



SERVICE NOTE

EFFECT: FROGGER

NUMBER: 007 7/6/82

A new Assy. Game Electronics (P/N 834-0222), consisting of Logic Board Assy. (P/N 834-0350) and Sound Board Assy. (P/N 834-0349) has been added to FROGGER. Please insert the following pages into your Owner's Manual (P/N 420-0724).

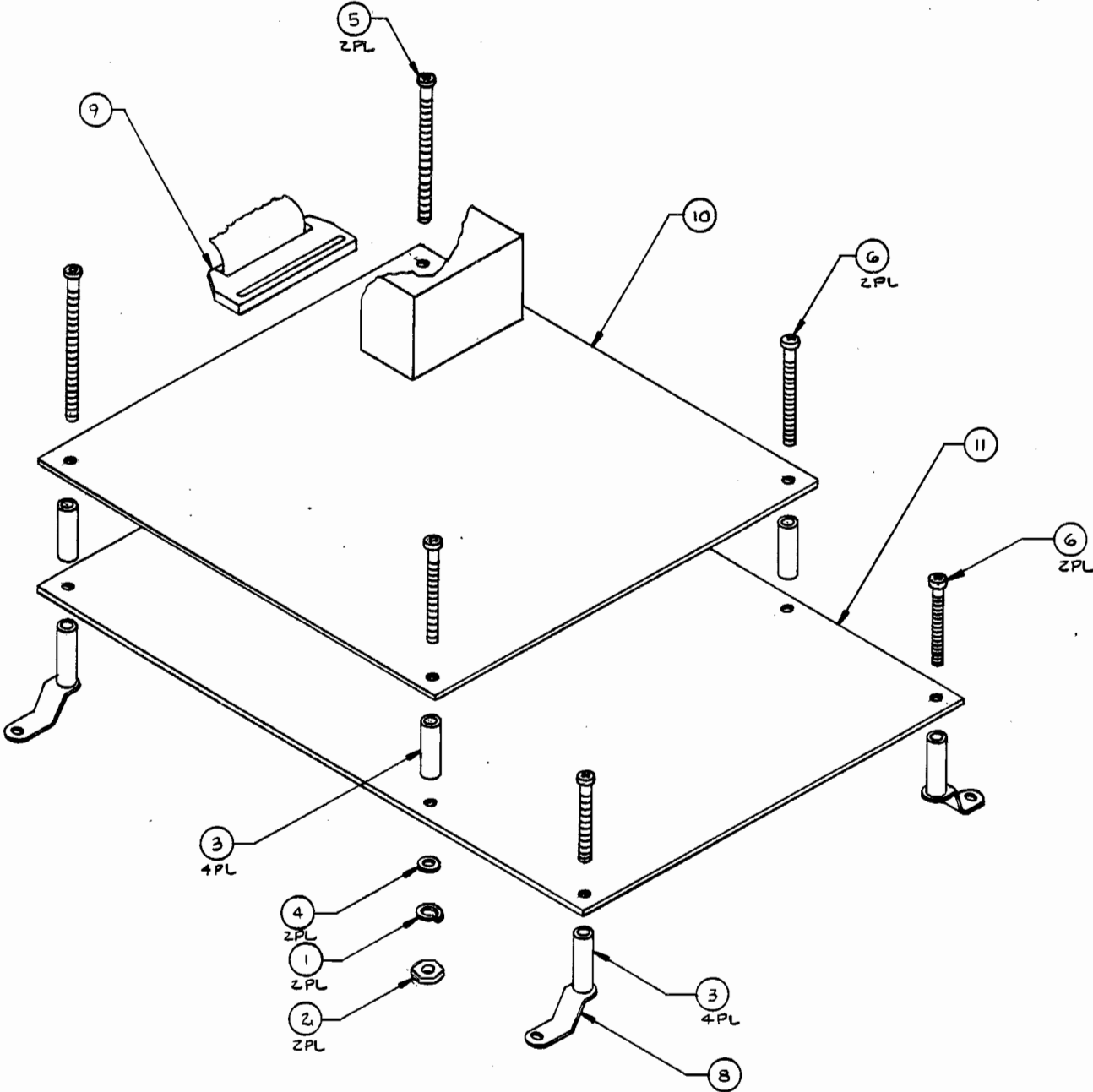
FROGGER IC BOARD ASSEMBLY

DRAWING NUMBER 834-0222

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
1	280-0257	6	Spring Washer	
2	280-0260	2	Hex Nut M3	
3	280-0367	6	Spacer Tube 19.1	
4	280-0369	2	Washer Plastic Polyc 3.3-8 x 0.8	
5	280-0370	2	Scr M PH PHL Iso M3 x 50	
6	280-0371	4	Scr M PH PHL M3 x 30	
7				
8	280-0372	4	PCB Mounting Foot	
9	600-0091	1	CA Flt and Plug Assy 34P	
10	834-0349	1	IC Assy Bd. Frogger Sound	
11	834-0350	1	IC Assy Bd. Frogger Sounb	

FROGGER GAME ELECTRONICS

834-0222



FROGGER LOGIC BOARD ASSEMBLY

DRAWING NUMBER 834-0350

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
1	150-0126	1	Cap 220 uf 10V UT	C158
2	150-0159	1	Cap 220 uf 16V U-Type	C101
3	150-0199	1	Cap 10 uf 16V Elec	C197
4				
5				
6	151-0002	1	Cap Cer 100 PF 50V	C196
7	151-0042	4	Cap 470 PF 50V	C119, 120, 134, 149
8	151-0060	84	Cap 0.1 uf 12V Cer	C102-118, 121-133, 135-143, 146, 150- 157, 159-195, 198
9				
10	152-0033	1	Cap 0.01 uf Film	C148
11	152-0038	1	Cap 0.047 uf Film	C147
12				
13				
14	170-0262		IC Board Konami KT-4108-2	
15				
16	230-0023	1	Crystal 18.432 MHz G/B	X2
17				
18	314-0233	2	IC 74161	U56, U57
19	314-0006	1	IC 7474	U71
20	314-0018	5	IC 74LS00	U32, U41, U72, U73, U75
21	314-0059	2	IC 74LS10	U49, U94
22	314-0060	3	IC 74LS20	U55, U88, U89
23	314-0062	4	IC 74LS74	U30, U85, U95, U96
24	314-0068	1	IC 74LS32	U91
25	314-0070	7	IC 74LS86	U47, U48, U53, U69, U82, U92, U102
26	314-0073	3	IC 74LS175	U64, U86, U87
27	314-0075	1	IC 74LS393	U42

FROGGER LOGIC BOARD ASSEMBLY - Continued

DRAWING NUMBER 834-0350

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
28	314-0076	9	IC 74LS157	U33, U34, U36-U38, U45, U46, U58, U77
29	314-0078	3	IC 74LS02	U31, U50, U90
30	314-0087	3	IC 74LS139	U29, U104, U105
31	314-0094	1	IC 74LS259	U40
32	314-0097	4	IC 74LS161	U93, U103, U70, U83
33	314-0098	4	IC 74LS194	U65, U66, U78, U79
34	314-0100	3	IC 74LS273	U35, U51, U54
35	314-0101	2	IC 74LS283	U68, U81
36	314-0102	7	IC 74LS367	U6, U7, U14, U26- U28, U39
37	314-0103	1	IC 74LS368	U60
38	314-0104	5	IC 74LS138	U15-U19
39	314-0108	1	IC 74LS107	U61
40	314-0119	1	IC 74LS377	U63
41	314-0204	1	IC 74LS126	U67
42	314-0216	5	IC 74S201	U97-U101
43	314-0058	4	IC 74LS08	U59, U74, U76, U80
44	314-0019	3	IC 74LS04	U52, U62, U84
45				
46				
47	315-0041	1	IC Z80A	U1
48	315-0050	2	IC EProm 2716	U43, U44
49	315-0083	4	IC 2732	U8-U11
50	315-0104	2	IC 2114-2	U24, U25
51	315-0105	6	IC 2114-3	U2-U5, U22, U23
52	315-0189	2	IC 8216	U20, U21
53				
54	316-1361	1	IC 6331	U52
55				
56	470-0101	1	Res 100 1/4W 5%	R53

