

2008T BlueStar™ Hemodialysis Machine

Participant Workbook



**FRESENIUS
MEDICAL CARE**

RENAL TECHNOLOGIES

Name: _____

Indication for Use:

2008T BlueStar Hemodialysis Machine: The 2008T BlueStar Hemodialysis Machine is indicated for acute and chronic dialysis therapy in a healthcare facility.

Additional therapy options for patients receiving hemodialysis include: Isolated Ultrafiltration, Sustained Low Efficiency Dialysis (SLED), and low volume hemodialysis (patients weighing ≥ 20 kg and ≤ 40 kg). This machine accommodates the use of both low flux and high flux dialyzers. The SLED therapy option is not to be used for patients weighing ≤ 40 kg. The 2008T BlueStar Hemodialysis Machine is not to be used for plasma replacement therapies, for patients weighing less than 20 kg, or for renal therapies using substitution fluid.

bibag System (Optional): The *bibag* system is used with three stream proportioning hemodialysis systems equipped with the *bibag* module such as the 2008T BlueStar Hemodialysis Machine and is intended for use in bicarbonate hemodialysis for acute and chronic renal failure. The *bibag* is intended for extracorporeal bicarbonate hemodialysis according to a physician's prescription.

CLiC Device (Optional): The CLiC device is used with the 2008T BlueStar Hemodialysis Machine to non-invasively measure hematocrit, oxygen saturation and percent change in blood volume. The CLiC device measures hematocrit, percent change in blood volume and oxygen saturation in real time for application in the treatment of dialysis patients with the intended purpose of providing a more effective treatment for both the dialysis patient and the clinician. Based on the data that the monitor provides, the clinician/nurse, under physician direction, intervenes (i.e., increases or decreases the rate at which fluid is removed from the blood) in order to remove the maximum amount of fluid from the dialysis patient without the patient experiencing the common complications of dialysis which include nausea, cramping and vomiting.

Caution: Federal (US) law restricts this device to sale by or on the order of a physician.

Note: Read the Instructions for Use for safe and proper use of this device. For a complete description of hazards, contraindications, side effects and precautions, see full package labeling at www.fmcna.com.

Introduction

The *2008T BlueStar™ Hemodialysis Machine Participant Workbook* is designed to complement your instructor-led training. While this workbook outlines basic instruction topics, it is not intended to replace the *2008T BlueStar Hemodialysis Machine Operator's Manual*, which contains detailed instructions for all machine functions.

Use your *In-Service Checklist* to keep track of new topics as you learn about them. Consider adding your own notes and enter parameters that are specific to your unit in the spaces we've provided in the workbook. Refer back to this workbook and your notes after you've completed your training on the 2008T BlueStar Hemodialysis Machine.




In addition to the *Participant Workbook* (P/N 103324-01), other available resources include:

- *2008T Hemodialysis Machine Operator's Manual* (P/N 490122)
- *2008T Hemodialysis Machine Quick Start Guide* (P/N 490161)
- *2008T Operator's Troubleshooting Guide* (P/N 102297-01)

Your instructor will provide you with more information regarding support resources during your training.

Icons and Descriptions:

The following icons are used in this workbook to provide direction and clarity:

Icons and Descriptions	
	Trainer explanation and demonstration
	Participant hands-on practice recommended
	Information found in the <i>Quick Start Guide</i>

Training Topics and Agenda

	Estimated Training Time (Minutes)
Welcome/Getting Started.....	5
<ul style="list-style-type: none"> • <i>Participant Workbook</i> Introduction • <i>2008T Hemodialysis Machine Operator's Manual</i> Introduction • <i>2008T Hemodialysis Machine Quick Start Guide</i> Introduction 	
Review 2008T BlueStar Hemodialysis Machine.....	10-15
<ul style="list-style-type: none"> • Review Key Machine Features 	
Demonstrate Daily Preparation for Treatment.....	45
<ul style="list-style-type: none"> • Setup Concentrate • Setup the Bloodline • Prime the Extracorporeal Circuit • Test the 2008T BlueStar Hemodialysis Machine • Recirculation • Manual or Auto Prime • Manual or Auto Start 	
Review Screens	
Review Initiation of Treatment.....	10
Alarms and Troubleshooting Activity.....	15
Review Termination of Treatment.....	5-10
<ul style="list-style-type: none"> • Manual or Assisted Reinfusion 	
Disinfection and Maintenance.....	10-15
<ul style="list-style-type: none"> • Acid Clean and Heat Disinfect • Acid Clean and Chemical Rinse • DIASAFE® Plus Filter Replacement • Manual or Assisted Reinfusion 	
Appendix	
<ul style="list-style-type: none"> • HD Equipment and MIS Support • In-Service Evaluation 	

