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Photography Michael Whitestone

Safety

The first rule of working on cars and using tools of any kind is don't take risks:

- **If you're using power tools, protective gear is essential.**
- **Never work under a car without supporting it using axle stands first.**
- **When cars catch fire, they burn fast. Always have a fire extinguisher to hand.**
- **If you're not completely confident in your ability to complete any task safely, don't even start it. Leave it to the experts.**

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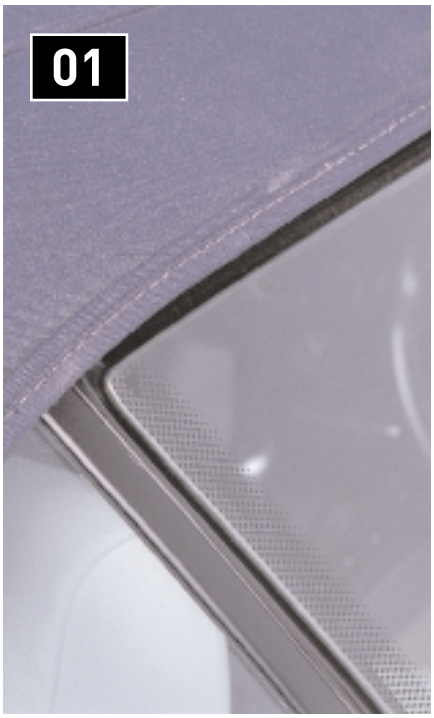
Frame Academy

We teach you how to make adjustments to BMW's frameless side windows.

Ah, the E36 Coupe and Convertible, what lovely classy machines. Their grand-touring appeal is based on many virtues, but for many their greatest asset has to be those wonderful frameless side windows. Basically, they're damn cool — unless like one clumsy mate of mine you're inclined to catch your clothing on their corners.

But the system's sophistication can prove its Achilles' heel as your E36 ages. Do the side windows in your E36 let in water or create wind noise at speed? If so, it's highly likely that they are out of alignment. This admittedly doesn't happen often, as their position is unlikely to shift with wear and tear. But a sloppy accident repairer may well not bother to adjust the window glass correctly. This is a shame, as it's not all that tricky really. The rubber can also sink on older cars. It's only a tiny amount, but it can be enough to create annoying wind noise, and even draughts, especially on the Convertible.

On early examples of the Coupe, failure of the electric window motors has been known, and some cars can be found with one side stuck 12 mm lower than fully up, which is where the system places it when the door is to be opened. If the window is stuck in the fully up position, the glass will catch slightly on the gutter rail as you open the door, so be careful not to break it as you free it. >



1 When the window is correctly adjusted for preload — the angle it's set at in relation to the side of the car — it should look like this. Close the door until it clicks once onto its initial catch. The top of the window should just be touching the door rubber at its rear edge and the gap between the glass and the rubber measured just above the top of the door should be 8 mm on the Coupe and 3 mm on the Convertible. To hold it in this position, close it with the door handle held open, and get someone to take measurements while you hold the handle up.

2 The preload can be adjusted from underneath the door, where you'll see two Allen-headed adjustment bolts. Loosen these, and adjust the position of the glass's top rear edge until it's correct. Gently tighten the bolts in increments.

3 If the window is set square within the door aperture, there should be a gap of about 8 mm along the top, dwindling to about 2-3 mm by the mirror.

4 The Convertible and later Coupes have an arrow in the top rearward corner of the glass. When the door is closed it should line up with the join in the support for the rear window as seen here.

5 To get to the motor and window mechanism, it's necessary to remove the door panel. Early cars have door trims which, if not handled carefully upon removal, can disintegrate at their upper edge when you try and refit them. Later trims were modified to correct this. First step is to remove the inner catch bezel by pushing it towards the front of the car until you hear a faint click and pulling it free.

6 Twist and pull the door locking button until it comes free. It doesn't look important but you can't get the door trim off without removing it.

7 Prise the mirror adjustment switch upwards out of the trim...

8 ... and disconnect it from its electrical connector.

9 Carefully lever out the trim covers behind the handles. Use a piece of card to prevent your screwdriver marking the trim...

10 ... and undo the retaining bolts. These are Torx screws.

11 The door panel is clipped in place. Carefully release one corner by prising it away from the door, then slowly work round the lower and side edges.

