Instrumentation Laboratory
ACL™ Coagulation Systems

Maintenance Training Guide
NOTICE OF INTENT

This training document is not intended to replace the information in the ACL TOP Operator’s Manual. Information in the ACL TOP Operator’s Manual supersedes information in any other document.

REVISION STATUS

Revision AA  Initial Issue (April, 2008)
Software Release:
TOP 500 CTS 3.0.2/9.8

Revision AB  (April, 2009)
Software Release:
ACL TOP® 500 CTS 3.0
ACL TOP® 4.0
ACL TOP® CTS 4.0
ACL TOP® 700 LAS 3.5
ACL TOP® Family 4.3

TRADEMARKS

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## WARNINGS AND PRECAUTIONS

READ ALL PRODUCT MANUALS AND CONSULT WITH BECKMAN COULTER-TRAINED PERSONNEL BEFORE ATTEMPTING TO OPERATE INSTRUMENT. DO NOT ATTEMPT TO PERFORM ANY PROCEDURE BEFORE CAREFULLY READING ALL INSTRUCTIONS. ALWAYS FOLLOW PRODUCT LABELING AND MANUFACTURER’S RECOMMENDATIONS. IF IN DOUBT AS TO HOW TO PROCEED IN ANY SITUATION, CONTACT YOUR BECKMAN COULTER REPRESENTATIVE.

### HAZARDS AND OPERATIONAL PRECAUTIONS AND LIMITATIONS

WARNINGS, CAUTIONS and IMPORTANTS alert you as follows:

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<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>WARNING</td>
<td>Can cause injury.</td>
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<tr>
<td>CAUTION</td>
<td>Can cause damage to the instrument.</td>
</tr>
<tr>
<td>IMPORTANT</td>
<td>Can cause misleading results.</td>
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BECKMAN COULTER, INC. URGES ITS CUSTOMERS TO COMPLY WITH ALL NATIONAL HEALTH AND SAFETY STANDARDS SUCH AS THE USE OF BARRIER PROTECTION. THIS MAY INCLUDE, BUT IT IS NOT LIMITED TO, PROTECTIVE EYEWEAR, GLOVES AND SUITABLE LABORATORY ATTIRE WHEN OPERATING OR MAINTAINING THIS OR ANY OTHER AUTOMATED LABORATORY ANALYZER.

### WARNING

Risk of operator injury if:

- All doors, covers and panels are not closed and secured in place prior to and during instrument operation.
- The integrity of safety interlocks and sensors is compromised.
- Instrument alarms and error messages are not acknowledged and acted upon.
- You contact moving parts.
- You mishandle broken parts.
- Doors, covers and panels are not opened, closed, removed and/or replaced with care.
- Improper tools are used for troubleshooting.

To avoid injury:

- Keep doors, covers and panels closed and secured in place while the instrument is in use.
- Take full advantage of the safety features of the instrument. Do not defeat safety interlocks and sensors.
- Acknowledge and act upon instrument alarms and error messages.
- Keep away from moving parts.
- Report any broken parts to your Beckman Coulter Representative.
- Open/remove and close/replace doors, covers and panels with care.
- Use the proper tools for troubleshooting.

### CAUTION

System integrity might be compromised and operational failures might occur if:

- This equipment is used in a manner other than specified. Operate the instrument as instructed in the Product Manuals.
- You introduce software that is not authorized by Beckman Coulter into your computer. Only operate your system’s computer with software authorized by Beckman Coulter.
- You install software that is not an original copyrighted version. Only use software that is an original copyrighted version to prevent virus contamination.

