

TROUBLESHOOTING REPAIR MANUAL:

Philips HeartStart FRx Defibrillator

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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:

Defibrillator says: "to replace the battery immediately"

Cause: The battery is nearly depleted.

Action: Install a new battery immediately.

Defibrillator says: "to plug in pads connector" and "to replace pads"

Causes:

The pads connector has been unplugged.

The pads have been damaged.

The pads have been peeled from the case but have not been successfully attached to the patient.

Actions:

Plug in the pads connector.

Replace the damaged pads.

Replace the pads on the patient with new pads to continue with the rescue.

Defibrillator says: "to press the pads firmly to the skin" and "to make sure the pads have been removed from the case"

Causes:

The pads are not properly applied to the patient.

The pads are not making good contact with the patient's bare chest because of moisture or excessive hair.

The pads are touching each other.

The pads may not have been removed from the case or may be on the patient's clothing.

Actions:

Make sure that the pads are sticking completely to the patient's skin.

If the pads are not sticking, dry the patient's chest and shave or clip any excessive chest hair.

Reposition the pads.

Make sure the pads connector is fully inserted.

Defibrillator says: "to stop all motion"

Causes:

The patient is being moved or jostled.

The environment is dry and movement around the patient is causing static electricity to interfere with ECG analysis.

Radio or electrical sources are interfering with ECG analysis.

Actions:

Stop CPR; do not touch the patient. Minimize patient motion.

Responders and bystanders should minimize motion.

Check for possible causes of radio and electrical interference and turn them off or remove them from the area.

Defibrillator says: "the shock was not delivered"

Causes:

- The pads may not be making good contact with the patient's skin.
- The pads may be touching each other.
- The pads may be damaged.

Actions:

- Press the pads firmly to the patient's chest.
- Make sure the adhesive pads are correctly positioned on the patient.
- Replace the pads if necessary.

Defibrillator says: "the shock button was not pressed"

Cause: Shock has been advised but the shock button has not been pressed within 30 seconds.

Action: When next prompted, press the Shock button to deliver shock.

INITIALIZING SYSTEM

Defibrillator says "to replace the battery immediately"

Cause: The battery is nearly depleted.

Action: Install a new battery immediately.

Defibrillator says "to plug in pads connector" or "to replace pads"

Causes: The pads connector has been unplugged, the pads have been damaged, or the pads have been peeled from the case but have not been successfully attached to the patient.

Actions: Plug in the pads connector, replace the damaged pads, or replace the pads on the patient with new pads to continue with the rescue.

Defibrillator says "to press the pads firmly to the skin", "to make sure the pads have been removed from the case", "the pads should not be touching the patient's clothing", or "to make sure the pads connector is fully inserted"

Causes: The pads are not properly applied to the patient, not making good contact with the patient's bare chest because of moisture or excessive hair, touching each other, or the pads connector is not fully inserted.

Actions: Ensure pads are sticking completely to the patient's skin, dry the patient's chest and shave any excessive chest hair, reposition the pads, make sure pads are not in the case or on patient's clothing, and ensure the pads connector is fully inserted. If the issue persists, replace the pads set.

Defibrillator says "to stop all motion"

Causes: The patient is being moved, causing interference with ECG analysis due to dry environment and static electricity, or radio/electrical sources are interfering with ECG analysis.

Actions: Stop CPR, do not touch the patient, minimize patient motion, responders and bystanders should minimize motion especially in environments that can

generate static electricity, and remove any potential causes of radio and electrical interference.

Defibrillator says "the shock was not delivered"

Causes: The pads may not be making good contact with the patient's skin, the pads may be touching each other, or the pads may be damaged.

Actions: Press the pads firmly to the patient's chest, ensure the adhesive pads are correctly positioned, and replace the pads if necessary.

Defibrillator says "the shock button was not pressed"

Cause: Shock has been advised but the shock button has not been pressed within 30 seconds.

Action: When next prompted, press the Shock button to deliver the shock.

Power or Battery Issues: Steps to verify battery installation, check for low battery warnings, and replace batteries.

Pad Connection Problems: Guidance on ensuring pads are properly connected and detecting when pads may not be making good contact with the patient.

Error Messages: Interpretation of any audible or visible error messages the device might display, indicating specific problems with functionality or advisories for maintenance.

Self-Test Failures: Procedures to follow if the device fails its routine self-tests, indicating that maintenance or professional service is required.

Maintenance Reminders: Recommendations for regular maintenance checks, including inspection of the device and accessories for damage or expiration, and cleaning instructions.