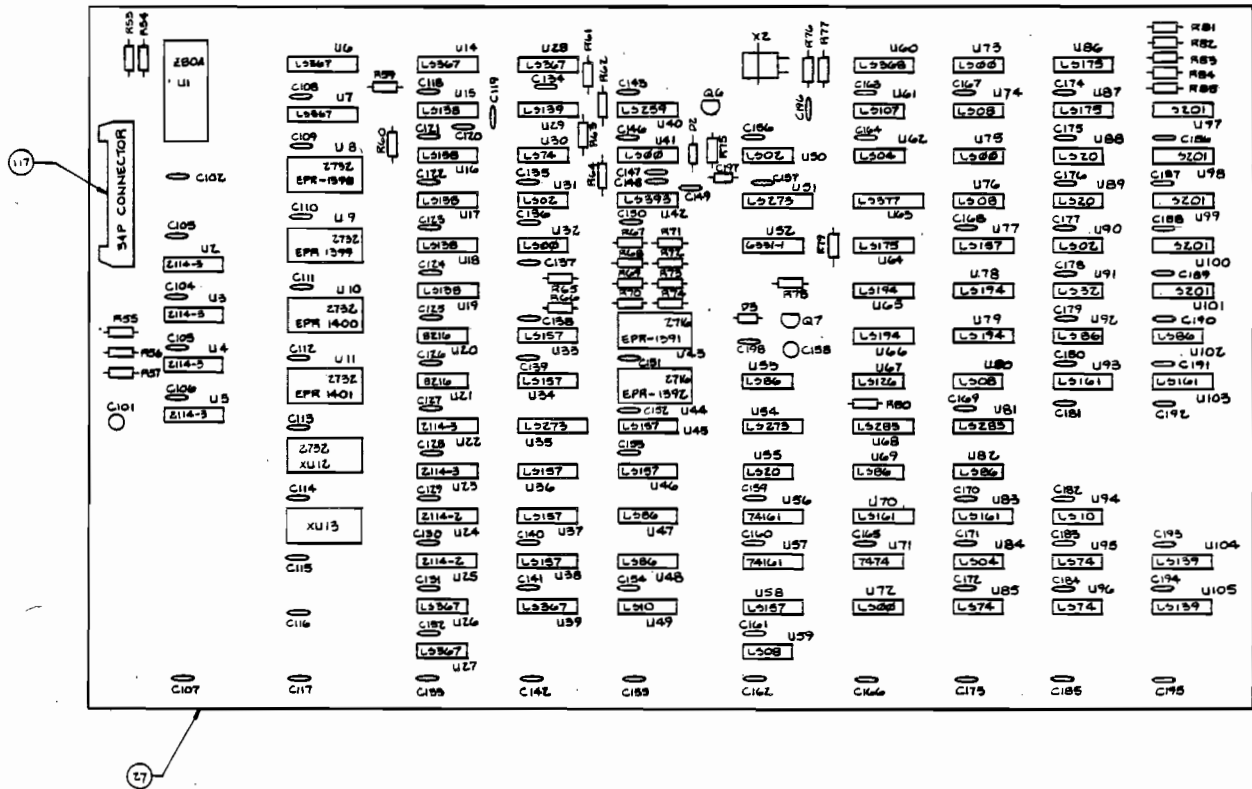
FROGGER LOGIC BOARD ASSEMBLY - Continued

DRAWING NUMBER 834-0350

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
57	470-0102	11	Res 1K 1/4W 5%	R60, 61, 64, 68, 73, 80-85
58	470-0103	1	Res 10K 1/4W 5%	R75
59	470-0203	1	Res 20K 1/4W 5%	R63
60	470-0221	4	Res 220 Ohm 1/4W	R54, 67, 70, 71
61	470-0331	2	Res 330 1/4W 5%	R76, 77
62	470-0391	2	Res 390 Ohm 1/4W	R65, 78
63	470-0471	9	Res 470 1/4W 5%	R55, 56, 66, 69, 72, 74, 79, 57, 59
64				
65				
66	481-0089	1	Diode 10D1	D3
67	481-0164	1	Diode 1S1588	D2
68				
69				
70	482-0160	2	XSTR 2SC1815	Q6, Q7
71				
72	212-0107	1	Skt 34 Pin	Flat Cable
73				
74	213-0004	1	Skt 16 Pin Dual Inline	XU52
75	213-0001	8	Skt 24 Pin Dual Inline	XU8-XU13, XU43, XU44
76	213-0005	1	Skt 40 Pin Dual Inline	XU1

FROGGER LOGIC BOARD

834-0350



FROGGER SOUND BOARD ASSEMBLY

DRAWING NUMBER 834-0349

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
1	150-0012	1	Cap E 47 uf 25V	C86
2	150-0014	1	Cap E 100 uf 25V	C89
3	150-0032	1	Cap 4 220 uf 10V	C1
4				
5				
6	151-0011	69	Cap Cer 0.1 uf 50V	C6-13, C16-53, C64-68, C71-76, C81-83, C91-98, C100
7	151-0017	18	Cap Cer .1 uf 12V	C31-C45, C47-C49
8	151-0042	3		C62, C99, C199
9	151-0119	1	Cap 100 uf 25V Cer	C88
	151-0002	3	Cap 100 PF Cer	C63, C84, C200
10	152-0054	2	Cap 0.001 uf 50V	C201, C202
11	152-0085	3	Cap 0.01 uf 50V	C14, C15, C85
12	152-0038	6	Cap 0.047 uf Film	C54, C55, C58, C59, C77, C78
13	153-0071	1	Cap .1 uf 50V	C87
14	153-0028	6	Cap 0.22 uf 35V	C56, C57, C60, C61, C79, C80
15	153-0046	1	Cap 0.15 uf 35V	C90
16	153-0059	1	Tant 6.8 uf 16V	C203
17	170-0261	1	IC Board Konami KT-4108-1	
18	230-0035	1	Crystal 14.318 MHZ	X1
19	313-0004	1	IC LM741 Dip	U109
20	313-0096	1	IC M51516L	U148
21	314-0012	5	IC 7408	U115, U116, U118, U119, U128
22	314-0015	2	IC 7404	U121, U141
23	314-0024	1	IC 7402	U123
24	314-0061	1	IC 74LS42	U114

