

# INSTALLATION INSTRUCTIONS

## PTC Compressor Start Assist

### NASA001SC

These instructions must be read and understood completely before attempting installation.

#### Safety Considerations:

Installing and servicing of air conditioning equipment can be hazardous due to system pressure and electrical components. Only trained personnel should install or service air conditioning equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils or cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on air conditioning equipment observe precautions in the literature and on tags and labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available.

### Safety Labeling and Signal Words

#### DANGER, WARNING, CAUTION, and NOTE

The signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTE** are used to identify levels of hazard seriousness. The signal word **DANGER** is only used on product labels to signify an immediate hazard. The signal words **WARNING**, **CAUTION**, and **NOTE** will be used on product labels and throughout this manual and other manuals that may apply to the product.

**DANGER** – Immediate hazards which **will** result in severe personal injury or death.

**WARNING** – Hazards or unsafe practices which **could** result in severe personal injury or death.

**CAUTION** – Hazards or unsafe practices which **may** result in minor personal injury or product or property damage.

**NOTE** – Used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

#### Signal Words in Manuals

The signal word **WARNING** is used throughout this manual in the following manner:



The signal word **CAUTION** is used throughout this manual in the following manner:



#### Signal Words on Product Labeling

Signal words are used in combination with colors and/or pictures on product labels.

**ELECTRICAL SHOCK HAZARD**

Failure to turn off electric power could result in personal injury or death.

Before installing or servicing system, turn off main power to the system. There may be more than one disconnect switch, including accessory heater(s).

**UNIT DAMAGE HAZARD**

Failure to follow this caution may result in unit damage

PTC temperature can exceed 250° F during unit operation. Make sure no wiring comes in contact with the device. Do not touch the device during unit operation.

## INTRODUCTION

This instruction covers the installation of PTC Compressor Start Assist kit Part No. NASA001SC for air conditioners and heat pumps.

The PTC Compressor Start Assist is designed to boost compressor starting torque.

## DESCRIPTION AND USAGE

The Positive Temperature Coefficient (PTC) thermistor causes the compressor “run” capacitor to be bypassed for a brief period of time at start up, creating extra starting torque in the compressor motor. Use with 208-volt, 230-volt, or 208/230-volt, 60-hertz, single-phase units.

Refrigerant flow-control devices, capillaries, or bleed-type thermostatic expansion valves (TXV) can be used as metering devices in systems utilizing this PTC thermistor.

Included in the kit are:

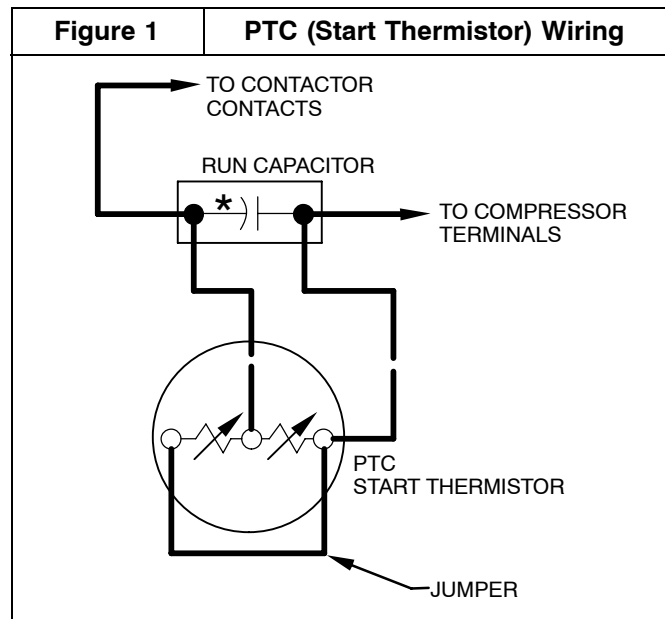
- Mounting Bracket ----- 1
- Wiring Label ----- 1
- Wires ----- 3
- Three-terminal PTC Thermistor --- 1
- Installation Instructions ----- 1

**NOTE:** This PTC thermistor, in most instances, will not provide adequate starting torque for non-bleed systems or for systems equipped with a start capacitor and relay.

If this kit is used to replace an existing PTC device, simply remove the defective PTC device and install the new one in the existing bracket.

## INSTALLATION

1. Mount clamp in electrical control box with at least ½ inch clearance of all surfaces including electrical terminals and wires that could conduct electricity. Route and secure all wires away from thermistor body.
2. Install short jumper wire to connect 2 end terminals of PTC thermistor. Use other 2 wires to connect center terminal and either 1 of end terminals to run capacitor. (Refer to Figure 1.)
3. Push PTC thermistor into its holding clamp.
4. Attach the wiring label supplied with the kit to the unit control box cover near the unit wiring label.
5. Replace all panels on unit.



## TROUBLESHOOTING

The PTC thermistor is a fail-safe device. If the component becomes defective it will fail to open (breaking the circuit).

If the PTC device is in working condition, measure the line voltage. The line voltage must be within voltage operating range indicated on unit rating. Also check that system pressures are equalized. Some compressors may experience rough handling in transit and may fail to start due to a locked condition. Should a compressor fail to start for this reason, “bump” it with an appropriately sized start capacitor. After this initial “bump” and an hour run-in, the compressor should restart with the PTC thermistor.

The PTC thermistor is a resistor with an inherent self-heating characteristic. The temperature of the PTC device increases very rapidly at start-up and its increased resistance reaches a level that takes it out of the circuit within approximately 2 seconds.

If a unit having a PTC device fails to start the compressor, remove PTC device from unit and take to a cool place. Wait 10 minutes for device to cool, then check for an open circuit. The resistance between either end terminal and the middle terminal with the jumper installed across both end terminals should be its normal resistance of 12 to 25 ohms.