5800 Temperature Sensor Cable Assembly

Removal and Replacement

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Instruction Sheet #60-4702-070
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Overview

The 5800 has two refrigeration temperature sensors, one attached to the evaporator coil to measure the evaporator temperature, and the other mounted on the refrigerator's rear wall to measure the refrigeration air temperature. The two refrigeration temperature sensors are part of the temperature sensor cable assembly kit.

Note that this instruction sheet is for multiple configurations of the 5800 sampler and the older model 4700 sampler. Configurations for each sampler will be clearly marked as such. Before attempting to remove and replace a module, observe the following precautions:

⚡⚠ **WARNING**

Removing a module exposes you to electrical and mechanical hazards. Always disconnect the AC power cord before attempting to remove any module. Only trained service personnel may remove or replace these modules.

⚠ **CAUTION**

Modules contain circuit boards and sensitive electronics that can be damaged by a discharge of static electricity. Avoid touching the internal components. Only handle the module by the edges or exterior surfaces.

⚠ **CAUTION**

Electrical connectors and wires can be damaged if improperly handled. Electrical connectors must only be handled by the connector body. Never grasp the wires or use tools to disconnect a connector. Never allow a module to hang by its wiring.

⚠ **CAUTION**

Earth ground bonding conductor. Do not remove or disconnect. If this conductor must be disconnected to remove a module, it must be reconnected when installing the replacement module.

Required Parts and Tools

- Replacement cable assembly kit 69-5804-054
- #2 Phillips screwdriver
- #3 Phillips screwdriver
- Wire cutters
- $^{15}/_{16}$" open-end wrench
- Clear silicone sealant
- Cable tie 489-0110-00 (for best results, soak in water for one hour prior to use)

1. Remove Temperature Sensor

Complete the following to remove the existing temperature sensor cable assembly.

1. Unplug the line cord to remove the AC power.
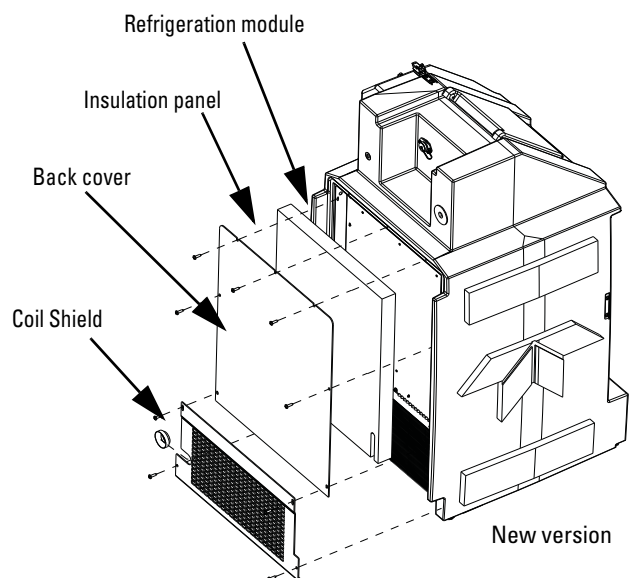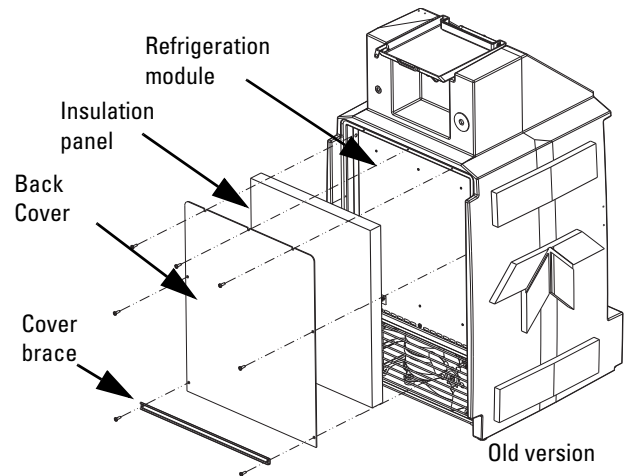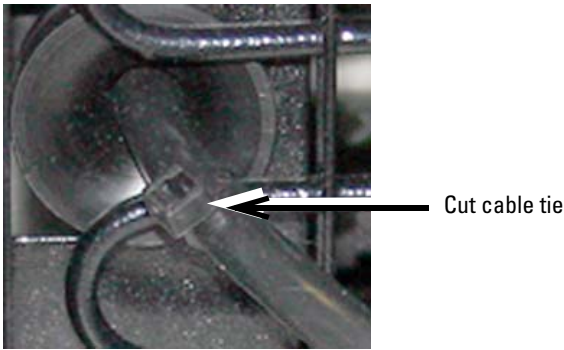2. Remove parts according to the version of refrigerator you have (Figure 1).

