SIEMENS Healthineers

Atellica Solution

Troubleshooting Guide Atellica Immunoassay (IM) Analyzer

Cuvette Loader

Document Version

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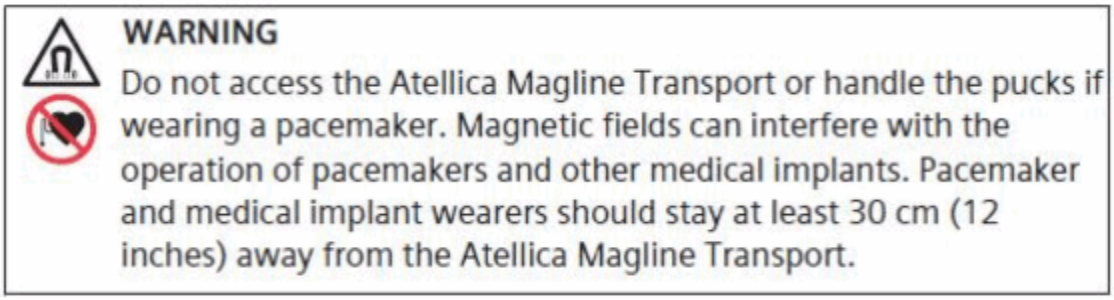
Fig. 1: Strong Magnetic Field / No Pacemakers Warning



Cuvette transport issues can occur in the incubation rings, the luminometer, and the cuvette pusher.

If a cuvette is not delivered to the cuvette pusher within the maximum allowable time, there is a 50 second timeout.The IM Analzyer will send an error, “Channel not receiving cuvettes.” This error can be due to several factors.

2.1 Possible Root Causes for the Cuvette Channel Not Receiving Cuvettes

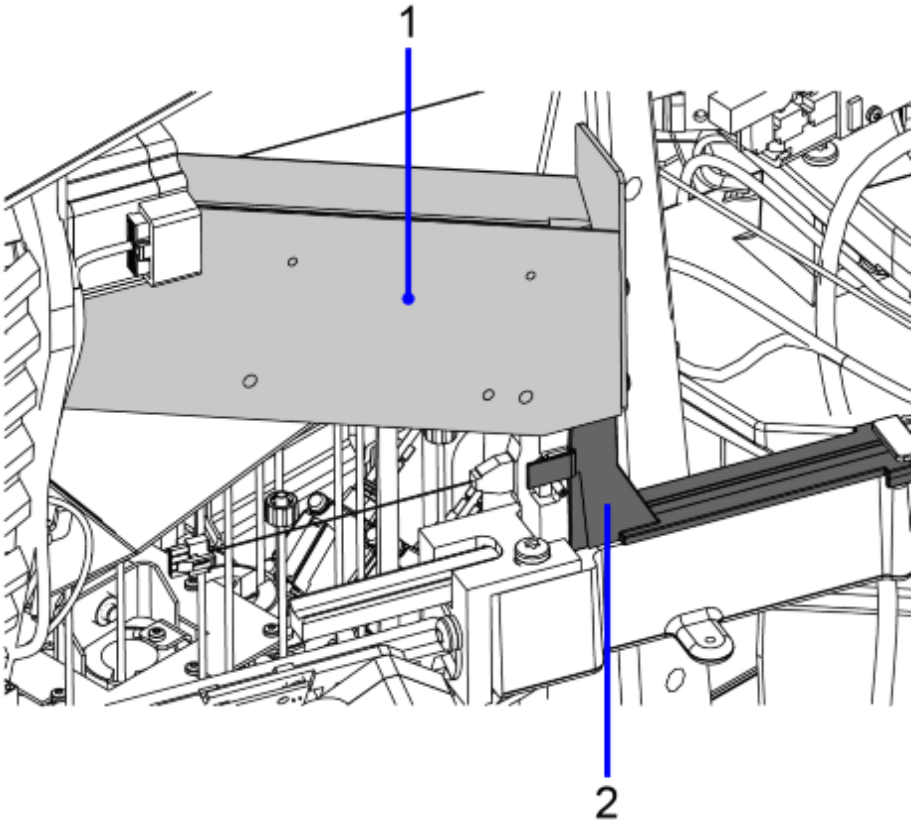
- Cuvette jams at various locations within the Cuvette Bin.
- Cuvette stuck in the Orientation Chute.
- Cuvette stuck in the Drop Chute.
- Incorrect chain tension on the Cuvette Belt.
- Screws loose in the Linear Guide mechanism for the Mixer Block.

3.1 Initial Steps

1. Look in the orientation chute as well as the drop chute to see if there are any cuvettes present.
2. Remove any cuvettes from these two areas.

   If cuvettes are present in either of these areas, a cuvette was stuck or was not detected by the cuvette presence sensor in the drop chute.

