



# Fresenius Medical Care

## SERVICE BULLETIN

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Equipment: 2008K Hemodialysis Machines  
Bulletin: 08-FRK-001 Rev A  
Subject: Blood Pressure Module Preventive Maintenance Update

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### 1.0 PURPOSE

To inform all Field Service and Technical Support personnel of an update to the Blood Pressure Module section in the 2008K Preventive Maintenance Procedures P/N 507297 Rev E and the 2008K Semi-Annual Preventive Maintenance Procedures P/N 507781 Rev A. This Service Bulletin replaces FSB# 04-FRK-005, 05-FRK-001 and 06-FRK-003.

### 2.0 SCOPE

The update to the 2008K Preventive Maintenance Procedures and 2008K Semi-Annual Preventive Maintenance Procedures involves Section 3.22 Blood Pressure Module.

### 3.0 PROCEDURE

Section 3.22 Blood Pressure Module has been updated to include additional Blood Pressure Module types. Use the following pages to replace the existing procedures in the 2008K Preventive Maintenance Procedures revision E and the 2008K Semi-Annual Preventive Maintenance Procedures revision A.

If there are any questions regarding this bulletin, contact Fresenius Technical Support at 800-227-2572 x7003.

## 3.22 BLOOD PRESSURE MODULE

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**Note:** There are five types of blood pressure modules that can be connected to the 2008K. Since each module type has different test criteria and the 2008K is unable to detect which module is connected, disregard the displayed Pass/Fail results and use the appropriate table to determine pass or fail.

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Test the blood pressure module (See Figure, pg. 7), as follows:

Place the machine in Service Mode.

Select the Test BP Module button and the screen will change.

### INFLATION SPEED TEST

From the Test BP Module screen, select the Inflation Speed button.

1. Connect the pressure tubing from the module to the 700cc port on the Test Device. Ensure the tubing fits snugly on the ports.
2. Press the CONFIRM key. The screen will change and the test will start.
3. The blood pressure module will pressurize the Test Device and report the time. When the test is complete, use the table below to verify that the Time to 250 value is within range dependant upon the module type installed.

Module Type	Time to 250
M400	≤ 7.3 seconds
M2000	≤ 10.0 seconds
M2600	≤ 10.0 seconds
TM-2910	≤ 10.0 seconds
SunTech	≤ 11.0 seconds

4. Press the CONFIRM key.

## DEFLATION SPEED TEST



**Note:** The deflation speed test is not applicable to the SunTech module.

From the Test BP Module screen, select the Deflation Speed button.

1. Connect the pressure tubing from the module to the 220cc port on the Test Device. Ensure the tubing fits snugly on the ports.
2. Press the CONFIRM key. The screen will change and the test will start.
3. The blood pressure module will depressurize (deflate) the Test Device. The screen will change and report the deflation speed at various pressures in mmHg per second.
4. Use the table below to verify that the values reported are within the following ranges dependant upon the module type installed.

Pressure (mmHg/sec)	M400		M2000		M2600		TM-2910		SunTech	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
RATE AT 240	4.3	6.2	4.4	6.7	4.4	6.7	3.5	7.5	NA	NA
RATE AT 160	4.3	6.2	4.4	6.7	4.4	6.7	3.5	7.5	NA	NA
RATE AT 80	3.3	5.2	3.0	5.2	3.0	5.2	3.5	7.5	NA	NA
RATE AT 40	2.6	4.4	2.4	4.6	2.4	4.6	3.5	7.5	NA	NA

5. Press the CONFIRM key.

## AIR LEAKAGE TEST

From the Test BP Module screen, select the Air Leakage button.

1. Connect the pressure tubing from the module to the 700cc port on the Test Device. Ensure the tubing fits snugly on the ports.
2. Press the CONFIRM key. The screen will change and the test will start.
3. The blood pressure module will pressurize the Test Device as indicated by a rise in the Cuff Pressure displayed to approximately 200mmHg. An internal timer is then activated automatically. Any change in the pressure being held will show in the Cuff Pressure display.
4. At the end of the Air Leakage test, the pressure is automatically released, the screen will change and the Leak Rate in mmHg for a 3-minute test is displayed.

- Use the table below to verify that the **Leak Rate** value is within range dependant upon the module type installed.

Module Type	Leak Rate
M400	<15mmHg
M2000	<15mmHg
M2600	<15mmHg
TM-2910	<30mmHg
SunTech	<8mmHg

- Press the CONFIRM key.

### CALIBRATION CHECK

#### **For the M400 & TM-2910**

- From the **Test BP Module** screen, select the **Calibrate Mode** button.
- Disconnect the pressure tube from the Test Device and connect it to a mercury manometer or similar pressure meter accurate to within  $\pm 1$ mmHg.
- Press the CONFIRM key. The screen will change and the blood pressure module will pressurize the line.
- When the pressure shown on the display screen and on the external meter stabilizes, verify that they agree within  $\pm 3$ mmHg.



**Caution:** Do not exceed 330mmHg in the following step. The blood pressure module may be damaged if this pressure is exceeded.

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- Over-Pressure Relief Check:

While still pressurized from calibration check, remove the hose from the external meter and connect it to a large syringe (60cc) that has its plunger pulled back. Use the syringe to over-pressurize the blood test module while watching the display carefully. Verify that at between 320 (310mmHg for TM-2910) and 330mmHg indicated on the display screen, the pressure is automatically released.

### **For the M2000 & SunTech**

1. From the Test BP Module screen, select the Calibrate Mode button.
2. Disconnect the pressure tube from the Test Device and connect it to a mercury manometer or similar pressure meter accurate to within  $\pm 1$ mmHg.
3. Press the CONFIRM key. The screen will change and the blood pressure module will pressurize the line.
4. When the pressure shown on the display screen and on the external meter stabilizes, verify that they agree within  $\pm 3$ mmHg.
5. Over-Pressure Relief Check:  
Due to the microprocessor control of the M2000 and SunTech modules, the over-pressure relief check does not need to be conducted. In fact, an over-pressure relief test could permanently damage the module.

### **For the M2600**

1. From the Test BP Module screen, select the Air Leakage button.
2. Disconnect the pressure tube from the Test Device and connect it to a mercury manometer or similar pressure meter accurate to within  $\pm 1$ mmHg.
3. Press the CONFIRM key. The screen will change and the blood pressure module will pressurize the line.
4. The blood pressure module will pressurize as indicated by a rise in the Cuff Pressure displayed to approximately 200mmHg. An internal timer is then activated automatically.
5. When the pressure shown on the display screen and on the external meter stabilizes, verify that they agree within  $\pm 3$ mmHg.
6. At the end of the Air Leakage test, the pressure is automatically released.
7. Over-Pressure Relief Check:  
Due to the microprocessor control of the M2600 module, the over-pressure relief check does not need to be conducted. In fact, an over-pressure relief test could permanently damage the module.