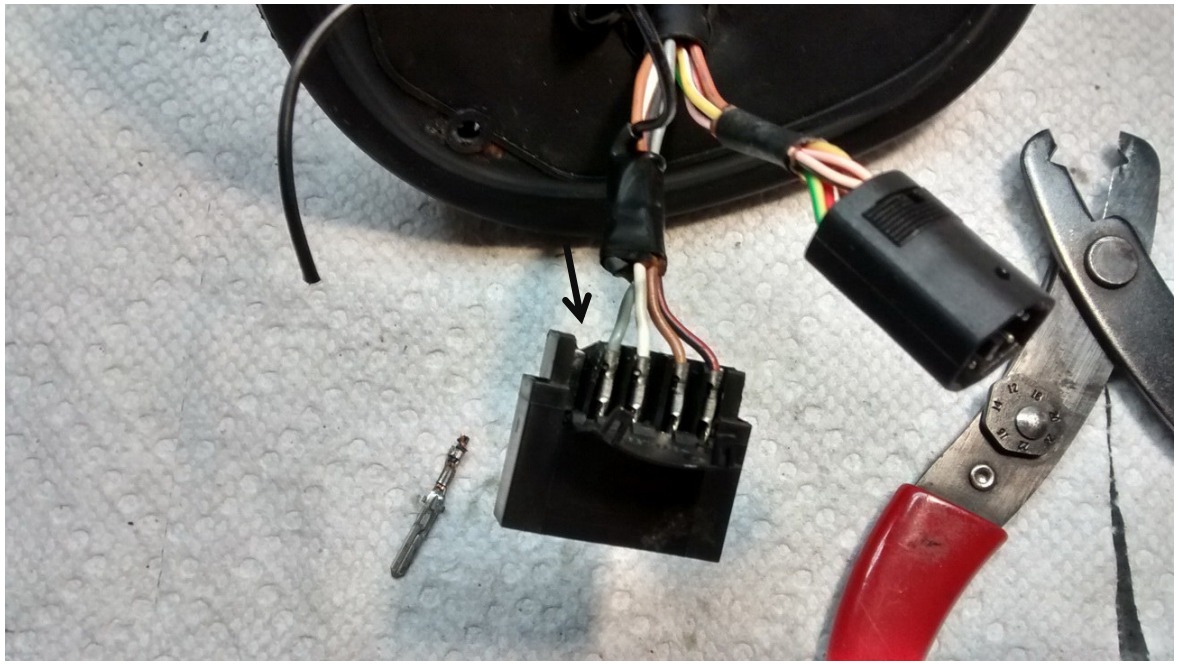
W210 Intermittent Power Mirror One-direction only fail

-Symptom: horizontal operation normal, vertical operation would always work in the “down” direction, but rarely in the “up” direction.
-Troubleshooting: wires tested end-to-end good continuity from mirror end to door control module connector. When wires tested for continuity from one connector end to the door itself multi-meter indicated one wire was shorted to the door.
-Cause: mirror harness connector located under mirror and inside(!) the door pillar was crushed against a metal edge. Eventually, the plastic connector deformed and one of the three wires used to control the mirror motor was then forced against the metal edge. Wire insulation cold-flowed from the pressure, wire strands contacted the metal edge, and wire strands began to break.
-Solution: separate damaged wire from pin, splice new length of wire onto original wire, install new pin, insert into socket. Reassemble into door ensuring connectors have sufficient slack (not as easy as it sounds).

-Motor is driven by a L9997 IC Dual Half-bridge driver circuit. Wires reverse polarity to reverse motor direction. The grounded wire served its purpose when selected as a ground, but when 12 volts applied, it shorted the signal to ground. The L9997 over-current protection circuit prevented a fuse from blowing or damage occurring to the door control module.

-These two connectors and their mates fit into that small enclosure in the door frame.



-Arrow points to area of connector damaged by being crushed against door frame. Pressure damaged wire and head of pin being replaced in this photo.