Fig. 2: Check the Orientation Chute and Drop Chute



(1) Orientation Chute
(2) Drop Chute

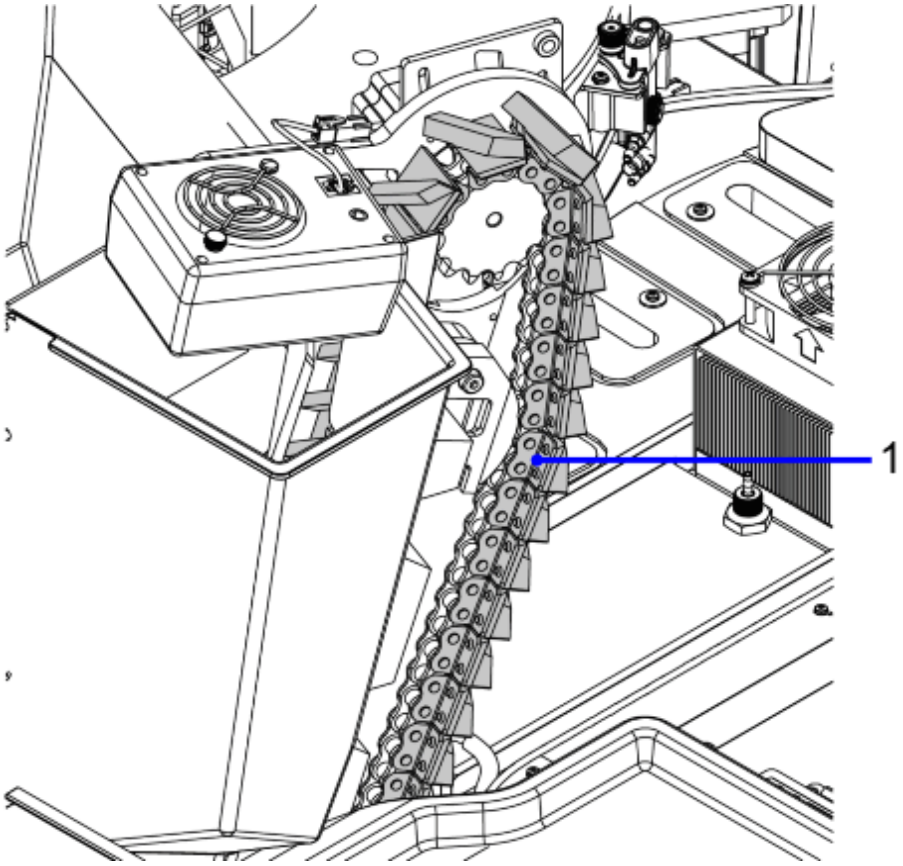
3.2 Cuvette Jams at Various Locations within the Cuvette Bin

3.2.1 Check the Cuvette Loader Chain Movement

1. Pull down on the cuvette loader chain behind the cuvette bin.
2. Ensure that the chain moves freely and smoothly for 360 degrees without binding, and that there are no visible kinks in the chain links.

When pulling down on the chain, ensure that no cuvettes fall over the top of the chain and into the IM analyzer.

Fig. 3: Pull Down on the Cuvette Loader Chain

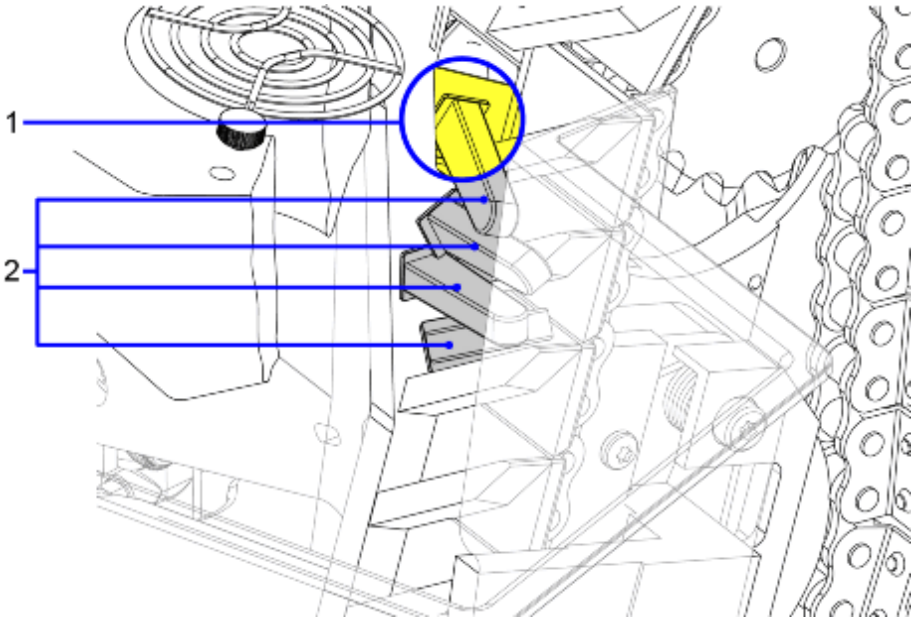


(1) Cuvette Loader Chain

3. If the chain is difficult to move by hand, check for a cuvette jam along the front face of the chain.
4. If there is no jam visible, empty the cuvette bin and check for jams at the mixer block in the bottom of the bin.

