

## Operator's Manual



## The FREEDOM ROCKER™

### Congratulations!

Congratulations on your purchase of a Next Advance Freedom Rocker™! We're sure that once you use it you won't want to return to manual processing.

Please read this operator's manual which explains proper operation of the instrument. This manual can also be viewed on the web at [http://www.nextadvance.com/manuals/FreedomRocker\\_manual.pdf](http://www.nextadvance.com/manuals/FreedomRocker_manual.pdf).

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## PARTS OF THE INSTRUMENT



## SETTING UP YOUR FREEDOM ROCKER™

Place the instrument on a level surface, such as a lab bench. Plug the 12VDC power supply into an outlet and plug in the power plug into the power jack in the rear panel of the instrument. Flip on the power switch.

The waste line can be run to a sink (if this is legal) or to a container. If the waste will flow directly into a sink, cut the tubing to the desired length. If the waste will be collected in a bottle or carboy, cut the tubing to the desired length and place the barbed fitting into the end of the tubing.

Next, connect the buffer tubing (white) to the buffer container (the red waste tubing to the waste container) and the reagent tubing (blue) to the reagent recovery container by connecting the fittings to the bottle caps. If

the tubing is too long, the fitting can be removed from the end of the tubing, the tubing can be cut shorter, and the fitting re-inserted

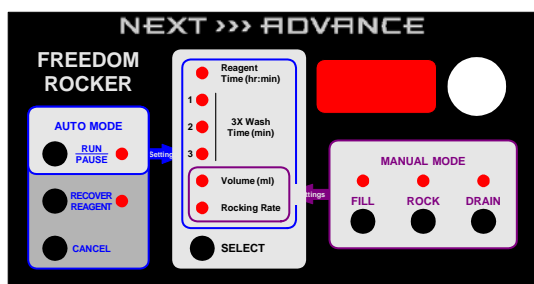
Loosen the caps on the containers before running the instrument so that air pressure or vacuum doesn't build up as the pump runs.

Position the Sample Tray(s) and the Aspiration Head so that the aspiration tips rest in the groove(s) along the inside edge of the tray(s).

Prime the tube set. Press the FILL button so that the tubing fills up with wash buffer, then press FILL again to stop the pump.

## THREE MODES OF OPERATION

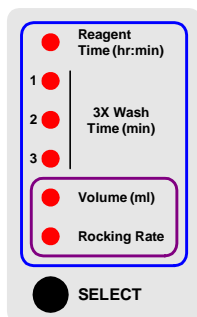
The Freedom Rocker™ has three modes of operation: Automatic; Semi-Automatic; and Manual. In Automatic Mode the Freedom Rocker™ rocks with a reagent in a tray for the desired duration, then proceeds with three washes, each wash preceded by a clearing rinse. The initial step with the reagent can be bypassed. A beeping sound will indicate that the autowashing is finished; wash buffer will remain in the tray and the platform will continue to rock so that the sample does not dry out. In Semi-Automatic Mode, the Freedom Rocker™ utilizes its built-in timer, indicating time is up with an audible beeping. In Manual Mode the rocking is initiated or halted at the touch of a button, as well as the dispensing and aspirating of stipulated volumes of liquids.



In all three modes, the parameters, such as rocking speed, are set in the central section of the control panel. The controls for Automatic and Semi-Automatic modes are in the left box (AUTO MODE section) of the control panel. The Manual Mode controls are in the right box (MANUAL MODE section).

## SETTING THE PARAMETERS

There are four parameters to be set in Automatic and Semi-Automatic Modes: Reagent Time; Wash Time; Volume (to dispense); and Rocking Rate. In Manual Mode, two parameters can be adjusted: the Volume and



Rocking Rate.

Reagent Time is the desired duration for the reagent to be in the tray. Wash Time is the desired duration of EACH wash step. This does not include the time it takes to pump the wash buffer into or out of the tray. Volume is the volume of wash buffer to be dispensed in each wash cycle. Model 22 (1 or 2 trays): If two trays are being used, the volume corresponds to the total volume for both trays. For example, to dispense 100 ml in each tray, set the Volume to 200 ml. **Model FRSK42 (4 trays): the volume is the volume dispensed to each tray.** The Rocking Rate can be adjusted from 0 to full speed. Note that the platform will come to rest with the right side tilted downward.

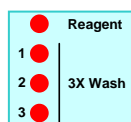
To initially set the parameters, simply push the select button until the red LED by the desired parameter is lit. Then rotate the adjustment knob until the desired value is displayed. To set another parameter simply push the select button again until the LED by the desired parameter is lit, then use the adjustment knob again. These values will be stored even if the power is turned off.

