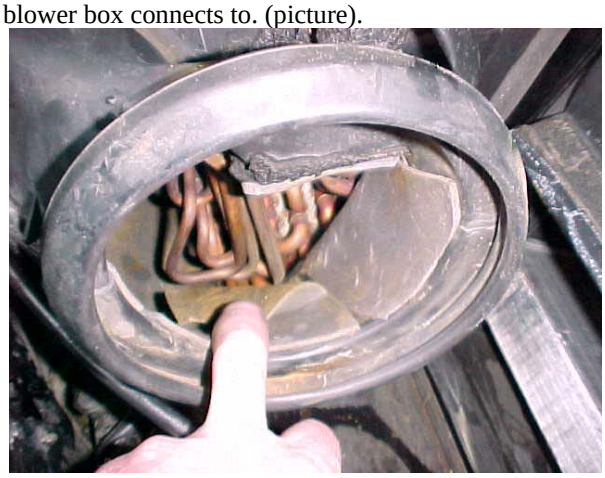
Koostatud Quasimotor's Saab 9000 Site baasil
(Raivo http.//www.saabnet.ee)

Heater core/blower motor replacement

NOTE: Any time that you have the blower motor removed for service, inspect the air conditioner evaporator housing for loose insulation. This is the housing on the passenger side (U.S.) that the blower box connects to. (picture).



Loose insulation will end up in the fan, and cause failure of the fan controller. Use an aggressive rubber cement to glue any loose insulation back in place (some people say to remove the insulation). You can also remove the blower motor controller to gain access to the rest of it. Moisture tends to defeat the glue after a while. I found that the entire sheet covering the bottom of my evaporator housing was no longer glued down.

This applies to both the heater core and blower motor. Once the blower motor assembly is removed, the heater core is exposed. If you're having trouble with one, you should consider replacing both. Heater cores with quick disconnect hose fittings tend to leak. Blower motors typically last about 100 K miles. Here's what mine looked like after 105 K (picture).

This job has a reputation of being a real bear. Actually, on 2.3 liter cars it's not bad; I had my blower motor out 45 minutes after I started. It's somewhat more work on a 2.0 liter car because the intake manifold is higher. I think there are only a few tricks. One is making room to get the blower box out and back in. Another is knowing how far the evaporator housing can be moved. And the third is knowing just what to do and how to do it; this write-up should solve that.

This is for a 91. Earlier models appear to require removal of the wipers & wiper motor and the plastic trim at the bottom of the windshield. Mine did not. Barry's write-up covers an earlier model, and includes wiper removal details. His write-up is quite good, and very amusing, as well! See his write-up: Barry's heater core/blower motor write-up.

Disconnect any vacuum hoses that get in the way (label them first). Tie the cruise control vacuum hose up out of the way.

Label the heater hoses and disconnect them at the false bulkhead. If you don't have disconnects at the false bulkhead, continue. Only a little coolant will escape; let it drain.
Remove the false bulkhead (instructions)
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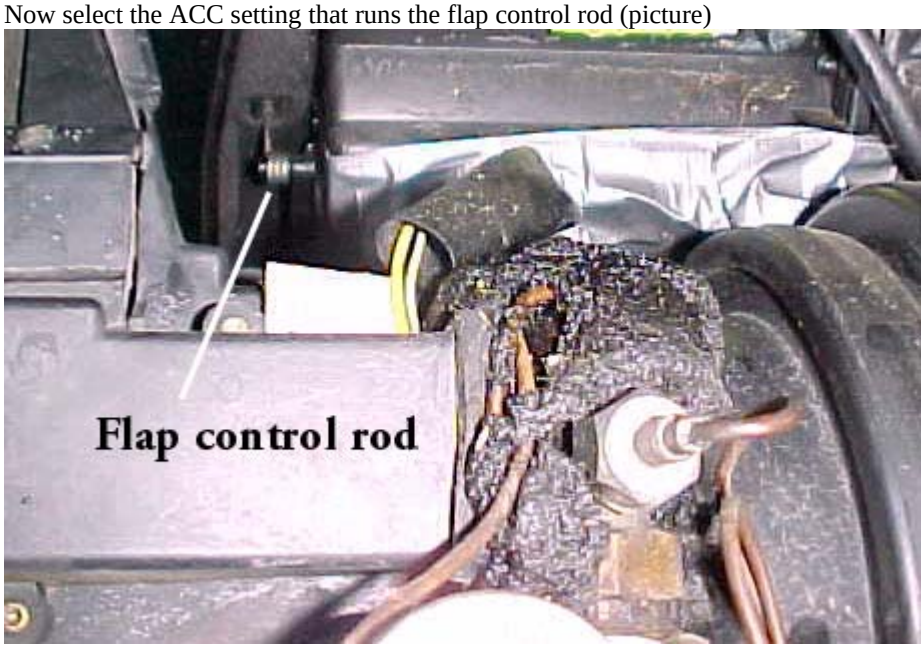
Remove the two nuts securing the hose clamps for the wiring harness.

Remove the screws that secure the bulkhead
One 10mm on the right, between the torque arm and the A.C. pipe
One T25 Torx on the left, down behind the antilock relay box.
The relay box can be removed easily for access - pull it straight up off the brackets.

Pull the bulkhead up and out (it might be stuck; work it loose).

Now select the ACC setting that runs the flap control rod (picture)



farthest forward (I think it's full cold). Turn on the ignition for a few seconds to allow the rod to move forward.
Select the setting that extends the rod the farthest forward (I think it's full cold) and turn the ignition on for a few seconds to run the control rod fully out.

