Rheem SP20172

Rheem SP20172 Flammable Vapor FV Sensor Kit User Manual

Model: SP20172

Introduction

This user manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of the Rheem SP20172 Flammable Vapor (FV) Sensor Kit. This kit is a genuine replacement part designed to ensure the safe and proper functioning of compatible water heaters by detecting flammable vapors and preventing operation in unsafe conditions. It includes the FV Sensor (AP13447-3), Cap Plug (AP13450-3), and a 6" Wire Tie.
For optimal performance and safety, please read this manual thoroughly before attempting any installation or maintenance procedures. Always ensure power and gas supplies are disconnected before working on the water heater.

Product Overview

Figure 1: Rheem SP20172 FV Sensor Kit showing the sensor, cap plug, and wire tie.

Figure 2: Another view of the Rheem SP20172 FV Sensor Kit components.

Figure 3: Detailed view of the FV Sensor, showing its internal structure.

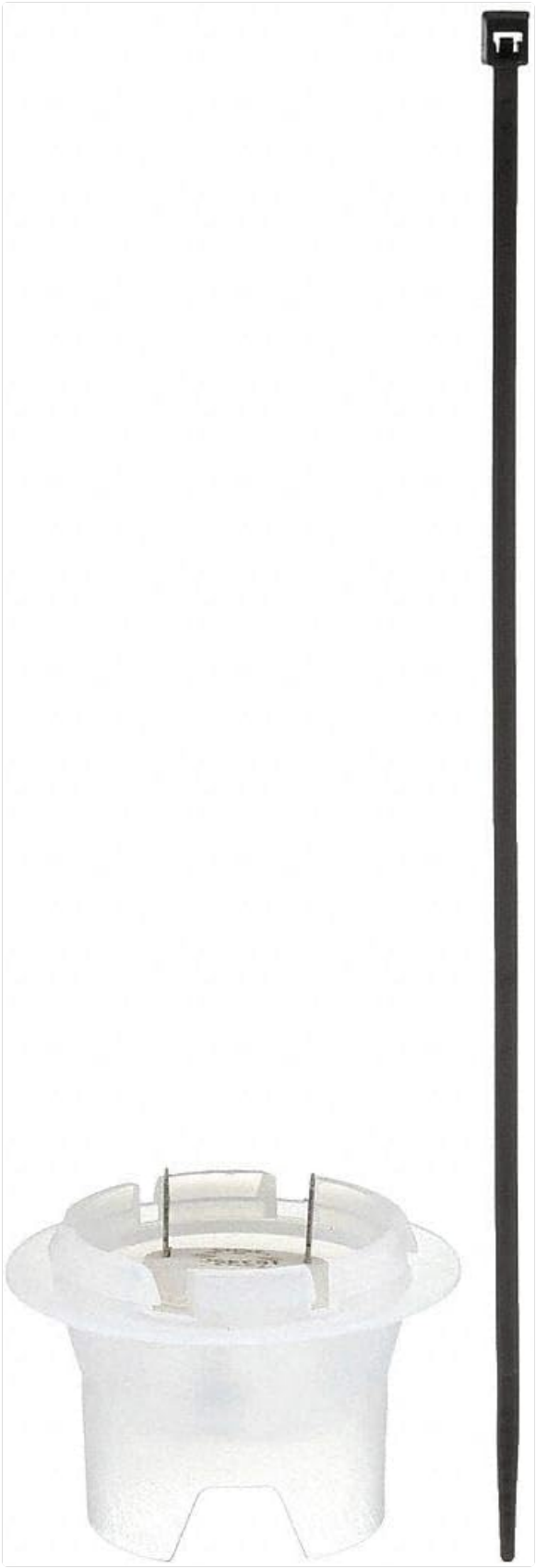

Figure 4: All components of the Rheem SP20172 FV Sensor Kit, including the sensor, cap, and wire tie.

Setup and Installation

The Rheem SP20172 FV Sensor Kit is designed for straightforward replacement. It is crucial to follow safety precautions during installation.

Safety Precautions:

- **Turn off Electric Power and Gas Supply:** Before beginning any work, unplug the power cord to the water heater and turn off the gas supply at the main gas supply line.
- **Allow Cooling:** Ensure the water heater has cooled down sufficiently to prevent burns.
- **Ventilation:** Work in a well-ventilated area.
- **Professional Assistance:** If you are not comfortable performing this installation, it is recommended to hire a qualified professional.

