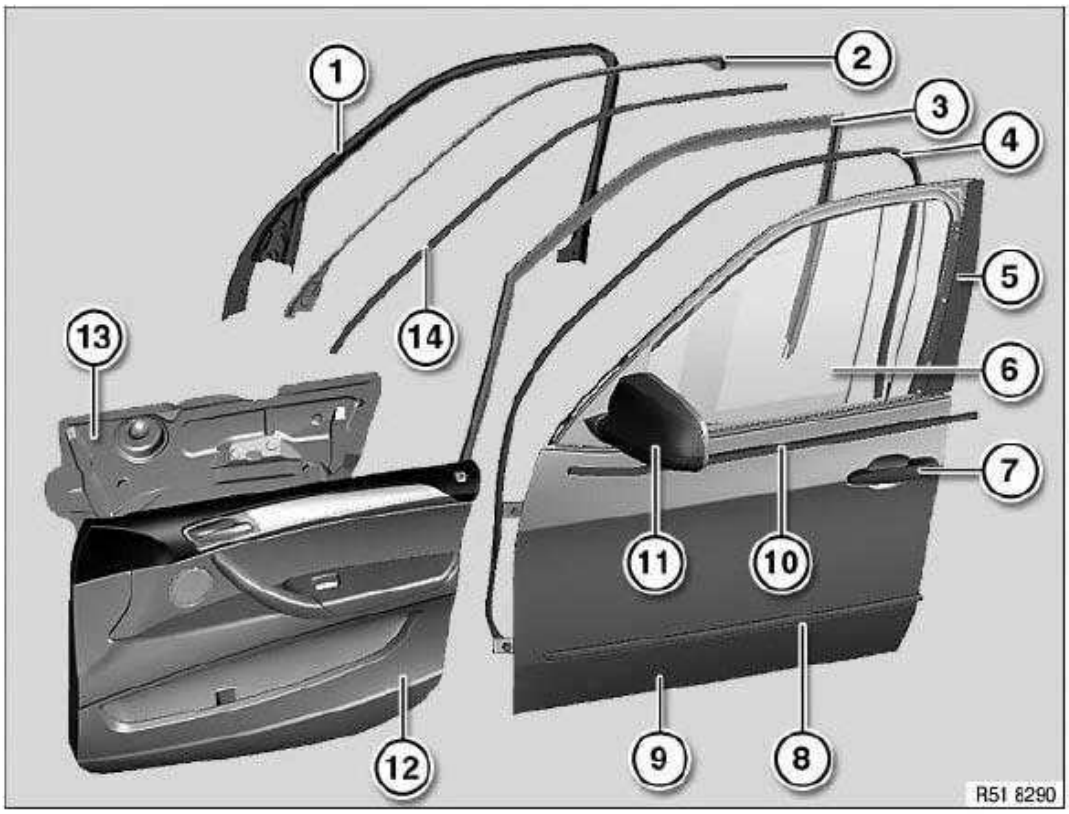


Fig. 349: Identifying Joint Seals And Plastic Clips
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT MANUALLY OPERATED WINDOWS

51 00 ... OVERVIEW OF FRONT DOOR

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1	Inner cover on door window frame	8	Rubbing strip on front door X5 only
2	Seal for door seam/roof frame	9	Front door
3	Rubber guide for door window glass	10	Window cavity cover strip
4	Seal on front door	11	Outside mirror
5	Trim on window frame	12	Door trim panel
6	Windows	13	Acoustic insulation in front door
7	Door lock	14	Decorative strip on window frame

Fig. 350: Identifying Front Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 21 360 REPLACING SEAL FOR DOOR SEAM/ROOF FRAME ON LEFT OR RIGHT FRONT DOOR

Lever out plastic rivet (3).

Lever seal (2) out of decorative strip (1).

Installation:

Seal (2) must be correctly seated on decorative strip (1) and front door (4).

Decorative strip (1) must match trim (5).

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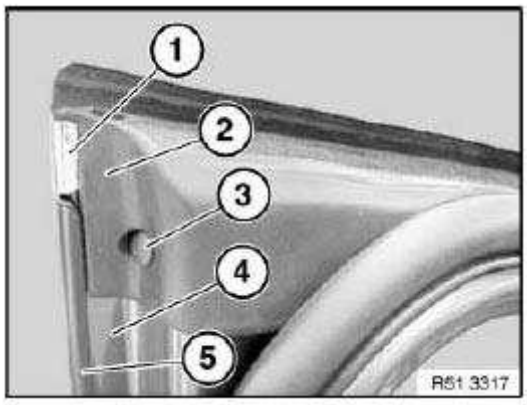


Fig. 351: Identifying Plastic Rivet And Front Door
Courtesy of BMW OF NORTH AMERICA, INC.

Lever out seal (1) from rear to front.

Installation:

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

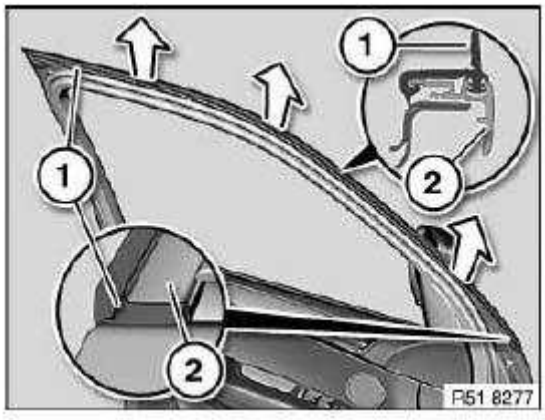


Fig. 352: Levering Out Seal From Rear To Front
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 160 REMOVING AND INSTALLING/REPLACING HOUSING COVER ON INNER LEFT OR RIGHT DOOR WINDOW FRAME

Necessary preliminary tasks:

IMPORTANT: Risk of damage!
Cover (2) must not be kinked.

If necessary, feed out cable (1) and disconnect plug connection.

Lever cover (2) out of retainers (3).

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Unclip cover (2) in direction of arrow and remove.

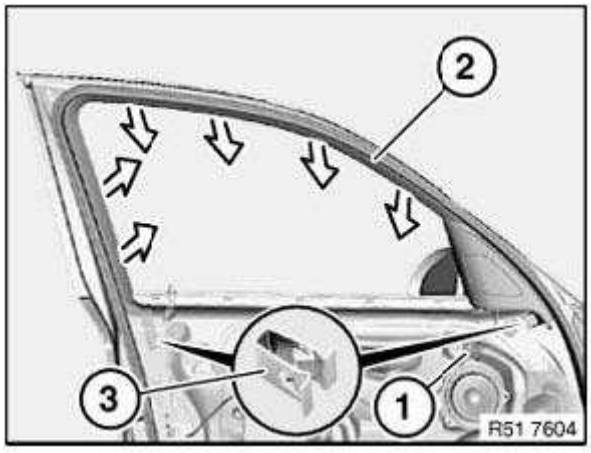


Fig. 353: Levering Cover Out Of Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

1. Retainer (not on E87)
2. Sound insulation

Replacement

If necessary, remove speaker, see **65 13 050 REMOVING AND INSTALLING/REPLACING SPEAKER (TWEETER, FRONT DOOR)** .

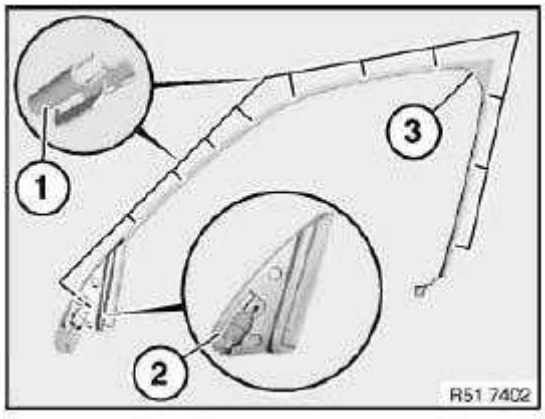


Fig. 354: Identifying Retainer And Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 170 REMOVING AND INSTALLING/REPLACING DOOR WINDOW GLASS, FRONT LEFT

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OR RIGHT

Necessary preliminary tasks:

- Remove **sound insulation in front door** , see **51 48 060 Removing and installing/replacing sound insulation in left or right front door**.
- Remove **inner window cavity cover strip** , see **51 21 330 Removing and installing/replacing window cavity cover strip on inner front door**.

Open door window glass (1) down to distance (A)

NOTE: Open door window glass to such an extent that the sliding member of the door window glass holder is at the height of the elongated hole of the power window unit.

A= approx. 120 mm

E71:

A= approx. 80 mm



Fig. 355: Identifying Door Window Glass Distance
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of injury by trapping!
Disconnect plug connection (1) on power window motor.

Carefully press catch (2) with screwdriver (3) towards rear and slide door window glass upwards.

Installation:

Catch (2) must be correctly clipped into place.

Carry out function check on power window unit and antitrapping protection.

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If necessary, **normalize** power window unit, see **67 62 000 REMOVING AND INSTALLING/REPLACING FLAT MOTOR FOR FRONT LEFT OR RIGHT POWER WINDOW UNIT** .

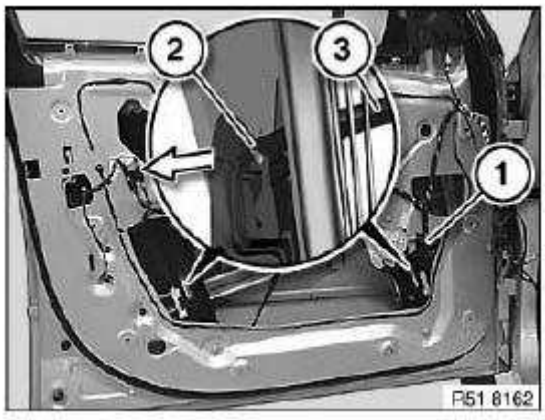


Fig. 356: Identifying Plug Connection And Catch
Courtesy of BMW OF NORTH AMERICA, INC.

Turn door window glass and lift out towards rear/top.

Installation:

Door window glass does not need to be adjusted.

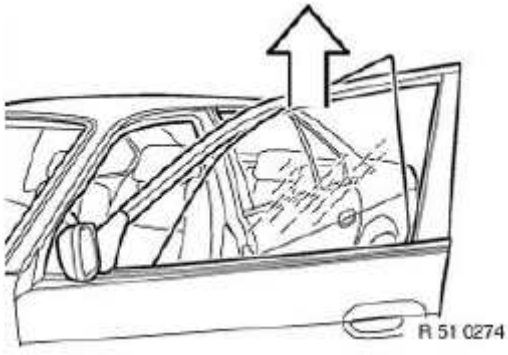


Fig. 357: Sliding Door Window Glass Upwards
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 211 REPLACING FRONT LEFT OR RIGHT RUBBER GUIDE FOR LEFT OR RIGHT DOOR WINDOW

Necessary preliminary tasks:

- Remove **door window glass** , see **51 32 170 Removing and installing/replacing door window glass, front left or right**.
- Remove **cover on door window frame** , see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**.

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IMPORTANT: The "Instructions on fitting window guide seals" serve as the basis for this repair instruction and must be observed without fail, see 51 00 ... Notes on fitting window guide seals.

Pull rubber guide (1) completely out of front door.

Installation:

Moisten rubber guide (1) prior to fitting with **approved anti-friction agent** , see **51 00 ... Notes on fitting window guide seals**.

Insert rubber guide at front/bottom correctly into window guide rail.

Acoustic insulation under rubber guide (1) must not be damaged or missing.

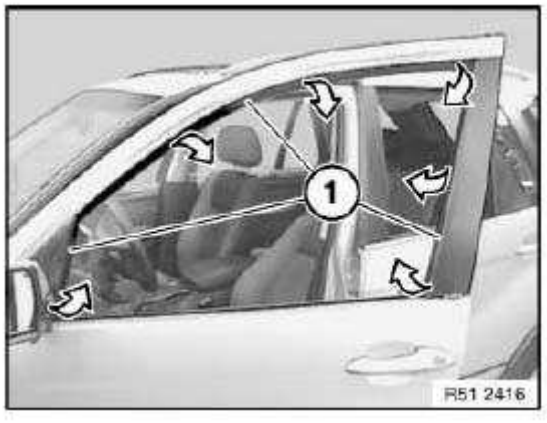
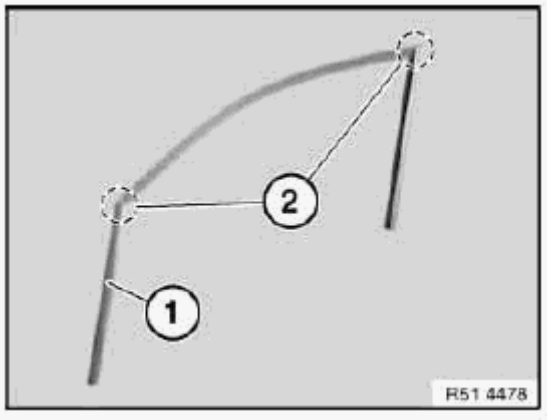


Fig. 358: Pulling Rubber Guide Out Of Front Door
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Rubber guide (1) must not be damaged in corners (2).



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Fig. 359: Identifying Rubber Guide
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 390 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON FRONT LEFT OR RIGHT DOOR

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Necessary preliminary tasks:

- Open front side window
- Remove **seal for door seam/roof frame** , see **51 21 360 Replacing seal for door seam/roof frame on left or right front door**.
- Remove **rear-view mirror** on front door, see **51 16 000 Removing and installing or replacing mirror on left or right front door**.

NOTE: Using special tool 00 9 323 , see 00 9 323 CLEANING WEDGE (SCRAPER) , start removing decorative strip (1) at front (A) and disengage at rear (B). Pull off decorative strip (1) in direction of arrow from retainers (2).

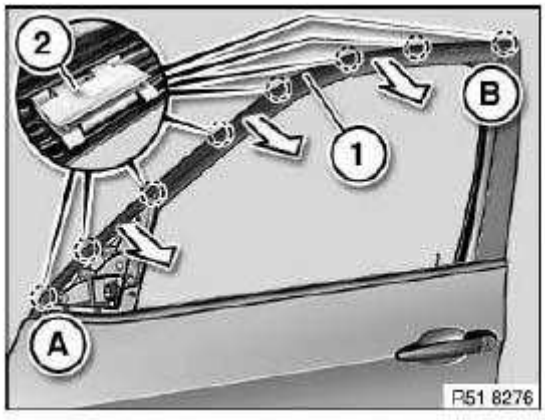


Fig. 360: Pulling Decorative Strip From Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty retainers (1 and 2) on decorative strip (3).

Make sure retainers are installed in correct positions.

1. Thin retainer (silver)
2. Thick retainer (black)

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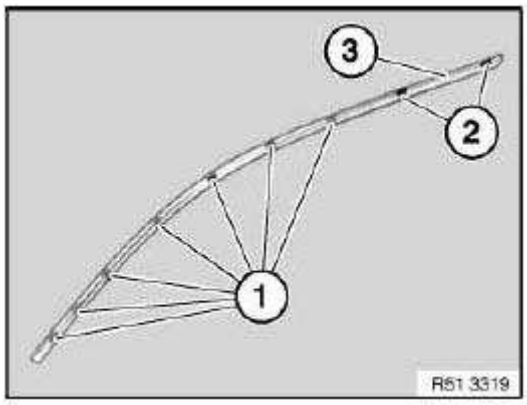


Fig. 361: Identifying Retainers On Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 32 420 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT DOOR WINDOW FRAME, LEFT OR RIGHT

Necessary preliminary tasks:

- Open door window.
- Detach **cover on door window frame** in B-pillar area, see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame** or **51 34 160 Removing and installing/replacing housing cover front left or right door window frame**.

  E53 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** or **51 21 330 Removing and installing/replacing window cavity cover strip on inner front door**.

Pull rubber window seal (1) out of rear window guide.

Release screws (2).

Lever out trim (3) in outward direction and feed out towards rear.

Installation:

Moisten rubber window seal (1) with water before fitting.

Make sure rubber window seal (1) is correctly seated.

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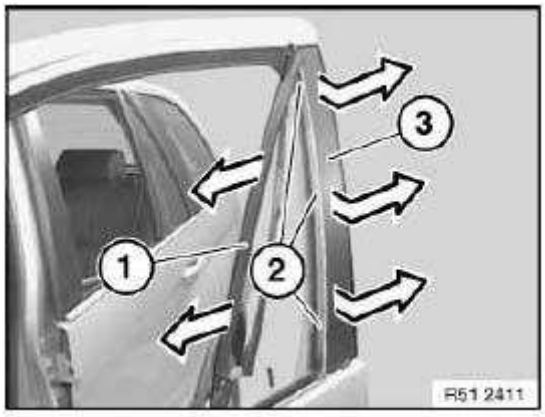


Fig. 362: Pulling Rubber Window Seal Out Of Rear Window Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty plastic nuts (1).



Fig. 363: Identifying Plastic Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

E53 only:

If necessary, replace faulty clip (1) on trim (2).

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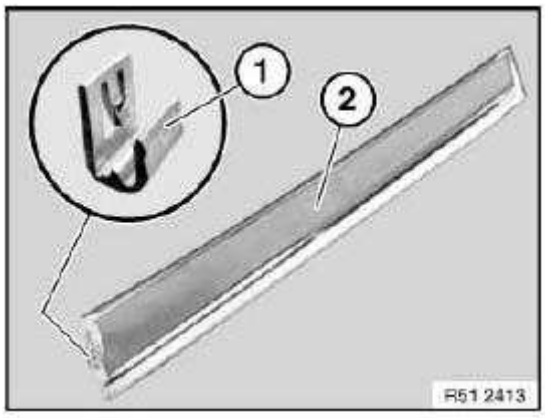


Fig. 364: Identifying Clip On Trim
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT ELECTRICALLY OPERATED WIDOWS

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.

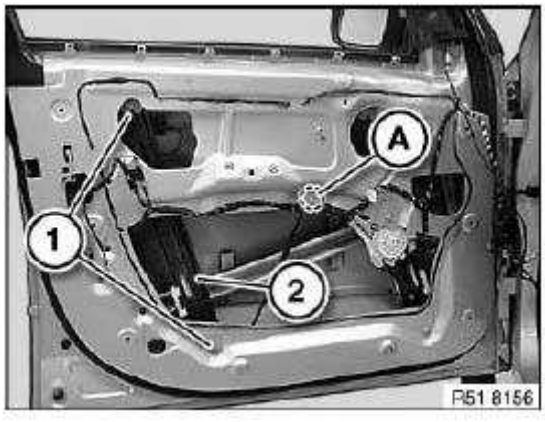
Necessary preliminary tasks:

- Remove **front door window glass** , see **51 32 170 Removing and installing/replacing door window glass, front left or right**.

Release cable in area (A) from holder.

Release nuts (1) and feed out rear section of power window unit (2).

Tightening torque **51 33 1AZ** , see **51 33 POWER WINDOWS, FRONT** .



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Fig. 365: Identifying Power Window Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts (1) and feed out front section of power window unit (2).

Tightening torque **51 33 1AZ** , see **51 33 POWER WINDOWS, FRONT** .

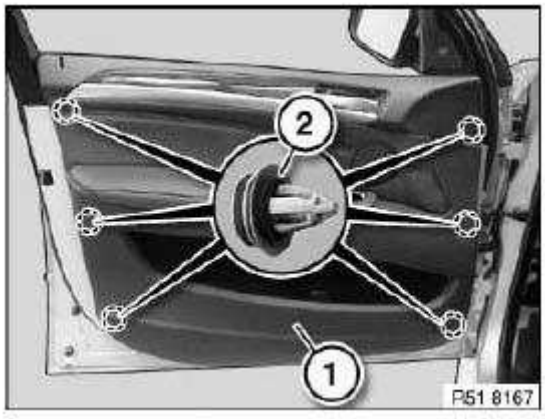


Fig. 366: Identifying Power Window Unit With Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Release screws (1 to 3) and remove flat motor (4).

Installation:

To avoid distortion, observe screw-in sequence.

1. Screw (1)
2. Screw (2)
3. Screw (3)

Tightening torque **51 33 2AZ** , see **51 33 POWER WINDOWS, FRONT** .

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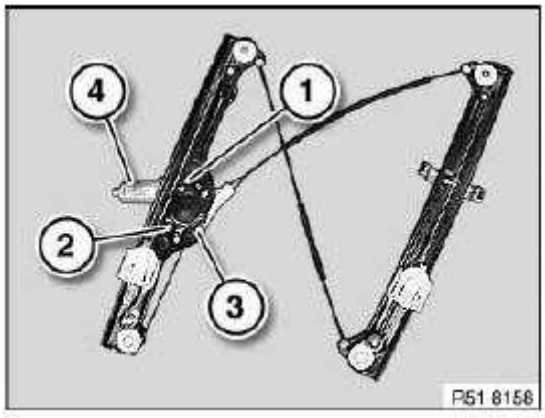
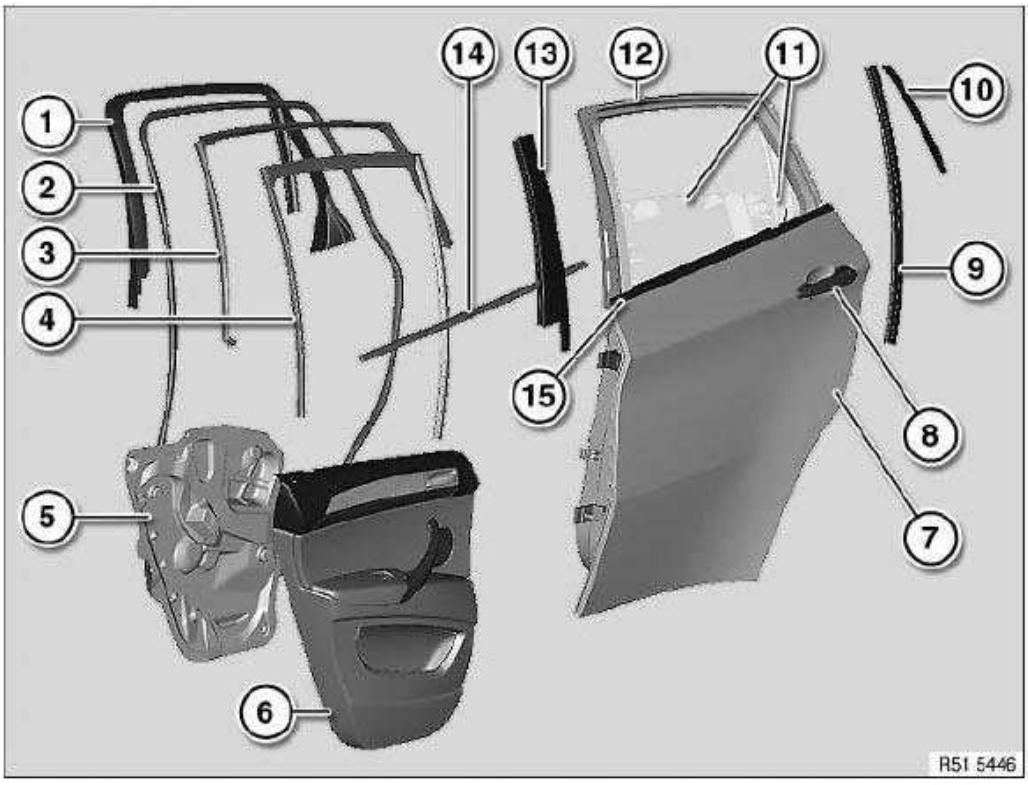


Fig. 367: Identifying Flat Motor Screws Tightening Sequence
Courtesy of BMW OF NORTH AMERICA, INC.

REAR MANUALLY OPERATED WINDOWS

51 00 ... OVERVIEW OF REAR DOOR

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1	Inner cover on door window frame	9	Trims for window guide
2	Seal on rear door	10	Trims on window frame, rear
3	Seal for door seam/roof frame	11	Windows
4	Rubber guide for door window glass	12	Decorative strip on upper window frame
5	Acoustic insulation in rear door	13	Trim on window frame, front
6	Door trim panel	14	Window cavity seal
7	Rear door	15	Window cavity cover strip
8	Door lock		

Fig. 368: Identifying Rear Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 ... REMOVING AND INSTALLING/REPLACING TRIM FOR WINDOW GUIDE OF LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Open rear side window
- Remove inner **window cavity seal** , see **51 22 351 Replacing window cavity seal on inner left or right rear door**.
- Release **cover on door window frame** , see **51 34 160 Removing and installing/replacing housing cover front left or right door window frame**.

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Pull out rubber guide (1) at trim (2).

Installation:

Moisten rubber guide (1) with water before fitting.

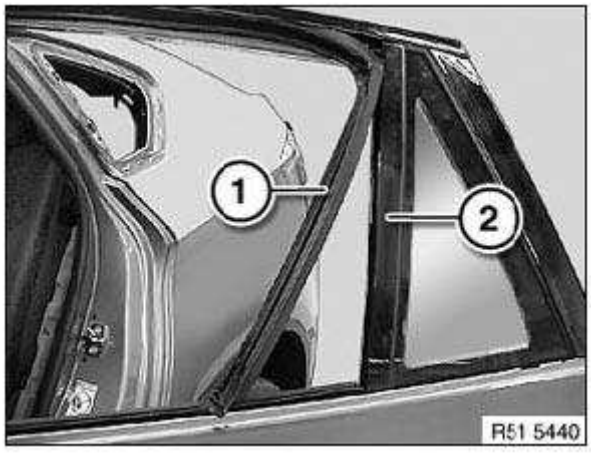


Fig. 369: Identifying Rubber Guide With Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (2).

Remove trim (1) for window guide in direction of arrow.

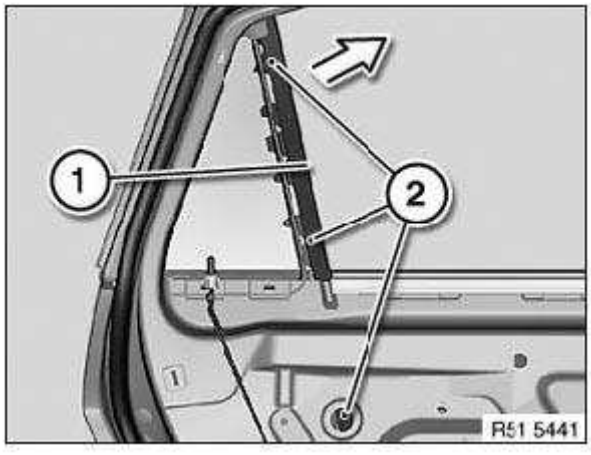


Fig. 370: Removing Trim For Window Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

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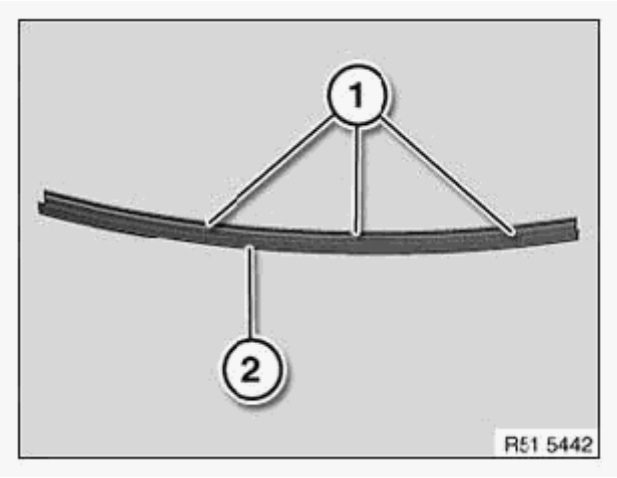


Fig. 371: Identifying Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 160 REMOVING AND INSTALLING/REPLACING HOUSING COVER FRONT LEFT OR RIGHT DOOR WINDOW FRAME

Necessary preliminary tasks:

- Open door window.
- Remove **rear door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.

If necessary, pull off hooks (1) in outward direction.

Release cover (2) at retainers (3).



Fig. 372: Identifying Cover Retainers With Hooks
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip cover (1) in direction of arrow, lever out and remove.

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Installation:

Make sure cover (1) is correctly seated on seal (2).

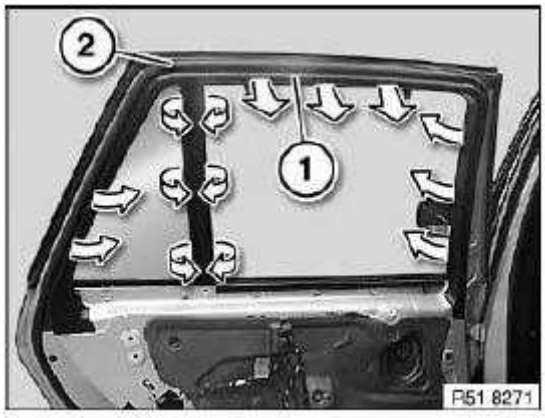


Fig. 373: Uncoupling Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 171 REPLACING REAR LEFT OR RIGHT DOOR WINDOW

Necessary preliminary tasks:

- Remove **sound insulation in rear door** , see **51 48 070 Removing and installing/replacing sound insulation on left or right rear door**.
- Remove inner **window cavity cover strip** , see **51 22 351 Replacing window cavity seal on inner left or right rear door**.
- Remove **trim for rear door window guide** , see **51 34 ... Removing and installing/replacing trim for window guide of left or right rear door**.

Open door window glass (1) down to distance (A)

NOTE: Open door window glass to such an extent that the sliding member of the door window glass holder is at the height of the elongated hole of the power window unit.

A= approx. 130 mm

E71:

A= approx. 60 mm

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Fig. 374: Identifying Door Window Glass Distance
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of injury by trapping!
Disconnect plug connection (1) at power window motor (2).

Carefully press catch (3) with screwdriver (4) towards rear and feed out door window glass upwards.

Installation:

Catch (3) must be correctly clipped into place.

Carry out function check on power window unit and antitrapping protection.

If necessary, **normalize** power window unit, see **67 62 000 REMOVING AND INSTALLING/REPLACING FLAT MOTOR FOR FRONT LEFT OR RIGHT POWER WINDOW UNIT** .

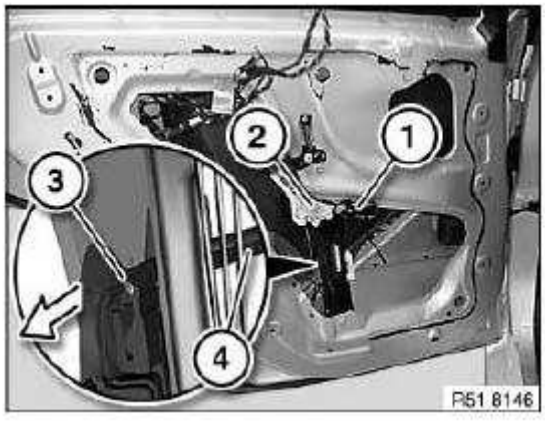


Fig. 375: Pressing Catch With Screwdriver
Courtesy of BMW OF NORTH AMERICA, INC.

Remove door window glass (1) towards top.

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Installation:

Door window glass does not need to be adjusted.



Fig. 376: Removing Door Window Glass Towards Top
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 211 REPLACING RUBBER GUIDE FOR REAR LEFT OR RIGHT DOOR WINDOW

Necessary preliminary tasks:

- Remove **cover on inside of door window frame** , see **51 34 160 Removing and installing/replacing housing cover front left or right door window frame**.
- Remove **inner window cavity cover strip** , see **51 22 351 Replacing window cavity seal on inner left or right rear door**.

IMPORTANT: The "Instructions on fitting window guide seals" serve as the basis for this repair instruction and must be observed without fail, see 51 00 ... Notes on fitting window guide seals.

Pull rubber guide (1) at side out of window guides.

Feed rubber guide (1) at top out of window frame.

Installation:

Moisten rubber guide (1) for side fitting with **approved anti-friction agent.** , see **51 00 ... Notes on fitting window guide seals**.

If necessary, retract door window glass approx. 50 mm into rubber guide (1).

Open door window glass and at same time slide rubber guide (1) downwards.

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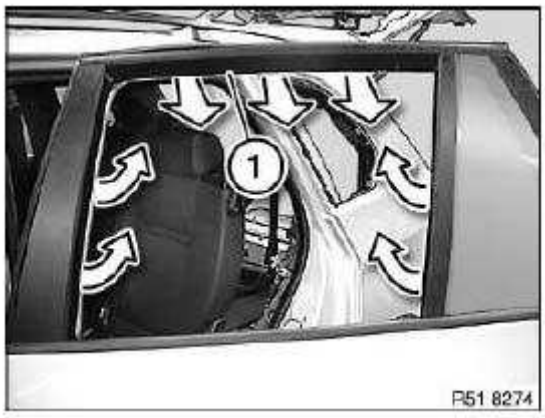


Fig. 377: Pulling Rubber Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Seal (1) must not be damaged or missing.

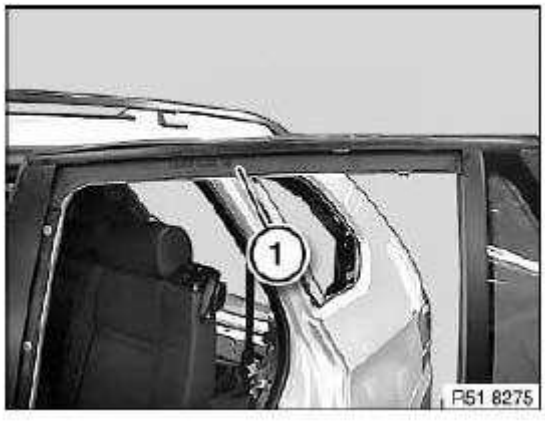


Fig. 378: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 380 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON REAR DOOR (TOP), LEFT OR RIGHT

Starting at rear, pull off seal (1) towards front.

Installation:

Moisten seal (1) with water before fitting.

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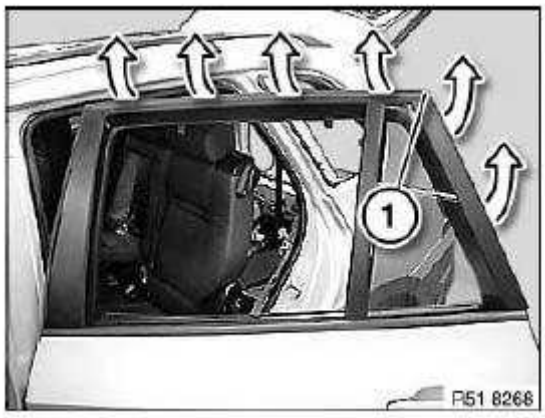


Fig. 379: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip decorative strip (1) at retainers (2) in outward direction.

Installation:

If necessary, replace faulty retainers (2).

Make sure decorative strip is correctly seated on all seals.

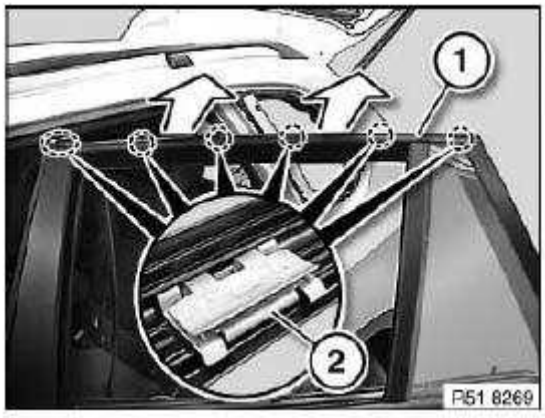


Fig. 380: Uncoupling Decorative Strip At Retainers In Outward
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 420 REMOVING AND INSTALLING/REPLACING TRIM ON WINDOW FRAME OF REAR DOOR (FRONT), LEFT OR RIGHT

Necessary preliminary tasks:

- Open rear side window
- Release **cover on door window frame** , see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**.

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Detach rubber seal (1) and rubber guide (2) from trim.

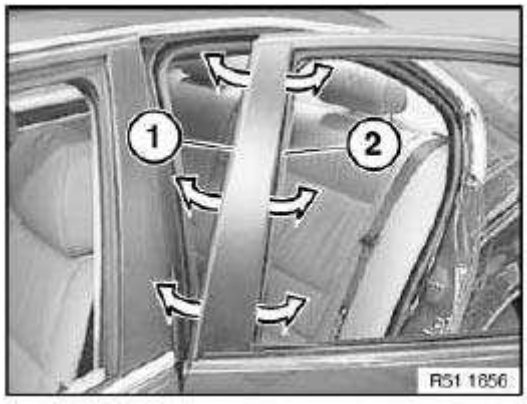


Fig. 381: Identifying Rubber Seal And Rubber Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Carefully detach trim (2) towards front/top.

Installation:

Moisten rubber window seal prior to fitting with water.

Fitted foam pieces must not be damaged when trim (2) is pushed in.

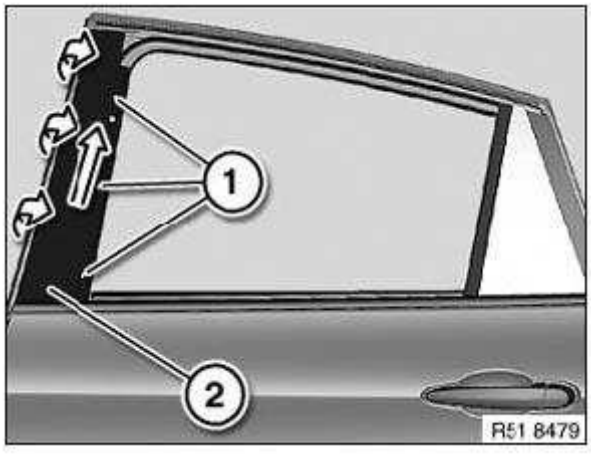


Fig. 382: Detaching Trim Towards Front/Top
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty plastic nuts (1).

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Make sure rubber window seal is correctly seated.

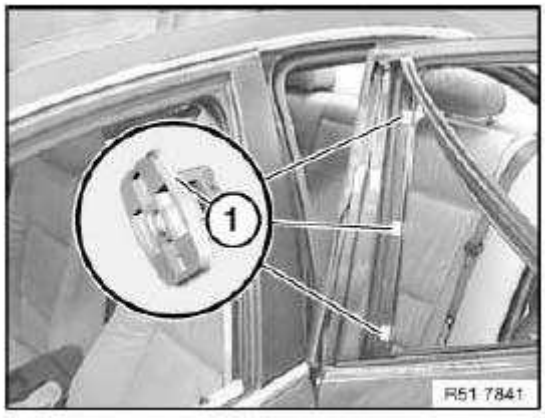


Fig. 383: Identifying Faulty Plastic Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

51 34 425 REMOVING AND INSTALLING/REPLACING TRIM ON WINDOW FRAME OF REAR DOOR (REAR), LEFT OR RIGHT

Detach seal (1) from trim (3).

Release screws (2).

Remove trim (3) towards rear.

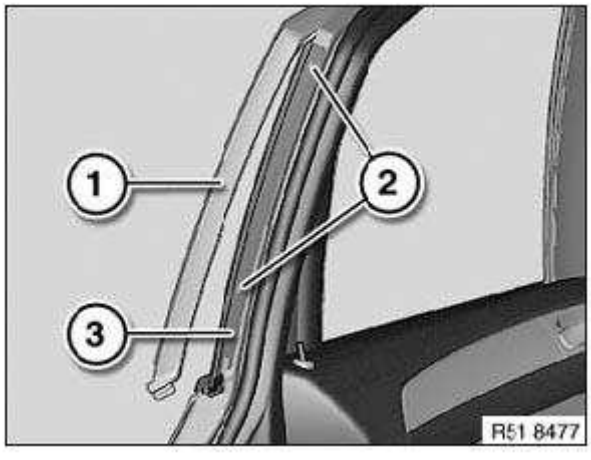


Fig. 384: Detaching Seal From Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Trim (1) must be located over side window frame (2).

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Ensure seal (3) is correctly seated.

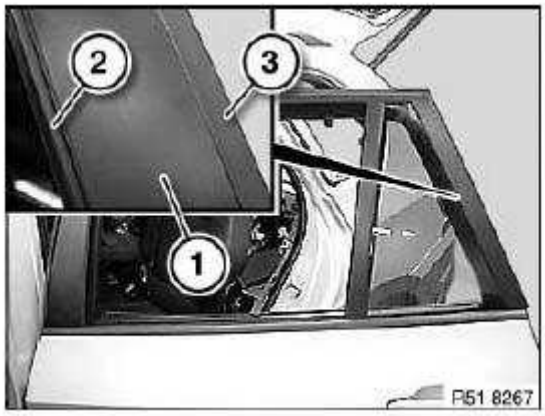


Fig. 385: Identifying Side Window Frame With Seal
Courtesy of BMW OF NORTH AMERICA, INC.

REAR ELECTRICALLY OPERATED WINDOWS

51 37 000 REMOVING AND INSTALLING/REPLACING COMPLETE REAR LEFT OR RIGHT POWER WINDOW UNIT

Necessary preliminary tasks:

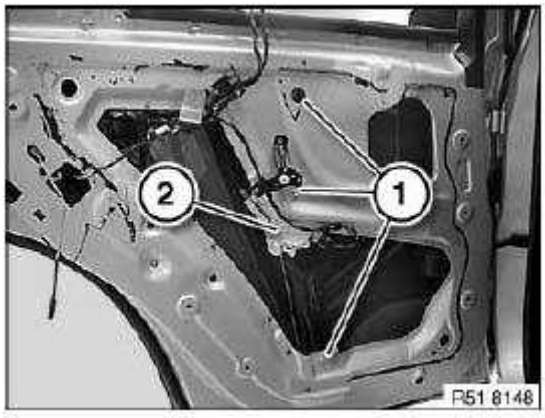
- Remove **rear door window glass** , see **51 34 171 Replacing rear left or right door window**.

Release nuts (1) and feed out power window unit (2).

Tightening torque **51 35 2AZ** , see **51 35 POWER WINDOWS, REAR** .

Replacement

Remove **flat motor.** , see **67 62 020 REMOVING AND INSTALLING/REPLACING FLAT MOTOR FOR REAR LEFT OR RIGHT POWER WINDOW UNIT** .



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Fig. 386: Identifying Power Window Unit Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

HINGED WINDOW

51 36 056 REMOVING AND INSTALLING/REPLACING TRIM STRIP ON SIDE WINDOW ON REAR LEFT OR RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

NOTE: Trim strip (1) must not be bent during removal.

Starting at bottom, unclip trim strip (1) from lugs (2) in succession with special tool **00 9 317** .

Installation:

Lugs (2) must not be missing or damaged.

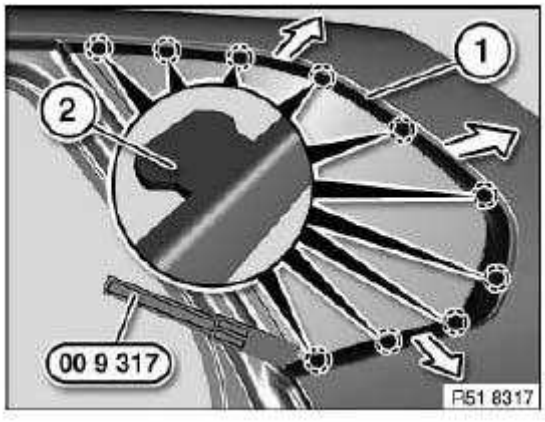


Fig. 387: Identifying Trim Strip With Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

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.

51 36 071 REPLACING REAR LEFT OR RIGHT SIDE WINDOW

Special tools required:

- **00 9 322**

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- **51 3 220**
- **51 3 270 BODY EQUIPMENT - SPECIAL TOOLS**

IMPORTANT: Instructions for window cementing are an essential part of these repair instructions and must be followed without fail, see 51 31 ... Instructions on gluing windscreen.
Cover rear side panels with protective covers.
The side window can be reused only if the PVC spraycoating is undamaged.

