Installing Power Seats in Car With Manual Seats

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Volvo Maintenance FAQ for 7xx/9xx/90 Cars

Installing Power Seats in a Volvo 700/900 Series [Jay Simkin]

I. Planning: Parts and Wiring

It is helpful to have the section of the donor car's seat wiring harness that takes power from the behind the central console, to the connector at the outer corner of the seat (near the door). You can use a seat wire harness from a driver side seat in a 940, or either seat in a 960. If you cannot get the seat wiring harness from a junk car, get it from the dealer. You will need the connector block at the end of the harness, to connect to the block at the end of the chair wiring harness.

So far as I know, you cannot install a driver side seat on the passenger side of the car, or vice versa. Any powered passenger seat or switch should work fine, regardless of the model of the car (940/960), in which the seat is installed. A passenger side power seat will NOT have memory functions. You cannot put a driver side power seat switch on a passenger side seat. They are totally different. The driver's side seat switch attaches to a seat computer, from which wires run to the seat mechanism. The passenger side seat switch attaches directly to the seat mechanism. A car that did not have a power passenger seat does not have any connector on the wiring harness inside the front console into which a seat wiring harness can be inserted. When these cars were built, only those ordered with dual power seats had connectors on the wiring harnesses inside both sides of the front console.

Before you begin, check any salvaged seat wiring harness for continuity, to be sure that there are no breaks in the conductors, inside the insulation. To do this, take a test-meter, set it to OHM (continuity), and put one test probe at each end of, say, the black wire. If the needle jumps to the far right, you have continuity. If it does not move, there is break in that wire, and it is useless. Check each wire. Once you know there is continuity - that all wires are undamaged - you may proceed.

At the end of the donor car seat wiring harness that connected to the wiring harness behind the console, remove the individual wires from the connector. You can do this by opening the connector cover. Using a needle nosed pliers grip the connector by its shank (the metal part that grips the wire) and gently wiggle it, will pulling it out of the connector housing. The black wire is, of course the ground. I grounded mine to the screw that secures the emergency brake activation switch (see below). The black/white or black/red wire is the positive wire. It needs to have a female spade-type connector put on it. Once you do that, it can be connected at fuse #7 on the fuse block. Once this is done, you will have power to the seat.

II. Procedure: Installing Power Seats.

Here are the specific steps.

Removal of the manual seat

Preparations

(a) Cover the inner face of the passenger door panel with a sheet of cardboard. Cover with cardboard the rocker panel section at the bottom of the door opening and the plastic strip on the interior that rocker panel section (the door threshold strip). This will protect them against damage. A power seat is heavy, bulky, and unwieldy.

(b) You may want to remove door threshold strip. To do this, pry up the three plastic screw covers, using the edge of a putty knife, with the blade blunted. Remove the three torx screws. To remove the door threshold strip, you must remove the center column plastic cover (at the top of which, the seatbelt emerges).

(c) To remove the center column cover, two screws, covered by screw caps, need to be removed. Remove the screw caps, using the tip of a small screwdriver. The caps are secured by lugs at the 12 o'clock and 6 o'clock positions. Pry gently. Remove the screws. Then, using the edge of your putty knife, start at the top of the center column cover. Insert the knife at a 45-60 degree angle between the black plastic edging and the edge of the center column cover. Pry gently, to free the cover from the edging. NOTE: be very gentle, as the top of the center column cover is slit on one side, so that the seat belt can pass through. As a result, there is only 3/4 of material connecting the top of the center column cover, to the rest of it. The center column cover is secured by four metal clips, at intervals between the two screws (which you have removed). Thus, the rest of the center column cover can be removed by prying gently, moving from top to bottom. If it does not come free, use the blade of the putty knife for leverage. Once you insert the blade between the black plastic edging and the cover, push the putty knife handle towards the door opening. The cover should then pop free of the clips. Remove the center column cover and the door threshold strip.

(d) Next, remove the plastic covers over the back end of the seat tracks. They are held on by lugs on the tracks, which fit into recesses in the covers. Pull back to disengage the cover from the lug, and then pull up. With a bit of wiggling, they should come free.

Seat Removal

(a) Remove the four seat bolts. Pull the seat as far back as possible, then move it forward 1/4". That will allow the seat track lug to disengage from the keyhole in the floor plan.

(b) To remove the seat belt anchor bolt, unscrew the cup-holder at the front of the seat (a single Torx screw). Rotate the cup-holder upwards, to expose the seat-belt anchor bolt. Remove it. This bolt will be tight: be prepared to use muscle on it. Remove the seat belt from the seat.

