

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

1.0 INTRODUCTION

These are instructions for installing the OEM BMW Power Rear Vent Windows Kit. This would be impossible to accomplish without the helps of those cited in the Sources section below. These instructions are based on the installation into my June 1998 build E36 M3. The following options were included on delivery:

- Black Nappa Leather
- Power Sunroof
- Heated Front Seats
- Forged 17" Staggered 5-Spoke Lightweight Wheels

As a disclaimer, these instructions worked for my car. These may or may not work for you car. I used several DIYs that worked for me, and as a result I included them in this document. Good luck.

2.0 REFERENCES

- 2.1 David Ortiz (Odortiz) and his website:
<http://www.geocities.com/odortiz/misc/pwrvent/zpwrvent.htm>. Several pix from his website are included in this DIY.
- 2.2 Sean McDevitt (Keda) for his helpful emails about his experience.
 - 2.2.1 John Firestone for his installation notes. Keda forwarded these to me and are included at the end of this pdf.
- 2.3 Johnathon Vitolo for reviewing and providing input based on his installation.
- 2.4 Bentley Service Manual - BMW E36 3 Series
- 2.5 All BMW Forums

3.0 PRE-INSTALL NOTES

- 3.1 Install Summary
 - 3.1.1 Remove Interior Components (Section 5.0)
 - 3.1.2 Install Power Harness (Section 6.0)
 - 3.1.3 Install Supplemental Harness (Section 7.0)
 - 3.1.4 Install Mechanical Components (Section 8.0)
 - 3.1.4.1 Window Switches (Section 8.1)
 - 3.1.4.2 Window Motors and Flex Shaft (Section 8.2)
 - 3.1.4.3 C-Pillar Folding Window Latches (Section 8.3)
 - 3.1.4.4 Rear Panel Trim Pieces (Section 8.4)
- 3.2 Make sure you park so you can have the driver's side door completely open and a path that is clear to the seat's destination. The seat is HEAVY, I'm guessing around 80lbs. Even worse, it's awkward to grasp. If you have manual seats be careful not to hit one of the spring loaded levers or the seat will snap to that position (b/c no resistance) and the CG will shift and possibly cause you to get hurt or drop the seat and do some damage.
- 3.3 In reference to Figure 2, soldering can be used in place of these splice connectors.
- 3.4 Take CAUTION when installing the window motors and flex shaft because the sheet metal in that area is thin and sharp.

4.0 MATERIALS

- 4.1 PARTS ORDERED (Figure 1 - **Electric Hinged Window Kit and Lt/Rt Rear Panel Trim Pieces (top right)**)
Figure 1)
 - 4.1.1 Electric Hinged Window Kit: 51-36-9-402-689, \$285 (with discount)
 - 4.1.1.1 Power Harness: 61-12-9-404-366
 - 4.1.1.2 Supplemental Harness: 61-12-9-402-660

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

4.1.1.3 Electric Hinged Window Kit: 51-36-9-402-689

4.1.2 Left Rear Panel Trim Piece: 51-36-8-151-845, \$0.45

4.1.3 Right Rear Panel Trim Piece: 51-36-8-151-846, \$0.45



Figure 1 - Electric Hinged Window Kit and Lt/Rt Rear Panel Trim Pieces (top right)

4.2 TOOLS

- 4.2.1 Torx Key Set (T10)
- 4.2.2 1/4" and 3/8" Metric socket set
- 4.2.3 1/4" and 3/8" socket wrenches
- 4.2.4 Metric Combo Wrench set
- 4.2.5 Phillips and Flathead Screwdriver
- 4.2.6 Dremel cutting tool
- 4.2.7 Small File

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- 4.2.8 Wire cutters
- 4.2.9 Pliers, regular and needle nose
- 4.2.10 Soldering Iron
- 4.2.11 Red Splice Clips (see Figure 2 below)
- 4.2.12 Tie wraps (4" and 8")
- 4.2.13 Utility Knife
- 4.2.14 3M Painter's Tape (blue, medium)
- 4.2.15 Tool for lifting plastic rivets (Figure 3)
- 4.2.16 Hair dryer
- 4.2.17 3/8" Torque Wrench
- 4.2.18 20 ga wire (~2 ft)
- 4.2.19 Electrical Tape
- 4.2.20 Chisel
- 4.2.21 Metal Straight-Edge or equivalent
- 4.2.22 Exacto Knife
- 4.2.23 Cutting Shears

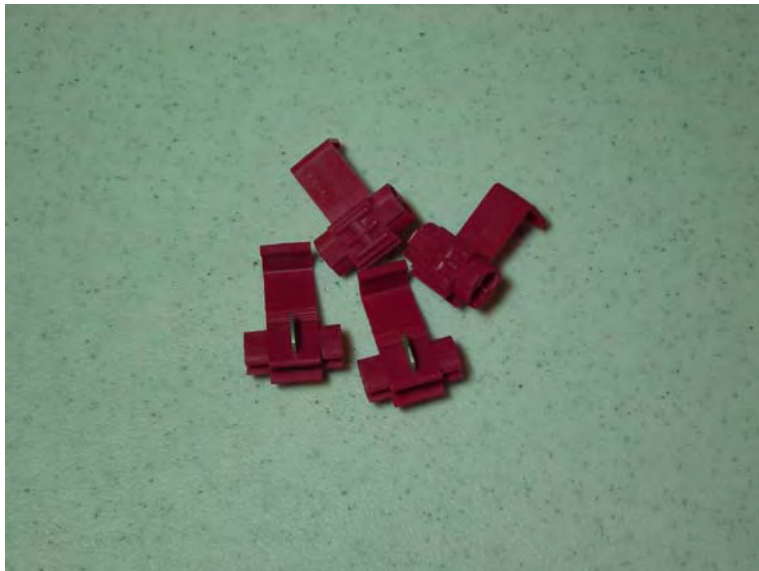


Figure 2– Red splice clips used to tap into wires throughout the installation

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 3 – Tool for lifting plastic rivets

5.0 REMOVING INTERIOR COMPONENTS

5.1 Removal Summary

- 5.1.1 Negative Battery Cable
 - 5.1.2 Driver's side lower dash panel
 - 5.1.3 Knee Bolster
 - 5.1.4 Driver's side kick panel and speaker
 - 5.1.5 Fan Connector
 - 5.1.6 Fuse Box Lid
 - 5.1.7 Loosen Fusebox from firewall
 - 5.1.8 Passenger Side lower dash panel
 - 5.1.9 Passenger side kick panel and speaker
 - 5.1.10 Glovebox
 - 5.1.11 Center Console
 - 5.1.12 Shift knob, OBC, Sunglasses Holder, Shifter Console
 - 5.1.13 Driver's Seat
 - 5.1.14 Rear Seat Bench, Backs and Bolsters
 - 5.1.15 Rear Side Panels
 - 5.1.16 C-Pillar covers
 - 5.1.17 Front Seat Belt Guide Loop Anchor Bars
- 5.2 Disconnect Negative Battery Cable
- 5.3 Remove driver's side lower dash panel (Figure 4) by unscrewing the three Phillips head screws (Item 1).

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

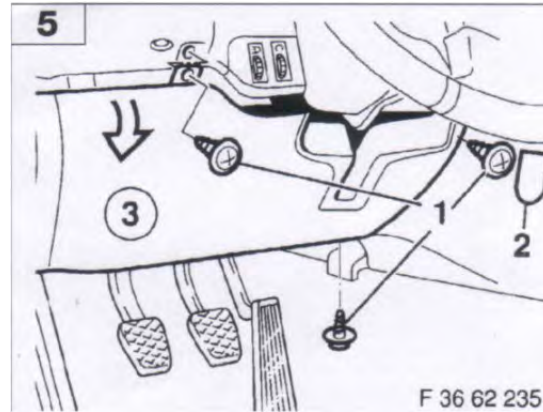


Figure 4 – Removing Driver's Side Lower Dash Panel (Item 3)

5.4 Remove driver's side knee bolster, four hex bolts.

5.5 Remove driver's side kick panel (Figure 5). Remove engine hood latch (Item 5) by removing Phillips screw (Item 4).

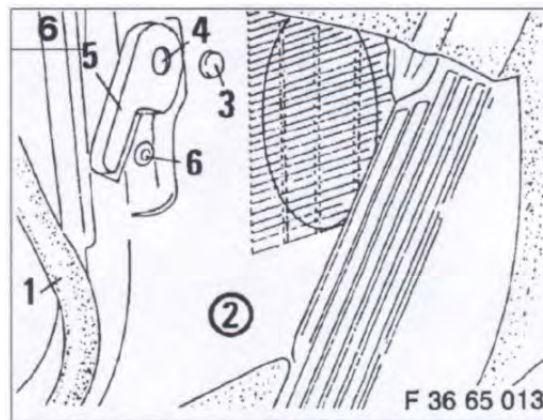


Figure 5 – Removing Kick Panel (Item 2)

5.6 Remove driver's side kick panel speaker. Since you will be working in this area a lot, doing this step will prevent you from accidentally puncturing it.

