



DRAWING SET

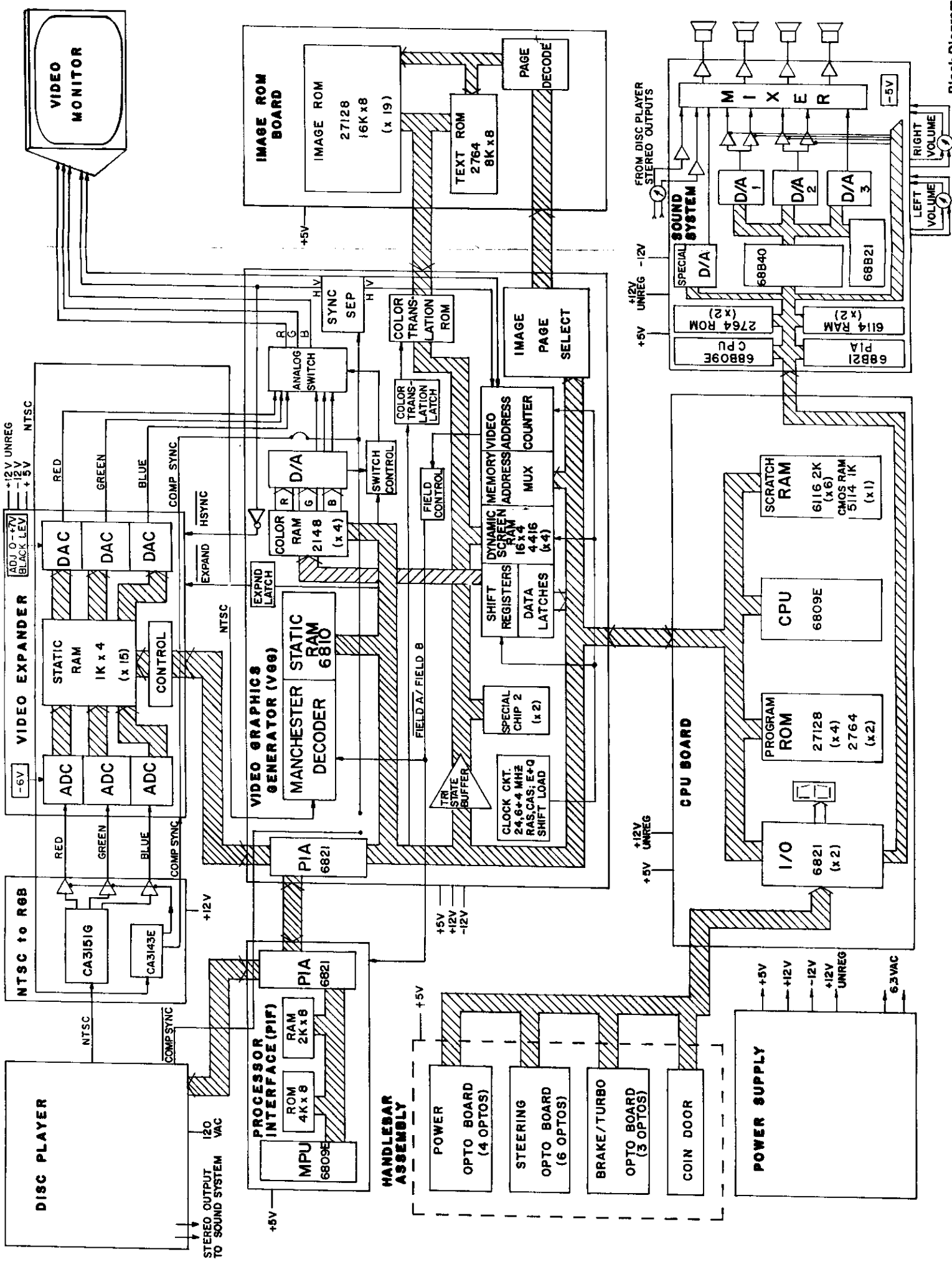
including ...

- block diagrams
- schematics
- assembly diagrams
- parts information

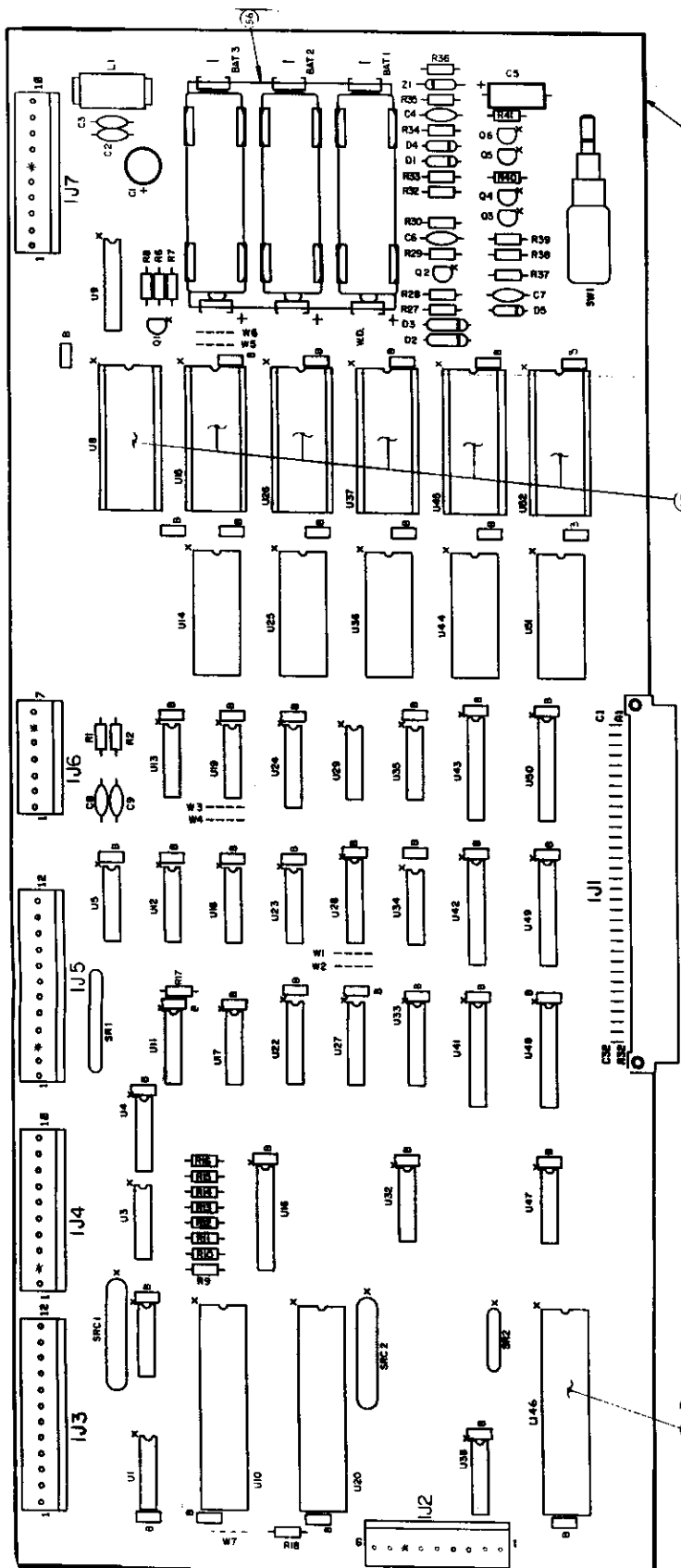
FOR SERVICE...
TOLL-FREE NUMBERS:
800-621-1253
IN ILLINOIS CALL:
800-572-1324

Williams 
ELECTRONICS, INC.
3401 N. California Av.
Chicago, IL 60618
(312) 267-2240

DISCAN SYSTEM BLOCK DIAGRAM



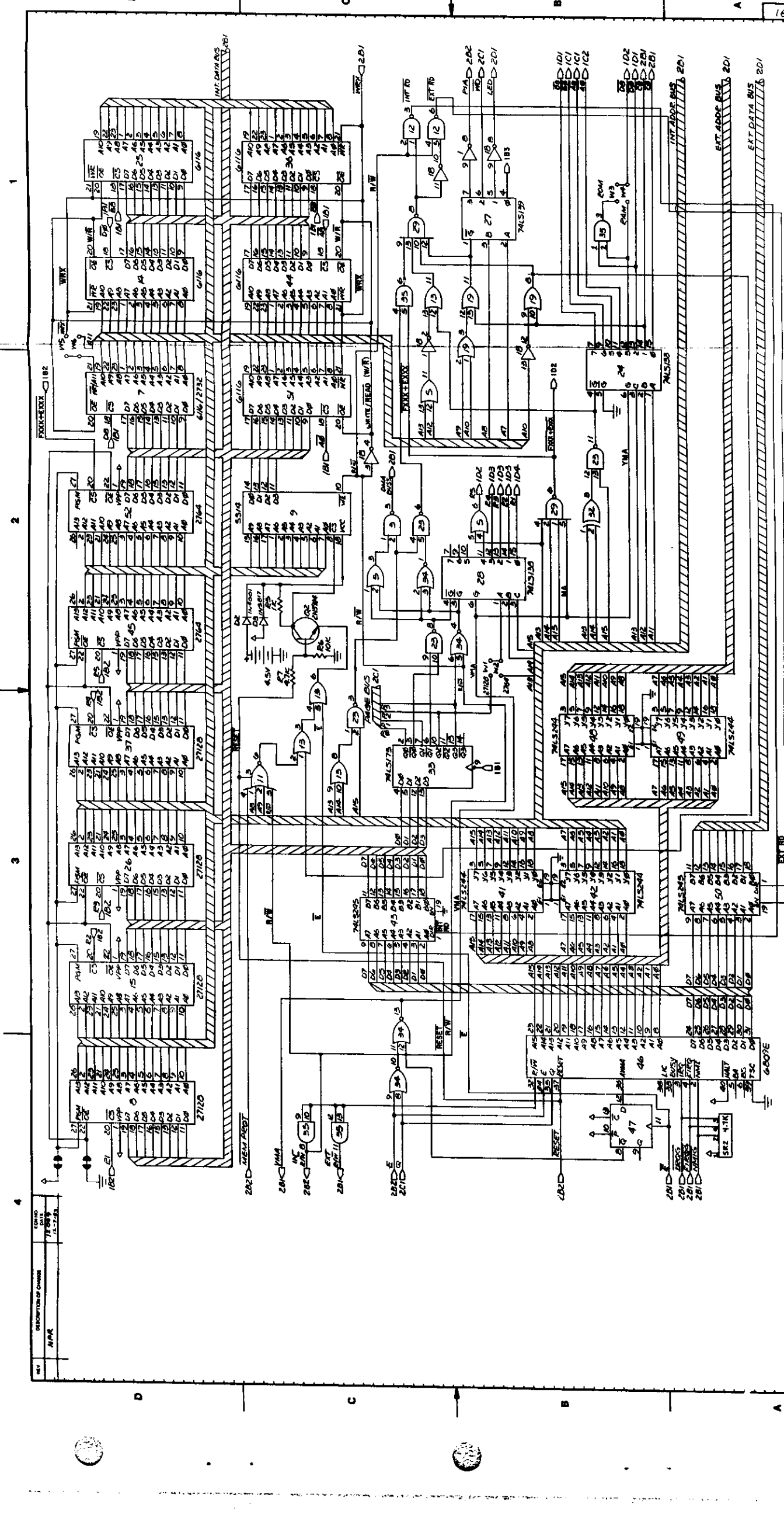
Block Diagram



NOTES: 1. 'B' INDICATES BIPASS CAPACITORS.
 2. '*' INDICATES PIN CUT FOR KEYING.
 3. 'X' INDICATES PIN 1 OR SWITCH (S)

NAME	STAR	REVISION	DATE
U1	A-2343-10021		
U2	A-2343-10021		
U3	A-2343-10021		
U4	A-2343-10021		
U5	A-2343-10021		
U6	A-2343-10021		
U7	A-2343-10021		
U8	A-2343-10021		
U9	A-2343-10021		
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U13	A-2343-10021		
U14	A-2343-10021		
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U16	A-2343-10021		
U17	A-2343-10021		
U18	A-2343-10021		

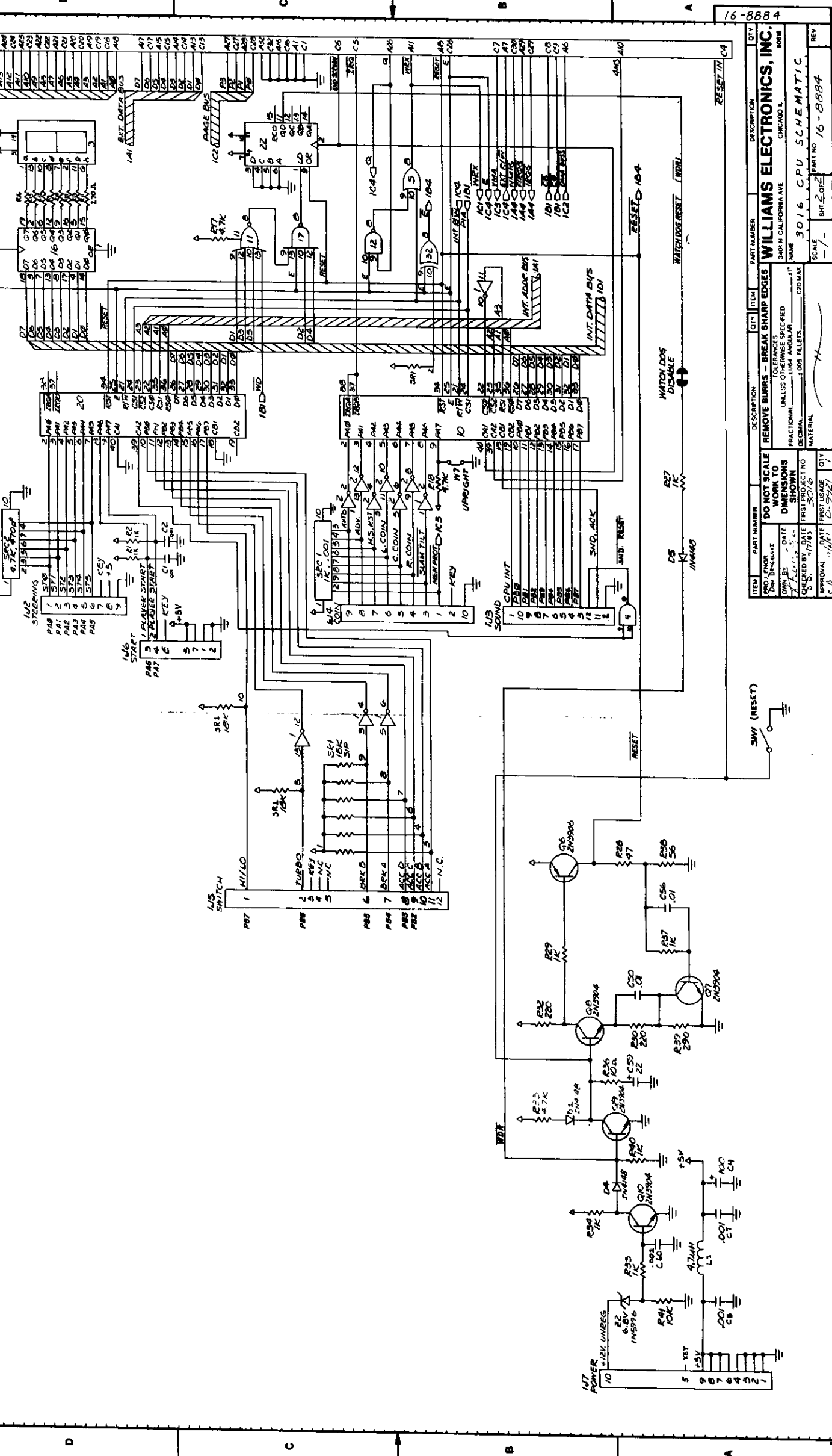
ITEM	PART NO.	DESCRIPTION	QTY.	UNIT	PART NO.	DESCRIPTION	QTY.	UNIT	PART NO.	DESCRIPTION
56	5700-00001-00	BATT. BASE, 1.5V AA, 1.5V	1	30	100003-00	RESISTOR, 250 OHM, 5%, 1/4 W	1	R35	RESISTOR, 250 OHM, 5%, 1/4 W	1
55	5700-00002-00	BATT. BASE, 1.5V AA, 1.5V	3	29	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	3	R36	RESISTOR, 250 OHM, 5%, 1/4 W	3
54	5700-00003-00	BATT. BASE, 1.5V AA, 1.5V	1	28	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	1	R37	RESISTOR, 250 OHM, 5%, 1/4 W	1
53	5700-00004-00	BATT. BASE, 1.5V AA, 1.5V	1	27	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	1	R38	RESISTOR, 250 OHM, 5%, 1/4 W	1
52	5700-00005-00	BATT. BASE, 1.5V AA, 1.5V	1	26	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	1	R39	RESISTOR, 250 OHM, 5%, 1/4 W	1
51	5700-00006-00	BATT. BASE, 1.5V AA, 1.5V	1	25	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	1	R40	RESISTOR, 250 OHM, 5%, 1/4 W	1
49	5700-00007-00	BATT. BASE, 1.5V AA, 1.5V	3	23	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	3	R41	RESISTOR, 250 OHM, 5%, 1/4 W	3
48	5700-00008-00	BATT. BASE, 1.5V AA, 1.5V	0	22	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R42	RESISTOR, 250 OHM, 5%, 1/4 W	0
47	5700-00009-00	BATT. BASE, 1.5V AA, 1.5V	0	21	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R43	RESISTOR, 250 OHM, 5%, 1/4 W	0
46	5700-00010-00	BATT. BASE, 1.5V AA, 1.5V	0	20	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R44	RESISTOR, 250 OHM, 5%, 1/4 W	0
45	5700-00011-00	BATT. BASE, 1.5V AA, 1.5V	0	19	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R45	RESISTOR, 250 OHM, 5%, 1/4 W	0
44	5700-00012-00	BATT. BASE, 1.5V AA, 1.5V	0	18	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R46	RESISTOR, 250 OHM, 5%, 1/4 W	0
43	5700-00013-00	BATT. BASE, 1.5V AA, 1.5V	0	17	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R47	RESISTOR, 250 OHM, 5%, 1/4 W	0
42	5700-00014-00	BATT. BASE, 1.5V AA, 1.5V	0	16	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R48	RESISTOR, 250 OHM, 5%, 1/4 W	0
41	5700-00015-00	BATT. BASE, 1.5V AA, 1.5V	0	15	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R49	RESISTOR, 250 OHM, 5%, 1/4 W	0
40	5700-00016-00	BATT. BASE, 1.5V AA, 1.5V	0	14	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R50	RESISTOR, 250 OHM, 5%, 1/4 W	0
39	5700-00017-00	BATT. BASE, 1.5V AA, 1.5V	0	13	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R51	RESISTOR, 250 OHM, 5%, 1/4 W	0
38	5700-00018-00	BATT. BASE, 1.5V AA, 1.5V	0	12	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R52	RESISTOR, 250 OHM, 5%, 1/4 W	0
37	5700-00019-00	BATT. BASE, 1.5V AA, 1.5V	0	11	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R53	RESISTOR, 250 OHM, 5%, 1/4 W	0
36	5700-00020-00	BATT. BASE, 1.5V AA, 1.5V	0	10	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R54	RESISTOR, 250 OHM, 5%, 1/4 W	0
35	5700-00021-00	BATT. BASE, 1.5V AA, 1.5V	0	9	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R55	RESISTOR, 250 OHM, 5%, 1/4 W	0
34	5700-00022-00	BATT. BASE, 1.5V AA, 1.5V	0	8	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R56	RESISTOR, 250 OHM, 5%, 1/4 W	0
33	5700-00023-00	BATT. BASE, 1.5V AA, 1.5V	0	7	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R57	RESISTOR, 250 OHM, 5%, 1/4 W	0
32	5700-00024-00	BATT. BASE, 1.5V AA, 1.5V	0	6	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R58	RESISTOR, 250 OHM, 5%, 1/4 W	0
31	5700-00025-00	BATT. BASE, 1.5V AA, 1.5V	0	5	501224-00	RESISTOR, 250 OHM, 5%, 1/4 W	0	R59	RESISTOR, 250 OHM, 5%, 1/4 W	0



