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MVE Chart Tech Tips

PRODUCT INFORMATION

Chart MVE Series and Cabinet Freezers

Factory UL Approved Lid Switch, Harness, & TEC3000 settings.

Chart MVE Series and Cabinet Freezers are manufactured with an embedded lid switch (See figure 1). There are two variations of the wire harness lid switch. The standard UL approved lid switch harness; and the Optional fog clear lid switch harness.

The factory standard UL lid switch harness, when connected to the lid switch, will de-energize the fill valves when the user opens the lid. This adds a measure of safety required by UL. It eliminates the possibility of the unit filling when the user has the lid open to retrieve or insert biological materials. This eliminates the possibility of the user being splashed or sprayed with liquid nitrogen when the lid is open. The process stops/interrupts the liquid nitrogen filling process if the freezer is already filling, and prevents the filling process from starting if it attempts to do so while the lid is open. Once the lid is closed, the fill process will continue or begin as the case may be.



**Lid Switch on
MVE Series &
Cabinet
Freezers
P/N 11695303**

Figure 1 -- Lid Switch on the MVE Freezer Series

The functionality of the UL lid switch harness is independent of the TEC3000 settings. In the Lid Switch Menus the factory sets the "Lid Switch Installed" option to "NO" (See figure 2).

Please note if the freezer is filling and the user has lifted the lid although the UL lid switch harness has interrupted the fill the TEC3000 continues to display "FILLING" (See figure 3). Once the lid is closed the fill cycle will continue until the freezer reaches its high level fill set point. The maximum fill time can be changed accordingly (See figure 4).



Figure 2 -- Lid Switch Installed Menu



Figure 3 -- Freezer Filling



Figure 4 -- Maximum Fill Time

In order to be UL compliant, MVE's UL listing stipulates that models in these two series must have the lid switch hardwired in series with the fill valve circuit when it leaves the factory.

The above description is classified as a factory UL Approved Chart MVE Series and Cabinet freezers.

HELPFUL HINTS / FAQS

The UL Approved Harness

Q: How is the UL Approved harness connected at the factory?

A: Chart's UL Approved harness is hardwired in series with the fill valve circuit from the TEC3000 main harness fill solenoid connector to the lid switch. When the lid is opened this electrically opens the fill circuit and interrupts the fill (See figures 5 & 6).

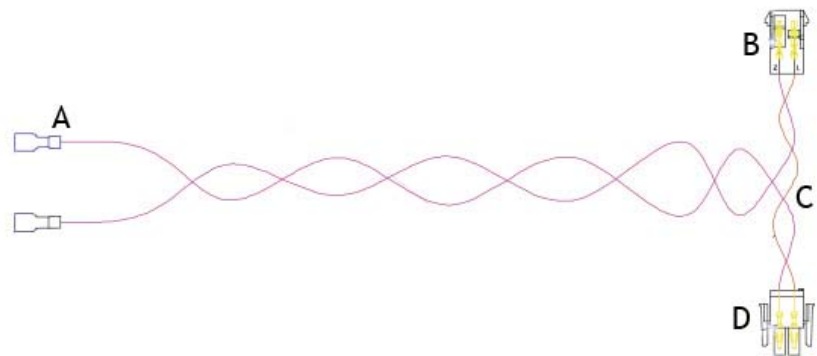


Figure 5 -- UL Approved-Listing Harness A: Connects to the Lid Switch installed on the MVE Freezer Series

B: Connects to the male fill connector on the main harness

C: UL Approved - Listing Harness

D: Connects to the fill solenoid female connector on the plumbing

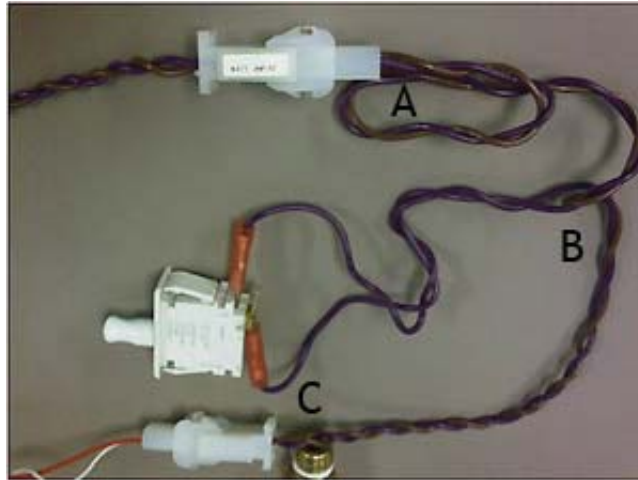


Figure 6 -- UL Approved Listing Harness
(Actual View Before Installation)

A: Connects to the male fill connector on the main harness.

