

HEAT AND AIR TUNE UP AND TROUBLE SHOOTING GUIDE

Heating and air conditioning systems require more preventative maintenance than any other home system. We depend on them to perform day-in and day-out, keeping our homes at comfortable temperatures, and rarely do we give them the attention they deserve. That is, until they stop working. Usually, furnaces go out when it's sub-zero outside and air conditioning units like to stop when the summer is at its hottest. These repairs are often costly and inconvenient as technicians are naturally much busier with numerous such emergency situations. Furthermore, by the time a system fails due to neglected cleaning and restricted airflow, the efficiency has been poor for some months and that is costing real dollars for you on your utility bill. Often, this is completely preventable by doing the routine maintenance that is described below.

We do NOT expect you to perform complicated repairs to heat and air systems! However, we do expect you to learn enough about the systems in your home to appreciate them and help us maintain them. That primarily includes keeping air filters replaced and grates and registers cleaned and unobstructed. Our maintenance team typically inspects our systems twice per year, however, that is not enough to keep an HVAC system operating at its best. This trouble shooting guide is a handy reference for giving your system a tune up and, also is to be used so that when you do have an issue you might quickly resolve it yourself. If you need help or want us to walk through this process with you we can do so, either over the phone or at the house. If you are comfortable doing it yourself then you will have more information to communicate to us when you do make a Maintenance Request so that we may respond appropriately, and quickly get the repair completed. If your system stops and you immediately send us a text stating "my ac isn't working", you will get a response asking for more information so you might as well be ready by having already done the following:

Any time the system is not working properly, TURN IT OFF! Letting it continue to run will cause further damage and could destroy the entire system costing thousands. Please, be aware!

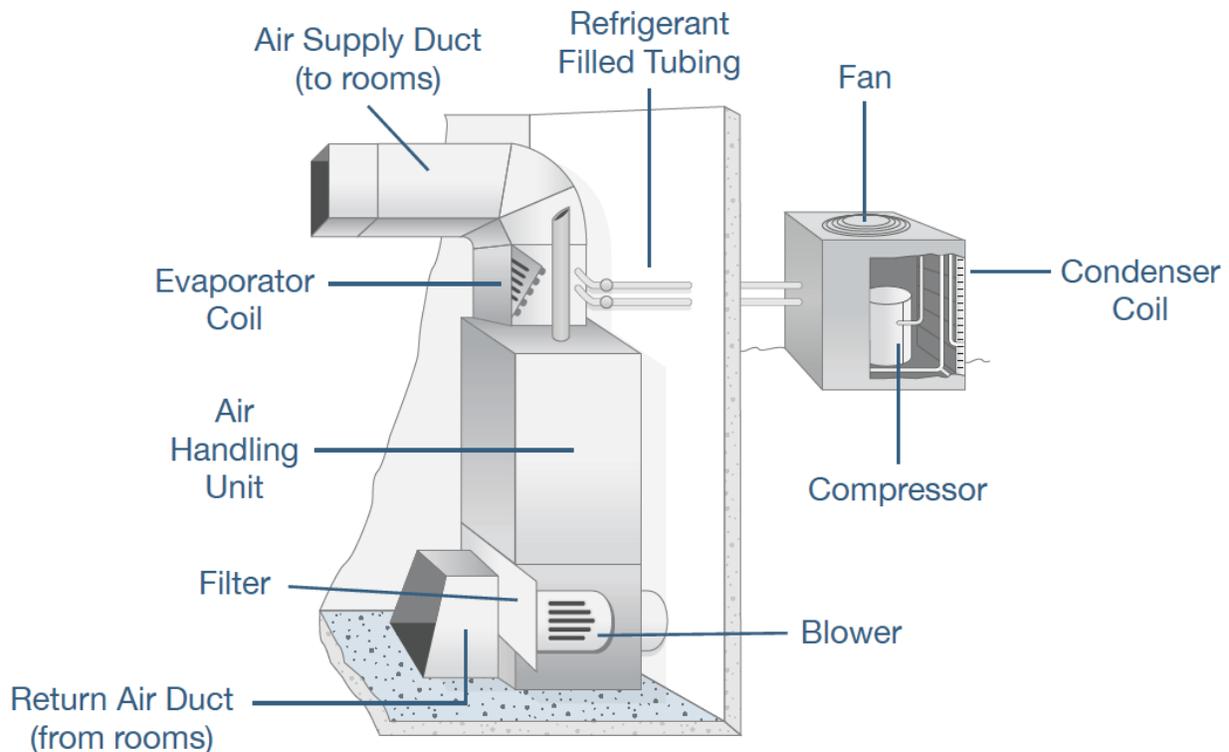
1. Turn thermostat to OFF and flip breaker to OFF. This will allow the system to reset and give you time to safely perform the following tasks. If you find a breaker already tripped you can reset it once; if it trips again, leave it OFF and call us immediately.
2. Replace batteries in thermostat if it has them.
3. Replace ALL filters with new clean filters of the correct size. There may be filters in the return grate and in the air handling unit itself. **REGULARLY CHANGING ALL AIR FILTERS IS CRITICAL!**
4. Make sure ALL return grates and supply registers are open, clean, and unobstructed for optimal airflow. Vacuum out floor ducts if full of trash and debris.
5. Make sure air handler has the panels properly closed and that the area is clean and free of dust and debris. If not properly closed, sensor switch can prevent operation.
6. Go outside to make sure the condensing unit is clean and free of vegetation growth and yard debris (also, please know that weed eaters can cut thermostat wire, or the damage unit and copper line set). You can gently hose the unit off to clean it and allow it to dry before re-starting. **DO NOT HOSE OFF WHEN RUNNING!** You can also carefully feel the line sets and other parts of the system to see if anything is extremely cold or extremely hot.