FROGGER SOUND BOARD ASSEMBLY - Continued

DRAWING NUMBER 834-0349

<u>ITEM NO.</u>	<u>PART NO.</u>	QTY <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
25	314-0062	7	IC 74LS74	U120, U137-U139, U144, U145, U140
26	314-0066	3	IC 74LS27	U122, U124, U133
27	314-0068	2	IC 74LS32	U110, U132
28	314-0099	1	IC 74LS245	U129
29	314-0195	2	IC 74LS93	U125, U134
30	314-0058	1	IC 74LS08	U108
31	314-0019	1	IC 74LS04	U131
32	314-0291	1	IC 74293	U142
33	314-0142	1	IC 74LS90	U111
34	315-0031	1	IC Z80 CPU	U117
35	315-0046	2	IC 2114/2114L RAM	U135, U136
36	315-0083	2	IC 2732	U126, U127
37	315-0088	2	IC 8255	U106, U107
38	315-0045	3	IC CD4066	U143, U146, U147
39	315-0057	2	IC AY-8910	U112, U113
40				
41	470-0102	18	Res 1K 1/4 5%	R1-9, 14, 32-35, 42, 48-50
42	470-0103	2	Res 10K 1/4W 5%	R41, 86
43	470-0202	1	Res 2K Ohm 1/4W	R43
44	470-0221	19	Res 220 Ohm 1/4W	R10, 11, 15-24, 26-31, 25
45	470-0222	1	Res 2.2K 1/4W 5%	R44
46	470-0331	1	Res 330 1/4W 5%	R39
47	470-0512	9	Res 5.1K Ohm 1/4W	R12, 13, 36-38, 40, 45-47
48	470-0821	2	Res 820 Ohm 1/4W	R51, 52
49				
50				
51	477-0035	1	Res Pack 4 X 1K Ohm	RP3

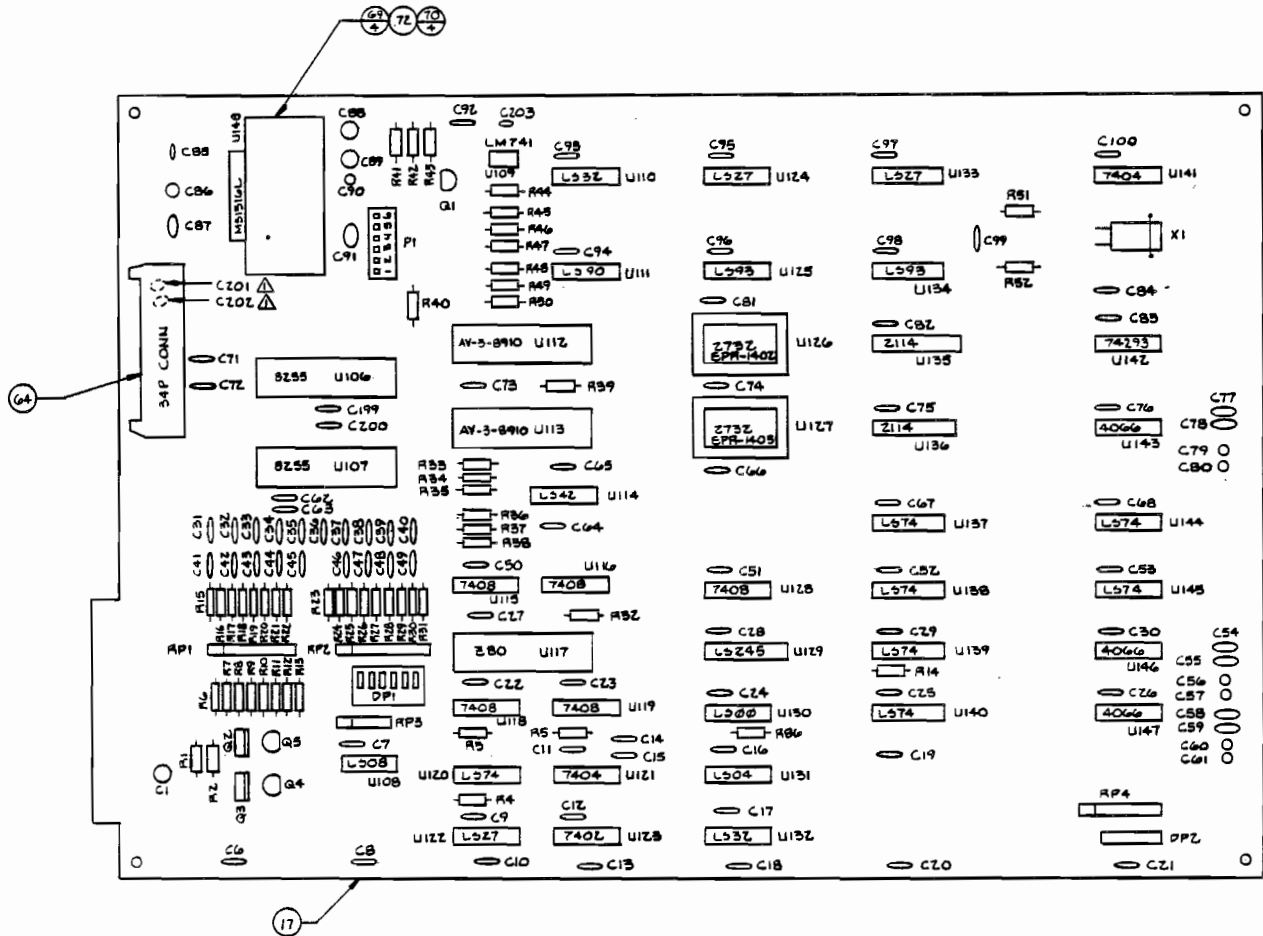
FROGGER SOUND BOARD ASSEMBLY - Continued

