




6.5 Troubleshooting

 WARNING	
	<p>When taking action on the primary side of the equipment's breaker, be sure to turn off the main power supply switch at your facility before de-energizing. Also, use caution not to apply voltage accidentally.</p> <p>Attempting to solve a problem with the power on can result in electric shock and create a very dangerous situation. Use the supplied breaker handle stopper to prevent the breaker from being turned on accidentally.</p>
	<p>Be sure to turn off the breaker before opening the electrical compartment door.</p>

This section describes problems that the chamber cannot self-diagnose and operations that can be easily mistaken for a malfunction.
If the chamber does not operate properly even after taking the actions listed here, contact your distributor or ESPEC.

Table 6.1 Troubleshooting

Problem	Cause	Solution
Nothing is displayed when the instrumentation power switch is pressed.	Primary-side power supply is not on.	Turn on the primary side power source.
	Breaker is not on.	Turn on the breaker.
	Electrical compartment door is open.	Close the door.
	Power supply is open phase.	Connect properly. See the Installation guide.
	Fuse is blown.	Replace fuse F1. ☞ See "6.6 Required action." If the fuse blows immediately after replacement, request a service call.
Display suddenly goes blank or screen contents are abnormal.	System error or internal board error	Turn the chamber's breaker back on. If this occurs again after resuming operation, make a service call.
External memory tab contents are not displayed. The message "Remove external memory" is displayed even when external memory is inserted.	Function is being suppressed by the external memory protect setting.	Check with the chamber administrator or check the protect setting.
Door is difficult to close.	An object is blocking the door.	Remove the object.
	Frost has accumulated on the packing, hardening it.	Defrost the chamber. ☞ See "6.6 Required action."
	Test area has become hot, creating strong internal pressure.	This is not a malfunction. Continue operation.
Door is difficult to open.	Test area is under negative pressure.	This is not a malfunction. Continue operation.
	Frost has accumulated on the packing, hardening it.	Perform defrost operations. ☞ See "6.6 Required action."

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Problem	Cause	Required action
Unusual smell	Unusual smell remains.	Clean the test area. ☞ See " 5.4 Maintenance ".
	Specimen is emitting an unusual smell.	This is not a malfunction. Continue operation.
Chamber vibrates.	Leveling feet are not installed properly (when the chamber is equipped with the optional casters).	Adjust the leveling feet. See the Installation guide.
Viewing window is clouded or frosted.	Rapid increase in humidity	This is not a malfunction. Continue operation.
	Blown anti-frost heater fuse	Replace fuses F2 and F3. ☞ See " 6.6 Required action ".
Outside of the chamber is wet.	High ambient humidity	This is not a malfunction. Continue operation. To end operation, allow the test area to return to room temperature before ending operation.
Temperature is unstable.	The door is not closed.	Close the door.
	Cable port plug is off.	Install the plug.
	Ambient temperature has changed 5°C or more in a few minutes.	Resume testing after the ambient temperature has stabilized.
	Power source of a device with a large heat generating load was turned on/off.	Reduce the heat generating load.
The temperature has gradually increased above the set temperature.	The specimen heat generating load is high.	Reduce the heat generating load of the specimen.
	Frost has accumulated on the cooler.	Defrost the chamber. ☞ See " 6.6 Required action ".
Set points cannot be changed.	Key lock is activated.	Release the key lock.
Temperature continues to increase (decrease).	The door is open.	Close the door.
	Specimen heat load is high.	Reduce the amount of the specimen.
	Ambient temperature is too low (high).	Increase (decrease) the ambient temperature.
During warming, warming stops or the temperature decreases midway.	Frost has accumulated on the cooler and dehumidifier.	This is not a malfunction. Continue operation, or defrost the chamber. ☞ See " 6.6 Required action ".
Temperature distribution is poor.	Air flow inside the test area is poor.	Improve the air flow.
	Specimen heat load is high.	Reduce the amount of the specimen.
	Air from outside the chamber is getting into the chamber through openings in locations such as the door packing and cable ports.	Prevent outside air from getting into the chamber.
	Frost has accumulated on the cooler.	Defrost the chamber. ☞ See " 6.6 Required action ".
Humidity does not decrease.	Refrigeration capacity is set to [Manual (stop)], so the test area cannot be dehumidified.	Set the refrigeration capacity to [Auto] or [Manual (STOP and three steps ranging from minimum to maximum)]. ☞ See " Chapter 3 Constant operation " or " Chapter 4 Program operation " in the Controller guide.



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Problem	Cause	Required action
Chamber lamp does not on.	Fuse is blown.	Replace fuse F3. ☞ See "6.6 Required action." If the fuse blows again immediately after replacement, request a service call.
	Chamber lamp is out.	Replace the chamber lamp. ☞ See "6.6 Required action."
There is frost around the test area door hinges, in the vicinity of the door, and in the vicinity of the viewing window.	The ambient humidity has increased.	This is not a malfunction. Continue operation.
	Fuse is blown.	Replace fuses F2 and F3. ☞ See "6.6 Required action." If the fuse blows again immediately after replacement, request a service call.

