TROUBLESHOOTING REPAIR MANUAL:

Eppendorf 5417R Refrigerated Centrifuge

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Begin Your Repair Now

Fixing electronic or electromechanical devices on your own, without the proper training, knowledge, or tools, can pose significant risks not just to the device itself but also to your personal safety. These devices often operate under high voltage or store energy in capacitors that can cause severe electrical shocks. Additionally, tampering with internal components can lead to short circuits, fires, or even explosions if batteries are improperly handled. The complexity of these systems means that without a thorough understanding, it's easy to misdiagnose problems or create new issues that could render the device inoperable. Moreover, such unauthorized repairs can void warranties and violate safety regulations, leading to legal and financial repercussions. For these reasons, it's crucial to assess the risks and consider professional services for repairs, especially for sophisticated devices where precision and safety are paramount.

This educational document is provided for informational purposes only and is not intended to serve as a comprehensive guide for conducting repairs or other technical procedures. It does not suggest that repairs should be attempted without seeking further instruction or professional advice. The information contained herein is meant to supplement, not replace, the knowledge and expertise of qualified professionals in the field. Users are advised to exercise caution and consult with experts before undertaking any actions based on the information provided in this document.

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1-1. Troubleshooting:

No display: Caused by no main connection or power failure. Solution involves checking the power supply cable and the main power fuse on the device and in the laboratory.

CLEAn ro: Triggered after 200 runs, indicating the rotor needs cleaning and lubrication of the axle.

Error 3: No rotor detected. Solution is to insert the rotor.

Error 23: Indicates an error in the drive or rotor recognition. The device should be switched off and then switched back on.

Lid cannot be opened (No display): Caused by a power failure. The solution is to bring the rotor to a standstill and activate the emergency lid release.

Lid not closed completely (Display: LID): Lid latch not engaged properly. Solution is to press down the lid again.

Centrifuge shakes during acceleration and switches off (Display: InbAL): Caused by the rotor not being loaded symmetrically or the rotor not being fastened properly. Check rotor loading and fasten the rotor correctly.

Flashing temperature display and Warning signal: Indicates a deviation from the nominal temperature value of more than 3°C or 5°C, suggesting the nominal value set is too low or refrigeration is defective. Solutions include adjusting the nominal speed, ensuring the rotor is recognized correctly, checking for an imbalance sensor defect, ensuring there is a rotor installed, and addressing errors in the rotational speed measuring system.

Errors 1 through 9-25, including Error 18: Various causes such as nominal speed too high, power failure during the run, rotor not recognized, imbalance sensor defective, no rotor, errors in rotational speed measuring system, unauthorized opening of lid or defective lid switch, converter overloaded, brake defective, rotor loose, overspeed, drive error, and electronics error. Solutions range from entering new nominal speed, repeating the run with the correct settings, ensuring the rotor is inserted properly, restarting the device after a wait, and tightening the rotor. For drive and electronics errors, contacting SERVICE is recommended.

LEVEL 1 ERRORS
0 System Error: NMI

1 System Error: Trap
2 System Error: ESC
3 Memory Allocation Error
LEVEL 2 ERRORS
100 Fan Driver Failure
101 TE Driver Failure
102 Solenoid Driver Failure
103 Block Probe Open?
104 Block Probe Failure
105 Sample Probe Open?
106 Sample Probe Failure
107 Cooling System Error
108 Event Record Lost
LEVEL 3 ERRORS
200 Sample Pre-Freeze
201 Sample Freeze Error
202 Sample Did Not Freeze
203 No Plateau
204 Test Cancelled
205 Calibration Cancelled
206 Test Time-Out Error
207 Recalibration Needed
208 Standards Reversed?
209 Calibration Out of Range
210 Reset Probe Config.
211 Parameter RAM Failed
212 No Parameters in RAM
213 Count Error: Parameter
214 ROM Serial Number Error
215 Baudrate Error
216 Key Input Timeout
217 Lift Sample Probe
218 A/D Init Failure
219 A/D High Filter Error
ERRORS (continued)
220 A/D Low Filter Error
221 A/D Cal Mode Error
222 Bar Code Cancelled
223 Diagnostics Cancelled
224 Low Battery
225 Out of Range

Abrupt Loss of Power (No Display):

Check power availability and fuses.
Suggested actions include restoring power, checking connections, and replacing blown fuses.

Block Probe Open?:
Check the block probe by running A/D tests and using an ohmmeter.
Actions include switching the instrument off then on and contacting the product service department if the problem persists.

Fan Driver Failure:
Indicates a problem with the fan under the sample handling assembly.
Check the fan wire connection.

No Plateau Detected...:
Check the sampler's calibration for proper volume.
Retry the test and verify sample osmolality within range limits.

Parameter RAM Failed or No Parameters in RAM:
Switch the instrument off, wait 10 seconds, then turn it on again.
Possible battery replacement required.

Recalibration Needed:
Calibrate the instrument.

Results Not Repeatable (Too Scattered):
Ensure cleanliness and calibration of the sample cell and sampler.
Replace and calibrate the plunger wire as needed.

Sample Did Not Freeze...:
Check sample configuration and block probe bin number.
Run the solenoid test for no impacts.

Sample Pre-freeze...:
Ensure the sample chamber is clean and the sample probe bin number is correct.

Sample Probe Open?:
Check the sample probe by running A/D tests and using an ohmmeter.

Standards Reversed? Please Repeat...:
Recalibrate with correct standards.

T E Driver Failure:
Check connections to the cooling assembly with an ohmmeter.

Test Time-out Error:
Verify the correct probe bin number and sampler tip positioning.

Other Error Messages:
Turn the instrument off and on again.

Date and Time Not Maintained When Instrument Is Powered Off:
Contact the product service department for assistance.

"Pull Cradle Out":
Adjust the cradle position towards the instrument front.

"Cooling System Error":
Use the A/D Test to check sample and block channels.
Replace probes if needed.

Low Battery:

Consider replacement of the memory backup battery or processor control board.

Wrong Model Number/Operation:

Verify and correct processor board option switch SW1 positions.