

2007-08 ACCESSORIES AND BODY, CAB**Body - Repair Instructions - X5****00 BODY****41 0 CONTENTS OF BODY, GENERAL**

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41 00 ... BONDING ALUMINUM PARTS

IMPORTANT: Conform with safety precautions! See 41 00 ... SAFETY AT WORK.

Overview of topics:

2. Best before date of consumables
3. Grinding and cleaning
4. Flame-coating
5. Primer coat
6. Gluing coat
7. Hardening times
8. Disposing of adhesive

1.0 Equipment

- Emery paper
- Cleaning agent: Isopropyl, acetone or spirit
- Brush, cotton wadding or similar
- Adhesive cartridge (sourcing reference via BMW Parts Service picture board 83-0371 Aluminum and steel/bonding and welding)
- Primer
- Flame coating set
- Spatula for applying adhesive

2.0 Best before date of consumables:

- The adhesive cartridge, primer and special gas cartridge are all marked with a date.
- Do not use the adhesive, primer and special gas cartridge after this date.

3.0 Grinding and cleaning:

- For better adhesion, remove oxide film and paint from the adhesive areas with a stainless steel wire brush or special emery paper.
- Clean adhesive areas with isopropyl, acetone or spirit.
- Allow cleaned surfaces to dry for approx. 5 minutes.

Adhesive areas must be completely dry.

- The ridges on the repair parts (clamping pieces) approx. 0.5 mm high serve to orientate the minimum adhesive thickness. The ridges must not be ground off!

4.0 Flame-coating:

- Go over the adhesive areas slowly with the flame.
- Avoid flaming with the blue part of the flame.
- Condensation water appears on the area that is still uncoated. The condensation water in the line of the flame must evaporate completely.
- Directly after flaming, coat the still hot adhesive areas (approx. 50°C) with primer.

5.0 Primer application:

- Apply the primer with a brush, cotton wadding or similar.
- Allow the coated surfaces to dry for approx. 5 minutes.

6.0 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.

6.1 Bonding in conjunction with repair parts (clamping pieces):

- Bonding with clamping pieces is necessary in the event of structure damage. E.g. partial replacement engine carrier.
- Clamping pieces are special shaped parts for connecting new extruded section parts with the extruded section on the body.
- Clamping pieces expand when a special screw is inserted. This establishes a positive connection with the relevant extruded section.
- Ensure there is a sufficient gap between the adhesive and the threads for the expander screws (approx. 10 - 15 mm).
- Spread adhesive over the clamping piece with a spatula up to the height of the ridges.

6.2 Bonding in conjunction with rivets:

- Bonding in conjunction with rivets is necessary in the event of structure damage.
- 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.

7.0 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).

- 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.

8.0 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 PARTS

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. After treatment of bonding surfaces
7. Disposing of adhesive

1.0 Equipment

- Emery paper
- Cleaning agent: Isopropanol, acetone or spirit
- Adhesive cartridge (sourcing reference via BMW Parts Service picture board Aluminum and steel/bonding and welding)
- Adhesive gun (standard cartridge gun)
- Spatula for applying adhesive

2.0 Expiry date of adhesive:

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- 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 isopropyl, 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 After treatment of bonding surfaces:

- Seal all bonding surfaces with cavity sealant.

7.0 Disposing of adhesive:

- Small amounts of mixed and hardened adhesive residue can be disposed of as domestic waste.

For other countries, comply with the (possibly differing) nationally applicable regulations.

41 00 ... CORROSION PROTECTION

NOTE: Following repairs, the corrosion protection work already begins with the correct removal of the PVC undercoating, antinoise compound and seam seals.

1.0 Removing sealing materials:

IMPORTANT:

- Do not burn off PVC material with a gas burner or similar or heat to temperatures above 180°C. This would generate highly corrosive hydrochloric acid and release harmful fumes.
- The new lining does not form a satisfactory bond with burnt PVC material which means that subsequent sub-surface rust may set in.

Remove PVC material with a rotating steel brush, or heat PVC to maximum 180°C with a hot air blower and scrape off with a spatula.

2.0 Corrosion protection of sheet-metal parts:

All weld joints sealed off with body sealing compound in original state must be primed and sealed off again thoroughly after repairing. Replace damaged or removed antinoise compounds.

NOTE: Spray gun required for body sealing compound (order no. 81 49 0 300 887).

Concluding cavity protection is the most important part of all corrosion protection measures.

Use the cavity protection spray only for smaller-scale straightening work where the parts in question are easily accessible. Use the HRS spray gun with pressure container for all other repairs. Cavity protection agent is available in different container sizes.

Use the relevant probes with tubes for the different cavity areas.

Required tools are featured on the WORKSHOP EQUIPMENT PLANNING CD (WEP).

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

- $< \text{or} = 1000 \text{ mm} \pm 1.5 \text{ mm}$
- $> \text{or} = 1000 \text{ mm} \pm 2.5 \text{ mm}$

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

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

Underbody view 1

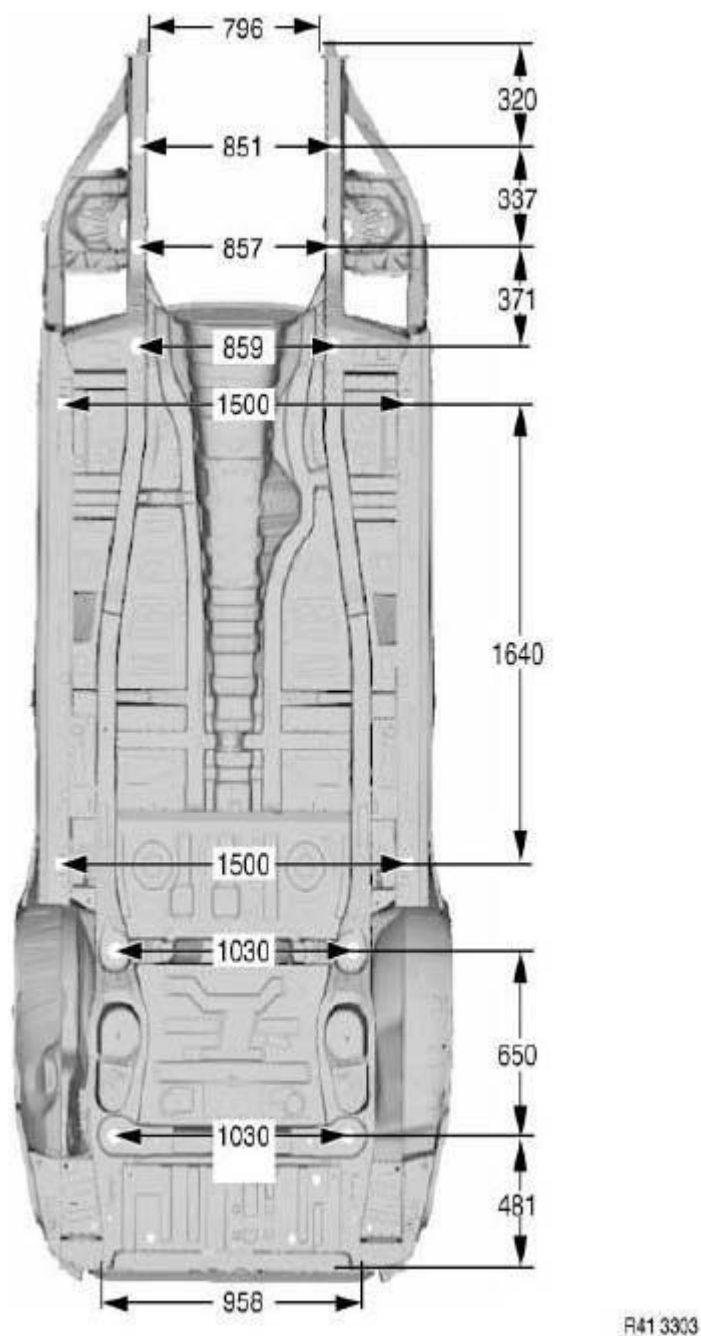
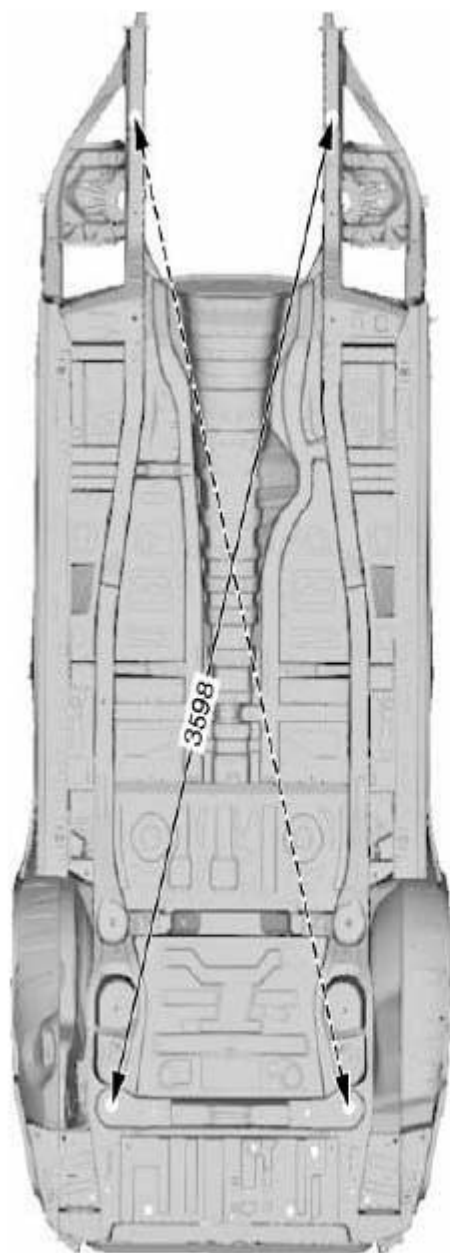


Fig. 1: Identifying Underbody View 1 Dimensions
 Courtesy of BMW OF NORTH AMERICA, INC.

Underbody view 2



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Fig. 2: Identifying Underbody View 2 Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

Top view, front end

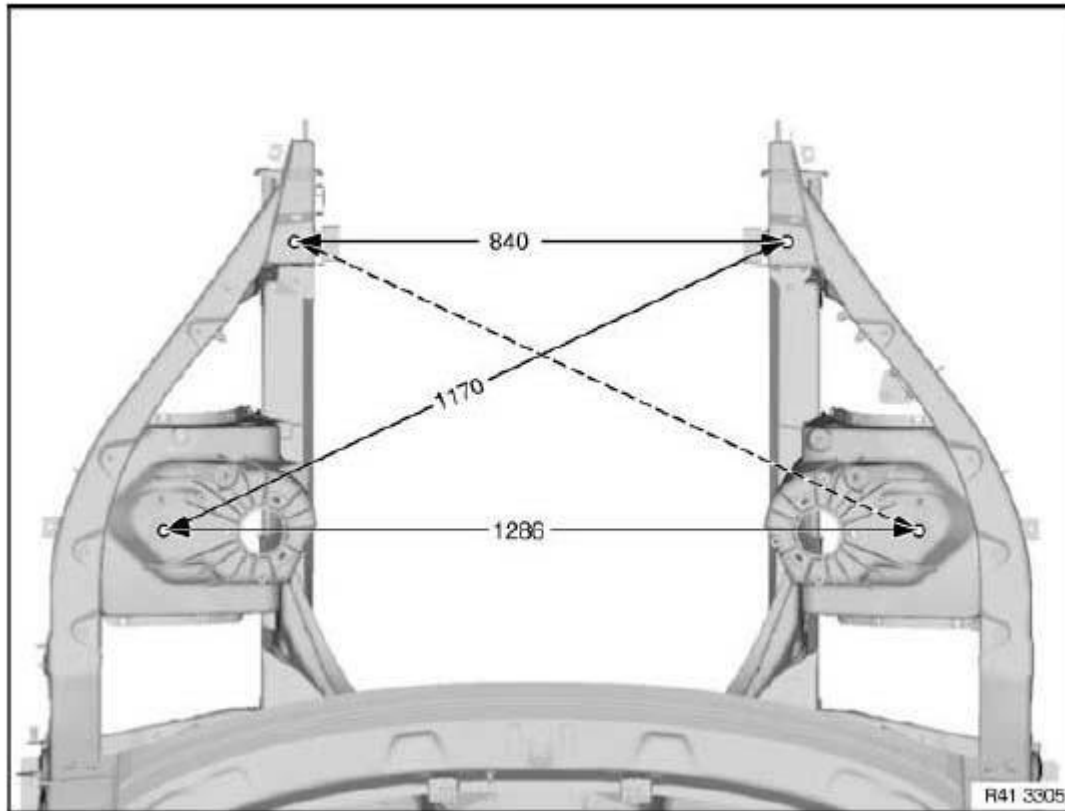


Fig. 3: Identifying Top View, Front End Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

The specified dimensions refer to removed assemblies.

View, B-pillar

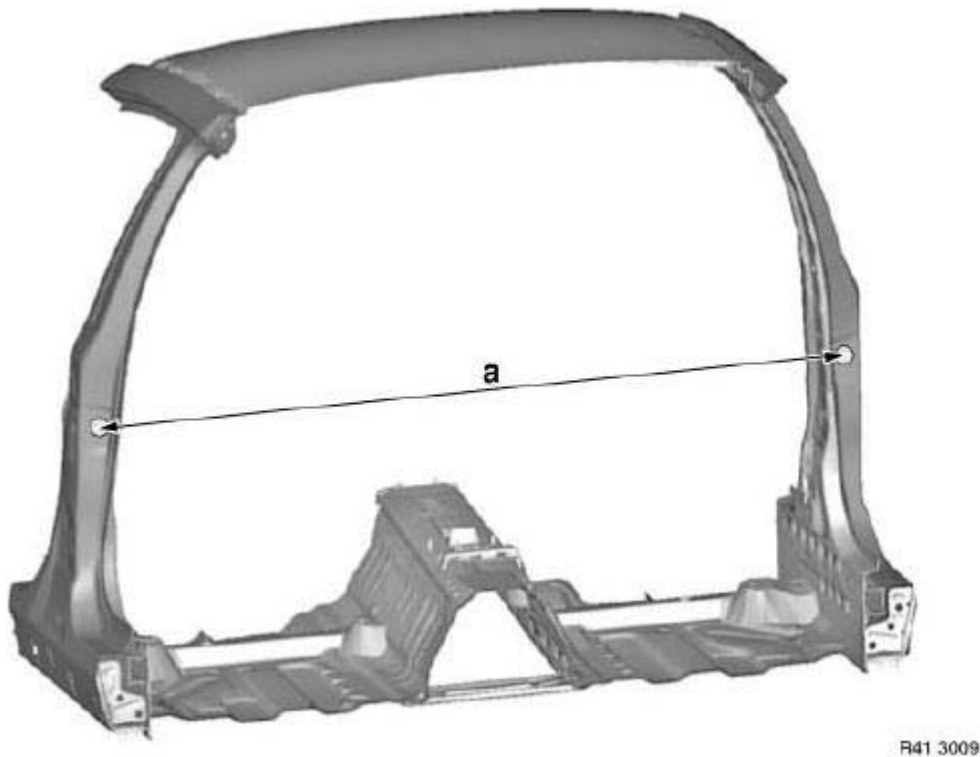


Fig. 4: View Of B-Pillar

Courtesy of BMW OF NORTH AMERICA, INC.

Measurement a=1659 mm between upper screw-on points of door retainers.

41 00 ... GAP DIMENSIONS, BODY

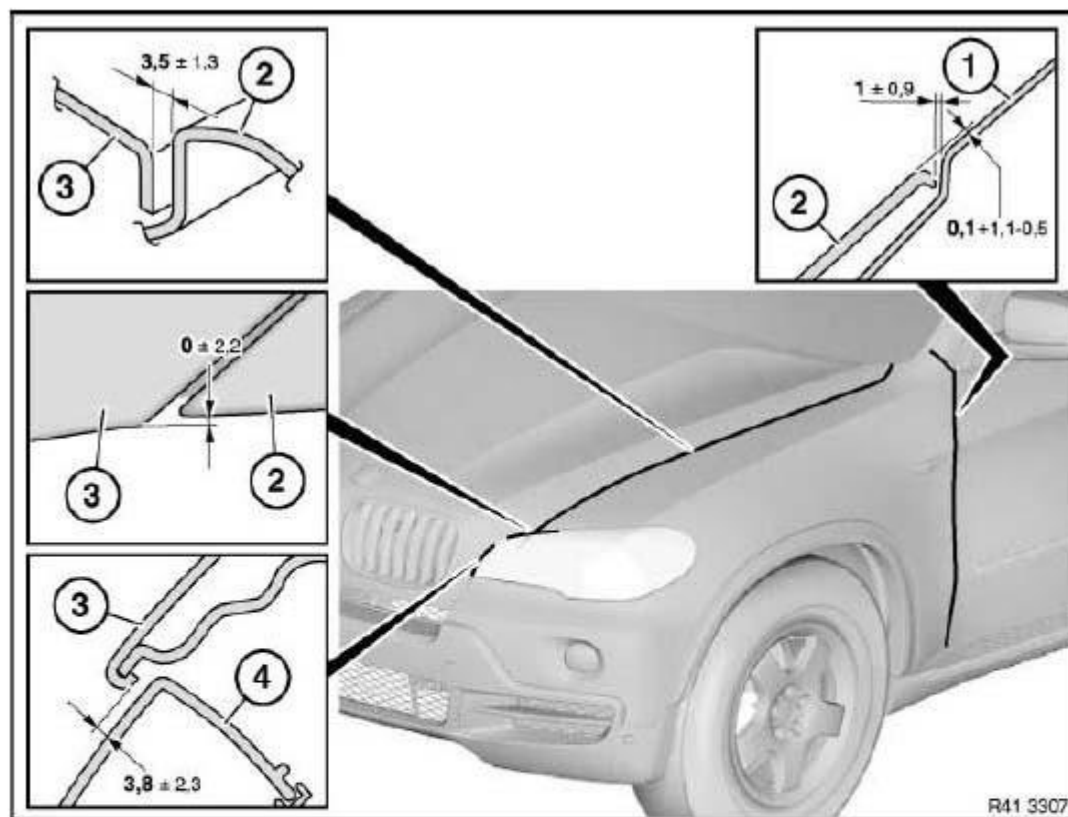
The dimensions specified in this document are applicable at an object temperature of 20°C. The aim of adjustment is to achieve a uniform join.

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

1. Front lid
2. Side wall, front

Fig. 5: Identifying Gap Dimensions Of Body
 Courtesy of BMW OF NORTH AMERICA, INC.

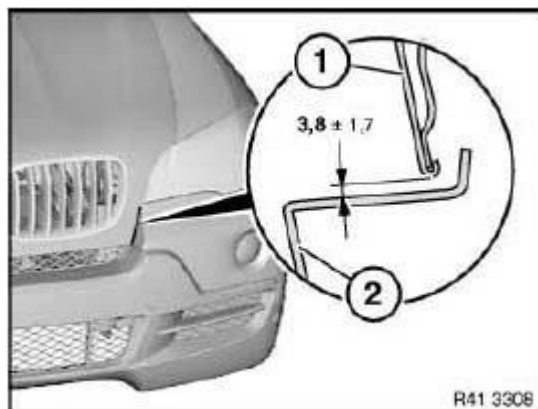


Fig. 6: Identifying Gap Dimensions Of Body
Courtesy of BMW OF NORTH AMERICA, INC.

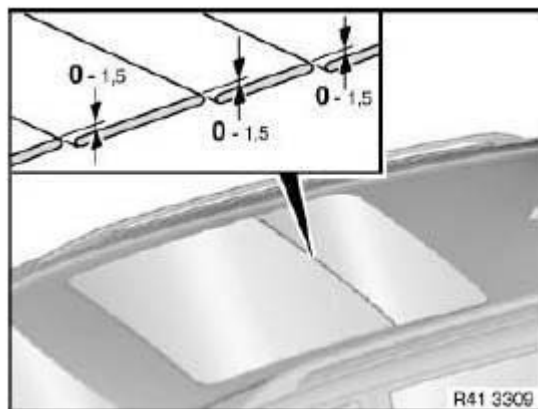


Fig. 7: Identifying Gap Dimensions Of Body
Courtesy of BMW OF NORTH AMERICA, INC.

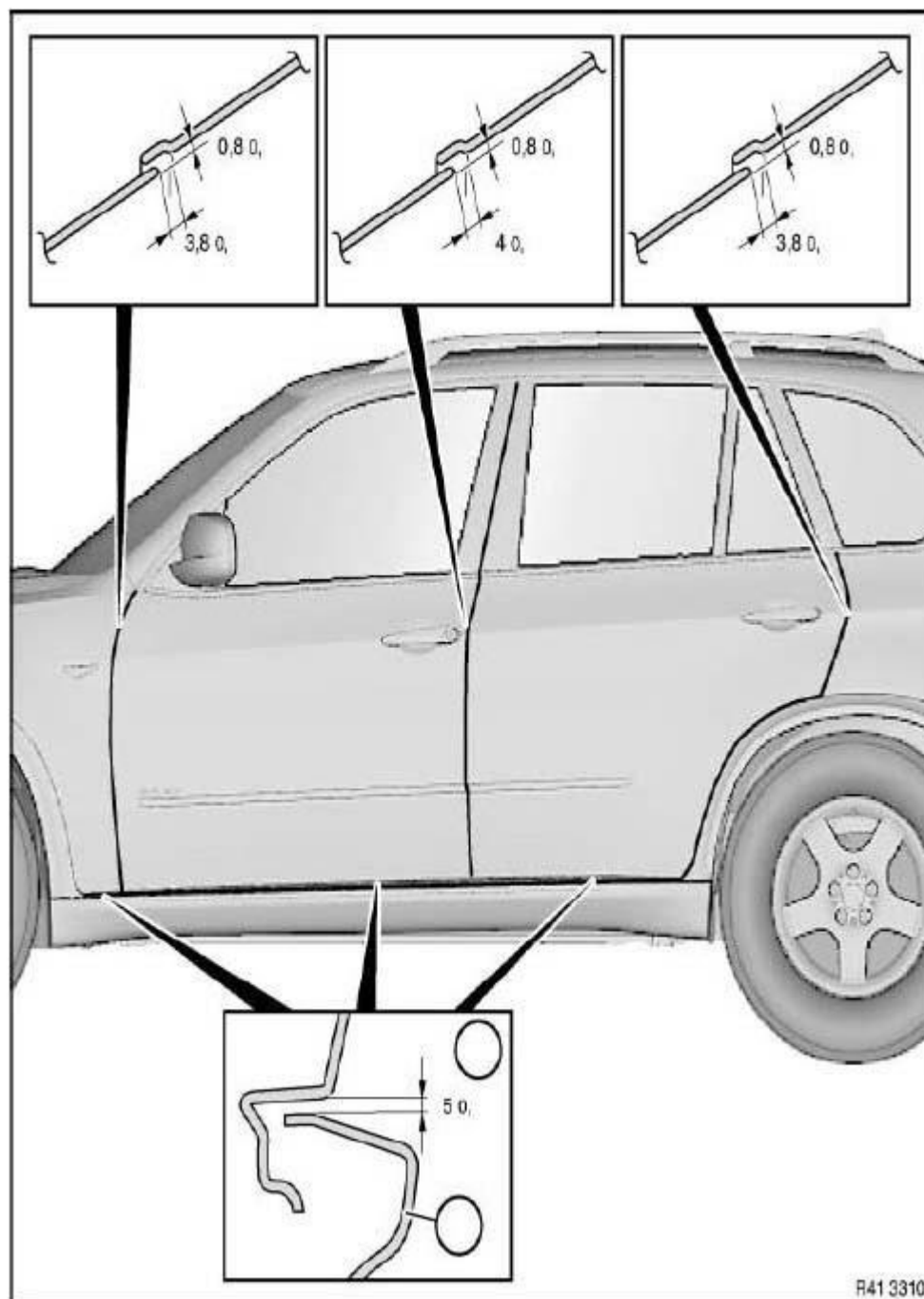


Fig. 8: Identifying Gap Dimensions Of Body
 Courtesy of BMW OF NORTH AMERICA, INC.

1. Cover, sill

Only on version with aluminum running board:

Dimension a = 7.0 ± 0.6 mm

1. Rear door
2. Trim, wheel arch, rear

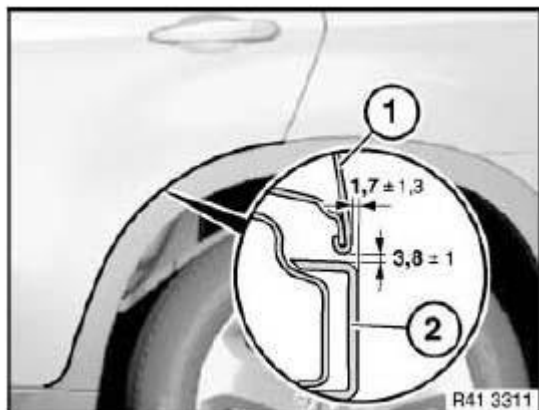
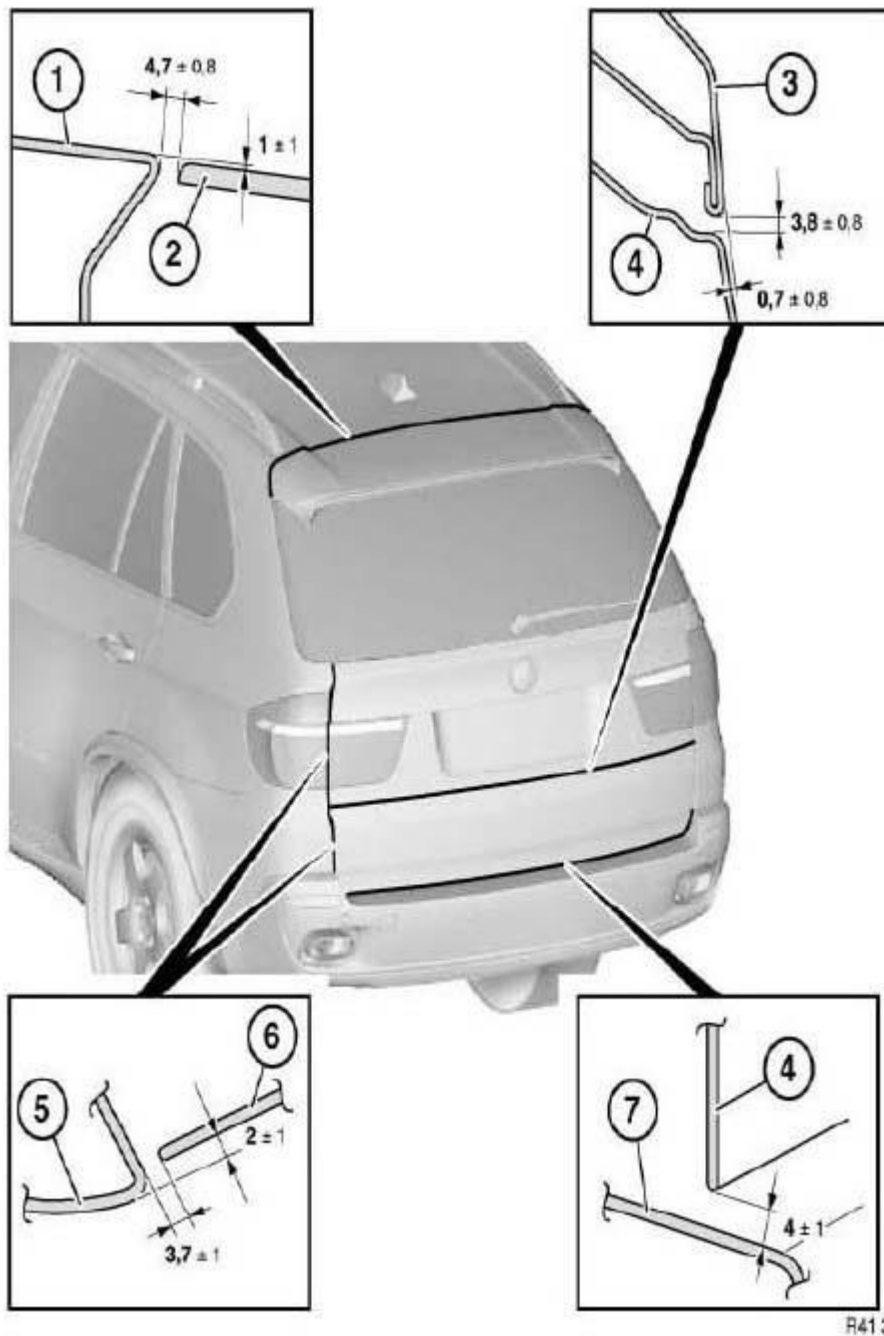


Fig. 9: Identifying Rear Door Gap Dimensions Of Body
Courtesy of BMW OF NORTH AMERICA, INC.



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Fig. 10: Identifying Trim, Wheel Arch And Rear Gap Dimensions Of Body
 Courtesy of BMW OF NORTH AMERICA, INC.

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

6. Rear lid, top/bottom
7. Panel, bumper, rear
1. Rear side panel
2. Rear spoiler

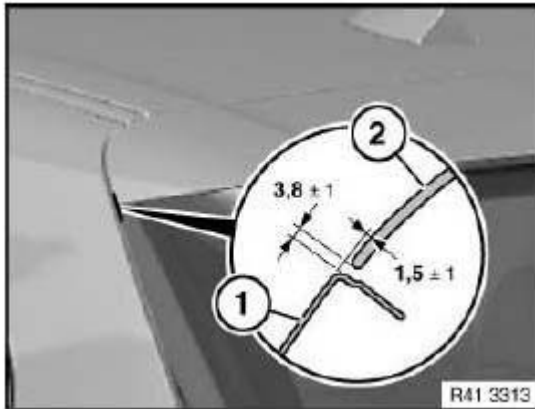


Fig. 11: Identifying Rear Side Panel Gap Dimensions Of Body
 Courtesy of BMW OF NORTH AMERICA, INC.

1. Rear window
2. Rear side panel

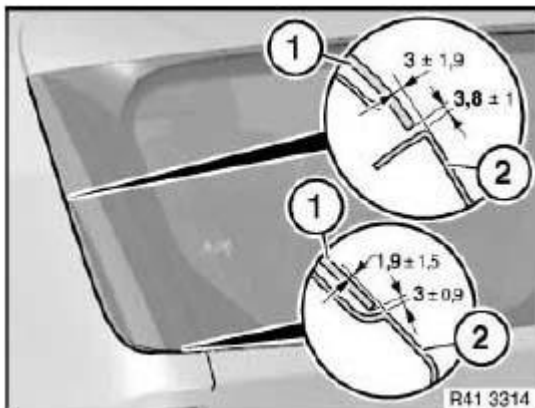


Fig. 12: Identifying Rear Window Gap Dimensions Of Body
 Courtesy of BMW OF NORTH AMERICA, INC.

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: Isopropanol, acetone or spirit

Expiry date of adhesive and primer

- The adhesive cartridge and the primer are marked with a date.
- Do not use the adhesive or primer after this date.

2-component adhesive application:

- Insert adhesive cartridge in adhesive gun, remove cap and allow some adhesive to emerge. Strip adhesive components uniformly and attach mixing tube.
- Allow approx. 1 mixer length of mixed adhesive to emerge (there must be no smearing of 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**

- To carry out outer shell 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).

Weight-reduced aluminum front end structure (GRAV):

- 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 ... HANDLING AIRBAGS AND RESTRAINT SYSTEMS

1.0 Airbags and restraint systems

- On vehicles with airbags and restraint systems, observe the relevant safety instructions .
- 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.

1.0 Battery

- There is a risk of explosion when welding or grinding work is carried out in the vicinity of the battery. The battery must be removed . Prior to removing the battery, interrogate the fault memories of the control units if necessary.

2.0 Control units

- The following hazards are present when the battery is connected:
 - Damage to control units during welding work on the body.
 - Accidental triggering of airbags during straightening work on the body.

Due to these potential hazards, it is essential to disconnect the battery negative lead prior to welding and straightening work. Prior to disconnecting the negative lead, interrogate the fault memories of the control units if necessary.

- Control units are designed for a temperature of 65°C. The temperatures in a spraying booth do not pose any problems. If a vehicle is inside the spraying booth at an indicated temperature of 80°C, the actual temperature of the vehicle will be < 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

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

41 00 ... INFORMATION ON HAZARDS

1.0 Aluminum

INFORMATION ON HAZARDS CHART

Hazards / effects	Measures / regulations
Repair stage 1: (replacement of bolted parts, dent removal) Repair stage 2: (structural repairs with bonding and riveting)	○ When a vehicle outer shell is ground, aluminum dust accumulates in small amounts. This dust can be removed with conventional extractor systems.
Repair stage 3:	

(structural repairs with welding) - Explosion hazard due to high concentration of fine aluminum dust. Arising e.g. during straight-through grinding of coated parts in the base material and large-surface grinding of bright-finish parts. - Explosion hazard due to swirling up of fine aluminum dust in cavities. Created by the necessary, thorough cleaning of machining surfaces and tools before and after machining aluminum.	- Avoid high concentration of fine aluminum dust by means of continuous extraction. - Use explosion-proof extractor systems. - Do not use compressed air when cleaning the work bay. - Avoid swirling up dust when cleaning the work area.
Spontaneous combustion of fine aluminum dust when ignition and fire sources are drawn in. E.g.: hot splinters, grinding sparks, cigarettes etc.	Do not operate ignition and fire sources in the intake area of extractor systems.

41 00 ... INFORMATION ON VEHICLE PROTECTION

- Vehicle components which are situated in the repair area or exposed to heat, flying sparks or dust must be removed or covered.

IMPORTANT: Do not use combustible or contaminated coverings.

41 00 ... INSTALLATION OF A CAVITY SEAL WITH CAVITY FOAM

Sourcing reference for cavity foam.

IMPORTANT: The cavity foam may only be use for cavity sealing at the points at which cavity sealing is present as standard!

The following repair represents the replacement of a shaped part for the cavity seal by the use of cavity foam.

This type of cavity sealing is used at points at which shaped parts cannot be used for repairs.

This is the case when large amounts of heat occur (e.g. due to welding, soldering or tin-plating) in the direct vicinity or at the point of the standard cavity sealing.

It is not possible here to install shaped parts for the cavity seal because of the fire risk!

To replace shaped parts with cavity foam at further locations, adopt the procedure shown here and adapt it to the relevant conditions.

It must be ensured that the cavity is completely sealed off.

NOTE: Check the accessibility for the spraying pipe of the cavity foam to the affected cavity after removing the damaged part.

Properties of cavity foam:

- 2K-PUR foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.

IMPORTANT: Observe processing instructions and safety precautions on the spray can!

- Use by date on can.

Do not use the spray can after the use-by date has expired as the properties of the cavity foam would no longer meet the requirements of the BMW Group.

- Before applying to the vehicle, fill a clearly visible cavity of corresponding size with foam on a used part.

This enables an optimal dosage (i.e. spraying time) to be specified for filling the cavity on the vehicle with foam.

- Backing surface must be clean and free from dust, grease, oil and stripping agent.
- Tape off open passages to visible areas with adhesive tape to prevent foam from escaping.
- Application time after mixing: within 8 minutes.
- Do not eat, drink or smoke during this operation.
- Completely empty open can after use.
- Cavity sealing of repair area possible after an air drying time of 1 hour.

41 00 ... INSTALLING A CAVITY BULKHEAD (EXPANDED)

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

The following repair represents the procedure for an already expanded cavity bulkhead.

The cavity bulkhead remains on the body in this instance.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).

Clean contact surface (1) with spirit.

Apply an approx. 15 mm high bead (2) of original BMW window adhesive to contact surface (1).

Fit, secure and weld up new part.

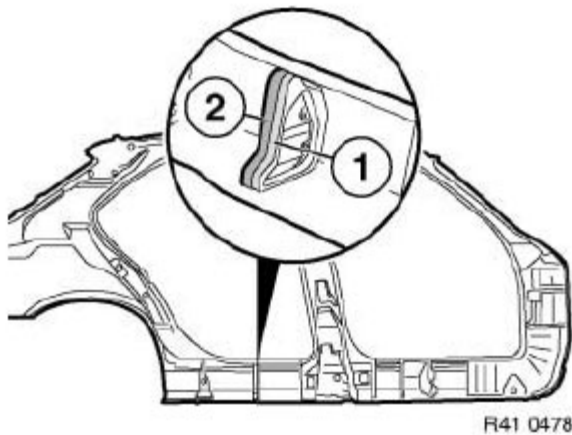


Fig. 13: Identifying Contact Surface
Courtesy of BMW OF NORTH AMERICA, INC.

WARNING: Ensure adequate ventilation over entire processing period.

41 00 ... INSTALLING A CAVITY BULKHEAD (NOT EXPANDED)

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

The following repair represents replacement of a cavity bulkhead.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).