Necessary preliminary tasks:

- Remove **capping in luggage compartment** , see **51 47 157 Removing and installing/replacing cover for left or right capping in luggage compartment**.
- Remove **panel for roof pillar** at rear (D-pillar), see **51 43 251 Removing and installing or replacing trim panel for left or right rear roof pillar (C-pillar)**.
- Remove **panel for roof pillar** (C-pillar), see **51 43 251 Removing and installing or replacing trim panel for left or right rear roof pillar (C-pillar)**.
- Release **belt** , see **72 11 092 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT SEAT BELT** .
- Remove **strip on side window** , see **51 36 056 Removing and installing/replacing trim strip on side window on rear left or right**.

IMPORTANT: Risk of damage!

Tape off body in area of piercing point with fabric adhesive tape.

Moisten PVC spray-coating with water so that cutting wire can slide between body and side window and PVC spraycoating is not damaged.

Push wire starter from **Roll Out 2000** at line (1) through adhesive bead, see **51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000"**.

Feed in cutting wire, secure special tool 51 3 270 and cut through adhesive bead in direction of arrow.

Remove side window and replace.

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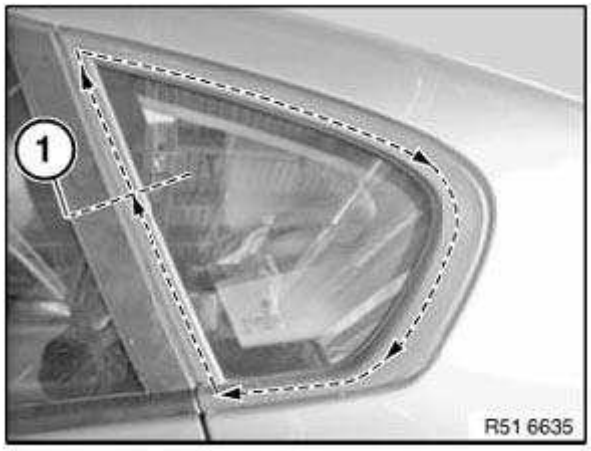


Fig. 388: Identifying Wire Starter
Courtesy of BMW OF NORTH AMERICA, INC.

Fitting 3 dual-lock tapes

Remove rest of dual-lock tapes (1) and clean bonding area.

Stick new dual-lock tapes (1) to body.

Dual-lock tapes on side window must match these dual-lock tapes.

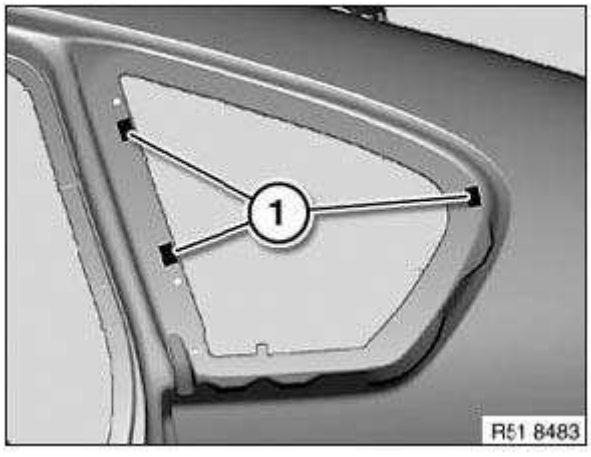
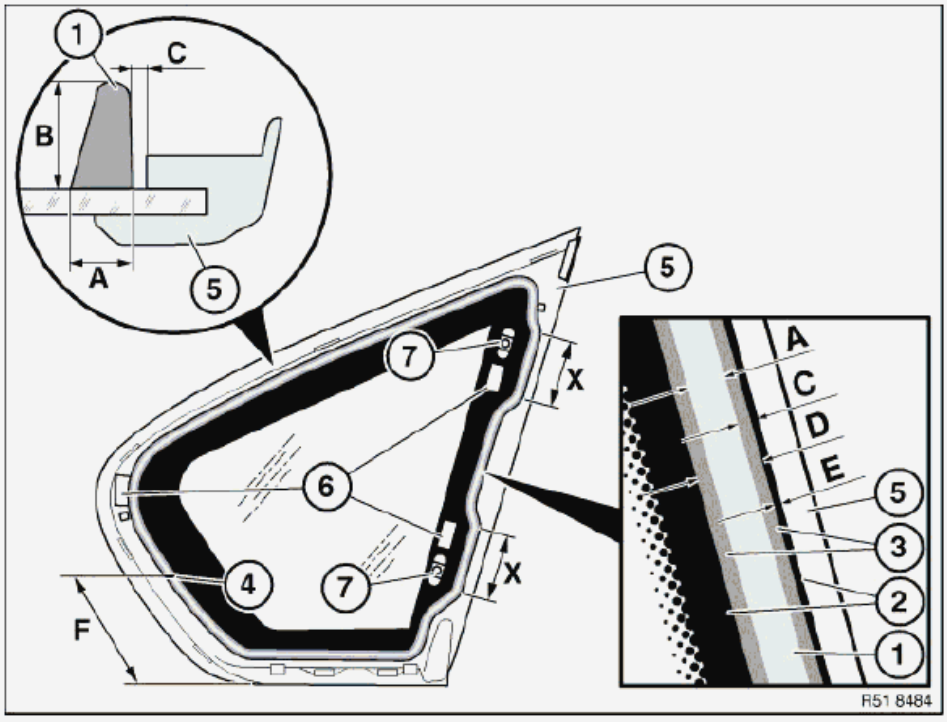


Fig. 389: Identifying Dual-Lock Tapes
Courtesy of BMW OF NORTH AMERICA, INC.

Overview for side window cementing (E71)

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1	Adhesive bead	A	8 ± 2 mm (width of adhesive bead)
2	Ceramic layer	B	12 $_{-2}$ mm (height of adhesive bead)
3	Primer coat	C	2 $^{+1}$ mm (spacing 1 to 5; observe area "X")
4	Application point of adhesive bead	D	20^{+2} mm (width of primer trace)
5	PVC spray-coating	E	0 mm (spacing from 3 to 5)
6	Dual-lock tapes	F	approx. 90 mm (spacing 4 to 5)
7	Positioning pins (only on new window)	X	C = 4 mm

Fig. 390: Overview For Side Window Cementing (E71)
Courtesy of BMW OF NORTH AMERICA, INC.

Moisten suction surface of special tool 51 3 220 and secure to door window glass. Set down door window glass on a suitable surface.

If reusing the previous side window, remove residual adhesive down to 0.5 mm.

Almost vertical part (B) of adhesive bead (1) must face PVC spray-coating (5).

In area (X) of positioning pins (7) spacing (C) of adhesive bead (1) to PVC spray-coating (5) must be increased to 4 mm.

Spread adhesive bead (4) with special tool **00 9 322** .

Fit side window (1) with positioning pins (2).

Insert side window (1) completely.

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Close rear door.

Adapt side window (1) to rear door if necessary.

Snap side window into dual-lock tapes and secure with yellow plastic adhesive tape*.

* (Sourcing reference: BMW Parts Service)

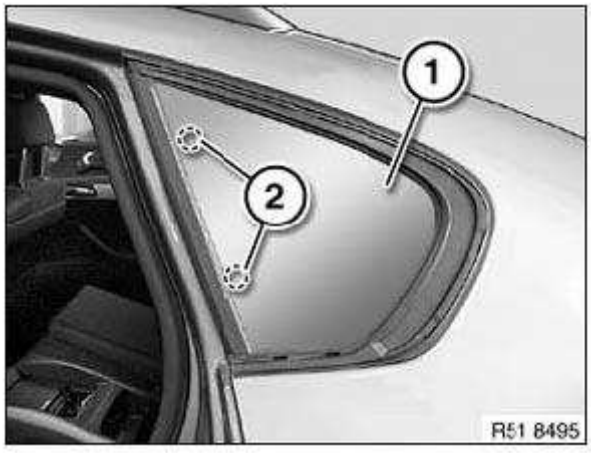


Fig. 391: Identifying Side Window With Pins
Courtesy of BMW OF NORTH AMERICA, INC.

ELECTRICAL POWER WINDOW

51 31 ... INSTRUCTIONS ON GLUING WINDSCREEN

IMPORTANT: The "1-hour" system will be introduced from 03/2009.

Two different adhesive systems are described and identified accordingly in the following:

"1-day system"

"1-hour system"

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

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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, see **62 30 517 ADJUSTING HEAD-UP DISPLAY**

  Version with front passenger airbag:

- Stick on reminder label

Tools for cutting through adhesive bead

PART NUMBER REFERENCE

Type	Type	Order/part number
Special cutter (manufacturer: Fein) with oscillating blade	Pneumatically operated Electrically operated	81 43 9 429 183 81 43 9 427 786

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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" , see **51 31 ... REMOVING WINDSCREEN WITH "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** , see **51 3 270 PULL HANDLES**
(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.

- **1-day system:** Adhesive cartridge* (part number 83 19 0 152 031)

1-hour system: Adhesive cartridge* (part number 83 19 0 444 144)

* 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, 3-hour system)

- Temperature (min. 80 ± 5°C) of cartridge oven must be checked every morning. Connect temperature sensor to DIS (Diagnosis and Information System) or to ISID (Integrated Service Information Display), if

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necessary 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
  - 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 (3-hour system)

Accelerator is screwed onto the adhesive cartridge and contains a reaction paste which is mixed with the heated

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adhesive.

IMPORTANT: The accelerator may only be paired with the adhesive cartridge of an unopened 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:

1-day system

- "Glass Activator 1" (on glass ceramic material)
- "Paint Activator A" (on sheet metal flange or residual adhesive bead)

1-hour system

- "Glass Activator 2" (on glass ceramic material), yellow stick, BMW part number: 83 19 0 144 142
- "Paint Activator B" (on sheet metal flange), blue stick, BMW part number: 83 19 0 154 458

Prepare Glass Activator 2 and Paint Activator B for processing by shaking and snapping (breaking glass ampoule).

Apply Glass Activator (2) by pressing gently. There is no need for final wiping. Ventilation time approx. 2 minutes.

Apply Paint Activator B by pressingly gently. Then wipe dry with a paper towel (available in a set).

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).

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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" , see 51 31 ... REMOVING WINDSCREEN WITH "ROLL OUT 2000".

Cover side panels, roof aerial 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"**.
- 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

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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 (coating thickness 30 ... 40 µm).

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

GLUED AREA REFERENCE

Adhesive	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 5 minutes (at least 15 minutes when applied to residual bead) c. **1-day system:** Apply "Paint Activator A" to paint and residual bead d. **1-hour system:** Apply "Paint Activator B" (blue stick) to paint e. Observe an air drying time of at least 5 minutes (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.

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- 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.

1-day system: Treatment of glass ceramic surface (inside of window)

TREATMENT OF GLASS CERAMIC SURFACE

Adhesive (with part numbers)	Treatment
Hot cementing: ○ 83 19 0 147 370 Cold cementing: ○ 83 19 0 147 369 Adhesive cartridge: ○ 83 19 0 152 031	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

1-hour system: Treatment of glass ceramic surface (inside of window)

TREATMENT OF GLASS CERAMIC SURFACE

Adhesive (with part numbers)	Treatment
Glass Activator 2 (yellow stick): ○ 83 19 0 144 142	a. Clean with spirit (available in pharmacies). b. Observe an air drying time of at least 5 minutes c. Apply a thin coating of "Glass Activator 2" d. Observe an air drying time of at least 2 minutes

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 required to cement the windscreen on the following vehicles:

- 7 Series
- 5 Series from E60
- X5

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- X3

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

ADHESIVE REFERENCE

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 aerial (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:

- 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

IMPORTANT: 1-day system:

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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.
1-hour system:
Once the adhesive bead has been applied, the windscreen must be installed within 7 minutes (depending on air humidity, temperature).
After 7 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 9 410 479).
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, see **51 0 010 TEST GAUGE FOR WINDSCREEN AND REAR WINDOW INSTALLATION** .

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 curb
- lifting platform

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- etc.

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

1-day system: Glues and their minimum hardening times

ADHESIVE REFERENCE

Adhesive	**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*
Cold processing	9 hours	20 hours*

1-hour system: Glues and their minimum hardening times:

ADHESIVE REFERENCE

Adhesive	**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)**
Cold processing	1 hour	2 hours*
NOTE: ***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:

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- **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:

- Recalibrate magnetic field sensor
- Refer to function description in ISID (Integrated Service Information Display)

Version with rain sensor, rain/light sensor or rain/light solar sensor

Remove complete rain sensor, rain/light sensor or rain/light solar sensor, see **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR** .

After replacing windscreen:

- Initialize rain sensor, rain/light sensor or rain/light solar sensor, see **61 35 685 REPLACING RAIN/LIGHT SOLAR SENSOR** .
- Refer to function description in ISID (Integrated Service Information Display)

Version with automatic air conditioning

After replacing windscreen:

If fogging sensor is not mounted on new windscreen:

Replace fogging sensor, refer to **64 11 970 REPLACING FOGGING SENSOR (UP TO 10/2008)** .

Version with head-up display (HUD)

When replacing windscreen in vehicles with rain/light solar sensor, replace this completely: refer to **62 30 517 ADJUSTING HEAD-UP DISPLAY** .

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, see **62 30 517 ADJUSTING HEAD-UP**

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DISPLAY .

Work steps for removing and installing windscreens

refer to **51 31 000 Removing and installing/replacing windscreen**.

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.

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**.

Release nuts (1) and feed out power window unit (2).

Tightening torque **51 35 2AZ** , see **51 35 POWER WINDOWS, REAR** .

Replacement

Remove **flat motor** , see **67 62 020 REMOVING AND INSTALLING/REPLACING FLAT MOTOR FOR REAR LEFT OR RIGHT POWER WINDOW UNIT** .

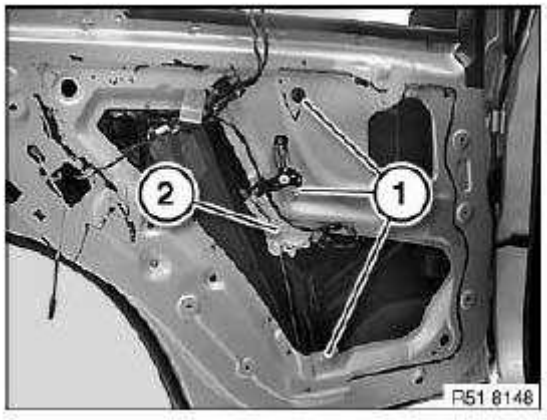
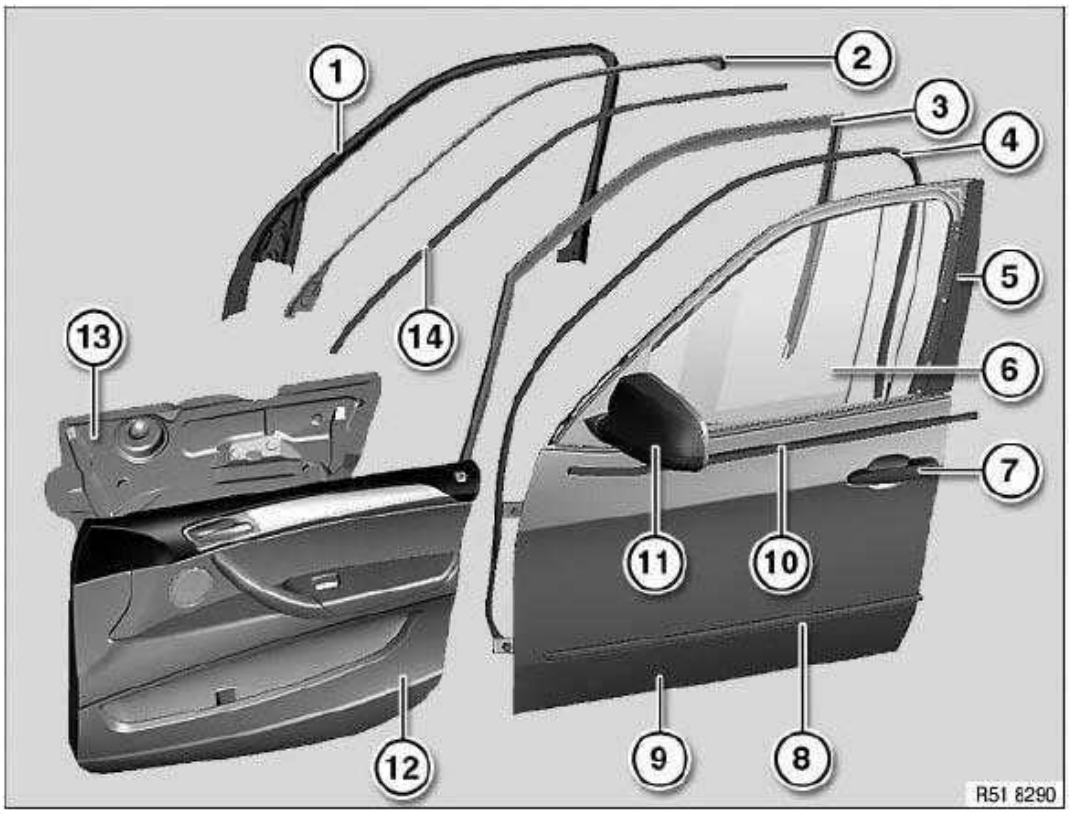


Fig. 392: Identifying Power Window Unit Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT DOOR TRIM PANEL WITH ARM REST

51 00 ... OVERVIEW OF FRONT DOOR

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1	Inner cover on door window frame	8	Rubbing strip on front door X5 only
2	Seal for door seam/roof frame	9	Front door
3	Rubber guide for door window glass	10	Window cavity cover strip
4	Seal on front door	11	Outside mirror
5	Trim on window frame	12	Door trim panel
6	Windows	13	Acoustic insulation in front door
7	Door lock	14	Decorative strip on window frame

Fig. 393: Identifying Front Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 41 000 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT DOOR TRIM PANEL

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .
- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Necessary preliminary tasks:

Driver's side only:

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- Remove **power window switch** , see **61 31 117 REMOVING AND INSTALLING/REPLACING POWER WINDOW SWITCH (DRIVER'S SIDE)** .

  Passenger side only:

- Remove **cover on door handle** , see **51 42 017 Removing and installing/replacing cover on door handle, rear left or right**.

Release trim (1) with special tool **00 9 323** in direction of arrow from catches (2) and remove.

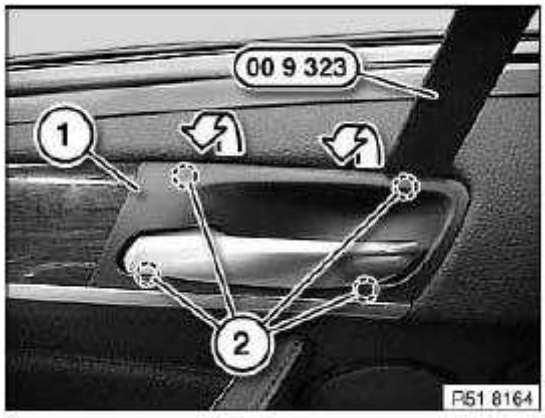


Fig. 394: Identifying Trim With Special Tool (00 9 323)
Courtesy of BMW OF NORTH AMERICA, INC.

Driver's side:

Release screws (1 and 2).

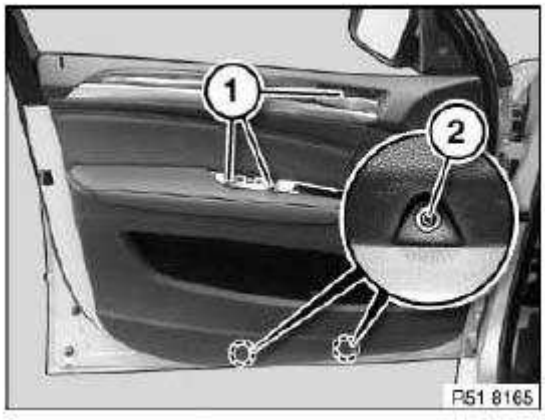


Fig. 395: Identifying Driver's Side Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Passenger side:

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Release screws (1 and 2).

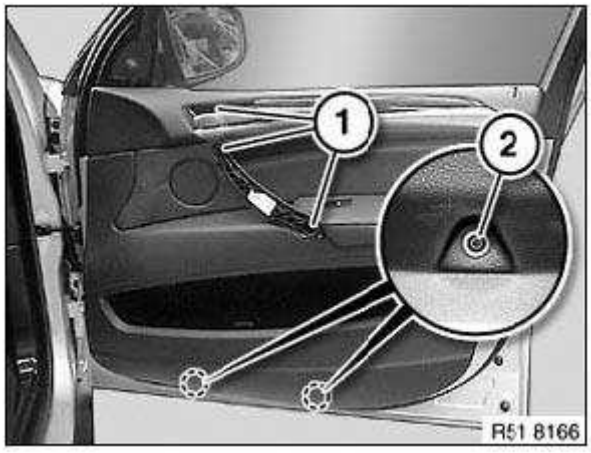


Fig. 396: Identifying Passenger's Side Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip door trim panel (1) at clips (2) with special tool **00 9 317** .

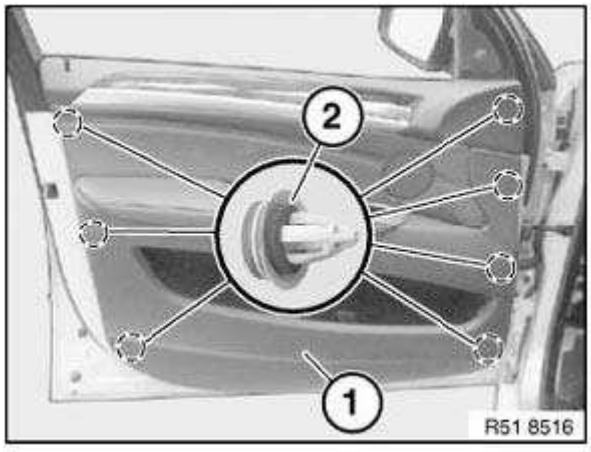


Fig. 397: Identifying Door Trim Panel Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip door trim panel (1) at top from retainers (2).

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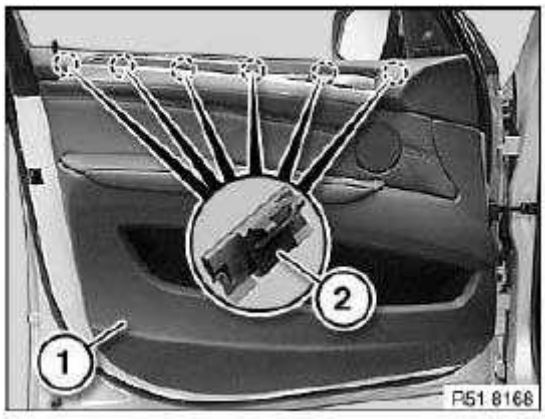


Fig. 398: Identifying Unclip Door Trim Panel With Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Unhook Bowden cable (1) from door lock (2).

Disconnect all plug connections and remove door trim panel.

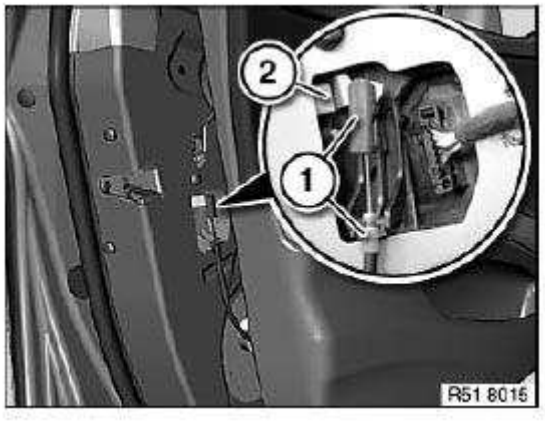


Fig. 399: Identifying Bowden Cable And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

- Remove **speakers (1)** , see **65 13 050 REMOVING AND INSTALLING/REPLACING SPEAKER (TWEETER, FRONT DOOR)** or **65 13 070 REMOVING AND INSTALLING/REPLACING SPEAKER (FRONT MID-RANGE SPEAKER IN DOOR TRIM PANEL)** .
- Remove **decorative strip (2), see 51 42 030 Removing and installing/replacing decorative strip on rear left or right door trim panel.**

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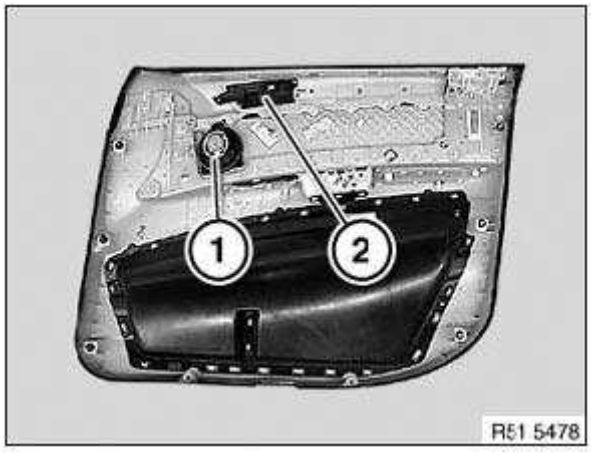


Fig. 400: Identifying Speakers And Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: After each removal, all light blue clips (2) must be replaced.

Installation:

If necessary, replace faulty clips (1).

Fit all clips with sealing ring.

Make sure clips are installed in correct position.

1. Grey clip
2. Light blue clip

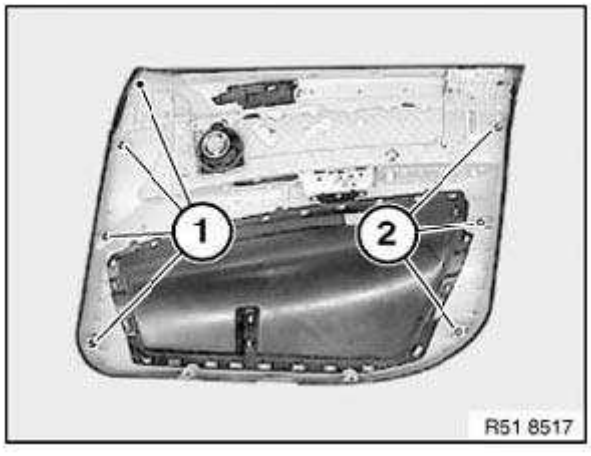


Fig. 401: Identifying Grey Clip And Light Blue Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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After assembling the door trim panel proceed as follows:

51 41 017 REMOVING AND INSTALLING/REPLACING COVER ON FRONT RIGHT DOOR HANDLE (PASSENGER SIDE)

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

IMPORTANT: Risk of damage!
Before using special tools, check them for damage and if necessary eliminate sharp edges.

Lever out cover (1) with special tool **00 9 317** .

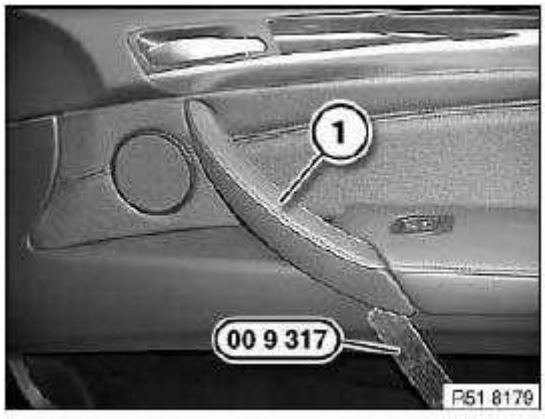
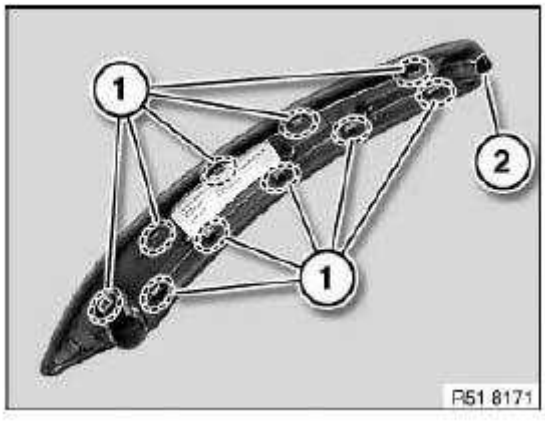


Fig. 402: Levering Out Cover With Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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



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Fig. 403: Identifying Catches With Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 41 030 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON FRONT LEFT OR RIGHT DOOR TRIM PANEL

Necessary preliminary tasks:

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

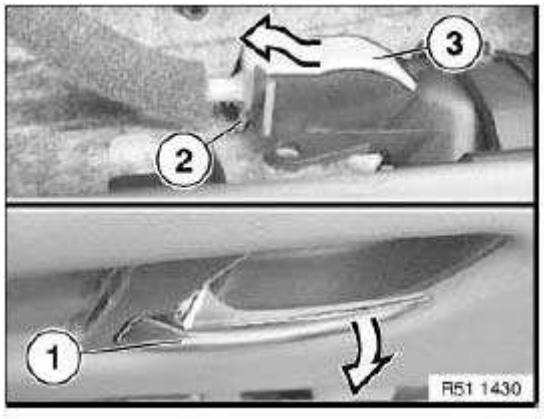


Fig. 404: Identifying Bowden Cable And Release Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws (1) and nuts (2).

Feed out decorative strip with inside door handle (3).

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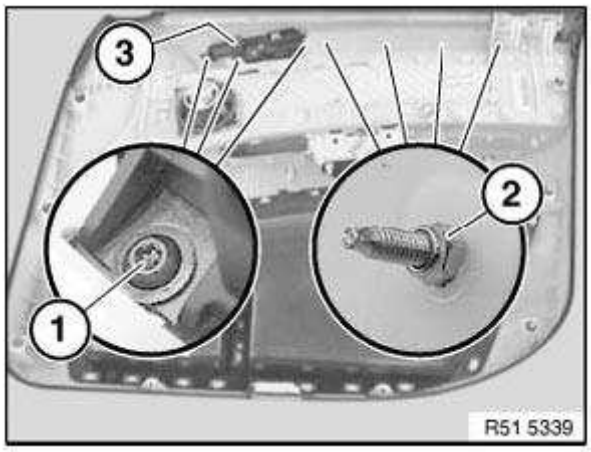


Fig. 405: Identifying Door Handle Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release nut (1) and remove inside door handle (2) from decorative strip (3).

Installation:

Threaded pins (4) must not be damaged.

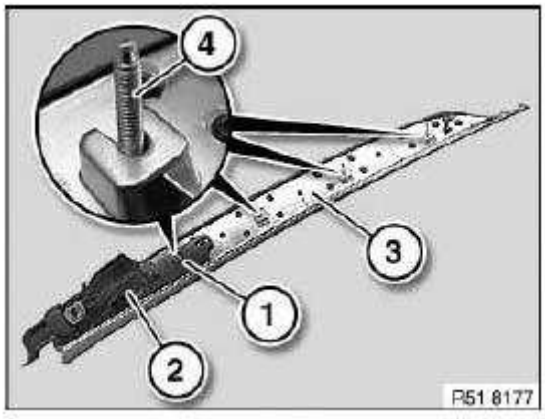


Fig. 406: Identifying Inside Door Handle And Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 48 060 REMOVING AND INSTALLING/REPLACING SOUND INSULATION IN LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

Using a scalpel, cut through sealing bead (1) completely of if necessary partially.

Feed out sound insulation (3) at cable (2) and remove.

Installation:

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Ensure clean bonding and that there are no leaks at sealing bead.

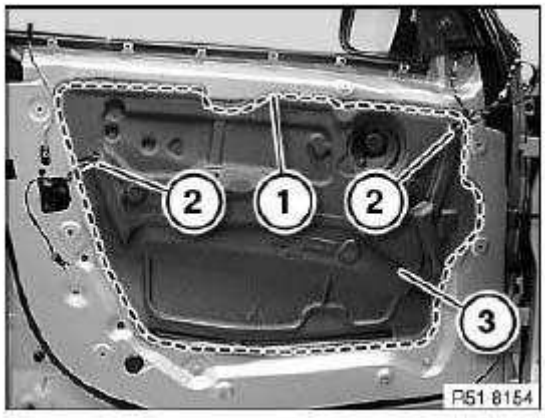


Fig. 407: Identifying Sealing Bead Area
Courtesy of BMW OF NORTH AMERICA, INC.

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 sound insulation (2).

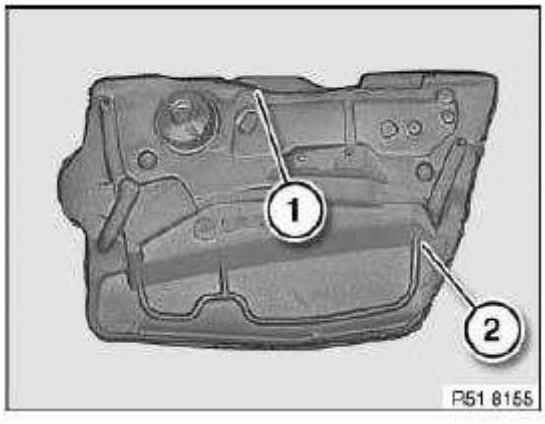


Fig. 408: Identifying Butylene Tape On Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

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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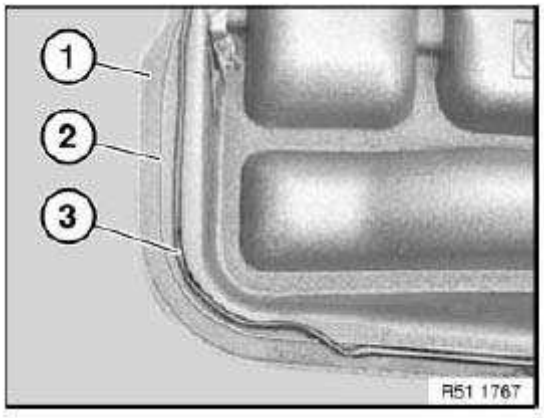


Fig. 409: Identifying Sound Insulation And Butylene Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Clean adhesive area on inner door panel with adhesive cleaner (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 6 mm dia. butylene tape in a single row (sourcing reference: BMW Parts Service) in specified adhesive area on acoustic insulation.

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

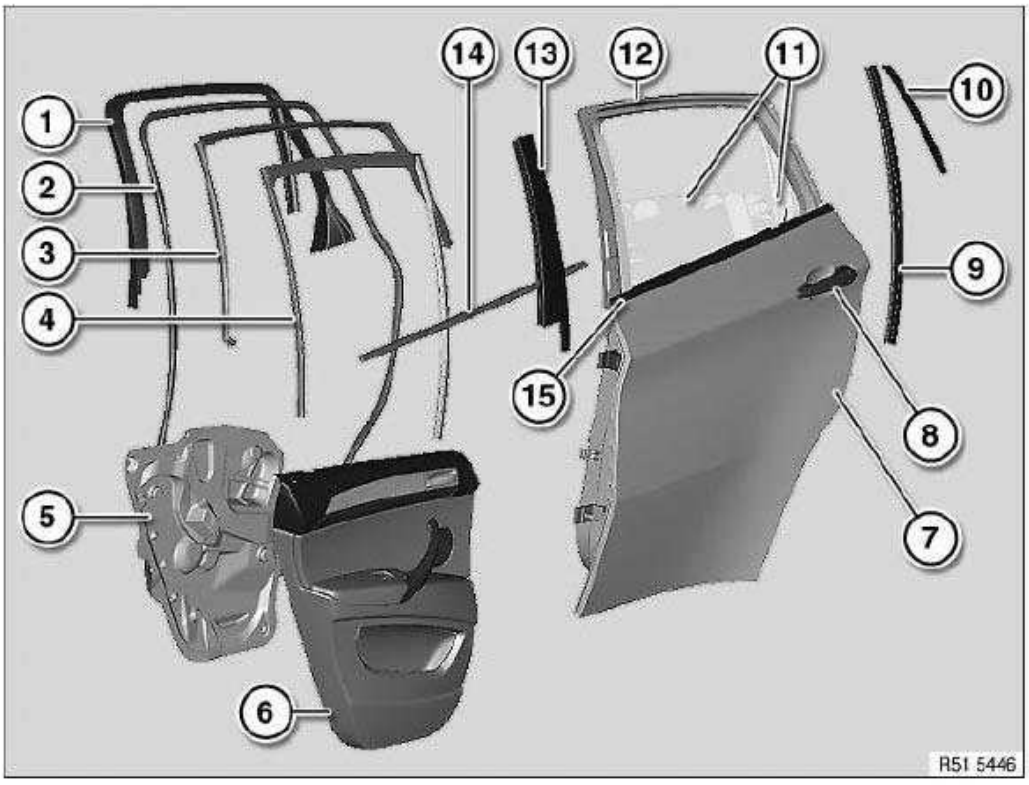
Manual contact pressure: approx. 10 N/cm 2

NOTE: Firm thumb pressure has approx. 50 N/cm^2

REAR DOOR TRIM PANEL WITH ARM REST

51 00 ... OVERVIEW OF REAR DOOR

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1	Inner cover on door window frame	9	Trims for window guide
2	Seal on rear door	10	Trims on window frame, rear
3	Seal for door seam/roof frame	11	Windows
4	Rubber guide for door window glass	12	Decorative strip on upper window frame
5	Acoustic insulation in rear door	13	Trim on window frame, front
6	Door trim panel	14	Window cavity seal
7	Rear door	15	Window cavity cover strip
8	Door lock		

Fig. 410: Identifying Rear Door Components
Courtesy of BMW OF NORTH AMERICA, INC.

51 42 ... REMOVING AND INSTALLING/REPLACING SPEAKER TRIM (TWEETER) ON REAR LEFT OR RIGHT DOOR TRIM PANEL

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Unclip speaker trim (1) with special tool **00 9 323** .

Installation:

Speaker trim (1) can only be installed in one position.

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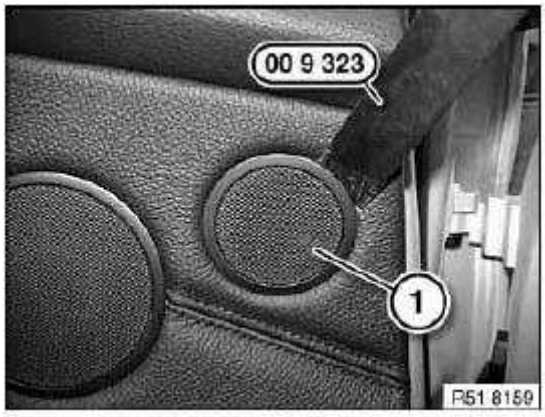


Fig. 411: Identifying Speaker Trim With Special Tool (00 9 323)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) and guide (2) must not be damaged.

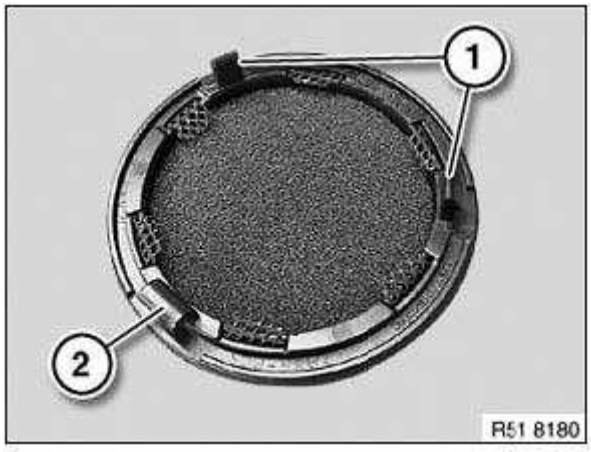


Fig. 412: Identifying Catches And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

51 42 ... REPLACING SPEAKER COVER ON REAR LEFT OR RIGHT DOOR TRIM PANEL (MID-RANGE SPEAKER)

Necessary preliminary tasks:

- Remove **door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.
- Remove **mid-range speaker** , see **65 13 090 REMOVING AND INSTALLING/REPLACING SPEAKER (MID-RANGE SPEAKER, DOOR AT REAR)** .

Remove plastic welded joints (1) on speaker cover (2) completely.

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Installation:

Speaker cover (2) can only be installed in one position.

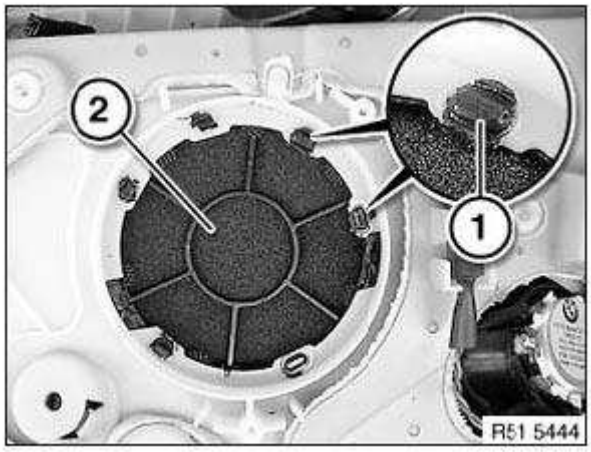


Fig. 413: Identifying Welded Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Attach speaker cover (1) to door trim panel.

Secure retainers (3) to plastic guides (2) so that speaker cover (1) rests fully on door trim panel.

NOTE: Shorten protruding plastic guides (2) by measurement (A).

(A) = 2 mm

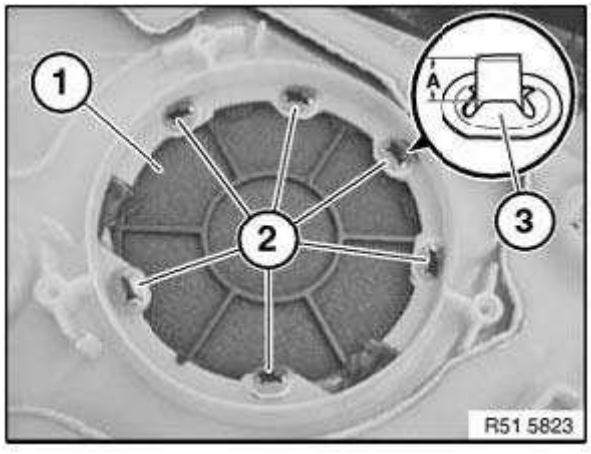


Fig. 414: Identifying Speaker Cover Plastic Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 42 000 REMOVING AND INSTALLING (REPLACING) REAR LEFT OR RIGHT DOOR TRIM PANEL

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Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .
- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Necessary preliminary tasks:

- Remove **cover on door handle** , see **51 42 017 Removing and installing/replacing cover on door handle, rear left or right**.

IMPORTANT: Risk of damage!
Before using special tools, check them for damage and if necessary eliminate sharp edges.

Release trim (1) with special tool **00 9 323** in direction of arrow from catches (2) and remove.

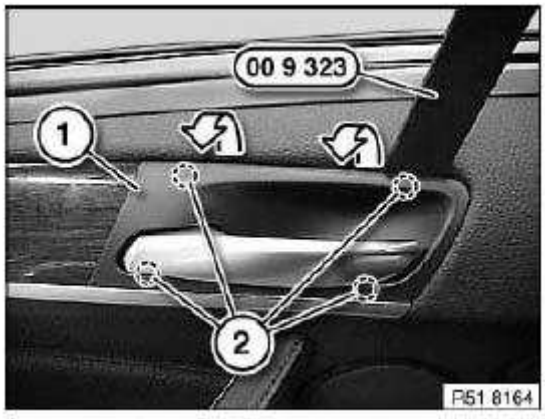


Fig. 415: Identifying Trim With Special Tool (00 9 323)
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of mixing up
Different screws fitted.

