

DEPTHCHARGE



MANUFACTURED BY

Gremlin
Industries, inc.

OWNER'S MANUAL

DEPTHCHARGE GAME CONCEPT

DEPTHCHARGE is a video game of skill and strategy in which the player attempts to hit as many submarines as possible using depth charges launched from a maneuverable surface ship. Game time runs 90 count.

PLAYFIELD:

At the top of the screen is a ship which can be moved left or right using two player control buttons. Two additional control buttons launch depth charges from either the right or left side of the ship. The ship movement is necessary both offensively to aim depth charges, and defensively to dodge mines which are released by the submarines and float to the surface. The words TIME and SCORE are displayed in the upper left and upper right of the screen, respectively.

As the game progresses, as many as four submarines appear at different depths, and move at different speeds across the screen. Each submarine has a number on its side, which indicates the point value for sinking that sub.

DEPTH CHARGES:

The player has six (6) depth charges at his disposal. At the top center of the screen, the number of depth charges in his arsenal is displayed. Every time a depth charge is launched, one of the depth charge counters disappears, and every time a depth charge explodes, one depth charge counter reappears. The depth charge counters thus give a clear indication of how many are available for firing at any time during the game.

MINES:

As the submarines move across the screen, they randomly release mines which float slowly to the surface and explode. If one of these mines hits the player's ship, a stiff penalty is imposed (See SCORING). The mine explosion is accompanied by a realistic explosion and "spray" sound.

GRAVEYARD:

Every time a submarine (or the ship) is sunk, a miniature image of it appears at the bottom of the screen. Every hit adds another submarine to the graveyard, so a player can gauge his proficiency with a quick glance at the graveyard. The graveyard images are also used for end-of-game bonus scoring.

DEPTHCHARGE GAME CONCEPT (Cont'd.):

SUBMARINES:

Submarines run automatically, and appear at random depths and speeds. There are never more than four subs on the screen at one time. The deep submarines carry higher scores than shallow ones, since they are more difficult to hit. The mines which the subs release are also automatic and random.

SCORING:

Hitting a submarine scores the value shown on the sub. Anytime the player's ship is sunk by a mine, the player's score is cut in half. At the end of the game, a 30 point bonus is awarded for every submarine in the graveyard.

HIGH SCORE:

Current high score is displayed at the lower center of the screen during the advertising sequence. It updates with each new higher score. High score can be reset to zero by unplugging the game from line voltage and plugging it back in.

TIME:

DEPTHCHARGE is set to run for approximately two minutes. This has been found to be an optimum time, and is not adjustable.

OVERTIME:

If a player manages to score 500 or more points in a game, he is awarded extended time. Extended time runs 45 counts.

END-OF-GAME:

Whenever DEPTHCHARGE is not being played, an "advertisement" sequence is initiated. The game plays itself to attract attention. To avoid patron confusion, the words "Game Over" appear while the advertising game is being played, and during a thirty (30) second delay thereafter. Following the delay, the advertising sequence repeats.

DEPTHCHARGE GAME CONCEPT (Cont'd.):

E-Z Adjust TM control Panel - DEPTHCHARGE has only one adjustment and it is located behind the coin door.

VOLUME CONTROL - Set to desired volume for boom and tones during the game. This also affects advertising boom volume if boom switch is "ON".

OPERATIONAL WAVE FORMS

The following set of scope photographs are intended to aid in the troubleshooting of a malfunctioning Video Logic Board. Although the photos were taken with a four channel scope, the system can be just as easily checked out with a single or dual-channel scope. The important thing to look for is the existence of the signals shown.

SIGNALS 1-15:

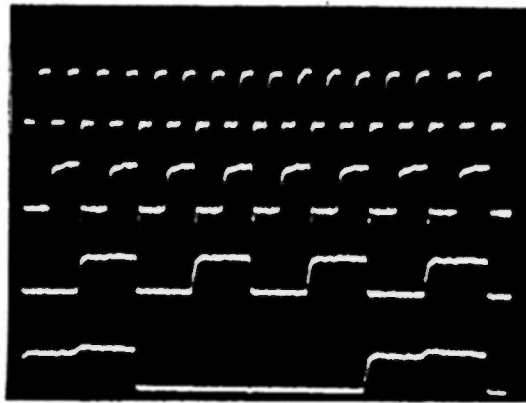
Signals 1-15 show the signals developed by the Video Logic board's master signal sequencer. These signals form the basic timing for the entire board, and therefore, should be checked first. All photos use 5 volt per centimeter vertical sensitivity, and a time base of 200 nanoseconds per division horizontal.

The important thing to check with these photos is the relative shapes of the signals. Don't be concerned with the actual pulse widths and frequencies. If any of the signals are missing (always high or low) check the input side of the 74S175 latch which corresponds to the defective output. If a signal is seen here (don't worry if it is loaded with noise spikes, the 74S175 is there to remove them), the 74S175 should be suspected. Keep in mind that it could also be a line which the 74S175 is driving which is pulling high or low. The best way to check this is to use an exacto knife to cut the trace leaving the proper 74S175 output pin, and again check the 74S175 output. (CAUTION: BEFORE ATTEMPTING ANY REPAIRS REFER TO PAGE 3. FOR WARRANTY CONDITIONS.)

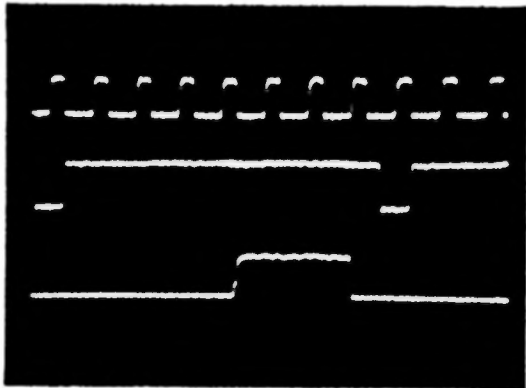
If it is now correct, the problem is on the "downstream" side of the 74S175. DON'T FORGET TO RE-JUMPER THE CONNECTION YOU CUT. If the input side of the 74S175 is also "dead", suspect the PROM (U27 or U28), whichever is applicable.

OPERATIONAL WAVE FORMS (Cont'd.):

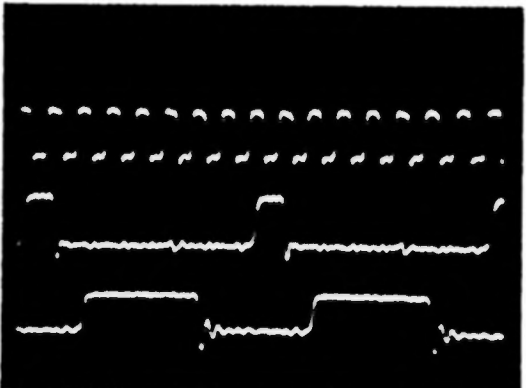
SIGNALS 1-15:



1. (U14-15)
2. (U14-10)
3. M1 (U14-2)
4. M2 (U14-7)



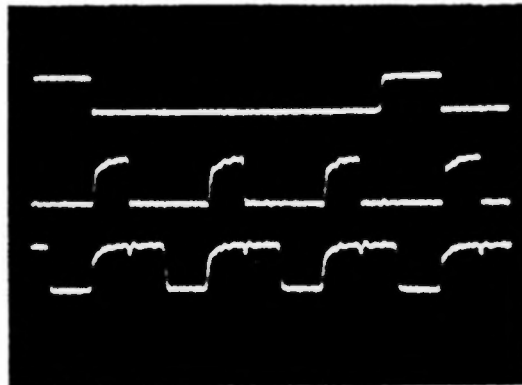
5. (U13-15) SRCK (Shift Register Clock)
6. (U13-2) SRLD (Shift Register Load)
7. M4 (U13-13)



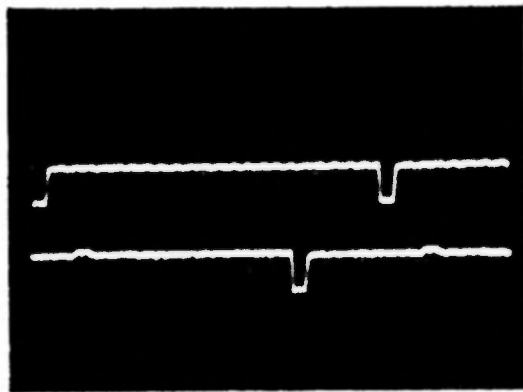
8. (U11-14) Pin 9
9. (U12-15) Processor-Clock Phase 1
10. (U12-10) Processor-Clock Phase 2

OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 1-15 (Cont'd.):



- 11. S1 (U11-17)
- 12. $\overline{\text{RAS}}$ (U29-12)
- 13. $\overline{\text{CAS}}$ (U11-2)

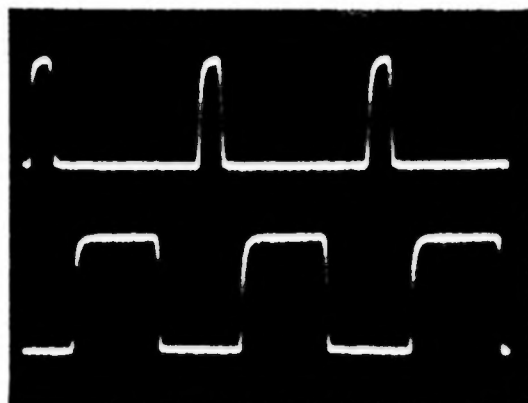


- 14. $\overline{\text{RWT}}$ (U11-10)
- 15. $\overline{\text{MSB}}$ (U12-7)

OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 16 AND 17:

Signals 16 and 17 are the 8080 clocks. Vertical sensitivities are 5 volts per centimeter; horizontal is 200 ns/cm. Make sure that these signals pull up to at least 10.5 volts (they normally drive to 12 volts).



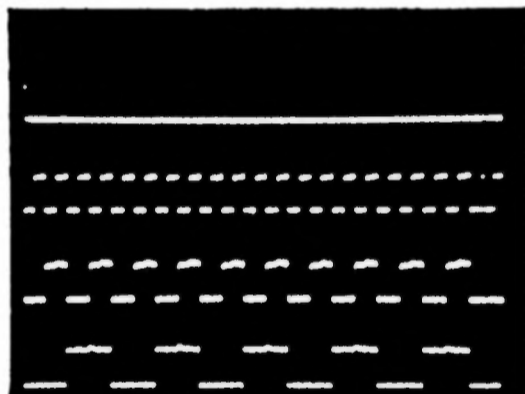
16. 12 Volt
Phase 1 Clock
(TP 1)

17. 12 Volt
Phase 2 Clock
(TP 2)

OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 18 THROUGH 28:

Signals 18 through 28 show signals from the horizontal timing chain for the CRT timing. The three photos show the top signal as HORIZONTAL RESET, which is a good triggering signal for viewing the other waveforms. The time between horizontal reset pulses should be about 63 microseconds.



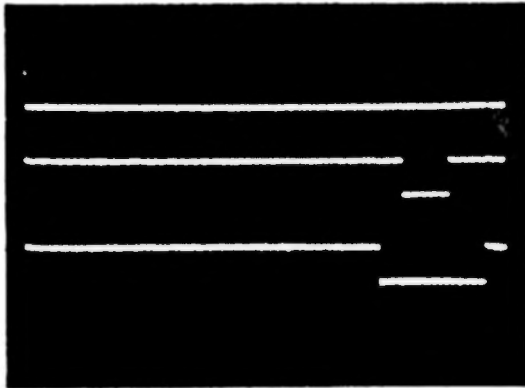
- 18. Horizontal Reset (U46-2,12)
- 19. 8H (U46-3)
- 20. 16H (U46-4)
- 21. 32H (U46-5)



- 22. Horizontal Reset (U46-2,12)
- 23. 64H (U46-6)
- 24. 128H (U46-11)
- 25. 256H (U46-10)

OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 18 THROUGH 28 (Cont'd.):



26. Horizontal Reset (U46-2,12)

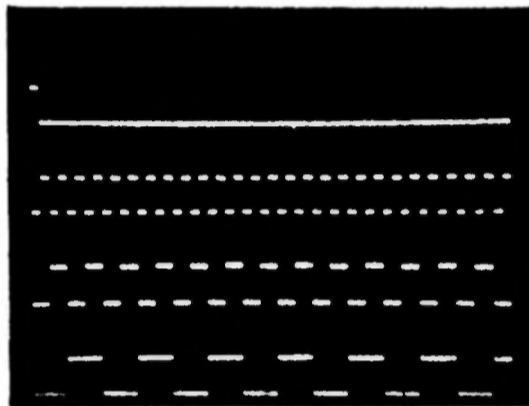
27. HSYNC (U36-8)

28. HBLANK (U47-1)

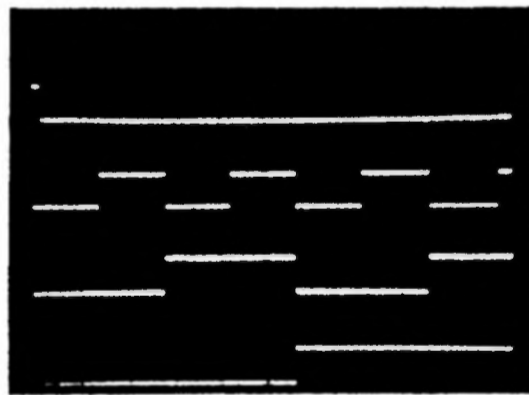
OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 29 THROUGH 43:

Signals 29 through 43 show the vertical timing chain waveforms. In these four photos, the top trace is VERTICAL RESET. Note that the horizontal time base for signals 29 through 36 is different than for 37 through 43. The time between vertical reset pulses should be about 16 milliseconds (last two photos).



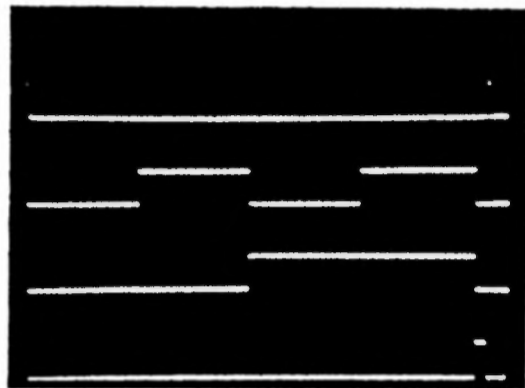
- 29. Vertical Reset (U49-2)
- 30. 1V (U49-3)
- 31. 2V (U49-4)
- 32. 4V (49-5)



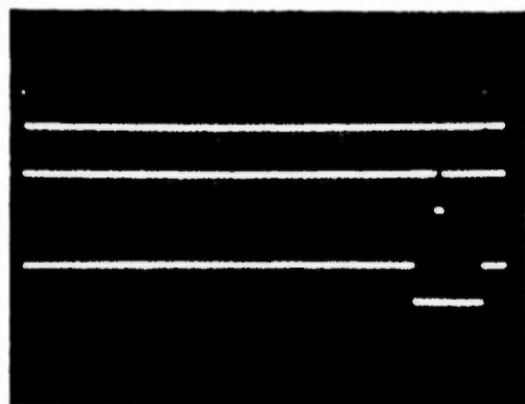
- 33. Vertical Reset (U49-2)
- 34. 8V (U49-6)
- 35. 16V (U49-11)
- 36. 32V (U49-10)

OPERATIONAL WAVE FORMS (Cont'd.):

SIGNALS 29 THROUGH 43 (Cont'd.):

