Maintenance: Lubrication

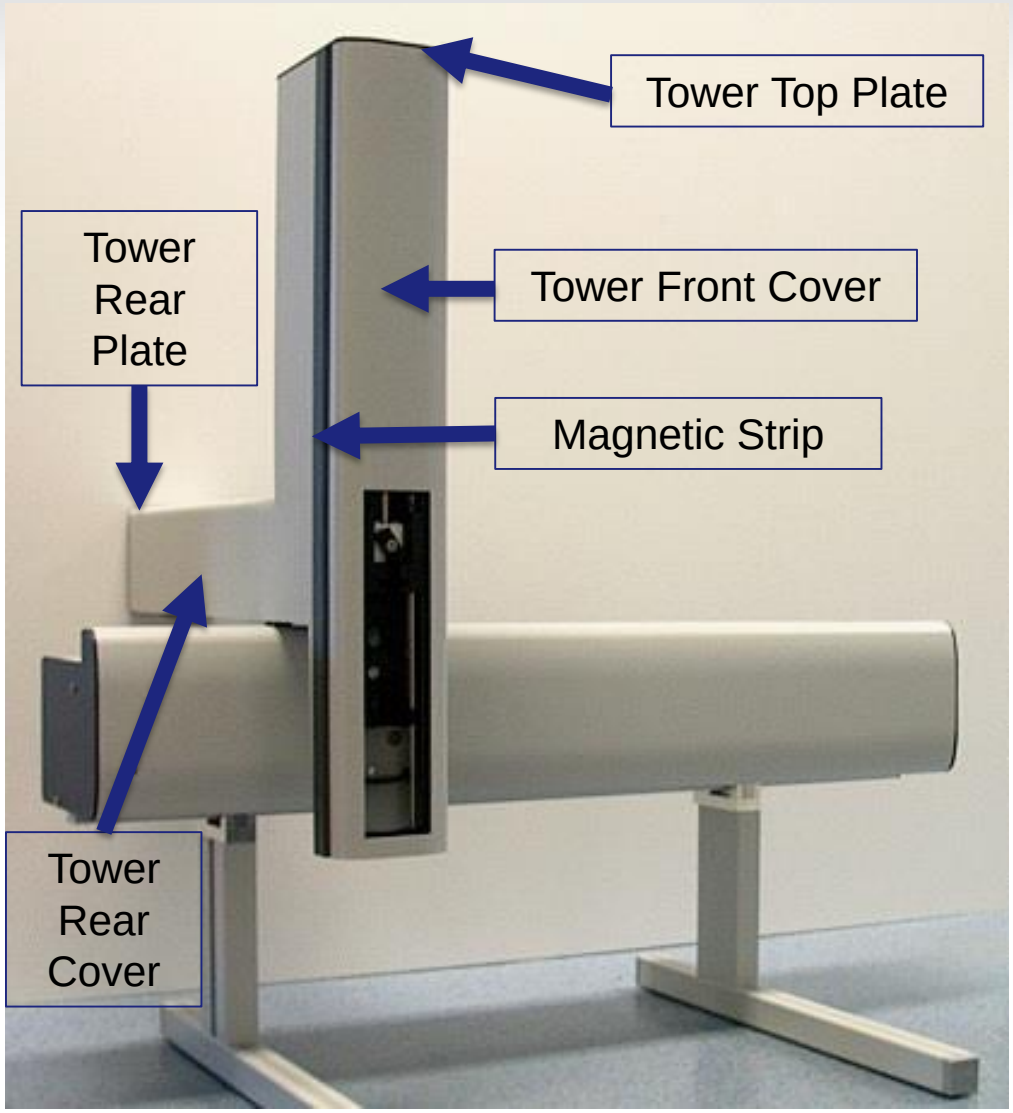
- Picarro recommends the following be lubricated at least once a year (depending on the use of the instrument):
  - X-rail and Y-rail guide (Molykote DX paste)
  - Needle guide/vial detection (Krytox)
  - Needle support (Krytox)
  - U-axis guide (Krytox)
  - Z-axis guide, bearing, and home position magnetic lock (Krytox)
- To access, the tower and x-beam covers must be removed.
  - Refer to repair section.
- Refer to Maintenance section for complete instructions on lubrication.

Repair: Remove Tower Cover (1 of 4)

- The tower must be disassembled tower in the following order:
  1. Magnetic strip
  2. Tower top plate
  3. Tower rear plate
  4. Tower rear cover
  5. Tower front cover
- Tools required:
  - Wrist grounding strap
  - Hex 2 mm
  - Screw driver slotted 4 mm/0.6 mm

IMPORTANT SAFETY STEPS

- **Line power must be unplugged**
- **Static wrist-strap needs to be worn for grounding yourself to protect the instrument electronics**
- **Avoid touching and damaging surrounding equipment**



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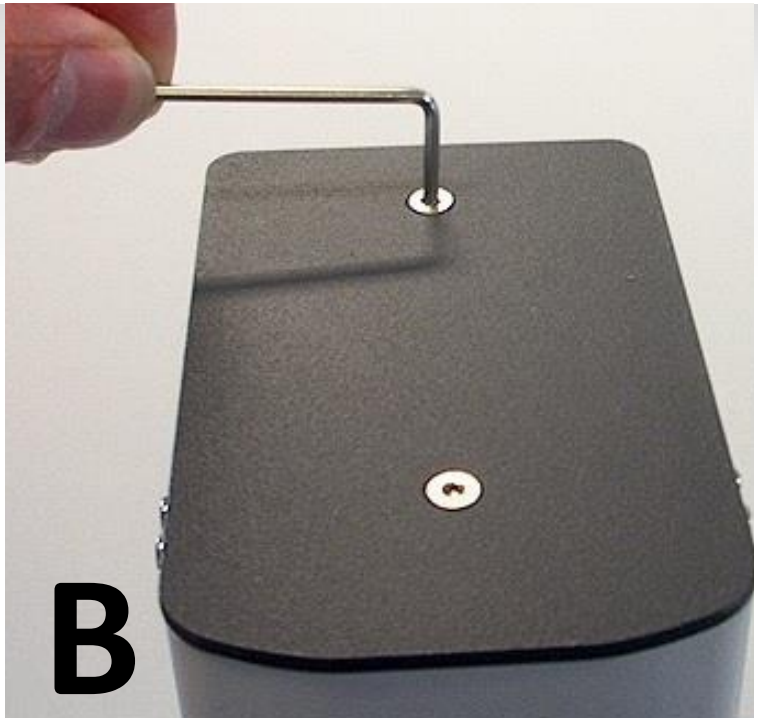
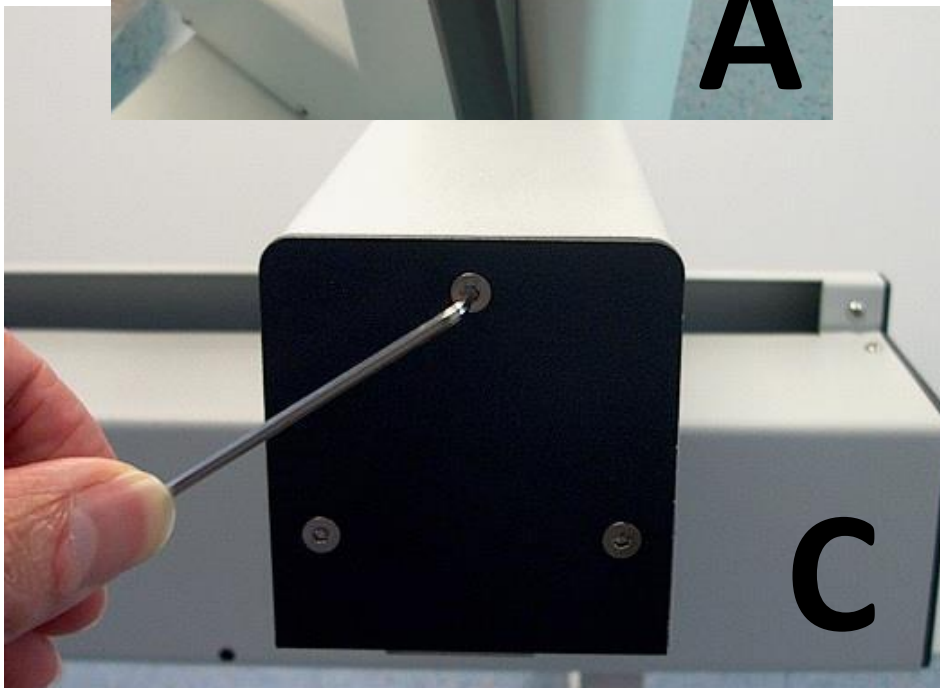
Repair: Remove Tower Cover (2 of 4)





1. Remove magnetic strip as seen in above figure A.
2. Remove screws, as seen figure B, to remove tower top plate.
3. Remove the tower rear plate by remove 3 screws as seen in figure C.