5.7 Remove Fan Connector, AKA Terminal Block (Figure 6). Above the speaker and below the dash is the Fan Connector. It is a black box, where a bunch of wires dead-end into it. Wires of the same color are bundled together into a single connector and the connector clips into the box. You can pry out the connectors with a flathead. In order to remove the fuse box, you'll first need to remove fan connector box. Along the upper edge of the box, closest to the wall, there is a tab you need to pull toward the center of the car and then push the entire box up and in toward center of car. It just comes off. I removed it by sliding my whole hand under the box with your palm flush on the wall and your thumb on the side of the box facing rear of car.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

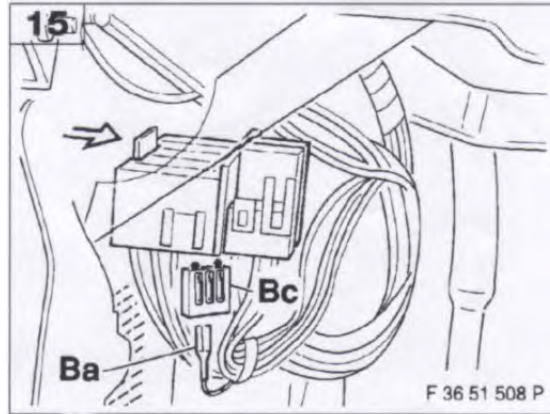


Figure 6 – Removing the Fan Connector

5.8 Remove Fuse Box Lid and Cover (Figure 7). Four T10 Torx screws (61-13-1-392-845) hold the cover in place. I bought spares because these screws strip easily.

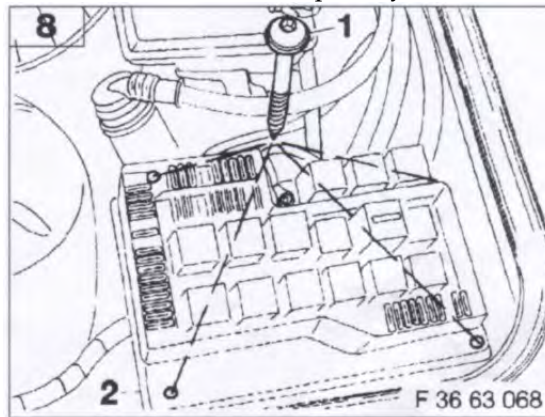


Figure 7 – Removing Fuse Box Cover T10 Screws (Item 1)

5.9 Partially Remove Fuse Box (Figure 8).

- 5.9.1 Notes: Be careful when removing fuse box, don't pull hard on the wires and don't yank on anything. For reference, I'll use the following system to id each firewall fuse box screw: from inside the car, Top Left (TL), Top Right (TR), Bottom Left (BL) and Bottom Right (BR). Fuse box cover and 4 screws are already removed per steps above. Do you have to remove the fuse box? It's up to the installer, as you might be able to push the wiring through, but there are relays and you'll need a lot of room to push stuff through.
- 5.9.2 To get more room, I removed the relays and fuse cartridges from the fuse box top (Figure 9). The cartridges have tabs on each end that are only accessed from underneath. To remove you press-in on the tabs and simultaneously push down on the relay/cartridge from above. I didn't have luck with a flathead screwdriver. I reached underneath with my fingers. It's not easy and takes some work. I pressed down on one side and hinged the cartridge down, but I had to remove the fuse on the end of that side so it wouldn't interfere.
- 5.9.3 Next use a 13mm socket to remove the nut where two red power wires attach with a ring connector. One of the red wires prevented one of the closest relay cartridge from coming out until I removed it. You should now be able to fold the fuse box top over the brake

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- reservoir and have full access to the fuse box. There is a third red wire on the outside of the box, but I left it attached.
- 5.9.4 Inside the car, under driver's dash fold back the carpet that normally supports the dead pedal.
 - 5.9.5 Next remove the four 7mm bolts mounting the fuse box to the firewall. In the engine, looking at the fuse box/firewall, you can see three of the bolts (TR, BR, BL), the fourth (TL) you will not see. Inside the car, the TR bolt is seen thru a circular hole in the gray insulation to the left and up of the clutch pedal. The BR bolt is behind the carpet that supports the dead pedal. The BL bolt is located behind the wire bundle running toward the floorboard that is behind the dead pedal.
 - 5.9.6 Before removing the TL bolt, you have to clear the way. Once you've removed the fan connector (as noted above) there is another black box visible which blocks access to the TL bolt. Remove the two plastic nuts and it drops out easily.
 - 5.9.7 Remove the TL bolt. Looking beyond the black box you just removed, you can't see the TL bolt b/c it's behind the gray insulation. You will need to punch a hole in the insulation to access the TL bolt. I used a 14mm socket attached to a really long extension to push through the gray insulation. I used the TR and BL bolt locations to approximate where I thought the TL bolt was located. Then I pushed the 14mm socket to cut thru the insulation. I was about 1/3 of inch too high, but it was still accessible.
 - 5.9.8 Once you remove all the bolts you can slide the fuse box toward the front of car just enough to loosen the fuse box-to-firewall panel (Figure 10). Note that the panel has a tie wrap that is tied to the wire bundle. When you pull up on the panel, the entire bundle lifts up. Use caution b/c I broke my panel trying to pry it up and not knowing about the tie wrap. I recommend pulling up on the bundle or clipping tie wrap before pulling on panel. With the panel removed, you can easily pass the wiring harness through the firewall.

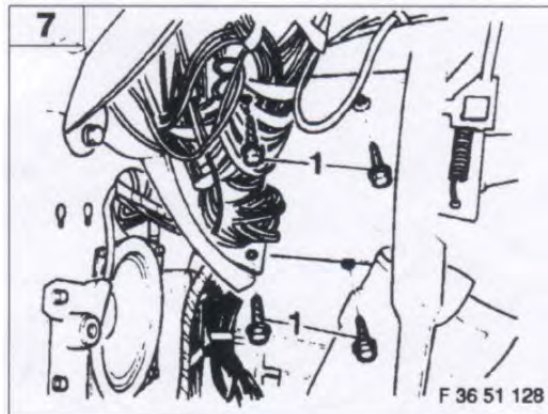


Figure 8 – Removing 4 bolts (Item 1) to release Fuse box from firewall

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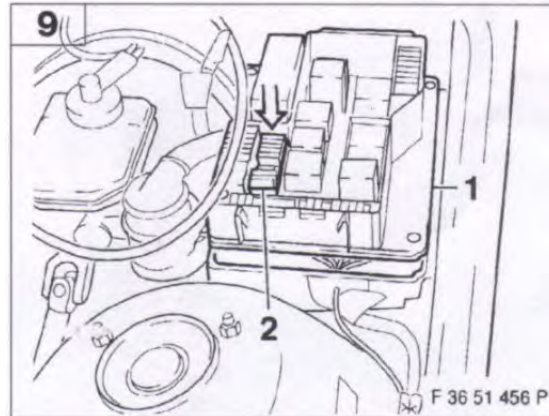


Figure 9 – Removing fuse cartridge (Item 2) from Fuse box Cover (Item 1)