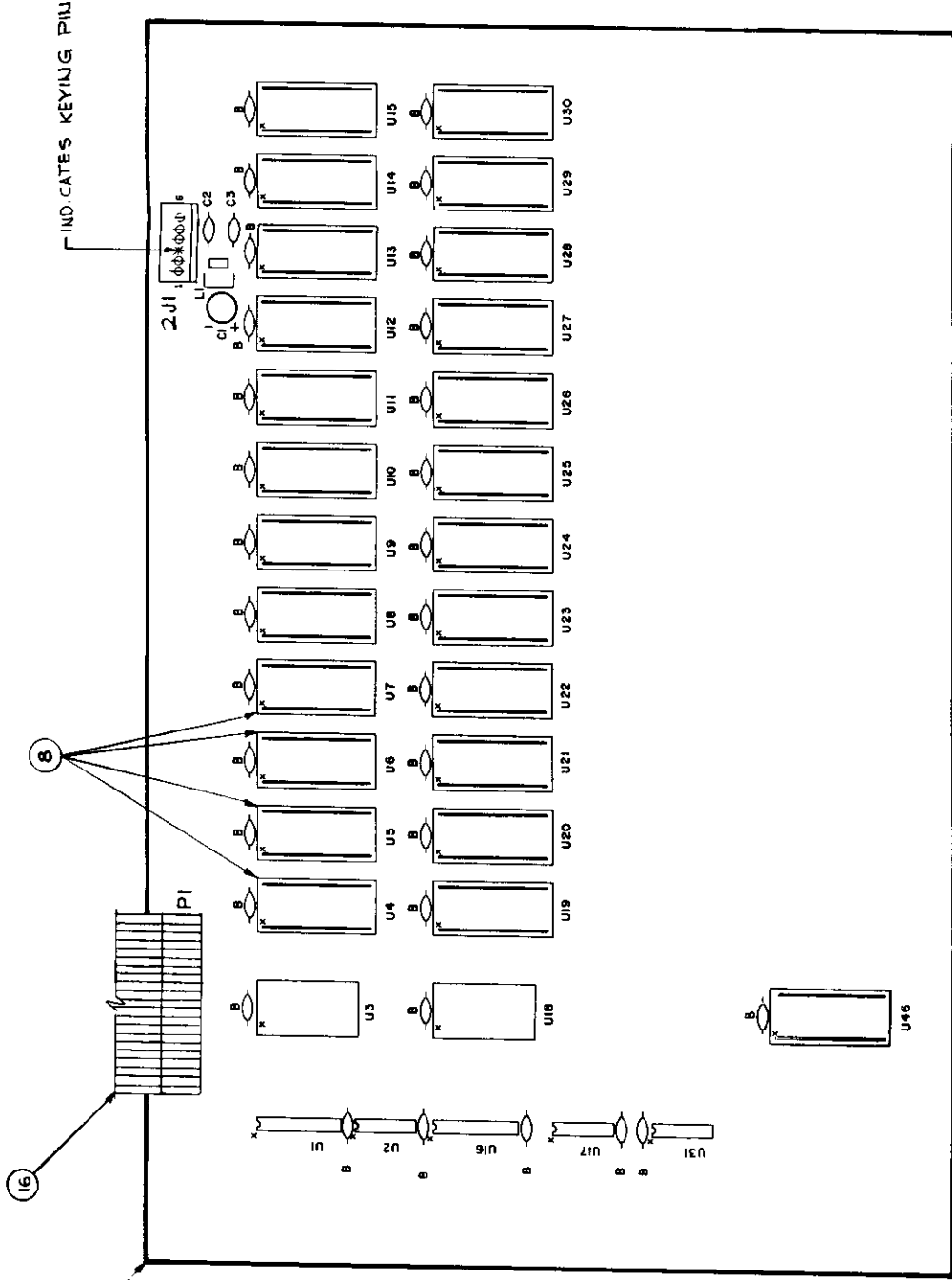
REV		DESCRIPTION OF CHANGE		DATE		BY	
1		M.P.R.		11-2-81		M.P.R.	
2		M.P.R.		11-2-81		M.P.R.	
3		M.P.R.		11-2-81		M.P.R.	
4		M.P.R.		11-2-81		M.P.R.	

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ ENGR	DOUG MYSALSKI	REMOVE BURRS - BREAK SHARP EDGES		PROJ ENGR	DOUG MYSALSKI	REMOVE BURRS - BREAK SHARP EDGES	
OWN BY	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED		OWN BY	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED	
CHECKED BY	DATE	FRACTIONAL 1/16 ANGRULAR 1°		CHECKED BY	DATE	FRACTIONAL 1/16 ANGRULAR 1°	
APPROVAL	DATE	DIMENSIONS SHOWN		APPROVAL	DATE	DIMENSIONS SHOWN	
		DECIMAL 1.00 PELLETS				DECIMAL 1.00 PELLETS	
		MATERIAL				MATERIAL	
		FIRST PROJECT NO				FIRST PROJECT NO	
		3016				3016	
		FIRST USAGE				FIRST USAGE	
		10-5-84				10-5-84	
		SCALE				SCALE	
		1/16				1/16	
		PART NO				PART NO	
		16-8884				16-8884	
		REV				REV	
		1				1	

REV	DESCRIPTION OF CHANGE	DATE	BY
		10/07/81	MLR



16-8884		DESCRIPTION	
WILLIAMS ELECTRONICS, INC.		CHICAGO, ILL.	
3016 CPU SCHEMATIC		PART NO. 16-8884	
SCALE		SHEET NO.	
DATE		QTY	
APPROVAL		DATE	
FIRST PROJECT NO.		DATE	
FIRST USAGE		DATE	
QUANTITY		DATE	
MATERIAL		DATE	
FRACTIONAL TOLERANCES SPECIFIED UNLESS OTHERWISE SPECIFIED		FRACTIONAL TOLERANCES SPECIFIED UNLESS OTHERWISE SPECIFIED	
DECIMAL TOLERANCES SPECIFIED UNLESS OTHERWISE SPECIFIED		DECIMAL TOLERANCES SPECIFIED UNLESS OTHERWISE SPECIFIED	
100S FILETS		100S FILETS	
REVISION		REVISION	

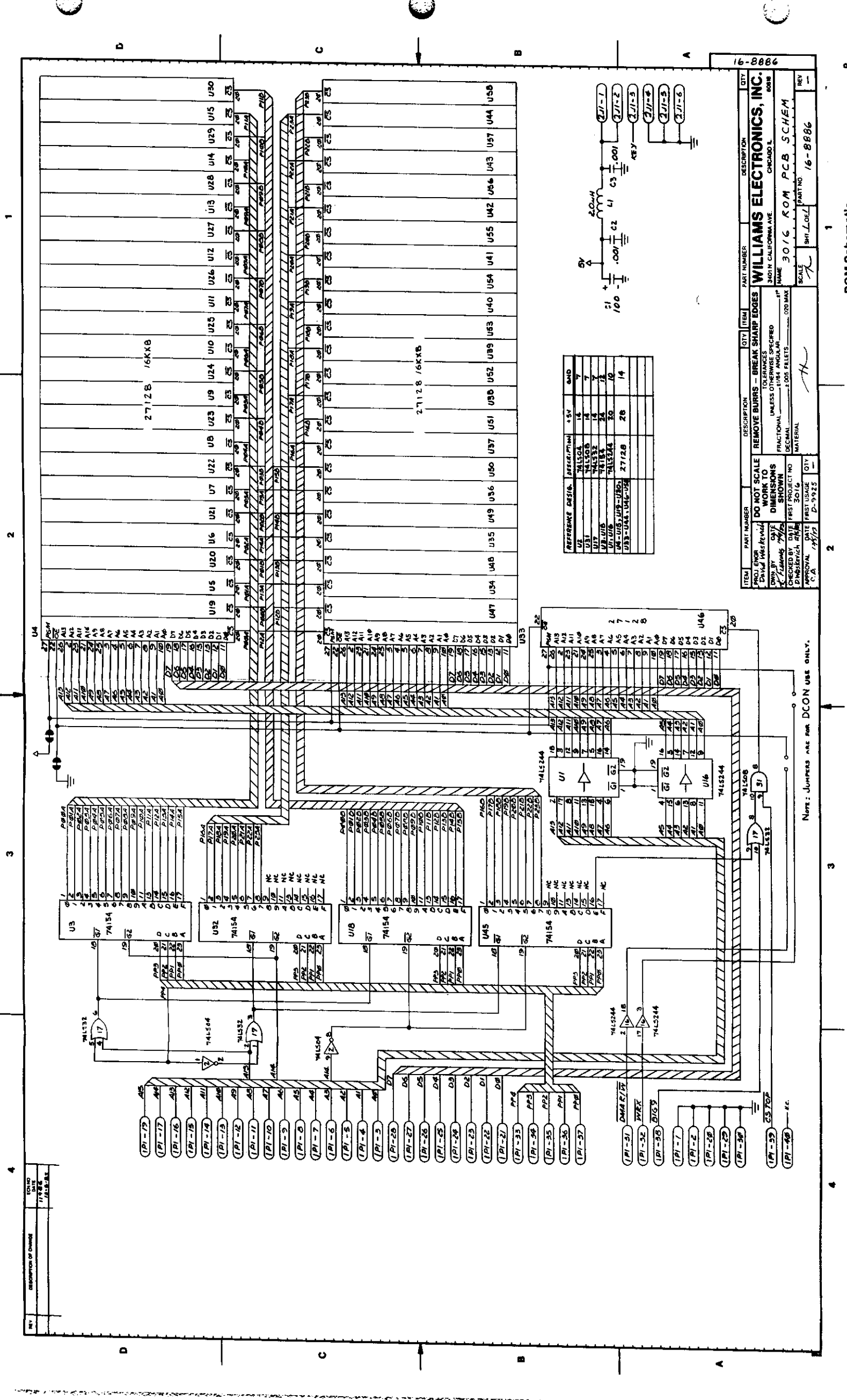


GAME NAME	STAR RIDER
ASSY NO.	D-9926
U4	A-5341-10607
U5	A-5341-10609
U6	A-5341-10611
U7	A-5341-10613
U8	A-5341-10615
U9	A-5341-10617
U10	A-5341-10619
U11	A-5341-10621
U12	A-5341-10623
U13	A-5341-10625
U14	NOT USED
U15	NOT USED
U16	A-5341-10608
U17	A-5341-10610
U18	A-5341-10612
U19	A-5341-10614
U20	A-5341-10616
U21	A-5341-10618
U22	A-5341-10620
U23	A-5341-10622
U24	A-5341-10624
U25	NOT USED
U26	NOT USED
U27	NOT USED
U28	NOT USED
U29	NOT USED
U30	NOT USED
U46	A-5343-10608
JUMPERS	
NONE USED	

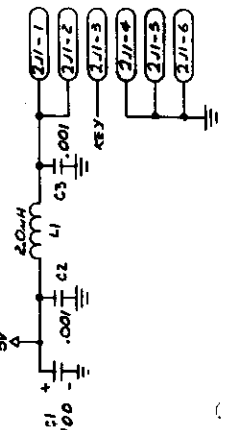
PART DESIGNATION

ITEM	PART NO	DESIGNATION	DESCRIPTION	QTY
6	5795-	PI	RIBBON CABLE ASSY.,	1
	09352-00		40 PIU, 3"	
5	3791-	J1	6-PIU HEADER	1
	09038-00		09-65-1061	
4	5043-	C2, C3	CAPACITOR,	2
	09845-00		.001MFD, 50V, ±20%	
2	5043-	BYPASS (8)	CAPACITOR,	32
	08960-00		.01MFD, 50V, ±50-20%	
1	5040-	C1	CAPACITOR,	1
	09421-00		100MFD, 25V, ±50-10%	
9	5551-	L1	INDUCTOR	1
	10161-00		20µH, 3A	
8	5700-		SOCKET	25
	10176-00		28-PIU IC	
6	5281-	U1, U16	IC 74LS244	2
	09867-00		OCTAL BUFFER	
5	5280-	U3, U15	IC 74154	2
	09210-00		4-16 LINE DECODER	
4	5281-	U17	IC 74LS92	1
	09500-00		QUAD OR	
3	5281-	U31	IC 74LS00	1
	09743-00		QUAD AND	
2	5281-	U2	IC 74LS04	1
	09215-00		HEX INVERTER	
1	5771-		BARE PC BOARD	1
	10364-00	PART DESIGNATION	ROM	
			DESCRIPTION	QTY

NOTE: 1. FOR SCHEMATIC REFER TO DWG # 16-888G



REFERENCE DESIGNATOR	DESCRIPTION	QTY	AND
U1	74LS244	14	7
U2	74LS244	14	7
U3	74LS244	14	7
U4	74LS244	14	7
U5	74LS244	14	7
U6	74LS244	14	7
U7	74LS244	14	7
U8	74LS244	14	7
U9	74LS244	14	7
U10	74LS244	14	7
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U46	74LS244	14	7
U47	74LS244	14	7
U48	74LS244	14	7
U49	74LS244	14	7
U50	74LS244	14	7



ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ ENGR	DAVID W. REYNOLDS	REMOVE BURRS - BREAK SHARP EDGES		PROJ ENGR	DAVID W. REYNOLDS	REMOVE BURRS - BREAK SHARP EDGES	
CHKD BY	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED		CHKD BY	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED	
CHECKED BY	DATE	FRACTIONAL 1/16" ANGULAR		CHECKED BY	DATE	FRACTIONAL 1/16" ANGULAR	
APPROVAL	DATE	DECIMAL 0.005 FLETS		APPROVAL	DATE	DECIMAL 0.005 FLETS	
		MATERIAL				MATERIAL	
		FIRST PROJECT NO				FIRST PROJECT NO	
		FIRST USAGE				FIRST USAGE	
		SCALE				SCALE	
		PART NO				PART NO	
		REV				REV	

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 3401 N. CALIFORNIA AVE.
 CHICAGO, ILL. 60618