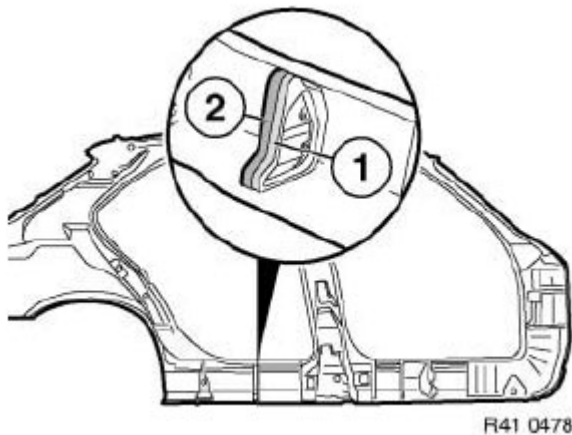
Sand contact surface of cavity bulkhead (1) with coarse-grained abrasive paper (grain 50 - 100).

Clean contact surface (1) with spirit.

Apply an approx. 15 mm high bead of original BMW window adhesive to contact surface (1).

Attach cavity bulkhead in specified position (see old part).

Fit, secure and weld up new part.

**Fig. 14: Identifying Contact Surface**

Courtesy of BMW OF NORTH AMERICA, INC.

WARNING: Ensure adequate ventilation over entire processing period.**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.

1.2 Material influences**MATERIAL INFLUENCES CHART**

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 aluminum 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	Surface corrosion or pitting occurs.

components can implant steel particles in the softer surface of an aluminum component.	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.
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.

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 Heli-coil thread inserts so that they are flush with the original thread.

NOTE: Damaged threads may be repaired with Heli-coil thread inserts. Comply with the procedure described in the example.

SCREW/BOLT SPECIFICATION

Screw/bolt connection	Vehicle	Screw/bolt fastening point(s)	Heli-coil 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	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18
	E81, E87	All	M12x1.5x18
	E90, E91, E92, E93	All	M12x1.5x18
Bracket, control arm, to engine carrier	E46, E85, E86	All	M10x1.5x15
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	All	M14x1.5x21
	E83	All	M12x1.5x18
	E85, E86	All	M12x1.5x18

	E81, E87	All	M12x1.5x18
	E90, E91, E92, E93	All	M12x1.5x18
Bearing block, trailing arm to side member	E46, E83, E85, E86	All	M12x1.5x18

41 00 ... OPENING ADHESIVE BONDS

1. Opening spot-weld bonds

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

Or open weld spot with Vario Drill spot welding cutter (refer to **WORKSHOP EQUIPMENT & PLANNING CD**, Chapter 7).

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

- Heat connecting flange with a hot air blower.

CAUTION: Extract 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 .
- 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):

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

Or open weld spot with Vario Drill spot welding cutter (refer to **WORKSHOP EQUIPMENT & PLANNING CD**, Chapter 7).

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

2. Opening laser weld seams:

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

41 00 ... OVERVIEW OF SPRING SUPPORT REPAIR ELEMENTS

SPRING SUPPORT SPECIFICATION

Component	Repair element ⁽¹⁾	Part number	Matching
(1) Spring support	M10 Heli-coil thread insert	07 14 7 046 145	V-strut on spring support
	M6 Heli-coil thread insert	07 14 6 046 334	
(1) The required tools are featured on the <u>WORKSHOP EQUIPMENT PLANNING CD</u> (WEP)			

Carry out thread repair with Heli-coil thread insert . See **41 00 ... NOTES ON REPAIRING THREADS**.

Read and comply with tool manufacturer's instructions.

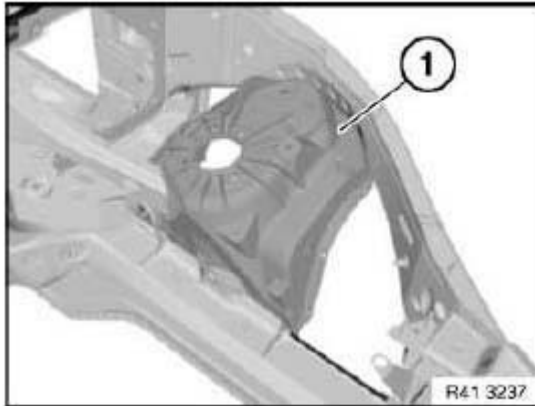


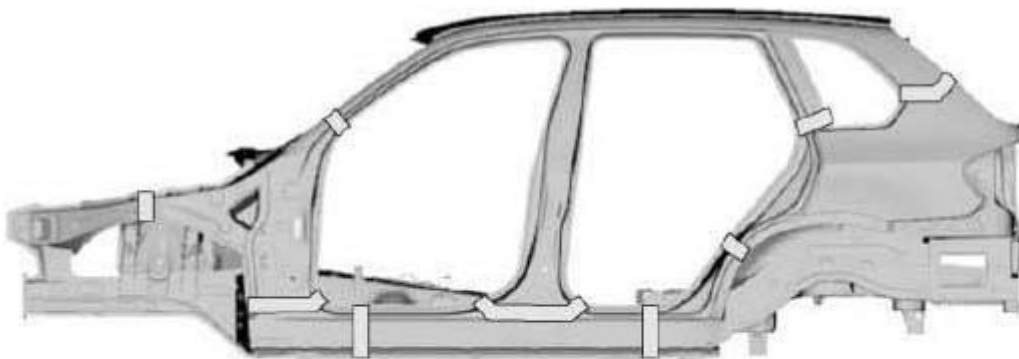
Fig. 15: Identifying Spring Support

Courtesy of BMW OF NORTH AMERICA, INC.

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. 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.



R41 3231

Fig. 16: Positioning Of Shaped Parts

Courtesy of BMW OF NORTH AMERICA, INC.

- 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 carrying out repairs.

41 00 ... RIVETING ALUMINUM PARTS

1.0 Recommended tools and equipment

- Stud welding apparatus with gas bottle containing inert gas (82 % argon, 18 % CO₂).
- Stainless steel stud (sourcing reference via BMW Parts Service picture board 83-0286 Aluminum and steel/bonding and welding)
- Universal riveting tool
- Hand riveting tool for blind rivet nuts and blind rivet bolts (refer to **WORKSHOP EQUIPMENT PLANNING CD**, Chapter 7).

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 nose piece in collision area.

Do not push riveting tool forcefully onto special-steel bolts.

Do not use riveting tool to bend special-steel bolts.

- Pay particular attention to central positioning of the bolt when using the small plastic mouthpiece.
- Follow the equipment manufacturer's instructions for use.

2.2 Drilling out punch rivets:

Only if extraction proves repeatedly unsuccessful or the rivet cannot be accessed with the universal riveting tool.

- Drill out rivets with a 6 mm dia. carbide drill bit.
- Punch rivets can be drilled out on both sides. When drilling from the protruding rear side, spot-drill the rivet shank only and remove the rest with a rivet punch.
- Use a drift punch to remove all punch rivet remnants in the aluminum (risk of corrosion).
- Clean vehicle to remove all traces of chips (risk of corrosion).

2.3 Drilling out blind rivets:

Only when a part is repeatedly replaced.

- Drill out **rivet head only** with 6 mm dia. metal drill bit. Knock out rivet remnants with a drift. Use existing 6.7 mm hole for blind rivet.
- Clean vehicle to remove all traces of chips and rivet remnants (risk of corrosion).

3.0 Blind riveting in conjunction with bonding

- The standard punch rivets are always replaced by blind rivets in conjunction with bonding.
- The required strength of the connection is only achieved through a combination of bonding and riveting.

4.0 Setting blind rivets:

- Refer to repair instructions for rivet size (size 13 or size 15 with 6.5 mm dia. or 4.0 mm dia.).
- Position blind rivets in the same locations as the extracted punch rivets. Exceptions are described in the relevant repair instruction. If necessary, carry over the positions of the rivets to the new component.
- Drill holes (4.2 mm dia. for 4 mm rivet and 6.7 mm dia. for 6.5 mm rivet).
- Apply adhesive.
- Insert blind rivet. The riveting direction is the same as the line of vision in the picture shown in the repair instruction (e.g. from wheel arch into engine carrier).
- Universally rivet blind rivet with riveting tongs.
- Seal blind rivet with PU sealing material (risk of corrosion).
- Seal cavities with preserving agent (risk of corrosion).

5.0 Setting blind rivet nuts and blind rivet bolts:

- Standard stud welding is always replaced by blind rivet bolts.
- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet bolts).
- For corrosion reasons, blind rivet nuts and bolts must have a special coating (refer to **WORKSHOP EQUIPMENT PLANNING CD**, Chapter 7).

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

- Insert blind rivet nuts or bolts and tighten down with the riveting tool.

- It will no longer be possible to set a blind rivet nut if the drilled hole is too big. In this case, set a clip nut. This nut tightens itself automatically when screwed to the component.
- Seal blind rivet nuts and bolts with PU sealing material (risk of corrosion).

41 00 ... RIVETING STEEL PARTS

1.0 Recommended tools and equipment

- Manual riveting tool for blind rivet nuts and bolts.

2.0 Setting blind rivet nuts and blind rivet bolts:

- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet bolts).
- Blind rivet nuts and bolts must have a special coating for corrosion reasons.

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

- Insert blind rivet nuts or bolts and tighten down with the riveting tool.

41 00 ... SAFETY AT WORK

1.1 Working with aluminum dust:

- Wear a fine dust mask.
- E52 only: Use an explosion-proof extractor system.
- Note national regulations.

1.2 Removing sealing materials

- Hydrochloric acid is created when PVC sealing material is heated to temperatures in excess of 180° C.
- Remove PVC sealing material with a rotating wire brush only or heat material with a hot air blower to max. 180°C and remove with a spatula.
- Ensure that all enclosed areas are well ventilated or are provided with direct extractor facilities.

1.3 Arc welding and brazing:

IMPORTANT: The extremely bright arc during welding may cause serious injury to the eyes if appropriate protective measures are not taken.

- Use a special welding screen* for the relevant welding process (MAG or MIG).
- Partition off the work bays with beam protection screens*.
- Use a welding-emissions extractor facility*.
- The welder must wear protective clothing* and gloves* which are suitable for welding (i.e. flameproof).
- A fire extinguisher must be located within reach of the welding area.
- Do not carry out any welding work in the proximity of a fuel tank e.g. when it is installed.

- Note national regulations.

*Sourcing reference: refer to **WORKSHOP EQUIPMENT PLANNING CD**.

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.

Handling electrical/electronic equipment, airbags and restraint systems .

Welding 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

NOTE: If the stamped vehicle identification number is removed during repair work, it must be stamped in again.
Read and comply with General Information .

Necessary preliminary tasks:

- Remove front right spring strut . See **31 00... INFORMATION ON REPLACING SHOCK ABSORBERS** .

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

Guide plate 41 1 191

Counter-plate 41 1 192

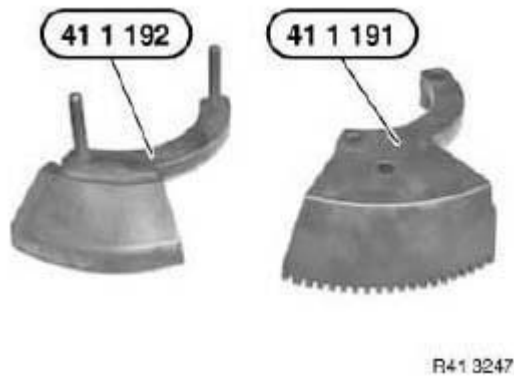


Fig. 17: Identifying Special Tool (41 1 192)

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. 18: 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.

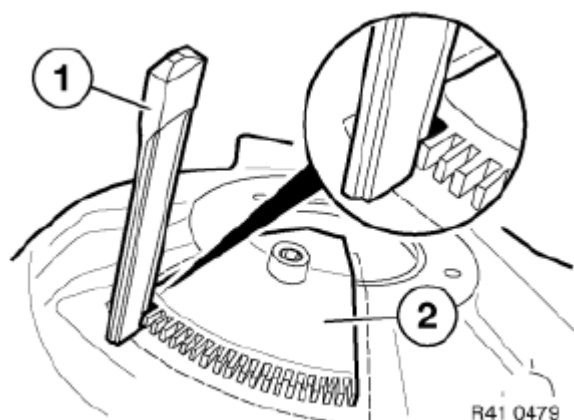


Fig. 19: Identifying Punch And Guide Plate
 Courtesy of BMW OF NORTH AMERICA, INC.

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.
- 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 $> \text{or} = 120^{\circ}\text{C}$ (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 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.

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-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 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:**

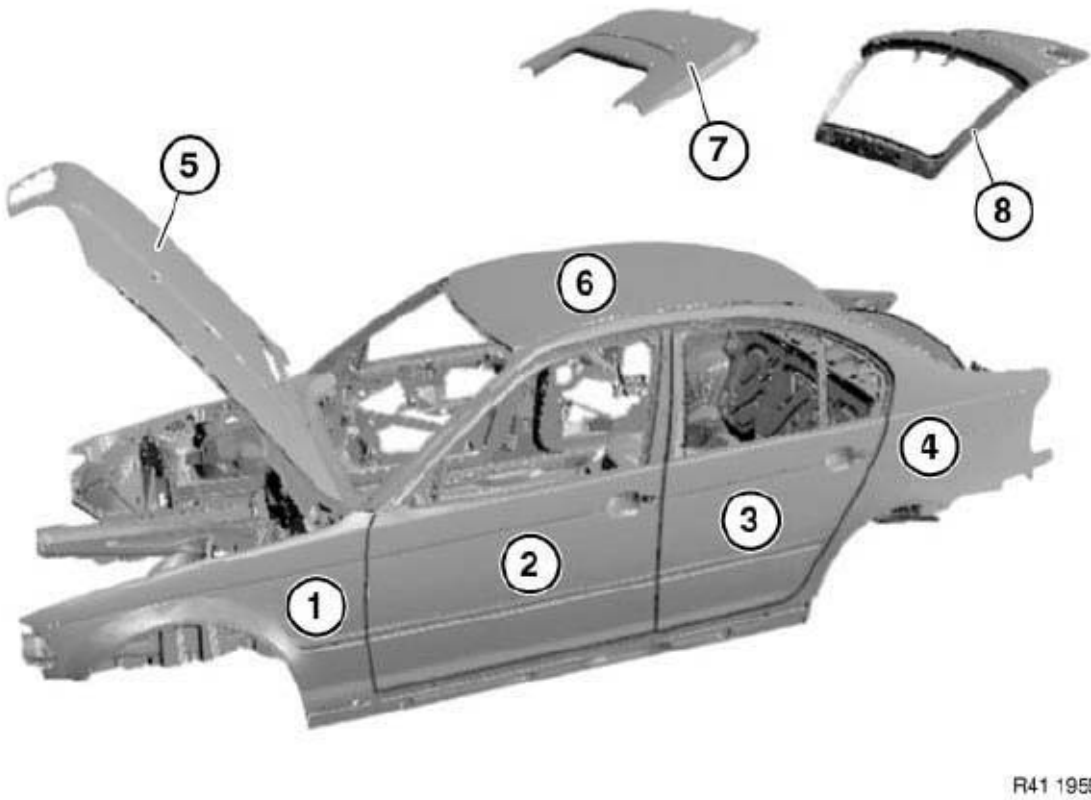
If using vehicle-specific/universal straightening attachment sets (Carbench/Celette), it is necessary to secure the body **additionally** with 4 retaining clips to the spot flange of entrance or to the 4 jacking points. The spot flange (if available) is to be preferred.

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.



R41 1959

Fig. 20: Identifying Materials In Outer Shell
Courtesy of BMW OF NORTH AMERICA, INC.

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

COMPONENTS MATERIALS SPECIFICATION

Component	Vehicle	Material
(1) Side panel, front	E52 (Z8)	Aluminum
	E60, E61	Aluminum
	E63, E64	Plastic (thermoplastic)
	E65, E66	Aluminum
	E70, E92, E93	Plastic (thermoplastic)
(2) Front door	E36/C (M3)	Aluminum or steel
	E36/2 (M3)	Aluminum or steel
	E52 (Z8)	Aluminum
	E63, E64	Aluminum
(4) Side panel, rear	E52 (Z8)	Aluminum
(5) Engine hood	E38 (750i)	Aluminum or steel
	E46/C (M3)	Aluminum
	E46/2 (M3)	Aluminum
	E52 (Z8)	Aluminum

	E60, E61, E63, E64	Aluminum
	E65, E66, E70	Aluminum
	E85 (Z4)	Aluminum
(6) Hardtop/roof	E36/C	Aluminum
	E36/7 (Z3)	Plastic (glass fibre / epoxy resin)
	E46/C	Aluminum
	E46/2 (M3 CSL)	Plastic (CFK)
	E52 (Z8)	Plastic (PU)
	E85 (Z4)	Plastic (SMC)
	E63 (M6)	Plastic (CFK)
(7) Soft top lid	E46/C	Magnesium
	E64	Plastic (SMC)
(8) Rear	lid E46/2 (M3 CSL)	Plastic (SMC)
	E52 (Z8)	Aluminum
	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.

In repair work, the vehicle identification number is always stamped into a replacement vehicle identification number surface. The replacement surface is usually situated under the original VIN surface.

The IGEF number (bodyshell number) is omitted when the wheel arch is replaced.

In the event of component or body replacement by the BMW garages/workshops, clearly delimit the vehicle identification number at front and rear by stamping a + in place of the BMW emblem.

If a VIN is stamped into the replacement surface in addition to the original VIN (e.g. if the original VIN has been tampered with), the following applies: The original VIN must be crossed out. To do so, stamp the letter I from the punch digits lengthways through the original VIN.

IMPORTANT: Do not use an angle grinder in conjunction with a cutting disk!

The protective film used as standard is omitted after the VIN has been manually stamped in. Paint area in accordance with BMW Painting Handbook. Ensure that layer thicknesses are small.

Observe country-specific regulations.

41 00 ... WELDING AND SOLDERING STEEL PARTS

IMPORTANT: Comply with the following topics from "Body, General":
Safety regulations.

Handling electrical/electronic equipment, airbags and restraint systems .

A. Welding steel parts:

1. General information

- The following procedures are used for repairs:
 - MAG welding (**M**etal **A**ctive **G**as welding)
 - Resistance pressure spot welding (referred to in the following and in the repair instructions as spot welding).
- Take the number and location of weld spots and MAG weld seams from the separated part. Replace areas inaccessible to spot-welding tongs with MAG plug/spot welds at the same distance. Diameter of bores for plug/spot welds 8 mm.
- In the case of emissions extraction, observe a minimum distance of 30 cm for MAG welding during the welding process. Otherwise the inert gas would be drawn off.
- Follow the equipment manufacturer's instructions for use.

2. Work materials

- MAG welding:
 - Steel welding apparatus (refer to **WORKSHOP EQUIPMENT PLANNING CD**, Chapter 7).
 - 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 (refer to **WORKSHOP EQUIPMENT PLANNING CD**, Chapter 7).
 - Protective goggles

3. Preparations for MAG and spot-welding

- Remove the paint coating in an area of approx. 30 mm around the weld seam or spot.
 - The zinc coating underneath must be removed during the MAG welding operation.
 - It is not necessary to remove the zinc coating underneath during spot-welding.
- Remove the paint coating on the reverse side of the weld seam or spot.
 - Contaminants will otherwise enter the weld pool via the root of the weld seam.
 - An insufficient electron flow prevents an optimum spot-weld joint.
- Coat all metal overlaps and weld spot flanges with welding primer.
- To determine the optimum electrode contact force for spot-welding, carry out spot-weld shear tests on sample metal sheets.
- In order to keep the electron flow short during MAG welding on the body, you must if possible attach the ground terminal directly to the component to be welded.

4. Welding

- During MAG welding, the weld gap must be kept as small as possible. The larger the weld

gap, the lower will be the strength of the joint.

- During spot-welding, the metal flanges to be joined must be placed as close together as possible without gaps.

The larger the gap, the lower will be the strength of the joint.

Minimum gap between welding spots 25 mm.

5. Subsequent treatment of weld joints:

- When grinding a weld seam, do not grind thin the base material next to the seam.
- After joining, clean all weld seams and spots with a stainless steel wire brush.
- Remove burnt paint with a stainless steel wire brush.
- All weld joints sealed off with body sealing compound in original state must be primed and sealed off again thoroughly after repairing. Replace damaged or removed antinoise compounds.

B. Soldering steel parts:

1. General information

- The following procedures are used for repairs:
 - Gas brazing
 - Tinning
- The MIG soldering procedure is not used in repairs for strength reasons. MIG soldered/brazed seams used in series production are replaced in repairs by MAG weld seams.
- Areas brazed in vehicle production are joined during repairs with the same procedure.
- It is possible when straightening steel parts to correct irregularities smaller than 2 mm with filler.

If in exceptional cases the irregularities are in excess of 2 mm, these areas must be tinned.

Only visible areas of the outer skin and on the support carrier must be tinned.

All areas which have covers on the vehicle are not to be tinned.

NOTE: Only applicable within the European Union!

European used-car regulations prohibit the use of tin containing lead in motor vehicles introduced after 01.07.2003!

2. Work materials

- Gas brazing:
 - Tube pack and torch (gas torch)
 - Brazing solder 462 of 3160
 - 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)

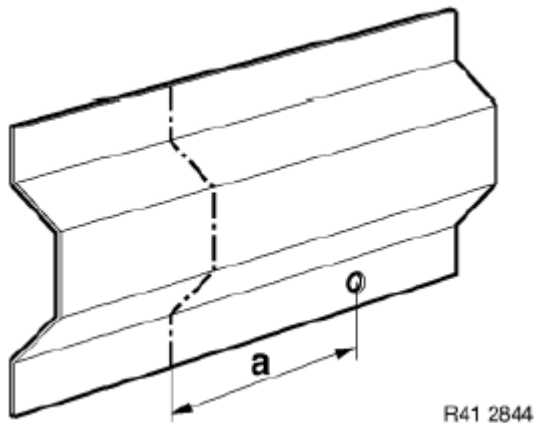
In the case of a partial replacement piece, a body component is cut at a point described in the repair instructions.

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.



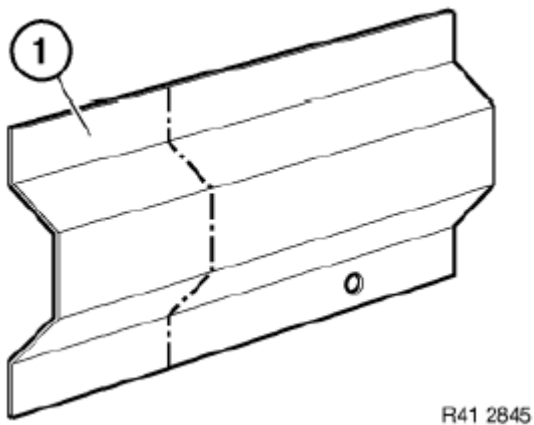
R41 2844

Fig. 21: Identifying Distance A And Cut
 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.

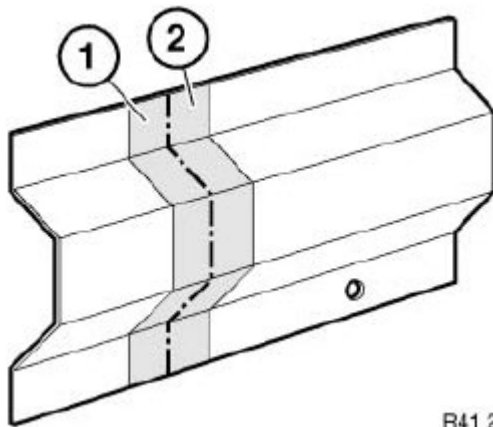


R41 2845

Fig. 22: 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.

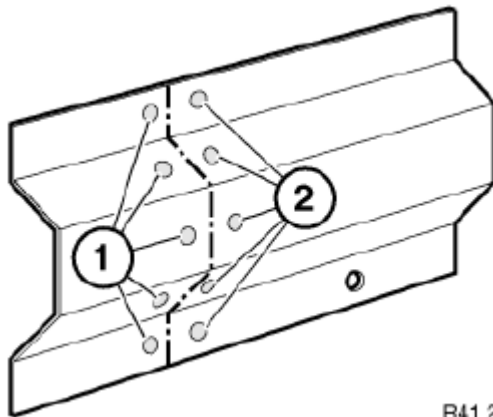


R41 2846

Fig. 23: Identifying Inner And Outer Sides Of Connecting Areas On Body
 Courtesy of BMW OF NORTH AMERICA, INC.

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

Hole diameter approx. 8 mm.



R41 2847

Fig. 24: Identifying Hole
 Courtesy of BMW OF NORTH AMERICA, INC.

Make reinforcement plate (1) from trim of new part.

If necessary, make further reinforcement plates.

Length of reinforcement plates is min. 40 mm.

Coat reinforcement plates (1) and (2) on both sides with welding primer.

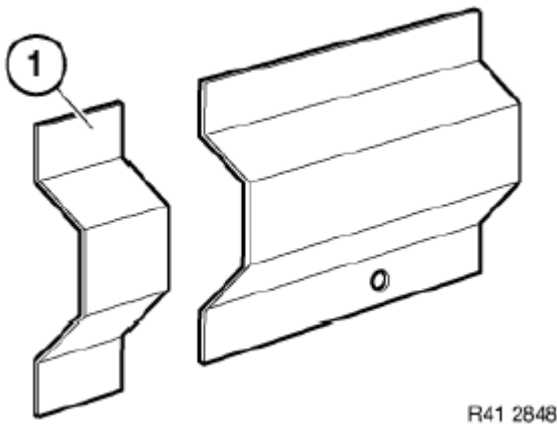


Fig. 25: Identifying Reinforcement Plate
Courtesy of BMW OF NORTH AMERICA, INC.

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

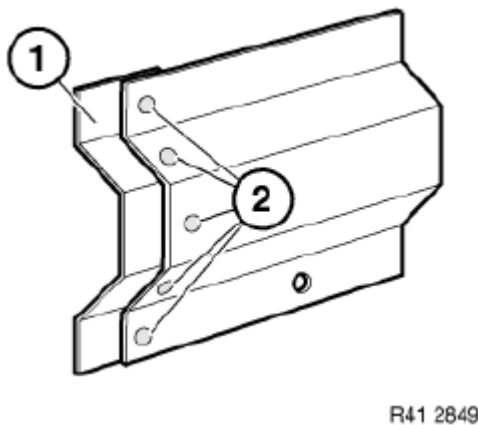


Fig. 26: Identifying Reinforcement Plate
Courtesy of BMW OF NORTH AMERICA, INC.

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!

01.07.2003!

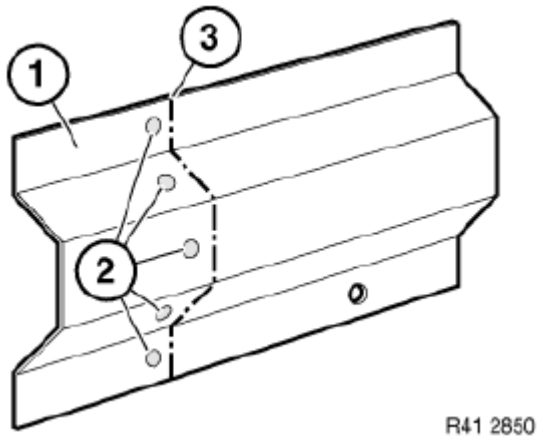


Fig. 27: Identifying Plug Weld Spots And MAG Joint
 Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... WORKSHOP EQUIPMENT

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

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

SPECIAL TOOL SPECIFICATION

Tool	Steel		Aluminum	
	Structure	Outer skin	Structure	Outer skin
Bodywork tool assortment	x	x		
Aluminum 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 and 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 lose its recommendation as soon as tests with materials and material combinations designated for future use in BMW Group vehicles return negative results.

All previous application before the withdrawal of the recommendation shall remain unaffected.

DEVICE DESIGNATION 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 AND GROUP REFERENCE

Vehicle	Group 1	Group 2
E93	x Except A-pillar, B-pillar, sill	x
E70	x Except B-pillar	x
E64	x Except A-pillar, B-pillar, sill	x

NOTE: (March 2007)

All models not listed can be repaired using the Group 1 and Group 2 devices.

99 00 ... GENERAL INSTRUCTIONS ON PAINTING

General instructions and classification of paint stages are described on the KSD-CD (notes-general information on flat rate unit data, passenger car explanation for 48 open specifications for painting).

The marked area serves as the starting point for painting. This area may differ from the illustration for technical painting reasons.

Touching-up areas are taken into account.

11 SUPPORT MEMBERS

41 11 015 REPLACING ENGINE CARRIER WITH WHEEL ARCH, LEFT

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

The steel-aluminum mixed construction is used on the 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.

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

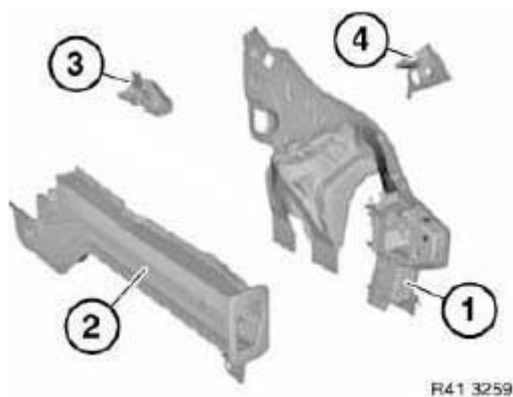


Fig. 28: Identifying Reinforcement, Support Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

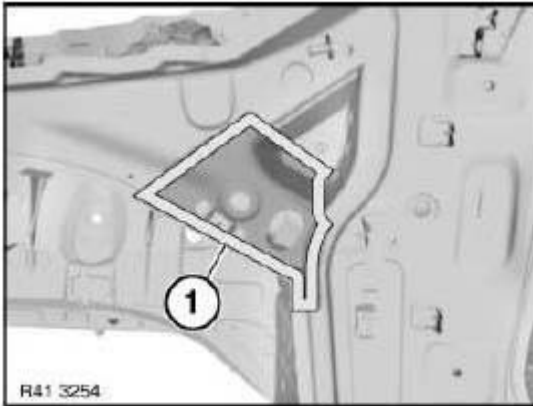


Fig. 29: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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.

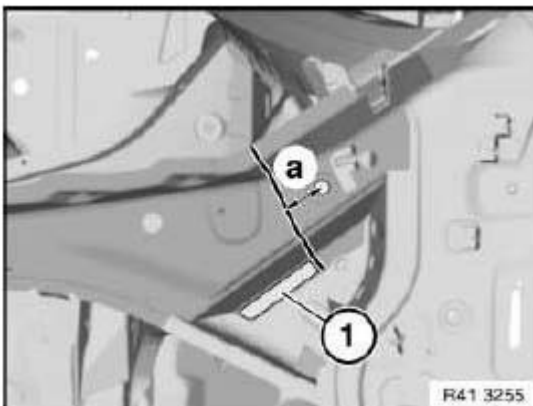


Fig. 30: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

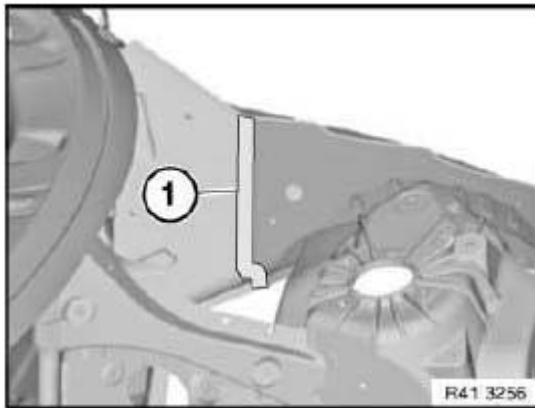


Fig. 31: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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.

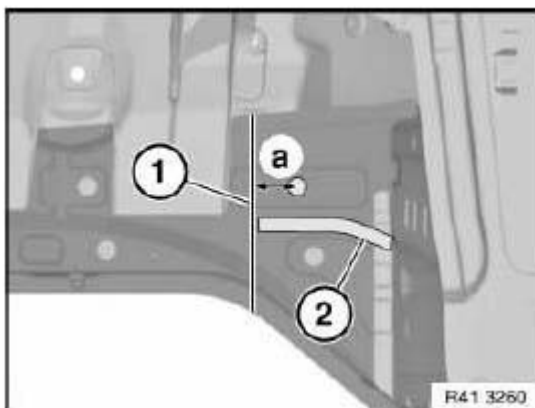


Fig. 32: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

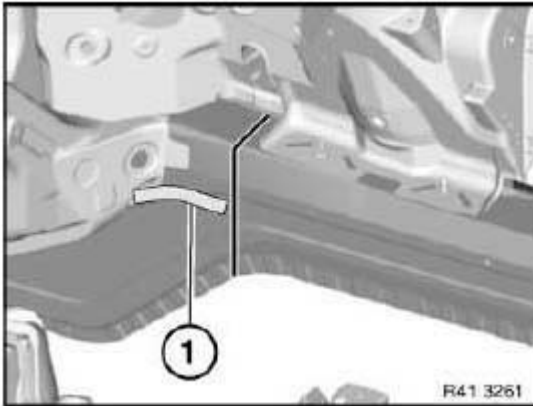


Fig. 33: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in area (2).

Open adhesive joints in areas (2) and (3).

Installation:

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

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

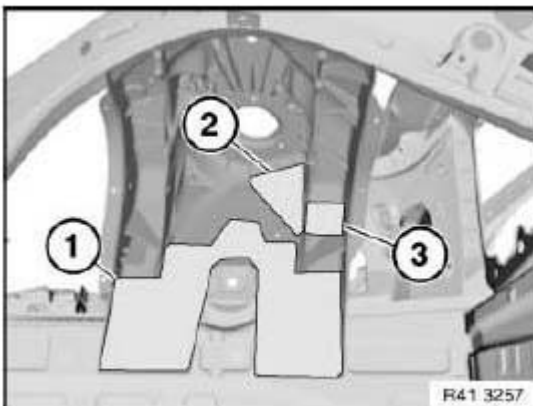


Fig. 34: Identifying Open Adhesive Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

IMPORTANT: Cut outer metal sheet only. 472 of 3160
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.

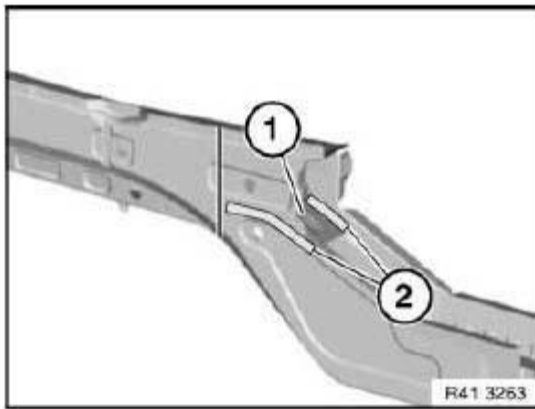


Fig. 35: Identifying Cut Weld Joints On Both Sides Areas
Courtesy of BMW OF NORTH AMERICA, INC.

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).

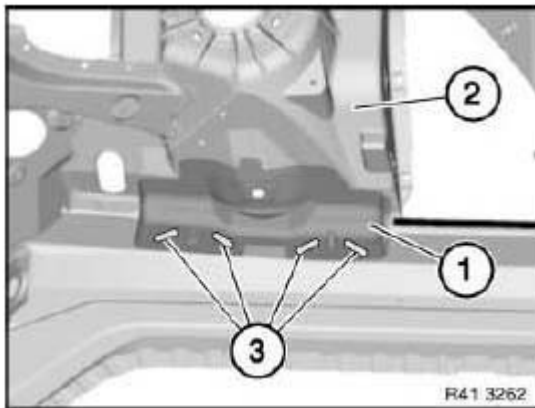


Fig. 36: Identifying Wheel Arch Support And Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in area (1).

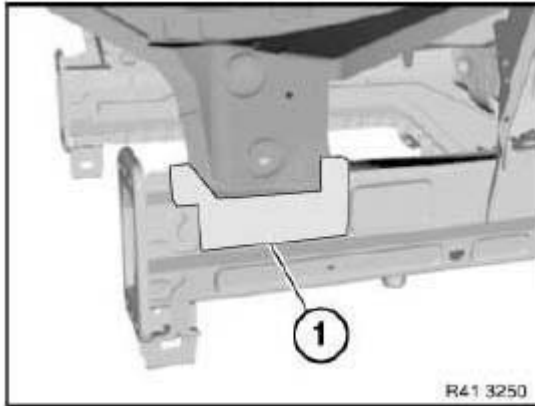


Fig. 37: Identifying Weld Parts Area

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in areas (1).

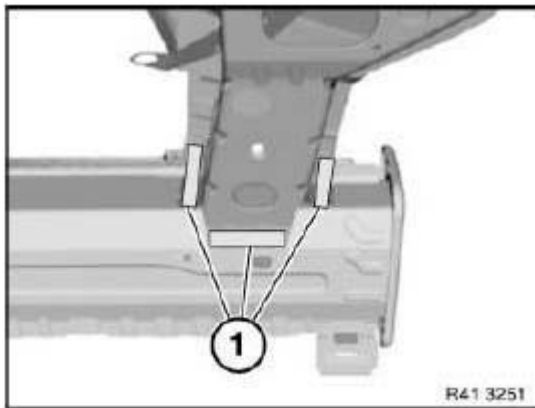


Fig. 38: Identifying Weld Parts Area

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.

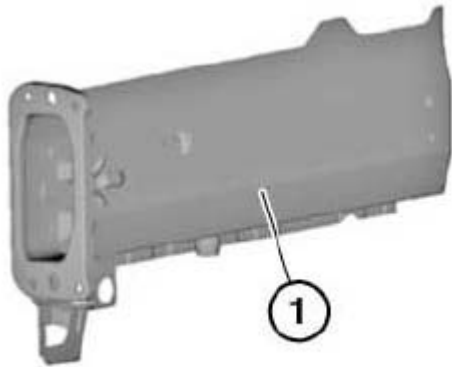
Place vehicle on straightening bench.

