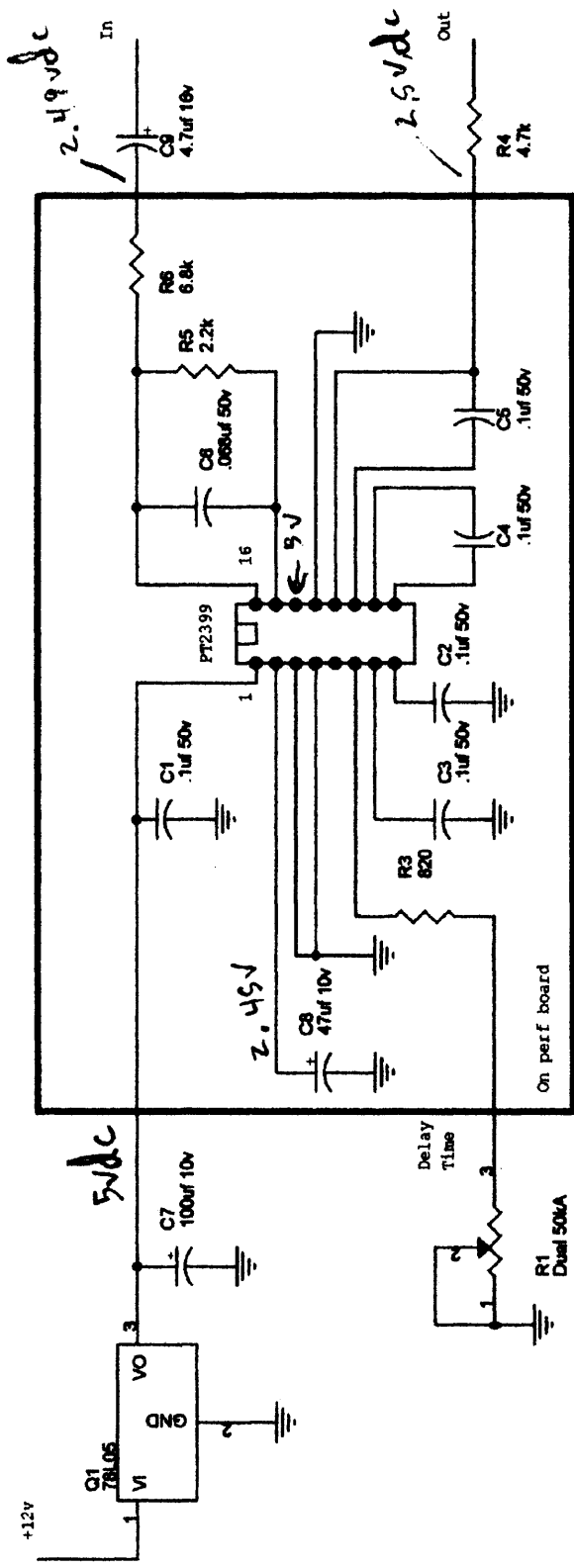


mini board test
 400 Hz
 8 Vpp in
 2.5 Vpp out

15.4 ma longest delay
 22.1 ma shortest delay

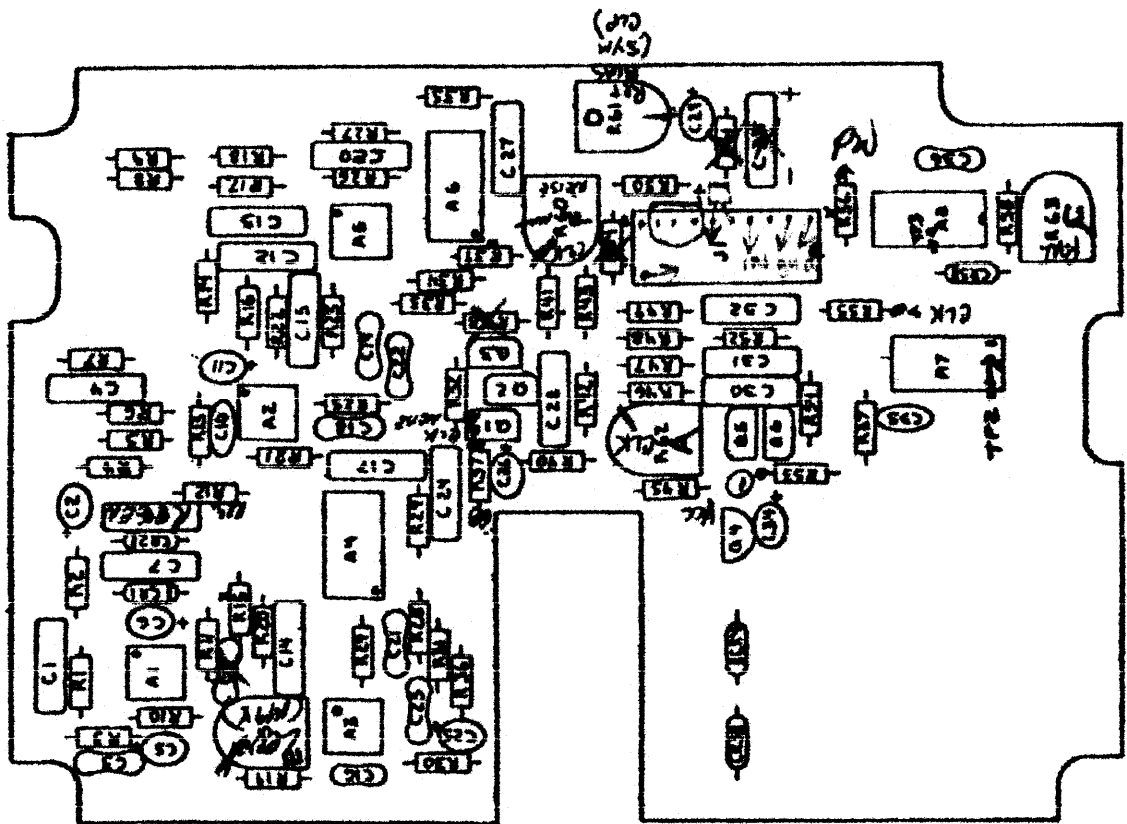


On MKR
 case
 or
 board

Title		PT2399 Mod for MKR Analog Delay	
Size	A	Document Number	1
Date:	Thursday, August 14, 2003	Sheet	1 of 1

MXR Analog Delay with PT2399 mod. calibration procedure:

1. Check for +12 vdc (at main regulator), +5vdc (at second regulator), and +17 to 25 vdc (across 470uf cap.)
2. with 50k delay control fully clockwise set trimmer (A) R62 for clock signal of 13.3kHz at pin 1 of A7 chip.
3. with 50k delay control fully counterclockwise check for clock signal of about 240 to 290kHz.
4. with 50k delay control set to middle check for clock signal of about 56kHz.
5. Set trimmer (C) R63 for 22k or max.
6. Trimmer (D) R61 is inactive.
7. Apply 400Hz sine wave at 300mv p-p to input. Set trimmer (E) R59 and trimmer (F) R60 for unity gain at output between dry and effect signal with regen at min.
8. Check filter function:
With 50k delay control at max. apply 400Hz sine wave at 300mv p-p to input.
