

ACCESSORIES & EQUIPMENT

Body - Operating Fluids

1.0 SEALING COMPOUNDS

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

Sikaflex 221 Sealer

BMW Part No. 81 22 9 407 533

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

2.0 LUBRICANTS

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

3.0 DOOR HINGES AND PIVOTS

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

BMW PART NUMBER SPECIFICATION

3M	Part No. 8876
Loctite	Part No. 24378

4.0 DOOR BRAKES

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

BMW PART NUMBER SPECIFICATION

3M	Part No. 8878
Loctite	Part No. 20029

5.0 DOOR LOCKS

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

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

BMW PART NUMBER SPECIFICATION

3M
Wurth
Loctite

Part No. 8878
Part No. 893051
Part No. 20029

6.0 (HKL) AUTOMATIC TRUNK LID LIFT HYDRAULIC FLUID

E65/E66 Automatic Trunk Lid Lift Hydraulic Fluid

BMW Part No. 51 24 7 066 901

ACCESSORIES AND BODY, CAB

Body - Repair - Z4

4100 BODY

4100 CONTENTS OF BODY, GENERAL

General Information

- **QUALITY STANDARD**
- **WORKSHOP EQUIPMENT**

Safety regulations

- **SAFETY AT WORK**
- Information on **VEHICLE PROTECTION**
- **INFORMATION ON HAZARDS**

Materials

- **MATERIALS SCIENCE**
- **EXPENDABLE MATERIALS**
- **USE OF MATERIALS** in outer skin

Handling components after an accident

- **ELECTRICAL SYSTEM**, electronics and optical fibre

Passive safety See **4100... HANDLING AIRBAGS AND RESTRAINT SYSTEMS** or **7212... PROCEDURE AFTER AIRBAG TRIGGERING AS RESULT OF AN ACCIDENT**

- **CHASSIS, SUSPENSION AND STEERING**
- **FOLDING ROOF**
- Vehicles with Hybrid drive

Body dimensions

- **FRAME DIMENSIONS**
- **GAP DIMENSIONS**

Cavity sealing

- Installation of shaped parts See **4100... INSTALLING A CAVITY ACOUSTIC BAFFLE (EXPANDED)** or **4100... INSTALLING A CAVITY ACOUSTIC BAFFLE (NOT EXPANDED)**

- Position of shaped parts See or **4100... POSITION OF SHAPED PARTS FOR CAVITY ACOUSTIC BAFFLE**

Vehicle identification number

- **VEHICLE IDENTIFICATION NUMBER, GENERAL**
- Stamping vehicle identification number See or **4100... STAMPING VEHICLE IDENTIFICATION NUMBER (NEEDLE STAMPING UNIT)**

Repair techniques

- **REPAIR STAGE 1** All repairs that only provide for replacement of screwed/bolted components and planishing operations.
- **REPAIR STAGE 2** Repairs that are carried out by bonding and riveting without the use of a straightening bench.
- **REPAIR STAGE 3** Repairs that are carried out by bonding and riveting with the use of a straightening bench or welding.

Corrosion protection

- **GENERAL INFORMATION**

Paintwork

- **GENERAL INFORMATION**
- **INFORMATION/WARNING LABELS**

41 00 ... BLIND RIVETS

1.0 Recommended tools and equipment

- Blind riveting tongs
- Rivet head extension

Setting blind rivets

- Refer to repair instruction for rivet size.
- Position bore holes for blind rivets as specified in repair instruction. If necessary, carry over the positions of the rivets to the new component.
- Drill holes (0.2 mm bigger than the outside diameter of the rivet. Example 4.2 mm dia. for 4 mm rivet and 6.7 mm dia. for 6.5 mm rivet).
- Deburr holes.
- **APPLY ADHESIVE**.
- Insert blind rivet. If necessary, remove adhesive that has emerged.

Position blind rivet tool vertically. Use rivet head extension if accessibility is poor.

- Rivet blind rivet with blind rivet tool. In the meantime clean rivet head if fouled with adhesive. Risk of damage to rivet head by penetrating adhesive.
- Seal blind rivets with **SEALANT D1** (risk of corrosion).
- Seal cavities after painting vehicle with **CAVITY SEALANT** (risk of corrosion).

41 00 ... BONDING ON PAINTED SURFACES

IMPORTANT: Conform with safety regulations See 4100... SAFETY AT WORK or 4100... INFORMATION ON HAZARDS!

Overview of topics:

1. Equipment
2. Expiry date of consumables
3. Preparation of surface
4. Bonding coat
5. Hardening times
6. Subsequent treatment
7. Disposing of adhesive

1.0 Equipment

- **CLEANER R1**
- Adhesive as specified in repair instructions
- **CARTRIDGE GUN**

2.0 Expiry date of consumables

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

3.0 Preparation of surface

3.1 Preparation of surface on vehicle

- Establish a level bonding surface (e.g. grinding). Do not remove primer entirely.