2008T BlueStar Hemodialysis Machine In-Service Training Checklist



Facility: _____ Date of In-Service Training: _____

Address: _____ Contact: _____

City: _____ State: _____ Zip: _____ Phone: _____

Presented by: _____, RN

Training Topics

Topics may be modified to accommodate the specific policies and procedures of the unit being trained. Check marks indicate topics reviewed during the In-Service training; no representation is made regarding the participant competence or expertise.

Training Topics	✓
1. 2008T BlueStar Features	
• Familiarize Physical Features	
• Review of Screen Attributes	
• Review of Alarms/Troubleshooting	
• Disinfection & Maintenance	
• Auto Start/Testing	
• Sustained Low Efficiency Dialysis (SLED)	
• Low Volume Mode	
• Disinfect Log	
• Auto Prime	
• Assisted Reinfusion	
• Independent Conductivity/pH Testing	
• PatientCard System	
– Entering Patient Information	
– Default Parameters	
– Dialysate/Heparin/BP/UF Settings	
– Prescription	
• Alarm Volume Controls	
• Select Program Screen Changes	
– DIASAFE® Plus Reminder	
– PM Reminder	
– Digital Hour Meter	
– Digital Serial Number	
• New Heparin Syringe Choices	
• Conductivity Alarm Position Lock (if clinic is using)	
• New Treatment Prescription Warnings	

	✓
• Low Power Mode	
• Idle Mode Option of 100 mL/min. Dialysate Rate	
• New 150 mL/min. Dialysate Rate	
• Isolated UF	
• Alarm Volume Control, includes: Difference Between Low and High Priority Sounds, Acute vs. Standard (Chronic), How to Adjust Volume, Mute Symbol, and Volume Control Limits.	
2. Service Mode Options	
• Default Dialysate Flow 500/600/700/800 mL/min.	
• Plasma Sodium — Hide/Show	
• Sodium Variation System (SVS) On — Yes/No	
• Idle Mode Dialysate Flow Rate — 100/300 mL/min.	
• Conductivity Alarm Position — Lock/Unlock	
• New Treatment Prescription Warning	
• Default Rx Screen	
• Low Volume Max UF Rate — 500 – 1,000 mL	
• Maximum UF Per Treatment vs. Per Hour	
• Alarm Type — Acute/Chronic	
• Maintenance Scheduler Options	

2008T BlueStar Hemodialysis Machine Review



The instructor will review the physical features of the 2008T BlueStar Hemodialysis Machine, pointing out specific features on the front, back, and sides of the machine.

- Use the designated areas and the diagram of the front of the machine (located on the next page) to record your notes.

