

BTJCRLEB VESD9C

Instruction Manual

BTJCRLEB EMBRACO VESD9C REFRIGERATOR COMPRESSOR INVERTER BOARD

Models: VESD9C, VES 2456 97F00, VES2456 66F03

1. Introduction

This manual provides essential information for the installation, operation, maintenance, and troubleshooting of the BTJCRLEB Embraco VESD9C Refrigerator Compressor Inverter Board. Please read this manual thoroughly before attempting any installation or repair to ensure safe and correct usage. This board is designed to control the compressor in compatible refrigerators, restoring and optimizing their cooling functions.

2. Product Overview

The Embraco VESD9C Refrigerator Compressor Inverter Board is a critical component responsible for managing the refrigerator's compressor. It ensures efficient and stable operation, which is vital for maintaining optimal temperatures within the appliance.



Figure 2.1: Top view of the Embraco VESD9C Refrigerator Compressor Inverter Board. This image displays the various electronic components and connectors on the circuit board.

Key functions and benefits of replacing a faulty inverter board include:

- **Restored Refrigeration Function:** A functional inverter board ensures the compressor starts and operates correctly, allowing the refrigerator to maintain its intended cooling capacity for both the refrigerator and freezer compartments.
- **Improved Temperature Control Accuracy:** The board precisely adjusts the compressor's operation based on temperature readings, leading to stable internal temperatures and better food preservation.
- **Enhanced Operation Stability:** It prevents erratic compressor behavior such as frequent starts/stops or abnormal vibrations, contributing to the overall longevity and smooth operation of the refrigerator.
- **Reduced Energy Consumption:** By optimizing the compressor's power output, the board helps the refrigerator operate more efficiently, potentially leading to energy savings over time.

3. Safety Information

WARNING: Risk of Electric Shock. Always disconnect power to the refrigerator before performing any service or installation procedures. Only qualified technicians should attempt installation or repair of this component.

- Ensure the refrigerator is unplugged from the main power supply before touching any terminals or internal components.
- Wait at least 30 seconds after unplugging to allow any residual electrical charge to dissipate from capacitors.

- Wear appropriate personal protective equipment, including insulated gloves.
- Do not operate the refrigerator with damaged wiring or components.
- Refer to your refrigerator's specific service manual for detailed disassembly and reassembly instructions.



Figure 3.1: Label on an Embraco inverter board casing, showing input/output specifications and a caution regarding electric shock. Note the warning: "CAUTION: Risk of electric shock. Before touching terminals unplug system and wait 30 seconds."

4. Setup and Installation

Installation of the Embraco VESD9C inverter board typically involves replacing an existing faulty board. Due to the electrical nature and complexity of refrigerator systems, professional installation by a certified appliance technician is highly recommended.

1. **Preparation:** Ensure the refrigerator is completely disconnected from power. Access the compressor compartment, usually located at the back or bottom of the refrigerator.
2. **Identification:** Locate the existing inverter board. Verify that the replacement board (Embraco VESD9C, VES 2456 97F00, or VES2456 66F03) matches the original in terms of model number and connector configuration.
3. **Disconnection:** Carefully disconnect all wiring harnesses and connectors from the old board. Note their positions or take photographs for reference.
4. **Removal:** Unmount the old inverter board from its housing or mounting points.
5. **Installation of New Board:** Mount the new Embraco VESD9C board securely in the same location.
6. **Connection:** Reconnect all wiring harnesses and connectors to the new board, ensuring each connection is firm and correctly seated. Refer to your previously taken photographs or the refrigerator's wiring diagram.
7. **Final Checks:** Double-check all connections. Ensure no wires are pinched or loose.

8. **Power Restoration:** Once all steps are complete and verified, restore power to the refrigerator.



Figure 4.1: The Embraco VESD9C inverter board shown partially installed within its protective casing, illustrating the connection points.



Figure 4.2: Another view of the Embraco VESD9C inverter board within its casing, highlighting different angles of the circuit board and its components.

