Sequential Circuits
Model 1000

Prophet 5 Synthesizer
Serial #'s 0001-0182

Service Manual

SM1000B
2nd Printing
November, 1980

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San Jose, CA 95134
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1.0 FOREWARD

This is a preliminary service manual and is intended to serve as a tool for the qualified technician only. Sequential Circuits will not be responsible for the cost of any repair to a machine which has been tampered with by the unqualified person.

Technical assistance will always be available by calling the factory directly.

The enclosed information and schematics are to be held in the strictest of confidence and are not to be duplicated for any reason.

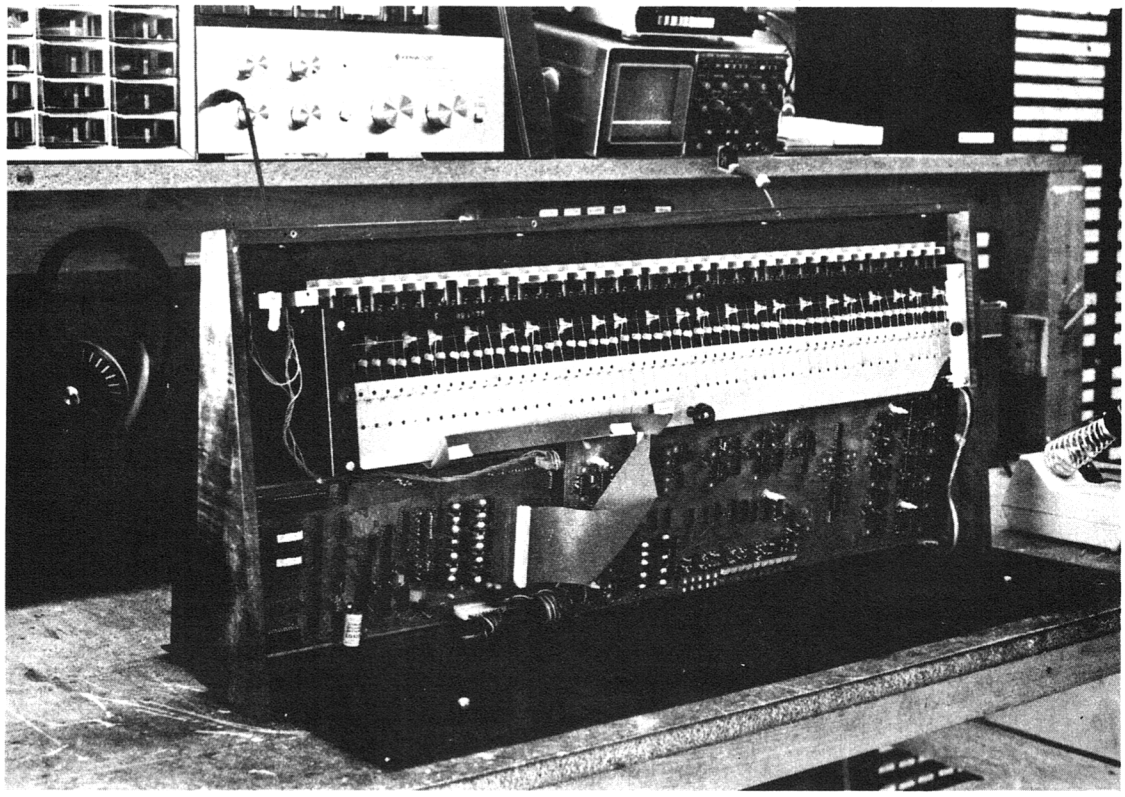
This manual is valid for serial numbers 0001 through 0182 inclusive.

2.0 DISASSEMBLY

Turn the unit upside down and remove the 8 screws around the perimeter of the bottom panel (4 along the front, 2 on each side). Turn right side up again and remove the four screws along the top of the back panel. Now place the unit in front of you in a normal playing position. Slowly slide the top part (keyboard and wood box) towards you about 6", and carefully lift this section on end so that it sits on its back (leaving it on the bottom panel), with the keyboard sticking straight up (see below). The three connectors between the bottom panel and the top assembly (power supply, back panel ribbon cable, and AC ON/OFF cable) should still be connected. In this position, most of the circuitry is exposed, and the unit is completely functional.

To reassemble, simply reverse the above procedure, being careful that all connectors are snug and routed correctly.

CAUTION
AC power exists inside the machine (the main transformer, ON/OFF power switch, and fuseholder area). Extreme care should be taken when working in these areas.



3.0 PROPHET TRIMMING

3.1 BOARD 1 and 2

No trimmers on either board.

3.2 BOARD 6

The power supply board has one round trimmer. This adjusts the +15V supply voltage. It should be set to match the -15V supply. This should only be done with a 3½ digit voltmeter or better.

Example: If -15V supply reads -15.205, the +15V supply should be trimmed to +15.205.

3.3 BOARD 3

Board 3 has 5 trimmers (early models may only have 4). See drawing for positions.

① DAC GAIN. The overall gain for the Digital to Analog Converter (DAC) will raise or lower the voltage scaling on all Sample and Holds (S/H). This will affect, most importantly, the V/OCT on all oscillators simultaneously. If *all* oscillators are sharp or flat in V/OCT, this trimmer can be used to adjust. It should be set by reading the output of a S/H (such as OSC 1 FREQ on IC 53 pin 1) with a 4½ digit voltmeter. When out of preset, set the knob corresponding to the S/H to 0, and read the S/H output (offset voltage). Now turn the knob until the output reads +5.000 volts ± the offset voltage. If not exact, trim to within .001 volts.

Example: S/H with knob off reads .017v (offset). After turning the knob up, the output goes to 5.014 volts. Turn trimmer until output reads 5.017 volts.

Note that all S/H's increment in .083 (1/12) volt steps. This trimmer can be set by ear if all oscillators are not V/OCT, but it is not recommended.

② ADC GAIN. (Not on some early models.) This adjusts the gain for the Analog to Digital converter, which is used for quantizing front panel pots. To trim, go out of preset, turn the OSC 1 FREQ knob to 10 and read its S/H output voltage (IC 53 pin 1). It should be trimmed to 5.000v (± offset). This can be set by ear by adjusting for exactly five octave range from 0 to 10 on the knob.

③ LFO TRIANGLE SYMMETRY. This adjusts the triangle waveshape to be balanced. Out of balance looks like  , in balance like  It is easy to adjust on a scope by looking at IC 72 pin 14 (note that IC 72 is upside down). Turn the LFO frequency to 10, and trim to look normal. It is tricky to adjust by ear. While modulating an oscillator frequency with triangle, listen for the jump in frequency, and trim until none is heard.

