

# Motor + Flex Circuit Replacement

Ovation QS



*When to replace:*

E-01 or E-14

When changing the volume setting if the motor ‘bounces’ or is ‘jammed’ (no movement)

*Tools Required:*

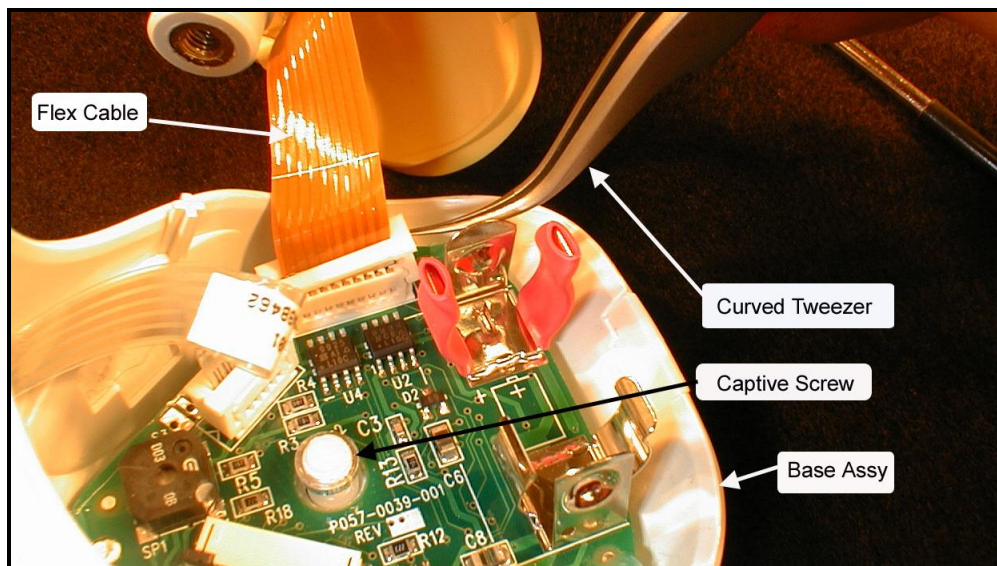
- Tweezers
- 5/16” Hex driver
- T6 or T9 Torx driver
- CalSA software package

*Replacement Parts:*

- **G057-0124-001** : Motor + Flex Circuit Assembly

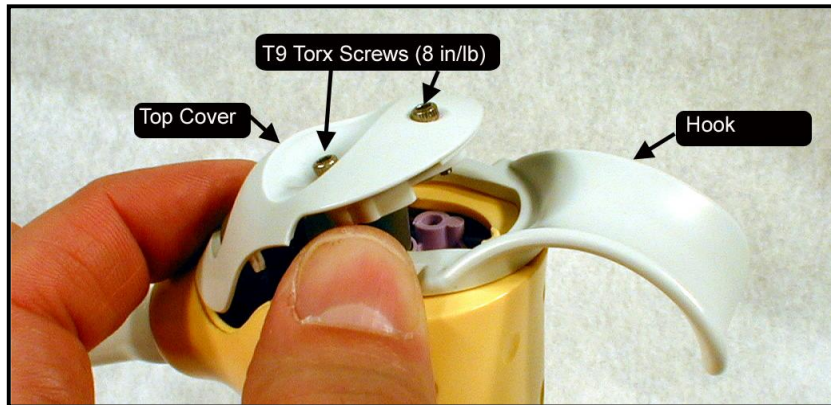
## **Disassembly:**

1. Loosen the Base Captive Screw with a coin or tweezer and carefully remove the white base from the colored body of the unit.
2. Disconnect the Motor Flex Cable connector as in **Figure 1** and remove the CR2 battery.



