

C4 Heater Core Replacement by Dave F. (with Sean D. And Goran D.) April 2013

This is based on several sources including (underlined blue text = hot links)

1. [Kinderutz's 2.5 hr miracle heater core R&R DIY](#) – no console removal – big time saver
2. [Steve Y's Temperature Flap Motor R&R pdf](#) – great DIY, some great photos
3. [Fred M's HVAC Heater blower R&R DIY](#) – great DIY, great photos (Labeled in green)
4. [Austinado16's Heater Core DIY from the C4 100/A6 forum](#) – included console removal
5. [ThetaTau87's Heater Core DIY based on Austinado16's DIY](#) – also included console removal
6. [UrS4boy's HVAC system component's post](#) – shows the general components of the C4 HVAC system
7. [WikiHow C4 Heater Core DIY \(to be avoided\)](#) – some good photos but still a console out DIY
8. [Edzgarage Nightmare C4 Heater Core DIY video \(takes the dash out – yikes!!\) \(to be totally avoided\)](#) This is one of the main reasons for this current DIY pdf, to avoid that total waste of time
9. [Reparaturen am AUDI A6 C4: alle 4 Klimastellmotore reparieren](#)
10. Hints provided locally by Gabriel C. (Iskolnick to quattroworlders) and via email
11. Hints provided locally by Goran D. (Gortec Machining, owner of 2 UrS6s) who “trained” under Iskolnick.
12. Hands-on work by Sean D. (quattro20v), Goran D. and Dave F. (UrS4boy) on Sean's 97 UrS6 following kinderutz's descriptive words - including photos taken by Dave F. in January 2013
13. Hands-on work and photos by Dave F. in April 2013 as he did the heater core on his 98 C4 Avant after it puked on the way to pick-up parts for his UrS4. (I followed the first version of this DIY done in mid-March (from memory, mostly) and took some additional photos for this Revision)
14. Photos from Mark A. (Thefeek) and others (Thanks to all).

Preliminaries:

Before you start, you have to know that this isn't a job that you will want to do more than every 10 years. As a result, you want to use the good OE parts from a dealer or GVAP (who is internet sales at a dealer). You DO NOT WANT the cheap aftermarket parts that will likely fail in under a year. Time is money. Buy OE.

You will want to buy:

1. The heater core: Item 1 below, PN 443819030 (same for LHD and RHD) – plastic end tanks and aluminum heat exchanger matrix (even the OE heater cores have plastic end tanks) – best bought from an Audi dealership – aftermarket cores aren't lasting very long.
2. Sealant – 5 ft of OE foam, new airbox seal, PN 431 819 225, or hardware store 3/8"x3/4" self-adhesive closed cell black foam or glazer's tape
3. Solvent to clean off the old sealing foam off the heater box and the C4 body
4. High Temp RTV (e.g. Permatex Grey or RTV red) sealant to seal the new core to the heater box.
5. Heater fan – you are going to have to remove it anyway, might as well replace it, PN 4A0959101A
6. The bleeder valve: Item 11 below, PN 4A1819373F (pricy – optional –can be done later)
7. The heater control valve: Item 17 below, PN 4A0819809 (LHD, RHD =893819809) (optional – can be done later)

Tools you might want to have handy

Based on Austinado16's post:

- Philips screwdriver – normal and **very** long (e.g. 12"), also slotted screwdriver
- Wide blade tool like a gasket scraper
- Dental pick or seal removal tool (long thin, with a hook at the end)
- Magnet (telescoping) for the inevitable “oops”.
- 8 mm and 10 mm 1/4" drive sockets, 12 mm and 13 mm 3/8" drive sockets
- 12" long 1/4" drive extension, 3" and 6" 3/8" drive extensions
 - 1/4" and 3/8" drive ratchets – I used used my 3/8" stubby ratchet almost exclusively (can't over torque with it)
 - 5 mm and 6mm Allen sockets (3/8" drive typically)

The first steps

Here is what kinderutz said: "opened the hood, took cowl cover off, wipers off, plastic (wiper linkage) cover off, wiper linkage off, heater box strap off, disconnected vacuum hose from the heater valve and lay to side, remove the 1 Phillips bolt that holds a solenoid attached to the heater box and lay to the side with the other hose i just disconnected as well as the connector to the wiper motor."

Let's go through that now in photos (borrowed from Fred M.'s and Steve Y.'s DIYs – don't worry about the photo numbers, I am following kinderutz's instructions, different order than Fred's photos, in some cases)

1. **Took the cowl (aka plenum) cover off** (four clips, lift up and slide out):



Photo courtesy of Fred M.

2. **Wipers off:** Pry off the plastic cap. Remove 13 mm nut and wiggle/pry the arms off.



Photo courtesy of Steve Y.

3. **Plastic (wiper linkage) cover off** (actually two parts, the first metal, the second plastic):
Metal part is held on by four 5 mm Allen head socket bolts:



Photo courtesy of Fred M.

Now the plastic wiper assembly shroud (4 to 7 clips) (my 98 C4 avant just had 4 clips)



Photo courtesy of Fred M.

You now should have the two parts off, lay them aside in a safe place:



Photo courtesy of Steve Y.

Wiper linkage off. There are four bolts that hold the wiper linkage on and one electrical connector to the wiper motor:



Photo courtesy of Fred M.

There is also a bracket that is used to hold the metal wiper mechanism cover on. This bracket needs to come off to make removal of the wiper mechanism possible (or at least easier). Note the height of the bracket and how it fits UNDER the edge of the metal frame beneath the windshield glass. Note also the zip-tie that holds the wiper motor harness wiring to the frame of the wiper mechanism. You will have to cut the zip-tie and replace it later.



Photo courtesy of UrS4boy

Carefully remove the wiper linkage and motor and set safely aside:



Photo courtesy of Steve Y.

4. **Heater box strap off.** This is a two-piece galvanized metal strap that holds the heater box into the C4 chassis. Loosen the clamp until the two parts separate and remove both parts and set aside. These can be rusty, depending on the history of your UrS. (Note the orientation of the ends of the clamps and the heater bleed valve clearance. You will need to reproduce this later)



Photo courtesy of Fred M.

5. **Disconnect the vacuum hose from the heater valve and lay to side.** This photo shows the heater control valve and vacuum line in question going into the center of the valve. It also shows the bleeder valve (the thing with the flat blade screwdriver slot and the cerated edge). Note the angle and clearance with respect to the heater box ban clamp. You need to reproduce this later.

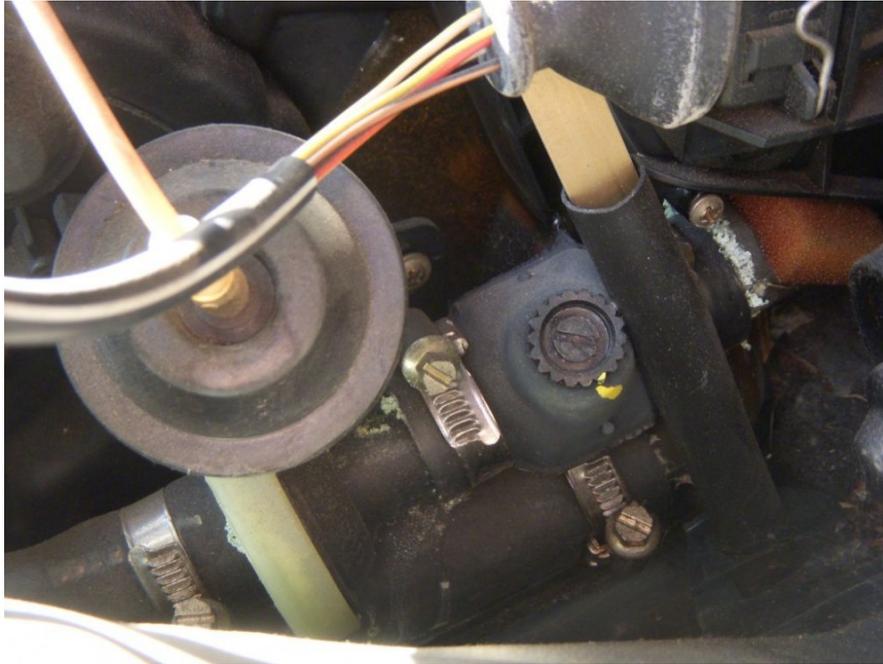


Photo courtesy of UrS4boy

6. **Remove the 1 Phillips-head bolt that holds a vacuum solenoid/switch attached to the heater box and lay to the side (Note: This is an UrS4)**