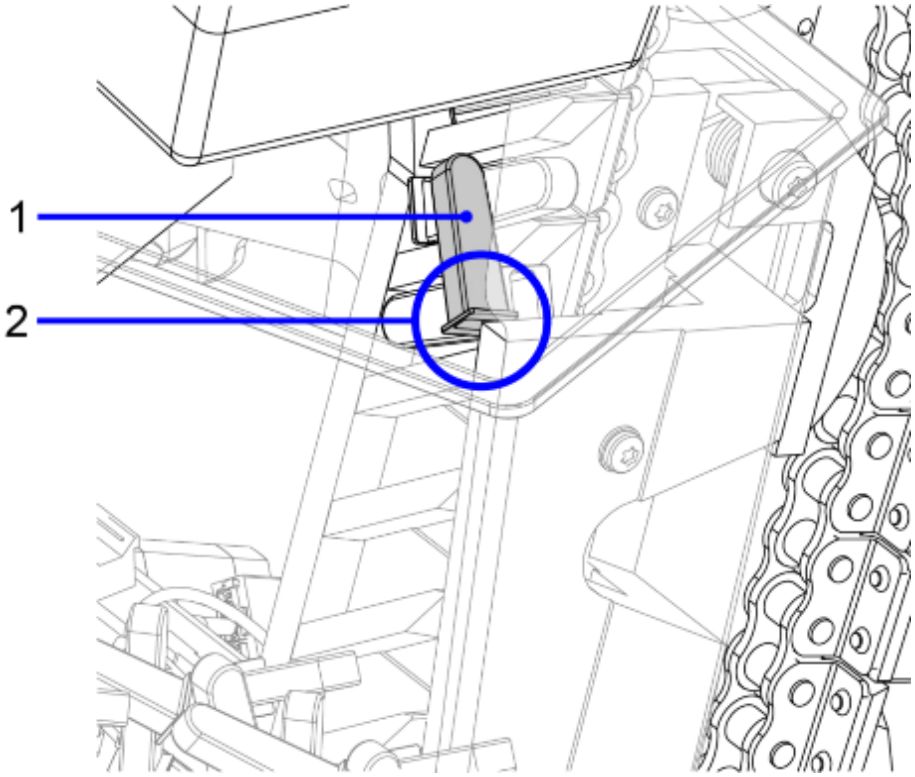
3.2.2 Potential Cuvette Jams in the Cuvette Bin

Fig. 4: Cuvette Jam Across the Bin Opening



(1) Cuvette in Bin Opening
(2) Jammed Cuvettes

Fig. 5: Cuvette Jam at the Bin Gap



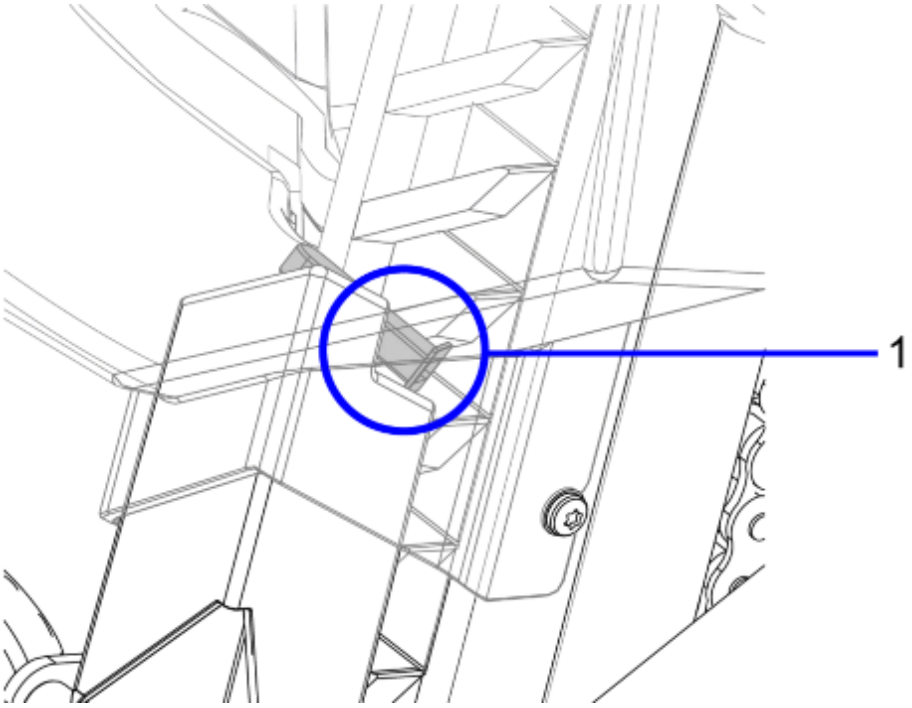
(1) Cuvette
(2) Jam at Bin Gap

3.2.2.1 Cuvette Jams at the Mixer Block

Cuvette jams at the mixer block can slightly damage the cuvettes. Look for burrs on the flange of the cuvettes.

These cuvettes may not be able to move properly through the system and may jam at the incubation rings and wash ring elevators, or somewhere else in the cuvette pathway.

Fig. 6: Cuvette Jam at the Mixer Block



(1) Jammed Cuvette

3.3 Cuvette Stuck in the Orientation Chute

A cuvette can become stuck at the bottom of the slide of the orientation chute and cause cuvettes to back up in the chute. This will be visible from the front of the analyzer.