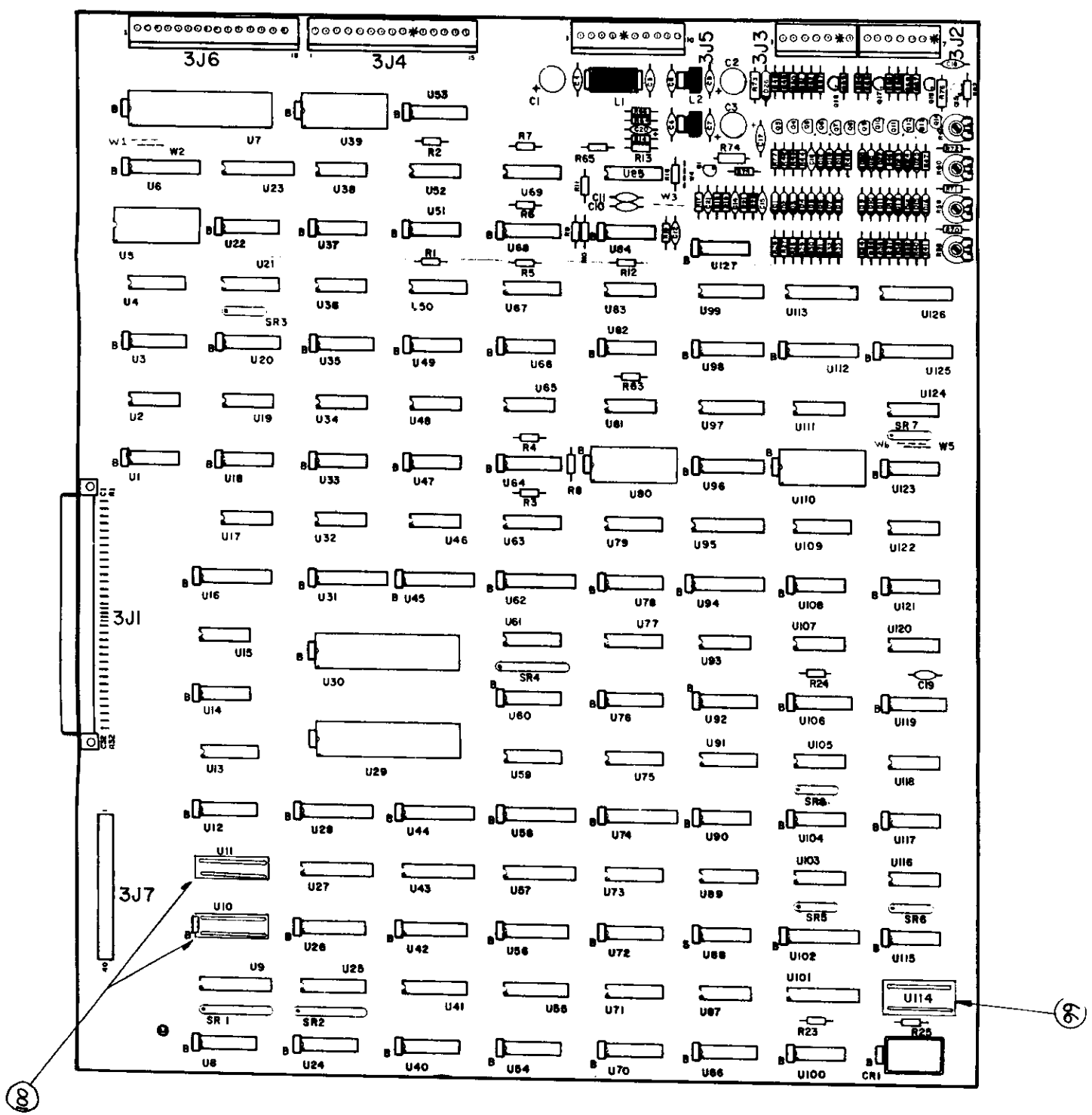
3016 ROM PCB SCHEM

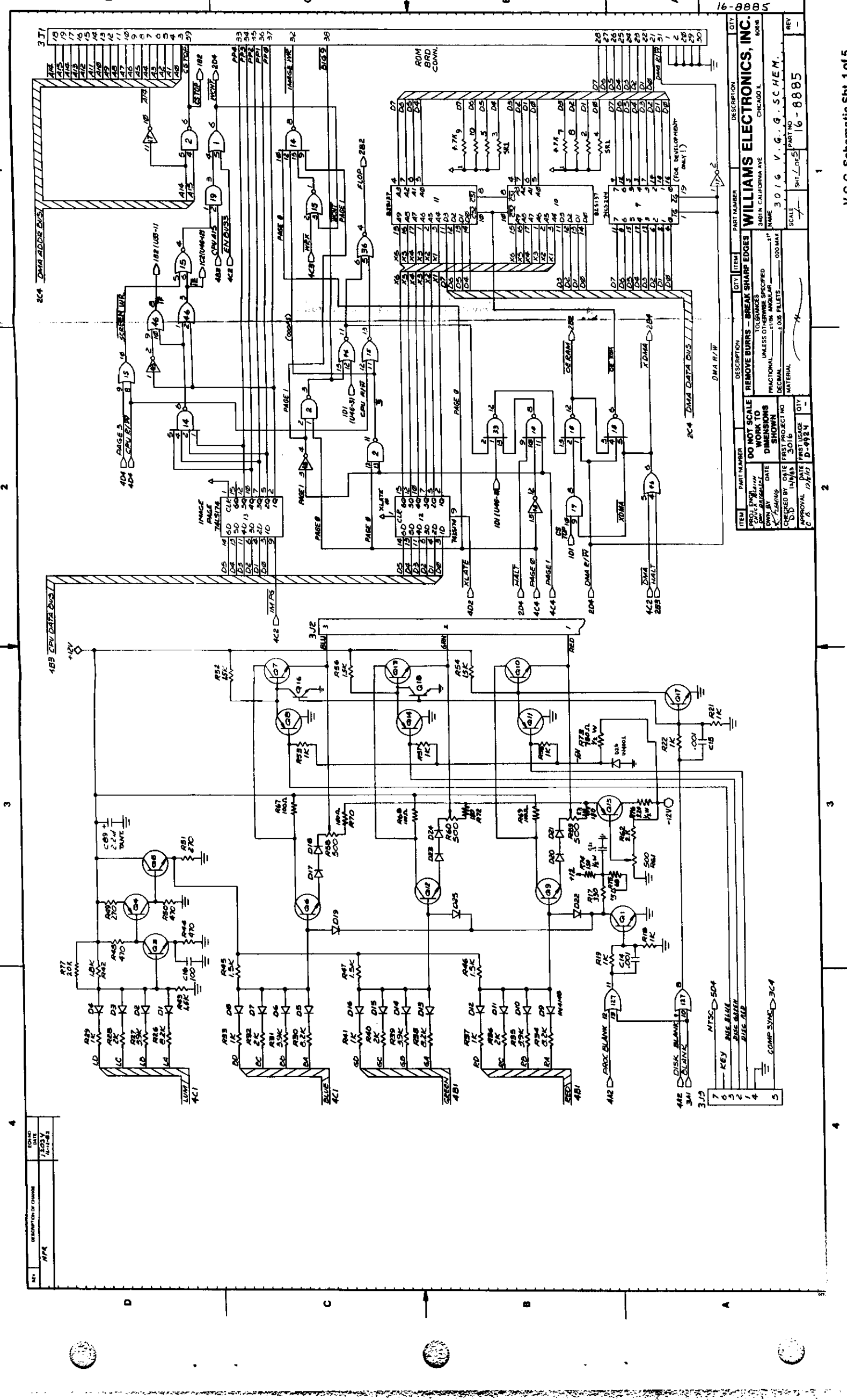
16-8886

Note: JUMPS ARE FOR DCON USE ONLY.

REV	DESCRIPTION OF CHANGE	DATE	BY
1		1/17/82	DAVID W. REYNOLDS

NOTES: 1. 'B' INDICATES BYPASS CAPACITOR.
 2. '*' INDICATES PIN CUT FOR KEYING.
 3. '.' INDICATES PIN 1 OR EMITTER 'E'.





REV	DESCRIPTION OF CHANGE	DATE	BY
1		12/23/74	WFA

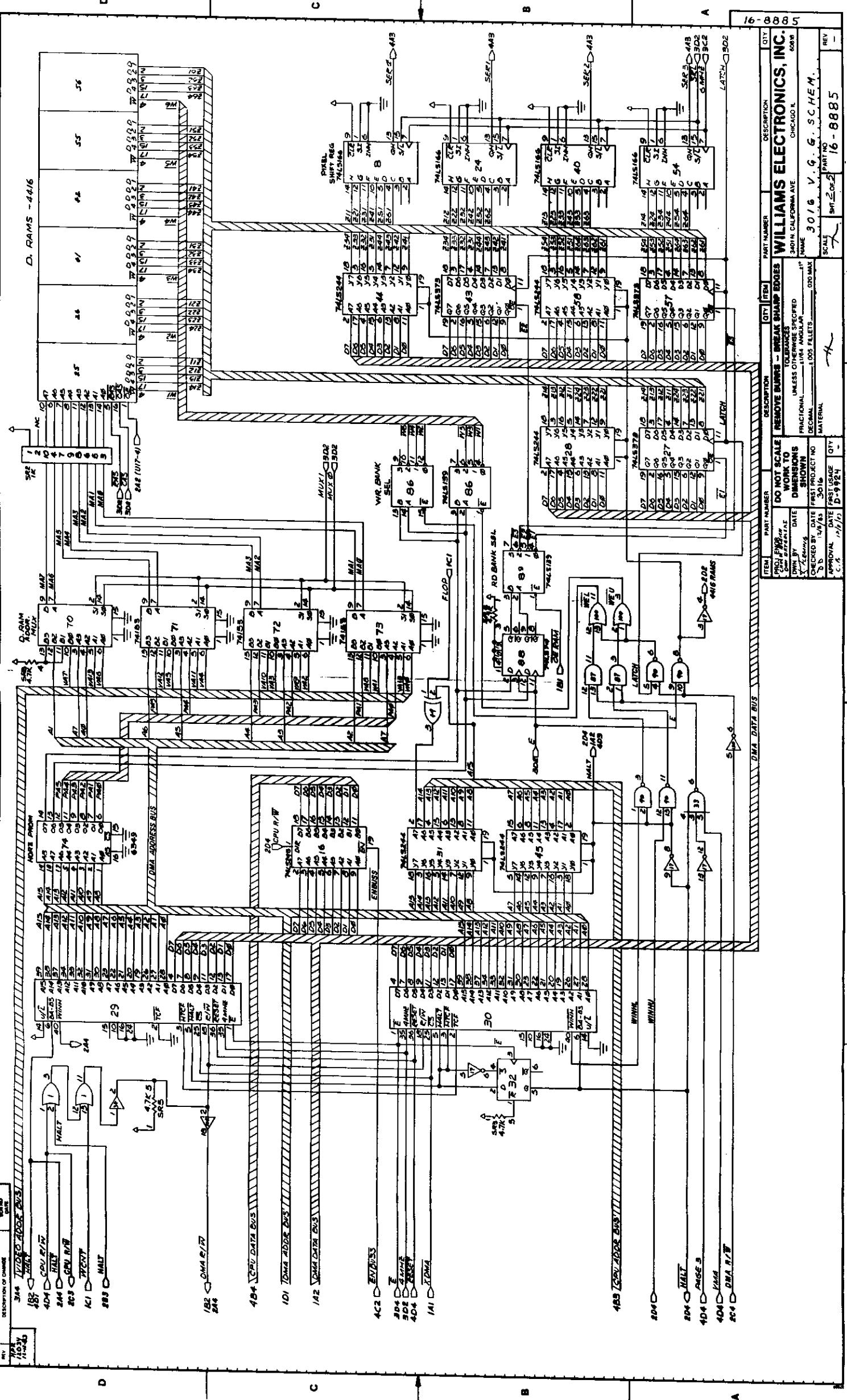
ITEM	PART NUMBER	DESCRIPTION	QTY
1	DO NOT SCALE	REMOVE BURS - BREAK SHARP EDGES	
2	WORK TO DIMENSIONS	UNLESS OTHERWISE SPECIFIED	
3	FRACTIONAL	1/16" ANGULAR	
4	DECIMAL	0.00 MAX	
5	MATERIAL	3.00 FLETS	

ITEM	PART NUMBER	DESCRIPTION	QTY
1	404	404 CPU R/W	1
2	404	404 CPU R/W	1
3	404	404 CPU R/W	1
4	404	404 CPU R/W	1
5	404	404 CPU R/W	1
6	404	404 CPU R/W	1
7	404	404 CPU R/W	1
8	404	404 CPU R/W	1
9	404	404 CPU R/W	1
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97	404	404 CPU R/W	1
98	404	404 CPU R/W	1
99	404	404 CPU R/W	1
100	404	404 CPU R/W	1

16-885

WILLIAMS ELECTRONICS, INC.
 3401 N. CALIFORNIA AVE
 CHICAGO, ILL.
 V. G. G. S.CHEM.
 SCALE: 1/4" = 1"

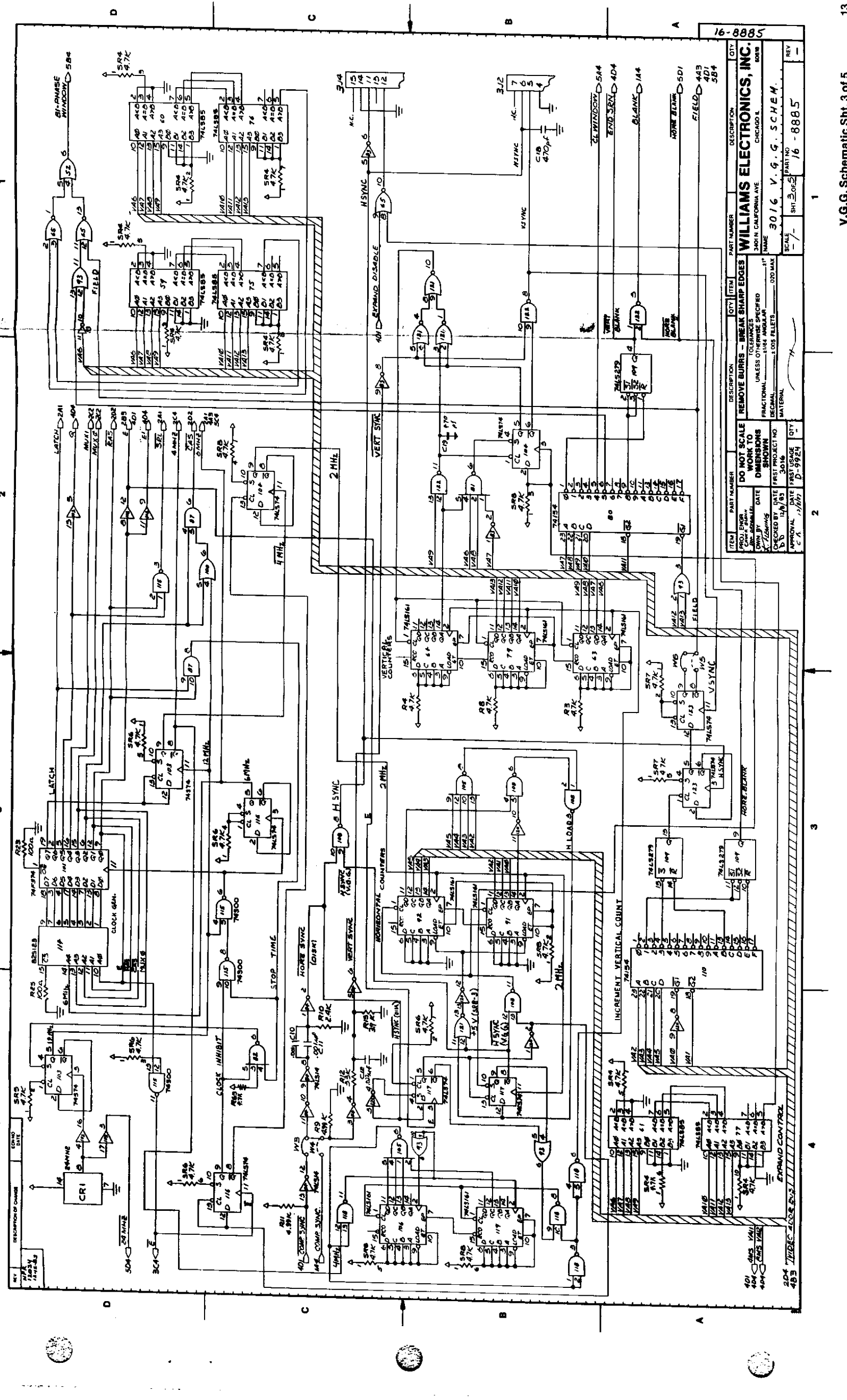
16-885



344 ADDRESS BUS
488
404
244
203
101
102
402
404
101
488
204
204
404
404
404

488 CPU DATA BUS
204
204
404
404
404

16-8885	QTY	DESCRIPTION
WILLIAMS ELECTRONICS, INC. 3401 N. CALIFORNIA AVE CHICAGO, ILL. 60618		
NAME	3016 V.G.G. SCHEM.	REV
FRACTIONAL	UNLESS SPECIFIED	
DECIMAL	1000 FOLETS	
SCALE	1:1	
PART NO	16-8885	
DATE	12/75	
APPROVAL	D-9924	
DATE		
BY		
PROJECT NO		
MATERIAL		
DO NOT SCALE		
WORK TO		
DIMENSIONS		
SHOWN		
TOLERANCES UNLESS SPECIFIED		
1/16" ANGULAR		
0.005 MAX		



16-8885

ITEM	PART NUMBER	QTY	ITEM	QTY	DESCRIPTION
1	74LS161	1	74LS161	1	VERTICAL COUNTERS
2	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
3	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
4	74LS161	1	74LS161	1	VERTICAL COUNTERS
5	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
6	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
7	74LS161	1	74LS161	1	VERTICAL COUNTERS
8	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
9	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
10	74LS161	1	74LS161	1	VERTICAL COUNTERS
11	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
12	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
13	74LS161	1	74LS161	1	VERTICAL COUNTERS
14	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
15	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
16	74LS161	1	74LS161	1	VERTICAL COUNTERS
17	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
18	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
19	74LS161	1	74LS161	1	VERTICAL COUNTERS
20	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
21	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
22	74LS161	1	74LS161	1	VERTICAL COUNTERS
23	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
24	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
25	74LS161	1	74LS161	1	VERTICAL COUNTERS
26	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
27	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
28	74LS161	1	74LS161	1	VERTICAL COUNTERS
29	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
30	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
31	74LS161	1	74LS161	1	VERTICAL COUNTERS
32	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
33	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
34	74LS161	1	74LS161	1	VERTICAL COUNTERS
35	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
36	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
37	74LS161	1	74LS161	1	VERTICAL COUNTERS
38	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
39	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
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48	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
49	74LS161	1	74LS161	1	VERTICAL COUNTERS
50	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
51	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
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55	74LS161	1	74LS161	1	VERTICAL COUNTERS
56	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
57	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
58	74LS161	1	74LS161	1	VERTICAL COUNTERS
59	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
60	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
61	74LS161	1	74LS161	1	VERTICAL COUNTERS
62	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
63	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
64	74LS161	1	74LS161	1	VERTICAL COUNTERS
65	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
66	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
67	74LS161	1	74LS161	1	VERTICAL COUNTERS
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73	74LS161	1	74LS161	1	VERTICAL COUNTERS
74	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
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84	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
85	74LS161	1	74LS161	1	VERTICAL COUNTERS
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92	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
93	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
94	74LS161	1	74LS161	1	VERTICAL COUNTERS
95	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
96	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
97	74LS161	1	74LS161	1	VERTICAL COUNTERS
98	74LS161	1	74LS161	1	HORIZONTAL COUNTERS
99	74LS161	1	74LS161	1	INCREMENT VERTICAL COUNT
100	74LS161	1	74LS161	1	VERTICAL COUNTERS

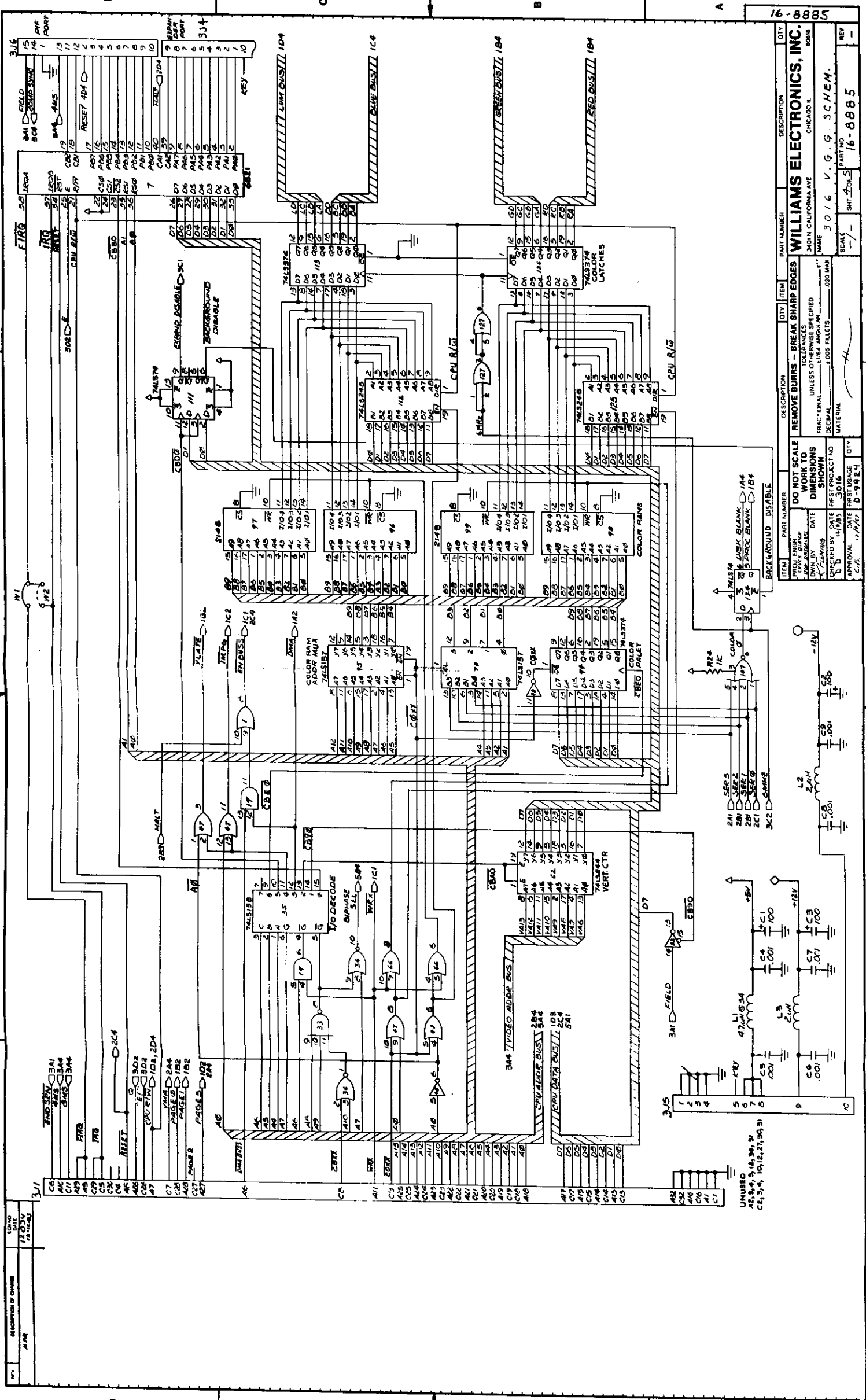
REMOVED BURRS - BREAK SHARP EDGES
 TOLERANCES UNLESS OTHERWISE SPECIFIED
 FRACTIONAL DECIMAL - 0.005 INCHES
 DIMENSIONS SHOWN

