

Test and Inspection Matrix

This chapter includes the Test and Inspection Matrix for the M2636B TeleMon Monitor.

Tests that require power should be performed with the TeleMon on AC power, but with the battery installed.

M2600A Telemetry System - Test and Inspection Matrix

Test Block Name	Test or "Inspection" to Perform	Expected Test Results	What to Record on Service Record								
Visual Test:	Inspect the system (and packing material if applicable) for obvious signs of damage. Also check external leads and accessories.	The system does not have any obvious signs of damage = Pass.	V:P or V:F where P=Pass and F=Fail								
Power On:	<table border="1" data-bbox="362 659 807 1234"> <thead> <tr> <th data-bbox="367 665 448 699">Step</th> <th data-bbox="453 665 802 699">Action</th> </tr> </thead> <tbody> <tr> <td data-bbox="367 705 448 739">1</td> <td data-bbox="453 705 802 739">Switch on the M2636B.</td> </tr> <tr> <td data-bbox="367 745 448 1033">2</td> <td data-bbox="453 745 802 1033">Observe that the monitor boots up successfully without displaying any error codes and that output appears on the display (example waveform and parameter labels). An indication that the "battery needs reconditioning" is acceptable.</td> </tr> <tr> <td data-bbox="367 1039 448 1228">3</td> <td data-bbox="453 1039 802 1228">Insert a functioning Telemetry transmitter that is compatible with the M2636B. Observe that the "Transmitter Disconnected" prompt disappears when the transmitter is docked.</td> </tr> </tbody> </table>	Step	Action	1	Switch on the M2636B.	2	Observe that the monitor boots up successfully without displaying any error codes and that output appears on the display (example waveform and parameter labels). An indication that the "battery needs reconditioning" is acceptable.	3	Insert a functioning Telemetry transmitter that is compatible with the M2636B. Observe that the "Transmitter Disconnected" prompt disappears when the transmitter is docked.	Monitor boots up displaying no error codes, responds correctly to telemetry transmitter = Pass	PO:P or PO:F where P = Pass and F = Fail
Step	Action										
1	Switch on the M2636B.										
2	Observe that the monitor boots up successfully without displaying any error codes and that output appears on the display (example waveform and parameter labels). An indication that the "battery needs reconditioning" is acceptable.										
3	Insert a functioning Telemetry transmitter that is compatible with the M2636B. Observe that the "Transmitter Disconnected" prompt disappears when the transmitter is docked.										

Test Block Name	Test or "Inspection" to Perform	Expected Test Results	What to Record on Service Record																				
<p>Performance Test NBP:</p>	<p>Accuracy Test</p> <table border="1" data-bbox="440 457 883 1085"> <thead> <tr> <th>Step</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Connect the manometer and the pump to the NBP connector.</td> </tr> <tr> <td>2</td> <td>Go to Service Mode.</td> </tr> <tr> <td>3</td> <td>Go to the Calibration application.</td> </tr> <tr> <td>4</td> <td>Raise the pressure to 280 mmHg with the manometer and pump.</td> </tr> <tr> <td>5</td> <td>Wait 10 seconds for the measurement to stabilize.</td> </tr> <tr> <td>6</td> <td>Compare the manometer values with the displayed values. Document the value displayed by the Monitor. If the difference is greater than 3mmHg then calibrate the module.</td> </tr> </tbody> </table> <p>Leakage Test</p> <table border="1" data-bbox="440 1245 883 1524"> <thead> <tr> <th>Step</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Watch the pressure value for 60 seconds. After 60 seconds the value should have decreased by less than 6 mmHg.</td> </tr> <tr> <td>2</td> <td>Calculate and document: Leakage test = Accuracy - displayed value.</td> </tr> </tbody> </table>	Step	Action	1	Connect the manometer and the pump to the NBP connector.	2	Go to Service Mode.	3	Go to the Calibration application.	4	Raise the pressure to 280 mmHg with the manometer and pump.	5	Wait 10 seconds for the measurement to stabilize.	6	Compare the manometer values with the displayed values. Document the value displayed by the Monitor. If the difference is greater than 3mmHg then calibrate the module.	Step	Action	1	Watch the pressure value for 60 seconds. After 60 seconds the value should have decreased by less than 6 mmHg.	2	Calculate and document: Leakage test = Accuracy - displayed value.	<p>Value displayed on Monitor = x1 If difference <=3mm proceed to next test</p> <p>Leakage test value = x2 If <= 6mmHg proceed to next test</p>	
Step	Action																						
1	Connect the manometer and the pump to the NBP connector.																						
2	Go to Service Mode.																						
3	Go to the Calibration application.																						
4	Raise the pressure to 280 mmHg with the manometer and pump.																						
5	Wait 10 seconds for the measurement to stabilize.																						
6	Compare the manometer values with the displayed values. Document the value displayed by the Monitor. If the difference is greater than 3mmHg then calibrate the module.																						
Step	Action																						
1	Watch the pressure value for 60 seconds. After 60 seconds the value should have decreased by less than 6 mmHg.																						
2	Calculate and document: Leakage test = Accuracy - displayed value.																						

