CRANE
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E013.1
HVV E Model Environmental Control Kit

Revised: March 30, 2009

Models Affected: HVV Venders with SBC Controller installed.
Reason: To provide instruction on how the Environmental Control Kit functions and how it is assembled.

Order as Kit: 631,004,00x.x4 Kit, Environmental Control HVV

Kit contents:

Qty.	Part #	Description
1	804,917,46x.x1	Jumper, AC Fan Power 4"
1	804,925,41x.x1	Encapsulated Temperature Sensor HVV
1	804,917,37x.x1	Harness, AC Power Light
1	804,917,42x.x1	Harness, Relay Control HVV
1	804,919,22x.x1	Harness, Temp Sensor & Relay Extension
6	800,304,25x.x1	Screw, 6-32x3/8 Phillips Form
1	800,304,22x.x1	Screw, 8-32x3/8 Phillips Type
1	800,304,23x.x1	Screw, 8-18x½ Phillips SEMS
1	631,006,20x.x3	Assy., Choke Plate Environmental HVV
1	800,304,13x.x1	Screw, 10-32x½ Phillips SEM
1	803,860,77x.x1	Label, Mechanical Control Connecter
1	803,860,78x.x1	Label, Override Switch Connector
1	804,917,39x.x1	Jumper, FAN AC Power 48"

What to expect when using HVV E Model with Environmental Controls (631,004,00x.x4) with 804,919,240.51 and higher software:

1. When you
   a. Plug in the vender (Door Closed)
      i. There is a 2 minute delay before the refrigeration unit turns on.
         1. Note: If the refrigeration unit comes on for 2 minutes and then shuts off the refrigeration relay is wired incorrectly. Remove the wire to the NC contact and place it to the NO contact.
         2. Note: If the refrigeration Unit will not come on, but you can plug it directly in a wall outlet and it works, check the wiring of the Relay Control with Temp Sensor Extension Harness 804,917,42x.x1.
   b. Open the main door
      i. The Refrigeration unit will shut off.
         1. Note: If the refrigeration unit comes on and stays on the entire time the door is open and shuts off when the door is closed. The refrigeration relay is wired incorrectly. Remove the wire to the NC contact and place it on the NO contact.

ii. The Condenser fan will shut off
    1. Note: If the condenser fan comes on for 2 minutes and then shuts off, the refrigeration relay is wired incorrectly. Remove the wire to the NC contact and place it on the NO contact.
iii. The Evaporator fans will shut off
    1. Note: If the evaporator fans come on and stay on the entire time the door is open, the fan relay is wired incorrectly. Remove the wire to the NO contact and place it on the NC contact.

c. Close the main door
    i. The Display reads **"Door Closing"**, then **"Door Locked".**
        1. If the display reads **"Door Closing"**, then **"Door Unlocked"**
            1. The bayonet is not making the switch in receptacle or
            2. The switch in the receptacle is bad or unplugged.
    ii. The Refrigeration unit delays coming on
        1. 10 seconds to 2 minutes depending on how long the unit has been off.
    iii. The Condenser fan delays coming on
        1. 10 seconds to 2 minutes depending on how long the unit has been off.
    iv. The Evaporator fans come on immediately

2. When the Vender is shipped
    a. **"Environmental Controls"** in programming
        i. Needs to be **"On"**
            1. If the Refrigeration Unit runs but is not cooling product, confirm the **"Environmental Controls"** is set to **"On".**
    b. The Refrigeration Temperature setting 35°F (factory default)
        i. –4/+1°F (31°F to 36°F)
            1. Note – if evaporator is icing up or product freezing change setting to 37°F
    c. Storage Temperature 60°F
        i. –4/+1°F (56°F to 61°F)
        ii. Storage mode should <u>not</u> be enabled.
    d. Do a motor test and run at least one (1) vend motor two (2) times.
        i. This will confirm the board is operational and the two (2) Pin Override Plug has not been plugged to the two (2) Pin Counter Socket with power applied which will damage control board.
3. Temperature Sensor
    a. Must be 804,919,350.21 or higher revision.
    b. Must be located in center of evaporator (Check page 6, Figure 8)
        i. Center left to right
        ii. Center top to bottom
    c. Ensure nothing is blocking airflow through evaporator

