KITTEN CALIBRATION PROCEDURE

The following test equipment is required in order to perform calibration of the instrument.

1. A high input impedance digital voltmeter of at least 3½ digit accuracy.
2. A DC coupled, triggered oscilloscope.
3. A digital frequency counter, strobe tuner, or suitable Reference Frequency standard.
4. An amplifier with speaker or headphones capable of high fidelity.

Before beginning the calibration procedure, the following steps must be taken:

1. Be sure that the instrument has warmed up for at least ½ hour
2. Connect the audio output to a monitor amplifier
3. Center the Octave Shift switch and Pitch Bend controls.
4. Be sure that all modulation controls and glide are fully off
5. "Fc" control fully up and "Q" control fully down
6. VCA switch is in the BYPASS position
7. All pedal inputs disconnected

NOTE: CALIBRATION MUST BE PERFORMED IN THE SEQUENCE PRESENTED. FAILURE TO DO SO WILL
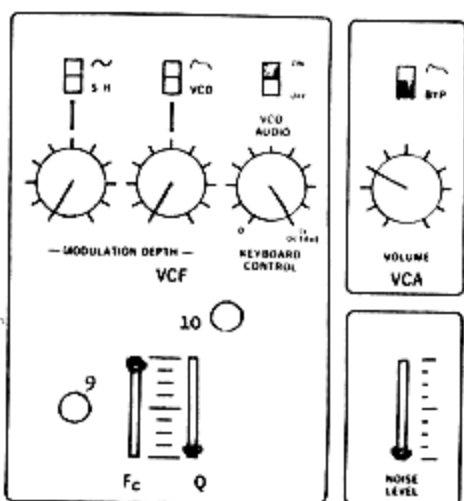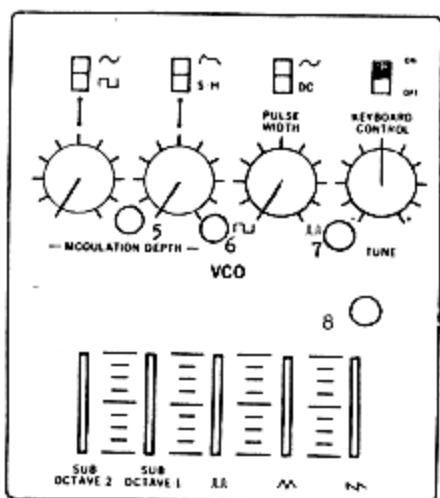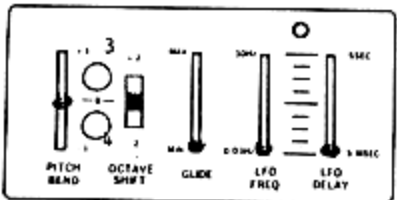   RESULT IN AN IMPROPERLY TUNED INSTRUMENT.

TRIMMER	ADJUSTMENT	PROCEDURE
1	KEYBORAD CURRENT	1. Monitor the CONTROL VOLTAGE output(ring of the TO SLAVE output jack) with a digital voltmeter. 2. Adjust the KEYBOARD CURRENT TRIMMER for a difference of exactly 3.000 volts between the hightest and lowest keys depresses on the keyboard.
6	VCO RANGE	1. Place the KEYBOARD CONTROL switch in the ON position. 2. Turn up the VCO sawtooth slider. 3. Set the VCO TUNE controls to the 12 o'clock position. 4. Pin A2 on the keyboard. 5. Adjust the VCO RANGE TRIMMER until the frequency of VCO is approximately 440 Hz.
5	VCO V/OCT	1. Place the KEYBOARD CONTROL in the ON position. 2. Pin high C on the keyboard. 3. Using the VCO FREQUENCY controls, tune VCO to Reference Frequency until zero beat occurs. 4. Depress low C and adjust the VCO V/OCT Trimmer the frequency of VCO is exactly three octaves below that of Reference Frequency. At this point, zero beat eill occur. 5. Repeat step 2,3, and 4 until no further adjustment is necessary.