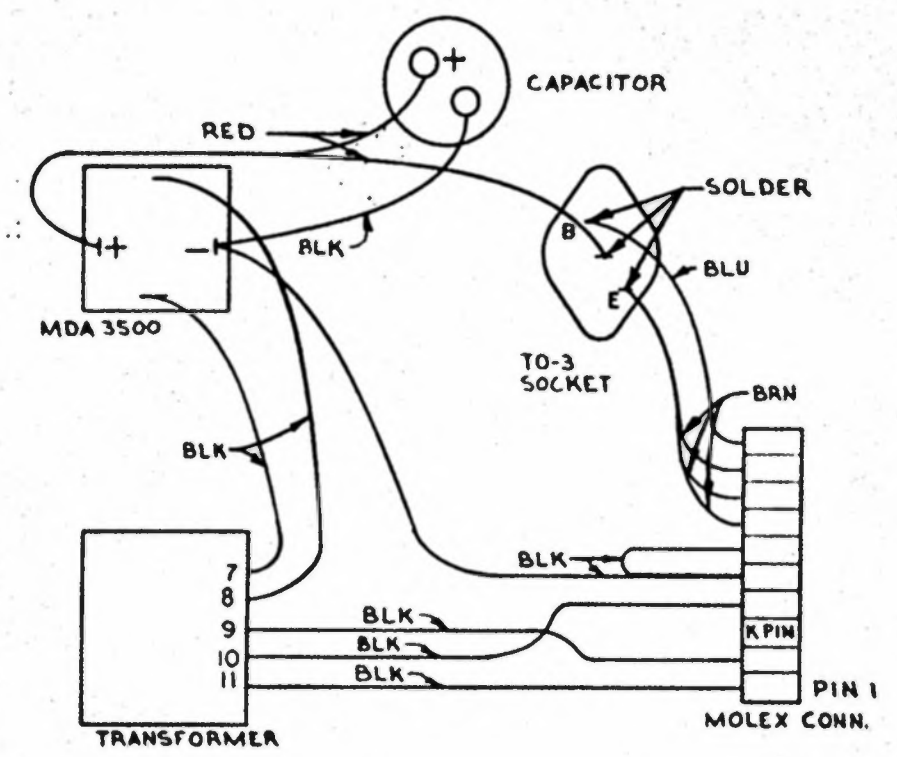
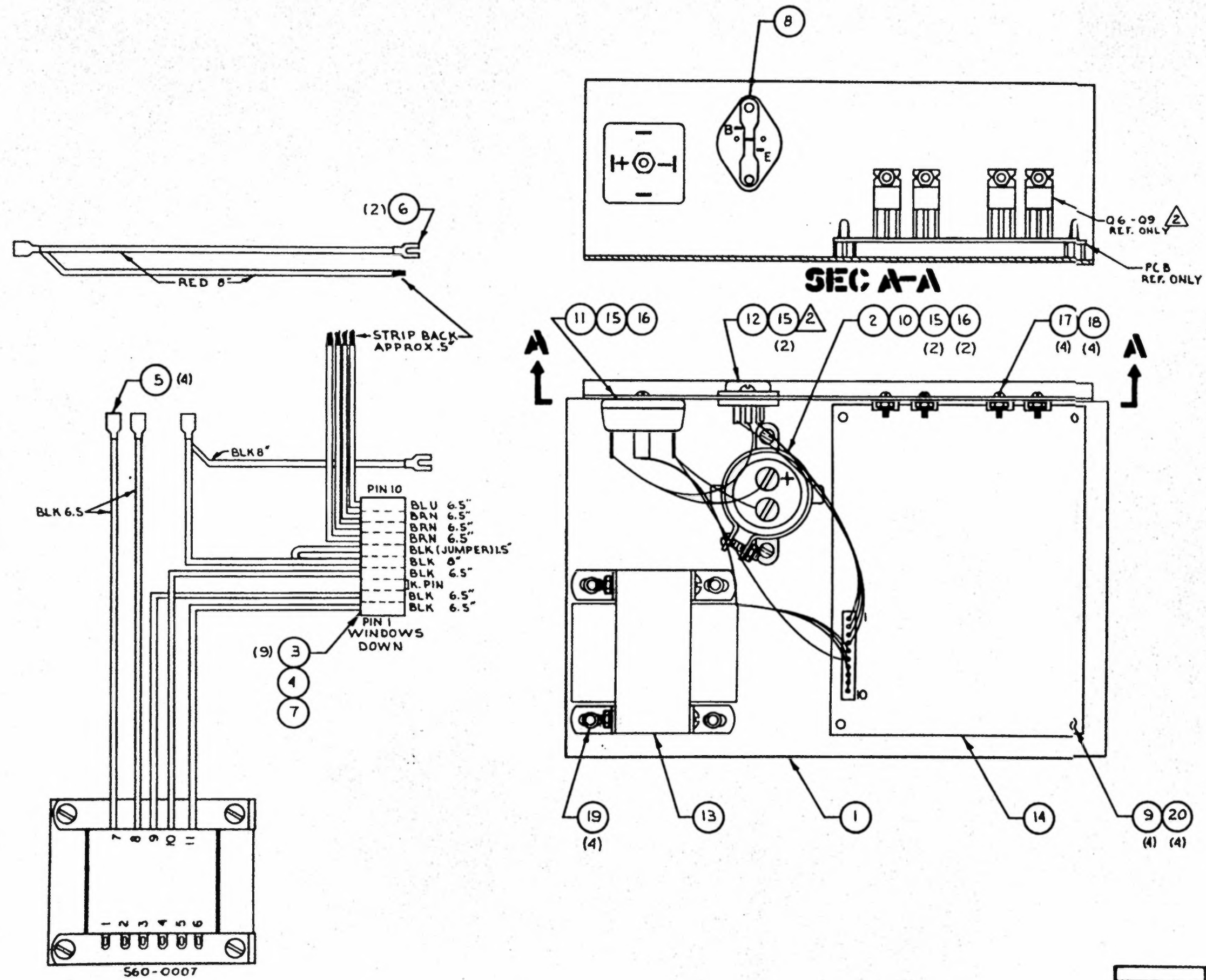


- 37. Vertical Reset (U49-2)
- 38. 64V (U49-9)
- 39. 128V (U49-8)
- 40. 256V (U60-5)



- 41. Vertical Reset (U49-2)
- 42. VSYNC (U47-12)
- 43. VBLANK (U48-5)

REVISIONS			
ZONE	LTN	DESCRIPTION	DATE
		INITIAL RELEASE	8-1-77



WIRING DIAGRAM

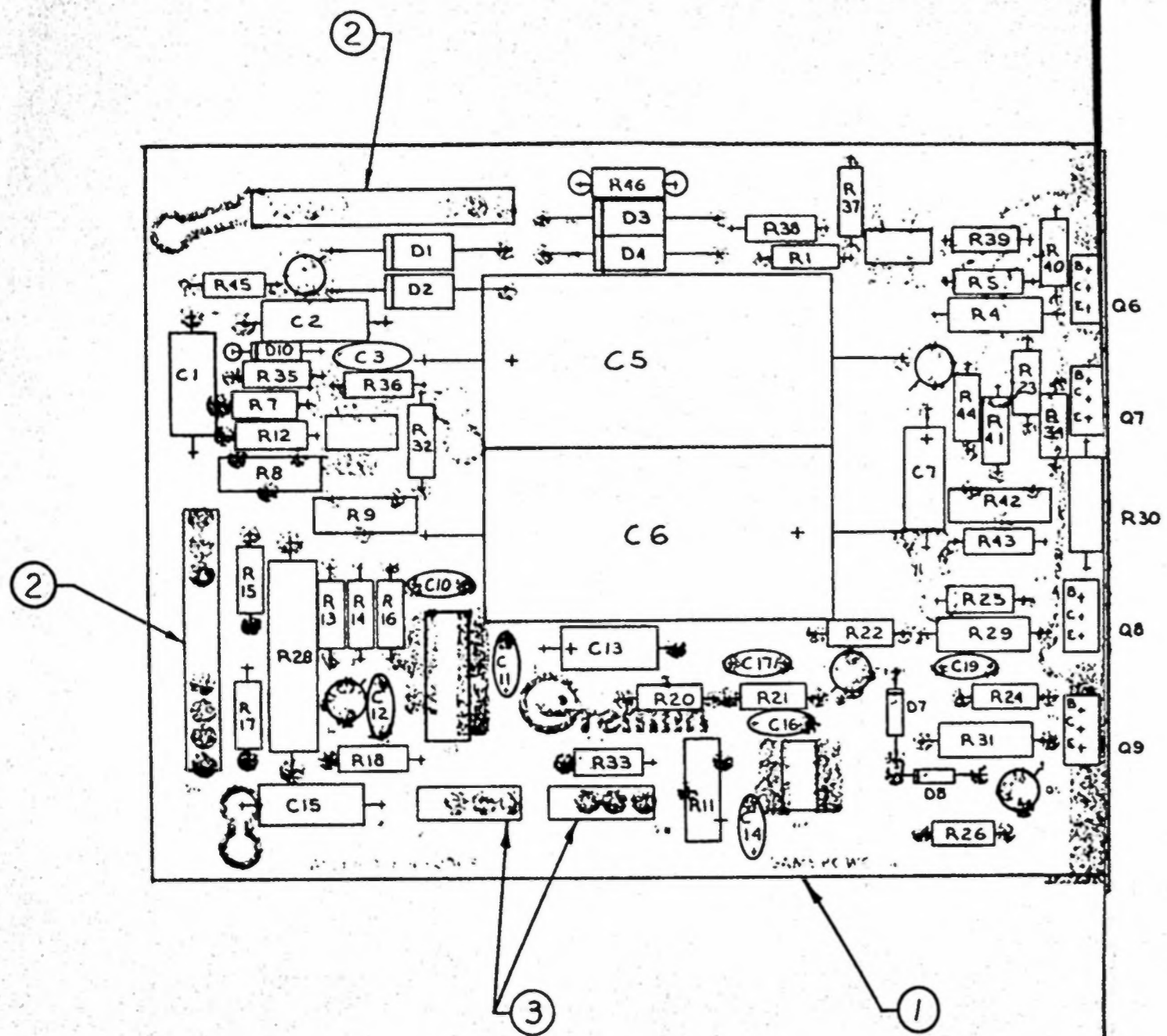
⚠ ALL POWER TRANSISTORS TO BE MOUNTED WITH HEAT SINKING PASTE & INSULATING HARDWARE
 1. ALL NON TRANSFORMER WIRE TO BE AWG #22
 NOTES: UNLESS OTHERWISE SPECIFIED

