

12 Maintenance



WARNING: Risk of Shock. Disconnect equipment from main power before attempting any maintenance to equipment or its controls unless stated otherwise.

12.1 Cleaning the Cabinet Interior

To clean the cabinet interior, remove the shelves, drawers, or baskets following the instructions in *Section 7.4*, *Section 7.5* and *Section 7.6*. Use a solution of water and a mild detergent for cleaning. Rinse the interior storage components and wipe them dry with a soft cloth.

12.2 Cleaning the Condenser Filter

Clean the condenser filter every three months. There is one condenser filter located in the back cage of the unit that can be accessed without removing the back cage or disconnecting the power.

To clean the filter, complete the following steps:

1. Remove the filter by pulling upwards through the slot in the back cage.
2. Shake the filter to remove loose dust.
3. Rinse the filter in clean water.
4. Shake the excess water from the filter and let it dry.
5. Reinstall filter by pushing downwards through the slot in the back cage.



CAUTION: Risk of Abrasion. Do not pull the filter downwards from the bottom. The condenser has sharp surfaces.

12.3 Cleaning the Condenser



Condensers should be cleaned at least every six months; more often if the laboratory area is dusty. In heavy traffic areas, condensers load with dirt more quickly. Failure to keep the condenser clean can result in equipment warm-up or erratic temperatures.



CAUTION: Risk of Abrasion. Never clean around the condensers with your fingers. Some surfaces are sharp.

The condenser is located in the top rear of the machine compartment. To clean the condenser, complete the following steps:

1. Disconnect the power.
2. Remove the filter.
3. Vacuum the condenser and clean up any loose dust.
4. Replace the filter.
5. Reconnect power.

12.4 Automatic Defrost

The defrosting process on all models is primarily accomplished by air circulated during off-cycle periods. This heat-free process ensures that the temperature is not affected by the defrost cycle. The default defrost cycle runs approximately once per hour and terminates once a preset evaporator temperature or timer criteria is reached.

Defrost water is collected in a pan in the rear of the unit and evaporated using system heat. No maintenance is required.

12.5 Gasket Maintenance

Periodically check the gaskets around the door for punctures or tears. Leaks are indicated by condensation or frost which forms at the point of gasket failure. Make sure that the cabinet is level (refer to *Section 7.1* for leveling information).

Keep the door gaskets clean and frost free by wiping gently with a soft cloth.

To check the door seal, complete the following steps:

1. Open the door.
2. Insert a strip of paper (a couple of inches wide) between the door gasket and the cabinet flange and close the door.
3. Slowly pull the paper strip from the outside. You should feel some resistance.
4. Repeat this test at 4-inch intervals around the door. If the door does not seal properly, replace the gasket.

12.6 Alarm Battery Maintenance

Have a certified technician replace the alarm battery every twelve months at most or when the alarm is active. The part number for a replacement battery is 322533H01.

12.7 Preparation for Storage

If the unit is going to be stored in an off condition, allow the unit to warm up and dry out with the door open before moving into storage.

12.8 Cleaning the Unit (Chromatography Refrigerators)

The refrigerator is designed to be cleaned using a mild detergent (such as Lysol® wipes (non-aerosol) or Formula 409®) and water. Lightly spray the interior storage components and wipe them dry with a soft cloth or spray the cloth first and then wipe interior surfaces. Do not spray directly on the center outlet column. Use a damp cloth to clean around the outlet.

Use of other cleaners may contain chemicals that will turn off power to the outlet. If this occurs, continue to clean the refrigerator and leave the doors open for approximately 5 minutes to allow any vapors to exit the refrigerator. In the event that the outlet power turns off due to chemicals, the red light will illuminate and the user will need to manually reset the safety circuit using the “Switch Manual Reset Chromatography” at the back of the unit before power is restored. Toggling this switch off then on will restart the safety system and the green light should illuminate after approximately 4 minutes. If the light repeatedly changes from red to green or the red light stays illuminated, ensure there are no chemical vapors present in the refrigerator and reset the system. If this continues, please contact Customer Service.

12.9 Replacing Sensor (Chromatography Refrigerators)

The sensor needs replacement if the temperature goes below freezing in the cabinet. Use system alarms to ensure the temperature inside the unit is always above 0°C. If exposed to freezing conditions the sensor shall be replaced.

If the display shows an error and sounds an alarm (in case of a control, defrost, bottle or ambient probe failure), the sensor needs to be replaced.

12.10 Sensor Maintenance (Chromatography Refrigerators)

The sensor shall be replaced every five years by a trained service provider.

12.11 Probe Recalibration Schedule

The control and display probes should be calibrated every 3 years.

Table 11. Troubleshooting Procedures

Problem	Cause	Solution
Unit is warm around door frame	Perimeter Heater is ON (swinging doors only)	This is a normal function of the unit and is a result of the perimeter heater to reduce condensation.
Unit warms up	Door is open	Make sure the door is completely closed.
	Door seal	Check the door seal, following instructions in <i>Section 12.5</i> .
	Warm product recently loaded in unit	Allow ample time to recover from loading warm product.
	Power supply	Check for proper voltage to the unit. If there is no voltage to the unit, call an electrician.
	Setpoints need to be adjusted	To adjust the setpoint, refer to <i>Section 9.3</i> .
“E01” on display	Invalid Algorithm	Check to ensure the model type is set correctly in service mode. Refer to <i>Section 9.4</i> .
“E02” on display	Control Probe Failure	Check for loose probe connector. Replace control probe.
“E03” on display	Defrost Probe Failure	Check for loose probe connector. Replace defrost probe.
“E05” on display	Ambient Probe Failure	Check for loose probe connector. Replace ambient probe.
“Err” on display	Upper Bottle Probe Failure	Check for loose probe connector. Replace upper bottle probe.
“---” on display	Lost Communication	Call customer service.
Convenience outlet has no power	No Power	Ensure all switches are in the ON position (“I”) on the rear of the unit. Try cycling the Chromatography Manual Reset Switch and Chromatography Power Inlet Switch to OFF (“O”) then ON (“I”). Ensure GFCI Breaker (if applicable) is not tripped inside of unit. Refer to <i>Section 7.3.2</i> for further instruction on GFCI lights.
	Sensor Tripped	If chemicals were stored in refrigerator in an unsealed container that could have set off the safety sensor (ethanol or alcohol based), leave the doors open for approximately 5 minutes to allow any vapors to exit the refrigerator and cycle the Chromatography Manual Reset Switch. If cleaning agents were used, refer to <i>Section 12.8</i> for cleaning instructions. If the light repeatedly changes from red to green or the red light stays illuminated after trying to reset, please contact Customer Service.