

**Service Packet**

**Super Prime Time (Model 97)**

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**Programmable Digital Delay Processor**

**lexicon**

070-03832  
12/85

## **Safety Precautions**

Service operations must only be performed by a qualified service technician. If you have doubts about your ability to perform a procedure, please contact Lexicon for assistance.

**WARNING! Hazardous voltages are present inside this unit when the power cord is connected; use extreme caution when servicing and adjusting. Always place the unit on an isolation transformer before servicing.**

## **Static Electricity Precautions**

Many of the Model 97's internal components are extremely sensitive to static electricity. The following practices minimize possible damage to components resulting from electrostatic discharge:

1. Minimize handling of boards and integrated circuits (ICs).
2. Keep parts in original containers until ready for use.
3. Discharge personal static before handling devices.
4. Use antistatic containers for handling and transport.
5. Do not slide devices over a surface.
6. Avoid plastic, vinyl, or styrofoam in the work area.
7. Handle ICs only at a static-free work station.
8. Use only grounded-tip soldering irons.

## **Notice**

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# 1 Obtaining Factory Service and Parts

## 1.1 Returning Units For Service

Before returning a unit for service, always consult with Lexicon to determine the extent of the problem.

If you choose to return the Model 97 to Lexicon or a designated facility for service, Lexicon assumes no responsibility for the unit during shipment from customer to factory, whether in or out of warranty. All shipments must be well-packed (using the original packing materials if possible), properly insured, and consigned to a reliable agent.

When returning a unit for service, please include the following information:

- Name
- Company Name
- Address
- City, State, Zip Code
- Telephone Number (include Area Code)
- Serial number of unit
- Description of problem
- Desired return date
- Preferred method of return shipment

Please include a brief note describing conversations with Lexicon personnel, and give the name and telephone number of the person directly responsible for maintaining the unit. Do not include accessories such as manuals, remote switches, etc.

## 1.2 Ordering Parts

When ordering parts, identify each part by its type, value, and Lexicon Part Number.

Example:

10 kilohm rotary potentiometer, Lexicon # 200-02616

Replacement parts can be ordered from:

Lexicon, Inc.  
60 Turner Street  
Waltham, MA 02154 USA  
(617) 891-6790  
Telex 923 468  
Attn: Customer Service

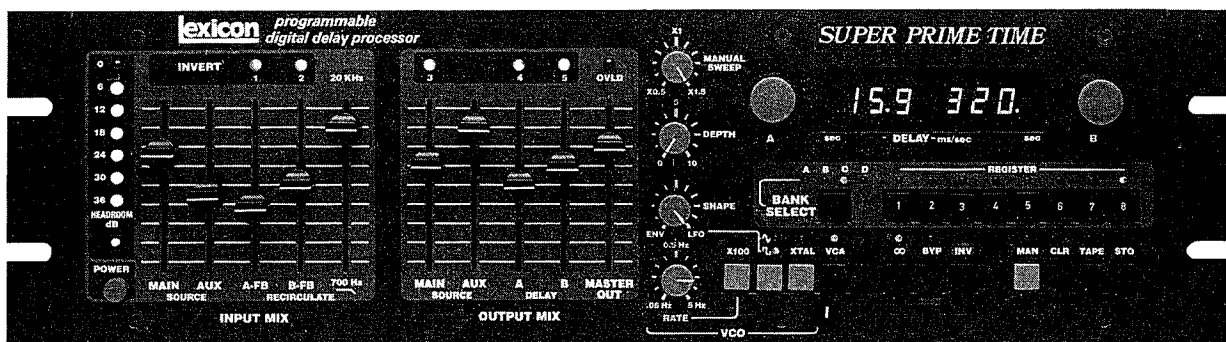
## 2 Description and Specifications

### 2.1 Description

The Lexicon Super Prime Time Model 97 is a programmable digital delay processor that meets the highest standards for studio delay lines, incorporating high resolution analog-to-digital converters and carefully optimized audio circuitry for clarity and wide dynamic range. The Model 97 features up to 640 ms of audio delay (at 20 kHz bandwidth), expandable to 1.28 seconds with optional memory expansion kits. A two-stage limiter circuit prevents transient overloads, allowing greater optimization of signal-to-noise ratio.

Two independently adjustable delay outputs, each with digital display and separate mixing and recirculation controls, can be routed individually or combined in a virtually endless number of ways to create a vast array of spatial enhancements, subtle shadings, and special effects, including chorusing, double tracking, echoes, flanging, pitch twisting, resonance, vibrato, and more.

The Model 97 is programmable--up to 32 different effects can be stored and recalled by the user. For a comprehensive description of the Model 97, refer to the *Model 97 Owner's Manual*, Lexicon part number 070-02810.



Lexicon Model 97 - Front Panel.



Lexicon Model 97 - Rear Panel.

## 2.2 Specifications

The following specifications are subject to change without notice.

### Total Distortion and Noise

- 0.03% typical, 0.05% maximum @ 1 kHz input

### Frequency Response

- 1X mode: 20 Hz to 20 kHz, +1, -2 dB

### Dynamic Range

- Better than 85 dB, 20-Hz to 20-kHz noise bandwidth

### Delay Range

Memory Option	VCO @ 1X or XTAL	VCO@ 1.5X
Standard	640 ms	960ms
Memory Extension	1.28s	1.92s

Note: VCO settings above 1.25 could result in aliasing distortion if significant audio energy above 16 kHz is present in the input signal.

### Inputs

- MAIN and AUXILIARY inputs are XLR-3 female connectors in parallel with 1/4" tip-ring-sleeve phone jacks with 50 dB minimum common-mode rejection. Balanced and unbalanced inputs are accepted.

### Input Impedance

- Greater than 50 kilohm in parallel with 300 pf for MAIN INPUT.
- Greater than 20 kilohm in parallel with 150 pf for AUX INPUT.

### Input Level

- Main Input, +20 dB GAIN switch out: 0 to +19 dBV
- Main Input, +20 dB GAIN switch in: -20 to 0 dBV
- Aux Input: 0 to +19 dBV

### Outputs

- The MASTER OUTPUT is a balanced source into an XLR-3 male connector in parallel with a tip-ring-sleeve 1/4" phone jack. INPUT MIX OUTPUT, DELAY-A OUTPUT, and DELAY-B OUTPUT are unbalanced and have standard 1/4" tip-sleeve phone jacks.

### Output Impedance

- MASTER OUTPUT is 200 Ohm balanced or unbalanced.

### Output Level

- MASTER OUTPUT is +22 dBV (12.5 V rms) maximum when driving *balanced* loads 600 Ohms or greater.
- MASTER OUTPUT is +16 dBV (6.3 V rms) maximum when driving *unbalanced* loads 600 Ohms or greater.
- INPUT MIX, DELAY-A and -B OUTPUTS are +16 dBV maximum when driving 2 kilohm or greater loads.

### Power

- 100/120/220/240 Vac (switchable inside chassis), 50-60 Hz, 50 watts maximum. IEC power connector on rear of unit; 3-prong cord provided.

### Protection

- Mains are fused (standard 1/4" fuses). For export models, mains and secondaries are fused (European style 20 mm fuses). RFI power line filtering is standard; all jacks are RFI filtered.

### Dimensions

- Standard 19" (483 mm) relay rack. 5 1/4" (133 mm) high by 13 1/2" (343 mm) deep.

### Weight

- Net 17 lbs (7.7 kg)
- Shipping 20 lbs (9.1 kg)



## 3 Performance Verification

### 3.1 Periodic Maintenance

Under normal conditions, the Model 97 requires minimal maintenance. Use a soft lint-free cloth lightly dampened with a mild detergent and warm water to clean the exterior surfaces of the unit. Do not use alcohol-, benzene-, or acetone-based cleaners or strong commercial cleaners; never use abrasive material, such as steel wool or metal polish.

If the Model 97 is subjected to dusty environments, a vacuum or low-pressure blower can be used to clean dust out of the interior of the Model 97.

### 3.2 Performance Verification

The information in this section can help you determine whether or not a unit is operating correctly. Always complete the performance verification before carrying out calibration procedures.

The following equipment is required to complete the performance tests:

1. Variac
2. Digital multimeter
3. Low distortion sine wave oscillator
4. Dual trace oscilloscope (60 MHz bandwidth)
5. THD+N distortion analyzer/level meter (with switchable audio bandpass filtering)
6. Pulse generator
7. Lexicon foot pedal (#750-02432)
8. Lexicon dual foot switch (#750-02433)
9. High quality music source/monitor system
10. *Model 97 Owner's Manual*

#### 3.2.1 Initial Tests

1. Inspect the Model 97 for signs of physical damage. Verify that the sliders, switches, and jacks are in good mechanical condition.

2. Remove top and bottom covers and verify that all internal parts are secure, including printed circuit boards, cables, and socketed ICs.
3. Verify the presence of a protective shield under the power and voltage select switch.
4. Verify the voltage select switches are in the correct position (SW2, SW3) for the line voltage in use. See Figure 3.1.

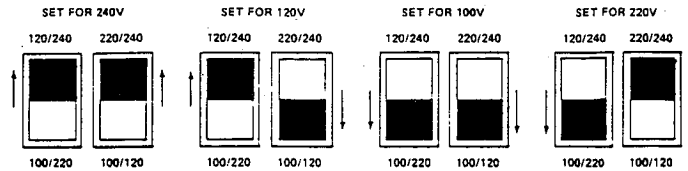


Figure 3.1. Voltage Selection.

5. Verify that the correct fuses are installed, as shown in Table 1.1.

**Primary F1 (Rear Panel)**

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100/120V -- 1 AMP SLO-BLO 3AG  
 220/240V -- 1/2 AMP SLO-BLO 5X20mm with adapter

---

**Secondary (Main Board)**

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100/120V -- F2, F3 - 6.3 AMP SLO-BLO 5X20mm  
 220/240V -- F4, F5 - 2 AMP SLO-BLO 5X20mm

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Table 1.1. Power Supply Fuse Values.

**3.2.2 Power Supplies**

The normal operating line voltages are 100V, 120V, 220V, or 240V. All line voltages should be within  $\pm 10\%$  of these nominal values.

**Note:** When shipped from the factory, the correct line voltage is printed on a label on the rear panel.

1. Connect the Model 97 to a variac set to 0 Vac. Turn on the Model 97.
2. Slowly bring up variac to the operating voltage and observe the current. It should be <0.4 A for 100/120 V and <0.2 A for 220/240 V. If your variac does not have a current meter, current can be measured by replacing the main fuse with an ac current meter. If the Model 97 draws excessive current, turn it off and check for shorts.
3. Attach the common probe of a dc voltmeter to ground (negative end of C5) on the main board. Measure the following dc supplies to verify specifications.

Location	Specification	Voltage
P1 pin 5 (digital)	4.75 - 5.25	+5, DIGITAL
U6 pin 8 (main)	14.25 - 15.75	+15, ANALOG
U6 pin 4 (main)	14.25 - 15.75	-15, ANALOG
P1 pin 1 (digital)	9 - 10	+10 Unregulated
U7 pin 14 (main)	4.50 - 5.50	+5, ANALOG
Case U18 (main)	9.95 - 10.05 (adjust R63)	+10, Reference
U25 pin 14 (digital)	3.60 - 4.20	+3.6, Battery
*P1 pin 3	11.40 - 12.60	+12
*P1 pin 2	11.40 - 12.60	-12

\* These are optional supplies which were only installed in early units. They are not used.

Table 1.2. Power Supply Voltages

4. Reduce line voltage by 10% and verify that all regulated supplies continue to meet specifications.
5. Return line to nominal voltage. Turn off the Model 97 and measure the voltage across R13 on the digital board. It should be <7.5 mV.

### 3.2.3 Front Panel Test (LEDs, Pots, Switches and Control Jacks)

1. Initialize the Model 97 as follows:
  - Power on
  - All sliders down
  - All rotary pots ccw
2. **LED Test.** Press and hold in sequence BYP, VCA and 5. All LEDs should be on, except for the OVLD and HEADROOM LEDs. Press MAN to exit test.

3. **Pot Test.** Press and hold in sequence **BYP**, **VCA** and **6**. Display will be some display plus 0.00 as shown in Table 1.3. Starting with the **MAIN INPUT** slider, slide all pots to full up and then down (or cw and then ccw). The display will flash as the pot reaches maximum value. The left display will show the code for the pot and the right display will be between 0.00 minimum and 0.FF maximum. A good pot will have no missing hexadecimal codes. Check for codes 78-88 at center of travel (linear). Press **MAN** to exit test.

Code #	Function
3.50	Main In
3.40	Aux In
3.30	A-FB
3.20	B-FB
3.10	Filter
3.00	Main Source
2.F0	Aux. Source
2.E0	A OUT
2.d0	B OUT
2.b0	Master OUT
2.A0	Man SWEEP
3.70	DEPTH
3.60	SHAPE
2.C0	RATE
2.90	A DELAY
2.80	B DELAY

Table 1.3. Potentiometer Test Response Codes.

Key Switch	Code #
Bank Select	00.b
Reg. 1	01.0
Reg. 2	01.1
Reg. 3	01.2
Reg. 4	01.3
Reg. 5	02.0
Reg. 6	02.1
Reg. 7	02.2
Reg. 8	02.3
X 100	00.0
Sine/Square	00.1
Xtal	00.2
VCA	00.3
Inf Repeat	00.8
Bypass	00.9
INV	00.A
CLR	01.9
TAPE	01.A
STO	01.b

Table 1.4. Key Switch Test Response Codes

4. Switch Test. Press BYP, VCA, 7. This will enable you to test the switches as shown in Table 1.4. Display "A" will remain 0.00. Press MAN to exit test.

### 3.2.4 HEADROOM and OVLD LED Test

**Setup:** Select MANUAL mode, BYP off, all INV LEDs off, INFINITE REPEAT off, VCA off, and X100 off. Set DELAY A and DELAY B to 00.1.

1. Raise the A-FB and B-FB sliders. At some point past mid travel all headroom indicators will come on in sequence. Raise the DELAY A and DELAY B OUTPUT sliders and the OVLD LED should light.
2. Lower the A-FB and B-FB sliders. The HEADROOM and OVLD LEDs should go out in reverse order.

### 3.2.5 Factory Preset Check

This test is to verify display on factory presets; listen to the Model 97 at the same time to determine if the audio paths are operating properly (refer to page 13 of the *Model 97 Owner's Manual* for factory presets). Recall factory presets as follows: Press BANK and while holding, press the register key. The display should read as listed in Table 1.5.

Register	Effect	Left Display	Right Display	Other Lights
1	Basic flange	01.6	00.7	INV 2 & 4
2	Resonant flange	02.2	01.9	INV 1 & 4
3	Doubling	25.7	36.3	INV 1
4	Trebling	20.4	36.3	INV 1
5	Chorus	38.2	51.0	INV 1
6	Slap Echo	101.	176.	XTAL, INV 1
7	Moderate Echo	310.	207.	XTAL
8	Echo with recirculation	310.	104.	XTAL

Table 1.5. Display Contents with Factory Presets.

7. Check the rear-panel BYPASS, INFINITE REPEAT and REGISTER STEP jacks using Lexicon foot switches. Verify LED operation with rear panel jacks.
8. Verify delay capacity of the Model 97, as shown in Table 1.6.

Memory Option	VCO @ 1X or XTAL	VCO@ 1.5X
-----	-----	-----
Standard	640 ms	960ms
Memory Extension	1.28s	1.92s

Table 1.6. Model 97 Delay Capacity.

9. Verify that the "second" LEDs light when the display reaches seconds.

### 3.2.6 Signal Path Test

**Setup:** MAN mode, XTAL, BYP on, INV all off, INFINITE REPEAT off, VCA off, A and B delay to 00.1. All sliders down, MAIN SOURCE INPUT slider maximum. All of the following audio test levels are checked *without* load.

1. Apply a 1 kHz sine wave @ 1 dBm to MAIN INPUT and AUX INPUT jacks. The 0 dB HEADROOM LED should be lit.
2. Decrease the input signal 20 dBm (-19 dBm), push the +20 dB gain switch, check for return to 0 dB HEADROOM display.

