

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 1 OF 236



Service Manual



Baxter

Baxter Healthcare Corporation
 One Baxter Parkway
 Deerfield, IL 60015 USA
 Program version 2.0

Prior to servicing this device, read this manual and the Operator's Manual carefully to fully understand the device's functionality and to ensure safe and proper servicing

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 2 OF 236

Legal Manufacturer**Baxter Healthcare SA**

8010 Zürich
Switzerland

Copyright ©2018 Baxter Healthcare Inc. All rights reserved.

PrisMax, TherMax, and Baxter are trademarks of Baxter International Inc.

The information contained in this manual is the sole property of BAXTER and may not be duplicated without permission. This manual may be revised or replaced by BAXTER at any time and without notice. Ensure that you have the most current applicable version of this manual; if in doubt, contact BAXTER Technical Support or your local representative. While the information set forth herein is believed to be accurate, it is not a substitute for the exercise of professional judgment.

The **PrisMax** System should be operated and serviced only by trained professionals. The sole responsibility of BAXTER with respect to the **PrisMax** System and its use is as stated in the limited warranty provided.

Nothing in this manual shall limit or restrict in any way the right of BAXTER to revise or otherwise change or modify the equipment (including its software) described here in, without notice. In the absence of an express, written agreement to the contrary, BAXTER has no obligation to furnish any such revisions, changes, or modifications to the owner or user of the equipment (including its software) described herein.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: GDRAFT A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 3 OF 236

Contents

1. Introduction	9
1.1 The PrisMax System	9
1.2 About This Manual	9
1.3 Responsibility and Disclaimer	9
1.4 Maintenance	10
1.5 Technical Support	10
1.6 Warnings, Cautions, and Notes	10
1.7 Equipment, Tools, and Materials	13
1.8 Consumable Materials	15
2. Technical Description	17
2.1 PrisMax Profiles	17
2.2 Intended Use	23
2.2.1 United States	23
2.2.2 Outside the United States	23
2.3 Therapies	23
2.4 Anticoagulation	24
2.5 Functionality	24
2.6 Disposables	25
2.6.1 Effluent bags	26
2.6.2 Solution bags	26
2.6.3 Syringes	26
2.7 Accessories	26
2.7.1 Calibration Weight Kit	26
2.7.2 TherMax Blood Warmer	26
2.7.3 Auto Effluent Accessory	26
2.7.4 Hemoperfusion Arm	27
2.8 Physical Architecture	27
2.8.1 Front Panel Assembly	27
2.8.2 Top Panel Assembly	28
2.8.3 Base Assembly	29
2.8.4 Door Assembly	30
2.8.5 Rear Panel Assembly	31
2.8.6 Right Panel Assembly	31
2.8.7 Left Panel Assembly	32
2.8.8 Display Assembly	33
2.8.9 Card Cage Assembly	33
2.9 Electronic Architecture	34

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 4 OF 236

2.10	Hardware Items.....	35
	2.10.1 Backplane Board.....	37
	2.10.2 Backplane Replaceable Board	37
	2.10.3 Main Board	37
	2.10.4 Safety Board	40
	2.10.5 Power Board	42
	2.10.6 Replaceable Board	44
	2.10.7 Power Control Panel (PCP).....	44
	2.10.8 Driver Board	44
	2.10.9 Power Supply Unit.....	46
	2.10.10Isolation Board	46
	2.10.11Battery Pack	47
	2.10.12Blood Leak Detector (BLD)	47
	2.10.13Air Bubble Detector (ABD)	47
	2.10.14Venous (Return Line) Clamp.....	48
	2.10.15Loader Assembly	48
	2.10.16Pinch Valves	49
	2.10.17Switches	49
	2.10.18Liquid Level Sensor (LLS).....	49
	2.10.19Liquid Leak Detector (LLD).....	50
	2.10.20Syringe Pump	50
	2.10.21Fluid Pumps	51
	2.10.22Blood Pump.....	52
	2.10.23Discharge System.....	53
	2.10.24Weight Scales and LED Indicators	53
	2.10.25Automatic RePositioning System (ARPS)	54
	2.10.26Display Assembly	57
	2.10.27Speaker.....	58
	2.10.28Cabinet Fan.....	58
	2.10.29Code Reader.....	58
2.11	Software (SW) Architecture.....	58
	2.11.1 Graphical User Interface (GUI)	59
	2.11.2 System Logic/Control Software	61
	2.11.3 Machine/Sensor Interface Software	63
	2.11.4 Protective Software	63

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: GDRAFT A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 5 OF 236

2.12	Operating Modes.....	65
2.12.1	Start Mode.....	65
2.12.2	Setup / Prime Mode.....	65
2.12.3	Therapy Mode.....	65
2.12.4	Recirculation.....	66
2.12.5	End Mode	66
2.12.6	Power-Down Mode	66
2.12.7	Service Mode.....	66
3.	Installation Procedures	67
3.1	Introduction	67
3.2	Installation Requirements	67
3.3	Unpacking and Inspection.....	67
3.4	Minimum Service Configuration	72
3.5	Customer Configuration Requirements.....	72
3.6	Calibration and System Self-Test (SST).....	72
3.7	Electrical Safety Test.....	73
3.8	Final Checkout	73
4.	Service Mode.....	75
4.1	Entering Service Mode	75
4.2	Logs	76
4.2.1	Service.....	76
4.2.2	TherMax Log Download	76
4.3	Configuration.....	76
4.3.1	LED Configuration	77
4.3.2	TherMax Configuration	77
4.4	Calibration.....	77
4.4.1	Entering Calibration.....	77
4.4.2	Scale Calibrations	78
4.4.3	Pressure Sensor Calibrations	78
4.4.4	Syringe Pump Calibration	79
4.4.5	Blood Leak Detector Calibration	79
4.4.6	ARPS Compliance Calibration.....	80
4.4.7	Return Detection Calibration	80
4.4.8	Loaders Calibration	80
4.4.9	TherMax Calibration	81
4.5	System Self-Tests	81
4.5.1	Entering SST.....	81
4.5.2	Display SST.....	82
4.5.3	ARPS SST.....	82

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 6 OF 236

4.5.4	Barcode Reader SST	83
4.5.5	Audio SST	84
4.5.6	Pinch Valves SST	84
4.5.7	Pressure Sensors SST	84
4.5.8	Scales SST	85
4.5.9	Loaders SST	86
4.5.10	Motors SST	86
4.5.11	Power Board SST	87
4.5.12	Main Board SST	88
4.5.13	Safety Board SST	88
4.5.14	Driver Board SST	89
4.5.15	Isolation Board SST	89
4.5.16	Liquid Level Sensor SST	90
4.5.17	Air Bubble Detector SST	90
4.5.18	Return Clamp SST	91
4.5.19	Liquid Leak Detector SST	91
4.5.20	Ambient Temperature Sensor SST	91
4.5.21	Discharger SST	92
4.5.22	RAM SST	92
4.5.23	TherMax SST	92
4.5.24	Syringe Pump SST	93
4.5.25	Blood Leak Detector SST	94
4.5.26	Final Acceptance	94
4.6	Manual Controls	95
4.6.1	Motors Manual Control	95
4.6.2	Syringe Manual Control	97
4.6.3	TherMax	100
4.6.4	Pinch Valves Manual Control	101
4.6.5	ARPS Manual Control	103
4.6.6	Loader Motors and Clamp Manual Control	106
4.7	Software Update	107
4.7.1	Installing Device Software Updates	107
4.7.2	Updating Individual Board Software	110
4.7.3	Updating Component Firmware	111
4.7.4	Updating License or Language Files	112
4.8	Supplemental Procedures	114
4.8.1	Setting Date and Time	114
4.8.2	Using the Screenshot Utility	115
4.8.3	Resetting the Barcode Reader	115
4.9	Simulated Patient Treatment Procedure	115

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: GDRAFT A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 7 OF 236

4.10	Electrical Safety Inspection	119
4.10.1	ESI Test Description	119
4.10.2	ESI Test Standards	119
4.10.3	When to Perform ESI.	120
4.10.4	ESI Test Procedures	120
5.	Maintenance	127
5.1	Introduction	127
5.2	Preventive Maintenance Components	128
5.3	Visual Inspection and Cleaning	128
5.4	Preventive Maintenance Component Replacement	129
5.4.1	Pressure Pod Sealing Cones	129
5.4.2	Blood Pump Rotor Dampers	129
5.4.3	Fluid Pump Rotor Dampers.	130
5.4.4	ARPS Filter and Pump Segment.	130
5.4.5	Replaceable Board	130
5.4.6	Battery Pack	131
5.4.7	Final Component Steps.	131
5.5	Calibration and System Self-Test (SST)	131
5.6	Electrical Safety Test.	132
5.7	Final Checkout	132
5.7.1	Check battery backup function	132
5.8	Storage	133
5.8.1	Storage Environmental Specifications.	133
5.8.2	Disposal of packaging material	133
5.8.3	Short-term Storage (no loss of power or loss of power < 1 yr)	133
5.8.4	Long-term Storage (loss of power for > 1 yr).	133
5.9	Decommissioning/Dismantling	134
5.9.1	External Disinfection	134
5.9.2	Dismantling	135
5.9.3	Disposal of Discarded Equipment.	136
6.	Troubleshooting	139
6.1	PrisMax System Alarms	139
6.1.1	Alarm Priorities	140
6.1.2	Alarm Message Screen Elements.	140
6.1.3	Malfunction Alarms	182
6.1.4	Call Service Alarms	184
6.1.5	Override Alarms.	184
6.2	Events Log	186
6.3	POST Failure Codes.	186

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 8 OF 236

6.4	BIOT Failure Codes	196
6.5	Non-Alarm Troubleshooting	227
6.5.1	Introduction	227
6.5.2	Artifacts on ECG Display or Printout	227
6.5.3	Troubleshooting the Barcode Reader	228
6.5.4	Troubleshooting Blood in Effluent Line/Bag	228
6.5.5	Troubleshooting Blood in Solution Line/Bag	229
6.5.6	Troubleshooting Communication Problems.....	229
6.5.7	Troubleshooting Display Problems	231
6.5.8	Fan Noise	231
6.5.9	Leak Inside Control Unit	232
6.5.10	Status Light Problem	232
6.5.11	Scale LED Problem	232
6.5.12	Troubleshooting Loader Problems	233
6.5.13	Troubleshooting Power Problems	233
6.5.14	Unresponsive or Unexpected Response to Normal Actions	234
6.5.15	Troubleshooting Mechanical Problems	235

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 9 OF 236

1. Introduction

1.1 The PrisMax System

The **PrisMax** system is a software-controlled therapeutic device intended for performing various renal replacement therapies in an intensive care setting.

During treatment, the system pumps blood from the patient access connection, through the set and filter, then returns the blood to the patient's venous circulation. The treatment process takes place as the blood passes through the set. Depending on the therapy in use, treatment may remove patient fluid and solutes or toxins, or induce plasma exchange.

Treatment settings are adjustable to meet individual patient requirements. The PrisMax system continuously monitors for abnormal conditions such as disconnection, occlusion, air detection, and filter status.

All treatments administered by the PrisMax system must be prescribed by a physician. Not all uses are approved in all countries. The PrisMax system is intended to be used in a hospital setting by physicians or other clinicians who have been trained to use the system.

1.2 About This Manual

This service manual describes how to install and maintain the PrisMax System and includes the following chapters:

- "Technical Description," page 17
- "Installation Procedures," page 67
- "Service Mode," page 75
- "Maintenance," page 127
- "Troubleshooting," page 139

NOTE: See the PrisMax Operator's Manual for information on symbols used on device labeling, device specifications, pressure handling, therapies, and anticoagulation, and associated software calculations.

NOTE: See the PrisMax Operator's Manual for information on cyber-security as it relates to the PrisMax system.

NOTE: See the PrisMax Illustrated Spare Parts Catalog for information on available replacement parts for the PrisMax System.

1.3 Responsibility and Disclaimer

Baxter does not accept any responsibility or liability for use of accessories or disposables other than those specified in this manual, or for any use that is not in accordance with onscreen instructions, the disposable set instructions, or this manual.

Baxter does not accept responsibility for the safety, reliability, and performance of the PrisMax system in case of unauthorized modifications. Any modifications to the equipment must be authorized in writing by Baxter and carried out by an individual trained and certified by Baxter to service the PrisMax system (authorized service technician).

The electrical installation for powering the equipment must comply with all applicable local electrical codes and requirements including, if applicable, IEC requirements.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 10 OF 236

The equipment must be used in accordance with the operator's and service manuals for the PrisMax System.

Baxter cannot be responsible or liable for any damages due to service performed by unauthorized service technicians.

Under no circumstances is Baxter liable for any indirect, incidental, special, or consequential damages of any kind, and liability is limited solely to repair or replacement.

Rx Only. In the United States, use of the PrisMax system is restricted by U.S. federal law to sale or use by, on the order of, or under the supervision of a physician or other licensed healthcare professional.

1.4 Maintenance

To ensure proper operation of the PrisMax System control unit, an authorized service technician must perform a complete series of maintenance procedures at regular intervals as described in the Maintenance section of this manual.

The PrisMax System requires at least one preventive maintenance per year, or every 6000 hours of operation, whichever comes first.

1.5 Technical Support

For technical support please contact your local BAXTER service or customer service representative.

Contact:

Baxter Healthcare Corporation

One Baxter Parkway

Deerfield, IL 60015 USA

www.baxter.com

The manufacturer will provide circuit diagrams, schematic electrical drawings, component part lists, descriptions, and calibration instructions upon request to assist service personnel in parts repair.

1.6 Warnings, Cautions, and Notes

Symbols shown in this section are used throughout this document to draw attention to a warning, caution, or note. The definitions are provided below.



WARNING
WARNING MESSAGES INDICATE A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



CAUTION
Caution messages indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 11 OF 236

NOTE: Notes provide supplemental information to the accompanying text. Notes precede the text to which they apply.

⚠ WARNING	ALL MAINTENANCE AND REPAIRS MUST BE DONE BY AN AUTHORIZED (BAXTER-TRAINED AND CERTIFIED) SERVICE TECHNICIAN.
⚠ WARNING	TO HELP ENSURE PATIENT SAFETY, PERFORM ALL OPERATION, MAINTENANCE, AND CALIBRATION PROCEDURES FOR THE PRISMAX SYSTEM ACCORDING TO THE OPERATOR'S MANUAL, ONSCREEN INSTRUCTIONS, THIS SERVICE MANUAL, AND DISPOSABLE SET AND SOLUTION INSTRUCTIONS. ALL PROCEDURES MUST BE PERFORMED BY AUTHORIZED CLINICIANS OR SERVICE TECHNICIANS.
⚠ WARNING	A PATIENT MUST NOT BE CONNECTED WHEN SERVICING THE PRISMAX SYSTEM.
⚠ WARNING	CERTAIN ALARMS CAN CAUSE THE SYSTEM TO FAIL TESTING. DO NOT USE UNTIL THE PROBLEM IS CORRECTED AND THE SYSTEM PASSES TESTING.
⚠ WARNING	<p>PERFORM TESTING WITH THE PRISMAX SYSTEM IN THE INTENDED USE ENVIRONMENT WHEN DEPLOYED IN PROXIMITY TO EQUIPMENT THAT INTENTIONALLY GENERATES ELECTROMAGNETIC ENERGY TO ENSURE THE PRISMAX SYSTEM REMAINS SAFE AND EFFECTIVE.</p> <p>PERFORM TESTING IN THE INTENDED USE ENVIRONMENT WHEN USING RFID TECHNOLOGY. RFID PROVIDERS SHOULD WORK WITH HEALTHCARE ORGANIZATIONS IN ASSURING SAFE DEPLOYMENT AND USE OF RFID WHEN USED NEAR MEDICAL ELECTRICAL EQUIPMENT AND SYSTEMS OCCUR. REFER TO AIM STANDARD 7351731 ANNEX L FOR IMPLEMENTING RAIN RFID SYSTEMS.</p> <p>THE PRISMAX SYSTEM HAS BEEN PROVEN TO WORK IN THE INTENDED USE ENVIRONMENT FOR SIGNALS DEFINED IN IEC 60601-1-2:2014 STANDARD FOR EMISSION AND IMMUNITY. SIGNALS NOT SPECIFIED IN THE STANDARD, FOR EXAMPLE 860-960 MHZ FREQUENCY AT 54 V/M USING DSB-ASK MODULATION, MAY CAUSE IMPROPER OPERATION SUCH AS UNEXPECTED SYSTEM ERRORS AND INTERRUPTION IN THERAPY, WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.</p>
⚠ CAUTION	The PrisMax system must be installed by an authorized service technician.
⚠ CAUTION	To ensure product traceability, do not exchange components between PrisMax units. When servicing the PrisMax system or any medical equipment, traceability is of key importance to tracking and trending unit performance. Exchanging components between units compromises traceability.
⚠ CAUTION	The PrisMax system weighs approximately 70 kg (154 lb). At least two people are required to lift it out of the shipping carton. Handle the system carefully.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 12 OF 236

⚠ CAUTION	Use proper electrostatic safety equipment (wrist grounding strap and grounding mats) to avoid damage to electrostatic-sensitive components inside the control unit.
⚠ CAUTION	If the PrisMax system is damaged or internal components are exposed, contact Baxter Technical Service. Do not use until an authorized service technician has verified correct system operation.
⚠ CAUTION	The volume accuracy of the PrisMax system depends on accurate scale (using the correct weights, closed scales, and bag carrying bars) and pressure calibration. All calibrations must be performed by an authorized service technician as described in this service manual.
⚠ CAUTION	To avoid damage to the pump crank, do not clean using sodium hypochlorite (bleach).
⚠ CAUTION	To avoid possible shock hazard due to capacitive components, use care when removing the replaceable board.

- NOTE:** This manual includes basic maintenance procedure information. For the most current information, see the most recent PM kit instructions.
- NOTE:** Following any maintenance or repair, a qualified service technician must perform electrical safety testing as described in the service manual, including an earth leakage current test and protective earth conductivity test.
- NOTE:** When changing a component, the instructions included with a replacement part may contain updated information that replaces the procedures in this manual.
- NOTE:** Before performing any procedure in Service mode, ensure that the date and time are correct.
- NOTE:** If a component fails to operate, or produces an error or alarm code, see "Troubleshooting," page 139.
- NOTE:** Never insert fingers or any object into the return line clamp, pinch valves, or motors.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 13 OF 236

1.7 Equipment, Tools, and Materials

Table 1-1 lists the tools and test equipment required to maintain the PrisMax system.

Table 1-1 Required Tools and Test Equipment

Part number	Description	Purpose
	M100 extracorporeal circuit (recommended)	Simulated patient treatment testing
115370	Auto Effluent (AE) Accessory ROW/US	Automatically pumps effluent to waste system. Used for simulated patient treatment testing
115485	Drain Extension AE ROW/US	Extends drain tubing. Used for simulated patient treatment testing
955516	TherMax Disposable ROW/US	Dedicated disposable that provides a warming interface to the blood. For TherMax testing
955668	Auto Effluent (AE) Accessory CKT	Automatically pumps effluent to waste system. Used for simulated patient testing.
955669	Drain Extension AE CKT	Simulated patient treatment testing
955670	TherMax Disposable CKT	Dedicated disposable that provides a warming interface to the blood. For TherMax testing
G5000103	Calibration weight set (A, B, C, and D weights, 7000 grams)	Calibration and verification of scales and syringe pump
SE6000	Combination wrench ½ inch, open-end box wrench.	General use. servicing return port assembly.
SE6001	Driver	Magnetic driver for Hex and Torx bits.
SE6002	ESD finger cots	For ESD protection when handling electronic components.
SE6003	Pliers	Flat nose
SE6005	Hex bits and Torx bits	Sizes: 1.5, 2, 2.5, 3, 4, 5, 6, and 8 mm. T8, T15, and T20.
SE6006	Pliers	Needle nose
SE6007	Nut driver - 7 mm	General use, Bulkhead connector
SE6008	Nut driver - 10 mm	General use, equipotential connector.
SE6009	Double open end wrench - 22x24 mm	General use; install and remove base wheels
SE6011	Pod plug, syringe, & clamp	Calibration and verification of pressure sensors: includes a pressure pod occluded at one end (no diaphragm), a tube with Luer port and syringe.
SE6012	Pod plug	Calibration and verification of pressure sensors: includes a pressure pod occluded at both ends; no diaphragm. (two required)

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 14 OF 236

Table 1-1 Required Tools and Test Equipment (continued)

Part number	Description	Purpose
SE6013	Graduated cylinder with Luer fittings	For use as a patient fluid reservoir while performing a simulated patient treatment.
SE6014	ARPS tubing installation tool	Installing ARPS tubing.
SE6015	Low-flow pump motor centering tool	Servicing solution (not blood) pumps.
SE6016	Scale centering tool	Servicing scales.
SE6017	Discharge clip alignment tool	Servicing the discharge clip.
SE6018	Blood leak detector film reflector	Verification of blood leak detector (BLD)
SE6019	Syringe tubing & chamber assembly	Verification of liquid level sensor (LLS), air bubble detector (ABD), and return clamp line presence.
SE6020	Return plug pod	For verification of the return pressure sensor and the ARPS.
SE6021	Pressure gauge	Mesa Labs 90 XL or equivalent. Includes pressure gauge attachment and built-in timer.
SE6022	Discharge lug with tubing section	Verification of discharge clip and BLD.
SE6023	Calibrated Syringe	Gas-tight syringe for verification of ultrasonic air bubble detector (ABD)
SE6024	USB Flash Drive	Verification of isolation board USB port connectivity.
SE6025	DB9 Null Modem Loopback Cable	Verification of isolation board DB9 serial port connectivity
SE6026	Ethernet Loopback Jack and Plug	verification of isolation board Ethernet port connectivity
SE6027	Fine Tip DMM Probes	Used with Digital Multimeter
SE6028	Digital Multimeter	Fluke 115 or equivalent
SE6029	Return Port With Tubing	Calibration and verification of pressure sensors: includes a fluid barrier (transducer protector) with a male Luer port on each end.
SE6031	Saline Filled BLD Tube	Verification of BLD: optically corrected tube plugged at each end.
SE6032	50 ML Syringe	Calibration and verification of pressure sensors, ABD, BLD, liquid level detector (LLD), and syringe pump.
SE6034	Digital Manometer	Omega HHP240 or equivalent for verification of internal barometric pressure sensor.
SE6035	Timer	Timing portions of calibrations and SSTs.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 15 OF 236

Table 1-1 Required Tools and Test Equipment (continued)

Part number	Description	Purpose
SE6037	0.1" Conductive jumper	Enabling RS-232 connector on the remote alarm connector (isolation board).
SE6038	2mm Conductive jumper	Overriding PSC power (power board) during software installation.
SE6039	Power Control Panel Clamping Fixture	Servicing power control panel (PCP)
SE6040	Power Control Panel Mounting Fixture	Servicing the PCP.
SE6041	Ratchet Strap	Servicing the PCP.
SE6042	TP88 Rigid Back Probe Pins	
SE6043	Digital Temperature Meter	
SE7000	Bag Detect and Rear BLD Fixture	For TherMax testing
SE7001	Temperature SST Tubing Set	For TherMax self-test
SE7002	Variable Speed Peristaltic Pump	For TherMax testing
SE7003	Copper Foil Tape Test Strip - ESI	Electrical safety inspection

1.8 Consumable Materials

Consumable materials required to clean the PrisMax are listed in the PrisMax Operator's Manual. It is the facility's responsibility to consult the manufacturer's packaging for expiration dates and the material safety data sheets (MSDS) for warnings regarding handling, exposure, and required personal safety equipment.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 16 OF 236

THIS PAGE INTENTIONALLY BLANK

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 17 OF 236

Chapter 2

2. Technical Description

The PrisMax System meets the strict demands of multiple blood purification therapies. It can deliver a complete range of continuous extracorporeal blood therapies with a highly versatile platform that can be customized to specific patient needs, including warming the return blood with the **TherMax** blood warmer.

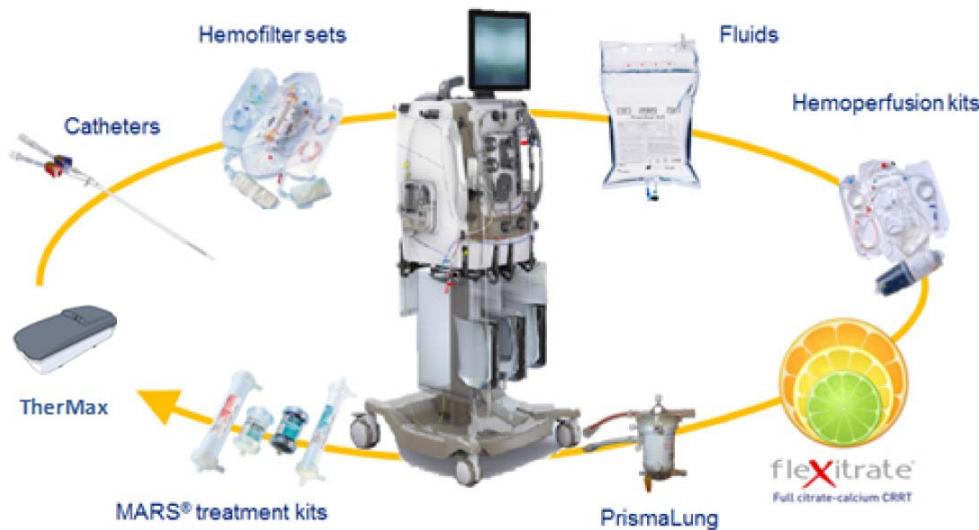


Figure 2-1 PrisMax System

2.1 PrisMax Profiles

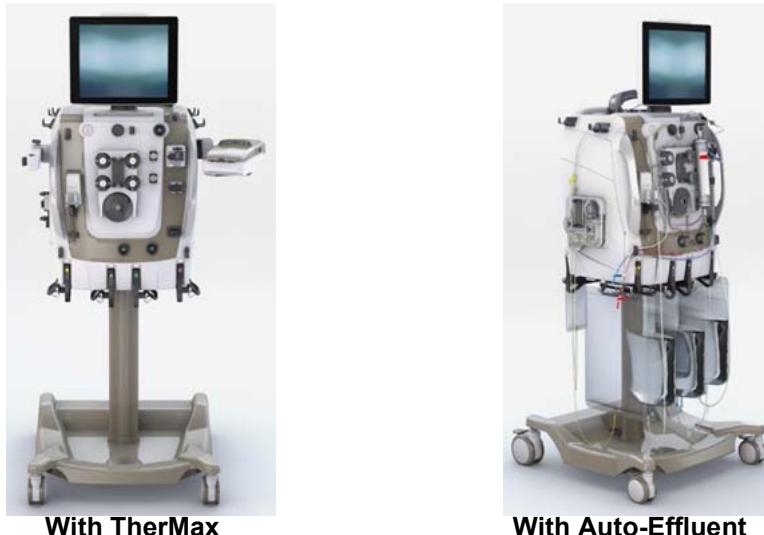
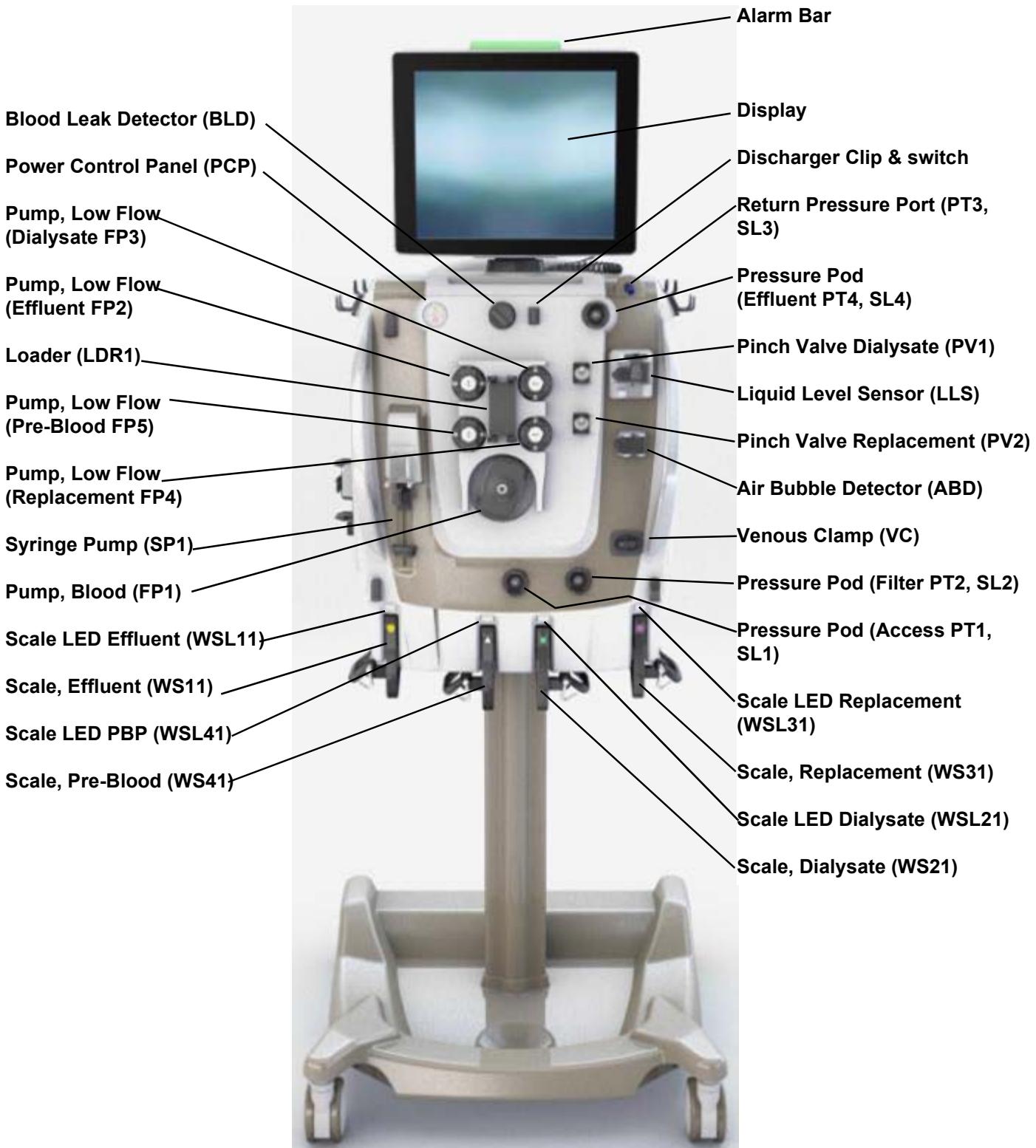


Figure 2-2 PrisMax with Options

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 18 OF 236

**Figure 2-3 PrisMax Front View 1**

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 19 OF 236

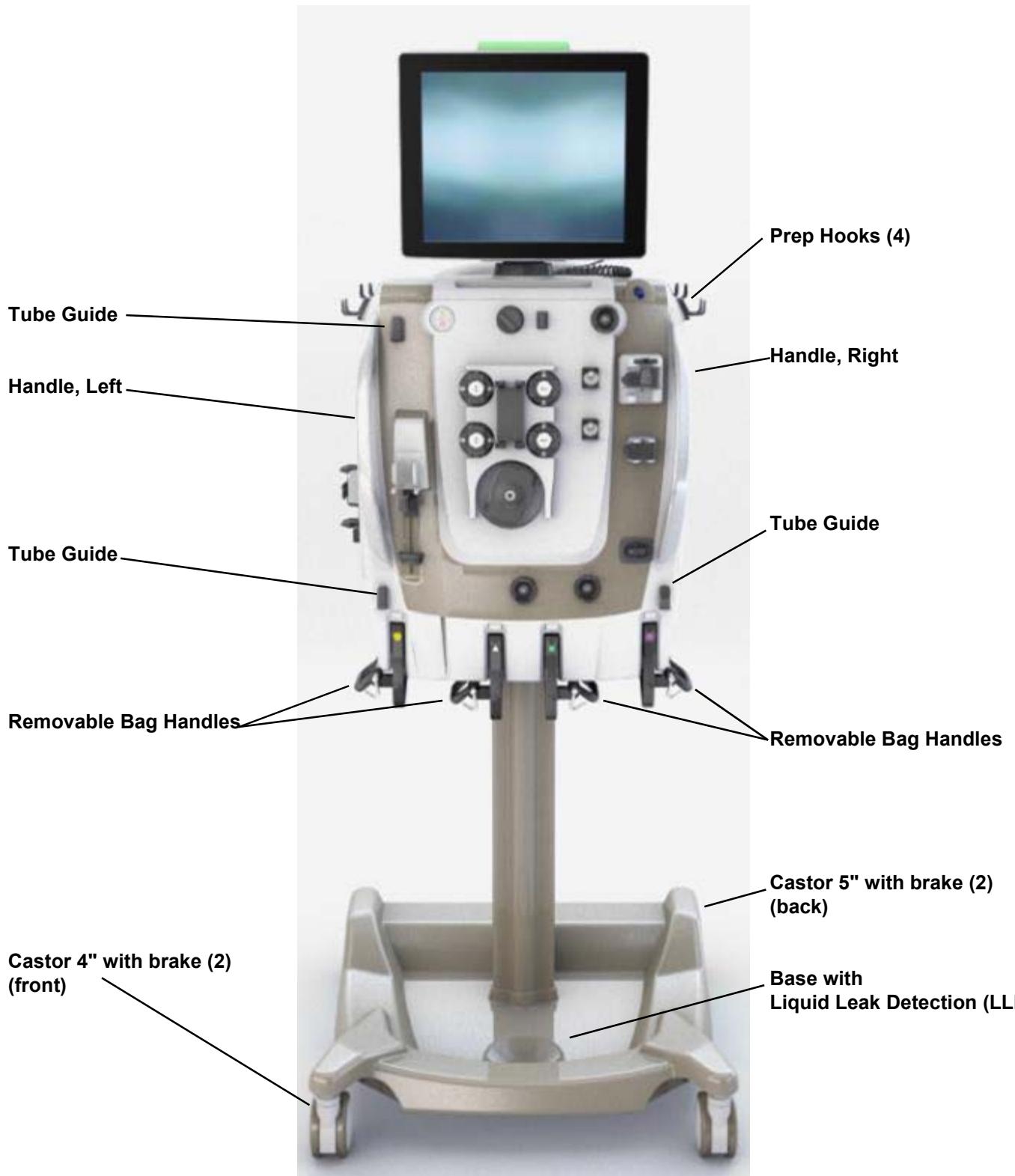


Figure 2-4 PrisMax Front View 2

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 20 OF 236

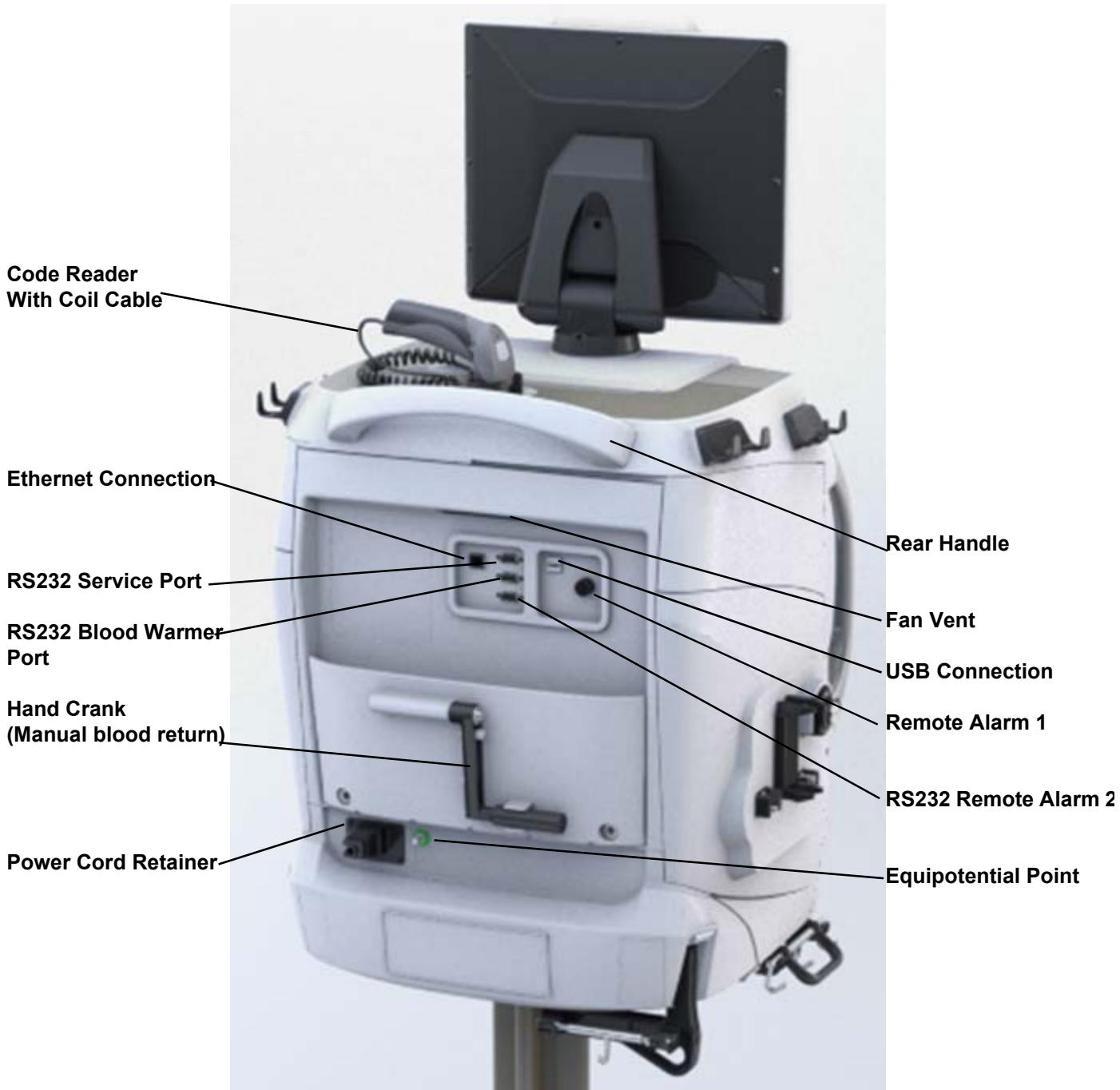


Figure 2-5 PrisMax Rear View

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 21 OF 236



Figure 2-6 PrisMax Right Side View

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 22 OF 236

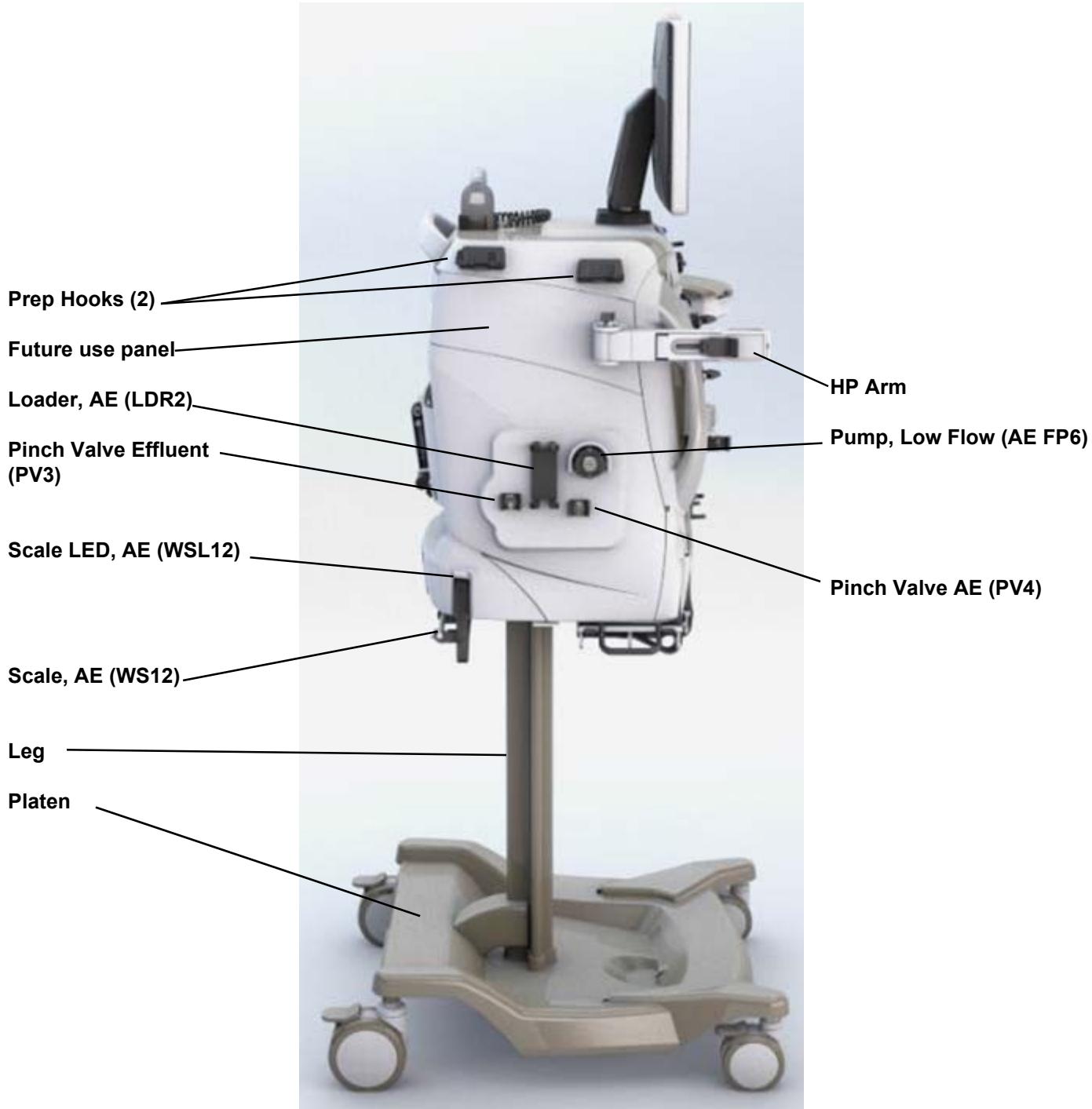


Figure 2-7 PrisMax Left (Auto Effluent) Side View

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 23 OF 236

2.2 Intended Use

2.2.1 United States

The PrisMax control unit is intended for:

- Continuous Renal Replacement Therapy (CRRT) for patients weighing 20 kilograms or more with acute renal failure and/or fluid overload.
- Therapeutic Plasma Exchange (TPE)

All treatments administered via the PrisMax control unit must be prescribed by a physician.

2.2.2 Outside the United States

The PrisMax control unit is intended for:

- Continuous Renal Replacement Therapy (CRRT) for patients with acute renal failure and/or fluid overload
- Therapeutic Plasma Exchange (TPE)
- Hemoperfusion (HP)

All treatments administered via the PrisMax control unit must be prescribed by a physician.

2.3 Therapies

The PrisMax system pumps blood from the patient, through the filter in a disposable set, and back to the patient's venous circulation. As the blood passes through the filter, the desired treatment processes take place. Depending upon the therapy in use, these processes can include fluid removal and/or solute clearance or adsorption:

- CRRT (Continuous Renal Replacement Therapies):
 - SCUF (Slow Continuous Ultrafiltration) provides fluid removal by ultrafiltration.
 - CVVH (Continuous Veno-venous Hemofiltration) provides convective solute clearance by hemofiltration. Can provide net fluid removal if desired.
 - CVVHD (Continuous Veno-venous Hemodialysis) provides diffusive solute clearance by hemodialysis. Can provide net fluid removal if desired.
 - CVVHDF (Continuous Veno-venous Hemodiafiltration) provides solute clearance by both convection and diffusion. Can provide net fluid removal if desired.
- TPE (Therapeutic Plasma Exchange) is the automated removal of a patient's plasma and its replacement (exchange) with a suitable alternative fluid such as a solution containing albumin or fresh frozen plasma.
- HP (Hemoperfusion) passing large volumes of blood over an adsorbent substance to remove toxic substances from a patient's blood.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 24 OF 236

The therapy mechanisms of ultrafiltration, hemofiltration, and hemodialysis are used to provide PrisMax therapy options:

- Ultrafiltration removes plasma water with solutes by pulling the fluid from the patient's blood across a semipermeable membrane in the filter. The ultrafiltration rate in the PrisMax system is controlled by the effluent pump.
- Hemofiltration removes plasma water with solutes from the patient's blood by ultrafiltration. A replacement solution is simultaneously infused into the blood flow path. The replacement solution adds back some or all the removed plasma water plus desired solutes. Undesirable solutes are removed by convection, thus decreasing the concentration of the undesirable solutes in the patient's blood.
- Hemodialysis removes undesirable solutes by passing them from the patient blood across the semipermeable membrane into the dialysate flowing through the fluid compartment of the filter in a direction counter to that of the blood flow through the filter. The concentration of unwanted solutes is lower in the dialysate than in the blood, causing the solutes to diffuse across the membrane from the greater concentration of the patient's blood to the lesser concentration of the dialysate solution. Solute clearance is achieved by diffusion.
- Hemodiafiltration is a combination of both hemofiltration and hemodialysis. Dialysate fluid is pumped through the fluid compartment of the filter while the effluent pump simultaneously controls ultrafiltration and a replacement solution is infused into the blood flow path. Solute removal is achieved by both convection and diffusion.

2.4 Anticoagulation

The PrisMax system provides the following anticoagulation options:

- Citrate - Calcium: treatment performed by delivering citrate solution with the pre-blood pump and calcium with PrisMax syringe pump. The calcium is infused directly into the patient.
- Citrate Only: performed by delivering citrate solution with the pre-blood pump (only available in TPE treatment).
- Systemic: treatment performed by delivering systemic anticoagulation regimens with PrisMax syringe pump.
- No anticoagulation: Treatment performed without delivering any anticoagulation regimens.

2.5 Functionality

The PrisMax system is a software-controlled medical device that performs the following functions:

- Pumps sterile, pre-blood pump (PBP) infusion solution into the blood access line.
- Pumps sterile replacement solution/fluid and/or sterile dialysate.
- Pumps effluent fluid to disposable bags for manual or automatic emptying.
- Controls fluid removal from the patient.
- Monitors the system and alerts the operator to abnormal situations through alarms.
- Provides the user with a graphical user interface (GUI) to enter and review data.
- Loads and primes the disposable treatment set automatically.
- Loads and primes the automatic effluent emptying accessory automatically.
- Pumps blood through the blood flow path of the disposable set.
- Delivers systemic anticoagulant solution (heparin) into the blood flow path using the syringe pump.
- Delivers regional anticoagulation solution (citrate) into the blood access line via the pre-blood pump.
- Delivers calcium infusion into the patient blood stream during regional anticoagulation using the syringe pump.
- Provide blood warming with an integrated **TherMax** blood warmer accessory and accommodates other blood warmers.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 25 OF 236			

2.6 Disposables

Only disposable sets dedicated to the PrisMax system and the Prismaflex system can be used with the PrisMax system. Figure 2-8 shows the disposable set schematic and fluid flow path for effluent out.

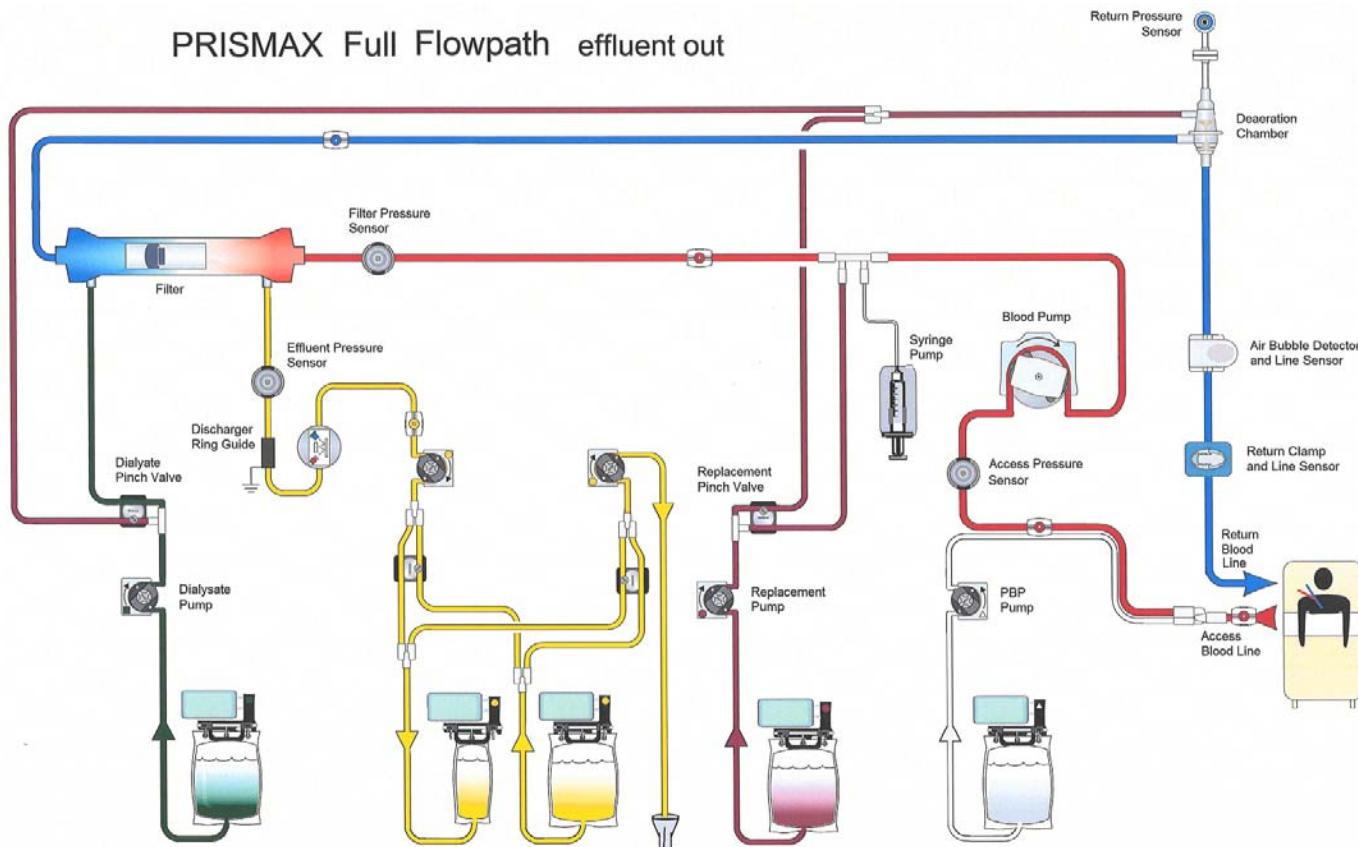


Figure 2-8 Fluid Flow Paths in PrisMax (valid for CRRT only)

Table 2-1 Disposable Accessories

Accessory	Part Number	Description
Auto Effluent (AE) Accessory CKT	955668	Automatically pumps effluent to waste system
Auto Effluent (AE) Accessory ROW/US	115370	Automatically pumps effluent to waste system
Drain Extension AE CKT	955669	Extends drain tubing
Drain Extension AE ROW/US	115485	Extends drain tubing
TherMax Disposable CKT	955670	Dedicated disposable that provides a warming interface to the blood
TherMax Disposable ROW/US	955516	Dedicated disposable that provides a warming interface to the blood

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 26 OF 236

2.6.1 Effluent bags

Disposable sets include an effluent bag. Additional PrisMax effluent bags are available separately in standard 5-liter and 9-liter sizes.

2.6.2 Solution bags

Solutions bags contain dialysate, replacement or pre-blood infusion solutions. Standard dialysate, PBP and replacement bags are 5000 ml size.

2.6.3 Syringes

Many syringe brands can be used with PrisMax in 20 and 50 ml sizes.

2.7 Accessories

2.7.1 Calibration Weight Kit

The calibration weight kit is used during service to calibrate the weight scales and syringe pump.

2.7.2 TherMax Blood Warmer

The **TherMax** blood warmer is designed for use with the PrisMax system. The **TherMax** blood warmer is controlled, configured and set up using the PrisMax monitor via a serial link. Alarms and alerts are presented on both devices. The **TherMax** blood warmer uses a disposable that is inserted into the front of the warmer, between an upper and lower heating plate, and connects to the filter set before the deaeration chamber.



Figure 2-9 TherMax Blood Warmer

2.7.3 Auto Effluent Accessory

The auto effluent accessory enables the PrisMax system to continuously extract effluent without the need for effluent bag changes. Effluent is pumped to a drain by alternating between one of two effluent bags. While one is being filled the other is being emptied.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 27 OF 236

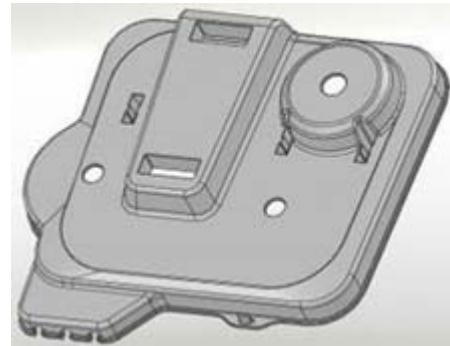
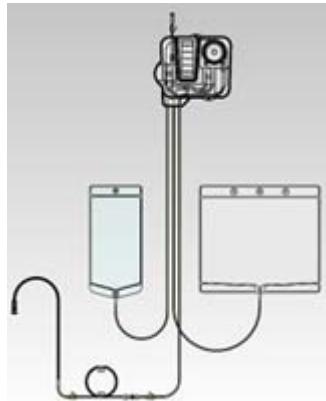


Figure 2-10 Auto Effluent Accessory

2.7.4 Hemoperfusion Arm

The Hemoperfusion (HP) Arm holds an HP filter if the filter in the disposable front set is not per prescription.

2.8 Physical Architecture

2.8.1 Front Panel Assembly

The front panel assembly holds many cabinet components and mounts to the frame and top panel. There are gaskets around all components that penetrate the front panel to prevent liquid and dust ingress.

