

**Ovation**
BioNatural Pipette



Operator's Guide

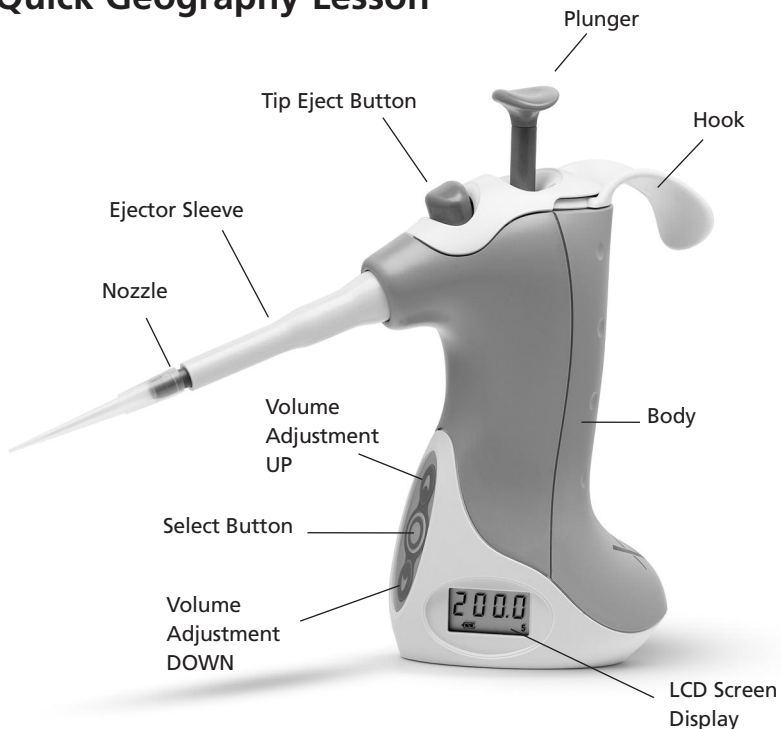
Introduction

The Ovation BioNatural™ Pipette is intended for use as a liquid transfer device, capable of aspirating and dispensing precise fluid volumes.

This manual describes how to use and care for your Ovation pipette. As you can see from its appearance, it is different from every pipette that you have used before, therefore please read the instructions carefully.

Six models of the Ovation pipette are available to cover liquid dispensing needs ranging from 0.2µL to 1000µL.

A Quick Geography Lesson



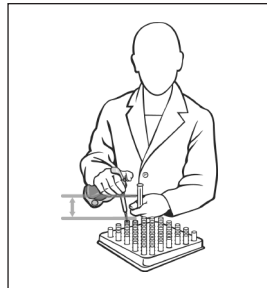
A Word About Posture

Studies have shown that pipetting is the #1 cause of musculoskeletal disorders in the laboratory – it is, by nature, a repetitive process that puts strain on the body. While we can't change how repetitive pipetting is, we can and did change how comfortable you are while doing it.

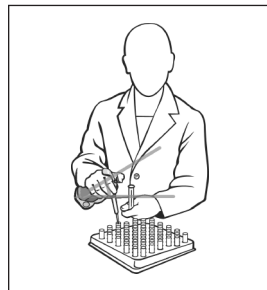
The Ovation BioNatural Pipette is the only pipette designed to keep your hand in the neutral position recommended by ergonomics experts. We call this *BioNatural™* pipetting – it allows a lower hand location to ease stress in the shoulder, and a relaxed wrist angle eliminates uncomfortable extension and radial deviation movements in the arm. Force, velocity and exertion from repetition or duration have also been neutralized because of the Ovation pipette's unique working position and reduced forces required during operation.

Some practice may be required to change years of posture and habits developed using standard axial pipettes; the physical benefits of BioNatural pipetting are worth the practice! When using the Ovation pipette, arm/hand elevation should not exceed 12" from the work surface, wrist rotation should not exceed 90°, and hand posture should remain relaxed with the wrist and back of hand slightly flexed.

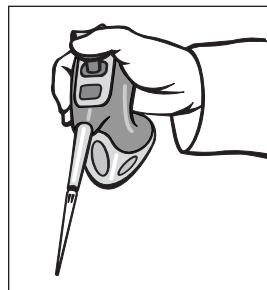
A loose, relaxed grip increases available strength in the hand, improving endurance and productivity during pipetting



Arm elevation remains low, minimizing stress to elbow, shoulder and neck



Wrist remains in a neutral range of motion throughout all pipetting operations



Picking up the Ovation Pipette

The Ovation pipette has been designed for compatibility with human anatomy. Allow the body of the pipette to fill your palm, and rotate the adjustable hook to rest comfortably on your forefinger. The texture on the unit's back helps reinforce correct hand positioning.