3. Return the gain switch to the 0 dB position, oscillator to 1 dB. Lower MAIN SOURCE INPUT slider to minimum. Raise AUX SOURCE INPUT slider to maximum for 0 dB headroom.
4. Verify +12 dBm ( $\pm 1$  dB) at the INPUT MIX OUTPUT jack.
5. Observe MASTER OUTPUT, raise MASTER OUTPUT slider and verify 19 dBm ( $\pm 1$  dB). Set MASTER OUTPUT level for +12 dBm.
6. Turn off BYP. Raise the AUX SOURCE OUTPUT slider to maximum for 12 dBm @ MASTER OUTPUT. Raise MAIN SOURCE OUTPUT slider to maximum for 18 dBm out.
7. Press INV hold, 3. MASTER OUTPUT should decrease indicating cancellation. INVERT indicator above MAIN SOURCE OUTPUT should be lit.
8. Set MAIN and AUX SOURCE OUTPUT sliders to minimum, A DELAY OUTPUT slider to maximum. MASTER OUTPUT should be 12 dBm ( $\pm 1$  dB). Lower A DELAY, raise B DELAY, MASTER OUTPUT should be 12 dBm ( $\pm 1$  dB).
9. Bring DELAY A and DELAY B sliders to maximum. Press INV hold, 4. MASTER OUTPUT should decrease. Press INV hold, 5. MASTER OUTPUT should return to original level.
10. Check A and B DELAY OUTPUT phone jacks and verify 12 dB ( $\pm 1$  dB) on both.
11. Set A and B delay to maximum. Press INFINITE with full signal present. Lower MAIN and AUX SOURCE INPUT sliders to minimum. Signal at MASTER OUTPUT should remain unchanged in B or A DELAY as long as delay is set at anything over 00.1 ms.
12. Observe INPUT MIX OUTPUT. Raise FILTER slider to maximum. Raise A-FB slider to maximum. Output should be 12 dBm ( $\pm 1$  dB). Raise B-FB slider to maximum for 18dBm out ( $\pm 1$  dB). Press INV hold, 1 for decrease in output. Press INV hold, 2 and output should return to 18dB ( $\pm 1$  dB). Decrease FILTER slider to minimum, signal should drop 3-8 dB.
13. Attach one probe of oscilloscope to U25 pin 11 (NMI/) on the digital board and the other probe to R180 on the digital board, left side facing front (MUTE). Trigger on NMI/. Power on Model 97 and NMI/ should go high; MUTE should go low 500 ms later ( $\pm 100$  ms). Check MUTE on all four outputs on power up and down. It should power down abruptly and cleanly and power up free of any thumps. A-DLY, B-DLY, INPUT MIX and MASTER out.

**Note:** Calibration should not be necessary unless a component in that particular circuit has been changed.

### 3.2.7 Power Fail Test And Calibration

1. Refer to power supply test (section 3.2.2) and check battery voltage as well as current draw.
2. Attach one probe of oscilloscope to U25 pin 11 on the digital board. Set scope to read a 0-5 Vdc level. Power on the Model 97 with a variac, at 87% of line voltage the scope should read a high (>3v). If not, R8 on digital board should be calibrated.
3. Set variac for 87% of line voltage. Turn R8 ccw. While observing U25 pin 11 on scope turn R8 cw until it just goes high (>3 V). To check, lower variac to zero then bring up slowly, at 87% of line voltage it should go high. If not, readjust R8. U25 pin 11 (NMI/) will go low at about 75% of line voltage.
4. Attach second probe of oscilloscope to U25 pin 10 (RST/). Trigger on U25 pin 11 (NMI/). Power on the Model 97 at nominal line voltage and NMI/ should go high; RST/ should go high 150 ms later ( $\pm 50$  ms). Power off and they should go low together.

### 3.2.8 VCO Test and Calibration

1. Connect the frequency counter to U9 pin 6 on the digital board. Set DEPTH ccw, XTAL off, MANUAL SWEEP X1. Adjust R40 for 2.4576 MHz. Adjust MANUAL SWEEP X0.5 and adjust R41 to 4.9152 MHz. Adjust MANUAL SWEEP X1.5 and adjust R42 to 1.6384 MHz. Repeat until all three clocks are correct.
2. Clock should be symmetrical throughout range (30 to 70% duty cycle is OK).
3. To check VCO voltage sweep range probe U6 pin 1 (MAIN). At X0.5 = +5 Vdc and at X1.5 = -5 V. Turn MANUAL SWEEP ccw and then check EXTERNAL DELAY SWEEP jack for  $\pm 5$  V.
4. Adjust DEPTH cw, inject +10 V into MODULATION IN jack and verify VCO clock is 4.9152 MHz, inject 0 V and frequency should be 1.6384 MHz.
5. Delay may be checked at this time by use of a pulse generator and scope.

### 3.2.9 LFO Test and Calibration

**Setup:** Scope to MODULATION OUTPUT jack, RATE X100, SINE, DEPTH ccw, XTAL on, RATE cw, SHAPE to LFO.

1. There should be a sine wave at the output. If the sine wave does not appear to be a good shape, adjust R68 for good shape and R65 for symmetrical sine wave.
2. Select square wave, RATE cw, adjust R64 for 667 Hz at output (1.5 ms period) (recheck sine wave shape R64 may affect shape).
3. With RATE ccw, check for >200 ms period.



4. Switch from X100 to X1. Set RATE fully cw and check for <200 ms period.
5. Set RATE fully ccw and check for >20 s period.
6. Sine and square should be 0 to +10 V.
7. Set RATE fully cw and verify that external control covers full range of LFO operation.
8. Set SHAPE fully ccw, input 1 kHz @ +1 dBm and raise to full 0 headroom and MODULATION OUT should be +10 V, lower input to zero input and MODULATION OUT should be 0 V.

### 3.2.10 Converter Calibration

**Setup:** Set all sliders to minimum, input 1 kHz @ 12 dBm and raise input slider to the point just under clipping. Set the A DELAY slider to maximum. Set the MASTER OUTPUT slider to 12 dBm out.

1. Measure THD, adjust R191 and R214 for minimum THD (<0.03%).
2. Decrease input by 20 dB (-8 dBm), adjust R198 for minimum THD (<0.20%). Repeat steps 1 and 2 until both specifications are met.
3. Check THD at various delay settings. It should be <0.05%.
4. Check THD in VCO mode at X1 (<0.20%), X1.5 (<0.10), and X0.5 (<0.20%).
5. Check THD at 10 kHz in VCO mode at X0.5 (<0.20%), and X1.5 (<2.0%).

### 3.2.11 VCA Calibration

**Setup:** XTAL mode, no inputs, remove U49, inject +2dBm @ 1 kHz into C109 at right side of C111.

1. Monitor A delay output for a THD of <0.08%.
2. Press VCA, adjust R135 for same level as before. Adjust R126 for minimum THD (<0.3%). Repeat both adjustments until both are satisfied.
3. Remove oscillator, install U49, input a 1 kHz sine wave @ 12dBm to MAIN and AUX SOURCE INPUT. Set up a regeneration loop with filter open. Monitor CR54 cathode for voltage, increase input until the 0 dB HEADROOM indicator lights. Voltage should be about +2.5 V and stop feedback. Remove input and it should be 0 V with feedback building up.

### 3.2.12 Output Calibration

1. This electronically balanced output circuit will require a special test cable for calibration. R1 and R2 must be  $>20$  kilohms and precisely matched. See Figure 3.2.

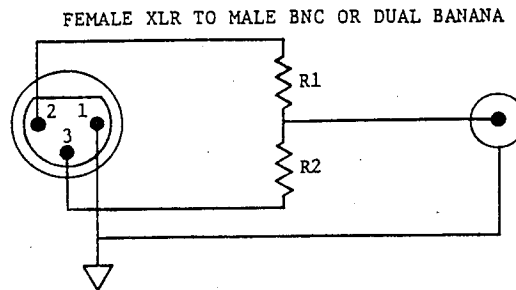


Figure 3.2. Test Cable for Output Calibration.

2. Connect the XLR connector to the Model 97 output with 1kHz input @ 12 dBm. Raise MAIN OUTPUT SOURCE slider to the point where overload is just off. Raise MASTER OUTPUT to maximum. Verify that the differential output is  $<-50$  dBv. Switch oscillator to 10 kHz and verify  $<-40$  dBv. If the two readings are not met, return to 1 kHz and adjust R57 for a null at differential output; then recheck.

### 3.2.13 Common Mode Test

Setup: MAN mode, BYP on, all sliders down.

1. Apply 1 kHz @ 1 dBm to MAIN INPUT, raise MAIN SOURCE INPUT slider to maximum, adjust MASTER OUTPUT for +12 dBm.
2. Connect input signal to both + and - of input and verify output CMRR is  $>50$  dBm. Change output to 10 kHz and CMRR should be  $>40$  dBm.

### 3.2.14 Frequency Response Test

Setup: All sliders down, MAN mode, BYP off.

1. Input 1 kHz @ 0 dBm. Raise input so -12 dB HEADROOM indicator is just off, raise A DELAY OUTPUT to maximum, raise MASTER OUTPUT for 0 dBm and check frequency response. (+1,-2 dB from 20 Hz to 20 kHz)
2. Check DELAY B in the same manner.

### 3.2.15 Delay Test

This is a method of verifying delay times by use of a pulse generator and oscilloscope. For noncritical testing you can simply listen to the various delay settings to verify proper operation. Figure 3.3 details the setup for the delay test.

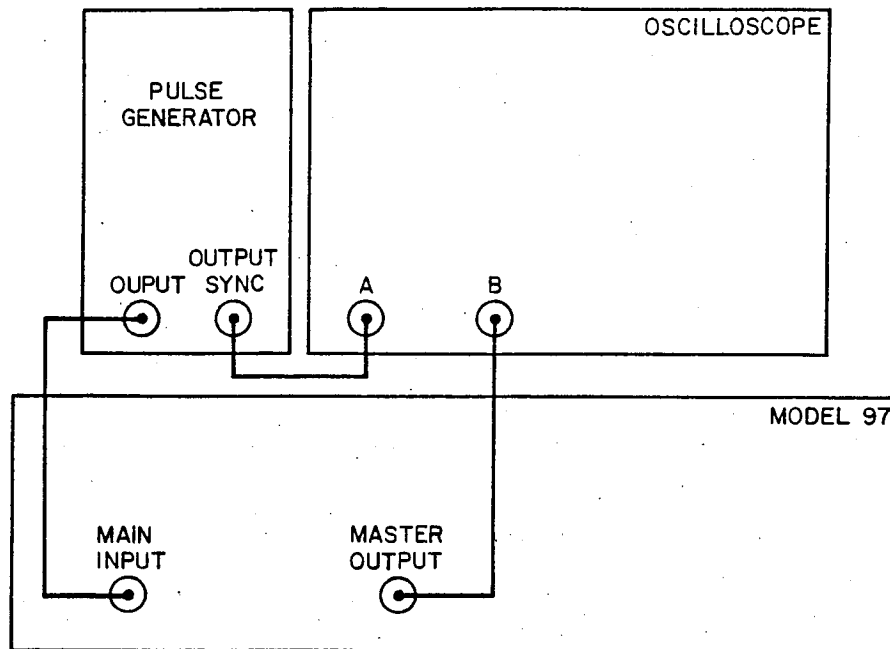


Figure 3.3. Delay Test Setup.

Shown in Figure 3.4 is a simple circuit for a pulse generator.

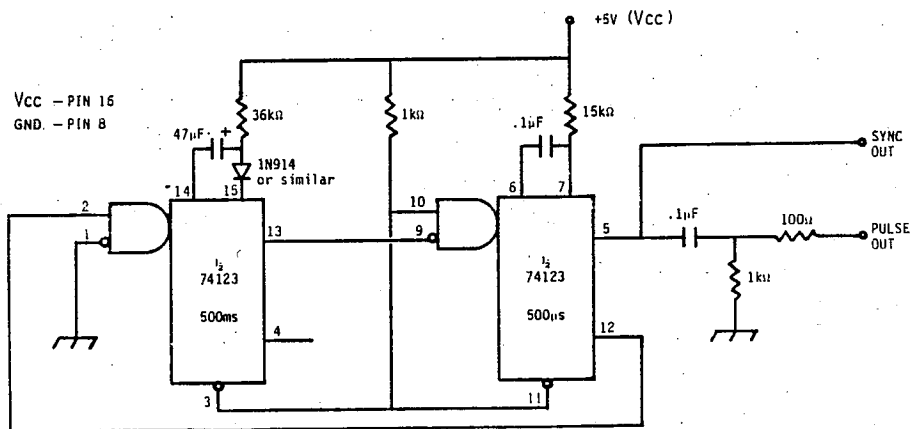


Figure 3.4. Pulse Generator Circuit.

1. Trigger off the pulse generator output and inject pulse to input of the Model 97. Observe MASTER OUTPUT on the oscilloscope. Adjust the scope to trigger on the leading edge of the pulse. Measure the delay time on the scope.
2. Measure DELAY A delay times with DELAY B slider at minimum.
3. Measure DELAY B delay times with DELAY A slider at minimum.

### 3.2.16 Noise Tests

**Setup:** Short MAIN and AUX INPUT SOURCE jacks. Set MAN mode, 0 dB switch position, BYP on, Xtal, VCA off, all sliders down, zero delay. Noise should be measured with 30kHz low pass filter with properly grounded and quiet line voltages (no variac).

1. Raise the MASTER OUTPUT slider to maximum. Noise should be <-78 dBm.
2. Raise the MAIN SOURCE INPUT slider to maximum. Noise should be <-75 dBm.
3. Raise the AUX SOURCE INPUT slider to maximum. Noise should be <-70 dBm.
4. Set the +20 dB gain switch in. Noise should be <-67 dBm.
5. Set the +20 dB gain switch out, MAIN and AUX SOURCE INPUT sliders minimum, BYP off, MAIN SOURCE OUTPUT slider maximum. Noise should be <-70 dBm.
6. Set the AUX SOURCE OUTPUT slider to maximum. Noise should be <-70 dBm.
7. Set the MAIN and AUX SOURCE OUTPUT sliders to minimum, and A DELAY OUTPUT slider to maximum. Noise should be <-67 dBm.
8. Set the B DELAY OUTPUT slider to maximum. Noise should be <-62 dBm.
9. Observe the INPUT MIX OUTPUT with all input sliders minimum. Noise should be <-75 dBm.

### 3.2.17 Critical Listening Test

With a variety of sound sources listen to the Model 97 in a number of set ups, exercising all the controls.

## 4 Troubleshooting Notes

- Petrick type momentary switches can be often be repaired without replacing the entire switch. The cap can be removed and contacts cleaned or replaced with parts from a new switch.
- Tape interface problems can be difficult to isolate. Try shorting pins 5 and 6 of U67 LM311 on the digital board. Also try placing a 150 pF cap between pins 1 and 2 of U67 LM311.
- Always check battery voltage on any unit suspect of power fail circuit problems. (Nicad batteries can short intermittently)
- Some 74LS04s have been selected to provide a better clock on the digital board.
- Excess zipper noise on slide pot will typically be caused by the AD7524 D/A converters which are the pot in the analog circuit.
- Shorted or open polypro capacitors are some times the source of intermittent frequency response problems.
- Inspect insulation displacement connectors for proper seating.
- Always clean all slidepots and vacuum all dust from unit.
- Shorted power supplies are often caused by shorted tantalum capacitors.

## 5 Signature Analysis

Because the digital signals in the Model 97 can be quite complex, signature analysis tables have been provided as an aid in locating the source of a problem.

Signature analysis is a technique used to troubleshoot electronic logic circuits. A signature analyzer (Hewlett Packard 50045A or equivalent) is connected to the Model 97 and the test pattern is started. Long, complex data streams are compressed into a unique four-segment "signature" that the analyzer displays for each point in the unit under test, as the analyzer probe is moved from point to point. The analyzer requires several signals from the unit under test; the clock signal, which synchronizes the analyzer and the unit under test, and the start and stop signals, which define the boundaries between which the data signal is examined by the analyzer. After the stop signal, the analyzer displays the signature of the data it received. If the displayed signature does not match the corresponding signature given in the table, the circuitry connected to the node is malfunctioning.

Correct signatures for various sections of the Model 97 are summarized in the signature tables which follow. The conditions for taking the signatures are listed with each module and setup.

Signatures for the CPU section will require a special socket. Down load any user programs onto tape if possible. If tape down loading is not possible all user registers would be destroyed by the following CPU signature section.

**DIGITAL / CPU**

SET UP = MANUAL MODE, XTAL MODE, REPEAT OFF, BYPASS OFF. Special socket must be made for the Z80 ic so that pins 7-10, 12-15 can be lifted from bus and grounded. Also pins 16 and 17 are lifted and tied to +5 volts. Remove U38 and U39. Remove J7 connector from digital board. See schematic for details.

START = A15 U42 PIN 5

STOP = A15 U42 PIN 5

CLOCK = RD/ U42 PIN 21

+5V = 0001      GROUND = 0000

U29	1	0000	16	0001
	2	3827	15	755P
	3	755P	14	HAP7
	4	64HP	13	3C96
	5	1181	12	1H01
	6	5FU8	11	839H
	7	29A6	10	F3F7
	8	0000	9	2804

U40	1	52F8	24	0001
	2	UPFH	23	HC89
	3	0AFA	22	2H70
	4	5H21	21	1293
	5	7F7F	20	0000
	6	CCCC	19	HPP0
	7	5555	18	1H01
	8	UUUU	17	F23U
	9	AU36	16	289U
	10	566H	15	FHA7
	11	U851	14	2986
	12	0000	13	8FH0

U41	1	52F8	24	0001
	2	UPFH	23	HC89
	3	0AFA	22	2H70
	4	5H21	21	1293
	5	7F7F	20	0000
	6	CCCC	19	HPP0
	7	5555	18	839H
	8	UUUU	17	F23U
	9	AU36	16	289U
	10	566H	15	FHA7
	11	U851	14	2986
	12	0000	13	8FH0

U42	1	1293	40	HPP0
	2	HAP7	39	2H70
	3	3C96	38	HC89
	4	3827	37	52F8
	5	755P	36	UPFH
	6	0001	35	0AFA
	7	0000	34	5H21
	8	0000	33	7F7F
	9	0000	32	CCCC
	10	0000	31	5555
	11	0001	30	UUUU
	12	0000	29	0000
	13	0000	28	0001
	14	0000	27	0000
	15	0000	26	0001
	16	0001	25	0001
	17	0001	24	0001
	18	0001	23	0001
	19	0000	22	0001
	20	0001	21	0000

## DIGITAL / CPU CONT.

U43	1	0000	16	0001	U44	1	5H21	16	0001
	2	CCCC	15	0000		2	0AFA	15	0001
	3	CCCC	14	0000		3	UPFH	14	0001
	4	5555	13	0000		4	52F8	13	0001
	5	5555	12	0001		5	0001	12	0001
	6	UUUU	11	0001		6	0000	11	0001
	7	UUUU	10	F3F7		7	0001	10	0001
	8	0000	9	F3F7		8	0000	9	0001
U57	1	0001	20	0001					
	2	AU36	19	0001					
	3	0001	18	0001					
	4	U851	17	566H					
	5	0001	16	0001					
	6	2986	15	8FH0					
	7	0001	14	0001					
	8	289U	13	FHA7					
	9	0001	12	0001					
	10	0000	11	F23U					



**DIGITAL / DELAY MEMORY**

SET UP = DELAY 'A' SET FOR 500ms, DELAY 'B' SET FOR 506ms, MANUAL MODE, XTAL MODE, REPEAT OFF, BYPASS OFF.