The front panel assembly includes the following components:

- Plastic Front Panel
- Air Bubble Detector (ABD)
- Liquid Level Sensor (LLS) with foam detector
- Blood Leak Detector (BLD)
- Venous Clamp (Return line clamp) and brackets
- Power Control Panel (PCP)
- Pinch Valves (PV) (2)
- Discharge ring/clip
- Loader, Primary
- Fluid pumps (4)
- Blood pump
- Front Handles (2)
- Clip to hold fluid tubes (3)
- Syringe Pump (actuator and arm) and cover
- Syringe Arm Clip
- LED Indicators for each scale (4)
- Cables (7)
- Safety Ground Cables (9)
- Heat sink for fluid motors
- Bracket to support top right panel & warmer arm
- Brackets for mounting scales
- Brackets for holding ARPS components

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 28 OF 236

- Pressure pods (Access, filter, effluent) (3)
- ARPS Pressure Sensor
- Clamps for internal ARPS tubing and cables
- Tubing clip for syringe tubing

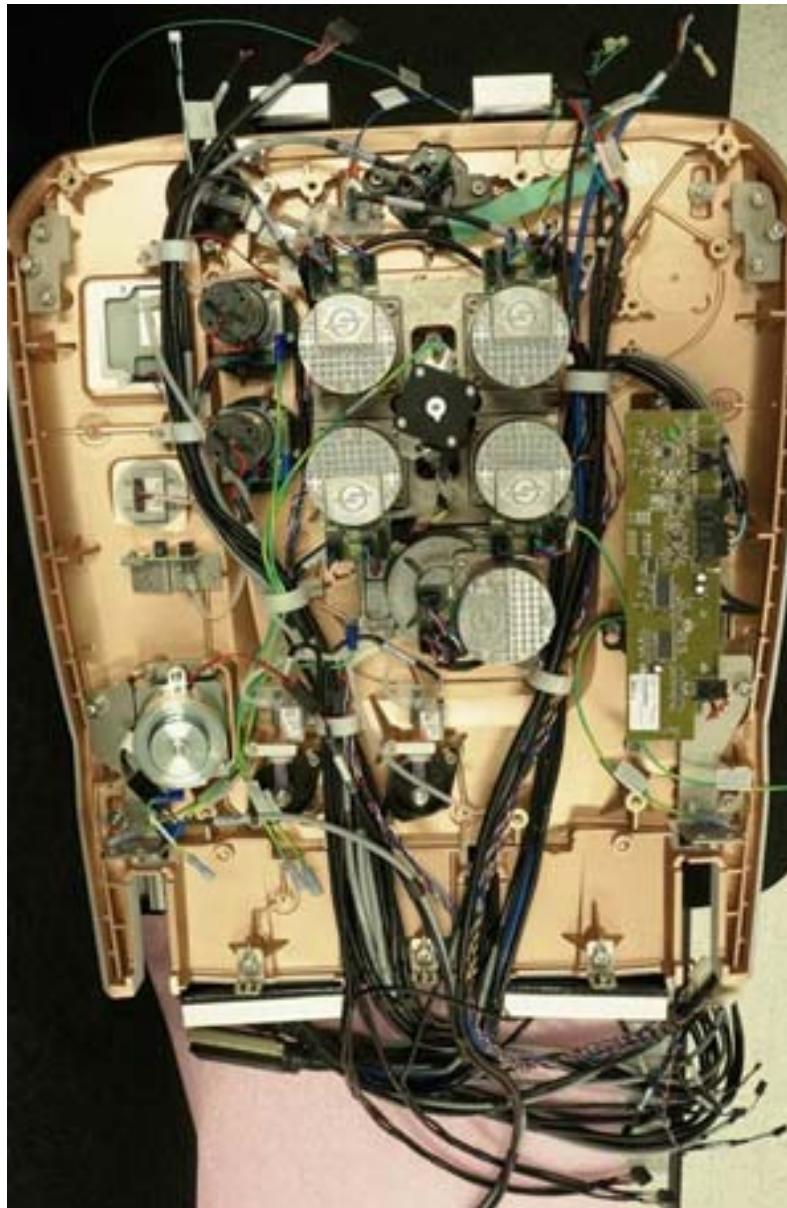


Figure 2-11 Front Panel Assembly - Inside View

2.8.2 Top Panel Assembly

The top panel assembly forms the top of the cabinet and mounts to the frame and front panel assemblies.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 29 OF 236

2.8.3 Base Assembly

See Figure 2-12. The base assembly supports the cabinet, stabilizes the system, provides mobility, and catches liquid leaks. The liquid leak detector (LLD) cable runs through the center of the leg and includes an ambient temperature sensor. The aluminum base is designed to accumulate all liquid leaks into a pocket that contains the LLD. The lockable front and back casters are of two different sizes and have full swivel capability. The LLD is an optical sensor with an O-ring that seals against liquid leaks and meets EMC/ESD requirements.

The base assembly includes the following major components.

- Platen
- Leg
- Leg Brace
- Liquid Leak Detector (LLD)
- Casters (4) with brakes
- LLD Cable with ambient temperature sensor
- Scale Covers (2)
- Bracket, Scale Cover
- LLD Cable Covers

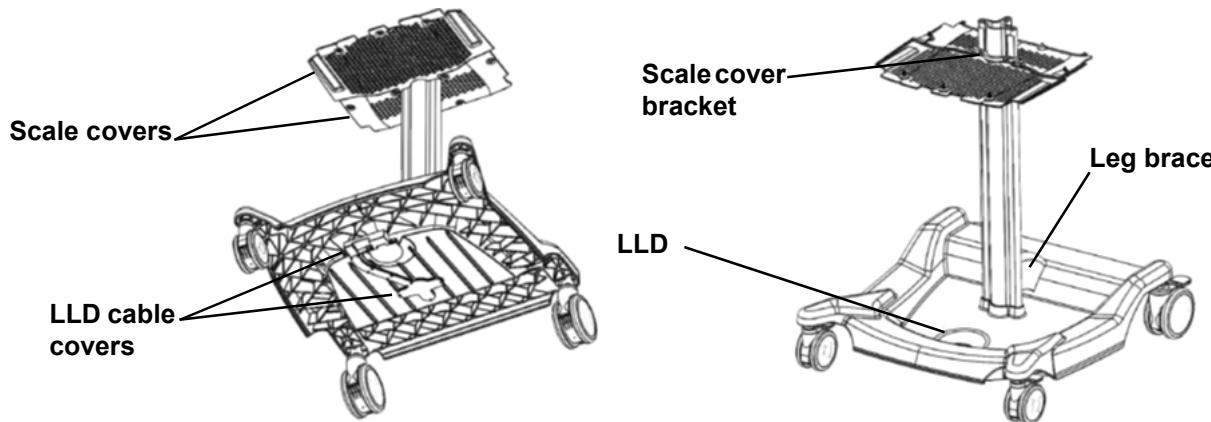


Figure 2-12 Base Assembly

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 30 OF 236

2.8.4 Door Assembly

See Figure 2-13. The door assembly is one of the two rear cabinet panels and mounts to the frame assembly with two hinges. The door panel and all external panels are made from polycarbonate, with internal conductive paint and external paint with a clear protective overcoat. The door is opened by using a hex wrench on two retained fasteners, and can be latched into the open position. Table 2-2 lists the door assembly components.

Table 2-2 Door Assembly Components

External	Internal
1. Hand Crank (allows manual rotation of pumps and pinch valves)	6. Retained screws to secure door closed (2)
2. Pocket for Operator's Manual	7. Isolation PCBA
3. Connector panel with Communication ports: Ethernet, USB, RS232(x3)	8. Access hinges
4. USB port	9. Exhaust fan vent
5. Remote alarm connector	10. Service Record Pocket

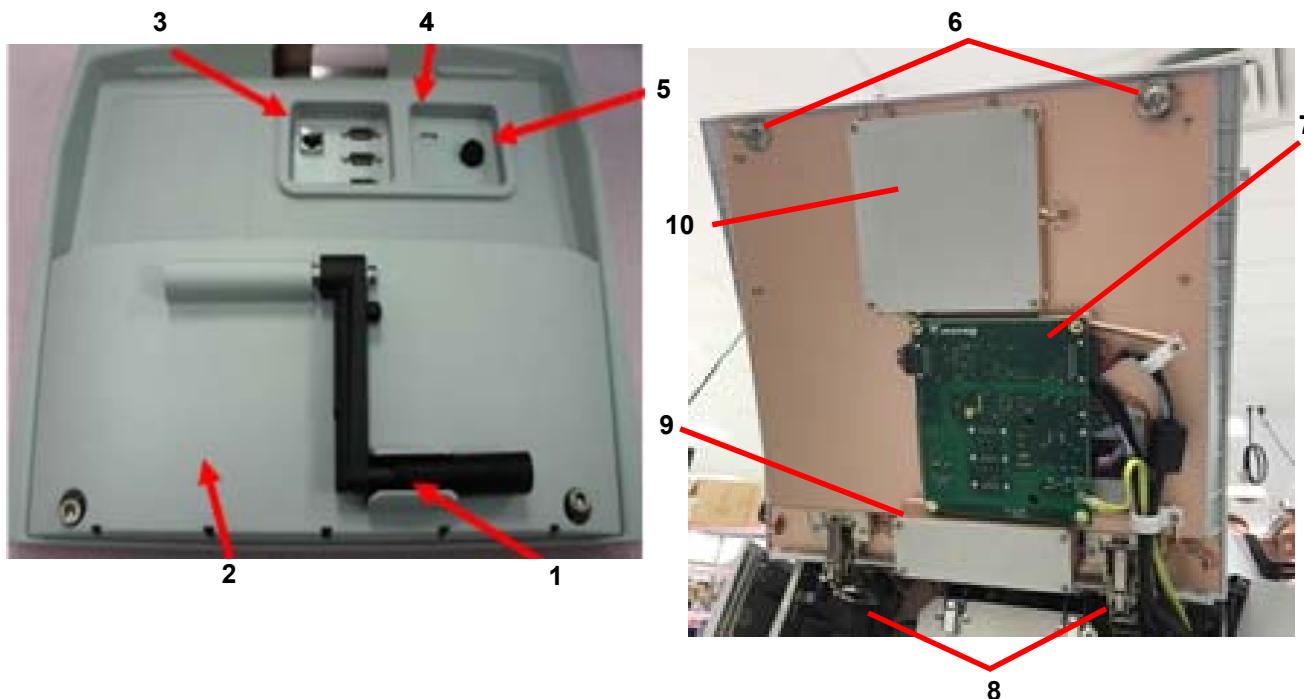


Figure 2-13 Door Assembly: External and Internal Views

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 31 OF 236

2.8.5 Rear Panel Assembly

See Figure 2-14. The rear panel assembly mounts to the frame assembly beneath the door. The rear panel also has a Scale Plug (not shown) The Power Entry Module (PEM) assembly contains 2 fuses and EMC protection circuitry.

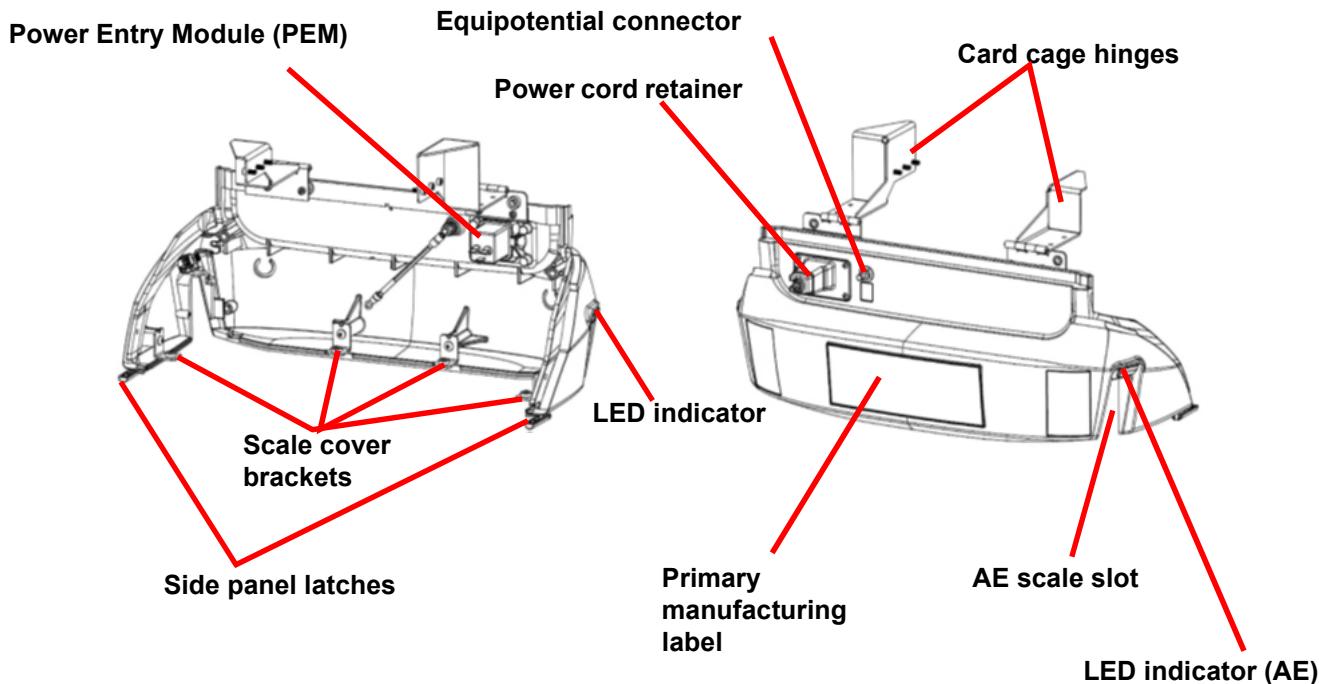


Figure 2-14 Rear Panel Assembly

2.8.6 Right Panel Assembly

See Figure 2-15. The right panel assembly has an upper and lower section that attaches to the frame with two hinges that provide both rotational and forward/aft linear motion. A latch at the bottom of the assembly holds the rear lower panel and side panel together. An EMC gasket seals the panel.



Figure 2-15 Right Panel Assembly

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 32 OF 236

Internal bosses are provided to mount the following optional accessories (installation instructions are provided with the option):

- 4 bosses for the warmer arm
- 1 boss for a warmer sleeve clip
- 1 boss for a warmer sleeve holder clip

The vertical and horizontal stiffeners strengthen the panels to support the weight of the warmer arm and warmer unit. An EMC gasket helps prevent EMI.

2.8.7 Left Panel Assembly

See Figure 2-16. The left panel assembly attaches to the frame with two hinges that provide rotational and forward/aft linear motion. A latch at the bottom of the assembly holds the rear lower panel and side panel together. There are 4 ground wires, 5 cable clamps, and an EMC gasket.

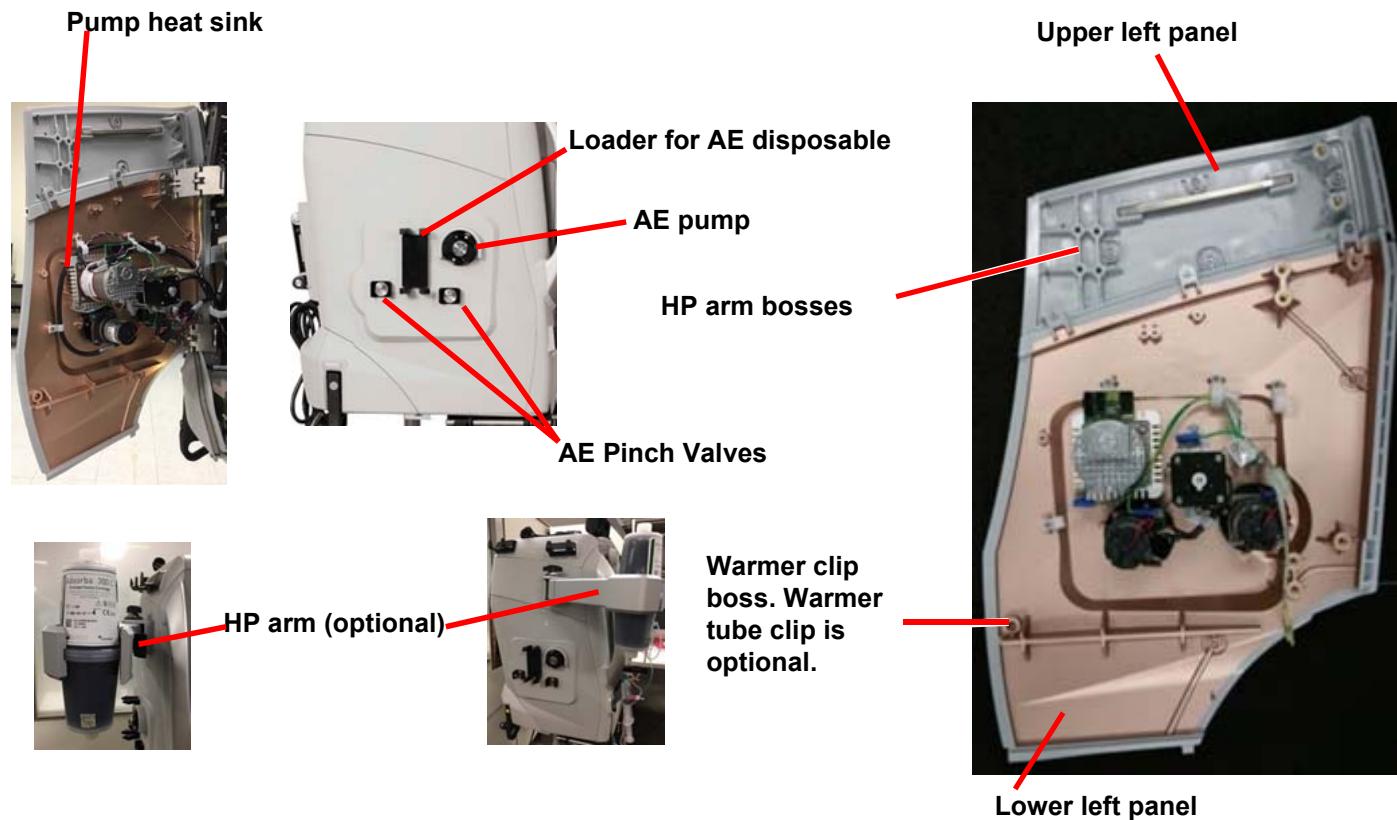


Figure 2-16 Left Panel Assembly

Auto effluent components mount to the lower left panel and interface with the AE disposable accessory. The panel contains the raceway of the AE peristaltic pump. An internal horizontal stiffener bar is glued in on the top panel for support. The panel has conductive paint on the inner surface to dissipate ESD and provide EMC shielding. Internal bosses are provided to mount the following optional accessories (installation instructions are provided with the option):

- 4 bosses for the HP arm
- 1 boss warmer sleeve clip

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 33 OF 236

2.8.8 Display Assembly

See Figure 2-17. The display assembly is the primary operator interface and is mounted to the top panel. The display assembly can be folded flat when required and can be rotated 90° from forward to allow viewing from the side.



Figure 2-17 Display Assembly

2.8.9 Card Cage Assembly

See Figure 2-18. The battery pack provides backup power to selected circuits in the absence of mains power. Two expansion slots are provided for future use. Cables route from the card cage throughout the cabinet interior to panel-mounted components. The backup battery pack mounts to the side of the card cage and plugs into the power board.

Connectors are keyed to prevent incorrect connection. The card cage assembly is hinged to swing between stow position (center-middle of the cabinet) and deployed (tilted out the rear door for servicing).

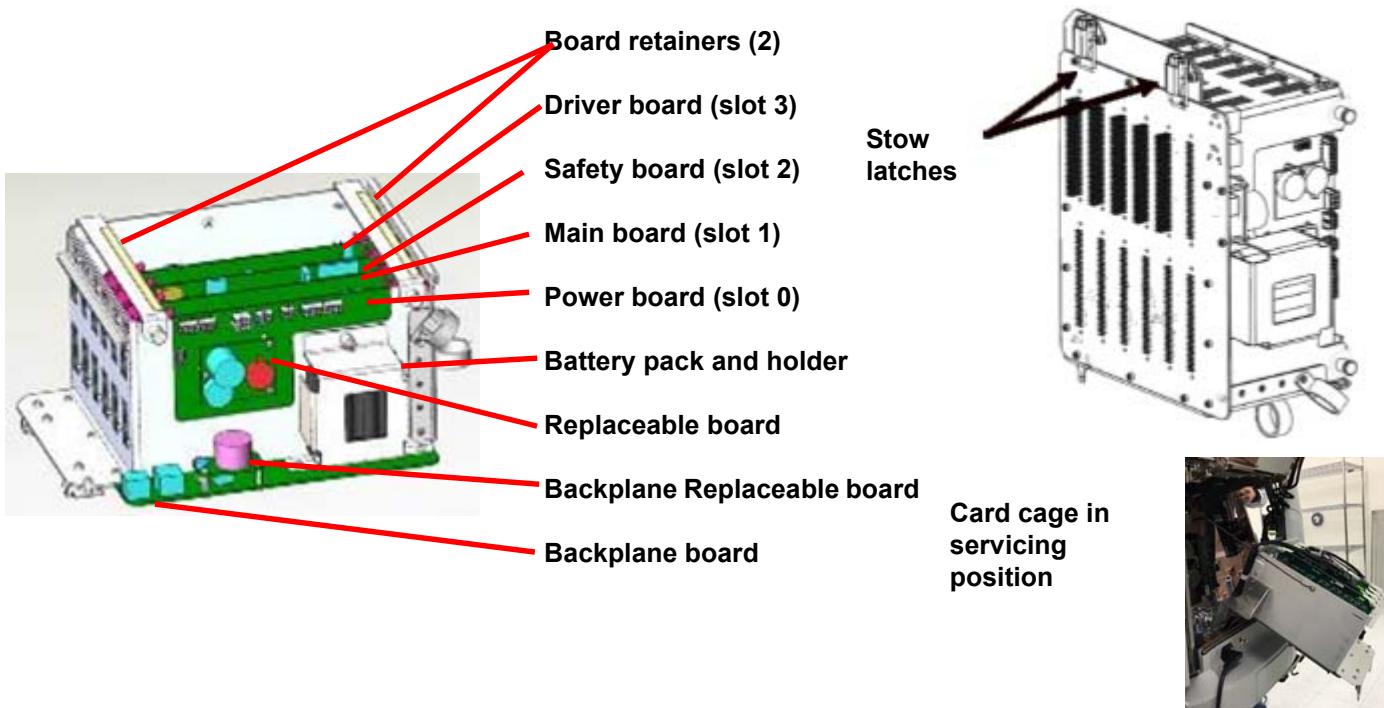


Figure 2-18 Card Cage Assembly

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 34 OF 236

2.9 Electronic Architecture

See Figure 2-19. The PrisMax system has a centralized control architecture with an independent and redundant protective system. Two primary processors provide control and protection:

- The control processor (CP) controls the PrisMax system and provides primary fault detection and alarm generation.
- The safety processor (SP) monitors the system and provides a backup to the CP for fault detection and alarm generation. Critical sensors such as the ABD, VC, syringe and loader are independently monitored during self-tests performed by the CP. The SP can independently stop all actuators in an alarm condition. The SP utilizes wider fault tolerances and/or longer fault declaration time periods than the CP.

The CP and SP processors combine to provide a comprehensive protective system with independent and redundant monitoring.

Two secondary processors provide distributed functions under direct control and monitoring of the CP.

- The power supply controllers (PSC) processor turns the device on/off, resets the system based upon a CP or SP request and selects the source of power; power supply or battery. In the event of a total loss of power, it activates the backup buzzer.
- The display controller processor (DCP) controls the brightness of the LCD and the Alarm LED bar color and brightness.

The safety board SP delegate FPGA acts as a sophisticated watchdog for the CP.

The following smart components contain one or more processors:

- Syringe pump: single processor with single independent I2C interface.
- Blood pump: single processor with independent Hall-effect sensor with I2C interface.
- 5 Fluid Pumps: single processor with single I2C interface.
- 5 Weight Scales: dual processors with single I2C interface.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 35 OF 236			

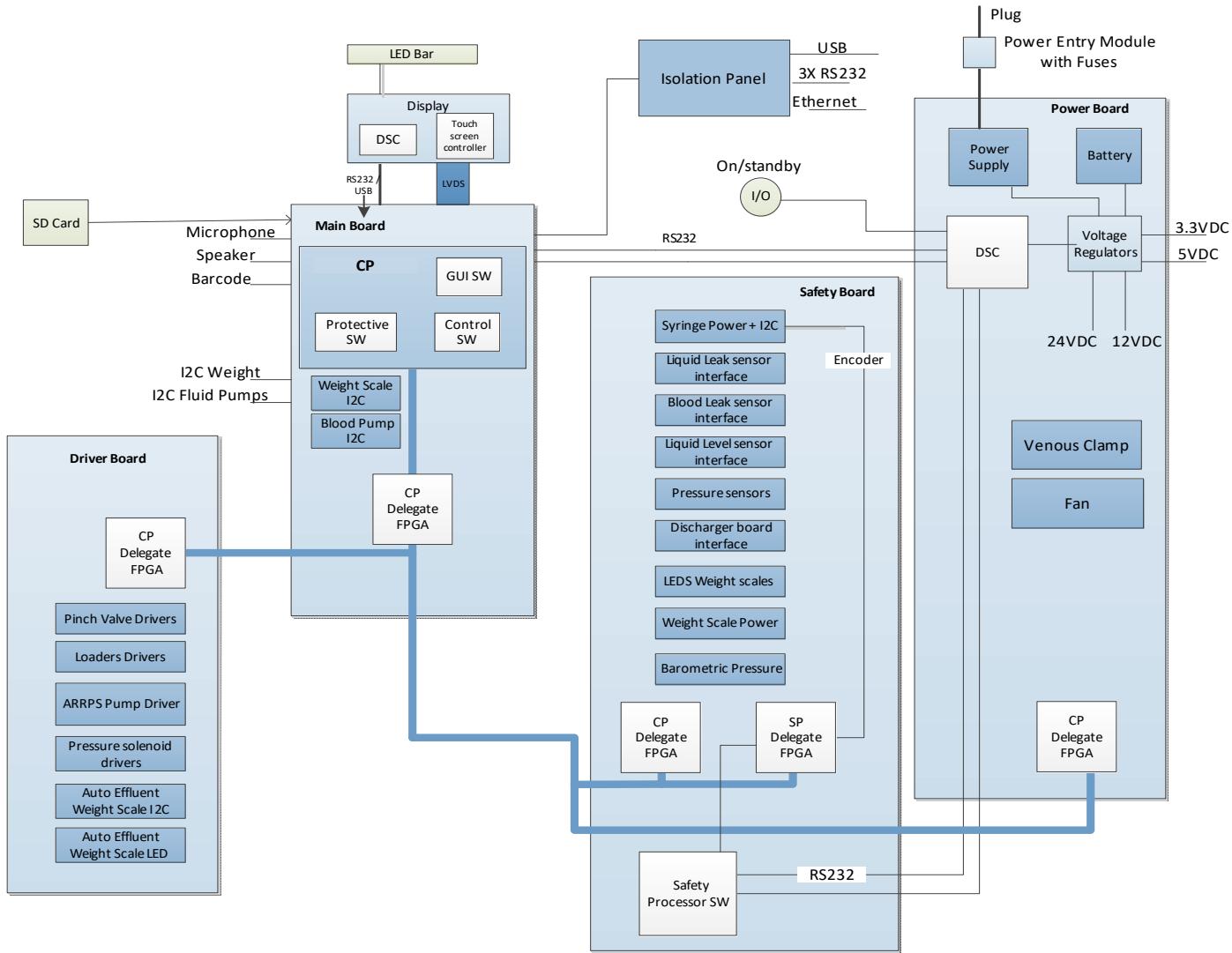


Figure 2-19 PrisMax System Architecture

2.10 Hardware Items

The electronic architecture diagram (Figure 2-20) shows the electrical connections and interfaces between all system hardware items.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 36 OF 236	

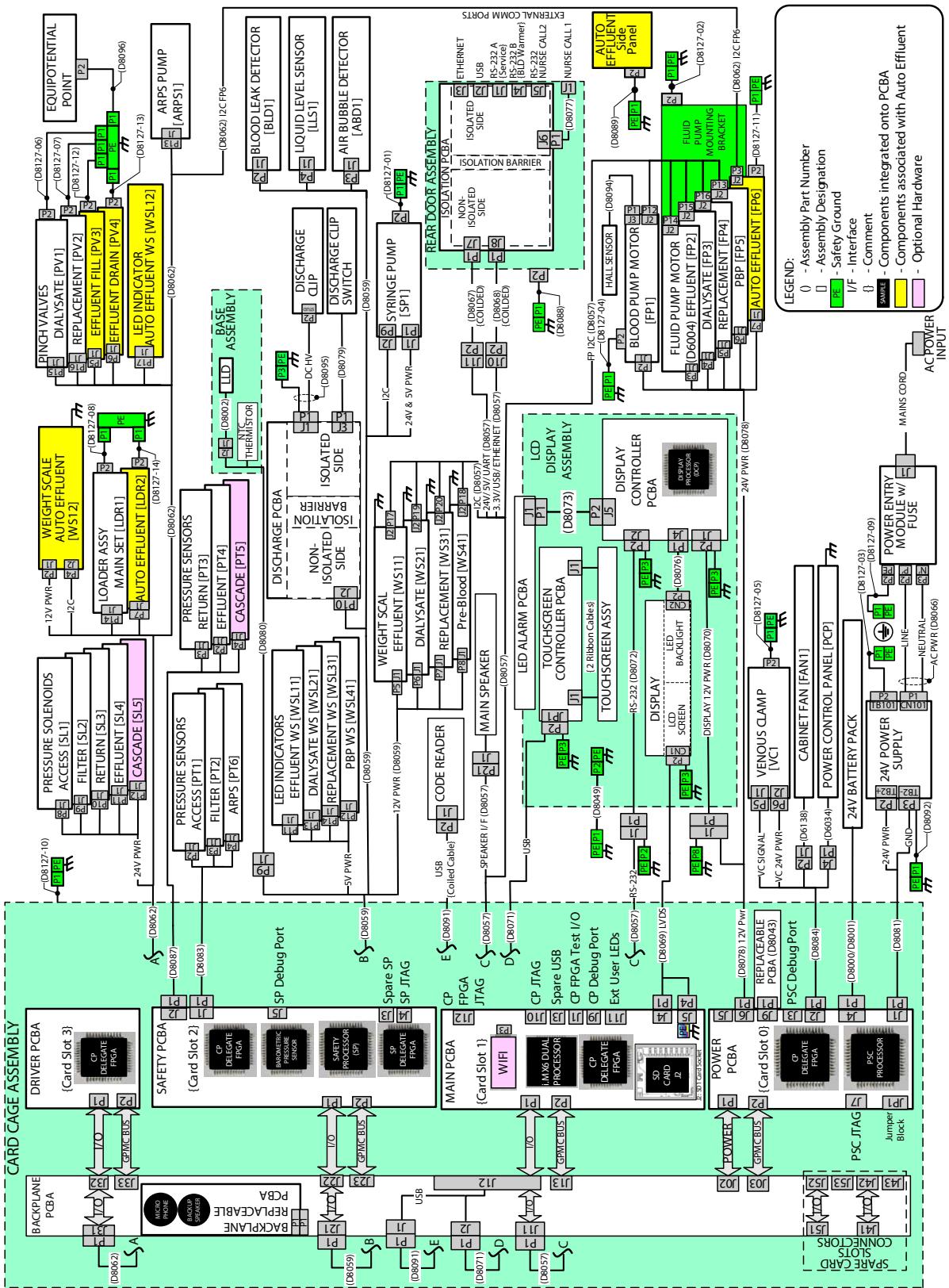


Figure 2-20 PrisMax System Architecture Diagram

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 37 OF 236

2.10.1 Backplane Board

The backplane provides interconnections (power and signals) between the card slots. The backplane distributes the +24, +12, +5 and +3.3 volt DC system power from the power board, slot 0, to the other boards.

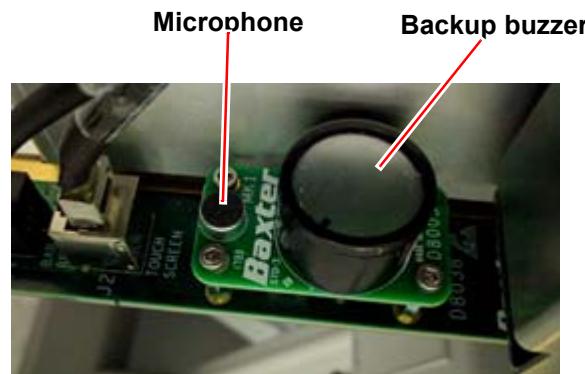


Figure 2-21 Backplane Board and Backplane Replaceable Board

2.10.2 Backplane Replaceable Board

The backplane replaceable board includes the backup buzzer and microphone. It mounts on the backplane between the touchscreen connector and battery holder. See Figure 2-21.

The backup buzzer is used in the event of a speaker failure or in the event of a total loss of power (TLP), such as when the microphone detects that the speaker has failed.

The microphone is used to detect whether or not the speaker and backup buzzer are audibly annunciating when appropriate, such as during POST.

2.10.3 Main Board

The main board connects to the other PCBAs via the backplane board and hosts an embedded 800 MHz i.MX6 dual processor and associated DDR3 and eMMC memories. The main board provides the following functions:

The CP executes the following:

- User interface software that drives the touch screen/display.
- Control software that manages the high-level functions allowing the machine to perform the selected therapy.
- The protective tasks of the protective software.

The General Purpose Memory Control (GPMC) bus is 16-bit wide multiplexed address/data bus used by the CP to communicate with the FPGAs.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 38 OF 236

<ul style="list-style-type: none"> Outputs display video signal via a low voltage differential signaling (LVDS) interface 	<ul style="list-style-type: none"> Control and monitor of 6 pressure sensors
<ul style="list-style-type: none"> Interfaces to Display Controller via RS232 interface 	<ul style="list-style-type: none"> Control and monitor of barometric pressure
<ul style="list-style-type: none"> Interfaces to touch screen controller via USB interface 	<ul style="list-style-type: none"> Control and monitor of Syringe pump via I2C interface
<ul style="list-style-type: none"> Interfaces to Main speaker 	<ul style="list-style-type: none"> Control and monitor of Discharge system
<ul style="list-style-type: none"> Interfaces to microphone 	<ul style="list-style-type: none"> Control and monitor of LLS
<ul style="list-style-type: none"> Interfaces to Reader via USB 2.0 	<ul style="list-style-type: none"> Control and monitor of 4 Pinch valves with three position monitoring
<ul style="list-style-type: none"> Interfaces to external system ports: Ethernet, Remote Alarm 8-pin, Remote Alarm RS232, Warmer RS232, Service RS232 ports and USB via Isolation board 	<ul style="list-style-type: none"> Control and monitor of 2 Loader motors with two position monitoring
<ul style="list-style-type: none"> Interfaces to GPMC bus 	<ul style="list-style-type: none"> Control of the automatic reposition system (ARPS) pump (used to reposition the pressure pods)
<ul style="list-style-type: none"> Control and monitor of ABD. 	<ul style="list-style-type: none"> Control of 4 pressure sensors solenoid valves
<ul style="list-style-type: none"> Control and monitor of the BLD 	<ul style="list-style-type: none"> Controls system booting
<ul style="list-style-type: none"> Control and monitor of 5 weight scales (PBP, Effluent, Dialysis, Return and Auto Effluent Emptying) via I2C interface 	<ul style="list-style-type: none"> Hosts CP delegate FPGA
<ul style="list-style-type: none"> Hosts a real-time clock (RTC) 	<ul style="list-style-type: none"> Hosts the secure digital (SD) card reader
<ul style="list-style-type: none"> Actively discharges the on-board voltage rails on shutdown 	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 39 OF 236

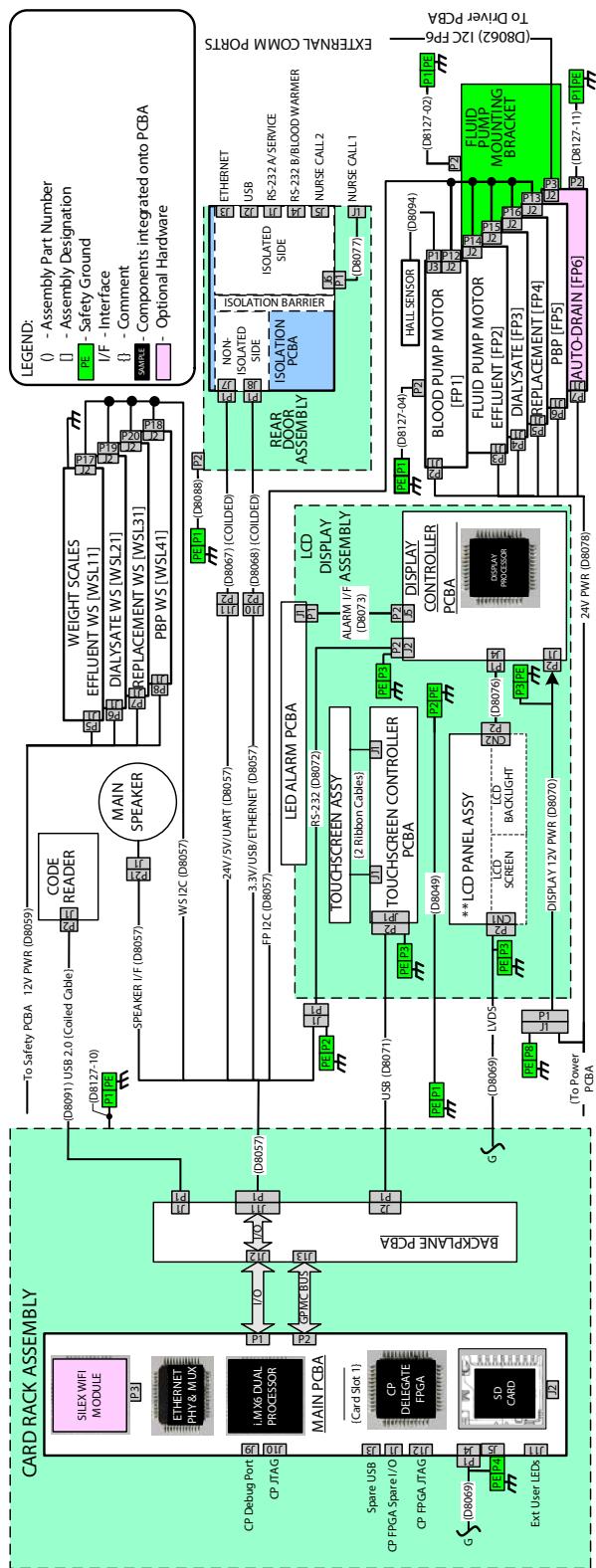


Figure 2-22 Main Board Interface Diagram

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 40 OF 236

2.10.4 Safety Board

The safety board (Figure 2-23) monitors the system and ensures safe operation. The safety board hosts the syringe pump (SP) and interfaces to the following sensor/actuators:

• Air Bubble Detector (ABD)	• Syringe Pump (SP1)
• Liquid Level Sensor (LLS)	• Discharge PCBA
• Liquid Leak Detector (LLD)	• Barometric Pressure Sensor
• Blood Leak Detector (BLD)	• Pressure Sensor, Access
• LED Indicators for weight scales (4)	• Pressure Sensor, Filter
• Weight Scales Power, Effluent	• Pressure Sensor, Return
• Weight Scales Power, Dialysate	• Pressure Sensor, Effluent
• Weight Scales Power, Replacement	• Pressure Sensor, Cascade (optional)
• Weight Scales Power, Pre-Blood	• Pressure Sensor, ARPS pump

The SP monitors therapy administration controlled by the CP and helps ensure proper operation. When the SP detects an out-of-bounds condition, the SP forces the system into a safe state.

Barometric Pressure Sensor

The PrisMax system uses barometric pressure to determine the effect of pressure on the position of the pressure pod diaphragm. The safety board monitors barometric pressure via its resident factory calibrated, temperature compensated, pressure sensor has the following specifications:

- Range: 300 - 1100 hPa
- Digital resolution: 0.01 hPa
- Absolute accuracy: -4/+2 hPa.

The CP monitors this sensor via the CP delegate FPGA's second I2C bus.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 41 OF 236

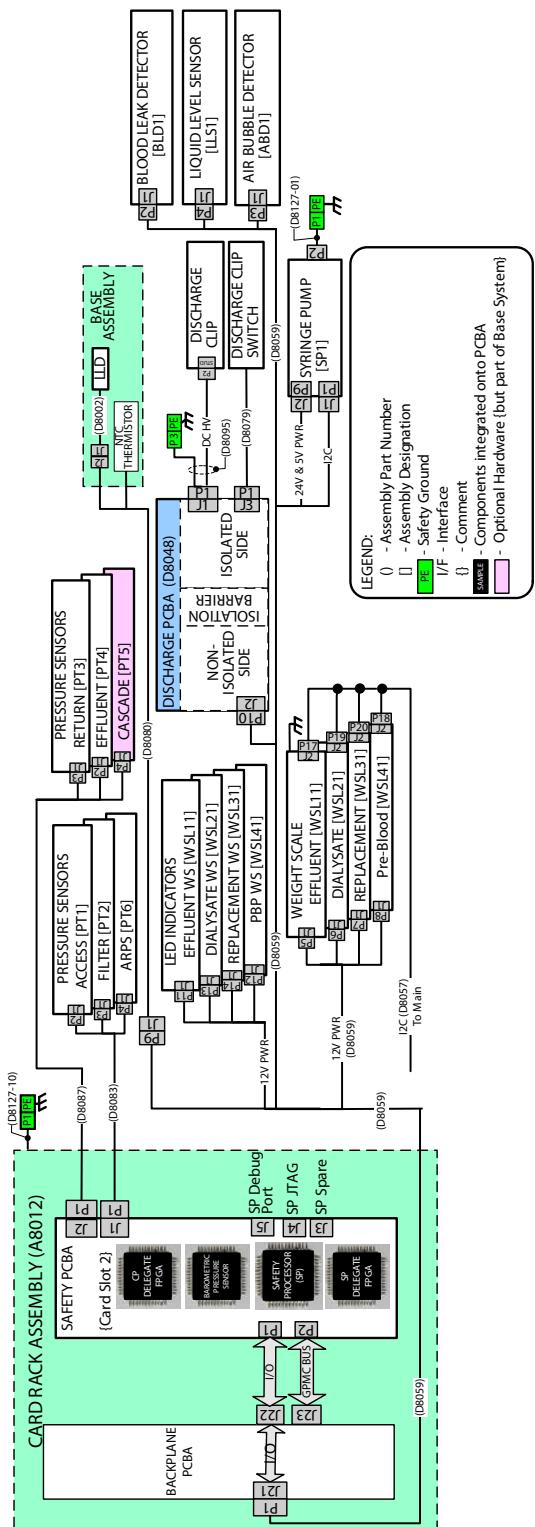


Figure 2-23 Safety Board Interface diagram

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 42 OF 236

2.10.5 Power Board

The power board is in slot 0 of the backplane board. The PSC is always powered when the system is plugged into AC power. Power is distributed through the backplane to the other boards and the connectors at the top of the board. The power board functions are:

• Supplies, regulates & monitors system voltages	• Provides the battery pack interface and charging function
• Monitors power status	• Controls and monitors the cabinet fan
• Monitors system currents	• Controls and monitors the Venous (return) Clamp
• Interfaces with the 24V PSU	• Monitors the RTC battery
• Controls transition of power source between PSU and battery	• Reboots the system upon CP or SP request
• Provides power to the pump motors	• Notifies CP of pending power down
• Provides power to the display	• Provides HW revision
• Controls and monitors the PCP	• Detects Battery pack presence

The PSC hardware and software functions are:

• Read the Power Control Panel	• Monitor the real-time clock (RTC) battery
• Manage the transition to backup battery power	• Monitor system voltages and currents
• Manage the cabinet fan	• Manage power cycles of the system

The power board contains a CP delegate FPGA that provides the following functions:

- Reading ADCs
- PMC arbiter
- Power I/O Management
- Return line (venous) clamp control

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 43 OF 236

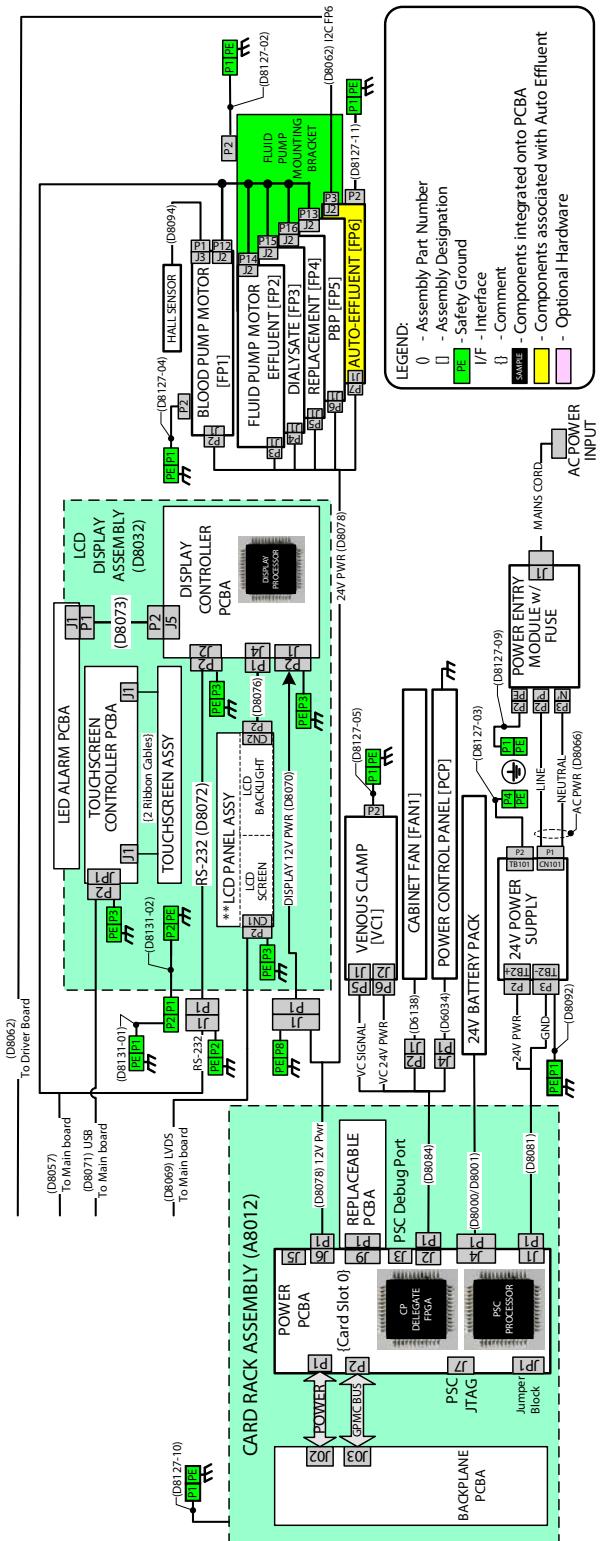


Figure 2-24 : Power Board Interface Diagram

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 44 OF 236

2.10.6 Replaceable Board

The replaceable board contains two components that may require replacement and provides the following functions:

- Host the backup speaker capacitor
- Host the Real-Time Clock coin battery
- Provides hardware revision

2.10.7 Power Control Panel (PCP)

The PCP is a flexible circuit that is mounted on the outside of the front panel near the top left corner and is the operator interface to enable power. It contains 2 momentary switches and 2 system LED status indicators as shown in Figure 2-25.

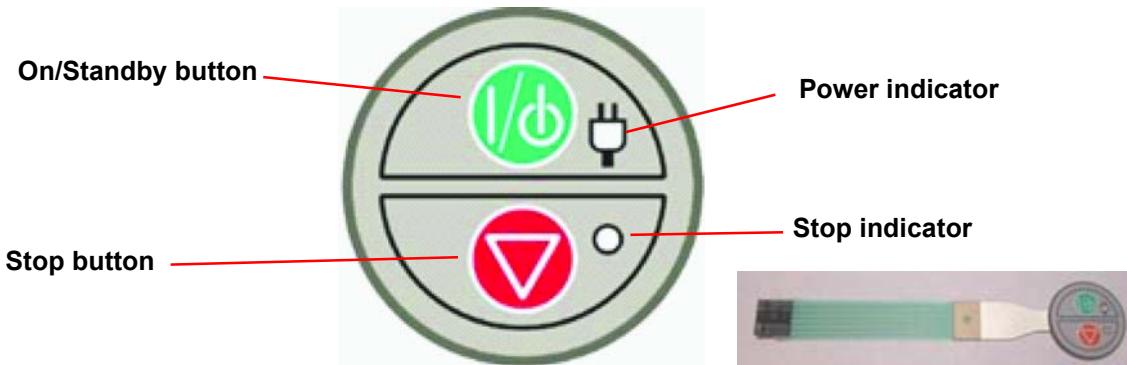


Figure 2-25 Power Control Panel

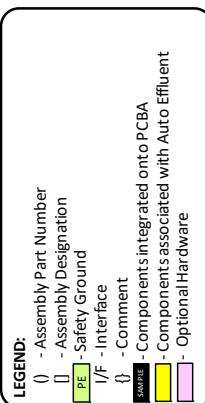
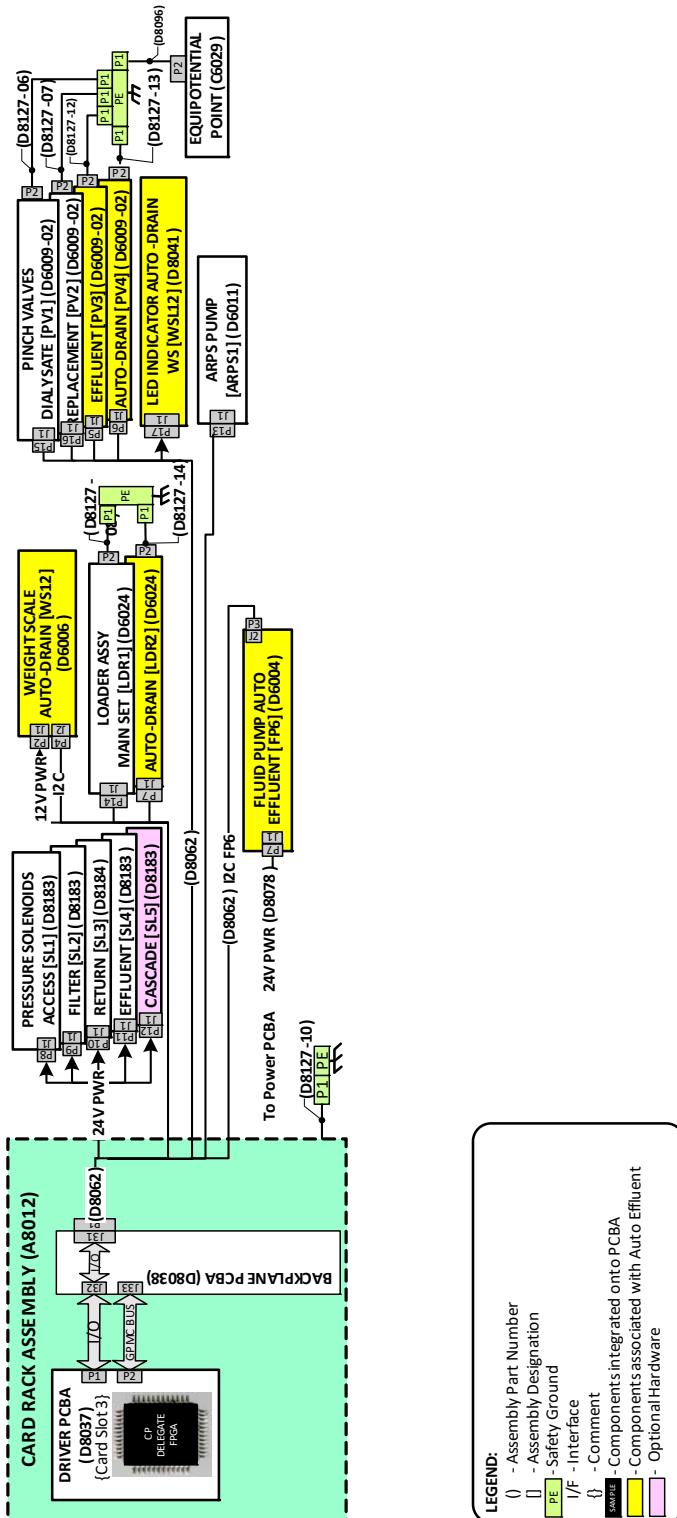
- ON/Standby switch has the following functions:
 - Toggles between: standby and on states.
 - Resets the PSC when pressed continuously for 10 seconds.
- Power indicator: Green LED lights when system is plugged into mains power.
- Stop button: Places the system in a safe state in which all pumps are stopped.
- Stop indicator: Yellow LED lights when system is stopped.

2.10.8 Driver Board

The driver board is installed in card cage slot 4 and powers and controls the following (see Figure 2-26):

- ARPS Pump [ARPS1]
- (2) Loader Motors [LDR1, LDR2]
- (4) Pinch Valves [PV1, PV2, PV3, PV4]
- (5) Pressure Solenoids [SL1, SL2, SL3, SL4, SL6]
- Weight Scale, Auto-Effluent [WS12]
- LED Indicator, Weight Scale, Auto-Effluent [WSL12]

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 45 OF 236

**Figure 2-26 Driver Board Interface Diagram**

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 46 OF 236

2.10.9 Power Supply Unit

The power supply unit (PSU) is a 92% efficient, 500W, power-factor and harmonic distortion correction (PFC), medical grade ultra-compact commercial 24VDC PSU.

For ease of servicing and replacement the PSU has no screw terminal interfaces to cables, and mechanical screws need only be loosened to remove the unit.

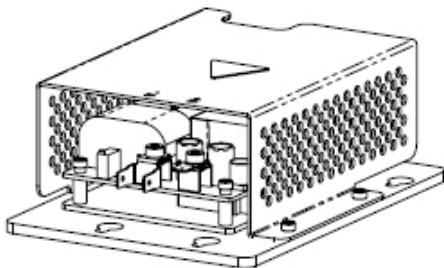


Figure 2-27 Power Supply Unit

2.10.10 Isolation Board

The isolation board is mounted to the inside of the back door. It isolates all external communication interfaces to 2.0 kilovolts (kV) from the internal electronics. The isolation meets IEC 60601-1 requirements for insulation and leakage, and protects against electrostatic discharge (ESD) per IEC 60601-1 Class B. The external communication ports are:

- Ethernet 10/100BT Interface
- RS-232 Service Port (top position)
- RS-232 Blood Warmer Communication Port (middle position)
- RS-232 Remote Alarm Port 2 (bottom position)
- USB 1.0 Interface
- Remote Alarm (round)

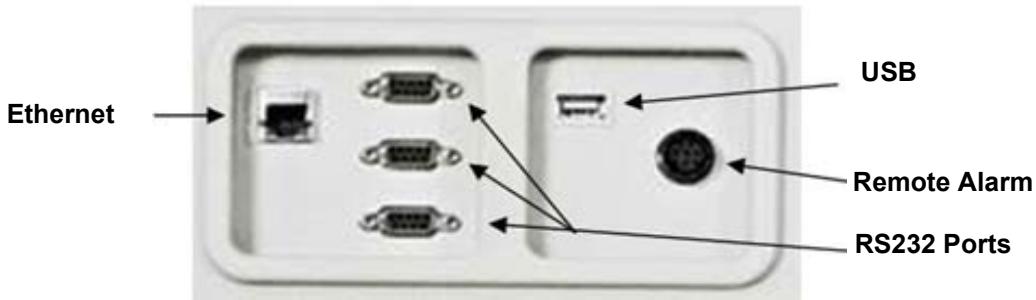


Figure 2-28 External Connectors, Rear View

There are 2 remote alarm ports on the rear door and jumpers (JP1 & JP2) on the isolation board configure the system to use one or the other. For both jumpers:

- Pin 1 to pin 2 is NC round
- Pin 2 to pin 3 is NC RS-232

The ground strap routed from chassis ground on the board/Door to the cabinet chassis ground is important for ESD dissipation and meets the safety requirement for grounding. The ESD tolerance is 8kV for air strikes and 6kV for contact strikes.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 47 OF 236

2.10.11 Battery Pack

The battery pack provides a backup power source for the PrisMax system. The battery pack uses rechargeable lithium ion batteries and has an integrated cable, temperature sensor, fuse and sealed wrap. It can supply power for up to 30 minutes.

