

[41 31 000](#) Replace roof outer skin (CFRP roof equipment specification)



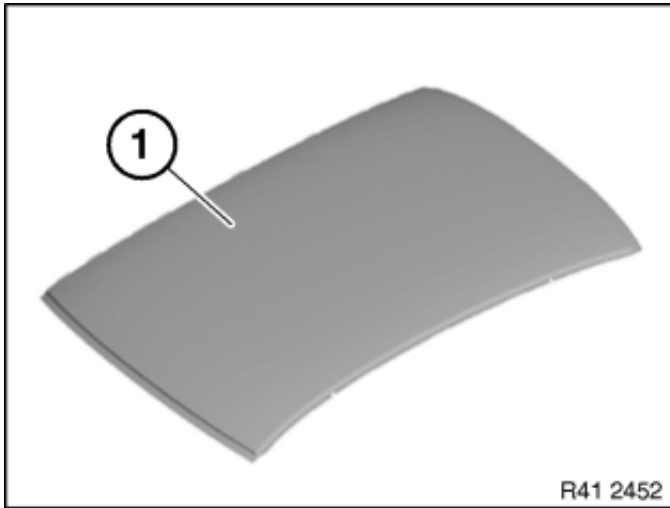
Special tools required:

- [41 3 201](#)

Read contents of [Body, General](#).

Read and comply with [General cementing instructions](#).

For stripping and rigging operations, refer to texts on KSD CD (flat rate unit number [41 31 000](#) E46/M3).



Following new body parts are required (see Electronic Parts Catalogue):

- Roof outer skin (1)

Following [consumables](#) are required:

- K3 glue (1 cartridge, use only the mixing tube supplied with the product)
- Scotchbrite Multiflex [51 91 0 402 967](#)
- Window adhesive (1 cartridge)
- Cleaning agent R1

Tools also required:

- Roof pliers set, order number: [81 43 2 158 707](#)

Sourcing reference:

[BMW Workshop Equipment Catalogue](#)

- [Adhesive gun 81 49 0 443 166](#) for K3 adhesive

Installation note:

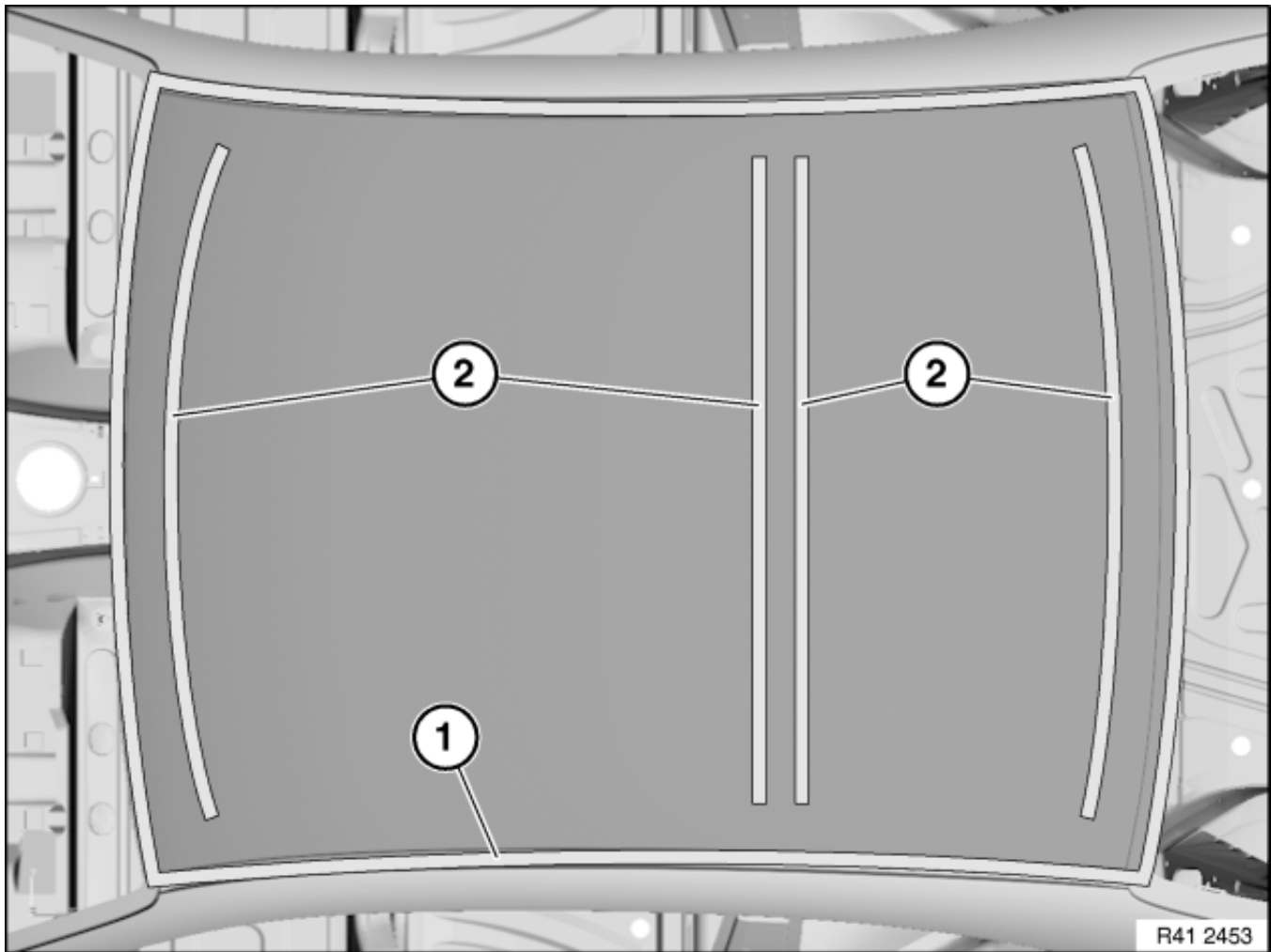
Prior to installation the new part must be stored for at least 12 hours at 15 °C to 25 °C.