M2600A Telemetry System - Test and Inspection Matrix

Test Block Name	Test or "Inspection" to Perform	Expected Test Results	What to Record on Service Record								
	<p>Linearity Test</p> <table border="1" data-bbox="362 457 807 842"> <thead> <tr> <th>Step</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Reduce the manometer pressure to 150 mmHg.</td> </tr> <tr> <td>2</td> <td>Wait 10 seconds for the measurement to stabilize, then compare the manometer values with the the displayed values.</td> </tr> <tr> <td>3</td> <td>Document the value displayed. If the difference is greater than 3mmHg then calibrate the module.</td> </tr> </tbody> </table>	Step	Action	1	Reduce the manometer pressure to 150 mmHg.	2	Wait 10 seconds for the measurement to stabilize, then compare the manometer values with the the displayed values.	3	Document the value displayed. If the difference is greater than 3mmHg then calibrate the module.	<p>Value displayed by Monitor = x3</p>	<p>PN:P/x1/x2/x3 or PN:F/x1/x2/x3 Where P = Pass And F = Fail</p>
Step	Action										
1	Reduce the manometer pressure to 150 mmHg.										
2	Wait 10 seconds for the measurement to stabilize, then compare the manometer values with the the displayed values.										
3	Document the value displayed. If the difference is greater than 3mmHg then calibrate the module.										
Safety (1):	<table border="1" data-bbox="362 930 807 1304"> <thead> <tr> <th>Step</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>System Safety Test Enclosure Leakage Current/Normal Condition: See the next section, "Safety Tests," for details.</td> </tr> <tr> <td>2</td> <td>System Safety Test Enclosure Leakage Current/Single Fault Condition: See the next section, "Safety Tests", for details.</td> </tr> </tbody> </table>	Step	Action	1	System Safety Test Enclosure Leakage Current/Normal Condition: See the next section, "Safety Tests," for details.	2	System Safety Test Enclosure Leakage Current/Single Fault Condition: See the next section, "Safety Tests", for details.	<p>Normal Condition maximum leakage current = x1 ($\leq 300 \mu A$)</p> <p>Single fault maximum leakage current = x2 ($\leq 300 \mu A$)</p>	<p>S1:P/x1/x2 or S1:F/x1/x2</p>		
Step	Action										
1	System Safety Test Enclosure Leakage Current/Normal Condition: See the next section, "Safety Tests," for details.										
2	System Safety Test Enclosure Leakage Current/Single Fault Condition: See the next section, "Safety Tests", for details.										
Safety (2):	<p>Protective Earth. See the next section, "Safety Tests," for details.</p>	<p>Protective earth with mains cable: Maximum impedance = x1 ($\leq 200 \mu Ohm$)</p>	<p>S2: P/x/ or S2:F/x</p>								
Safety (3):	<p>Patient Leakage Current/ Single Fault Condition: See the next section, "Safety Tests," for details.</p>	<p>Maximum leakage current = x1 ($\leq 300 \mu A$)</p>	<p>S3:P/x or S3:F/x</p>								

Safety Tests

The test procedures outlined in this section are to be used **only** for verifying safe installation or service of the product in question.

The setups used for these tests and the acceptable ranges of values are derived from local and international standards but may not be equivalent.

These tests are **not a substitute for local safety testing** where it is required for an installation or a service event.

If using the Metron Safety tester use your local regulation to perform the test, *for example* in Europe IEC601-1/IEC601-1-1 and in the US UL2601-1. The Metron Report should print results with the names listed below, along with other data.

Safety checks at installation refer to safety aspects directly related to the installation and setup activities and not to intrinsic safety features that have already been checked during final acceptance testing at the factory.