Do not grind/sand bonding surfaces.

- If necessary, pre-clean bonding surfaces with cavity sealing wax remover.

Clean bonding surfaces with cleaning agent R1.

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

Bonding surfaces must be completely dry.

3.2 Preparation of surface on new part

- Do not remove primer.

Do not grind/sand bonding surfaces.

- Clean bonding surfaces with cleaning agent R1.
- Allow cleaned surfaces to dry for approx. 5 minutes.

Bonding surfaces must be completely dry.

4.0 Adhesive application

- Processing temperature of glue cartridge 18 °C - 30 °C.
- Object temperature, vehicle and new parts, min. 15°C.
- Do not use any compressed-air-operated cartridge guns.
- Insert glue 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 bonding surface.
- 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 part. Use new glue cartridge. Contact national hotline.
- Potlife of mixed adhesive approx. 2 hours. A change of mixer is only necessary if over a period of 30 minutes no material has flowed through the mixer.
- Join components and secure in position.
- Remove excess adhesive.

5.0 Hardening times

- **Do not move the vehicle before the adhesive has hardened.**

Check the degree of hardness of the adhesive with a fingernail.

If the adhesive cannot be pressed in any further with a fingernail, the vehicle may be moved (without engine force) for further processing applications (e.g. painting).

- Vehicle **strength for driving applications** is achieved after:

48 hours at min. 15 °C object temperature (corresponding to approx. 18 °C room temperature).

or 1 hour in the spray booth (spray booth temperature 80 °C/object temperature 60 °C).

- When using radiant heaters, make sure that the object temperature does not exceed 85 °C. Excessively high temperatures will destroy the adhesive.
- Remove contamination caused by adhesive residue immediately.

Hardened adhesive can only be removed mechanically.

6.0 Subsequent treatment

- Reseal areas which are cavity-sealed as standard.

7.0 Disposing of adhesive

- Hardened adhesive is disposed of as normal waste.
- Empty glue cartridges are disposed of as normal waste.
- Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

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

41 00 ... BONDING STEEL ON STEEL

IMPORTANT: Conform with safety regulations See 4100... SAFETY AT WORK or 4100... INFORMATION ON HAZARDS!

Overview of topics:

1. Equipment
2. Preparing the surface
3. Bonding coat
4. Hardening times
5. Subsequent treatment

1.0 Equipment

- Sandpaper
- **CLEANING AGENT R1**
- **ADHESIVE K1**
- **CARTRIDGE GUN**

2.0 Surface preparation

- For better adhesion, remove oxide film and paint from the adhesive areas with a stainless steel wire brush or special sandpaper.
- Clean bonding surfaces with cleaning agent R1.
- Allow cleaned surfaces to dry for approx. 5 minutes.

Bonding surfaces must be completely dry.

3.0 Adhesive application

- Processing temperature of glue cartridge 18°C - 30°C.
- Object temperature, vehicle and new parts, min. 15°C.
- After applying the adhesive, check whether an adhesive component has emerged at the back of the glue cartridge. If yes, break off the bonding procedure. Clean new part. Use new glue cartridge. Contact national hotline.
- Join components and secure in position.
- Remove excess adhesive. Do not use solvent cleaning agents.

4.0 Hardening times

- Refer to **NOTES REGARDING ADHESIVE K1**

5.0 Subsequent treatment of bonding surfaces

- Protect the repair area with cavity sealant.

41 00 505 CHECKING FRONT BODY STRUCTURE

Necessary preliminary tasks:

- Remove **FRONT UNDERBODY PROTECTION**

Structural damage can be identified by measuring with a beam trammel.

Here, symmetrically arranged points on the vehicle are measured in diagonal sequence.

If the two measured values are identical, there is no damage to the vehicle.