Park the vehicle for at least 6 hours in a heated room (>15 °C).

Processing temperature of adhesive minimum 18 °C.



Removing roof outer skin



Adjust hot air dryer to 500 °C.

Warm roof surface in area (1) to approx. 240 °C (object temperature).

The correct temperature is reached when the roof is loosened.

Lift off roof outer skin with plastic or wooden wedge from body in area (1).

Heat adhesive residues with hot air blower and remove completely.

Open bonded connections of underlining in areas (2).

Take off roof outer skin.

Heat adhesive residue on connection flange with hot air blower and remove by scraping off with plastic or wooden wedge.

Attention:

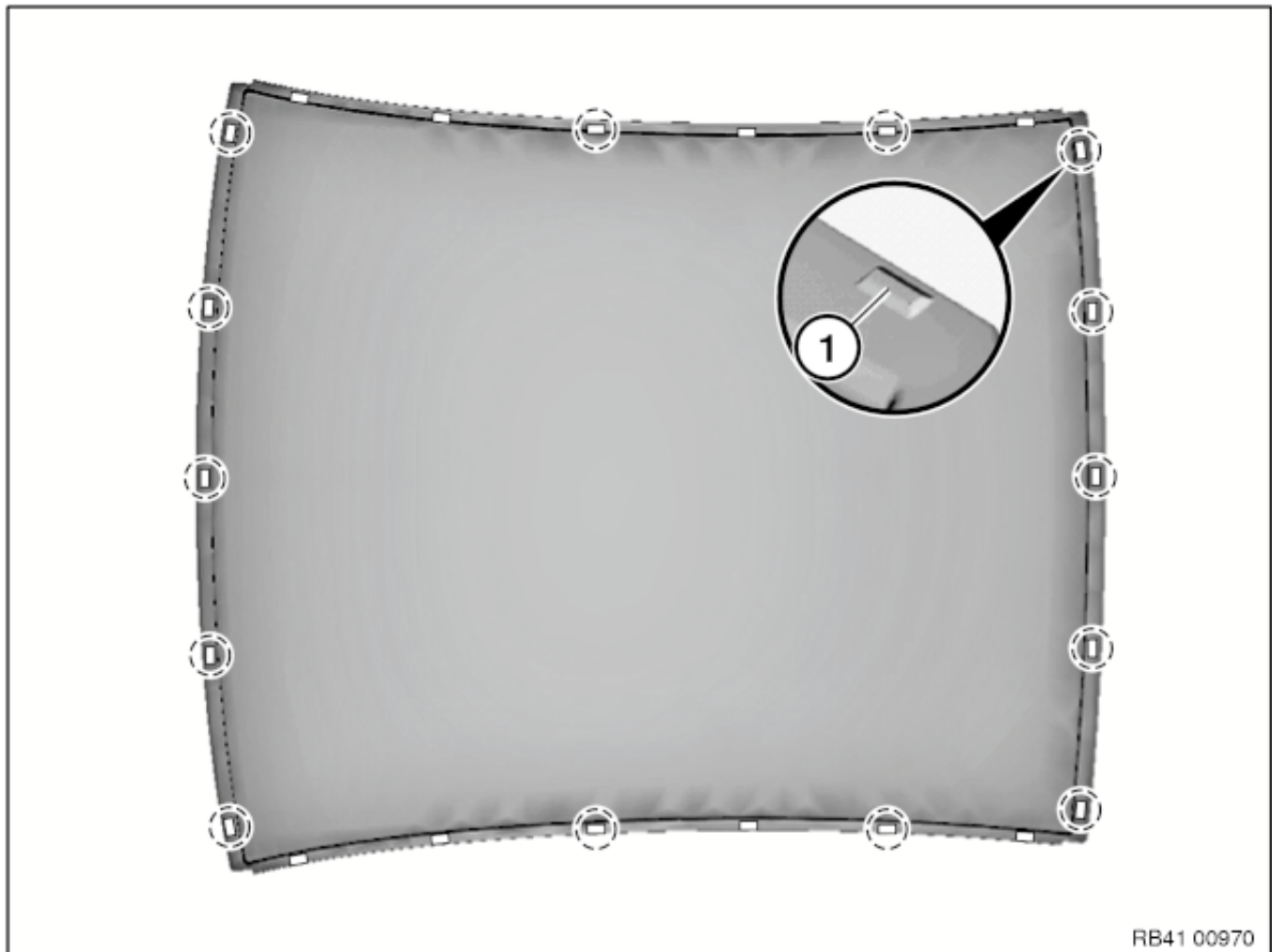
Paintwork damage in area (1) must be ground down to the steel and then prepared as directed in the Painting Manual up to the filler.