2.10.12 Blood Leak Detector (BLD)

The PrisMax system uses a blood leak detector (BLD) on the effluent line to monitor for blood leakage from the filter. The BLD uses infrared light passed through the tubing to detect red blood cells. The BLD uses a mechanical switch to detect tubing presence to ensure that the line is properly installed in the assembly during operation. Normalization during prime removes tube and component degradation as error sources.



Figure 2-29 Blood Leak Detector

2.10.13 Air Bubble Detector (ABD)

The PrisMax system uses an ultrasonic air bubble detector to monitor the patient return line. The ABD uses a mechanical switch to detect tubing presence to ensure the line is properly installed in the assembly during operation. The ABD provides:

- 20 ul air bubble detection using ultrasonic sensor
- An integrated self-test taking less than 1 msec to complete



Figure 2-30 : Air Bubble Detector

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 48 OF 236

2.10.14 Venous (Return Line) Clamp

The venous clamp or return line clamp is used to prevent blood or air from being returned to the patient in the event of a safe state triggered by an alarm. The normally-closed 24 VDC venous clamp fully occludes the return line within 200 msec of command. The assembly secures the return line with a pin and a sensor/switch determines that the return line is routed appropriately.



Figure 2-31 Return Line Clamp

2.10.15 Loader Assembly

The loader assembly contains a stepper motor with linear actuator and cartridge carrier and retention clip. The loader has a cartridge carrier support for the disposable set cartridge located on the front panel of the cabinet. The operator manually attaches the disposable set to the cartridge carrier and selects the load set command. The loader automatically executes set loading, ensuring the pump segments are properly positioned in the pumps for operation.

The stepper motor and linear actuator contains two Hall effect sensors that detect the position of the loader at the home and extended positions.



Figure 2-32 Loader Assembly

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 49 OF 236

2.10.16 Pinch Valves

There are two sets of pinch valves in the PrisMax system:

- Pinch valves located on the front panel allow routing the flow of the replacement and the dialysate lines in one of two different paths. The pinch valves operate independently, one acting on the replacement path and the other on the dialysate path.
- Pinch valves located on the left side panel control the direction of flow for filling and emptying effluent from the AE accessory.

There are 3 possible positions: one neutral and two clamping.

If treatment is ended manually, the pinch valves can be rotated manually to return blood in the disposable set to the patient.

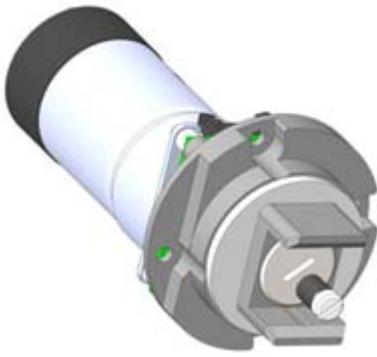


Figure 2-33 Pinch Valve

2.10.17 Switches

Mechanical switches are integrated into the following components to monitor proper installation of the disposable set: ABD, LLS, BLD, return line clamp, and discharger clip.

2.10.18 Liquid Level Sensor (LLS)

The LLS is used to automatically monitor and control the level of liquid in the deaeration chamber. The LLS has the following sensors:

- Two ultrasonic sensors that detect the presence of liquid at specific heights in the deaeration chamber.
- A mechanical switch that detects the presence of the deaeration chamber.
- An optical (infrared) foam detector that detects the presence of foam in the return pressure monitor line. The system stops movement of the foam toward the return port prior to it contacting the return barrier.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 50 OF 236

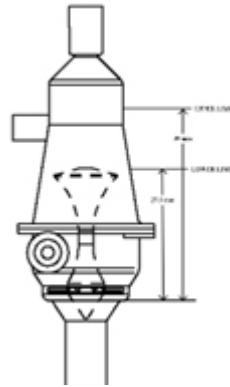


Figure 2-34 Liquid Level Sensor and Degaeration Chamber (part of disposable set)

2.10.19 Liquid Leak Detector (LLD)

The liquid leak detector monitors the central well for the presence of fluid. It consists of an electro-optic level sensor assembly that is threaded into the drip tray in the base of the system. The drip tray is designed to collect fluid that drips from the bags or sets during operation.



Figure 2-35 Liquid Leak Detector

2.10.20 Syringe Pump

The syringe pump assembly consists of a syringe pump driven by a stepper motor (actuator), a syringe holder, and a plunger arm. The actuator assembly includes a driver board, an encoder, force and optical sensors, and a linear actuator.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 51 OF 236

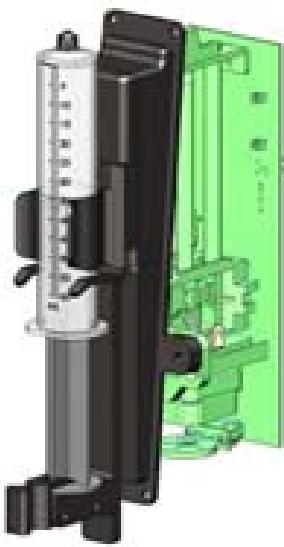


Figure 2-36 Figure 36: Syringe Pump

In systemic anticoagulation, the syringe pump delivers anticoagulant into the blood flow path ahead of the filter and controls the rate of delivery. Anticoagulant is delivered continuously using micro-boluses. The option of an immediate bolus is available. In regional anticoagulation, Citrate - Calcium, the syringe pump delivers calcium into the blood stream of the patient via a separate access device and controls the flow of delivery. The syringe pump allows the use of different brands of 20 and 50 ml syringes. Only the 50 ml size is available in Citrate - Calcium anticoagulation method (when calcium is delivered via the PrisMax system syringe pump).

The syringe pump is commanded by the CP and automatically stops in the event of a cessation of I2C communication. Both the SP and CP must enable actuator power for the syringe pump to have power. If either processor detects a problem, actuator power to the syringe pump is disconnected.

2.10.21 Fluid Pumps

The PrisMax system has 5 identical peristaltic occlusive fluid pumps:

- **Pre-blood pump:** Provides solution infusion from a container suspended from the pre-blood scale into the blood flow path between the patient access and the blood pump.
- **Replacement fluid pump:** Provides replacement solution infusion from a container suspended from the replacement scale to a point in the blood flow path either downstream or upstream of the filter per the pinch valve position.
- **Dialysate pump:** Provides dialysate flow into the filter or replacement solution infusion downstream from the filter (per the pinch valve position) from a bag suspended from the dialysate scale.
- **Effluent pump:** Provides balancing of fluid pumped by the PBP, dialysate, replacement and syringe pump to deliver the patient fluid removal rate set by the operator per the prescription in CRRT therapy,
- **Auto-effluent pump:** Provides a pump for emptying effluent in one of the two effluent bags, to ensure continuous operation of the effluent pump by preventing both bags from becoming full at once.

The fluid pumps ensure that:

- Complete occlusion of the tubing occurs preventing free-flow when the disposable set is loaded.
- A predictable amount of fluid is moved with each rotation of the pump rotor.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 52 OF 236

The motors are provided 24 volts and generate their own on-board voltage regulation for their control electronics.

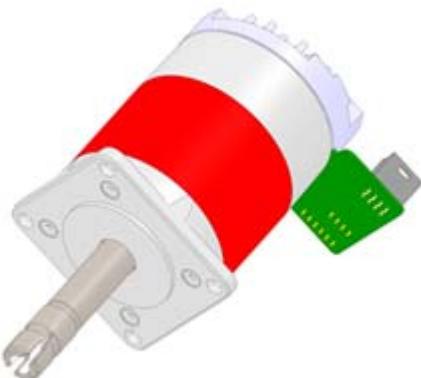


Figure 2-37 Fluid Pump Motor

The fluid pumps can be stopped in several ways to ensure a safe state:

- Direct command by the CP to halt.
- Failure for the I2C to update the speed command for 250 msec.
- CP command of /APSTOP which directly disables the motor drive.
- Removal of 24 volt DC power to the actuators by the SP.

The fluid pumps interface with the CP via an I2C bus.

2.10.22 Blood Pump

The blood pump circulates the blood from patient to machine and from machine to patient. The blood pump ensures that:

- Complete occlusion of the tubing occurs preventing free-flow when the disposable set is loaded.
- A predictable amount of fluid is moved with each rotation of the pump rotor.

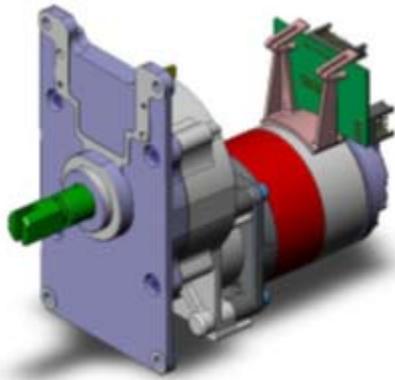


Figure 2-38 Blood Pump Motor

The blood pump has a Hall-effect sensor used to detect the rotation of magnets in the pump rotor. It contains local software necessary to receive and execute commands, and to report status via I2C bus.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 53 OF 236

The blood pump can be stopped in several ways to ensure a safe state:

- Direct command by the CP to halt.
- Failure for the I2C to update the speed command for 250 msec.
- CP command of / APSTOP which directly disables the motor drive.
- Removal of 24 volt DC power to the actuators by the SP.

2.10.23 Discharge System

The discharge system minimizes potential contamination of ECG signals during operation of the PrisMax system, due to the generation of static electricity by the peristaltic pumps. This is achieved by grounding the disposable set (and thus the patient) via the discharge clip on the front of the monitor. The safety board interfaces with the discharge system that is comprised of the discharge board and the discharge clip assembly (discharger clip and discharge clip switch). The safety board provides power, control and monitors response from the discharge system. The discharge clip switch ensures that the disposable set is installed into the clip properly.

The safety board monitors:

- The effluent tubing has been installed into the discharge clip.
- The discharge relay has been activated.

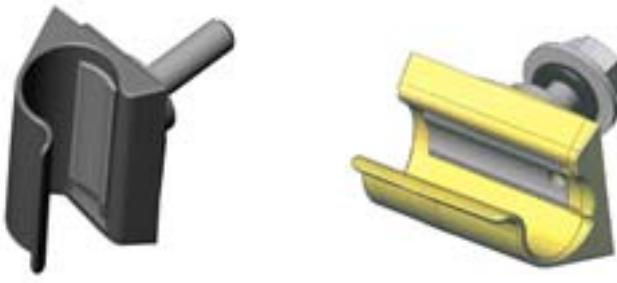


Figure 2-39 Discharge Clip

2.10.24 Weight Scales and LED Indicators

The system includes five weight scales located at the bottom of the cabinet: replacement, dialysate, effluent, pre-blood and auto-effluent (AE).

Each scale has a sliding arm on which bags are installed, except AE, which has a static arm. A removable hook system with a handle on each of the four scales supports operator loading/unloading of bags onto the sliding arm. Each scale includes a PCBA with two independent load cells, two independent and redundant ADCs and processors for data acquisition. Both weight measurements are communicated through a single I2C digital interface. Calibrations are done with the calibration weight kit.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 54 OF 236



Figure 2-40 Scale

Each weight scale has a corresponding red/green/blue (RGB) LED located above the handle to assist the user in determining the type of fluid on the scale and state of the scale:

- Yellow for effluent
- Green for dialysate
- Magenta for replacement
- White for PBP

The LEDs are normally off. They are illuminated when the scale needs its bag exchanged, and blinked when the scale is open. A blinking LED alerts the user that the corresponding scale is not closed.



Figure 2-41 LED Indicators for Scales

2.10.25 Automatic RePositioning System (ARPS)

The ARPS ensures proper pressure monitoring by periodically neutralizing pressure pod diaphragms. It is made up of an ARPS peristaltic air pump, tubing and tubing connectors, and pressure sensors and solenoids.

Pressure Sensors

Pressure transducers detect occlusions and disconnect conditions. Pressure monitoring provides data to compute other derived pressures measurements such as filter pressure drop and trans membrane pressure (TMP), which are used to determine filter clotting and fouling. Three types of pressure assemblies are used; a pod type, a return port type, and a pressure sensor for ARPS pump.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 55 OF 236

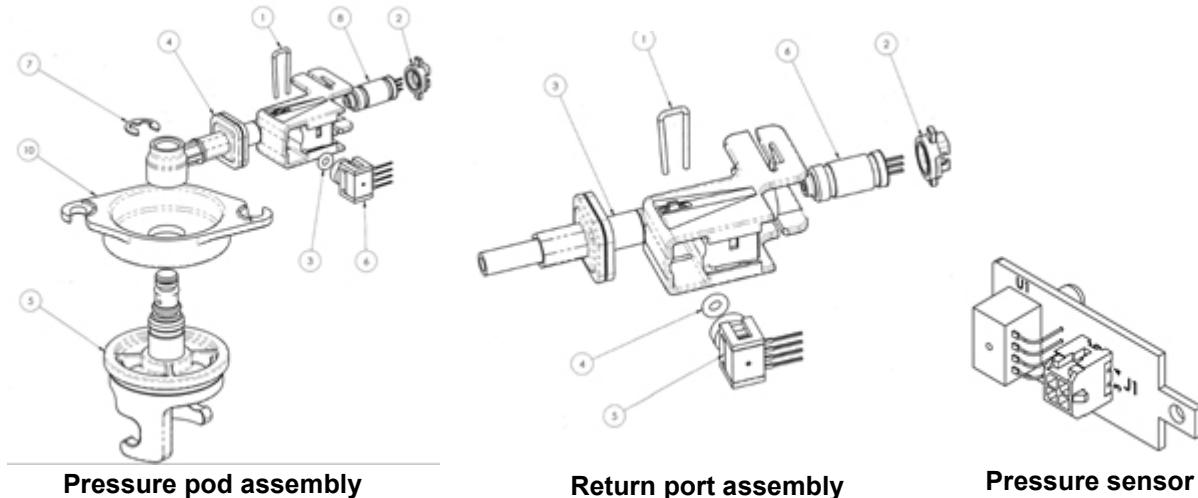


Figure 2-42 Pressure Assembly Types

The return pressure sensor is a direct air interface type separated from the deaeration chamber by a hydrophilic membrane. It is the most important pressure sensor because it is used in the detection of return disconnect. The sensors-pod combinations are verified during prime mode and retested periodically during run mode. Pressure verification also ensures that the operator installed the pod properly in the monitor during set loading.

The pressures are monitored by five pressure transducers (access, filter, return, effluent, and ARPS pump) to detect pressure related faults and return disconnect. Both the pod and return port assemblies utilize a solenoid to isolate the pressure at the sensor from the pressure within the tubing that routes to the ARPS pump.

ARPS Pump

The ARPS pumps air into or removes air from the pressure sensors and their attached pressure pods. Using the ARPS, the PrisMax system can automatically place pressure pod diaphragms into neutral position and test the accuracy of the pressure sensors. The ARPS pump pressure sensor is utilized to guarantee the correct functioning of the other pressure sensors. It is compared with each of the other pressure sensors before and periodically during treatment.

The ARPS pump is also used to adjust the liquid level in the deaeration chamber. It is used in conjunction with the LLS to determine when air is to be infused or extracted to lower or raise the liquid level in the deaeration chamber.

The safety board enables and disables the 24V power supply for the ARPS pump.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 56 OF 236

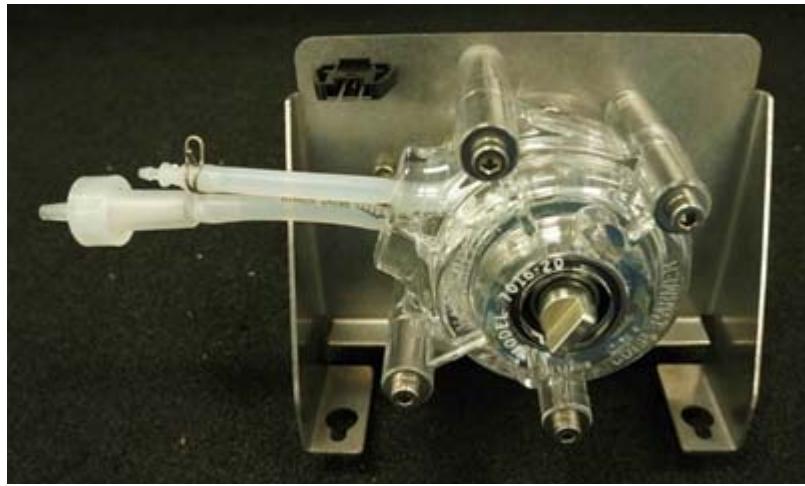


Figure 2-43 ARPS Pump

ARPS Tubing

A matrix of tubing connects the ARPS pump and the pressure sensors, pods, and solenoid assemblies. The silicone rubber tubing withstands positive and negative pressures of ± 500 mmHg during normal operations. The compliance of the tubing is 3-5 $\mu\text{l}/\text{mmHg}$.

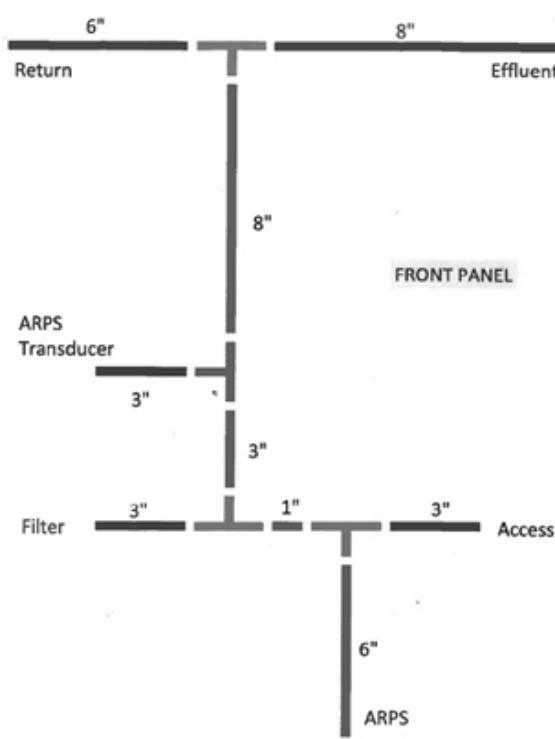


Figure 2-44 ARPS Tubing

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 57 OF 236

2.10.26 Display Assembly

The display assembly hosts the graphical user interface (GUI) and provides a touchscreen for user interaction with the PrisMax system. The display can be tilted or rotated. The LCD video interface to the main PCBA is LVDS.



Figure 2-45 Display Assembly

The major display assembly components are:

- LCD Screen 15" Color with integral LED backlight 1024 x 768, LVDS
- Display controller board:
 - Sets the brightness of the LCD and the color of the LED status bar
 - Is connected to the CP via an RS232 port
- LED Alarm Board
- USB Projected Capacitive Touchscreen
- Touchscreen Controller Board
- 7 internal cables
- Articulated 2 degree of freedom mount (contains interface cable routing)

The LED alarm bar also provides visible indication of operating conditions per the following table, in addition to alarm messages. It is on the top of the display and is visible from all directions.

LED Color/State	Description
Green (constant)	Indicates that all monitored parameters are normal during administration of the treatment.
Yellow (constant)	Indicates that a low priority alarm has occurred, or an alarm has been overridden. Immediate patient safety is not compromised, but the operator should investigate.
Yellow (flashing)	Indicates that a medium priority alarm has occurred. Immediate patient safety is not compromised, but the operator should investigate.
Red (flashing)	Indicates that a high priority alarm / possible patient hazard has occurred. Immediate operator intervention is required.
Blue (constant)	Indicates that the system is in service mode.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 58 OF 236

2.10.27 Speaker

The speaker provides audio tones to alarm and provide feedback to the operator. The sounds and tones generated comply with IEC 60601-1-18. It is mounted on the ceiling of the cabinet and connected to the main PCBA.



Figure 2-46 Speaker

2.10.28 Cabinet Fan

The cabinet fan cools the cabinet interior by pulling air up through holes in the cabinet base, around the electronic hardware and components and expelling air out through a vent port at the top of the back door. The cabinet fan is monitored by an encoder to ensure that the fan is rotating.

2.10.29 Code Reader

The code reader reads the bar and 2D codes on sets and accessories. It can also be used to scan patient ID information into the system. The medical grade reader is held on the top of the PrisMax system and has a stretchable coiled cord.



Figure 2-47 Code Reader

2.11 Software (SW) Architecture

The PrisMax system's software controls and monitors the functions of the machine, accepts operator input, and outputs information to the user. The software architecture is three-tier, consisting of user interface, system logic/control, and machine/sensor interface layers.

Alarm and fault detection and management, along with the Safety Processor, make up the PrisMax Protective Software component, and are described in "Protective Software," page 63.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 59 OF 236			

2.11.1 Graphical User Interface (GUI)

The GUI application manages rendering of the screen and user touch input and is laid out as described in the following sections.

User Interface Software

The User Interface (UI) software is resident on the CP.

Touchscreen/Display Layout

The screen is divided into two sections:

- Tool bar: This is present on both task and status screens. For a full description of the controls in the tool bar, see the *PrisMax Operator's Manual*.

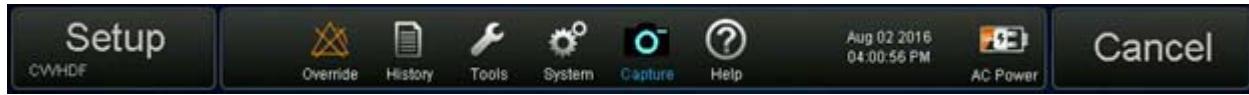


Figure 2-48 User Interface - Tool Bar

- Task screens (Figure 2-49) guide the operator through a procedure. Task screens are organized as follows:
 - The left pane provides a list of associated screens and can be used to navigate between screens.
 - The right pane is content specific to the current step.
 - The bottom navigation bar is specific to the current step.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 60 OF 236			



Figure 2-49 User Interface Task Screen Example

- Status screens (Figure 2-50) provide relevant information to the operator necessary to monitor the current treatment and are organized as follows:
 - The top pane presents an animated schematic diagram that displays the extracorporeal circuit and all components related to the treatment along with real-time information, such as fluid levels.
 - The bottom pane displays additional status information not visibly seen on the circuit, including pressures, dose and patient fluid information. A message center on the lower right displays recent or current events. A navigation zone at the bottom of the screen provides access to treatment modifications.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 61 OF 236			



Figure 2-50 User Interface Status Screen Example

A tool bar is present at the top of both types of screens. On the left-hand side of the tool bar is a large button that displays mode of operation, status and the selected therapy. When pressed, this button displays all parameters related to current treatment (available only during a treatment).

The middle portion of the tool bar allows navigation to screens not associated with the current mode of operation, such as system configuration and help.

The right-hand Stop button is used as a quick stop button and for discontinuing a treatment.

2.11.2 System Logic/Control Software

The system logic/control software provides following functions:

- Therapy: Control priming and treatment processes
- Service: Control installation, testing, and calibration
- Data Store: Store system and patient treatment history-related data

It also implements the alarm and fault detection and handling functions of the CP protective software, as described in "Protective Software," page 63.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 62 OF 236

Therapy

The therapy application performs the actual execution of a treatment. It interfaces with the I/O manager to read measurements and status information from the various hardware components and to command the pumps and solenoids required to execute the treatment, it uses the GUI to with the user and it logs treatment session and hardware data.

Service

The Service application manages the logical aspects of system maintenance. It operates similarly to Therapy in that it interacts with I/O Manager, Data Store, and GUI to accomplish tasks. Service operation is mutually exclusive to therapy operation.

Calibration

The calibration screens allow the user to calibrate components used during treatment that are subject to unit-to-unit variation due to time induced mechanical variation. Calibration results are displayed on a summary screen for future retrieval.

Configuration

The configuration area is a set of screens that configure various system aspects that must only be done in service mode.

Logging

The logging feature provides permanent storage of software and hardware event messages while running in service mode. Messages are written to the SD card, and in some cases rendered on the screen. Messages can be retrieved from the SD card in raw form or displayed on the service log page using a search query.

Manual Control

The manual control pages are provided to give the user the ability to exercise mechanical components, such as the loaders, pumps, pinch valves, ARPS system, and return clamp. The user must first enable the component, then use the on-screen widgets provided to appropriately actuate that component.

Programming

The system is designed to be field programmable without the need for special tools. All major components running firmware, logicware, or software can be upgraded via the communication bus that connects them to the CP. An install wizard is provided to automatically program components as specified in a configuration file. Individual programming pages are also provided to manually program one component at a time.

System Self-Test (SST)

The SST consists of about 24 different series of tests that functionally verify the system. Some tests require the user to interact with the display or external interfaces of the monitor. The tests do not require the monitor to be opened. A set of specialized tools is defined to be used during SST. A report can be generated that includes monitor specific data, calibration data, and tabulated results for each SST test.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 63 OF 236

Data Store

The Data Store application manages the collection, storage and distribution of a variety of therapy data. This includes the following data groups:

- Pressure, dose and PFR data: sent to GUI for display on History screens
- User settings, measurements (pressure, volumes, weights, etc.), and other system state information (scale open, pinch valve closed, etc.): logged to a database every 10 seconds
- Electronic medical record (EMR) data: sent to IO Manager for outbound transmissions (TCP/RS232)
- Internal measurement data: displayed on the internal measurements window
- Periodic miscellaneous data (pump speeds, pressures, BLD transmissivity, etc.): sent to GUI

2.11.3 Machine/Sensor Interface Software

The Machine/Sensor Interface software resides on the CP and provides following functions:

- Control of individual component device, based on commands received from the therapy and service processes
- Communication with the delegate FPGAs via the GPMC bus to interface to I2C, SPI and other digital I/O
- Communication with external devices and network (ECOM)

2.11.4 Protective Software

The Protective software resides on the CP and SP. The CP software provides fault detection and management for patient and system malfunction alarms; while the SP provides independent monitoring and intervention for safety critical conditions.

CP Alarm System

The alarm system performed on the CP consists of two elements: alarm detection and handling; and alarm processing.

Alarm Characteristics

Every alarm definition includes the following characteristics:

- Applicability: defines if the alarm is applicable, based upon therapy state, patient attached state, and the selected therapy and anti-coagulation types
- Latching: whether alarm is automatically cleared when the alarm condition clears, or whether the operator must explicitly clear the alarm
- Priority: the default (maximum) priority of the alarm, based upon the risk to the patient (note that this can be lessened depending upon the patient attached state and other factors)
- Automatic reaction: reactions automatically performed while the alarm is active to mitigate the risk to the patient, such as stopping the pumps or closing the venous clamp

An alarm is either in the Inactive or Raised state. Within the Raised state it is in either the Active or Latched state. For a latching alarm to be cleared by the operator, it must have transitioned to the Latched state.

Alarm Detection and Handling

Alarm detection and handling performs the processing of monitoring alarm conditions, raising and clearing alarms, and performing alarm-specific actions requested by the user.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 64 OF 236

Safety Processor (SP)

The SP is a monitoring and fail-safe component that provides redundant monitoring (to the CP processor) of selected critical operational checks to ensure the safety of a patient. The safety processor is designed such that any single point failure of the CP that poses a hazard to the patient can be detected and averted by the safety processor. In such an event, the safety processor removes power from the actuators, restarts the system, and sounds the backup speaker.

Under normal conditions, the CP reads the current state of the components, determine the next state according to the selected mode of operation, and write new states to the components as necessary. Redundancy protects the patient in the event of a failure.

The safety processor provides redundant protection by monitoring both the commands sent out to each of the components, as well as the status of the components sent back to the CP. In some cases, the safety processor has a dedicated sensor to provide redundancy. In most cases, the CP uses redundant links to components.

The SP protective system performs the following tasks:

- Verification of operating state and system safe state to determine which component commands and status' are valid.
- Health of the CP and PSC systems by making sure they are alive and continually sending updates.
- Ensures that the CP is commanding the blood and fluid pumps within an acceptable flow range given the user settings and that the pumps are moving at their commanded rates within limits.
- Ensures the CP is reading the weight scales and pressure sensors as required.
- Ensures that the syringe pump is moving at its commanded speed based upon the independent encoder.
- Ensures that the CP is performing self-tests of the air bubble detector, return pressure pod positioning, blood leak detector, and venous clamp at the correct times with tolerance.
- Ensures that the main loader is in the correct position based on the system state.
- Ensures that the pinch valves are in the correct location for the given therapy and system state.
- Brings the system to a safe state, sounds backup speaker, and commands a system reset if the CP fails to act on a system alarm or system halt condition.

Power Supply Controller (PSC)

The PSC manages power for the system. In Standby mode, it is responsible for battery charging and monitoring for user presses to turn the monitor on. If the monitor is turned on by the user, the PSC applies power to the system from either the AC power supply or the backup battery.

While in On mode, the PSC:

- Gracefully steps the monitor through a shutdown sequence back into Standby mode when a shutdown is requested from the user.
- Reacts to power cycle requests from the CP and SP by performing the shutdown sequence followed by the power on sequence. If both the AC power supply and battery are no longer sufficient to power the monitor, the PSC declares a total loss of power by latching the backup speaker on and shutting down the CP and SP.
- Performs battery charging.

Display Control Processor (DCP)

The DCP manages the display monitor backlight and LED alarm bar on top of the monitor. It responds to CP commands to increase or decrease the backlight intensity and change the LED alarm bar to a contextually appropriate color and brightness.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 65 OF 236

2.12 Operating Modes

2.12.1 Start Mode

CP begins in Start mode, initializing hardware and software modules and performing the POST to test the integrity of the system:

- If POST passes, the device enters either Setup mode or Run mode, depending on the state of the disposable circuit.
- If POST fails, the CP informs the user and brings the device to a safe state by disabling all motors and engaging the return line clamp.

The CP is required to finish the boot process in less than 60 seconds from the time power is applied. If the CP software does not respond to the PSC within 90 seconds after startup, the PSC cycles power and directs the internal boot software to load the CP software from the SDHC card.

2.12.2 Setup / Prime Mode

Setup mode is entered when the operator selects New Patient or Same Patient from the Setup Screen. Zero tests for the scales and pressures are performed if New Patient is selected before the Setup mode allows the operator to select the treatment type, load a disposable set, load a syringe into the syringe pump, prepare and connect solutions needed during the therapy, and prime the set. The operator may also access the Configuration tool bar to modify selected default settings. The capabilities to view treatment history data and to download the historical data are also provided.

After the operator selects the therapy type, the operator attaches the disposable cartridge to the loader carriage, routes the lines, and initiates the load process. The PrisMax system automatically loads the cassette and detects the set type by reading a barcode. If the set type is not consistent with the selected therapy, an informational message is generated informing the operator. If the set barcode cannot be read or is invalid, the operator is informed and given the opportunity to enter the set type manually. The PrisMax system verifies that the set type is appropriate for the selected treatment type and on operator confirmation, retrieves defaults and ranges for parameters as appropriate to the combination of selected therapy and set type.

Each scale includes a removable handle to facilitate loading bags of prepared solution. The PrisMax system checks that the weights on the scales used for the selected treatment are within an expected range and that the scale is loaded properly.

As the operator is requested to attach various components of the set to the monitor the system detects the presence of the various set attachment via weight measurements, mechanical switches, hall sensors or in the case of the pressure pods due to changes in pneumatic resistance.

The disposable set is automatically primed when the operator initiates the priming sequence. The prime self-tests are executed during Setup mode to verify the functionality of the protective software monitoring and actuation functions for the selected therapy. The operator may review the flow rate settings for the blood pump, fluid pumps, and syringe pump. If necessary, the operator may access the Set Flows display to modify the settings.

The operator has the possibility to perform blood priming of the extracorporeal circuit before connecting the patient when performing treatments on low weight patients. This is done by manually prime the extracorporeal circuit with blood products before connecting the patient.

2.12.3 Therapy Mode

Therapy mode executes the selected therapy. The blood pump, fluid pumps, and syringe pump run at the rates entered by the operator in setup. After connecting the patient to a primed disposable set and pressing the Connect Patient soft-key is Setup mode,

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 66 OF 236

2.12.4 Recirculation

Recirculation allows the user to temporarily disconnect the patient from the machine. The user can choose to perform either recirculation with blood or recirculation with saline.

2.12.5 End Mode

The End mode offers options to change the set, end the treatment, or to recirculate. The capabilities to view treatment history data and to download the historical data are also provided.

2.12.6 Power-Down Mode

The machine automatically enters the Power Down mode when the operator presses and holds the Power button on the membrane panel or selects Power Down from the Stop menu on-screen.

2.12.7 Service Mode

The Service mode is for use only by trained and qualified service technicians in performing maintenance and repair services. The Service mode controls access to system configuration settings (e.g. anticoagulation configuration). The Service mode can only be entered by selecting the mode from the touch screen and entering a password. Therapy cannot be executed from the Service mode. See "Service Mode," page 75 for instructions on changing settings and performing tests from within Service mode.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 67 OF 236

3. Installation Procedures

3.1 Introduction

This section describes how to install the PrisMax System control unit.

- Read this entire section before starting installation.
- The equipment required to install the PrisMax System is listed in each procedure in this section. See Table 1-1 for a complete list of tools and test equipment required for servicing.
- Perform the “Simulated Patient Treatment Procedure,” page 115 before using the device on patients.
- Install the control unit in compliance with all applicable local electrical codes and manufacturer specifications.



The PrisMax System must be installed by an authorized service technician.



Use proper electrostatic safety equipment (wrist grounding strap and grounding mats) to avoid damage to electrostatic-sensitive components inside the control unit.

NOTE: If storing the control unit for an extended period, connect it to AC power and place it in Standby to maintain backup battery charge. Alternatively, connect the control unit to AC power at regular intervals.

NOTE: The instructions included with the PrisMax System may contain updated information that replaces these instructions. Use the most current documentation when installing the PrisMax System.

3.2 Installation Requirements

- Minimum floor space required for the PrisMax System: 69 cm × 69 cm (27 in × 27 in).
- Floor where machine will be unpacked and installed must be level.
- Electrical power: Voltage 90 - 264 VAC, 46 to 63 Hz. Power outlet must be properly grounded and in good condition.

3.3 Unpacking and Inspection

The PrisMax System control unit is packaged in one container, attached to the base with casters. Also attached are the barcode reader (top panel) and the 50 ml syringe clip (front panel).

The following required installation accessories are packaged in separate containers:

- Installation kit
- Scale calibration weights
- Documents (determined by local regulatory requirements)
- Power cord.
- Ancillary supplies

Follow these steps to unpack and inspect the device:

1. Use any suitable cutting tool to cut the strapping from the shipping carton. (Figure 3-1).
2. Remove the top and sides of the carton.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 68 OF 236

1. Pallet
2. Bottom Tray with Ramp
3. Perimeter J-Wrap
4. Top and Bottom Trays
5. Ramp
6. Right End-cap
7. Left End-cap
8. Strapping (not shown)
9. Metal Poly-seal (not shown)

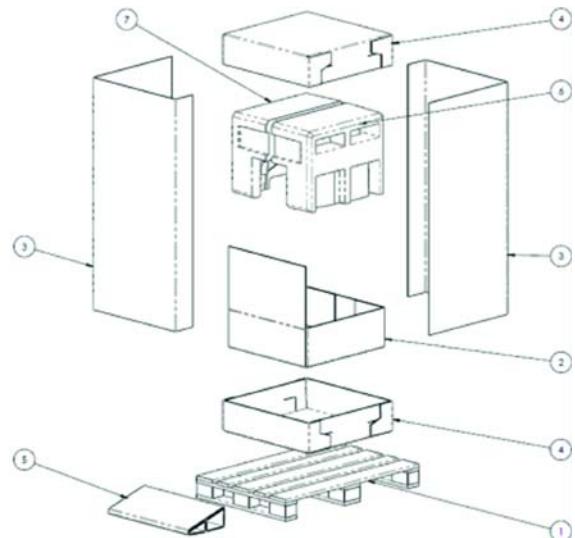


Figure 3-1 PrisMax System Shipping Carton Components

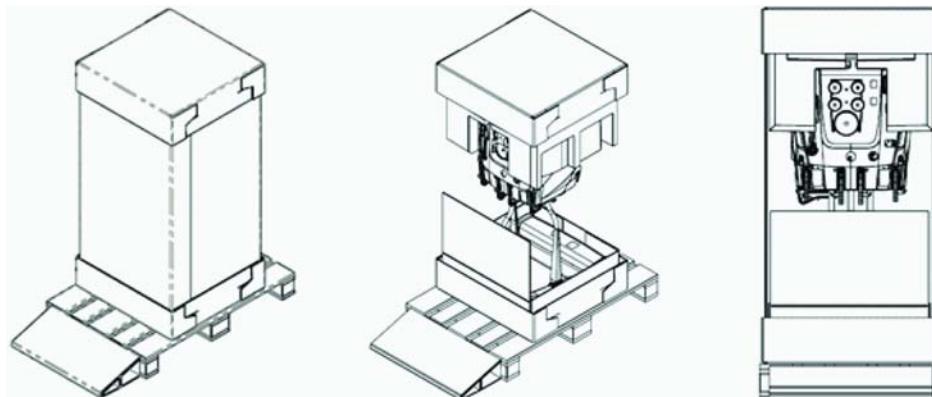


Figure 3-2 Removing the PrisMax System from Its Shipping Carton

10. Remove the packing materials from the top and sides of the control unit. Remove any accessories.
11. Unpack the barcode reader and position it in its holder.
12. While facing the front of the machine, unhook the lower box side panels.
13. Lower the ramp extension.
14. Place ramp support under the ramp extension.
15. Unlock the wheels.
16. Pull the machine off the pallet using the ramp.
17. Dispose of the shipping carton and all packaging material per local regulations.
18. Confirm that all items on the packing list are included.
19. Inspect all items and contact your Baxter representative if any item is damaged.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 69 OF 236

20. Store the Service Log in the service log pocket inside the back panel door.

NOTE: See Table 3-1 for a list of region-specific power cords available for PrisMax. The power cord must be appropriate for the region, and is not included with the PrisMax system control unit. It is not included in the PrisMax Installation Kit. It should arrive separately. If it has not arrived, obtain the appropriate power cord for the region.

21. Connect the appropriate power cord as identified in Table 3-1.

Table 3-1 Power Cords

Power Cords	Description
955562	Mains Cable Type H C13 230V
955563	Mains Cable Type M C13 230V
955564	Mains Cable Type J C13 230V
955565	Mains Cable Type L C13 230V
955566	Mains Cable Type O C13 230V
955567	Mains Cable Type B C13 230V
955568	Mains Cable Type F C13 230V
955570	Mains Cable Type G C13 230V
955572	Mains Cable Type N C13 230V
955574	Mains Cable Type K C13 230V
955575	Mains Cable Type Denmark MED C13 230V
955576	Mains Cable Type I C13 230V
955577	Mains Cable Type D C13 230V
955578	Mains Cable Type B C13 115V
955591	Mains Cable 7,5 m Type F C13 230V
N/A	Mains Cable Type China C13 230V

Required tools: 2 mm hex wrench

- 21.1 Select the appropriate power cord and retaining bracket.
- 21.2 Insert the power cord into the retaining bracket guide.
- 21.3 Plug the power cord into the power socket on the back panel of the control unit.
- 21.4 Using the screws provided, secure the retaining bracket to the studs on either side of the power cord socket. Tighten the screws using the 2 mm hex wrench. Do not overtighten.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 70 OF 236

- 21.5** Attach the power cord strap to the power cord. Use the strap to secure the power cord to the machine framework, as needed. See Installation Instructions (SI6181).

NOTE: **The potential equalization conductor is not required in all regions and is not included with the PrisMax System. The conductor is available as a spare part and may be ordered separately.**

- 21.6** The control unit has a connection on the back panel for a potential equalization conductor and ground cable. If required, connect a potential equalization conductor to the equipotential connector next to the power socket on the back panel; connect the cable to a ground socket.
- 22.** Install Bag Scale Handles. Except for the Auto Effluent (AE) scale, all scales on the PrisMax System have removable bag scale handles. The AE scale handle is permanently mounted and does not require installation.

Required tools: None

- 22.1** Open each scale and install a bag scale handle.

NOTE: **Scales cannot close properly unless the handle is rotated toward the floor.**

- 22.2** Rotate the handle so that it points toward the floor, then close the scale. See the Installation Instructions (SI6181) if further instruction is needed.
- 23.** Attach Language Label. The control unit is shipped with add-on labels in several languages. Select the label appropriate for your region.

Required tools: Isopropyl alcohol (70%)

- 23.1** Use isopropyl alcohol to clean the control unit surface where the labels are to be placed. Allow to dry.
- 23.2** Place the label as shown in the Installation Instructions (SI6181).
- 23.3** Check that it is firmly attached.
- 23.4** Gently clean the surface on and around the label.
- 24.** Optional: Install Syringe Clip. The control unit is shipped with the 50 ml syringe clip installed. A 20 ml clip is included with the installation accessories (see the Installation Instructions (SI6181)). Change the clip if needed.

Required tools: Torx T20 screwdriver

- 24.1** Power up the control unit in Service mode.
- 24.2** Select Manual Controls, then Syringe.
- 24.3** Select Enable.
- 24.4** Press the Down button to move the plunger to its bottom position.
- 24.5** Remove the T20 screw from the clip holder.
- 24.6** Slide the syringe clip plate down.
- 24.7** Slide in the new syringe clip plate.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 71 OF 236

- 24.8 Secure the syringe plate using the T20 screw.
- 24.9 Select Calibration, then Syringe Pump.
- 24.10 Select the correct the syringe clip size and press Set.
25. Optional: Install Warmer Arm and **TherMax** Warmer.
Required tools: See the **TherMax** Service Manual for installation instructions.
- 25.1 To install the warmer arm, follow the installation instructions included with the assembly.
- 25.2 To install the warmer, follow the installation instructions included with the accessory.
26. Optional: Enabling RS-232 on Remote Alarm Connector. The remote alarm connector can be configured for RS-232 communication.
Required equipment:
- 6 mm hex wrench
 - 2.5 mm hex wrench
 - T8 Torx wrench
 - 0.1 inch shorting jumpers (2)
- CAUTION** Use proper electrostatic safety equipment (wrist grounding strap and grounding mats) to avoid damage to electrostatic-sensitive components inside the control unit.
- 26.1 Disconnect the control unit power cord from AC power.
- 26.2 Use a 6 mm hex wrench to open the back panel door.
- 26.3 Remove 4 screws securing the isolation board to the door and gently pull the board assembly away from the door. It is not necessary to disconnect the cables.
- 26.4 Locate JP1 and JP2 on the component side of the isolation board and install jumpers on JP1 and JP2 as shown in Figure 3-3.

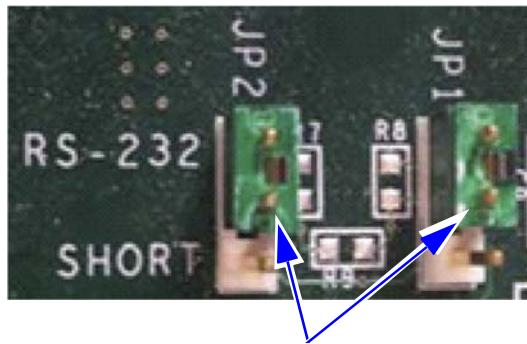


Figure 3-3 Installing the RS-232 Jumpers (Component Side of Isolation Board)

- 26.5 Reinstall the isolation board and secure with 4 screws.
- 26.6 Close and secure the door.
- 26.7 Reconnect the control unit power cord to AC power.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 72 OF 236

3.4 Minimum Service Configuration

Before calibrating the PrisMax System, perform the following configuration:

- Set the date and time (see 4.8.1, “Setting Date and Time,” page 114).
- Select or install the appropriate language. See 4.7.4, “Updating License or Language Files,” page 112.
- Ensure that the following are enabled (refer to the Operator’s Manual, as needed):
 - SCUF and CVVHDF therapies
 - M60 and M100 disposable sets
 - Enable **TherMax**, if applicable.

3.5 Customer Configuration Requirements

Ensure the following are properly configured for the customer:

- Auto Effluent (AE) is enabled, if applicable.
- All applicable syringe brands are enabled.
- The customer default syringe brand is preset.
- All applicable syringe solutions are enabled.
- The customer default syringe solution is preset.
- All other features are set according to customer requirements.
- Verify the configuration: Confirm that the system information is correct.

3.6 Calibration and System Self-Test (SST)

Before patient use, verify the PrisMax System.

“Service Mode,” page 75 provides instructions for performing configuration, calibration, and SST.

NOTE: The PrisMax System should be on a be relatively level floor for scale stability during calibration and SST.

Follow these steps to verify the control unit:

1. Power up the control unit in Service mode.
2. Set the date and time, if needed. See “Setting Date and Time,” page 114.
3. Perform “LED Configuration,” page 77 and adjust LEDs as needed.
4. Perform TherMax configuration as outlined in “TherMax Configuration,” page 77, if applicable.
5. Perform the “Scale Calibrations,” page 78 and “Scales SST,” page 85.
6. Perform the “Pressure Sensor Calibrations,” page 78 and “Pressure Sensors SST,” page 84.
7. Perform the “Syringe Pump Calibration,” page 79 and “Syringe Pump SST,” page 93.
8. Perform the “Blood Leak Detector Calibration,” page 79 and “Blood Leak Detector SST,” page 94.
9. Perform the “ARPS Compliance Calibration,” page 80.
10. Perform the “Return Detection Calibration,” page 80.
11. Perform the “Loaders Calibration,” page 80 and “Loaders SST,” page 86.
12. Perform the “TherMax Calibration,” page 81, if applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 73 OF 236

13. Reset the barcode reader as follows:
 - 13.1 Press the Tools button.
 - 13.2 Press Reset Barcode Reader, see "Resetting the Barcode Reader," page 115.
 - 13.3 Scan the displayed barcodes as described in the Supplemental Procedures section of this manual.
 14. Perform the "Barcode Reader SST," page 83).
 15. Perform the "Audio SST," page 84.
 16. Perform the "Audio SST," page 84.
 17. Perform the "Air Bubble Detector SST," page 90).
 18. Perform the "Return Clamp SST," page 91.
 19. Perform the "Liquid Level Sensor SST," page 90.
 20. Perform the "Ambient Temperature Sensor SST," page 91, if **TherMax** blood warmer is connected.
 21. Perform the "Discharger SST," page 92.
 22. Perform the "TherMax SST," page 92, if applicable.
 23. Verify that the displayed manufacturing data is correct:
 - 23.1 Press the Software Update menu item.
 - 23.2 Press the Software Install menu item.
 - 23.3 Go to the manufacturing data page.
 24. Perform "Final Acceptance," page 94 if it was necessary to update the manufacturing data.
- If any of these procedures fail, address the issue and repeat, procedures as needed.

3.7 Electrical Safety Test

Perform the following sections of the "Electrical Safety Inspection," page 119:

- Visual Inspection (VI)
- Protective Earth Test (PET)
- Earth Leakage Test (ELT)
- Patient Leakage Test (PLT)

3.8 Final Checkout

NOTE: See the PrisMax Operator's Manual for definitions of symbols and icons used on the screen and labeling.

1. Perform a simulated patient treatment (see "Simulated Patient Treatment Procedure," page 115).
2. Before ending the simulated treatment, allow the system to remain in Therapy mode and check battery backup function as follows:
 - 2.1 Unplug power cord from AC power.
 - 2.2 Verify that the control unit continues operating without interruption.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 74 OF 236

- 2.3 Verify that the power icon at the top of the screen indicates that the control unit is operating on battery power.
- 2.4 Allow the control unit to run on backup battery power for 1 minute.
- 2.5 Reconnect the power cord to AC power.
- 2.6 Verify that the control unit continues operating without interruption and that the power icon at the top of the screen now indicates that the control unit is operating on AC power.
3. End the simulated treatment and unload the set.
4. Enter service mode.
5. At the SST Status screen, press the Set PM Date button to update the PM date information.

NOTE: The next PM due date will be displayed after the machine has been rebooted.

6. Press the **SST Report** button.
7. Record the installation in the maintenance log and store the log book in the holder attached to the inside wall of the back panel.
8. Install the blood pump hand crank in the holder on the back panel per Installation Instructions (SI6181).
9. Ensure that the PrisMax Operator's Manual is available to the user.

CAUTION

To avoid damaging the PrisMax System, avoid physical contact with internal components whenever possible and use only the cleaning solutions recommended in the Operator's Manual.

CAUTION

To avoid damage to the pump crank, do not clean with sodium hypochlorite (bleach).

10. Clean all dust, debris, or spills from the external and internal control unit surfaces, including fan outlet, bottom plate (covering the scales), and pump rotors.
11. Clean the tubing path through the blood leak detector (BLD). Using a lint-free cloth and cleaning solution, clean inside the BLD using a flossing action.
12. Clean the touchscreen.
13. Verify the condition of the barcode reader cable and replace if loose or damaged; clean the barcode reader lens with cleaning solution and a lint-free cloth.
14. If AC power is available, connect the control unit to AC power and place in Standby to maintain backup battery charge until use.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 75 OF 236

4. Service Mode

Service mode provides the following functions:

- Logs: For viewing specialized information on PrisMax System operation
- Calibration
- System Self-Tests (SST): For verifying and troubleshooting subsystems and components.
- Manual controls: For controlling specific components as needed to help diagnose possible problems.
- Software update

The following information is also available in Service mode:

- Next preventive maintenance (PM) date
- Calibration data including last calibration date and time
- SST status and results including last test date and time.
- Hardware version number(s)
- Software version number(s)

NOTE: If a component fails to operate, or produces an error or alarm code, see “Troubleshooting,” page 139.

NOTE: When changing a component, follow the instructions provided with the replacement part. Instructions included with the part may supersede the procedures in this manual.

NOTE: Before performing any procedure in this section, ensure that the date and time are correct.

Table 4-1 Screen Definitions

Screen Item	Meaning
	Help button: press to display more detailed information for each screen.
Green text	Indicates that the measured value is stable and within tolerance.
Red text	Indicates that the measured value is unstable or out of tolerance.
Yellow text	Indicates that the measured value is in the process of stabilizing.
White text	Indicates an operator-entered value or system data display.

4.1 Entering Service Mode

1. Ensure PrisMax is connected to AC power.
2. Press the **On/Standy** button for ½ to 1 second (see Figure 4-1).
3. Press and hold the **Stop** button until the system acknowledgment alert beeps.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 76 OF 236

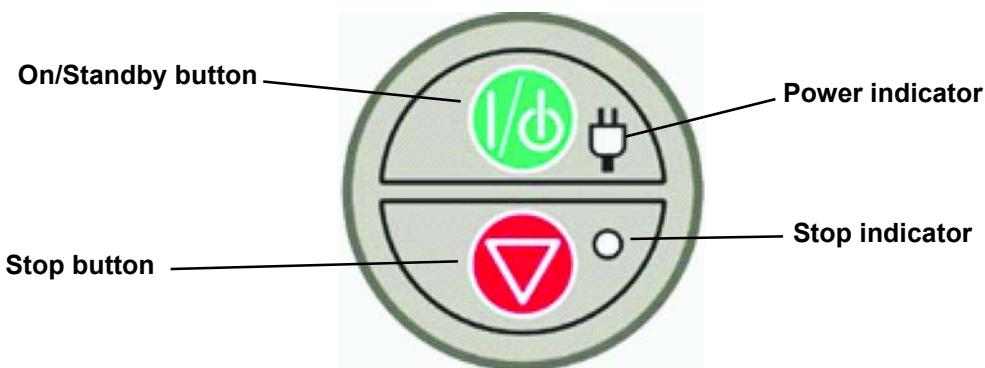


Figure 4-1 Power Control Panel

4. When startup is complete, the Service mode screen appears.
5. Enter the service mode password.

NOTE: If the password entry fails, see “Troubleshooting,” page 139.

NOTE: The PrisMax System automatically displays the Service login screen if an incomplete software download has occurred, or an SST that requires the system to reboot is in progress.

4.2 Logs

Press the **Log** menu item at the left of the screen to display the Log summary screen. Press **Log** again to display the itemized menu, then select the individual log to view. Some information in the log tables is searchable within a user-specified date range.

4.2.1 Service

For future use; not enabled.

4.2.2 TherMax Log Download

The **TherMax Log Download** screen allows the user to access the current log file on **TherMax** and store it on PrisMax. Log items include:

- POST status
- Error or malfunction indicators

Ensure that the status indicates **Connected**. **TherMax** is communicating. If successful, the status will indicate **Complete** when done.

4.3 Configuration

Press the **Configuration** menu item to display the Configuration screen. Press **Configuration** again to display the component menu, then select the individual configuration to perform.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 77 OF 236

4.3.1 LED Configuration

The LED screen displays LED information and provides for adjustment of the scale and status light LEDs. Each LED assembly contains red, blue, and green transmitters. The two-point LED adjustment sets the brightness of the red and blue components. The green transmitter is the reference and is not adjustable. Set each LED to a basic soft (warm) white color, then adjust as needed to ensure that LEDs have a uniform appearance. The LEDs return to their normal colors after exiting this procedure.

After completing the LED adjustment, perform the relevant LED sections of the display and scale SSTs to verify.

This process must be performed when instructed by this manual or other service documentation.

Required tools: None.

NOTE: Adjust red and blue LED values as needed to balance the white color of all LEDs for visual uniformity. Exit the adjustment to view normal LED colors. Repeat.

4.3.2 TherMax Configuration

TherMax may require configuration after a component change. The **TherMax** screen displays the connection status of **TherMax** and fields for the device Serial Number and Hours of Use. If needed, these fields may be configured from **PrisMax**. For example, **TherMax** may require a configuration update after a component change.

This process must be performed when instructed by this manual or other service documentation.

- Required tools: None
- Page Notes: Enter the desired configuration value and press **Program**

4.4 Calibration

NOTE: Some calibrations may be disabled when other Service mode functions are in progress.

NOTE: Before performing any calibration, ensure that the date and time are correct.

The following items may require calibration:

- “Scale Calibrations,” page 78
- “Pressure Sensor Calibrations,” page 78
- “Syringe Pump Calibration,” page 79
- “Blood Leak Detector Calibration,” page 79
- “ARPS Compliance Calibration,” page 80
- “Return Detection Calibration,” page 80
- “Loaders Calibration,” page 80
- “TherMax Calibration,” page 81

4.4.1 Entering Calibration

1. Press the **Calibration** menu item to display the Calibration screen.
2. Press **Calibration** again to display the component menu.
3. Select the calibration to perform.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 78 OF 236

4.4.2 Scale Calibrations

The Scales calibration screen displays scale information and is used to calibrate scales. The two-point scale calibration procedure calibrates the scales at 0 and +5200 grams (± 7 g). It is possible to calibrate more than one scale at the same time. After completing scale calibration, perform "Scales SST," page 85 to verify scale operation and accuracy.

Calibration must be performed when instructed by this manual or other service documentation.

