Top 30 HVAC Troubleshooting Questions

15 Air-Conditioning Questions + 15 Gas-Furnace Questions

A practical reference built around the questions technicians commonly bring to technical support. Each question includes common diagnostic areas to investigate before condemning components.

AIR-CONDITIONING TROUBLESHOOTING

1. Why is my suction pressure too low?

Check: Restricted airflow; low refrigerant charge; refrigeration-circuit restriction; low indoor load.

2. Why is my suction pressure too high?

Check: Excessive airflow or load; compressor problem; metering-device issue; overfeeding evaporator.

3. Why is my head/discharge pressure too high?

Check: Dirty condenser; condenser airflow problem; overcharge; non-condensables; high outdoor temperature.

4. Why is my head pressure too low?

Check: Low charge; low outdoor ambient; low indoor load; compressor not pumping properly.

5. Why is my superheat too high?

Check: Undercharge; restricted TXV/piston; low evaporator airflow; TXV bulb or equalizer problem.

6. Why is my superheat too low?

Check: TXV overfeeding; excess refrigerant; high evaporator load; incorrect TXV bulb installation.

7. Why is my subcooling too high or too low?

Check: Incorrect charge; liquid-line restriction; airflow effects; incorrect use of the manufacturer's target.

8. Why is the evaporator coil freezing?

Check: Dirty filter or evaporator; blower/airflow problem; low refrigerant; metering-device problem; low indoor load.

9. Why isn't the house cooling even though the A/C is running?

Check: Capacity problem; airflow problem; refrigerant problem; duct issue; equipment sizing or building-load issue.

10. Why is my temperature split too high or too low?

Check: Incorrect airflow; refrigerant charge; indoor humidity; sensible vs. latent load; measurement location.

11. Why won't the outdoor unit/compressor start?

Check: Contactor; capacitor; pressure switch; control voltage; compressor overload; failed compressor.

12. Why does the compressor start and then shut off?

Check: Thermal overload; high head pressure; low voltage; weak capacitor; refrigerant issue; compressor mechanical problem.

13. Why am I getting the correct refrigerant pressures but poor cooling?

Check: Airflow; total system capacity; enthalpy change; duct losses; compressor efficiency; building load.

14. How do I know whether the problem is refrigerant charge or airflow?

Check: Static pressure; actual CFM; superheat/subcooling; temperature and wet-bulb measurements; delivered BTU capacity.

15. How do I know if the TXV/metering device is bad?

Check: Restriction vs. undercharge; bulb test; equalizer problem; inlet-screen restriction; proper superheat response.

GAS-FURNACE TROUBLESHOOTING

1. Why won't the furnace do anything when there's a call for heat?

Check: Line voltage; transformer; fuse; thermostat signal; door switch; control board.

2. Why won't the inducer motor start?

Check: No board output; failed inducer; pressure-switch circuit; wiring; control-board issue.

3. Why won't the pressure switch close?

Check: Blocked vent; intake restriction; condensate problem; weak inducer; cracked/leaking tubing; drain/trap issue.

4. Why does the pressure switch close and then reopen?

Check: Marginal draft; wind/venting problem; condensate buildup; inducer performance; improper vent sizing.

5. Why does the igniter glow but the burners don't light?

Check: Gas valve; gas pressure; board output; gas supply; ignition timing.

6. Why do the burners light and shut off a few seconds later?

Check: Dirty flame sensor; poor grounding; flame-signal issue; polarity; control-board problem.

7. Why does the furnace keep tripping the high-limit switch?

Check: Low airflow; dirty filter/coil; blower speed; excessive temperature rise; overfiring; duct restriction.

8. Why is the furnace short cycling?

Check: Limit opening; oversized furnace; thermostat issue; airflow; flame-sensing problem; pressure-switch problem.

9. Why is my temperature rise too high?

Check: Low airflow; incorrect blower speed; restricted ductwork; dirty evaporator; overfiring.

10. Why is my temperature rise too low?

Check: Excessive airflow; underfiring; incorrect gas pressure; incorrect blower setting; measurement error.

11. Why won't the blower motor start?

Check: ECM/PSC motor failure; capacitor; control-board output; incorrect programming; wiring.

12. Why does the furnace run but not heat the house properly?

Check: Input/output capacity; gas pressure; airflow; duct losses; equipment sizing; building heat loss.

13. Why is the furnace making excessive noise or rumbling?

Check: Delayed ignition; burner contamination; gas pressure; inducer; blower wheel; venting/combustion problem.

14. Why is a 90+% furnace producing excessive condensate or having drainage problems?

Check: Incorrect furnace pitch; blocked trap; improper vent slope; drain restriction; collector-box issue; frozen termination.

15. How do I know whether a combustion problem is caused by the furnace or the venting?

Check: O2/CO2; CO; stack temperature; draft/pressure; gas input; vent/intake configuration; combustion-air problems.

THE BIGGER DIAGNOSTIC PATTERN

Airflow: CFM, static pressure, temperature rise/drop, dirty components and duct restrictions.

Refrigeration: Superheat, subcooling, saturation temperatures, refrigerant charge and restrictions.

Electrical: Voltage, amperage, capacitors, motors, controls and wiring.

Sequence of operation: Determine exactly where the equipment stopped in its normal operating sequence.

Combustion / venting: Gas pressure, combustion analysis, draft, pressure switches, condensate and vent configuration.

Training principle: Teach technicians to identify the diagnostic category and verify system measurements before replacing parts.