Release screws (1), (2) and (3).

Remove **footwell light** (4), see **63 31 020 REMOVING AND INSTALLING/REPLACING FOOTWELL LIGHT (FOOTWELL)** .

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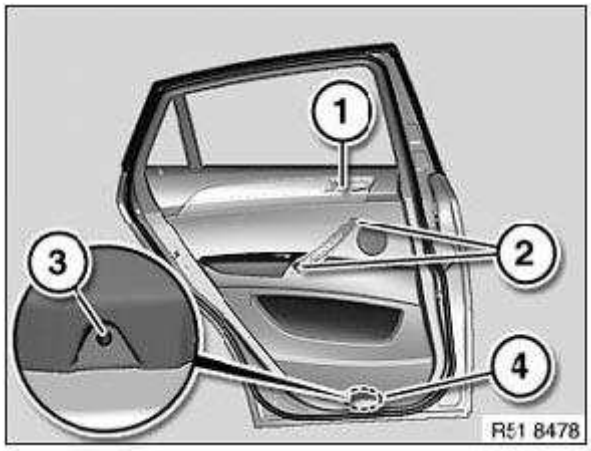


Fig. 416: Identifying Footwell Light Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip door trim panel (1) at clips (2) with special tool **00 9 317** .

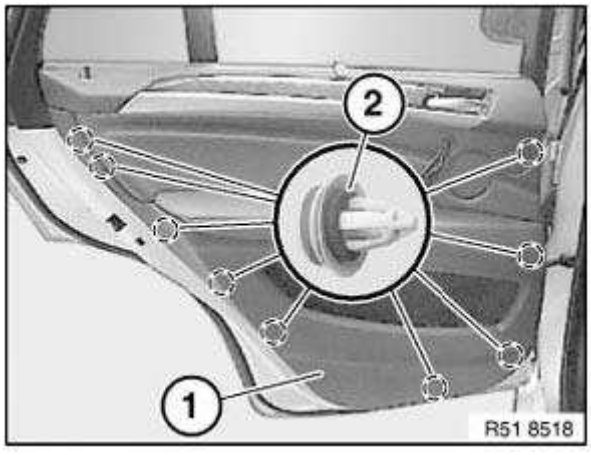


Fig. 417: Identifying Door Trim Panel And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully unclip door trim panel (1) at top from retainers (2).

Disconnect all plug connections.

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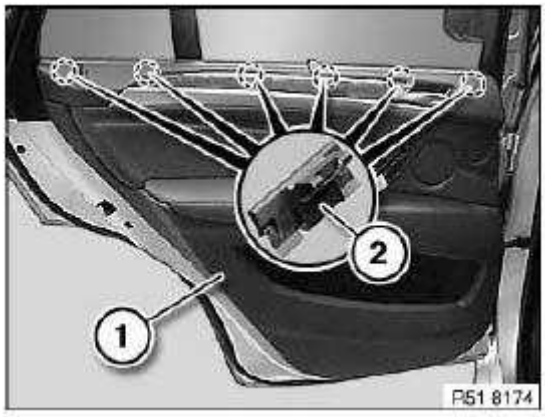


Fig. 418: Identifying Door Trim Panel With Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Unhook Bowden cable (1) from door lock (2).

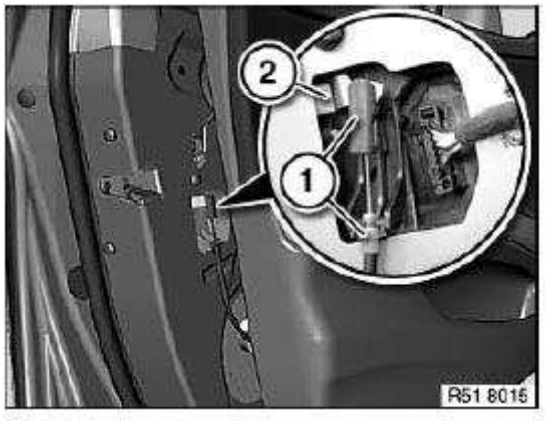


Fig. 419: Identifying Bowden Cable And Door Lock
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: After each removal, all light blue clips (2) must be replaced.

Installation:

If necessary, replace faulty clips (1).

Fit all clips with sealing ring.

Make sure clips are installed in correct position.

1. Grey clip
2. Light blue clip

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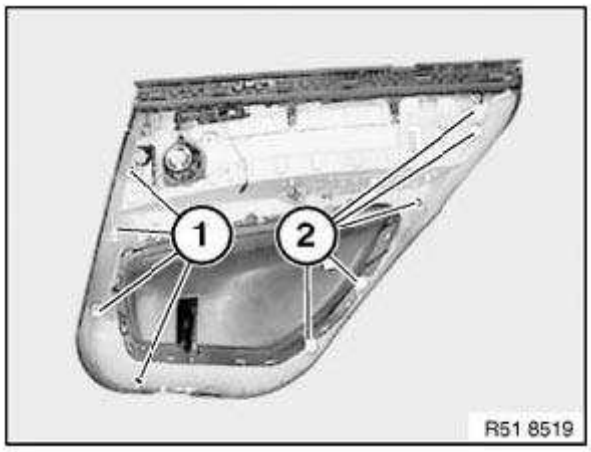


Fig. 420: Identifying Grey Clip And Light Blue Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

After assembling the door trim panel proceed as follows:

- Open side window
- Lock with vehicle key

- Check for ease-of-movement on locking knob linkage
- If necessary, align linkages

Replacement:

- Remove **speakers (1)** , see **65 13 050 REMOVING AND INSTALLING/REPLACING SPEAKER (TWEETER, FRONT DOOR)** or **65 13 070 REMOVING AND INSTALLING/REPLACING SPEAKER (FRONT MID-RANGE SPEAKER IN DOOR TRIM PANEL)**
- Remove **decorative strip (2), see 51 42 030 Removing and installing/replacing decorative strip on rear left or right door trim panel**
- Remove **roller sun blind (3)** , see **51 16 405 Removing and installing/replacing roller sun blind on side window of left or right rear door**

51 42 017 REMOVING AND INSTALLING/REPLACING COVER ON DOOR HANDLE, REAR LEFT OR RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE**

IMPORTANT: Risk of damage!
Before using special tools, check them for damage and if necessary eliminate sharp edges.

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Lever out cover (1) with special tool **00 9 317** .



Fig. 421: Identifying Cover With Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

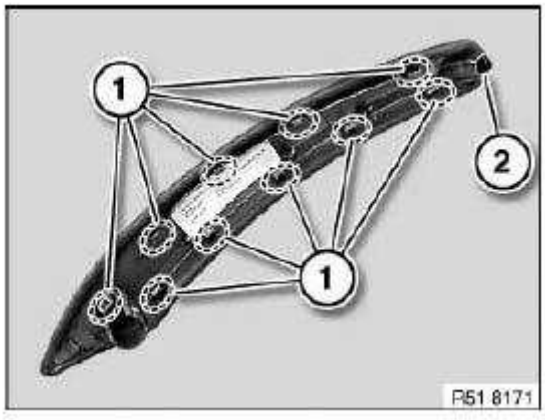


Fig. 422: Identifying Catches With Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 42 030 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON REAR LEFT OR RIGHT DOOR TRIM PANEL

Necessary preliminary tasks:

- Remove **rear door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.

Unhook Bowden cable for release lever:

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- 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.

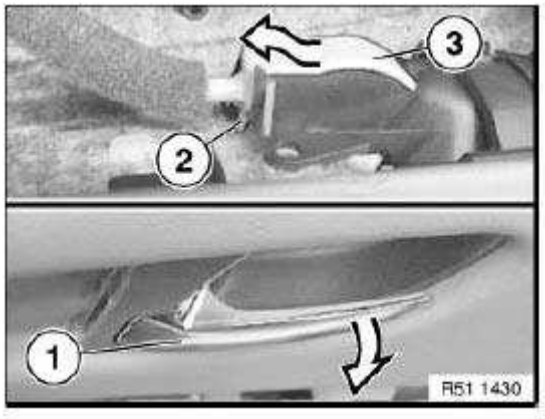


Fig. 423: Identifying Bowden Cable And Release Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws (1) and nuts (2).

Feed out decorative strip with inside door handle (3).

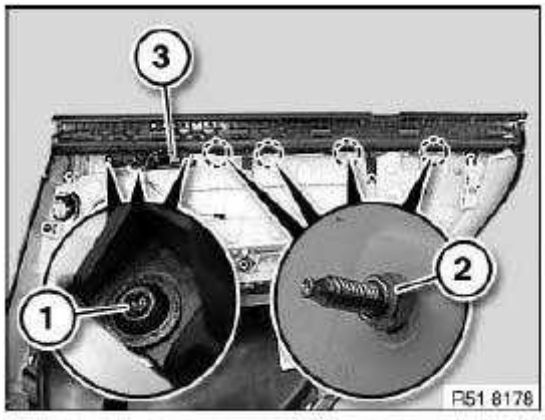


Fig. 424: Identifying Inside Door Handle Screws With Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Release nut (1) and remove inside door handle (2) from decorative strip (3).

Installation:

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Threaded pins (4) must not be damaged.

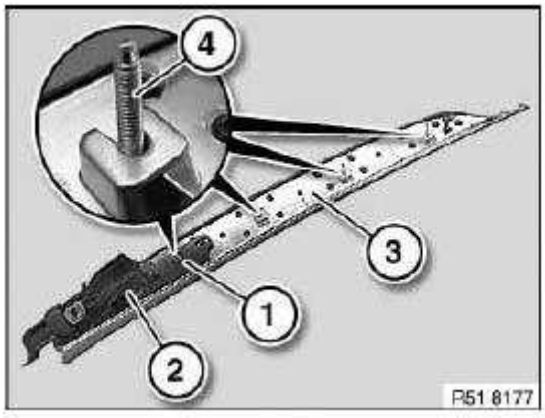


Fig. 425: Identifying Inside Door Handle And Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 48 070 REMOVING AND INSTALLING/REPLACING SOUND INSULATION ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove **rear door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.

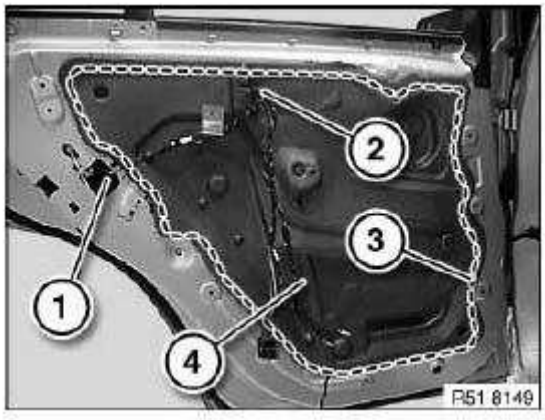
If necessary, disconnect plug connection (1).

Using a scalpel, cut through sealing bead (3) of sound insulation (4) completely or if necessary partially.

Feed wires (2) out of sound insulation (4).

Installation:

Ensure clean bonding and that there are no leaks at sealing bead.



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Fig. 426: Identifying Sealing Bead Area
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 sound insulation (2).

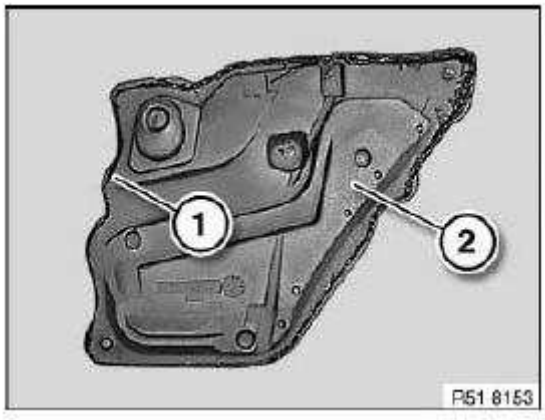


Fig. 427: Positioning Of Butylene Tape On Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: A marking (2) is provided all round on the sound insulation (1). Butylene tape (3) rests on or inside the marking (2).

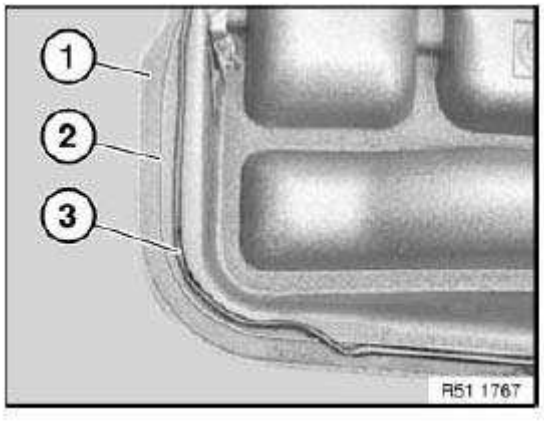


Fig. 428: Identifying Sound Insulation And Butylene Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Clean adhesive area on inner door panel with adhesive cleaner (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.

Lay 6 mm dia. butylene tape in a single row (sourcing reference: BMW Parts Service) in specified adhesive area on acoustic insulation.

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

SIDE COVERING WITH ARMREST

51 43 070 REMOVING AND INSTALLING/REPLACING SIDE TRIM PANEL, FOOTWELL, ON A-PILLAR, LEFT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE**

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 panel for pedals**.

Detach mucket (1) in area of footwell trim.

Release screw (2) and remove release lever (3).

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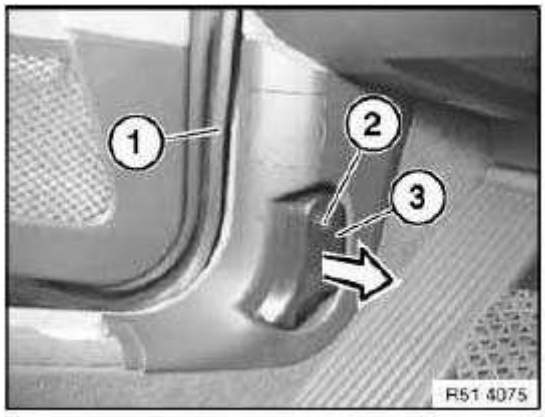


Fig. 429: Removing Release Lever
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Unclip clips (2) with special tool **00 9 317** .

Remove trim panel (3) towards inside.

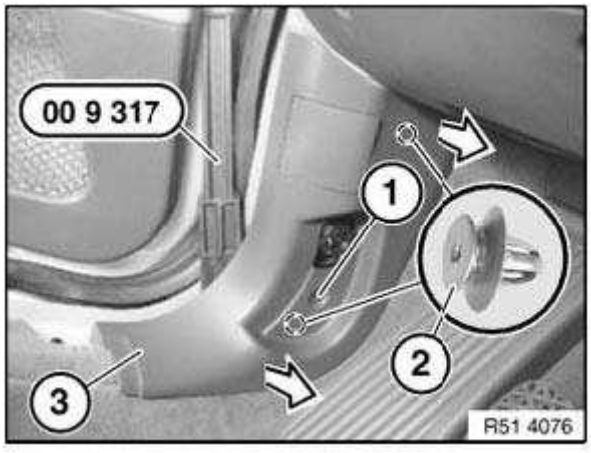


Fig. 430: Uncoupling Clips With Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) on trim panel (2) must not be damaged.

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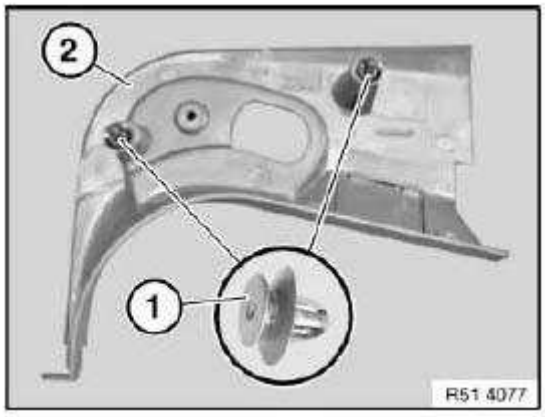


Fig. 431: Identifying Trim Panel Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 075 REMOVING AND INSTALLING/REPLACING SIDE TRIM PANEL, FOOTWELL, ON A-PILLAR, RIGHT

Special tools required:

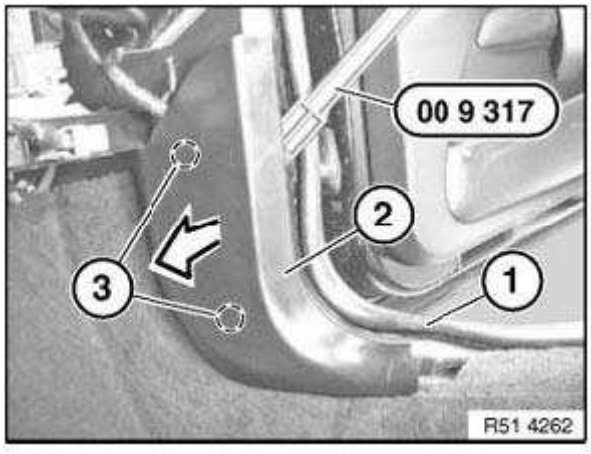
- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE**

Necessary preliminary tasks:

- Remove **front entrance cover strip (inside)** , see **51 47 000 Removing and installing/replacing front (inside) left or right entrance cover strip**.
- Remove **trim for instrument panel, bottom left** , see **51 45 181 Removing and installing/replacing trim for instrument panel, bottom right**.

Detach mucket (1) in area of side trim panel (2).

Unclip side trim panel (2) with special tool **00 9 317** in direction of arrow at retaining points (3) and remove.



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Fig. 432: Uncoupling Side Trim Panel With Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

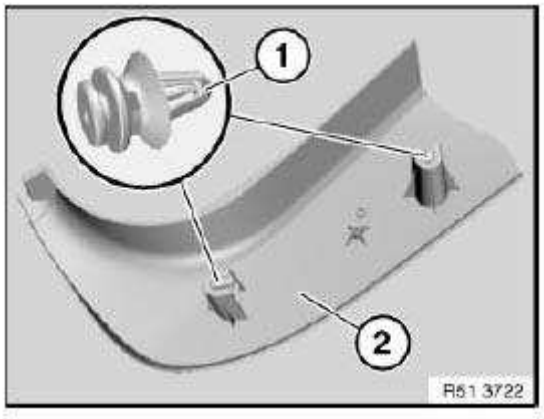


Fig. 433: Identifying Clips
Courtesy of BMW OF NORTH AMERICA, INC.

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 left or right door pillar (bottom)**.

Detach mucket (1) in area of panel (2).

Pull off panel (2) towards bottom.

Complete removal only:

Release **belt screw** on front seat, see **72 11 033 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT SEAT BELT** .

Feed out belt strap (3) from trim (2).

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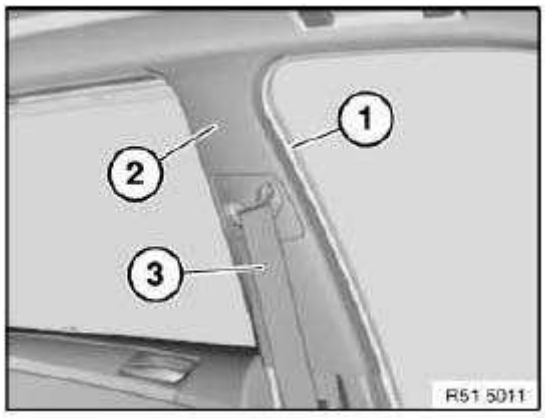


Fig. 434: Identifying Belt Strap And Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1) and clips (2) on trim (3) must not be damaged.

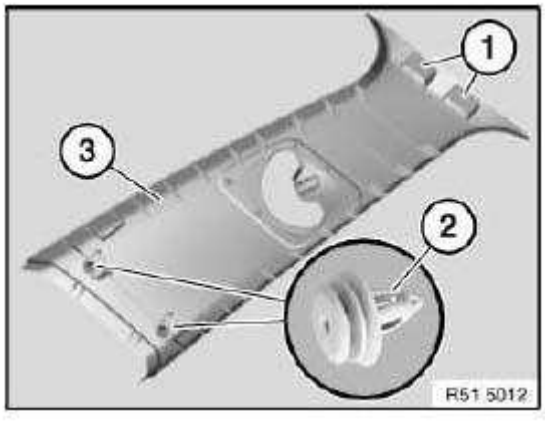


Fig. 435: Identifying Guides, And Clips With Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 150 REMOVING AND INSTALLING OR REPLACING TRIM FOR LEFT OR RIGHT DOOR PILLAR (BOTTOM)

Special tools required:

- **00 9 322** , see **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS** .

Version with fresh-air grille:

Lever out trim (1) with special tool **00 9 322** .

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Fig. 436: Levering Out Trim With Special Tool (00 9 322)
Courtesy of BMW OF NORTH AMERICA, INC.

Version with fresh-air grille:

Unscrew screws (1).

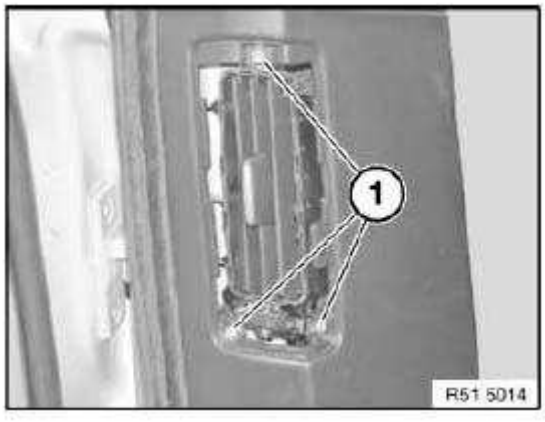


Fig. 437: Identifying Fresh-Air Grille Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Move front seat forwards.

Detach mucket in area of trim (2).

Detach trims (2 and 4) at clips (1) in inward direction.

Detach trim (2) at catch (3) from trim (4).

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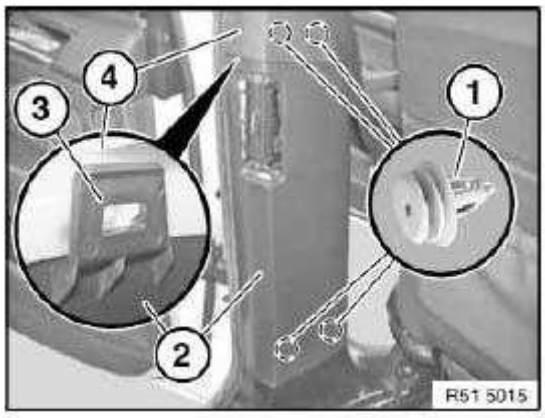


Fig. 438: Identifying Trims And Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Clips (1) and guides (3) on trim (2) must not be damaged.

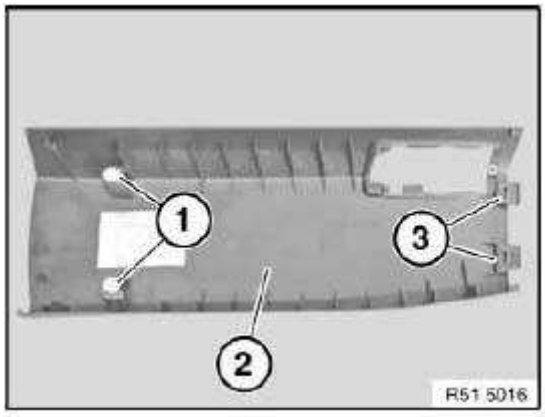


Fig. 439: Identifying Clips And Guides On Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 201 REMOVING AND INSTALLING/REPLACING TRIM FOR ROOF PILLAR AT FRONT (A-PILLAR), LEFT OR RIGHT

Special tools required:

- **00 9 340** , see **00 9 340 DISASSEMBLY AID (2 PIECES)** .

WARNING: Follow safety instructions for working on cars with airbag systems, 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

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airbag).

Unclip protective cap (1) with special tool **00 9 340** and remove.

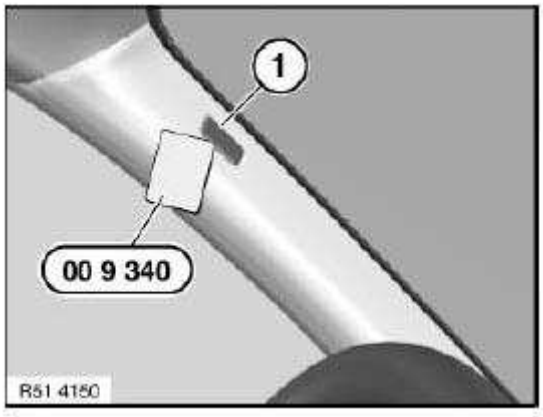


Fig. 440: Identifying Protective Cap
Courtesy of BMW OF NORTH AMERICA, INC.

Detach mucket (1) in area of trim (2).

Release screw (3).

Tightening torque **51 43 1AZ** , see **51 43 SIDE TRIM PANEL WITH ARMRESTS** .

Detach trim (2) at clips (4).

Feed out trim (2) from instrument panel and remove.

Installation:

Make sure trim (2) and mucket (1) are correctly seated.

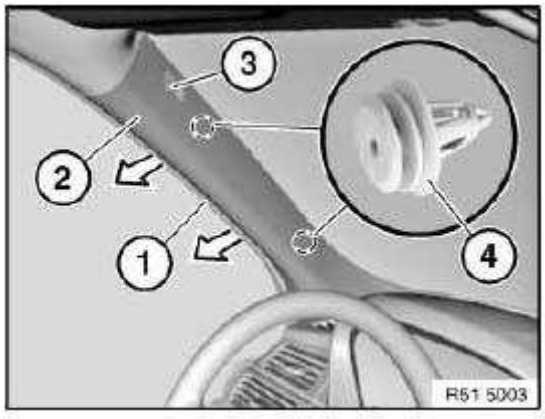


Fig. 441: Detaching Mucket In Area Of Trim

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Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

If necessary, lever out clips (1) remaining in bore and attach to trim (2).

Clip trim (2) with catch (3) into instrument panel.

Position trim (2) on associated bores of clips (1) and clip into place.

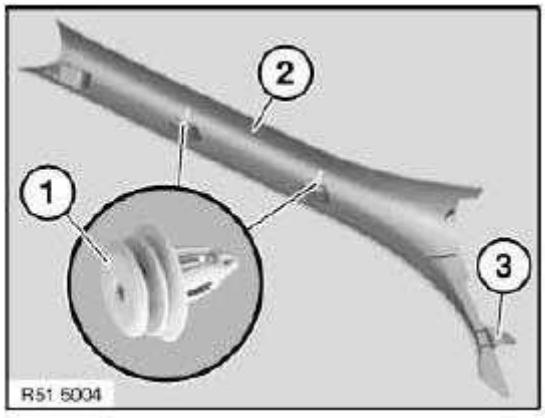


Fig. 442: Identifying Clip Trim With Catch
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 230 REMOVING AND INSTALLING/REPLACING TRIM ON C-PILLAR AT BOTTOM LEFT OR RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Detach mucket (1) along trim (2).

Release clips (3 and 4) with special tool **00 9 317** .

Installation:

Make sure the trim cover is correctly seated in mounts.

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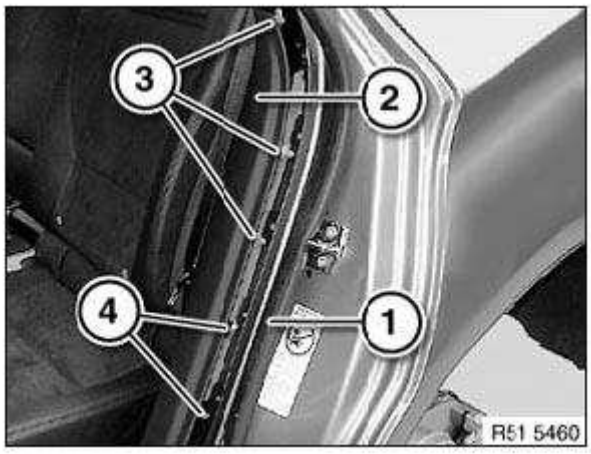


Fig. 443: Identifying Mucket With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guides (1 and 2) on trim (4) must not be damaged.

Replace missing and damaged clips (3 and 5).

Fit all clips with sealing ring.

Make sure clips are installed in correct position.

3 White clip

5 Light brown clip

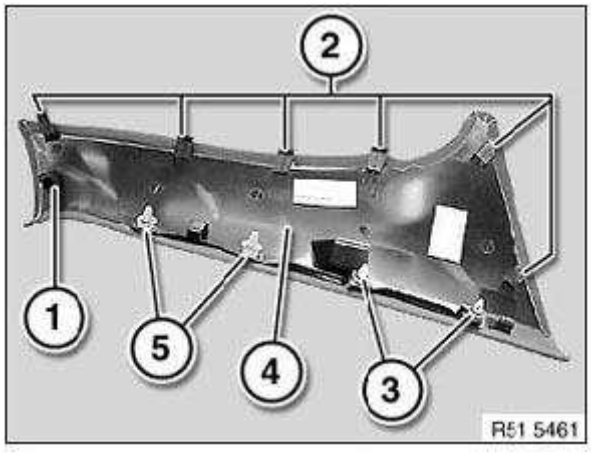


Fig. 444: Identifying White And Light Brown Clip With Guides
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 251 REMOVING AND INSTALLING OR REPLACING TRIM PANEL FOR LEFT OR RIGHT

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REAR ROOF PILLAR (C-PILLAR)

Necessary preliminary tasks:

- Remove **lower C-pillar trim** , see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.
- Remove **capping panel** , see **51 43 259 Removing and installing/replacing trim for rear roof pillar (D-pillar), left or right**.
- Remove **luggage compartment wheel arch trim** , see **51 47 151 Removing and installing/replacing left luggage compartment wheel arch trim** or **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**.

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

Release clip (3).

Raise trim panel (4) and feed out in downward direction.

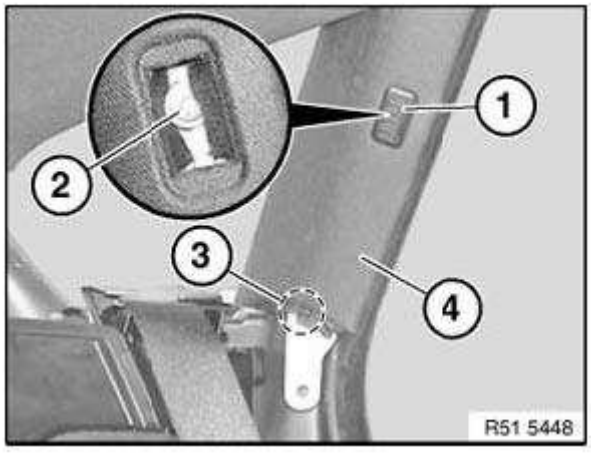


Fig. 445: Identifying Trim Panel And Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Replace missing and damaged clips (3).

IMPORTANT: If some clips (1) are lost during removal, if necessary remove C-pillar storage compartment (2) in order to take out clips (1), see 51 47 ... Removing and installing/replacing C-pillar storage compartment at bottom left or right.

Installation:

Make sure the trim cover is correctly seated in mounts.

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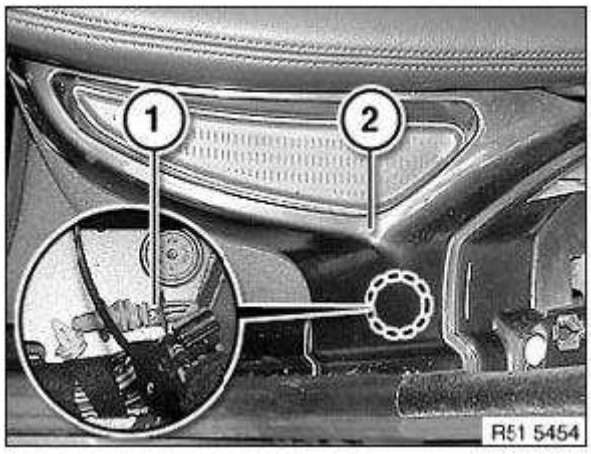


Fig. 446: Identifying C-Pillar Storage Compartment With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 43 259 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR ROOF PILLAR (D-PILLAR), LEFT OR RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Necessary preliminary tasks:

- Remove **C-pillar trim at bottom** left/right, see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.

NOTE: Work is described on the right side, left side is secured only by one expander rivet.

Release expander rivet (1) and (right side only) (2).

Release trim (5) with special tool **00 9 317** at clips (3).

IMPORTANT: Risk of damage!

Carefully remove trim (5) to avoid damaging the roofliner.

Feed out belt (6).

Installation:

Mucket must overlap trim (5) along dashed line (4).

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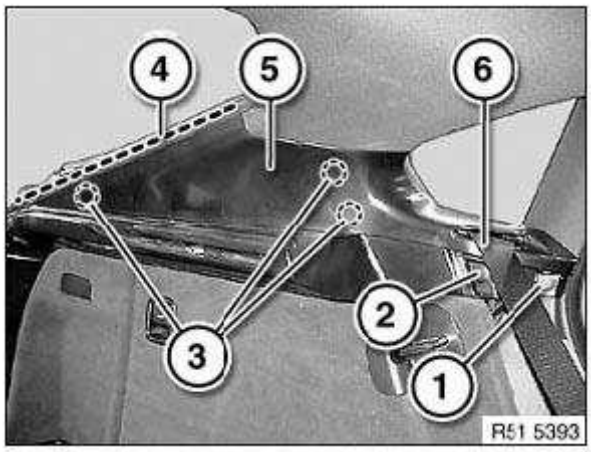


Fig. 447: Identifying Overlap Trim Dashed Line Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

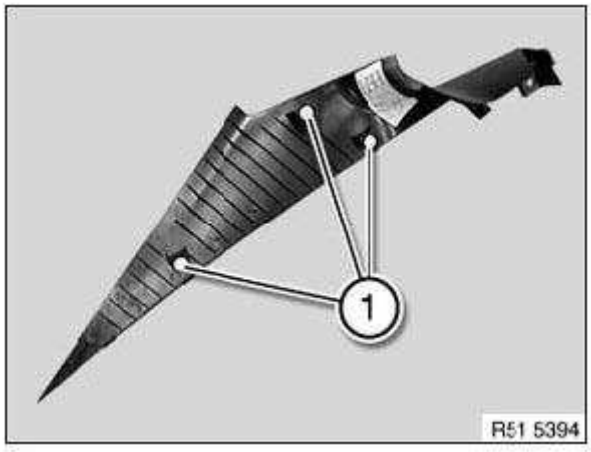


Fig. 448: Identifying Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

ROOF TRIM PANEL

51 44 001 REMOVING AND INSTALLING/REPLACING ROOFLINER (VERSION WITHOUT SLIDE/TILT SUNROOF)

NOTE: Except for the step relating to the sliding sunroof, the work is identical to:

- Removing and installing/replacing **roofliner** (with slide/tilt sunroof), see **51 44 011 Removing and installing/replacing roofliner (version with slide/tilt sunroof)**.

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51 44 011 REMOVING AND INSTALLING/REPLACING ROOFLINER (VERSION WITH SLIDE/TILT SUNROOF)

Necessary preliminary tasks:

- Open front slide/tilt sunroof lid.
- Remove **both front seats** , see **52 14 000 REMOVING AND INSTALLING LEFT OR RIGHT FRONT SEAT** .
- Remove **center console.** , see **REMOVING COMPLETE CENTRE CONSOLE**.
- Remove **sun visors and counter supports** on left/right, see **51 16 080 Removing and installing or replacing sun visor and left or right counter-support**.
- Remove **roof switch cluster** , see **61 31 043 REMOVING AND INSTALLING OR REPLACING ROOF SWITCH CLUSTER** .
- Remove **trims for roof pillar at front** (A-pillar) left/right, see **51 43 201 Removing and installing/replacing trim for roof pillar at front (A-pillar), left or right**.
- Remove **trims for door pillar at top** (B-pillar) left/right, see **51 43 148 Removing and installing or replacing trim on left or right door pillar (top)**.
- Remove **trims for roof pillar at rear** (C-pillar) left/right, see **51 43 251 Removing and installing or replacing trim panel for left or right rear roof pillar (C-pillar)**.
- Remove **trims for roof pillar at rear** (D-pillar) left/right, see **51 43 259 Removing and installing/replacing trim for rear roof pillar (D-pillar), left or right**.
- Remove **luggage compartment wheel arch trim** on passenger side, see **51 47 151 Removing and installing/replacing left luggage compartment wheel arch trim** or **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**.

Release screws (1).

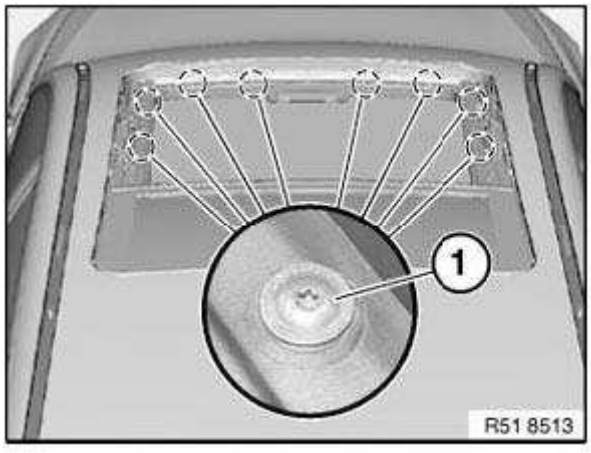


Fig. 449: Identifying Sunroof Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on left and right. Remove coat hook (2) and release screw (3).

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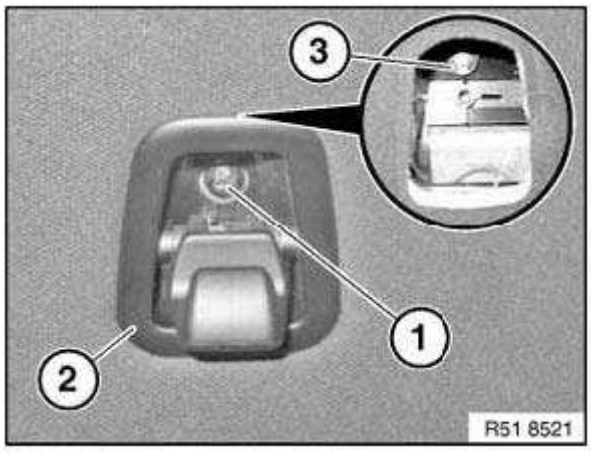


Fig. 450: Identifying Coat Hook Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release expansion rivets (1).

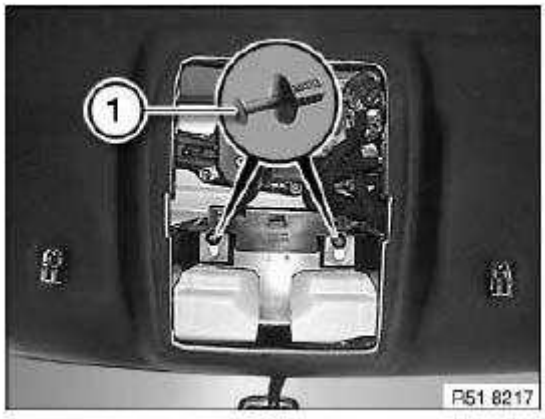


Fig. 451: Identifying Expansion Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Version with roller combination (dividing net):

Fold back cover (1) for dividing net mount (2).

Release screws (3) and remove dividing net mount (2).

Installation:

Observe position indications on reverse side of dividing net mount (2).

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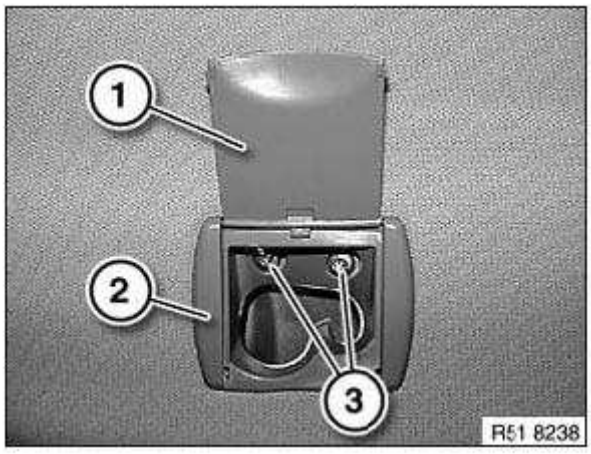


Fig. 452: Identifying Dividing Net Mount With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

- Pull off muckets of front and rear doors in roof area.

IMPORTANT: The following tasks must be carried out with a second person assisting:

Support roofliner (1) at front.

Unclip roofliner (1) at clips (2) in rear sunroof frame area in downward direction.

Installation:

If necessary, replace faulty clips (2).

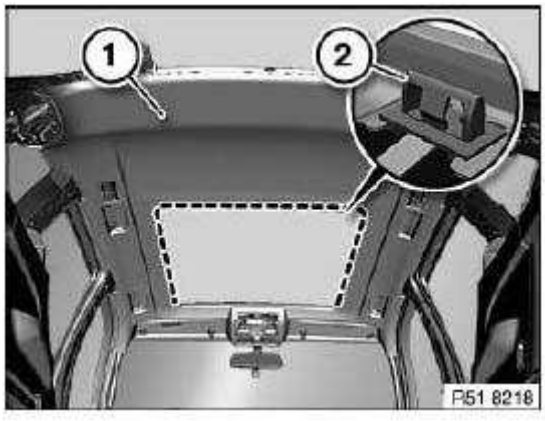


Fig. 453: Uncoupling Roofliner At Clips In Rear Sunroof Frame Area
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on D-pillar on right and left. Pull off mucket (2) in roofliner area.

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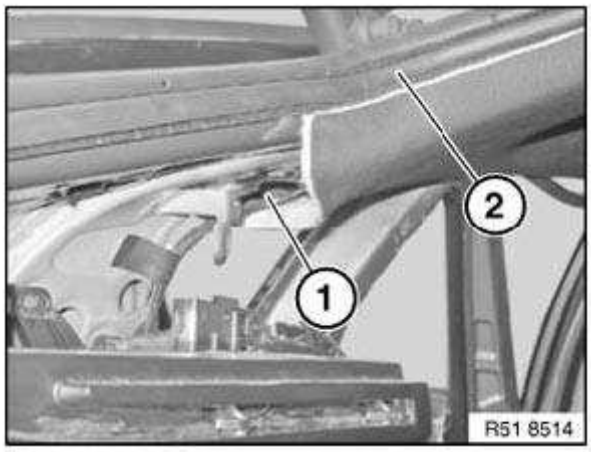


Fig. 454: Pulling Off Mucket In Roofliner Area
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Roofliner must not be twisted or kinked!

Detach roof liner (1), detach clip (2) on roofliner with fork lever from body roofliner, tilt carefully and feed out forwards through passenger door.

Installation:

Clips and metal retainers in body roofliner must not be damaged, replace if necessary.

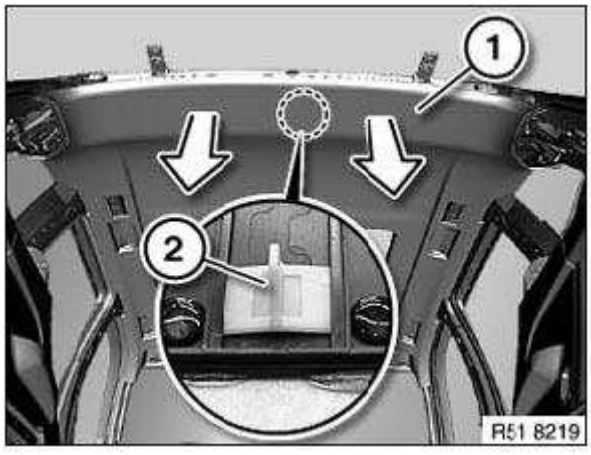


Fig. 455: Detaching Roof Liner
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

- Remove left/right **mirror light** , see **63 31 050 REMOVING AND INSTALLING/REPLACING MIRROR LIGHT** .
- Remove left/right **ceiling light** , see **63 31 003 REMOVING AND INSTALLING/REPLACING**

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COMPLETE CEILING LIGHT (REAR) .

