

Department:	Laboratory and Blood Bank		
Document:	Internal Policy and Procedure		
Title:	Maintenance of Platelet Incubators		
Applies To:	All Blood Bank Staff		
Preparation Date:	January 06, 2025	Index No:	LB-IPP-254
Approval Date:	January 20, 2025	Version :	2
Effective Date:	February 20, 2025	Replacement No.:	LB-IPP-254 (1)
Review Date:	February 20, 2028	No. of Pages:	04

1. PURPOSE:

- 1.1 To check the alarm system of platelet incubators and to maintain the incubators in good working condition.

2. DEFINITONS:

N/A

3. POLICY:

- 3.1 Incubators for platelet storage shall be able to maintain a temperature throughout the cabinets within the range recommended by the supplier.
- 3.2 The temperature of incubators for platelet storage shall have a temperature range between 20 °C and 24 °C.
- 3.3 Incubators for platelet storage shall have a system to monitor the temperature of the incubator continuously.
- 3.4 Platelet incubators should include agitator which provides uniform air circulation and smooth agitation for platelets.
- 3.5 It offers an alarm monitoring system to detect and notify of agitation has stopped
- 3.6 Audible alarms on temperature monitored equipment shall be located in an area that is staffed at all times.
- 3.7 Records of maintenance malfunction and repair must be kept during the working lifetime of the equipment.

4. PROCEDURE:

- 4.1 **Every six months**, the following maintenance should be done on the platelet incubator. Follow the manufacturer's directions for maintenance .

4.1.1 Check the alarm for sound :

- 4.1.1.1 Press the "alarm test" button (or pull the plug, if there is no special alarm test button)
- 4.1.1.2 If the alarm rings (and the light flashes, if applicable), record S (satisfactory) on Biannual maintenance form. Some models have an alarm indicator light as well as an audible alarm.
- 4.1.1.3 If the alarm is malfunctioning, record N (not satisfactory) on Biannual maintenance form.
- 4.1.1.4 Record the temperature manually every 4 hours until the alarm is repaired .
- 4.1.1.5 Disconnect the platelet agitator from the power supply and then remove the back-up power supply (if there is a separate one) to the audible alarm. When the back-up power supply is disconnected, there should be a visual or audible sign.
- 4.1.1.6 Document the testing of the back-up power supply on Biannual maintenance form .
- 4.1.1.7 If the back-up power supply is not functional; the temperature of the platelet incubator should be recorded every 4 hours until the back-up power can be restored .