START = J3 PIN 1

STOP = J3 PIN 2

CLOCK = J3 PIN 3

GROUND = J3 PIN 4

+5 = 7339

GROUND = 0000

U5	1	UP73	20	7339	U6	1	8HC4	20	7339
	2	00UP	19	---		2	00UP	19	7339
	3	---	18	---		3	---	18	---
	4	---	17	---		4	---	17	---
	5	7339	16	---		5	7339	16	0000
	6	7339	15	7339		6	7339	15	7339
	7	---	14	---		7	---	14	---
	8	---	13	---		8	---	13	---
	9	00UP	12	00UP		9	00UP	12	00UP
	10	0000	11	---		10	0000	11	---
U9	1	7339	14	7339					
	2	7339	13	7339					
	3	0000	12	7339					
	4	0000	11	0000					
	5	7339	10	0000					
	6	7339	9	---					
	7	0000	8	7339					
U10	1	7339	14	7339	U11	1	7339	14	7339
	2	0000	13	7339		2	0000	13	7339
	3	7339	12	A22P		3	5A6H	12	0000
	4	7339	11	0000		4	7339	11	6310
	5	7339	10	7339		5	0000	10	7339
	6	0000	9	H117		6	7339	9	0000
	7	0000	8	A22P		7	0000	8	7339
U12	1	7339	14	7339					
	2	001U	13	7326					
	3	7326	12	70HU					
	4	7339	11	03U9					
	5	3APA	10	03P6					
	6	49H3	9	7339					
	7	0000	8	70HU					

## DELAY MEMORY CONT.

U17	1	UP73	20	7339	U18	1	8HC4	20	7339
	2	0000	19	7339		2	0000	19	7339
	3	--	18	--		3	--	18	--
	4	--	17	--		4	--	17	--
	5	00UP	16	8HC4		5	00UP	16	8HC4
	6	7339	15	7339		6	7339	15	7339
	7	--	14	--		7	--	14	--
	8	--	13	--		8	--	13	--
	9	7339	12	8HC4		9	7339	12	8HC4
	10	0000	11	--		10	0000	11	--
U19	1	A962	16	7339	U20	1	487F	14	7339
	2	7339	15	00UP		2	0000	13	752H
	3	51A1	14	U996		3	CAP8	12	0000
	4	3493	13	49CP		4	51A1	11	AU86
	5	CAP8	12	752H		5	U996	10	46C1
	6	8HC4	11	7339		6	752H	9	U614
	7	03FU	10	9F43		7	0000	8	7FPH
	8	0000	9	A4A4					
U21	1	49F2	16	7339	U22	1	399H	16	7339
	2	065F	15	49H3		2	A22P	15	0000
	3	0000	14	1656		3	7339	14	4UOH
	4	4966	13	UP8H		4	7339	13	1656
	5	739H	12	5A6H		5	7339	12	UP8H
	6	7339	11	71AF		6	7339	11	00UP
	7	7339	10	6310		7	7339	10	7339
	8	0000	9	723C		8	0000	9	7339
U23	1	H66A	16	7339	U24	1	0000	20	7339
	2	75H4	15	0000		2	3APA	19	6C35
	3	07FF	14	00UP		3	75H4	18	H66A
	4	003P	13	UP8H		4	07FF	17	003P
	5	74F5	12	1656		5	03P6	16	001U
	6	733A	11	4UOH		6	399H	15	70F7
	7	70UU	10	H117		7	733A	14	74F5
	8	0000	9	7327		8	70UU	13	7327
						9	72HA	12	7336
						10	0000	11	0000
U30	1	3F34	16	7339	U31	1	3F34	16	7339
	2	49CP	15	0000		2	HUHH	15	0000
	3	H3PU	14	AP3F		3	1656	14	A962
	4	AC55	13	2044		4	H481	13	9947
	5	9F43	12	5FU6		5	6FH9	12	3F19
	6	C928	11	781C		6	UUUU	11	3493
	7	C29U	10	C463		7	H0U4	10	2U77
	8	0000	9	7784		8	0000	9	82P9

## DELAY MEMORY CONT.

U32	1	C463	16	7339	U33	1	00UP	14	7339
	2	7339	15	8HC4		2	0000	13	H3PU
	3	54F7	14	487C		3	UUUU	12	0000
	4	C928	13	2044		4	2U77	11	FAPU
	5	FAPU	12	487F		5	9947	10	54F7
	6	7339	11	7339		6	H3PU	9	487C
	7	00UP	10	6FH9		7	0000	8	487F
	8	0000	9	03FU					
U34	1	4UOH	14	7339	U35	1	7339	14	7339
	2	4UOH	13	4UOH		2	6C35	13	7339
	3	3F34	12	H117		3	7339	12	7339
	4	4UOH	11	49F2		4	7339	11	00UP
	5	4UOH	10	7339		5	6C35	10	7339
	6	3F34	9	00UP		6	180F	9	7339
	7	0000	8	73F7		7	0000	8	0000
U36	1	0000	14	7339	U37	1	00UP	14	7339
	2	7339	13	1656		2	1656	13	00UP
	3	7339	12	656U		3	7336	12	656U
	4	0000	11	00UP		4	0000	11	73F8
	5	7339	10	73F7		5	6C35	10	73F7
	6	0000	9	UP8H		6	7339	9	8HC4
	7	0000	8	8HC4		7	0000	8	UP73

## MAIN / DELAY

SET UP = MANUAL MODE, XTAL MODE, REPEAT OFF, BYPASS OFF, A DELAY SET FOR 500ms,  
 B DELAY SET FOR 506ms, LIFT PIN 11 OF U65 AND CONNECT A JUMPER FROM U65  
 PIN 11 (MAIN) TO U22 PIN 14 OF (DIGITAL).

START = J3 PIN 1     —|

STOP = J3 PIN 2     —|

CLOCK = J3 PIN 3    —|

GROUND = J3 PIN 4

+5 = 7339

GROUND = 0000

U58	1	7336	16	7339
	2	74FA	15	7336
	3	70A1	14	7FHP
	4	6310	13	70A1
	5	4AC5	12	536C
	6	0F00	11	4AC5
	7	70A1	10	8H4A
	8	0000	9	492H

U59	1	70HU	20	7339
	2	0F00	19	8H4A
	3	70A1	18	492H
	4	4AC5	17	4AC5
	5	6310	16	536C
	6	74FA	15	7FHP
	7	70A1	14	70A1
	8	0000	13	7339
	9	7339	12	7339
	10	0000	11	71AF

U61	1	73F8	16	7339
	2	71AF	15	73F8
	3	70A1	14	7613
	4	80A0	13	70A1
	5	4AC5	12	940A
	6	08F4	11	4AC5
	7	70A1	10	0000
	8	0000	9	492H

U62	1	7326	20	7339
	2	0F00	19	8H4A
	3	70A1	18	492H
	4	4CA5	17	4AC5
	5	6310	16	536C
	6	74FA	15	7FHP
	7	70A1	14	70A1
	8	7339	13	7339
	9	7339	12	7339
	10	0000	11	732C

U63	1	03U9	16	7339
	2	74FA	15	03U9
	3	74FA	14	8H4A
	4	6310	13	8H4A
	5	6310	12	536C
	6	0F00	11	536C
	7	0F00	10	7FHP
	8	0000	9	7FHP

U64	1	70HU	20	7339
	2	08F4	19	0000
	3	70A1	18	492H
	4	4AC5	17	4AC5
	5	80A0	16	940A
	6	71AF	15	7613
	7	70A1	14	70A1
	8	7339	13	8H4A
	9	7339	12	7339
	10	0000	11	5A6H

MAIN / DELAY CONT.

U65	1	0000	24	7339
	2	6125	23	7339
	3	70F0	22	0000
	4	74FA	21	0000
	5	7FHP	20	08F4
	6	6310	19	940A
	7	536C	18	80A0
	8	0F00	17	7613
	9	8H4A	16	71AF
	10	0000	15	--
	11	4UOH	14	399H
	12	0000	13	0000

U66	1	03U9	16	7339
	2	71AF	15	03U9
	3	71AF	14	7613
	4	80A0	13	7613
	5	80A0	12	940A
	6	08F4	11	940A
	7	08F4	10	0000
	8	0000	9	0000

U67	1	7326	20	7339
	2	08F4	19	0000
	3	70A1	18	492H
	4	4AC5	17	4AC5
	5	80A0	16	94A0
	6	71AF	15	7613
	7	70A1	14	70A1
	8	7339	13	7339
	9	7339	12	7339
	10	0000	11	6310

## 6 Parts Lists

The following pages contain parts lists for the Model 97.

Lexicon Model 97 Service Packet

Lexicon Model 97 Mechanical Parts

PART NO.	QTY	DESCRIPTION	REF.
CUST LITERATURE			
070-02810	1	MANUAL,OWNER'S,M97	
SCR			
320-01014	1	TRANSISTOR,C122F1,SCR	Q1
LINEAR IC			
340-00745	1	IC,LINEAR,7815 (LM 340 T-15)	U4
340-00747	1	IC,LINEAR,7915 (LM 320 T-15)	U3
340-01462	1	IC,LINEAR,LM317,TO-3	U1
TRANSFORMERS			
470-02585	1	XFORMER,POWER,M97	T1
CABLE CONN			
490-00396	1	CONN,AC AND RFI FILTER	J1
SOCKETS			
520-00947	1	XISTOR SCKT,TO3,SOLDER	U1
STRAIN REL			
530-02489	7	TIE,CABLE,NYL,,.1"X4"	T1
GROMMETS			
540-01769	4	GROMMET,NYL,.125 THK	FRONT PANEL CHASSIS INSERT
540-02681	1	GUARD,DUST,M97	FRONT PANEL
FEET			
541-00780	4	BUMPER,FEET,3-M #SJ5023	
KNOBS/CAPS			
550-02228	1	BUTTON,TANG,WHT/BLK	SW4
550-02229	1	BUTTON,TANG,WHT/RED	SW1
550-02344	2	KNOB,21MM,1/8SHFT,BLK	R28,29
550-0262710	1	KNOB,SLIDE,TANG,BLK/WHT LN	R1-5,17-21
550-02694	4	KNOB CAP,15MM,BLU/WHT LN	
550-02695	2	KNOB CAP,21MM,BLU	
550-02703	4	KNOB,15MM,1/8SHFT,BLK/WHT LN	R24-27
ELECTRONIC HDWR			
600-00872	1	FUSE HOLDER,3AG,PANEL,RA	F1
PC HDWR			
610-02269	5	HARDWARE,PC,RICHCO #MB-3-156	FISH PAPER MTG (3)
LUGS			
620-01999	1	LUG,SOLDER,LCKNG,#6,.020THK	GND LUG
620-02717	1	LUG,RING,INSUL #10,22-16 GA	T1 SHIELD TERM

## Lexicon Model 97 Mechanical Parts (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>INSUL/SPACRS</b>			
630-00887	1	INSUL,SEMI,COVER,TO-3	U1 MTG
630-00952	3	INSUL,SEMI,BUSHING,TO-220	Q1,U3,4 MTG
630-01852	1	INSUL,SEMI,SIL RUB,TO-3	U1 MTG
630-01853	3	INSUL,SEMI,SIL RUB,TO-220	Q1,U3,4 MTG
630-02267	1	SPCR,PCB PUSHON/STUD,1/4	SW1
630-02529	1	SPCR,#8CLX10,1/4RD,PHEN	SW1
630-02628	2	WSHR,FL,5/16CLX1/20DX1/16,NYL	HINGE ASSY
630-02705	8	WSHR,FL,#6CLX1/40DX.02,BLK,NYL	FRONT PANEL MTG
<b>SPCR, NON-INSUL</b>			
635-00956	2	SPCR,#6CLX1/16,3/16RD,AL	U1 MTG
635-02682	4	SPCR,#10CLX1/2,1/2RD,AL	T1 MTG
<b>MACHINE SCREWS</b>			
640-01720	2	SCRW,6-32X3/4,PNH,PH,ZN	U1 MTG
640-02683	4	SCRW,10-32X2 1/4,TH,PH,BLK	T1 MTG
640-02706	8	SCRW,6-32X1/4,BH,SCKT,BLK	FRONT PANEL MTG
640-02715	6	SCRW,4-40X1/4,PH,PH,ZN	J12,17,18 MTG
640-02749	27	SCRW,6-32X1/4,PNH,PH,SEMS,BLK	TP & BOTTOM COVER MTG (22) CHASSIS INSERT MTG (4) BRACE MTG (1)
640-02811	8	SCRW,8-32X3/8,PNH,PH,SEMS,BLK	RACK EAR MTG
640-02812	5	SCRW,4-40X3/8,PNH,PH,BLK	Q1,U3,4 MTG,J1 MTG (2)
640-03087	1	SCRW,6-32X3/8,PNH,PH,SEMS,BLK	GND LUG MTG
640-03713	27	SCRW,6-32X1/4,PNH,PH,SEMS,ZN	PCB TO CHAS(7),DIG BD MTG(3), BRACE MTG(3),FP BD #1&2 MTG (14)
<b>NUTS</b>			
643-00000	15	NUT	J2-11,13-16,19 MTG NUT,3/8-24 X 1/2 THESE NUTS SUPPLIED WITH PN 510-02106 ON MOTHERBD
643-01727	4	NUT,10-32,KEP,ZN	T1 MTG
643-01729	1	NUT,6-32,HEX,SMALL,ZN	GND LUG MTG
643-01732	2	NUT,4-40,KEP,ZN	J1 MTG
643-01733	3	NUT,4-40,HEX,SMALL,ZN	Q1,U3,4 MTG
<b>WASHERS</b>			
644-00000	15	WSHR	J2-11,13-16,19 MTG WSHR,FLAT,.3751DX.6150DX.020 THESE WASHERS SUPPLIED WITH PN 510-02106 ON MOTHERBD
644-01253	10	WSHR,INT STAR,3/8CLX.500DX.016	J2-11
644-01736	3	WSHR,FL,#4CLX.2180DX.032THK	Q1,U3,4
644-01737	3	WSHR,LOCK,SPLIT,#4	Q1,U3,4
644-01738	5	WSHR,INT STAR,3/8CLX.690DX.031	J13-16,19
644-02629	2	WSHR,WAVE,.2961DX.5510DX.0085	HINGE ASSY



Lexicon Model 97 Service Packet

Lexicon Model 97 Mechanical Parts (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>PRE-CUT WIRE</b>			
675-02838	1	WIRE, 16G, RED, 7", ST&T1/4X1/4	U1
675-02841	1	WIRE, 16G, YEL, 7", ST&T1/4X1/4	U1
675-02843	1	WIRE, 18G, WHT, 4", ST&T1/4X1/4	AC WIRING
675-02847	1	WIRE, 18G, BLK, 4", ST&T1/4X1/4	AC WIRING
675-02852	1	WIRE, 16G, GRN, 4", ST1/4XST&T1/4	GND
675-02875	1	WIRE, 18G, PRP, 7", ST&T1/4X1/4	U1
<b>CABLES/CORDS</b>			
680-00841	1	CORD, POWER, PHILLIP #13E37-1	
<b>SLEEVING</b>			
690-02060	6	SLEEVING, SHRINK, 3/16"	F1, J1, U1 WIRING, 1/2" LENGTHS
<b>CHASSIS/MECH</b>			
700-01961	1	CHASSIS, "PC BRACE", STA, M97	
700-01962	1	CHASSIS, "PC BRACE", HINGED, M97	
700-01963	1	CHASSIS, INSERT, FP ASSY, M97	
700-01964	1	CHASSIS, WRAP-AROUND, M97	
700-01968	2	COVER, TOP/BOT, M97	
<b>BRACKETS</b>			
701-00299	7	BRACKET, KEYSTONE #617	
701-01972	2	BRACKET, MTG, M97	
<b>PANELS</b>			
702-01551	1	COVER, HOLE, DB-25 OPTION CONNECTOR	
702-02528	1	PANEL, FRONT, M97	
702-02713	1	COVER, PROTECTIVE, PAPER, M97	
<b>LENS/PLATE/PANL</b>			
703-02588	1	LENS, DISPLAY, M97	