To change the parameter settings while the instrument is operating, press the RUN/PAUSE button once. Turning the adjustment knob will temporarily override the currently displayed parameter. To change the stored value of a parameter push the SELECT button until the LED by the desired parameter is lit. Then adjust its value. Once the desired values are set, push the RUN/PAUSE button to resume operation.

## AUTOMATIC MODE

In Automatic Mode, the Freedom Rocker™ rocks and aspirates a reagent solution, then performs three washes. Because the reagent solution step can be bypassed, let's describe automatic mode with and without the reagent solution steps separately.

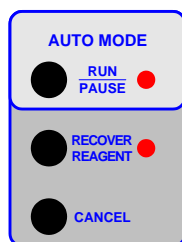
## AUTOMATIC MODE: REAGENT AND THREE WASHES



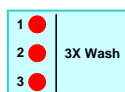
The Freedom Rocker™ can rock one or two trays with reagent, aspirate the reagent, then proceed with three wash steps. Each of the wash steps is preceded by a clearing rinse to ensure optimal washing. Simply place your gel, membrane, or slides and the desired reagent, e.g. antibody solution, stain, blocker, etc., in a tray or two. Next, place the tray(s) on the Freedom Rocker™ platform. Then place the aspiration head in the tray(s), with the aspiration tubes extending into the trench at the perimeter of the bottom of the tray(s).

To recover the reagent solution into a separate container, press the RECOVER REAGENT button so that its LED is lit.

To start Automatic Mode, press the RUN/PAUSE button. When the washing has finished, a beeping sound will occur. Wash buffer will remain in the tray and the platform will continue to rock so that the sample does not dry out. Press the RUN button (or the CANCEL button) once to exit the Automatic Mode. To run the instrument again, simply press RUN once more.



## AUTOMATIC MODE: THREE WASHES ONLY

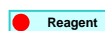


In “Auto-Washing” Mode, the Freedom Rocker™ conducts three wash steps. A clearing rinse occurs between the wash steps to ensure optimal washing. First set the “Reagent Time” to “0” so that the instrument knows to bypass the reagent steps. Set the “Wash Time”, “Volume”, and “Rocking Rate” parameters. Next, simply place the tray with the gel, membrane, or slides on the Freedom Rocker™ platform. Then place the aspiration head in the tray, with the aspiration tubes in the bottom of the tray’s groove. Once you press the RUN/PAUSE button, wash buffer

will be dispensed and the auto-washing will commence.

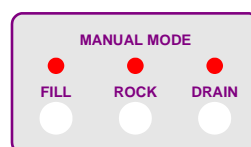
A beeping sound will indicate that the auto-washing is finished; wash buffer will remain in the tray and the platform will continue to rock so that the sample does not dry out.

## SEMI-AUTOMATIC MODE



In Semi-Automatic Mode, the Freedom Rocker™ is a digital rocker, utilizing its microprocessor as a countdown timer. First set the “Reagent Time”, i.e. the countdown timer setting, to the desired time interval. Set the “Wash Time” to 0 so that the instrument knows to bypass the wash steps. The “Volume” setting has no effect. Set the “Rocking Rate” to the desired speed. Next, simply place the tray with the gel, membrane, or slides on the Freedom Rocker™ platform. Then place the aspiration head in the tray, with the aspiration tubes in the bottom of the tray’s groove. Once you press the RUN/PAUSE button, the platform will rock and the countdown timer will commence. When the cycle is finished, beeps will sound, but rocking will continue so that the sample does not dry out.

## MANUAL MODE



Adjust the Fill “Volume” by pressing the “SELECT” button until the LED by “Volume” is lit, then turn the adjustment knob to the desired value. Next press “SELECT” once more and then turn the adjustment knob to the desired rocking speed. If the instrument is currently rocking, the new value takes effect as the adjustment knob is turned.

Press ROCK to start or stop the rocking.

Press FILL to add the desired volume of wash buffer to the tray(s).

Press DRAIN to drain liquid from the tray(s). To ensure that all the wash buffer

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added in the FILL step is aspirated, the DRAIN step is designed to remove up to 50% more liquid than the FILL step dispenses.

### CHANGING BOTTLES

It is easy to disconnect the tubing from the bottles. First tighten the cap to ensure that no liquid will spill when you carry the bottle. (There is a valve in the One>Click™ bottle caps that remains closed when the tubing is not connected to prevent spills.) Next, press on the metal button of the fitting at the end of the tubing, as shown in the figure below, and simply pull the fitting away from the bottle cap.