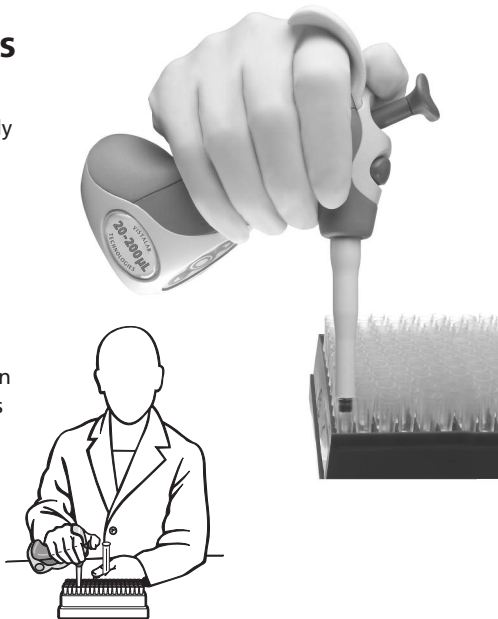
The Ovation pipette's unique ergonomic design and adjustable hook is compatible for both right and left-handed use.



Acquiring Disposable Tips



Maintaining a flat wrist-hand posture, insert the Ovation pipette's nozzle into a tip. Lightly press down on the body of the pipette until you hear or feel a "click". This "click" is your indication that the tip is properly seated and the tip is ready for use.

Disposable pipette tips are to be used once, then discarded. For proper fit and to achieve stated precision and accuracy specifications, use the VistaLab pipette tips recommended in this manual. Use of other manufacturer's tips can cause the pipette performance to differ from stated specifications, can damage the nozzle or ejector sleeve, or impede the performance of the tip ejection system.

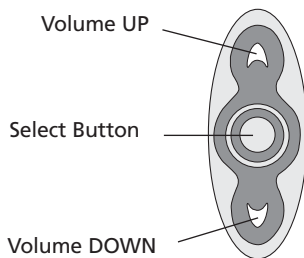


Volume Settings

One Ovation pipette takes the place of many regular pipettes. That's because your laboratory's most frequently-used volumes can be entered and stored for easy recall and use at any time. In addition, any precise volume throughout the pipette's volume range can be selected.


To change a volume setting, press the  or  buttons until the desired volume appears on the LCD screen display (*volume display will flash until it is "Locked In"*).





To "Lock In" a selected volume setting, depress the plunger to the first stop and hold until three "beeps" are heard. The volume display stops flashing and the Ovation is ready for use at the new setting.



Frequently-used Volumes and Changing Volume Settings

The Ovation pipette comes with five (5) pre-programmed volumes. These are identified on the LCD as 1 through 5. You can change any or all of these pre-programmed volumes to those frequently used in your laboratory.

To select a pre-programmed volume setting, press the  button until the desired volume appears on the LCD. "Lock In" this setting by holding the plunger down at the first stop until three "beeps" are heard.

To modify a pre-programmed volume setting, press and release the  button until the volume setting to be changed appears on the LCD. Press the  or  buttons to scroll the display to the new volume setting (*volume display will be flashing*). Press and hold the  button (*approximately 3 seconds*) until a "chirp" is heard. This "locks in" the new setting.

Aspirating and Dispensing

1. Press the plunger down to the first stop, and immerse pipette tip in the sample.
2. Smoothly and slowly, release the plunger allowing sample to enter the pipette tip. Wait one second before withdrawing the tip from the sample.
3. Place the pipette tip against the side of the receiving vessel close to the bottom of the vessel, or if it contains liquid, just above the surface of the liquid.
4. Smoothly depress the plunger to the first stop. Wait one second, then fully depress the plunger to the second stop to dispense all liquid from the tip.
5. With the plunger depressed, slowly withdraw the tip.
6. Release the plunger when the tip is away from the receiving vessel.

See “Pipetting Hints for Optimal Performance” for additional information.



Discarding Tips

Point the nozzle down and press the Tip Flicker to eject and discard a used tip into an appropriate waste container.



Ensure the nozzle and tip are pointed away from the face, hands and arms.



