

REPLACEMENT PART INSTALLATION INSTRUCTIONS

Unit Control Board

For

031-09194-000/354927, 031-09150-001/254747, 031-09150-002/254746, 031-03005-000/843649,
031-09150-000/170469, 031-02979-000/659422, 031-02980-000/659423, 031-02981-000/659424,
031-09171-000/278350, 031-09172-000/278371, 031-09173-000/278372

031-09194-000/354927, 031-09150-002 / 254746 AND 031-09150-001 / 254747 CONTROL BOARD FLASH CODES

Various flash codes are utilized by this unit control board (UCB) to aid in troubleshooting. Flash codes are distinguished by the short on and off cycle used (approximately 200ms on and 200ms off). To show normal operation, the control board flashes a 1 second on, 1 second off "heartbeat" during normal operation. This is to verify that the UCB is functioning correctly. Do not confuse this with an error flash code. To prevent confusion, a 1-flash, flash code is not used.

Alarm condition codes are flashed on the UCB lower left Red LED. See Figure 1. While the alarm code is being flashed, it will also be shown by the other LEDs: lit continuously while

the alarm is being flashed. The total of the continuously lit LEDs equates to the number of flashes, and is shown in the table. Pressing and releasing the LAST ERROR button on the UCB can check the alarm history. The UCB will cycle through the last five (5) alarms, most recent to-oldest, separating each alarm flash code by approximately 2 seconds. In all cases, a flashing Green LED will be used to indicate non-alarm condition.

In some cases, it may be necessary to "zero" the ASCD for the compressors in order to perform troubleshooting. To reset all ASCDs for one cycle, press and release the UCB TEST/RESET button once.

Flash codes that do and do not represent alarms are listed in Table 1.

TABLE 1: UNIT CONTROL BOARD FLASH CODES

FLASH CODE	DESCRIPTION	GREEN LED 16	RED LED 8	RED LED 4	RED LED 2	RED LED 1
On Steady	This is a Control Failure					
1 Flash	Not Applicable	-	-	-	-	-
2 Flashes	Control waiting ASCD ¹	-	-	-	-	-
3 Flashes	HPS1 Compressor Lockout	Flashing	Off	Off	On	Off
4 Flashes	HPS2 Compressor Lockout	Off	Off	Off	On	On
5 Flashes	LPS1 Compressor Lockout	Off	Off	On	Off	Off
6 Flashes	LPS2 Compressor Lockout	Off	Off	On	Off	On
7 Flashes	FS1 Compressor Lockout	Off	Off	On	On	Off
8 Flashes	FS2 Compressor Lockout	Off	Off	On	On	On
9 Flashes	Ignition Control Locked Out / Ignition Control Failure	Off	On	Off	Off	Off
10 Flashes	Compressors Locked Out on Low Outdoor Air Temperature ¹	Off	On	Off	Off	On
11 Flashes	Compressors locked out because the Economizer is using free Cooling ¹	Flashing	On	Off	On	Off
12 Flashes	Unit Locked Out due to Fan Overload Switch Failure	Flashing	On	Off	On	On
13 Flashes	Compressor Held Off due to Low Voltage ¹	Off	On	On	Off	Off
14 Flashes	EEPROM Storage Failure	Flashing	On	On	Off	On
OFF	No Power or Control Failure	Off	On	On	On	Off
		Off	Off	Off	Off	Off

1. Non-alarm condition.

UNIT CONTROL BOARD OPTION SETUP

OPTION BYTE SETUP

- Enter the Option Setup mode by pushing the OPTION SETUP / STORE button, and holding it for at least 2 seconds.
- The green status LED (Option Byte) will be turned on and the red status LED (Heat Delay) is turned off.
- The 8, 4, 2 and 1 LEDs will then show the status of the 4 labeled options ((8) Fan Off at Heat Start, (4) Low Ambient Lockout, (2) Free Cooling Lockout, and (1) Lead / Lag).
- Press the UP or Down button to change the LED status to correspond to the desired Option Setup.
- To save the current displayed value, push the OPTION SETUP / STORE button and hold it for at least 2 seconds. When the value is saved, the green LED will flash a few times and then normal display will resume.

NOTE: While in either Setup mode, if no buttons are pushed for 60 seconds, the display will revert to its normal display, exiting the Option Setup mode. **When saving, the control board only saves the parameters for the currently displayed mode (Option Byte or Heat Delay).**

HEAT DELAY SETUP

- Enter the Option Setup mode by pushing the OPTION SETUP / STORE button, and holding it for at least 2 seconds.
- The green status LED (Option Byte) will be turned on and the red status LED (Heat Delay) is turned off.
- Press the COMM SETUP / SELECT button to toggle into the Heat Delay Setup, the green LED will turn off and the red LED for Heat Delay will turn on.

