

# LIFEPAK®15

## Performance Inspection Procedure (PIP) Checklist

PHYSIO  
CONTROL

Model # \_\_\_\_\_ Department/Location \_\_\_\_\_  
 Serial # \_\_\_\_\_ Performed By \_\_\_\_\_  
 Type of PIP \_\_\_\_\_ Post-Repair ☐ Annual ☐ Date \_\_\_\_\_

### Manual Mode Access

1. Manual Mode Access
  - a. Record customer-selected MANUAL ACCESS configuration \_\_\_\_\_

### Exterior Physical Inspection

	Pass	Fail	NA	Comments
2. Exterior physical inspection				
a. Device exterior damage (general)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b. Check device for loose/rattling hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c. Check for damaged or missing rubber feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d. Inspect battery pins as specified in the Service Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
e. Check if battery pins were replaced during this servicing event	<input type="checkbox"/>	Battery Pins Replaced		
f. Inspect therapy cable pins and connector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
g. Confirm spring button on therapy connector is functional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
h. Inspect device connectors for damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
i. Inspect keypads and overlays for damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
j. Check device accessories for condition and expiration dates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
k. Inspect carrying case and carrying strap for damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 3. Device Setup

- a. Insert two fully charged Li-ion batteries into the device
- b. Install a roll of 100-mm printer paper
- c. Connect therapy cable or standard paddles to the device ☐ **Completed** \_\_\_\_\_

### 4. Power On/Self –Test

- a. All items are conforming ☐ ☐ ☐ \_\_\_\_\_

### 5. Auxiliary Power Switching (if Auxiliary Power Connector is installed)

- a. Battery icons appear but neither is highlighted. ☐ ☐ ☐ \_\_\_\_\_

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### 6. Power Source Management

- a. Confirm battery status indicator switching ☐ ☐ ☐ \_\_\_\_\_

### 7. User Test and Date/Time Verification

- a. Confirm device passes User Test ☐ ☐ ☐ \_\_\_\_\_
- b. Confirm Time and Date are correct ☐ ☐ ☐ \_\_\_\_\_

### Miscellaneous Function

- |   | Pass                     | Fail                     | NA                       | Comments |
|---|--------------------------|--------------------------|--------------------------|----------|
| 8. Temperature Calibration Check Test (if Temp option is installed) |                          |                          |                          |          |
| a. Confirm Temperature Cal Check complete                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | _____    |

### 9. CO2 Tests (if CO2 option is installed)

- a. Confirm change in vacuum reading is less than 15 mmHg ☐ ☐ ☐ \_\_\_\_\_
- b. Record CO2 concentration reading is 5.0%  $\pm$ 0.5% ☐ ☐ ☐ \_\_\_\_\_  
Measured Value \_\_\_\_\_

### 10. NIBP Tests (if NIBP option is installed)

- a. Confirm LEAKAGE TEST OK message ☐ ☐ ☐ \_\_\_\_\_
- b. Confirm 50 mmHg readings agree within  $\pm$ 20 mmHg ☐ ☐ ☐ \_\_\_\_\_
- c. Confirm 150 mmHg readings agree within  $\pm$ 20 mmHg ☐ ☐ ☐ \_\_\_\_\_
- d. Confirm the overpressure switch activates at 290  $\pm$ 20 mmHg ☐ ☐ ☐ \_\_\_\_\_

### 11. 25 mm/s Speed Printer Test

- a. Confirm printer test strip and CHECK PRINTER message ☐ ☐ ☐ \_\_\_\_\_

### 12. 12.5 mm/s Speed Printer Test

- a. Confirm printer 12.5 mm/s test strip ☐ ☐ ☐ \_\_\_\_\_

### 13. Keypad Test

- a. Confirm all control text boxes are highlighted and TEST COMPLETE message appears ☐ ☐ ☐ \_\_\_\_\_

### 14. Audio Test

- a. Confirm voice messages and tones are clear and not distorted ☐ ☐ ☐ \_\_\_\_\_