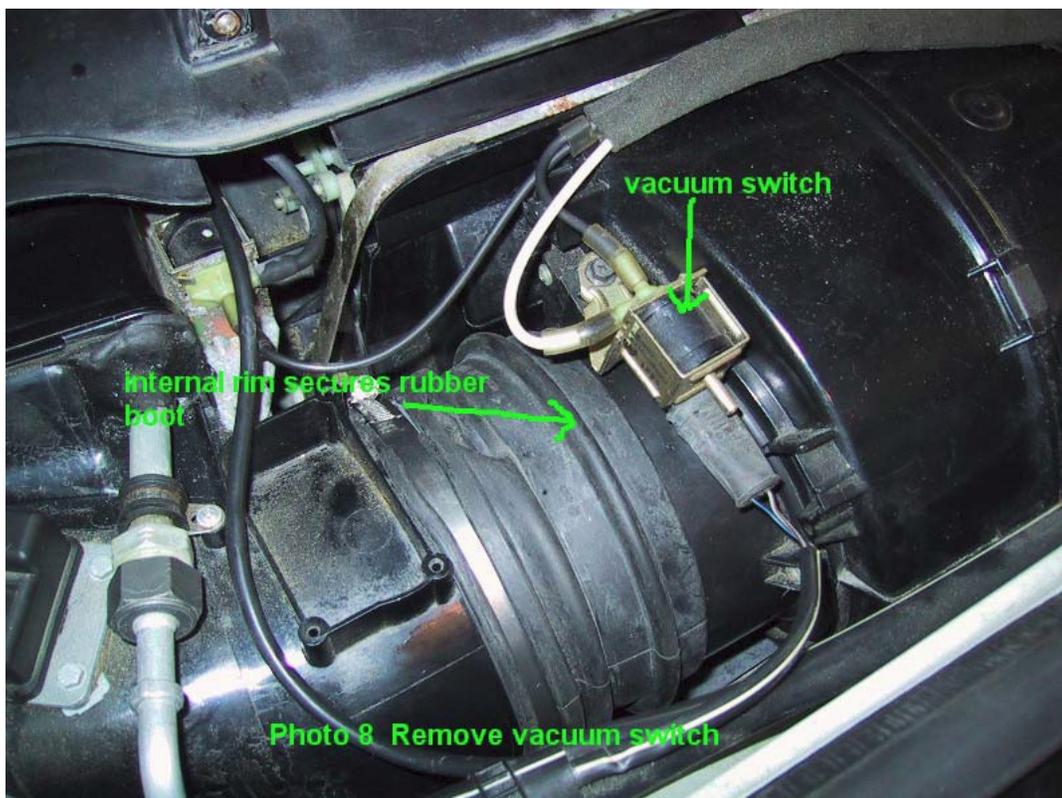


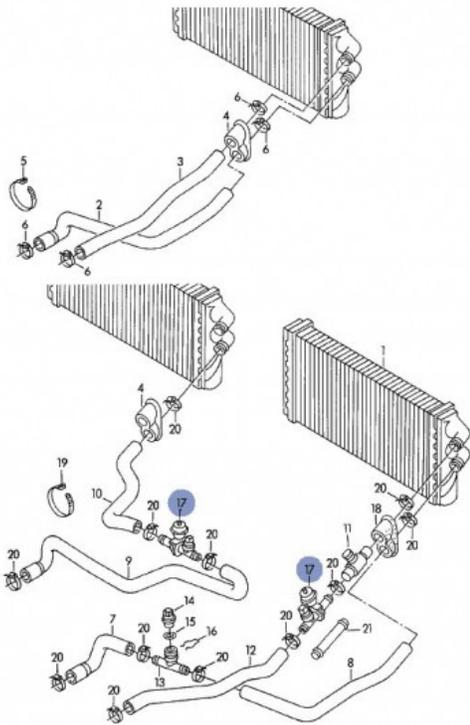
Photo courtesy of Fred M.

7. **Disconnect Any Wiring Connectors not already disconnected** (kinder didn't mention the flap motor connector show here (But it has to be disconnected)):



Photo courtesy of Steve Y.

8. **Pinch and disconnect your hoses NOW.** Kinder is talking about pinching hoses 8 and 12 and disconnecting 8 and 11 from the two heater core nipples. I used two needle-nosed ViceGrips(tm) to do the hose pinching.



POS	PART NUMBER	NAME	REMARKS	QTY	MODEL
		(flange > heat exchanger)		lhd	ADR
9	4A2 819 371 H	water hose (flange > heater valve)	feed	rhd	1 5 cylinder
(9)	4A2 819 371 L	water hose (flange > heater valve)	feed	rhd	1 4 cylinder
10	4A2 819 371 J	water hose (heater valve > heat exchanger)	feed	rhd	1
(10)	4A2 819 371 P	water hose (flange > heat exchanger)	feed	RLKG	1 4 cylinder: ADR
11	4A1 819 373 F	water hose (heater valve > heat exchanger)	return	lhd	1
12	4A0 819 373 C	water hose (heater valve > water pipe)	return	lhd	1 5 cylinder
(12)	4A1 819 373 C	water hose (heater valve > water pipe)	return	lhd	1 4 cylinder
(12)	4A1 819 373 L	water hose (heat exchanger > water pipe)	return	lhd	1 4 cylinder: ADR
13	4A0 819 497	t-piece			1
14	025 906 041 A	temperature sensor	2 pin blue 20MM		1
15	+ N 903 168 02	round seal	19,6X3,6		1
16	032 121 142	retaining spring			1
17	4A0 819 809	heater valve		lhd	1
(17)	893 819 809	heater valve		rhd	1
18	4A2 819 699	double grommet			1

