



ELECTRICAL MANUAL

DEMOLITION DERBY 4 PLAYER

Bally

MIDWAY MFG. CO.

10601 W Belmont Avenue
Franklin Park, Illinois 60131
U.S.A.



Phone (312) 451-9200 Cable Address MIDCO Telex No. 72-1596

WARNING

THIS GAME MUST BE GROUNDED. FAILURE TO DO SO MAY RESULT IN DESTRUCTION TO ELECTRONIC COMPONENTS.

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a CLASS A computing device pursuant to SUBPART J of PART 15 of FCC RULES, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

ELECTRICAL BULLETIN: FOR ALL APPARATUS COVERED BY THE CANADIAN STANDARDS ASSOCIATION (CSA) STANDARD C22.2 NO. 1, WHICH EMPLOYS A SUPPLY CORD TERMINATED WITH A POLARIZED 2-PRONG ATTACHMENT PLUG.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

Bally MIDWAY

Invites You To Use

OUR TOLL FREE NUMBERS FOR SERVICE INFORMATION CONCERNING THIS GAME, OR ANY OTHER BALLY MIDWAY GAME YOU NOW HAVE ON LOCATION.

CALL US FOR PROMPT, COURTEOUS ANSWERS TO YOUR PROBLEMS.

VIDEO → Continental U.S. 1-800-323-7182

PINBALL → Continental U.S. 1-800-323-3555

Bally MIDWAY

10601 West Belmont Avenue Franklin Park, Illinois, 60131 phone (312) 451-9200

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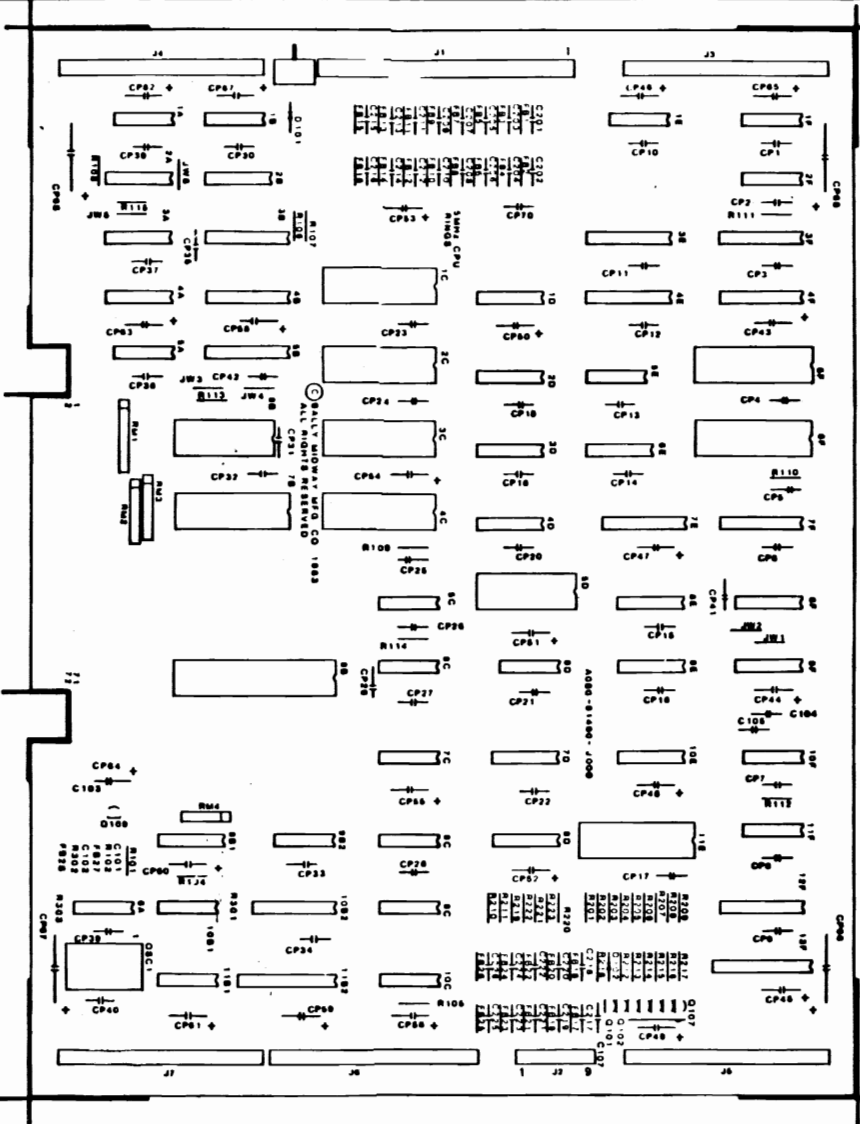
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Printed in U.S.A.

DESIGNATION LIST

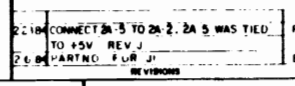
DESIGNATION NO.	DESCRIPTION	DESIGNATION NO.	DESCRIPTION
CP1-CP42	.01 WF AX. CER.	IC 4A	74LS367
CP43-CP65	10 WF 25V AX. TANT.	IC 5A	74LS04
		IC 6A	74LS04
CP66-CP69	470 WF 16V AX. ELECT.	IC 10	74LS52
CP70	.01 WF AX. CER.	IC 20	4017
C101	33 PF AX. CER.	IC 30	MRC07
C102	47 PF AX. CER.	IC 40, IC 50	74LS244
C103	.1 WF AX. CER.	IC 60	8V 848
C104	.1 WF AX. CER.	IC 70	2800 CTC
C105	390 PF AX. CER.	IC 80	Z800
C107	390 PF AX. CER.	IC 90	74LS161
C201-C216	390 PF AX. CER.	IC 90	74LS161
C217-C222	47 PF AX. CER.	IC 100	74LS104
C223-C226	820 PF AX. CER.	IC 100	74LS104
		IC 102	MRC03
		IC 110	74LS06
R101	82K OHM 1/4W 5% CRBN.	IC 110	74LS06
		IC 112	MRC01
		IC 1C, IC 2C,	EPROM
R102	50 OHM 1/4W 5% CRBN.	IC 3C, IC 4C	
R104, R105	10 OHM 1/4W 5% CRBN.	IC 5C, IC 6C	74LS74
		IC 7C	74LS04
R106-R108	4.7K OHM 1/4W 5% CRBN.	IC 8C	74LS27
		IC 9C, IC 10C	74LS20
R109-R114	1K OHM 1/4W 5% CRBN.	IC 10	74LS139
		IC 20, IC 30,	74LS137
		IC 40, IC 70	
R115	4.7K OHM 1/4W 5% CRBN.	IC 80	
R201	510 OHM 1/4W 5% CRBN.	IC 50	848
		IC 60	74LS32
R202	1K OHM 1/4W 5% CRBN.	IC 10	74LS32
R203	2K OHM 1/4W 5% CRBN.	IC 30, IC 40	74LS245
R204	510 OHM 1/4W 5% CRBN.	IC 50	74LS08
		IC 60, IC 90	74LS174
R205	1K OHM 1/4W 5% CRBN.	IC 70	74LS273
		IC 80	74LS155
R206	2K OHM 1/4W 5% CRBN.	IC 100	74LS157
		IC 110	93419
R207	510 OHM 1/4W 5% CRBN.	IC 1F, IC 2F	74LS06
		IC 3F, IC 4F,	74LS273
R208	1K OHM 1/4W 5% CRBN.	IC 7F	
R209	2K OHM 1/4W 5% CRBN.	IC 5F, IC 6F	848
		IC 8F	74LS155
R210, R211	560 OHM 1/4W 5% CRBN.	IC 9F	74LS157
		IC 10F, IC 11F	74LS74
R212-R217	10 OHM 1/4W 5% CRBN.	IC 12F	MRC08
		IC 13F	MRC02
R218	1K OHM 1/4W 5% CRBN.	R01-FR20	FERRITE BEAD
R219	100 OHM 1/4W 5% CRBN.	ICS 13FA,	8 PIN DIP SOCKET
		ICS 1102A,	
R220	820 OHM 1/4W 5% CRBN.	ICS 13FB,	16 PIN DIP SOCKET
		ICS 1102B,	
R221-R223	470 OHM 1/4W 5% CRBN.	ICS 30, ICS 10B2,	20 PIN DIP SOCKET
		ICS 12F	
R301	62 OHM 1/4W 5% CRBN.	ICS 00, 50	24 PIN DIP SOCKET
R302, R303	60 OHM 1/4W 5% CRBN.	ICS 70, ICS 1C-4C,	28 PIN DIP SOCKET
BR1	4.7K OHM 9 PIN SIP.	ICS 1E, ICS 5F,	
		ICS 6F	
BR2, BR3	4.7K OHM 8 PIN SIP.	ICS 80	40 PIN DIP SOCKET
BR4	4.7K OHM 6 PIN SIP.	J1	20 PIN .156C CONN. ORIT 15
R101	105817	J2	9 PIN .100C CONN. ORIT 3
R102	104148	J3-J7	HEADER
R101	2N4123	J1-J6	FLEX PACK JUMPER
R102-R107	A 70	J1-J6	JUMPER
R108	2N4403	S01	PUSH BUTTON SW.
OSC 1	20 MHZ ± 0.1% OSCILLATOR	S01	PUSH BUTTON SW.
IC 1A	74LS32	A080-91490-2000	5 MHZ CPU DD.
IC 2A	4053		
IC 3A	74LS161		



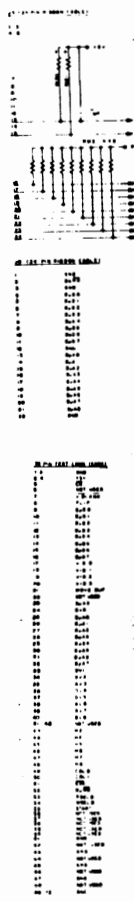
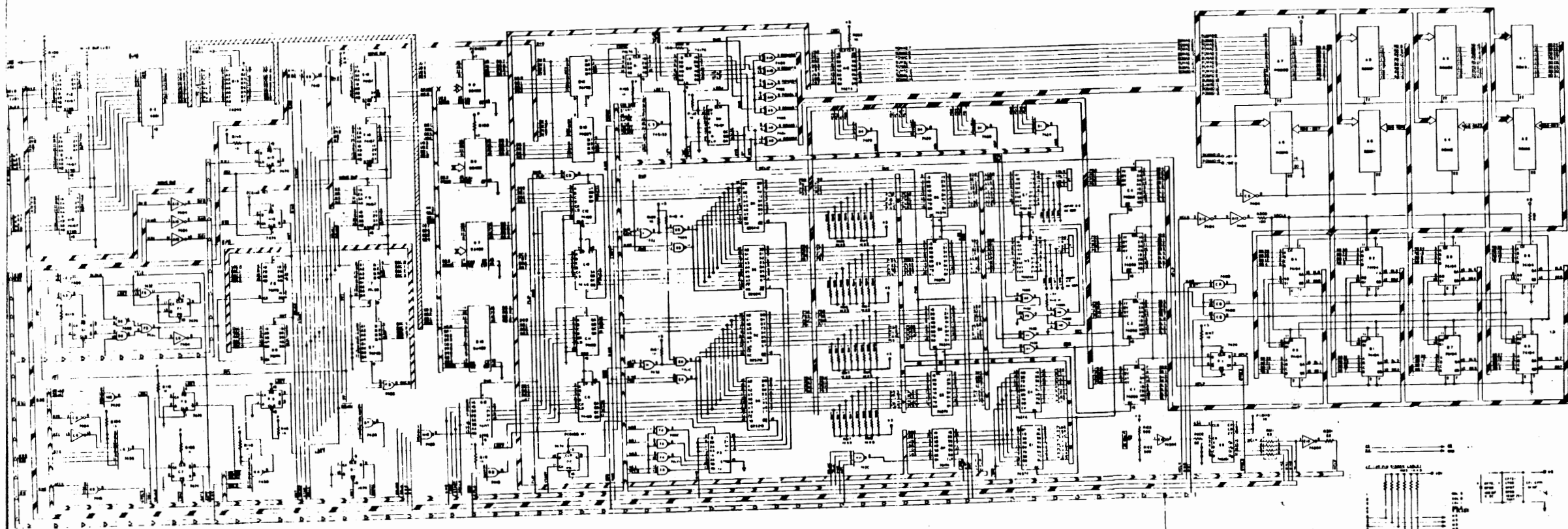
CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.	DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
33 PF 50V AX. CER.	1	C101	0986-00800-0300	74LS32	4	IC 1A, 10, 60, 1E	0986-00803-0600
47 PF 50V AX. CER.	7	C102, C217-C222	0986-00800-2800	74LS374	4	IC 5C, 6C, 10F, 11F	0986-00803-1005
390 PF 50V AX. CER.	10	C105, C107, C201-C216	0986-00800-3000	74LS86	8	IC 1101, 1F, 2F	0986-00803-9900
820 PF 50V AX. CER.	4	C223-C226	0945-00816-0400	74LS139	1	IC 10	0304-00803-0042
.01 WF 50V 20X AX. CER.	43	CP1-CP42, CP70	0986-00800-2200	74LS153	2	IC 8E, 8F	0986-00803-1000
.1 WF 50V 20X AX. CER.	2	C103, C104	0986-00800-0200	74LS157	7	IC 20, 30, 40, 70, 80	0986-00803-9700
10 WF 25V 10X AX. TANT.	23	CP43-CP65	0986-00800-3400			10E, 9F	
470 WF 16V AX. ELECT.	4	CP66-CP69	0986-00800-3300	74LS161	1	IC 3A	0986-00803-1003
10 OHM 1/4W 5% CRBN.	6	R212-R217	100E-00005-001	74LS174	2	IC 4E, 9E	0986-00803-9800
39 OHM 1/4W 5% CRBN.	1	R102	100E-00005-002	74LS244	2	IC 4B, 5B	0986-00803-0800
60 OHM 1/4W 5% CRBN.	2	R302, R303	100E-00005-003	74LS245	2	IC 3E, 4E	0986-00803-0900
82 OHM 1/4W 5% CRBN.	1	R301	100E-00005-004	74LS273	4	IC 7E, 3F, 4F, 7F	0986-00803-1001
100 OHM 1/4W 5% CRBN.	1	R219	100E-00005-005	74LS367	1	IC 4A	0986-00803-2200
470 OHM 1/4W 5% CRBN.	3	R221-R223	100E-00005-006	74S04	1	IC 6A	0986-00803-0400
510 OHM 1/4W 5% CRBN.	3	R201, R204, R207	100E-00005-0053	74S161	1	IC 90	0304-00803-0038
560 OHM 1/4W 5% CRBN.	2	R210, R211	100E-00005-0054	848	1	IC 11E	0986-00803-9600
820 OHM 1/4W 5% CRBN.	1	R220	100E-00005-0055	1800	1	IC 1C, 2C, 3C, 4C,	SEE NOTE
1K OHM 1/4W 5% CRBN.	12	R104, R105, R109-R114, R202, R205, R208, R218	100E-00005-0061	MRC01	1	5F, 6F	
2K OHM 1/4W 5% CRBN.	3	R203, R206, R209	100E-00005-0068	MRC02	1	IC 1102	0986-00803-8900
4.7K OHM 1/4W 5% CRBN.	4	R106-R108, R115	100E-00005-0079	MRC07	1	IC 1002	0986-00803-9100
82E OHM 1/4W 5% CRBN.	1	R101	100E-00005-012	848	1	IC 30	0986-00804-3200
4.7K OHM 9 PIN SIP.	1	BR1	102E-00004-0024	1800	1	IC 60	0304-00803-0079
4.7K OHM 8 PIN SIP.	2	BR2, BR3	102E-00004-0025	848	1	IC 50	0986-00803-1008
4.7K OHM 6 PIN SIP.	1	BR4	102E-00004-0027	1800	1	IC 00	0304-00803-0041
105817	1	R101	103E-00003-0009	1800 CTC	1	IC 70	0304-00803-0040
104148	1	R102	103E-00002-0005	MRC08	1	IC 10F	0304-00803-9200
2N4123	1	R101	104E-00001-0007	FERRITE BEAD	20	F01-F020	0316-00804-0002
A 70	6	R102-R107	104E-00002-0012	8 PIN DIP SOCKET	2	ICS 13FA,	0986-00804-3600
2N4403	1	R108	104E-00002-0006	ICS 1102A	1	ICS 13FB,	0986-00804-3700
20 MHZ ± 0.1% OSCILLATOR	1	OSC1	0304-00804-0007	ICS 10B2	1	ICS 2F, ICS 10B2,	0986-00804-3800
4053	1	IC 2A	0986-00803-2000	ICS 2F	1	ICS 2F	0986-00804-3900
74LS04	3	IC 2A, 7C, 5A	0986-00803-1007	24 PIN DIP SOCKET	2	ICS 30, ICS 50	0986-00804-3400
74LS08	2	IC 1001, 5E	0986-00803-1006	28 PIN DIP SOCKET	8	ICS 10, ICS 1C-4C,	0986-00804-3900
74LS20	2	IC 9C, 10C	0986-00803-1004	40 PIN DIP SOCKET	1	ICS 6F	0986-00804-3500
74LS27	1	IC 8C	0304-00803-0048	F01, F00, .100C	1	IC 5F	0986-00804-3000
				ORIT 3	1	IC 11E, ICS 5F,	0986-00804-3100
				ORIT 15	1	IC 8F	0986-00804-3000
				HEADER	3	J1-J7	0986-00804-4700
				FLEX PACK JUMPERS	5		0986-00804-4800
				JUMPER	6	J01-J06	0986-00804-4000
				PUSH BUTTON SW.	1	S01	0986-00804-3100
				5 MHZ CPU DD.	1		A080-91490-2000

