

Polymoog Audio Test Procedures



I've attempted to transcribe the Norlin chicken scratch to the best of my ability; any errors will be due to difficulty of reading the original 1970's hand-written source documents. I also cleaned up the scans I best I could. Original scans came from Kevin Lightner (synthfool.com) - Devon, 7/7/2022

Keep on Polymoogin'

Poly II - 10/12/78

HFO Resistor Select Procedure

1. Connect Poly Pedal to unit
 - a. Pitch LFO on
 - b. Pitch pedal min
 - c. Pre #2 (string 1)
 - d. Attack var, slider down
 - e. Modulation var, sliders down

Square HFO Select

1. Remove Saw HFO board (RT board)
 - a. Depress A4 (440Hz)
 - b. Pitch pedal max (>3Voc @ pitch jack)
 - c. Remove square HFO board + lift left side of 1.5k resistor
 - d. Connect R box between 1.5k resistor, emitter of darlington trans (top left next to .47uF capacitor)
 - e. Insert square HFO board, press A4 + adjust R box for a frequency of 880 Hz (+ 100 Hz, -0 Hz)
 - f. Remove 1.5k resistor + insert a resistor with a value closet to equal or greater than 1.5k + R box
 - g. Depress A4 + check range with Pitch Pedal
 - i. Min 440 Hz
 - ii. Max 800 Hz (+ 100 Hz ~ 0 Hz)

Saw HFO Select

Remove square HFO board + repeat steps A through G as above using saw HFO board (note, long sustain is normal with square HFO out).

Polymoog Keyboard Pre-Burn-in Test Procedure

1. Power Supplies - apply primary power to instrument. Connect DVM negative lead to pin 2 of accessory connector on rear panel. Preset 8 always comes on first.
 - a. V + supply - connect positive lead of DVM to pin 1 of rear panel accessory connector and observe +15 VDC +/-10m VDC, adjust R1g on power supply assembly if necessary.
 - b. V - supply - connect positive lead of DVM to pin 3 of rear panel accessory connector and observe -15 VDC +/- 10mVDC, adjust R8 on power supply assembly if necessary.
 - c. VCC supply - connect positive lead of DVM to pin 5 of rear panel accessory connector and observe +5 VDC +/- 10m VDC, adjust R33 on power supply assembly if necessary.
 - d. VCHR supply - connect positive lead of DVM to P82 pin 1 (top centre board) and observe +5 VDC +/- 10m VDC, VCHR supply is located on top centre board.
 - e. "-5.5" supply - connect positive lead of DVM to P91 pins (top right board) and observe -5.5 VDC +/- 65m VDC, (-5.5V supply is located on left hand control board).
2. Top left board operating checks - connect head phone monitor amp to direct output.
 - a. Pulse Frequency Modulation - in preset 15, depress Eb3 and listen for pulse frequency modulation
 - b. Pulse Width Modulation - in preset 12, depress Eb3 and listen for pulse width modulation
 - c. Phase Modulation - in preset 9, modulation variable, modulation amount fully up, depress Eb3 and listen for saw frequency modulation.
 - d. Note: any repairs to modulation sections on top left board will require realignment of repaired section, refer to service manual for procedures.
3. Top Left Board Alignment Checks
 - a. Drive limit level and saw tooth level - unplug connector S72. With DVM check voltage at A24 pin 1 for all 4.1 VDC +/- 50m VDC. Adjust R108 if necessary. Check voltage at pin 7 of A25 for 5.1 VDC +/- 100m VDC, adjust R114 if necessary. check voltage at pin 1 of A25 for 5.1 VDC +/-m VDC, adjust R120 if necessary. Reconnect S72.
 - b. Decay set - unplug connect S75. With DVM check voltage at pin 7 of A26 for 3.74 VDC +/- 20m VDC. Adjust R126 if necessary. Check voltage at pin 1 of A26 for 3.74 VDC +/- 20 mVDC, adjust R127 if necessary. Check voltage at pin 7 of A27 for 3.64 VDC +/- 20 mVDC, adjust R127 if necessary. Check voltage at pin 7 of A27 for 3.64 VDC +/- 20 mVDC, adjust R132 if necessary. Reconnect S75.
 - c. Pulse width set - unplug connectors S77 and S72. With DVM check voltage at pin 1 of A28 for 9.00 VDC +/- 50 mVDC. Adjust R138 if necessary. Check voltage at pin 1 of A29 for 9.00 VDC +/- 50 mVDC, adjust R145 if necessary. Check voltage on pin 1 of A30 for 9.00 VDC +/- 50 mVDC, adjust R152 if necessary. Reconnect S77 and S72.