DO NOT SCALE WORK TO DIMENSIONS SHOWN

WILLIAMS ELECTRONICS, INC.
 3401 N. CALIFORNIA AVE.
 CHICAGO, ILL. 60641

3016 V. G. G. SCHEM.
 SCALE 1/16" = 1"

REV 1
 16-8885

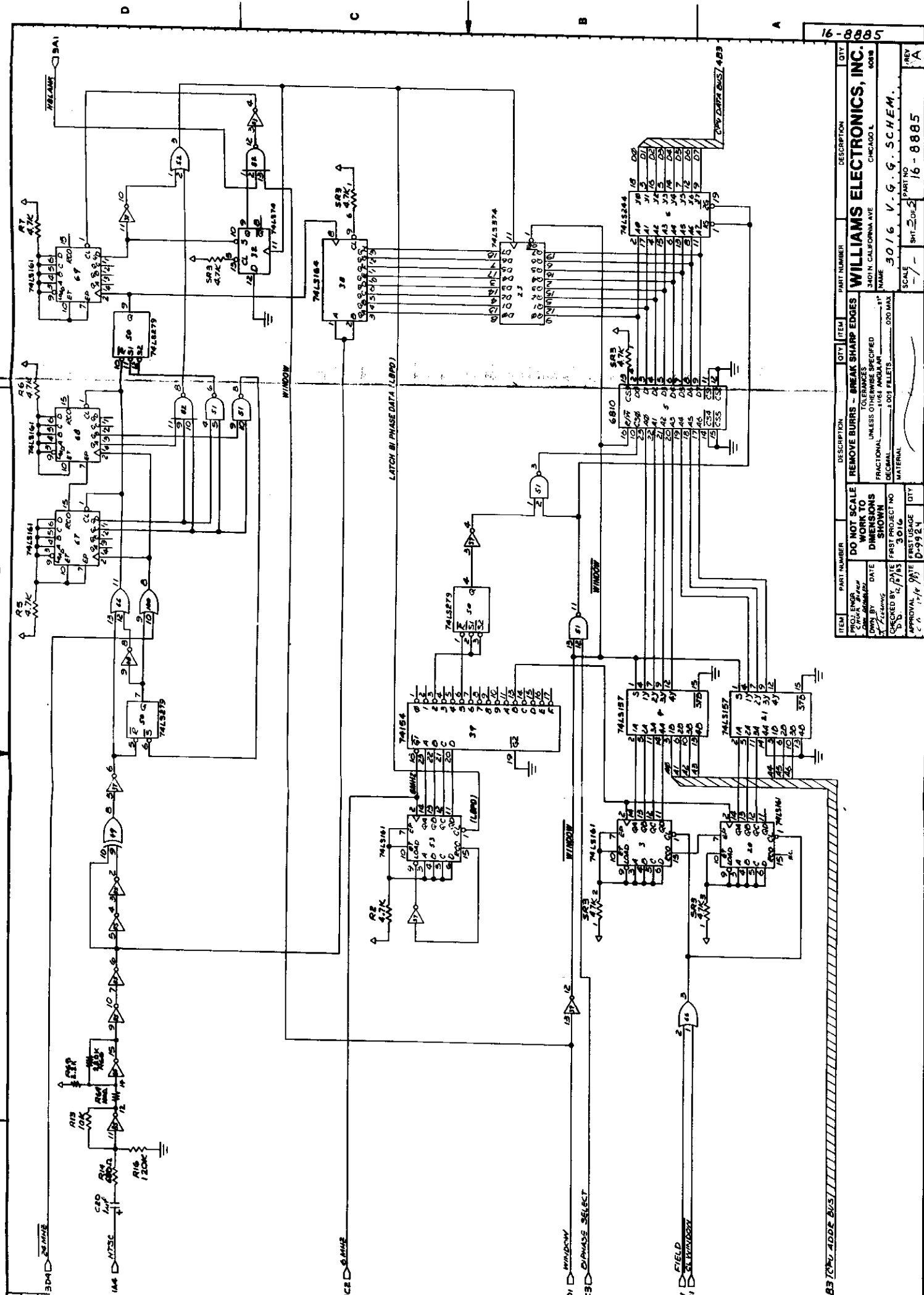


REV	DESCRIPTION OF CHANGE	DATE
1		
2		
3		
4		

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
1	REMOVE BURRS - BREAK SHARP EDGES		1	REMOVE BURRS - BREAK SHARP EDGES	
2	TOLERANCES UNLESS OTHERWISE SPECIFIED		2	TOLERANCES UNLESS OTHERWISE SPECIFIED	
3	FRACTIONAL DECIMAL		3	FRACTIONAL DECIMAL	
4	1000 FILETS		4	1000 FILETS	
5	3016		5	3016	
6	DATE FIRST PROJECT NO.		6	DATE FIRST PROJECT NO.	
7	14/83		7	14/83	
8	DATE FIRST USAGE		8	DATE FIRST USAGE	
9	11/92		9	11/92	
10	D-9924		10	D-9924	

16-8885	WILLIAMS ELECTRONICS, INC.	CHICAGO, ILL.
3016 CALIFORNIA AVE	NAME	3016 V. G. G. SCHEM.
SCALE	PART NO.	16-8885
REV	REV	

REV	DESCRIPTION OF CHANGE	DATE	BY
1	REV WASH 270 R	11/23/83	MM/MS



16-8885	QTY	DESCRIPTION
		WILLIAMS ELECTRONICS, INC.
		3401 N. CALIFORNIA AVE CHICAGO, ILL 60608
		NAME
		3016 V.G.G. SCHEM.
		SCALE
		PART NO
		16-8885
		REV
		A

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJENR	16-8885	REMOVE BURRS - BREAK SHARP EDGES		PROJENR	16-8885	REMOVE BURRS - BREAK SHARP EDGES	
DATE	11/23/83	TOLERANCES UNLESS OTHERWISE SPECIFIED		DATE	11/23/83	TOLERANCES UNLESS OTHERWISE SPECIFIED	
DESIGNED BY	MM/MS	FRACTIONAL 1/64 ANGLE MIN		DESIGNED BY	MM/MS	FRACTIONAL 1/64 ANGLE MIN	
CHECKED BY	MM/MS	DECIMAL 1.003 FILLETS .000 MAX		CHECKED BY	MM/MS	DECIMAL 1.003 FILLETS .000 MAX	
APPROVAL	11/24/83	MATERIAL		APPROVAL	11/24/83	MATERIAL	

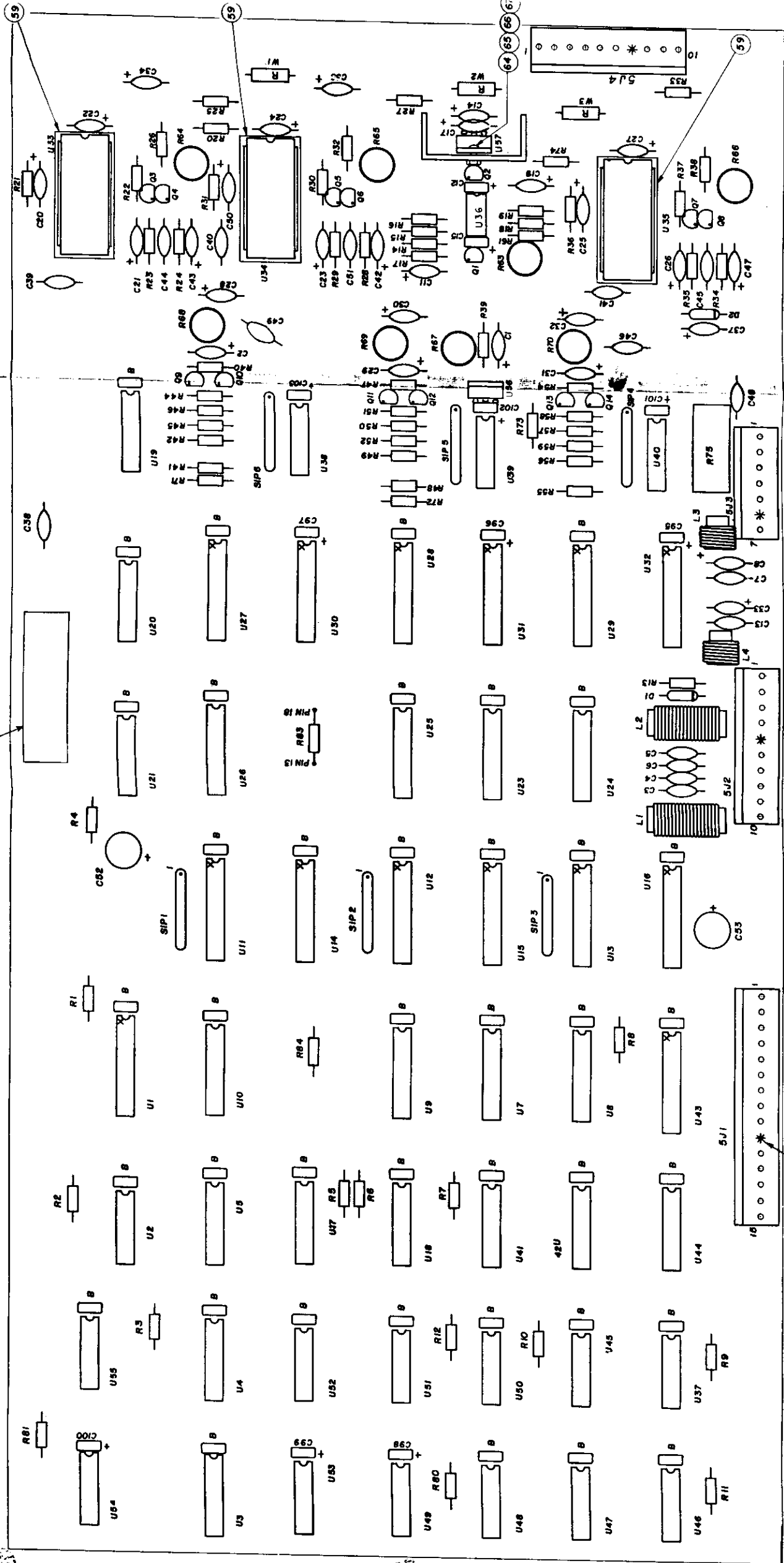
NOTES:

1. 1KPF CAPS.
C3, C4, C5, C6, C7, C13, C38, C39, C40, C41.
2. "B" BYPASS CAPS. .01MF ON IC'S
NUMBER 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53
3. 10MF CAPS.
C11, C17, C19, C20, C21, C22, C23, C24, C25, C26, C27, C37, C39.
4. 1MF CAPS.
C2, C12, C14, C15, C23, C30, C31, C32, C34, C35, C42, C43, C47, C55, C56, C97, C98, C99, C100, C101, C102, C103, C1, C28, C35
5. TRANSISTORS 2N4126.
Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q12, Q14, Q10
6. RESISTORS 1.0K 1/4W 5%
R17, R20, R23, R29, R35, R37, R38, R39, R40
7. RESISTORS 4.7K 2%
R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R21, R31, R36, R44, R51, R56, R80, R81
8. IC 2148 S. RAMS
U7, U8, U9, U10, U23, U24, U25, U26, U27
9. IC 74F574
U11, U12, U13, U14, U15, U16, U27, U28, U29, U30, U31, U32.
10. IC 74F74
U2, U37, U45, U46, U47, U50, U51, U54, U55

ITEM	PART NO.	PART DESIGNATION	QTY.	ITEM	DESCRIPTION	PART NO.	PART DESIGNATION	QTY.	ITEM	DESCRIPTION	PART NO.	PART DESIGNATION	QTY.
55	5041-10588-00	C8, C33	1	25	5012-10586-00	RESISTOR, 7 OHMS	R75	1	25	5012-10586-00	RESISTOR, 7 OHMS	R75	1
54	5041-09243-00	SEE NOTE 3	13	24	5010-10206-00	CAPACITOR, 10M 10V 1/-10	R40, R47, R54	3	24	5010-10206-00	RESISTOR, 390 OHMS	R40, R47, R54	3
53	5041-09031-00	SEE NOTE 4	25	23	5010-10204-00	CAPACITOR, 1M 25V 1/-20	SEE NOTE 6	8	23	5010-10204-00	RESISTOR, 1.0K OHMS	SEE NOTE 6	8
52	5040-10421-00	C52, C53	2	22	5010-09634-00	CAPACITOR, 100M 25V +50-10	W1, W2, W3	3	22	5010-09634-00	RESISTOR, 0 OHMS	W1, W2, W3	3
51	5075-10476-00	D1	1	21	5010-09212-00	DIODE, ZENER 1N5230B		4	21	5010-09212-00	RESISTOR, 39 OHMS	R22, R30, R37	3
50	5070-08919-00	D2	1	20	5010-09187-00	DIODE, SILICON 1N4148		3	20	5010-09187-00	RESISTOR, 150 OHMS	R13	1
49	5190-10590-00	SEE NOTE 5	11	19	5018-10497-00	TRANSISTOR, 2N4126		1	19	5018-10497-00	RESISTOR, 4.7K OHMS	SEE NOTE 7	20
48	5160-10589-00	Q9, Q11, Q13	3	18	5010-08983-00	TRANSISTOR, 2N4124		1	18	5010-08983-00	RESISTOR, 3.3K OHM	R61	1
47	5551-10161-00	L3, L4	2	17	5280-09489-00	COIL, 24H, 3A		2	17	5280-09489-00	IC, 9316 CNTR	U17, U18	2
46	5551-09822-00	L1, L2	2	16	5281-10421-00	COIL, 4.74H, 3A		1	16	5281-10421-00	IC, OSC 48MHz 1%	U53	1
45	5019-10601-00	SIP1, SIP2, SIP3	3	15	5250-10478-00	SIP, 2.2K OHMS TR 8P 5%		3	15	5250-10478-00	REGULATOR, LM317K ADJ POS	U56	1
44	10600-00	SIP4, SIP5, SIP6	3	14	5250-10477-00	SIP, 1K OHMS TR 8P 5%		3	14	5250-10477-00	REGULATOR, LM317K ADJ POS	U57	1
43	5075-10587-00	R63	1	13	5372-10467-00	TRIM POT, 1.5K		1	13	5372-10467-00	IC, 7906 1.0A SV	U59, U36, U39	3
42	5015-10420-00	R68, R69, R70	3	12	5370-09321-00	TRIM POT, 1K OHMS		3	12	5370-09321-00	IC, 74C1014J AOC	U36	1
41	5015-10419-00	R67	1	11	5340-10435-00	TRIM POT, 500 OHMS		1	11	5340-10435-00	IC, 1458 OP-AMP	U56	1
40	5015-10418-00	R64, R65, R66	3	10	5783-10551-00	TRIM POT, 250 OHMS		3	10	5783-10551-00	IC, 74F374 OCT LCH	SEE NOTE 8	8
39	5010-08998-00	R15	1	9	5282-10432-00	RESISTOR, 2.2K OHMS 1/4W 5%		1	9	5282-10432-00	IC, 74S374 OCT F/F	U48, U52	2
38	5013-10547-00	R14	1	8	5282-10430-00	RESISTOR, 11K OHMS 1/4W 2%		1	8	5282-10430-00	IC, 74S37 2IP	U49	1
37	5013-10546-00	R18	1	7	5283-10554-00	RESISTOR, 10K OHMS 1/4W 2%		1	7	5283-10554-00	IC, 74F374 OCT LCH	SEE NOTE 9	12
36	5013-10545-00	R19	1	6	5282-10432-00	RESISTOR, 10K OHMS 1/4W 2%		1	6	5282-10432-00	IC, 74S374 OCT F/F	U41, U42, U44	3
35	5010-10022-00	R18	1	5	5283-10554-00	RESISTOR, 7.5K OHMS 1/4W 2%		1	5	5283-10554-00	IC, 74S161 CNTR	U41, U42, U44	3
34	5013-10544-00	R19	1	4	5283-10554-00	RESISTOR, 5.1K OHMS 1/4W 2%		1	4	5283-10554-00	IC, 74R161 SYNC CTR	U41, U42, U44	3
33	5013-10543-00	R71, R72, R73	3	3	5283-10469-00	RESISTOR, 3.9K OHMS		3	3	5283-10469-00	IC, 74F257 2TO1 MUX	U3, U4, U5, U19, U20, U21	6
32	5013-10542-00	R16, R46, R50, R57	4	2	5282-10432-00	RESISTOR, 2.4K OHMS 1/4W 2%		4	2	5282-10432-00	IC, 74S257A MLTPX	U3, U4, U5, U19, U20, U21	6
31	5013-10541-00	R42, R49, R56	3	1	5283-10469-00	RESISTOR, 1.2K OHMS		3	1	5283-10469-00	IC, 74F74 DUAL F/F	SEE NOTE 10	9
30	5013-10540-00	R24, R28, R34	3	3	5282-10432-00	RESISTOR, 910 OHMS 1/4W 2%		3	3	5282-10432-00	IC, 74S74 DUAL F/F	U3, U4, U5, U19, U20, U21	6
29	5013-10539-00	R25, R27, R33	3	3	5283-10469-00	RESISTOR, 750 OHMS 1/4W 2%		3	3	5283-10469-00	IC, 74F04 INVERTER	U39, U39, U40	3
28	5013-10538-00	R41, R48, R55	3	3	5282-10432-00	RESISTOR, 620 OHMS 1/4W 2%		3	3	5282-10432-00	IC, 74S04 HEX INV	U39, U39, U40	3
27	5013-10537-00	R26, R32, R38	3	2	5281-10421-00	RESISTOR, 240 OHMS 1/4W 2%		2	2	5281-10421-00	IC, 74LS273 OCT F/F	U4, U43	2
26	5013-10536-00	R39	1	1	5279-10366-00	RESISTOR, 110 OHMS 1/4W 2%		1	1	5279-10366-00	IC, 74LS273 OCT F/F	U4, U43	2