When installing and/or checking installation:
Read entire instructions and verify all the parts of the kit before beginning installation. If you have any questions, contact the Dixie Narco Customer Support Center before proceeding with installation.
Tools Needed: #2 Phillips Screwdriver – preferably with 6" shaft. A drill with a magnetic holder will make installation of the kit easier.

1. Unplug the Vender while installing or inspecting kit.
2. Remove the Cabinet Front Stiffener Plate (Figure 1) to view the Environmental Control Kit.

Figure 1

3. Detachable Main Wiring Harness connections (see Figures 3 and 4, page 4):
    a. The 'ribbed' side of AC Fan connector "B" of the Detachable Main Wiring Harness (item #4) is connected to the 'ribbed' side of 48" Fan AC Power Jumper (804,917,39x.x1, item #2).
    b. The other 'ribbed' side of 48" Fan AC Power Jumper (item #2) is connected to the 'ribbed' side of Evaporator Fan Leads. One end of the 'smooth' side of 48" Fan AC Power Jumper (item #2) is connected to the smooth side of the Evaporator Fan Leads and the other smooth side of the 48" Fan AC Power Jumper (item #2) is connected to the 'NC' contacts of Fan Relay (see Figure 3).
    c. The 'smooth' side of AC Fan connector (item B) of Detachable Main Wiring Harness (item #4) is connected to one side of the 4" AC Fan Power Jumper (804,917,46x.x1) to the Fan Relay (see Figure 3).
    d. The remaining side of the 4" AC Fan Power Jumper to the Fan Relay is connected to "Common" contacts of Fan Relay (see Figure 3).
    e. The 'ribbed' side of 'A', of the Detachable Main Wiring Harness (item #4) is connected to "NO" contact of the Compressor Relay (see Figure 3).
    f. The 'smooth' side of 'A' of the Detachable Main Wiring Harness (item #4, page 3) is connected to "Common" contacts of the Compressor Relay (see Figure 3).
    g. The socket (item 'C') of the Detachable Main Wiring Harness (item #4) is connected to the plug of the In-line AC Choke Harness (item #3).
    h. The 'ribbed' side socket of the In-line AC Choke Harness is connected to the existing Motor Harness plug of the "HVV Motor Harness".
    i. Item 'D' (see Figure 4) of the Detachable Main Wiring Harness is connected to the GFCI Detachable Power Cord 115VAC.
    j. The ground wire (item 'E'), of Detachable Main Wiring Harness is connected to the existing ground wire location on bottom left, non-refrigerated side of the cabinet.
4. AC Light Harness (804,917,37x.x1) connections (see Figure 3 and 4, page 4):
    a. The Black Wire of AC Light Harness is connected to the "NC" (Normally Closed) contact of the Light Relay (see Figure 3, page 4).
    b. The White/Black Wire of AC Light Harness is connected to the "C" (Common) contact of the Light Relay (see Figure 3).
    c. The plug of AC Light Harness is connected to the socket of the existing "HVV Motor Harness" (see Figure 2).
    d. The plug Light Harness is connected to the socket of the existing AC Light Harness.