SEE DETACHED PARTS LIST 814-0005			
QTY	CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	
±	.XX ±	±	
	.XXX ±		
MATERIAL		APPROVALS	DATE
		DRAWN	1-27-77
		CHECKED	
		RELEASED	8-1-77
714-0001 DEPTH CHARGE		SIZE	CODE IDENT NO. DRAWING NO. REV
NEXT ASBY USED ON		D	814-0005 A
APPLICATION		SCALE 1/11	SHEET 3 OF 3
DO NOT SCALE DRAWING			

Greenix Industries, Inc.
 San Diego, California 92128

ASSY
 POWER SUPPLY

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

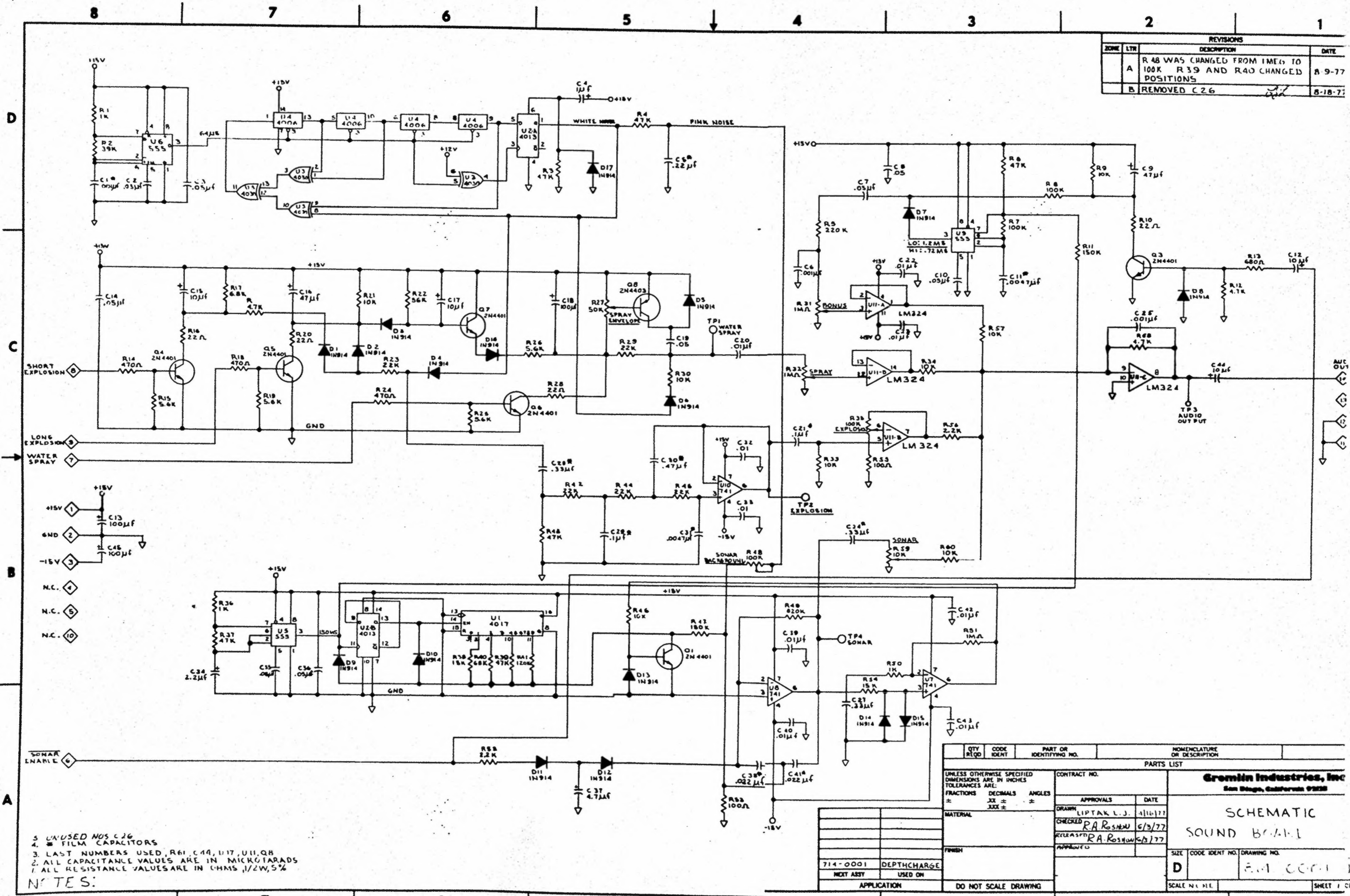


QTY	CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NUMBER
2		482-0016	XISTOR TIP 29	Q8, Q9
1		482-0015	XISTOR TIP 115	Q7
2		482-0014	XISTOR 2N4401	Q2, Q5
1		482-0013	XISTOR TIP 110	Q6
3		482-0006	XISTOR 2N4403	Q1, Q3, Q4
1		441-0008	DIODE ZENER 1N5271	D10
2		481-0006	DIODE 1N914	D8, D7
4		481-0004	DIODE, MRS01	D-D4
2		475-0005	POT 2K TRIMMER	R8, R42
1		475-0004	POT 1K TRIMMER	R9
1		475-0001	POT. CER. 10K	R11
1		473-00R1	RES 0.1Ω SW 3%	R28
4		472-00R5	RES 0.5Ω 1W 5%	R4, R29-R31
2		471-0562	RES 5.6K 1/2W 5%	R7, R12
2		471-0473	RES 47K 1/2W 5%	R44, R45
2		471-0471	RES 470Ω 1/2W 5%	R34, R40
1		471-0332	RES 3.3K 1/2W 5%	R32
4		471-0272	RES 2.7K 1/2W 5%	R25, R26, R43, R46
2		471-0152	RES 1.5K 1/2W 5%	R13, R16
1		471-0122	RES 1.2K 1/2W 5%	R18
1		471-0104	RES 100K 1/2W 5%	R33
5		471-0103	RES 10K 1/2W 5%	R1, R14, R21, R37, R41
10		471-0102	RES 1K 1/2W 5%	R5, R17, R20, R22-R24, R35, R36, R38, R39
1		471-0101	RES 100Ω 1/2W 5%	R15
3		313-0004	I.C. LM741EN	U1, U2, U4
1		313-0001	I.C. LM723	U3
2		212-0004	CONN. MALE 4 PIN	3
2		212-0003	CONN. MALE 10 PIN	2
5		153-0001	CAP. TANT. 10μF 25V	C1, C2, C7, C13, C15
1		151-0012	CAP. CER. 100pF 50V	C3
3		151-0011	CAP. CER. 0.01μF 50V	C12, C14, C16
1		151-0008	CAP. CER. 0.01μF 50V	C10
2		151-0002	CAP. CER. 100pF 50V	C17, C19
1		151-0001	CAP. CER. 0.05μF 50V	C11
2		150-0019	CAP. E 4700μF 25V	C5, C6
1		170-0082	PCB	1

2. ALL CAPACITANCE VALUES ARE IN MICRO/μAD UNLESS OTHERWISE SPECIFIED
 1. ALL RESISTANCE VALUES ARE IN OHMS 1/2W 5% UNLESS OTHERWISE SPECIFIED (K=1000)
 TES.

