



DOSIS Maintenance Guide

Software Version 2.x

REVISION RECORD

Date	Page(s)	Description of Change	Name
8NOV2023	3	Removed WD-40 from recommended cleaners	Jeff Chenevert
		Added WARNING to remove residue from non-alcohol cleaners	
	6	Rollers: Remove alcohol from DO NOT USE list for rubber rollers	
		Lid Slider: Added clean every lid roll replacement	
		Lid Slider: Added WARNING to remove residue from non-alcohol cleaners	
		Internal Printer: Added clean every label roll replacement	
	7	Printers, Internal Printer: Added clean every label roll replacement	
		Added internal printer distinguishing feature and reference to Microcom specific user manual.	
	12	Deleted Maintenance Schedule (to improve document control)	Jeff Chenevert

Preface

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Acknowledgements

The DOSIS operating system is designed by Manchac Technologies, LLC. All DOSIS towers are designed and manufactured by Manchac Technologies, LLC.

Disclaimer

The information contained herein is considered accurate at the time of publication. Manchac Technologies, LLC reserves the right to make changes to the equipment or manual at any time without notice.



Customer Care and Product Support

1-877-626-2422 (877-MANCHAC)

www.manchac.com

support@manchac.com

Our standard help desk hours are Monday through Friday from 7:00 AM to 7:00 PM central and Saturday 8:00 AM to 5:00 PM central.

Requests after hours and on major holidays are screened for severity and escalated appropriately to on-call technicians for assistance.

Table of Contents

Service Preventative Maintenance.....	2
Overview.....	2
Service Information	3
Recommended Intervals (minimum)	3
Recommended Cleaning Supplies/Materials	3
Fielded “Spare” DOSIS components (for quick restoration of robot operation)	4
Recommended Service and Cleaning.....	4
“Challenge” Drugs	4
Maintaining Canisters	4
Suction Cups.....	4
Stray Pills/Other Debris	5
• EOAT (End of Arm Tooling):	5
• Flipper Assembly:.....	6
• Cabinet Bottom (Internal):.....	6
Rollers.....	6
Printers	8
Cabinet	9
Site Server	9
The Canister	10
Canister Information and Check Procedures.....	11
Information	11
Initial Issue	11
Using the canister adjustment tool	12
DOSIS Maintenance Schedule	Error! Bookmark not defined.

Service Preventative Maintenance

Overview

DOSIS Systems by Manchac is an autonomous workflow solution for blister card pharmacies which improves your efficiency, your productivity, and your bottom line. Realizing the optimum benefits of DOSIS involves a partnership between your pharmacy and our DOSIS team. Our most successful pharmacies adhere to best practices in their interactions with the DOSIS System and are in regular communication with us. Please alert our product support team promptly if anything out of the ordinary occurs.

Manchac's L60 & U60 DOSIS machines have been designed and engineered so that they do not require scheduled calibrations, regular service technician visits, or annual or scheduled preventative maintenance (PM) for wear items. However, the following service intervals and/or cleanings are recommended to help ensure optimal performance of your robot. To reduce problems and system downtime, we request that, if changes to the support frequency are needed, the provided service intervals only be shortened but never lengthened. For example: an action recommended every three months can be changed to be performed every month but should not be changed to every six months.

Service Information

Recommended Intervals (minimum)

Close the Packaging Unit Door

Canisters – As required/Per Trouble Drug List recommendations

Suction Cups – As Required/Each shift or Daily/Monthly

Stray Pills/Other Debris

- Sealer Plate/Label Wiper – Monthly/As Needed
- EOAT - Whenever DOSIS is open: Every Three Months
- Flipper - Whenever DOSIS is open: Every Three Months
- Bottom of Cabinet – Every Six Months

Rollers

- Lid Slider – Every Lid Roll Replacement
- Sealer – Monthly/As Needed
- Internal Printer - Every Second to Third Label Roll Replacement
- Bypass Printer - Every Second to Third Label Roll Replacement

