

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 and 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**

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phone (312) 451-6700

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FLIPPERSPILL.COM

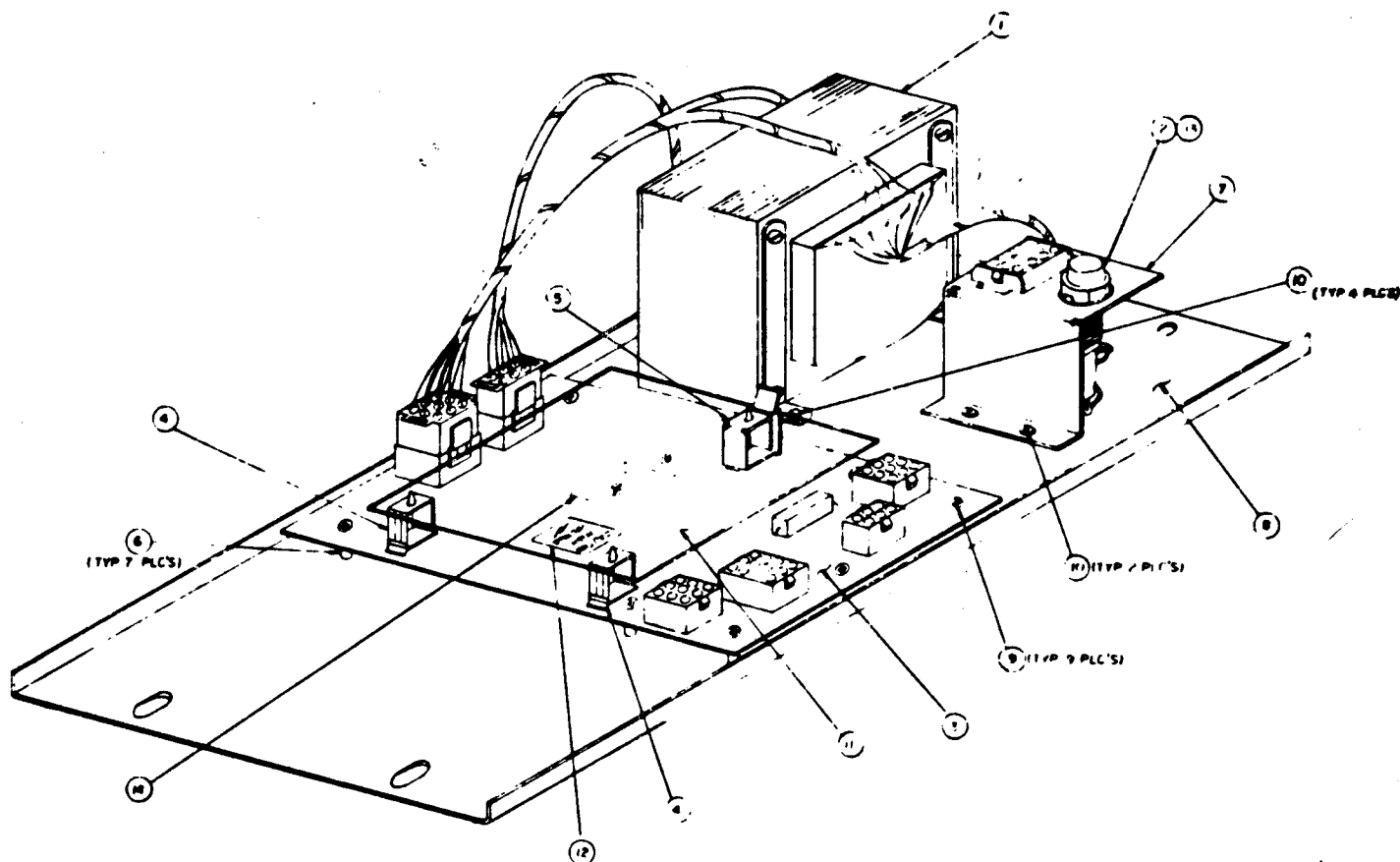
PLEASE NOTE:

A complete OPERATOR'S MANUAL was not available when your new game was shipped. If you will complete the enclosed postage free card and drop it in the mail to us, BALLY/MIDWAY MFG. CO. will be happy to send you the OPERATOR'S MANUAL for your new game by return mail.

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EPROM LIST	INSIDE BACK COVER

A2: POWER TRANSFORMER MODULE



A2: POWER TRANSFORMER MODULE COMPONENT PARTS LIST

ITEM	REFERENCE DESIGNATION	BALLY PART #	DESCRIPTION
0	A2	AA40-00037-0000	POWER TRANSFORMER MODULE, COMPLETE
1		MT00-00114-0000	TRANSFORMER
2		E-148-25	FUSE HOLDER
3	A2	AS-2518-54	POWER MODULE ASSEMBLY
4		M-1829-4	HINGED SUPPORT
5		M-1829-3	EDGE HOLDER
6		M-1829-5	SPACER
7		P-6442-244b	FUSE & CONNECT BRACKET
8		P-6442-246	CHASSIS
9		RLPP-832-1812	SCREW
10		RLPP-1032-1806	SCREW
11		P-2692-2	SHIELD
12		M-469-936a	HIGH VOLTAGE STICKER
13		E-133-24	3 AMP SLOW BLOW FUSE
14		M-1834	H. S. COMPOUND
15	(NOT SHOWN)	104E-00016-0014	TRIAC, MAC 38-2

NOTE 1 - ALL GAMES WITH 4 OR MORE FLIPPERS USE 7A

DESIGNATION LIST

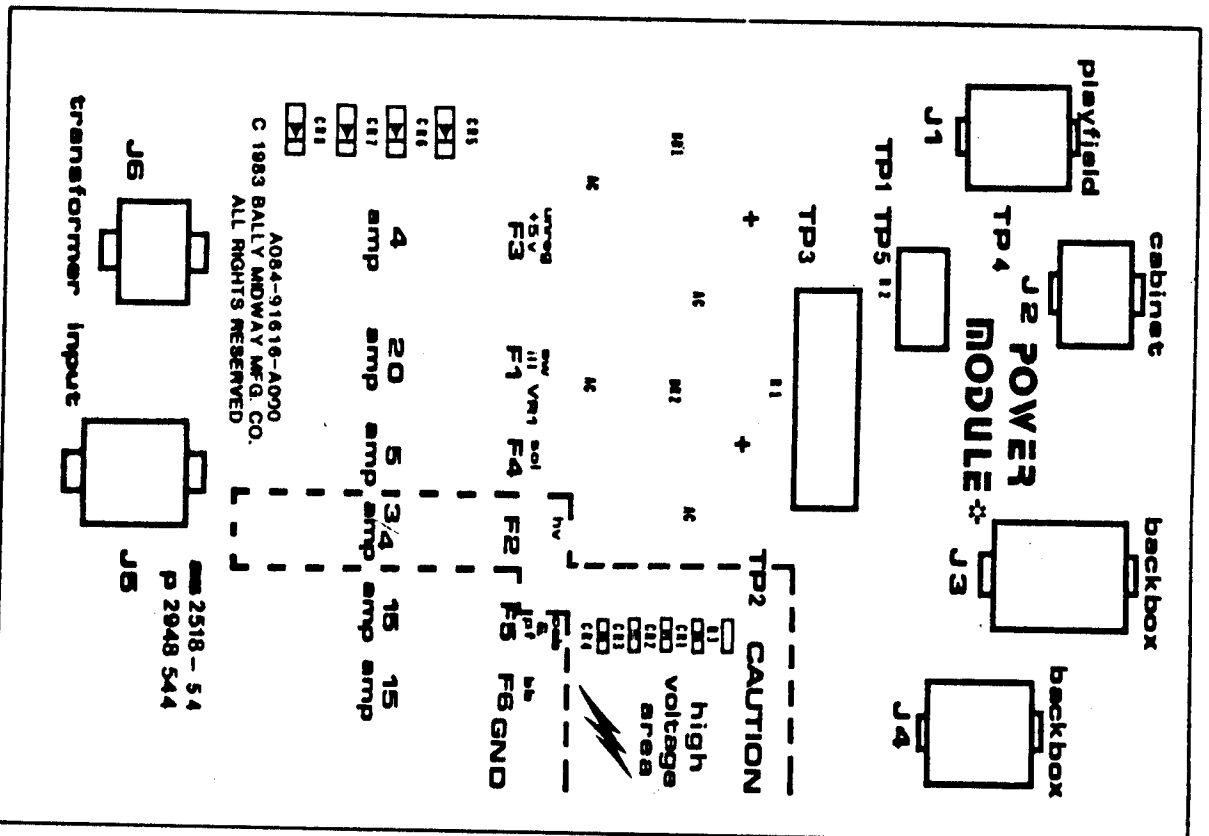
DESIGNATION NO.	DESCRIPTION
R1	600 OHM 10W 10%
R2	25 OHM 5W 10%
R3	100K OHM 1/4W 5%
VR1	VARIABLE
CR1-CR4	1N4004
CR5-CR8	GP30A/V330
HR1,HR2	KBPC35-02-W BRIDGE
P/O HR1,HR2	SPACER
F1	20 AMP FUSE - NOTE 1
F2	3/4 AMP FUSE
F3	4 AMP FUSE
F4	5 AMP FUSE - NOTE 2
F5,F6	15 AMP FUSE
P/O F1,F5,F6	FUSE CLIP BUSSMAN
P/O F2,F3,F4	FUSE CLIP LITTELFUSE
J1	9 COND. MEL PIN HEADER
J2	6 COND. MEL PIN HEADER
J3	12 COND. MEL PIN HEADER
J4	9 COND. MEL PIN HEADER
J5	9 COND. MEL PIN HEADER
J6	6 COND. MEL PIN HEADER
TP1-TP5,GND	TEST POINTS
PCB	POWER MODULE