B: UL Approved - Listing Harness

C: Connects to the fill solenoid female connector on the plumbing.

Q: Does the user need to do anything with the UL harness?

A: No, for UL Approved, everything is performed at the factory.

Included from the factory is a Lid Switch Harness P/N 13701586 (See figure 7). The harness is connected at pins 3 and 6 to the TEC3000 main harness (see figure 7). The other end is a white male connector labeled "Lid Switch". This is purposely not connected and secured / located within the black plastic wire loom to later allow users to add the optional lid switch alarm and fog clear features.

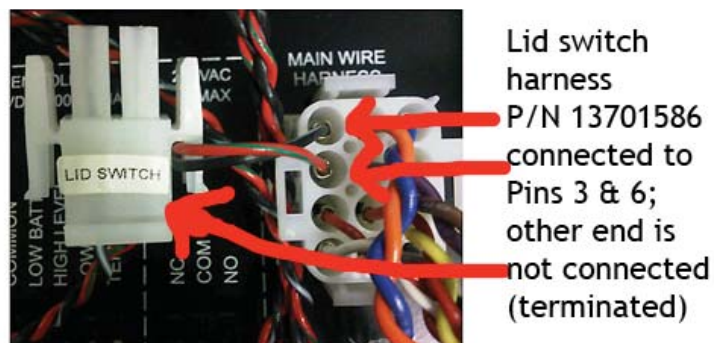


Figure 7 -- P/N 13701586 Lid Switch Wire Harness Not Connected

This harness is used to connect to the optional fog clear harness, P/N 13296488; adding the optional lid switch alarm and fog clear features.

The Optional Fog Clear Harness P/N 13296488

Q: How can one use the optional TEC3000 lid open alarm and fog clear

features?

A: Purchase the fog clear harness, P/N 13296488 (See figure 8)

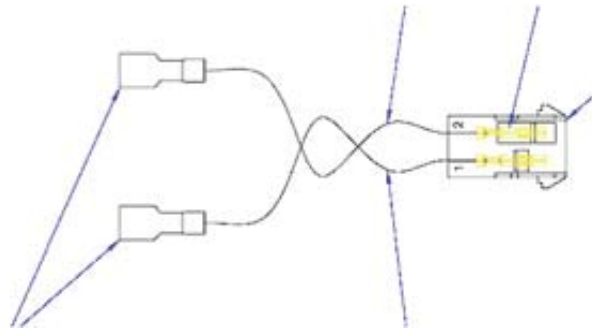


Figure 8 -- Fog Clear Harness P/N 13296488

Q: How does the fog clear harness connect?

A: The UL Approved harness must be disconnected from the lid switch and fill solenoid. The fog clear harness connects directly to the two terminals on the lid switch and to the terminating end of the lid switch harness. The fill solenoid is then connected directly to the TEC3000 main wire harness (See figure 9).

Adding the Optional Fog Clear harness P/N 13296488 (Installation)

To enable the TEC3000 Lid Switch Alarm and Fog Clear Options install the wire harness P/N 13296488 as described in figure 9.

The one end of the fog clear harness connects to the lid switch harness P/N 13701586 (See figures 7 & 9) and the other end connects to the Lid Switch terminals (See figure 9). The UL Approved-Listing Harness is completely removed from the circuit. The fill solenoid is then connected directly to the Main wire harness (See figure 9).

(Please Note: Converting from the standard UL Lid Switch to the optional Fog Clear Lid Switch voids the UL compliance and requires that the UL mark be removed from the freezer.)