Version with roller combination (dividing net):

Cut out premarked cutout areas (1) for left/right dividing net mounts with a scalpel.

IMPORTANT: Ensure a clean cut so that the headliner material is not damaged on the inside.

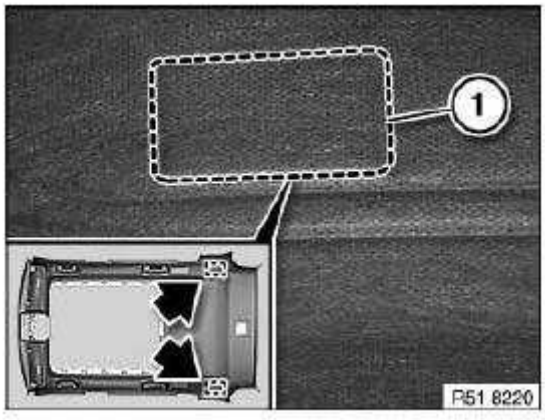


Fig. 456: Identifying Premarked Cutout Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Installation sequence:

1. Secure roof liner with mucket
2. Secure roofliner at front to clips
3. Snap roofliner at rear into clip
4. Secure expander rivets to roofliner at front
5. Screw rear roofliner firmly onto D-pillar
6. Screw down sun visors and counter supports
7. Screw down coat hook holder
8. Add final details to vehicle

INSTRUMENT CLUSTER TRIM PANEL

51 45 ... REPLACING SIDE COVER ON INSTRUMENT PANEL

Special tools required:

- **00 9 340** , see **00 9 340 DISASSEMBLY AID (2 PIECES)** .

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Necessary preliminary tasks:

- Pull off mucket of front door in area of cover

Unclip cover (1) with special tool **00 9 340** in direction of arrow from instrument panel trim.

Version with Isofix system:

Disconnect plug connection for passenger airbag switch

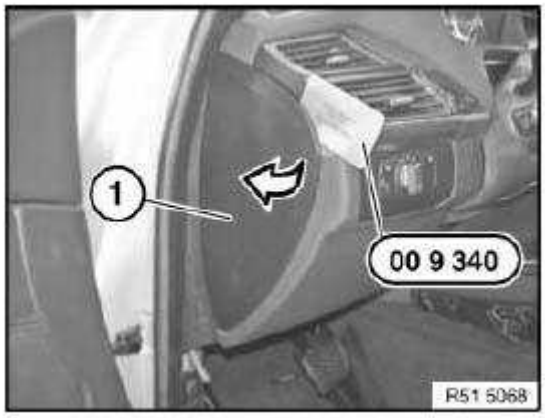


Fig. 457: Uncoupling Cover With Special Tool (00 9 340)
Courtesy of BMW OF NORTH AMERICA, INC.

Retaining clips (1) of cover (2) must not be damaged.

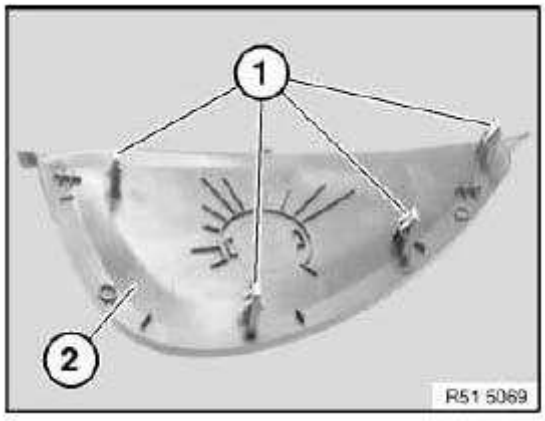


Fig. 458: Identifying Cover Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

- Remove **passenger airbag switch** , see **61 31 038 REMOVING AND INSTALLING (REPLACING) SWITCH FOR PASSENGER AIRBAG DEACTIVATION** .

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51 45 030 REMOVING AND INSTALLING INSTRUMENT PANEL TRIM

Necessary preliminary tasks:

- Move wheels into straight-ahead position
- Move front seats back completely and lower
- Retract steering wheel completely and lower
- Clamp off **battery negative lead** , see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .
- Remove **both trims for front roof pillar** , see **51 43 201 Removing and installing/replacing trim for roof pillar at front (A-pillar), left or right**.
- If necessary, remove **trim for head-up display** , see **62 30 005 REMOVING AND INSTALLING/REPLACING TRIM FOR HEAD-UP DISPLAY** .
- Remove **light operator unit** , see **61 31 037 REMOVING AND INSTALLING/REPLACING LIGHT CONTROL UNIT** .
- Remove **side cover on instrument panel** on left and right, see **51 45 ... Replacing side cover on instrument panel**.
- Remove **steering-column switch cluster** , see **61 31 008 REMOVING AND INSTALLING/REPLACING STEERING COLUMN SWITCH CLUSTER (SZL)** .
- Remove **instrument cluster** , see **62 11 280 REMOVING AND INSTALLING (REPLACING) INSTRUMENT CLUSTER** .
- Remove **Car Communication Computer** , see **65 83 010 REMOVING AND INSTALLING/REPLACING CAR COMMUNICATION COMPUTER** .
- Remove **Central Information Display** , see **65 50 057 REMOVING AND INSTALLING REPLACING CENTRAL INFORMATION DISPLAY (CID)** .
- Pull back center console,

  refer to **REMOVING COMPLETE CENTRE CONSOLE**.

Release screw (1).

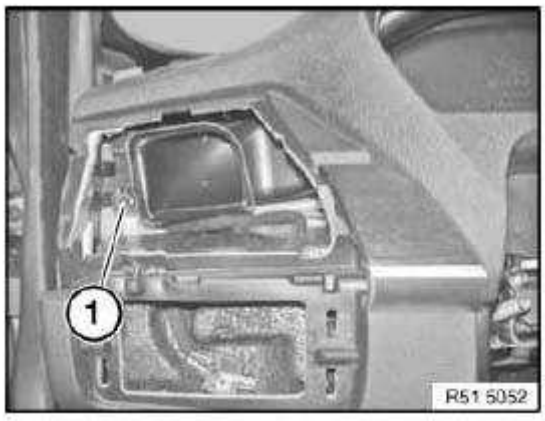


Fig. 459: Identifying Instrument Panel Trim Screw

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Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

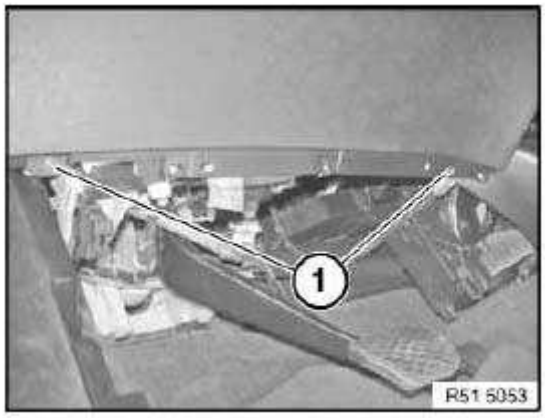


Fig. 460: Identifying Instrument Panel Trim Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1) for front passenger's airbag and speaker.

Unclip plug housing.

Unfasten screws (2).

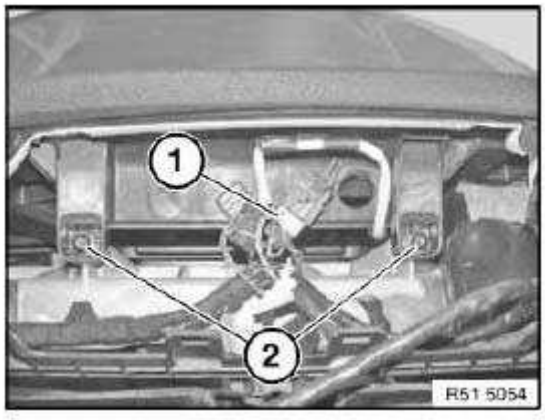


Fig. 461: Identifying Plug Connections With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

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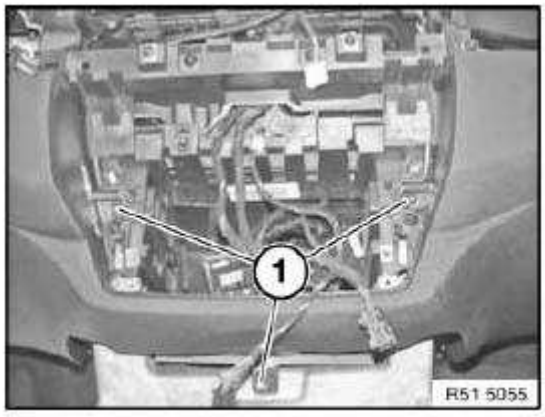


Fig. 462: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip plate (1).

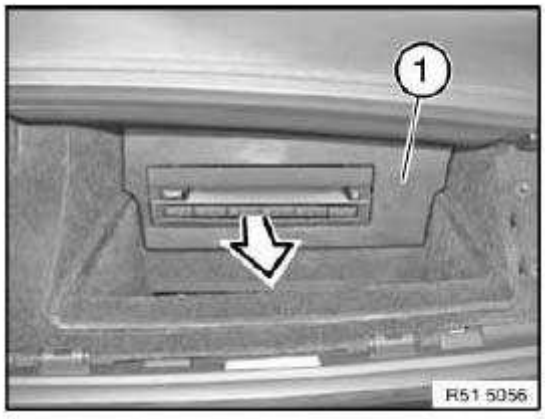
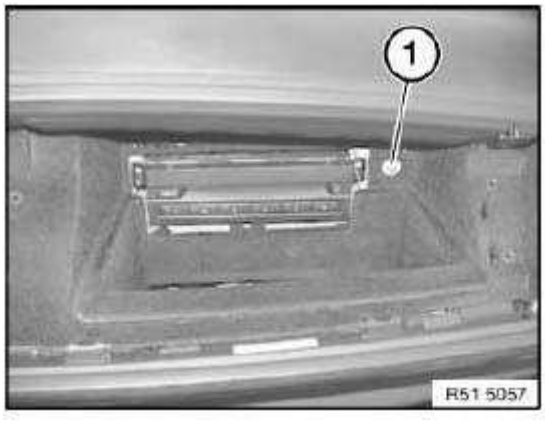


Fig. 463: Uncoupling Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).



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Fig. 464: Identifying Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

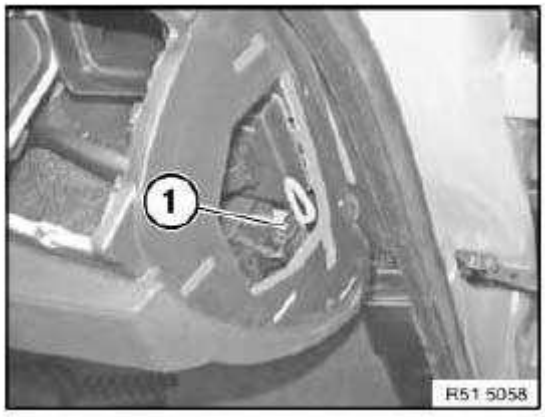


Fig. 465: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

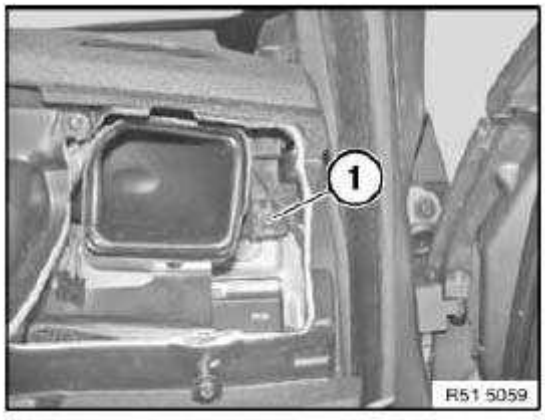


Fig. 466: Identifying Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Feed out instrument panel trim towards rear and remove.

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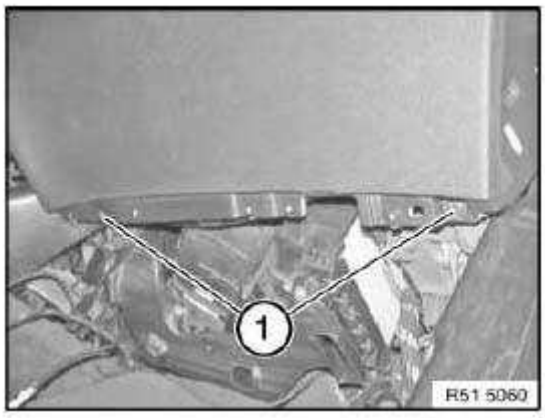


Fig. 467: Identifying Instrument Panel Trim Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure guides (1) of instrument panel trim are correctly seated in relevant mountings (2).

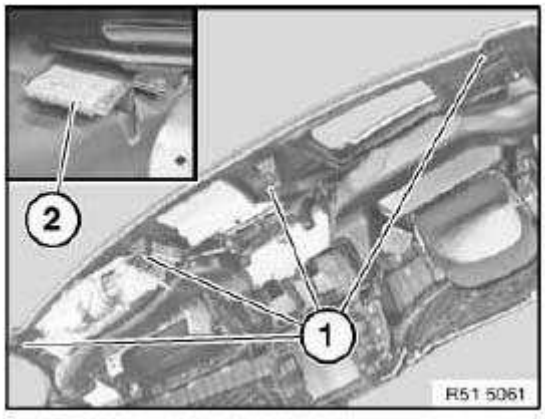


Fig. 468: Identifying Guides And Relevant Mountings
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 031 REPLACING INSTRUMENT PANEL TRIM

Necessary preliminary tasks:

- Remove **instrument panel trim** , see **51 45 030 Removing and installing instrument panel trim**.
- Remove **right glovebox** , see **51 16 360 Removing and installing right glovebox**.
- Remove **decorative strip on instrument panel, driver's side** on right, see **51 45 374 Removing and installing/replacing decorative strip on instrument panel on driver's side on right**.
- Remove **Start/Stop switch** , see **61 31 014 REMOVING AND INSTALLING/REPLACING START/STOP SWITCH** .
- Remove **front speaker carrier** , see **65 13 065 REMOVING AND INSTALLING/REPLACING FRONT SPEAKER CARRIER (INSTRUMENT PANEL)** .

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- Remove **right fresh-air grille** , see **64 22 135 REMOVING AND INSTALLING OR REPLACING LEFT FRESH-AIR GRILLE** .

Unclip wiring harness for glovebox (1) and remove.

Detach right knee protection (2).

Unclip frame for steering column cutout (4).

Release screws (5) and remove ventilation ducts (3).

Remove **passenger airbag (6).** , see **72 12 000 REMOVING AND INSTALLING/REPLACING AIRBAG MODULE ON PASSENGER SIDE** .

Remove cable for glovebox emergency release (7).

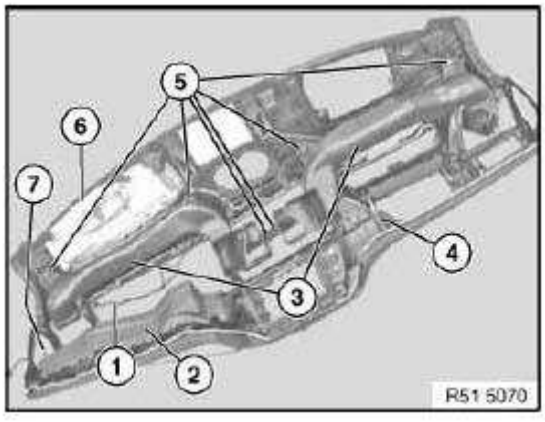


Fig. 469: Identifying Passenger Airbag And Glovebox
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove center function carrier (2).

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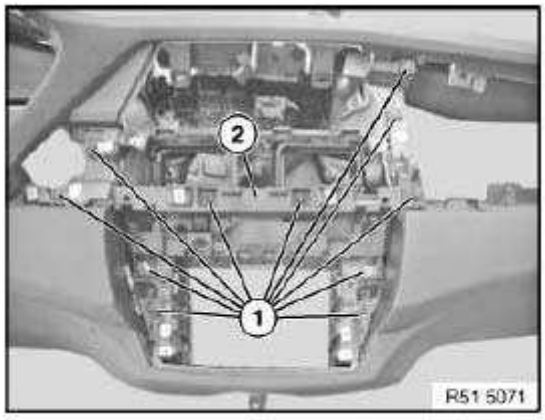


Fig. 470: Identifying Centre Function Carrier With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 075 REMOVING AND INSTALLING CARRIER FOR INSTRUMENT PANEL

Necessary preliminary tasks:

- Remove **instrument panel trim** , see **51 45 030 Removing and installing instrument panel trim**.

Disconnect plug connection (1).

Release screw (2) and remove control unit.

Unscrew nuts (3).

Tightening torque **51 45 1AZ** , see **51 45 TRIM, INSTRUMENT PANEL** .

Unclip wiring harness (4).

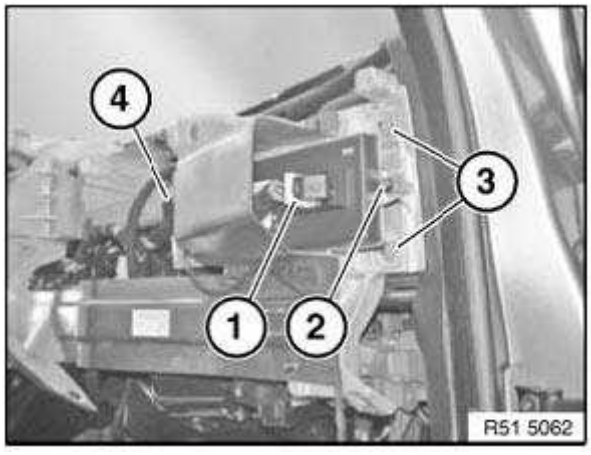


Fig. 471: Identifying Wiring Harness And Plug Connection With Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

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Release screw (1).



Fig. 472: Identifying Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip wiring harness (1).

Unfasten screws (2).

Tightening torque **51 45 4AZ** , see **51 45 TRIM, INSTRUMENT PANEL** .

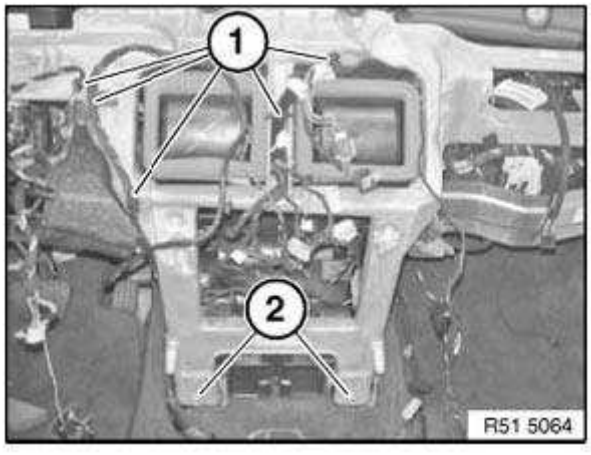


Fig. 473: Identifying Wiring Harness And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Pull center console approx. 130 mm towards rear.

Lift rear cabin heating duct (1) over transmission emergency release (2).

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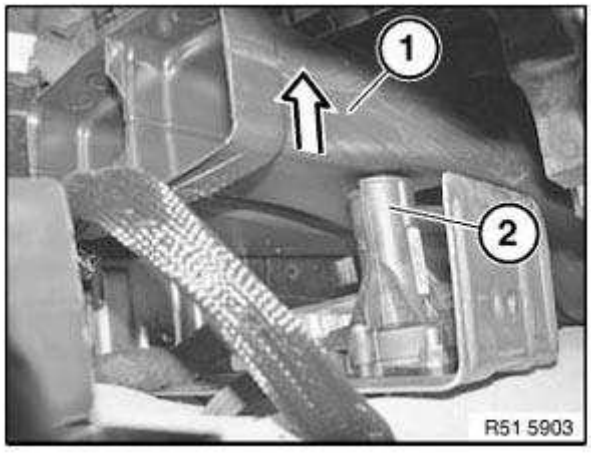


Fig. 474: Lifting Rear Cabin Heating Duct
Courtesy of BMW OF NORTH AMERICA, INC.

A/C system with four-zone control:

Pull center console (1) approx. 130 mm towards rear (2) and raise at rear approx. 120 mm (3).

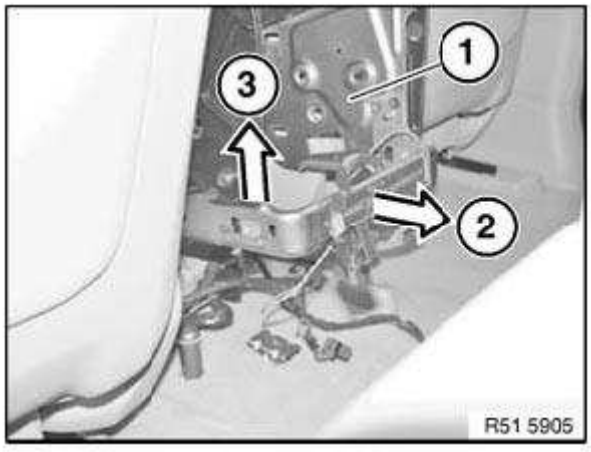


Fig. 475: Pulling Centre Console
Courtesy of BMW OF NORTH AMERICA, INC.

A/C system with four-zone control:

Release screws (1) on left and right.

Pull back rear cabin fan (2) up to holder (3).

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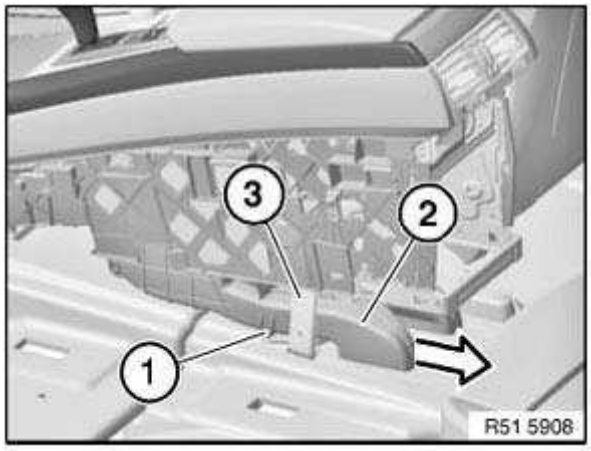


Fig. 476: Pulling Back Rear Cabin Fan Up To Holder
Courtesy of BMW OF NORTH AMERICA, INC.

A/C system with four-zone control:

Raise center console (1) at front and feed out heating duct (2) towards top.

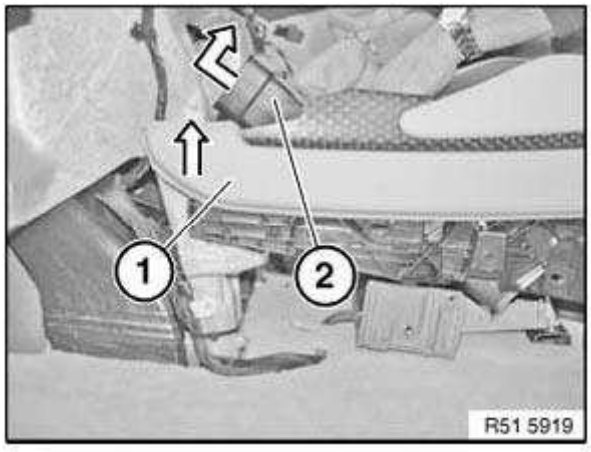


Fig. 477: Identifying Centre Console And Heating Duct
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, pull off knee protection (1).

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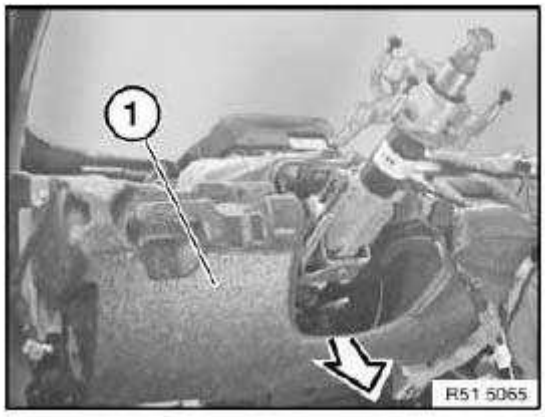


Fig. 478: Pulling Knee Protection
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, release screws (1).

Remove knee protection support plate (2).

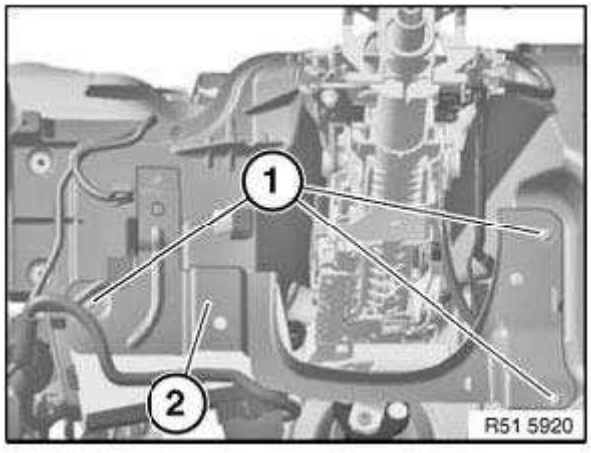


Fig. 479: Identifying Knee Protection Support Plate Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1) and remove control units from control unit box.

Unfasten screws (2).

Tightening torque **32 31 1AZ** , see **32 31 STEERING COLUMN** .

Lower steering column.

Unclip wiring harness (3).

Unscrew nuts (4).

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Tightening torque **51 45 1AZ** , see **51 45 TRIM, INSTRUMENT PANEL** .

Release diagnosis socket.

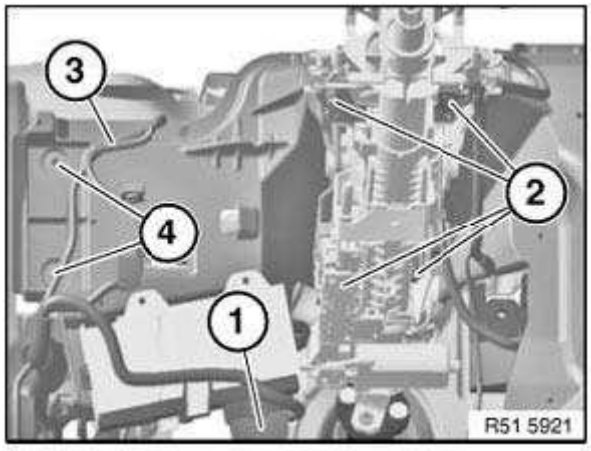


Fig. 480: Identifying Plug Connection And Wiring Harness
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Tightening torque **51 45 4AZ** , see **51 45 TRIM, INSTRUMENT PANEL** .

Unfasten screws (2).

Tightening torque **51 45 3AZ** , see **51 45 TRIM, INSTRUMENT PANEL** .

Remove carrier for instrument panel.

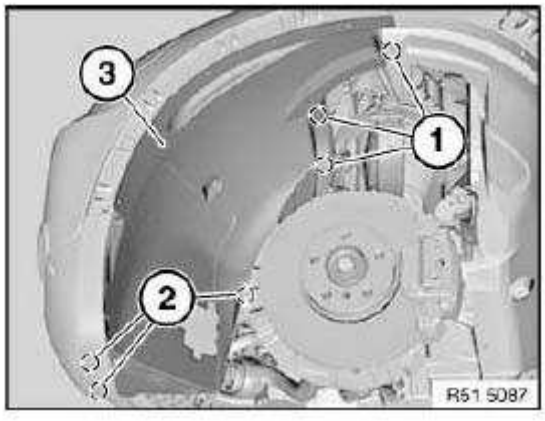


Fig. 481: Identifying Instrument Panel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 105 REMOVING AND INSTALLING/REPLACING FUNCTION CARRIER ON INSTRUMENT PANEL TRIM

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Necessary preliminary tasks:

- Disconnect **battery negative lead** , see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .
- Remove **complete center console** , see **51 16 ... Removing and installing/replacing side carpet on storage compartment (center console)**.
- Remove **right glovebox** , see **51 16 360 Removing and installing right glovebox**.
- Remove **Start/Stop switch** , see **61 31 014 REMOVING AND INSTALLING/REPLACING START/STOP SWITCH** .
- Remove **Car Communication Computer** , see **65 83 010 REMOVING AND INSTALLING/REPLACING CAR COMMUNICATION COMPUTER** .

Release screws (1).

Feed function carrier (2) out of instrument panel trim.

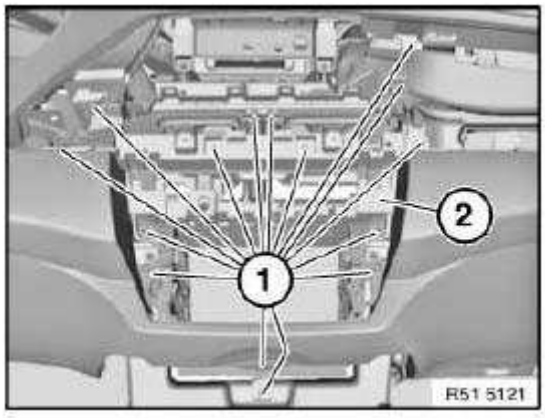


Fig. 482: Identifying Function Carrier Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 181 REMOVING AND INSTALLING/REPLACING TRIM FOR INSTRUMENT PANEL, BOTTOM RIGHT

NOTE: Move front passenger seat completely towards rear.

Unclip cover (2) with MOST direct access.

Release screws (1) and feed out instrument panel trim (3).

Disconnect plug connection for footwell light and remove instrument panel trim (3).

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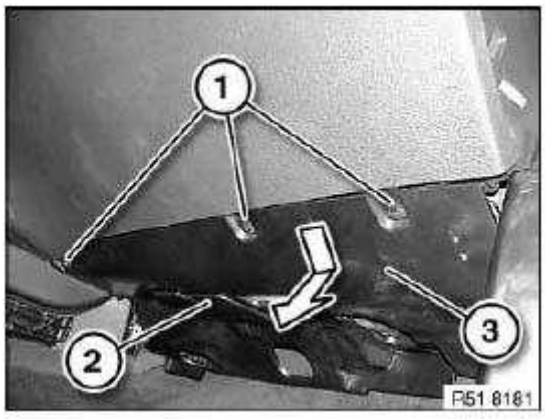


Fig. 483: Removing Instrument Panel Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Guide (1) of instrument panel trim (2) must be positioned in associated recess (3).

Replacement:

Remove **footwell light** , see **63 31 020 REMOVING AND INSTALLING/REPLACING FOOTWELL LIGHT (FOOTWELL)** .

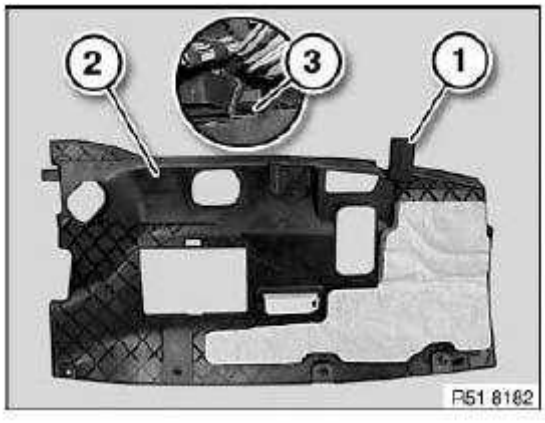


Fig. 484: Identifying Instrument Panel Trim Guide
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 185 REMOVING AND INSTALLING/REPLACING PANEL FOR PEDALS

NOTE: Move driver's seat completely towards rear.

Release screws (1).

Feed out trim for pedal assembly.

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Disconnect associated plug connections and remove trim for pedal assembly.

Replacement:

Remove **footwell light** , see **63 31 020 REMOVING AND INSTALLING/REPLACING FOOTWELL LIGHT (FOOTWELL)** .

If necessary, remove speaker for hands-free system.

Additionally on Security (optional extra SA 106):

Remove intercom system speaker.

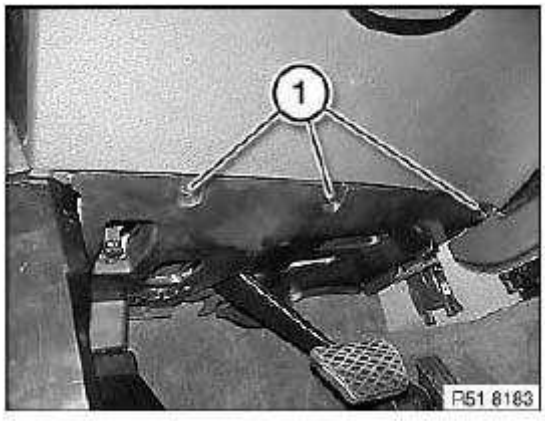


Fig. 485: Identifying Pedal Assembly Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 310 REMOVING AND INSTALLING (REPLACING) CENTER TRIM FOR INSTRUMENT PANEL

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Necessary preliminary tasks:

- Remove **center fresh-air grille** , see **64 22 164 REMOVING AND INSTALLING OR REPLACING MIDDLE FRESH-AIR GRILLE** .

IMPORTANT: Risk of damage!

Carry out the following operation carefully so as to avoid damage.

Tape off instrument panel trim in working area.

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Release screws (1).

Lever center instrument panel trim (2) with special tool **00 9 317** at retaining points (3) out of instrument panel trim and pull forwards.

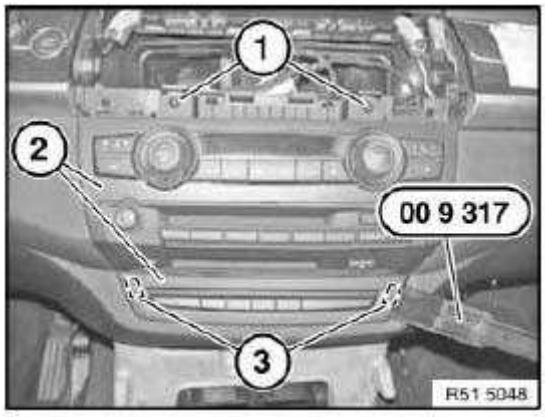


Fig. 486: Identifying Centre Instrument Panel Trim With Special Tool (00 9 317)
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1) and remove center instrument panel trim (3).

Installation:

Make sure retaining clips (2) are correctly seated on center instrument panel trim (3).

Replace defective retainers.

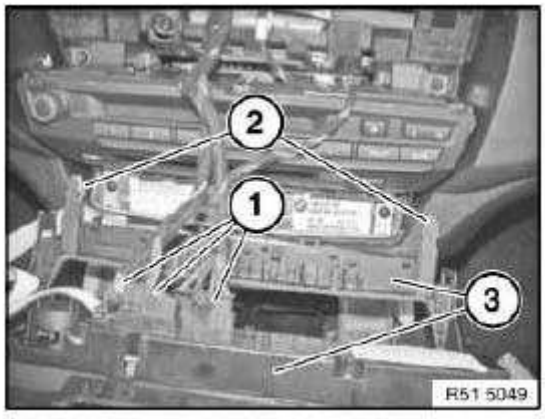


Fig. 487: Identifying Plug Connections And Centre Instrument Panel Trim With Retaining Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove **center console switch cluster** , see **61 31 052 REMOVING AND INSTALLING/REPLACING**

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CENTRE CONSOLE SWITCH CLUSTER .

Remove **control panel for heater - A/C system.** , see **64 11 376 REMOVING AND INSTALLING (REPLACING) CONTROL PANEL FOR HEATER - A/C SYSTEM** .

51 45 372 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON INSTRUMENT PANEL ON DRIVER'S SIDE ON LEFT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Carefully unclip decorative strip (1) with special tool **00 9 317** at retaining points (2) and remove.

Installation:

Make sure retainers are correctly seated on decorative strip.

If necessary, replace faulty retainers.

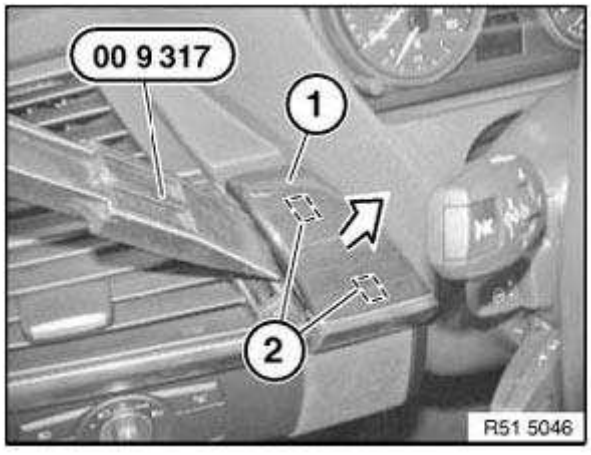


Fig. 488: Uncoupling Decorative Strip With Special Tool (00 9 317) At Retaining Points
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 374 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON INSTRUMENT PANEL ON DRIVER'S SIDE ON RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Carefully unclip decorative strip (1) with special tool **00 9 317** at retaining points (2) and remove.

Installation:

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Make sure retainers are correctly seated on decorative strip.

If necessary, replace faulty retainers.

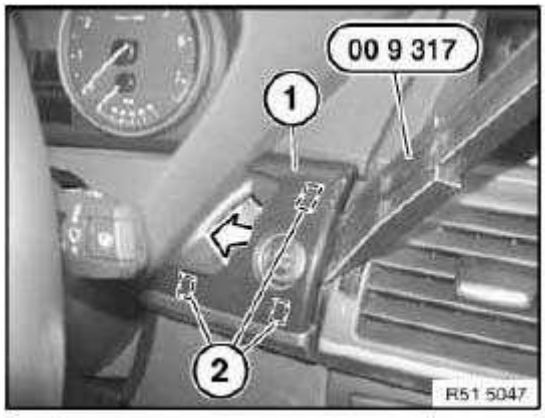


Fig. 489: Uncoupling Decorative Strip With Special Tool (00 9 317) At Retaining Points
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 376 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON LEFT FRESH-AIR GRILLE

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Lever out decorative strip (1) with special tool **00 9 323** in direction of arrow and remove.

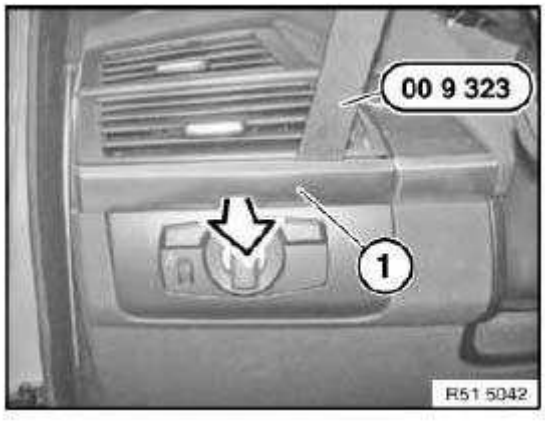


Fig. 490: Levering Out Decorative Strip With Special Tool (00 9 323)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure retainers (1) are correctly seated on decorative strip.

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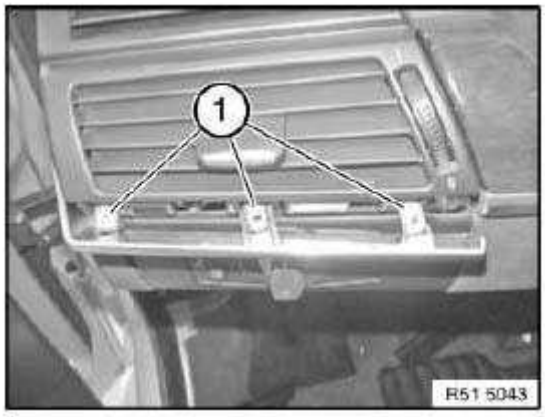


Fig. 491: Identifying Retainers On Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 377 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON MIDDLE FRESH-AIR GRILLE

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Lever out decorative strip (1) with special tool **00 9 323** in direction of arrow.

Disconnect associated plug connection and remove decorative strip (1).

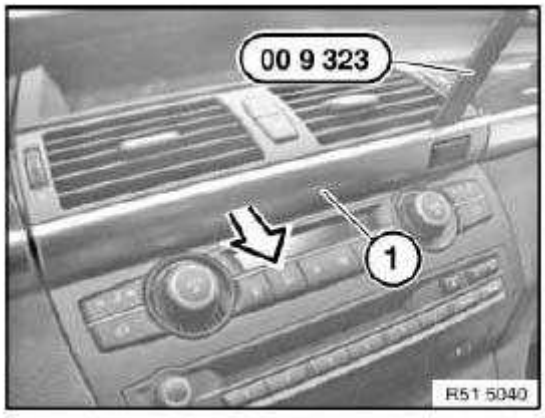


Fig. 492: Removing Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure retainers (1) are correctly seated on decorative strip.

Replacement

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Remove **switch for unlocking glovebox (2).** , see **61 31 333 REMOVING AND INSTALLING/REPLACING SWITCH FOR UNLOCKING GLOVEBOX** .

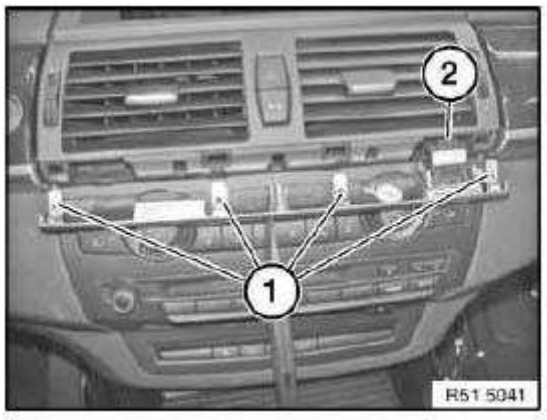


Fig. 493: Identifying Retainers On Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

51 45 378 REMOVING AND INSTALLING/REPLACING DECORATIVE STRIP ON RIGHT FRESH-AIR GRILLE

Special tools required:

- **00 9 323** , see **00 9 323 CLEANING WEDGE (SCRAPER)** .

Lever out decorative strip (1) with special tool **00 9 323** in direction of arrow and remove.

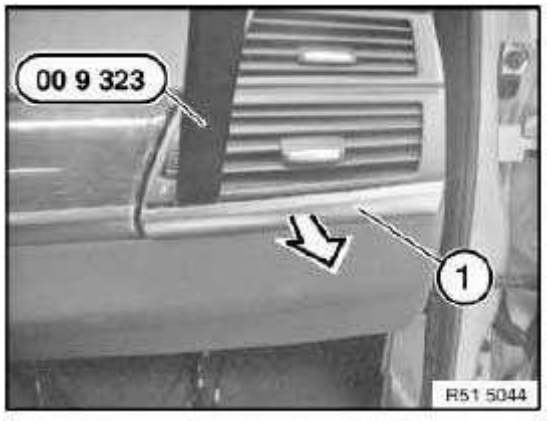


Fig. 494: Removing Decorative Strip With Special Tool (00 9 323)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure retainers (1) are correctly seated on decorative strip.