## Lexicon Model 97 Digital Board

PART NO.	QTY	DESCRIPTION	REF.
=====			
TRIM RESISTORS			
201-00427	1	RES,TRM,ST,PC,1K,SA,CER	R8
CARBON FLM RES			
202-00506	1	RES,CF,5%,1/4W,20 OHM	R5
202-00519	2	RES,CF,5%,1/4W,240 OHM	R4,13
202-00529	6	RES,CF,5%,1/4W,1K OHM	R1-3,7,14,20
202-00534	1	RES,CF,5%,1/4W,2.2K OHM	R23
202-00538	2	RES,CF,5%,1/4W,3.3K OHM	R26
202-00549	7	RES,CF,5%,1/4W,10K OHM	R10,15,17,19,21,22,27
202-00564	1	RES,CF,5%,1/4W,51K OHM	R25
202-00573	1	RES,CF,5%,1/4W,130K OHM	R11
202-00579	1	RES,CF,5%,1/4W,470K OHM	R24
202-00580	3	RES,CF,5%,1/4W,1M OHM	R12,16,18
202-01228	1	RES,CF,5%,1/4W,620 OHM	R6
202-01245	1	RES,CF,5%,1/4W,1.6K OHM	R9
NETWORK RES			
205-00240	3	RES,NET,SIP,2%,3.3KX7	RP2,4,6
205-01155	2	RES,NET,DIP,2%,68X7	U45,58
205-01590	1	RES,NET,SIP,2%,2.2KX9	RP7
205-02212	3	RES,NET,SIP,2%,47KX9	RP1,3,5
ELECTROLYT CAP			
240-02048	1	CAP,ELEC,47uF,25V,AX	C68
TANTALUM CAP			
241-00654	1	CAP,TANT,22uF,16V,RAD	C21
PCRB/PP CAP			
244-00660	1	CAP,MYL,.01uF,100V,10%,RAD	U67
244-01488	3	CAP,MYL,.22uF,100V,10%,RAD	C20,22,24
244-02342	1	CAP,MYL,.68uF,100V,10%,RAD	C14
CERAMIC CAP			
245-00586	1	CAP,CER,30pF,50V,10%	C2
245-00590	2	CAP,CER,150pF,50V,10%	C17,(R25)
245-00593	1	CAP,CER,560pF,50V,10%,Z5F	C1
245-00594	1	CAP,CER,.001uF,500V,10%,Z5F	C61
245-00598	28	CAP,CER,.01uF,16V,80/20%	C4-13,15,16,18,19,23,25-32,44 C45,59,74,75
245-01651	27	CAP,CER,.1uF,50V,80/20%	C3,33-42,46-51,58,60,62-66, C70,72,76
INDUCTORS			
270-00779	1	FERRITE,BEAD	FB1

Lexicon Model 97 Service Packet

Lexicon Model 97 Digital Board (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>DIODES</b>			
300-01029	14	DIODE,1N914 AND 4148	CR1-14
<b>TRANSISTORS</b>			
310-01008	2	TRANSISTOR,2N3906	Q1,2
<b>DIGITAL/CMOS IC</b>			
330-00667	1	IC,DIGITAL,7404	U1
330-00692	4	IC,DIGITAL,74LS00	U9,12,34,37
330-00693	2	IC,DIGITAL,74LS02	U27,55
330-00695	1	IC,DIGITAL,74LS04	U36
330-00696	1	IC,DIGITAL,74LS08	U4
330-00703	8	IC,DIGITAL,74LS74	U3,10,11,14-16,35,65
330-00708	1	IC,DIGITAL,74LS107	U66
330-00711	2	IC,DIGITAL,74LS157	U30,31
330-00712	2	IC,DIGITAL,74LS163	U13,22
330-00716	3	IC,DIGITAL,74LS283	U7,19,32
330-00718	2	IC,DIGITAL,74LS367	U43,56
330-00765	1	IC,DIGITAL,4001,CMOS	U25 (STATIC SENSITIVE)
330-00768	1	IC,DIGITAL,4049,CMOS	U26 (STATIC SENSITIVE)
330-01282	1	IC,DIGITAL,74LS138	U44
330-01283	2	IC,DIGITAL,74LS139	U21,29
330-01290	1	IC,DIGITAL,74LS244	U57
330-01293	4	IC,DIGITAL,74LS374	U5,6,17,18
330-01294	1	IC,DIGITAL,74LS377	U24
330-01295	3	IC,DIGITAL,74LS393	U2,20,33
330-01573	1	IC,DIGITAL,74LS32	U28
<b>LINEAR IC</b>			
340-00725	1	IC,LINEAR,LM311	U67
<b>MEMORY IC</b>			
350-02272	2	IC,RAM,H6514,CMOS,1KX4	U38,39 (STATIC SENSITIVE)
350-02755	1	IC,ROM,2732,Lexicon M97,V1.4-0	U40 (STATIC SENSITIVE)
350-02756	1	IC,ROM,2732,Lexicon M97,V1.4-1	U41 (STATIC SENSITIVE)
350-02689	6	IC,DRAM,4164,64KX1,250NS	U46-51 (STATIC SENSITIVE)
350-03714	1	IC,ROM,82S123,Lexicon M97	U23
<b>MICROPROC IC</b>			
365-02530	1	IC,uPROC,MK3880N-4,Z-80A CPU	U42 (STATIC SENSITIVE)
<b>CRYSTALS</b>			
390-01642	1	CRYSTAL,4.9152 MHz	Y1
<b>BATTERIES</b>			
460-02641	1	BAT,NI CAD,110mAh,3.6V	
<b>CABLE CONN</b>			
490-02356	8	CONN,JUMPER,.1X025,2FCG	

## Lexicon Model 97 Digital Board (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>PC MNT CONN</b>			
510-01066	2	CONN POST, 100X025, HDR, 10MC	J2(.5), J3(.5)
510-02355	1	CONN, POST, 156X045, HDR, 6MCG, RAL	J1
510-02671	8	CONN, POST, 100X025, HDR, 3MC, GOLD	W6, 7, 10-23
510-02692	1	CONN, POST, 100X025, HDR, 50MC, PCR	J8
510-02693	1	CONN, POST, 100X025, HDR, 26MC, PCR	J7
<b>SOCKETS</b>			
520-00941	1	IC SCKT, 8 PIN, PC, LO-PRO	U67
520-0094223		IC SCKT, 14 PIN, PC, LO-PRO	U1-4, 9-12, 14-16, 20, 25, 27, 28, U33-37, 55, 65, 66
520-0094326		IC SCKT, 16 PIN, PC, LO-PRO	U7, 13, 19, 21-23, 26, 29-32, 43, 44, U46-51, 56, 59-64
520-00945	2	IC SCKT, 24 PIN, PC, LO-PRO	U40, 41
520-03654	1	IC SCKT, 40 PIN, PC, MACH, GOLD	U42
520-01361	6	IC SCKT, 20 PIN, PC, LO-PRO	U5, 6, 17, 18, 24, 57
520-02177	2	IC SCKT, 18 PIN, PC, LO-PRO	U38, 39
<b>ELECTRONIC HDWR</b>			
600-02211	2	BUSS BAR, 2C, .7X16, .3 OFF, PVF/N	
<b>THREADLS FASTNR</b>			
650-02586	2	FASTNR, NYLATCH, HN5G-52-1	
650-02587	2	FASTNR, NYLATCH, HN5P-52-4-1	

PART NO.	QTY	DESCRIPTION	REF.
<b>POTENTIOMETERS</b>			
✓200-0230810		POT,SLD,PC,10K-U,20MM X 60MM	R1-5,17-21
200-02616	2	POT,RTY,PC,10K-U,1/8X3/4	R28,29
			NUTS & WSHRS SUPPLIED WITH THIS PART SHOULD BE ADDED TO FP #2
200-02999	4	POT,RTY,PC,10K-U,1/8X5/8	R24-27
			NUTS & WSHRS SUPPLIED WITH THIS PART SHOULD BE ADDED TO FP #2
<b>CARBON FLM RES</b>			
202-00508	5	RES,CF,5%,1/4W,33 OHM	R35,37,39,41,43
202-00512	2	RES,CF,5%,1/4W,75 OHM	R12,13
202-00515	2	RES,CF,5%,1/4W,150 OHM	R11,22
202-00529	6	RES,CF,5%,1/4W,1K OHM	R30,36,38,40,42,44
202-00530	1	RES,CF,5%,1/4W,1.2K OHM	R8
202-00535	1	RES,CF,5%,1/4W,2.4K OHM	R7
202-00538	6	RES,CF,5%,1/4W,3.3K OHM	R23,31-34,45
202-00559	2	RES,CF,5%,1/4W,30K OHM	R15,16
202-01228	1	RES,CF,5%,1/4W,620 OHM	R9
202-02649	1	RES,CF,5%,1/4W,300 OHM	R10
<b>NETWORK RES</b>			
205-00331	2	RES,NET,SIP,2%,150X5	RP1,2
<b>ELECTROLYT CAP</b>			
240-00611	1	CAP,ELEC,22uF,16V,RAD	C1
240-02048	2	CAP,ELEC,47uF,25V,AX	C5,6
<b>CERAMIC CAP</b>			
245-0060020		CAP,CER,.02uF,35V,80/20%	C2,3,7-22,24,25
245-01651	2	CAP,CER,.1uF,50V,80/20%	C4,23
<b>DIODES</b>			
300-01029	1	DIODE,1N914 AND 4148	CR16
<b>TRANSISTORS</b>			
310-01646	5	TRANSISTOR,2N4403	Q2-6
310-01647	1	TRANSISTOR,2N4401	Q1
<b>DIGITAL/CMOS IC</b>			
330-01293	1	IC,DIGITAL,74LS374	U7
330-02679	1	IC,DIGITAL,14175,CMOS	U8 (STATIC SENSITIVE)
330-02707	1	IC,DIGITAL,4503,CMOS	U6 (STATIC SENSITIVE)
<b>LINEAR IC</b>			
340-01363	2	IC,LINEAR,LM339	U1,2

## Lexicon Model 97 Front Panel #1 (continued)

PART NO.	QTY	DESCRIPTION	REF.
INTERFACE IC			
345-00751	1	IC, INTER, 75492, LED DRVR	U3
345-02675	1	IC, INTER, MC14495, CMOS	U4 (STATIC SENSITIVE)
CONVERTER IC			
355-01280	1	ADC-0817	U5 (STATIC SENSITIVE)
DSPLY/IND/LED			
430-01992	2	LED, RED, HE5082-4650	CR1, 13
430-02013	4	LED, GRN, 5082-4950	CR4-7
430-02014	7	LED, YEL, 5082-4550	CR2, 3, 8-12
430-02285	2	LED, RED, .118 DIA	CR14, 15
430-02684	6	LED, DSPLY, 7-SEG, 0.4", ORG	D1-6
SOCKETS			
520-00942	3	IC SCKT, 14 PIN, PC, LO-PRO	U1-3
520-00943	3	IC SCKT, 16 PIN, PC, LO-PRO	U4, 6, 8
520-00946	1	IC SCKT, 40 PIN, PC, LO-PRO	U5
520-01361	1	IC SCKT, 20 PIN, PC, LO-PRO	U7
520-02341	6	IC SCKT, 14 PIN, WRAP-1L	D1-6
INSUL/SPACRS			
630-02408	2	SPCR, #4CLX7/16, 3/16RD, NYL	
630-02409	13	SPCR, #6CLX5/8, 1/4RD, NYL	
SPCR, NON-INSUL			
635-01453	14	SPCR, SWAGE, 6-32X1/2, 1/4RD, BR/N	
635-02362	1	SPCR, SWAGE, #6CLX9/16, 1/4RD, BR	SLD POT BRKT MTG
MACHINE SCREWS			
640-02288	1	SCRW, 6-32X1, PNH, PH, ZN	GRND STRAP MTG
640-02746	10	SCRW, 2-M3X.5MMX.175L, PNH, PH, ZN	R1-5, 17-21 GND
CABLES/CORDS			
680-02688	1	CABLE, ASSY, 26 COND, FP, M97	
BRACKETS			
701-01973	1	BRACKET, SLIDE POT, M97	

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Lexicon Model 97 Front Panel #2

PART NO.	QTY	DESCRIPTION	REF.
DIODES			
300-01023	5	DIODE,1N283	CR29-31,39,40
DSPLY/IND/LED			
430-0228520		LED,RED,.118 DIA	CR17-28,32-38,41
PSH BUT SWITCH			
453-02222	8	SW,PBM,1P1T,SQ,NO LEGEND,PC	SW2,14-17,19-21
453-02293	1	SW,PBM,1P1T,SQ,"1",LEGEND,PC	SW3
453-02294	1	SW,PBM,1P1T,SQ,"2",LEGEND,PC	SW4
453-02295	1	SW,PBM,1P1T,SQ,"3",LEGEND,PC	SW5
453-02296	1	SW,PBM,1P1T,SQ,"4",LEGEND,PC	SW6
453-02297	1	SW,PBM,1P1T,SQ,"5",LEGEND,PC	SW7
453-02298	1	SW,PBM,1P1T,SQ,"6",LEGEND,PC	SW8
453-02299	1	SW,PBM,1P1T,SQ,"7",LEGEND,PC	SW9
453-02300	1	SW,PBM,1P1T,SQ,"8",LEGEND,PC	SW10
453-02690	4	SW,PBM,1P1T,SQ,BLU,PC	SW11-13,18
INSUL/SPACRS			
630-0274020		SPCR,#4CLX.21,3/16 RD,NYL	
NUTS			
643-00000	6	NUT	NUT,5/16" THESE NUTS SUPPLIED WITH RESISTORS PN 200-02616 AND 200-02999 ON FP #1
WASHERS			
644-00000	6	WSHR	WSHR,INTER STAR THESE WASHERS SUPPLIED WITH RESISTORS PN 200-02616 AND 200-02999 ON FP #1
CABLES/CORDS			
680-02686	1	CABLE,ASSY,16 PIN DIP,FP,M97	

## Lexicon Model 97 Motherboard

PART NO.	QTY	DESCRIPTION	REF.
<b>TRIM RESISTORS</b>			
201-00159	4	RES,TRM,ST,PC,100K,SA,CER	R64,65,126,135
201-00427	1	RES,TRM,ST,PC,1K,SA,CER	R125
201-00432	3	RES,TRM,ST,PC,5K,SA,CER	R40-42
201-00439	4	RES,TRM,ST,PC,25K,SA,CER	R68,191,198,214
201-01619	1	RES,TRM,ST,PC,500 OHM,SA,CER	R63
<b>CARBON FLM RES</b>			
202-00510	2	RES,CF,5%,1/4W,51 OHM	R139,187
202-00514	9	RES,CF,5%,1/4W,100 OHM	R8-10,34,47,60,160,289,290
202-00518	1	RES,CF,5%,1/4W,220 OHM	R177
202-00525	3	RES,CF,5%,1/4W,510 OHM	R5,48,154
202-00529	1	RES,CF,5%,1/4W,1K OHM	R24
202-0053111		RES,CF,5%,1/4W,1.5K OHM	R19,20,23,185,186,190,202,215-218
202-00533	1	RES,CF,5%,1/4W,2K OHM	R22
202-00537	2	RES,CF,5%,1/4W,3K OHM	R155,156
202-00542	2	RES,CF,5%,1/4W,4.7K OHM	R197,211
202-0054310		RES,CF,5%,1/4W,5.1K OHM	R21,51,66,110-113,147,148,291
202-0054916		RES,CF,5%,1/4W,10K OHM	R11-13,35-39,43,61,114,115,118, R119,182,184
202-00555	3	RES,CF,5%,1/4W,20K OHM	R62,120,121
202-00559	4	RES,CF,5%,1/4W,30K OHM	R102,122,142,183
202-00564	7	RES,CF,5%,1/4W,51K OHM	R149,150,161-163,178,179
202-00570	7	RES,CF,5%,1/4W,100K OHM	R138,151,152,164,165,181,204
202-00579	2	RES,CF,5%,1/4W,470K OHM	R70,141
202-00580	2	RES,CF,5%,1/4W,1M OHM	R69,180
202-00581	2	RES,CF,5%,1/4W,10M OHM	R116,117
202-01228	3	RES,CF,5%,1/4W,620 OHM	R108,109,146
202-01497	1	RES,CF,5%,1/4W,2M OHM	R153
<b>METAL FLM RES</b>			
203-00450	2	RES,MF,1%,1/8W,100 OHM	R92,93
203-00454	2	RES,MF,1%,1/8W,357 OHM	R249,267
203-00456	2	RES,MF,1%,1/8W,1.00K OHM	R3,203
203-00458	3	RES,MF,1%,1/8W,1.82K OHM	R134,233,234
203-00459	4	RES,MF,1%,1/8W,2.00K OHM	R219-222
203-00460	1	RES,MF,1%,1/8W,2.15K OHM	R272
203-00461	1	RES,MF,1%,1/8W,2.43K OHM	R201
203-00462	1	RES,MF,1%,1/8W,2.55K OHM	R200
203-0046442		RES,MF,1%,1/8W,4.99K OHM	R94-97,105,107,123,124,169,170, R174,175,188,189,192,193,205,206, R223-226,238-240,245,246,251,252, R256-258,263,264,269,270,275,276, R281,282,287,288



