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|  MAINTENANCE ON THE AUTION AX-4030  |
| **Principle****Policy Statements****Materials****Daily Maintenance** | Maintenance should be performed to support optimal system performance on the Aution AX-4030 Urinalysis Instrument. Performing all of the required maintenance procedures will ensure the system has adequate amounts of supplies and reagents for processing patient samples.This procedure applies to all laboratory technologists who are trained in the Hematology department and operate the AX-4030.

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| **Equipment** | **Reagents** | **Supplies** |
| Beckman Coulter Aution Max AX-4030 instrument | * 70% alcohol prep pads
* Methyl Alcohol
* 8.25% bleach
 | * Blower Brush
* Kimwipes
* Lint roller
 |

**Empty and Clean Waste Strip Container**

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| **STEP** | **ACTION** |
| **1** | Ensure Standby Screen is displayed |
| **2** | Pull out the waste box tray located on the left side of the instrument |
| **3** | Remove waste box from the waste box tray and discard any strips |
| **4** | Wipe the inside of the box with 70% isopropyl alcohol pads or a moistened Kimwipe with isopropyl alcohol |
| **5** | Rinse the box with a Kimwipe wet with water to remove any residue |
| **6** | Wipe inside of box with dry Kimwipe |
| **7** | Return waste box to tray, ensuring the guides fit the concaves inside the tray. |
| **8** | Record the activity on the Maintenance Log |

**Discard Liquid Waste**

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| **STEP** | **ACTION** |
| **1** | Ensure Standby Screen is displayed **IMPORTANT*:*** *do not try to discard liquid waste while the instrument is working. Uncapping the drain bottle in operation may splash the liquid form the container, causing exposure.* |
| **2** | Uncap the drain bottle for the instrument |
| **3** | Discard waste into dirty sink and run plenty of water down the sink to rinse |
| **4** | Pour approximately 10 mL of Methanol into waste bottle and swirl to clean |
| **5** | Rinse the bottle with water to remove alcohol and waste residue |
| **6** | Replace the cap and return the bottle to position. |
| **7** | Record the activity on the Maintenance Log |

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| **Three Day Maintenance****M-W-F** |

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| **STEP** | **ACTION** |
| **1** | On **MONDAYS**, perform the weekly Washing the Inside Transport Tray prior to the other 3-day maintenance. Ensure Standby screen is displayed, then **POWER DOWN** the instrument. |
| **2** | Turn the lever lock, and open the left bin on the right side of the instrument. Remove any test strips with a Kimwipe and place them carefully aside. |
| **3** | Open the front cover, the top cover, and then the right side cover |
| **4** | Gently tilt back (to the right) the feeder unit and loosen the screw on the underside. Slide the back stopper tray to the right and remove. |
| **5** | **Cleaning the Instrument and the Introduction Tray*** Pull up and remove the black tray located on the floor of the unit
* Sterilize with alcohol, and then rinse well with water. Dry completely with Kimwipes
* Return the tray to the instrument and slide forward until you feel it engage
 |
| **6** | **Clean the Strip Feeders*** With the power brush supplied in the maintenance kit blow out and clean the feeder area. Roll the feeder wheel and clean again repeating as necessary.
 |
| **7** | **Clean Test Strip Stopper*** Slide the black stopper tray to the right and remove.
* Blow out and clean the stopper tray using the blower brush.
* Slide the stopper tray back into place and tighten the screw.
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| **8** | Close the feeder unit, the right side cover, top cover, and front cover. |
| **9** | Power **ON** the instrument. |
| **10** | Record the activity on the Maintenance Log |

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| **Weekly Maintenance****(Monday)** | **Washing the Inside Transport Tray**

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| **STEP** | **ACTION** |
| **1** | From the Standby screen :* select the MENU button
* select 5 - Maintenance
* select 2 – cleaning wash bath and tray
 |
| **2** | The instrument will tell you it is preparing, and then ask to be powered OFF |
| **3** | Turn the lever lock, and open the left bin on the right side of the instrument. Remove any test strips with a Kimwipe and place them carefully aside. |
| **4** | Open the front cover, the top cover, and then the right side cover |
| **5** | Gently tilt back (to the right) the feeder unit and loosen the screw on the underside. Slide the back stopper tray to the right and remove. |
| **6** | Pull up and remove the black tray located on the floor of the unit |
| **7** | Open the front LEFT cover of the instrument |
| **8** | Push the transport tray to the right to disengage it for removal |
| **9** | From the right side, reach in and remove the tray |
| **10** | Wash the tray with 70% Isopropyl alcohol pads. |
| **11** | Rinse the tray using warm running water to thoroughly remove dirt. |
| **12** | Wipe with a dry Kimwipe and allow to air dry |
| **13** | Insert the two tray guides into the slots at the left part of the tray, and slide tray to the left. Press the tray until the tray is locked to tray guides and a click is heard. |
| **14** | Slide the tray backwards until the arrow marks are completely visible. Push until you feel some resistance and hear a click. |
| **15** | Close the covers. |
| **16** | Record the activity on the Maintenance Log |

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| **Monthly Maintenance** **(Week one)****As-Needed****Maintenance****References****Historical Record** | **Cleaning the Specific Gravity Cell**

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| **STEP** | **ACTION** |
| **1** | **Sodium Hypochlorite (Bleach solution)** * Convert our current bleach (8.25%) to a 0.5% bleach solution.
	+ **1 mL of bleach to 15.5 mL of water (**8.25/0.5= 16.5-1= 15.5)