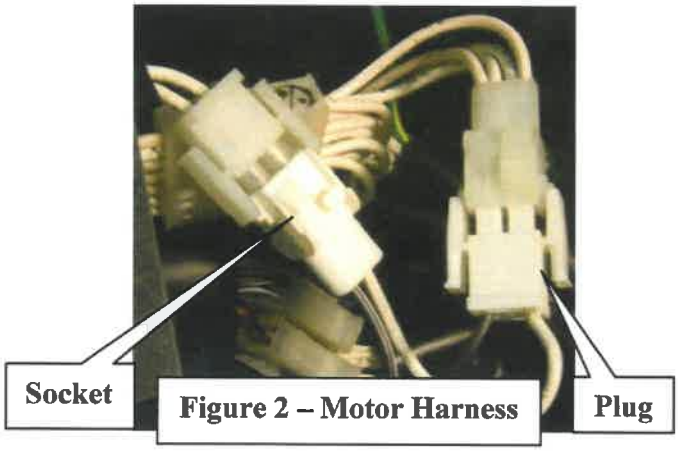

Figure 2 – Motor Harness

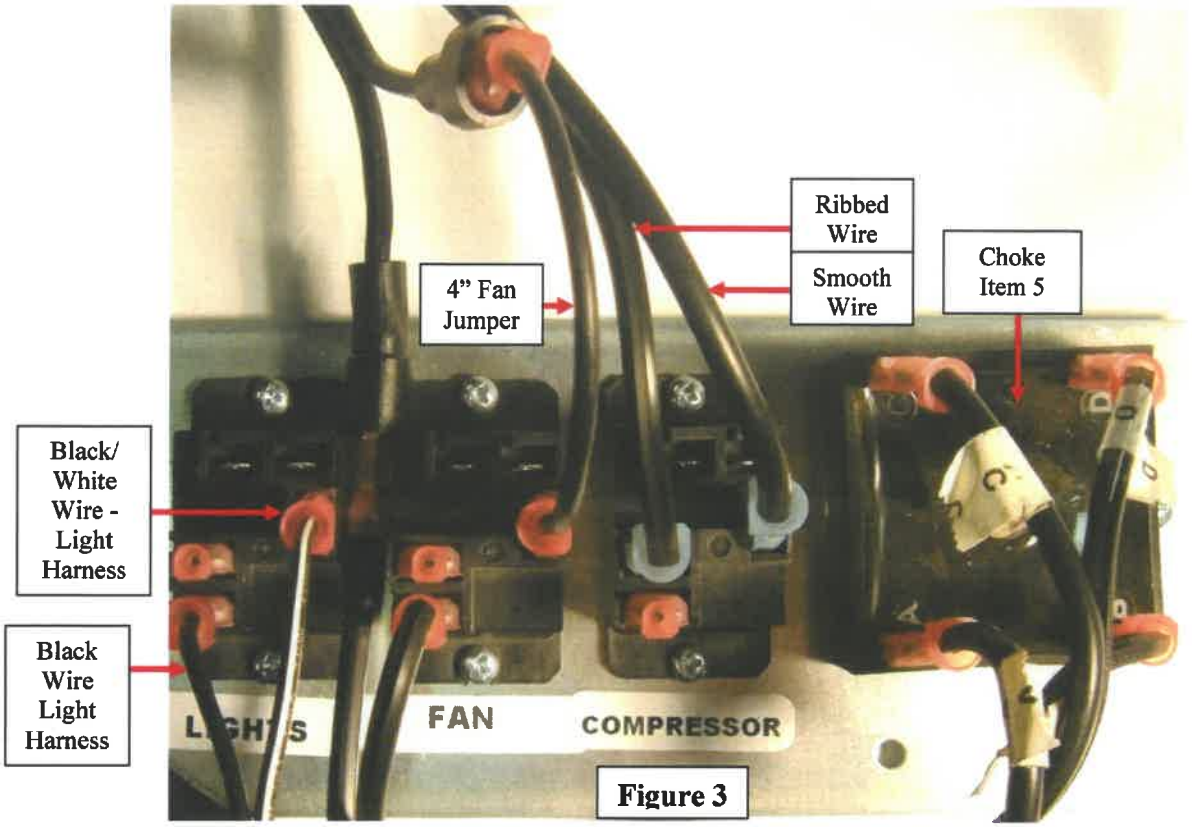

Figure 3

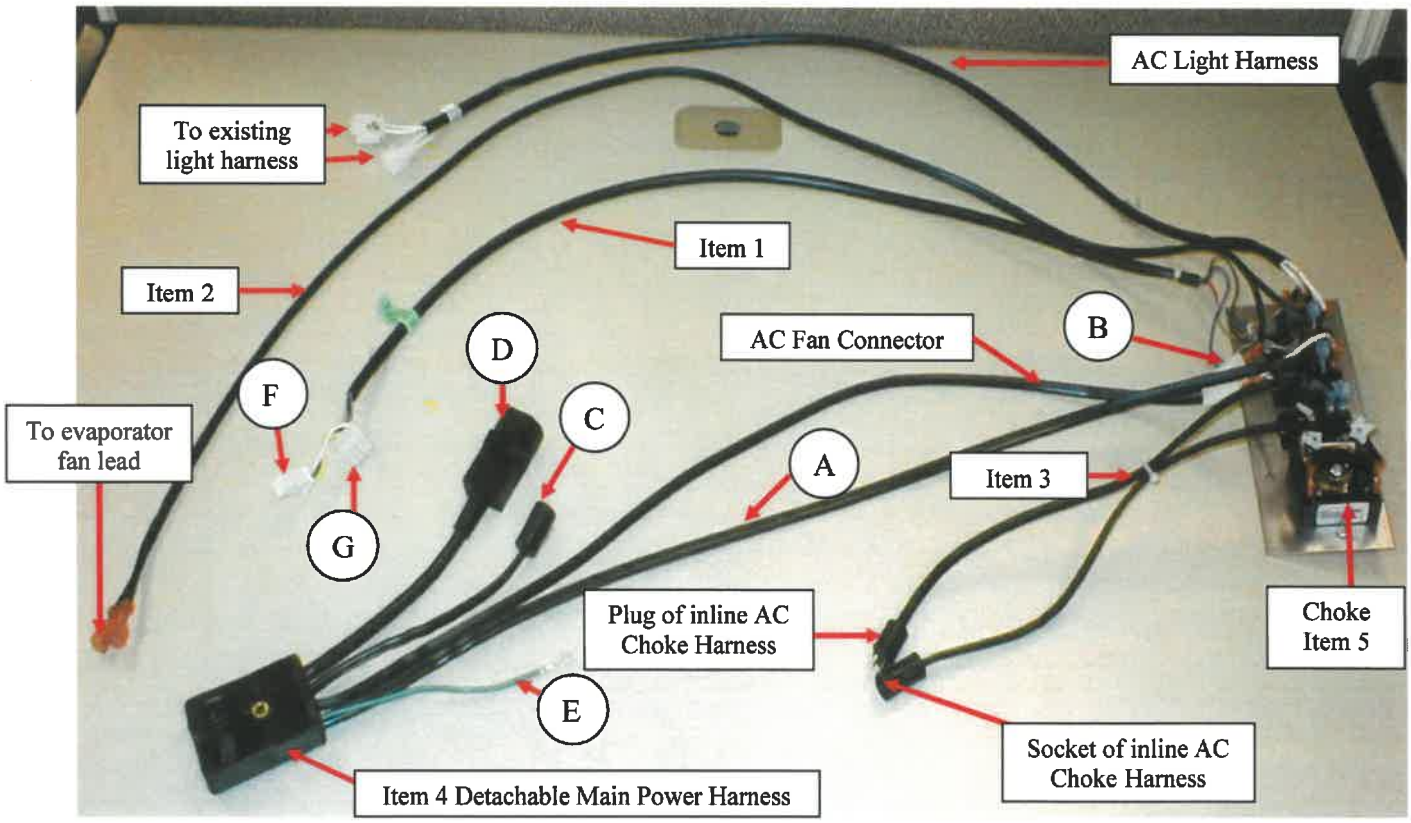

Figure 4

5. Environmental Kit Harness connections (see Figures 4, 5, and 6 on pages 4 & 5):
    a. The 4 position socket (F) of the Relay Control Harness (804,917,42x.x1, Figure 4, item #1, page 4) is connected to the 4 position plug of the Encapsulated Temperature Sensor (Figure 7, page 6).
    b. The double crimped gray wire of the Relay Control Harness (Figure 5) is connected to one side of the coil of the Light Relay.
    c. The orange wire of the Relay Control Harness (Figure 5) is connected to the other side of the coil of the Light Relay.
    d. The double crimped gray wire of the Relay Control Harness (Figure 5) is connected to one side of the coil of the Fan Relay.
    e. The brown wire of the Relay Control Harness (Figure 5) is connected to the other side of the coil of the Fan Relay.
    f. The single crimp gray wire of the Relay Control Harness (Figure 5) is connected to one side of the coil of the Compressor Relay.
    g. The blue wire of the Relay Control Harness (Figure 5) is connected to the other side of the coil of the Compressor Relay.

