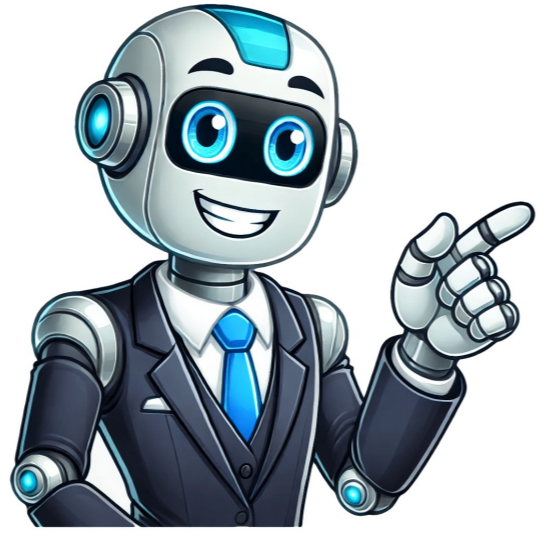


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## How to test an ac compressor

60 When your air conditioning system stops working properly, one of the most common causes is a bad AC compressor. The compressor is an essential component of the air conditioning system, acting as the “heart” of the machine. It circulates refrigerant through the system, enabling it to cool the air. In this article, we’ll guide you through how to check for a bad AC compressor, so you can take action before things get worse. What Is an AC Compressor? An AC compressor is a vital part of the air conditioning unit. It is a type of compressor used in HVAC systems, which are general machinery designed to regulate temperature and air quality. The compressor pressurizes refrigerant and sends it through the evaporator coil to cool your space. If the compressor fails, the entire system could stop functioning. Recognizing the signs of a bad compressor early on can save you time and money.Common Symptoms of a Bad AC Compressor Recognizing the signs of a malfunctioning compressor is essential for any homeowner. Here are some common symptoms of a bad AC compressor:1. The AC Is Not Cooling Properly One of the first signs that your compressor might be failing is poor cooling performance. If your air conditioner is running but not cooling the air effectively, it may indicate a problem with the compressor. The refrigerant may not be circulating correctly, causing the AC unit to blow warm air.2. Strange Noises Coming from the AC Unit If you hear a clunking, clicking, or grinding noise coming from the compressor, it’s a sign of mechanical issues. These noises often occur when internal components become damaged or worn out. A normal compressor should run quietly, so any unusual sounds should raise a red flag.3. Inconsistent Temperature Control If the temperature in your home fluctuates despite adjusting the thermostat, a faulty compressor may be to blame. The compressor controls the flow of refrigerant, and if it isn’t functioning properly, the cooling process becomes erratic.4. Circuit Breaker Trips Frequently If your air conditioning unit trips the circuit breaker regularly, it could be due to a compressor that’s drawing too much current. A bad compressor will strain the system, often overloading the electrical circuits and causing the breaker to shut off to prevent a fire.5. Leaking Refrigerant A compressor failure may cause refrigerant to leak from the system. Low refrigerant levels can also result in poor cooling performance. If you notice refrigerant leaking, it could mean that your compressor is not functioning correctly and may need to be replaced. How to Check for a Bad AC Compressor: A Step-by-Step Guide Checking for a bad AC compressor involves a few basic steps. Here’s a simple guide to help you check whether the compressor is the issue:1. Check for Airflow Before checking the compressor itself, make sure the airflow is not blocked by anything, like dirt or debris. This could prevent the system from cooling properly. Once you’ve ruled out airflow issues, you can proceed to inspect the compressor.2. Listen for Strange Noises Start by listening to your AC unit when it’s running. As mentioned earlier, strange noises like clicking, clanking, or grinding sounds are often signs that the compressor is malfunctioning. If you hear these sounds, turn off the unit immediately to avoid causing further damage.3. Inspect the Compressor for Visible Damage Next, inspect the compressor visually. Look for any obvious signs of damage, such as oil leaks, cracks, or rust. If you notice anything unusual, the compressor may need to be replaced.4. Check the Refrigerant Level Low refrigerant levels can indicate a problem with the compressor. Check the refrigerant level with a gauge. If it’s too low, you may have a leak, or the compressor may not be circulating refrigerant effectively.5. Test the Capacitor The capacitor helps the compressor start and run. If the capacitor is faulty, the compressor may not start at all. You can test the capacitor with a multimeter to see if it’s working properly. If the capacitor is defective, replacing it could resolve the issue.6. Check the Pressure Switch Another test you can perform is checking the pressure switch, which regulates the refrigerant flow to the compressor. If the switch is malfunctioning, the compressor won’t operate correctly. Using a multimeter, you can test the switch for continuity. If it’s not functioning properly, it may need to be replaced.7. Monitor the System’s Voltage Your compressor needs a certain amount of voltage to operate correctly. If the voltage drops too low, the compressor may fail to start. You can use a voltmeter to measure the electrical voltage going to the compressor. If the voltage is not within the recommended range, there may be an issue with the electrical system.8. Check for Short Cycling Short cycling occurs when the compressor starts and stops frequently, which can lead to wear and tear. If your system is short cycling, it could be a sign that the compressor is having trouble starting up or shutting down