

TECHNICAL SERVICE BULLETIN

TSB-MFT-0025	
Effective Date: Dec 20, 2017	
Revision: 01	

SUBJECT:	Gen2 Lock Operation and Verification Test
MODELS:	Locking models: 13/19/22-USGF, 13/19/22-USGR, 22-UDGH

WARNING

READ THIS SECTION IN ITS ENTIRETY AND FOLLOW OUTLINED INSTRUCTIONS BEFORE OPERATING THE UNIT. IN THE EVENT THE ELECTRONIC SAFETY LOCK HAS LOCKED THE UNIT, THE FOOD IN THE UNIT MUST BE INSPECTED TO INSURE ITS SAFETY AND QUALITY FOR CONSUMPTION.

ATTENTION

IMMEDIATELY AFTER POWERING ON THE UNIT, “HAC” MESSAGE MAY BE SCROLLING ON THE ELECTRONIC CONTROLLER. “HAC” INDICATES A PRESENT, OR PAST UNREVIEWED, HIGH TEMPERATURE ALARM CONDITION AND/OR POWER LOSS. TO REVIEW DATE, TIME AND DURATIONS OF THOSE EVENTS, REFER TO THE APPLICABLE SECTION BELOW. TO CLEAR “HAC” MESSAGE, HOLD DOWN THE ARROW BUTTON ↓ ON THE CONTROLLER UNTIL THREE DASHES APPEAR, THEN RELEASE THE BUTTON. “HAC” SCROLLING MESSAGE SHOULD DISSAPPEAR.

ATTENTION

TURN THE BATTERY BACKUP OFF WHEN THE UNIT IS DISCONNECTED FROM THE MAIN POWER SOURCE TO AVOID DEPLETING THE BATTERY BACKUP CHARGE. DEPLETING THE BATTERY BACKUP CHARGE REDUCES ITS LIFECYCLE AND LEADS TO BATTERY REPLACEMENT. SEE THE LABELS ON THE UNIT AND SECTIONS BELOW HOW TO TURN THE BATTERY BACKUP ON/OFF.

General Description

The purpose of the electronic food safety lock is to lock the unit door in the event of unit malfunctioning, thereby preventing public access to potentially hazardous food. The electronic controller continuously monitors temperature inside the food storage compartment and locks the door via a mechanical lock if the temperature stays above these limits:

- 41°F (5°C) for 30 minutes or longer in refrigerators
- 0°F (-18°C) for 30 minutes or longer in freezers.

The electronic food safety lock system consists of these six (6) major components:

- **Electronic controller.** A factory pre-programmed electronic controller that monitors temperature inside the food compartment and activates the mechanical lock if food safety temperature limits are reached. See Figure 1 for the controller’s location.



Figure 1



Figure 2

- **Mechanical lock.** A mechanical locking mechanism located on the left side of unit. The lock mechanically locks the compartment door when it receives an electrical signal from the electronic controller. See Figure 2 for the lock(s) location.

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- **Lock status Indicator Board (LSIB).** An electronic PCB that provides power to the adjacent lock and shows the lock status (locked or unlocked) via two onboard LEDs. A solid green LED indicates that 12VDC is present at the board. During normal operation, the green LED is always on when the unit is powered. A flashing red LED indicates that the lock/door is in the locked stated. See Figure 2 for the board location.
- **Battery Backup.** The purpose of the battery backup is to supply backup electricity to the electronic controller and to the mechanical lock in the event of power failure (black out). It allows the electronic controller to continue monitoring the food compartment temperature during prolonged power losses and activates the door locking mechanism when food safety temperature limits are reached. The battery backup powers **ONLY** the controller and lock during a power outage and does not power any other electrical components of the freezer. There is only one battery backup per unit. See Figure 3 for its location and how to turn it ON or OFF.

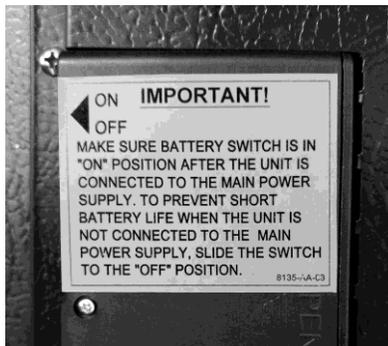


Figure 3

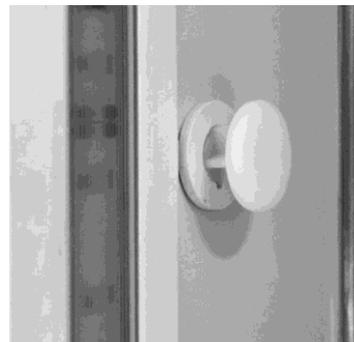


Figure 4

- **Lock key.** A special-purpose key that is used to temporarily override the mechanical lock to gain access to the inside of the locked out compartment. See Figure 2 for the lock key and slot location.
- **Entrapment lock release.** This is an emergency entrapment release feature to temporarily override the lock from the inside of the locked out compartment. See Figure 4 for the entrapment release location.

