



the kitten synthesizer

is probably the most versatile, fattest sounding, and least expensive single-oscillator keyboard synthesizer made in America. Because of its external patching capabilities, the KITTEN can be used as a starting point in a basic synthesizer system geared toward future expansion or it can be used to expand an already existing system. Its many useful features make it a logical choice for a solo instrument, teaching machine, or many other electronic music applications. And, of course, KITTENS and all of the other CAT family synthesizers can be connected in series with a simple stereo cable and played off of one keyboard.

A full 37 note (C to C) keyboard and multiple triggered ADSR allow super-fast, wide range keyboard technique. In the tradition of CAT synthesizers, the KITTEN combines both ROTARY AND SLIDE POTS for easily distinguishing between modulations depths and other synthesizer functions. The panel graphics reflect human-engineered functional clarity logically outlined for ease of operation.

Among its many features, the KITTEN offers:

MIXABLE WAVEFORMS

Each of the 5 VCO waveshapes has its own volume slider. This means that you can blend all of the waveforms in any proportion to achieve complex timbres or to get complex modulations when using the VCO as a modulation oscillator or Sample or Hold source.

THE "FAT-CAT" SUBOCTAVES

The VCO has TWO SUBOCTAVES (one octave and two

octaves below the fundamental oscillator frequency) for aurally simulating the sound of 3 OSCILLATORS and providing the fatness characteristic of the CAT family of synthesizers.

AN "8-NOTE SEQUENCER" PATCH

The two suboctaves provide more than just a fat sound- In fact, by mixing them with the pulse wave and modulating the VCF in the oscillation mode, you can simulate an 8 note sequencer. The frequency spacing, rhythm and tempo of the 8 note sequence are ALL VARIABLE!

AN LFO DELAY AND LFO MONITOR

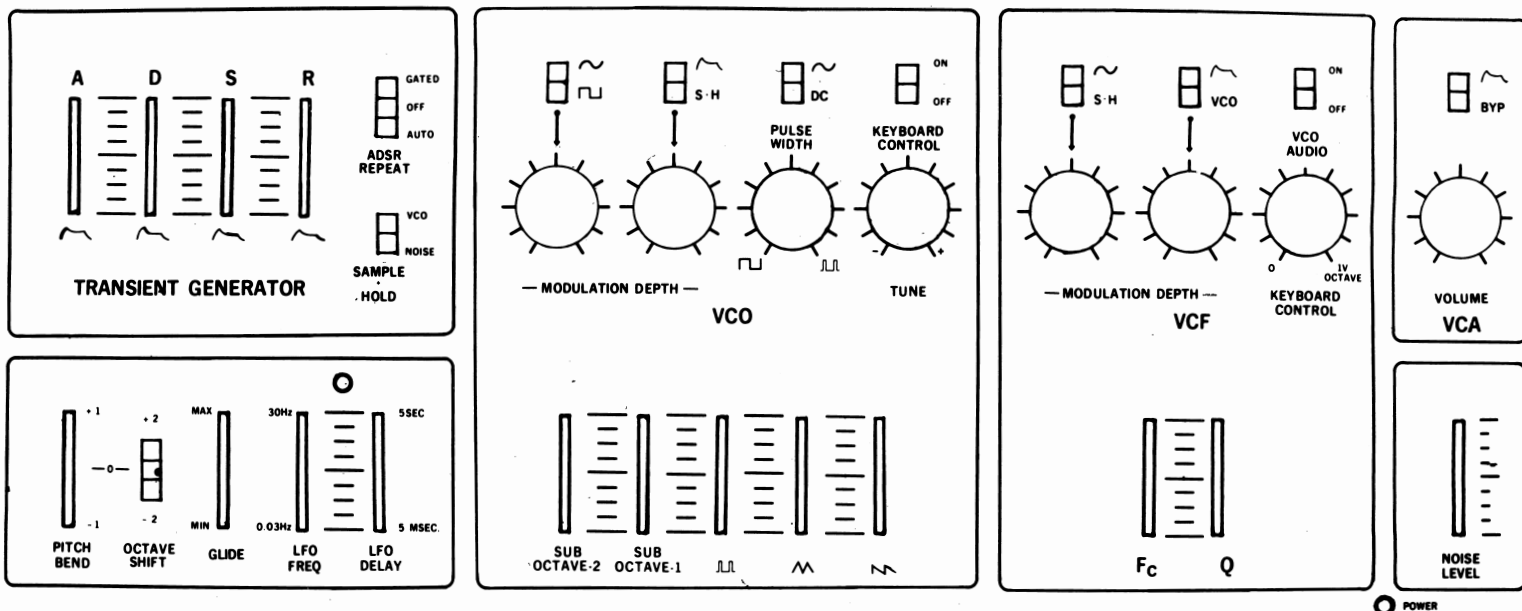
The KITTEN also features an LFO DELAY. This is an incredibly versatile performance device that allows you to preset the time it takes for the LFO sine wave modulations to occur after a key is depressed. This means that you can get delayed vibratos, delayed filter sweeps, and even delayed pulse width modulation - without touching the panel during a performance! And an LFO-MONITOR lets you "see" the LFO speed with a solid state lamp that flashes at the LFO frequency setting.