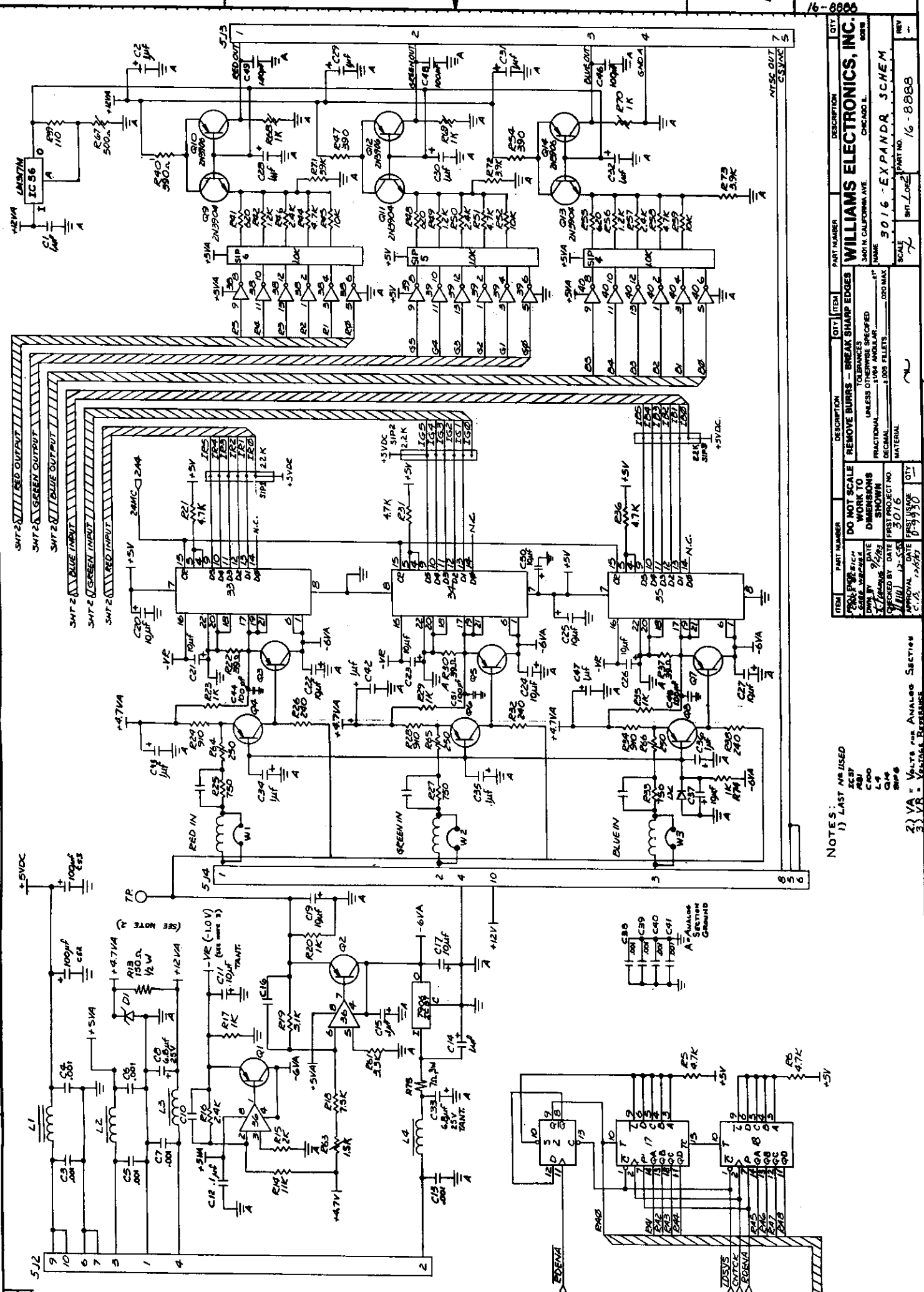
B I L L O F M A T E R I A L S

(4) (APPROXIMATE LOCATION)



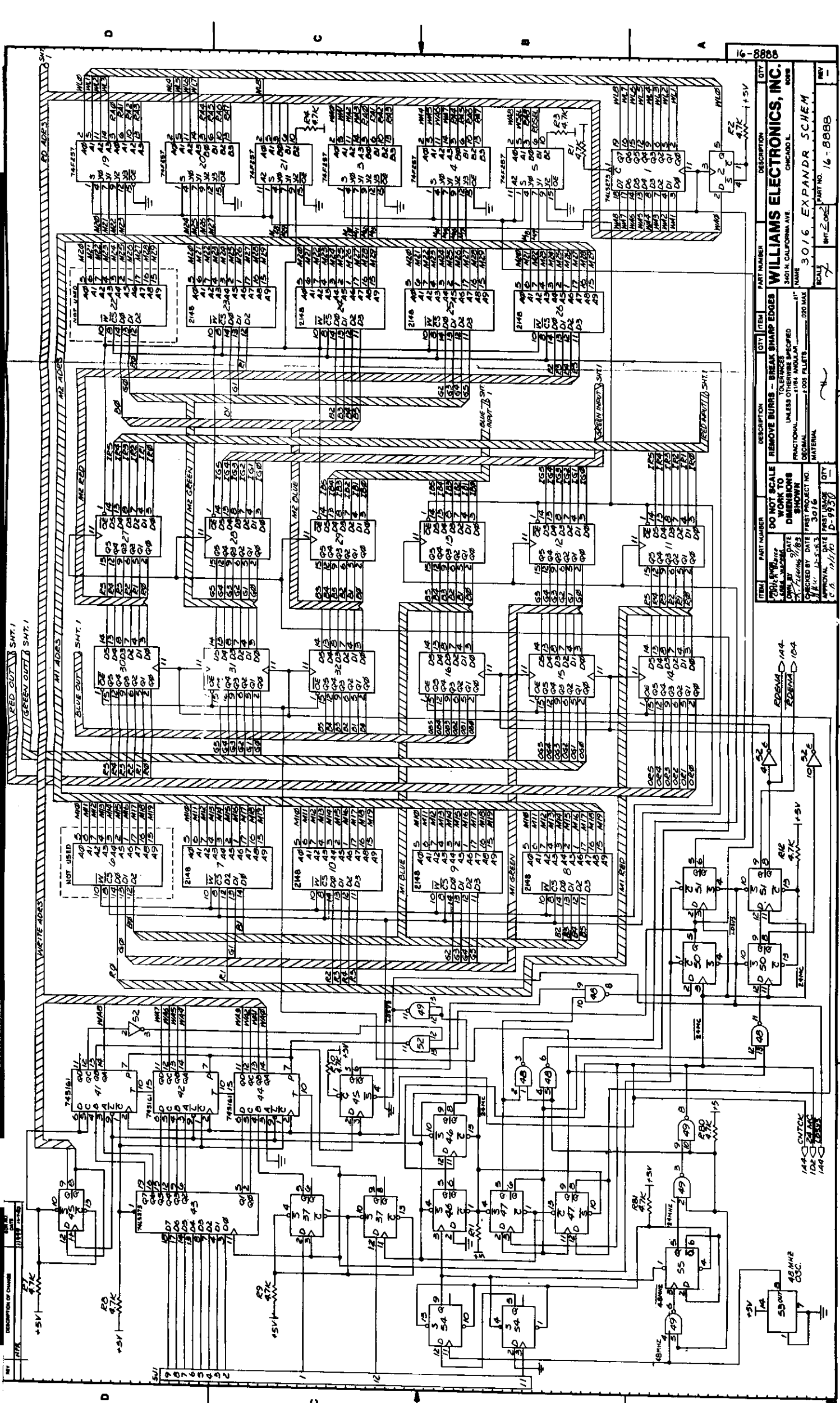
INDICATES KEYING PIN

REV	DESCRIPTION OF CHANGE	DATE	BY
1		11/19/71	JL-1-58



NOTES:
 1) LAST REVISED
 2) VA = Volts rms Analogue Section
 3) VR = Volts rms Reference Section

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	16-8888	REMOVE BURRS - BREAK SHARP EDGES		1	16-8888	REMOVE BURRS - BREAK SHARP EDGES	
2		DO NOT SCALE		2		DO NOT SCALE	
3		WORK TO TOLERANCES SPECIFIED		3		WORK TO TOLERANCES SPECIFIED	
4		UNLESS OTHERWISE SPECIFIED		4		UNLESS OTHERWISE SPECIFIED	
5		1/16" ANGULAR		5		1/16" ANGULAR	
6		1.000 FILLETS		6		1.000 FILLETS	
7				7			
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ITEM	PART NUMBER	DESCRIPTION	QTY	UNIT
1	74S161	REMOVE BURRS - BREAK SHARP EDGES		
2	74S161	TOLERANCES UNLESS OTHERWISE SPECIFIED		
3	74S161	FRACTIONAL DIMENSIONS SHOWN		
4	74S161	DECIMAL DIMENSIONS UNLESS OTHERWISE SPECIFIED		
5	74S161	APPROVAL DATE		
6	74S161	DATE		
7	74S161	BY		
8	74S161	APPROVAL DATE		
9	74S161	DATE		
10	74S161	BY		

DESCRIPTION	PART NUMBER	QTY	UNIT
DO NOT SCALE WORK TO DIMENSIONS SHOWN			
REMOVE BURRS - BREAK SHARP EDGES			
TOLERANCES UNLESS OTHERWISE SPECIFIED			
FRACTIONAL DIMENSIONS SHOWN			
DECIMAL DIMENSIONS UNLESS OTHERWISE SPECIFIED			
APPROVAL DATE			
DATE			
BY			
APPROVAL DATE			
DATE			
BY			

16-8888

WILLIAMS ELECTRONICS, INC.
3401 N. CALIFORNIA AVE.
CHICAGO, ILL. 60642

NAME: 3016 EXPANDR SCHEM
SCALE: 1:1
PART NO: 16-8888

DESCRIPTION: REMOVE BURRS - BREAK SHARP EDGES
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONAL DIMENSIONS SHOWN
DECIMAL DIMENSIONS UNLESS OTHERWISE SPECIFIED
APPROVAL DATE: 12/1/73
DATE: 12/1/73
BY: [Signature]
APPROVAL DATE: 12/1/73
DATE: 12/1/73
BY: [Signature]

DO NOT SCALE WORK TO DIMENSIONS SHOWN

REMOVE BURRS - BREAK SHARP EDGES

TOLERANCES UNLESS OTHERWISE SPECIFIED

FRACTIONAL DIMENSIONS SHOWN

DECIMAL DIMENSIONS UNLESS OTHERWISE SPECIFIED

APPROVAL DATE: 12/1/73

DATE: 12/1/73

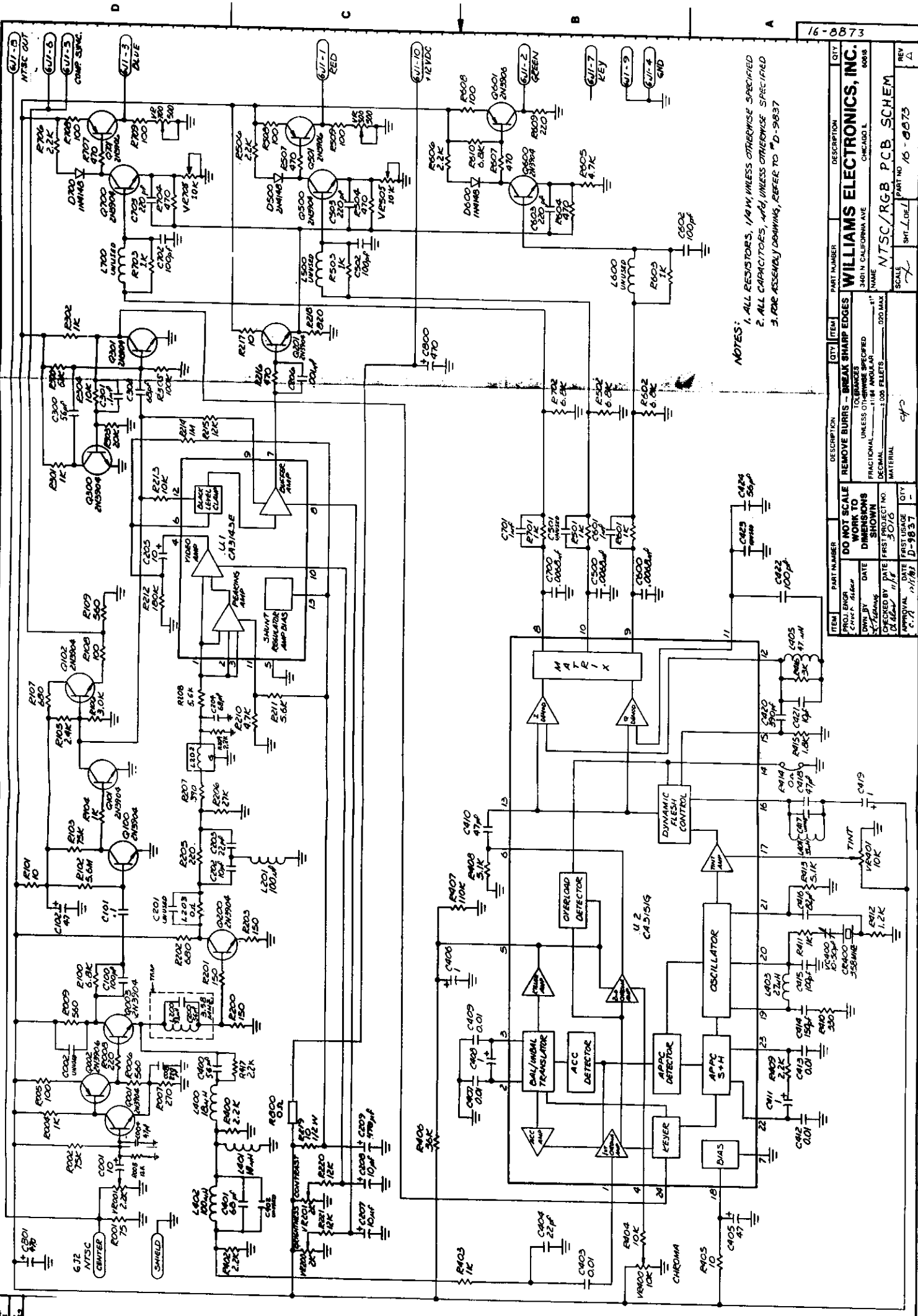
BY: [Signature]

APPROVAL DATE: 12/1/73

DATE: 12/1/73

BY: [Signature]

16-8873



NOTES:
 1. ALL RESISTORS, 1/4W, UNLESS OTHERWISE SPECIFIED
 2. ALL CAPACITORS, 40V, UNLESS OTHERWISE SPECIFIED
 3. FOR ASSEMBLY DRAWINGS, REFER TO "D-9837"

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
PROJ ENGR	2-10-68	REMOVE BURRS - BREAK SHARP EDGES		PROJ ENGR	2-10-68	
DRAWN BY	WJ	TOLERANCES UNLESS OTHERWISE SPECIFIED		DRAWN BY	WJ	
CHECKED BY	WJ	FRACTIONAL DIMENSIONS UNLESS OTHERWISE SPECIFIED		CHECKED BY	WJ	
APPROVAL	WJ	DECIMAL DIMENSIONS UNLESS OTHERWISE SPECIFIED		APPROVAL	WJ	
		SHOW DIMENSIONS UNLESS OTHERWISE SPECIFIED				
		FIRST PROJECT NO.	5010			
		DATE	11/18			
		DATE FIRST USAGE				
		QTY				

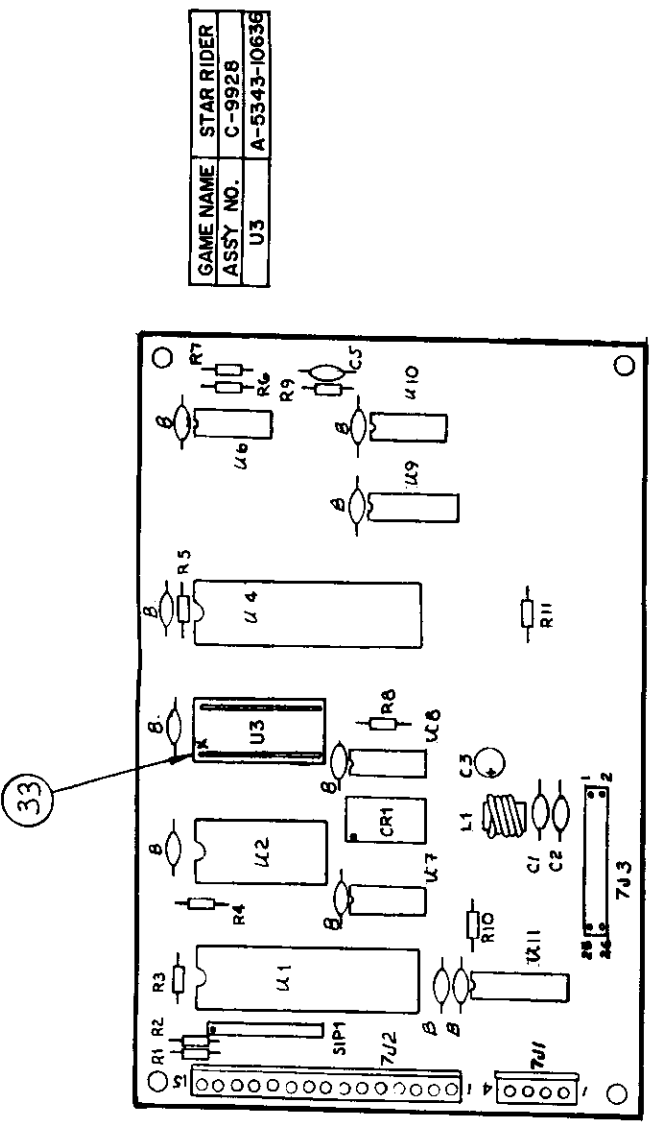
WILLIAMS ELECTRONICS, INC.
 3401 N. CALIFORNIA AVE
 CHICAGO, ILL. 60618

NTSC/RGB P.C.B. SCHEM
 PART NO. 16-8873
 SCALE 1/8"=1"

REV	DESCRIPTION OF CHANGE	DATE	INITIALS
A	SCHEMATIC CHANGED TO REFLECT CHANGES TO PART A DOCUMENT NUMBER (2105)		

1
2
3
4

ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	QTY.
28	5521-10506-00	CR1	XTAL / OSC., 4MHZ OSC.	1
27				
26				
25	5791-10604-00	J3	CONNECTOR, 26PIN RIB. HEADER/SHROUD	1
24	5791-09074-00	J2	CONNECTOR, 13P MALE MOLEX	1
23	5791-09028-00	J1	CONNECTOR, 4P MALE MOLEX	1
22				
21	5281-09215-00	U7	I.C. 74LS04	1
20	5281-09867-00	U11	I.C. 74LS244	1
19	5281-09235-00	U10	I.C. 74LS10	1
18	5281-09487-00	U6, U8	I.C. 74LS74	2
17	5340-09878-00	U2	I.C. 2KX8 RAM	1
16				
15				
14	5281-09745-00	U9	I.C. 74LS138	1
13	5430-08972-00	U1	I.C. 6821 PIA	1
12	5400-09490-00	U4	I.C. 6809E MPU	1
11				
10				
9	5043-09845-00	C1, C2	CAPACITOR, .001UF	2
8	5013-08980-00	B (SEE NOTE 1)	CAPACITORS, .01UF	10
7	5040-09421-00	C3	CAPACITOR, 100UF 25V	1
6	5043-09065-00	C5	CAPACITOR, 470 PF	1
5				
4	5010-08991-00	R1 THRU R11	RESISTORS, 4.7K OHM 1/4 W	11
3	5019-09388-00	SIP 1	RESISTOR, 4.7K OHM SIP .9R	1
2				
1	5772-10365-00		BARE P.C. BOARD	1