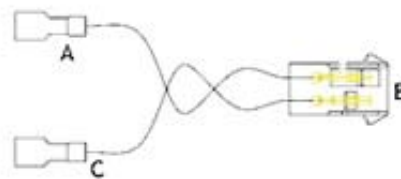


Figure 9 -- Optional Fog Clear Wire Harness
P/N 13296488

A: Connects to Lid Switch harness P/N
13701586 (see figure 7)

B & C: Both ends connect to the Lid Switch

terminals

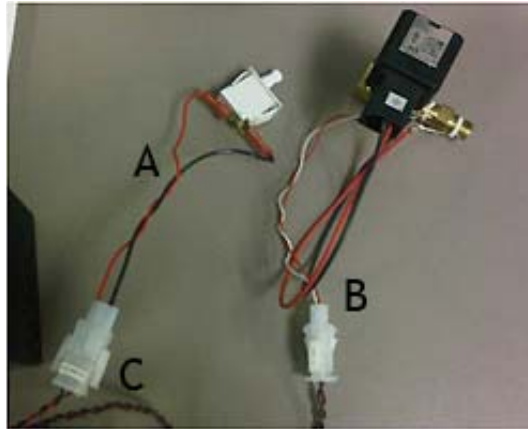


Figure 10 -- Optional Fog Clear Wire Harness
P/N 13296488 (Actual View)

- A: Fog Clear Harness connects to the Lid Switch terminals
- B: The Fill solenoid is connected to the Main Wire harness after removing the UL Approved-Listed harness
- C: Connects to Lid Switch harness P/N 13701586 (see figure 7)

Once these connections have been established proceed to change the Lid Switch and Fog Clear parameters on the TEC3000.

TEC3000 Lid Switch and Fog Clear Parameter Settings

Q. How does one change the parameters in the TEC3000 to enable the lid switch and fog clear functionality?

A. Navigate to the Lid Switch menu located in the ADD ON menus.

1. Press SET UP
 2. Enter password
 3. Press SET UP to navigate to the ADD-ON menus; press Enter
 4. Press SET UP to navigate to the LID SWITCH MENUS; press Enter
 5. Use the up or down arrow keys to change Lid switch installed to "Yes" press Enter to save
 6. Press SET UP to navigate to the LID OPEN FOG CLEAR, use the up and down arrow keys to ENABLED, press Enter to save
1. Press SET UP to navigate to the LID OPEN ALARM TIME; change the time to user preference.

The TEC 3000 settings can alter the capabilities of the fog clear harness. In all cases the lid switch must be enabled. If the Lid Open Fog Clear is DISABLED the unit will operate similar to the way it operates with the UL lid switch harness. When the lid is opened, a fill in process will be paused. If the lid is open when the freezer calls for filling, the fill will be postponed until the lid is closed. In this case, the fill time counter will be paused when the fill in process is paused when the lid is opened, and will resume the count when the lid is closed. The gas bypass will activate if necessary when the fill resumes to vent warm gas from the fill supply

line.

If the Lid Open Fog Clear is enabled the hot gas bypass and fill cycles do not stop; regardless if the lid is open or closed.

For the fog clearing mode when one first opens the lid the fog clearing process is initiated for 30 seconds. If the lid is left opened for a prolonged period and one still needs to clear the fog, triggering the lid switch by pressing down and holding a few seconds and then releasing, will repeat the fog clearing process.

If the freezer lid remains open beyond the lid open alarm set time the TEC3000 will alarm. Chart recommends changing the lid open alarm time to prevent false alarms. The maximum time can be set to 360 minutes.

Please Note: Converting from the standard UL Lid Switch to the optional Fog Clear Lid Switch voids the UL compliance and requires that the UL mark be removed from the freezer.

ACCESSORIES

Freezer Racks

Chart sells freezer racks that hold SUC canisters, which provides users with the ability to select Chart's High Efficiency Freezers to store straws or canes.



Figure 11 -- 2 SUC Canister Rack

P/N 11392644 Rack for 2 SUC canisters



Figure 12 -- 8 SUC Canister Rack
P/N 11395896 Rack for 8 SUC canisters



Figure 13 -- SUC Canister



www.PrincetonCryo.com | Sales@PrincetonCryo.com | 800.232.2796