- The 8, 4, 2 and 1 LEDs will then show the status⁸ of the Heat Delay, (See Table 2). Press the UP or Down button to change the LED status to correspond to the desired Heat Delay Value.
- To save the current displayed value, push the OPTION SETUP / STORE button and hold it for at least 2 seconds. When the value is saved, the red LED will flash a few times and then normal display will resume.

NOTE: While in either Setup mode, if no buttons are pushed for 60 seconds, the display will revert to its normal display, exiting the Option Setup mode. **When saving, the control board only saves the parameters for the currently displayed mode (Option Byte or Heat Delay).**

TABLE 2: HEAT DELAY

Heat Fan On Delay	Heat Fan Off Delay	Red LED 8	Red LED 4	Red LED 2	Red LED 1
60	180	On	On	On	On
60	90	On	On	On	Off
60	60	On	On	Off	On
60	30	On	On	Off	Off
45	180	On	Off	On	On
45	90	On	Off	On	Off
45	60	On	Off	Off	On
45	30	On	Off	Off	Off
30	180	Off	On	On	On
30	90	Off	On	On	Off
30	60	Off	On	Off	On
30	30	Off	On	Off	Off
0	60	Off	Off	On	On
0	30	Off	Off	On	Off
0	10	Off	Off	Off	On
Non-std	Non-std	Off	Off	Off	Off

031-03005-000/843649 AND 031-09150-000 / .170469 CONTROL BOARD FLASH CODES

Various flash codes are utilized by this unit control board (UCB) to aid in troubleshooting. Flash codes are distinguished by the short on and off cycle used (approximately 200ms on and 200ms off). To show normal operation, the control board flashes a 1 second on, 1 second off "heartbeat" during normal operation. This is to verify that the UCB is functioning correctly. Do not confuse this with an error flash code. To prevent confusion, a 1-flash, flash code is not used.

Alarm condition codes are flashed on the UCB lower left Red LED, See Figure 1. While the alarm code is being flashed, it will also be shown by the other LEDs: lit continuously while the alarm is being flashed. The total of the continuously lit

LEDs equates to the number of flashes, and is shown in the table. Pressing and releasing the LAST ERROR button on the UCB can check the alarm history. The UCB will cycle through the last five (5) alarms, most recent to oldest, separating each alarm flash code by approximately 2 seconds. Flash code 21 is a non-alarm condition but due to the space constraints of the UCB, will be indicated by the Red LED. In all other cases, a flashing Green LED will be used to indicate non-alarm conditions.

In some cases, it may be necessary to "zero" the ASCD for the compressors in order to perform troubleshooting. To reset all ASCDs for one cycle, press and release the UCB TEST/RESET button once.

Flash codes that do and do not represent alarms are listed in Table 3.

TABLE 3: UNIT CONTROL BOARD FLASH CODES

Flash Codes	Description	Green LED 16	Red LED 8	Red LED 4	Red Led 2	Red LED 1
On Steady	This is a Control Failure	-	-	-	-	-
1 Flash	Not Applicable	-	-	-	-	-
2 Flashes	Control waiting ASCD ¹	Flashing	Off	Off	On	Off
3 Flashes	HPS1 Compressor Lockout	Off	Off	Off	On	On
4 Flashes	HPS2 Compressor Lockout	Off	Off	On	Off	Off
5 Flashes	LPS1 Compressor Lockout	Off	Off	On	Off	On
6 Flashes	LPS2 Compressor Lockout	Off	Off	On	On	Off
7 Flashes	FS1 Compressor Lockout	Off	Off	On	On	On
8 Flashes	FS2 Compressor Lockout	Off	On	Off	Off	Off
9 Flashes	Ignition Control Locked Out / Ignition Control Failure	Off	On	Off	Off	On
10 Flashes	Compressors Locked Out on Low Outdoor Air Temperature ¹	Flashing	On	Off	On	Off
11 Flashes	Compressors locked out because the Economizer is using free Cooling ¹	Flashing	On	Off	On	On
12 Flashes	Unit Locked Out due to Fan Overload Switch Failure	Off	On	On	Off	Off
13 Flashes	Compressor Held Off due to Low Voltage ¹	Flashing	On	On	Off	On
14 Flashes	EEPROM Storage Failure	Off	On	On	On	Off
15 Flashes	HPS3 Compressor Lockout	Off	On	On	On	On
16 Flashes	HPS4 Compressor Lockout	On	Off	Off	Off	Off
17 Flashes	LPS3 Compressor Lockout	On	Off	Off	Off	On
18 Flashes	LPS4 Compressor Lockout	On	Off	Off	On	Off
19 Flashes	FS3 Compressor Lockout	On	Off	Off	On	On
20 Flashes	FS4 Compressor Lockout	On	Off	On	Off	Off
21 Flashes	Compressor Off due to Low SAT ¹	On	Off	On	Off	On
OFF	No Power or Control Failure	Off	Off	Off	Off	Off

