Axopatch 200A Manual Addenda

If you have the Axopatch 200A manual Rev D, the following addenda must be inserted.

On page 9, the first section should read as follows:

ADJUSTMENT OF PIPETTE CAPACITANCE COMPENSATION

Now connect the MODEL CELL in the PATCH position to the headstage connector and surround with grounded aluminum foil. With the panel meter set to I_{RMS}, the reading should be less than 0.200 pA rms. Return the meter setting to I.

Turn the gain switch (α) to 10 and turn on SEAL TEST. On the oscilloscope, you will see two capacitance transients, one near the beginning of the sweep and the other near the end. They will be of opposite polarity. This is comparable to what you would see immediately following a gigohm seal between your pipette and cell. Using the FAST MAG control, reduce the size of the capacitance transient as far as possible. Switch the gain to 500. Now use both the FAST MAG and FAST τ controls to minimize the transient. This is done iteratively. Turn the FAST MAG slightly and then readjust the FAST τ for minimum transient. Do this over and over again until you find the setting where the transient is finally minimized (Fig. 1). With some practice, you will be able to use the two controls simultaneously to compensate stray capacitance rapidly. With real electrodes, but probably not with your MODEL CELL, the capacitance transient will have more than one component. SLOW MAG and SLOW τ controls are provided for minimizing a second electrode component in real experiments.

On page 15, the initial setup is a response from Figure 2d, ***not*** *3d as indicated.*

On page 24, the second-to-last paragraph should read as follows:

If you plan to use an external function generator or the output of a computer driven D/A converter to provide command potentials, the signal should be connected to the EXT. COMMAND INPUT BNC (front switched or rear-switched) on the back of the Axopatch 200A. This is switched with an attenuation of 20 mV/V when the EXT. COMMAND switch is set to the ON position.

Axopatch 200A Manual Addenda

(continued)

On page 30, the paragraph should read as follows:

Two rear panel BNCs are provided specifically for use in single-channel recording with the integrating headstage. One is the FORCED RESET INPUT. A disadvantage of integrating headstages is that they must be reset periodically. The larger the current that flows, the more often resets occur. Although the reset glitches are small they may be bothersome to some single-channel detection schemes. In pulsed experiments it is possible to minimize the occurrence of these glitches by resetting the integrator immediately before applying a voltage step. For many kinds of channels this ensures that no reset glitches will occur during the brief recording period following the onset of the command. This is again done by using a second channel of D/A converter or a digital output to apply a TTL pulse to the FORCED RESET line just before applying the command step. To ensure that one does not unknowingly utilize data taken during a reset or an external blanking, a DATA NOT VALID OUTPUT is supplied to the user. This line produces a TTL HI (positive) during the time that the output is held via the sample and hold circuit either during reset or blanking. The user is free to implement some scheme to interrogate this line during data collection to determine precisely when the data are not valid.

On page 45, the Mode Telegraph Output section should read as follows:

MODE TELEGRAPH OUTPUT — Provides a series of voltages that can be read by the computer to determine the setting on the MODE switch. The voltages and their associated switch settings are as follows:

Mode:	V-CLAMP	TRACK	I-CLAMP NORMAL	I-CLAMP FAST
Scaled Output:	I	I	V_m	V_m
Telegraph (volts):	6	4	2	1

On page 87, the Cell Capacitance section should read as follows:

Cell Capacitance

Telegraph Output: 0 to +10 V, proportional to setting 0-100 pF (0-1000 pF for CV 202A) when WHOLE CELL CAP. switch is in the ON position.
0 to -10 V, when WHOLE CELL CAP. switch is in the OFF position.