7. When the system is all clean, dry, and at a near ambient temperature, turn breaker to ON.
8. **For normal operation, the thermostat should be set to AUTO and either COOL or HEAT or OFF.**
 - If nothing happens turn thermostat from AUTO to ON. If you do not hear fan then the system is not getting power.
9. Set the thermostat at 5 degrees from the actual temperature, hotter if running heat or cooler if running air conditioner. The system should come on, and operate until the temperature in the house matches the thermostat setting, at which point the system should shut off.
10. With the system running check ALL supply registers for comparable airflow and you may be able to feel a similar suction at return grates. If there is a dead register be sure to let us know, as one of the ducts has likely come unattached in crawl space or the attic. This could be a huge cost on your utility bill and is over working the system; it must be repaired immediately.
 - If the system runs with adequate flow but is not cooling go outside and see if unit is on or not, and carefully feel the copper line set. If it isn't running, it may have bad capacitor. If it is warm or hot, the system is likely out of coolant and needs charged. If it is cold, then there may still be an airflow problem or it may be low on coolant.
 - If you are having cooling problems and find dirty filters or restricted airflow through the system, the evaporator coil may have frozen up. In some cases, the ice will be visually obvious on the coil, other times you may have to feel it to get an idea of its temperature. If frozen, it will have to be given sufficient time to thaw before re-starting the system.
 - If the system runs with adequate flow but is not heating you may be able to learn more by peering into the furnace between the vent grate on the front access panel and see the flames of each burner. The sound of a gas furnace starting is usually some small tics from the thermostat, then a louder clicking of the ignitor, and finally the sound of the burning gas flames that heat the air. If it is clicking but not lighting it's likely a burnt-out ignitor.

Remember, this guide is the basic process to follow when you think your heating and/or cooling system is not working properly or as a reference tool to perform preventative maintenance. It is also to be used so that if making a Maintenance Request you will have necessary information to provide us regarding the specific issue. If you have seemingly resolved the problem, go ahead and notify us with details and monitor the system closely for the following days. If there is ever any doubt that the system is still not working properly keep the system off and call us immediately at 417-592-9072.

Thank you for your help and cooperation.



This is the most common HVAC system configuration. It is natural gas forced air heat and electric air conditioning. The air handler is the main part of the system and is usually inside the house. Often one or more air filters is inside a tray like opening in the air handler. The furnace components such as ignitor and burners are housed inside the air handler and the air conditioning evaporator coil is usually mounted on top. The air conditioning also has an outdoor unit which includes the compressor, condenser, fan, and copper line set. The thermostat controls the entire system and is often mounted inside on a wall near the primary return grate. One of the filters is often inside this grate and some systems may have more than one return grate. Each room in the house should have at least one supply register. This system does require electricity and will not operate heat or air conditioning during power outages.

*If you have a floor furnace and window air conditioning you will still have to consider some of this information. Floor furnaces need to have clean supply and return ducts and grates, and they operate on a thermostat. Window ac units get dirty and have small slide out filters that need to be cleaned regularly and for a couple bucks at Lowes or Walmart you can get a can of cleaner with instructions. Also, take care not to touch the cooling fins on the exterior of the units or they will not cool efficiently.