Monitor output while increasing frequency until filter cuts signal down to 100mv p-p.
Should be about 1.8kHz.
Then set delay control to middle and increase frequency until filter cuts signal down to 100mv p-p.
Should be about 6.6kHz.
Then set delay control to min. and increase frequency until filter cuts signal down to 100mv p-p.
Should be about 9.2kHz.
9. Check regen function.



1. Remove R38, J1 and R51
2. Change C33 to 4.7 μ F
3. change R44 to 4.7K
4. ground J1 pins with center leg. of Regulator,
5. change C9 to 100 μ F.

VIEW OF COMPONENT SIDE OF BOARD.

P.C.B. NO. MB-2001-102

Under Legan
 R18 check for 30K 20T 70C
 also .047 cap C8
 (2 pins) lower 47K to 22K Ω
 R18

PER INNOVATIONS INC.	
DATE	10/11/71
BY	CH
NO.	5-1874

811

M.O.S.P.

Specific Procedure Specification

Procedure Number 0 1 8 - 1 0 0 3 - 0 0 1

Title Analog Delay (Domestic) Performance Test (Electronic)

Equipment: Oscilloscope, DVM, Frequency counter, Sine sweep generator and provision for audio test of unit.

NOTE: If unit has a serial number below 110-XXXX-200, see section 20 for part changes.