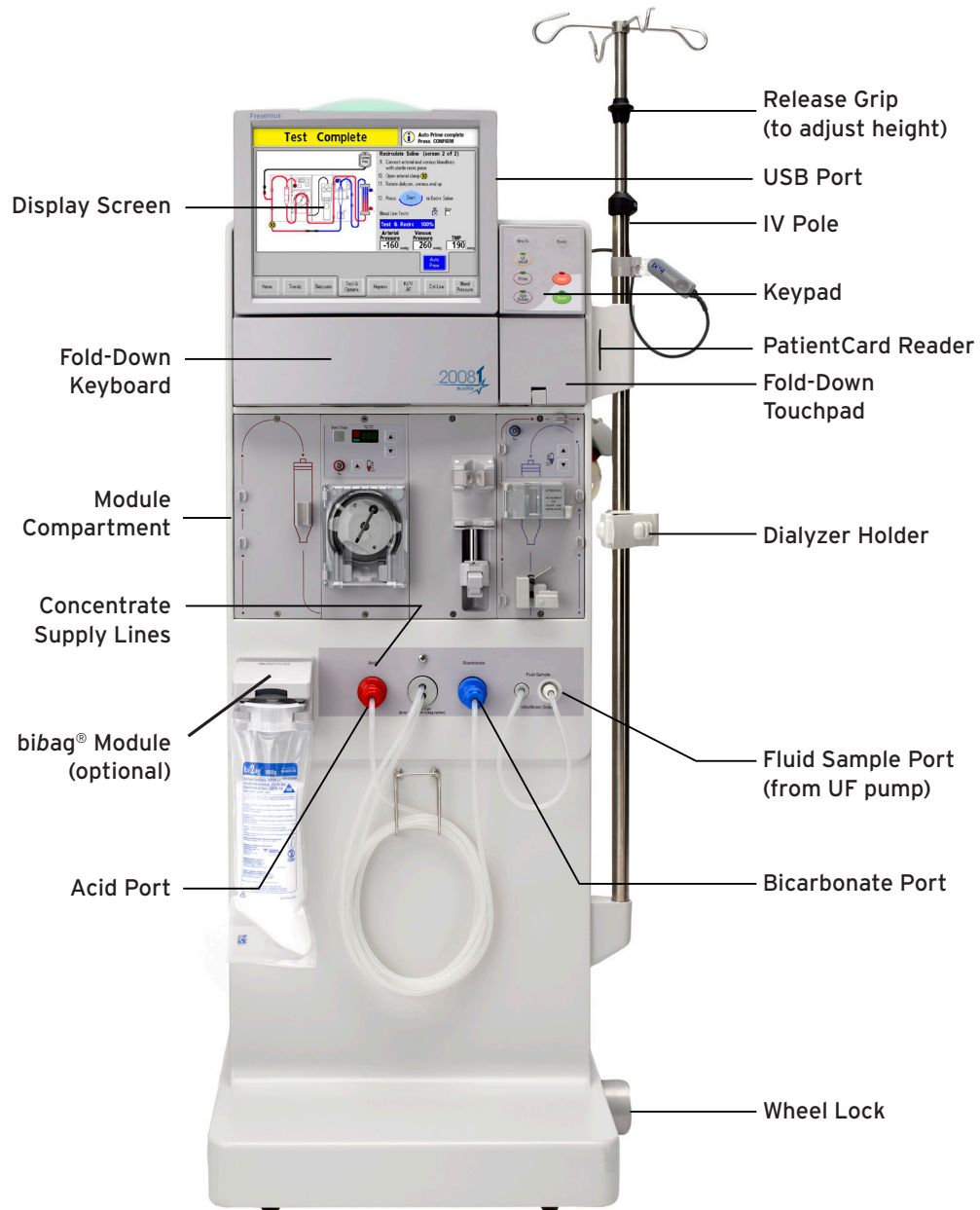
Notes:

Back of the machine:

Right side of the machine:


Left side of the machine:


2008T BlueStar Hemodialysis Machine Front View




Front of the machine:

Daily Preparation for Treatment







A trainer will demonstrate how to set up the 2008T BlueStar Hemodialysis Machine for treatment using the 2008T Hemodialysis Machine Quick Start Guide (P/N 490161). Topics include:

- Setting up the concentrate
- Setting up the bloodline
- Priming the Extracorporeal Circuit — Manual or Auto Prime
- Testing the machine — Manual Auto Start
- Recirculation
- Use notes spaces to supplement step-by-step directions provided in the QRG.

A return demonstration is recommended for each of the above steps. This hands-on practice may be done in either the training area or the treatment setting at the discretion of the unit.

Setting up the Concentrate

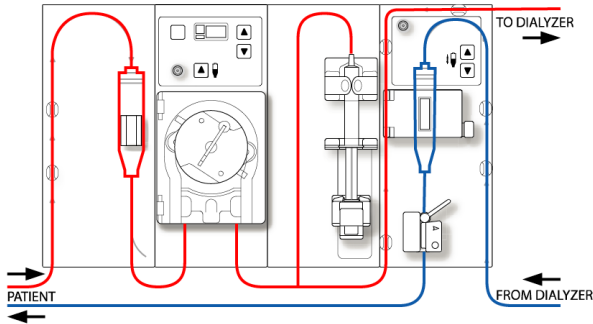
The screenshot shows the machine's control panel with the following data and annotations:

- Header:** "Dialysis Paused" (green bar), Blood Pressure: 100/70, 53, Time: 16:11.
- Concentrate Type:** Conc 1001-0, 45x ▲.
- Dialysate Composition:**
 - TCD: 13.4 mS/cm
 - K+: 1.0 mEq/l
 - Ca⁺⁺: 0.0 mEq/l
 - Mg⁺⁺: 1.0 mEq/l
 - Ac: 3.9 mEq/l
 - Dex: 98 mg/dl
 - Base Na⁺: 140 mEq/l
 - Bicarbonate: 38 mEq/l
- Conductivity Limits:**
 - Actual Conductivity: 13.7 mS/cm
 - Alarm Position: 13.9 mS/cm
 - Alarm Width: 12.9 mS/cm
- SVS Profile:** None
- Buttons:** Home, Trends, Dialysate, Test & Options, Heparin, Kt/V AF, BTM BVM, Blood Pressure.