(c) Carefully lift the seat out of the car.

Running wire for power seat to the fuse block.

Preparation: Accessing the fuse/relay block requires removal of the ashtray, lighter, and storage bin

(a) Remove the ashtray, by lifting the latch at the bottom.

(b) Remove the plastic bezel around the lighter, by prying gently from the right (passenger) side

(c) Remove the two Phillips head screws - one short, one long - that secure the lighter/storage tray

(d) Gently pull the storage tray - with lighter attached - towards you.

(e) Disconnect the wires from the lighter.

(f) you can now access the fuse/relay block (white plastic) with enough room to work

Accessing the under-side of the fuse/relay block

(a) Release the white clips on the right and left front corners of the fuse/relay block

(b) Gently lift and pull the block towards you: the block has a very large number of wires coming into it, so the wire harness may be stiff. Do NOT yank on the block. If it is balky, pull firmly with one hand, using the other hand to push on the block from behind. If you have to do so, remove relays (when re-installing relays, reseat them fully)

(c) When you have the fuse/relay block through the opening, if there's enough slack in the harness, rotate the front end upwards, so you can see the underside of the fuse/relay block

(d) If there's not enough slack to do that, use a mirror to view the underside of the fuse/relay block

(e) Find fuse No. 7. You may need to move wires aside to see it. You will see a male spade connector. It is to this connector, that you will attach the wire, that will take power to the passenger-side seat.

Running wire from passenger-side seat to the fuse block

Remove the carpet and run the seat harness wire from the fuse block to the front, door-side corner of the seat location.

(a) You will need to roll back the front, passenger-side carpet for about half of its front-to-back length. You need to roll-back the carpet, so you can see the black plastic heating duct that runs from the passenger side of the center console under the front seat. You will need to pull the carpet from under the plastic kick panel on the passenger side of the center console.

(b) Using a piece of soft steel wire (or a coat hanger wire), put a 1/4" loop in one

end, using a needle-nosed pliers. Attach a piece of nylon seine twine (string) to the loop. Working from the fuse/relay block opening, fish the steel wire inside the kick panel, so it emerges beside the black plastic heating duct.

(c) Grip the seine twine (string) and pull an 18" length. Cut the twine free from the loop in the steel wire. Remove the steel wire (it has served its purpose).

(d) taking the end of the seat wire harness that has a connector on it, tie the seine twine to the end of the wire. Wrap the connection with plastic electrical tape to make a smooth cover.

(e) grip the seine twine where it comes out of the fuse/relay block opening. Gently pull the seine twine upwards, drawing the seat harness wire inside the kick panel, until it emerges in the fuse/relay block opening.

(f) remove the plastic electrical tape and cut the seine twine.

Attaching the seat harness wire to the fuse block

(a) cut off the old connector (the one that used to go into the connector block, and plugged into the central wiring harness), bare 1/4" of wire using a wire stripper, and install a standard female spade type connector (No. 14-16 wire, blue insulation). This connector need not have an insulated shield.

(b) Using a mirror if necessary to view the underside of the fuse/relay block, gently move aside wires so you can see the male spade-type connector at fuse position 7. Press the female connector onto the male connector at fuse position seven. A needle-nose pliers, will be useful to do this.

Completion of running wire from fuse block to front, door-side corner of seat location

(a) Replace the fuse/relay block in its holder, taking care that the new wire is not crimped in the process. When you push the fuse/relay block back into position, do so gently, making sure that the wire harness attached to it is not jammed between the fuse/relay block walls, and the white plastic fuse relay block holder.

(b) If there's excessive slack in the new wire, in the fuse/relay block area, gently pull on the end of the wire, where it emerges from the kick panel

(c) Loosen the plastic wire ties, and thread the new wire through them, beside the existing wire for the seat-belt warning (and/or seat heater) system, until it reaches the in-place connectors for the seat belt warning system (and/or seat heater).

(d) Take the black wire from the seat wiring harness, and thread it through the plastic wire ties, until you near the side of the emergency brake console

(e) Replace the storage bin/lighter, making sure that connections to the lighter are correct. Replace the two Phillips screws that secure this unit. Replace the black plastic bezel around the lighter. Do not replace the ashtray.

Removal of the Emergency Brake Console

(a) Remove the two Torx screws in the black plastic emergency brake well.