All of this and an ADSR repeat, automatic Sample & Hold, "Click-stop center-zoned" pitch bend, optional glide on/off switch, VCO sweep pedal and VCF sweep pedal, make the KITTEN a synthesizer whose value and versatility is unsurpassed by its competition.

The KITTEN - Once you've tried one, you'll become a "CAT LOVER".

OCTAVE Electronics Inc.
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SPECIFICATIONS:

SOUND SOURCES:

OSCILLATOR: *Waveforms-*

- sawtooth, triangle, modulated pulse, sub-octave 1 (one octave below the fundamental oscillator frequency), sub-octave 2 (two octaves below the fundamental oscillator frequency), all simultaneously mixable.

Control-

- Can be frequency modulated from 4 different sources with 2 modulation depth attenuators.
- In the KEYBOARD ON mode, tune control has a fine tune range of approximately ± 1 octave, while in the KEYBOARD OFF mode the tune range extends to well over 12 octaves.
- Responds to lowest note depressed in KEYBOARD ON mode and is unaffected by keyboard in KEYBOARD OFF mode.
- Can be controlled by optional pedal.
- Audio can be muted when using VCO as a modulation oscillator.

NOISE SOURCE:

- White noise with variable level.

FILTER:

Response-

- -24dB/octave, variable resonance, low pass filter.

Range-

- 20-20 KHz, oscillation mode produces sine wave output.

Control-

- Can be modulated from 4 different sources with 2 modulation depth attenuators.
- Continuously VARIABLE KEYBOARD RESPONSE from 0 to 1v/octave.
- Can be swept with optional pedal.

VOLTAGE CONTROLLED AMPLIFIER:

- Responds to ADSR or can be bypassed.

CONTROLLERS:

SAMPLE & HOLD:

- Sampling rate determined by LFO.
- Can sample noise source for random effects or can SAMPLE ANY OF THE MIXED VCO WAVES for complex ordered patterns.

TRANSIENT GENERATOR-

- ADSR with gated or automatic multiple repeat whose rate is determined by the LFO.

LOW FREQUENCY OSCILLATOR (LFO)-

- Sine & square wave outputs.
- Frequency adjustable from 0.03Hz to 30Hz.
- LFO MONITOR - a solid state LED lamp flashes at the LFO rate for visual indication of the LFO frequency setting.
- LFO DELAY - delays the sine wave output of the LFO by any variable time between 0-5sec. after a key is depressed for delayed modulation effects.

KEYBOARD-

- 37 notes (C to C).
- Multiple triggering system.
- Transpose switch shifts unit up or down by 2 octaves.
- Pitch bend shifts unit up or down by 1 octave and has center zone locking position.
- Variable glide can be turned on by external pedal.