Installation Steps:

1. Locate the existing FV sensor on your water heater. It is typically found near the bottom of the unit.
2. Carefully disconnect the wires attached to the old sensor. Note their orientation if necessary, though the connections are often designed to prevent incorrect reattachment.
3. Remove the old FV sensor and its housing. The old housing may need to be discarded as the sensor is often integrated in a way that makes separation difficult without damage.
4. Take the new FV Sensor (AP13447-3) and Cap Plug (AP13450-3) from the kit.
5. Insert the new FV sensor into the new cap plug/housing provided in the kit. Ensure it snaps securely into place.
6. Connect the wires to the new sensor. The two wires from the regulator typically have female spade connectors that attach to the male connectors on the sensor.
7. Secure the new sensor assembly in its designated position on the water heater. The included 6" wire tie can be used to manage wiring if needed.
8. Once the new sensor is securely installed and wired, restore the gas supply and electric power to the water heater.
9. **Resetting the Water Heater:** After installation, it is often necessary to reset the water heater's control unit to clear any lockout modes. Refer to your water heater's specific control unit instructions for the exact reset procedure. For many models, this involves turning the regulator off, unplugging the power cord, setting the temperature to low, plugging the power cord back in, turning the regulator on, and cycling the temperature selector from low to high and back to low multiple times (e.g., 7 times).

Operating Principles

The Flammable Vapor (FV) Sensor is a critical safety component in modern gas water heaters, particularly those with pilotless ignition systems. Its primary function is to detect the presence of flammable vapors in the air surrounding the water heater. If such vapors are detected, the sensor triggers a safety lockout, preventing the water heater from igniting and thus mitigating the risk of fire or explosion.
When the sensor detects an unsafe condition, it sends a signal to the water heater's control unit (e.g., Intelli-Vent control). This typically results in an error code being displayed, and the water heater will cease operation until the condition is resolved and the unit is reset. A common indication of a faulty FV sensor is a persistent error code related to flammable vapor lockout, even when no actual flammable vapors are present.

Maintenance

The Rheem SP20172 FV Sensor Kit is designed to be a low-maintenance component. Regular inspection can help ensure its continued proper function.

Recommended Maintenance:

- **Visual Inspection:** Periodically inspect the sensor and its connections for any signs of corrosion, damage, or excessive dirt buildup. A dirty or corroded sensor can lead to false error readings or malfunction.
- **Keep Area Clear:** Ensure the area around the water heater, especially near the FV sensor, is kept clear of any flammable materials, liquids, or debris that could interfere with the sensor's operation or pose a fire hazard.
- **Avoid Obstruction:** Do not obstruct the air intake or ventilation openings around the water heater, as this can affect

the sensor's ability to detect vapors accurately.

- **Cleaning:** If the sensor appears dirty, gently clean it with a soft, dry cloth. Avoid using any liquids or abrasive cleaners.

If the sensor appears damaged or consistently triggers error codes despite a clean environment, replacement with a genuine Rheem SP20172 kit is recommended.

Troubleshooting

The FV sensor is a common point of failure that can lead to water heater malfunctions. Below are common issues and their potential solutions related to the FV sensor.

Common Issues and Solutions:

Problem	Possible Cause	Solution
Water heater not turning on / No hot water.	FV Sensor Lockout (often indicated by specific error codes on the control unit, e.g., flashing lights).	Check for actual flammable vapors in the area. Ensure proper ventilation. Perform a control unit reset (refer to your water heater's manual for specific steps). If the issue persists after reset and no vapors are present, the FV sensor may be faulty and require replacement.
Persistent error codes related to FV sensor.	Corroded or dirty sensor, internal sensor failure.	Inspect the sensor for visible dirt or corrosion. Clean gently if necessary. If cleaning does not resolve the issue, the sensor has likely failed internally and needs to be replaced with a new Rheem SP20172 kit.
Water heater intermittently shuts off.	Intermittent sensor malfunction or environmental factors.	Ensure the water heater area is free from paint fumes, solvents, or other volatile organic compounds (VOCs) that can trigger the sensor. Verify proper ventilation around the water heater. Consider replacing the FV sensor if environmental factors are ruled out.

Note: Always consult your specific water heater's user manual for detailed diagnostic codes and troubleshooting steps, as procedures may vary by model.

Specifications

Feature	Detail
Brand	Rheem
Model Number	SP20172
Item Dimensions (L x W x H)	6.7 x 2.7 x 9.4 inches
Material	Plastic

Feature	Detail
Item Weight	0.01 Ounces
Mounting Type	Flange Mount
Output Type	Digital
Specific Uses For Product	HVAC system maintenance and repair
Upper Temperature Rating	122 Degrees Fahrenheit
UPC	662766396171, 020352574103, 785971458424
Manufacturer	Rheem
Color	White

Warranty and Support

As a genuine replacement part, the Rheem SP20172 FV Sensor Kit is subject to Rheem's standard warranty policies for replacement components. For specific warranty details, including coverage period and terms, please refer to the official Rheem website or contact Rheem customer support directly. Keep your proof of purchase for any warranty claims.
For additional support or technical inquiries, it is recommended to visit the official Rheem website or consult a qualified HVAC professional.
An official User Manual (PDF) for this product is available for download:Download User Manual (PDF)