

Chapter 6

Checks and Maintenance

This chapter explains equipment checks and maintenance. To keep the chamber in good working condition, perform checks and maintenance periodically.

6.1 Check and Maintenance Lists

■ Check list

For an explanation on each check item, see "6.2 Checks".

If any of the following checks result bad, contact the place of purchase or ESPEC CORP.

Table 6.1 Check list

Check item	When to check
Main power switch (leakage breaker) trip test	<ul style="list-style-type: none"> • Once monthly • Before long test runs
Overheat protector trip test	<ul style="list-style-type: none"> • Before every test
Overcool protector trip test	<ul style="list-style-type: none"> • Before every test

■ Maintenance list

For an explanation on each maintenance item, see "6.3 Maintenance".

Table 6.2 Maintenance list

Maintenance item	When to perform
Condenser cleaning	Once monthly
Test area cleaning	<ul style="list-style-type: none"> • Before starting tests • After every test
Low temperature chamber cleaning	<ul style="list-style-type: none"> • Before starting tests • After every test
Electric parts compartment/mechanical parts compartment cleaning	Once yearly
Fuse replacement	Whenever a fuse blows

■ Adjustment list

Adjustments are required to maintain chamber functioning and performance. When adjustment is needed, contact the place of purchase or ESPEC CORP.

Table 6.3 Adjustment list

Adjustment item	When to adjust
Test area packing fitting	Once every 3 years

6.2 Checks

Main Power Switch (Leakage Breaker) Trip Test

Once a month and before long test runs, test-trip the main power switch (leakage breaker).

With the main power switch in the ON position, press the red test button. If the switch's lever falls to the middle position, the breaker is working properly.

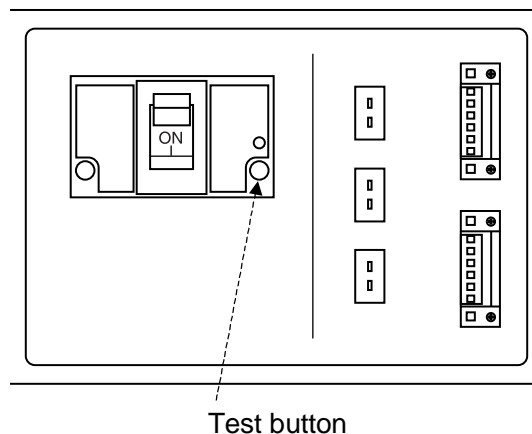


Fig. 6.1 Test button

Reference When the leakage breaker in the main power switch trips, the switch's lever falls halfway between the ON and OFF positions. To turn power back ON again, first set the switch to the OFF position and then to the ON position.

Overheat Protector Trip Test

Before every test, test-trip the overheat protector.

- Procedure**
1. Check the main power switch is in the ON position.
 2. Press the **POWER** key on the operating panel to activate power to the instrumentation. An opening screen will appear followed shortly thereafter by the main menu.
 3. Press the **OPER./STOP** key on the operating panel or the Operation Mode Selection box to get the Operation Mode Selection screen. Then, press **START TEST** followed by **Yes** on the confirmation message that appears.

The chamber will start running. Run the chamber at high exposure temperature to test overheat protector tripping.

4. Set the overheat protector about 5°C lower than test area temperature.
If the overheat protector is working properly, a buzzer will sound and the Alarm screen will be appear on the display when temperature inside the test area reaches the overheat protector setting.
If an alarm is not generated, something is wrong with the equipment. Contact the place of purchase or ESPEC CORP.
5. To silence the buzzer, press the **Buzzer Stop** button on the Alarm screen.
6. Set the main power switch in the OFF position and return the overheat protector to its usual setting.

Overcool Protector Trip Test

Before every test, test-trip the overcool protector.

- Procedure**
1. Check the main power switch is in the ON position.
 2. Press the **POWER** key on the operating panel to activate power to the instrumentation. An opening screen will appear followed shortly thereafter by the main menu.
 3. Press the **OPER./STOP** key on the operating panel or the Operation Mode Selection box to get the Operation Mode Selection screen. Then, press **START TEST** followed by **Yes** on the confirmation message that appears.
The chamber will start running. Run the chamber at low temperature (-10°C or less) to test overcool protector tripping.
 4. Set the overcool protector about 5°C higher than test area temperature.
If the overcool protector is working properly, a buzzer will sound and the Alarm screen will be appear on the display when temperature inside the test area reaches the overcool protector setting.
If an alarm is not generated, something is wrong with the equipment. Contact the place of purchase or ESPEC CORP.

5. To silence the buzzer, press the Buzzer Stop button on the Alarm screen.

6. Set the main power switch in the OFF position and return the overcool protector to its usual setting.

6.3 Maintenance

Condenser Cleaning

⚠ WARNING

! **Set the main power switch in the OFF position before detaching the mechanical parts compartment panel.**
The mechanical parts compartment contains rotating and drive parts. Detaching the rear panels with power ON can be extremely dangerous.

⚠ CAUTION

⊘ SHARP EDGES! DO NOT touch condenser fins with bare hands.
Fins are sharp and you may get cut.

Dust and dirt accumulates on the fins of the air-cooled condenser (chamber rear) and can eventually clog the unit. In such case, cooling air flow may be disrupted to the point of causing performance to drop or safety devices to trip which will inhibit operation. If the chamber is operated in this state for any considerable period of time, the cooling unit may breakdown.