NOTE 1 USE 10AMP FUSE WITH TRANSFORMER
 MTOO-00114-A000

NOTE 2 USE 6 AMP FUSE WITH 3 FLIPPER GAME
 AND 7 AMP FUSE WITH 4 FLIPPER GAME

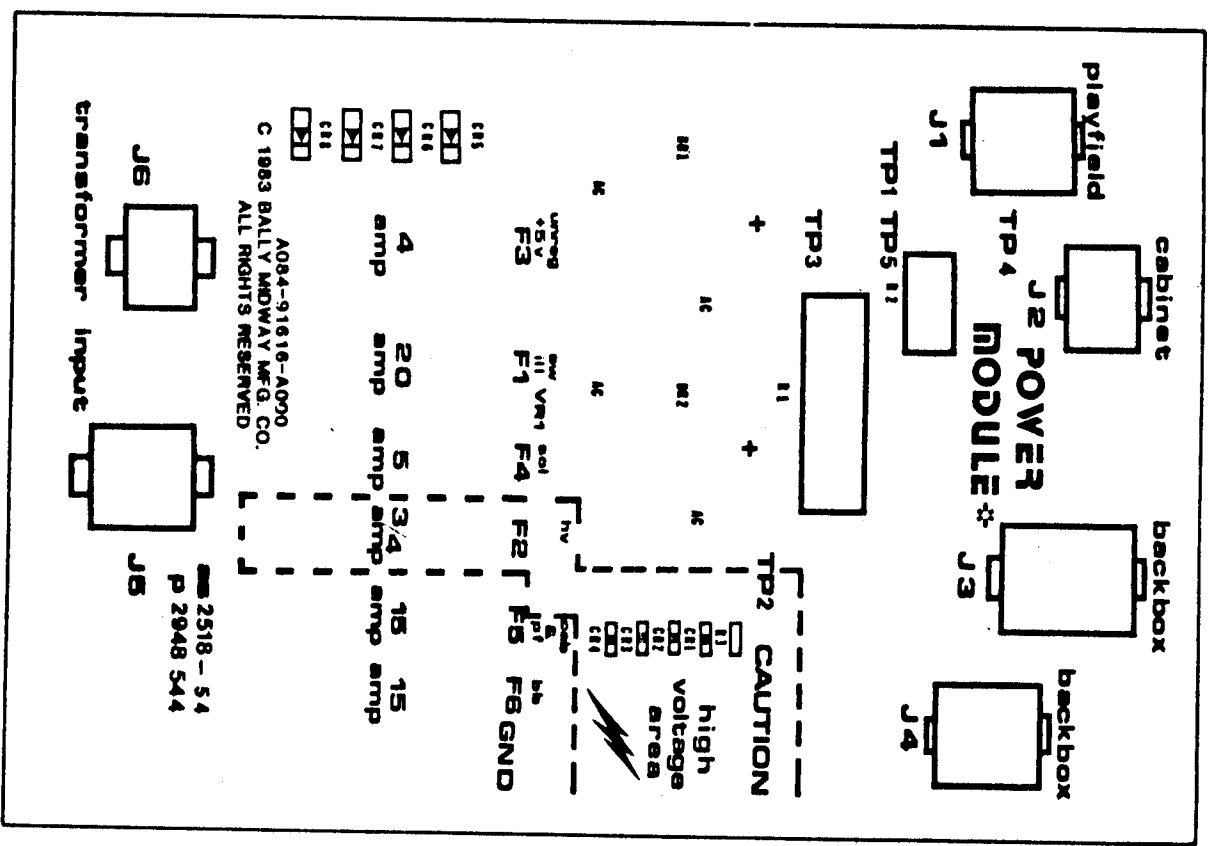
CROSS REF. LIST

DESCRIPTION
250 OHM 5W 10%
600 OHM 10W 10%
100K OHM 1/4W 5%
VARIABLE
1N4004
GP30A/V330
KBPC35-02-W
SPACER
3/4 AMP FUSE
4 AMP FUSE
5 AMP FUSE/EC
15 AMP FUSE
20 AMP FUSE
FUSE CLIP BUSSMAN
FUSE CLIP LITTELFUSE
6 COND. MEL PIN HEADER
9 COND. MEL PIN HEADER
12 COND. MEL PIN HEADER
TEST POINTS
POWER MODULE



CROSS REF. LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
250 OHM 5W 10%	1	R2	100E-00002-0028
600 OHM 5W 10%	1	R1	100E-00002-0049
100K OHM 1/4W 5%	1	R3	100E-00005-0115
VARISTOR	1	R1	115E-00001-0002
IN4004	4	CR1-CR4	103E-00003-0005
GP30A/V330	4	CR5-CR8	0360-00801-0007
KBR35-02-W	2	WR1,WR2	103E-00005-0005
SPACER	2	P/O WR1,WR2	118E-00001-0001
3/4 AMP FUSE	1	F2	0017-00003-0177
4 AMP FUSE	1	F3	0017-00003-0176
5 AMP FUSE	1	F4	0017-00003-0175
15 AMP FUSE	1	F5,F6	0017-00003-0313
20 AMP FUSE	2	F1	0017-00003-0173
FUSE CLIP BUSSMAN	6	P/O F1,F5,F6	0017-00071-0034
FUSE CLIP LITTELFUSE	6	P/O F2,F3,F4	0017-00071-0033
6 COND. M/L PIN HEADER	2	J2,J6	0017-00021-0424
9 COND. M/L PIN HEADER	2	J4,J5	0017-00021-0425
12 COND. M/L SOCKET HEADER	1	J1	0017-00021-0426
TEST POINTS	1	J3	0017-00021-0427
POWER MODULE	6	TP1-TP5,GND	0017-00007-0131
		PCB	A080-91616-A000