NAME	STAR RIDER
U3	C-9928
	A-5343-10636

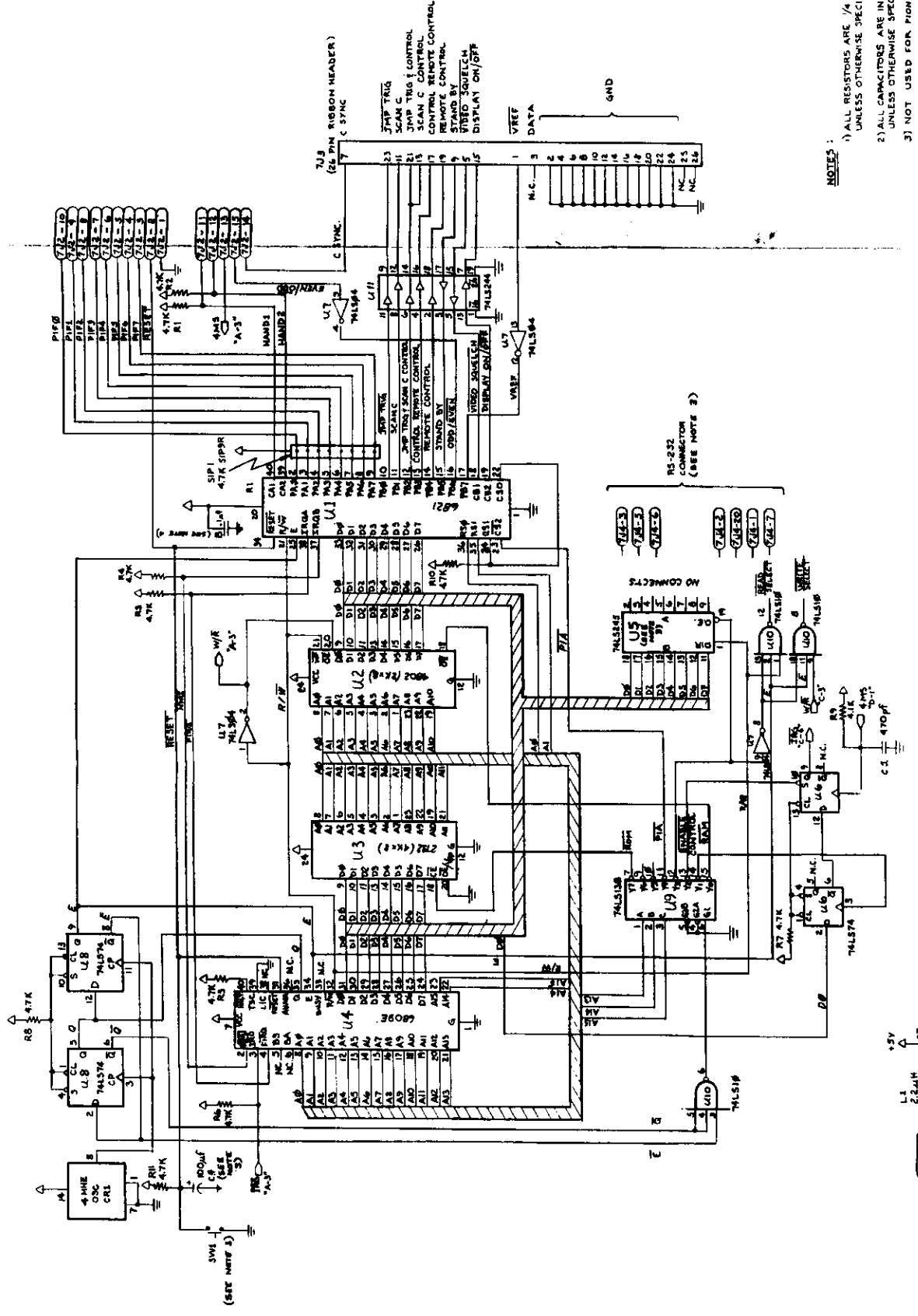
NOTES:
 1) 'B' - INDICATES BYPASS CAPACITORS.
 2) FOR SCHEMATIC REFER TO DWG. 16-8887.

ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	QTY.
33	5700-09004-00	IC3	SOCKET, 24PIN	1
32				
31				
30				
29	5531-10161-00	L1	COIL, 2.2UH	1

16-8887

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	DO NOT SCALE	REMOVE BURRS - BREAK SHARP EDGES		1	WILLIAMS ELECTRONICS, INC.		
2	WORK TO DIMENSIONS SHOWN			2	3401 N CALIFORNIA AVE		
3	FIRST PROJECT NO. 3016			3	CHICAGO, ILL.		
4	FIRST USAGE			4	NAME	3016 P. I. F. SCHEM.	
5	DATE 11/10/55			5	SCALE	1/8" = 1"	
6	DATE 11/10/55			6	SMT DEL	16-8887	
7	DATE 11/10/55			7	PART NO		
8	DATE 11/10/55			8	REV		

- NOTES:
- 1) ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED.
 - 2) ALL CAPACITORS ARE IN μF UNLESS OTHERWISE SPECIFIED.
 - 3) NOT USED FOR PIONEER V.D. PLAYER.
 - 4) B - INDICATES BYPASS CAPACITOR, TYPICAL .01 μF

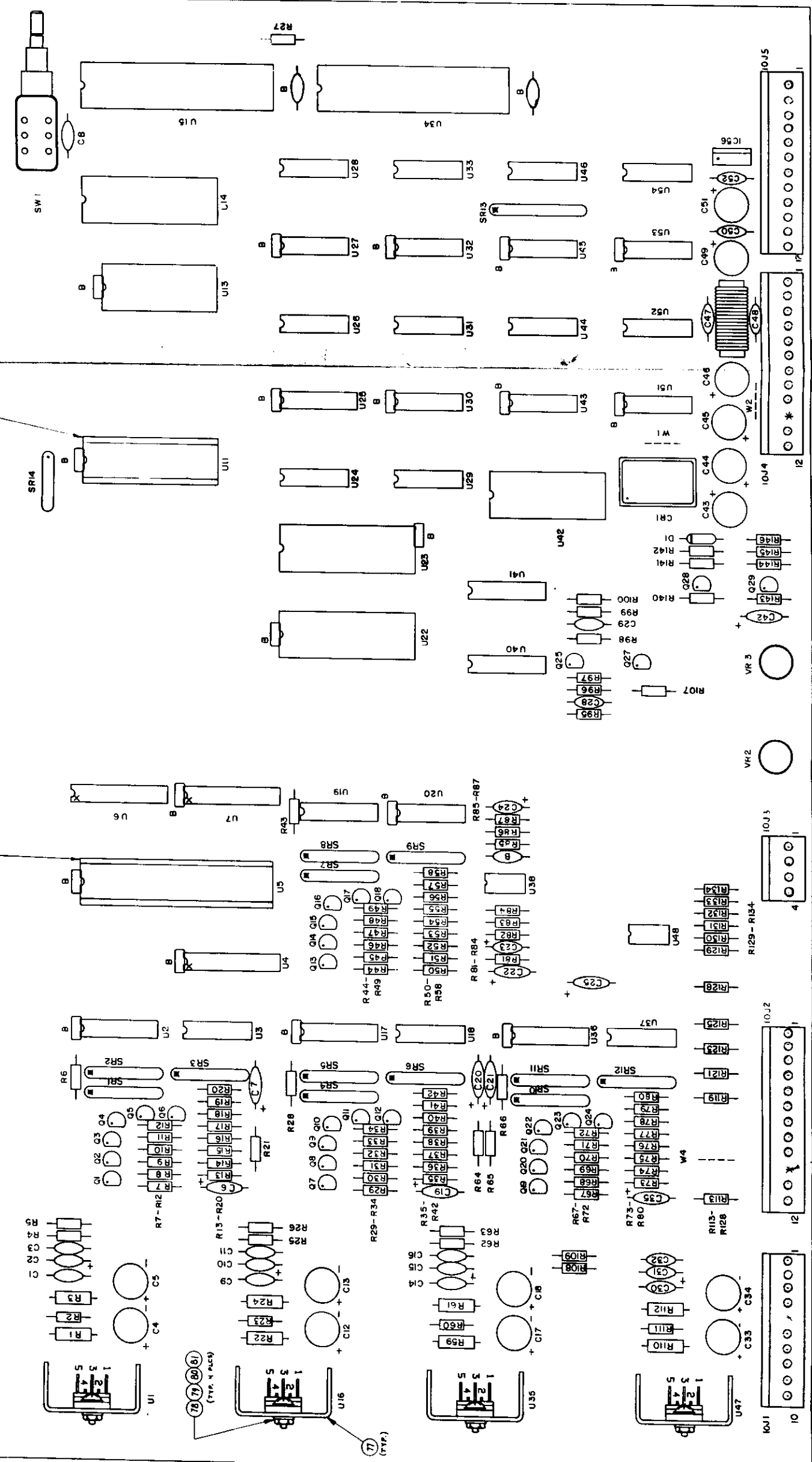


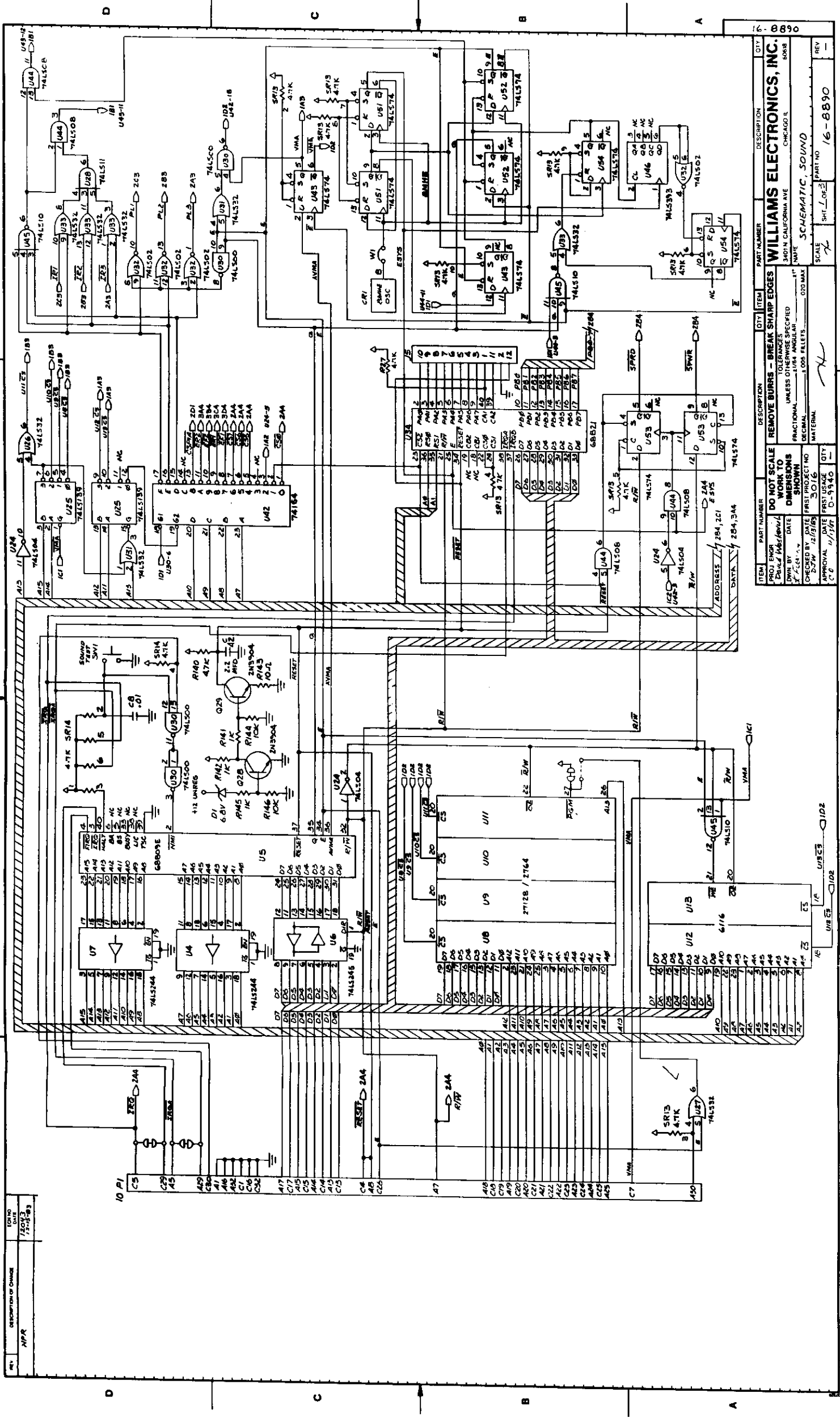
REV	DESCRIPTION OF CHANGE	DATE	BY
1	NPK	11/10/55	W.L.S.

29

28

27



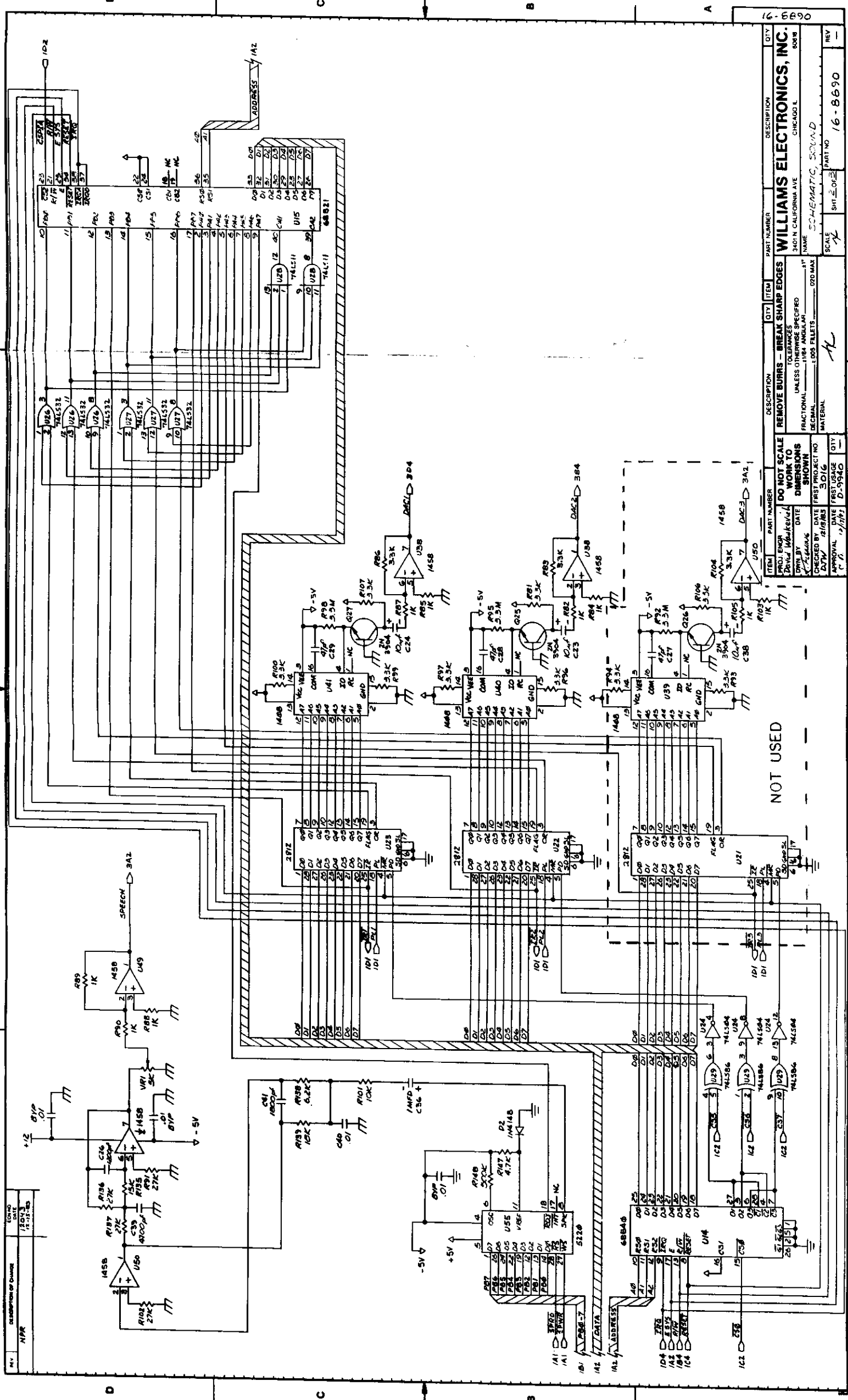


ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ ENGR	DR/AL	REMOVE BURRS - BREAK SHARP EDGES	
DATE	11/27/78	TOLERANCES UNLESS OTHERWISE SPECIFIED	
CHECKED BY	27W	FRACTIONAL 1/16" ANGULAR .020 MAX	
APPROVAL	11/27/78	DECIMAL .005 FILETS	
		MATERIAL	

DESCRIPTION	PART NUMBER	QTY
DO NOT SCALE		
WORK TO DIMENSIONS SHOWN		
FIRST PROJECT NO	D-9940	
FIRST USAGE		

DESCRIPTION	PART NUMBER	QTY
REMOVE BURRS - BREAK SHARP EDGES		
TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONAL 1/16" ANGULAR .020 MAX		
DECIMAL .005 FILETS		
MATERIAL		

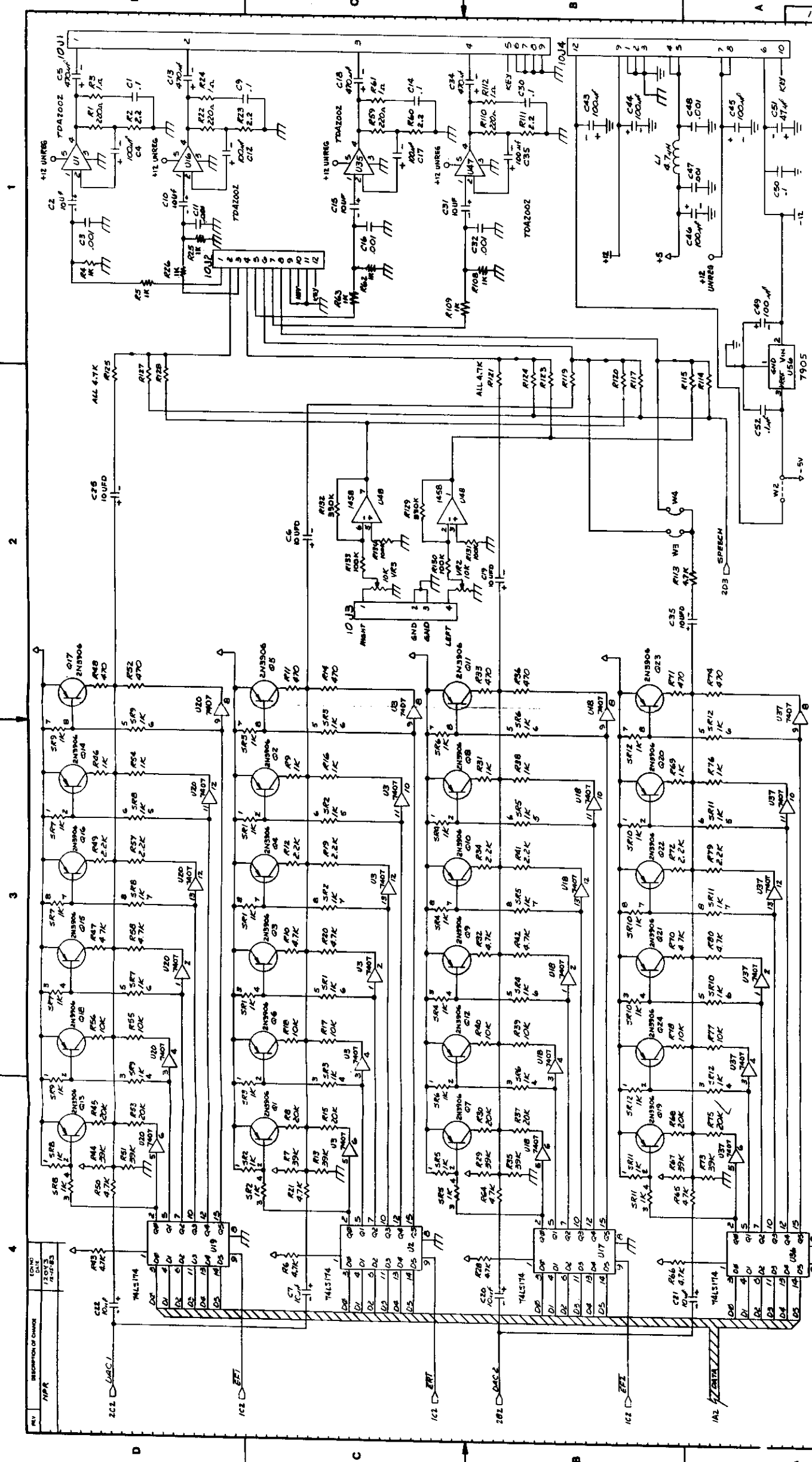
DESCRIPTION	PART NUMBER	QTY
WILLIAMS ELECTRONICS, INC.		
3401 N. CALIFORNIA AVE		
CHICAGO, IL 60642		
SCALE	1/8" = 1"	
PART NO	16-8890	
REV		



