ABI PRISM™ 6100
Nucleic Acid PrepStation

User Guide

Applied Biosystems

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Contents

3 System Overview

4 Getting Started

8 Utilities

9 Maintenance

10 Troubleshooting

11 Firmware Upgrade

A Technical Support and Training

B Specifications

C Predefined Methods

D Screen Flowcharts

Index

1 Introduction and Safety

Overview

About This Chapter

This chapter describes the manual and provides information to help you safely operate the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topics:

6100 PrepStation Manuals

List of Manuals

The manuals for the 6100 prepstation are described below.

Title	P/N	Use
ABI PRISM 6100 Nucleic Acid PrepStation Site Preparation and Safety Guide	4326244	For installation requirements and safety information
ABI PRISM 6100 Nucleic Acid PrepStation User Guide	4326242	For detailed understanding of instrument operation
ABI PRISM 6100 Nucleic Acid PrepStation Quick Reference Card	4326241	For quick review of the most common functions

About the User Guide

This manual describes how to use the ABI PRISM 6100 Nucleic Acid PrepStation. It includes the following chapters and appendixes:

- Chapter 1, “Introduction and Safety,” contains safety information.
- Chapter 2, “Setting Up,” describes how to unpack and connect the instrument.
- Chapter 3, “System Overview,” provides an overview of system components and functions.
- Chapter 4, “Getting Started,” introduces important concepts and enables you to get up and running.
- Chapter 5, “Example Runs and the Run Log,” provides some example runs and discusses the run log.
- Chapter 6, “Users,” describes how to handle user names and PINs.
- Chapter 7, “Methods,” tells how to handle methods.
- Chapter 8, “Utilities,” describes how to configure and upgrade the instrument.
- Chapter 9, “Maintenance,” provides procedures for maintaining the instrument.
- Chapter 10, “Troubleshooting,” explains how to solve instrument problems.
- Chapter 11, “Firmware Upgrade,” tells how to use a new version of firmware.
- Appendix A, “Technical Support and Training,” describes how to get technical support.
- Appendix B, “Specifications,” contains instrument specifications.
- Appendix C, “Predefined Methods,” describes precoded methods provided in the system software.
- Appendix D, “Screen Flowcharts,” contains flowcharts showing various screen paths from the main menu.

Applied Biosystems Limited Warranty Statement

Limited Warranty Statement

PE Corporation (NY), through its Applied Biosystems Group ("Applied Biosystems") warrants to the customer that, for a period ending on the earlier of 1 year from the completion of installation or 15 months from the date of shipment to the customer (the "Warranty Period"), the ABI PRISM™ 6100 Nucleic Acid PrepStation purchased by the customer (the "Instrument") will be free from defects in material and workmanship, and will perform in accordance with the minimum specifications set forth in the Instrument User Guide and/or the Instrument's Product Specification Sheet (the "Specifications").

During the Warranty Period, if the Instrument's hardware becomes damaged or contaminated or if the Instrument otherwise fails to meet the Specifications, Applied Biosystems will repair or replace the Instrument so that it meets the Specifications, at Applied Biosystems expense. However, if the instrument becomes damaged or contaminated, or if the chemical performance of the Instrument otherwise deteriorates due to solvents and/or reagents other than those supplied or expressly recommended by Applied Biosystems, Applied Biosystems will return the Instrument to Specification at the customer's request and at the customer's expense. After this service is performed, coverage of the parts repaired or replaced will be restored thereafter for the remainder of the original Warranty Period.

This Warranty does not extend to any Instrument or part which has been (a) the subject of an accident, misuse, or neglect, (b) modified or repaired by a party other than Applied Biosystems, or (c) used in a manner not in accordance with the instructions contained in the Instrument User Guide. This Warranty does not cover the customer-installable accessories or customer-installable consumable parts for the Instrument that are listed in the Instrument User Guide. Those items are covered by their own warranties.

Applied Biosystems obligation under this Warranty is limited to repairs or replacements that Applied Biosystems deems necessary to correct those failures of the Instrument to meet the Specifications of which Applied Biosystems is notified prior to expiration of the Warranty Period. All repairs and replacements under this Warranty will be performed by Applied Biosystems on site at the Customer's location at Applied Biosystems sole expense.

No agent, employee, or representative of Applied Biosystems has any authority to bind Applied Biosystems to any affirmation, representation, or warranty concerning the Instrument that is not contained in Applied Biosystems printed product literature or this Warranty Statement. Any such affirmation, representation or warranty made by any agent, employee, or representative of Applied Biosystems will not be binding on Applied Biosystems.

Applied Biosystems shall not be liable for any incidental, special, or consequential loss, damage or expense directly or indirectly arising from the purchase or use of the Instrument. Applied Biosystems makes no warranty whatsoever with regard to products or parts furnished by third parties.

This Warranty is limited to the original location and electrical power connection, unless the customer with written consent of Applied Biosystems arranges for relocation of the instrument. This warranty is not transferable.

THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY AS TO THE INSTRUMENT AND IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND IS IN LIEU OF ANY OTHER OBLIGATION ON THE PART OF APPLIED BIOSYSTEMS.

Safety

Documentation User Attention Words

Five user attention words appear in the text of all Applied Biosystems user documentation. Each word implies a particular level of observation or action as described below.

Note Calls attention to useful information.

IMPORTANT Indicates information that is necessary for proper instrument operation.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Chemical Hazard Warning

⚠ WARNING CHEMICAL HAZARD. Some of the chemicals used with Applied Biosystems instruments and protocols are potentially hazardous and can cause injury, illness, or death.

- Read and understand the material safety data sheets (MSDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (*e.g.,* safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (*e.g.*, fume hood). For additional safety guidelines, consult the MSDS.
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended on the MSDS.
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.

Handling Biohazardous Material

⚠ WARNING BIOHAZARD. Biological samples such as tissues and blood have the potential to transmit infectious diseases. Follow the U.S. Department of Health and Human Services guidelines published in *Biosafety in Microbiological and Biomedical Laboratories* (stock no. 017-040-00547-4) and in Occupational Safety and Health Standards, Toxic and Hazardous Substances (29 CFR §1910.1030) concerning the principles of risk assessment, biological containment, and safe laboratory practices for activities involving clinical specimens. You can obtain additional information by connecting to the government Web site http://www.cdc.gov.

Chemical Waste Hazard Warning

⚠ WARNING CHEMICAL WASTE HAZARD. Wastes produced by Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death.

- Read and understand the material safety data sheets (MSDSs) provided by the manufacturers of the chemicals in the waste container before you store, handle, or dispose of chemical waste.
- Handle chemical wastes in a fume hood.

- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (*e.g.,* safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (*e.g.*, fume hood). For additional safety guidelines, consult the MSDS.
- After emptying the waste container, seal it with the cap provided.
- Dispose of the contents of the waste tray and waste bottle in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

About the Lithium Battery

⚠ CAUTION The lithium battery should only be changed by an Applied Biosystems Service Engineer.

Site Preparation and Safety Guide

A site preparation and safety guide is a separate document sent to all customers who have purchased an Applied Biosystems instrument. Refer to the guide written for your instrument for information on site preparation, instrument safety, chemical safety, and waste profiles.

About MSDSs

Some of the chemicals used with this instrument may be listed as hazardous by their manufacturer. When hazards exist, warnings are prominently displayed on the labels of all chemicals.

Chemical manufacturers supply a current MSDS before or with shipments of hazardous chemicals to new customers and with the first shipment of a hazardous chemical after an MSDS update. MSDSs provide you with the safety information you need to store, handle, transport and dispose of the chemicals safely.

We strongly recommend that you replace the appropriate MSDS in your files each time you receive a new MSDS packaged with a hazardous chemical.

⚠ WARNING **CHEMICAL HAZARD**. Be sure to familiarize yourself with the MSDSs before using reagents or solvents.

Ordering MSDSs

You can order free additional copies of MSDSs for chemicals manufactured or distributed by Applied Biosystems using the contact information below.

To order documents by automated telephone service:

1	From the U.S. or Canada, dial **1.800.487.6809**, or from outside the U.S. and Canada, dial **1.858.712.0317**.
2	Follow the voice instructions to order documents (for delivery by fax). **Note** There is a limit of five documents per fax request.

To order documents by telephone:

In the U.S.	Dial **1.800.345.5224**, and press **1**.
In Canada	♦ To order in English, dial **1.800.668.6913** and press **1**, then **2**, then **1** ♦ To order in French, dial **1.800.668.6913** and press **2**, then **2**, then **1**
From any other country	See the specific region under "To Contact Technical Support by Telephone or Fax (Outside North America)" on page A-4.

To view, download, or order documents through the Applied Biosystems web site:

Step	Action
1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, click **Documents on Demand**, then click **MSDS.**
3	Click **MSDS Index**, search through the list for the chemical of interest to you, then click on the MSDS document number for that chemical to open a pdf of the MSDS.

For chemicals not manufactured or distributed by Applied Biosystems, call the chemical manufacturer.

Instrument Safety Labels

Safety labels are located on the instrument. Each safety label has three parts:

- A signal word panel, which implies a particular level of observation or action (*e.g.,* CAUTION or WARNING). If a safety label encompasses multiple hazards, the signal word corresponding to the greatest hazard is used.
- A message panel, which explains the hazard and any user action required.
- A safety alert symbol, which indicates a potential personal safety hazard. See the *ABI PRISM 6100 Nucleic Acid PrepStation Site Preparation and Safety Guide* for an explanation of all the safety alert symbols provided in several languages.

About Waste Disposal

As the generator of potentially hazardous waste, it is your responsibility to perform the actions listed below.

- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure the health and safety of all personnel in your laboratory.
- Ensure that the instrument waste is stored, transferred, transported, and disposed of according to all local, state/provincial, or national regulations.

Note Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Bloodborne Infectious Waste Hazard

⚠ WARNING BLOODBORNE/INFECTIOUS WASTE HAZARD. Discard the supernatants following recognized disinfection procedures and in accordance with all local, state, and national bloodborne/infection regulations.

Moving and Lifting the Instrument

⚠ CAUTION PHYSICAL INJURY HAZARD. Improper lifting can cause painful and sometimes permanent back injury.

Use proper lifting techniques when lifting or moving the instrument. Safety training for proper lifting techniques is recommended.

Do not attempt to lift or move the instrument without the assistance of others. Depending on the weight of the instrument, this action may require two or more people.

Before Operating the Instrument

Ensure that everyone involved with the operation of the instrument has:

- Received instruction in general safety practices for laboratories
- Received instruction in specific safety practices for the instrument
- Read and understood all related MSDSs

⚠ CAUTION Avoid using this instrument in a manner not specified by Applied Biosystems. Although the instrument has been designed to protect the user, this protection can be impaired if the instrument is used improperly.

Setting Up 2

Overview

About This Chapter This chapter describes how to set up the ABI PRISM™ 6100 Nucleic Acid PrepStation before you can begin using the system.

In This Chapter This chapter contains the following topics:

Instrument and Laboratory Layout

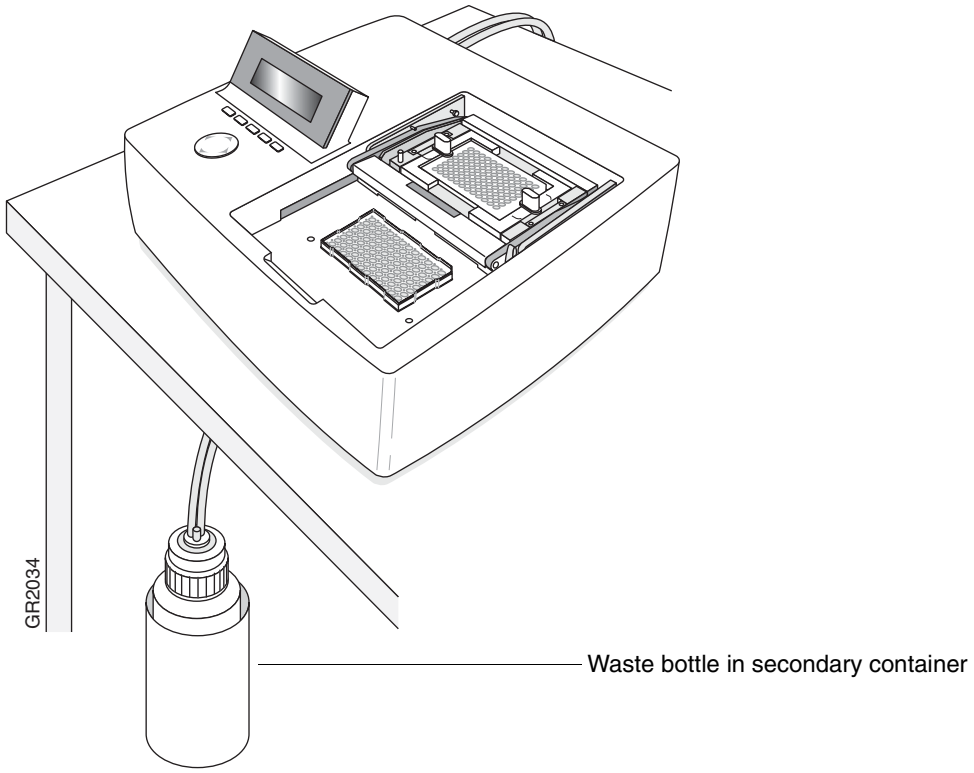
6100 Instrument Attributes

The table below shows physical measurements of the 6100 prepstation.

Attribute	Measurement
Weight	<20 kg (<45 lbs)
Height	28 cm (11 in.)
Width	50.8 cm (20 in.)
Depth	47 cm (18.5 in.)
Thermal output	240 W (under normal conditions)

Laboratory Layout

The figure below shows the typical laboratory layout for the 6100 prepstation. The unit should not be placed near heaters or cooling ducts. There should be about 6 in. of rear clearance.



IMPORTANT Additional space is required for instrument operation.

Environmental Specifications

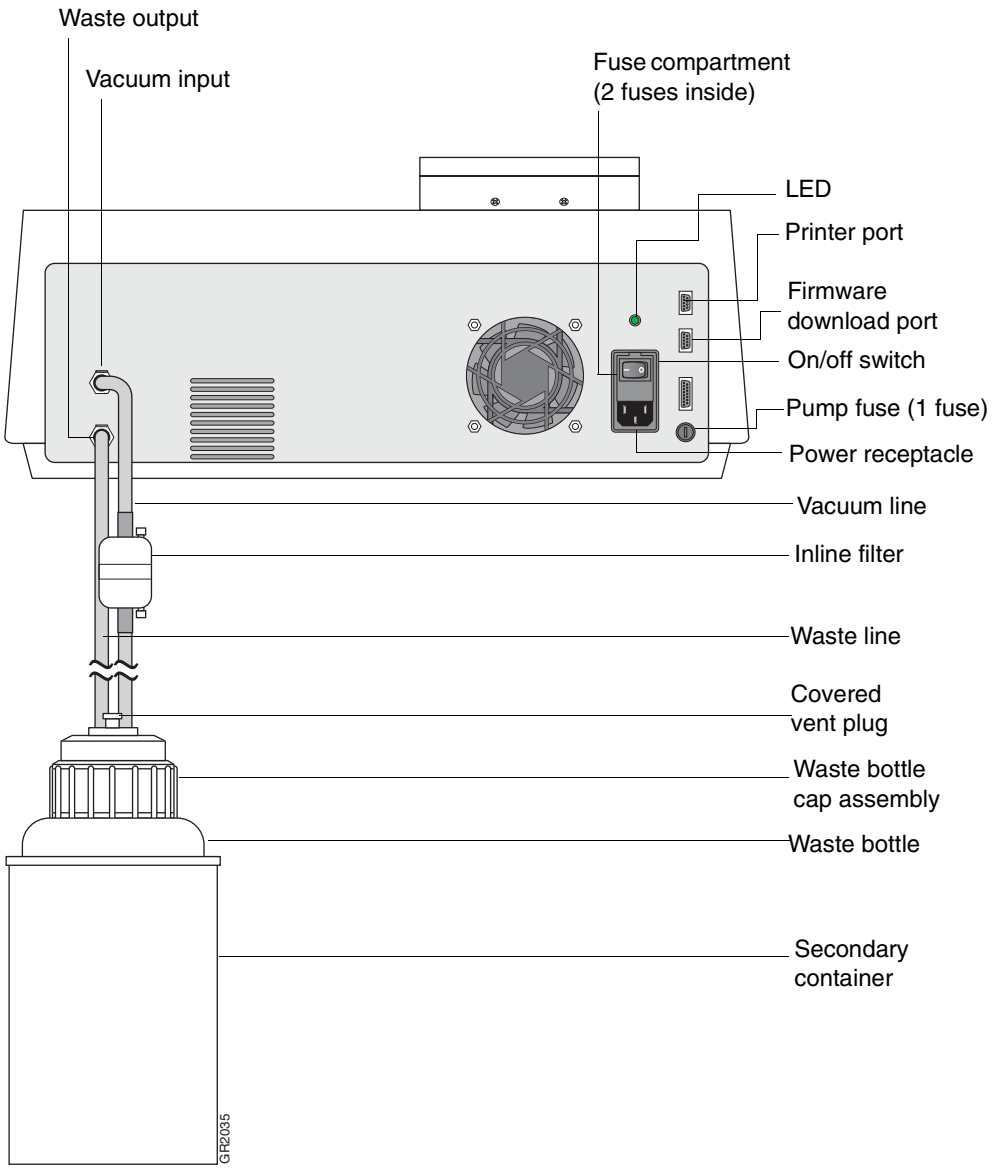
The 6100 prepstation should be installed only in certain laboratory conditions:

Condition	Requirement
Temperature	15 to 30 °C (59 to 86 °F)
Relative humidity	< 80%
Elevation	0 to 2000 m
Input voltage	90–260 VAC (47–63 Hz)
Power rating	240 W
Power factor	> 0.96
Pollution	Only non-conductive pollutants present

Connection Setup

Overview This section describes how to set up your instrument, including unpacking it, plugging it in, then attaching the waste and vacuum lines from the rear of the instrument to the waste bottle. The instrument rear, waste bottle, and waste and vacuum lines are shown below.

The waste bottle cap assembly must be tightly screwed on to the waste bottle. Failure to achieve a tight seal will prevent the correct vacuum pressure from being obtained at the purification tray and may prevent any vacuum from being obtained. Dips or sagging in either the waste or vacuum lines should be avoided. A filter on the vacuum line captures aerosols and prevents their being vented back into the room.



Equipment and Materials Needed

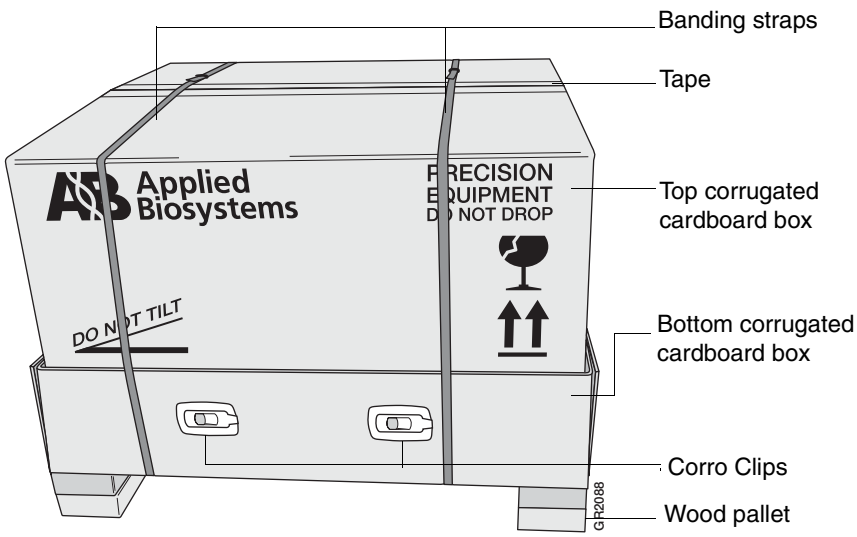
You need the following equipment and materials to set up the connections for the 6100 prepstation:

√	Equipment and Materials	Source
	♦ Waste bottle ♦ Waste line ♦ Vacuum line with inline filter ♦ 5.5-L secondary container ♦ Power cord	Applied Biosystems
	♦ *Optional.* Tool for cutting banding straps and tubing	Hardware supplier

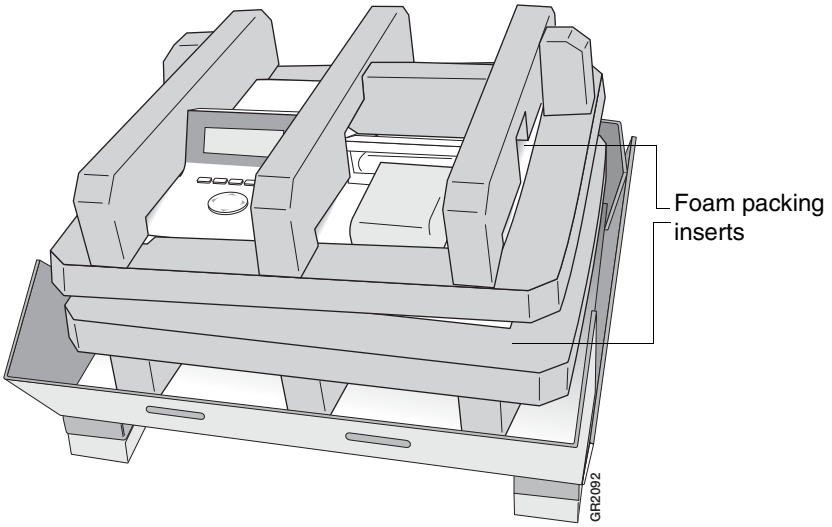
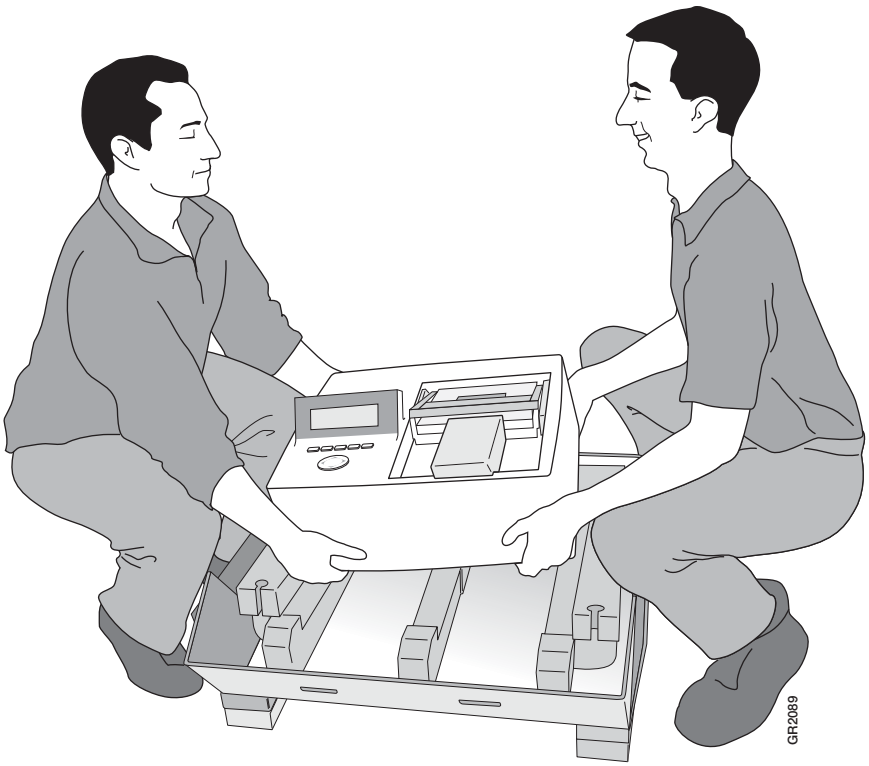
Unpacking the 6100 PrepStation

IMPORTANT Before unpacking the 6100 prepstation, be sure you have read the *ABI PRISM 6100 Nucleic Acid PrepStation Site Preparation and Safety Guide*.

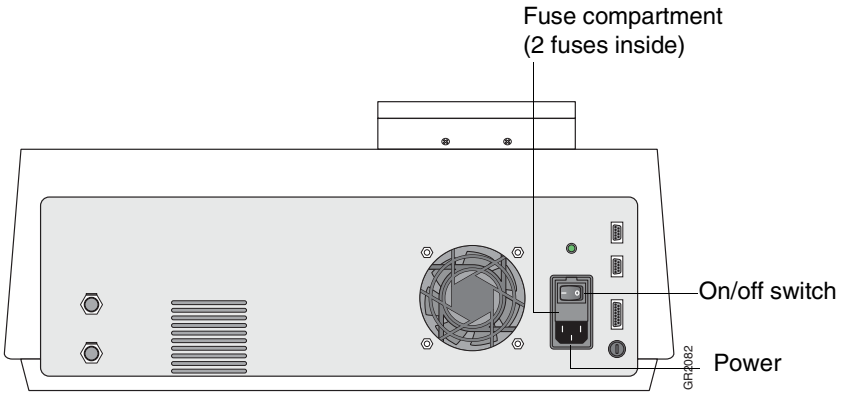
To unpack the instrument:

Step	Action
1	Remove outer packaging material.  a. Using scissors or other cutting tool, cut the two black banding straps. b. Cut the tape on the top of the box, then open the flaps. c. Remove the packing kit. d. Remove each Corro Clip (two on each side) by pulling its inside tab. e. Lift the top corrugated cardboard box off the 6100 prepstation.

To unpack the instrument: *(continued)*

Step	Action
2	Remove the foam packing inserts except for the one inside the instrument. 
3	With another person, lift the 6100 prepstation from the pallet and place it on a laboratory bench or table in its final location. **⚠ WARNING PHYSICAL INJURY HAZARD**. Do not attempt to lift the instrument or any other heavy objects unless you have received related training. Incorrect lifting can cause painful and sometimes permanent back injury. Use proper lifting techniques when lifting or moving the instrument. Two or three people are required to lift the instrument, depending upon instrument weight. 

To unpack the instrument: *(continued)*

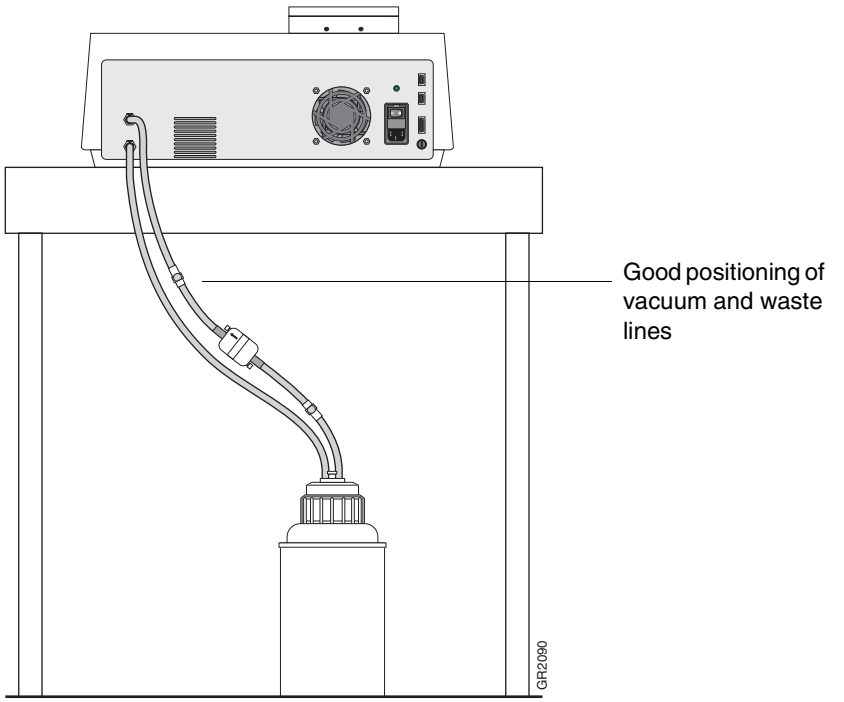
Step	Action
4	Remove the remaining foam insert from the instrument's carriage.
5	Verify that the electrical receptacle is located within 2.5 m (8 ft) from the instrument rear panel.
6	Attach a power cord appropriate for your country's electrical requirements to the rear of the instrument. **Note** A power cord kit, which contains several power cords, is provided. Select the cord that corresponds to your local electrical service. 

Connecting Tubing

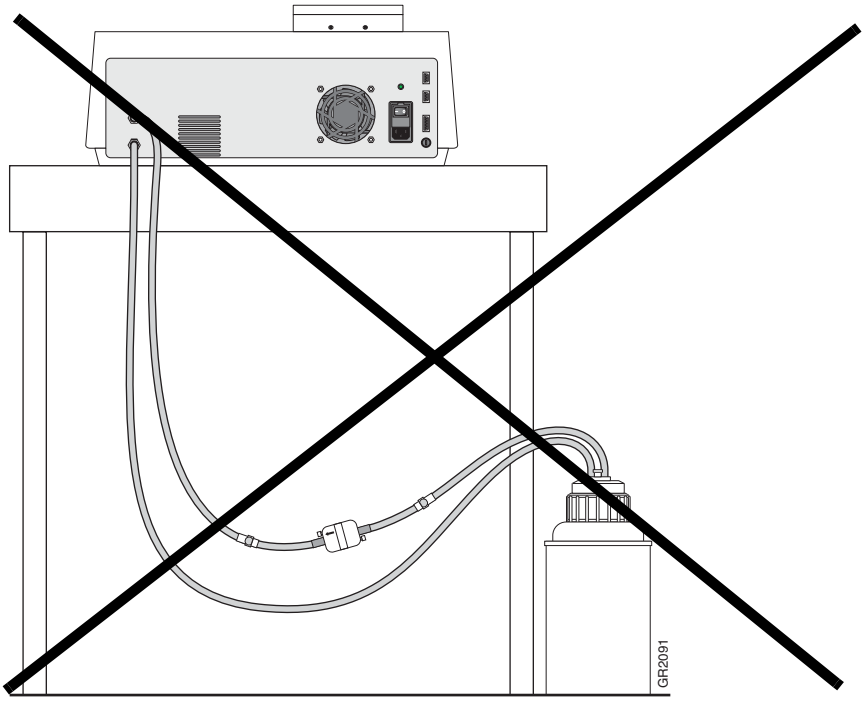
To connect the tubing:

Step	Action
1	Attach the vacuum line (the one with the inline filter) to the vacuum input quick connect at the rear of the instrument so that it snaps into place.
2	Attach the waste line to the waste output quick connect at the rear of the instrument so that it snaps into place.
3	Check the waste and vacuum lines for any loose connections.
4	Check the waste bottle to ensure that the instrument can produce a vacuum. a. Verify that the vent plug on the waste bottle is covered. b. Tighten the lid of the waste bottle to ensure that it is securely fitted.

To connect the tubing: *(continued)*

Step	Action
5	Adjust the position of the waste bottle to prevent dips or valleys in the vacuuum and waste lines. Cut and adjust the length of the lines if necessary. 

To connect the tubing: *(continued)*

Step	Action
6	Verify that the vacuum and waste lines do not dip between the rear of the instrument and the waste bottle cap. **⚠ CAUTION** If the vacuum and waste lines contain dips or valleys, waste will not flow properly and will flood the compartments or damage the vacuum pump. 
7	Place the waste bottle in a secondary container to hold any possible leakage of waste from the bottle.
8	Make sure that you can easily see and access the waste bottle. **Note** You must maintain the waste bottle by monitoring the waste level and regularly emptying the contents. See “Emptying the Waste Bottle” on page 9-3.