Annotations:

- Concentrate Type:** Points to the "Conc" field.
- Theoretical Conductivity of Dialysate (TCD) and the Displayed Base Na⁺ and Bicarbonate Levels:** Points to the TCD and electrolyte values.
- Electrolyte Profile of Selected Concentrate at the Base Sodium and Bicarbonate Levels:** Points to the Base Na⁺ and Bicarbonate values.
- Actual Conductivity:** Points to the 13.7 mS/cm reading.
- Alarm Window:** Points to the Alarm Position and Alarm Width values.
- Conductivity Scale:** Points to the vertical bar graph.

Setting up the Bloodline



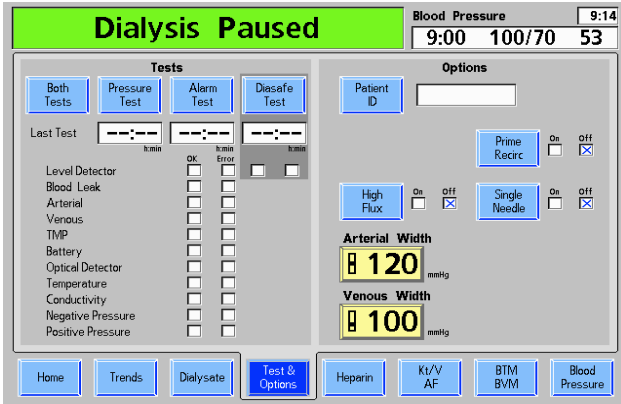
Notes:

Priming the Extracorporeal Circuit — Manual or Auto Prime

Notes:

Unit-Specific Prime Amount: _____mls.

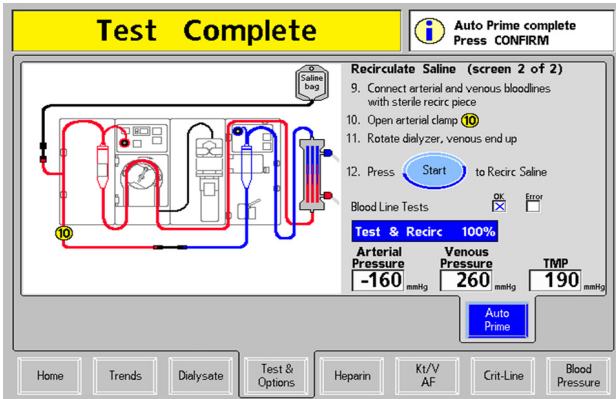
Testing — Manual or Auto Start



Notes:

1. From the "Tests and Options" screen, select Both Tests
2. Press CONFIRM

Recirculation




Notes:


Unit-Specific Parameters:

Recirculation Time: _____ mins.

Recirculation Amount: _____ mls.

Review Screens





The trainer will demonstrate the features of each of the screens during the In-service. The selections and actions that are available for each screen are listed below for your reference. Use the designated notes sections and diagrams to take additional notes.

- Return demonstration is recommended for entering treatment parameters and confirming settings. This may either be done at the conclusion of the In-service, or in the treatment area, depending on your facility's requirements.

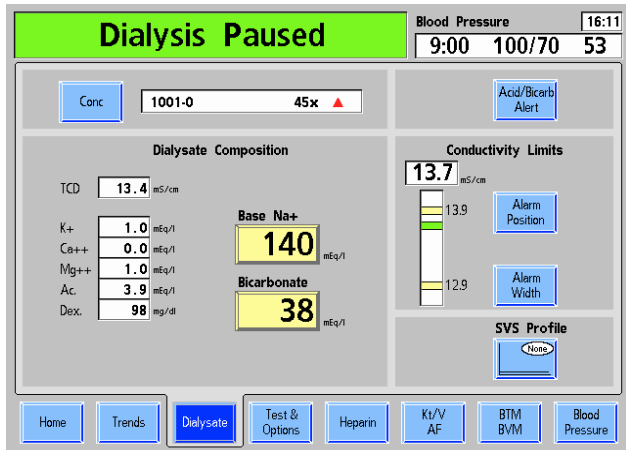
Select Program Screen

- Dialysis
- Rinse
- Acid Clean
- Heat Disinfect
- Chemical Rinse
- Chemical Dwell
- Last Disinfection Cycle and Time
- Software Version
- SLED
- Disinfect Log
- Serial Number
- Apps Installed
- Hour Meter
- PM Due
- DIASAFE Plus Maintenance Due

