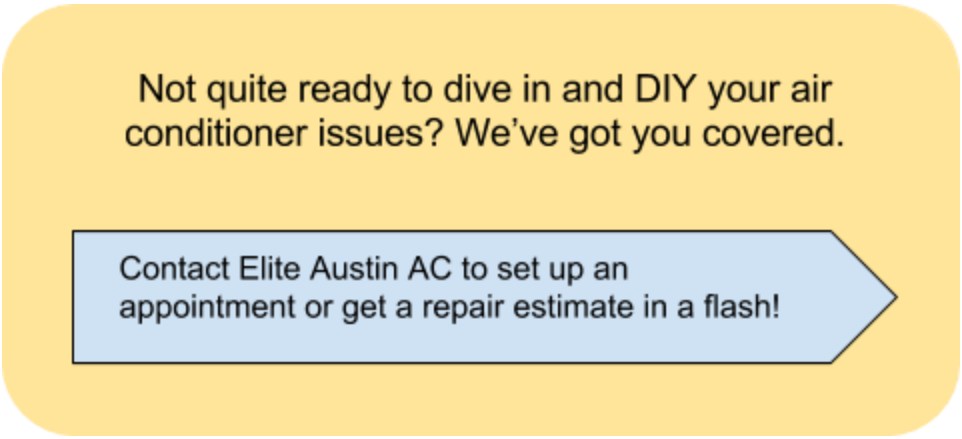
DIY Repair Tips for Fixing a Malfunctioning AC

Here in the Lone Star State, and particularly in south and central Texas, we enjoy many common pleasantries: temperate weather, a bevy of different landscapes throughout the state, rich culinary traditions, lauded southern hospitality, and a big blue open sky to gaze upon.

Sweltering temperatures are an expected side effect of our bright and sunny summers, but unfortunately the sticky, blazing hot weather isn't relegated to the few summer months. A working air conditioner that blows cool refreshing air is an absolute must in these parts.

With just a few tools, a little know-how, and some patience you can repair some common AC issues yourself in half the time it would take to have your air conditioner professionally repaired.



Gather Helpful Tools

Before you start banging on your unit, turning screws, and tearing things apart, gather a few handy tools. Having the necessary tools for this DIY project all lined up will save you time, money, and frustration.

Locate or purchase the following tools:

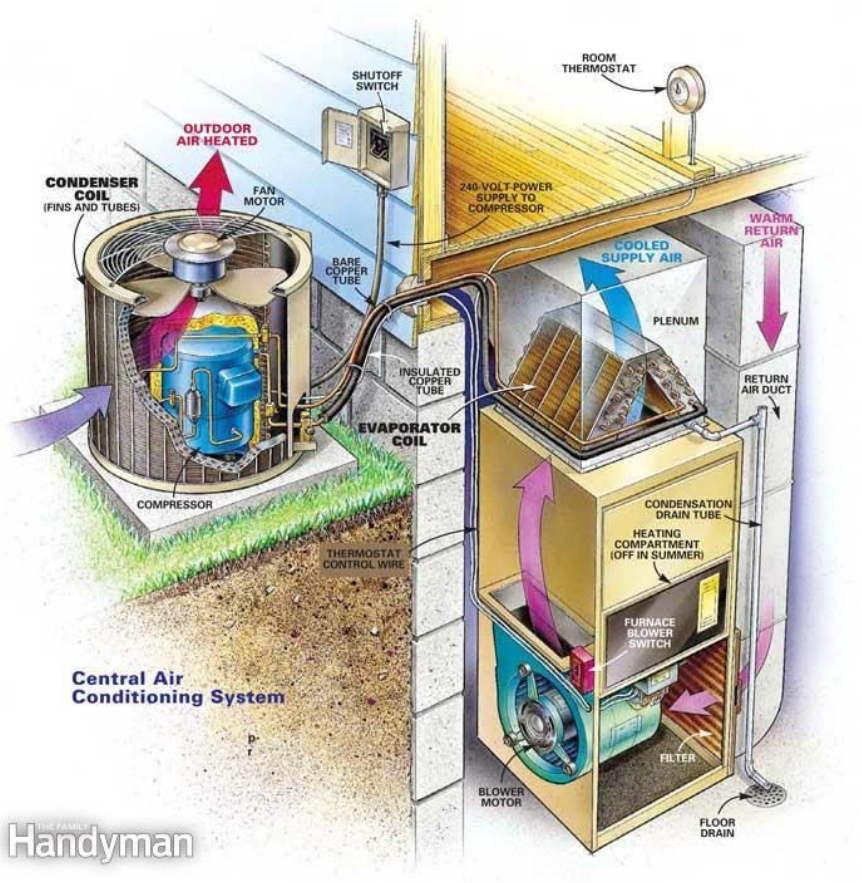
- Socket/ratchet set
- Insulated screwdrivers
- Adjustable wrench
- Cordless drill/driver
- Needle-nose pliers
- Voltage tester
- Nut driver
- Multimeter