properly.9. Test the Contactor The contactor is an electrical switch that controls the power supply to the compressor. If the contactor is faulty, the compressor may not receive the power it needs. You can test the contactor with a multimeter to check for continuity. If it’s not working correctly, the contactor may need to be replaced. When to Call a Professional While the steps outlined above can help you identify potential issues with your AC compressor, it’s often best to call a professional HVAC technician for a thorough inspection. They have the tools and experience to diagnose the issue accurately and provide solutions. Some compressors may need to be replaced entirely, while others can be repaired. What Happens When You Have a Bad Compressor? If the compressor is bad and not fixed promptly, it can lead to further damage to the air conditioning unit. A faulty compressor can cause other components to overheat or break down, leading to more costly repairs. Additionally, running an AC unit with a failing compressor can result in higher energy bills due to inefficiency. Conclusion The compressor plays a crucial role in your AC system. Regular maintenance and early detection of compressor issues can help keep your air conditioning unit running smoothly for years. If you notice any signs of a bad compressor, it’s important to address the issue quickly to prevent further damage. Keep an eye on the performance of your AC system, and don’t hesitate to seek professional help when necessary. In this article, we’ve discussed how to check for a bad AC compressor, including symptoms, step-by-step checks, and when to call a professional. By staying vigilant and performing routine checks, you can avoid costly repairs and keep your AC unit running efficiently. Remember, a compressor is a key component of your air conditioning system, and taking care of it ensures you have cool air all summer long. Related topics: Have you ever experienced your AC system blowing out warm air instead of cool, and wondered what may be causing it? The culprit could be a faulty compressor. Checking your compressor should be part of your regular maintenance routine to avoid such issues. It doesn’t necessarily require professional assistance as you can easily check the compressor yourself.In this blog, we’ll take you through the basics of checking your compressor and identifying the warning signs that indicate it needs to be repaired or replaced. So, let’s dive in! If you’re wondering if your compressor is working properly, a visual inspection can give you a good idea. Start by checking the electrical connections for any signs of wear or damage. Look for frayed wires or loose connections.Next, give the compressor housing a once-over for any cracks or leaks. These could indicate a much larger problem, so it’s important to address them right away. Look at the pressure gauge on the compressor to see if it’s within the recommended range. If it’s outside of the range, it’s likely that the compressor isn’t working correctly. Finally, listen closely to the compressor as it runs. If it’s making unusual sounds or seems to be working harder than usual, it could be a sign that something is wrong.By performing these simple checks, you can get a better idea of whether or not your compressor is working properly. When it comes to inspecting your device for potential physical damage, a thorough visual inspection should be your first step. This involves examining the exterior of the device for any cracks, dents, or scratches. It’s important to pay close attention to any areas that are prone to damage, such as the screen, corners, and edges.You should also check for any signs of water damage, such as corrosion or rust. If you notice any physical damage, it’s important to address it right away in order to prevent further problems down the line. By taking the time to carefully inspect your device, you can potentially avoid costly repairs or replacements in the future.So, don’t hesitate to give your device a good once-over and ensure that it’s in top condition. When it comes to car maintenance, one crucial aspect that you shouldn’t overlook is checking for oil leaks. Oil leaks can cause serious damage to your engine and compromise your car’s overall performance. The good news is, it’s relatively easy to check for oil leaks.One quick and easy way is to visually inspect your car’s engine and look for any signs of oil leaking. If you notice any wet spots or puddles of oil under your car, that’s a definite sign that there’s a leak. You should also check the engine oil levels regularly to ensure that your car has enough oil.Low oil levels can cause your engine to overheat, which can lead to more serious problems. By keeping an eye out for any signs of oil leaks, you can catch the problem before it causes any significant damage to your car. So, the next time you’re checking your car’s maintenance needs, remember to check for oil leaks.Your engine will thank you for it! The compressor is an essential part of an air conditioning system. When it’s not working, your AC won’t be able to cool your space effectively. If you’re experiencing issues