

# In-Lab Training Manual

## **UniCel® DxC Synchron® Clinical Systems**

For *In Vitro* Diagnostic Use

This manual is intended for  
UniCel® DxC 600  
UniCel® DxC 800



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# UniCel® DxC 600/800 In-Lab Training Manual

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# Chapter 1

## Instrument Overview

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**Introduction** The UniCel® DxC Synchron® Clinical System is an automated, computer-driven, general chemistry analyzer designed for the in vitro determination of a variety of general chemistries, therapeutic drugs, and other chemistries. Analysis can be performed on serum, plasma, urine, cerebrospinal fluid (CSF), pre-treated whole blood or whole blood (sample type is chemistry dependent). DxC 600 and DxC 800 systems are available. The DxC 800 offers additional STAT chemistries.



**DxC 600**



**DxC 800**

### System Components

Both the DxC 600 and DxC 800 can be divided into the following components:

- Sample Handling System
- Modular Chemistry (MC) System
- Cartridge Chemistry (CC) System
- Hydropneumatic System
- Operation and Control Components

## **Sample Handling System**

The DxC sample handling system is used to deliver samples to the Modular Chemistry and Cartridge Chemistry systems. The sample handling system is used to: load samples onto the system, identify sample programming by bar code ID or manual programming, position the samples for pipetting and analysis, and remove the samples when they are no longer needed by the system. An optional CTS (Closed Tube Sampling) cap piercing system allows loading and piercing of validated sample container caps.

## **Modular Chemistry (MC) System**

The Modular Chemistry (MC) System performs rapid analysis of the more commonly ordered, high volume analytes.

Both the DxC 600 and DxC 800 systems offer rapid analysis of sodium, potassium, chloride, carbon dioxide and total calcium. These chemistries are performed by an Ion Selective Electrode (ISE) module consisting of an Electrolyte Injection Cup (EIC), a flow cell, and electrodes specific for each analyte.

DxC 600 systems have one cup module for the analysis of glucose. DxC 800 systems have 6 individual cup modules for the analysis of glucose, BUN/UREA, creatinine, phosphorus, albumin and total protein.

Each reaction cup module has a precision pump to deliver reagent to the reaction cup. The MC sample probe and syringe deliver sample to the cup where it is mixed with reagent by a stir bar. The detection system is chemistry dependent but will detect either light transmitted or electrical changes.

Bulk reagents for ISE chemistries and cups are stored in the reagent storage area. Alkaline Buffer reagent for the CO<sub>2</sub> analysis is stored in the ISE module.

## **Cartridge Chemistry (CC) System**

The Cartridge Chemistry System provides random access analysis of analytes chosen by the user. Reagent cartridges are stored in a refrigerated compartment that houses up to 59 cartridges. The reactions occur in permanent glass cuvettes that are housed in a reaction carousel. Reagents are delivered to the reaction carousel by reagent probes using a reagent syringe. Sample is added by a CC sample probe using the CC sample syringe. Mixers are responsible for mixing the reagent and sample. Reactions are read by a photometer assembly. A cuvette wash station cleans the cuvettes for reuse.

## **Hydropneumatic System**

The Hydropneumatic System is responsible for providing vacuum, compressed air, diluted wash solution, and deionized water for use on the DxC 600/800 instrument. Wash Concentrate, No Foam and Auto Gloss reagents are stored in this compartment.

## **Operation and Control Components**

Basic operating functions are controlled and reviewed by utilizing the DxC monitor, mouse, touch screen, keyboard, and push-button controls. These provide the interface between the operator and the DxC.

**Additional detailed information about DxC 600/800 components can be found in the following References:**

- **UniCel DxC Synchron Clinical Systems Instructions For Use Manual**
- **UniCel DxC Synchron Clinical Systems Reference Manual**

## Sample Processing Summary

Programming functions are performed, and then the sample rack is loaded onto the autoloader. The operator presses the green RUN button to begin the testing process. After the RUN button is pressed, the sample programming is identified. The CTS (Closed Tube Sampling) will pierce the cap (if present) in preparation for the MC and CC sample probes. The rack is then loaded onto the Sample Carousel by the sample handling system.

MC and CC processes occur simultaneously.

If CC testing is required, the CC reagent probes, using the reagent syringe, aspirate reagent from the CC reagent carousel into a cuvette. The reagent is mixed and warmed to reaction temperature, during which time reagent blank readings are taken.

The MC System begins MC testing (if required) by delivering reagent to the cup(s) and/or the ISE module. Sample is added by the MC sample probe using the sample syringe. The glucose sensor determines the glucose concentration. The BUN electrode determines the BUN concentration while a colorimetric methodology is used to determine the concentration of phosphorus, creatinine, albumin and total protein. Ion selective electrodes in the flow cell determine the concentration of each of the electrolytes.

When the CC reagent has been warmed to the reaction temperature, the CC sample probe delivers sample to the cuvette containing the pre-warmed reagent. Measurements are taken by the photometer. The reaction readings are converted to concentration.

The sample rack is off-loaded when it is no longer needed by the system.



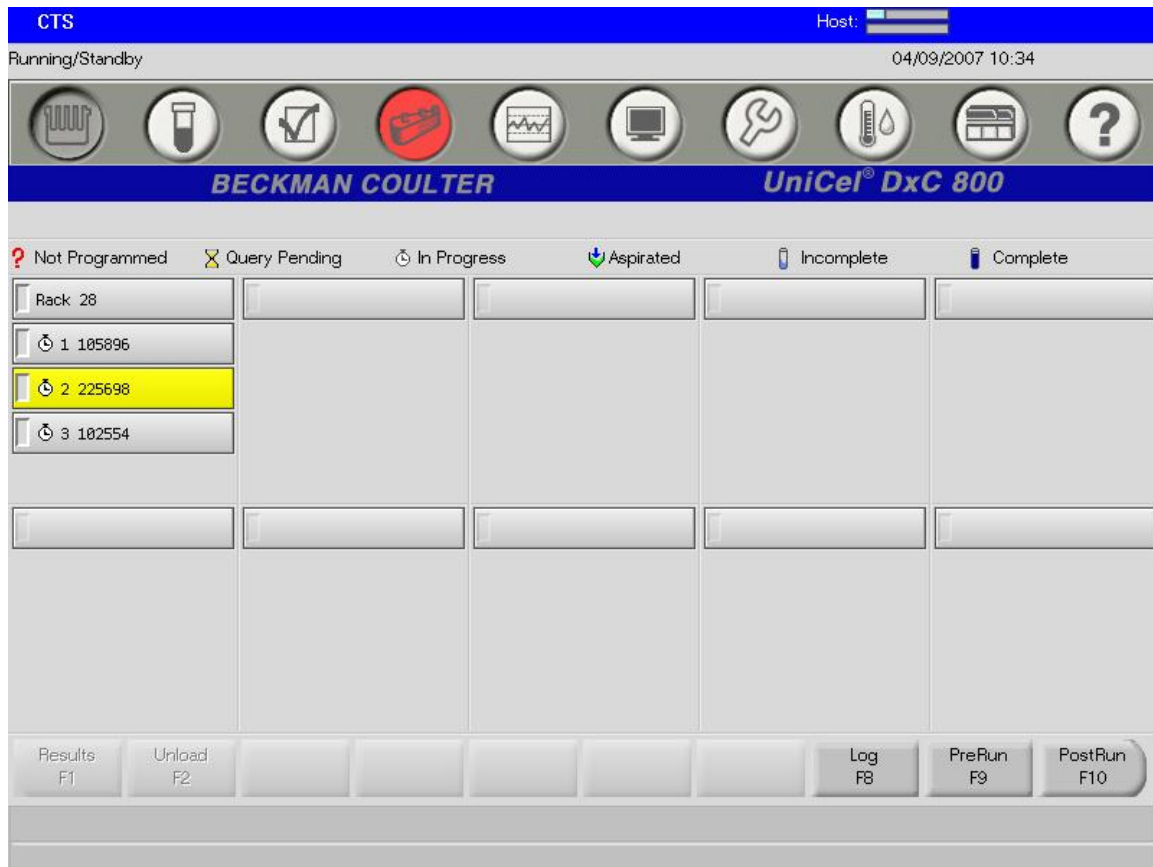
## Chapter 2

### Software Overview




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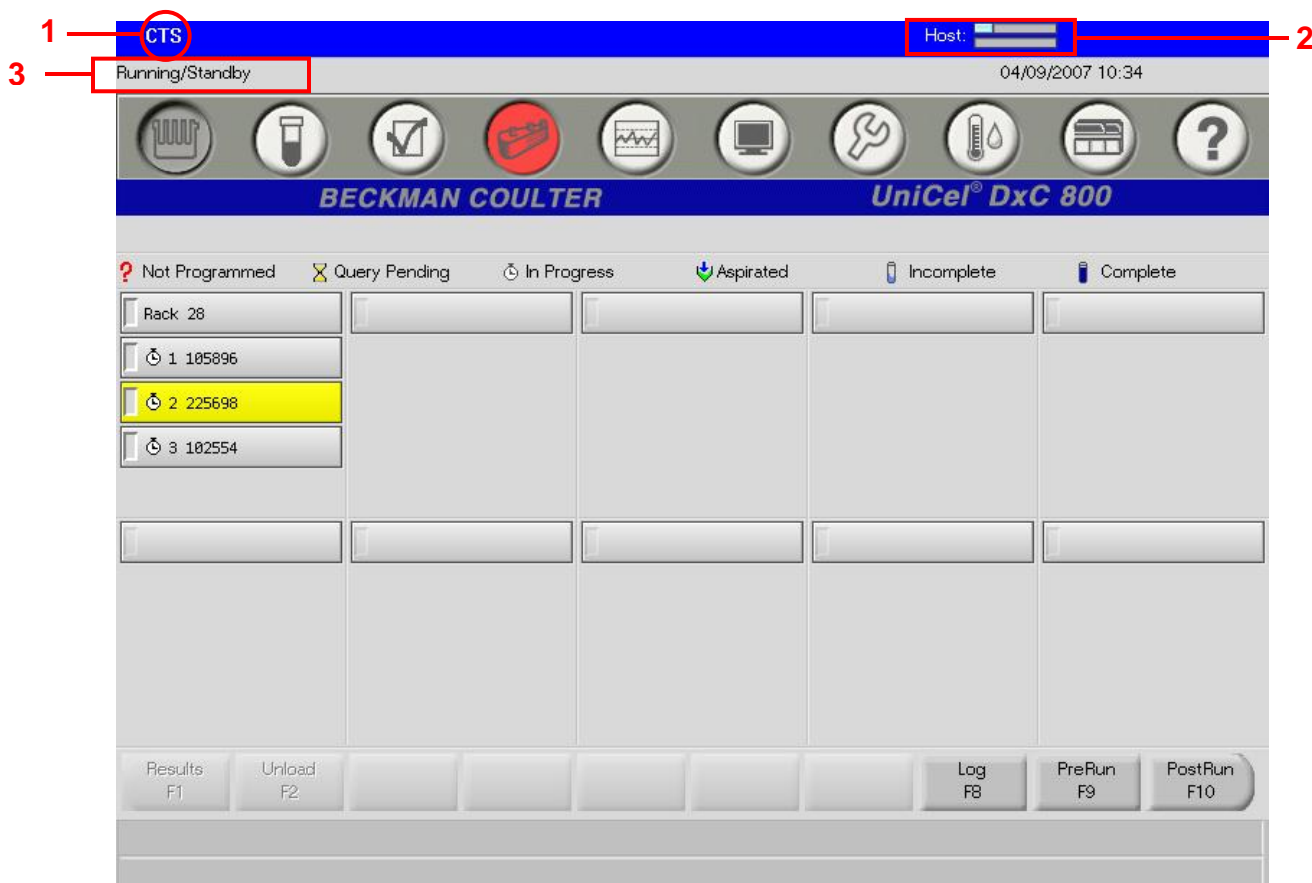
**Introduction** DxC 600/800 operating functions and programming functions are initiated from the main operator screen at the DxC 600/800 analyzer. The screen provides status information to determine the present state of the DxC system.