Tape off roof frame in area (1) before painting with adhesive tape.

Bonding may only be carried out on the filler!



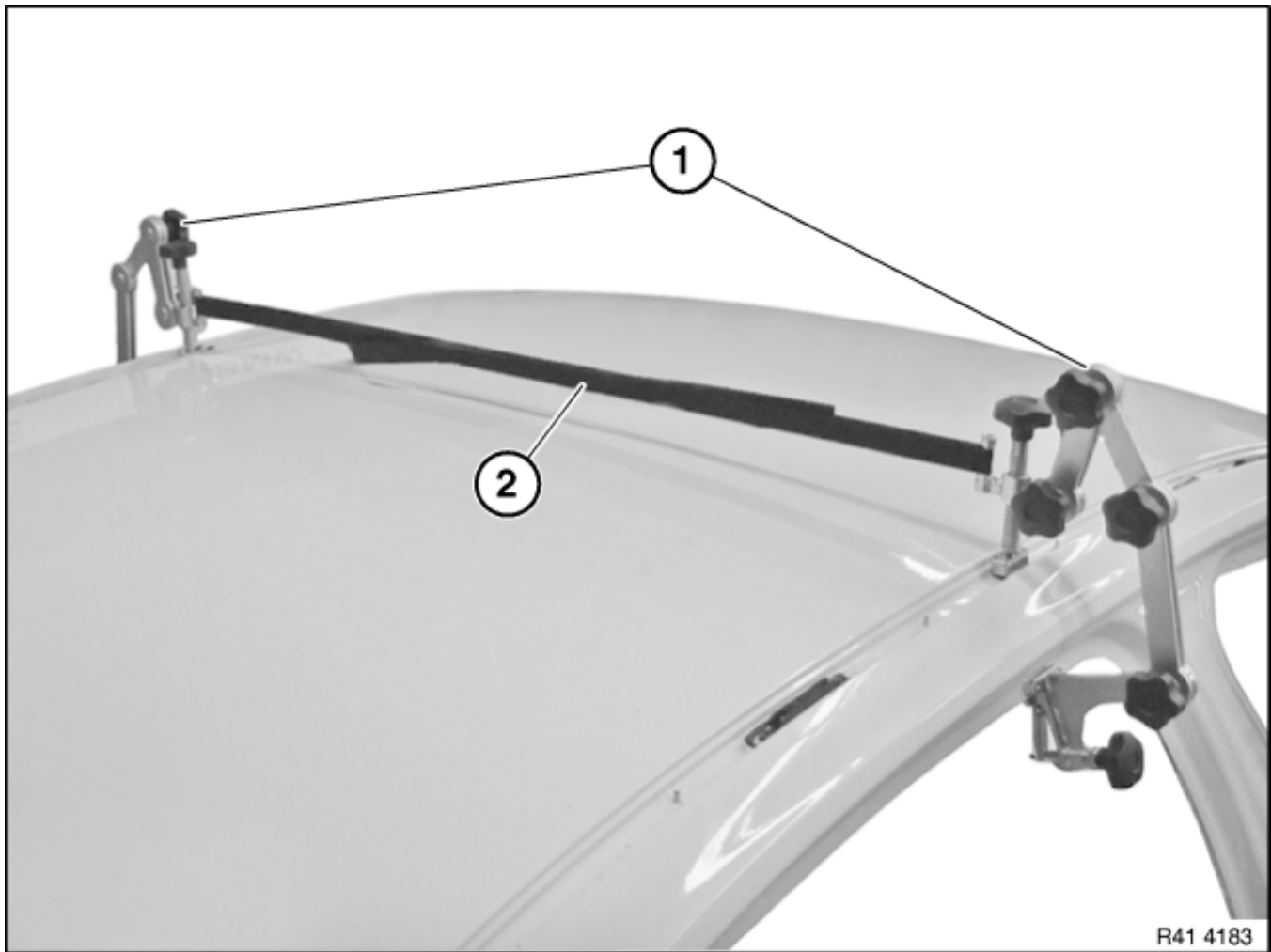
Preparation of new part:



RB41 00970

Carry over positions of marked spacers (1) with adhesive tape to top side.

These markings are used later to position the clamps for securing the roof outer skin.



Attention!

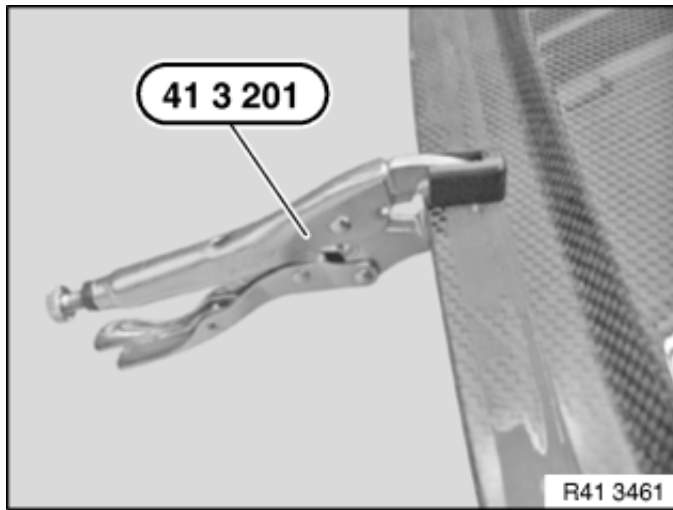
To ensure that the processing time of 10 min from application of the adhesive is kept to, all clamping tools must be adjusted in advance.