Refer to Initial Steps, (➔ Initial Steps / Page 7).

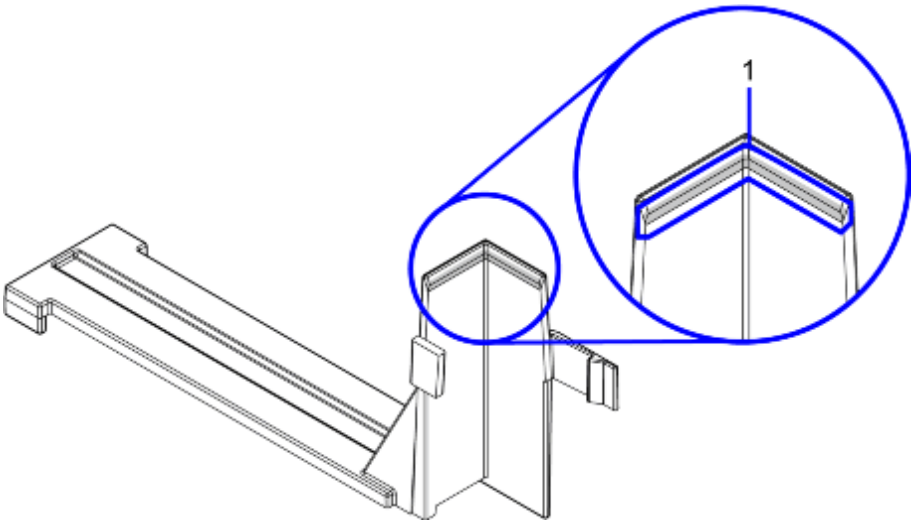
3.4 Cuvette Stuck in the Drop Chute

When a cuvette drops from the Orientation Chute into the Drop Chute, there is a chance that it could get caught on a parting seam on the inside of the plastic cover near the bottom of the Drop Chute and get stuck there.

The stuck cuvette would be visible from the rear of the analyzer near the bottom of the Drop Chute.

This issue is being addressed with a design change to move the parting seam further down on the plastic cover.

Fig. 7: Plastic Cover



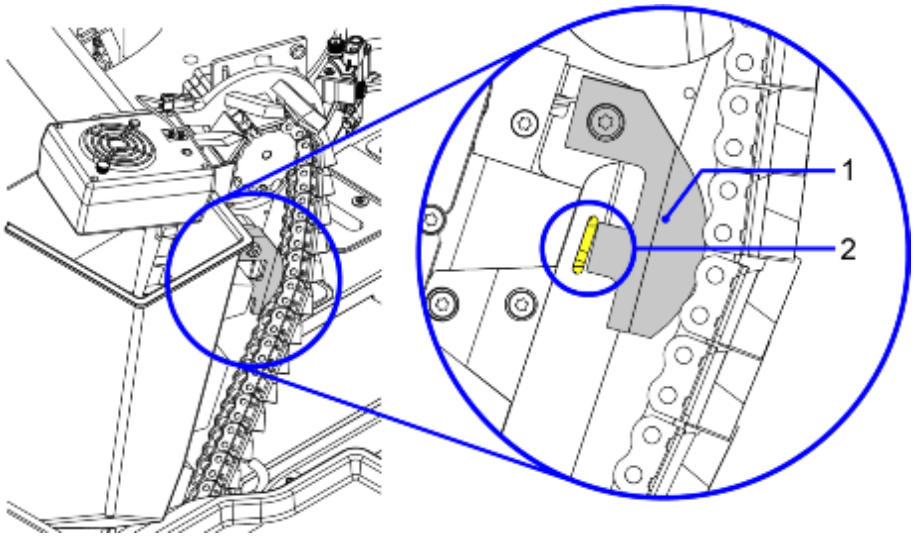
(1) Parting Seam

3.5 Incorrect Chain Tension on the Cuvette Belt

1. Evaluate the tension on the chain.
2. If necessary, adjust the tension.

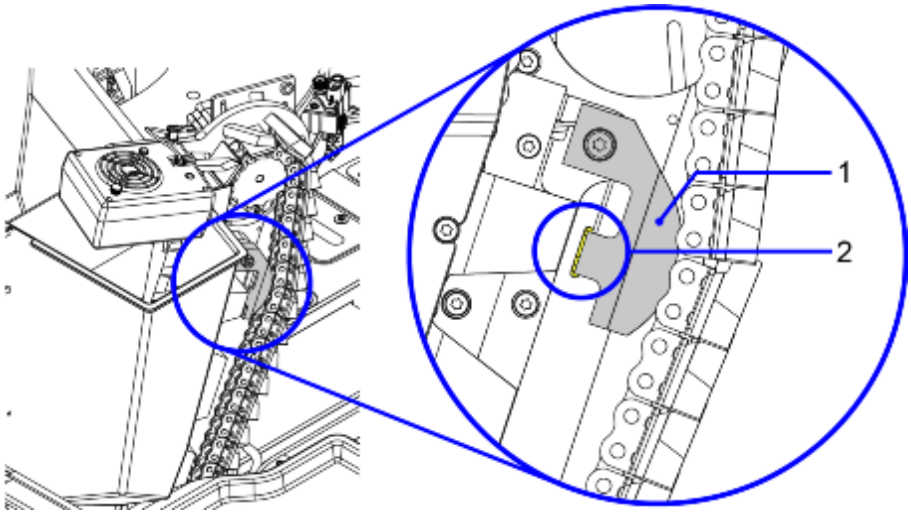
   The back edge on the chain idler should be parallel to the oval slot. In the following example, the chain is too loose and should be tightened.

