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- › [Rheem](#) /
- › [Rheem Condenser Fan Motor 51-23055-11 User Manual](#)

Rheem 51-23055-11

Rheem Condenser Fan Motor User Manual

Model: 51-23055-11

PRODUCT OVERVIEW

The Rheem PROTECH series condenser fan motor, model 51-23055-11, is an OEM upgraded replacement part designed for various HVAC applications. It is compatible with many Rheem, Ruud, and WeatherKing models, ensuring reliable performance for your air conditioning or heat pump system.





Image: Rheem Condenser Fan Motor, Model 51-23055-11. This image displays the motor unit with its shaft extending upwards and electrical wires visible at the base. The motor casing is dark grey, and a product label is affixed to its side.

Key Features:

- **Horsepower:** 1/5 HP
- **Speed:** Single Speed, 1075 RPM
- **Voltage:** 208-230 Volts
- **Rotation Direction:** Reversible (Opposite Shaft End)
- **Capacitor:** Not included; requires 3/370uF (230V) or 5/370uF (208V) run capacitor.

SPECIFICATIONS

Attribute	Value
Model Number	51-23055-11
Horsepower (HP)	1/5
Number of Speeds	1
High Speed (RPM)	1075

Input Voltage (V)	208-230
Number of Phases	1
Frequency (Hz)	60
Rotation Direction (OSE)	Reversible
Run Capacitor (uF/V)	3/370 (230V), 5/370 (208V)
FLA at 230V (A)	1.30
Shaft Diameter (in.)	1/2
Motor Body Diameter (in.)	5-5/8
Keyed/Flat Shaft Length (in.)	3-1/4
Overall Shaft Length (in.)	4-1/4
Motor Body Length (in.)	3-9/16
Overall Motor Length (in.)	7-13/16
Mounting	Shell-band, Thru-bolt, Shell-screw
Frame Size	48
Bearing Type	Sleeve
Application	Condenser Drive Type: Direct Drive
Material	Copper

INSTALLATION AND SETUP

Installation of the Rheem condenser fan motor should be performed by a qualified HVAC technician due to the high voltage involved and the complexity of HVAC systems. Always ensure power is disconnected before beginning any work.

Safety Precautions:

- Disconnect all power to the HVAC unit at the circuit breaker before servicing.
- Discharge the run capacitor before handling. Capacitors can store a lethal electrical charge even after power is off.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Ensure proper grounding of the motor.

Installation Steps (General Guidance):

1. **Preparation:** Turn off power to the outdoor unit. Remove the top grille and fan assembly.
2. **Old Motor Removal:** Disconnect wiring from the old motor and capacitor. Carefully remove the fan blade from the old motor shaft. Note the orientation of the fan blade for correct reinstallation. Unmount the old motor.
3. **New Motor Installation:** Mount the new Rheem 51-23055-11 motor securely using the appropriate mounting method (shell-band, thru-bolt, or shell-screw).
4. **Fan Blade Attachment:** Attach the fan blade to the new motor shaft. Ensure the fan blade is oriented correctly to pull air downwards (into the condenser unit). Secure the fan blade with the set screw.
5. **Wiring:** Connect the motor wires according to the wiring diagram provided with your specific HVAC unit and the

motor's instructions. This motor has reversible rotation; ensure correct wiring for desired rotation (typically counter-clockwise when viewed from the shaft end for condenser fans). A separate run capacitor (3/370uF for 230V or 5/370uF for 208V) is required and must be wired correctly.

6. **Final Checks:** Double-check all connections. Ensure no wires are pinched. Replace the top grille and secure it.
7. **Power Restoration:** Restore power to the unit and test operation. Observe the fan's rotation and listen for unusual noises.

Note: This motor may have more wires than your original unit. Refer to the wiring diagram included with the motor for specific instructions on connecting the wires for correct rotation. Typically, two wires are used for rotation direction selection.

OPERATING PRINCIPLES

The Rheem 51-23055-11 condenser fan motor is designed to operate continuously when the outdoor HVAC unit is running. Its primary function is to draw air across the condenser coil, facilitating heat exchange and ensuring efficient operation of the air conditioning or heat pump system. The motor's single-speed design provides consistent airflow.

Normal Operation:

- Upon receiving a call for cooling or heating (in heat pump systems), the outdoor unit's compressor and condenser fan motor will activate.
- The fan motor will rotate at 1075 RPM, pulling air through the condenser coil to dissipate heat (during cooling) or absorb heat (during heating).
- The motor is designed for quiet operation, but a slight hum is normal.

MAINTENANCE

Regular maintenance helps ensure the longevity and efficient operation of your condenser fan motor. Always disconnect power before performing any maintenance.

Recommended Maintenance Schedule:

- **Annually (Before Cooling Season):**
 - Inspect the motor for any signs of wear, corrosion, or damage.
 - Check the fan blade for cleanliness and balance. Clean any debris from the blades and condenser coil.
 - Verify that the motor mounting is secure and free from vibration.
 - Inspect wiring connections for tightness and signs of overheating.
 - Check the run capacitor for bulging or leaks, which indicate failure. Replace if necessary.
- **Periodically (During Operation):**
 - Listen for unusual noises (grinding, squealing, humming louder than normal) from the motor.
 - Ensure the fan is rotating freely and without obstruction.

This motor features sleeve bearings, which are typically self-lubricating and do not require external oiling. However, keeping the motor clean and free of debris is crucial for optimal performance.

TROUBLESHOOTING

This section provides guidance for common issues. For complex problems, consult a certified HVAC technician.

Problem	Possible Cause	Solution
Motor does not start or hums but doesn't spin.	Faulty run capacitor, incorrect wiring, seized bearings, power issue.	Check/replace capacitor. Verify wiring. Check for obstructions. Ensure power supply.
Motor runs but fan blade does not spin.	Loose set screw on fan blade, fan blade obstruction.	Tighten set screw. Remove obstruction.
Motor makes loud grinding or squealing noise.	Worn bearings, debris in motor.	Motor replacement may be necessary. Clean motor area.
Motor overheats and shuts off.	Insufficient airflow, incorrect voltage, motor overload, faulty thermal protector.	Clean condenser coil and fan blades. Verify voltage. Consult technician.
Incorrect fan rotation.	Incorrect wiring for desired rotation.	Refer to wiring diagram to reverse rotation direction.

Warning: Do not attempt electrical repairs if you are not qualified. High voltage can cause severe injury or death.

WARRANTY AND SUPPORT

For warranty information regarding your Rheem PROTECH series condenser fan motor, please refer to the documentation provided at the time of purchase or contact Rheem customer support directly. Warranty terms typically cover manufacturing defects under normal use.

Customer Support:

For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact Rheem customer service or visit the official Rheem website. When contacting support, please have your motor model number (51-23055-11) and purchase date readily available.

Rheem Official Website: www.rheem.com

Rheem Store on Amazon: [Visit the Rheem Store](#)

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