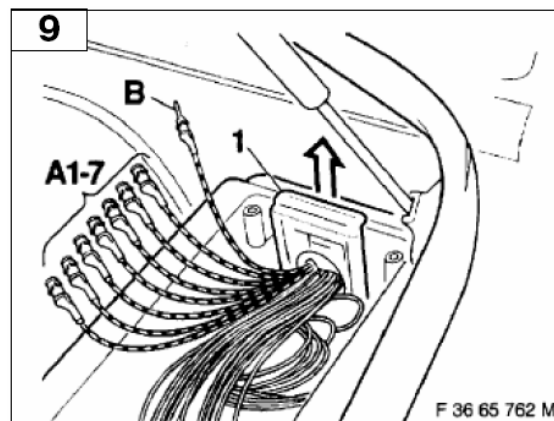


Figure 10 – Removing Fuse box-to-Firewall Panel (Item 1)

5.10 Remove Glove Box (Figure 11)

- 5.10.1 First remove the lower dash panel (Figure 11 – bottom, aka kick panel) screws. Pull out lower dash panel and remove lighting connector before pulling out panel completely.
- 5.10.2 Next remove the six Phillips screws holding the glove box assembly.
- 5.10.3 Next remove bolt behind glove box light. Use a flathead screwdriver to pop out orange light cover inside glove box. Disconnect connector for light. Remove 10mm bolt.
- 5.10.4 Once screws and bolt are removed, pull glove box assembly straight out. Once partially out, disconnect flashlight connector at back of glove box.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

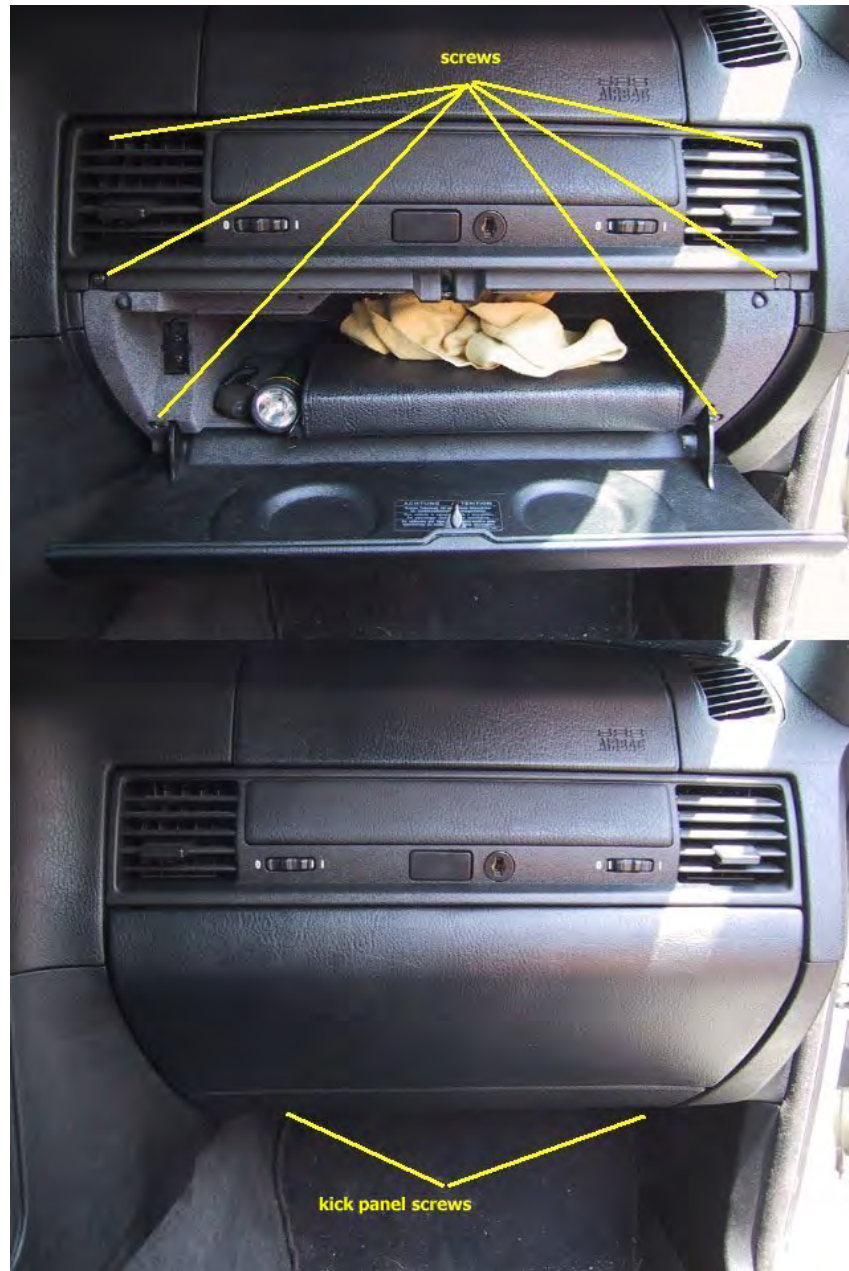


Figure 11 – Glove Box and Lower Kick Panel screw locations (Picture courtesy D. Ortiz)

5.11 Remove Center Console

- 5.11.1 Start by removing cupholder bin by squeezing the sides (at square indentions) and pulling straight up.
- 5.11.2 Partially remove shifter boot by pulling up at one corner. Then lift foam piece up and out of the way. All of these components can optionally be removed by lifting shift knob straight up and disconnecting lighted shifter knob connector.
- 5.11.3 Next remove emergency flasher and disconnect wiring connector. Remove single Phillips pan head screw located under emergency flasher.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- 5.11.4 Lift up on one end of emergency brake boot to disconnect from center console and roll up knob so it's out of the way.
- 5.11.5 Remove rear ashtray bin by lifting it up and out.
- 5.11.6 Remove rear ashtray surround by removing 2 plastic phillip screws that were under ashtray bin. The light may still be attached so lift up surround gingerly and then disconnect light.
- 5.11.7 Remove single Phillips screw under rear ashtray surround.
- 5.11.8 Fold front seats forward.
- 5.11.9 Remove Armrest
 - 5.11.9.1 Fold armrest down. Along the axis of the armrest hinge there are two "ears" of the surrounding shroud. Sitting in the back seat, pull these ears out and back. Then lift entire part up gently because light cable is routed through that part
 - 5.11.9.2 Lift up armrest and remove front armrest cover. Pull out (toward front of vehicle) on cover from one side to disengage hole from boss, then remove remaining side to release front armrest cover.
 - 5.11.9.3 On each side of the armrest is a hollow conical bushing. These must both be removed and they pull out away from armrest once unlocked. Behind the front armrest cover (just removed) are two square holes barely visible. Find a small flat head screwdriver that fits into the sq holes. Push the flathead through the hole and firmly press to clear the tab that locks the conical bushing in place. Simultaneously pull outward on the bushing. There is some friction to overcome so a larger flathead may be necessary to pry out the bushing. Repeat for second bushing. The armrest now can be easily pulled up and out.
- 5.11.10 Next slide the entire console toward the back of the car. It should slide about half an inch.
- 5.11.11 The center console can now be removed by lifting from the back up and forward around the emergency brake handle.
- 5.12 Remove Shifter and V-Shaped Console assembly as a whole.
 - 5.12.1 I recommend removing the shifter console as an assembly with the V-console. The V-console is the piece under the L-shaped shifter console.
 - 5.12.2 Removal of the Center Console exposes 2 screws holding the Shifter console in place. Remove the 2 screws.
 - 5.12.3 Remove the screw holding the assembly to the passenger side vertical metal tube.
 - 5.12.4 Remove the 2 screws on the cross tab above the OBC location. You can now remove the entire assembly out of the car.
 - 5.12.5 Disassemble the Shifter Console from the V-Shaped Console. I think there are 3 or 4 Phillip head screws.
- 5.13 Remove Driver's Seat
 - 5.13.1 It is highly recommended that you disconnect the front seat belt lock tensioner per Bentley Manual section 720-2, Front Seat Belt Assembly, Mechanical Spring Tensioner, Disarming. I did not do this, but I also had to handle the seat with ultimate care and caution. It worked ok for me, but I can only recommend following Bentley.
 - 5.13.2 On each seat guide rail there is one nut (back) and one bolt (front). Remove the black covers from the nuts and bolts and then proceed removing these fasteners.
 - 5.13.2.1 When reassembling, torque bolts and nuts to 55 N-m or 41 Ft-lb.
 - 5.13.3 Next disconnect all the connectors (heat, lumbar, power, etc.) from underneath the seat.
 - 5.13.4 Place a blanket over the door sill and then lift out the driver's seat.
- 5.14 Remove Rear Seats

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

5.14.1 Fold Down Style

5.14.1.1 Reference Bentley Manual page 520-5, Rear Seat Cushion and Backrest, removing and installing (fold-down seat back models).