System Overview 3

Overview

About This Chapter This chapter provides an overview of the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter This chapter contains the following topics:

Instrument Overview

Introduction

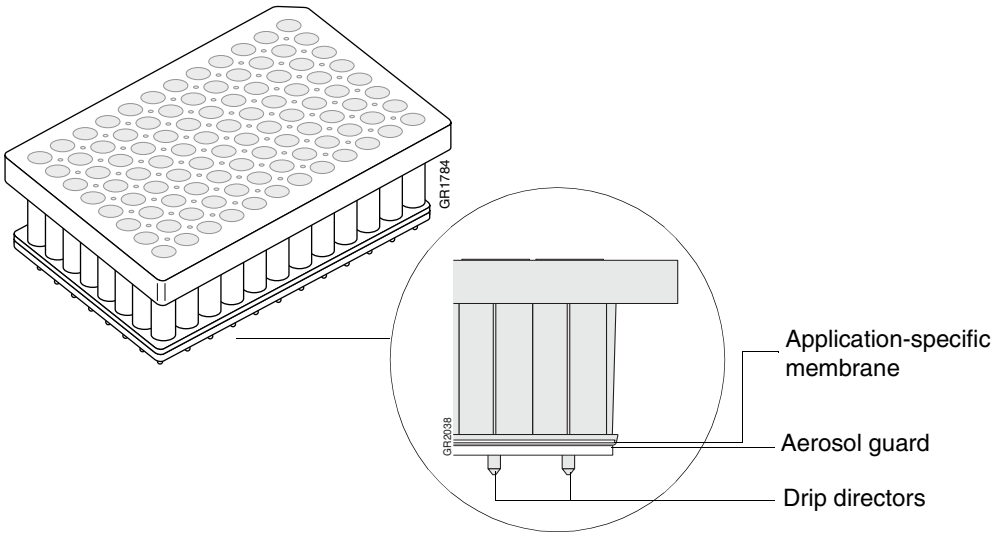
The ABI PRISM™ 6100 Nucleic Acid PrepStation is a system that is designed to isolate and purify nucleic acids (RNA, DNA, and mRNA)[1] from a variety of biological sample types, including cultured cells, animal and plant tissue, primary cell isolates, and whole blood. After purification the nucleic acid may be used in a variety of ways, including PCR, reverse transcription, and DNA sequencing. The 6100 prepstation is designed with dedicated consumables and precise electronic firmware control of vacuum to give reproducible purifications.

In addition to standard predefined methods, up to 300 methods for up to 20 individual users can be created, edited, and deleted with a simple graphical interface.

Protocols created on the 6100 prepstation are transferrable to the ABI PRISM™ 6700 Automated Nucleic Acid Workstation.

Purification Overview

In general, the raw biological sample must be disrupted in the presence of a reagent that preserves and/or stabilizes the desired nucleic acid. The suspension/solution of nucleic acids and cellular debris is then transferred onto a purification tray, as shown below.



Each well of the purification tray has a maximum volume of 700 µL. The purification tray has a application-specific membrane, which serves as a filter. An aerosol guard helps prevent droplets from cross-contaminating the adjacent wells. When a vacuum is applied, the cell or tissue lysate is pulled through the membrane of the purification tray. Wash reagents remove contaminants and cellular debris before the purified nucleic acid is finally eluted in a 96-well format.

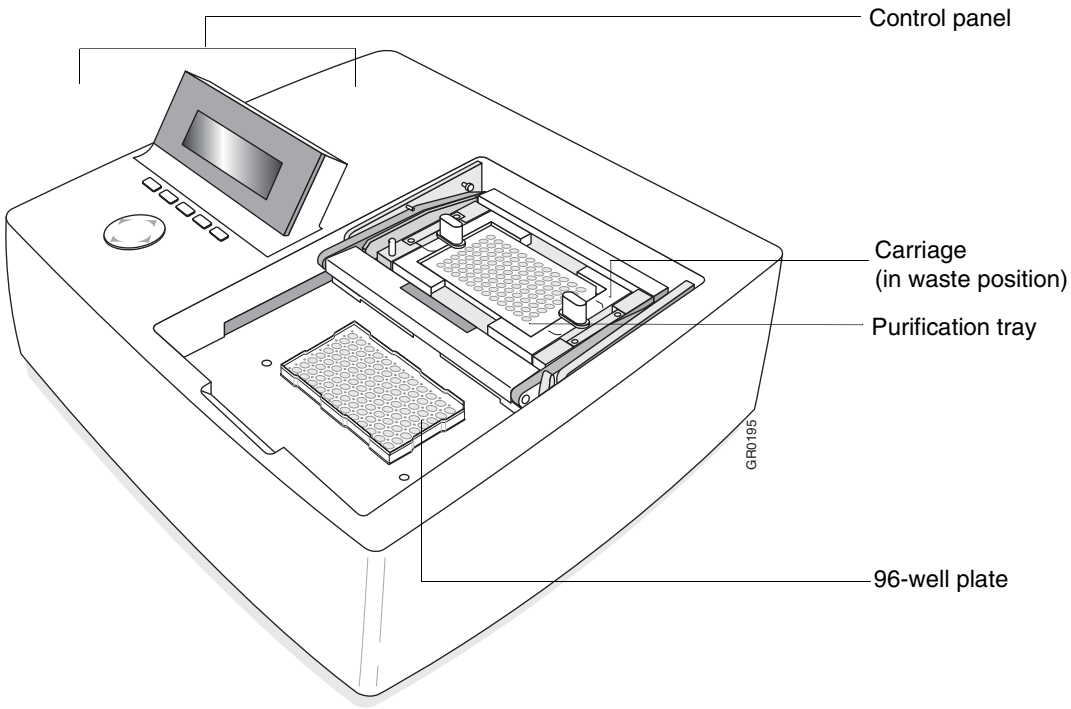
System Description

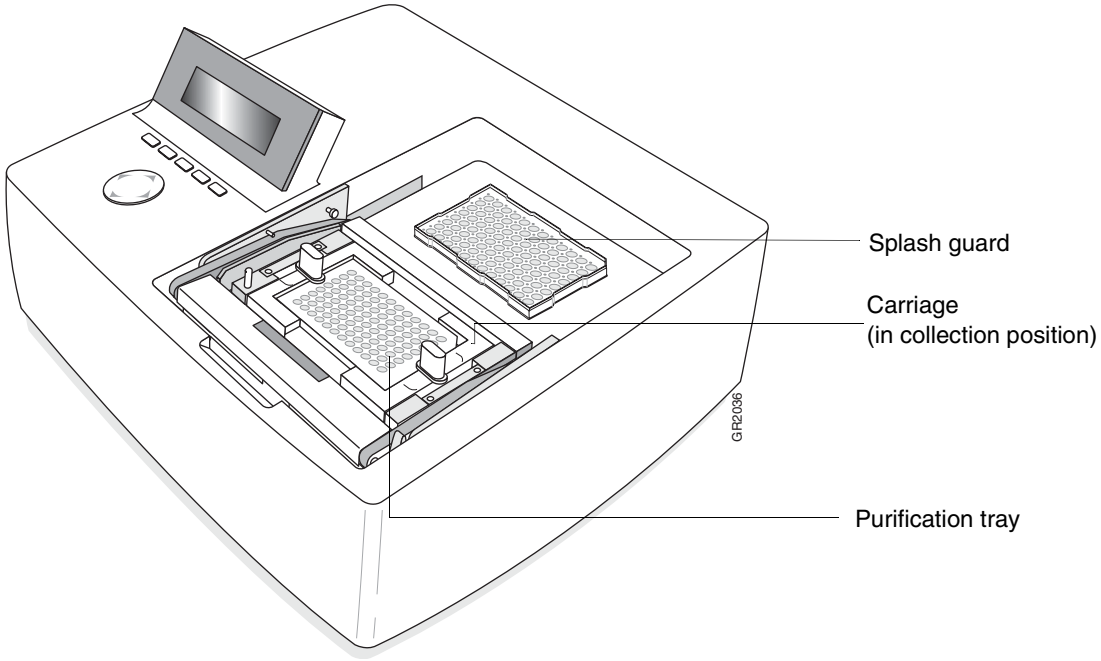
The 6100 prepstation, shown in two views on the following page, contains a number of components that together allow the production of very pure nucleic acids. A movable carriage holds a 96-well purification tray with an application-specific membrane. This

1. Protocols for purifying various nucleic acids will be developed. Contact Applied Biosystems Technical Support for a list of available protocols.

carriage has two locations (collection and waste) and three height settings (sealed, touchoff, and released).

The control panel, which consists of a display screen, function keys F1–F5, and arrow keys, allows you to control the timing and pressure of the vacuum, as well as recall methods and select your user name with a unique PIN.





System Components

The table below lists and describes the components of the 6100 prepstation.

Component	Description	Part Number
	Purification System	
Collection position	Holds one of the following: ♦ Deep-Well Plate or ♦ Adapter and TC II Reaction Plate, 96-Well, Barcoded (also called “archive plate”)	 4308641 4326251 4306737
Carriage	Holds one of the following purification trays: ♦ Total RNA Purification Tray ♦ gDNA Purification Tray 1 ♦ Pre-Filter Tray 1 ♦ Pre-Filter Tray 2	 4305932 4318641 4328131 4330683
	Location ♦ Over collection position ♦ Over waste position	—
	Height setting ♦ Sealed ♦ Released ♦ Touchoff	—
Waste position	Holds a Splash Guard (colored blue)	4311758
	Vacuum Control System	
Keypad	F1–F5 and arrow keys for accessing commands on the LCD screens	—
LCD screen	Displays the following: ♦ Vacuum commands and status ♦ Users ♦ Predefined methods ♦ User-stored methods ♦ Utilities ♦ Run logs	—
Waste bottle and secondary container	Holds up to 4 L of liquid waste from washes and filtrate	—

Instrument Uses

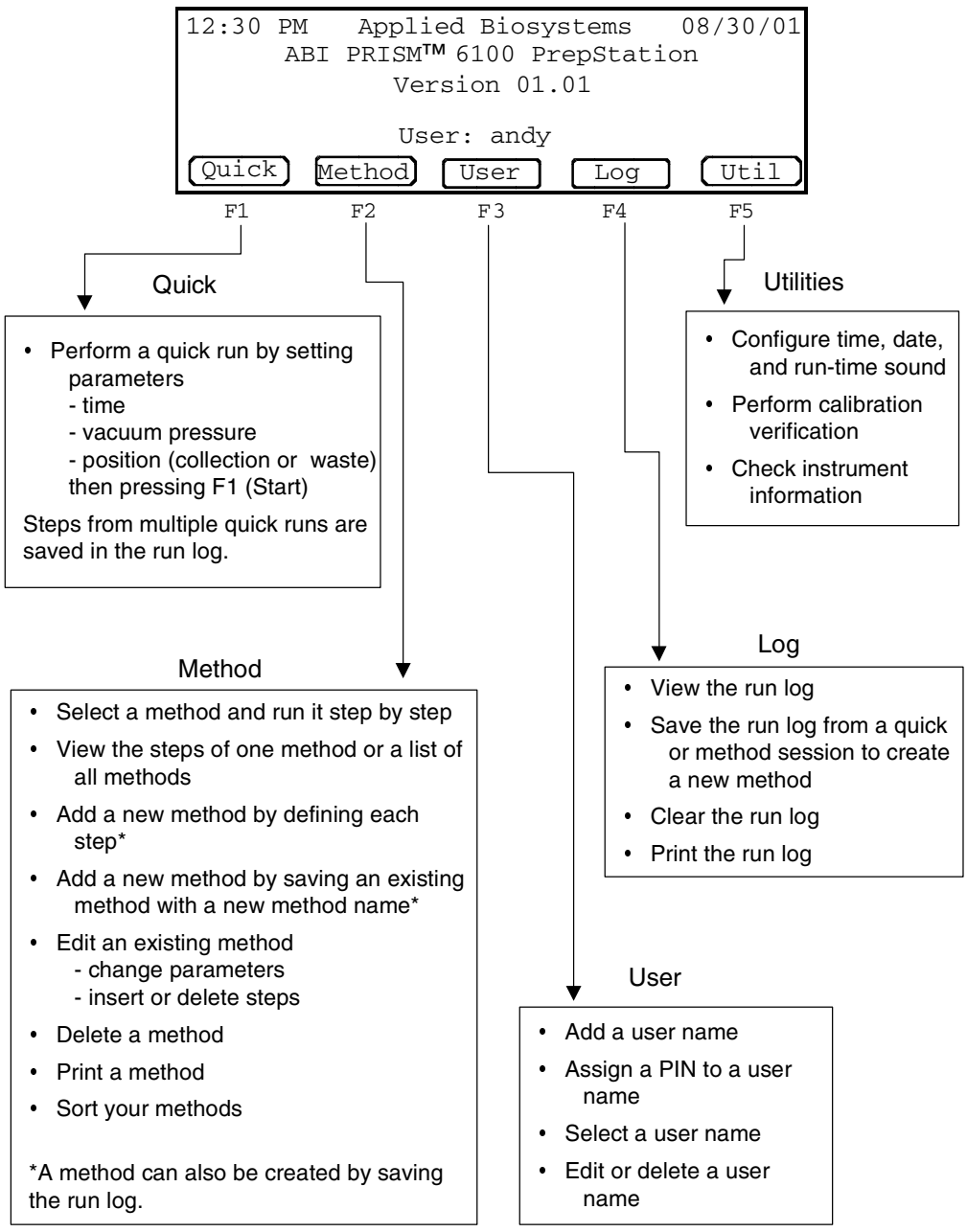
The instrument can be used for performing the following nucleic acid purification steps:

- Collecting filtrate (for subsequent purification of flowthrough)
- Washing samples
- Collecting purified nucleic acid

Overview of Software Functions

Main Menu as Base

The main menu is the base from which you start all instrument software functions. From it you can choose five different paths: Quick (Quick Run), Method, User, Log, and Util (Utilities). The functions available from each of these paths are summarized in the chart below. Procedures for performing these functions are given in subsequent chapters. Charts showing screen flows from each path on the main menu are provided in Appendix D, “Screen Flowcharts.”



4 Getting Started

Overview

About This Chapter

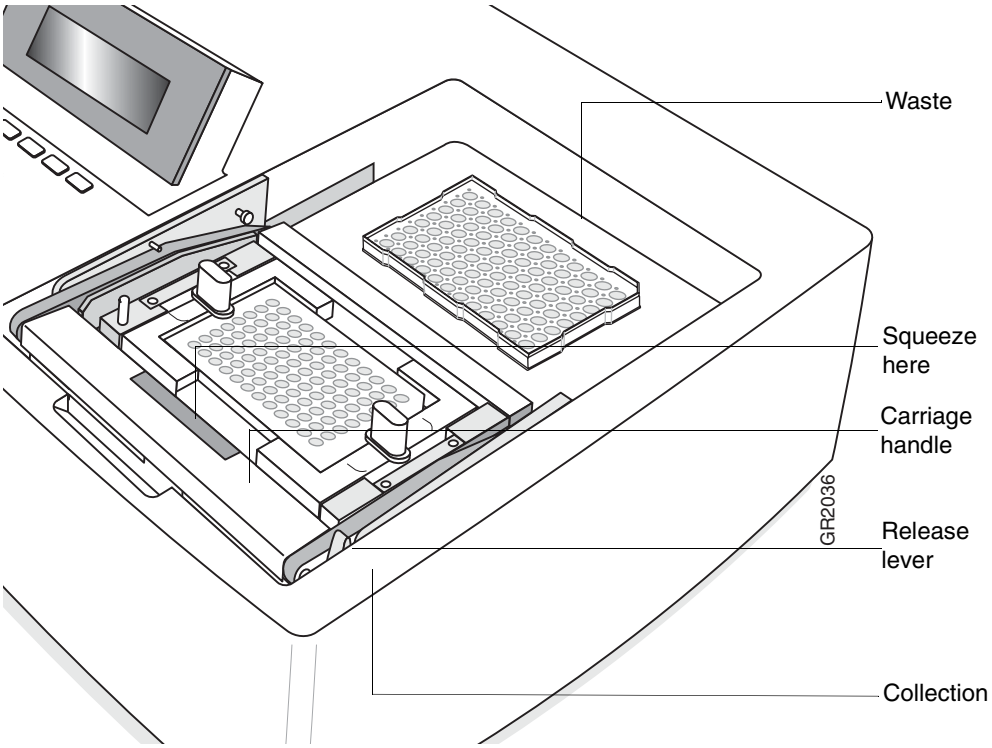
This chapter describes how to begin using the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topics:

Vacuum Carriage

Introduction The vacuum carriage, which holds the purification tray, can be moved to either the waste position or the collection position. The carriage has a handle with an area you squeeze in the center. Just to the right of the carriage handle is a release lever, which allows you to move the carriage from the touchoff height to the fully released height. Once the vacuum carriage is fully released, you can move it between waste and collection.



Underneath the vacuum carriage is a silicone gasket which can seal the carriage to the deckspace. When the carriage handle is at its lowest posiition, the gasket is sealed to the deckspace, allowing a vacuum to be created. The silicone gasket is shown as a dark Z-shape in each of the cross-section drawings in “Carriage Heights Illustrated” on page 4-3.

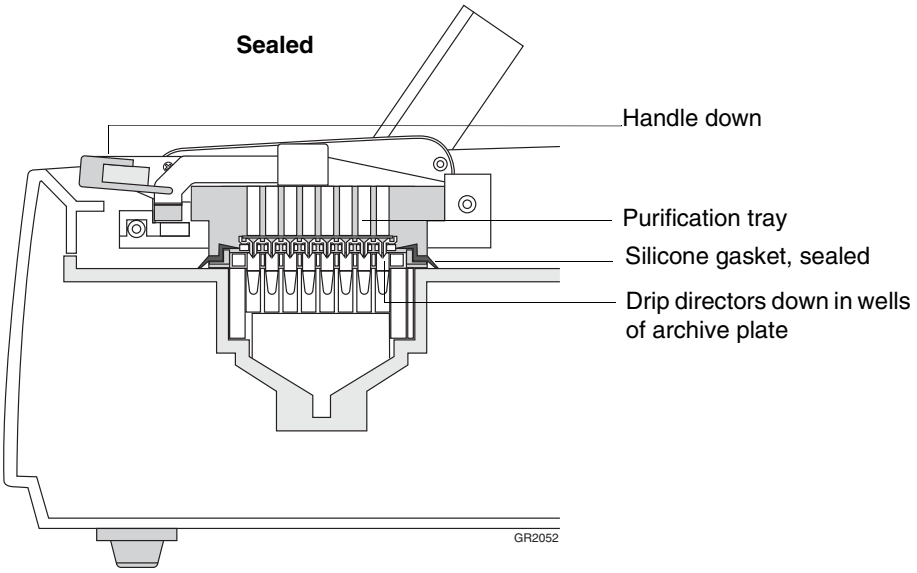
Carriage Heights

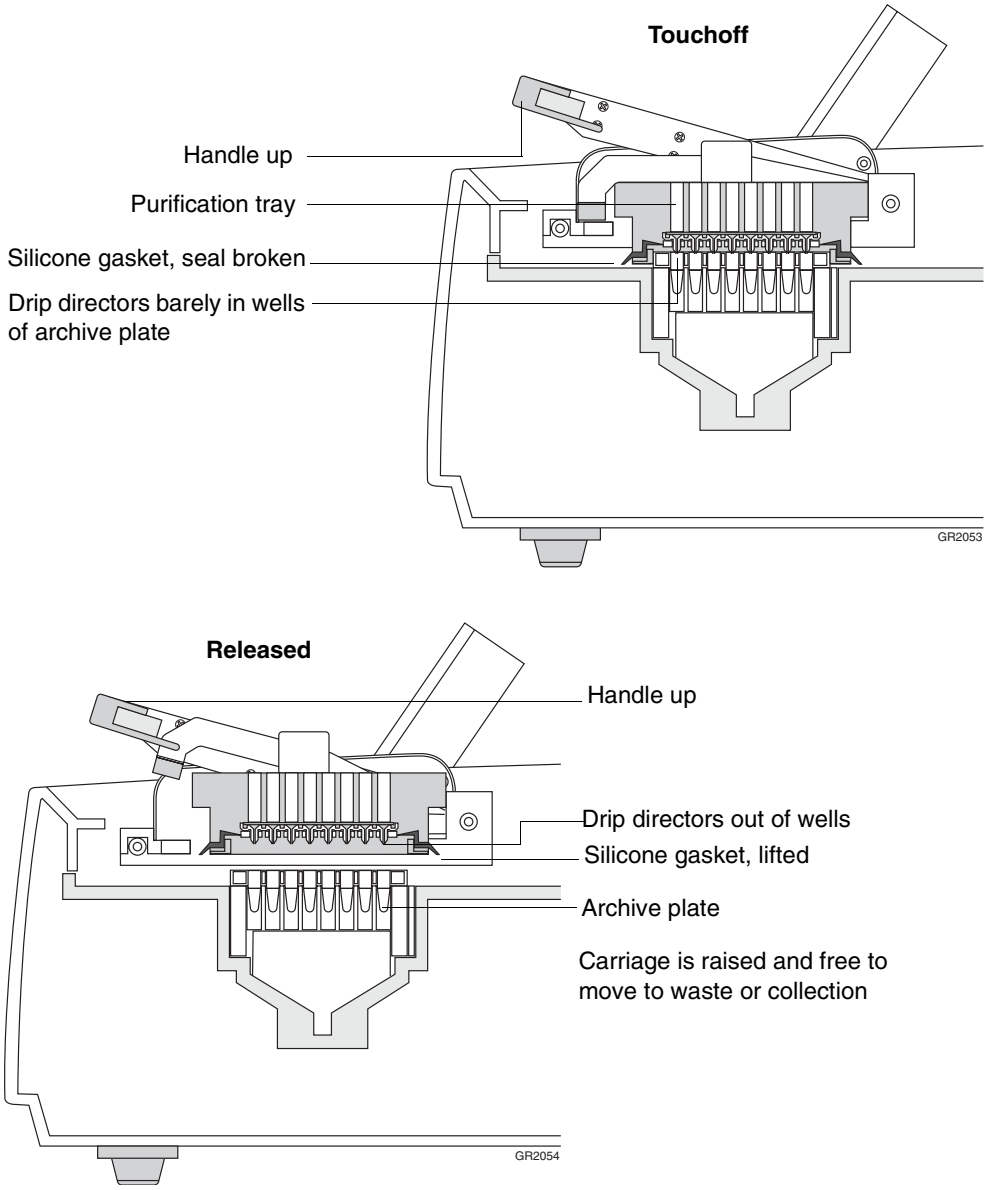
The carriage has three height states: sealed, touchoff, and released, which are shown in “Carriage Heights Illustrated” on page 4-3.

Carriage Heights

Height	Description
Sealed	The silicone gasket underneath the carriage is sealed to the deckspace. The carriage is tightly seated over the waste or collection position and ready for a vacuum to be applied. To seal the carriage, squeeze the center part of the handle and push it down until it locks into position (seals).
Touchoff	The vacuum seal between the silicone gasket and the deckspace is broken. The carriage handle is lifted to the upper locked position. However, the tips of the drip directors of the purification tray remain in the wells of the tray underneath. The tray underneath can be a splash guard, an archive plate, or a deep-well plate. Pushing the vacuum carriage back and pulling it forward with the handle allows the drip directors to contact the side walls of the tray underneath and remove any drips that may be left on the drip directors. **IMPORTANT** Before you move the carriage from collection to waste or vice versa, always perform touchoff. For further information, see “Cross-Contamination and Touchoff” on page 4-5.
Released	The carriage is set to its maximum height. This allows free movement between the waste and collection positions. To release the carriage, press the release lever to the right of the handle.

Carriage Heights Illustrated

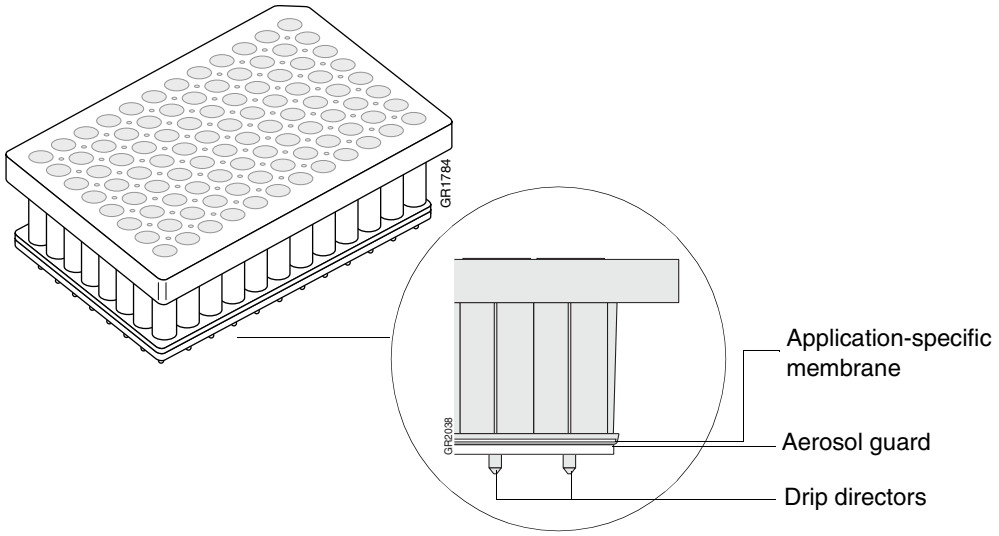



Touchoff
Handle up
Purification tray
Silicone gasket, seal broken
Drip directors barely in wells of archive plate
GR2053
Released
Handle up
Drip directors out of wells
Silicone gasket, lifted
Archive plate
Carriage is raised and free to move to waste or collection
GR2054

Cross-Contamination and Touchoff

A Closer Look at the Purification Tray

A close-up side view of the purification tray is shown below.

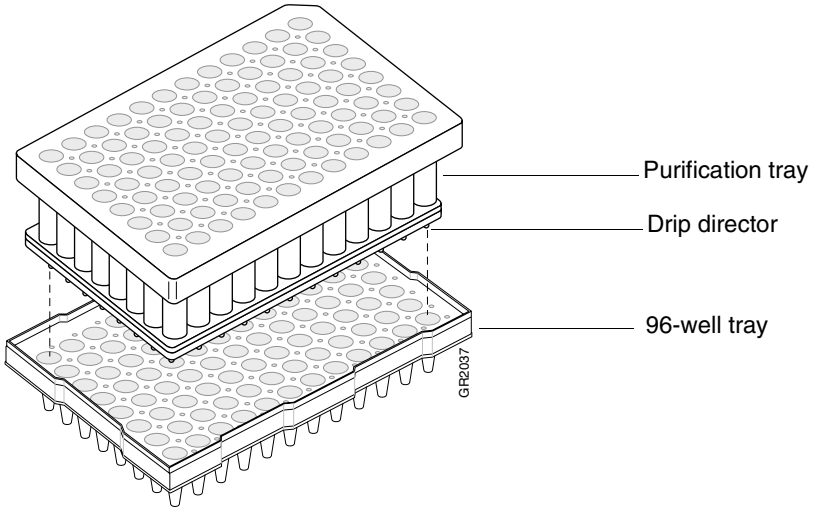


The aerosol guard is the white Styrofoam layer below the application-specific membrane. The aerosol guard prevents droplets from one well contaminating the neighboring wells.

The drip directors funnel the liquid from the purification tray.

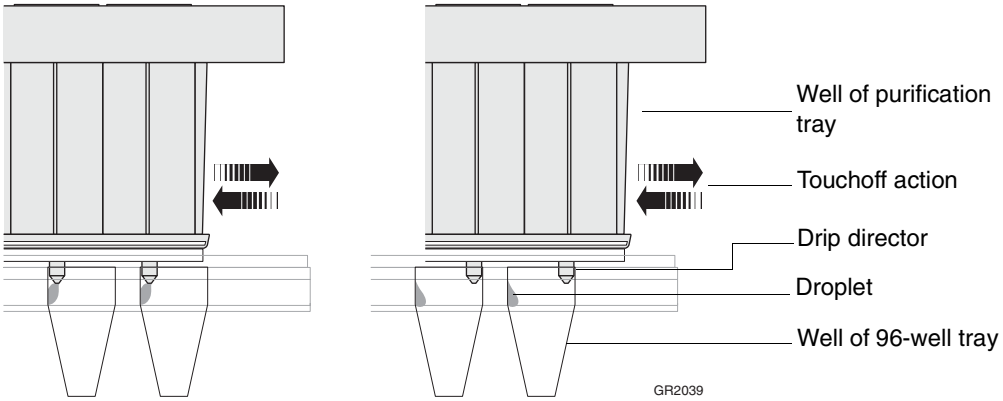
Tray Fit

The drip directors fit into the wells of a 96-well tray when the carriage is positioned over the collection or waste chamber, as shown below.



What Happens at Touchoff

When the touchoff routine is performed, droplets on the drip directors touch the sides of the wells of the 96-well tray and fall off. This prevents cross-contamination.



Performing Touchoff

It is essential to perform touchoff anytime the carriage is being moved from waste to collection or vice versa.

To perform touchoff:

Step	Action
1	Wait a few seconds after the completion of the last vacuum step to allow the vacuum to completely decay.
2	Squeeze the central portion of the carriage handle and lift the handle until it locks into position. This locates the carriage at the touchoff height.
3	Pushing the handle of the carriage, move the carriage back and forward until a resistance is felt in each direction. This distance is approximately 1.5 cm.
4	Repeat the back and forward motion at least three times.
5	Pull the release lever to move the carriage to the next location.

Placing Disposables

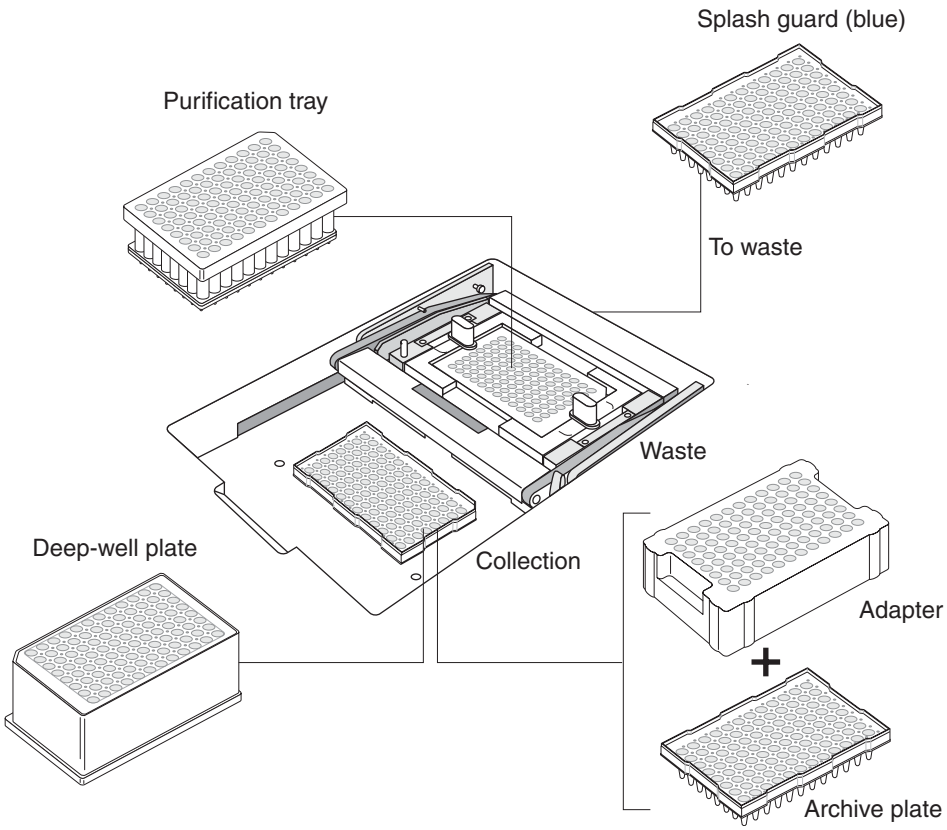
Overview

Before you begin a purification run, you will place three 96-well trays on the 6100 prepstation:

- A *splash guard* (P/N 4311758) is always placed in the waste chamber. It's the blue tray with bottomless wells. A splash guard is necessary because during touchoff the droplets from the purification tray touch the splash guard and fall off. This helps prevent cross-contamination. A new splash guard should be used with every run.
- A *purification tray* into which lysed samples will be added is always placed in the carriage. Two knobs secure the purification tray in the carriage. For part numbers for purification trays, see "System Components" on page 3-4.
- Either of two trays can be placed in the collection chamber:
  - A *deep-well plate* (P/N 4308641) can be used to collect filtrate from the first vacuum step. If the samples have been lysed with total RNA lysis reagent, the filtrate contains gDNA, which can be isolated using the TransPrep chemistry.
  - An industry-standard barcoded 96-well microplate (called an *archive plate,* P/N 4306737) plus an *adapter* (P/N 4326251) can be used to collect purified nucleic acid.