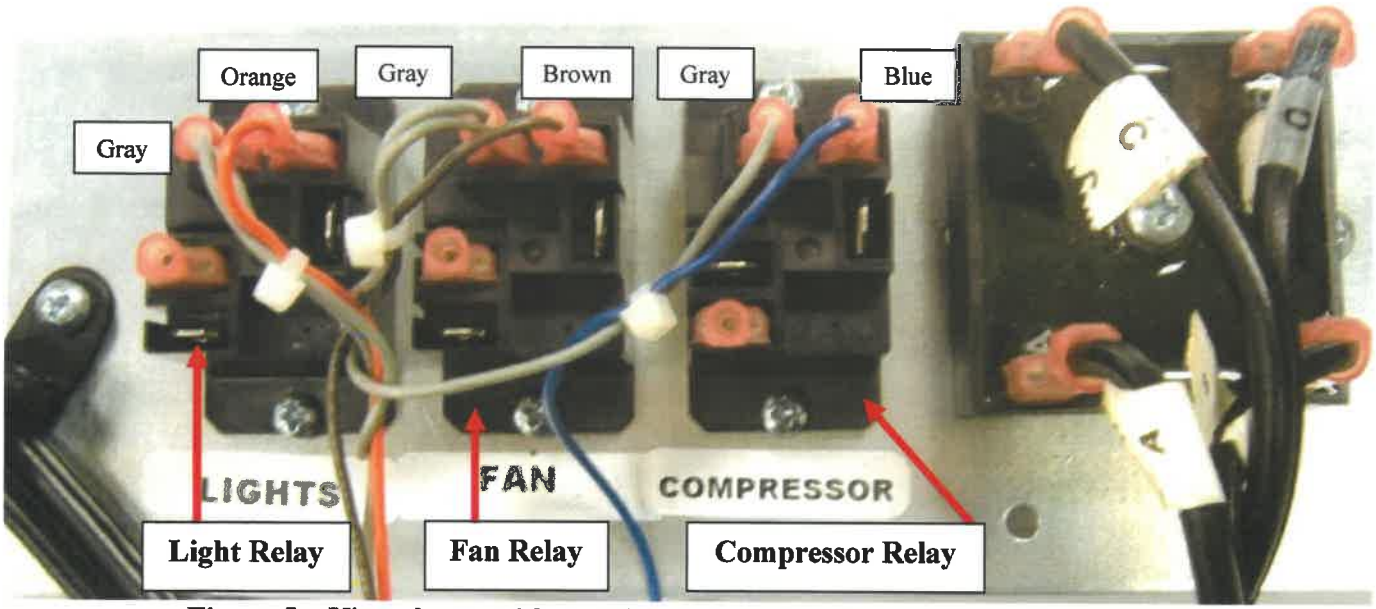

Figure 5 – View shown without High Voltage Leads to ease installation

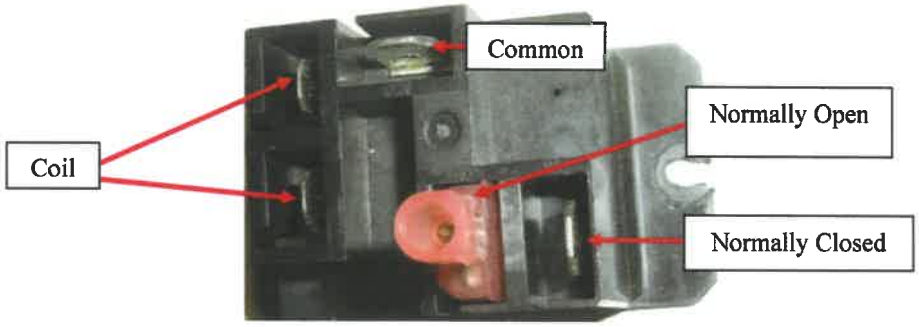

Figure 6 – Showing Light and Fan Relay

6. Encapsulated Temperature Sensor (Figure 7, page 6) connections:
    a. The 4 position plug of Encapsulated Temperature Sensor is connected to the 4 position socket of the Relay Control Harness (see "F" Item #1 Figure 4 & Figure 7).

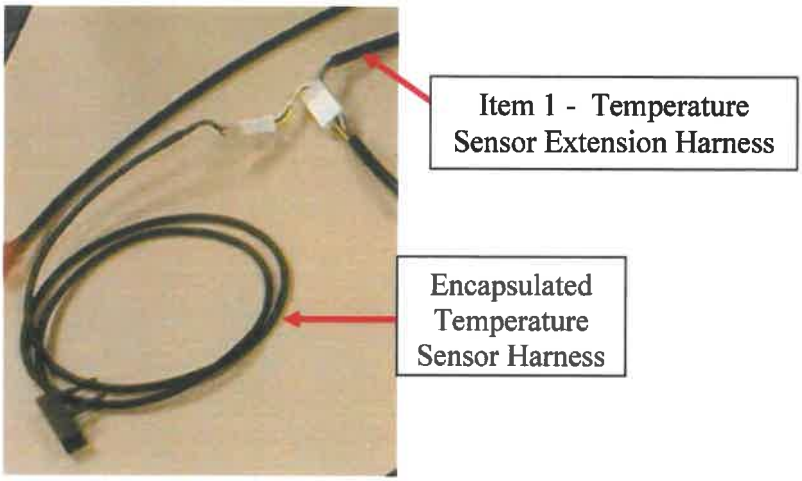

Figure 7

b. The Encapsulated Temperature Sensor Harness is routed below the refrigerated cabinet and up through the left side mullion.
c. The Encapsulated Temperature Sensor legs are inserted in to the evaporator coils.
    1. Note the Encapsulated Temp Sensor must be centered top to bottom and left to right on the evaporator (see Figure 8).

Figure 8

7. The Choke and Filter/Stack Plug Lead comes in the kit as an assembly (631,006,20x.x3). Figure 3 and 4 on page 4 can be used for reference for assembly. The following are instructions for assembling the Choke Plate Assembly:
    a. The Choke (item #5, page 4), is installed using 10-32 x ½" screw (900,301,81x.x1) to the Mounting Plate.
    b. The wire labeled 'A' of the Filter/Stack Plug Lead (item #3) is connected to the contact 'A' of the Choke (item #5).
    c. The wire labeled 'B' of the Filter/Stack Plug Lead (item #3) is connected to the contact 'B' of the Choke (item #5).
    d. The wire labeled 'C' of the Filter/Stack Plug Lead (item #3) is connected to the contact 'C' of the Choke (item #5).
    e. The wire labeled 'D' of the Filter/Stack Plug Lead (item #3) is connected to the contact 'D' of the Choke (item #5).
    f. The socket of the Filter/Stack Plug Lead (item #3) is connected to the plug of the "HVV Motor Harness".