5.14.1.2 Remove the bench seat by getting into the back seat and straddling the center console hump between the seats. While squatting grab the bottom lip of the bench seat so that your hands are lined up with the clips and quickly lift up to snap the bench out of the clips (See Figure 12). Pull the whole bench seat out (toward front of car) and remove from cabin and set aside.



Figure 12 – Bench Seat Clips

5.14.1.3 Remove both seat belt anchor bolts using a 16mm socket. Before removal, note the seat belt bracket orientation (Figure 13).

5.14.1.3.1 When reassembling, torque seat belt anchor bolts to 48 N-m or 36 Ft-lb.



BMW E36 OEM POWER REAR VENT WINDOW INSTALL

Figure 13 – Rear Seat Belt Anchor Bolt and Bracket orientations

- 5.14.1.4 Fold down rear seat backs to expose one of two hinge points for each seat. The black hinge cover shown in Figure 14 is the inner hinge point of each seat. With a flathead screwdriver pry the black cover up to reveal the seat hinge bracket. Pry from one end of the clip. Just clip the cover back in place upon re-assembly.



Figure 14 – Rear Seat Black Hinge Cover

- 5.14.1.5 Once the black cover is removed two hook-like latches can be seen holding each seat into the hinge bracket. Pry each hook toward the back of the car while lifting up on the corresponding seat back.
- 5.14.1.6 Once the inner seat hinge point is released, the seat can be removed from the outer hinge point. The outer hinge point is just a pin on the seat back that rotates in a bushing pressed into the seat bolster (Figure 15). Just pull the seat and pin out of the bushing. Repeat for the other side.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 15 – Rear Seat Bolster Bushing

5.14.1.7 Remove each seat bolster by pulling from the upper part of the bolster toward the front of the car. The bolster is just clipped in place.

5.15 Remove Rear Side Panels

- 5.15.1 There are three clips holding each rear side panel in place (Figure 16). First lift up the vent window seal on each side. It is held in place by friction, just lift up.
- 5.15.2 Next, pull the side panel away from side wall to pop out the three clips. I used the gap where the seatbelt passes to pull out on the panel. Once the clips are free, lift up on the panel and remove from car.

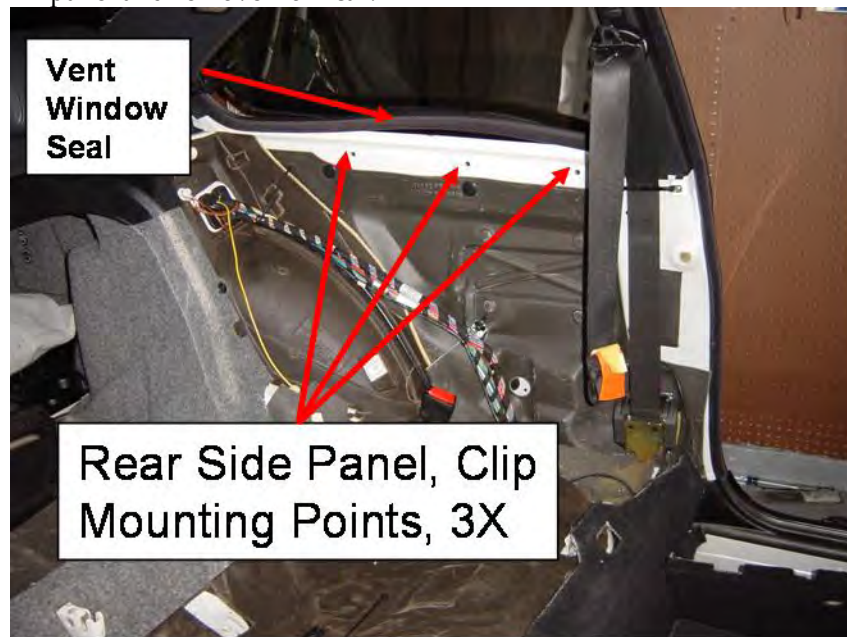


Figure 16 – Rear Side Panel Mounting Points, 3X and Vent Window Seal

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

5.16 Remove C-Pillars

- 5.16.1 There are three clips holding each C-Pillar panel in place (See Figure 17 and Figure 18). Pull the C-Pillar panel away from the C-Pillar body starting from the top until all three clips are removed. Note that the light is connected via wiring harness so it will need to be removed before completely removing panel.

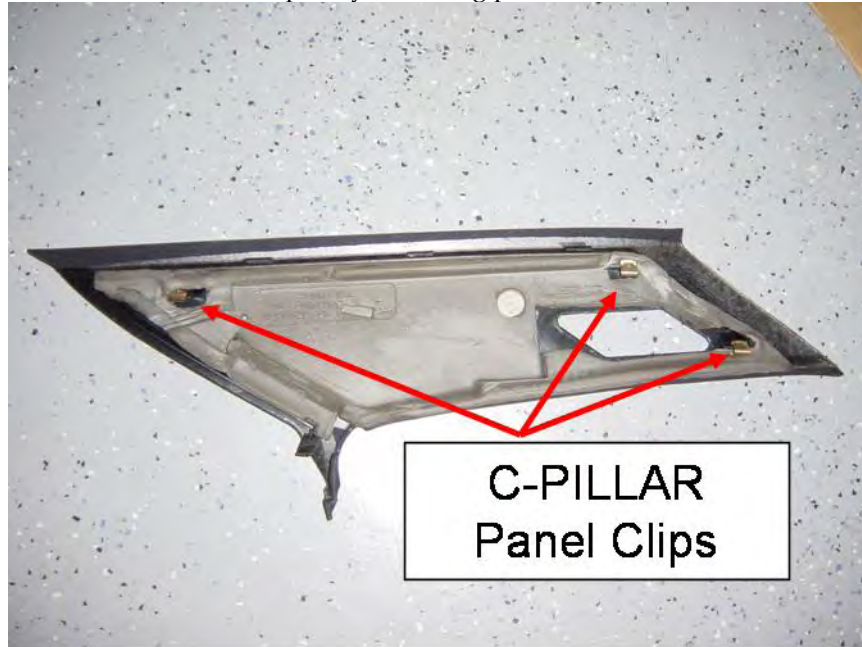


Figure 17 – Back of C-Pillar Panel with Clips Identified

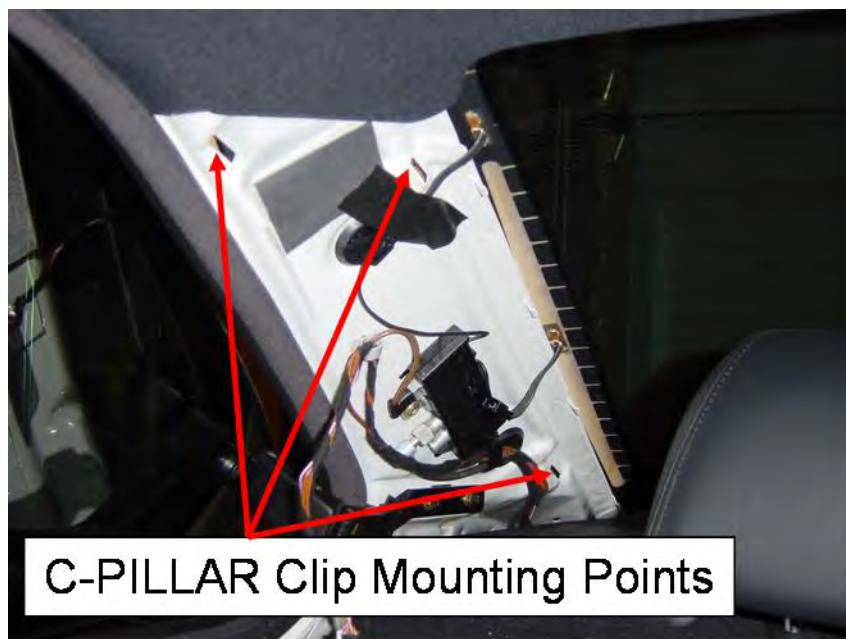


Figure 18 – C-Pillar Clip Mounting Points Identified

5.17 Loosen Seatbelt Guide Loop Anchor Bar

- 5.17.1 See Bentley Manual, page 720-3.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

5.17.2 Near the floor on each side is a black bar where the seatbelt is anchored. Remove the black cover to expose the bolt and then remove it. This will allow the carpet to be pulled up a little further and allow you to route the cable underneath more easily.