④ NOISE VCA BALANCE. Set by ear only. Turn the WHEEL-MOD SOURCE-MIX to 10, and listen to one oscillator with the Mod wheel off. Now turn the Mod wheel fully forward and trim for no basic pitch change. (You can still hear the base pitch even with all the noise modulation.) This is not a critical adjustment.

⑤ LFO VCA BALANCE. Set the SOURCE MIX to 0, and turn off all LFO shapes. Read the output of the VCA (IC 73 pin 15) with a voltmeter, and trim to 0.000 volts. To set by ear, turn on ⎍ shape, turn LFO FREQ to 0, and move the Mod wheel fully forward. Listen to one note being modulated, and trim for no offset when on the zero point of the square wave. (Turning the DESTINATION switch on and off at the low point will not change the frequency if there is no offset.)

3.4 BOARD 4

Every trimmer on this board is duplicated five times, one for each voice. The trimmer locations are shown on the diagram, along with the corresponding voice number. Note that on the schematic, the trimmer drawing, and in the following text, Oscillator 1 in each voice is called OSC A and Oscillator 2 is called OSC B. This is to distinguish between voice numbers.

Example: OSC 2A is the first oscillator on voice 2. OSC 4B is the second oscillator on voice 4.

For any adjustment, the voice in question will have to be determined in order to locate the correct trimmer. This can be done by using the voice volume controls on the extreme right hand side of the board (㊻ through ㊿). See that section for more information.

① through ⑤ AMPLIFIER ENVELOPE TIMING. The time constant of the ATTACK, DECAY, and RELEASE in the AMPLIFIER ENVELOPE generators (ICs 1-5) is made longer or shorter by each trimmer. It is a relative trim, that is, the envelope timing must be constant voice to voice. These can be trimmed if a voice seems to be longer (clockwise) or shorter (counter-clockwise) than the other voices. The easiest way to hear the difference is to set the ATTACK time up with DECAY, SUSTAIN, and RELEASE set to 0. With an attack time of ≅ 1 second, all voices should turn off simultaneously. On longer attack times, the difference will be even more apparent. Note however, that as the two constants get very long, the envelopes will almost always be different, even when adjusted. This trim can be easily done on a dual trace scope. While in unison, use one envelope output (pin 10) as a reference on one scope channel, and the other envelopes one by one on the other channel, and simply trim to match. Note that these trimmers have a wide range, and it does not take much movement to drastically change the time constant, so be careful and go slow when trimming.

⑥ through ⑩ FILTER ENVELOPE TIMING. These trim the time constants of the FILTER ENVELOPES (ICs 6-10). They can be trimmed the same way as the AMPLIFIER ENVELOPES. (Turn the CUTOFF and RESONANCE to 0, and the ENVELOPE AMOUNT to 10).

⑪ ⑬ ⑮ ⑰ ⑲ FILTER ENVELOPE VCA BALANCE. This trim, like all VCA balances, is trimmed by setting the VCA control voltage to maximum, the signal input to 0, and trimming for 0 output voltage. For these specifically, turn FILTER ENVELOPE AMOUNT to 10, and make sure that the envelopes are off (no keys held, RELEASE at 0). Then with a 3½ digit voltmeter, measure the voltage at pin 15 of the respective VCA for each voice (ICs 11-15), and trim for 0.000 volts. These trimmers are also touchy, and it may not be possible to get exactly 0.000, but get as close as you can.

⑫ ⑭ ⑯ ⑱ ⑳ POLY-MOD FILTER ENVELOPE VCA BALANCE. Set POLY-MOD FILTER ENVELOPE amount to 10 and POLY-MOD OSC 2 amount to 0, and be sure all envelopes are off. Measure the voltage at pin 1 of the VCA (ICs 11-15) and trim to 0.000 volts as above. This can be set by ear (though not recommended) by turning the FREQ 1 DESTINATION switch on and off and trimming for no frequency shift. This of course must be done on each voice individually.

㉑ through ㉕ POLY-MOD OSC 2 BALANCE. Set the POLY-MOD FILTER amount to 0 and the POLY-MOD OSC 2 amount to 10. Turn all OSC 2 waveshapes off. The voltages for each voice are measured at the following points:

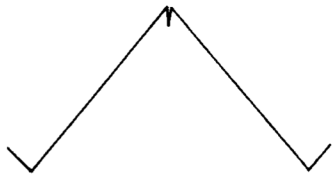
VOICE		IC26	pin
	1		1
	2	21	1
	3	21	15
	4	22	1
	5	22	15

Trim for 0.000 volts. This can also be set by ear by turning the FREQ 1 DESTINATION switch on and off and trimming for no frequency change.

㉛ through ㉟ OSC 2 TRIANGLE SYMMETRY. Adjusts the triangle waveshape. When not symmetric it looks like  . This can be trimmed on a scope by looking at the following points.

VOICE		IC57	pin
	1		7
	2	62	8
	3	62	14
	4	62	1
	5	62	7

The symmetry can be trimmed by ear by trimming for minimum harmonics. Note that it is normal to see a small "glitch" in the waveshape that looks like:



㊶ through ㊺ FINAL VCA BALANCE. To get the control voltages to maximum, place the machine in UNISON, set the AMPLIFIER SUSTAIN to 10, and hold (or tape) one key down. Measure the voltage on pin 15 of the 2020s (IC 90 through 94) and trim to 0.000 volts.

㊻ through ㊿ VOICE VOLUME. With these trimmers, a voice can be turned off completely, allowing voice isolation (by turning off all but one). If all voices are off but one, it is usual to turn on UNISON mode to allow using the one voice easily. To reset the trimmers, turn all 5 completely clockwise, play each voice and determine which voice is least loud, then turn the other four voices down to match. This can be done either by ear or by scope.

㊶ through ㊺ FILTER VOLT/OCTAVE (V/OCT)

㊻ through ㊿ FILTER INITIAL FREQUENCY

These two trimmers per voice determine the V/OCT and initial frequency of the lowpass filter. They are usually done with the filter in resonance. Set the three MIXER amounts to 0, the RESONANCE to 10, the ENVELOPE AMOUNT to 0, and the KEYBOARD switch on. The CUTOFF should be set to about 6, or to a point where the lowest key on the keyboard is at around 400-500 Hz. At this point, the filters will resonate and play as sine-waves. Each filter can individually be V/OCT by turning off all other voices, turning on UNISON Mode, and playing octaves while adjusting the trim. A frequency counter can possibly do a better job, depending on how good your ear is. Note that the filters will

never track as well as the oscillators, and they are not temperature compensated. Once the V/OCT is trimmed, the initial frequencies can be trimmed by using one filter as a reference (this is only a relative tune) and using the volume trimmers in UNISON) trimming the other voices to it using the zero beat method.