5. Operating Principles

The Embraco VESD9C inverter board acts as the brain for the refrigerator's compressor. It receives signals from the refrigerator's main control board regarding desired temperatures and then regulates the speed and power of the compressor. This variable speed operation allows the compressor to run at different capacities, rather than just on or off, leading to more precise temperature control, quieter operation, and greater energy efficiency. When the board functions correctly, it ensures the compressor operates optimally to maintain consistent cooling throughout the refrigerator.

6. Maintenance

The Embraco VESD9C inverter board is designed for long-term reliability and generally requires minimal maintenance. However, periodic checks can help ensure its continued performance:

- **Dust Removal:** If accessible, periodically (e.g., annually) disconnect power and gently clean any accumulated dust from the board and its casing using compressed air or a soft brush. Dust can impede heat dissipation and affect performance.
- **Connection Inspection:** During any other refrigerator maintenance, visually inspect the wiring harnesses connected to the inverter board to ensure they are secure and free from damage or corrosion.
- **Environmental Conditions:** Ensure the compressor compartment remains dry and well-ventilated to prevent moisture buildup or overheating, which can damage electronic components.

7. Troubleshooting

If your refrigerator exhibits issues after installing or while using the Embraco VESD9C inverter board, consider the following common scenarios. Always ensure power is disconnected before inspecting components.

Symptom	Possible Cause	Action
Refrigerator not cooling / Compressor not starting.	Faulty inverter board, loose connections, compressor failure.	Verify all connections to the inverter board are secure. If the board is new, ensure it is the correct model for your compressor. Consult a technician to diagnose compressor health.
Inconsistent temperatures / Large temperature fluctuations.	Inaccurate temperature sensing, intermittent board failure, refrigerant issues.	Check if the refrigerator's temperature sensors are clean and properly seated. If the issue persists, the inverter board or other control components may require professional diagnosis.
Compressor frequently cycles on/off or runs erratically.	Faulty inverter board, power supply issues, compressor overload.	Ensure stable power supply to the refrigerator. Inspect the board for any visible damage. This symptom often indicates an issue with the inverter board's control logic.

Symptom	Possible Cause	Action
Unusual noises or vibrations from the compressor area.	Compressor mechanical issue, loose mounting, inverter board causing erratic operation.	Verify the compressor is securely mounted. If the noise is accompanied by erratic operation, the inverter board may be contributing to the issue.

For complex issues or if troubleshooting steps do not resolve the problem, it is strongly recommended to contact a qualified appliance repair technician.

8. Specifications

The following specifications apply to the Embraco VESD9C Refrigerator Compressor Inverter Board (including models VES 2456 97F00 and VES2456 66F03):

Feature	Detail
Product Name	Refrigerator Compressor Inverter Board
Brand	BTJCRLEB (Compatible with Embraco systems)
Model Numbers	VESD9C, VES 2456 97F00, VES2456 66F03
Input Voltage/Frequency (VES 2456 66 F 03)	220-240V~ / 50-60Hz, 2.1A
Output Voltage/Frequency (VES 2456 66 F 03)	230V / 43.3-150Hz, 2.1A
Input Voltage/Frequency (VES 2456 97 F 00)	220-240V~ / 50-60Hz, 2.1A
Output Voltage/Frequency (VES 2456 97 F 00)	230V / 43.3-150Hz, 2.1A
Item Weight	1.76 ounces (approx. 50 grams)
Package Dimensions	1.18 x 0.79 x 0.39 inches (approx. 3 x 2 x 1 cm)
Manufacturer	ronglan



Figure 8.1: Label detailing specifications for Embraco VES 2456 66 F 03, including input/output voltage, frequency, and current.



Figure 8.2: Label detailing specifications for Embraco VES 2456 97 F 00, including input/output voltage, frequency, and current.

9. Warranty and Support

Specific warranty information for this product should be obtained directly from the seller or manufacturer at the time of purchase. Please retain your proof of purchase for any warranty claims.

For technical support, installation assistance, or further inquiries, please contact the retailer or a qualified appliance service professional.

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