9. Remove the big hose that connects the evaporator housing to the blower housing

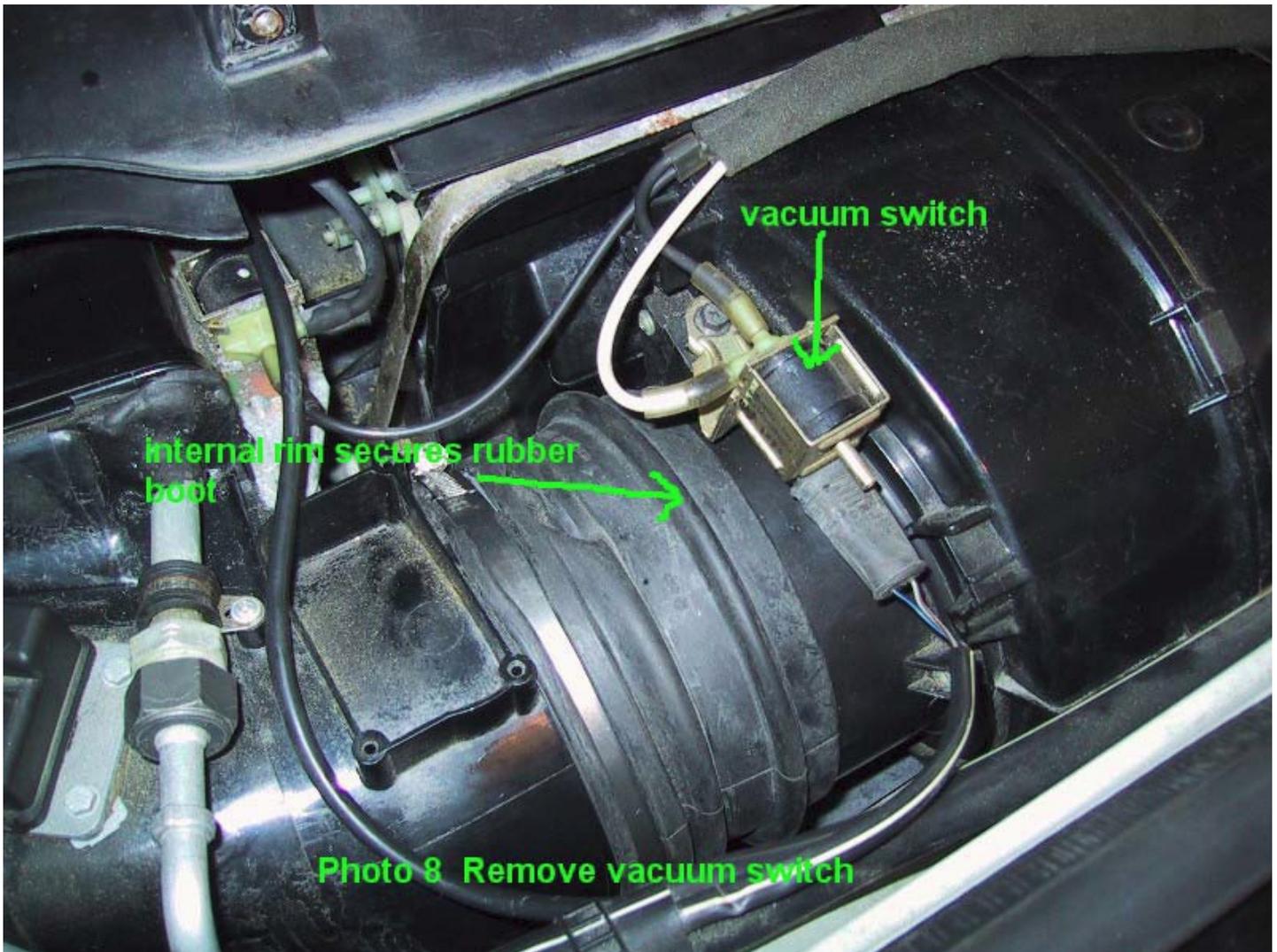


Photo courtesy of Fred M.

As Fred M. said "Remove the rubber boot connecting the heater box to the AC evaporator box. Remove the large hose clamp to release the evaporator side of the boot. A rim cast into end of the plastic box extension holds the heater box side of the boot. You can't slide the boot off; you have to lift it up to clear the rim before it slides off (see Photo 8)." Kinderutz also said "no need to try and move the yellow flap, the box will clear it." He must have got lucky, we'll come back to that one. (Note: The UrS4s do not have the yellow flap so that is a non-issue).

What I can say is on my 98 C4 Avant, I loosened the metal clamp but left the rubber boot attached to the heater box. Furthermore, I did not remove the boot from the heater box at any time.

10. **Move to the interior of the UrS:** At this point kinderutz said, "I think you're done under the hood (this should take you about 10 min), move inside." He must have a magic watch or something because it took more like 30 minutes to get this far for us (Sean, Goran and Dave) (When I did my 98 C4 Avant, I started in the interior and then went under the hood so the order is not that critical – just all the tasks need to be completed before the heater box will come loose).
11. **Remove the Glove Box:** Note the gap between the upper edge of the glove box and the dash, you will need to reproduce this later). Now open the glove box. Locate 2 nuts above and 2 bolts on the bottom and take them off (10 mm). Follow the glove box cable towards the right side and disconnect it. Kinder says "BAM! Glove box is out." (Don't let it fall on your head). Place the glove box somewhere safe, keep the nuts and bolts with it.
12. **"Pull the carpeted console panel away from the console":** kinderutz didn't mention this but the only way the next few steps can be accomplished is if you peel back the carpet panel (as a whole, not just the carpet) on the passenger side of the front console. The panel is clipped to the console. I just pulled out at the front of the panel. When I moved the panel back to its original position at the end of the process, I realized that pushing down on the middle top of the panel while pulling out and back at the front of the panel would have been easier. YMMV.
13. **"Remove the big elbow on right side:** Pull on the big elbow that sits near the center console (on its right side) and take it off." I think a workable technique is to put down on the elbow and rotate the male end out of the vertical female duct and then put the big end of the elbow off the heater box.

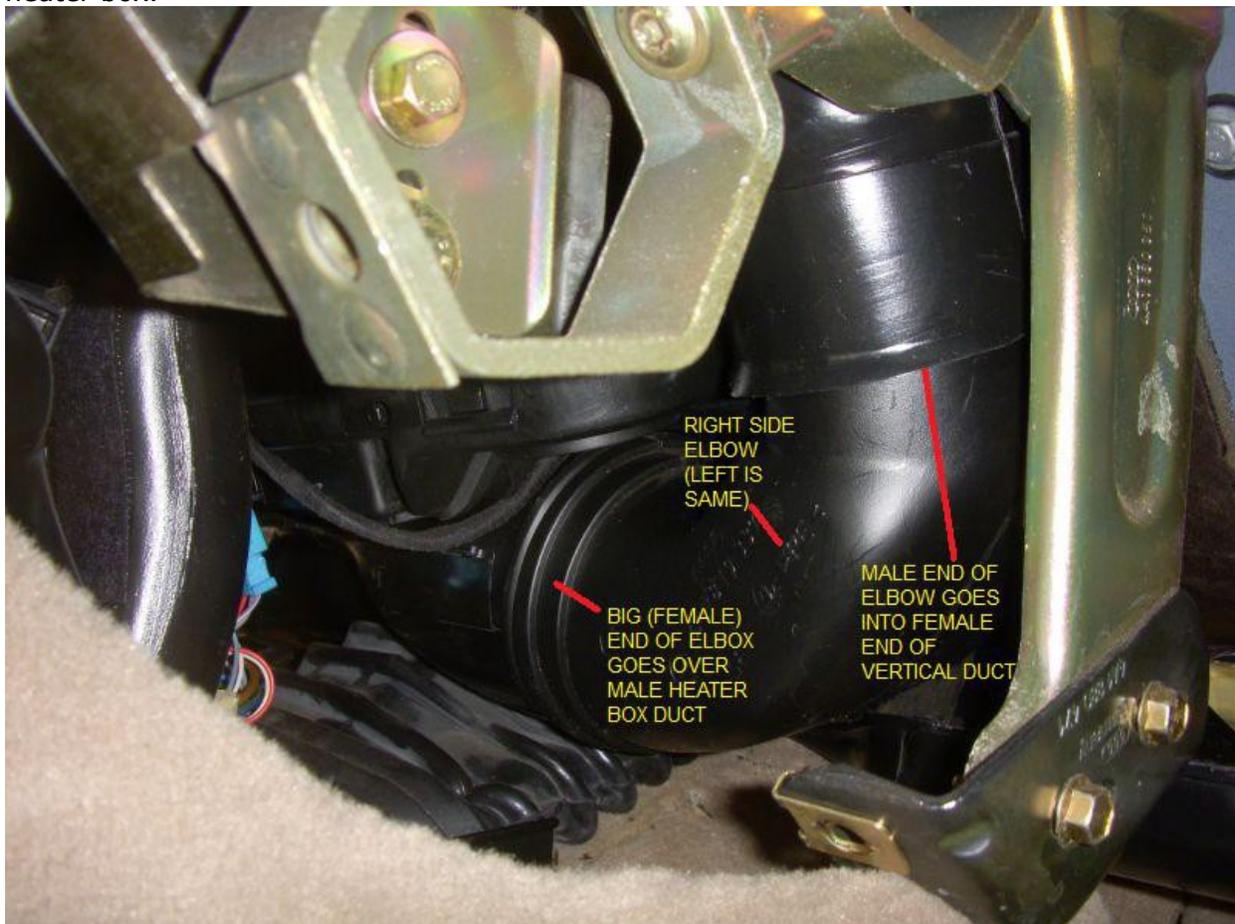


Photo courtesy of UrS4boy

14. Now you've exposed an 8mm bolt that holds the right side lower duct (footwell duct). Take off bolt and remove the duct. (Remove/disconnect the footwell light, noting its orientation in the duct so you can reproduce that later). The outer end of the footwell duct clips into a holder. (This view is based on the carpeted console side panel bent back out of the way)