1. Plug unit into 120V AC outlet.
2. Check DC supply at TP1 for 12V DC \pm 0.5V.
3. Turn Delay control fully clockwise and the other two controls fully counterclockwise.
4. Connect the frequency counter to TP2 and set the clock for 67 KHz by adjusting the trim pot located at point A.
5. *Delay Counterclockwise SET POT C FOR 9.5V DC*
Set the Delay control fully counterclockwise and measure the clock frequency at TP2. It should read between 800 KHz and 1.2 MHz. If clock will not go to 800 KHz, decrease R48 located at point B.
- ~~6. With the controls set as in the above step, connect the scope to TP2 and adjust the trim pot located at point C so the bottom part of the wave just remains square.~~
7. *Delay at 11:00 101kV & Resistor 9.5V*
Turn the ~~Delay~~ and Mix controls fully clockwise and the Regen control fully counterclockwise. Feed a 440 Hz sine wave at ~~+10~~ dBV to the unit's input. Connect the output of the unit to the scope.
8. ~~Turn the trim pot located at point D fully clockwise.~~
9. Adjust the trim pot located at point E for maximum output level with symmetrical clipping. Turn the Delay control fully counterclockwise and check the output; it should be approximately the same as when the Delay control was clockwise.
10. Decrease the input to -20 dBV. Set the Delay and Mix controls fully clockwise and the Regen control fully counterclockwise.
11. *+ to match DRY*
Adjust the trim pot located at point D for an output level of ~~-20 dBV~~. If the output is too low and the pot is fully clockwise, see section 19.
12. Turn the Delay control fully counterclockwise and check to see that the output varies only \pm 2 dBV
13. *13* Input a 100 Hz sine wave at -20 dBV. Set Delay and Mix controls fully clockwise and the Regen control counterclockwise. Listen to the unit's output.
14. *Place probe at wiper of trim pot G, open input*
Adjust the trim pot located at point G so the high frequency clock signal is nulled out.
15. Set the Delay and Mix controls fully clockwise and the Regen control to the 3 o'clock position.
16. Insert a 440 Hz sine wave at -20 dBV for about .5 seconds. The signal should repeat but not over-regenerate. Now turn the Delay control to the 11 o'clock position and repeat the test. Again the signal should repeat but not over-regenerate. If over-regeneration occurs in either case, increase R19 located at point H.

M.O.S.P.

Specific Procedure Specification

Procedure Number 0 1 8 - 1 0 0 3 - 0 0 2

new

Title CCD Analog Delay

Equipment: Oscilloscope, DVM, Frequency Counter, Sine-Sweep Generator, and Provision for Audio Test of Unit.

1. Plug unit into 120V AC outlet.
2. Check DC supply at TP₁ for 12V DC + 0.5V.
3. Turn delay control fully clockwise and the other two controls fully counter-clockwise.
4. Connect the frequency counter to TP₂ and set the clock for 13.33 KHz by adjusting the trim pot located Point A.
5. Set the delay control fully counter-clockwise and measure the clock frequency at TP₂. It should read approximately 266.66 KHz + 10%. If clock does not fall in this range, decrease R40, located at Point B (approx. 19:1 to 21:1 range).
6. With the delay control fully counterclockwise, connect the scope to TP₃ and adjust the trimpot located at Point C for a 65-70% duty cycle. Turn the delay pot fully clockwise, and check for a duty cycle of not more than 5%.
7. With the delay and mix controls fully clockwise, and regen fully counter-clockwise, input a -20dbm/440Hz signal. Connect the output of the unit to the scope.
 78.7mv.
8. Adjust the trimpot at Point D for maximum output level. Turn the delay control fully counterclockwise and check the output; it should be approximately the same as when the delay control was clockwise.
9. Increase the input level so that output just starts to clip(approx. -6dbm). Check the output at both extremes of the delay pot; the signal should be clipped symmetrically at each extreme.
10. Decrease the input signal to -20dbm.
11. Open the input to the unit with the scope connected to TP₄. Adjust the trimpot located at Point F for minimum clock feedthrough.
12. The delay control should be set fully clockwise and regeneration should be set fully counterclockwise. Now adjust the trimpot located at Point E so that the delayed signal is the same as the dry signal level. This is done by moving

118

M.O.S.P.