5.17.2.1 Upon re-install, torque the bolt to 31 N-m (23 Ft-lb).

6.0 POWER HARNESS INSTALL (61-12-9-404-366)

6.1 The power supply harness is shown in Figure 19. Note Cables A, Ba/Bc, C and Da. Begin under the driver's side dash.

6.2 Power Harness Definitions (Wire Color)

6.2.1 A = Power (Red)

6.2.2 Ba/Bc = Power Distribution (Red w/Blue Stripe)

6.2.3 Da = Central Electronics (Black w/Green Stripe)

6.2.4 C = Relay

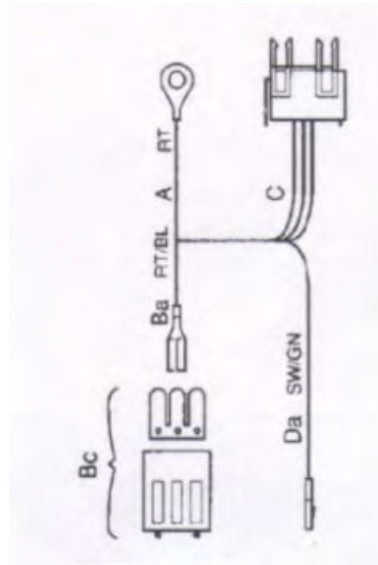


Figure 19 – Power Supply Harness

6.3 Power - A

6.3.1 Route A through the firewall and into the Fuse box as shown in Figure 20 and Figure 21. Connect Cable-A ring terminal to power mounting bolt on fuse box cover using existing nut. I did all final connections after routing all portions of the harness to their proper locations.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

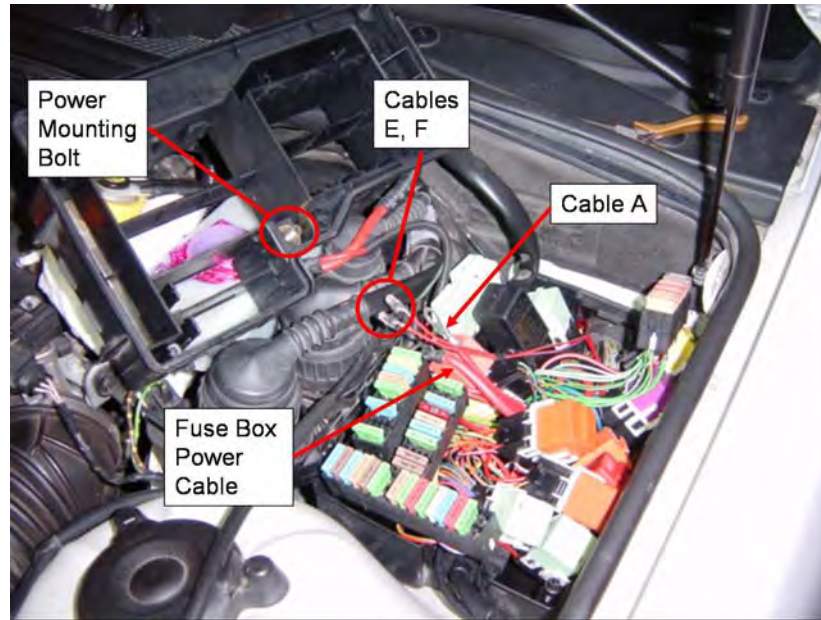


Figure 20 – Fuse box Connections

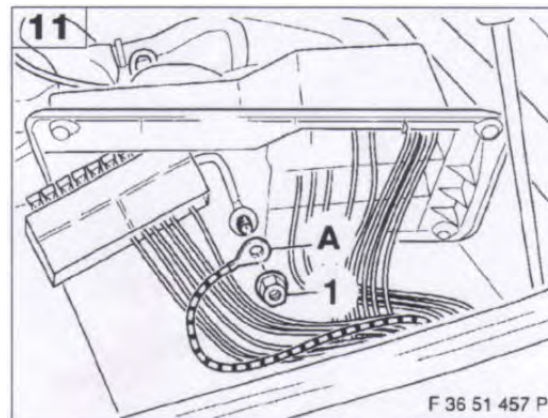


Figure 21 – Cable A Connection in Fuse Box

6.4 Power Distribution - Ba/Bc

- 6.4.1 Next assemble Bc and then plug Ba into Bc. Route the cable to the fan connector location. Plug Ba/Bc into the fan connector box prior to replacing the fan connector (Figure 6). Ba/Bc is power and is just a junction point so that Ia in the supplemental harness can plug into power. Ba/Bc is getting power from connection A.

6.5 Central Electronics - Da

- 6.5.1 Route connection Da under the dash toward the glove box area. I routed the cable through the small opening behind the climate control ducting and above the accelerator pedal (near heater core). Depending on the path you choose, there may not be enough length in Da to reach behind the glove box. If so, you will need to extend the wire by splicing additional wire. Once behind the glove box identify the green connector in the central electronics (Figure 23). Pull out the green connector and remove the plastic white cover and slide out the connector from the green cover (Figure 23). Then plug Da into empty slot for Pin #19 (Figure 24). If Pin Slot 19 is not empty, then splice Da into that

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

wire. Leave the green connector out as another cable will be routed and plugged into this connector.