Photo courtesy of UrS4boy

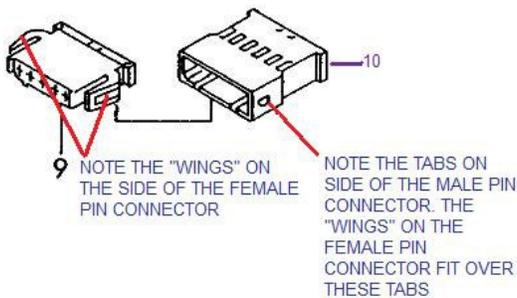
15. **Remove duct with white sock (maybe):** Kinderutz said "remove the upper duct as well (the one with a white sock on it....cut the zip ties and pull)." Sean did that but later said "Why did I do that? It wasn't connected to the heater box anymore". When I did the heater core in my 98 C4 Avant, I ignored this step. That duct has nothing to do with the heater box. Leave it, it's fine.
16. **Now comes the most critical time saving point of kinderutz's instructions:** "Remember where that big elbow came from? Stick your hand in there behind the radio and locate a blue connector - disconnect it. Now stick it further and you'll feel a red one (it really feels like a red one, LOL). Disconnect it." If you can do this, you avoid removing the console like some instructions and even the less severe step of just removing the radio and reaching into disconnect the red and blue connectors.

This warrants a bit more info to help you disconnect those two connectors and avoid the console removal.

Here are the blue and red connector pairs that you are going after, in this case, exposed after removing the consoles (you **really** don't want to go there, big time eater when the only issue is disconnecting the blue and red connector pairs in the photo):



Here are some details regarding the tabs and wings on the connectors that you need to work with:



9	893 971 635	flat contact housing	5 pin black for single wiring: 000 979 133 000 979 133 A 000 979 135 000 979 225 000 979 225 A
(IF YOU HAD TO REPLACE A CONNECTOR, THEY WOULD COME GENERIC BLACK)			
10	4B0 971 995	male blade terminal housing	5 pin black for single wiring: 000 979 134 000 979 134 A 000 979 226 000 979 226 A

Sean had a seal removal tool, like a heavy duty dental pick, and was able to reach in from the passenger side and pull the wings on the blue female pin connector off the tabs on the blue male pin connector. And then, likewise, with the red connector pair. Otherwise, you could use your fingers to accomplish this.

IF you can't do it, Plan B is to leave them until you start pulling the heater box out, just an inch or so to give your hands more room. Plan C would be to remove the radio and reach in and disconnect the blue and red connector pairs. If you can't do that, Plan D is removing the consoles. There are instructions on how to remove them but I don't even want to provide the links here because the point of this write-up is to avoid the console removal period.

I decided to go with Kinder's "Plan A" approach. This is what I could see with the carpeted console side panel bent back out of the way.



Photo courtesy of UrS4boy

I didn't have Sean D's dental pick/seal tool so I tried a long screw driver to pry on the "wing" on the blue connector. That was successful in breaking off the wing. Hmm...I reached out to kinder on the quattroworld UrS forum and his only hint was to pull straight down. I couldn't get in there to do that right away so I waited until I started to pull the heater box out and then, with more room, I was successful in removing the connectors by pulling straight down, blue first and then the red.

17. **Move to driver's side and remove the black trim plate** Kinder says "2 screws (Phillips) (but with 10 mm hex heads) securing the trim plate that holds up the front drivers foot well heat duct" (see Photo 6).



Photo courtesy of Fred M.

Kinder's comment is only partially correct. In fact, the black plastic trim plate is attached to the driver's foot well duct by two tabs but it does NOT support the driver's footwell duct. It is attached to two tabs on the bottom of the knee bolster show in the upper portion of the photo above. The duct is attached to heater box at its inner end and a clip at its outer end.

I don't know if kinder removed the knee bolster or not. but I did and I think Sean did. It is really difficult to see anything under there with the knee bolster on and it is easy to take off. Highly recommend that you remove it (four 10 mm bolts/machine screws, two are visible with the black plastic trim removed, the other two are hidden under the dollar-coin sized caps (carefully pry out with a screw driver).

18. **"Pull down on the carpeted kick panel** on the front console (there is a clip) to give you access to what is behind there." Maybe on kinder's car or he was thinking the right side of the console but I know on Sean D's 97 UrS6 and my 98 C4 Avants, on the left side, it is not a "clip" it is a small stud and 8 mm nut hidden behind a hinged carpeted access panel. (See photo on the next page)



Photo courtesy of UrS4boy

19. **Like the right side, remove the big elbow.** Then remove the 8mm bolt and remove the lower duct. (Fred M's Photo 7 on the next page). The elbow is identical to the one on the right, except you have less room to work or see what is going on. Pull down and rotate the vertical male end of the elbow towards the front of the car. Then remove the big female end of the elbow from the horizontal male heater box duct. Re-installation of this elbow is a bitch so I will give a hint or two when we get back to the installation phase.
The left side footwell duct is held to the heater box by the 8 mm bolt shown in the photo on the next page and a clip on the outer end of the duct. The duct also contains the footwell light so you will need to remove the light from the duct in order to fully remove the duct from the footwell. Note the orientation so you can reproduce it during the installation phase.



Photo courtesy of Fred M.

20. **Disconnect corrugated rubber boot:** Under the center console you'll see a large corrugated rubber boot that connects the rear floor ducts to the heater box. Use a pair of needle nose pliers and pull the ears of the boot off the duct (one in pass side, one in driver's side). Here is a photo of the boot on the passenger side, showing the "ear" on the boot that you need to pull on to remove the boot from the heater box.