Fit roof pliers (1) to the marked points and secure with tensioning straps (2).

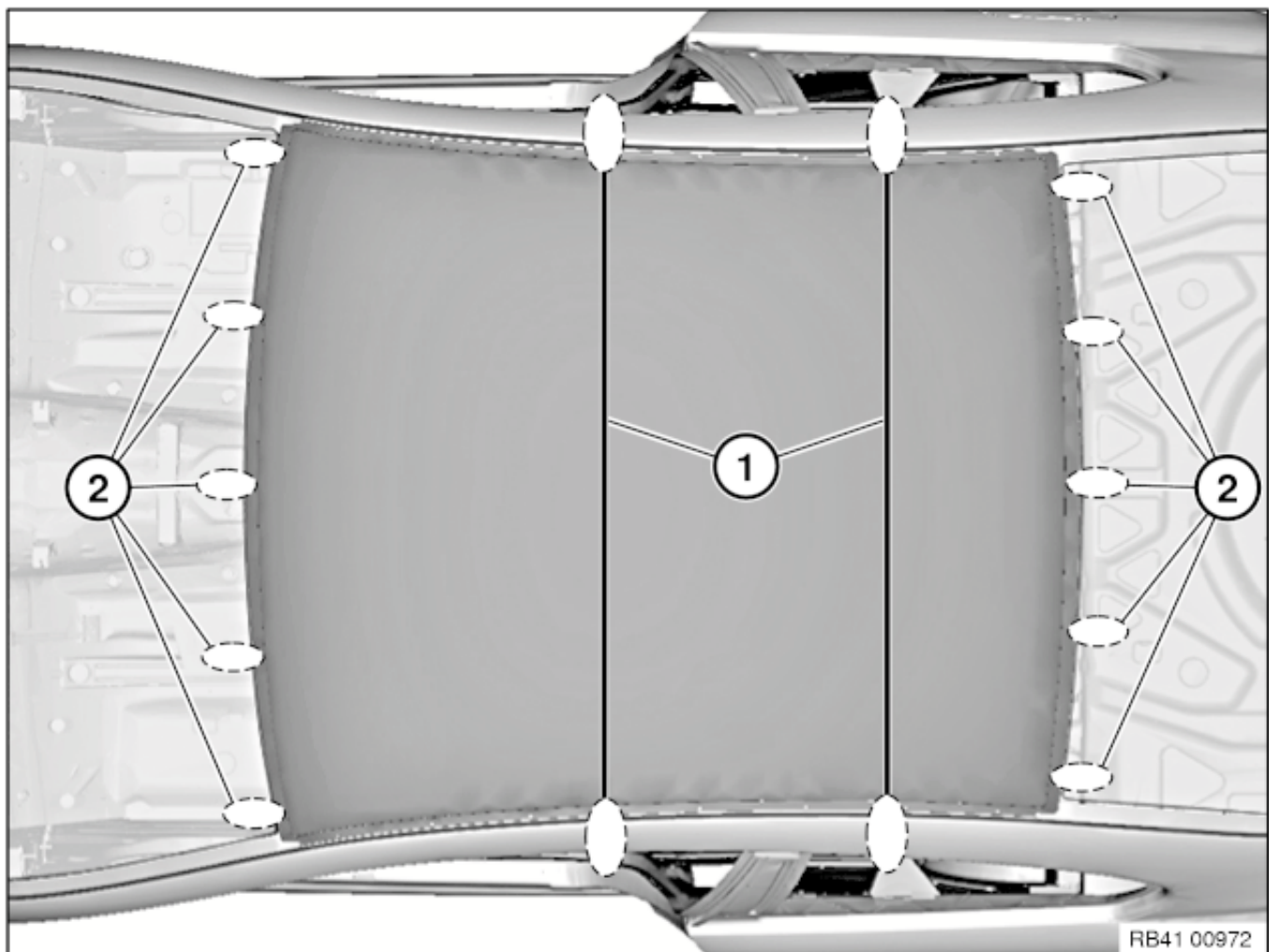
Attention!

Risk of damage!

Only secure roof outer skin on the spacers (points marked with adhesive tape).



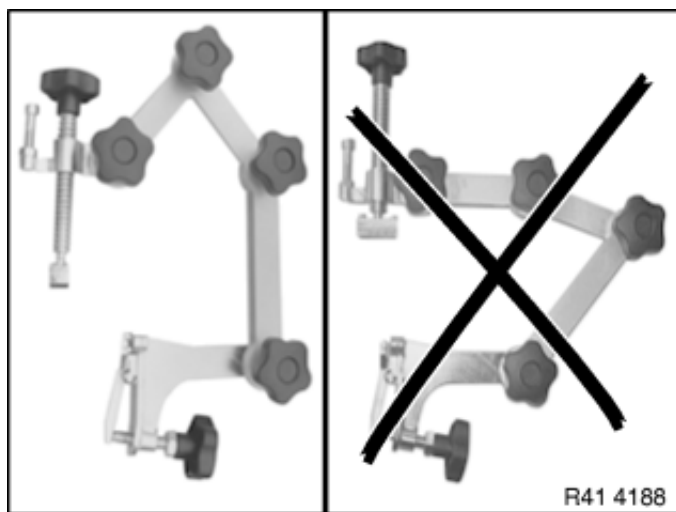
Secure roof outer skin at marked points in area of windscreen and rear window with locking pliers [41 3 201](#) .



