

6515-01-453-4003
Defibrillator ECG Monitor/Recorder, LIFEPAK 10

[M-Monthly, Q-Quarterly, S-Semiannually, and A-Annually]

ITEM NO	INTERVAL	ITEM TO BE INSPECTED AND PROCEDURE	IS NOT MISSION CAPABLE IF:
1	S	<p>Defibrillator</p> <p>a. Conduct an inventory to ensure that the items listed on the Parts and Accessories List are on hand.</p> <p>b. Ensure Operator Preventive Maintenance Checks and Services (PMCS) were completed.</p>	<p>Missing components or accessories prevent safe operation of the defibrillator.</p> <p>The defibrillator fails Operator PMCS.</p>
2	S	<p>Testing/Troubleshooting</p> <p>a. Conduct the "Performance Inspection Procedure" (PIP) as directed by the service manual.</p> <p>(1) Perform the PIP "Physical Inspection" as directed by the service manual.</p> <p>(2) Perform the PIP "Power-On Sequence" as directed by the service manual.</p> <p>(3) Perform the PIP "Fault Stack Check" as directed by the service manual and record failure codes. Clear failure codes and exit.</p> <p>(4) Perform the PIP "Paper-Out Sensor and Recorder Speed" as directed by the service manual.</p> <p>(5) Perform the PIP "Code Summary" as directed by the service manual.</p> <p>(6) Perform the PIP "Freeze and ECG Audio Checks" as directed by the service manual.</p> <p>(7) Perform the PIP "Preamplifier Baseline Noise and CAL Pulse Checks" as directed by the service manual.</p> <p>(8) Perform the PIP "Heart Rate and Lead Polarity" as directed by the service manual while using an ECG simulator.</p>	<p>Damage precludes operation.</p> <p>Unit does not turn on.</p> <p>Failure codes cannot be cleared.</p> <p>There is no NSR waveform, recorder operates with door open, and recorder does not operate with door closed, or the spacing between R waves is not 25 +/- 1mm.</p> <p>The code summary does not indicate 60 bpm or defibrillator does not discharge.</p> <p>Display does not freeze, there is no audible ECG beep, or volume control does not function.</p> <p>ECG size does not change from X1.8 to X1.0, trace line is not less than 1mm thick, or vertical leading edge of pulse is not 10 +/-mm.</p> <p>The displayed heart rate is not between 27 and 33 when 30 bpm is selected on the ECG simulator or is not between 233 and 247 when 240 bpm is selected or signal polarity is not the same as lead I when lead II is selected.</p>

(continued) Appendix B. Repairer PMCS

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		<p>(9) Perform the PIP "Synchronized Cardioversion" test as directed by the service manual.</p> <p>(10) Perform the PIP "Warm/Cold Restart Check" as directed by the service manual.</p> <p>(11) Perform the PIP "Pacer Functional" as directed by the service manual while using an ECG simulator.</p> <p>(12) Perform the PIP "Pacemaker Output Tests" as directed by the service manual while using a pacemaker tester.</p> <p>(13) Perform the PIP "Defibrillator Control and QUIK-LOOK" as directed by the service manual.</p> <p>(14) Perform the PIP "Energy Output" as directed by the service manual.</p> <p>(15) Perform the PIP "Refresh and Auto-Dump" as directed by the service manual.</p> <p>(16) Perform the PIP "External Power Operation" as directed by the service manual.</p> <p>(17) Perform the PIP "Fault Stack Recheck" as directed by the service manual. Correct and clear any failure codes listed and return instrument to user's original settings.</p> <p>(18) Perform the PIP "Leakage Current" as directed by the service manual utilizing a safety analyzer.</p> <p>NOTE: The leakage current test of certain models of the AC Auxiliary Power Module may fail. Contact USAMMA, Hill AFB for the update on the test.</p>	<p>The QRS sense markers do not appear on the CRT or are not printed on the recorder paper in "SYNC" mode, the "SYNC" annunciator is not visible on the status display or it does not blink with each R wave, the defibrillator discharges between R waves or fails to discharge on the next QRS complex, or the device does not exit SYNC mode after discharging.</p> <p>Unit fails restart tests.</p> <p>Unit fails any of the steps in the pacemaker functional tests.</p> <p>Unit fails any of the steps in the pacemaker output test.</p> <p>Unit fails any of the steps in the defibrillator control and "QUIK-LOOK" tests.</p> <p>Unit fails any of the steps in the energy output tests.</p> <p>Unit fails any of the steps in the refresh and auto-dump tests.</p> <p>Unit fails any of the steps in the external power operation.</p> <p>Failure codes cannot be cleared.</p> <p>Unit fails leakage current test.</p>

