



**INSTALLATION INSTRUCTIONS**

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**REPLACEMENT DEFROST  
CONTROL BOARD**

**INSTALLATION INSTRUCTIONS FOR REPLACEMENT DEFROST CONTROL BOARD KIT  
(11K71) USED WITH HP29, 10HPB, 12HPB SERIES UNITS**

**SHIPPING AND PACKING LIST**

**Package 1 of 1 contains:**

- 1- Replacement defrost control board

**APPLICATION**

The replacement defrost control board for the HP29 and 10HPB series units is part number 68J84. This board replaces the original control board with part number 68J24. Unit wiring to the defrost board is the same. More options are provided in the replacement board such as ambient thermistor and service light connections.

The replacement board has the same basic functions as the original board along with the following functions:

- five minute compressor anti-short delay;
- pressure switch safety lockout circuit; and
- field connection for ambient thermistor and service light connections.

**INSTALLATION**

**⚠ WARNING**

**Disconnect power before servicing unit.**

**⚠ CAUTION**

**Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.**

The provided board is a direct replacement. Remove wires from original board and remove board from control box area. Secure replacement board stand-offs into mounting holes. Wire as shown on unit wiring diagram.

**DEFROST SYSTEM**

The unit's defrost system includes two components; a defrost thermostat (see unit installation instructions) and a defrost control. The following section describes defrost control functions.

The defrost control board has the combined functions of a time/temperature defrost control, defrost relay, time delay, diagnostic LEDs and field connection terminal strip.

The control provides automatic switching from normal heating operation to defrost mode and back. During compressor cycle (call for defrost), the control accumulates compressor run times at 30, 60 or 90 minute field adjustable intervals. If the defrost thermostat remains closed when the accumulated compressor run time ends, the defrost relay is energized and defrost begins.

**Defrost Control Timing Pins**

Each timing pin selection provides a different accumulated compressor run period during one thermostat run cycle. This time period must occur before a defrost cycle is initiated. The defrost interval can be adjusted to 30, 60 or 90 minutes. See figure 1. The defrost period is a maximum of 14 minutes and cannot be adjusted. If no timing is selected, the control defaults to 90 minutes. The factory and recommended setting is 60 minutes.

A TEST option is provided for troubleshooting. When the jumper is placed across the TEST pins, the timing of all functions is reduced by a factor of 128. For example, a 90 minute interval during TEST is 42 seconds and the 14 minute defrost is reduced to 6.5 seconds.

The TEST mode may be started at anytime. If the jumper is in the TEST position at power-up or for longer than five minutes, the control will ignore the TEST selection and will default to a 90 minute interval.