Illustration

These 96-well trays and their positions are shown below.



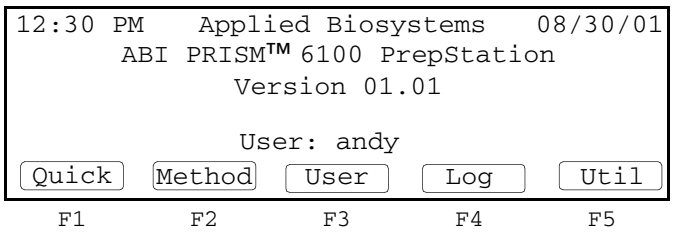
Pre-Wetting the Purification Tray

IMPORTANT As the first step of a purification run, pre-wet all 96 wells of the purification tray with 40 µL of the solution you are using as the first wash. This should be done before adding samples.

Powering On

Procedure

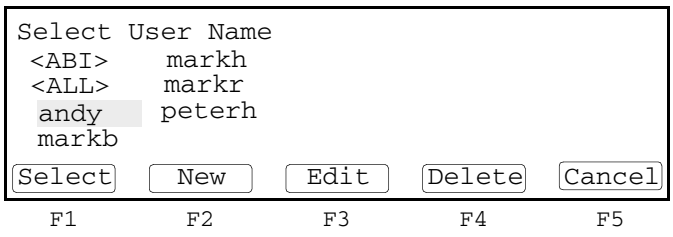
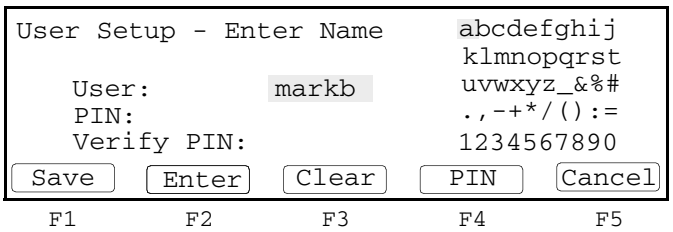
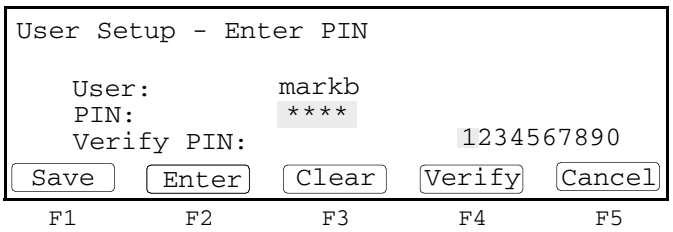
To turn on the instrument power:

Step	Action
1	Press the power on/off switch at the rear of the instrument.
2	Wait several seconds for the main menu to appear, then you can use any of the functions displayed above the function keys.  **Note** The main menu should appear within a few seconds. If any permanent patterns of lines or bars display on the screen, contact Applied Biosystems Technical Support.

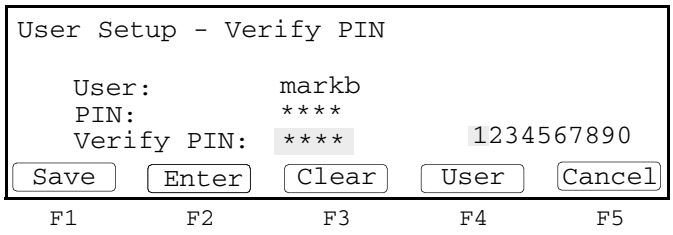
Adding Yourself as a User

Purpose It's important to add yourself as a user because you will want to keep your methods separate from those belonging to others. Also, the system requires a user name when you save a method.

Procedure To add a user:

Step	Action
1	From the main menu, press **F3** (User). The Select User Name screen appears. 
2	Press **F2** (New). The User Setup (Name) screen appears. **Note** Pressing F3 (Clear) deletes the last character like a backspace key. 
3	Spell the name by using the arrow keys to highlight the first letter of the name, then press **F2** (Enter), then highlight the second letter, then press **F2** (Enter), etc. If you want to add a personal identification number (PIN), continue with the next step. If not, press **F1** (Save) to return to the Select User Name screen, which now shows your newly added user name.
4	Press **F4** (PIN). The User Setup (PIN) screen appears. 

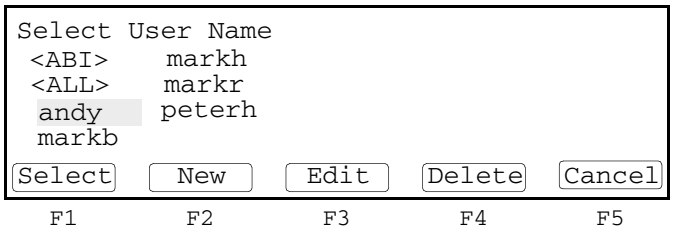
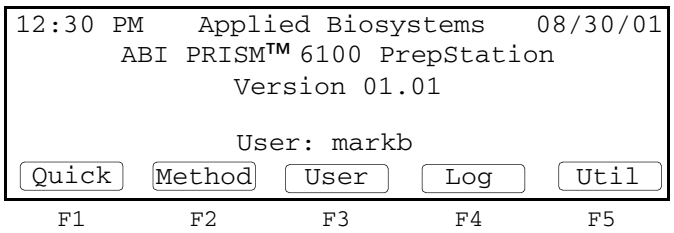
To add a user: *(continued)*

Step	Action
5	Enter the PIN (1–4 digits) in the same way you spelled the user name in step 3, then press **F4** (Verify). The User Setup (Verify PIN) screen appears. 
6	Enter the same PIN again, then press **F1** (Save).

Selecting a User Name

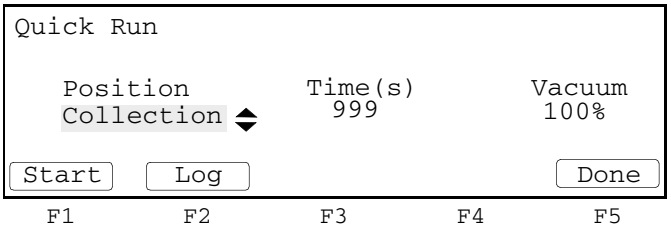
Overview After you have been added as a user of the 6100 prepstation, you can easily select your name if it is not present on the main menu. If more than one person uses your instrument, it is likely you will need to perform this procedure. This procedure is similar to “logging in” on other systems. You can also use this procedure to view methods belonging to another user and then run them. Selecting a user name does not require you to enter a PIN.

Procedure To select a user name:

Step	Action
1	From the main menu, press **F3** (User). The Select User Name screen appears.  **Note** Some user names have special functions: – ALL displays all methods for all users on the instrument. – ABI displays predefined methods, as described in Appendix C, “Predefined Methods.”
2	Use the arrow keys to highlight the user name you want.
3	Press **F1** (Select). The main menu appears showing the selected user name. 

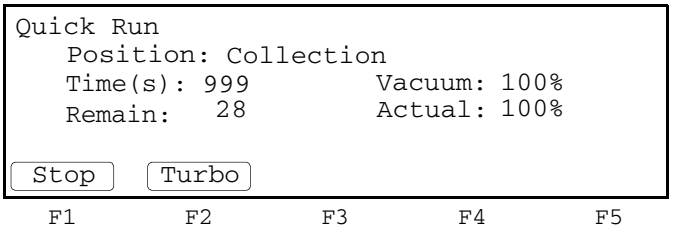
Performing a Quick Run

Overview Quick Run allows you to perform one step of a purification protocol. From the main menu, pressing F1 (Quick) brings up the Quick Run screen.



On this screen you tell the system which position you have the carriage in (waste or collection), how many seconds you want to pull a vacuum, and what strength (%) of vacuum you want. Then you press F1 (Start).

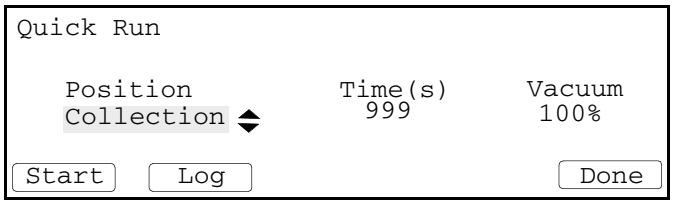
The system pulls the vacuum and the screen changes so that Stop and Turbo become the function key selections, and the time counts down.



When the time is up (or after F1 (Stop) is pressed), the previous screen is displayed.

For further information about Stop and Turbo, refer to “Ending a Run Prematurely” on page 4-15.

Procedure To perform a quick run:

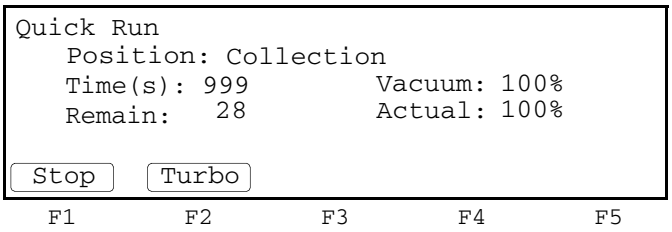
Step	Action
1	From the main menu, press **F1** (Quick). The Quick Run screen is displayed. 
2	Place disposables on the instrument. If necessary, refer to “Placing Disposables” on page 4-7.
3	Move the carriage to either the collection or waste position, as appropriate. Seal it by pressing the carriage handle down until it locks, and the carriage can’t be moved.

To perform a quick run: *(continued)*

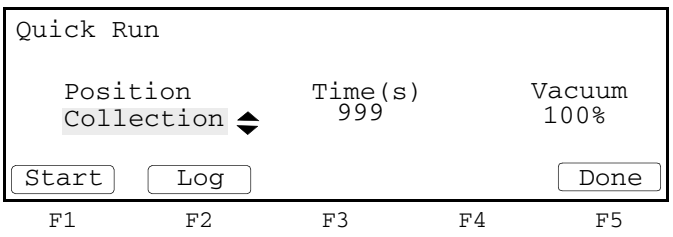
<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>4</td><td>Add liquid (such as sample, wash solution, or elution solution) to the purification tray, according to your protocol.</td></tr>
<tr><td>5</td><td>Program the parameters of a quick run, as follows: Use the left and right arrow keys to move from field to field. Use the up and down arrow keys to change the values of a field when the symbol ⬍ is present next to the field. In the Time(s) field you may prefer to press and hold the up and down arrow keys to change the values faster. These fields have the following ranges:

<table>
<tr><th>Field</th><th>Range</th></tr>
<tr><td>Position</td><td>Collection or Waste</td></tr>
<tr><td>Time(s)</td><td>1–999 seconds
(999 seconds ≈ 16.5 minutes)</td></tr>
<tr><td>Vacuum</td><td>0–100%</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>Press F1 (Start) to activate the vacuum.

The Quick Running screen is displayed while the quick run proceeds.



After the time runs out, the Quick Run screen is redisplayed.



</td></tr>
<tr><td>7</td><td>Perform the next step in your protocol by repeating step 3 through step 6 above as necessary.

IMPORTANT Before moving the carriage from waste to collection or vice versa, be sure to perform touchoff.</td></tr>
<tr><td>8</td><td>Remove disposables when your protocol is complete.</td></tr>
</table>

Methods and Runs

About Methods

With the Quick Run feature you can perform one step of a purification protocol. However, a protocol has many steps. A step has three parameters: position, time, and vacuum. For example,

Position	Time	Vacuum
Waste	120	20%

You can create a series of these steps and save them as a *method*. A method might look like this:

Step	**Position**	**Time(s)**	**Vacuum**
1	Waste	120	20%
2	Waste	120	20%
3	Waste	120	20%
4	Waste	120	20%
5	Waste	120	20%
6	Waste	300	90%
7	Touch Off	—	—
8	Collection	120	20%
9	Touch Off	—	—

Touchoff can also be added as a step so that you have a reminder to perform it.

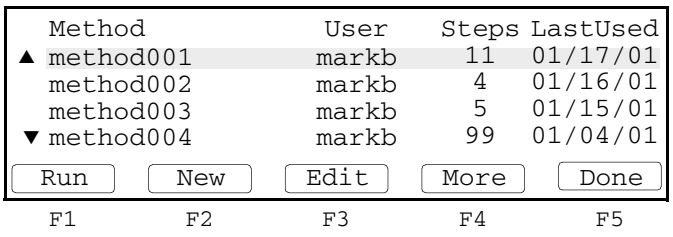
You would save the method with a method name (such as ‘method001’), and the 6100 prepstation associates it with your user name.

By having a stored method, you can save time and be sure you use the same parameters for each protocol.

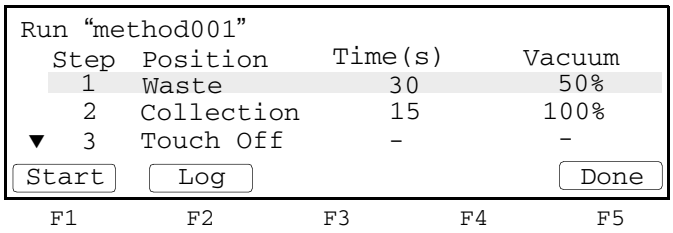
For further information, refer to “Creating a Method” on page 4-16.

About Runs

When you are ready to run a method, you can access a list of your methods by pressing F2 (Method) from the main menu.



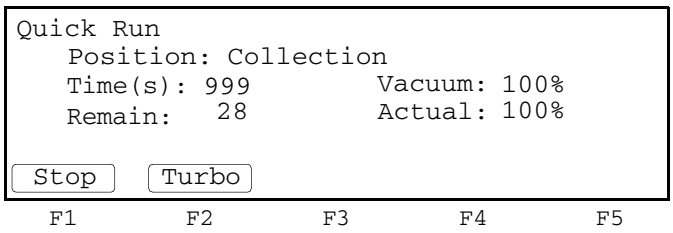
You would scroll to find the method you wish to run, then press F1 (Run). The Method View screen appears.



You would ready the instrument for the first step and run it by pressing F1 (Start). After the step has been run, the system places a check (√) beside the step that has been run and moves the highlighter to the next step. You ready the instrument and run the next step, and repeat this process until all steps in the method have been run. Remember to perform touchoff, then press F1 (Start) before moving the carriage. See "Running a Method" on page 4-18 for the complete procedure.

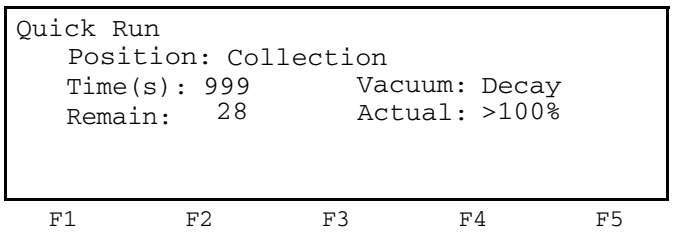
Ending a Run Prematurely

When performing a quick run or running a method, after you press F1 (Start) the function keys change, and Stop and Turbo become active.



Stop

If you press F1 (Stop) to stop the vacuum before the time runs out, the system briefly displays a decay screen showing the actual vacuum pressure and indicating that the system is bleeding the vacuum.



Turbo

F2 (Turbo) is provided for an emergency or as a last resort if samples have blocked purification tray wells. Turbo turns the vacuum pump on to its maximum level. Electrical control of the vacuum pump is switched off, and the pump is allowed to run at its maximum force. Using Turbo carries a high risk of causing one of the following:

- Cross-contamination due to excessive aerosol formation
- Rupture of the purification tray membrane leading to non-recovery of nucleic acid and/or cross-contamination

Turbo runs until F1 (Stop) is pressed or the time runs out.

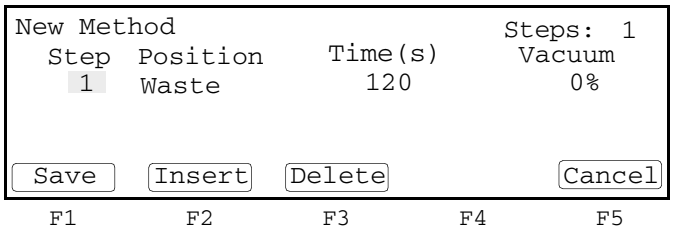
Creating a Method

Overview

One way to create a method is to program each step of the method, as described here. Other ways are discussed in “About Methods” on page 7-2.

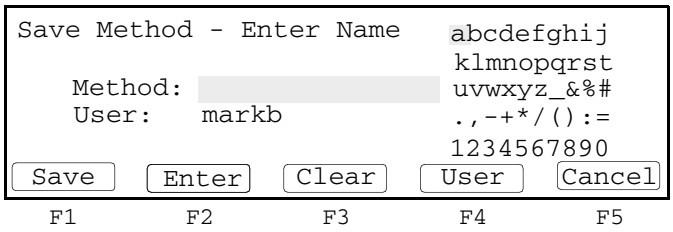
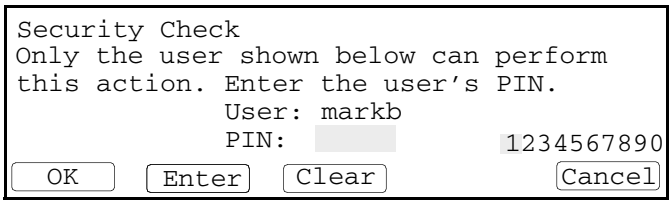
Creating a Method by Defining Each Step

To create a method by defining each step:

Step	Action
1	Access the New Method screen. a. From the main menu, press **F2** (Method) to display the Method Select 1 screen. b. Press **F2** (New). The New Method screen appears. 
2	Press **F2** (Insert). A step is inserted above the highlighted one.
3	For step 1, enter the Position, Time and Vacuum parameters, as follows: Use the left and right arrow keys to move from field to field. Use the up and down arrow keys to change the values of a field when the symbol ⬍ is present next to the field. In the Time(s) field you may prefer to press and hold the up and down arrow keys to change the values faster. These fields have the following ranges:
4	Repeat step 2 and step 3 for each method step you need to add. If you need to delete any step, move the highlighter to it, and press **F3** (Delete).

Field	Range
Position	♦ Collection ♦ Waste ♦ Touch Off
Time(s)	1–999 seconds (999 seconds ≈ 16.5 minutes)
Vacuum	0–100%

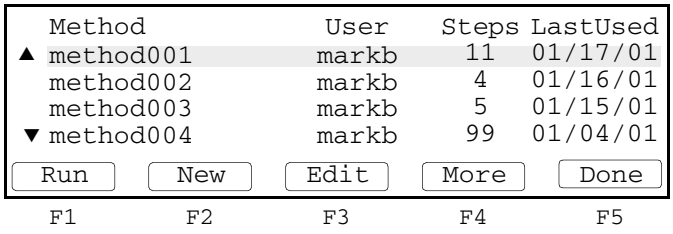
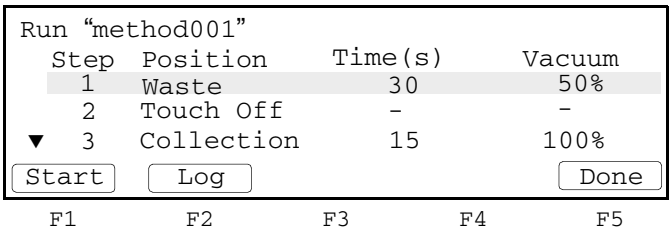
To create a method by defining each step: *(continued)*

Step	Action
5	Press **F1** (Save) to save the method. The Save Method (Enter Name) screen appears.  **Note** Pressing F3 (Clear) deletes the last character of the name like a backspace key.
6	Spell the method name by using the arrow keys to highlight the first character of the name, then press **F2** (Enter), then highlight the second character, then press **F2** (Enter), etc. The method name can be up to 16 characters long.
7	Press **F1** (Save). The Security Check screen appears. 
8	If your user name has a PIN, you must enter the PIN (1–4 digits) in the same way you spelled the method name in step 6.
9	Press **F1** (OK) to complete saving the new method.

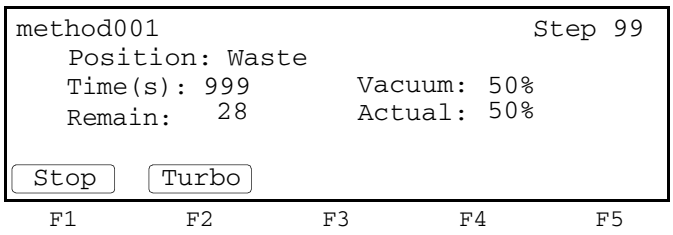
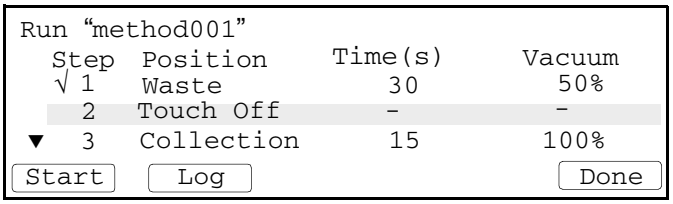
Running a Method

Overview You can run any method belonging to any user. To access another user's methods, refer to "Selecting a User Name" on page 4-11.

Procedure To run a method:

Step	Action
1	From the main menu, press **F2** (Method). The Method Select 1 screen appears. 
2	If necessary, scroll to select the method you wish to run, then press **F1** (Run). The Method Run screen appears. 
3	Place disposables on the instrument. If necessary, refer to "Placing Disposables" on page 4-7.
4	Move the carriage to either the collection or waste position, as appropriate. Seal it by pressing the carriage handle down until it locks, and the carriage can't be moved.
5	Add liquid (such as sample, wash solution, or elution solution) to the purification tray, according to your protocol.

To run a method: *(continued)*

Step	Action
6	Press **F1** (Start) to activate the vacuum for the highlighted step. The Method Running screen is displayed while the step proceeds.  After the time runs out, the Method Run screen is redisplayed with a check beside the step that has just been completed. The next step to be performed is highlighted. 
7	Ensure that the highlighter is at the next step in your method.
8	Perform the next step in your protocol by repeating step 4 through step 7 above as necessary. **IMPORTANT** Before moving the carriage from waste to collection or vice versa, be sure to perform touchoff, then press **F1** (Start).
9	Remove disposables when your protocol is complete.

Example Runs and the Run Log

5

Overview

About This Chapter

This chapter contains examples of purification runs and describes how to use the run log on the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topics:

Purification Without Filtrate Collection (Quick Run Example)

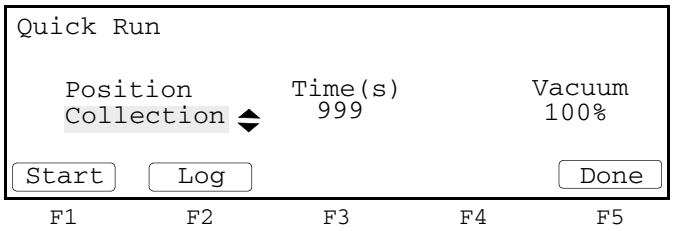
Introduction

This section contains an abbreviated procedure to allow you to easily follow the steps necessary for an RNA purification from cultured cells. The following cautions and warnings should be observed:

⚠ CAUTION **CHEMICAL HAZARD**. **RNA Purification Wash Solution 1** may cause eye, skin, and respiratory tract irritation. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

⚠ WARNING **CHEMICAL HAZARD**. **RNA Purification Wash Solution 2** is a flammable liquid and vapor. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

The procedure is performed from the Quick Run screen:



Using Quick Run

To purify RNA:

Step	Action
1	Lyse the cells. (Refer to *Application Note 1: Total RNA Purification from Cultured Cells Using the ABI Prism 6700 Automated Nucleic Acid Workstation and Total Lysis Reagents* (Publication Number 117AP01-1)[a] for further information about lysis.)
2	Place consumables on instrument, then seal carriage in waste position.
3	Pre-wet the purification tray using 40 µL of RNA Purification Wash Solution 1 in each well. Add samples to purification tray.
4	Add RNA Purification Wash Solution 1, 500 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
5	Add RNA Purification Wash Solution 2, 500 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).

To purify RNA: *(continued)*

Step	Action
6	Add RNA Purification Wash Solution 2, 300 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
7	Add RNA Purification Wash Solution 2, 300 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
8	Dry the wells to remove traces of RNA Purification Wash Solution 2, as follows: Position: Waste; Time: 300; Vacuum: 90% Press F1 (Start).
9	Perform touchoff, then move carriage to collection position. Seal carriage.
10	Add Nucleic Acid Purification Elution Solution, 150 µL to each sample. Position: Collection; Time: 120; Vacuum: 20% Press F1 (Start).
11	Perform touchoff, then move carriage to waste position.
12	Remove plate containing purified RNA from collection compartment.

a. To obtain the application note:

1. Access **www.appliedbiosystems.com**.
2. Click **SERVICES & SUPPORT** at the top of the screen, then click **Documents on Demand**.
3. In the **Product** box, highlight **ABI PRISM™ 6100 Nucleic Acid PrepStation**, then click **Search** at the bottom of the screen.
4. On the line with the application note, check a box for **Download**, **Fax**, **Email**, or **Hardcopy**, then select **View/Deliver Selected Documents Now** at the top of the screen.

Purification With Filtrate Collection (Quick Run Example)

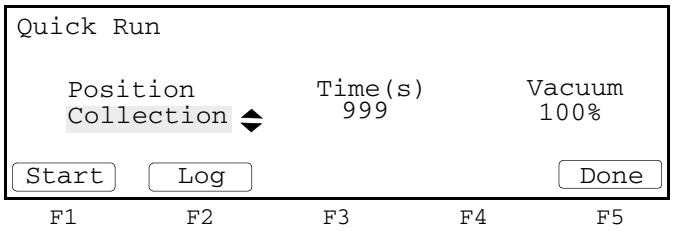
Introduction

This section contains an abbreviated procedure to allow you to easily follow the steps necessary for an RNA purification from cultured cells in which the DNA filtrate is collected. The following cautions and warnings should be observed:

⚠ CAUTION **CHEMICAL HAZARD**. **RNA Purification Wash Solution 1** may cause eye, skin, and respiratory tract irritation. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

⚠ WARNING **CHEMICAL HAZARD**. **RNA Purification Wash Solution 2** is a flammable liquid and vapor. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

The procedure is performed from the Quick Run screen:



Using Quick Run

To purify RNA and collect the DNA filtrate:

Step	Action
1	Lyse the cells. (Refer to *Application Note 1: Total RNA Purification from Cultured Cells Using the ABI PRISM 6700 Automated Nucleic Acid Workstation and Total Lysis Reagents* (Publication Number 117AP01-1)[a] for further information about lysis.)
2	Place consumables on instrument, then seal carriage in collection position. **Note** A deep-well plate must be present in the collection position to collect filtrate.
3	Pre-wet purification tray using 40 µL of RNA Purification Wash Solution 1 in each well. Add samples to purification tray.
4	Perform touchoff, then move carriage to waste postion. Seal carriage.
5	Remove plate containing DNA and cellular debris from collection chamber. Replace with the adapter and an archive plate. **Note** The remaining steps are the same as for RNA purification without filtrate collection.
6	Add RNA Purification Wash Solution 1, 500 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).

To purify RNA and collect the DNA filtrate: *(continued)*

Step	Action
7	Add RNA Purification Wash Solution 2, 500 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
8	Add RNA Purification Wash Solution 2, 300 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
9	Add RNA Purification Wash Solution 2, 300 µL, to each sample. Position: Waste; Time: 120; Vacuum: 20% Press F1 (Start).
10	Dry the wells to remove traces of RNA Purification Wash Solution 2, as follows: Position: Waste; Time: 300; Vacuum: 90% Press F1 (Start).
11	Perform touchoff, then move carriage to collection position. Seal carriage.
12	Add Nucleic Acid Purification Elution Solution, 150 µL to each sample. Position: Collection; Time: 120; Vacuum: 20% Press F1 (Start).
13	Perform touchoff, then move carriage to waste position.
14	Remove plate containing purified RNA from collection compartment.

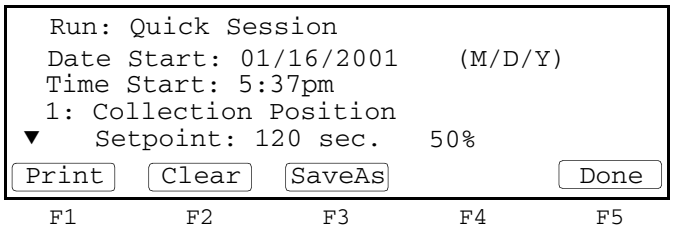
a. To obtain the application note:

1. Access **www.appliedbiosystems.com**.
2. Click **SERVICES & SUPPORT** at the top of the screen, then click **Documents on Demand**.
3. In the **Product** box, highlight **ABI PRISM™** 6100 Nucleic Acid PrepStation, then click **Search** at the bottom of the screen.
4. On the line with the application note, check a box for **Download**, **Fax**, **Email**, or **Hardcopy**, then select **View/Deliver Selected Documents Now** at the top of the screen.

Using the Run Log

About the Run Log

The *run log* is a file of run history information. You can access the Run Log screen from the main menu by pressing F4 (Log).



A complete run log might look like this:

```
Run: Quick Session
Date Start: 1/16/2001   (M/D/Y)
Time Start: 5:37pm
1:Collection Position
  Setpoint   120 sec.  50%
  Actual     120 sec.  50%
2:Waste Position
  Setpoint  999 sec.  100%
  Actual     5 sec.    20%
Event: Vacuum not achieved
Event: Turbo activated
Event: Step stopped by user
3:Touch Off
4:Collection Position
  Setpoint   240 sec.  20%
  Actual     240 sec.  20%
Event:Step stopped by user
```

Quick Session vs. Method Session

The run log shown above is from a *quick session*. That is, someone accessed the Quick Run screen from the main menu then started a quick run. A run log might also be from a *method session*. That is, someone accessed a method from the main menu and started a method run.

When the Run Log Is Cleared

You can clear the run log by accessing the Run Log screen and pressing F2 (Clear). The run log is automatically cleared each time you press F1 (Start) in a new quick session or method session.

The run log can hold only 99 steps. As each step over 99 is added, the oldest step is lost.

The run log could be quite long. If you performed quick runs for many days without returning to the main menu, the system would not automatically clear the run log. The run log is not cleared when you power off. It is only cleared automatically when you press F1 (Start) in a new quick session or method session.

About Each Step

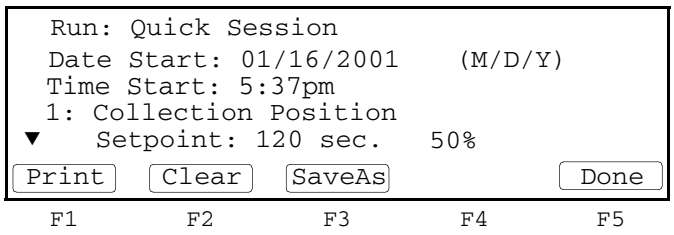
The run log can contain up to 796 lines (99 steps x 8 lines/step + 3 header lines). A step consists of three lines. The system can log up to five *events* after each step. Examples of events are “Step stopped by user”, “Vacuum not achieved”, and “Turbo activated”. For each step, the first line shows the position (collection or waste). The second and third lines show the setpoint and actual values for time and vacuum. The *setpoint* is the value the user entered. The *actual* value is the one the system actually achieved.

Uses for the Run Log

The run log can provide information useful for troubleshooting. Additionally, you can easily save the run log as a new method.

