

Operator's Guide for Adjustable Volume-Set Pipettes

(Ovation QS)



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OVATION QS ADJUSTABLE VOLUME-SET PIPETTES

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Product Description

Ovation BioNatural™ pipettes are the ideal ergonomic solution for liquid handling tasks that contribute to repetitive stress injuries in today's laboratory. Ovation pipettes increase laboratory efficiency through improved liquid handling routines, while reducing fatigue and the effect of poor postures.

The Ovation QS 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.

Please activate the pipette's warranty on the VistaLab Technologies web site – www.vistalab.com. The required on-line form can be found in the "service" menu. Retain all packing materials in the event that the pipette is to be sent back to VistaLab Technologies for calibration verification or service.

Specifications

Model	Volume Range (µL)	Dispensing Increments (µL)	Accuracy	Precision
Ovation QS 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 QS 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 QS 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 QS 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 QS 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 QS 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

Note: Performance data 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. Specifications subject to change. See www.vistalab.com for current information.

Pipette Components



Description

Plunger
Tip Eject Button
Adjustable Hook
Ejector Sleeve
Nozzle
Body
Volume Adjustment UP
Select Button
Volume Adjustment DOWN
LCD Screen Display

Function

Initiates pipetting action and changes volume setting
Ejects disposable pipette tips with minimal thumb force
Accommodates left and right handed users
Stored energy from tip installation releases tips
Tapered, chemically resistant coupling that secure pipette tips
Contoured grip surface for comfort, eliminating tight hand grip
Adjusts volume setting up
Allows user to step through pipette's menu
Used to easily open PCR and microtubes
Displays current settings

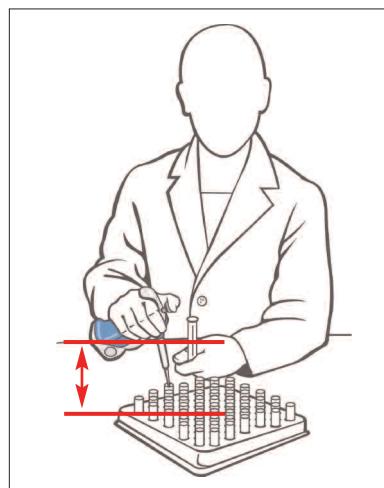
Introduction

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 remain low to the work surface, wrist rotation should not exceed 90°, and hand posture should remain relaxed with the wrist and back of hand slightly flexed.

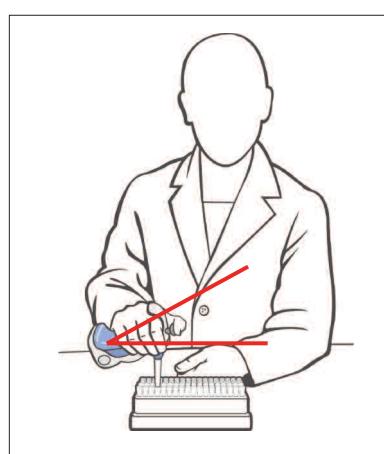
Posture



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

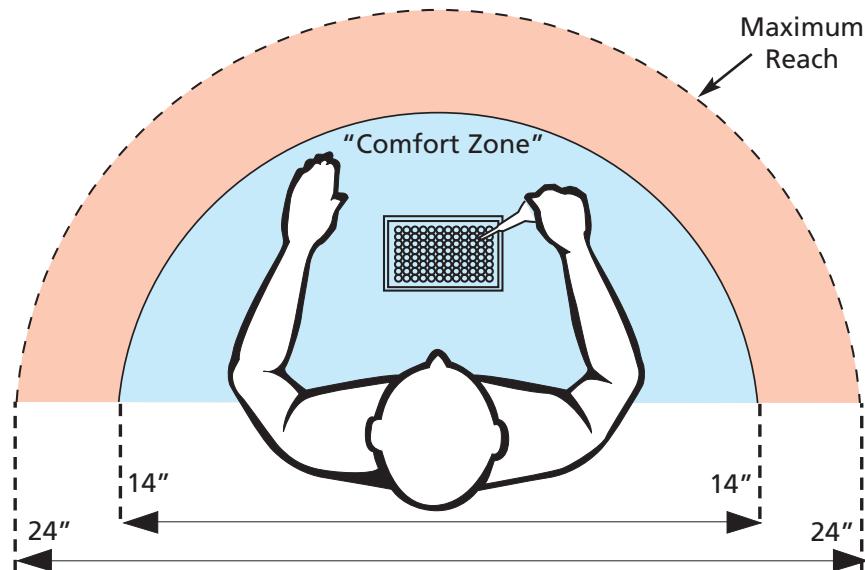


A loose, relaxed grip increases available strength in the hand, improving endurance and productivity during pipetting