Fig. 8: Chain is Loose and Needs to Be Tightened



The following example shows the correct chain tension, with the back edge of the chain idler parallel to the oval slot.

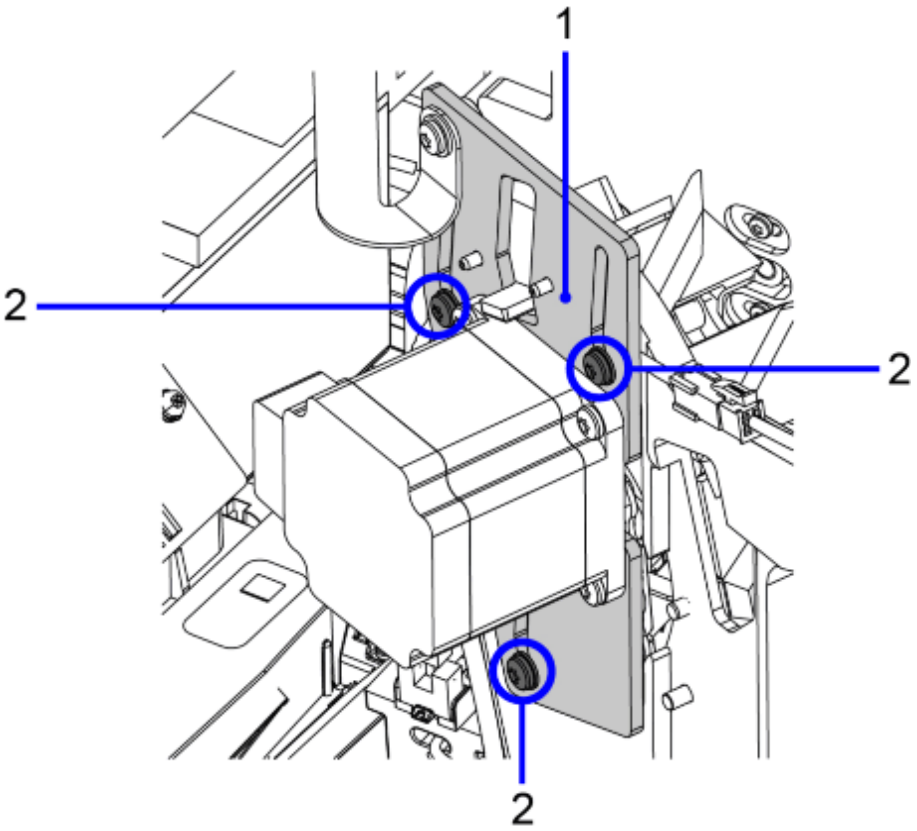
Fig. 9: Correct Chain Tension



3.5.1 Adjust the Chain Tension by Adjusting the Motor Up or Down

1. Loosen 4 screws to move the motor.

Fig. 10: Loosen Motor Screws



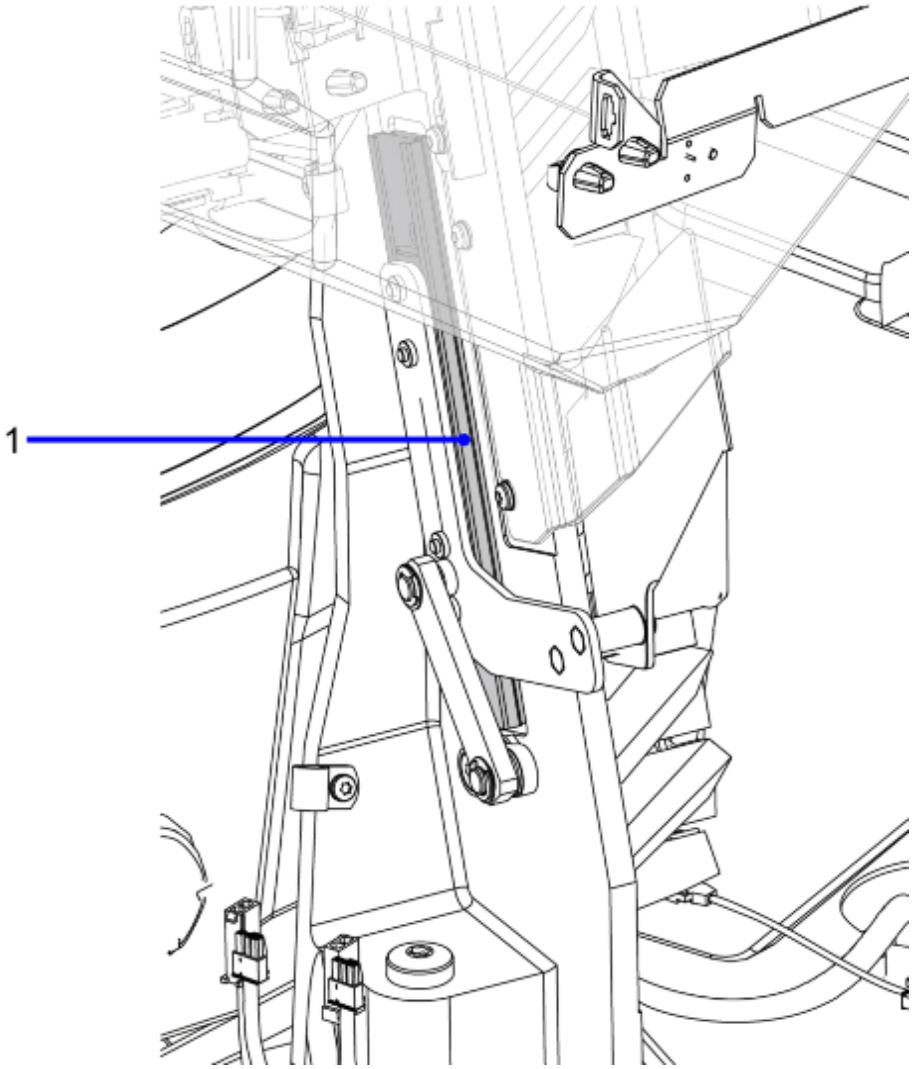
(1) Adjustable Plate
(2) Screws

2. Move the motor up to add tension on the chain or move the motor down to reduce tension on the chain. The back edge of the chain idler should be parallel to the oval slot.
3. Recheck the chain movement. Ensure that the chain moves freely for 360 degrees.

3.6 Screws Loose in the Linear Guide Mechanism for the Mixer Block