- d. Attack set, sustain level set, and lowest level set - unplug connector S78. With scope, monitor pin 1 of IC 10A and adjust R165 so that pulse just barely disappears (zero pulse width). Monitor P79 pin 1 and observe approximately 20 KHz square wave. Check for peak to peak voltage of 12 V +/- 50 mV, adjust R174 if necessary. ground the emitter of Q11 with DVM check voltage at P79 pin 1 for -3.60 VDC +/- 10 mVDC, adjust R182 if necessary. Remove Q11 ground and reconnect S78.
4. Tune up and pitch controls - connect frequency counter to direct output and center front panel fine tune and beat rate controls. Note: reference oscillators should not be tuned unless unit has had power applied continuously for at least 5 minutes.
 - a. Oscillator 1 tuning - in preset 9 depress A4 and check for a frequency of 440 Hz +/- 1 Hz centre R54 (osc. 1 scale) and adjust R51 (osc. 1 range) if necessary.
 - b. Oscillator 2 tuning - preset 3, modulation variable modulation amount fully down, depress Eb5 (1244.5 Hz) and observe 0 beat rate. Depress ribbon controller such that pitch is raised a musical fifth (1864.4 Hz) and observe a beat rate no higher than 1 beat in 2.7 seconds. If not, depress high point of ribbon and adjust R76 (osc. 2 range) for 0 beat rate. Release ribbon and adjust R80 (osc. 2 scale) for 0 beat rate. Repeat adjustments until 0 beat rate with no pitch change and less than 1 beat in 2.7 seconds with pitch raised a musical fifth can be achieved.
 - c. Ribbon range - in preset 9, depress A4 (440 Hz). Depress right end of ribbon, pitch should rise to 739 ~ 831 Hz. Depress left end of ribbon, pitch should now fall to 235 ~ 262 Hz.
 - d. Ribbon quality - check full length of ribbon controller for smooth skip free operation and no pitch change at centre. Also between the interval of +/- a musical fifth, the beat rate should not exceed 1 beat in 2.7 seconds. return to step 4b if necessary.
 - e. Fine tune control - in preset 9, depress a A4 (440 Hz) turn fine tune control fully clockwise, frequency should increase to 453 ~ 466 Hz. turn fine tune control fully counter clockwise, frequency should fall to 427 ~ 415 Hz. Control should operate smoothly over full range. Return control to center position.
 - f. Beat rate control - in preset 1, modulation variable, modulation amount fully down, depress Eb3. Listen for smooth operation and centering of beat rate control and operation of beat rate LED. Return control to center position.
 - g. External pitch control - inject +1.00 VDC +/- 5 mVDC into rear panel pitch jack. Depress A - 440 pitch should be 880 Hz +/- 3 Hz. remove external pitch control.
5. Left hand control board - connect headphone monitor and HP 400F AC voltmeter to main output.
 - a. Variable attacks - in preset 9, variable attack fully up. Repeatedly depress a note. Depress attack variable switch and note change from fast to slow attack. Depress attack preset switch and note return to fast attack. Also observe proper operation of LED indicators. Presets 1,2,3,9,10,11
 - b. Variable modulator - in preset 1, variable modulation potentiometer fully down, depress eb4 and depress modulation variable switch and note that modulation

