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GCP PCBHR105S

Goodman PCBHR105S Control Board User Manual

Model: PCBHR105S | Brand: GCP

1. INTRODUCTION

This manual provides comprehensive instructions for the Goodman PCBHR105S Control Board, a critical component designed for use in HVAC systems. It is essential to read and understand all instructions before attempting installation, operation, or maintenance to ensure safe and efficient performance. This control board is engineered to manage various functions within a furnace or similar heating/cooling unit.

The PCBHR105S is a replacement circuit board, crucial for the proper functioning of compatible Goodman HVAC equipment. Its design integrates complex circuitry to regulate system operations, ensuring optimal performance and safety.

2. SETUP AND INSTALLATION

Safety First: Before beginning any installation, ensure that the main power supply to the HVAC unit is completely disconnected at the circuit breaker or fuse box. Failure to do so can result in electrical shock, injury, or death. Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves.

Tools Required:

- Screwdriver set (Phillips and flathead)
- Needle-nose pliers
- Multimeter (for testing connections)
- Wire strippers/cutters (if necessary)

Installation Steps:

- Access the Existing Board:** Locate the existing control board within the HVAC unit. This typically involves removing an access panel.
- Document Wiring:** Before disconnecting any wires, take clear photographs or draw a detailed diagram of all wire connections to the old board. This is crucial for correct re-connection.
- Disconnect Wires:** Carefully disconnect all wires from the old control board. Note any specific terminal markings.
- Remove Old Board:** Unscrew or unclip the old control board from its mounting.
- Install New Board:** Position the Goodman PCBHR105S control board in the same location and secure it using the original mounting hardware.

6. **Connect Wires:** Refer to your documented wiring diagram and carefully re-connect all wires to the corresponding terminals on the new PCBHR105S board. Ensure all connections are secure and correct. Double-check every connection.
7. **Secure Access Panel:** Once all connections are verified, replace any access panels removed earlier.
8. **Restore Power:** Reconnect the main power supply to the HVAC unit.
9. **Test Operation:** Initiate a test cycle of the HVAC unit to confirm proper operation of the new control board. Observe for any error codes or unusual behavior.



Figure 1: Goodman PCBHR105S Control Board. This image displays the green circuit board with various electronic components, including capacitors, resistors, and relays, essential for its function within an HVAC system.

3. OPERATING PRINCIPLES

The Goodman PCBHR105S Control Board acts as the central processing unit for your HVAC system, interpreting signals from thermostats and sensors to control various components such as the blower motor, igniter, gas valve, and fan. It manages the sequence of operations during heating and cooling cycles, ensuring efficient and safe system performance.

Upon receiving a call for heat or cool from the thermostat, the board initiates the appropriate sequence, including safety checks, component activation, and continuous monitoring of system parameters. It also features diagnostic capabilities, often indicated by LED lights, to assist in troubleshooting.

4. MAINTENANCE

The PCBHR105S control board itself requires minimal direct maintenance. However, ensuring the overall cleanliness and proper functioning of the HVAC system it controls is crucial for its longevity.

- **Keep Area Clean:** Ensure the area around the control board within the HVAC unit is free from dust, debris, and moisture. Accumulation of dust can lead to overheating or short circuits.
- **Inspect Wiring:** Periodically (during routine HVAC servicing), inspect all wiring connections to the board for tightness and signs of corrosion or damage. Loose connections can cause intermittent operation or component failure.
- **Avoid Physical Damage:** Handle the board with care. Avoid dropping it or subjecting it to excessive force, which can damage sensitive components or solder joints.
- **Professional Inspection:** It is recommended to have a qualified HVAC technician perform annual inspections and maintenance on your entire system, which includes checking the control board's health.

5. TROUBLESHOOTING

If your HVAC system is experiencing issues, the control board may be a factor. Here are some basic troubleshooting steps. **Always disconnect power before inspecting internal components.**

Symptom	Possible Cause	Action
No power to unit	Blown fuse, tripped breaker, loose wiring	Check circuit breaker/fuses. Inspect main power connections to the board.
Blower motor not running	Faulty motor, capacitor, or control board relay	Check for error codes on the board's diagnostic LEDs. Consult a technician if motor or capacitor is suspected.
Unit cycles on and off rapidly	Dirty air filter, restricted airflow, faulty sensor, or board issue	Replace air filter. Check for obstructions. If problem persists, professional diagnosis is recommended.
No heat/cool	Thermostat issue, gas valve/compressor issue, or board failure	Verify thermostat settings. Check for error codes. This often requires professional diagnosis.

Diagnostic LEDs: Many control boards, including the PCBHR105S, feature diagnostic LED lights that flash in specific patterns to indicate error codes. Refer to your HVAC unit's specific service manual for the interpretation of these codes. These codes are invaluable for pinpointing the exact nature of a fault.

Note: For complex issues or if you are unsure about any step, it is highly recommended to contact a certified HVAC technician. Attempting repairs without proper knowledge can lead to further damage or personal injury.

6. SPECIFICATIONS

The Goodman PCBHR105S Control Board is designed to meet specific operational requirements for compatible HVAC systems.

- **Model Number:** PCBHR105S
- **Item Weight:** Approximately 1.1 pounds (0.5 kg)
- **Shipping Width:** 7.70 inches
- **Shipping Length:** 11.50 inches
- **Shipping Height:** 2.60 inches
- **Compatibility:** Designed for specific Goodman HVAC furnace models. Always verify compatibility with your unit's documentation.
- **Date First Available:** August 10, 2020

7. WARRANTY AND SUPPORT

For specific warranty information regarding your Goodman PCBHR105S Control Board, please refer to the documentation provided with your original HVAC unit or contact the manufacturer directly. Warranty terms typically cover defects in materials and workmanship under normal use and service.

For technical support, installation assistance, or professional servicing, it is recommended to contact a certified HVAC technician or the Goodman customer support line. Ensure you have your product model number (PCBHR105S) and the serial number of your HVAC unit readily available when seeking support.