* NOTE SEE NON CHART IN BACK.



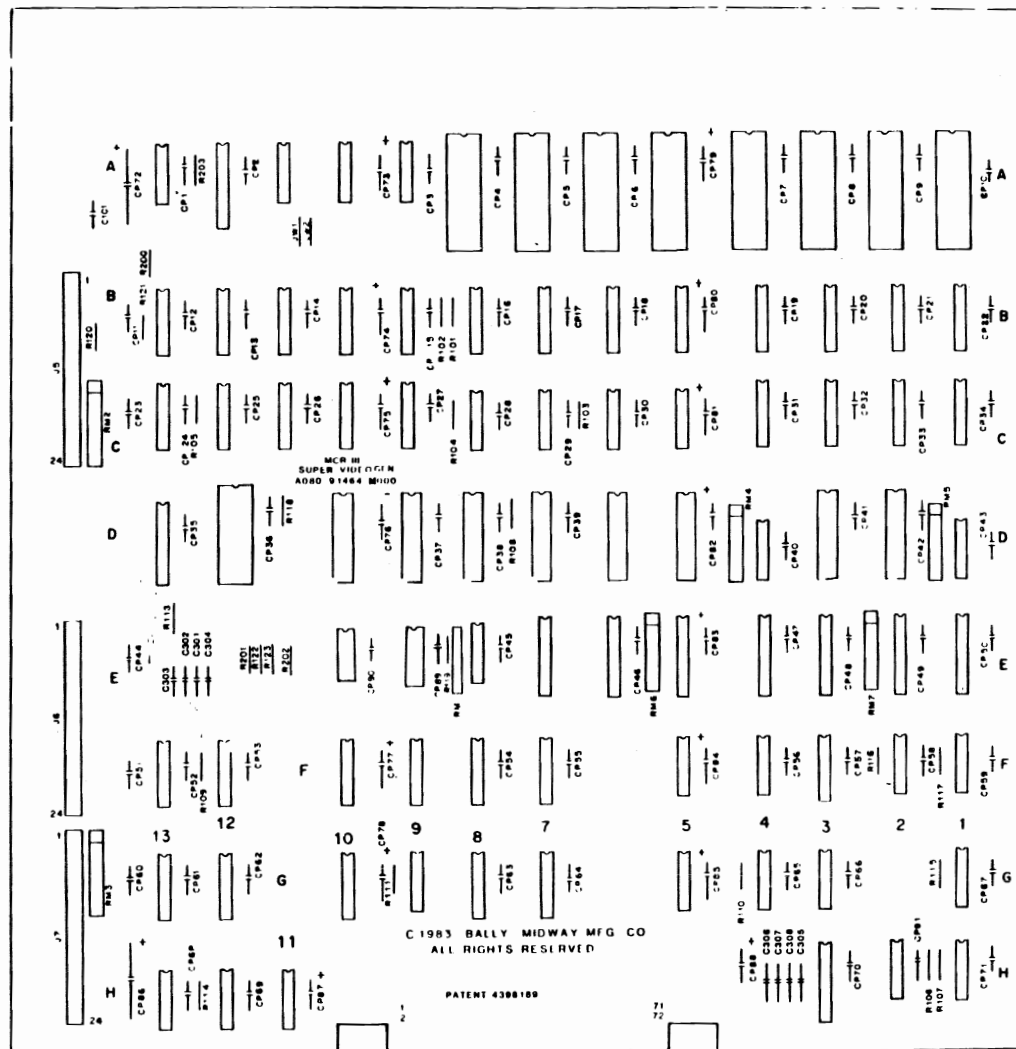
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ASSEMBLY DRAWING			PART NO		
A082-91490-1000			MOSI - 00304 - J009		



REV	DATE	BY	CHKD	APP'D
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SUNBELT ELECTRIC CO.				

DESIGNATION LIST

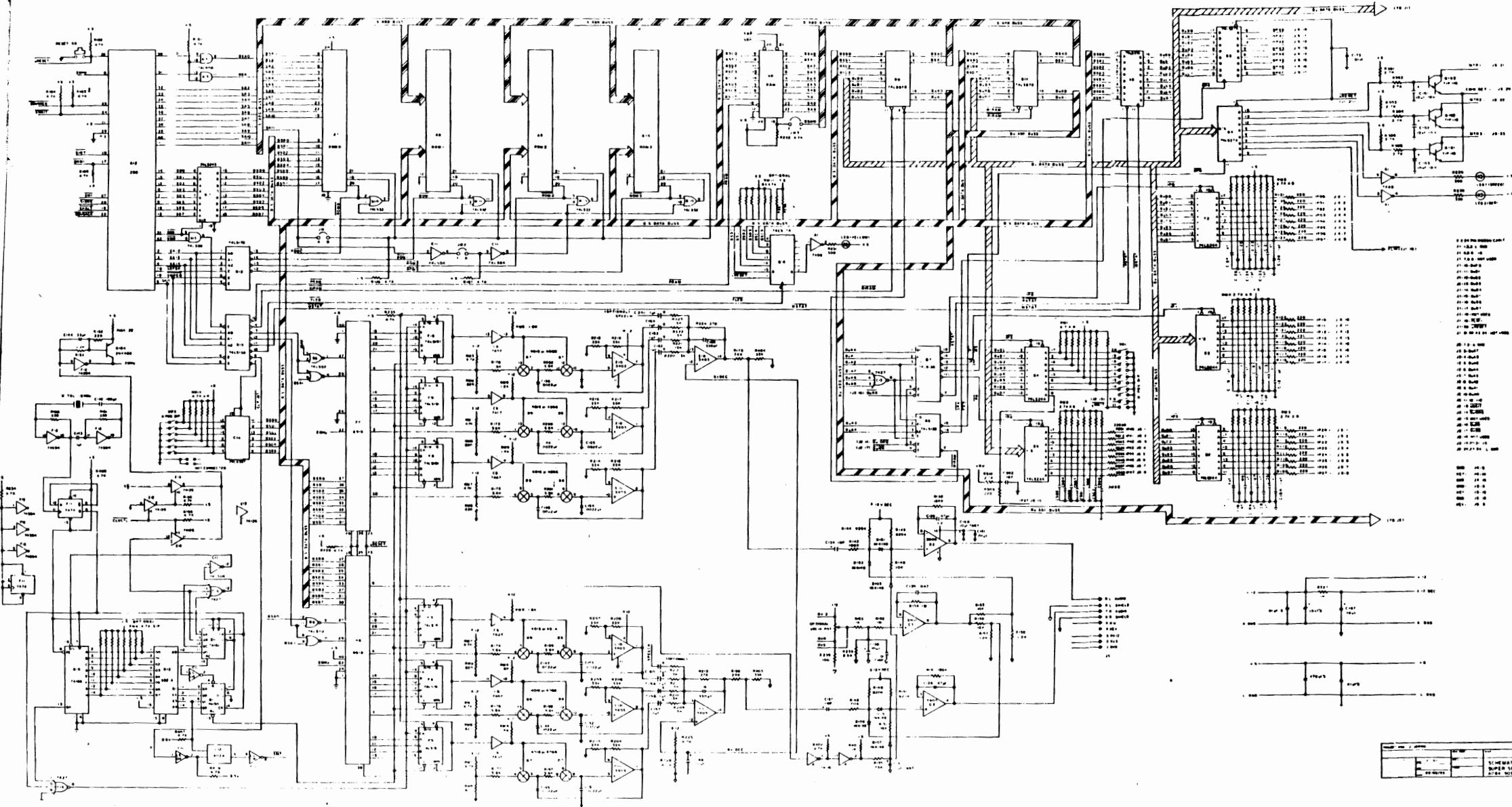
DESIGNATION	DESCRIPTION	DESIGNATION	DESCRIPTION
C101	.01 MF AX CER	IC 10	7420
C301-C308	100 PF AX CER	IC 20	93479
CP1-CP71	.01 MF AX CER	IC 30	93479
CP72-CP86	100 MF AX ELECT.	IC 40	7420
CP73-CP85, CP87, CP88	10 MF 25V AX TANT.	IC 50	93479
CP89, CP90, LE31	.01MF AX. CER.	IC 60	93479
R101-R111, R113-R121	1K OHM 1/4W	IC 70	93422
R122, R123	560 OHM 1/4W	IC 80	93422
R200	100 OHM 1/4W	IC 90	93422
N201 R202	R7 OHM 1/4W	IC 100	93422
R203	1K OHM 1/4W	IC 110	93422
RM1	82 OHM 8 PIN SIP	IC 1E	74LS574
RM 2	1K 10 PIN SIP	IC 2E	74LS574
RM 3	1K 10 PIN SIP	IC 3E	74LS574
RM 4	1K 9 PIN SIP	IC 4E	74LS574
RM 5	1K 9 PIN SIP	IC 5E	74LS574
RM 6	1K 9 PIN SIP	IC 6E	74LS574
RM 7	1K 9 PIN SIP	IC 7E	74LS574
IC 1A	EPROM	IC 8E	74LS240
IC 2A	EPROM	IC 9E	74LS100
IC 3A	EPROM	IC 10E	74S04
IC 4A	EPROM	IC 11	74LS74
IC 5A	EPROM	IC 12	74LS74
IC 6A	EPROM	IC 13	74LS15
IC 7A	EPROM	IC 14	74S00
IC 8A	EPROM	IC 15	74LS157
IC 9A	74LS86	IC 16	74S08
IC 10A	74LS86	IC 17	74LS157
IC 11A	74LS174	IC 18	74LS157
IC 12A	74LS273	IC 19	74LS10
IC 13A	74S04	IC 20	74LS157
IC 1B	74LS194	IC 21	74LS157
IC 2B	74LS194	IC 22	74LS10
IC 3B	74LS194	IC 23	74LS157
IC 4B	74LS194	IC 24	74LS10
IC 5B	74LS194	IC 25	74LS157
IC 6B	74LS194	IC 26	74LS10
IC 7B	74LS194	IC 27	74LS157
IC 8B	74LS194	IC 28	74LS10
IC 9B	74LS101	IC 29	74S08
IC 10B	74LS174	IC 30	74LS240
IC 11B	74LS174	IC 31	7420
IC 12B	74S283	IC 32	7420
IC 13B	74S283	IC 33	74LS74
IC 1C	74LS258	IC31A-IC38A	28 PIN SOCKET
IC 2C	74LS258	IC3 D2, D3, D5-D10	22 PIN SOCKET
IC 3C	74LS258	IC3 D12	24 PIN SOCKET
IC 4C	74LS500	J5, J6, J7	KK100 RT ANGLE
IC 5C	74LS500	J8 1, JW2	24 PIN CONN.
IC 6C	74LS504		
IC 7C	74LS74		
IC 8C	74LS10		
IC 9C	74LS169		
IC 10C	74LS169		
IC 11C	74LS169		
IC 12C	74LS169		
IC 13C	74S133		



CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NO.
CAP 100PF	8	C301-C308	0986-00800-1000
CAP .01MF	75	C101, CP1-CP71, CP89, CP90, CP91	0986-00800-2500
CAP 10MF	15	CP73-CP85, CP87, CP88	0986-00800-2400
CAP 100MF	2	CP72, CP86	0986-00800-1800
R7 OHM 1/4W RES.	2	R201, R202	100E-00005-0031
100 OHM 1/4W RES.	1	R200	100E-00005-0033
1K OHM 1/4W RES.	21	R101-R111, R113-R121, R203	100E-00005-0061
560 OHM 1/4W RES.	2	R122, R123	100E-00005-0054
R PIN SIP	82 OHM	RM1	102E-00004-0035
9 PIN SIP	1K OHM	RM4, RM7	102E-00004-0011
10 PIN SIP	1K OHM	RM2, RM3	102E-00004-0013
74S00	1	4F	0304-00803-0047
74LS00	2	5C, 9E	0304-00803-0010
74S04	2	13A, 10E	0304-00803-0011
74LS04	1	6C	0304-00803-0012
74S08	1	3G	0304-00803-0014
74LS10	1	9G	0304-00803-0017
7420	4	10, 4B, 11H, 12H	0304-00803-0015
74LS10	3	8C, 4G, 5G	0304-00803-0016
74LS12	2	5F, 1H	0304-00803-0017
74LS174	5	7C, 1F, 2F, 1G, 13H	0304-00803-0018
74S86	1	2H	0304-00803-0049
74LS86	2	9A, 10A	0304-00803-0019
74S133	1	13C	0304-00803-0020
74LS133	8	3F, 9F, 10F, 12F, 13F, 10G, 12G, 13G	0304-00803-0021
74S161	1	9E	0304-00803-0038
74LS161	1	2B	0304-00803-0022
74LS169	4	9C-12C	0304-00803-0023
74LS174	4	11A, 10B, 11B, 8G	0304-00803-0024
74LS175	1	8H	0304-00803-0025
74LS194	8	1B-8B	0304-00803-0026
74LS240	2	7E, 3H	0304-00803-0050
74LS245	1	13D	0304-00803-0027
74LS258	4	1C-4C,	0304-00803-0028
74LS273	1	12A	0304-00803-0029
74S283	2	12B, 13B	0304-00803-0039
74LS283	2	7F, 7G	0304-00803-0030
74LS374	6	1E-6E	0304-00803-0031
93422	4	7D-10D	0304-00803-0032
93479	4	2D, 3D, 5D, 6D	0304-00803-0033
SIAT, RAH	1	12D	0304-00803-0034
EPROM KIT	8	IC1A-8A	0986-00804-0700
28 PIN SOCKET	8	IC3 1A-8A	0986-00804-0300
22 PIN SOCKET	8	IC3 2D, 3D, 5D, 6D, 7D-10D	0986-00804-0700
24 PIN SOCKET	1	IC3 12D	0986-00804-1600
KK100 RT ANGLE	3	J5, J6, J7	0986-00804-4700
JUMPER WIRE	2	JW1, JW2	0986-00805-8200
MCR III SUPER VIDEO GEN.			A082-91464-000

PROJECT ENG R PLOUSSARD	DATE 01/11/84	SCALE FULL	USED ON NO RECD 1PER	REVISIONS
SUPER VIDEO GEN MCR III ASSY DWG A082-91464-0000			MIDWAY MFG. CO.	
PART NO M051-00304-M005				



Legend for component types:

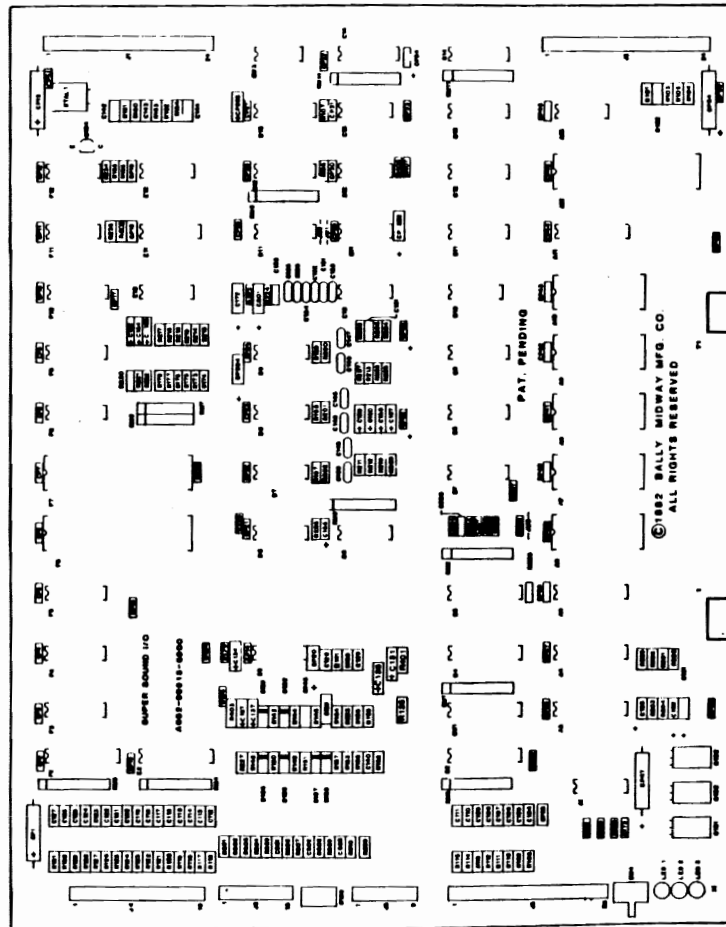
- IC (Integrated Circuit)
- △ Inverter
- AND Gate
- ◇ OR Gate
- ▽ NAND Gate
- ▽ NOR Gate
- ◇ XOR Gate
- ◇ XNOR Gate
- ◇ Multiplexer
- ◇ Demultiplexer
- ◇ Counter
- ◇ Shift Register
- ◇ Memory
- ◇ Comparator
- ◇ DAC
- ◇ ADC
- ◇ Op-Amp
- ◇ Comparator
- ◇ Relay
- ◇ Switch
- ◇ LED
- ◇ Lamp
- ◇ Motor
- ◇ Speaker
- ◇ Microphone
- ◇ Antenna
- ◇ Transformer
- ◇ Inductor
- ◇ Capacitor
- ◇ Resistor
- ◇ Diode
- ◇ Zener Diode
- ◇ Transistor
- ◇ Vacuum Tube
- ◇ Relay
- ◇ Switch
- ◇ LED
- ◇ Lamp
- ◇ Motor
- ◇ Speaker
- ◇ Microphone
- ◇ Antenna
- ◇ Transformer
- ◇ Inductor
- ◇ Capacitor
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- ◇ Diode
- ◇ Zener Diode
- ◇ Transistor
- ◇ Vacuum Tube

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NO.	DESCRIPTION	DATE	BY
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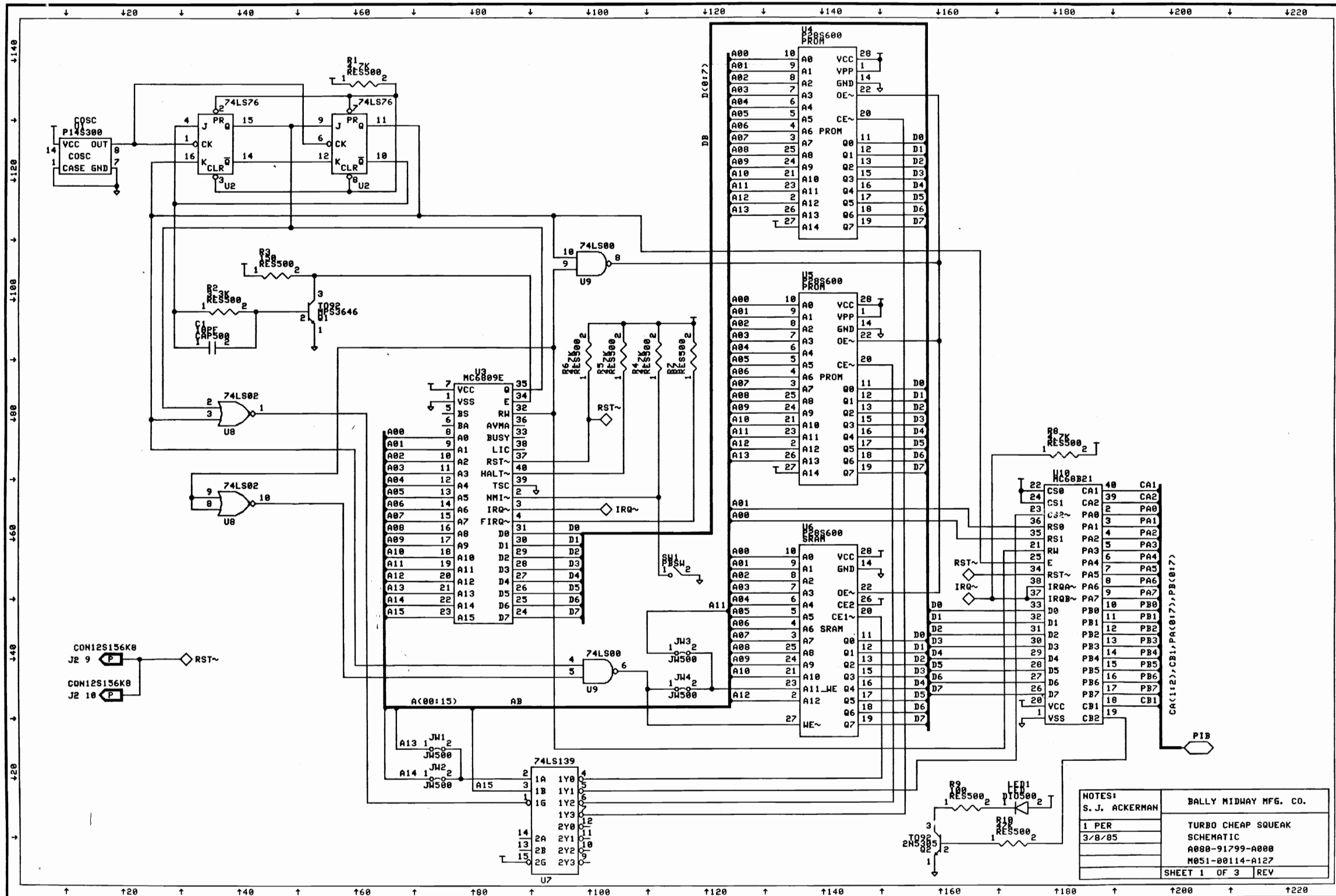
DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION	DESIGNATION NO.	DESCRIPTION	DESIGNATION NO.	DESCRIPTION
C101-C103	10 WF 25V AX. TANT.	R152	1MEG. OHR 1/4W 5% CRBN.	R101-R103	1M4148
C104-C127	.1 MF 50V AX. CER.	R153	1K OHR 1/4W 5% CRBN.	R105-R107	1M4148
C128, C129	.47 PF 50V AX. CER.	R154	1MEG. OHR 1/4W 5% CRBN.	R101-R103	11P110
C131	10 WF 25V AX. TANT.	R155, R156	10K OHR 1/4W 5% CRBN.	R104	2M4403
C134-C137	1 WF 20V AX. TANT.	R157, R158	1.2K OHR 1/4W 5% CRBN.	7406	7406
C138	10 WF 25V AX. TANT.	R160, R161	1.2K OHR 1/4W 5% CRBN.	IC1A, 4A	74LS273
C139	.047 MF 100V WTLAR	R162	220 OHR 1/4W 5% CRBN.	IC15A	74LS374
C140	.01 MF 50V AX. CER.	R163	1.2K OHR 1/4W 5% CRBN.	IC6A	1K X 8 RAM
C142	100 PF 50V AX. CER.	R164	22 OHR 1/4W 5% CRBN.	IC7A	ROM/EPROM 0
C143	.1 MF 50V AX. CER.	R165, R166	4.7K OHR 1/4W 5% CRBN.	IC8A	ROM/EPROM 1
C144	33 PF 50V AX. CER.	R173-R178	5.4K OHR 1/4W 5% CRBN.	IC9A	ROM/EPROM 2
C145-C156	.0022 MF 100V 10% WTLAR	R179	24K OHR 1/4W 5% CRBN.	IC10A	ROM/EPROM 3
C157-C159	1 MF 20V AX. TANT.	R196	24K OHR 1/4W 5% CRBN.	IC11A	74LS245
C161	330 PF 5V AX. CER.	R197-R202	5.4K OHR 1/4W 5% CRBN.	IC12A	2-80 CPU
C162-C164	1 MF 20V AX. TANT.	R203-R208	33K OHR 1/4W 5% CRBN.	IC13A	74LS506
C165, C167	10 WF 25V AX. TANT.	R209-R211	13K OHR 1/4W 5% CRBN.	IC13B	74LS507
C172	10 WF 25V AX. TANT.	R213	27K OHR 1/4W 5% CRBN.	IC13C	74LS508
C173	.01 MF 50V AX. CER.	R214-R219	33K OHR 1/4W 5% CRBN.	IC13D	74LS509
C501-C509	.1 MF 50V AX. CER.	R220-R222	13K OHR 1/4W 5% CRBN.	IC13E	74LS510
CP1	470 WF 16V AX. ELECT.	R224	27K OHR 1/4W 5% CRBN.	IC13F	74LS511
CP2-CP12	.01 MF 50V AX. CER.	R225, R226	4.7K OHR 1/4W 5% CRBN.	IC13G	74LS512
CP13	470 WF 16V AX. ELECT.	R228	4.7K OHR 1/4W 5% CRBN.	IC13H	74LS513
CP14-CP19	.01 MF 50V AX. CER.	R231	300 OHR 1/4W 5% CRBN.	IC13I	74LS514
CP20	10 WF 25V AX. TANT.	R232	4.7K OHR 1/4W 5% CRBN.	IC13J	74LS515
CP21-CP27	.01 MF 50V AX. CER.	R233	5K OHR 1/4W 5% CRBN.	IC13K	74LS516
CP29-CP33	10 WF 25V AX. TANT.	R234, R235	4.7K OHR 1/4W 5% CRBN.	IC13L	74LS517
CP34	10 WF 25V AX. TANT.	R239	100 OHR 1/4W 5% CRBN.	IC13M	74LS518
CP35-CP46	.01 MF 50V AX. CER.	R301-R306	2.7K OHR 1/4W 5% CRBN.	IC13N	74LS519
CP47	470 WF 16V AX. ELECT.	R401	1K OHR 1/4W 5% CRBN.	IC13O	74LS520
CP48-CP51	.01 MF 50V AX. CER.	R402	4.7K OHR 1/4W 5% CRBN.	IC13P	74LS521
CP52, CP53	10 WF 25V AX. TANT.	R403, R404	33K OHR 1/4W 5% CRBN.	IC13Q	74LS522
CP54	470 WF 16V AX. ELECT.	R405-R407	4.7K OHR 1/4W 5% CRBN.	IC13R	74LS523
CP202-CP204	10 WF 25V AX. TANT.	R501-R509	2.7K OHR 1/4W 5% CRBN.	IC13S	74LS524
R101-R107	4.7K OHR 1/4W 5% CRBN.	R510	2.7K OHR 1/4W 5% CRBN.	IC13T	74LS525
R108-R131	220 OHR 1/4W 5% CRBN.	R601	4.7K OHR 10 PIN S.I.P.	IC13U	74LS526
R135	33K OHR 1/4W 5% CRBN.	R602	2.7K OHR 10 PIN S.I.P.	IC13V	74LS527
R138, R141	100K OHR 1/4W 5% CRBN.	R603	4.7K OHR 8 PIN S.I.P.	IC13W	74LS528
R142	100K OHR 1/4W 5% CRBN.	R604	2.7K OHR 8 PIN S.I.P.	IC13X	74LS529
R144, R145	420K OHR 1/4W 5% CRBN.	R605	4.7K OHR 10 PIN S.I.P.	IC13Y	74LS530
R146	10K OHR 1/4W 5% CRBN.	R606	2.7K OHR 10 PIN S.I.P.	IC13Z	74LS531
R148	100K OHR 1/4W 5% CRBN.	R607	4.7K OHR 10 PIN S.I.P.	IC13AA	74LS532
R149, R150	820K OHR 1/4W 5% CRBN.	R608	4.7K OHR 10 PIN S.I.P.	IC13AB	74LS533
R151	10K OHR 1/4W 5% CRBN.	R609	4.7K OHR 10 PIN S.I.P.	IC13AC	74LS534