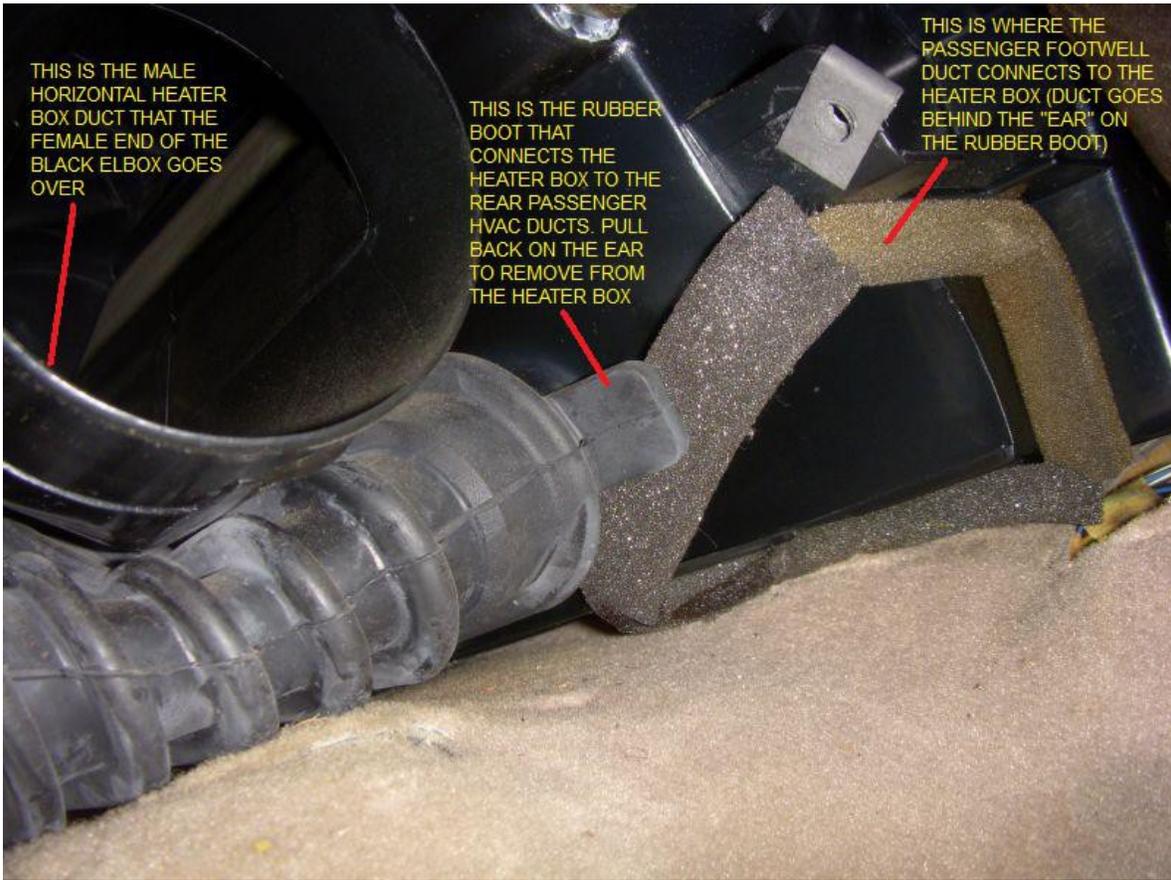


Photo courtesy of UrS4boy

This is what you eventually see of the boot when the heater box is removed:



Photo courtesy of UrS4boy

21. **Move out of the interior and go back to the engine bay again.** Kinderutz said: "**Sitting** on the driver's side, grab the box by the blower's side (pass side) and pull slowly. The box seal will give and the box will come loose. Pull it out." That might be true if you are lucky or you are working on an UrS4. If you are working on an UrS6, that yellow flap mentioned earlier will likely be sticking into the heater fan discharge duct and cause you some grief. At Goran's suggestion, Sean disconnected and removed the flap control motor and, after noting the position of the yellow flap, moved the flap out of the way of the heater box. I did the same thing, including marking the position of the flap when the servo motor was removed (Note: The servo motor has a splined male drive shaft that only fits into the female flap drive receptacle so you can't get it wrong. – but it is nice to be close to start with).

More about this is needed:

The next two photos are photos of the UrS6 and UrS4 A/C evaporator housings showing the flap motor on the UrS6 housing and no flap motor on the UrS4 housing. The first photo shows the UrS6 (and C4 A6) flap motor box (labelled "Mystery Box" in the photo because this was on my 98 C4 A6 avant but not on my 93 UrS4), sitting on top of the A/C evaporator housing. I posted up about the "Mystery Box" and found out it was the flap control motor (not on the UrS4). To remove the flap motor so the flap can be moved, you first remove the two screws on the cover, as shown. Underneath, there are three Phillips-head self-tappers that you remove. Mark the position of the yellow flap. Then pull the flap motor straight up and off the flap and set aside. Turn the flap so it is inside the A/C evaporator housing. Don't lose the five screws.

Here is the UrS4 evaporator housing: no flap servo motor = no flap = no problem ;>)

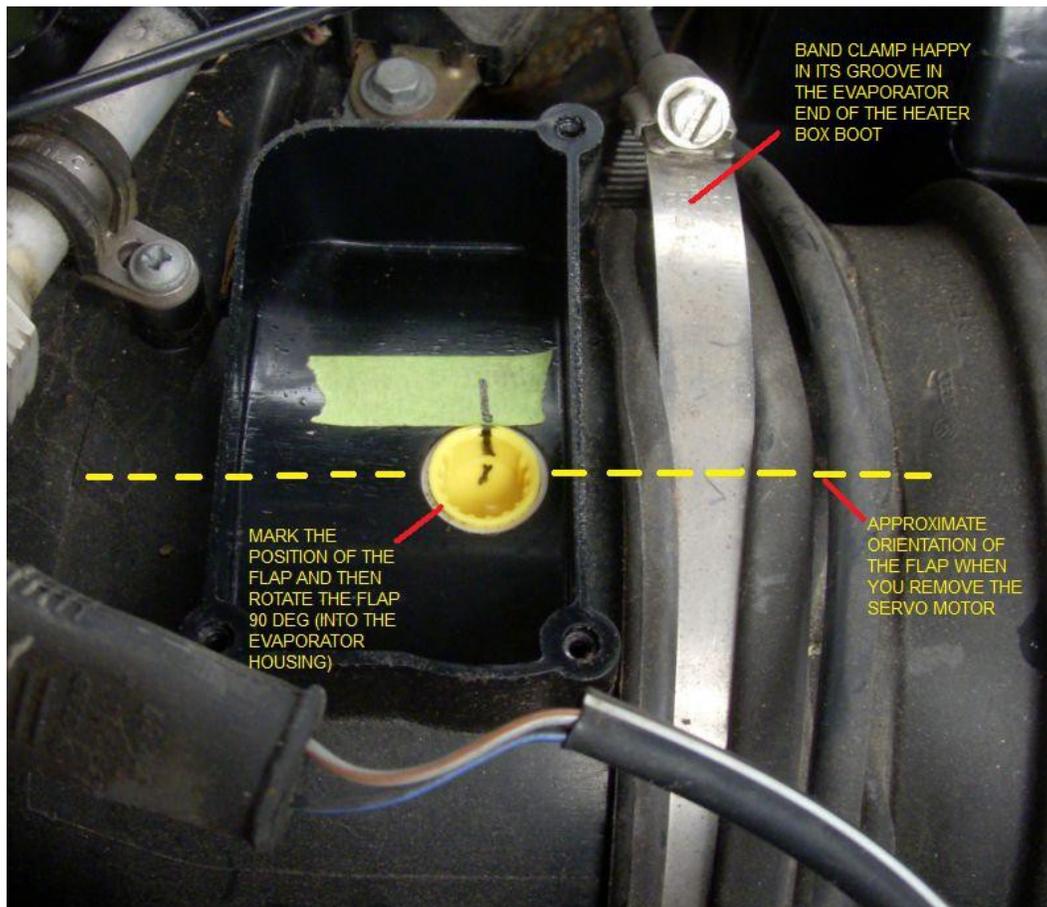


Photo courtesy of UrS4boy

UrS6 evaporator Housing and the flap motor "Mystery" box (Flap servo motor housing):



Photos courtesy of UrS4boy



22. **Flap retracted, remove the heater box:** So with the flap out of the way on UrS6 (or no flap on the UrS4), you can gently pull the heater box out, as kinderutz suggested. Fred M made a tool to grab the front edge of the heater box and allowed him to pry the box out slowly, using this tool, a length of 2 x 4 wood and a crowbar or similar pry bar, as shown below. Audiheel has used a loop of polytwine over the heater box and 2 x 4s for prying to accomplish the same thing. Personally, I just grabbed the box from the passenger side and lifted and wiggled the box out.

