

Technical Note

HEARTSTART AED SELF-TEST ABORTS DUE TO TEMPERATURE EXTREMES

BACKGROUND

HeartStart (also branded as Heartstream) Automated External Defibrillators (AED) employ daily self-tests to ensure that the units are always ready for use. However, the units will not perform these tests during extreme temperature conditions. Because computer electronics perform differently at different temperatures, these self-tests are aborted above and below certain temperatures to ensure that the self-tests are producing accurate results.

TECHNIQUE

HeartStart Defibrillators have an electronic thermometer that measures the temperature of the defibrillator's immediate environment. If the temperature is measured below 32° F (0° C) or above 122° F (50° C) for the FR series (ForeRunner or FR), FR2 series (FR2 and FR2+), and FRx; or below 32° F (0° C) or above 109° F (43° C) for the HSI series (HeartStart Defibrillator, Home, and OnSite) defibrillators, the self-test will abort. The defibrillator will then attempt to perform the test again 8 hours later (instead of the standard 24 hours), to allow for the ambient temperature to either increase or decrease. If this test is aborted again, the unit will attempt to perform the self-test once again in another 8 hours. If the defibrillator aborts the self-test three times in a row (over a 16 hour period) it will issue a warning that the unit is being stored incorrectly and is not capable of accurately performing its self-tests, and may not be ready for service.

NOTIFICATION

HeartStart Defibrillators will announce the temperature-related aborts through a series of audible chirps and changes in the status indicator. The notification is very similar to, and can be easily confused with a low battery message. Take care not to discard an otherwise good battery when this occurs. The FRx and HSI Defibrillator will also flash the blue “i-button.” Pressing this button will inform the user that the defibrillator has been stored outside the acceptable temperature limits. The FR and FR2 series will display a text message on the screen announcing that the defibrillator has been stored outside the acceptable temperature limits.

WHAT TO DO

When this notification or any similar notification occurs, a Battery Insertion Test (BIT), initiated by removing and re-inserting the battery, should be performed at room temperature. This will likely clear the failure and ensure that the defibrillator is ready for use. The unit will still attempt to operate in an emergency even though it has aborted the self-tests due to a temperature extreme, and it is recommended that the unit be used in such a situation. To prevent this issue from occurring again, the defibrillator should be stored within the specified standby temperatures — 32°-109° F (0°- 43° C) for the FR2 series, 50°-109° F (10°-43° C) for the FR and HSI series, and 32°-140° F (0°- 50° C) for the FRx series — as noted in the *Instructions for Use/Owner's Manual/User's Guide*.