Specific Procedure Specification

Procedure Number 0 1 8 _ 1 0 0 3 _ 0 0 2

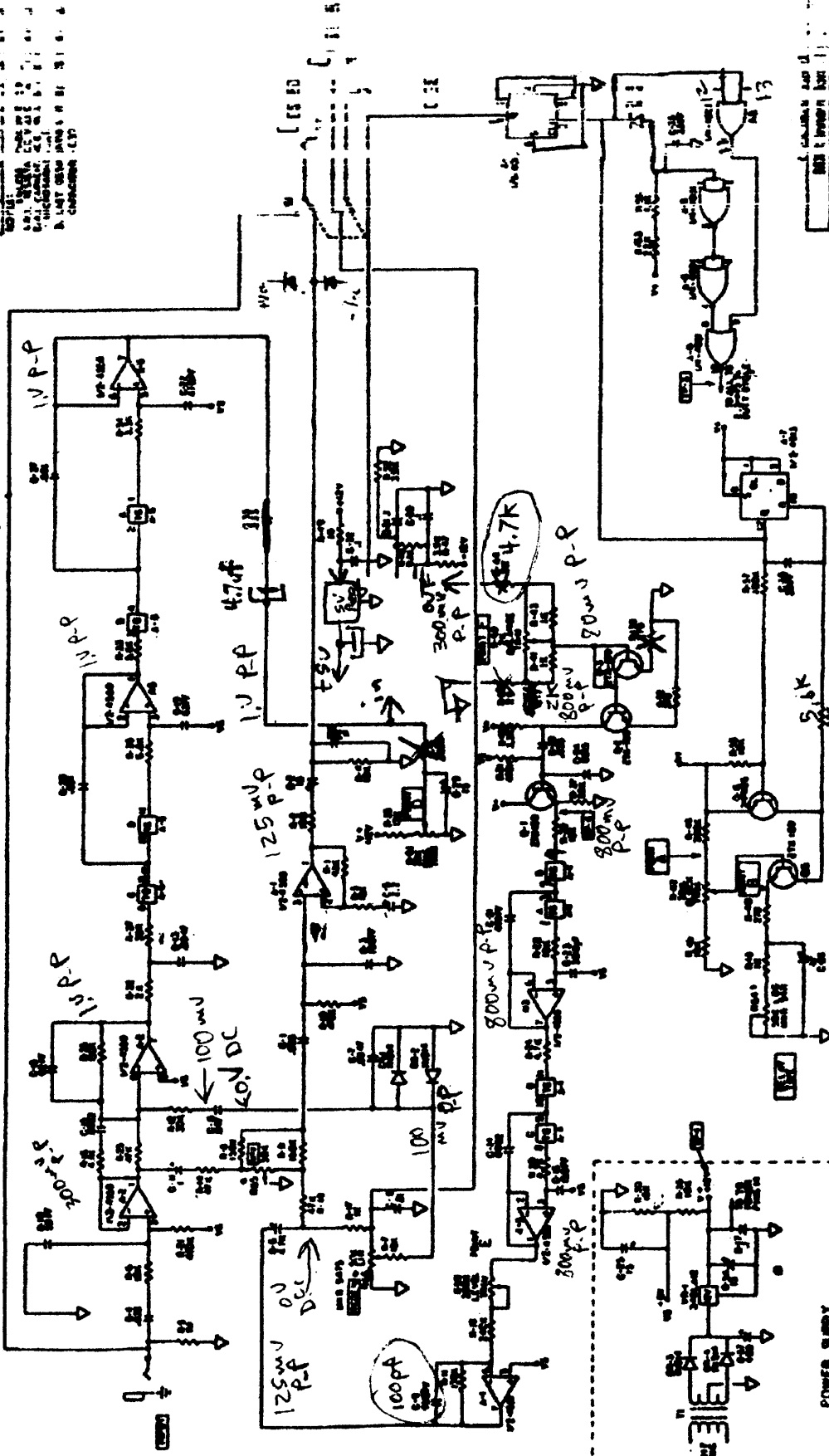
Title CCD Analog Delay

the mix pot from dry to delay while measuring the level at the output of the unit. Turn the delay control fully counterclockwise; the level should be within 2db of when the control was fully clockwise. If the change is greater than 2db, replace the CCD and repeat setting procedure for CCD.

- 13. Set the delay and mix controls fully clockwise and the regen control to about the 3:00 position.
- 14. Insert a 440Hz/-20dbm signal for about .5 seconds. The signal should repeat but not over-regenerate. Now turn the delay control to the 11:00 position and repeat.

IN: 300 mV P-P 400Hz
Delay Max 1 Mix Max p Regen min.

979 P.P.P



NOTE: THE TRANSDUCER MUST BE CALIBRATED TO 0.5% ERROR.

* SEE OPERATING INSTRUCTIONS FOR DETAILS.