Pipetting Hints for Optimal Performance

- When using viscous or volatile reagents, pre-wetting the pipette tip may be appropriate. To pre-wet, aspirate and dispense the liquid back into the original vessel. Then fill the tip and dispense contents into receiving vessel.
- If an air bubble forms in the tip during aspiration, return the sample, discard the tip, and use a fresh tip.
- Smoothly depress and release the plunger when pipetting, maintaining the same speed of motion for all samples. Do not let the plunger “snap back” to the uppermost position.
- When finished aspirating, touch the pipette tip against the side of the vessel as it is being withdrawn to remove any liquid that may have adhered to the outside of the tip. Wipe the pipette tip **ONLY** if there is liquid adhering to the outside. Be careful not to “wick out” any of the contents from the the pipette tip.
- Dispense against the side of the receiving vessel or above the liquid surface. To remove any of the measured liquid that may have adhered to the pipette tip, touch off the tip against the side of the receiving vessel.





If the pipette is to be used with hazardous fluids, safe laboratory practice should be followed. Refer to manufacturer's Material Safety Data Sheets for proper handling instructions. Always use VistaLab filtered tips (see tips table for catalog numbers) when pipetting potentially caustic, corrosive or volatile solutions. Failure to do so may result in premature wear and damage to the internal seals and piston, and void the pipette's warranty. When organic or volatile solutions are routinely used, VistaLab Technologies recommends the use of VITON seals. See the chemical compatibility chart in the Ovation documentation library at www.vistalab.com for more information.

Calibration

Each Ovation pipette is factory calibrated to manufacturing specifications at 21.5°C ($\pm 2^\circ$) using distilled water. It is recommended that performance be verified at least every six (6) months, when internal maintenance has been performed, or on an as-needed basis.

The Ovation pipette can be easily in-lab calibrated $\pm 10\%$ for optimum performance for your operating conditions. In addition, the calibration factor can be pre-determined and set at the appropriate value for a liquid to be dispensed. Changing the calibration factor is quick and easy. Returning the calibration factor to 1.000 will re-set the Ovation pipette to its original factory calibration.

Prior to performing calibration procedures, “home” the plunger by simultaneously pressing and holding the  and  buttons until [RL] appears on the LCD. Depress the plunger to the first stop, and release it. Then depress the plunger to the first stop again and hold until three “beeps” are heard.

For optimum performance over the entire pipetting range, verify and calibrate the pipette using the maximum volume setting. Note: Unless using a specific liquid at one volume, always verify and calibrate at the maximum volume.



















With the pipette set to the desired volume, determine the actual volume dispensed*. Then use the Ovation’s calibration function to determine the appropriate calibration factor.

It is recommended that whenever the calibration factor is changed from the factory setting, that the current factor be recorded on a calibration label on the base of the pipette. The user may also wish to record the new factor in the laboratory’s quality control log.

** For additional information on calibration verification, call VistaLab Technical Services or go to www.vistalab.com*

Note: In-factory calibration and repair services are available from VistaLab Technologies. For complete information, see “Service” in the support area on the VistaLab Technologies web site: www.vistalab.com

Determining a New Calibration Factor:

1. Simultaneously press and hold the   buttons (about 3 seconds) until EAL appears on the LCD display. If EAL is not displayed and the volume on the LCD is flashing, then re-press the  and  buttons, ensuring equal pressure is applied to each button.
2. Press  and release and ERR (target) is displayed.
3. Press  and release again. Press  or  buttons until the maximum volume is displayed.
4. Press  and release and $INER$ (measured) is displayed.
5. Press  and release again, then press  or  buttons until the value shown is the actual volume dispensed during calibration verification.
6. Press  and release and $FACT$ (factor) is displayed.
7. Press  and release again, and the new calibration factor is displayed. Record this factor.
8. Press  and release again and SET (set) is displayed. After one second, the pipette exits the calibration program and a volume is displayed.
9. "Lock In" the verification volume by depressing the plunger to the first stop and hold until three "beeps" are heard. If the volume changed, use the   buttons or  to adjust the dispensing volume, and "Lock In".
10. Verify volume delivery at the new calibration factor.











To preserve battery life the Ovation pipette has a time-out feature. If the calibration sequence is not completed within approximately two minutes, the display will return to the last volume that was "Locked In". The user should re-initiate the calibration sequence and complete the entries.



To interrupt the calibration sequence, depress the plunger to the first stop and release. No changes will be saved. To "Lock In" the dispensing volume, press the plunger and hold until three "beeps" are heard.