REAR PANEL PATCHING:

- All standard 1/4" PHONE PLUGS FOR COMPATIBILITY.
- High/low level outputs.
- TO-SLAVE; allows access to keyboard control voltage and gate for driving slave units.
- FROM-MASTER; accepts control voltage and gate from external sources and defeats keyboard control.
- THE TO-SLAVE/FROM-MASTER SYSTEM ALLOWS THE CAT FAMILY SYNTHESIZERS TO CONNECT TOGETHER IN A MASTER/SLAVE ARRANGEMENT WITH A COMMON STEREO CABLE AND ALLOWS MULTIPLE SYNTHESIZERS TO BE PLAYED OFF OF ONE KEYBOARD.
- Glide on/off foot switch input.
- Filter pedal input for foot pedal control of filter cutoff.
- VCO pedal input for foot pedal control of VCO frequency.
- External audio input allows other high level instruments to be processed by the VCF and VCA.

DIMENSIONS:

- 17 1/4" x 24" x 5 1/2" (43.8cm x 61cm x 14cm)

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 $3\frac{1}{2}$ 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 $\frac{1}{2}$ 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	<ol style="list-style-type: none">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 highest and lowest keys depresses on the keyboard.
6	VCO RANGE	<ol style="list-style-type: none">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	<ol style="list-style-type: none">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 will occur.5. Repeat step 2, 3, and 4 until no further adjustment is necessary.