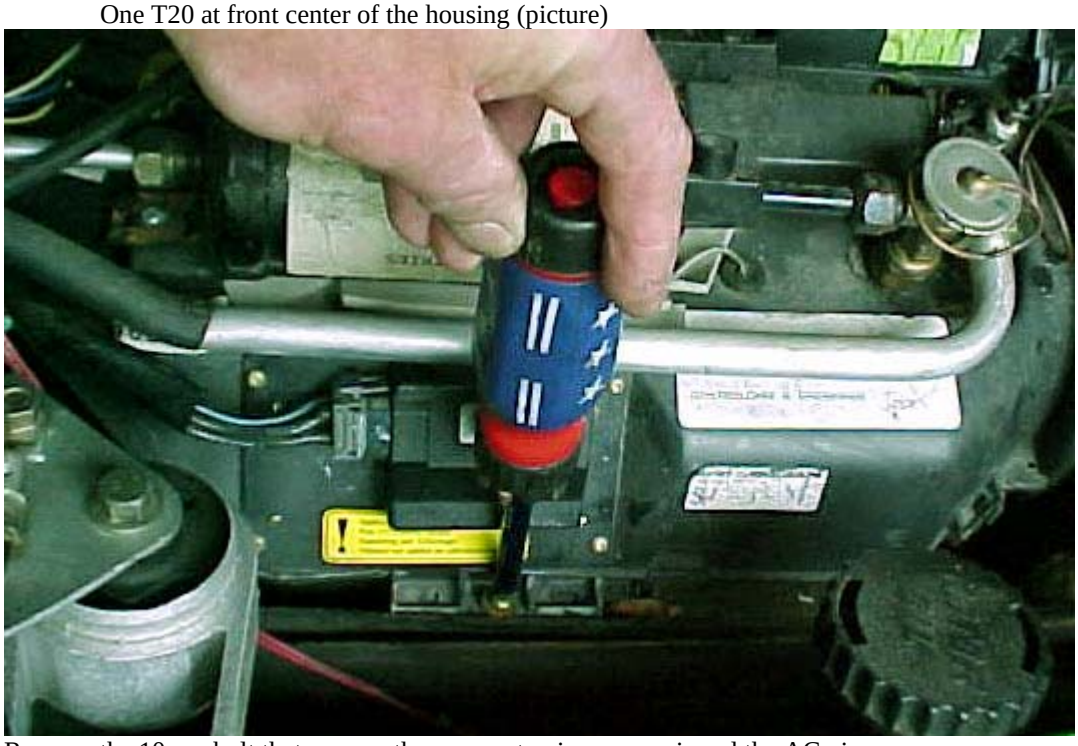
Label the heater hoses and disconnect them at the real bulkhead. This is very important; there isn't enough room to remove the blower box unless you do this. A 7mm socket on an extension and

universal joint did the trick for me (picture).

If you have quick disconnects rather than clamps, you have an original heater core and should consider changing it out for one that doesn't use quick disconnects.

Unbolt the evaporator housing (on passenger side).

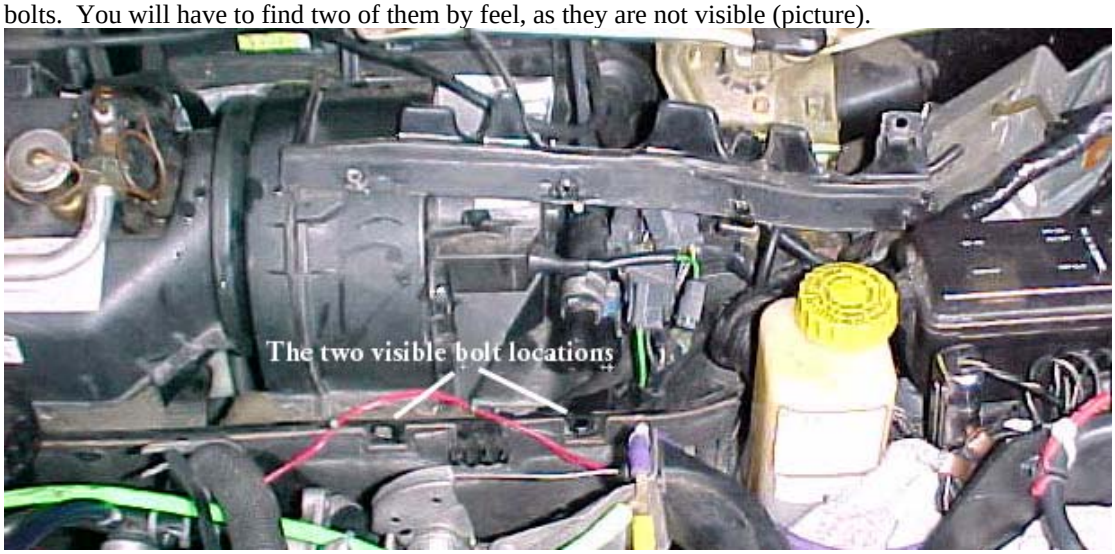
One T20 at front center of the housing (picture)