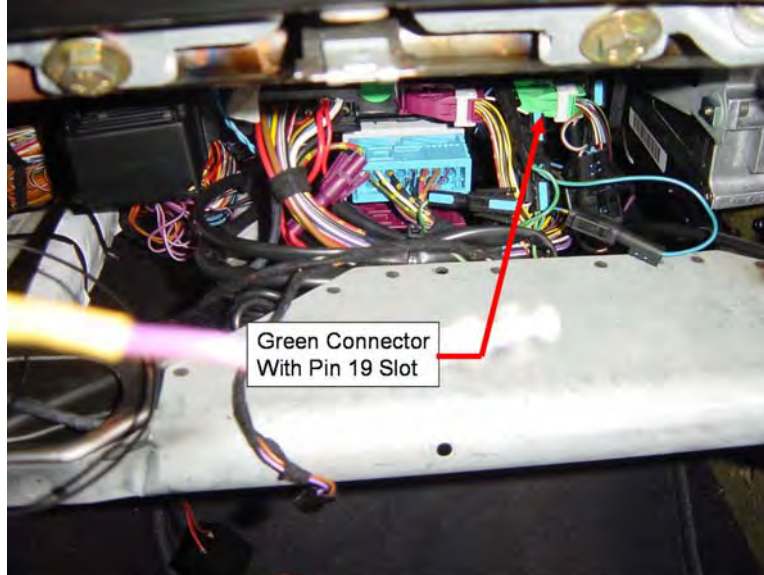


Figure 22 – Green Connector Behind Glove Box

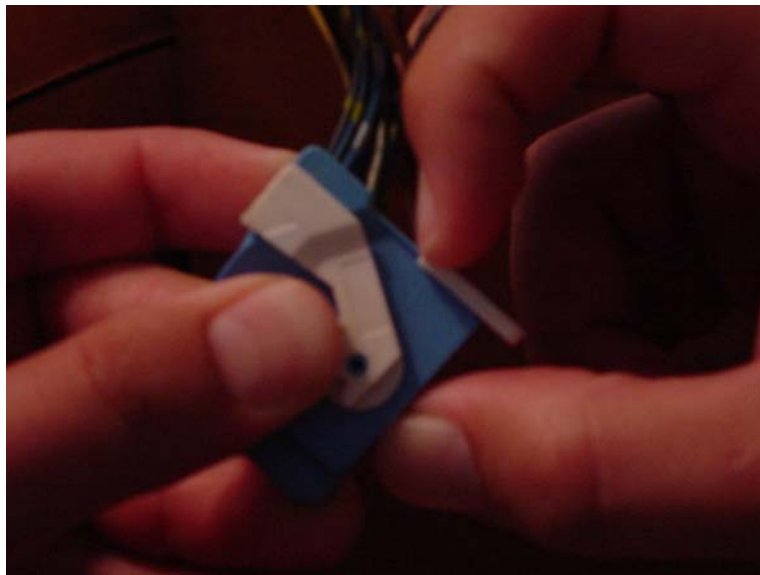


Figure 23 – Slide Off White Cover from Connector

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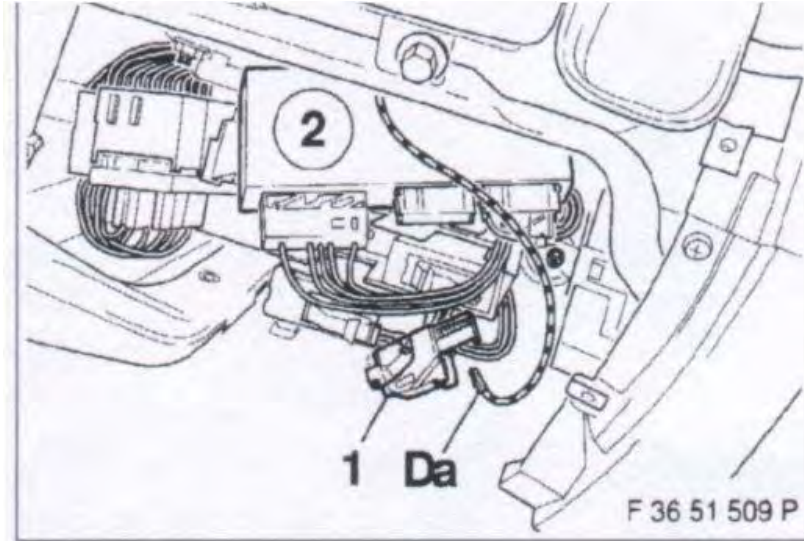


Figure 24 – Da Connection Behind Glove Box

6.6 Relay- C

6.6.1 Mount relay C on a relay box under the driver's side dash location. I attached it to one of the relay boxes under the steering column.

6.7 NOTE - Ensure the power harness has been routed such that all connections have enough cable to fit in their final position. I couldn't find a slot that fit/mounted perfectly, but the one I did use required installation from top down and ended up a little loose.

7.0 SUPPLEMENTAL HARNESS INSTALL

7.1 The supplemental harness is shown in Figure 25. Note Cables E/F, G, Ha, la, L, K, N, M, P and O. Begin under the driver's side dash

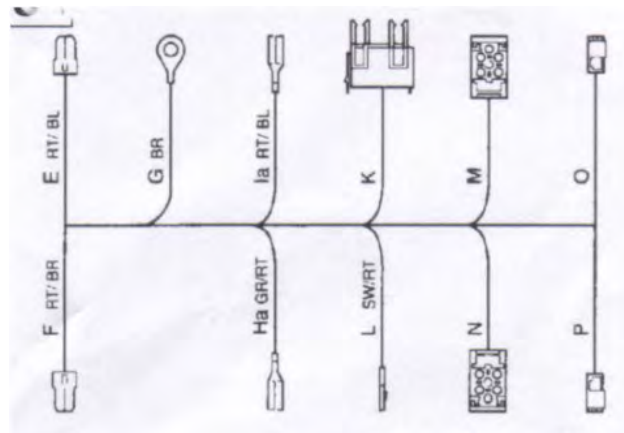


Figure 25 – Supplemental Harness

7.2 Supplemental Harness Definitions (Wire Color)

- 7.2.1 E/F = 5A fuse circuit (Red)
- 7.2.2 G = Ground (Brown)
- 7.2.3 Ha = Illumination – Fan Connector Box (Gray w/Red Stripe)
- 7.2.4 la = Supplemental Power (Red w/Blue Stripe)
- 7.2.5 L = Central Electronics (Black w/Red Stripe)
- 7.2.6 K = Relay

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- 7.2.7 N = Window Switch (Yellow Connector)
- 7.2.8 M = Window Switch (Yellow Connector)
- 7.2.9 P = Window Motor (Red Connector)
- 7.2.10 O = Window Motor (Red Connector)
- 7.3 5A Fuse Circuit - E/F
 - 7.3.1 Route both E and F wires through the firewall and into the fusebox. These will be plugged into location 15 and then a 5A fuse placed into that position (See **Figure 26 – Fusebox Connection of E and F** Figure 26). Ensure they properly reach the location so that once all is back together you have enough slack to pull up and remove the fusebox cover.

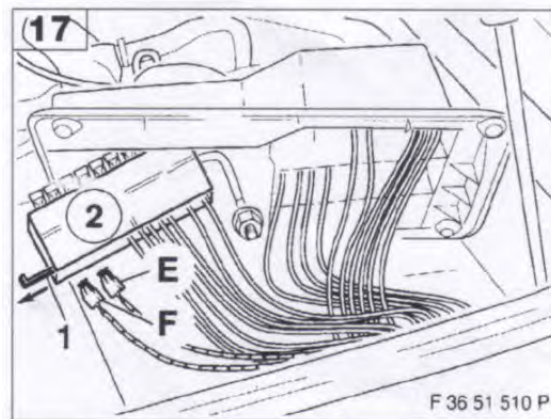


Figure 26 – Fusebox Connection of E and F

- 7.4 Ground – G
 - 7.4.1 Route ground wire with ring connector to the grounding point under the driver's side dash against the wall (See **Figure 27**).

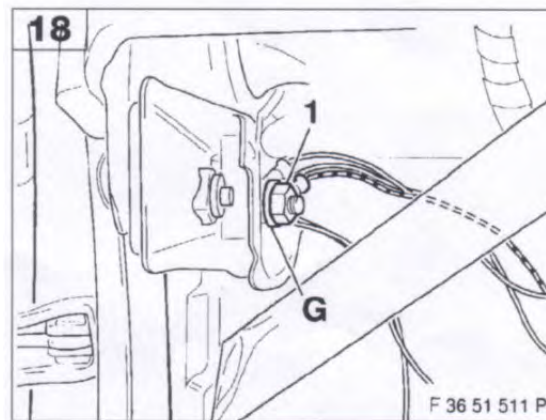


Figure 27 – Ground Connection G

- 7.5 Supplemental Power – la
 - 7.5.1 Connect la into one of the three slots in the Bc connector as shown in **Figure 28**.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

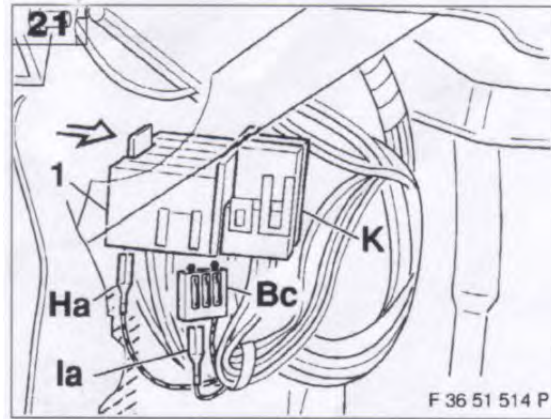


Figure 28 – Connections for Bc, la, K and Ha

7.6 Illumination – Ha

7.6.1 Connect or splice Ha into the same color wire (Gray w/Red stripe) in the Fan Connector Box (Figure 28).

7.7 Relay – K

7.7.1 Mount relay K to one of the slot locations on the Fan Connector Box (Figure 28).

7.8 Central Electronics – L

7.8.1 Route connection L under the dash toward the glove box area, just as was done for connection Da above (6.5). Once behind the glove box identify the green connector in the central electronics (Figure 23), which should already be pulled out when installing Da. Plug L into empty slot for Pin #18. If Pin Slot 18 is not empty, then splice L into that wire. Reconnect the green connector to the central electronics module.