Printers

- Internal Printer - Every Second to Third Roll Change or As Needed
- Bypass Printer - Every Second to Third Roll Change or As Needed

Cabinet

- External – Monthly/As Needed
- Internal – Every Six Months or As Needed

Recommended Cleaning Supplies/Materials

- 70%-91% Isopropyl Alcohol or Wipes
- Uni-Solve wipes or Goo Gone Citrus Adhesive Remover: Can be used applied to a clean lint free cloth to remove adhesive build-up that has proven difficult to remove with alcohol. **WARNING:** If Uni-Solve or Goo Gone is used to remove adhesive, you MUST follow up by cleaning all the surfaces with Isopropyl Alcohol to remove the residue left behind by these cleaners. Failure to remove residue from these cleaners WILL cause damage to the machine. Always follow the safety precautions on the cleaner manufacturer's label.
- Swabs or Lint free cloths
- Canned Air/Compressed Air or Data Vacuum (Metro DataVac or equivalent)
- **WARNING:** Do Not use spray cleaners anywhere inside the tower. Overspray on nearby components can cause damage to the tower.

Fielded “Spare” DOSIS components (for quick restoration of robot operation)

(Included in the DLC0399 Spares and Cleaning Materials kit shipped with each tower)

- Suction Cups – A second set of cups are provided. We will replace when they get damaged.
- Pill Hoop – A second hoop was delivered with your DOSIS. We will replace, if the first hoop breaks.
- Fuses – (3) 1.25 Amp fuses

Recommended Service and Cleaning

“Challenge” Drugs

See the user guide for the list of Manchac determined “challenge” drugs. These drugs/NDCs have been found, through trial and error, to have difficulties being dispensed or cannot be processed by the DOSIS. For the “Dispensable Depending” list, follow the cleaning or prep instructions provided for each drug. This list is current per the present formulary available to all users; however, it will be updated as new/changed drugs become available that present challenges for the DOSIS.

Maintaining Canisters

Except for the canisters with difficult drugs, most canisters do not need cleaning between replenishments. However, users should check for excessive pill dust and/or physical damage between replenishments. Manchac Support may request a canister be cleaned for poor performance during problem drug troubleshooting. The canister does not have a “Fill to Here” line. When adding drugs to a canister, be sure to leave some space at the top of the Medication Storage Area to allow the Bulk Ramp to move up and down. The movement of the Bulk Ramp helps move the pills to the Flow Ramp. See page 9 (currently) in the L60 User Guide for additional information on your canisters.

Suction Cups

As part of the initial installation, each L60 was fielded with an extra set of suction cups. The “spares” are needed to quickly restore operations in case of suction cup failures because the suction cups are an essential part of the blister card filling process of your DOSIS. The suction cups are warranted and will be replaced by Manchac Technologies whenever they are determined to be non-effective. The following user service actions are recommended for the suction cups. With care, they should provide years of satisfactory service.

- **As required:** If you are experiencing card pick up errors, contact Manchac Customer Service for assistance. They may ask you to clean or replace your suction cups at any time.
- **Start of each shift/cycle:** Visually check the suction cups for cuts, tears, dirt, and, or deformity. If problems are found, clean or replace the suspected cups. If they need to be replaced due to physical damage, contact Manchac Customer Service so additional cups can be sent. Note - If a suction cup was resting on something in the cabinet, the cup itself may look deformed, which could cause card pick up failures. The cup will reform itself within 15 minutes or less once it is removed from the touch area. Your DOSIS was designed so that the suction cups do not touch

anything during rest. If you find suction cup deformities, contact Manchac Customer Service for assistance.

- **Monthly:** Remove the suction cups from your DOSIS. Visually check the suction cups for cuts, tears, dirt, and, or deformity. If none are found, use isopropyl alcohol (wipe or swab) to clean each of the cups. Re-apply the alcohol if excessive dirt is found. Re-install the cups. Note – All of the alcohol must evaporate from the cups before re-installing them.