DESCRIPTION

600 OHM 5W 10%

25 OHM 5W 10%

100K OHM 1/4W 5%

VARISTOR

IN4004

GP30A/V330

KBR35-02-W BRIDGE

SPACER

20 AMP FUSE - NOTE 1

3/4 AMP FUSE

4 AMP FUSE

5 AMP FUSE - NOTE 2

15 AMP FUSE

FUSE CLIP BUSSMAN

FUSE CLIP LITTELFUSE

6 COND. M/L PIN HEADER

9 COND. M/L PIN HEADER

12 COND. M/L PIN HEADER

9 COND. M/L PIN HEADER

6 COND. M/L PIN HEADER

12 COND. M/L PIN HEADER

TEST POINTS

POWER MODULE

TRANSFORMER

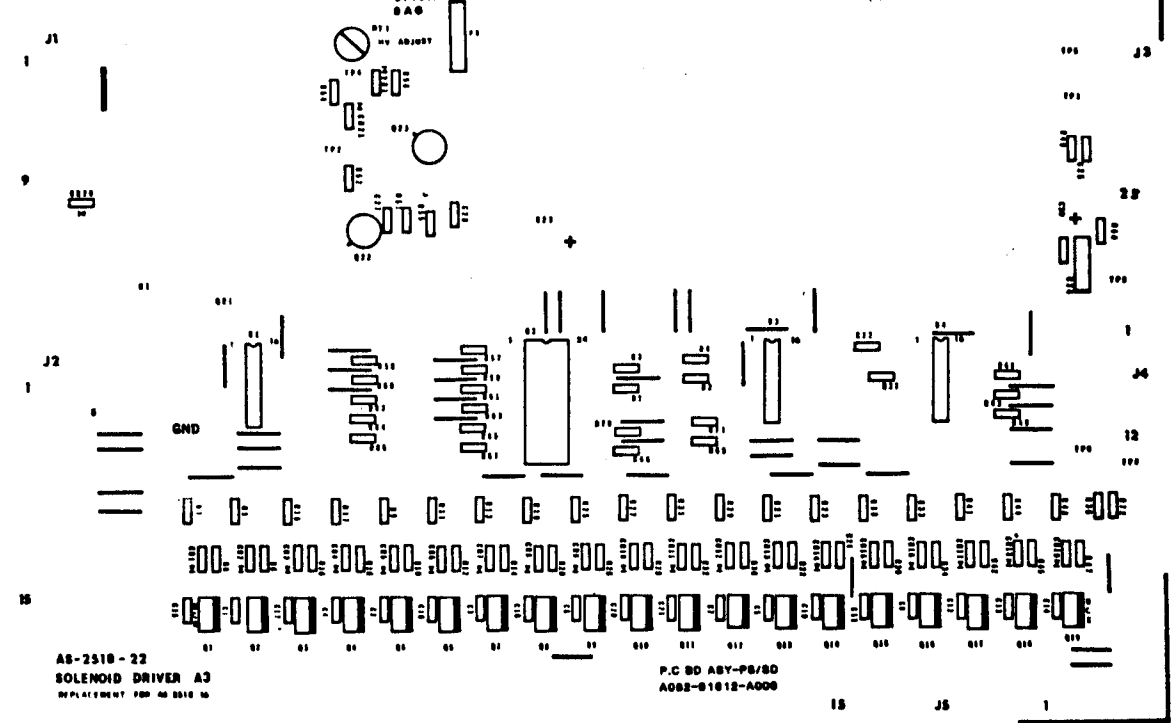
3 FLIPPER GAME

4 FLIPPER GAME

RESISTANCE LIST

RESISTANCE NO.	DESCRIPTION	RESISTANCE NO.	DESCRIPTION
C1-C2	.002 uf 1KV Cer.	C1-C2	TH4004 Diode
C11-C21	.002 uf 1KV Cer.	C1-C21	2N3045 NPN Darl.
C22	.01 uf 50V Cer.	C22	1N4323 45V Reg.
C23	.01 uf 50V Cer.	C23	2N3584 NPN
P/O C23	11,000 uf 20V Elec.	P/O C23	Heatshink T066
C24	Cable Tie	P/O C23	Insulator T066
C25	2 uf 25V Elec.	P/O C23	6-32 X 1/2 Screw
C26	1 uf 20V Cer.	P/O C23	6-32 Hex Nut
P/O C26	160 uf 350V Elec.	P/O C23	145-290-019 Lockwasher
C27, C28	1 uf 500V Cer.	P/O C23	145-313-019 Lockwasher
C29	Cable Tie	P/O C23	145-315-012 Flat Washer
R1-R4	1 uf 20V Cer.	P/O C23	6-32 Tapped Hex-Spacer
R5	33K 1/4 W 5%	P/O C23	Heatshink T03
R6	330 ohm 1/4 W 5%	P/O C23	Insulator T03
R7	120 ohm 1/4 W 5%	P/O C23	High Voltage Label
R8	120 ohm 1/4 W 5%	P/O C23	2N3440 NPN
R9	120 ohm 1/4 W 5%	P/O C23	Heatshink T05
R10	120 ohm 1/4 W 5%	P/O C23	Insulator T05
R11	120 ohm 1/4 W 5%	P/O C23	
R12	120 ohm 1/4 W 5%	P/O C23	
R13	120 ohm 1/4 W 5%	P/O C23	
R14	120 ohm 1/4 W 5%	P/O C23	
R15	120 ohm 1/4 W 5%	P/O C23	
R16	120 ohm 1/4 W 5%	P/O C23	
R17	120 ohm 1/4 W 5%	P/O C23	
R18	120 ohm 1/4 W 5%	P/O C23	
R19	120 ohm 1/4 W 5%	P/O C23	
R20	120 ohm 1/4 W 5%	P/O C23	
R21	120 ohm 1/4 W 5%	P/O C23	
R22	120 ohm 1/4 W 5%	P/O C23	
R23	120 ohm 1/4 W 5%	P/O C23	
R24	120 ohm 1/4 W 5%	P/O C23	
R25	120 ohm 1/4 W 5%	P/O C23	
R26	120 ohm 1/4 W 5%	P/O C23	
R27	120 ohm 1/4 W 5%	P/O C23	
R28	120 ohm 1/4 W 5%	P/O C23	
R29	120 ohm 1/4 W 5%	P/O C23	
R30	120 ohm 1/4 W 5%	P/O C23	
R31	120 ohm 1/4 W 5%	P/O C23	
R32	120 ohm 1/4 W 5%	P/O C23	
R33	120 ohm 1/4 W 5%	P/O C23	
R34	120 ohm 1/4 W 5%	P/O C23	
R35	100K 1W 5%	P/O C23	
R36	120 ohm 1/4 W 5%	P/O C23	
R37	3.9K 1/4 W 5%	P/O C23	
R38	120 ohm 1/4 W 5%	P/O C23	
R39	330 ohm 1/4 W 5%	P/O C23	
R40	3.9K 1/4 W 5%	P/O C23	
R41	120 ohm 1/4 W 5%	P/O C23	
R42	330 ohm 1/4 W 5%	P/O C23	
R43	3.9K 1/4 W 5%	P/O C23	
R44	120 ohm 1/4 W 5%	P/O C23	
R45	330 ohm 1/4 W 5%	P/O C23	
R46	3.9K 1/4 W 5%	P/O C23	
R47	330 ohm 1/4 W 5%	P/O C23	
R48	120 ohm 1/4 W 5%	P/O C23	
R49	100 ohm 1/2 W 5%	P/O C23	
R50	2.2 ohm 1/4 W 5%	P/O C23	
R51	22K 1/2 W 5%	P/O C23	
R52	390 ohm 1/4 W 5%	P/O C23	
R53	8.2K 1/4 W 5%	P/O C23	
R54	1.2K 1/4 W 5%	P/O C23	
R55	82K 1/2 W 5%	P/O C23	
R56	1.2K 1/4 W 5%	P/O C23	
R57-R72	0-25K Linear Pot. 1/4 W	P/O C23	

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CROSS REF. LIST

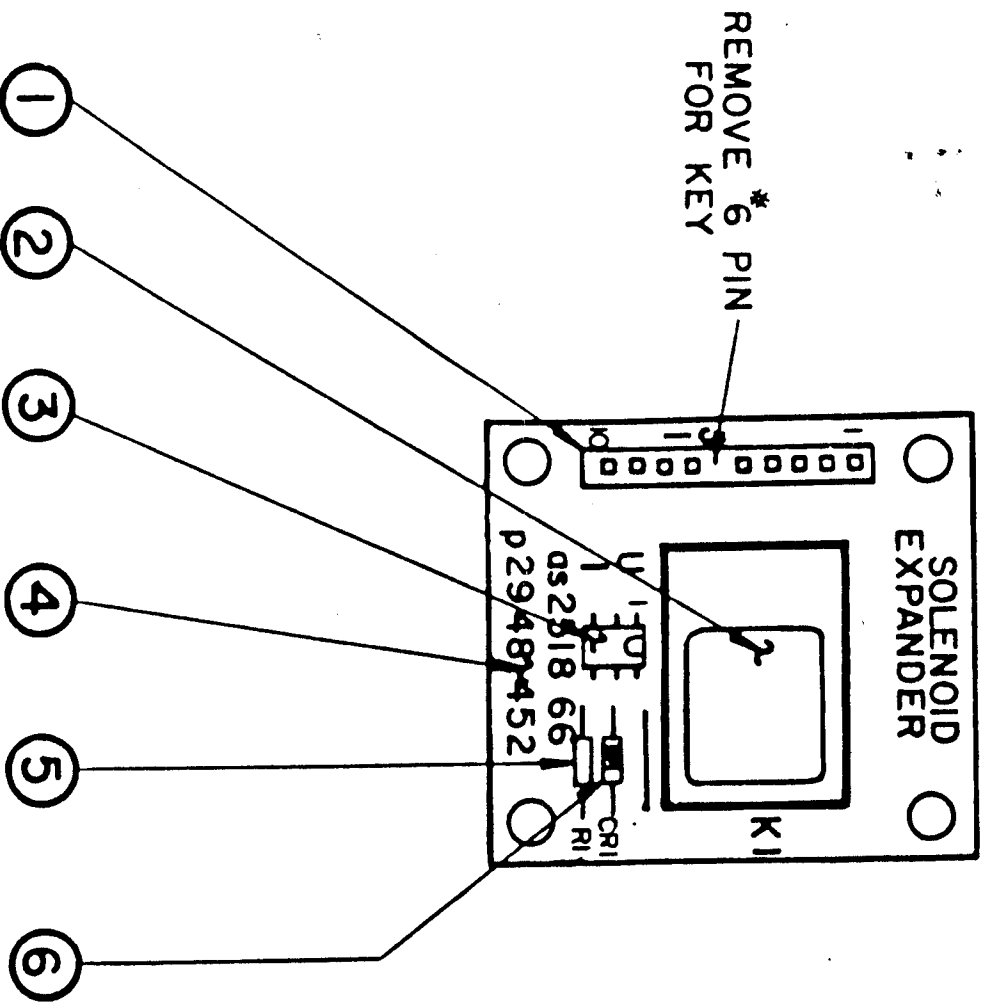
DESCRIPTION	QTY
.002 uf 1KV Cer.	19
.01 uf 50V Cer.	1
.01 uf 500V Cer.	2
1 uf 20V Cer.	2
2 uf 25V Elec.	1
160 uf 350V Elec.	1
11,000 uf 20V Elec.	1
2.2 ohm 1/4 W 5%	1
120 ohm 1/4 W 5%	20
330 ohm 1/4 W 5%	19
390 ohm 1/4 W 5%	1
1.2K 1/4 W 5%	17
3.9K 1/4 W 5%	4
8.2K 1/4 W 5%	1
33K 1/4 W 5%	4
100 ohm 1/2 W 5%	1
22K 1/2 W 5%	1
82K 1/2 W 5%	1
100K 1W 5%	1
1N4004	21
1N5275A 2 Zener	1
1N4323 45V Reg.	1
2N3584 NPN	2
2N3584 NPN Darl.	1
CA3081 NPN Array	19
74LS154 Bn. to 1/16 Dmc.	3
TIN 22awg Jumper	49
3/16 A Bagg Fuse	1
Fuse Clip	2
.045 Auto Insert Pins	36
.025 Auto Insert Pins	35
TEST POINT	8
Jumper Wire 24awg.	2
Solder Lug	2
Heatshink T05	1
Insulator T05	2
Heatshink T066	1
6-32 X 1/2 Screw	4
6-32 Hex Nut	2
145-290-019 Lockwasher	4
145-313-019	4
145-315-012 Flat Washer	4
6-32 Tapped Hex	2
Spacer	1
Heatshink T03	1
Insulator T03	1
High Voltage Label	1
40VDC Relay	1
P.C.B.	1