- Required tools: G50000103 calibration weight set (A and B weights; 5200 grams)
- Page Notes:

 1. Select **Enable** for each scale to be calibrated. When the weight measurement (zero weight) becomes stable and within tolerance, the screen displays Stable and a **Confirm** button in the 0.0 g field for each enabled scale.
 2. In the field at the top of the next column, enter the value of the weight to be used in the next step. The default value is 5200.0 g.
 3. For each scale, hang the weight on the middle hook of the carrying bar. When the weight measurement becomes stable and within tolerance, the screen displays Stable and a **Calibrate** button in the (5200.0 g) field for the scale.
 4. Press **Calibrate** for an individual scale or **Calibrate All** to save the information for all stable scales. When the calibration is complete:
 - Calibration information is saved to the enabled scale(s).
 - The Weight (g) field displays the corrected output using new calibration values.
 - The 0.0 g and 5200.0 g fields display the calibration results (saved A/D values).
 5. Complete the scales SST and ensure that all tests pass.

4.4.3 Pressure Sensor Calibrations

The Pressure Sensors calibration screen displays pressure sensor information and is used to calibrate the pressure sensors. The three-point pressure sensor calibration procedure calibrates the pressure sensors at 0, +400, and -400 mmHg (± 10 mmHg). It is possible to calibrate more than one pressure sensor at the same time.

Calibration must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6021: Pressure meter
- SE6012: Pressure pod plug (2)
- SE6011: Pressure pod plug, syringe and clamp
- SE6029: Return port with tubing
- SE6032: Syringe, 50 cc

Page Notes:

1. Attach the pressure calibration and test tools to all pressure sensors.
2. Select **Enable** for each pressure sensor to be calibrated.
3. Ensure at least one pressure sensor is open to atmospheric pressure.
4. When the pressure measurement (no pressure) becomes stable and within tolerance, the screen displays Stable and a **Confirm** button in the 0.0 mmHg field for the sensor. Enter the actual pressure (as measured on the reference meter) in the 400.0 mmHg field at the top of the column. The default value is 400.0 mmHg, and the entered pressure is displayed at the top of the column until the control unit reboots.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 79 OF 236

5. Enter the actual pressure applied in the -400.0 mmHg field at the top of the column. The default value is -400.0 mmHg, and the entered pressure is displayed at the top of the column until the control unit reboots.
6. Press **Calibrate** for an individual pressure sensor or **Calibrate All** to save the information for all stable sensors. When the calibration is complete:
 - Calibration information is saved to the enabled sensor(s).
 - The mmHg field displays the corrected output using new calibration values.
 - The 0.0, 400, and -400.0 mmHg fields display the calibration results (saved A/D values).
7. Deselect **Enable** for all pressure sensors.
8. Complete the “Pressure Sensors SST,” page 84 and ensure that all tests pass.

4.4.4 Syringe Pump Calibration

The Syringe Pump calibration screen displays syringe pump information and is used to calibrate the pump. The two-point syringe calibration procedure calibrates the pump at 0.0 and 7000 g (± 300 g).

Calibration must be performed when instructed by this manual or other service documentation.

Required tools: G5000103: Calibration weight set (A, B, C and D weights; 7000 grams).

Page Notes:

1. Select Enable. The syringe pump moves the arm to the calibration position.
2. Allow the syringe to stabilize with no weight attached. When the weight measurement (zero weight) becomes stable and within tolerance, the screen displays Stable and a Confirm button in the 0.0 g field.
3. Enter the actual weight to be used in the 7000 g field at the top of the column. The default value is 7000 g.
4. Ensure that the weight set is not supported by the front of the control unit:
 - 4.1 Position the hinge pin of component D away from the panel,
 - 4.2 Gently pull the syringe arm and weight assembly a short distance from the front panel.
 - 4.3 Gradually let the weight set return to its resting point against the front panel.
5. Press Calibrate to save the calibration information. When the calibration is complete:
 - Calibration information is saved to the syringe pump.
 - The Weight (g) field displays the corrected output using new calibration values.
 - The 0.0 and 7000 g fields display the calibration results (saved A/D values).
 - Verify that the Force (N) field displays 0.00.
6. Deselect Enable.
7. Complete the syringe pump SST and ensure that all tests pass.

4.4.5 Blood Leak Detector Calibration

The BLD calibration screen displays detector information and is used to calibrate the BLD. This procedure automatically calibrates the zero offset and gain of the receiver in ambient light with no tubing present. Remove any BLD tubing, then no further interaction is required.

Calibration must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 80 OF 236

Required Tools: None

Page Notes:

1. Clean the BLD tubing path before calibrating: use a lint-free cloth and 70% isopropyl alcohol or equivalent. Use a flossing action to clean inside the BLD.
2. Press **Calibrate** to calibrate the BLD. When calibration is complete:
 - The calibration information is saved.
 - The Action/Status column displays the new calibration value(s).
3. Complete "Blood Leak Detector SST," page 94 and ensure that all tests pass.

4.4.6 ARPS Compliance Calibration

The ARPS Compliance calibration screen displays automatic repositioning system (ARPS) pressure information, and is used to calculate the internal ARPS network tubing compliance. This procedure automatically pressurizes the system, collects data, and performs the compliance calculation. No operator interactions are required.

Calibration must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes:

1. When the calibration is complete:
 - The calibration information is saved.
 - The Action/Status column displays the new calibration value(s).
2. Calibration complete. No SST is required to verify.

4.4.7 Return Detection Calibration

The Return Detection calibration screen displays return pressure sensor information and is used to calculate the ability of the return sensor to detect threshold level pressure changes. This procedure automatically pressurizes the system and calculates return detection characteristics with no tubing present. After confirming no tubing, no operator interactions are required.

Calibration must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes:

1. When the calibration is complete:
 - The calculation information is saved.
 - The Action/Status column displays the new calculation value(s).
2. Calibration complete. No SST is required to verify.

4.4.8 Loaders Calibration

The Loader calibration screen displays loader information and is used to calibrate the main and auto-effluent (AE) loader home positions. This procedure automatically calibrates the home position of each loader, then displays the distance measured for the home position. No operator interactions are required.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 81 OF 236

Calibration must be performed when instructed by this manual or other service documentation.

NOTE: The loader normally makes a brief rapid repeating sound when it is fully retracted.

Required Tools: None

Page Notes:

1. When the calibration is complete:
 - The calibration information is saved.
 - The Action/Status column displays the new calibration value(s).
2. Complete "Loaders SST," page 86 and ensure that all tests pass.

4.4.9 TherMax Calibration

The **TherMax** calibration screen displays **TherMax** blood leak detector (BLD) and bag detection (BD) information and is used to calibrate the BLD and BD sensors. This procedure automatically calibrates the sensors; no tools or operator interactions are required.

Calibration must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes: None

After completing the calibration, perform "TherMax SST," page 92 to verify.

4.5 System Self-Tests

NOTE: Before performing any SST, ensure that the date and time are correct.

NOTE: All SSTs must be performed when instructed by this manual or other service documentation.

A system self-test (SST) is an operator-initiated, built-in test that verifies and troubleshoots major subsystems and components.

4.5.1 Entering SST

Each SST lists a section that identifies possible instances when the SST is required. The list may not be all-inclusive. For example, replacing a cable may require an SST, but this section does not list every cable replacement as a possible reason for performing an SST.

- When replacing a part, see its service instructions (SI) for specific information about SSTs required after installation.
- SSTs required following calibrations are listed in the calibration procedures.
- Some SST screens include numbered steps. Onscreen step numbering may not correspond to step numbering in this manual.
- The **Report** button captures a snapshot of the status of all SSTs. The report file is stored in internal memory.
- Some SST processes require operator interaction, others are fully automated.
- Some SSTs may be disabled when other Service mode functions are in progress.
- Most SSTs include a data window in the lower SST screen area that shows technical detail specific to the SST in progress. This information may be helpful for understanding the SST sequence, troubleshooting a failed SST, or identifying a value that is out of tolerance.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 82 OF 236

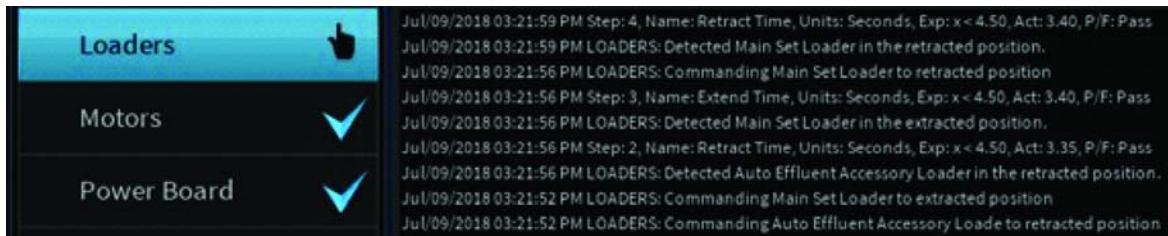


Figure 4-2 Example SST Data Window

NOTE: The example data is shown for reference only. A complete description of all information that may appear in the data window is beyond the scope of this manual.

To select a SST to perform, press the **SST** menu item to display the SST Status screen. Select **SST** again to display the component test menu, then select the individual SST to perform.

4.5.2 Display SST

Passing this SST verifies that the display and touchscreen meet specifications (contrast, color resolution, pixel integrity, backlight gradient, status light color/intensity, correct display control processor (DCP) function, and DCP to control processor (CP) communication).

In this SST, the operator executes most of the tests, except for the display controller tests. Pages 2 through 9 are display performance test screens that test color presentation and touchscreen response.

The display SST includes 11 pages.

- Page 1: List of display module tests.
- Pages 2 through 10: Instruction pages, performance (test) screens, and results entry pages.
- Page 11: Summary of results for all display tests.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes:

- Display (Page 4 of 11, RGB Results):

NOTE: Prior to the final question on the page, the system temporarily disables the backlight and the display goes dark. It is re-enabled and returns to normal brightness within approximately 3 seconds.

- Display (Page 10 of 11, Display Controller): Press **Start**. The display temporarily goes dark then returns to normal. The system automatically executes all tests on this page with no operator action. Descriptions of these tests are beyond the scope of this manual. During testing the SST data window displays the expected ranges, actual values, and test results.

4.5.3 ARPS SST

Passing this SST verifies that the ARPS system meets specifications (ARPS pump, valves, pressure sensor assemblies, and tubing connections) with no significant air leaks in the system. Operator interactions are required on pages 1 through 4. The system executes most of the tests, except for the operator installation and verification of the required test tools.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 83 OF 236

The ARPS SST includes 6 pages.

- Pages 1 and 2: Specific pressures (0 and 450 mmHg) are applied to the internal ARPS
- Pages 3 and 4: Repeat and extend testing to include internal and external components
- Page 5: Sensor location tests, and helps locate leaks, if found
- Page 6: Summary of ARPS test results

This SST must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6012: Pressure pod plug (3)
- SE6020: Return port plug

Page Notes:

Page 1 through 4 of 6: The ARPS automatically manages valve status and pressure.

Page 5 of 6 (Location Test):

- Ensure that all ports are plugged before starting test.
- The ARPS performs the location test; system indicates test is complete by placing a checkmark within the circle for each component.
- Page 6: Summary of ARPS test results
- Leakage tests: pump to valves, and valves to pods.
 - Internal: The pump to valves test checks the internal ARPS tubing network at 0 and 450 mmHg, and then at 0 and 450 mmHg. At zero, each sensor must read 0 4 mmHg. The system then pressurizes to a target pressure (450 or 450 mmHg), and closes the valves. It allows the compressed air in the tubing to cool, and monitors the pressure. The maximum internal pressure leakage must be 40 mmHg in 60 seconds.
 - External: The valves to pods test checks ARPS and external sensor assembly components. The external pressure is set to 450 mmHg, valves are closed, and the internal pressure is adjusted to 450 mmHg. The external pressure is set to 450 mmHg, valves are closed, and the internal pressure is adjusted to 450 mmHg. At zero, each sensor must read 0 4 mmHg. At 450 mmHg, the pressure leakage for each sensor must be 10 mmHg in 300 seconds.
- Location tests: The system adjusts the ARPS pressure to about 30 mmHg. It then closes all sensor valves and readjusts the ARPS pressure to 0 mmHg. The system verifies that each sensor retains about 30 mmHg of pressure. It then opens each sensor valve and checks that the correct sensor assembly responds and the pressure drops to approximately zero.

4.5.4 Barcode Reader SST

Passing this SST verifies that the hand-held barcode reader meets specifications (reader performance for 2D and 1D barcodes, including GS1, PDF 417, QR code, and Data Matrix). The operator executes all tests. Scan results are presented directly onscreen.

The barcode reader SST includes 2 pages.

- Page 1: Barcode reader test for GS1, PDF 417, QR code, and Data Matrix codes
- Page 2: Summary of barcode test results

This SST must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 84 OF 236

Required Tools: None

NOTE: For best results, hold the barcode reader at a slight angle about 1 foot (30 cm) away from the screen.

NOTE: The system increments the count field to 1, displays a check mark, and displays Scanned Text. The text displayed for each barcode is an example; it does not contain product information. After all codes are scanned, the barcode reader continues to sound even though Scanned Text stops updating.

4.5.5 Audio SST

Passing this SST verifies that the main speaker and microphone meet specifications. The system controls these tests. It performs audible tests at low volume, medium volume, and high volume. The sound pattern is identical for each test. The detected sound is analyzed with reference to the sound generated. If they are identical, the test passes.

This SST must be performed when instructed by this manual or other service documentation.

The audio SST includes 2 pages

- Page 1: Main speaker and microphone tests. The system generates 3 sound patterns, each at a different volume, and monitors the audible results.
- Page 2: Summary of results for all audio tests.

Required Tools: None

Page Notes: None

4.5.6 Pinch Valves SST

The system controls most of the tests except for the PV location test. This test verifies:

- The time to move each valve to each location (Center, Clockwise, and Counterclockwise) is less than 1.000 seconds.
- The motor current measured during each location change is less than 0.5 amps.
- The operator correctly identifies the PV under test.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes: None

The pinch valves SST includes 3 pages:

- Page 1: Pinch valve motor tests
- Page 2: Pinch valve location tests: operator interaction is required. The system moves each PV, one at a time, and waits for the operator response.
- Page 3: Summary of PV SST results

4.5.7 Pressure Sensors SST

Passing this SST indicates that the pressure sensor and solenoid assemblies meet specifications (accuracy over a range of pressures and correct pressure pod locations) as measured by an external calibrated pressure meter. The operator controls most of the SST tests, except for certain steps of the barometric sensor and pressure sensor location tests.

This SST must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 85 OF 236

Required tools:

- SE6021: Pressure meter
- SE6012: Pressure pod plug (2)
- SE6011: Pressure pod plug, syringe and clamp
- SE6029: Return port with tubing
- SE6034: Digital manometer

NOTE: **Attach the pressure calibration and test tools to the pressure sensors prior to the start of the test.**

NOTE: **If a result indicates a failure, verify the absolute pressure entry and repeat the test.**

The pressure sensors SST includes 8 pages:

- Pages 1 through 5: Tests that apply pressures (0, ±200, and ±400 mmHg) to the sensors. When 200 mmHg Pressure Test is done, leave all calibration and test tools attached to the pressure sensors.
- Page 6: Barometer Test prompts for entry of the current barometric pressure, then tests the barometric sensor. Use the digital manometer to obtain the absolute atmospheric pressure reading for the site.
- Page 7: Sensor location tests, which require pressure pod plugs to be install prior to starting the test.

NOTE: **Ignore the ARPS sensor; the system self-checks this sensor and requires no operator input.**

- Page 8: Summary of results for all pressure tests.

- Pressure tests: Each sensor is exposed to a specific pressure by the operator. In the 0 mmHg test, the pressure entry is managed automatically by the system; for the rest of the pressure tests, enter the applied pressure value. For pressure tests -200, -400, +200, and +400, the system first checks the zero offset of each sensor. It then compares the applied pressure to the measured pressure. For the zero offset, each sensor must read 0±10 mmHg. At the pressurized reading, each sensor must read within ±5 mmHg of the applied pressure.
- Barometric test: Enter the local barometric pressure. The system then tests the barometric sensor for accuracy and internal temperature. The sensor must measure a value within ±10 mmHg of the local barometric pressure and must be within 0° to 60°C.
- Location tests: The system adjusts the ARPS pressure to 200 mmHg. It then prompts for the identification of the sensor under test. The response must match the system expectation. The ARPS sensor test requires no operator response; this sensor is verified internally by the system.

4.5.8 Scales SST

Passing this SST indicates that the scales meet specifications (accuracy, hysteresis, correct LED function, and correct scale location).

Required tools: G5000103 Calibration weight set (A, B, C and D weights; 7000 grams).

The scales SST includes 7 pages:

- Pages 1 through 3: Instructions to hang specific weights on each scale to verify hysteresis
- Page 4: LED color tests
- Page 5: LED location tests
- Page 6: Scale location tests
- Page 7: Summary of results for all scale tests.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes:

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 86 OF 236

No specific sequences is required when hanging weights.

Scales - Page 2 of 7 (A + B Weight and Hysteresis Test): Release weight slowly. If released too quickly, overshoot is displayed. Repeat the step.

Scale tests: There are 3 sets of weight tests: (1800, 5200, and 7000 grams).The A + B (5200) test includes a hysteresis test to ensure that each scale returns to a proper value when the weight is shifted. Each test first checks to see if the scale is closed; then performs a zero measurement; then the specified weight measurement for the test.

- C + D weight test: 0 ± 7 grams and 1800 ± 7 grams.
- A + B weight test: 0 ± 7 grams and 5200 ± 7 grams; hysteresis less than ± 2 grams.
- A + B + C + D weight test: 0 ± 7 grams and 7000 ± 7 grams.

Each scale has 2 signal channels (0 and 1). All tests record a mean for each channel, a minimum, maximum, mean combined value, a channel differential and a standard deviation.

- Standard deviation must be < 0.3 grams.
- Channel difference must be < 6 grams.
- LED color tests: red, green, blue, and off. Operator response must match the system expectation.
- LED location tests: identify the LED. Operator response must match the system expectation.
- Scale location tests: The system asks for identification of the scale under test. The response must match the system expectation.

4.5.9 Loaders SST

This test verifies that the loaders move through full stroke at the required velocity, and all loader motors are correctly located, including the following:

- The time to fully extend each loader is less than 4.000 seconds.
- The time to fully retract each loader is less than 4.000 seconds.
- The correct identification of the loader under test.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

The loaders SST includes 3 pages:

- Page 1: Tests that loaders move between extended and retracted positions within the specified time.
- Page 2: Loader Motors Location Test: verifies that the correct loader moves when commanded. The system moves each loader, one at a time, and waits for operator response.
- Page 3: Summary of results for all loader tests.

4.5.10 Motors SST

Passing this SST indicates that each motor meets specifications (speed accuracy throughout the range of operation, odometer measurement/encoder accuracy, correct start/stop response, correct motor currents, and correct location).

The motor SST includes 3 pages:

- Page 1: Actuation tests start/stop the motors, vary motor speeds, monitor encoder output, and measure the maximum current at each revolutions per minute (RPM) setting tested.
- Page 2: Motor location tests.
- Page 3: Summary of motor test results.

This SST must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 87 OF 236

Required Tools: None

Page Notes: None

Test Overview:

PrisMax has 2 types of flow pumps: the blood pump and the solution pumps, including PBP, replacement, dialysate, effluent, and AE. The system performs a series of performance (actuation) tests, and a location test on the pump motors.

- Performance test: commands each motor to a particular speed and verifies that the resulting motor response is within specifications:
 - Speed settle time < 5 seconds.
 - Settled speed (after 5 seconds) is within 2% of commanded (except for low speeds, where 0.5 RPM is used).
 - Mean speed is within the same limits as settled speed.
 - Standard deviation of the speed is < 3 RPM.
 - Speed remains within ±8 RPM of the commanded value, at all times (including overshoot and undershoot).
 - Encoder values change within specified values for each pump speed.
 - Maximum current drawn by each motor is < 3.5 A.
 - Stop time is < 5 seconds from a speed of 150 RPM.
- Location test: The operator correctly identifies the motor under test.

4.5.11 Power Board SST

Passing this SST verifies that the power board meets specifications for the power supplies, PSC processor communications, actuators, fan, thermal sensor, battery, power control panel, speaker, display, and other related miscellaneous PSC functions.

The system performs multiple performance tests related to the power board, power control, and battery backup system. Descriptions of the tests in this SST are beyond the scope of this manual. During testing the SST data window displays the expected ranges, actual values, and test results.

This SST must be performed when instructed by this manual or other service documentation.

Required tools: none

Page Notes: The power board SST includes 10 pages:

- Page 1: Power supply tests
- Page 2: PSC communications, thermal sensor, and fan tests
- Page 3: FPGA control function tests
- Page 4: Actuator control and power disable tests. Some steps require the operator to press **OK**. If the system reboots, it automatically returns to Service mode. An extended wait is normal.
- Page 5: Power control panel tests
- Page 6: Backup speaker test
- Page 7: Power cycling and alert indicator tests:
 - Press **OK**: the system reboots and automatically returns to Service mode.

NOTE: The system sounds the backup buzzer until boot up is complete and the next step is initiated.

- Press and hold the On/Standby button for about 10 seconds until system shuts down.

NOTE: During shutdown, observe whether the Stop indicator (amber LED) initially blinks one time. Also note if the speaker sounds continuously.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 88 OF 236

- Press the On/Standby button to restart the machine: the system returns to Service mode.
- Page 8: Battery backup tests:
 - When prompted, disconnect the power cord to force a total loss of power.

NOTE: At shutdown, observe whether the Stop indicator (amber LED) blinks or the speaker sounds.

- Wait a few seconds, then reconnect the power cord to the wall outlet.
- Press **On/Standby** to restart the machine: the system returns to Service mode.
- Page 9: Tests the backup speaker capacitor, speaker duration, and real-time clock battery
 - Press **Start**. The system runs the first set of tests automatically.
 - When prompted, press **OK**. The system automatically shuts down.
 - Allow the backup speaker system to sound for at least 90 seconds.
 - Press the **On/Standby** button to restart the machine: the system returns to Service mode.
 - Enter the number of seconds that the backup speaker sounded in the entry field.
- Page 10: Summary of results for all power board tests

4.5.12 Main Board SST

Passing this SST verifies that the main board meets specifications (functional communication between the main, power, and safety board processors). In this SST, the system executes all tests without operator intervention.

A description of all the tests in this SST are beyond the scope of this manual. During testing the SST data window displays the expected ranges, actual values, and test results.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

Page Notes: None

The main board SST includes 2 pages:

- Page 1: FPGA and processors communications tests
- Page 2: Summary of results for all main board tests

4.5.13 Safety Board SST

Passing this SST verifies that the safety board meets specifications (functional communication between the safety, main, and power board processors, as well as safety-related components). A description of all the tests in this SST is beyond the scope of this manual. During testing the SST data window displays the expected ranges, actual values, and test results.

The system executes most of the tests without operator interaction.

This SST must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6019: Syringe, tubing and chamber assembly
- SE6031: Saline-filled tube

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 89 OF 236

The safety board SST includes 5 pages:

- Page 1: Safety board communications test with syringe, scales, and control processor (CP)
- Page 2: Communication redundancy tests to the CP, ABD, syringe, and BLD
- Page 3: Pressure sensor analog circuitry test
- Page 4: BLD, LLD, ABD, and LLS circuit tests
- Page 5: Summary of results for all safety board tests

4.5.14 Driver Board SST

Passing this SST verifies that the driver board meets specifications (communication between the control processor (CP) and the CP delegate FPGA, and that actuator power can be disabled). The system executes these tests without operator intervention.

A description of the tests in this SST is beyond the scope of this manual. During testing the SST data window displays the expected ranges, actual values, and test results.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

The driver board SST includes 3 pages:

- Page 1: Tests the CP FPGA and other signals
- Page 2: Tests the actuator power control
- Page 3: Summary of results for all driver board tests

4.5.15 Isolation Board SST

Passing this SST verifies that the isolation board meets specifications (correct I/O port function). A serial null-modem connection is verified between the 3 DB9 connectors. The USB port is tested for the absence and presence of the test USB flash drive. The Ethernet port connectivity is tested via the Ethernet loopback device. The system also verifies that a valid communication configuration (IP address, subnet mask, etc.) is programmed into the machine.

The remote alarm connector is tested for continuity and voltage at specified pins.

- Pins 1, 3, and 4: Fused non-powered passive outputs connected to a single-pole double-throw (SPDT) relay.
- Pins 2, 5, and 6: Powered outputs.
 - Pins 2 and 5 provide an isolated +5 V alarm signal (high = alarm; low = no alarm).
 - Pins 2 and 6 provide an isolated +5 V supply voltage.

This SST must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6024: USB flash drive
- SE6025: Loopback cable, DB9 male to DB9 male, null-modem
- SE6026: Ethernet loopback plug
- SE6028: Digital multimeter (DMM)
- SE6027: DMM probes, fine tip

The isolation board SST includes 3 pages:

- Page 1: DB9, USB, and Ethernet connector tests. Use the serial null-modem cable to make the following connections:
 - Service DB9 connector (top) and the remote alarm DB9 connector (bottom).
 - Blood warmer DB9 connector (middle) and the remote alarm DB9 connector (bottom).

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 90 OF 236

- Service DB9 connector (top) and the blood warmer DB9 connector (middle).
- Page 2: Remote alarm connector test (see Figure 4-3 for pin-out). The remote alarm connector is tested for continuity and voltage at specified pins. Pins 1, 3, and 4 are fused non-powered passive outputs connected to a single-pole double-throw (SPDT) relay. Pins 2, 5, and 6 are powered outputs. Pins 2 and 5 provide an isolated +5 V alarm signal (high = alarm; low = no alarm). Pins 2 and 6 provide an isolated +5 V supply voltage. For more information on the isolation board, see “Isolation Board,” page 46.

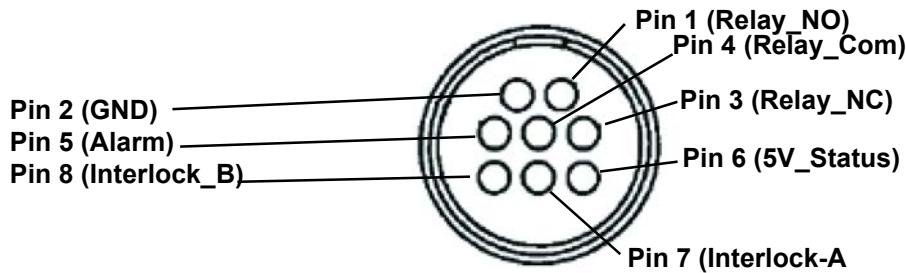


Figure 4-3 Remote Alarm (8-pin AMP) Connector

- Page 3: Summary of results for all isolation board tests

4.5.16 Liquid Level Sensor SST

Passing this SST verifies that the liquid level sensor (LLS) correctly detects liquid level at the upper and lower ranges, and detects chamber presence. The operator controls all tests.

- Chamber tests: The system first verifies the absence of the deaeration chamber, and then confirms its presence after the chamber is loaded.
 - Level tests: The system first verifies that the deaeration chamber is empty, then verifies the injected liquid level (to below the upper sensor, then above the upper sensor).
 - The LLS has a foam detector at the top of the assembly. It is tested by blocking the signal.
- This SST must be performed when instructed by this manual or other service documentation.

Required tools: SE6019 Syringe, tubing and chamber assembly

The LLS SST includes 2 pages:

- Page 1: LLS test.
- Page 2: Summary of results for all LLS tests.

4.5.17 Air Bubble Detector SST

Passing this SST verifies that the air bubble detector (ABD) meets specifications (ABD can detect 20 μL bubbles and tubing presence). In this SST, the operator controls all tests.

- Tube presence tests: The system first verifies the absence of any tubing in the ABD, then confirms its presence after the operator loads tubing.
- Fluid test: The system confirms the presence of fluid in the tubing.
- Bubble tests: The operator injects a 20 μL bubble into the line. The system monitors the ABD signal output to determine if it detects the bubble passing through the tube.

This SST must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 91 OF 236

Required tools:

- SE6019: Syringe, tubing, and chamber assembly
- SE6023: 25 µL calibrated syringe

The ABD SST includes 2 pages:

- Page 1: ABD sensor test
- Page 2: Summary of results for all ABD tests

4.5.18 Return Clamp SST

Passing this SST verifies that the return clamp meets specifications (tube presence detection, maximum current draw, holding current, and clamp open/close time). In this SST, operator interaction is required for the tests related to tubing presence; the system controls the open/close, current draw, and response time tests.

- Tube presence tests: The system first opens the clamp, asks for confirmation that the clamp is open, requests tubing insertion, confirms tubing presence after the tubing is loaded, requests tubing removal, confirms tubing absence after the tubing is removed, closes the clamp, then asks for confirmation that the clamp is closed.
- Speed-time tests: The system commands the clamp to open, then verifies the time it takes to open; the result must be less than 0.5 seconds. After the first amperage test (see below), it then commands the clamp to close and verifies the time it takes to close; the result must also be less than 0.5 seconds.
- Amperage tests: The system commands the clamp to open (noted above). It then keeps the clamp open for 30 seconds and measures the holding current during that time; the resulting current draw must be between 0.2 and 1.0 A. It then commands the clamp to close, allows it to remain closed for 10 seconds and measures the de-energized current draw during that time; the result must be between 0.05 and 0.05 A. The system calculates the difference between the open and closed current values; the result must be between 0.25 and 1.05 A. It also evaluates the maximum instantaneous current draw during clamp activation; the result must be less than 3.25 A.

This SST must be performed when instructed by this manual or other service documentation.

Required tools: SE6019 Syringe, tubing and chamber assembly.

The return clamp SST includes 2 pages:

- Page 1: Return clamp and return line sensor tests
- Page 2: Summary of results for all return clamp tests

4.5.19 Liquid Leak Detector SST

Passing this SST verifies that the liquid leak detector (LLD) can detect fluid.

This SST must be performed when instructed by this manual or other service documentation.

Required tools: SE6032 Syringe, 50 cc.

The LLD SST includes 2 pages:

- Page 1: Leak detection sensor tests
- Page 2: Summary of results for all leak detection tests

4.5.20 Ambient Temperature Sensor SST

The system verifies the accuracy of the temperature probe below the drip tray. Passing this SST verifies that the ambient temperature sensor (ATS) is providing accurate temperature measurements.

Required tools: SE6043 Temperature Monitor

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 92 OF 236

The ATS SST includes 2 pages:

- Page 1: Temperature sensor tests
- Page 2: Summary of results for all leak detection tests

4.5.21 Discharger SST

Passing this SST verifies that the discharger meets specifications (line present detection, correct relay circuit function, and correct resistance).

The system first verifies the presence of the discharge ring (via a microswitch) in the discharge clip. It then verifies the absence of the discharge ring when the operator removes the tube.

The relay on the discharge board is commanded to open. This creates an open circuit between the discharge clip and chassis ground. When open, the reading between the discharge clip and chassis ground should be greater than $9\text{ M}\Omega$.

The relay is then commanded to close. When closed, the reading between the discharge clip and chassis ground should be $3.24 \pm 0.15\text{ M}\Omega$.

This SST must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6028 Digital multimeter (DMM)
- SE6022 Discharge lug with tubing section

The discharger SST includes 2 pages:

- Page 1: Discharge system tests
- Page 2: Summary of results for all discharge tests

4.5.22 RAM SST

Passing this SST verifies that the main board RAM meets specifications (data patterns can be written correctly over the entire SRAM and DRAM memory spaces). The system controls these tests.

The SRAM is used for system startup, and the DRAM is used for normal operation. The SST has to run from one bank of memory while the system tests the other bank. When running from DRAM, the SRAM can be modified without disrupting operations. To modify DRAM, the SST must run from SRAM. Because SRAM is small, this is done as part of the boot code.

This SST must be performed when instructed by this manual or other service documentation.

Required Tools: None

The RAM SST includes 2 pages:

- Page 1: RAM and DRAM memory system tests. During RAM test, the machine reboots and displays the splash screen
- Page 2: Summary of results for all RAM tests

4.5.23 TherMax SST

Passing this SST verifies that the **TherMax** blood warmer device is functioning and can communicate with PrisMax. In this SST, the operator controls most of the tests with the rest performed automatically.

TherMax thermistors are checked for accuracy and relative equal readings. The mechanical interlocking system is verified, as are the LED indicators and push-buttons, and internal LED sensors. The heating plates are warmed to verify temperature accuracy and the safety system over-temperature cutoff.

This SST must be performed when instructed by this manual or other service documentation.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 93 OF 236

Required tools:

- BW1001 Blood warmer bag
- SE7000 Bag Detect and Rear BLD Fixture

The **TherMax SST** includes 4 pages:

- Page 1: **TherMax** temperature and LED system tests
- Page 2: **TherMax** Locking mechanism and sensor tests
- Page 3: **TherMax** Display panel, power and safety tests
- Page 4: Summary of results for all tests

NOTE: If the full SST is run twice in a row, the power delivery test may fail.

NOTE: The heater plates need time to cool before re-running the tests on page 3. The power delivery test requires the heater plate temperature to be below a threshold before continuing. The safety system test that follows requires a sufficiently high residual temperature for the test to complete. If PrisMax times out, due to no response from TherMax, the test fails. Timeout = 70 s.

NOTE: Cycle TherMax power when done.

4.5.24 Syringe Pump SST

Passing this SST verifies that the syringe pump meets specifications (travel distance, weight measurement, and solution delivery).

In this SST, the operator manually places the weights. The system automatically performs all other operations.

- Weight tests: The syringe load cell is exposed to two weight values, 0 and 7000 grams. It must read each value within ± 400 grams. The system calculates a standard deviation for each measurement; the standard deviation must be 0 ± 25 grams.
- Position tests: The system moves the syringe arm through its full range of travel. There are sensors for the 0 mm (lower end-of-travel, EOT), 77 mm (upper EOT), and 100 mm (maximum EOT) positions. The distance measured between the 77 mm sensor and the 100 mm sensor must be 23 ± 1 mm. In addition, the 77 mm signal width must be 4 ± 0.4 mm.
- Friction tests: There are two force values represented in the friction tests, relative and absolute. The system monitors the force, or resistance, measured by load cell as the syringe arm travels up and down the length of the assembly. The minimum arm force calculation must be greater than -2 N for absolute and -1 N for relative. The maximum arm force calculation must be less than +2 N for absolute and +1 N for relative.
- Speed tests: The system monitors the speed of the syringe arm as it travels up and down the upper length of the assembly. The speed measurement must be 6 ± 0.3 mm/s in both cases.
- Delivery tests: The system imitates Therapy mode and performs two periodic delivery tests (designated A and B).

This SST must be performed when instructed by this manual or other service documentation.

Required tools: G5000103 Calibration weight set (A, B, C and D weights; 7000 grams).

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 94 OF 236

The syringe pump SST includes 3 pages:

- Page 1: Syringe weight, travel distance, friction, and position tests

NOTE: To ensure that the weight set is not supported by the front of the control unit during this test, do the following:

- Position the hinge pin of component D away from the panel.
- Gently pull the base of the syringe arm and weight assembly a short distance from the front panel.
- Gradually let the weight set return to its resting point against the front panel.
- Page 2: Periodic delivery tests
- Page 3: Summary of results for all syringe tests

4.5.25 Blood Leak Detector SST

Passing this SST verifies that the BLD meets specifications (detection throughout the full transmissivity range, correct normalization, and tubing presence detection). Operator interaction is required for the tests with the BLD test tool and tubing (empty and saline-filled). The system:

- Requests the BLD film reflector tool number; the number must be within the range of 58 - 80.

NOTE: This number represents the ratio of the A and B lens transmissivity, or transparency, to infra-red light. Lens B is more opaque than lens A and lets less light through the lens. The ratio $(A \div B) * 100 = N$.

- Verifies that no tube is present and monitors the transmitter voltage level. The value must be between 0.600 and 1.300 V.
- Adjusts (normalizes) the transmitter level, with side A of the tool, so that the receiver voltage is about 3.6 V. The recorded transmit value must be between 1.200 and 4.000 V.
- Evaluates the minimum and maximum transmissivity of side B of the test tool, with respect to side A. The value must be 0 ± 10 for each reading.
- Attempts to normalize on an empty tube; the transmitter reaches maximum and normalization fails. The value recorded is the % transmissivity when it reached maximum; < 99 expected.
- Adjusts (normalizes) the transmitter level, with the saline-filled tube, so that the receiver voltage is about 3.6 V. The recorded value must be between 1.800 and 4.300 V.

This SST must be performed when instructed by this manual or other service documentation.

Required tools:

- SE6018: BLD film reflector tool
- SE6022: Discharge lug with tubing section
- SE6031: Saline-filled tube

The BLD SST includes 2 pages:

- Page 1: BLD sensor tests
- Page 2: Summary of results for all blood leak tests

4.5.26 Final Acceptance

Passing this SST verifies that the PrisMax System includes the correct hardware and software. The Final Acceptance SST is required when:

- instructed by this manual or other service documentation.
- performing any service that changes the installed hardware or software.

Required tools: Barcode for installed software.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 95 OF 236

The Final Acceptance SST includes 2 pages:

- Page 1: Scan the barcodes for the device and software
- Page 2: Summary of the barcode verifications

4.6 Manual Controls

Manual control in Service mode allows manual control of specific components:

- Motors: Runs selected pumps at selected speeds and tests the safety stop system.
- Syringe: Runs the syringe pump at a selected speed, distance, and time.
- Pinch Valves: Moves each pinch valve to clockwise, counter-clockwise, and center positions.
- **TherMax**: Displays **TherMax** sensor data.
- ARPS: Runs the ARPS motor, controls the pressure pod valves, and monitors pressures.
- Loader Motors and Clamps: Moves each loader motor to the retracted or extended position. Opens or closes the clamp.

To enter Manual Control, press the **Manual Controls** menu item to display the Manual Controls screen. Press **Manual Controls** again to display the control menu, then select the individual function to perform.

NOTE: Manual controls may be disabled when other Service mode functions are in progress.

4.6.1 Motors Manual Control

The Motors screen displays motor information and is used to operate the motors as needed to test the motor control and safety systems.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 96 OF 236	



Figure 4-4 Manual Control: Motors Screen

Table 4-2 Motors Screen Operational Features

Enable	Enables or disables a motor
Enable All	Enables or disables all motors simultaneously
Set Speed (RPM)	Sets a speed for each motor
10 All	Decreases all motor speeds by 10 RPM
0 All	Sets all motor speeds to 0 RPM
+10 All	Increases all motor speeds by 10 RPM
AP Stop	Disables all pumps simultaneously
Speed (RPM)	Displays the current speed for each motor
Position (count)	Displays the current encoder position for each motor

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 97 OF 236			

Table 4-3 Pump information

Name	Type	Range (RPM)	Range (count)
Auto-Effluent	High speed	- 305 to +305	0 to 5919
Effluent	High speed	-305 to +305	0 to 5919
Pre-blood	High speed	- 305 to +305	0 to 5919
Blood	Low speed	- 85 to +85	0 to 5919
Dialysate	High speed	- 305 to +305	0 to 5919
Replacement	High speed	- 305 to +305	0 to 5919

Troubleshooting Examples

NOTE: If a problem is detected or repair is required, perform “Motors SST,” page 86.

To operate the motors:

1. Press **Enable All** or enable each individual pump separately, as needed. When operating the motors, note the following:
 - A pump cannot turn unless it is enabled, regardless of the set speed.
 - Select a low initial speed, then change the speed as needed.
 - To avoid a pump error when enabling/disabling the pumps, do not set pump speeds of -0.09 to -0.01 or +0.01 to +0.09 RPM.
 - Abrupt changes, such as using AP Stop and re-enabling at high speed, may cause a pump error.
 - If a pump error occurs, disable then re-enable the pump, select another speed, and retry.
2. Press the **Set Speed (RPM)** field for each pump and enter the desired speed. When enabled, a pump starts running immediately when the speed is entered.
3. Change pump speeds as needed.
4. Initiate AP Stop as needed. The pumps must be re-enabled when AP Stop is used.

4.6.2 Syringe Manual Control

The Syringe screen displays syringe motor and load cell information and is used to operate the syringe as needed to test the motor control system.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 98 OF 236	

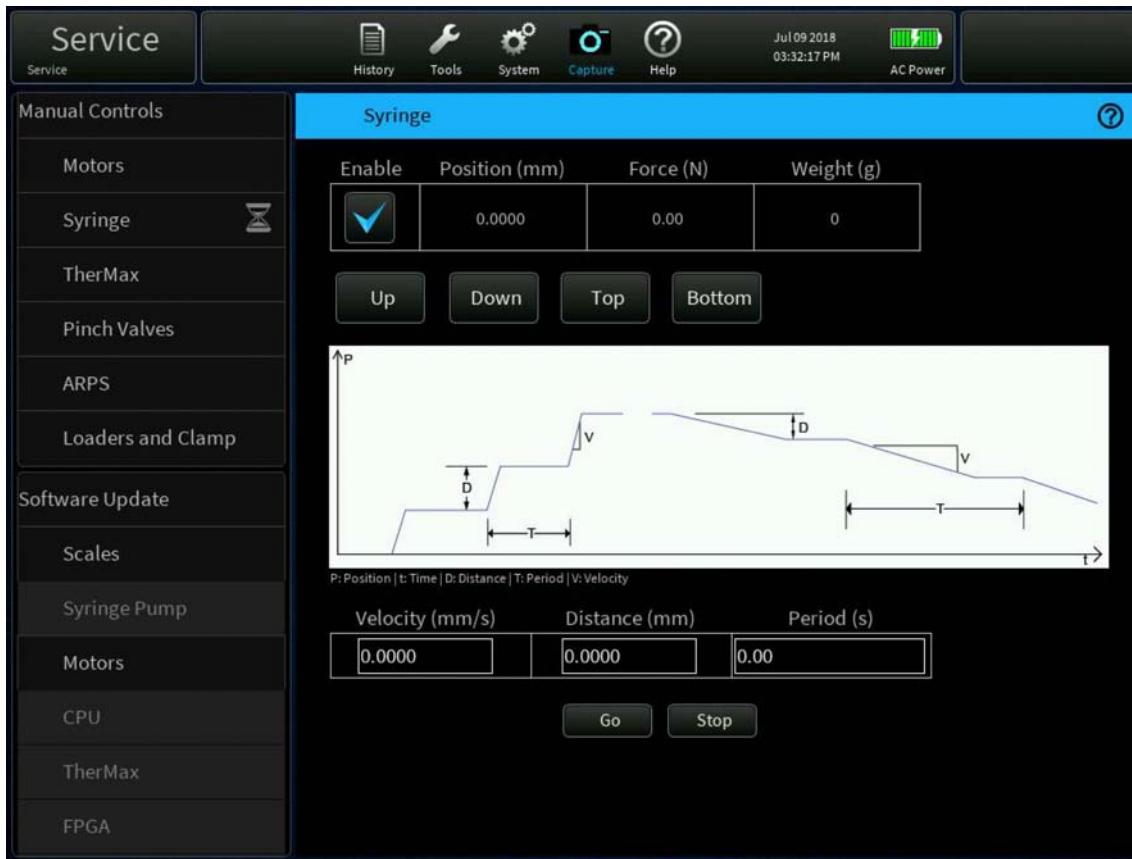


Figure 4-5 Manual Control: Syringe Screen

Table 4-4 Operational features

Enable	Enables or disables the syringe pump
Position (mm)	Displays the current position of the arm along the length of the pump
Force (N)	Displays the force generated on the syringe arm by motion/resistance
Weight (g)	Displays the current weight suspended on the syringe arm (load cell)
Up	Moves syringe arm up
Down	Moves syringe arm down
Top	Moves syringe arm to the top position
Bottom	Moves the syringe arm to the bottom position.
Graph (examples)	Position versus time: velocity (upward slope); velocity (downward).

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual	DOCUMENT TYPE: Service Manual		PAGE 99 OF 236

Table 4-4 Operational features (continued)

Velocity (mm/s)	Allows the velocity (+ or -) of the syringe arm motion to be set.
Distance (mm)	Allows the travel distance per cycle for the syringe arm to be set.
Period (s)	Allows the period of time for syringe arm travel to be set.
Go	Starts the defined syringe test or pattern.
Stop	Stops all syringe motion.

Table 4-5 Range information

Velocity (mm/s)	Distance (mm)	Period (s)
6.0000 to +6.0000	0.0000 to 163.8375	0.00 to 655.35

Troubleshooting Examples

NOTE: If a problem is detected or repair is required, perform the Syringe Pump SST.

NOTE: If changing a parameter, press Go to apply the new value to the pump control.

NOTE: Motion continues until Stop is pressed or the syringe reaches the end-of-travel.

To perform basic syringe pump operations:

1. Press **Enable**. The syringe cannot move unless it is enabled, regardless of the other settings.
2. Operate the syringe pump:
 - Press and hold **Up** or **Down** to move the pump arm to the desired position.
 - Press **Top** or **Bottom** to automatically move the pump arm to that end position.

To perform a pulsed variable pattern pump test:

1. Press **Enable**.
2. In the **Velocity** (mm/s) field, enter the desired velocity (+ or -).
3. In the **Distance** (mm) field, enter the travel distance for each iteration of the test.
4. In the **Period(s)** field, enter the time allowed for each iteration of the test. If distance ÷ velocity is ≤ the period, the syringe pauses between motion cycles.)
5. Press **Go** and **Stop** as desired. Motion continues until the period ends, **Stop** is pressed, or the syringe reaches the end-of-travel.

Simulated syringe bolus and continuous tests:

1. Press **Enable**.
2. In the **Velocity** (mm/s) field, enter 2.0.
3. In the **Distance** (mm) field, enter 10.0.
4. In the **Period(s)** field, enter 600.0 for bolus or 1.0 for continuous.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 100 OF 236			

5. Press **Go** and **Stop** as desired.

4.6.3 TherMax

The **TherMax** screen displays communication status and sensor information and is used to verify changes in operating conditions, i.e., sensor readings, switch positions, angle of the device, etc.

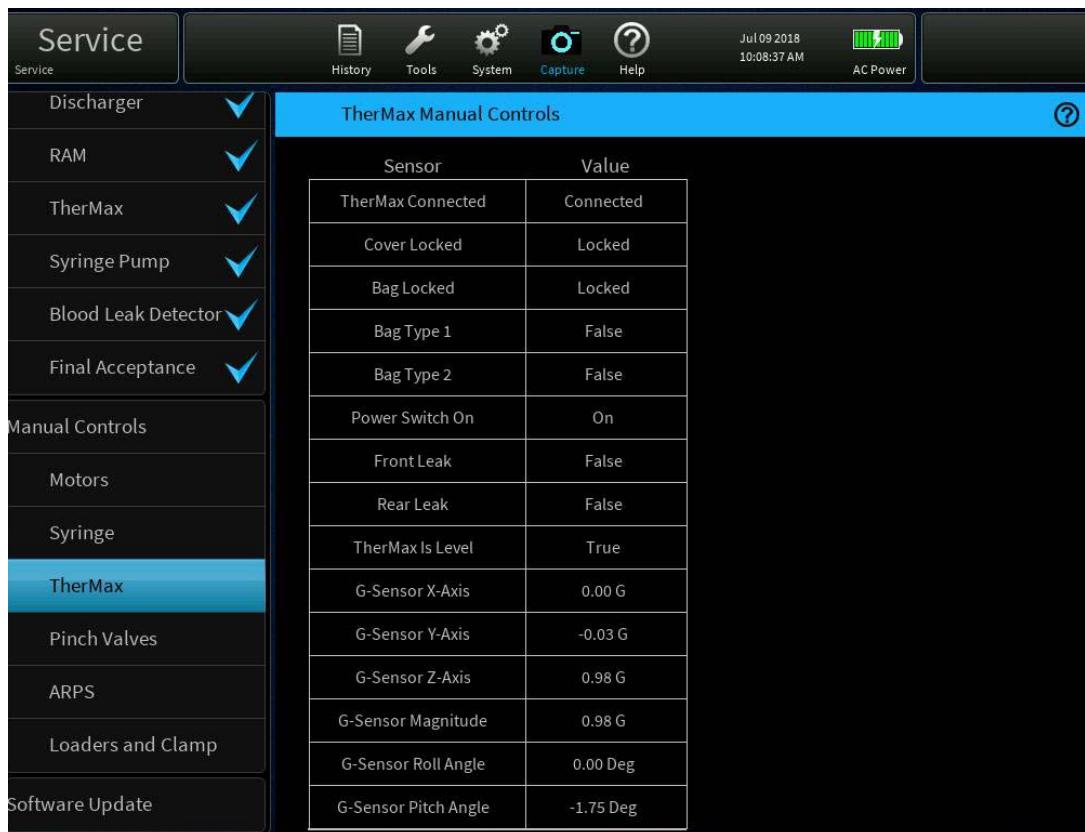


Figure 4-6 TherMax Manual Controls Screen

Table 4-6 Operational Features

Sensor	Value
TherMax Connected	Connected / Disconnected
Cover Locked	Locked / Unlocked
Bag Locked	Locked / Unlocked
Bag Type 1	True / False
Bag Type 2	True / False
Power Switch On	On / Off
Front Leak	True / False

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 101 OF 236

Table 4-6 Operational Features (continued)

Sensor	Value
Rear Leak	True / False
TherMax is Level	True / False
G-Sensor X-Axis	Acceleration (with respect to 1 gravity)
G-Sensor Y-Axis	Acceleration (with respect to 1 gravity)
G-Sensor Z-Axis	Acceleration (with respect to 1 gravity)
G-Sensor Magnitude	Acceleration (with respect to 1 gravity)
G-Sensor Roll Angle	Degree of Angle
G-Sensor Pitch Angle	Degree of Angle

Troubleshooting Examples

NOTE: If a problem is detected or repair is required, perform “TherMax SST,” page 92.

NOTE: TherMax must be connected and communicating to perform tests.

To perform basic operations:

- Open and close the various locks and latches. Monitor the sensor value for change.
- Test the BLD sensors with saline or tap water. Monitor the sensor value for change.
- Change the tilt and angle of the warmer. Monitor the sensor values for change.

4.6.4 Pinch Valves Manual Control

The Pinch Valves screen displays pinch valve information and is used to operate the valves as needed to test the solenoid control system.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 102 OF 236			



Figure 4-7 Pinch Valves Screen

Table 4-7 Operational features

Enable	Enables or disables individual pinch valves.
Status	Displays the current position of each pinch valve.
Action: CCW	Moves the valve to the CCW position.
Action: Center	Moves the valve to the Center position.
Action: CW	Moves the valve to the CW position.
CCW All	Moves all valves to the CCW position.
Center All	Moves all valves to the Center position.
CW All	Moves all valves to the CW position.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 103 OF 236

Troubleshooting Notes

- NOTE: If a problem is detected or repair is required, perform “Pinch Valves SST,” page 84.
- NOTE: A pinch valve cannot move unless it is enabled, regardless of the position settings.
- NOTE: A valve error may occur if one of the three position sensors is unable to detect its position within a few seconds of being energized, and a position timeout occurs.
- NOTE: If a valve error occurs, disable then re-enable the valve, select another action, and retry.

4.6.5 ARPS Manual Control

The ARPS Pressure Controller Mode and Valve Controller screen displays ARPS pump and pressure sensor information, as well as valve status and pressure sensor information for the pressure pod and return port assemblies. It can be used to operate the pump and valves to test pressure management and check for internal and external leaks in the ARPS.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 104 OF 236			



Figure 4-8 ARPS Pressure Controller Mode and Valve Controller Screen

Table 4-8 Operational features

Enable	Enables or disables the ARPS pump and valve solenoids.
mmHg	Displays the current pressure at each pressure sensor.
Pressure	Allows the set-point pressure for the ARPS to achieve to be enter.
Speed	ARPS pump running speed (RPM). (presently not active)
Valve Status	Displays the current status of each sensor valve.
Action: Open	Opens an individual valve.
Action: Close	Closes an individual valve.
Open All	Opens all enabled valves.
Close All	Closes all enabled valves.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 105 OF 236			

Table 4-9 Range information

Pressure (mmHg)	-450.0 to +450.0
-----------------	------------------

Troubleshooting Examples

NOTE: If a leak is detected or repair is required, perform “ARPS SST,” page 82.

To perform an internal leak test:

1. Press **Enable** for the ARPS.

NOTE: The ARPS pump cannot move unless it is enabled, regardless of the other settings.

2. In the ARPS **Pressure** field, enter the desired pressure (+ or -).
3. Disable ARPS when the pressure is achieved.
4. Monitor the displayed pressure to determine if there is a leak.

NOTE: If a leak is present, verify the internal tubing network and pressure sensor valve/housings.

To perform an external leak test:

1. Install the pressure pod plug and return port tools (see “ARPS Compliance Calibration,” page 80).
2. Press **Enable** for the ARPS and all valve controllers.
3. Press **Open** for all valves (pressure sensors) to be tested.
4. In the **ARPS Pressure** field, enter the desired pressure (+ or -).
5. Allow pressure to stabilize, then press **Close** for all valves (pressure sensors) to be tested.
6. Change the **ARPS Pressure** to 0 mmHg.
7. Monitor the displayed pressures to determine if there is a leak.

NOTE: If a leak is present, verify the external pressure pod silicon seals and return port coupling.

To perform an internal/external leak test:

1. Pressurize the system as described above in the external leak test (steps 1 through 4).
2. Disable the ARPS when the pressure is achieved.
3. Monitor the displayed pressures to determine if there is a leak.

NOTE: If a leak is present, verify both the internal and external components as stated above.

When done:

1. Ensure that the ARPS pressure is at 0 mmHg.
2. Remove all pressure pods and return port tools.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 106 OF 236			

4.6.6 Loader Motors and Clamp Manual Control

The Loader Motors and Clamps screen displays loader motor and return clamp information and is used to operate the motors and clamp.



Figure 4-9 Loaders Motors and Clamps Screen

Table 4-10 Operational features

Enable	Enables individual loaders and the return clamp.
Status	Displays the current position of the loaders and return clamp.
Action: In	Moves each loader/clamp to the In position.
Action: Out	Moves each loader/clamp to the Out position.
In All	Moves all loaders/clamp to the In position.
Out All	Moves the loaders/clamp to the Out position.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 107 OF 236

Troubleshooting Examples

NOTE: If a problem is detected or repair is required, perform the “Loaders SST,” page 86 or “Return Clamp SST,” page 91.

NOTE: If an error occurs, disable then re-enable the component, select an action, and retry.

To operate loaders or the clamp:

1. Press **Enable** for the component to be tested.

NOTE: The loaders and return clamp cannot move unless they are enabled, regardless of position settings.

2. Press **In** or **In All**. The component(s) should move to the In position.
3. Press **Out** or **Out All**. The component(s) should move to the Out position.
4. Return all components to the desired position.

4.7 Software Update

This section describes how to update PrisMax System software, including primary software, individual board software, component firmware, **TherMax**, Licenses and Language.

NOTE: Calibrations or SSTs may be required following a software update. See the software update service instruction (SI) for information on what calibrations or SSTs are required.

Table 4-11 Required Equipment

Required equipment	Description
PrisMax System software USB drive	USB drive containing validated PrisMax System software.