## Lexicon Model 97 Motherboard (continued)

PART NO.	QTY	DESCRIPTION	REF.
METAL FLM RES (CON'T)			
203-00466	1	RES,MF,1%,1/8W,6.81K OHM	R279
203-00467	4	RES,MF,1%,1/8W,7.15K OHM	R195,210,242,260
203-00470	2	RES,MF,1%,1/8W,9.53K OHM	R44,98
203-00471	22	RES,MF,1%,1/8W,10.0K OHM	R16-18,25-27,31-33,45,46,56-59, R99,100,101,171,172 (ECO QTY 2)
203-00474	7	RES,MF,1%,1/8W,11.0K OHM	R128-130,229-232
203-00480	1	RES,MF,1%,1/8W,15.0K OHM	R15
203-0048232		RES,MF,1%,1/8W,20.0K OHM	R14,30,52-55,73-76,83-91,103,104, R106,143-145,157-159,166-168,176
203-00491	1	RES,MF,1%,1/8W,100K OHM	R72
203-00492	1	RES,MF,1%,1/8W,200K OHM	R283
203-01137	3	RES,MF,1%,1/8W,4.12K OHM	R131,132,274
203-01140	4	RES,MF,1%,1/8W,22.1K OHM	R127,136,227,228
203-01145	2	RES,MF,1%,1/8W,1.24M OHM	R199,208
203-01460	1	RES,MF,1%,1/8W,2.05K OHM	R133
203-01489	1	RES,MF,1%,1/8W,499 OHM	R50
203-01490	1	RES,MF,1%,1/8W,3.09K OHM	R49
203-01491	2	RES,MF,1%,1/8W,4.22K OHM	R237,255
203-01492	2	RES,MF,1%,1/8W,7.68K OHM	R243,261
203-01493	2	RES,MF,1%,1/8W,17.8K OHM	R79,80
203-01663	4	RES,MF,1%,1/8W,34.0K OHM	R28,29,77,78
203-01664	1	RES,MF,1%,1/8W,133K OHM	R173
203-01996	1	RES,MF,1/2%,1/8W,3.01K OHM	R277
203-02010	2	RES,MF,1%,1/8W,4.87K OHM	R248,266
203-02290	2	RES,MF,1%,1/8W,1.21K OHM	R236,254
203-02353	2	RES,MF,1%,1/8W,49.9K OHM	R196,209
203-02397	2	RES,MF,1%,1/8W,158K OHM	R247,265
203-02610	2	RES,MF,1%,1/8W,1.65K OHM	R241,259
203-02611	1	RES,MF,1%,1/8W,5.62K OHM	R286
203-02651	1	RES,MF,1%,1/8W,4.02K OHM	R280
203-02652	1	RES,MF,1%,1/8W,4.75K OHM	R284
203-02653	2	RES,MF,1%,1/8W,5.11K OHM	R244,262
203-02654	2	RES,MF,1%,1/8W,5.90K OHM	R250,268
203-02655	1	RES,MF,1%,1/8W,6.04K OHM	R278
203-02656	2	RES,MF,1%,1/8W,182K OHM	R235,253
203-02657	1	RES,MF,1%,1/8W,221K OHM	R271
203-02658	1	RES,MF,1%,1/8W,340 OHM	R4
203-02659	1	RES,MF,1%,1/8W,604 OHM	R285
203-02660	1	RES,MF,1%,1/8W,3.57K OHM	R273
203-02673	2	RES,MF,1%,PTC,500 OHM	R81,82
NETWORK RES			
205-00330	2	RES,NET,SIP,2%,3.3KX9	RP1,4
205-01133	2	RES,NET,DIP,1%,10KX8	RP2,5
205-01456	1	RES,NET,DIP,0.5%/0.1%,1KX8	RP3

## Lexicon Model 97 Motherboard (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>ELECTROLYT CAP</b>			
240-00611	9	CAP,ELEC,22uF,16V,RAD	C51,72,73,87,89,108,109,118,119
240-00613	8	CAP,ELEC,22uF,25V,RAD	C3,10,11,52,101,103,153,154
240-00614	2	CAP,ELEC,47uF,16V,RAD	C88,155
240-00620	1	CAP,ELEC,1000uF,35V,RAD	C6
240-01446	2	CAP,ELEC,3300uF,35V,RAD	C12,13
240-02251	1	CAP,ELEC,10,000uF,16V,10,AX	C5
<b>TANTALUM CAP</b>			
241-00652	6	CAP,TANT,4.7uF,25V,RAD	C20,21,102,142,170,234
241-00653	3	CAP,TANT,22uF,6.3V,RAD	C53,96,235
<b>PCRB/PP CAP</b>			
244-00660	1	CAP,MYL,.01uF,100V,10%,RAD	C147
244-01166	3	CAP,PP,240pF,2.5%	C111,171,172
244-01167	3	CAP,PP,750pF,2.5%	C78,150,151
244-01172	5	CAP,PP,6800pF,2.5%	C46,79,80,183,184
244-0123224		CAP,PP,1800pF,2.5%	C175,176,187,188,191,192,195-197, C200,201,204,205,208-210,213-215, C218,219,222-224
244-02104	6	CAP,PP,100pF,160V,2.5%,AX	C112-115,126,127
244-02342	1	CAP,MYL,.68uF,100V,10%,RAD	C47
<b>CERAMIC CAP</b>			
245-0058610		CAP,CER,30pF,50V,10%	C56,58,60,68,75,91,98,121,131,160
245-00587	5	CAP,CER,82pF,50V,10%	C27,33,38,43,141
245-00590	19	CAP,CER,150pF,50V,10%	C14,40,44,69-71,76,84,92,99 C100,104,122-125,231-233
245-00594	3	CAP,CER,.001uF,500V,10%,Z5F	C61,62,140
245-00600	37	CAP,CER,.02uF,35V,80/20%	C15-17,22,23,34,39,45,48-50,65, C66,95,107,116,117,128,133-137, C139,149,152,156,159,162,163, C165,168,169,173,174,179,180, C24-26,28,32,35,37,41,42,55,57, C59,67,74,77,90,93,94,97,105,106, C110,120,177,178,181,182,189,190, C193,194,198,199,202,203,206,207, C211,212,216,217,220,221,225,226
245-01651	26	CAP,CER,.1uF,50V,80/20%	C9,18,19,29,31,81-83,129,130, C132,138,143-146,158,161,164, C167,185,186,227-230
245-02105	3	CAP,CER,5pF,500V,10%,NPO	C30,157,166
<b>INDUCTORS</b>			
270-00779	5	FERRITE,BEAD	FB1-5

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Lexicon Model 97 Motherboard (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>DIODES</b>			
300-01026	1	DIODE, 1N753	CR12
300-01029	31	DIODE, 1N914 AND 4148	U22, CR26, 27, 29, 30, 32, 33, 37, 38 CR42-45, 47, 48, 51-54, 56-58, 60-63, CR65-68, 70
300-01030	10	DIODE, 1N4004 AND 4005	CR3-6, 19-22, 34, 35
300-01032	6	DIODE, 1N5404	CR1, 2, 15-18
300-02401	23	DIODE, BAR 35, SCHOTTKY, LOW VF	CR23, 28, 31, 36, 39-41, 46, 49, 50, 55, CR59, 64, 69, 71-79
300-02672	2	DIODE, VARACTOR, A.M. TUNING	CR24, 25
<b>TRANSISTORS</b>			
310-01003	4	TRANSISTOR, MPS2369	Q3, 15-17
310-01007	4	TRANSISTOR, 2N3904	Q4, 10, 11, 13
310-01008	1	TRANSISTOR, 2N3906	Q14
310-01009	6	TRANSISTOR, 2N4392	Q5-9, 12
<b>DIGITAL/CMOS IC</b>			
330-00718	4	IC, DIGITAL, 74LS367	U58, 61, 63, 66
330-01282	1	IC, DIGITAL, 74LS138	U57
330-01293	4	IC, DIGITAL, 74LS374	U59, 62, 64, 67
330-01294	2	IC, DIGITAL, 74LS377	U40, 60
330-02085	1	IC, DIGITAL, AM25L04	U65
<b>LINEAR IC</b>			
340-00725	1	IC, LINEAR, LM311	U20
340-00733	1	IC, LINEAR, CA 3039	U75
340-00735	1	IC, LINEAR, CA 3080AE	U23
340-00740	7	IC, LINEAR, 4558	U5, 6, 9, 11, 12, 16, 19
340-00744	1	IC, LINEAR, 78L05	U91
340-01183	1	IC, LINEAR, LF 356	U72
340-01566	22	IC, LINEAR, LF353, DUAL OP AMP	U15, 21, 35, 36, 38, 43, 45, 46, 48, 49 U79-90
340-02086	1	IC, LINEAR, LM317LH, TO-39	U18
340-02396	4	IC, LINEAR, HA 2515-5	U71, 73, 74, 77
340-02674	2	IC, LINEAR, CMP-05FZ	U8, 69
340-02676	9	IC, LINEAR, NE5532	U25, 27, 29, 31, 33, 51, 52, 54, 55
340-03119	2	IC, LINEAR, DBX 2150A, VCA	U24, 41
<b>SS SW IC</b>			
346-01366	2	IC, SS, SWITCH, 4016	U68, 78 (STATIC SENSITIVE)
346-02677	3	IC, SS SWITCH, DG211	U14, 32, 39 (STATIC SENSITIVE)
<b>CONVERTER IC</b>			
355-02087	1	DAC, AM6012DC	U70
355-0221314	1	DAC, AD7524	U7, 10, 13, 17, 26, 28, 30, 34, 37, 44 U47, 50, 53, 56, (STATIC SENSITIVE)
<b>SEMICONDUCTORS</b>			
360-01612	2	SEMICOND, VARISTOR	V1, 2

## Lexicon Model 97 Motherboard (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>FUSES</b>			
440-02350	2	FUSE, 5X20MM, SLO-BLO, 2AMP	F4, 5
440-02680	2	FUSE, 5X20MM, SLO-BLO, 6.3AMP	F2, 3
<b>SLIDE SWITCH</b>			
451-02230	2	SW, SL, 2P2T, V-CHNG, PC, 4A	SW2, 3
<b>PSH BUT SWITCH</b>			
453-02111	1	SW, PBPP, 2P2T, SCHADOW, PCRA	SW4
453-02226	1	SW, PBPP, 2P2T, LINE RATED, PCRA	SW1
<b>CABLE CONN</b>			
490-02712	1	CQNN, POST, 156X045, INSDSP, 6FCGR	P1
<b>PC MNT CONN</b>			
510-0210615	1	1/4" PHONE JACK, PCRA, 3C, SWITCH	J2-11, 13-16, 19
510-02534	1	CONN, XLR, 3MC, PCRA	J12
510-02535	2	CONN, XLR, 3FC, PCRA	J17, 18
<b>SOCKETS</b>			
520-0094145	1	IC SCKT, 8 PIN, PC, LO-PRO	U5, 6, 9, 11, 12, 15, 16, 19-21, 23, 25, U27, 29, 31, 33, 35, 36, 38, 43, 45, 46, U48, 49, 51, 52, 54, 55, 71-74, 77, 79-90
520-00942	2	IC SCKT, 14 PIN, PC, LO-PRO	U68, 78
520-0094322	1	IC SCKT, 16 PIN, PC, LO-PRO	U7, 10, 13, 14, 17, 26, 28, 30, 32, 34, U37, 39, 44, 47, 50, 53, 56, 57, 58, 61 U63, 66
520-00945	1	IC SCKT, 24 PIN, PC, LO-PRO	U65
520-01361	7	IC SCKT, 20 PIN, PC, LO-PRO	U40, 59, 60, 62, 64, 67, 70
<b>STRAIN REL</b>			
530-02489	3	TIE, CABLE, NYL, .1"X4"	U1
<b>ELECTRONIC HDWR</b>			
600-02227	8	FUSE CLIP, 20MM, PC	F2-5
<b>INSUL/SPACRS</b>			
630-01894	2	INSUL, SEMI, T0-5 SPCR	U2, 18
<b>SPCR, NON-INSUL</b>			
635-02266	2	SPCR, SWAGE, 6-32X1-1/8, 1/4RD	
<b>MACHINE SCREWS</b>			
640-01841	2	SCRW, 2-56X1/4, PNH, PH, ZN	SW1 MTG
<b>THRD-FORM SCRW</b>			
641-01703	3	SCRW, TAP, AB, 4X1/4, PNH, PH, ZN	J12, 17, 18 MTG

Lexicon Model 97 Service Packet

Lexicon Model 97 Motherboard (continued)

PART NO.	QTY	DESCRIPTION	REF.
<b>NUTS</b>			
643-01855	2	NUT, 2-56, HEX, SMALL, ZN	SW1 SW BRKT
<b>WASHERS</b>			
644-01854	2	WSHR, LOCK, SPLIT, #2	SW1 MTG
644-01889	2	WSHR, FL, #10CLX, 50DX, 05THK	
<b>BULK WIRE</b>			
670-01768	1	WIRE, JMP, 22AWG, 0.5", TEF, WHT	W1
670-03001	1	WIRE, JMP, 22AWG, 0.6", TEF, WHT	CR14
<b>PRE-CUT WIRE</b>			
675-02840	1	WIRE, 16G, BLK, 10", ST1/4XST&T1/4	
675-02848	1	WIRE, 18G, BLK, 6", ST&T1/4X1/4	AC WIRING
675-02856	1	WIRE, 18G, GRY, 8", ST&T1/4X0	P1
675-02861	1	WIRE, 18G, BLK, 8", ST&T1/4X0	P1
675-02867	1	WIRE, 18G, RED, 8", ST&T1/4X0	P1
675-02871	1	WIRE, 18G, ORN, 8", ST&T1/4X0	P1
675-02876	1	WIRE, 18G, PRP, 8", ST&T1/4X0	P1
675-02878	1	WIRE, 18G, YEL, 8", ST&T1/4X0	P1
<b>CABLES/CORDS</b>			
680-02687	1	CABLE, ASSY, 50 COND, MOTHERBD, M97	P8

Lexicon Model 97 Japan/N. American Fuse Option

PART NO.	QTY	DESCRIPTION	REF.
FUSES			
440-00864	1	FUSE, 1A, SLO	F1

Lexicon Model 97 European Fuse Option

PART NO.	QTY	DESCRIPTION	REF.
FUSES			
440-02349	1	FUSE, 5X20MM, SLO-BLO, .500AMP	F1
ELECTRONIC HDWR			
600-01878	1	FUSE, ADAPTOR, 5X20MM TO 3AG	F1

Lexicon Model 97 Service Packet

Lexicon Model 97 Memory Option

PART NO.	QTY	DESCRIPTION	REF.
MEMORY IC			
350-02689	6	IC,DRAM,4164,64KX1,250NS	U59-64 (STATIC SENSITIVE)

Lexicon Model 97 Memory Option With Retrofit

PART NO.	QTY	DESCRIPTION	REF.
MEMORY IC			
350-02689	6	IC,DRAM,4164,64KX1,250NS	
CABLE CONN			
490-02356	1	CONN, JUMPER, .1X025, 2FCG	
PLASTICS			
720-03002	1	FOAM, CONDUCTIVE, 1/4" SHEET	
SHIPPING MAT			
730-01835	1	BAG, CONDUCTIVE, 4.25X8X.004	
730-01870	1	BOX, 8-3/4X6-1/2X3-3/4	

## 7 Schematics and Assembly Drawings

The following schematics and assembly drawings are contained in this section in the order listed:

### *Schematics*

1. Digital -- 060-02569
2. Front Panel #1 -- 060-02554
3. Front Panel #2 -- 060-02562
4. Analog Input -- 060-02577-1
5. Analog Output -- 060-02577-2
6. Converter -- 060-02577-3
7. VCO -- 060-02577-4
8. Power Supply -- 060-02577-5
9. Timing Diagram -- 060-03437