6.6 Required action

Replacing a fuse

If a fuse becomes blown, replace it with a supplied fuse.

 WARNING	
	Use appropriate methods, as shown below, to replace and inspect the fuse. Failing to do so can result in electric shock.

◆ Note ◆	
If the fuse is blown immediately after replacement, contact your distributor or ESPEC.	

<Procedure>

- 1) Turn off the primary power source.
- 2) Turn off the breaker.
- 3) Use a Phillips head screwdriver to remove the two fixing screws from the top of the electrical compartment door, and then remove the door.
- 4) Replace the blown cartridge fuse with a new one.

Fuse capacity
F1: 250V AC, 5A
F2: 250V AC, 3A
F3: 250V AC, 5A

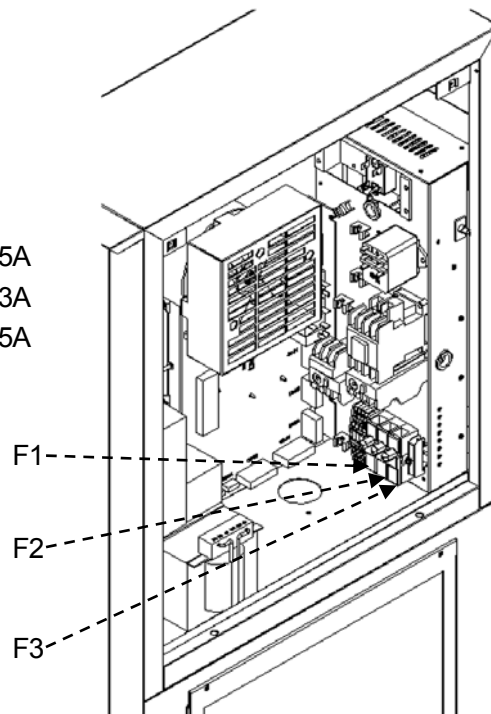


Fig 6.1 Fuse position

- 5) Attach the electrical compartment door.

Defrosting

Notice

- **Defrost the cooler periodically, or too much frost on the cooler causes slow temperature pull-down or remarkably unstable control.**
Do not use the defrosting procedure below in this case. Too much frost on the cooler prevents the defrosting procedure because air does not flow inside the chamber. On the contrary the thermal fuse may blow in order to protect the chamber.
- **In the case of too much frost on the cooler, stop the operation and let the chamber stand at ambient temperature with the chamber door opened for half a day to all day until the frost dissolves.**
- **Operating the refrigerator continuously for a long time with frost on the cooler can lead to malfunction. Be sure to defrost the cooler.**
Frost may form on the cooler in temperature operations below 30 to 40°C. The refrigerator may be damaged in these continuous operations for a long time.

- If temperature inside the chamber is uncontrollable or rises slowly
- If air blow from the chamber is weak (when the door is opened)
- If frost or ice form on test area walls
- Frost or water on the inside of the viewing window

Use this procedure to defrost packing as well.




■ How to defrost chamber

<Procedure>

- 1) Check that the breaker is in the ON position.
- 2) Turn refrigerator control OFF.
For an explanation on how to set refrigerator control, see "2.4 Convenient functions" in the Controller guide.
- 3) Set target temperature to a minimum 70°C.
- 4) Get the Operation Mode Selection screen.
Press either the [OPER./STOP] key on the operating panel or the chamber operating status box on the screen.
- 5) Press the [OPER] button under Constant Mode to start the chamber.
Run the chamber for about 60 minutes with the door closed, then for 15 minutes with the door slightly cracked.

Replacing the chamber lamp

Replace the chamber lamp at least once a year or when it goes out. Prepare a supplied chamber lamp (24V AC 5W) a Phillips screwdriver.

 CAUTION	
	Note that the chamber lamp is hot immediately after it goes out.
	Dropping the chamber lamp will cause it to break. Handle it carefully.

<Procedure>

- 1) Turn the circuit breaker OFF.
- 2) Press the chamber lamp cover to release the latch.



Fig. 6.2. Removing the chamber lamp cover

- 3) Remove the chamber lamp cover.
- 4) While pushing the chamber lamp inward of the lamp holder, rotate it to the left and remove it.

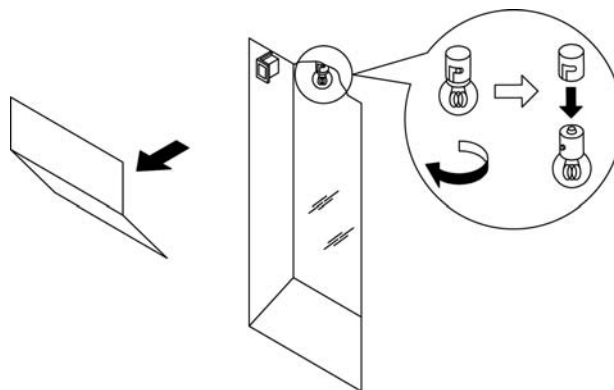


Fig. 6.3. Removing the chamber lamp

- 5) Install a new chamber light.
- 6) Install the chamber lamp cover.