Attention!
Risk of damage!

Only position roof pliers (1) and locking pliers (2) in the areas of the spacers. (points marked

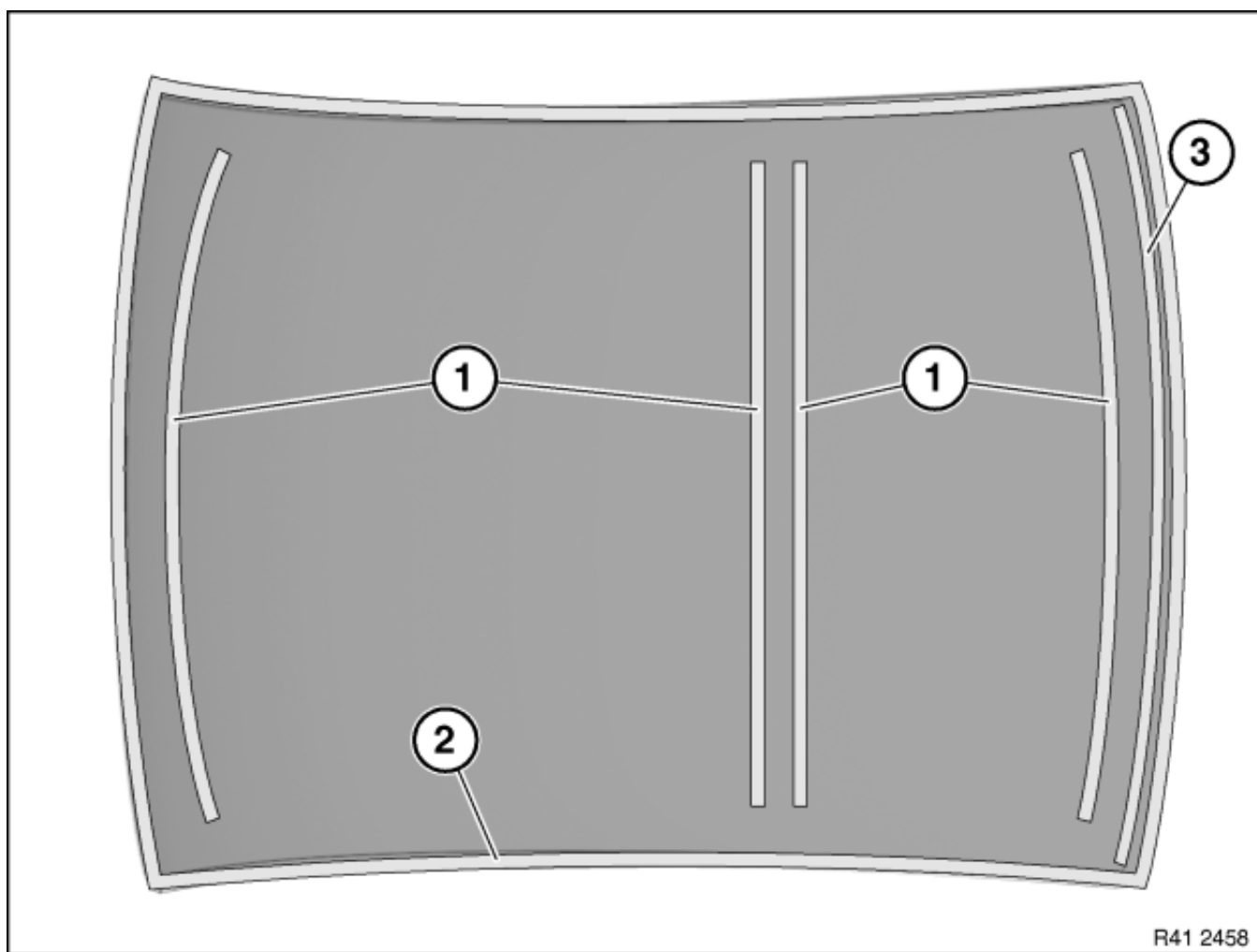
with adhesive tape)



Attention!

To generate an optimum contact pressure, mount roof pliers according to the illustration.

After adjusting the clamping tools, remove the roof outer skin.



The areas of the underlinings (1) are identified by marks on the roof inner side.

Preparation of adhesive flanges on new part:

1. Pre-clean areas (2) and (3) with cleaning agent R1.
2. Roughen areas (2) and (3) with grinding pad.
3. Clean areas (1 to 3) with cleaning agent R1.

Maintain >30 seconds of air drying time.

After air drying, all adhesive areas must be a uniform dull grey; repeat the roughening procedure if necessary.

Preparation of adhesive flanges on car:

Clean areas (1 to 3) with solvent cleaner R1.



Installing roof outer skin:

Lay out the following components/materials ready:

- Adhesive gun [81 49 0 443 166](#)
- K3 glue (use only the mixing tube supplied with the product)
- Window glass adhesive

Attention!

When using, the glue cartridges must be at room temperature (15-25°C).