REV	DESCRIPTION OF CHANGE	DATE	BY
1		12-11-83	WJE

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	68B40	68B40	1	1	68B52	68B52	1
2	68B51	68B51	1	2	68B50	68B50	2
3	68B50	68B50	2	3	68B51	68B51	1
4	68B52	68B52	1	4	68B50	68B50	2
5	68B51	68B51	1	5	68B52	68B52	1
6	68B50	68B50	2	6	68B51	68B51	1
7	68B52	68B52	1	7	68B50	68B50	2
8	68B51	68B51	1	8	68B52	68B52	1
9	68B50	68B50	2	9	68B51	68B51	1
10	68B52	68B52	1	10	68B50	68B50	2
11	68B51	68B51	1	11	68B52	68B52	1
12	68B50	68B50	2	12	68B51	68B51	1
13	68B52	68B52	1	13	68B50	68B50	2
14	68B51	68B51	1	14	68B52	68B52	1
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92	68B51	68B51	1	92	68B52	68B52	1
93	68B50	68B50	2	93	68B51	68B51	1
94	68B52	68B52	1	94	68B50	68B50	2
95	68B51	68B51	1	95	68B52	68B52	1
96	68B50	68B50	2	96	68B51	68B51	1
97	68B52	68B52	1	97	68B50	68B50	2
98	68B51	68B51	1	98	68B52	68B52	1
99	68B50	68B50	2	99	68B51	68B51	1
100	68B52	68B52	1	100	68B50	68B50	2

NOT USED

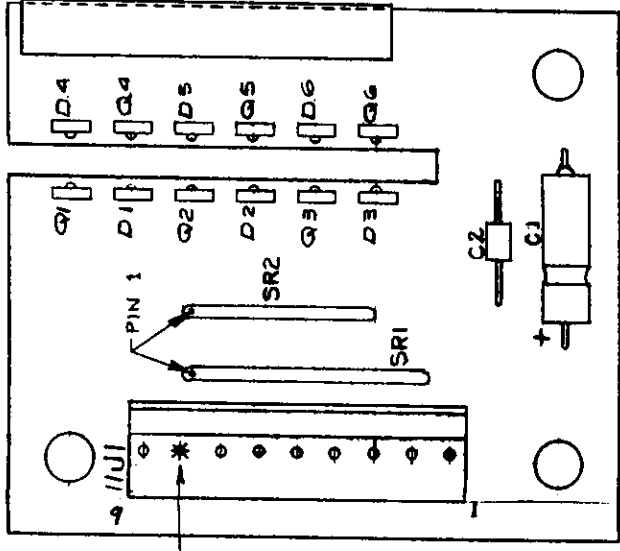


ITEM	PART NUMBER	DESCRIPTION	QTY
1	7905	TRANSFORMER	1
2	1458	OP AMP	2
3	2N3906	TRANSISTOR	8
4	100μF	CAPACITOR	4

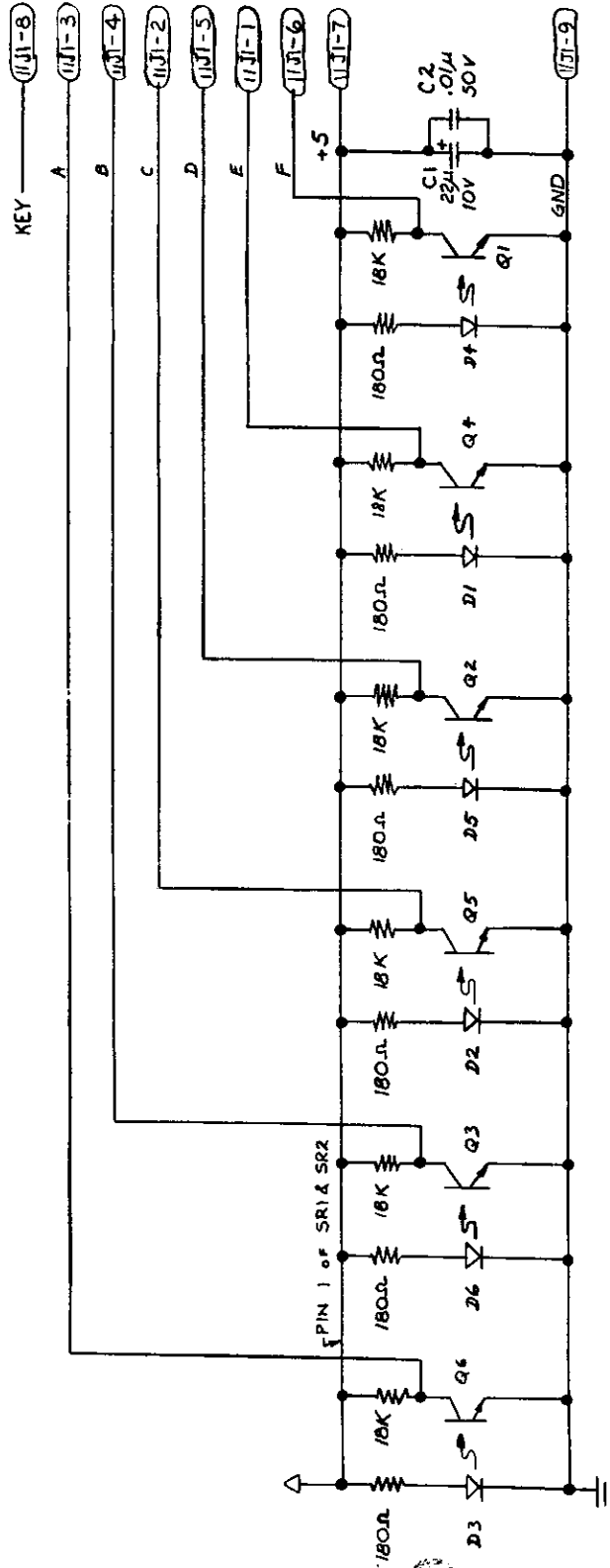
ITEM	PART NUMBER	DESCRIPTION	QTY
1	7905	TRANSFORMER	1
2	1458	OP AMP	2
3	2N3906	TRANSISTOR	8
4	100μF	CAPACITOR	4

ITEM	PART NUMBER	DESCRIPTION	QTY
1	7905	TRANSFORMER	1
2	1458	OP AMP	2
3	2N3906	TRANSISTOR	8
4	100μF	CAPACITOR	4

ITEM	PART NUMBER	DESCRIPTION	QTY
1	7905	TRANSFORMER	1
2	1458	OP AMP	2
3	2N3906	TRANSISTOR	8
4	100μF	CAPACITOR	4

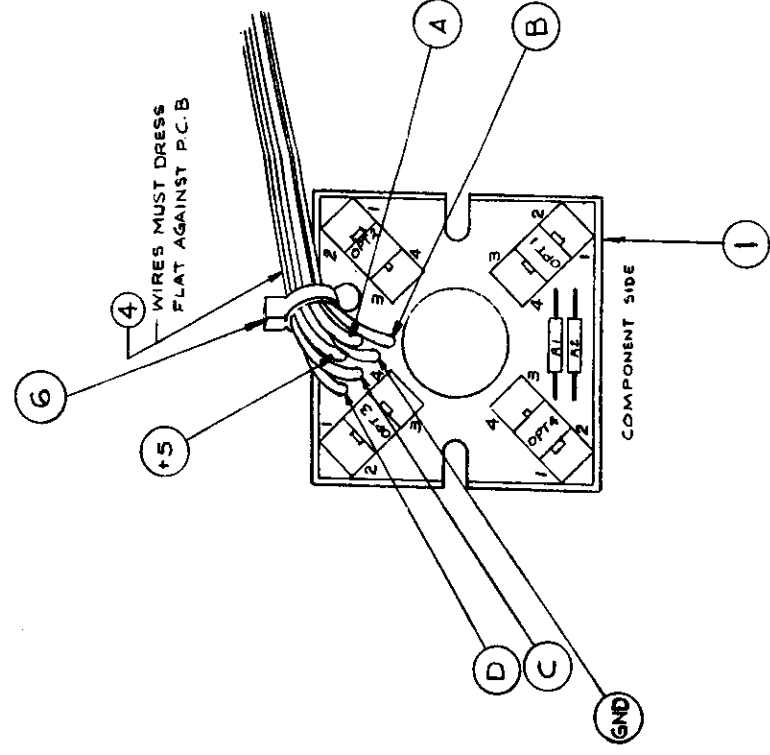


KEYING PIN



NOTE:
RESISTORS ARE IN SIPS.
SR2 | 180Ω
SR1 | 18K

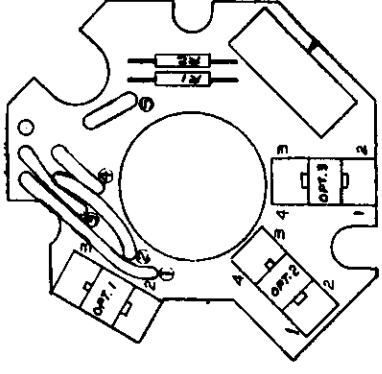
ITEM	PART NUMBER	PART DESIGNATION	DESCRIPTION	QTY.
9	16-8850-16		LABEL - PCB ID	1
8	5791-09027-00	J1	CONNECTOR, 9P MALE 2591 09-65-1091	1
7	5043-08996-00	C2	CAPACITOR, 0.1μF 50V, +/-20	1
6	5040-09545-00	C1	CAPACITOR, 22μF 10V, +/-20	1
5	5019-10158-00	SR2	SIP, 180 OHMS 7R8P 5%	1
4	5019-10387-00	SR1	SIP, 18K OHMS 9R10P 5%	1
3	5169-10509-00	D1, Q2, Q3, Q4, Q5	PHOTOTRANSISTOR NPN 3.4 mA	6
2	5671-10508-00	D1, D2, D3, D4, D5, D6	I.R. LED 40 mA .1W	6
1	5779-10435-00		BARE P.C.B.	1



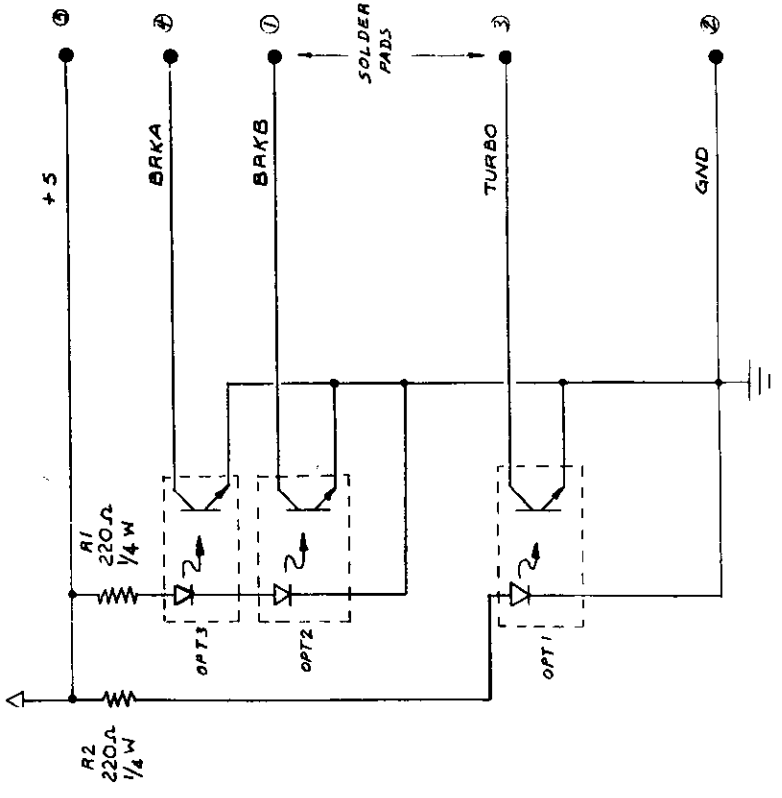
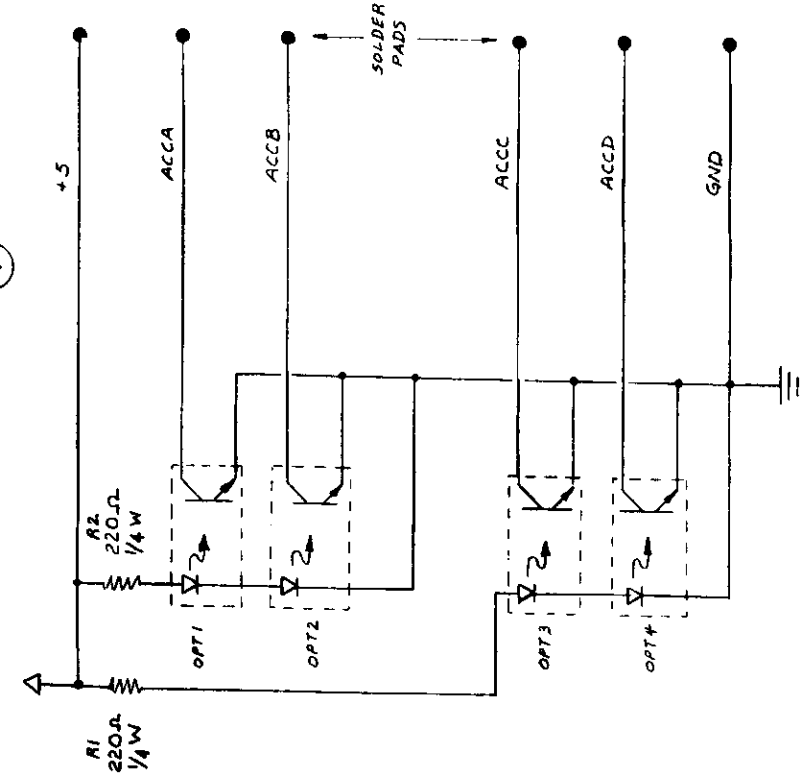
SOLDER PAD	WIRE COLOR	FUNCTION
+5V	GRAY	+5VDC
GND	BLACK	GROUND
A (OPT 1)	ORANGE/ VIOLET (L.S.B.)	THROTTLE A
B (OPT 2)	ORANGE/ BLUE	THROTTLE B
C (OPT 3)	ORANGE/ GREEN	THROTTLE C
D (OPT 4)	ORANGE/ YELLOW	THROTTLE D (M.S.B.)

ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	QTY.
6	03-7520-2		NYLON TY-WRAP	1
5	1/6-8850-95		LABEL- PCB ID	1
4	H-10283		H/BAR THROT CABLE	1
3	5010-00 09160-00	R1, R2	RESISTOR, 220 OHM 5%	2
2	5490-00 10159-00	OPT1, OPT2, OPT3, OPT4	OPTO INTERRUPTER	4
1	5779-00 10434-00		BARE PC BOARD	1

ITEM	PART NO.	PART DESIGNATION	DESCRIPTION	QTY.
5	H-10282		H/BAR BRAKE CABLE	1
4	1/6-8850-97		LABEL- PCB ID	1
3	5010-00 09160-00	R1, R2	RESISTOR, 220 OHM 5%	2
2	5490-00 10159-00	OPT01, OPT02 OPT03	OPTO INTERRUPTER	3
1	5779-00 10436-00		BARE PC BOARD	1



PAD	SIGNAL	WIRE COLOR
1	BRKB	ORG - RED
2	GND	BLK
3	TURBO	ORG - BLK
4	BRKA	ORG
5	+5	GREY



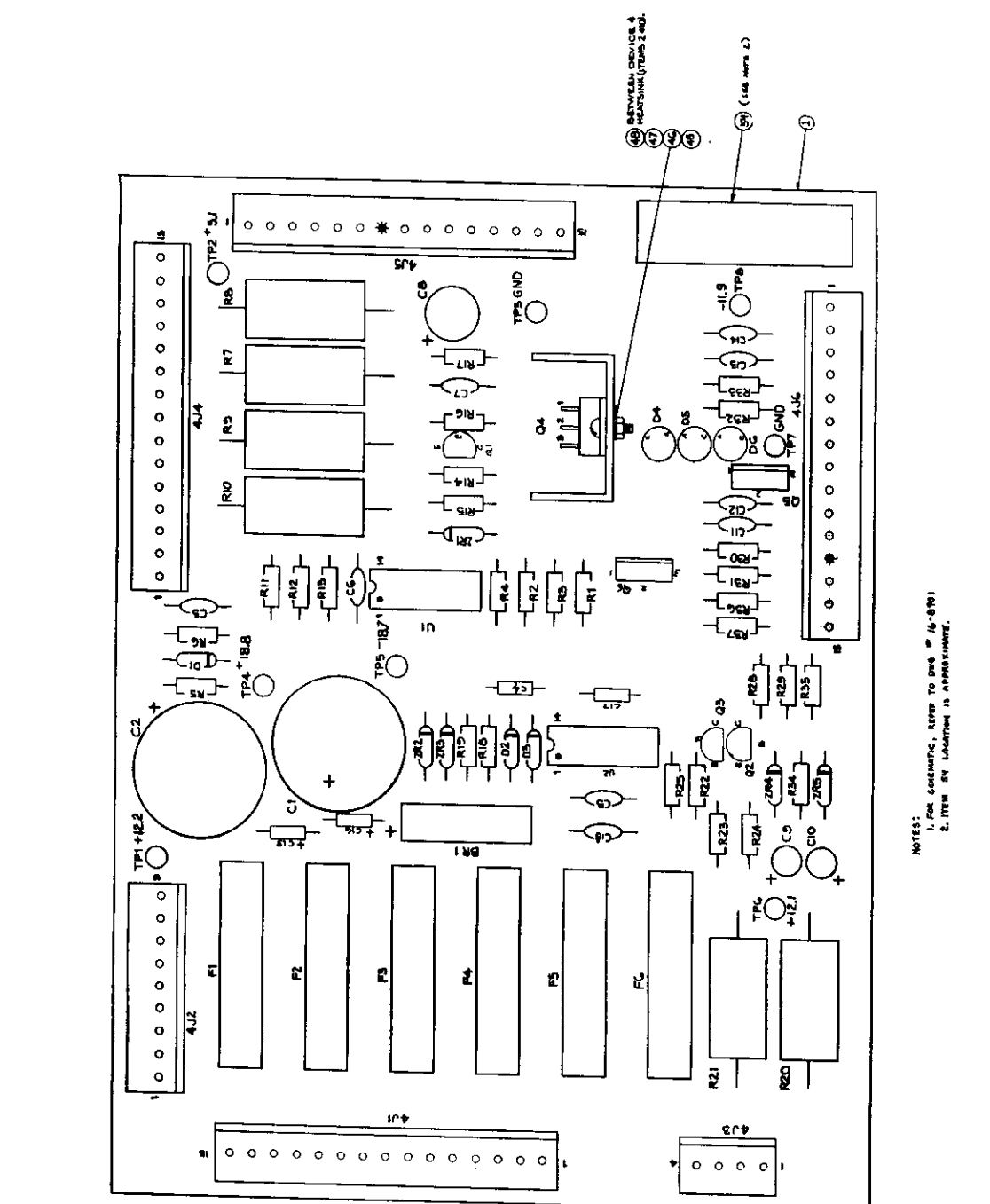
NOTE:
SEE ASSY DRAWING
C-9994 FOR LOCATIONS.