4.7.1 Installing Device Software Updates

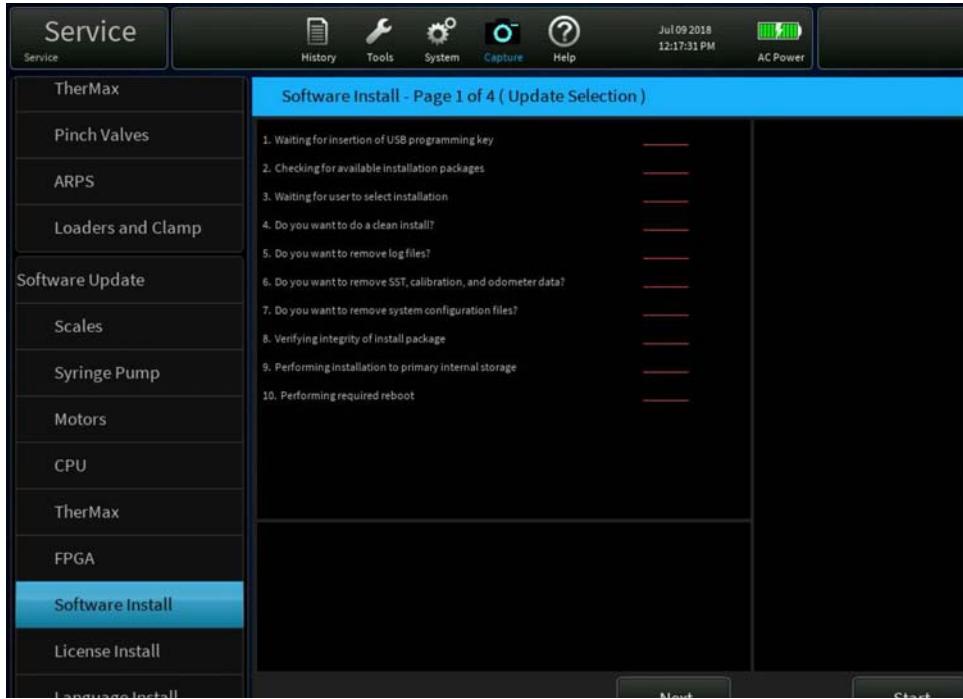
Follow these steps to install software updates:

1. Start the system and enter **Service** mode.
2. Obtain a USB drive containing the **PrisMax** System software to be installed.
3. Press the **Software Update** menu item to display the Software Update summary screen.
4. Press **Software Update** again to display the itemized menu.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual			PAGE 108 OF 236

**Figure 4-10 Software Update Screen**

5. Press the **Software Install** menu item.

**Figure 4-11 Software Install Screen**

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 109 OF 236			

6. Insert the USB drive into the USB port and press the onscreen **Start** button.
7. Confirm that the version to be installed is correct, then press the **Accept** button. The system reboots.

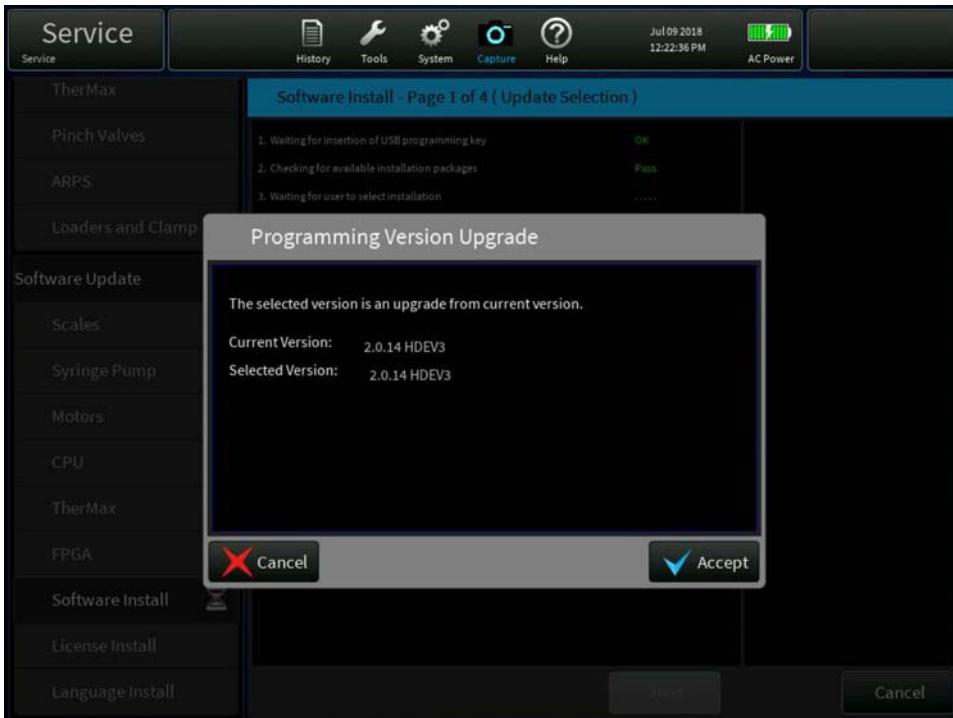


Figure 4-12 Programming Version Upgrade Window

8. When Page 2 is complete, shut down the system.
9. Restart the monitor in Service Mode.
10. On Page 3 of 4 (Component Update), press the **Start** button.
11. When Page 3 is complete press the **Next** button.
12. Verify or enter the required information in the fields for part number, serial numbers, lot number, and date.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 110 OF 236	

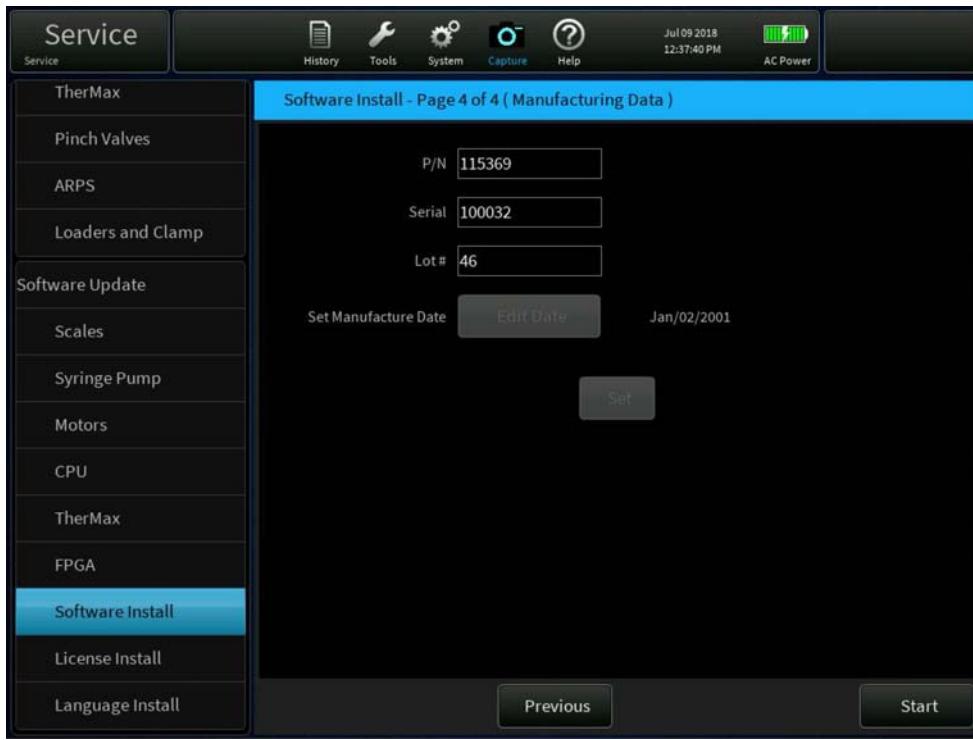


Figure 4-13 Page 4 - Manufacturing Data Screen

13. Press **Set** to save updated data.
14. Remove the USB drive.
15. Reboot the control unit and verify operations.
16. Press the **System** button located in the toolbar at the top of the screen.
17. Press the **System Info** menu item.
18. Verify that the displayed software version matches the version just installed.
19. Close the System screen.

4.7.2 Updating Individual Board Software

Follow these steps to verify or install individual board software:

1. Start the system and enter Service mode.
2. Insert the USB drive containing the **PrisMax** System software.
3. Press the **Software Update** menu item twice to display the itemized menu.
4. Review the software item(s) you want to verify or update.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 111 OF 236	

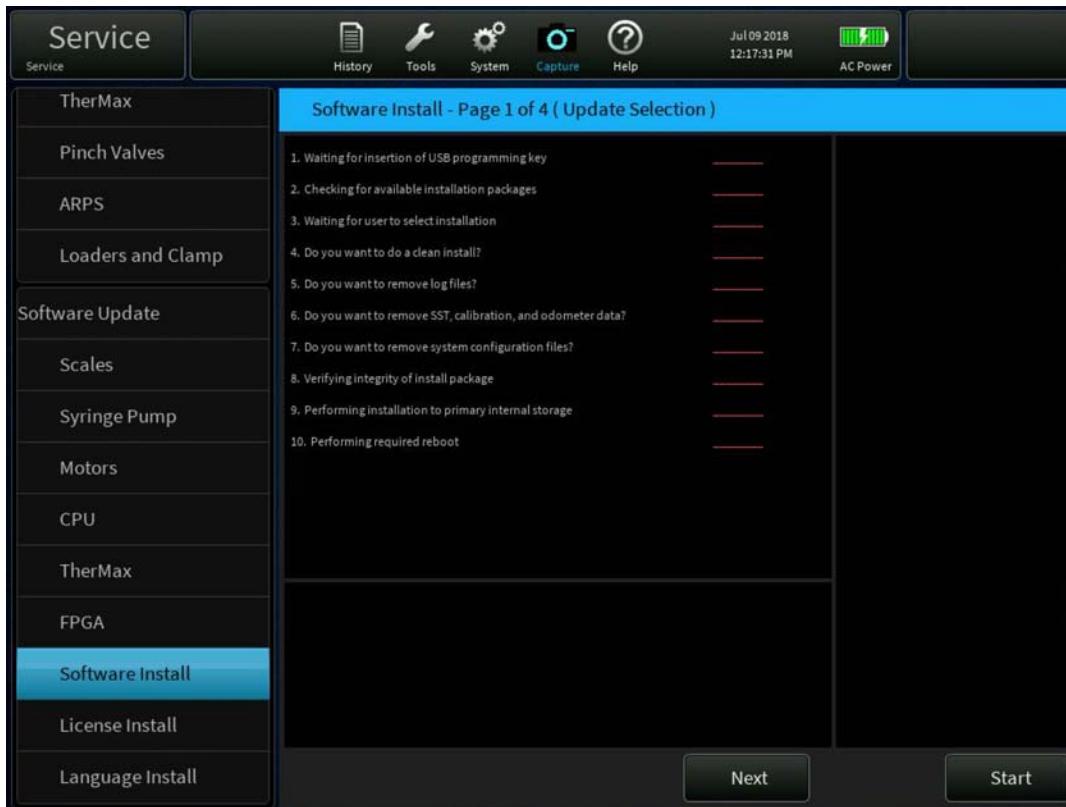


Figure 4-14 Selecting Individual Software for Update

NOTE: The Current Version column lists the currently-installed software version. The Available Versions column lists software filenames as they are stored in memory.

NOTE: The recommended order for programming CPU or FPGA controllers is:

- 1. **FPGA: Power CP** 5: CPU DCP SW
- 2. **FPGA: Main CP** 6: CPU: PSC SW
- 3. **FPGA: Safety CP** 7: CPU: SP SW
- 4. **FPGA: Driver CP** 8: FPGA Safety SP

5. If needed, select specific components to be programmed. For each selection:

- 5.1 Press the **Available Versions** drop-down list and select the appropriate version of software to be installed.
- 5.2 Press **Program**.
6. Confirm that the Current Version for all other items (FPGA, CPU, etc.) is correct.
7. When all updates are complete, reboot the control unit.

4.7.3 Updating Component Firmware

Follow these steps to verify or install component firmware updates:

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 112 OF 236			

1. Start the system and enter **Service** mode.
2. Insert the USB drive containing the **PrisMax** System software.
3. Press the **Software Update** menu item twice to display the itemized menu.
4. Review the software item(s) you want to verify or update.



Figure 4-15 Selecting Component Software for Update

NOTE: The Current Version column lists the currently-installed software version. The Available Versions column lists software filenames as they are stored in memory.

5. If needed, select specific components to be programmed. For each selection:
 - 5.1 Press the Available Versions drop-down list and select the appropriate version of software to be installed.
 - 5.2 Press Program.
6. Confirm that the Current Version for all other items (scales, syringe pump, etc.) is correct.
7. When all updates are complete, reboot the control unit.

4.7.4 Updating License or Language Files

Follow these steps to install License or Language files:

1. Start the system and enter **Service** mode.
2. Obtain a USB drive containing the **PrisMax** System License to be installed.
3. Press the **Software Update** menu item twice to display the itemized menu.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
		PAGE 113 OF 236	

4. Press the **License Install** menu item.

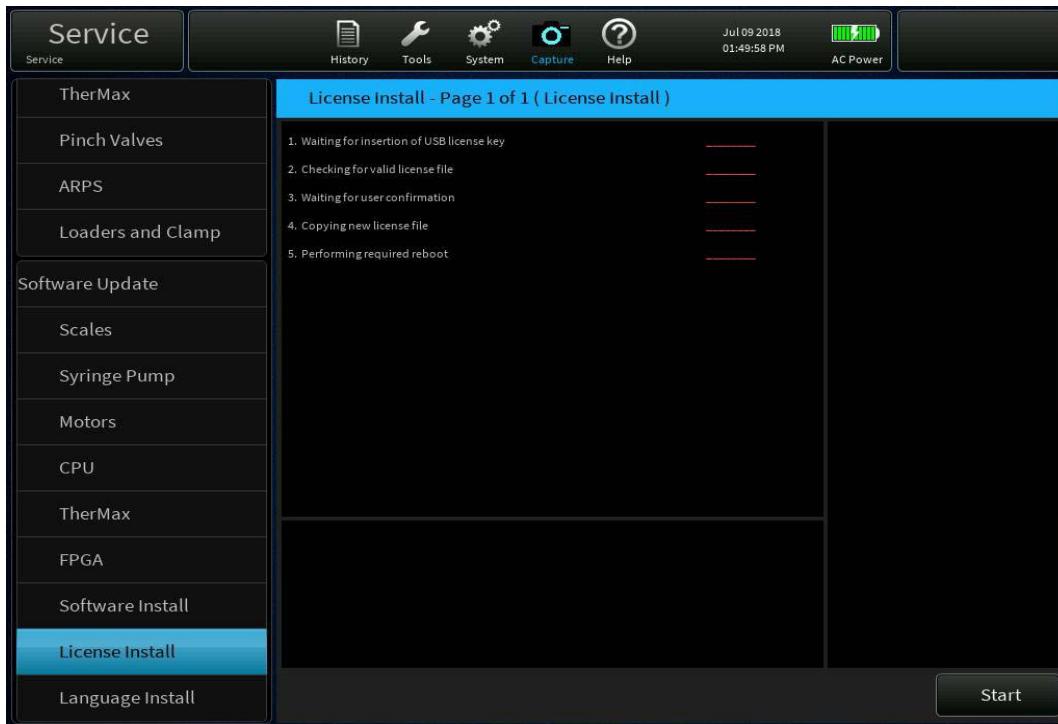


Figure 4-16 License Install Screen

5. Insert the USB drive into the USB port and press the onscreen **Start** button.

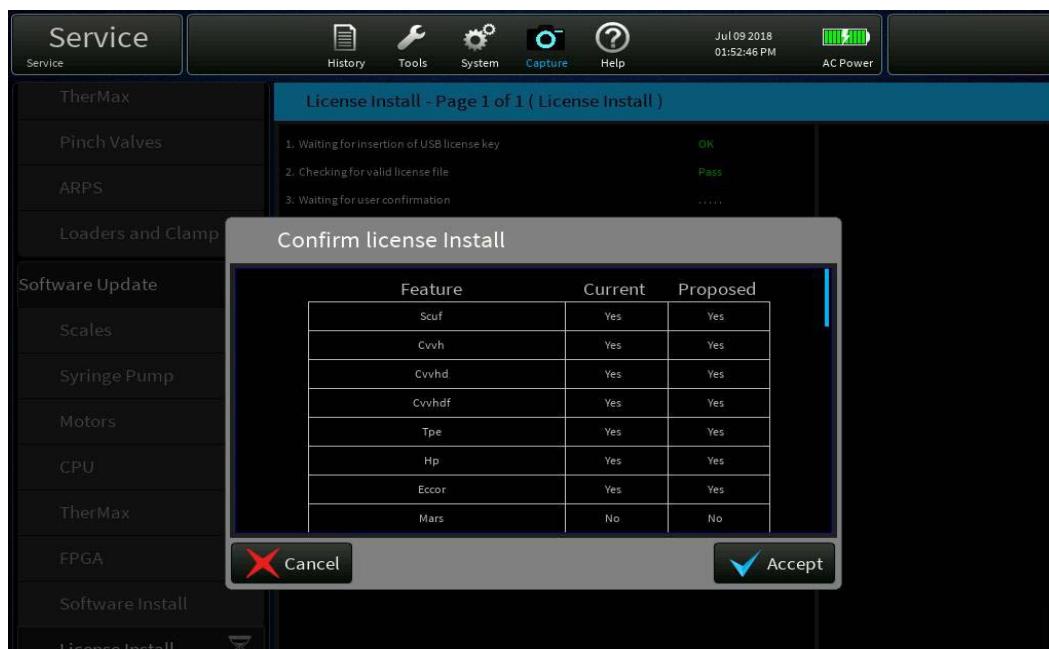


Figure 4-17 Confirm License Install Screen

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 114 OF 236

6. Confirm that the License to be installed is correct, then press the **Accept** button.
7. When the License update is complete, the control unit will automatically reboot.

NOTE: The Language file installation follows a nearly identical procedure, with only slight variations in steps.

4.8 Supplemental Procedures

4.8.1 Setting Date and Time

Date and time changes require Site Expert or higher system access. Verify that the system date and time are correct by viewing the date and time displayed on the toolbar. To change date or time:

1. Press the toolbar **System** button.
2. Press the **Display** menu item.
3. Press **Display** again to display the sub-menu, then press **Date & Time** to view the Set Date and Time screen (Figure 4-18).

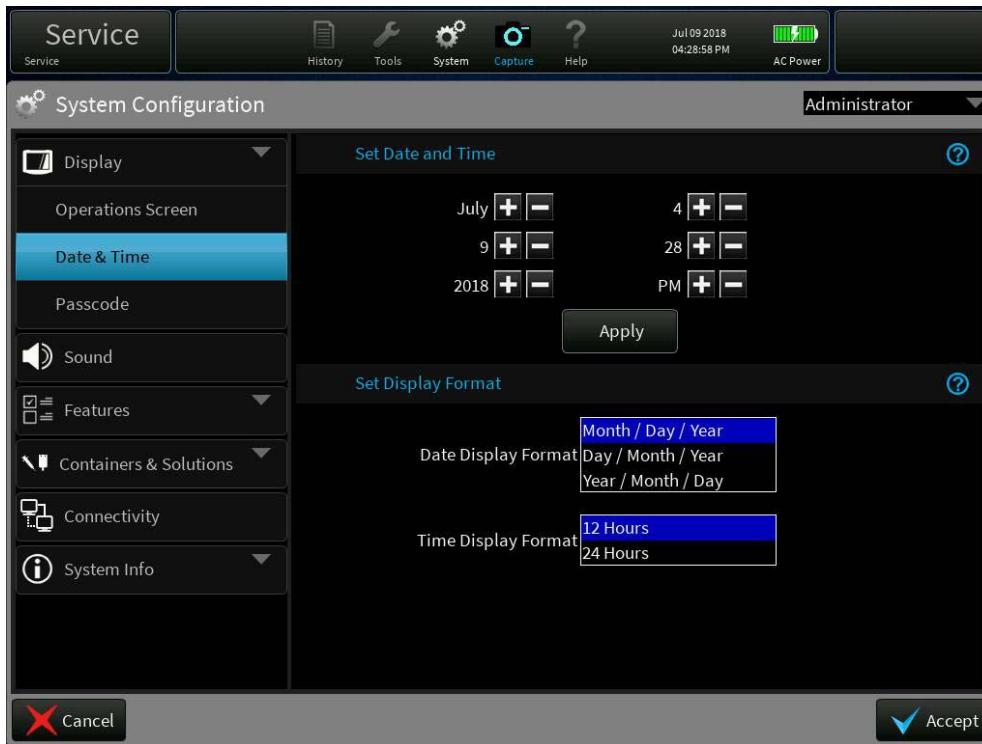


Figure 4-18 Set Date and Time Screen

4. Use the + and - buttons to set the correct date and time.
5. Press **Apply** in the center of the screen.
6. Select the date and time display formats appropriate for the region and customer preference.
7. Press the **Accept** button in the lower right corner.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 115 OF 236

4.8.2 Using the Screenshot Utility

Follow these steps to save an image of the current screen: if necessary.

1. Press the **Tools** button.
2. Press **Take Screenshot**. This adds a new screenshot icon to the toolbar.
3. Press the screenshot icon to capture an image of the current screen.
4. Press the **Close** button to close the System Tools menu.

The screenshot file is stored in internal memory.

4.8.3 Resetting the Barcode Reader

Follow these steps to reset the barcode reader:

1. Press the **Tools** button.
2. Press **Reset Barcode Reader**.
3. At the Reset Barcode Reader window, scan the displayed barcodes. This resets the barcode reader to its original settings.
4. Press **Close** to close the System Tools menu.

4.9 Simulated Patient Treatment Procedure

The simulated treatment procedure verifies correct operation of the **PrisMax** control unit (and **TherMax** blood warmer, if installed), using water or saline solution to simulate solutions and a patient.

During setup, the control unit performs several SSTs at startup, pre-prime, and post-prime. Successful completion of the simulated patient treatment indicates that the **PrisMax** System is operating correctly.



A PATIENT MUST NOT BE CONNECTED WHEN SERVICING THE PRISMAX SYSTEM.



CERTAIN ALARMS CAN CAUSE THE SYSTEM TO FAIL TESTING. DO NOT USE ON PATIENTS UNTIL THE PROBLEM IS CORRECTED AND THE SYSTEM PASSES TESTING.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 116 OF 236

NOTE: Conduct the simulated patient treatment using a container of water or saline to simulate a patient.

NOTE: If a component fails to operate, or produces an error or alarm code, see "Troubleshooting," page 139

Table 4-12 Required Equipment for Simulated Patient Treatment

Item	Description
PrisMax disposable set	M100 or applicable patient tubing set (recommended).
TherMax disposable set	BW1001 blood warmer bag (if applicable).
Saline/tap water	1liter bags to simulate priming, pre-blood pump, dialysate, and replacement solutions, and to simulate a patient (if needed).
Graduated cylinder (optional)	A 1000 (ml graduated cylinder filled with tap water, may be used to simulate a patient (instead of a 1liter bag).
Catheter, 8F (optional)	Used in conjunction with a 1liter bag or graduated cylinder to simulate a patient and typical pressures during the treatment.
Syringe	Size determined by syringe holder.

See "Equipment, Tools, and Materials," page 13 for a complete list of test equipment required for servicing the PrisMax System.

Follow these steps to perform a simulated treatment:

1. Power up the PrisMax System (including TherMax, if present).
2. On the Start screen, select **New Patient**, then enter Setup data as follows.
3. Setup - Patient:
 - Patient ID: Test
 - Secondary ID: (Optional)
 - Weight: 55 kg
 - Hematocrit: 30%
4. Press **Accept**.
5. Setup - Therapy:
 - Profile: None
 - Therapy: CVVHDF
 - Set: M100 (or applicable set)
 - Anticoagulation: Syringe Rx
 - Blood Warmer: TherMax (if present), otherwise None
 - Auto-effluent: No
6. Press **Accept**.
7. Setup - Prescription:
 - Blood Flow (BFR): 180 ml/min
 - Pre-Blood (PBP): 1100 ml/h
 - Syringe (Syr): 0 ml/h

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 117 OF 236

Setup - Sets

- Fluid Removal (PFR): 240 ml/h
- Dialysate (Dia): 1200 ml/h
- Replacement (Rep): 1300 ml/h
- Dilution: Post
- Other Settings: (Default)
- Blood Return Temperature: 37°C (if TherMax present)

8. Press **Confirm All**.

9. Setup - Sets:

9.1 Scan or select set.

9.2 Attach set onto the loader.

9.3 Press **Next**.

9.4 Connect set components as shown on screen. Ensure that a checkmark appears next to all onscreen components.

9.5 Ensure that all fluid lines are unclamped.

9.6 Press **Load Set**.

NOTE: If TherMax is included in this procedure, connect the tubing set as shown on screen to the luer connectors between the filter and the deaeration chamber.

10. Press **Accept**.

11. Setup - Fluids.

11.1 Connect and hang each bag as shown.

11.2 When complete, press **Next**.

11.3 Open the syringe plunger lock and press **Arm Down**.

11.4 Confirm the syringe brand and size.

11.5 Install the syringe as indicated and press **Arm Up**.

11.6 Close the syringe plunger lock and press **Accept** to test the syringe.

12. Setup - Prime:

12.1 Verify that all clamps, bags, and connections are correct.

12.2 Press **Prime**.

12.3 Monitor the prime process.

12.4 When Prime Completed is displayed, inspect the set for air and adjust, if needed.

12.5 Press **Accept**.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 118 OF 236

13. Setup - Review:

13.1 Review the prescription settings and selections and make changes if needed.

13.2 Press **Accept**.

14. Setup - Connect Patient:

14.1 Clamp and reroute all lines as shown.

14.2 Ensure that all fluid lines are unclamped.

14.3 Press **Confirm All**.

14.4 Note the volume (ml) of liquid in the syringe.

14.5 Press **Start Treatment**.

15. Therapy:

15.1 Monitor the treatment.

15.2 Note the therapy start time shown in the History screen.

15.3 Adjust the blood pump speed and restrict the access and return lines as needed to achieve these pressures:

- Access pressure from -25 to -150 mmHg.
- Return pressure from 25 to 150 mmHg.

15.4 Allow the simulated treatment to run for at least 15 minutes.

- If **TherMax** is present, verify that the warmer is heating, (heating icon is lit).
- If instructed by the installation or PM procedures, perform any tests required for that procedure during this time.

15.5 After 15 minutes, confirm that no unexpected alarms have occurred. For example, access and return pressure alarms may occur because of simulating typical pressures. These do not indicate failure and can be ignored when the issue is corrected.

15.6 Press **Stop**.

15.7 Press **End Treatment**.

16. End - End Treatment/Discard Set.

16.1 Select **Discard All**.

16.2 Return Blood: Select **No**.

16.3 Press **Accept**.

17. Therapy - Disconnect Patient.

17.1 Clamp and disconnect all lines as shown on screen.

17.2 When complete, press **Confirm All**.

17.3 Press **Accept**.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 119 OF 236

18. Unload.

18.1 Press **Unload Set**.

18.2 Open the syringe plunger lock and press **Arm Down**.

18.3 Clamp and disconnect all lines as indicated.

18.4 Press **Continue**.

19. The Start screen (with New Patient and Same Patient buttons) appears.

4.10 Electrical Safety Inspection

This section describes electrical safety inspection (ESI) procedures that must be performed on the PrisMax System. This section also describes the supplemental discharge clip resistance test.

NOTE: Please read and understand this entire section before performing the ESI procedures.

4.10.1 ESI Test Description

ESI procedures include:

- Visual inspection (VI): Identifies faults or conditions that can affect the electrical safety of the control unit.
- Protective earth test (PET): Verifies that protective earthed parts of the control unit have a safe low resistance electrical path to earth ground in case of insulation failure.
- Earth leakage test (ELT): Verifies that the AC leakage current in the control unit is within safe limits, with normal and reverse AC polarity, and with the neutral wire closed (normal condition, NC) and open (single fault condition, SFC).
- Patient leakage test (PLT): Verifies that the AC and DC leakage current in the control unit is within safe limits, with normal and reverse AC polarity, with the earth ground intact (normal condition, NC) and open (single fault condition, SFC).

4.10.2 ESI Test Standards

The ESI test procedures are in accordance with the following standards:

- IEC 60601-1: Medical Electrical Equipment - Part 1: General requirements for basic safety and essential performance.
- IEC 62353: Medical Electrical Equipment - Recurrent test and test after repair of medical electrical equipment.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 120 OF 236

4.10.3 When to Perform ESI

Perform ESI testing:

- During installation.
- During a preventive maintenance (PM) service.
- After unexpected electrical events affecting the AC line voltage.
- After transportation (other than what is normal within the clinical environment).
- After accidental leakage of fluid onto internal components from any source.
- After repairing components connected to ground or AC power.
- After replacing a component that requires ESI.
- After an ESI test fails. Repair the system; repeat the failed ESI to verify that the test passes. *

NOTE: Different replacement parts may require different ESI tests. Refer to the service instructions (SI) provided with the component for specific ESI testing requirements.

Required Equipment:

- Safety tester capable of measurements per IEC 60601-1 and IEC 62353
- Multimeter capable of measuring resistance of 10 MΩ or more with ±2% accuracy
- 6-mm hex wrench
- 5-mm hex wrench

4.10.4 ESI Test Procedures



To prevent damage to electrostatic sensitive components within the control unit, ESI testing must be performed by an authorized service technician using proper electrostatic safety device (ESD) protection.

1. Disconnect any connections to the Ethernet, RS-232, or remote alarm port.
2. Open the control unit door.
3. Perform a visual Inspection:
 - Examine exterior parts, panels, and covers for damage or cracks.
 - Verify placement and condition of safety-related markings and labeling.
 - Verify integrity of mechanical parts (check for damage, obstruction, misalignment, and evidence of contamination).
 - Verify electrical components and cabling (check for cuts, defective connections, blown fuses, and other signs of damage.).
 - Verify that yellow/green ground wires are properly connected to control unit doors, base plate, and card cage.
 - Some disconnected wires are for future use as indicated by the arrow in Figure 4-19 (the ARPS pump is removed for clarity).

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 121 OF 236

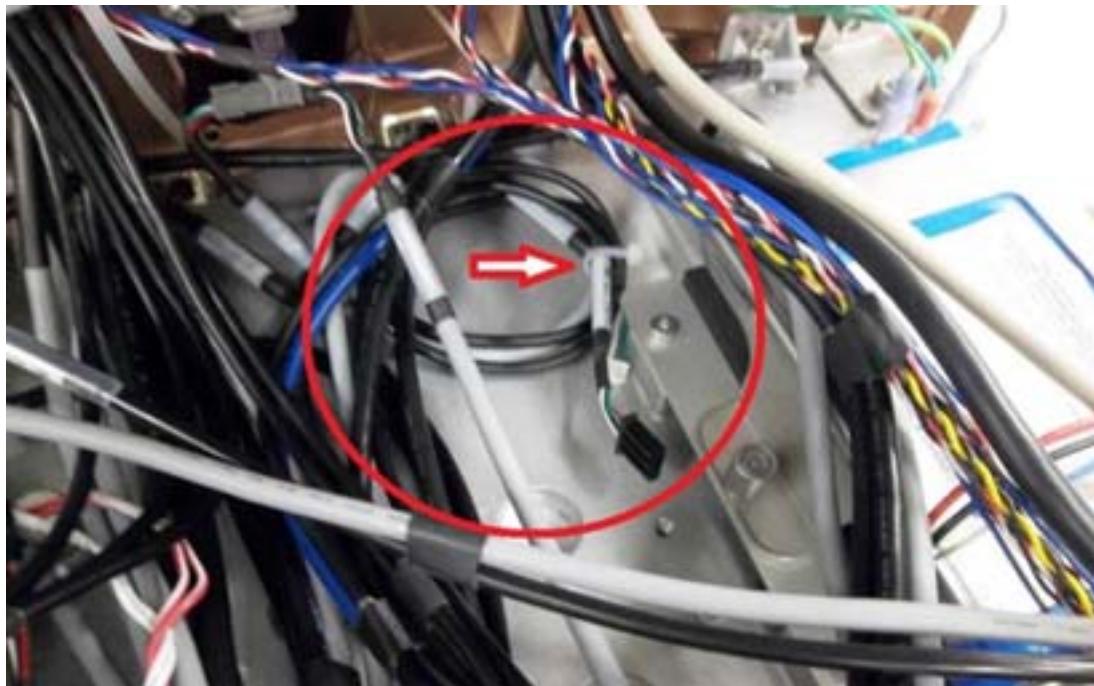


Figure 4-19 Unused Wires Reserved for Future Use

NOTE: The PrisMax control unit must not be connected to AC power during this test.

4. Perform the protective earth test (PET)

- 4.1 Connect the control unit AC power cord to the equipment outlet on the safety tester.
- 4.2 Attach an alligator clip to the test meter lead.
- 4.3 Connect the safety tester meter lead to the potential equalization conductor. See Figure 4-20.



Figure 4-20 Potential Equalization Conductor

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 122 OF 236

- 4.4 Verify that the resistance is $\leq 300 \text{ m}\Omega$. During the measurement, flex the power cord along its length to detect possible variations in resistance that could indicate a damaged cord.
- 4.5 Connect the safety tester meter lead to the ground connector located on the bottom of the card cage. See Figure 4-21.

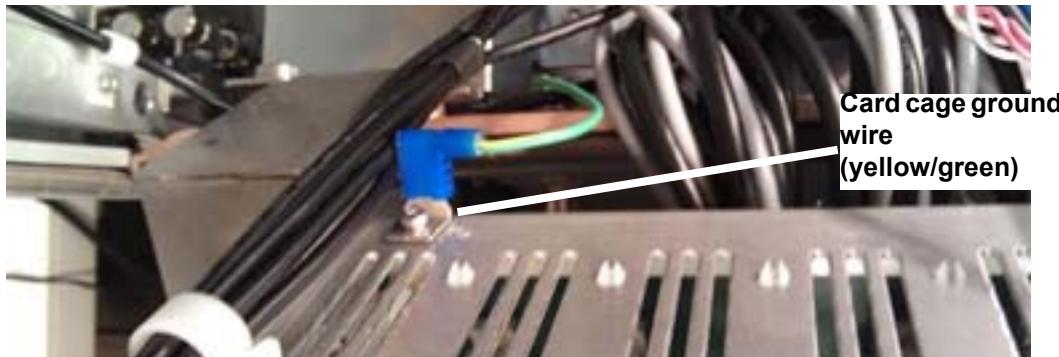


Figure 4-21 Card Cage Ground Wire and Connector

- 4.6 Verify that the resistance is $\leq 300 \text{ m}\Omega$.
- 4.7 Open the control unit door.
- 4.8 Locate the ground connectors at the bottom of the control unit on the monitor base plate.
- 4.9 Connect the safety tester meter lead to either base plate ground connector.

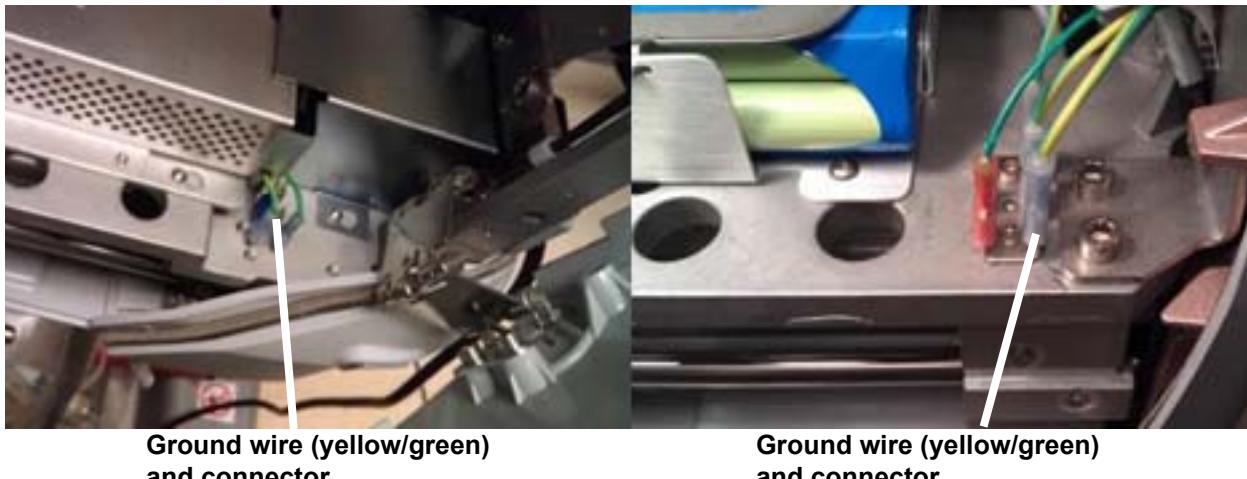


Figure 4-22 Base Plate Ground Wires

- 4.10 Verify that the resistance is $\leq 300 \text{ m}\Omega$.
- 4.11 When the test is complete, close the control unit door.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 123 OF 236

5. Reassemble the Control Unit.

!CAUTION

To prevent damage to electrostatic sensitive components within the control unit, ESD testing must be performed by an authorized service technician using proper electrostatic safety device (ESD) protection.

- 5.1 Raise the card cage.
- 5.2 Engage and tighten the card cage thumb-screws.
- 5.3 Verify that the card cage is fully secured.
- 5.4 Close the control unit door.

NOTE: **Tighten the screws until the back panel is flush with the side panels. Do not over-tighten.**

- 5.5 Reconnect any connections to the Ethernet, RS-232, or remote alarm port.

- 6. Perform the "Discharger SST," page 92.
- 7. Perform the earth leakage test (ELT):

NOTE: **Do not attempt the ELT unless the VI and PET are complete.**

NOTE: **Ensure that all doors and panels on the control unit are closed and secured.**

NOTE: **Ensure that the potential equalization conductor is not connected to any grounding system.**

NOTE: **The protective earth of the control unit must not be in contact with any external protective earth.**

NOTE: **No equipment, other than specified in this instruction, should be connected to the control unit.**

NOTE: **To avoid damage to the safety tester, follow the user manual for the safety tester.**

NOTE: **In certain tests, when the polarity of the AC voltage is switched from normal to reverse, or reverse to normal, the control unit should remain ON as the control unit switches to 24-V battery power. Observe the control unit for any problem when switching power, and allow at least 5 seconds before proceeding.**

NOTE: **The maximum ELT values apply to all voltage ranges (90 - 264 VAC at 47 - 63 Hz).**

- 7.1 Connect the control unit AC power cord into the equipment outlet on the safety tester.
- 7.2 Start the control unit, wait until the initialization tests pass and the start screen is displayed. During the ELT procedure:
 - For normal condition (NC) tests, record either the normal or reverse polarity value, whichever is greater.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual	DOCUMENT TYPE: Service Manual		PAGE 124 OF 236

- For single fault condition (SFC) tests, record either the normal or reverse polarity value, whichever is greater.

ELT conditions	Maximum
NC 1 - AC, normal polarity, closed neutral	≤5 mA
NC 2 - AC, reverse polarity, closed neutral	≤5 mA
SFC 1 - AC, normal polarity, open neutral	≤10 mA
SFC 2 - AC, reverse polarity, open neutral	≤10 mA

8. Perform the patient leakage test (PLT):

- NOTE:** **Do not attempt the PLT unless the VI is complete.**
- NOTE:** **If the PET and ELT are required, complete those tests before performing the PLT.**
- NOTE:** **Ensure that all doors and panels on the control unit are closed and secured.**
- NOTE:** **Ensure that the potential equalization conductor is not connected to any grounding system.**
- NOTE:** **The protective earth of the control unit must not be in contact with any external protective earth.**
- NOTE:** **Do not connect any equipment to the control unit other than that specified in this instruction.**
- NOTE:** **To avoid damage to the safety tester, follow the tester manufacturer's instructions.**
- NOTE:** **In certain tests, when the polarity of the AC voltage is switched from normal to reverse, or reverse to normal, the control unit should remain ON as the control unit switches to 24-V battery power. Observe the control unit for any problem when switching power, and allow at least 5 seconds before proceeding.**
- NOTE:** **The maximum PLT values apply to all voltage ranges (90 - 264 VAC at 47 - 63 Hz).**
- 8.1 Connect the control AC power cord into the equipment outlet on the safety tester.
- 8.2 Start the control unit, wait until the initialization tests pass and the start screen is displayed.
- 8.3 Ensure that the ESI test point tubing is in place, then connect the safety tester probe to the test point as shown in Figure 4-23. For normal condition (NC) tests, record either the normal or reverse polarity AC value, whichever is greater. See Table 4-13.
- NC tests, record either the test normal or reverse polarity DC value, whichever is greater.
 - Single fault condition (SFC) tests, record either the normal or reverse polarity AC value, whichever is greater.
 - SFC tests, record either the normal or reverse polarity DC value, whichever is greater.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 125 OF 236			

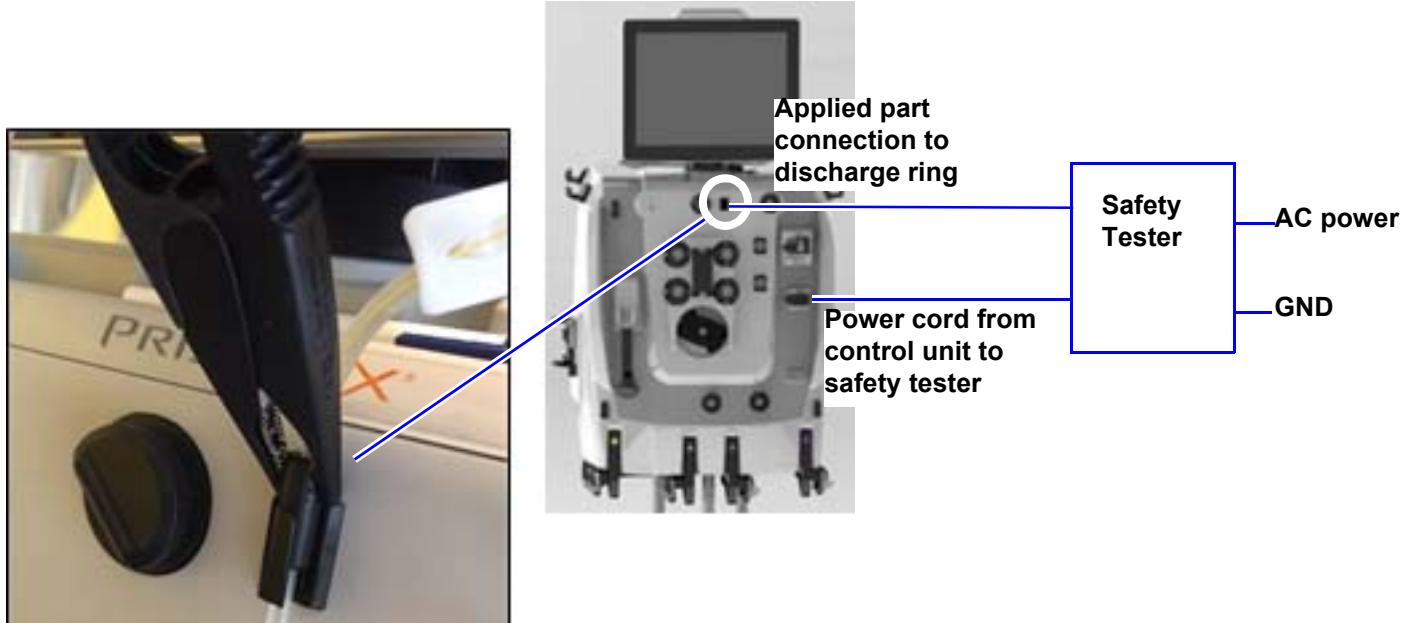


Figure 4-23 PLT Configuration

Table 4-13 PLT Conditions

PLT conditions	Maximum
NC 1 - AC, normal polarity, closed neutral, closed earth	$\leq 10 \mu\text{A}$
NC 2 - AC, reverse polarity, closed neutral, closed earth	$\leq 10 \mu\text{A}$
NC 3 - DC, normal polarity, closed neutral, closed earth	$\leq 10 \mu\text{A}$
NC 4 - DC, reverse polarity, closed neutral, closed earth	$\leq 10 \mu\text{A}$
SFC 1 - AC, normal polarity, closed neutral, open earth	$\leq 50 \mu\text{A}$
SFC 2 - AC, reverse polarity, closed neutral, open earth	$\leq 50 \mu\text{A}$
SFC 3 - DC, normal polarity, closed neutral, open earth	$\leq 50 \mu\text{A}$
SFC 4 - DC, reverse polarity, closed neutral, open earth	$\leq 50 \mu\text{A}$

8.4 When testing is complete, remove ESI test equipment.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 126 OF 236

THIS PAGE INTENTIONALLY BLANK

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 127 OF 236

Chapter 5

5. Maintenance

5.1 Introduction

The **PrisMax** System requires preventive maintenance (PM) and electrical safety inspection (ESI) at a minimum interval of 6000 hours of operation or every 12 months (whichever comes first).

The PM and ESI must be performed by an authorized service technician.

The PrisMax System displays an advisory message when PM is required; this does not affect normal operation. See “Troubleshooting,” page 139 section for more information. The device must be in Service mode to reset the advisory message.

See Table 1-1 on page 1-13 for the list of tools and test equipment required for service and maintenance.



Use proper electrostatic safety equipment (wrist grounding strap and grounding mats) to avoid damage to electrostatic-sensitive components inside the control unit.

NOTE: This section includes basic maintenance procedure information. For the most current information, see the most recent PM kit instructions.

NOTE: This section includes tool and test equipment information. See Table 1-1 on page 1-13 for part numbers.

NOTE: If storing the control unit for an extended period, connect it to AC power and place it in Standby to maintain backup battery charge. Alternatively, connect the control unit to AC power at regular intervals.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 128 OF 236

5.2 Preventive Maintenance Components

Table 5-1 Preventive Maintenance Components

Service interval	Components
Yearly or every 6000 hours (whichever comes first)	The 1-year kit contains the following components: <ul style="list-style-type: none"> • Pressure pod sealing cones (4 each) • Blood pump rotor dampers (2 each) • Fluid pump rotor dampers (8 each) • ARPS filter and pump segment (1 each)
Every 2 years or 12,000 hours (whichever comes first)	In addition to the items in the 1-year kit, also replace these components: <ul style="list-style-type: none"> • Replaceable board (1 each) • Battery pack (1 each)

5.3 Visual Inspection and Cleaning



During performance of these procedures, observe anti-static handling precautions and wear a grounding wrist strap any time the enclosure assembly is removed to prevent electrostatic discharge damage.



To avoid damaging the PrisMax System, avoid physical contact with internal components whenever possible and use only the cleaning solutions recommended in the Operator's Manual.



To avoid damage to the PrisMax system and disposable sets, clean and disinfect the PrisMax only as specified in this manual. Use a non-recommended chemical only if specifically authorized to do so by Baxter. Do not use halogenated aromatic and aliphatic solvents or ketonic solvents.



Using a sodium hypochlorite (bleach) solution at a stronger than recommended concentration can cause damage or discoloration.



To avoid damage to the pump crank, do not clean with bleach.



To avoid damage to the bearings, do not submerge the removable pump rotors in cleaning solution

Clean the exterior of the control unit with cleaning and disinfection agents listed in the PrisMax Operator's Manual. Clean all external surfaces before the first use, after each patient treatment, and as required during treatment:

1. Disconnect the control unit power cord from AC power.
2. Verify the condition of external markings and labeling.
3. Use a 6-mm hex wrench to open the back-panel door.
4. Use a 5-mm hex wrench to open the left and right side panels, as needed.
5. Loosen the card cage thumbscrews and lower the card cage.
6. Unplug the battery pack cable from the power board.
7. Clean all dust, debris, or spills from the external and internal control unit surfaces, including fan outlet, bottom plate (covering the scales), and pump rotors.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 129 OF 236

8. Inspect these control unit components and repair/replace if loose or damaged:
 - Pressure sensor housings
 - Tubing guides
 - Filter set holders
 - ABD, including door
 - Return line clamp
 - Deaeration chamber holder, including door
 - Pinch valves, including pinch pins
 - Syringe pump components
 - Power cord and plug
 - Internal electrical connectors
9. Clean the tubing path through the Blood Leak Detector (BLD) as required to remove liquid or other debris. Use a lint-free cloth and isopropyl alcohol to clean inside the Blood Leak Detector (BLD). Dry thoroughly when finished.
10. Clean the touchscreen.

 **CAUTION**

To avoid damaging the touchscreen, use only recommended cleaning solutions

NOTE: To clean the touchscreen while PrisMax is powered on, tap the lock icon from the toolbar. This locks the screen and allows cleaning without accidentally pressing any buttons. To unlock the screen, tap and hold anywhere on the display.

11. Verify the condition of the barcode reader cable and replace if loose or damaged; clean the barcode reader lens with cleaning solution and a lint-free cloth.
12. Verify that all wheels and brakes operate correctly.
13. Verify that there are no mechanical obstructions near the scale hooks and handles.

5.4 Preventive Maintenance Component Replacement

 **CAUTION**

During performance of these procedures, observe anti-static handling precautions and wear a grounding wrist strap any time the enclosure assembly is removed to prevent electrostatic discharge damage.

5.4.1 Pressure Pod Sealing Cones

1. Remove the sealing cone from each pressure pod port (access, filter, and effluent).
2. Inspect the pressure pod assemblies for spills and clean as needed.
3. Install a new sealing cone from preventive maintenance kit over each port so that it seals around the tip of the port, and the enlarged part of the port protrudes through the seal. Do not use lubricant.

5.4.2 Blood Pump Rotor Dampers

1. Use an 8 mm hexT20 wrench to remove the blood pump rotor.
2. Replace the 2 dampers on the rotor, and reinstall the rotor to the control unit.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 130 OF 236

5.4.3 Fluid Pump Rotor Dampers

1. Use a large flat-bladed screwdriver to remove the fluid pump rotor.
2. Compress the rotor by hand and use long-nose pliers to remove the old dampers.
3. Compress the rotor and push the new dampers over the screw head by hand to avoid damaging the new dampers.
4. Reinstall the rotor.
5. Repeat for all fluid pump rotors.

5.4.4 ARPS Filter and Pump Segment

1. Ensure that the control unit power cord is disconnected from AC power.
2. Ensure that the battery pack cable is unplugged from the power board.
3. Loosen the screws at the base of the ARPS pump housing and remove the pump assembly.
4. Remove the screws, separate the 2 halves of the pump, and remove the old pump segment. Note the orientation of the filter and barbed tubing connector.
5. Remove the tubing connector from the pump segment. Save the tubing connector for use on the new pump segment.
6. Carefully position the new pump segment under each of the rollers in one half of the housing assembly. Reassemble the pump housing so that the segment is centered in the housing.
7. Attach the pump housing assembly to the ARPS bracket. Before tightening the screws, ensure that the threads grip the parts to be fastened and are not cross-threaded.
8. Reinstall the pump assembly into the control unit.
9. Install a new filter on the inlet side of the pump segment.
10. Reinstall the tubing connector on the outlet side of the segment.

5.4.5 Replaceable Board



To avoid possible shock hazard due to capacitive components, use care when removing the replaceable board.

1. Ensure that the control unit power cord is disconnected from AC power.
2. Ensure that the battery pack cable is unplugged from the power board.
3. Remove the screws holding the replaceable board on the power board.
4. Remove the replaceable board from the power board.
5. Install a new replaceable board (part number SC6078) on to the power board.
6. Reinstall the screws holding the replaceable board on the power board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 131 OF 236

5.4.6 Battery Pack



WARNING

REPLACE ONLY WITH A PRISMAX SYSTEM BATTERY PACK.



WARNING

DO NOT DROP, DISASSEMBLE, CRUSH, PUNCTURE, DISPOSE OF IN FIRE, SHORT EXTERNAL CONTACTS, OR EXPOSE TO WATER OR TEMPERATURE ABOVE 60° C/140° F.



WARNING

DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS AND INSTRUCTIONS FROM YOUR SERVICE PROVIDER

NOTE: The battery should have a minimum charge of 18 volts when installed to pass the power-on self-test.

Follow these steps to replace the battery pack:

1. Ensure that the control unit power cord is disconnected from AC power.
2. Ensure that the battery pack cable is unplugged from the power board.
3. Remove the old battery pack.
4. Install the new battery pack (part number SC6061).
5. Plug the battery pack cable into the power board.
6. Ensure the battery cabling and connector are secured.

5.4.7 Final Component Steps

1. Ensure that the battery pack cable is plugged into the power board.
2. Raise and secure the card cage, as needed.
3. Close and secure the door, as needed.
4. Ensure that the control unit power cord is connected to AC power.

5.5 Calibration and System Self-Test (SST)

Before patient use, verify the PrisMax System by following these steps:

1. Perform the following procedures annually:
 - 1.1 Power up the control unit in Service mode.
 - 1.2 Set the date and time, if needed (see "Setting Date and Time," page 114).
 - 1.3 Perform "ARPS Compliance Calibration," page 80.
 - 1.4 Perform "Return Detection Calibration," page 80.
 - 1.5 Perform "Barcode Reader SST," page 83.
 - 1.6 Perform "Audio SST," page 84.
 - 1.7 Perform "Pressure Sensors SST," page 84.
 - 1.8 Perform "Scales SST," page 85.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 132 OF 236

- 1.9 Perform “Isolation Board SST,” page 89.
- 1.10 Perform “Air Bubble Detector SST,” page 90.
- 1.11 Perform “Return Clamp SST,” page 91.
- 1.12 Perform “Liquid Leak Detector SST,” page 91.
- 1.13 Perform the “Ambient Temperature Sensor SST,” page 91 (for TherMax), if applicable.
- 1.14 Perform “Discharger SST,” page 92.
- 1.15 Perform “TherMax SST,” page 92 if applicable.
- 1.16 Perform “Syringe Pump SST,” page 93.
- 1.17 Perform “Blood Leak Detector SST,” page 94.
2. Every two years:
 - 2.1 Perform the battery test portion of the “Power Board SST,” page 87.
 - 2.2 Perform the replaceable board test of the power board SST.
 - 2.3 If any of these procedures fail, address the issue and repeat, as needed.

5.6 Electrical Safety Test

Perform the VI, PET, ELT and PLT portions of the “ESI Test Procedures,” page 120.

5.7 Final Checkout

1. Perform a “Simulated Patient Treatment Procedure,” page 115. Before ending the simulated treatment, allow the system to remain in Therapy mode and perform the following checks:

5.7.1 Check battery backup function

1. Disconnect the power cord from AC power.
2. Verify that the control unit continues operating without interruption. The power icon at the top of the screen indicates that the control unit is operating on battery power.
3. Allow the control unit to run for one minute.
4. Reconnect the power cord to AC power.
5. Verify that the control unit continues operating without interruption. The power icon at the top of the screen indicates that the control unit is operating on AC power.
6. End the simulated treatment and unload the set.
7. Enter service mode.
8. At the SST Status screen, press the **Set PM Date** button to update the PM date information.

NOTE: The next PM due date will be displayed after the machine has been rebooted.