### 15. Invasive Blood Pressure Verification (if IP option is installed)

- a. Confirm P1 pressure channel zero ☐ ☐ ☐ \_\_\_\_\_
- b. Record P1 pressure reading of 250  $\pm$ 8 mmHg ☐ ☐ ☐ \_\_\_\_\_  
Measured Value \_\_\_\_\_
- c. Record P1 pressure reading of 100  $\pm$ 5 mmHg ☐ ☐ ☐ \_\_\_\_\_  
Measured Value \_\_\_\_\_
- d. Record P1 pressure reading of 20  $\pm$ 3 mmHg ☐ ☐ ☐ \_\_\_\_\_  
Measured Value \_\_\_\_\_

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e. Record P1 pressure reading of -20 ±3 mmHg	Measured Value _____	<input type="checkbox"/>	_____
f. Confirm P2 pressure channel zero	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	_____
g. Record P2 pressure reading of 250 ±8 mmHg	Measured Value _____	<input type="checkbox"/>	_____
h. Record P2 pressure reading of 100 ±5 mmHg	Measured Value _____	<input type="checkbox"/>	_____
i. Record P2 pressure reading of 20 ±3 mmHg	Measured Value _____	<input type="checkbox"/>	_____
j. Record P2 pressure reading of -20 ±3 mmHg	Measured Value _____	<input type="checkbox"/>	_____

16. SpO2/SpCO/SpMet Tests	Pass	Fail	NA	Comments
a. Confirm SpO2 reading is between 50% and 100% (if SpO2 is installed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b. Confirm SpCO reading is between 0% and 40% (if SpCO is installed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c. Confirm SpMet reading is between 0% and 15% (if SpMet is installed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 17. Record Operating Data (Optional)

<b>Total Shocks:</b>		Fault Messages	_____
		Power Cycle Count	_____
360J Shocks	<input type="text"/>	Pacing Count	_____
	_____	Shock Count	_____
225-325J Shocks	<input type="text"/>	Power On Time	_____
	_____	Printer On Time	_____
0-200J Shocks	<input type="text"/>	SPO2 Operating Time (if installed)	_____
	_____	CO2 Operating Time (if installed)	_____
		NIBP Inflation Cycles (if installed)	_____

### ECG Performance Testing

18. ECG Tests (12-lead, 3-lead or 5-wire ECG tests)	Pass	Fail	NA	Comments
a. Confirm LEADS-OFF screen messages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Record Lead I gain (tolerance 25 to 31 mm)	Measured Value_____		<input type="checkbox"/>	_____
c. Record Lead II gain (tolerance 36 to 44 mm)	Measured Value_____		<input type="checkbox"/>	_____
d. Record Lead V1/C gain (tolerance 36 to 44 mm) (5-wire, 12-lead)	Measured Value_____		<input type="checkbox"/>	_____

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e. Record Lead V2 gain (tolerance 36 to 44 mm) (12-lead)	Measured Value _____	<input type="checkbox"/>	_____
f. Record Lead V3 gain (tolerance 36 to 44 mm) (12-lead)	Measured Value _____	<input type="checkbox"/>	_____
g. Record Lead V4 gain (tolerance 36 to 44 mm) (12-lead)	Measured Value _____	<input type="checkbox"/>	_____
h. Record Lead V5 gain (tolerance 36 to 44 mm) (12-lead)	Measured Value _____	<input type="checkbox"/>	_____
i. Record Lead V6 gain (tolerance 36 to 44 mm) (12-lead)	Measured Value _____	<input type="checkbox"/>	_____

### 19. ECG Analog Output (optional, perform as required)

a. Record signal amplitude (tolerance 0.90 to 1.10 Vp-p)	Measured Value _____	<input type="checkbox"/>	_____
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### Defibrillator/Pacing Testing

	Pass	Fail	NA	Comments
20. Delivered Energy Test				
a. 10 J – Record delivered energy (tolerance 9.1 to 10.9 J)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
b. 200 J – Record delivered energy (tolerance 186.0 to 214.0 J)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
c. 360 J – Record delivered energy (tolerance 334.9 to 384.9 J)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 21. Charge Time to 360J Test

a. Confirm device charges to 360 J in less than 10 seconds	Measured Value _____	<input type="checkbox"/>	_____
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### 22. Synchronous Cardio version Test

a. Record Sync delay (maximum 60ms)	Measured Value _____	<input type="checkbox"/>	_____
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### 23. Therapy ECG Characteristics

a. Record ECG paddle lead gain (tolerance 1mV = 36 to 44 mm)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
b. Fast-Restore baseline in 0.5 seconds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
c. Fast-Restore amplitude restored is >50% within 3 seconds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
d. Positive R-wave test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