Viewing the Run Log

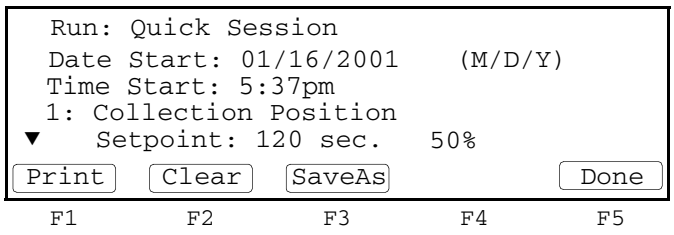
To view the run log:

Step	Action
1	From the main menu, press **F4** (Log) The Run Log screen appears. 
2	Press the down arrow key to scroll through the run log.

Printing the Run Log

Optional. If your run log is very long, you may find it easier to read a printout when troubleshooting. For further information about using a printer, see “Connecting to a Printer” on page 8-6.

To print the run log:

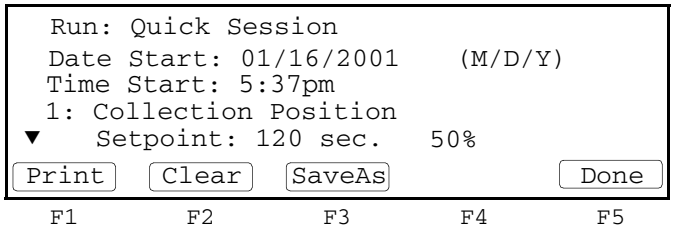
Step	Action
1	From the main menu, press **F4** (Log) The Run Log screen appears. 

To print the run log: *(continued)*

Step	Action
2	Press **F1** (Print).

Clearing the Run Log

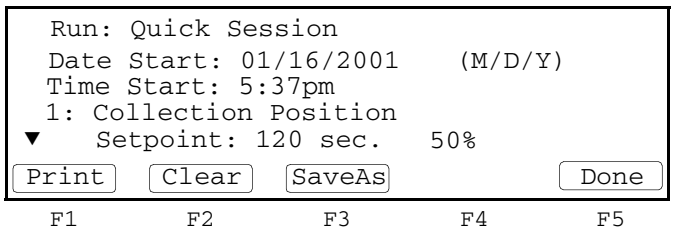
To clear the run log:

Step	Action
1	From the main menu, press **F4** (Log) The Run Log screen appears. 
2	Press **F2** (Clear). The run log is cleared.
3	Press **F5** (Done) to return to the previous screen.

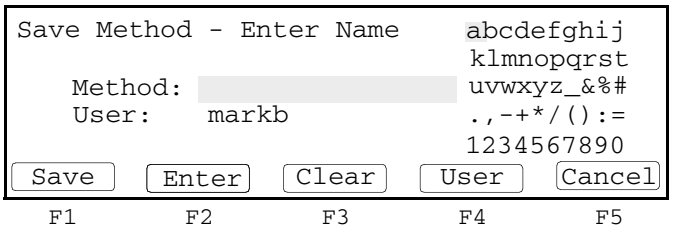
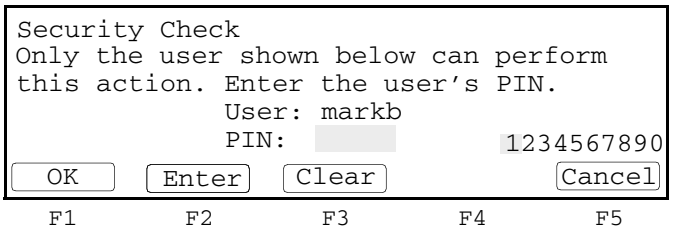
Saving the Run Log as a New Method

The run log has both actual and setpoint values for the Time and Vacuum fields, as described in “About Each Step” on page 5-7. When you save the run log as a method, the system uses the actual value for Time and the setpoint value for Vacuum.

To save the run log as a new method:

Step	Action
1	From the main menu, press **F4** (Log) The Run Log screen appears. 

To save the run log as a new method: *(continued)*

Step	Action
2	Press **F3** (SaveAs). The Save Method (Enter Name) screen appears .  **Note** Pressing F3 (Clear) deletes the last character of the name like a backspace key.
3	Spell the method name by using the arrow keys to highlight the first character of the name, then press **F2** (Enter), then highlight the second character, then press **F2** (Enter), etc. The method name can be up to 16 characters long.
4	Press **F1** (Save). The Security Check screen appears. 
5	If your user name has a PIN, you must enter the PIN (1–4 digits) in the same way you entered the method name in step 3.
6	Press **F1** (OK) to complete saving the new method.

6 Users

Overview

About This Chapter

This chapter describes how to add and maintain user names and PINs for the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topics:

Handling User Names

About User Names and PINs

On the ABI PRISM™ 6100 Nucleic Acid PrepStation, methods are stored by both method name and user name. It's important to have your own user name to keep your methods separate from those belonging to other users. Even if you are the only user of the system, you still need a user name.

A user name can be added, as well as changed or deleted. You can protect your user name by having a personal identification number (PIN). When a PIN has been created, only the person who knows the PIN can change the user name or your methods. Having a PIN is optional.

This section describes how to:

- Change a user name
- Add or change a PIN
- Delete a user name

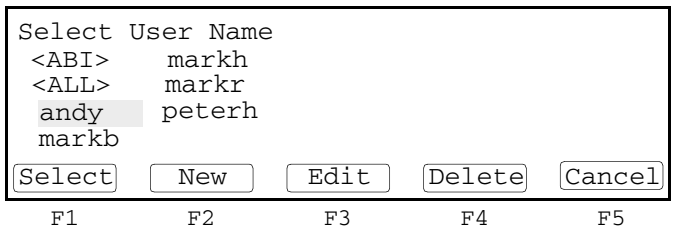
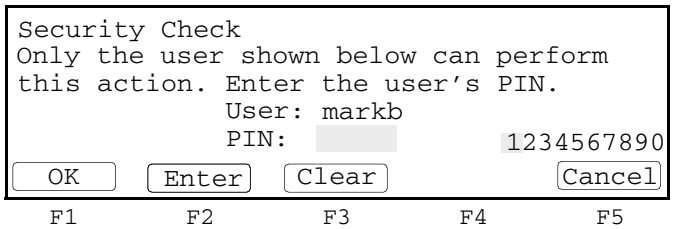
The following related topics are discussed elsewhere in the manual:

Topic	See Page
Adding Yourself as a User	4-9
Selecting a User Name	4-11

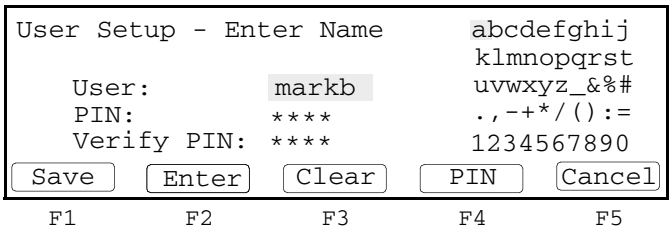
Changing a User Name

A user name can be changed. However, if a PIN was assigned to the name, only the person who knows the PIN can change the name.

To change a user name:

Step	Action
1	From the main menu, press **F3** (User). The Select User Name screen appears. 
2	Highlight the user name you want, then press **F3** (Edit) The Security Check screen appears. 

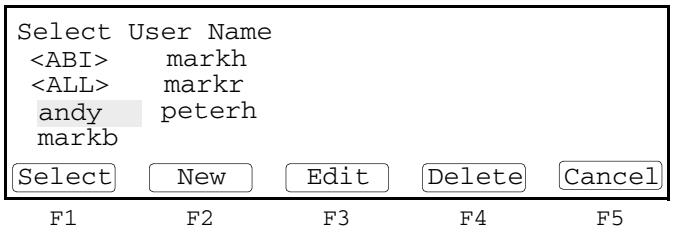
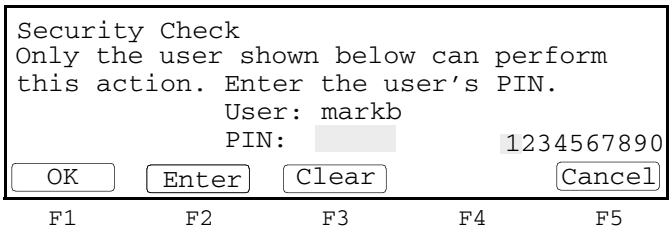
To change a user name: *(continued)*

Step	Action
3	If the 6100 prepstation has a PIN for this user, enter the PIN (1–4 digits). Press **F1** (OK). The User Setup (Name) screen appears.  **Note** Asterisks (****) are present in the PIN fields when the user has a PIN.
4	Press **F3** (Clear) to clear the previous name, then enter a new user name, as follows: Spell the name by using the arrow keys to highlight the first letter of the name, then press **F2** (Enter), then highlight the second letter, then press **F2** (Enter), etc. When you have finished spelling the name (up to six characters), press **F1** (Save).

Adding or Changing a PIN

If you forget your PIN, ask your system administrator to contact Applied Biosystems Technical Support.

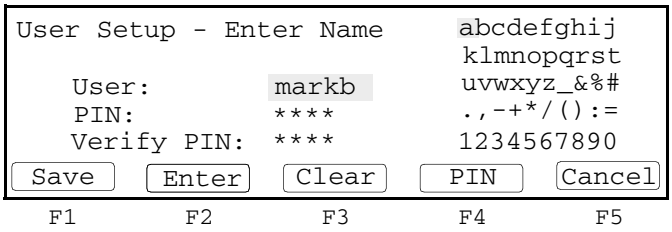
To add or change a PIN:

Step	Action
1	From the main menu, press **F3** (User). The Select User Name screen appears. 
2	Highlight the user name you want, then press **F3** (Edit) The Security Check screen appears. 

To add or change a PIN: *(continued)*

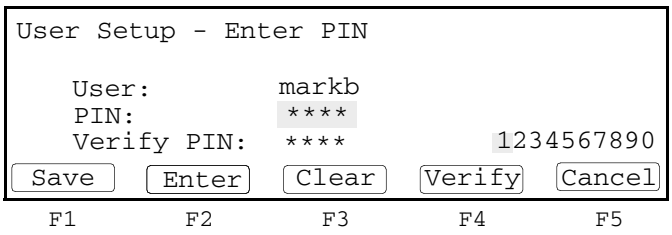
<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>3</td><td>Choose one of the following:

<table>
<tr><th>If the user...</th><th>Then...</th></tr>
<tr><td>does not have a PIN,</td><td>press F1 (OK) and proceed to the next step.</td></tr>
<tr><td>has a PIN,</td><td>enter the PIN (1–4 digits) by using the arrow keys to highlight the first number of the PIN, then press F2 (Enter), then highlight the second number, then press F2 (Enter), etc. Press F1 (OK).</td></tr>
</table>
The User Setup (Name) screen appears.



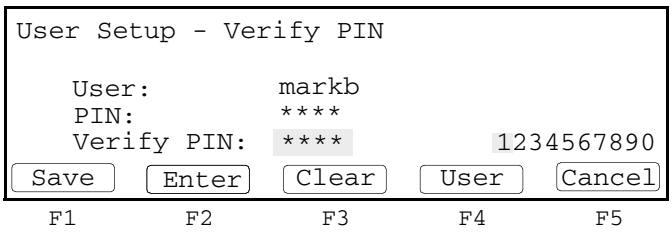
Note Asterisks (****) are present in the PIN fields when the user has a PIN.</td></tr>
<tr><td>4</td><td>Press F4 (PIN).

The User Setup (PIN) screen appears.


</td></tr>
<tr><td>5</td><td>Choose one of the following:

<table>
<tr><th>If the user...</th><th>Then...</th></tr>
<tr><td>does not have a PIN,</td><td>proceed to the next step.</td></tr>
<tr><td>has a PIN,</td><td>Press and hold F3 (Clear) to delete the old PIN.</td></tr>
</table></td></tr>
<tr><td>6</td><td>Enter the PIN in the same way you entered it in step 3, then press F4 (Verify).

The User Setup (Verify PIN) screen appears.


</td></tr>
</table>

To add or change a PIN: *(continued)*

Step	Action
7	Choose one of the following: **If the user...** / **Then...** does not have a PIN, / proceed to the next step. has a PIN, / Press and hold **F3** (Clear) to delete the old PIN.
8	Enter the PIN again, then press **F1** (Save).

Deleting a User Name

IMPORTANT Deleting a user name also deletes all of the user's methods.

To delete a user name:

Step	Action
1	From the main menu, press **F3** (User). The Select User Name screen appears. Select User Name <ABI> markh <ALL> markr andy peterh markb [Select] [New] [Edit] [Delete] [Cancel] F1 F2 F3 F4 F5
2	Highlight the user name you want, press **F4** (Delete). The Delete User with Methods Confirm screen appears. Delete user "markb" and all the methods associated with this user? You can not undo this action. [OK] [Cancel] F1 F2 F3 F4 F5
3	Press **F1** (OK). **If the user...** / **Then...** does not have any methods, / the user is deleted. has at least one method, / proceed to step 4.
4	Notice that the Security Check screen appears. Security Check Only the user shown below can perform this action. Enter the user's PIN. User: markb PIN: 1234567890 [OK] [Enter] [Clear] [Cancel] F1 F2 F3 F4 F5

To delete a user name: *(continued)*

Step	Action
5	Enter the user's PIN, then press **F1** (OK). The user is deleted, and the Select User Name screen appears without the user name.

7 Methods

Overview

About This Chapter

This chapter describes how to deal with methods on the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topic:

Handling Methods

About Methods

A *method* is a list of steps you perform on the 6100 prepstation for a purification protocol. An example might be:

Step	Position	Time(s)	Vacuum
1	Waste	120	20%
2	Waste	120	20%
3	Waste	120	20%
4	Waste	120	20%
5	Waste	120	20%
6	Waste	300	90%
7	Touch Off	—	—
8	Collection	120	20%
9	Touch Off	—	—

A method has a name, and it is associated with your user name. Your method names must be unique. However, another user may have methods with the same name associated with his user name.

Running a method makes it easy to use the same parameters consistently.

There are three ways to create a method:

Topic	See Page
Creating a Method by Defining Each Step	4-16
Creating a Method by Saving an Existing One	7-3
Saving the Run Log as a New Method	5-8

Once a method has been created, you can change it if necessary. You can view the steps of a method, sort a list of methods, print, or delete your methods. You can protect your methods by setting up a PIN for your user name, as described in “Adding or Changing a PIN” on page 6-3.

Predefined Methods

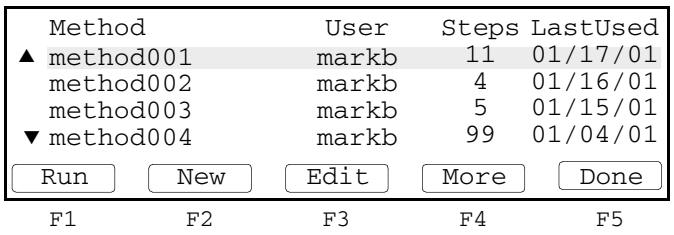
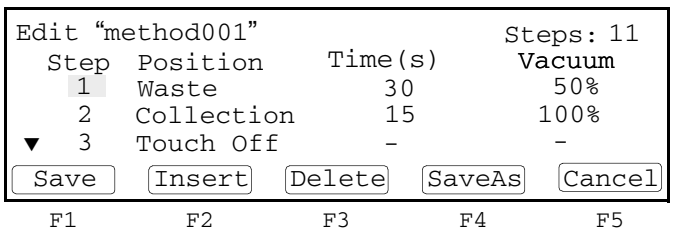
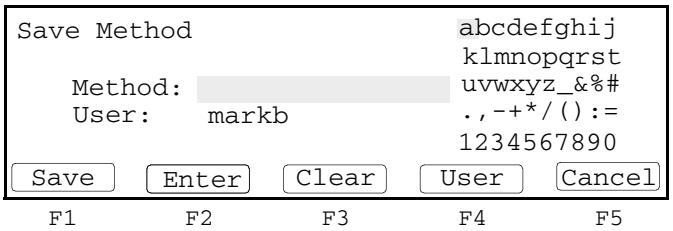
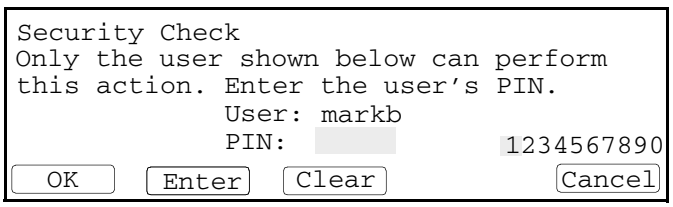
The 6100 prepstation supplies six predefined methods that you can run:

Description	Method Name
Total RNA from cultured cells	RNA Cell
Total RNA from whole blood	RNA Blood
Total RNA from tissue without collecting first filtrate	RNA Tissue-Filtr
Total RNA from tissue, collecting first filtrate	RNA Tissue+Filtr
Collect first filtrate	Pre-Filter
gDNA after RNA	TransPrep

Each of these methods is saved under the user name <ABI>. You can run any of these methods. Additionally, you can edit a predefined method and save it as a new method under your own user name. For more information about these methods, see Appendix C, “Predefined Methods.”

Creating a Method by Saving an Existing One

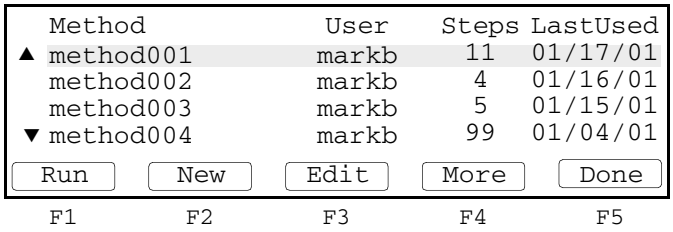
To save an existing method with a new name:

Step	Action
1	From the main menu, press **F2** (Method). The Method Select 1 screen appears. 
2	Scroll to find the method you want to copy, then press **F3** (Edit). The Edit Method screen appears. 
3	Press **F4** (SaveAs). The Save Method (Method Name) screen appears.  **Note** Pressing F3 (Clear) deletes the last character like a backspace key.
4	Spell the method name by using the arrow keys to highlight the first character of the name, then press **F2** (Enter), then highlight the second character, then press **F2** (Enter), etc. The method name can be up to 16 characters long.
5	Press **F1** (Save). The Security Check screen appears. 
6	If your user name has a PIN, you must enter the PIN (1–4 digits) in the same way you entered the method name in step 4.
7	Press **F1** (OK) to complete saving the new method.

Selecting a Method

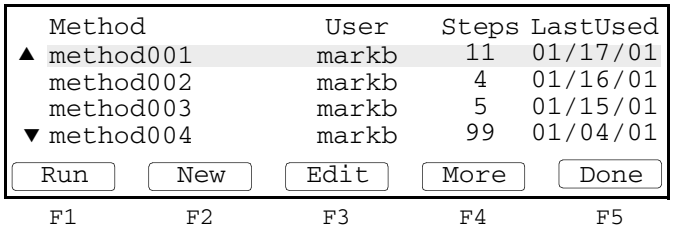
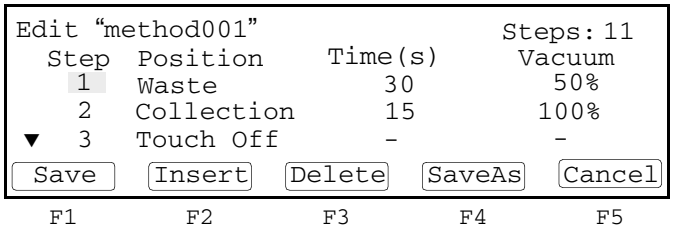
If the method you want to run has already been created and saved, you can select it from a list. If the method you want to run has not been created, see “About Methods” on page 7-2. If the method you want belongs to a different user, see “Selecting a User Name” on page 4-11.

To select a method:

Step	Action
1	From the main menu, press **F2** (Method). The Method Select 1 screen appears. 
2	Press the down and up arrow keys to scroll through the list and highlight the method you wish.

Viewing a Method

To view a method:

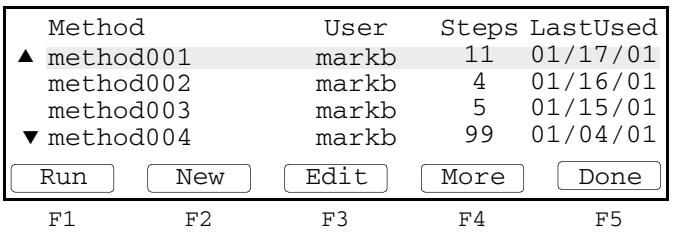
Step	Action
1	From the main menu, press **F2** (Method). The Method Select 1 screen appears. 
2	Scroll to find the method you want to view, then press **F3** (Edit). The Edit Method screen appears. 
3	Press the down and up arrow keys to scroll through the steps of the method.

Changing a Method

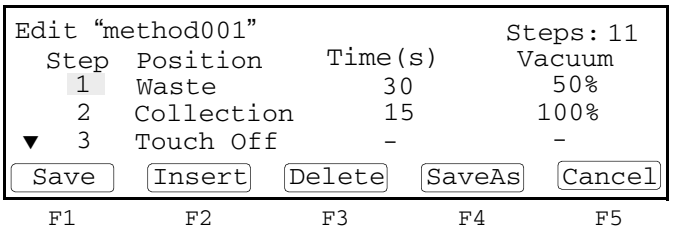
To change a method:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>From the main menu, press F2 (Method).

The Method Select 1 screen appears.

 
</td></tr>
<tr><td>2</td><td>Scroll to find the method you want to change, then press F3 (Edit).

The Edit Method screen appears.

From this screen you can:

<table>
<tr><th>Action</th><th>Process</th></tr>
<tr><td>Change parameters displayed on this screen</td><td>Use the arrow keys to highlight the field you wish to change. Use the up and down arrow keys to change the values of a field when the symbol ⬍ is present next to the field. In the Time(s) field you may prefer to press and hold the up and down arrow keys to change the values faster. These fields have the following ranges:

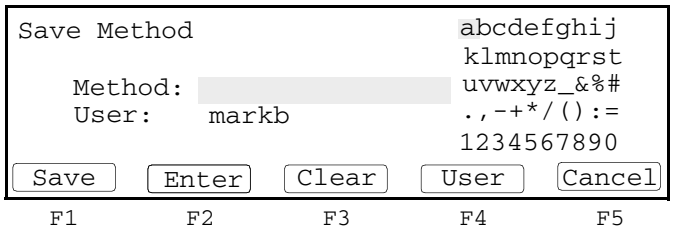
<table>
<tr><th>Field</th><th>Range</th></tr>
<tr><td>Position</td><td>♦ Collection
♦ Waste
♦ Touch Off</td></tr>
<tr><td>Time(s)</td><td>1–999 seconds
(999 seconds ≈ 16.5 minutes)</td></tr>
<tr><td>Vacuum</td><td>0–100%</td></tr>
</table></td></tr>
<tr><td>Scroll through the steps</td><td>Press the down and up arrow keys when the step number is highlighted.</td></tr>
<tr><td>Insert a step</td><td>Move the highlighter to the line before which you wish to insert a step; press F2 (Insert).

Note To add a step after the last step, move the highlighter to the blank line below the step.</td></tr>
<tr><td>Delete a step</td><td>Highlight the step you wish to delete: press F3 (Delete).</td></tr>
</table></td></tr>
</table>

To change a method: *(continued)*

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>3</td><td>After you have made all your changes, choose one of the following:

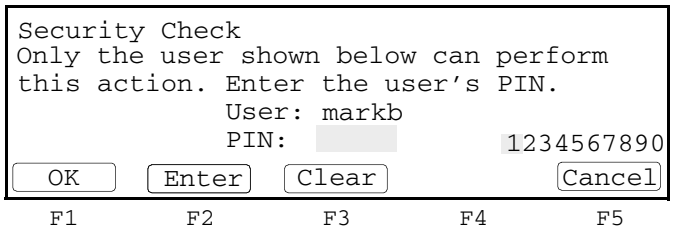
<table>
<tr><th>If you want to save the method...</th><th>Then...</th></tr>
<tr><td>under the same name,</td><td>proceed to step 5.</td></tr>
<tr><td>with a different name,</td><td>press F4 (SaveAs).</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Notice that the Save Method (Method Name) screen appears.



Note Pressing F3 (Clear) deletes the last character like a backspace key.

Spell the new method name by using the arrow keys to highlight the first character of the name, then press F2 (Enter), then highlight the second character, then press F2 (Enter), etc. The name can be up to 16 characters long.</td></tr>
<tr><td>5</td><td>Press F1 (Save).

The Security Check screen appears.

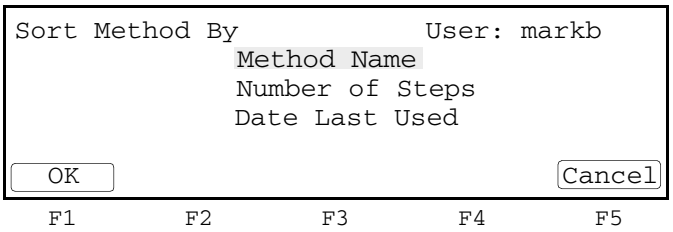


</td></tr>
<tr><td>6</td><td>If your user name has a PIN, you must enter the PIN (1–4 digits) in the same way you entered the method name in step 4.</td></tr>
<tr><td>7</td><td>Press F1 (OK) to complete saving the method.</td></tr>
</table>

Sorting Methods

You can sort your methods by method name, number of steps, and date last used.

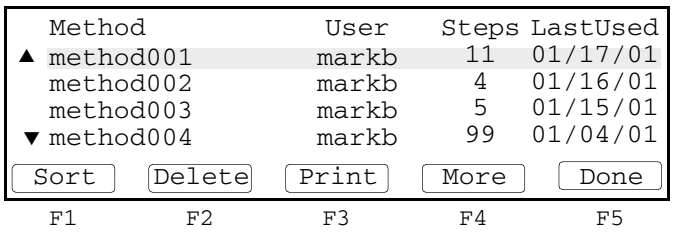
To sort methods:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Access the Sort Methods screen.
a. From the main menu, press F2 (Method) to access the Method Select 1 screen.
b. Press F4 (More) to display the Method Select 2 screen.
c. Press F1 (Sort).
The Sort Methods screen appears.
 
</td></tr>
<tr><td>2</td><td>Use the up and down arrow keys to select the type of sort.
The following table describes the sort methods.
<table><tr><th>Choose this item...</th><th>To sort methods...</th></tr><tr><td>Method name</td><td>alphabetically.</td></tr><tr><td>Number of steps</td><td>In decreasing order by number of steps used</td></tr><tr><td>Date last used</td><td>chronologically in descending order by date of use.
The last method which ran or was saved is listed first.</td></tr></table></td></tr>
<tr><td>3</td><td>Press F1 (OK) to accept a selection.
This returns you to the Method Select 2 screen where the displayed methods are sorted according to your selection in step 2.</td></tr>
</table>

Printing a Method

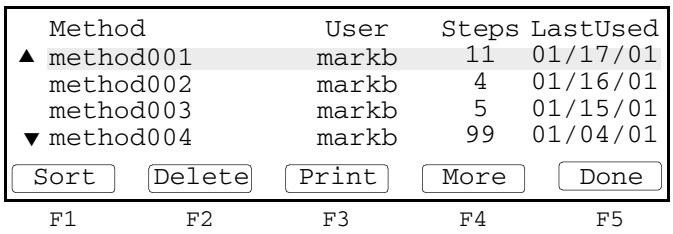
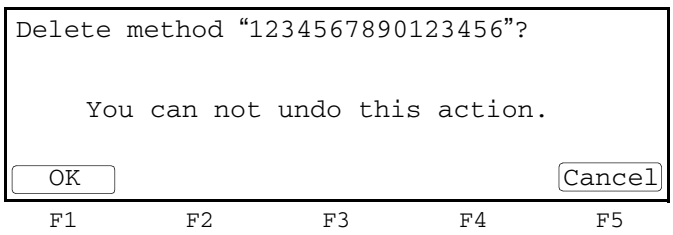
If you have a printer connected to your instrument and have configured your instrument first, you can print the steps in your method. For more information see “Connecting to a Printer” on page 8-6.

To print a method:

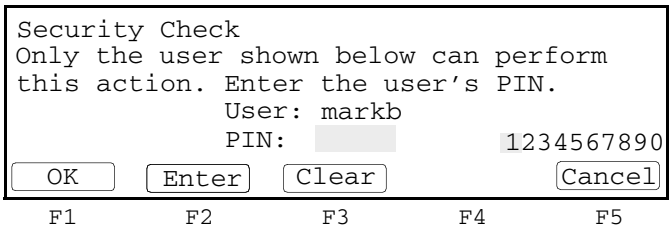
Step	Action
1	Access the Method Select 2 screen. a. From the main menu, press **F2** (Method) to access the Method Select 1 screen. b. Press **F4** (More). The Method Select 2 screen appears. 
2	Press **F3** (Print). This prints the selected method.

Deleting a Method

To delete a method:

Step	Action
1	Access the Method Select 2 screen. a. From the main menu, press **F2** (Method) to access the Method Select 1 screen. b. Press **F4** (More). The Method Select 2 screen appears. 
2	Press the down and up arrow keys to scroll through the list and highlight the method you wish to delete.
3	Press **F2** (Delete). The Delete Method Confirm screen appears. 

To delete a method: *(continued)*

Step	Action
4	Press **F1** (OK). The Security Check screen appears. 
5	If the user name has a PIN associated with it, you must enter it. Highlight a number, then press **F2** (Enter) for each of the digits (up to four).
6	Press **F1** (OK). The method is deleted.

Utilities

8

Overview

About This Chapter This chapter describes utilities for the ABI PRISM™ 6100 Nucleic Acid PrepStation.

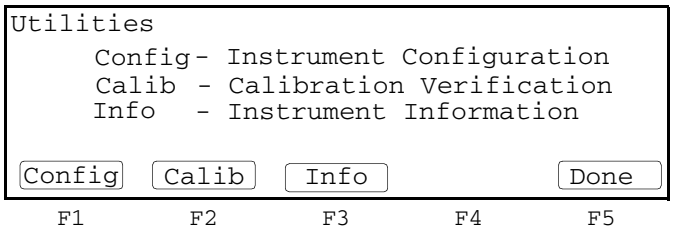
In This Chapter This chapter contains the following topics:

Using Utilities

Overview

The Utilities menu allows access to instrument utilities.

To reach the Utilities menu:

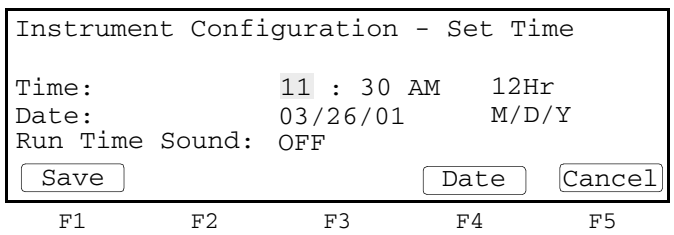
Step	Action
1	From the main menu, press **F5** (Util). The Utilities menu appears. 

Each utility is accessed by a function key, as follows:

F Key	Topic	See Page
F1 (Config)	Setting the Time, Date, and Sound	8-2
F2 (Calib)	Changing Calibration Parameters	8-3
F3 (Info)	Checking Instrument Information	8-5
—	Connecting to a Printer	8-6

Setting the Time, Date, and Sound

To set the time, date, and run-time sound:

Step	Action
1	Access the Instrument Configuration screen. a. From the main menu, press **F5** (Util) to access the Utilities menu. b. Press **F1** (Config). The Instrument Configuration screen appears. 