- ceases. Depress modulation preset and note that modulation returns. Also observe proper operation of LED indicators.
- c. Bass filter - with bass level control fully up and bass cut control fully down, depress E2. Depress bass filter on switch and note change to "bassy" tone. Depress bass filter off and note return to normal tone. also observe proper operation of LED indicators.
 - d. Bass filter rear panel switching - with bass filter on depress E2. Insert dummy open plug into rear panel bass output jack and note no more than 60 dbm residual output from E2. Connect headphone monitor any to bass output jack and note bass sound. Depress bass filter off and note no sound.
6. Top right board control circuits and master voice selector - connect head phone monitor to main output.
- a. Presets - check each preset for proper voicing. Use the following chart as a guide. Also note that all preset switches operate smoothly, quietly and without excessive clicks in audio and that 1 1/2 digit LED display light properly.
 - b. External foot sustain - insert a shorting plug into the rear panel front sustain jack and check each preset (3 ~ 14) for added release. Use the following chart as a guide, remove shorting plug.
 - c. Variable modulation - check the operation of the variable modulation rate and amount potentiometers for each preset in variable modulation mode. Potentiometers should have no effect in preset mode. Use the following chart for reference.
 - d. External modulation amount - in modulation variable, modulation amount fully up, insert shorting jack into rear panel. Modulation amount jack and observe that modulation amount is zero. Remove shorting plug.
 - e. Variable loudness attack - check the operation of the variable attack potentiometer for presets 1,2,3,9,10 and 11 in the variable attack mode. Potentiometer should have no effect in preset mode.
7. Top right board monophonic keyboard circuit - connect DVM to rear panel keyboard output jack and lead output with a 4.7k resistor to V-. Connect scope to rear pane sitting output and load output with a 1k resistor to V+. Set rear panel glide control fully counterclockwise and rear panel range and scale controls centered.
- a. Range - turn rear panel range control fully clockwise. Depress F1 repeatedly, voltage should be -100 to -600 mVDC. Turn range control fully counter clockwise. Depress F, repeatedly, voltage should be +100 to +600 mVDC. Adjust range to 0.0 VDC 0-10 mV at F1.
 - b. Scale - turn scale control fully clockwise. Depress F6 repeatedly, voltage should be +5.25 to +5.75 VDC. turn scale control fully counter clockwise. Depress F6 repeatedly, voltage should be +4.25 to +4.75 VDC. Adjust scale control for 5.00 VDC +10 ~ 0 mV for F6.
 - c. Drift - depress E1 twice and check that keyboard voltage does not drift more than 1 mV/second. Depress D6 twice and check that keyboard voltage does not drift more than 1 mV/second.

- d. Glide - turn rear panel glide control fully clockwise. Depress F6 twice. Depress F1 time to reach 0V should be 3.76 to 8.75 seconds. Depress F6 time to reach 5V should be 3.75 to 8.75 seconds.
 - e. External glide on/off - with rear panel glide control fully clockwise, insert shorting plug into rear panel glide on/off jack. Observe 0 glide time between notes.
 - f. Multiple triggering. In preset 9, rear panel single-multiple switch to multiple, depress and hold 5 notes. Observe S-trigger output drop from V+ to 0.0VDC +50m VDC - 0 mVDC. Depress a 6th note and observe positive retrigger pulse of 4 to 10 ms duration.
 - g. Single triggering. In preset 9, rear panel single-multiple switch to single, depress and hold a note, observe no retrigger pulse when pressing additional notes.
 - h. External trigger mode - in preset 9 rear panel single-multiple switch to multiple, depress several notes and observe multiple triggering. Insert shorting plug into rear panel trigger mode jack and observe single triggering. Remove shorting plug.
 - i. Contour generator - connect scope probe to P910 pin 10. Depress a key and note that the voltage should attack to 7.5 VDC +/- 1.0 VDC in 33 ms +/- 5 ms, then should immediately begin to decay with a time constant of 250 ms +/- 50 ms to a level of 3.50 V +/- .18 VDC. On release of the key the contour should fall with a time constant at 250 ms +/- 50 ms to 0V. Depress variable attack switch and note increase in attack time as potentiometer is moved upwards. Potentiometer should have an effect in preset mode.
8. High frequency oscillator, divider, mother, modulator and balance boards - connect headphone monitor, A.C. voltmeter and scope to direct output.
- a. Saw level - in preset 9 (direct out), check for less than 3 db difference in output level between adjacent notes.
 - b. Pulse width - disconnect S11 (on saw high frequency oscillator). In preset 7, check each key for uniform pulse width.
 - c. High frequency pulse - with S11 disconnected, inject 1 volt into rear panel pitch jack. In preset 7 check each key for output. Reconnect S11.
 - d. High frequency saw - inject 1 volt into rear panel pitch jack. In preset 11 check for saw output on each note. remove external pitch control.
 - e. Dynamics - in preset 5 check each key for uniform dynamics.
 - f. Decay - in preset 13 check each key for uniform decay.
 - g. Release - insert shorting plug into rear panel sustain jack. In preset 8 check each key for uniform release (foot sustain). Remove shorting jack.
 - h. Filter caps - in preset 12 check each key for proper sound.
 - i. Bleed through - in preset 1, without pressing any keys, wait 60 seconds and listen for notes to sound.
 - j. Balance cards - depress 10 keys on one motherboard. Listen for crackling, distortion, or sound dying away. Repeat for all motherboards and all presets.
 - i. Note: while running above tests, also check for smooth uniform feel of keyboard.
9. Audio circuit board - connect headphone monitor and frequency counter to main output.