CROSS REFERENCE LIST

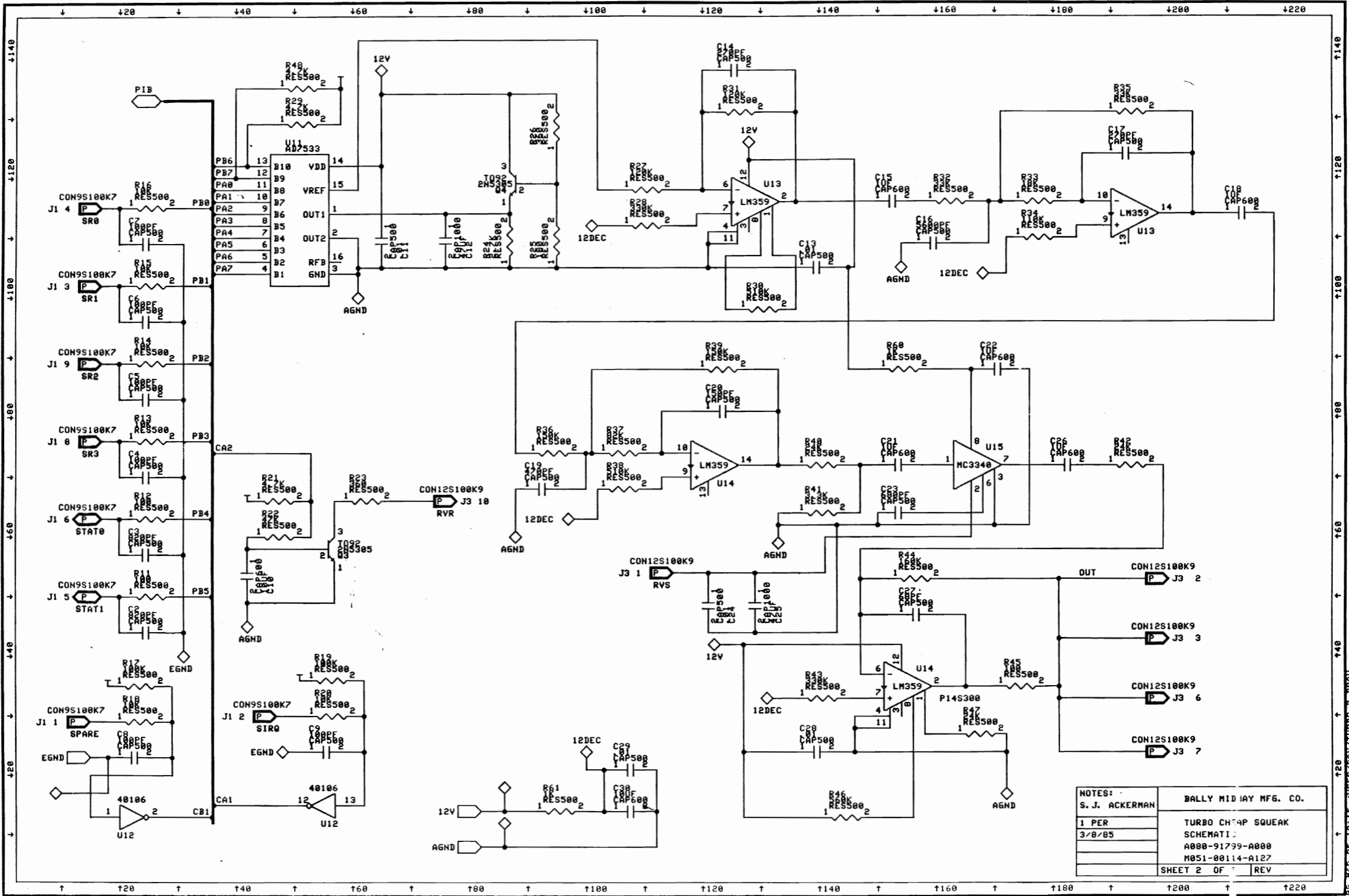
DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.	DESCRIPTION	QTY	DESIGNATION NO.
33 PF 50V AX. CER.	1	C144	0986-00800-0300	1M4148	6	R101-R103, R105-R107
47 PF 50V AX. CER.	2	C128, C129	0986-00800-7800	2M4403	1	R104
100 PF 50V AX. CER.	1	C162	0986-00800-1000	11P110	3	R101-R103
330 PF 50V AX. CER.	2	C161, C165	0986-00800-1300	74LS273	1	IC 6B
.0022 MF 100V 10% WTLAR	12	C145-C156	0986-00800-1200	74LS245	1	IC 11C
.047 MF 100V WTLAR	1	C139	0986-00800-2600	74LS374	1	IC 12F
.01 MF 50V AX. CER.	47	CP2-CP12, CP14-CP19, CP21-CP27, CP29-CP33, CP35-CP46, CP48-CP51, C140, C173	0986-00800-2000	74LS506	1	IC 13A
.1 MF 50V AX. CER.	34	C104-C127, C143, C301-C309	0986-00800-1100	74LS522	1	IC 10D
1 MF 20V AX. TANT.	8	C134, C137, C157-C159, C162-C164	0986-00800-1400	74LS523	1	IC 11F
10 WF 25V AX. TANT.	15	CP20, CP34, CP52, CP53, CP202-CP204, C101-C103, C131, C138, C146, C167, C172	0986-00800-0700	74LS524	1	IC 12E
470 WF 16V AX. ELECT.	4	R101-R107, R165, R166, R225, R226, R228, R232, R234, R235, R402, R403, R404	0986-00800-2700	74LS525	4	IC7B, 8B, 12B, 13B
22 OHR 1/4W 5% CRBN.	1	R164	0062-06303-138X	74LS245	1	IC 11A
100 OHR 1/4W 5% CRBN.	1	R239	0062-11003-138X	74LS273	1	IC 13B, AA
300 OHR 1/4W 5% CRBN.	1	R231	0062-13303-138X	74LS374	1	IC 14C
330 OHR 1/4W 5% CRBN.	2	R160, R161	0062-17903-138X	74LS374	1	IC 5A
1K OHR 1/4W 5% CRBN.	3	R153, R227, R231	0062-17903-138X	74LS670	2	IC9B, 11B
1.2K OHR 1/4W 5% CRBN.	3	R157, R158, R163	0062-18303-138X	AR-3-8910	2	IC6F, 7F
2.7K OHR 1/4W 5% CRBN.	7	R301-R306, R510	0062-19903-138X	LS3900	1	IC 3B
3K OHR 1/4W 5% CRBN.	1	R233	0062-20103-138X	MS3405	2	IC10C, 10E
4.7K OHR 1/4W 5% CRBN.	19	R101-R107, R165, R166, R225, R226, R228, R232, R234, R235, R402, R403, R404	0062-21103-138X	MS1016	3	IC7B-9B
5.4K OHR 1/4W 5% CRBN.	12	R108-R131, R162, R209-R211, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R235, R236, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R253, R254, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R267, R268, R269, R270, R271, R272, R273, R274, R275, R276, R277, R278, R279, R280, R281, R282, R283, R284, R285, R286, R287, R288, R289, R290, R291, R292, R293, R294, R295, R296, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R316, R317, R318, R319, R320, R321, R322, R323, R324, R325, R326, R327, R328, R329, R330, R331, R332, R333, R334, R335, R336, R337, R338, R339, R340, R341, R342, R343, R344, R345, R346, R347, R348, R349, R350, R351, R352, R353, R354, R355, R356, R357, R358, R359, R360, R361, R362, R363, R364, R365, R366, R367, R368, R369, R370, R371, R372, R373, R374, R375, R376, R377, R378, R379, R380, R381, R382, R383, R384, R385, R386, R387, R388, R389, R390, R391, R392, R393, R394, R395, R396, R397, R398, R399, R400, R401, R402, R403, R404, R405, R406, R407, R408, R409, R410, R411, R412, R413, R414, R415, R416, R417, R418, R419, R420, R421, R422, R423, R424, R425, R426, R427, R428, R429, R430, R431, R432, R433, R434, R435, R436, R437, R438, R439, R440, R441, R442, R443, R444, R445, R446, R447, R448, R449, R450, R451, R452, R453, R454, R455, R456, R457, R458, R459, R460, R461, R462, R463, R464, R465, R466, R467, R468, R469, R470, R471, R472, R473, R474, R475, R476, R477, R478, R479, R480, R481, R482, R483, R484, R485, R486, R487, R488, R489, R490, R491, R492, R493, R494, R495, R496, R497, R498, R499, R500, R501, R502, R503, R504, R505, R506, R507, R508, R509, R510, R511, R512, R513, R514, R515, R516, R517, R518, R519, R520, R521, R522, R523, R524, R525, R526, R527, R528, R529, R530, R531, R532, R533, R534, R535, R536, R537, R538, R539, R540, R541, R542, R543, R544, R545, R546, R547, R548, R549, R550, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R572, R573, R574, R575, R576, R577, R578, R579, R580, R581, R582, R583, R584, R585, R586, R587, R588, R589, R590, R591, R592, R593, R594, R595, R596, R597, R598, R599, R600, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624, R625, R626, R627, R628, R629, R630, R631, R632, R633, R634, R635, R636, R637, R638, R639, R640, R641, R642, R643, R644, R645, R646, R647, R648, R649, R650, R651, R652, R653, R654, R655, R656, R657, R658, R659, R660, R661, R662, R663, R664, R665, R666, R667, R668, R669, R670, R671, R672, R673, R674, R675, R676, R677, R678, R679, R680, R681, R682, R683, R684, R685, R686, R687, R688, R689, R690, R691, R692, R693, R694, R695, R696, R697, R698, R699, R700, R701, R702, R703, R704, R705, R706, R707, R708, R709, R710, R711, R712, R713, R714, R715, R716, R717, R718, R719, R720, R721, R722, R723, R724, R725, R726, R727, R728, R729, R730, R731, R732, R733, R734, R735, R736, R737, R738, R739, R740, R741, R742, R743, R744, R745, R746, R747, R748, R749, R750, R751, R752, R753, R754, R755, R756, R757, R758, R759, R760, R761, R762, R763, R764, R765, R766, R767, R768, R769, R770, R771, R772, R773, R774, R775, R776, R777, R778, R779, R780, R781, R782, R783, R784, R785, R786, R787, R788, R789, R790, R791, R792, R793, R794, R795, R796, R797, R798, R799, R800, R801, R802, R803, R804, R805, R806, R807, R808, R809, R810, R811, R812, R813, R814, R815, R816, R817, R818, R819, R820, R821, R822, R823, R824, R825, R826, R827, R828, R829, R830, R831, R832, R833, R834, R835, R836, R837, R838, R839, R840, R841, R842, R843, R844, R845, R846, R847, R848, R849, R850, R851, R852, R853, R854, R855, R856, R857, R858, R859, R860, R861, R862, R863, R864, R865, R866, R867, R868, R869, R870, R871, R872, R873, R874, R875, R876, R877, R878, R879, R880, R881, R882, R883, R884, R885, R886, R887, R888, R889, R890, R891, R892, R893, R894, R895, R896, R897, R898, R899, R900, R901, R902, R903, R904, R905, R906, R907, R908, R909, R910, R911, R912, R913, R914, R915, R916, R917, R918, R919, R920, R921, R922, R923, R924, R925, R926, R927, R928, R929, R930, R931, R932, R933, R934, R935, R936, R937, R938, R939, R940, R941, R942, R943, R944, R945, R946, R947, R948, R949, R950, R951, R952, R953, R954, R955, R956, R957, R958, R959, R960, R961, R962, R963, R964, R965, R966, R967, R968, R969, R970, R971, R972, R973, R974, R975, R976, R977, R978, R979, R980, R981, R982, R983, R984, R985, R986, R987, R988, R989, R990, R991, R992, R993, R994, R995, R996, R997, R998, R999, R1000	1	J3		
10K OHR 10 PIN S.I.P.	1	R601	0062-21503-138X	ANGLE ORIT 4	1	J6
2.7K OHR 10 PIN S.I.P.	1	R602	0062-22703-138X	ANGLE ORIT 8	1	J4
4.7K OHR 8 PIN S.I.P.	1	R603	0062-23303-138X	ANGLE ORIT 14	1	J5
2.7K OHR 8 PIN S.I.P.	1	R604	0062-24503-138X	ANGLE ORIT 19	1	J1, J2
4.7K OHR 10 PIN S.I.P.	2	R605, R606	0062-24703-138X	ANGLE	2	J1, J2
33K OHR 1/4W 5% CRBN.	15	R108-R131, R162, R209-R211, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R235, R236, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R253, R254, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R267, R268, R269, R270, R271, R272, R273, R274, R275, R276, R277, R278, R279, R280, R281, R282, R283, R284, R285, R286, R287, R288, R289, R290, R291, R292, R293, R294, R295, R296, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R316, R317, R318, R319, R320, R321, R322, R323, R324, R325, R326, R327, R328, R329, R330, R331, R332, R333, R334, R335, R336, R337, R338, R339, R340, R341, R342, R343, R344, R345, R346, R347, R348, R349, R350, R351, R352, R353, R354, R355, R356, R357, R358, R359, R360, R361, R362, R363, R364, R365, R366, R367, R368, R369, R370, R371, R372, R373, R374, R375, R376, R377, R378, R379, R380, R381, R382, R383, R384, R385, R386, R387, R388, R389, R390, R391, R392, R393, R394, R395, R396, R397, R398, R399, R400, R401, R402, R403, R404, R405, R406, R407, R408, R409, R410, R411, R412, R413, R414, R415, R416, R417, R418, R419, R420, R421, R422, R423, R424, R425, R426, R427, R428, R429, R430, R431, R432, R433, R434, R435, R436, R437, R438, R439, R440, R441, R442, R443, R444, R445, R446, R447, R448, R449, R450, R451, R452, R453, R454, R455, R456, R457, R458, R459, R460, R461, R462, R463, R464, R465, R466, R467, R468, R469, R470, R471, R472, R473, R474, R475, R476, R477, R478, R479, R480, R481, R4				