7.9 Window Connectors – M, N

7.9.1 Route both connectors down the firewall under the carpet and up to the center console. In order to do this, pull the carpet down from under the door sill and up to expose the plastic cable covers. The door sill can be removed to make this easier, but I didn't feel I needed to do this. Since you are this far properly route the cables under the covers and up to the shifter console. This was not as easy as it sounds, but it's doable. The reason is that the carpet is really snug against the transmission hump.

7.10 Motor Connectors – O, P

7.10.1 Route both connectors down the firewall and under the carpet. Route them properly under the cable covers and toward the rear seats. Once you reach the bench wall, route one to the driver's vent window and the other to the passenger's vent window. Leave them in the vicinity until the motors are mounted.

8.0 MECHANICAL COMPONENT INSTALL

8.1 Window Switches

8.1.1 The shifter console must be modified by cutting out square holes to accept the window switches. Figure 29 shows a sketch of the cutouts, which just extends the existing cutouts for the front door switches, where A = 25mm (0.984 in) and B = 82mm (3.228 in).

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

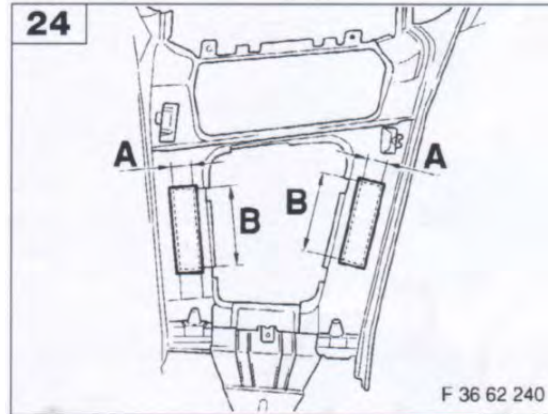


Figure 29 – Window Switch Cutouts

- 8.1.2 Begin by using a straight-edge to mark the A and B dimensions on the shifter console with a pencil. A metal straight-edge is helpful b/c you can align it to the existing cutout edges and then make the marks. To make the A line, I measured both B dimensions accurately and connected the ends of the lines. Finally tape off the marked traces with blue 3M painters tape (Figure 30). In fact tape up as much of the console as you can just in case your dremel jumps or you slip while cutting.



Figure 30 – Cutout Area Marked and Taped

- 8.1.3 Next use a utility knife or exacto-knife to cut along the tape through the soft black vinyl covering of the console. Use a chisel to help peel off the black covering (Figure 31), it comes off easily.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 31 – Removing Black Vinyl Covering on Shifter Console

- 8.1.4 Use a Dremel tool with a cutting wheel and cut along the outline remaining in the console. Then file the edges down as needed to fit the new window switch holder (Figure 32).



Figure 32 – Completed Cutouts

- 8.1.5 Repeat above steps to make the cutouts for the remaining side.
8.1.6 Mount the window switches and then install the console (Figure 33).

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 33 –Window Switches Mounted

8.2 Window Motors and Flex Shaft

- 8.2.1 The window motors are mounted by three screws below the rear vent windows, inside the rear walls. Begin by removing the panel with a raised "X" (X-Panel) shown in Figure 34 to gain access. Only two screws hold the X-Panel in place. BE CAREFUL because the sheet-metal in this area is thin and sharp which could result in an injury.

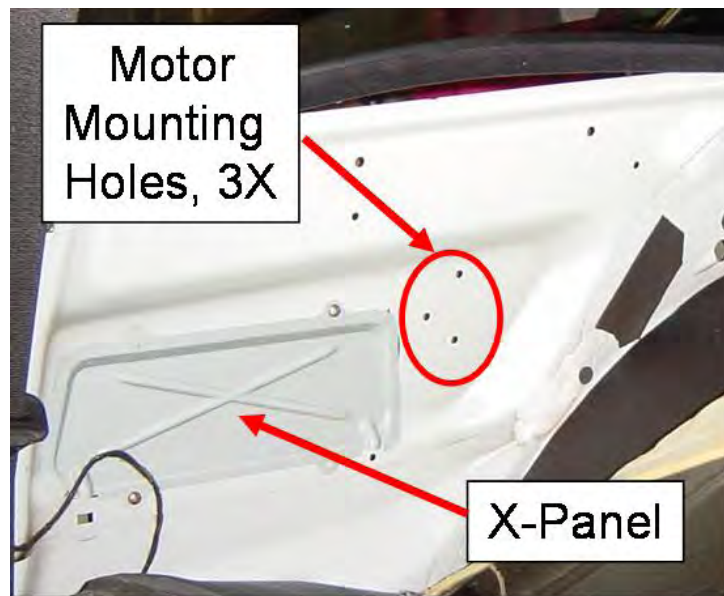


Figure 34 – X-Panel Behind Rear Side Panels

- 8.2.2 Note the location of the socket in which the flex shaft will connect. Also identify its location as oriented when mounted.
- 8.2.3 Locate the three existing holes in the sheet-metal (Figure 34) and mount the motor using the supplied hardware (3 screws and 3 nuts per motor). The motor gets mounted on the opposite side of the wall shown (inside of wall).

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- 8.2.4 Now that the motors are mounted, complete the routing of connectors O and P as shown in Figure 35.



Figure 35 – Routing supplemental harness connector (O shown) under carpet

- 8.2.5 Next route the Flex Shaft through the existing holes in the sheet-metal wall as shown in Figure 36. The side of the flex shaft with the square plug (cadmium plated) on one end will mate to the motor.



Figure 36 – Routing Flex Shaft toward Window Motor (Picture courtesy D. Ortiz)

- 8.2.6 Plug the flex shaft into the motor socket.
8.2.7 Replace X-Panel and ensure motor power cable is properly routed as shown in Figure 37.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

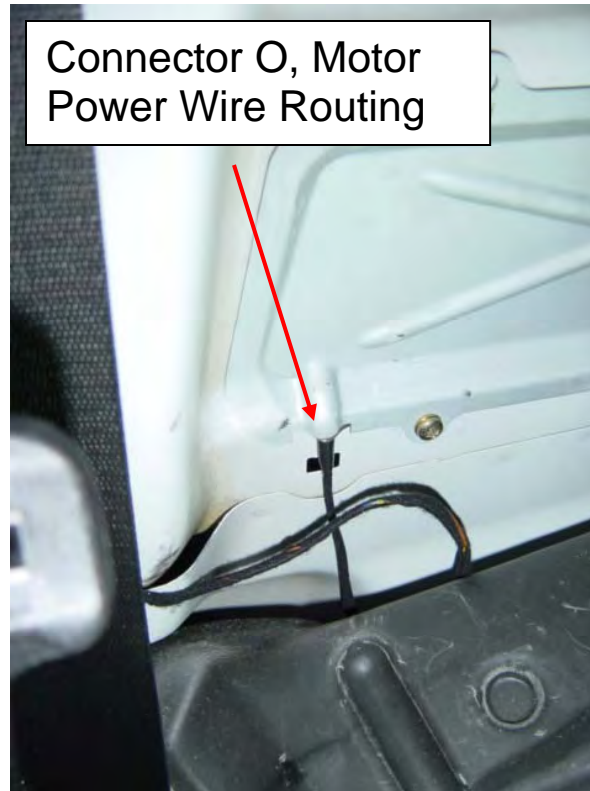


Figure 37 – Supplemental harness connector (O shown) to Motor

- 8.2.8 Repeat the above steps for the opposite side.
- 8.3 C-Pillar Folding Window Latches
 - 8.3.1 First remove the existing manual window latches from the C-Pillar. There are 2 hex head bolts per latch. Upon inspection of the bolts, you can see that the latch bracket has slotted through holes to adjust how much the window seals when the latches are in the closed position. BE SURE to note the approximate current location for future reference.
 - 8.3.2 The new latches mount in the same location and using the same hardware from the old latches.
 - 8.3.3 The catch is to properly locate the latches, using the slotted through holes, such that their final position does not provide too much or too little pressure on the window seal when the vent window is in the closed position. Using the original position may help.
 - 8.3.4 Before aligning and then tightening the bolts, make sure the flex shaft is properly located in the latch socket. Once mounted it should look like Figure 38.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 38 – C-Pillar Folding Window Latches Mounted

8.4 Rear Panel Trim

- 8.4.1 These trim pieces are not required, but do make the final install look very clean and subtle. They're inexpensive, but require dremel work to install. Figure 39 shows an example of how I cut the slot for the trim piece (left) and its final position in the rear panel (right).