9. Press the **SST Report** button.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 133 OF 236

10. Record the maintenance performed in the maintenance log book and store the log book in the holder attached to the inside wall of the back panel.
11. Inspect and clean the PrisMax system (see "Visual Inspection and Cleaning," page 128) before returning it to use.
12. If AC power is available, connect the control unit to AC power and place in Standby to maintain backup battery charge until use.

5.8 Storage

5.8.1 Storage Environmental Specifications

NOTE: See the PrisMax Operator's Manual for full device specifications and definitions of all symbols used on device labeling.

Transport and Storage Temperature: -18 °C to +54 °C (0 °F to 130 °F)

Transport and Storage Humidity: 10% to 95% (non-condensing)

Never store in an environment where condensation may form.

Prior to use, let unit adjust to ambient operating condition for at least 1 hour.

5.8.2 Disposal of packaging material

The **PrisMax** control unit shipping carton, foam packing, and other packaging material should be disposed of according to local regulations and to the **PrisMax** packaging specification.

5.8.3 Short-term Storage (no loss of power or loss of power < 1 yr)

If available, leave the control unit connected to AC power and place in Standby to maintain backup battery charge until use.

Store in an area that meets the environmental specification provided above.

When the system is powered on again, it performs multiple self-tests related to the power board, power control, and battery backup system.

5.8.4 Long-term Storage (loss of power for > 1 yr)

Store in an area that meets the environmental specification provided above.

If possible, connect the **PrisMax** control unit to the AC power at regular intervals to prevent battery damage.

Before using the **PrisMax** control unit after long-term storage, perform the Preventive Maintenance checks in this chapter.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 134 OF 236

5.9 Decommissioning/Dismantling

5.9.1 External Disinfection

Disinfect the machine before placing it into storage, decommissioning, or dismantling.



PERSONS PERFORMING THE CLEANING SHALL BE TRAINED IN WORKING WITH POTENTIALLY CONTAMINATED EQUIPMENT. THE FOLLOWING PERSONAL PROTECTIVE EQUIPMENT (PPE) IS REQUIRED: SINGLE-USE GLOVES, SINGLE USE APRON, PROTECTIVE GOGGLES OR VISOR.



PERFORM THIS PROCEDURE IN A DEDICATED CLEANING AREA. ISOPROPANOL MIST IS HIGHLY FLAMMABLE. DO NOT SPRAY ISOPROPANOL EXCEPT IN A DEDICATED EX-CLASSIFIED ZONE. A SYSTEM FOR EVACUATING EXCESS MIST MUST BE IN OPERATION.

OTHER HANDLING OF ISOPROPANOL, SUCH AS POURING FROM CANISTER TO SPRAY BOTTLE, MUST BE MANAGED IN THE EX-CLASSIFIED ZONE. ISOPROPANOL IN DISCARDED SINGLE USE CLOTHS MUST BE ALLOWED TO EVAPORATE IN THE EX-CLASSIFIED ZONE, WITH THE SYSTEM FOR EVACUATING EXCESS MIST IN OPERATION, BEFORE BEING SORTED AS COMBUSTIBLE GARBAGE.



ALL DISINFECTION AND CLEANING AGENTS SHALL BE STORED IN A DEDICATED STORAGE CABINET WHEN NOT IN USE.



SODIUM HYPOCHLORITE IS CORROSIVE. RINSE ALL PARTS CLEANED WITH SODIUM HYPOCHLORITE WITH WATER. OBSERVE THE UTMOST CARE WHEN CLEANING METAL PARTS.



BEFORE DISINFECTION OR DISMANTLING, DISCONNECT THE POWER CORD FROM THE SUPPLY MAINS. REMOVE THE HYDRAULIC TUBES.

ENSURE THAT THE MACHINE HAS BEEN DISINFECTED AND IS SAFE AND FREE FROM ANY MICROBIOLOGICAL HAZARDOUS ACCORDING TO THE HAZARDOUS WASTE DESCRIPTION WHICH DEFINES H9 "INFECTIOUS" AS: SUBSTANCES CONTAINING Viable MICROORGANISMS OR THEIR TOXINS WHICH ARE KNOWN OR RELIABLY BELIEVED TO CAUSE DISEASE IN MAN OR OTHER LIVING ORGANISMS.

THE SET CONNECTIONS PARTS MAY CONTAIN SOME RESIDUAL WATER. PAY ATTENTION WHEN DISCONNECTING THE EXTERNAL COMPONENTS.



DO NOT DROP, DISASSEMBLE, CRUSH, PUNCTURE, DISPOSE OF IN FIRE, SHORT EXTERNAL CONTACTS, OR EXPOSE TO WATER OR TEMPERATURE ABOVE 60°C/140°F.

NOTE: Use isopropanol (isopropyl alcohol) 95% throughout the entire disinfection.

NOTE: Use sodium hypochlorite 1.0% throughout the entire disinfection.

1. Remove all customer-related stickers and labeling. Manufacturer labeling shall remain. Remove all other stickers and labeling, including preventive maintenance labels.
2. If the equipment is stained or dirty clean the equipment with soap and water. Use hot water. Scrub / scour with single use swab or sponge. Open doors and holders, clean all joints in the equipment cabinet.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 135 OF 236

3. Isopropanol exterior disinfection:

- 3.1 Spray the entire exterior of the equipment with isopropanol. Leave to soak for 1 minute. Wipe the exterior with a single use cloth.
- 3.2 Open blood pump door(s) and remove blood pump rotor(s). Spray and wipe rotors and blood pump housing with single use cloth.
- 3.3 Open all other doors and holders. Spray and wipe with single use cloth.

4. Sodium hypochlorite exterior disinfection

- 4.1 Use a cloth damp from sodium hypochlorite to wipe the entire exterior of the equipment.
- 4.2 Open blood pump door(s) and remove blood pump rotor(s). Wipe rotors and blood pump housing with single use cloth damp from sodium hypochlorite.
- 4.3 Open all other doors and holders. Wipe with single use cloth damp from sodium hypochlorite.
- 4.4 Rinse all parts cleaned with sodium hypochlorite thoroughly with water.

5. Cleaning of concealed areas

- 5.1 Service access open / detach the equipment blood part. Open other service access doors. Clean all concealed areas with soap and water if needed.
- 5.2 Spray all the concealed areas of the equipment with isopropanol. Wipe the concealed areas with a single use cloth.
- 5.3 Use a cloth damp from sodium hypochlorite to wipe the concealed areas of the equipment.
- 5.4 Rinse all parts cleaned with sodium hypochlorite thoroughly with water.

6. Additional cleaning of blood module:

- 6.1 Detach and scrap all components with potential direct blood contact, such as luer connectors and luer connector filters.
- 6.2 Verify that no blood spillage is present behind blood module components. Detach / disassemble components where needed.
- 6.3 Spray concealed areas of blood module components with isopropanol and wipe with single use cloth.
- 6.4 Use a cloth dampened with sodium hypochlorite to wipe the concealed areas of the blood module.
- 6.5 Rinse all parts cleaned with sodium hypochlorite thoroughly with water.

5.9.2 Dismantling

The dismantling procedure consists of 3 phases:

- phase 1: opening the machine
- phase 2: removal of components for selective treatment
- phase 3: completion of dismantling

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 136 OF 236

1. Open the machine starting from the two screws on the Door Assembly and then through the Right (with the Warmer Arm, if applicable) and the Left Panel.

NOTE: The PrisMax has a backup power source battery pack. The two alternate power sources are tied together on the Power Board. The battery pack is rechargeable lithium ion and has an integrated cable, temperature sensor, fuse and sealed wrap.

2. Dispose of in accordance with local regulations and instructions from your service provider.
3. Disconnect the Power Supply Board and keep it separate from the other components.
4. Remove the existing lithium batteries on the Backplane Board and keep them separate from the other components.
5. Using a screwdriver, unscrew the nuts that hold the supporting plate battery and remove it.
6. Disconnect all the wires.
7. Remove the battery and keep it separate from the other components.
8. Refer to Table 5-2 for information about hazardous components

5.9.3 Disposal of Discarded Equipment

Discarded electromedical equipment must not be disposed together with municipal waste but must be collected separately in order to guarantee ecologically correct disposal to prevent dispersion of potential pollutants into the environment.

Some components of the PrisMax control unit (display, batteries, circuit boards, etc.) may contain toxic substances which, if released into the environment, pose a risk to the health of living organisms and the environment itself.

The PrisMax control unit contains a lithium energy cell and a lead-acid battery. The lithium energy cell is embedded in a semiconductor on the monitor circuit card assembly. When replacing these components, follow local regulations for proper disposal.



FOLLOW HOSPITAL PROCEDURES FOR THE PROPER DISPOSAL OF USED DISPOSABLE SETS AND FLUID BAGS, AND ACCESSORIES, IN ACCORDANCE WITH LOCAL REGULATIONS.



RE-COMMISSIONS SYSTEM ONLY AFTER IT PASSES ALL REQUIRED INSPECTION AS FOR MANUFACTURER SPECIFICATIONS

NOTE: Dispose of the device shipping carton, foam packing, and other packaging material according to local regulations.

NOTE: Do not dispose of electro-medical equipment with municipal waste. Some device components (display, batteries, circuit boards, etc.) may contain toxic substances that are harmful to the health of living organisms and the environment. Follow all applicable environmental regulations for correct disposal.

NOTE: According to Directive 2006/66/EC and RAEE Directive concerning batteries, the manufacturer must provide instructions for replacing/removing batteries in a safe and environmentally friendly manner. Following this directive ensures the prevention of harmful substance exposure to people and the environment.

NOTE: Discarded batteries must be separately collected from normal waste. Always check local regulations for correct environmental disposal.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 137 OF 236

Table 5-2 Hazardous substances

	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Printed circuit board assemblies	O	O	O	O	O	O
Electromechanical components, including wiring	O	O	O	O	O	O
Power supply	O	O	O	O	O	O
Batteries	O	O	O	O	O	O
Metals	O	O	O	O	O	O
Plastics	O	O	O	O	O	O
Enclosures	O	O	O	O	O	O
O: The concentration of the hazardous substance in all homogeneous materials of the part is below the SJ/T 11363-2006 limit (Chinese regulation).						
X: The concentration of the hazardous substance in at least one homogeneous material of the part is above the SJ/T 11363-2006 limit (Chinese regulation).						

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 138 OF 236

THIS PAGE INTENTIONALLY BLANK

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 139 OF 236

6. Troubleshooting

This section lists potential causes and corrective and service actions for alarms that occur during normal operation.

- Perform the actions in the order listed until the problem is corrected.
- Perform service actions only if an alarm persists after performing all corrective actions.
- If applicable, service actions recommend performing a diagnostic system self-test (SST). Perform SSTs as described in the Service Mode section of this manual.
- Certain alarms occur during normal operation (for example, a Bag Empty alarm) and do not require service actions.
- A numeric lookup table, for the different alarm types, is available in section 10.3.

6.1 PrisMax System Alarms



WHEN RESPONDING TO ANY ALARM, CAREFULLY FOLLOW THE ONSCREEN INSTRUCTIONS.



DO NOT CONTINUE OPERATION IF THE SAME ALARM OCCURS REPEATEDLY. END TREATMENT AND CONTACT SERVICE.



RENORMALIZE THE BLOOD LEAK DETECTOR (BLD) IF THE EFFLUENT LINE IS REMOVED AND THEN REINSERTED INTO THE BLD AFTER TREATMENT STARTS.



THE RESPONSIBLE ORGANIZATION MUST COMPARE AND EVALUATE THE SOUND PRESSURE LEVEL OF THE PRISMAX SYSTEM CONTROL UNIT WITH THE SURROUNDING SOUND LEVELS IN THE FACILITY, AND WHEN DIFFERENT ALARM PRESETS ARE USED FOR DIFFERENT CONTROL UNITS IN ANY SINGLE AREA. THE RESPONSIBLE ORGANIZATION MUST ENSURE THAT THE CONTROL UNIT'S ALARM SOUND CAN BE RECOGNIZED WHEN AN ALARM IS PRESENT:

- Malfunction alarms 65 dB(A)
- High Priority alarms 65 dB(A)
- Medium Priority alarms 65 dB(A)
- Low Priority alarms 65 dB(A)



Pressing the Alarm Off button decreases the sensitivity of the alarm system.



Ensure that the return line is installed in the return line clamp. An alarm indicates if the return line is not installed in the clamp.

NOTE: Always identify and resolve the cause of a solution scale weight alarm before continuing treatment to avoid fluid balance errors. If another weight scale alarm occurs and its cause cannot be identified, consult a physician and discontinue the treatment as required.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 140 OF 236

6.1.1 Alarm Priorities

Alarms are prioritized into groups, and the screen displays the highest-priority alarm. Once the highest-priority alarm is corrected, the next highest-priority alarm (if any) is displayed. As each alarm appears on the display, follow the onscreen instructions. If multiple alarms of the same priority are displayed, the alarms of the same priority are displayed in chronological order. It is possible to dock an alarm, sending the alarm to the background for 2 minutes while dealing with other alarms or correcting the underlying cause of the alarm.

If an alarm cannot be corrected:

1. Check patient
2. Stop treatment
3. Contact service

Table 6-1 Alarm Priorities and Descriptions

Priority	Description	Device Response	Indicators
High	Indicates a possible patient hazard that requires immediate operator intervention. Example: air in return line	Displays instructions for responding to alarm and entering a safe state (including stopping the blood pump, stopping the fluid pumps, stopping the syringe, or closing the return line clamp, depending on the alarm). When alarm is resolved, alarm message disappears, status light turns green, and solution pumps restart within a few seconds.	<ul style="list-style-type: none"> • Flashing red status light • High-priority audio alarm • Alarm message displayed in red pop-up window
Medium	Indicates a possible patient hazard that is not immediate. Example: An empty solution bag		<ul style="list-style-type: none"> • Flashing yellow status light • Medium-priority audio alarm • Alarm message displayed in yellow pop-up window
Low	Indicates a condition that does not pose an immediate risk to the patient.	Treatment continues during a low-priority alarm with some exceptions. When alarm is resolved, the alarm message disappears and the status light turns green.	<ul style="list-style-type: none"> • Yellow status light (non-flashing) • Low-priority audio alarm • Alarm message displayed in yellow pop-up window
Information	Indicates non-alarm conditions that do not interrupt treatment.	Information messages are often displayed during prime or recirculation, when a patient is not connected to the system.	<ul style="list-style-type: none"> • Green status light (non-flashing) • No audio alarm • Information message may appear in a gray pop-up window or as an advisory message.
Malfunction alarm	Indicates that patient safety cannot be monitored due to a system failure. Examples: self-test failures, hardware failure.	Some malfunction alarms can be resolved by retesting the failure, while others require service. The device displays instructions for responding to the alarm. Malfunction alarms are high-priority alarms.	<ul style="list-style-type: none"> • Flashing red status light • Malfunction-priority audio alarm • Call Service message displayed in yellow pop-up window.
Sound pressure levels: The default setting for the alarm sound is 65 dB(A). The maximum sound level is 70 dB(A). Use the System Configuration function to adjust alarm sound levels. The minimum sound pressure level is 45 dB(A).			

6.1.2 Alarm Message Screen Elements

The PrisMax System continually monitors the control unit and the disposable set for normal operation. If an abnormal situation is detected, an alarm occurs.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 141 OF 236

When an alarm occurs, follow the onscreen instructions to correct the alarm condition. Figure 6-1 is an example of the information displayed on an alarm screen. If the cause of the alarm cannot be corrected as directed, contact an authorized service technician.

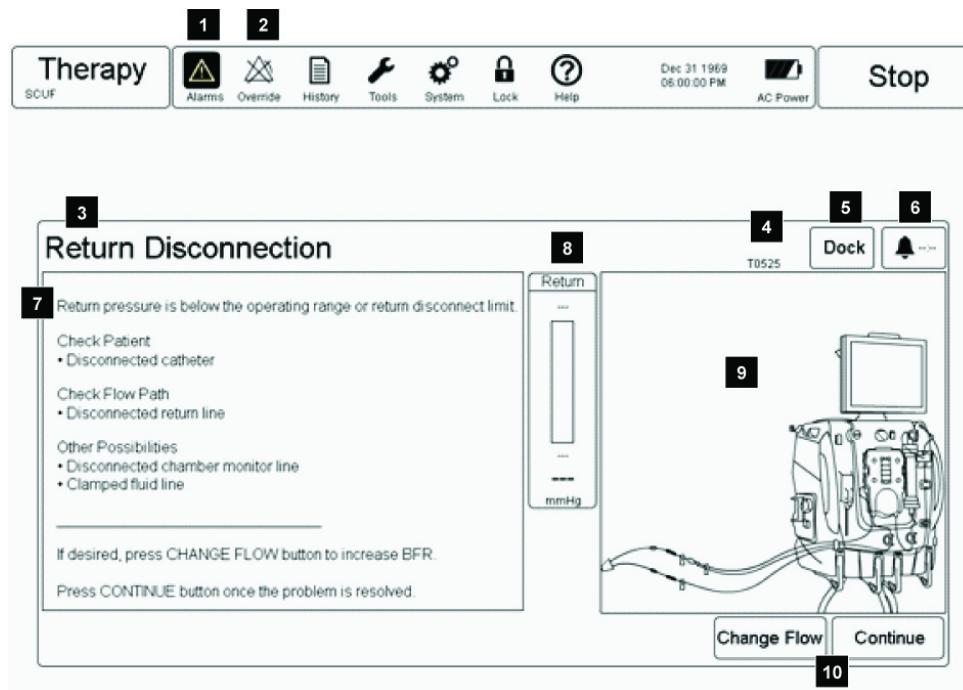


Figure 6-1 Example Alarm Message

Table 6-2 Example Alarm Message Descriptions

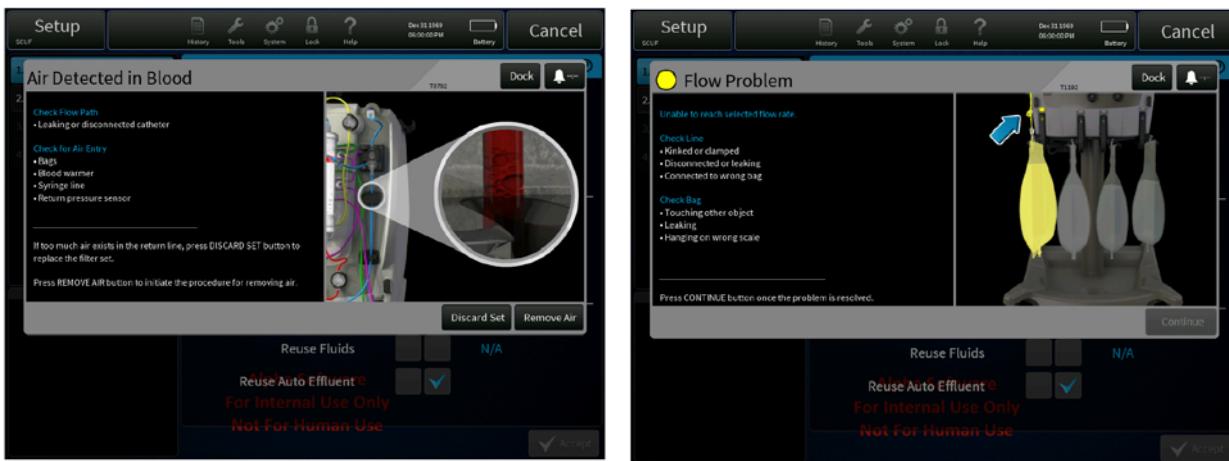
Item No.	Description
1	Symbol indicates that an active alarm window is minimized.
2	Symbol indicates that an alarm is overridden.
3	Name of alarm.
4	Code identifies alarm for technical reference. Use this code to find alarm information or when communicating with customer support.
5	Press the Dock button to minimize the alarm window and return to the previous screen. If an active alarm window is minimized, an alarm icon appears in the toolbar and the alarm is silenced for up to 2 minutes.
6	Press to silence the alarm for 2 minutes, or until another alarm occurs. When alarm silence is active, this button shows a countdown of the silence time remaining.
7	Description of alarm and corrective actions.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 142 OF 236

Table 6-2 Example Alarm Message Descriptions (continued)

Item No.	Description
8	Real-time pressure display, for pressure-related alarms.
9	Illustration showing information related to the alarm. Arrows or lines highlight the relevant component.
10	Depending on alarm, press button(s) to perform a corrective action, continue operation, or override the alarm.

Figure 6-2 shows two examples of typical alarm screens.

**Figure 6-2 Typical Alarm Screen Examples**

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual	DOCUMENT TYPE: Service Manual		PAGE 143 OF 236

Table 6-3 Alarms

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
Code	Setup alarm (pre-prime)	Possible causes	Additional information	Corrective actions	Service actions
T0525 T1168 T1169	<i>Return Disconnection</i> <i>Return Disconnection</i> <i>Return Disconnection</i>	<ul style="list-style-type: none"> Patient moved or catheter has become dislodged. Disconnected return line. Disconnected chamber monitor line. Clamped fluid line. 	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Check that patient catheter, return line, and chamber monitor line are properly connected. Correct kinked or clamped lines. Consider increasing BFR. Press Continue button to resume operation. 	<ul style="list-style-type: none"> T0525: Perform "Pressure Sensors SST," page 84. T1168, T1169: Prime a set to test pump rotor occlusivity.
T0526	Return Extremely Positive	<ul style="list-style-type: none"> Patient is moving, coughing, or being suctioned. Blocked or clotted catheter. Clamped or kinked return line. BFR too high. 	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Flush or reposition catheter per hospital protocol. Correct kinked or clamped lines. Consider decreasing BFR. Press the Open Clamp button to relieve pressure in return line. Press the Continue button to resume operation (button is active when return pressure is within normal limits). 	Perform "Pressure Sensors SST," page 84
T0527	Cannot Monitor Return	<ul style="list-style-type: none"> Disconnected patient catheter Disconnected return line Blood flow path obstruction before the deaeration chamber. Disconnected chamber monitor line Clamped fluid line 	Pumps continue to run. A 30-second countdown starts.	<ul style="list-style-type: none"> Check that the patient catheter, return line, and chamber monitor line are properly connected. Correct kinked or clamped lines. Press the Accept button to continue operation for 2 minutes. Consider increasing BFR. 	Perform "Pressure Sensors SST," page 84 Prime a set to test pump rotor occlusivity.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 144 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0582	Blood Flow Stopped	<ul style="list-style-type: none"> Blood pump has stopped for more than 30 seconds and less than 15 minutes. Stop button pressed. Unresolved alarm condition. 	Pumps remain stopped during alarm.	<ul style="list-style-type: none"> If any clotting is visible, change the set. Press <i>Continue</i> button to resume operation. 	Not applicable.
T0585	Low Calcium Infusion	Calcium infusion stopped for too long. Syringe paused. Unresolved alarm condition.	Syringe and solution pumps stop.	Press the <i>Continue</i> button to resume operation and restart calcium delivery.	Perform the "Syringe Pump SST," page 93.
T0586 T0587 T1294	Check Syringe Line Check Syringe Line Syringe Force Overload	Syringe force higher than expected. <ul style="list-style-type: none"> Clamped or kinked line. Syringe improperly installed. Wrong syringe brand installed. 	Syringe pump stops.	<ul style="list-style-type: none"> Correct kinked or clamped syringe line. Verify that correct syringe brand is installed properly, with plunger locked. Verify that a dedicated calcium line is correctly connected to the syringe. Press <i>Continue</i> button to resume operation. If alarm recurs or syringe, line, or plunger cannot be correctly installed, press <i>Change Syringe</i> button to install a new syringe. 	<ul style="list-style-type: none"> Perform the "Syringe Pump SST," page 93. T0586: Perform "Pressure Sensors SST," page 84
T0588	Calcium Syringe Empty	<ul style="list-style-type: none"> Syringe plunger position indicates that the syringe is empty. Empty syringe. 	Syringe pump stops.	Follow onscreen instructions to change syringe or set syringe flow to 0.	Perform the "Syringe Pump SST," page 93.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 145 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0590 T1244	Check Calcium Syringe Line Check Calcium Syringe Line	Increased syringe force detected during citrate/calcium anticoagulation. <ul style="list-style-type: none">• Clamped or kinked line.• Syringe improperly installed.• Check valve is missing.	Syringe pump stops.	<ul style="list-style-type: none">• Correct kinked or clamped syringe line.• Verify that check valve is present.• Verify that syringe line, syringe, and plunger are correctly installed, then press Continue button to resume operation.• If alarm recurs or syringe, line, or plunger cannot be correctly installed, press Change Syringe button to install a new syringe.	Perform the "Syringe Pump SST," page 93. T1244: Perform "Pressure Sensors SST," page 84
T0591	Calcium Syringe Not Connected	<ul style="list-style-type: none">• Low force required to move the syringe.• Disconnected calcium line.• Incorrect syringe installation.• Syringe clip is not closed on the plunger.• Syringe line from the set connected.	Information. All pumps stop.	Follow the onscreen instructions to restart priming. Press the <i>Discard Set</i> button and change the set.	Perform the "Syringe Pump SST," page 93.
T0593	Bolus Interrupted	<ul style="list-style-type: none">• Complete bolus not delivered.• Clamped syringe line.• Empty syringe.• Alarm condition.	Syringe pump continues to run.	Verify that the line is correctly connected to the syringe. Press the <i>Continue</i> button to resume operation. Administer the undelivered amount by pressing the <i>Administer Bolus</i> button on the change screen.	Not applicable.
T0595	Total Loss of Power	Battery voltage drops below 21.5 V, system not connected to AC power.	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path. There is enough power remaining to disconnect the patient and remove the front set.	Connect system to AC power and reset the system.	Perform the "Power Board SST," page 87

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 146 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0596	Battery Low	System has been on battery for 15 minutes, or battery voltage < 25 V. AC power disconnected. Battery not charged.	Pumps continue to run.	<ul style="list-style-type: none"> Connect system to AC power. Press the <i>Alarm Off</i> button to continue running on battery. 	Perform the "Power Board SST," page 87.
T0597	Battery Depleted	Battery is not fully charged.	Information. System continues to run.	<ul style="list-style-type: none"> Allow the system to run while plugged into an AC power source. Press the <i>Alarm Off</i> button to continue operation. 	Perform the "Power Board SST," page 87.
T0598	Loss of AC Power	No AC power. AC power disconnected.	Pumps continue to run.	<ul style="list-style-type: none"> Verify that power cord is securely connected to the control unit and AC power. Press the <i>Alarm Off</i> button to continue running on battery power. 	Perform the "Power Board SST," page 87.
T0602	Fluid in Drip Tray	Drip tray sensors detect fluid. Disconnections, punctures, or leaks in lines or bags.	The blood pump continues to run and solution pumps stop.	<ul style="list-style-type: none"> Inspect the entire set for leaks or disconnections. Inspect the drip tray for fluid. Clean drip tray according to hospital protocol. Change bag if necessary. Press the <i>Alarm Off</i> button to resume operation. 	Perform the Liquid Leak Detector SST.
T0603	Return Clamp Not Closed	Obstruction prevents clamp from closing.	All pumps stop, return line clamp closes, and blood does not circulate through flow path.	Remove any obstruction that prevents the clamp from closing.	Perform "Return Clamp SST," page 91.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 147 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0608	Wrong Set Detected	<ul style="list-style-type: none"> • Filter set does not match prescription. • Incorrect set loaded. • Clamped dialysate line. • Clamped replacement line. • Incorrect return pressure sensor connection. • Return line not in clamp. 	Information. The system performs the set recognition test before priming. The test closes the return clamp, runs the dialysate pump to measure the change in return and filter pressures.	<ul style="list-style-type: none"> • Discard set and load correct filter set. • Unclamp dialysate and replacement lines. • Verify correct return pressure sensor connection. • Press the <i>Continue</i> button to repeat the test. 	<ul style="list-style-type: none"> • Perform “Pressure Sensors SST,” page 84 • Prime a set to test pump rotor occlusivity.
T0609	Wrong Set Detected	<ul style="list-style-type: none"> • Filter set does not match prescription. • Incorrect set loaded. • Clamped effluent line. 	Information. All pumps stop. Alarm occurs at the end of the priming cycle for CRRT therapy if: High-flow set: effluent weight change is less than the threshold for the set in use. Low-flow set: effluent weight change is greater than the threshold for the set in use.	<ul style="list-style-type: none"> • Discard set and load correct filter set. • Unclamp effluent line. • Verify that effluent bag is on effluent scale. • Press the <i>Continue</i> button to retest. 	Perform “Scales SST,” page 85. Prime a set to test pump rotor occlusivity.
T0610	• PBP Line Attached to Rep Bag/Container	<ul style="list-style-type: none"> • Set line connected to wrong bag. • Incorrect tubing line connection. • Bags touching or partially supported. • Scale disturbance. 	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	<ul style="list-style-type: none"> • Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. • Discard set if damaged. • Press the <i>Continue</i> button to restart prime. 	Perform the Motors SST. Perform “Scales SST,” page 85.
T0614	Priming bag is empty	•		<ul style="list-style-type: none"> • Change priming bag. • Tap the <i>Continue</i> button to clear the alarm and return to normal operations. 	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 148 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1112 T1113 T1114	<ul style="list-style-type: none"> • PBP Line Attached to Rep Bag • PBP Line Not Connected • Dia Attached to Rep Bag • Dia Line Not Connected • PBP Line Attached to Dia • Dia Line Attached to PBP • Rep Line Attached to Dia • Rep Line Attached to PBP Bag • Rep Line Not Detected 	<ul style="list-style-type: none"> • Set line connected to wrong bag. • Incorrect tubing line connection. • Bags touching or partially supported. • Scale disturbance. 	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	<ul style="list-style-type: none"> • Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. • Discard set if damaged. • Press the Continue button to restart prime. 	<ul style="list-style-type: none"> • T1112: Prime a set to test pump rotor occlusivity. • T1113, T1114, Perform the Motors SST. • Perform "Scales SST," page 85.
T0775	Access Extremely Negative	<ul style="list-style-type: none"> • Patient is moving, coughing, or being suctioned. • Blocked or clotted catheter. • Clamped or kinked return line. • BFR too high. 	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> • Flush or reposition catheter per hospital protocol. • Correct kinked or clamped lines. • Consider decreasing BFR. • Press Continue to resume operation (button is active when access pressure is within normal limits). 	Perform "Pressure Sensors SST," page 84
T0777	Set Disconnection	<ul style="list-style-type: none"> • Disconnection anywhere in the set. • Line between blood pump and filter pod is obstructed. • Blood flow rate too low. • Filter pressure sensor failed. • Return pressure disconnection and failure of return • pressure alarm. 	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> • Correct any leaks or disconnection. Press the Continue button to resume operation. • Press the Discard Set button and • change the set. 	Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 149 OF 236

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0779 T0780	Membrane Pressure Excessive	<ul style="list-style-type: none"> • Clotted Filter • Kinked lines 		<ul style="list-style-type: none"> • Change filter set. • Tap Discard Set button and change the set. • Unkink lines. • Increase anticoagulation. • Decrease BFR. • Tap Continue button to clear alarm and return to normal operations. 	
T0781	High Filter Pressure	<ul style="list-style-type: none"> • High filter pressure detected. • Clamped or kinked line. • Clot at the filter inlet. • BFR too high. 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> • Correct kinked or clamped lines. • Consider decreasing BFR to reduce filter pressure. • Press Continue button to resume operation (button is active when filter pressure is within normal limits). 	Perform "Pressure Sensors SST," page 84
T0783	TMPa Pressure Excessive	<p>High transmembrane pressure (TMP).</p> <ul style="list-style-type: none"> • High Rep, PBP, or PFR flow rate. • Low BFR setting. • Inadequate anticoagulation. • Wrong filter or effluent pressure measurement 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> • Consider decreasing these flow rates: PFR, Rep, or PBP. • Consider increasing BFR. • Press Continue button to resume operation (button is active when TMP is within normal limits). • Assess anticoagulation requirements according to hospital policy. 	<ul style="list-style-type: none"> • Perform "Pressure Sensors SST," page 84. • Perform the "Syringe Pump SST," page 93.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 150 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0786	Membrane Pressure Rising	Clamped or kinked line. Inadequate anticoagulation. Air leak at filter or return pressure sensor. High Rep, PBP, or PFR flow rate. BFR too low.	Pumps continue to run.	Correct kinked or clamped lines. Assess anticoagulation requirements according to hospital policy. Check for air leak at filter or return pressure sensor. Consider decreasing these flow rates: Rep, PBP, or PFR. Consider increasing BFR. Press the <i>Alarm Off</i> button to cancel the alarm and resume operation.	Perform the "Syringe Pump SST," page 93. Perform the ARPS SST.
T0787 T0788	Membrane Pressure Rising	<ul style="list-style-type: none"> • Clotted Filter • Kinked Lines 		<ul style="list-style-type: none"> • Change filter set. • Unkink lines. • Increase anticoagulation. • Decrease BFR. • Tap Change Flow button to view the change prescription screen and modify a flow rate to try to mitigate the alarm detection. • Tap the Override button to temporarily override the alarm. 	
T0792	Air Detected in Blood	<ul style="list-style-type: none"> • Leaking or disconnected catheter. • Air entry from a bag, blood warmer, syringe line, access line, or PBP line. • Set not fully primed 	All pumps stop, the return line clamp closes, and blood does not circulate through flow path.	<ul style="list-style-type: none"> • Reposition the catheter per hospital protocol. • Inspect entire set for leaks or disconnections. • Press Remove Air and follow onscreen instructions for air removal. • If air is present in the entire return line, press Discard Set and change the set. 	Perform the "Air Bubble Detector SST," page 90.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 151 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0793	Return Line Not in Clamp	<ul style="list-style-type: none"> Return line not in clamp. Line incorrectly installed. 	All pumps stop and blood does not circulate through the flow path.	Reinstall the return line in the clamp. Press Open Clamp button to allow the tube to be re-inserted.	Perform "Return Clamp SST," page 91.
T0798	CRRT Gain/Loss Limit Reached	Fluid gain/loss for the CRRT set over the last 180 minutes exceeds the setting.	The blood pump continues to run and solution pumps stop.	Press the Discard Set button and change the set.	Perform "Scales SST," page 85. Prime a set to test pump rotor occlusivity.
T0800	PBP Fluid Limit Reached	PBP patient fluid input has reached threshold limit		<ul style="list-style-type: none"> Tap Alarm Off button to add 200ml to the input threshold. Tap Discard Set button and end the therapy. 	•
T0801	Effluent Bag Full	Effluent bag weight exceeds the maximum. Effluent bag is full. Incorrect effluent bag size setting. Foreign object on scale.	The blood pump continues to run and solution pumps stop.	Follow onscreen instructions to change bag. Change effluent bag size if needed. Remove foreign object from scale.	Perform "Scales SST," page 85.
T0802	Auto-Effluent Bags Full	AE draining has been paused for too long and the bags are nearly full.	The blood pump continues to run and solution pumps stop.	Insert AE drain line in drain, then resume draining.	Perform "Scales SST," page 85.
T0804 T0805 T0933 T1076	Bag Empty	Bag weight indicates that it is empty. Bag empty. Bag partially supported.	A color-coded symbol identifies the solution bag. The blood pump continues to run and solution pumps stop. T0804: Dialysate. T0805: Replacement. T0933: PBP. T1076: Replacement 2.	Follow onscreen instructions to change bag. Set solution flow rate to 0 ml/h. Remove partial support from bag.	Perform "Scales SST," page 85.
T0809	Rep Container Empty	<ul style="list-style-type: none"> Replacement container is empty. Something external is supporting the replacement container. 		<ul style="list-style-type: none"> Change the replacement container. Move object supporting replacement container 	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 152 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0811 T0812 T0813 T0934 T0947 T1081 T1281	Scale Open	Scale position sensor indicates that its handle is open. Scale unexpectedly open. Object blocking scale. Bag improperly hung. Carrying bar not centered. Handle not rotated down. Scale handle position sensor failure.	A color-coded symbol identifies the scale. The blood pump continues to run and solution pumps stop. T0811: PBP. T0812: Dialysate. T0813: Replacement. T0934: Effluent. T0947: Auto Effluent (AE) drain. T1081: Replacement 2. T1281: Auto Effluent (AE) effluent.	Follow onscreen instructions to check scale. Close scale. Change bag if needed.	Perform "Scales SST," page 85.
T0818	Front Effluent Scale Not Opened	Bag was changed without opening the scale. Scale open switch failure.	Pumps remain stopped during alarm.	Press <i>Change Bag</i> button to resume operation. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform "Scales SST," page 85.
T0820 T1311	Scale Calibration Temperature Scale Calibration Temperature	Ambient temperature differs from temperature at time of calibration.	Low-priority alarm. System continues to run. Medium-priority alarm. System continues to run.	Move the system to a different location. Contact service for recalibration. Press the <i>Continue</i> button to resume operation.	Perform the Scales Calibrations. Perform "Scales SST," page 85.
T0822	Flow Problem	The effluent bag weight varies from the expected weight. <ul style="list-style-type: none">• Yellow effluent line is kinked, clamped, or connected to the wrong bag.• Effluent bag is touching another object, leaking, or hanging on the wrong scale.	The blood pump continues to run and solution pumps stop.	Correct kinked or clamped lines. Verify line connections. Remove any object touching the bag. Check bag for leaks. Verify that bag is hanging on correct scale. Press the <i>Continue</i> button to resume operation.	Perform "Scales SST," page 85. Prime a set to test pump rotor occlusivity.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
TITLE: PrisMax Service Manual			PAGE 153 OF 236

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0823 T0824 T0935 T1069 T1070	Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem	The solution bag weight varies from the expected weight. <ul style="list-style-type: none">• Kinked or clamped lines.• Disconnected or leaking connections.• Line connected to incorrect bag.• Line touching another object.• Leaking bag.• Bag hanging on wrong scale.	A color-coded symbol identifies the solution. The blood pump continues to run and solution pumps stop. Alarm detection delayed for up to 40 seconds. T0823: Replacement. T0824: Dialysate. T0935: PBP. T1069: Replacement 2. T1070: AE drain.	Correct kinked or clamped lines. Verify line connections. Remove any object touching the bag. Check the bag for leaks. Verify that bag is hanging on correct scale. Press the <i>Continue</i> button to resume operation.	Perform "Scales SST," page 85. Prime a set to test pump rotor occlusivity.
T0825 T1201 T1202 T1203	PBP Bag Not Mixed Replacement 2 Bag Not Mixed Replacement Bag Not Mixed Dialysate Bag Not Mixed	Solution flow rate and weight indicate that a double-compartment bag is not mixed correctly. The seal between the two bag compartments is not broken.	Blood pump continues to run and solution pumps stop. NOTE: Alarm detection delayed for up to 40 seconds.	Consult physician. Do not continue using the bag. Follow onscreen instructions to change bag.	Perform "Scales SST," page 85.
T0830	Blood Leak Detected	The BLD detects blood in the effluent line, which can indicate a ruptured filter membrane. Leak in filter membrane. Tubing incorrectly installed in the BLD. Tubing is cloudy or debris in the tubing path. Air in the effluent line. The wrong section of tubing is installed in the BLD. Dirty BLD optics.	The blood pump continues to run and solution pumps stop. Alarm detection delayed for up to 40 seconds.	Check for air bubbles in effluent line in the BLD. Press <i>Alarm Off</i> button to dislodge bubble. If air bubbles recur, check for kinked effluent line, or decrease BFR. Verify that effluent line is correctly installed in the BLD. Check for liquid or debris in the BLD tubing path and effluent line: clean with a lint-free cloth, then dry thoroughly. If blood is in the effluent line, change the set. Send sample of effluent to the blood lab for cell count.	Perform the Blood Leak Detector SST.
T0844	Wrong Effluent Bag Size	Effluent bag weight greater than expected.	The blood pump continues to run and solution pumps stop.	Follow onscreen instructions to change the effluent bag. Press <i>Alarm Off</i> button if bag size is correct.	Perform "Scales SST," page 85.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 154 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0850	Blood Pump Occlusivity Fail	Set is not holding pressure. Leaks at bag connections. Leak or wetting at the return pressure sensor. Clamped return line. Tubing not fully seated in pump raceways.	Information. All pumps stop.	Check for leaks at fluid bag and return pressure sensor connections. Unclamp the return line. Reload the set. Press the <i>Continue</i> button to retest. Press the <i>Discard Set</i> button and change the set.	Perform the Motors SST. Prime a set to test pump rotor occlusivity.
T0853	Normalization Failure	BLD normalization failure during therapy. Tubing incorrectly installed in the BLD. Tubing is cloudy or debris in the tubing path. Air in the effluent line. The wrong section of tubing is installed in the BLD. Dirty BLD optics. Blood present in the effluent line.	The blood pump continues to run and solution pumps stop. Alarm detection delayed for up to 40 seconds.	Verify that effluent line is correctly installed in the BLD. Remove air bubbles in effluent line. Slide the tube inside the BLD to increase detection signal. If displayed transmissivity (detection signal) > 85%, press <i>Normalize</i> button to retry. If displayed transmissivity < 85%, change the set.	Perform the Blood Leak Detector SST.
T0878	Syringe Pump Out of Order	Syringe movement obstructed. External object touching syringe.	Syringe pump stops.	Remove anything that obstructs or touches the syringe.	Syringe pump SST.
T0890	Alarm Sound Test Failure		Disables verification that alarm sound was played. Override is automatically cleared when operator sets alarm volume to the default value of 85% or higher. When the operator clears the Override, and the alarm volume is less than the default value of 85%, the alarm volume is set to 85%.		
T0933	Bag Empty	See T0804.			
T0934	Scale Open	See T0811.			
T0935	Flow Problem	See T0823.			

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 155 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T0938	Membrane Pressure Excessive	Clamped or kinked line. Inadequate anticoagulation. Air leak at filter or return pressure sensor. High BFR, Rep, PBP, or PFR flow rate.	Pumps continue to run.	Correct kinked or clamped lines. Assess anticoagulation requirements according to hospital policy. Check for air leak at filter or return pressure sensor. Consider decreasing these flow rates: BFR Rep, PBP, or PFR. If the alarm cannot be corrected, press the <i>Discard Set</i> button and change set.	Perform the "Syringe Pump SST," page 93. Perform the ARPS SST.
T0943	TherMax Disposable Installed	<ul style="list-style-type: none"> Disposable installed too early Previous disposable not removed from last treatment. 		Remove the warmer disposable from the warmer unit.	
T0947	Scale Open	See T0811.			
T0948	Change Set	<ul style="list-style-type: none"> Blood pump has stopped for over 10 minutes, set must be changed. <i>Stop</i> button pressed. Unresolved alarm condition. 	Pumps remain stopped, blood return is prevented, and treatment cannot restart until the set is changed.	Press <i>Discard Set</i> button and change the set.	Not applicable.
T1042 T1210	No Line in BLD BLD Sensor Reading High	BLD effluent line not detected. Tubing incorrectly installed in BLD. Tubing is cloudy or debris in the tubing path. Air in the effluent line. The wrong section of tubing is installed in the BLD. Dirty BLD optics.	The blood pump continues to run and solution pumps stop.	Verify that effluent line is correctly installed in the BLD. If displayed transmissivity (detection signal) is 85 to 125%, press the <i>Continue</i> button to reset the BLD. Slide the tube inside the BLD to increase the transmissivity. Check for liquid or debris in the BLD tubing path and effluent line: clean with a lint-free cloth, then dry thoroughly.	Perform the Blood Leak Detector SST.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 156 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1043	Deaeration Chamber Missing	<ul style="list-style-type: none"> No deaeration chamber detected. Chamber missing. Chamber incorrectly installed. 	All pumps stop.	Verify that deaeration chamber is correctly installed in the holder, and that the holder is closed.	Perform the "Liquid Level Sensor SST," page 90.
T1045	No Line in Air Detector	<ul style="list-style-type: none"> Return line not in ABD. Line incorrectly installed. ABD door not closed. 	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	Open ABD door, verify that return line is correctly installed in tubing guides, then close and latch the door.	Perform the "Air Bubble Detector SST," page 90.
T1046	No Line in Discharger	<p>Discharger does not detect a line present. Line missing. Line incorrectly installed. Discharger failure.</p>	All pumps continue to run.	<p>Verify that effluent line is correctly installed in the discharger. Slide the discharge ring up and down in the clip.</p>	Perform the Discharger SST.
T1054	Battery Temperature Problem	Battery temperature too low	<p>Low-priority alarm. System continues to run. Medium-priority alarm. System continues to run.</p>	Turn off the control unit, and allow it to acclimate to the ambient temperature for 1 hour.	Perform the "Power Board SST," page 87.
T1055	Battery Temperature Problem	Battery temperature too high	<p>Low-priority alarm. System continues to run. Medium-priority alarm. System continues to run.</p>	Turn off the control unit and allow it to acclimate to the ambient temperature for 1 hour.	Perform the "Power Board SST," page 87.
T1069 T1070	Flow Problem	See T0823.			
T1073	Replacement Line Clamped	Line is clamped or disconnected Clamped line.	Information. Alarm occurs if system detects a difference between the predicted weight change and actual weight change.	Verify that lines are not kinked or clamped. Verify that bags are properly connected. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform "Scales SST," page 85. Prime a set to test pump rotor occlusivity.
T1074	Dialysate Line Clamped	Disconnected line.			
T1075	PBP Line Clamped				
T1076	Bag Empty	See T0804.			
T1081	Scale Open	See T0811.			

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 157 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1084	PBP Scale Not Opened	Bag was changed without opening the scale. Scale open switch failure.	Pumps remain stopped during alarm.	Press <i>Change Bag</i> button to resume operation. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform "Scales SST," page 85.
T1086	Dialysate Scale Not Opened	Bag was changed without opening the scale. Scale open switch failure.	Pumps remain stopped during alarm.	Press <i>Change Bag</i> button to resume operation. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform "Scales SST," page 85.
T1087	Replacement Scale Not Opened	Bag was changed without opening the scale. Scale open switch failure.	Pumps remain stopped during alarm.	Press <i>Change Bag</i> button to resume operation. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform "Scales SST," page 85.
T1112 T1113 T1114	<ul style="list-style-type: none"> • PBP Line Attached to Rep Bag • PBP Line Not Connected • Dia Attached to Rep Bag • Dia Line Not Connected • PBP Line Attached to Dia • Dia Line Attached to PBP • Rep Line Attached to Dia • Rep Line Attached to PBP Bag • Rep Line Not Detected 	Set line connected to wrong bag. Incorrect tubing line connection. Bags touching or partially supported. Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	T1113, T1114, Perform the Motors SST. Perform "Scales SST," page 85. T1114: Prime a set to test pump rotor occlusivity.
T1119	Anticoagulant Checkpoint Reminder	The preset reminder interval to assess anticoagulation has elapsed.	Treatment continues normally.	Assess anticoagulation requirements according to hospital policy. Press the <i>Continue</i> button to resume operation.	Not applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 158 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1123 T1129 T1130 T1131 T1132 T1133	Scale Unstable Scale Unstable Scale Unstable Scale Unstable Scale Unstable Scale Unstable	The measured bag weight is unstable. Alarm detection is delayed after closing the scale. Swinging bag. Bag supported from below. Bag touching another object.	A color-coded symbol identifies the scale. The blood pump continues to run and solution pumps stop. T1123: Effluent. T1129: Dialysate. T1130: Replacement 2. T1131: Replacement. T1132: PBP. T1133: AE drain.	Correct swinging bag. Remove partial support. Remove any object touching the bag.	Perform "Scales SST," page 85. T1123, T1132, T1133: Prime a set to test pump rotor occlusivity. T1129, T1130, T1131: Perform the Motors SST.
T1137	Main Set Loader Failed	Set did not load correctly. Tubing interfering with plastic cassette. Pinch valves engaged. Pump tubing loaded incorrectly.	High-priority alarm. Pumps remain stopped during alarm. Alarm clears when the loader detects it is in the correct position.	Remove and obstructions Press the <i>Continue</i> button to reload the set. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform the Loaders SST.
T1138	AE Circuit Loader Failed		Medium-priority alarm. Pumps remain stopped during alarm.		
T1144	Pause Time Exceeded	<ul style="list-style-type: none"> Delay too long between prime and start of therapy. Patient not connected after prime complete. 	All pumps stop. Alarm indicates a delay of over 60 minutes since prime complete.	Follow the onscreen instructions to reprime or flush the set.	Not applicable.
T1145	Check Access	Access pressure operating point is undetectable. Patient is moving, coughing, or being suctioned. Blocked or clotted catheter. Clamped or kinked access line. BFR too low.	Pumps continue to run.	Alarm automatically clears if access pressure operating point is set to a detectable level. Flush or reposition the catheter according to hospital protocol. Correct kinked or clamped lines. Consider increasing BFR. Press the <i>Alarm Off</i> button to continue operation with the current access pressure operating point.	Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 159 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1158 T1159 T1188 T1189 T1190 T1191 T1555	Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem	Solution flow rate < set rate. Kinked or clamped lines. Disconnected or leaking connections. Line connected to incorrect bag. Line touching another object. Leaking bag. Bag hanging on incorrect scale.	A color-coded symbol identifies the scale. The blood pump continues to run and solution pumps stop. Alarm detection delayed for up to 40 seconds. T1158: PBP. T1159: Effluent. T1188: AE drain. T1189: Replacement. T1190: Replacement 2. T1191: Dialysate. T1555: AE.	Correct kinked or clamped lines. Verify line connections. Remove any object touching the bag. Check the bag for leaks. Verify that bag is hanging on correct scale. Press the <i>Continue</i> button to resume operation.	Perform "Scales SST," page 85. Prime a set to test pump rotor occlusivity.
T1162	Return Low Operating Point	The return operating point is established above -20 mmHg but below the current return disconnect limit. Disconnected patient catheter. Disconnected return line. Disconnected chamber monitor line. Clamped fluid line.	Pumps continue to run. A 30-second countdown starts.	Check that the patient catheter, return line, and chamber monitor line are properly connected. Correct kinked or clamped lines. Press the <i>Alarm Off</i> button to decrease the return disconnect limit. Consider increasing BFR.	Perform "Pressure Sensors SST," page 84
T1164	Return Extremely Positive	Patient is moving, coughing, or being suctioned. Blocked or clotted catheter. Clamped or kinked return line. BFR too high.	All pumps stop and blood does not circulate through the flow path.	Alarm clears if return pressure returns to normal limits within 15 seconds. Flush or reposition the catheter according to hospital protocol. Correct kinked or clamped lines. Consider decreasing BFR.	Perform "Pressure Sensors SST," page 84
T1167	Return Sensor Disconnected	<ul style="list-style-type: none"> • Tip or threads of return monitor line damaged. • Tip of monitor line incorrectly installed. 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> • If monitor tip is damaged, press <i>Discard Set</i> button and change set. • Follow the onscreen instructions to connect the return monitor line. Press Continue button to retest the fluid barrier. 	<ul style="list-style-type: none"> • Perform the ARPS SST. • Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 160 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1168 T1169	<i>Return Disconnection</i>	See T0525.			
T1175	AE Bags on Wrong Scales	Unexpected weight on AE scales. Effluent bag hanging on the side scale. Incorrect AE bag filling.	Information. All pumps stop. Alarm occurs during fluid priming if any of the following are true: AE is disabled, but the side scale measures a weight gain > 5 g. AE is enabled, pinch valves set to fill front bag, but side scale measures a weight gain > 5g. AE is enabled, pinch valves set to fill side bag, but front scale measures a weight gain > 5g.	Confirm that bags are hanging on correct scales. Discard AE accessory. Press the <i>Continue</i> button.	Perform the Pinch Valves SST.
T1182	Return Clamp Not Opened	Obstruction prevents clamp from opening.	All pumps stop and blood does not circulate through the flow path.	Remove any obstruction that prevents the clamp from opening.	Perform "Return Clamp SST," page 91.
T1188 T1189 T1190 T1191	Flow Problem	See T1158.			
T1192 T1193 T1194 T1195 T1196 T1197 T1552 T1553 T1554	Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem Flow Problem	<ul style="list-style-type: none"> • Estimated solution flow rate is less than half the expected value. • Kinked or clamped lines. • Disconnected or leaking connections. • Line connected to incorrect bag. • Line touching other object. • Leaking bag. • Bag hanging on incorrect scale. 	A color-coded symbol identifies the solution. The blood pump continues to run and solution pumps stop. Alarm detection delayed for up to 40 seconds. T1192: Effluent. T1193: AE. T1194: PBP. T1195: Replacement. T1196: Replacement 2. T1197: Dialysate. T1552: AE fill. T1553: AE drain. T1554: AE drain fill.	<ul style="list-style-type: none"> • Correct kinked or clamped lines. • Verify line connections. • Remove any object touching the bag. • Check the bag for leaks. • Verify that bag is hanging on correct scale. • Press the <i>Continue</i> button to resume operation. 	<ul style="list-style-type: none"> • Perform "Scales SST," page 85. • T1192, T1194, T1195, T1196, T1197: Prime a set to test pump rotor occlusivity.
T1198	Rep2 Scale Not Opened	<ul style="list-style-type: none"> • Bag was changed without opening the scale. • Scale open switch failure. 	Pumps remain stopped during alarm.	Press <i>Change Bag</i> button to resume operation. If the alarm does not clear, press the <i>Discard Set</i> button and change the set.	Perform "Scales SST," page 85.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 161 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1199	Battery Not Charging	Battery has stopped charging before being fully charged. Battery overheated. Excessive charging time.	All pumps continue to run.	Allow system to cool down. Reset the system and allow the battery to charge.	Perform the "Power Board SST," page 87.
T1201 T1202 T1203	Replacement 2 Bag Not Mixed Replacement Bag Not Mixed Dialysate Bag Not Mixed	See T0825.			
T1206	Syringe Rx Empty	Syringe plunger position indicates that the syringe is empty. Empty syringe.	Syringe pump stops.	Follow onscreen instructions to change syringe.	Not applicable.
T1209	Calcium Line Not Detected	<ul style="list-style-type: none"> • Calcium line disconnection during citrate/calcium anticoagulation. • Syringe improperly installed. • Plunger not locked as shown in illustration. • Wrong syringe brand. 	Syringe pump stops.	<ul style="list-style-type: none"> • Verify that the correct syringe is installed properly, with the plunger locked. • Verify that a dedicated calcium line is correctly connected to the syringe. • If calcium line, syringe, and plunger are correctly installed, press <i>Alarm Off</i> button to resume operation. • If alarm recurs or syringe, line, or plunger cannot be correctly installed, press <i>Change Syringe</i> button to install a new syringe. 	Perform the "Syringe Pump SST," page 93.
T1210	BLD Sensor Reading High	See T1042.			
T1226	Effluent Pump Failure	Effluent line kinked or clamped.	The blood pump continues to run and solution pumps stop.	Remove any kinks or clamps in the effluent line.	Motors SST.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 162 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1237	Access Extremely Positive	<ul style="list-style-type: none"> BFR too low. External device (if in use) is delivering blood at a too high pressure Access line kinked or clamped. 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Correct kinked or clamped lines. Consider increasing BFR to reduce access pressure. Press Continue to resume operation (button is active when access pressure is within normal limits). 	Perform "Pressure Sensors SST," page 84
T1238	Access Extremely Negative	<ul style="list-style-type: none"> Patient is moving, coughing, or being suctioned. Blocked or clotted catheter. Clamped or kinked return line. 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Flush or reposition the catheter according to hospital protocol. Correct kinked or clamped lines. Consider decreasing BFR. 	Perform "Pressure Sensors SST," page 84
T1244	Check Calcium Syringe Line	See T0590.			
T1262 T2119	CRRT Max Set Life Reached AE Max Set Life Reached	Set in use longer than intended life. Therapy has been performed longer than the intended life of the set.	Blood and fluid pumps continue to run.	Press the <i>Discard Set</i> button and change the set. Press the <i>Alarm Off</i> button to continue treatment with the current set.	Not applicable.
T1267	Max Set Life Reached	<ul style="list-style-type: none"> Set life usage is exceeded 		<ul style="list-style-type: none"> Change set. 	
T1268	TPE Max Set Life Reached	<ul style="list-style-type: none"> Set life usage is exceeded 		<ul style="list-style-type: none"> Change TPE set. 	
T1275	Patient High Voltage	Discharger switch is open. Patient connected to mains (AC) power. External defibrillator used.	Blood and fluid pumps continue to run.	<p>Do not touch the patient. Verify the patient is not connected to mains voltage. Press the <i>Continue</i> button to reset the discharge switch.</p>	Perform the Discharger SST.
T1277	Return Barrier May Be Wet	Return chamber monitor line may be wet.	All pumps stop and blood does not circulate through the flow path.	<p>If fluid barrier is wet, press <i>Discard Set</i> button and change set. Press the <i>Continue</i> button to retest the fluid barrier.</p>	Perform the ARPS SST. Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 163 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1279	Chamber Level Low	Fluid level low in deaeration chamber. LLS disabled.	All pumps continue to run.	Follow the onscreen instructions to lower the fluid level in the deaeration chamber. Press the <i>Enable LLS</i> button to enable auto-leveling. Press the <i>Alarm Off</i> button to resume operation.	Perform the Liquid Level Sensor SST. Perform the ARPS SST.
T1281	Scale Open	See T0811.			
T1291 T1292	Side Effluent Bag Incorrect Front Effluent Bag Incorrect	Effluent bags hanging on incorrect scales.	Information. All pumps stop.	Switch AE bags between front and side scales as shown on screen. Press the <i>Continue</i> button.	Perform "Scales SST," page 85.
T1294	Syringe Force Overload	See T0586.			
T1298 T1306	Syringe Not Detected Calcium Syringe Not Detected	<ul style="list-style-type: none"> • Syringe force sensor indicates low force during systemic anticoagulation. • Syringe missing • Syringe improperly installed. • Plunger not locked as shown in illustration. 	Syringe pump stops.	<ul style="list-style-type: none"> • Verify that the syringe is correctly installed, with the plunger locked. • Verify that the line is correctly connected to the syringe. • If line, syringe, and plunger are correctly installed, press <i>Alarm Off</i> button to resume operation. • If alarm recurs or syringe, line, or plunger cannot be correctly installed, press <i>Change Syringe</i> button to install a new syringe. 	Perform the "Syringe Pump SST," page 93.
T1305	Prime Solution Empty	Priming bag is empty.	Information. All pumps stop, the return line clamp closes.	Follow the onscreen instructions to change the priming bag and restart priming. Discard set if damaged.	Not applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 164 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1308	• PBP Line Attached to Rep Bag	Set line connected to wrong bag.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged.	Perform the Motors SST.
T1309	• Dia Line Attached to PBP	Incorrect tubing line connection.		Press the <i>Continue</i> button to restart prime.	Perform "Scales SST," page 85.
T1310	• Rep Line Attached to Dia	Bags touching or partially supported. Scale disturbance.			
T1311	Scale Calibration Temperature	See T0820.			
T1313	BLD Normalize Failed	<ul style="list-style-type: none"> • Transmission below expected values. • Effluent line incorrectly installed. • Air bubbles in the effluent line. • Dirty effluent line. • Dirty BLD mirrors. • Effluent line clamped. 	<p>BLD emitter current is outside the acceptable range.</p> <p>NOTE: Alarm detection delayed for up to 40 seconds.</p>	<ul style="list-style-type: none"> • Slide the tubing back and forth in the BLD. • Squeeze air bubbles out of the return line. • Remove and clean effluent line with an alcohol swab. • Clean BLD mirrors. • Press the <i>Continue</i> button to retest. • Press <i>Discard Set</i> button and change the front set. 	Perform the Blood Leak Detector SST.
T1318	Scale Weight Problem	<ul style="list-style-type: none"> • New patient selected and scales detect weight. • Fluid bags remain on scales from a previous treatment. • Open scale. • Bag handle missing. • Accidental new patient selection. • Foreign object on scale. 	<p>Information. A color-coded symbol identifies the scale. Alarm occurs when new patient is selected and the absolute value of the scale weight is > 30 g, or the scale is not closed.</p> <p>T1318: PBP. T1319: Dialysate. T1320: Replacement. T1321: Effluent. T1322: AE drain.</p>	<ul style="list-style-type: none"> • Remove bags/external objects from the scales. • Close the scale handle. • Hang the bag handle on the scale. 	Perform "Scales SST," page 85.
T1319					
T1320					
T1321					
T1322					