Old version

New version

Figure 1: Remove back cover and insulation

3. Cut the cable tie holding the power cord that runs through the refrigeration assembly (Figure 2).

Cut cable tie

Figure 2: Cut cable tie from line cord Full line cord length not depicted

4. Remove the refrigeration module mounting screws (Figure 3).The refrigeration module has an adhesive strip just above the rear coils. The bottom center screw may be slightly hidden by this strip. Newer models after serial number 216B will not have this strip.

5. Carefully pull the module out and rotate clockwise to expose the wiring connectors. The bushing holding the AC line cord in place should slide along the cord (see inset, Figure 3). During reinstallation, the slack created in this step must be removed.

6. Keep the module as close to the refrigerator body as possible to avoid pulling the wiring taut and damaging the connectors.

Turn module out and left

Line cord bushing
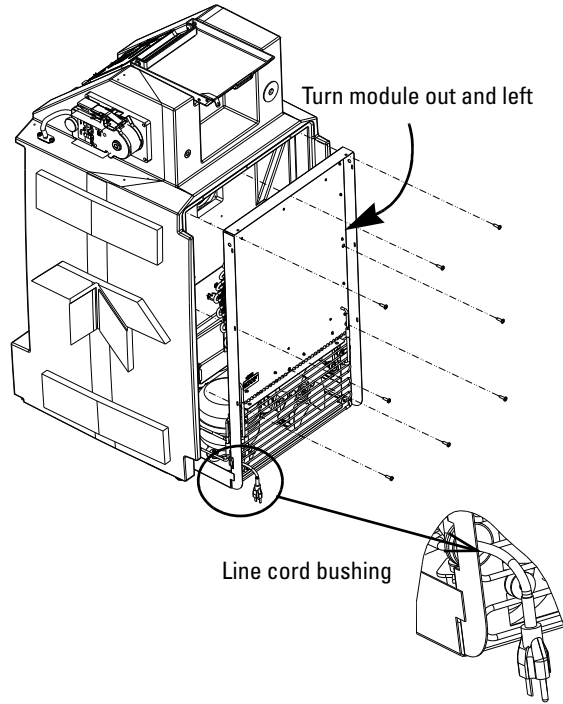
Figure 3: Remove the refrigeration module mounting screws

7. Open the flip cover of the sampler and remove the control panel mounting screws.
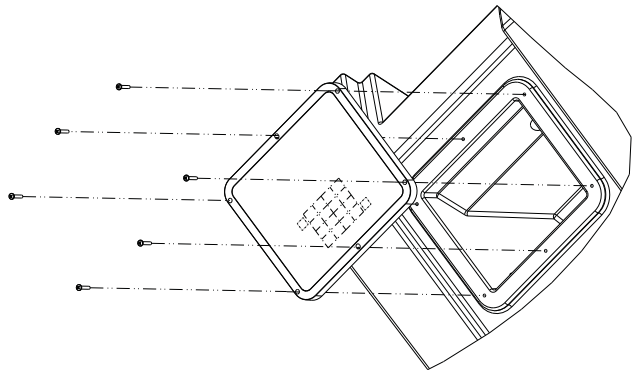
Figure 4: Control panel module removal

8. Lift the control panel to expose the wiring connectors, taking care not to put strain on the wires.

9. Disconnect the temperature sensor cable from connector **P3** (**P5** for older model 4700 samplers) on the control board and set the control panel back in place.


⚠ **CAUTION**

When disconnecting a cable connector, always grasp the connector itself and not the wires.