(b) Remove by sliding backwards, the black plastic L shaped fitting, at the rear end of the opening, through which the emergency brake handle protrudes (some years may not have this fitting)

(c) Open the storage bin, and remove the panel in the bottom by prying gently, with the tip of a 1/4" wide, flat-bladed screwdriver. Remove the two Torx screws beneath the panel.

(d) Rock the console about 1" front to back

(e) Disengage the black plastic emergency brake handle well from the console housing (which will be colored to match your interior)

(f) If seat heater switches are present, reach under the emergency brake handle well and disconnect the seat heater switch connectors, from the wiring harness.

(g) Remove the emergency brake handle well

Attachment of the Ground (black wire)

(a) Take the black wire from the seat wiring harness [See C (c) above] and run it up to the screw that secures the emergency brake warning switch.

(b) bare 1/4" of the black wire attach a ring connector (No. 14-16).

(c) Remove the screw that secures the emergency brake warning switch

(d) Put the ring connector beneath the emergency brake warning switch

(e) Replace the screw that secures the emergency brake warning switch. You have a good ground. Using a multi-meter, check for power at the connector at the end of the seat wiring harness. If you have power there, proceed. If not, see Section J, below.

Replacement of the emergency brake well and center console

(a) Place the emergency brake well over the emergency brake handle.

(b) Reconnect the seat heater switches. Check for function.

(c) Replace the emergency brake well (do not replace the screws), aligning it with the front of the center console

(d) Re-seat the center console, aligning the holes in the bottom of the storage bin, with the holes in the bracket, to which it is screwed.

(e) Replace the screws in the bottom of the storage bit, but do not tighten fully

(f) Replace the screws in the bottom of the emergency brake well, but do not tighten fully

(g) Align the center console (do not tighten the screws).

Seat Installation

Preparation

(a) Tighten the plastic wire tires, loosened to allow running ground and positive wire from the fuse block/emergency brake switch positions, to the front door-side corner of the seat location

(b) Replace the carpet. Push the edges under the side of the center panel kick panel and the emergency brake console. Lay the carpet flat from the edge of the emergency brake console to the door.

(c) Tighten all four screws that secure the center console

(d) Replace the panel in the bottom of the center console storage bin

(e) Replace the ashtray

Seat Installation

(a) Place the powered seat into the car. Put the stud into the key hole in the floor pan and align the holes in the seat tracks with the bolt holes in the floor pan.

(b) Insert the bolts into the holes, but do not tighten then.

(c) Insert the seat wiring harness connector into the power connector attached to the front right corner of the power seat.

(d) Move the any seat switch (e.g., front-to-back). The seat should move in both directions. Check the other switches.

(e) Insert the four seat bolts, and tighten them. Lift the cup holder, and attach the seat belt anchor. Taking care that the seat-belt is not twisted. Tighten fully. Replace the screw at the front of the cup holder.

Finishing

(a) Replace the center column panel. Start at the top. The upper edge of the panel should be flush with the ceiling. When you press it into place, make sure the edges of the panel fit behind the black plastic. Do not press the bottom of the panel into place.

(b) If you've completely removed the door threshold strip, put it into place, engaging the lugs at the bottom of the center column panel.

(c) Position the threshold strip, so that the holes in the strip align with the holes in rocker panel.

(d) Position the center column panel into the metal clips that hold it.

(e) Press the center column panel into place

(f) Replace the screws that secure the center column panel

(g) Replace the screw covers over the center column panel screws

(h) Replace the screws that secure the threshold strip

(i) Replace the caps over the threshold strip screws.

(j) Replace the front door-side track cap. Tuck the electrical connectors behind the cap. Engage the cap lugs into the edge of the threshold strip. Secure the cap with the torx screw.

(k) Replace the rear plastic track caps. Fit the cap on the lugs on the seat track and push the caps forward. They should lock into place.

Trouble-shooting.

(a) If you do not have power at the seat connector, after you connect the ground, check Fuse #7 to be sure the circuit is live. If the fuse is OK, check to make sure that the connector has not been dislodged from the fuse block. Re-check all wires for continuity. If there is continuity - and there still is no power at the seat connector - there is some other fault, that is not obvious.

(b) If you have power at the seat connector, but the seat does not move, the switch likely is defective. These seats have a relay on the circuit board that wears out. You can bridge this relay out of the circuit or replace it (it is available from the manufacturer). This is a separate procedure. You can also replace the switch with one from a salvage yard, or from the dealer.

(c) Other power seat faults can be diagnosed using the Volvo Technical Manual.

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