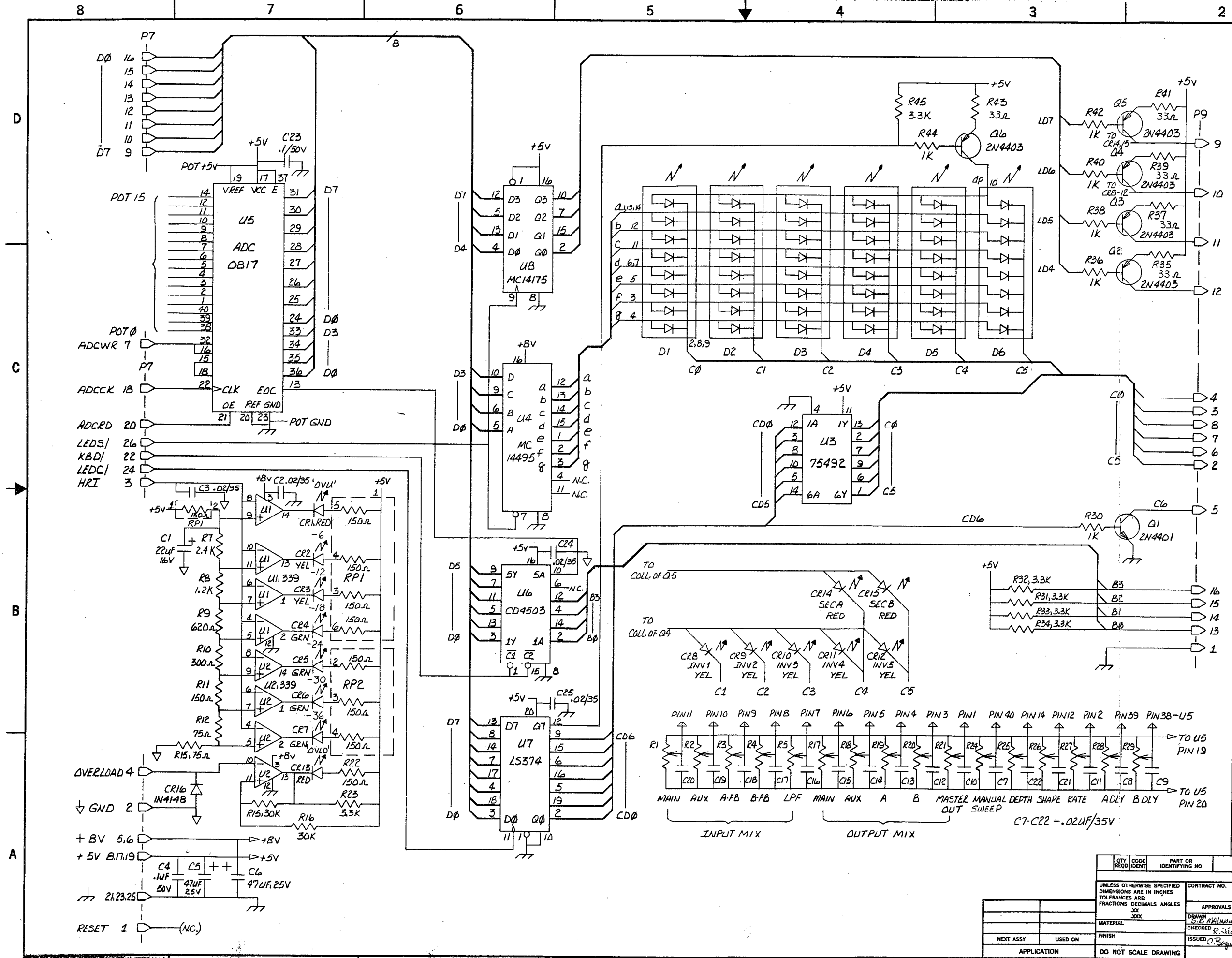
### *Assembly Drawings*

10. Front Panel #1 -- 030-02560
11. Front Panel #2 -- 030-02568
12. Digital Board -- 030-02576
13. Motherboard -- 030-02584









REVISIONS				
REV.	DESCRIPTION	DATE	APPROVED	
1	REF. WAS NOW	12/1/81	12/7/81	
	R7 750Ω	2.4K	JMS	R.J.
	R8 510Ω	1.2K		
	R6 2MEG.	ELIM.		
	R14 10K	ELIM.		
	R35,37,39,41,43	75Ω	33Ω	
2	DELETE SWI		5/5/82	
3	REF. WAS NOW	5/10/82		
	C2,3,24,25,7-22	.02	.02/35	JCR
ADD NOTES				

- NOTES**
- RESISTORS ARE IN OHMS, 1/4W 5%
  - CAPACITORS ARE IN μF/VOLTS UNLESS OTHERWISE INDICATED.
  - R1-5, 17-21, 24-29 ARE 10K LINEAR.
  - D1-D6 ARE 7 SEGMENT LED DISPLAYS.
  - DIGITAL GND ANALOG GND
  - ▷ ARE EDGE CONNECTORS.
  - ON BOARD CONNECTIONS TO FROM
  - CONNECTIONS: OR

QTY	CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES			CONTRACT NO.	
MATERIAL			APPROVALS DATE	
NEXT ASSY USED ON FINISH			DRAWN BY: M. Malowski 10/81	
APPLICATION			CHECKED BY: R. Siegel 1/1/82	
DO NOT SCALE DRAWING			ISSUED BY: O. Boguski 1/7/82	
			SIZE: FSCM NO. DWG. NO. 060-02554	
			SCALE: 7/4 SHEET 10F1	

**lexicon**  
 SCHEMATIC, FRONT PANEL #1  
 MODEL 97

8

7

6

5

4

3

2

1

8

7

6

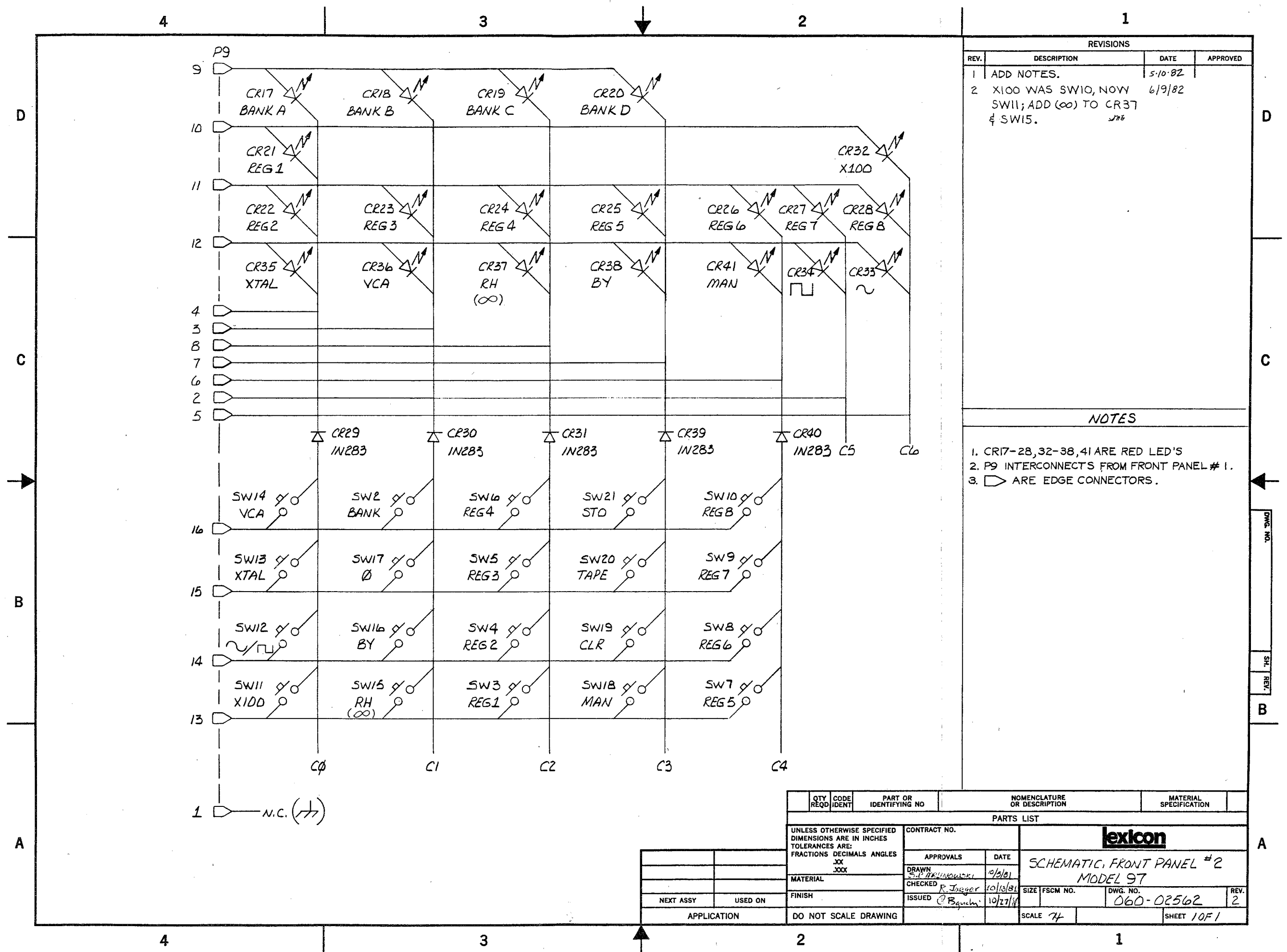
5

4

3

2

1

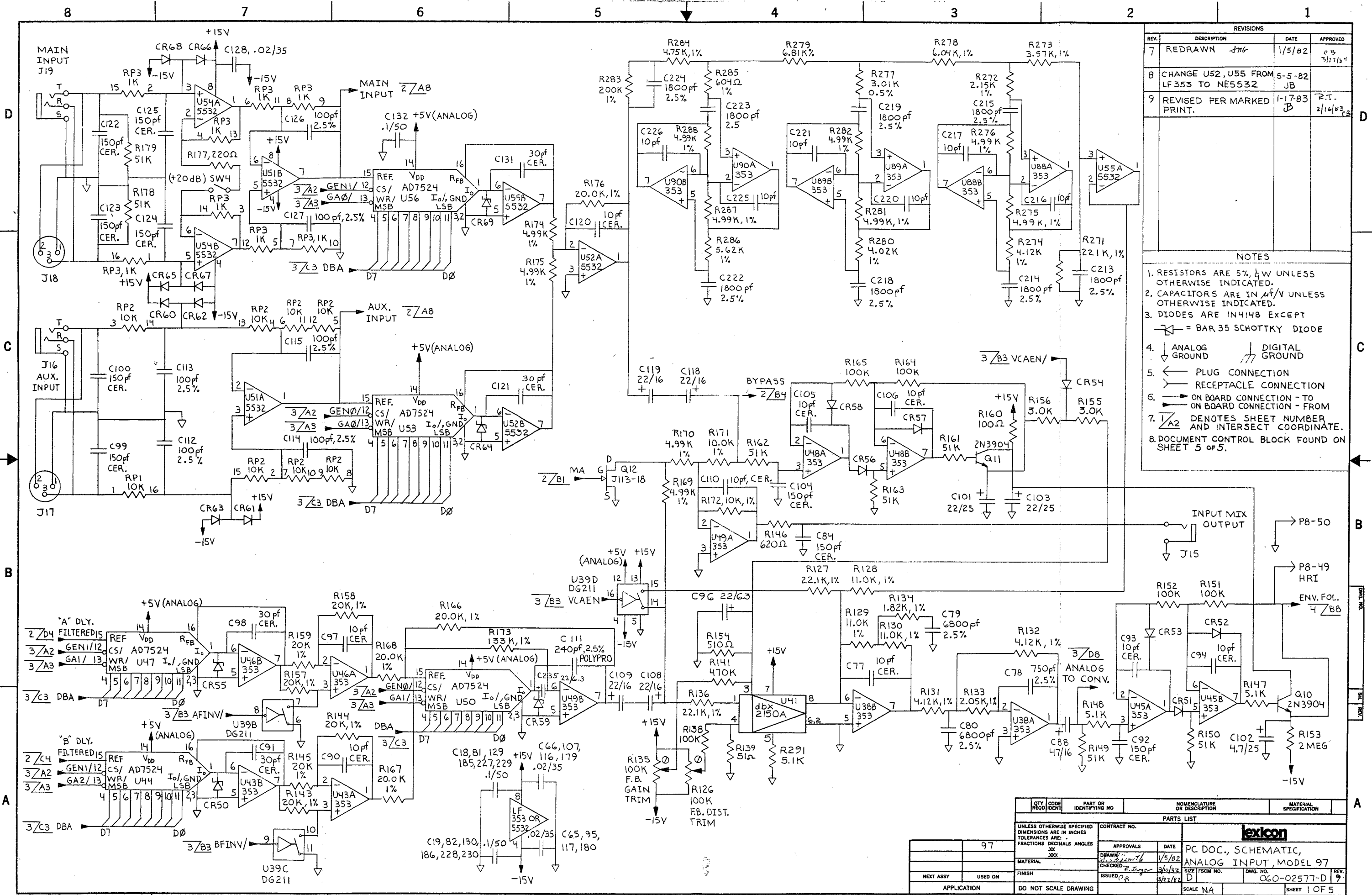


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	ADD NOTES.	5-10-82	
2	X100 WAS SW10, NOW SW11; ADD (∞) TO CR37 & SW15.	6/9/82	JTB

NOTES

- CR17-28, 32-38, 41 ARE RED LED'S
- P9 INTERCONNECTS FROM FRONT PANEL # 1.
- ▷ ARE EDGE CONNECTORS.

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX .XXX .XXX		CONTRACT NO.		<b>lexicon</b>
		APPROVALS	DATE	
MATERIAL		DRAWN S.L. Kowalski	10/31/81	SCHEMATIC, FRONT PANEL #2 MODEL 97
		CHECKED R. Jaeger	10/13/81	
NEXT ASSY		ISSUED C. B. Quinn	10/27/81	SIZE FSCM NO. 060-02562
USED ON				REV. 2
APPLICATION		DO NOT SCALE DRAWING		SCALE 7/8 SHEET 10F1



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
7	REDRAWN JTB	1/5/82	05 3/17/82
8	CHANGE U52, U55 FROM LF353 TO NE5532	5-5-82	
9	REVISED PER MARKED PRINT.	1-17-83	R.T. 2/16/83

- NOTES
1. RESISTORS ARE 5%, 1/4W UNLESS OTHERWISE INDICATED.
  2. CAPACITORS ARE IN  $\mu\text{f}/\text{V}$  UNLESS OTHERWISE INDICATED.
  3. DIODES ARE IN4148 EXCEPT  $\nabla$  = BAR 35 SCHOTTKY DIODE
  4.  $\nabla$  ANALOG GROUND  $\nabla/\nabla$  DIGITAL GROUND
  5.  $\leftarrow$  PLUG CONNECTION  $\rightarrow$  RECEPTACLE CONNECTION
  6.  $\rightarrow$  ON BOARD CONNECTION - TO ON BOARD CONNECTION - FROM
  7.  $\nabla/A2$  DENOTES SHEET NUMBER AND INTERSECT COORDINATE.
  8. DOCUMENT CONTROL BLOCK FOUND ON SHEET 5 OF 5.

QTY	CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
97				

PARTS LIST		CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES			
APPROVALS	DATE	PC DOC., SCHEMATIC, ANALOG INPUT, MODEL 97	
DRAWN: <i>[Signature]</i>	1/5/82	SIZE	FSCM NO.
CHECKED: <i>[Signature]</i>	3/10/82	ISSUED: <i>[Signature]</i>	3/22/82
NEXT ASSY	USED ON	FINISH	DWG. NO. 060-02577-D
APPLICATION	DO NOT SCALE DRAWING	SCALE	NA

lexicon

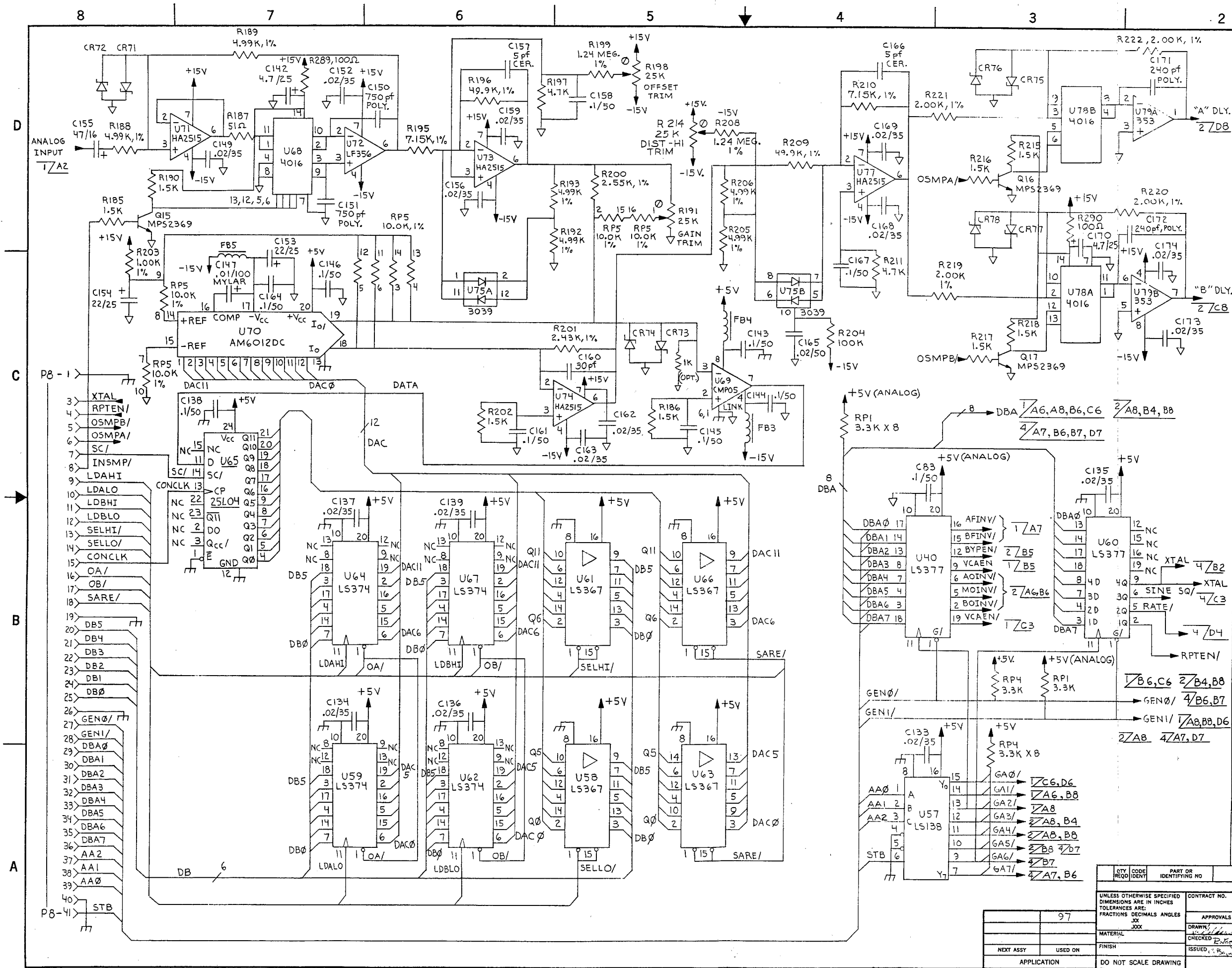
PC DOC., SCHEMATIC, ANALOG INPUT, MODEL 97

060-02577-D

SHEET 1 OF 5







REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
8	REDRAWN	1/27/82	C3
9	CHANGE R195, R210 FROM 4.75K TO 7.15K. DELETE R194, R207, R212, R213, U76.	5-5-82	JB
10	CHANGE C142 & C170 FROM .02/35 TO 4.7/25 TANT.; ADD 100Ω RES. R289, R290; CORRECT R202 TO R204; CORRECT OA/, OB/; ADD AAØ, AA1 & AA2.	6/11/82	JTB
11	REVISED PER UPDATED SCHEMATIC	1-17-83	JTB
12	CHANGED C160 FROM 5 PF TO 30 PF	4-19-83	JTB

- NOTES
1. RESISTORS IN Ω, 5%, 1/4 W., UNLESS OTHERWISE INDICATED.
  2. CAPACITORS ARE IN μF/V UNLESS OTHERWISE INDICATED.
  3. DIODES ARE BAR 35 SCHOTTKY DIODES.
  4. ANALOG GROUND DIGITAL GROUND
  5. PLUG CONNECTION RECEPTACLE CONNECTION
  6. ON BOARD CONNECTION - TO ON BOARD CONNECTION - FROM
  7. DENOTES SHEET NUMBER AND INTERSECT COORDINATE.