Necessary preliminary tasks:

- Replace left support carrier.

Following new body parts are required:

- (1) Engine carrier, front



R41 2778

Fig. 39: Identifying Engine Carrier, Front
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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.

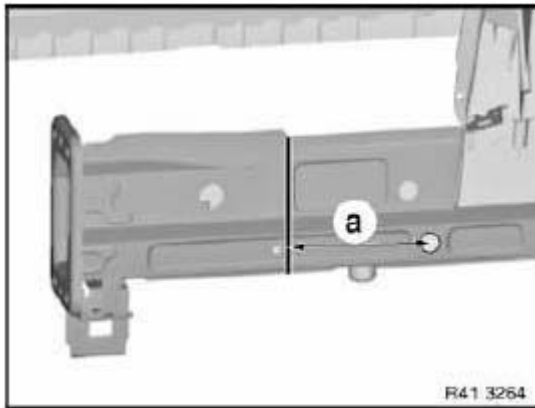


Fig. 40: Identifying Measurement A

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.

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!

Following new body parts are required:

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

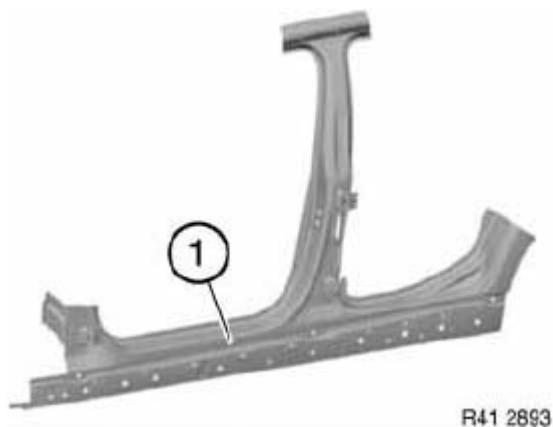


Fig. 41: Identifying B-Pillar With Entrance

Courtesy of BMW OF NORTH AMERICA, INC.

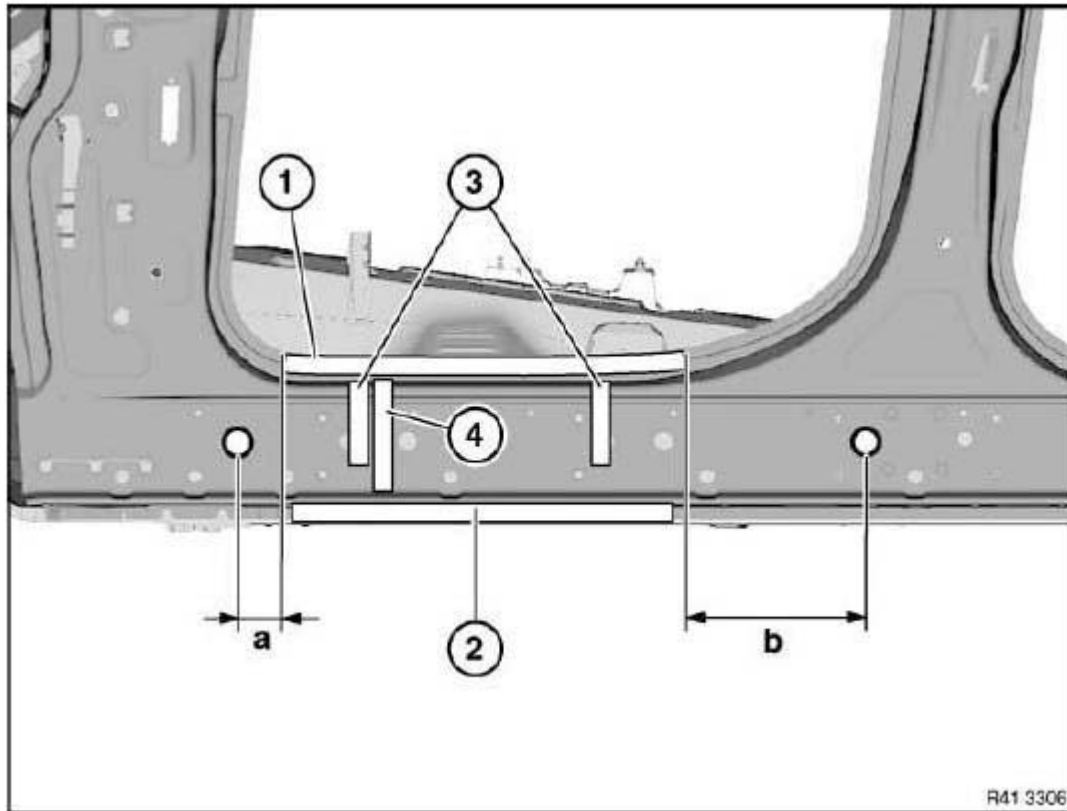


Fig. 42: Identifying B-Pillar With Entrance
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

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).

Apply adhesive in areas (3). 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).

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.

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!

Place vehicle on straightening bench.

Following new body parts are required:

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

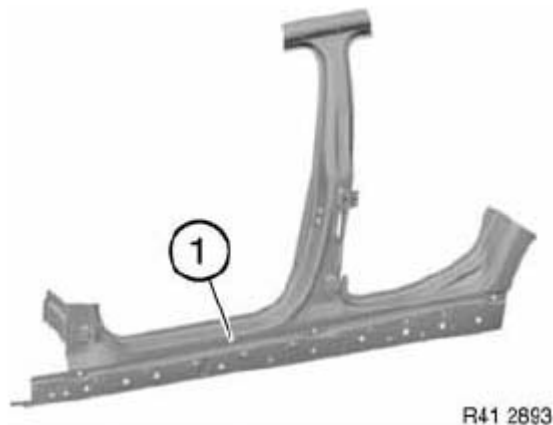


Fig. 43: Identifying B-Pillar With Entrance
Courtesy of BMW OF NORTH AMERICA, INC.

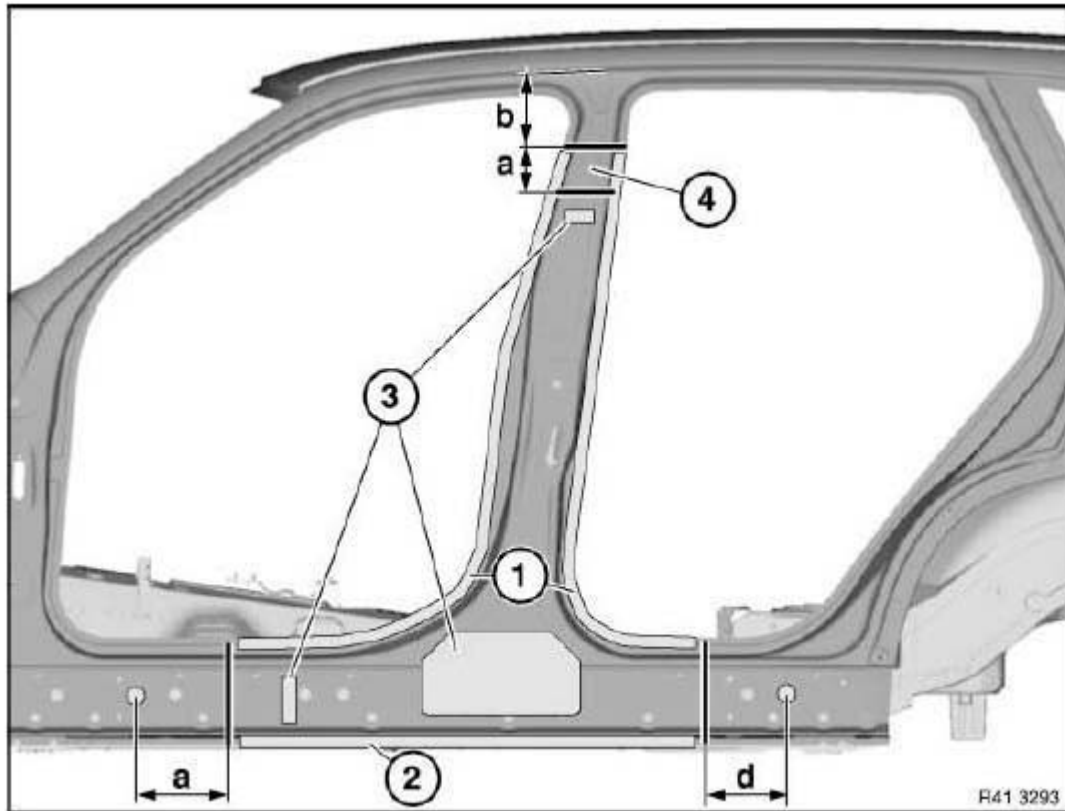


Fig. 44: Identifying Shaped Part, B-Pillar, Inner
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

Measurement b = approx. 150 mm from roof edge.

Measurement c = approx. 80 mm below cut b.

Measurement d = approx. 200 mm from centerpoint 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).

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)**.

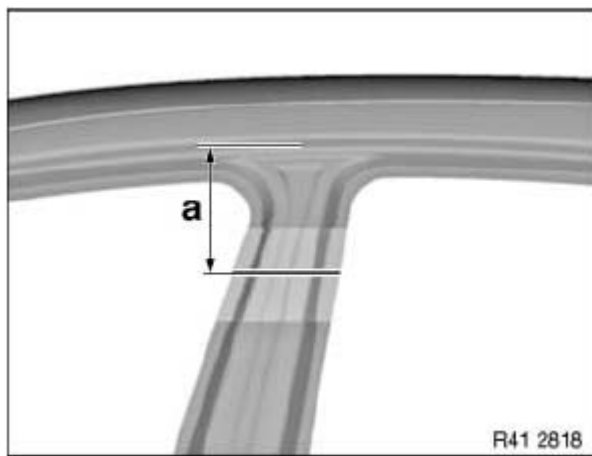


Fig. 45: Identifying Measurement A
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: View from inside

Open weld joints in area (1).

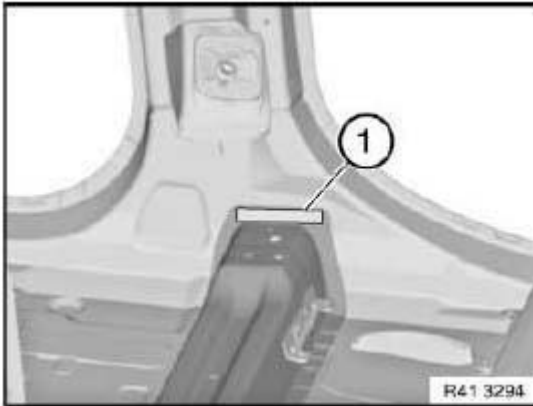


Fig. 46: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

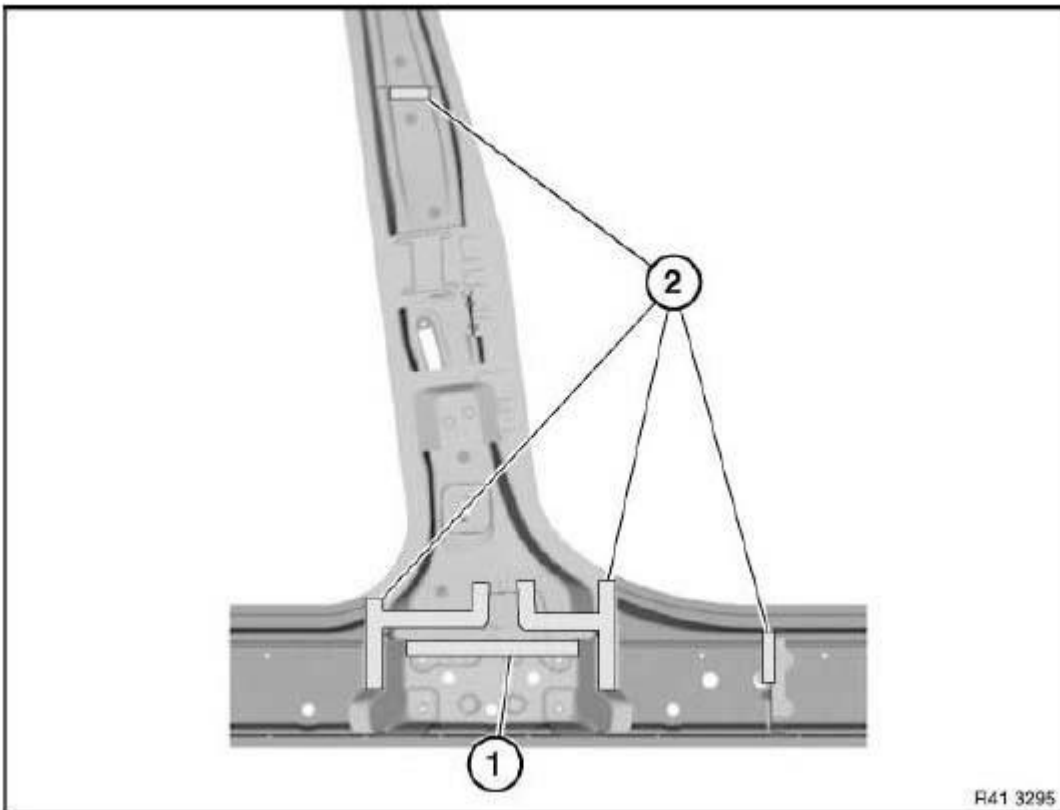


Fig. 47: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation information:

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

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Apply window glass adhesive to cavity acoustic baffle (1).

Apply adhesive in areas (2).

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.

Place vehicle on straightening bench.

Following new body parts are required:

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

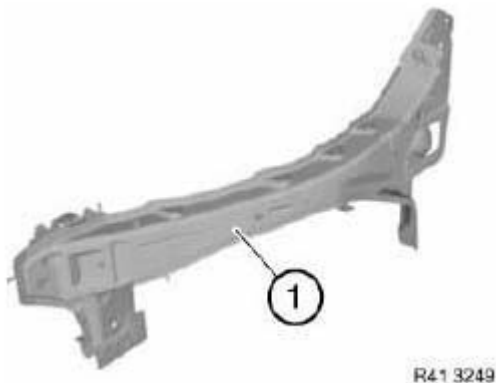


Fig. 48: Identifying Support Carrier, Wheel Arch, Front
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

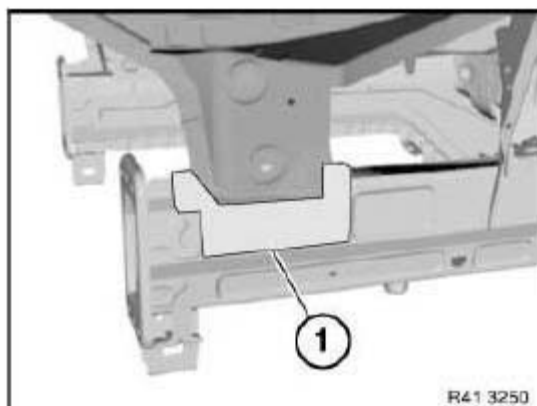
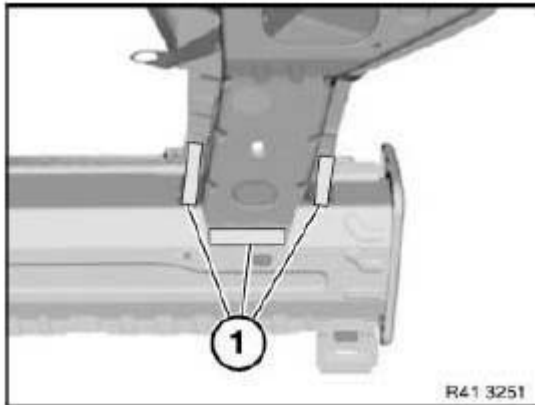


Fig. 49: Identifying Weld Parts Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

**Fig. 50: Identifying Weld Parts Area**

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Risk of damage to spring strut dome!

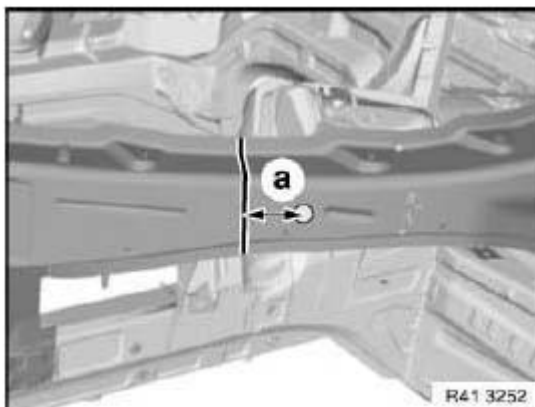
Mark severance cut in accordance with measurement a and cut support carrier.

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)**.

**Fig. 51: Identifying Measurement A**

Courtesy of BMW OF NORTH AMERICA, INC.

41 14 021 REPLACING FRONT LEFT WHEEL ARCH

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

The steel-aluminum mixed construction is used on the 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.

Place vehicle on straightening bench.

Following new body parts are required:

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

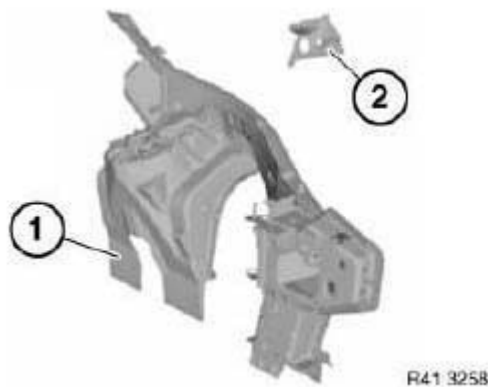


Fig. 52: Identifying Reinforcement, Support Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

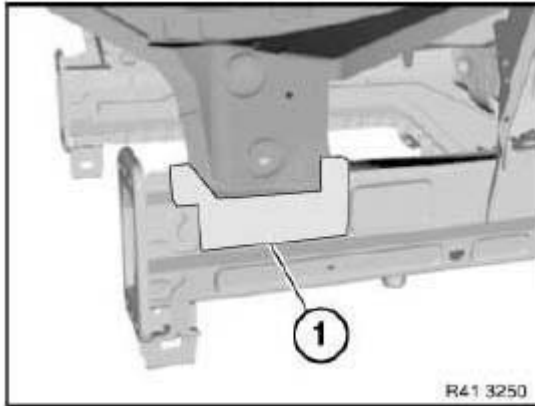


Fig. 53: Identifying Weld Parts Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

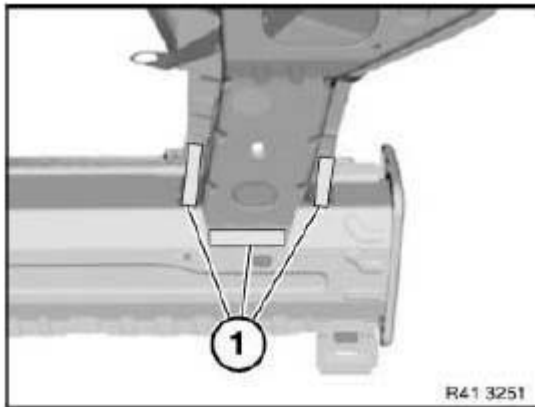


Fig. 54: Identifying Weld Parts Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

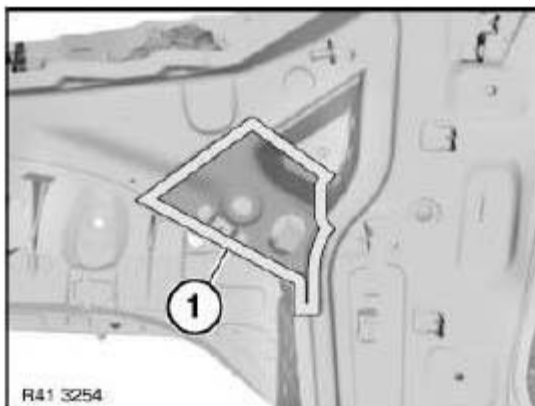


Fig. 55: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

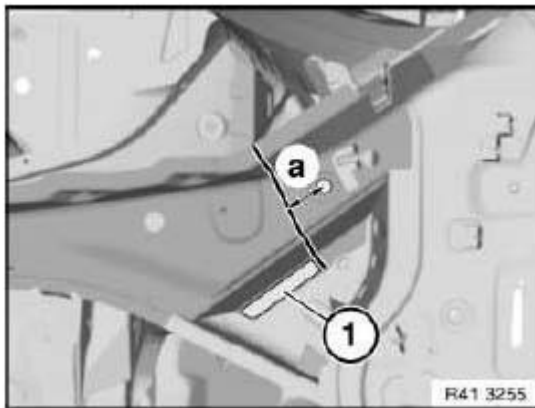
Mark severance cut in accordance with measurement a and cut support carrier.

Measurement a=50 mm before 20 mm dia. bore

Open weld joints in area (1).

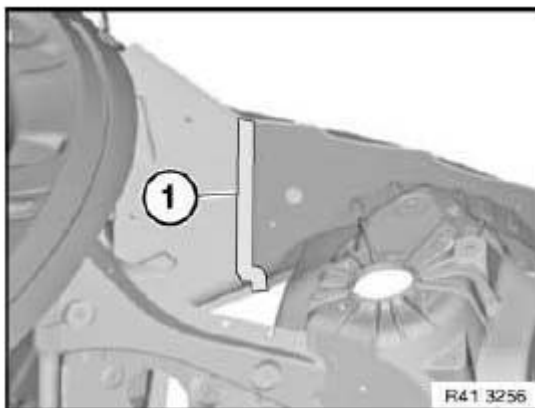
Installation:

Weld in reinforcement plate at severance cut. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

**Fig. 56: Identifying Open Weld Joints Area**

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

**Fig. 57: Identifying Open Weld Joints Area**

Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in areas (1) and (2).

Open adhesive joints in areas (1) to (3).

Installation:

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

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

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

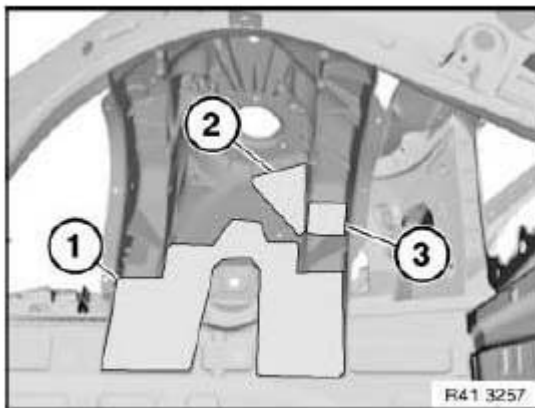


Fig. 58: Identifying Open Adhesive Joints Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

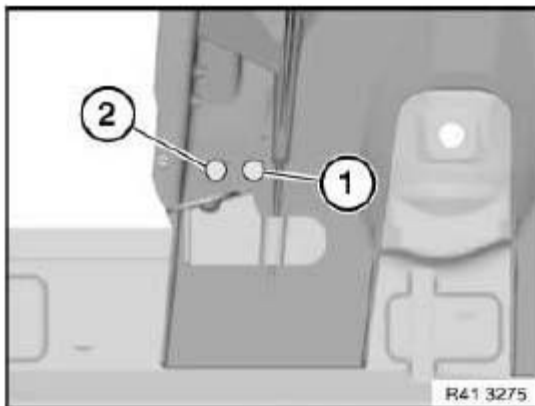


Fig. 59: Identifying Rivet
Courtesy of BMW OF NORTH AMERICA, INC.

41 14 502 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 .

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!

Place vehicle on straightening bench.

Following new body parts are required:

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

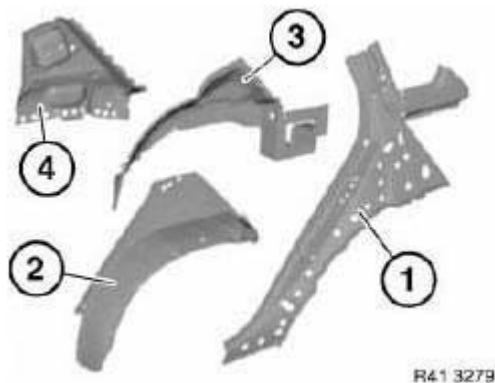


Fig. 60: Identifying Reinforcement, C-Pillar, Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Distance B = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

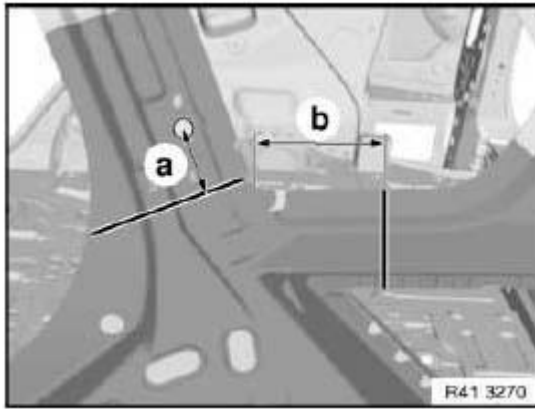


Fig. 61: Identifying Severance Cuts
Courtesy of BMW OF NORTH AMERICA, INC.

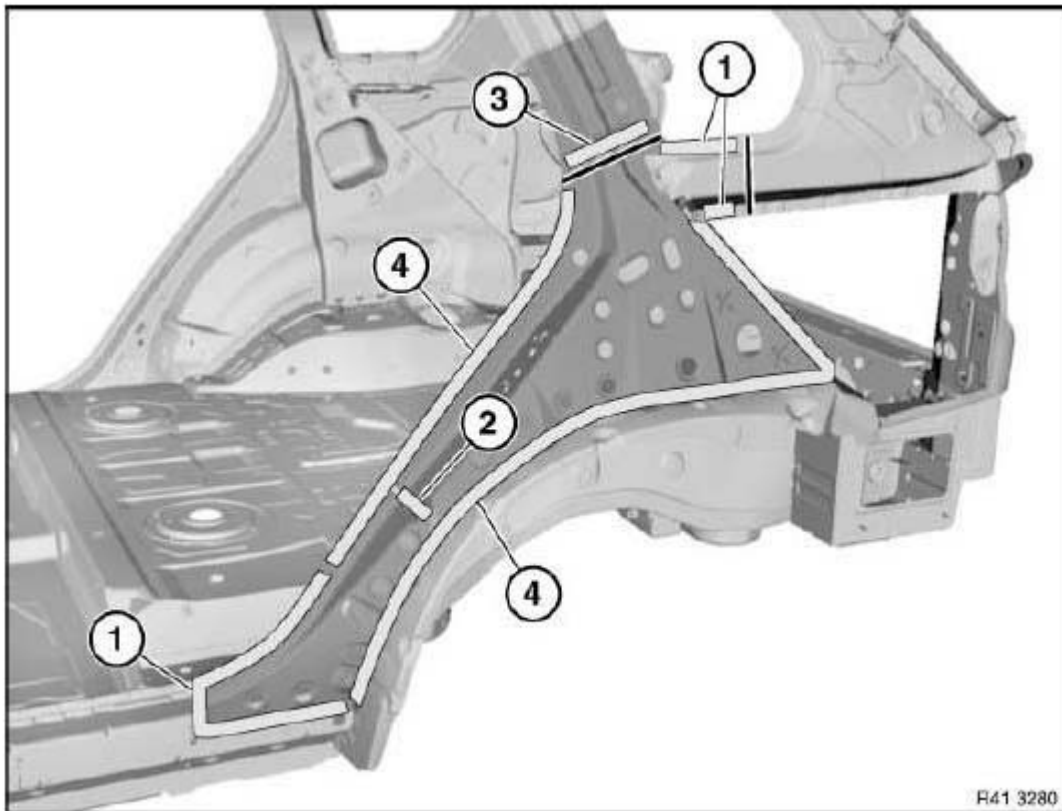


Fig. 62: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!
Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

Weld new component in areas (4) additionally.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

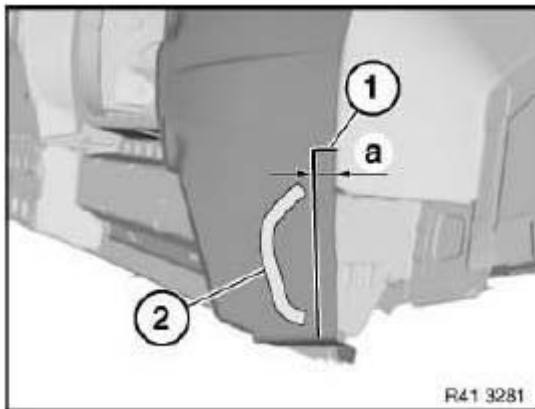


Fig. 63: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

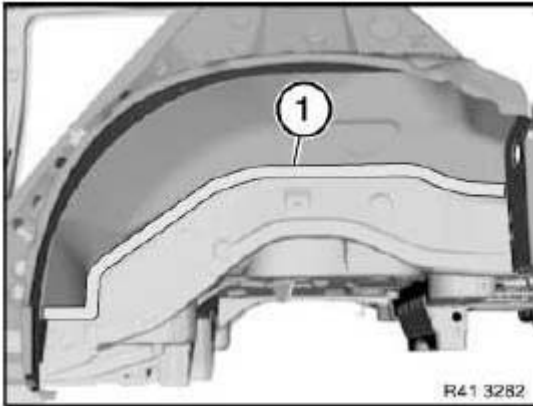


Fig. 64: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

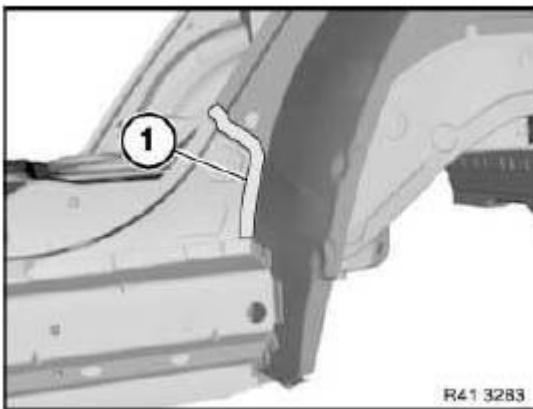


Fig. 65: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld new component in areas (2) additionally.

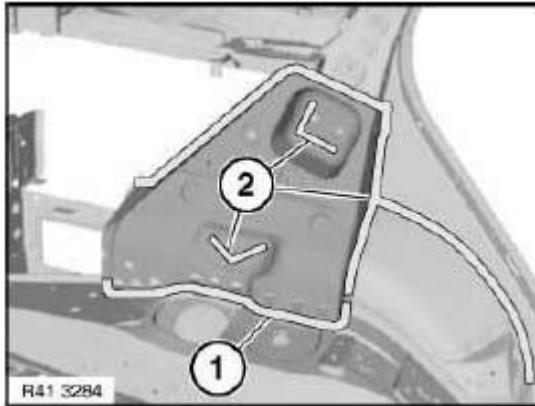


Fig. 66: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

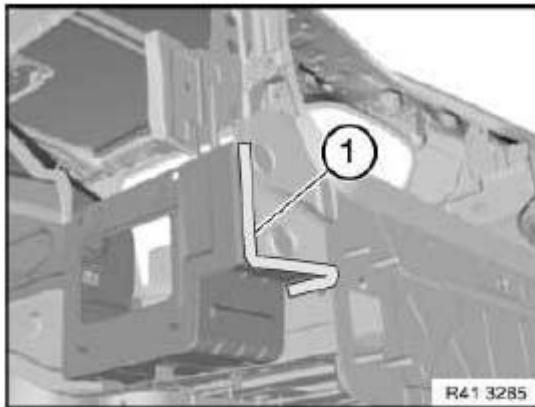


Fig. 67: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

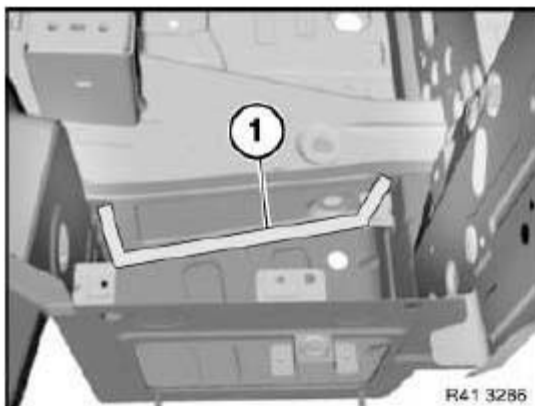
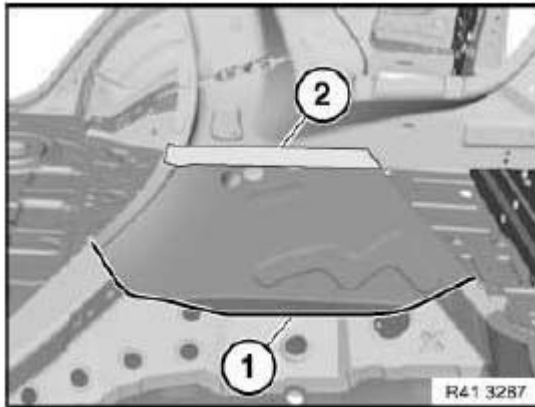


Fig. 68: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in area (2).

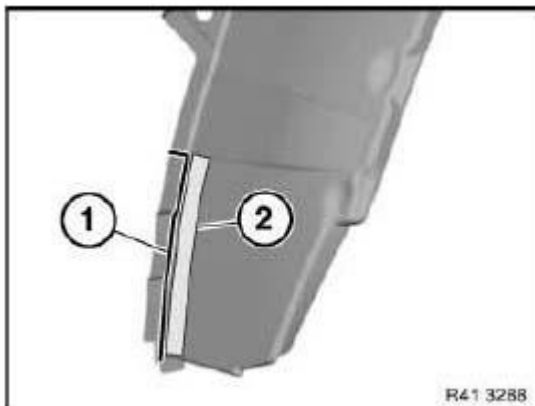
**Fig. 69: Identifying C-Pillar Reinforcement**

Courtesy of BMW OF NORTH AMERICA, INC.

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. 70: Identifying Weld Part Area Overlapping**

Courtesy of BMW OF NORTH AMERICA, INC.

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!

Following new body parts are required:

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

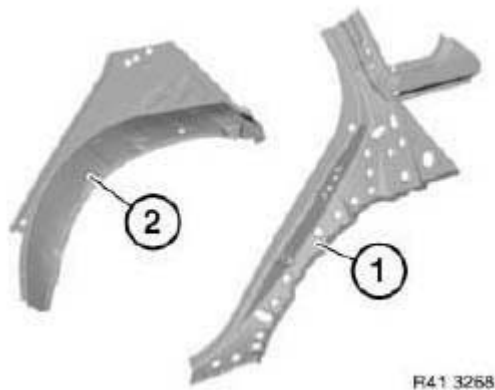


Fig. 71: Identifying Reinforcement, C-Pillar, Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Measurement b = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

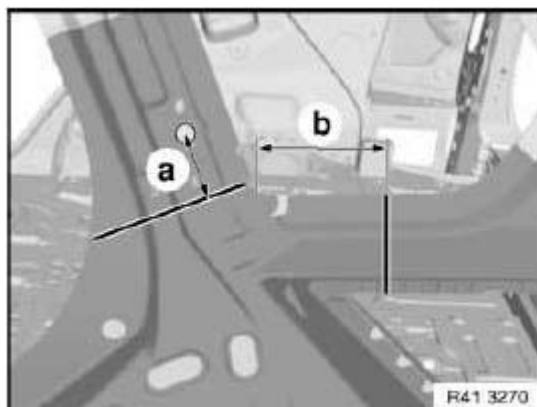


Fig. 72: Identifying Severance Cuts

Courtesy of BMW OF NORTH AMERICA, INC.

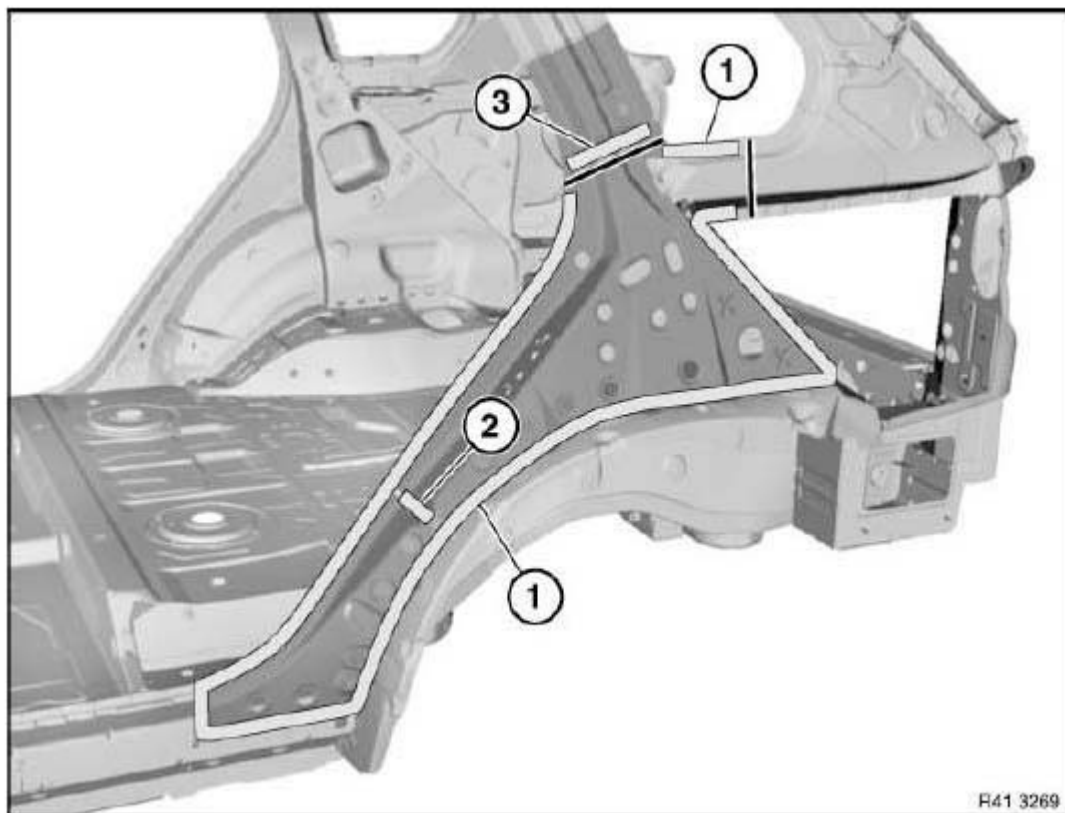


Fig. 73: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!

Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

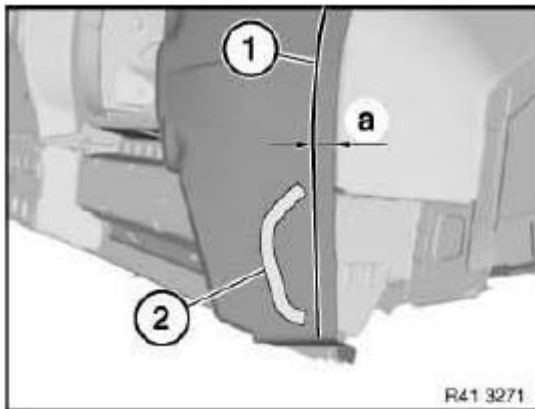


Fig. 74: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Remove cavity acoustic baffle . See **41 00 ... INSTALLING A CAVITY BULKHEAD (NOT EXPANDED)**.

Mark severance cut in accordance with specified measurement and cut.

Measurement = 20 mm distance from radius

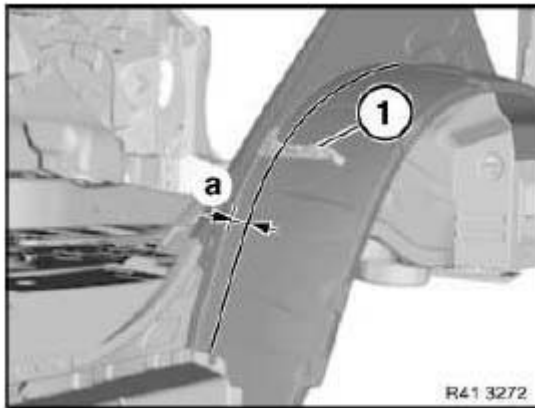


Fig. 75: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

Cut wheel arch along line (1).

Open weld joints in area (2).

Installation:

Weld new part in area (3) overlapping with wheel arch.

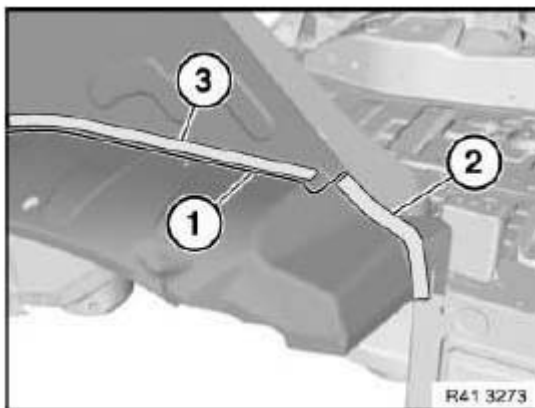


Fig. 76: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

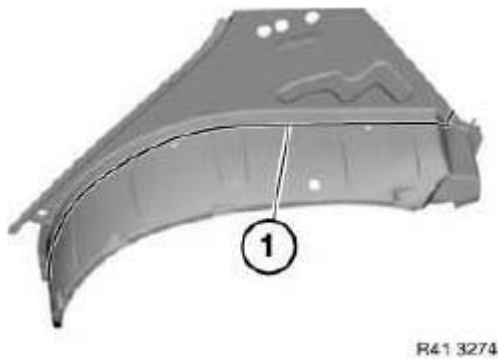


Fig. 77: Identifying Severance Cut Mark On Part
Courtesy of BMW OF NORTH AMERICA, INC.

12 LUGGAGE COMPARTMENT

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!

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

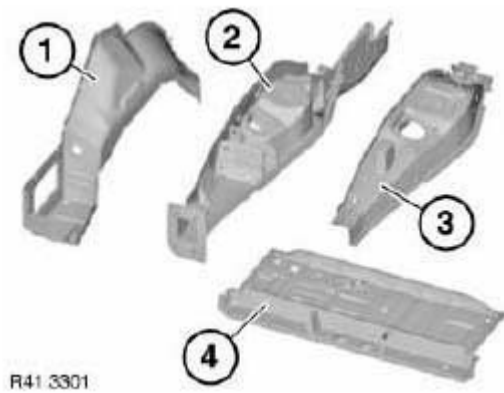


Fig. 78: Identifying Luggage Compartment Floor
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in area (1).

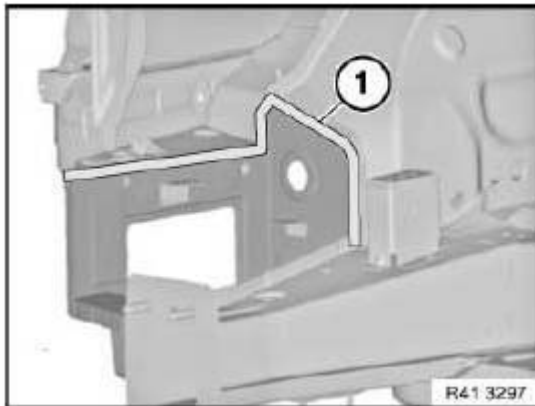


Fig. 79: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in area (1).

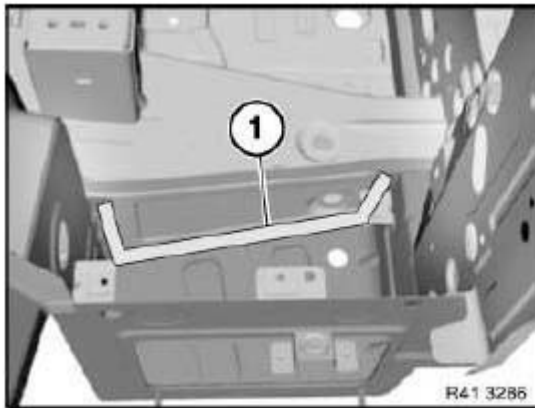


Fig. 80: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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).

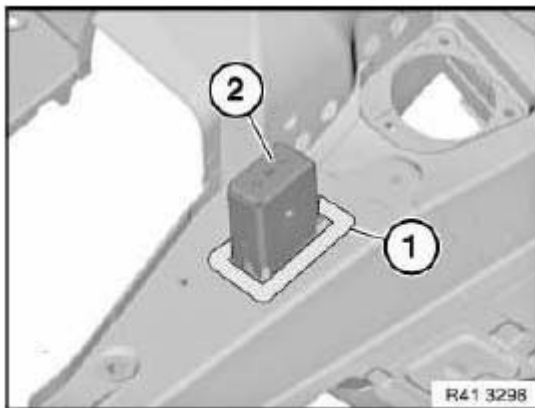


Fig. 81: Identifying Middle Lashing Rail Mounting
Courtesy of BMW OF NORTH AMERICA, INC.

View from below:

Open weld joints in area (1).

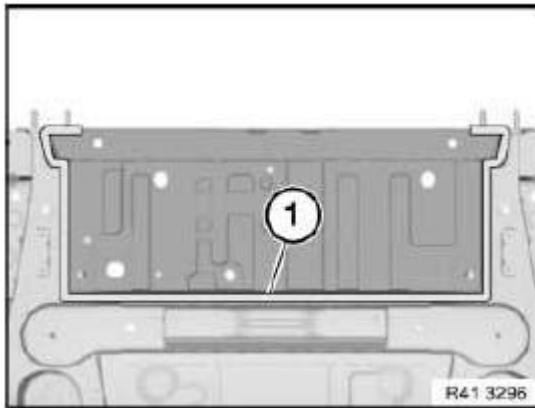


Fig. 82: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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).

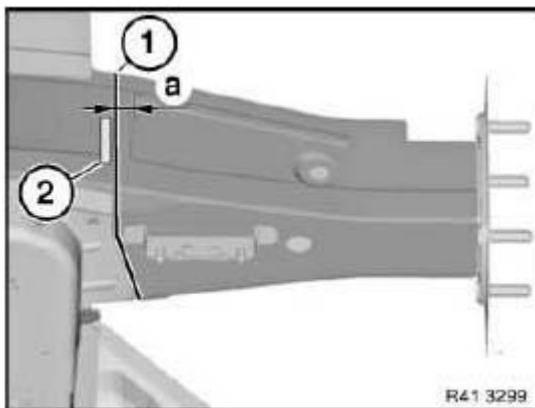


Fig. 83: Identifying Severance Cut Mark
 Courtesy of BMW OF NORTH AMERICA, INC.

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 of universal mount.

Weld in reinforcing panels at all severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

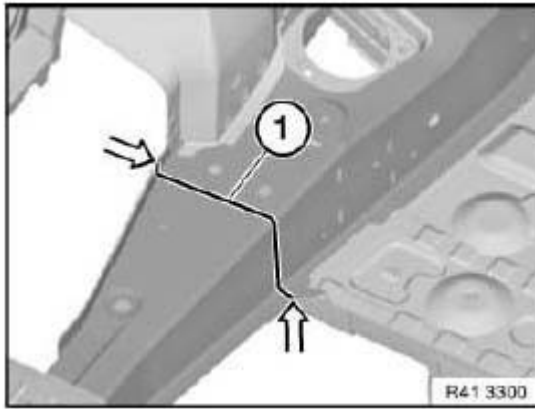


Fig. 84: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

14 WHEEL WELLS

41 00 ... OVERVIEW OF SPRING SUPPORT REPAIR ELEMENTS

SPRING SUPPORT SPECIFICATION

Component	Repair element ⁽¹⁾	Part number	Matching
(1) Spring support	M10 Heli-coil thread insert	07 14 7 046 145	V-strut on spring support
	M6 Heli-coil thread insert	07 14 6 046 334	
(1) The required tools are featured on the <u>WORKSHOP EQUIPMENT PLANNING CD</u> (WEP)			

Carry out thread repair with Heli-coil thread insert . See **41 00 ... NOTES ON REPAIRING THREADS**.

Read and comply with tool manufacturer's instructions.

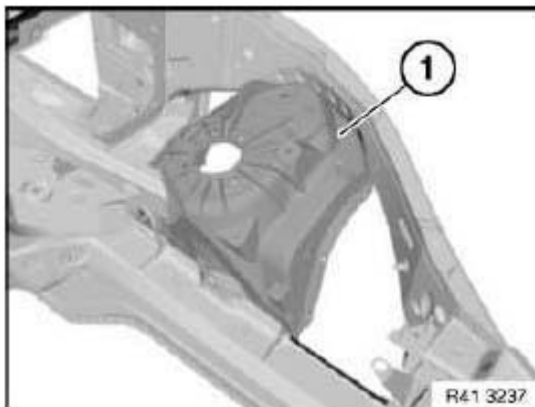


Fig. 85: Identifying Spring Support

Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... STAMPING VEHICLE IDENTIFICATION NUMBER**Special tools required:**

- 41 0 000
- 41 1 190
- 41 1 191
- 41 1 192

NOTE: If the stamped vehicle identification number is removed during repair work, it must be stamped in again.
Read and comply with General Information .

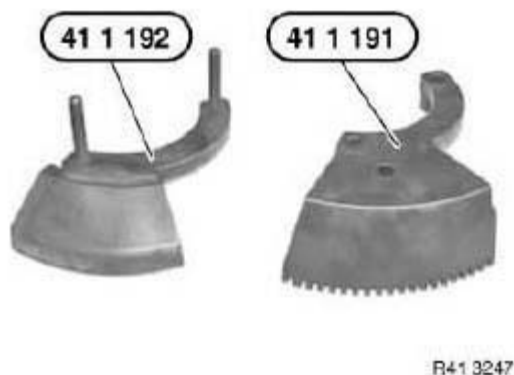
Necessary preliminary tasks:

- Remove front right spring strut . See **31 00... INFORMATION ON REPLACING SHOCK ABSORBERS** .

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

Guide plate 41 1 191

Counter-plate 41 1 192



R41 3247

Fig. 86: Identifying Special Tool (41 1 192)

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).

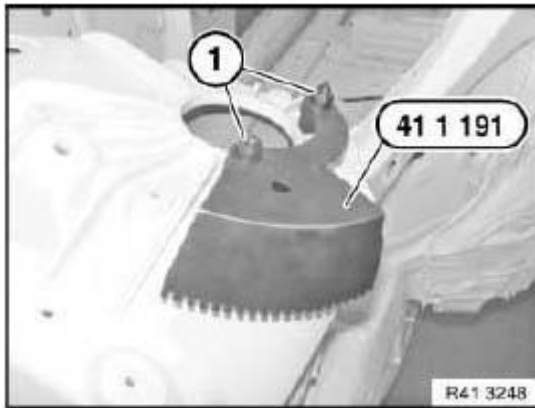


Fig. 87: Identifying Special Tool (41 1 191)

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.

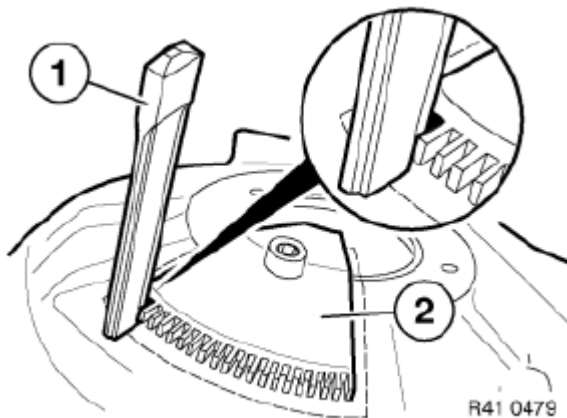


Fig. 88: Identifying Punch And Guide Plate

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 ... 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 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 (bodysell 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 11 015 REPLACING ENGINE CARRIER WITH WHEEL ARCH, LEFT

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

The steel-aluminum mixed construction is used on the 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.

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

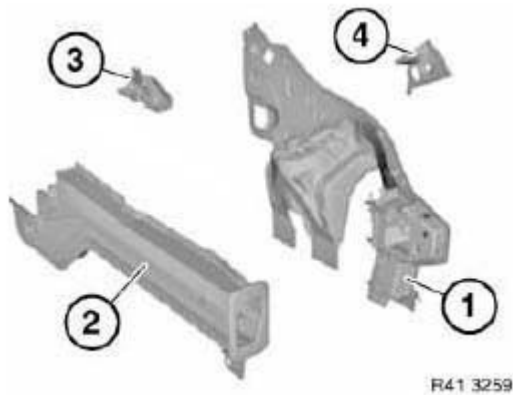


Fig. 89: Identifying Reinforcement, Support Carrier
 Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

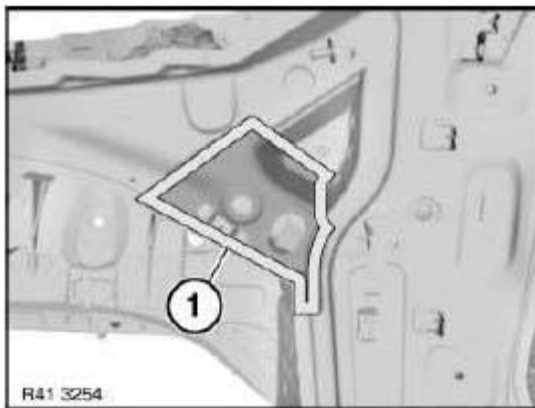


Fig. 90: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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)**.

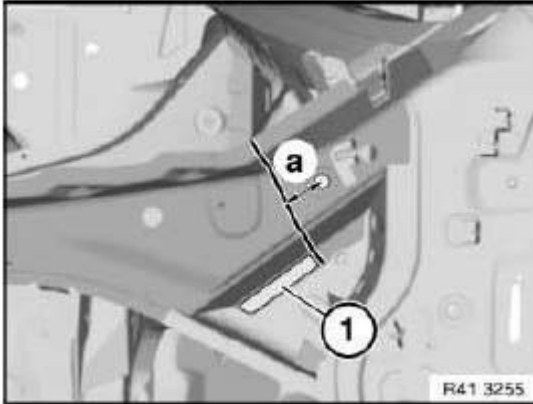


Fig. 91: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

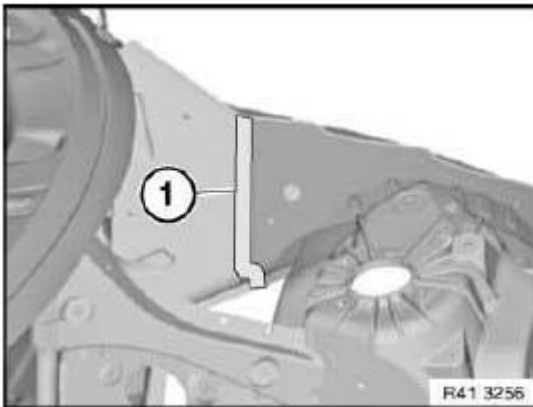


Fig. 92: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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)**.

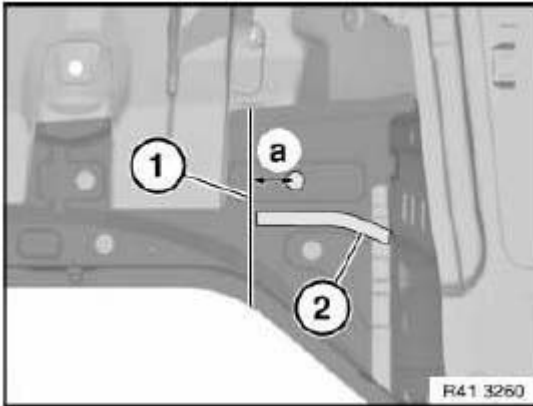


Fig. 93: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

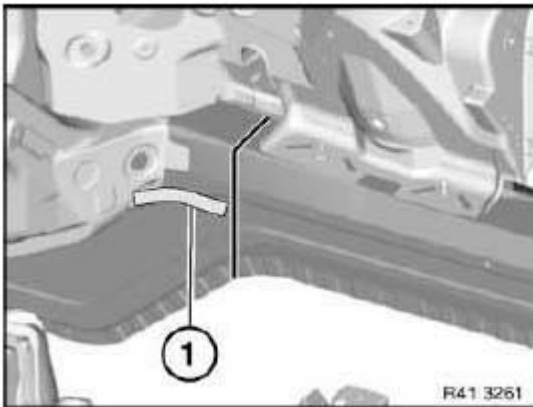


Fig. 94: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in area (2).

Open adhesive joints in areas (2) and (3).

Installation:

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

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

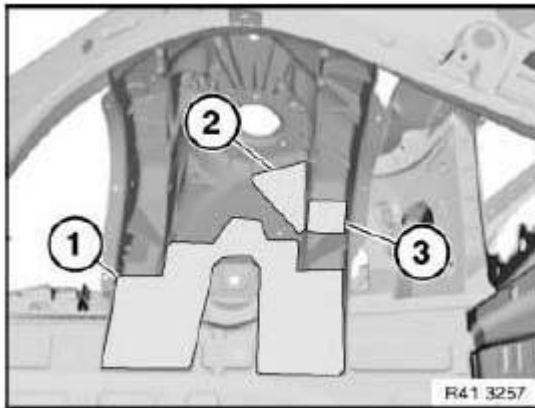


Fig. 95: Identifying Open Adhesive Joints Areas
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

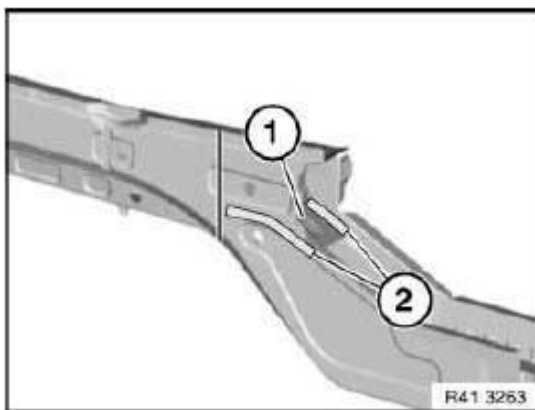


Fig. 96: Identifying Cut Weld Joints On Both Sides Areas
 Courtesy of BMW OF NORTH AMERICA, INC.

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).

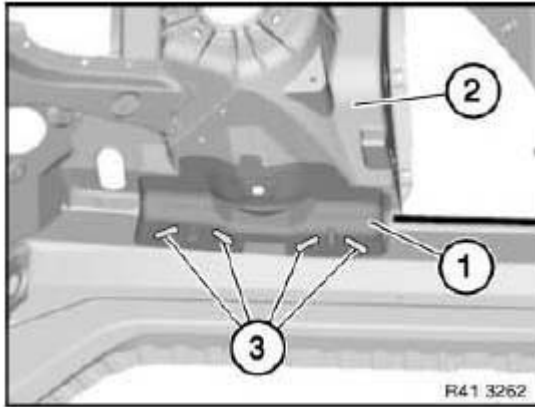


Fig. 97: Identifying Wheel Arch Support And Wheel Arch
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in area (1).

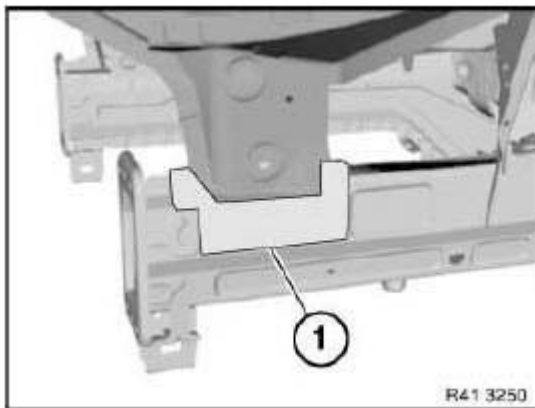


Fig. 98: Identifying Weld Parts Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Weld new parts in areas (1).

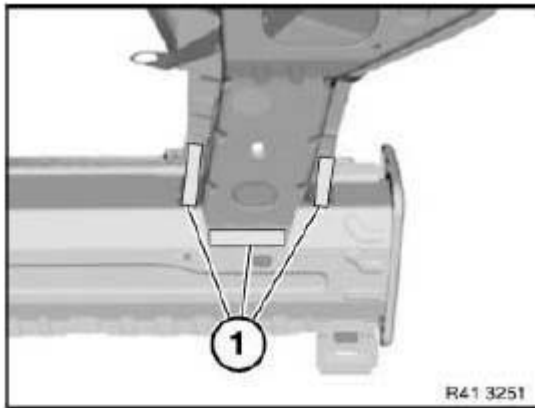


Fig. 99: Identifying Weld Parts Area

Courtesy of BMW OF NORTH AMERICA, INC.

41 14 021 REPLACING FRONT LEFT WHEEL ARCH

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

The steel-aluminum mixed construction is used on the 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.

Place vehicle on straightening bench.

Following new body parts are required:

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

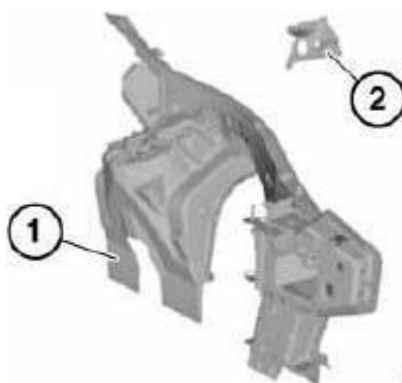


Fig. 100: Identifying Reinforcement, Support Carrie
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

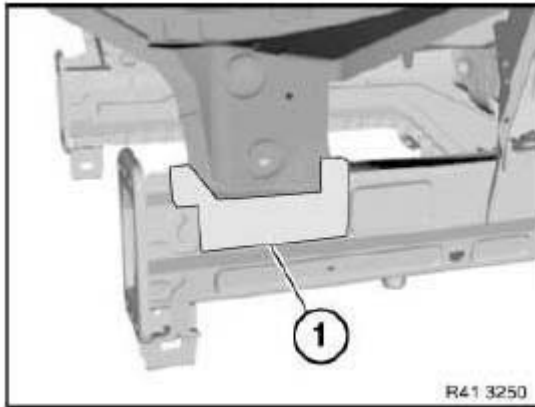


Fig. 101: Identifying Weld Parts Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

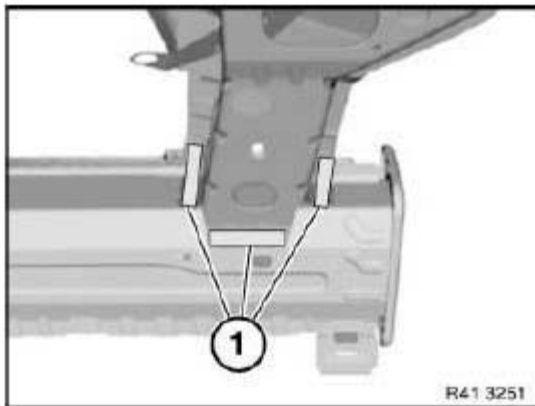


Fig. 102: Identifying Weld Parts Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

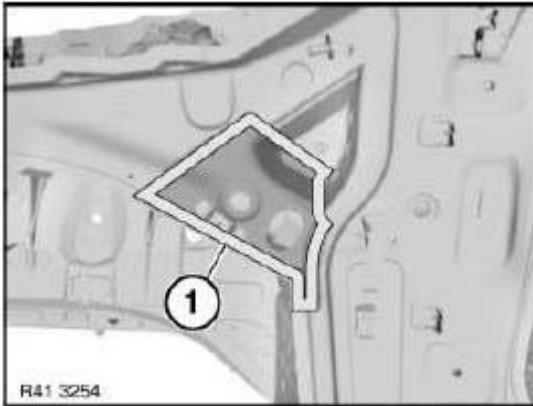


Fig. 103: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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)**.

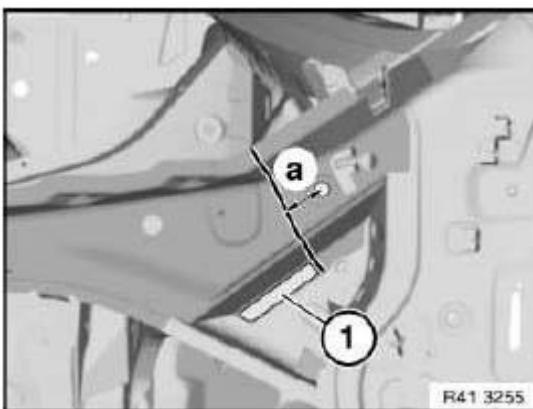


Fig. 104: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

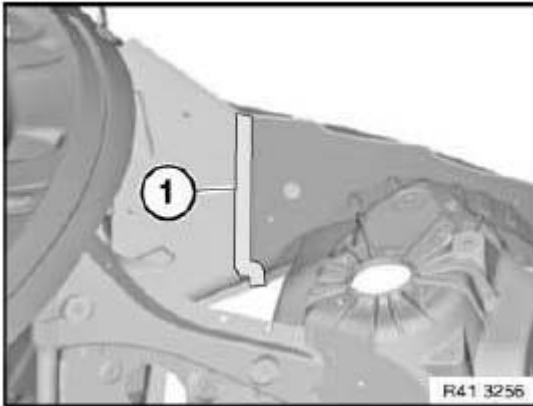


Fig. 105: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

Drill out riveted joints in areas (1) and (2).

Open adhesive joints in areas (1) to (3).

Installation:

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

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

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

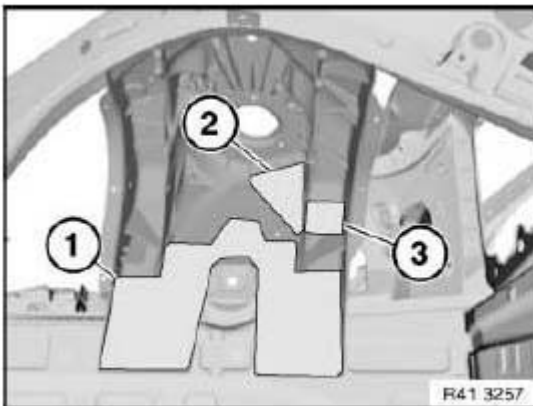


Fig. 106: Identifying Open Adhesive Joints Areas
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

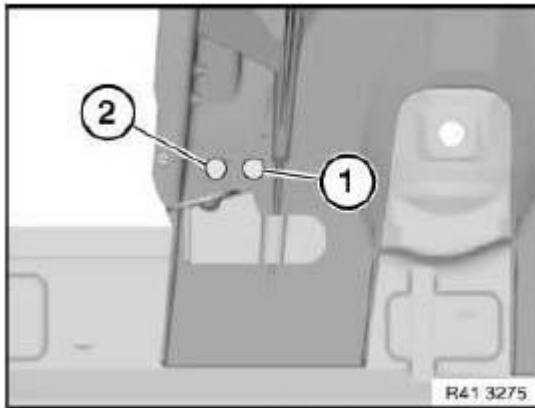


Fig. 107: Identifying Rivet

Courtesy of BMW OF NORTH AMERICA, INC.

41 14 502 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.

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!

Place vehicle on straightening bench.

Following new body parts are required:

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

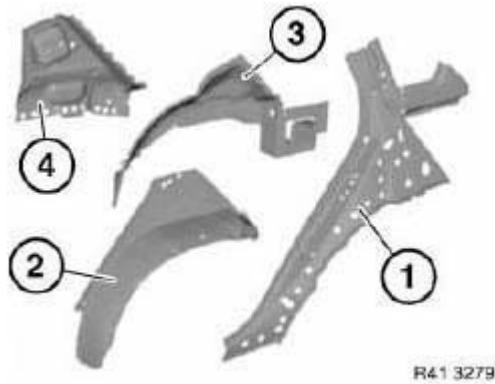


Fig. 108: Identifying Reinforcement, C-Pillar, Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Distance B = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

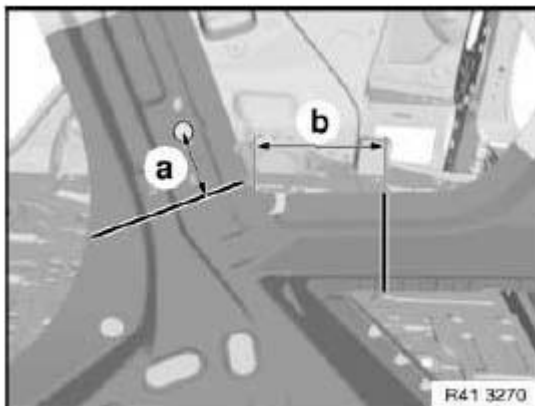


Fig. 109: Identifying Severance Cuts
Courtesy of BMW OF NORTH AMERICA, INC.

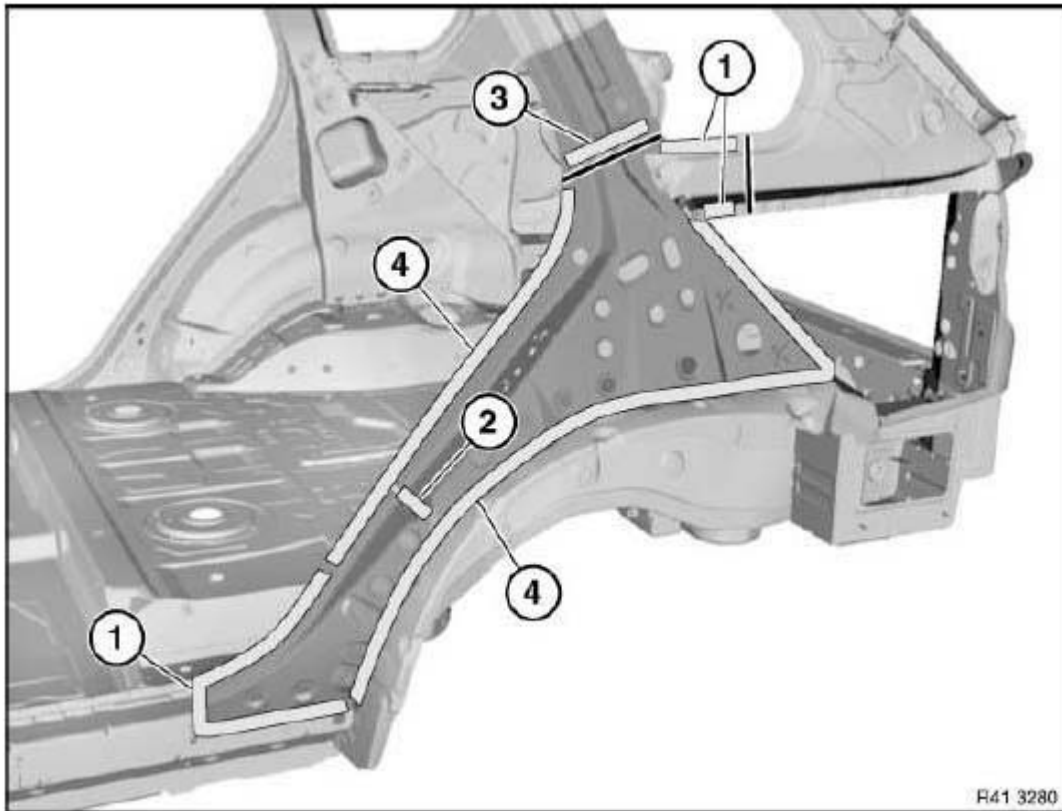


Fig. 110: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!
Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

Weld new component in areas (4) additionally.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

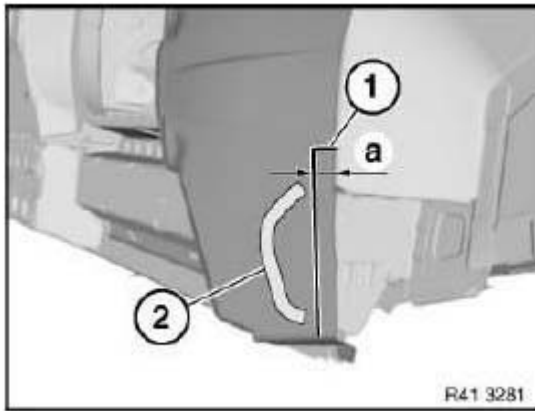


Fig. 111: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

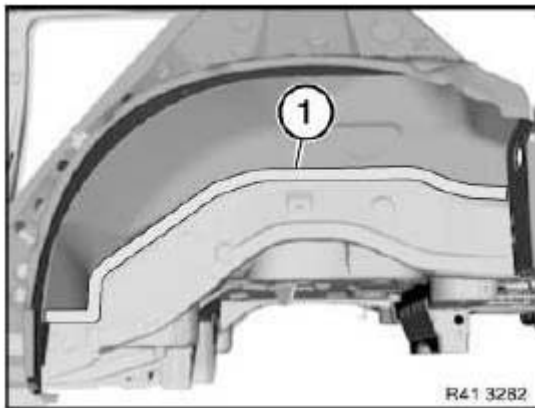


Fig. 112: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

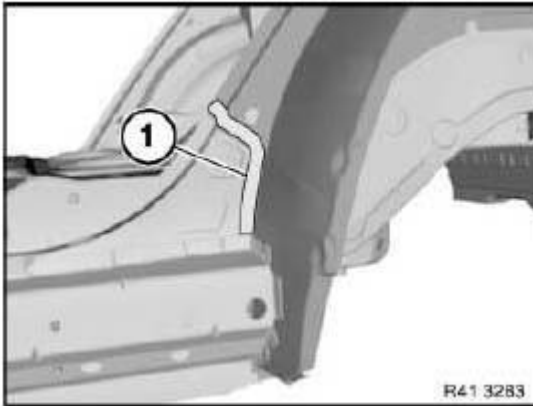


Fig. 113: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld new component in areas (2) additionally.