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

**Keep a “comfort zone”
for pipetting**



Ergonomics experts recommend establishing a “comfort zone” of movement for the task of pipetting. Position your body within 9” of the counter surface, and keep the items needed within easy reach. Ideally this should be 14” or less, and should not exceed 24” of occasional reaching. Wrist rotation should not exceed 90° from the work surface, and arm/hand elevations should remain low to the counter surface.



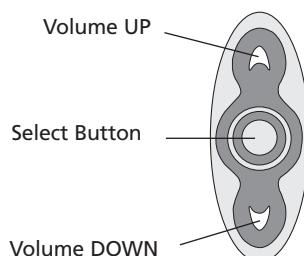
Ovation comfort-zone benefits:

1. Minimized tension and fatigue
2. Minimized exertion and contact stress
3. Low contact pressure
4. Lowest pressure in carpal tunnel and to median nerve
5. Minimized tension to shoulder and elbow

Picking Up the Pipette



Changing Volume Setting



The Ovation QS has been designed to allow the body of the pipette to fill your palm. Rotate the adjustable hook to rest comfortably on your forefinger. The texture of the unit's back helps reinforce correct hand positioning.

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

Keep hand posture relaxed – there's no need for a "firm grip" when using an Ovation pipette.

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. Any precise volume throughout the pipette's volume range can also be selected.

To change a volume setting, press the Δ or ∇ buttons until the desired volume appears on the LCD 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 Ovation is ready for use at the new setting.

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 \textcircled{C} 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 \textcircled{C} button until the volume setting to be changed appears on the LCD. Press the Δ or ∇ buttons to scroll the display to the new volume setting (volume display will be flashing). Press and hold the \textcircled{C} button (approximately 3 seconds) until a "chirp" is heard. This "locks in" the new setting.

Acquiring Tips



While maintaining a flat wrist-hand posture, insert the Ovation pipette nozzle into a tip. Press down until you hear or feel a “click”. This “click” indicates that the tip is properly seated and 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.

Aspirating and Dispensing



Tip Immersion Depth	
0.2 μ L to 10 μ L	1mm
11 μ L to 100 μ L	2-3mm
101 μ L to 1000 μ L	2-4mm

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.

Ejecting Tips



Ovation pipettes store energy captured during the acquisition of a tip, and use it to discard tip when the tip eject button is pressed. Point pipette tip into a suitable waste container and press the tip eject button to discard the tip.

To minimize forearm elevation and “reaching”, position the waste container below worksurface level or use shallow containers. Raising the arm to discard tips into a tall receptacle on the counter may negate some of the benefits of Ovation’s low-profile design.

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 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.
- Optional Type A nozzles for 100–1000 μ L models are designed to accommodate some non-VistaLab tips.
- If aspirating from 15mL or 50mL centrifuge or other tall tubes, an optional Nozzle Extender accessory is available which lengthens the pipette’s overall reach. If the optional nozzle extender is being used, calibration verification should be checked.



Ovation pipette with Nozzle Extender

Introduction

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 Δ and ∇ buttons until HAL 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

Determining a New Calibration Factor:

1. Simultaneously press and hold the Δ ∇ buttons (about 3 seconds) until CAL appears on the LCD display. If CAL is not displayed and the volume on the LCD is flashing, then re-press the Δ and ∇ buttons, ensuring equal pressure is applied to each button.
2. Press  and release and TARGET (target) is displayed.
3. Press  and release again. Press Δ or ∇ buttons until the maximum volume is displayed.
4. Press  and release and MEAS (measured) is displayed.
5. Press  and release again, then press Δ 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 Δ ∇ 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 Δ 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 Δ 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.

MAINTENANCE & TROUBLESHOOTING

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The Ovation pipette requires minimal maintenance. Always store it in its “standing” position or on the Ovation Pipette Stand (Catalog No. 9058-4003) when not in use.

Cleaning Exterior

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 isopropranol, or use a 10% bleach solution followed by water.



WARNING! Only wipe the volume display with water.