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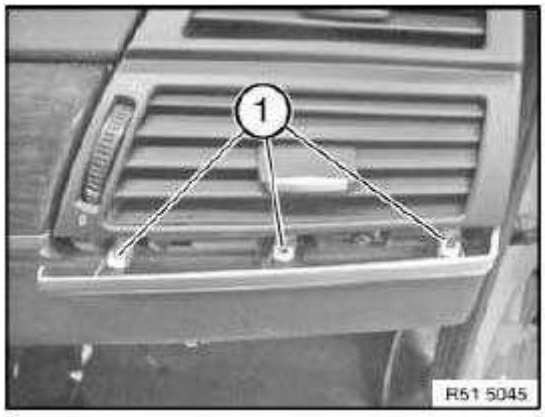


Fig. 495: Identifying Retainers On Decorative Strip
Courtesy of BMW OF NORTH AMERICA, INC.

PARCEL SHELF TRIM PAN ROLLER SUN BLIND

51 46 050 REMOVING AND INSTALLING/REPLACING TOP TRIM ON TAIL PANEL

Necessary preliminary tasks:

- Remove **storage compartment in luggage compartment** , see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on left or right**.
- Remove **trim on D-pillar at bottom** , see **51 47 105 Removing and installing/replacing trim on D-pillar at bottom left or right**.
- Remove **battery cover** , see **51 47 ... Removing and installing/replacing battery cover**.

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

Release screw (1).

Remove trim (2) upwards.

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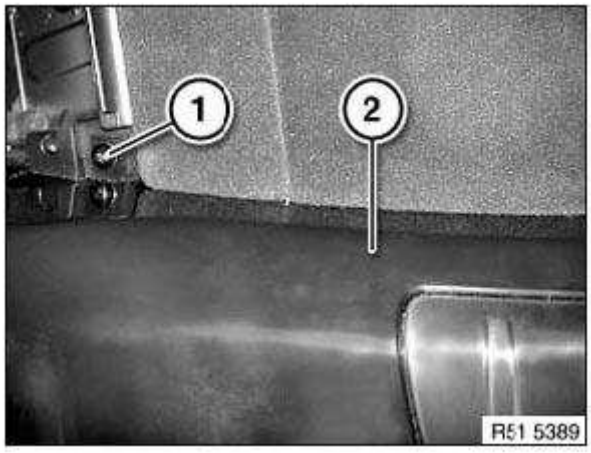


Fig. 496: Identifying Trim Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) and guide (2) must not be damaged.

Make sure catches (1) and guide (2) are correctly seated.

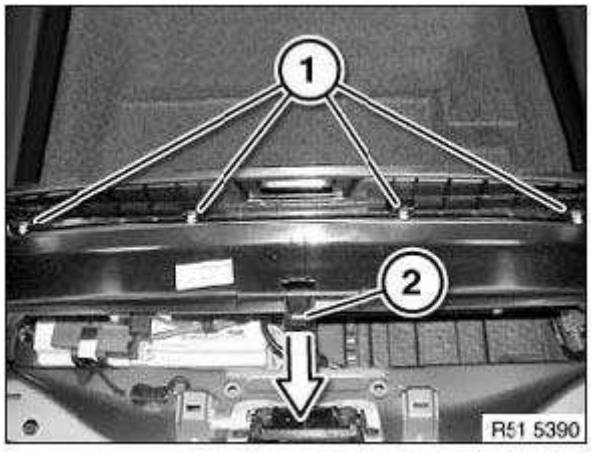


Fig. 497: Identifying Catches And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Feed in mucket (1).

To avoid damaging the rear lid and cover, carefully close the rear lid and check correct seating.

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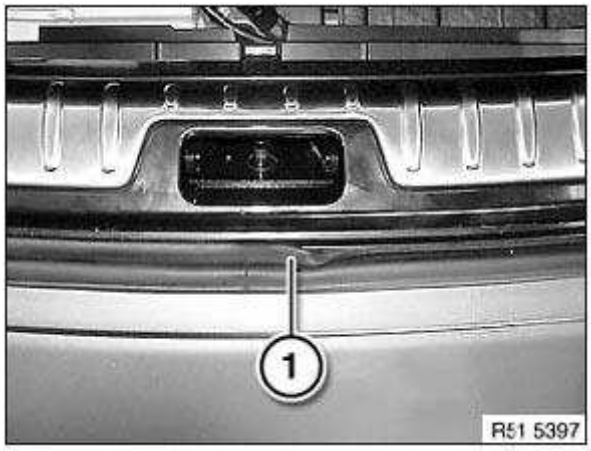


Fig. 498: Identifying Mucket
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 105 REMOVING AND INSTALLING/REPLACING TRIM ON D-PILLAR AT BOTTOM LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **flap in luggage compartment trim panel** , see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**.

Release screw (1).

Detach trim panel (2).

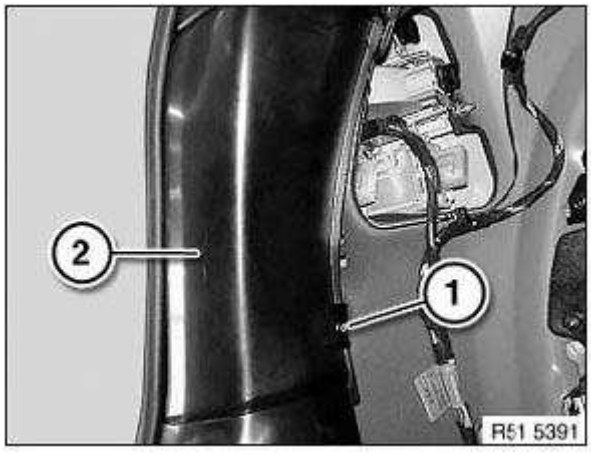


Fig. 499: Identifying Trim Panel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clip (1).

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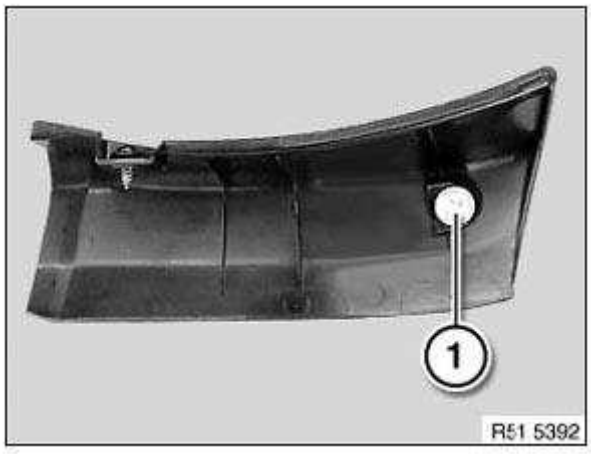


Fig. 500: Identifying Faulty Clip
Courtesy of BMW OF NORTH AMERICA, INC.

FLOOR, LUGGAGE, ENGINE COMPARTMENT

51 43 259 REMOVING AND INSTALLING/REPLACING TRIM FOR REAR ROOF PILLAR (D-PILLAR), LEFT OR RIGHT

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Necessary preliminary tasks:

- Remove **C-pillar trim at bottom** left/right, see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.

NOTE: Work is described on the right side, left side is secured only by one expander rivet.

Release expander rivet (1) and (right side only) (2).

Release trim (5) with special tool **00 9 317** at clips (3).

IMPORTANT: Risk of damage!

Carefully remove trim (5) to avoid damaging the roofliner. Feed out belt (6).

Installation:

Mucket must overlap trim (5) along dashed line (4).

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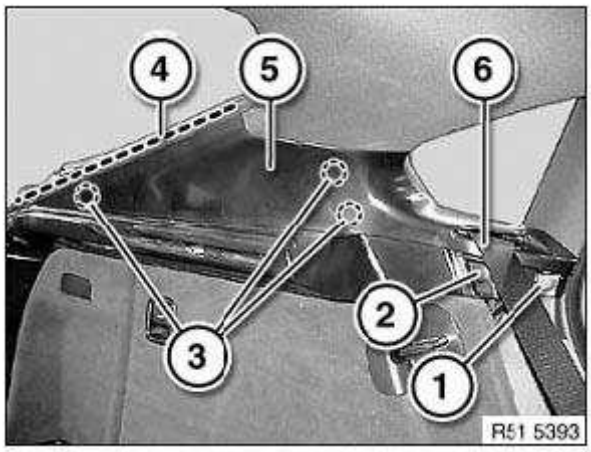


Fig. 501: Identifying Overlap Trim Dashed Line Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

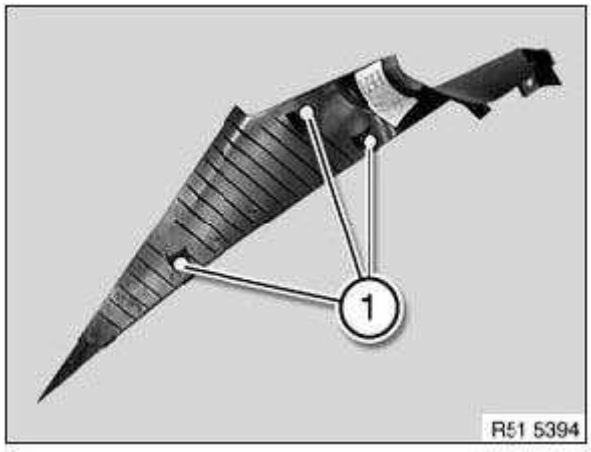


Fig. 502: Identifying Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 ... REMOVING AND INSTALLING/REPLACING C-PILLAR STORAGE COMPARTMENT AT BOTTOM LEFT OR RIGHT

Necessary preliminary tasks:

- Open rear door
- Remove **rear entrance cover strip** , see **51 47 030 Removing and installing/replacing rear (inside) left or right entrance cover strip**.
- Remove **lower C-pillar trim** , see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.

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Unclip rear seat towards rear.

Installation:

Feed seat belt buckles (1) into openings in rear seat.

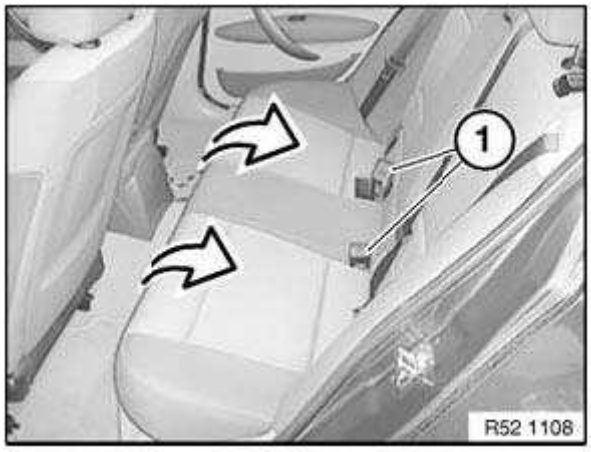


Fig. 503: Feeding Seat Belt Buckles
Courtesy of BMW OF NORTH AMERICA, INC.

Detach mucket (1) in area of storage compartment (2).

Remove mat insert (3) from storage compartment (2) and release screws underneath (4).

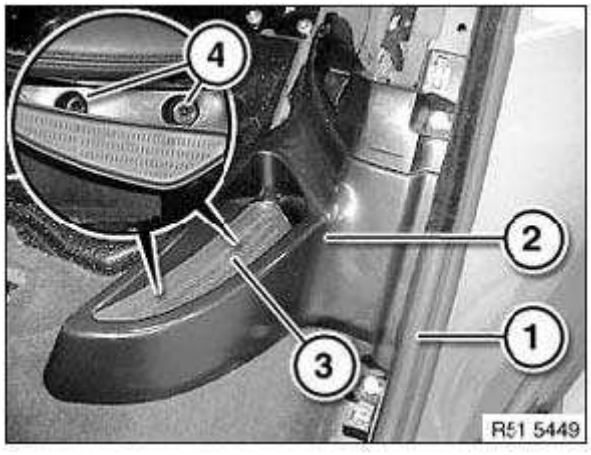


Fig. 504: Identifying Storage Compartment With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release clips (1).

Pull out storage compartment (2) in direction of arrow from clip (3).

Installation:

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If necessary, release clips (2 and 3) from vehicle.

Install storage compartment (2) with preinstalled clips (1).

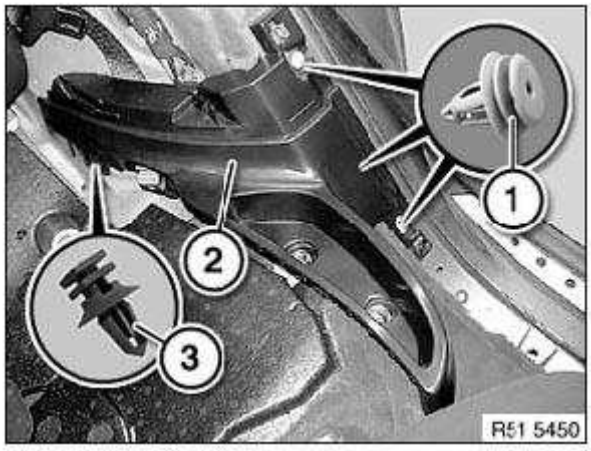


Fig. 505: Identifying Storage Compartment Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Retainers (1) must not be damaged or missing.

If necessary, replace faulty clips (2).

Fit missing clips on storage compartment (3).

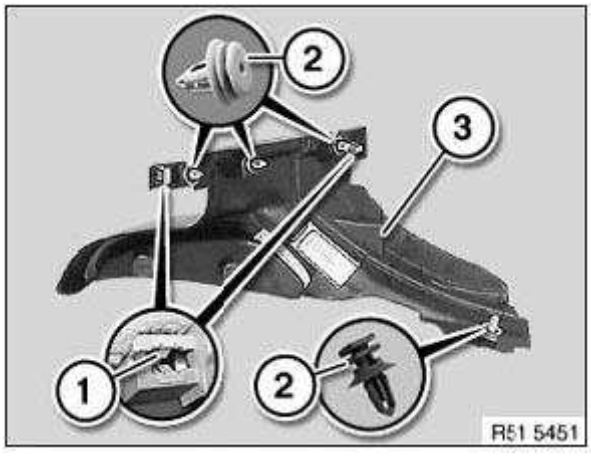


Fig. 506: Identifying Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 ... REMOVING AND INSTALLING/REPLACING BATTERY COVER

Release bolts (1).

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Remove battery cover upwards.

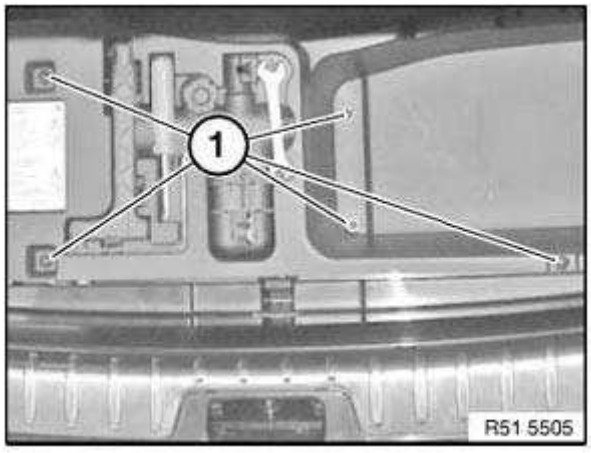


Fig. 507: Identifying Battery Cover Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Remove on-board tool kit from battery cover.

51 47 ... REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT LIP

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

Release screws (1).

Feed out lip (2).

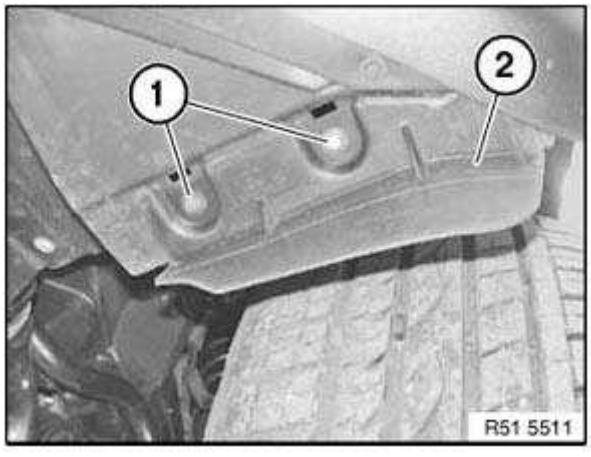


Fig. 508: Identifying Lip Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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51 47 ... REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT UNDERBODY PANELLING

Necessary preliminary tasks:

Underbody panelling must not be jammed by lifting platform. If necessary, fit suitable blocks under vehicle jacking points.

NOTE: Work shown on X5 3.0i by way of example, deviations in detail are possible in other models.

Cover, side, six-cylinder models

Release screws/nuts (1 and 2).

Feed out cover (3).

Installation:

Ensure cover (3) is correctly seated.

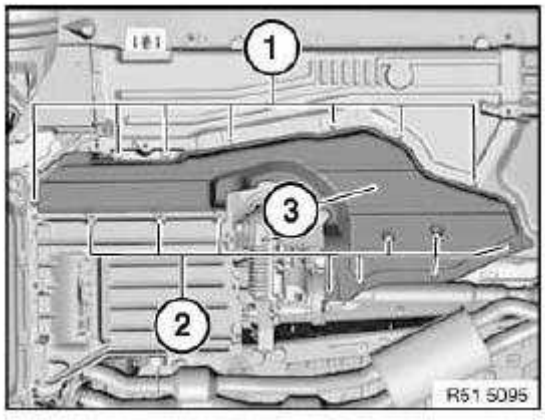


Fig. 509: Identifying Cover Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Underbody panelling, side

Release clips (1).

Release screws/nuts (2 and 4).

Feed out underbody panelling (3).

Installation:

If necessary, replace faulty clips (1).

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Fit clips (1) with O-rings.

Make sure underbody panelling (3) is correctly seated.

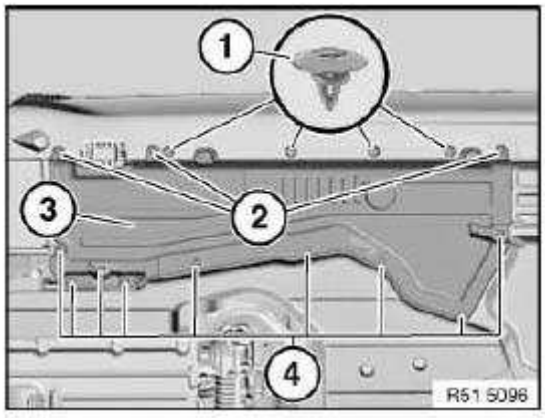


Fig. 510: Identifying Underbody Panelling Screws With Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Underride protection, tank

Release clips (1).

Release screws/nuts (2 and 3).

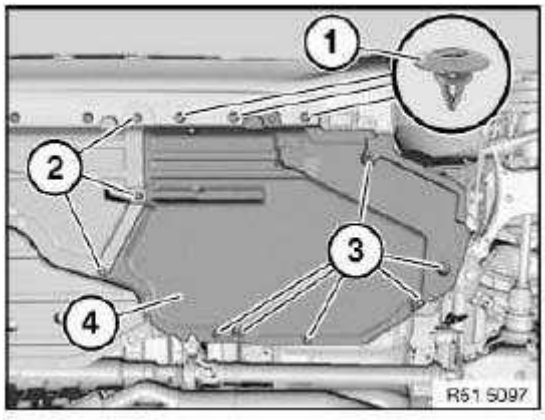
Feed out underride protection (4).

Installation:

If necessary, replace faulty clips (1).

Fit clips (1) with O-rings.

Make sure underride protection (4) is correctly seated.



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Fig. 511: Identifying Underride Protection With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 ... REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT RAM-AIR LIP

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

Release screws (1).

Remove ram-air lip (2).

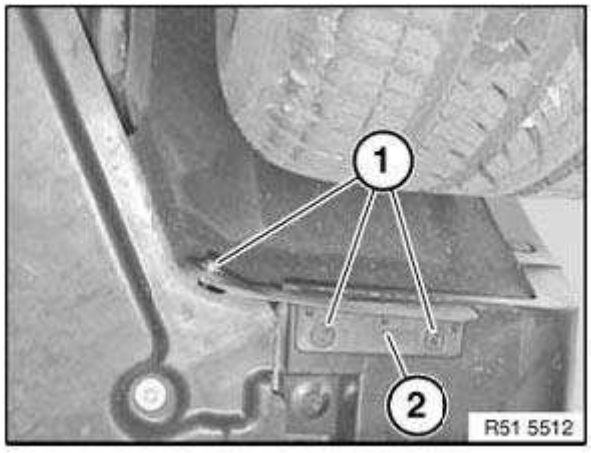


Fig. 512: Identifying Ram-Air Lip Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 ... REMOVING AND INSTALLING/REPLACING STORAGE COMPARTMENT IN LUGGAGE COMPARTMENT ON LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **flap in luggage compartment** on left or right, see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**.

Left side

Take out first-aid kit if necessary.

Remove warning triangle (1).

Release clips (2) and remove storage compartment (3).

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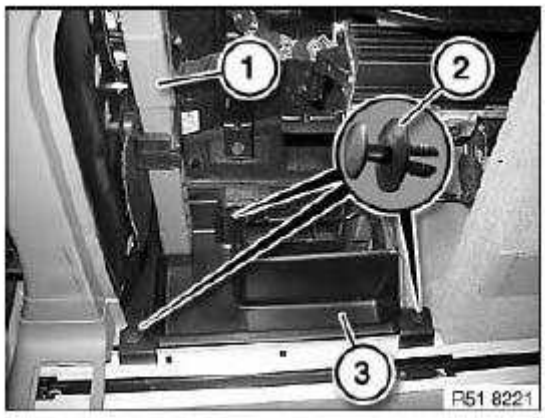


Fig. 513: Identifying Storage Compartment Clips (Left Side)
Courtesy of BMW OF NORTH AMERICA, INC.

Right side

Release clips (1) and feed out storage compartment (2).

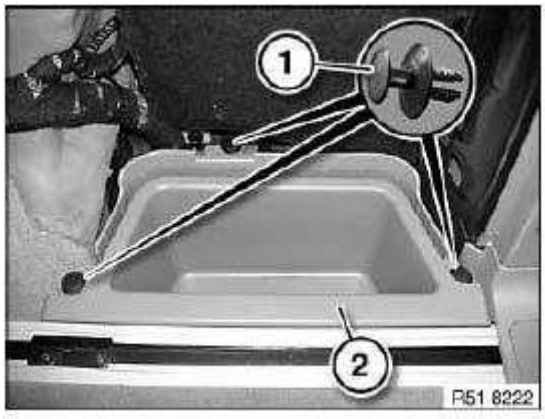


Fig. 514: Identifying Storage Compartment Clips (Right Side)
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 000 REMOVING AND INSTALLING/REPLACING FRONT (INSIDE) LEFT OR RIGHT ENTRANCE COVER STRIP

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

NOTE: To remove the footwell side trim from the A-pillar, it is only necessary to detach entrance cover strip in the front area. Preliminary tasks are not required.

Necessary preliminary tasks:

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- Remove **panel for door pillar.** , see **51 43 150 Removing and installing or replacing trim for left or right door pillar (bottom)**.
- Remove **entrance cover strip at rear** , see **51 43 150 Removing and installing or replacing trim for left or right door pillar (bottom)**.

NOTE: Front seat is shown removed for purposes of clarity.

Detach mucket (1) in area of entrance cover strip (2).

Unclip entrance cover strip (2) with special tool **00 9 317** starting at front.

Installation:

If necessary, replace faulty retainer (3).

If necessary, release clips (4) from vehicle.

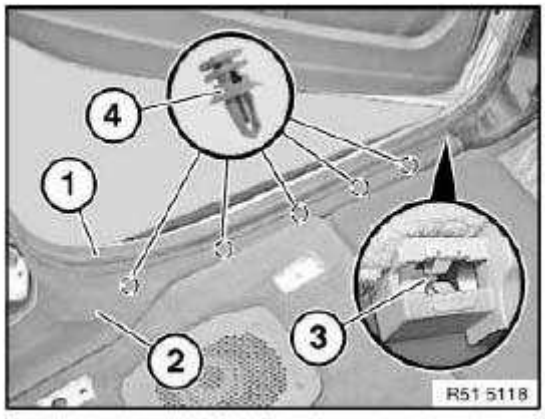
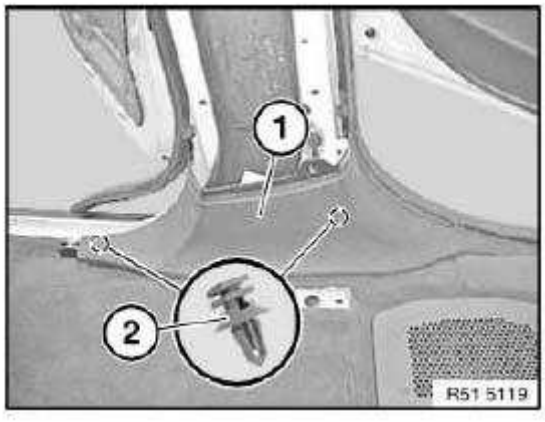


Fig. 515: Identifying Entrance Cover Strip And Mucket With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Release entrance cover strip (1) at clips (2) and feed out.



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Fig. 516: Identifying Entrance Cover Strip With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Lug (1) must not be damaged or missing; if necessary, replace entrance cover strip (3).

If necessary, replace faulty clips (2).

Fit missing clips on entrance cover strip (3).

Fit entrance cover strip (3) with preinstalled clips (2).

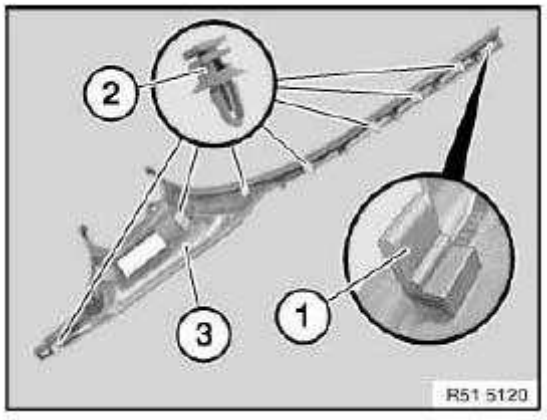


Fig. 517: Identifying Entrance Cover Strip And Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 030 REMOVING AND INSTALLING/REPLACING REAR (INSIDE) LEFT OR RIGHT ENTRANCE COVER STRIP

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Detach mucket (1) in area of entrance cover strip (2).

Using special tool **00 9 317** , detach entrance cover strip (2) from retainers (3) and clips (4) in upward direction.

Installation:

If necessary, replace faulty retainers (3).

If necessary, release clips (4) from vehicle.

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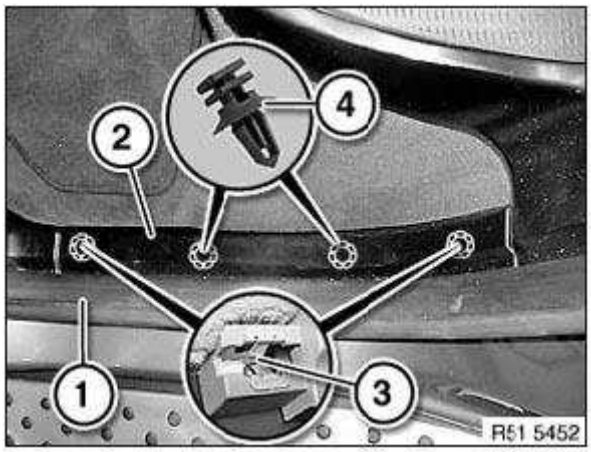


Fig. 518: Identifying Entrance Cover Strip And Faulty Retainers With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Lugs (1) must not be damaged or missing.

If necessary, fit missing or faulty clips (2) on entrance cover strip (3).

Fit entrance cover strip (3) with preinstalled clips (2).

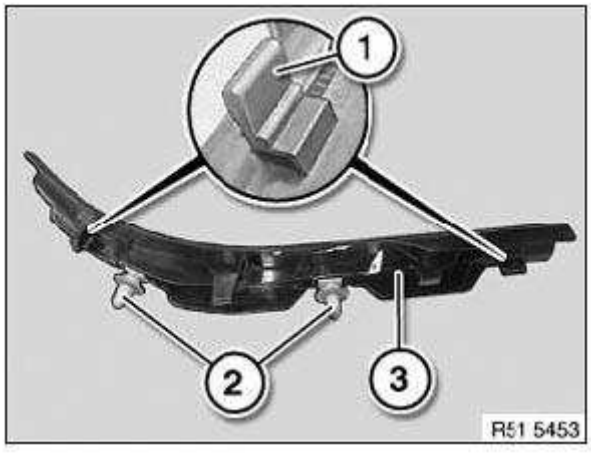


Fig. 519: Identifying Entrance Cover Strip With Preinstalled Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 105 REMOVING AND INSTALLING/REPLACING TRIM ON D-PILLAR AT BOTTOM LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **flap in luggage compartment trim panel** , see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**.

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Release screw (1).

Detach trim panel (2).

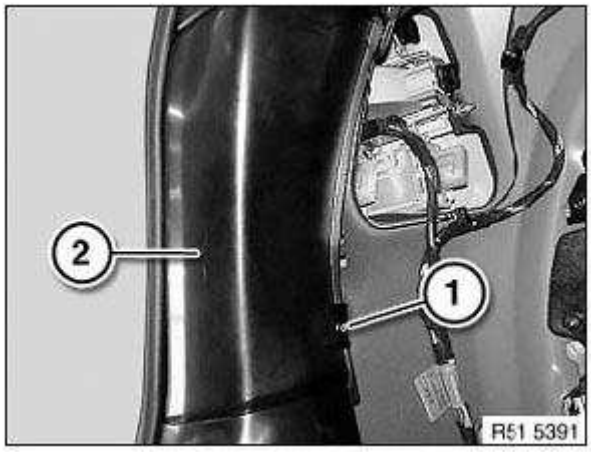


Fig. 520: Identifying Trim Panel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clip (1).

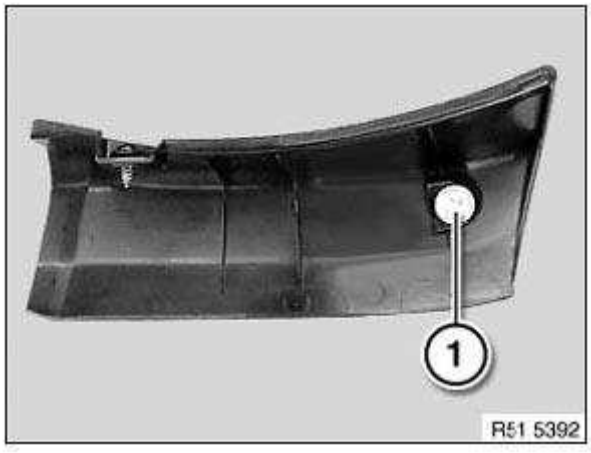


Fig. 521: Identifying Faulty Clip
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 126 REPLACING HANDLE ON PANEL FOR LUGGAGE COMPARTMENT FLOOR

Release screws (1).

Separate both handle halves (3) from each other at catches (2).

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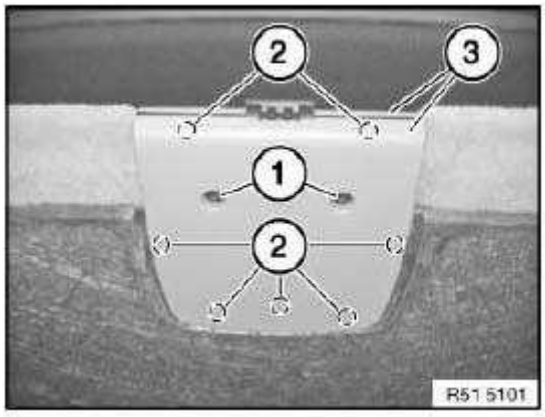


Fig. 522: Identifying Handle Halves And Catches With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Lever (2) and spring (5) on handle recess (1) must not be missing or damaged.

Removing lock cylinder:

Remove lever (2).

Release catches (4) and remove lock cylinder (3).

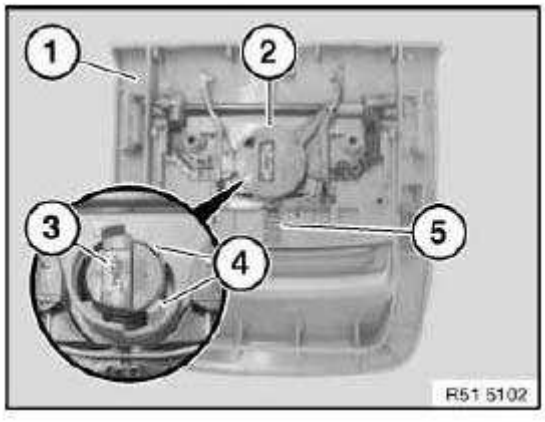


Fig. 523: Identifying Spring And Handle Recess With Lock Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Following parts on handle recess (1) must not be missing or damaged:

2 Fastener

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3 Springs

4 Catches

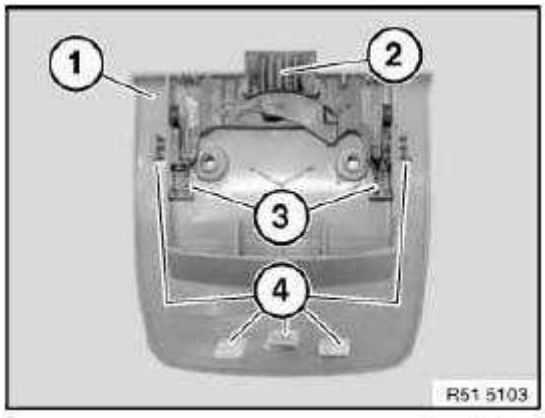


Fig. 524: Identifying Handle Recess And Catches
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 127 REPLACING LOCK CYLINDER ON PANEL FOR LUGGAGE COMPARTMENT FLOOR

Operation is described in:

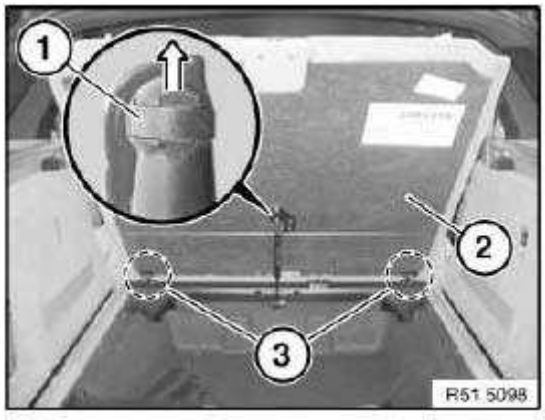
Replacing **HANDLE ON PANEL FOR LUGGAGE COMPARTMENT FLOOR**.

51 47 128 REMOVING AND INSTALLING/REPLACING PANEL FOR LUGGAGE COMPARTMENT FLOOR

Push retaining spring (1) to end of gas-filled strut.

Remove gas-filled strut from ball head.

Firmly pull luggage compartment floor (2) towards rear and thereby disengage from hinges (3).



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Fig. 525: Pushing Retaining Spring To End Of Gas-Filled Strut
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Remove **HANDLE ON PANEL FOR LUGGAGE COMPARTMENT FLOOR**.

Release screws (1).

Remove hinge (2).

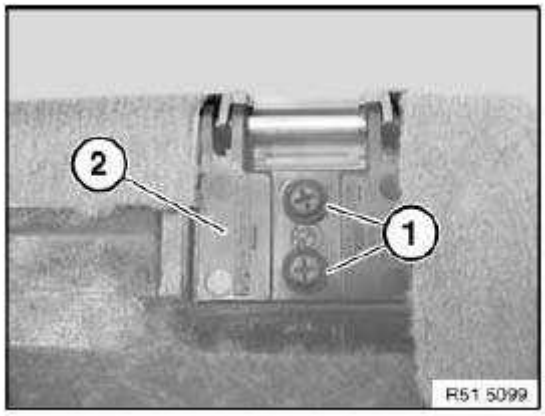


Fig. 526: Identifying Hinge Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove retaining plate (2).

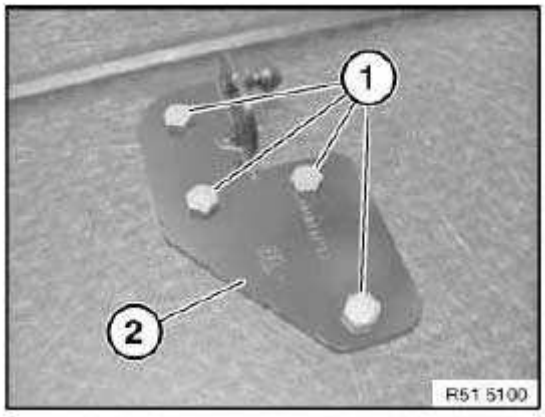


Fig. 527: Identifying Retaining Plate And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 134 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT RAIL IN LUGGAGE COMPARTMENT FLOOR

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Necessary preliminary tasks:

- Remove **luggage compartment wheel arch trim** , see **51 47 151 Removing and installing/replacing left luggage compartment wheel arch trim** or **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**.
- Remove **battery cover** , see **51 47 ... Removing and installing/replacing battery cover**.
- Remove **trim from rear apron** , see **51 46 050 Removing and installing/replacing top trim on tail panel**.

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

Release expansion rivets (1).

Release screw (2).

Release plastic nut (3).

Feed out rail (4) towards rear.

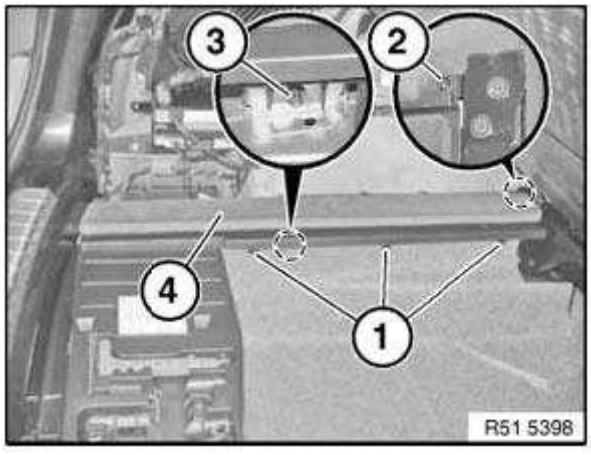


Fig. 528: Identifying Expansion Rivets And Plastic Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty expander rivets and plastic nuts.

51 47 135 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT LASHING RAIL IN LUGGAGE COMPARTMENT FLOOR

Necessary preliminary tasks:

- Remove **luggage compartment wheel arch trim** , see **51 47 151 Removing and installing/replacing**

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left luggage compartment wheel arch trim or **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**.

- Remove **storage compartment in luggage compartment** , see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on left or right**.

IMPORTANT: Risk of mixing up
Different screws fitted.

Release clips (1).

Unfasten screws (2 and 3).

Feed out lashing rail (4) towards rear.

Installation:

Tighten down screws (2) to tightening torque **51 71 5AZ** , see **51 71 SEALS AND LOOSE BODY PARTS** .

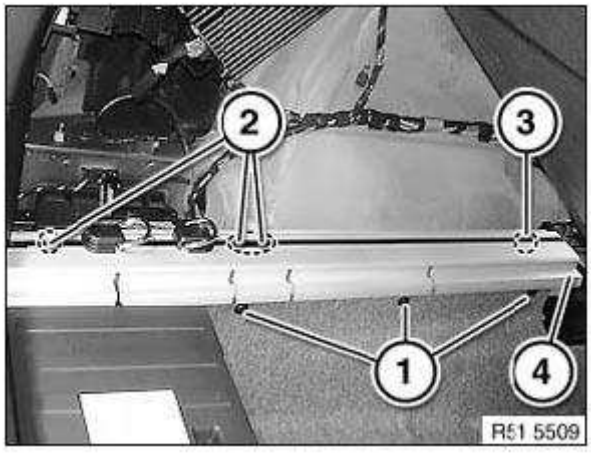


Fig. 529: Identifying Lashing Rail With Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 151 REMOVING AND INSTALLING/REPLACING LEFT LUGGAGE COMPARTMENT WHEEL ARCH TRIM

Necessary preliminary tasks:

- Remove **left storage compartment** , see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on left or right**.

  E70 only:

- Remove **left C-pillar trim** , see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.

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Press catches (1) together from inside and feed out cover (2).

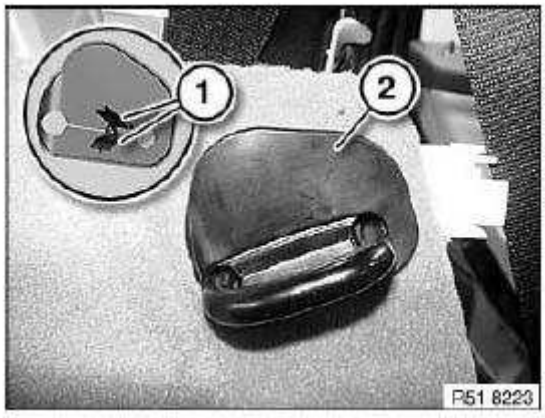


Fig. 530: Identifying Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Release clips (1).

Feed out luggage compartment wheel arch trim (2).

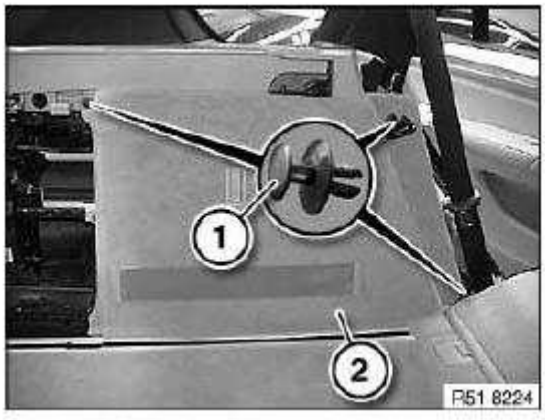


Fig. 531: Identifying Luggage Compartment Wheel Arch Trim Clips
Courtesy of BMW OF NORTH AMERICA, INC.

If replacing version with storage package

Remove multifunction hook (1).

Remove tensioning strap (2).

NOTE: Openings for multifunction hook (1) and tensioning strap (2) must be cut out from luggage compartment wheel arch trim.

Saw out openings with an oscillating saw and a straight blade on the molding.

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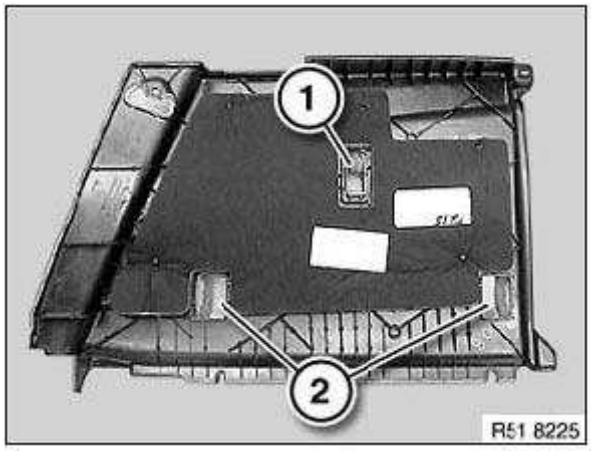


Fig. 532: Identifying Multifunction Hook And Tensioning Strap
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 156 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT CAPPING IN LUGGAGE COMPARTMENT

Necessary preliminary tasks:

- Remove **capping** . See **51 47 157 Removing and installing/replacing cover for left or right capping in luggage compartment**.

Remove screws (1) and (2).

Remove capping (3).