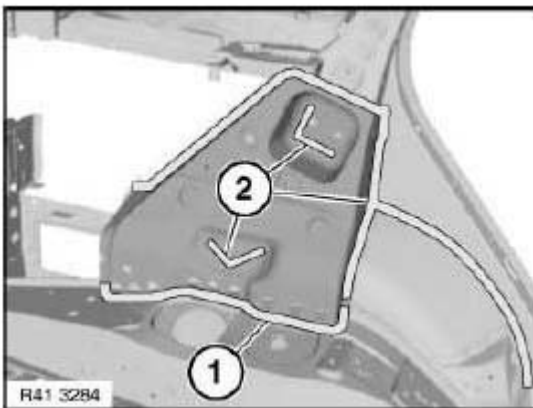


Fig. 114: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

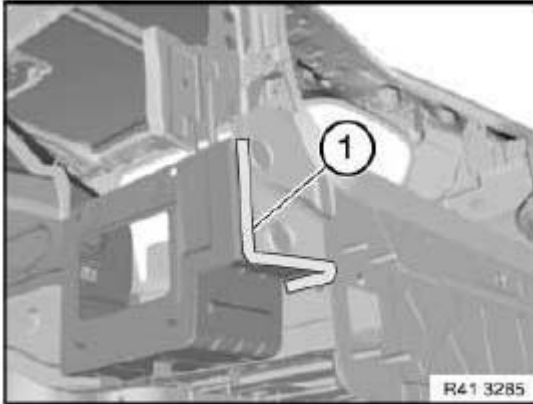


Fig. 115: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

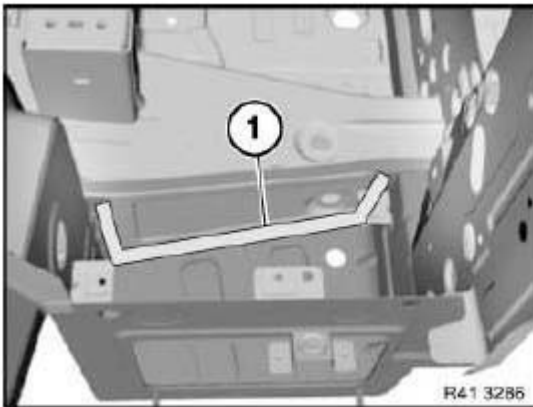


Fig. 116: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in area (2).

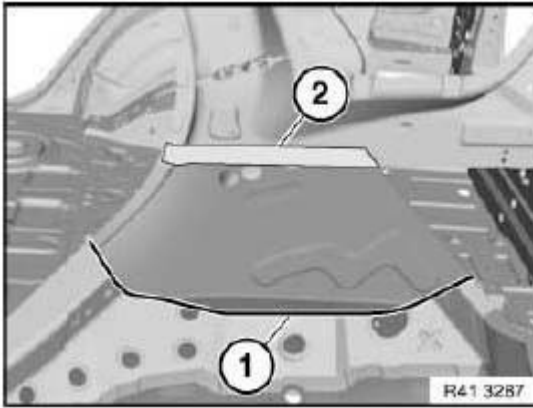


Fig. 117: Identifying C-Pillar Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

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.

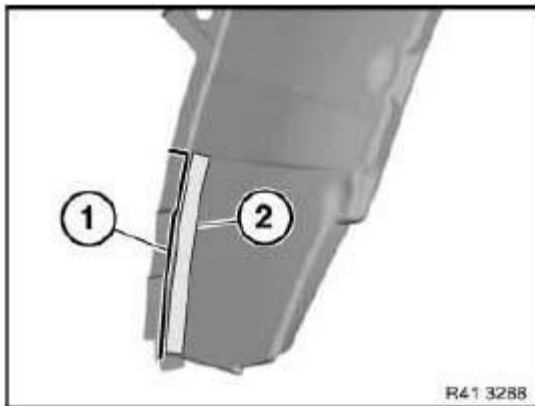


Fig. 118: Identifying Weld Part Area Overlapping
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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!

Following new body parts are required:

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

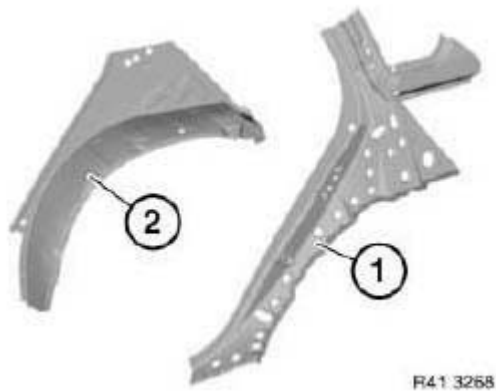


Fig. 119: Identifying Reinforcement, C-Pillar, Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Measurement b = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

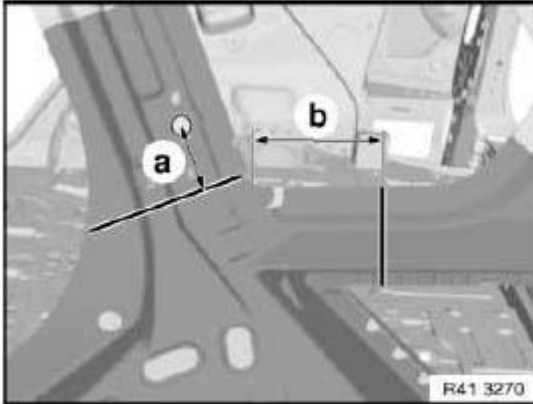


Fig. 120: Identifying Severance Cuts

Courtesy of BMW OF NORTH AMERICA, INC.

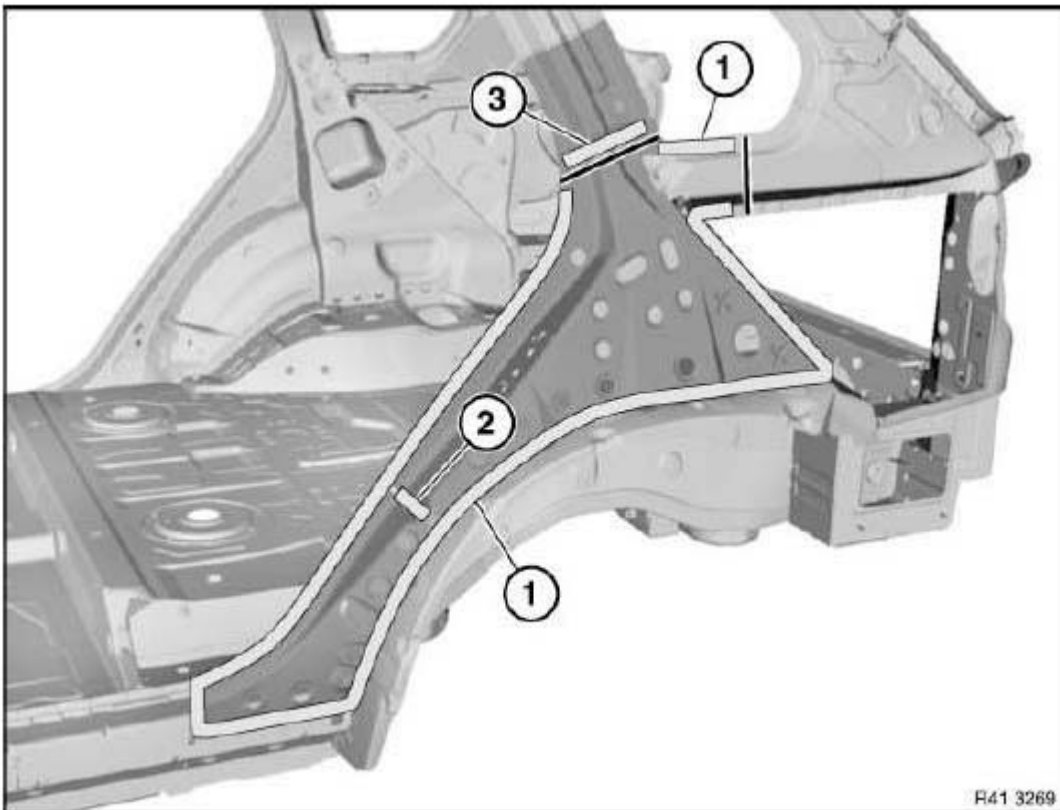


Fig. 121: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!

Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

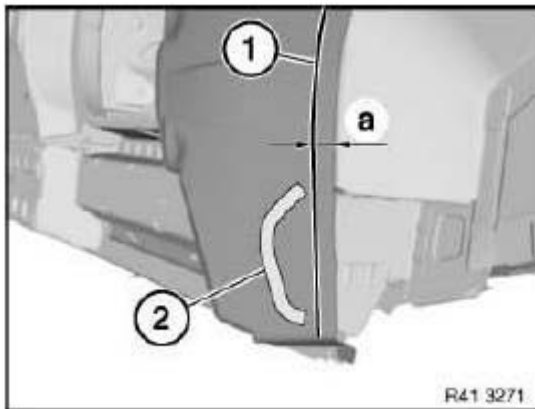


Fig. 122: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Remove cavity acoustic baffle.

Mark severance cut in accordance with specified measurement and cut.

Measurement = 20 mm distance from radius

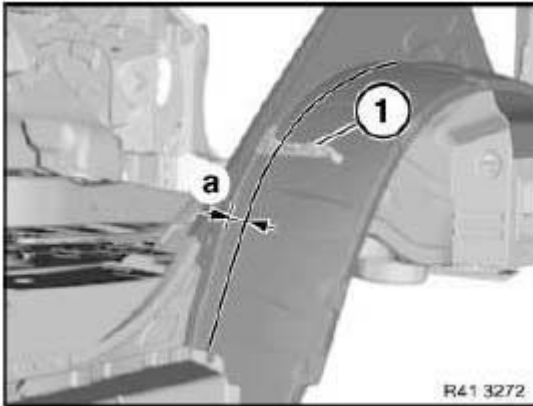


Fig. 123: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

Cut wheel arch along line (1).

Open weld joints in area (2).

Installation:

Weld new part in area (3) overlapping with wheel arch.

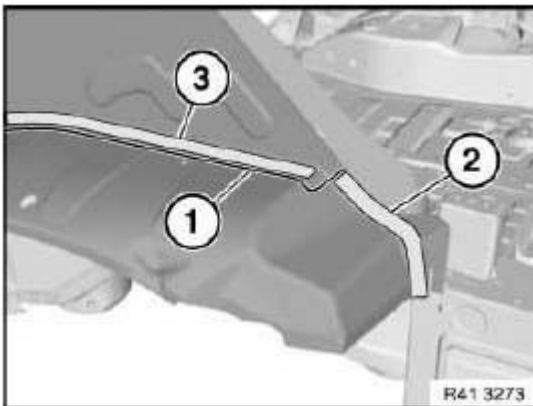


Fig. 124: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

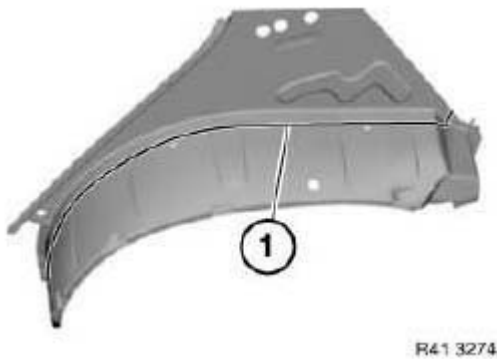


Fig. 125: Identifying Severance Cut Mark On Part
Courtesy of BMW OF NORTH AMERICA, INC.

21 SIDE FRAME AND DOOR

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.

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!

Following new body parts are required:

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

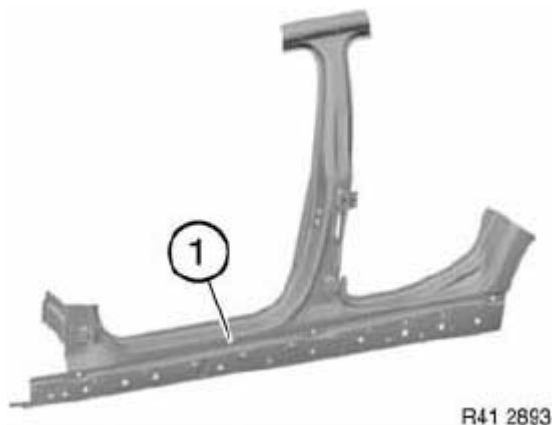


Fig. 126: Identifying B-Pillar With Entrance
Courtesy of BMW OF NORTH AMERICA, INC.

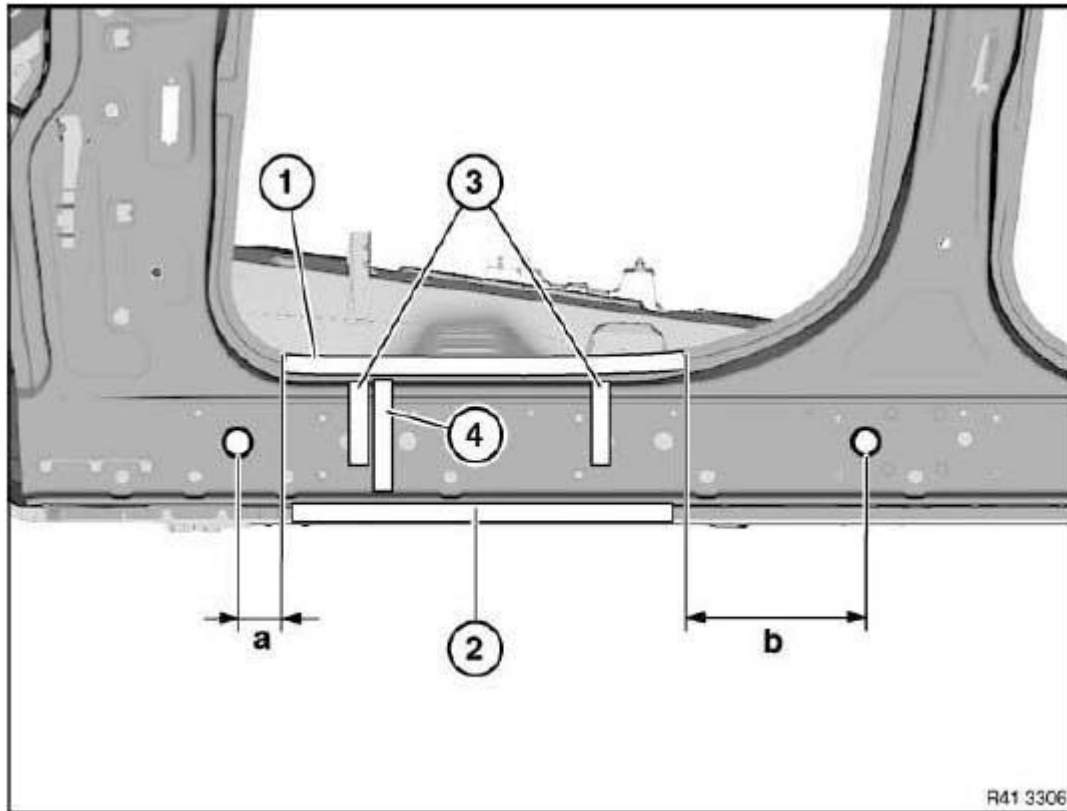


Fig. 127: Identifying B-Pillar With Entrance
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

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).

Apply adhesive in areas (3). 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).

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.

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!

Place vehicle on straightening bench.

Following new body parts are required:

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

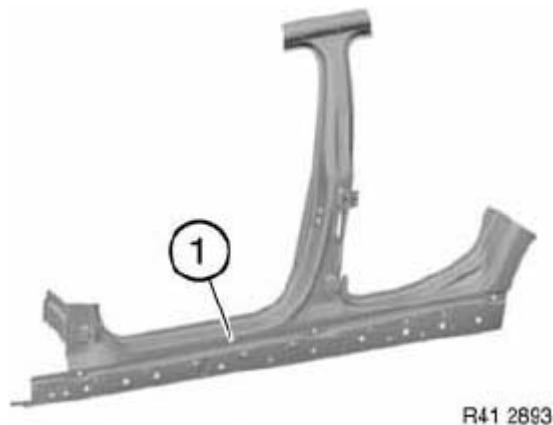


Fig. 128: Identifying B-Pillar With Entrance
Courtesy of BMW OF NORTH AMERICA, INC.

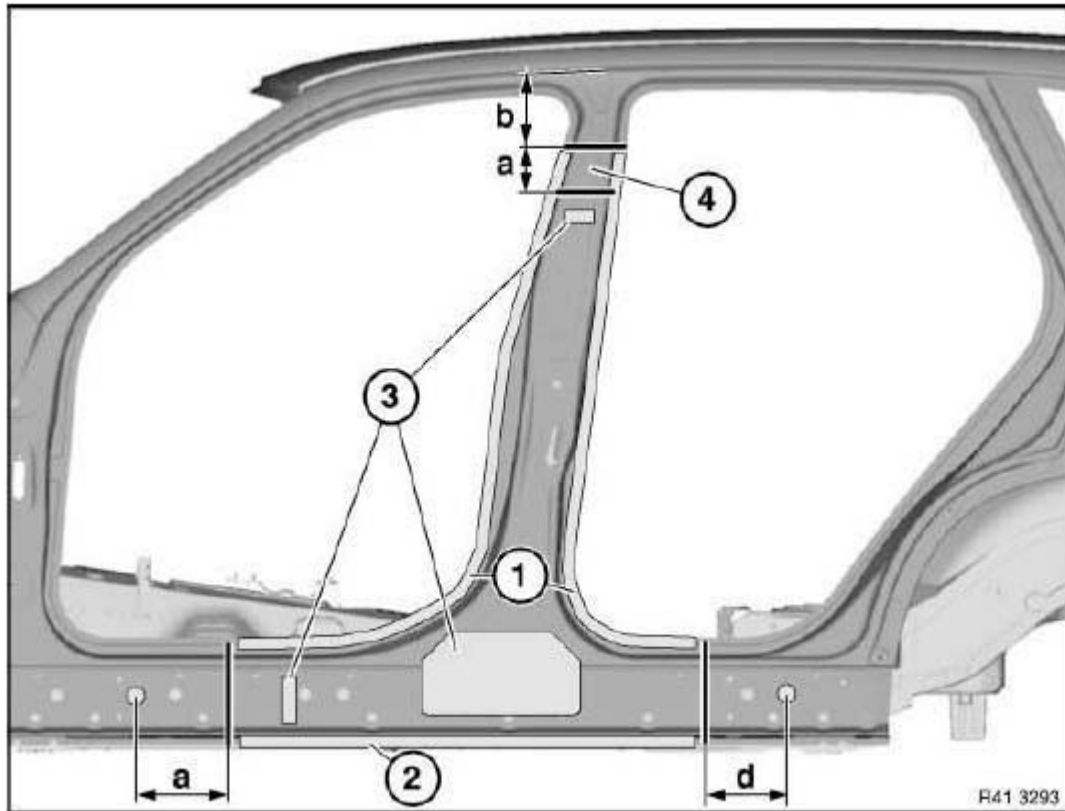


Fig. 129: Identifying Shaped Part, B-Pillar, Inner
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

Measurement b = approx. 150 mm from roof edge.

Measurement c = approx. 80 mm below cut b.

Measurement d = approx. 200 mm from centerpoint 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).

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)**.

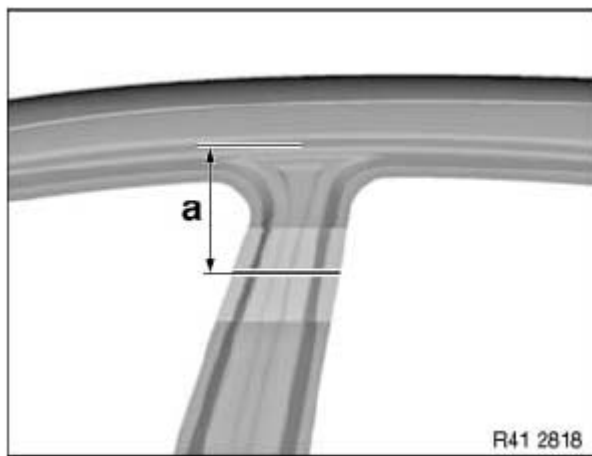


Fig. 130: Identifying Measurement A
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: View from inside

Open weld joints in area (1).

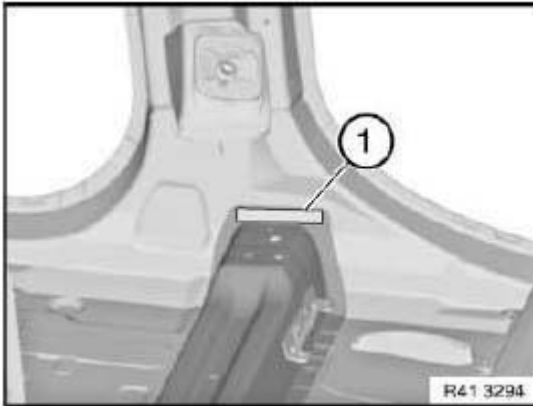


Fig. 131: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

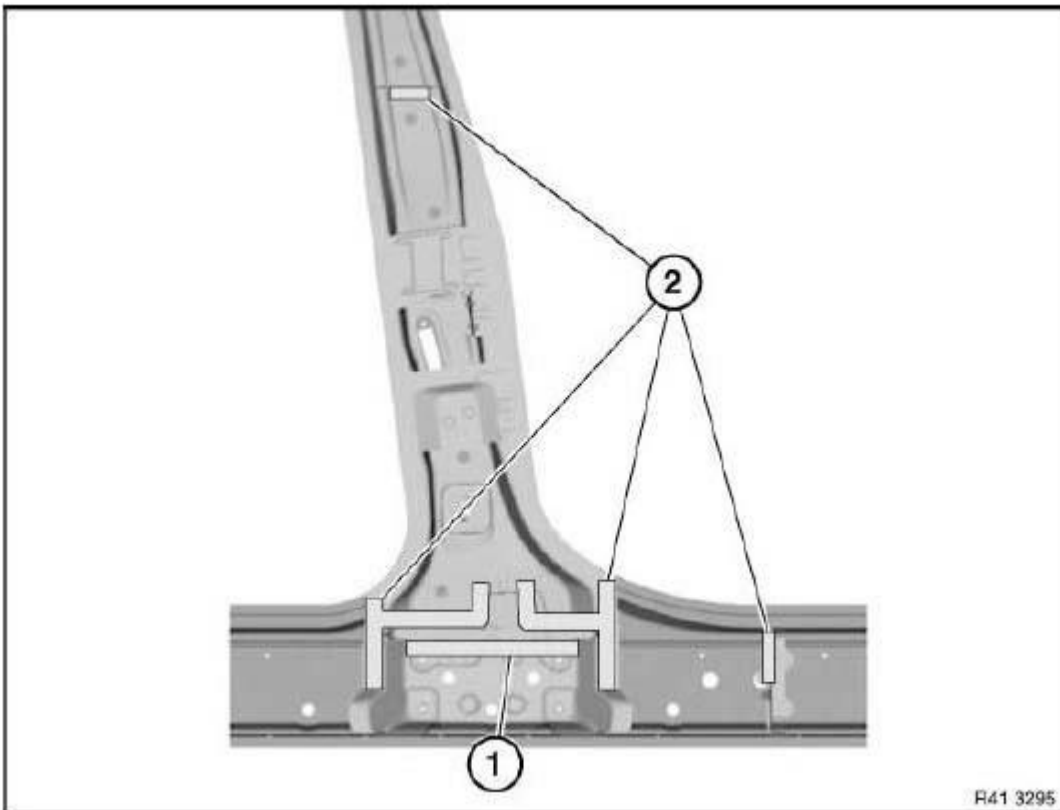


Fig. 132: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation information:

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

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Apply window glass adhesive to cavity acoustic baffle (1).

Apply adhesive in areas (2).

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

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.

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!

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)

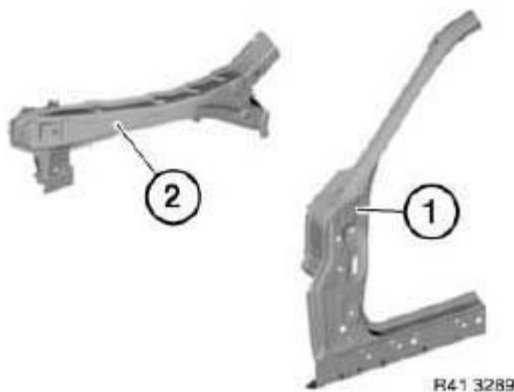


Fig. 133: Identifying A-Pillar, Outer
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

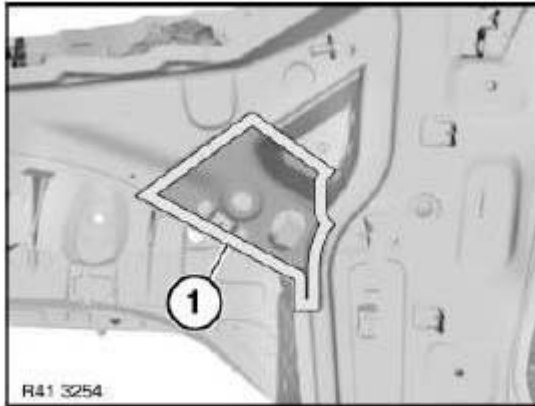


Fig. 134: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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

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)**.

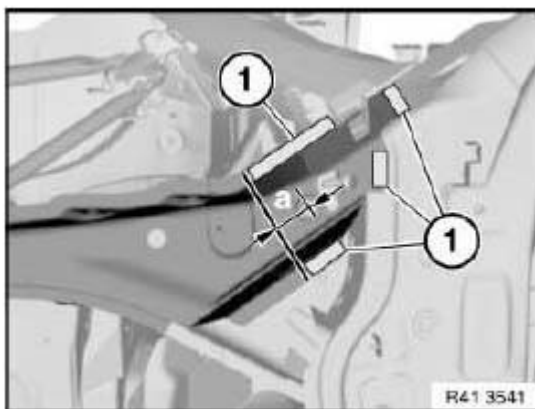


Fig. 135: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

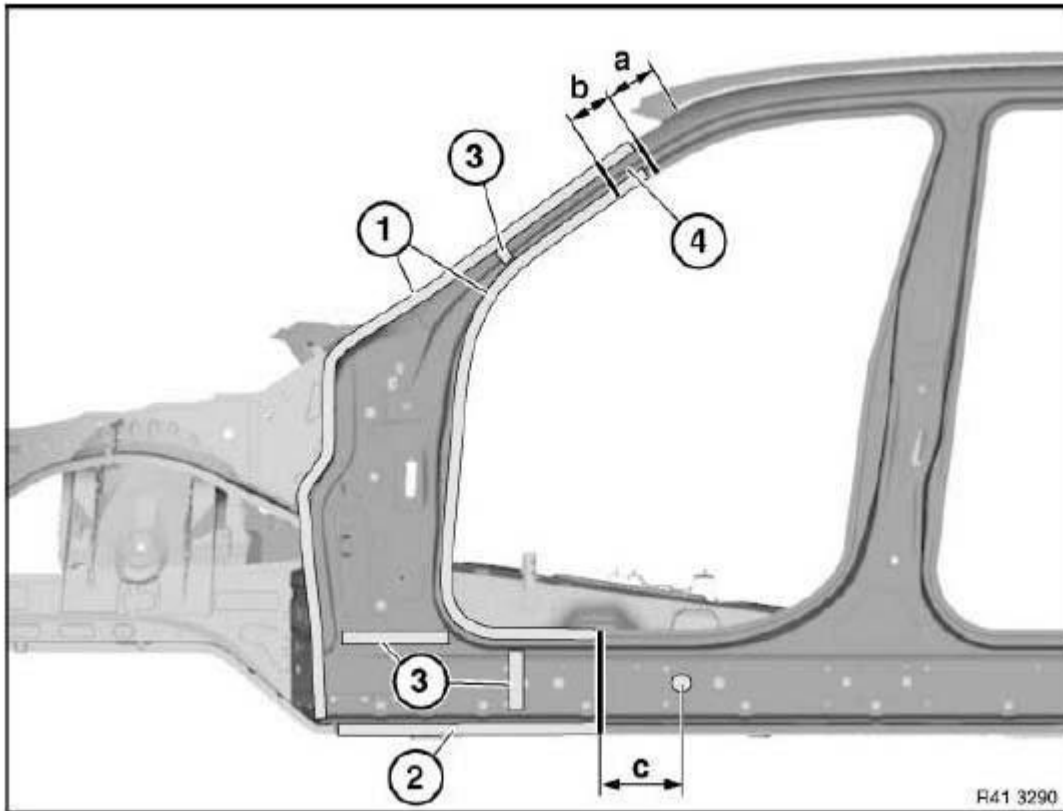


Fig. 136: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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).

Bond and rivet new part in area (2).

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.

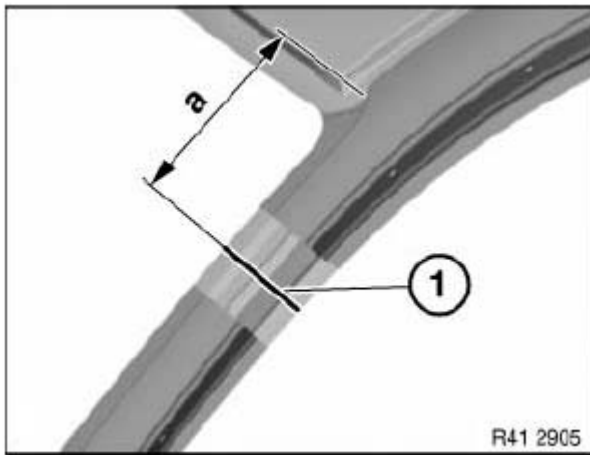


Fig. 137: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

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.

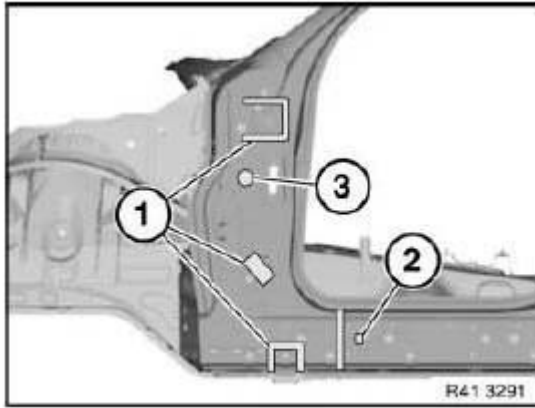


Fig. 138: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

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).

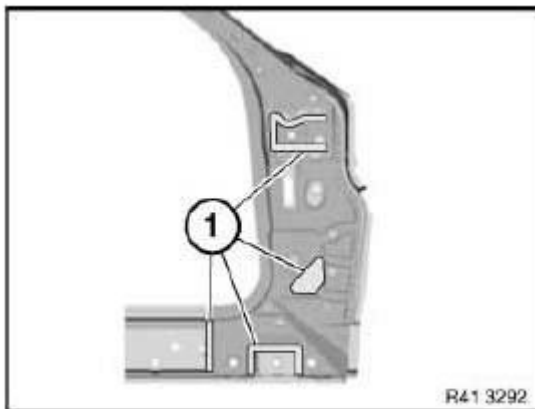


Fig. 139: Identifying Adhesive Applying Area
 Courtesy of BMW OF NORTH AMERICA, INC.

31 ROOF OUTER SKIN

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

Use only approved spot-welding apparatus for repairs.

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, panorama sunroof

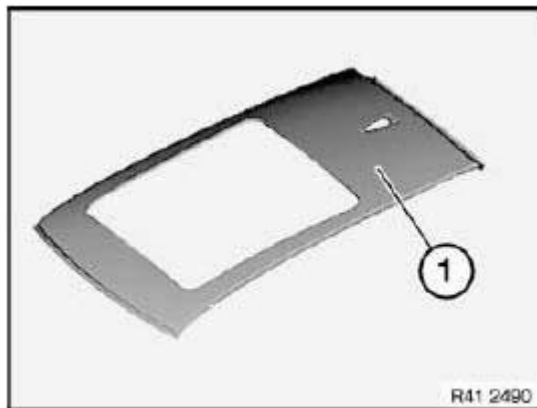


Fig. 140: Identifying Roof Outer Skin, Panorama Sunroof
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in areas (1).

Open brazed joints in areas (2).

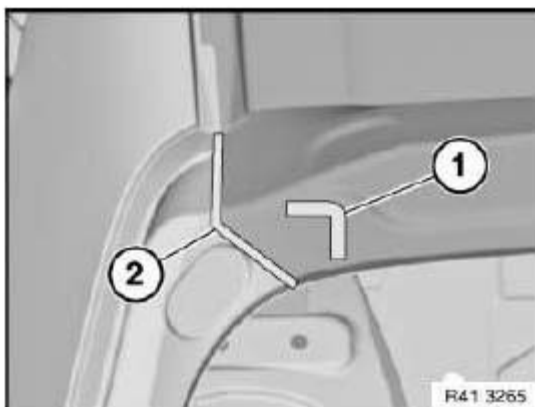


Fig. 141: Identifying Open Brazed Joints Areas

Courtesy of BMW OF NORTH AMERICA, INC.

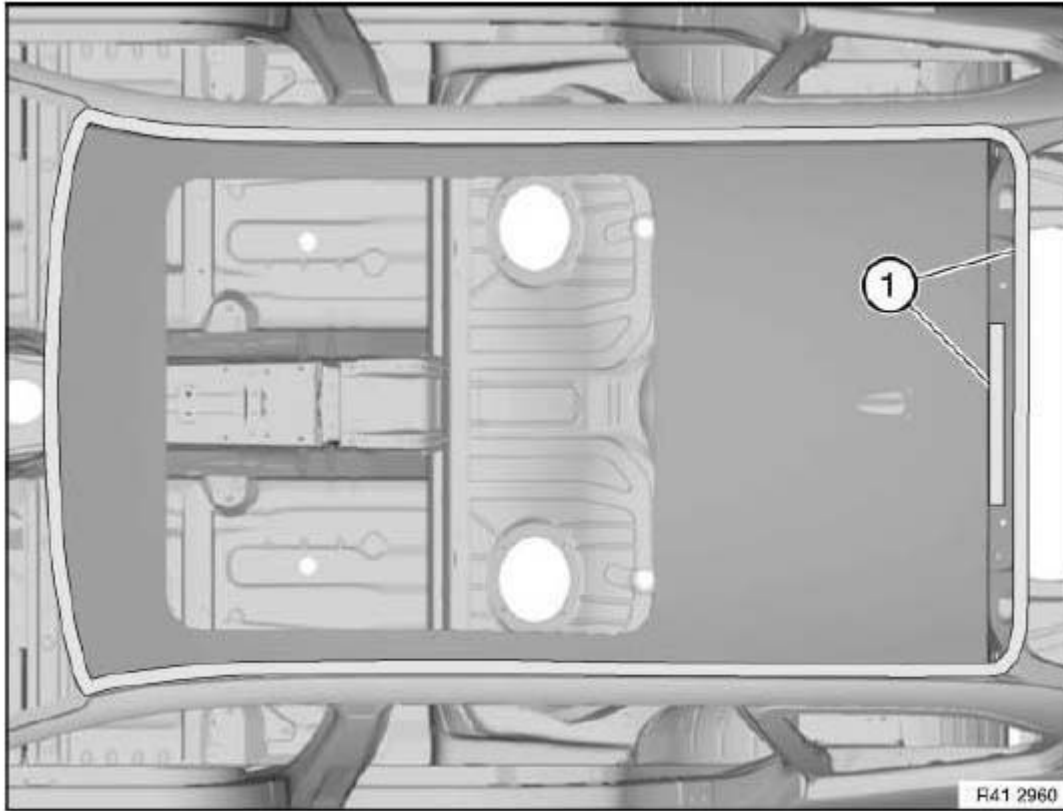


Fig. 142: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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.

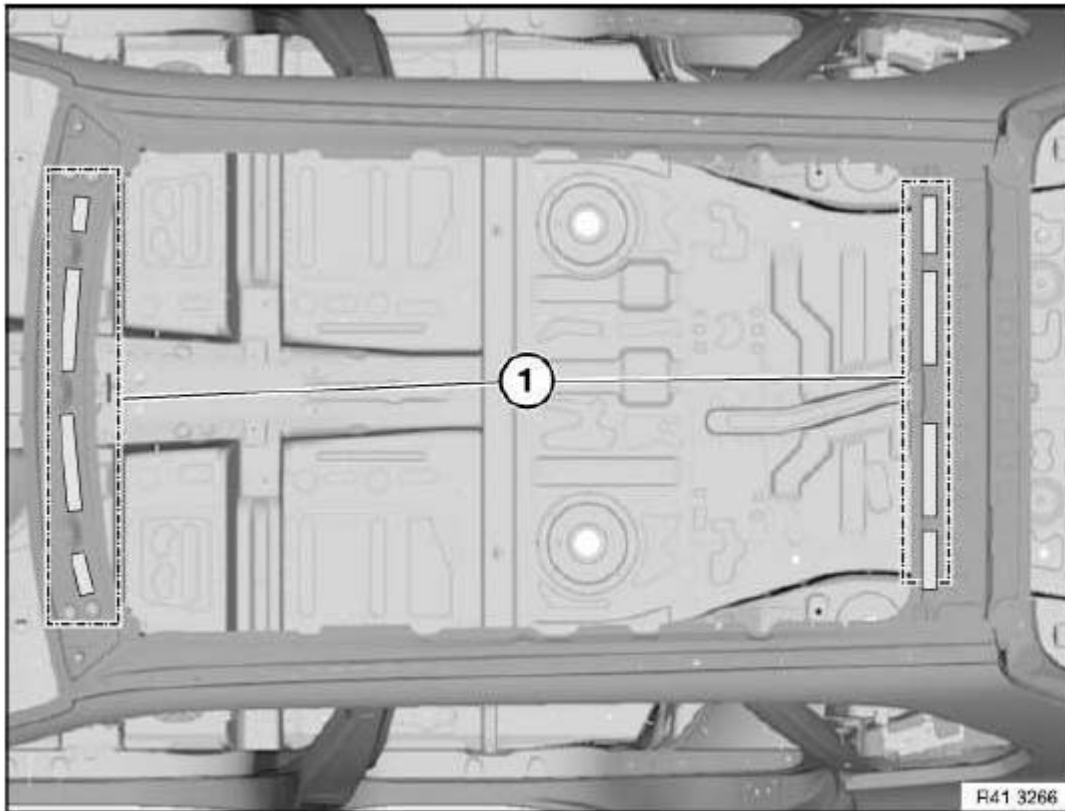


Fig. 143: Identifying Sealing Compound Applying Areas
Courtesy of BMW OF NORTH AMERICA, INC.