with your AC, one of the first things you need to check is the compressor.The good news is that there are a few ways to test the compressor to see if it’s functioning correctly. One of the best ways is to use a multimeter to check the electrical readings of the compressor. If the readings are within the manufacturer’s specifications, it’s likely that the compressor is working fine.Another way to test the compressor is to observe the condenser unit. If the fan is running, but the compressor isn’t, you may have a problem with the compressor. Additionally, if you notice strange noises coming from the condenser unit, it’s a sign that something is wrong with the compressor.By regularly testing the compressor, you can catch any issues early on and avoid costly repairs down the road. If your refrigerator or air conditioner compressor is not working, one reason could be a damaged winding in the compressor motor. To test this, you can use a multimeter to check the compressor’s resistance. First, disconnect the power supply from the appliance and locate the compressor.Then, set your multimeter to the resistance measuring mode and touch the probes of the meter to the two pins on the compressor motor. A good winding will have a resistance value within the manufacturer’s specifications, while a damaged winding will show a higher or lower resistance value. By testing the compressor with a multimeter, you can quickly identify if there’s an issue with the compressor motor before proceeding with repairs.This simple test can save you time and money in the long run and help your appliance to function efficiently. When it comes to testing the compressor of your HVAC system, one important step is to check the voltage across it. This involves using a multimeter to measure the voltage at the terminals of the compressor while it is running. The reading should be within the manufacturer’s specifications, which can be found in the manual or online.If the voltage is too high or too low, it could indicate a problem with the electrical circuit or the compressor itself. Checking the voltage across the compressor is crucial, as it helps to ensure that it is operating properly and efficiently. Think of it like checking the blood pressure of a patient - it gives you an idea of how well their heart is functioning.In the same way, checking the voltage across the compressor gives you insight into the overall health of your HVAC system. Whether you’re a homeowner or HVAC technician, be sure to include this step in your compressor testing routine. When it comes to HVAC systems, the compressor is like the heart of the unit. It’s what pumps refrigerant throughout the system to provide cooling. So, if something goes wrong with the compressor, it could lead to major issues for the entire system.That’s why it’s important to test the compressor regularly. One way to do this is to listen and feel for vibrations. When the compressor is running, it should be relatively quiet and smooth. If you hear unusual noises or feel excessive vibrations, that could indicate a problem with the compressor. It’s important to address any issues with the compressor as soon as possible to prevent further damage and ensure your HVAC system is running smoothly. So, if you haven’t checked on your compressor recently, it’s a good idea to schedule a professional inspection. In conclusion, checking if the compressor is working is a crucial step in ensuring the proper functioning of your AC unit. From listening for the hum of the compressor to feeling the cool air coming from the vents, the signs are there if you know where to look. So don’t let a faulty compressor put a damper on your summer cool-down plans. Give your unit a quick check and keep the cool air flowing with ease. Remember, a working compressor means a happy home and a happy wallet, so keep calm and compressor on!” To test the compressor, several steps were taken to ensure it was in good working order. First, the power supply was checked to ensure the compressor had the necessary power to operate. Next, the air filter was inspected and cleaned to ensure proper airflow.Then, the pressure switch was tested to ensure it was functioning correctly and the pressure gauge was checked for accuracy. After that, the safety valve was tested to ensure it would release excess pressure if needed. Finally, the compressor was run for an extended period to ensure it could maintain pressure and didn’t overheat.By following these steps, it was determined that the compressor was in good working order and ready for use. In conclusion, testing the compressor is an important step to ensure it functions correctly and is safe to use. By following a set of specific steps and checks, it can be determined if the compressor is ready for use or if any repairs need to be made. This ensures both safety and efficiency, making it an essential part of maintenance for any air compressor. When it comes to testing the compressor, it’s important to know when to seek professional help. If you notice that your compressor is making unusual noises or struggling to start up, it may be time to bring in an expert. A professional can