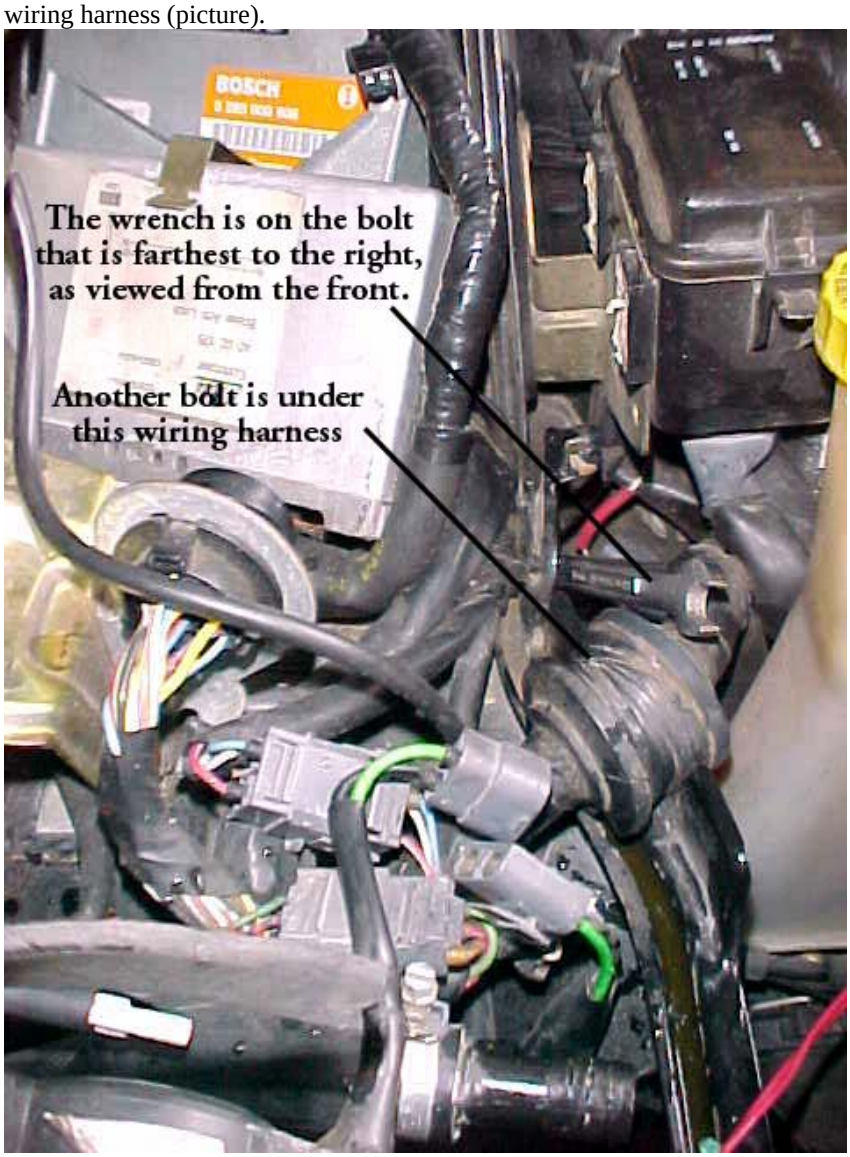
Remove the 10mm bolt that secures the power steering reservoir and the AC pipes.

Remove the stamped sheet metal clip that retains the control cable on the flap arm (picture). BE CAREFUL NOT TO BREAK THE ARM. Mine did not have a clip and I did not replace it; I don't see any need for it. If it doesn't come free easily, I would be inclined to cut it with diagonal pliers rather than risk breaking the arm.

Disconnect the electrical connector for the blower motor.
Note: I am told that this section does not apply to 93 and later cars. There is a secondary sheet metal piece bolted to the firewall that the false bulkhead sits in on the driver's side. Remove the four 10mm bolts. You will have to find two of them by feel, as they are not visible (picture).

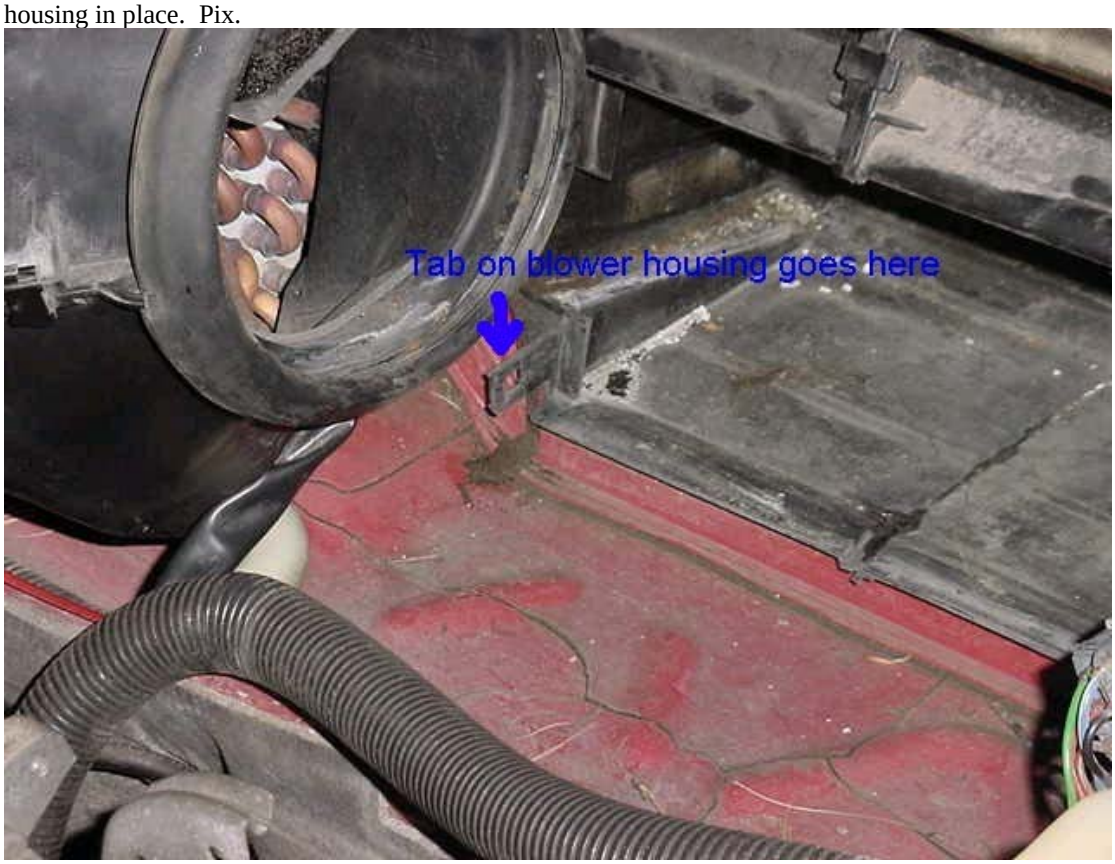


One is behind the ABS relay box (it is one son-of-a-bitch to get to); the other is directly beneath the wiring harness (picture).



I did not reinstall these bolts, as I don't ever want to have to deal with them again! Once all the bolts are out, remove the sheet metal piece. You need to do this to get maneuvering room. It's reported that it's a lot easier to remove the ABS relay box so you can see what you're doing here (thanks to Shahn Kariger).