Entering a Calibration Factor:

Ovation allows the user to enter a known calibration factor for a specific liquid, or return to the factory setting.

1. Repeat step 1 on page 8. Then press and release the  button until *FACt* (factor) appears on the LCD.
2. Press  and release again, then press the  or  buttons to adjust the value to the desired factor. Record current factor.
3. Press  and release until *SEt* (set) appears on the LCD. After one second, the pipette will exit the calibration program.
4. If the volume now displayed is the dispensing volume, then “Lock In” the volume. If the volume has changed, use the  and  buttons or  to adjust the volume to the dispensing volume, and “Lock In”.
5. Verify volume delivery at the new factor, or begin to use the pipette.



To interrupt the calibration sequence, depress the plunger to the first stop and release. No changes will be saved. To “Lock In” the dispensing volume, press the plunger and hold until three “beeps” are heard.

Taking Care of your Ovation Pipette

The Ovation pipette requires minimal routine maintenance. Always store it in its “standing” position when not in use. Clean outer surfaces as needed with a soft cloth dampened with warm water. To decontaminate outer surfaces, wipe with a 70% aqueous solution of ethanol or isopropanol, or use a 10% bleach solution followed by water. Remove ejector sleeve and wipe outside of nozzle and inside of ejector sleeve with 70% alcohol to remove any accumulated deposits. ONLY WIPE THE LCD SCREEN DISPLAY WITH WATER.

Nozzle

The replaceable nozzle contains an internal aerosol/liquid barrier filter to prevent liquid from being aspirated into the pipette. Additionally, the nozzle filter offers protection to internal parts from routine exposure to hazardous liquids and vapors. If this filter becomes wet, the pipette will not aspirate fluid until a new nozzle is installed or the nozzle filter is replaced.

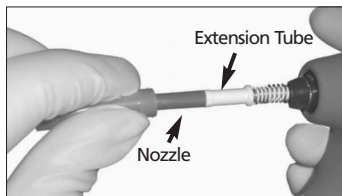
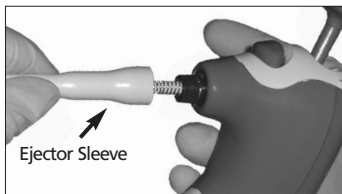
Note: Wear gloves when doing these procedures

Replacing the Nozzle

1. Remove ejector sleeve by pulling it away from the pipette body to expose the nozzle assembly.
2. Place tubing provided on nozzle, and unscrew it in a counterclockwise direction. If it is suspected that the air tube has been contaminated, gently wipe the end of the air tube with a slightly dampened, lint-free tissue, then dry it off.

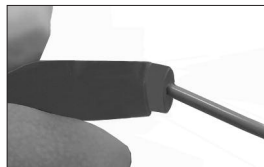
Note: Do not block or dislodge the metal piece that extends from the air tube of all except the Ovation 1000 μ L.

3. Place tubing on a new nozzle, and screw the nozzle onto the extension tube in a clockwise direction. Firmly tighten and remove tubing.
4. Slide the ejector sleeve over the nozzle assembly.
5. Push the sleeve firmly into place while using a slight rocking or twisting motion.

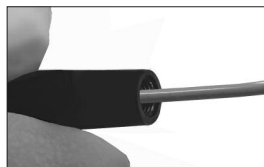


Replacing the Nozzle Filter (10–100 μ L, 20–200 μ L and 100–1000 μ L models only)

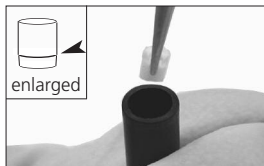
1. Remove the ejector sleeve (as shown earlier)
2. Remove nozzle by placing the rubber tubing provided onto the nozzle, and unscrew it in a counterclockwise direction.
3. Remove the rubber plug at the tip end of the nozzle by inserting a straightened paperclip into the small hole in the plug. Use the inserted end of the paperclip to pry the plug out of the end of the nozzle.



4. Insert the paperclip into the threaded end of the nozzle and push out the old filter.



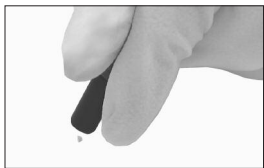
5. Pick up a new nozzle filter with tweezers or fingers and place it into the tip end (non-threaded) of the nozzle. The end of the filter with the visible ridge should be inserted first.



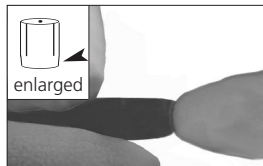
6. Use the filter insertion tool to push the filter into position. Firmly press down until the filter is pushed to the bottom of the nozzle.



