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Star WS-50374

Star Manufacturing Co WS-50374 Safety Thermostat User Manual

Model: WS-50374 (Type 444-18)

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Star Manufacturing Co WS-50374 Safety Thermostat. This device is a bi-metal, normally open, high-limit safety thermostat designed to trip at a fixed temperature of 550°F. It is intended for use in compatible Wells Warmer Series equipment to prevent overheating.
Please read this manual thoroughly before attempting any installation or service. Retain this manual for future reference.

2. Safety Information

WARNING: Risk of electric shock and burns. Disconnect power before servicing.

- Installation and service must be performed by qualified personnel only.
- Ensure the power supply to the equipment is disconnected and locked out before beginning any work on the thermostat.
- This thermostat operates at high temperatures. Allow equipment to cool before handling components.
- Verify that the replacement thermostat matches the specifications of the original part.
- Do not bypass or tamper with safety devices.
- All wiring must comply with local and national electrical codes.

3. Product Overview

The Star Manufacturing Co WS-50374 is a critical safety component designed to protect heating equipment from excessive temperatures. It functions as a high-limit safety switch, automatically opening its electrical contacts if the temperature exceeds its fixed set point of 550°F. This action interrupts the power to the heating element, preventing potential damage to the equipment and reducing fire hazards.
This thermostat features a bi-metal alloy contact material and screw terminals for secure electrical connections. It is designed for plug-in mounting, facilitating straightforward replacement in compatible units.

Figure 1: Star Manufacturing Co WS-50374 Safety Thermostat. This image shows the compact design of the thermostat, typically featuring a cylindrical body with electrical terminals for connection.

4. Setup and Installation

1. **Disconnect Power:** Ensure the equipment is completely disconnected from its power source. Verify with a voltage meter.
2. **Allow Cooling:** If replacing an existing thermostat, allow the equipment to cool down to a safe handling temperature.
3. **Locate Thermostat:** Identify the existing safety thermostat within the equipment. Note its mounting position and wiring connections.
4. **Remove Old Thermostat:** Carefully disconnect the wires from the old thermostat's screw terminals. Then, remove the old thermostat from its plug-in mount.
5. **Install New Thermostat:** Insert the new WS-50374 thermostat into the designated plug-in mount. Ensure it is seated securely.
6. **Wire Connections:** Connect the electrical wires to the new thermostat's screw terminals. Ensure connections are tight and secure. Refer to the equipment's wiring diagram for correct polarity and circuit configuration. The thermostat has a Normally Open contact type, meaning it completes the circuit under normal operating temperatures and opens it when the high-limit temperature is reached.
7. **Verify Installation:** Double-check all connections and ensure the thermostat is properly mounted and clear of any moving parts or obstructions.
8. **Restore Power:** Once installation is complete and verified, restore power to the equipment.

This thermostat is compatible with Wells Warmer Series models including MOD-100/500, SS-, MOD-100D, MOD-200, MOD-200D, MOD-200DM, MOD-300, MOD-300D, MOD-300DM, MOD-400, MOD-500DM, SS-10, SS-10D, SS-206, SS-206D, and SS-20.

5. Operation

The WS-50374 Safety Thermostat operates automatically. It is a non-adjustable, fixed-temperature device designed to activate at 550°F. Under normal operating conditions, below 550°F, the thermostat's contacts remain closed, allowing power to flow to the heating elements of the connected equipment.
If the temperature within the equipment reaches or exceeds 550°F, the bi-metal element within the thermostat

will deform, causing the normally open contacts to open. This action breaks the electrical circuit, shutting off the heating elements and preventing further temperature increase. The thermostat will remain in an open state until the temperature drops significantly below the trip point, allowing the contacts to reset. Some high-limit thermostats may require manual resetting after tripping; however, this model is typically designed for automatic reset once the temperature falls.
This thermostat is a safety device and should not be used as a primary temperature control. Its function is solely to provide an emergency shut-off in case of primary control failure or other overheating conditions.

6. Maintenance

Regular inspection of the WS-50374 Safety Thermostat is recommended to ensure its continued reliability. Perform these checks during routine equipment maintenance:

- **Visual Inspection:** Check the thermostat for any signs of physical damage, corrosion, or discoloration. Ensure the wiring connections are secure and free from fraying or burning.
- **Cleanliness:** Keep the area around the thermostat clean and free from grease, dust, or debris that could impede its function or lead to inaccurate temperature sensing.
- **Functionality Check:** While the thermostat is designed for automatic operation, its trip function should be verified periodically by qualified technicians using appropriate testing procedures for the specific equipment it is installed in. Do not attempt to manually force the thermostat to trip.

If any damage or malfunction is observed, the thermostat should be replaced immediately by a qualified service technician.

7. Troubleshooting

If the equipment connected to the WS-50374 Safety Thermostat is not operating correctly, consider the following troubleshooting steps:

Symptom: Equipment not heating or power is off.

- **Check Power Supply:** Ensure the equipment is receiving power from the main supply.
- **Inspect Primary Controls:** Verify that the primary temperature control (if applicable) is set correctly and functioning.
- **Thermostat Tripped:** The WS-50374 may have tripped due to an over-temperature condition. Allow the equipment to cool down completely. If the thermostat automatically resets, the equipment should resume operation. If it does not reset, or trips repeatedly, there may be an underlying issue with the primary temperature control or other components causing overheating.
- **Wiring:** Inspect all wiring connections to the thermostat for looseness or damage.
- **Thermostat Failure:** If the thermostat does not reset after cooling, or if it appears physically damaged, it may need replacement.

Symptom: Equipment overheating.

- **Primary Control Failure:** The primary temperature control may be faulty, allowing the temperature to rise unchecked. This should cause the safety thermostat to trip.
- **Thermostat Failure:** If the equipment is overheating and the WS-50374 is not tripping, the safety thermostat itself may be faulty and require immediate replacement.

Always consult a qualified service technician for diagnosis and repair of persistent issues.

8. Specifications

Feature	Specification
Brand	Star
Model Number	WS-50374 (Item Model Number: 48-1012)
Type	Bi-Metal Hi-Limit Safety Thermostat (444-18)
Fixed Temperature	550°F
Operation Mode	Automatic
Contact Type	Normally Open
Terminal Type	Screw
Mounting Type	Plug In Mount
Contact Material	Bimetal Alloy
Circuit Type	1-way
Compatible Devices	Wells Warmer Series: MOD-100/500, SS-, MOD-100D, MOD-200, MOD-200D, MOD-200DM, MOD-300, MOD-300D, MOD-300DM, MOD-400, MOD-500DM, SS-10, SS-10D, SS-206, SS-206D, SS-20
Item Weight	1.6 ounces
UPC	394810129489

9. Warranty and Support

For warranty information and technical support regarding the Star Manufacturing Co WS-50374 Safety Thermostat, please refer to the documentation provided with your original equipment or contact Star Manufacturing Co directly through their official website or customer service channels. Keep your purchase receipt and product model number handy when contacting support.

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