- a. Bass filter - check operation of bass filter level and cutoff frequency controls in bass filter-on mode. Controls should affect notes below E5 only and should have no effect in bass filter OFF mode. Bass filter controls may affect noise level slightly.
 - b. VCF cutoff - in preset 9, volume control fully, headphone volume control fully down, connect a series 10k ohm resistor and .33uF capacitor between P83 pin 1 and IC3 and pin 2. Press and release F6 and observe 200 Hz oscillation. Adjust R44 if necessary. Press lower notes and observe decreasing frequency.
 - c. External VCF cutoff - with same setup as step b, depress F6 and observe 200 Hz oscillation. Inject +1.00 VDC +/- 5mVDC into rear panel filter jack and observe frequency increase to 400 ~ 800 Hz. Remove R-C network and external cutoff control.
 - d. VCF audio - listen to presets 9 and 10 for proper tone and filter contour.
 - e. Monophonic keyboard - in preset 9 check each note for triggering and tracking of VCF.
 - f. Swell range - adjust R11 for -1 db from full output. Insert shorting plug into rear panel swell jack and observe reduction in output level of 30 db +/- 3 db. Remove shorting plug.
 - g. Volume controls - verify smooth, noise-free operation of front panel volume and octave balance controls.
 - h. Preset filters - listen to presets 1 ~ 8, and 11 ~ 14 and check for proper filtering.
 - i. Note: filter boards cannot be adequately repaired at final test. Return defective boards to board test and replace with tested boards.
10. Noise - connect A.C. voltmeter to the appropriate output and check for the following maximum noise levels (dbm):

PRE	DIRECT	MAIN	BASS
1	-78	-84	-72
2	-82	-81.5	-78
3	-79	-83	-73
4	-83.5	-81	-81
5	-83.5	-80	-82
6	-83	-81.5	-79
7	-82	-81	-78
8	-78	-83	-73
9	-84	-77	-84
10	-84	-76	-81
11	-83	-83.5	-78
12	- 80 -55	-83.5	-75
13	-82	-78	-79
14	-82	-79	-78

a.

PRE	LOUD CONTOUR			WAVEFORM		OSC	MOD		HI LO BRIGHT BRIGHT	
	ATT	DEC	SUSTAIN	REL				M.FREQ		
	FAST SLOW SYN	FAST SLOW SYN		FAST MEDIUM SLOW	WIDE NARROW 16'	8' 4' 2'	LOCK FREE DETUNE			WIDE PHASE WIDE
1 2 3 4 5 6 7 8 9 10 11 12 13 14										

F - RELEASE WITH FOOT SUSTAIN
P - MODULATION IN PRESET ONLY.
V - MODULATION IN VARIABLE ONLY
A - PRESET AND VARIABLE AMOUNT ONLY

FINE TUNE
BEAT

EXT KBD
SLIDE

MASTER GAIN CONTROLS
MAIN DIRECT MODE RES VCF

OCTAVE BAL
2-4 5-6

1/2 RANK
TUNE

1/2 FM **1/2 FM/PM**
RATE AMT RATE AMT

1/2 SHAPE/MOD
SHAPE AMT SHAPE AMT RATE

1/2 RANK
AMT

KEYBOARD WAVEFORMS
LOWER UPPER

POSTAGE
RANK 1/2 RANK

1/2 RANK
PRE

1/2 FM **1/2 FM/PM**
RATE AMT RATE AMT

1/2 SHAPE/MOD
SHAPE AMT SHAPE AMT RATE

1/2 RANK
PRE

LOCK

PRE

VAR **PRE**

NOTES: Custom Voice for Eric Emery
Preset #3 (Hammond w/ 12
four semibreves out / prec. on)

FUNCTION	VOLTAGE	LOCATION	RANGE
Open Tone	3.0V	M1 LAC	R-10
on PA Amt	1.2V	M2	1M
" AMT	.3V	M5	1.5M
1/2 Fm/PM Rate	7.5V	M3	2.2M
" AMT	.3V	M6	150K
SIGNAL LOW	7.0V	M8	33K
AMT LOW	2.0V	M9	24K
1/2 SHAPE	5.0V	M10	45K
AMT M	.7V	M11	130K
RATE	1.2V	M12	6.80K
1/2 FM	7.2V	M13 RAC	10K
1/2 SHAPE	2.0V	M14	100K
1/2 SHAPE	3.0V	M17	150K
CUTOFF	4.0V	M2	110K
1/2 FM	6.0V	M9	60K
1/2 SHAPE	1.5V	M10	10K
1/2 SHAPE	2.4V	M11	9.1K
ATTACK	0V	M7	100K
DECAY	0V	M8	10K
SUSTAIN	5.3V	M4	15K