12 Pull the door panel slightly away from the door, then lift it upwards to free the top edge.

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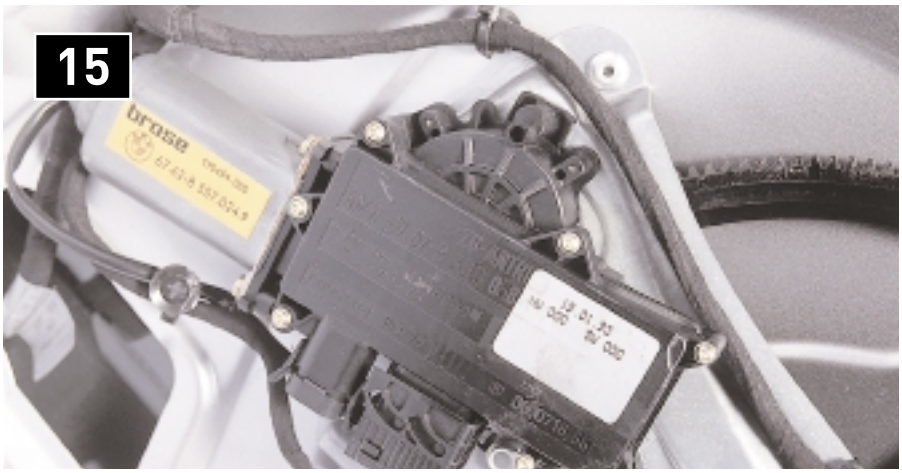

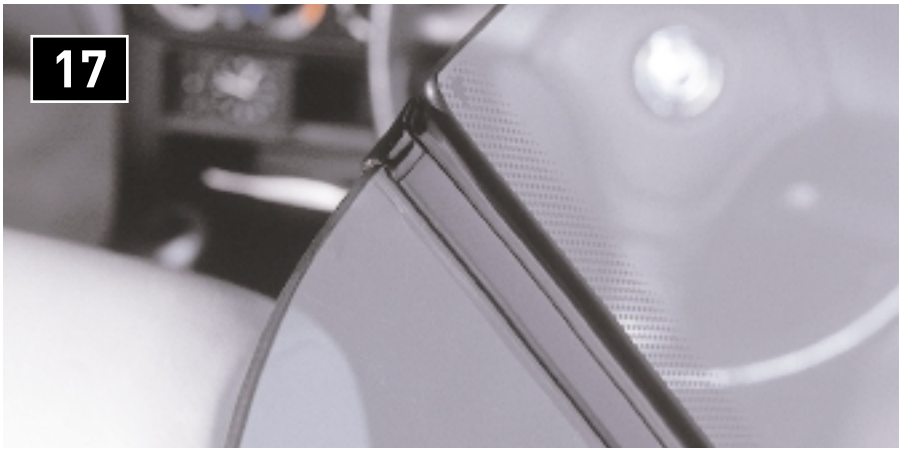

Initiatialisation Ritual

The door windows incorporate an anti-trap feature which means that the motor needs to 'learn' the mechanical stop position each time an adjustment is made. By counting the electrical pulses the system 'knows' where it is at any point and so any obstruction before the correct stop point is recognised as a foreign object — like a finger.

You'll also need to initialise the motors if they have been disconnected from the wiring loom, or the one-touch and anti-trap features won't work. The procedure is as follows:

1) Close the door and switch on the ignition.
2) Fully close the front window.
3) Hold the window switch in the 'up' direction for at least five seconds after the window has reached the top.
4) Repeat the procedure for the other side.
5) Test the one-touch up/down. If it works then you have successfully initialised the windows.

13 Disconnect the tweeter speaker. This car has had an aftermarket unit grafted into the standard mounting. Now the door trim can be lifted away from the door and stored in a clean place.

14 Gently pull the sound insulation panel away from the door, so that you can access its innards.

15 Here is the window winder motor, which you will have to replace if it has failed, as it isn't a serviceable unit. If you're planning to work on any of the components inside the door, be sure to disconnect the plug to the window motor to avoid the risk of trapped fingers. Remember, the motors are live even with the ignition switched off.

16 If the window doesn't rise far enough, or lifts too far to clear the door gutter, the height stops could require adjustment. Here is one, seen from the inside of the door with the door panel removed. Actually, these are easily adjustable from underneath the door. Use a Torx socket and extension through the rubber plugs on the door's underside, and screw or unscrew them until the window stops about 8 mm below the door gutter.

17 On the Convertible, the correct height leaves the door window slightly higher than the rear side window.