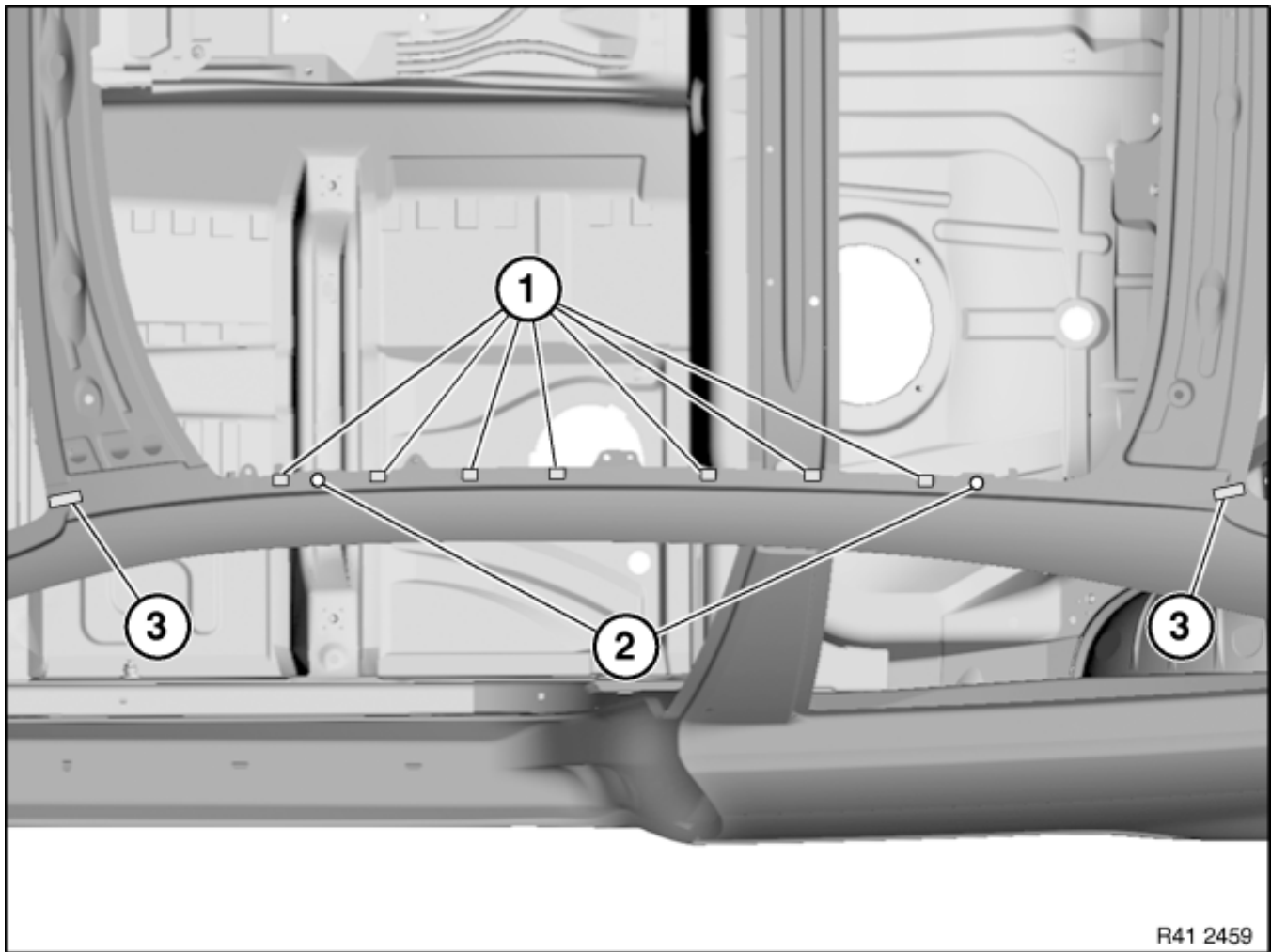
Read and comply with adhesive manufacturer's instructions.

It is absolutely essential to follow the correct order of adhesive application!

[Prepare glue cartridge.](#)

1. Underlining on roof in convertible top bow areas:

Apply window glass adhesive in a triangular pattern to convertible top bow (height 10 ± 2 mm, width 8 ± 2 mm).