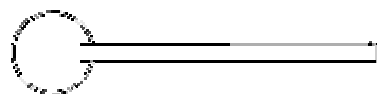


*To disconnect the tubing from the cap, press on the metal button.*

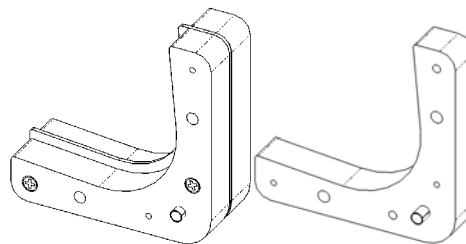
To reconnect, simply slide the fitting at the end of the tubing over the fitting on the One>Click™ bottle cap. You will hear a click when the connection is made. Don't forget to loosen the cap before running the Freedom Rocker.

### CHANGING TUBE SETS

It is easy to remove and/or replace the tube set—no tools are required. The fittings at the ends of the tube set are quick release and only two quick release pins (with ring tabs) retain boomerang-shaped backers which sit behind the tubes so the tubes can be compressed by the pump.



*Quick release pin with a ring tab*



*Boomerang shaped backers, one wide and one narrow.*

### REMOVING THE TUBE SET:

First, detach the tube set from the aspiration head by disconnecting the luer lock fittings. Now detach the tube set from the buffer, waste, and reagent containers by disconnecting the quick-connect fittings from the bottles by pressing the metal clips on the fittings, as explained in “Changing Bottles”.

Turn the instrument around so that the rear of the FREEDOM ROCKER™ is facing you and the entire instrument rests on a level surface. Gently pull the tubing from between the cams. If you try to stretch the tubing lengthwise, it will become thinner and come out more easily.

Next, pull the two pins with the ring tabs halfway out, as shown in the figure below. The wide boomerang-shaped backer will drop out, as shown in the figure. Next, remove the pins all the way out and the narrow backer will also drop out. Lift up the FREEDOM ROCKER™ if necessary to completely remove the backers from the pump head.

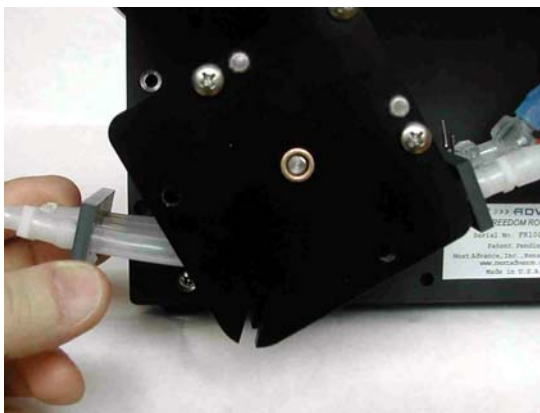


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*The wide boomerang-shaped backer drops out when the quick release pins are pulled halfway out.*

Finally, remove the tubing from the pump head by gripping the gray spacer blocks, as shown in the figure below.



*Pull on the two tubing spacer blocks (gray) to remove the tubing from the pump head.*

### INSTALLING THE TUBE SET:

Place the rear of the instrument so that it faces you. The end of the tube set with the luer lock fittings should be on the left, the end which connects to the bottles on the right. Line up the tube set so that the red and blue (or black) tubing are by the rear panel.

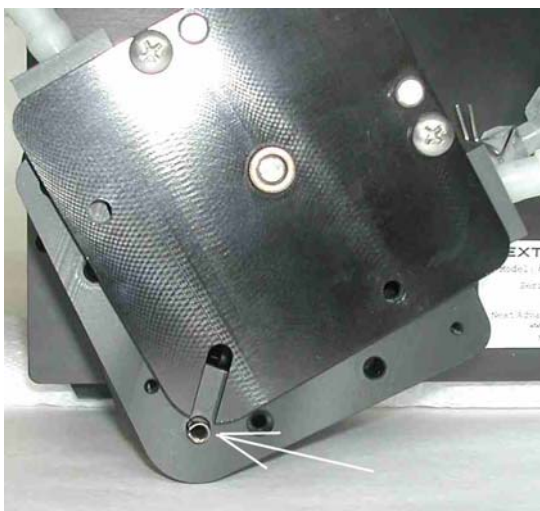


*The red and blue tubing should be closer to the rear panel of the instrument than the white buffer tube.*

Place the pairs of tubes on the rollers. Make sure that the tubes do not cover up the groove in the center of each roller. The rectangular spacer blocks holding the tubes at the correct spacing should fit nicely on the pump head. Notice how the gray blocks in the top left and top right in the following figure rest on the sloping sides of the pump head.