## DxC 600/800 Main Menu



**Navigation** The DxC system provides three software navigation methods that can be used to select an item on a screen or in a window:


	<p>Touch a part of the screen using the tip of your finger or a touch device</p>
	<p>Use the mouse to point the cursor and click the left mouse button to select an item</p>
	<p>Press a keyboard equivalent such as a function key, the enter key or the tab key to select an item</p>




## Status Indicators

The status of the system can be determined from any screen on the DxH monitor using the following indicators:

### 1 CTS Indicator

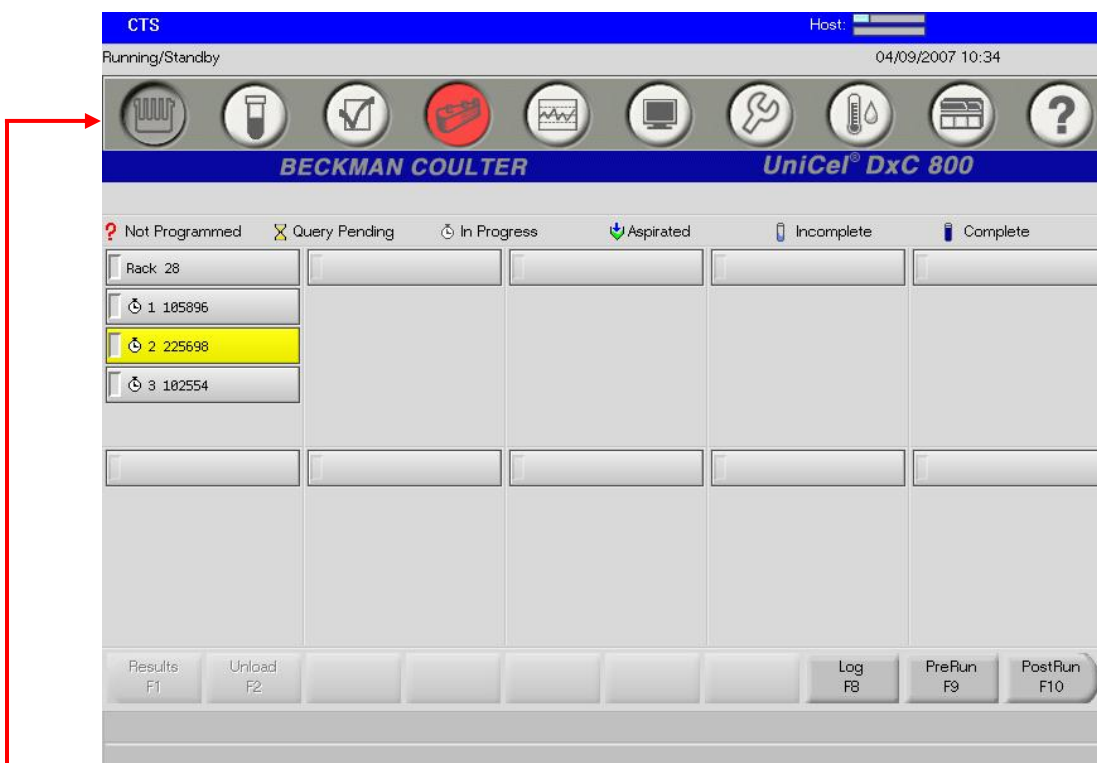
- Indicates when the **C**losed **T**ube **S**ampling is enabled
- A red circle with a slash through it indicates the CTS is not enabled 

### 2 Host Communication Bar

- Shows communication status between host/DxC
- Blue/Green bar indicates information transfer
- A red circle with a slash through it indicates the host and DxC are not communicating 

### 3 System Operating Condition

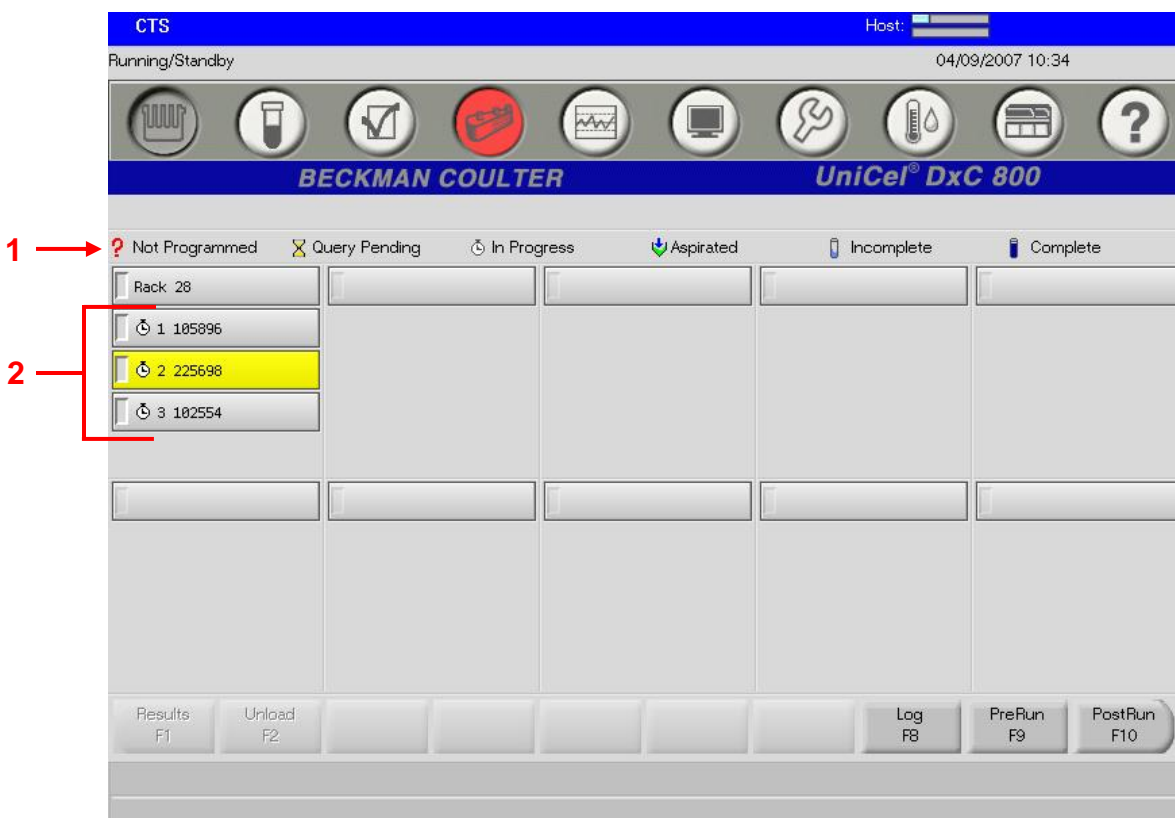
- Identifies the operating condition of the entire DxH system
- One status is displayed if both the MC and CC systems have the same status
- The status information may be divided:  
**Modular Chemistry (MC)/Cartridge Chemistry (CC)**



## Menu Bar

A series of icons provide access to each of the major functional areas of the DxH 600/800 system. The background color of the function icons may change to yellow or red to alert the operator when attention is required.

	<b>Main</b>	View status information and perform main operating functions.
	<b>Samples</b>	Perform sample programming functions including patients and quality control.
	<b>Results</b>	Retrieve results.
	<b>Rgts/Cal</b>	View reagent and calibration status and perform reagent and calibration functions.
	<b>QC</b>	Define and manage Quality Control functions.
	<b>Setup</b>	Perform Setup functions.
	<b>Utils</b>	Perform functions such as: priming, maintenance, and diagnostics.
	<b>Status</b>	View hardware status information.
	<b>Instr Cmd</b>	Initiate specific instrument commands such as: Home, Pause, and Shutdown.
	<b>Help</b>	View version information for the Instructions for Use (IFU) Manual. Access the IFU by using Alt-F1 on the keyboard.



## Sample Status

The Main Menu Screen is used to determine the sample status for each sample.

Sample Status Icons (1) are displayed in front (2) of the Sample ID on the Main Menu screen.



## Chapter 3

### Daily Start Up

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#### Introduction

The table below and a series of flow charts will assist you in successfully performing the DxC 600/800 Daily Start Up.

#### DxC Reagents

DxC Reagent	Change during...	Software Required	Yellow Caution	Red Warning
MC Reagent	<i>Standby (CC side can be Running)</i>	Yes	Pop-up warnings at 10%, 5% and 0% volume	0 tests available, Expired
CC Reagent	<i>Standby or Running</i>	Yes	Pop-up warning at 5 tests remaining in cartridge	0 tests available, Expired

#### Flowcharts

The Daily Start Up flowchart lists all tasks necessary to bring the DxC 600/800 to operating condition for the start of a run.

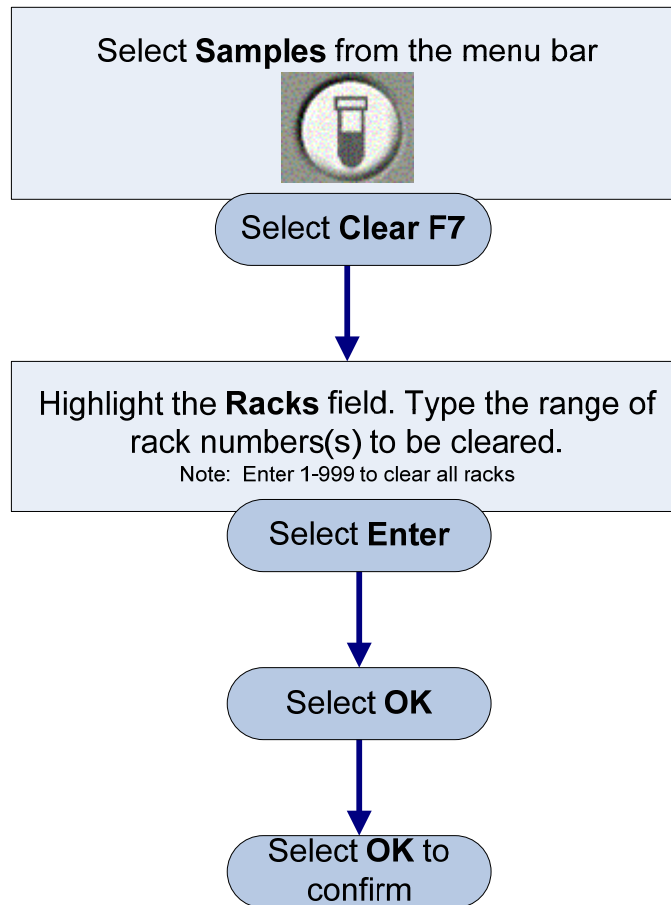
Refer to individual flowcharts on the following pages for instructions on each task.

## DxC 600/800 Daily Start Up Routine

Step	Task
1	Clear manual rack assignments
2	Check Reagent Status and Load Reagents
3	Check Calibration Status and Calibrate Chemistries
4	Program (if necessary) and Process Quality Control
5	Program (if necessary) and Process Patient Samples



## Clear Manual Rack Assignments



### Notes about Clearing Racks

- Clearing Racks does not clear programming for Sample ID's; it only clears the assignment to a rack/position. Your Closed Tube Tracking Database tracks which samples have been pierced by Sample ID.
- You may get a message informing you that some racks are reserved for Calibration, Requested, Removed, or are In-Progress. This feature protects you from inadvertently clearing a rack that is needed for one of these conditions.