### 24. Standard Paddles User Test (N/A for QUIK-COMBO-only device)

a. Confirm device passes test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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### 25. Pacer Option Characteristics

a. Confirm leads-off detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
b. 10 mA– Record current (tolerance 5 to 15 mA)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
c. 100 mA – Record current (tolerance 91 to 109 mA)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
d. 200 mA – Record current (tolerance 181 to 219 mA)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____
e. Record pulse width (tolerance 19.2 to 20.8 ms)	Measured Value _____	<input type="checkbox"/>	<input type="checkbox"/>	_____

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### 26. Patient Impedance Test

- |  |                          |                          |                          |       |
|--|--------------------------|--------------------------|--------------------------|-------|
| a. Verify the PADDLES LEADS OFF message is not visible (50 ohms)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| b. Verify the device displays PADDLES LEADS OFF message (370 ohms) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| c. Verify the PADDLES LEADS OFF message is not visible (238 ohms)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | _____ |

### Data Management

- |  |                          |                          |                          |       |
|--|--------------------------|--------------------------|--------------------------|-------|
| 27. Bluetooth Wireless Technology (if Bluetooth option is installed) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| a. Verify Bluetooth Pairing Successful                               |                          |                          |                          |       |

### Leakage Current Test

#### 28. Leakage Test Battery Powered

- |  | Pass                 | Fail | NA                       | Comments |
|--|----------------------|------|--------------------------|----------|
| a. ECG Direct Applied Part at 120 or 240 VAC                       |                      |      |                          |          |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 45 µA)   | Measured Value _____ |      | <input type="checkbox"/> | _____    |
| b. Therapy Direct Applied Part at 120 or 240 VAC                   |                      |      |                          |          |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 2625 µA) | Measured Value _____ |      | <input type="checkbox"/> | _____    |
| c. SpO2 Direct Applied Part at 120 or 240 VAC                      |                      |      |                          |          |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 2625 µA) | Measured Value _____ |      | <input type="checkbox"/> | _____    |

#### 29. Leakage Test AC Powered Device at 120VAC (If Aux power is installed)

- |  |                      |  |                          |       |
|--|----------------------|--|--------------------------|-------|
| a. Direct Equipment Leakage at 120 VAC                                 |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Open Earth</b> , (15 µA - 270 µA) | Measured Value _____ |  | <input type="checkbox"/> | _____ |
| b. ECG Direct Applied Part at 120 VAC                                  |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 45 µA)       | Measured Value _____ |  | <input type="checkbox"/> | _____ |
| c. Therapy Direct Applied Part at 120 VAC                              |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 2625 µA)     | Measured Value _____ |  | <input type="checkbox"/> | _____ |
| d. SpO2 Direct Applied Part at 120 VAC                                 |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 2625 µA)     | Measured Value _____ |  | <input type="checkbox"/> | _____ |

#### 30. Leakage Test AC Powered Device at 240 VAC (if Aux power is installed)

- |  |                      |  |                          |       |
|--|----------------------|--|--------------------------|-------|
| a. Direct Equipment Leakage at 240 VAC                                 |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Open Earth</b> , (15 µA - 450 µA) | Measured Value _____ |  | <input type="checkbox"/> | _____ |
| b. ECG Direct Applied Part at 240 VAC                                  |                      |  |                          |       |
| Polarity <b>NC/RM</b> , Condition <b>Normal</b> , (5 µA - 45 µA)       | Measured Value _____ |  | <input type="checkbox"/> | _____ |

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- c. Therapy Direct Applied Part at 240 VAC

Polarity **NC/RM**, Condition **Normal**, (5  $\mu$ A - 2625  $\mu$ A)

Measured

Value \_\_\_\_\_



\_\_\_\_\_

- d. SpO2 Direct Applied Part at 240 VAC

Polarity **NC/RM**, Condition **Normal**, (5  $\mu$ A - 2625  $\mu$ A)

Measured

Value \_\_\_\_\_



\_\_\_\_\_

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### 31. LIFEPAK 15 Maintenance Instruction

**Pass**

- a. Maintenance prompt disabled or reset



**Completed**

\_\_\_\_\_

**Comments:**