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tooloflife TG85993

PTC 15 Ohm 1-Pin Start Relay User Manual

Model: TG85993 | Brand: tooloflife

1. Introduction

Thank you for choosing the tooloflife PTC 15 Ohm 1-Pin Start Relay. This component is designed as a reliable replacement part for the compressor starting circuit in various mini-refrigerators, freezers, and wine coolers. Its robust construction ensures stable characteristics and high reliability, making it an ideal solution for restoring the functionality of your appliance.

2. Product Overview

The PTC (Positive Temperature Coefficient) start relay is a crucial component that helps the compressor in refrigeration units start smoothly. It provides a temporary boost of current to the compressor's start winding and then quickly cuts off the current once the compressor reaches operating speed. This particular model features a 15 Ohm resistance and a single pin connection, making it compatible with a wide range of small refrigeration appliances.



Figure 2.1: The tooloflife PTC 15 Ohm 1-Pin Start Relay. This image shows the compact black plastic housing of the relay with its single metal pin connector.



Figure 2.2: Close-up view of the PTC Start Relay showing the 'MZ91-15Ω' marking, indicating its model and 15 Ohm resistance. The image highlights the side of the relay with the resistance specification.

3. Specifications

Attribute	Value
Resistance	15 Ohms
Number of Pins	1
Material	Plastic & Metal
Color	Black
Approximate Size (L x W x H)	29 x 21 x 28 mm
Operating Mode	Automatic
Coil Voltage	12 Volts

Attribute	Value
Power	9.6 Watts
Contact Material	Metal
Connector Type	Solder
Mounting Type	Surface Mount



Figure 3.1: Diagram showing the dimensions of the PTC Start Relay: approximately 29mm length, 21mm width, and 28mm height. This visual aid helps in confirming the physical compatibility of the relay.

4. Setup and Installation

Replacing a PTC start relay is generally straightforward, but it requires caution as you will be working with electrical components. Always ensure the appliance is unplugged from the power source before beginning any installation or repair work.

4.1 Safety Precautions

- **ALWAYS** disconnect the appliance from the main power supply before attempting any repair.
- Wear appropriate personal protective equipment, such as insulated gloves.
- If you are unsure about any step, consult a qualified technician.

4.2 Installation Steps

1. **Locate the Old Relay:** The start relay is typically located on the side of the compressor. It might be covered by a protective housing.
2. **Disconnect Wiring:** Carefully disconnect any wires attached to the old relay. Note their positions if necessary.
3. **Remove the Old Relay:** The relay usually slides off or unclips from the compressor pins.
4. **Install the New Relay:** Align the new tooloflife PTC 15 Ohm 1-Pin Start Relay with the pins on the compressor. Ensure it slides on securely and makes good contact.
5. **Reconnect Wiring:** Reattach the wires to the new relay in their correct positions.
6. **Test:** Once the relay is securely installed and all connections are made, plug the appliance back into the power source and test its operation.



Figure 4.1: A technician demonstrating the installation process of a PTC Start Relay into a refrigerator compressor. This image illustrates the typical location and method for replacing the component.

5. Operating Instructions

The PTC start relay operates automatically as part of the refrigeration system. Once installed, no manual operation is required. It functions by providing a temporary surge of current to the compressor's start winding during the initial startup phase. As the compressor motor gains speed, the PTC material's resistance rapidly increases, effectively reducing the current to the start winding and allowing the compressor to run on its main winding. This ensures efficient and safe compressor startup.



Figure 5.1: The PTC Start Relay shown alongside various types of mini-refrigerators, freezers, and wine coolers, illustrating the range of appliances it is designed to operate with. This highlights its versatility as a replacement part.

6. Maintenance

The tooloflife PTC 15 Ohm 1-Pin Start Relay is a sealed component and requires no routine maintenance. Its durable plastic and metal construction is designed for long-term reliability. However, it is good practice to periodically

inspect the relay and its connections for any signs of wear, corrosion, or loose wiring, especially if the appliance is experiencing intermittent starting issues.

- Ensure the appliance is unplugged before inspection.
- Check for any visible damage to the relay housing or pin.
- Verify that the electrical connections are clean and secure.
- Keep the area around the compressor and relay free from dust and debris to ensure proper heat dissipation.

7. Troubleshooting

If your refrigerator or freezer is not starting or is experiencing issues, the PTC start relay could be a potential cause. Here are some common symptoms and troubleshooting steps:

7.1 Common Symptoms of a Faulty Relay

- **Compressor not starting:** The compressor makes a clicking sound but does not start, or it tries to start and then immediately shuts off.
- **No cooling:** The appliance is powered on, but the compressor does not run, resulting in no cooling.
- **Intermittent operation:** The compressor starts sometimes but not always.

7.2 Troubleshooting Steps

1. **Power Check:** Ensure the appliance is properly plugged in and receiving power. Check the circuit breaker.
2. **Listen for Clicks:** If you hear a click every few minutes but the compressor doesn't start, it often indicates a faulty start relay or capacitor (if present).
3. **Visual Inspection:** After disconnecting power, remove the relay and visually inspect it. Look for any signs of burning, melting, or cracks on the housing. A burnt smell is also an indicator of failure.
4. **Continuity Test (Advanced):** If you have a multimeter, you can test the resistance of the PTC relay. A reading significantly different from 15 Ohms (or open circuit) indicates a faulty relay.
5. **Replacement:** If the relay shows signs of failure or tests faulty, replace it with a new tooloflife PTC 15 Ohm 1-Pin Start Relay following the installation steps in Section 4.

Note: *Always ensure the replacement relay matches the specifications (resistance and pin configuration) of the original part.*

8. Warranty and Support

For any questions regarding the tooloflife PTC 15 Ohm 1-Pin Start Relay, or if you encounter issues that cannot be resolved using this manual, please contact your retailer or the manufacturer's customer support. While specific warranty details may vary by retailer, tooloflife products are manufactured to high-quality standards to ensure durability and reliable performance.
Please retain your proof of purchase for any warranty claims or support inquiries.

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