(61) through (65) OSC B(2) V/OCT
(66) through (70) OSC A(1) V/OCT
(71) through (75) OSC B(2) INITIAL FREQUENCY
(76) through (80) OSC A(1) INITIAL FREQUENCY
(26) through (30) OSC B(2) HI V/OCT
(36) through (40) OSC A(1) HI V/OCT

Each of the 10 oscillators on Board 4 has three adjustments—INITIAL FREQUENCY, V/OCT, and HI V/OCT. How to tune one will be discussed; all others tune in the same way. Oscillator tuning can be done in different ways (by ear, scope, frequency counter, etc.). The actual method is left up to you.

NOTE 1: In the middle towards the left of the board, there is a series of 10 plated-thru holes which have the individual sawtooth outputs of all 10 oscillators, no matter what the status of the machine. These can be used for tuning by scope or meter. The corresponding oscillator assignment is as marked on the diagram.

NOTE 2: When tuning an oscillator, be sure that all modulation is off—MOD wheel off, POLY-MOD sources at 0, POLY-MOD and WHEEL MOD DESTINATION switches off, SYNC switch off, and GLIDE at 9.

The V/OCT trimmers (multi-turn) are usually set by octaves at lower frequencies, (200-400 Hz) and the HI V/OCT trimmers are set at much higher frequencies (2500-5000 Hz). These trimmers will affect each other to a small degree, so it is usually necessary to cycle back and forth between V/OCT and HI V/OCT a couple of times.

The initial frequency trim should not have to be adjusted except when an oscillator has been replaced. The purpose of these trimmers is to set the initial frequency of the oscillators close enough to each other for the computer to fine tune them with the individual bias voltages. The bias has a little more than a semitone in range. The trimmer should be adjusted so that, after tuning, the bias voltage is around mid-point (≅ 5 volts) when the oscillator tunes. When the computer is unable to tune an oscillator, it automatically places the bias at midpoint (on version 4.0 and later software). So, if after a tune, an oscillator is not in tune with the others, and its V/OCT is OK, simply turn the initial frequency until it is in tune.

4.0 TUNING INSTRUCTIONS

The following is a more detailed guide of how to tune the 10 oscillators in the Prophet-5. These instructions are mainly for Rev. 1 Prophets, Serial #'s 0001-0182, with version 5.0 firmware. On some earlier models (up to #40) the firmware may be at version 3.0, in which case it should be updated to 5.0. This is done by replacing the two 2708 ICs labeled 3.0 0 and 3.0 1 on Board 3, ICs 12 and 13 respectively with two version 5.0 2708 which can be obtained by request from us.

4.1 FRONT PANEL SET-UP

To set up the Prophet for tuning, the front panel should be set up as shown on the following sheet. This program resides in Bank 5 program 1 on machines shipped from the factory. Oscillators 1 and 2 should be set to 3 octaves plus 3 semitones above the lowest note (zero on FREQUENCY). This program should be stored in an unused location, and the tuning should be done in PRESET using this new program. *BE SURE* to center the MASTER TUNE and the PITCH WHEEL before tuning, and be sure not to move these until done. Another procedure to perform at this point is as follows: while holding the PROGRAM 1 switch on, hit PROGRAM 7. This will cause all of the bias S/H voltages to be centered at approximately 5 volts. Then, while holding PROGRAM 1, hit PROGRAM 6. This will cause the Prophet to act slightly different in UNISON mode. Rather than the unison voltage coming from the unison S/H on Board 3, the voltage will come from the 5 keyboard S/Hs on Board 4, and the unison S/H will be at zero. This also means that there will be no glide in unison mode, since the glide circuit is connected to the unison S/H. This is done to help reduce resistor mis-match effects on the control voltage summers on Board 4. Both the 1 & 7 and 1 & 6 modes will remain active until power is turned off, or until the tuning routine is selected.

4.2 TUNING METHODS

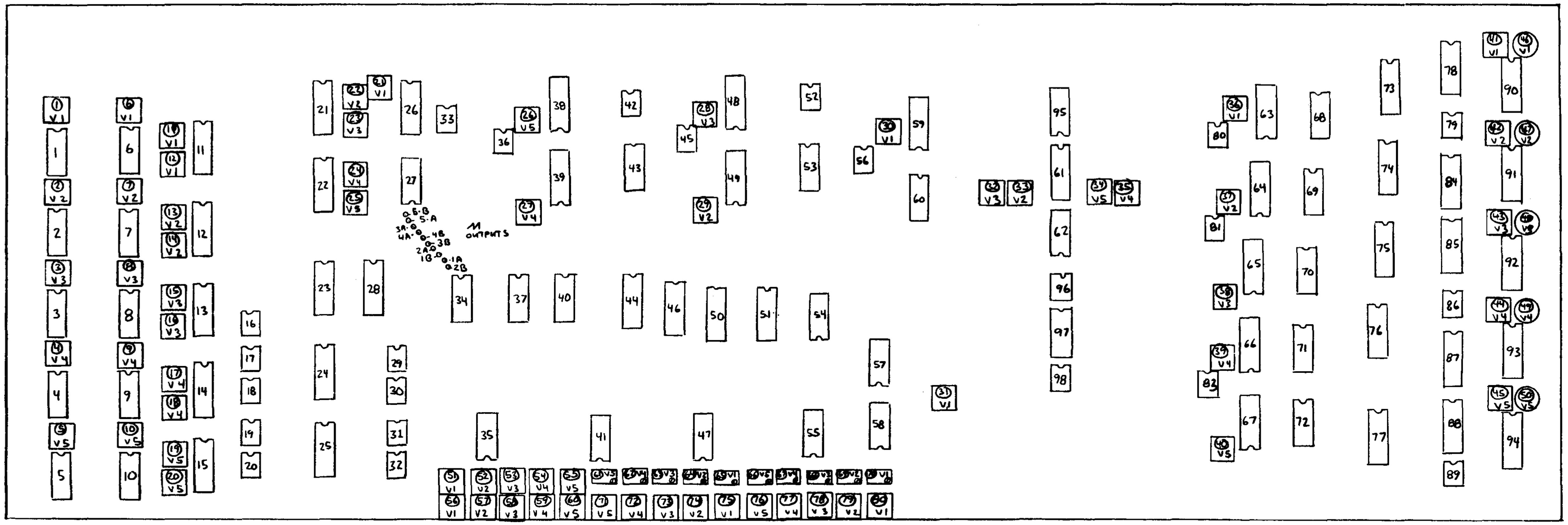
There are basically three ways to tune the oscillators: 1) by ear, 2) frequency counter, and 3) oscilloscope. Doing it by ear is tricky and can take longer and is not recommended. Using a frequency counter is usually more accurate, but it can also take a long time to do. The easiest method (and the method we use) is to tune using a good quality DC triggered oscilloscope which has a x10 horizontal magnifier. To set up the scope, place the probe in one of the 10 holes (shown on page 7 of the service manual) which have the sawtooth outputs of the oscillators. Trigger on the negative slope on your scope, and hit the lowest key on the keyboard (about 156 Hz). Adjust the time-base of the scope to view one full cycle of the sawtooth, and set the waveshape as large as possible. Now, select the x10 magnification of the time scale, and turn the horizontal position counter-clockwise until the falling edge is centered on the screen. (On some scopes, it may be required to adjust the vernier time scale to bring the edge into view.) At this point, if you hit a note one octave up, the falling edge should be in exactly the same place if the oscillator is in tune. same place if the oscillator is in tune.