PROJECT ENG: A. AARSTAD		DATE: 11/27/84
DO NOT SCALE DIMS		
DIM TOLERANCES	UNLESS SPECIFIED	
ASSEMBLY DWG	DRIVER/PWR SUP	
A080-91612-A000		

CROSS REF. LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NO.
.002 uf 1KV Cer.	19	C1-C8, C11-C21	010E-0000-0012
.01 uf 50V Cer.	1	C2	010E-0000-0005
.01 uf 50V Cer.	2	C3, C28	010E-0000-0013
.1 uf 20V Cer.	2	C25, C29	010E-0000-0013
2 uf 25V Elec.	1	C4	010E-0000-0019
160 uf 350V Elec.	1	C6	010E-0000-0020
11,000 uf 20V Elec.	1	C23	010E-0000-0024
2.2 OHM 1/4W 5%	1	R50	100E-0000-0035
120 OHM 1/4W 5%	20	R7, R9, R11, R13	100E-0000-0035
		R15, R17, R19, R21, R23	
		R25, R27, R29, R31, R33	
		R35, R37, R39, R41, R43	
		R45, R47, R49, R51, R53	
		R55, R57, R59, R61, R63	
		R65, R67, R69, R71, R73	
		R75, R77, R79, R81, R83	
		R85, R87, R89, R91, R93	
		R95, R97, R99, R101, R103	
		R105, R107, R109, R111, R113	
		R115, R117, R119, R121, R123	
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		R145, R147, R149, R151, R153	
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		R545, R547, R549, R551, R553	
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		R805, R807, R809, R811, R813	
		R815, R817, R819, R821, R823	
		R825, R827, R829, R831, R833	
		R835, R837, R839, R841, R843	
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		R865, R867, R869, R871, R873	
		R875, R877, R879, R881, R883	
		R885, R887, R889, R891, R893	
		R895, R897, R899, R901, R903	
		R905, R907, R909, R911, R913	
		R915, R917, R919, R921, R923	
		R925, R927, R929, R931, R933	
		R935, R937, R939, R941, R943	
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		R965, R967, R969, R971, R973	
		R975, R977, R979, R981, R983	
		R985, R987, R989, R991, R993	
		R995, R997, R999, R1001, R1003	
		R1005, R1007, R1009, R1011, R1013	
		R1015, R1017, R1019, R1021, R1023	
		R1025, R1027, R1029, R1031, R1033	
		R1035, R1037, R1039, R1041, R1043	
		R1045, R1047, R1049, R1051, R1053	
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A15: SOLENOID EXPANDER ASSEMBLY
AS-2518-66



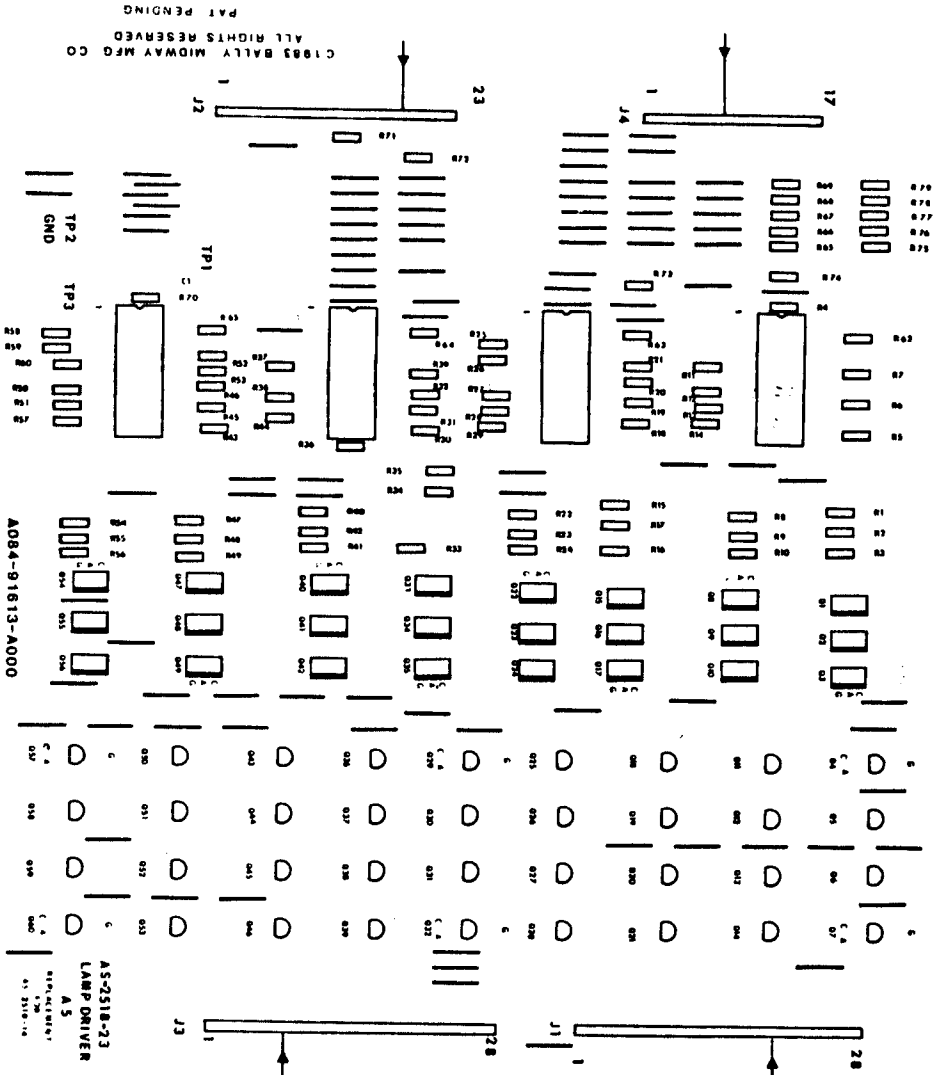
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[illegible]

DESIGNATION LIST

CROSS REFERENCE

DESIGNATION NO.	DESCRIPTION	QTY	DESIGNATION NO.
C1	.01 MF 500V	1	C1
R1-R60	2K 5% 1/4W	9	R61-R69
R61-R69	2.2M 5% 1/4W	61	R1-R60, R70
R70	2K 5% 1/4W	9	R71-R79
R71-R79	20K 5% 1/4W	9	
Q1-Q3	MCR100-1	24	Q1-Q3, Q8-Q10, Q15
Q4-Q7	2N5060	36	Q17, Q22-Q24, Q33-Q35
Q8-Q10	MCR100-1		Q35, Q40-Q42, Q47-Q49
Q11-Q14	2N5060		Q49, Q54-Q56
Q15-Q17	MCR100-1		Q4-Q7, Q11-Q14, Q17
Q18-Q21	2N5060		Q21, Q25-Q32, Q36-Q39
Q22-Q24	MCR100-1		Q39, Q43-Q46, Q50-Q53, Q57-Q60
Q25-Q32	2N5060		
Q33-Q35	MCR100-1		
Q36-Q39	2N5060		
Q40-Q42	MCR100-1		
Q43-Q46	2N5060		
Q47-Q49	MCR100-1		
Q50-Q53	2N5060		
Q54-Q56	MCR100-1		
Q57-Q60	2N5060		
U1-U4	MCT145148		
J1	28 PIN WAFER CONN.		
J2	23 PIN WAFER CONN.		
J3	28 PIN WAFER CONN.		
J4	17 PIN WAFER CONN.		
TP1-TP3	TEST CLIP		
	LABEL		
	JUMPER, 22 AWG		
	P.C. BOARD		