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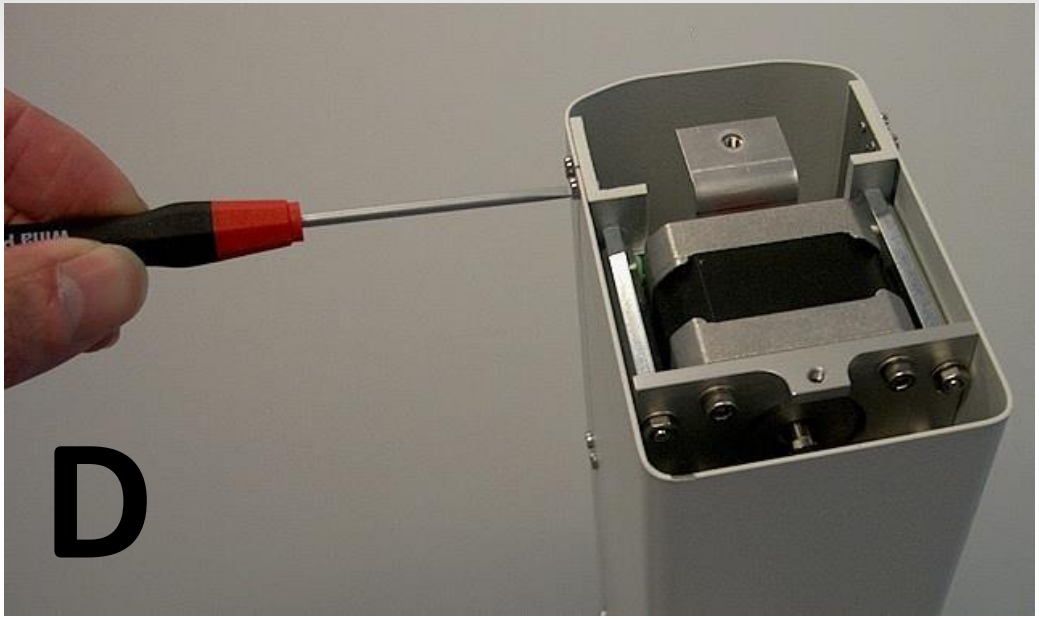
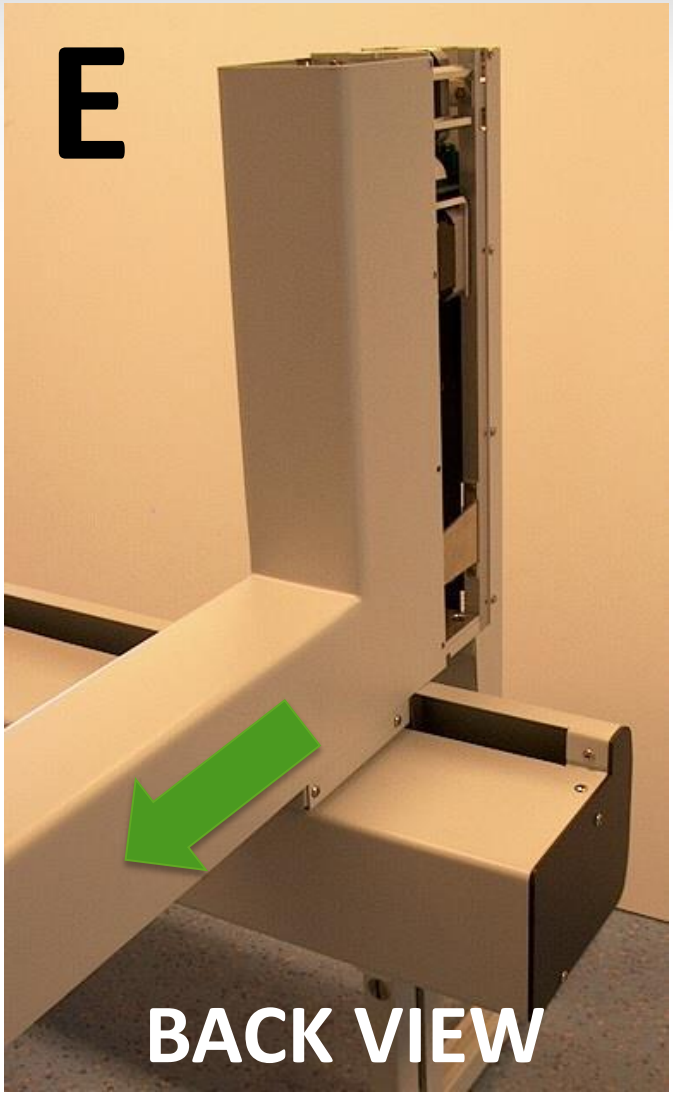
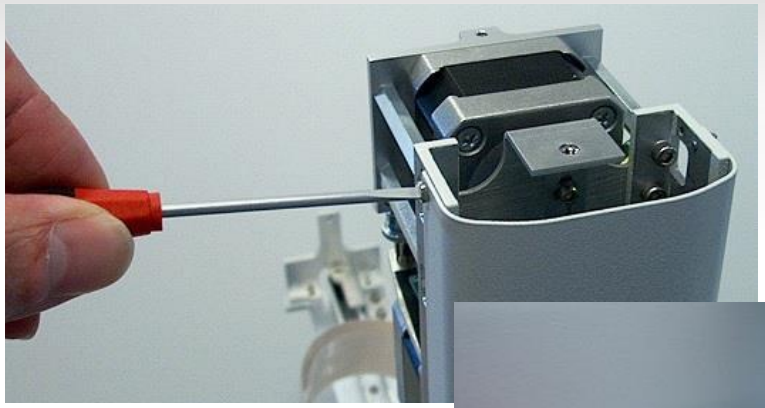
Repair: Remove Tower Cover (3 of 4)



4. Remove the tower rear cover by removing 8 screws total (4 on the left and 4 on the right) as seen in figure D and E.
5. Gently slide the tower rear cover toward the back of the machine.



Repair: Remove Tower Cover (4 of 4)



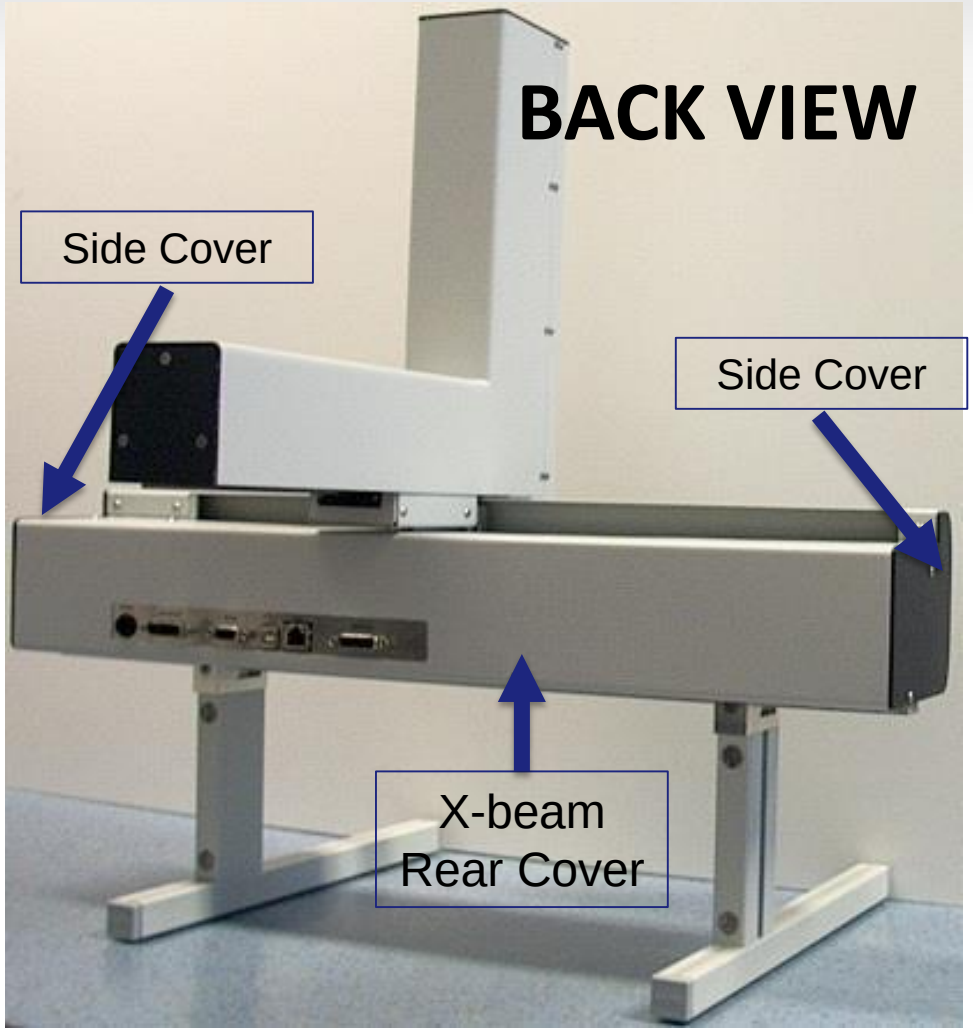
5. Remove 10 screws total (5 on the left and 5 on the right) from the sides of the tower. Carefully remove front cover.
6. To reassemble, follow directions in reverse order.

Repair: Remove X-Beam Rear Cover (1 of 6)

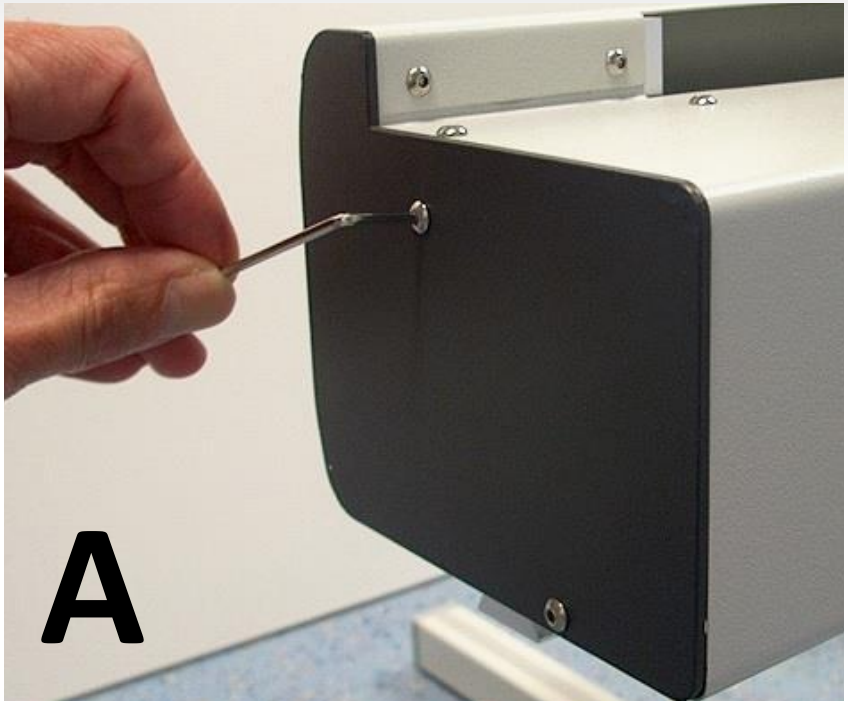
- The tower must be disassembled in the following order:
  1. Side covers
  2. X-beam rear cover
- Tools required:
  - Wrist grounding strap
  - Hex 2 mm
  - Screw driver slotted 4 mm / 0.6 mm

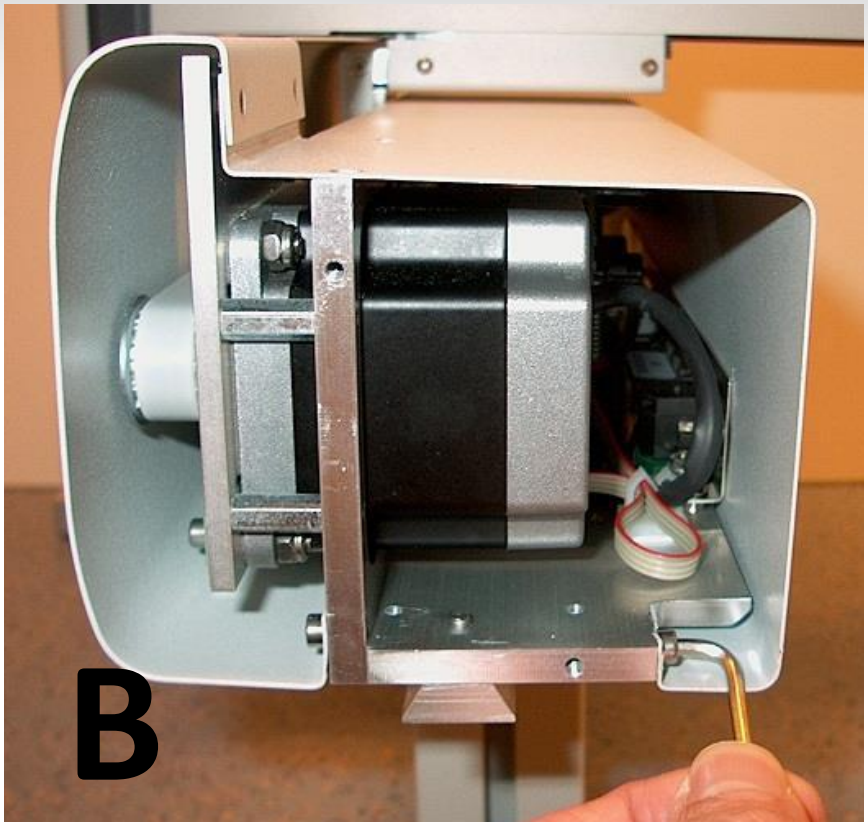
IMPORTANT SAFETY STEPS

- **Line power must be unplugged**
- **Static wrist-strap needs to be worn for grounding yourself to protect the instrument electronics**
- **Avoid touching and damaging surrounding equipment**