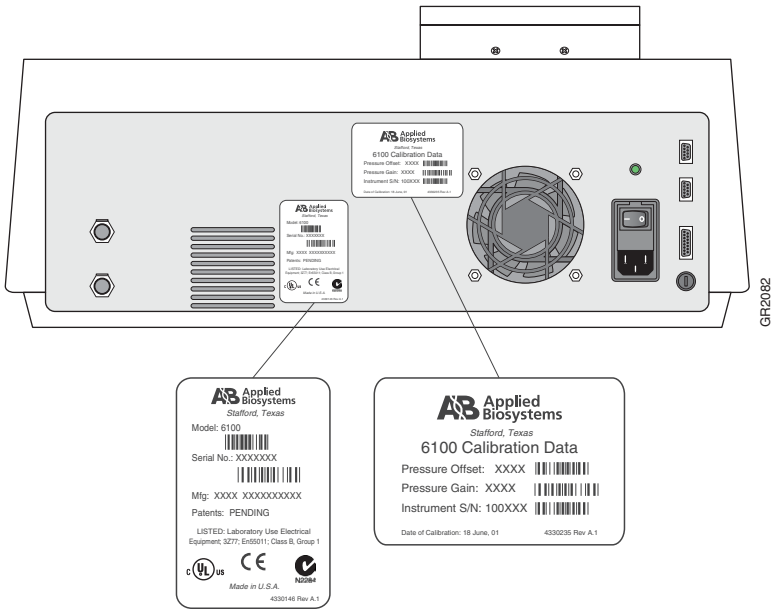
To set the time, date, and run-time sound: *(continued)*

Step	Action
2	Set values as shown in the table below. ♦ Press **F4** to move the highlighter from Time to Date to Run Time Sound. ♦ Use the right and left arrow keys to move the highlighter between settable fields. ♦ Use the up and down arrow keys to change the values of a highlighted field .
3	Press **F1** (Save). Your settings will be saved even after you turn the instrument power off.

Mode	Field	Description
Time	Hour	—
	Minutes	—
	AM or PM	Used only for 12Hr
	Clock Mode	12Hr or 24Hr
Date	Month	Order depends on Date Format
	Day	
	Year	
	Date Format	M/D/Y, D/M/Y, or Y/M/D
Run Time Sound	Sound	OFF or ON (Beep at completion of a step)

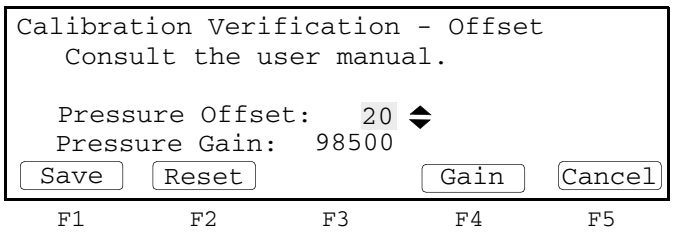
Changing Calibration Parameters

Vacuum calibration settings (pressure offset and pressure gain) for your 6100 prepstation can be found on the label at the instrument's rear, as shown below.



IMPORTANT Changing these values adversely can cause the vacuum control to perform out of specification. Use only the numbers from your instrument's label. Change these values only with assistance from Technical Support.

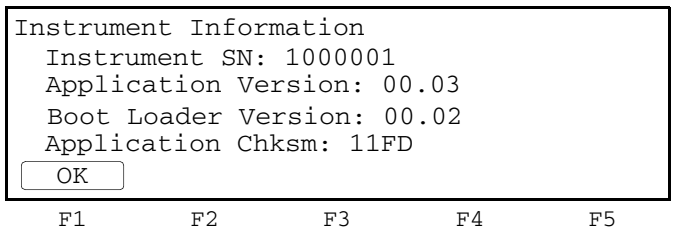
To change calibration parameters:

Step	Action
1	Access the Calibration Verification screen. a. From the main menu, press **F5** (Util) to access the Utilities menu. b. Press **F2** (Calib). The Calibration Verification screen appears. 
2	Set values as shown in the table below. ♦ Press **F4** to move the highlighter from Pressure Offset to Pressure Gain. ♦ Press and hold the up or down arrow keys to increment or decrement the selected field. ♦ Use the up and down arrow keys to change the values of a highlighted field. **Field** / **Range** Pressure Offset / 0–4095 Pressure Gain / 1–200,000
3	Press **F1** (Save). Your settings will be saved even after you turn the instrument power off. Alternatively, you can press: ♦ **F2** (Reset) to cause the calibration values displayed to be restored to the software defaults. Remember to press F1 (Save) to store the default settings. ♦ **F5** (Cancel) to return to the previous screen without saving any changes.

Checking Instrument Information

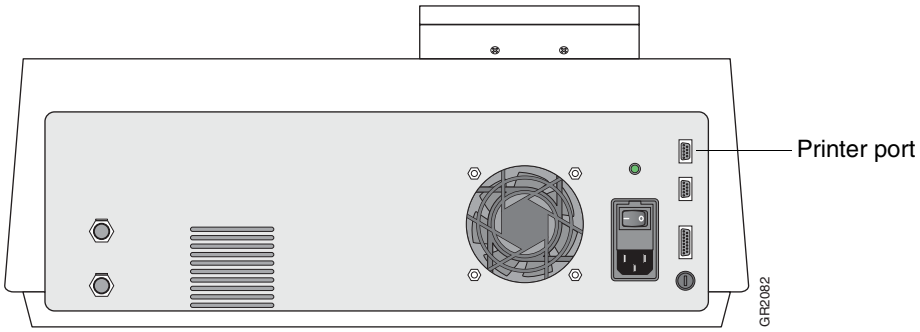
This procedure allows you to view (but not change) information such as the instrument serial number and software version number.

To check instrument information:

Step	Action
1	Access the Instrument Information screen. a. From the main menu, press **F5** (Util) to access the Utilities menu. b. Press **F3** (Info). The Instrument Information screen appears. 
2	View the information on the screen. **Field** / **Description** Instrument SN — Instrument serial number identical to the number on the instrument label. The label is shown in “Changing Calibration Parameters” on page 8-3. Application Version — Version number of the firmware application currently running. This firmware is downloaded to the system through the firmware download serial port. Boot Loader Version — Version number of the boot loader firmware currently running. This firmware resides in a Flash ROM on the system board. It is responsible for checking the validity of the application firmware, and, if necessary, restoring it from Flash or the firmware download serial port. Application Chksm — This checksum serves as a check for the application firmware to ensure that the correct firmware is running. It is a double-check in case the application version reported is misleading or incorrect.
3	Press **F1** (OK) to return to the Utilities menu.

Connecting to a Printer

Although the initial firmware version will not permit printing, later versions will allow you to connect to a printer and print the steps of a method or the run log. When connecting to a printer, use the top (serial) port at the rear of the 6100 prepstation, as shown below:



9 Maintenance

Overview

About This Chapter

This chapter provides procedures for maintaining the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topic:

Maintenance Schedules

Daily Maintenance Checklist

To perform daily maintenance:

Step	Action	See Page
Before Every Run:		
1	Check the waste bottle. a. Empty the bottle if it is more than 50% full. b. Verify that the lid of the waste bottle is tightened and that the vent plug is covered. **IMPORTANT** If the lid of the waste bottle is loose, the instrument may not be able to apply sufficient vacuum pressure.	9-3
After Every Run:		
2	Clean the instrument surfaces with an appropriate cleaning agent.	9-4
3	*Optional.* If your protocol uses tissue or blood, flush the waste compartment.	9-4

Weekly Maintenance

To perform weekly maintenance:

Step	Action	See Page
1	Flush the waste position.	9-4
2	*Optional.* If your protocol uses tissue or blood, thoroughly clean the splash guard holder.	9-7

Service Maintenance

It may become necessary to return your 6100 prepstation to Applied Biosystems for maintenance.

If you expose the 6100 prepstation to potentially biologically hazardous material (*e.g.*, blood or plasma), you need to contact a qualified professional to decontaminate the 6100 prepstation with formaldehyde vapor. Contact Applied Biosystems Technical Support for decontamination procedures.

Fluid System Maintenance

Overview

Fluid system maintenance consists of the following procedures:

Emptying the Waste Bottle

Empty the waste bottle if it is more than 50% full. If the bottle overfills, liquid waste will flow into the inline filter and will prevent a vacuum from being maintained.

To empty the waste bottle:

Step	Action
1	Wear appropriate protective clothing, eyewear, and gloves.
2	Before emptying the waste bottle, add a germicidal detergent to the bottle in an amount equal to at least 10% of the volume of liquid in the waste bottle. For a germicidal detergent we recommend Process Vesphene IIst™ Environmental Disinfectant, prepared according to package instructions.[a] For example, if the bottle is half full, there are 2 L of liquid in the bottle. You would add approximately 300–500 µL of a germicidal detergent. **⚠ DANGER** **CHEMICAL HAZARD**. **Process Vesphene IIst Environmental Disinfectant** is corrosive. Exposure may cause eye and skin damage (burns). It is harmful if swallowed. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. **⚠ WARNING** **BIOHAZARD**. Biological samples such as tissues and blood have the potential to transmit infectious diseases. Follow the U.S. Department of Health and Human Services guidelines published in *Biosafety in Microbiological and Biomedical Laboratories* (stock no. 017-040-00547-4) and in Occupational Safety and Health Standards, Toxic and Hazardous Substances (29 CFR §1910.1030) concerning the principles of risk assessment, biological containment, and safe laboratory practices for activities involving clinical specimens. You can obtain additional information by connecting to the government Web site http://www.cdc.gov.
3	Wait 10 minutes while the germicidal detergent inactivates any potentially infectious biohazardous chemicals.
4	Unscrew the waste bottle cap and remove it from the waste bottle, leaving tubing lines in the cap. Wipe off any drops with lint-free tissues.
5	Empty the waste bottle in an appropriate waste disposal receptacle. **⚠ WARNING** Always follow the safety precautions regarding waste in the waste profile. Dispose of the waste in accordance with all local, state/provincial, or national environmental and health regulations.
6	Screw the waste bottle cap back on tight. Ensure that the vent plug is covered.

a. Process Vesphene IIst environmental disinfectant is available from Steris Corporation at telephone number 1-800-JIT-4-USE (1-800-548-4873) or through their Web site at http://www.steris.com.

Cleaning the Instrument Surfaces

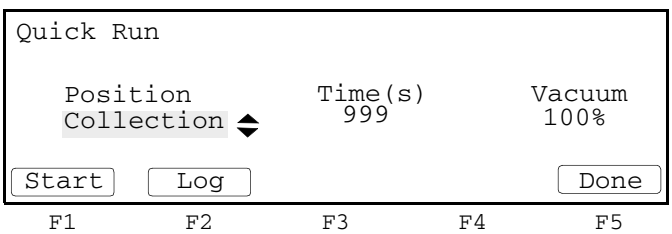
To clean the instrument surfaces:

Step	Action
1	Wear appropriate protective clothing, eyewear, and gloves.
2	Remove all disposable 96-well trays from the instrument.
3	Clean the instrument surfaces with a germicidal detergent such as Process Vesphene IIst Environmental Disinfectant, prepared and applied according to package instructions. **⚠ DANGER** **CHEMICAL HAZARD**. **Process Vesphene IIst Environmental Disinfectant** is corrosive. Exposure may cause eye and skin damage (burns). It is harmful if swallowed. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. **Note** Thoroughly wet the surfaces to be cleaned. **IMPORTANT** Do not use bleach. Bleach will damage the aluminum surface. **IMPORTANT** Do not use ethanol or isopropanol in any concentration as a surface disinfectant. Alcohols coagulate proteins and may not work quickly as germicides. Furthermore, due to rapid evaporation, alcohols do not contact open surfaces for adequate time periods. Never use 100% alcohol because it may preserve some microorganisms.
4	Allow the germicidal detergent to contact the instrument surface ≥10 minutes.
5	Wipe the surfaces dry.

Flushing the Waste Compartment

Flush the waste area after each protocol that uses tissue or blood. Flush the waste area weekly regardless of the sample type you use.

To flush the waste compartment:

Step	Action
1	Wear appropriate protective clothing, eyewear, and gloves.
2	Prepare a germicidal detergent such as Process Vesphene IIst Environmental Disinfectant according to package instructions. **⚠ DANGER** **CHEMICAL HAZARD**. **Process Vesphene IIst Environmental Disinfectant** is corrosive. Exposure may cause eye and skin damage (burns). It is harmful if swallowed. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.
3	Remove all disposable 96-well trays from the instrument.
4	Move the carriage to the collection position.
5	From the main menu, press **F1** (Quick). The Quick Run screen appears. The next four steps are performed using this screen. 

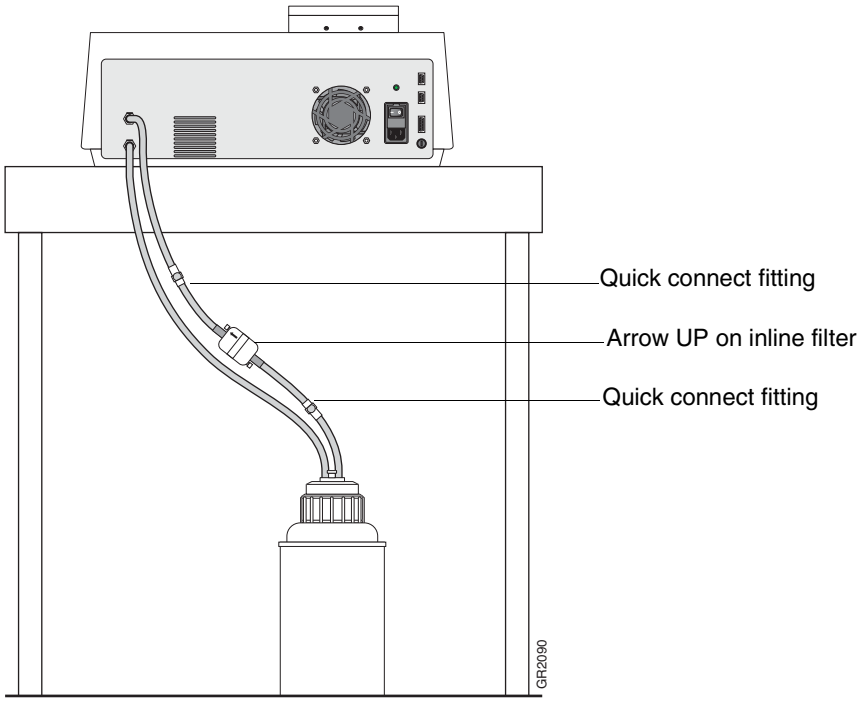
To flush the waste compartment: *(continued)*

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>6</td><td>Flush with deionized water.
a. Pour 100–200 mL deionized water into the waste compartment.
b. Set parameters.
<table><tr><td>Position</td><td>Time</td><td>Vacuum</td></tr><tr><td>Waste</td><td>120</td><td>50%</td></tr></table>
c. Press F1 (Start).</td></tr>
<tr><td>7</td><td>Flush with a germicidal detergent.
a. Pour 100–200 mL germicidal detergent into the waste compartment.
b. Set parameters.
<table><tr><td>Position</td><td>Time</td><td>Vacuum</td></tr><tr><td>Waste</td><td>120</td><td>50%</td></tr></table>
c. Press F1 (Start).</td></tr>
<tr><td>8</td><td>Flush with deionized water.
a. Pour 400–500 mL deionized water into the waste compartment.
b. Set parameters.
<table><tr><td>Position</td><td>Time</td><td>Vacuum</td></tr><tr><td>Waste</td><td>120</td><td>50%</td></tr></table>
c. Press F1 (Start).</td></tr>
<tr><td>9</td><td>Flush with 70% ethanol.
a. Pour 100–200 mL 70% ethanol into the waste compartment.
b. Set parameters.
<table><tr><td>Position</td><td>Time</td><td>Vacuum</td></tr><tr><td>Waste</td><td>120</td><td>50%</td></tr></table>
c. Press F1 (Start).</td></tr>
<tr><td>10</td><td>Clean the instrument surfaces. See “Cleaning the Instrument Surfaces” on page 9-4.</td></tr>
</table>

Replacing the Inline Filter

You should replace the inline filter (P/N 4326658) if you fail to empty the waste bottle and the waste fluid backs up into the vacuum line, clogging the filter.

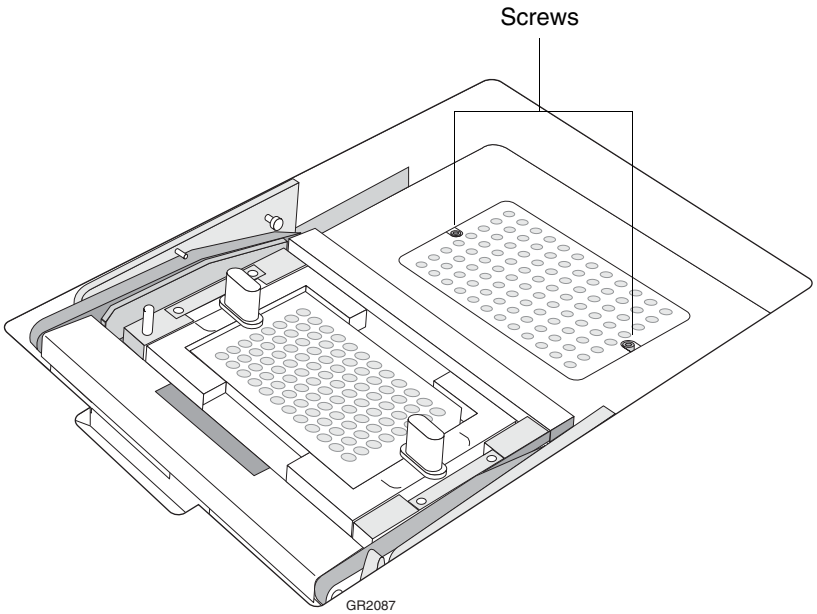
To replace the inline filter:

Step	Action
1	Switch off the power to the 6100 prepstation.
2	Empty the waste bottle. See “Emptying the Waste Bottle” on page 9-3.
3	Disconnect the quick connect fittings above and below the inline filter by depressing the metal tabs to release the male fitting from the female receptacle. 
4	Remove the entire filter assembly and set it aside.
5	Install a new filter assembly with the flow arrow pointing up. **IMPORTANT** The flow arrow on the new filter assembly must be pointing *toward* the 6100 prepstation and *away* from the waste bottle.
6	Make sure the quick connects are fully seated. (They make an audible click when they are fully seated and engaged.)
7	Make sure the waste bottle cap is installed correctly and is tight. Ensure that the vent plug is in place.
8	Switch on the instrument power and resume normal instrument use.

Cleaning the Splash Guard Holder

If your protocols use tissue or blood, you may need to clean the splash guard holder.

To clean the splash guard holder:

Step	Action
1	Wear appropriate protective clothing, eyewear, and gloves.
2	Prepare a germicidal detergent such as Process Vesphene IIst Environmental Disinfectant according to package instructions. **⚠ DANGER CHEMICAL HAZARD**. **Process Vesphene IIst Environmental Disinfectant** is corrosive. Exposure may cause eye and skin damage (burns). It is harmful if swallowed. Please read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.
3	Using a 3/32 hex wrench (Allen key), loosen the two screws securing the splash guard holder on either side of the waste position. 
4	Remove the splash guard holder and place it in a tray deep enough for soaking it.
5	Pour enough germicidal detergent into the tray to completely cover the splash guard holder.
6	Allow the splash guard holder to soak in the germicidal detergent ≥ 10 minutes.
7	Remove the splash guard holder from the germicidal detergent.
8	Rinse with water.
9	Wipe the splash guard holder dry with a lint-free tissue.
10	Return the splash guard holder to the instrument and tighten the screws to secure it in place.

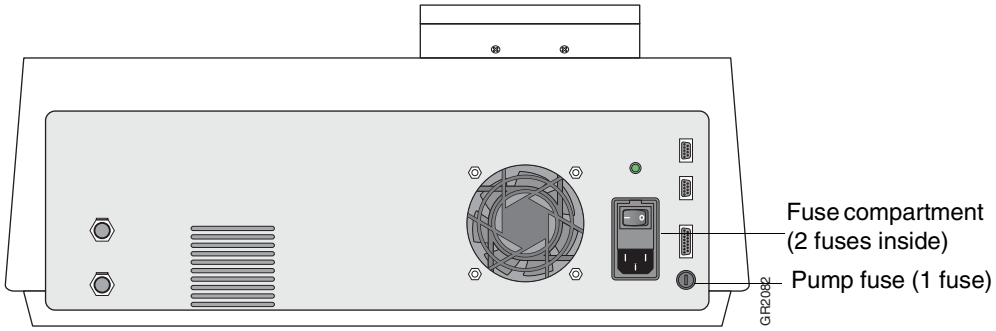
Fuse Replacement

About Replacing Fuses

You may need to check and replace the fuses if you turn on the 6100 prepstation and nothing happens. That is, there is no LED on the instrument rear, no display, and no fans are turning. This situation could also be caused by the instrument not being plugged in.

All instruments have three factory-installed fuses: two power supply fuses and one pump fuse. If you suspect that a fuse is blown, you can check all three fuses and replace them using the procedures in this section. A fuse needs to be replaced if the filament in the glass part is broken, and the inside has a black color to it. It looks like a blown light bulb.

The fuses are accessed from the rear of the instrument, as shown in the figure below.



⚠ WARNING **FIRE HAZARD.** For continued protection against the risk of fire, replace fuses only with Listed and Certified fuses of the same type and rating as those currently in the instrument.

Replacing the Power Supply Fuses

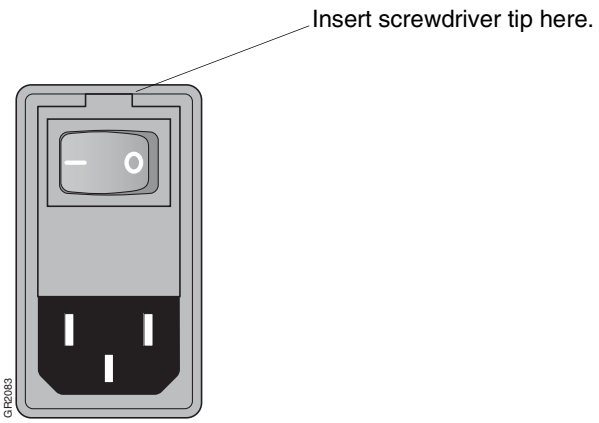
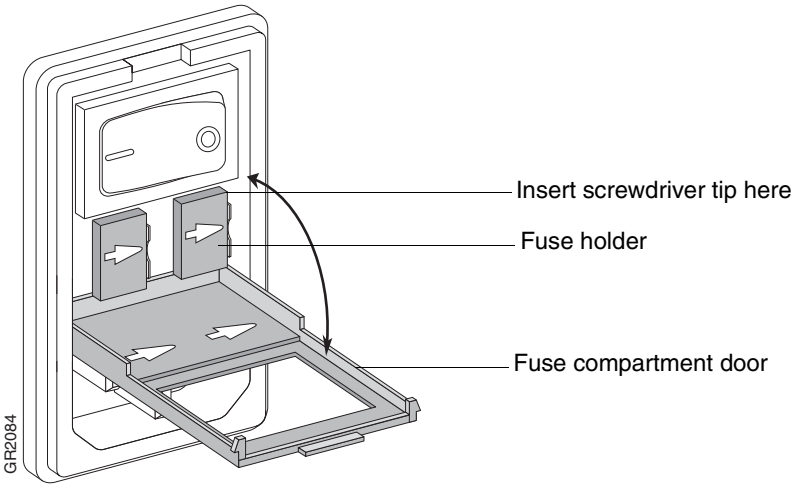
Items Needed

- Two 3-A slow blow, 250-V fuses (5 mm x 20 mm)
- Fine flat-tip screwdriver

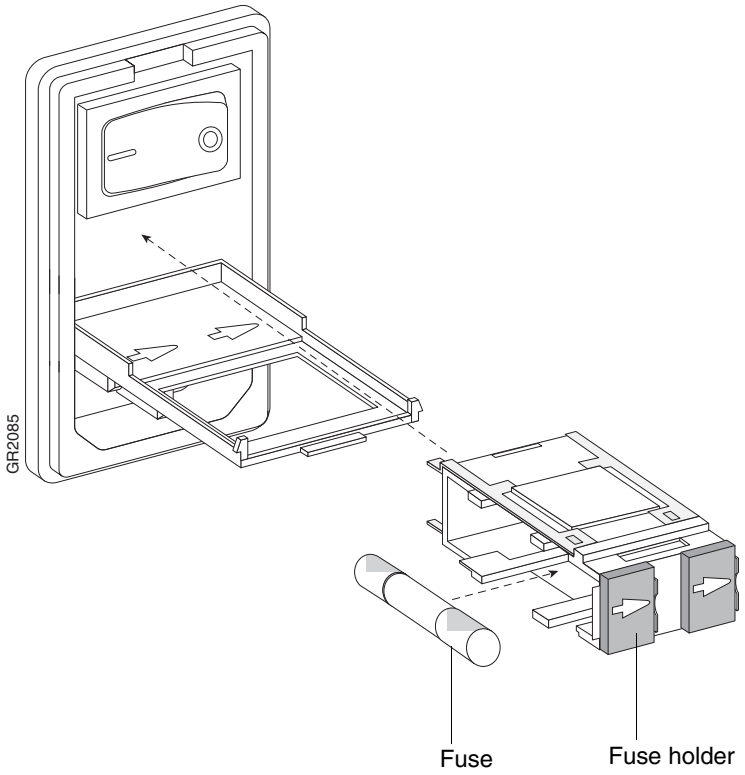
To replace the power supply fuses:

Step	Action
1	Turn off the 6100 prepstation and disconnect the power cord from the instrument rear. **⚠ WARNING** **ELECTRIC SHOCK HAZARD.** Disconnect the power cord before opening fuse compartment. Wait 30 seconds before any further work to let any electrical charges dissipate.

To replace the power supply fuses: *(continued)*

Step	Action
2	Insert the screwdriver tip at the top edge of the fuse compartment door and pry it open.  The door opens to reveal the red fuse holder.
3	Insert the screwdriver tip at the edges of the red fuse holder and gently remove it from the instrument. 

To replace the power supply fuses: *(continued)*

Step	Action
4	Remove the two fuses from the fuse holder and replace them with two of the same type. 
5	Return the fuse holder to the instrument, and close the fuse compartment door. Press it until it locks into place.
6	Connect the instrument power cord.

Replacing the Pump Fuse

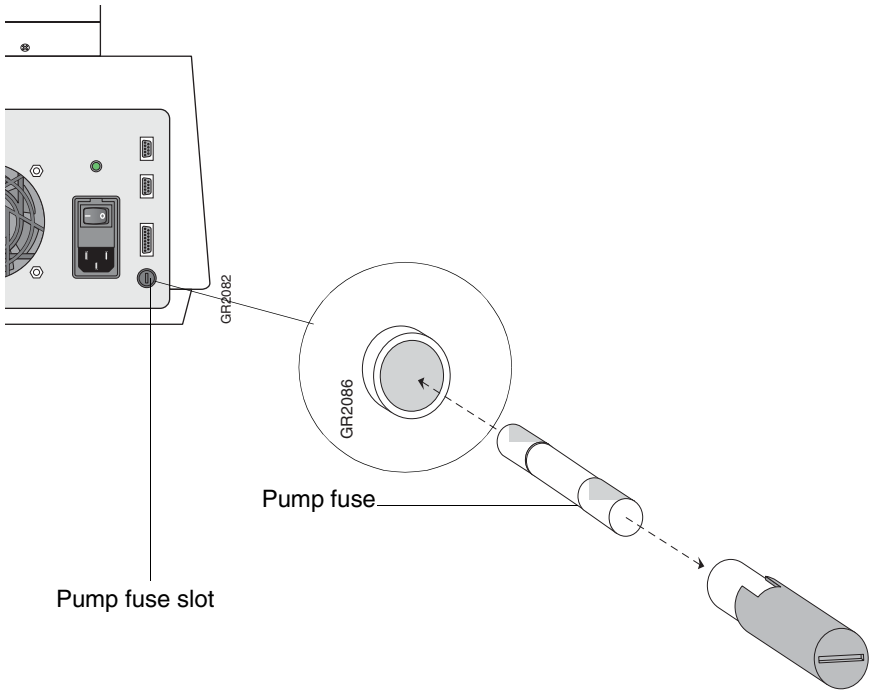
Items Needed

- One 4-A slow blow, 250-V fuse (5 mm x 20 mm)
- Fine flat-tip screwdriver

To replace the pump fuse:

Step	Action
1	Turn off the 6100 prepstation and disconnect the power cord from the instrument rear. **⚠ WARNING ELECTRIC SHOCK HAZARD.** Disconnect the power cord before opening fuse compartment. Wait 30 seconds before any further work to let any electrical charges dissipate.

To replace the pump fuse: *(continued)*

Step	Action
2	Insert the screwdriver tip in the pump fuse slot and turn the screwdriver 1/4 turn to the left. The fuse holder pops out. 
3	Remove and replace the fuse.
4	Insert the fuse and fuse holder back into the instrument.
5	Insert the screwdriver tip into the slot and turn the screwdriver 1/4 turn to the right.
6	Connect the instrument power cord.

10 Troubleshooting

Overview

About This Chapter

This chapter explains how to solve common chemistry and instrument problems on the ABI PRISM™ 6100 Nucleic Acid PrepStation.

In This Chapter

This chapter contains the following topics:

Display Screen Error Messages

Error Messages Table

The following table lists error messages, a description of the message, and recommended action.

Message	Description	Recommended Action
Method “1234567890123456” already exists. Overwrite the method?	You have already used that method name. Pressing F1 (OK) deletes the existing method and replaces it with the one you are saving.	Press F5 (Cancel) to return to the previous screen and use a different method name.
Run error	Instrument is unable to achieve vacuum	Check your setup. See “Low, But Not High Setpoints Reached” on page 10-11.
Vacuum error	Vacuum could not reach 0%	“Vacuum Error” on page 10-8.
Vacuum not achieved	Instrument is unable to achieve a setpoint vacuum.	See “Vacuum Never Reaches Setpoint” on page 10-9.

In addition to the error messages listed above, the system provides a number of user input error messages, which are self-explanatory.

Chemistry Troubleshooting Information

Chemistry Troubleshooting Table

The following table lists the problem, possible causes, and a check and/or remedy for chemistry troubleshooting the 6100 prepstation.