4.3 INITIAL FREQUENCY TRIM

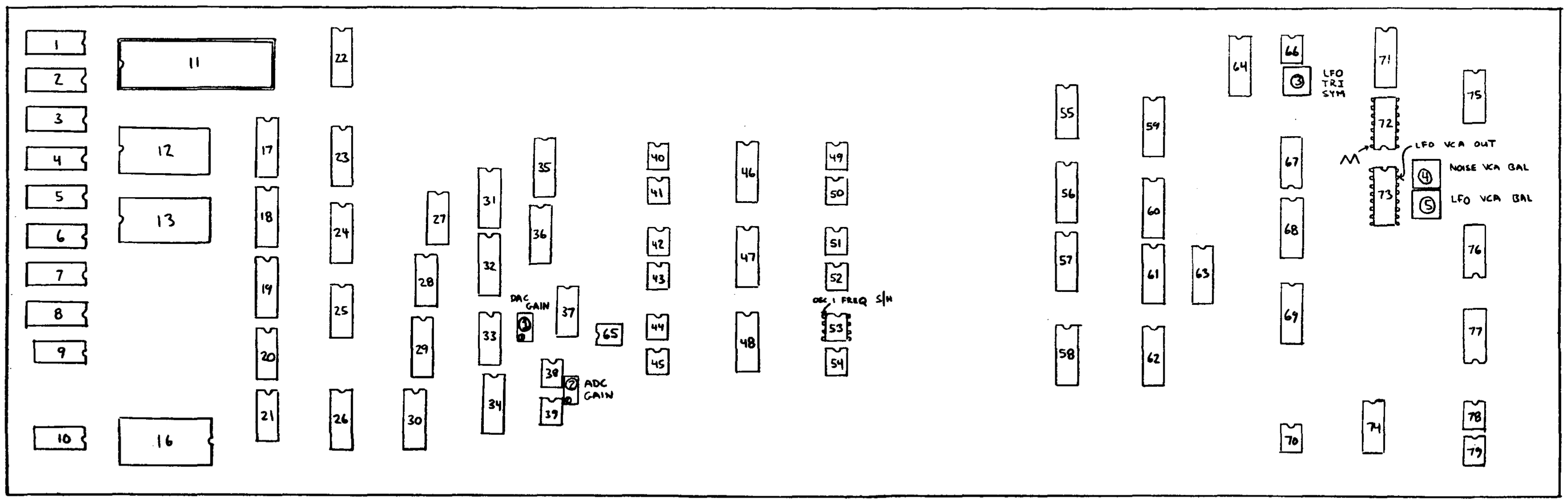
To trim the 10 initial frequency trimmers, simply adjust the trimmers to match frequencies on all oscillators, using 1A as a reference, as the computer does. This can be done by ear, by counter, or on a scope (trim falling edges to appear at the same point on the scope). Since the bias S/Hs are all set to same voltage, the oscillators can be adjusted to match without worrying about the tuning routine. The best place to trim is on the third C Key on the keyboard, (2 octaves up), which should be near 624 Hz.

4.4 V/OCT AND HI V/OCT TRIM

The V/OCT of the oscillators is done at 3 points of the keyboard: between low C (C0) and C 3 octaves above (C3) for V/OCT trim, and between C3 and hi C (C5) 5 octaves up for HI V/OCT trim. For frequency counter tuning, C3 should be 8 times C0, and C5 should be 4 times C3 (or 32 times C0). If trimming by scope, simply trim to have the falling edge occur at exactly the same point on the screen for C0, C3, and C5. Trim V/OCT by cycling between C0 and C3, and trim the HI V/OCT by cycling between C3 and C5. It will be necessary to alternate between the V/OCT and HI V/OCT on each oscillator a few times, since one does affect the other. Before trimming the oscillators, you may want to check four or five of them to see if they are all sharp or all flat the same amount. If they are, then you can adjust the DAC GAIN trimmer on Board 3 to change the V/OCT on *all* the oscillators at one time. This could save you a lot of time with individual oscillators. Also, be *sure* that the machine is warmed up sufficiently (20-30 minutes) before tuning. It is even more ideal to trim in a very warm room (to closer simulate a closed box). This helps eliminate any slight temperature differences.



