

2008® Series Training Course Agenda (Level I)

Day 1

Start of Day

- Introduction to class
- Hemodialysis Review

Hydraulics

- All students are provided a flow diagram.
- Detailed description of the hydraulic system.
- Connection points for hydraulic calibrations.
- Discussion of the balancing chamber function and operation.
- Hydraulic and electronic interconnections.
- Accessing the electronics and machine modules.
- Demonstrate removal of the hydraulic assembly.

Machine operation

- Dialysis Mode
 1. Operator options
 2. Sodium Variation
 3. Alarms and Pressure Holding Test
 4. On-Line Clearance / Diasafe
 5. OLC "0" test
 6. Concentrate Select menu
- Service Mode
 1. Options (Treatment and Hardware)
 2. Calibration menu
 3. Diagnostics
 4. Valve Test Program

Day 2

Start of Day

- Review hydraulic flow path

Modules

1. Describe the calibration of level detector and venous pressure
2. Describe the function of the Blood pump and calibration of arterial pressure

Hydraulic Description

- Identification Lab Exercise

Electronics

1. Power Supply
2. Power control board
3. Power logic board
4. Display boards
5. Functional boards
6. UI / MICS / CDX board – 2008T machines ONLY!
7. Actuator / Test board
8. bibag interface board
9. Test board
10. Sensor board
11. Mother board

bibag Hydraulic Theory and Operation PDF presentation

Demonstrate Hydraulic Calibrations

Hydraulic Calibrations: The students will perform the calibrations.

- Deaeration (and Loading Pressure)
- Flow Pressure
- Balancing Chamber Volume
- Acid Pump Volume
- Bicarb Pump Volume
- Ultrafiltration Pump Volume

Day 3

Start of Day

Demonstrate Sensor and Monitor Calibrations

Sensor and Monitor Calibrations: The students will perform the calibrations.

- Arterial Pressure
- Venous Pressure
- Pressure Transducers
- Temperature Sensor
- Post Temperature Sensor
- Temperature Control
- Blood Leak
- Conductivity Cells (Dialysate and Bicarb)

Monitor Calibrations:

- Set Clock
- Voltage Detection
- Arterial Pump Rate
- Venous Pump Rate (If applicable)

When all calibrations are complete, a self-test is run on the machine. Any test that fails must be repaired or recalibrated so the machine passes all tests. The instructor using the Debug screens also checks the machine.

Preventive Maintenance

Rebuilds and Repairs

1. Rebuild the acid and Bicarb pumps.
2. Rebuild the Ultrafiltration pump
3. Demonstrate replacing brushes in the Deaeration motor

Day 4

Start of Day

Debug Screens

Each student will have a copy of the description of the debug screens to follow as all screens are described, and how they are used for troubleshooting and in Preventive Maintenance Procedures.

Preventive Maintenance

Schedule and Checklists The students will perform the annual PM checks.

- Quarterly or after 1000 Hours.
- Semi-annual or six (6) Months.
- Annual or after 4000 Hours.
- 2008K@home 2000 Hours

Written Test

A test of 25 questions is given with a time limit of 1 hour. The test is marked and returned for review and question and answer period.

Certificate of completion

Certificates will be given to all students that pass and complete the class.

Training material handed out in class:

1. Student Guide and Workbook
2. Hydraulic Flow Path Diagram
3. Resistors for Temperature Sensor Calibration
4. Potentiometer adjustment tool

Students that successfully complete the class should have a thorough understanding of the hydraulic system and be able to troubleshoot minor problems, do all calibrations, and perform the preventive maintenance procedures.