### IMPORTANT

If you purchased this product from anyone other than Beckman Coulter or an authorized Beckman Coulter distributor, and, if it is not presently under a Beckman Coulter service maintenance agreement, Beckman Coulter cannot guarantee that the product is fitted with the most current mandatory engineering revisions or that you will receive the most current information bulletins concerning the product. If you purchased this product from a third party and would like further information concerning this topic, call your Beckman Coulter Representative.
DAILY MAINTENANCE
ACL TOP 500 CTS, ACL TOP Base, ACL TOP CTS

OBJECTIVES

Given:

- The **ACL TOP Family** instrument is performing to specifications

Action:

- Perform daily maintenance procedures

SKILL CHECK

- Successfully perform all steps in the **Performance Guide**
- Documentation of maintenance on the **Maintenance Log**

MODULE RESOURCES

- **ACL TOP Operator’s Manual** – Contents Tab ► System ► Maintenance ► Perform Maintenance Activity
- **Performance Guide** – Daily Maintenance
Daily Maintenance

Performance Guide

Perform Enhanced Clean for All Probes

1. Load Clean B as follows:
   - **ACL TOP 500 CTS**
     - Place a full 10mL vial of **Clean B** in a **Reagent Rack** and load in any reagent track **R1** through **R4**.
     - Place a second full 10mL vial of **Clean B** in a **Diluent Rack** and load it in **D1**.
   - **ACL TOP Base or CTS**
     - Place a full 10mL vial of **Clean B** in a **Reagent Rack** and load in reagent track **R5** or **R6**.
     - Place a second full 10mL vial of **Clean B** in a **Diluent Rack** and load it in **D3**.
     - Place a third full 10mL vial of **Clean B** in a **Diluent Rack** and load it in **D1** or **D2**.

2. Choose **Menu Bar ► System ► Maintenance**.

3. Select ✔ Enhanced Clean for all probes or Enhanced Clean for R1, R2 and Sample Probes.

4. Single Click or touch **Perform Activity**.

5. A **Comment** window will be displayed when the maintenance activity is finished. Enter your initials then choose **OK**.

**TIP:** While putting your initials in the **Comment** window after a maintenance activity is performed will assist in documenting who performed the activity, it is optional. Tracking can also be done by assigning each user an individual **User ID** and **Password**.

6. Remove **Clean B** from the analyzer.

**WARNING:** **Clean B** is a corrosive material. Remove it from the instrument immediately after performing the daily maintenance procedure.
Make Fresh Clean B Diluted

1. Select Make Fresh Clean B Diluted from the Maintenance List.

2. Single Click or touch Perform Activity.

3. The following message appears, Perform the maintenance work first, then press OK.

4. Remove the Clean B Diluted from the instrument and discard any remaining liquid in the vial.

5. Make a 1:8 dilution of the Clean B (1 part Clean B + 7 parts water) in a 20mL vial.

6. Reload the fresh Clean B Diluted in as follows:
   - ACL TOP 500 CTS - Place the 20mL vial of Clean B Diluted in a Reagent Rack and load in any reagent track R1 through R4.
   - ACL TOP Base or CTS - Place the 20mL vial of Clean B Diluted in a Reagent Rack and load in reagent track R5 or R6.

   **NOTE:** The Clean B Diluted loaded for the ACL TOP Base or CTS in R5 or R6 will be used when there is a Start Reagent requiring additional cleaning. A second vial of Clean B Diluted loaded in D3, R1 or R2 may be needed when a test using an Intermediate Reagent also requires the additional cleaning.

7. Choose OK.

8. A Comment window will be displayed when the maintenance activity is finished. Enter your initials then choose OK.
SKILL CHECK

The Skill Check for this module is successful completion of Daily Maintenance.
OBJECTIVES

Given:

- The ACL TOP 500 CTS or ACL TOP CTS is performing to specifications

Action:

- Clean Cuvette Waste Drawer
- Clean Deep Wash and Clean Cup
- Replace CTS Filter and clean Clean Cup Area
- Add a maintenance activity to the Maintenance List

SKILL CHECK

- Successfully perform all steps in the Performance Guide
- Documentation of maintenance on the Maintenance Log

MODULE RESOURCES

- ACL TOP Operator’s Manual – Contents Tab ► System ► Maintenance ► Perform Maintenance Activity
- Performance Guide – CTS Maintenance
CTS Maintenance

Performance Guide

**Weekly - Clean Cuvette Waste Drawer**

1. Choose **Menu Bar ► System ► Maintenance**.

2. **Select Clean Cuvette Waste Drawer ► Perform**.