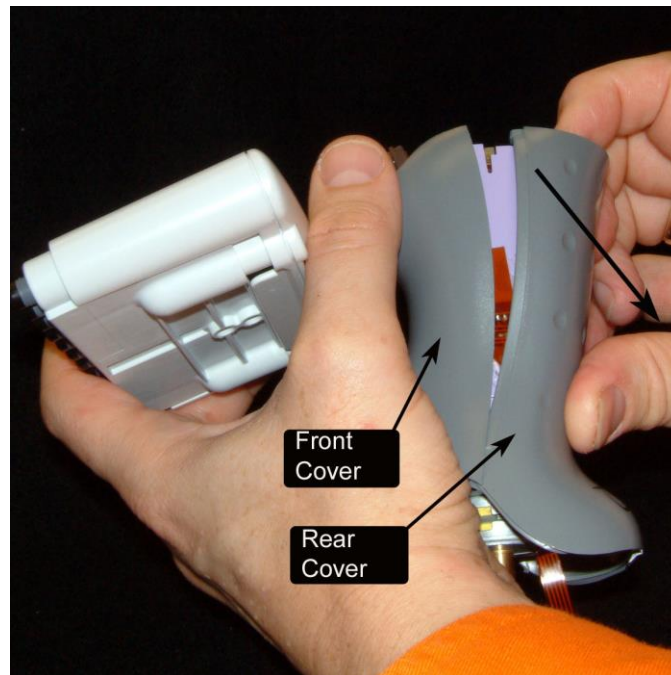
**Figure 1: Flex Cable Connection and Base Captive Screw**

3. Remove Hook and Top Cover assy using Torx/ Hex driver



**Figure 2: Remove Hook and Top Cover**

4. Separate the Front Cover from Read Cover. NOTE: Hot melt used to hold covers together must be pulled off



**Figure 3: Separate Front and Rear Cover**

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5. Remove the 3 Motor screws and remove Motor + Flex circuit.
6. Take the Motor nut from old motor lead screw and install onto the new motor lead screw (G057-0124-001).
7. Install new motor into the frame w/ 3 Motor screws.

NOTE: make sure the motor nut is set on top of the plunger and there is no interference w/ butterfly and sensor.