REV	1	1	1
DATE			
BY			
CHECKED			
APPROVED			

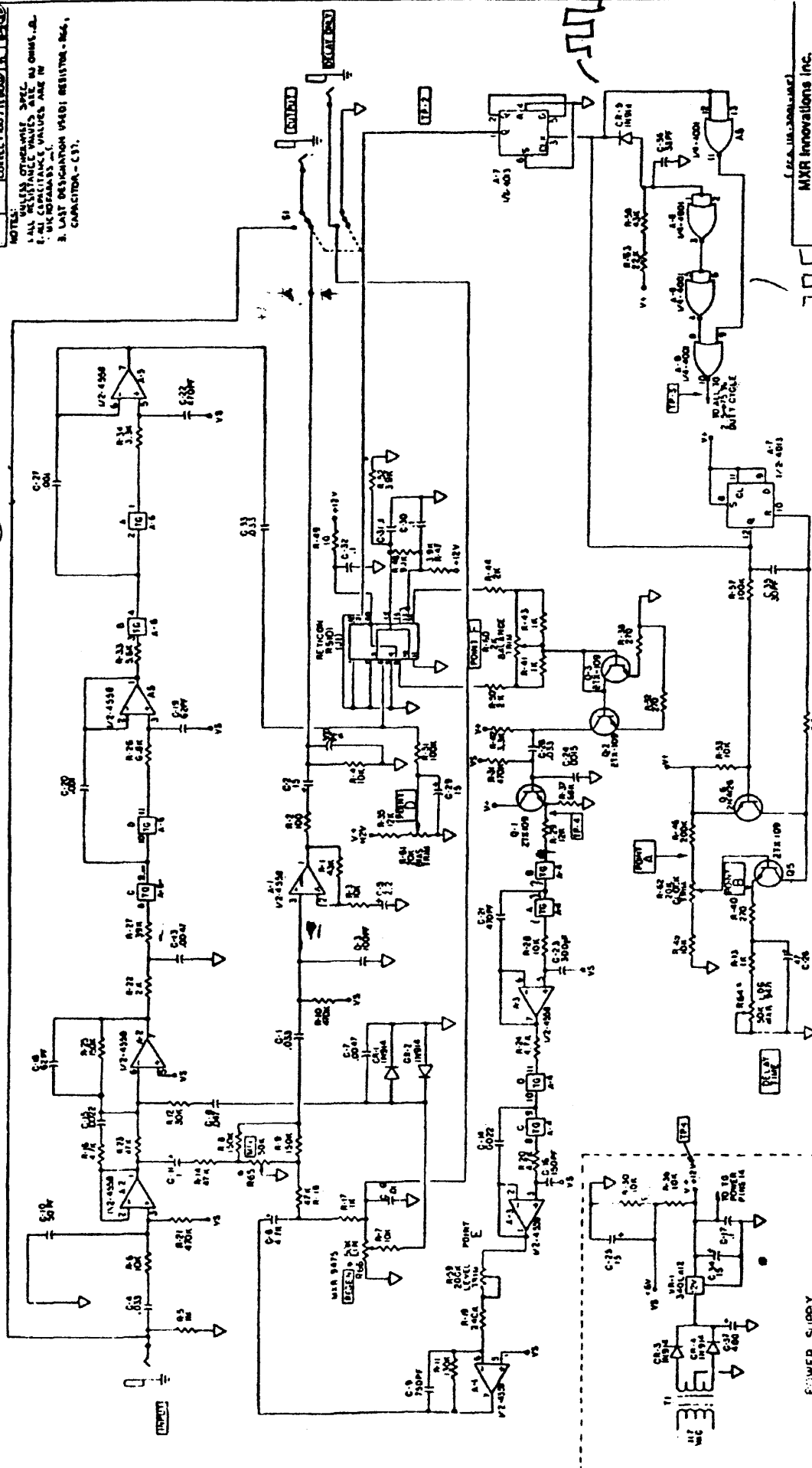
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.

REV	1	1	1
DATE			
BY			
CHECKED			
APPROVED			

REV.	DESCRIPTION	DATE	BY
01	ORIG. CHANGE	11/18/54	JTB
02	REV. 1	11/18/54	JTB
03	REV. 2	11/18/54	JTB
04	REV. 3	11/18/54	JTB
05	REV. 4	11/18/54	JTB

NOTES:
1. ALL DIMENSIONS ARE IN MILS UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITANCE VALUES ARE IN MICROGRAMS (µG).
3. LAST DESIGNATION USED: RESISTOR - RES, CAPACITOR - CAP.