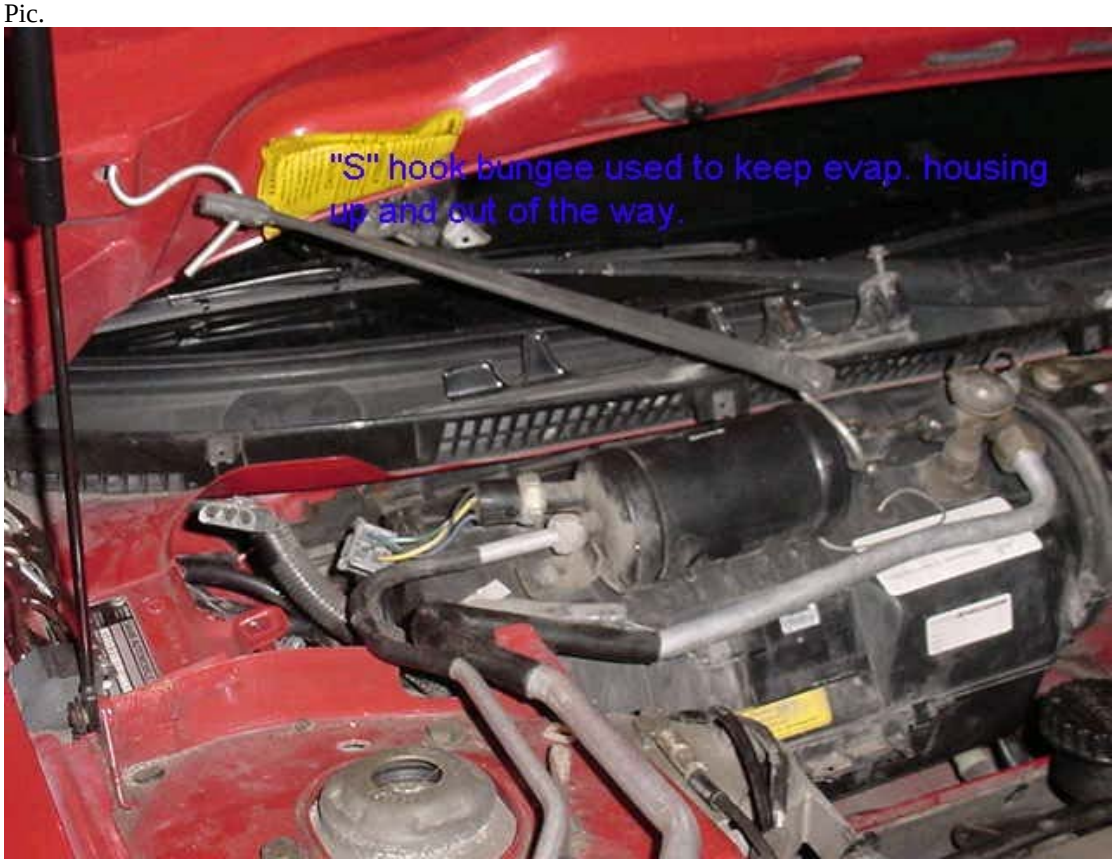
Shahn also reports that there are some tabs at the bottom front sides of the blower housing that hold the housing in place. Pix.



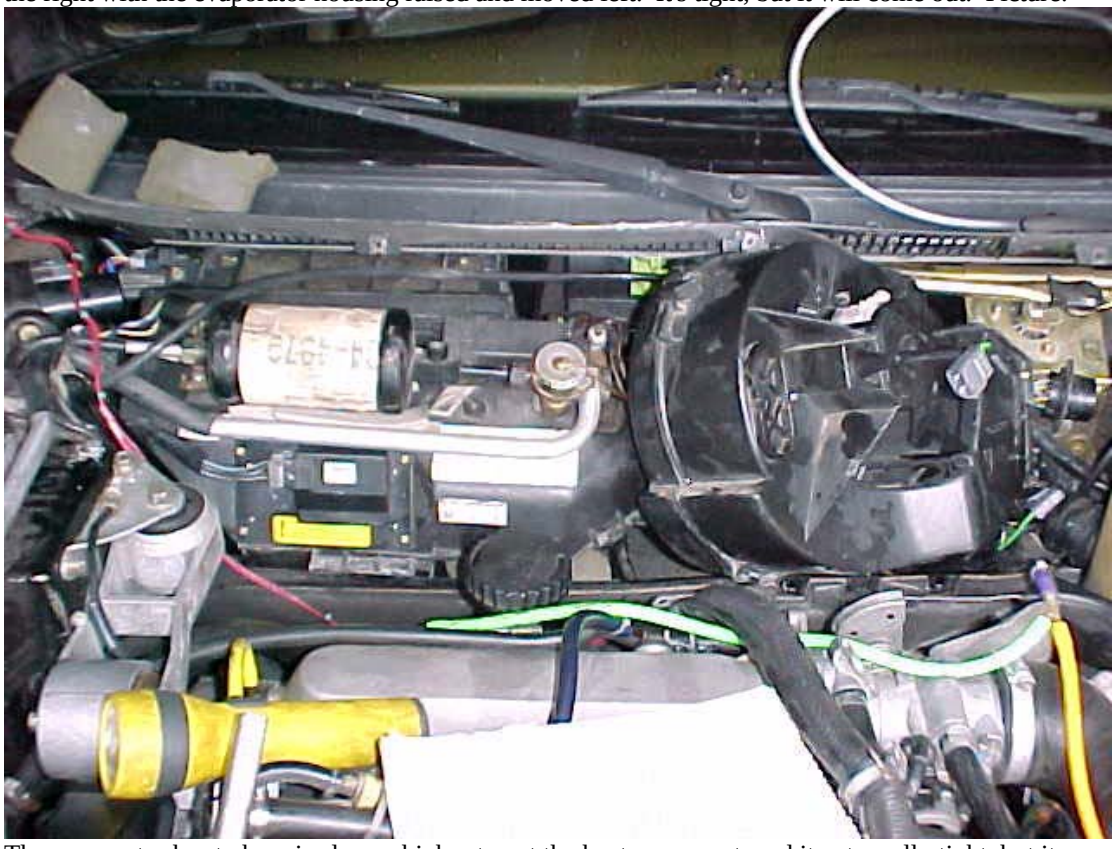
I did not see these, but my blower box had been mangled by someone who was in there previously, presumably to replace the heater core - the box was actually broken, and I had to put it back together with epoxy, using duct tape as a binder in place of fiberglass cloth. The box has a lip on the front that catches on a lip behind the top of the ductwork, and there may be a couple of spring metal clips up there normally. The bottom of the box has to rotate forward before the lip lock can be disengaged.