10. Remove the large ferrite bead from the connector end of the cable (it snaps apart). Retain the ferrite bead for installation on the replacement cable assembly.

Ferrite Bead   Cable Connector
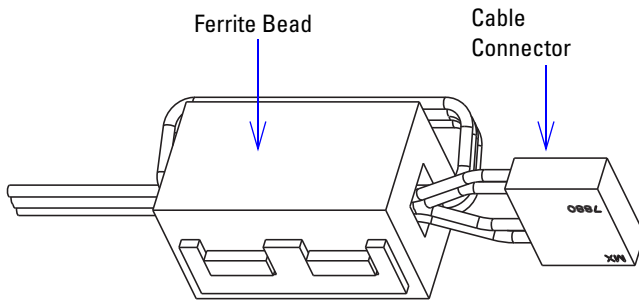
Figure 5: Ferrite bead on cable connector end
(May not be present on older 4700s)

11. Place the control panel back in place and secure with two screws. Do not let the control panel hang loose as it could damage the wiring.

12. Remove the evaporator sensor which is mounted between the sixth and seventh coils up on the evaporator (see Figure 6). Note that older models have the sensor mounted flat against the coil. The sensor on these units may also be in a metal housing. Cut the ties holding the evaporator sensor in place and move it out of the frame.
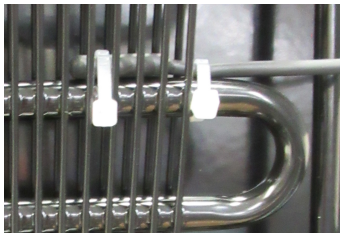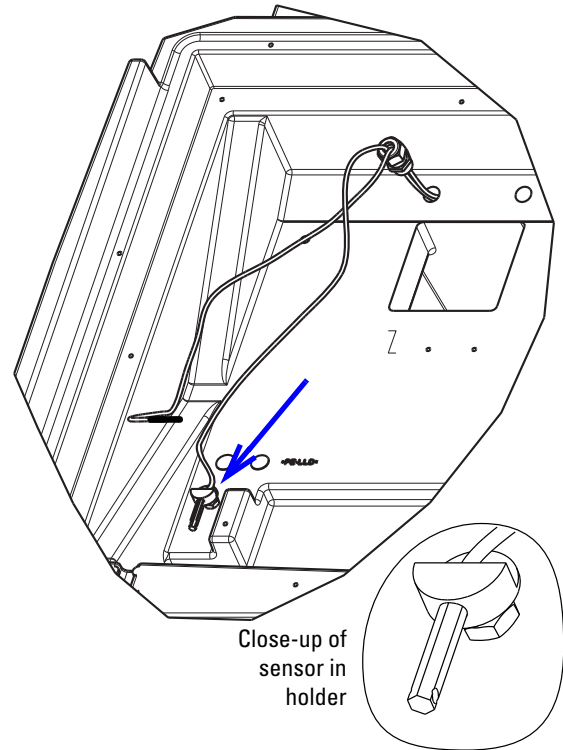
Older Model
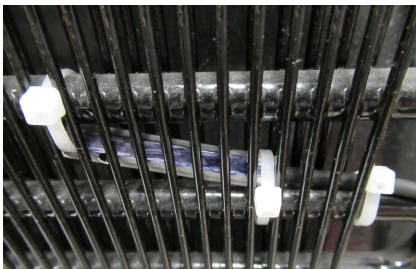
Current Model

**Figure 6: Removing evaporator temp sensor**
Cut cable ties

13. Slide the air temp sensor up and out of its plastic holder by pushing up on the bottom of the sensor (located behind the power supply plate, Figure 7).

☑ *Note*

Power supply mounting screws many need to be loosened or removed to gain access to the sensor.

Close-up of sensor in holder

Figure 7: Removing air temp sensor
(power supply plate not shown)

14. The wiring assembly enters the rear of the refrigeration cabinet just above the upper left corner of the fan (Figure 8).

15. Gently loosen the bulkhead fitting with the $^{15}/16"$ open-end wrench and unscrew it from the refrigerator cabinet. Pull the cable connector out through the threaded opening.