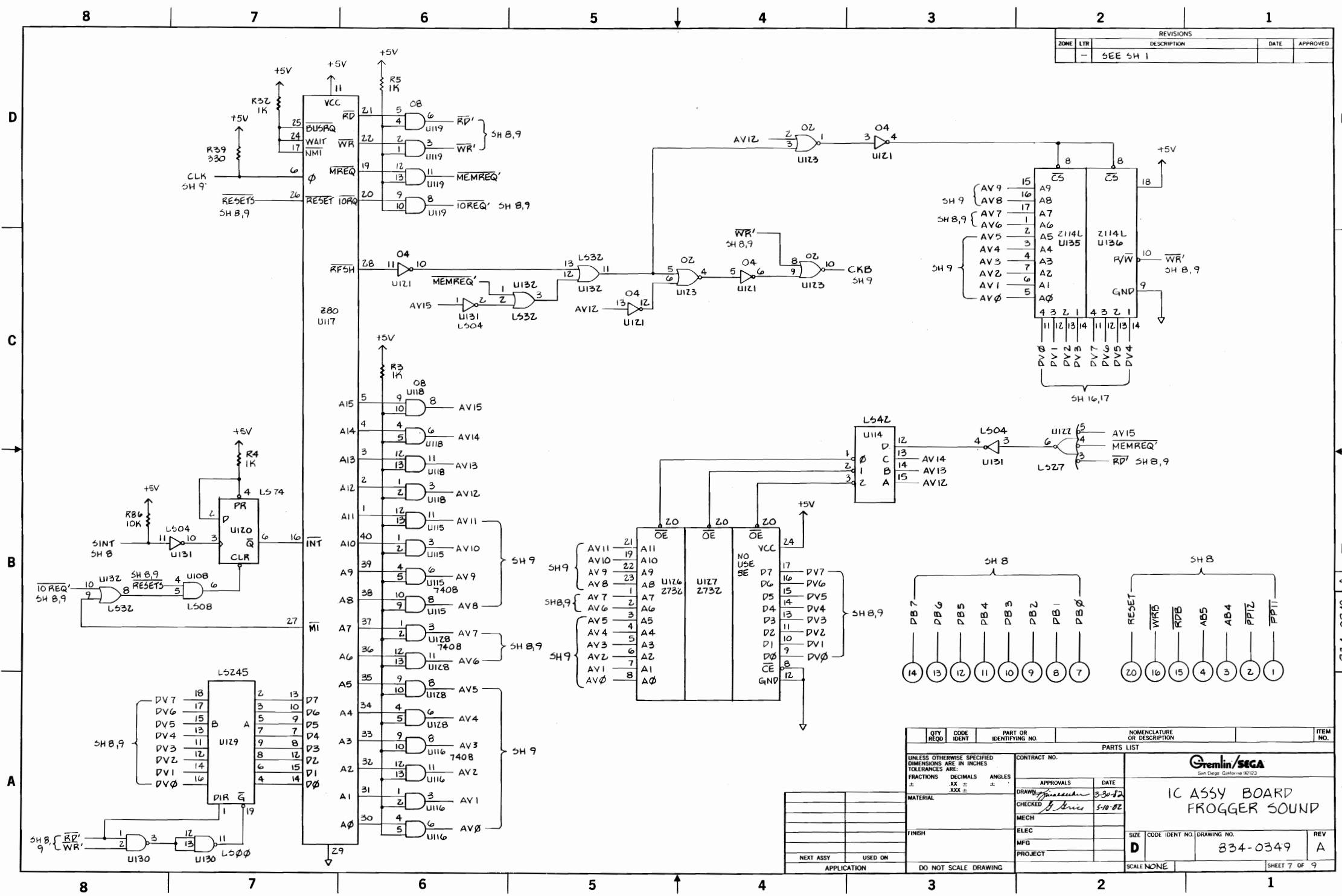
DRAWING NUMBER 834-0349

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>QTY</u> <u>REQD.</u>	<u>DESCRIPTION</u>	<u>REF DES.</u>
52	477-0039	2	Res Pack 8 X 1K Ohm 1/8W W/Common	RP1, RP2
53				
54				
55	482-0160	2	XSTR 2SC1815	Q4, Q5
56	482-0230	2	XSTR 2SD361	Q2, Q3
57	482-0231	1	XSTR 2SC2320	Q1
58				
59	510-0049	1	SW 8 Pos Dip SPST	DP2
60	510-0043	1	SW 6 Pos Dip SPST	DP1
61				
62		1	Conn Plug 6 Pin	P1
63				
64	212-0107	1	Skt 34 Pin	Flat Cable
65				
66	213-0001	2	Skt 24 Pin Dual Inline	XU126, XU127
67	213-0005	3	Skt 40 Pin Dual Inline	XU112, XU113, XU117
68				
69	280-0257	4	Spring Washer	
70	280-0416	4	Metric Scr Phil M3X8	
71				
72	530-0030	1	Heat Sink	

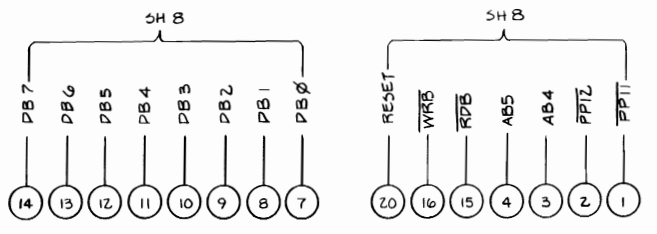
FROGGER SOUND BOARD

834-0349



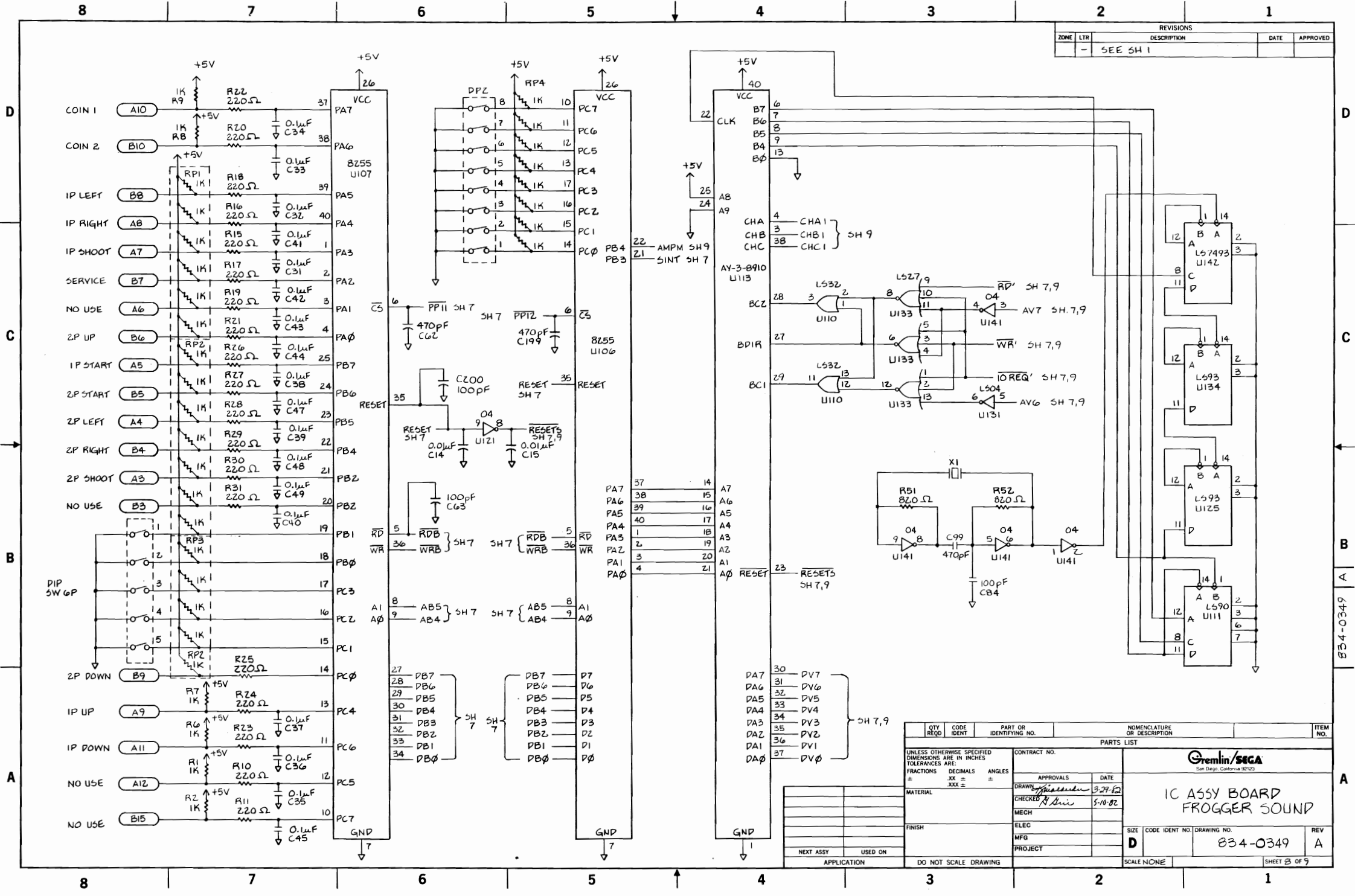


REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES .XX ± .XXX ±				
MATERIAL		CONTRACT NO.		 Sun Diego California 90123
FINISH		APPROVALS		
NEXT ASSY USED ON APPLICATION		CHECKED		
DO NOT SCALE DRAWING		MECH		
DRAWN			DATE	IC ASSY BOARD FROGGER SOUND
CHECKED			5-30-82	
ELEC			5-10-82	
PROJECT			SIZE	REV
SCALE NONE			D	A
DRAWING NO. 834-0349			SHEET 7 OF 9	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		