Notes: _____

Dialysate Screen

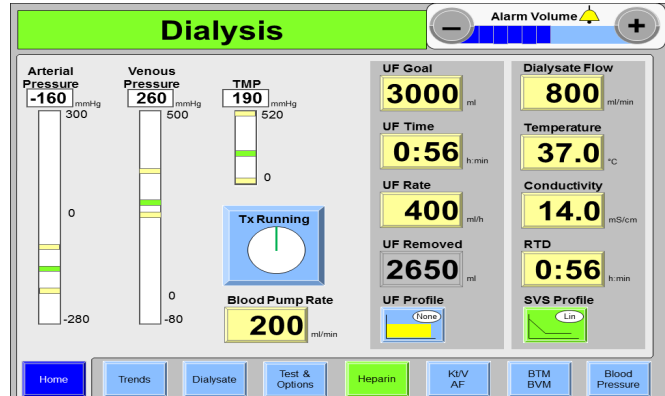
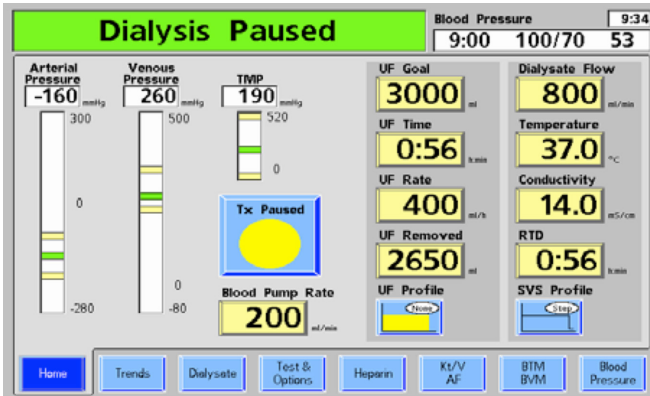
- Changing Concentrate
- Na+ Level
- Bicarb Level
- Acid/Bicarb Alert Volume
- Alarm Width
- Alarm Position
- Lock/Unlock
- Actual vs. Theoretical Conductivity (TCD)
- Granuflo® Option
- Citrasate Option



Notes:

Home Screen

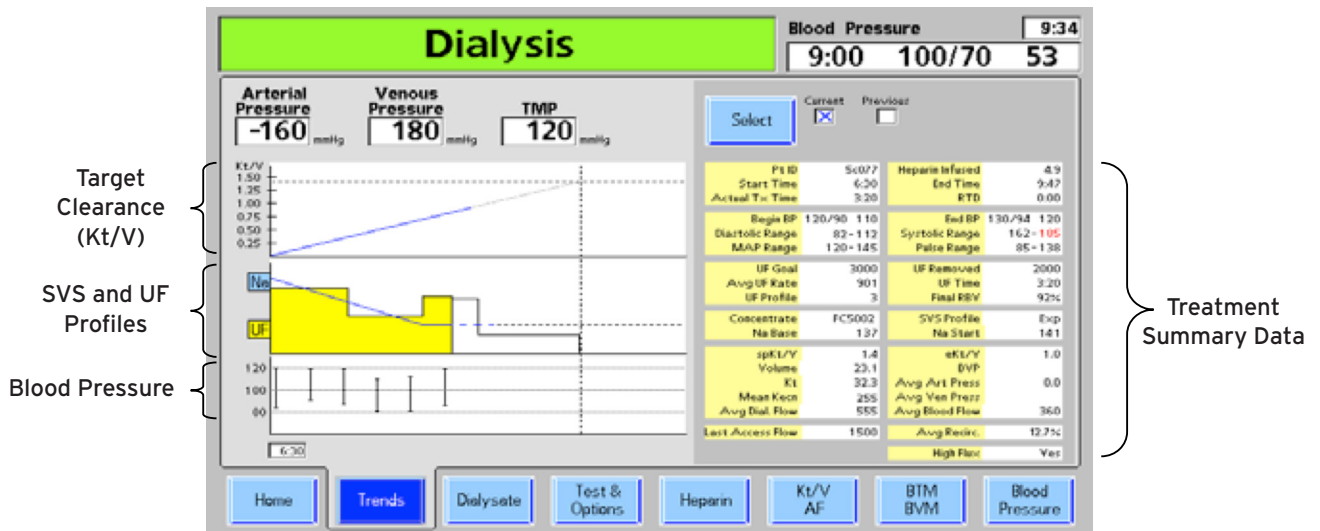
- Arterial Pressure Display
- Venous Pressure Display
- TMP Display
- Treatment Clock
- BFR
- Ultrafiltration (UF) Goal
- UF Time
- UF Rate
- UF Removed
- UF Profiles: 1-8
- Dialysate Flow: Auto Flow (All 3) Idle Mode, Sequential
- Temperature
- Conductivity
- Remaining Time of Dialysis (RTD)
- Alarm Volume Control
- Sodium Variation System (SVS) Profiles: Step, Linear, Exponential, None, Starting Na+, Ending Na+, SVS Time