Cord-grip fitting   Bulkhead fitting

Temperature sensor cable
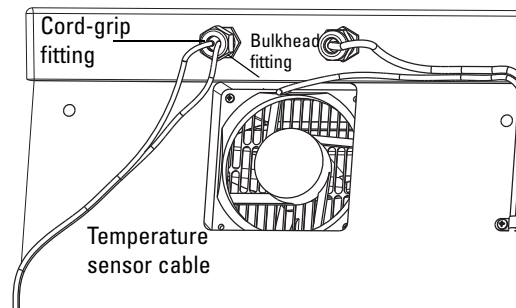
Figure 8: Temperature sensor wiring entry at rear of cabinet

5800 rear wall   Temp sensor cable connector   Cord grip fitting   Bulkhead fitting
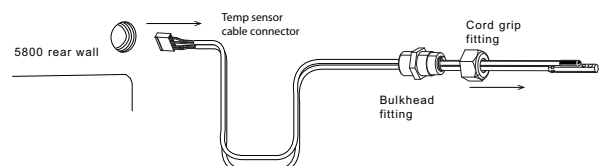
Figure 9: Temperature sensor cable and bulkhead connector

2. Installing the New Cable Assembly

1. Carefully feed the connector end of the new cable through the threaded opening from the rear of the cabinet. You may have to bend the wires around the connector and feed through the hole sideways.

☑ *Note*

DO NOT connect the control panel at this time.

2. Apply a coating of the clear silicone sealant (such as Dow Corning®[1] 737 RTV) to the threads of the cable's bulkhead fitting. If pipe sealant tape is on the threads of the bulkhead fitting then silicone sealant is not used.

3. Screw the bulkhead fitting into the cabinet wall until the threads bottom out. Smooth the excess silicon sealant around its base to seal the joint.

4. Tighten the black plastic cord-grip nut over the bulkhead fitting.

5. Clean the control panel's mounting surface on the face of the refrigerated compartment. This will help ensure that the gasket will seal the enclosure.

6. Install the ferrite bead $3/4$" (if present) from the cable connector. Wrap the cable one complete turn around the bead and snap it closed (Figure 5).

7. Attach the new cable to **P3** on the control board (or **P5** for older 4700s).

⚠ CAUTION

When connecting the temperature sensor cable to **P3** on the control board, ensure that it is not reversed. The slots on the cable connector must be facing inward.

8. Align the control panel over the mounting holes and secure it with the mounting screws. Torque screws 1.8 to 2.0 Nm (16 to 18 in/lbs).

9. The metal housing of one sensor is marked with a Black stripe. Using the three plastic cable ties, mount the marked sensor between the sixth and seventh coils of the evaporator as shown in Figure 6. Note: To operate correctly the sensor must be mounted in the exact position shown.

10. Gently press the metal sensor into the plastic holder behind the power supply plate until it snaps into place (Figure 7).

11. Reinstall the power supply if it was removed during the removal process.

3A. Module Replacement- Serial Number 216B and Older

The refrigeration module and rear compartment of the cabinet have adhesive strips and Permagum[2] (caulking cord sealant) protecting the components (Figures 10 and 11). **Ensure that all adhesive strips and Permagum are still in place before reassembly**. The adhesive strips and Permagum are required to prevent air flow between the condenser coil and the evaporator plate. Without this protection, water condensation on the coil will cause ice build-up, resulting in poor refrigerator performance.