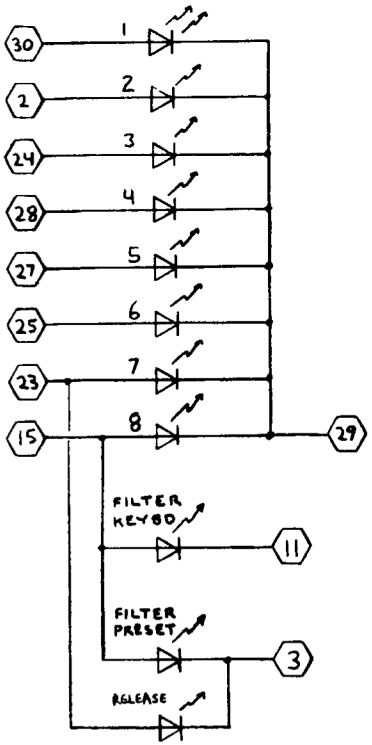
BOARD 4 VOICE BOARD

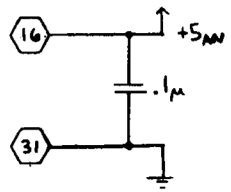


BOARD 3 COMPUTER BOARD

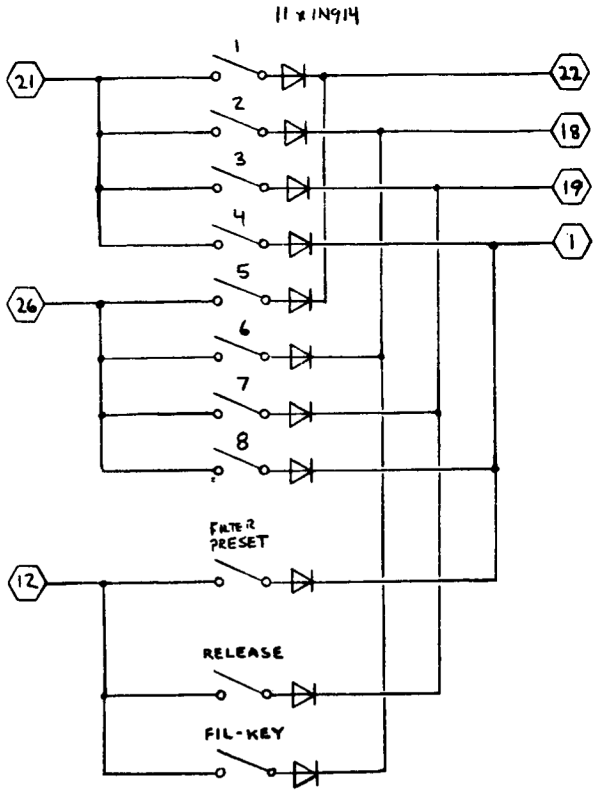
Trimmer Locations
Model 1000
6/16/78
Sequential Circuits

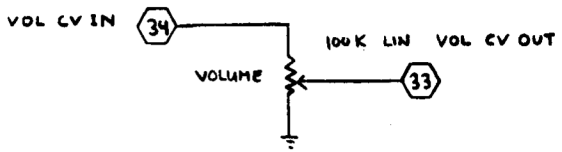
5.0

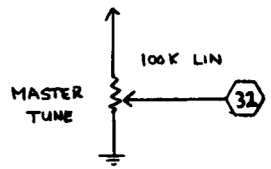


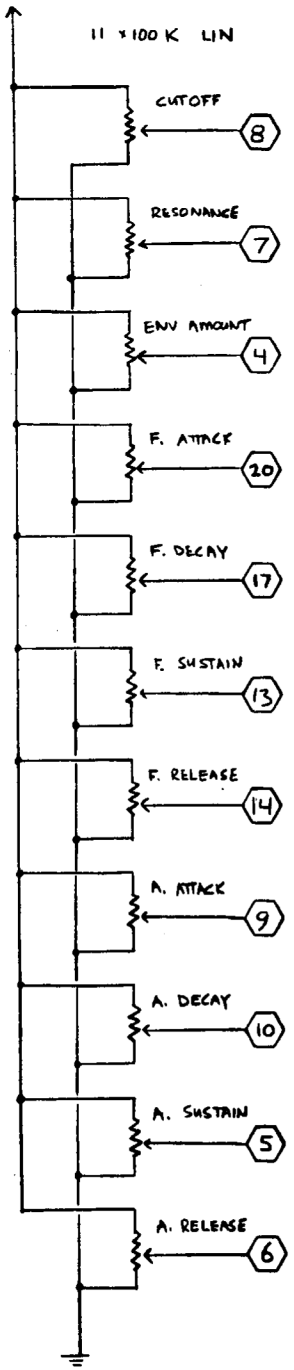


⬡ - 34 PIN CONNECTOR TO BOARD 2









Board 1 Rev 1
Synthesizer Control Panel, Right
6/19/78 6.1
Sequential Circuits

SWITCH DRIVER, LED SINK LATCHES

CURRENT SINKS

3 x 3634

8x 2.2K 224121

9 x 47

LED DRIVER LATCHES

23 SWITCH LED'S

BANK DISPLAY

OSC B KEYBD

PROGRAM DISPLAY

KEYBOARD

LOWEST KEY

HIGHEST KEY

DIODES
1N914 or EQUIVALENT

SWITCH ARRAY

ALL DIODES → IN914

← 12 x 22K →

← 2 x 14503 →

DATA BUS DRIVERS

- 34 PIN CONNECTOR TO BOARD 1
- 16 PIN CONNECTOR TO KEYBOARD
- 21 PIN CONNECTOR TO BOARD 3

POT MUX ADDRESS LATCH

POT MULTIPLEXERS

4051 ③

4051 ②

4051 ①

← 13 x 100 K LIN POT →

TO ALL DBs ON PAGE

6 x .1μ

47μ

2.2μ

3 x .1μ

VMASTER TUNE

VOL CV TO

VOL CV FROM

Board 2 Rev 1
Control Panel, Left
6/19/78 6.2
Sequential Circuits

CLOCK

PROCESSOR

Z-80 (11)

MAIN DATA BUS (TRI-STATE)

ADDRESS BUS

MEMORY ADDRESS DECODER

OUTPUT PORT ADDRESS DECODER (+15 V)

OUTPUT PORT ADDRESS DECODER (+5 V)

INPUT PORT ADDRESS DECODER

SPARE INPUT PORT

SCRATCHPAD MEMORY (128 x 8)

NOT USED

NOT USED

PROGRAM MEMORY 1 (1024 x 8)

PROGRAM MEMORY 0 (1024 x 8)

NON-VOLATILE PATH MEMORY (1024 x 8)

POWER DETECTION

BACKUP BATTERY 2.9 V

SPARES :

- TO OTHER PAGES, BOARD 3
- 16 PIN CONNECTOR TO BACK PANEL
- 5 PIN CONNECTOR TO WHEELS
- 21 PIN CONNECTOR TO BOARD 2
- 60 PIN CONNECTOR TO BOARD 4
- 8 PIN CONNECTOR TO BOARD 4
- 12 PIN CONNECTOR TO BOARD 6

Board 3 Rev 1
Pg. 1, CPU/MEM
Computer Board
6/19/78 6.3
Sequential Circuits

ADC DATA BUS DRIVERS

14503

ADC LSB (20)

1 (21)