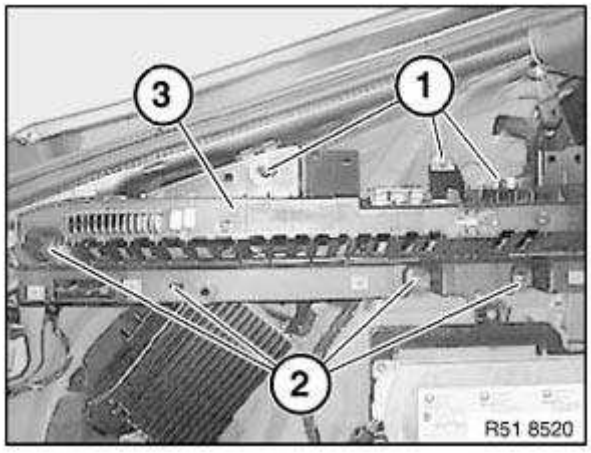


Fig. 533: Identifying Capping Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 157 REMOVING AND INSTALLING/REPLACING COVER FOR LEFT OR RIGHT CAPPING IN LUGGAGE COMPARTMENT

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Necessary preliminary tasks:

- Remove **luggage compartment wheel arch trim** , see **51 47 151 Removing and installing/replacing left luggage compartment wheel arch trim** or **51 47 161 Removing and installing/replacing right luggage compartment wheel arch trim**.
- Remove **D-pillar trim panel.** , see **51 43 259 Removing and installing/replacing trim for rear roof pillar (D-pillar), left or right**.

Release screws (1) and (2).

Remove capping cover (3).

Installation:

Mucket must overlap capping cover (3) along dashed line (4).

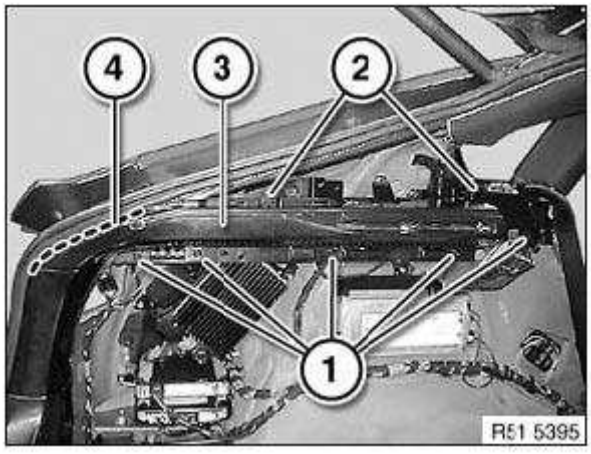


Fig. 534: Identifying Overlap Capping Cover And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 161 REMOVING AND INSTALLING/REPLACING RIGHT LUGGAGE COMPARTMENT WHEEL ARCH TRIM

Necessary preliminary tasks:

- Remove **right glovebox** , see **51 16 360 Removing and installing right glovebox**.

  E70 only:

- Remove **right C-pillar trim** , see **51 43 230 Removing and installing/replacing trim on C-pillar at bottom left or right**.

Press catches (1) together from inside and feed out cover (2).

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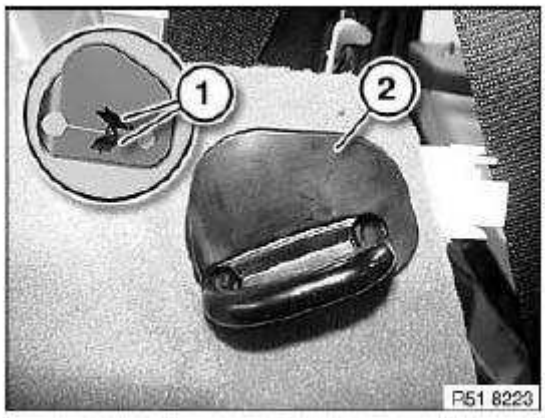


Fig. 535: Identifying Catches And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection on socket (1).

Release clips (2).

Feed out luggage compartment wheel arch trim (3) in inwards direction.

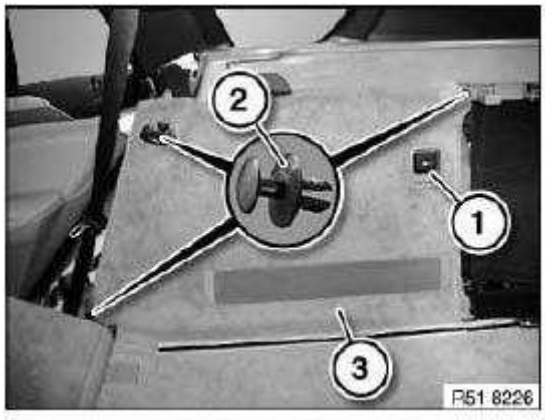


Fig. 536: Identifying Luggage Compartment Wheel Arch Trim Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Remove socket (1).

Version with storage pack:

Remove multifunction hook (2).

Remove tensioning strap (3).

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NOTE: Openings for multifunction hook (2) and tensioning strap (3) must be cut out from luggage compartment wheel arch trim.

Saw out openings with an oscillating saw and a straight blade on the molding.

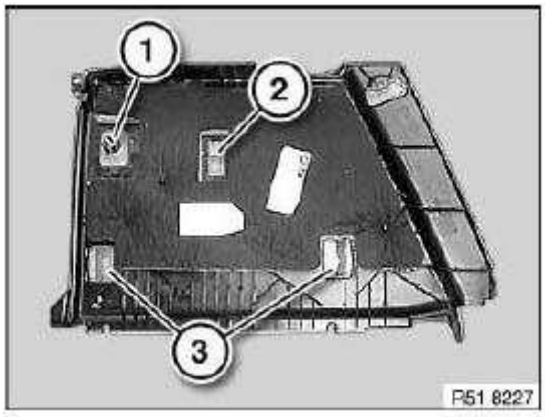


Fig. 537: Identifying Tensioning Strap And Multifunction Hook With Socket
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 172 REMOVING AND INSTALLING/REPLACING FLAP IN LUGGAGE COMPARTMENT TRIM, LEFT OR RIGHT

Open flap (2) at handle (1) and remove.

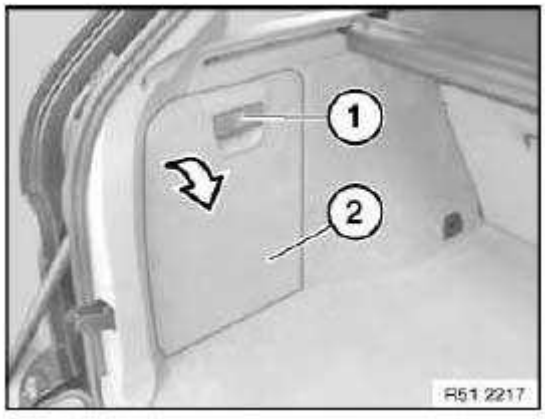


Fig. 538: Removing Flap
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION

NOTE: Pictures created using the X6 3.0 i as an example. There may be differences in detail in the case of other models.

Release screws (1).

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Pull forward assembly underside protection (2) under bumper trim (3) and remove.

Installation:

Centre underbody protection (2) and tighten down screws (1).

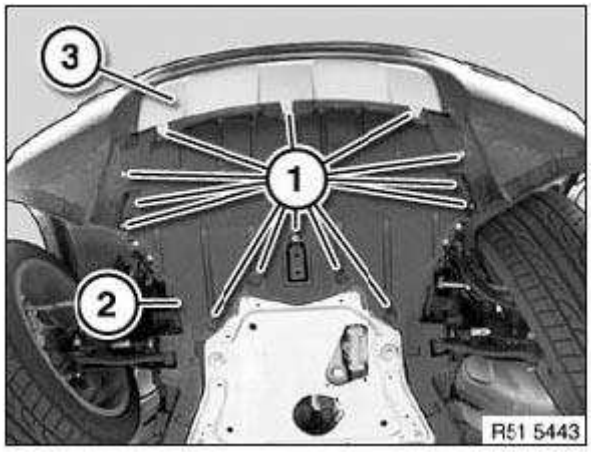


Fig. 539: Identifying Under Bumper Trim Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION

NOTE: Illustration created using X5 3.0i as an example. There may be differences in detail in the case of other models.

Release screws (1) and remove underbody protection (2).

Installation:

Centre underside protection (2) and tighten down screws (1).

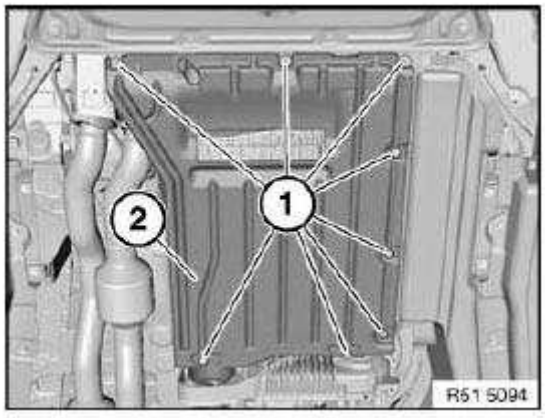


Fig. 540: Identifying Underbody Protection Screws

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Courtesy of BMW OF NORTH AMERICA, INC.

FRONT LID INSULATION LINING

51 48 001 REMOVING AND INSTALLING/REPLACING INSULATION LINING ON HOOD/BONNET

Release threaded rivets (1) on insulation lining (2).

Feed out insulation lining (2).

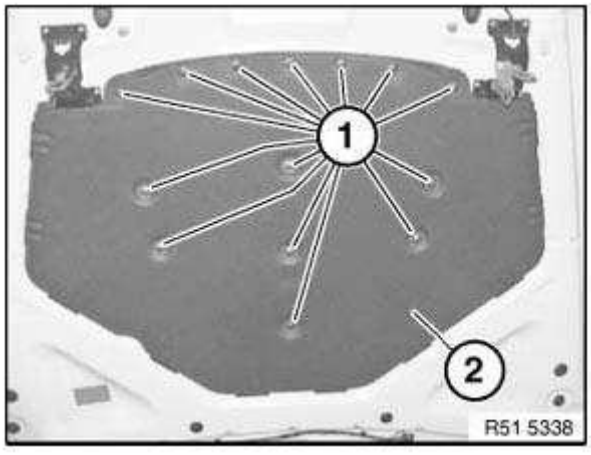


Fig. 541: Identifying Threaded Rivets On Insulation Lining
Courtesy of BMW OF NORTH AMERICA, INC.

51 48 060 REMOVING AND INSTALLING/REPLACING SOUND INSULATION IN LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

Using a scalpel, cut through sealing bead (1) completely of if necessary partially.

Feed out sound insulation (3) at cable (2) and remove.

Installation:

Ensure clean bonding and that there are no leaks at sealing bead.

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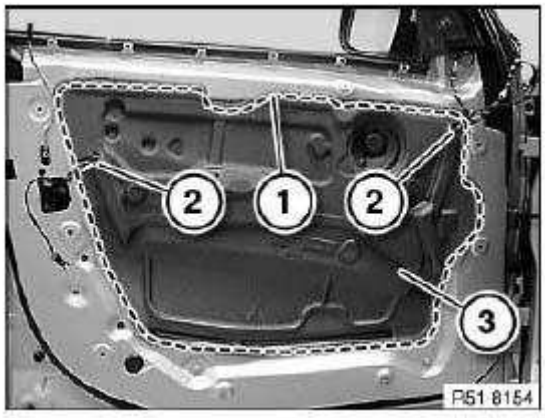


Fig. 542: Identifying Sealing Bead Area
Courtesy of BMW OF NORTH AMERICA, INC.

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 sound insulation (2).

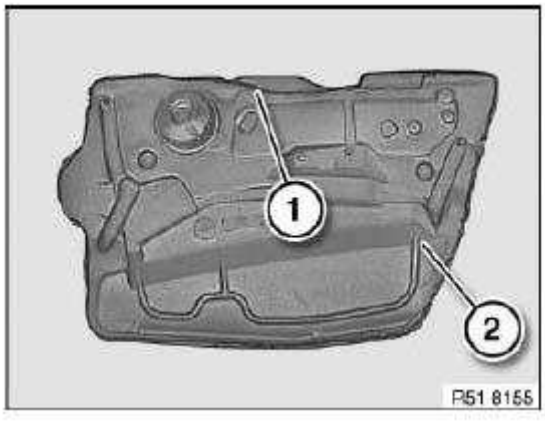


Fig. 543: Identifying Butylene Tape On Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

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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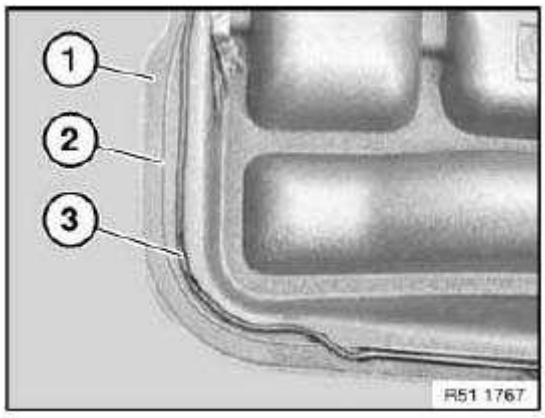


Fig. 544: Identifying Butylene Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Clean adhesive area on inner door panel with adhesive cleaner (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 6 mm dia. butylene tape in a single row (sourcing reference: BMW Parts Service) in specified adhesive area on acoustic insulation.

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

51 48 070 REMOVING AND INSTALLING/REPLACING SOUND INSULATION ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove **rear door trim panel** , see **51 42 000 Removing and installing (replacing) rear left or right door trim panel**.

If necessary, disconnect plug connection (1).

Using a scalpel, cut through sealing bead (3) of sound insulation (4) completely or if necessary partially.

Feed wires (2) out of sound insulation (4).

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Installation:

Ensure clean bonding and that there are no leaks at sealing bead.

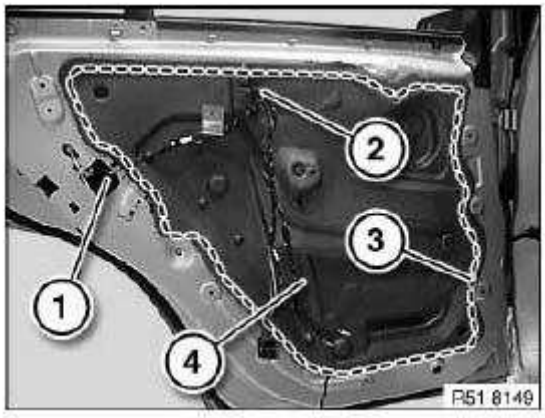


Fig. 545: Identifying Sealing Bead Area
Courtesy of BMW OF NORTH AMERICA, INC.

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 sound insulation (2).

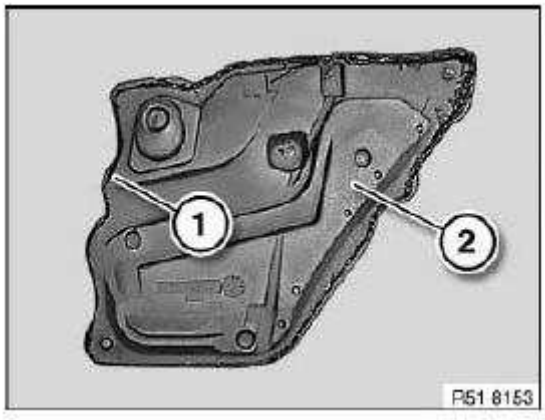


Fig. 546: Positioning Of Butylene Tape On Sound Insulation
Courtesy of BMW OF NORTH AMERICA, INC.

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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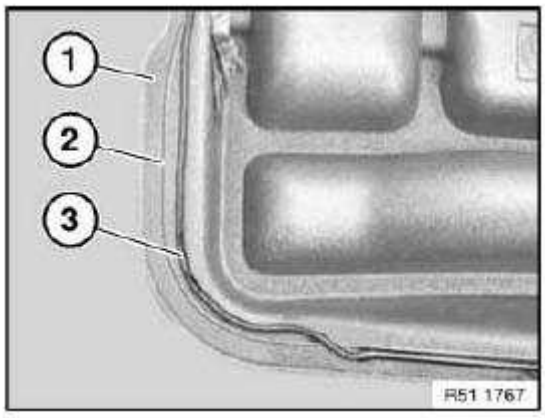


Fig. 547: Identifying Butylene Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Clean adhesive area on inner door panel with adhesive cleaner (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 6 mm dia. butylene tape in a single row (sourcing reference: BMW Parts Service) in specified adhesive area on acoustic insulation.

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

REAR LID TRIM PANEL

51 46 050 REMOVING AND INSTALLING/REPLACING TOP TRIM ON TAIL PANEL

Necessary preliminary tasks:

- Remove **storage compartment in luggage compartment** , see **51 47 ... Removing and installing/replacing storage compartment in luggage compartment on left or right**.
- Remove **trim on D-pillar at bottom** , see **51 47 105 Removing and installing/replacing trim on D-pillar at bottom left or right**.
- Remove **battery cover** , see **51 47 ... Removing and installing/replacing battery cover**.

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

Release screw (1).

Remove trim (2) upwards.

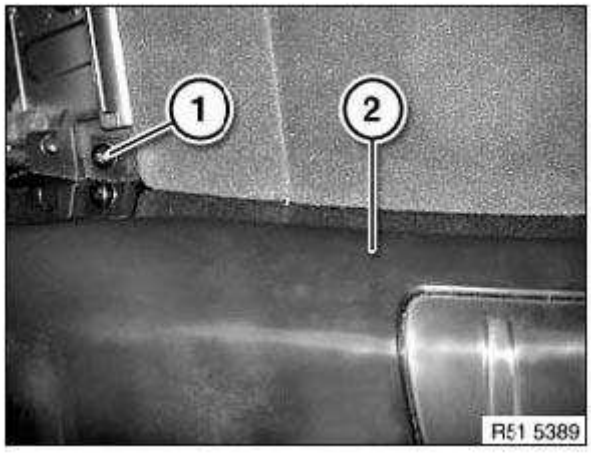


Fig. 548: Identifying Trim Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Catches (1) and guide (2) must not be damaged.

Make sure catches (1) and guide (2) are correctly seated.

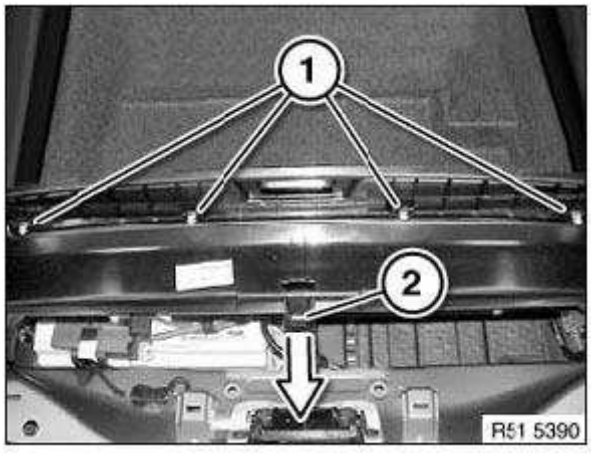


Fig. 549: Identifying Catches And Guide
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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Feed in mucket (1).

To avoid damaging the rear lid and cover, carefully close the rear lid and check correct seating.

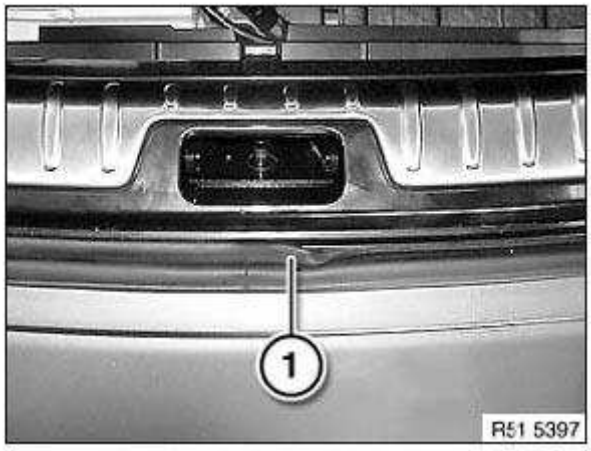


Fig. 550: Identifying Mucket
Courtesy of BMW OF NORTH AMERICA, INC.

51 47 105 REMOVING AND INSTALLING/REPLACING TRIM ON D-PILLAR AT BOTTOM LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **flap in luggage compartment trim panel** , see **51 47 172 Removing and installing/replacing flap in luggage compartment trim, left or right**.

Release screw (1).

Detach trim panel (2).

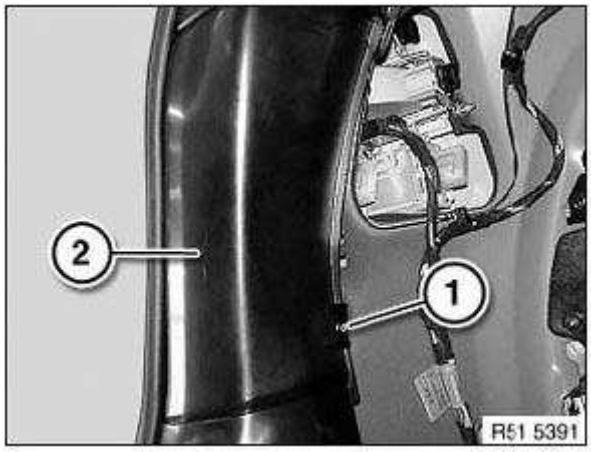


Fig. 551: Identifying Trim Panel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

If necessary, replace faulty clip (1).

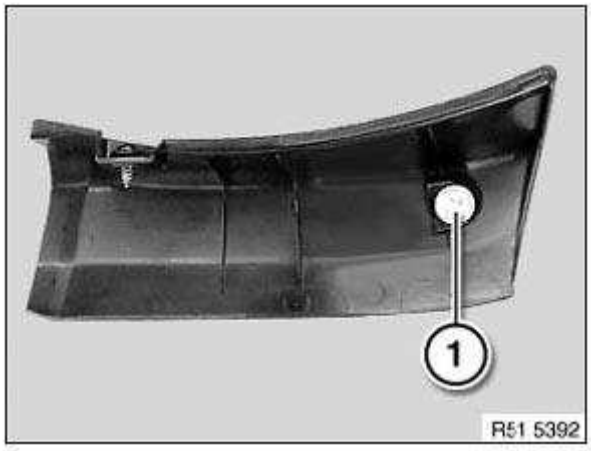


Fig. 552: Identifying Faulty Clip
Courtesy of BMW OF NORTH AMERICA, INC.

51 49 000 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID

Special tools required:

- **00 9 317** , see **00 9 317 TRIM PANEL WEDGE** .

Necessary preliminary tasks:

- Remove **panel for rear window frame** on left and right, see **51 49 002 Removing and installing/replacing (upper) panel for rear window frame**.
- Remove **luggage compartment lights on rear lid** , see **63 31 080 REMOVING AND INSTALLING/REPLACING (LEFT OR RIGHT) LUGGAGE COMPARTMENT LIGHT (ON REAR LID)** .
- Remove **button for rear lid actuation** on left and right, see **61 31 084 REMOVING AND INSTALLING/REPLACING SWITCH FOR AUTOMATIC REAR LID ACTUATION** .

Fit special tool **00 9 317** on inside of cover (1) and lever out.

Release screws (2) and unclip panel.

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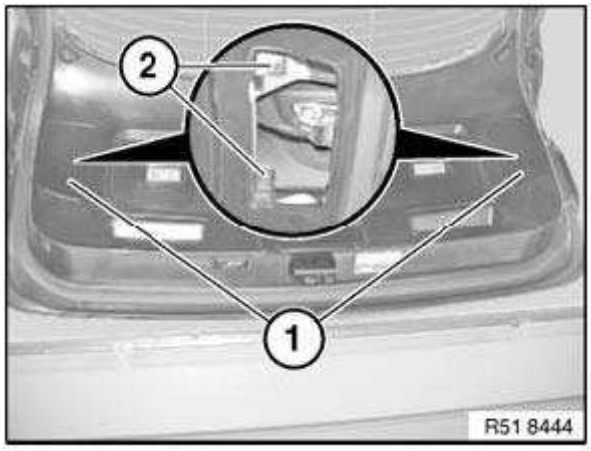


Fig. 553: Identifying Cover Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1 and 2).

Make sure all clips are installed in correct position.

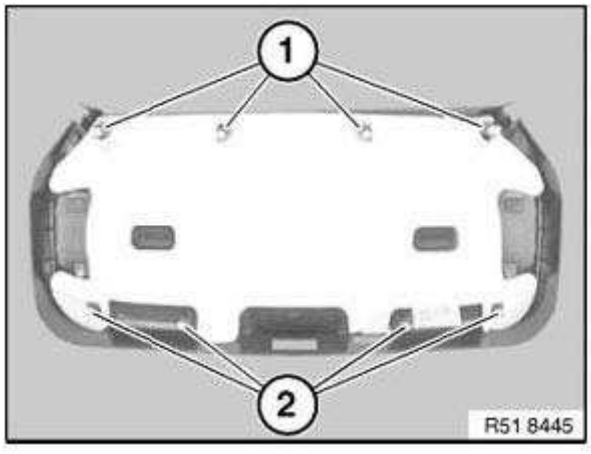


Fig. 554: Identifying Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 49 002 REMOVING AND INSTALLING/REPLACING (UPPER) PANEL FOR REAR WINDOW FRAME

Release panel (1) at clips (2) and retainers (3).

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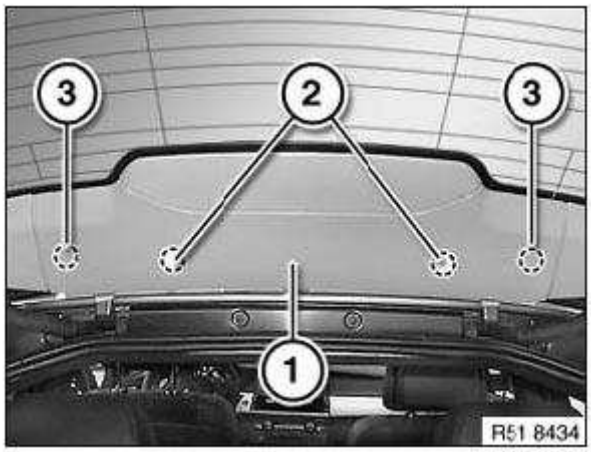


Fig. 555: Identifying Panel And Clips With Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If necessary, replace faulty clips (1).

Lugs (2) on panel (3) must not be damaged.

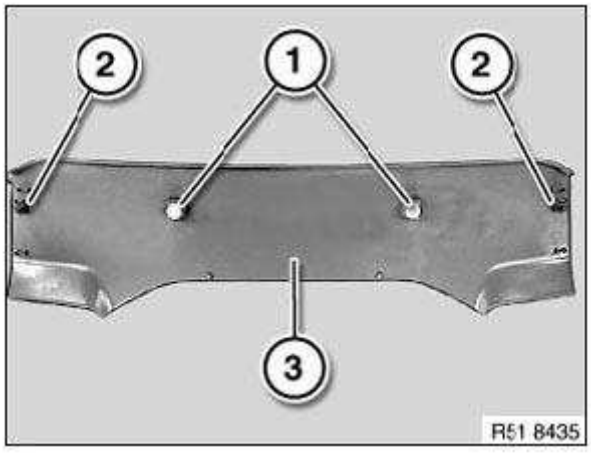


Fig. 556: Identifying Faulty Clips With Lugs
Courtesy of BMW OF NORTH AMERICA, INC.

51 49 017 REMOVING AND INSTALLING/REPLACING TRIM PANEL FOR REAR WINDOW FRAME ON (INSIDE) LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **trim panel at top** , see **51 49 002 Removing and installing/replacing (upper) panel for rear window frame**.

Detach trim panel (1) from retainers (2) towards inside.

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Installation:

If necessary, replace faulty retainers (2).

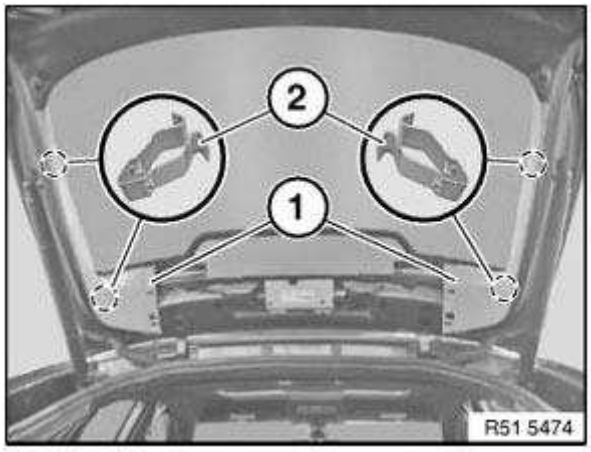


Fig. 557: Identifying Trim Panel And Retainers
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Lugs (1) on panel (2) must not be damaged.

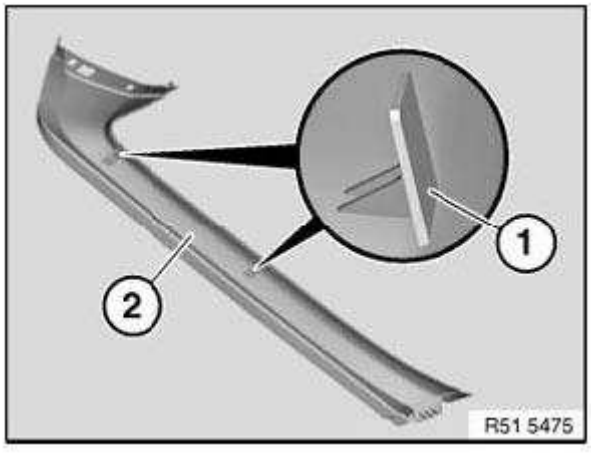


Fig. 558: Identifying Lugs On Panel
Courtesy of BMW OF NORTH AMERICA, INC.

FRONT PANEL, FRONT END

51 64 001 REMOVING AND INSTALLING OR REPLACING TOP AIR FLAP CONTROL

Necessary preliminary tasks:

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- Remove **radiator air duct** , see **51 71 099 Removing and installing/replacing radiator air guide**.

Release screws (1).

Remove air flap control.

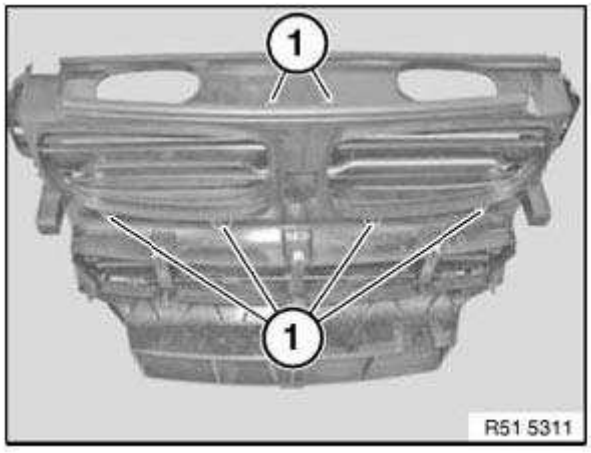


Fig. 559: Identifying Air Flap Control Screws
Courtesy of BMW OF NORTH AMERICA, INC.

GASKETS, SEALS

51 13 116 REMOVING AND INSTALLING/REPLACING COWL PANEL COVER

Necessary preliminary tasks:

- Remove both **windscreen wiper arms** , see **61 61 081 REPLACING (REMOVING AND INSTALLING) LEFT OR RIGHT WINDSCREEN WIPER ARM** .
- Remove both **microfilter housing covers** , see **64 31 101 REMOVING AND INSTALLING/REPLACING LEFT MICROFILTER HOUSING COVER** or **64 31 106 REMOVING AND INSTALLING/REPLACING RIGHT MICROFILTER HOUSING COVER** .

Release clips (1).

Feed out cover (2) towards top.

Installation:

If necessary, replace faulty clips (1) and associated grommets in body.

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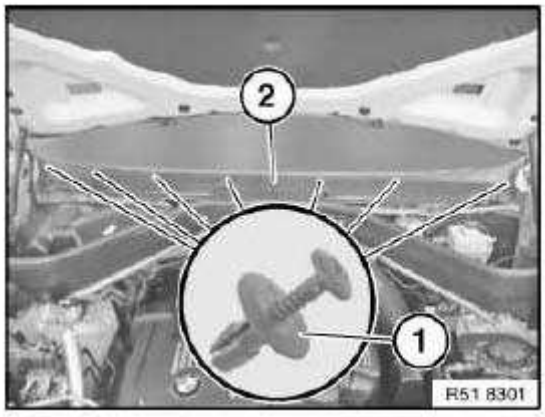


Fig. 560: Identifying Cover Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure grommets (1) are correctly seated on wiper pivots.

Grommets (1) for wiper pivots must not be damaged.

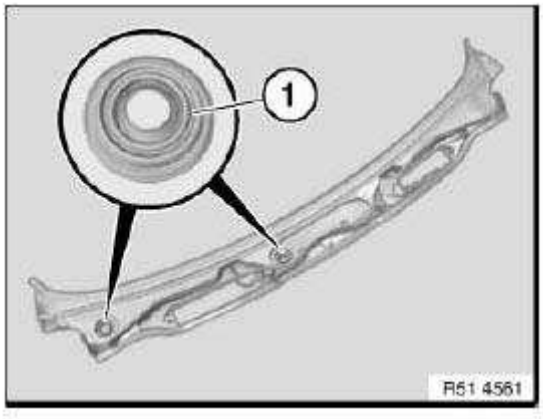


Fig. 561: Identifying Grommets
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Cowl panel cover (1) must be correctly guided on right and left under windscreen cover (2).

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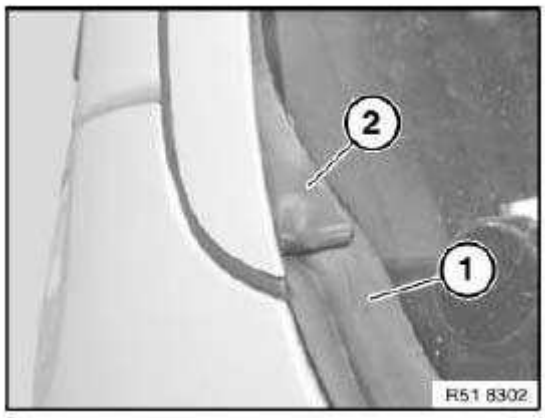


Fig. 562: Identifying Cowl Panel Cover And Left Under Windscreen Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 64 001 REMOVING AND INSTALLING OR REPLACING TOP AIR FLAP CONTROL

Necessary preliminary tasks:

- Remove **radiator air duct** , see **51 71 099 Removing and installing/replacing radiator air guide**.

Release screws (1).

Remove air flap control.

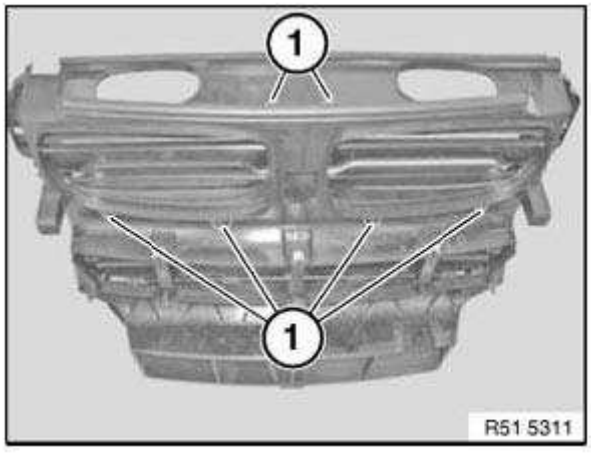


Fig. 563: Identifying Air Flap Control Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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- **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.
- 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.

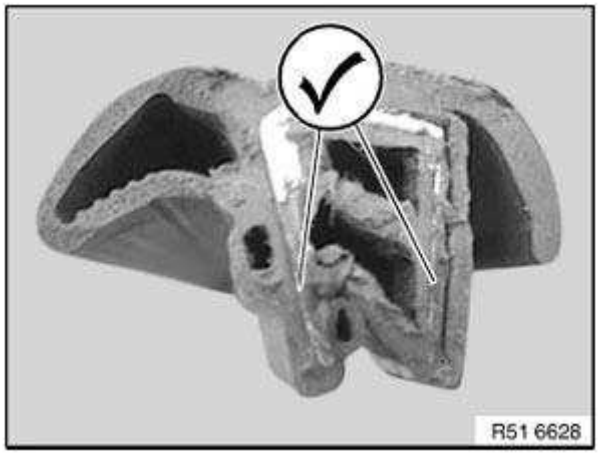


Fig. 564: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

- 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).

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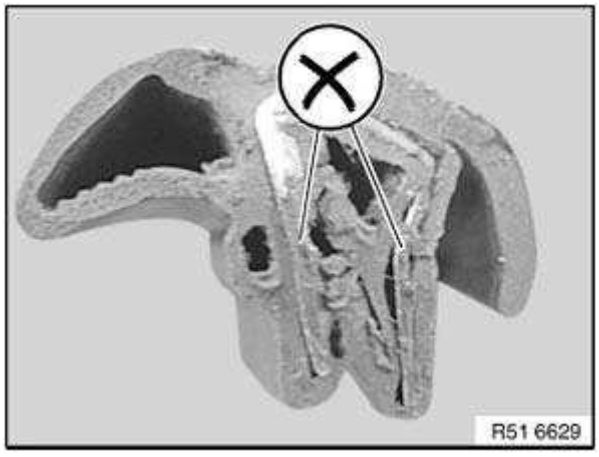


Fig. 565: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

- The clamping area must be uniform.

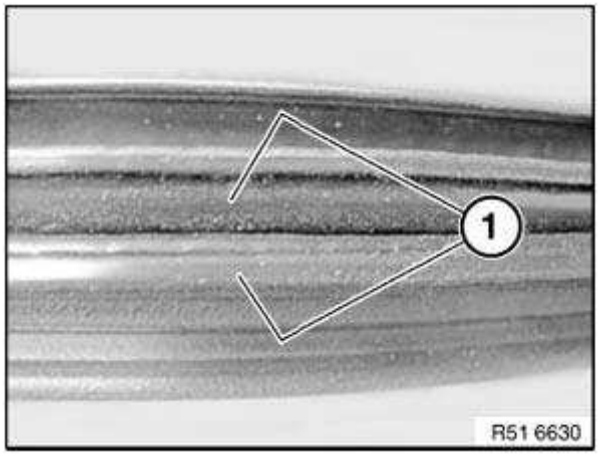


Fig. 566: Identifying Clamping Area
Courtesy of BMW OF NORTH AMERICA, INC.

- Joint seals which are fitted with plastic clips must rest rigidly on the body. Otherwise, the clips or the joint seal must be replaced.

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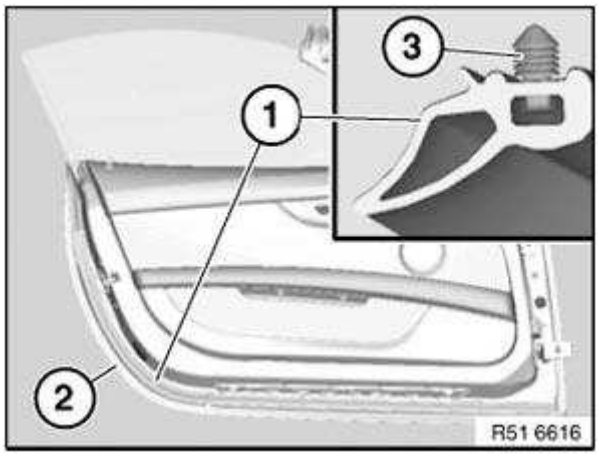


Fig. 567: Identifying Joint Seals And Plastic Clips
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 ... REMOVING AND INSTALLING/REPLACING ASSEMBLY COMPARTMENT PARTITION WALL

Necessary preliminary tasks:

- Remove **left microfilter housing cover** , see **64 31 101 REMOVING AND INSTALLING/REPLACING LEFT MICROFILTER HOUSING COVER** .
- Remove **microfilter housing (upper section)** , see **64 31 081 REMOVING AND INSTALLING/REPLACING MICROFILTER HOUSING** .

Assembly compartment partition wall, middle

Remove seal (1) for engine hood/bonnet.

Release screws (2, 4).

Remove partition wall (3).

Installation:

Make sure partition wall is correctly positioned.

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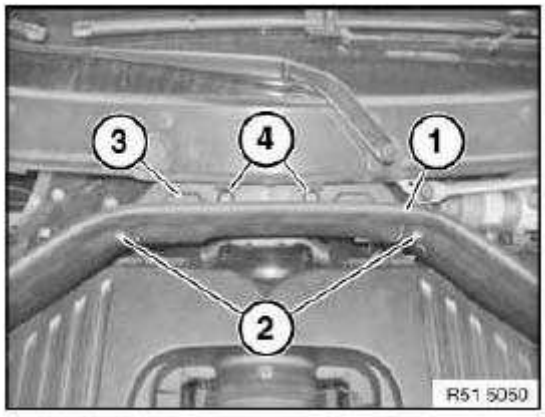


Fig. 568: Identifying Partition Wall And Seal With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Equipment compartment partition wall, left

Release expansion rivet (1).

Release screws (2, 4).

Left only: Unclip connecting cable (3).

Remove partition wall (5).

Installation:

Replace damaged expander rivet.

Make sure partition wall is correctly positioned.

Make sure screws are installed in correct positions.

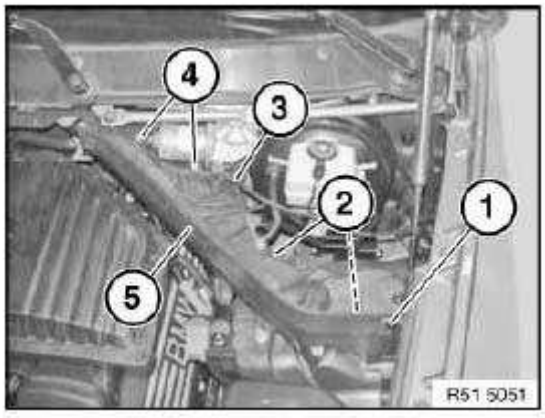


Fig. 569: Identifying Partition Wall And Expansion Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

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Equipment compartment partition wall, right

Release clip (1).

Release screws (2).

Remove partition wall (3).

Installation:

If necessary, replace faulty clip (1).

Make sure partition wall is correctly positioned.

Make sure screws are installed in correct positions.

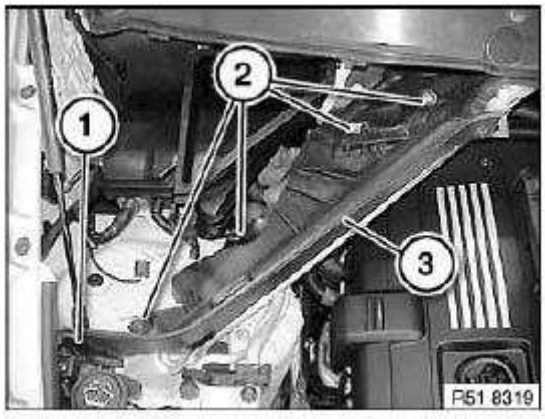


Fig. 570: Identifying Partition Wall And Clip With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 ... REMOVING AND INSTALLING/REPLACING BOTTOM LEFT OR RIGHT STEERING GEAR COVER

IMPORTANT: Observe safety instructions for raising the vehicle, see 00 .... LIFTING VEHICLE WITH A LIFTING PLATFORM .

Release bolts (1) for assembly underside protection at front.

Release screws (2) and expander rivets (4)

Remove cover (3).

Installation:

Replace damaged expander rivets.

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Make sure cover is correctly positioned.