Original



NOTE: 10-TRANSMISSION GATE
4 IN 4015 MESSAGE CLOCK 0.3-266.6 KHZ
300-13545 DELAY

SEE MECHANICAL ASSEMBLY WIRING DRAWING

REV.	DESCRIPTION	DATE	BY
01	ORIG. CHANGE	11/18/54	JTB
02	REV. 1	11/18/54	JTB
03	REV. 2	11/18/54	JTB
04	REV. 3	11/18/54	JTB
05	REV. 4	11/18/54	JTB

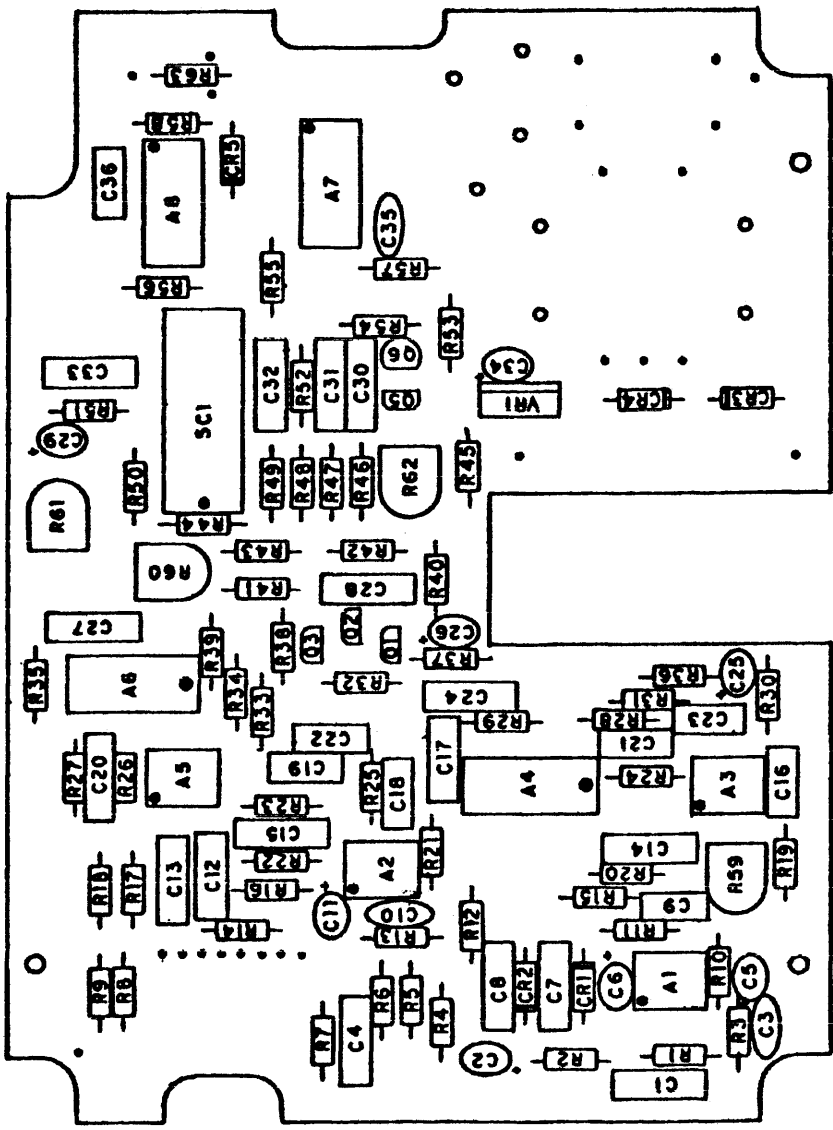
NOTES:
1. ALL DIMENSIONS ARE IN MILS UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITANCE VALUES ARE IN MICROGRAMS (µG).
3. LAST DESIGNATION USED: RESISTOR - RES, CAPACITOR - CAP.

POWER SUPPLY

MXR Innovations Inc.