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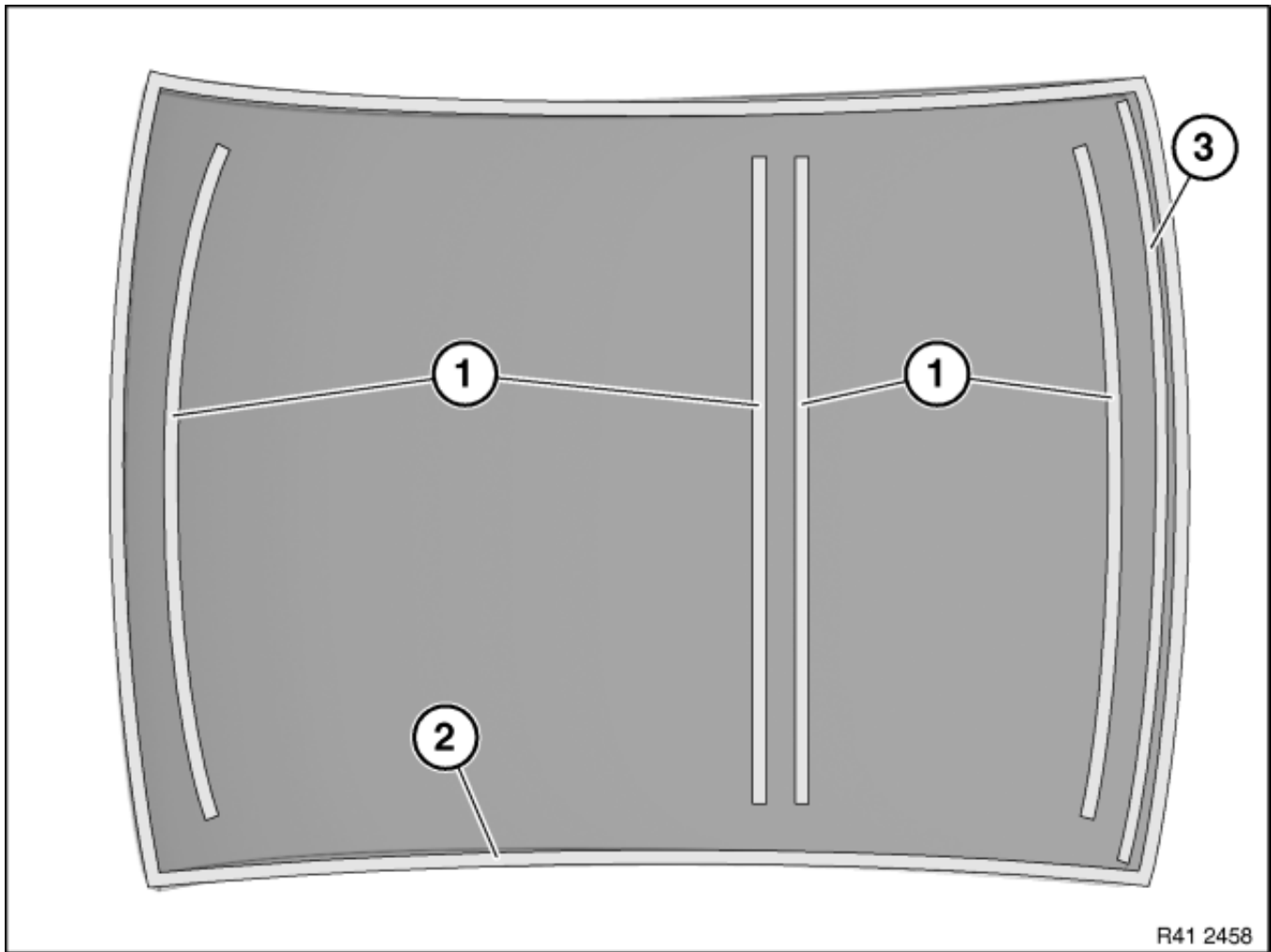
2. Step compensation on vehicle:

Carry over the work step shown symmetrically to the other side of the car

In areas (1) fill flange steps with adhesive (bead width 5-8 mm).

In areas (2) around the roof rack screw connection lay a thin adhesive bead (3-5 mm).

In areas (3) apply a 25 mm long adhesive bead (step compensation) and smooth.



Steps 3 and 4 described below must be completed within **10 minutes**.

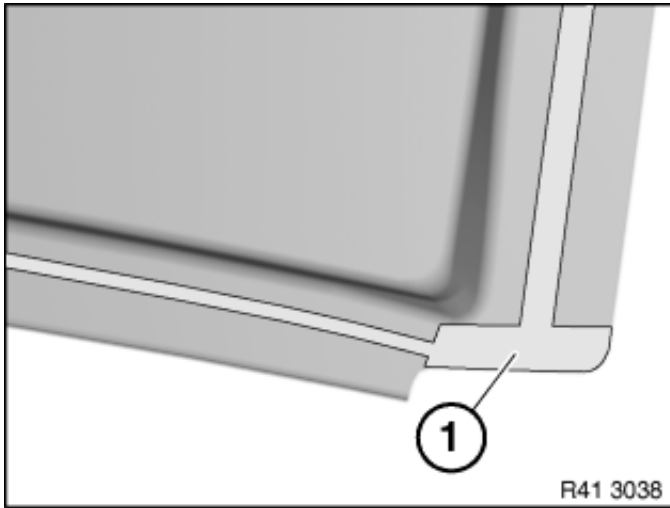
3. Adhesive application

Structural adhesive K3 on carbon-fibre-reinforced roof in areas (2) and (3):

Apply adhesive in a bead shape along outer edge of roof (bead width 5-8 mm).

In area (3) apply a second bead parallel to the first.

Only one wide adhesive bead (dia. approx. 8 mm) is applied to the windscreen adhesive flange.



Apply adhesive extensively in corners (1).



4. Joining and fixing roof outer skin

Place roof outer skin with helpers evenly and centrally on vehicle.

If necessary, fit windscreen and roof trims strip to check correct position of roof outer skin.

Fit clamping tools at the marked points.

Align stages between roof and A-pillar or roof and C-pillar with emerging adhesive. Remove excess adhesive.

