Customer Service Bulletin

Product:	CVSM, CIWS, and CSM	**Date:**	2018-04-04
Subject:	CSB – CVSM/CIWS_CSM – Annual Preventative Maintenance		
HW Version(s) Affected:	ALL	**SW Version(s) Affected:**	ALL
Serial Numbers Affected:	ALL	**Lot or Date Code Affected:**	ALL

Classification:	Informational Only
Distribution:	☒ Customer Care ☒ Product Service ☒ Field Service ☒ ASPs ☒ Distributors ☒ Customers ☐ Company Confidential

Training Required:	☒ Yes ☐ No

Summary:

The following checklist is the Welch Allyn recommended annual preventative maintenance for CSM and CVSM devices.

The user should Reference the service manual *Basic functional verification checks* section for detail procedures and tools required to perform each test. Whenever a test fails to meet specification or open case repairs are performed the user must perform the *Full functional verification and Calibration checks* as defined in the service manual.

Users should ensure the current released version of the Welch Allyn Service Tool is installed on their PC prior to performing the below maintenance. If not follow the Install guide and reinstall the Welch Allyn Service Tool from the Welch Allyn web site http://www.welchallyn.com/en/service-support/service-center/service-tool.html.

Electrical Safety Testing should be performed based on Facility requirements and IEC 62353 Standards.

Electrical Safety Testing (*CVSM and CIWS only*)

Electrical Protection Class:	Applied Part Type:	Test	Specification	Actual reading
I	BF	Protective Earth Resistance • Mains ground to PE stud • Earth connections to PE stud	 200 mΩ max 300 mΩ max	 mΩ mΩ
		Device Earth Leakage and Current (Sourcing)	At Protection Class I Parts Direct Method: 0.5 mA	mA

Insulation Resistance:

Welch Allyn does not recommend performing Hi-Pot testing on these products.

Device Leakage Current:

The IEC 62353 Standard doesn't provide measuring methods and allowable values for equipment producing dc leakage currents. Welch Allyn recommends the Direct Methods on all Devices. Shown in IEC 62353 Figure 7 shown below.

Permissible Values for Leakage Current Measurements:

Device Leakage Current	At protection class I parts	At protection class II parts
Direct or differential measurement:	0.5 mA	0.1 mA
alternative measurement:	1.0 mA	0.5 mA
Leakage Current from the Application Part		
Type BF:	5.0 mA	
Type CF:	0.05 mA	

Protective Earth Resistance:

Measurements shall be performed using a measuring device able to deliver a current of at least 200 mA into 500 mΩ. The open circuit voltage shall not exceed 500V dc. When using direct current, the measurement shall be repeated with opposite polarity. Either value measured shall not exceed the allowable value. The highest value shall be documented.

NIBP Leak test

Specification	Actual reading	Pass	Fail
Max: 5			

NIBP Overpressure test

Mode	Specification	Actual reading
Adult mode:	280 329	
Neonate mode:	130 164	

NIBP accuracy check

Target pressure ± 5 mmHg	Pressure meter	Service tool	Specification	Pass	Fail
0 mmHg	mmHg	mmHg	± 1 mmHg		
50 mmHg	mmHg	mmHg	± 3 mmHg		
150 mmHg	mmHg	mmHg	± 3 mmHg		
250 mmHg	mmHg	mmHg	± 3 mmHg		

Masimo SpO2 tests

Test	Specification	Actual reading	Pass	Fail
SpO2 heart rate	60 ±1 bpm	bpm		
SpO2 saturation	81% ±3%	%		
RRa	Verify appear in RRa frame	Visual		
SpHb	14g/dl ± 1g/dl	g/dl		

Nonin or Nellcor SpO2 and pulse rate test

Test	Specification	Actual reading	Pass	Fail
SpO2 heart rate	60 ±1 bpm			
SpO2 saturation	90% ±1%			

Thermometry tests Calibration key temperature test for SureTemp Plus

Temperature test	Specification ± 0.2°F (± 0.1°C)	Actual reading	Pass	Fail
97.3 °F 36.3°C	97.1 to 97.5°F 36.2 to 36.4°C	°F °C		

SureTemp Plus Probe test (Optional)

Temperature test	Specification ± 0.2°F (± 0.1°C)	Actual reading	Pass	Fail
96.8 °F 36.0°C	96.6 to 97.0°F 35.9 to 36.1°C	°F °C		
101.3 °F 38.5°C	101.1 to 101.5°F 38.4 to 38.6°C	°F °C		
105.8°F 41.0°C	105.6 to 106.0°F 40.9 to 41.1°C	°F °C		

Braun ThermoScan PRO 4000/6000 test

Temperature test	Specification ± 0.4°F (± 0.2°C)	Actual reading	Pass	Fail

96.8 °F 36.0°C	96.4 to 97.2°F 35.8 to 36.2°C	°F °C		
101.3 °F 38.5°C	100.9 to 101.7°F 38.3 to 38.7°C	°F °C		
105.8°F 41.0°C	105.4 to 106.2°F 40.8 to 41.2°C	°F °C		

Early Sense test

Test	Specification	Pass	Fail
Movement Frame	Present		
Exit Sensitivity Graphic Presence	Lit and Active		

CO2 Calibration test

Test	Measured CO2	Pass	Fail
CO2 __%	%		

Version	Sec, Pg, Para Changed	Change Made	Date Version Created	Version Created By (initials)
A	N/A	Initial Release	2016-07-12	KMG
B	Summary	Protective Earth Resistance and Leakage Current title corrected, Protective Earth Resistance 500 mA to mΩ, Added table for permissible values for leakage current measurements	2017-07-31	KMG
C	Filename	Changed Filename to remove double dash	2017-09-09	KMG
D	SPO2 test	Corrected the Test Specs for Masimo from 61 to 60bpm, and removed the 200/75 test for Nonin and Nellcor	2018-04-04	KMG