ensure that your compressor is working at its optimal level and diagnose any potential issues before they turn into major problems. It can be tempting to try to handle the issue on your own, but without the proper knowledge and tools, you may end up causing more damage. Don’t hesitate to reach out to a professional if you suspect that your compressor needs attention. They can help you keep your compressor running smoothly and avoid any costly repairs in the future. How can I check if my compressor is working properly? You can check if your compressor is working by listening for unusual sounds, checking for proper airflow, and monitoring the temperature of the air coming out of the system. What are the signs that my compressor is failing? Some signs that your compressor is failing include unusual sounds coming from the system, poor airflow or inadequate cooling, and inconsistent temperatures. Can a failing compressor cause other HVAC system issues? Yes, a failing compressor can cause other HVAC system issues, such as reduced cooling capacity, increased energy usage, and even complete system failure. How often should I have my compressor checked for maintenance? It is recommended that you have your compressor checked for maintenance at least once a year, preferably before the start of the cooling season. Regular maintenance can help extend the life of your compressor and prevent costly repairs. 1 Turn off the power leading to your air conditioning unit. It’s important that your power is off so that you don’t shock yourself when checking the compressor. Many central air units will have a power shutoff switch on the wall next to the unit. Find the switch and switch it to the off position.[2] If there is no switch, find the circuit breaker that controls the power to the area of the house where the AC unit is. Flip the circuit to the off position to turn off the power. You can unplug the AC to shut down the power if it’s a window unit. 2 Unscrew and remove the faceplates from your AC unit. To inspect the compressor, you’ll have to remove the faceplates of the unit to see the internal components. One side of the unit will have a faceplate that has ventilation holes and screws attaching it to the unit. Use a Phillips head screwdriver to remove the screws and place them in a safe place for later. Repeat the process on the top of the unit as well. Once all the screws are removed, you should be able to pop out the faceplates to reveal the inside of the unit.[3] Advertisement 3 Remove the electric access panel if you have one. Once you remove the faceplate, you’ll need to remove another panel to unveil the wiring of the AC unit. Use a screwdriver and loosen the screws on the access panel, just like you did AC the faceplates. Once they are removed, pop out the access panel to reveal the unit’s wiring.[4] 4 Look for damage to the wires and compressor itself. The compressor will look like a cylindrical metal tank. Examine the compressor and make sure that none of the wires are frayed or damaged. If you do notice frayed or damaged wires running from the compressor, the wires are likely what’s causing it to fail. Take notice of the compressor itself. If there is visible damage to the compressor, you will most likely need to replace it.[5] If you need to repair your compressor’s wires, you should call a certified air and heating specialist to replace them. This will be cheaper than replacing the compressor itself. 5 Look for burnt or damaged terminals on the compressor. The terminals are the metal nodes that the wires connect to and are usually on the side of the compressor. Make sure that there are no burns or damage to the terminals. If there isn’t visible damage to the terminals or wires, you’ll have to test the terminals with a multimeter to make sure that they still can hold a current.[6] Carey Brothers, Home Improvement and Maintenance Experts An AC compressor is the heart of the air conditioning system, pulsating with the refrigerant flow. Like any heart, it needs to be checked regularly to ensure it’s healthy and functioning properly. A malfunctioning compressor can lead to a domino effect of issues in your AC system. So, don’t ignore the signs. Regular maintenance and prompt attention to potential problems can save you from a hot and uncomfortable situation. Advertisement 1 Wait for the unit to cool down. Touch the top of the AC unit with the palm of your hand. If the unit is still warm, it may throw off your multimeter settings. Wait until the AC unit completely cools down before trying to test the voltages.[7] Remember to make sure that there isn’t any power running to the unit or you’ll shock yourself. 2 Purchase a multimeter and set it to continuity. There should be a dial on the front of your multimeter. Set this dial to continuity so that you can test each individual terminal to determine where the fault is. Continuity tests whether there is an electrical flow between the terminals. If there is no flow, it’s likely that the terminal is broken or damaged.[8] 3 Find the terminals marked C, R, and S. Your compressor should have three terminals on it or in the access panel. The terminals should be marked C, R, and S.