

This write-up explains the procedure for replacing the after-run pump (ARP) on Audi S4s and S6s with the AAN engine. The ARP is an auxiliary water pump that assists in circulating coolant through the engine. My ARP began leaking at around 105k miles. Although the ARP continued to work, the plastic tube that sends coolant into the impeller broke, causing a leak between the coolant line and the ARP (see picture).

The part to replace:

- Bosch heater control valve; auxiliary water pump (AutohausAZ: 0392020054)

* note that AutohausAZ lists the part as "heater control valve; auxiliary water pump." This item is referred to as the after-run pump in this write-up.

- Audi PN 034 965 561C

Procedure:

The ARP is located in the area above between the motor mount and inner CV boot on the driver's side of the car. It's a big gold (or, when oxidized, mushy gray) tube with an electrical plug and two coolant hoses connected to it. With the hood strut fully extended, there's plenty of access to replace the part.

- 1.) Place a pan on the ground directly underneath the ARP to catch the coolant that will spill.
- 2.) Unscrew the cap of the coolant expansion tank to release pressure in the system. Put cap back on.
- 3.) Remove the electrical plug from the back of the ARP. There is a small metal clip that holds the plug in place. Remove it and disconnect the plug. Reattach the clip to the plug, so you don't lose it, and tuck the electrical cable behind some hoses, so that it doesn't get drenched in the coolant that will be spitting out in the coming steps. Remember the orientation of the clip on the plug prior to removing it; it will only connect back to the ARP if it is properly oriented.
- 4.) Loosen the clamps on the hoses connected to the ARP with a flathead screw driver. Remove the hose that connects from the top first and connect it to your new ARP. There will of course be coolant spewing all over the place, so you'll want to be quick.
- 5.) This is where things get tricky. As I mentioned at the beginning, my ARP failed because the plastic piece that goes straight into the impeller broke. The plastic piece that broke was stuck in the coolant hose and had disintegrated, making it difficult to remove (see picture). I had to use pliers to pull the pieces of plastic out. If your car has the same problem, it's important to get all the plastic bits out so that they don't get stuck in the cooling system. I was able to remove bits that were lodged in the hose by tipping the hose down and flushing them out with coolant and sticking my pinky through the hose to make sure the coast was clear. It's for this reason that I advise taking off the top coolant line first.
- 6.) Connect the second coolant hose to its corresponding mount on the new ARP.
- 7.) Remove the old ARP, now with no electrical or coolant goodies attached, by sliding it out from its rubber housings. Slide it towards the passenger's compartment to get it out.
- 8.) Slide your new ARP into its new home, snug up your clamps, and reconnect the electrical plug.
- 9.) Fill your coolant expansion tank, start the car, and blast your heater to circulate coolant. Leave the cap off the tank so coolant can bleed through the system. Add coolant as needed, as you would when performing a coolant flush and fill.

- Zane Smith, under the guidance of Les Woods
1994 Audi S4



Old ARP with pinky in coolant hose.
Electrical plug is disconnected.



Old ARP with plastic bits that
broke. Check out that impeller.



New ARP with everything
connected and installed.