Stray Pills/Other Debris

Your DOSIS tower(s) should not have “stray” pills or debris in or around the operating parts of your robot. At times, stray pills (jumpers, broken pills, etc.), container desiccants, and other debris (pieces of cards, lids, or labels) can and will disrupt your robot’s operation. Normally, if your DOSIS is not operating correctly contact Manchac Customer Service. They may ask you to check for and remove any stray pills and other debris from the affected module/sub-assembly. Stray pills, if found, shall be processed in accordance with your pharmacy’s policies. On the menu bar, point to Drugs and click Drug Association.

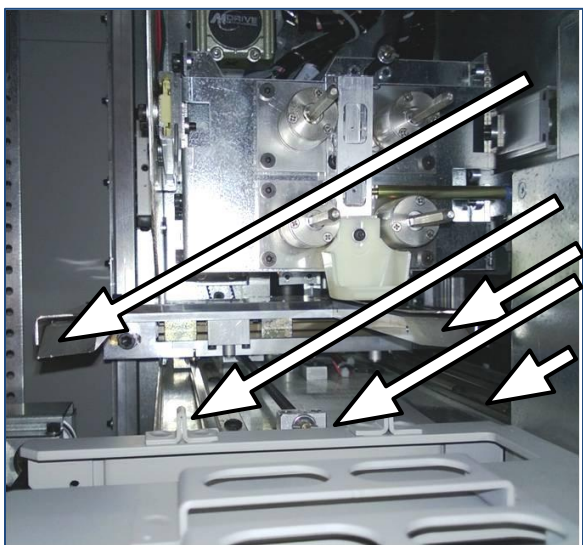
- **Sealer Plate/Label Wiper**

It is recommended that once a month you should check and clean the sealer plate and label wiper. Check for and remove any pill dust, label or lid materials or adhesive from either.

- **EOAT (End of Arm Tooling):**

It is recommended that whenever you have your DOSIS open, for any reason, that you check for stray pills and debris in and around the EOAT and all of its moving parts, especially under and around the forks. A quarterly check is recommended if your DOSIS tower hasn’t been opened within three months. See page 55 (currently) in the L60 User Guide for additional information on the EOAT.

- **Checking the EOAT:** The EOAT has several areas to check when looking for obstructions. The blister card forks move in and out and side to side and the following photo depicts some of the common areas to look for obstructions.



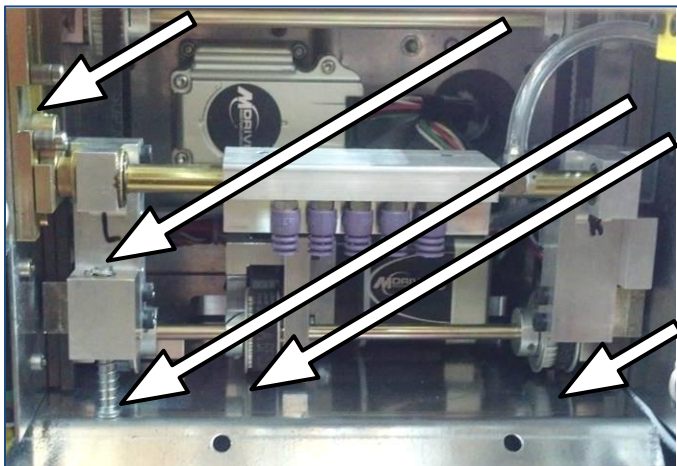
Check the following areas for obstructions.

Obstructions can be a pill that bounced, a desiccant, or other trash that has gotten into the machine.)

- **Flipper Assembly:**

Regardless of the reason, whenever you have your DOSIS tower open, we recommend you check for stray pills and debris in and around the flipper and all of its moving parts. A quarterly check is recommended if your DOSIS tower hasn't been opened within three months. See page 55 (currently) in the L60 User Guide for additional information on the Flipper Assembly.