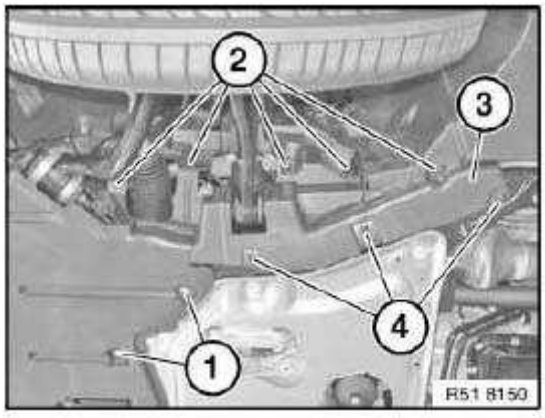


Fig. 571: Identifying Expander Rivets And Cover With Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Make sure all covers in wheel arch are correctly seated in relation to each other:

- Rear cover (1) overlaps front cover (2)
- Cover (4) overlaps rear cover (1)
- Cover (3) overlaps covers (2, 4) and rear cover (1) in area (A)

Left side only:

- Rear cover (1) overlaps cover (3) in area (B).

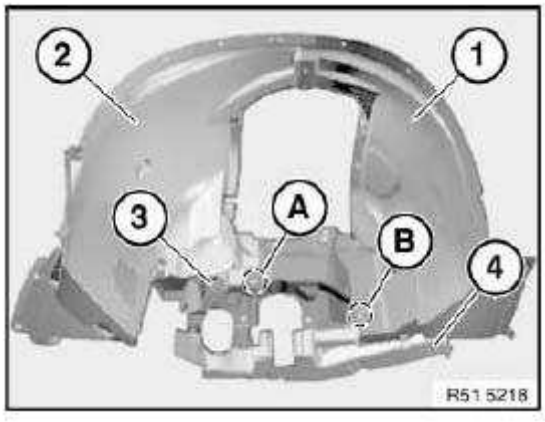


Fig. 572: Identifying Rear Cover And Overlaps Covers
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 ... REMOVING AND INSTALLING/REPLACING TOP LEFT STEERING GEAR COVER

Necessary preliminary tasks:

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- Remove **bottom steering gear cover** , see **51 71 ... Removing and installing/replacing bottom left or right steering gear cover**.

Release screws (1, 2).

Release expander rivet (4) and remove cover (3).

Installation:

Replace damaged expander rivet.

Make sure cover is correctly positioned.

Make sure screws are installed in correct positions.

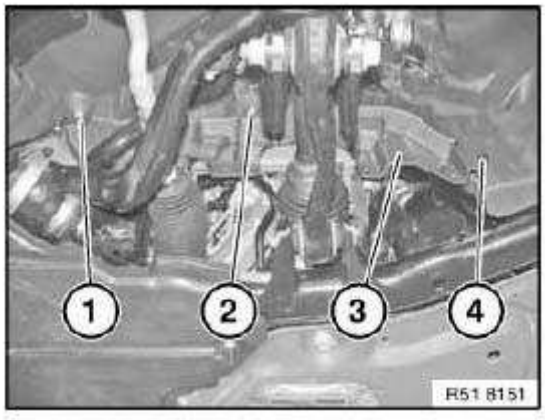


Fig. 573: Identifying Cover Expander Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Make sure all covers in wheel arch are correctly seated in relation to each other:

- Rear cover (1) overlaps front cover (2) and cover (3) in area (B)
- Cover (4) overlaps rear cover (1)
- Cover (3) overlaps covers (2, 4) and cover (1) in area (A)

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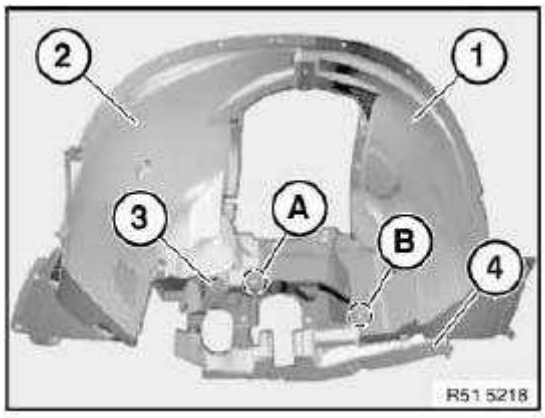


Fig. 574: Identifying Rear Cover And Overlaps Covers
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 ... REMOVING AND INSTALLING/REPLACING TOP RIGHT STEERING GEAR COVER

Necessary preliminary tasks:

- Remove **bottom steering gear cover** , see **51 71 ... Removing and installing/replacing bottom left or right steering gear cover**.

Unscrew nut (1).

Release expander rivet (2) and remove cover (3).

Installation:

Replace damaged expander rivet.

Make sure cover is correctly positioned.

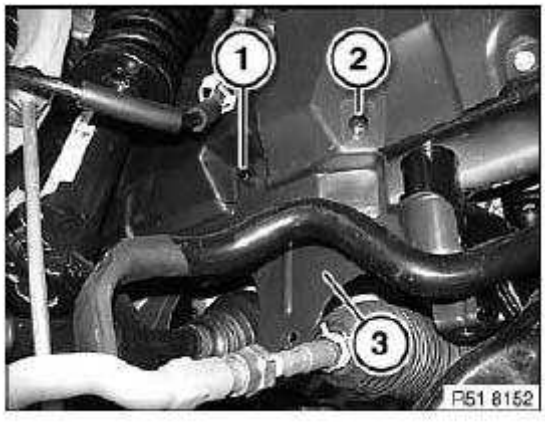


Fig. 575: Identifying Expander Rivet And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

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IMPORTANT: Make sure all covers in wheel arch are correctly seated in relation to each other:

- Rear cover (1) overlaps front cover (2)
- Cover (4) overlaps rear cover (1)
- Cover (3) overlaps all covers

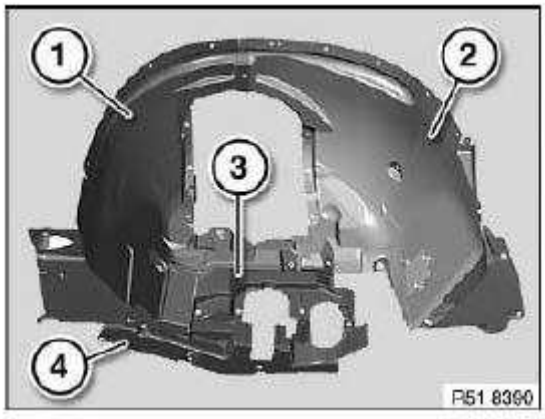


Fig. 576: Identifying Overlaps Rear Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 038 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT WHEEL ARCH COVER (FRONT SECTION)

Necessary preliminary tasks:

- Remove **front wheel** , see **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove **trim on front wheel arch** , see **51 71 470 Removing and installing/replacing trim on front left or right wheel arch**.

NOTE: Work shown on the X5 3.0d by way of example; there may be differences in detail on other models.

Release expander rivets (1) and screws (2, 3).

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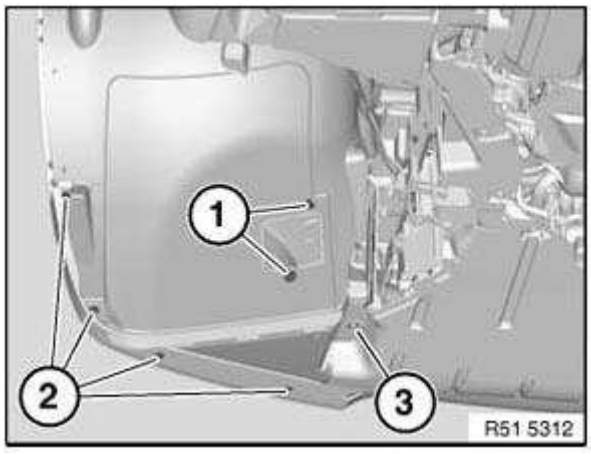


Fig. 577: Identifying Expander Rivets And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release expander rivet (1) and nut (2).

Release screws (3, 4).

Feed out wheel arch cover in downward direction.

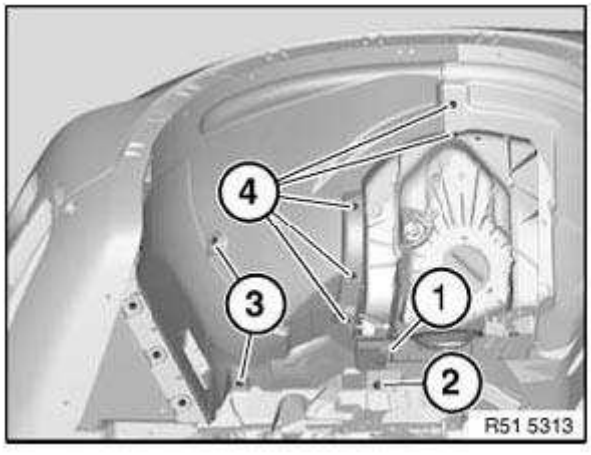


Fig. 578: Identifying Wheel Arch Cover Expander Rivet And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Make sure all covers in wheel arch are correctly seated in relation to each other:

- Rear cover (1) overlaps front cover (2)
- Cover (4) overlaps rear cover (1)
- Cover (3) overlaps covers (2, 4) and rear cover (1) in area (A)

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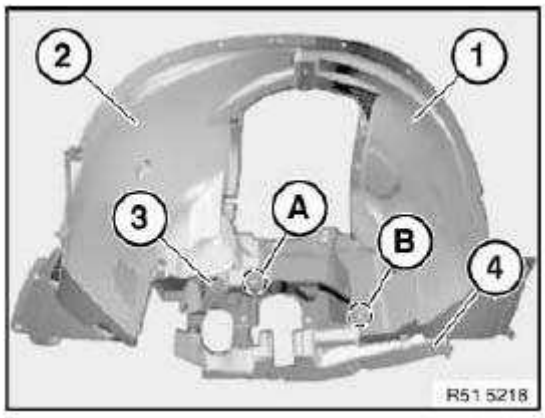


Fig. 579: Identifying Rear Cover And Overlaps Covers
Courtesy of BMW OF NORTH AMERICA, INC.

Left side only:

- Rear cover (1) overlaps cover (3) in area (B).

Replacement

- Modify lip (1)
- If necessary, modify cover (2)

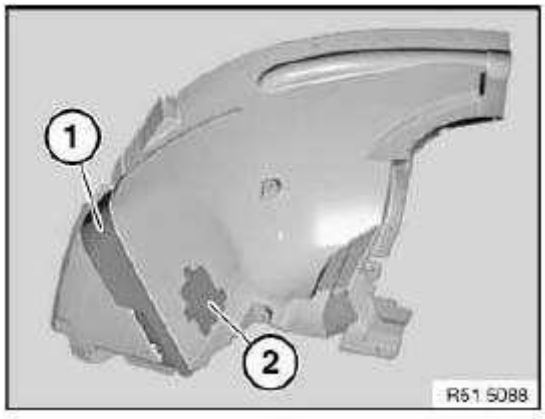


Fig. 580: Identifying Modify Cover And Lip
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 039 REMOVING AND INSTALLING/REPLACING FRONT LEFT OR RIGHT WHEEL ARCH COVER (REAR SECTION)

Necessary preliminary tasks:

- Remove **front wheel** , see **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove **trim on front wheel arch** , see **51 71 470 Removing and installing/replacing trim on front**

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left or right wheel arch.

NOTE: Work shown on the X5 3.0d by way of example; there may be differences in detail on other models.

Detach ABS connection box (1).

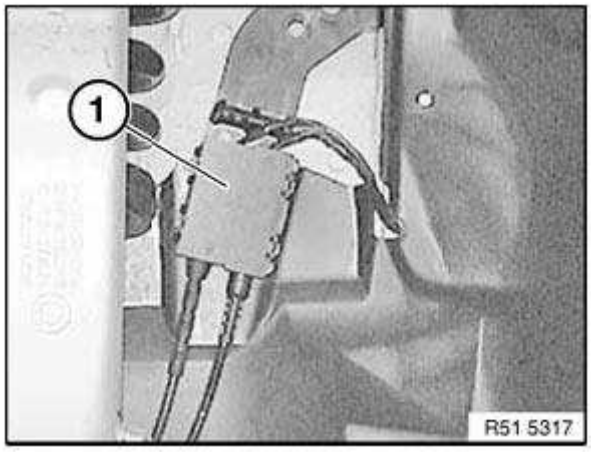


Fig. 581: Identifying ABS Connection Box
Courtesy of BMW OF NORTH AMERICA, INC.

Release expander rivets (1) and nuts (2).

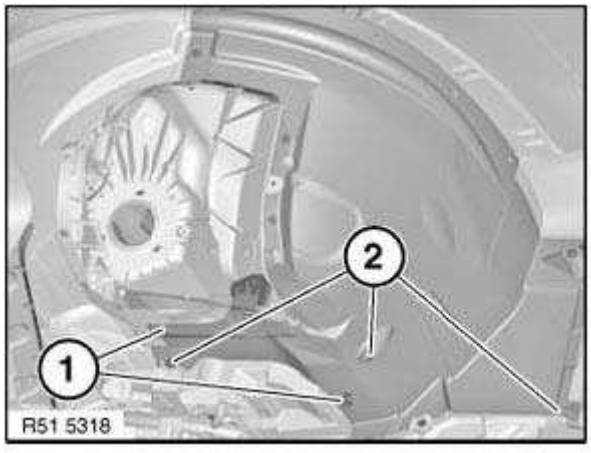


Fig. 582: Identifying Expander Rivets And Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1 and 2).

Feed out wheel arch cover.

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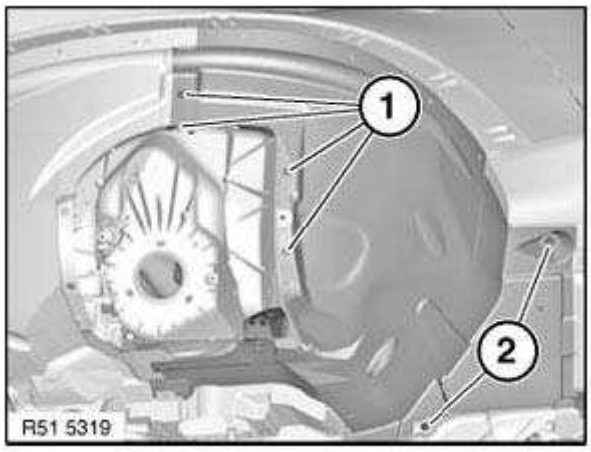


Fig. 583: Identifying Wheel Arch Cover Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Make sure all covers in wheel arch are correctly seated in relation to each other:

- Rear cover (1) overlaps front cover (2)
- Cover (4) overlaps rear cover (1)
- Cover (3) overlaps covers (2, 4) and rear cover (1) in area (A)

Left side only:

- Rear cover (1) overlaps cover (3) in area (B).

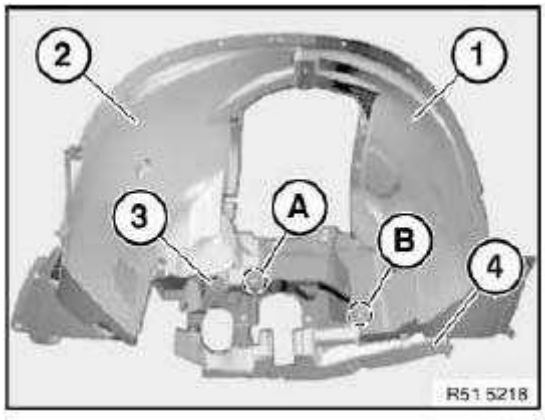


Fig. 584: Identifying Rear Cover And Overlaps Covers
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 041 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT WHEEL ARCH COVER

Necessary preliminary tasks:

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- Remove **rear wheel** , see **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove **trim on rear wheel arch** , see **51 71 039 Removing and installing/replacing front left or right wheel arch cover (rear section)**.

NOTE: Work shown on X5 3.0i by way of example, deviations in detail are possible in other models.

Release fastening elements (1 to 3).

Feed out wheel arch cover (4) towards bottom.

Installation:

If necessary, replace defective retaining elements.

Ensure wheel arch cover (4) is correctly seated.

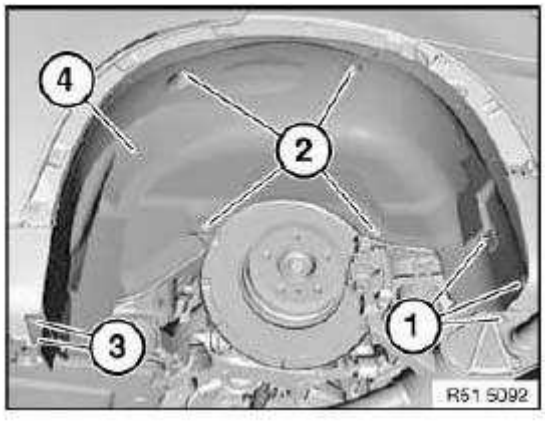


Fig. 585: Identifying Wheel Arch Cover
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 099 REMOVING AND INSTALLING/REPLACING RADIATOR AIR GUIDE

Necessary preliminary tasks:

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

Release expansion rivets (1).

Release catch (2) and remove intake duct (3) towards top.

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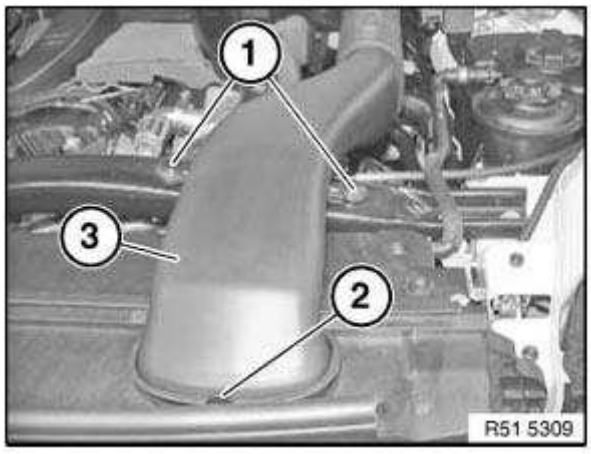


Fig. 586: Identifying Catch And Intake Duct
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1, 2).

Unclip hose (3) and feed out air duct towards top.

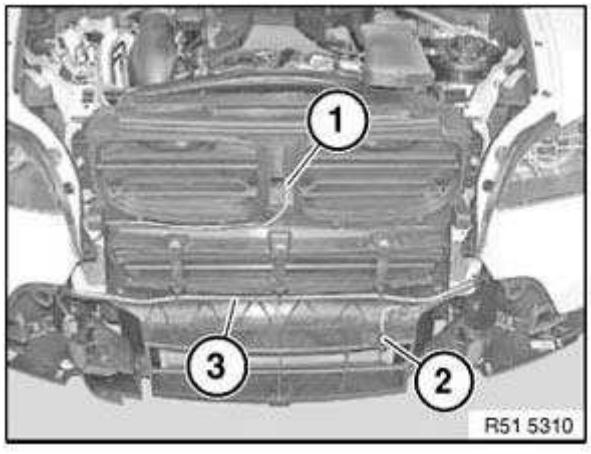


Fig. 587: Identifying Plug Connections And Hose
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Modify all rubber seals (1) and sheet nuts (2) on air duct, replace if necessary.

Modify outside temperature sensor (3).

Optional extra:

Modify **air flap control.** , see **51 64 001 Removing and installing or replacing top air flap control**.

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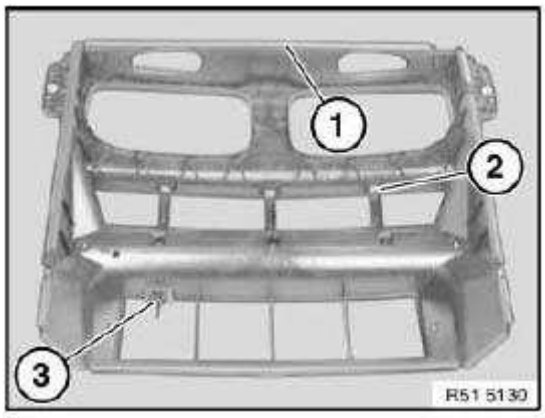


Fig. 588: Identifying Outside Temperature Sensor And Rubber Seals With Sheet Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 115 REPLACING SEAL ON LEFT OR RIGHT FRONT DOOR

Necessary preliminary tasks:

- Remove **cover on inside door window frame** , see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**.
- Detach **door brake on door pillar** , see **51 21 280 Removing and installing or replacing door brake on left or right front door**.

NOTE: **The positioning of the seal must be performed at two points on the front door with positioning aids to be stuck on.**
Positioning aids are included with new seals.

Position of seal (3) on front door

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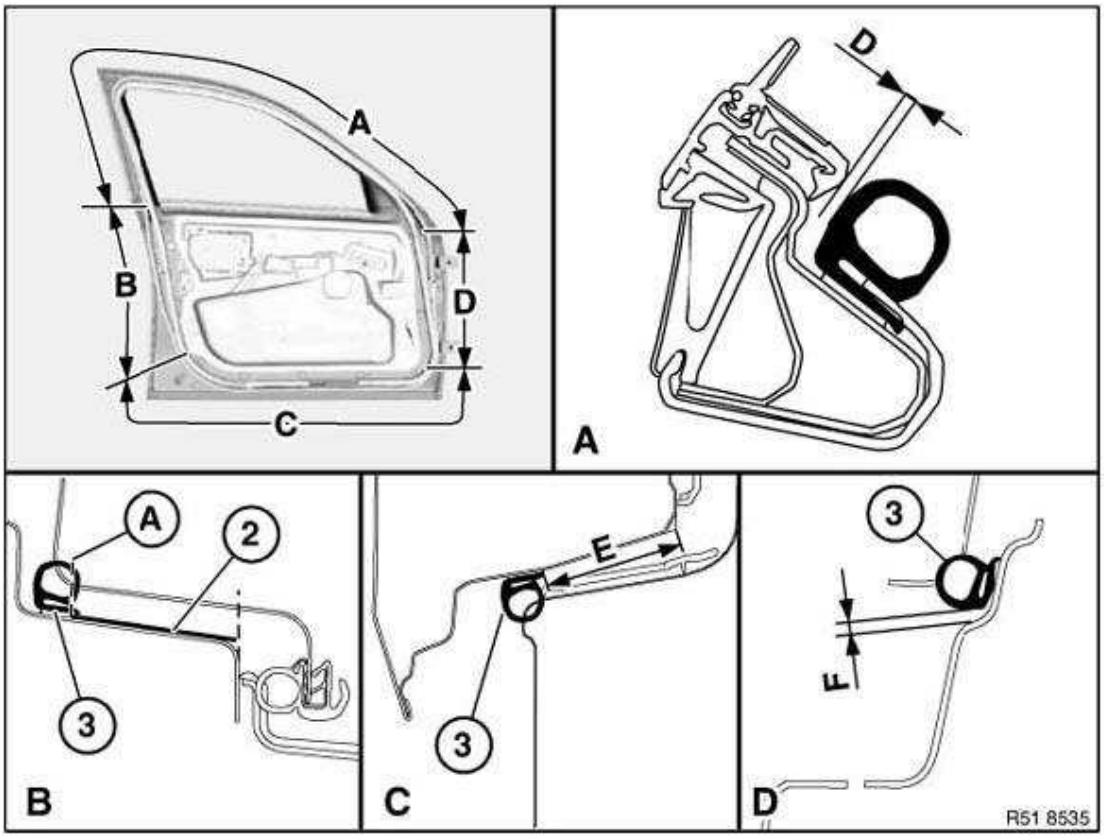


Fig. 589: Position Of Seal On Front Door
Courtesy of BMW OF NORTH AMERICA, INC.

Area (A) at distance (D) to door rabbet.

Area (B) at line (A) to positioning aids (2) to be stuck on.

Area (C) at distance (E) to door inner panel.

Area (D) at distance (F) to door fold.

Clean bonding surfaces on paint with adhesive cleaner (sourcing reference: BMW Parts Service).

D= 1.5 mm

E = 43.0 mm

F = 4.0 mm

Positioning aid "A1" for front door, left ("B1" right)

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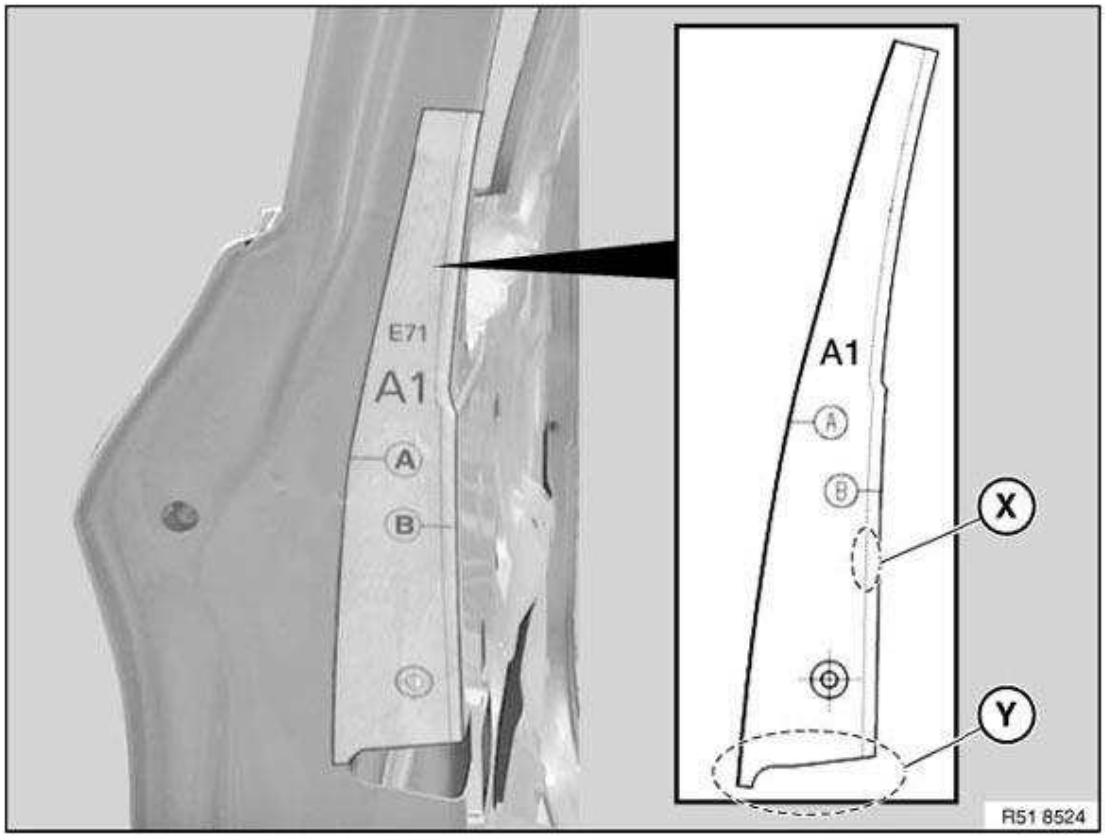


Fig. 590: Positioning Aid For Front Door - Left And Right
Courtesy of BMW OF NORTH AMERICA, INC.

Detach prestamped positioning aid from backing.

- Positioning aid "A1" front door, left (door lock, top)
- Positioning aid "B1" front door, right (door lock, top)

Align positioning aid with printed help markings (X, Y), bores and contact edge (B) to front door and press.

Seal must rest on positioning edge (A) during sticking.

X Start of bend radius

Y: Bore for door lock

Positioning aid "A2" for front door, left ("B2" right)

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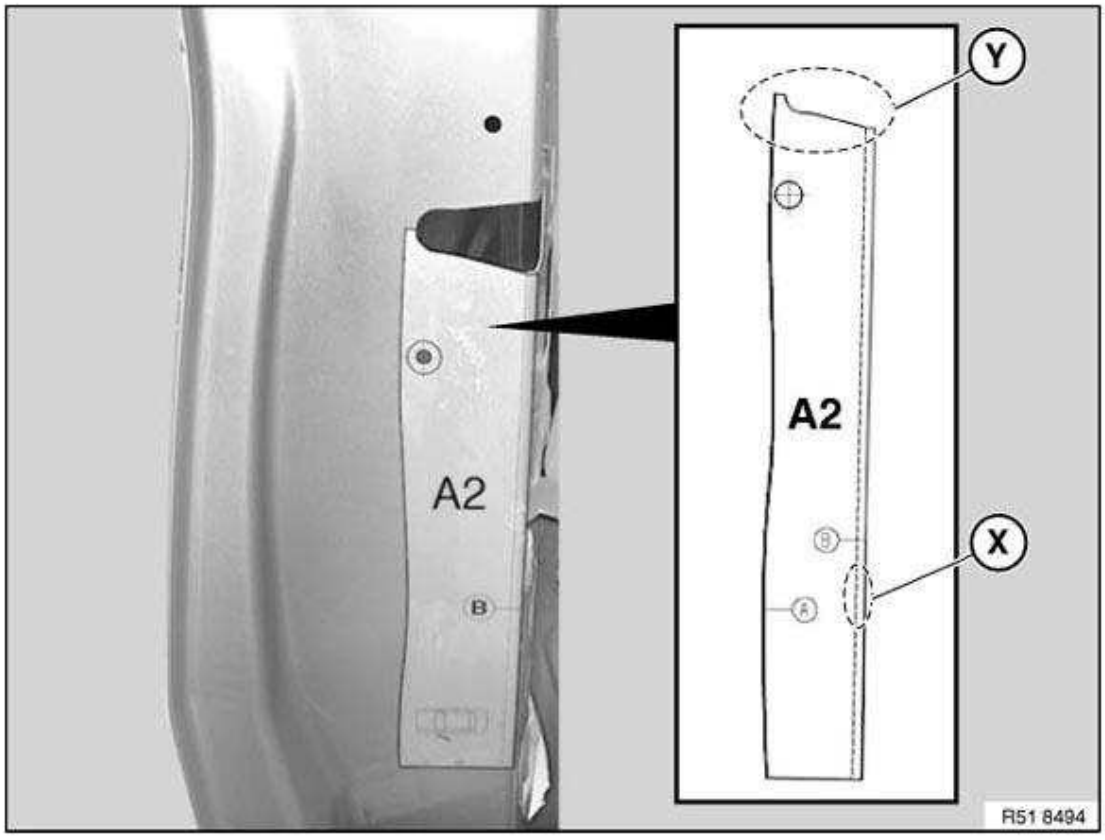


Fig. 591: Positioning Aid For Front Door - Left And Right
Courtesy of BMW OF NORTH AMERICA, INC.

Detach prestamped positioning aid from backing.

- Positioning aid "A2" front door, left (door lock, bottom)
- Positioning aid "B2" front door, right (door lock, bottom)

Align positioning aid with printed help markings (X, Y), bores and contact edge (B) to front door and press.

Seal must rest on positioning edge (A) during sticking.

X Start of bend radius

Y: Bore for door lock

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/cm^2) which is decisive here.**
- **Separation of seal after pressing destroys the adhesive layer.**

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NOTE: After being pressed on gently, seal can be pulled off again up to 3 times. Do not dirty adhesive area.

Clean bonding surfaces on paint with adhesive cleaner (sourcing reference: BMW Parts Service).

Suspend seal (1) with open lip pointing inwards over door.

IMPORTANT: Contact point of seal must be situated on underside of door after gluing.

Glue seal as follows:

- Position seal with color coding on door window frame at top rear (B-pillar). Contact point is located at the bottom.
- Pull protective film (liner) off seal in stages.
- Gently press seal without stretching up to start of positioning aids.
- Check positioning of seal, correct if necessary (sag max. 30 mm).
- Firmly press seal vertically onto bonding surface.
- Pull remaining protective film (liner) off seal.
- Press remaining seal without stretching.
- Check positioning of seal, correct if necessary and firmly press.

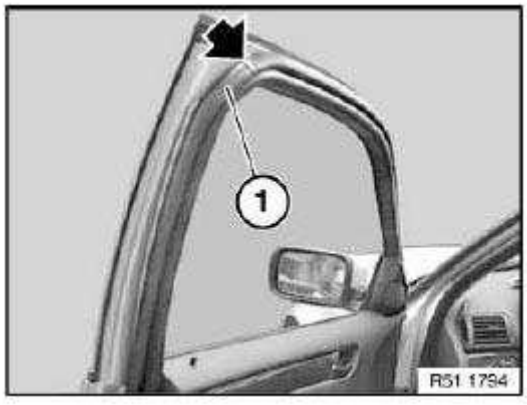


Fig. 592: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Remove positioning aids and assemble front door.

51 71 215 REPLACING SEAL ON LEFT OR RIGHT REAR DOOR

Necessary preliminary tasks:

- Remove **cover on inside door window frame** , see **51 32 160 Removing and installing/replacing housing cover on inner left or right door window frame**.
- Detach **door brake on door pillar** , see **51 21 280 Removing and installing or replacing door brake**

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on left or right front door.

NOTE: The positioning of the seal must be performed at two points on the rear door with positioning aids to be stuck on.
Positioning aids are included with new seals.

Position of seal (3) on rear door

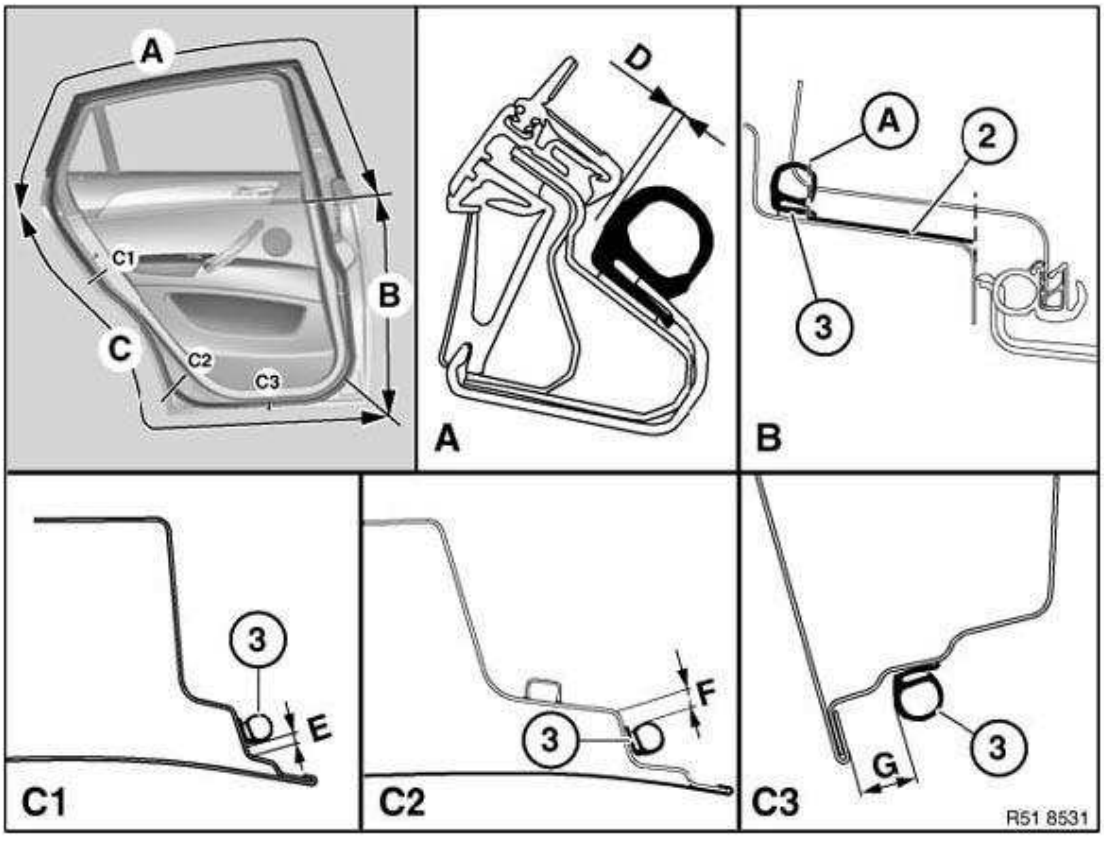


Fig. 593: Position Of Seal On Rear Door
Courtesy of BMW OF NORTH AMERICA, INC.

Area (A) at distance (D) to door rabbet.

Area (B) at line (A) to positioning aids (2) to be stuck on.

Area (C): Point C1 "Lock" at distance (E) acc. to cutaway view.

Area (C): Point C2 "Cap" at distance (F) acc. to cutaway view.

Area (C): Point C3 "Sill" at distance (G) acc. to cutaway view.

D = 1.5 mm

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E = 6 mm

F = 9 mm

G = 19 mm

Positioning aid "C1" for rear door, left ("D1" right)

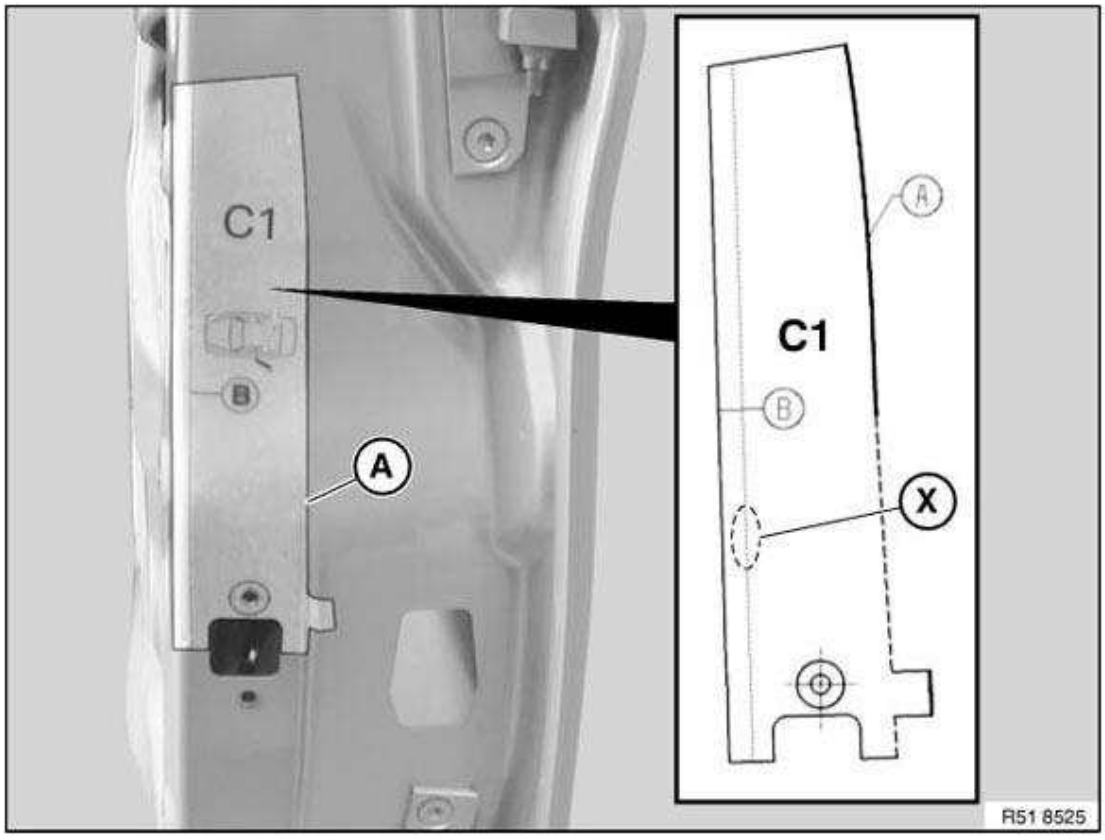


Fig. 594: Positioning Aid For Rear Door - Left And Right)
Courtesy of BMW OF NORTH AMERICA, INC.

Clean bonding surfaces on paint with adhesive cleaner (sourcing reference: BMW Parts Service).

Detach prestamped positioning aid from backing.

- Positioning aid "C1" rear door, left (door brake, top)
- Positioning aid "D1" rear door, right (door brake, top)

Align positioning aid with printed help markings (X), bores and contact edge (B) to rear door and press.

Seal must rest on positioning edge (A) during sticking.

X Start of bend radius

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Positioning aid "C2" for rear door, left ("D2" right)

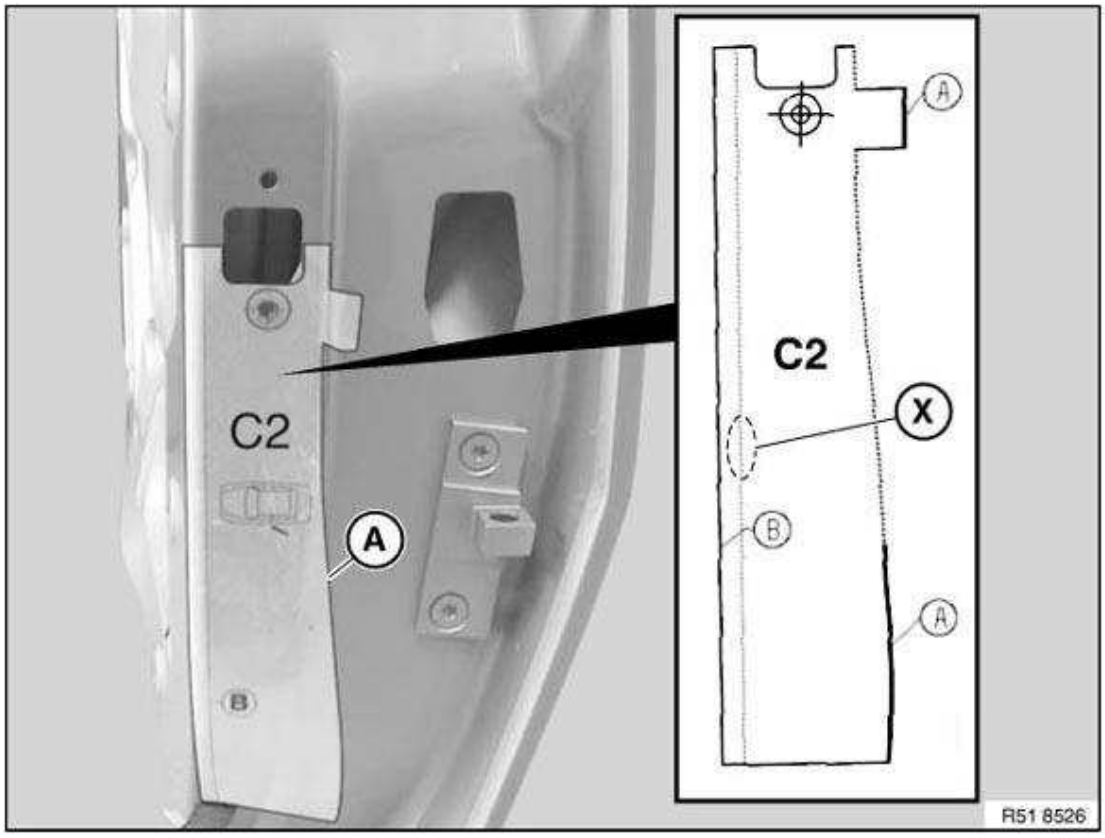


Fig. 595: Positioning Aid For Rear Door - Left And Right)
Courtesy of BMW OF NORTH AMERICA, INC.

Detach prestamped positioning aid from backing.

- Positioning aid "C2" rear door, left (door brake, bottom)
- Positioning aid "D2" rear door, right (door brake, bottom)

Align positioning aid with printed help marking (X), bores and contact edge (B) to rear door and press.

Seal must rest on positioning edge (A) during sticking.

X = Start of bend radius

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/cm^2) which is decisive here.**
- **Separation of seal after pressing destroys the adhesive layer.**

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NOTE: After being pressed on gently, seal can be pulled off again up to 3 times. Do not dirty adhesive area.