LOUDNESS CONTOUR
KBD VCN ATTACH DCR SUSTAIN

LOWER UPPER KEYBOARD

FINAL DECAY

RESONATORS
CF EMPH GAIN CF EMPH GAIN CF EMPH GAIN

LOW BAND HIGH

KEYBOARD

LOWER UPPER ALL

ON OFF

VOLTAGE CONTROLLED FILTER
CUTOFF EMPH KBD RATE AMT RES AMT ATTACH DECAY SUSTAIN

MODULATION

CONTOUR

KEYBOARD

OFF PRE LOWER UPPER SPLIT

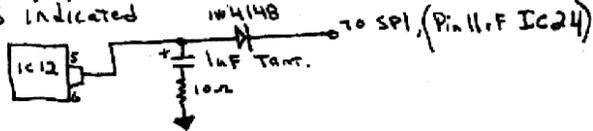
R.C.H.Bd

Preset Voicing Changes.

- 23-24 N1. Add R1 33K, Mod AMT
- ~~22~~
~~23~~ N2. Add R1 3.3M, R5 200K → 100K, R7 150K to 220K, Rate.
- ~~16~~
~~17~~ N3. Add R1 62K, R3 200K to 91K, CUTOFF.
- ~~20~~ N4. Add R1 20K, OMIT R8 27K, R5 12K to 15K, omit R3 13K, 13K x from Pin 10 of N4 to ↓
- ~~26~~ N5. Sample + Hold
- ~~29~~
~~30~~ N6 ~~add~~ R3 24K to 27K, Sustain.
- ~~28~~ N7 Add R3 91K to 10K, ATTACK-FILTER
- ~~28~~
~~29~~ N8 Add R3 to 200K, DECAY.
- ~~27~~ N9 omit R1 12K, Add R3 51K, omit R7, CONTOUR AMT.
- ~~21~~ N10 Add R3 27K Kybd AMT.
- ~~16~~ N11 Add R7 150K, R5 55K → 82K, Bright
- ~~15~~ N12 Add R2 100K, omit R7, R5 75K CLAMP Level
- ~~11~~
~~13~~ N13 Add R2 75K, R7 100K, R5 24K, Dynamics.
- ~~13~~
~~14~~ N14 Add R1 120K, R2 27K, R7 30K, R5 51K. UP DECAY.
- ~~13~~ N15 Add R1 110K, R2 27K, R7 30K, R5 51K. LO DECAY.
- ~~12~~ N16 ATTACK, KYBD.
- ~~14~~
~~15~~ N17 Add R1 110K, R3 130K, omit R7, R5 to 240K, Sustain.

Emph. ↓

2.) ADD, Res, Diode, + cap as indicated



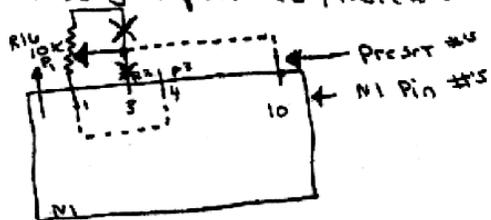
L.H.C. Preset Voicings

- ①
- N1 - Tune.
- N2 - FM M RATE.
- N3 - " JL "
- * N4 - R₂ 33K, Level Lo
- N5 - FM M AMT.
- N6 - " JL AMT.
- * N7 - R₂ 33K Level Hi.
- * N8 - R₂ 47K Shape Lo
- N9 - Lo mod.
- * N10 - R₂ 47K
- N11 - Hi Mod
- * N12 - R₂ 56K, Shape Med
- N13 - FM/PM AMT.

② CUT TRACES + Add jumper as indicated on N1 Tune Network

A. X'S ARE TRACE CUTS

B. DOTTED LINES INDICATE JUMPERS.



I. Perform HIGH POT Test.

1. Set all controls to FULL, Monitor to FULL VOLUME and install Pedal plugs at rear panel.

A. Check Noisiness & feel of

1. Power On-Off - *Pre 8 always comes on first.*
2. All Slide Pots (in "ON" & "VAR" modes)
3. All Preset Buttons *Clav is noiset. Pre 7*
4. All Variable Buttons & their related LED function

Turn Volume to Zero.

Bleed through w/ Vol to zero on all Preset.

B. Check Keyboard for

1. Appearance
2. Noisiness
3. Feel

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Turn On Pre 5 and Set Volume to Listening Level.

C. Check Keyboard for

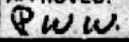
1. Dynamic Consistency
2. Dynamic Range
3. Double Triggering
4. Response to Fast Multiple Triggering
5. Response to Fast Runs (Hanon Studies, No.1)

Turn On Pre 9. *-Brill direct dot, fan. at waf. f/w*

D. Check Every Key for

1. Clean Attack
2. Presence & Clarity of Sawtooth

Turn On Pre 13 & Turn Modulation to Variable with Rate & Amount to Zero.