- **Checking the Flipper Assembly Area:** You will need to pull out the internal printer to access the flipper assembly area. See page 57 (currently) in the L60 User Guide for instructions on accessing the printer and flipper assembly. The following photo depicts some of the common areas to look for obstructions.



Check the following areas for obstructions.

Obstructions can be a pill that bounced, a desiccant, or other trash that has gotten into the machine.)

- **Cabinet Bottom (Internal):**

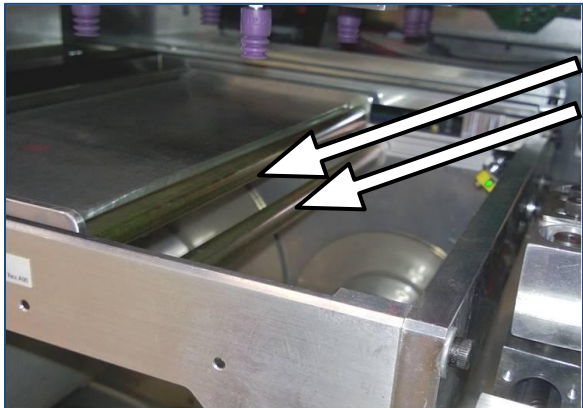
Stray pills and other debris can also fall to the bottom of your DOSIS L60. It is recommended that you check and clean the cabinet bottom every six months. See paragraph 7 in this guide or page 55 (currently) in the L60 User Guide for guidance on opening and cleaning the bottom of the cabinet.

Rollers

DO NOT use WD-40, "Goo Gone" or other similar products on any components that may be rubber or silicone-based. These products will "dry" out the material making it brittle and subject to flaking, cracking, or splitting. When in doubt, contact Manchac Customer Service (support@manchac.com or 877-626-2422) for additional guidance before proceeding with the cleaning.

- **Lid Slider:** It is recommended that the lid slider rollers be cleaned during each lid roll replacement using isopropyl alcohol or "Goo Gone Citrus Adhesive Remover". If you find that you are experiencing minimal to no adhesive problems occurring, then the lid slider rollers may be cleaned at every second lid roll replacement. However, whenever adhesive residue is suspected as the cause for faults, the rollers should be cleaned. Contact Manchac Customer Service if you continue to experience lid roller errors after the cleaning. **WARNING:** If Uni-Solve or Goo Gone is used to remove adhesive, you MUST follow up by cleaning all the surfaces with Isopropyl Alcohol to remove the residue left behind by these cleaners. Failure to remove residue from these

cleaners WILL cause damage to the machine. Always follow the safety precautions on the cleaner manufacturer's label. NOTE – Wait until alcohol evaporates to load lids.



Clean these Lid Slider Rollers.

Note: The other rollers in the assembly should not contact the adhesive and should not need to be cleaned. However, if you find residue on them then they should also be cleaned.

- **Sealer Roller:** The sealer plate roller should be wiped down and cleaned with isopropyl alcohol at least monthly or as needed.
- **Internal Printer:** The internal printer roller should be cleaned with isopropyl alcohol every time the label roll is replaced or whenever adhesive residue or label dust is suspected as the cause for label faults not related to alignment errors. If there are minimal to no faults occurring, the internal printer roller should be cleaned every second to third label roll replacement. See page 14 (currently) in the L60 User Guide for information on changing out the rolls. NOTE – Wait until alcohol evaporates to load labels.
- **Bypass Printer:** The bypass printer roller should be cleaned with isopropyl alcohol whenever adhesive residue or label dust is suspected as the cause for label faults not related to alignment errors. If there are minimal to no faults occurring, the bypass printer roller should be cleaned every second to third label roll replacement.