Now that you have your tools handy, let's go over what is actually inside an air conditioning unit and what you'll be looking at when you begin troubleshooting.

Anatomy of an AC Unit

There are two major parts of an air conditioner: a **condensing uni**t that sits outside of your house and the **evaporator coil**, sometimes referred to as the A-coil, that sits in the plenum (air distribution box attached directly to the supply outlet of the HVAC equipment) of your furnace or air handler.

The A-coil contains refrigerant that picks up the heat from an inside space and pushes it out to the outdoor condensing unit. The condensing unit fan then blows outside air through the condensing coil to cool the air down.



Inside the condensing unit resides three potentially replaceable parts: the **contactor**, the **start/run capacitor(s)**, and the **condenser fan motor**. The condensing unit also contains the compressor, but only a professional can replace that. There are no replaceable parts within the A-coil for you, the trusty DIY-er.

Signs Your AC Unit Is Not Working

AC units can behave in several different ways when they are not operating correctly. Before you can begin troubleshooting and fixing possible issues, you must determine the parameters, or working conditions, of your unit.

Is your AC:

- Not working/running at all?
- Not cooling well but running?
- Dripping or leaking water?
- Making odd or loud noises?
- Continually running and won't turn off?

Now that you have pinpointed some high level behavior of your AC unit, and you have some knowledge about the internal and external working parts, it's time to begin exploring what might be going wrong and what is keeping your air conditioner from cooling efficiently.

There are a few areas or pieces of equipment that may prove to be the malfunctioning culprit, including:

- **Thermostat** - The thermostat may be configured incorrectly or may be failing.
- **Filter** - The filter may be clogged or too dirty to work properly.
- **Circuit breakers** - The unit may not be receiving power via the electrical panel.
- **Condensers** - The fan, within the compressor in the outside unit, should be running and should sound similar to a running refrigerator.
- **Coil** - The coil may be frozen, preventing appropriate airflow.
- **Drains and Pans** - These can become dirty and can impede proper draining.
- **Connect Technology** - Your Nest, Curb, or similar technology hub, may not be operating correctly.
- **Air Registers** - If several of the internal air registers (grates that cover the airflow point inside) are closed or clogged, the reduced airflow may have caused the A-coil to ice up and stop cooling.

Some air conditioner repairs should be handled by a qualified AC repair company. Below, we cover several ways you can DIY simple repairs and maintenance of your air conditioning unit yourself, but if you're feeling overwhelmed or simply don't have the time to DIY contact a professional.

In addition to our time and money-saving DIY tips, learn how to replace your furnace and AC filters and determine if you should keep repairing your air conditioner, or plan to replace an aging unit.

DIY Fixes for Common AC Issues

The following DIY tactics are specific for each type of air conditioning problem mentioned. A little elbow grease, some cursory knowledge of the workings of a standard air conditioner, and expert-level tips and tricks will help you remedy common AC issues, or at the very least determine whether you should call in the professionals to finish the job.

AC Not Working/Running

When the thermostat in your house reaches the set point that signals the AC unit to begin cooling, but your AC doesn't kick on or begin cooling:

- **Locate and check your main electrical panel and any other circuit panels for a blown fuse or tripped breaker.** If you find that a breaker is tripped go ahead and reset it by flipping it off and then back on. If a fuse is blown, go ahead and replace it. A central AC unit should be on a dedicated 240-volt circuit.

  If the breaker continually trips, there is probably a short in the system somewhere. Contact an electrician to have them verify whether the fan motor, compressor, or capacitor is the source of the problem.

- **Make sure the power is on.** Check the power switches in the furnace or air handler, and in the outside condenser, to ensure that power is on for the system. Also double-check the compressor's 240-volt disconnect to confirm that the power hasn't been shut off there either.