REVISIONS:	ISSUE	REVISIONS:	ISSUE	 MANUFACTURING STANDARD
9/05/78	A			
				DRAWN: <i>1-5-76</i>  APPROVED: 
				PAGE 1 OF 3 TS 997-042604-001

E. Check Squarewave on All Notes for

1. Presence
2. Consistency
3. Clarity
4. Proper Decay Rate

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F. Check Functions in the Following Manner

1. Slide Mod Amount Pot from zero to ten & listen for increase. (Leave on ten.)
2. Slide Mod Rate Pot from zero to ten & listen for increase. (Leave on ten.)
3. Press Preset 1 and play a note. Depress Mod Var and listen for change.
4. Repeat step 3 for Pres. 4-14. Turn Rate & Amount to zero & repeat step 3 for Pres. 2 & 3.
5. Check Presets 1-3 & 9-11 for Var Attack from 0-10. Attack will affect a change in VCA Attack, Cutoff Frequency & Output Level.
6. Press Pre 9 and use lower keyboard to check Bass Filter On/Off Function, level & cut Frequency Pots. (Leave "ON".)
7. Check Octave Balance 1-2 for no effect, turn Bass Filter OFF and check all Octave Balance Pots for effect on respective keyboard output.
8. Lower Swell Pedal to zero & check Volume Pot from 0-10. (Return volume to previous level and swell pedal back to full.)
9. Check Ribbon for
 - a. Appearance
 - b. Centering
 - c. Smoothness of performance
10. Check control of Filter Cutoff with pedal & control of Single-Mult Trig with both swt. & foot pedal. (Swt. must be in Mult. position in order to check pedal.) *pedal must be in Mult. position*
11. Press Pre 8 & raise pitch one octave with pedal. Check every note to be certain square width is modulating normally.

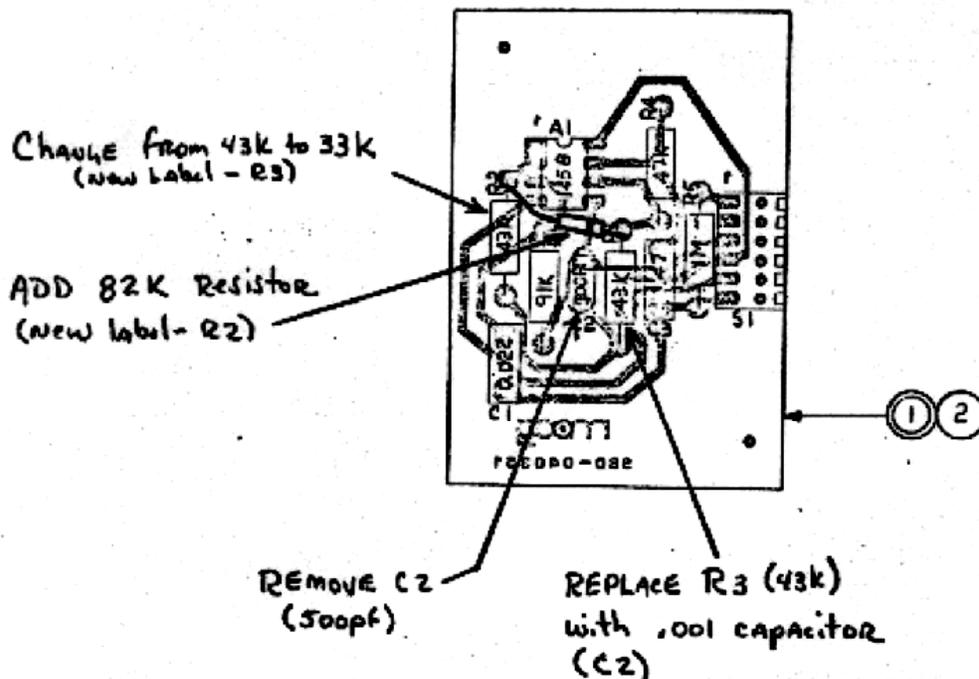
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- F. 11. Con't:
 (Will cut out sometimes.)
12. Press Pre 3 & holding Sustain Pedal down play every note, listening for sustain.
 13. Check voicings of 3-14 with & without sustain. (All three sections.) *Amor up*
 14. Check voicing of 1 & 2 (All three sections.)
 15. Press Pre 1 & turn Volume to full. Wait 1 minute and listen for bleed through.
 16. Reset Pre 1 & turn all modulations off. Check range of Beat Knob & corresponding LED function. Should zero beat between 4.5 on scale.
 17. Check range of Fine Tune Pot. Should be greater than + 1/2 semitone.
- G. Test complete.