In order to get the blower housing out, you have to pull the evaporator housing up as high as possible where it joins the blower box, and move the evaporator housing as far to the passenger side as possible. This sounds delicate, but the whole assembly can be moved a considerable ways. Lift it by the larger of the two pipes. You'll probably have to get atop the engine head to do it effectively. A second person is extremely helpful here, though I've always done it by myself. Just remember that the evaporator housing will move a surprising amount; be careful but be persuasive. Shahn recommends removing the cruise control vacuum booster (passenger side) to give more room for moving the assembly. He also recommends using a sturdy rubber bungee cord to hold the assembly up out of the way, an excellent idea.

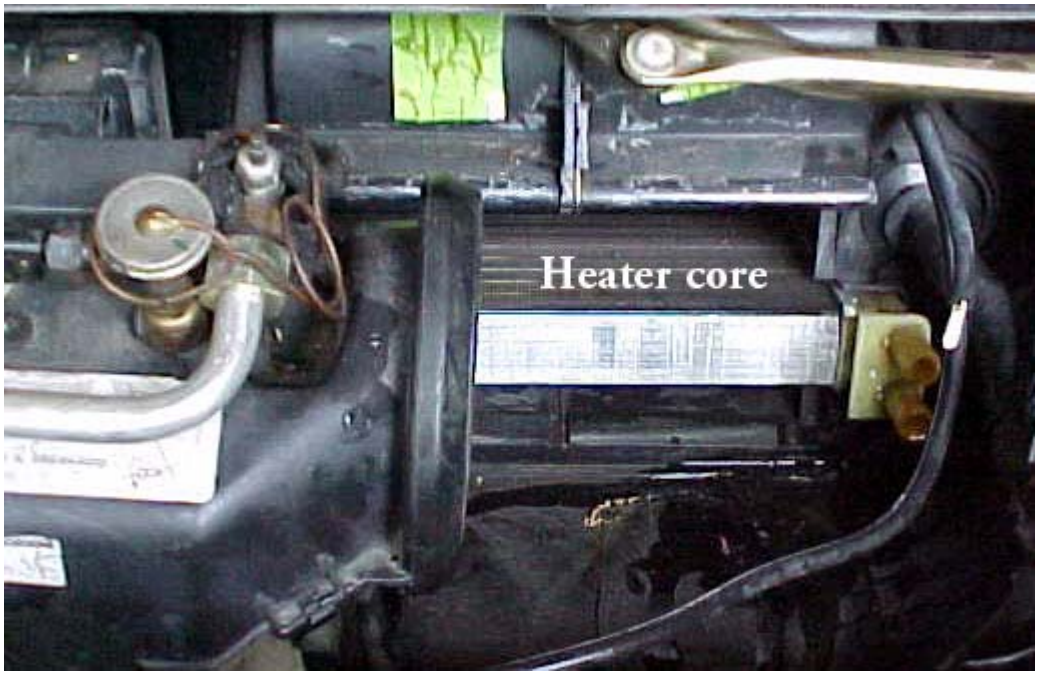
Pic.



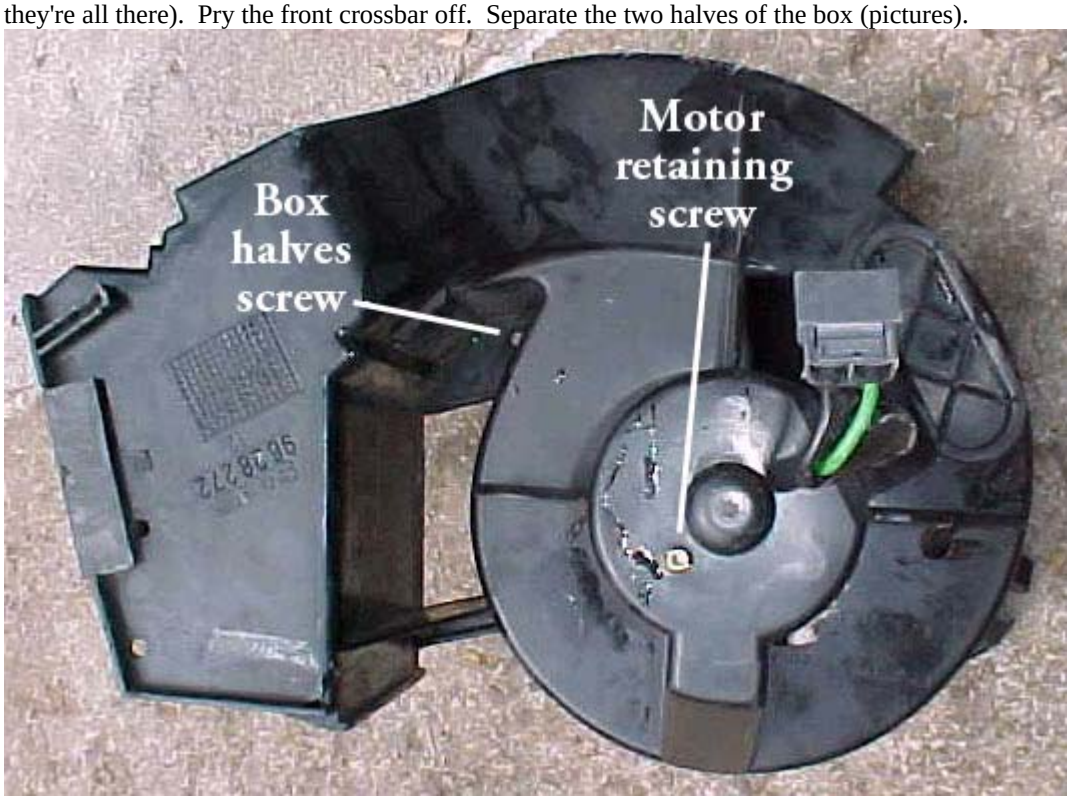
The blower box must be rotated forward at the bottom to disengage it, then it must be rotated out from the right with the evaporator housing raised and moved left. It's tight, but it will come out. Picture.