## Check Reagent Status

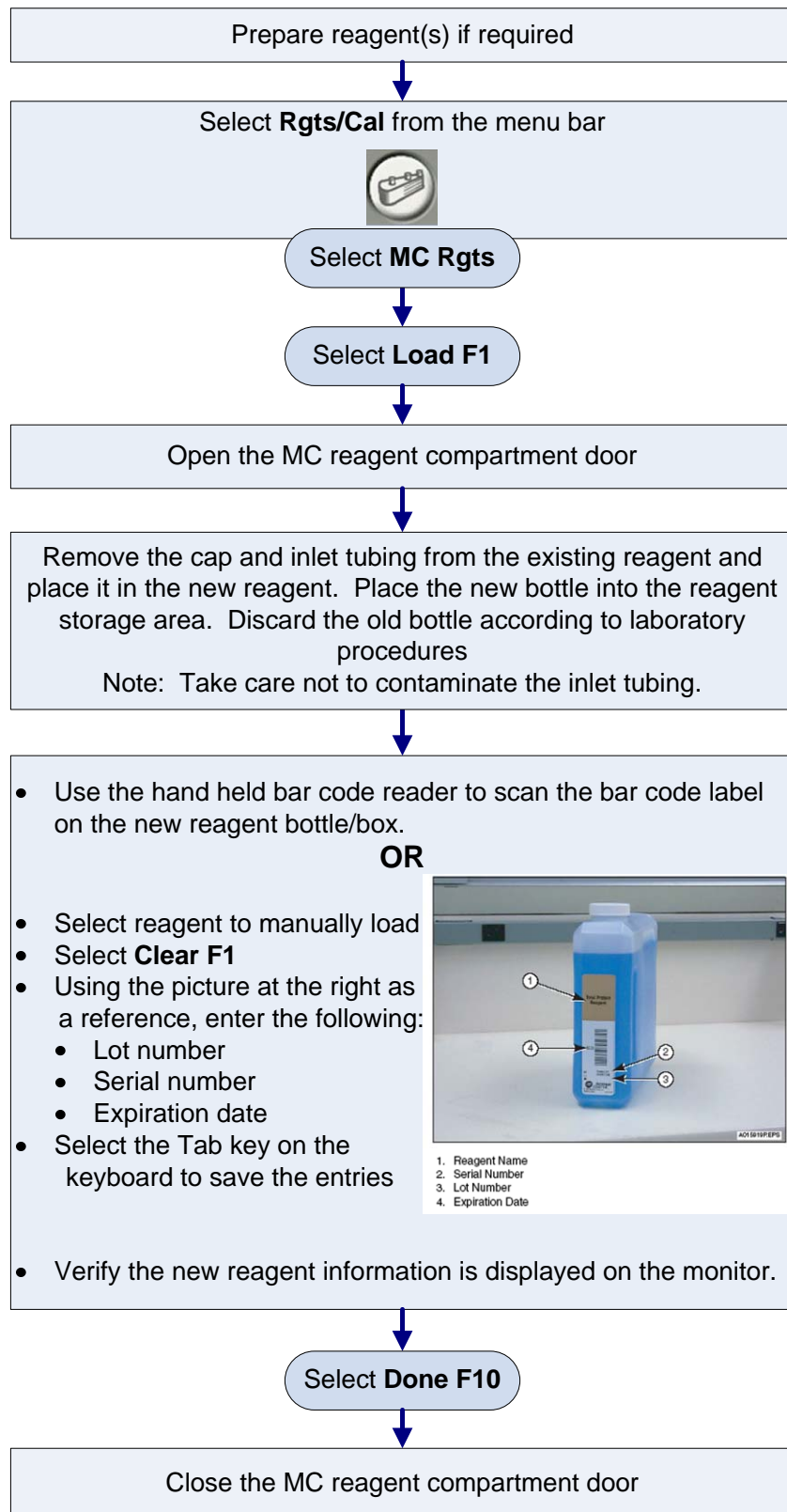
Select **Rgts/Cal** from the menu bar



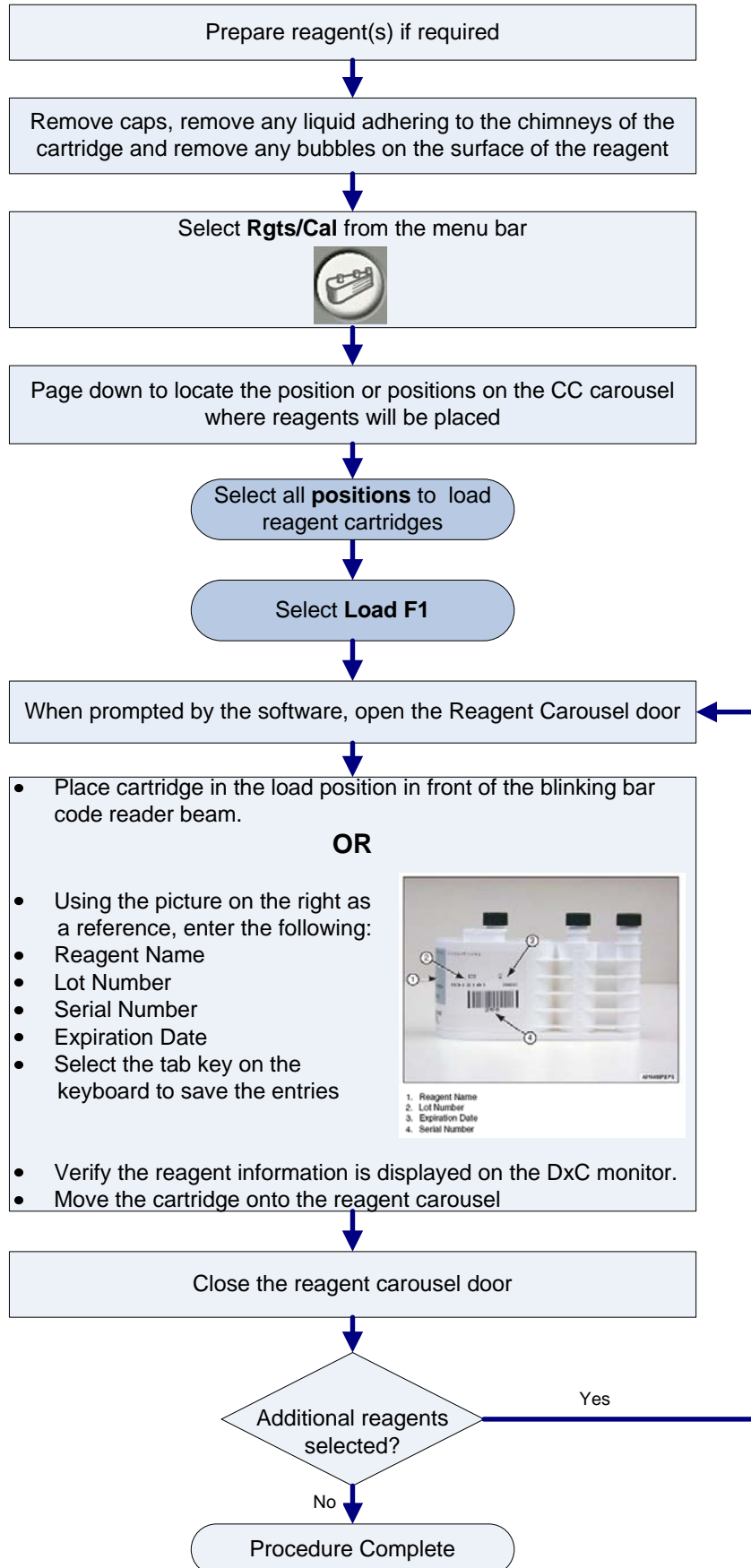
Select **Print F10**

Review the printed document for available  
reagent volume and expiration dates.

