Rinse/Soak the Fluid Path

Daily Maintenance

Daily maintenance involves flushing the washer with an appropriate reagent or deionized water throughout the day. Routinely rinsing the washer helps to prevent the aspirate and dispense tubes from clogging between washes. The recommended **rinsing frequency** depends on the wash solutions currently in use:

- If a solution containing surfactant is used throughout the day, the rinsing procedure should be performed if the washer is idle for more than 3 hours.
- If the solution does not contain surfactant, consider rinsing at least once an hour.

The **DAY_RINSE** and **AUTOPRIME** programs described in the ***ELx405 Operator's Manual*** satisfy daily maintenance requirements.

As an alternative, consider using AUTOPRIME, which can be enabled to automatically prime the washer after it has been idle for a user-specified amount of time. The volume, buffer valve, flow rate, and soaking parameters are specified in the AUTOPRIME program. AUTOPRIME is recommended when the washer is used intermittently throughout the day, to keep the manifold tubes in a wetted condition.

- ❖ "AUTPRM" appears in models with the Ultrasonic Advantage™.
- ❖ AutoPrime does not replace pre-priming the washer before running a wash or dispense program.

The AutoPrime feature is disabled by default. To enable it:

- Select **UTIL → AUTOPRIME** (or **AUTPRM**) **→ YES**.
- Enter the **interval** from **10** to **600** minutes, to indicate how often you want the AutoPrime program to run.
- Press **ENTER** and then return to the Main Menu.

The next time a program is run, AutoPrime will be enabled and priming will occur each time the washer has been idle for **<interval>** minutes.

- To disable the AutoPrime feature, select **UTIL → AUTOPRIME** (or **AUTPRM**) **→ NO.**
- To **halt** AutoPrime, press the **STOP** key.
- To **view** or **edit** the AUTOPRIME program parameters, select **DEFINE → EDIT → PRIME** and press the **Options** key to select **AUTOPRIME.** Edit the parameters as desired. The ***ELx405 Operator's Manual*** describes the AutoPrime program parameters and ranges.

Overnight/Multi-Day Maintenance

Overnight/multi-day maintenance involves flushing all wash solution out of the instrument, and then periodically rinsing and soaking the tubes to keep them moist. If the washer will be left idle for a period of time (such as overnight or over a weekend), run this program to soak the tubes for several hours at a time.

The **OVERNIGHT_LOOP** and **RINSE_AND_SOAK** programs described in the ***ELx405 Operator's Manual*** satisfy overnight/multi-day maintenance requirements.

Important! Keep the manifold in a wetted condition to ensure proper evacuation of fluid. BioTek recommends changing the Soak Duration to 18 hours for overnights and weekends when the washer is not being used. This will decrease flow problems and is a more trouble-free way to operate the washer.

- The OVERNIGHT_LOOP program requires the washer to remain turned on.
- As an alternative, run RINSE_AND_SOAK and turn off the washer after the soak begins. This leaves the tubes soaking in the priming trough until the instrument is turned on again.

Removing Protein Residuals and Fungi Growth

Important! Solutions containing proteins, such as bovine serum albumin (BSA), will compromise the washer's performance over time unless a strict maintenance regime is adhered to. **Do not use alcohol to flush out BSA.**

Refer to the ***ELx405 Operator's Manual*** for instructions.

Clean Components

Periodic Maintenance

Periodic maintenance involves cleaning the washer components on a regular basis to keep the washer running efficiently and in compliance with instrument specifications. The recommended **frequency for cleaning washer components** is *at least monthly*. The risk and performance factors associated with your assays may require that some or all of the procedures be performed more frequently.

	**Warning! Internal Voltage.** Turn off and unplug the washer for all cleaning operations.
	**Important! Do not** apply lubricants to manifold o-rings, channel-end seals, bottle cover seals, any tubing connection, or any surface that is a part of the fluid path. The use of any lubricant on the fluid handling components will interfere with the aspirate and dispense performance, and may cause irreparable damage to these components.
	**Important!** When cleaning components: • Do not immerse the instrument, spray it with liquid, or use a "wet" cloth on it. • Do not allow the cleaning solution to run into the interior of the instrument. (If this happens, contact the BioTek TAC.) • Do not expose any part of the instrument to the recommended diluted sodium hypochlorite solution (bleach) for more than 20 minutes. Prolonged contact may damage the instrument surfaces. • Be certain to rinse and thoroughly wipe all surfaces. • Do not soak the keypad. Instead, moisten a clean cloth with deionized or distilled water and wipe the keypad. Dry it immediately with a clean, dry cloth.
	**HT models with the accessory 96-tube manifold (HT2):** Perform periodic maintenance on the manifold (96-tube or 192-tube) most frequently in use. Ensure that the washer is configured for operation with the installed manifold (refer to the "Operation" chapter in the ***ELx405 Operator's Manual***.)

Cleaning the Bottles

- Clean and rinse the supply bottles with deionized water before the first use, before each refill, and, periodically, as necessary, to prevent bacteria growth.
- Empty the waste bottle often (at least daily), and firmly seat the waste bottle fittings.
- Rinse the covers every time the wash or rinse bottles are filled.
- Accumulated algae, fungi, or mold may require decontamination.

> ❖ To ensure that fluid does not back up into the vacuum pump during operation, always operate the washer with the waste sensor cable installed and the waste detection sensor enabled. If fluid collects in the overflow bottle, thoroughly rinse the level-switch assembly and bottle. Exception: The waste detection sensor must be turned off when using BioTek's Direct Drain Waste System. Refer to the "ELx405 Direct Drain Installation" document (PN 7101069) that was shipped with the Direct Drain system for instructions.

- Check the white hex nuts securing the quick-disconnects to the bottle cap to ensure they are not loose or corroded.

Cleaning the Plate Carrier System

If liquid has overflowed onto the plate carrier, transport rail(s), or glide strips, some buildup may occur and prevent the microplate from seating correctly on the carrier. This can interfere with plate transport. Weekly cleaning is recommended.

1. Turn the washer on and wait for the System Self Test to complete. Turn the washer off when the manifold and tubes are resting above the priming trough ("home" position). Disconnect the power cable.
2. Carefully lift the carrier up and off the horizontal transport rail(s).
3. Clean the carrier, rails, and glide strips, using mild detergent and hot water, 70% isopropyl alcohol, or ethanol. Clean the priming trough as well, if necessary.

> ❖ **Select** and **HT** models: Take extra care to clean the spring-loaded transport arm that allows these models to move the plate forward and back (Y-axis). The arm fits into the left side of the plate carrier as you face the washer. If more intensive cleaning is required (for example, if reagent has spilled and dried on the stainless steel shaft), see the ***ELx405 Operator's Manual*** for thorough cleaning instructions.
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> ❖ **Vacuum Filtration** and **Magnetic Bead** models: handle the special plate carrier with care. **Do not submerge** it when extra cleaning is needed. Flush it out with warm water by holding it under a running faucet for a few seconds and dry it immediately and completely. Avoid getting water in the transport arm bearings.