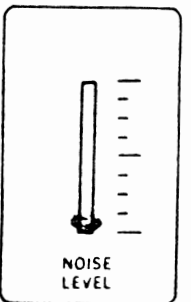
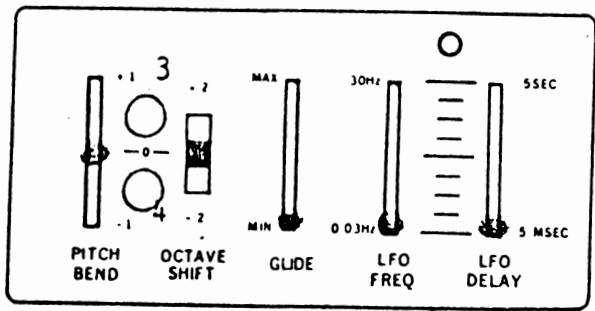
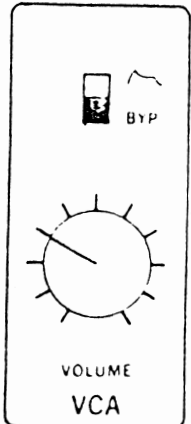
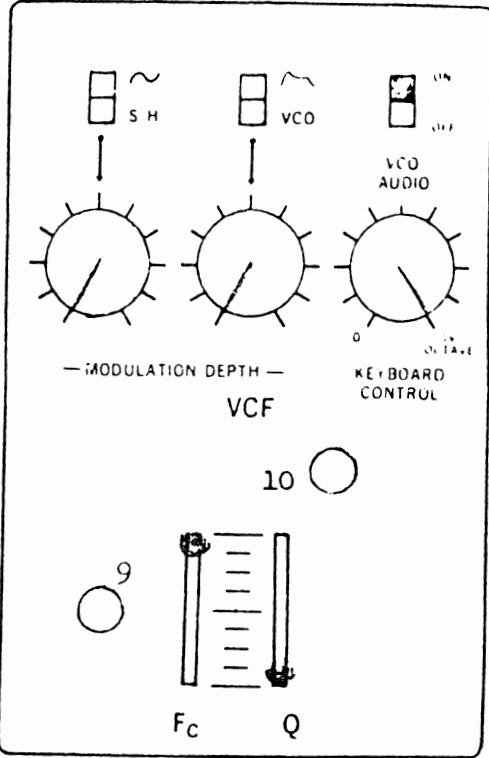
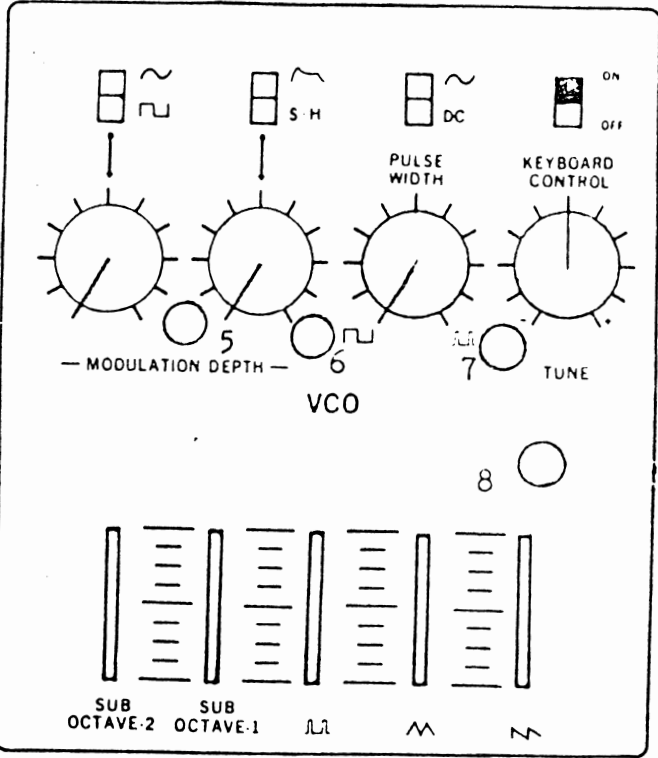
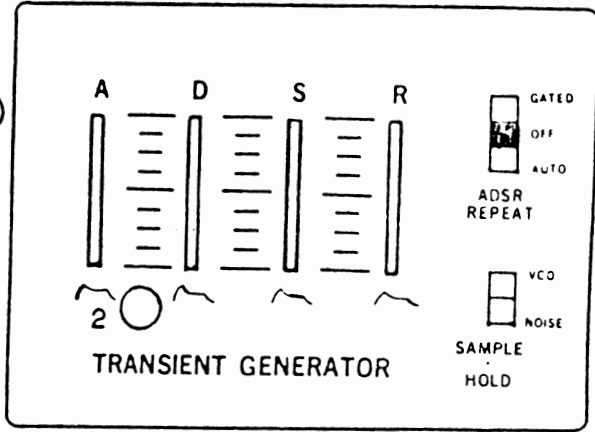
3	OCTAVE TRANSPOSE	<ol style="list-style-type: none"> 1. Leave the VCO KEYBOARD CONTROL switch in the ON position. 2. Pin high C. 3. Tune VCO and Reference Frequency to zero beat. 4. Depress C2. 5. Place the OCTAVE switch in the +2 position. 6. Adjust the OCTAVE TRANSPOSE TRIMMER for zero beat between VCO 1 and Reference Frequency.
4	PITCH BEND	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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