[9] These letters stand for common, run, and start. 4 Place the red pin on C and the black pin on S. Place the pins on the black and red wire from your multimeter onto the terminals. Once you place the pins on the terminals, your multimeter should have an ohm reading of less than 30. Anything significantly above this reading indicates that your compressor may be broken.[10] 5 Place the red pin on C and the black pin on R. Repeat the process, this time checking the continuity between the common and run terminals. Again, the continuity should read under 30.[11] 6 Put the red pin on R and the black pin on S. The final test is between the run and start terminals.The continuity between these terminals should be under 30. [12] 7 Purchase a new compressor motor if your ohm readings are high. If your ohm readings are above 30, it means that your compressor motor is likely faulty and you’ll need to get it replaced. A heating and air specialist may be able to repair the broken compressor motor instead of having to buy an entirely new compressor.[13] 8 Purchase an entirely new compressor if your ohm readings are low. If your ohm readings are near 0, it means that the connection between your terminals is faulty and you’ll need to get a replacement compressor. If you want to make sure that this is indeed the case, refer to a heating or air specialist to get a second opinion.[14] Advertisement 1 Turn off your vehicle. Turn off the engine so that the moving parts under your hood are stationary. If your engine or internal parts are hot, wait for them to cool down before checking your compressor. 2 Open the hood of your car and locate your AC compressor clutch. The compressor clutch will usually be located under your hood on the left side near the front of your car. It will look like a cylindrical metal piece with tubes and wires running from it. 3 Examine the compressor for damage. Compressors are prone to rust on older vehicles. Check the compressor itself for holes or rust damage. You should also check the tubing and wires to make sure that they aren’t disconnected, frayed, or damaged. If they are, you can replace them more cheaply than it would cost to get an entirely new compressor.[15] 4 Disconnect the wires running from your battery to the AC compressor. There should be wires running from the top or side of the compressor. The white wire is your live wire that carries electric current, while the black wire is your ground wire. Press on the sides of the plastic fittings and pull on the wires to remove them. This should reveal the contacts that you’ll use to test the compressor.[16] 5 Insert the multimeter pins into the plastic fittings to get a reading. Set your multimeter to continuity and place the pins on the contacts. Setting the dial on your multimeter to continuity will test if current is properly running through your compressor clutch.[17] 6 Replace the coil if the reading is below 3 ohms or above 5 ohms. If you get a reading of 0 ohms, it means that your wires are bad and you’ll have to get them replaced. If your reading is over 5 ohms, it most likely means that you have a bad coil, and your diodes will need to be checked by a mechanic.[18] 7 Connect your AC compressor clutch to a 12-volt battery to see if it engages. Connect your negative, or black battery cable with the grounded contact in the compressor. Then, attach the black wire to the negative side of the battery. Connect the positive, or red wire, to the positive side of the battery. Touch the metal end of the wire to the live compressor clutch wire. This should engage the clutch back and forth. If the clutch does not move or make a noise, it means there is an issue with the contacts or the clutch itself.[19] Advertisement Ask a Question Advertisement Phillips head screwdriver Multimeter 12-volt battery Battery cables Co-authored by: Air Conditioning Specialist This article was co-authored by Victor Belavus. Victor Belavus is an Air Conditioning Specialist and the Owner of 212 HVAC, an air condition repair and installation company based in Brooklyn, New York. In addition to HVAC and air conditioning units, Victor also specializes in furnace repair and air duct cleaning. He has over 10 years of experience working with HVAC systems. This article has been viewed 270,150 times. Co-authors: 7 Updated: October 13, 2024 Views: 270,150 Categories: Motors Generators and Transformers Print Send fan mail to authors Thanks to all authors for creating a page that has been read 270,150 times. “The AC blows no cold air. Knowing not much about electrical testing, I followed your test procedure, which was very clear and easy to understand, and determined that I have a bad compressor. My electrician verified that I did it correctly, which was amazing. Thank you. ....” more Share your story Testing your AC compressor is crucial for maintaining the efficiency and longevity of your air conditioning system. This comprehensive guide will walk you through the process step-by-step, providing you with the knowledge you need to ensure your AC compressor is in top shape. To test an AC compressor, first, turn off the power