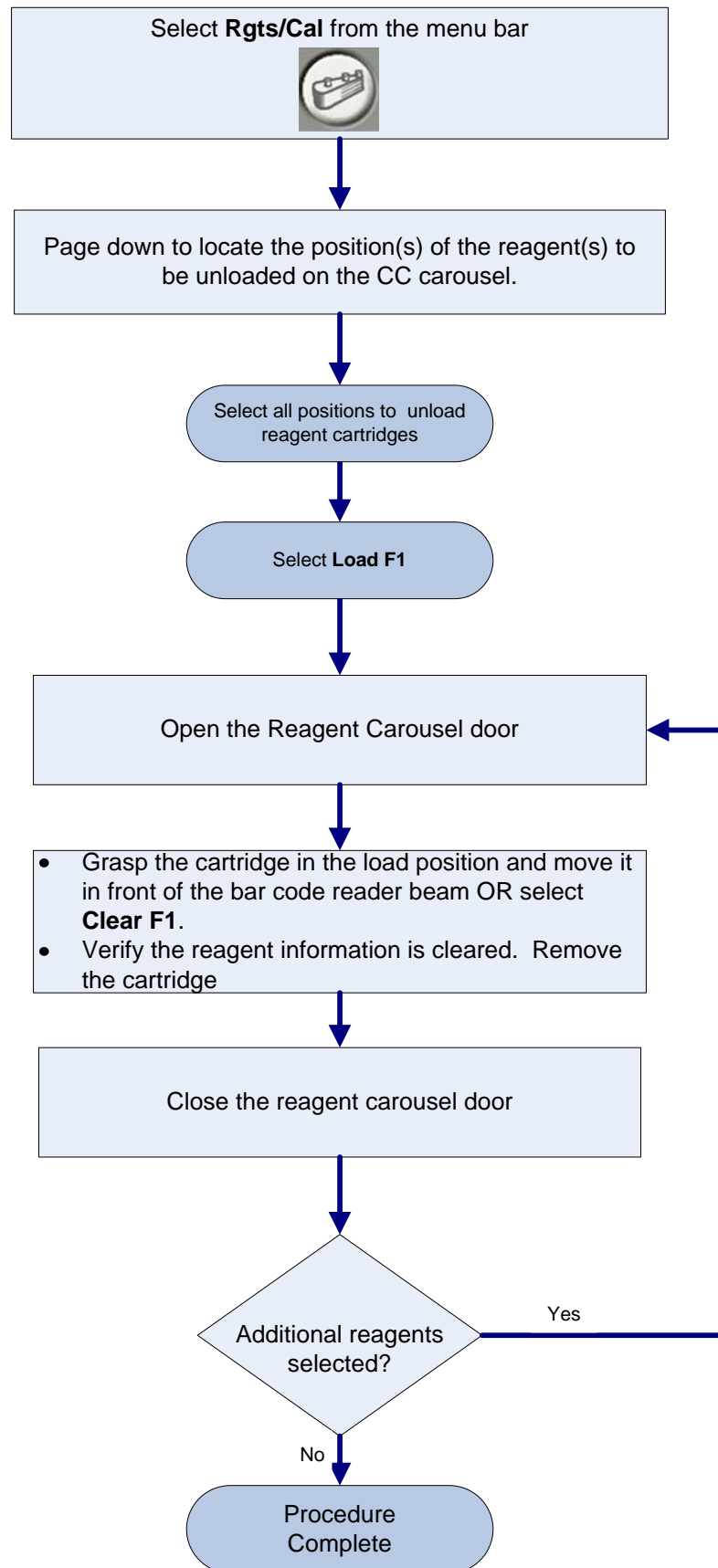
## Load MC Reagents



## Load CC Reagents



## Unload CC Reagents



## Check Calibration Status

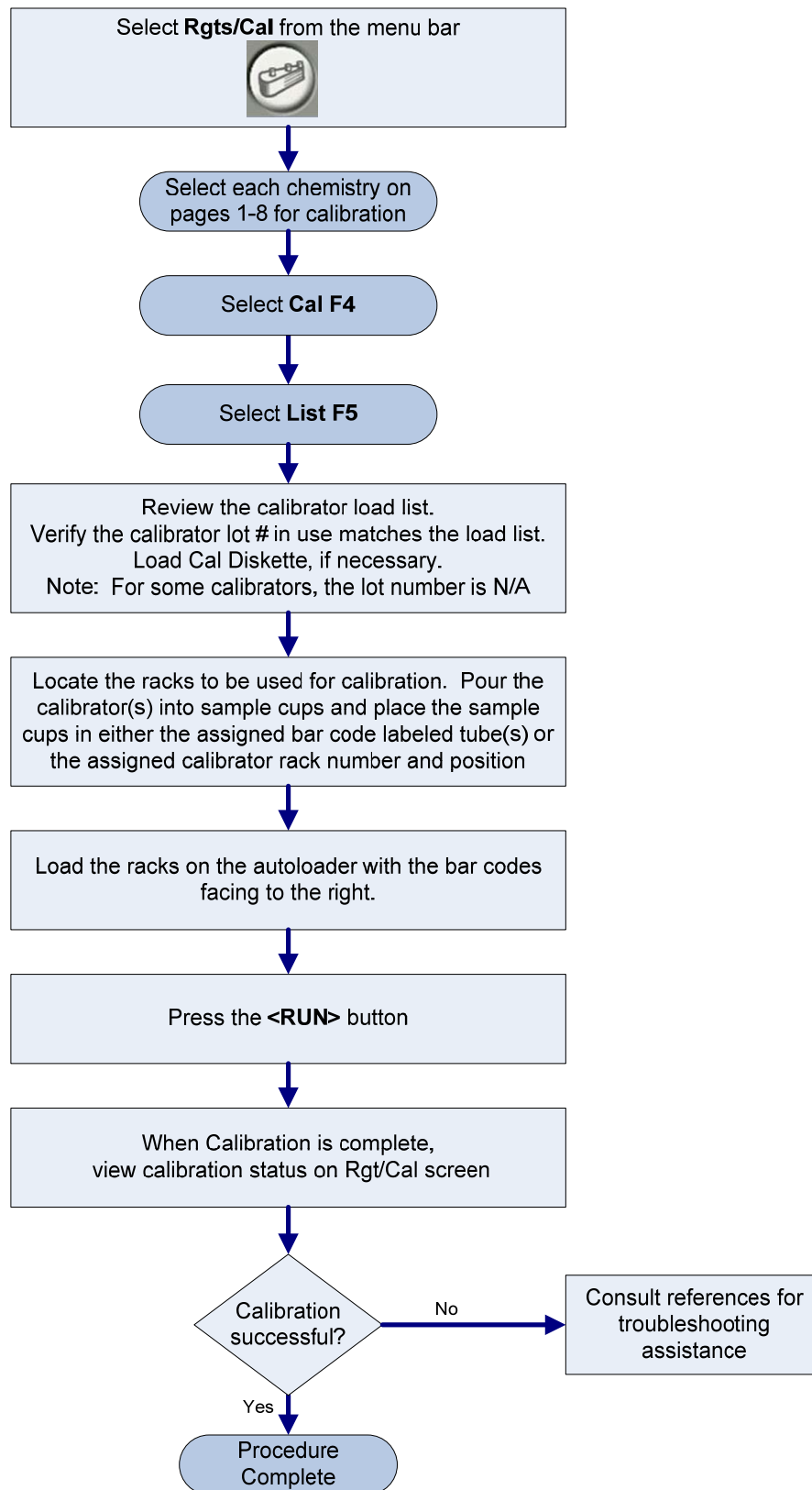
Select **Rgts/Cal** from the menu bar



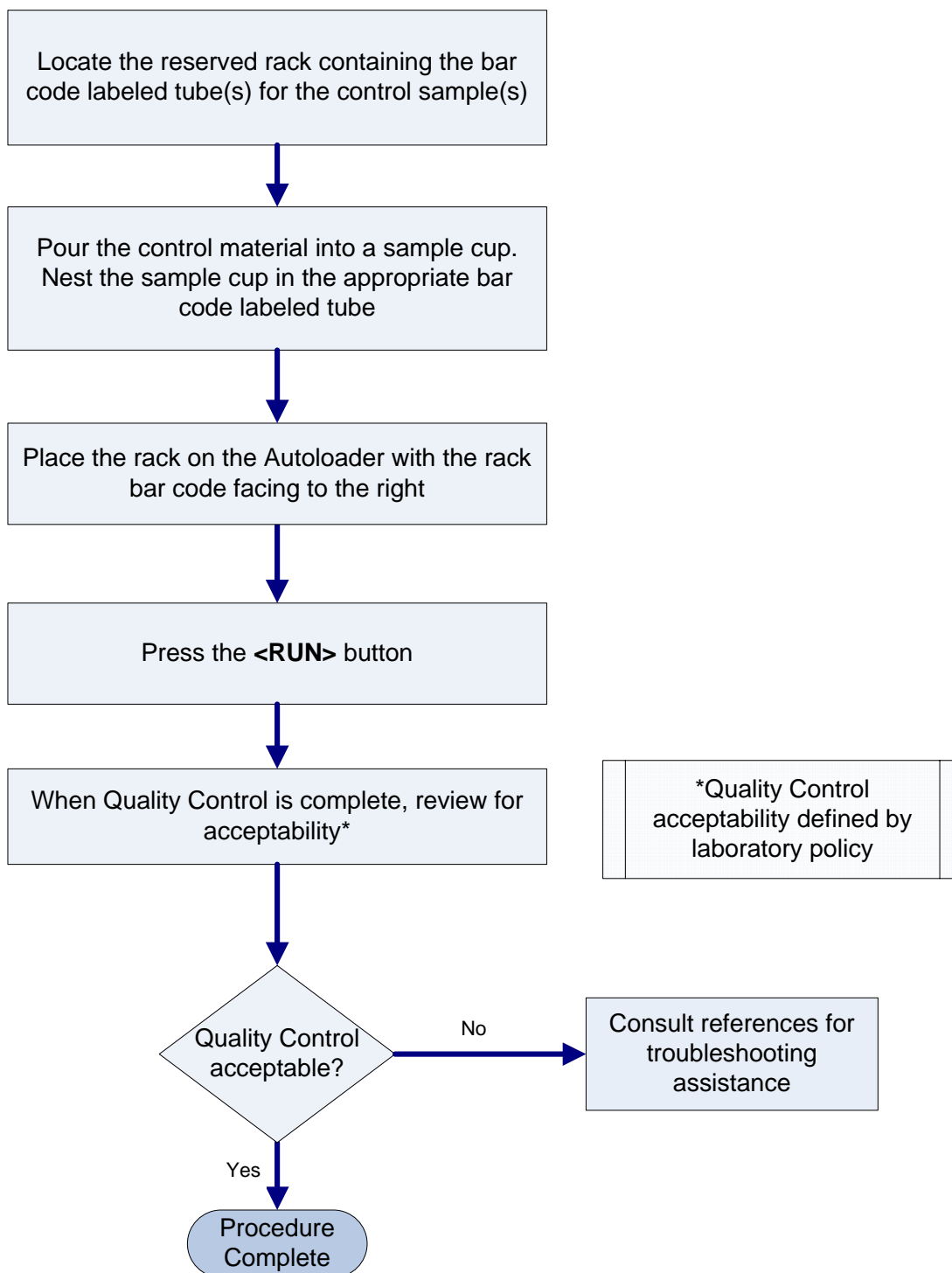
Select **Print F10**

Review the ***Cal Time Left*** and the ***Cal Status*** columns to identify reagents needing calibration.

# Calibrate

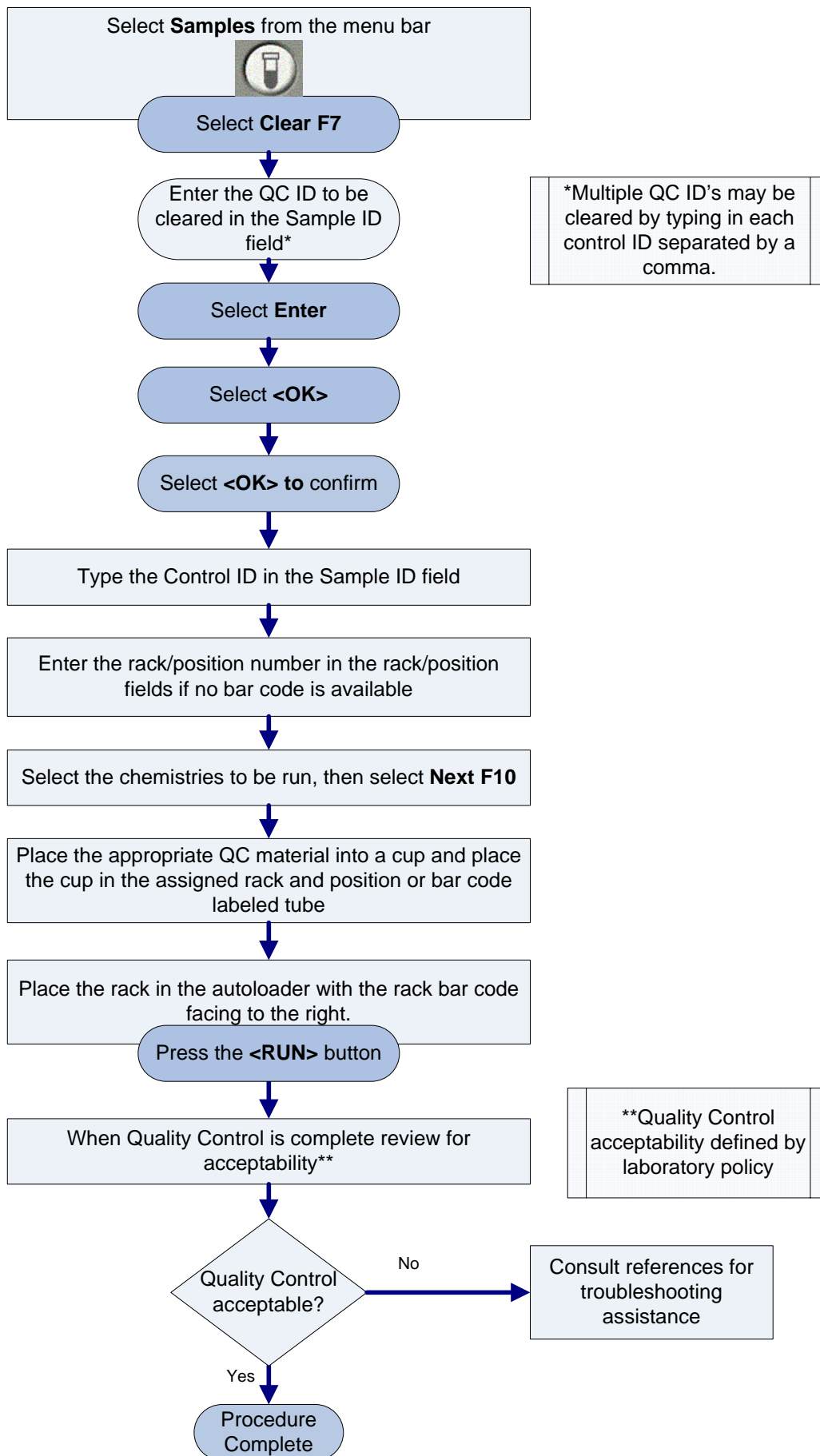


## Process Quality Control using Auto-Generation of Control





## Manually Program/Process Quality Control





## Chapter 4

### Sample Processing

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#### Closed Tube Sampling (CTS)

**Purpose of the CTS feature** The optional Cap Piercer assembly pierces validated primary sample tube caps allowing the sample probes access to the sample without the need for cap removal. Tubes with caps can only be placed in non-reserved racks.