Fred M's heater box lifting tool:

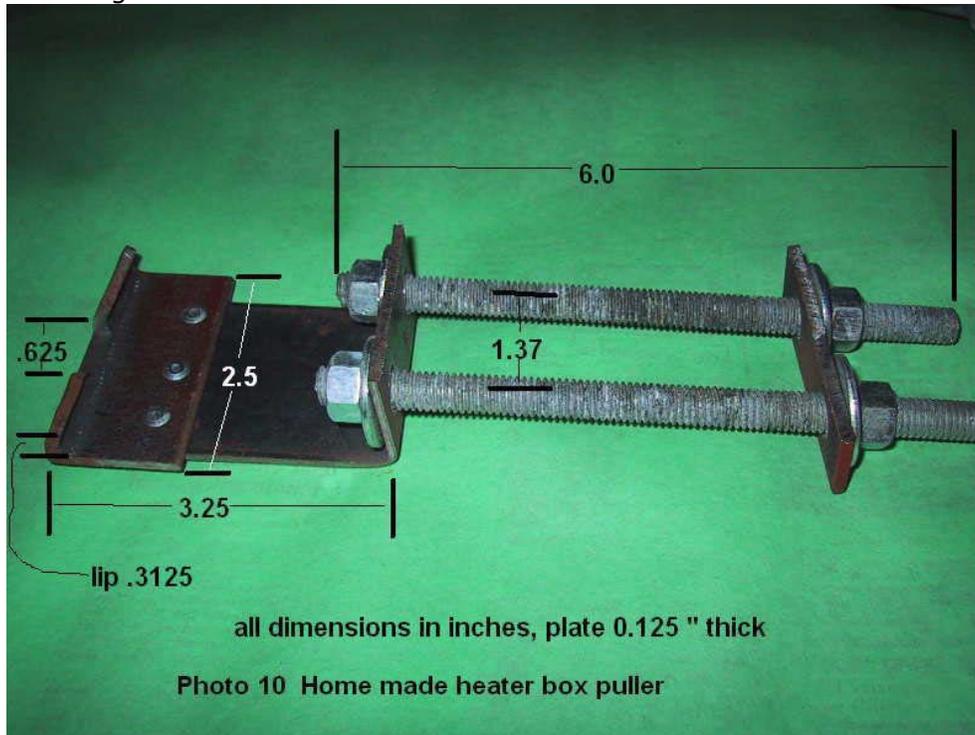


Photo courtesy of Fred M.

Fred M's heater box lifting tool, the 2 x 4 and the pry bar in action:



Photo courtesy of Fred M.

23. **Place heater box on a safe working surface.** You should now have the heater box out and a big hole from the engine bay to the interior of the car. Here is the heater box from the left side:

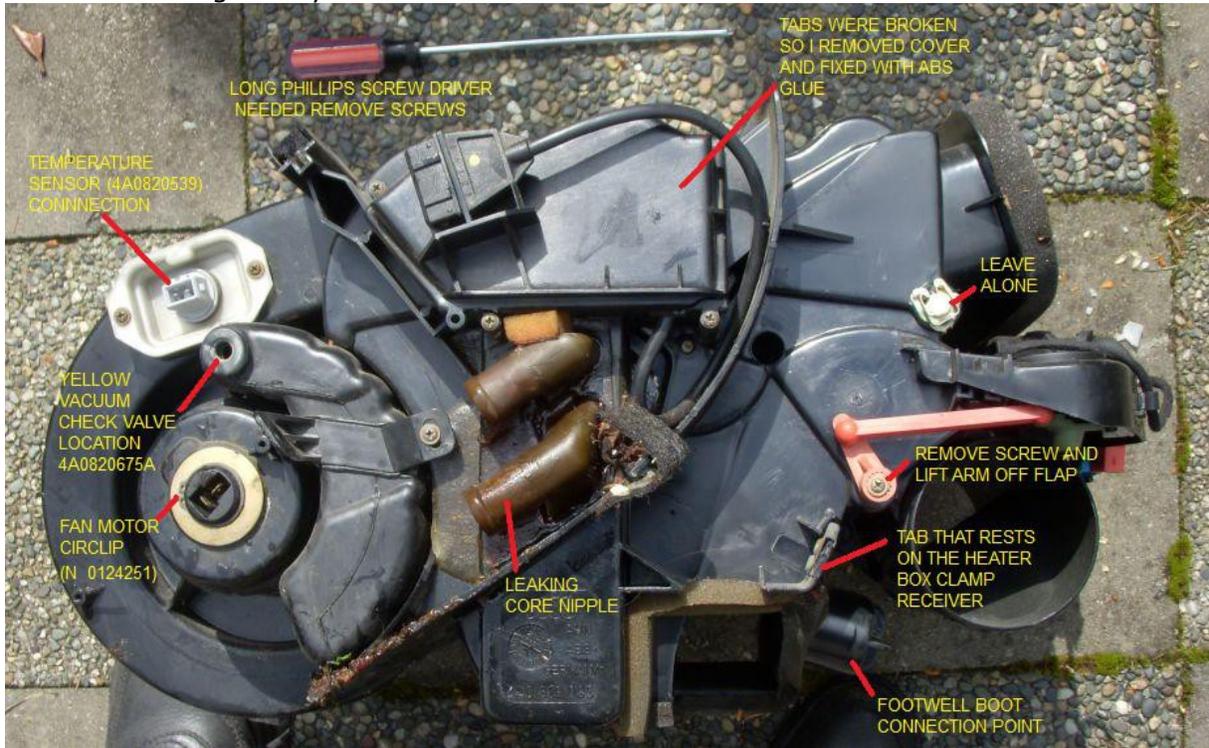


Photo courtesy of UrS4boy

Here is the heater box from the interior, left side, showing the red and blue flap motor connections and the heater valve and the bleeder valve still attached to the heater core (note improvised safe working surface):