Problem	Possible Cause	Check and/or Remedy
Vacuum not achieving setpoint	Vacuum carriage position	Check position of vacuum carriage
	Vacuum lines to bottles disconnected	Reconnect couplings
	Inline filter wet, possibly due to over-filling of waste bottle because it was not emptied	Check inline filter for moisture, and replace if damaged. Empty waste bottle
	Filtration not completed on all samples	Set vacuum lower
	Failure to pre-wet membranes	Pre-wet all wells
	Improper positioning or lack of consumables	Ensure presence of all needed consumables
Cross-contamination and liquid collection on bottom of trays	Failure to perform touchoff	Perform touchoff with each carriage movement
	Improper use or reuse of consumable	Use consumables according to directions
Low RNA yield	Low initial mass in sample	Consider higher concentration of sample
	Freezing blood before lysis	Lyse blood before freezing
	RNA goes into solution during maceration	Store samples on ice
	Centrifugation of samples	Mix samples thoroughly. Do not centrifuge.
	Improper reagent mixing	Ensure using proper concentrations (*i.e.,* lysis solution, 1X vs 2X)
	Improper washing	Make sure using correct wash buffers for particular application
	Improper use of turbo	Use turbo only as last resort
	Inadequate washing, due to failure to remove residual RNAse	Thoroughly wash all wells
	Temperature	Store samples on ice
RNA degradation	Improper washing	Thoroughly wash all wells
	Improper storage	Store samples according to recommendations
	Overloading wells	Do not overload wells
High gDNA carryover	Low RNA content	Increase sample concentration
	Too high concentrations of certain tissues, *i.e.*, intestines	Decrease sample concentration
	Certain preservatives facilitate gDNA contamination	Consider DNAse treatment

Problem	Possible Cause	Check and/or Remedy
Clogging in wells	Improper homogenization	♦ Thoroughly macerate ♦ Consider enzymatic digestion
	Large amount of particulate matter	Consider pre-filter procedure
	Overloading wells	Consider lower mass of tissue
	Improper storage (*i.e.,* blood)	Store blood lysed at –20 °C or –80 °C, not 4 °C
	Use of preservatives	Store directly in lysis buffer
	Sample too viscous	♦ Dilute samples with 1X lysis buffer ♦ Use multiple loads
TransPrep: RNA carryover	Improper storage	Store samples at –20 °C or on ice
TransPrep: Low yield	Low initial mass	Consider higher concentration
	Improper wash buffers	Make sure wash buffers are correct for application
	Improper mixing of precipitation solution	Mix appropriate volumes of precipitation buffers
	Improper storage	Store samples on ice before processing

Instrument Troubleshooting Information

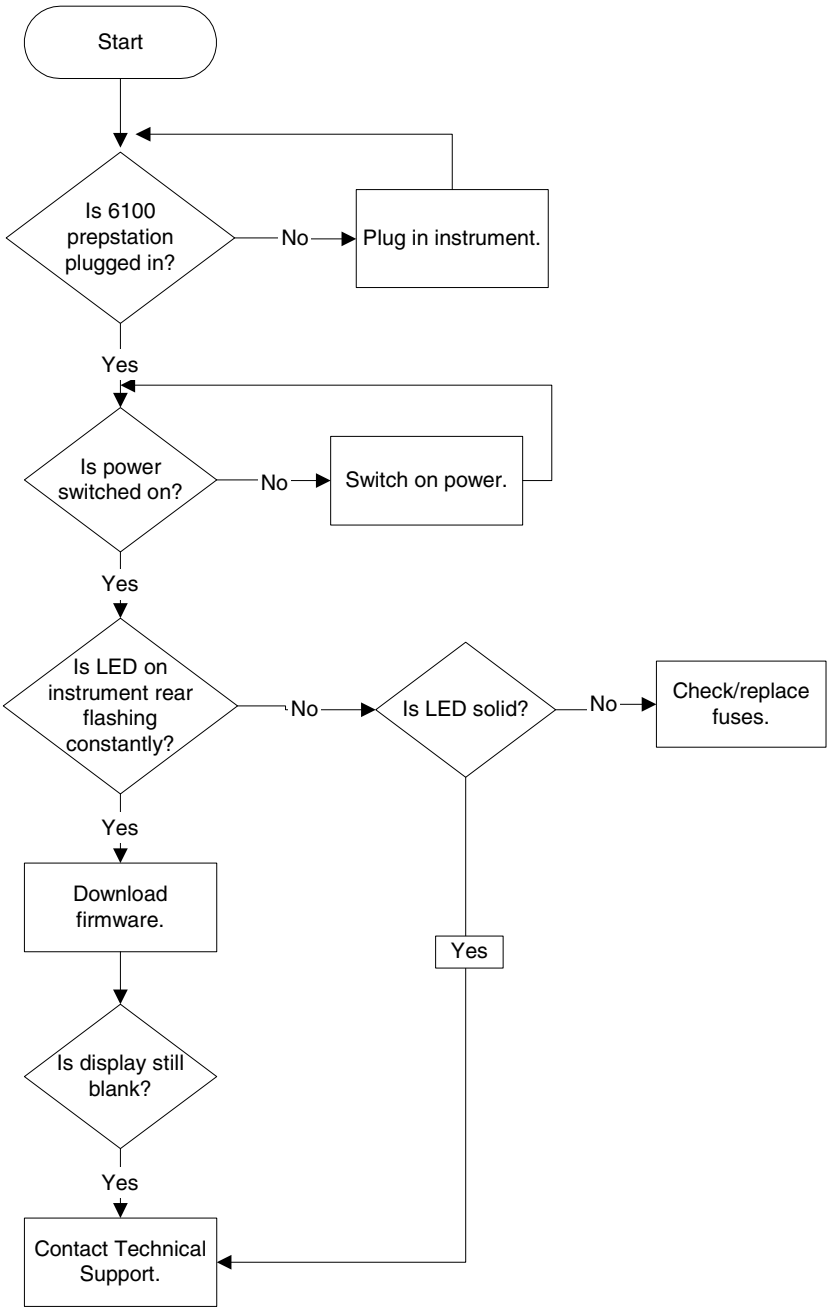
Instrument Troubleshooting Table

The following table lists common problems and refers you to flowcharts on subsequent pages.

Topic	See Page
Display Screen Blank	10-6
Display Screen Delay After Powering Up	10-7
A Key Does Not Always Work	10-8
Vacuum Error	10-8
Vacuum Never Reaches Setpoint	10-9
Low, But Not High Setpoints Reached	10-11

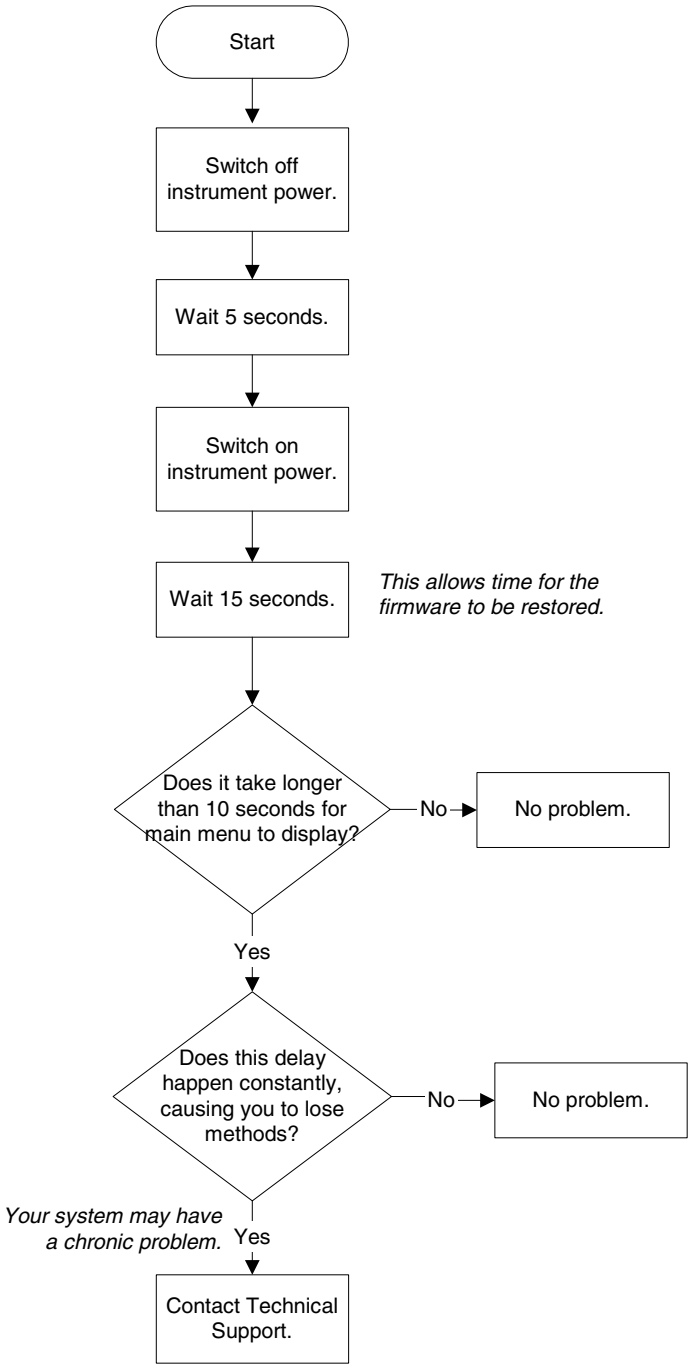
Display Screen Blank

Problem: Display screen blank



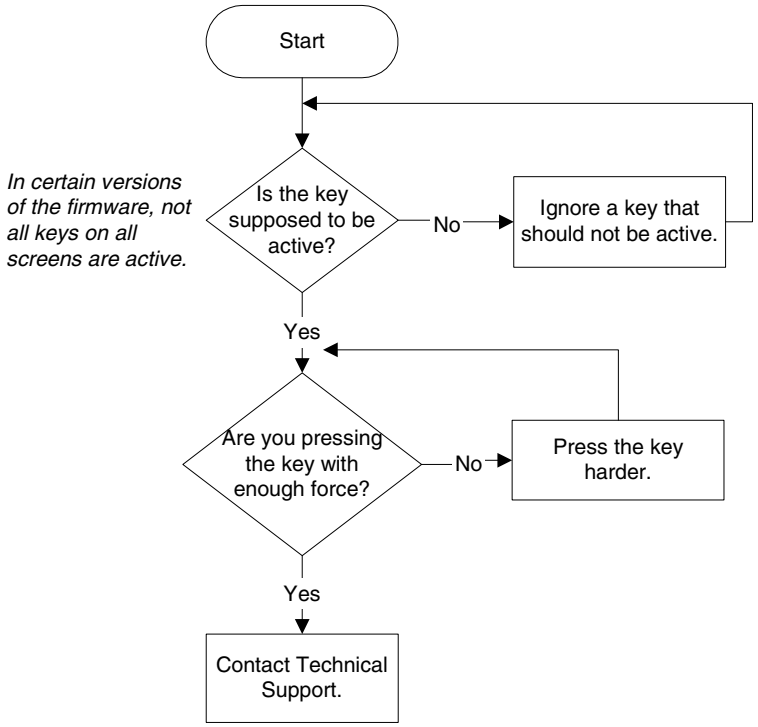
Display Screen Delay After Powering Up

Problem: After powering on, system takes 10-15 seconds to display main menu.



A Key Does Not Always Work

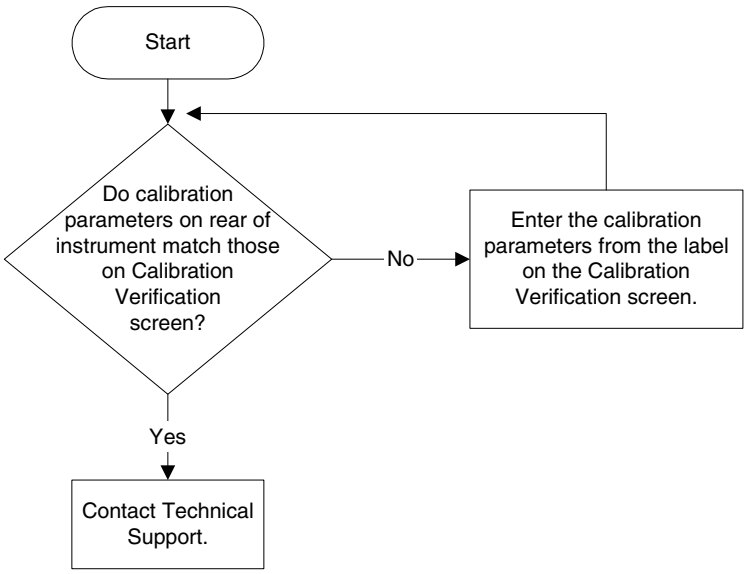
Problem: An arrow key or F1-F5 key does not work all the time



In certain versions of the firmware, not all keys on all screens are active.

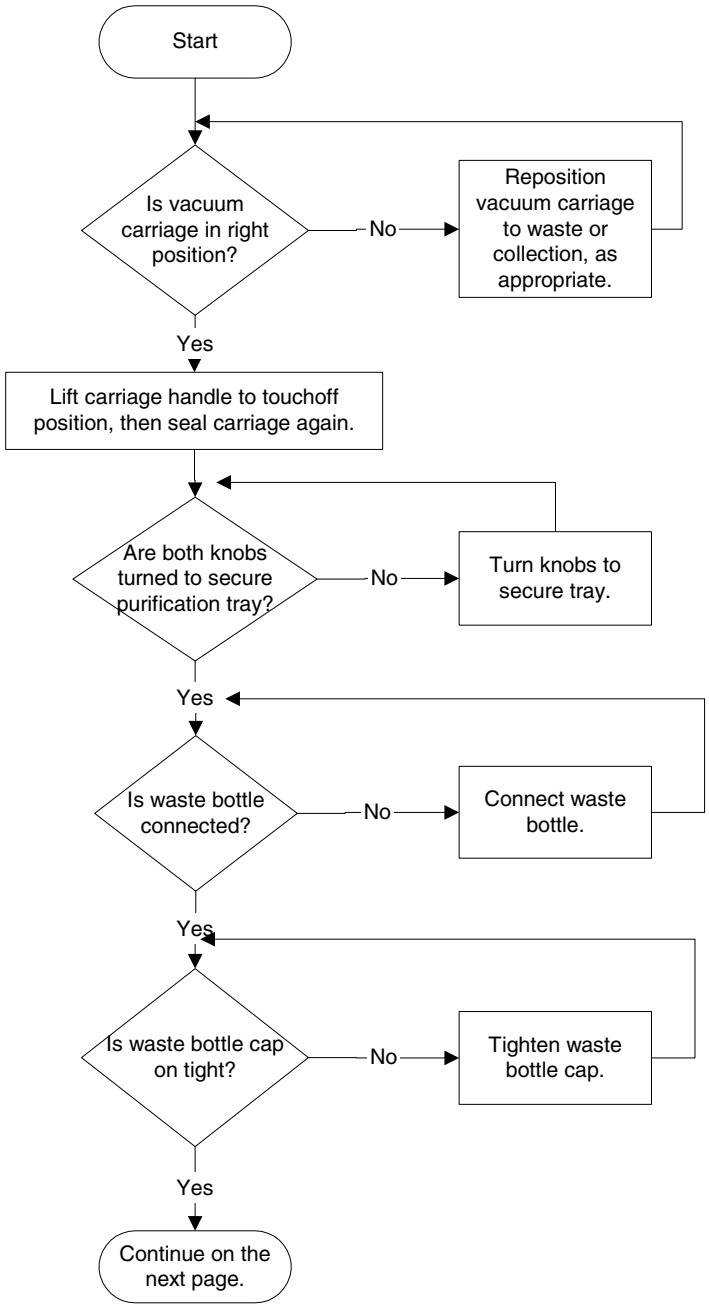
Vacuum Error

Problem: Vacuum error: Vacuum does not reach 0% after a step

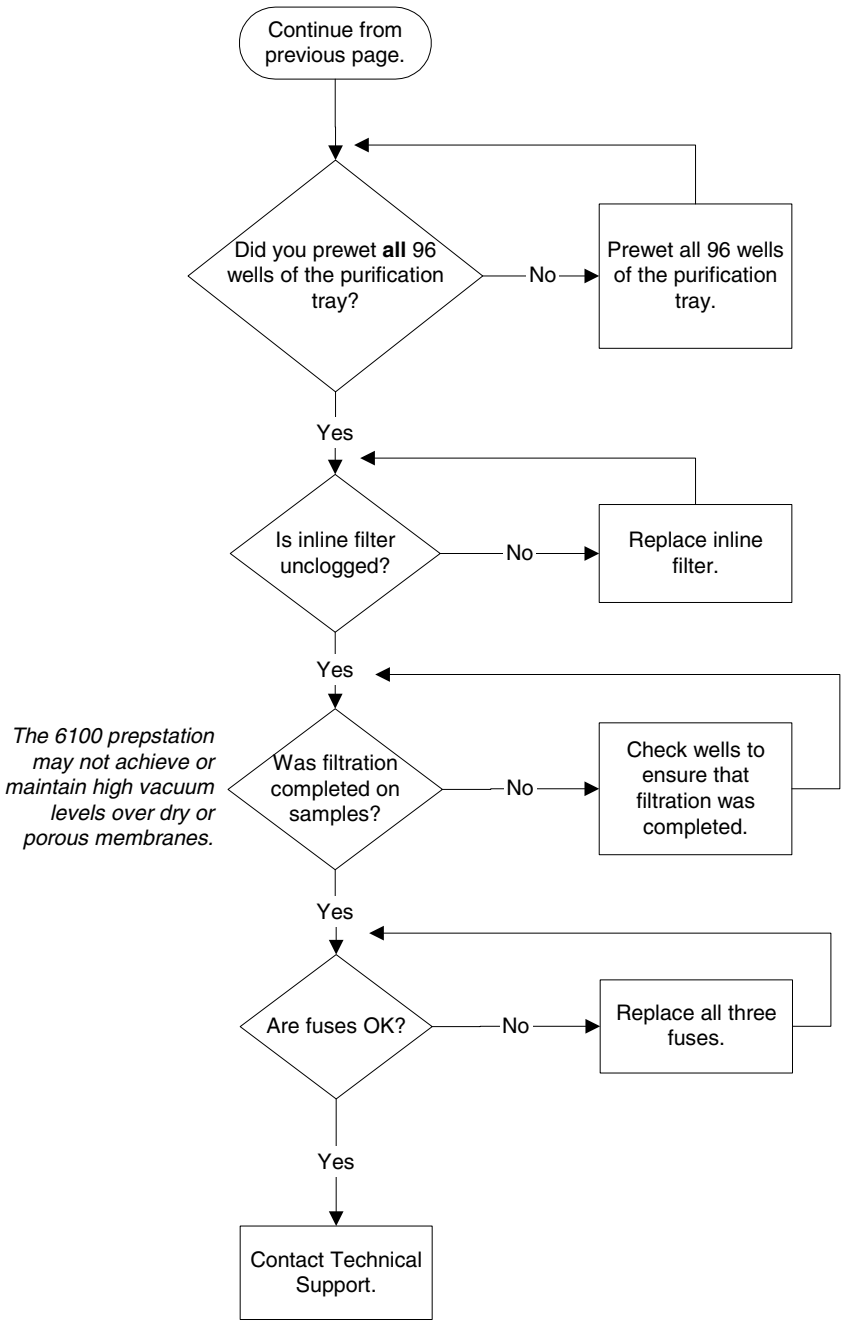


Vacuum Never Reaches Setpoint

Problem: Vacuum never reaches the setpoint

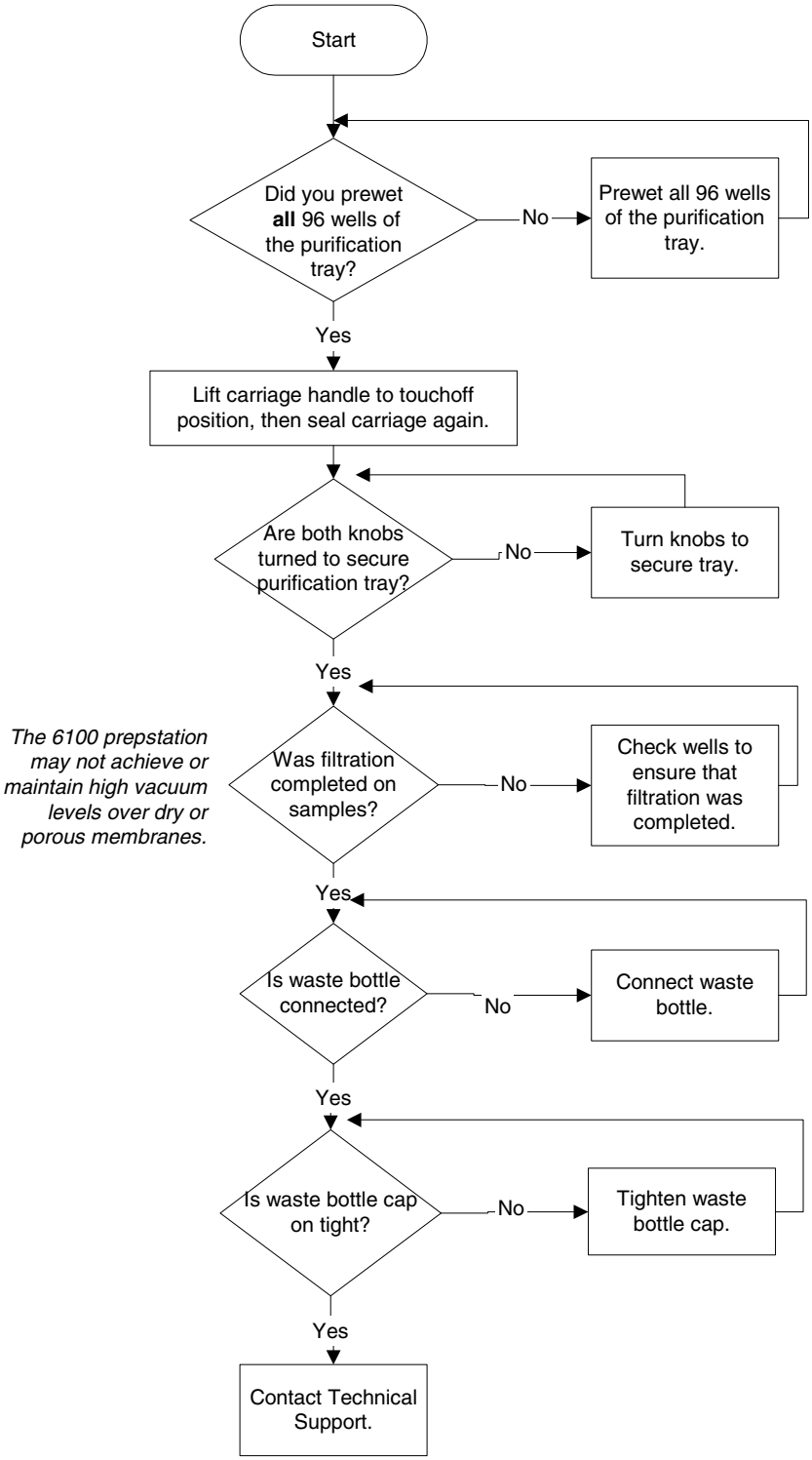


Problem: Vacuum never reaches the setpoint, *continued*



Low, But Not High Setpoints Reached

Problem: Instrument reaches low setpoints but not high ones



11 Firmware Upgrade

Overview

About This Chapter

This chapter explains how to upgrade the firmware on the ABI PRISM™ 6100 Nucleic Acid PrepStation. Your 6100 prepstation has firmware loaded when you receive it. This chapter describes how to upgrade to a later version of firmware when it becomes available.

In This Chapter

This chapter contains the following topics:

Preparing for a Firmware Upgrade

Overview

Preparing to upgrade the firmware consists of the following procedures:

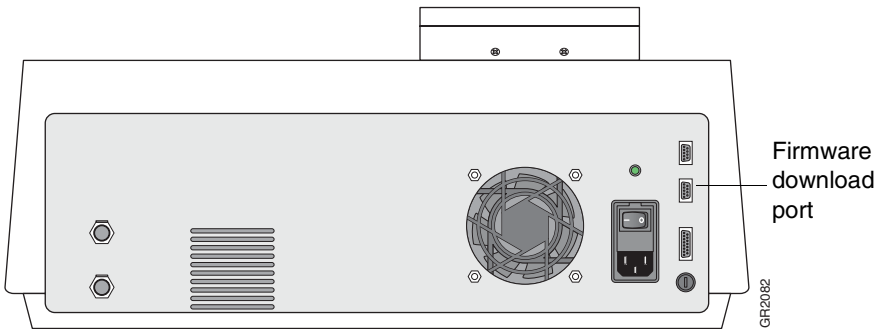
Procedure	See Page
Connecting the Serial Cable	11-2
Installing Utility Software	11-2
Copying Firmware	11-6

IMPORTANT If you are attempting to download an older version of firmware than is currently running on the 6100 prepstation, see “About Downgrading” on page 11-15.

Connecting the Serial Cable

A serial cable is provided with the 6100 prepstation.

To connect the serial cable:

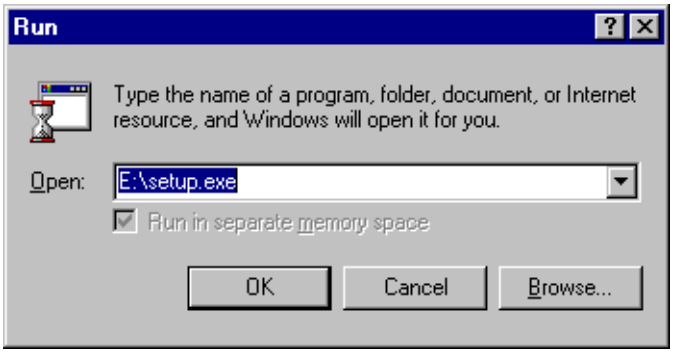
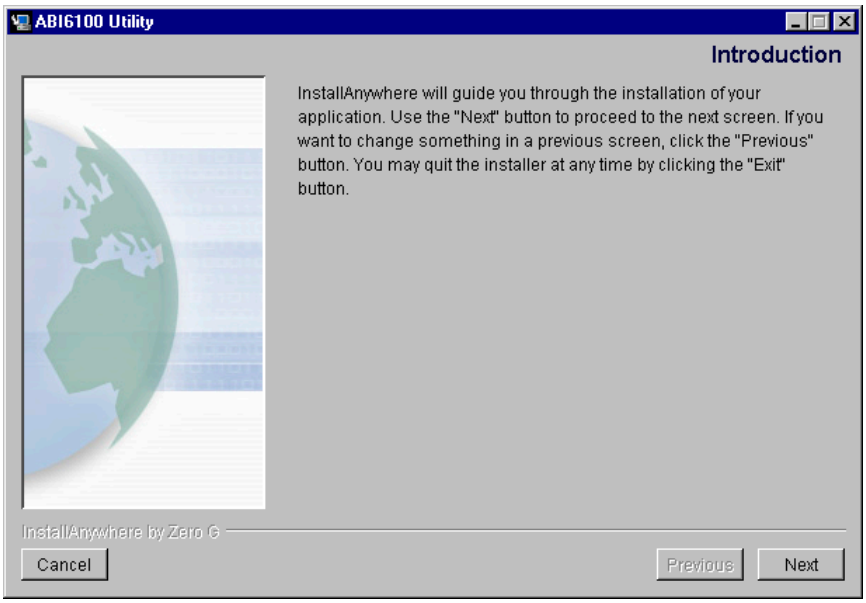
Step	Action
1	Attach one end of the cable to the COM 1 port on your PC.
2	Attach the other end to the firmware download serial port at the rear of the 6100 prepstation. It is the second connector from the top, as shown below. 

Installing Utility Software

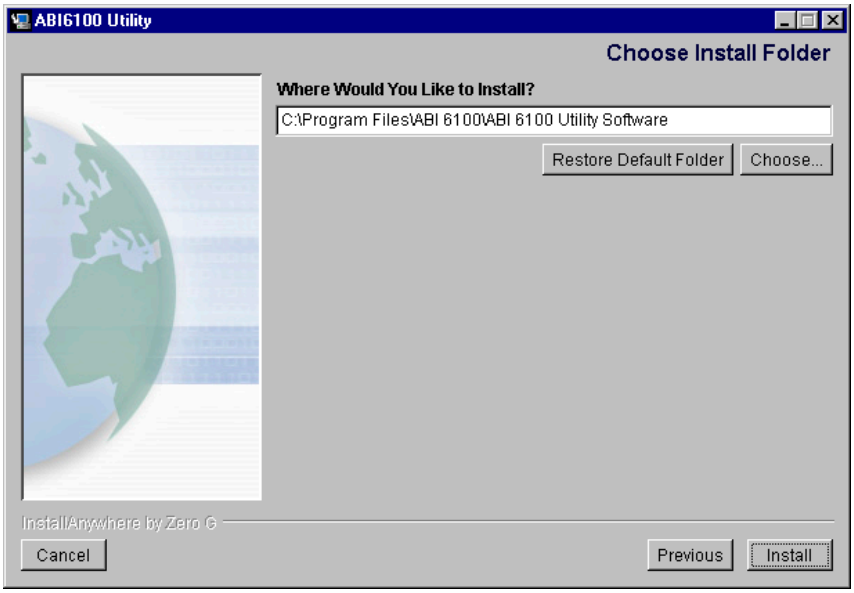
To install the Utility Software on your PC:

Step	Action
1	Close all programs running on your PC.
2	Insert the Utility Software CD in your PC’s CD drive and close the drive door.

To install the Utility Software on your PC: *(continued)*

Step	Action
3	Choose **Start > Run**. The Run window appears. 
4	In the Open box type **`E:\ABI6100 Utility Installer.exe`** (where E is the appropriate drive letter) or browse for this file by clicking Browse. Then click **OK**. The InstallAnywhere program runs. 

To install the Utility Software on your PC: *(continued)*

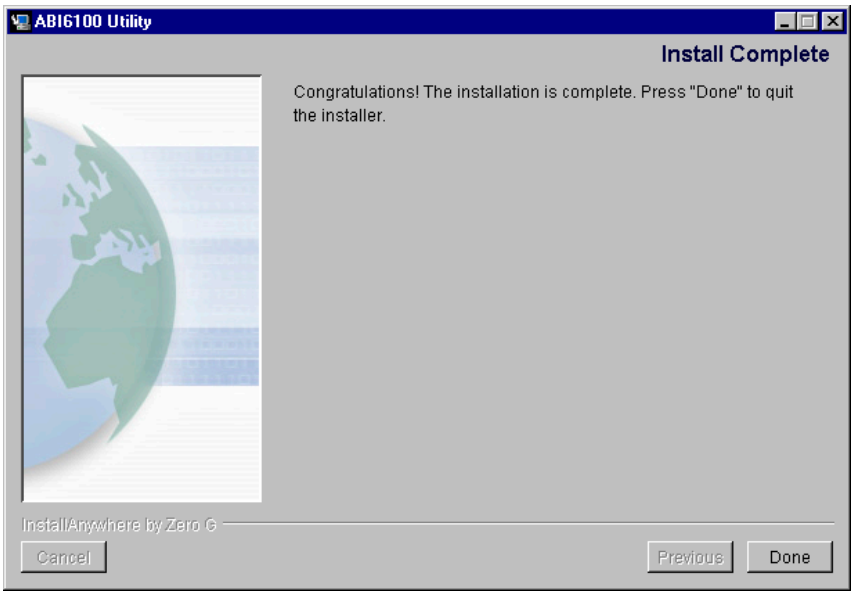
Step	Action
5	Click **Next**. The Choose Install Folder screen appears. 

To install the Utility Software on your PC: *(continued)*

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>6</td><td>Choose one of the following:

<table>
<tr><th>If you want to...</th><th>Then...</th></tr>
<tr><td>choose the default folder (Recommended.)</td><td>click Install.</td></tr>
<tr><td>choose a different folder</td><td>type a different drive letter (for example) in the window or click Choose to browse for a different folder; then click Install.</td></tr>
</table>

The InstallAnywhere program installs the Utility Software on your hard drive and then displays the Install Complete screen.

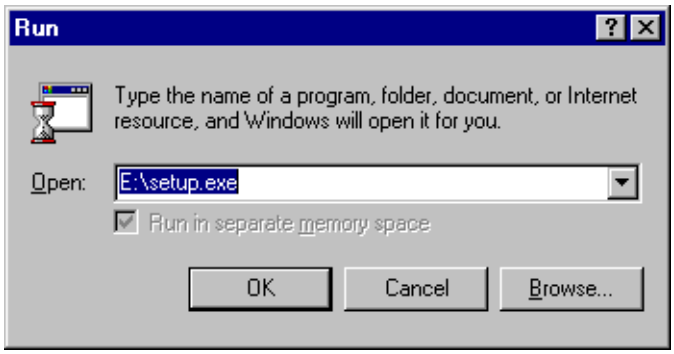
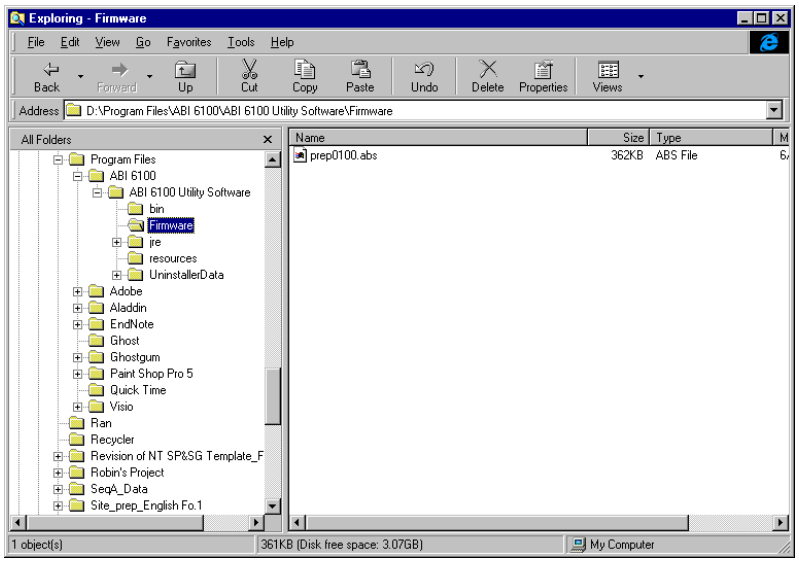


</td></tr>
<tr><td>7</td><td>Click Done.