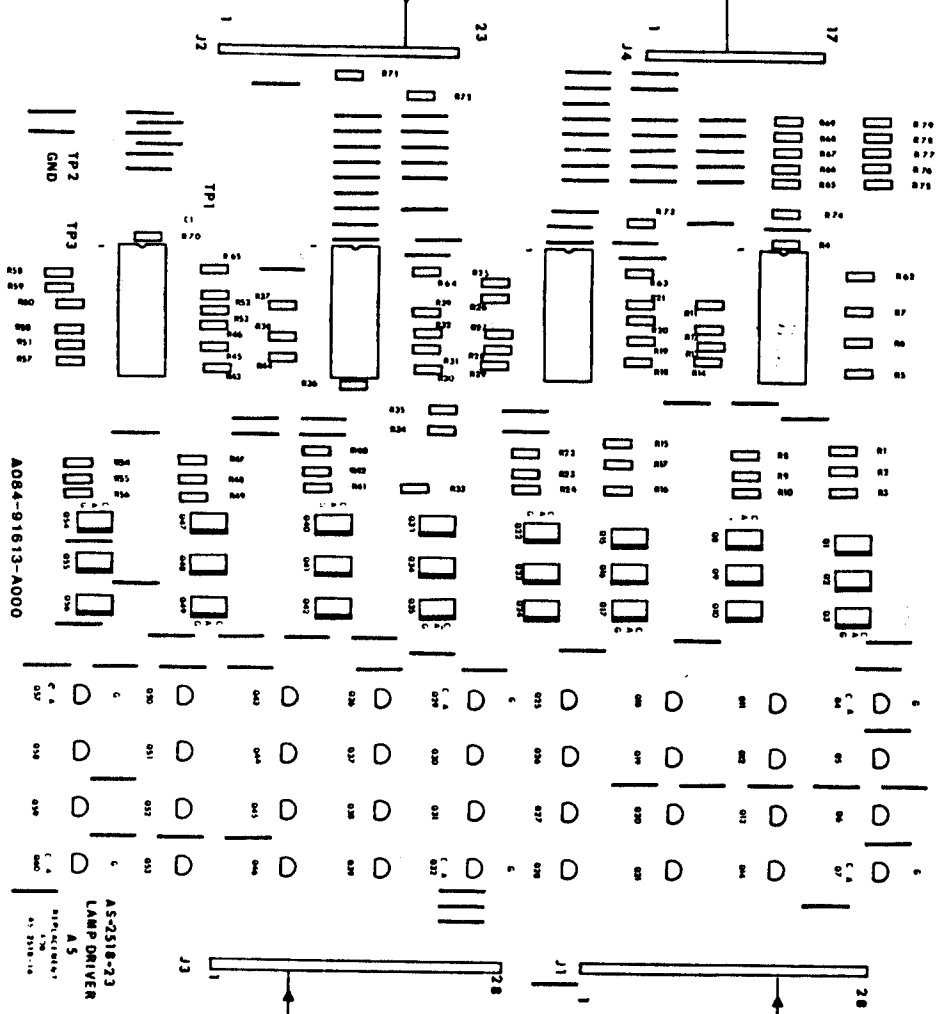


A084-91613-A000

AS-2518-73
LAMP DRIVER
A 5

PROJECT ENG		USED ON	
DO NOT SCALE	DATE	REV	NO. REV
05/31/83	05/31/83		
LAMP DRIVER ASSY DWG		A084-91613-	

A084-91613-A000



CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	BALL'S PART NOS.	MIDWAY'S PART NOS.
.01 IN 500V	1	C1	E-00566-0065	0360-00600-0013
2.2M 5% 1/4W	9	R61-R69	E-00105-0256	0062-55983-111X
2K 5% 1/4W	61	R1-R60,R70	E-00105-0237	0062-19283-111X
20K 5% 1/4W	9	R71-R79	E-00105-0242	0062-24183-111X
MC1016-1	24	01-03, 08-010, 015-017, 022-024, 033-035, 040-042, 047-049, 054-056	E-00585-0029	0360-00802-0009
2N5060	36	04-07, 011-014, 018-021, 025-032, 036-039, 043-046, 050-053, 057-060	E-00585-0014	0360-00802-0005
MC165148	4	U1-U4	E-00620-0037	0360-00803-0013
17 PIN WATER CONN.	1	J6	E-00715-0013	0151-00030-1748
23 PIN WAFER CONN.	1	J2	E-00715-0014	0151-00030-2348
28 PIN WAFER CONN.	2	J1,J3	E-00715-0004	0151-00030-2848
TEST CLIP	3	TP1-TP3	P-05399	0017-00007-0131
LABEL	1			0017-00081-0097
JUMPER, 22 AWG	99		M-1777-126	0069-23014-18X4
P.C. BOARD	1		P-02948-0501	A080-91613-A000

PROJECT ENG		USED ON		<i>Baldy / MIDWAY MFG. CO.</i> FRANKLIN, PA. 15116
DO NOT WRITE IN THESE SPACES		NO REQD I PER		
DATE RECEIVED		QUANTITY		PART NO
DATE		QUANTITY		
ORDER NO 05/31/83		LAMP DRIVER ASSY DWG A084-91613-A000		M051 - 00114 - A048

12
2017



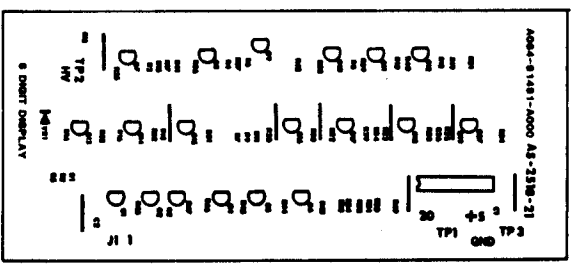
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CROSS REFERENCE LIST

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REPORT NO. D. MONROE D DATE OF REPORT 10-1-68		NAME PC ADDRESS 1000 10th St NW CITY WASH DC		DATE OF INFO 9/18/68 SOURCE PC		TITLE CHIEF SQUAD PC RD. ASST. A090-9803-C800		REPORT NO. 1000 1 FILE NO. PC 8		DATE OF INFO 9/18/68 SOURCE PC		TITLE CHIEF SQUAD PC RD. ASST. A090-9803-C800		REPORT NO. 1000 1 FILE NO. PC 8		DATE OF INFO 9/18/68 SOURCE PC		TITLE CHIEF SQUAD PC RD. ASST. A090-9803-C800	
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DESIGNATION NO.	DESCRIPTION	DESIGNATION NO.
C1	.01 NP 25V	DS1M
C2	.01 NP 500V	
R1	100K OHM 1/4W 5% TACE-SCREW PLICHT DISPLAY MTC. TOP DISPLAY MTC. BOTTOM PRESSURE SENSITIVE TAP	
R2	2.2K OHM 1/4W 5%	
R3	100K OHM 1/4W 5%	
R4	2.2K OHM 1/4W 5%	
R5	100K OHM 1/4W 5%	
R6	2.2K OHM 1/4W 5%	
R7	100K OHM 1/4W 5%	
R8	2.2K OHM 1/4W 5%	
R9	100K OHM 1/4W 5%	
R10	2.2K OHM 1/4W 5%	
R11	100K OHM 1/4W 5%	
R12	2.2K OHM 1/4W 5%	
R13	100K OHM 1/4W 5%	
R14	2.2K OHM 1/4W 5%	
R15	100K OHM 1/4W 5%	
R16	2.2K OHM 1/4W 5%	
R17	100K OHM 1/4W 5%	
R18	2.2K OHM 1/4W 5%	
R19	100K OHM 1/4W 5%	
R20	2.2K OHM 1/4W 5%	
R21	100K OHM 1/4W 5%	
R22	2.2K OHM 1/4W 5%	
R23	100K OHM 1/4W 5%	
R24	2.2K OHM 1/4W 5%	
R25	100K OHM 1/4W 5%	
R26	2.2K OHM 1/4W 5%	
R27-R33	100K OHM 1/4W 5%	
R34	2.2K OHM 1/4W 5%	
R35-R40	100K OHM 1/4W 5%	
R41	2.2K OHM 1/4W 5%	
R42	100K OHM 1/4W 5%	
R43-R48	2.2K OHM 1/4W 5%	
R49-R54	100K OHM 1/4W 5%	
VR1	1N3045A	
01-06	MPS-A42	
07-012	2N5401	
013-020	MPS-A42	
01	MC1543	
DS1	6 DIGIT DISPLAY	
	PANEL	