Figure 39 – Rear Panel Cut for Trim Pieces

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

- 8.4.2 I approximately followed D.Ortiz's directions for installation (Figure 40). Identify the metal support on the back of the panel. At the edge you'll see a curve that mimics the curve of the trim piece. Place the trim piece as if installed and offset it 4mm from the metal support curve and trace a line with a pencil. I used cutting shears and a Dremel tool to remove the material.



Figure 40 – Additional picture of Trim Piece locations (Picture courtesy D. Ortiz)

- 8.4.3 After cutting, I filed the area down until I felt comfortable with its position in the panel. Figure 41 shows the final installation of the driver's side trim piece.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL



Figure 41 – Rear Panel Trim Piece Installed

9.0 FINISHING UP

- 9.1 Install the parts necessary to be able to reconnect the negative battery cable.
- 9.2 Functionally test the switches to make sure they open and close the rear vent windows. There is no auto-up or down with this retrofit kit.
- 9.3 After your done testing, disconnect the negative battery cable and re-install the remaining components to put your car back together.
- 9.4 DONE!

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

10.0 REFERENCE INFORMATION

10.1

Power Vent Window Install (Supplemental)

The secret to successful install: John Firestone's installation notes.

Everyone I know who has installed these windows, as well as tackled a ton of other electrically complex projects, would not have been successful without John's help. In fact, many "electrical gurus" like Ron Stygar and Alan Taur have relied on John quite a bit.

See below:

On the window installation, I have two wires running from the driver's Side to the passenger side that are currently homeless: green/black and red/black. Per the installation manual, there were specific locations for these to connect to behind the glove box, and barring that (which we had to as the specified locations were already occupied on my 10/95 M3 with sunroof) we were to simply find fan connectors of the same color. There was none of either variety to be found.

You really do want to splice the SW/RT and SW/GN wires to the like-colored wires from the sunroof already connected to the ZKE at X13254 pins 18 and 19, respectively. The first is the comfort close signal for both the sunroof and vent windows, the second the comfort on signal that wakes them up. I had to extend these wires on my car as the supplied harness wouldn't reach. I suspect the many more electrical accessories and much more wiring in my U.S. car (compared to a European one), extended the path length.

My last comment is that you should not be afraid to cut, solder, and shrink wrap into any of the fan connectors that you need to under the dash. I ran out of open spots when installing the power vent windows, but once I dug out the soldering iron, everything was smooth sailing.

REMOVING AN ELECTRICALLY HEATED DRIVER'S SEAT

After freeing seat, slide it all the way forward then tilt it back to expose seat wiring underneath. Detach three connectors:

leftmost: ws/rt, bn

middle: ws/gn, bn

rightmost: smallest one is tricky: look for hole holding locking bump slide knife blade in on that side and spread lift up shell. Slide off connector.

REMOVING A REAR SEAT BOLSTER

Need to remove rear seat bench and rear seat backs first, then plastic side cups accepting seat back axle pins. Pull top of bolster straight forward until it comes free. You need to pull pretty hard. (All other

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

panels and things come off much more easily.)
Lift bolster up off lower hook.

REMOVING DRIVER'S SIDE CARPET to get at electrical raceways underneath

1. Remove hood release lever.
2. Pull back weather stripping around lower corner of front door.
3. Turn slotted plastic screw below lever 90 deg CW then remove right front side speaker grill.
4. Remove round screw knob holding down carpet near gas pedal.
5. I had a different style trim strip running the length of the door.

I pulled the rear of strip up and off the large plastic disk it was attached to, moved the back of strip out then back down so that it was next to disk. I then slide the trim strip forward and off. It took a second set of hands to get it back on.

GLOVEBOX REMOVAL

There was a ninth, 10 mm bolt under glove box light.

FUSEBOX CABLE CLAMP

Do not try to open it further per the instructions. You may lose one of the three screws you need to remove down the sound insulation at the front the driver foot well. Instead, insert tape covered screw driver and depress a space for cables at the side of the wire bundle passing through firewall.

TO REMOVE CENTER CONSOLE

First remove the glovebox. Then remove 3 screws forward and 1 plastic nut by shift lever.

WHEN INSTALLING REAR VENT WINDOW MOTORS

Tape inside top nut in place to help start its mounting bolt.

PLACING DUAL VENT WINDOW RELAY

U.S. knee protection blocks relays assigned place. Clip it on to a free space on the left front wall.

TERMINAL BLOCK ON FRONT LEFT WALL

Comes off by lifting straight up. When adding cables take care not loop cables coming down front wall.

POWER SUPPLY LINE (Stromversorgungskabelbaum)

Wire Da (Sw/Gn) to ZKE (behind glovebox) is too short and X13254 pin 19 already had a Sw/Gn wire in it. Need to extend wire and splice into existing Sw/Gn wire.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

Wiring to fuse F13 is a bit goofy: it places the power relay upstream of the fuse. I reversed this so the fuse is first. I first added new 2.5 mm² Rt wire from X9 B+ to one side of F13, then cut and spliced harnesses to follow 9/95 German ETM 5133.0-06.

SUPPLEMENTARY WIRING HARNESS (Zusatzkabelbaum)

Wire L (Sw/Rt) to ZKE is too short and X13254 pin 18 already had a Sw/Gn wire in it. Need to extend wire and splice into existing Sw/Rt wire.

BMW E36 OEM POWER REAR VENT WINDOW INSTALL

10.2 Question and Answer Information

- 10.2.1 Just to refresh you, there are only 5 connections/splices going on under the dash. 2 go behind the glovebox (L, Da). That leaves Bc (power harness), la and Ha (supplemental harness). Your doc pretty much explains the connections behind the glove box (L, Da)
- 10.2.2 Here's what I think about Bc, la and Ha...I have a big problem with la
- 10.2.3 1. "Bc" red w/blue stripe - It seems "Bc" should just be stashed in the fan connector box, do you recall?
- 10.2.4 2. "Ha" gray w/red stripe - In your pic, you are showing the gray w/red stripe spliced, which matches "Ha". I have a fan connector with same color wire as this that I'm going to plug "Ha" into. It also matches the wire at the illumination switch.
- 10.2.5 3. "la" red w/blue stripe (Same color as "Bc", but a smaller gauge) - This one is a big problem b/c no fan connectors match this color wire. Any ideas?
- 10.2.6 4. Also, my "kit" didn't come with a fuse or instructions. Do you recall the size fuse I should use?
- 10.2.7 Sorry to bombard you with questions, just trying to get comfortable before soldering. I greatly appreciate any help you throw my way.
- 10.2.8 Don't mind helping. It sounds like your harnesses are not correct. Were you ordering separately or via kit?
- 10.2.9 Not sure if Bc is supposed to come with power harness, I got the kit and it was all included. I've ordered harnesses before and they showed up missing pieces like these and i wasn't able to order them separately
- 10.2.10 Ba on my power harness is Red with violet or blue stripe. Da matches the wire color of Pin 19 in the green connector behind glovebox. The colors you mention don't match what I have, I think mine was black with green stripe.
- 10.2.11 You need K and L. L goes to the green connector Pin 18 and matches the wire in that location, I think black with red stripe
- 10.2.12 F and E are for the 5A fuse and go into location 13 in fusebox
- 10.2.13 G is ground as you say
- 10.2.14 Ha is illumination and goes to teh gray/red stripe wire in the fan connector
- 10.2.15 La is power and the color you say is correct, but has the wrong connector. It should have a connector like the ones in the fan connector in the car. Bc is just a method for La and Ba to splice together
- 10.2.16 Dude, I think you have the wrong harnesses. They may be power vent supp and pwr, but probably for a different car model. With Relay K, I'm pessimistic that you could custom wire it properly...but who knows for sure
- 10.2.17 Here are the numbers I have recorded for harnesses: Supplementary = 61-12-9-404-366; Power = 61-12-9-404-366, but I'm not sure if I pulled them off my harnesses or found them somewhere. I can find out for sure, but compare these to the harnesses you ordered. If they are the same numbers, then I'll check the numbers on my harnesses
- 10.2.18