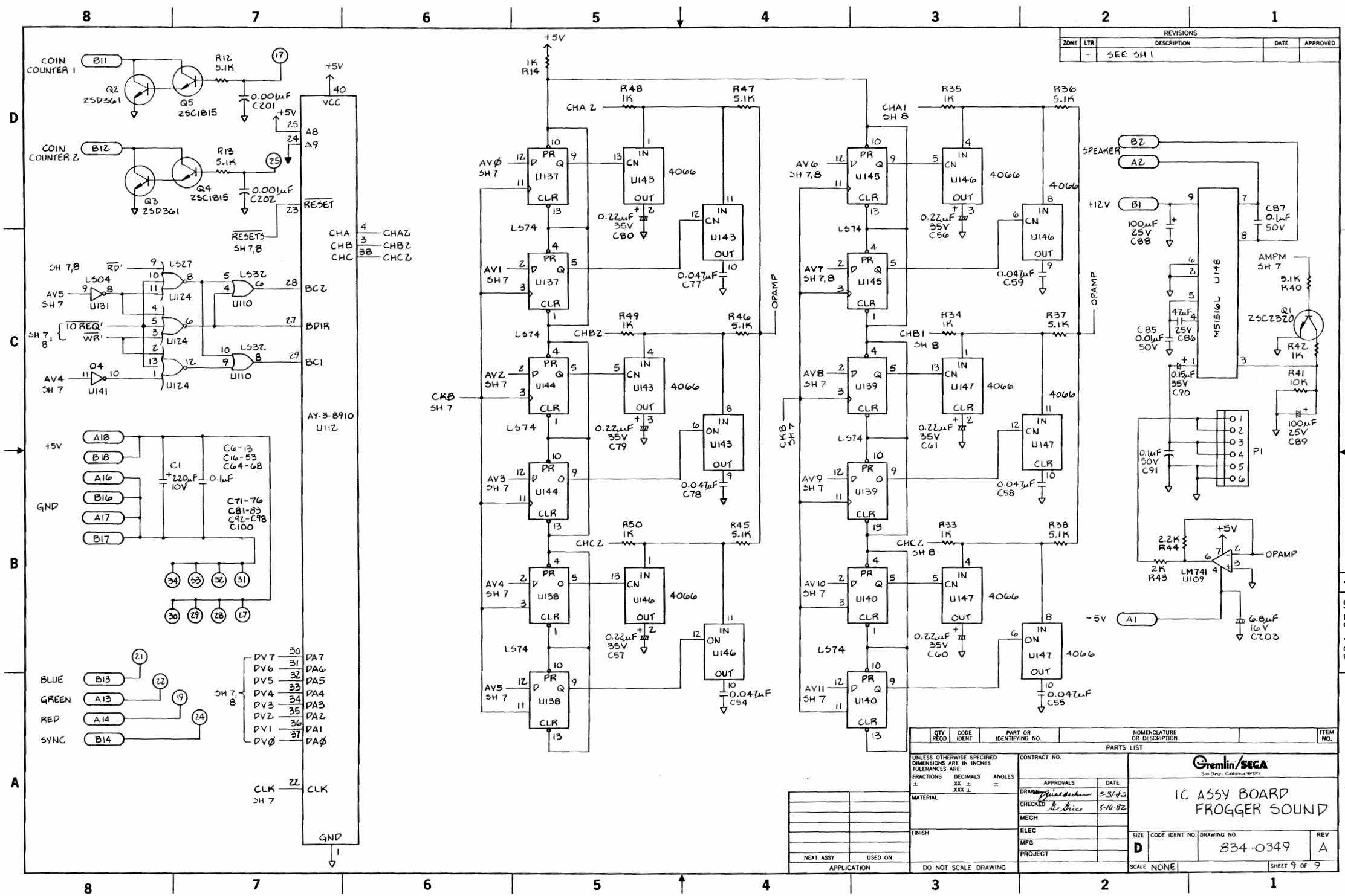


QTY	CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:				
±	FRACTIONS	DECIMALS	ANGLES	
±	.XX	±	±	
±	.XXX	±	±	
MATERIAL		CONTRACT NO.		
FINISH		APPROVALS		
NEXT ASSY		DRAWN: <i>[Signature]</i> 3-27-82		
USED ON		CHECKED: <i>[Signature]</i> 5-10-82		
APPLICATION		MECH		
DO NOT SCALE DRAWING		ELEC		
		MFG		
		PROJECT		

Gremlin/SEGA
San Diego, California 92123

IC ASSY BOARD
FROGGER SOUND

SIZE: D CODE IDENT NO: 834-0349 REV: A
SCALE: NONE SHEET 2 OF 9



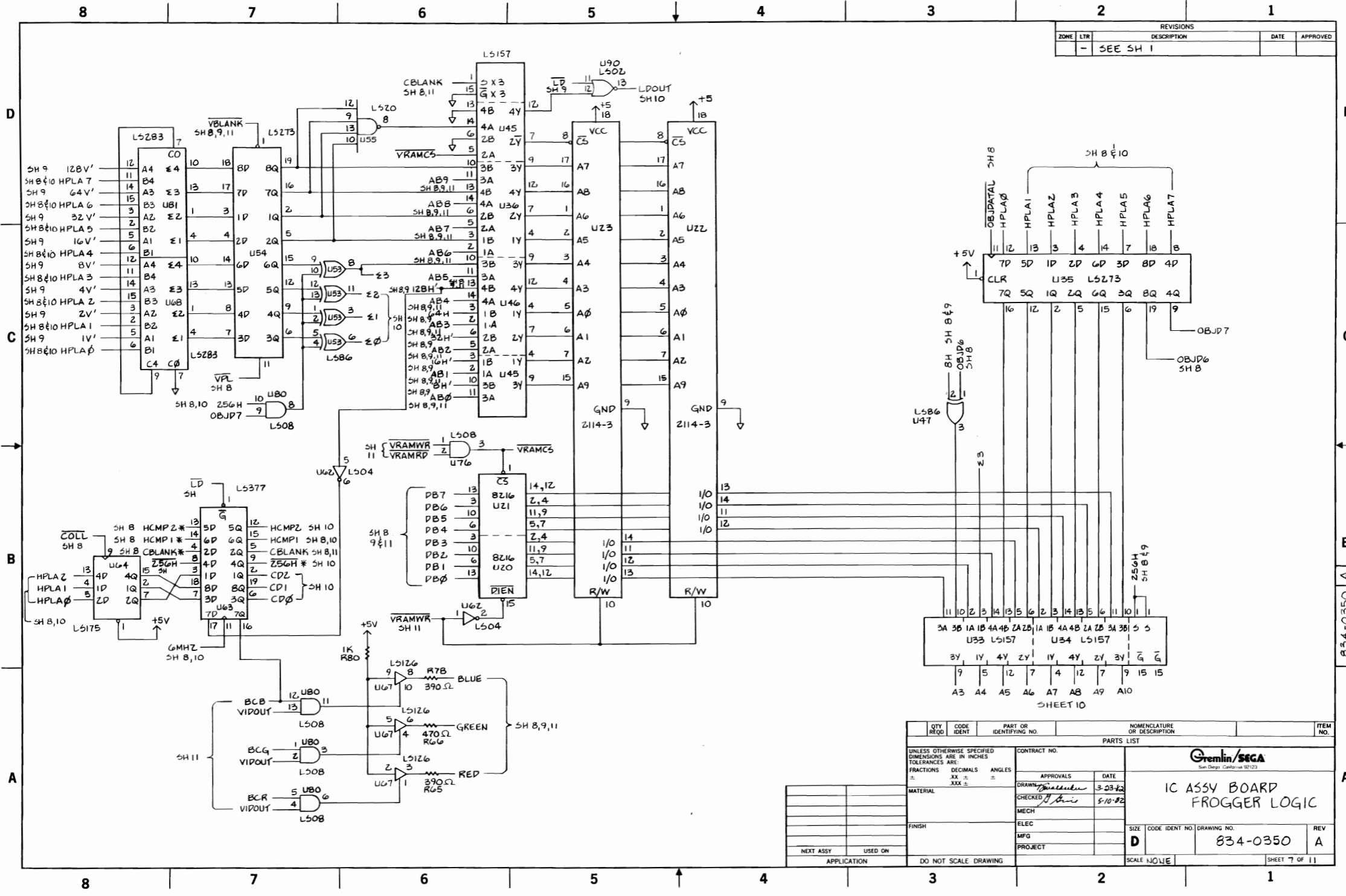
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		