☑ *Note*

Two thick, black cables connect the power supply with the AC and compressor (see Figure 10). **Ensure that these cables are side by side and not crossed during reassembly.**
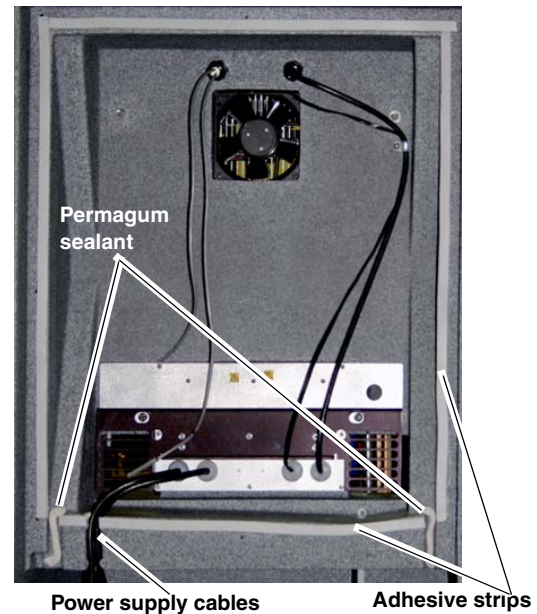
Figure 10: Rear view with module removed (Adhesive strips, Permagum sealant, power cables)
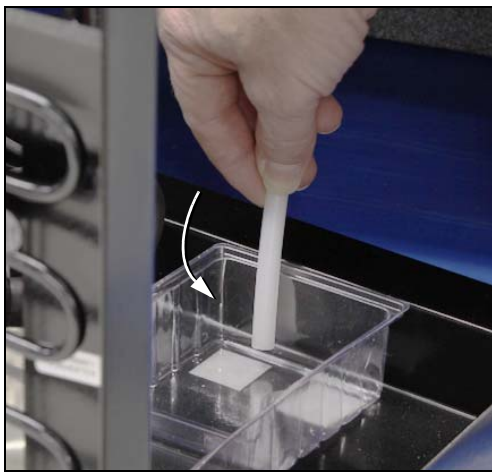
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1. Dow Corning® is a registered trademark of Dow Corning Corporation.

2. Permagum is a registered trademark of the Presstite Engineering Company.
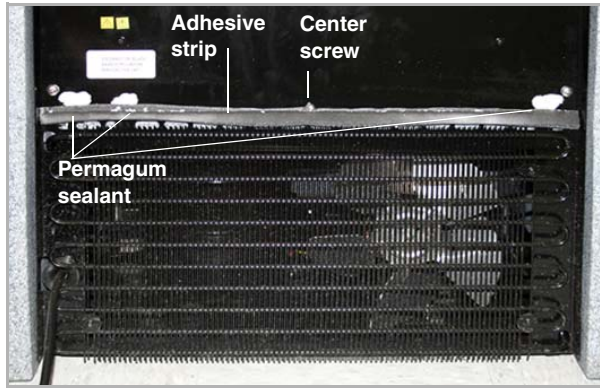
Figure 11: Rear view of refrigeration module
(Adhesive strip, Permagum sealant)

1. Move the refrigeration module up to the rear of the refrigerator and replace the drain tube in the drip pan on the module.

Figure 12: Position drain tube in front half of drip pan.

2. Reinstall the refrigeration module, tipping the top back while sliding the bottom forward. When the bottom is in place, push the top into place.
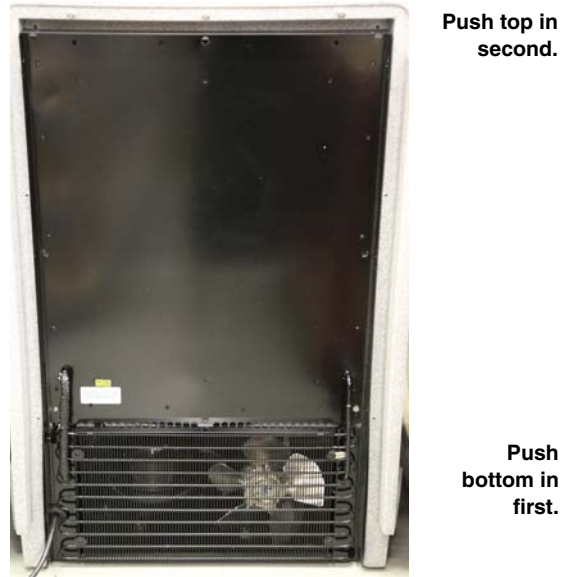

Figure 13: Slide refrigeration module into place

⚠ **CAUTION**

When reinstalling all self-tapping screws, avoid destroying the plastic threads. First seat each screw in its hole and, without pressing down, rotate the screw counter-clockwise until it falls into its thread groove with a "click." Then tighten the screw.