2 (22)

3 (23)

4 (24)

5 (25)

ADC MSB (26)

LOAD IN (PIN)

DBUS0

DBUS7

PAGE 2

-CSF (18)

MISC +5V DATA LATCH

+CS1 (15)

DB0

DB5

14174 (59)

W-MOD FIL S (36)

W-MOD PWR S (37)

LFO ∧ S (39)

WMOD PWR S (40)

WMOD F B S (41)

VREF

DB0

DB5

4042 (35)

DAC LSB (29)

1 (30)

2 (31)

3 (32)

+CS2 (14)

DAC LATCHES

> PAGE 3

14503

+5 VOICE (57)

+MEM SAVE

-REL FOOTSWITCH (9)

-EXT GATE (10)

EXT GATE (8)

GATE IN

DBUS0

DBUS3

-CS10 (19)

MISC INPUTS

74C906

DB0

DB5

DBH10

DBH15

1K

+15V DATA BUS CONVERTERS

+CS8 (13)

DB0

DB5

14174 (31)

-START CONV (27)

LOAD OUT (PIN)

-RESET (70)

MISC +5V DATA LATCH

TUNE (58)

4093 (27)

-NMI (1)

TUNE INTERRUPT LATCH

+15 V DATA LATCHES

+CS0 (3)

DBH10

DBH15

14174 (61)

OSC A ⎍ S (36)

OSC A ∧ S (33)

PMOD FIL S (38)

PMOD PWR S (57)

100K

PMOD F A S (35)

LFO ∧ S (42)

+CS2 (4)

DBH6

DBH15

14174 (62)

OSC B ∧ S (40)

100K

OSC B ∧ S (39)

OSC B ⎍ S (42)

SYNC S (41)

W-MOD F A S (43)

OSC B LO S (44)

+CS3 (5)

DBH6

DBH15

14174 (60)

FIL KEY S (45)

OSC B KEY S (46)

MT, PB, SEQ S (47)

10K

TRIGGER OUT (11)

LFO ⎍ (28)

+CS9 (6)

DBH10

DBH15

14174 (56)

S/H A (3)

S/H B (5)

S/H C (6)

+CS5 (7)

DBH10

DBH15

14174 (63)

S/H I4 (11)

S/H I5 (12)

S/H I6

S/H I7

GATE B

+CS6 (8)

DBH10

DBH15

14174 (57)

GATE 1 (7)

GATE 2 (8)

GATE 3 (9)

GATE 4 (10)

GATE 6

GATE 7

+CS7 (9)

DBH10

DBH15

14174 (58)

TUNE I8 (13)

TUNE I9 (14)

TUNE IA

TUNE IB

GATE 9

GATE 10

+15 V DATA LATCHES

VDAC (60)

4051 (47)

S/H A

S/H B

S/H C

VIN

4051 (46)

4051 (48)

4066 (79)

FILTER ATTACK CV (25)

FILTER DECAY CV (23)

FILTER SUSTAIN CV (24)

FILTER RELEASE CV (26)

AMP ATTACK CV (21)

AMP DECAY CV (28)

AMP SUSTAIN CV (22)

AMP RELEASE CV (27)

CUTOFF CV (48)

FIL ENV AMT CV (18)

OSC B VOL CV (16)

OSC B PW CV (49)

OSC A VOL CV (19)

OSC A PW CV (17)

NOISE VOL CV (50)

RESONANCE CV (20)

GLIDE CV (51)

OSC B FINE CV (52)

OSC A FREQ CV (53)

OSC B FREQ CV (54)

LFO FREQ CV (55)

W-MOD SOURCE CV (56)

PMOD OSC B AMT CV (29)

P-MOD FIL ENV AMT CV (30)

UNISON CV (59)

EXT CV OUT (16)

.01µ POLY

SAMPLE AND HOLDS

Board 3 Rev 1
Pg. 2, Interface
Computer Board
6/19/78 6.4
Sequential Circuits

LFO

LFO FREQ CV

2030

PINK NOISE

NOISE GENERATOR

NOISE VOL CV

WHITE NOISE

GLIDE CV

GLIDE CIRCUIT

UNISON CV

OSC A INIT CV

OSC A

MASTER SUMMER OSC A

OSC B LO S

OSC B KEY S

OSC B INIT CV

FINE CV

OSC B

MASTER SUMMER OSC B

FILTER KEY S

EXT FILTER IN

FILTER CV

FILTER

MASTER SUMMER FILTER

SOURCE MIX CV

BAL

MOD WHEEL

SEQ CV

SEQ CV IN

MASTER TUNE

+5A

EXT AMP CV

AMPLIFIER C.V.

TO VOLUME POT

FROM VOLUME POT

VOLUME

FINAL VCA CV

DAC GAIN

DAC MSB

DAC LSB

MATCHED 100K 1%

DIGITAL TO ANALOG CONVERTER (DAC)

ADC MSB

ADC LSB

OUTPUT

ADC-MC8BC

+START CONV

(END CONV) -INT

GATED CLOCK

ANALOG TO DIGITAL CONVERTER (ADC)

ADC GAIN

THIS MANUAL WAS RESTORED AND MADE AVAILABLE AS FREE DOWNLOAD BY SYNFO.NL

Board 3 Rev 1
Pg. 3, Analog
Computer Board
6/19/78 6.5
Sequential Circuits

VCO A
(1)

VCO B
(2)