3	OCTAVE TRANSPOSE	1. Leave the VCO KEYBOARD CONTROL switch in the ON position. 2. Pin high C. 3. Tune VCO and Reference Frequency to zero beat. 4. Depress C2. 5. Place the OCTAVE switch in the +2 position. 6. Adjust the OCTAVE TRANSPOSE TRIMMER for zero beat between VCO 1 and Reference Frequency.
4	PITCH BEND	1. Repeat steps 1,2, and 3 for the OCTAVE TRANSPOSE adjustment. 2. Depress C3 3. Place the PITCH BEND slider in the +1 position. 4. Adjust the PITCH BEND TRIMMER for zero beat between VCO 1 and Reference Frequency.
7	VCO INITIAL PULSE WIDTH	1. Turn up the VCO ⊓⊔⊓ slider and turn all other audio sources fully off. 2. Check that the PULSE WIDTH control is fully off. 3. Monitor the synthesizer output with an oscilloscope. 4. Adjust the VCO INITIAL PULSE WIDTH TRIMMER for 50% duty cycle.
10	VCO TRIANGLE SYMMETRY	1. Turn up the VCO ∧∧ slider and turn all other audio sources fully off. 2. Monitor the output of the synthesizer with an oscilloscope. 3. Adjust the TRIANGLE WAVE SYMMETRY TRIMMER until the waveform is symmetrical.
2	ADSR ATTACK ADJ.	1. Place the "A" and "S: sliders of the ADSR fully up with the "D" and "R" sliders fully down. 2. Bring up the VCO sawtooth slider and turn all other audio sources off. 3. Check that the ADSR REPEAT switch is in the OFF position. 4. Turn up the VCO MODULATION CONTROL corresponding to the switch with the ADSR ⌐⌐ position fully clockwise. Be sure that this switch is in the ADSR ⌐⌐ position. 5. Place the OCTAVE switch in the -2 position and the PITCH bend control in the -1 position. 6. Depress C2 and adjust the ADSR TRIMMER for a smooth transition from the ATTACK to the SUSTAIN level. This will be evident as a rising pitch that smoothly levels off as a key is held down.

10	VCF V/OCT	1. Turn all audio sliders fully off.
		2. Bring up "Q" control so that VCF oscillates.
		3. Turn up the VCF KEYBOARD CONTROL to maximum (1V/OCT).
		4. Pin A3 on keyboard.
		5. Using the "Fc" control, adjust the VCF frequency to 1729 Hz.
		6. Depress A 1, and adjust the VCF V/OCT TRIMMER for 440 Hz.
		7. Repeat steps 5 and 6 until no further adjustment is necessary.
9	VCA CONTROL REJECT	1. Connect an oscilloscope to the high audio output.
		2. Turn up the VCA VOLUME to maximum.
		3. Place the VCA switch in the ⌐‾⌐ (ADSR) position.
		4. Bring all audio slider, "Fc", and "Q" controls all the way down.
		5. Bring the "S" slider of the ADSR up fully with all other ADSR sliders set to minimum.
		6. Place the ADSR REPEAT switch in the AUTO position.
		7. Bring up the LFO FREQUENCY slider to maximum.
		8. Be sure that the VCF modulation controls are fully off and that no keys are pinned down.
		9. Adjust the VCA CONTROL REJECT TRIMMER for maximum output.

the kitten synthesizer by Octave Electronics Inc.

TRANSIENT GENERATOR

A D S R

GATED
OFF
AUTO

ADSR REPEAT

VCO
NOISE

SAMPLE HOLD

PITCH BEND   OCTAVE SHIFT   GLIDE   LFO FREQ   LFO DELAY

MAX   DC

VCO

S H   DC

PULSE WIDTH   KEYBOARD CONTROL   ON   OFF

— MODULATION DEPTH —   TUNE

SUB OCTAVE 2   SUB OCTAVE 1

VCF

S H   VCO   VCO AUDIO   ON   OFF

— MODULATION DEPTH —   KEYBOARD CONTROL

Fc   Q

VCA

BYP

VOLUME

NOISE LEVEL
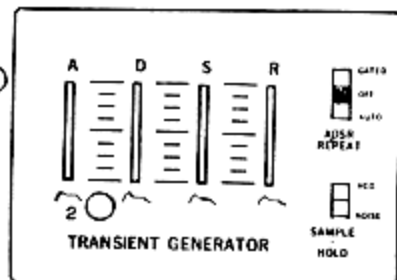
POWER

TRIMMER LOCATIONS

1. Keyboard current	6. VCO range
2. ADSR attack time	7. VCO initial pulse width
3. Octave transpose Cal.	8. VCO triangle symmetry
4. Pitch bend Cal.	9. VCA control rejection
5. VCO volts/octave	10. VCF volts/octave

SW1

SW4 SW5 SW6 SW11

GATE OUT
GATE IN
GATE POWER
GND
+15V
-15V
VCO PEDAL IN

GND
CV OUT
CV IN
GATE SW
TR OUT

TR2

A B
Tr 1
Tr 2
Tr 3

SP1 — 47k log — A
SP2 — 1M log — D
SP3 — 200k log — S
SP4 — 1M log — R

IC 20 (SR3)
IC 21

SW2

Q7 Q6

RP1 RP2 RP3 RP4

TR7 TR6 TR9

resistor pack

TR5

Q2
Q1

IC 8
IC 9
IC 10
IC 11
IC 12
IC 13
IC 14
IC 15
IC 16
IC 17
IC 18
IC 19

TR8

SW3

IC 4
IC 5
IC 6
IC 7

resistor pack

SP5 — 100k log — MOD RATE

TR4
TR3

SP6 — 47k log — GLIDE
SP7 — 200k log — LFO RATE
SP8 — 1M log — LFO DELAY

IC 22
IC 23
IC 24
IC 25
IC 26

SP9 — 200k log — SUB 2
SP10 — 100k log — SUB 1
SP11 — 200k log
SP12 — 200k log
SP13 — 200k log

Q3

Q8 Q10

Q11

Q10 Q9

KITTEN
A Board IC locations