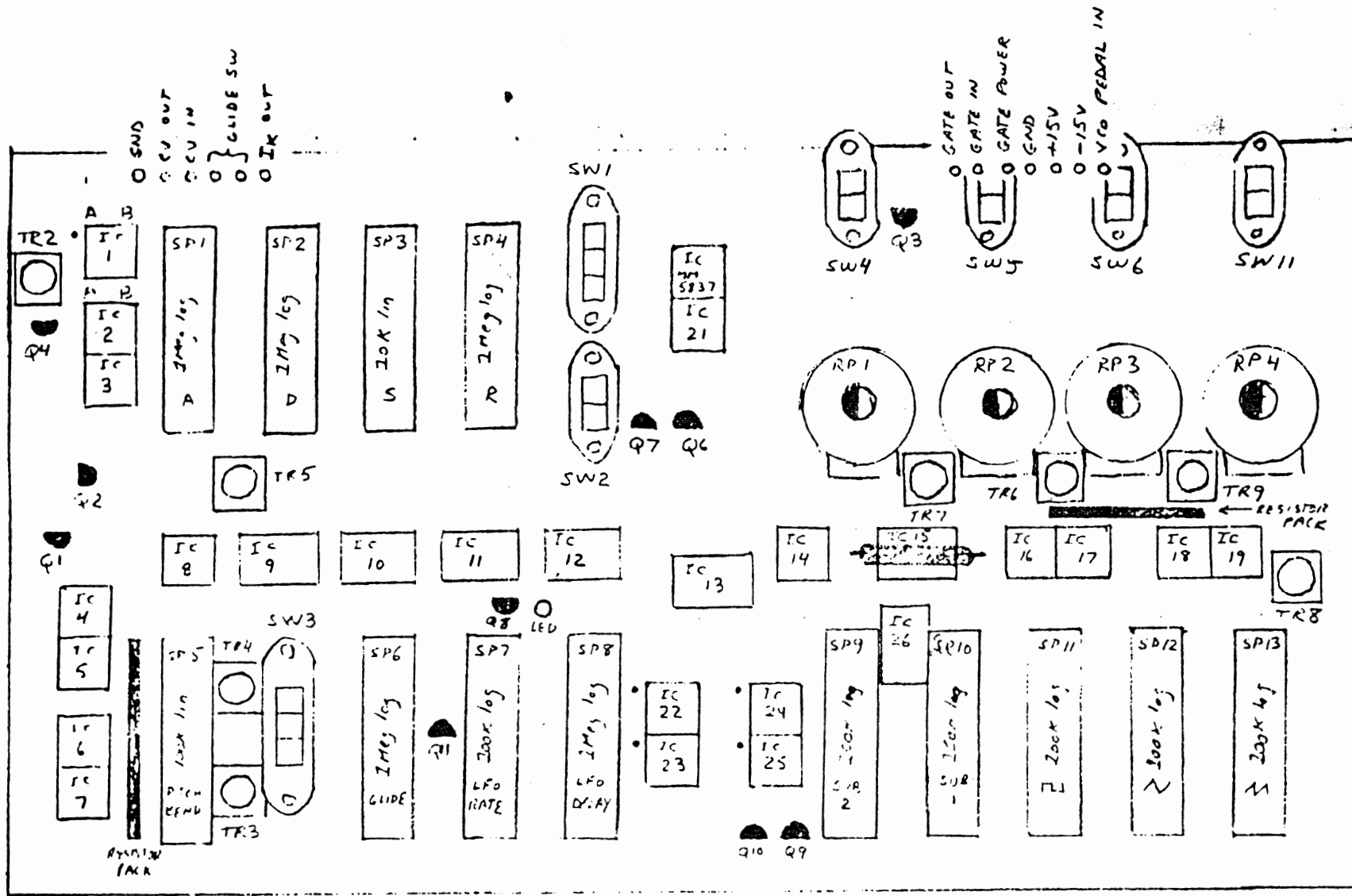
YCAVE Electronics Inc.