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REVISIONS:	ISSUE	REVISIONS:	ISSUE
9/05/78	A		
 MANUFACTURING STANDARD			
DRAWN: 4-5-78		PAGE 3 OF 3	
APPROVED: <i>R.W.H.</i>		TS 997-042604-001	

Modification of older version strain mode filter to newer version.



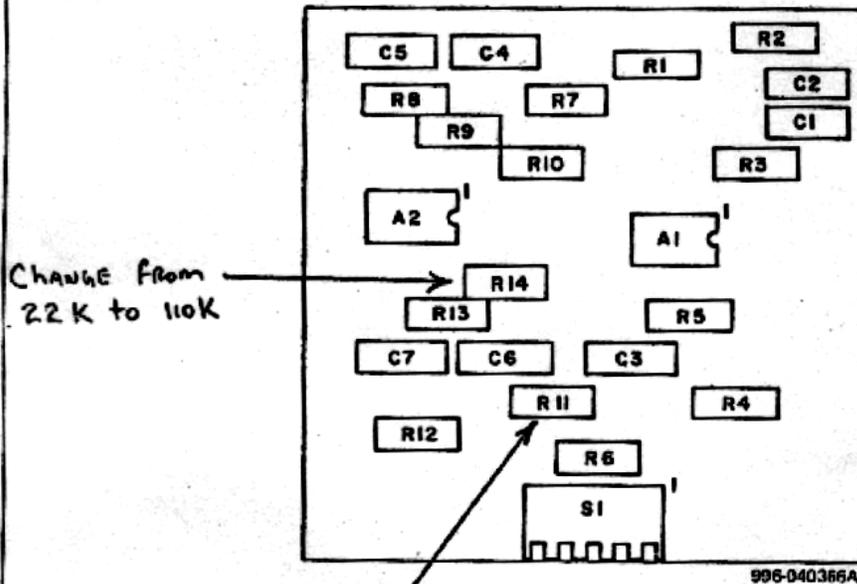
NOTES

1. CIRCUITRY SHOWN IS ON FAR SIDE OF BOARD.
2. UNLESS OTHERWISE SPECIFIED -
ALL RESISTORS ARE IN OHMS 1/4W, $\pm 5\%$.
ALL CAPACITORS ARE IN MFD (μf).

Poly Synthesizer - 5-24-79

NOTE:

**REFER TO THE REPLACEMENT
PARTS LIST IN SECTION 10 FOR
THE PART NUMBER AND
DESCRIPTION OF EACH
REFERENCE DESIGNATOR.**



CHANGE from
22K to 110K

CHANGE from
240k to 47K

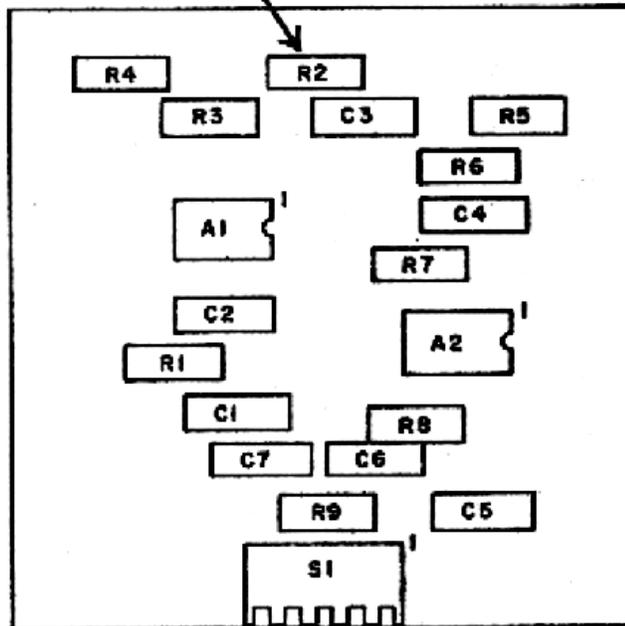
Poly synthesizer 5-24-79

FUNK FILTER BOARD NO. 5 PRINTED CIRCUIT BOARD ASSEMBLY

NOTE:

REFER TO THE REPLACEMENT PARTS LIST IN SECTION 10 FOR THE PART NUMBER AND DESCRIPTION OF EACH REFERENCE DESIGNATOR.