Here is the right side of the heater box

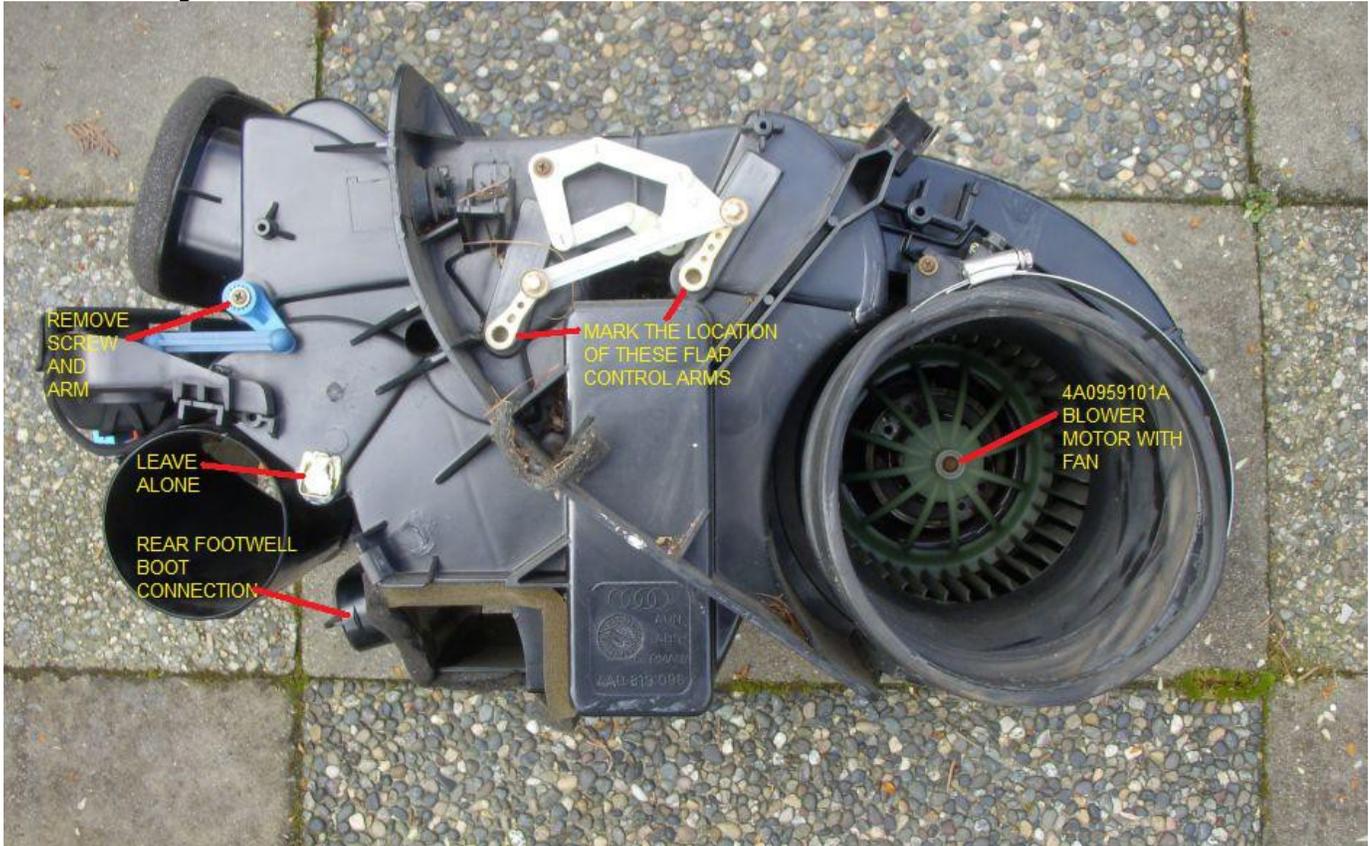


Photo courtesy of UrS4boy

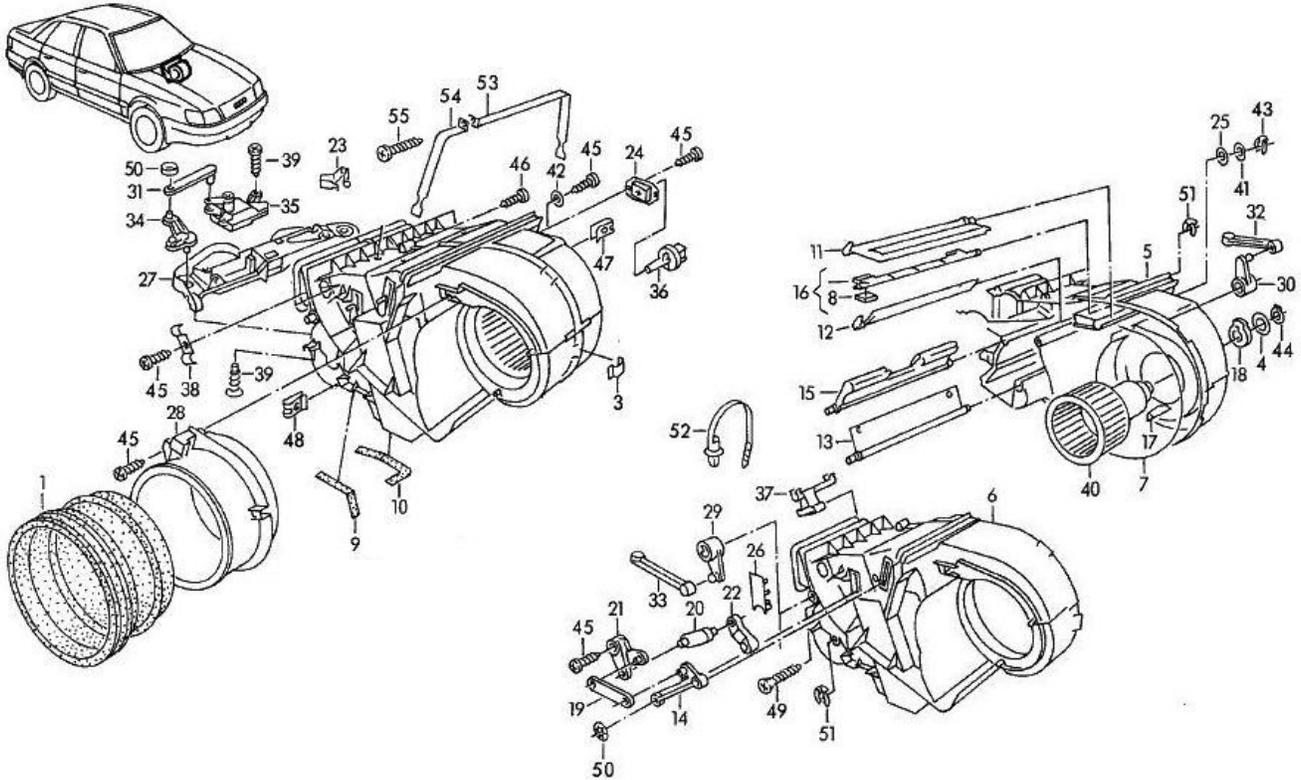
Here is the opening that is left after you've removed the heater box. Note the residual gasket bits left around the opening where the heater box was located. This should be removed and the area thoroughly cleaned (e.g. with solvent) before a new gasket is installed (more later). Note you can *just* see the yellow flap tucked back into the round black evaporator box opening on the left (Photo courtesy of UrS4boy):



By the way, Kinderutz says "Up to this point (box out) it took me 30 min.". I say, "Wow" (He is good!!)

24. **Now you have three or four main tasks ahead** before you can reinstall the heater box with the new heater core (and MAYBE a new fan). These include disassembly of the heater box, removal of the old heater core and fan (or not) and installation of the new heater core and fan (or not), cleaning up around the firewall hole and application of the new gasket.

There are numerous clips (6? 7?), several screws and lock-rings to be removed before you can separate the two halves of the heater box. Here is a diagram of this next challenge (be patient and methodical, take photos and make notes, as needed). Sean D. says be very careful when removing the screws when separating the box, the little tabs around the edges break very easily. I didn't have that problem but the cover on the on servo motor cover was already broken when I got there (must have had another heater core done sometime in the past). I removed it and fixed the tabs with yellow ABS pipe glue. Don't force the heater box apart. It will come apart when you have removed all the necessary screws and clips and not before.



Kinderutz said "I used a nice 3/4" impact driver (Makita) to take off the 8 and 10mm bolts/nuts." That would certainly speed up the process. Sean made-do with hand tools and the LONG Phillips screw driver as noted at the beginning of this procedure. I just used hand tools as well. Turned out I did have a long Phillips (shown in the photo of the left side of the box, above)

Note: Item 27 in the diagram above, the bracket that holds the red and blue connectors and the fresh air and temperature control flap motors, comes off as a unit (see photo below).

Anytime you remove a control arm from a flap, mark the position of the control arm and the flap before you disassemble. This will help with reassembly. Try not to move any of the flaps. If you do, note their position before you move them.

The following show the results of the disassembly.

Here is the Item 27 bracket with the V70 Fresh Air Control and V68 Temperature Control motors and their colour-keyed control arms (upside down, in this photo).



Base photo courtesy of Mark A. (aka TheFeek)

Audipete suggested that he would add a recommendation that the red and blue servo motors either be replaced or taken apart and cleaned and greased before you reassemble. Kinderutz, the miracle man ;) said that servos can be replaced later if needed: "No need to remove the console...just pull the glove box, driver's kick panel, elbow ducts, lower ducts, radio and it comes out...takes a bit of playing with it but it comes out nonetheless...here's proof": (see photo below).

We mere mortals might want to at least consider Audipete's suggestion. (I actually forgot the suggestion when I did my heater core - hopefully that won't bite me in the ash). ;>)



Photo courtesy of Kinderutz (aka "Superman").

Here is the right side of the disassembled heater box, showing the flaps that a) you don't want to move and b) will have "fun" getting their pins back into the left side of the box:



Photo courtesy of Mark A. (Thefeek).

Bill M. suggested that now way the time to clean the flaps (he said his heater box flaps smelled and suggested using SimpleGreen(tm) or the like to clean them). All I say is make sure that you note positions of the flaps before you do any movement or cleaning of the flaps. (I cleaned the flaps in my 98 C4 Avant heater box with Windex).

Here is the left side of the disassembled heater box showing the heater core and the blower (Note: The box in the back ground has the PN 4A0959101A = new blower fan on it) (Photo by Mark A. (Thefeek))



This photo, taken during Sean D's (quattro20V's) heater core R&R, shows the old heater core (with cracked nipples) and the sealant that needs to be cut away in order to be able pull the heater core out of the back of the left side of the heater box:



Photo courtesy of UrS4boy

Once you have the heater core out, and the old sealant fully removed, you are almost ready for reassembly. The only question is whether you are going to install a new blower fan, PN 4A0959101A, that you purchased at dealership (because you know some of the aftermarket versions are crap and this job is way too much work to go back and replace a dead aftermarket blower in six months). Fred M did a great job explaining the details of swapping out an old blower and installing a new one in his post: [Fred M's HVAC Heater blower R&R DIY](#) – except in our case we have the heater box all the way out of the car so at this point the blower swap is even easier than Fred's description. I took a chance and left the fan untouched, it didn't squeak very much or very often when/if it did squeak. I hope I don't regret that too soon.

