

**INSTALLATION INSTRUCTIONS FOR REPLACEMENT DEFROST CONTROL BOARD KIT  
(34M63) USED WITH LENNOX HEAT PUMPS**

**Shipping & Packing List**

**Package 1 of 1 contains:**

- 1 - Defrost control board (100269)
- 1 - Sticker

**Application**

Replacement defrost control board kit (34M63) includes defrost control board 100269. This control board may be used in Lennox heat pump units to replace an existing 68J29, 68J84, 29M01, 29M02 or 56M37 control board. The 100269 includes features which may not be found in all of the existing boards. If the unit was originally equipped with any board other than a 100269, operation should be reviewed at the time of replacement. Features of 100269 board include:

- Five-minute compressor time delay;
- Pressure switch lockout circuit;
- Loss of charge / low pressure switch circuit;
- Field-selectable compressor delay
- Field connection terminals for service light.

**Installation**

**⚠ WARNING**

These instructions must be followed exactly. This kit must be installed by a qualified service technician. Improper installation may result in personal injury, loss of life or equipment damage.

Before attempting to perform any service or maintenance, turn the electrical power OFF to unit at disconnect switch(es).

**⚠ CAUTION**

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

1. Disconnect all electrical power from the unit.
2. Locate existing defrost control board
3. Mark and disconnect wires from existing defrost control board. Remove existing control board.
4. Position replacement board properly over mounting holes in unit and snap stand-offs into place.
5. Reconnect labeled wires to the proper terminals on the replacement board per the existing unit wiring dia-

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gram. Refer to figure 1 for pressure switch wiring and terminal identification.

6. Review replacement defrost board operation section which follows. **If necessary, remove factory-installed jumpers.**

*NOTE - Remove the factory-installed jumper(s) to install the existing high pressure and low pressure (or loss of charge) switch(es).*

7. Affix provided sticker to inside of control panel.
8. Restore electrical power to the unit and monitor unit function through a defrost test cycle.

**Defrost System**

The defrost system includes a defrost thermostat and a defrost control.

**Defrost Thermostat**

The defrost thermostat is located on the liquid line between the check/expansion valve and the distributor. When the defrost thermostat senses 42°F (5.5°C) or cooler, its contacts close and send a signal to the defrost control board to start the defrost timing. It also terminates defrost when the liquid line warms up to 70°F (21°C).

**Defrost Control**

The defrost control board includes the combined functions of a time/temperature defrost control, defrost relay, time delay, diagnostic LEDs, and a terminal strip for field wiring connections.

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

**Defrost Control Board**

**Defrost Control Timing Pins**

Each timing pin selection provides a different accumulated compressor run time 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 (T1), 60 (T2), or 90 (T3) minutes. (See figure 1 on page 2). The defrost timing jumper is factory-installed to provide a 60-minute defrost interval. If the timing selector jumper is not in place, the control defaults to a 90-minute defrost interval. The maximum defrost period is 14 minutes and cannot be adjusted.