Repair: Remove X-Beam Rear Cover (2 of 6)

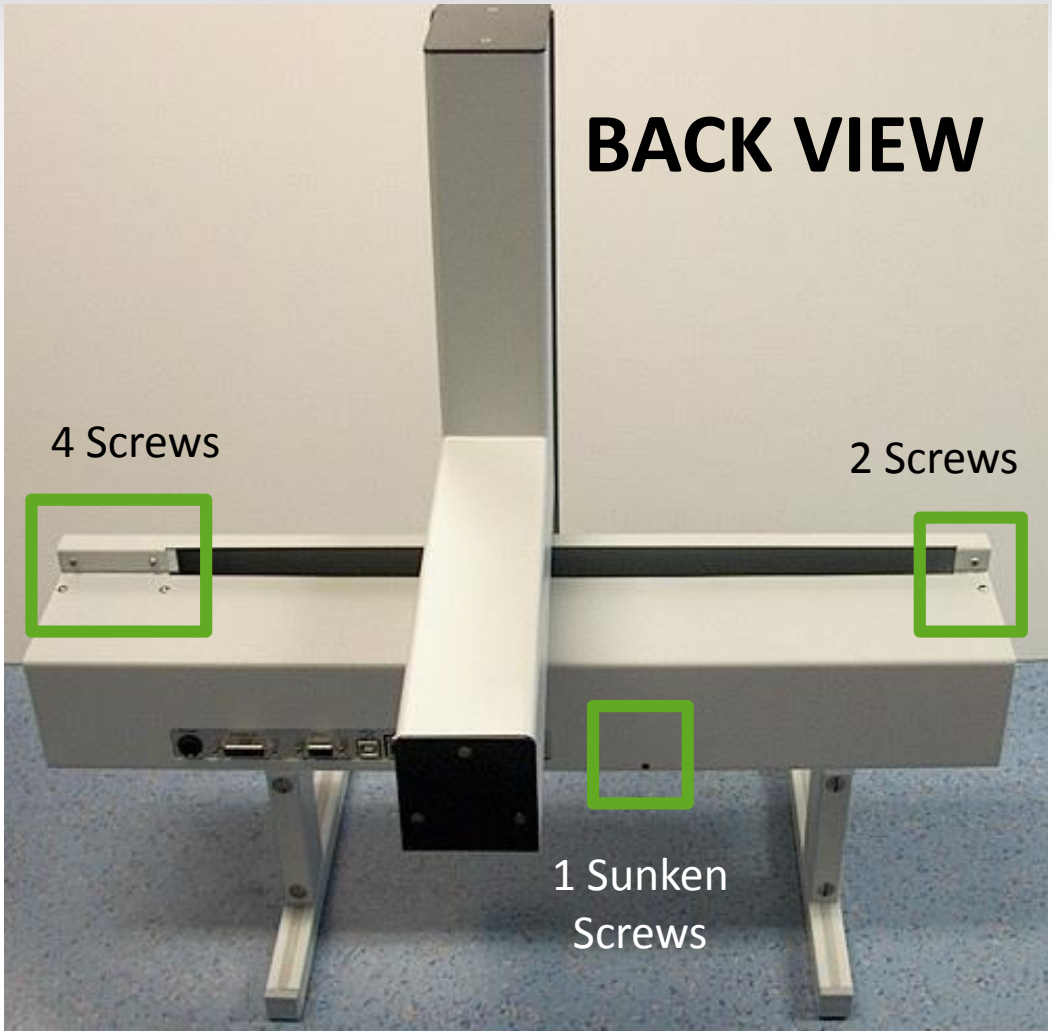




1. Remove the side covers on the left and right side by removing 2 screws on each side (Figure A)
2. Loosen 2 screws on each side. Do not remove these screws! (Figure B)

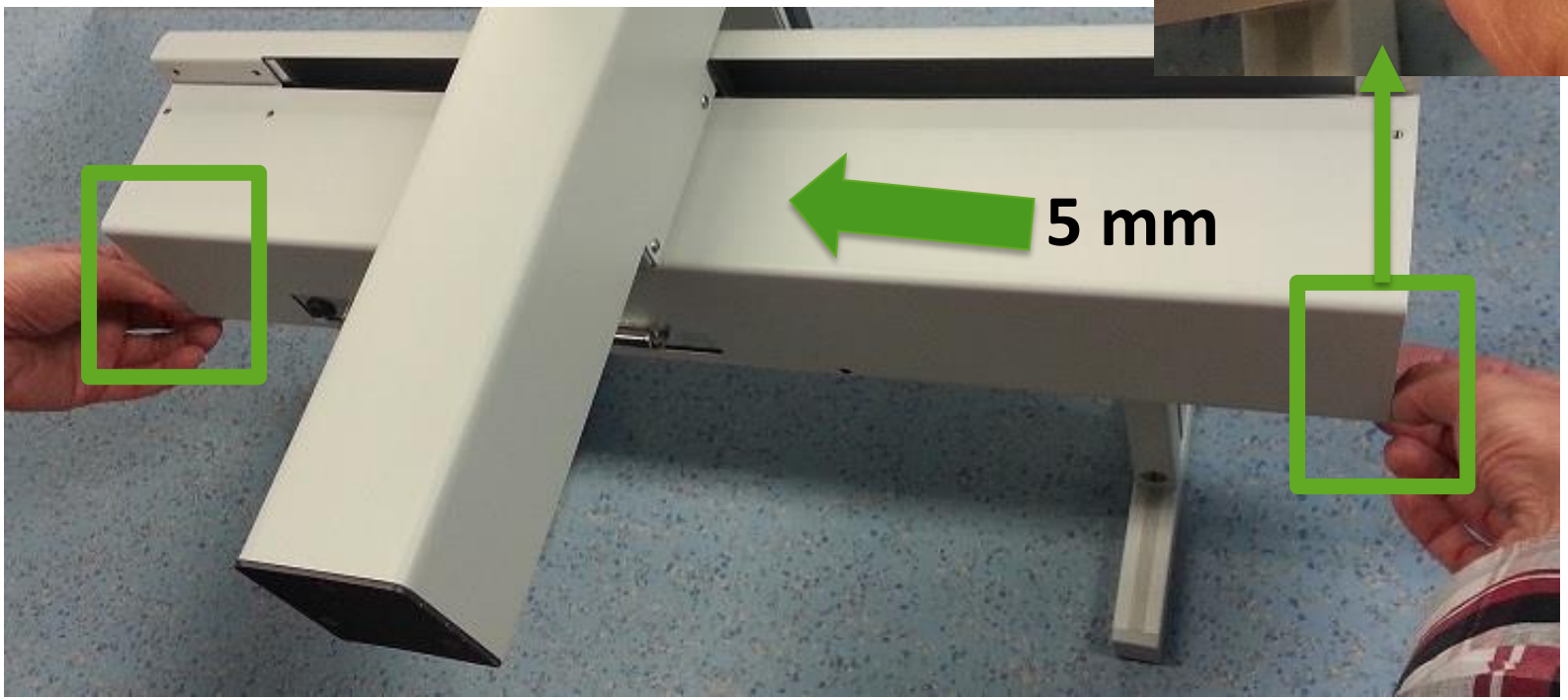
Repair: Remove X-Beam Rear Cover (3 of 6)

3. Remove 6 screws on the top of the X-beam rear cover, as seen in image. Loosen, do not remove, 1 (sunken) screw in the middle of X-beam.

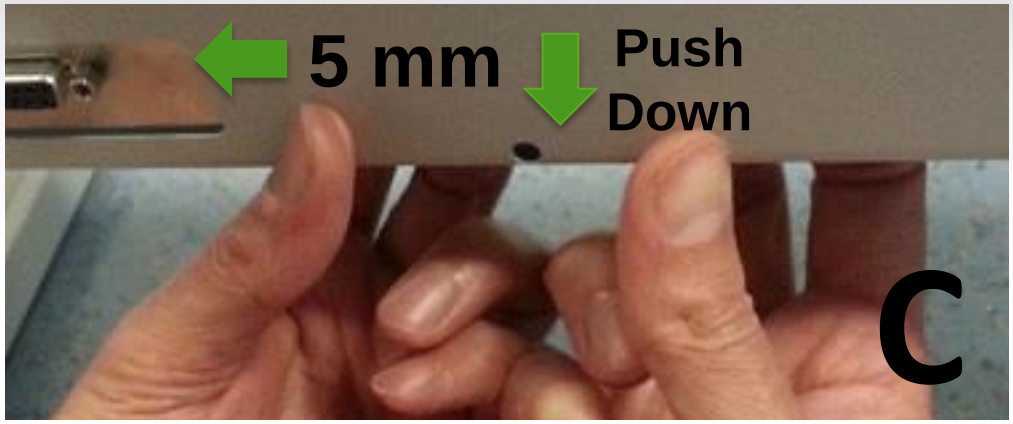


Repair: Remove X-Beam Rear Cover (4 of 6)

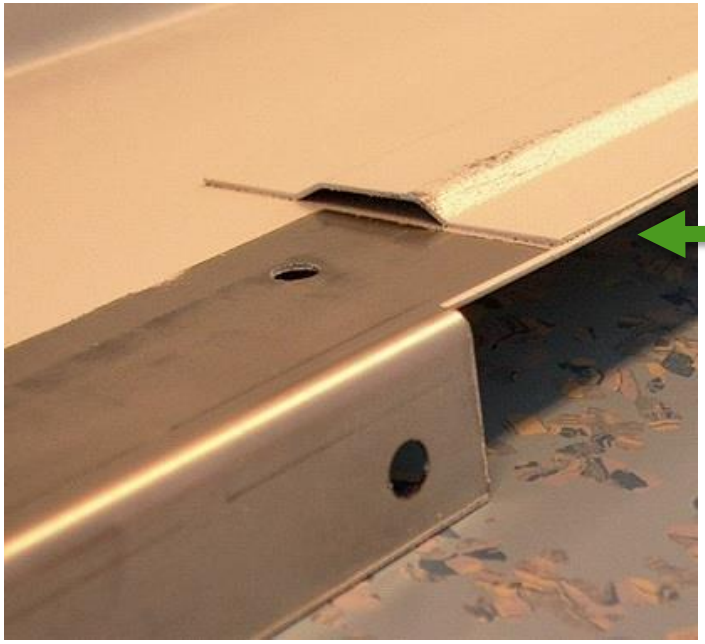
4. Free recesses on both sides by lowering the cover. Once free, move cover 5mm to the left