REV.	DESCRIPTION	DATE	BY
01	ORIG. CHANGE	11/18/54	JTB
02	REV. 1	11/18/54	JTB
03	REV. 2	11/18/54	JTB
04	REV. 3	11/18/54	JTB
05	REV. 4	11/18/54	JTB

DATE	REVISION	BY



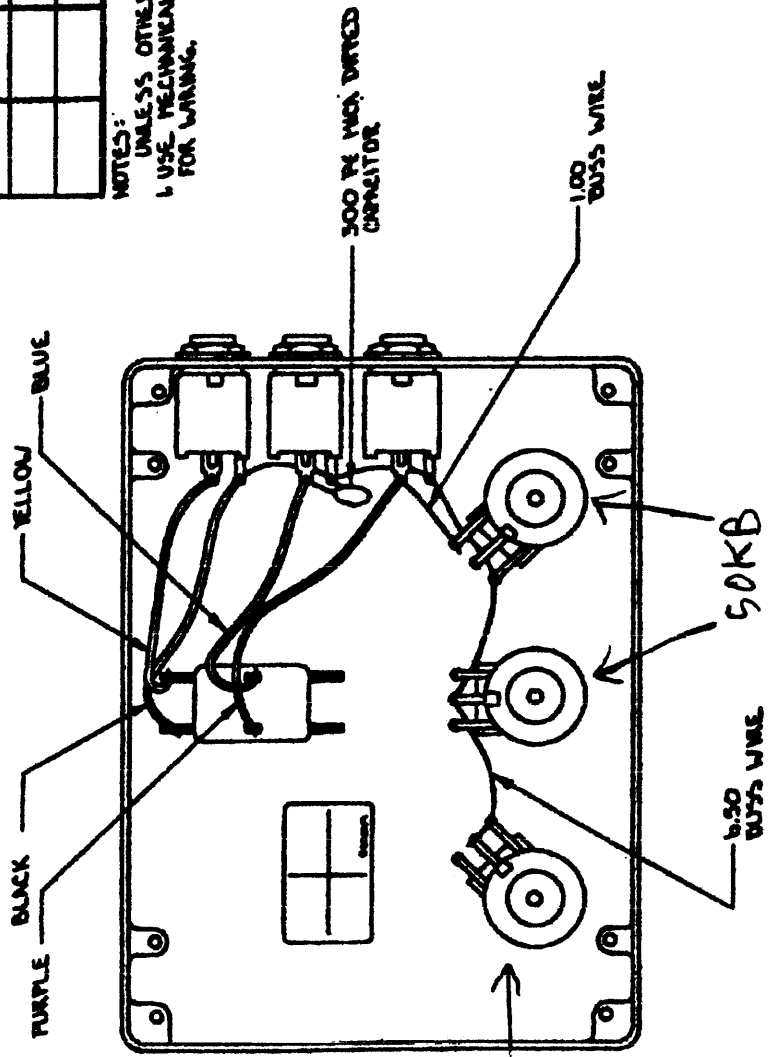
VIEW OF COMPONENT SIDE OF BOARD

NOTE:
USE LATEST REV OF 118-3001-100
LEVEL PER REV LOG.

306	9/81	PCN 381	H M	R.H.
	3/19/82	REWORKING W/CONG.		
305	7-77	PPCD 127	S.K.	J.L.
304	11/6/78	R43 TRIMMER TO 22K RESISTOR	S.K.	J.L.
303	10/2/78	R43 TRIMMER WAS 20K, CHG TO 22K	S.K.	J.L.
302	8/1/78	CHANGED P.C.B.	T.O.	D.Y.
DATE	BY	REVISION LOG		
REVISION LOG				
118-3001-100 COMPONENT PLACEMENT ANALOG DELAY				
118-3001				306

DATE	SYMBOL	REVISION	APPROVED BY
8-1-78		ACD LEVEL CHANGE REVISION	BLK B.V.

NOTES:
 UNLESS OTHERWISE SPECIFIED:
 1 USE MECHANICAL ASSEMBLY NO. 118-2001-703 FOR WIRING.