Printers

At present, the internal printers are either made by Microcom or Cognitive. For more detailed information on the Microcom label printer, see the “Microcom Internal Label Printer – Troubleshoot, Clean and Load” manual. Cognitive printers have black plastic enclosures where the Microcom printers are all metal. Bypass printers supporting your DOSIS system are Cognitive or Zebra brand direct thermal printers. These printers will all the name of the manufacturer on them. Label misalignments, label adjustments, print quality, etc. are not normally a user correctible action and requests for these types of support should be sent to Manchac Customer Service via our ticketing system. User specific service actions are addressed below.

- **Internal Printer:** The print head should be cleaned with isopropyl alcohol every time the label roll is replaced (see paragraph 5 above). Manchac Customer Service may also request that you perform a cleaning in the process of troubleshooting a maintenance issue. NOTE – Wait until alcohol evaporates to load labels.
- **Bypass Printer:** The print head should be cleaned with isopropyl alcohol in conjunction with every second or third roller cleaning (see paragraph 5 above). Manchac Customer Service may also request that you perform a cleaning in the process of troubleshooting a maintenance issue.
- **Label Jams:** Label jams should be cleared when they occur. After clearing the jam, the printer should be checked for any obvious defects, torn pieces of labels, or cleaning that may be required. See page 57 (currently) in the L60 User Guide for additional guidance.

Cabinet

Your DOSIS tower was installed to your specifications in your pharmacy. It has been leveled and anchored to the wall or floor for security. The below recommended actions should be performed, as recommended, or at an accelerated schedule, depending upon your pharmacy requirements.

