

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

1. = contour of new component.

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

Remove stencil.

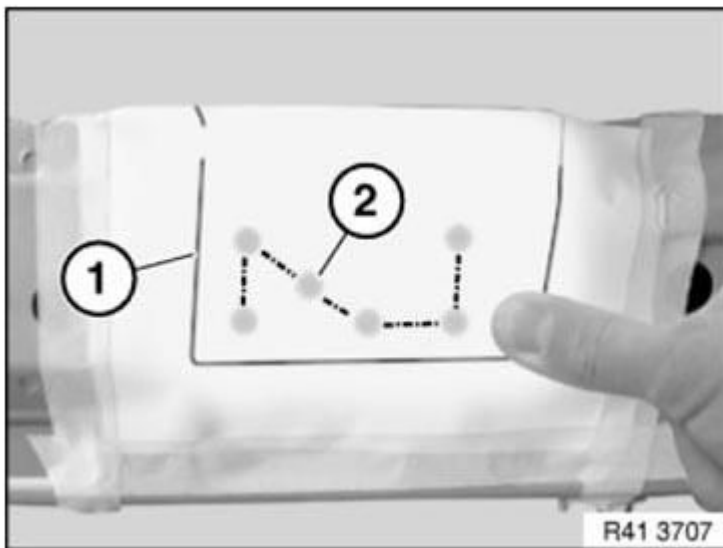


Fig. 2: Identifying Contour Of Component And Positions Of Holes
Courtesy of BMW OF NORTH AMERICA, INC.

Lay stencil (1) on a flat surface.

Mark center points of holes with crosses (2).

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

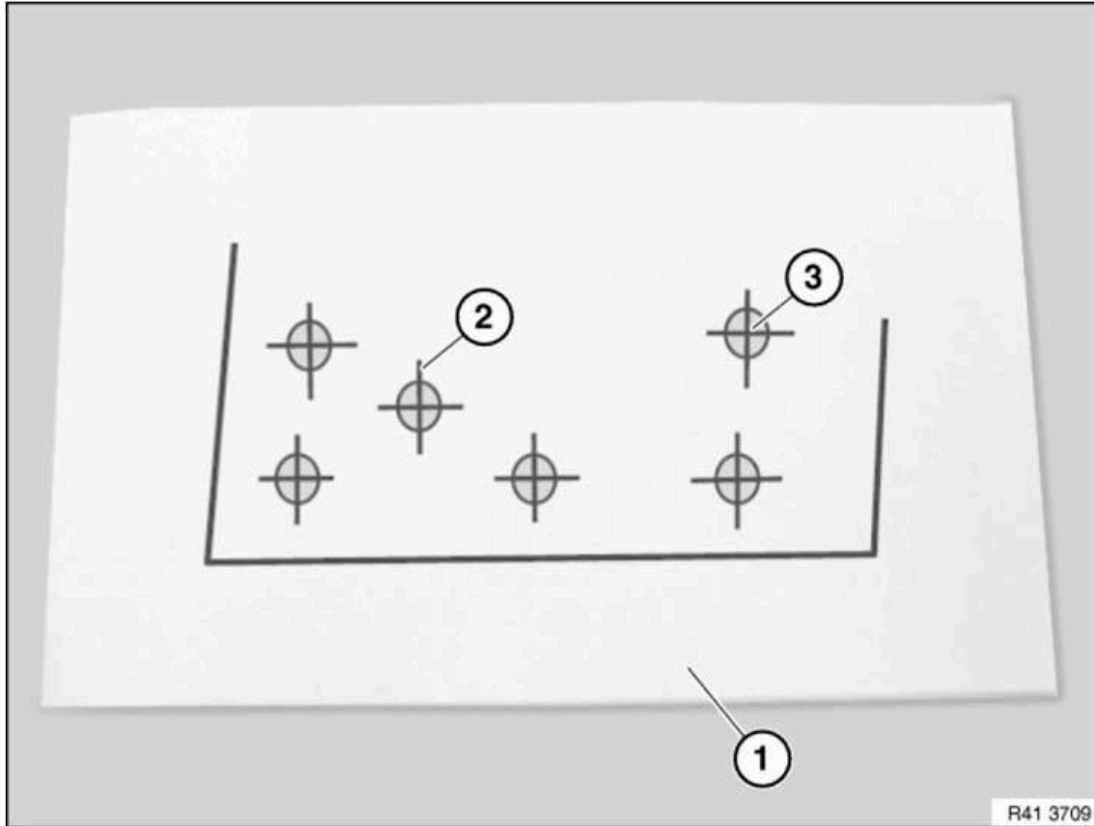


Fig. 3: Identifying Stencil, Holes Crosses And Center Points
Courtesy of BMW OF NORTH AMERICA, INC.