If no cuvette jams are found and the chain is still unable to move by hand, check the Cuvette Bin Linear Guide Mechanism, as shown in the following example. A loose screw in the mechanism can cause the linkage to lock up.

Fig. 11: Check the Cuvette Bin Linear Guide Mechanism



(1) Linear Guide

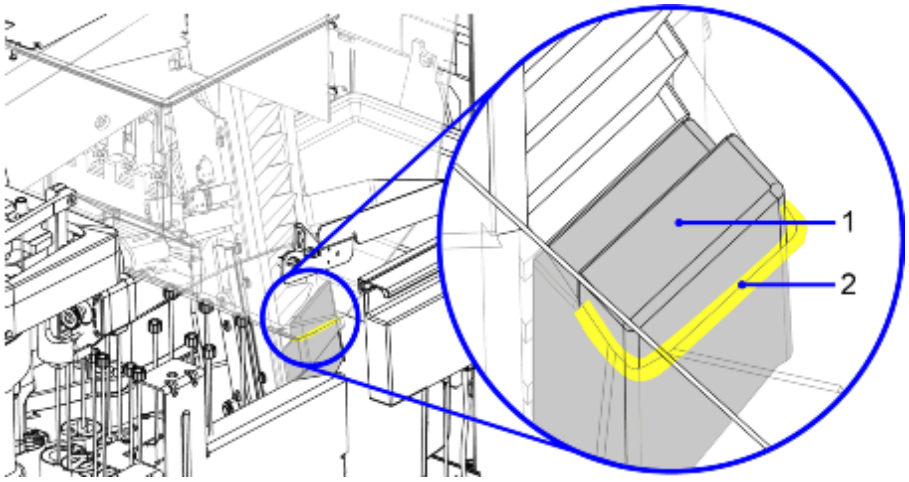
3.7 Mixer Block Rubbing the Edge of the Cuvette Bin

3.7.1 Check the Cuvette Bin Installation

Ensure that the cuvette bin is installed properly and that the mixer block is not excessively rubbing the edge of the plastic bin, which sometimes causes visible scratches on the block.

There will be some rubbing between the Mixer Block and the plastic bin. However, ensure that there is not excessive friction between the Mixer Block and the Cuvette Bin.