- 4.1.2 Check the temperature sensors for low and high temperatures:
 - 4.1.2.1 Remove platelets from the incubator.
 - 4.1.2.2 Warm the platelet incubator with a heating device (e.g., blow dryer) until the alarm sounds and check the temperature indicated on the temperature recorder.
 - 4.1.2.3 Record the temperature on the digital or continuous temperature recorder on Biannual maintenance form (for semi-annual check) or on receipt and after repair form (for upon receipt or after repair).
 - 4.1.2.4 The alarm should have sounded at 24 °C. Adjust the set point to 24 °C and repeat testing if the alarm did not sound at 24 °C .
 - 4.1.2.5 Stop heating the incubator; open the door(s) and note the temperature on the digital or continuous temperature recorder at which the alarm stops ringing (it should stop ringing at 24 °C).
 - 4.1.2.6 Place several freezer packs to cool the temperature of the incubator. Close the door and wait until the alarm sounds .
 - 4.1.2.7 When the alarm sounds, check the temperature on the digital or continuous temperature recorder .
 - 4.1.2.8 Record the temperature on biannual maintenance form .
 - 4.1.2.9 The alarm should have sounded at 20 °C.
 - 4.1.2.10 Adjust the set point to 20 °C and repeat testing if the alarm did not sound at 20 °C .
 - 4.1.2.11 Remove the freezer packs: close the door(s) and note the temperature on the digital or continuous temperature recorder at which the alarm stops ringing (it should stop ringing at 20 °C).
 - 4.1.2.12 Record the date the alarm probe was checked on biannual maintenance form .
- 4.1.3 Check the motion alarm indicator:
 - 4.1.3.1 If the incubator has one. The motion sensor should indicate that the agitator is not moving. If the sensor indicates no motion, record S (satisfactory) on Biannual maintenance form. If there is no indication ,record N (not satisfactory) and initiate a maintenance request (or contact the manufacturer if warranty applies).
 - 4.1.3.2 Clean the interior and exterior of the cabinet with a disinfectant solution (e.g. Presept, glutaraldehyde, etc.). Record Y (yes) on Biannual maintenance form when completed .
 - 4.1.3.3 Clean the dust from mechanical parts (a vacuum works best, if available).
 - 4.1.3.4 Check that there is proper air circulation (fan is working. no obstacles preventing efficient air flow). Record Y (yes) on form when completed .
 - 4.1.3.5 Check that the door seals tightly (adjust gasket as necessary). Record Y (yes) on Biannual maintenance form when completed .
 - 4.1.3.6 Record all corrective actions on Biannual maintenance form. Keep a copy of documentation of the work performed, including work done by the maintenance department or servicing.
 - 4.1.3.7 Report any abnormalities found with the platelet incubator to the supervisor.
- 4.2 Upon receipt or after repair, before storing platelets inside the incubator. perform the following steps:
 - 4.2.1 Install the incubator as per manufacturer's instructions. Ensure the operator manual is available .
 - 4.2.2 Check the temperature of the platelet incubator .
 - 4.2.3 Place one thermometer on the bottom shelf and another one on the top shelf .
 - 4.2.4 Read and record the temperature for 5 days on both thermometers and on the recorder. Record the temperatures on Receipt and repair form .
 - 4.2.5 Test the alarm for sound for 5 days.
 - 4.2.6 Record S (satisfactory) or N (not satisfactory) on Receipt and repair form .
 - 4.2.7 Test the alarm sensor for low and high temperatures.
 - 4.2.8 Record the high and low temperatures on Receipt and repair form.
- 4.3 Immediate Corrective Action for Alarm Sounding on Platelet Incubator :
 - 4.3.1 Silence the alarm.
 - 4.3.2 Read and record the temperature of the continuous recording device and internal thermometer (as applicable).

- 4.3.3 Determine the cause for the alarm: door ajar or incubator malfunction.
- 4.3.4 If a door was ajar, proceed to step 6.3.6.
- 4.3.5 If the door was closed completely, a malfunction is the cause for the alarm. Proceed to 6.4.
- 4.3.6 If the temperature of the platelet incubator is between 20 °C and 24 °C and a door was ajar:
 - 4.3.6.1 Close the door and minimize entry.
 - 4.3.6.2 Set a timer for 15 minutes.
 - 4.3.6.3 Check the temperature after 15 minutes.
 - 4.3.6.4 If the temperature remains between 20 °C and 24 °C, record the date and immediate action taken on form.

4.4 **Malfunction instructions:**

- 4.4.1 Remove all platelets. If they are not required for patient use, consider sending them to another facility if a back-up incubator is not available.
- 4.4.2 If an interim platelet incubator is not available, remove the agitator from the incubator and store at room temperature.
- 4.4.3 Read and record the temperature every 4 hours using a calibrated thermometer placed on the agitator.
- 4.4.4 Call maintenance immediately after ascertaining the safety of the platelets.
- 4.4.5 If there is an off-site alarm that did not alert someone, determine why there was no response.
- 4.4.6 Record the malfunction and corrective action on form.

4.5 **Reporting:**

- 4.5.1 The blood bank supervisor must review the results of maintenance and any action taken. Corrective action should be documented, if taken.

5. MATERIALS AND EQUIPMENT:

5.1 **Forms and Records:**

- 5.1.1 Malfunction and corrective action form
- 5.1.2 Receipt and after repair form

6. RESPONSIBILITIES:

- 6.1 Biomedical engineering department is responsible for periodic maintenance.

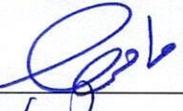
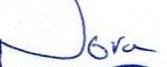
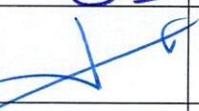
7. APPENDICES:

- 7.1 N/A

8. REFERENCES:

- 8.1 AABB Technical manual, 18th edition, 2014.
- 8.2 AABB Standards for Blood Banks and Transfusion Services, 30th edition, 2016.

9. APPROVALS:

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