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 165 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1333 T1334 T1335 T1337	Pressure Detected Pressure Detected Pressure Detected Pressure Detected	<ul style="list-style-type: none"> New patient selected and pressure is non-zero. Pressure pods/return line remain from a previous treatment. Accidental new patient selection. 	Occurs when new patient is selected and the system detects a pressure > 15 mmHg. T1333: Access. T1334: Filter. T1335: Effluent. T1337: Return.	Remove pod or return line from the control unit.	Perform "Pressure Sensors SST," page 84
T1347 T1610 T1611 T1778	Dialysate Scale Weight Error Rep Scale Weight Error PBP Scale Weight Error Rep2 Scale Weight Error	Empty solution bag. Clamped fluid line. Bag empty.	Information. All pumps stop. Alarm occurs if bag weight does not change as expected during prime. Typically indicates a kinked/clamped line or empty bag.	Unclamp line. Change fluid bag. Press the <i>Continue</i> button.	Perform "Scales SST," page 85.
T1360 T1361	Schedule Preventive Maintenance Preventive Maintenance Past Due	System calibration is due or overdue.	Information. System continues to run. Low-priority alarm. System continues to run.	Contact service to calibrate the system.	Not applicable.
T1552 T1553 T1554	Flow Problem	See T1192.			
T1555	Flow Problem	See T1158.			
T1570	Check Syringe Line	<ul style="list-style-type: none"> High force required to move the syringe. Clamped or kinked syringe line. Obstructed syringe arm. Wrong syringe brand. 	Information. Syringe stops.	<ul style="list-style-type: none"> Unclamp syringe line. Confirm that syringe arm is unobstructed. Press the <i>Discard Set</i> button and change the set. 	Perform the "Syringe Pump SST," page 93.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 166 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1571	Check Calcium Syringe Line	<ul style="list-style-type: none"> High force required to move the syringe. Clamped or kinked syringe line. Obstructed syringe arm. Wrong syringe brand Calcium line: vascular access clotting 	Information. Syringe stops.	<ul style="list-style-type: none"> Unclamp syringe line. Confirm that syringe arm is unobstructed. Tap the Continue button to clear the alarm and return to normal operations. Tap the Change Syringe button to open the syringe change dialog window and begin a syringe change operation. Press the <i>Discard Set</i> button and change the set. 	Perform the "Syringe Pump SST," page 93.
T1591	Chamber Level High	High fluid level in the deaeration chamber. LLS disabled. Foam in blood.	All pumps continue to run.	Follow the onscreen instructions to lower the fluid level in the deaeration chamber. Press the <i>Enable LLS</i> button to enable auto-leveling. Press the <i>Alarm Off</i> button to resume operation. Increase replacement flow rate.	Perform the Liquid Level Sensor SST. Perform the ARPS SST.
T1594	<ul style="list-style-type: none"> Bag Not filling Return Line Misconnected 	Effluent bag is not filling during prime. Clamped lines. Bag partially supported. Return line not connected.	Information. All pumps stop. Alarm occurs if the effluent bag weight change is less than expected during fluid priming.	<ul style="list-style-type: none"> Check for clamped lines. Check for bags touching or supported. Check that return line is connected. Press the <i>Continue</i> button. 	Perform "Scales SST," page 85.
T1597	<ul style="list-style-type: none"> Access Pod Not Attached Effluent Pod Not Attached Filter Pod Not Attached 	Debris in pod socket. Damaged pod. Pod incorrectly installed.	Pumps continue to run.	<ul style="list-style-type: none"> Clean any debris from pod socket. Make sure that pod is correctly installed. Press the <i>Continue</i> button to retest pod presence. If pod is damaged, press <i>Discard Set</i> button and change set. 	Perform the ARPS SST. Perform "Pressure Sensors SST," page 84.
T1598					
T1599					

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 167 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1607 T1608	• Rep Line Attached to PBP Bag • Rep Line Not Detected	• Set line connected to wrong bag. • Incorrect tubing line connection. • Bags touching or partially supported. • Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	• Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. • Discard set if damaged. • Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform "Scales SST," page 85.
T1609	Effluent Bag Full	The bag is too small to hold the fluid required to complete prime. Effluent bag is partially full.	Information. All pumps stop. The system estimates that effluent volume exceeds the remaining capacity of the effluent bag.	• Press the <i>Change Bag</i> button and replace the effluent bag.	Perform "Scales SST," page 85.
T1612	No Line in BLD	No effluent line detected in BLD. Effluent line missing from BLD. Effluent line not fully seated in BLD.	Mechanical BLD switch does not detect tubing installed in the BLD tubing guide.	Install effluent tubing in the BLD. Slide the tubing back and forth in the BLD. Press the <i>Continue</i> button to retest. Press <i>Discard Set</i> button and change the front set.	Perform the Blood Leak Detector SST.
T1614 T1615	Return Line Clamped Access Line Clamped	Line clamped or kinked. Crossed lines. Bags not hanging freely.	All pumps stop and blood does not circulate through the flow path.	Verify that lines are not clamped or kinked. Verify that lines are not crossed. Verify that bags are hanging freely. Press the <i>Continue</i> button to resume.	Perform "Pressure Sensors SST," page 84.
T1616	Liquid Level Sensor Fail	Liquid level sensor in deaeration chamber is not sensing the chamber.		• Tap the <i>Continue</i> button to resume operation. • Remove the chamber from LLS and reinstall. • If the alarm recurs, tap the <i>Alarm Off</i> button to disable auto-leveling. • Perform a self test.	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 168 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1625	Clamped Lines Test Failed	<ul style="list-style-type: none"> Lines not clamped when set unloading is requested. Access pod or monitor line disconnected. 	All pumps stop.	<ul style="list-style-type: none"> Follow onscreen instructions for clamping and disconnecting all lines: Clamp and disconnect red access and blue return lines from patient. Clamp all fluid/effluent lines to the bags. Press <i>Retest</i> button to resume set unloading. 	Not applicable.
T1629	Patient Lines Test in Progress	Lines not clamped when set unloading is requested.	All pumps stop.	Follow onscreen instructions for clamping and disconnecting all lines: Clamp and disconnect red access and blue return lines from patient. Clamp all fluid/effluent lines to the bags. Press <i>Retest</i> button to resume set unloading.	Not applicable.
T1630	Return Barrier May Be Wet	Return barrier may be wet.	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> If fluid barrier is wet with water or blood, press <i>Discard Set</i> button and change set. Tap the <i>Open Clamp</i> button to equalize the pressure in the circuit set. Press the <i>Continue</i> button to retest fluid barrier. 	Perform "Pressure Sensors SST," page 84
T1631	Pod Repositioning Interrupted	Check for clamped effluent line.	The blood pump continues to run and solution pumps stop.	Press the <i>Continue</i> button to retest pressure. Press the <i>Discard Set</i> button and change set.	Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 169 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1632	Pod Repositioning Interrupted	Clamped access lines.	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Check for clamped access lines. Press the Continue button to retest pressure. Press the Discard Set button and change set. 	Perform “Pressure Sensors SST,” page 84
T1633	Pod Repositioning Interrupted	Check for clamped access and return lines.	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Press Continue button to retest pressure. Press Discard Set button and change set. 	Perform “Pressure Sensors SST,” page 84
T1649 T1650 T1651 T1652	PBP Bag Overweight Replacement Bag Overweight Dialysate Bag Overweight Replacement 2 Bag Overweight	The measured bag weight is at its maximum. Incorrect bag. Filter set unloaded before clamping fluid lines. Foreign object on scale.	The blood pump continues to run and solution pumps stop.	<ul style="list-style-type: none"> Follow onscreen instructions to change bag. Remove foreign object from scale. 	Perform “Scales SST,” page 85.
T1654	ABD Fluid Detected	ABD detects fluid during setup for new patient. Set is intentionally wet for demonstration purposes. Set is wet or has debris in the ABD sensor.	All pumps stop.	If the set is intentionally wet, press the Continue button. If the set is unintentionally wet, press the Discard Set button and change the set. Remove any debris that may be blocking the ABD, then press the Continue button.	Perform the “Air Bubble Detector SST,” page 90.
T1656	Return Extremely Negative	<ul style="list-style-type: none"> Return pressure out of range Low blood flow 	All pumps stop and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Verify that priming bag is not empty. Verify that lines are not clamped. Tap Continue to clear alarm. 	Perform “Pressure Sensors SST,” page 84
T1658	TPE Prime Solution Empty	Priming bag is empty.		<ul style="list-style-type: none"> Change priming bag. Tap the Continue button to clear the alarm and return to normal operations. 	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 170 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1659	Return Clamp Not Closed	<ul style="list-style-type: none"> Return clamp fails to close. Debris blocking return clamp 	All pumps stop, the return clamp closes, and blood does not circulate through the flow path.	<ul style="list-style-type: none"> Follow onscreen instructions to clamp the patient, and verify that the blue line is correctly installed in the return clamp. When Continue button is active, unclamp the patient connections and press Continue. 	Perform "Return Clamp SST," page 91.
T1660	Prescription Changes Timeout	Changes to the prescription have been entered but not accepted or cancelled within 5 min.	All pumps continue to run.	Press the <i>Continue</i> button, and re-enter prescription changes if needed.	Not applicable.
T1701	Calibrate Syringe	Syringe pump calibration required.	Information. Syringe stops.	Remove the syringe if present. Remove any obstructions. Clean the syringe arm/front panel. Recalibrate the syringe. Press the <i>Continue</i> button to retest	Perform the Syringe Pump Calibration.
T1703	Syringe Arm Interrupted	<ul style="list-style-type: none"> Syringe arm obstructed during new patient test. Syringe installed before test. Obstruction. Syringe arm/front panel is dirty. 	Information. Syringe stops.	Remove the syringe if present. Remove any obstructions. Clean the syringe arm/front panel. Recalibrate the syringe. Press the <i>Continue</i> button to retest	Perform the "Syringe Pump SST," page 93.
T1704	Syringe Force Sticky				
T1705	Effluent Bag Full	Effluent Bag is Full		Empty effluent bag. Tap the <i>Continue</i> button to clear the alarm and return to normal operations.	
T1711	Treatment Stopped	<ul style="list-style-type: none"> No fluid transfer for over 10 minutes. <i>Stop</i> button pressed. Unresolved alarm condition. Open scale handle. 	Pumps remain stopped during alarm.	Press the <i>Continue</i> button to resume operation.	Not applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 171 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1712	Return Line in Clamp	<ul style="list-style-type: none"> New patient selected and tubing line installed in a component. Tubing line remains in component from a previous treatment. Accidental new patient selection. 	<ul style="list-style-type: none"> Information. Alarm occurs if a line present switch detects a line installed in a component. T1712: Return clamp. T1723: ABD T1724: BLD. T1725: Discharger. T1726: Chamber. 	Remove tubing lines from components.	<ul style="list-style-type: none"> T1712: Perform "Return Clamp SST," page 91.
T1713 T1714	Bag Not filling Bag Not filling Return Line Misconnected	Effluent bag is not filling during prime. Clamped lines. Bag partially supported. Return line not connected.	Information. All pumps stop. Alarm occurs if the effluent bag weight change is less than expected during fluid priming.	Check for clamped lines. Check for bags touching or supported. Check that return line is connected. Press the Continue button.	Perform "Scales SST," page 85.
T1716 T1721	<ul style="list-style-type: none"> Effluent Drain Weight Increase Effluent Bag Weight Change 	<ul style="list-style-type: none"> Unexpected weight increase detected on the scale. Bag in motion. Bag contact with foreign object. Scale contact with foreign object. 	A color-coded symbol identifies the solution. Pumps remain stopped during alarm.	<ul style="list-style-type: none"> Check scale for obstructions or the bag moving. Press the Continue button to resume operation. 	Perform "Scales SST," page 85.
T1717 T1718 T1719 T1720	<ul style="list-style-type: none"> Rep Weight Increase Rep2 Weight Increase Dia Weight Increase PBP Weight Increase 	<ul style="list-style-type: none"> Unexpected weight increase detected on the scale. Bag in motion. Bag contact with foreign object. Scale contact with foreign object. 	A color-coded symbol identifies the solution. Pumps remain stopped during alarm.	<ul style="list-style-type: none"> Check scale for obstructions or the bag moving Press the Continue button to resume operation. 	Perform "Scales SST," page 85.
T1722	Defaults Not Set	Installation is incomplete. A default setting is missing.	Information. System continues to run.	Use the System Configuration function to enter the missing default settings.	Not applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 172 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1723	Line in Component	<ul style="list-style-type: none"> • New patient selected and tubing line installed in a component. • Tubing line remains in component from a previous treatment. • Accidental new patient selection. 	<ul style="list-style-type: none"> • Information. Alarm occurs if a line present switch detects a line installed in a component. • T1712: Return clamp. • T1723: ABD • T1724: BLD. • T1725: Discharger. • T1726: Chamber. 	Remove tubing lines from components.	<ul style="list-style-type: none"> • T1723: Perform “Air Bubble Detector SST,” page 90. • T1724: Perform “Blood Leak Detector SST,” page 94. • T1725: Perform Discharger SST. • T1726: Perform the Liquid Level Sensor SST.
T1724					
T1725					
T1726					
T1772	Rep2 Line Clamped	Set line kinked or clamped. Incorrect tubing line connection. Bags touching or partially supported. Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform “Scales SST,” page 85. Prime a set to test pump rotor occlusivity.
T1773	PBP Line Attached to Rep2	Set line connected to wrong bag. Incorrect tubing line connection. Bags touching or partially supported. Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform “Scales SST,” page 85.
T1774	Rep2 Line Attached to PBP	Set line connected to wrong bag. Incorrect tubing line connection. Bags touching or partially supported. Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform “Scales SST,” page 85.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
TITLE: PrisMax Service Manual			PAGE 173 OF 236

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1775	Rep2 Attached to Rep Bag	Set line connected to wrong bag. Incorrect tubing line connection. Bags touching or partially supported. Scale disturbance.	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform "Scales SST," page 85.
T1776	Rep2 Line Not Connected	<ul style="list-style-type: none"> • Set line unconnected. • Incorrect tubing line connection. • Bags touching or partially supported. • Scale disturbance. 	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform "Scales SST," page 85.
T1777	Rep Line Attached to Rep2	<ul style="list-style-type: none"> • Set line connected to wrong bag. • Incorrect tubing line connection. • Bags touching or partially supported. • Scale disturbance. 	Information. Alarm occurs if the system detects a weight change on an incorrect scale.	Verify that lines and bags are properly connected. If not, clamp lines, ensure that all connections are correct, then unclamp lines. Discard set if damaged. Press the <i>Continue</i> button to restart prime.	Perform the Motors SST. Perform "Scales SST," page 85.
T1778	Rep2 Scale Weight Error	See T1347.			
T1783	Wrong Set Detected	<ul style="list-style-type: none"> • Incorrect set selected. • Return line not in clamp. 	Information. The system performs the set recognition test before priming. The test closes the return clamp, runs the dialysate pump to measure the change in return and filter pressures.	<ul style="list-style-type: none"> • Change the set. • Place the return line in the return clamp. • Tap the <i>Continue</i> button to clear the alarm and return to normal operations. • Tap the <i>Discard Set</i> button and change the set. 	<ul style="list-style-type: none"> • Perform "Pressure Sensors SST," page 84 • Prime a set to test pump rotor occlusivity.
T1816	Return Barrier May Be Wet	Return chamber monitor line may be wet.	All pumps stop, the return line clamp closes, and blood does not circulate through the flow path.	If fluid barrier is wet, press <i>Discard Set</i> button and change set. Press the <i>Continue</i> button to retest the fluid barrier.	Perform the ARPS SST. Perform "Pressure Sensors SST," page 84

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 174 OF 236

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T1833	Battery Not Present	<ul style="list-style-type: none"> System temperature too high. Blown battery fuse. 	System continues to run. In case of high system temperature, a <i>Battery Temperature</i> (T1055) alarm also occurs.	<ul style="list-style-type: none"> For high system temperature, reduce the ambient temperature and ensure that the fan vent at the bottom of the control unit is not obstructed. For a blown fuse, contact service. 	Replace battery fuse. Power board SST.
T2071	Connectivity Test	This is a test alarm for testing the remote alarm system.	Information. Press the <i>Continue</i> button to clear the alarm.	Use this to test the remote alarm system before starting therapy.	Not applicable.
T2119	AE Max Set Life Reached	See T1262.			
T2124	Unsuitable Calcium Solution	Calcium solution concentration is out of range for patient weight. Incorrect calcium concentration solution selected.	Information. Press the <i>Continue</i> button to clear the alarm.	Confirm that prescription is appropriate for the patient weight. Select an alternative solution.	Not applicable.
T2125	Bag on Wrong Scale	Unexpected weight on AE scale. Effluent bag is on the wrong scale. Object is hanging on the AE scale.	Information. Press the <i>Continue</i> button: alarm clears when the effluent scales detect the correct weight change.	Confirm that nothing is hanging on or touching the AE scale.	Perform "Scales SST," page 85.
T2131 T2132	Line Misconnected	<ul style="list-style-type: none"> Line is not connected correctly during prime. Effluent line is connected to the used AE accessory. Effluent line is connected to the new 5-L effluent bag. Return line is connected to the priming bag. Return line is connected to the AE effluent bag. 	Information. Press the <i>Continue</i> button: alarm clears when the effluent scales detect the correct weight change. Note: Follow hospital protocol if connecting the return line to the used AE accessory compromises sterility.	Connect the effluent line to the priming bag. Connect the return line to the new effluent bag.	Perform "Scales SST," page 85.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 175 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2160 T2161	Flow Problem Flow Problem	<ul style="list-style-type: none"> • 5L AE bag not draining. • Kinked or clamped line. • Debris in the AE bags. 	The blood pump continues to run and solution pumps stop.	Clear any line obstructions and press the <i>Continue</i> button. Press the <i>Discard Set</i> button if the problem continues.	Perform “Scales SST,” page 85. Perform the Motors SST.
T2202	Flow Problem	<ul style="list-style-type: none"> • Estimated solution flow rate is less than half the expected value. • Kinked or clamped lines • Disconnected or leaking connections • Line connected to incorrect bag • Line touching other object • Leaking bag • Bag hanging on incorrect scale 	Alarm detection delayed for up to 40 seconds.	<ul style="list-style-type: none"> • Correct kinked or clamped lines. • Verify line connections. • Remove any object touching the bag. • Check the bag for leaks. • Verify that bag is hanging on correct scale. • Tap Continue button to resume operation. 	•
T2217	Effluent Bag Incorrect	5-L effluent bag in use when 9-L bag size is selected.	System continues to run.	Correct effluent bag size setting or hang correct effluent bag size.	Not applicable.
T2224	Bag Not Filling	<ul style="list-style-type: none"> • Priming solution is empty. • Return line not connected to effluent bag. • Clamped or kinked return line 		<ul style="list-style-type: none"> • Check priming solution. • Connect return line to effluent bag. • Check for clamped or kinked lines. • Tap the Continue button to clear the alarm and return to normal operations. 	
T2228	Anticoagulation Suspended	<ul style="list-style-type: none"> • Anticoagulation not performed for over 6 minutes • Existing alarms. • Bag change in progress. 	Pumps continue to run.	<ul style="list-style-type: none"> • Dock alarm and clear existing syringe alarms. • Dock alarm and complete bag change. • Press Continue button when it becomes active. 	Not applicable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 176 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2238	Blood Flow Rate Too Low	•	Disables TherMax heating	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	
T2240	Return Low Operating Point	The return operating point is low. Disconnected patient catheter. Disconnected return line. Disconnected chamber monitor line. Clamped fluid line.	Pumps continue to run.	Check that the patient catheter, return line, and chamber monitor line are properly connected. Correct kinked or clamped lines. Press the <i>Alarm Off</i> button to decrease the return disconnect limit. Consider increasing blood flow rate (BFR).	Perform t“Pressure Sensors SST,” page 84. Enter Prime to perform pump rotor occlusion tests.
T2243	Auto-Effluent Bags Nearly Full	Effluent bag filled during Prime, no capacity remaining.	System continues to run.	Press <i>Run Drain</i> button to drain enough fluid to allow another 30 seconds of manual/blood prime operation.	Not applicable.
T2244	Effluent Bag Full	• Effluent bag weight exceeds the maximum. • Effluent bag is full. • Incorrect effluent bag size setting. • Foreign object on scale.	System continues to run.	Change effluent bag.	Not applicable.
T2254	TherMax Malfunction	Disconnected cable between TherMax and PrisMax	Only occurs when TherMax blood warmer is used.	• Confirm the serial cable is connected between systems. • Press Discard Set button and change the set.	Perform “TherMax SST,” page 92
T2255	PrisMax - TherMax Communication Lost	Disconnected cable between TherMax and PrisMax		Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	Ensure cable is connected.
T2259	Call Service	TherMax not properly installed.	Only occurs when TherMax blood warmer is used.	• Press the Discard Set button and change the set. • Check TherMax configuration.	Perform “TherMax SST,” page 92

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 177 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2260	PBP Excessive Weight Error	<ul style="list-style-type: none"> Bad bag connection Clamped or obstructed line 		<ul style="list-style-type: none"> Check bag connection. Check lines for obstructions. Tap Discard Set button and change the set. 	
T2261, T2262	Priming bag is empty	<ul style="list-style-type: none"> 		<ul style="list-style-type: none"> Change priming bag. Tap the Continue button to clear the alarm and return to normal operations. 	
T2263	Effluent Bag Full	Effluent Bag Full		<ul style="list-style-type: none"> Empty effluent bag. Tap the Continue button to clear the alarm and return to normal operations. 	
T2274	TherMax In Transport Position	Warmer arm is in the transportation position.	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Adjust the warmer to the operating position. Press Discard Set button and change the set. 	Perform "TherMax SST," page 92
T2275	TherMax Cover Open	<ul style="list-style-type: none"> TherMax is open in the cleaning position Top cover latches are not fully closed 	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Lower the upper portion of the warmer and confirm that the latches are engaged. Tap the Discard Set button and change the set. 	Perform "TherMax SST," page 92
T2280	Return Line Disconnected in Prime	<ul style="list-style-type: none"> Priming solution is empty Return line not connected to effluent bag Clamped or kinked return line 		<ul style="list-style-type: none"> Check priming solution. Connect return line to effluent bag. Check for clamped or kinked lines. Tap the Continue button to clear the alarm and return to normal operations. 	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 178 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2281	TherMax Bag Not Connected to Set	• Warmer disposable not detected during prime		<ul style="list-style-type: none"> Cancel prime and load the warmer disposable. Confirm that the warmer disposable is pushed in all the way. Tap the Continue button to retry the disposable connected test. Tap the Reprime button to start priming all over again. 	
T2282	TherMax Inlet Temperature Too High	<ul style="list-style-type: none"> Kinked disposable inlet or outlet lines Replacement solution is not at ambient temperature. 		<ul style="list-style-type: none"> Confirm lines are not obstructed. Do not use warmed solutions. Tap the Continue button to clear the alarm and return to normal operations 	
T2283	Blood Flow Rate Too Low For TherMax	Low BFR		<ul style="list-style-type: none"> Increase BFR. 	
T2284	TherMax Disposable Not Inserted	Warmer disposable not detected during therapy	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Confirm that the warmer disposable is pushed in all the way. Tap the Discard Set button and change the set. Discontinue therapy if this can not be resolved. 	Perform "TherMax SST," page 92
T2285	TherMax Disposable Leak	Leak from the blood warmer disposable	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Press Discard Set and change the set. Discontinue therapy and follow hospital protocol. 	Perform "TherMax SST," page 92
T2286	Replacement Excessive Weight Error	Bad bag connection Clamped or obstructed line		<ul style="list-style-type: none"> Check bag connection. Check lines for obstructions. Tap Discard Set button and change the set. 	*

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 179 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2287	Effluent Excessive Weight Error	<ul style="list-style-type: none"> Bad bag connection Clamped or obstructed line 		<ul style="list-style-type: none"> Check bag connection. Check lines for obstructions. Tap Discard Set button and change the set. 	•
T2288	TherMax Power Switch Off	Disables TherMax heating	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Override will be automatically cleared when TherMax powered on and heating enabled. • 	Perform "TherMax SST," page 92
T2289	Blood Flow Rate Too Low For TherMax	Clamped or kinked inlet or outlet tubing on warmer disposable	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	<ul style="list-style-type: none"> Confirm that the inlet and outlet tubing on the warmer disposable is unobstructed. Tap Change Flow to view the change prescription screen and modify a flow rate to try to mitigate the alarm detection. 	
T2290	Return Blood Temperature Low	<ul style="list-style-type: none"> Warmer at heating limits as plate temperature is at maximum. Plate temperature is at maximum limits 	Disables TherMax heating.	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	Perform "TherMax SST," page 92.
T2291	Return Blood Temperature Low	Incompatible Prescription	Disables TherMax heating Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	<ul style="list-style-type: none"> Decrease the return temperature. Decrease BFR. Decrease the post replacement flow rate. 	Perform "TherMax SST," page 92.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 180 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2292	TherMax Malfunction	Clamped or kinked tubing		<ul style="list-style-type: none"> Confirm tubing on the return line including the warmer disposable is unobstructed. Tap the Continue button to clear the alarm and return to normal operations. Tap the Discard Set button and change the set. 	
T2293	TherMax Leak Detector Error	Disables TherMax heating	Only occurs when TherMax blood warmer is used.	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	Perform "TherMax SST," page 92.
T2295	TherMax Malfunction	Disconnected cable between TherMax and PrisMax	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Confirm the serial cable is connected between systems. Press Discard Set button and change the set. 	Perform "TherMax SST," page 92
T2296	TherMax Disposable Not Locked	One or both TherMax leak detectors failed their self-test.	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Tap the Discard Set button and change the set. 	<ul style="list-style-type: none"> Perform "TherMax SST," page 92.
T2297	TherMax Detecting High Voltage	Disables TherMax heating	Only occurs when TherMax blood warmer is used.	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	Perform "TherMax SST," page 92
T2298	TherMax Malfunction		Disables TherMax heating	Discontinue Therapy	Perform "TherMax SST," page 92.
T2300	TherMax Bag Not Inflated	Leak from warmer disposable	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Confirm connection. Discontinue setup and use a new warmer disposable if alarm persists. Tap the Continue button to clear the alarm and return to normal operations. 	Perform "TherMax SST," page 92.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 181 OF 236

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2302	TherMax Not Level	TherMax arm not positioned properly	Only occurs when TherMax blood warmer is used.	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	Level TherMax arm.
T2303	TherMax Fluid Present	Fluid has been detected in the TherMax device.	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Press Discard Set button and change the set. 	Perform "TherMax SST," page 92.
T2304	TherMax Not Level	TherMax is not sufficiently level for proper operations.	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Press Discard Set button and change the set. 	Level TherMax arm.
T2307	TherMax cover open	<ul style="list-style-type: none"> TherMax is open in the cleaning position. Top cover latches are not fully closed 	Only occurs when TherMax blood warmer is used.	<ul style="list-style-type: none"> Close TherMax cover latches. If unable to close, discontinue therapy. Press Discard Set button and change the set. 	Perform "TherMax SST," page 92.
T2308	TMPa Pressure Rising	<ul style="list-style-type: none"> Clotted filter Kinked lines 		<ul style="list-style-type: none"> Change filter set. Unkink lines. Increase anticoagulation. Decrease BFR. Tap the Continue button to clear the alarm and return to normal operations. 	
T2310	Air Detected Flush	<ul style="list-style-type: none"> Empty priming bag Open tubing connection 		<ul style="list-style-type: none"> Check priming bag. Check line connections. Flush or reprime the set. If air continues discard set. 	
T2309	Air Detected in Prime	<ul style="list-style-type: none"> Empty priming bag Open tubing connection 		<ul style="list-style-type: none"> Check priming bag. Check line connections. Reprime or discard the set. If air continues discard set. 	
T2314	Ambient Temperature Sensor Failure	<ul style="list-style-type: none"> 	Disables TherMax heating	Override will be automatically cleared and heating will continue if the alarm condition is no longer present.	

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 182 OF 236			

Table 6-3 Alarms (continued)

Code	Alarm	Possible causes	Additional information	Corrective actions	Service actions
T2315	Foam Detected in the LSS	• Foam detected in the deaeration chamber		Tap the Discard Set button and change the set. Tap the Override button to disable automatic liquid leveling.	
T2322	LLS Self-Test Failed	• Malfunction of the sensors for the deaeration chamber level.		Tap the Override button to disable automatic liquid leveling.	
T2325	TPE Treatment Completed	• Target exchange volume has been achieved.		Change the exchange volume and tap Continue to extend treatment. Tap the Discard Set button and change the set.	

6.1.3 Malfunction Alarms

Malfunction alarms indicate that a system component has failed.

- Certain component failures (retest alarms) allow retesting that can correct the alarm (section 10.2.3.2).
- Other component failures (Call Service alarms) can only be corrected by a service technician (section 10.2.4).

Operator Response

You can correct some retest alarms, while Call Service alarms require service by an authorized service technician. The alarm screen gives instructions for responding to the malfunction alarm. When the alarm is corrected:

- The malfunction alarm screen closes.
 - The status light turns green (non-flashing).
 - The blood pump restarts and return line clamp opens. The other pumps restart several seconds later.
- If you cannot correct a malfunction alarm:

1. Check the patient and clamp the return line.
2. End the treatment with or without returning blood (the Maintenance section describes how to manually terminate a treatment).
3. Turn off the control unit.
4. Restart the control unit. If the alarm recurs, contact an authorized service technician and report the alarm code before using the control unit again.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 183 OF 236			

Retest Alarms

Table 6-4 Retest Alarms

Code	Malfunction alarm (retest alarm)	Possible causes	Additional information	Corrective actions	Service actions
T1205	BLD Self-Test Failure	Check BLD. Air in the effluent line. Effluent line incorrectly installed in the BLD.	Medium-priority alarm. All pumps stop. Periodic self-test of the BLD failed (change in current does not result in expected output voltage). Alarm clears when self-test passes or set is unloaded.	Verify that there are no air bubbles in the effluent line. Verify that effluent line is correctly installed in the BLD. If air is present in the entire return line, change the set. Press the <i>Continue</i> button to retry pinch valve position.	Perform the Blood Leak Detector SST.
T1603	Replacement Pinch Valve	Lower pinch valve does not operate correctly during prime. Check pinch valve for obstructions.	Information. Illustration shows the applicable pinch valve.	Remove any obstructions and press the <i>Continue</i> button to retry pinch valve position. Press the <i>Discard Set</i> button and change the set.	Perform the Pinch Valves SST.
T1604	Dialysate Pinch Valve	Upper pinch valve does not operate correctly during prime. Check pinch valve for obstructions.	Information. Illustration shows the applicable pinch valve.	Remove any obstructions and press the <i>Continue</i> button to retry pinch valve position. Press the <i>Discard Set</i> button and change the set.	Perform the Pinch Valves SST.
T1605	AE Bag Fill Pinch Valve	Left AE pinch valve does not operate correctly during prime. Check pinch valve for obstructions.	Information. Illustration shows the applicable pinch valve.	Remove any obstructions and press the <i>Continue</i> button to retry pinch valve position. Press the <i>Discard Set</i> button and change the set.	Perform the Pinch Valves SST.
T1606	AE Bag Drain Pinch Valve	Right AE pinch valve does not operate correctly during prime. Check pinch valve for obstructions.	Information. Illustration shows the applicable pinch valve.	Remove any obstructions and press the <i>Continue</i> button to retry pinch valve position. Press the <i>Discard Set</i> button and change the set.	Perform the Pinch Valves SST.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 184 OF 236

6.1.4 Call Service Alarms

Call Service alarms (Figure 6-3) occur if patient safety cannot be monitored due to a failure of the system; for example, failure during self-test, software error, or hardware failure. During a Call Service alarm:

- The system enters a “safe state” by stopping all pumps and closing the return line clamp. Treatment is suspended, and blood does not circulate through the flow path.
- The status light flashes red.
- The audible alarm sounds (5 sound pulses repeated with a 10-second pause until muted).

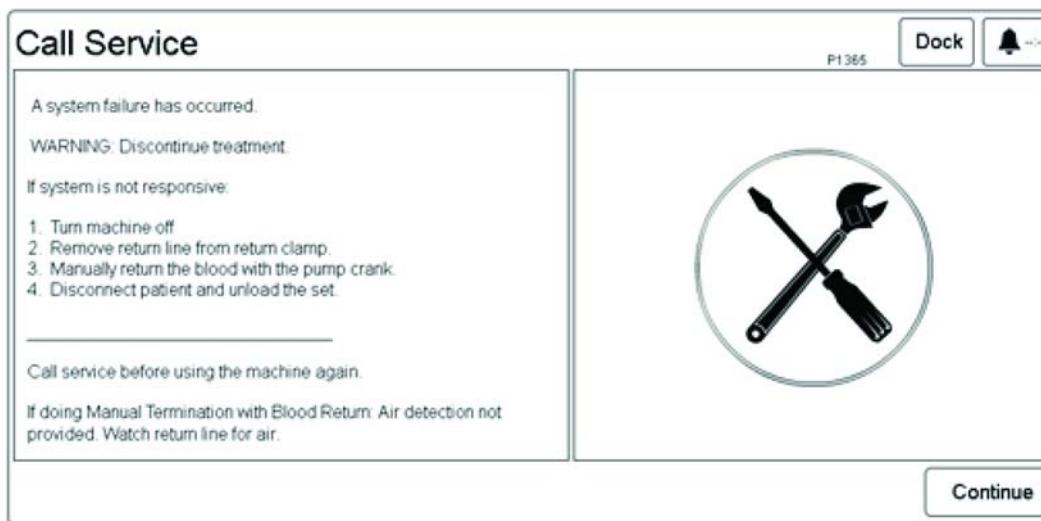


Figure 6-3 Call Service Alarm



THERE IS NO AIR DETECTION DURING MANUAL BLOOD RETURN. OBSERVE THE RETURN LINE FOR AIR UNTIL THE PATIENT IS DISCONNECTED. STOP THE MANUAL BLOOD RETURN IF AIR IS VISIBLE.

NOTE: When blood has been returned, treatment cannot resume until a new set is loaded.

6.1.5 Override Alarms

Some alarms include onscreen instructions to press the **Alarm Off** or **Continue** button to override the alarm. During the override period:

- The alarm screen closes.
- The status light turns yellow (non-flashing).
- The override symbol appears at the top of the screen.
- The blood pump restarts and return line clamp opens. The other pumps restart several seconds later.

When the override period is complete, the alarm either clears or recurs. This table summarizes override alarm conditions:

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 185 OF 236

Table 6-5 Override Alarms

Code	Override alarm	Override action	Override clear
T0596	<i>Battery Low</i> override	Disables alarm detection.	Clears if the AC power is restored for 2 seconds.
T0597	<i>Battery Depleted</i> override	Disables alarm detection.	Clears if the AC power is restored for 2 seconds.
T0598	<i>Loss of AC Power</i> override	Disables alarm detection.	Clears if the AC power is restored for 2 seconds.
T0602	<i>Fluid in Drip Tray</i> override	Disables alarm.	Clears when both drip tray sensors indicate dry for 60 seconds.
T0786	<i>Membrane Pressure Rising</i> override	Clears and disables alarm for 2 minutes.	In CRRT, the override clears if both conditions are true for 2 minutes: The change in ΔP is less than the maximum set-defined value. The change in the TMP is less than the maximum set-defined value.
T0830	<i>Blood Leak Detected</i> override	Disables BLD for 60 seconds.	Clears after 60 seconds.
T0844	<i>Wrong Effluent Bag Size</i> override	Clear and disables the overweight effluent bag alarm.	Does not clear.
T1042	<i>No Line in BLD</i> override	Disables BLD for 60 seconds.	Clears after 60 seconds.
T1054	<i>Battery Temperature Problem</i> override	Disables alarm detection.	Clears when temperature is detected to be within normal range.
T1055	<i>Battery Temperature Problem</i> override	Disables alarm detection.	Clears when temperature is detected to be within normal range.
T1145	<i>Check Access</i> override	System sets access pressure operating point to current access pressure.	Clears if access operating point is set to a value ≤ -15 mmHg, or $\geq +25$ mmHg.
T1162	<i>Return Low Operating Point</i> override	System sets return pressure between -20 and 10 mmHg.	Override clears when return pressure is greater than 20 mmHg for 2 seconds.
T1199	<i>Battery Not Charging</i> override	Disables alarm detection.	Clears if the AC power is restored for 2 seconds.
T1262	<i>CRRT Max Set Life Reached</i> override	Clears and disables set life alarm.	Does not clear.
T1279	<i>Chamber Level Low</i> override	Disables automatic leveling of the fluid level in the deaeration chamber.	Clears when override menu is cleared.
T1298	<i>Syringe Not Detected</i> override	Clears and disables detection of the syringe force low alarms.	Clears when a bolus is delivered and the average force over the bolus is > 0.6 N.
T1306	<i>Calcium Syringe Not Detected</i> override	Clears and disables detection of the syringe force low alarms.	Clears when a bolus is delivered and the average force over the bolus is > 0.6 N.
T1361	<i>Preventive Maintenance Past Due</i> override	Clears and disables alarm.	Discontinue therapy. Clears when preventive maintenance is performed.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 186 OF 236			

Table 6-5 Override Alarms (continued)

Code	Override alarm	Override action	Override clear
T1591	<i>Chamber Level High</i> override	Disables automatic leveling of the fluid level in the deaeration chamber.	Clears when override menu is cleared.
T1625	<i>Clamped Lines Test Failed</i> override	Clears and disables alarm.	Clears when a new treatment starts.
T2119	<i>Auto Effluent Max Set Life Reached</i> override	Clears and disables set life alarm.	Does not clear.
T2240	<i>Return Low Operating Point</i> override	System sets return pressure between -20 and 10 mmHg.	Override clears when return pressure is > 20 mmHg for 2 seconds.
	<i>Alarm Sound Verification</i> override	Clears and disables alarm.	Clears when sound level is increased to default values.

6.2 Events Log

During normal system operation, the system records in the events log. Events include but are not limited to:

• Changed patient information	• Operation mode (Setup/Prime/Therapy/End/Recirculation)
• Barcode scanned	• Bag change
• Flow rates changed	• Periodic self-test
• Anticoagulation initialized/stopped/changed	• Date and time change
• Set loaded/unloaded	• Language change
• Syringe installed/removed/changed	• POST and BIOT failures
• Syringe bolus	• Prescription change

To view the events log, press the **History** button from the toolbar, then select **Events**. The screen shows events in order of most recent. Symbols indicate each event type (setting, alarm, etc.). At the upper right corner of the Events screen, you can choose to show all events or specific event categories (settings, alarms, overrides, messages, or technical).

6.3 POST Failure Codes

At startup, the Power On Self Test (POST):

- Verifies hardware and software configuration, connections to all areas of system memory.
- Checks analog and digital inputs.
- Performs a safety system integrity check.
- Confirms that all POST operations are performed.

The system logs all POST results, including any component fault data for use in diagnostics. If possible, the control unit displays the POST failure code if the system detects a fault during the power on sequence.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 187 OF 236			

If the POST fails:

- The system exits the POST.
- The safety processor (SP) brings the system to a safe state and sounds the backup speaker.
- No further testing is performed because each test depends on previously-tested hardware.
- The system can only operate in Service mode. It cannot enter Therapy mode until the problem is resolved, power is cycled, and the system passes POST.
- See Table 6-6 for a list of POST failure codes.

NOTE: Only the first POST code is displayed when there are multiple POST failures. The first POST failure must be resolved before other codes are visible.

NOTE: Follow each service action in order and cycle power to the control unit after each step to verify if the problem is resolved.

NOTE: Before replacing a component, try removing and reinserting the component to verify that the component is properly connected. Disconnect and reconnect any associated cables.

NOTE: After resolving a POST failure code, cycle power to the control unit. If the same POST code recurs, press and hold the green On/Standy switch for at least 10 seconds to reset the control unit.

Table 6-6 POST Failure Code List

POST code	Name/description	Service actions
P1363	<i>Call Service</i> Incorrect CP software version.	Use external USB to update software. Replace SD card.
P1364	<i>Call Service</i> Kernel RAM address test failure.	Use external USB to update software. Replace SD card. Replace SOM board.
P1365	<i>Call Service</i> Extracted kernel binary CRC check failure.	Use external USB to update software. Replace SD card. Replace SOM board.
P1366	<i>Call Service</i> Still on battery power after total loss of power.	Verify that system is connected to AC power. Verify that external power cable is connected to power entry module. Verify that the power cable is connected to power entry module. Verify that the power supply input cable is connected properly. Replace external power cable. Replace power supply. Replace power board. Replace power supply input cable. Replace power cable.
P1368	<i>Call Service</i> Part number comparison failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Replace SOM board. Replace main board.
P1369	<i>Call Service</i> GPMC to power board bus test failure.	Program power board CP delegate in Service mode. Replace power board. Replace SOM board. Replace main board. Replace backplane board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 188 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1370	<i>Call Service</i> GPMC to main board bus test failure.	Program main board CP delegate in Service mode. Replace main board. Replace SOM board. Replace backplane board.
P1371	<i>Call Service</i> GPMC to safety board bus test failure.	Program safety board CP delegate in Service mode. Replace safety board. Replace SOM board. Replace main board. Replace backplane board.
P1372	<i>Call Service</i> GPMC to driver board bus test failure.	Program driver board CP delegate in Service mode. Replace driver board. Replace SOM board. Replace main board. Replace backplane board.
P1375	<i>Call Service</i> Power board FPGA communication failure.	Program power board CP delegate in Service mode. Replace power board. Replace SOM board. Replace main board. Replace backplane board.
P1376	<i>Call Service</i> Main board FPGA communication failure.	Program main board CP delegate in Service mode. Replace main board. Replace SOM board. Replace backplane board.
P1377	<i>Call Service</i> Safety board FPGA communication failure.	Program safety board CP delegate in Service mode. Replace safety board. Replace SOM board. Replace main board. Replace backplane board.
P1378	<i>Call Service</i> Driver board FPGA communication failure.	Program driver board CP delegate in Service mode. Replace driver board. Replace SOM board. Replace main board. Replace backplane board.
P1381	<i>Call Service</i> Safety system FPGA communication failure.	Program safety board SP delegate in Service mode. Program safety board SP host in Service mode. Replace safety board.
P1382	<i>Call Service</i> Power board hardware revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program power board CP delegate in Service mode. Replace power board.
P1383	<i>Call Service</i> Main board hardware revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program main board CP delegate in Service mode. Replace main board.
P1384	<i>Call Service</i> Safety board hardware revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program safety board CP delegate in Service mode. Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 189 OF 236			

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1385	<i>Call Service</i> Driver board hardware revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program driver board CP delegate in Service mode. Replace driver board.
P1388	<i>Call Service</i> Power board software revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program power board CP delegate in Service mode. Replace power board.
P1389	<i>Call Service</i> Main board software revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program main board CP delegate in Service mode. Replace main board.
P1390	<i>Call Service</i> Safety board software revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program safety board CP delegate in Service mode. Replace safety board.
P1391	<i>Call Service</i> Driver board software revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Program driver board CP delegate in Service mode. Replace driver board.
P1394	<i>Call Service</i> FPGA software CRC failure.	Program all FPGAs in Service mode: Power board CP delegate. Main board CP delegate. Safety board CP delegate. Driver board CP delegate. Safety board SP delegate. Replace backplane board. Replace primary boards one at a time: Power board. Main board. Safety board. Driver board.
P1405	<i>Call Service</i> Return clamp current out of range.	Replace return clamp. Replace power board. Replace power board return clamp cable.
P1406	<i>Call Service</i> Power board ADC refresh failure.	Replace power board.
P1407	<i>Call Service</i> Return clamp not closed.	Verify that nothing in the return clamp prevents closing (solid matter in return line can prevent closing). Replace return clamp. Replace power board. Replace power board return clamp cable.
P1435	<i>Call Service</i> Safety board ADC refresh failure.	Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 190 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1437	<i>Call Service</i> PV1 (dialysate pinch valve current out of range).	Replace PV1. Replace driver board. Replace driver board cable.
P1438	<i>Call Service</i> PV2 (replacement pinch valve current out of range).	Replace PV2. Replace driver board. Replace driver board cable.
P1439	<i>Call Service</i> PV3 (effluent pinch valve) current out of range.	Replace PV3. Replace driver board. Replace driver board cable.
P1440	<i>Call Service</i> PV4 (AE pinch valve) current out of range.	Replace PV4. Replace driver board. Replace driver board cable.
P1444	<i>Call Service</i> Driver board ADC refresh failure.	Replace driver board.
P1445	<i>Call Service</i> SP serial communications failure.	Program safety board SP host in Service mode. Replace safety board. Replace SOM board. Replace main board. Replace backplane board.
P1446	<i>Call Service</i> Invalid SP communications.	Program safety board SP host in Service mode. Replace safety board. Replace SOM board. Replace main board. Replace backplane board.
P1447	<i>Call Service</i> Incorrect SP software version.	Program safety board SP host in Service mode. Replace safety board. Replace SOM board. Replace main board. Replace backplane board.
P1452	<i>Call Service</i> SP CRC failure.	Program safety board SP host in Service mode. Replace safety board.
P1453	<i>Call Service</i> SP POST failure.	Program safety board SP host in Service mode. Program safety board SP delegate in Service mode. Replace safety board.
P1458	<i>Call Service</i> PSC serial communications failure.	Program power board PSC in Service mode. Replace power board. Replace SOM board. Replace main board. Replace backplane board.
P1459	<i>Call Service</i> Invalid PSC communications.	Program power board PSC in Service mode. Replace power board. Replace SOM board. Replace main board. Replace backplane board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 191 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1460	<i>Call Service</i> In the process of a software update and the monitor was not restarted in service mode. Invalid PSC software version.	Restart in service mode, continue SW update. Program power board PSC in Service mode. Replace power board. Replace SOM board. Replace main board. Replace backplane board.
P1462	<i>Call Service</i> PSC CRC failure.	Program power board PSC in Service mode. Replace power board.
P1463	<i>Call Service</i> PSC POST failure.	Program power board PSC in Service mode. Replace power board.
P1484	<i>Call Service</i> DCP serial communications failure.	Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Replace display controller board or display assembly. Replace main board cable.
P1485	<i>Call Service</i> Invalid DCP communications.	Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Replace display controller board or display assembly. Replace main board cable.
P1486	<i>Call Service</i> Invalid DCP software version.	Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Replace display controller board or display assembly. Replace main board cable.
P1487	<i>Call Service</i> Incorrect DCP hardware version.	Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Replace display controller board or display assembly. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 192 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1488	<i>Call Service</i> DCP CRC failure.	<p>Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Replace display controller board or display assembly. Replace main board cable.</p>
P1489	<i>Call Service</i> DCP POST failure.	<p>Program DCP in Service mode. Verify that display RS-232 cable is connected to main board cable. (Cannot verify connection to display controller board without removing display from control unit and disassembling display.) Verify that display USB cable is connected to main board cable. Verify that display power cable is connected to cabinet display power cable. Verify that display LVDS cable is connected to main board. Replace SOM board. Replace main board. Verify that display RS-232 cable is connected to display controller board. Verify that display USB cable is connected to touchscreen controller board. Verify that display power cable is connected to display controller board. Verify that display LVDS cable is connected to LCD panel. Replace display controller board or display assembly. Replace main board cable.</p>
P1502	<i>Call Service</i> Calibration CRC failure.	Recalibrate all calibration items in Service mode.
P1510	<i>Call Service</i> Main board I ² C-1 (audio) bus failure.	Replace main board.
P1511	<i>Call Service</i> Main board I ² C-2 (motors) bus failure.	<p>Program all fluid pumps in Service mode. Verify that main board cable is connected to all front fluid pumps: FP1-J2, FP2-J2, FP3-J2, FP4-J2, FP5-J2. Verify that driver board cable is connected to the side AE fluid pump FP6-J2. Verify that the fluid pump power cable is connected to all fluid pumps: FP1-J1, FP2-J1, FP3-J1, FP4-J1, FP5-J1, FP6-J1. Replace fluid pumps one at a time. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.</p>

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 193 OF 236			

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1512	<i>Call Service</i> Main board I ² C-3 (scales) bus failure.	<ul style="list-style-type: none"> Program all scales in Service mode. Verify that main board cable is connected to all front scales: WS11-J2, WS21-J2, WS31-J2, WS41-J2. Verify that driver board cable is connected to the AE scale WS12-J2. Verify that the safety board cable is connect to all front scales: WS11-J1, WS21-J1, WS31-J1, WS41-J1. Verify that driver board cable is connected to the AE scale WS12-J1. Replace scales one at a time. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
P1513	<i>Call Service</i> Safety board I ² C-1 (barometer) bus failure.	Replace safety board.
P1514	<i>Call Service</i> Safety board I ² C-2 (syringe) bus failure.	<p>Program the syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1, SP1-P9). Replace syringe pump. Replace safety board.</p>
P1521	<i>Call Service</i> Power board enable/disable all pump stop failure.	<p>Replace power board. Verify that fluid pump power cable is connected to each fluid pump: FP1-J1, FP2-J1, FP3-J1, FP4-J1, FP5-J1, FP6-J1. Replace fluid pumps one at a time. Replace fluid pump power cable.</p>
P1523	<i>Call Service</i> Incorrect I ² C device application software revision.	<p>Program all I²C devices in Service mode:</p> <ul style="list-style-type: none"> High-flow (blood) fluid pump. Low-flow fluid pumps Weight scales Syringe pump <p>Replace any I²C device that cannot be programmed.</p>
P1524	<i>Call Service</i> Incorrect I ² C device hardware part number.	<ul style="list-style-type: none"> Check part numbers in Service mode and replace any components with incorrect part numbers: High-flow (blood) fluid pump. Low-flow fluid pumps Weight scales Syringe pump
P1525	<i>Call Service</i> Audio processing unable to produce sound.	<p>Verify that main board cable is connected to main speaker (AUD1-J1). Replace main speaker. Replace main board. Replace backplane board. Replace main board cable.</p>

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 194 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1526	<i>Call Service</i> Audio DAC circuit unable to produce sound.	<ul style="list-style-type: none"> Verify that main board cable is connected to main speaker (AUD1-J1). Replace main speaker. Replace main board. Replace backplane board. Replace main board cable.
P1527	<i>Call Service</i> Backup speaker unable to produce sound.	<ul style="list-style-type: none"> Verify that backup speaker disable jumper is not installed on the power board (JP1 pins 3-4). Verify that PSC override jumper is not installed on the power board (JP1 pins 1-2). Replace power board. Replace backplane board. Replace safety board.
P1528	<i>Call Service</i> SD card failure.	Replace SD card.
P1529	<i>Call Service</i> SD card failure.	Replace SD card.
P1530	<i>Call Service</i> SD card failure.	Replace SD card.
P1531	<i>Call Service</i> SD card failure.	Replace SD card.
P1533	<i>Call Service</i> SD card manifest check failure.	Replace SD card.
P1536	<i>Call Service</i> SD card failure: not all POST tests executed.	Replace SD card.
P1564	<i>Call Service</i> Isolation board hardware revision failure.	<ul style="list-style-type: none"> In case of recent component replacement, update hardware and/or software configuration file in Service mode. Verify connections: <ul style="list-style-type: none"> Isolation cable 1 to main board cable. Isolation cable 1 to isolation board. Replace isolation board. Replace isolation cable 1. Replace main board cable.
P1565	<i>Call Service</i> Backplane board hardware revision failure.	<ul style="list-style-type: none"> In case of recent component replacement, update hardware and/or software configuration file in Service mode. Replace backplane board. Replace safety board.
P1566	<i>Call Service</i> Battery management board hardware revision failure.	<ul style="list-style-type: none"> In case of recent component replacement, update hardware and/or software configuration file in Service mode. Replace battery management board. Replace power board.
P1567	<i>Call Service</i> Replaceable board hardware revision failure.	<ul style="list-style-type: none"> Replace replaceable board. Replace power board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 195 OF 236			

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1568	<i>Call Service</i> SOM board hardware revision failure.	In case of recent component replacement, update hardware and/or software configuration file in Service mode. Replace SOM board. Replace main board.
P1584	<i>Call Service</i> Driver board power actuator failure. Occurs due to a driver board circuitry failure, or a short in another component or cable.	<ul style="list-style-type: none"> • Replace driver board. • Replace backplane board. • Disconnect driver board cable from backplane board and cycle power this disconnects all components and cables, and a higher POST code number appears instead). If this POST code recurs, replace driver board cable. • Reconnect driver board cable, then disconnect components powered by driver board 24-V supply: <ul style="list-style-type: none"> • Pinch valves: PV1-J1, PV2-J1, PV3-J1, PV4-J1. • Solenoids: SL1, SL2, SL3, SL4, SL5 (if installed). • Loaders: main (LDR1-J1), AE (LDR2-J1). • ARPS (ARPS1-J1). • Cycle power: if POST code recurs, replace driver board cable. • Reconnect each of the disconnected components one at a time and cycle power. If this POST code recurs, replace the just-connected component or its cable. • Continue to connect each component one at a time, and replace the component if this POST code recurs. • Reconnect all disconnected components.
P1587	<i>Call Service</i> SP delegate revision failure.	Program safety board SP delegate in Service mode. Program safety board SP host in Service mode. Replace safety board.
P1626	<i>Call Service</i> SD card incorrectly installed.	Replace SD card. Replace SOM board. Replace main board.
P1661	<i>Call Service</i> SP actuator test failure.	<ul style="list-style-type: none"> • Replace safety board. • Replace driver board. • Replace backplane board. • Disconnect driver board cable from backplane board and cycle power this disconnects all components and cables, and a higher POST code number appears instead). If this POST code recurs, replace driver board cable. • Reconnect driver board cable, then disconnect components powered by driver board 24-V supply: <ul style="list-style-type: none"> • Pinch valves: PV1-J1, PV2-J1, PV3-J1, PV4-J1. • Solenoids: SL1, SL2, SL3, SL4, SL5 (if installed). • Loaders: main (LDR1-J1), AE (LDR2-J1). • ARPS (ARPS1-J1). • Cycle power: if POST code recurs, replace driver board cable. • Reconnect each of the disconnected components one at a time and cycle power. If this POST code recurs, replace the just-connected component or its cable. • Continue to connect each component one at a time, and replace the component if this POST code recurs. • Reconnect all disconnected components.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 196 OF 236

Table 6-6 POST Failure Code List (continued)

POST code	Name/description	Service actions
P1662	Call Service SP backup speaker test failure.	Verify that backup speaker disable jumper is not installed on the power board (JP1 pins 3-4). Verify that PSC override jumper is not installed on the power board (JP1 pins 1-2). Replace power board. Replace backplane board. Replace safety board.
P1748	No failure displayed; POST passed all tests.	This code is an internal indication that appears only in the log file, indicating that the power on self tests passed. No other alarms are being indicated.
P2245	SST failed. All SST tests must pass (complete and time-stamped) to complete POST.	<ul style="list-style-type: none"> Enter Service mode and check the summary table to see which items do not indicate Success. Perform any SST that does not indicate Success.
P2299	MAC address could not be verified or is at its default value. The Real-time clock component on the main board may have failed.	Restart the system, if alarm persists, run the “Main Board SST” on page 4-88.
P2301	SD Boot detected.	<ul style="list-style-type: none"> Alarm occurs if the system boots from the SD card. Wait 10 minutes, restart the system. If alarm persists, check that no jumpers are present on the power board, then try to re-install software.