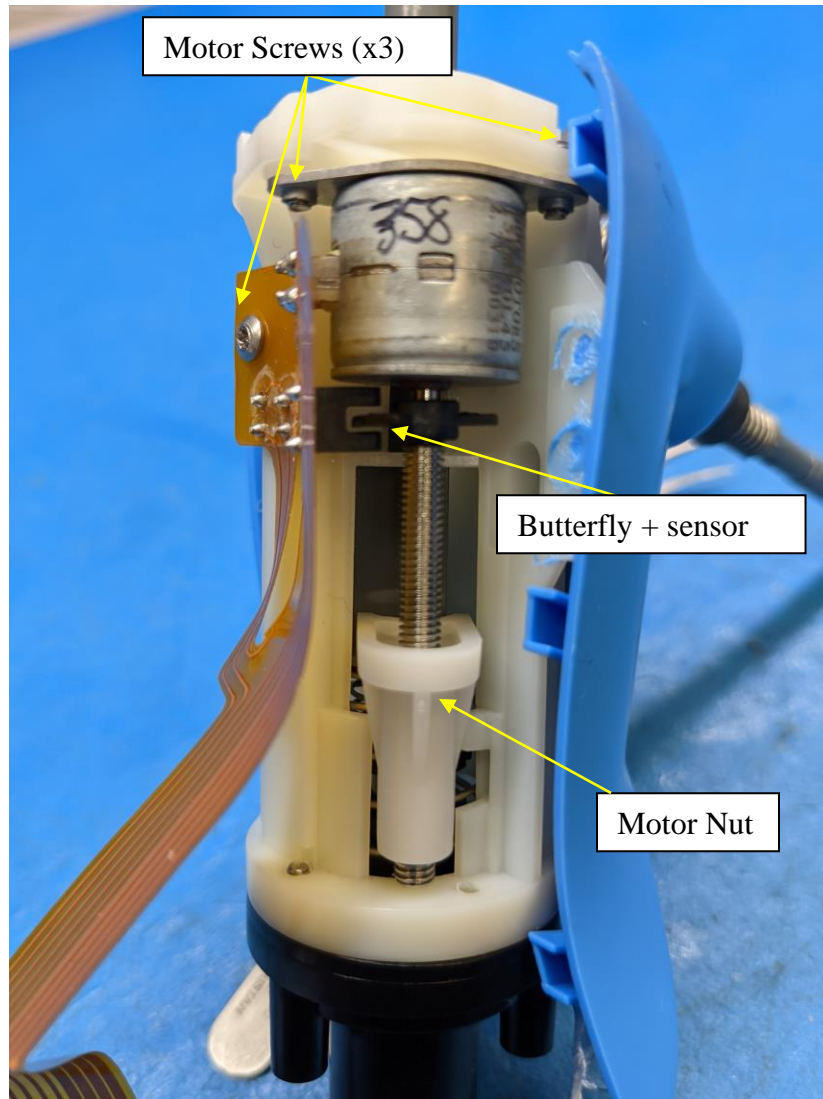


Figure 5 Replacing Motor + Flex Circuit



8. Reinsert new Motor flex cable into connector on the PCB.  
NOTE: Make sure gold leads are facing outward

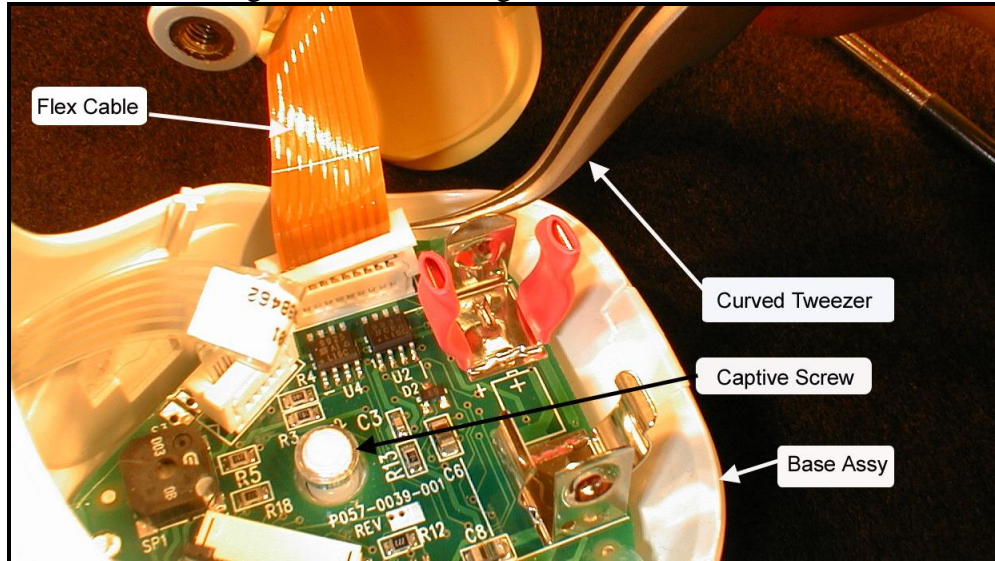


Figure 5 Inserting keypad assembly to base

### Reprogram PCB:

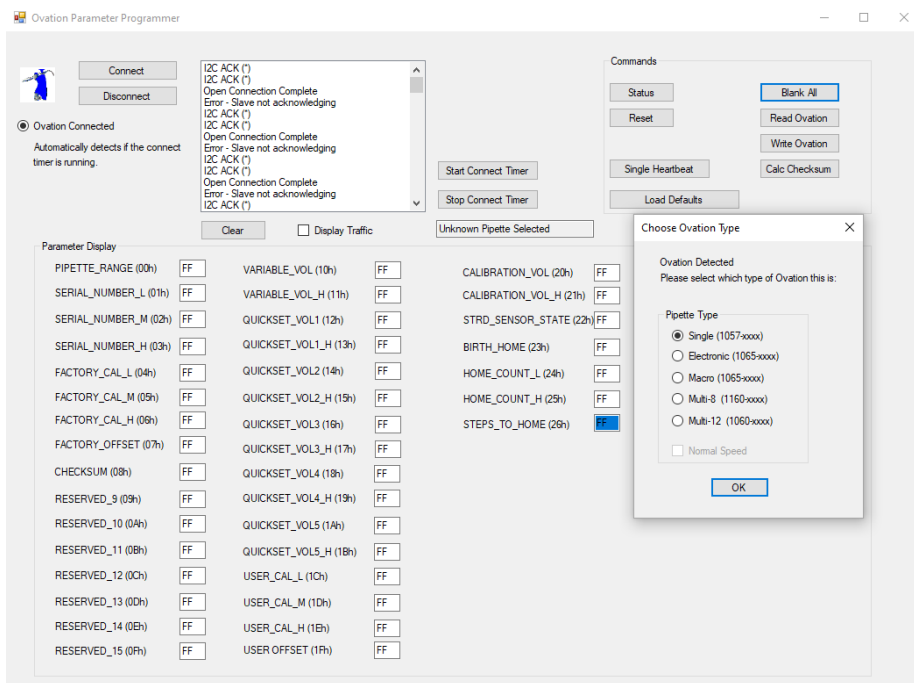
1. Open CalSA software and connect unit w/ the i2C cable. Make sure the Ovation icon appears when connected