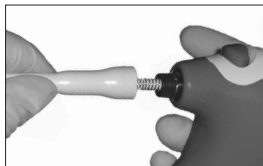
7. Tap the nozzle on the counter to remove any loose cellulose material.



8. Re-insert the rubber nozzle plug into the front end of the nozzle. The end of the plug without side ridges is inserted first. Press in until plug is even with surface edge of the nozzle. If filter is not completely seated, the plug will extend beyond the end of the nozzle. Remove plug and firmly seat filter with insertion tool.



9. Place rubber tubing back onto the nozzle, and screw the nozzle onto the pipette in a clockwise direction. **Firmly tighten** and remove tubing from nozzle. Re-install ejector sleeve.



Plunger Assembly Seals

VistaLab Technologies suggests that the Ovation pipette's seals be replaced annually, or if any of the following symptoms are evident:

- Accuracy and precision claims cannot be achieved *(not result of technique or method)*
- The pipette does not aspirate or dispense *(even after nozzle or filter has been replaced)*
- The pipette leaks *(when using the recommended Ovation tips)*

See the support area of the VistaLab Technologies web site – www.vistalab.com – for complete instructions about replacing plunger assembly seals and the purchase of an appropriate seal kit. Information is also available on the web site indicating the procedure for returning the pipette to VistaLab Technologies for in-factory replacement of the plunger assembly seals.

Battery

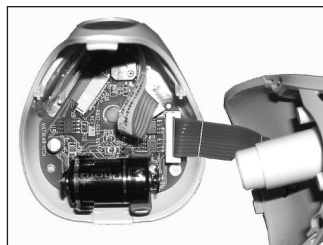
The Ovation pipette has a user replaceable CR2, 3 volt lithium battery (catalog # 9057-4001) with an expected life of one (1) year or more of typical use. The battery symbol on the LCD indicates the battery capacity remaining. When r2.03 appears on the display or the battery symbol appears "empty", the battery should be replaced. Current volume setting, pre-set volumes, and current calibration factor are not lost during a battery change.




Replacing the Battery


1. Loosen the captive screw on the base of the pipette and gently lower the base from the body, being careful not to stretch, loosen or disconnect the cable from the circuit board.

! Do not separate the front and back sections of the body at any time. Doing so will void the pipette warranty.



2. Note the orientation of the battery. Pull the battery out of the clips, being careful not to break them off. Gently pinch clips so when a new battery is installed there will be a tight fit and good contact on the battery terminals.
3. Install the new battery, matching the polarity  to the symbol imprinted between the battery clips.
4. Carefully fit the base back onto the body of the pipette and tighten the screw. Do not overtighten.



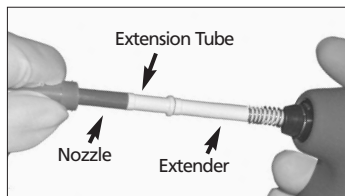
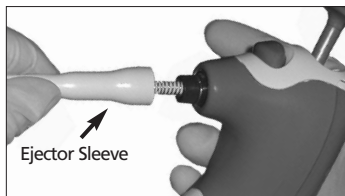
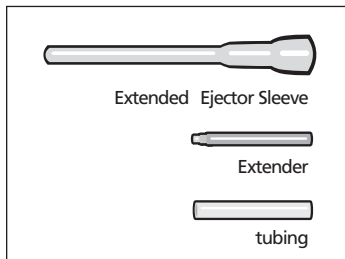
If no battery is installed in the clip for an extended time and/or the volume display is blank when the new battery is installed, the volume display will show an "r" value. To return the LCD to its routine display, press the  button once. The LCD will display all character sets and then display a flashing volume. "Lock In" this volume or change volume as needed.



Use of any other battery can cause damage to the pipette and void its warranty.

Nozzle Extender Kit

Some applications require aspiration from tall sample tubes. A Nozzle Extender Kit is available to extend the reach of your Ovation pipette.



Installing the Nozzle Extender Kit

Note: Wear gloves when doing this procedure.

1. Remove the standard ejector sleeve by pulling it away from the pipette body to expose the nozzle assembly.
2. Place the piece of tubing provided on nozzle, and unscrew it in a counterclockwise direction.
3. Place tubing onto the nozzle extender, and screw it onto the extension tube in a clockwise direction. Firmly tighten and remove tubing.
4. Place tubing onto the nozzle, and screw the nozzle onto the extender in a clockwise direction. Firmly tighten and remove tubing.
5. Slide the extended ejector sleeve over the nozzle assembly.
6. Push the sleeve firmly into place while using a slight rocking or twisting motion.