DESIGNATION NO.	DESCRIPTION	QTY.	DESIGNATION
C1	.01 NP 25V	1	C1
C2	.01 NP 500V	1	C2
R1	100K OHM 1/4W 5%	7	R27-R33
R2	2.2K OHM 1/4W 5%	7	R13, R15, R1
R3	100K OHM 1/4W 5%	7	R21, R23, R2
R4	2.2K OHM 1/4W 5%	6	R2, R4, R6
R5	100K OHM 1/4W 5%	6	R12
R6	2.2K OHM 1/4W 5%	6	R13-R48
R7	100K OHM 1/4W 5%	6	R49-R54
R8	2.2K OHM 1/4W 5%	1	R1
R9	100K OHM 1/4W 5%	7	R1, R3, R5
R10	2.2K OHM 1/4W 5%	7	R11, R14
R11	100K OHM 1/4W 5%	1	R14
R12	2.2K OHM 1/4W 5%	13	R14, R15, R1
R13	100K OHM 1/4W 5%	1	R22, R24, R2
R14	2.2K OHM 1/4W 5%	1	R40
R15	100K OHM 1/4W 5%	1	VR1
R16	2.2K OHM 1/4W 5%	6	07-012
R17	100K OHM 1/4W 5%	13	01-06 013-020
R18	2.2K OHM 1/4W 5%	1	01
R19	100K OHM 1/4W 5%	1	DS1
R20	2.2K OHM 1/4W 5%	1	DS1M
R21	100K OHM 1/4W 5%	2	
R22	2.2K OHM 1/4W 5%	1	
R23	100K OHM 1/4W 5%	1	
R24	2.2K OHM 1/4W 5%	1	
R25	100K OHM 1/4W 5%	1	
R26	2.2K OHM 1/4W 5%	1	
R27-R33	100K OHM 1/4W 5%	1	
R34	2.2K OHM 1/4W 5%	1	
R35-R40	100K OHM 1/4W 5%	1	
R41	2.2K OHM 1/4W 5%	1	
R42	100K OHM 1/4W 5%	1	
R43-R48	2.2K OHM 1/4W 5%	1	
R49-R54	100K OHM 1/4W 5%	1	
VR1	1N3045A	1	
01-06	MPS-A42	6	
07-012	2N5401	13	
013-020	MPS-A42	1	
01	MC1543	1	
DS1	6 DIGIT DISPLAY	1	
DS1M	TACE-SCREW PLICHT DISPLAY MTC. TOP DISPLAY MTC. BOTTOM PRESSURE SENSITIVE TAP	2	
	BUMPER	1	
	.045 SQ. PIN	1	
	TEST POINTS	1	
	JUMPER TIM 22 ANG	1	
	6 DIGIT DISPLAY	1	

PRODUCT CODE: A. AARSTAS		DATE: 11/14/84	
QTY. REQUIRED	QTY. ORDERED	QTY. SHIPPED	QTY. RETURNED
1	1	1	0
ASSEMBLY ORG. SIX DIGIT		A008-91491-A000	

DESIGNATION NO.	DESCRIPTION
DSIM	TACT-SCREEN RPLCMT DISPLAY ATG. TOP DISPLAY ATG. BOTTOM PRESSURE SENSITIVE TAPE
J1	BUMPER .045 SQ. PIN
TP1-TP3	TEST POINTS
1080-91491-A000	JUMPER TIN 22 AWG & DIGIT DISPLAY

CROSS REF. LIST		QTY.	DESCRIPTION NO.	PART NUMBER
DESCRIPTION				
.01 HP 31V	1		C1	0160-0000-0005
.01 HP 500V	1		C2	0160-0000-0013
1.2K 1/4W 58	7		R27, R13	100E-00005-0065
1.5K 1/4W 58	7		R3, R15, R17, R19	100E-00005-0065
2.2K 1/4W 58	6		R21, R23, R25	100E-00005-0065
9.1K 1/4W 58	6		R2, R4, R6, R8, R10	100E-00005-0065
20K 1/4W 58	6		R3, R46	100E-00005-0087
35K 1/4W 58	1		R49, R54	100E-00525-0095
100K 1/4W 58	1		R41	100E-00505-0102
METAL FILM 58	7		R1, R3, R5, R7, R9	100E-00001-0011
200K 1/4W 58	1		R11, R34	100E-00005-0125
500K 1/4W 58	15		R2, R42, R44, R45, R47, R48, R20, R22, R24, R26, R35-R40	100E-00005-0127
100K5A	1		VRI	103E-00001-0028
2N3401	6		Q7-Q12	104E-00003-0007
MPF-A42	13		Q1-Q6 Q13-Q20	104E-00001-0016
MC14543	1		Q16-Q18	0160-00003-0014
6 DIGIT DISPLAY	1		D81	0160-00004-0015
281 MFG. - NDV	2		DS1M	0095-00900-0100
TACH-SCREEN REPCMT	2			0017-00042-0155
DISPLAY MFG. TOP	1			0017-00042-0156
DISP. MFG. TOP	1			0017-00041-0095
DISP. MFG. TOP	1			0017-00041-0598
DISP. MFG. TOP	1			0160-00004-0010
DISP. MFG. TOP	1			0017-00007-0111
DISP. MFG. TOP	1			117E-00001-0001
DISP. MFG. TOP	1			100E-01491-A000

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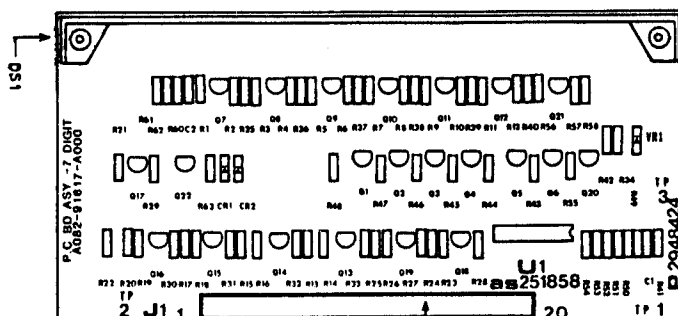
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.01 MF 25V	1	C1
.01 MF 500V	1	C2
1.2K 1/4W 5%	7	R27-R33
1.5K 1/4W 5%	9	R13, R15, R17 R21, R23, R25 R61
2.2K 1/4W 5%	7	R2, R4, R6, R8 R12, R57 R33-R40, R55 R49-R54
9.1K 1/4W 5%	7	R12, R57
20K 1/4W 5%	6	R49-R54
39K 1/4W 5%	1	R61
100K 1/4W 5%	8	R1, R3, R5, R7 R11, R34, R56 R51
150K 1/4W 5%	1	R15
240K 1/4W 5%	1	R42
300K 1/4W 5%	15	R14, R16, R18 R19, R24, R26 R20, R58, R62
1N3045A /10V ZENER	1	VH1
1N4148	2	CR1, CR2
2N5401	7	Q7-Q12, Q21
MP5-A42	15	Q7-Q6, Q13-Q
MT4543	1	U1
7 DIGIT DISPLAY DS1 MT6, HDW TACK-SCREW REPLACEMENT	1 2	DS1
DISPLAY MT6, TOP	1	
DISPLAY MT6, BOTOM	1	
PRESSURE SENSITIVE TAPE	1	
BUMPER	1	
10 PIN MAFER KT156	2	J1
TEST LOOPS	3	TP1-TP3
7 DIGIT DISPLAY	1	
7CB.		



