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AMECA 556

AMECA Rheem Ruud Corsaire Furnace Flame Sensor Instruction Manual

Part No. 62-23543-03, Model 556

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of the AMECA Rheem Ruud Corsaire Furnace Flame Sensor, Part No. 62-23543-03, Model 556. This component is crucial for the safe operation of your furnace by detecting the presence of a flame during the ignition sequence. Please read this manual thoroughly before attempting any installation or maintenance procedures.

2. Product Overview

The AMECA Flame Sensor (Model 556) is a replacement part designed for specific Rheem, Ruud, and Corsaire furnace models. Its primary function is to confirm the presence of a flame in the burner assembly, signaling the control board to continue the gas supply. Without a flame signal, the control board will shut off the gas to prevent uncombusted fuel accumulation, ensuring safety.



Figure 1: AMECA Rheem Ruud Corsaire Furnace Flame Sensor. This image shows the metallic rod of the flame sensor, bent at an angle, connected to a white ceramic insulator with a metal mounting bracket and a spade terminal connector at the base.

3. Compatible Furnace Models

This flame sensor is compatible with a wide range of Rheem, Ruud, and Corsaire furnace models. Please verify your furnace model number against the list below to ensure compatibility. If your model is not listed or you are unsure, please contact a qualified HVAC technician or the seller for assistance.

Known Compatible Models include:

- Rheem, Ruud, Corsaire models: UGDJ-05EAUER, WGDJ-05EAUER, RGDJ05EAUER, UGDJ05EAUER, WGDJ05EAUER
- RGDG-12EARJR, UGDG-12EARJR, WGDG-12EARJR, RGDG12EARJR, UGDG12EARJR
- 3UH54 FGPJ-05EAUER, RGPJ-05EAUER, UGPJ-05EAUER, WGPJ-05EAUER, RGPJ05EAUER, UGPJ05EAUER, WGPJ05EAUER
- RRGG07E4ZJKR, RRGG-07E4ZJKR
- RGPK-10EAMER, UGPK-10EAMER, WGPK-10EAMER, RGPK10EAMER, UGPK10EAMER, WGPK10EAMER
- WGTA-07EMAES, UGTA-07EMAES, RGTA-07EMAES, WGTA07EMAES, UGTA07EMAES, RGTA07EMAES
- UGRA10EZAJS, RGRA10EZAJS, WGRA10EZAJS, UGRA-10EZAJS, RGRA-10EZAJS, WGRA-10EZAJS

- RKKA-A048CK13E, RKKAA048CK13E, UKKA-A048CK13E, UKKAA048CK13E, WKKA-A048CK13E, WKKAA048CK13E
- RGDJ-15EARJR, UGDJ-15EARJR, WGDJ-15EARJR, RGDJ15EARJR
- RGDG-EAUER, UGDG-EAUER, WGDG-EAUER, RGDGEAUER, UGDGEAUER, WGDGEAUER
- RGRA-12ERAJ, UGRA-12ERAJ, WGRA-12ERAJ, RGRA12ERAJ, UGRA12ERAJ, WGRA12ERAJ
- RGRA-12ERAJB, UGRA-12ERAJB, WGRA-12ERAJB, RGRA12ERAJB, UGRA12ERAJB, WGRA12ERAJB
- UGDJ15EARJR, WGDJ15EARJR
- UGPH-07EAUER, WGPH-07EAUER, RGPH-07EAUER, UGPH07EAUER, WGPH07EAUER, RGPH07EAUER
- 90RJ07EFS01
- URMA-O42JKIOE, URMA-042JKIOE, WRMA-O42JKIOE, WRMA-042JKIOE, RRMA-O42JKIOE, RRMA-O42JKIOE
- URMAO42JKIOE, URMA042JKIOE, WRMAO42JKIOE, WRMA042JKIOE, RRMAO42JKIOE, RRMA042JKIOE
- RGPH-07EBRKR, WGPH-07EBRKR, UGPH-07EBRKR, RGPH07EBRKR, WGPH07EBRKR, UGPH07EBRKR

4. Safety Information

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life. Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

- Always disconnect electrical power to the furnace before performing any service or maintenance.
- Turn off the gas supply to the furnace before beginning work.
- Wear appropriate personal protective equipment (PPE), such as gloves and eye protection.
- Ensure the work area is well-ventilated.
- Do not bypass any safety devices.
- If you are not comfortable performing this procedure, contact a qualified HVAC technician.