NOTES:	BALLY MIDWAY MFG. CO.
S. J. ACKERMAN	TURBO CHEAP SQUEAK
1 PER	SCHEMATIC
3/8/85	A080-91799-A080
	M051-00114-A127
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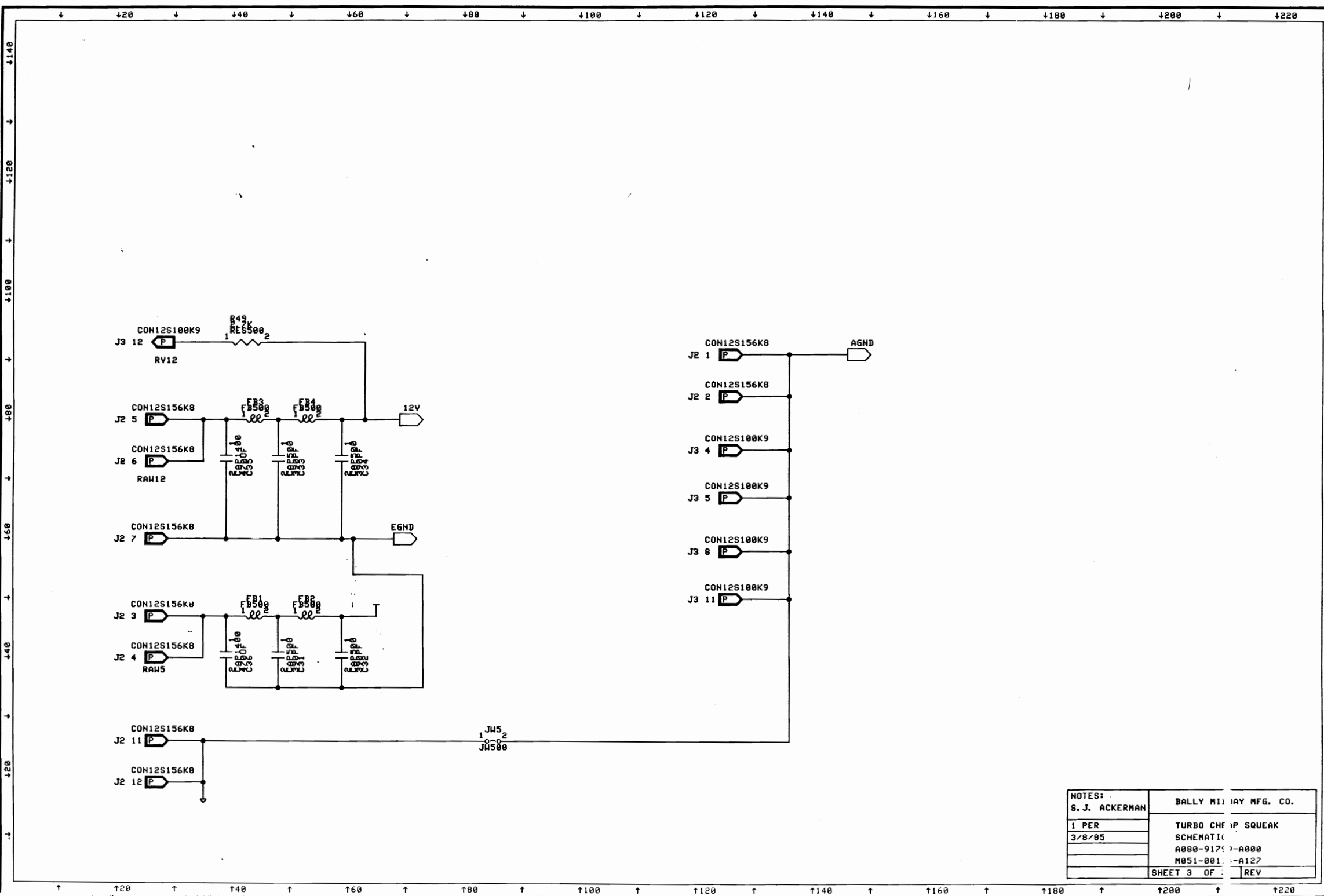
88 MAR 85 1013 ZUSERZDAN/TURBO I.DRAN

6a/6-E



NOTES:	BALLY MIDWAY MFG. CO.
S. J. ACKERMAN	TURBO CHEAP SQUEAK
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3/8/85	A000-91799-A000
	M051-00114-A127
	SHEET 2 OF 2
	REV

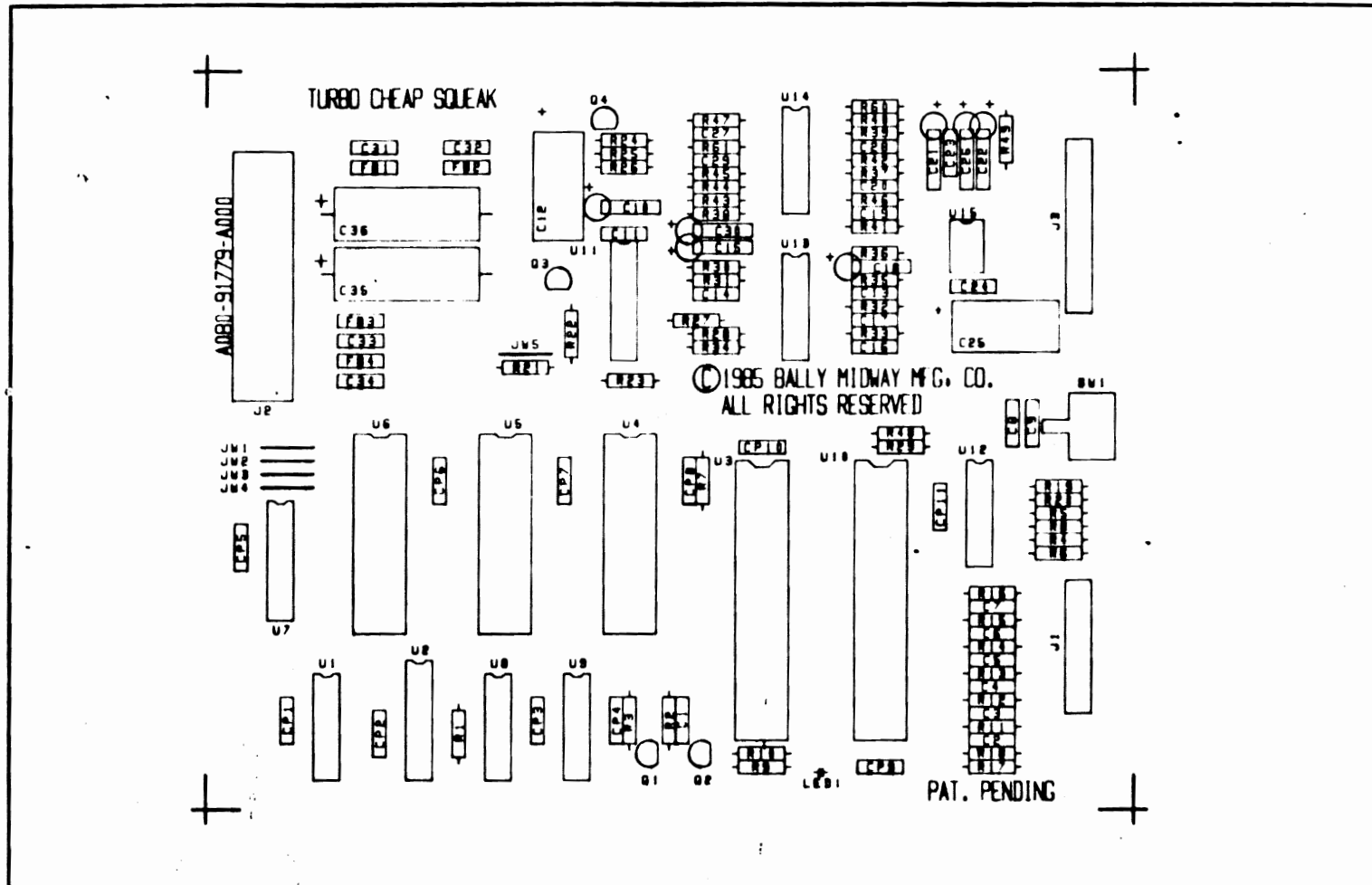
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NOTES:	BALLY MIDWAY MFG. CO.
S. J. ACKERMAN	TURBO CHEAP SQUEAK
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3/8/85	A000-9170-A000
	M051-001-A127
	SHEET 3 OF 3 REV

88 MAR 85 10117 ZUSER/DAN/TURBO 3. DRAM

10/15 E 10



THIS DWG IS CONFIDENTIAL & PROPERTY OF BALLY/MIDWAY MFG CO

DIM. TOLERANCES UNLESS OTHERWISE SPEC CONCENTRICITY T.I.R 002 FRACTIONAL ± 1/64 DECIMAL ± 005 HOLE DIA. +.002 - 000 ANGLE ± 1/2° DO NOT SCALE DWG.	FIRST USED ON		 FRANKLIN PARK, IL 60131		REVISIONS PART NO M051-00114-A126 SHEET 1 OF 5 A/M-F
	DRW	DATE			
	MECH CHR	MAT L	TURBO CHEAP SQUEAK A084-91779-A000		
	ELEC CHR	FINISH			
	C.L.	3/8/85			

BRUNING-40-107

M051-00114-A126
TURBO CHEAP SQUEAK
A084-91779-A000

DESIGNATION LIST

<u>DESIGNATION</u>	<u>DESCRIPTION</u>
CP1-CP11	.01MF AX. CR.
C1	18PF AX. CR.
C2-C3	820PF AX. CR.
C4-C9	100PF AX. CR.
C10	10MF RD TANT
C11	.01MF AX. CR.
C12	47MF AX. ELECT.
C13	.01MF AX. CR.
C14	270PF AX. CR.
C15	1MF RD TANT
C16	.0056MF AX. CR.
C17	270PF AX. CR.
C18	1MF RD TANT
C19	470PF AX. CR.
C20	150PF AX. CR.
C21-C22	1MF RD TANT
C23	680PF AX. CR.
C24	.01MF AX. CR.
C25	47MF AX. ELECT.
C26	1MF RD TANT
C27	68PF AX. CR.
C28-C29	.01MF AX. CR.
C30	10MF RD TANT
C31-C34	390PF AX. CR.
C35-C36	470MF AX. ELECT.
R1	4.7K OHM 1/4W 5%
R2	3.3K OHM 1/4W 5%
R3	150 OHM 1/4W 5%
R4-R8	4.7K OHM 1/4W 5%
R9	100 OHM 1/4W 5%
R10	47K OHM 1/4W 5%
R11-R12	100 OHM 1/4W 5%
R13-R16	10K OHM 1/4W 5%
R17	100K OHM 1/4W 5%
R18	10K OHM 1/4W 5%
R19	100K OHM 1/4W 5%
R20	10K OHM 1/4W 5%
R21	4.7K OHM 1/4W 5%
R22	47K OHM 1/4W 5%
R23	360 OHM 1/4W 5%
R24	2.7K OHM 1/4W 5%
R25	180 OHM 1/4W 5%
R26	360 OHM 1/4W 5%
R27	120K OHM 1/4W 5%
R28	330K OHM 1/4W 5%
R29	4.7K OHM 1/4W 5%
R30	510K OHM 1/4W 5%
R31	120K OHM 1/4W 5%

<u>DESIGNATION</u>	<u>DESCRIPTION</u>
R32	33K OHM 1/4W 5%
R33	18K OHM 1/4W 5%
R34	110K OHM 1/4W 5%
R35	33K OHM 1/4W 5%
R36	150K OHM 1/4W 5%
R37	82K OHM 1/4W 5%
R38	510K OHM 1/4W 5%
R39	150K OHM 1/4W 5%
R40	24K OHM 1/4W 5%
R41	3.3K OHM 1/4W 5%
R42	24K OHM 1/4W 5%
R43	330K OHM 1/4W 5%
R44	160K OHM 1/4W 5%
R45	100 OHM 1/4W 5%
R46	560K OHM 1/4W 5%
R47	24K OHM 1/4W 5%
R48	4.7K OHM 1/4W 5%
R49	2.7K OHM 1/4W 5%
R60	1K OHM 1/4W 5%
R61	1K OHM 1/4W 5%
O1	MPS3646
O2-O4	2N5305
U1	C1K OSC
U2	74LS76
U3	68B09E
U4	EPROM/ROM
U5	EPROM/ROM
U6	2K X 8 RAM
U7	74LS139
U8	74LS02
U9	74LS00
U10	68B21
U11	AD7533
U12	40106
U13	LM359
U14	LM359
U15	3340
ICS U3	40 PIN IC SOCKET
ICS U4-U6	28 PIN IC SOCKET
ICS U10	40 PIN IC SOCKET
ICS U11	16 PIN IC SOCKET
FR1-FR4	FERRITE BEAD
JW1-JW5	JUMPER WIRE
SW1	PCB SWITCH