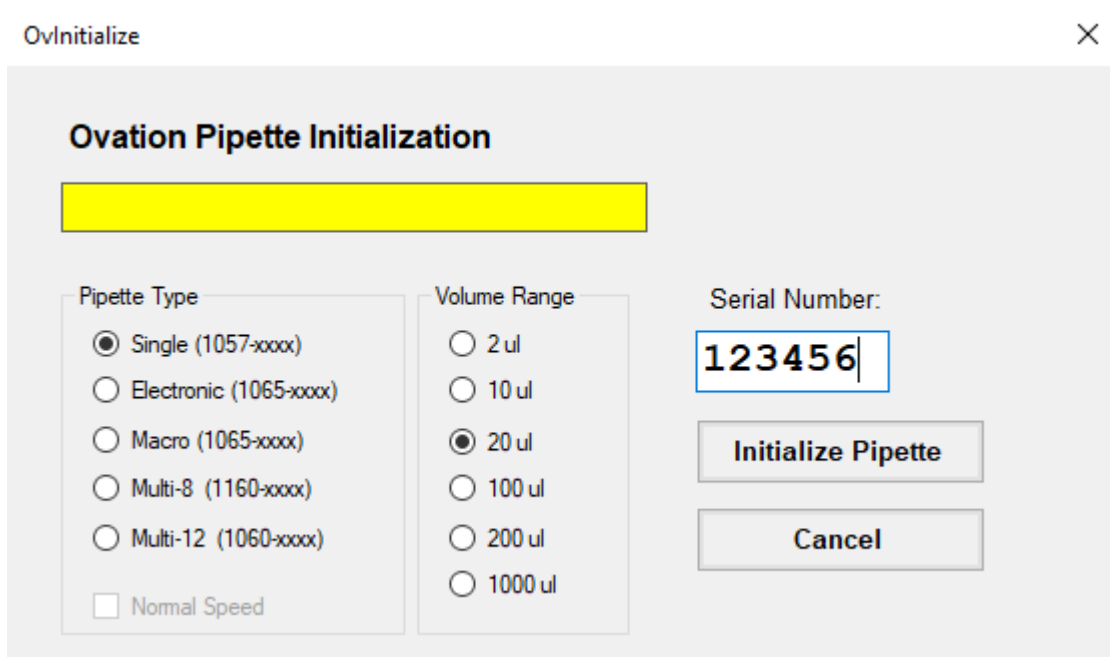
2. Select **Ovation Programmer** and make sure Ovation icon still appears in top left corner of the screen
3. Click **BLANK ALL** and wait for all the Parameter Display values to be set to 'FF'

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4. Disconnect the i2C cable from unit and install CR2 battery. Make sure Ovation icon disappears from screen when disconnected
5. Reconnect unit w/ i2C cable and make sure Ovation icon re-appears in top left corner of the screen
6. Click **LOAD DEFAULTS**
7. Choose **Single (1057-XXX)** on the pop-up screen for Ovation Type
8. Select the correct volume range, confirm correct color, and enter the Serial Number and click **Initialize Pipette**



### ***Motor Homing inspection:***

To test motors for potential errors after installation, unit must be HOME at least once on each of the 5 volume settings.

1. Press and HOLD the Up and Down arrow buttons on the keypad to enter settings. After 3 secs, you should hear a beep and the LCD should read 'CAL'
2. Press the plunger down to the first stop twice and HOLD down on the 2<sup>nd</sup> press. The motor will bottom out on the frame before going to volume setting position. You should hear 2 beeps signaling successful homing.
3. Perform this homing routine for all 5 volume presets positions.
4. If any Errors occur during homing, check the following:
  - a. No interference w/ motor nut from ribbon cable
  - b. No interference w/ butterfly and sensor
  - c. E-14 Bouncing = Blank and reprogram motor again
  - d. E-01 Jam = replace motor again

### ***Reassemble:***

1. Screw base to top half assembly and fold the Flex Circuit to prevent interference with Motor
2. Reinstall rear cover
3. Reinstall Hook and Top Cover
4. Perform another Motor Homing Inspection on all 5 volume presets, as in previous step.

### ***Calibrate:***

Calibrate unit w/ CalSA software. Adjustments to Offset or Cal Factor may be necessary.