The program displays “Cleaning Up” and creates an ABI6100 icon on your desktop.</td></tr>
<tr><td>8</td><td>Remove the Utility Software CD from your CD drive and put it in a safe place.</td></tr>
</table>

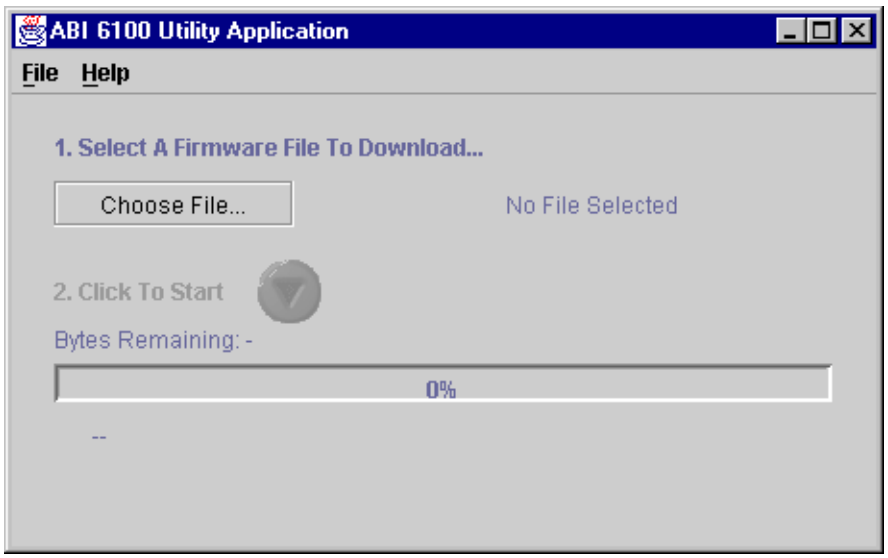
Copying Firmware

To copy the firmware file to your PC:

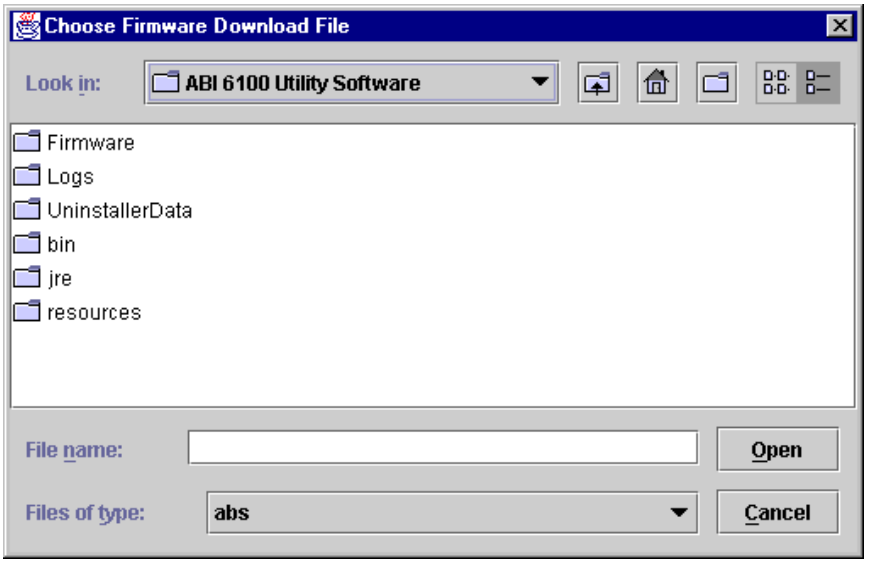
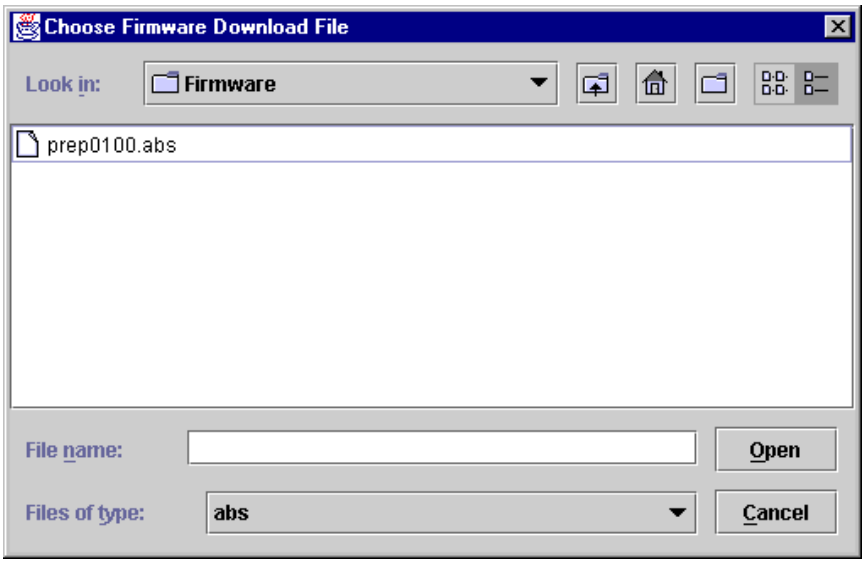
Step	Action
1	Insert the Firmware CD in your PC's CD drive and close the drive door.
2	Choose **Start > Run**. The Run window appears. 
3	Click **Browse**.
4	Click the firmware file (*e.g.*, prep0100.abs) to select it (the only file on the CD), then press **Ctrl-C** to copy it.
5	Close the Browse window and the Run window.
6	Choose **Start > Programs > Windows Explorer**.
7	Locate the folder where you installed the Utility Software. If you used the default setting, it was C:\Program Files\ABI6100\ABI 6100 Utility Software
8	Click the **Firmware** folder to select and open it.
9	Press **Ctrl-V** to paste the firmware file (*e.g.*, prep0100.abs) in the Firmware folder.  **IMPORTANT** Do not rename the firmware file.
10	Remove the Firmware CD from your CD drive and put it in a safe place.

Upgrading Firmware

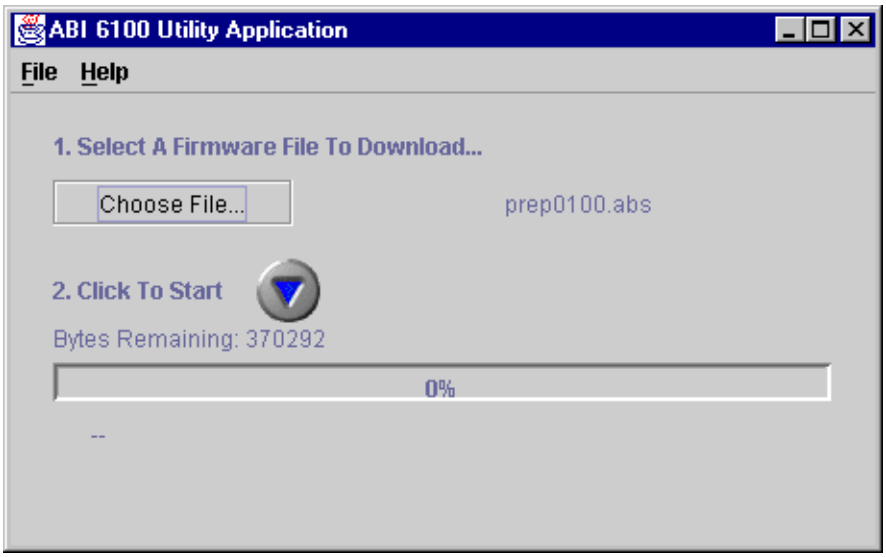
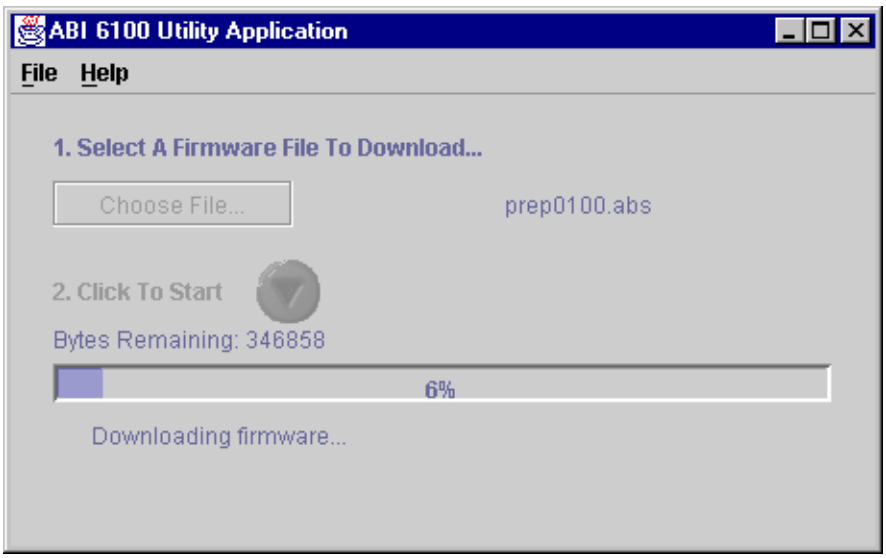
Procedure To upgrade the firmware on the 6100 prepstation:

Step	Action
1	Ensure that: ♦ The 6100 prepstation's power is on ♦ The procedures in "Preparing for a Firmware Upgrade" on page 11-2 have been performed
2	Close all programs running on your PC.
3	On your PC desktop double-click the ABI6100 icon.  The Utility Application screen appears. 

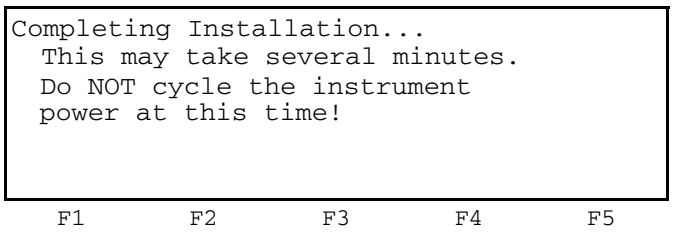
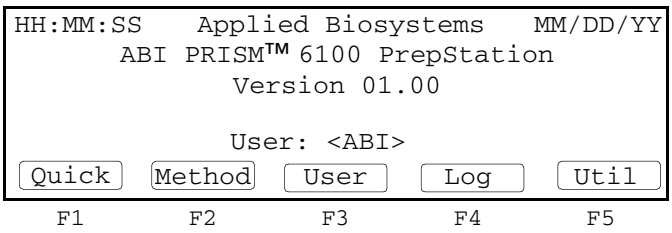
To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
4	Click **Choose File**. The Choose Firmware Download File screen appears. 
5	Double-click the Firmware folder icon. The firmware file (*e.g.*, prep0100.abs) is listed on the screen. 

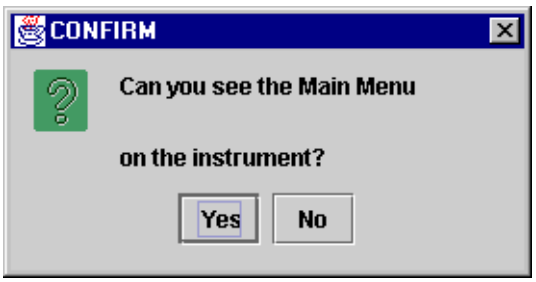
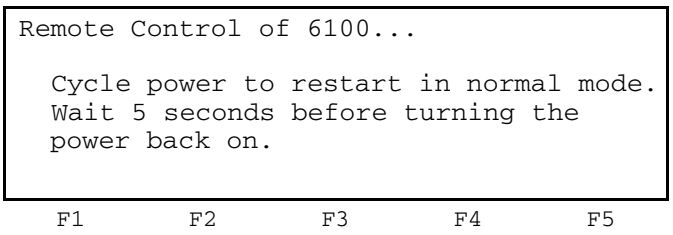
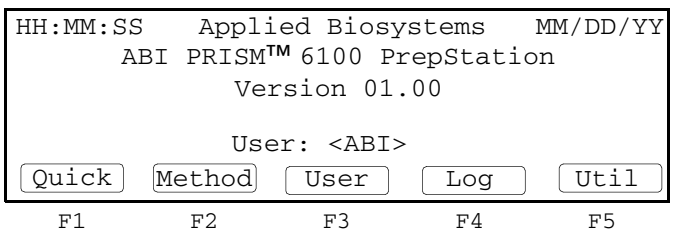
To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
6	Click the firmware file to highlight it, then click **Open**. The Utility Application screen appears again with the selected file name displayed. 
7	Click the **Start** button, which turns green as you get your cursor close to it. The Utility Application downloads the firmware to the 6100 prepstation. On the screen the Bytes Remaining count down. The scroll bar moves at a uniform rate, so you can judge how long the download will take. On the 6100 prepstation the LED at the rear of the instrument flashes green quickly. 

To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
8	Wait while the firmware completes the installation. The Completing Installation screen appears.  **IMPORTANT** Do not turn the power off on the 6100 prepstation. Doing so will cause you to lose your methods, users, and preferences. The 6100 prepstation displays its Completing Installation screen.  Then it displays the main menu. 

To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
9	When you can see the main menu on the 6100 prepstation, the download is complete. Check to be sure that the main menu is visible. When it is, click **OK**. The Confirm screen appears. 
10	Check again to be sure that the main menu is visible. When it is, click **Yes**. The Firmware Download Complete screen appears. 
11	Click **OK**.
12	View the screen on the 6100 prepstation. 
13	Power off the 6100 prepstation, wait 5 seconds, then turn the power back on. The main menu appears, showing the new firmware version. 
14	On the PC, choose **File > Exit** to close the Utility Application.

Troubleshooting Upgrade Problems

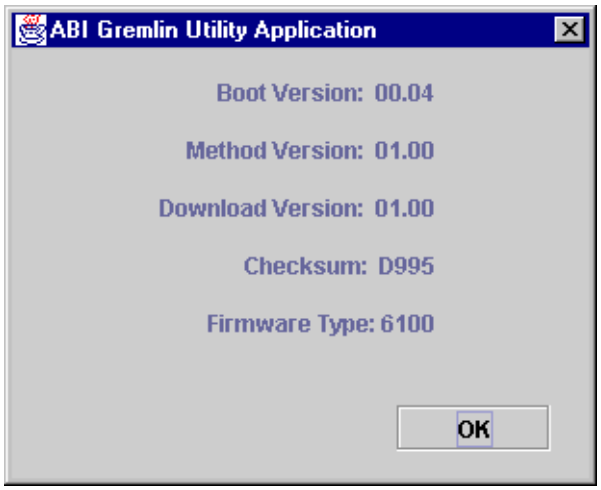
Overview

The following topics may help you troubleshoot any firmware upgrade problems:

Viewing Firmware Information

When you have set up the PC and 6100 prepstation and are ready to download firmware, the PC queries the instrument as to what versions it is running before the download actually begins. You can view this information.

To view firmware information:

Step	Action
1	After step 3 on page 11-7, in the Utility Application choose **File > Get Firmware Info**. The following screen appears. 

To view firmware information: *(continued)*

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>2</td><td>View the information on the screen.
<table>
<tr><th>Field</th><th>Explanation</th></tr>
<tr><td>Boot Version</td><td>Version number of the boot loader firmware currently running. This firmware resides in a Flash ROM on the system board. It is responsible for checking the validity of the application firmware, and, if necessary, restoring it from Flash or the firmware download serial port.</td></tr>
<tr><td>Method Version</td><td>Version of methods that is running on the 6100 prepstation. It should always be the same as the Download Version unless there are problems in the system. If this field is ‘00.00’, then the methods were lost or corrupted.</td></tr>
<tr><td>Download Version</td><td>Version number of the firmware application currently running. This firmware is downloaded to the system through the firmware download serial port. If this field is ‘??.??’, the application is not available.</td></tr>
<tr><td>Checksum</td><td>This checksum serves as a check for the application firmware to ensure that the correct firmware is running. It is a double-check in case the application version reported is misleading or incorrect. If this field is blank, the bootloader is running.</td></tr>
<tr><td>Firmware Type</td><td>
<table>
<tr><th>If the Firmware Type is...</th><th>Then...</th></tr>
<tr><td>6100</td><td>the application firmware is running on the 6100 prepstation.</td></tr>
<tr><td>BOOT</td><td>the bootloader is running on the 6100 prepstation. This means that the application firmware was lost due to a hardware error or system error. No screens will be showing on the 6100 prepstation. The LED at the instrument’s rear will be blinking at the rate of 2 blinks/second.</td></tr>
</table>
</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>Check the Firmware Type field. If the value is BOOT, you must download new firmware</td></tr>
<tr><td>4</td><td>Click OK to return to the Utility Application screen.</td></tr>
</table>

Error Messages Table

The following table lists firmware upgrade error messages, a description of the message, and recommended action.

Message	Description	Recommended Action
No file selected	Message occurs after you select a file to download.	Switch on the 6100 prepstation power.
Warning! Application detected that your firmware methods are lost.	The Utility Application determined that the methods were lost before it attempted to download new firmware. This may be due to a hardware error or a system error.	♦ Download new firmware. ♦ If the problem persists, contact Technical Support.
Warning! You are trying to download an older version. User developed methods will be deleted. Are you SURE you want to do this? Yes/No	The firmware version you are attempting to download is older than the version currently running on the 6100 prepstation.	See “About Downgrading” on page 11-15.

Troubleshooting Table

The following table lists the problem, possible causes, and a check and/or remedy for troubleshooting the firmware upgrade to the 6100 prepstation.

Problem	Possible Causes	Check and/or Remedy
Method version is ‘00.00’	Methods on the 6100 prepstation were lost	♦ Download new firmware. ♦ If the problem persists, contact Technical Support.
Communication error: no response from instrument	♦ Serial cable is unplugged or not seated properly ♦ 6100 prepstation power is not on	♦ Check and reseat the serial cable. ♦ Switch on the power.
Communication was broken during a download.	Serial cable was disconnected	a. Check and reseat the serial cable. b. Switch off the power, wait 5 seconds, then switch the power on again. c. Start the download procedure again.

About the LED

The green LED at the rear of the 6100 prepstation can provide troubleshooting information, as follows:

Indicator	Meaning
Solid	The application firmware is running OK on the 6100 prepstation
Blinking quickly	Firmware is being downloaded
Blinking at 2 blinks/second	The boot loader is running
No light	The 6100 prepstation is unplugged or a fuse has blown.

About Downgrading

Downgrading to an earlier version of firmware is not recommended. However, there may be certain circumstances in your lab that require you to run an earlier firmware version.

If you do downgrade, your users, methods, and preferences will be lost.

To preserve your methods:

Step	Action
1	Before downgrading, print your methods.
2	After downgrading, recreate the methods manually.

Technical Support and Training

A

Overview

About This Appendix

This appendix describes how to get technical help from Applied Biosystems.

Technical Support

Contacting Technical Support

You can contact Applied Biosystems for technical support:

- By e-mail
- By telephone or fax
- Through the Applied Biosystems web site

You can order Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents 24 hours a day. In addition, you can download documents in PDF format from the Applied Biosystems web site. (Please see the section "To Obtain Technical Documents" following the telephone information below.)

To Contact Technical Support by E-Mail

You can contact Applied Biosystems Technical Support by e-mail for help in the following product areas:

Product/Product Area	E-mail address
Genetic Analysis (DNA Sequencing)	galab@appliedbiosystems.com
Sequence Detection Systems (Real-Time PCR) and PCR	pcrlab@appliedbiosystems.com
Protein Sequencing, Peptide, and DNA Synthesis	corelab@appliedbiosystems.com
♦ Biochromatography (BioCAD®, SPRINT™, VISION™, and INTEGRAL® Workstations and POROS® Perfusion Chromatography Products) ♦ Expedite™ 8900 Nucleic Acid Synthesis Systems ♦ MassGenotyping Solution 1™ (MGS1) Systems ♦ PNA Custom and Synthesis ♦ Pioneer™ Peptide Synthesizers ♦ Proteomics Solution 1™ (PS1) Systems ♦ ICAT™ Reagent ♦ FMAT™ 8100 HTS Systems ♦ Mariner™ ESI-TOF Mass Spectrometry Workstations ♦ Voyager™ MALDI-TOF Biospectrometry Workstations ♦ CytoFluor® 4000 Fluorescence Plate Reader	tsupport@appliedbiosystems.com
LC/MS (Applied Biosystems/MDS Sciex)	support@sciex.com
Chemiluminescence (Tropix)	tropix@appliedbiosystems.com

To Contact Technical Support by Telephone or Fax (North America)

To contact Applied Biosystems Technical Support in North America, use the telephone or fax numbers in the table below.

Note To schedule a service call for other support needs, or in case of an emergency, dial **1.800.831.6844**, then press **1**.

Product/Product Area	Telephone	Fax
ABI PRISM® 3700 DNA Analyzer	**1.800.831.6844**, then press **8**[a]	1.650.638.5981
DNA Synthesis	**1.800.831.6844**, press **2**, then press **1**[a]	1.650.638.5981
Fluorescent DNA Sequencing	**1.800.831.6844**, press **2**, then press **2**[a]	1.650.638.5981
Fluorescent Fragment Analysis (including GeneScan® applications)	**1.800.831.6844**, press **2**, then press **3**[a]	1.650.638.5981
Integrated Thermal Cyclers (ABI PRISM® 877 and Catalyst 800 instruments)	**1.800.831.6844**, press **2**, then press **4**[a]	1.650.638.5981
ABI PRISM® 3100 Genetic Analyzer	**1.800.831.6844**, press **2**, then press **6**[a]	1.650.638.5981
Peptide Synthesis (433 and 43x Systems)	**1.800.831.6844**, press **3**, then press **1**[a]	1.650.638.5981
Protein Sequencing (Procise® Protein Sequencing Systems)	**1.800.831.6844**, press **3**, then press **2**[a]	1.650.638.5981
Sequence Detection Systems (Real-Time PCR) and PCR	**1.800.762.4001**, then press: **1** for PCR[a] **2** for TaqMan® applications and Sequence Detection Systems including ABI Prism, 7700, 7900, and 5700[a] **6** for the 6700 Automated Sample Prep System[a] or **1.800.831.6844**, then press **5**[a]	1.240.453.4613
♦ Mariner™ ESI-TOF Mass Spectrometry Workstations ♦ Voyager™ MALDI-TOF Biospectrometry Workstations ♦ MassGenotyping Solution 1™ (MGS1) Systems ♦ Proteomics Solution 1™ (PS1) Systems ♦ ICAT™ Reagent	**1.800.899.5858**, press **1**, then press **3**[b]	1.508.383.7855

Product/Product Area	Telephone	Fax
Biochromatography (BioCAD®, SPRINT™, VISION™, and INTEGRAL® Workstations and POROS® Perfusion Chromatography Products)	**1.800.899.5858**, press **1**, then press **4**[b]	1.508.383.7855
Expedite™ 8900 Nucleic Acid Synthesis Systems	**1.800.899.5858**, press **1**, then press **5**[b]	1.508.383.7855
Pioneer™ Peptide Synthesizers	**1.800.899.5858**, press **1**, then press **5**[b]	1.508.383.7855
PNA Custom and Synthesis	**1.800.899.5858**, press **1**, then press **5**[b]	1.508.383.7855
♦ FMAT™ 8100 HTS Systems ♦ CytoFluor® 4000 Fluorescence Plate Reader	**1.800.899.5858**, press **1**, then press **6**[b]	1.508.383.7855
Chemiluminescence (Tropix)	**1.800.542.2369** (U.S. only), or **1.781.271.0045**[c]	1.781.275.8581
LC/MS (Applied Biosystems/MDS Sciex)	**1.800.952.4716**	1.508.383.7899

a. 5:30 AM to 5:00 PM Pacific time.

b. 8:00 AM to 6:00 PM Eastern time.

c. 9:00 AM to 5:00 PM Eastern time.

To Contact Technical Support by Telephone or Fax (Outside North America)

To contact Applied Biosystems Technical Support or Field Service outside North America, use the telephone or fax numbers below.

Region	Telephone	Fax
Eastern Asia, China, Oceania		
Australia (Scoresby, Victoria)	**61 3 9730 8600**	**61 3 9730 8799**
China (Beijing)	**86 10 64106608** or **86 800 8100497**	**86 10 64106617**
Hong Kong	**852 2756 6928**	**852 2756 6968**
India (New Delhi)	**91 11 653 3743/3744**	**91 11 653 3138**
Korea (Seoul)	**82 2 593 6470/6471**	**82 2 593 6472**
Malaysia (Petaling Jaya)	**60 3 79588268**	**60 3 79549043**
Singapore	**65 896 2168**	**65 896 2147**
Taiwan (Taipei Hsien)	**886 2 2358 2838**	**886 2 2358 2839**
Thailand (Bangkok)	**66 2 719 6405**	**66 2 319 9788**
Europe		
Austria (Wien)	**43 (0)1 867 35 75 0**	**43 (0)1 867 35 75 11**
Belgium	**32 (0)2 532 4484**	**32 (0)2 582 1886**
Denmark (Naerum)	**45 45 58 60 00**	**45 45 58 60 01**
Finland (Espoo)	**358 (0)9 251 24 250**	**358 (0)9 251 24 243**
France (Paris)	**33 (0)1 69 59 85 85**	**33 (0)1 69 59 85 00**
Germany (Weiterstadt)	**49 (0)6150 101 0**	**49 (0)6150 101 101**
Italy (Milano)	**39 (0)39 83891**	**39 (0)39 838 9492**

Region	Telephone	Fax
Norway (Oslo)	**47 23 12 06 05**	**47 23 12 05 75**
Portugal (Lisboa)	**351.(0)22.605.33.14**	**351.(0)22.605.33.15**
Spain (Tres Cantos)	**34.(0)91.806.1210**	**34.(0)91.806.12.06**
Sweden (Stockholm)	**46 (0)8 619 4400**	**46 (0)8 619 4401**
Switzerland (Rotkreuz)	**41 (0)41 799 7777**	**41 (0)41 790 0676**
The Netherlands (Nieuwerkerk a/d IJssel)	**31 (0)180 392400**	**31 (0)180 392409** or **31 (0)180 392499**
United Kingdom (Warrington, Cheshire)	**44 (0)1925 825650**	**44 (0)1925 282502**
European Managed Territories (EMT)		
Africa, English speaking (Johannesburg, South Africa)	**27 11 478 0411**	**27 11 478 0349**
Africa, French speaking (Paris, France)	**33 1 69 59 85 11**	**33 1 69 59 85 00**
India (New Delhi)	**91 11 653 3743** **91 11 653 3744**	**91 11 653 3138**
Poland, Lithuania, Latvia, and Estonia (Warszawa)	**48 22 866 40 10**	**48 22 866 40 20**
For all other EMT countries not listed (Central and southeast Europe, CIS, Middle East, and West Asia)	**44 1925 282481**	**44 1925 282509**
Japan		
Japan (Hacchobori, Chuo-Ku, Tokyo)	**81 3 5566 6230**	**81 3 5566 6507**
Latin America		
Caribbean countries, Mexico, and Central America	**52 55 35 3610**	**52 55 66 2308**
Brazil	**0 800 704 9004** or **55 11 5070 9654**	**55 11 5070 9694/95**
Argentina	**800 666 0096**	**55 11 5070 9694/95**
Chile	**1230 020 9102**	**55 11 5070 9694/95**
Uruguay	**0004 055 654**	**55 11 5070 9694/95**

To Reach Technical Support Through the Applied Biosystems Web Site

At the Applied Biosystems web site, you can search through frequently asked questions (FAQs) or a solution database, or you can submit a question directly to Technical Support.

Search FAQs

To search for FAQs:

Step	Action
1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, then click **Frequently Asked Questions**.
3	Click you geographic region for the product area of interest.
4	Follow the instructions under the **Frequently Asked Questions** section (1) to display a list of FAQs for your area of interest.

Search the Solution Database

To search for solutions to problems using the Solution Database:

Step	Action
1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, then click **Frequently Asked Questions**.
3	Follow the instructions under the **Search the Solution Database** section (2) to find a solution to your problem.

Submit a Question

To submit a question directly to Technical Support:

1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, then click **Frequently Asked Questions**.
3	In the **Personal Assistance – E-Mail Support** section (3), click **Ask Us RIGHT NOW**.
4	In the displayed form, enter the requested information and your question, then click **Ask Us RIGHT NOW**. Within 24 to 48 hours, you will receive an e-mail reply to your question from an Applied Biosystems technical expert.

To Obtain Technical Documents

You can obtain technical documents, such as Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents for free, 24 hours a day. You can obtain documents:

- By telephone
- Through the Applied Biosystems web site

Ordering Documents by Telephone

To order documents by telephone:

1	From the U.S. or Canada, dial **1.800.487.6809**, or from outside the U.S. and Canada, dial **1.858.712.0317**.
2	Follow the voice instructions to order documents (for delivery by fax). **Note** There is a limit of five documents per fax request.

Obtaining Documents Through the Web Site

To view, download, or order documents through the Applied Biosystems web site:

Step	Action
1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, then click **Documents on Demand**.
3	In the search form, enter and select search criteria, then click **Search** at the bottom of the page.
4	In the results screen, do any of the following: ♦ Click the pdf icon to view a PDF version of the document. ♦ Right-click the pdf icon, then select **Save Target As** to download a copy of the PDF file. ♦ Select the **Fax** check box, then click **Deliver Selected Documents Now** to have the document faxed to you. ♦ Select the **Email** check box, then click **Deliver Selected Documents Now** to have the document (PDF format) e-mailed to you. **Note** There is a limit of five documents per fax request, but no limit on the number of documents per e-mail request.

To Obtain Customer Training Information

To obtain Applied Biosystems training information:

Step	Action
1	Go to **http://www.appliedbiosystems.com**
2	Click **SERVICES & SUPPORT** at the top of the page, then click **Training**.

Specifications

B

Overview

About This Appendix

This appendix provides specifications for the ABI PRISM™ 6100 Nucleic Acid PrepStation.

System Specifications

Dimensions The table below lists the footprint and the weight of the 6100 instrument.

Footprint	
Height	28 cm (11 in)
Width	50.8 cm (20 in)
Depth	47 cm (18.5 in)
Weight	
Instrument	< 20 kg (< 45 lbs)

Power Power rating: 240 W

Fuses:

- Power supply fuses: Two 3-A slow blow, 250-V fuses (5 mm x 20 mm)
- Pump fuse: One 4-A slow blow, 250-V fuse (5 mm x 20 mm)

Control Panel Specifications

Display Screen The display screen is a 6 x 40 character display with a 60 x 240 pixel resolution graphics mode.

Keys The instrument control panel consists of a display screen and 9 keys:

- 5 function keys
- 4 arrow keys

Predefined Methods

C

Overview

About This Appendix

This appendix lists the reagents required for the isolation of RNA and genomic DNA and describes the predefined methods supplied with your instrument.