QTY		CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .XX ± .XXX ± °					
CONTRACT NO.		APPROVALS DATE			
MATERIAL		DRAWN <i>[Signature]</i> 3-3-82			
FINISH		CHECKED <i>[Signature]</i> 5-10-82			
NEXT ASSY USED ON		MECH			
APPLICATION		ELEC			
DO NOT SCALE DRAWING		MFG			
		PROJECT			
		SIZE CODE IDENT NO. DRAWING NO.		REV	
		D 834-0349		A	
		SCALE NONE		SHEET 9 OF 9	

Gremlin/SEGA
San Diego California 92123

**IC ASSY BOARD
FROGGER SOUND**

834-0349 A

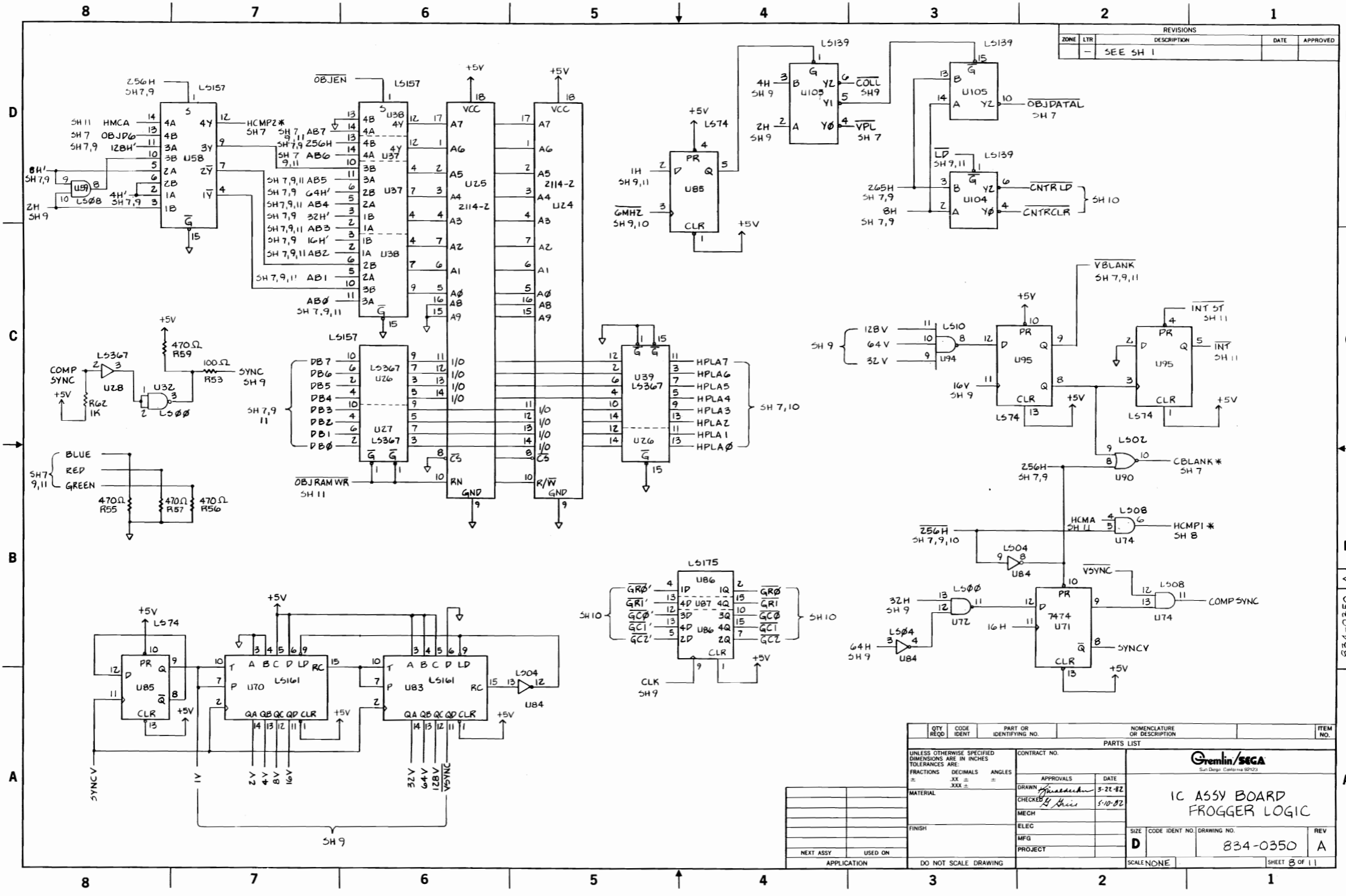


REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	SEE SH 1			

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
±	.XX ±	±	<i>[Signature]</i>	3-23-82
MATERIAL		DRAWN		
FINISH		CHECKED <i>[Signature]</i> 5-10-82		
NEXT ASSY USED ON		MECH		
APPLICATION		ELEC		
DO NOT SCALE DRAWING		MFG		
		PROJECT		
		SIZE CODE IDENT NO. DRAWING NO. REV		
		D 834-0350 A		
		SCALE NOTE SHEET 7 OF 11		

834-0350 A

>HEET 10



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO.		
APPROVALS		DATE		
DRAWN <i>[Signature]</i>		3-22-82		
CHECKED <i>[Signature]</i>		5-10-82		
MECH				
ELEC				
MFG				
PROJECT				
SCALE NONE		SHEET 3 OF 11		