Apply sealing compound in areas (1).

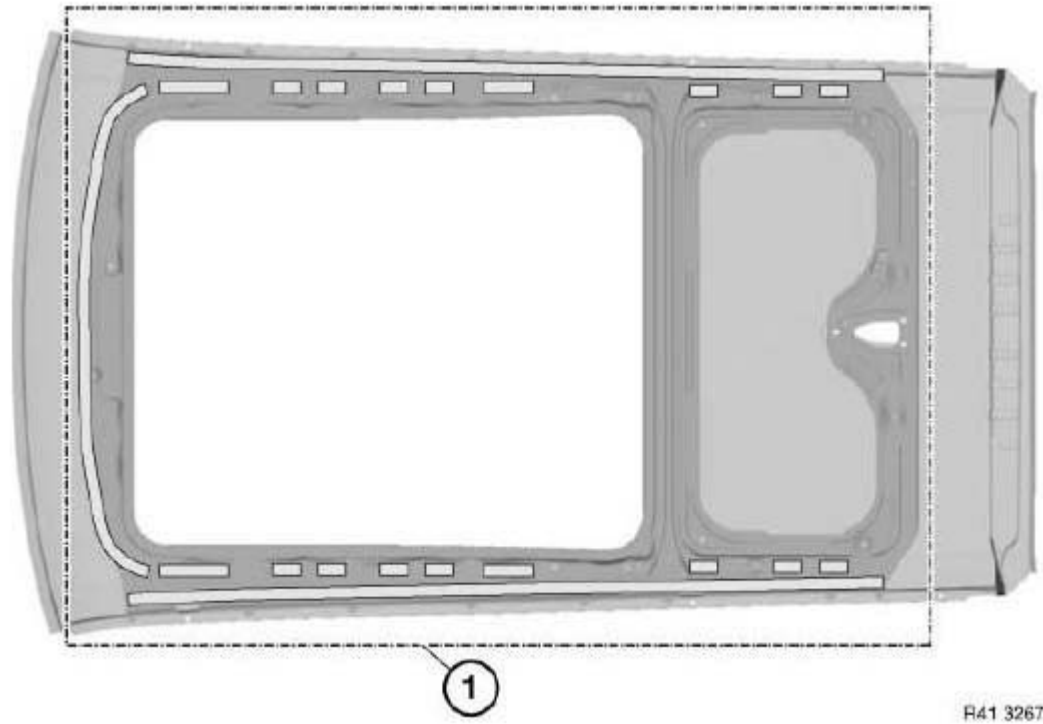


Fig. 144: Identifying Adhesive Applying Areas
 Courtesy of BMW OF NORTH AMERICA, INC.

Apply adhesive in areas (1).

32 DASH COWL

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.

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!

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)

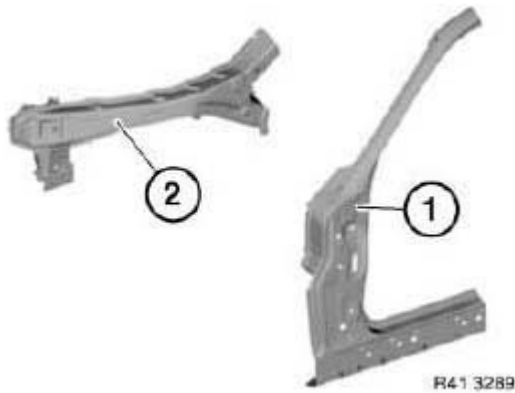


Fig. 145: Identifying A-Pillar, Outer
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

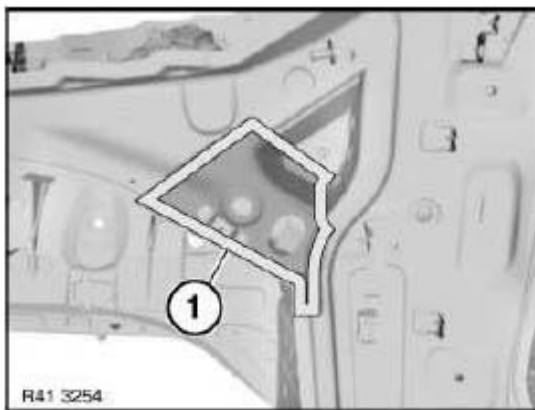


Fig. 146: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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

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)**.

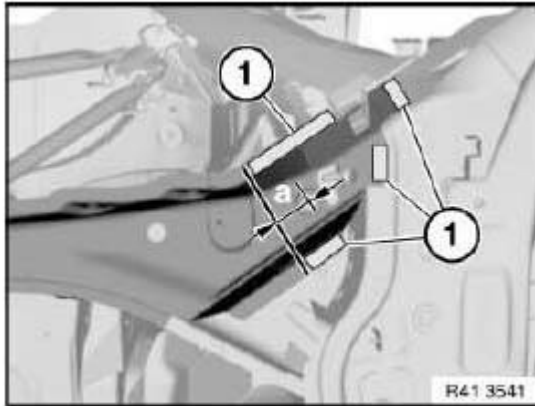


Fig. 147: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

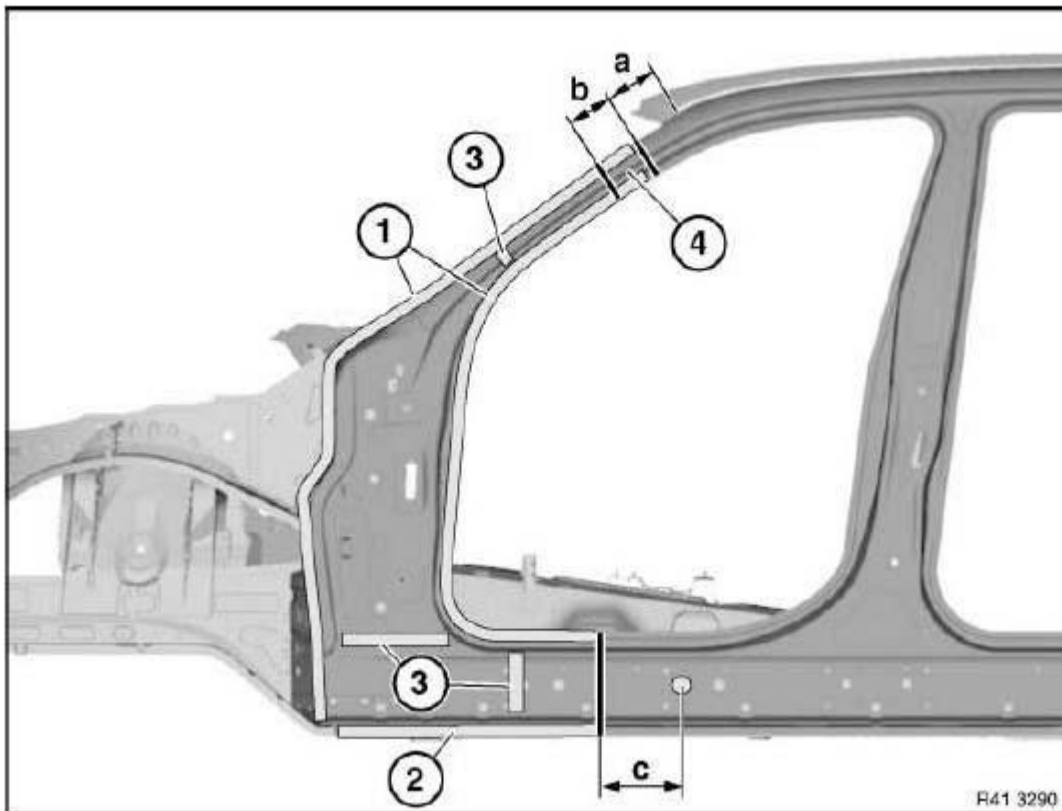


Fig. 148: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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).

Bond and rivet new part in area (2).

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.

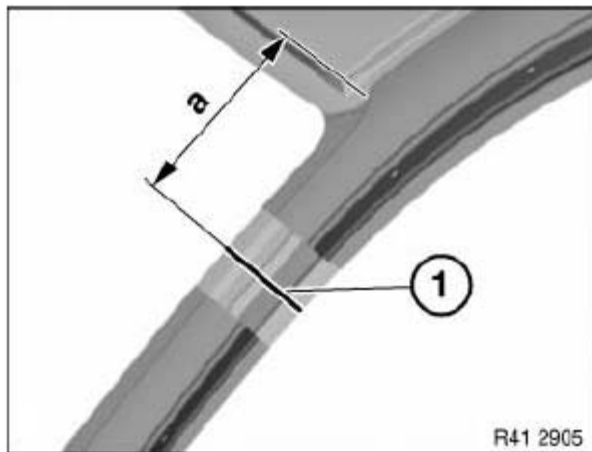


Fig. 149: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

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.

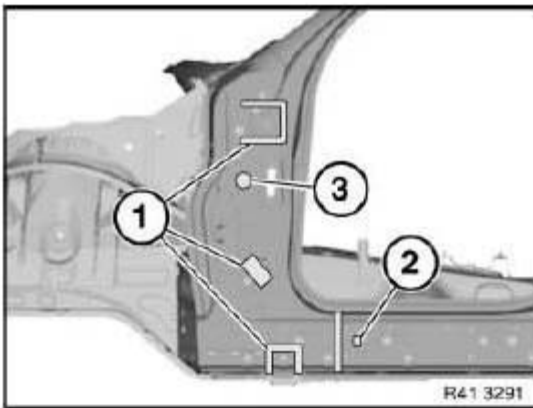


Fig. 150: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

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).

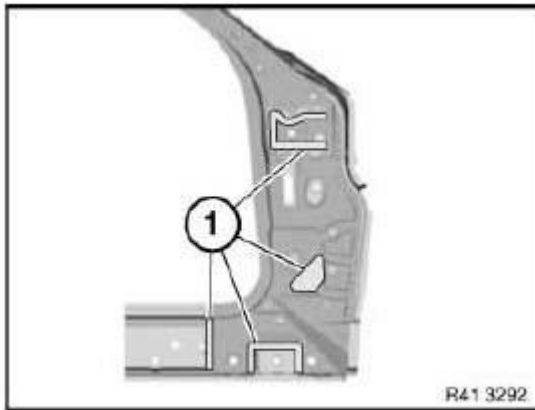


Fig. 151: Identifying Adhesive Applying Area
 Courtesy of BMW OF NORTH AMERICA, INC.

34 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!

Following new body parts are required:

- (1) Rear trim

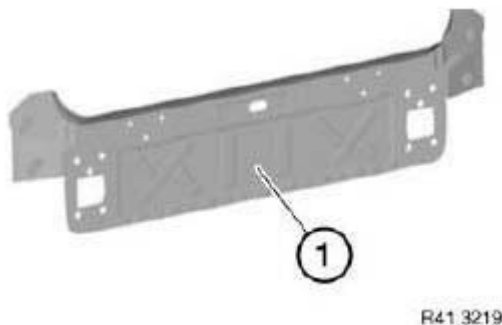


Fig. 152: Identifying Rear Trim
 Courtesy of BMW OF NORTH AMERICA, INC.

Open brazed joints (2).

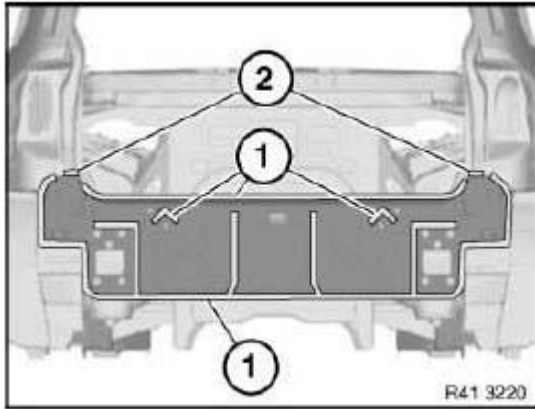


Fig. 153: Identifying Open Brazed Joints
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in areas (1).

Open adhesive bonds in areas (2).

Remove rear trim.

Installation:

Replace glued connection in areas (2) with plug welding.

Adjust rear lid lower section to fit before welding.

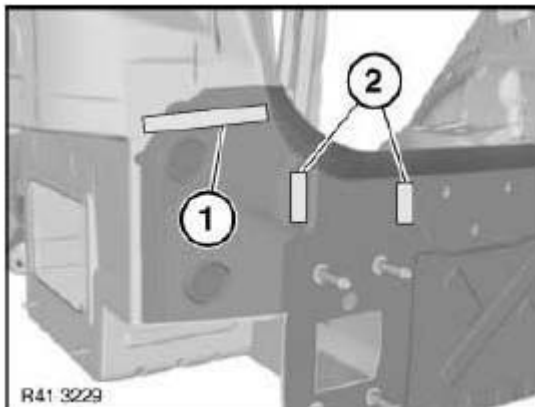


Fig. 154: Identifying Open Adhesive Bonds Areas
Courtesy of BMW OF NORTH AMERICA, INC.

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.

Use only approved spot-welding apparatus for repairs!

Following new body parts are required:

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

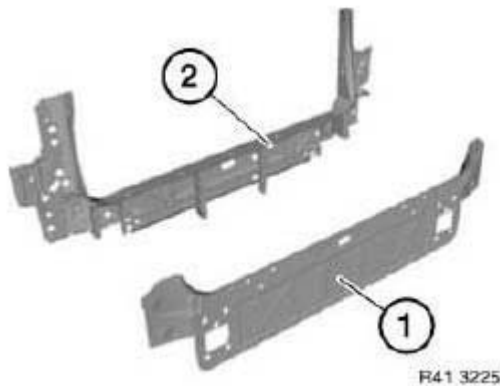


Fig. 155: Identifying Rear And Inner Trim
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Open brazed joints in areas (2).

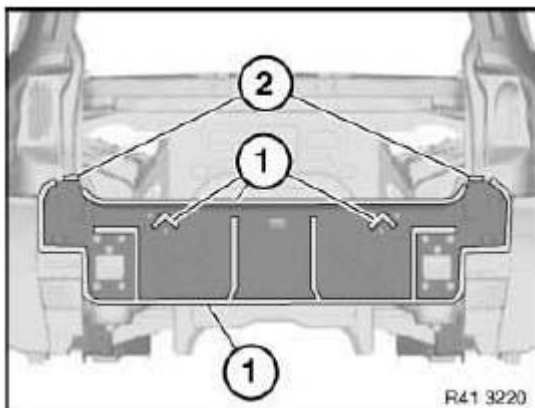


Fig. 156: Identifying Open Brazed Joints

Courtesy of BMW OF NORTH AMERICA, INC.

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

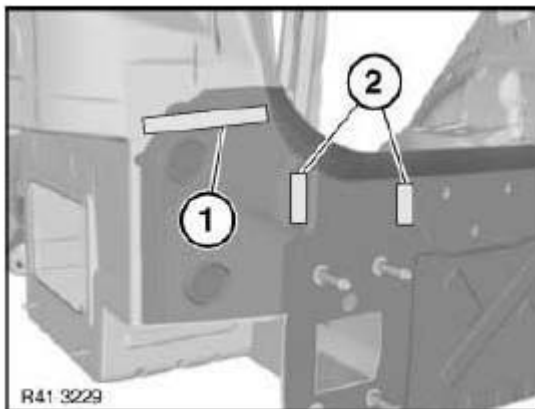
Open weld joints in areas (1).

Open adhesive bonds in areas (2).

Remove rear trim.

Installation:

Replace glued connection in areas (2) with plug welding.

**Fig. 157: Identifying Open Adhesive Bonds 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 in areas (1).

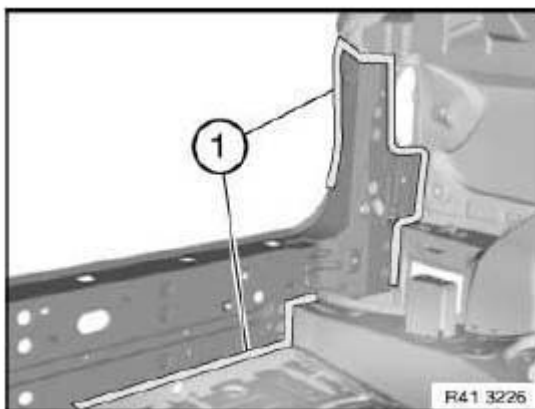
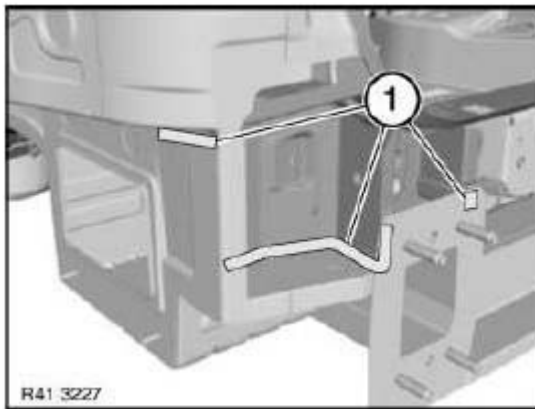


Fig. 158: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

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

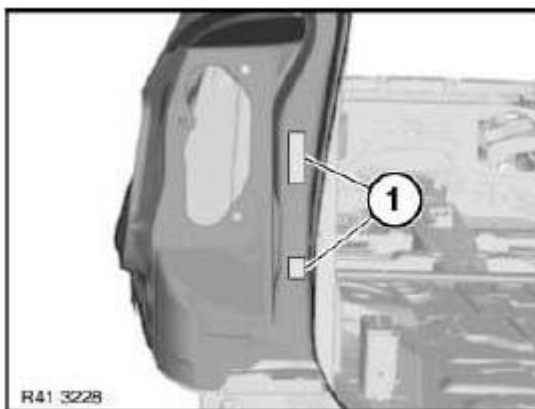
Open weld joints in areas (1).

**Fig. 159: Identifying Open 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 areas (1).

**Fig. 160: Identifying Open Weld Joints Area**

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

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Adjust lower rear lid section to fit before welding new parts.

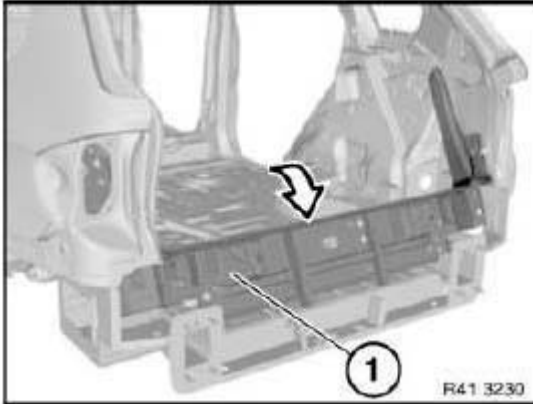


Fig. 161: Identifying Inner Rear Trim

Courtesy of BMW OF NORTH AMERICA, INC.

35 SIDE PANELS

41 14 502 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.

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!

Place vehicle on straightening bench.

Following new body parts are required:

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

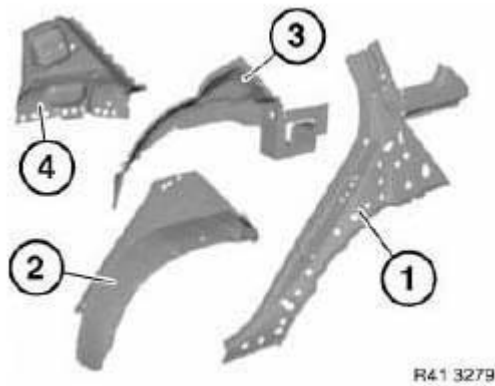


Fig. 162: Identifying Reinforcement, C-Pillar, Bottom
 Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Distance B = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

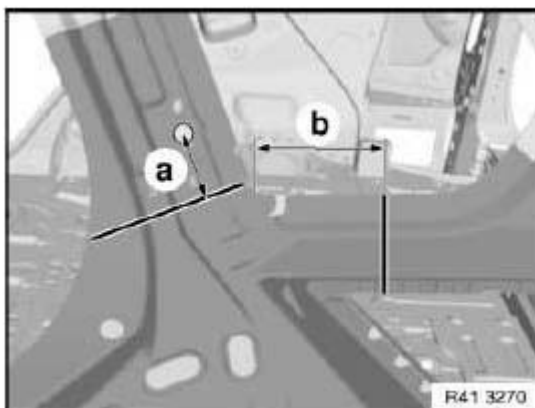


Fig. 163: Identifying Severance Cuts
 Courtesy of BMW OF NORTH AMERICA, INC.

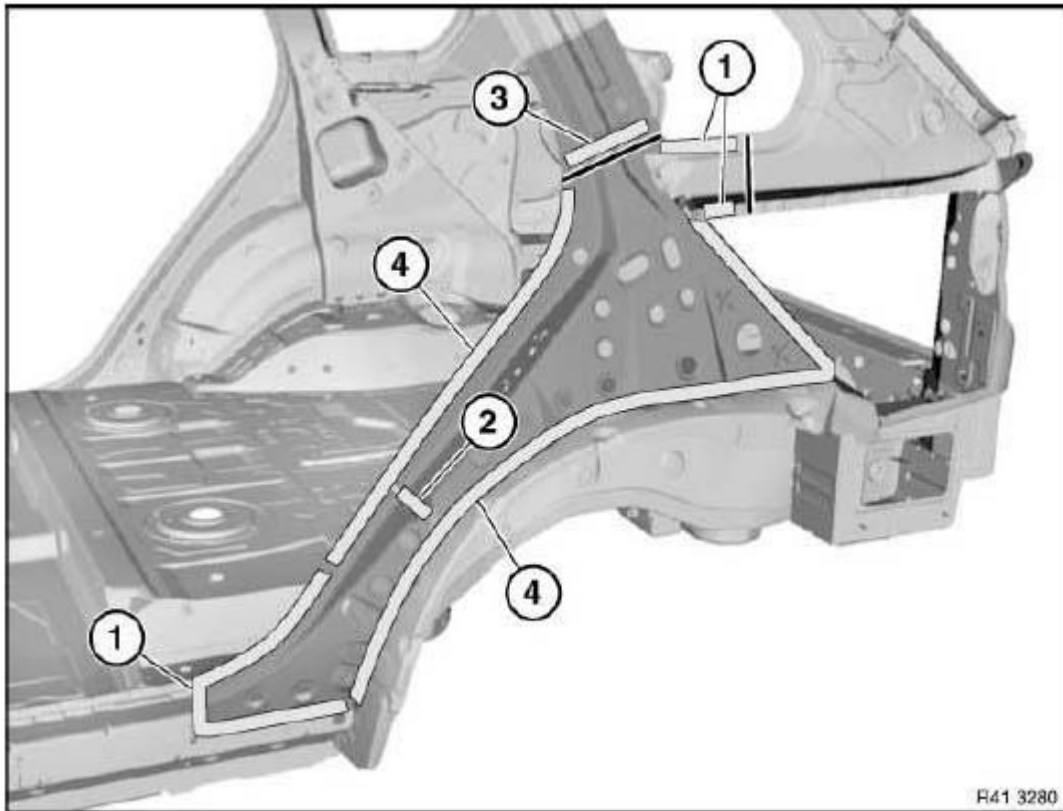


Fig. 164: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!
Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

Weld new component in areas (4) additionally.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

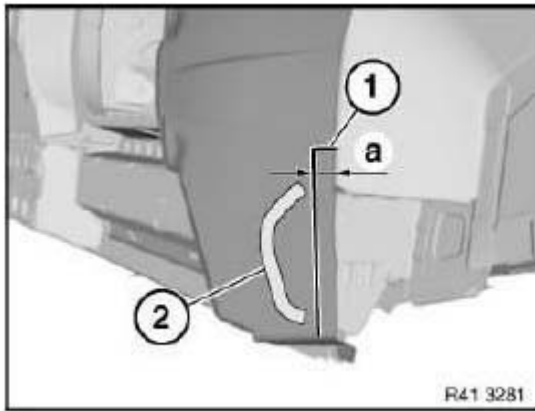


Fig. 165: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

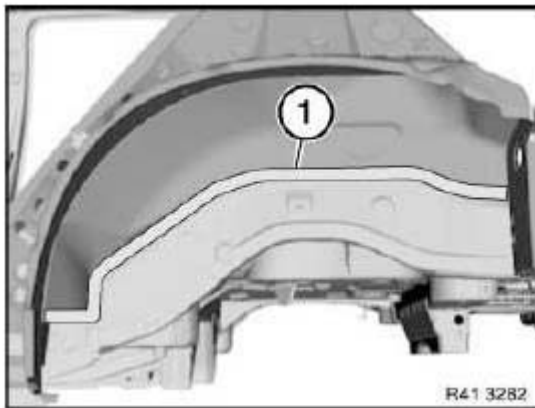


Fig. 166: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

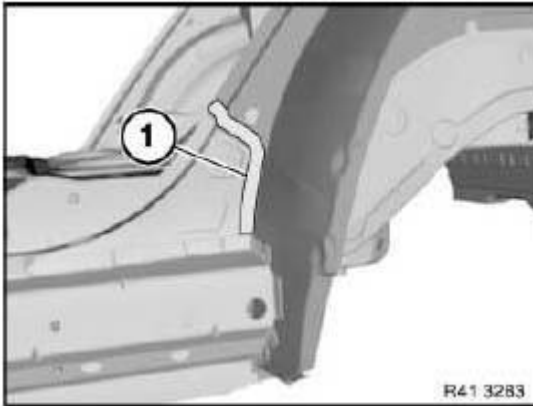


Fig. 167: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

Installation:

Weld new component in areas (2) additionally.

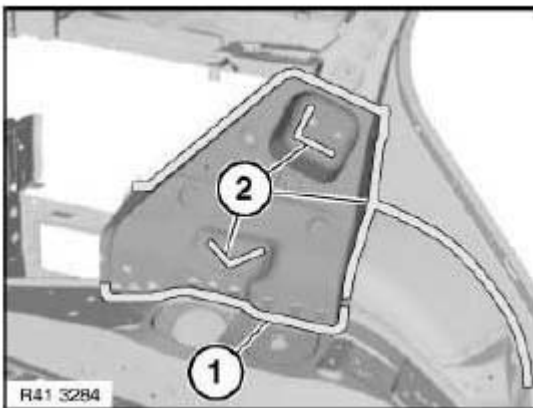


Fig. 168: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

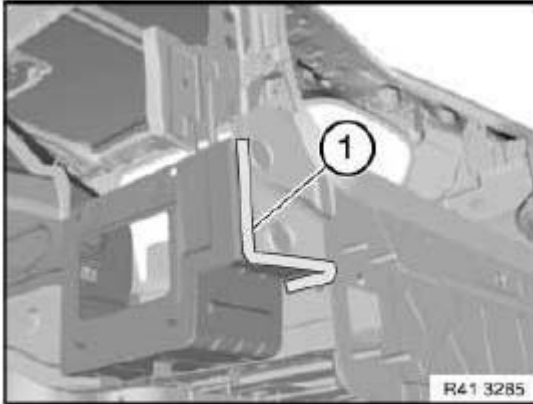


Fig. 169: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in area (1).

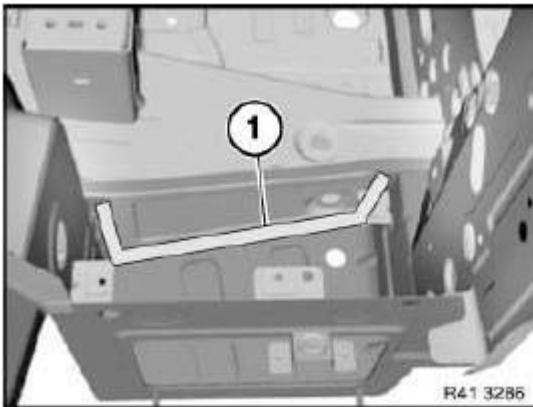


Fig. 170: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

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

Open weld joints in area (2).

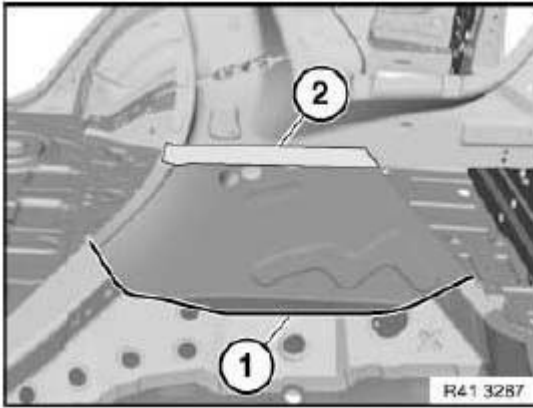


Fig. 171: Identifying C-Pillar Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

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.

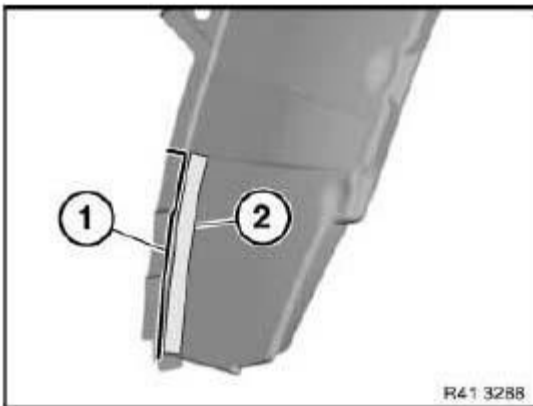


Fig. 172: Identifying Weld Part Area Overlapping
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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!

Following new body parts are required:

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

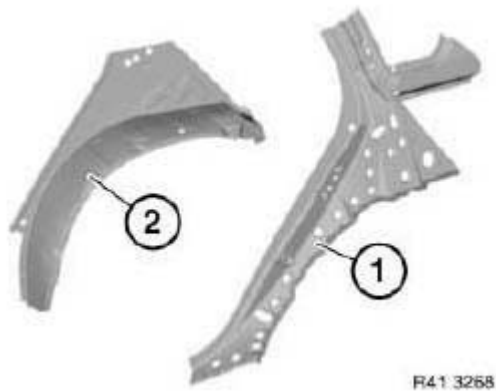


Fig. 173: Identifying Reinforcement, C-Pillar, Bottom
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = 70 mm below 15 mm dia. bore

Measurement b = 130 mm

Installation:

Weld in reinforcement plates at severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

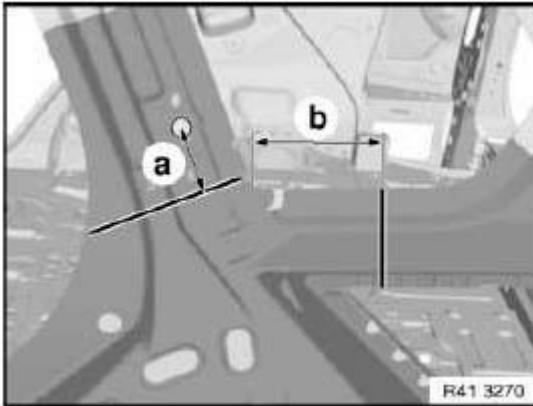


Fig. 174: Identifying Severance Cuts

Courtesy of BMW OF NORTH AMERICA, INC.

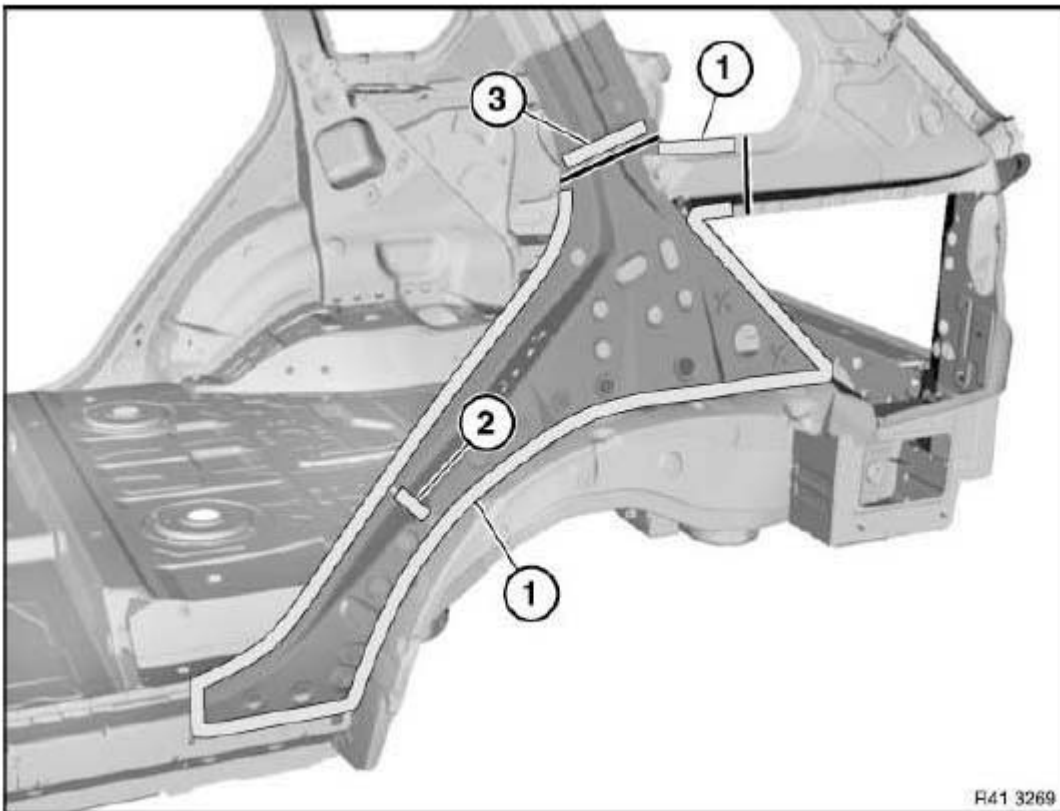


Fig. 175: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

IMPORTANT: Burn hazard!

Remove cavity acoustic baffles in area (3).

Installation:

Apply window glass adhesive to cavity acoustic baffle (2).

Make cavity acoustic baffle (3) with cavity foam.

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

IMPORTANT: Cut outer metal sheet only.

Dimension a = 20 mm

Open weld joints in area (2).

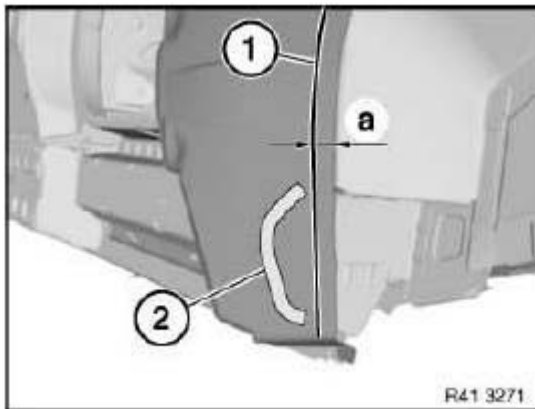


Fig. 176: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Remove cavity acoustic baffle.

Mark severance cut in accordance with specified measurement and cut.

Measurement = 20 mm distance from radius

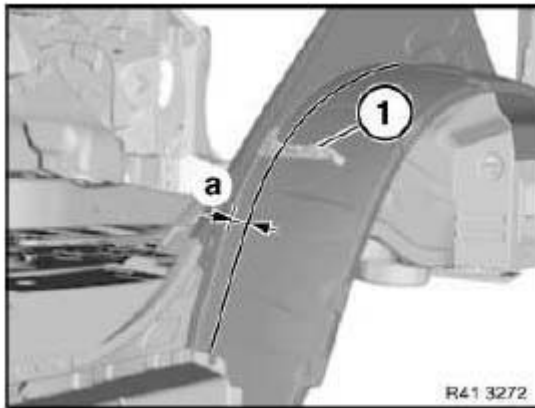


Fig. 177: Identifying Severance Cut Mark
Courtesy of BMW OF NORTH AMERICA, INC.

Cut wheel arch along line (1).

Open weld joints in area (2).

Installation:

Weld new part in area (3) overlapping with wheel arch.