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NUMBER
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
±	.XX ±	±	DRAWN	5-21-77
	.XXX ±		CHECKED	6-1-77
			RELEASED	6-1-77
			APPROVED	
MATERIAL			Gremlin Industries, Inc. San Diego, California 92133	
FINISH			PARTS OVERLAY GAME POWER SUPPLY	
714-0001	DEPTH CHARGE		SIZE	CODE IDENT NO. DRAWING NO.
NEXT ASSY	USED ON		D	814-0003
APPLICATION			SCALE 2 X 1	SHEET 1 OF 1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
A		R 48 WAS CHANGED FROM 1ME TO 100K R 39 AND R 40 CHANGED POSITIONS	8-9-77
B		REMOVED C 26	8-18-77



NOTES:
 1. ALL RESISTANCE VALUES ARE IN OHMS, 1/2W, 5%
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS
 3. LAST NUMBERS USED, R61, C44, U17, U11, Q8
 4. FILM CAPACITORS
 5. UNUSED NOS C 26

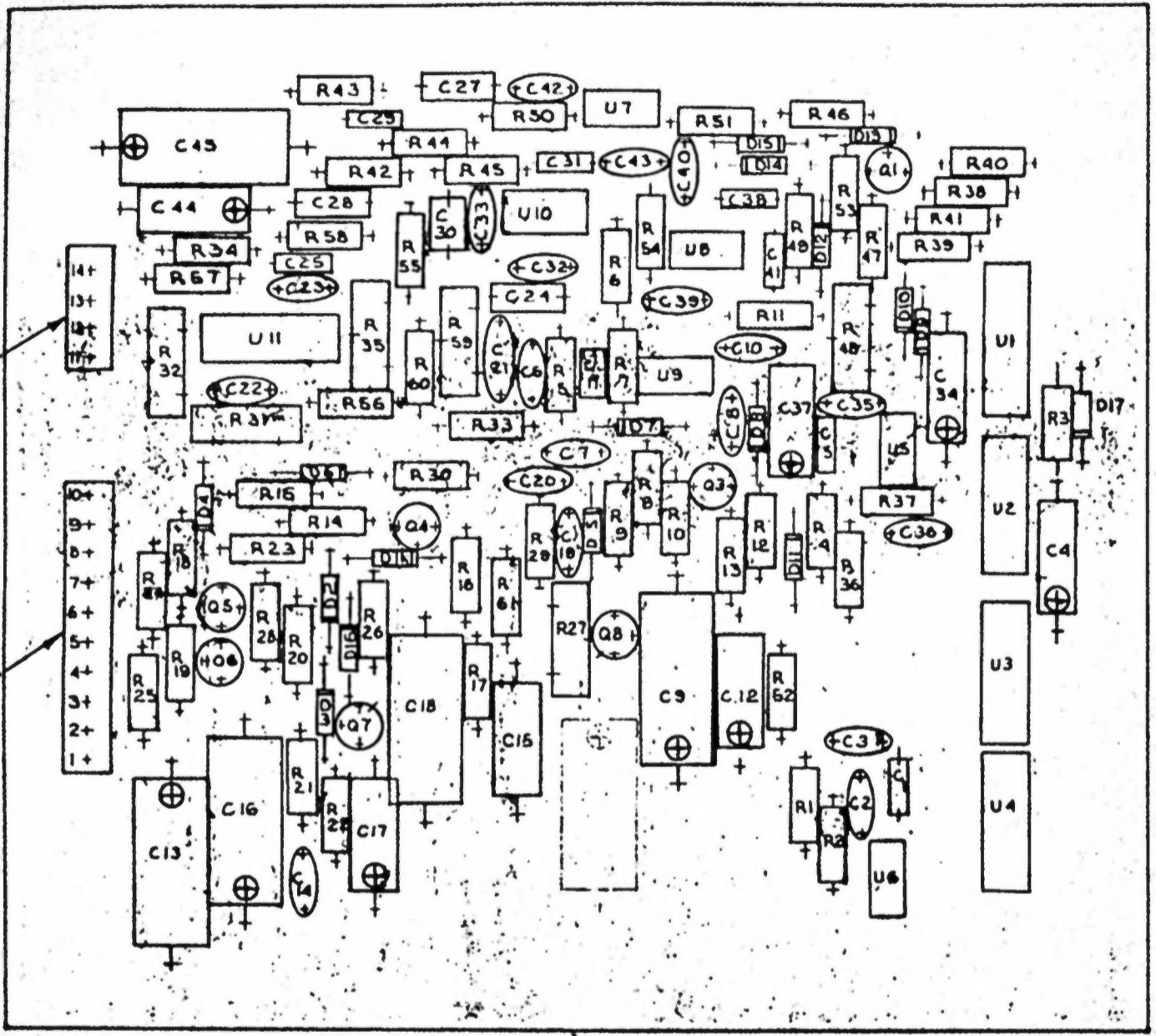
QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .010 ± .005 ± .001 ±			
CONTRACT NO.		APPROVALS	
DRAWN LIPTAK L.J.		DATE 11/16/77	
CHECKED R.A. ROSS		DATE 6/13/77	
RELEASED R.A. ROSS		DATE 6/13/77	
MATERIAL		FINISH	
714-0001 DEPTHCHARGE		DO NOT SCALE DRAWING	
NEXT ASSY USED ON		SCALE N.O. I.L.	
APPLICATION		SHEET 1 OF 1	