Fig. 12: Check for Friction Between the Mixer Block and the Cuvette Bin



(1) Cuvette Mixer Block
(2) Cuvette Bin

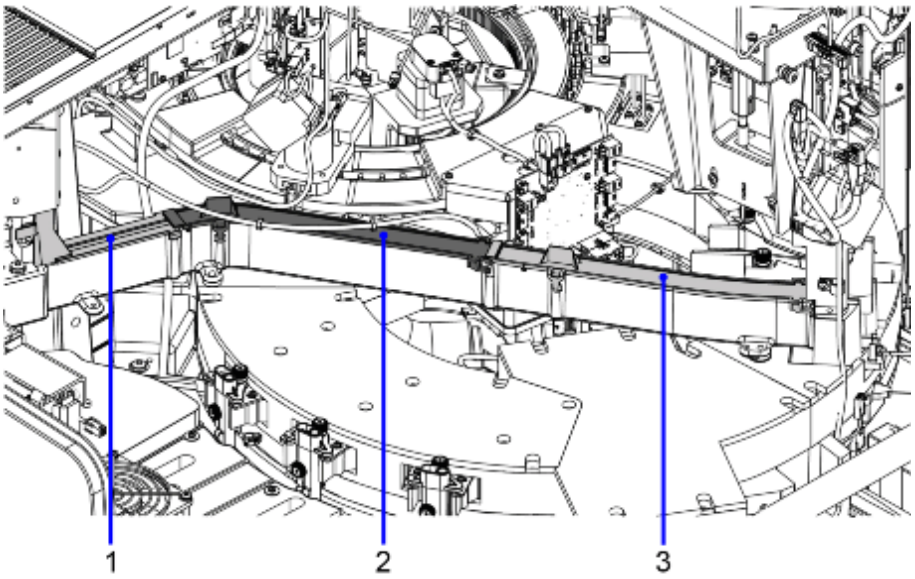
3.7.2 Adjust the Cuvette Bin

1. On the outside of the bin, loosen the 4 screws on the left side and the 3 screws on the right side.
2. Move the bin to the left or to the right so it is not touching the mixer block.
3. Tighten the screws.
4. Pull down on the chain to rotate it 360 degrees and confirm that the mixer block is moving up and down smoothly and is not excessively rubbing the edge of the bin.

3.7.3 Cuvette Channel Covers

Ensure that the cuvette channel covers are properly installed so that cuvettes do not push up when moving through the channel and potentially cause a jam.

Fig. 13: Cuvette Channel Covers Properly Installed



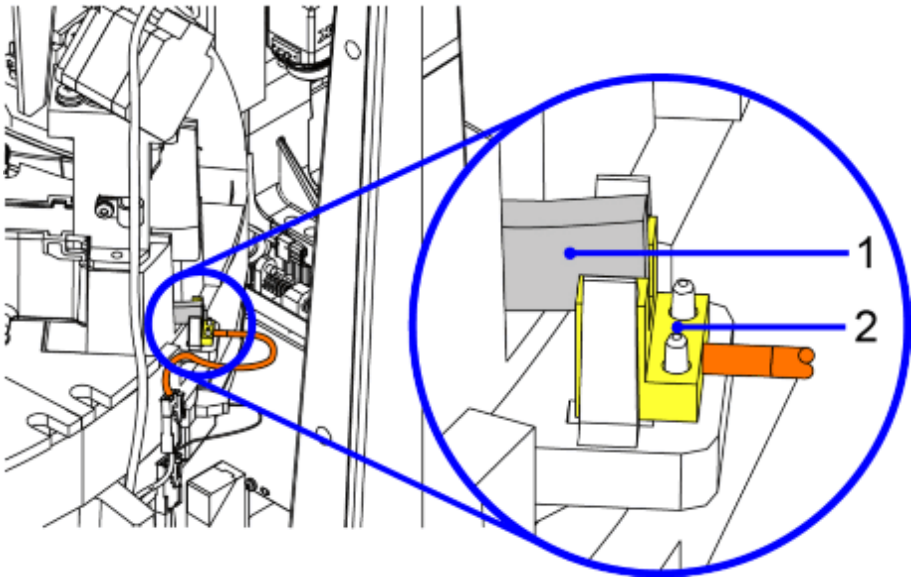
(1) Cover Section 1
(2) Cover Section 2
(3) Cover Section 3

3.7.4 Cuvette Jam at Ring Loader

The door on the ring loader should be positioned with the flag in the sensor at the rear of the loader during normal operation. When the cuvette pusher is operating properly, the cuvettes in the channel push against the ring loader door, and the flag will be in the sensor. The door extends fully out only when a cuvette is being loaded.

If the door is found fully extended, it is likely that a cuvette did not get fully loaded into the incubation ring. Look for a jammed cuvette in the loader and remove it. See the following example.