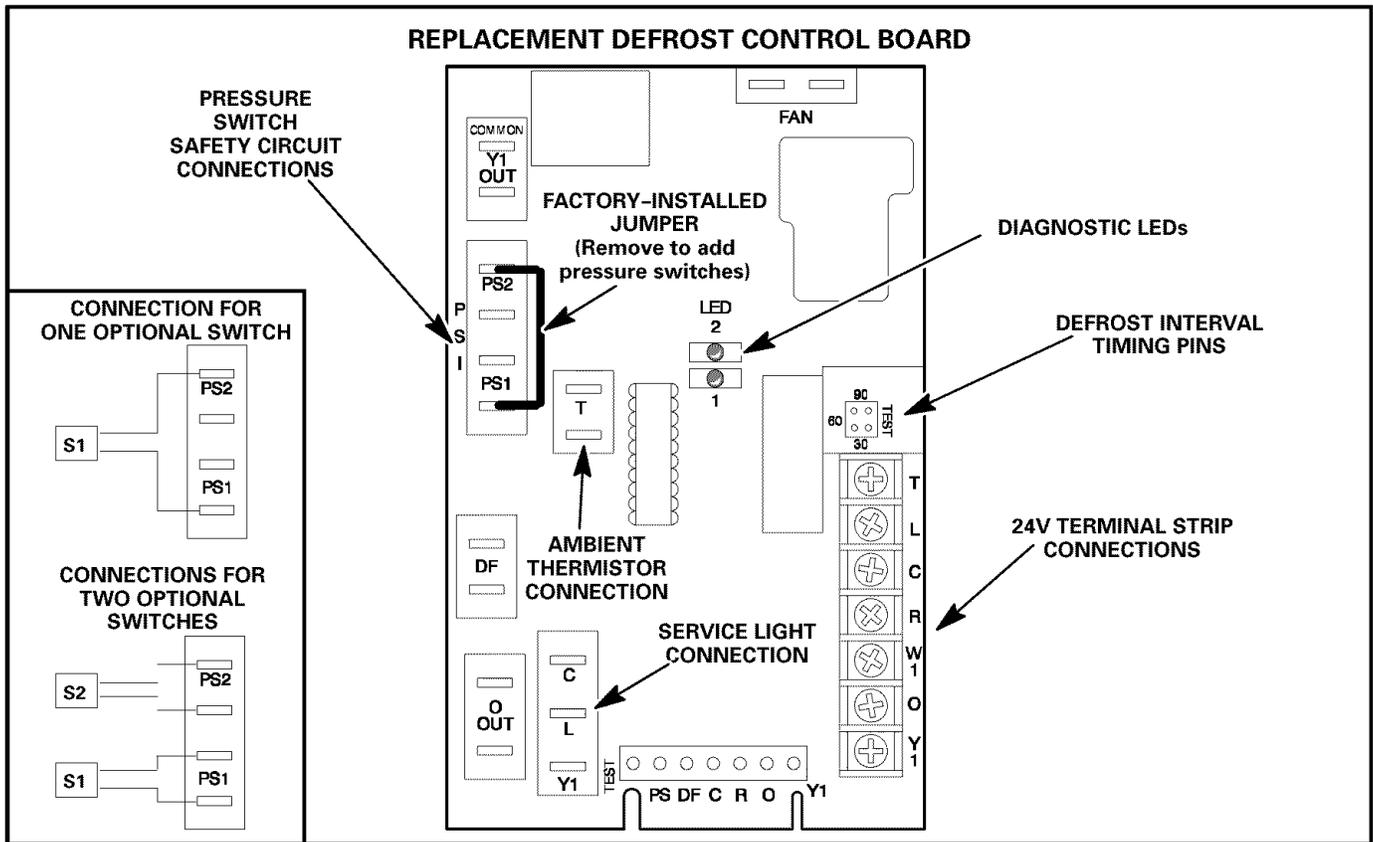


FIGURE 1

### Time-Delay

The timed-off delay is five minutes long. The delay feature is provided to help protect the compressor in case of an interruption in power to the unit or when a pressure switch resets.

### Pressure Switch Safety Circuit

The defrost control incorporates a pressure switch safety circuit that allows the application of up to two optional pressure switches; high pressure and/or loss of charge. See figure 1. During a demand cycle, the defrost control will lock out the unit on the third instance that the unit goes off on any pressure switch wired to this circuit. The diagnostic LEDs will display a pattern for a lockout pressure switch on the third open pressure switch occurrence. See table 1. The unit will remain locked out until the switch is reset.

Remove factory-installed jumper before connecting optional pressure switches to control board. When two pressure switches are used, wire each switch to one set of terminals PS1 and PS2 on the defrost

control board. See figure 1. When only one pressure switch is used, wire the switch to the two outside terminals of the pressure switch connections.

*NOTE: If not using a pressure switch, the factory-installed jumper wire must be connected.*

### Diagnostic LEDs

The defrost board uses two LEDs for diagnostics. The LEDs flash a specific sequence according to the condition.

TABLE 1

DEFROST CONTROL BOARD DIAGNOSTIC LED		
MODE	LED 1	LED 2
Normal Operation/ Power to board	Flash together with LED 2	Flash together with LED 1
Time Delay To Protect Compressor	Alternating Flashes with LED 2	Alternating Flashes with LED 1
Pressure Switch Open	Off	On
Pressure Switch Lockout	On	Off
Board Malfunction	On	On