Unit Locking Operation

Depowered State: In the completely depowered state (power cord unplugged and battery backup switched off), the door is locked. To gain access to the inside of the compartment, insert the lock key into the key slot and turn it clockwise until resistance is felt. Hold the lock key in that position, and use a free hand to grab the compartment door handle and pull the door open.

After Powering On: Immediately after powering the unit by plugging the unit power cord into a wall receptacle and switching on the battery backup, the door is still locked. To unlock the door and reset the lock, press and hold simultaneously P and U buttons (Figure 5) on each compartment controller for about 5 seconds and until the controller buzzer beeps twice and scrolls "Unlocked" message three times. The unit is now in its regular operation ready for product stocking after the temperature pull-down and stabilization period, then used by customers thereafter.

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Figure 5

During Normal Operation: During unit operation, the food safety lock can be triggered to lock the door by any of the following triggers: (1) high temperature alarm, (2) cabinet sensor open or short fault, or (3) controller internal errors. An alarm condition will cause the controller to beep cyclically and a scrolling “Locked” message will be displayed. To gain temporary access to the inside of the locked out compartment while the locking trigger is still active, press and hold simultaneously the P and U buttons on the controller for about five (5) seconds and until the controller buzzer beeps twice and the controller scrolls “Unlocked” message. The door stays unlocked for about 20 seconds. The controller then relocks the door upon closing, beeps once, and scrolls “Locked” message three times.

Lock Reset: After all locking trigger(s) are rectified, such as temperature falls below acceptable high limit levels 0°F (-18°C) in freezers and 41°F (5°C) in refrigerators, the door remains locked until the lock is reset through human intervention. To unlock the door, reset the lock and return the unit to its regular operation, press and hold simultaneously the P and U buttons on the controller for about 5 seconds and until the controller buzzer beeps twice and the controller scrolls “Unlocked” message three times.

Battery Backup Operation

The battery backup is located at the back of the unit. Its function is to provide power to the controller(s) and mechanical lock(s) during the main power failures so that the controller can keep monitoring the cabinet temperature and activate the lock(s) during prolonged blackouts. The battery backup has eight AA alkaline batteries connected in series to provide 12VDC.

To activate the battery backup, slide the switch on top of the battery backup enclosure to ON position (Figure 3). To prevent the battery backup from premature charge drain and to extend its lifecycle, slide the switch on top of the battery backup enclosure to OFF position (Figure 3) when the unit is not in use and disconnected from the main powersource.

A set of new eight batteries is capable of powering the electronic lock safety system controller(s) and lock(s) for about 7 hours.

To check whether the battery backup is functioning, follow these steps:

1. Ensure the battery backup switch is in the ON position.
2. Turn the power switch beside the freezer controller to off position to disconnect the main power to the unit. If the controller loses power and the lock engages immediately or within a few minutes, then the batteries in the battery backup enclosure should be replaced. To replace batteries, undo the screw on the battery cover and replace the

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eight AA batteries with a new set of alkaline batteries (Figure 7). Use high quality brands such as Duracell, Panasonic, etc. Ensure the battery polarity is followed as per indicators on the backup housing.

3. Repeat steps 1 and 2 periodically, every 3 to 4 months



Figure 7

Entrapment Lock Release

The lock is equipped with an emergency entrapment release feature.

In the event of entrapment the door can be unlocked from inside the compartment by pressing and holding the pushbutton, then pushing against the door (Figure 4).



Restocking Delay

During or immediately after product stocking, temperatures inside the cabinet food compartment may rise above the food safety temperature limits, thereby causing a potential for nuisance door locking. To prevent such nuisance locking events and to reset the lock, the restocking alarm delay needs to be activated. This delay can be activated by slightly opening and closing the compartment door repeatedly three times within 5 seconds.

After the triple switch activation, a scrolling message “HI F deLAY or HI C deLAY” is displayed three times on the controller accompanied by two buzzer beeps. This confirms that the delay has been accepted by the electronic controller, that any active high temperature alarm is cancelled, and that the restocking delay is now in progress. This delay prevents the lock from being activated for a factory pre-set time (75 minutes). During this delay time, the freezer should bring the temperature in the food storage temperature within normal operating range.