In his DIY post Kinderutz says at this point "...make sure you seal the pipes area with silicone, make sure all your flaps move free and are in place ...When the box is ready to go in, use a line of silicone where the box seal came off, a line of silicone on the box itself, back in the hole with it, install the box strap and tighten it, connect your rubber lower boot (needle nose pliers + ears), connect your big elbows, connect pass side upper duct(white sock one) (if you removed it), lower duct(8mm bolt), stick your hand behind the radio and connect the red and blue connectors, reconnect glove box light, reinstall glove box. Driver's side, reconnect rubber boot to the rear vents(the one with the needle nose pliers and ears), reconnect lower duct (8mm bolt), reinstall big elbow, reinstall kick panel and/or lower plastic cover for the kick panel. Go outside the car and reconnect the heater hoses, vacuum line to the valve and re-secure the

solenoid with the Philips screw, add coolant, open the bleeder port, run engine, set blower on medium, temp on HIGH, select center vents....observe for leaks, none visible, proceed to reinstall wipers, cowl cover, etc. I like to readapt the flap motors so i run basic settings, channel "00", while the flaps are adapting, I check my coolant, close the bleeding port, etc. Enjoy the heat in 2.5hrs or less.....YES WE CAN !"

Sure. It sounds easy but in reality there are a few things to trip you up.

Back tracking a bit, here is the right side of the heater box with the flaps still in their same position, and with the new heater core installed, waiting for the left side of the heater box to be slipped over the top:



Photo courtesy of Mark A. (Thefeek)

I lost count but I think there are five flaps that you have to align to get their pins going through the appropriate hole in the left side of the heater box. All but one are large and relatively easy to manipulate. One of them has a tiny "pin" on the end of the flap. I used a steak knife stuck between the left and right halves of the heater box to manipulate this flap and get the pin through its hole in the case. Surprisingly, it only took two (3?) tries and a few minutes to do this. Don't start adding the clips until you have the two halves of the heater box meshed together without force. Once you are confident that you have the box together and all flaps are in their respective pins receivers/holes, then start by replacing the clips. Once the clips are added, then you can start adding the screws and replacing the flap drive servos and their respective arms. All of these have specific shapes so you can't really mess it up (but it does help to have the flaps in about the proper position before you start).

Some final notes on the re-install that I will add:

1. When installing the new heater core, warm the RTV sealant in a hot water bath, and when you have the box back together, holding the new core in place, put the box on its side, core nipples up and flow the warm RTV around that end of the core, sealing it to the heater box.
2. Before you put the heater box back in, vacuum up all the much and leaves, etc. and remove the residual old gasket using a plastic scraper and solvent, etc. to get rid of the old foam (tedious but worth it). Sean opted for the proper OE foam gasket, PN 431819225, which comes as a single piece 1360 mm long. He opted to attach the foam to the heater box instead of the car and trimmed it so there was neither too little or too much where the ends of the gasket met. See photo below. I did the same thing, except my gasket came 100 mm short, out of the back. Thanks VAG warehouse people. (I cured the issue with some 3/8" x 3/4" closed cell foam from Home Depot).

Here is the factory heater box seal PN with the seal in the bag:



Photo courtesy of Mark A. (Thefeek)

Here is what I got (thanks a lot warehouse people):



Photo courtesy of UrS4boy

3. As you put the heater box back in, you might want to pause say 1 or 2 inches from "home" and go inside and connect the red and blue flap motor electrical connectors. At the same time, check to see that the rear floor duct corrugated rubber boot (the one with the "ears") isn't all messed up and is in alignment to be reconnected with the heater box. (Don't connect it yet)
4. Get the heater box over as far as you can, back to its original location, note the tabs on the heater box have to be on the rear side of the heater box ban clamp brackets. There is supposed to be a felt buffer between the heater box ear and the ban clamp bracket. I lost one of these felt buffers and substituted some closed cell foam. (1/4" x 3/8")
5. Before you tighten down the band clamp, reinstall the left and right front footwell ducts with the 8 mm hex-head bolts. Reinstall the lights in these ducts and swing the outer ends of the ducts into the clips fixed to the body.
6. Now you can re-install the rubber rear footwell duct boot by pulling forward on the ears and pushing the boot onto the heater box duct.
7. To re-connect the elbows from the heater box to the fixed ducting, start with the right side elbow. Put the big end of the elbow over the horizontal heater box duct with the small end of the elbow facing forward at 9 or 10 o'clock. Then rotate the elbow clockwise into the smaller vertical fixed duct. Using two hands to manipulate the two ducts is allowed. The small end of the elbow fits INTO the vertical duct.

For the left side duct, I had a beotch of a time with the same technique, partly because you can't rotate the elbow as much and you can't see anything, even with the knee bolster off. In the end, I had to remove part of the bracket that holds the knee bolster on to get a better view (two 12 mm hex head bolts):



Photo courtesy of UrS4boy

Once that puppy was out of the way, the technique was to install the elbow with the small end pointed up (say 11 o'clock) and getting the big end properly over the horizontal duct on the heater box, then rotating the small end of the elbow from 11 o'clock to about 1 PM and into the vertical fixed duct. This involved some nasty deformation of the small end of the elbow to get it inside the vertical duct. This took several tries before I removed that bracket above but only one try after I removed the bracket (because I could see more what was happening). When you have the elbow on, re-install the knee bolster bracket in the photo above.

8. As you reinstall the hoses and the bleeder valve, etc on the two nipples of the heater core, make sure that you will be able to access the screws on the band clamps and that the bleeder valve is not stressed/touching the heater box band clamp. When you have the hoses and bleeder valve on, then you can install the heater box band clamp. Note that the shorter portion has a "T" end that fits into a "T" hole in the bracket on the driver's side (LHD) of the body.
9. One of the last issues is reinstalling the heater fan inlet boot between the evaporator and the fan shroud. You'll have to develop your own technique. All I can tell you is DO NOT REMOVE the band clamp from its groove in the boot to "make things easier". That doesn't work. It might be easier to

get the boot on the evaporator outlet but it is extremely difficult/impossible to get the band clamp back into its groove all the way around the boot. I wasted a lot of time correcting that mistake.

10. Once you have the boot on the evaporator, you can move the yellow flap back to its original position (UrS6/C4 A6) that you marked. Then you can re-install the flap servo motor (three screws to hold the motor to the evaporator duct and two screws to hold the cover plate over the servo motor). Don't force the re-install. If things aren't going together, you haven't got the flap in the right position relative to the servo motor position. Nudge the flap, as necessary.
11. The rest is pretty much the reverse of removal. One thing you can do before you install the wiper mechanism is give the cowl/water box area one final vacuum (all areas). Then wipe the grime, dust and grease off the wiper mechanism and give it a good greasing with white lithium grease spray (NOT WD40). While you have the lithium spray out, spray the all the door hinges, up and down, front and rear as your value-added good deed for the day. You can also clean the groove under the front edge of the windshield and clean up the metal wiper mechanism cover (I discovered three factory holes under the wiper drive positions that are supposed to be open and clear – mine were clogged with dirt).
12. I didn't re-install the glove box or the knee bolster and cover until I was happy that I wasn't going to have to go back in and correct an error. I did start the engine and added some coolant to the overflow tank. After a period of time, I opened the bleeder valve (which I knew to be in good shape because I had examined it, as per this ["Inside" the Bleeder Valve Post](#) on quattroworld. Once you think you have got the air out, gently close and tighten the bleeder screw. DO NOT over tighten, all you have to do is seal the underside of the bleed screw cap to the O-ring on the bleeder valve body. (Repeat bleeding as necessary).

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Dave F. (UrS4boy) - apparently with *still* too much time on his hands, April 2013.