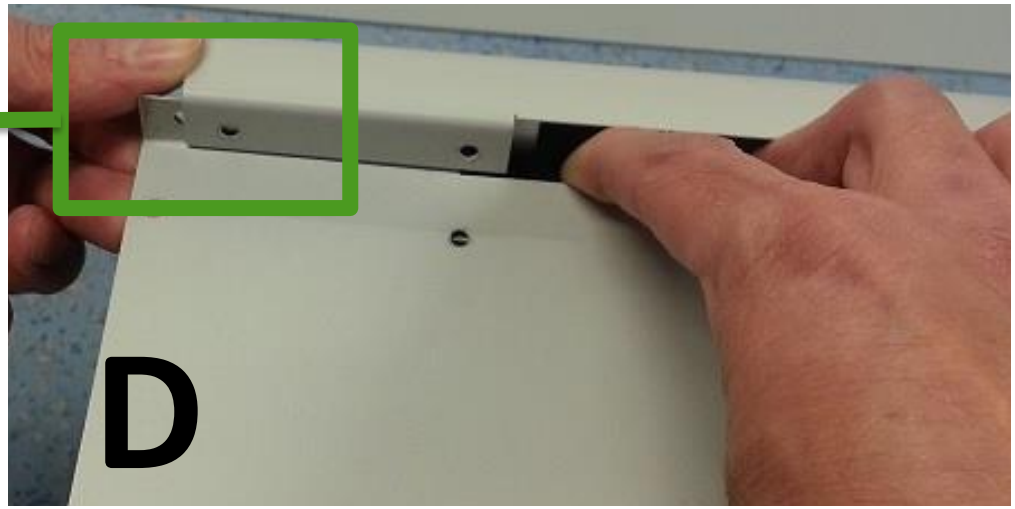


Repair: Remove X-Beam Rear Cover (5 of 6)

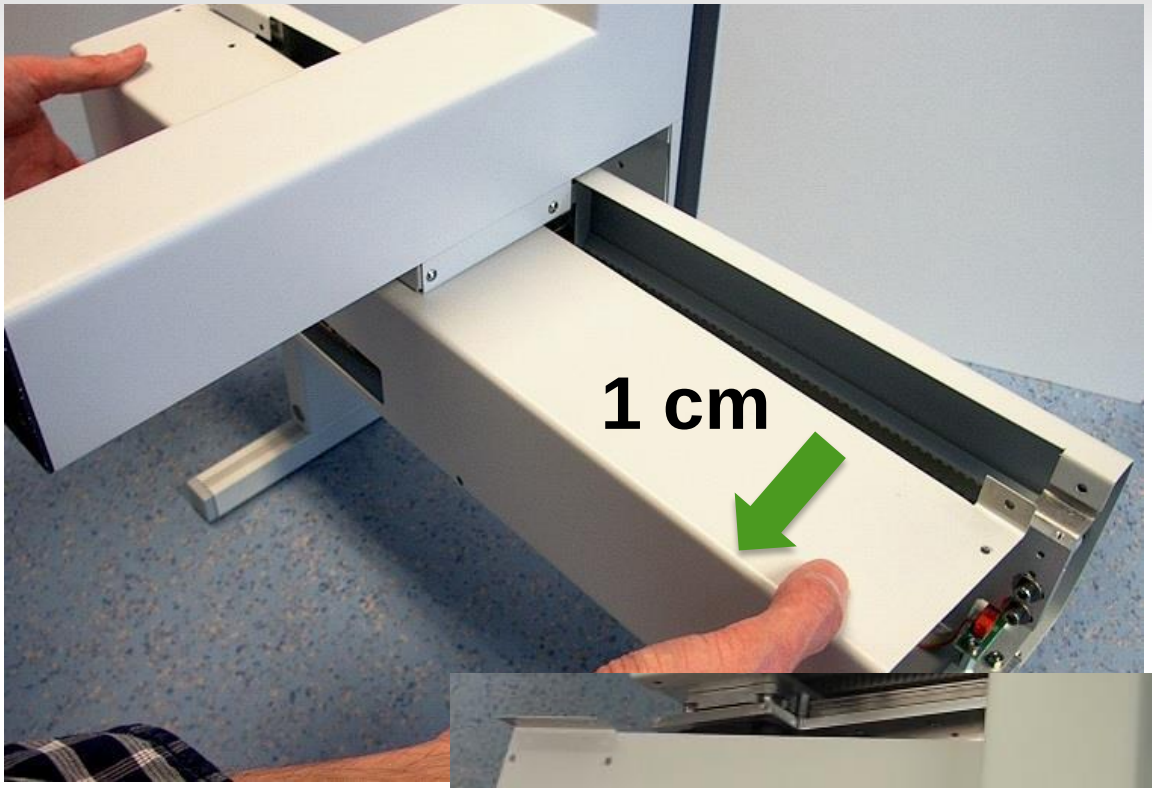


5. Pull down cover near sunken screw and move it 5 mm to the left. (Figure C)
6. Under the cover on the left side of the X-beam, there is a reinforcement strip. This strip needs to be lifted up (over metal frame) before the cover can be moved to the left. (Figure D)





Repair: Remove X-Beam Rear Cover (6 of 6)



7. Move the right side of the X-beam cover back ~ 1 cm. Then move entire cover to the left, which will release the cover from the autosampler.
8. Follow directions in reverse order to reassemble.

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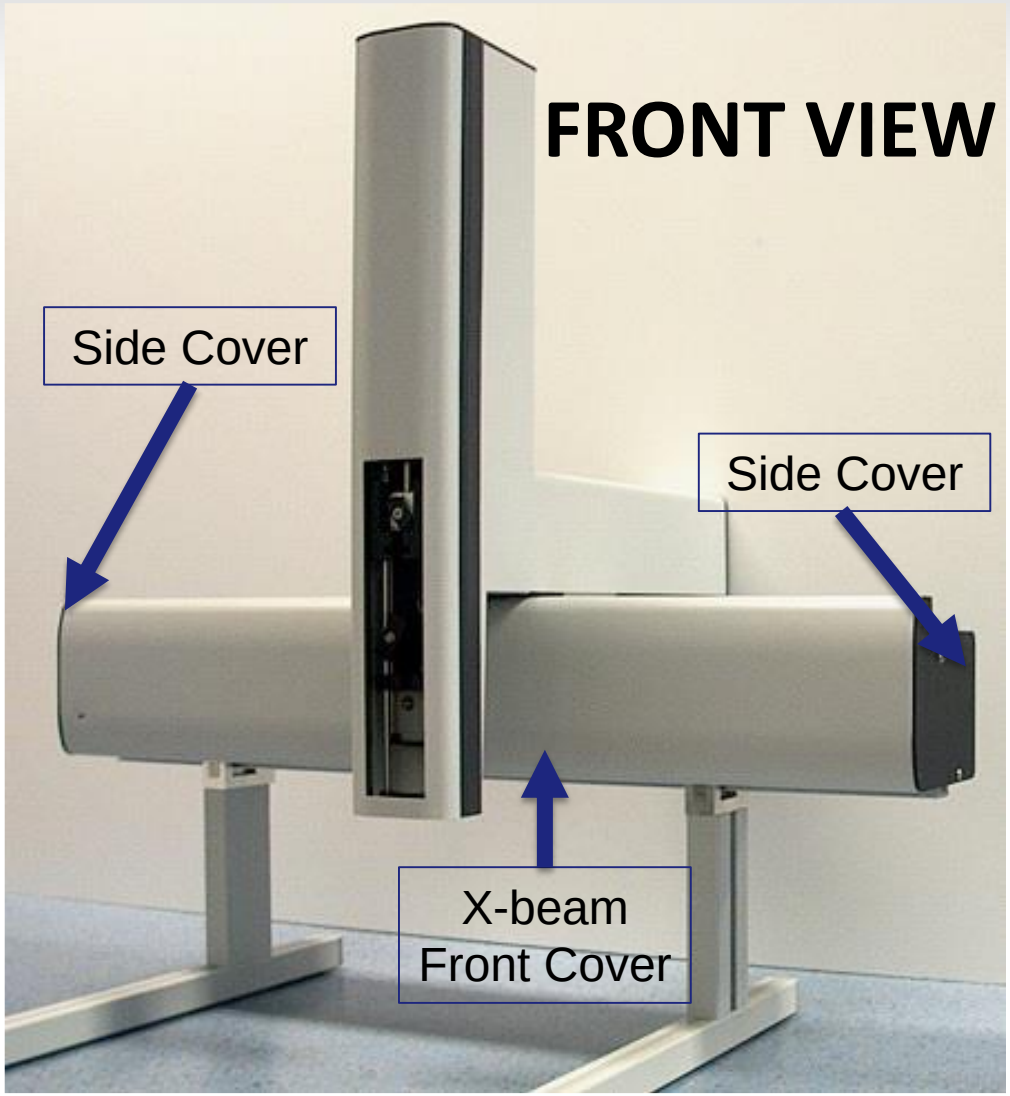
Repair: Remove X-Beam Front Cover (1 of 3)

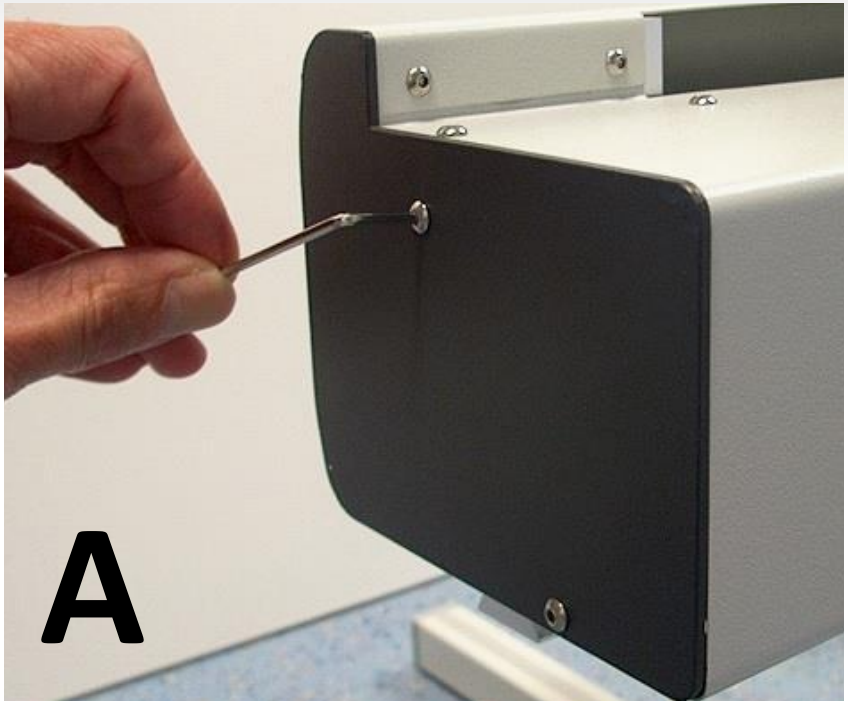
- The tower must be disassembled in the following order:
  1. Side covers
  2. X-beam front cover
- Tools required:
  - Wrist grounding strap
  - Hex 2 mm
  - Screw driver slotted 4 mm / 0.6 mm

