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Repairing Power Windows

BY BOB FREUDENBERGER**Illustrations by Leonello Calvetti (lead) and Ron Carboni**

Published on: July 13, 2004

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Check out that sky--black as the inside of a cow. A big thunderstorm is rolling this way for sure. Better run out and close the car windows. Of course, that's exactly when it happens, as was laid down in the beginning when we humans made our first deal with the gods of internal combustion. You turn the key, hit the button, and either you get a hitching, grinding noise and the glass just sort of trembles, or there's no sound whatsoever. Regardless, that window isn't going up. Time for the duct tape and trash bags--except the tape isn't sticking to the wet car body.

What are the typical power window problems? Simply stated: drag, a mechanical failure in the mechanism, or an electrical issue.

WE BE JAMMIN'

The most obvious and lowest-tech problems involve weatherstripping, gaskets and channels. These take a beating. Besides continuous mechanical abuse, there's the general environment--heat, ultraviolet rays, ice, dirt. After a while they tear, crack, split, come unglued and buckle, typically bunching up, jamming the tracks, and effectively stopping that glass from running up and down. Any of these effects may lead to blown fuses or a damaged mechanism, which we'll get to later.

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SMILE!: Broken teeth on the worm or driven gear can make the window mechanism skip or not work at all.

In cases where the motor's power is marginal, it's possible that just spraying silicone lube in the channel liners will get things moving again. Judicious use of warm water and detergent, compressed air and maybe a toothbrush might help a window track that's contaminated with tree sap, bird droppings or the remains of a milkshake. Flush with plenty of water.

If not, you still may be able to fix the problem without getting inside the door. Perhaps a window channel liner has moved down from the top of the door, leaving a gap (this will cause an annoying wind whistle). Grasp the liner with pliers, pull it back up (you might have to try to raise the window at the same time) and glue it in place with contact cement. Torn rubber can sometimes be glued back together with Super Glue--but this is a temporary fix until you can get a new gasket from the dealer.

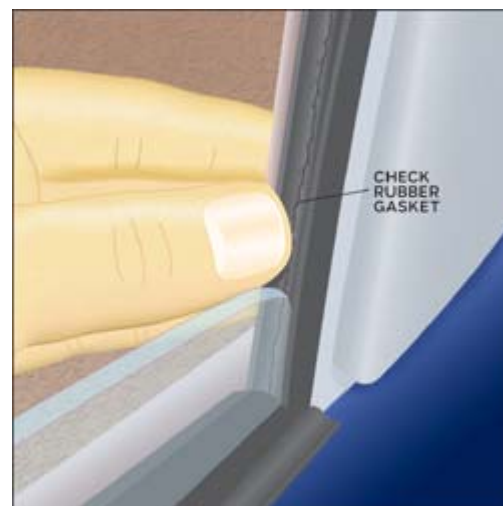
POP THE PANEL

If you're not so lucky, it's time to go in, as surgeons say. That means you have to bite the bullet and do the sometimes-disagreeable job of removing the inner door panel. Traditionally, the panel has been affixed with steel X-type spring clips, but later models use plastic "Christmas tree" fasteners (reusable, if you're careful) and screws.

Inexpensive special pry tools are available that minimize the damage to that cardboard panel (seems out of place in an expensive vehicle, doesn't it?) while the clips are being pulled out of the holes in the door's sheetmetal. Take your time and get as close to each clip or fastener as possible before prying. You'll also have to remove either the armrest or the door-pull cup by extracting the screws. Ditto for the door-latch handle or the plastic trim under it. You'll probably need either metric Allen or Torx bits. Domestic door handles generally are held onto their shaft with a pin or C-clip accessible between the door panel and handle. Depress the door panel with your fingers and visualize the clip or pin. It can be removed with a special tool, or more carefully with needle-nose pliers or a screwdriver.

Once you get the panel separated from the door, unplug the wires for the power window switches, the power door locks and, if necessary, the remote mirror controls. Doing this will enable you to remove the panel entirely. Pull the window switch assembly from the door panel, and plug it back into the harness so you can operate the windows for diagnosis.

Next is the weather liner, which is usually just heavy-gauge, clear plastic sheeting stuck to the door with nonhardening caulk. Carefully peel this away to uncover the door's internal access holes. Yes, you must reuse or replace it if you want to avoid water infiltration, and it's usually possible to stick it back on using the



TEAR IT UP: Check the visible parts of the gaskets and window channel for misalignment and torn rubber.



BOX OF SPARKS: If the fuse is okay, it's time to check the rocker switch assembly.

original bead of caulk. If not, use duct tape or contact cement.