1. Non-alarm conditions.

UNIT CONTROL BOARD OPTION SETUP

OPTION BYTE SETUP

- Enter the Option Setup mode by pushing the OPTION SETUP / STORE button, and holding it for at least 2 seconds.
- The green status LED (Option Byte) will be turned on and the red status LED (Heat Delay) is turned off.
- The 8, 4, 2 and 1 LEDs will then show the status of the 4 labeled options ((8) Fan Off at Heat Start, (4) Low Ambient Lockout, (2) Free Cooling Lockout, and (1) Lead / Lag).
- Press the UP or Down button to change the LED status to correspond to the desired Option Setup.
- To save the current displayed value, push the OPTION SETUP / STORE button and hold it for at least 2 seconds. When the value is saved, the green LED will flash a few times and then normal display will resume.

NOTE: While in either Setup mode, if no buttons are pushed for 60 seconds, the display will revert to its normal display, exiting the Option Setup mode. **When saving, the control board only saves the parameters for the currently displayed mode (Option Byte or Heat Delay).**

HEAT DELAY SETUP

- Enter the Option Setup mode by pushing the OPTION SETUP / STORE button, and holding it for at least 2 seconds.
- The green status LED (Option Byte) will be turned on and the red status LED (Heat Delay) is turned off.
- Press the COMM SETUP / SELECT button to toggle into the Heat Delay Setup, the green LED will turn off and the red LED for Heat Delay will turn on.

- The 8, 4, 2 and 1 LEDs will then show the status of the Heat Delay, (See Table 2). Press the UP or Down button to change the LED status to correspond to the desired Heat Delay Value.
- To save the current displayed value, push the OPTION SETUP / STORE button and hold it for at least 2 seconds. When the value is saved, the red LED will flash a few times and then normal display will resume.

NOTE: While in either Setup mode, if no buttons are pushed for 60 seconds, the display will revert to its normal display, exiting the Option Setup mode. **When saving, the control board only saves the parameters for the currently displayed mode (Option Byte or Heat Delay).**

TABLE 4: HEAT DELAY

Heat Fan On Delay	Heat Fan Off Delay	Red LED 8	Red LED 4	Red LED 2	Red LED 1
60	180	On	On	On	On
60	90	On	On	On	Off
60	60	On	On	Off	On
60	30	On	On	Off	Off
45	180	On	Off	On	On
45	90	On	Off	On	Off
45	60	On	Off	Off	On
45	30	On	Off	Off	Off
30	180	Off	On	On	On
30	90	Off	On	On	Off
30	60	Off	On	Off	On
30	30	Off	On	Off	Off
0	60	Off	Off	On	On
0	30	Off	Off	On	Off
0	10	Off	Off	Off	On
Non-std	Non-std	Off	Off	Off	Off

031-02979-000/659422, 031-02980-000/659423, 031-02981-000/659424, 031-09171-000 / 278350, 031-09172-000 / 278371 AND 031-09173-000 / 278372 CONTROL BOARD FLASH CODES

Various flash codes are utilized by the unit control board (UCB) to aid in troubleshooting. Flash codes are distinguished by the short on and off cycle used (approximately 200ms on and 200ms off). To show normal operation, the control board flashes a 1 second on, 1 second off "heartbeat" during normal operation. This is to verify that the UCB is functioning correctly. Do not confuse this with an error flash code. To prevent confusion, a 1-flash, flash code is not used.

Alarm condition codes are flashed on the UCB lower left Red LED, See Figure 1. While the alarm code is being flashed, it will also be shown by the other LEDs: lit continuously while the alarm is being flashed. The total of the continuously lit LEDs equates to the number of flashes, and is shown in the table. Pressing and releasing the LAST ERROR button on the UCB can check the alarm history. The UCB will cycle through the last five (5) alarms, most recent to oldest, separating each alarm flash code by approximately 2 seconds. In all cases, a flashing Green LED will be used to indicate non-alarm condition.

In some cases, it may be necessary to "zero" the ASCD for the compressors in order to perform troubleshooting. To reset all ASCDs for one cycle, press and release the UCB TEST/RESET button once.

Flash codes that do and do not represent alarms are listed in Table 5.