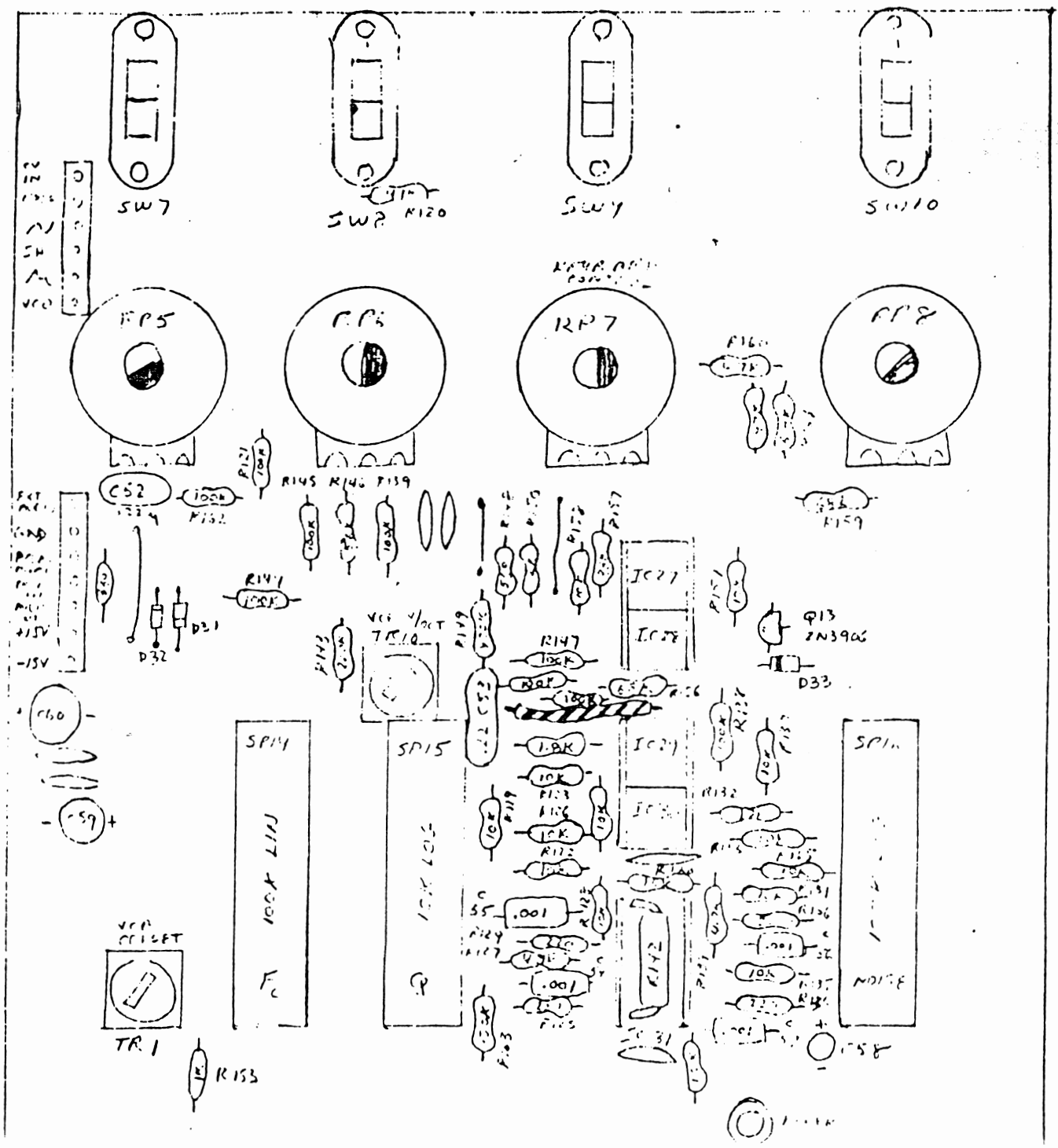
POWER

TRIMMER LOCATIONS

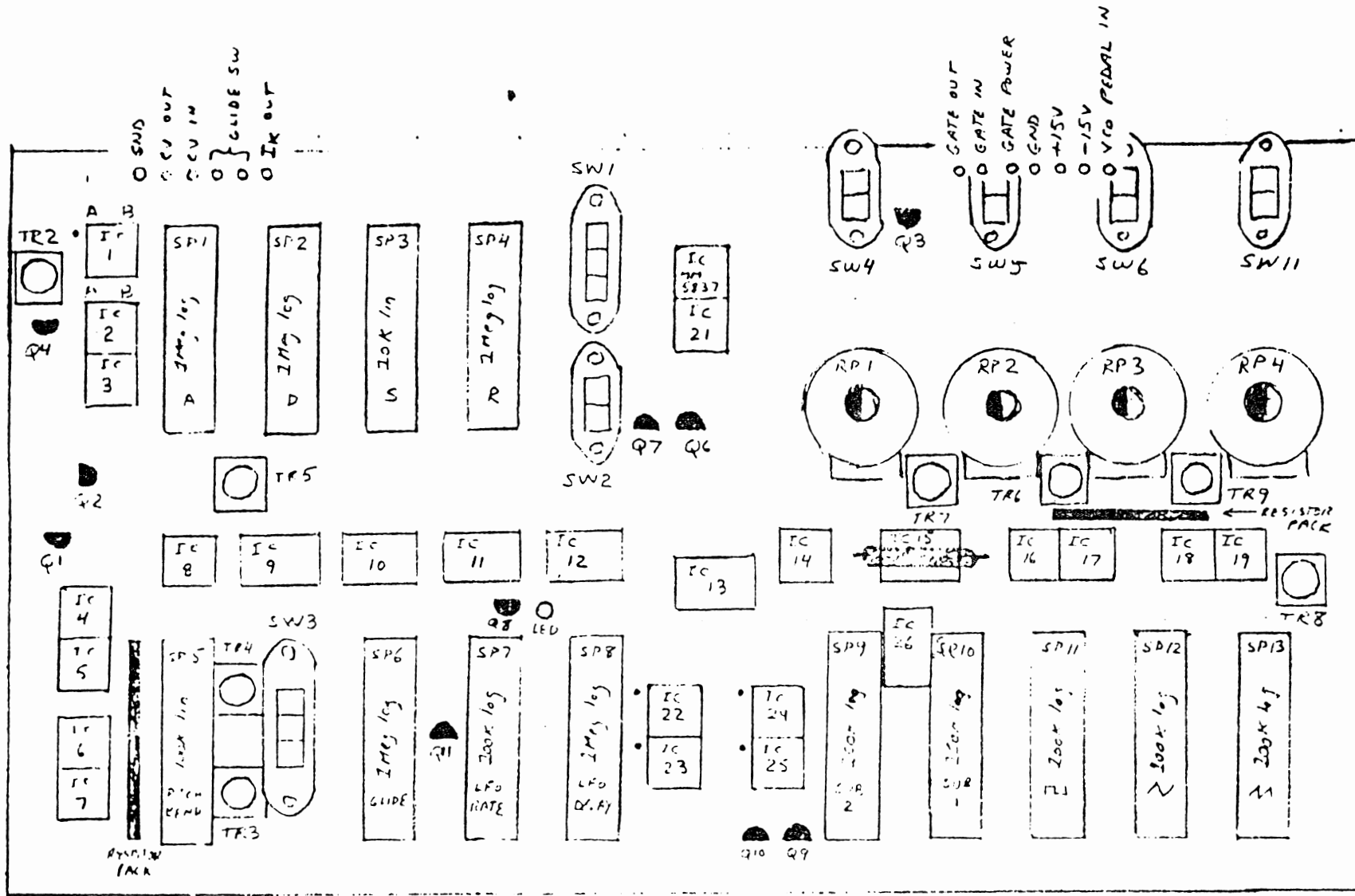
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|--------------------------|----------------------------|
| 1. Keyboard current | 6. VCO range |
| 2. ADSR attack time | 7. VCO initial pulse width |
| 3. Octave transpose Cal. | 8. VCO triangle symmetry |
| 4. Pitch bend Cal. | 9. VCA control rejection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