With a good light and perhaps an inspection mirror, take a look inside the door to see what's amiss. You may have to unscrew the track's bottom fastener to move it away from the glass and free the channel liner. To hold the window up while you're working, you can shove a rubber wedge such as a doorstop between the glass and the door. Or, stick duct tape to the glass and loop it over the doorframe, along the window's leading edge or the slot in the door, or in whatever way is suitable.

By the way, generic channel liner is available by the foot for many cars, particularly older models. Failing that, however, you'll have to buy the specific part.

Often, cleaning things up, lubricating and tuning up the alignment of the tracks will get the window humming up and down again.

OVERLOADED FUSES AND FLIMSY SWITCHES

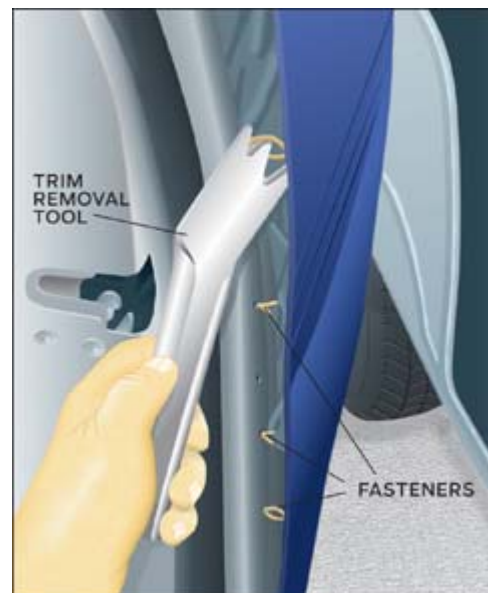
In cases where you hear nothing when you press any of the switches, the first step is to check the fuse for the power window circuit. If it's blown, you could just replace it, but you haven't ascertained the reason for the overload (the channel problem mentioned above).

One possibility is that the motor's circuit breaker trips under high drag. It will take a couple of minutes to reset itself. Once again, look for conditions that increase drag.

Check the switches themselves if some windows respond and others don't. If you've ever had occasion to take one apart, you've seen that they appear to be quite flimsy considering the importance of their job, their frequency of use and the amount of current they're asked to control.

On some common models, the driver's window switch rocker tends to fail. After all, it gets by far the most use. The carmakers will say you have to replace the whole driver's switch panel, but that can cost as much as a set of cheap tires. You usually can remove the panel, take out a rocker that operates one of the rear windows and snap it in where it's needed--nobody ever sits back there but your mother-in-law anyway, right? And, she can still control her own window.

Other electrical troubles include broken wires, chafed insulation, poor connections and bad grounds. If a visual exam doesn't reveal an obvious problem, get hold of a wiring diagram and check out the circuit using a 12-volt test light. Also, you can use a long



PRYING TIMES: Carefully separate the door's inner panel from the frame.



jumper to hot-wire the motor and see if it comes to life. **Warning:** Some power window motors get juice all the time, and the circuit is completed by switching the ground side.

ONE-WAY: You may need to drill out rivets to get the motor assembly out. Replace rivets with short bolts.

MOTORAMA

If power and ground are present, but the motor doesn't run or does run but won't move the lever or cable, it's time to extract the window's motor and gear assembly. On some domestics, you may need to drill out the rivets that hold this to the door (replace them with short bolts and nuts, but beware of interference with the mechanism).

Warning: See that big counterbalance spring and those levers? They can hurt you--the scissors-like action has considerable force and may come unloaded unexpectedly. Pay close attention during disassembly, or they'll be calling you Lefty at the poker game.

Typically, the motor has a spiral worm and gear arrangement that bends its torque 90°. The trouble is, this relies on nylon and/or plastic parts that tend to disintegrate over time. We've seen them last over 150,000 miles and 15 years, but some of us choose to keep our vehicles longer than that, and these components don't necessarily make it for anywhere near that long.

A whole motor assembly can cost hundreds of dollars from the new-car dealer's parts department, so find out if you can get it aftermarket from a jobber or an auto parts store. Even better, ask around about repair kits that contain only the nylon gears. These are pretty easy to install as long as you don't mind dealing with lots of graphite grease. As a last possibility, the motor itself may be fried. Try whacking it with a hammer while it's powered. This may loosen up a bushing or make a corroded commutator brush make contact long enough to get restarted. The long-term fix is to replace it with a new motor or junkyard part. You also can have it rebuilt (probably inexpensively) at an electrical motor shop.

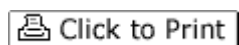
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