Service First CAP02328_ver1

Instruction Manual

Service First OEM Start Capacitor

1. Introduction

This manual provides essential information for the proper handling, installation, and maintenance of the Service First OEM Start Capacitor, model CAP02328_ver1. This component is designed for use in Trane and American Standard HVAC systems.
A start capacitor provides a temporary electrical boost to the motor during startup, helping it overcome initial inertia and reach operating speed quickly. It is a critical component for the efficient and reliable operation of many electrical motors, particularly in HVAC applications.

2. Safety Information

WARNING: Electrical Hazard. Risk of electric shock or injury.

- Always disconnect power to the unit before attempting any installation, maintenance, or troubleshooting.
- Capacitors can store a dangerous electrical charge even after power is disconnected. Always discharge the capacitor before handling. Use a properly insulated screwdriver with a metal shaft to short the terminals, or use a capacitor discharge tool.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and safety glasses.
- Installation and service should only be performed by qualified and licensed HVAC technicians.
- Ensure the replacement capacitor matches the specifications (uF/MFD and VAC) of the original component.

3. Product Specifications

Specification	Value
Model Number	CAP02328_ver1

Brand	Service First (OEM Component by CAPCOM)
Capacitance	196 uF (MFD) +/- 5 uF
Voltage Rating	330 VAC
Shape	Round
Features	Includes Resistor
Material	Copper
Item Weight	1 Pound
First Available	August 19, 2020

Figure 3.1: Approximate dimensions of the capacitor. Note: Dimensions are subject to change without notice.

4. Installation and Replacement

This section outlines the general procedure for replacing a start capacitor. Always refer to the specific service manual for your HVAC unit for detailed instructions and safety precautions.

1. **Power Disconnection:** Locate the main power switch for the HVAC unit (typically at the outdoor condenser unit or indoor furnace/air handler) and turn it OFF. For added safety, turn off the corresponding circuit breaker at the electrical panel. Verify power is off using a voltage tester.
2. **Access Capacitor:** Remove the access panel(s) on the HVAC unit to expose the electrical components, including the capacitor.
3. **Discharge Capacitor:** Before touching the capacitor, discharge any stored electrical energy. Use an

insulated screwdriver with a metal shaft to short the terminals of the old capacitor. Hold the screwdriver by the insulated handle and touch the metal shaft across both terminals simultaneously. A spark may occur. Repeat this process several times to ensure full discharge.

4. **Note Wiring:** Carefully observe and note the wiring connections to the old capacitor. Take a photograph or draw a diagram of the wiring before disconnecting any wires. Capacitors typically have two terminals for start capacitors.
5. **Remove Old Capacitor:** Disconnect the wires from the old capacitor. Loosen any clamps or straps holding the capacitor in place and remove it from the unit.
6. **Install New Capacitor:** Place the new Service First OEM Start Capacitor (model CAP02328_ver1) into the mounting bracket. Secure it with clamps or straps if applicable.
7. **Connect Wiring:** Reconnect the wires to the new capacitor exactly as they were connected to the old one, referring to your diagram or photograph. Ensure connections are secure.
8. **Reassemble and Test:** Replace all access panels. Restore power to the HVAC unit at the circuit breaker and main power switch. Test the unit's operation to ensure the motor starts correctly.

Figure 4.1: Service First OEM Start Capacitor (CAP02328_ver1) and packaging.

Figure 4.2: Close-up of the capacitor showing specifications label.

5. Operation

The Service First OEM Start Capacitor (CAP02328_ver1) is an electrical component designed to provide a temporary surge of current to the motor's start winding during the initial phase of operation. This surge creates a stronger magnetic field, allowing the motor to overcome its inertia and begin rotating. Once the motor reaches approximately 75% of its operating speed, a centrifugal switch (or electronic equivalent) typically disconnects the start capacitor from the circuit, and the motor continues to run on its run winding.
This capacitor is specifically rated at 196 uF MFD and 330 VAC, ensuring compatibility with systems requiring these specifications for proper motor startup.

6. Maintenance

Start capacitors are generally sealed units and do not require routine maintenance. However, periodic inspection during HVAC system servicing is recommended. A qualified technician should check for:

- **Physical Damage:** Look for signs of swelling, bulging, leaks, or corrosion on the capacitor casing. These are indicators of failure.
- **Overheating:** Check for discoloration or burnt smells around the capacitor, which can indicate overheating.
- **Proper Function:** A technician can test the capacitance (uF/MFD) and ESR (Equivalent Series Resistance) of the capacitor using a specialized meter to ensure it is within specifications.

If any issues are detected, the capacitor should be replaced by a qualified professional.

