

The University of Iowa Dezii Translational Vision Research Group

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TITLE: Operation of the Thermo Scientific Revco Laboratory Freezer

SOP Number: _____ D-GLO-EQP-004 _____ Revision Number: _____ 0 _____

Effective Date: _____ 08 Aug 2015 _____

Author: _____ Date: _____

Reviewer: _____ Date: _____

QA Approval: _____ Date: _____

A. OBJECTIVE

This document describes the operation of the Thermo Scientific Revco Laboratory Freezer in The University of Iowa Dezii Translational Vision Research Group (DTVR).

B. APPLICABILITY

This document applies to all personnel at DTVR.

C. PROCEDURE

1.1 Setup

1.1.1 Installation

1. Install the unit in a level area free from vibration with a minimum of 6 inches of space on the sides and rear and 12 inches at the top.
2. Ensure the equipment is not positioned in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature range at the location must be 59 to 90°F (15 to 32C).
3. Connect the equipment to the correct power supply. Before connecting the freezer to a power source, be sure to check the dataplate for correct voltage. Standard NEMA plugs are provided with all units. Wiring diagrams are attached to the back of the cabinet.
4. The unit must be level. This unit has adjustable feet to use when leveling.

1.2 Control Panel

1.2.1 Control Panel Features

1. The control panel is located on the bottom left, front side of the freezer. There are three pushbuttons to change the temperature display, or to adjust temperature and alarm setpoints. The thermometer display provides a quick visual indicator of current cabinet temperatures and alarm conditions.

1.2.2 Control Panel Functions

1. Main Temperature Display – during normal operation, shows cabinet temperature in degrees Celsius, as measured by the sensor inside the cabinet.
2. Thermometer – Shows cabinet temperature and alarm conditions.
3. Power Failure – illuminated when the main power supply is interrupted.
4. Service required – illuminated when the controller is in service programming mode or when simulated warm or cold alarm conditions are failing to occur during an alarm test.

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5. Increase – pushbutton used to increase setpoint values in programming mode and for various display functions.
6. Door ajar – illuminated when the freezer door is open and the alarm is activated.
7. Battery low – illuminated when the backup battery is low.
8. Decrease – pushbutton used to decrease setpoint values in programming mode and for various display functions.
9. Scan – pushbutton used to change the main display and for various other functions.
10. Audible alarm – illuminates during warm and cold alarm conditions.

1.2.3 Setpoint Programming

1. To enter programming mode, make sure that the key switch is in position 1, press the “circle”, hold for 5 seconds, and release. The first value displayed is the cabinet temperature setpoint.

1.2.4 Service Mode Parameters

1. To enter service mode, press the “circle” and hold for about 5 seconds. This is done after entering the setpoint programming listed above.

1.3 Operations

1. To change any factory temperature settings, refer to the instructions in 5.3 of the User’s Manual.

1.3.2 Start Up

1. To start up the freezer, complete the following steps:
 - Plug in the power cord.
 - Insert the key in the switch and turn the power on, turning the key switch to position 1. The compressor and the evaporator fans should start immediately.
 - Rotate the power switch to the ALARM ON position when the temperature drops below the warm alarm setpoint.
2. To set the cabinet temperature, complete the following steps:
 - Enter programming mode by pressing Scan and holding for about 5 seconds. The display will go blank, and then display “Prg.”
 - On release of the button, the current cabinet temperature setpoint value flashes in the temperature display and is shown on the thermometer.
 - Use the UP and DOWN arrows to adjust it. The display automatically returns to normal operating mode 30 seconds after the last key entry or after scrolling through all available functions and parameters.

1.4 Automatic Defrost (-30 C Model Only)

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1.4.1 The defrosting process on all -30 C freezers initiates automatically in response to a built-in timer. All models are set for one defrost cycle every six hours. The defrost cycle is 20 minutes. The cycle terminates automatically if during defrost the evaporator coil temperature exceeds 15 C.

1.5 Troubleshooting

1.5.1 Power Supply

1. Unit does not operate or Power Failure Indicator is on:
 - Check that the cord is securely plugged in.
 - Plug another appliance into the outlet to see if it is live.
 - If the outlet is dead, check the circuit breaker or fuses.

1.5.2 Cold Control

1. If the temperature fluctuates, make sure that the cold control is set correctly.

1.5.3 Condenser

1. Make sure the condenser is clean. To clean the condenser:
 - Disconnect the power
 - Remove the top front grill.
 - Use a vacuum cleaner with hose and brush attachments to clean the front face of the finned surface.
 - Clean up any loose dust and replace the front grill.
 - Reconnect the power.

1.5.4 Compressor

1. If the unit warms up, check the compressor for the following:
 - If the compressor is not running, check if the unit has a power failure alarm. If the power failure alarm light is on, have an electrician check for proper voltage to the unit.
 - If the compressor is running, open the door and look through the slotted air intake in the bottom of the evaporator cover to see if icing is present on the evaporator. If icing is present and there is no air flow behind evaporator, call technical service for assistance. The evaporator fans may be inoperative.
 - If the compressor is running and there is air flow behind the evaporator, contact an authorized service provider or call the technical support hot line for assistance.

1.5.5 Miscellaneous

1. If unit warms up check the following:

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- Make sure the door is completely closed
- If warm product was recently loaded in unit, allow ample time to recover from loading warm product.

1.5.6 Defrost Procedures

1. You should defrost the freezer whenever there is significant frost buildup inside the cabinet. To defrost, complete the following steps:
 - Remove all products and place in another cold storage medium.
 - Turn off the unit and allow the interior to warm to room temperature.
 - Dispose of the ice and wipe out any water standing in the bottom of the cabinet.
 - If there is freezer odor, wash the interior with a solution of baking soda and warm water. Clean the exterior with any common household cleaning solution.

1.6 Alarms

- 1.6.1 The alarm system is designed to provide visual and audio signals for both power failure and rise in temperature. The alarm is equipped with a battery backup.
- 1.6.2 The alarm is activated when the freezer is operating and the key switch is turned to the third position.
- 1.6.3 When the alarm system is activated, there is a Ringback feature: the audible alarm sounds approximately every six minutes until the alarm condition is corrected or the user resets.
- 1.6.4 It is important to test the alarm before loading your laboratory freezer with any critical product.

D. HISTORY

Effective Date	Revision	Change
08 Aug 2015	0	Original document