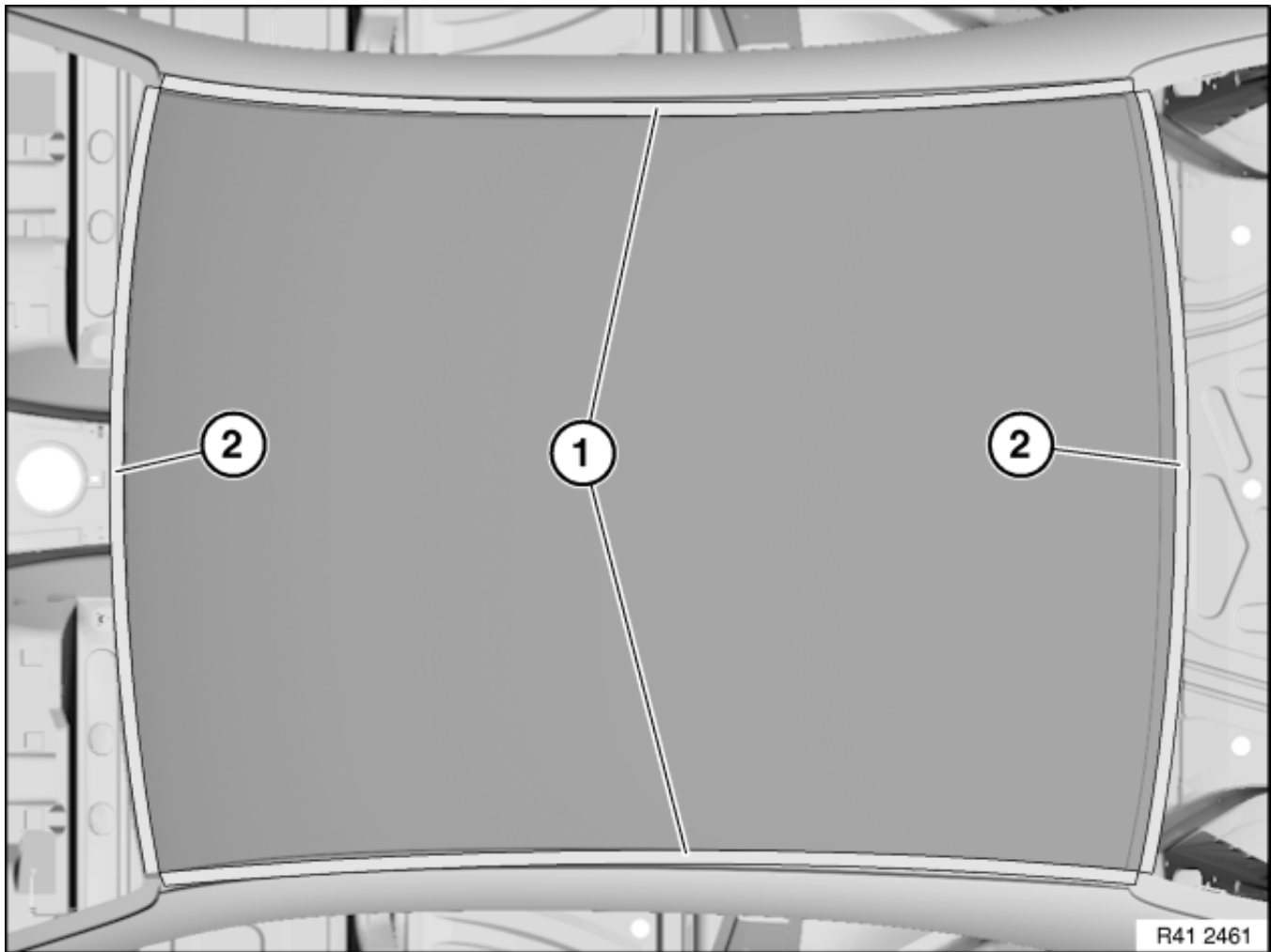
Attention!

Never use cleaning agents!

Do not leave any traces of sharp edges as this could compromise the tightness of the subsequent bond.

Attention!

Do not move the vehicle with clamping tools attached.



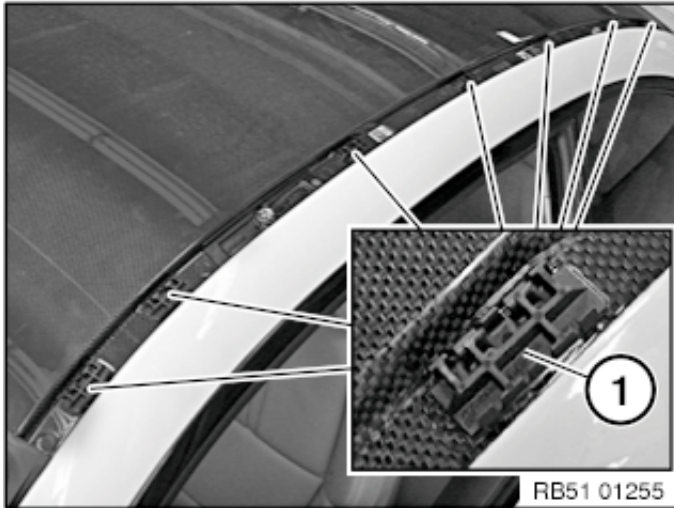
Remove the clamping tools after 2 hours hardening time (15 °C to 25 °C).

Mechanically remove vertically protruding adhesive from roof trim strip channel in areas (1).

Mechanically remove adhesive that has escaped in areas (2).

The endurance strength of the structural bond is achieved after 12 hours at 20 °C.

Carry out a leakage test on the complete vehicle.



Label the clips (1) to the roof within the embossings.

The procedure is described [here](#) in detail.

Trim strip must be attached only after 4 hours of hardening time.

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