Delete R2



996-040356A

Poly synthesizer 5-24-79

PIANO FILTER BOARD NO. 2 PRINTED CIRCUIT BOARD ASSEMBLY

NOTE:
REFER TO THE
REPLACEMENT
PARTS LIST IN
SECTION 9 FOR
THE PART
NUMBER AND
DESCRIPTION
OF EACH
REFERENCE
DESIGNATOR.

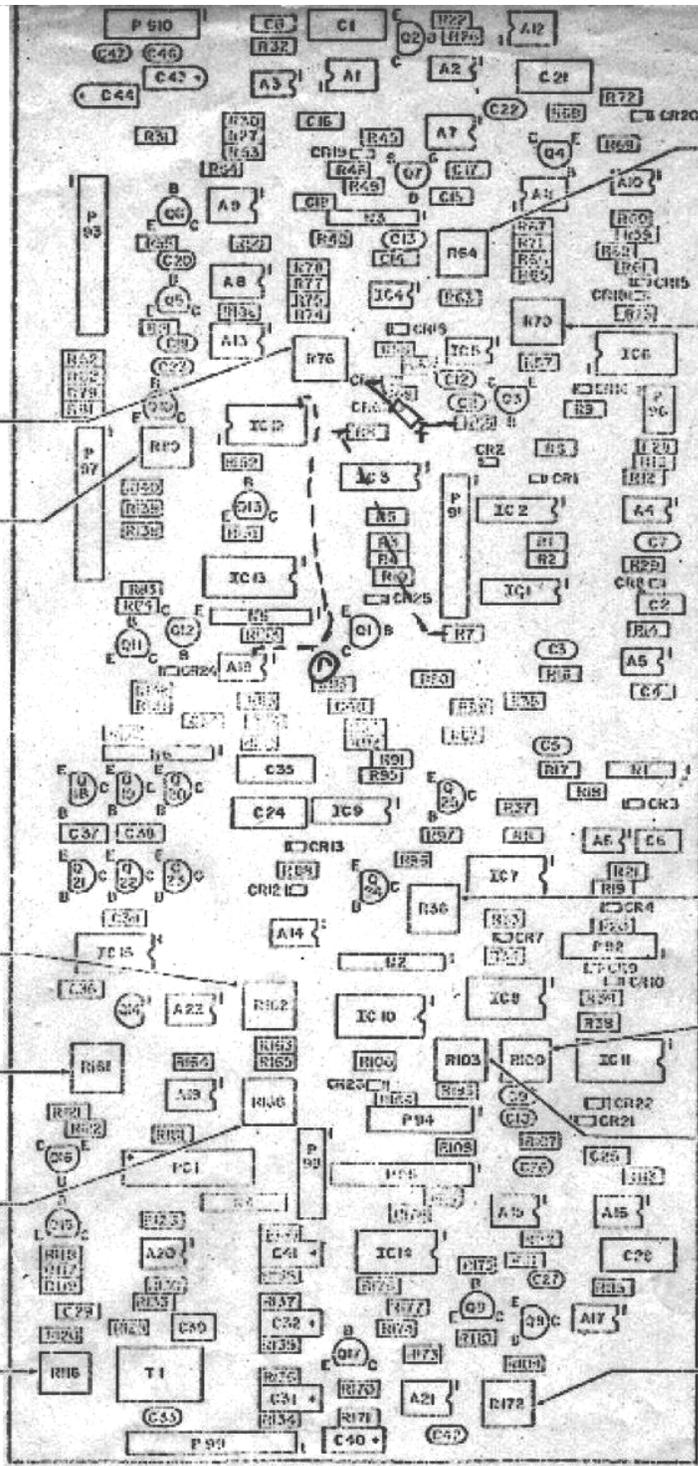
**CONTOUR
GENERATOR
AMOUNT
BALANCE
R76**
**VCF
RAGE
R20**

**VCF LEVEL
BALANCE
R162**

**EMPHASIS A
MOUNT
R161**

**VCF
LADDER
BALANCE
R168?**

**SWELL
RANGE
R116**



MAP 101

DATE 3/24/77

PAGE 4 OF 4

**CONTOUR
GENERATOR
FEEDBACK
R64**

**MAXIMUM
ATTACK AND
DECAY R70**

**REV # C - WIRE
REV # B - WIRE + 10uf tantalum**

**SCALE
KEYBOARD
R36**

**KEYBOARD
LOW RANGE
R100**

**KEYBOARD
HIGH RANGE
R103**

**KEYBOARD
AMOUNT
BALANCE
R172**

VOLTAGE CONTROLLED FILTER AND KEYBOARD CIRCUIT PRINTED CIRCUIT BOARD ASSEMBLY