Notes: _____

Trends Screen

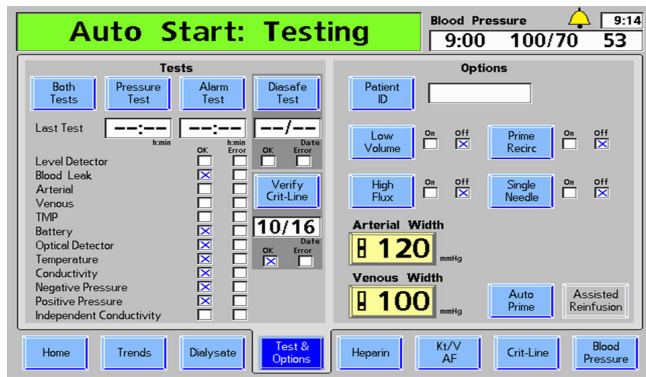
- Arterial, Venous, and TMP Readings
- Adequacy Monitoring
- SVS/Ultrafiltration Graphics
- Blood Pressure Graphic
- Current vs. Previous Patient Data



Test/Options Screen

- Test: Both Test
- Alarm Test (including 9v battery)
- Pressure Test
- DIASAFE Plus Test
- Time Stamp
- Names of Tests
Blue vs. Red "x" as Test Completes
- Independent Conductivity

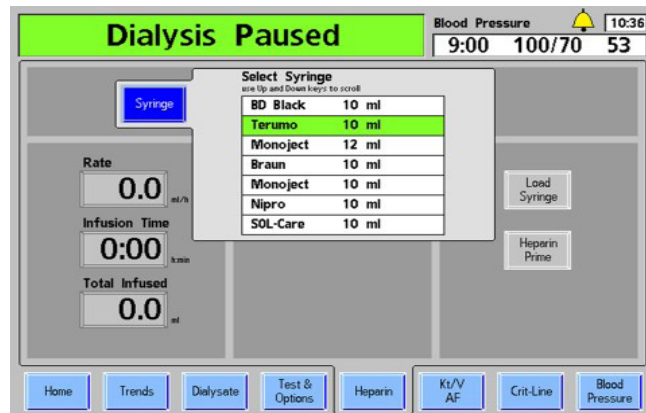
- Options:
 - Patient ID
 - Recirculate
 - High Flux
 - Single Needle
 - Recirculate
 - Arterial Alarm Limits
 - Venous Alarm Limits (locked vs. changeable limits)
 - Verify Crit-Line
 - Low Volume
 - Auto Prime
 - Assisted Reinfusion



Notes:

Heparin Screen

- Syringe Type
- Hourly Rate
- Infusion Time
- Total Infusion
- Bolus Amount
- Infuse Bolus
- Heparin Prime
- Load Syringe
- Heparin Dwell (if selected)



Notes:

Kt/V/AF Screen

- Online Clearance (OLC) Volume
 - Number of Tests
 - Blood Volume Processed (BVP)
 - Target Kt/V
 - Delivered Kt/V
 - Projected Kt/V
 - Graphic Display:
Red vs. Blue Line
- OLC Data Subscreen:
- Volume
 - Actual Time
 - Plasma Na⁺
 - Yes/No
 - BVP
 - Target Kt/V
 - Clearance Effective of Conductivity (Kecn) table and notations when tests are completed (M=manual, AF=access flow, nothing=machine automatically generated test)
 - Delivered (sp Kt/V)
 - Delivered (E Kt/V)
 - Delivered Kt/V
 - Access Flow