TABLE 5: UNIT CONTROL BOARD FLASH CODES

FLASH CODE	DESCRIPTION	GREEN LED 16	RED LED 8	RED LED 4	RED LED 2	RED LED 1
On Steady	This is a Control Failure	-	-	-	-	-
1 Flash	Not Applicable	-	-	-	-	-
2 Flashes	Control waiting ASCD ¹	Flashing	Off	Off	On	Off
3 Flashes	HPS1 Compressor Lockout	Off	Off	Off	On	On
4 Flashes	HPS2 Compressor Lockout	Off	Off	On	Off	Off
5 Flashes	LPS1 Compressor Lockout	Off	Off	On	Off	On
6 Flashes	LPS2 Compressor Lockout	Off	Off	On	On	Off
7 Flashes	FS1 Compressor Lockout	Off	Off	On	On	On
8 Flashes	FS2 Compressor Lockout	Off	On	Off	Off	Off
10 Flashes	Compressors Locked Out on Low Outdoor Air Temperature ¹	Flashing	On	Off	On	Off
12 Flashes	Unit Locked Out due to Fan Overload Switch Failure	Off	On	On	Off	Off
13 Flashes	Compressor Held Off due to Low Voltage ¹	Flashing	On	On	Off	On
14 Flashes	EEPROM Storage Failure	Off	On	On	On	Off
OFF	No Power or Control Failure	Off	Off	Off	Off	Off

1. Non-alarm condition.

UNIT CONTROL BOARD OPTION SETUP

OPTION BYTE SETUP

- Enter the Option Setup mode by pushing the OPTION SETUP / STORE button, and holding it for at least 2 seconds.
- The green status LED (Option Byte) will be turned on and the red status LED (Heat Delay) is turned off.
- The 4 LED will then show the status of the labeled option **Low Ambient Lockout**.
- Press the UP or Down button to change the LED status to correspond to the desired Option Setup.

- To save the current displayed value, push the OPTION SETUP / STORE button and hold it for at least 2 seconds. When the value is saved, the green LED will flash a few times and then normal display will resume.

NOTE: While in either Setup mode, if no buttons are pushed for 60 seconds, the display will revert to its normal display, exiting the Option Setup mode. **When saving, the control board only saves the parameters for the currently displayed mode (Option Byte or Heat Delay). (Heat Delay not applicable on these units.)**

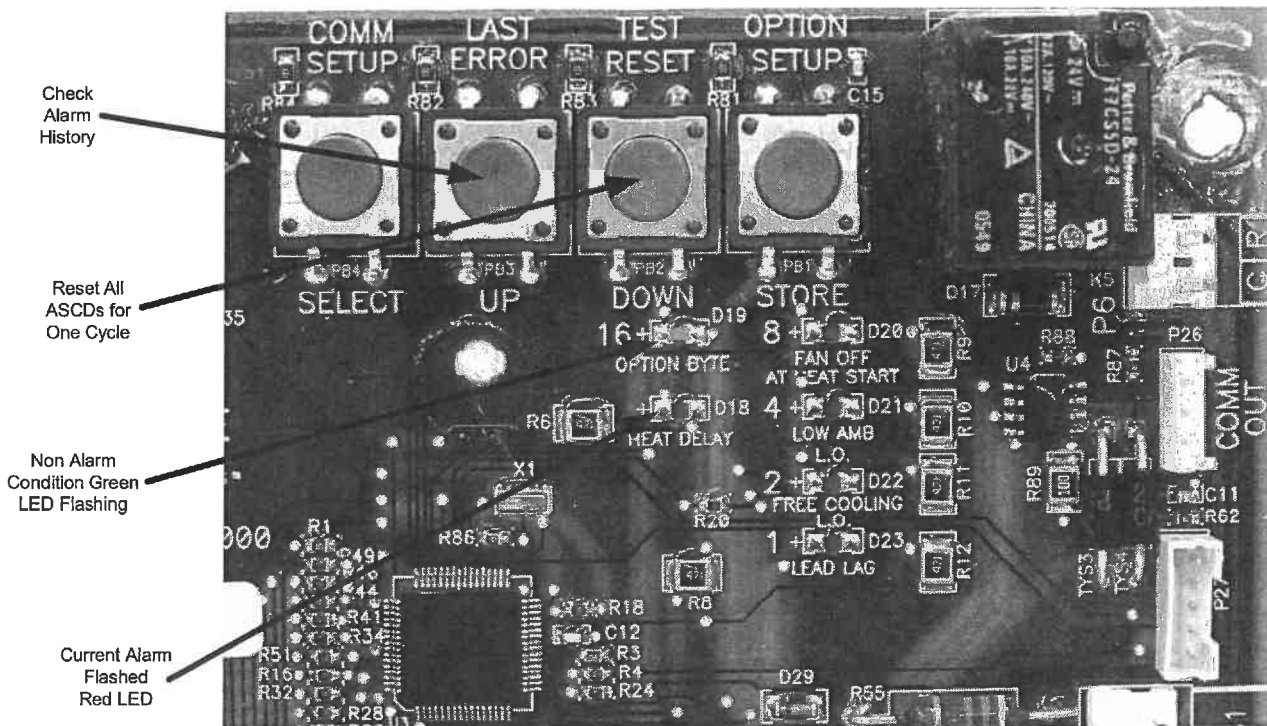


FIGURE 1- UNIT CONTROL BOARD