Troubleshooting

Symptom: Display is blank, r2.03 . . . r2.xx is displayed, or  is displayed

Probable cause and/or recommended action:

Battery is dead or end clips are not making good contact. Remove battery and gently pinch end clips. Reseat the battery in the metal connectors and ensure that good contact is being made. If the display is still blank, replace the battery. See page 13.

Symptom: Pipette is not aspirating properly and/or plunger action is sluggish

Probable cause and/or recommended action:

- Check that the nozzle with internal filter is not obstructed.
 - The aerosol/liquid barrier filter in the nozzle may have become wet and the nozzle or filter needs to be replaced, or the nozzle and/or extender may have come loose. Firmly tighten the nozzle. If the pipette still does not aspirate, replace the nozzle or filter with a new one. See page 10 or 11.
 - Check that nozzle is tight onto extension tube.
 - The plunger seals may be worn. Replace seals in plunger assembly and lubricate plunger with lubricant enclosed in seal kit. Order Viton seal kit if working with organics or solvents. See the support area at www.vistalab.com for more information.
 - Examine the plunger for foreign substances, corrosion or etching. Clean plunger with alcohol. Lubricate with appropriate lubricant (included in seal kits).
-

Symptom: Pre-set volume settings stored for later recall appear to be unavailable

Probable cause and/or recommended action:

When modifying the preset volume, the  button was not depressed and held until a “chirp” was heard. See “Changing Volume Instructions” on page 4.

Symptom: When setting the volume, the setting shown on the LCD is blinking.

Probable cause and/or recommended action:



The new volume has not been “Locked In”. Press the plunger and hold until three “beeps” are heard.

Symptom: When setting volume, “alert” sound is heard and “----” is flashing on LCD

Probable cause and/or recommended action:

The new volume setting has not been “Locked In”. Press the plunger and hold until three “beeps” are heard.**Symptom:** E-01, E-13 or E-14 is displayed on the LCD

Probable cause and/or recommended action:

Press any button. Depress the plunger to the first stop and hold until three “beeps” are heard. If error remains, “home” the plunger by simultaneously pressing and holding the  and  buttons until \overline{RL} appears on the LCD. Depress the plunger to the first stop, and release it. Then depress the plunger to the first stop again and hold until three “beeps” are heard.



Symptom: E-03 is displayed on LCD

Probable cause and/or recommended action:

The calibration factor is greater than the allowable $\pm 10\%$ range. To clear the display, press any button. Repeat the calibration sequence to ensure that the correct values have been entered and that the current calibration factor is appropriate. It may be necessary to repeat the actual liquid measurement at a calibration factor of 1.000, and then use these values in the calibration sequence.


Symptom: The pipette has been dropped

Probable cause and/or recommended action:

“Home” the plunger by simultaneously pressing and holding the  and  buttons until \overline{RL} appears on the LCD. Depress the plunger to the first stop, and release it. Then depress the plunger to the first stop again and hold until three “beeps” are heard.

Symptom: Spillage may have entered the body of the pipette

Probable cause and/or recommended action:

Carefully remove the base. If any residue is noted, remove the battery from the clips, wipe the spill or residue with 70% alcohol. Allow to air dry. Replace the battery. Press the  button one time to restore the Ovation to routine operation.

Symptom: Pipette will not eject tips

Probable cause and/or recommended action:

Substitute tips are being used which do not allow tip to be seated properly and/or ejected properly. Switch to Ovation or MLA brand tips. If Ovation or MLA brand tips are not ejecting properly, the ejector spring may be broken. Return pipette to factory.

Symptom: Hook has become loose

Probable cause and/or recommended action:

Use a 2.4mm (or 0.1”) flat blade screwdriver to tighten screw located in front of the adjustable hook. Do not overtighten as plastic could be damaged.

Symptom: Ejector sleeve will not stay on

Probable cause and/or recommended action:

Pipette has been dropped and black socket under ejector sleeve has broken. Return pipette to factory.

To recover from any error not described, press any button to clear the display, and then depress the plunger to the first stop and hold until three “beeps” are heard.

If any errors continue, or if additional troubleshooting assistance is needed, contact VistaLab Technical Services.