3. The following message appears, **Perform the maintenance work first, then press OK**.

4. Remove the **Cuvette Waste drawer** and clean the liner with bleach or other approved laboratory cleaner or replace the liner.

5. Replace the **Cuvette Waste drawer** and choose **OK**.

6. Enter your initials in the **Comment** window then choose **OK**.

**Weekly - Clean Deep Wash and Clean Cup Area**

1. Verity that the **Maintenance** screen is displayed or choose **Menu Bar ► System ► Maintenance**.

2. **Select Clean Deep Wash and Clean Cup Area ► Perform**.

3. Open the sample area cover.

4. Clean the deep wash and clean cup with a lint free cotton swab.

5. Rinse both areas with DI water (maximum of 10mL) to remove debris.

**TIP:** Use a 10mL syringe with a piece of tubing attached to the tip to prevent using too much DI water.

6. Thoroughly dry the cover and Wash Deck (metal ring) the around the deep wash and clean cup a lint-free cotton swab.
7. Choose **OK** at the following prompt:

![ACL TOP](ACL_TOP.png)

9. Enter your initials in the **Comment** window then choose **OK**.
10. Wait for the instrument to reinitialize and resume operation.
11. Any racks on board must be reloaded due to opening the cover(s).
Every 5000 Piercings - Replace CTS Filter and clean Clean Cup

1. Verify that the Maintenance screen is displayed or choose Menu Bar ► System ► Maintenance.

2. Select Replace CTS Filter and clean Clean Cup ► Perform.

3. Open the sample area cover.

4. Clean the deep wash and clean cup with a lint free cotton swab before removing the filter to prevent loose debris from falling into unprotected areas.

5. Rinse both areas with DI water (maximum of 10mL) to remove debris.

   **TIP:** Use a 10mL syringe with a piece of tubing attached to the tip to prevent using too much DI water.

6. Insert the CTS Filter Replacement Tool into the filter.

8. Lightly push down on the top of the tool to allow it to grab the filter.
9. Remove the filter from the deep wash.

10. Insert a new filter using the tool to seat it properly.

**TIP:** It is not necessary to push hard on the top of the tool. Pushing too hard will make it difficult to remove it for the next replacement.

11. Thoroughly dry the cover and **Wash Deck** (metal ring) around the **Deep Wash** and **Clean Cup** a lint-free cotton swab

12. Close the sample area cover.

13. Choose **OK** at the following prompt:

![ACL TOP message]

   **ACL TOP**
   
   Open the cover(s), perform the maintenance work, close the cover(s) once again and press **OK**.

14. Enter your initials in the **Comment** window then choose **OK**.

15. Wait for the instrument to reinitialize and resume operation.

16. Reloaded all reagent and diluent racks.
Add a Maintenance Activity to the Maintenance List

1. Verity that the Maintenance screen is displayed or choose Menu Bar ► System ► Maintenance.

2. Single click or touch Add to open the Maintenance Activity Configuration window.

3. Enter the following:
   - Description: Make Fresh Clean B Diluted (1 part Clean B + 7 parts water)
   - Frequency: Choose Daily from the drop down box.
   - Choose Enable warning threshold.

4. Choose OK.
SKILL CHECK

The **Skill Check** for this module is successful completion of all maintenance in this module.
## ACL TOP CTS & 500CTS Maintenance Log

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<tr>
<th>Task/Date</th>
<th>Initial each task when completed</th>
<th>Supervisor Review</th>
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### PROBLEMS & SOLUTIONS

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