LOWPASS
FILTER

2040

RESONANCE
FEEDBACK VCA

VCA

POLY-MOD
MIX

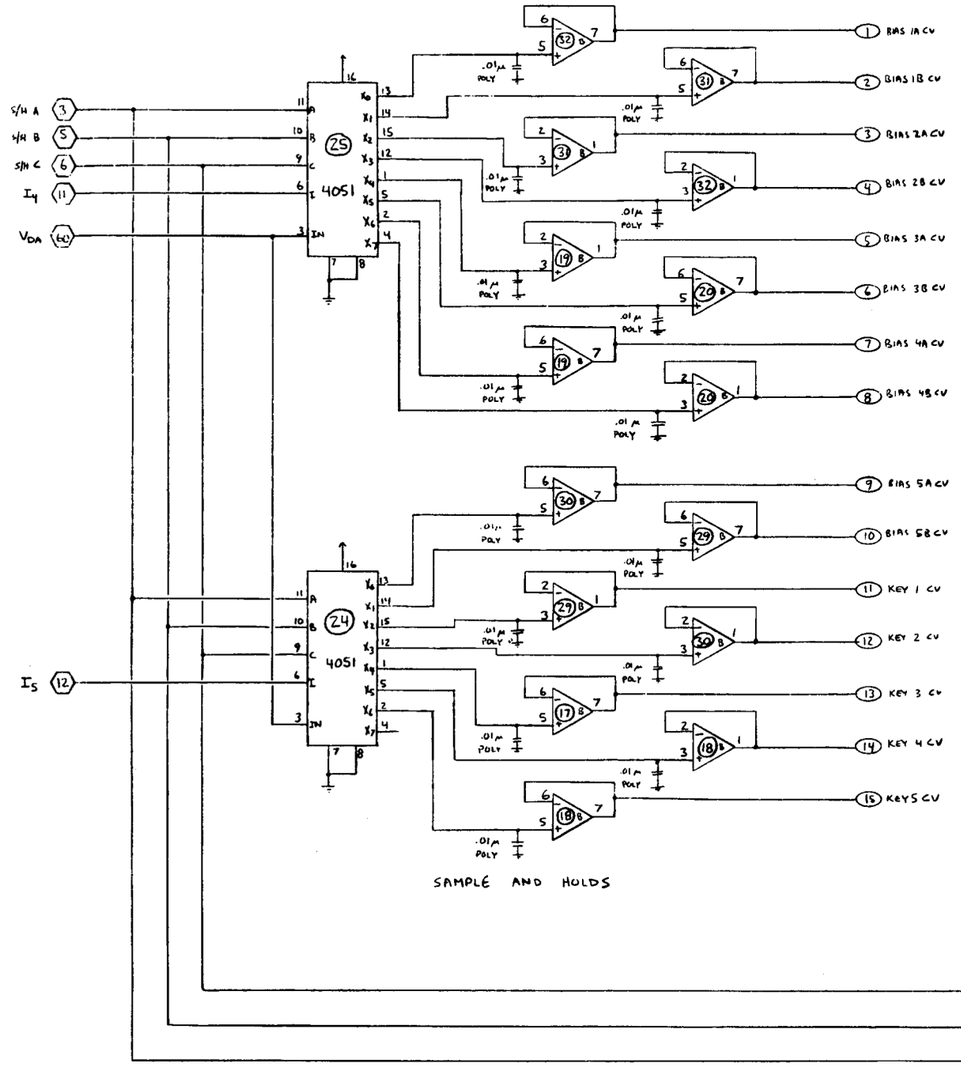
FILTER
ENVELOPE

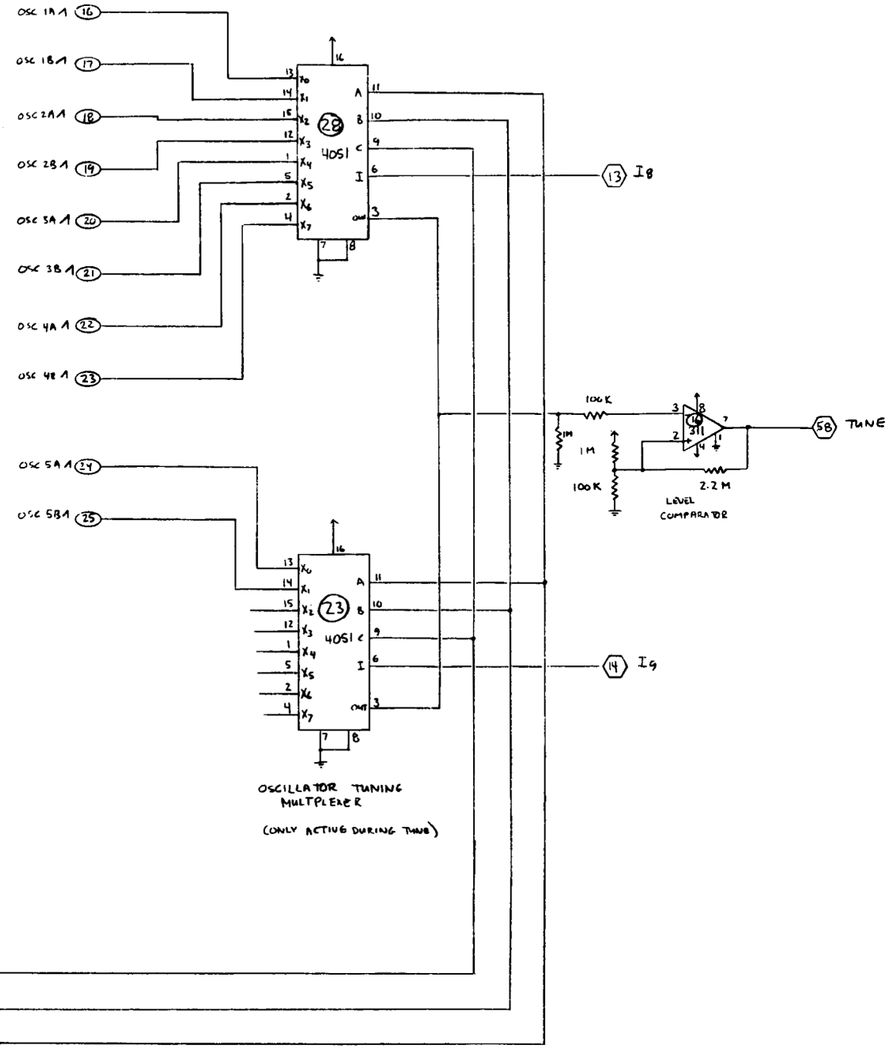
AMPLIFIER
ENVELOPE

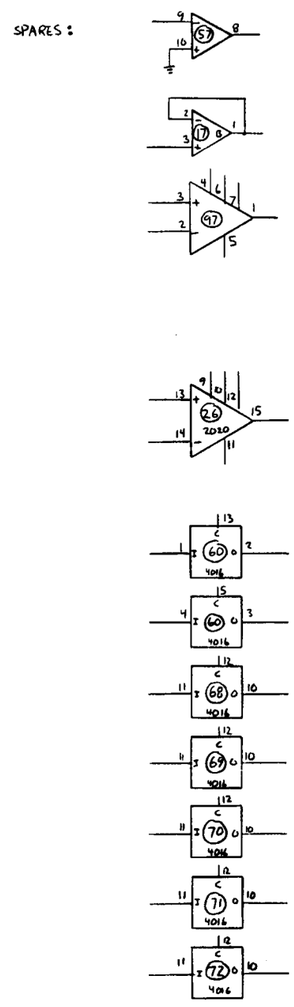
VOICE - 1

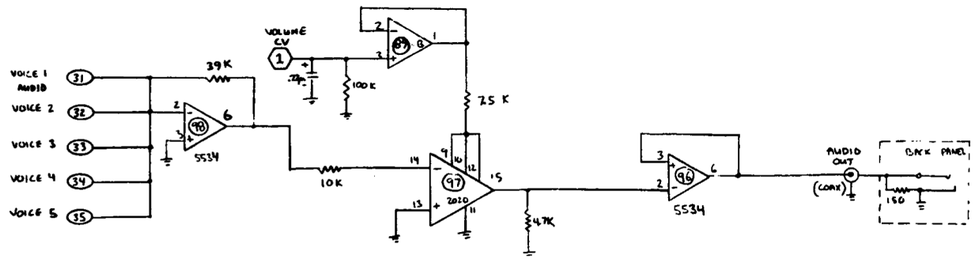
PG 2

Board 4 Rev 1
5-Voice Board
6/19/78 6.7
Sequential Circuits









PAGE 1

⬡ - 60 PIN CONNECTOR FROM BOARD 3

⬭ - TO OTHER PAGES, THIS BOARD

Board 4 Rev 1
5-Voice Board
6/19/78 6.6
Sequential Circuits

VCO A
(1)

VCO B
(2)

LOW PASS
FILTER

RESONANCE
FEEDBACK VCA

POLY MOD
MIX

VCA

FILTER
ENVELOPE

AMPLIFIER
ENVELOPE

VOICE - 2 PG 3

Board 4 Rev 1
5-Voice Board
6/19/78 6.8
Sequential Circuits