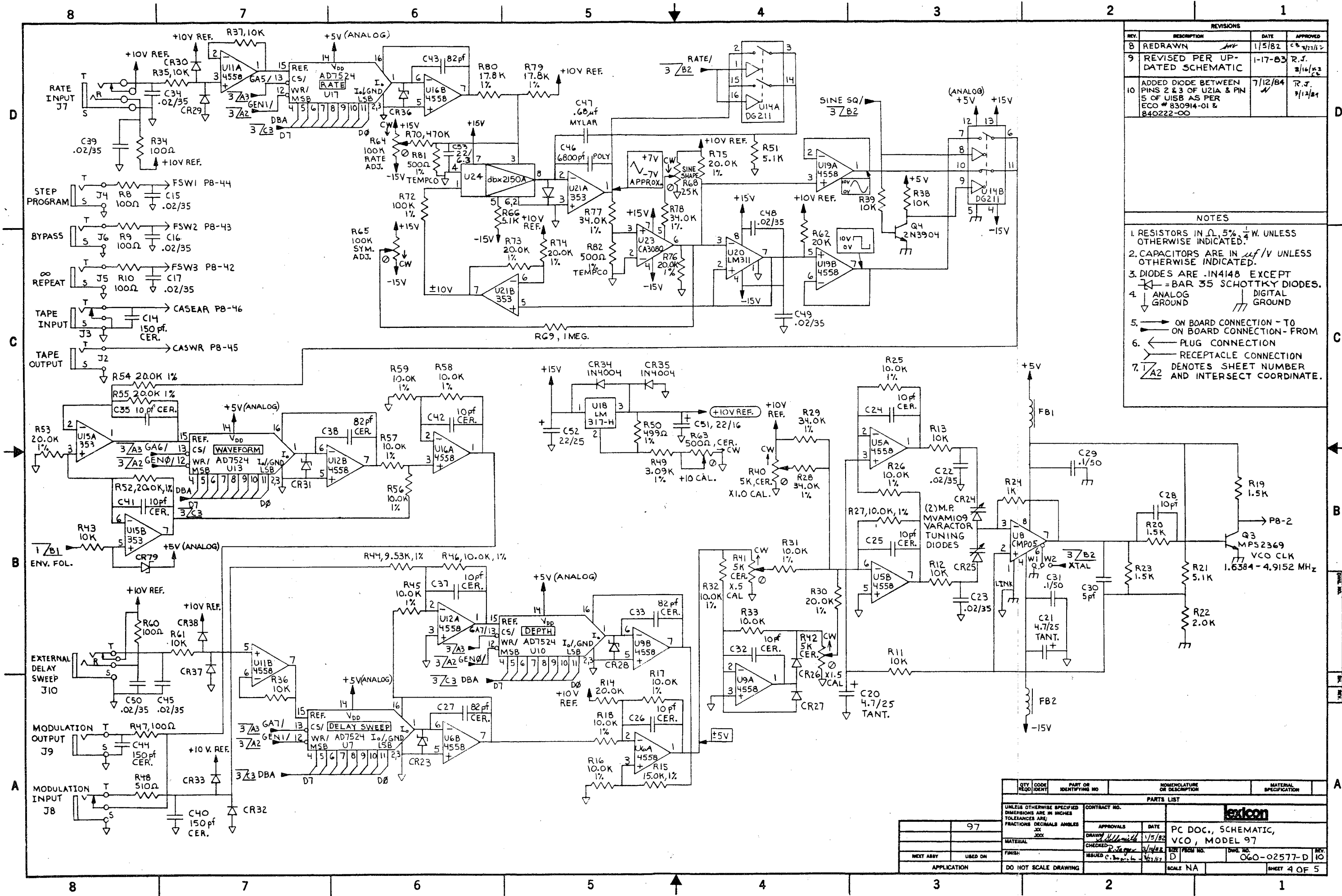
QTY	CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX .XXX .XXX				
CONTRACT NO.			APPROVALS	
MATERIAL			DATE	PC DOC., SCHEMATIC, CONVERTER, 97
FINISH			ISSUED	SIZE FSCM NO. DWG. NO. 06-02577-D 12
APPLICATION			SCALE NA	SHEET 3 OF 5

D  
C  
B  
A

D  
C  
B  
A

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



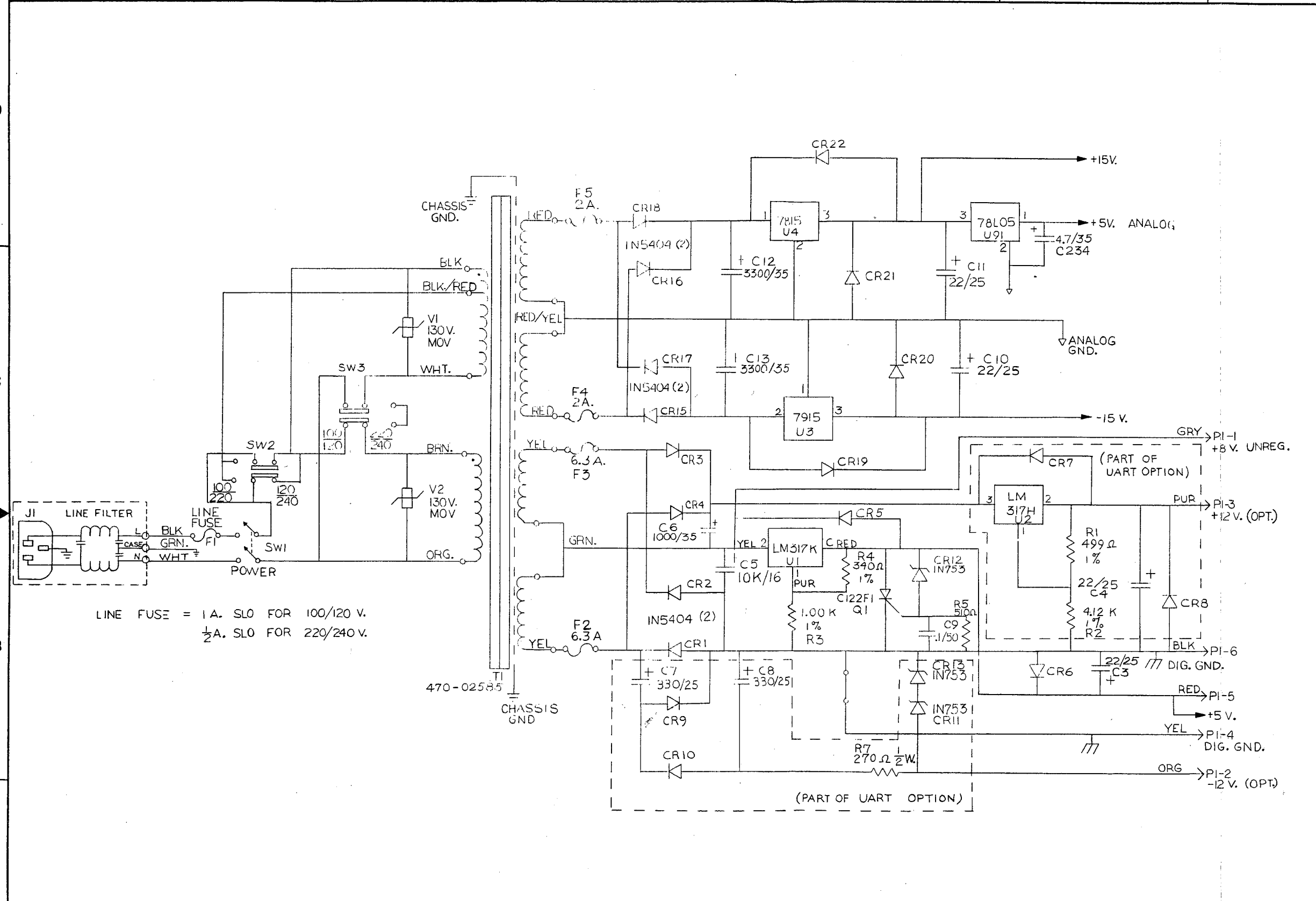
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
B	REDRAWN	1/5/82	C.B. 4/11/82
9	REVISED PER UP-DATED SCHEMATIC	1-17-83	R.J. 2/16/83
10	ADDED DIODE BETWEEN PINS 2 & 3 OF U21A & PIN 5 OF U15B AS PER ECO # 830914-01 & 840222-00	7/12/84	R.J. 9/12/84

- NOTES
1. RESISTORS IN  $\Omega$ , 5%,  $\frac{1}{4}$  W. UNLESS OTHERWISE INDICATED.
  2. CAPACITORS ARE IN  $\mu$ F/V UNLESS OTHERWISE INDICATED.
  3. DIODES ARE .1N4148 EXCEPT  $\nabla$  = BAR 35 SCHOTTKY DIODES.
  4.  $\downarrow$  ANALOG GROUND  $\nabla$  DIGITAL GROUND
  5.  $\rightarrow$  ON BOARD CONNECTION - TO  $\leftarrow$  ON BOARD CONNECTION - FROM
  6.  $\leftarrow$  PLUG CONNECTION  $\rightarrow$  RECEPTACLE CONNECTION
  7.  $\nabla$  DENOTES SHEET NUMBER AND INTERSECT COORDINATE.

QTY	CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. FRACTIONS DECIMALS ANGLES .XXX				
97		CONTRACT NO. <b>lexicon</b>		
MATERIAL		APPROVALS	DATE	PC DOC., SCHEMATIC, VCO, MODEL 97
NEXT ASSY		CHECKED	ISSUED	REV. NO. 10
APPLICATION		DO NOT SCALE DRAWING	SCALE NA	SHEET 4 OF 5



D  
C  
B  
A



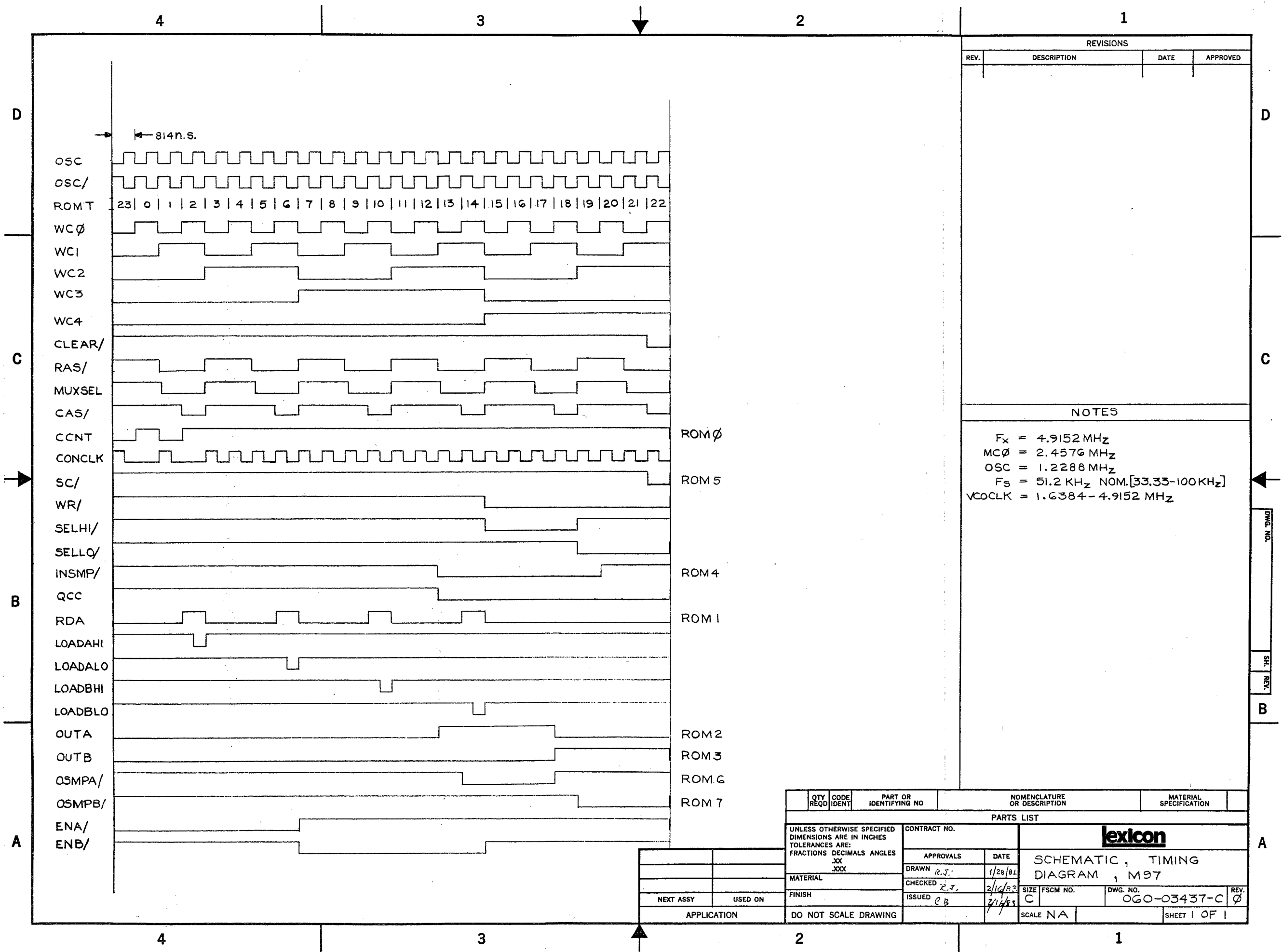
LINE FUSE = 1A. SLO FOR 100/120 V.  
1/2 A. SLO FOR 220/240 V.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
7	REDRAWN	2-17-82	
8	DELETE +12VOLT & -5VOLT SUPPLIES, PI-3 TO DIG. GND.	6/10/82	
9	REVISED PER UPDAT-ED SCHEMATIC	1-17-83	
10	UPDATED DOCUMENT CONTROL BLOCK	7/12/84	

DOCUMENT CONTROL BLOCK		
SHEET NO	DOCUMENT	REV.
1 OF 5	ANALOG INPUT	9
2 OF 5	ANALOG OUTPUT	11
3 OF 5	CONVERTER	12
4 OF 5	VCO	10
5 OF 5	POWER SUPPLY	10

- NOTES
1. RESISTORS ARE 5% , 1/4 W. UNLESS OTHERWISE INDICATED.
  2. CAPACITOR VALUES IN  $\mu\text{F}/\text{V}$  UNLESS OTHERWISE INDICATED.
  3. POWER SUPPLY DIODES IN4004 UNLESS OTHERWISE INDICATED.
  4.  $\nabla$  DIGITAL  $\downarrow$  ANALOG  $\perp$  CHASSIS GND
  5. ALL PI CONNECTIONS ARE LOCATED ON DOC. NO. 060-02569-D, SECTIONS A2 AND B2.
  6.  $\leftarrow$  PLUG CONNECTION  $\rightarrow$  RECEPTACLE CONNECTION
  7.  $\leftarrow$  ON BOARD CONNECTION - TO  $\rightarrow$  ON BOARD CONNECTION - FROM

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO.		
		APPROVALS DATE		
MATERIAL		DRAWN DATE		
FINISH		CHECKED DATE		
ISSUED		SIZE FSCM NO. DWG. NO.		
APPLICATION		SCALE A SHEET 5 OF 5		