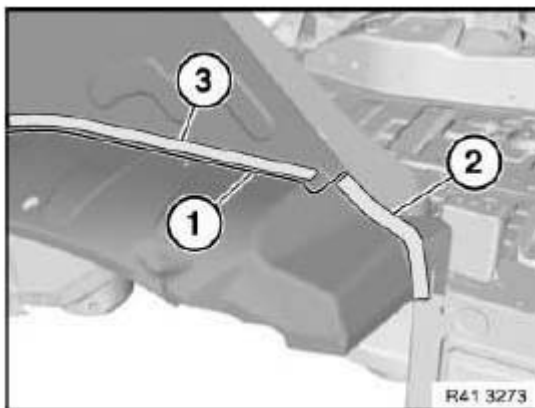


Fig. 178: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Preparation of new part:

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

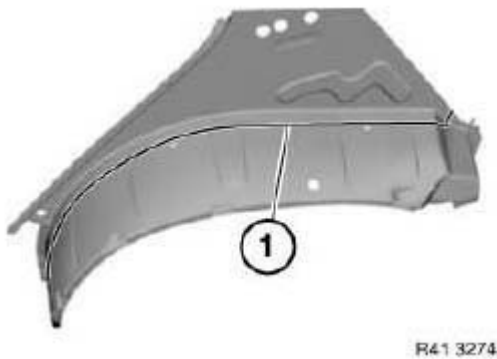


Fig. 179: Identifying Severance Cut Mark On Part
 Courtesy of BMW OF NORTH AMERICA, INC.

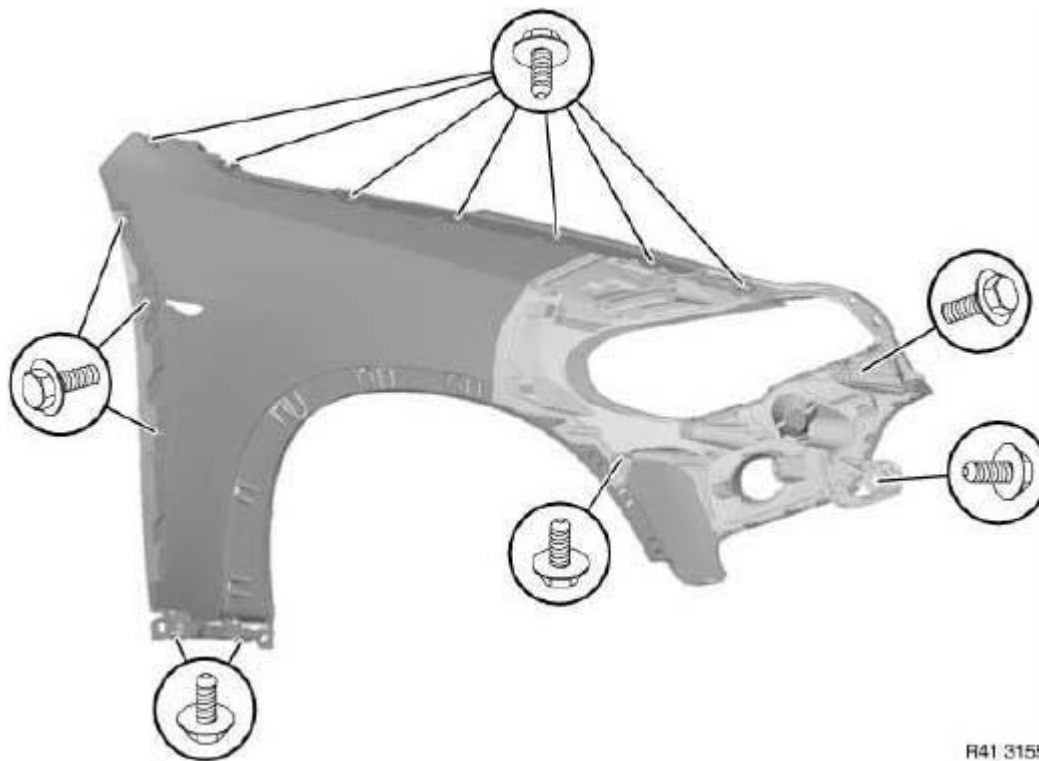
41 35 ... REMOVING AND INSTALLING FRONT LEFT SIDE PANEL

Observe gap dimensions . See **41 00 ... GAP DIMENSIONS, BODY.**

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** .



R41 3155

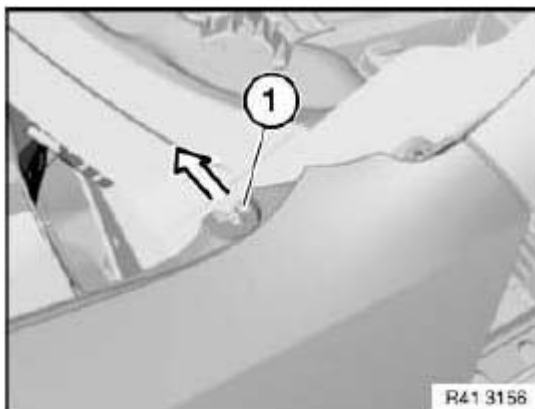
Fig. 180: Identifying Front Side Panel Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Interior view of front side panel

Release screws.

NOTE: Side panel and headlight are removed together.

Pull out retainer (1) in direction of arrow.



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Fig. 181: Identifying Retainer

Courtesy of BMW OF NORTH AMERICA, INC.

Detach plug (1) on headlight.



Fig. 182: Identifying Plug On Headlight
Courtesy of BMW OF NORTH AMERICA, INC.

For vehicles with auxiliary oil cooler only:

Lever out retainer (1) at bottom and detach towards rear.

Remove oil cooler and tie back.

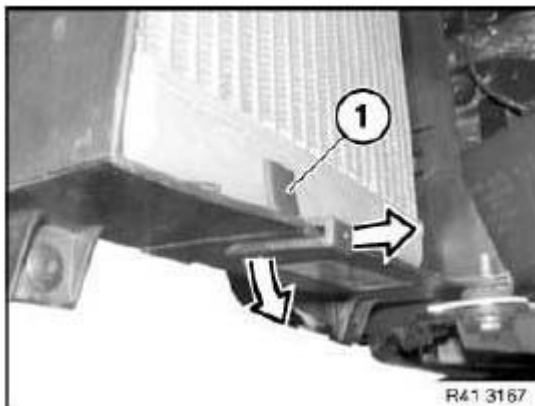


Fig. 183: Identifying Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Detach plug (1) on fog lamp.

For vehicles with auxiliary oil cooler only:

Remove cable grommet in holding frame for oil cooler.

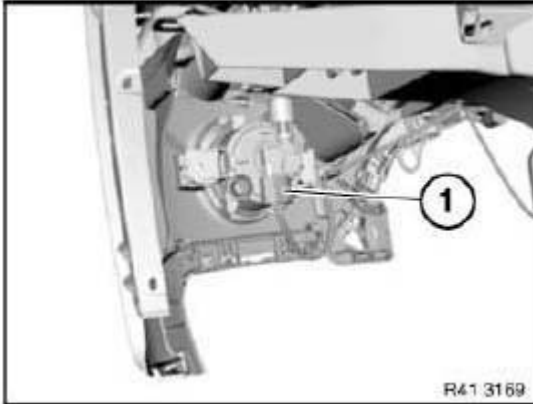


Fig. 184: Identifying Plug Fog Lamp
Courtesy of BMW OF NORTH AMERICA, INC.

For vehicles with auxiliary oil cooler only:

Release screw (1).

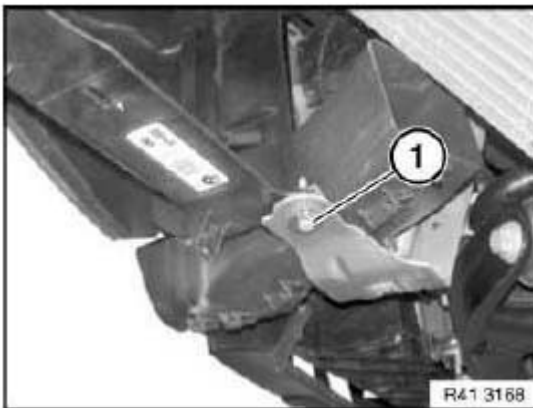


Fig. 185: Identifying Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

For vehicles with auxiliary oil cooler only:

Release screws (2) and remove holding frame for oil cooler.

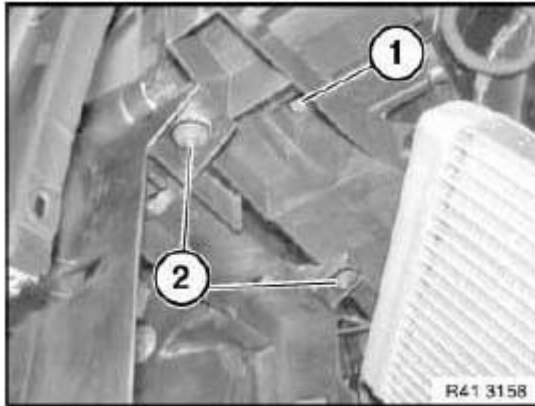


Fig. 186: Identifying Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Slacken screw (1).

NOTE: Poor screw accessibility.



Fig. 187: Identifying Screw

Courtesy of BMW OF NORTH AMERICA, INC.

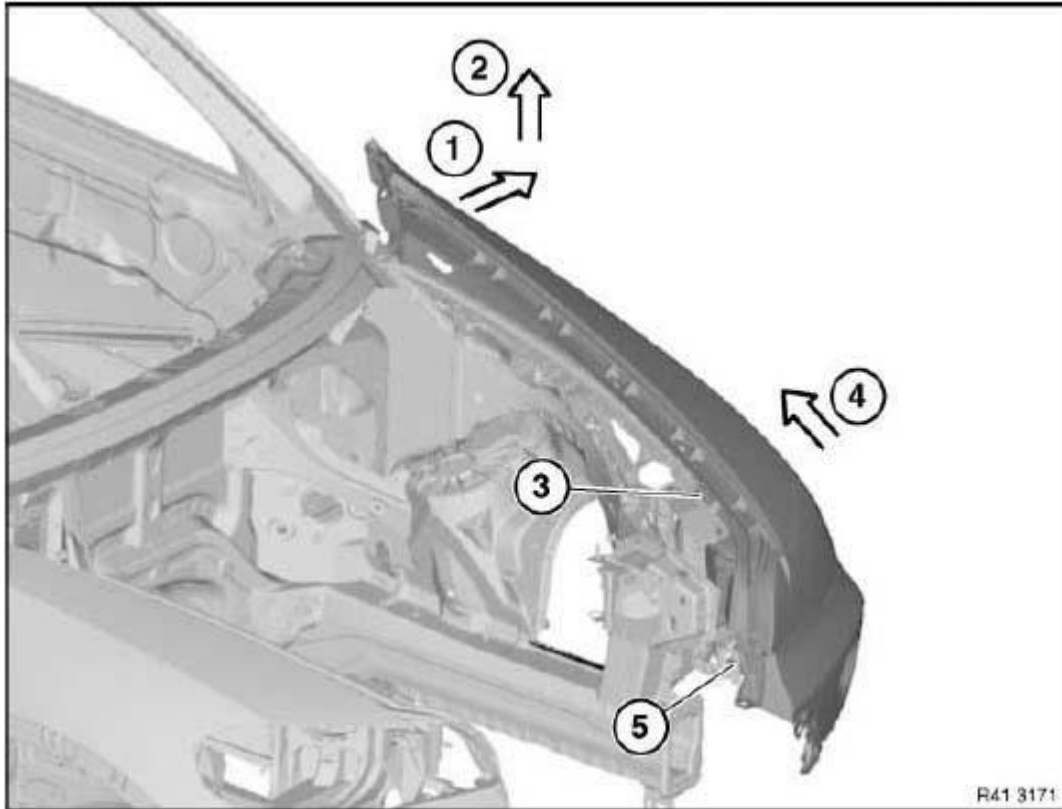


Fig. 188: Pulling Side Panel Of A-Pillar Side
Courtesy of BMW OF NORTH AMERICA, INC.

Close front door.

Pull side panel in area of A-pillar outwards (1) until screw fastening points are exposed.

Pull side panel upwards (2) until plastic guide (3) is exposed.

Slide side panel towards rear (4) and feed screw (5) out of module carrier.

Installation:

Feed in shim of screw (5) with a small screwdriver.

Installation:

Following parts must not be damaged or missing:

- Spacer buffers (1)

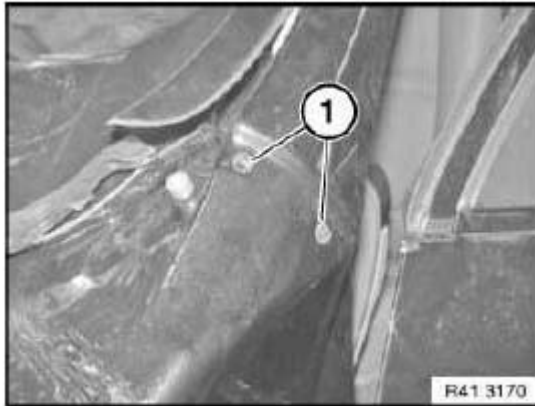


Fig. 189: Identifying Spacer Buffers

Courtesy of BMW OF NORTH AMERICA, INC.

41 35 050 REPLACING FRONT LEFT SIDE PANEL

Observe gap dimensions . See **41 00 ... GAP DIMENSIONS, BODY.**

**CAUTION: Set down side panel on a soft surface.
Risk of damage**

Necessary preliminary tasks:

- Remove front side panel . See **41 35 ... REMOVING AND INSTALLING FRONT LEFT SIDE PANEL.**
- Remove headlight . See **63 12 001 REMOVING AND INSTALLING/REPLACING LEFT HEADLIGHT .**
- Remove fog lamp . See **63 17 070 REMOVING AND INSTALLING/REPLACING LEFT FRONT FOG LAMP .**
- Remove spray nozzle of headlight washer system . See **61 67 010 REMOVING AND INSTALLING/REPLACING WASHER PUMP OF HEADLIGHT WASHER SYSTEM .**

Following new body parts are required:

- (1) Side panel, front

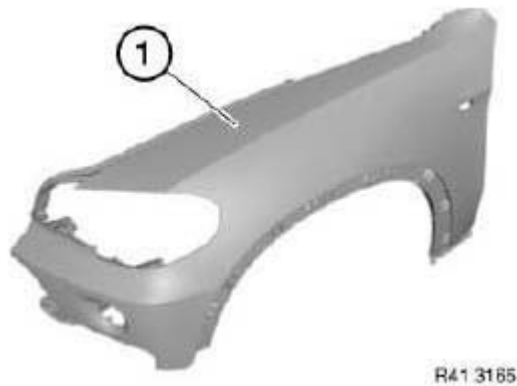


Fig. 190: Identifying Side Panel, Front
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Unclip retaining tabs (2) and remove bumper mountings on inside and outside.

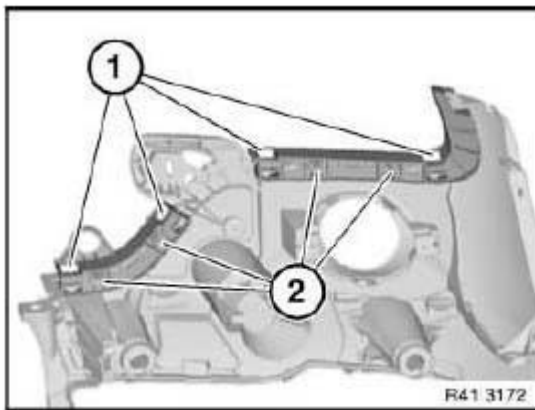


Fig. 191: Identifying Screws And Retaining Tabs
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

Use only approved spot-welding apparatus for repairs!

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, entrance, outer (not shown)



Fig. 192: Identifying Side Frame, Rear
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

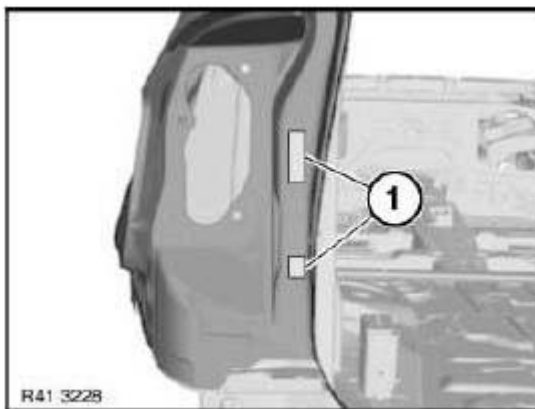


Fig. 193: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

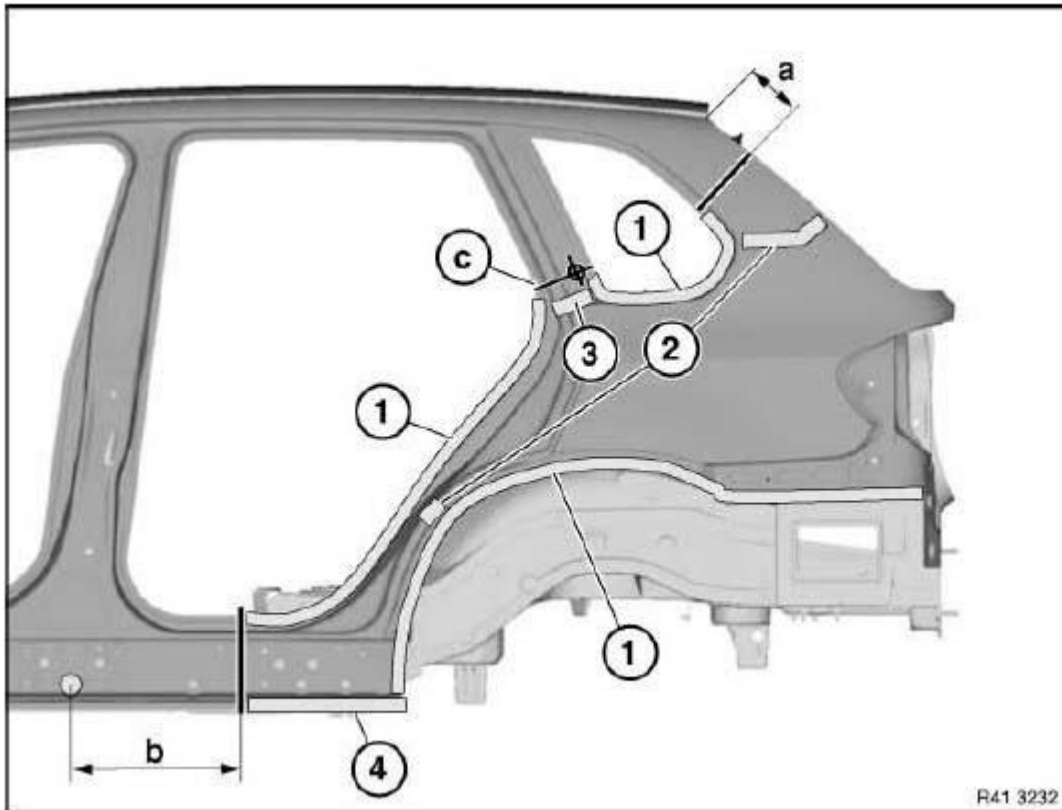


Fig. 194: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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. 420 mm from centerpoint of hole dia. 20 mm.

Severance cut (c) in centerpoint of 15 mm dia. hole

Open weld joints in areas (1) and (4).

Installation information:

- Apply window glass adhesive to cavity acoustic baffles (2) and (3).

In area (3) move cavity acoustic baffle approx. 20 mm downwards.

- Weld in reinforcing panels at all severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE).**

- Bond and rivet new part in area (4).

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).

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

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

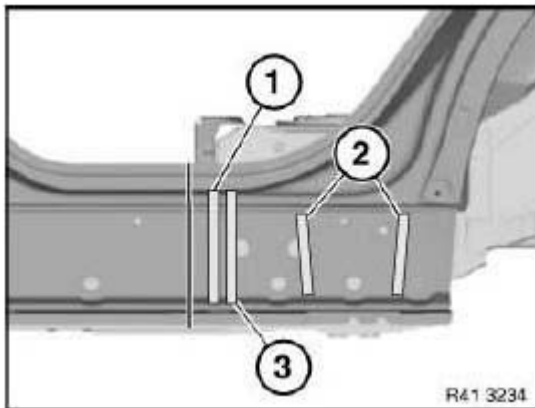


Fig. 195: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

Open brazed joint in area (2).

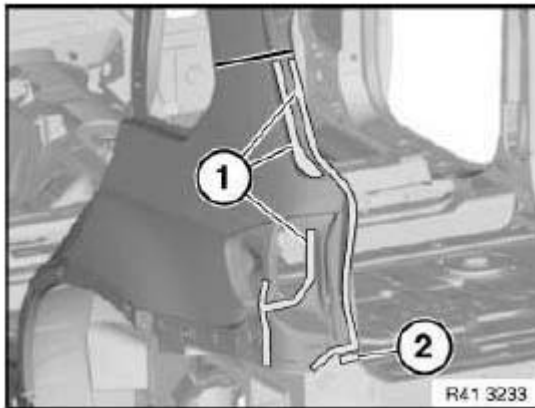


Fig. 196: Identifying Open Brazed Joint Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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!

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



Fig. 197: Identifying Partial Section, Rear Side Panel
 Courtesy of BMW OF NORTH AMERICA, INC.

Open weld joints in areas (1).

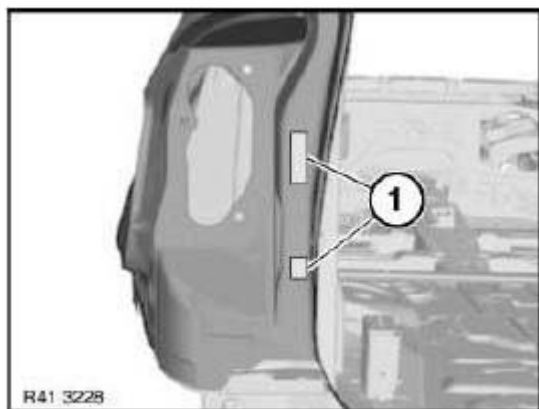


Fig. 198: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

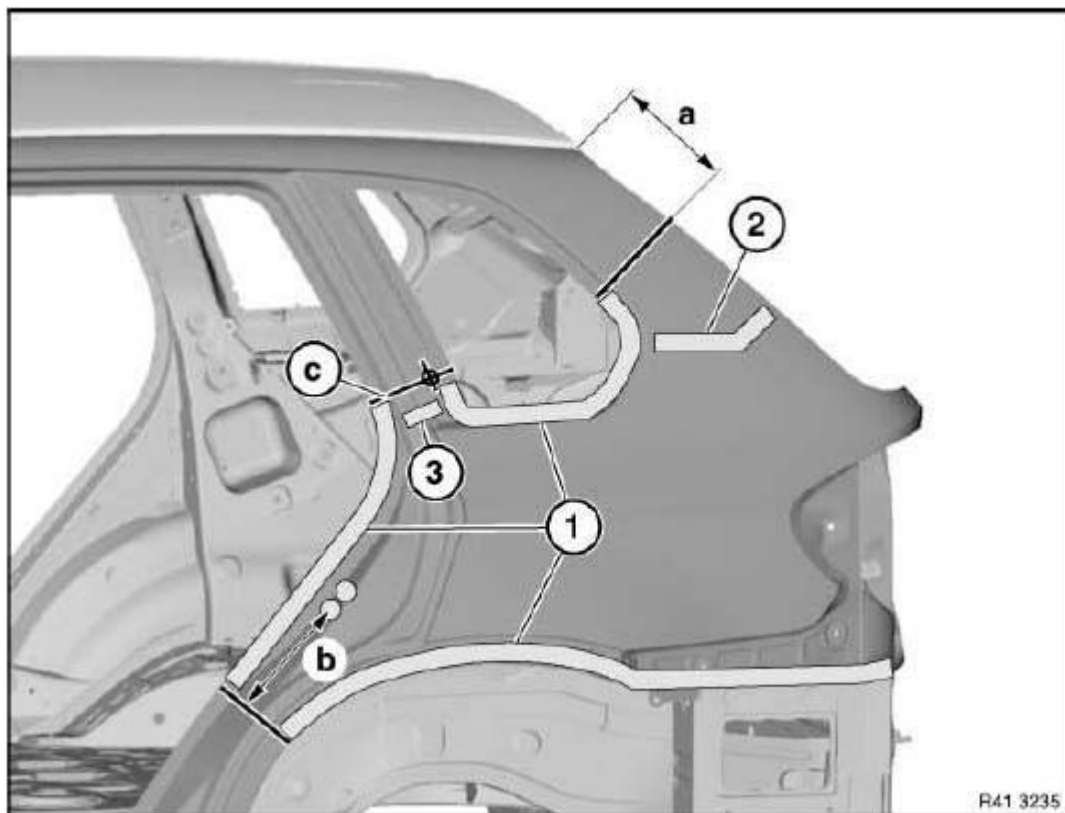


Fig. 199: Identifying Open Weld Joints Area
 Courtesy of BMW OF NORTH AMERICA, INC.

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 = approx. 200 mm from middle of lower lock striker screw point.

Severance cut (c) in centerpoint of 15 mm dia. hole

Open weld joints in areas (1).

Installation information:

- Apply window glass adhesive to cavity acoustic baffle (2).

In area (3) move cavity acoustic baffle approx. 20 mm downwards.

- Weld in reinforcing panels at all severance cuts. See **41 00 ... WELDING IN REINFORCEMENT PLATE (STEEL PLATE)**.

Open weld joints in areas (1).

Open brazed joint in areas (2).

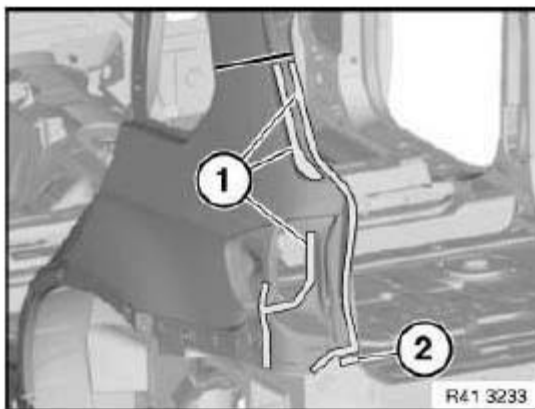


Fig. 200: Identifying Open Brazed Joint Area
Courtesy of BMW OF NORTH AMERICA, INC.

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!

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, entrance, outer (not shown)



Fig. 201: Identifying Side Frame, Rear
Courtesy of BMW OF NORTH AMERICA, INC.

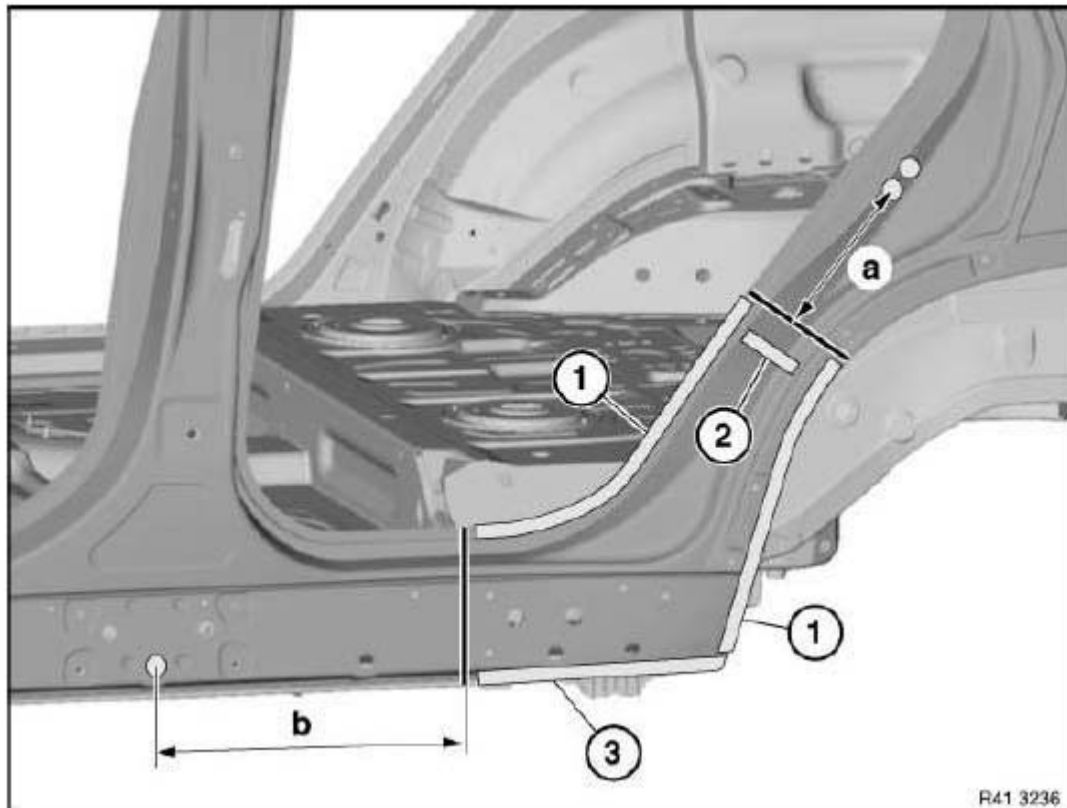


Fig. 202: Identifying Open Weld Joints Area
Courtesy of BMW OF NORTH AMERICA, INC.

Mark severance cuts in accordance with specified measurements and cut.

IMPORTANT: Cut outer metal sheet only.

Measurement a = approx. 200 mm from middle of lower lock striker screw point.

Measurement b = approx. 420 mm from centerpoint of hole dia. 20 mm.

Open weld joints in areas (1) and (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)**.
- Bond and rivet new part in area (3).

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).

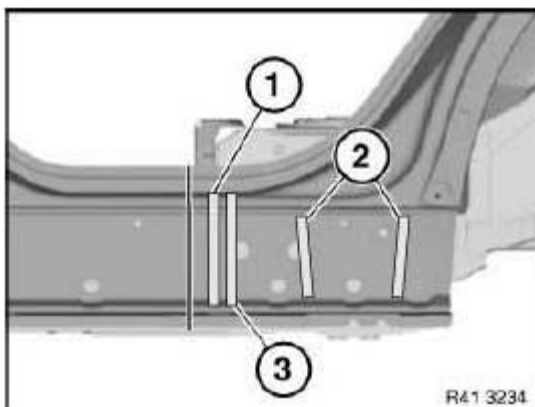


Fig. 203: Identifying Open Weld Joints Area

Courtesy of BMW OF NORTH AMERICA, INC.

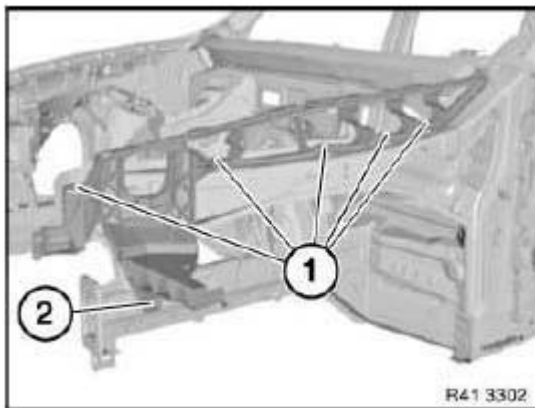
41 35 575 REMOVING AND INSTALLING/REPLACING FRONT LEFT SIDE PANEL MODULE CARRIER

Necessary preliminary tasks:

- Remove front side panel . See **41 35 ... REMOVING AND INSTALLING FRONT LEFT SIDE PANEL**.

Release screws (1).

Slacken nut (2).

**Fig. 204: Identifying Screws And Nut**

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 . See **52 REAR SIDE DOORS**.

Following new body parts are required:

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



Fig. 205: Identifying Door, Rear And Crash Reinforcement
 Courtesy of BMW OF NORTH AMERICA, INC.

Feed in crash reinforcement (1).

Tighten down screws (2).

Tighten to specified torque.

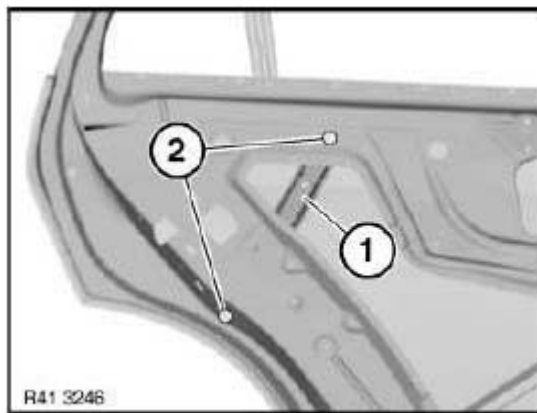


Fig. 206: Identifying Crash Reinforcement And Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

51 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 . See 41 00. ... GAP DIMENSIONS, BODY.

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.

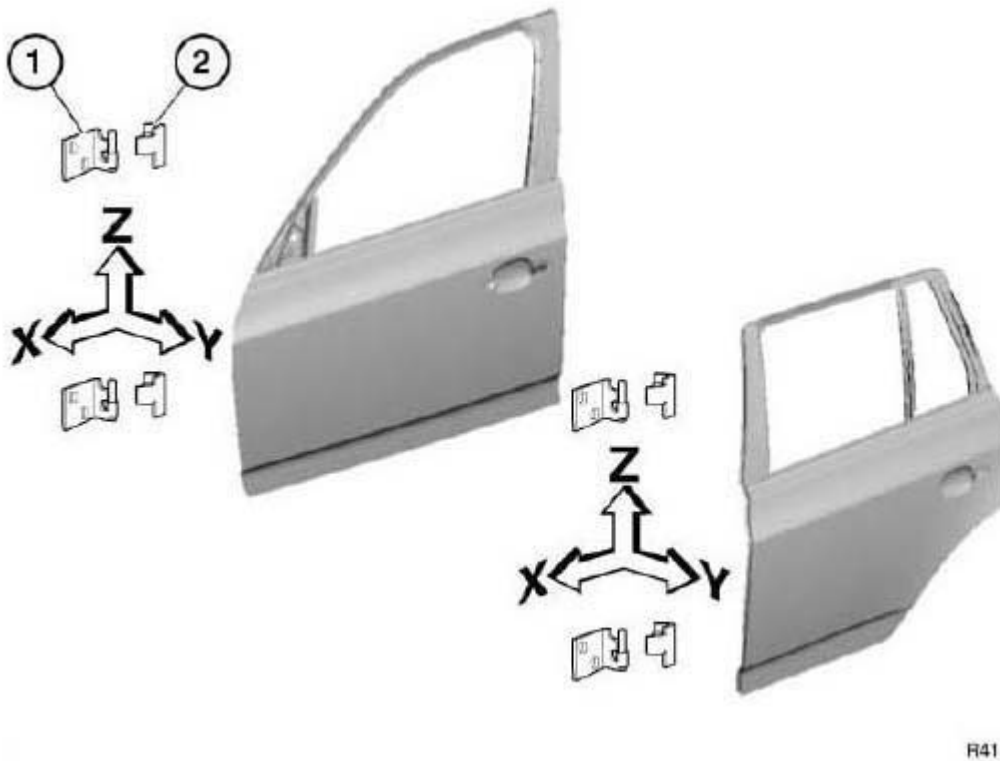


Fig. 207: Adjusting Door Screw

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.

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

NOTE: Rear door screw connection accessible from inside only.

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. 208: Identifying Vertical Adjustment Of 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.

Tighten to specified torque.

NOTE: When the door is closed, the lock striker must not touch or scrape against the door lock. Look out for scratches.

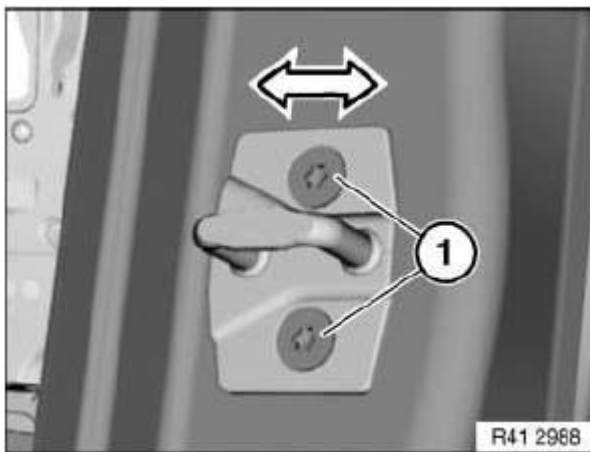


Fig. 209: Identifying Lock Striker And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

After installation:

- Tighten all screws to specified torque. 580 of 3160
- 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.

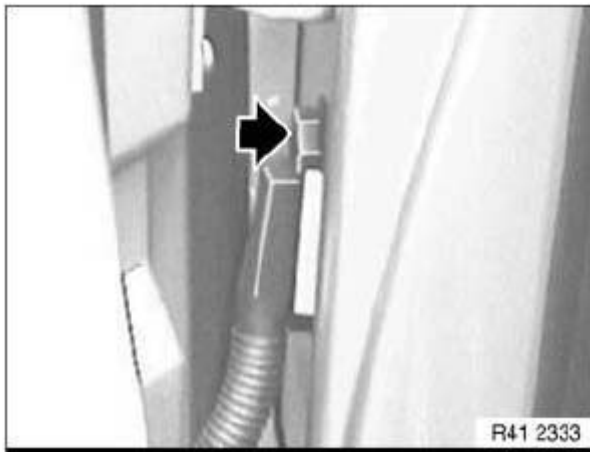


Fig. 210: Identifying Screw On Connector Frame
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Secure door against closing.

Release screw (1) on door retainer.

Open door up to stop.