Blood Volume Monitor(BVM)/Blood Temperature Monitor (BTM) Screen

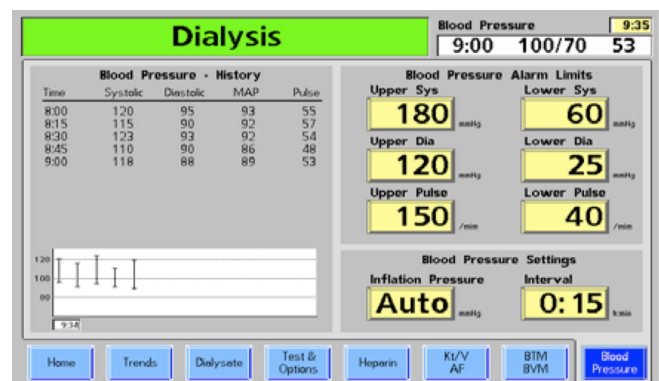
- **BVM:** Relative Blood Volume (RBV), Arrow Direction Relative Hemoglobin (Hgb)/Hematocrit (Hct) Alert Level Graphic Display Biofeedback
- **BTM:** Thermal Energy vs. Temperature Control Recirculation Value Graphic Display

Crit-Line®

- Elapsed Time
- Initial Hct
- Estimated Hgb
- Profile; Letter
- Current Hct
- Current Hgb
- Blood Volume %
- Oxygen Saturation
- Oxygen Minimum Saturation
- Treatment Clock; BV Alert Level
- O₂ Alert Level
- Print/markers Button
- BV Graph
- O₂ /BP Graph
- Home Screen
- Treatment Information




Blood Pressure Screen

- Systolic, Diastolic, Pulse Upper and Lower Limits
- Inflation Pressure Setting
- Clock/Interval Setting
- Machine Time Setting/Change
- Graphic Display During Treatment
- Treatment Start Time



Notes: _____

Initiation of Treatment

	<p>The trainer will demonstrate initiating treatment, using the detailed instructions found in the <i>Quick Start Guide</i> (Starting Dialysis).</p>
	<ul style="list-style-type: none"> Use the space below for additional notes on step-by-step directions and unit-specific parameters.
	<p>Return demonstration may be conducted after the initial In-service or in the treatment area during first initiation. All return demonstrations conducted in the treatment area require close supervision by the trainer or other designated individual.</p>

Notes:



Unit-Specific Parameters:

Prime: _____ mls. Recirc Goal: _____ mls. Recirc Time: _____ min.

Base Na+: _____ Base Bicarb: _____ AutoFlow: Y or N / 1.5X or 2X




	Na+ (if different from base)
	Bicarbonate (if different from base)
	Acid Concentrate
	Temperature
	DFR

Review Alarms: Troubleshooting Activity

	<p>The trainer will introduce the <i>2008T BlueStar Troubleshooting Cards</i> and conduct an activity to demonstrate the information that is provided on the <i>Troubleshooting Cards</i> and to familiarize you with their contents.</p>
	<p>The <i>Troubleshooting Cards</i> are a quick reference tool, but the <i>Operator's Manual</i> is the most comprehensive reference for troubleshooting alarms.</p> <ul style="list-style-type: none"> • Continue working with alarms and <i>Troubleshooting Cards</i> in treatment area as alarms are encountered

Notes:

Termination of Treatment

	<p>The trainer will demonstrate terminating treatment using the detailed instructions found in the <i>Quick Start Guide (Completion of Dialysis)</i>.</p>
	<ul style="list-style-type: none"> • Manual/assisted reinfusion • Use the space below for additional notes on step-by-step directions and unit-specific parameters.
	<p>Return demonstration may be conducted after the initial In-service or in the treatment area during first termination. All return demonstrations conducted in the treatment area require close supervision by the trainer or other designated qualified individual.</p>





Notes:

Unit-Specific Parameters:

Rinseback Amount: _____ml

Rinseback Method: Open or Closed

Disinfection and Maintenance

	<p>The trainer will demonstrate the procedure for Acid Clean and Heat Disinfect for applicable participants using the detailed instructions found in the <i>Quick Start Guide</i> (Acid Clean and Heat Disinfect).</p>
	<p>The trainer will also demonstrate the procedure for Acid Clean and Chemical Rinse (bleach), auto heat (if applicable), using the detailed instructions found in the <i>Quick Start Guide</i> (Acid Clean and Chemical Rinse).</p> <ul style="list-style-type: none">• Use the space below for additional notes on step-by-step directions and unit-specific parameters.
	<p>The trainer will demonstrate the procedure for DIASAFE Plus filter replacement for appropriate participants (i.e., those participants who are designated by their facility to replace the DIASAFE Plus filter).</p>
	<p>Return demonstration is recommended either at the end of the In-service, or in the treatment area at the end of the day.</p>