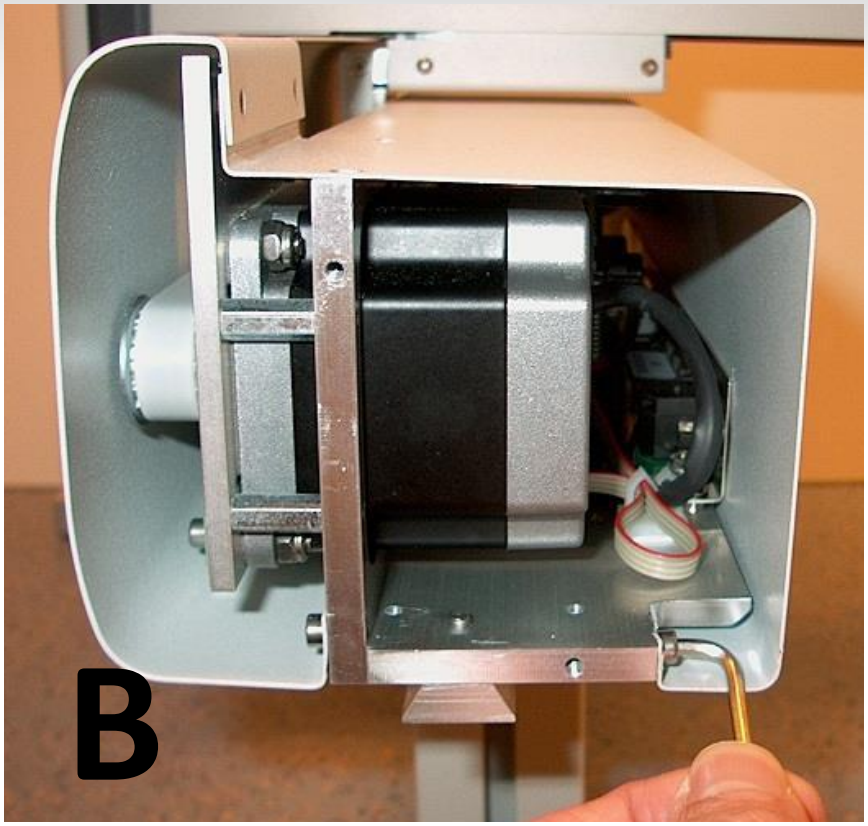
IMPORTANT SAFETY STEPS

- **Line power must be unplugged**
- **Static wrist-strap needs to be worn for grounding yourself to protect the instrument electronics**
- **Avoid touching and damaging surrounding equipment**



Repair: Remove X-Beam Front Cover (2 of 3)

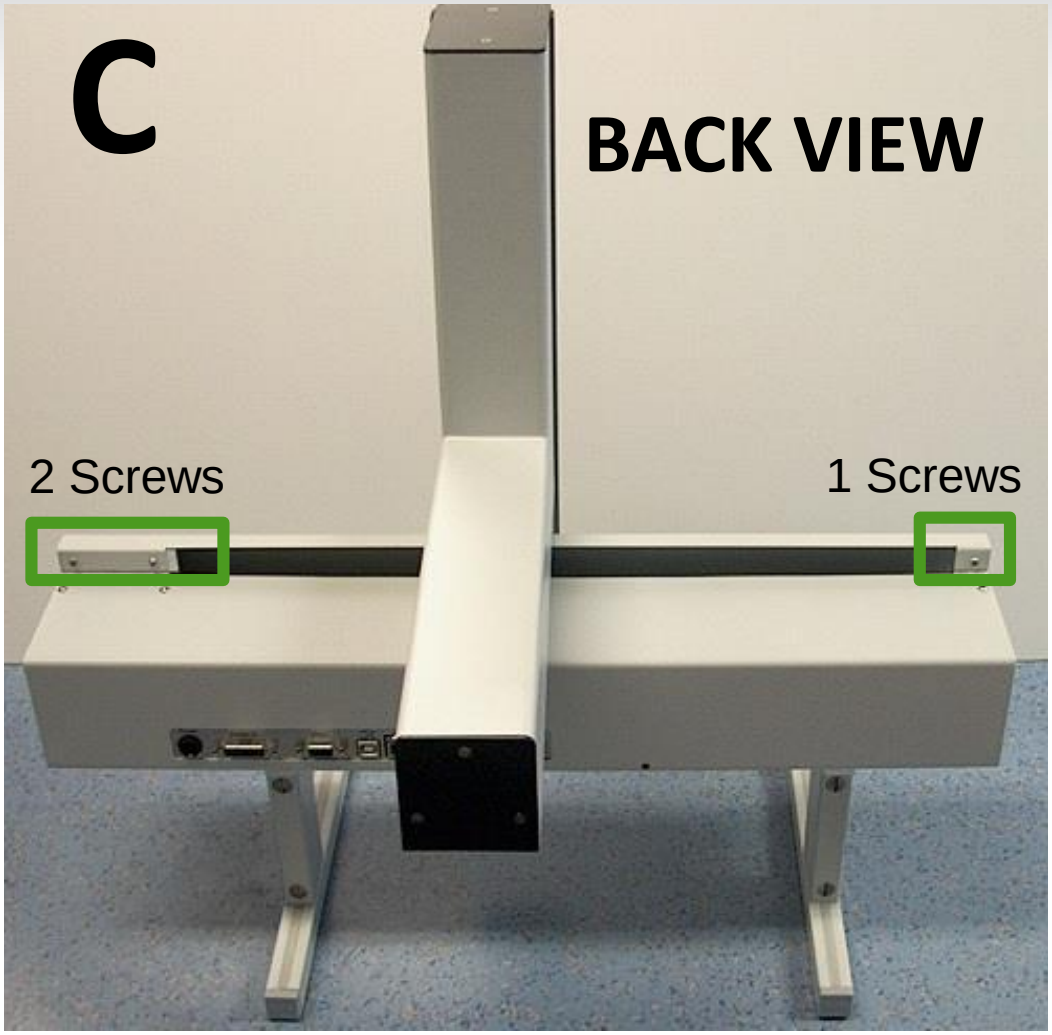




1. Remove the side covers on the left and right side by removing 2 screws on each side (Figure A)
2. Loosen 2 screws on each side. Do not remove these screws! (Figure B)

Repair: Remove X-Beam Front Cover (3 of 3)

3. Remove 3 screws on the top of the x-beam rear cover, as seen in figure C.
4. Slide front cover to the right to remove. (Figure D)
5. Follow directions in reverse order to assemble.



Maintenance

Maintenance: Lubrication

- Tools required for lubrication:
  - Wrist grounding strap
  - Screw driver slotted 4 mm / 0.6 mm
  - **Myloykote DX (x and y rail only)**
  - **Krytox GPL-205**
  - Cotton swab
  - Microfiber cloth
- Must remove tower and x-beam covers prior to application. See Repair section.
- Minimal amount of grease should be applied evenly on surfaces.
  - Can be applied by hand or, preferably, by a cotton swab / microfiber cloth
- To prevent excess use of grease:

IMPORTANT SAFETY STEPS

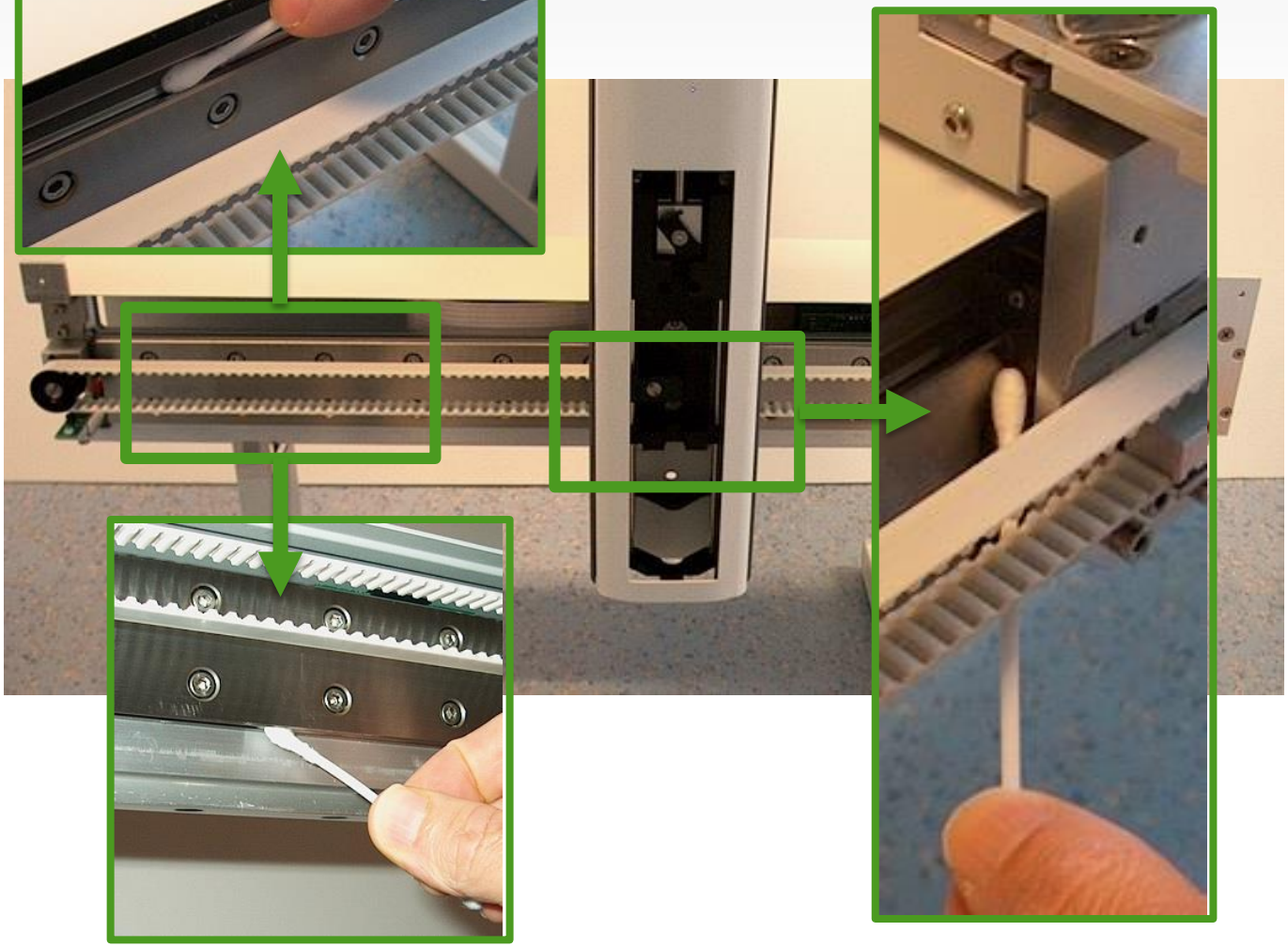
- **Line power must be unplugged**
- **Static wrist-strap needs to be worn for grounding yourself to protect the instrument electronics**
- **Avoid touching and damaging surrounding equipment**