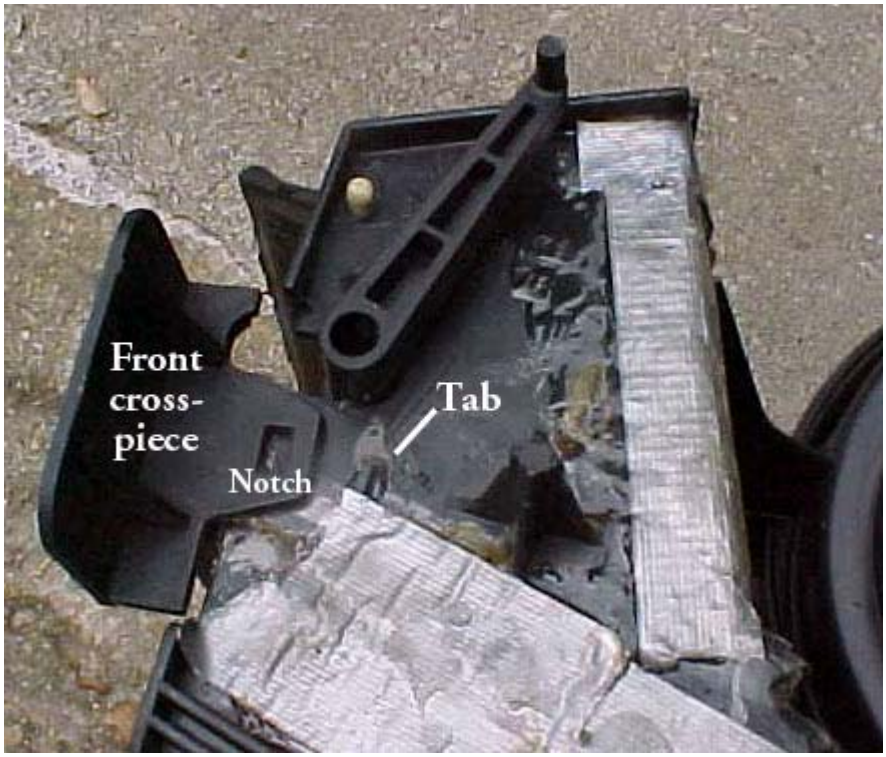
The evaporator has to be raised even higher to get the heater core out, and it gets really tight, but it CAN be done (picture).



Separating the box halves - Remove the single (T20?) screw in the center. Remove the clips (four, if they're all there). Pry the front crossbar off. Separate the two halves of the box (pictures).



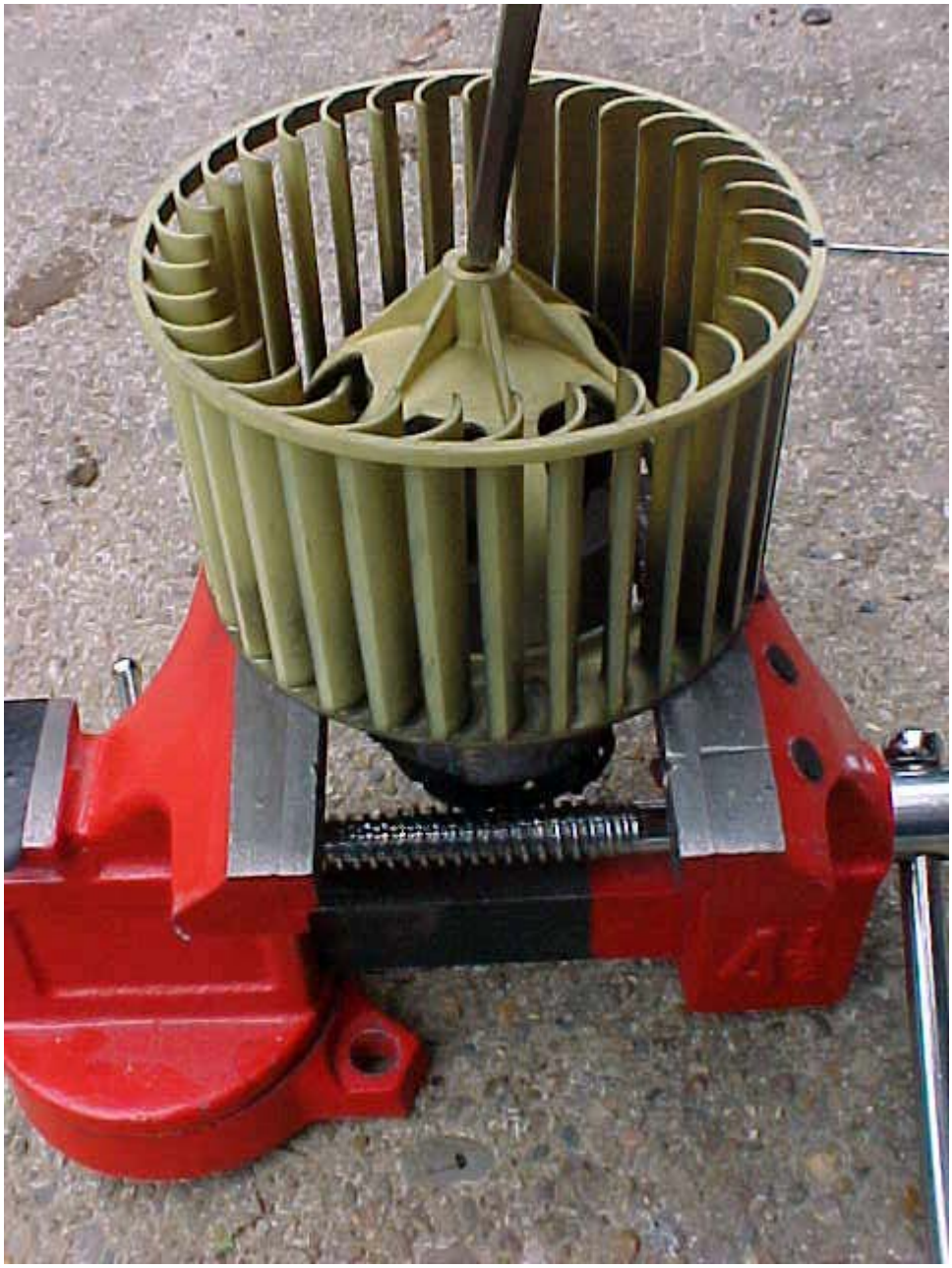
Typical clip that holds the halves together.