Validated Primary Sample Containers for use with 1-Blade Thick CTS		
Tube Type	Tube Size (mm)	
Becton Dickinson VACUTAINER <sup>a</sup> with HEMOGARD <sup>a</sup>	13 x 75	13 x 100
	16x100	
Greiner VACUETTE <sup>a</sup>	13 x 75	13 x 100

<sup>a</sup> All trademarks are the property of their respective owners.




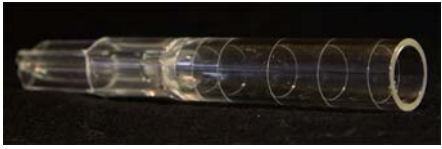


Validated Primary Sample Containers for use with 1-Blade Narrow CTS		
Tube Type	Tube Size (mm)	
Sarstedt S-Monovette <sup>a</sup> (requires system modification)	15 x 92	15 x 75 (requires rack A18642)

<sup>a</sup> All trademarks are the property of their respective owners.




**Rack usage  
with CTS  
feature  
enabled**

Non-Reserved racks	
<ul style="list-style-type: none"> <li>• <b>Validated Primary Sample Containers with caps on</b> <ul style="list-style-type: none"> <li>➤ 13 x 75</li> <li>➤ 13 x 100</li> <li>➤ 16 x 100</li> <li>➤ 15 x 75, 15 x 92</li> </ul> </li> <li>• <b>Primary Sample Container without cap</b> <ul style="list-style-type: none"> <li>➤ 13 x 75</li> <li>➤ 13 x 100</li> <li>➤ 16 x 75</li> <li>➤ 16 x 100</li> <li>➤ 15 x 75, 15 x 92</li> </ul> </li> <li>• 0.5 mL Sample Cup placed directly on rack</li> <li>• 2.0 mL Sample Cup placed directly on rack</li> <li>• 12 x 75 pour off tubes</li> </ul>	 

**Rack usage  
with CTS  
feature enabled**

Reserved racks 	
	<ul style="list-style-type: none"> <li>0.5 mL sample cup (P/N 651412) nested in a 15 x 85 transfer tube (P/N 979272)</li> <li>2.0 mL sample cup (P/N 81902) nested in a 15 x 85 transfer tube (P/N 979272)</li> </ul>
	<ul style="list-style-type: none"> <li>SYNCHRON Microtube™ (P/N 448774)</li> </ul> 
	<ul style="list-style-type: none"> <li>0.5 mL sample cup nested in a Metal Cup Insert (P/N 476406)</li> </ul> 

**Rack usage  
when CTS  
feature  
enabled**

Reserved racks 	
	<ul style="list-style-type: none"> <li>• BD Microtainer<sup>a</sup> in a Pediatric Tube Adapter (P/N 472987)</li> </ul> 
<ul style="list-style-type: none"> <li>• Prepared samples (HbA1C or IBCT)</li> <li>• HbA1C2 (whole blood)</li> <li>• Nested cups in primary tubes</li> </ul>	

<sup>a</sup> All trademarks are the property of their respective owners.


## Sample Racks

Samples are placed in Synchron sample racks for processing on the DxC 600/800 system. The following rack sizes are available:

- 13 x 75 mm
- 16 x 75 mm
- 13 x 100 mm
- 16 x 100 mm

Racks come in various colors. Racks are available in purple, blue, brown, green, and gray. The color coding of racks may be useful in designating racks for specific functions.

Reserved racks are assigned in the instrument software.

Reserved racks are labeled with  so that operators will know the rack has a reserved rack assignment.

Avoid system errors by following these instructions:

- Place tubes in rack sizes designated for their use.
- Place primary sample tubes with or without caps and sample cups (0.5 mL/2.0 mL) in Non-Reserved racks.
- Place cups nested in cup inserts or cups nested in primary tubes in Reserved racks.
- Use only validated sample containers in racks specified for their use.

## Sample Preparation

Prepare samples as follows prior to loading on the system:

- Remove visible blood from the top of capped tubes with a cotton tipped swab moistened with deionized water.
- Use the DxC 600/800 Primary Tube Sample Template to determine adequate sample volume. Ensure there are no bubbles in samples.
- Ensure that the bar code label is properly placed on the tube and is aligned so that it is visible through the slot in the rack.
- Ensure tube is seated correctly in the rack.

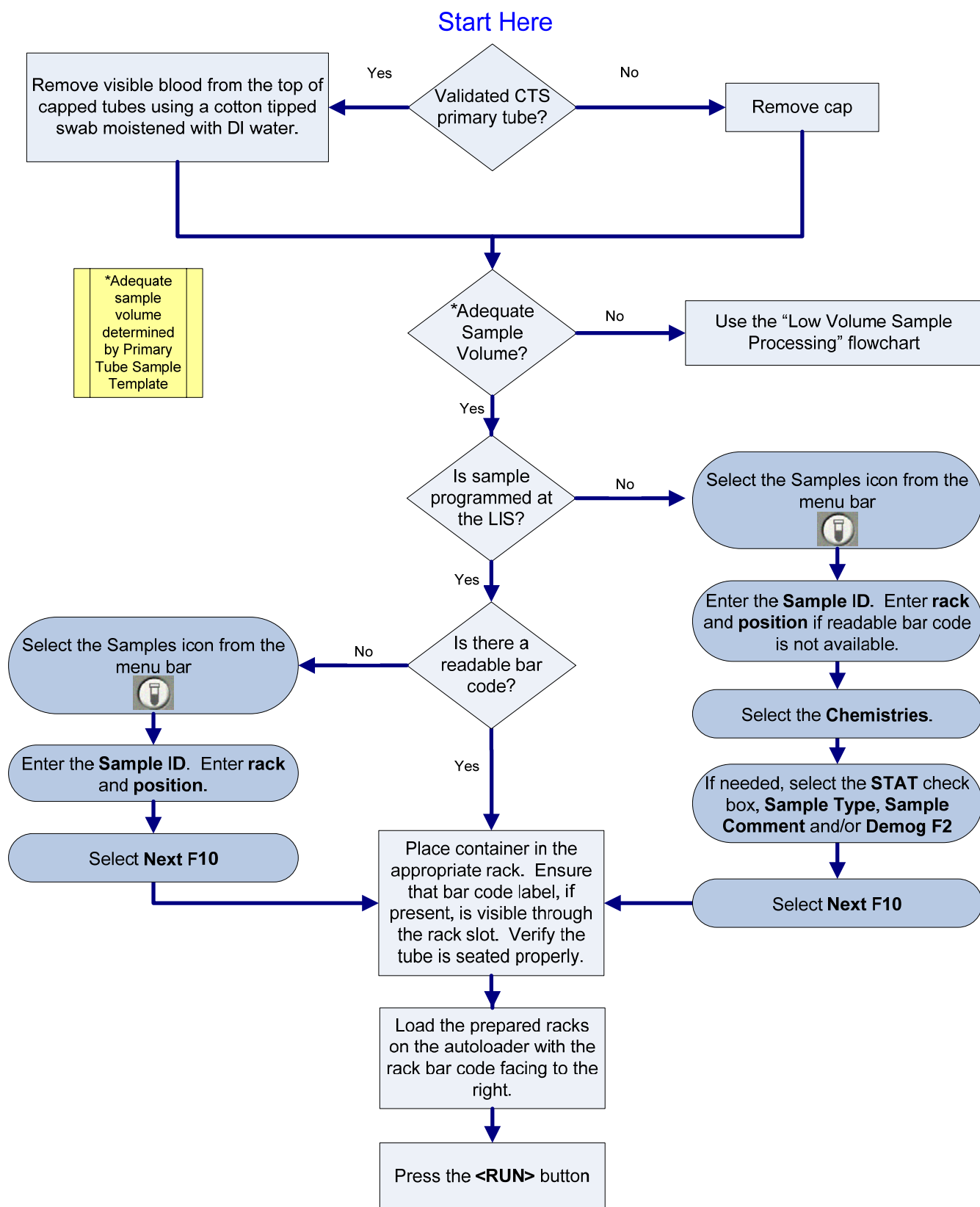
## Processing Samples

**Programming** Samples may be processed using various programming methods on the DxC 600/800 system. Samples may be programmed at the LIS/Host, DL2000, or DxC 600/800. Samples may be processed with or without bar codes. Use the instructions on the following pages to process samples based on programming and bar code availability:

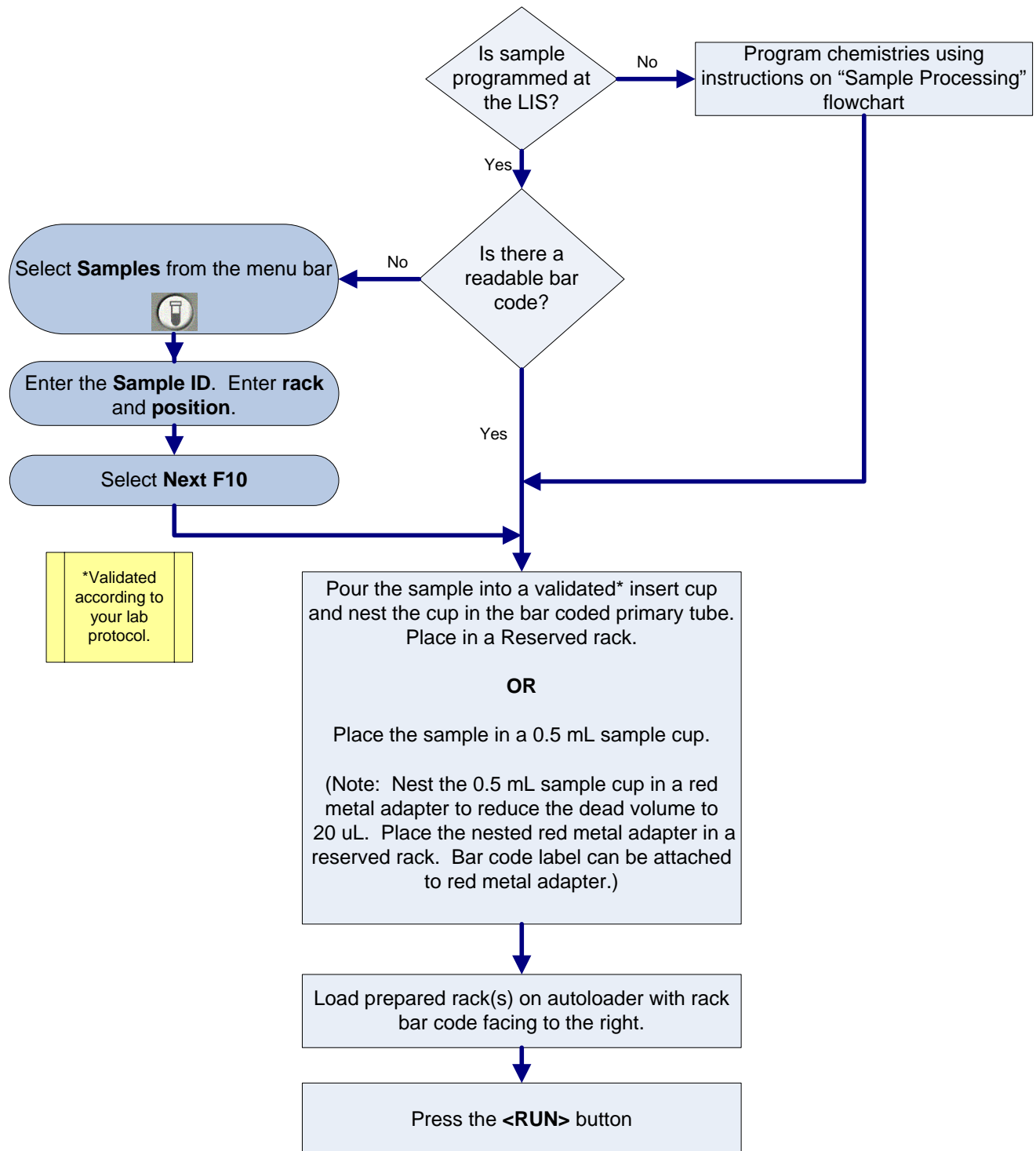
**Note: Additional programming features available include: batch mode, rerun, off-line dilution, serum index, manual ORDAC, etc. Detailed instructions for these options may be found in the UniCel DxC Synchron Clinical Systems Instructions For Use Manual or the UniCel DxC Synchron Clinical Systems Reference Manual.**