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
15	5010-10468-00	CAP 1000PF 25V 50% 10	7
16	5010-10468-00	CAP 1000PF 25V 50% 10	6
17	5010-10468-00	CAP 1000PF 25V 50% 10	2
18	5010-10468-00	CAP 1000PF 25V 50% 10	1
19	5010-10468-00	CAP 1000PF 25V 50% 10	1
20	5010-10468-00	CAP 1000PF 25V 50% 10	1
21	5010-10468-00	CAP 1000PF 25V 50% 10	1
22	5010-10468-00	CAP 1000PF 25V 50% 10	1
23	5010-10468-00	CAP 1000PF 25V 50% 10	1
24	5010-10468-00	CAP 1000PF 25V 50% 10	1
25	5010-10468-00	CAP 1000PF 25V 50% 10	1
26	5010-10468-00	CAP 1000PF 25V 50% 10	1
27	5010-10468-00	CAP 1000PF 25V 50% 10	1
28	5010-10468-00	CAP 1000PF 25V 50% 10	1
29	5010-10468-00	CAP 1000PF 25V 50% 10	1
30	5010-10468-00	CAP 1000PF 25V 50% 10	1
31	5010-10468-00	CAP 1000PF 25V 50% 10	1
32	5010-10468-00	CAP 1000PF 25V 50% 10	1
33	5010-10468-00	CAP 1000PF 25V 50% 10	1
34	5010-10468-00	CAP 1000PF 25V 50% 10	1

HEAT SINK D-10069 BILL OF MATERIAL

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	5010-10468-00	CAP 1000PF 25V 50% 10	7
2	5010-10468-00	CAP 1000PF 25V 50% 10	6
3	5010-10468-00	CAP 1000PF 25V 50% 10	2
4	5010-10468-00	CAP 1000PF 25V 50% 10	1
5	5010-10468-00	CAP 1000PF 25V 50% 10	1
6	5010-10468-00	CAP 1000PF 25V 50% 10	1
7	5010-10468-00	CAP 1000PF 25V 50% 10	1
8	5010-10468-00	CAP 1000PF 25V 50% 10	1
9	5010-10468-00	CAP 1000PF 25V 50% 10	1
10	5010-10468-00	CAP 1000PF 25V 50% 10	1
11	5010-10468-00	CAP 1000PF 25V 50% 10	1
12	5010-10468-00	CAP 1000PF 25V 50% 10	1
13	5010-10468-00	CAP 1000PF 25V 50% 10	1
14	5010-10468-00	CAP 1000PF 25V 50% 10	1
15	5010-10468-00	CAP 1000PF 25V 50% 10	1
16	5010-10468-00	CAP 1000PF 25V 50% 10	1
17	5010-10468-00	CAP 1000PF 25V 50% 10	1
18	5010-10468-00	CAP 1000PF 25V 50% 10	1
19	5010-10468-00	CAP 1000PF 25V 50% 10	1
20	5010-10468-00	CAP 1000PF 25V 50% 10	1
21	5010-10468-00	CAP 1000PF 25V 50% 10	1
22	5010-10468-00	CAP 1000PF 25V 50% 10	1
23	5010-10468-00	CAP 1000PF 25V 50% 10	1
24	5010-10468-00	CAP 1000PF 25V 50% 10	1
25	5010-10468-00	CAP 1000PF 25V 50% 10	1
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30	5010-10468-00	CAP 1000PF 25V 50% 10	1
31	5010-10468-00	CAP 1000PF 25V 50% 10	1
32	5010-10468-00	CAP 1000PF 25V 50% 10	1
33	5010-10468-00	CAP 1000PF 25V 50% 10	1
34	5010-10468-00	CAP 1000PF 25V 50% 10	1

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
55	5010-10468-00	CAP 1000PF 25V 50% 10	8
56	5010-10468-00	CAP 1000PF 25V 50% 10	1
57	5010-10468-00	CAP 1000PF 25V 50% 10	2
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59	5010-10468-00	CAP 1000PF 25V 50% 10	2
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61	5010-10468-00	CAP 1000PF 25V 50% 10	2
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67	5010-10468-00	CAP 1000PF 25V 50% 10	2
68	5010-10468-00	CAP 1000PF 25V 50% 10	2
69	5010-10468-00	CAP 1000PF 25V 50% 10	2
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72	5010-10468-00	CAP 1000PF 25V 50% 10	2
73	5010-10468-00	CAP 1000PF 25V 50% 10	2
74	5010-10468-00	CAP 1000PF 25V 50% 10	2
75	5010-10468-00	CAP 1000PF 25V 50% 10	2
76	5010-10468-00	CAP 1000PF 25V 50% 10	2
77	5010-10468-00	CAP 1000PF 25V 50% 10	2
78	5010-10468-00	CAP 1000PF 25V 50% 10	2
79	5010-10468-00	CAP 1000PF 25V 50% 10	2
80	5010-10468-00	CAP 1000PF 25V 50% 10	2
81	5010-10468-00	CAP 1000PF 25V 50% 10	2
82	5010-10468-00	CAP 1000PF 25V 50% 10	2
83	5010-10468-00	CAP 1000PF 25V 50% 10	2
84	5010-10468-00	CAP 1000PF 25V 50% 10	2
85	5010-10468-00	CAP 1000PF 25V 50% 10	2
86	5010-10468-00	CAP 1000PF 25V 50% 10	2
87	5010-10468-00	CAP 1000PF 25V 50% 10	2
88	5010-10468-00	CAP 1000PF 25V 50% 10	2
89	5010-10468-00	CAP 1000PF 25V 50% 10	2
90	5010-10468-00	CAP 1000PF 25V 50% 10	2



NOTES:
 1. FOR SCHEMATIC, REFER TO DRAWING D-10070
 2. ITEM BY LOCATION IS APPROXIMATE.

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
34	5010-10468-00	CAP 1000PF 25V 50% 10	1
35	5010-10468-00	CAP 1000PF 25V 50% 10	1
36	5010-10468-00	CAP 1000PF 25V 50% 10	1
37	5010-10468-00	CAP 1000PF 25V 50% 10	1
38	5010-10468-00	CAP 1000PF 25V 50% 10	1
39	5010-10468-00	CAP 1000PF 25V 50% 10	1
40	5010-10468-00	CAP 1000PF 25V 50% 10	1
41	5010-10468-00	CAP 1000PF 25V 50% 10	1
42	5010-10468-00	CAP 1000PF 25V 50% 10	1
43	5010-10468-00	CAP 1000PF 25V 50% 10	1
44	5010-10468-00	CAP 1000PF 25V 50% 10	1
45	5010-10468-00	CAP 1000PF 25V 50% 10	1
46	5010-10468-00	CAP 1000PF 25V 50% 10	1
47	5010-10468-00	CAP 1000PF 25V 50% 10	1
48	5010-10468-00	CAP 1000PF 25V 50% 10	1
49	5010-10468-00	CAP 1000PF 25V 50% 10	1
50	5010-10468-00	CAP 1000PF 25V 50% 10	1
51	5010-10468-00	CAP 1000PF 25V 50% 10	1
52	5010-10468-00	CAP 1000PF 25V 50% 10	1
53	5010-10468-00	CAP 1000PF 25V 50% 10	1
54	5010-10468-00	CAP 1000PF 25V 50% 10	1
55	5010-10468-00	CAP 1000PF 25V 50% 10	1
56	5010-10468-00	CAP 1000PF 25V 50% 10	1
57	5010-10468-00	CAP 1000PF 25V 50% 10	1
58	5010-10468-00	CAP 1000PF 25V 50% 10	1
59	5010-10468-00	CAP 1000PF 25V 50% 10	1
60	5010-10468-00	CAP 1000PF 25V 50% 10	1
61	5010-10468-00	CAP 1000PF 25V 50% 10	1
62	5010-10468-00	CAP 1000PF 25V 50% 10	1
63	5010-10468-00	CAP 1000PF 25V 50% 10	1
64	5010-10468-00	CAP 1000PF 25V 50% 10	1
65	5010-10468-00	CAP 1000PF 25V 50% 10	1
66	5010-10468-00	CAP 1000PF 25V 50% 10	1
67	5010-10468-00	CAP 1000PF 25V 50% 10	1
68	5010-10468-00	CAP 1000PF 25V 50% 10	1
69	5010-10468-00	CAP 1000PF 25V 50% 10	1
70	5010-10468-00	CAP 1000PF 25V 50% 10	1
71	5010-10468-00	CAP 1000PF 25V 50% 10	1
72	5010-10468-00	CAP 1000PF 25V 50% 10	1
73	5010-10468-00	CAP 1000PF 25V 50% 10	1
74	5010-10468-00	CAP 1000PF 25V 50% 10	1
75	5010-10468-00	CAP 1000PF 25V 50% 10	1
76	5010-10468-00	CAP 1000PF 25V 50% 10	1
77	5010-10468-00	CAP 1000PF 25V 50% 10	1
78	5010-10468-00	CAP 1000PF 25V 50% 10	1
79	5010-10468-00	CAP 1000PF 25V 50% 10	1
80	5010-10468-00	CAP 1000PF 25V 50% 10	1

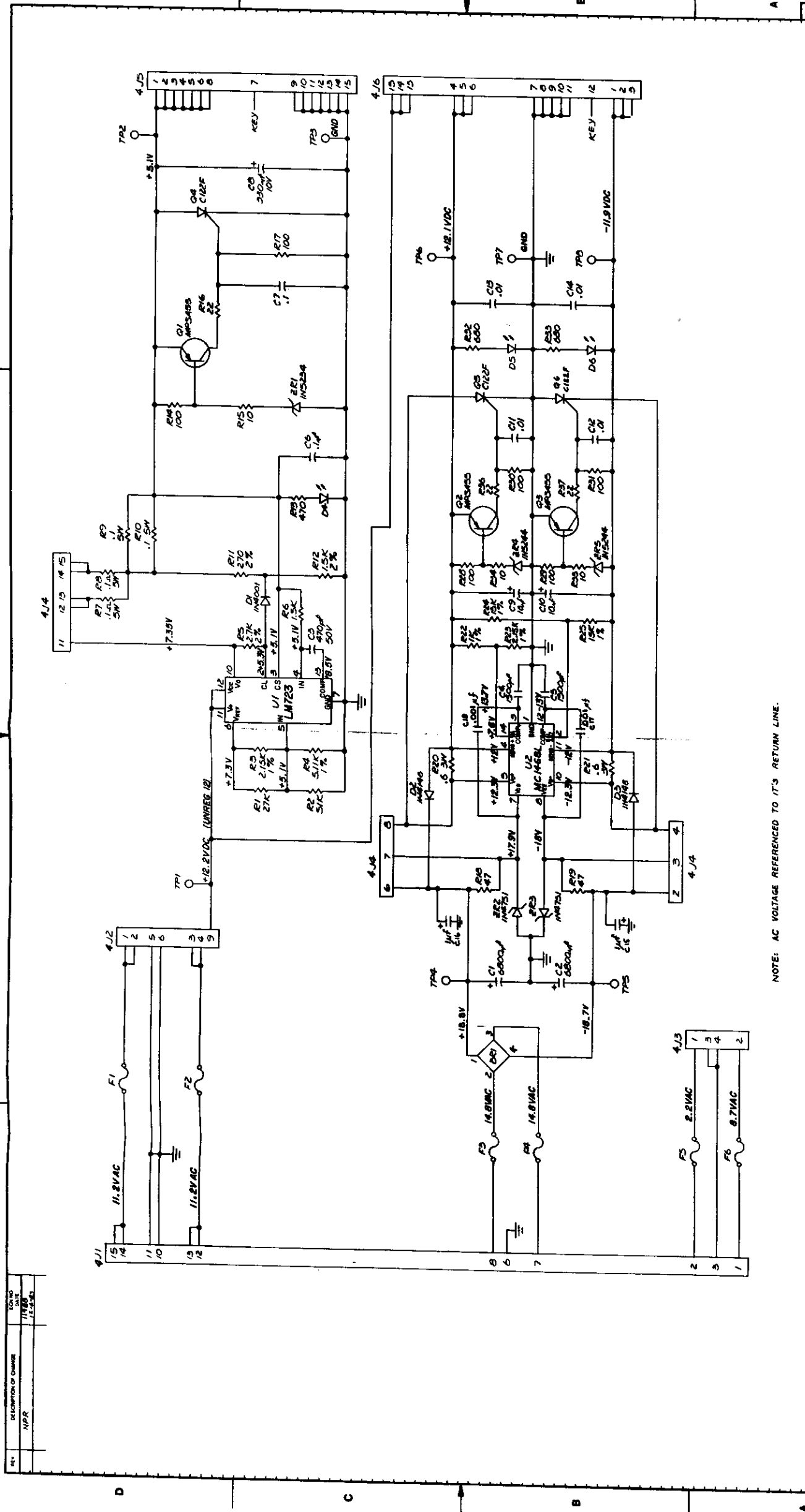
BILL OF MATERIALS

REV	DESCRIPTION OF CHANGE	DATE	BY

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	PROJENOR	REMOVE BURRS - BREAK SHARP EDGES		1			
2	C. BLETC H	TOLERANCES UNLESS OTHERWISE SPECIFIED		2			
3	DATE			3			
4				4			
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			
13				13			
14				14			
15				15			

WILLIAMS ELECTRONICS, INC.
 3401 N CALIFORNIA AVE
 CHICAGO, ILL
 NAME P. S. PCB SV 10A SCHEM.
 SCALE 1/8"=1" (1/8"=1")
 PART NO 16-8901
 REV

REV	DESCRIPTION OF CHANGE	DATE	BY

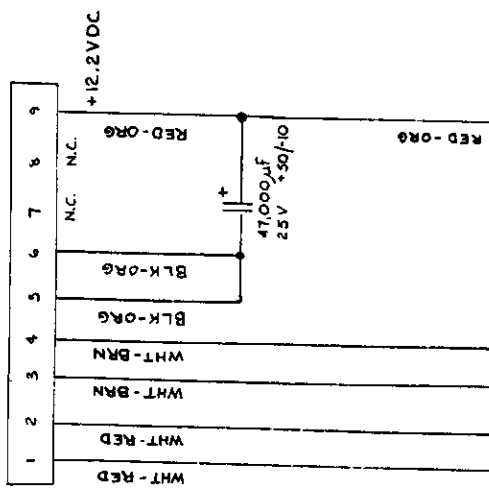


NOTE: AC VOLTAGE REFERENCED TO IT'S RETURN LINE.

REV	DESCRIPTION OF CHANGE	DATE	BY
1	NPR	1/11/68	1/11/68

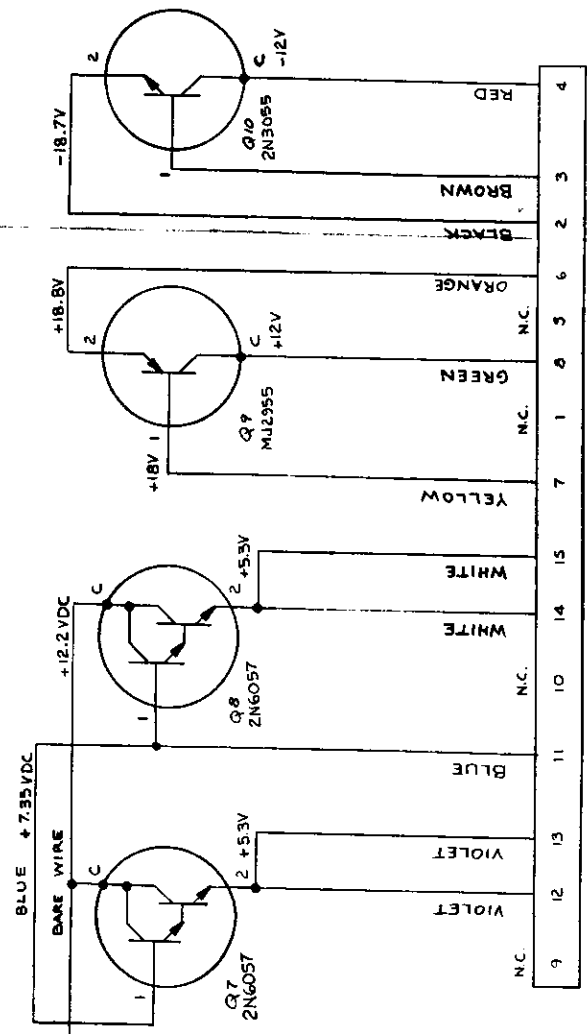
16-8901

4P2



NOTES:

1. CAPACITOR MOUNTED TO PEM PLATE, OTHER COMPONENTS MOUNTED TO HEAT SINK.
2. SCHEMATIC REPRESENTS HEAT SINK SUB. ASSY. 5Y 10A C-10069.



4P4

ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	C-10069	HEAT SINK SUB. ASSY. 5Y 10A	1	1	WILLIAMS ELECTRONICS, INC.	CHICAGO ILL.	1
2	BR2	DIODE BRIDGE	1	2	2N3055	TRANSISTOR	1
3	Q7	2N6057	1	3	M12955	TRANSISTOR	1
4	Q8	2N6057	1	4	Q10	2N3055	1
5	Q9	M12955	1	5	BR2	DIODE BRIDGE	1
6	Q10	2N3055	1	6	47000µF	CAPACITOR	1

DO NOT SCALE WORK TO DIMENSIONS SHOWN UNLESS OTHERWISE SPECIFIED
 TOLERANCES: FRACTIONAL .5/164 ANGULAR .010 MAX DECIMAL .005 FILLETS .010 MAX MATERIAL

REMOVED BURRS - BREAK SHARP EDGES
 PROJECT: C-10069
 DATE: 1/11/68
 CHECKED BY: [Signature]
 APPROVAL: [Signature]

WILLIAMS ELECTRONICS, INC.
 2401N CALIFORNIA AVE
 CHICAGO ILL. 60618
 NAME: P.S. PCB 5V10A SCHEM.
 SCALE: 1/8"=1"
 PART NO: 16-8901
 REV: 1