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3. Reinstall the refrigeration module mounting screws (8), insulation panel/back cover screws (5), and cover brace screws (2).
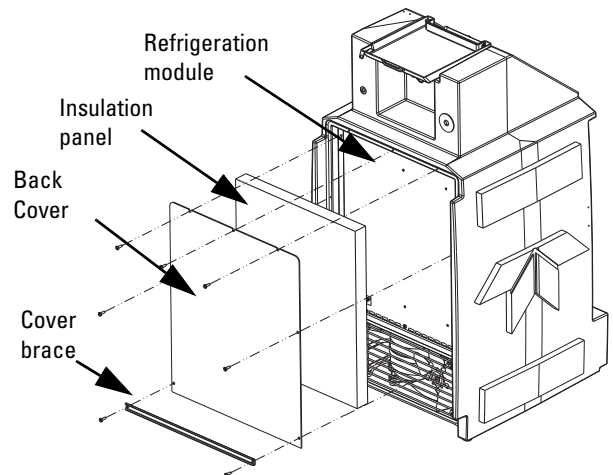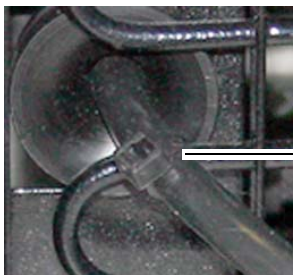

Figure 14: Old version

4. Hold the line cord taut to remove any slack, and attach a cable tie 489-0110-00, as shown below.

⚠ **CAUTION**

When installing/replacing the refrigeration unit, the line cord MUST be properly secured. This is to ensure that the cord cannot be pushed into the enclosure and be caught in the fan.

5

Figure 15: Attach cable tie to line cord

5. Restore AC power to the refrigerator.
6. After 45 minutes, perform the refrigerator temperature diagnostic test (See section *Refrigerator Temperature Diagnostic* below). As the refrigerator cycles off and on, the reported temperature will rise above and below the set temperature. However, the average reported value should be the same as the set temperature.

Refrigerator Temperature Diagnostic

The REFRIG TEMPERATURE diagnostic displays the tem-perature of the refrigerated compartment.

To start the diagnostics from the standby screen:

1. Select the CONFIGURE option and press Enter.

```
PROGRAM    CONFIGURE
        VIEW LOG
```

2. Press the left arrow button until the RUN DIAG-NOSTICS option is displayed. Press Enter.

```
SELECT OPTION: (<-->)
    RUN DIAGNOSTICS
```

```
SELECT DIAG: (<-->)
     TEST 'RAM'
```

3. Press the right arrow key 7 times to display REFRIG TEMPERATURE. Press Enter to start the test.

```
SELECT DIAG: (<-->)
  REFRIG TEMPERATURE
```

When this test is started, the sampler should display the temperature until you press the Stop or Enter button. There is no pass or fail. This test simply pro-vides continuous temperature monitoring.

```
REFRIG TEMPERATURE:
  AIR=__C EVAP=__C
```

As the refrigerator cycles off and on, the reported temperature will rise above and below the set tempera-ture. However, the average reported temperature should be the same as the configured temperature. The evapo-rator temperature may at times read as low as –20 °C; this is considered normal.

If the screen displays an asterisk (*) or inaccurate temperature reading, the temperature sensor cable may be malfunctioning.

3B. Module Replacement-Serial Number 216B and Newer

Complete the following to reinstall the refrigerator module:

1. Ensure that the control wiring runs through the channel in the refrigerator body.

☑ *Note*

Two thick, black cables connect the power supply with the AC and compressor (Figure 16). **Ensure that cables are side by side and not crossed during reassembly.**
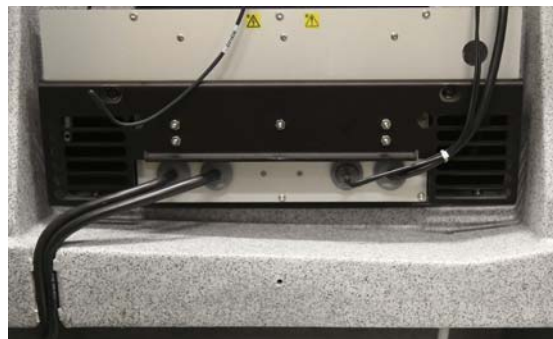

Figure 16: Rear view with the module removed

2. Slide the refrigeration module to the rear of the refrigerator and place the drain tube in the drip pan on the module (Figure 17).