Fig. 14: Jammed Cuvette in the Ring Loader



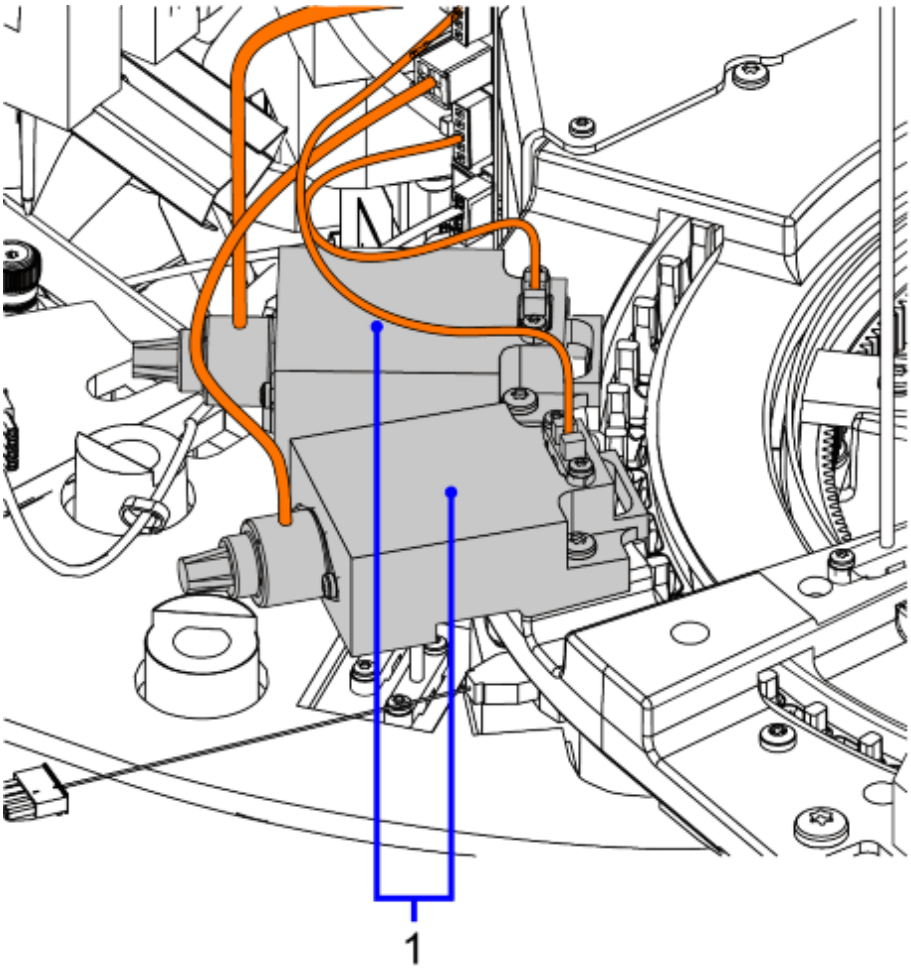
(1) Ring Loader Flag
(2) Ring Loader Sensor

3.7.5 Incubation Rings to Wash Ring Elevators Latch

Ensure that the latch is closed during normal operation (flush with the wash ring casting wall as shown in the following example).

When a cuvette is delivered to the wash ring, the latch opens (retracts toward the outer part of the wash ring), the elevator lifts the cuvette, the latch closes (to hold the cuvette), and the elevator moves down. Then the wash ring rotates counterclockwise.

Fig. 15: Wash Ring Elevator Latches Retracted



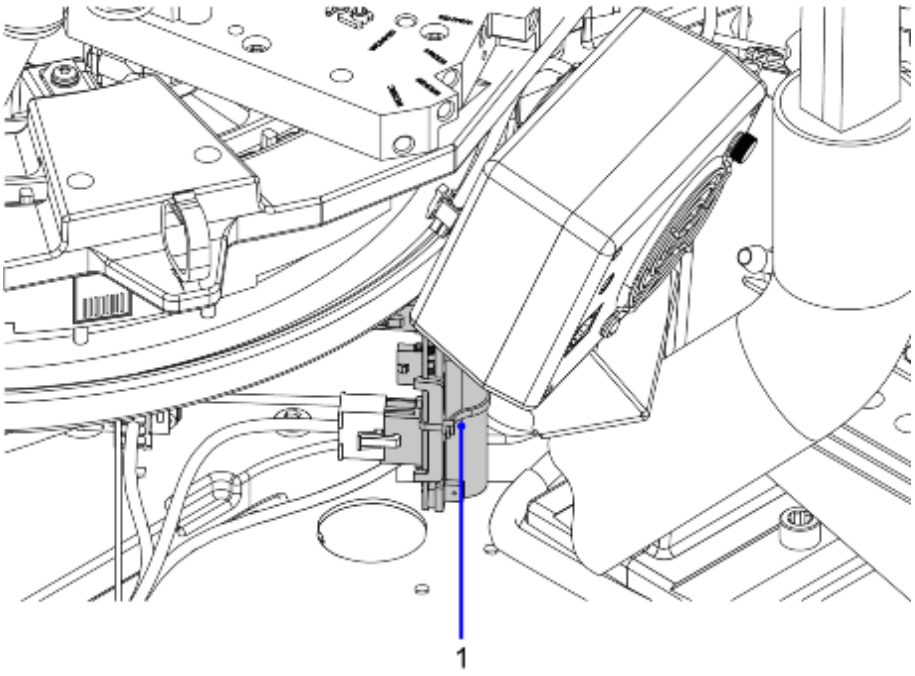
(1) Wash Ring Latches

3.7.6 Corrosion on the Wash Ring Elevator Board

For issues with the wash ring to luminometer elevator, check the elevator board for signs of any corrosion due to base leaking from the luminometer.

If corrosion is found, also check for signs of base leaking in the luminometer, correct any issues, and clean the inside of the luminometer if necessary.

Fig. 16: Wash Ring Elevator



(1) Wash Ring Elevator

3.7.7 Luminometer Jam due to Cuvette Waste Issue or Spillage

If there is a jam in the luminometer, ensure that the cuvettes are dropping into the cuvette waste chute, and that the chute is installed properly, and not backed up or clogged with cuvettes. Ensure that the solid waste bin is not full, and that it is installed properly.

Check for signs of base leaking in the luminometer, correct any issues, and clean the inside of the luminometer, if necessary.

4.1 Version 01

Initial release to CB-DOC.

5 List of Hazard IDs

There are no Hazard IDs in this document.

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