KITTEN
 A Board IC locations



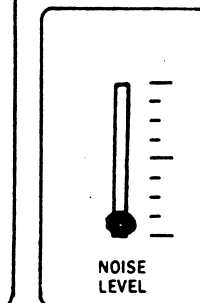
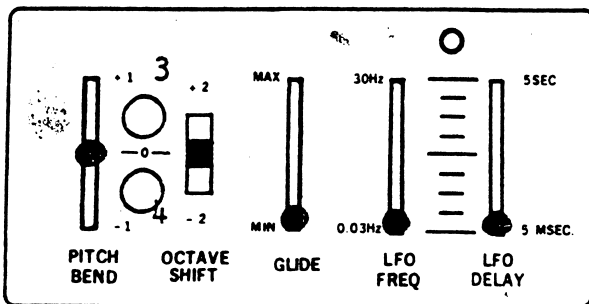
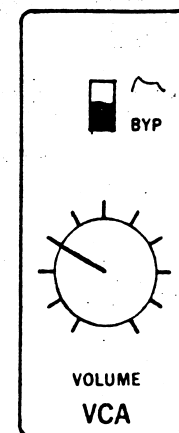
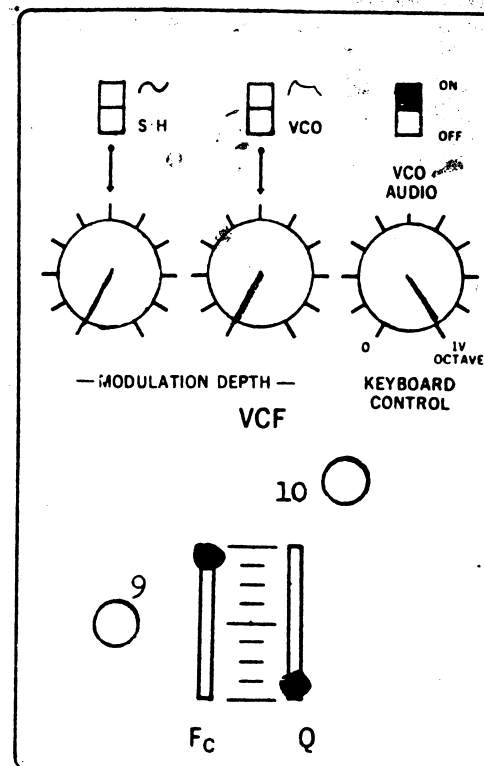
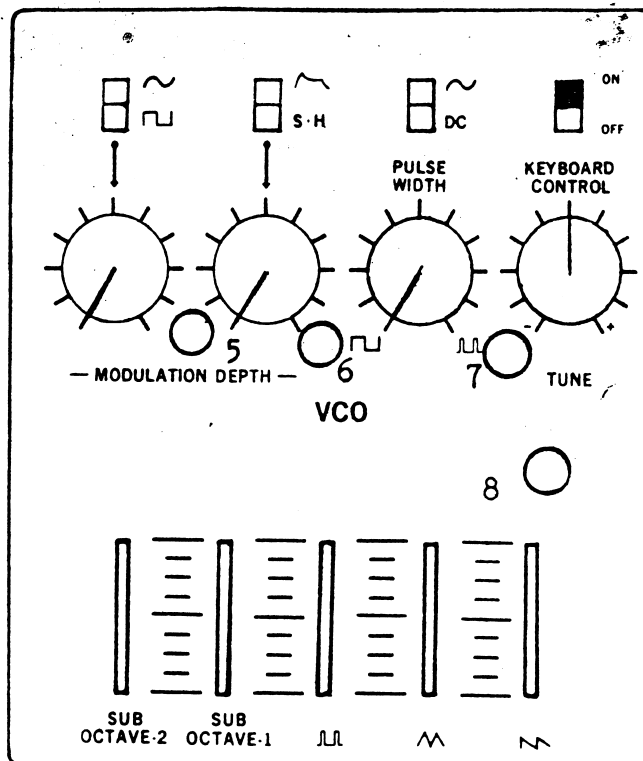
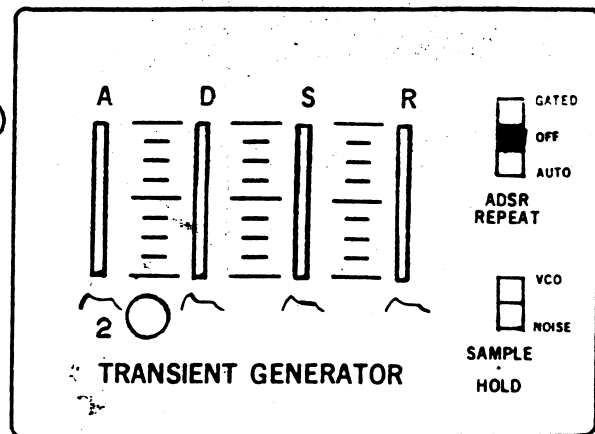
KITTEEN
B BOARD



KITTEN
A Board IC locations

the kitten synthesizer

by **OCTAVE** Electronics Inc.



POWER

TRIMMER LOCATIONS

- | | |
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