Reagents for the Isolation of RNA

Protocols for the isolation of RNA use the following reagents and disposables:

Part Number	Reagent	Quantity
4305895	Lysis Solution, Nucleic Acid Purification	250 mL
4305893	Elution Solution, Nucleic Acid Purification	1 L
4305891	Wash Solution I, Nucleic Acid Purification	1 L
4305890	Wash Solution II, Nucleic Acid Purification	1 L
4305673	Total RNA Purification Tray	10 per box
4305545	AbsoluteRNA Wash Solution	10 mL

Reagents for the Isolation of Genomic DNA

Protocols for the isolation of genomic DNA using the TransPrep chemistry require the following reagents and disposables:

Part Number	Reagent	Quantity
4325962	DNA Precipitation Solution 1	100 mL
4325964	DNA Precipitation Solution 2	250 mL
4325958	DNA Wash Solution 1	1 L
4325960	DNA Wash Solution 2	1 L
4325956	DNA Elution Solution 1	250 mL
4318641	gDNA Purification Tray 1	10 per box
4326965	TransPrep Chemistry protocol	1

About the Methods

Six Predefined Methods

The ABI PRISM™ 6100 Nucleic Acid PrepStation supplies you with six predefined methods stored under the user name <ABI>:

- Pre-Filter
- RNA Blood
  - RNA Blood
  - RNABlood–DNA
- RNA Cell
  - RNA Cell
  - RNACell–DNA
- RNA Tissue-Filtr
  - RNA Tissue-Filtr
  - RNA Tissue-Filtr–DNA
- RNA Tissue+Filtr
  - RNA Tissue+Filtr
  - RNA Tissue+Filtr–DNA
- TransPrep

Pre-Filter

This method has the following steps:

Step	Description	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells	—	—	—
1	Load Samples	Collection	180	80
2	Repeat Vacuum	Collection	120	80
3	Touch Off at Collection	Touch Off	—	—

RNA Blood

RNA-Blood

The RNA Blood method may be used for isolation of total RNA from whole blood or blood cell isolates. This method has the following steps:

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells with Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650[a]	Waste	180	80
2	Add Wash Solution 1	650	Waste	180	80
3	Add Wash Solution 2	650	Waste	180	80
4	Add Wash Solution 2	650	Waste	180	80
5	Add Wash Solution 2	400	Waste	180	80
6	Pre-Elution Vacuum	—	Waste	300	90
7	Touch Off at Waste	—	Touch Off	—	—

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
8	Add Elution Solution	150	Collection	120	20
9	Touch Off at Collection	—	Touch Off	—	—

a. Multiple aliquots of lysate may be loaded to the purification tray well if necessary. However, care should be taken to ensure that the purification tray membrane does not become overloaded and prevent the flow of wash solutions.
A range of 5–750 µL of whole blood may be added to each purification tray well, equivalent to 20–3000 µL of lysate. For lysate volumes in excess of 650 µL, use the Quick Run feature and add lysate in 500 µL aliquots. Operate the vacuum and repeat until all of the lysate is added.

RNA-Blood DNA

The RNA-Blood DNA method may be used for isolation of total RNA from whole blood or blood cell isolates and includes the removal of genomic DNA using AbsoluteRNA Wash Solution. This method has the following steps:

CAUTION Do not operate the 6100 vacuum after the addition of AbsoluteRNA Wash Solution until the incubation following the addition of Wash Solution 2 has been completed in Step 5. Operation of the vacuum before this time will remove the reagent from contact with the purification tray and increase the amount of genomic DNA present in the RNA sample.

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells with Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650[a]	Waste	180	80
2	Add Wash Solution 1	650	Waste	180	80
3	Add Wash Solution 2	650	Waste	180	80
4	Add AbsoluteRNA Wash Solution and Incubate	50	Waste	900	0 See Caution above
5	Add Wash Solution 2 and Incubate	400	Waste	300	0 See Caution above
6	Wash Solution 2 Removal	—	Waste	180	80
7	Add Wash Solution 2	650	Waste	180	80
8	Add Wash Solution 2	400	Waste	180	80
9	Pre-Elution Vacuum	—	Waste	300	90
10	Touch Off at Waste	—	Touch Off	—	—
11	Elution Solution	150	Collection	120	20
12	Touch Off at Collection	—	Touch Off	—	—

a. Multiple aliquots of lysate may be loaded to the purification tray well if necessary. However, care should be taken to ensure that the purification tray membrane does not become overloaded and prevent the flow of wash solutions.
A range of 5–750 µL of whole blood may be added to each purification tray well, equivalent to 20–3000 µL of lysate. For lysate volumes in excess of 650 µL, use the Quick Run feature and add lysate in 500 µL aliquots. Operate the vacuum and repeat until all of the lysate is added.

RNA Cell

RNA-Cell

The RNA Cell method may be used for isolation of total RNA from cultured cells. This method has the following steps:

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650[a]	Waste	120	20
2	Add Wash Solution 1	500	Waste	120	20
3	Add Wash Solution 2	400	Waste	120	20
4	Add Wash Solution 2	400	Waste	120	20
5	Add Wash Solution 2	300	Waste	120	20
6	Pre-Elution Vacuum	—	Waste	300	90
7	Touch Off at Waste	—	Touch Off	—	—
8	Add Elution Solution	150	Collection	120	20
9	Touch Off at Collection	—	Touch Off	—	—

a. Multiple aliquots of lysate may be loaded to the purification tray well if necessary. However, care should be taken to ensure that the purification tray membrane does not become overloaded and prevent the flow of wash solutions.

RNACell-DNA

The RNACell-DNA method may be used for isolation of total RNA from cultured cells and includes the removal of genomic DNA using AbsoluteRNA Wash Solution.

CAUTION Do not operate the 6100 vacuum after the addition of AbsoluteRNA Wash Solution until the incubation following the addition of Wash Solution 2 has been completed in Step 5. Operation of the vacuum before this time will remove the reagent from contact with the purification tray and increase the amount of genomic DNA present in the RNA sample.

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet all Wells with Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650[a]	Waste	120	20
2	Add Wash Solution 1	500	Waste	120	20
3	Add Wash Solution 2	650	Waste	120	20
4	Add AbsoluteRNA Wash Solution and Incubate	50	Waste	900	0 See Caution above
5	Add Wash Solution 2 and Incubate	400	Waste	300	0 See Caution above
6	Wash Solution 2 Removal	—	Waste	120	20
7	Add Wash Solution 2	300	Waste	120	20
8	Add Wash Solution 2	300	Waste	120	20
9	Pre-Elution Vacuum	—	Waste	300	90

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
10	Touch Off at Waste	—	Touch Off	—	—
11	Add Elution Solution	50–150	Collection	120	20
12	Touch Off at Collection	—	Touch Off	—	—

a. Multiple aliquots of lysate may be loaded to the purification tray well if necessary. However, care should be taken to ensure that the purification tray membrane does not become overloaded and prevent the flow of wash solutions.

RNA Tissue-Filtr

RNA Tissue-Filtr

The RNA Tissue-Filtr method may be used for isolation of total RNA from plant or animal tissues without genomic DNA filtrate collection.

Note See the Tissue RNA Isolation protocol (P/N 4330252) for further details. This protocol can be downloaded from www.appliedbiosystems.com.

This method has the following steps:

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet all Wells with Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650	Waste	180	80
2	Add Wash Solution 1	500	Waste	180	80
3	Add Wash Solution 2	400	Waste	180	80
4	Add Wash Solution 2	300	Waste	120	60
5	Add Wash Solution 2	300	Waste	120	60
6	Pre-Elution Vacuum	—	Waste	300	90
7	Touch Off at Waste	—	Touch Off	—	—
8	Elution Solution	150	Collection	120	40
9	Touch Off at Collection	—	Touch Off	—	—

RNA Tissue-Filtr-DNA

The RNA Tissue-Filtr method may be used for isolation of total RNA from plant or animal tissues and includes the removal of genomic DNA using AbsoluteRNA Wash Solution.

CAUTION Do not operate the 6100 vacuum after the addition of AbsoluteRNA Wash Solution until the incubation following the addition of Wash Solution 2 has been completed in Step 5. Operation of the vacuum before this time will remove the reagent from contact with the purification tray and increase the amount of genomic DNA present in the RNA sample.

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells with Wash Solution 1	40	Waste	—	—
1	Load Samples	10–650	Waste	180	80
2	Add Wash Solution 1	500	Waste	180	80

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
3	Add Wash Solution 2	400	Waste	180	80
4	Add AbsoluteRNA Wash Solution and Incubate	50	Waste	900	0 See Caution above
5	Add Wash Solution 2 and Incubate	600	Waste	300	0 See Caution above
6	Wash Solution 2 Removal	—	Waste	180	80
7	Add Wash Solution 2	300	Waste	120	60
8	Add Wash Solution 2	300	Waste	120	60
9	Pre-Elution Vacuum	—	Waste	300	90
10	Touch Off at Waste	—	Touch Off	—	—
11	Add Elution Solution	150	Collection	120	40
12	Touch Off at Collection	—	Touch Off	—	—

RNA Tis+Filtr

RNATis+Filtr

The RNA Tissue+Filtr method may be used for isolation of total RNA from plant or animal tissues with filtrate collection. This method has the following steps:

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet Wells with Was Solution 1	40	Collection	—	—
1	Load Samples	10–650	Collection	180	80
2	Touch Off at Collection	—	Touch Off	—	—
3	Add Wash Solution 1	500	Waste	180	80
4	Add Wash Solution 2	400	Waste	180	80
5	Add Wash Solution 2	300	Waste	120	60
6	Add Wash Solution 2	300	Waste	120	60
7	Pre-Elution Vacuum	—	Waste	300	90
8	Touch Off at Waste	—	Touch Off	—	—
9	Add Elution Solution	150	Collection	120	40
10	Touch Off at Collection	—	Touch Off	—	—

RNATis+Filtr–DNA

The RNATis+Filtr–DNA method may be used for isolation of total RNA from plant or animal tissues and includes the removal of genomic DNA using AbsoluteRNA Wash Solution.

CAUTION Do not operate the 6100 vacuum after the addition of AbsoluteRNA Wash Solution until the incubation following the addition of Wash Solution 2 has been completed in Step 6. Operation of the vacuum before this time will remove the reagent from contact with the purification tray and increase the amount of genomic DNA present in the RNA sample.

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet All Wells with Wash Solution 1	40	Collection	—	—

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
1	Load Samples	10–650	Collection	180	80
2	Touch Off at Collection	—	Touch Off	—	—
3	Add Wash Solution 1	500	Waste	180	80
4	Add Wash Solution 2	400	Waste	180	80
5	Add AbsoluteRNA Wash Solution and Incubate	50	Waste	900	0 See Caution above
6	Add Wash Solution 2 and Incubate	400	Waste	300	0 See Caution above
7	Wash Solution 2 Removal	—	Waste	180	80
8	Add Wash Solution 2	300	Waste	120	60
9	Add Wash Solution 2	300	Waste	120	60
10	Pre-Elution Vacuum	—	Waste	300	90
11	Touch Off at Waste	—	Touch Off	—	—
12	Elution Solution	150	Collection	120	40
13	Touch Off at Collection	—	Touch Off	—	—

TransPrep

This method has the following steps:

Step	Description	Volume (µL)	Position	Time (sec)	Vacuum (%)
—	Pre-Wet Wells with DNA Wash Solution 1	40	Waste	—	—
1	Load Samples	600[a]	Waste	120	20
2	Add DNA Wash Solution 1	650	Waste	90	20
3	Add DNA Wash Solution 2	650	Waste	90	20
4	Pre-Elution Vacuum	—	Waste	30	30
5	Touch Off at Waste	—	Touch Off	—	—
6	Add DNA Elution Solution and Incubate	150	Collection	120	0
7	Final Elution Step	—	Collection	120	20
8	Touch Off Collection	—	Touch Off	—	—

a. 200 µL of RNA-depleted filtrate and 400 µL of a 1:3 mixture of DNA Precipitation Solution 1 and DNA Precipitation Solution 2. See the TransPrep protocol (P/N 4326965) for further details. The protocol can be downloaded from www.appliedbiosystems.com

Screen Flowcharts

D

Overview

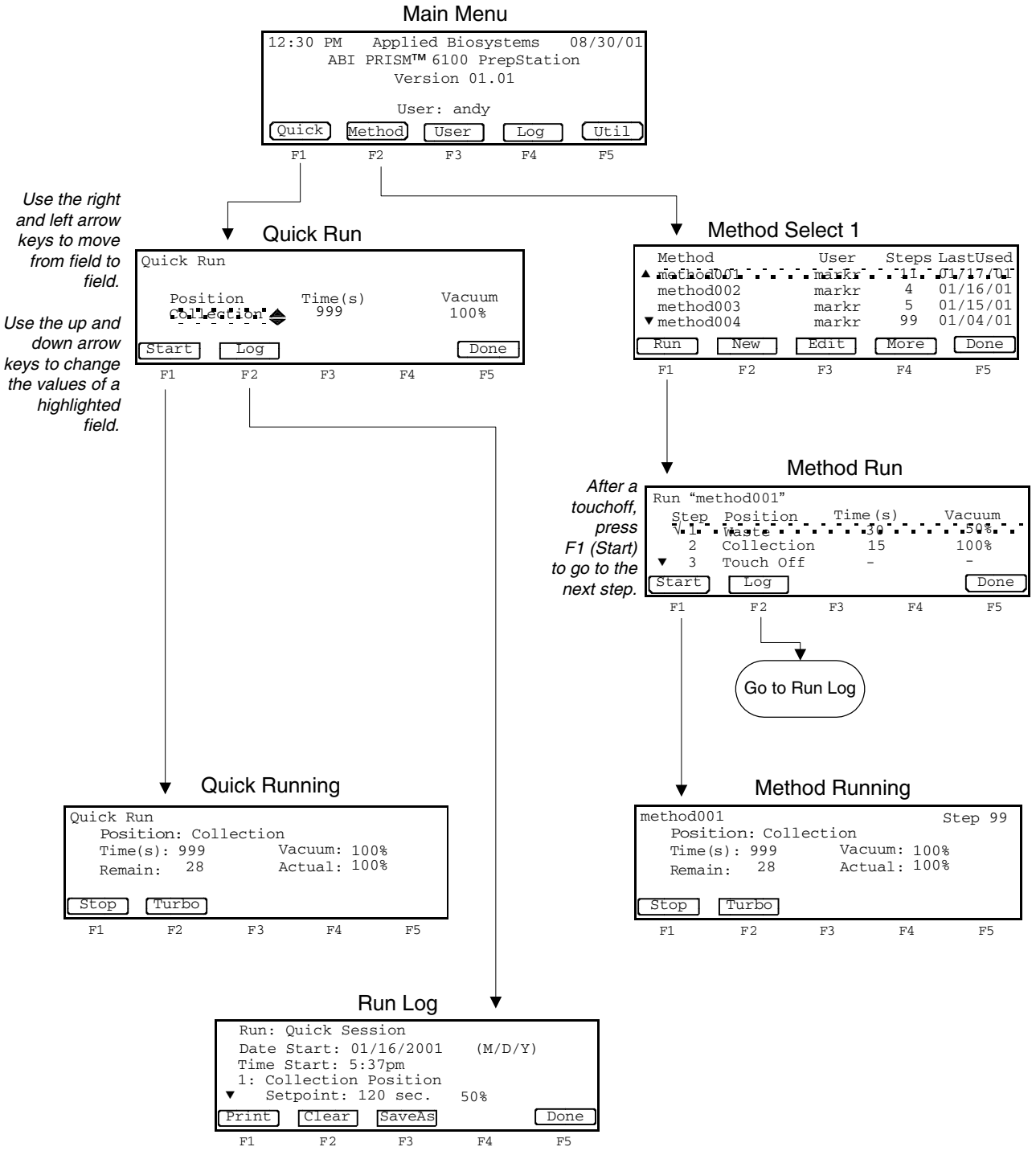
About This Appendix

This appendix provides flowcharts showing screen flows for various functions you might want to use. These charts provide an overview of a procedure.

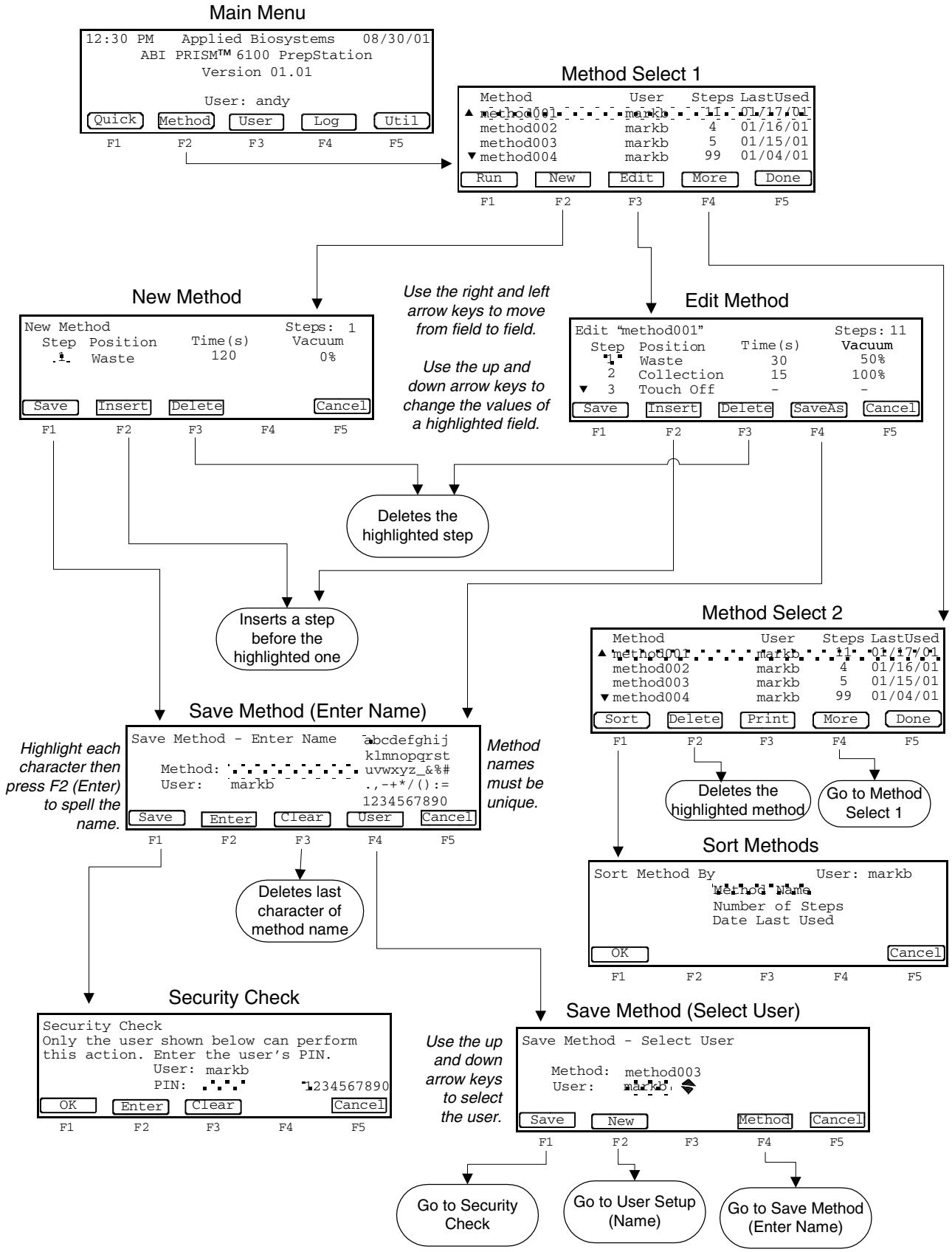
In This Appendix

Flowcharts are included for the following topics:

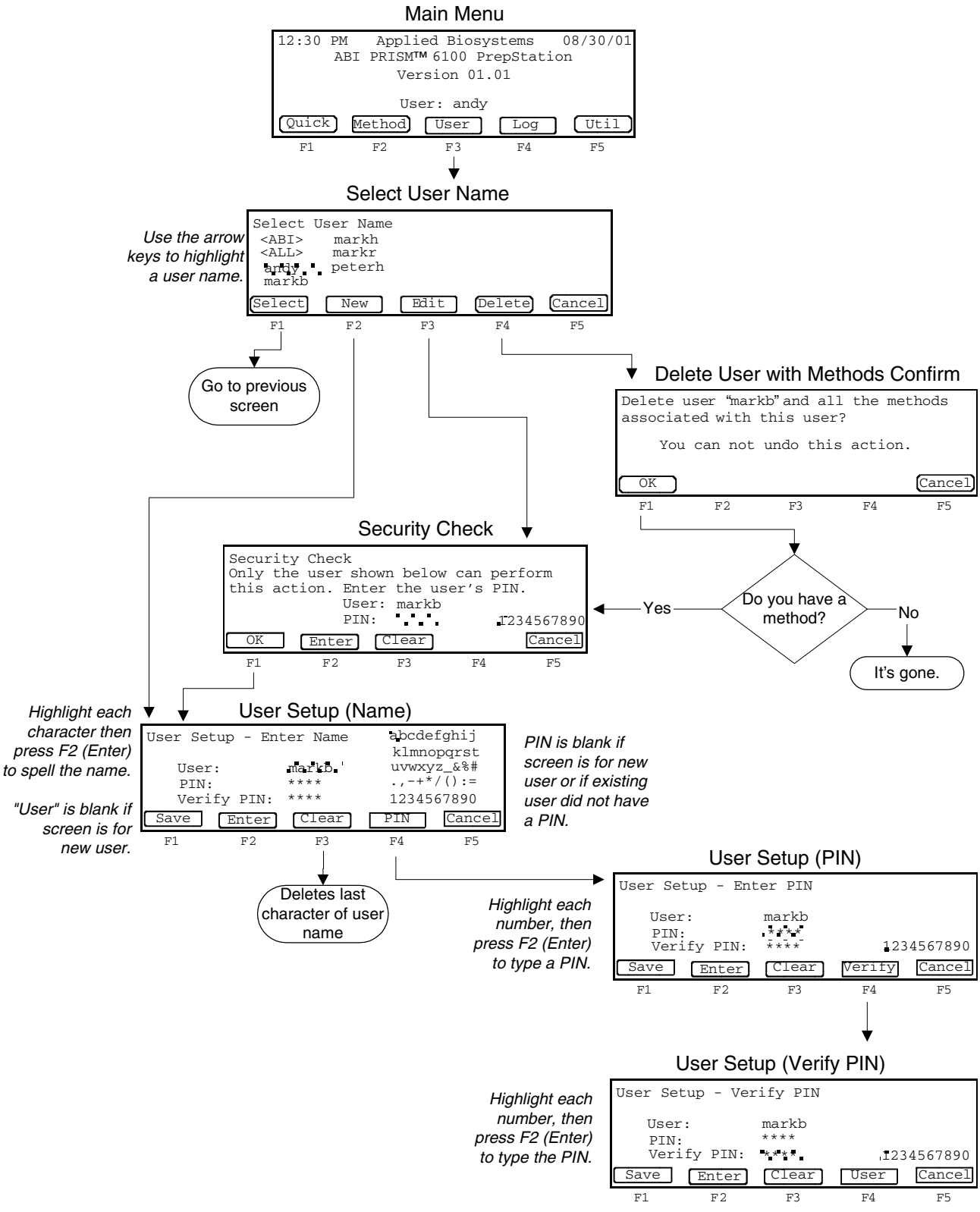
Run


Main Menu
12:30 PM Applied Biosystems 08/30/01
ABI PRISM™ 6100 PrepStation
Version 01.01
User: andy
Quick
Method
User
Log
Util
F1 F2 F3 F4 F5
Use the right and left arrow keys to move from field to field.
Use the up and down arrow keys to change the values of a highlighted field.
Quick Run
Quick Run
Position
Collection
Time(s)
999
Vacuum
100%
Start
Log
Done
F1 F2 F3 F4 F5
Method Select 1
Method User Steps LastUsed
method001 markr 11 01/17/01
method002 markr 4 01/16/01
method003 markr 5 01/15/01
method004 markr 99 01/04/01
Run
New
Edit
More
Done
F1 F2 F3 F4 F5
Method Run
After a touchoff, press F1 (Start) to go to the next step.
Run "method001"
Step Position Time(s) Vacuum
1 Waste 30 50%
2 Collection 15 100%
3 Touch Off - -
Start
Log
Done
F1 F2 F3 F4 F5
Go to Run Log
Quick Running
Quick Run
Position: Collection
Time(s): 999 Vacuum: 100%
Remain: 28 Actual: 100%
Stop
Turbo
F1 F2 F3 F4 F5
Method Running
method001 Step 99
Position: Collection
Time(s): 999 Vacuum: 100%
Remain: 28 Actual: 100%
Stop
Turbo
F1 F2 F3 F4 F5
Run Log
Run: Quick Session
Date Start: 01/16/2001 (M/D/Y)
Time Start: 5:37pm
1: Collection Position
Setpoint: 120 sec. 50%
Print
Clear
SaveAs
Done
F1 F2 F3 F4 F5

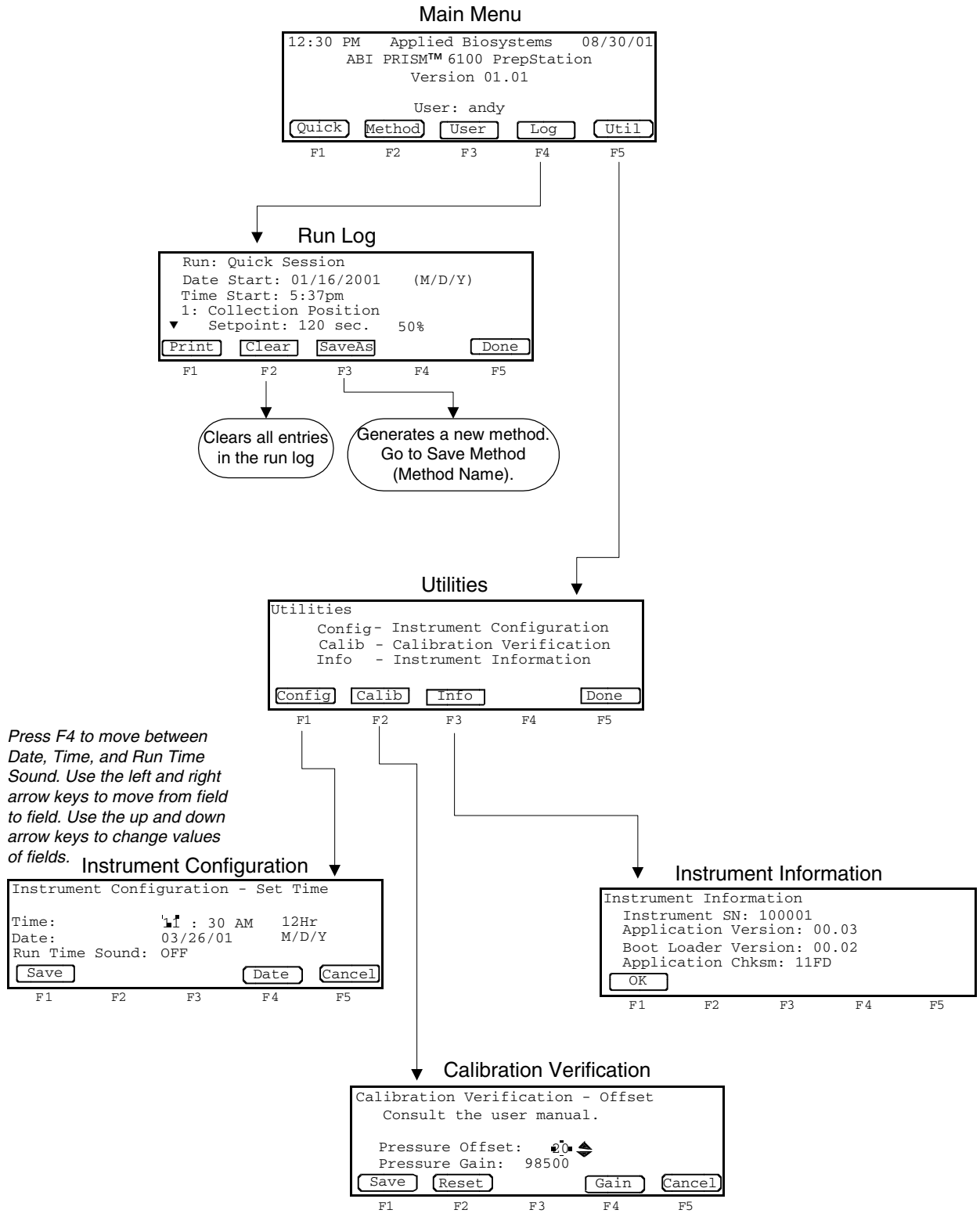
Method


Main Menu
12:30 PM Applied Biosystems 08/30/01
ABI PRISM™ 6100 PrepStation
Version 01.01
User: andy
Quick
Method
User
Log
Util
F1 F2 F3 F4 F5
Method Select 1
Method User Steps LastUsed
method001 markb 11 01/17/01
method002 markb 4 01/16/01
method003 markb 5 01/15/01
method004 markb 99 01/04/01
Run
New
Edit
More
Done
F1 F2 F3 F4 F5
New Method
New Method Steps: 1
Step Position Time(s) Vacuum
1 Waste 120 0%
Save
Insert
Delete
Cancel
F1 F2 F3 F4 F5
Use the right and left arrow keys to move from field to field.
Use the up and down arrow keys to change the values of a highlighted field.
Edit Method
Edit "method001" Steps: 11
Step Position Time(s) Vacuum
1 Waste 30 50%
2 Collection 15 100%
3 Touch Off - -
Save
Insert
Delete
SaveAs
Cancel
F1 F2 F3 F4 F5
Deletes the highlighted step
Inserts a step before the highlighted one
Method Select 2
Method User Steps LastUsed
method001 markb 11 01/17/01
method002 markb 4 01/16/01
method003 markb 5 01/15/01
method004 markb 99 01/04/01
Sort
Delete
Print
More
Done
F1 F2 F3 F4 F5
Deletes the highlighted method
Go to Method Select 1
Save Method (Enter Name)
Save Method - Enter Name
Method:
User: markb
abcdefghij
klmnopqrst
uvwxyz_&%#
.,-+*/():=
1234567890
Save
Enter
Clear
User
Cancel
F1 F2 F3 F4 F5
Highlight each character then press F2 (Enter) to spell the name.
Method names must be unique.
Deletes last character of method name
Sort Methods
Sort Method By User: markb
Method Name
Number of Steps
Date Last Used
OK
Cancel
F1 F2 F3 F4 F5
Security Check
Security Check
Only the user shown below can perform this action. Enter the user's PIN.
User: markb
PIN:
1234567890
OK
Enter
Clear
Cancel
F1 F2 F3 F4 F5
Save Method (Select User)
Save Method - Select User
Method: method003
User: markb
Save
New
Method
Cancel
F1 F2 F3 F4 F5
Use the up and down arrow keys to select the user.
Go to Security Check
Go to User Setup (Name)
Go to Save Method (Enter Name)

User


Main Menu
12:30 PM Applied Biosystems 08/30/01
ABI PRISM™ 6100 PrepStation
Version 01.01
User: andy
Quick
Method
User
Log
Util
F1 F2 F3 F4 F5
Select User Name
Use the arrow keys to highlight a user name.
Select User Name
<ABI> markh
<ALL> markr
andy peterh
markb
Select
New
Edit
Delete
Cancel
F1 F2 F3 F4 F5
Go to previous screen
Delete User with Methods Confirm
Delete user "markb" and all the methods associated with this user?
You can not undo this action.
OK
Cancel
F1 F2 F3 F4 F5
Security Check
Security Check
Only the user shown below can perform this action. Enter the user's PIN.
User: markb
PIN:
1234567890
OK
Enter
Clear
Cancel
F1 F2 F3 F4 F5
Yes
Do you have a method?
No
It's gone.
Highlight each character then press F2 (Enter) to spell the name.
"User" is blank if screen is for new user.
User Setup (Name)
User Setup - Enter Name
User: markb
PIN: ****
Verify PIN: ****
abcdefghij
klmnopqrst
uvwxyz_&%#
.,-+*/():=
1234567890
Save
Enter
Clear
PIN
Cancel
F1 F2 F3 F4 F5
PIN is blank if screen is for new user or if existing user did not have a PIN.
Deletes last character of user name
User Setup (PIN)
User Setup - Enter PIN
User: markb
PIN:
Verify PIN: ****
1234567890
Save
Enter
Clear
Verify
Cancel
F1 F2 F3 F4 F5
Highlight each number, then press F2 (Enter) to type a PIN.
User Setup (Verify PIN)
User Setup - Verify PIN
User: markb
PIN: ****
Verify PIN:
1234567890
Save
Enter
Clear
User
Cancel
F1 F2 F3 F4 F5
Highlight each number, then press F2 (Enter) to type the PIN.

Log and Utilities



Index