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3	S	<p>b. Conduct the "Test and Calibration Procedure" (TCP) as needed and directed by the service manual.</p> <p>(1) Perform the following TCPs, listed under "System PCB Test and Calibration," as directed by the service manual.</p> <ul style="list-style-type: none"> (a) "ECG Out and Preamp Gain" (b) "CRT Display" (c) "Brightness" (d) "Modulated ECG Output" (e) "QRS Marks" (f) "Defibrillator Calibration" (g) "Available Energy Display" <p>(2) Perform the following TCP "Chart/Pacer PCB Test and Calibration" procedures as directed by the service manual.</p> <ul style="list-style-type: none"> (a) "Recorder Calibration" (b) "Frequency Calibration" (c) "Output Gain" <p>c. Affix a Defibrillator Energy Output Certificate (DA Label 175).</p> <p>d. Update the Medical Equipment Verification/Certification sticker (DD Form 2163).</p> <p>Battery Support System</p> <p>a. Perform the PIP as directed by the Battery Support Service Manual.</p> <p>(1) Perform the "AC Operation" procedure.</p> <p>(2) Perform the "Battery Charge/Discharge" procedure.</p>	<p>Any of the calibration procedures cannot be accomplished.</p> <p>The output has not been verified within the last six months.</p> <p>The unit has not been verified within the last six months.</p> <p>Damage precludes operation.</p> <p>Battery support system fails to operate when connected to AC power source.</p> <p>Battery charge/discharge test fails.</p>

(continued) Appendix B. Repairer PMCS

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4	S	<p>(3) Perform the PIP "Keypad and Display Test."</p> <p>(4) Perform the PIP "Displayed Energy."</p> <p>(5) Perform the PIP "A/D Check."</p> <p>(6) Perform the PIP "Battery Charge Current."</p> <p>(7) Perform the PIP "Battery Discharge Current."</p> <p>(8) Perform the PIP "Shorted Battery Terminal Test."</p> <p>NOTE: Perform internal system inspection checking for loose hardware that may cause an electrical short circuit. Secure loose screws with Loctite® or equivalent.</p> <p>NOTE: Loose screws, washers or internal hardware can cause burnt and melted batteries.</p> <p>(9) Perform the PIP "Leakage Current," utilizing a safety analyzer.</p> <p>b. Perform the following TCPs as directed by the Battery Support Service Manual.</p> <p>(1) Perform the TCP "Test Setup."</p> <p>(2) Perform the TCP "Assembly Check."</p> <p>(3) Perform the TCP "Self-Test."</p> <p>(4) Perform the TCP "Displayed Energy Check with A LIFEPAK 5 or LIFEPAK 10" defibrillator/monitor.</p> <p>c. Perform the cleaning procedures as directed by the Battery Support Service Manual.</p> <p>AC Auxiliary Power Supply</p> <p>a. Conduct the PIP as directed by the AC Auxiliary Power Supply Service Manual.</p> <p>b. Perform the PIP "LED Function" as directed by the AC Auxiliary Power Supply Service Manual.</p>	<p>Keypad and display Test fails.</p> <p>Displayed energy test fails.</p> <p>A/D check fails.</p> <p>Battery charge current test fails.</p> <p>Battery discharge current test fails.</p> <p>Shorted battery terminal test fails.</p> <p>Battery support system fails leakage current test.</p> <p>LED function test fails.</p>

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		<p>c. Perform the PIP "Output" procedure as directed by the AC Auxiliary Power Supply Service Manual.</p> <p>d. Perform the PIP "Current Leakage" test utilizing safety analyzer.</p> <p>NOTE: The leakage current test of certain models of the AC Auxiliary Power Module may fail. Contact USAMMA, Hill AFB for the update on the test.</p> <p>f. Update the Medical Equipment Verification/Certification sticker (DD Form 2163).</p>	<p>Output test fails.</p> <p>The unit fails the leakage current test.</p> <p>The unit has not been verified within the last six months.</p>