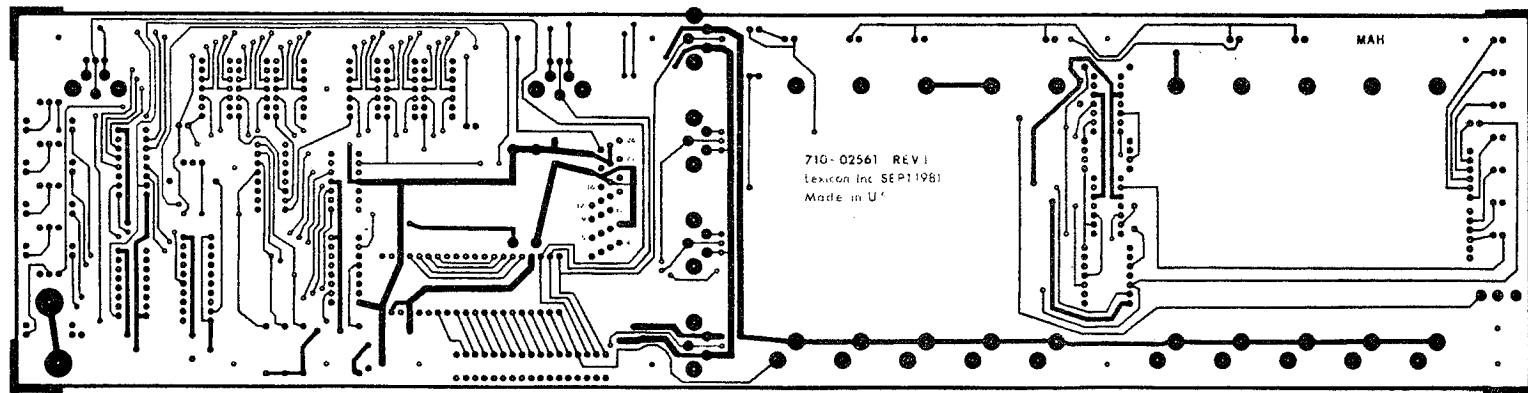
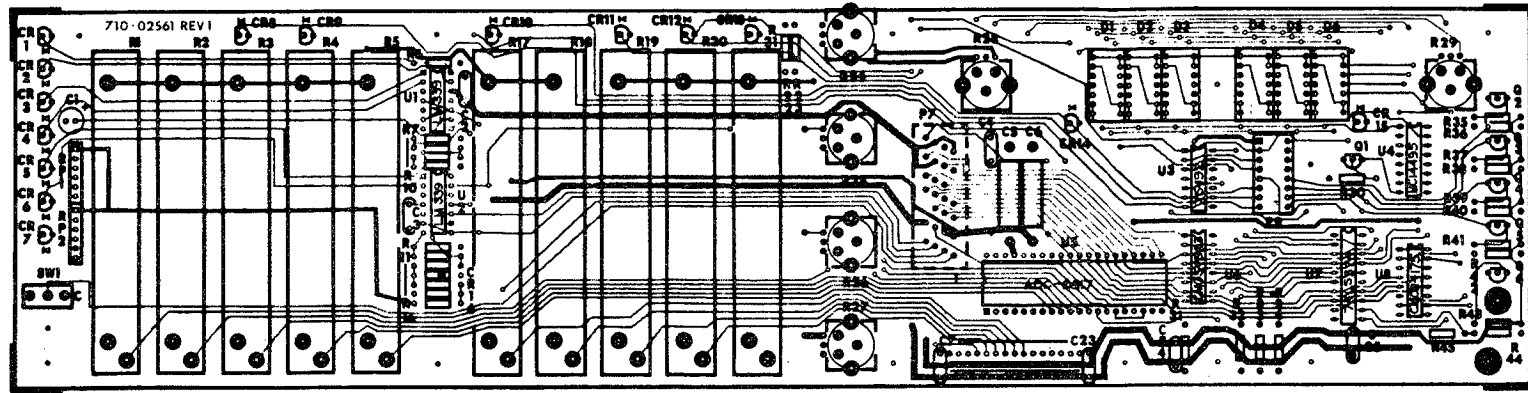


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

NOTES

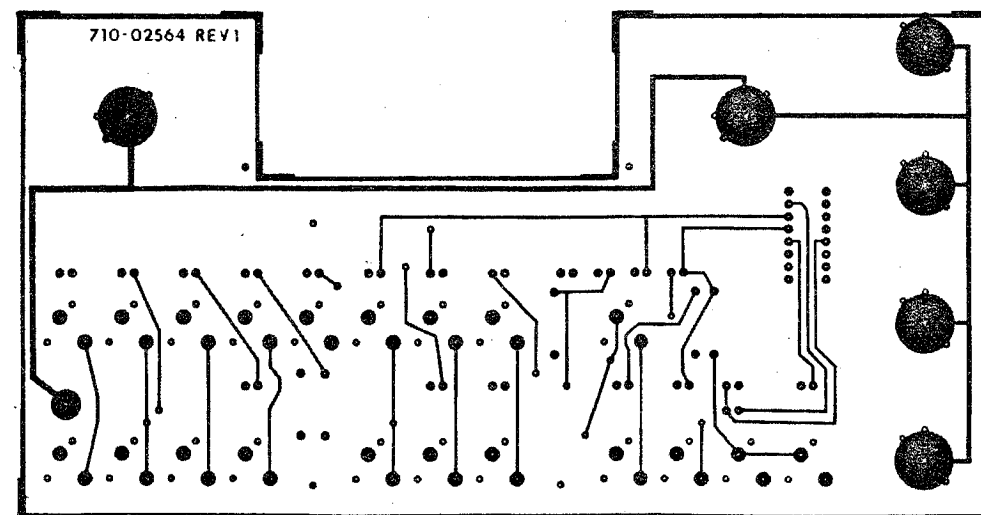
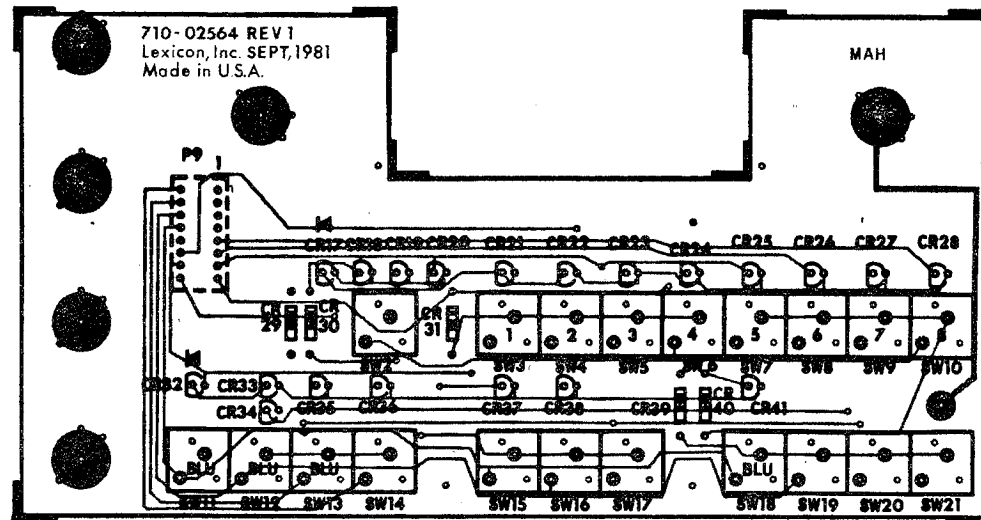
$F_x = 4.9152 \text{ MHz}$   
 $MC\phi = 2.4576 \text{ MHz}$   
 $OSC = 1.2288 \text{ MHz}$   
 $F_s = 51.2 \text{ KHz NOM. [33.33-100 KHz]}$   
 $VCCLK = 1.6384 - 4.9152 \text{ MHz}$

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES XXX XXX			<b>lexicon</b>	
CONTRACT NO.		APPROVALS	DATE	SCHEMATIC, TIMING DIAGRAM, M97
DRAWN R.J.			1/28/81	
MATERIAL		CHECKED R.J.	2/16/83	SIZE FSCM NO. DWG. NO. 060-03437-C
NEXT ASSY USED ON		ISSUED CB	2/14/83	REV. $\phi$
APPLICATION			DO NOT SCALE DRAWING	SCALE NA SHEET 1 OF 1

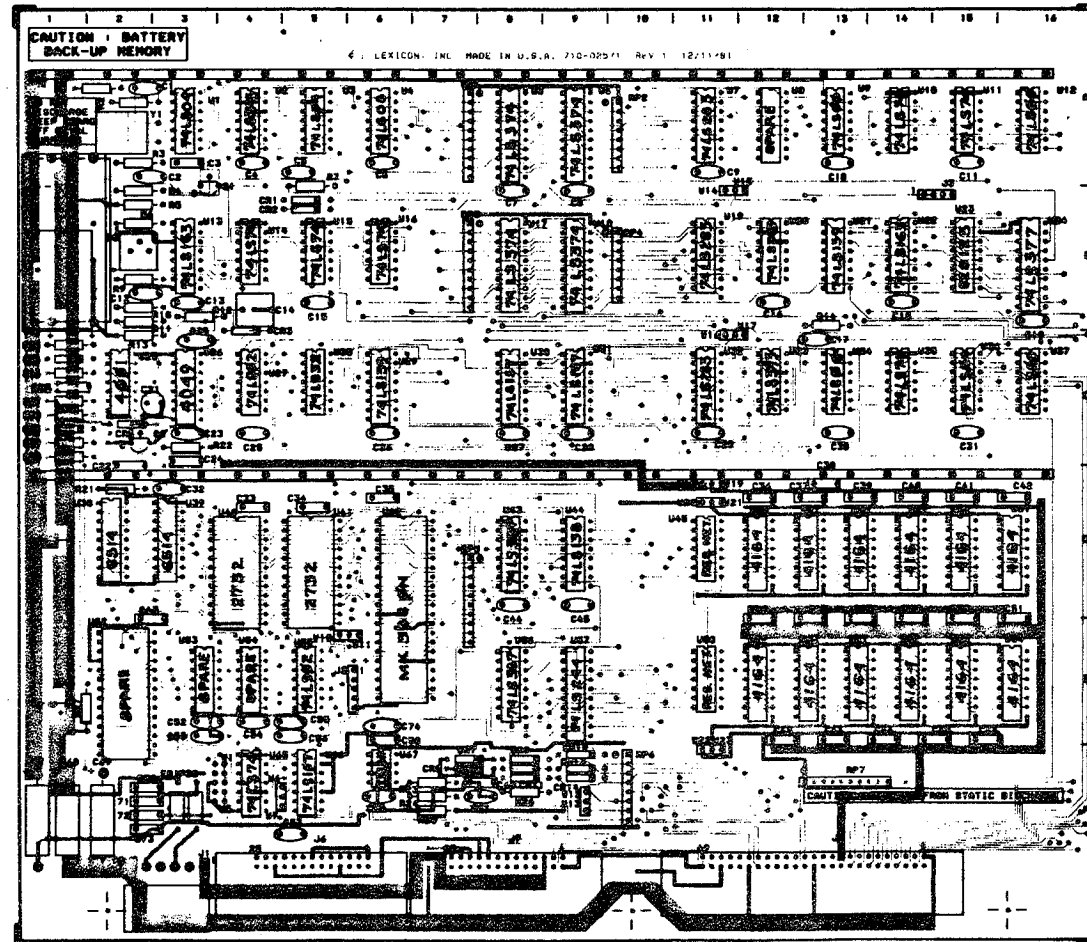


REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

BY: _____	DATE: _____	PART OR IDENTIFICATION NO. _____	DESCRIPTION OF IDENTIFICATION _____	INTERNAL IDENTIFICATION _____
PARTS LIST				
CHECKS OTHERS: _____ VOLUNTARILY ASKED: _____ PARTS LIST: _____ MATERIAL: _____ PRICE: _____ NEXT ASBY: _____ USED BY: _____		APPROVALS: _____ DATE: _____ CHECKED: JCR 4/14/82 DRAWN: _____ SCALE: 1:1	<b>LEXICON</b> <b>PC DOC. ASSY DWG.</b> <b>FRONT PANEL # 1 97</b> SIZE: D FROM NO. _____ DWG. NO. 030-02560 SHEET 1 OF 1	
APPLICATION _____		DO NOT SCALE DRAWING		SCALE: 1:1



<b>lexicon</b>			
<b>PC DOC. ASS'Y DWG</b>			
<b>FRONT PANEL BD.#2</b>			
1:1	D30-02568	0	



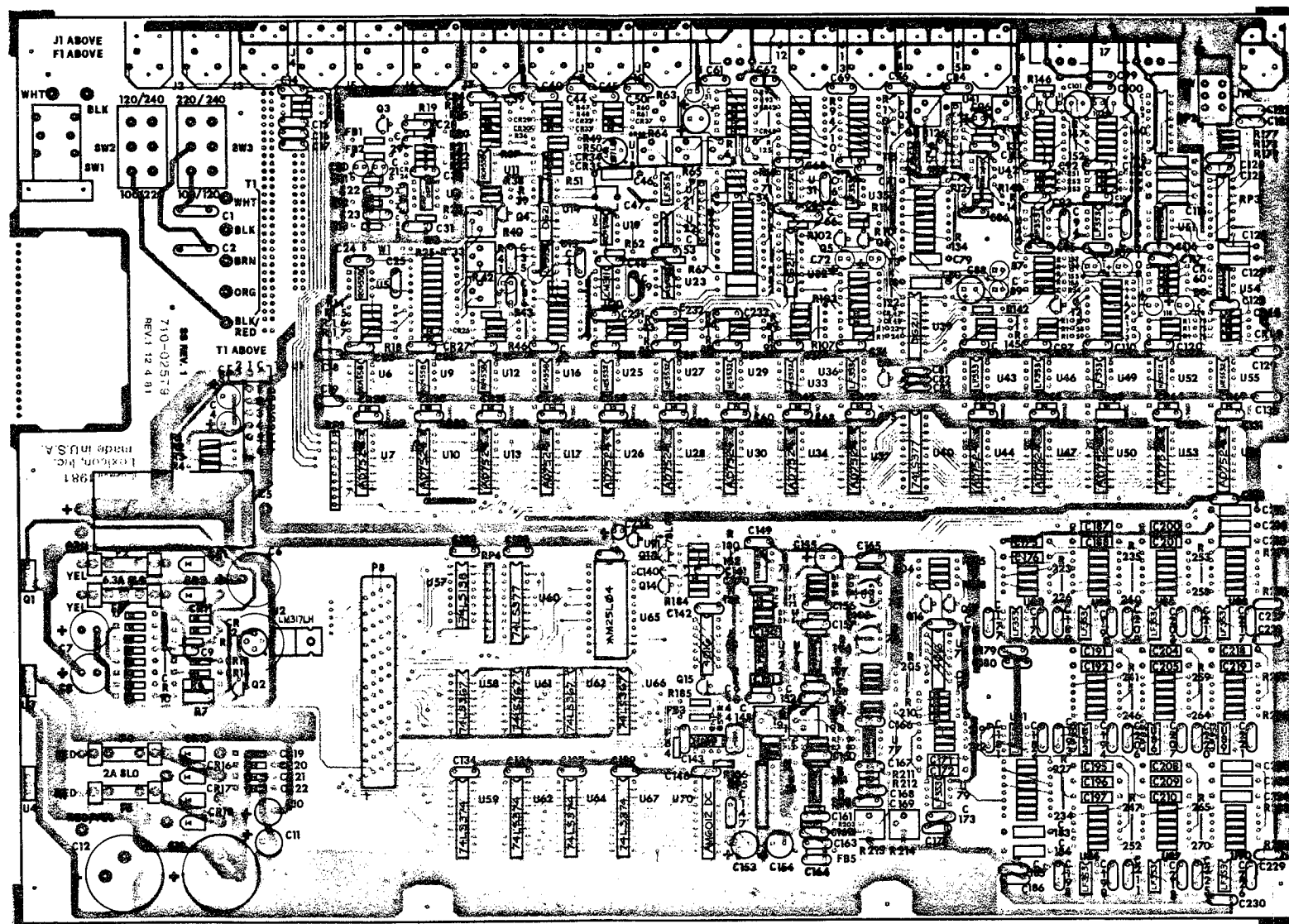
LEXICON DIGITAL, M97 030-02576 REV 1  
INTERNATIONAL CAD/CAH CORP. 12/02/81 SDR0808EENIDE

QTY	FIG. NO.	PART OR IDENTIFYING NO.	ABBREVIATION OR DESCRIPTION	MATERIAL SPECIFICATION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS DECIMALS ANGLES		APPROVALS DATE		
" " "		DRAWN JB 4-15-82		
" " "		CHECKED		
" " "		ISSUED		
" " "		SCALE 1:1		
" " "		SHEET 1 OF 1		

**LEXICON**  
**PC DOC ASSY DWG**  
**DIGITAL BOARD**

DATE PREP'D. 030-02576  
REV. 0

DO NOT SCALE DRAWING



QTY		PART OR IDENTIFYING NO.		DESCRIPTION OR SPECIFICATION		REVISION	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMALS ANGLES							
APPROVALS				DATE			
DRAWN JCR				4-4-82			
CHECKED							
DESIGNED							
MATERIAL							
FINISH							
NEXT ASSEMBLY							
APPLICATION				DO NOT SCALE DRAWING			
				<b>LEXICON</b> <b>PC DOC., ASSY DWG.</b> <b>MOTHERBOARD, 97</b>		SIZE: <b>D</b> PGM NO.: DWG. NO.: <b>030-02584</b> REV: <b>0</b>	
				SCALE: 1:1		SHEET 1 OF 1	