7. Troubleshooting

A failing start capacitor can manifest in several ways. If you experience any of the following symptoms, it may indicate a capacitor issue. Always consult a qualified HVAC technician for diagnosis and repair.

Symptom	Possible Cause (Capacitor Related)	Action (Professional Recommended)
Motor hums but does not start (or starts slowly)	Weak or failed start capacitor	Test and replace capacitor if faulty.
Circuit breaker trips on startup	Shorted capacitor	Test and replace capacitor.
Visible bulging, leaking, or burning on capacitor	Capacitor failure	Immediate replacement required.
Motor runs hot	Capacitor not disconnecting or incorrect capacitance	Test capacitor and motor circuit.

Important: Do not attempt to repair a faulty capacitor. Always replace it with a new one that matches the original specifications.

Figure 7.1: Top view of the capacitor terminals and resistor.

8. Compatibility and Replacement

The Service First OEM Start Capacitor, model CAP02328_ver1 (CPT02328 / CPT-2328), is a direct replacement for various Trane and American Standard units and supersedes several older part numbers. It is crucial to verify that the required capacitance (196 uF MFD) and voltage (330 VAC) match your existing capacitor or system requirements.
This capacitor replaces or supersedes the following part numbers:

- CPT0950, CPT950, CPT-0950, CPT00950
- CPT2328, CPT02328, CPT-2328
- CPT01808, CPT1808, CPT-1808
- CPT00320, CPT-320, CPT0320
- 175-216, 176-216
- And other start capacitors with matching specifications (196 uF MFD, 330 VAC).

Commonly found in the following American Standard & Trane Units (partial list):

- 2A6H8030B1000AA, 2A6H8030B1000BA, 2A6H8030C1000AA
- 2A6H8036B1000BA, 2A6H8036C1000AA
- 2A6H8048B1000BA, 2A6H8048C1000AA
- 2A6H8060B1000AA, 2A6H8060B1000BA, 2A6H8060C1000AA
- 2A7A8030A1000AA, 2A7A8030B1000BA, 2A7A8030C1000AA
- 2A7A8036B1000BA, 2A7A8036C1000AA
- 2A7A8048B1000BA, 2A7A8048C1000AA
- 2A7A8060A1000AA, 2A7A8060B1000AA, 2A7A8060C1000AA
- 2TTB3042A1000NA, 2TTB3042A1S00AA, 2TTB3042A1SE0AA
- 2TTZ9030A1000AA, 2TTZ9030A1000AB, 2TTZ9030B1000AA
- 2TTZ9030B1000BA, 2TTZ9030C1000AA, 2TTZ9036B1000BA
- 2TTZ9036C1000AA, 2TTZ9048B1000BA, 2TTZ9048C1000AA
- 2TTZ9060A1000AA, 2TTZ9060A1000AB, 2TTZ9060B1000AA
- 2TTZ9060B1000BA, 2TTZ9060C1000AA, 2TWZ9030A1000AA
- 2TWZ9030A1000AB, 2TWZ9030A1000AC, 2TWZ9030B1000AA
- 2TWZ9030B1000BA, 2TWZ9030C1000AA, 2TWZ9036B1000BA
- 2TWZ9036C1000AA, 2TWZ9048B1000BA, 2TWZ9048C1000AA
- 2TWZ9060A1000AA, 2TWZ9060A1000AC, 2TWZ9060B1000AA
- 4A6Z0060A1000AA, 4A6Z0060A1000BA, 4A6Z0060A1000CA
- 4A7A3036D1000AA, 4A7A3036D1000AB, 4A7B3036D1000AA
- 4A7M3036A1000AA, 4A7Z0024A1000AA, 4A7Z0024A1000BA
- 4A7Z0024A1000BB, 4A7Z0024A1000CA, 4A7Z0024A1000CB
- 4A7Z0036A1000AA, 4A7Z0036A1000BA, 4A7Z0036A1000BB
- 4A7Z0036A1000CA, 4A7Z0036B1000AA, 4A7Z0048A1000AA
- 4A7Z0048A1000BA, 4A7Z0048A1000CA, 4A7Z0048B1000AA
- 4A7Z0060A1000AA, 4A7Z0060A1000BA

For a complete list of compatible units, refer to the product listing or consult with a qualified HVAC technician.

9. Warranty and Support

For information regarding warranty coverage for the Service First OEM Start Capacitor (model CAP02328_ver1), please refer to the original purchase documentation or contact the vendor directly. Warranty terms typically cover manufacturing defects.

For technical support or assistance with installation and troubleshooting, it is recommended to contact a qualified and licensed HVAC professional. Service First does not provide direct end-user technical support for component installation.

For general product inquiries, you may visit theService First brand page on Amazon.