# Sample Processing



# Low Volume Sample Processing



## Chapter 5

### DxC 600/800 Instrument Commands

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The DxC 600/800 instrument commands are used to control functions of DxC instrument components. Instrument commands include:

#### Home:

- Moves mechanical assemblies to their “home” positions and primes the system
- Recovers from a motion error
- Returns the system from the *Stopped* state to *Standby*

#### Pause:

- Prevents initiation of new or additional tests at the DxC
- Tests in process are completed
- Use to return the system to Standby as soon as possible

#### Shutdown:

- Use to properly reboot or shutdown the system to prevent data corruption (failure to follow recommended procedure may result in data corruption)

#### Enable/Disable Modules:

- Use to enable/disable a single MC cup module, the MC ISE module, the entire MC side, the CC Photometer, the LPIA module, the CC lower reagent carousel, or the entire CC side of system
- All programming for disabled modules is aborted. When a module is disabled the system will not run, prime, perform diagnostics, or maintenance procedures using that module
- The system may disable modules automatically after certain unrecoverable error conditions
- When a module is enabled, it will automatically prime

#### Unload All:

- Use to unload racks from the DxC 600/800 sample carousel
- Use when access to a sample(s) is required
- Use when the screen displays racks on the Main Screen but the racks are not on the sample carousel following a system error

Other instrument commands include: **<3> Stop Print**, **<5> Pause Waste B** and **<6> Resume Waste B**. Information about these commands may be found in the UniCel DxC Synchron Clinical Systems Instructions For Use Manual.

## Home

Select **Instr Cmd** from the menu bar

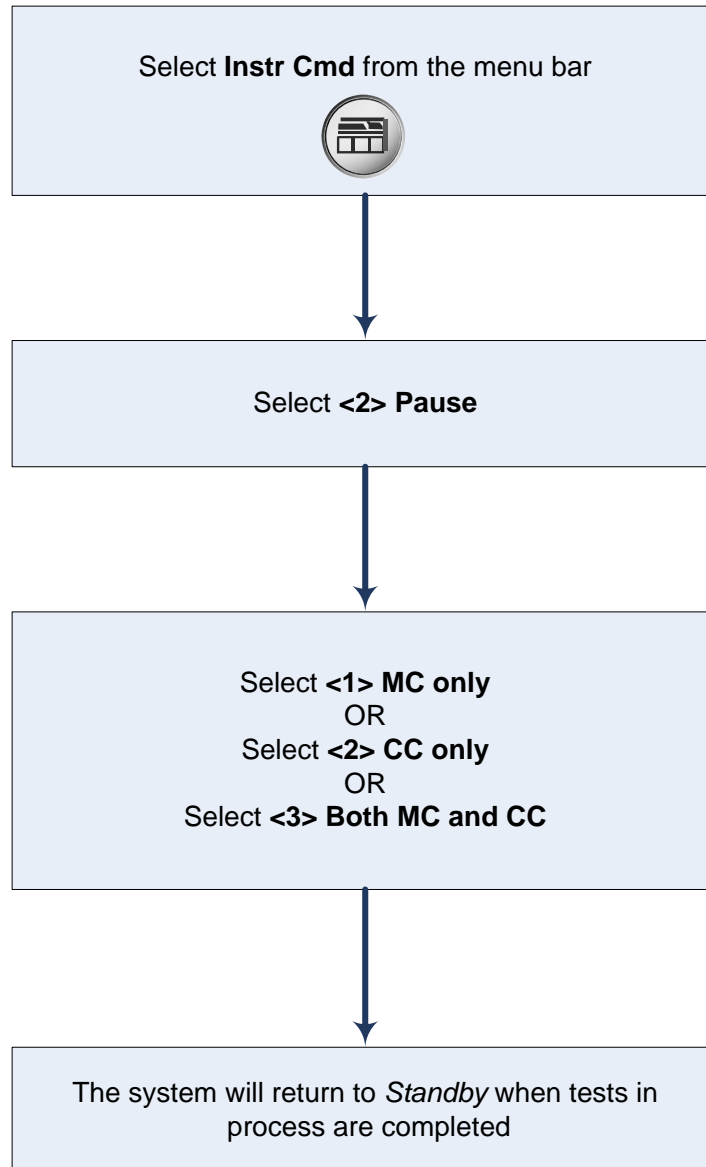


Select **<1> Home**

The DxC will automatically home.

**NOTE:** If only one side of the instrument (MC or CC) is Stopped, the Home command operates on the side that is Stopped.

## Pause



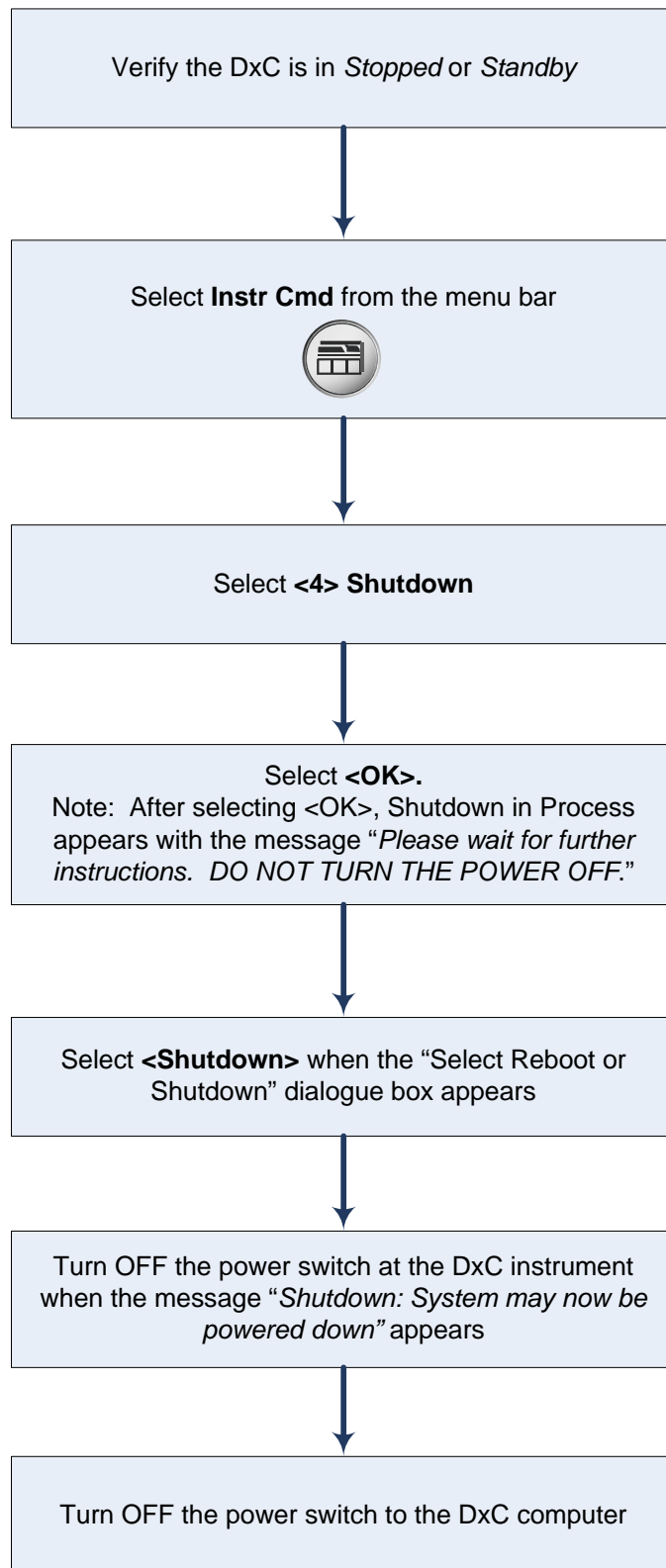
## **Shutdown**

The DxC 600/800 system may require Shutdown when:

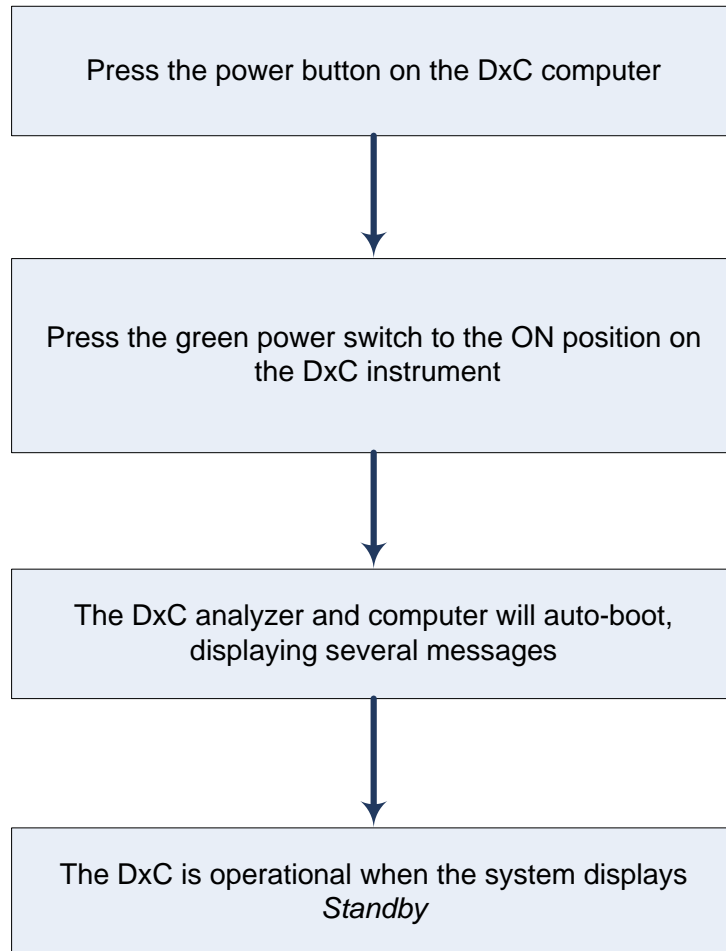
- Some parts replacement procedures require power to be turned off
- The lab power goes off
- The system is moved to a new location, or
- Recommended by a BCI specialist or a reference for troubleshooting purposes

Use the flowcharts on the following pages when powering down the DxC 600/800 system.