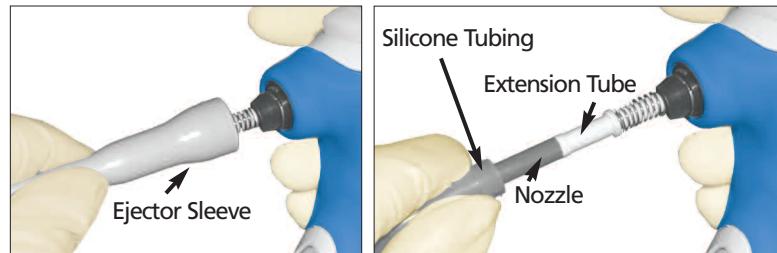
Disinfecting Nozzles

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.

Wipe the exterior surface of nozzles with disinfectant or a 10% bleach solution. Care should be taken not to get the barrier filter inside the nozzle wet, as the pipette will not aspirate and dispense properly until corrective action is taken.

Replacing a Nozzle

If the pipette is not aspirating and dispensing properly, it could be caused by (a) poor fitting alternate source tip, (b) nozzle is loose and needs to be tightened by turning it clockwise, or (c) a nozzle or nozzle filter needs to be replaced as liquid has been aspirated into it.



NOTE: Wear gloves when doing this procedure.

1. Remove ejector sleeve by pulling it away from the pipette body to expose the nozzle assembly.
2. Place silicone tubing provided on nozzle, and unscrew nozzle in a counter-clockwise direction. Gently wipe the exposed end of the extension tube with a slightly dampened, lint-free tissue, then dry it off.
Note: Do not block or dislodge anything at the end of the extension tube.
3. Place silicone tubing on a new nozzle, and screw the nozzle onto the extension tube in a clockwise direction. Firmly tighten and remove silicone 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.

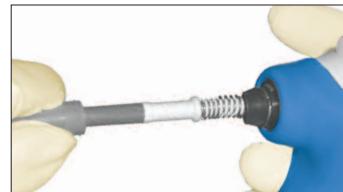
Replacing a Nozzle Filter on Ovation QS Models

NOTE: Wear gloves when doing this procedure.

1. Remove the ejector sleeve.



2. Remove nozzle by placing the rubber tubing provided onto the nozzle, and unscrew it in a counterclockwise direction.



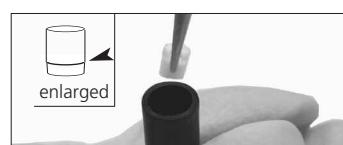
3. Remove the rubber plug at the tip end of the nozzle by inserting a straightened paperclip into the small hole in the plug. Use the inserted end of the paperclip to pry the plug out of the end of the nozzle.



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 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.



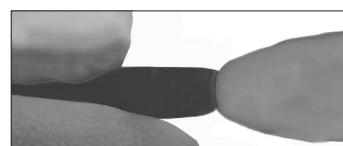
6. Use the filter insertion tool to push the filter into position. Firmly press down until the filter is pushed to the bottom of the nozzle.



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 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 QS 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*)

Replacement Seals:

9057-1001	Seal Kit for Ovation 0.2-2 μ L (QS)
9057-1002	Seal Kit for Ovation 1-10 μ L (QS)
9057-1003	Seal Kit for Ovation 2-20 μ L (QS)
9057-2004	Seal Kit for Ovation 10-100 μ L (QS)
9057-2034	Viton Seal Kit for Ovation 10-100 μ L (QS)
9057-2005	Seal Kit for Ovation 20-200 μ L (QS)
9057-2035	Viton Seal Kit for Ovation 20-200 μ L (QS)
9057-3006	Seal Kit for Ovation 100-1000 μ L (QS)
9057-3035	Viton Seal Kit for Ovation 100-1000 μ L (QS)

See the Support area of the VistaLab Technologies web site – www.vistalab.com – for complete instructions about replacing plunger assembly seals. 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.

Replacing the Battery

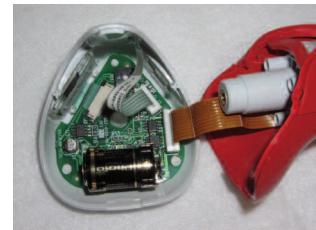
The Ovation QS pipette has a user replaceable CR2, 3 volt lithium battery (catalog # 9057-4001) with an expected life of one (1) year or more of typical use.

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.



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

Troubleshooting

If the Ovation pipette fails to function as expected, review the following.

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

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.