- **Ensure that the thermostat is set to COOL**, and that the temperature setting is at least a few degrees below room temperature. If your thermostat isn't popping on due to an incorrect setting, simply re-set your desired temp and HEAT/COOL setting and re-test.

- **Verify that your thermostat's batteries are fresh and that all wires are connected properly.** To do so, remove the thermostat cover, then pull the thermostat base straight off. Replace the batteries and check that the connections between the wires and their terminals haven't been pinched out of place by the cover. Replace the cover and wait a few minutes, then try to switch on the AC system again.

- **Determine whether the thermostat is faulty.** Open the thermostat and remove the wire from the Y terminal. Turn the power back on, and holding the wire by its plastic insulation only, touch the bare end to the R terminal and hold it there for 1-2 minutes. If the compressor starts, your thermostat is faulty and needs to be replaced. If the compressor

does not start, turn the power back off and call an air conditioning repair company.

- **Check the compressor's capacitor and wire connections.** The capacitor in the compressor starts the condenser and the fan, so if the capacitor has failed the AC won't run. Shut down all power to the unit and verify that it is off before proceeding. Remove the electrical cover of the unit, and using a digital multimeter set to "Capacitance" place one lead on the "Common" terminal and the other lead on one of the other two terminals. If the meter shows "OL" that means there is a short somewhere.

  See how to test an air conditioning condensing unit capacitor and wires:
  VIDEO EMBED https://vimeo.com/87560883

AC Not Cooling But Running

Sometimes an air conditioner will be obviously running but no cool air, or just tepid air, is coming out through the vents. In this case, ensure that nothing is blocking or limiting the airflow in the air filters, registers, and compressor.

To check blockage and airflow:

- **Clean or replace the filter.** Remove the front door of the air handler cabinet and pull out the filter. If the filter is dirty, grimy, or caked with debris of any kind vacuum it and then soak it in a bucket of equal parts vinegar and water for a few hours to kill harmful bacteria, dirt, and allergens. Allow the filter to drain and then dry.

  If you notice any rips or snags, don't even bother to clean the filter. Replace it, as continuing to use them when they are worn out will definitely limit efficiency.

- **Look for ice around the coils.** If you notice that there is ice accumulation around the cools, close the unit up and turn the fan on. The ice will melt in a couple of hours. Ice around the coils is likely caused by reduced airflow due to soiled filters or coils, or a low refrigerant level (which is something that should be checked and recharged by a professional, like Elite Austin AC.)

- **Clean out the condensate drain.** Air conditions create a lot of water because they remove moisture from the air as they work, and you can often see water pooling around the unit. Algae can block the drain pipe and cause the AC to stop working.

  VIDEO EMBED https://www.youtube.com/watch?v=HyvPR7yMqbk

  See the instructions below for dealing with condensate problems (**Air Conditioner Leaks Water anchor link.)**

- **Check the outdoor compressor.** Clean the outdoor compressor, including the coils.

  If the compressor fan isn't turning on when you set the thermostat to a temperature below room temperature look for an overload button or reset switch and reset it. If your AC unit does not employ this option, use a screwdriver or long stick to attempt to spin the fan blades clockwise. If the blades spin freely and the fan gives the unit enough boost to begin working then your capacitor is faulty and needs to be replaced.

  VIDEO EMBED https://www.youtube.com/watch?v=CuN0T0iwvmE

  If cleaning the compressor coils and kickstarting the fan blades doesn't work, have a qualified local air conditioning repair professional recharge the coolant in the unit.

Elite Austin AC can recharge the coolant in your AC unit quickly. Let us help you “keep your cool” this season.

Schedule a quick visit today!

AC Dripping or Leaking Water

In especially humid climates, like many areas of Texas, air conditioners can create gallons of water per day, which exits through a drain tube attached to the air handler. If water is dripping or puddling near the base of the air handler it may be leaking from the drain tube, something could be blocking the water flow, or the condensate pump could be malfunctioning.

Some unit models have a safety float switch that will flip off the AC if the drain tube backs up, which is a definite sign that the drain tube should be replaced.

To remedy dripping or leaking water:

- **Make sure the electric condensate pump is connected to a working electrical outlet.** Then look to see if the drain tubing has come loose or is disconnected from the pump. If so, reconnect it. If the drain tube is clogged with algae use a wet-dry vacuum to

suck all the water out of the tube.

- **Test the condensate pump.** Pour water into the collector, which is turned on by a ball float that moves with the water level. The pump should start. If it is stuck, disconnect the pump and clean it out. If it's old, broken, or worn, replace the condensate pump.