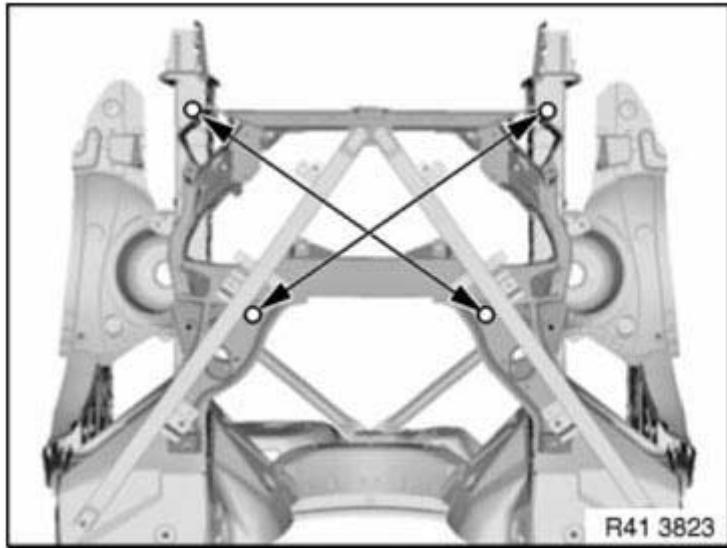


Fig. 1: Measuring Symmetrically Arranged Points In Diagonal Sequence On Vehicle
Courtesy of BMW OF NORTH AMERICA, INC.

In front area use conical adapter (2) at bore hole (1).

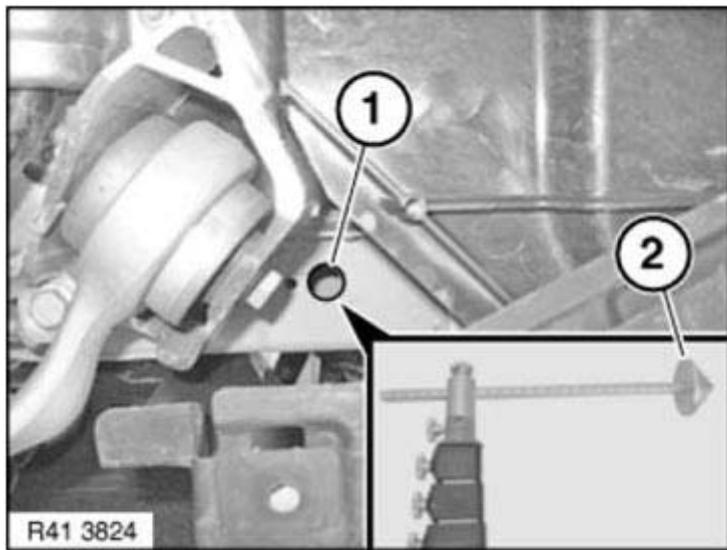


Fig. 2: Identifying Conical Adapter And Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Use 8 mm dia. bore hole (1) on front axle support.

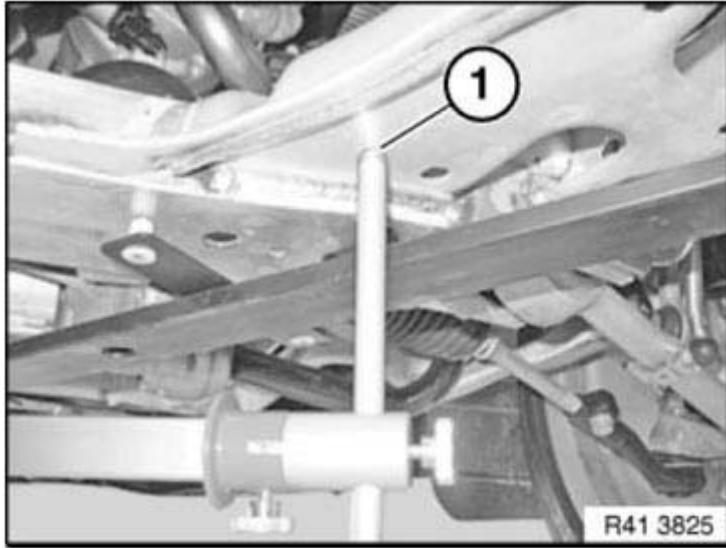


Fig. 3: Identifying Bore Hole On Front Axle Support

Courtesy of BMW OF NORTH AMERICA, INC.

41 00 510 CHECKING REAR BODY STRUCTURE

Necessary preliminary tasks:

- Remove **REINFORCEMENT PLATE FROM REAR AXLE**

Structural damage can be identified by measuring with a beam trammel.

Here, symmetrically arranged points on the vehicle are measured in diagonal sequence.

If the two measured values are identical, there is no damage to the vehicle.