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.
- 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"

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

Troubleshooting

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 Δ and ∇ buttons until $_{CAL}$ 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 Δ and ∇ buttons until $_{CAL}$ 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.

TIPS & ACCESSORIES

5

Whether your application requires 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 QS Pipette, plus accessories and calibration and repair services.

4060-1002 Example catalog number

		0.2-2 μ L	1.0-10 μ L	10-100 μ L	2.0-20 μ L	20-200 μ L	100-1000 μ L
	TIP SIZE:	MICRO	SMALL	LARGE			
Ovation Quick-Set adjustable volume models:							
VistaRak 192 tips/rack, 5 racks		4060-1002	4060-2004	4060-3004			
VistaRak, Low Retention 192 tips/rack, 5 racks		4070-1002LR	4070-2004LR	4070-3004LR			
VistaStak, 192 tips/layer, 5 layers (small size) or 3 layers (micro and large size)		4060-9024	4060-9025	4060-9026			
Stacked Rack, 200 tips/layer, 5 layers (small size) or 3 layers (large size)			9025	9026			
Stacked Rack, Trace Metal Certified, 200 tips/layer 5 layers (small size) or 3 layers (large size)			9022	9023			
VistaBulk™, 1000 tips/bag, or 250 tips/bag (5mL) or 100 tips/bag (10mL)		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			
VistaRak, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks		4060-1032	4060-2132	4060-3132			
VistaRak, Sterile, Pyrogen-free, Low Retention, RNase/DNase certified, 192 tips/rack, 5 racks		4070-1032LR	4070-2132LR	4070-3132LR			
VistaTip™ Individually Wrapped Sterile, 200 tips			2025	2026			
VistaTip Individually Wrapped, Sterile, Pyrogen-free, 200 tips			2027	2028			
VistaRak, Filtered, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks † 2 μ L tip for Ovation 0.2-2 μ L		4060-1332 ¹ 4060-1333 [†]	4060-2332	4060-3332			
VistaRak, Filtered, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks 192 tips/rack, 5 racks († 2 μ L tip for Ovation 0.2-2 μ L)		4070-1332LR ¹ 4070-1333LR [†]	4070-2332LR	4070-3332LR			
Nozzle, 5/box (0.2-2 μ L) or 10/box † for Ovation 0.2-20 μ L only		9057-1013 [†] 9057-1010	9057-2010	9057-3010			
Nozzle Replacement Filters, 25/bag		n/a	9057-2009	9057-3009			
Type A Nozzle, 5/box		n/a	n/a	9057-1016			
Nozzle Extender (except 0-2-2 μ L)			9057-1012	9057-3012			
Ejector Sleeve			9057-1011	9057-3011			
CR2 Battery – for all models			9057-4001				
Calibration Labels, 5/box			9057-4002				
Ovation Pipette Stand			9057-4003				
Cap Opener Kit, Qty 3			9057-4004				
Replacement thumb button			9057-4005				
Replacement base screw			9057-4006				

Notes: 1. Not for use with Ovation Quick-Set .02-2 μ L.



VistaRak™



VistaStak™



Stacked Rack

Warranty

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

This warranty is void if failure or damage is the result of 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 calibration verification or service, go to support area of www.vistalab.com and follow the instructions for sending the pipette to VistaLab Technologies. 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.

Note: Damage to the pipette as a result of improper packaging is the responsibility of the customer.

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



Note: Use of the Ovation pipette not specified in this manual may impair protection provided by the equipment.

Contact Information

To place an order or to send in your pipette for factory maintenance and/or calibration verification, see the service area of www.vistalab.com. Pipettes should be sent to:

VistaLab Technologies, Inc.
Attn: Pipette Repair Department
2 Geneva Road
Brewster, NY 10509 USA

For additional assistance with warranty repairs or other technical assistance, contact us at: **1-914-244-6226** (Worldwide) or (888) 652-6520 (North America only), or send an email to techservice@vistalab.com

**General
Product
Information****Operating Temperature & Environment Conditions**

Indoor use / Pollution Degree 2

Altitude up to 2000m

Temperature Range: 15°–35°C

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

Atmospheric Pressure: 70–106kPa

Pipette Body Chemical Compatibility

Water, diluted ethanol or isopropanol, diluted bleach. For more information about chemical compatibility with internal seals or pipette tips, see the documentation library in the support area of our web site – www.vistalab.com.



If the pipette is to be used with hazardous fluids, safe laboratory practice is to 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 under "Support" at www.vistalab.com for more information.