## Shutdown

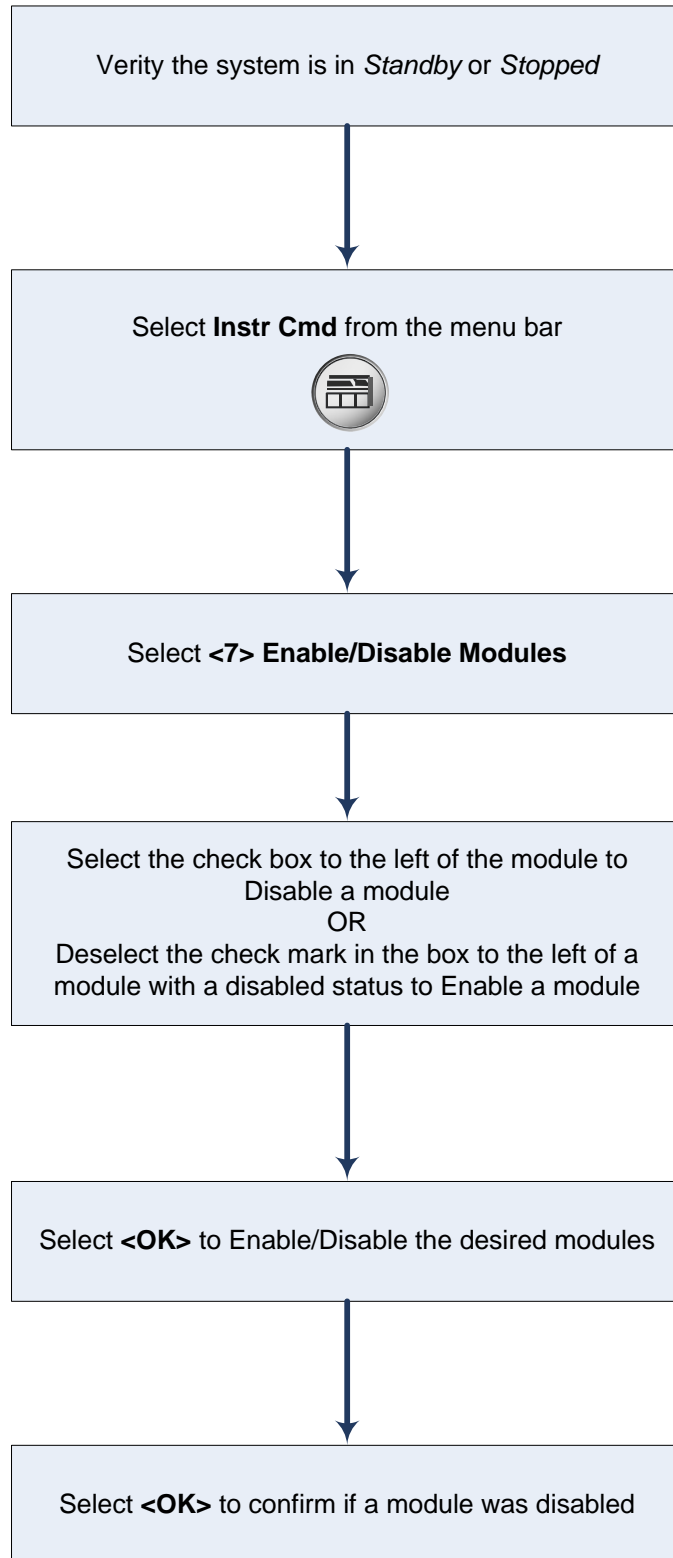


## Power Up

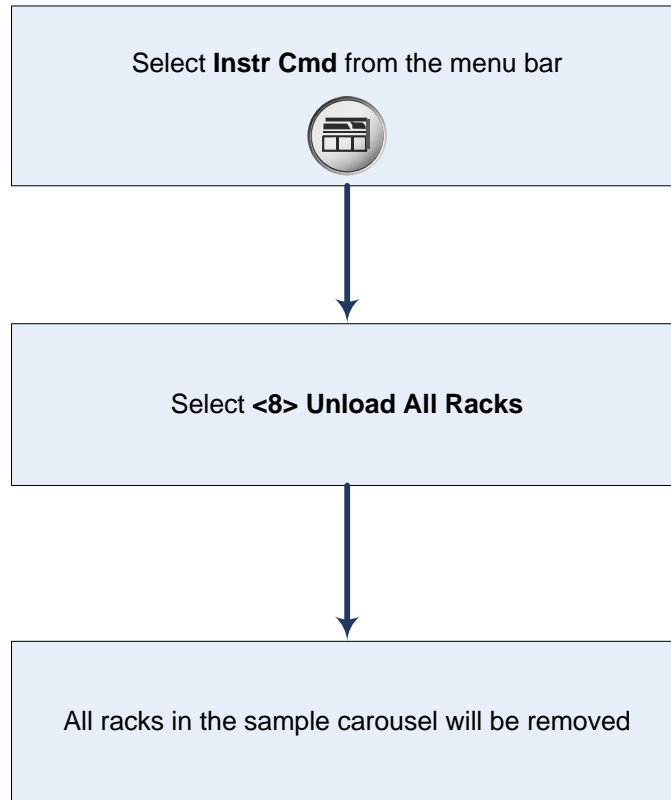




## Enable/Disable Modules



## Unload All



## Resources

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**Introduction** The following list will identify and describe resources available for your use.

**Support  
Personnel**

**Technical Support (Hotline):**

- Provides 24 hour phone support
- Contact at 1-800-854-3633

**Applications Specialist:**

- Provides installation support
- Your application specialist is \_\_\_\_\_  
and

(Name)

can be reached at \_\_\_\_\_

(Phone)

**Field Service Engineer:**

- Installs the instrument
- Repairs and assists in maintaining your instrument
- Your Field Service Engineer is

\_\_\_\_\_ and

(Name)

can be reached at \_\_\_\_\_

(Phone)

**Instructions  
For Use**

The Instructions For Use Manual includes basic operating instructions and maintenance guidelines for the UniCel DxC 600/800 system. Detailed operation, maintenance, and troubleshooting instructions are included in this manual.

The DxC 600/800 Instructions For Use manual is available through the On-Line Help of the DxC system.

## Reference Materials

### UniCel DxC Synchron Clinical System:

- UniCel DxC Synchron Clinical Systems [In-Lab Training Manual](#)
  - May be used to train laboratory personnel about basic operations of the UniCel DxC system
  - Provided in a hard-copy manual
- UniCel DxC 600/800 Synchron Clinical Systems [Operator Tips](#)
  - Provides additional information about the system and the chemistries used on the system
  - Provided as laminated sheets
- Synchron LX/UniCel DxC Clinical Systems [Primary Tube Sample Template](#)
  - Use to verify adequate sample volume
  - Provided as a laminated sheet
- UniCel DxC Synchron Clinical Systems [Reference Manual](#)
  - Contains detailed system description, operating instructions, theory of operation, system calibration, programming procedures, and quality control information.
  - Provided on a CD-ROM
- Synchron Clinical Systems [Chemistry Information Manual](#)
  - Contains specific chemistry information for the full range of analytes available on the DxC system
  - Provided on a CD-ROM (Updates available at [beckmancoulter.com](http://beckmancoulter.com))
- UniCel DxC Synchron Clinical Systems [Host Interface Specifications](#)
  - Provides necessary information to interface the DxC system to a Laboratory Information System (LIS)
  - Includes Tables/Codes to interpret instrument codes printed on patient reports
  - Provided on a CD-ROM
- Synchron Clinical Systems [Performance Verification Manual](#)
  - Assists in making a smooth transition integrating your new system into your daily routine
  - Includes guidelines for evaluating precision, accuracy, linearity, and method comparison
  - Provided in a hard copy manual
- UniCel DxC Synchron Clinical Systems [Reagent Preparation Quick Reference](#)
  - Provides information on reagents which require preparation
  - Provided as a laminated sheet
- UniCel DxC Synchron Clinical Systems [Instructions for Use Manual](#)
  - Basic operating instructions and maintenance guidelines for the UniCel DxC System
  - Provided on-line at the DxC monitor
  - Provided on a CD-ROM

# In-Lab Training Checklist

## UniCel DxC 600/800 Synchron Clinical System

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**Introduction** The following In-Lab Training Checklist can be used to document the In-Lab training of laboratory staff members on the operation of the DxC 600/800 system. As each operator is trained, both the trainer and the trainee initial and date the documentation form.



## UniCel DxC 600/800 In-Lab Training Checklist

Operator Name: \_\_\_\_\_

Task	Trainee's Initials	Date	Trainer's Initials	Date
<b>System Overview:</b>				
• Identify DxC components				
– Autoloader	_____	_____	_____	_____
– Sample Carousel	_____	_____	_____	_____
– GLUCm cup	_____	_____	_____	_____
– Additional MC reaction cups (DxC 800 only)	_____	_____	_____	_____
– EIC	_____	_____	_____	_____
– Flowcell	_____	_____	_____	_____
– Bulk Reagent Compartment	_____	_____	_____	_____
– MC Bar Code Reader	_____	_____	_____	_____
– MC and CC Sample Syringes	_____	_____	_____	_____
– MC and CC Sample Probes	_____	_____	_____	_____
– CC Sample and Reagent Mixers	_____	_____	_____	_____
– CC Wash Station	_____	_____	_____	_____
– CC Reaction Carousel	_____	_____	_____	_____
– CC Reagent Probes	_____	_____	_____	_____
– CC Reagent Syringe	_____	_____	_____	_____
– CC Reagent Compartment	_____	_____	_____	_____
<b>Software Overview</b>				
• Identify Software Indicators				
– CTS Indicator	_____	_____	_____	_____
– Host Communication Bar	_____	_____	_____	_____
– System Operating Condition	_____	_____	_____	_____
• Identify Function Selection Icons	_____	_____	_____	_____
• Identify Sample Status Icons	_____	_____	_____	_____
<b>Daily Start Up</b>				
• Determine supply/reagent status				
• Load Reagents	_____	_____	_____	_____
– Load MC Reagent	_____	_____	_____	_____
– Load CC Reagent	_____	_____	_____	_____
– Unload CC Reagent	_____	_____	_____	_____
• Calibrate Chemistries	_____	_____	_____	_____
• Clear Racks	_____	_____	_____	_____
• Process QC using Auto Generation	_____	_____	_____	_____
• Manually Program QC	_____	_____	_____	_____

## UniCel DxC 600/800 In-Lab Training Checklist

Operator Name: \_\_\_\_\_

Task	Trainees Initials	Date	Trainers Initials	Date
<b>Samples/QC</b>				
• Determine correct sample rack/container for sample processing	_____	_____	_____	_____
• Identify volume requirements for sample processing by container type	_____	_____	_____	_____
• Program and process routine and STAT patient samples	_____	_____	_____	_____
• Process Low Volume samples	_____	_____	_____	_____
• Program and process QC	_____	_____	_____	_____
<b>Reagent Handling</b>				
• Identify reagents requiring preparation	_____	_____	_____	_____
• Identify proper reagent storage conditions	_____	_____	_____	_____
<b>Miscellaneous</b>				
• Power down/Power Up	_____	_____	_____	_____
• Home DxC	_____	_____	_____	_____



## UniCel DxC 600/800 Competency Exercise

Name \_\_\_\_\_

**Instructions** The Competency Exercise should be completed at the end of the In-Lab Training session. All materials supplied with the instrument or used during the training may be used to complete this exercise. Save all reports generated during the exercise. Submit all printed reports and this exercise to your supervisor and/or your Beckman Coulter Applications Specialist.

**Instrument Overview**

1) The DxC 600 Modular Chemistry side of the analyzer is composed of a \_\_\_\_\_ cup module and an ISE module where a \_\_\_\_\_ houses electrodes for measurement of sodium, potassium, chloride, CO<sub>2</sub>, and calcium.

