

Tank Style Water Heater

Really, the only real concern with a tank style water heater is the health of the anode rod.

What on earth is an Anode Rod? It's a sacrificial rod! (Water heaters just got a lot more exciting.)

Water + metal of your pipes + the metal of your tank = galvanic corrosion. In super over simplistic terms, the water heater creates the prefect arena for the metals to fight. Fighting metals create a big flaky mess. Nobody has time for that.

Enter the Mighty Anode Rod. It enters the arena, attracts and holds onto all the crazy metal flakes, and then slowly dies under its own weight. This process usually takes about 5 years or so, depending on the type of water you have, how much water you use, and which way the wind blows. (btw- if you over soften your water, it can corrode much quicker. Sometimes in as little as 6 months!)

If you do not replace the anode rod when its "full", there is nothing to stop the craziness and the tank itself starts to corrode and rust (and might even cause leaks). Worse, the rod can break off and fall into the bottom of the water heater where it bounces around and causes chaos. This will shorten the life of the water heater and empty your bank account.



Please note - there are several different brands of water heaters that may require different or additional instructions. There are also many variables for removing and installing anode rods depending on how the heater is installed, access to the top or sides of the heater and different code requirements. We strongly recommend look at your heater's manual before beginning this project. Because of these variables, we are offering a very basic instruction on how to remove and replace an anode rod.

Assess

- This is a must do IF it has been more than a year or two since your last check or have a water softener. Also, a must do if you hear popping noises when it heats up, if you have weird slime coming out of the faucets, or there is a rotten egg smell to the hot water.
- You may put this off if you have recently done this.

- This is a task that seems difficult. It's not too bad once you know what you are doing.

Tools needed for checking anode rod

- 1/16 inch crescent wrench, [channellocks](#), or a socket wrench. You will have to consult the owner's manual if you do not know from looking.
- A new anode rod (about 30 bucks).
 - There are a few options.
 - Aluminum- the standard. Longest lasting and least expensive.
 - Magnesium- will corrode slightly faster than aluminum but there are health benefits to drinking water with dissolved magnesium.
 - Combo of aluminum/zinc/tin: can control growth of iron bacteria that causes a rotten egg smell.
 - If you have a difficult access point for your rod, there are flexible rods available.
 - Tip: there is nothing keeping you from adding a second anode rod as a backup for even more protection.

Tools needed for flushing system

- Closed end wrench or 1-1/16" socket wrench and ratchet or breaker bar or long heavy pipe give you leverage when getting the rod out.
- Pipe wrench (for hot water outlet anode rods only)
- Standard garden hose
- [PTFE](#) thread sealing tape or [quality thread sealing compound](#)

Time

- Since first time is the worst time, block off a couple of hours in the afternoon the first time. After that, it should take no more than 1 to 2 hours.

Instructions

- Read all the instructions, then watch this video: [How to Change a Water Heater Anode Rod | This Old House \(youtube.com\)](#), then read the instructions again as you move through the steps.
- Most anode rods are labeled on the top of the unit and are locked in place with a hex nut. Once you loosen it with a crescent wrench or a socket wrench, the rod should pull straight out. Other water heaters attached their anode rod to the hot water outlet. Simply unscrew the flex supply to the hot water outlet, unscrew the anode rod and pull it out. Some heaters

have the anode attached to the hot water outlet port and appear to be a pipe nipple, to see what they look like [click here](#). See the "[Hot Water Outlet Anodes](#)" section below for information on this type of anode. (this is where it is helpful to either find your manual or search in YouTube for your particular unit).

So once you pull out the anode rod, what shall you see?

You will likely see some tiny holes in the metal covering the inner cable. That's the sacrifice process in action. You should replace it when you can see the inner cable.

You might also see a rod covered in calcium. It will look like someone covered in a whiteish or yellowish hard stuff.

- Next, turn off power to the heater.
 - For electric heater: turn off the circuit breaker for the heater.
 - For a gas heater: turn the gas control valve to the lowest setting or the "vacation" setting. Be careful not to turn completely off because it saves you from the trouble of relighting the pilot light.
- Turn off the cold water supply line to the heater. You should see a flexible line coming from the wall to the hot water heater. Now, look where the line is meeting the water heater. You should see something blue to indicate it's the cold-water line. There should be a valve on this line. Turn it until it's in the off position.
- Find the drain valve at the bottom. Connect your garden hose to it, putting the other end of the hose to a drain, outside the house, or into a large container. (Be sure to account for gravity here. The hose must be lower than the water level in the tank). Note- the water will be hot so be careful when handling the hose.
- Find a faucet close to the heater that has a hot water supply and turn on the hot side. This relieves pressure in the tank by allowing air into the tank, which breaks the vacuum and allows the water heater to drain. If the tank is still under pressure when you try to loosen the anode, it just might fly out like a rocket!
- If your anode rod is on the top of the heater, you will only need to allow the tank to drain about a quart or 1/2 a gallon of water. If the anode is located on the side, drain the tank until the water is below the anode rod port. Then close the outlet and remove the hose.
- Use a closed end wrench or 1-1/16" socket wrench and ratchet or breaker bar on the hex head to remove the anode. Anode rods are usually installed and kept in the heater for several years, so it may be a bit hard to get loose. You can try using a "breaker bar" for

better leverage or you can also try tightening the rod just a little to loosen up the threads. Also if your water heater is not [strapped](#), to prevent moving the heater around - which could cause damage to the pipe connections - it is a good idea to have someone hold the heater while you try to loosen the anode.



- DO NOT bang on the anode, the tank has a glass lining that could be damaged, allowing corrosion to start. DO NOT use any chemicals to try to loosen the threads, as they could get into the water heater contaminating the water.
- Once the anode is loose, lift it out from the heater. Depending on how much clearance you have above the heater, you may need to bend the anode to remove it. Generally, there is not much left of the anode by the time it needs replacing since it is intended to corrode within the tank. If you find that the anode is hard to remove because it appears to be enlarged and cannot pull through the inlet hole, then there is still enough of the anode material to be working properly and it does not need to be replaced just yet. In this case you can simply screw the anode back into the heater and replace it later.
- Wrap the threads of the new anode rod with [PTFE thread sealing tape](#), in a clockwise direction if holding the rod and looking at the threads or counter-clockwise if the rod is placed in a standing position and you are looking at the face of the nut. Only about five or six wraps around the threads are needed. Or use a [quality thread sealing compound](#).
- Insert the new anode rod. Most anode rods are completely straight and are difficult to bend. If your space is limited, you may consider using a [flexible anode](#).
- Tighten the new anode with your closed end wrench or 1-1/16" socket wrench and ratchet. Again, to prevent the heater from moving and potentially damaging the pipe connections, have someone else hold onto the heater to keep it in place.
- Open the cold water supply to the heater to refill the tank. Keep the faucet we mentioned earlier on, in the hot position.
- The tank is full when water comes out of the faucet. Let the water flow from the faucet until all the air is released from the tank. The faucet will usually spit some air out with the water until the air is expelled. The tank should be rid of any air when the water runs freely.

- Check for any leaks in the connections on the heater.
- Turn the power on for electric. For gas set the control back to the original temperature setting.

Tips & Videos

- [How to Change a Water Heater Anode Rod | This Old House - YouTube](#)
- [Understanding Water Heater Anode Rods - PlumbingSupply.com](#)