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Title: Manual Filling of Liquid Nitrogen

Description:	If the liquid nitrogen level in the BioArchive™ System falls below a preset minimum level, an alarm will sound. This procedure will provide instructions on how to manually fill liquid nitrogen.
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Equipment Affected: All BioArchive Systems

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Scope:

This bulletin covers all BioArchive™ Systems.

Subject: Manual Filling of Liquid Nitrogen

If the liquid nitrogen level in the BioArchive™ System falls below a preset minimum level, an alarm will sound. This procedure will provide instructions on how to manually fill liquid nitrogen.

Background:

The control module contains an audible alarm. Signals from the liquid nitrogen level sensors are continuously monitored. If the liquid nitrogen level falls below the fill level to the minimum allowable level, the audible alarm will sound. The source of the audible alarm is due to a low liquid nitrogen level in the Dewar (X-LOW alarm). The following are possible causes:

- The liquid nitrogen supply tank may be empty.
- The liquid nitrogen supply valve may be stuck in the “closed” position.
- There may be an electronic failure in the liquid nitrogen sensing electronics.

The BioArchive System must be connected to a liquid nitrogen supply at all times. Addition of liquid nitrogen is controlled by the BioArchive System, and liquid nitrogen is automatically added to maintain the level of liquid nitrogen at a preset position. The liquid nitrogen is added at the time of day when the BioArchive System is not being used, to avoid overcooling of a sample during controlled-rate freezing. The time of day when liquid nitrogen filling should occur is specified during Administrative setup of the BioArchive System.

If an audible alarm sounds indicating X-LOW condition, determine the cause of the condition and correct it. Contact your THERMOGENESIS CORP. representative for assistance. The system will automatically fill during the next maintenance time, however manual filling can be done immediately to bring the level back to normal. To do this, please follow the Manual Filling of Liquid Nitrogen Procedure.

What to do!!

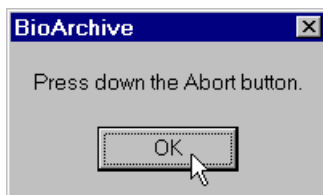
Manual Filling of Liquid Nitrogen Procedure:

1. Logout from the BioArchive System.
 - Click on **BioArchive**. The drop-down BioArchive menu is displayed.
 - Click on **Exit**.
2. Turn the power to the BioArchive device OFF.
3. Wait 20 seconds.
4. Turn the power to the BioArchive device ON.
Approximately one minute after device is turned ON, the LN2 solenoid valve will open if the system needs filling. It is in Factory Mode.
5. Run the BioArchive program by double-clicking the BioArchive Icon on the screen.

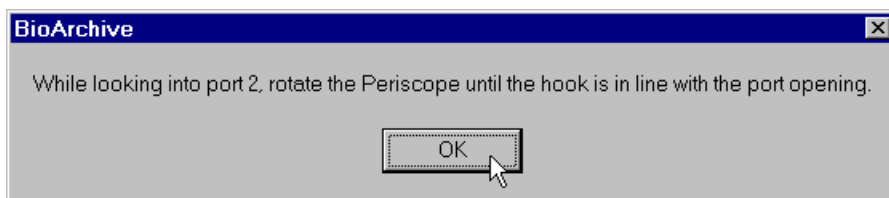
6. Login to the BioArchive System.
 - Click on **BioArchive**. The drop-down BioArchive menu is displayed.
 - Click on **Login**. The Login dialog box is displayed.
 - The text cursor is in the **User ID** box. Type your name or User ID as it has been assigned by the system Administrator.
 - Click in the **Password** box. Type your password.
 - Click on the **OK** button.

When the word LN₂ appears on the status bar, it indicates that the BioArchive System is in factory mode, and not in sample processing mode. As long as the system is left in factory mode, liquid nitrogen is automatically added to maintain the level of liquid nitrogen at a preset position. Once the system has completing the filling, it is necessary to restart the instrument.

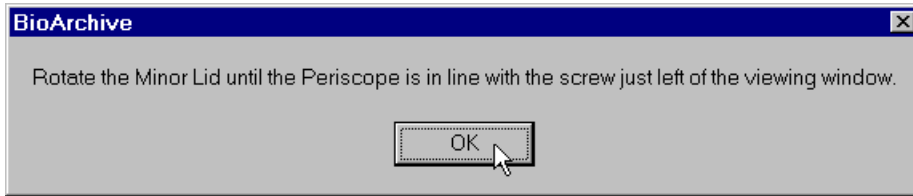
- Click on **Administration**. The drop-down Administration menu is displayed.
- Click on **Options**. The drop-down Options menu is displayed.
- Click on **Restart Instrument**. The BioArchive System will display a series of five message boxes. Complete the action listed in the box then click OK to go to next message box. (See boxes listed below).
- After the action in the fifth box is completed, the instrument will now be restarted.
- If the BioArchive System is already in the sample-processing mode, a dialog box will be displayed indicating **"The instrument does not need to be restarted"**.



Press the abort button down until it clicks. Click on "OK"



Remove the port plug from port 2, place hand on the periscope shaft just above the lid and rotate the periscope until you can see the hook through the port (Refer to the drawing on page 4). Click on "OK"



Rotate the minor lid so that the periscope lines up with the screw on the left top front of the BioArchive (Refer to the drawing on page 4). Click "OK"



Rotate the major lid so that the index line on the front viewing window is at 5 (between 0-5 is acceptable) (Refer to the drawing on page 4). Click on "OK"



Pull up on the abort button. Click on "OK"

The instrument will now be reset.

STEP 1: ROTATE PERISCOPE UNTIL HOOK IS APPROXIMATELY IN LINE WITH PORT 2 AS SHOWN