 (% chlorine in liquid bleach ∕ % chlorine desired) − 1 = Total parts of water for each part bleach.* Transfer @ 2 mL into sample tube
 |
| **2** | Load this sample tube into the STAT Port in the front of the instrument and slide it back into place. Make sure it is locked with the stopper. |
| **3** | From the Standby screen :* select the MENU button
* select 5 - Maintenance
* select 1 to go to the S.G. Cell washout screen
 |
| **4** | Press START to start washing ; remaining time to completion is displayed |
| **5** | When washout is completed the end process will automatically start, and the Maintenance screen will appear again. |
| **6** | Press **Go Back** twice on the Maintenance screen to return to the standby screen. |
| **7** | Press the PUSH mark on the STAT port backward to unlock the stopper, and then slide the port toward you. |
| **8** | Remove the sample tube from of the STAT port |
| **9** | Record the activity on the Maintenance Log |

 **Cleaning the Wash Bath** (at least once/month or when contaminated)

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| **STEP** | **ACTION** |
| **1** | From the Standby screen :* select the MENU button
* select 5 - Maintenance
* select 2 - Clean washing bath and tray
 |
| **2** | The instrument will tell you it is preparing, and then ask to be powered OFF |
| **3** | Open the left front cover |
| **4** | Using a cotton swab wet with DI water, wipe any dirt off the inside of the washing bath and port. NOTE: Do not touch the nozzle while cleaning the washing bath and port. Check for loose lint or dust around the area and clean if necessary. |
| **5** | Close the cover and turn ON the power. |
| **6** | Record the activity on the Maintenance Log |

**Replace Filter and O ring on Wash Bottle**

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| **STEP** | **ACTION** |
| **1** | Ensure Standby screen is displayed, then **POWER DOWN** the instrument. |
| **2** | On the Wash bottle, take the assembly and carefully unscrew the white and grey pieces, noting the red O ring inside. |
| **3** | Remove the red O ring and then the small filter with the tweezers provided.  |
| **4** | Fit a new filter into the recess of the holder. Be careful – they are very small! |
| **5** | Replace the red “O” ring at the same time. |
| **6** | Screw the two pieces of the filter back together. |
| **7** | Turn the power **ON**; during warm-up, check the filter holder for leaks. |
| **8** | Record activity on the Maintenance Log |

**Clean the Air filter**

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| **STEP** | **ACTION** |
| **1** | Ensure Standby screen is displayed, then **POWER DOWN** the instrument. |
| **2** | Remove the air filter from the back of the instrument by pulling the black cover away from the instrument. Make sure the fan has stopped before accessing. |
| **3** | Wash the filter carefully under running tap water to remove accumulated dust. |
| **4** | Dry the filter well with paper towels. Be careful not to stretch it. |
| **5** | Attach the air filter and cooling fan cover in their original positions |
| **6** | Turn the power **ON** |
| **7** | Record the activity on Maintenance Log |

**Perform S.G. Cell calibration**; using low and high standards once a month

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| **STEP** | **ACTION** |
| **1** | * Use DI water as the low level calibration fluid
	+ Pour at least 2 mLs of water into a sample tube
* Use purchased S.G. Cal that is stored in the refrigerator for the high level calibration fluid.
* Mix well by inverting the bottle 10 times. Remove protective plastic lip from container and pour approximately 2.5 mL into a sample tube.
* Quickly recap and place back into refrigerator. We should be able to get 3-4 uses out of one vial.
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| **2** | Load the solutions into the specially marked rack, low solution into port 1 of the sample rack, and high solution into port 2. |
| **3** | Load the sample rack into the sampler with the marker facing towards you. |
| **4** | On the Standby screen press S.G. Cal to go to the S.G. Calibration screen* Enter 1.000 below Standard solution Low and press the enter key
* Enter the SG High value from the package insert below Standard Solution High and press OK to save entries.
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| **5** | Make sure the sample rack is correctly loaded into the sampler. Press START |
| **6** | When calibration is completed the message “Measurement completed” will appear. * SG CAL OK: results are acceptable
* E120: SG calibration failure. See Section 5.2.2 Cause and Remedies on page 5-8 of Aution AX-4030 Operating Manual [Aution Max AU 4030 Operating Manual](https://starnet.childrenshc.org/References/labsop/ua/res/aution-max-au-4030-operating-manual.pdf)
* Repeat Calibration. If second calibration fails, contact Technical support.
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| **7** | Press GO BACK to return to the Standby screen and remove the sample rack |

There are several “As Needed” Maintenance items that may be necessary for continuous performance of the Aution AX-4030 Instrument.* Replace the printer paper, wash solution, or white plate
* Perform Check cal strips
* Replace Drain pinch valve tubing

Please refer to the AX 4030 IFU Manual for specific details [Aution Max AU 4030 Operating Manual](https://starnet.childrenshc.org/References/labsop/ua/res/aution-max-au-4030-operating-manual.pdf)1. Aution Max™ AX-4030 Operating Manual, 84-02160L Rev: Sep, 2022 Arkray, Inc.
2. IQ Workcell Complete Urinalysis Training Guide Version 3.0 July 2019

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| **Version** | **Written/Revised by** | **Effective Date** | **Summary of revisions** |
| 1 | Michele Koester | 1/30/2024 | Initial version; new instrument |
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