Gremm Industries, Inc
 San Diego, California 92128

SCHEMATIC
SOUND BRAIN

SIZE CODE IDENT NO. DRAWING NO.
D **5.01 0001**

8 7 6 5 4



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

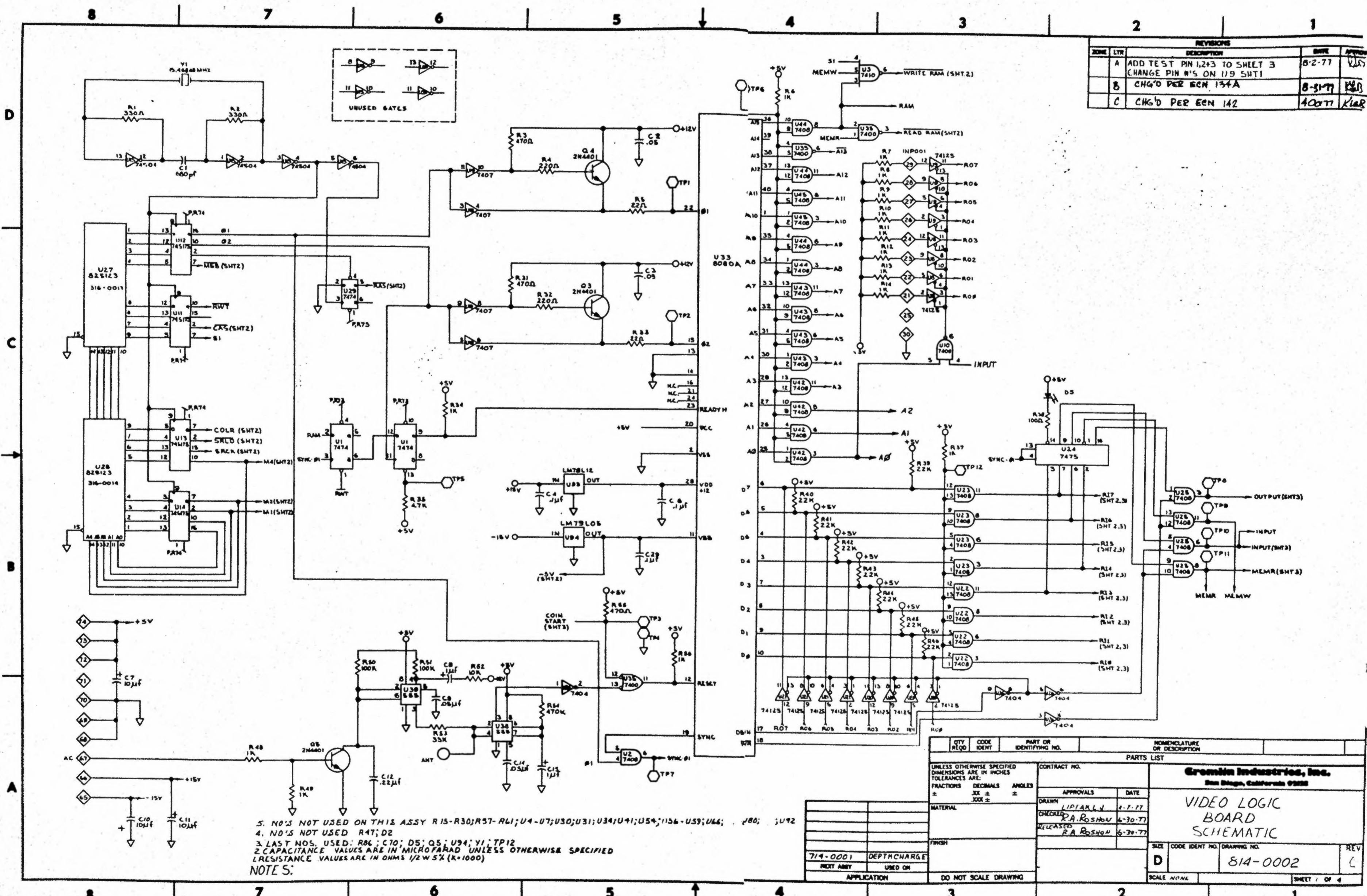
1	152-0020	CAP. F. 17µF 100V	C 30
2	151-0008	CAP. F. 0.001µF 50V	C6, C25
1	212-0004	CONN. MALE 4PIN	3
1	212-0003	CONN. MALE 10PIN	2
1	315-0028	IC. 4006	U4
1	315-0027	IC. 4030	U3
1	315-0006	IC. 4017	U1
1	315-0005	IC. 4013	U2
3	315-0004	IC. LM 741	U8, U7, U10
1	315-0008	IC. LM 324	U11
3	34-0001	IC. NE 555	U5, U6, U9
6	482-0014	XISTOR 2N4401	Q1, Q3, Q7
1	482-0006	XISTOR 2N4403	Q8
17	481-0006	DIODES 1N914	D1-D17
1	415-0008	POT 50K TRIMMER	R27
2	415-0006	POT 100K TRIMMER	R35, R48
1	415-0001	POT 10K TRIMMER	R59
2	415-0002	POT 1MΩ TRIMMER	R31, R32
1	471-0393	RES. 39K 1/2W 5%	R2
2	471-0101	RES. 100Ω 1/2W 5%	R53, R55
2	471-0222	RES. 2.2K 1/2W 5%	R52, R56
1	471-0824	RES. 820K 1/2W 5%	R49
1	471-0124	RES. 120K 1/2W 5%	R41
1	471-0683	RES. 68K 1/2W 5%	R40
2	471-0153	RES. 15K 1/2W 5%	R38, R54
3	471-0471	RES. 470Ω 1/2W 5%	R24, R14, R18
1	471-0563	RES. 56K 1/2W 5%	R22
1	471-0682	RES. 68K 1/2W 5%	R17
3	471-0220	RES. 22Ω 1/2W 5%	R16, R20, R28
4	471-0562	RES. 56K 1/2W 5%	R18, R19, R25, R26
1	471-0105	RES. 10K 1/2W 5%	R51
1	471-0681	RES. 680Ω 1/2W 5%	R13
3	471-0472	RES. 47K 1/2W 5%	R12, R58, R61
2	471-0154	RES. 150K 1/2W 5%	R11, R47
6	471-0223	RES. 22K 1/2W 5%	R10, R23, R29, R42, R44, R45
8	471-0103	RES. 10K 1/2W 5%	R9, R21, R30, R33, R34, R46, R57, R60
2	471-0104	RES. 100K 1/2W 5%	R7, R8
1	471-0224	RES. 220K 1/2W 5%	R5
6	471-0473	RES. 47K 1/2W 5%	R3, R4, R6, R37, R38, R43
3	471-0102	RES. 1K 1/2W 5%	R1, R36, R50
1	153-0004	CAP. TANT. 4.7µF 25V	C37
1	153-0002	CAP. TANT. 1µF 25V	C4
3	151-0011	CAP. CER. 0.1µF 50V	C20, C22, C23, C32, C33, C39, C40, C42, C43
3	152-0017	CAP. F. 33µF 100V	C24, C27, C28
3	152-0007	CAP. F. 0.001µF 250V	C1
2	152-0006	CAP. F. 0.022µF 100V	C38, C41
2	152-0005	CAP. F. 0.0047µF 50V	C11, C31
1	152-0002	CAP. F. 2.2µF 100V	C5
2	152-0001	CAP. F. 1µF 100V	C21, C29
3	151-0001	CAP. CER. 0.05µF 50V	C2, C3, C7, C8, C10, C14, C19, C35, C36
1	153-0003	CAP. TANT. 2.2µF 25V	C34
4	150-0013	CAP. E. 100µF 25V	C13, C45, C18
2	150-0012	CAP. E. 47µF 25V	C9, C16
4	153-0001	CAP. TANT. 10µF 25V	C12, C15, C17, C44
1	110-0081	PCB	1

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NUMBER
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	
±	±	±	DATE	
MATERIAL		DRAWN LIPTAK L.J. 5-9-77		
FINISH		CHECKED R.A. RUSHLOW 6-3-77		
714-0001 DEPTH CHARGE		SIZE CODE IDENT NO. DRAWING NO. REV		
NEXT ASSY USED ON		D 814-0001 B		
APPLICATION		SCALE NONE SHEET 2 OF 2		

NOTES:

8 7 6 5 4

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
A		ADD TEST PIN 1,2,3 TO SHEET 3 CHANGE PIN #'S ON U19 SHT1	8-2-77
B		CHG'D PER ECM 134A	8-31-77
C		CHG'D PER ECM 142	10-27-77