Of the two black plastic boomerang-shaped backer pieces, the thinner one should be installed first. It will back up the single tube. Notice that the pin (see arrow in the figure above) protruding from both sides fits in the slot at the bottom corner of the pump head. When placing the backer into position, you have to force it to squeeze the tubing so that its holes line up. Once the backer is in position, push the two quick release pins part way into the pump head—enough to capture the narrow backer but not too much to interfere with the wide backer sliding into place. Next, place the wide backer behind the tubes on the wide roller, with the protruding pin pointing towards the narrow backer. If the backer does not seem to fit, check that the ring-tabbed pins are not in too far and interfering with the backer. If they are, simply slide the pins out until they do not protrude into the wide roller section. While squeezing the backer against the tubing, firmly push the ring-tabbed pins in all the way, i.e. until the rings touch the pump head.

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*The spacer blocks should rest on the sloping sides of the pump head and the pins in the backers need to slide into the slot at the bottom of the pump head.*



*Once the wide backer is in position, push the pins in all the way, until the rings touch the pump head.*

Place the reagent tube (blue or black) in the pinch valve, rotate the valve 180° counterclockwise and place the waste tube in the pinch valve. Then, connect the luer lock fittings to the aspiration head and the others ends onto the One>Click™ caps on the bottles.

### ASPIRATION HEADS

The aspiration head can be swung out of the way when accessing the trays.



*A quick release pin (white arrow) retains the aspiration head in place.*

### REPLACEMENT

To switch aspiration/dispense heads, first disconnect the tubing from the head by undoing the luer lock fittings. Then simply remove the quick release pin by pulling on the ring. Next, place the desired aspiration head on the platform, line up its transverse hole with that in the pivot block, and replace the quick release pin. Finally, reconnect the luer lock fittings.

### SANITIZING

To sanitize the tube set or the aspiration head, use a standard sanitizing solution, e.g. 5% bleach or 30% ethanol, followed by thorough rinsing with distilled water. Please note that the tube set and the aspiration head should not be autoclaved because the temperature is too high for some of the plastic parts.

### ALTERNATE TRAYS AND BOTTLES

A list of commonly requested trays and bottles is available on our price list. Please contact customer service by email at [support@nextadvance.com](mailto:support@nextadvance.com) or by telephone to discuss your needs.

## TROUBLESHOOTING

In addition to those given below, a thorough list of troubleshooting tips is at <http://www.nextadvance.com/FAQs/FAQs-Freedom-Rocker.htm>.

**If nothing happens, all the lights are off and the display is blank**, check that the power is properly connected. If the wall transformer is plugged in all the way and the power line is plugged into the instrument, then either the wall outlet or the wall transformer is bad. Plug something else into the same wall outlet. Does it work? If so, then the power supply is probably bad. Contact us for a replacement.

**If liquid is not dispensed immediately after the pump is turned on**, the tubing was probably empty and needed to be primed. If this is the case, the problem should not occur as long as the tubing does not fill up again with air.

**If liquid is not dispensed or aspirated**, the caps are probably tightly screwed onto the bottles and air is not able to enter or leave the bottles and equalize the pressure. Loosen the caps on the bottles. If not caught early, this could lead to tubing popping off a fitting or leakage at a fitting.

## SUPPORT

A thorough list of FAQs is at <http://www.nextadvance.com/FAQs/FAQs-Freedom-Rocker.htm>.

If you cannot find a good answer there, please contact customer service by email at [support@nextadvance.com](mailto:support@nextadvance.com) or by telephone.

## SPECIFICATIONS

The following values are nominal values. Actual values may vary slightly.

Size: 9.8 in wide x 13.7 in x 10.5 in. high

Weight: 14.3 lbs.

Dispense Flow Rate: 7.5 ml/s (model 22);  
12.8 ml/s (model 42)

Aspirate Flow Rate: 11 ml/s

Rocking Speed: 0 to 40 cycles per min.

Power: 12VDC, 2.0 Amp min.

## WARRANTY

The FREEDOM ROCKER™ comes with a 30 day money back guarantee (less shipping charges) and a two year warrantee. Next Advance will replace, free of charge, any part which is defective due to workmanship or materials. For further information, please go to [http://www.nextadvance.com/legal\\_terms.htm](http://www.nextadvance.com/legal_terms.htm).

## WARRANTY LIMITATIONS

Begins at date of original purchase.

Damage due to shipping and handling is not covered by this warranty.

## WARRANTY IS VOID IF

Product has defect or damage due to product accident, alteration, connection to an improper electrical supply, fire, flood, lightning, or other conditions beyond the control of Next Advance.

Product is improperly installed or used.

In no event shall Next Advance be liable for incidental or consequential damages.

## OPERATOR'S RESPONSIBILITY

Provide proof of purchase and provide normal care and maintenance.