Notes:

Acid Clean

Recommendation: Daily at End of Use

Unit policy: _____

Heat Disinfect – Auto Heat Optional

Recommendation: Daily After Acid Clean Except on Chemical/Rinse Day(s)

Unit Policy: _____

Chemical/Rinse

Recommendation: Once a Week After Acid Clean

Unit Policy: _____

2008T BlueStar Hemodialysis Machine Support

Get the support you need for the 2008T BlueStar Hemodialysis Machine. Count on 24/7 access to our technical and clinical support specialists at **800-227-2572**.

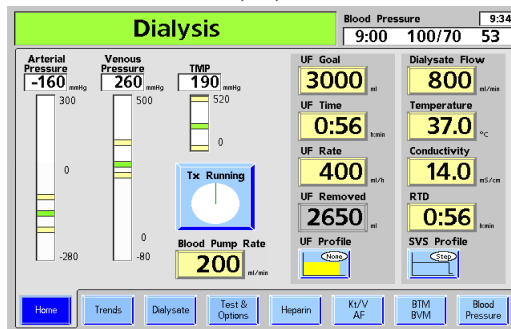
Note: Refer to your local clinic's procedures for details on resolving issues and utilizing support.

Keyboard



The "blue button" is used to switch between the dialysis system and the medical information system

HD Equipment



MIS Function

FMIS Chair Side Application 22 JUL 2009 15:51

Pre-Treatment Intradialytic Post Treatment Patient Medical View Runsheet

Doctor Name: PHYSICIAN, ANDY Patient Name: DOLL, KEN Patient ID: 1000

Dialyzer Type: OPTIFLUX 160N Dialyzer #: 1 Machine #: 1

Shift: MW-1 Shift Status: SCHEDULED TREATMENT Shift Date: 19-AUG-2009

Description	Setup	Staff initial	Staff initial
MACHINE TEST			
DIALYZER VERIFIED			
INTEGRITY TEST			
ABOVE SETUP VERIFIED BY			

Show Routine Order Assign Patient Cancel

Machine Setup To Do List Admit Patient Pre Treatment Assessments Pre Treatment Vitals Access Assessments Daily Notes

2008T BlueStar Hemodialysis Machine In-Service Evaluation

Facility Name: _____ Date: _____

Trainer: _____

We value your feedback. Please complete this evaluation of your 2008T BlueStar Hemodialysis Machine training. Your input will help us refine future experiences.

Please indicate your response to each of the following statements by circling the appropriate number on the right	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The Program:					
1. Adequate time was allowed to cover the program content	1	2	3	4	5
2. The pace of the training was appropriate	1	2	3	4	5
3. The material was presented in a way that made it easy to learn	1	2	3	4	5
4. The support material was adequate and well-organized	1	2	3	4	5
5. There was adequate time for questions and follow-up	1	2	3	4	5
The Trainer:					
6. Created an environment conducive to learning	1	2	3	4	5
7. Was knowledgeable about the clinical setting	1	2	3	4	5
8. Effectively communicated the key concepts	1	2	3	4	5
9. Encouraged application of theoretical knowledge	1	2	3	4	5
10. Helped develop problem-solving skills	1	2	3	4	5
11. Was available for questions and individualized instruction	1	2	3	4	5
12. Overall, was an effective clinical instructor	1	2	3	4	5
The Overall Experience:					
13. The training met my expectations and goals	1	2	3	4	5
14. I feel better prepared to use the 2008T BlueStar Hemodialysis Machine	1	2	3	4	5

What did you like most about the training experience?



**FRESENIUS
MEDICAL CARE**

RENAL TECHNOLOGIES

Fresenius Renal Technologies, a division of Fresenius Medical Care North America
920 Winter Street, Waltham, MA 02451
Customer Service: 800-662-1237 | Technical Support: 800-227-2572

2008TBlueStar.com

© 2018 Fresenius Medical Care, All Rights Reserved. Fresenius Medical Care, the triangle logo, Fresenius Renal Technologies, 2008, BlueStar, DIASAFE, GranuFlo, Crit-Line, and CLIC are trademarks of Fresenius Medical Care Holdings, Inc. or its affiliated companies. Citrasate is a registered trademark of Advanced Renal Technologies in the United States and is used under license from Advanced Renal Technologies. All other trademarks are the property of their respective owners. P/N 103324-01 Rev B 12/2018