g. The plug of the Filter/Stack Plug Lead (item #3) is connected to the socket of the Detachable Main Wiring Harness (item #4). Assembly is in Figure 9

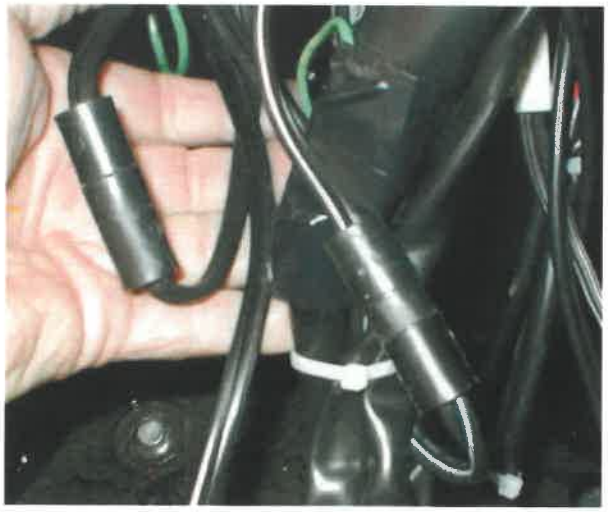

Figure 9

8. The SBC Temperature Sensor and Relay Extension Harness connections (see Figure 10):
   a. The SBC Temperature Sensor and Relay Extension Harness (804,919,22x.x1) is routed with the existing door harness through the main door to the harness wire plug cover area at the right bottom area of the main door.
   b. The 8 position socket of the SBC Temperature Sensor and Relay Extension Harness (804,919,22x.x1) is connected to the 8 position plug of the Relay Control Harness (see G Figure 4, item #1, page 4).
   c. The 6-position plug of the SBC Temperature Sensor and Relay Extension Harness (804,919,22x.x1) is connected to the P5 port of the SBC Controller.
   d. The SBC Temperature Sensor and Relay Extension Harness (804,919,22x.x1) is connected to the 8 position plug of the P8 port of the SBC Controller.
   e. Place Mechanical Counter Label (803,860,77x.x1) on the 2-Pin Connector with the Gray and Green Wire.

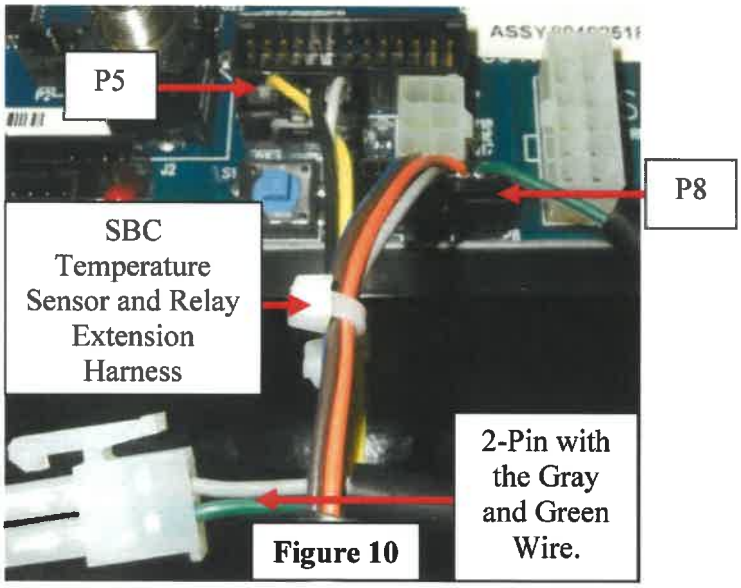

Figure 10