Clean bonding surfaces on paint with adhesive cleaner (sourcing reference: BMW Parts Service).

Suspend seal (1) with open lip pointing inwards over door.

IMPORTANT: Contact point of seal must be situated on underside of door after gluing.

Glue seal as follows:

- Position seal with marking in accordance with overview below on B- and C-pillars.
- Pull protective film (liner) off seal in stages.
- Gently press seal without stretching up to start of positioning aids.
- Check positioning of seal, correct if necessary (sag max. 30 mm).
- Firmly press seal vertically onto bonding surface.
- Pull remaining protective film (liner) off seal.
- Press remaining seal without stretching.
- Check positioning of seal, correct if necessary and firmly press.

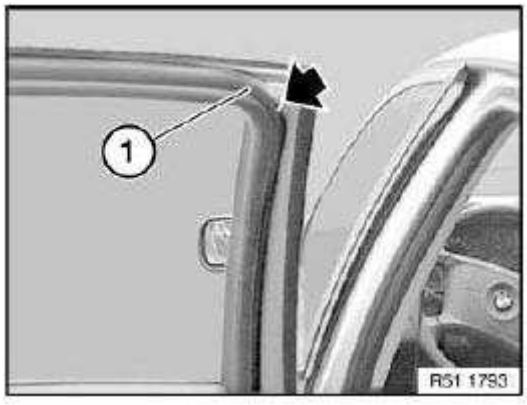


Fig. 596: Identifying Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Remove positioning aids and assemble front door.

OVERVIEW OF MARKINGS

Overview of markings			
Left door		Right door	
B-pillar	C-pillar	B-pillar	C-pillar
Circle symbol	Triangle symbol	Triangle symbol	Circle symbol

51 71 372 REMOVING AND INSTALLING/REPLACING BOTH TENSION STRUTS ON SPRING

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STRUT DOMES

Necessary preliminary tasks:

- Remove **equipment compartment partition walls** , see **51 71 ... Removing and installing/replacing assembly compartment partition wall**.

Release screws (1).

Remove tension strut (2).

IMPORTANT: To ensure a correct ground connection, use only BMW genuine spare parts. Thread repairs on bulkhead mounting bracket are not permitted.

Replace screws.

Tightening torque 51 71 2AZ , see 51 71 SEALS AND LOOSE BODY PARTS .

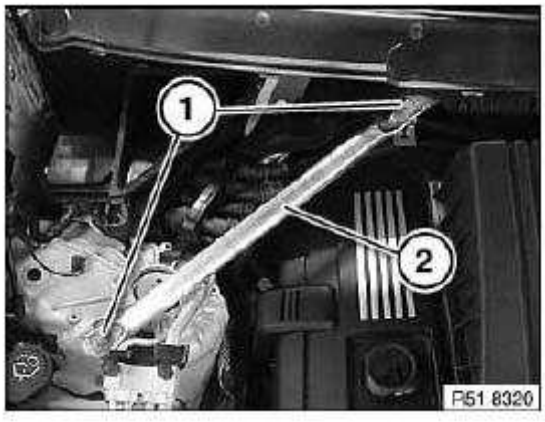


Fig. 597: Identifying Tension Strut With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 385 REMOVING AND INSTALLING/REPLACING REAR MIDDLE WATER GUTTER TRIM (REAR LID)

Open rear lid.

Pull off mucket in upper area of rear lid.

Release expansion rivet (1).

Release clips (2).

Remove finisher strip (3).

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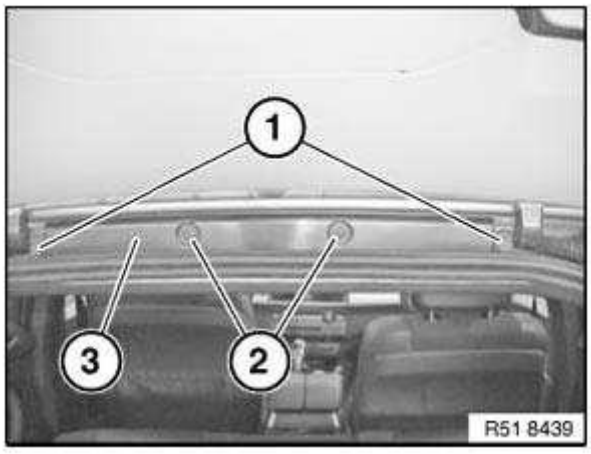


Fig. 598: Identifying Expansion Rivet And Finisher Strip
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: If clip mountings are removed during further operations (e.g. painting), always replace these mounting to ensure watertightness.

51 71 387 REMOVING AND INSTALLING/REPLACING REAR WATER GUTTER TRIM (REAR LID) ON LEFT OR RIGHT

Necessary preliminary tasks:

- Remove **rear lid gas-filled struts** , see **51 24 300 Removing and installing or replacing left or right gas strut for rear lid**.
- If necessary, remove **electric spindle drive for rear lid** , see **51 24 400 Removing and installing/replacing electric spindle drive for rear lid on left or right**.

WARNING: Risk of injury!
Support rear lid in fully opened position with suitable apparatus.

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

Detach mucket (1) along water gutter (2).

Release clips - short (3) and long (4).

Release expansion rivet (5).

IMPORTANT: If clip mountings are removed during further operations (e.g. painting), always replace these mounting to ensure watertightness.

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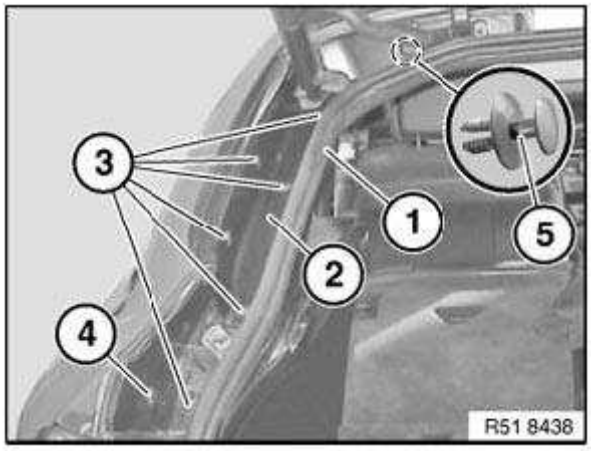


Fig. 599: Identifying Expansion Rivet And Water Gutter
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 445 REMOVING AND INSTALLING/REPLACING SUPPORT PARTS FOR PANEL FOR COVER ON LEFT OR RIGHT SIDE MEMBER

Necessary preliminary tasks:

- Remove **panel for cover on side member** , see **51 71 447 Removing and installing or replacing panel for cover on left or right side member**.

Release screws (1 and 2).

Remove support part (3).

Tightening torque **51 71 6AZ** , see **51 71 SEALS AND LOOSE BODY PARTS** .

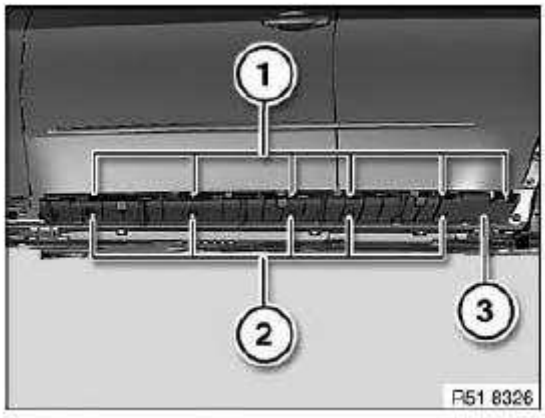


Fig. 600: Identifying Support Part With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 447 REMOVING AND INSTALLING OR REPLACING PANEL FOR COVER ON LEFT OR RIGHT SIDE MEMBER

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Release expander rivets (1) on wheel arch trim at rear.

Detach trim (2) at clip (3).

Release screws (4).

Installation:

Replace expander rivets (1).

If necessary, replace faulty clip (3).

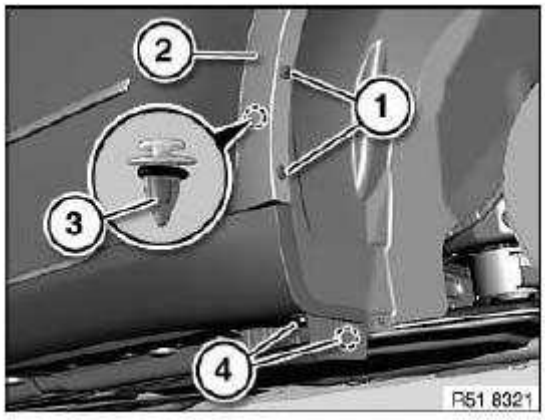


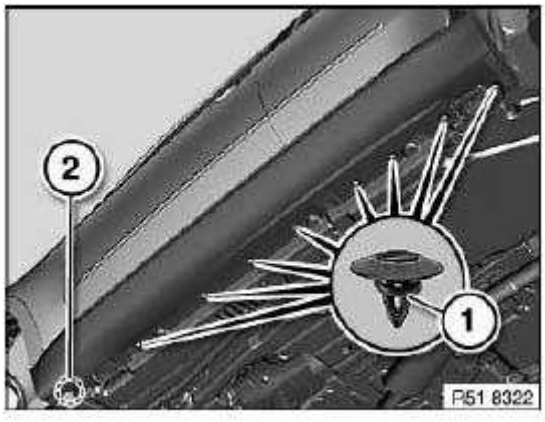
Fig. 601: Identifying Faulty Clip And Expander Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Release clips (1) and screw (2).

Installation:

If necessary, replace faulty clips (1).

Fit clips (1) with O-rings.



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Fig. 602: Identifying Clips And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip panel (1) in area (A).

Open doors, detach panel (1) at clips (2) and remove in direction of arrow.

Installation:

If necessary, replace faulty clips (2).

Fit clips (2) with O-rings.

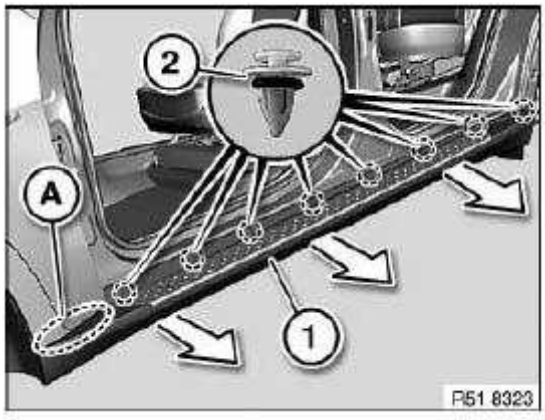


Fig. 603: Detaching Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

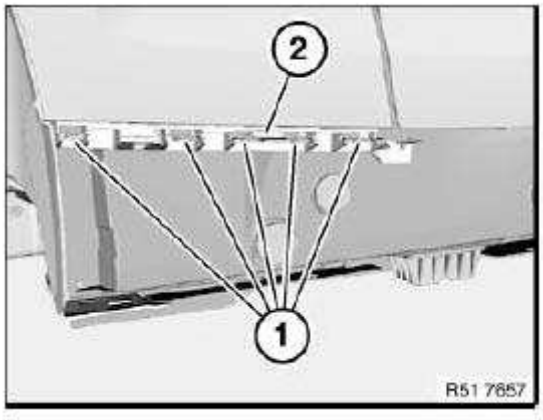


Fig. 604: Identifying Catches On Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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If replacing version with running board

Release clips (1).

Release screws (2) and remove running board (3).

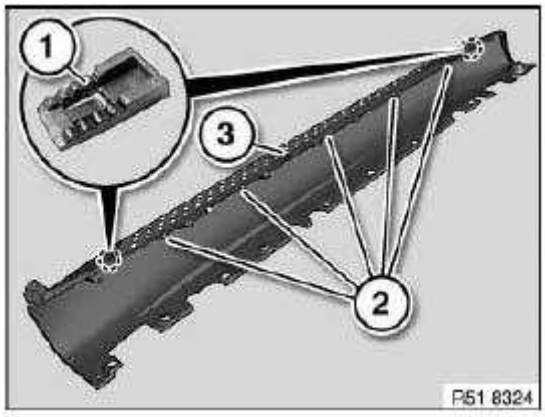


Fig. 605: Identifying Running Board Clips
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure inserts (1) are correctly seated.

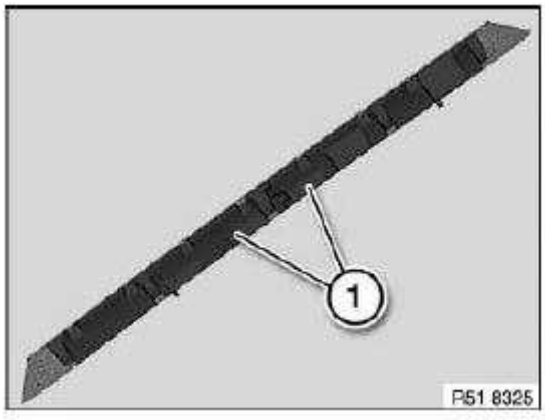


Fig. 606: Identifying Seat Correct Insert Position
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 470 REMOVING AND INSTALLING/REPLACING TRIM ON FRONT LEFT OR RIGHT WHEEL ARCH

Special tools required:

- **00 2 230** , see **00 2 230 BLIND RIVETING TONGS FOR PLASTIC RIVETS** .

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

Release blind rivets (1).

Unclip trim (2) outwards.

Installation:

Make sure trim (2) is correctly seated on underside protection and frame side member.

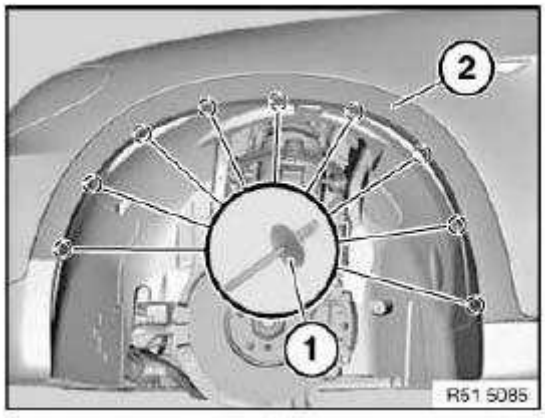


Fig. 607: Identifying Blind Rivets And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Apply blind rivets with special tool 00 2 230. Catches (1) on trim (2) must not be damaged.

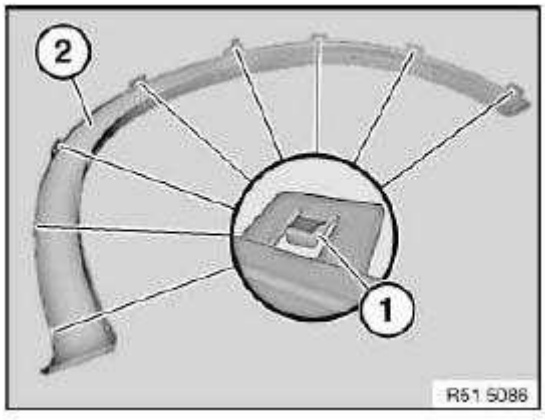


Fig. 608: Identifying Catches And Trim
Courtesy of BMW OF NORTH AMERICA, INC.

51 71 478 REMOVING AND INSTALLING/REPLACING TRIM ON REAR LEFT OR RIGHT

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WHEEL ARCH

Special tools required:

- **00 2 230** , see **00 2 230 BLIND RIVETING TONGS FOR PLASTIC RIVETS** .

Open rivets (1) (E70: blind rivets; E71: expander rivets).

Release trim (2) at clip (3) (not on E71) and remove.

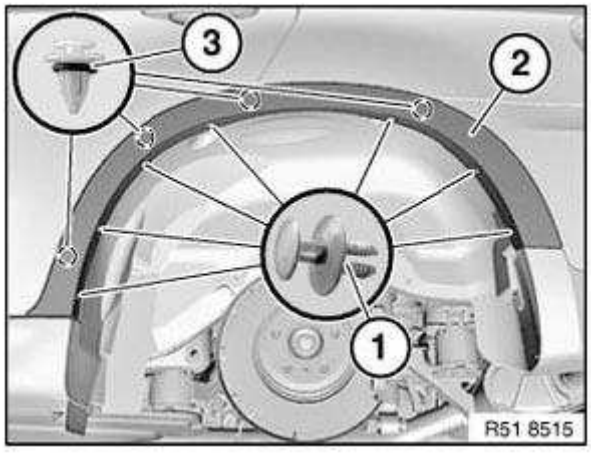


Fig. 609: Identifying Trim And Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Note on installation (E70):

Apply blind rivets (1) with special tool 00 2 230.

Ensure trim (2) is correctly seated.

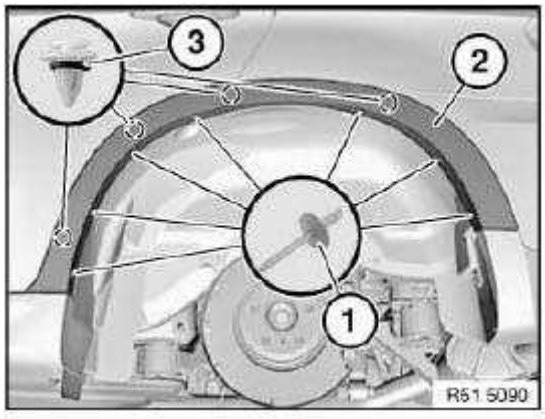


Fig. 610: Identifying Blind Rivets With Trim
Courtesy of BMW OF NORTH AMERICA, INC.

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Installation:

Catches (1) must not be damaged.

If necessary, replace faulty clips (2) (not on E71).

Fit clips (2) with sealing ring.

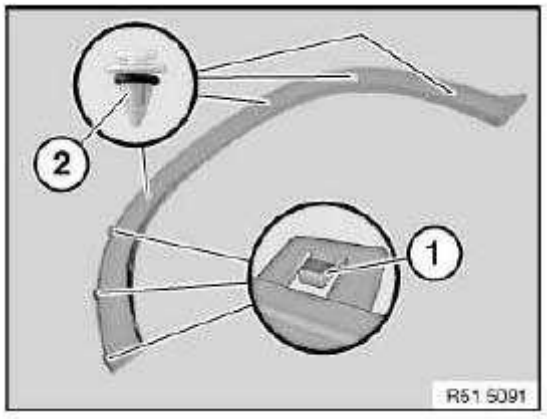


Fig. 611: Identifying Catches And Faulty Clips
Courtesy of BMW OF NORTH AMERICA, INC.

MUCKET FOR DOORS

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.
- 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.

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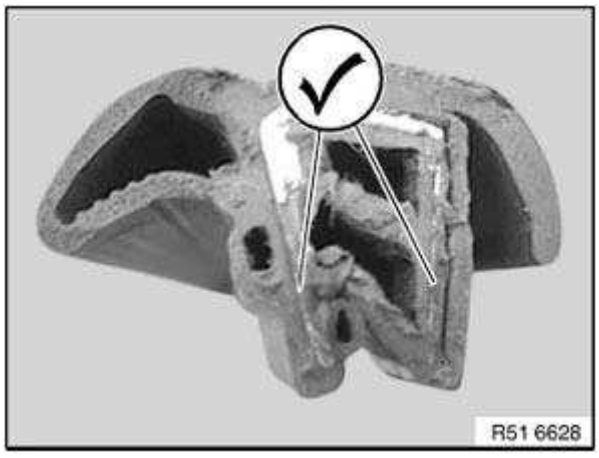


Fig. 612: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

- 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).

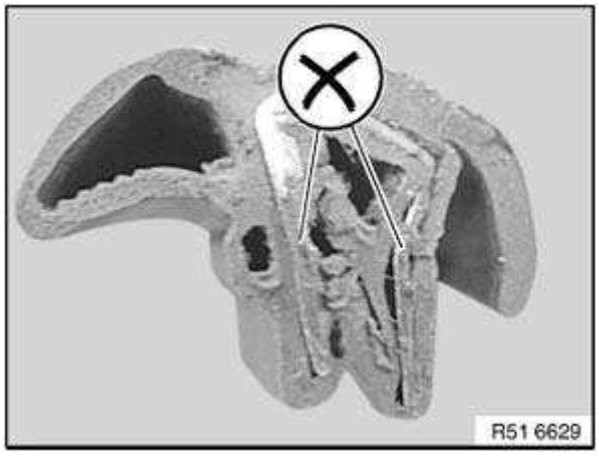


Fig. 613: Identifying Seals
Courtesy of BMW OF NORTH AMERICA, INC.

- The clamping area must be uniform.

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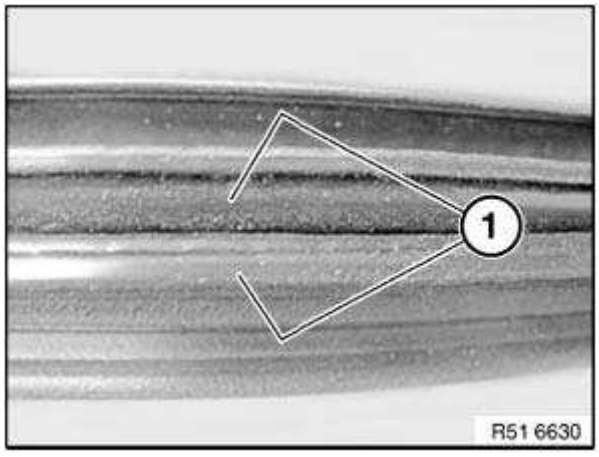


Fig. 614: Identifying Clamping Area
Courtesy of BMW OF NORTH AMERICA, INC.

- Joint seals which are fitted with plastic clips must rest rigidly on the body. Otherwise, the clips or the joint seal must be replaced.

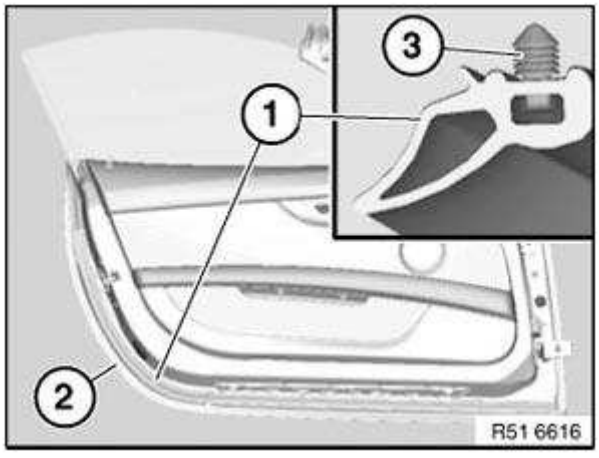


Fig. 615: Identifying Joint Seals And Plastic Clips
Courtesy of BMW OF NORTH AMERICA, INC.

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BODY EQUIPMENT

INTERIOR MIRROR WITH DIGITAL COMPASS : E70, E71, E82, E83, E88, E90, E91, E92, E93



Fig. 1: Identifying 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: 1 Series (only E82, E88), 3 Series, 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.

- **E88, E93 from 09/2008**

The digital compass must be calibrated once with the soft top or retractable hardtop closed, and once with the soft top or retractable hardtop open.

The position of the soft top or retractable hardtop has an effect on the magnetic field in the vehicle. A deflected magnetic field will lead to calibration errors.

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**
  - **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

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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 also at the top right in the interior mirror. The display is divided into eight compass points.

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 Nordosten)

E: East Osten)

SE: South East Sudosten)

S: South

SW: South West

W: West

NW: North West

The changeover between displays is carried out as follows:

- The current vehicle position is the centre 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°.

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Brightness control of display

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

The photodiodes 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.

- E88, E93

  A darkened interior mirror will become lighter while the soft top or the retractable hardtop is opening and closing.

  The overhead control panel (FZD) transmits the signal (roof open or closed) to the control electronics for the interior mirror. The signal is transmitted on the wire that is also used for transmitting the signal for driving in reverse.

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

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

- 0 to 3 seconds: Display ON/OFF
- 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 magnetised (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.

Preconditions for activation

At terminal 15 ON, the display is activated with a test run.

- **up to 09/2006**

During this process, the LC matrix lights up completely (approx. 3 seconds). The digital compass is then switched on.

There is no switch for turning off the LCD display at terminal 15 ON.

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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, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, R50, R52, R53, R55, R56, RR1, RR2, RR3

Storage location: B2

SI number: 1 10 05 (189)

Order number: 51 0 010

Test gauge for windscreen and rear window installation

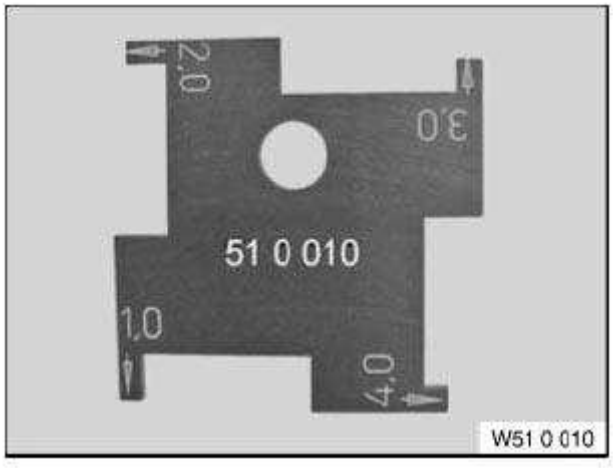


Fig. 1: Identify Special Tool (51 0 010)
Courtesy of BMW OF NORTH AMERICA, INC.

51 0 101 SUPPORT, RIGHT

NOTE: Gantry crane

SI number: 6 04 03 (046)

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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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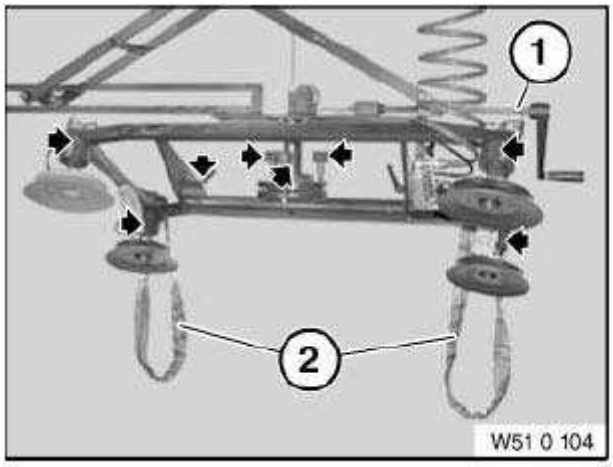


Fig. 2: Identify Special Tool (51 0 104)
Courtesy of BMW OF NORTH AMERICA, INC.

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

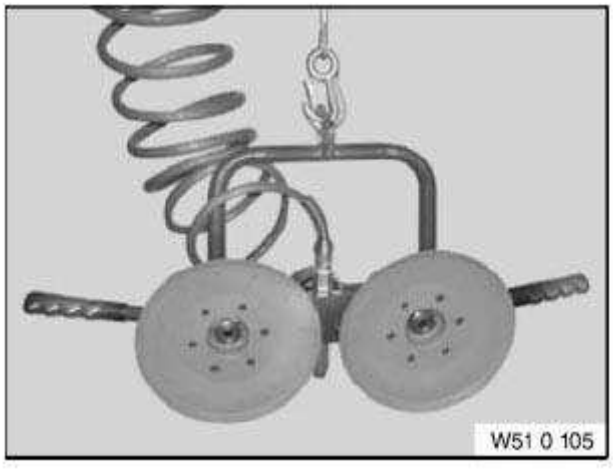


Fig. 3: Identify Special Tool (51 0 105)
Courtesy of BMW OF NORTH AMERICA, INC.

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, E68, E70, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, F01, R50, R52, R53, R55, R56, RR1, RR2

Storage location: B19

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SI number: 01 07 06 (271)

Order number: 51 0 300

Pressure roller



Fig. 4: Identify Special Tool (51 0 300)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 51 0 301 Handle

2 = 51 0 302 Roller

51 1 200 RELEASING TOOL

Series: E71

SI number: 01 10 08 (449)

Order number: 51 1 200

Releasing tool

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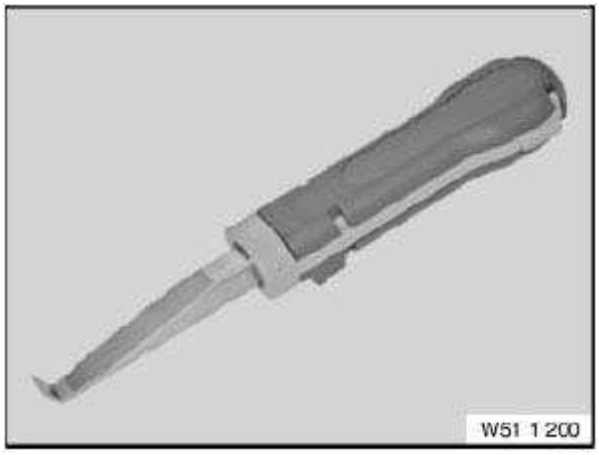


Fig. 5: Identify Special Tool (51 1 200)
Courtesy of BMW OF NORTH AMERICA, INC.

51 2 170 HOOD/BONNET STAY (2 X)

Minimum set: Mechanical tools

NOTE: For locking hood/bonnet in assembly position

Series: E53, E60, E61, E63, E64, E71, E81, E82, E85, E86, E87, E88, E90, E91, E92, E93

Storage location: A2

SI number: 1 15 99(483)

Order number: 51 2 170

Hood/bonnet stay (2 x)

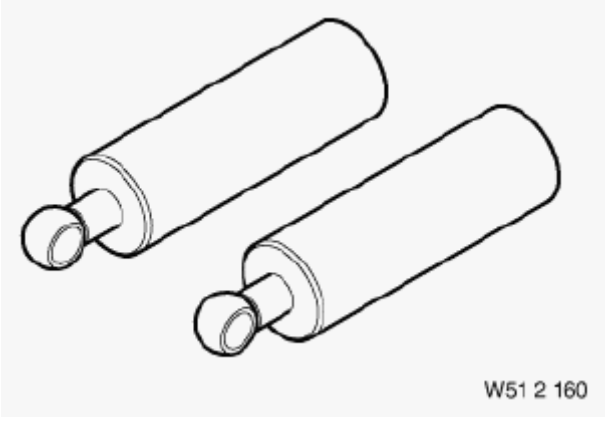


Fig. 6: Identify Special Tool (51 2 170)
Courtesy of BMW OF NORTH AMERICA, INC.

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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-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, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, F01, F02, RR1

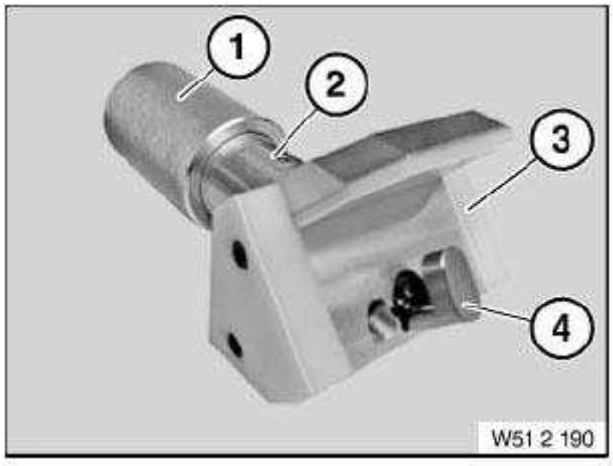


Fig. 7: Identify Special Tool (51 2 190)
Courtesy of BMW OF NORTH AMERICA, INC.

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

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4 = 51 2 197 Mandrel

NOTE: replaces mandrel 51 2 194

51 2 196 PROTECTION

NOTE: Replaces protection 51 2 193

Order number: 51 2 196

Protection

51 2 197 DRIFT

NOTE: Replaces drift 51 2 194

Order number: 51 2 197

Drift

51 3 010 SUCTION LIFT (2 X)

Minimum set: Mechanical tools

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, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, F01, R50, R52, R53, R55, R56, RR1, RR2, RR3

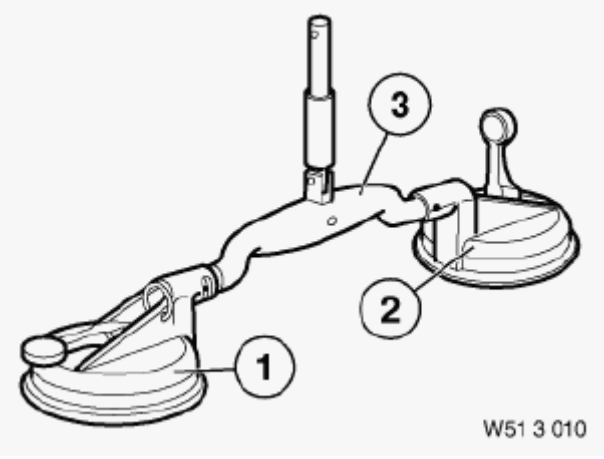


Fig. 8: Identify Special Tool (51 3 010)

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Courtesy of BMW OF NORTH AMERICA, INC.

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

51 3 080 TOOL

NOTE: For checking wind-down distance when installing side window

Series: E30, E31, E36/2, E36/C, E38, E46, E46/2, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E68, E70, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, F01, R50, R52, R53, R55, R56, RR1, RR2, RR3

Storage location: B6

SI number: 1 05 90 (207)

Order number: 51 3 080

Tool



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Fig. 9: Identify Special Tool (51 3 080)
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, E71, E82, 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

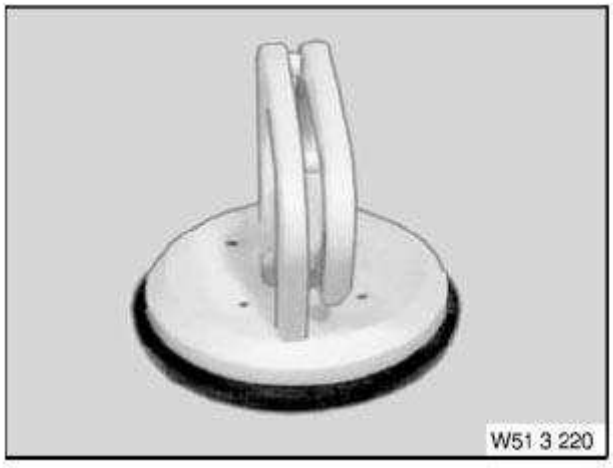


Fig. 10: Identify Special Tool (51 3 220)
Courtesy of BMW OF NORTH AMERICA, INC.

51 3 270 PULL HANDLES

NOTE: Cutting wire pull handles fore removing rear, quarter light and side windows

Series: E36, E38, E39, E46, E52, E53, E60, E61, E63, E64, E65, E66, E67, E68, E70, E71, E81, E82, E83, E85, E86, E87, E88, E90, E91, E92, E93, F01, F02, R50, R52, R53, R55, R56, RR1, RR2

SI number: 1 13 03 (001)

Order number: 51 3 270

Pull handles

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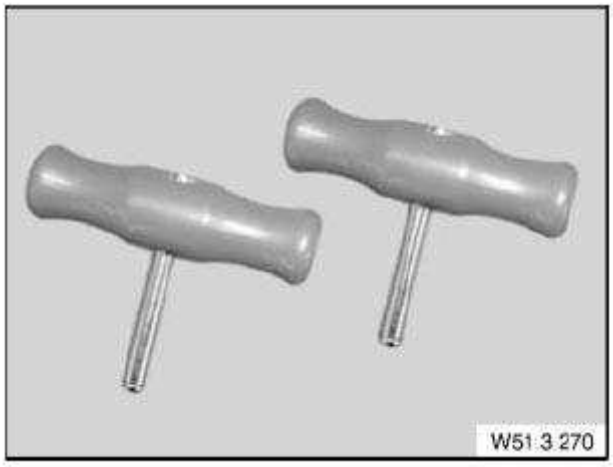


Fig. 11: Identify Special Tool (51 3 270)
Courtesy of BMW OF NORTH AMERICA, INC.

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FRONT BUMPER

51 11 FRONT BUMPER

FRONT BUMPER-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Bumper to front panel, top	E70, E71			2.5 Nm
2AZ Carrier to body	E70, E71			30 Nm
3AZ License plate to bumper	E70, E71			1 Nm
4AZ License plate to bumper (thread repair)	E70, E71			4.5 Nm
5AZ Diagonal strut to body or carrier	E70, E71			18 Nm

REAR BUMPER

51 12 REAR BUMPER

REAR BUMPER-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Carrier to body	E70, E71	M12		68 Nm
2AZ Bumper to bracket	E70, E71			3 Nm
3AZ Bracket, side, to body	E70, E71		Nut	8 Nm
			Screw	3 Nm
4AZ Bumper to bumper side section	E70, E71			3 Nm
5AZ Guide, middle, to body	E70, E71			3 Nm

TRIM, COVERS, HANDLE TRIM

51 13 TRIM PARTS, COVERS, HANDLE TRIM

TRIM PARTS, COVERS, HANDLE TRIM-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Bracket, roof luggage rack on body	E36/Z3 and M Coupe, E39, E46, E81, E82, E87, E90, E91, E92	M10		20 Nm
2AZ Water drain to body (plastic nut)	E46			1 Nm
Water drain to body (metal nut or rivet nut)	E46			1.8 Nm

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3AZ Roof railing to body	E39		Centre, front, rear	24 Nm
	E61	M8		16 Nm
			settling time	15 min
			Check	16 Nm
	E83	M8	Front	
			Jointing torque	21 Nm
			Release nut after settling time	15 min
			Jointing torque	21 Nm
			Torque angle	120 ± 10°
	E83	M8	Centre, rear	21 Nm
			settling time	15 min
			Check	21 Nm
	E91			25 Nm
	E70			19 Nm
	E71			16 Nm
4AZ Handle strip to rear lid	E39/Touring			3 Nm
	E46, E53			2.5 Nm
	E83			1.8 Nm
5AZ Cowl panel cover to body	E60, E61, E63, E64			2.5 Nm
6AZ Centre trim to rear lid	E65, E66, E67	M8		2.5 Nm
7AZ Trim to hood/bonnet	E90, E91			2 Nm
8AZ Auxiliary brake light to rear lid	E89			5 Nm

MIRRORS, COVERS, ASHTRAY, SHELVES, TRAYS

51 16 MIRRORS, FINISHERS, ASHTRAYS, CONSOLES

MIRRORS, FINISHERS, ASHTRAYS, CONSOLES-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Mirror to front door	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			6 Nm
Initial screw connection for new rearview mirror (shaping of thread-cutting screws)	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			8 Nm
2AZ Carrier, gear selector switch, to carrier, centre console	E70, E71	M6		5.6 Nm

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FRONT DOOR LOCKS, HANDLES, FITTINGS

51 21 FRONT DOOR LOCKS HANDLES

FRONT DOOR LOCKS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Door lock to front door	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93		Install bolt with bolt cement.	9.5 Nm
2AZ Door striker to body	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			18.5 Nm
3AZ Door retainer to A-pillar	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			22 Nm
4AZ Door retainer to door	E81, E82, E87, E88, E90, E91, E92, E93			12 Nm
	E70, E71			10 Nm

REAR DOOR LOCKS, HANDLES, FITTINGS

51 22 REAR DOOR LOCKS

REAR DOOR LOCKS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Door lock to rear door	E70, E71, E87, E90, E91			9 Nm
2AZ Door striker to body	E70, E71, E87			18.5 Nm
	E90, E91			21 Nm
3AZ Door retainer to B-pillar	E70, E71, E87, E90, E91			22 Nm
4AZ Door retainer to door	E87, E90, E91			12 Nm
	E70, E71			10 Nm

HOOD LATCH, LOCKS

51 23 HOOD/BONNET LOCKS

HOOD/BONNET LOCKS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Retaining hook to engine hood/bonnet (replace microencapsulated screws)	E81, E82, E87, E88, E90, E91, E92, E93			10 Nm
2AZ Lock to body (replace microencapsulated screws)	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			10 Nm
3AZ Upper lock section (striker) to bonnet/hood	E70, E71			10 Nm

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TRUNK LATCH, LOCKS

51 24 REAR LID LOCKS

REAR LID LOCKS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Rear lid lock to rear lid, top	E70			20 Nm
	E71			10 Nm
2AZ Rear lid locks to rear lid, bottom	E70			10 Nm
3AZ Striker to body	E70			20 Nm
4AZ Soft Close Automatic to retaining plate	E70, E71			20 Nm
5AZ Retaining plate, Soft Close Automatic, to rear lid, bottom	E70			10 Nm
6AZ Drive to rear lid, bottom	E70			10 Nm
7AZ Support, rear lid, bottom	E70			20 Nm

FRONT ELECTRICALLY OPERATED WINDOWS

51 33 POWER WINDOWS, FRONT

POWER WINDOWS, FRONT-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Window regulator to door	E70, E71, E81, E82, E87, E88, E90, E91, E92, E93			10 Nm
2AZ Motor to window regulator	E70, E71, E87, E90, E91, E92, E93			6 Nm
	E81, E82, E88			3 Nm

REAR ELECTRICALLY OPERATED WINDOWS

51 35 POWER WINDOWS, REAR

POWER WINDOWS, REAR-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Motor to window regulator	E87, E90, E91			3.5 Nm
	E70, E71			6 Nm
2AZ Window regulator to door	E83			8.2 Nm
	E60, E61, E65, E66			7.6 Nm
	E70, E71, E87, E90, E91			9.5 Nm
3AZ Door window glass to power	E60, E61			7.6 Nm

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window unit				
4AZ Additional armour-plated rear window	E70/SA106		Replace nuts	10 Nm
5AZ Additional armour-plated fixed side window	E70/SA106		Replace screws or nuts	10 Nm

FRONT DOOR TRIM PANEL WITH ARM REST

51 41 FRONT DOOR TRIM PANEL WITH ARMRESTS

FRONT DOOR TRIM PANEL WITH ARMRESTS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Door trim panel to front door (screw to armrest or door handle)	E70, E71			3 Nm
2AZ Decorative strip to door trim panel	E70, E71		Screw	2 Nm
			Nut	2 Nm
3AZ Door handle to door trim panel	E70, E71			2 Nm

SIDE COVERING WITH ARMREST

51 43 SIDE TRIM PANEL WITH ARMRESTS

SIDE TRIM PANEL WITH ARMRESTS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Trim, front roof pillar (A-pillar) on body	E70, E71			2.5 Nm
2AZ Trim, rear roof pillar (C-pillar) on body	E70, E71			2.5 Nm

INSTRUMENT CLUSTER TRIM PANEL

51 45 TRIM, INSTRUMENT PANEL

TRIM, INSTRUMENT PANEL-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Instrument panel carrier to bodyshell, A-pillar, nuts	E70, E71	M8		19.5 Nm
2AZ Instrument panel carrier to mounting bracket for steering column support, screw	E70, E71	M8		19.5 Nm
3AZ Instrument panel carrier to cross-member, bulkhead, screws	E70, E71	M8		16 Nm
	E70,			

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4AZ Instrument panel carrier to tunnel, screw	E71	M8		19.5 Nm

GASKETS-SEALS, LOOSE

51 71 SEALS AND LOOSE BODY PARTS

SEALS AND LOOSE BODY PARTS-TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Rear spoiler	E70		Screw	2 Nm
			Nut	7 Nm
2AZ Tension strut in engine compartment	E70, E71		Replace screws	
			Jointing torque	19 Nm
			Torque angle	90 °
3AZ Diagonal strut to bumper carrier	E70, E71			18 Nm
4AZ Cross-strut to body	E70, E71		Replace screws	
			Jointing torque	10 Nm
			Torque angle	90 °
5AZ Lashing rail to body	E70, E71			20 Nm
6AZ Support piece, sill to body	E70, E71	M8		10 Nm

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