Accessing and Resetting Alarms Data on the Electronic Controller

The electronic controller records two types of alarms: high temperature and power failures (black outs). If there have been multiple alarms, the electronic controller records up to 10 alarms sorts them from the most recent (H.01) to the oldest (H.10). If there have been more than 10 alarms, the electronic controller deletes alarms on historical basis (newer ones are kept), and keeps the number of deleted alarms in the parameter H.dL by increasing this variable by 1 each time an alarm is deleted.

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For each recorded alarm, the following data are recorded:

- Alarm type
A.H1, high temperature alarm
A.bo, power failure (black out)
- Alarm start date and time
y.dd, dd = 10 ÷ 99, last two digits of the year
M.dd, dd = 1 ÷ 12, month
d.dd, dd = 1 ÷ 31, day
h.dd, dd = 0 ÷ 23, hour
n.dd, dd = 0 ÷ 59, minute

NOTE: Since the electronic controller is powered through a battery backup device, the electronic controller will record power failure when the battery backup drains out, not when the freezer loses power on the electric receptacle.

- Alarm duration
E.dd, dd = 0 ÷ 99, number of hours the alarm lasted
e.dd, dd = 0 ÷ 23, number of minutes the alarm lasted
- Peak temperature in the cabinet during the high temperature alarm condition (A.H1), or temperature in the cabinet when the power is restored after power failure (A.bo)

The chart below (Figure 6) shows how to navigate through the controller to access alarm data.

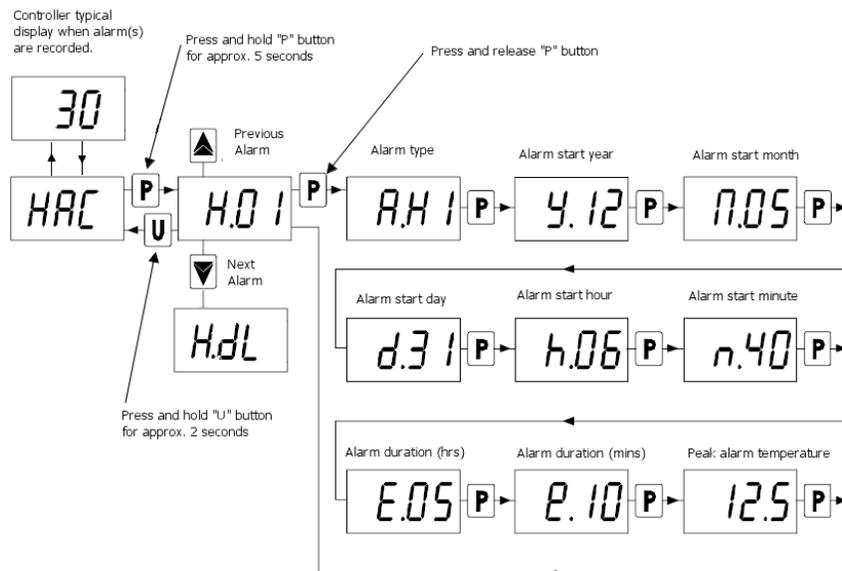


Figure 6

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If an alarm flashes (H.01...H.10) when a user scrolls through the alarm list, the flashing indicates that the alarm has never been reviewed. After pressing the P key on an alarm and reviewing any of its data, the alarm will be displayed solid afterwards to indicate that the alarm has been reviewed. If the alarm is still ongoing at the time of its display, the data are displayed but the ongoing alarm will be flashing all time. In the event of non-reviewed and/or still ongoing alarms, the electronic control displays the message "HAC", alternating it with the temperature reading.

An alarm can be deleted from the controller memory by holding the arrow-down button for more than 5 seconds while one of the alarm data is displayed. After alarm deletion, the controller displays three dashes: ---. Similarly, the value of the "H.dL" parameter can be reset to 0 by holding the arrow-down button for more than 5 seconds while the value is displayed. All recorded alarms can be deleted at once, by holding the arrow down button in the controller regular display. After all alarms deletion, the controller displays three dashes: ---.

Field Testing of the Food Safety Lock

Ensure the unit power cord is plugged into an electrical receptacle and the electronic controller is powered. Proper operation of the food safety lock can be verified by following steps:

1. Make sure the compartment door that you want to check is closed and unlocked.
2. Locate the respective controller for the unit compartment door. Push and hold "P" and "U" buttons on the controller simultaneously for 5 seconds (Figure 5) until the controller start scrolling "LocHed" message and beeps once. The lock should engage and the door should stay locked for about 20 seconds. Then, the controller resets the lock, unlocks the compartment door, scrolls "UnLocked" message three times, and beeps twice.