

# Bio-Plex™



Care and Maintenance

Quick Guide

**BIO-RAD**

# Maintenance Schedule

Between plate readings	<b>Wash between plates*</b> before running samples, check sheath and waste fluids
Daily	Start up, calibrate, wash between plates, shut down
Weekly	Sonicate needle, unclog, check for leaks
Monthly	Validation, clean exterior surface
Every 6 months	Replace syringe seal, clean ventilation filter
Yearly	Replace sheath filter and air intake filter

\* All bold text indicates instrument controls

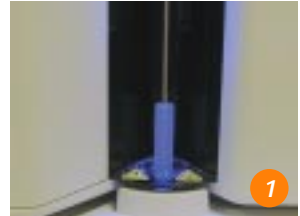


## Step One

Remove the sample needle from the instrument.

### 1. Locate the sample needle.

The sample needle is the stainless-steel probe located in the front of the Bio-Plex array reader.



### 2. Turn off the power to the Bio-Plex reader and microplate platform.

Turn off the power to the Bio-Plex reader and microplate platform. Unplug the power cord from the outlet.



### 3. Remove the light housing.

Remove the light housing directly above the needle arm by grasping and firmly pulling it out. The housing will remain attached by a wire. Place the housing on top of the array reader, out of the way.



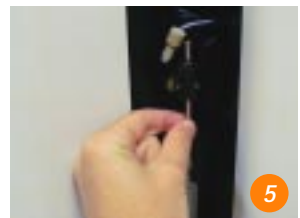
### 4. Remove the tubing connector.

Remove the knurled tubing connector (Cheminert fitting) on top of the needle arm by grasping the needle arm and turning the connector counterclockwise.



### 5. Remove the sample needle.

Remove the sample needle assembly by grasping the needle and gently pushing it up.



## Step Two

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Clean the sample needle.

### 6. Flush the sample needle with water from the smaller to larger end.

Using a syringe or wash bottle, flush the sample needle with distilled water from the narrow end out through the larger end (water may drip out from the larger end).



### 7. Flush the sample needle with water from the larger to smaller end.

Turn the sample needle around and flush it with water from the larger end out through the narrow end (you should be able to see water shooting out in a stream).



### 8. Sonicate the sample needle.

Place the sample needle in a tube with the narrow end toward the bottom, immersed in water. Sonicate the narrow end of the sample needle for 2–3 minutes.



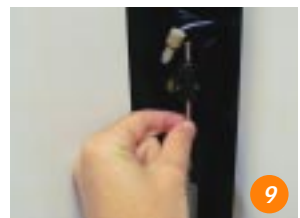
## Step Three

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Reinstall the sample needle.

### 9. Replace the sample needle.

Follow the procedure outlined in step one (Figures 1–5) in reverse.



# Sample Needle Care Instructions (cont.)

## Step Four

Adjust the sample needle height.

**Warning: Keep hands and fingers out of the microplate platform when performing this procedure!**

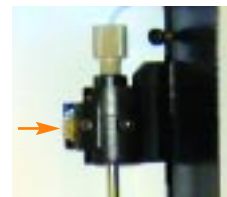
The height of the sample needle must be adjusted when (1) the microplate style is changed or (2) the sample needle is replaced. The MCV plate included with your system provides a method for adjusting sample needle height for standard flat-bottom filter plates.

1. Turn on the Bio-Plex array reader and microplate platform.
2. Launch Bio-Plex Manager™ software.
3. Click **Instrument** in the main menu bar.
4. Choose **Set Up**. Choose **Adjust Needle** from the pull-down menu.
5. In the **Adjust Needle** window, click **Eject/Retract** to eject the plate holder.
6. Place the MCV plate on the microplate platform with the arrow facing toward the array reader.
7. Click **Eject/Retract** to retract the plate.
8. Tape the access door of the microplate platform open; it will be necessary to see inside the housing.
9. In the **Adjust Needle** window, click **Up/Down**. The needle will move to the down position.
10. With the needle down, use the hex-key needle adjustment tool (supplied with the microplate platform) to loosen the screw at the top of the needle so that the needle housing can move up and down freely.



**Note: All adjustments to the needle height must be made while the needle is in the down position.**

11. Using the brass thumbwheel on the needle arm, manually move the needle so that it just touches the bottom of the needle adjustment well of the MCV plate. Gently move the needle up and down a couple of times to verify that it is barely touching the bottom of the well. Use the flashlight for better viewing.
12. Tighten the needle hex screw so that it is no longer possible to manually move the needle up and down. Take care that the needle does not move while you are tightening the screw. Do not overtighten.
13. In the **Adjust Needle** window, click **Up/Down** to move the needle up and down. Look inside the microplate platform at the MCV plate. The needle should not force the MCV plate down when it is in the down position. If the MCV plate moves when the needle moves to the down position, readjust the needle height by repeating the previous steps.



**Note: Be sure to visually inspect the MCV plate. Do not rely on audible feedback. The instrument makes a sound to move the sample needle, with or without lifting the plate.**

14. Check the right-left alignment of the needle by selecting **Up/Down** and checking that the needle moves up and down freely without rubbing on the sides of the needle alignment guide.
15. To adjust the needle left to right, loosen the left/right adjustment hex screw and adjust the needle so that it is centered in the needle alignment guide. Retighten the screw. Then move the needle **Up/Down** a few times to make sure the needle height is optimized.
16. When the needle is adjusted properly, click **Eject** at the top of the title bar.
17. Remove the MCV plate from the microplate platform.
18. In the **Adjust Needle** window, click **Close**.
19. **Wash Between Plates** to remove any air introduced into the lines.

#### **Additional helpful hints for vertically aligning the sample needle:**

- Hold the door of the XY platform open as you adjust the needle height. The goal is to adjust the needle so it rests on top of the alignment tools, but does not press down too hard on the MCV plate. After tightening the height adjustment screw, click **Test** a few extra times. As the needle is raised and lowered, watch through the XY platform door to make sure the tray does not bounce up or plunge down
- If the brass thumbwheel on the needle arm is difficult to turn, grip the brown knurled tubing connector above the needle arm with your thumb and forefinger and push the needle up and down

#### **I am trying to adjust the sample needle height, and the brass thumbwheel does not turn. What should I do?**

1. Requires 3/32" and 0.050" hex wrenches.
2. Remove the sample needle from the needle arm.
3. Loosen the black 3/32" hex screw located above and behind the needle arm, and remove the needle arm from the housing. You may need to remove the blue light to reach the screw.
4. Use the 3/32" hex wrench to loosen the needle height adjustment screw located to the right of the brass thumbwheel on the front of the needle arm.
5. Use the 0.050" hex wrench to loosen the small silver screw located to the left of the brass thumbwheel on the back of the needle arm until you are able to turn the thumbwheel.
6. Replace the needle arm and sample needle, and adjust the needle height using the thumbwheel. Tighten 3/32" hex screws.

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