  If the pump runs but doesn't empty out as it should, unscrew the check valve, loosen the ball float inside, and look for blocking or algae build-up. If dirty or clogged, remove it and blow it out or run a wire through the inside to clear the blockage.

- **If ice is blocking the tube, clean or change your AC filters ANCHOR LINK FOR ABOVE.** If the air conditioner filters look fine and relatively clean then the AC's refrigerant supply is likely too low. Have a professional recharge the unit.

AC Unit is Noisy

If your air conditioner is making a racket, the air handler, the outdoor compressor, or the ductwork could be to blame.

Air Handler Making Noise

The air handler sometimes makes a squealing, grinding, or buzzing noise. To alleviate the noisiness:

- **Check the connection between the belt and the motor.** Most air handlers are equipped with direct-drive motors, but some older units are belt-driven. When you hear squealing sounds coming from the air handler that may mean that the belt is improperly aligned or in need of replacement. Refer to you owner's manual for instructions on how to replace the belt.

  VIDEO EMBED https://www.youtube.com/watch?v=F2GWEuHYPo8&t=12s

  If your direct-drive blower is making squealing or grinding noises shut down the unit and contact an HVAC professional. The motor's bearings may be worn down and need to be replaced.

  If your air handler is making a buzzing noise when you turn on the thermostat switch the thermostat HEAT/COOL toggle to OFF, and then switch the fan from AUTO to ON. The fan should begin running. If the air handler starts buzzing the fan relay or blower fan may need to be replaced.

Outside Compressor Making Noise

Likewise, the outside compressor may be emitting buzzing, humming, or grinding noises. To alleviate the noisiness:

- **If the AC compressor is buzzing** the run capacitor may not be working. If that is the case, the motor will overheat when it tries to start, and a thermal overload switch may shut it off. Deftly poke a long screwdriver or stick through the outside unit grill and attempt to spin the fan clockwise. If it starts spinning and then stops after one cycle, the capacitor needs to be replaced.

- **If the AC compressor is humming when you turn the thermostat to the COOL setting** the issue is likely the low voltage transformer for the unit. Contact a professional to troubleshoot or fix the transformer.

- **If the AC compressor is making a grinding noise** the motor bearings may be worn out. Replace the motor.

Ductwork Making Noise

Heating and cooling ducts are typically metal and conduct noise very easily as the air handling unit helps to move air into the rooms inside. To eliminate ductwork noise:

- **Insert flexible insulation ductwork between the heating and cooling system and the ductwork.** Have an HVAC professional complete this installation if needed.

  VIDEO EMBED https://www.youtube.com/watch?v=caG6Hpxwo4A

- **If the ductwork is making a pinging or popping noise,** locate the source of the sound along the duct and make a small dent into the sheet metal. This provides a more stable surface that is less likely to move as it heats and cools.

AC Won't Turn Off

If your AC unit does not turn off when room temperature reaches the temperature set via the thermostat, the thermostat itself or the electrical system that runs the outside condensing unit may be the issue.

To fix a continually running AC unit:

- **Check to see if the thermostat is displaying any values.** If it shows a blank screen, or if the AC shuts off when you switch it to the HEAT setting, the thermostat is probably

broken and needs to be replaced.

- **Remove the yellow low-voltage wire from the thermostat while the AC is running.** If the unit turns off, the thermostat is broken or wired improperly. If no thermostat wires are cross-connected, buy and install a new thermostat.

  If the AC does not turn off when you remove the wire from the thermostat the outdoor run relay contacts may be stuck together or malfunctioning. Turn off the power to the furnace and condensing unit, disassemble the relay, and pry apart the contacts.

Test Your DIY AC Fixes

Air conditioning units and thermostats have built-in delay features, which can last up to 10 minutes, when they've been shut down and powered back up again. If you have an energy-saving device installed from your local power utility the unit could take even longer to reset. Be patient!

If you've followed the DIY air conditioner repair steps noted above, have ensured that breakers and electrical panels are all turned on and receiving power, and have moved the thermostat to AC mode with a temperature below the current indoor temperature, and the unit doesn't begin running after about 30 minutes it's time to call a professional!

Our do-it-yourself AC repair tips cover a lot of ground, and may provide the improvement you are seeking, but if you're experiencing continuing AC issues don't hesitate hire an expert.