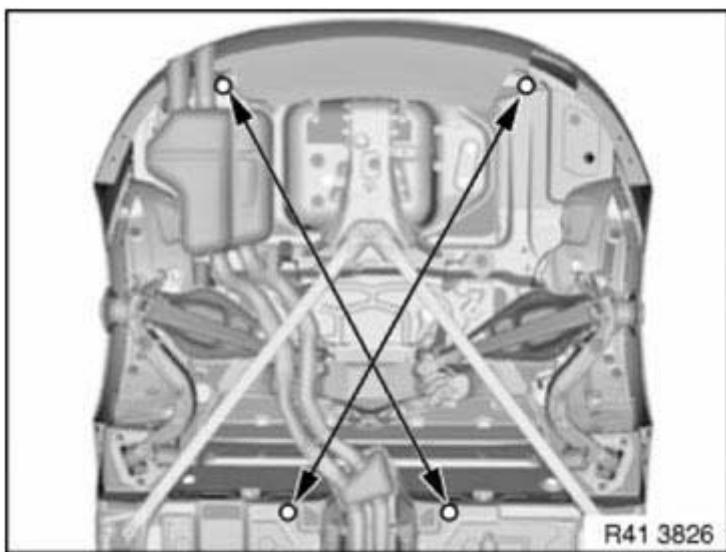


Fig. 4: Measuring Symmetrically Arranged Points In Diagonal Sequence On Vehicle
Courtesy of BMW OF NORTH AMERICA, INC.

In rear area use adapter (2) on threaded bolt of impact plate (1).

NOTE: If necessary, make recess in adapter yourselves.

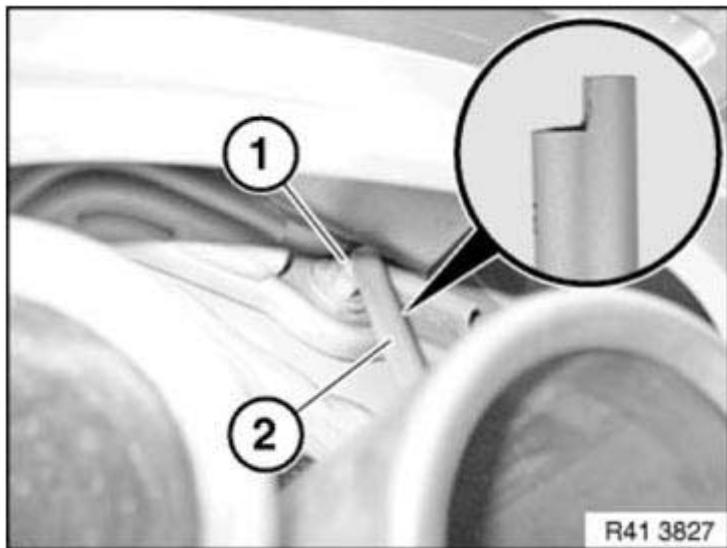


Fig. 5: Identifying Adapter And Impact Plate
Courtesy of BMW OF NORTH AMERICA, INC.

Use conical adapter (1) at attachment point of reinforcement plate.

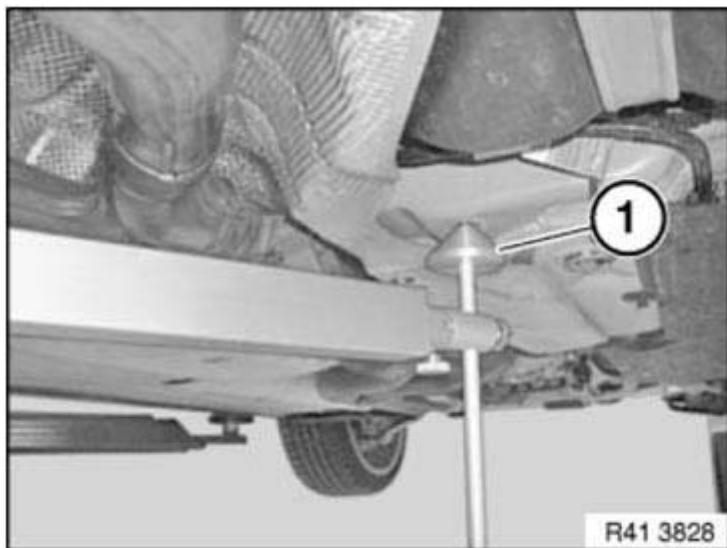


Fig. 6: Identifying Conical Adapter
Courtesy of BMW OF NORTH AMERICA, INC.

41 00 ... CORROSION PROTECTION

NOTE: Following repairs, the corrosion protection work already begins with the correct removal of the PVC undercoating, anti-drumming layer and seam seals. The PRODUCTS RECOMMENDED by BMW are optimized with regard to corrosion protection.

1.0 Removing and applying sealing materials

1.1 Removing sealing materials

IMPORTANT:

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

1.2 Applying sealing materials

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 anti-drumming layers.

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

2.0 Cavity preservation of sheet-metal parts

Carry out cavity preservation after all body repairs.

Concluding cavity preservation 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 Vaupel PRESSURE CUP GUN 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 can be found in the Aftersales Assistance Portal (ASAP) - Service/Technology - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup-wep.com.

IMPORTANT: Incorrectly performed cavity protection can, especially in the case of steel/aluminium joints, give rise to a non-calculable product liability and safety risk.