LOWPASS FILTER

VCO B (2)

FILTER ENVELOPE

AMPLIFIER ENVELOPE

RESONANCE FEEDBACK VCA

VOICE - 3 PG 4

Board 4 Rev 1
5-Voice Board
6/19/78 6.9
Sequential Circuits

VCO A
(1)

VCO B
(2)

LOWPASS
FILTER

2040

RESONANCE
FEEDBACK VCA

POLY-MOD
MIX

FILTER
ENVELOPE

AMPLIFIER
ENVELOPE

VOICE - 4

Board 4 Rev 1
5-Voice Board
4/19/78 6.10
Sequential Circuits

VCO A
(1)

VCO B
(2)

LOWPASS
FILTER

RESONANCE
FEEDBACK VCA

POLY-MOD
MIX

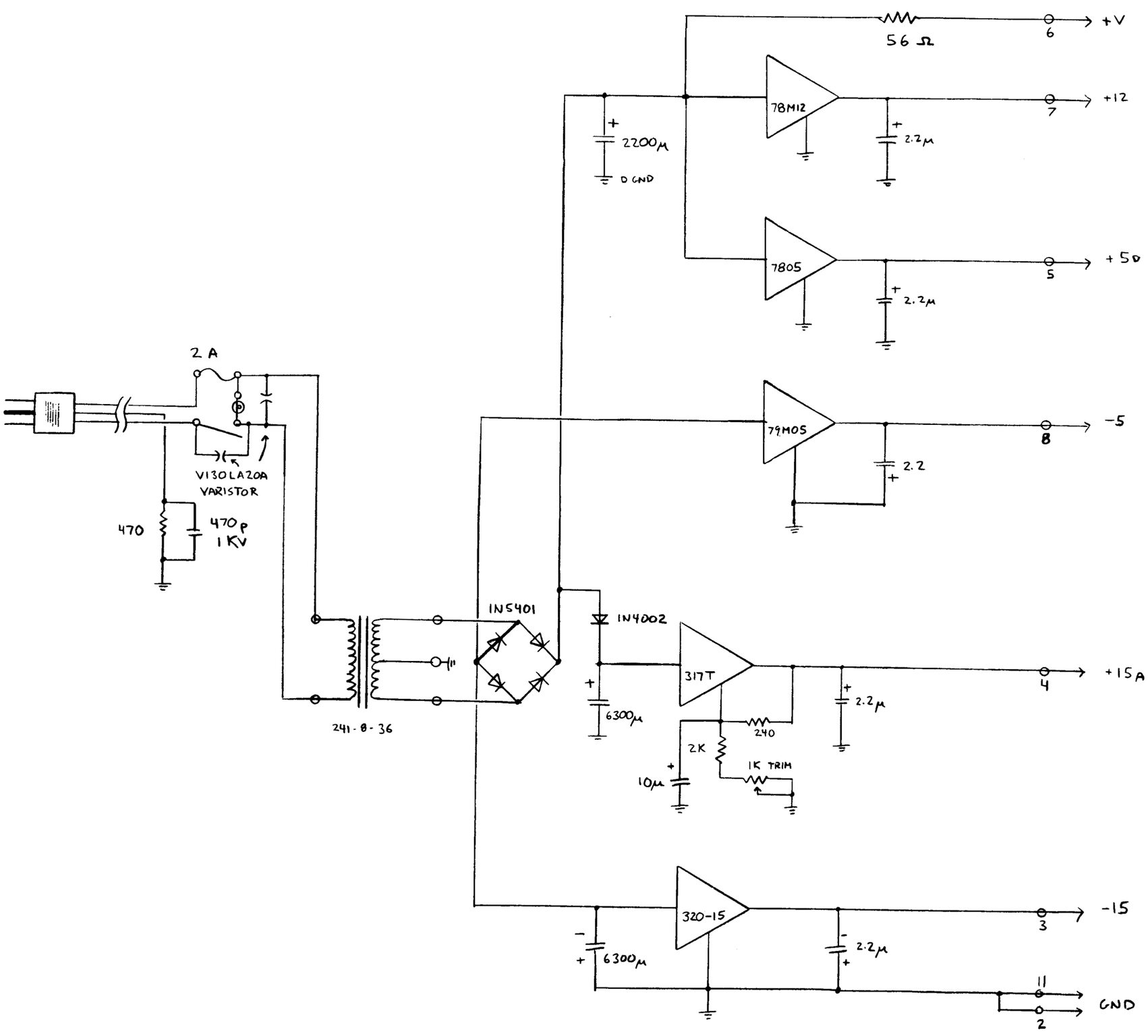
FILTER
ENVELOPE

AMPLIFIER
ENVELOPE

VOICE - 5

PG 6

Board 4 Rev 1
5-Voice Board
6/19/78 6.11
Sequential Circuits



Board 6 Rev 1
Power Supply Board
Model 1000
6/19/78 6.12
Sequential Circuits