Use little grease on cotton swab:

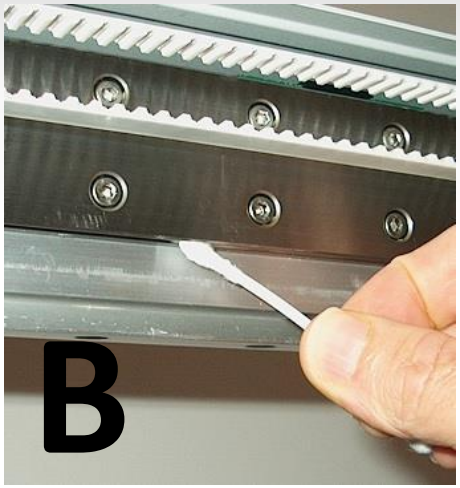
Or distribute grease onto cotton swab with finger:

Maintenance: Lubrication of X-Rail Linear Guide (1 of 3)

1. Clean the X-rail guide, including **both** sides of the slide units, top and bottom railing.



Maintenance: Lubrication of X-Rail Linear Guide (2 of 3)



2. Once cleaned, lubricate the top and bottom of the X-rail linear guide with a cotton swab (Figure A & B). Move the tower carefully from left to right a couple of times to distribute the grease.
3. Remove any excess grease visible, as seen in figure C & D.

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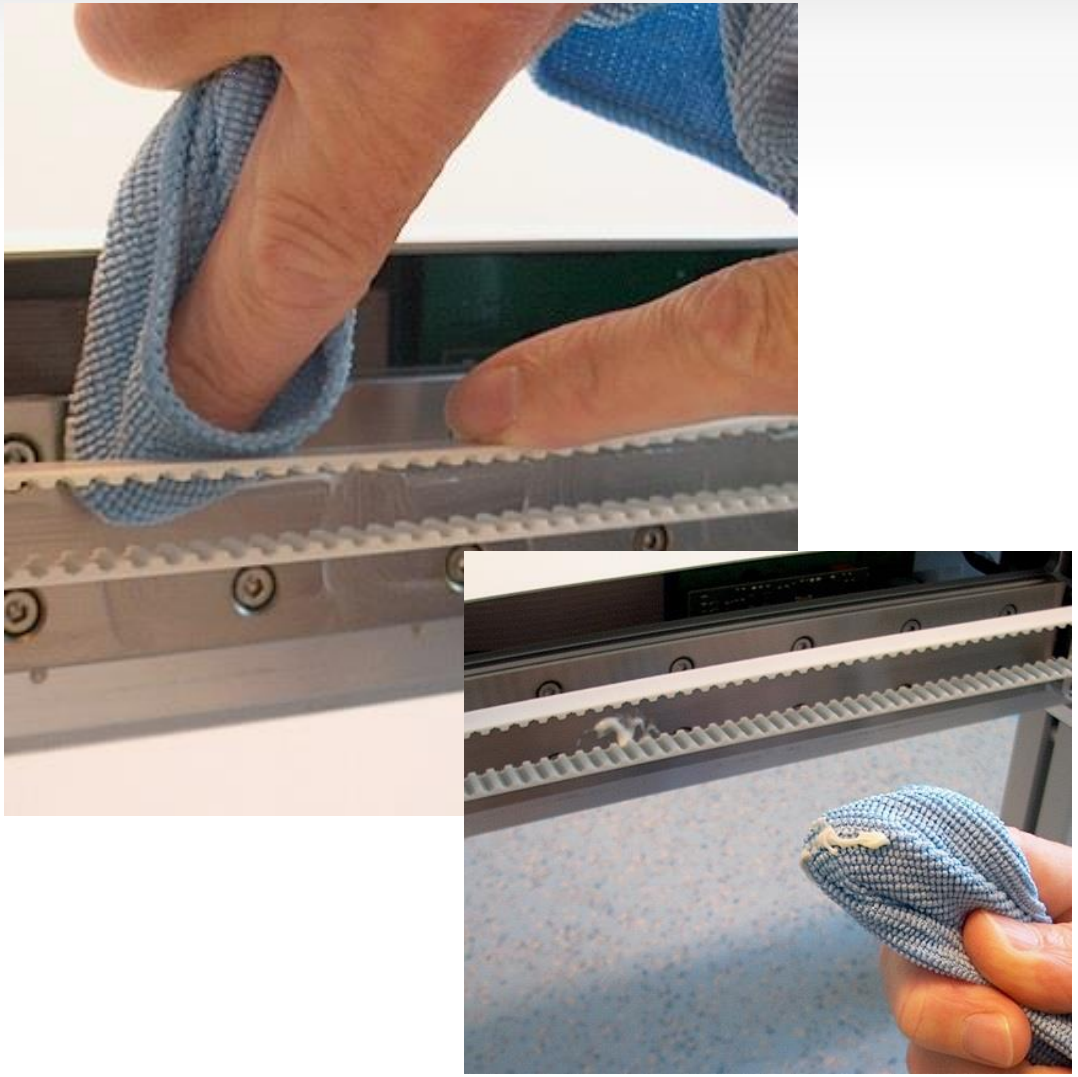
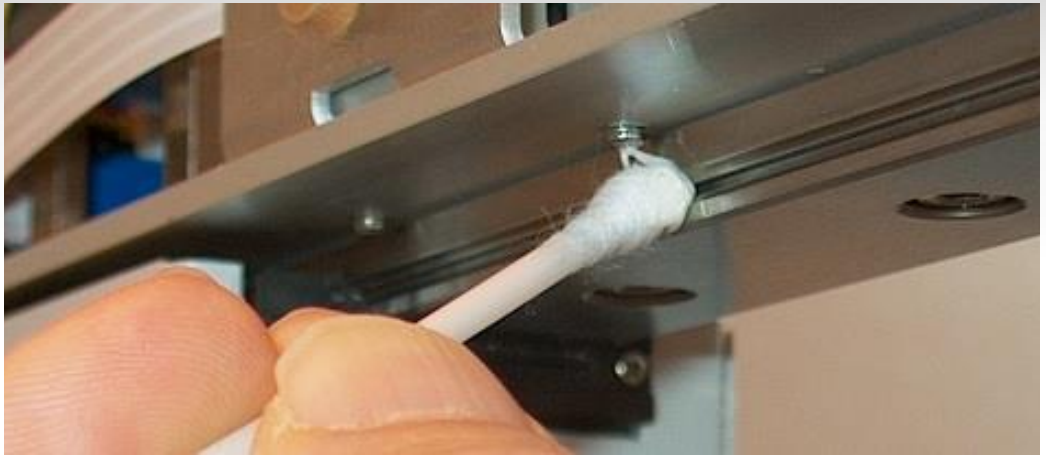
Maintenance: Lubrication of X-Rail Linear Guide (3 of 3)

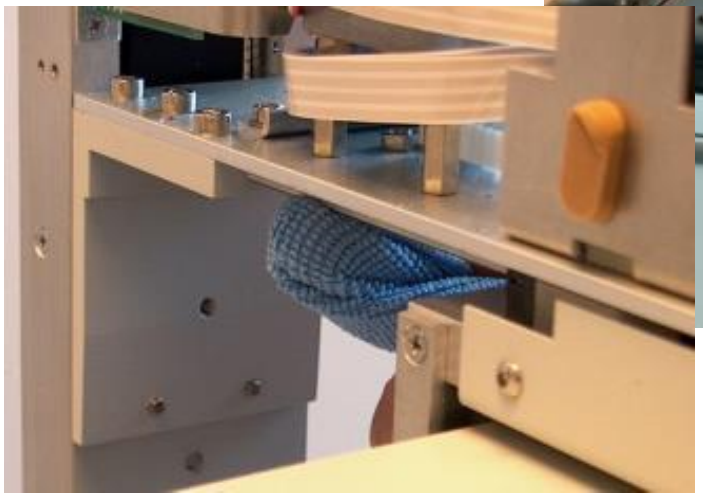
- A microfiber cloth can be used for the larger surface area.
- Distribute the grease evenly while avoiding mounting holes



Maintenance: Lubrication of Y-Rail Linear Guide (1 of 2)

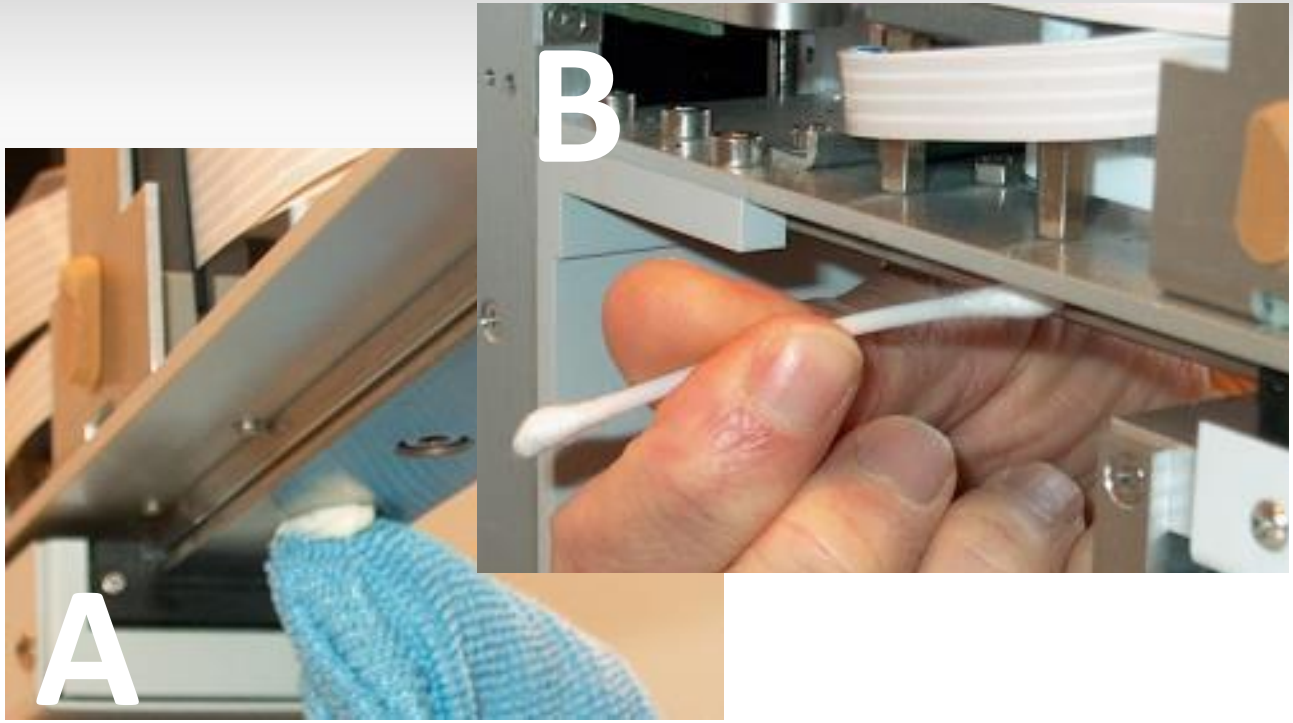


1. Clean front and back of Y-rail guide (including slide unit) prior to lubrication.
   - Use a microfiber cloth for larger surface areas.