to the unit. Then, perform a visual inspection for signs of wear or damage. Check the electrical connections and use a multimeter to measure the resistance between each pair of the compressor terminals. Test for grounded winding by placing one multimeter lead on the compressor casing and the other on each terminal. Use manifold gauges to check the suction and discharge pressures. Monitor the discharge line temperature and record temperatures in the refrigerated space. If any results are out of the normal range, there may be an issue with the compressor. The AC compressor is the heart of your air conditioning system. It’s responsible for compressing the refrigerant and pumping it throughout the system. A malfunctioning compressor can lead to a variety of issues, from reduced cooling efficiency to complete system failure. Before you begin testing your AC compressor, it’s important to understand the signs that may indicate a problem. These include: Unusual noises coming from the compressor Fluid leaks around the compressor Poor air conditioning performance Higher energy bills Difficulty starting the AC system Abnormal noises or vibrations If you notice any of these signs, it’s time to test your AC compressor. To perform a test on an AC compressor, you’ll need the following tools: A multimeter An AC compressor clutch holding tool A clutch hub puller/installer kit An insulation resistance tester Thermometers Refrigerant and oil moisture and acid test kits Leak detection equipment A vacuum pump A flashlight or headlamp Here are the steps to test an AC compressor: Turn off the Power: Safety first! Ensure the power to the AC unit is off to avoid electrical shocks. Visual Inspection: Inspect the compressor for any visible signs of wear, damage, or corrosion. Check Electrical Connections: Inspect the wiring that comes from the harness to the compressor. Look for signs of damage or loose connections. Use a Multimeter: Set your multimeter to measure resistance (ohms). Measure the resistance between each pair of the three compressor terminals. Test for Grounded Winding: Place one multimeter lead on the compressor casing and the other lead on each of the compressor terminals. If the multimeter shows continuity, the windings are shorted to the ground. Check the Pressure: Use manifold gauges to measure the suction and discharge pressures of the compressor. Check the Discharge Line Temperature: Monitor the temperature of the discharge line to ensure it is within the normal range. Record Temperatures in the Refrigerated Space: Keep track of the temperatures in the refrigerated space to ensure they are within the desired range. After testing the AC compressor, you’ll need to interpret the results: If the resistance values are significantly different or if there’s no resistance measured between any of the pairs, the compressor windings may be damaged. If the multimeter shows continuity when testing for a grounded winding, the windings are shorted to the ground. If the suction and discharge pressures are not within the specified range, there might be a problem with the compressor. If the discharge line temperature is too high, it could indicate a problem with the compressor. In case of any issues, it’s best to contact a professional HVAC technician to diagnose and repair the problem. Remember, regular maintenance is the key to a long-lasting and efficient air conditioning system. Don’t wait until there’s a problem to test your AC compressor. Regular testing can help catch potential issues early, saving you time and money in the long run. A multimeter is a versatile tool that is used to measure different electrical properties such as resistance (ohms), current (amps), and voltage. In the context of testing an AC compressor, it is used to measure the resistance between the compressor terminals, which can help in identifying if the windings are damaged. The frequency of testing your AC compressor can depend on several factors including the age of the unit, usage, and the environment in which it operates. However, a general rule of thumb is to test it once a year, typically before the start of the cooling season. If you detect a fluid leak around your AC compressor, it’s important to address it as soon as possible. This could be a sign of a refrigerant leak, which not only reduces the efficiency of your AC system but is also harmful to the environment. Contact a professional HVAC technician for a thorough inspection and repair. While some basic tests and checks can be performed by a homeowner who is comfortable with DIY tasks, it’s always recommended to have a professional HVAC technician conduct more complex tests. This is especially true if you suspect there’s a problem with your AC compressor. Professionals have the necessary knowledge, experience, and tools to accurately diagnose and repair issues. If the discharge line temperature is too high, it could indicate a problem with the compressor. This could be due to a variety of issues, such as a lack of refrigerant, a blockage in the system, or even a faulty compressor. A professional HVAC technician can help determine the exact cause and fix the issue.