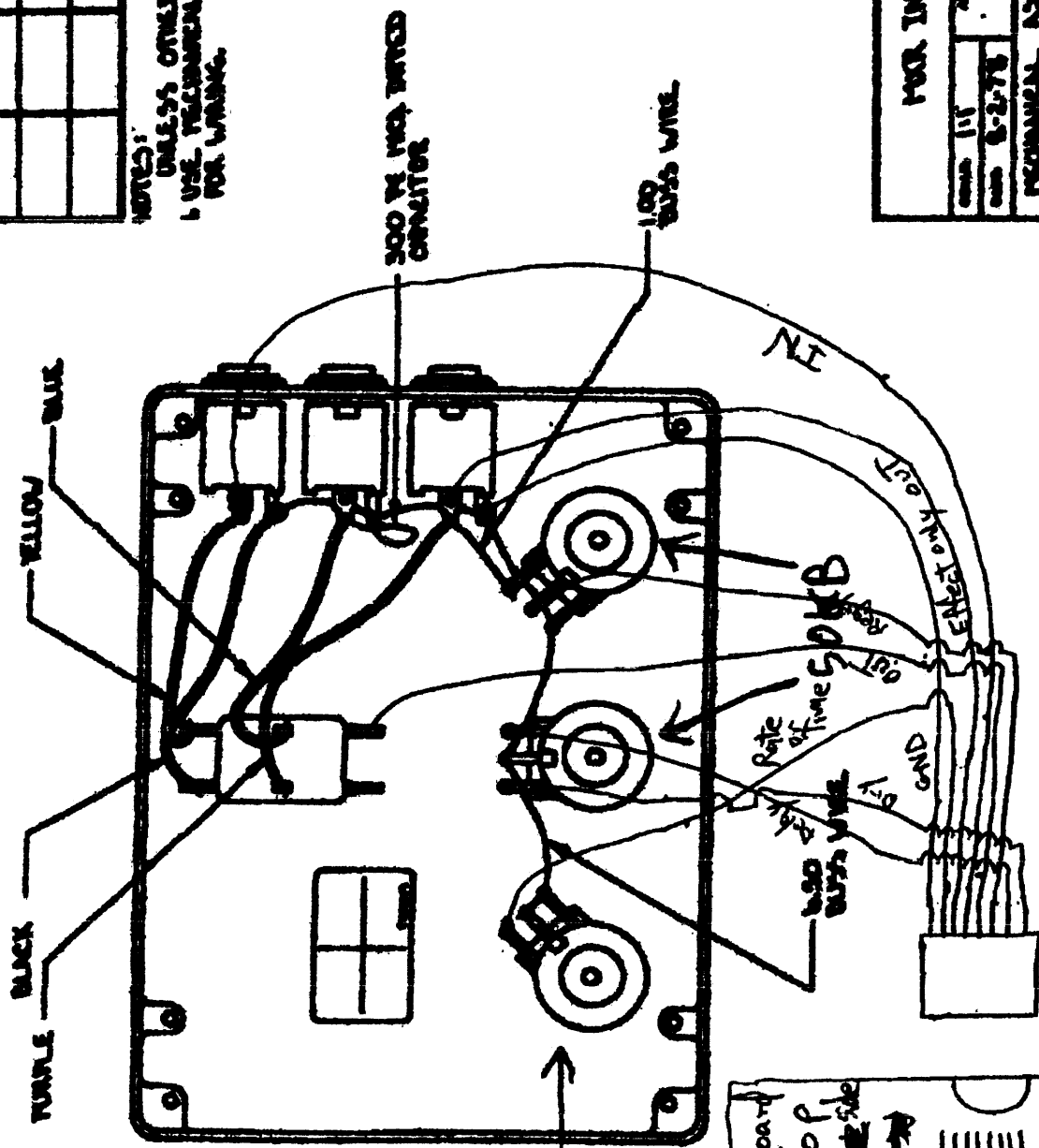


WIRE CHART	
LENGTH	COLOR
1.50	BUSS WIRE
1.00	BUSS WIRE
2.75	YELLOW
3.25	BLACK
5.25	BLUE
1.50	TURPLE

MCR INNOVATIONS INC.	
DESIGNED BY	D. YAMER
DATE	8-2-78
MECHANICAL ASSEMBLY - WIRING	
ANALOG DELAY	
PART NUMBER	
118-2001-703	

DATE	SYMBOL	REVISION	DESCRIPTION
8-1-78			100 LEVEL CANCELLATION BIL BUC

NOTES:
 UNLESS OTHERWISE SPECIFIED,
 USE TECHNICAL SPECIFICATION NO. 10-2001-703
 FOR WIRING.



WIRE GAUGE	LENGTH	COLOR
1-50		BUS WIRE
1-60		BUS WIRE
2-75		YELLOW
3-25		BLACK
3-25		BLUE
1-50		TURBLE

FOR INNOVATIONS INC.

COMP. 111	ADDRESS	DATE
8-2-78	D. YONER	
TECHNICAL ASSEMBLY - WIRING		
ANALOG DELUXE		
NO. 2001-703		