The other end has a notch and tab too.

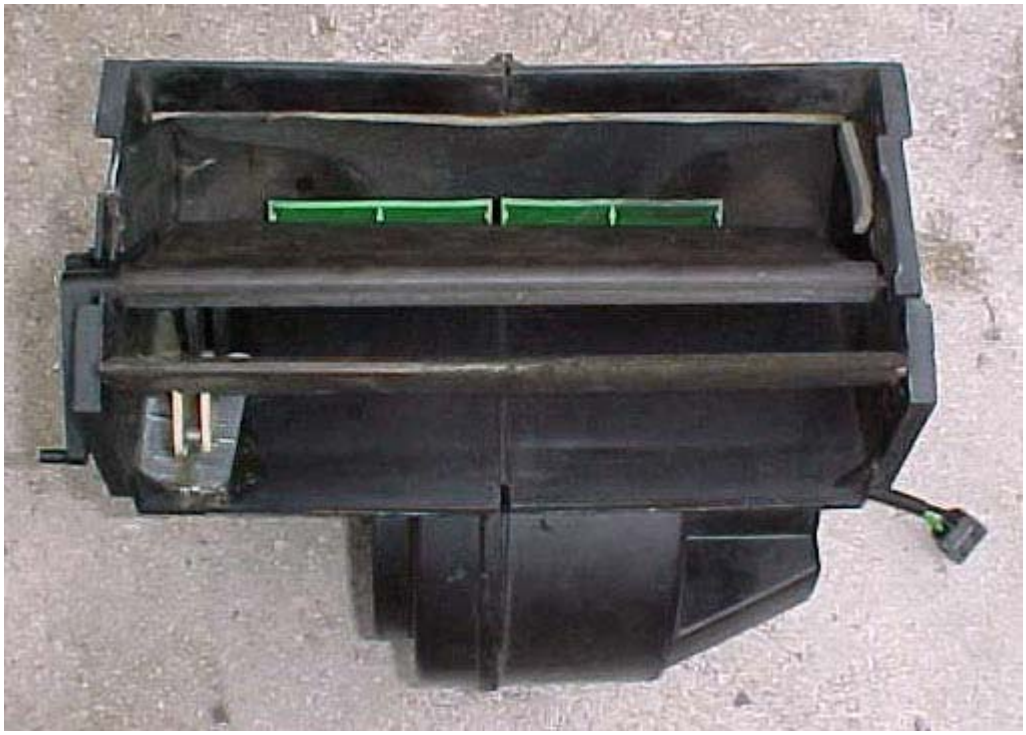
Remove the screw that holds the motor in (see previous pictures). I had to drive the motor out of the housing. First I reinserted the motor retaining screw and hammered on it until it bottomed. Then I used various long skinny screws/tools to drive it the rest of the way out. It was tight, and I pretty much destroyed the motor. Ridges in the housing make for a press fit for the motor. Some silicone spray on those ridges might make it go better. Picture

Replacing the motor - Support the back of the fan cage in a vise, then gently drive the motor shaft out (picture).