Gremlin/SEGA
San Diego, California 92121

**IC ASSY BOARD
FROGGER LOGIC**

SIZE CODE IDENT NO. DRAWING NO. **834-0350** REV **A**

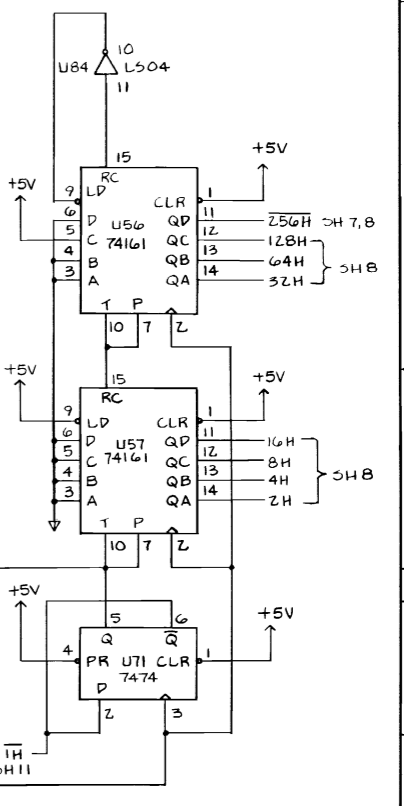
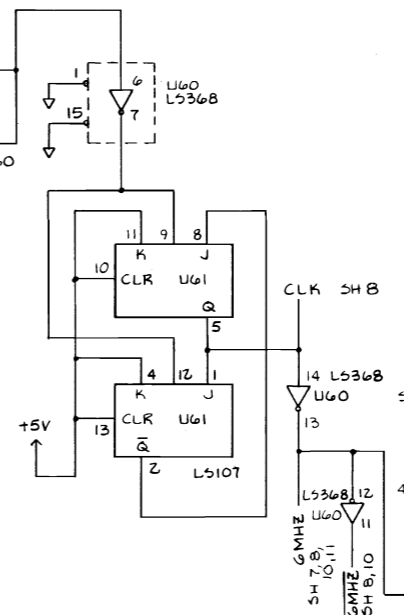
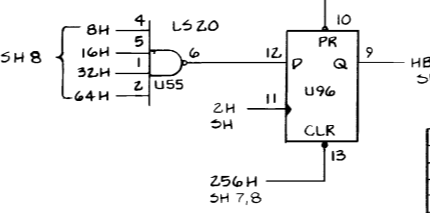
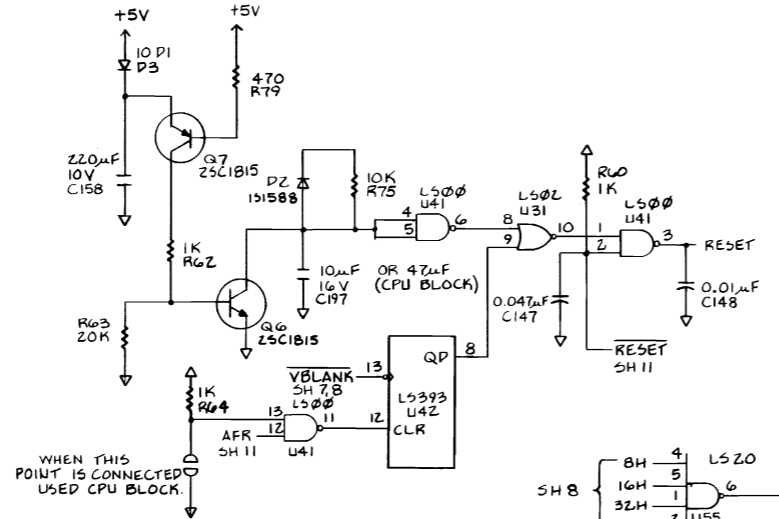
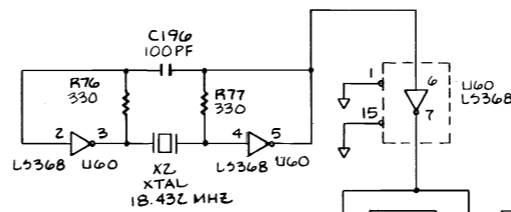
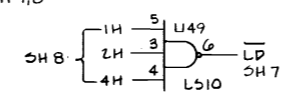
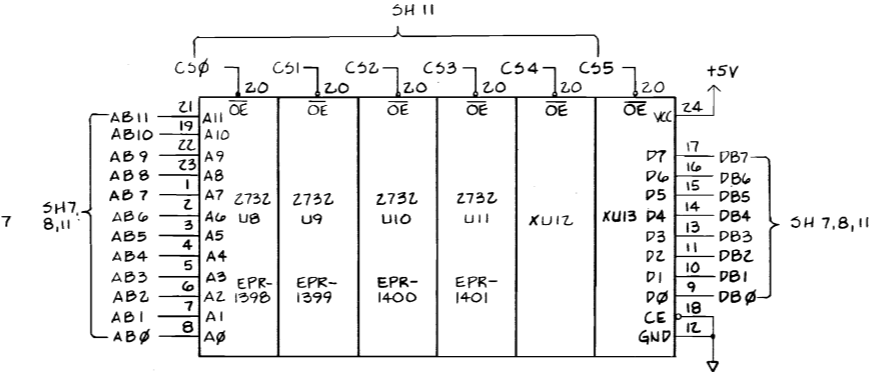
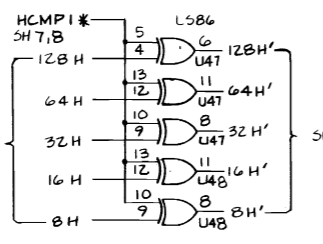
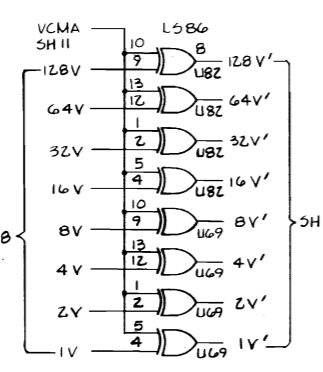
NEXT ASSY	USED ON
APPLICATION	DO NOT SCALE DRAWING

834-0350

8 7 6 5 4 3 2 1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		

- 30 +5V
- 29 C102-118
- 28 C121-133
- 27 C135-143
- 26 C146
- 25 C150-157
- 24 C159-195
- 23 C198
- 34 16V
- 33
- 32
- 31
- 25 COIN COUNTER 2 SH11
- 24 SYNC SH8
- 21 BLUE SH7,B11
- 19 RED SH7,B11
- 20 GREEN SH7,B11
- 17 RESET SH7,B11
- 16 WRB SH11
- 15 RDB SH11
- 14 DB7 SH7,B,11
- 13 DB6 SH7,B,11
- 12 DB5 SH7,B,11
- 11 DB4 SH7,B,11
- 10 DB3 SH7,B,11
- 9 DB2 SH7,B,11
- 8 DB1 SH7,B,11
- 7 DB0 SH7,B,11
- 4 AB5 SH7,B,11
- 3 AB4 SH7,B,11
- 2 PPIZ SH11
- 1 PPII SH11



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CONTRACT NO.		
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
±	XX ±	±	<i>[Signature]</i>	3-19-82
MATERIAL	CHECKED	MECH	<i>[Signature]</i>	5-10-82
FINISH	ELEC	MFG	PROJECT	
NEXT ASSY	USED ON	APPLICATION	DO NOT SCALE DRAWING	