Maintenance: Lubrication of Y-Rail Linear Guide (2 of 2)

2. Once cleaned, lubricate the large area of the Y-rail carefully with microfiber cloth (Figure A) and the left / right side with a cotton swab (Figure B & C).
   - Avoid mounting holes
3. Remove any excess grease visible.



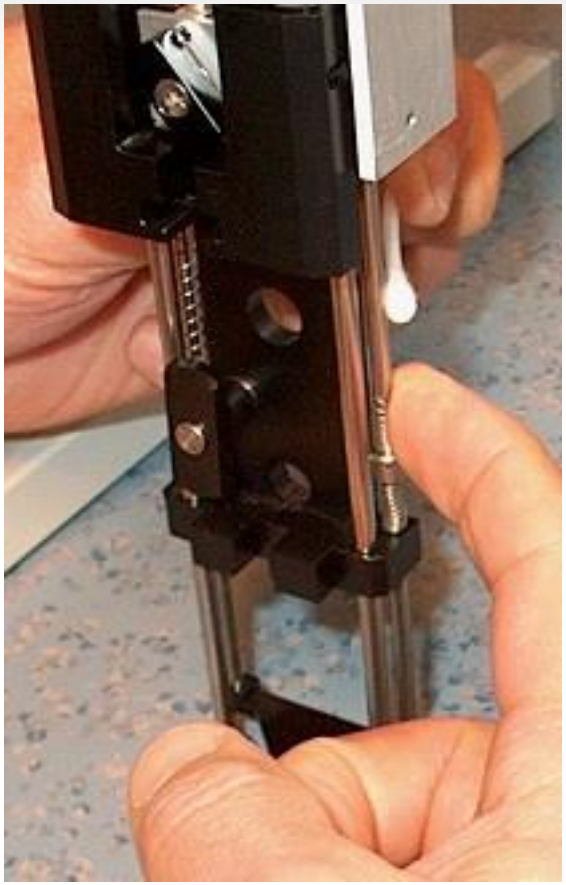
Maintenance: Lubrication of Needle Guide/Vial Detection (1 of 1)




- Lubricate both metal axles of the needle guide.
  - Move needle guide up and down during application
  - Move springs up and down to reach metal axels underneath springs.

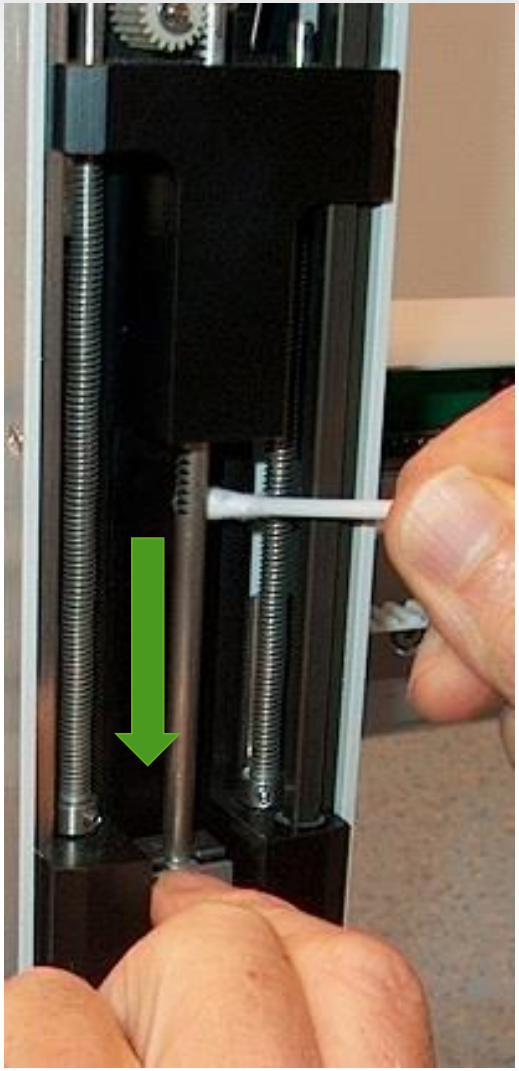
Maintenance: Lubrication of Needle Support (1 of 1)

- Lubricate the needle support by moving the springs up and down to reach both metal axles.



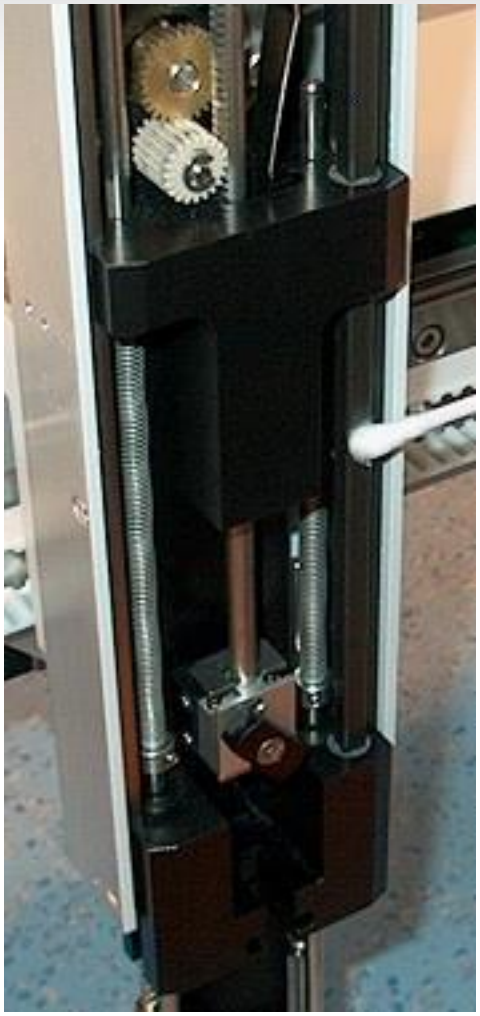
Maintenance: Lubrication of U-Axis Guide (1 of 1)

1. Move U-axis downward
   - Lubricate the lower part of metal axle
2. Move U-axis upward
   - Lubricate the upper part of metal axle



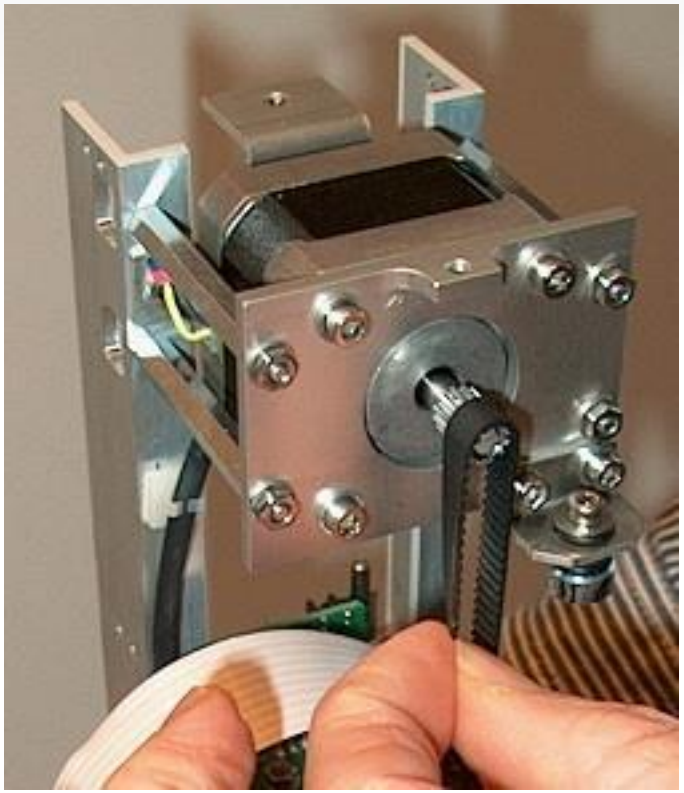
Maintenance: Lubrication of Z-Axis Guide (1 of 1)

1. Lubricate the Z-axis from top to bottom and front back.
2. Move Z-axis sledge up and down to make sure whole guide is lubricated.