5. Installation / Replacement Instructions

This section outlines the general steps for replacing a furnace flame sensor. Specific furnace models may have variations. Refer to your furnace's manufacturer manual for detailed instructions.

1. **Power and Gas Disconnection:** Turn off the electrical power to the furnace at the circuit breaker or fuse box. Close the manual gas shut-off valve to the furnace.
2. **Access the Burner Compartment:** Remove the furnace access panel(s) to expose the burner assembly and flame sensor.
3. **Locate the Flame Sensor:** The flame sensor is typically a single metallic rod, often with a ceramic insulator, positioned in the path of the burner flame. It is usually secured by one or two screws.
4. **Disconnect Wiring:** Carefully disconnect the wire connected to the spade terminal of the old flame sensor.
5. **Remove Old Sensor:** Unscrew the mounting screw(s) holding the old flame sensor in place and gently remove it.
6. **Install New Sensor:** Position the new AMECA flame sensor in the same location and orientation as the old one. Secure it with the mounting screw(s). Ensure it is firmly seated.
7. **Connect Wiring:** Reconnect the wire to the spade terminal of the new flame sensor. Ensure a snug connection.
8. **Reassemble and Restore Power:** Replace any removed access panels. Open the manual gas shut-off valve. Restore electrical power to the furnace.
9. **Test Operation:** Initiate a call for heat from your thermostat to test the furnace's operation. Observe the ignition sequence to ensure the burners ignite and remain lit. The flame sensor should detect the flame, and the furnace should operate normally.

If the furnace fails to ignite or cycles off prematurely, refer to the Troubleshooting section or consult a qualified technician.

6. Operating Principles

The flame sensor operates on the principle of flame rectification. When a flame is present, it ionizes the air around it, allowing a small electrical current to pass through the flame sensor rod to the ground. The furnace control board monitors this current. If the control board detects this current, it confirms the presence of a flame and allows the gas valve to remain open. If no current is detected within a specified time after ignition, or if the current is lost during operation, the control board will shut off the gas valve as a safety measure, preventing the release of uncombusted gas.

7. Maintenance

Regular maintenance of your flame sensor can help prevent furnace malfunctions and extend its lifespan.

- **Annual Inspection:** It is recommended to have your flame sensor inspected annually by a qualified HVAC technician as part of routine furnace maintenance.
- **Cleaning:** Over time, carbon deposits can build up on the flame sensor rod, insulating it and preventing it from detecting the flame effectively. If your furnace is experiencing intermittent ignition issues, the flame sensor may need cleaning.
    - **Procedure for Cleaning:**
        a. Disconnect power and gas to the furnace (refer to Section 5, Step 1).
        b. Access and remove the flame sensor (refer to Section 5, Steps 2-5).
        c. Gently clean the metallic rod of the flame sensor using fine-grit sandpaper (e.g., 180-grit or finer) or a Scotch-Brite pad. Do not use steel wool, as it can leave conductive particles.
        d. Wipe the sensor clean with a dry cloth to remove any residue.
        e. Reinstall the sensor and restore power/gas (refer to Section 5, Steps 6-9).

8. Troubleshooting

If your furnace is experiencing issues related to flame detection, consider the following troubleshooting steps:

Symptom	Possible Cause	Solution
Furnace ignites, then shuts off after a few seconds (short cycling).	Dirty or faulty flame sensor.	Clean the flame sensor (refer to Section 7). If the problem persists, replace the sensor.
Furnace attempts to ignite but fails, then locks out.	No flame detected by the sensor, or no ignition.	Check for gas supply. Inspect igniter. Clean or replace flame sensor. Consult a technician if other components are suspected.
Furnace runs continuously without heating.	Not typically a flame sensor issue, but could be related to control board or thermostat.	Check thermostat settings. Consult a qualified HVAC technician.

Note: Many furnace control boards have diagnostic lights that flash error codes. Consult your furnace's manual to interpret these codes, which can help pinpoint the exact issue.

9. Specifications

- **Part Number:** 62-23543-03
- **Model Number:** 556
- **Manufacturer:** AMECA
- **Compatibility:** Rheem, Ruud, Corsaire Furnaces (refer to Section 3 for specific models)
- **Function:** Flame Rectification Sensor

10. Warranty and Support

For warranty information, please refer to the terms provided by your retailer or the manufacturer, AMECA, at the time of purchase. If you have any questions regarding compatibility, installation, or troubleshooting that are not covered in this manual, please contact the seller or a qualified HVAC professional for assistance.
The seller states: "If you have any questions about models or part numbers - contact us and we will definitely help you as soon as possible."

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