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

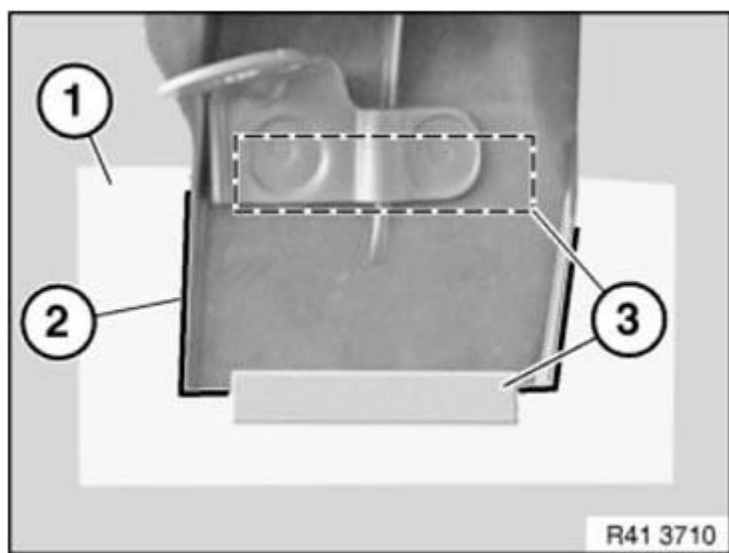


Fig. 4: Identifying Stencil, Contours And Adhesive Tape
Courtesy of BMW OF NORTH AMERICA, INC.

Turn over new component.

IMPORTANT: Crosses must not be visible in this view!

Set punch marks at pierced center points (1).

Grip directly under punch marks for marking with punch.

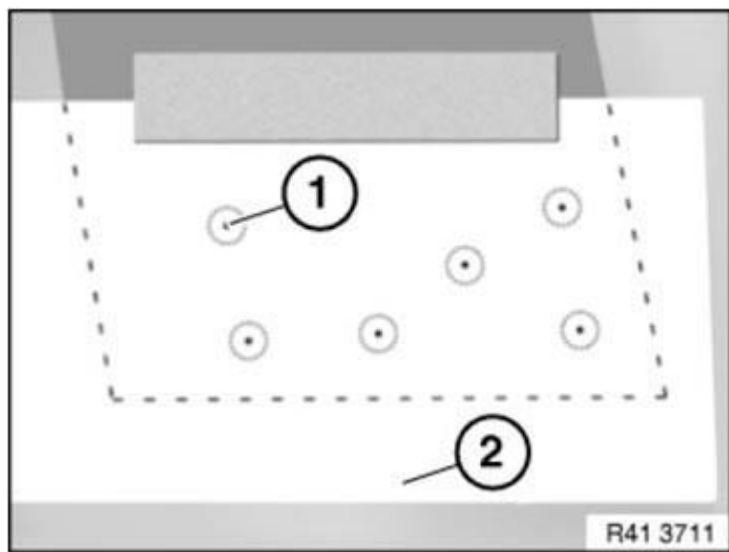


Fig. 5: Identifying Center Points And Stencil
Courtesy of BMW OF NORTH AMERICA, INC.

Remove stencil (2).

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

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

Drill out holes (2) to 6.7 mm dia.

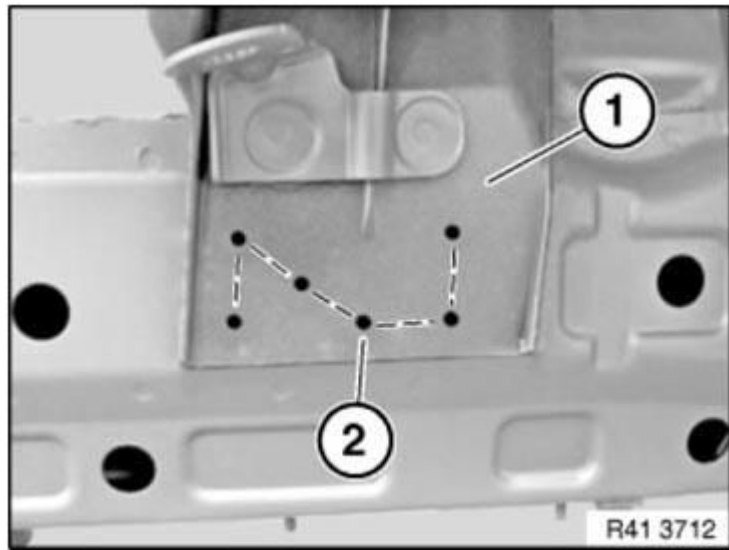


Fig. 6: Identifying Punch Marks And Holes
Courtesy of BMW OF NORTH AMERICA, INC.

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 BMW 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.

The best repair is worth nothing if the subsequent cavity protection measures are not conscientiously carried out.