Figure 17: Position drain tube in front half of the drip pan

3. Ensure the black gasket is aligned and gasket nubs are inserted in corresponding holes on the frame of the refrigerator module (Figure 18).

Figure 18: Position gasket on refrigeration module frame and ensure each gasket nub is inserted in corresponding hole

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⚠ CAUTION

When reinstalling the refrigeration module, do not pinch the sensor wiring.

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4. Install the module, tipping the top back while sliding the bottom forward. When the bottom of the system is in place, push the top into place (Figure 19). Ensure the slack in the power cord is removed before securing refrigeration module frame.


Push top in second.

Push bottom in first.

Figure 19: Slide module into place

⚠ CAUTION

When reinstalling all self-tapping screws, avoid destroying the plastic threads. First seat each screw in its hole and, without pressing down, rotate the screw counter-clockwise until it falls into its thread groove with a "click." Then tighten the screw.

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5. Reinstall the coil shield, back cover, and insulation panel (Figure 20). When installing the foam insulation panel, take precautions not to damage the foam around the tubing (see inset Figure 20).
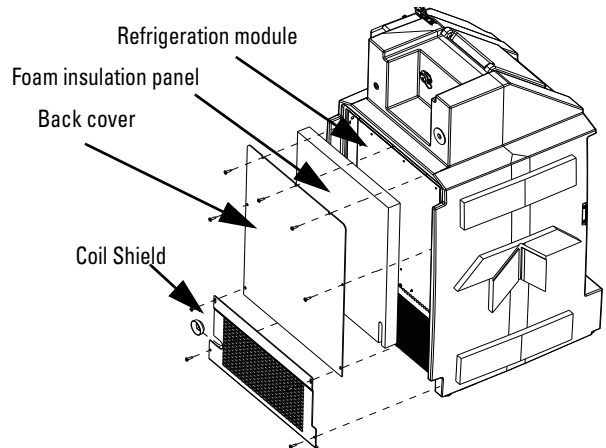

Figure 20: Back cover and insulation panel

6. Reinstall the refrigeration module mounting screws (8), insulation panel/back cover screws (5), and cover brace screws (2).

7. Hold the line cord taut to remove any slack, attach the cable tie (489-0110-00) as shown in Figure 21).

⚠ CAUTION

When installing/replacing the refrigeration unit, the line cord MUST be properly secured. This is to ensure that the cord cannot be pushed into the encloser and be caught in the fan.
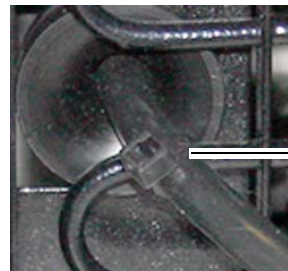
Attach cable tie

Figure 21: Attach cable tie to line cord

8. After 45 minutes, perform the refrigerator temperature diagnostic test, as described below.

Refrigerator Temperature Diagnostic

The REFRIG TEMPERATURE diagnostic displays the temperature of the refrigerated compartment.

To start the diagnostics from the standby screen:

1. Select the CONFIGURE option and press ENTER.

```
PROGRAM   CONFIGURE
     VIEW LOG
```

2. Press the left arrow button until the RUN DIAGNOSTICS option is displayed. Press ENTER.

```
SELECT OPTION: (<-->)
   RUN DIAGNOSTICS
```

```
SELECT DIAG: (<-->)
     TEST 'RAM'
```

3. Press the right arrow key 7 times to display REFRIG TEMPERATURE. Press ENTER to start the test.

```
SELECT DIAG: (<-->)
  REFRIG TEMPERATURE
```

When this test is started, the sampler should display the temperature until you press the STOP or ENTER button. There is no pass or fail. This test simply provides continuous temperature monitoring.

```
REFRIG TEMPERATURE:
  AIR=__C EVAP=__C
```

As the refrigerator cycles off and on, the reported temperature will rise above and below the set temperature. However, the average reported temperature should be the same as the configured temperature. The evaporator temperature may at times read as low as –20° C; this is considered normal.

If the screen displays an asterisk (*) or inaccurate temperature reading, the temperature sensor cable may be malfunctioning.

Last modified Oct, 2020

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