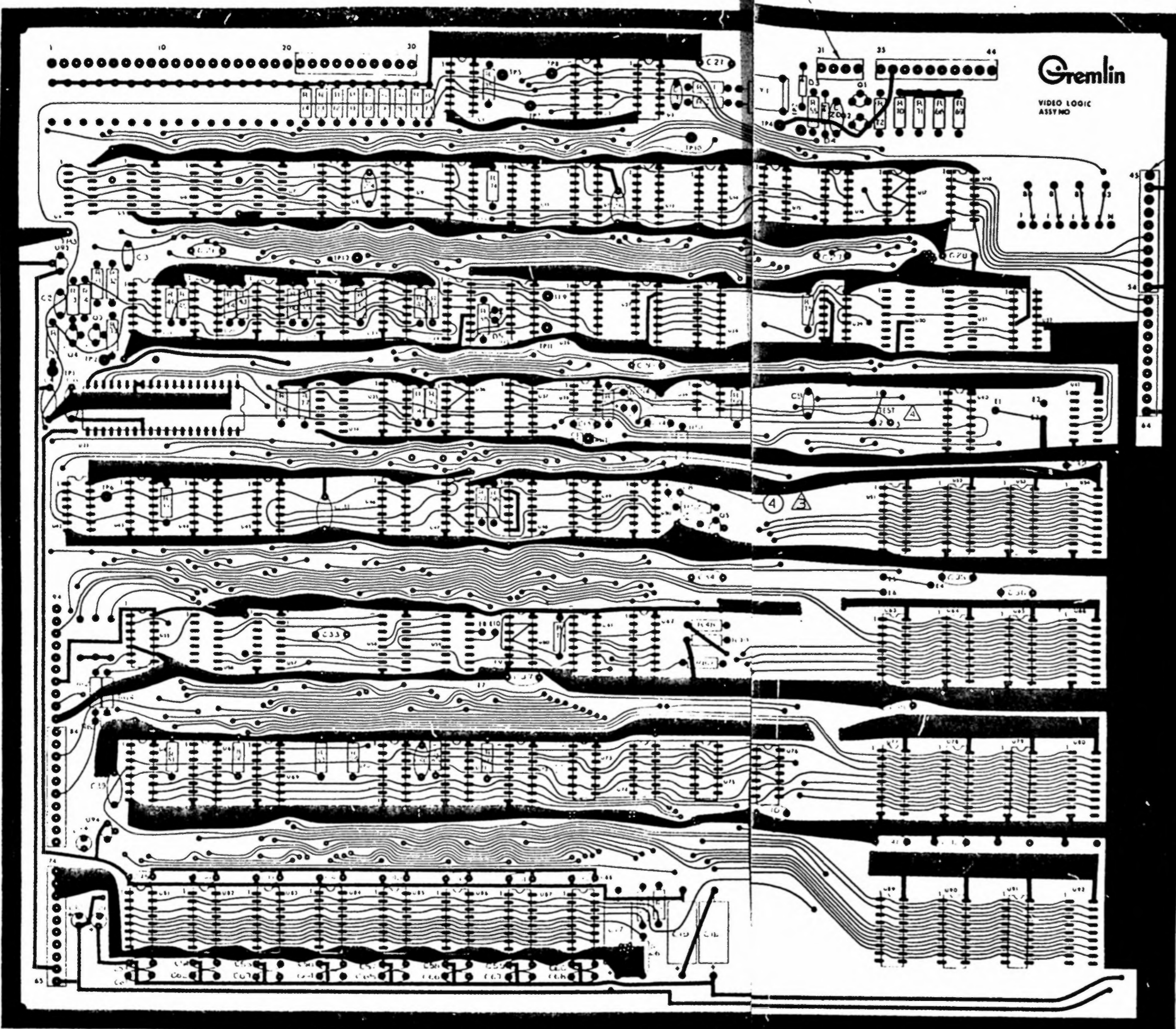
5. NO'S NOT USED ON THIS ASSY R15-R30; R57-R61; U4-U7; U30; U31; U34; U41; U54; 1156-U59; U66; J80; U92
 4. NO'S NOT USED R47; D2
 3. LAST NOS. USED: R86; C70; D5; Q5; U94; Y1; TP12
 2. CAPACITANCE VALUES ARE IN MICROFARAD UNLESS OTHERWISE SPECIFIED
 1. RESISTANCE VALUES ARE IN OHMS 1/2 W 5% (K=1000)
 NOTE 5:

QTY REQD		CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:				
FRACTIONS	DECIMALS	ANGLES		
±	.XX ±	±		
CONTRACT NO.				
APPROVALS				
DRAWN		DATE		
CHECKED		6-30-77		
RELEASED		6-30-77		
MATERIAL				
FINISH				
719-0001 DEPTH CHARGE				
NEXT ASSY USED ON				
APPLICATION				
DO NOT SCALE DRAWING				
SIZE	CODE IDENT NO.	DRAWING NO.	REV	
D		814-0002	C	
SCALE NONE				
SHEET 1 OF 4				

Gremm Industries, Inc.
 San Diego, California 92108

VIDEO LOGIC BOARD SCHEMATIC

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED

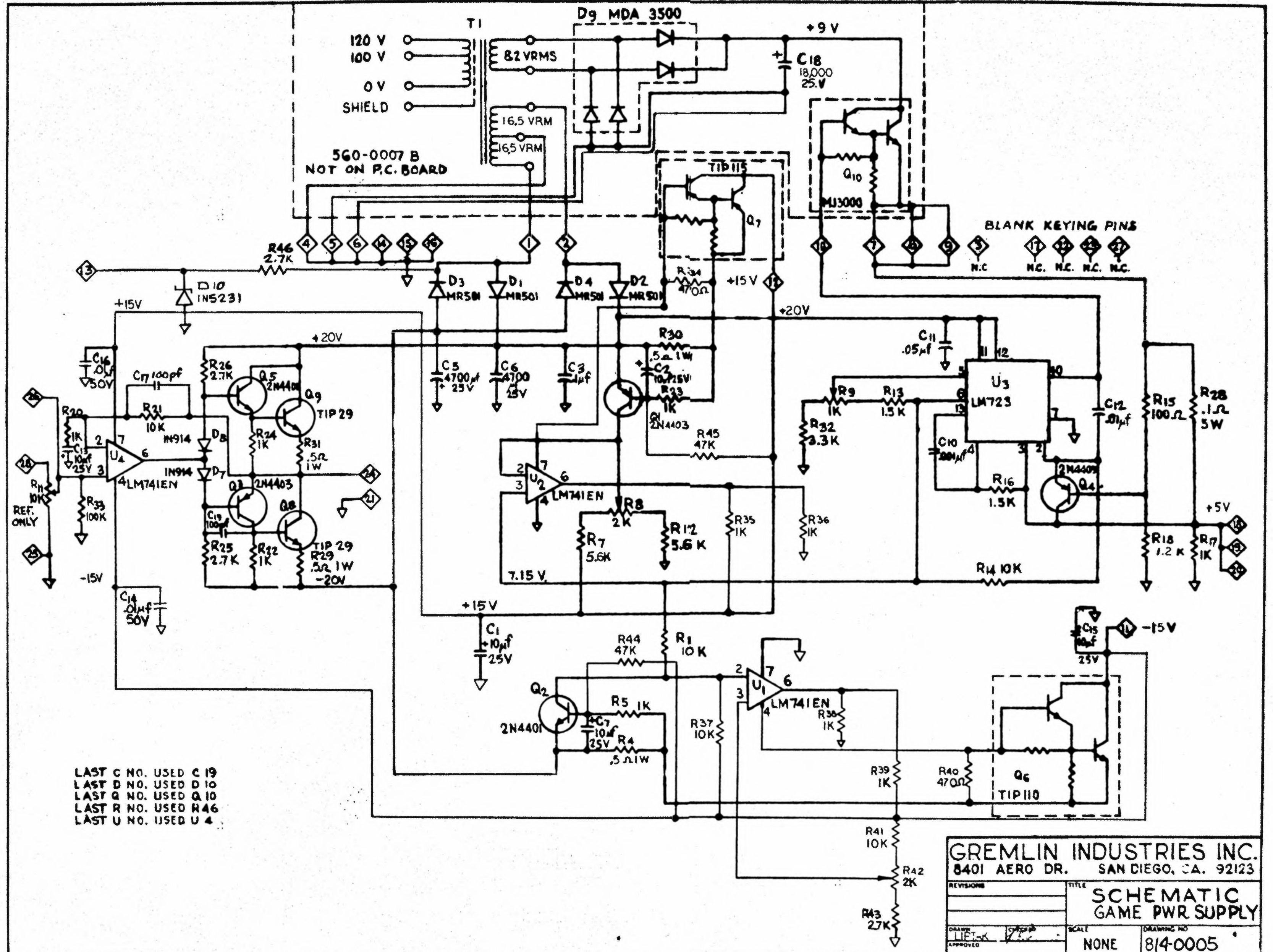


② (6 PLCS)