Therefore, clean the condenser fins roughly once a month.

- Procedure**
1. Turn OFF power from the main power switch and detach the rear cover.
 2. Vacuum any dirt from the vent slits on the mechanical parts compartment panel and the condenser fins.

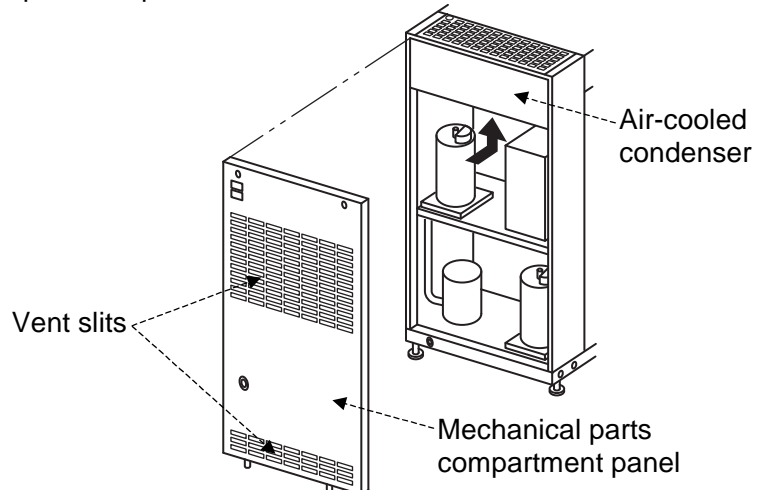


Fig. 6.2 Mechanical parts compartment panel vent slits and condenser fin cleaning

3. Reattach the mechanical parts compartment panel as before.

Note Be careful not to bend condenser fins. Bent fins will destabilize heat exchange and lower chamber performance.

Test Area Cleaning

Dust and foreign matter can be carried by air currents and ultimately adhere to test area walls, heaters and air circulators, or get caught in the link mechanism. This can lead to equipment trouble and throw off test results. Clean the test area before and after every test.

- Procedure**
1. Open the high temperature chamber.
 2. Wipe any foreign matter from the test area walls using a soft piece of cloth.
 3. Close the high temperature chamber.

Low Temperature Chamber Cleaning

Dust and foreign matter can be carried by air currents and ultimately adhere to low temperature chamber walls, heater and air circulator. This can lead to equipment trouble and throw off test results. Clean the low temperature chamber before and after every test.

- Procedure**
1. Open the low temperature chamber
 2. Wipe any foreign matter from the low temperature chamber walls using a soft piece of cloth.
 3. Close the low temperature chamber.

Electric Parts Compartment/ Mechanical Parts Compartment Cleaning

Dust buildup in the electric parts compartment or mechanical parts compartment can lead to trouble. Clean the compartments once a year.

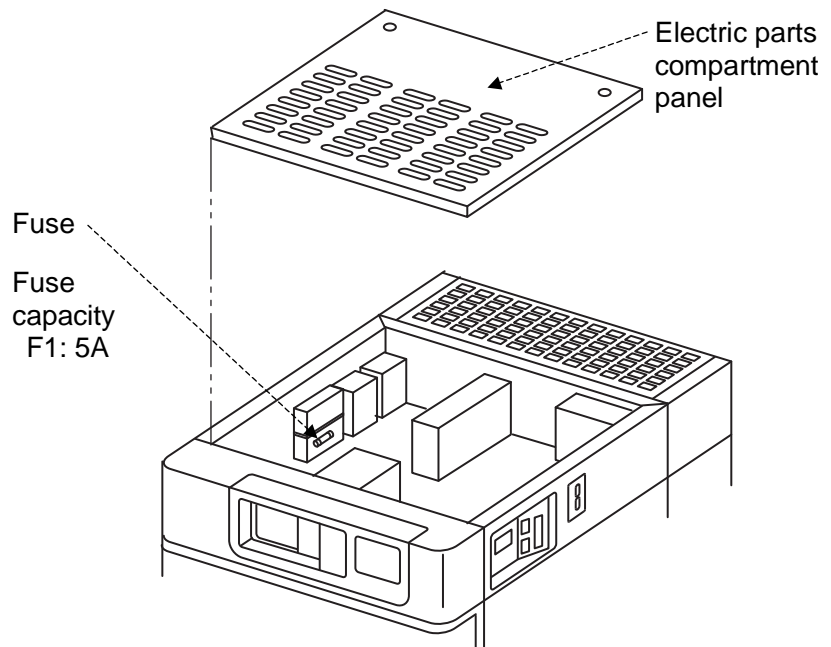
- Procedure**
1. Check the main power switch is in the OFF position.
 2. Open the electric parts compartment and mechanical parts compartment.
 3. Vacuum up dust with a vacuum cleaner.
 4. Close the electric parts compartment and mechanical parts compartment.

Fuse Replacement

Over prolonged testing, fuses can weaken and blow. When a fuse blows, replace it as explained below.

Note If a new fuse blows as soon power is turned back ON, contact the place of purchase or ESPEC CORP.

- Procedure**
1. Check the main power switch is in the OFF position.
 2. Remove the screws that lock down the electric parts compartment panel and detach the panel.
 3. Replace the blown fuse with a fresh one.



Central area of electric parts compartment

Fig. 6.3 Replacing fuses

4. Reattach the electric parts compartment panel.