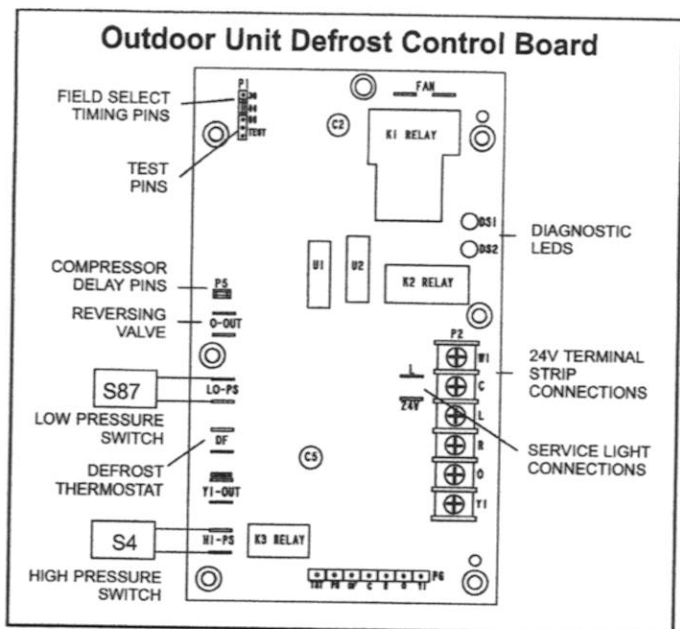


Figure 1

A TEST option is provided for troubleshooting. The TEST mode may be started any time the unit is operating in the heating mode and the defrost thermostat is closed or jumpered. If the jumper is in the TEST position at power-up, the control will ignore the test pins. When the jumper is placed across the TEST pins for two seconds, the control will enter the defrost mode. If the jumper is removed before an additional 5-second period has elapsed (7 seconds total), the unit will remain in defrost mode until the defrost thermostat opens or 14 minutes have passed. If the jumper is not removed until after the additional 5-second period has elapsed, the defrost will terminate and the test option will not function again until the jumper is removed and re-applied.

### Compressor Delay

The defrost board has a field-selectable function to reduce occasional sounds that may occur while the unit is cycling in and out of the defrost mode. When the compressor delay jumper is removed, the compressor will be cycled off for 30 seconds going in and out of the defrost mode.

*NOTE - The 30-second compressor feature is ignored when jumpering the TEST pins.*

### Time Delay

The timed-off delay is five minutes long. The delay helps protect the compressor from short-cycling in case the power to the unit is interrupted or a pressure switch opens. The delay is bypassed by placing the timer select jumper across the TEST pins for 0.5 seconds.

*NOTE - The board must have a thermostat demand for the bypass function.*

### Pressure Switch Circuits

The defrost control includes two pressure switch circuits. The factory-installed high pressure switch (S4) wires are connected to the board's HI PS terminals (figure 1). The board also includes LO PS terminals to accommodate a field-provided low (or loss-of-charge) pressure switch.

During a single thermostat cycle, the defrost control will lock out the unit after the fifth time that the circuit is interrupted by any pressure switch that is wired to the control board. In addition, the diagnostic LEDs will indicate a pressure switch lockout after the fifth occurrence of an open pressure switch (see table 1). The unit will remain locked out until power is broken then remade to the control or until the jumper is applied to the TEST pins for 0.5 seconds.

*NOTE - The defrost control board ignores input from the low pressure switch terminals during the TEST mode, during the defrost cycle, during the 90-second start-up period, and for the first 90 seconds each time the reversing valve switches heat/cool modes. If the TEST pins are jumpered and the 5-minute delay is being bypassed, the LO PS terminal signal is not ignored during the 90-second start-up period.*

### Service Light Connection

The defrost control board includes terminal connections for a service light which provides a signal that activates the room thermostat service light during periods of inefficient operation.

## ! IMPORTANT

**NOTE - After testing has been completed, properly reposition test jumper across desired timing pins.**

### Diagnostic LEDs

The defrost board uses two LEDs for diagnostics. The LEDs flash a specific sequence according to the diagnosis. See table 1.

Table 1

Defrost Control Board Diagnostic LEDs		
DS2 Green	DS1 Red	Condition
OFF	OFF	Power problem
Simultaneous Slow Flash		Normal operation
Alternating Slow Flash		5-min. anti-short cycle delay
Simultaneous Fast Flash		Ambient Sensor Problem
Alternating Fast Flash		Coil Sensor Problem
ON	ON	Circuit Board Failure
Fault and Lockout Codes		
OFF	Slow Flash	Low Pressure Fault
OFF	ON	Low Pressure Lockout
Slow Flash	OFF	High Pressure Fault
ON	OFF	High Pressure Lockout
Slow Flash	ON	Discharge Line Temp. Fault
Fast Flash	ON	Disch. Line Temp. Lockout
OFF	Fast Flash	Discharge Sensor Fault
Fast Flash	OFF	Discharge Sensor Lockout
Shaded entries apply to demand boards only.		