Gremlin/SEGA
San Diego, California 92123

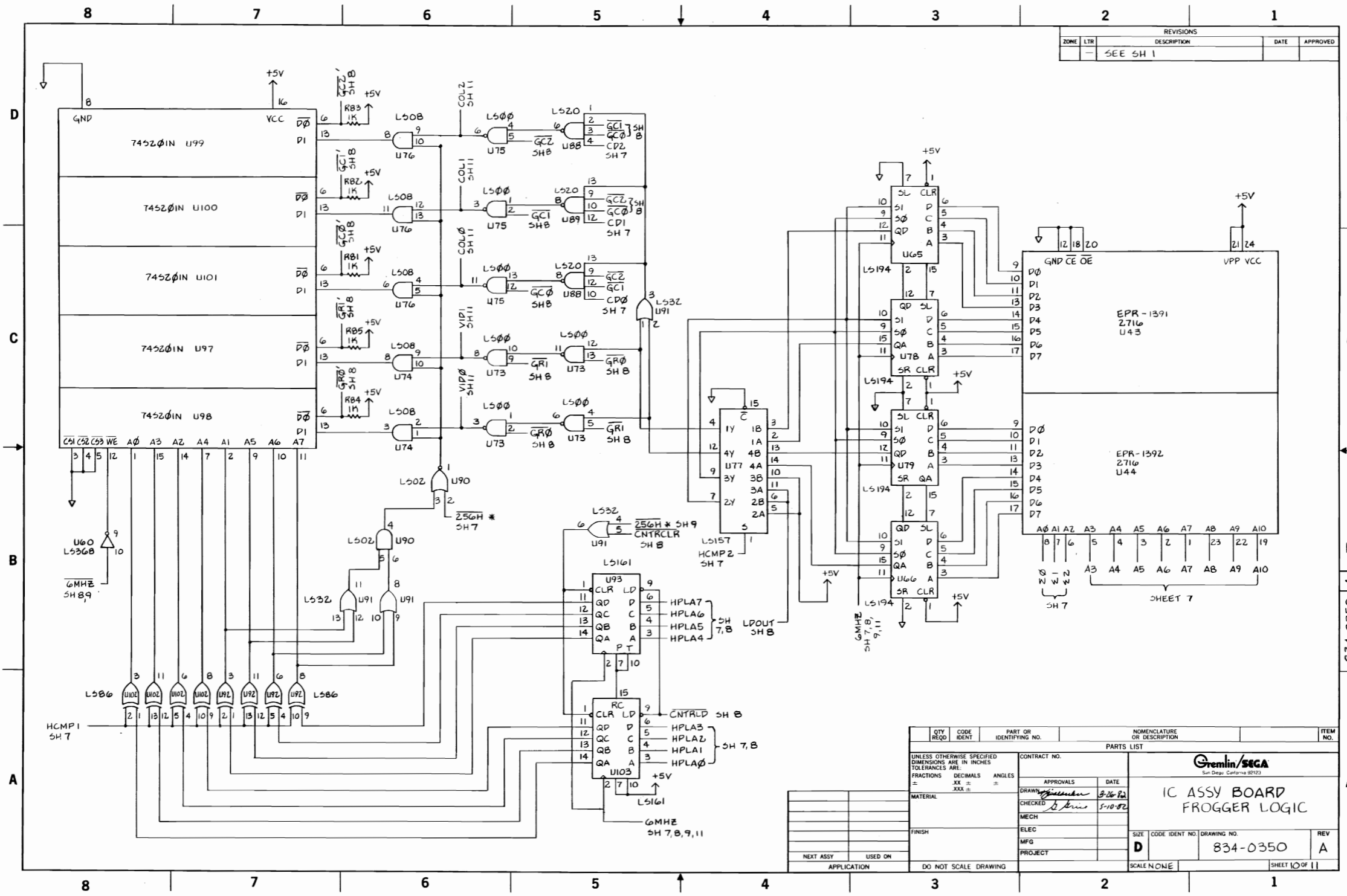
IC ASSY BOARD FROGGER LOGIC

SIZE CODE IDENT NO. DRAWING NO. REV
D 834-0350 **A**

SCALE NONE SHEET 9 OF 11

8 7 6 5 4 3 2 1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		

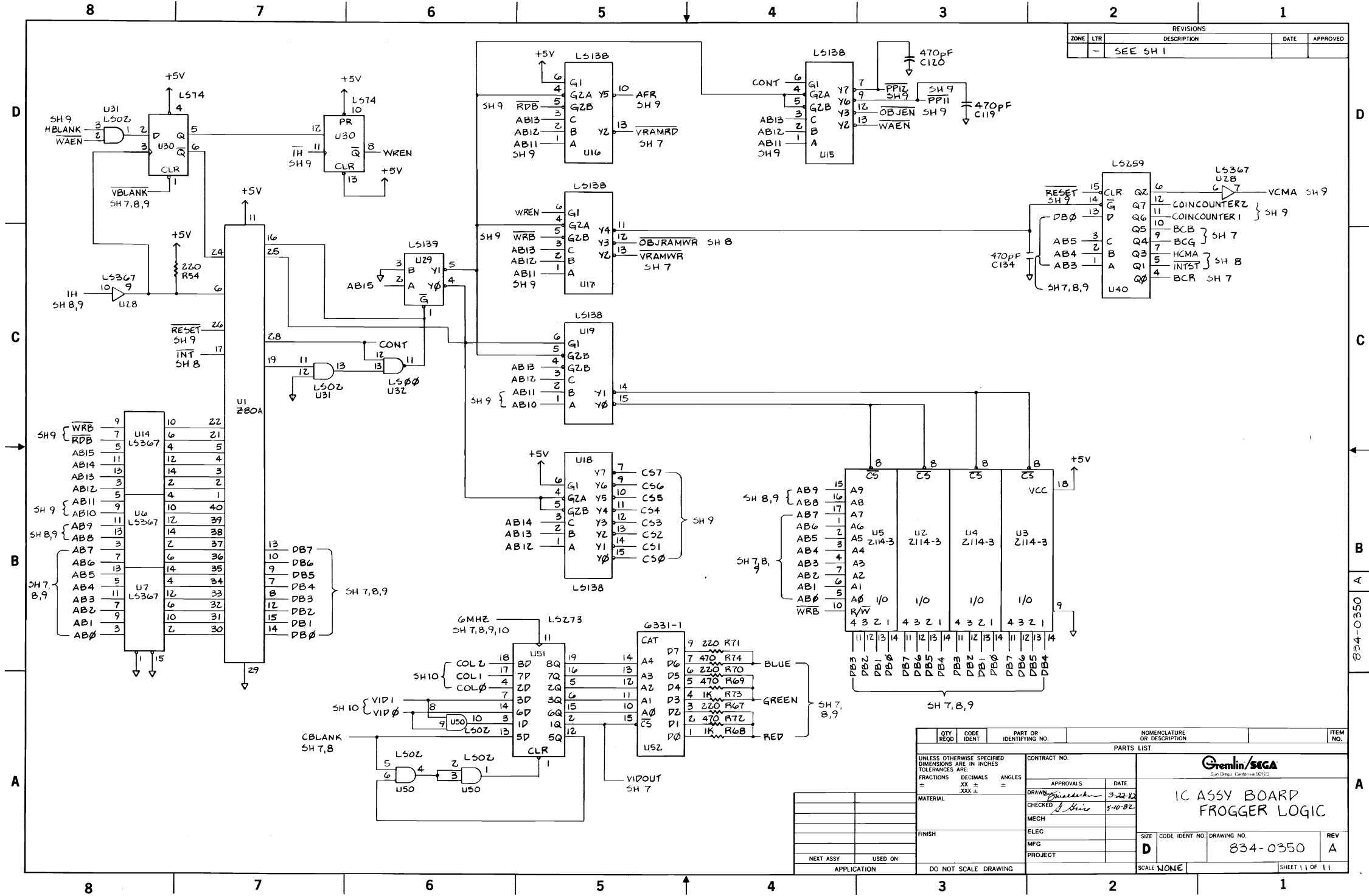


QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:				
FRACTIONS	DECIMALS	ANGLES		
=	.XX ±	°		
	.XXX ±			
MATERIAL		CONTRACT NO.		
FINISH		APPROVALS		
NEXT ASSY		DRAWN <i>[Signature]</i> DATE 3-26-82		
USED ON		CHECKED <i>[Signature]</i> 5-10-82		
APPLICATION		MECH		
DO NOT SCALE DRAWING		ELEC		
		MFG		
		PROJECT		
		SIZE CODE IDENT NO. DRAWING NO.		
		D 834-0350 A		
		SCALE NONE SHEET 10 OF 11		

834-0350

A

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE SH 1		



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .XXX ± ±				
MATERIAL		CONTRACT NO.		
FINISH		APPROVALS DATE		
NEXT ASSY USED ON		DRAWN <i>[Signature]</i> 3-27-82		
APPLICATION		CHECKED <i>[Signature]</i> 5-10-82		
DO NOT SCALE DRAWING		MECH		
		ELEC		
		MFG		
		PROJECT		
		SIZE CODE IDENT NO. DRAWING NO. REV		
		D 834-0350 A		
		SCALE NONE SHEET 11 OF 11		

834-0350