QTY	PART NUMBER	DESCRIPTION	ITEM NUMBER
2	215-0004	SOCKET	XU77, XU78
12	215-0007	SOCKET	XU79, XU80, XU81, XU82, XU83, XU84, XU85
4	482-0014	RESISTOR 2W400	XU86, XU87
1	482-0010	RESISTOR 1W600	U1, U3, U7
1	481-0006	DIODE 1N914	D4
1	481-0001	DIODE 1N4002	D5
1	471-0474	RES 470K 1/2W 5%	R54
1	471-0472	RES 47K 1/2W 5%	R55
1	471-0111	RES 330A 1/2W 5%	R3, R31, R53
1	471-0112	RES 33A 1/2W 5%	R53
1	471-0117	RES 110A 1/2W 5%	R17, R67, R68, R67
1	471-0223	RES 220 1/2W 5%	R19, R40
2	471-0221	RES 220A 1/2W 5%	R4, R12
2	471-0220	RES 220K 1/2W 5%	R5, R33
1	471-0104	RES 100K 1/2W 5%	R50, R51
1	471-0103	RES 10K 1/2W 5%	R52, R51, R58
12	471-0102	RES 1K 1/2W 5%	R6, R10, R34, R37, R48, R49, R56
1	471-0101	RES 100A 1/2W 5%	R4, R49, R16, R17, R40, R44
1	516-0049	PROM D/C U41	U41
1	390-0003	LFO RFD	OS
1	316-0048	PROM D/C U74	U74
1	316-0031	PROM D/C U90	U90
1	316-0030	PROM D/C U49	U49
1	316-0029	PROM D/C U10	U10
1	316-0028	PROM D/C U77	U77
1	316-0027	PROM D/C U65	U65
1	316-0026	PROM D/C U64	U64
1	316-0025	PROM D/C U63	U63
1	316-0024	PROM D/C U53	U53
1	316-0023	PROM D/C U52	U52
1	316-0022	PROM D/C U51	U51
1	316-0014	PROM L3 12 18	U28
1	316-0013	PROM L01 12 18	U17
1	316-0012	MINI-DIN 10 PIN 15	U41, U44
1	315-0014	IC 8008A CPU	U1
4	314-0051	IC 74S175	U11, U14
1	314-0047	IC 74174	U61
1	314-0046	IC 74164	U75
1	314-0043	IC 74157	U19
1	314-0039	IC 74166	U62
1	314-0035	IC 74151	U17, U72
2	314-0030	IC 74159	U46, U49
1	314-0022	IC 7406	U55
2	314-0021	IC 7475	U24, U32
1	314-0020	IC 7410	U37
1	314-0018	IC 74125	U8, U10, U20, U21, U15, U16
3	314-0015	IC 7404	U18, U26, U47
10	314-0012	IC 7408	U12, U22, U25, U42, U45, U53, U74
1	314-0011	IC 7442	U40
2	314-0010	IC 7410	U3, U50
3	314-0009	IC 7400	U10, U16, U35
5	314-0006	IC 7474	U1, U2, U9, U36, U48, U60
2	314-0001	IC 7455	U38, U39
1	313-0017	IC LM191LS	U94
1	313-0016	IC LM191LS	U93
1	230-0009	ETAL 15 40000 MHZ	V1
1	212-0011	CONN FEMALE 2 PIN	O
1	212-0004	CONN MALE 4 PIN	O
1	212-0003	CONN MALE 10 PIN	O
1	211-0004	CONN MALE TEST PT	TP1-TP15, ANT
1	110-0003	P.C.B.	O
3	153-0001	CAP TANT 100UF 25V	C7, C10, C11
1	152-0002	CAP T 22 100V	C12
20	151-0013	CAP CER 100PF 50V	C4, C6, C15, C20, C44, C66, C70
1	151-0005	CAP CER 680PF 50V	C1
1	151-0001	CAP CER 0.5 100V 50V	C2, C3, C9, C14, C45 - C60
3	150-0012	CAP 47UF 25V	C17 - C19

▲ JUMPER TO BE ADDED AFTER FINAL TEST
 ▲ ANT. WIRE IS WGT. 12 22GA. CONNECTED TO P/M 212-0011
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS
 1. ALL RESISTANCE VALUES ARE IN OHMS 1/2W 5% (K-1000)
NOTES: UNLESS OTHERWISE SPECIFIED

APPROVALS		DATE	PARTS LIST	
			GREMLIN IND. INC. SAN DIEGO CALIFORNIA 92123	
			PARTS OVERLAY	
			VIDEO LOGIC	
			BOARD	
			SIZE	DRAWING NO.
			E	814-0002
			SCALE: 2:1	SHEET 4 OF 4

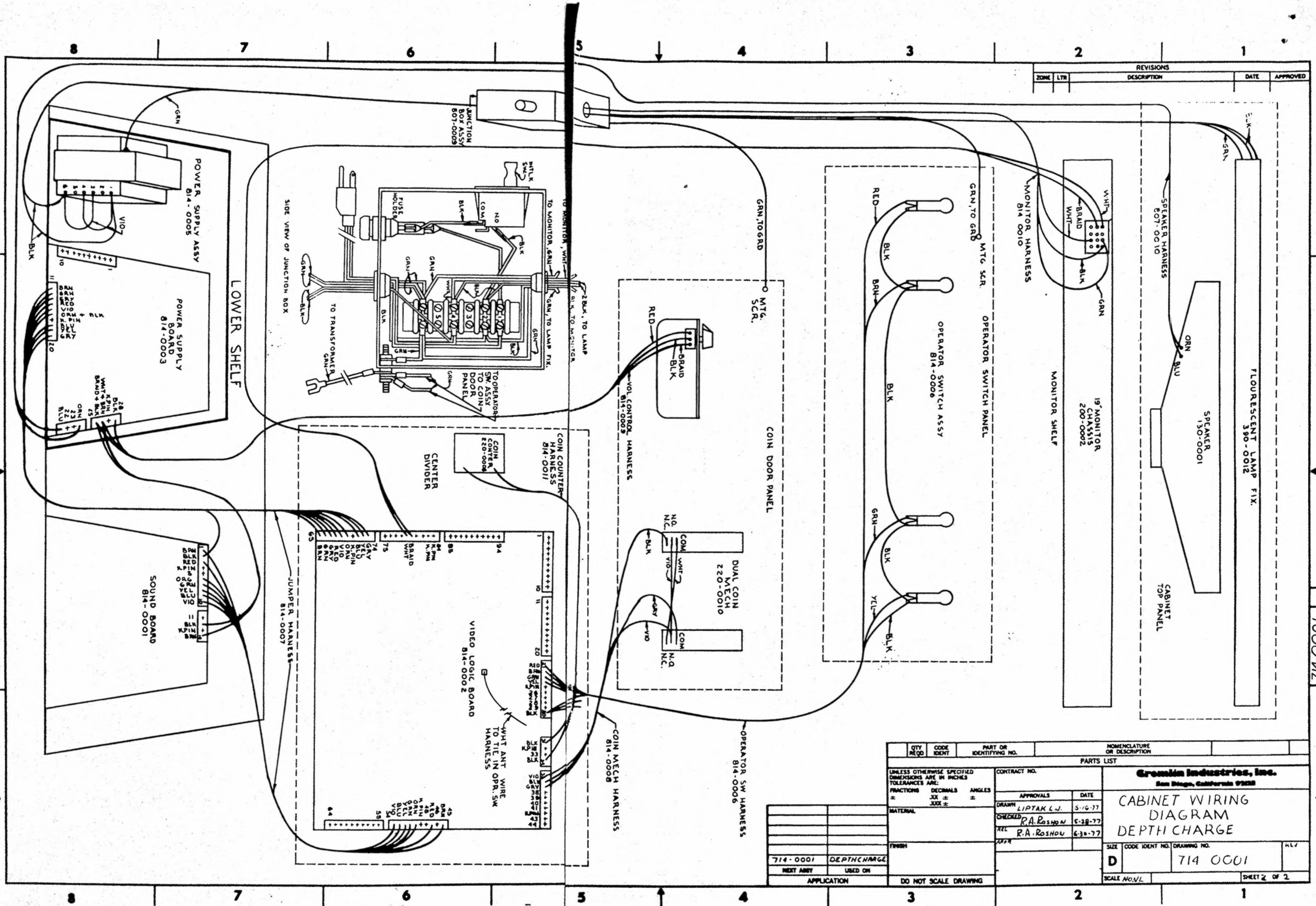


LAST C NO. USED C 19
 LAST D NO. USED D 10
 LAST Q NO. USED Q 10
 LAST R NO. USED R 46
 LAST U NO. USED U 4

GREMLIN INDUSTRIES INC.
 8401 AERO DR. SAN DIEGO, CA. 92123

REVISIONS	TITLE
	SCHEMATIC GAME PWR SUPPLY
DRAWN LIFT-K	SCALE
APPROVED	NONE
	DRAWING NO. 814-0005

ZONE		LTR		REVISIONS	DATE	APPROVED
				DESCRIPTION		



QTY REQD		CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
±	±	±	DRAWN LIPTAK L.J.	5-16-77
MATERIAL		CHECKED R.A. ROSHON		
		REL R.A. ROSHON		
		APP R.A. ROSHON		
		DATE 6-30-77		
FINISH		SIZE CODE IDENT NO. DRAWING NO.		
		D 714 0001		
APPLICATION		SCALE NO./VL		
DO NOT SCALE DRAWING		SHEET 2 OF 2		

714-0001