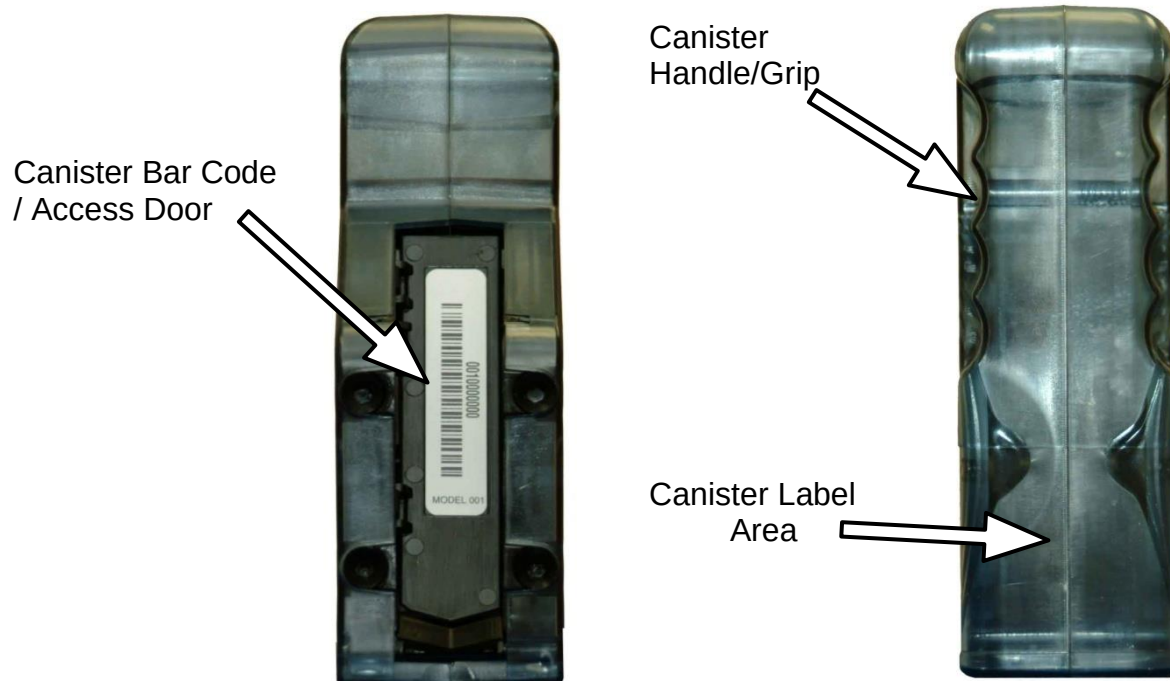
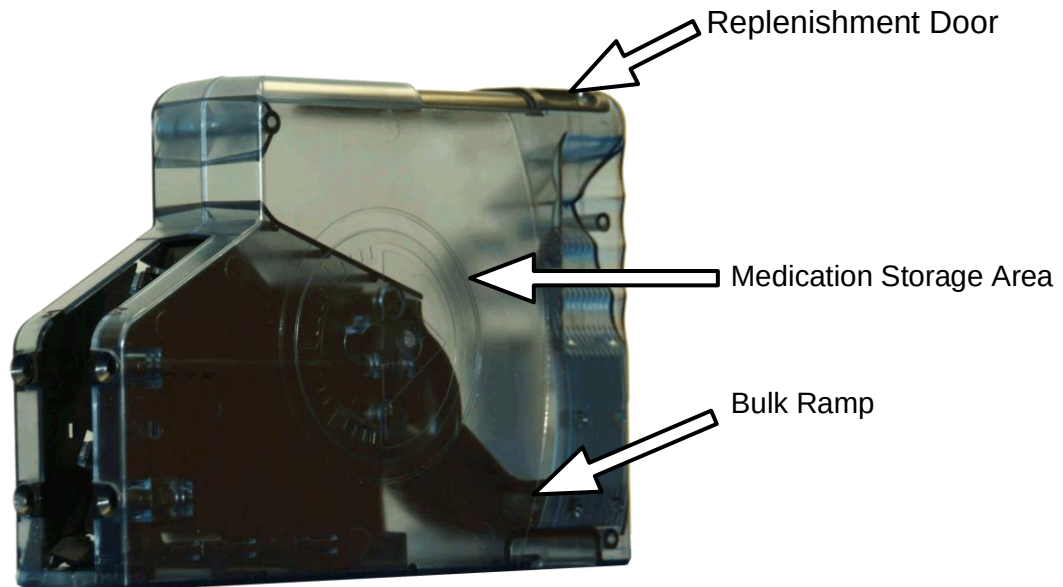
- **External:** Depending on the floor covering, the area inside and around the cabinet should be swept or vacuumed every month. Attention should be focused on the vent areas in the bottom of the cabinet. Additionally, the top and sides of the cabinet should be dusted to prevent the accumulation of dirt and dust that could possibly enter your DOSIS and cause problems. If the cabinet looks dirty, the exterior can be wiped down with a damp cloth and rinsed and dried with a clean cloth or paper towel. Do not get water near or inside your DOSIS tower.
- **Internal:** Every six months, the cabinet doors should be opened and the bottom should be vacuumed and cleaned to remove any stray pills and other debris that may have fallen to the bottom. The computer fan(s) should also be blown out with compressed air to keep the computer from overheating. Any other debris or other incidental issues observed in the cabinet should be corrected at this time. Contact Manchac Customer Service if you have any questions.

Site Server

This section only applies to pharmacies with a site server - normally a multi-tower system. The site server may be on the top of a tower or may be installed in your server room.

At a minimum, the site server should have its fan(s) blown out with compressed air every six months to keep it from overheating. Depending on where the server is installed, additional cleaning, sweeping, or vacuuming around the server will be at the discretion of the customer. The biggest threat to computers and servers is the accumulation of dust inside the cabinet. As such, keeping the areas around the server dust free helps keep system downtime to a minimum.

The Canister



Canister Information and Check Procedures

Information

The DOSIS universal canister was designed and tested by Manchac engineers. They continually monitor their operation and introduce design and/or material improvements. These canisters have an approximate mean time between failure (MTBF) of 20,000 cycles and an expected lifecycle of five years or more. The canisters are not considered consumables but are considered warranted items of the DOSIS system. Considerable cost, in time, effort, and expense, is expended in repairing defective canisters and we request that you, as the user, help us to confirm the condition of your “suspect” canister(s). This guide was created to identify what information and checks our technicians need you to perform before a canister can be confirmed defective.