2.1 Cavity preservation 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 preservation of aluminium parts

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

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

After all welding work (E52 only) on aluminium components, the cavities affected must be sealed with cavity protection agent after being painted.

Cavities, seams and folds formed from new sheet-metal parts must be sealed with cavity protection agent after being painted.

41 00... EMC SCREWS

(EMC = Electro-Magnetic Compatibility)

Purpose

- **EMC SCREWS** are used in the Bonding/Riveting repair method to re-establish bonding transition.
- They assume the function of welded joints, which ensure transition to ground between the individual components.
- The punch or blind rivets used in the repair do not guarantee permanent bonding transition between the individual components!
- The EMC screws ensure the operational reliability and safety of the electrical/electronic components following repairs!

Procedure, aluminium front end

- Each welded joint which is opened must be replaced by at least 2 EMC screws.
- Position the 2 screws on the flange on which the weld seam has been separated. In the event of partial replacement, position the screws in the area of the component overlap.
- In the case of repairs using partial replacement, the number of EMC screws described in the repair instructions must be fitted.
- Drill holes to a diameter of 4.2 mm and insert screws.
- Seal EMC screws with PU sealing material (risk of corrosion).

Procedure, steel body

- Install the number of EMC screws described in the repair instructions.
- Drill holes to a diameter of 4.2 mm and insert screws.
- Seal EMC screws with PU sealing material (risk of corrosion).

41..... FILLING BULKHEAD CROSS MEMBER WITH FOAM

For acoustic insulation reasons insulating foam is applied to the finish-painted bodysell in the bulkhead cross member area.

A 2-component PU cavity foam is used.

Sourcing reference for cavity foam, refer to BMW Parts Department.

Observe **SAFETY AND APPLICATION INSTRUCTIONS**.

Remove seal plugs of cavities 1 to 3 and fill cavities with foam.

In so doing, insert spray pipe into bores and slowly pull out during the spraying operation.

To perform the operation, it may be necessary to lengthen the spray pipe.

IMPORTANT: Empty the can within 8 minutes.

Follow manufacturer's safety instructions.

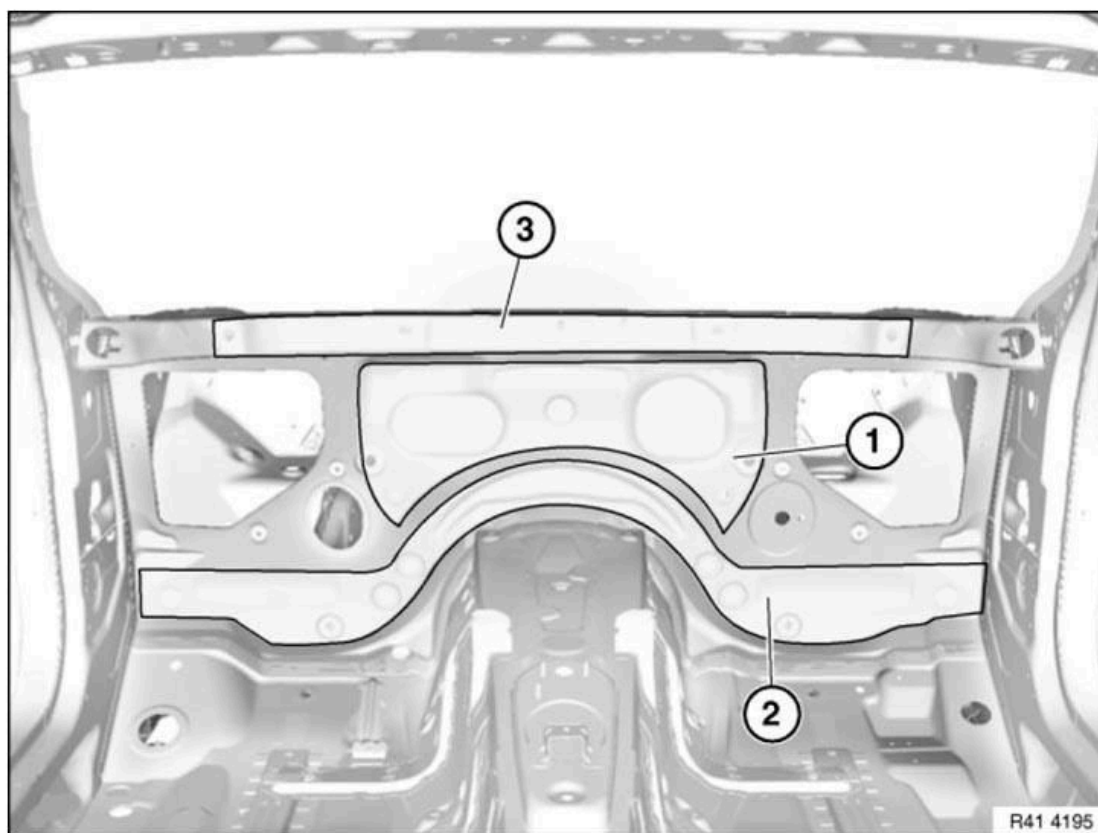


Fig. 7: Identifying Seal Plugs Of Cavities
Courtesy of BMW OF NORTH AMERICA, INC.