M051-00114-A126
TURBO CHEAP SQUEAK
A084-91779-A000

DESIGNATION LIST

<u>DESIGNATION</u>	<u>DESCRIPTION</u>
LED 1	GREEN LED
U1	CLOCK OSCILLATOR 8MHZ
J1	9 PIN KK100 R/A
J2	12 PIN KK156 R/A
J3	12 PIN KK100 R/A
MTHW 1-4	SPACERS
PCB	TURBO CHEAP SQUEAK

M051-00114-A126

M051-00114-A126

3 of 5

12

M051-00114-A126
TURBO CHEAP SOUEAK
A084-91779-A000

CROSS REFERENCE

DESCRIPTION	QTY	DESIGNATION NO.	PART NUMBER
18PF AX. CR.	1	C1	0C48-00800-0001
68PF AX. CR.	1	C27	0307-00800-0011
100PF AX. CR.	6	C4,C5,C6,C7,C8,C9	0304-00800-0001
150PF AX. CR.	1	C20	0307-00800-0010
270PF AX. CR.	2	C14,C17	0307-00800-0009
390PF AX. CR.	4	C31,C32,C33,C34	0986-00800-3000
470PF AX. CR.	1	C19	0307-00800-0008
680PF AX. CR.	1	C23	0358-00800-0002
820PF AX. CR.	2	C2,C3	0304-00800-0002
.0056MF AX. CR.	1	C16	0307-00800-0007
.01MF AX. CR.	5	CP1-CP11,C11,C13,C24, C28,C29	0986-00800-2200
1MF RAD TANT	5	C15,C18,C21,C22,C26	0307-00800-0004
10MF RAD TANT	2	C10,C30,	0307-00800-0005
47MF AX. ELECT	2	C12,C25	0307-00800-0003
470MF AX. ELECT	2	C35,C36	0A15-00800-0005
100 OHM 1/4WATT 5%	4	R9,R11,R12,R45	100E-00005-0033
150 OHM 1/4WATT 5%	1	R3	100E-00005-0037
180 OHM 1/4WATT 5%	1	R25	100E-00005-0039
360 OHM 1/4WATT 5%	2	R23,R26	100E-00005-0048
1K OHM 1/4WATT 5%	2	R60,R61	100E-00005-0061
2.7K OHM 1/4WATT 5%	2	R24,R49	100E-00005-0071
3.3K OHM 1/4WATT 5%	2	R2,R41	100E-00005-0074
4.7K OHM 1/4WATT 5%	9	R1,R4,R5,R6,R7,R8 R21,R29,R48	100E-00005-0079
10K OHM 1/4WATT 5%	6	R13,R14,R15,R16,R18 R20	100E-00005-0088
18K OHM 1/4WATT 5%	1	R33	100E-00005-0093
24K OHM 1/4WATT 5%	3	R40,R42,R47	100E-00005-0097
33K OHM 1/4WATT 5%	2	R32,R35	100E-00005-0100
47K OHM 1/4WATT 5%	2	R10,R22	100E-00005-0104
82K OHM 1/4WATT 5%	1	R37	100E-00005-0112
100K OHM 1/4WATT 5%	2	R17,R19	100E-00005-0115
110K OHM 1/4WATT 5%	1	R34	100E-00005-0117
120K OHM 1/4WATT 5%	2	R27,R31	100E-00005-0118
150K OHM 1/4WATT 5%	2	R36,R39	100E-00005-0120
160K OHM 1/4WATT 5%	1	R44	100E-00005-0121
330K OHM 1/4WATT 5%	2	R28,R43	100E-00005-0128
510K OHM 1/4WATT 5%	2	R30,R38	100E-00005-0133
560K OHM 1/4WATT 5%	1	R46	100E-00005-0134
MPS3646	1	01	104E-00001-0019
2N5305	3	02-04	104E-00007-0003
IC 40106	1	IC U12	0304-00803-0056
IC 74LS00	1	IC U9	0A15-00803-0046
IC 74LS02	1	IC U8	0986-00803-7400
IC 74LS76	1	IC U2	0A15-00803-0072
IC 74LS139	1	IC U7	0A15-00803-0051

M051-00114-A126

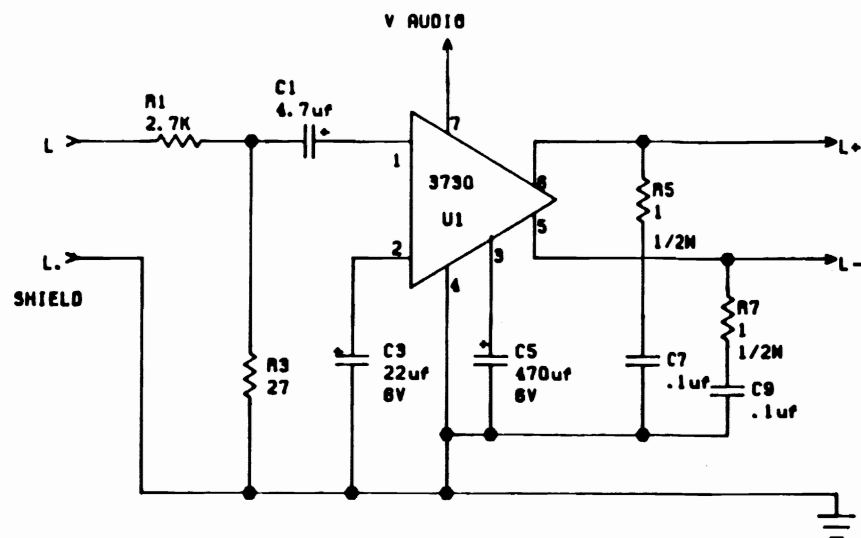
M051-00114-A126
TURBO CHEAP SOUEAK
A084-91779-A000

CROSS REFERENCE

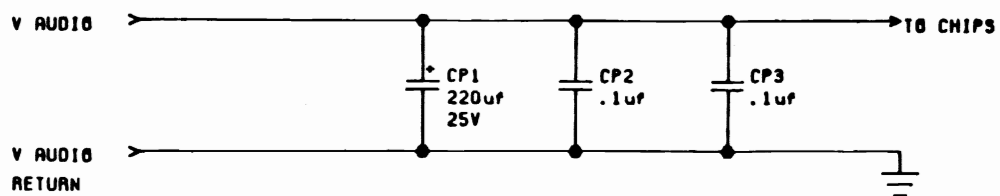
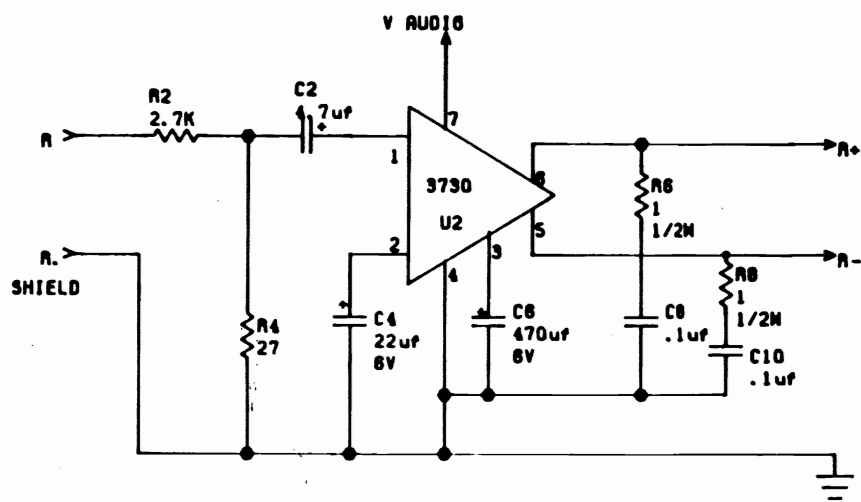
DESCRIPTION	QTY	DESIGNATION NO.	PART NUMBER
IC AD7533	1	IC U11	0304-00803-0055
IC LM359	2	IC U13-U14	0304-00803-0053
IC 3340	1	IC U15	0358-00803-0002
IC 68R09E	1	IC U3	0C48-00803-0001
IC 68R21	1	IC U10	0A15-00803-0074
IC 2K X 8 RAM	1	IC U6	0304-00803-0057
IC EPROM/ROM	2	IC U4-U5	SEE EPROM/ROM CHART
16 PIN IC SOCKET	1	ICS U11	110E-00001-0003
28 PIN IC SOCKET	3	ICS U4-U6	110E-00001-0010
40 PIN IC SOCKET	2	ICS U3,U10	110E-00001-0011
FERRITE BEAD	4	FB1,FB2,FB3,FB4	0316-00804-0002
JUMPER WIRE	5	JW1,JW2,JW3,JW4,JW5	117E-00001-0003
PCB SWITCH	1	SW1	0986-00804-3100
LED GREEN	1	LED 1	119E-00001-0001
CLOCK OSCILLATOR 8MHZ	1	U1	109E-00002-0009
9 PIN KK100 RT ANGLE	1	J1	0017-00021-1269
12 PIN KK156 RT ANGLE	1	J2	0017-00021-1286
12 PIN KK100 RT ANGLE	1	J3	0017-00021-1288
SPACERS	4	MTHW 1-4	0017-00042-0328
TURBO CHEAP SOUEAK	1	PCB	A080-91779-A000

M051-00114-A126
5 of 5
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- J1
- PIN 1 N.C.
 - 2 L. AUDIO
 - 3 L. SHIELD
 - 4 KEY
 - 5 V AUDIO RETURN
 - 6 R. AUDIO
 - 7 R. SHIELD
 - 8 V AUDIO



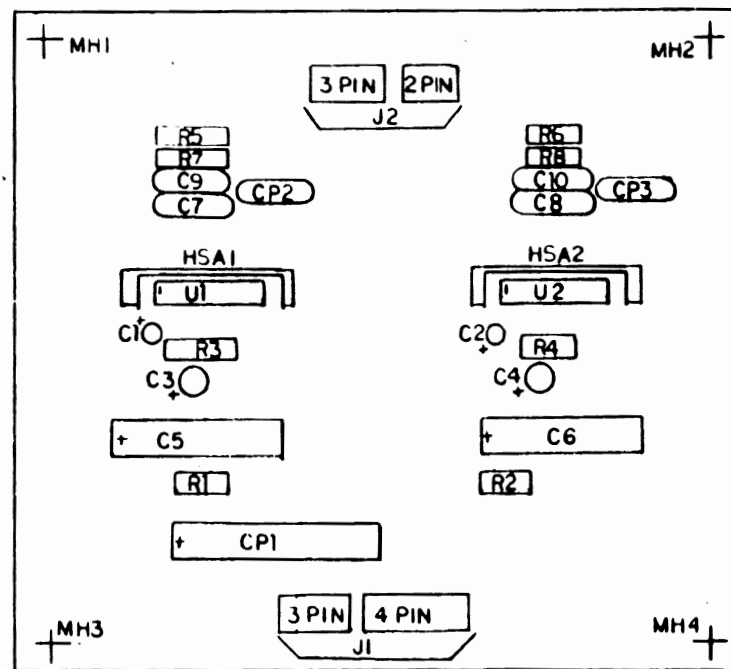
- J2
- PIN 1 R+
 - 2 R-
 - 3 KEY
 - 4 L+
 - 5 N.C.
 - 6 L-



REVISIONS		MIDWAY MFG. CO.	
		FRANKLIN PK ILL	
USED ON TRON		PART NO	
NO REQ'D I PER.		M051-00986-E011	
SCALE		SCHEMATIC, DUAL POWER AMP.	
NONE		A082-90910-E000	
HEAT TREAT		DATE 9/1/82	
MATERIAL		URN	
FINISH		CRLD	
DO NOT SCALE DWG		DATE 9/1/82	
DIM TOLERANCES UNLESS SPECIFIED		FRACTIONAL	
HOLE DIA		+ .002 000	

DESIGNATION LIST

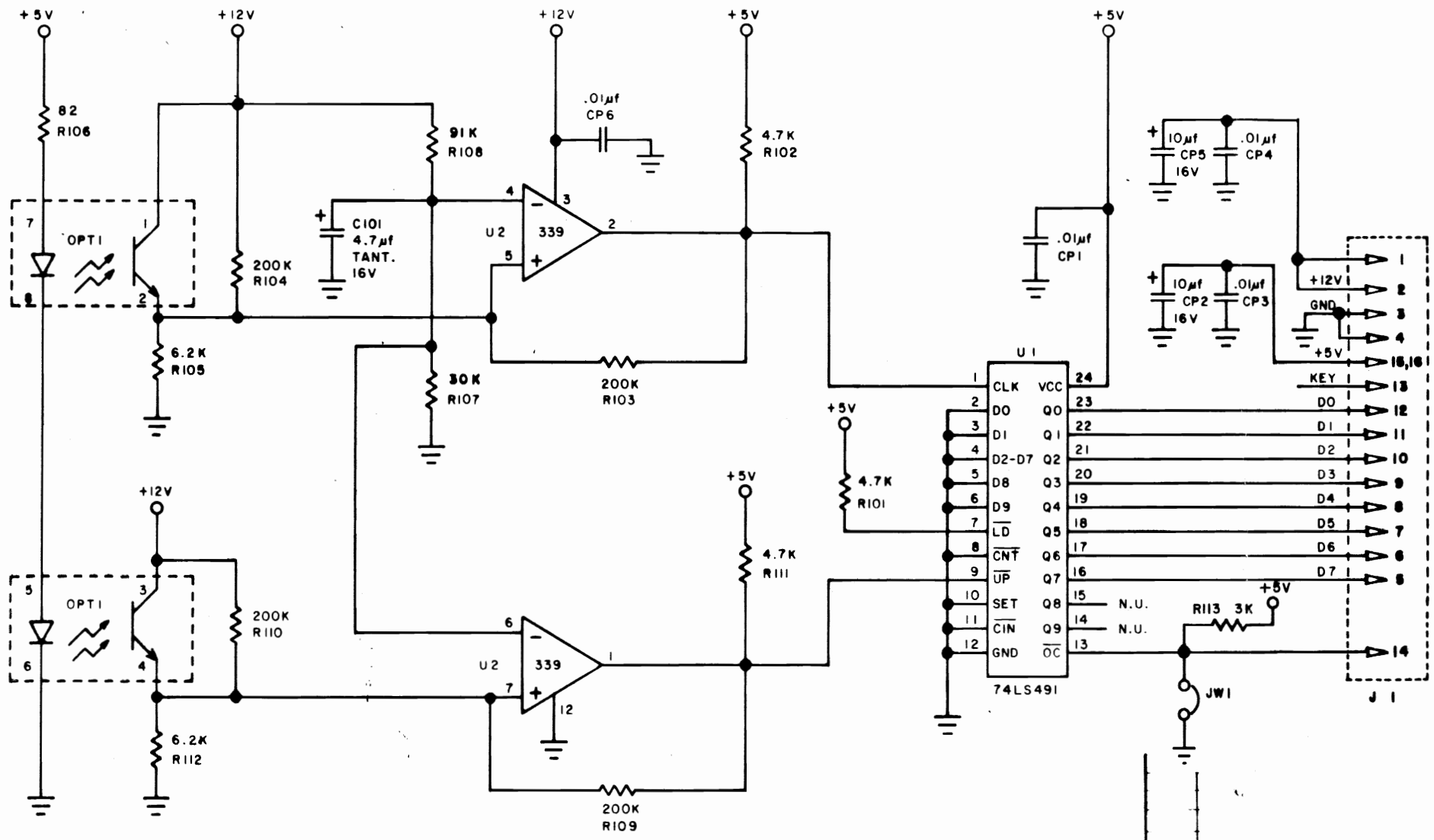
DESIGNATION	DESCRIPTION
C1,C2	4.7mf 25v rd tant
C3,C4	22mf 6v " "
C5,C6	470mf 6v ax elect
C7-C10	.1mf 50v ax.cr
CP1	220mf 25v ax elect
CP2,CP3	.1mf 50v ax.cr
R1,R2	2.7K Ω 1/4w 5% CRBN.
R3,R4	27 Ω " " "
R5-R8	1 Ω 1/2w " "
U1,U2	MB3730
J1	3 PIN STRT.KK156
J2	4 " " "
	3 " " "
	2 " " "
HSA1,2	HEATSINK ASSY.
MH1-MH4	HEYCO BUSHING



CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION	PART NO
.1mf 50v ax.cr	6	C7-C10, CP2,CP3	0986-00800-100
4.7mf 25v rd.tant	2	C1,C2	0986-00800-3100
22mf 6v " "	2	C3,C4	0986-00800-600
220mf 25v ax.elect	1	CP1	0986-00800-3200
470mf 6v " "	2	C5,C6	0986-00800-1700
1 Ω 1/2w 5%	4	R5-R8	0062-026D3-XXX
27 Ω 1/4w	2	R3,R4	0062-068B3-1XXX
2.7K " "	2	R1,R2	0062-199B3-1XXX
MB3730	2	U1,U2	0066-188XX-1X4X
2 PIN STRT.KK156	1	J2	3000-16367-0200
3 " " "	2	J1,J2	3000-16367-0300
4 " " "	1	J1	3000-16367-0400
HEATSINK ASSY.	2	HSA1, HSA2	A986-00010-E000
HEYCO BUSHING	4	MH1-MH4	0017-00042-0014
PC BOARD	1		A080-90910-E000

DIM TOLERANCES		FIRST USED ON		MIDWAY MFG. CO.		REVISIONS	
UNLESS OTHERWISE SPEC		TRON		FRANKLIN PK., IL 60131 A BALLY CO			
CONCENTRICITY T I R	002	DRN	TJK	DATE	9-1-82	SCALE	FULL
FRACTIONAL	\pm 1/64	MECH. DR					
DECIMAL	\pm .005	MAT.					
HOLE DIA	+ .002 - .000	FRESH					
ANGLE	\pm 1/2°	C. J. H.					
DO NOT SCALE DWG				DUAL PWR. AMP. ASSY		PART NO	
				A080-90910-E000		M051-00986-E010	



PROJECT ENG JOHN BOYDSTON		USED C	REVISIONS
		NO REQ'D PER	
DATE 3/8/85		SCHMATIC DRAWING OPTICAL ENCODER DELUXE A084-91794-A000	Balti MIDWAY MFG. CO. PART NO M051-00114-A131

60a/6-E 16

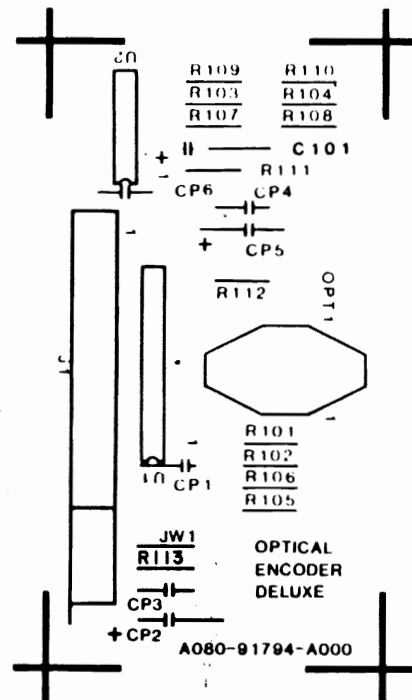
M051-00114-A130
OPTICAL ENCODER DELUXE
A084-91794-A000

DESIGNATION LIST

DESIGNATION	DESCRIPTION	DESIGNATION	DESCRIPTION
C101	4.7UF RAD. TANT	R109-R110	200K OHM 1/4W 5%
CP1	.01UF AX. CR.	R111	4.7K OHM 1/4W 5%
CP2	10UF AX. ELECT.	R112	6.2K OHM 1/4W 5%
CP3-CP4	.01UF AX. CR.	R113	3K OHM 1/4W 5%
CP5	10UF AX. ELECT.	OPT 1	OPTO SWITCH DIAL
CP6	.01UF AX. CR.	U1	74LS491
R101-R102	4.7K OHM 1/4W 5%	U2	LM339
R103-R104	200K OHM 1/4W 5%	J1	15 .045 SO. PIN
R105	6.2K OHM 1/4W 5%	JW1	JUMPER WIRE
R106	82 OHM 1/4W 5%	PCB	OPTICAL ENCODER DELUXE
R107	30K OHM 1/4W 5%		
R108	91K OHM 1/4W 5%		

CROSS REFERENCE

DESCRIPTION	QTY.	DESIGNATION	PART NUMBER
.01UF AX. CR.	4	CP1, CP3-CP4, CP6	0628-00800-0100
4.7UF RAD. TANT	1	C101	0628-00800-0200
10UF AX. ELECT.	2	CP2, CP5	0628-00800-0300
82 OHM 1/4W 5%	1	R106	100E-00005-0031
3K OHM 1/4W 5%	1	R113	100E-00005-0073
4.7K OHM 1/4W 5%	3	R101, R102, R111	100E-00005-0079
6.2K OHM 1/4W 5%	2	R105, R112	100E-00005-0083
30K OHM 1/4W 5%	1	R107	100E-00005-0099
91K OHM 1/4W 5%	1	R108	100E-00005-0113
200K OHM 1/4W 5%	4	R103, R104, R109, R110	100E-00005-0123
74LS491	1	U1	0628-00803-2700
LM339	1	U2	0628-00803-2900
OPTO SWITCH DIAL	1	OPT 1	120E-00001-0010
JUMPER WIRE	1	JW1	117E-00001-0003
15 .045 SO. PIN	15	J1	0304-00804-0010
OPTICAL ENCODER DELUXE	1	PCB	A080-91794-A000



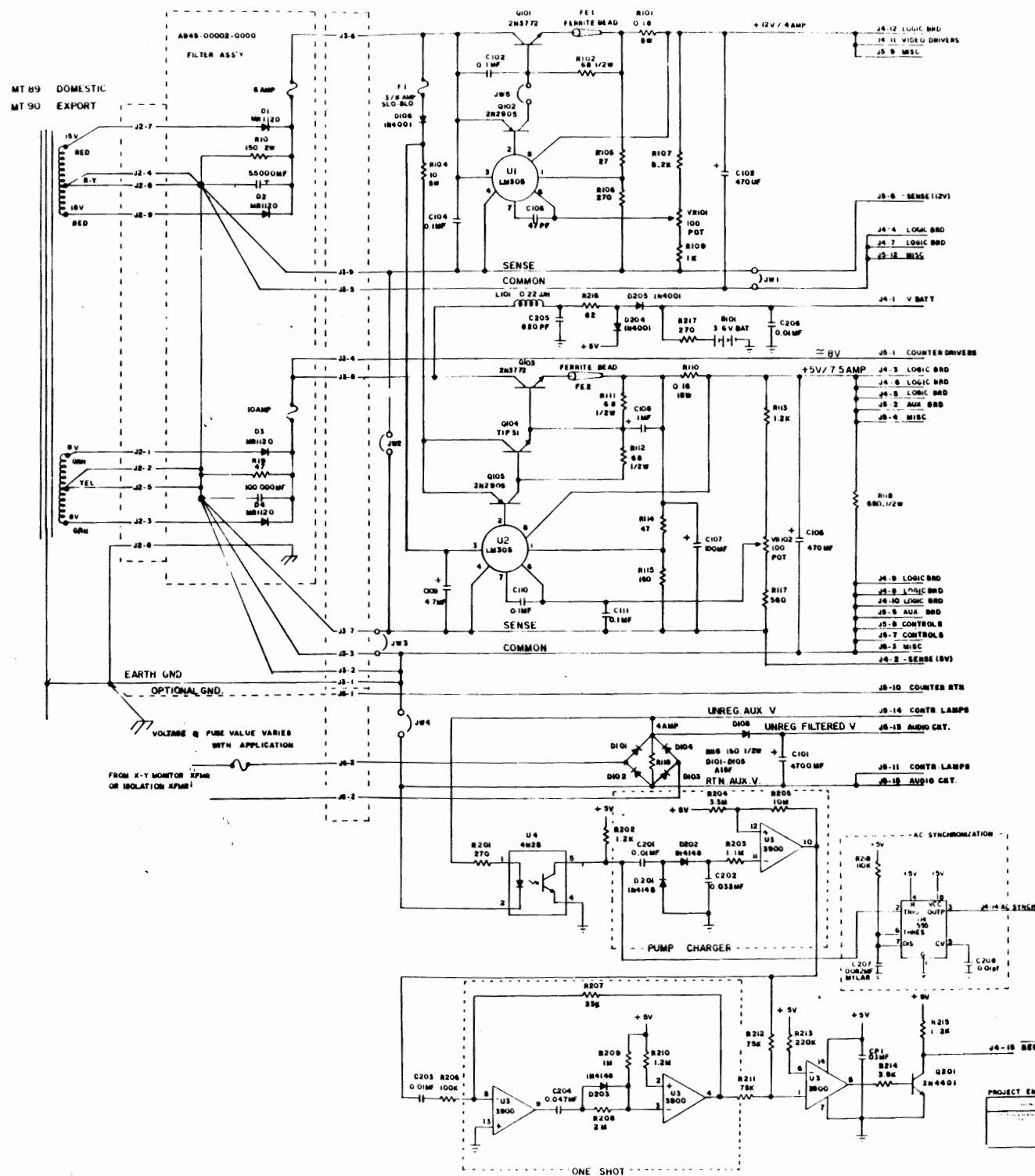
DIM TOLERANCES
UNLESS OTHERWISE SPEC
CONCENTRICITY ± 0.02
FRACTIONAL ± 1/64
DECIMAL ± 0.005
HOLE DIA ± 0.002 - 0.005
ANGLE ± 1/2°
DO NOT SCALE DWG.

CLASS	DATE	SCALE
3/8/85	3/8/85	

THIS DWG. IS CONFIDENTIAL & PROPERTY OF BALLY/MIDWAY MFG. CO.

Bally/MIDWAY MFG. CO.
FRANKLIN PARK, N.J. 07031
OPTICAL ENCODER DELUXE
A080-91794-A000

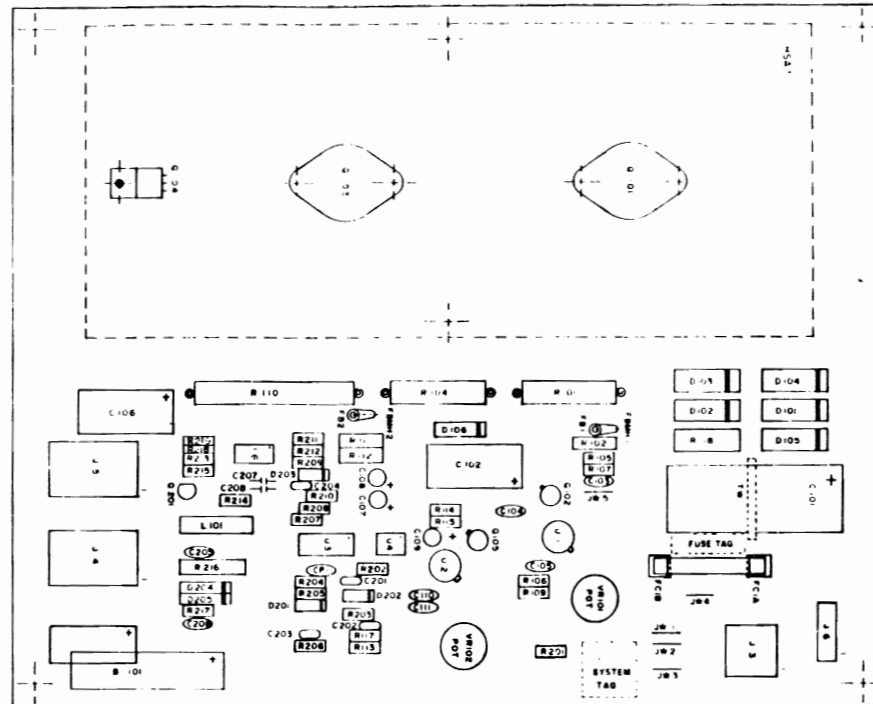
PART NO
M051-00114-A130
SHEET / OF 2
REVISIONS



PROJECT ENG L DESKER	SATAMWELLER	MIDWAY MFG. CO.
DATE 5/3/82	POWER SUPPLY 125VA W/CKT SUPPORT A082-90412-0000	M051-00945-0007