PROJECT ENG. D. MACDONALD		USED
DO NOT WRITE IN THESE SPACES		REMAID
THE FOLLOWING INFORMATION IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR DISCLOSED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF THE COMPANY		DATE & TIME 12 09 83 12 09 83 12 09 83
DATE 12 09 83 12 09 83 12 09 83		FULL NO RE
SEVEN DIGIT ASSY		A082 - 916

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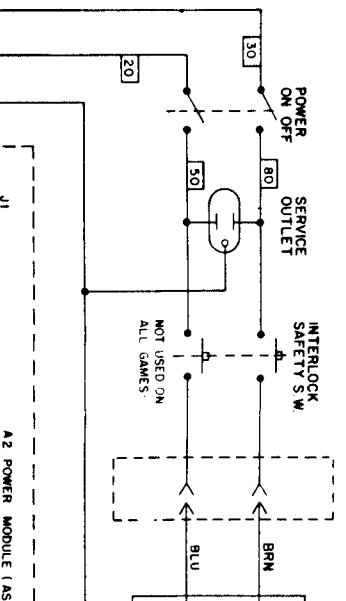
DESIGNATION NO.	DESCRIPTION
CR1, CR2	1M4148
VR1	1N3045A/110V ZENER
Q1-Q6	MP5-A42
Q7-Q12	2N5401
Q13-Q20	MP5-A42
Q21	2N5401
Q22	MP5-A42
U1	MC14543
DS1	DISPLAY ASSY
J1	10 PIN WAFER KK-156 (2)
TP1-TP3	TEST LOOPS
	7 DIGIT DISPLAY PCB
	BUMPER



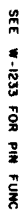
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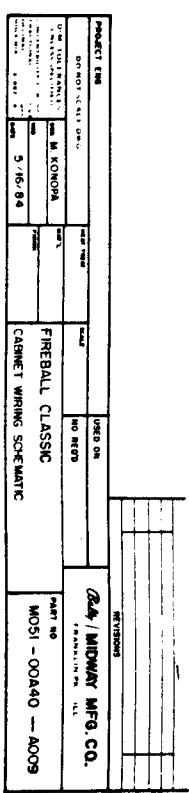
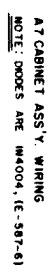
DESCRIPTION	QTY	DESIGNATION NO.	BALLY'S PART NOS.	MIDWAY'S PART NOS.
.01 MF 25V	1	C1	E-586-85	0360-00800-0005
.01 MF 500V	1	C2	E-586-65	0360-00800-0013
1.2K 1/4W 5%	7	R27-R33	E-105-222	100E-00005-0063
1.5K 1/4W 5%	9	R13, R15, R17, R19	E-105-229	100E-00005-0066
2.2K 1/4W 5%	7	R21, R23, R25, R60		
9.1K 1/4W 5%	7	R2, R6, R8, R10	E-105-287	100E-00005-0069
20K 1/4W 5%	6	R12, R57	E-105-228	100E-00005-0087
39K 1/4W 5%	1	R43-R48, R55	E-105-242	100E-00005-0095
100K 1/4W 5%	8	R49-R54	E-105-231	100E-00005-0102
150K 1/4W 5%	1	R1, R3, R5, R7, R9,	E-105-331	100E-00001-0011
240K 1/4W 5%	1	R11, R34, R56	E-105-248	100E-00001-0120
300K 1/4W 5%	15	R63	E-105-271	100E-00001-0125
		R42	E-105-227	100E-00001-0127
		R14, R16, R18, R20,		
		R22, R24, R26, R35-		
		R40, R58, R62		
1N3045A/110V ZENER	1	VR1	E-598-7	103E-00001-0028
1M4148	2	CR1, CR2	E-587-16	103E-00002-0005
2N5401	7	Q7-Q12, Q21	E-585-32	0360-00802-0006
MP5-A42	15	Q1-Q6, Q13-Q20, Q22	E-585-33	0360-00802-0007
MC14543	1	U1	E-620-38	0360-00803-0014
7 DIGIT DISPLAY	1	DS1	E-680-7	0360-00804-0022
DS1 MTG. HDB	2			0095-00900-0000
TACK-SCREW	1			0017-00042-0155
REPLACEMENT	1			0017-00042-0156
DISPLAY MTG. TOP	1			0017-00007-0131
DISPLAY MTG. BOTTOM	1			0017-00081-0095
PRESSURE SENSITIVE TAPE	1			
BUMPER	1			
10 PIN WAFER KK156	2	J1	R-206-9	0017-00041-0598
TEST LOOPS	3	TP1-TP3	E-726-10	0151-00031-10X8
7 DIGIT DISPLAY PCB.	1		P-5399	0017-00007-0131
			P-2948-424	A080-91617-A000

PROJECT ENG. D. MACDONALD		DO NOT WRITE OVER		DATE		TIME		12 09 83	
FULL		NO RECD		1 PER		SEVEN DIGIT DISPLAY ASSY DWG.		A082-91617-A000	
PART NO		MOSI - 00114		- A056					



NOTE: PROOFS ARE IN 4004, (E-587-6)

[illegible]





- SWITCH DIODES ARE IN4148

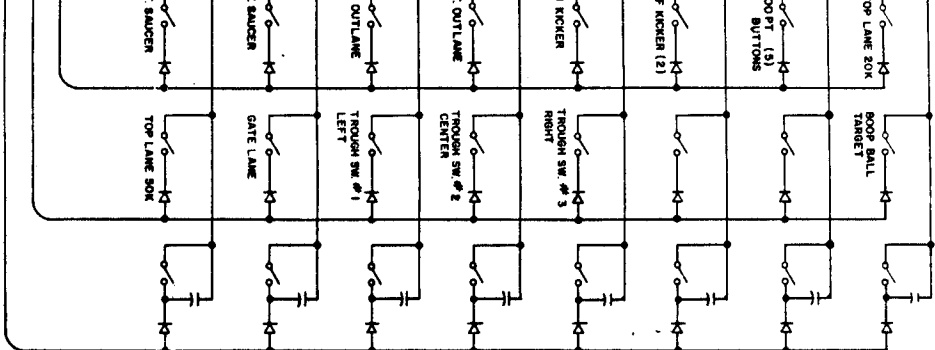


60	AS.1
57	AS.1
12	AS.1
67	AS.1
31	AS.1
15	AS.1
78	AS.1
50	AS.1
75	AS.1
53	AS.1
41	AS.1
43	AS.1
51	AS.1
45	AS.1
52	AS.1
32	AS.1
34	AS.1
94	AS.1
48	AS.1
65	AS.1
35	AS.1
61	AS.1
30	AS.1
43	AS.1
36	AS.1
67	AS.1
13	AS.1
25	AS.1
98	AS.1
40	AS.1
64	AS.1
78	AS.1
72	AS.1
23	AS.1
10	AS.1
21	AS.1
93	AS.1
52	AS.1
35	AS.1
14	AS.1
95	AS.1
91	AS.1
56	AS.1
81	AS.1
84	AS.1
20	AS.1

PROJECT ENG		DATE		SCALE	
DO NOT SCALE OFF		DATE PLACED			
TITLE 100% TIE IN PROJECT COLUMBIAN RIVER (SEE SHEET 100% TIE IN)		DRAWN BY M. KONOPA		DATE 1 / 1	
CHECKED BY J. B. B.		DATE 1 / 1		PROJECT FREE PLAY WRITE	