Initial Issue

Every tower ships with an initial inventory of 72 canisters, 60 for the machine and 12 extra canisters for spares or additional drugs. Customers can also purchase additional canisters to meet their pharmacy’s requirements. All canisters, including initial issue, additional purchased at install, or additional purchased separately, are considered warranted items and will be repaired by Manchac Technologies.

Using the canister adjustment tool

A canister adjustment tool (3/16" hex ball-end driver) is included with each tower(s) installation.

Access Door Control

Turn the screw counterclockwise until it stops.

Action: The access door should open smoothly. Once the door is fully open, the bulk ramp should rise up smoothly inside the canister and will be fully up at the screw stop. At this point, open the replenishment door in the back and push down on the bulk ramp with the canister tool. If it is hard to push down, the ramp is good. Turning the screw clockwise, the bulk ramp should move down and the access door should be fully closed at the screw stop.

Possible Defects:

- Screw doesn't spin easily
- Door has trouble opening or won't open fully
- Bulk ramp doesn't rise up to its full stop
- Little to no resistance when pushing down on the bulk ramp
- Bulk ramp does not return to starting position (fully down)
- Access door doesn't move or stays partially open

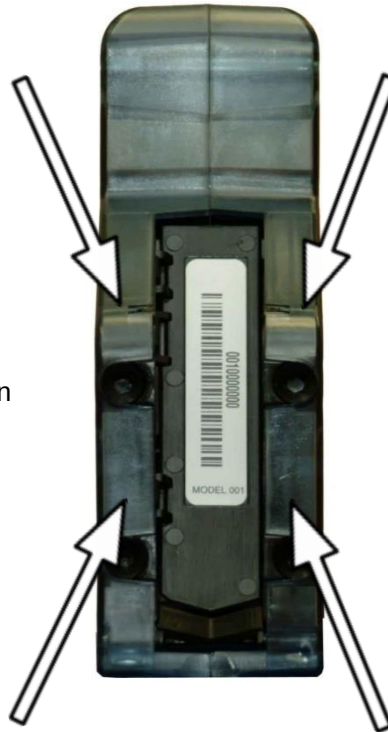
Flow Ramp Control

With the access door open (see Access Door Control above), turn the screw counter-clockwise until it stops.

Action: Looking in the canister, the back of the flow ramp should move up smoothly until the screw stops and the ramp is about 1/4" from the pill guard. Turn the screw clockwise and the back of the ramp should move back down to the canister bottom at the screw stop.

Possible Defects:

- Screw doesn't spin easily
- Flow ramp doesn't move, binds, is hard to move, or doesn't move smoothly
- Flow ramp doesn't rise up to its full stop
- Flow ramp doesn't return to the canister bottom at screw stop



Pill Guard Release Control

With the Access Door Open (see Access Door Control left), turn the screw counterclockwise until it stops.

Action: Looking in the canister, the bottom of the pill guard (plastic "fingers" at the back) should pull forward smoothly and should be about 1" out at screw stop. Turn the screw clockwise and the pill guard should return with the guard touching the back of the flow ramp block at screw stop.

Possible Defects:

- Screw doesn't spin easily
- Pill guard has trouble opening or doesn't open fully
- "Finger(s)" are broken on the guard
- Pill guard does not return to the starting position at screw stop

Flow Ramp Vibration Control

With the access door open (see Access Door Control above), turn the screw clockwise and counter-clockwise. There are no screw stops for this adjustment.

Action: Looking in the canister, the flow ramp should move forward and backwards about 1/8" when turning the screw in either direction. Move the back of the ramp up and then check that the flow ramp still moves forward and backwards.

Possible Defects:

- Screw doesn't spin easily
- Flow ramp doesn't move, binds, is hard to move, or doesn't move smoothly