6.4 BIOT Failure Codes

Built-in ongoing testing (BIOT) monitors system status during operation. BIOT is divided into two tasks: those that run at a high priority (foreground), and those that run at a lower priority (background).

The foreground tests run at 1 Hz or higher. The background tests run less than once per second. The low-priority tests (for example, a CRC) take longer to execute. The task manager executes each of the tests in sequence, and then restarts at the top of the list. The low priority of the task keeps it from using CPU time when needed by other tasks.

If the foreground or background task detects a failure, an alarm triggers and information describing the failure is placed in the alarm queue, which the therapy task monitors. The therapy task then processes the alarm based on the current operational mode.

During the BIOT, monitoring is based on the state of the operating software. An error in the BIOT requires service. The applicable System Failure alarm includes a code number to identify the specific failure.

The BIOT checks the deaeration chamber monitor line (fluid barrier/transducer protector) every 10 minutes. It also performs this check after any automatic reposition system (ARPS) adjustment to the deaeration chamber level when the upper sensor has sensed liquid. The BIOT also checks the CP watchdog signal by checking that all task and address spaces are functioning correctly.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 197 OF 236

All BIOT alarms have instructions for the user to follow on how to attempt to deal with the alarm. The only user action beyond following the directions on screen is to perform a hard reset. This is done by holding down the green power button for at least 10 seconds to induce a total loss of power. Many BIOT alarms are not directly related to hardware failures. Other BIOT alarms are possibly caused by a hardware failure. The actions listed below assume that all directions listed on screen during the alarm have already been attempted but the alarm never goes away.

Table 6-7 BIOT Failure Code List

BIOT code	Name/description	Service actions
B0584	<i>Call Service</i> Syringe pump position/encoder conflict.	Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B0855	Replacement pinch valve failure (pre/post replacement).	Replace PV2. Replace driver board. Replace driver board cable.
B0869	<i>Call Service</i> Syringe pump actuation fault.	Replace syringe pump.
B0872	<i>Call Service</i> Syringe pump speed failure.	Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B0875	<i>Call Service</i> Syringe pump direction failure.	Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B0877	<i>Call Service</i> Syringe pump sensor/position conflict.	Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B0880	<i>Call Service</i> Unexpected syringe movement.	Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B0890	<i>Call Service</i> Alarm sound test failure.	Remove any debris blocking the speaker on the top of the machine or the microphone on the backplane board. Verify that speaker with cable and main cable are connected. Replace speaker. Replace backplane board.
B0896	<i>Call Service</i> Air bubble detector (ABD) self-test failure.	Replace ABD. Replace safety board.
B0916	<i>Call Service</i> Internal error.	Replace SD card.
B1050	<i>Call Service</i> Dialysate pinch valve failure (dialysate/post replacement).	Replace PV1. Replace driver board. Replace driver board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 198 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1051	<i>Call Service</i> AE bag fill pinch valve failure.	Replace PV3. Replace driver board. Replace driver board cable.
B1052	<i>Call Service</i> AE bag drain pinch valve failure.	Replace PV4. Replace driver board. Replace driver board cable.
B1116	<i>Call Service</i> Return pressure self-test failure.	Replace return pressure transducer.
B1215	ARPS System Failed ARPS self-test failure.	<ul style="list-style-type: none"> • Perform "Pressure Sensors SST," page 84 • and replace any pressure assembly that fails. • Replace ARPS motor. • Replace driver board.
B1222	<i>Call Service</i> Dialysis pump hardware failure.	<ul style="list-style-type: none"> • Verify that main board cable is connected to dialysate pump (FP3-J2). • Verify that fluid pump power cable is connected to dialysate pump (FP3-J1). • Replace dialysate pump. • Replace main board. • Replace power board. • Replace backplane board. • Replace fluid pump power cable. • Replace main board cable.
B1223	<i>Call Service</i> AE drain pump hardware failure.	<ul style="list-style-type: none"> • Verify that main board cable is connected to AE drain pump (FP6-J2). • Verify that fluid pump power cable is connected to AE drain pump (FP6-J1). • Replace AE drain pump. • Replace main board. • Replace power board. • Replace backplane board. • Replace fluid pump power cable. • Replace main board cable.
B1224	<i>Call Service</i> Blood pump hardware failure.	<ul style="list-style-type: none"> • Verify that main board cable is connected to blood pump (FP1-J2). • Verify that fluid pump power cable is connected to blood pump (FP1-J1). • Replace blood pump. • Replace main board. • Replace power board. • Replace backplane board. • Replace fluid pump power cable. • Replace main board cable.
B1225	<i>Call Service</i> PBP pump hardware failure.	<ul style="list-style-type: none"> • Verify that main board cable is connected to PBP pump (FP5-J2). • Verify that fluid pump power cable is connected to PBP pump (FP5-J1). • Replace PBP pump. • Replace main board. • Replace power board. • Replace backplane board. • Replace fluid pump power cable. • Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual	DOCUMENT TYPE: Service Manual		PAGE 199 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1227	<i>Call Service</i> Replacement pump hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to replacement pump (FP4-J2). Verify that fluid pump power cable is connected to replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1273	ARPS System Failed ARPS leak.	<ul style="list-style-type: none"> Perform "Pressure Sensors SST," page 84 and replace any pressure assembly that fails. Replace ARPS motor.
B1276	<i>Call Service</i> Discharge circuit malfunction.	<ul style="list-style-type: none"> Replace discharge board. Replace safety board. Replace safety board cable.
B1336	Pressure Detected Non-zero ARPS pressure failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to effluent pressure sensor (PT4-J1). Verify that pressure transducer cable is connected to safety board. Replace pressure transducer cable. Replace ARPS pressure pod. Replace safety board.
B1395	<i>Call Service</i> 24-V power supply voltage out of range.	<ul style="list-style-type: none"> Replace power board. Replace battery.
B1396	<i>Call Service</i> 24-V power supply current out of range.	Replace power board.
B1397	<i>Call Service</i> 12-V power supply voltage out of range.	Replace power board.
B1398	<i>Call Service</i> 12-V power supply current out of range.	Replace power board.
B1399	<i>Call Service</i> 5-V power supply voltage out of range.	Replace power board.
B1400	<i>Call Service</i> 5-V power supply current out of range.	Replace power board.
B1401	<i>Call Service</i> 3.3-V power supply voltage out of range.	Replace power board.
B1402	<i>Call Service</i> 3.3-V power supply current out of range.	Replace power board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 200 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1403	<i>Call Service</i> Super-capacitor voltage out of range.	Replace replaceable board. Replace power board.
B1404	<i>Call Service</i> Current of backup speaker out of range.	Replace backplane board. Replace power board.
B1408	<i>Call Service</i> Filter pressure negative multiplexer test out of range.	Replace safety board.
B1409	<i>Call Service</i> Access pressure negative multiplexer test out of range.	Replace safety board.
B1410	<i>Call Service</i> ARPS pressure negative multiplexer test out of range.	Replace safety board.
B1411	<i>Call Service</i> Effluent pressure negative multiplexer test out of range.	Replace safety board.
B1412	<i>Call Service</i> Return pressure negative multiplexer test out of range.	Replace safety board.
B1413	<i>Call Service</i> Cascade pressure negative multiplexer test out of range.	Replace safety board.
B1414	<i>Call Service</i> Filter pressure zero multiplexer test out of range.	Replace safety board.
B1415	<i>Call Service</i> Access pressure zero multiplexer test out of range.	Replace safety board.
B1416	<i>Call Service</i> ARPS pressure zero multiplexer test out of range.	Replace safety board.
B1417	<i>Call Service</i> Effluent pressure zero multiplexer test out of range.	Replace safety board.
B1418	<i>Call Service</i> Return pressure zero multiplexer test out of range.	Replace safety board.
B1419	<i>Call Service</i> Cascade pressure zero multiplexer test out of range.	Replace safety board.
B1420	<i>Call Service</i> Filter pressure positive multiplexer test out of range.	Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 201 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1421	<i>Call Service</i> Access pressure positive multiplexer test out of range.	Replace safety board.
B1422	<i>Call Service</i> ARPS pressure positive multiplexer test out of range.	Replace safety board.
B1423	<i>Call Service</i> Effluent pressure positive multiplexer test out of range.	Replace safety board.
B1424	<i>Call Service</i> Return pressure positive multiplexer test out of range.	Replace safety board.
B1425	<i>Call Service</i> Cascade pressure positive multiplexer test out of range.	Replace safety board.
B1432	<i>Call Service</i> Safety board common mode reference voltage out of range.	Replace safety board.
B1441	<i>Call Service</i> Pressure solenoids current out of range.	<ul style="list-style-type: none"> • Verify driver board cable connection to each of the solenoids: SL1, SL2, SL3, SL3, SL4, SL5 (if installed). • Replace driver board. • Replace each solenoid one at a time. • Replace driver board cable.
B1443	<i>Call Service</i> Driver board ADC voltage reference out of range.	Replace driver board.
B1451	<i>Call Service</i> SP refresh failure.	Replace safety board.
B1454	<i>Call Service</i> SP RAM test failure.	<ul style="list-style-type: none"> • Program safety board SP host in Service mode. • Replace safety board.
B1455	<i>Call Service</i> SP flash test failure.	<ul style="list-style-type: none"> • Program safety board SP host in Service mode. • Replace safety board.
B1456	<i>Call Service.</i> Repeated fault (SP to CP message).	<ul style="list-style-type: none"> • Program safety board SP host in Service mode. • Replace safety board. • Replace SOM board. • Replace main board. • Replace backplane board.
B1457	<i>Call Service</i> SP-PSC serial communications failure.	<ul style="list-style-type: none"> • Program safety board SP host in Service mode. • Program power board PSC in Service mode. • Replace safety board. • Replace power board. • Replace backplane board.
B1464	<i>Call Service</i> PSC RAM test failure.	<ul style="list-style-type: none"> • Program power board PSC in Service mode. • Replace power board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 202 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1465	<i>Call Service</i> PSC flash test failure.	<ul style="list-style-type: none"> • Program power board PSC in Service mode. • Replace power board.
B1466	<i>Call Service</i> PSC RTC battery voltage test failure.	<ul style="list-style-type: none"> • Replace replaceable board. • Replace power board.
B1467	<i>Call Service</i> PSC power supply voltage test failure.	<ul style="list-style-type: none"> • Verify external power cable connection to power entry module. • Verify power cable connection to power entry module. • Verify power supply input cable connection. • Replace external power cable. • Replace power supply. • Replace power board. • Replace power supply input cable. • Replace power cable.
B1470	<i>Call Service</i> PSC 24-V voltage rail test failure.	Replace power board.
B1471	<i>Call Service</i> PSC 12-V voltage rail test failure.	Replace power board.
B1472	<i>Call Service</i> PSC 5-V voltage rail test failure.	Replace power board.
B1473	<i>Call Service</i> PSC 3.3-V voltage rail test failure.	Replace power board.
B1474	<i>Call Service</i> PSC 2.5-V voltage rail test failure.	Replace power board.
B1475	<i>Call Service</i> PSC 1.2-V voltage rail test failure.	Replace power board.
B1478	<i>Call Service</i> PSC cabinet temperature test failure.	Replace power board.
B1479	<i>Call Service</i> PSC 3.3-V temperature test failure.	Replace power board.
B1480	<i>Call Service</i> PSC 12-V temperature test failure.	Replace power board.
B1481	<i>Call Service</i> PSC 5-V temperature test failure.	Replace power board.
B1483	<i>Call Service</i> PSC-SP serial connection failure.	<ul style="list-style-type: none"> • Program safety board SP host in Service mode. • Program power board PSC in Service mode. • Replace safety board. • Replace power board. • Replace backplane board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 203 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1490	<i>Call Service</i> DCP RAM test failure.	Replace display controller board or display assembly.
B1491	<i>Call Service</i> DCP flash test failure.	Replace display controller board or display assembly.
B1492	<i>Call Service</i> DCP 12-V input supply voltage failure.	<ul style="list-style-type: none"> Verify display monitor power cable connection to cabinet display power cable. Verify display monitor power cable connection to display controller board. Replace display controller board or display assembly.
B1494	<i>Call Service</i> DCP 1.8-V regulated supply voltage failure.	Replace display controller board or display assembly.
B1495	<i>Call Service</i> DCP LED alarm supply voltage failure.	<ul style="list-style-type: none"> Verify that internal display monitor LED alarm cable is connected at each end to LED alarm board and display controller board. Replace LED alarm board. Replace display controller board or display assembly.
B1499	<i>Call Service</i> DCP 12-V active backlight supply voltage failure.	Replace display controller board or display assembly.
B1507	<i>Call Service</i> Scale calibration check failure.	Recalibrate all scales in Service mode. Replace scale(s).
B1509	<i>Call Service</i> Syringe calibration check failure.	Recalibrate syringe in Service mode.
B1519	<i>Call Service</i> Barometer pressure out of range.	Replace safety board.
B1520	<i>Call Service</i> Barometer-driver board temperature comparison failure.	<ul style="list-style-type: none"> In case of recent component replacement, allow replaced components to reach same temperature as the control unit. Replace driver board. Replace safety board.
B1534	<i>Call Service</i> Running task check failure.	Replace SD card.
B1539	<i>Call Service</i> Access pressure pod reposition failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to access pressure sensor (PT1-J1). Verify that pressure transducer cable is connected to safety board. Replace pressure transducer cable. Replace access pressure pod. Replace safety board.
B1540	<i>Call Service</i> Filter pressure pod reposition failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to access pressure sensor (PT2-J1). Verify that pressure transducer cable is connected to safety board. Replace pressure transducer cable. Replace filter pressure pod. Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 204 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1541	<i>Call Service</i> Effluent pressure pod reposition failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to effluent pressure sensor (PT4-J1). Verify that pressure transducer cable is connected to safety board. Replace pressure transducer cable. Replace effluent pressure pod. Replace safety board.
B1588	<i>Call Service</i> Leak sensor failure.	<ul style="list-style-type: none"> Replace liquid leak detector cable. Replace leak detector isolation board. Replace safety board. Replace safety board cable.
B1593	<i>Call Service</i> Return pressure sensor prime test failure.	<ul style="list-style-type: none"> Replace return pressure port. Replace ARPS pressure pod. Replace pressure tubing and connectors.
B1616	<i>Call Service</i> Liquid level sensor (LLS) self-test failure.	<ul style="list-style-type: none"> Replace liquid level sensor. Replace safety board. Replace safety board cable.
B1627	<i>Call Service</i> Safety board pressure transducer 10-V failure.	Replace safety board.
B1702	<i>Call Service</i> Syringe pump distance error.	<ul style="list-style-type: none"> Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1710	<i>Call Service</i> Syringe pump stroke length error.	<ul style="list-style-type: none"> Program syringe pump in Service mode. Verify that safety board cable is connected to syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1815	<i>Call Service</i> Watchdog signal (60-Hz or 1-Hz) timeout.	Replace SD card.
B1856	<i>Call Service</i> Effluent scale communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1859	<i>Call Service</i> Internal syringe pump failure.	<ul style="list-style-type: none"> Program the syringe pump in Service mode. Verify that safety board cable is connected to the syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 205 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1862	<i>Call Service</i> Syringe voltage out of range.	<ul style="list-style-type: none"> Program the syringe pump in Service mode. Verify that safety board cable is connected to the syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1863	<i>Call Service</i> Effluent scale overload failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1867	<i>Call Service</i> Syringe pump watchdog failure.	<ul style="list-style-type: none"> Program the syringe pump in Service mode. Verify that safety board cable is connected to the syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1868	<i>Call Service</i> Syringe communication failure.	<ul style="list-style-type: none"> Program the syringe pump in Service mode. Verify that safety board cable is connected to the syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1869	<i>Call Service</i> Effluent scale calibration failure.	<ul style="list-style-type: none"> Calibrate the effluent scale in Service mode. Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1870	<i>Call Service</i> Effluent scale hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 206 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1871	<i>Call Service</i> Effluent scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to effluent scale (WS11-J2). Verify that safety board cable is connected to effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1878	<i>Call Service</i> AE scale communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B1879	<i>Call Service</i> AE scale overload failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B1880	<i>Call Service</i> AE scale calibration failure.	<ul style="list-style-type: none"> Calibration the AE scale in Service mode. Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B1881	<i>Call Service</i> AE scale hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B1882	<i>Call Service</i> AE scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to AE scale (WS12-J2). Verify that driver board cable is connected to AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 207 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1883	<i>Call Service</i> PBP scale communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1884	<i>Call Service</i> PBP scale overload failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1885	<i>Call Service</i> PBP scale calibration failure.	<ul style="list-style-type: none"> Calibrate PBP scale in Service mode. Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1886	<i>Call Service</i> PBP scale hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1887	<i>Call Service</i> PBP scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to PBP scale (WS41-J2). Verify that safety board cable is connected to PBP scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 208 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1888	<i>Call Service</i> Dialysate scale communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1889	<i>Call Service</i> Dialysate scale overload failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1890	<i>Call Service</i> Dialysate scale calibration failure.	<ul style="list-style-type: none"> Calibrate the dialysate scale in Service mode. Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1891	<i>Call Service</i> Dialysate scale hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1892	<i>Call Service</i> Dialysate scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to dialysate scale (WS21-J2). Verify that safety board cable is connected to dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 209 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1893	<i>Call Service</i> Replacement scale communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1894	<i>Call Service</i> Replacement scale overload failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1895	<i>Call Service</i> Replacement scale calibration failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1895	<i>Call Service</i> Replacement scale calibration failure.	<ul style="list-style-type: none"> Calibrate the replacement scale in Service mode. Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1896	<i>Call Service</i> Replacement scale hardware failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 210 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1897	<i>Call Service</i> Replacement scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to replacement scale (WS31-J2). Verify that safety board cable is connected to replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1898	<i>Call Service</i> Effluent scale refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1899	<i>Call Service</i> AE scale refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B1900	<i>Call Service</i> PBP scale refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1901	<i>Call Service</i> Dialysate scale refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 211 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1902	<i>Call Service</i> Replacement scale refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B1903	<i>Call Service</i> Motor communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1905	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1906	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1911	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 212 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1913	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1914	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1921	<i>Call Service</i> Motor communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1923	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1924	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 213 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1928	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1931	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1932	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1933	<i>Call Service</i> Motor communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1935	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 214 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1936	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1940	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1943	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1944	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1945	<i>Call Service</i> Motor communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 215 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1947	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1948	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1952	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1955	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1956	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 216 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1957	<i>Call Service</i> Motor communication failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1959	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1960	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1964	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1967	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 217 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1968	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1969	<i>Call Service</i> Motor communication error.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1971	<i>Call Service</i> Motor message timeout.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1972	<i>Call Service</i> Motor torque failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1976	<i>Call Service</i> Internal motor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 218 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B1979	<i>Call Service</i> Motor direction change failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1980	<i>Call Service</i> Motor speed failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B1981	<i>Call Service</i> Syringe pump refresh failure.	<ul style="list-style-type: none"> Program the syringe pump in Service mode. Verify that safety board cable is connected to the syringe pump (SP1-P1 and SP1-P9). Replace syringe pump. Replace safety board.
B1985	<i>Call Service</i> Return clamp I/O timeout failure.	<ul style="list-style-type: none"> Replace return clamp. Replace power board. Replace power board return clamp cable.
B1987	<i>Call Service</i> Main loader position failure.	<ul style="list-style-type: none"> Verify that driver board cable is connected to main loader motor (LDR1-J1). Replace main loader motor. Replace driver board. Replace driver board cable.
B2002	<i>Call Service</i> Discharger relay failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to discharge board. Verify that discharge board is connected to discharge clip switch. Replace discharge board. Replace discharge clip switch. Replace discharge cable. Replace safety board cable.
B2006	<i>Call Service</i> Return clamp current measurement failure.	<ul style="list-style-type: none"> Replace return clamp. Replace power board. Replace power board return clamp cable.
B2008	<i>Call Service</i> Dialysate pinch valve overcurrent failure.	<ul style="list-style-type: none"> Replace PV1. Replace driver board. Replace driver board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 219 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2029	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2030	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2031	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2032	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2033	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 220 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2034	<i>Call Service</i> Motor refresh failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2038	<i>Call Service</i> ARPS pressure sensor refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to the ARPS pressure sensor (PT6-J1). Verify that the pressure transducer cable is connected to the safety board. Replace pressure transducer cable. Replace ARPS pressure pod. Replace safety board.
B2039	<i>Call Service</i> ABD refresh failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to ABD. Replace ABD. Replace safety board. Replace safety board cable.
B2040	<i>Call Service</i> BLD refresh failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to BLD. Replace BLD. Replace safety board. Replace safety board cable.
B2041	<i>Call Service</i> LLS refresh failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to LLS. Replace LLS. Replace safety board. Replace safety board cable.
B2042	<i>Call Service</i> Discharger refresh failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to discharge board. Verify that discharge board is connected to discharge clip switch. Replace discharge board. Replace discharge clip switch. Replace discharge cable. Replace safety board cable.
B2043	<i>Call Service</i> Drip tray refresh failure.	<ul style="list-style-type: none"> Replace safety board. Replace liquid leak detector cable. Replace safety board cable.
B2044	<i>Call Service</i> Main loader refresh failure.	<ul style="list-style-type: none"> Verify that driver board cable is connected to main loader motor (LDR1-J1). Replace main loader motor. Replace driver board. Replace driver board cable.
B2045	<i>Call Service</i> Return clamp refresh failure.	<ul style="list-style-type: none"> Replace return clamp. Replace power board. Replace power board return clamp cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 221 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2046	<i>Call Service</i> Dialysate pinch valve refresh failure.	<ul style="list-style-type: none"> Replace PV1. Replace driver board. Replace driver board cable.
B2047	<i>Call Service</i> ARPS pump refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to ARPS pressure sensor (PT6-J1). Verify that pressure transducer cable is connected to safety board. Replace pressure transducer cable. Replace ARPS pressure pod. Replace safety board.
B2055	<i>Call Service</i> Access pressure sensor refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to the access pressure sensor (PT1-J1). Verify that the pressure transducer cable is connected to the safety board. Replace pressure transducer cable. Replace access pressure pod. Replace safety board.
B2059	<i>Call Service</i> Filter pressure sensor refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to the filter pressure sensor (PT2-J1). Verify that the pressure transducer cable is connected to the safety board. Replace pressure transducer cable. Replace access pressure pod. Replace safety board.
B2063	<i>Call Service</i> Effluent pressure sensor refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to the effluent pressure sensor (PT4-J1). Verify that the pressure transducer cable is connected to the safety board. Replace pressure transducer cable. Replace access pressure pod. Replace safety board.
B2067	<i>Call Service</i> Return pressure sensor refresh failure.	<ul style="list-style-type: none"> Verify that pressure transducer cable is connected to the return pressure sensor (PT3-J1). Verify that the pressure transducer cable is connected to the safety board. Replace pressure transducer cable. Replace return pressure port. Replace safety board.
B2072	<i>Call Service</i> Dialysate pinch valve position failure.	<ul style="list-style-type: none"> Replace PV1. Replace driver board. Replace driver board cable.
B2077	<i>Call Service</i> Replacement pinch valve refresh failure.	<ul style="list-style-type: none"> Replace PV2. Replace driver board. Replace driver board cable.
B2079	<i>Call Service</i> Replacement pinch valve overcurrent failure.	<ul style="list-style-type: none"> Replace PV2. Replace driver board. Replace driver board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 222 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2080	<i>Call Service</i> Replacement pinch valve position failure.	<ul style="list-style-type: none"> Replace PV2. Replace driver board. Replace driver board cable.
B2081	<i>Call Service</i> Effluent pinch valve refresh failure.	<ul style="list-style-type: none"> Replace PV3. Replace driver board. Replace driver board cable.
B2083	<i>Call Service</i> Effluent pinch valve overcurrent failure.	<ul style="list-style-type: none"> Replace PV3. Replace driver board. Replace driver board cable.
B2084	<i>Call Service</i> Effluent pinch valve position failure.	<ul style="list-style-type: none"> Replace PV3. Replace driver board. Replace driver board cable.
B2085	<i>Call Service</i> Effluent drain pinch valve refresh failure.	<ul style="list-style-type: none"> Replace PV4. Replace driver board. Replace driver board cable.
B2087	<i>Call Service</i> Effluent drain pinch valve overcurrent failure.	<ul style="list-style-type: none"> Replace PV4. Replace driver board. Replace driver board cable.
B2088	<i>Call Service</i> Effluent drain pinch valve position failure.	<ul style="list-style-type: none"> Replace PV4. Replace driver board. Replace driver board cable.
B2091	<i>Call Service</i> AE loader refresh failure.	<ul style="list-style-type: none"> Verify that driver board cable is connected to main loader motor (LDR2-J1). Replace AE loader motor. Replace driver board. Replace driver board cable.
B2092	<i>Call Service</i> AE loader position failure.	<ul style="list-style-type: none"> Verify that driver board cable is connected to main loader motor (LDR2-J1). Replace AE loader motor. Replace driver board. Replace driver board cable.
B2093	<i>Call Service</i> Discharger position failure.	<ul style="list-style-type: none"> Verify that safety board cable is connected to discharge board. Verify that discharge board is connected to discharge clip switch. Replace discharge board. Replace discharge clip switch. Replace discharge cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 223 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2094	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the blood pump (FP1-J2). Verify that fluid pump power cable is connected to the blood pump (FP1-J1). Replace blood pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2095	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP pump (FP5-J2). Verify that fluid pump power cable is connected to the PBP pump (FP5-J1). Replace PBP pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2096	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate pump (FP3-J2). Verify that fluid pump power cable is connected to the dialysate pump (FP3-J1). Replace dialysate pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2097	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement pump (FP4-J2). Verify that fluid pump power cable is connected to the replacement pump (FP4-J1). Replace replacement pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2098	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent pump (FP2-J2). Verify that fluid pump power cable is connected to the effluent pump (FP2-J1). Replace effluent pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 224 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2099	<i>Call Service</i> Motor position sensor failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent drain pump (FP6-J2). Verify that fluid pump power cable is connected to the effluent drain pump (FP6-J1). Replace effluent drain pump. Replace main board. Replace power board. Replace backplane board. Replace fluid pump power cable. Replace main board cable.
B2111	<i>Call Service</i> AE scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to AE scale (WS12-J2). Verify that driver board cable is connected to AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B2112	<i>Call Service</i> Effluent scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to effluent scale (WS11-J2). Verify that safety board cable is connected to effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2113	<i>Call Service</i> PBP scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to PBP scale (WS41-J2). Verify that safety board cable is connected to PBP scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2114	<i>Call Service</i> Dialysate scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to dialysate scale (WS21-J2). Verify that safety board cable is connected to dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 225 OF 236

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2115	<i>Call Service</i> Replacement scale load cell mismatch.	<ul style="list-style-type: none"> Verify that main board cable is connected to replacement scale (WS31-J2). Verify that safety board cable is connected to replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2126	<i>Call Service</i> PBP scale overload threshold failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the PBP scale (WS41-J2). Verify that safety board cable is connected to the AE scale (WS41-J1). Replace PBP scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2127	<i>Call Service</i> Dialysate scale overload threshold failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the dialysate scale (WS21-J2). Verify that safety board cable is connected to the dialysate scale (WS21-J1). Replace dialysate scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2128	<i>Call Service</i> Replacement scale overload threshold failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the replacement scale (WS31-J2). Verify that safety board cable is connected to the replacement scale (WS31-J1). Replace replacement scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.
B2129	<i>Call Service</i> Effluent scale overload threshold failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the effluent scale (WS11-J2). Verify that safety board cable is connected to the effluent scale (WS11-J1). Replace effluent scale. Replace main board. Replace safety board. Replace backplane board. Replace main board cable. Replace safety board cable.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 226 OF 236			

Table 6-7 BIOT Failure Code List (continued)

BIOT code	Name/description	Service actions
B2130	<i>Call Service</i> AE scale overload threshold failure.	<ul style="list-style-type: none"> Verify that main board cable is connected to the AE scale (WS12-J2). Verify that driver board cable is connected to the AE scale (WS12-J1). Replace AE scale. Replace main board. Replace driver board. Replace backplane board. Replace main board cable. Replace driver board cable.
B2180	<i>Call Service</i> Return clamp doesn't stay open.	<ul style="list-style-type: none"> Replace return clamp. Replace power board. Replace power board return clamp cable.
B2203	<i>Call Service</i> SP refresh failure.	<ul style="list-style-type: none"> Program SP in Service mode. Replace safety board.
B2219	<i>Call Service</i> PSC refresh failure.	<ul style="list-style-type: none"> Program PSC in Service mode. Replace power board.
B2220	<i>Call Service</i> DCP refresh failure.	<ul style="list-style-type: none"> Program DCP in Service mode. Replace display controller board.
B2222	System Failure System reset occurred.	<ul style="list-style-type: none"> Review log file to determine which alarm(s) are causing resets. Service action depends on alarm cause(s). Replace SD card.
B2226	<i>Call Service</i> Therapy timing error.	Replace SD card.
B2247	<i>Call Service</i> SP detected a fault.	<ul style="list-style-type: none"> Examine log file to determine which alarm(s) are causing resets. Service action depends on alarm cause(s). Replace SD card.
B2248	<i>Call Service</i> Loader not retracted with patient connected.	<ul style="list-style-type: none"> Replace main loader motor. Replace driver board. Replace driver board cable.
B2305	<i>Call Service</i> Language Load Failure	<ul style="list-style-type: none"> Occurs if the cyclic redundancy check (CRC) performed on the language file or associated font file fails. Restart the system, if alarm persists, re-install the language pack.
B2306	<i>Call Service</i> Font Load Failure	<ul style="list-style-type: none"> Occurs if the cyclic redundancy check (CRC) performed on the language file or associated font file fails. Restart the system, if alarm persists, re-install the software.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 227 OF 236

6.5 Non-Alarm Troubleshooting

6.5.1 Introduction

The PrisMax System control unit has an internal safety system that signals machine and patient alarms. However, not all problem situations cause an alarm. This section presents an array of possible fault conditions that may not generate an alarm indication, but require troubleshooting.



Use proper electrostatic safety equipment (wrist grounding strap and grounding mats) to avoid damage to electrostatic-sensitive components inside the control unit.

NOTE: Troubleshooting should only be performed by authorized service technicians.

See "Equipment, Tools, and Materials," page 13 for a list of all tools and test equipment needed for servicing.

This section presents likely potential causes and corrective actions. If available, a recommended diagnostic system self-test (SST) is indicated. When performing corrective actions:

- Perform the actions in the order listed until the problem is corrected.
- Ensure that all components are properly connected, and that all connectors are clean and undamaged.
- Before replacing a part, swap the part with a new one and verify that the replacement corrects the problem.
- Follow accepted electrostatic discharge (ESD) grounding practices when servicing the control unit.

6.5.2 Artifacts on ECG Display or Printout

Below are troubleshooting suggestions to follow if unexpected signal traces (artifacts) are visible on the electrocardiogram device display or printout. The artifacts do not appear to be normal signals for the patient.

Table 6-8 Artifacts on ECG Display or Printout

Possible cause	Corrective action
<ul style="list-style-type: none"> • Discharger ring not installed in discharger clip. • ECG monitor, patient electrode, or patient lead issue. • Discharger clip failure. • Loose or failed cable connection. • Safety board failure. • Discharge board failure. 	<ul style="list-style-type: none"> • Install the discharger ring in the discharger clip before connecting a patient to the disposable set. • Carefully follow the ECG instructions regarding use of specific electrodes with low contact impedance and correct electrode application, including appropriate N electrode placement. • Perform the discharger SST to verify correct operation: <ul style="list-style-type: none"> • SST passes: the cause is exterior to the control unit. • SST fails: the cause is within the control unit. • Verify discharger cable connections or replace cable: <ul style="list-style-type: none"> • P1 to stud on discharger clip. • P2 to isolation board J1. • P2 (P1 to protective earth, PE): disconnecting P1 from PE prevents the discharge switch from detecting tubing. • Replace the discharger clip assembly. • Verify safety board cable connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J2. • P2 to backplane board J21. • Replace the safety board. • Replace the discharge board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 228 OF 236

6.5.3 Troubleshooting the Barcode Reader

Table 6-9 Troubleshooting Barcode Reader

Possible cause	Corrective action
<ul style="list-style-type: none"> Barcode reader incorrectly configured. Loose or failed cable connection. Barcode reader failure. Main board failure. 	<ul style="list-style-type: none"> Press the onscreen Tools button at the top of the screen, then press the <i>Reset Barcode Reader</i> button. Perform the barcode reader SST to verify correct operation. Verify reader USB cable connections or replace cable: <ul style="list-style-type: none"> P1 to main board J5 USB. P2 to barcode reader handle J1. Replace barcode reader assembly. Replace main board.

6.5.4 Troubleshooting Blood in Effluent Line/Bag

Follow these troubleshooting steps if fluid in the effluent line or bag is discolored (tinged pink or red).

Table 6-10 Troubleshooting Blood in Effluent Line/Bag

Possible cause	Corrective action
<ul style="list-style-type: none"> Blood leak is below detection threshold. Kink or occlusion in disposable set tubing Discoloration due to patient's disease process Loose or failed cable connection BLD failure Safety board failure 	<ul style="list-style-type: none"> See the <i>Specifications</i> section of the PrisMax Operator's Manual for BLD detection specifications. Ensure that the flow path is not occluded by a kinked blood line or narrow cannula that could cause hemolysis. Consult clinician: the patient's disease process may be the root cause of effluent discoloration. If so, no action is required. Perform the BLD SST to verify correct operation: <ul style="list-style-type: none"> SST passes: the cause is exterior to the control unit. SST fails: the cause is within the control unit. Verify safety board cable connection (P2 to BLD J1) or replace cable. Replace BLD assembly. Replace safety board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 229 OF 236

6.5.5 Troubleshooting Blood in Solution Line/Bag

Follow these troubleshooting steps if some or all the fluid in a solution line or bag is discolored. Blood appears to be passing the rollers of the associated pump rotor.

Table 6-11 Troubleshooting Blood in Solution Line/Bag

Possible cause	Corrective action
Saline solution may be discolored following blood return and saline recirculation. Previously-used set in reuse. Pump rotor failure.	If discoloration occurs during saline recirculation following blood return, the saline bag fluid is discolored but remains sterile. No action required. Remove the set and any attached solution bags. Restart the procedure using a new set and solutions. Perform the motors SST to verify correct operation. Replace failed pump rotor.

6.5.6 Troubleshooting Communication Problems

See the following table for troubleshooting information for communication problems

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 230 OF 236

Table 6-12 Troubleshooting Communication Port Failures

Symptom	Possible cause	Corrective action
• Ethernet port not communicating	<ul style="list-style-type: none"> • External network is not active. • Incorrect network settings. • Loose or failed cable connections. • Isolation board failure. • Main board failure. 	<ul style="list-style-type: none"> • Connect system to an active network and verify that Ethernet port LED is on. If LED lights, check network settings. • Use the System Configuration function to verify connectivity settings (see the <i>PrisMax System Operator's Manual</i>). • Perform the isolation board SST to verify correct operation. • Verify isolation cable 2 connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J8. • P2 to main board cable J10. • Verify main board cable connections or replace cable: <ul style="list-style-type: none"> • J10 to isolation cable 2 P2. • P1 to backplane board J11. • Replace isolation board. • Replace main board.
• Serial Port not communicating	<ul style="list-style-type: none"> • Incorrect serial port setting. • Remote alarm serial port jumpers incorrectly configured. • Loose or failed cable connections. • Isolation board failure. • Main board failure. 	<ul style="list-style-type: none"> • Use the System Configuration function to verify connectivity settings (see the <i>PrisMax System Operator's Manual</i>). • Verify correct configuration of remote alarm serial port jumpers (see the <i>Installation</i> section of this manual). • Perform the isolation board SST to verify correct operation: <ul style="list-style-type: none"> • SST passes: the cause is exterior to the control unit. • SST fails: the cause is within the control unit. • Verify isolation cable 1 connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J7. • P2 to main board cable J11. • Verify main board cable connections or replace cable: <ul style="list-style-type: none"> • J11 to isolation cable 1 P2. • P1 to backplane board J11. • Replace isolation board. • Replace main board.
• USB port not communicating	<ul style="list-style-type: none"> • Defective USB device. • Loose or failed cable connections. • Isolation board failure. • Main board failure. 	<ul style="list-style-type: none"> • Verify the USB device operates properly in another computer or try another USB device. • Perform the isolation board SST to verify correct operation: <ul style="list-style-type: none"> • SST passes: the cause is exterior to the control unit. • SST fails: the cause is within the control unit. • Verify isolation cable 2 connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J8. • P2 to main board cable J10. • Verify main board cable connections or replace cable: <ul style="list-style-type: none"> • J10 to isolation cable 2 P2. • P1 to backplane board J11. • Replace isolation board. • Replace main board.
• Remote alarm port not communicating	<ul style="list-style-type: none"> • Loose or failed cable connections. • Isolation board failure. • Main board failure. 	<ul style="list-style-type: none"> • Perform the isolation board SST to verify correct operation: <ul style="list-style-type: none"> • SST passes: the cause is exterior to the control unit. • SST fails: the cause is within the control unit. • Verify remote alarm cable connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J6. • J1 to remote alarm connector. • Verify isolation cable 1 connections or replace cable: <ul style="list-style-type: none"> • P1 to isolation board J7. • P2 to main board cable J11. • Verify main board cable connections or replace cable: <ul style="list-style-type: none"> • J11 to isolation cable 2 P2. • P1 to backplane board J11. • Replace isolation board. • Replace main board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 231 OF 236			

6.5.7 Troubleshooting Display Problems

See the following table for troubleshooting display problems.

Table 6-13 Troubleshooting Display Problems

Symptom	Possible cause	Corrective action
Display is blank or white even though the control unit is powered on	<ul style="list-style-type: none"> • Power loss • Loose or failed cable connections • Display failure • Main board failure 	<ul style="list-style-type: none"> • If the display goes blank momentarily then resumes normal operation, no action is required. • In case of sustained power loss, see section • . • Verify display LVDS cable connection or replace cable: P1 to main board J4. • Verify display power cable connection or replace cable: P1 to power board J12. • Replace display assembly. • Replace main board.
Display appears to have streaks or missing information, or appears unstable	Loose or disconnected PE ground.	Perform the display board SST to verify correct operation. Verify PE connection from display P8 (PE).
Display is locked (frozen) and does not change or respond normally	<ul style="list-style-type: none"> • Software lockup • Software corruption • Main board failure • Touchscreen failure 	<ul style="list-style-type: none"> • Verify that control unit responds normally to an alarm condition (for example, open a scale). • Press and hold the power button for at least 10 seconds to reboot the control unit. • Update software (see "Software Update," page 107).
Touchscreen unresponsive	<ul style="list-style-type: none"> • Loose or failed cable connections. • Display failure. • Main board failure. 	<ul style="list-style-type: none"> • Perform the display board SST to verify correct operation. • Verify main board cable connection or replace cable: P1 to backplane board J21. • Replace display assembly. • Replace main board.
Tilt/swivel stuck or loose; display module cannot be moved or moves too easily.	<ul style="list-style-type: none"> • Loose mounting screws. • Mounting assembly failure. 	<ul style="list-style-type: none"> • Tighten screws that secure the display inside the control unit. • Replace display assembly.

6.5.8 Fan Noise

Description: Fan sound is louder or changes frequency.

Possible cause	Corrective action
Normal variations in fan speed. Object interfering with fan. Fan failure.	Fan speed varies as needed, which can cause sound variations. If sound changes are due to normally-changing conditions, no action is required. Inspect the fan for obstructions or bent grill. Replace fan assembly.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 232 OF 236

6.5.9 Leak Inside Control Unit

Description: Fluid inside the control unit.

Table 6-14

Possible cause	Corrective action
Damaged seals on control unit panels. Control unit panel not secured.	Inspect panel seals and replace as required. Verify that all securing hardware is correctly placed and tightened.

6.5.10 Status Light Problem

Description: Status light (top of display module) does not light or operate correctly.

Table 6-15

Possible cause	Corrective action
Incorrect LED configuration. Loose or failed cable connection. Display failure. Main board failure.	Use the Configuration menu to adjust the LED (see the <i>Service Mode</i> section of this manual). Perform the display SST to verify correct operation: Verify main board cable connection or replace cable. Verify display LVDS cable connection or replace cable. Replace display assembly. Replace main board.

6.5.11 Scale LED Problem

Description: Scale LEDs do not light or operate correctly.

Table 6-16

Possible cause	Corrective action
LED cables not connected to correct LED assemblies. Loose or failed cable connection. LED assembly failure. Safety board failure. Driver board failure.	Perform the scale SST to verify correct operation: Verify safety board cable LED connections or replace cable: P11 to effluent scale. P12 to PBP scale. P13 to dialysate scale. P14 to replacement scale. P1/J21 – Backplane PCBA Verify driver board cable LED connection or replace cable: P17 to auto-effluent scale. P1/J31 – Backplane PCBA Test assembly: If only one LED is affected, remove the LED and connect it to another cable to confirm if the LED or the cable is faulty. Replace LED assembly or cable as needed. Replace safety board. Replace driver board.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 233 OF 236

6.5.12 Troubleshooting Loader Problems

Table 6-17

Possible cause	Corrective action
Tubing set is deformed. Loader assembly obstructed. Loader out of calibration. Loose or failed cable connection. Loader assembly failure. Driver board failure.	Inspect tubing set for any problem. Inspect loader for any obstruction. Perform the loaders SST to verify correct operation: SST passes: the cause is exterior to the control unit. SST fails: the cause is within the control unit. Calibrate loader. Verify driver board cable connections or replace cable: P1 to backplane board J31. P7 to AE loader J1. P14 to main set loader J1. Replace loader assembly. (If only one loader is affected, swap loader cables to confirm if the loader or the signal to the loader is the problem.) Replace driver board.

6.5.13 Troubleshooting Power Problems

Table 6-18 Troubleshooting Power Problems

Symptom	Possible cause	Corrective action
AC power is connected but the control unit does not start correctly	<ul style="list-style-type: none"> • Battery failure. • Power supply failure. • Power board failure. • Main board or software (NAND/SDHC) failure. • Display failure. 	<ul style="list-style-type: none"> • Perform the "Power Board SST," page 87 to verify correct operation. • Replace the battery. • Replace the power supply. • Replace the power board. • Replace the main board. • Replace the display.
A button or LED on the power control panel does not operate correctly.	<ul style="list-style-type: none"> • Power issue. • Loose or failed cable connection. • Power control panel failure. 	<ul style="list-style-type: none"> • See "Troubleshooting Power Problems," page 233. • Perform the "Power Board SST," page 87 to verify correct operation. • Verify power control panel cable connections or replace cable: <ul style="list-style-type: none"> • P1 to power board J2. • J4 to power control panel P1. • Replace power control panel assembly.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 234 OF 236

Table 6-18 Troubleshooting Power Problems (continued)

Symptom	Possible cause	Corrective action
The control unit reboots repeatedly, or does not start correctly.	Processor (PSC, SP, or CP) reset.	<ul style="list-style-type: none"> Replace the power board. Replace the safety board. Replace the main board.
Unexpected loss of AC (mains) power during operation.	<ul style="list-style-type: none"> Electrical receptacle issue. External power cable failure. Power entry module failure. Loose or failed cable connection. Power supply failure. Power board failure. 	<ul style="list-style-type: none"> Connect power plug to different receptacle. Perform the "Power Board SST," page 87 to verify correct operation: <ul style="list-style-type: none"> SST passes: the cause is exterior to the control unit. SST fails: the cause is within the control unit. Replace power cable. Replace power entry module. Verify AC power supply cable connections or replace cable: <ul style="list-style-type: none"> P1 to 24-V power supply CON1. P2 to power entry module line P. P3 to power entry module neutral N. Verify power supply cable connections or replace cable: <ul style="list-style-type: none"> P1 to power board J1. P2 to 24-V power supply TB2+. P3 to 24-V power supply TB2-. Replace power supply assembly. Replace power board.
Control unit shuts off unexpectedly during operation.	<ul style="list-style-type: none"> Battery failure. Power board failure. 	<ul style="list-style-type: none"> Perform the "Power Board SST," page 87 to verify correct operation. Replace battery. Replace power board.

6.5.14 Unresponsive or Unexpected Response to Normal Actions

Description: The control unit does not respond, or responds in an unexpected manner to normal operator actions.

Table 6-19

Possible cause	Corrective action
Damaged SDHC card. Software process stopped.	<ul style="list-style-type: none"> Perform main board, safety board, and power board SSTs to verify correct operation. Update software (see <i>Service Mode</i> section of this manual). Replace SDHC.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
PAGE 235 OF 236			

6.5.15 Troubleshooting Mechanical Problems

Table 6-20 Troubleshooting Mechanical Problems

Symptom	Possible cause	Corrective action
The control unit wheel base is unstable	<ul style="list-style-type: none"> Floor surface is not smooth. Damaged caster. 	<ul style="list-style-type: none"> Move machine to another location. Replace caster.
The syringe clip or syringe arm is loose, and does not hold the syringe securely.	<ul style="list-style-type: none"> Syringe clip failure. Syringe pump failure. 	<ul style="list-style-type: none"> Perform syringe pump SST to verify correct operation. Replace syringe clip assembly. Replace syringe pump assembly.
A peristaltic pump rotor or roller is loose	Loose pump or rotor mounting screw(s).	Tighten mounting hardware as required
The pump or pump rotor/roller makes an unusual or loud noise	<ul style="list-style-type: none"> Obstruction in pump raceway Pump rotor failure 	<ul style="list-style-type: none"> Clean external control unit surfaces, including pump rotors. Inspect pump raceway for any obstructions. Clean dust, debris, and spills from pump raceways and rotors. Do not submerge rotors in cleaning solution. (See the <i>Maintenance</i> section of this manual for more information.) Perform the motors SST to verify correct operation. Replace pump rotor assembly.
Fan sound is louder or changes frequency	<ul style="list-style-type: none"> Normal variations in fan speed. Object interfering with fan. Fan failure. 	<ul style="list-style-type: none"> Fan speed varies as needed, which can cause sound variations. If sound changes are due to normally-changing conditions, no action is required. Inspect the fan for obstructions or bent grill. Replace fan assembly.

Baxter	DIVISION OR FUNCTION MEDICAL PRODUCTS	DOCUMENT NO: AW8006	ISSUE DATE: SEE STAMP
OWNER CODE: MDS	OWNING GROUP: TECHNICAL SERVICES	REVISION: A	EFFECTIVE DATE: SEE STAMP
TITLE: PrisMax Service Manual		DOCUMENT TYPE: Service Manual	
			PAGE 236 OF 236

THIS PAGE INTENTIONALLY BLANK

Baxter**TcU ELECTRONIC SIGNATURE REPORT****REVISION INFORMATION**

Item ID: AW8006	Revision ID: A			
Item Name: PrisMax Service Manual	Release Date: 18-Oct-2018			
Description: Service Manual for the V2 release of PrisMax.				
CHANGE INFORMATION				
CN/CR Number (if applicable):				
Description of Change (This field will be blank if required data is not available): Initial Release				
Reason for Change (This field will be blank if required data is not available): Initial Release				
APPROVALS & SIGNATURES for Document Release				
Name	Role	Workflow Step	Date of Signature	Decision Taken
Ly, Sue	Author	Initiate Review	18-Oct-2018	Approved
Rogers, Laura	SME	Document Review - SME & Quality	18-Oct-2018	Approved
Masica, Sally	Quality	Document Review - SME & Quality	18-Oct-2018	Approved
Giroir, Christine	Change Specialist 3	Release Document(s)	18-Oct-2018	Approved
Giroir, Christine	Change Specialist 3	Set Effectivity	18-Oct-2018	Approved

BAXTER CONFIDENTIAL - INTERNAL USE ONLY

Report Generated By: tcuprddcadmin

Report Generated Date: 18-Oct-2018

Page 1 of 1

Baxter**TcU ELECTRONIC SIGNATURE REPORT****REVISION INFORMATION**

Item ID: AW8006	Revision ID: A
Item Name: PrisMax Service Manual	Release Date: 18-Oct-2018
Description: Service Manual for the V2 release of PrisMax.	
CHANGE INFORMATION	
CN/CR Number (if applicable):	
Description of Change (This field will be blank if required data is not available):	

Reason for Change (This field will be blank if required data is not available):
--

APPROVALS & SIGNATURES for Minor Updates Release

Name	Role	Workflow Step	Date of Signature	Decision Taken
Dotson, David R	Author	Submit Change	02-Nov-2018	Approved
Giroir, Christine	Group Administrator	Group Admin Review	05-Nov-2018	Approved
Giroir, Christine	Change Specialist 3	Review Updates	05-Nov-2018	Approved

BAXTER CONFIDENTIAL - INTERNAL USE ONLY

Report Generated By: tcuprddcadmin

Report Generated Date: 05-Nov-2018

Page 1 of 1

Baxter**TcU ELECTRONIC SIGNATURE REPORT****REVISION INFORMATION**

Item ID: AW8006	Revision ID: A			
Item Name: PrisMax Service Manual	Release Date: 18-Oct-2018			
Description: Service Manual for the V2 release of PrisMax.				
CHANGE INFORMATION				
CN/CR Number (if applicable):				
Description of Change (This field will be blank if required data is not available): Add Receiver Code (S120)				
Reason for Change (This field will be blank if required data is not available): Receiver Code missing				
APPROVALS & SIGNATURES for Minor Updates Release				
Name	Role	Workflow Step	Date of Signature	Decision Taken
Giroir, Christine	Author	Submit Change	05-Nov-2018	Approved
Giroir, Christine	Group Administrator	Group Admin Review	05-Nov-2018	Approved
Keeney, Tracy	Change Specialist 3	Review Updates	05-Nov-2018	Approved

BAXTER CONFIDENTIAL - INTERNAL USE ONLY

Report Generated By: tcuprddcadmin

Report Generated Date: 05-Nov-2018

Page 1 of 1