DESIGNATION LIST

DESIGNATION *	DESCRIPTION	DESIGNATION *	DESCRIPTION
C101	470uf AX ELECT	R117	560ohm 1/4W 5%
C102	470uf AX ELECT	R118	150ohm 2W
C103	1uf AX CER	R201	270ohm 1/4W 5%
C104	1uf AX CER	R202	1.2K 1/4W 5%
C108	470uf AX ELECT	R203	1.1M 1/4W 5%
C107	100uf RD TANT	R204	3.3M 1/4W 5%
C108	1uf RD TANT	R205	10M 1/4W 5%
C109	4.7uf RD TANT	R206	100K 1/4W 5%
C110	1uf AX CER	R207	33K 1/4W 5%
C111	1uf AX CER	R208	2M 1/4W 5%
C201	0.1uf MYLAR	R209	1M 1/4W 5%
C202	0.33uf MYLAR	R210	1.2M 1/4W 5%
C203	0.1uf MYLAR	R211	75K 1/4W 5%
C204	0.47uf MYLAR	R212	75K 1/4W 5%
C205	820pf AX CER	R213	220K 1/4W 5%
C206	0.1uf AX CER	R214	3.3K 1/4W 5%
C207	0.082uf MYLAR	R215	1.2K 1/4W 5%
		R218	820ohm 1W 10%
		R217	270ohm 1/4W 5%
		R218	110K 1/4W 5%
		R219	680ohm 1/2W 5%
		VR101,102	100ohm POT
CP1	1uf AX CER		
R101	18ohm SW W/RES SPACER	D101	A15F
R102	68ohm 1/2W 5%	D102	A15F
R104	10ohm SW W/RES SPACER	D103	A15F
F105	27ohm 1/4W 5%	D104	A15F
F106	27ohm 1/4W 5%	D105	A15F
F107	6.2K 1/4W 5%	D108	1N4001
		D201	1N4148
		D202	1N4148
		D203	1N4148
		D204	1N4001
		D205	1N4001
F109	1K 1/4W 5%	Q102	2N2905
F110	16ohm 15W W/RES SPACER	Q105	2N2905
F111	6.8ohm 1/2W 5%	Q201	2N4401
F112	68ohm 1/2W 5%		
R113	1.2K 1/4W 5%	U1	LM75S REG
R114	47ohm 1/4W 5%	U2	LM305 REG
R115	160ohm 1/4W 5%	U3	LM3900
		U4	1N78
		U6	555
		L101	22uH INDUCTOR
		B101	BATTERY 3.6VDC 60DEG C
		F1	3 RA. 5 BLO FUSE
		FC1A,1B	FUSE CLIP
		FF1,2	FERRITE BEAD
		TW1	TE WRAP
		J3	3PIN P.C. MOUNT CONN (MALE)
		J4	15PIN P.C. MOUNT CONN (FEMALE)
		J5	15PIN P.C. MOUNT CONN (MALE)
		J6	3PIN P.C. MOUNT CONN (MALE)
LB1	FUSE TAG		
LB2	SYSTEM TAG		
HSA1	HEAT SINK ASS'Y 1		
MHSA1	MOUNTING HARDWARE (HEAT SINK)		
	2 SCREW		
	4 WASHER		
	2 HEX NUT		
JW1,5	JUMPER WIRE		
FHM1,2	FERRITE BEAD MOUNTING HARDWARE		



CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION *	FART #
470uf AX CER	1	C105	0945 00811 0100
820uf AX CER	1	C205	0945 00816 0400
0.1uf AX CER	2	C206,208	0945 00816 0100
0.1uf MYLAR	2	C201,203	0945 00816 0200
0.33uf MYLAR	1	C207	0945 00816 0500
0.47uf MYLAR	1	C204	0945 00816 0300
0.1uf AX CER	1	C202	0945 00816 1900
1uf AX CER	5	C103,104,110,111,112,113,114	0945 00811 0200
1uf RAD TANT	1	CP1	0945 00811 0300
4.7uf RAD TANT	1	C108	0945 00811 0400
100uf RAD TANT	1	C107	0945 00811 0500
470uf AX ELECT	2	C102,106	0945 00816 0600
470uf AX ELECT	1	C101	0945 00811 0700
16ohm 15W 5%	1	R110	0945 00815 0100
18ohm SW 5%	1	R101	0945 00815 0200
6.8ohm 1/2W 5%	1	R1.1	0062 04703 1XXX
10ohm SW 5%	1	R104	0945 00812 0100
27ohm 1/4W 5%	1	R105	0062-06883-1XXX
47ohm 1/4W 5%	1	R114	0062 08683 1XXX
68ohm 1/2W 5%	3	R107,112,219	0062 09803 1XXX
87ohm 1W 10%	1	R216	0062 10415 1XXX
150ohm 2W 5%	1	R118	0945 00817 0200
160ohm 1/4W 5%	1	R115	0062 12483 1XXX
270ohm 1/4W 5%	3	R106,201,217	0062 13883 1XXX
567ohm 1/4W 5%	1	R117	0062 16283 1XXX
1K 1/4W 5%	1	R109	0062 17901 1XXX
1.2K 1/4W 5%	1	R113,202,215	0062 18383 1XXX
3.3K 1/4W 5%	1	R214	0062 20783 1XXX
6.7K 1/4W 5%	1	R107	0062 21783 1XXX
33K 1/4W 5%	1	R207	0062 25183 1XXX
75K 1/4W 5%	2	R211,212	0062 26983 1XXX
100K 1/4W 5%	1	R208	0062 27583 1XXX
110K 1/4W 5%	1	R2.8	0062-27783-1XXX
220K 1/4W 5%	1	R2.3	0062 29183 1XXX
1M 1/4W 5%	1	R209	0062 32383 1XXX
1.1M 1/4W 5%	1	R210	0062 32583 1XXX
1.2M 1/4W 5%	1	R2.10	0062 32783 1XXX
2M 1/4W 5%	1	R205	0062 33783 1XXX
3.3M 1/4W 5%	1	R204	0062 34783 1XXX
10M 1/4W 5%	1	R205	0062 37183 1XXX
100ohm POT	2	VR101,102	0945 00814 0030
LM75S REG	2	U1,2	0945-00813-0100
555	1	U6	0929-00810-4500
LM3900	1	U3	0945 00813 0200
4N28	1	U4	0945-00813 0300
A15F RECTIFKR	5	D101-105	0945-00804-0200
1N4001	3	D106,204,205	0945-00804 0300
1N4148	3	D201-203	0945-00804 0500
2N2905	2	Q102,105	0945 00808 0300
2N4401	1	Q201	0945-00804 0400
BATTERY 3.6VDC 60DEG C	1	B101	0017-00003-0377
FUSE 3/8A 5 BLO	1	F1	0945 00808-0400
FUSE CLIP	2	FC1A,1B	0017-00003-0214
TE WRAP	1	TW1	0945-00814-0300
FERRITE BEAD	2	FF1,2	0017-00008-0225
FERRITE MOUNTING HDW	2	FHM1,2	0017-00033 0139
22uH INDUCTOR	1	L101	0945-00814-0200
FUSE TAG	1	LB1	M051-00945-4004
SYSTEM TAG	1	LB2	M051-00945-4009
P.C.B	1		A080-80412-U000
HEAT SINK ASS'Y	1	HSA1	A945-00008-0000
(SEE HS ASSY DRAWING FOR NOTE)			
8-40 X 10 SLT RND	2	MHSA1A,2A	0017-00101-00727
8-40 HEX NUT	2	MHSA1E,2E	0017-00103-0002
WSH 4-120-290-D18	4	MHSA1B,1D	0017-00104-0071
		MHSA2B,2D	
3PIN P.C. MOUNT CONN (MALE)	1	J6	0017-00021-0443
9PIN P.C. MOUNT CONN (MALE)	1	J3	0017-00021-0425
15PIN P.C. MOUNT CONN (FEMALE)	1	J4	0017-00021-0441
15PIN P.C. MOUNT CONN (MALE)	1	J5	0017-00021-0440
22AWG T & R BARE 2.5"	5	JW1-5	0151-00087-0000

FROJ. ENG. L. DEKKER

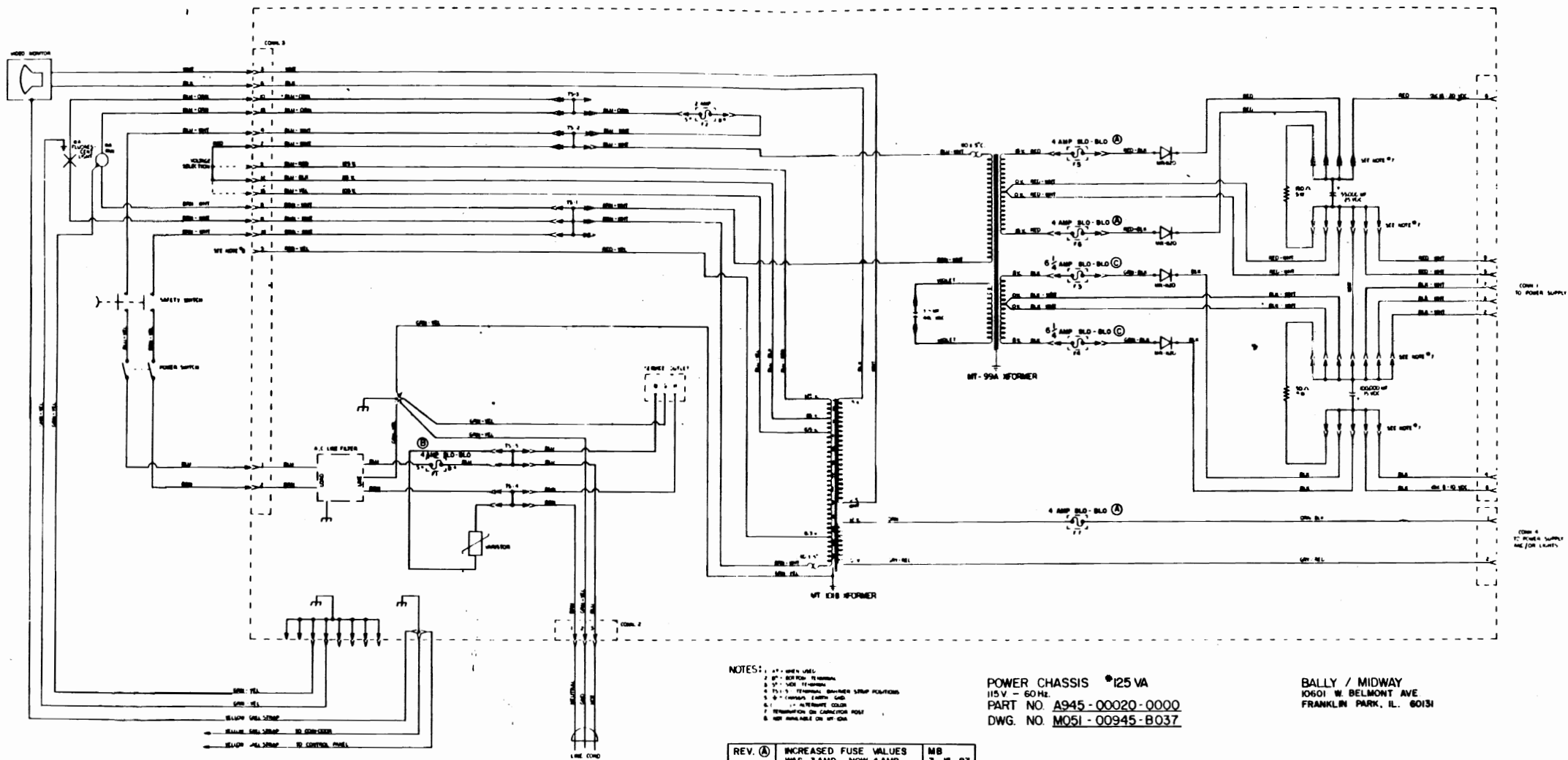
MIDWAY MFG. CO.

ASSEMBLY DRAWING 125VA PWRSPY

5/14/82

A082-90412-0000

M051-00945-B006



NOTES:
 1. * SEE W. 1251
 2. * SEE W. 1251
 3. * SEE W. 1251
 4. * SEE W. 1251
 5. * SEE W. 1251
 6. * SEE W. 1251
 7. * SEE W. 1251
 8. * SEE W. 1251

POWER CHASSIS *125 VA
 115V - 60 HZ.
 PART NO. A945-00020-0000
 DWG. NO. M051-00945-B037

BALLY / MIDWAY
 10601 W. BELMONT AVE.
 FRANKLIN PARK, IL. 60131

REV. A	INCREASED FUSE VALUES WAS 3 AMP - NOW 4 AMP ADDED PART NO. (UL)	MB 3-15-83
REV. B	INCREASED FUSE VALUE WAS 3 AMP - NOW 4 AMP	MB 3-24-83
REV. C	INCREASED FUSE VALUES	MK 8-16-84

BALLY/MIDWAY'S DEMOLITION DERBY (4 PLYR)

C.T. #0C48

ROM/EPROM PART NUMBERS

UNPROGRAMMED SUPER VIDEO GEN. A084-91464-H000/L000/M000
PROGRAMMED SUPER VIDEO GEN. A084-91464-AC48

POS.	MIDWAY PART NUMBER
1A	0C48-00803-0016
2A	0C48-00803-0015
3A	0C48-00803-0014
4A	0C48-00803-0013
5A	0C48-00803-0012
6A	0C48-00803-0011
7A	0C48-00803-0010
8A	0C48-00803-0009

JUMPERS	IN	OUT
JW1		**
JW2	**	

UNPROGRAMMED 5MHZ CPU A084-91490-H000/J000
PROGRAMMED 5MHZ CPU A084-91490-AC48

POS.	MIDWAY PART NUMBER
5F	0C48-00803-0002
6F	0C48-00803-0003
1C	0C48-00803-0006
2C	0C48-00803-0007
3C	0C48-00803-0008
4C	BLANK

JUMPERS	IN	OUT
JW1		**
JW2		**
JW3	**	
JW4		**
JW5		**
JW6		**

UNPROGRAMMED S/S I/O A084-90913-F000/G000
PROGRAMMED S/S I/O A084-90913-AC48

POS.	MIDWAY PART NUMBER
7A	BLANK
8A	BLANK
9A	BLANK
10A	BLANK

JUMPERS	IN	OUT
JW1		**
JW2		**

UNPROGRAMMED TURBO CHEAP SQUEAK A084-91779-A000
PROGRAMMED TURBO CHEAP SQUEAK A084-91779-AC48

POS.	MIDWAY PART NUMBER
U4	0C48-00803-0005
U5	0C48-00803-0004

JUMPERS	IN	OUT
JW1	**	
JW2		**
JW3		**
JW4	**	
JW5	**	

UNPROGRAMMED OPTICAL ENCODER DELUXE A084-91794-A000

JUMPER	IN	OUT
JW1		**

M051-00C48-A008