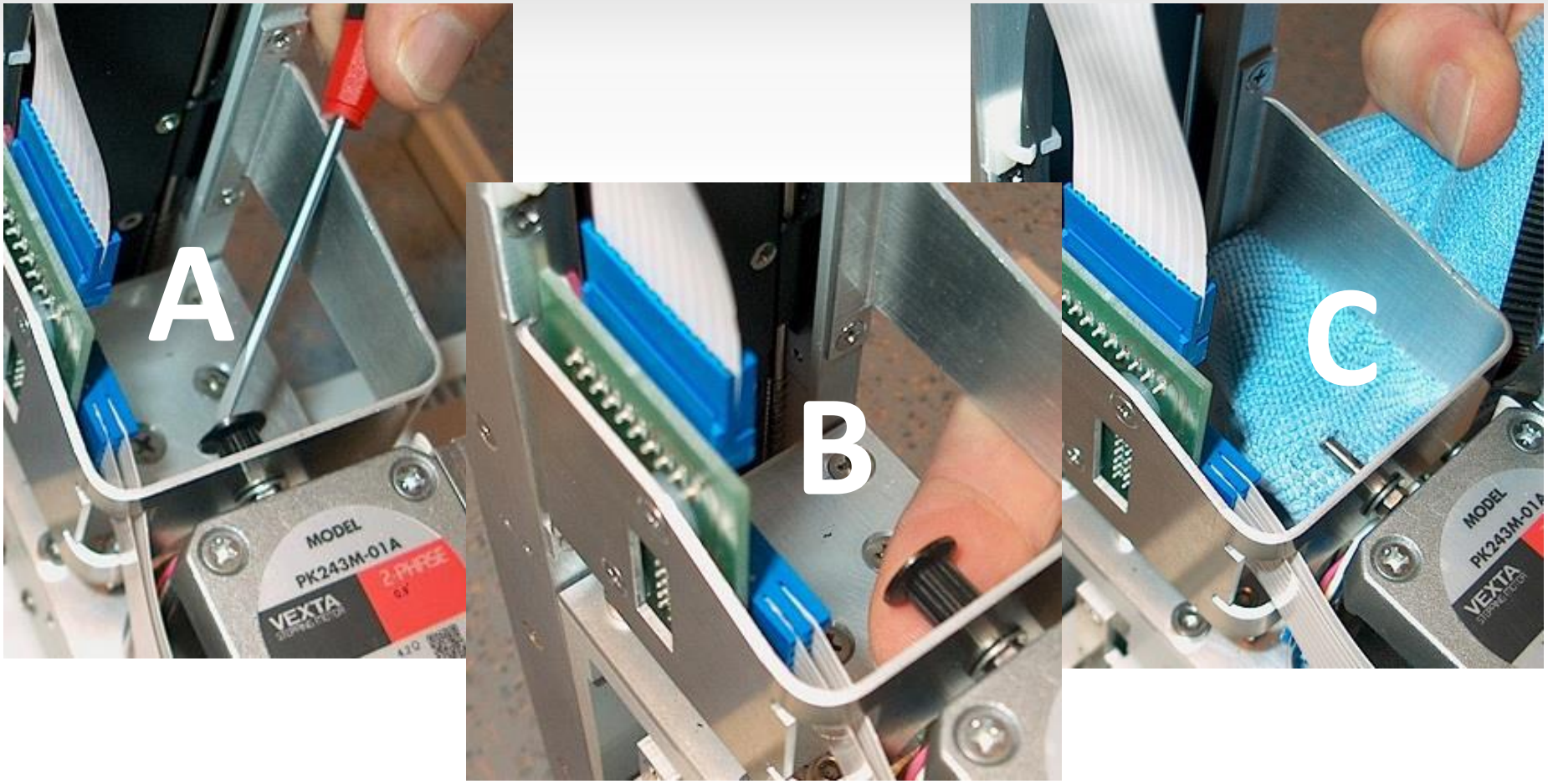


Maintenance: Lubrication of Z-Axis Bearing (1 of 3)

1. Remove gear belt by moving the Z-axis sledge up and down while guiding the gear belt from the upper gear wheel.

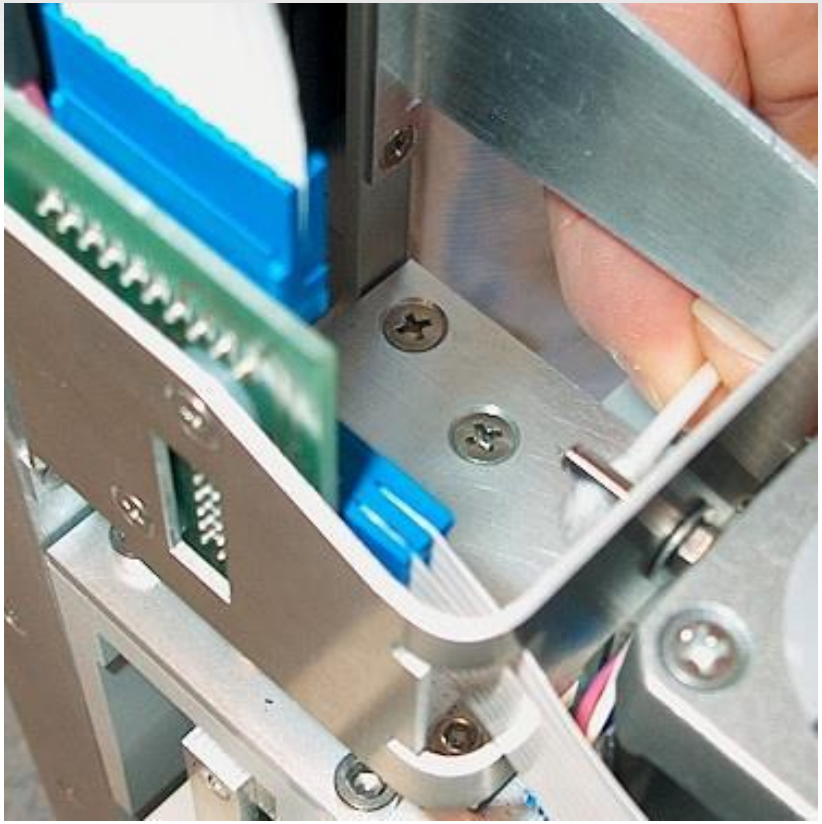


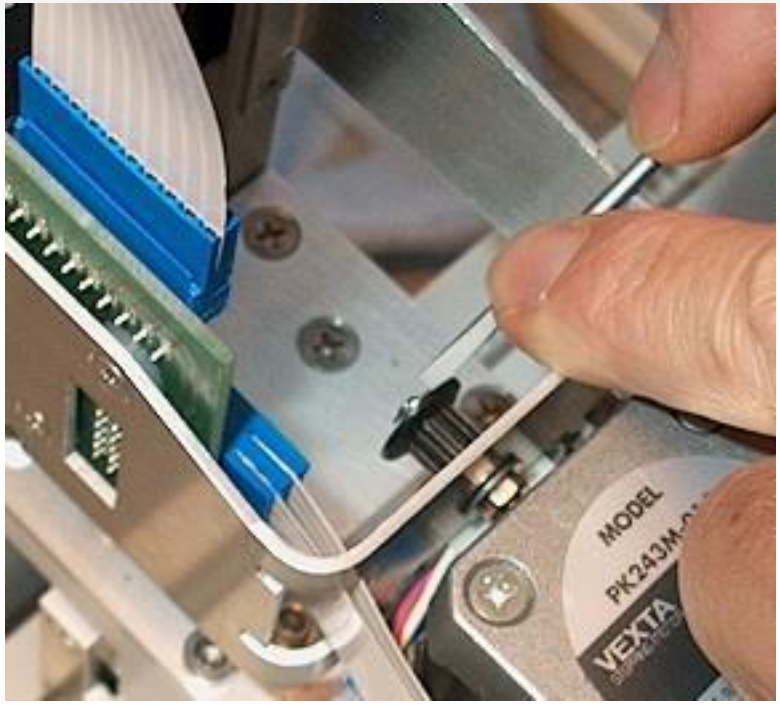
Maintenance: Lubrication of Z-Axis Bearing (2 of 3)



2. Remove bottom gear wheel using a flathead screwdriver (Figure A,B).
3. Clean the metal axle and area underneath bottom gear wheel (Figure C).

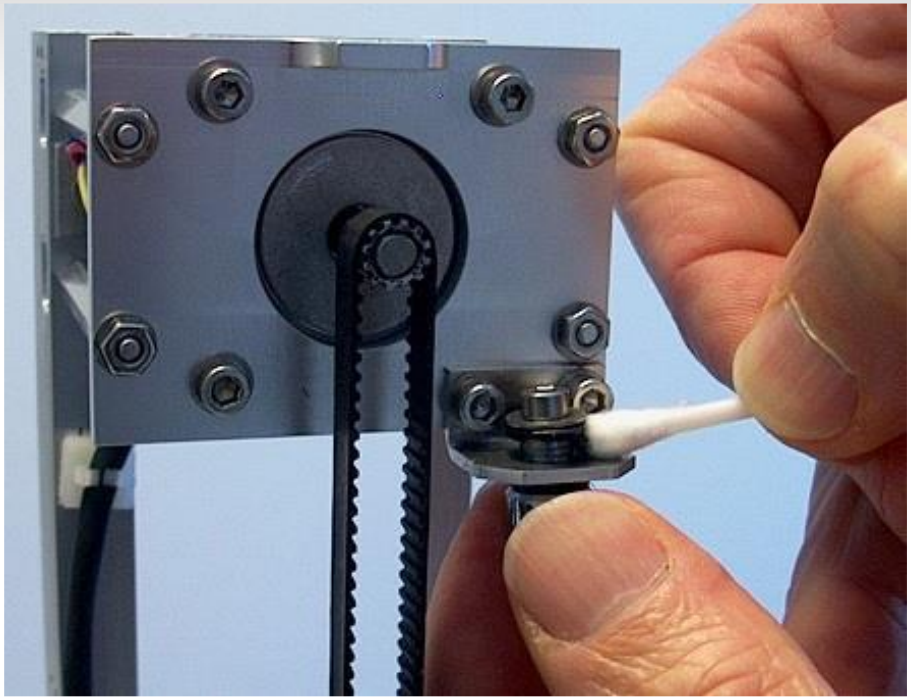
Maintenance: Lubrication of Z-Axis Bearing (3 of 3)

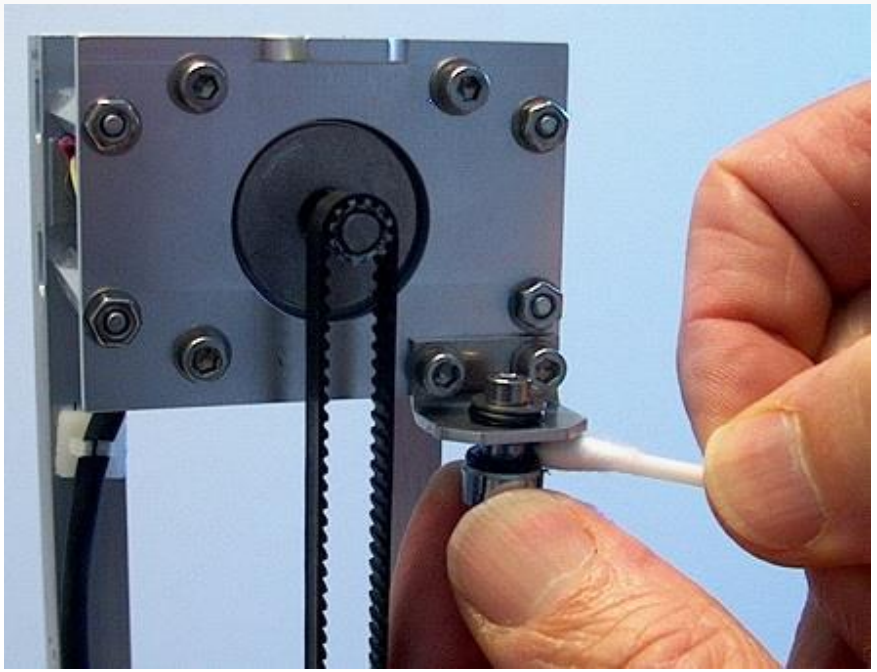




4. Lubricate the metal axle bearing with a cotton swab.
5. Follow directions in reserve order to reassemble.

Maintenance: Lubrication of Z-Axis Magnet Lock (1 of 1)





- Lubricate top and bottom of the Z-axis magnetic lock.