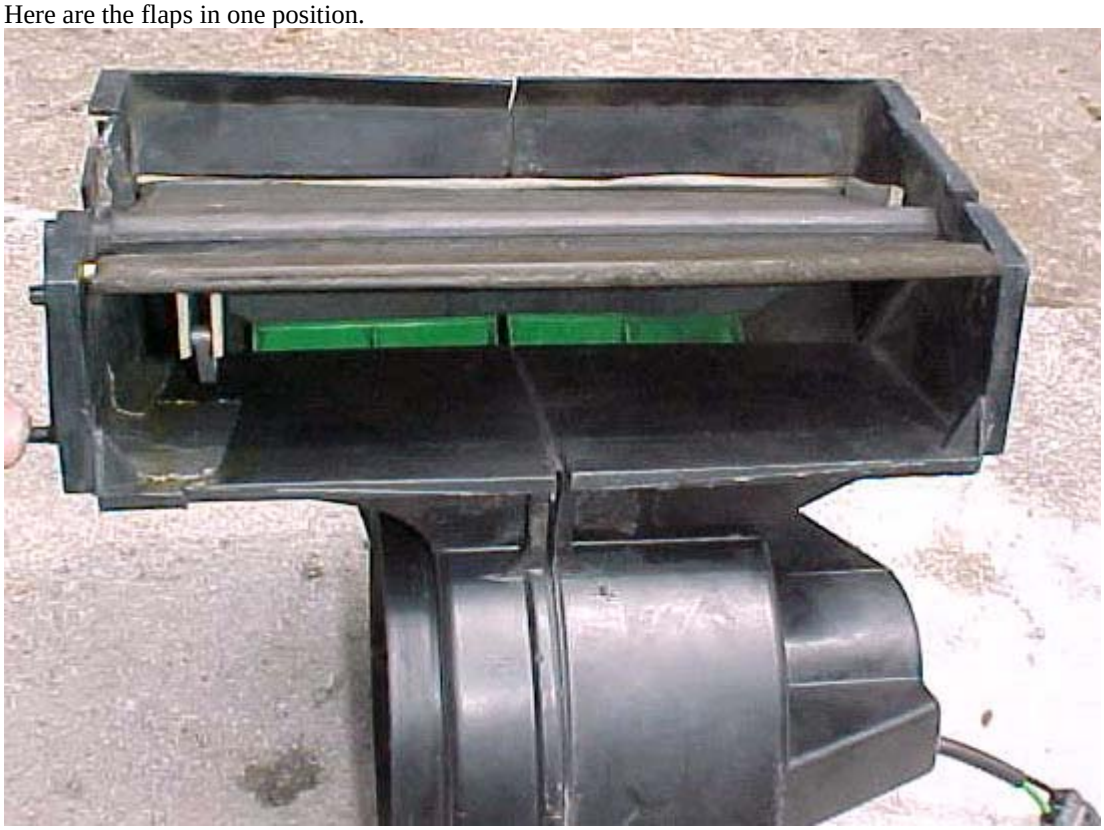


Rest the rear end of the shaft of the new motor on a solid surface, then gently tap the fan cage onto the shaft (picture).

NOTE: It's important that the rear end of the SHAFT is supported when you drive the fan assembly onto the shaft. Grease the ridges in the housing and the new motor will slide right in. Don't forget to install the motor retaining screw. Reassemble the box halves, making sure that you get the flap linkage right (it can be tricky, but basically the flaps operate parallel to each other) Pictures.



Here are the flaps in one position.



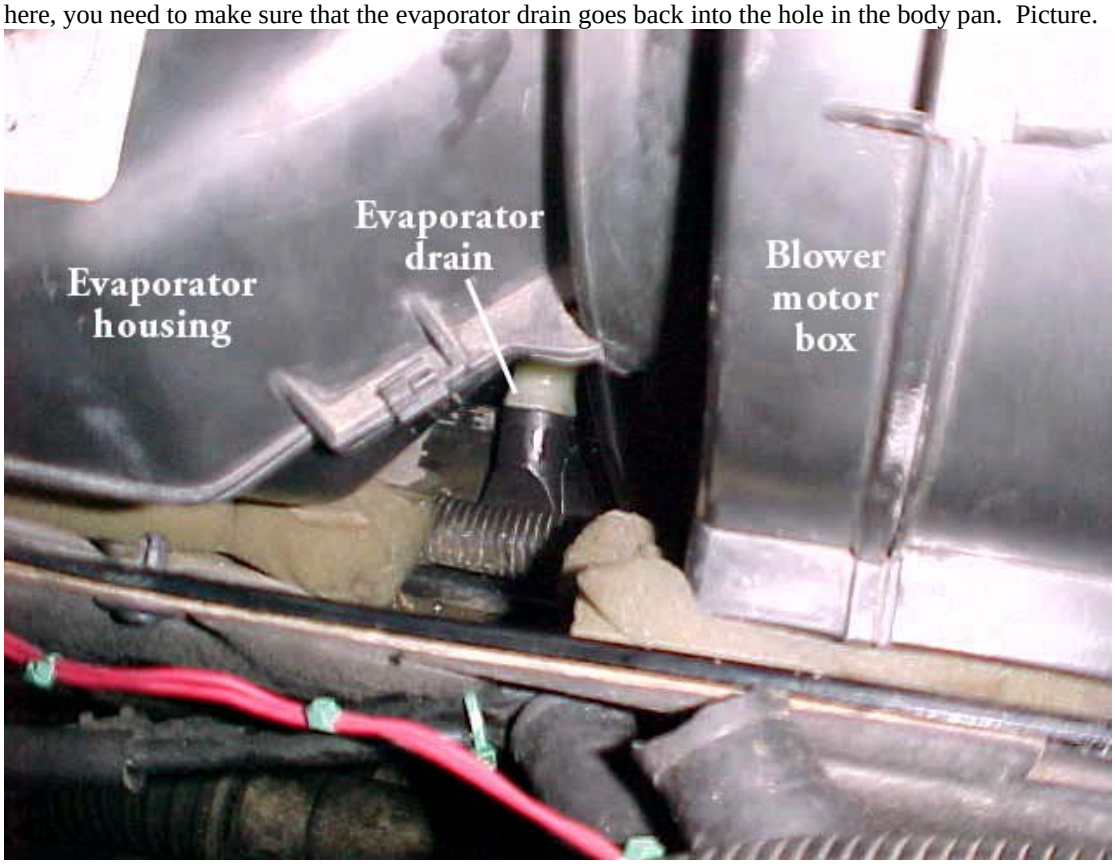
And here in the other position.

Connect the power cable and test the blower before installing the box.

When I re-installed the blower box, I shored it up with wads of foam rubber, which held it tightly in place and took care of any rattles. Clips? What clips? We don't need no stinkin' clips! Same thing for that clip on the flap arm to hold the actuator cable on ... it don't need no stinkin' clip! You purists can put it back on if you insist. The only time a clip would be needed would be if the flaps jammed, in which case I might want the actuator cable to come off anyway. Re-installation would only require

removal of the aquarium cover and the false bulkhead. I've been running without any clips with no problems.

Remember to lift the evaporator assembly high and to the left, then mate the blower box and rotate it box in from the right. Engage the lip of the box, then rotate it in from the bottom. Somewhere along in here, you need to make sure that the evaporator drain goes back into the hole in the body pan. Picture.



The evaporator drain goes down into a hole in the body pan. You can't quite see the hole here.

Reinstall the clips and the control cable. Reinstall the sheetmatal piece (I only used the two left screws). Reinstall the heater hoses. Reconnect all the connectors (including the four-conductor one beneath the throttle body). Reconnect any disconnected vacuum hoses, and check the PCV stuff on top of the engine to see if any of it got knocked loose. Reinstall the screw for the evaporator housing. Gather up all loose tools, reinstall the false bulkhead and reinstall the aquarium cover (don't forget to connect the washer hose to the bottom).