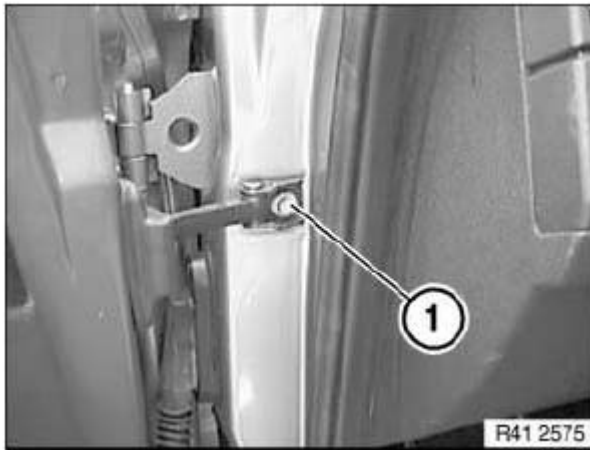


Fig. 211: Identifying Screw On Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts between both hinge elements at top and bottom.

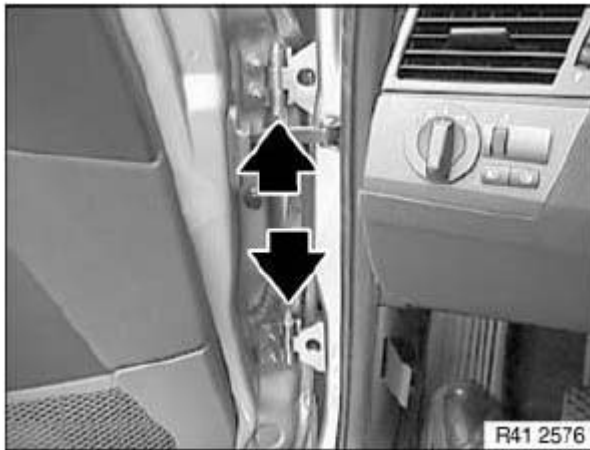


Fig. 212: Identifying Nuts Between Both Hinge Elements
Courtesy of BMW OF NORTH AMERICA, INC.

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 . See **41 5. ... ADJUSTING DOOR.**

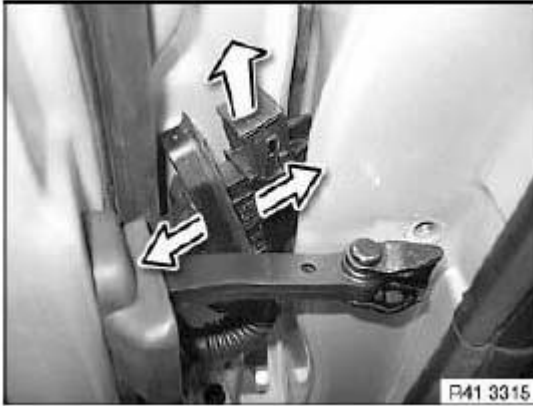


Fig. 213: Identifying Plug Connection Of Door Pillar
Courtesy of BMW OF NORTH AMERICA, INC.

52 REAR SIDE DOORS

41 5. ... ADJUSTING DOOR

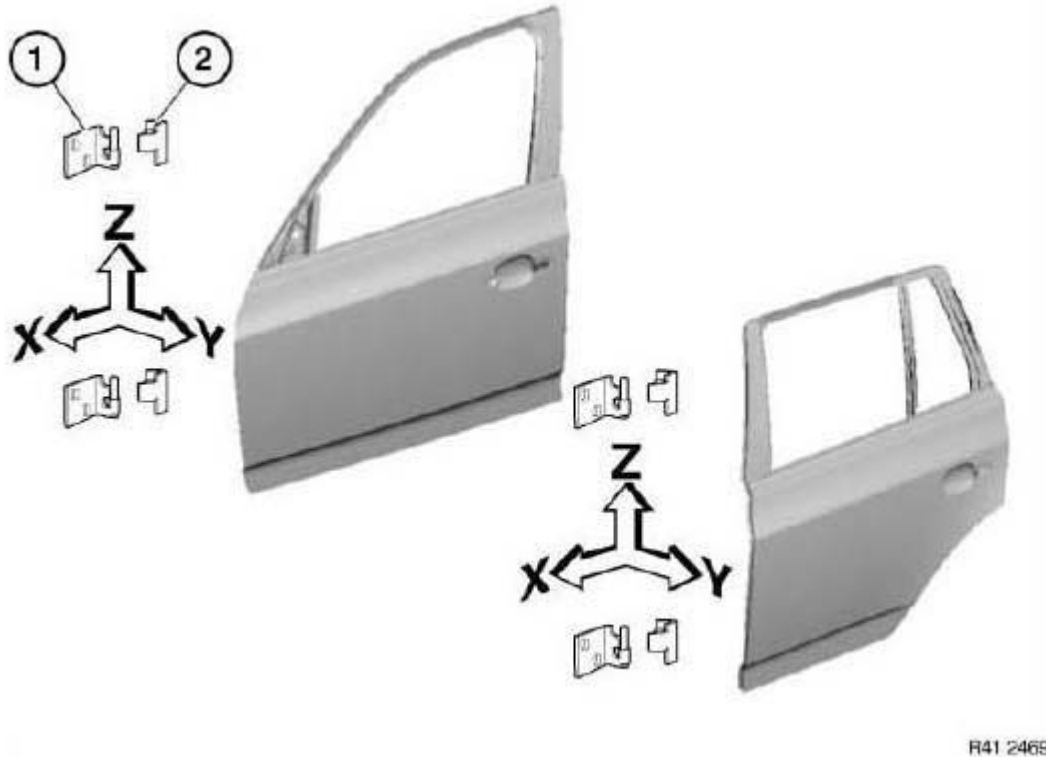
CAUTION: Do not damage adjoining body parts.
Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.

NOTE: Observe gap dimensions . See 41 00 ... GAP DIMENSIONS, BODY.

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.



R41 2469

Fig. 214: Adjusting Door Screw

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.

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

NOTE: Rear door screw connection accessible from inside only.

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. 215: Identifying Vertical Adjustment Of 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.

Tighten to specified torque.

NOTE: When the door is closed, the lock striker must not touch or scrape against the door lock. Look out for scratches.

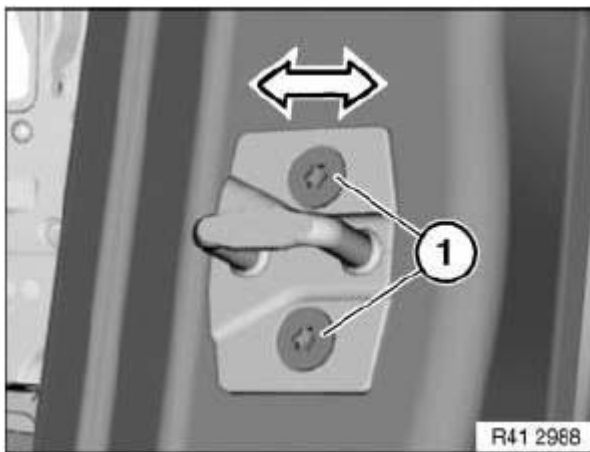


Fig. 216: Identifying Lock Striker And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

After installation:

- Tighten all screws to specified torque. 585 of 3160
- 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.

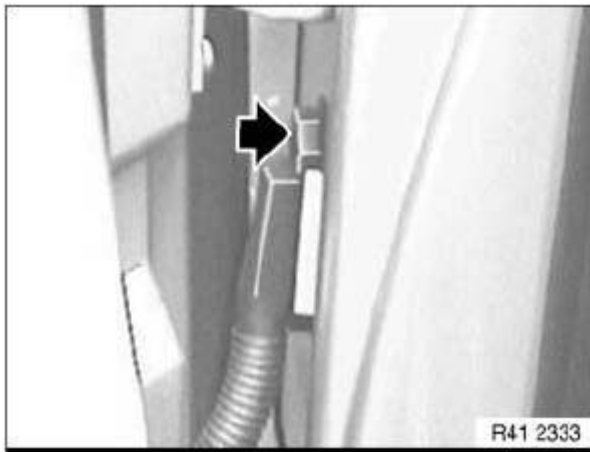


Fig. 217: Identifying Screw On Connector Frame
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Secure door against closing.

Release screw (1) on door retainer.

Open door up to stop.



Fig. 218: Identifying Screw On Door Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Release nuts between both hinge elements at top and bottom.

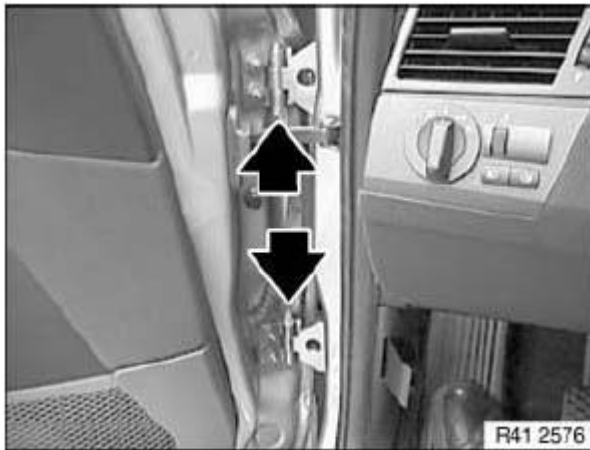


Fig. 219: Identifying Nuts Between Both Hinge Elements
Courtesy of BMW OF NORTH AMERICA, INC.

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 . See **41 5. ... ADJUSTING DOOR.**

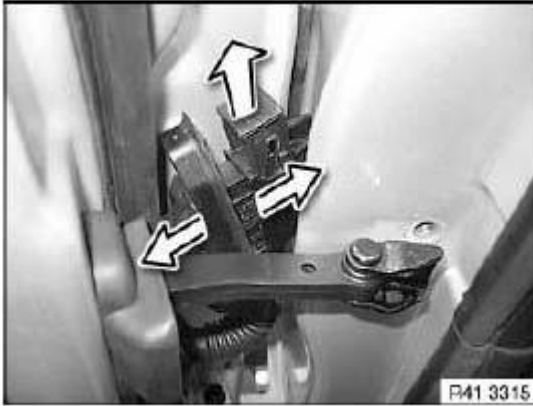


Fig. 220: Identifying Plug Connection Of Door Pillar
Courtesy of BMW OF NORTH AMERICA, INC.

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 . See **41 5. ... REMOVING AND INSTALLING DOOR**.

Following new body parts are required:

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



Fig. 221: Identifying Door, Rear And Crash Reinforcement
Courtesy of BMW OF NORTH AMERICA, INC.

Feed in crash reinforcement (1).

Tighten down screws (2).

Tighten to specified torque.

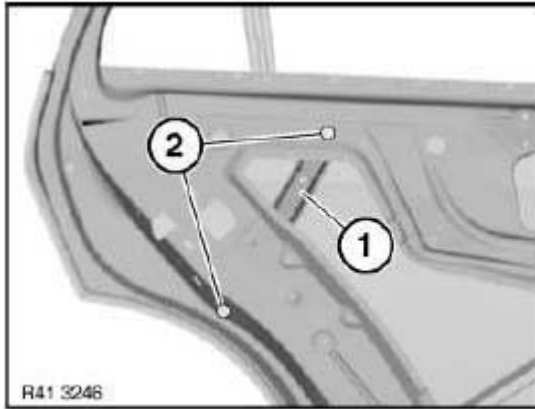


Fig. 222: Identifying Crash Reinforcement And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

61 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).

Remove hood lid.

Installation:

Install engine hood at screw locations to on hinge. This dispenses with the need for adjustment after installation.

If this is not possible, adjust engine hood . See **41 61 014 ADJUSTING ENGINE BONNET/HOOD**.

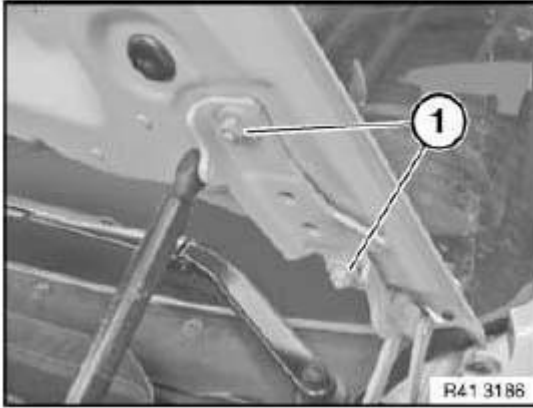


Fig. 223: Identifying Nuts

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 . See 41 00 ... GAP DIMENSIONS, BODY.
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.

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

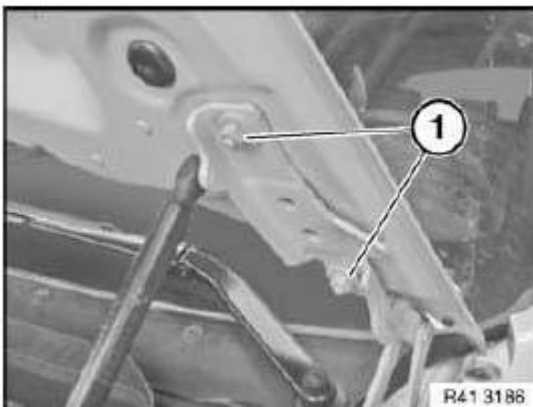


Fig. 224: Identifying Nuts

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. See 51 23 ... ADJUSTING/REPLACING BUMP STOPS .



Fig. 225: Identifying Retaining Hooks
Courtesy of BMW OF NORTH AMERICA, INC.

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

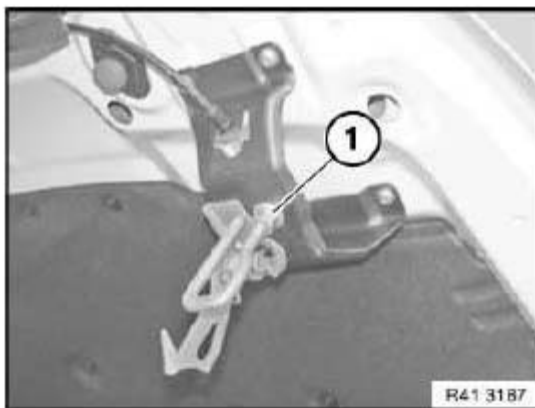


Fig. 226: Identifying Nuts On Retaining Hooks
Courtesy of BMW OF NORTH AMERICA, INC.

If adjustment is necessary, remove front grille . See 51 13 001 REMOVING AND INSTALLING/REPLACING FRONT RADIATOR GRILLE, MIDDLE LEFT OR RIGHT .

Do not slacken nut (2).

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

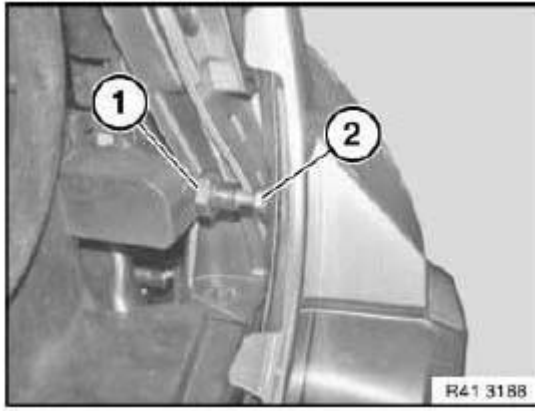


Fig. 227: Identifying Nut And Spacers
Courtesy of BMW OF NORTH AMERICA, INC.

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.

62 REAR LID

41 62 005 REMOVING AND INSTALLING REAR LID UPPER SECTION

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL.**

Necessary preliminary tasks:

- Remove spoiler . See **51 71 412 REMOVING AND INSTALLING/REPLACING REAR SPOILER .**
- Remove trims on rear lid upper section . See **51 49 017 REMOVING AND INSTALLING/REPLACING TRIM PANEL FOR REAR WINDOW FRAME ON (INSIDE) LEFT OR RIGHT .**
- Disconnect all cable plug connections and pull wiring harness out of rear lid.
- Remove both gas-filled struts . See **51 24 300 REMOVING AND INSTALLING OR REPLACING LEFT OR RIGHT GAS STRUT FOR REAR LID .**

NOTE: This work step must be carried out with a second person assisting.

Release screws (1) on both sides of vehicle.

Remove rear lid upper section.

Installation:

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

If necessary, adjust rear lid upper section . See **41 62 030 ADJUSTING REAR LID UPPER SECTION**.

If reversing camera optional extra installed:

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

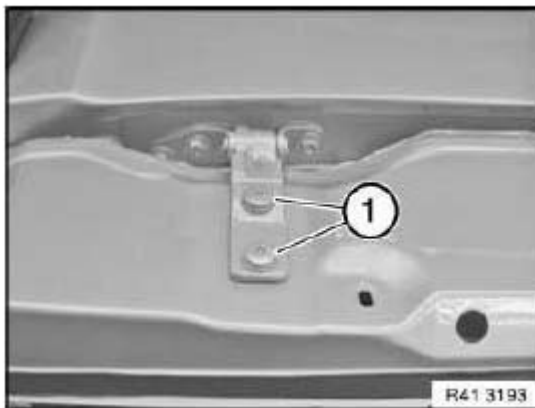


Fig. 228: Identifying Screw

Courtesy of BMW OF NORTH AMERICA, INC.

41 62 007 REMOVING AND INSTALLING REAR LID LOWER SECTION

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

Necessary preliminary tasks:

- Remove trim for rear lid lower section . See **51 49 090 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID LOWER SECTION** .
- Disconnect all cable plug connections and pull wiring harness out of rear lid.

Open rear lid (1) until screw (2) is accessible (risk of injury by spring tension).

With rear lid in this position, release screw (2) and insert in bore of support (3).

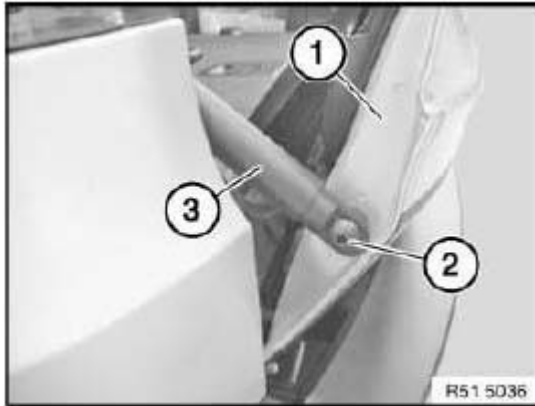


Fig. 229: Identifying Rear Lid And Screw
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on both sides of vehicle.

Installation:

Screw down rear lid lower section with fitting screws. This dispenses with the need for adjustment after installation.



Fig. 230: Identifying Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

41 62 030 ADJUSTING REAR LID UPPER SECTION

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

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

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Observe gap dimensions . See **41 00 ... GAP DIMENSIONS, BODY**.

Adjust rear lid lower section to fit before rear lid upper section. See .

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

Necessary preliminary tasks:

- Remove rear spoiler . See **51 71 412 REMOVING AND INSTALLING/REPLACING REAR SPOILER** .

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

Adjust rear lid.

When rear lid upper section is closed, lock striker must not make contact with or brush against rear lid lock.

Height adjustment of rear lid to roof:

Slacken screws (2) and adjust rear lid.

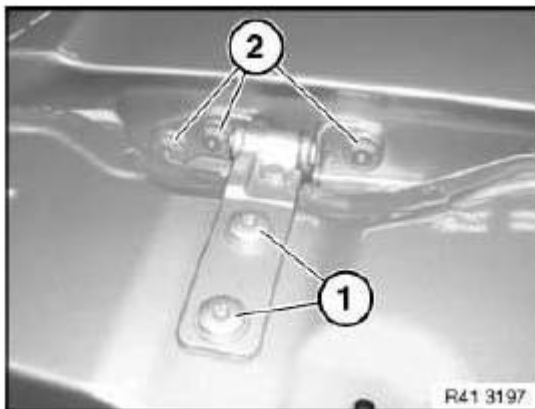


Fig. 231: Identifying Screws

Courtesy of BMW OF NORTH AMERICA, INC.

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

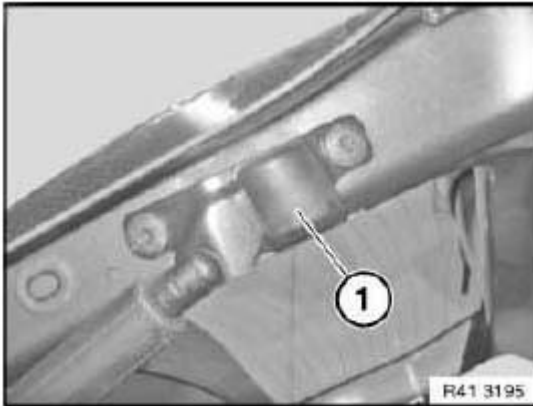


Fig. 232: Identifying Rear Lid Wedge

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.

Loosen screw (2).

Open luggage compartment lid and slacken nuts (3).

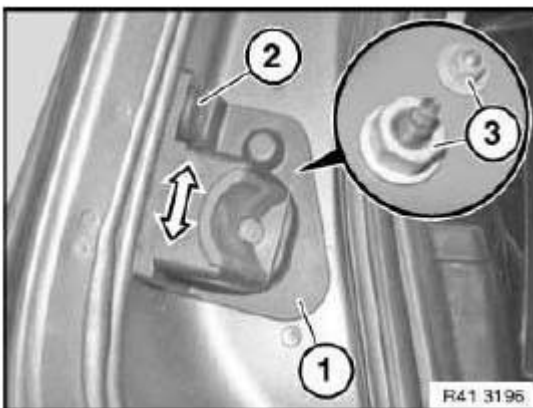


Fig. 233: Identifying Rear Lid Stop And Screw

Courtesy of BMW OF NORTH AMERICA, INC.

To adjust height of rear lid upper section, turn screw (2) in stop.

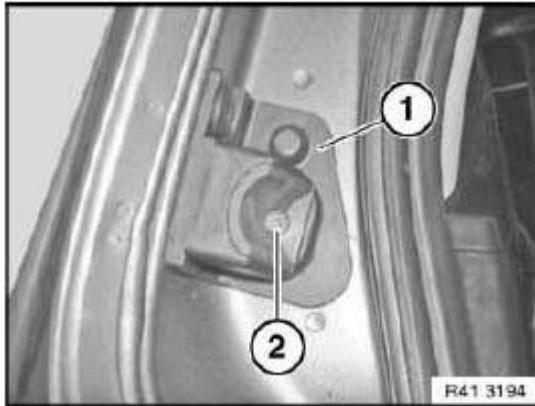


Fig. 234: Identifying Screw

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 REVERSING CAMERA** .

41 62 033 ADJUSTING REAR LID LOWER SECTION

CAUTION: Do not damage adjoining body parts.

Minor corrections (realignment work) are permitted if the existing adjustment options are not sufficient.

Read contents of Body, General . See **41 0 CONTENTS OF BODY, GENERAL**.

Observe gap dimensions . See **41 00 ... GAP DIMENSIONS, BODY**.

Adjust rear lid lower section to fit before rear lid upper section.

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

Raise trim (1).

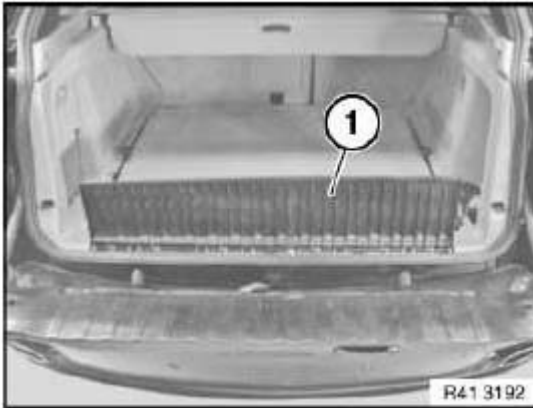


Fig. 235: Identifying Trim

Courtesy of BMW OF NORTH AMERICA, INC.

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

Adjust rear lid.

When rear lid lower section is closed, lock strikers must not make contact with or brush against rear lid locks.

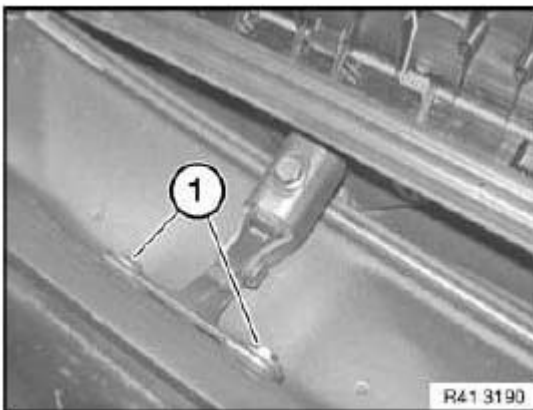


Fig. 236: Identifying Screws On Rear Lid Hinge

Courtesy of BMW OF NORTH AMERICA, INC.

Height adjustment with respect to rear lid upper section:

Slacken screws (1) and (2) on rear lid hinge until such stage that rear lid hinge can still be moved.

Adjust rear lid.

Adjust rear lid lock . See **51 24 080 REMOVING AND INSTALLING/REPLACING DRIVE FOR REAR LID LOCK** .

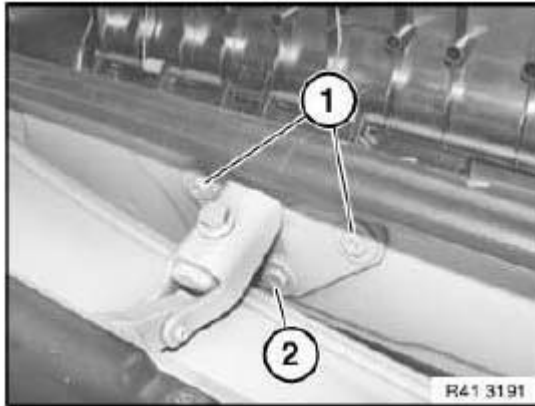


Fig. 237: Identifying Screws On Rear Lid Hinge
Courtesy of BMW OF NORTH AMERICA, INC.

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 REVERSING CAMERA** .

63 OTHER FLAPS

41 63 000 REMOVING AND INSTALLING FLAP FOR FUEL FILLER NECK

NOTE: **The illustration is a schematic representation and is to be applied to the relevant vehicle type.**

Open fuel filler flap.

Lever out lock (2) and detach fuel filler flap (1) in direction of arrow.

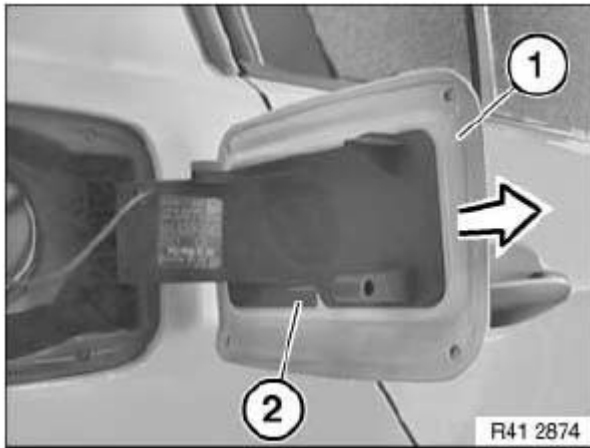


Fig. 238: Identifying Fuel Filler Flap

Courtesy of BMW OF NORTH AMERICA, INC.

41 63 003 REPLACING COVER BOWL

Necessary preliminary tasks:

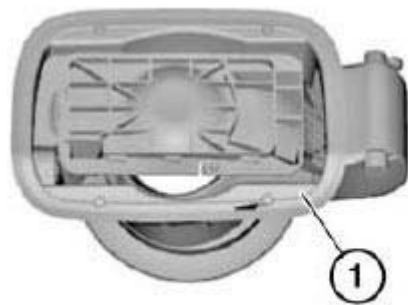
- Remove right rear wheel . See **36 10 300 REMOVING OR INSTALLING FRONT OR REAR WHEEL** .
- Remove rear right wheel arch trim . See **51 71 041 REMOVING AND INSTALLING/REPLACING REAR LEFT OR RIGHT WHEEL ARCH COVER** .
- Remove flap for fuel filler neck . See **41 63 000 REMOVING AND INSTALLING FLAP FOR FUEL FILLER NECK** .
- Remove servodrive for tank filler flap . See **67 11 555 REMOVING AND INSTALLING/REPLACING SERVODRIVE FOR TANK FILLER FLAP** .

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

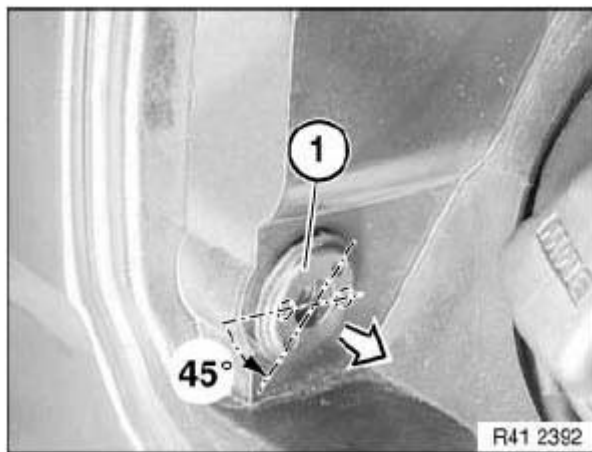


R41 3056

Fig. 239: Identifying Filler Bowl

Courtesy of BMW OF NORTH AMERICA, INC.

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



R41 2392

Fig. 240: Identifying Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

Press retaining strap (1) inwards and lift out (see arrow).

Pierce cover bowl at markings (3) with a small screwdriver.

Remove cover (2).

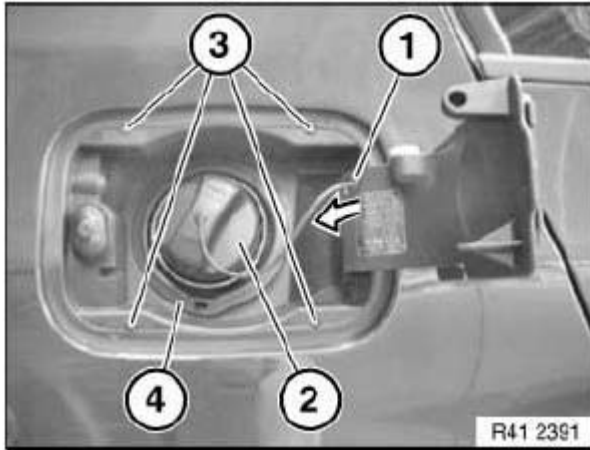


Fig. 241: Identifying Retaining Strap And Cover
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Illustrations shows fuel filler pipe removed.

Release rubber seal from sheet metal flange.

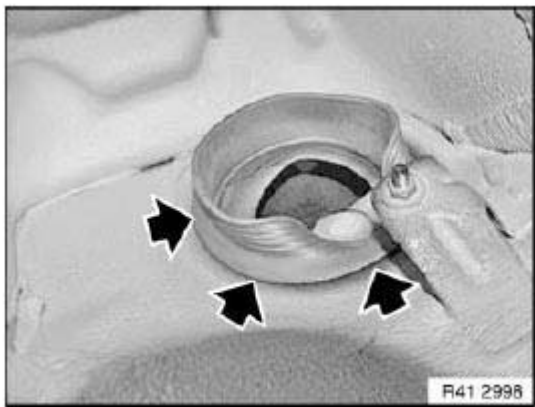


Fig. 242: Identifying Rubber Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Insert screwdriver to a depth of max. 5 mm and unlock cover bowl catch.

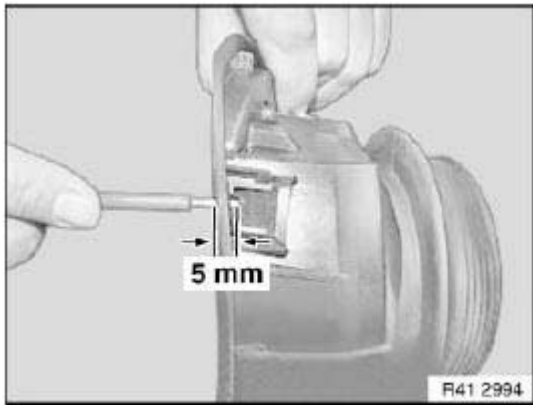


Fig. 243: Unlocking Cover Bowl Catch
Courtesy of BMW OF NORTH AMERICA, INC.

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.

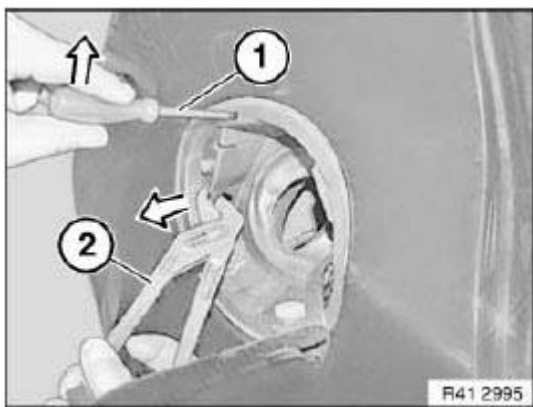


Fig. 244: Unlocking Catches
Courtesy of BMW OF NORTH AMERICA, INC.

Open hinge arm (1).

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.

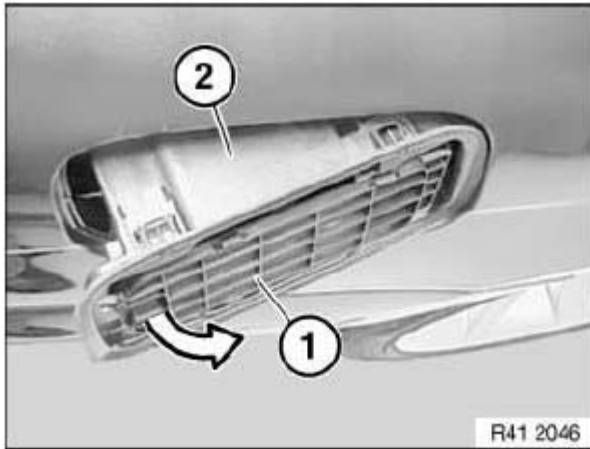


Fig. 245: Identifying Hinge Arm And Cover Bowl
Courtesy of BMW OF NORTH AMERICA, INC.

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.

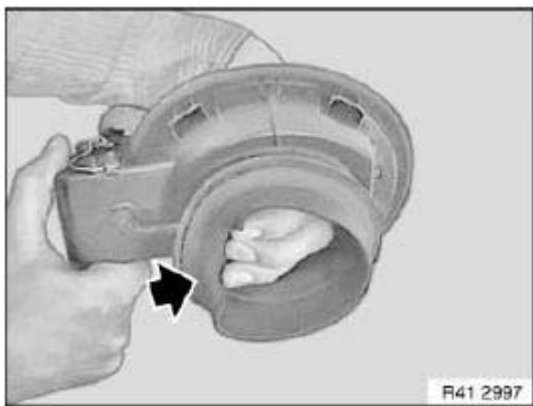


Fig. 246: Inserting Cover Bowl And Engage Sealing Sleeve Over Fuel Filler Pipe
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

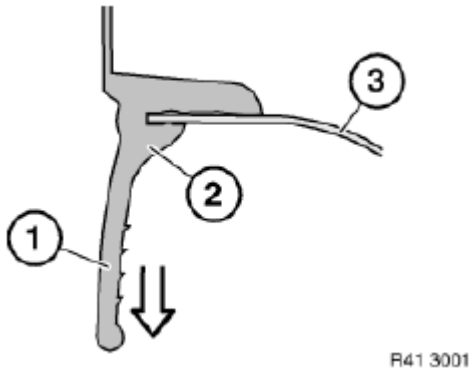


Fig. 247: Pulling Sealing Lip
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Illustrations shows fuel filler pipe removed.

Check that sealing lip is correctly seated.

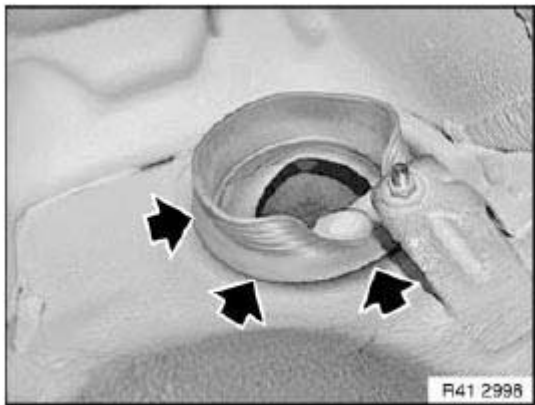


Fig. 248: Identifying Rubber Seal
Courtesy of BMW OF NORTH AMERICA, INC.

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 sealing lip and side panel in area (1).

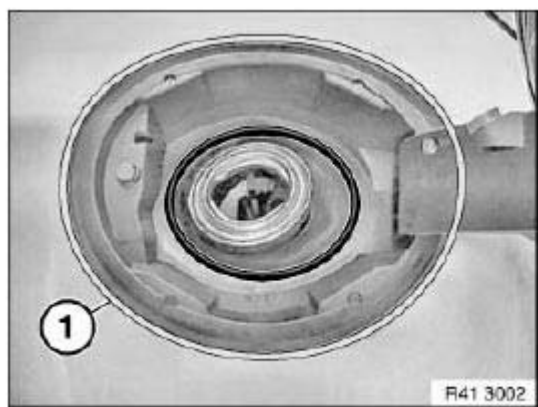


Fig. 249: Identifying Sealing Lip

Courtesy of BMW OF NORTH AMERICA, INC.