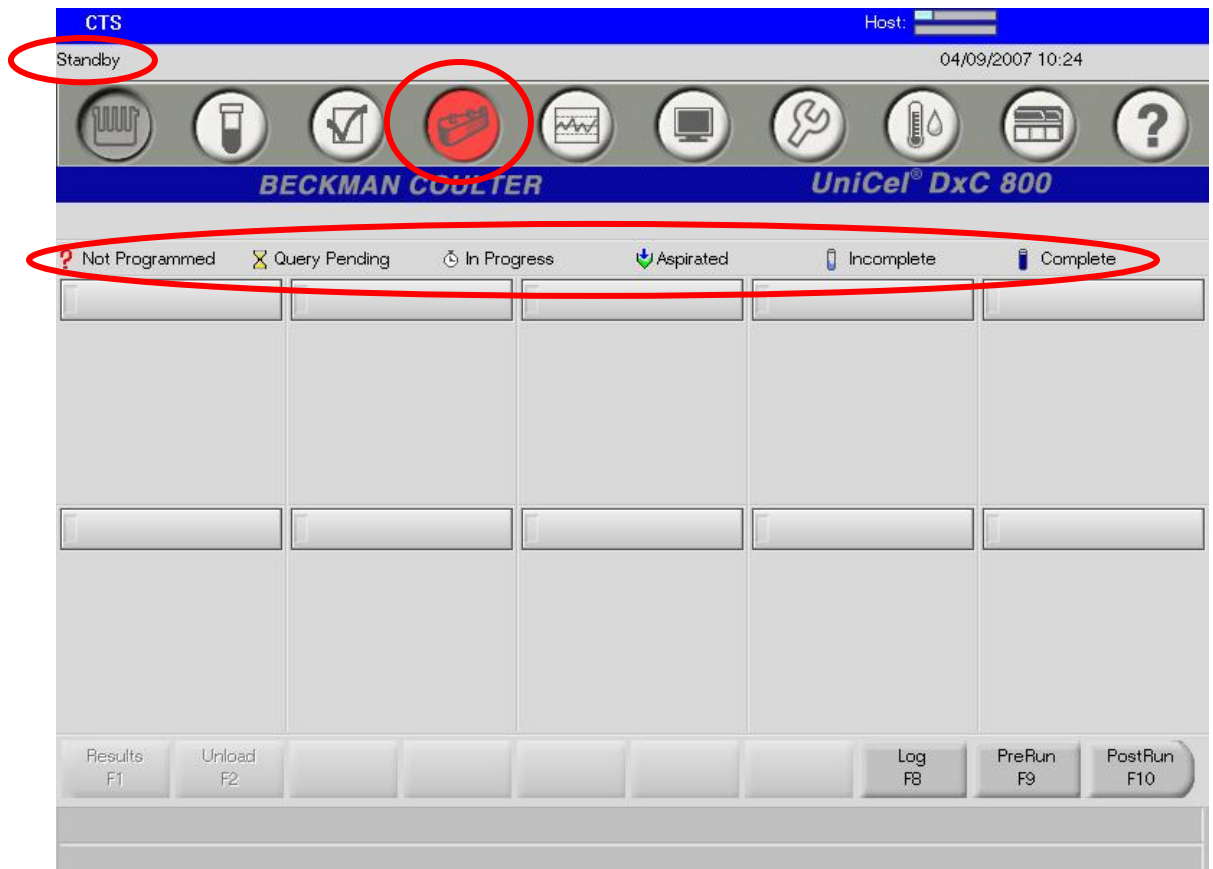
2) The DxC 800 has additional cup modules on the MC side for testing the following analytes: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

3) The DxC Cartridge Chemistry side of the analyzer delivers reagent from cartridges stored in a refrigerated compartment that houses \_\_\_\_\_ reagent cartridges.

**Software Overview**

4) Label each circle on the picture below with the letter corresponding to its description:

- a System Operating Condition
- b Reagent/Calibration Function Selection Icon
- c Sample Status Icons



**Daily Start  
Up**

5) Which reagents are stored in the Hydropneumatic compartment?

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6) Where is the Alkaline Buffer stored?

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7) What is the software pathway to print the Cal Load List from the DxC Main Menu?

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8) Perform a Daily Start Up on your DxC 600/800 system. Keep all reports and show them to your supervisor and/or Beckman Coulter representative when the Daily Start Up is completed.

## Sample Processing

9) Place a check mark in the box to the right of the samples shown below that should be placed in a Reserved rack:


☐

☐

☐

☐

☐

☐

10) Tubes with caps must always be placed in a \_\_\_\_\_ rack.

11) How do you determine adequate sample volume before placing a sample on the system?

\_\_\_\_\_

**Sample Processing**

12) Manually program and process samples using the following information:

Sample ID	Sample Type	Priority	Tests	Other Information
Test 1	Serum	Routine	Na, K, Cl, CO2, GLUCm,	Patient Name: Test Sample Patient Age: 3 yrs
Test 2	CSF	STAT	GLUCm	N/A
Test 3	Timed Urine	Routine	CREA or CREm	Volume: 1340 mL Time: 24 hrs

Note: You may use any material you have available for the samples.

13) Show the reports to your supervisor and/or Beckman Coulter representative.

**Instrument Commands**

14) Draw a line between the Instrument Command you would use to perform the described function:

Instrument Command	Function
Home	Use to reboot the system
Pause	Use to remove racks from the Menu screen that are not present on the sample carousel
Shutdown	Use to turn on the LPIA
Enable Module	Use to recover from a motion error
Unload All	Use to prevent any new tests from starting

**Completion**

15) Give all reports and answers to the competency questions to your supervisor and/or Beckman Coulter representative for comparison to the Answer Key.

## Answer Key

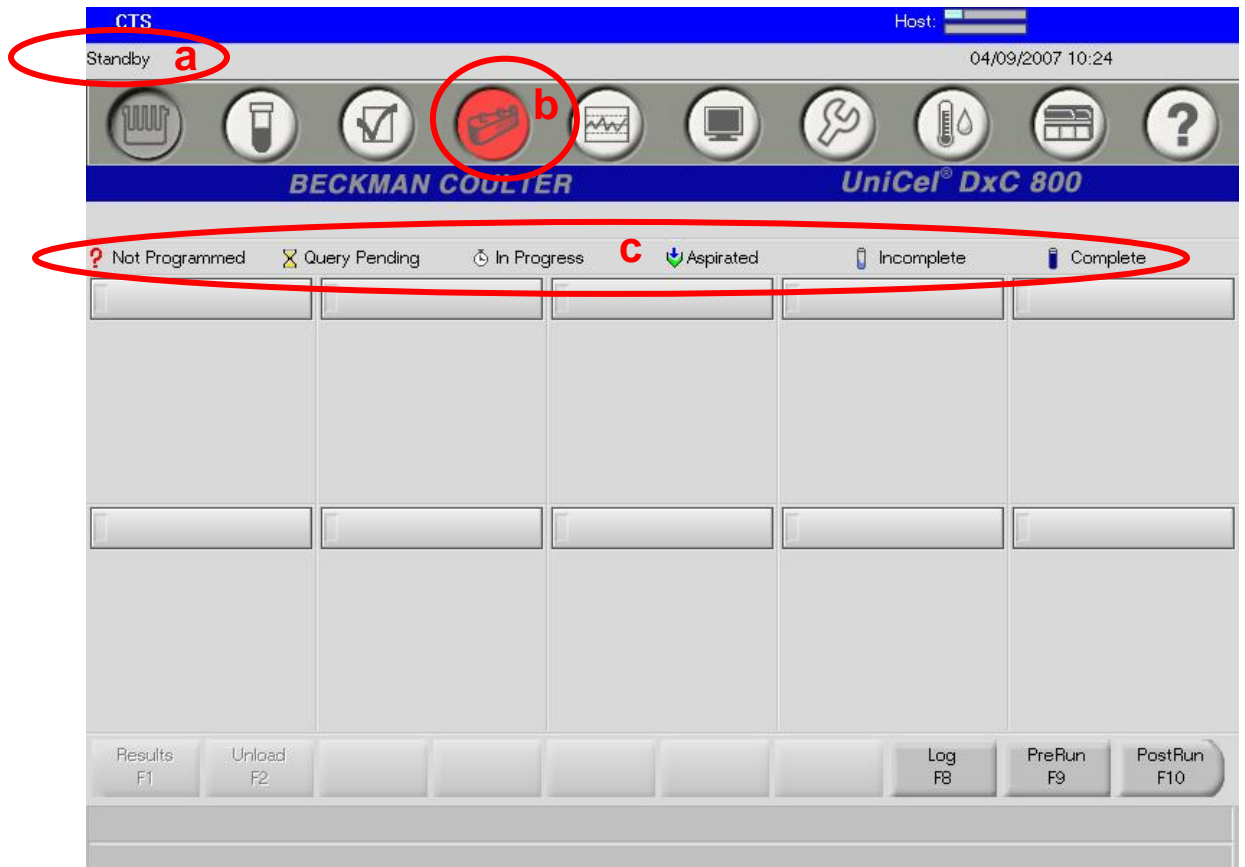
### Instrument Overview

- 1) The DxC Modular Chemistry side of the analyzer is composed of a glucose cup module and an ISE module where a flow cell houses electrodes for measurement of sodium, potassium, chloride, CO<sub>2</sub>, and calcium.
- 2) The DxC 800 has additional cup modules for testing the following analytes: BUN/UREA, Creatinine, Phosphorus, Albumin, and Total Protein.
- 3) The DxC Cartridge Chemistry side of the analyzer delivers reagent from cartridges stored in a refrigerated compartment that houses 59 reagent cartridges.

**Software Overview**

4) Label each circle on the picture below with the letter corresponding to it's description:

- a. System Operating Condition
- b. Reagent/Calibration Function Selection Icon
- c. Sample Status Icons



**Daily Start-Up**

- 5) Which reagents are stored in the Hydropneumatic compartment?

Wash Concentrate, No Foam, Auto Gloss

- 6) Where is the Alkaline Buffer stored?

In the ISE Module

- 7) What is the software pathway to print the Cal Load List from the DxC Main Menu?

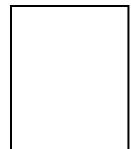
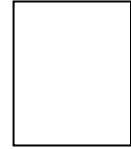
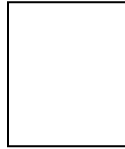
Main Menu→Rgt/Cal→List (F5)

- 8) Perform a Daily Start-Up on your DxC 600i system. Keep all reports and show them to your supervisor and/or Beckman Coulter representative when the Daily Start-Up is completed.



## Sample Processing

9) Place a check mark in the box to the right of the samples shown below that should be placed in a Reserved rack:



10) Tubes with caps must always be placed in a Non-Reserved rack.

11) How do you determine adequate sample volume before placing a sample on the system?

Compare the tubes to the Primary Sample Template (PTS)

**Sample Processing**

- 12) Manually program and process the samples using the following information:

Sample ID	Sample Type	Priority	Tests	Other Information
Test 1	Serum	Routine	Na, K, Cl, CO2, GLUCm,	Patient Name: Test Sample Patient Age: 3 yrs
Test 2	CSF	STAT	GLUCm	N/A
Test 3	Timed Urine	Routine	CREA or CREm	Volume: 1340 mL Time: 24 hrs

Note: You may use any material you have available for the samples.

- 13) Show the reports to your supervisor and/or Beckman Coulter representative.

**Instrument Commands**

- 14) Draw a line between the Instrument Command you would use to perform the described function:

Instrument Command	Function
Home	Use to reboot the system
Pause	Use to remove racks from the Menu screen that are not present on the sample carousel
Shutdown	Use to turn on the LPIA
Enable Module	Use to recover from a motion error
Unload All	Use to prevent any new tests from starting

**Completion**

- 15) Give all reports and answers to the competency questions to your supervisor and/or Beckman Coulter representative for comparison to the Answer Key.



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Has satisfactorily completed the In-Lab Training Course  
on the operation of the  
**UniCel DxC 600/800 Synchron Clinical System**



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Beckman Coulter Representative

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Date