Accessories for Ovation Pipettes – Adjustable Models

Nozzles, Filters, Extenders & Ejector Sleeves

Catalog No.	Description
9057-1013	Nozzle for Ovation model 0.2–2 μ L, 5/Box
9057-1010	Nozzle for Ovation models 1–10 μ L & 2–20 μ L, 10/Box
9057-2010	Nozzle for Ovation models 10–100 μ L & 20–200 μ L, 10/Box
9057-3010	Nozzle for Ovation model 100–1000 μ L, 10/Box
9057-2009	Nozzle Replacement Filters for models 10 μ L–100 μ L & 20–200 μ L, 25/bag
9057-3009	Nozzle Replacement Filters for model 100 μ L–1000 μ L, 25/bag
9057-1016	Type A Nozzle for Ovation 100–1000 μ L, 5/Box
9057-1012	Nozzle Extender for all models <u>except 0.2–2μL and 100–1000μL</u>
9057-1011	Ejector sleeve for all models <u>except 100–1000μL</u>
9057-3011	Ejector sleeve for Ovation 100–1000 μ L

Plunger Assembly Seal Kits

Catalog No.	Description
9057-1001	Seal Kit for Ovation 0.2–2 μ L
9057-1002	Seal Kit for Ovation 1–10 μ L
9057-1003	Seal Kit for Ovation 2–20 μ L
9057-2004	Seal Kit for Ovation 10–100 μ L
9057-2034	Viton Seal Kit for Ovation 10–100 μ L
9057-2005	Seal Kit for Ovation 20–200 μ L
9057-2035	Viton Seal Kit for Ovation 20–200 μ L
9057-3006	Seal Kit for Ovation 100–1000 μ L
9057-3036	Viton Seal Kit for Ovation 100–1000 μ L

Miscellaneous

Catalog No.	Description
9057-4001	CR2 Battery – for all models
9057-4002	Calibration Labels, 5/Box
9057-4003	Ovation Pipette Stand
9057-4004	Cap Opener Kit, Qty 3
9057-4005	Replacement thumb button
9057-4006	Replacement base screw

Ovation Tips – A fitting solution.

Whether the requirements of your application require tips that are sterile, RNase/DNase certified, Pyrogen-free, Trace Metal certified or filtered, there's a genuine Ovation tip to meet your needs. See the tip chart (below) or visit our web site – www.vistalab.com for complete information on all the tip options for the Ovation BioNatural Pipette, plus accessories and calibration and repair services.

4058-1000

Catalog number

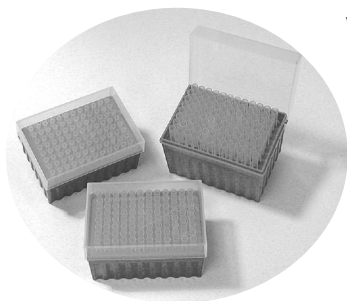
Ovation – adjustable volume models:

0.2-2µL		
1.0-10µL	10-100µL	
2.0-20µL	20-200µL	100-1000µL

		TIP SIZE:	MICRO	SMALL	LARGE
NON-STERILE	VistaRak 192 tips/rack, 5 racks		4060-1002	4060-2004	4060-3004
	VistaStak, 192 tips/layer, 5 layers (small size) or 3 layers (micro and large size)		4060-9024	4060-9025	4060-9026
	VistaBulk™, 1000 tips/bag		4058-1000	4058-2000	4058-3000
	Protectainer™ Bulk Pack, 1000 tips (small) or 750 tips (large)			4025	4026
	Econo-Pak™ Bulk Pack, 1000 tips			4225	4226
STERILE	VistaRak, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks		4060-1032	4060-2132	4060-3132
	VistaTip™ Individually Wrapped Sterile, 200 tips			2025	2026
	VistaTip Individually Wrapped, Sterile, Pyrogen-free, 200 tips			2027	2028
FILTERED	VistaRak, Filtered, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks † 2µL tip for Ovation 0.2-20µL, Ovation 1µL and Ovation 2µL only		4060-1332 4060-1333†	4060-2332	4060-3332

Note: Filtered tips contain a unique hydrophobic filter which acts as a barrier to aqueous liquids and aerosols, protecting the pipette and sample from trace amounts of carryover.

To maximize the exceptional performance and benefits of the Ovation BioNatural Pipette, we recommend using Ovation tips. “One-size-fits-all” substitute tips can (and probably will) have negative effects on ease of use and performance. Ovation tips provide a perfect fit every time and are available in a variety of volume sizes and packaging configurations.