41 00... FRAME ALIGNMENT CONTROL DIMENSIONS, BODY

Dimensions in mm.

Measurement tolerances:

- $\leq 1000 \text{ mm} \pm 1.5 \text{ mm}$

○ $\leq 1000 \text{ mm} \pm 2.5 \text{ mm}$

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

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

Underbody view 1

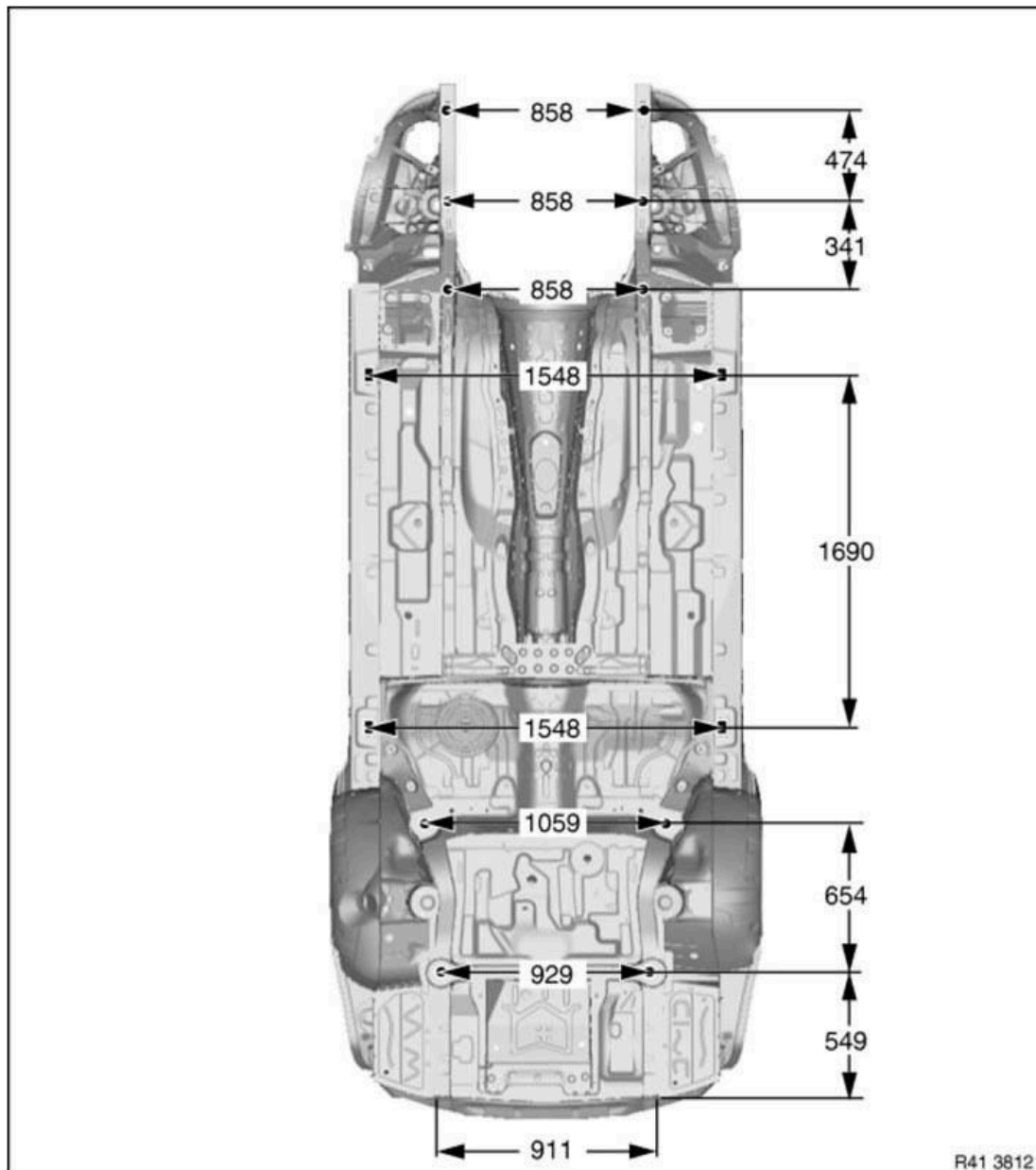


Fig. 8: Identifying Frame Alignment Control Dimensions (Underbody View 1)
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