Whether the requirements of your application require tips that are sterile, RNase/DNase certified, Pyrogen-free, Trace Metal certified or filtered, there’s a genuine Ovation tip to meet your needs. Visit our web site – www.vistalab.com for complete information on all the tip options for the Ovation BioNatural Pipette.



* Autoclavable

† Fits Ovation 0.2-2µL only

†† Not for use with Ovation 0.2-2µL

2 Filtered tips contain a unique hydrophobic filter which acts as a barrier to aqueous liquids and aerosols, protecting the pipette and sample from trace amounts of carryover.

Note:

Packaging materials for the products shown in the tables may be imprinted with only the Ovation brand name, or only the MLA-brand name. However, all Ovation and MLA Pipettes are fully compatible with the tips listed.

Ovation BioNatural Pipette Specifications

Model	Volume Range (µL)	Dispensing Increments (µL)	Accuracy*	Precision*
Ovation 2µL (1057-0002)	0.2 – 2	.002	±1.5% at 2µL ±2.7% at 1µL ±9% at 0.2µL	0.9% at 2µL 1.8% at 1µL 7.6% at 0.2µL
Ovation 10µL (1057-0010)	1 – 10	.01	±1% at 10µL ±1.5% at 5µL ±2.5% at 1µL	0.4% at 10µL 0.6% at 5µL 1.2% at 1µL
Ovation 20µL (1057-0020)	2 – 20	.02	±1% at 20µL ±1.5% at 10µL ±7% at 2µL	0.3% at 20µL 0.5% at 10µL 2% at 2µL
Ovation 100µL (1057-0100)	10 – 100	.1	±0.8% at 100µL ±0.8% at 50µL ±3.5% at 10µL	0.15% at 100µL 0.24% at 50µL 1% at 10µL
Ovation 200µL (1057-0200)	20 – 200	.2	±0.8% at 200µL ±0.8% at 100µL ±2.5% at 20µL	0.15% at 200µL 0.25% at 100µL 1% at 20µL
Ovation 1000µL (1057-1000)	100 – 1000	1.0	±0.8% at 1000µL ±0.8% at 500µL ±3% at 100µL	0.15% at 1000µL 0.2% at 500µL 0.6% at 100µL

* Specifications subject to change. See www.vistalab.com for current information.



Performance data above is based on the use of Ovation tips from VistaLab Technologies. If using tips from another manufacturer, the above performance claims may not be achieved.

General Product Information

Product Description: The Ovation pipette is a variable volume, air displacement, 2 stroke piston pipette intended to aspirate and dispense precise fluid volumes.

Operating Temperature & Environment:

Temperature Range: 15° – 35°C

Relative Humidity Range, non-condensing: 10-85%

Atmospheric Pressure: 70-106 kPa

Pipette body chemical compatibility: Water, diluted ethanol or isopropanol, diluted bleach. See the document “Ovation Chemical Compatibility” in the support area at www.vistalab.com about other specific chemical formulations concerning the pipette or VistaLab tips.

Safety Compliance

Ovation pipettes have been tested and approved for safety labels:

EN 61010-1:1992 Safety Requirements CSA C22.2, No. 1010.1-92

EN 61326 EMC Requirements

UL 3111-1



Warranty

VistaLab Technologies, Inc. warrants the Ovation BioNatural Pipette against defects in materials and workmanship for one year from the date of purchase. To register your pipette and activate the warranty, return the enclosed registration card, or register on the VistaLab Technologies web site at www.vistalab.com.

This warranty is void if defects or damage result from improper handling, unauthorized modification, or use of ancillary products not supported by VistaLab Technologies. This warranty is exclusive; no other warranty is expressed or implied.

Should the pipette need to be returned for service or calibration verification, contact Customer Service for a return authorization. Repack the pipette in its original packaging. Customer is responsible for shipping and insurance charges. If original packaging is unavailable, contact VistaLab Technologies for alternative packaging instructions. Damage to the pipette as a result of improper packaging is the responsibility of the customer.



Use of the Ovation pipette not specified in this manual may impair protection provided by the equipment. For the most current information about Ovation pipettes, tips and accessories, see www.vistalab.com.

To send in your pipette for factory maintenance and/or calibration verification, see the support area of our web site – www.vistalab.com. For technical assistance, contact us at:

VistaLab Technologies, Inc.

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Mt. Kisco, NY 10549 USA

1-888-652-6520 (North America only)

1-914-244-6226 (Worldwide)

e-mail: techservice@vistalab.com