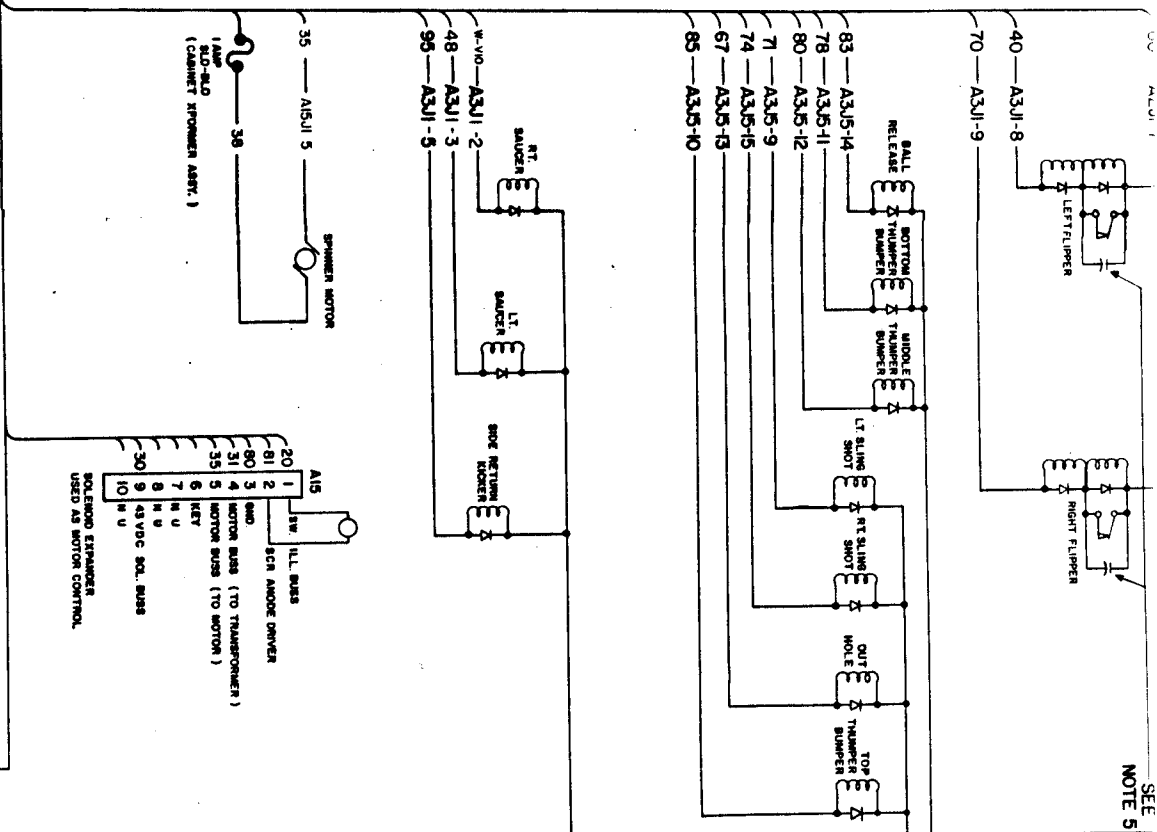
AYFIELD A6

0 A2J1-4 5.9 WAC.
 70 A2J1-1 GEN.
 40 A2J1-6 ILLUM.
 50 A2J1-3 RET.

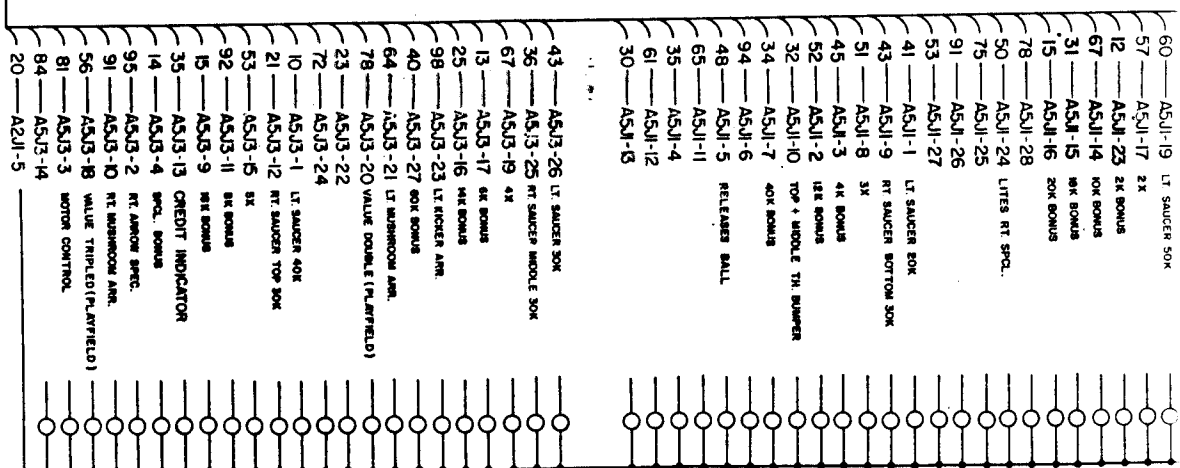


WIRE COLOR CODE

1-RED	6-BROWN
2-BLUE	7-ORANGE
3-YELLOW	8-BLACK
4-GREEN	9-GRAY
5-WHITE	0-NO TRACE



SEE NOTE 5

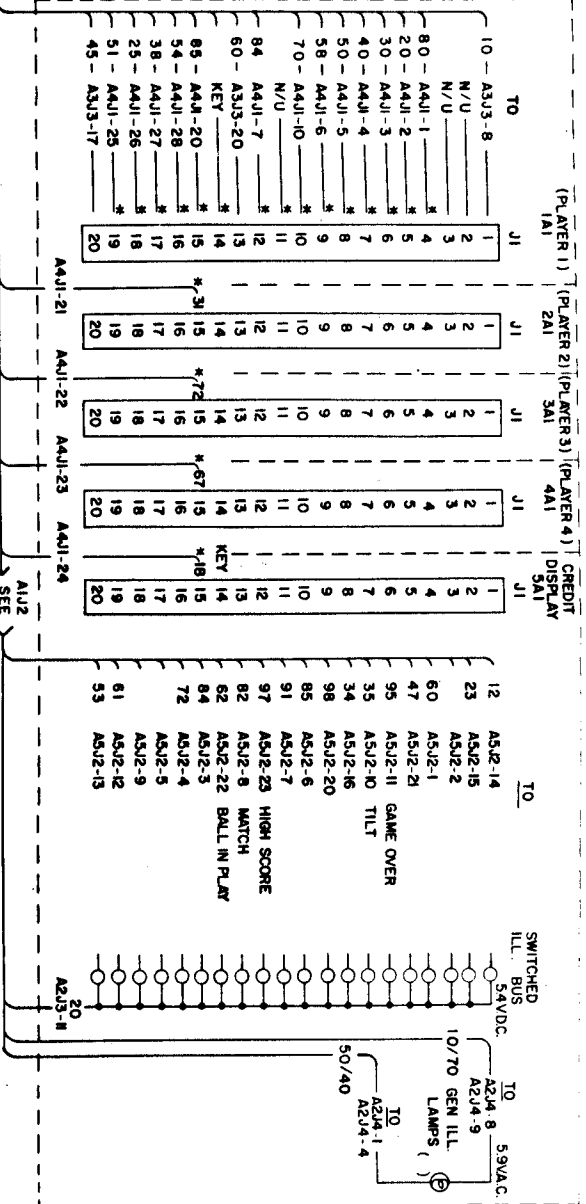


5.4 VDC

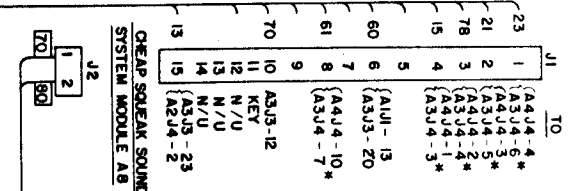
PROJECT ENG		DESIGNED BY		CHECKED BY	
M. KONOPKA		M. KONOPKA		M. KONOPKA	
FIREBALL CLASSIC		FIREBALL CLASSIC		FIREBALL CLASSIC	
PLAYFIELD		PLAYFIELD		PLAYFIELD	
WIRING SCHEMATIC		WIRING SCHEMATIC		WIRING SCHEMATIC	
PART NO.		PART NO.		PART NO.	
MOBI-00440-A010		MOBI-00440-A010		MOBI-00440-A010	

FROM	PIN	WIRE
A2J4-8	1	10
A2J4-1	2	50
A2J4-14	3	12
A2J4-2	4	PHK
A2J4-15	5	23
A2J4-16	6	34
A2J4-17	7	35
A2J4-21	8	47
A2J4-11	9	60
A2J4-12	10	20
A2J4-13	11	62
A2J4-14	12	85
A2J4-15	13	91
A2J4-16	14	95
A2J4-17	15	97
A2J4-18	16	98
A2J4-19	17	82
A2J4-2	18	19
A2J4-3	19	20
A2J4-4	23	40
A2J4-9	24	70

INSERT TO BACK CAB.
PLUG



TO	FROM
A2J4-4	1
A2J4-5	2
A2J4-6	3
A2J4-7	4
A2J4-8	5
A2J4-9	6
A2J4-10	7
A2J4-11	8
A2J4-12	9
A2J4-13	10
A2J4-14	11
A2J4-15	12
A2J4-16	13
A2J4-17	14
A2J4-18	15
A2J4-19	16
A2J4-20	17
A2J4-21	18
A2J4-22	19
A2J4-23	20
A2J4-24	21
A2J4-25	22
A2J4-26	23
A2J4-27	24
A2J4-28	25
A2J4-29	26
A2J4-30	27
A2J4-31	28
A2J4-32	29
A2J4-33	30
A2J4-34	31
A2J4-35	32
A2J4-36	33
A2J4-37	34
A2J4-38	35
A2J4-39	36
A2J4-40	37
A2J4-41	38
A2J4-42	39
A2J4-43	40
A2J4-44	41
A2J4-45	42
A2J4-46	43
A2J4-47	44
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A2J4-92	89
A2J4-93	90
A2J4-94	91
A2J4-95	92
A2J4-96	93
A2J4-97	94
A2J4-98	95
A2J4-99	96
A2J4-100	97
A2J4-101	98
A2J4-102	99
A2J4-103	100



TO	FROM
A2J4-4	1
A2J4-5	2
A2J4-6	3
A2J4-7	4
A2J4-8	5
A2J4-9	6
A2J4-10	7
A2J4-11	8
A2J4-12	9
A2J4-13	10
A2J4-14	11
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A2J4-17	14
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A2J4-26	23
A2J4-27	24
A2J4-28	25
A2J4-29	26
A2J4-30	27
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A2J4-32	29
A2J4-33	30
A2J4-34	31
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A2J4-41	38
A2J4-42	39
A2J4-43	40
A2J4-44	41
A2J4-45	42
A2J4-46	43
A2J4-47	44
A2J4-48	45
A2J4-49	46
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A2J4-53	50
A2J4-54	51
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A2J4-57	54
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A2J4-95	92
A2J4-96	93
A2J4-97	94
A2J4-98	95
A2J4-99	96
A2J4-100	97
A2J4-101	98
A2J4-102	99
A2J4-103	100



TO LOWER CABINET
TO PLAYFIELD

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- NOTES:
1. THESE PINS ARE RESERVED FOR FUTURE USE.
 2. WIRE COLOR ARE SHOWN FOR ALL CONNECTOR.
 3. * INDICATES AID TEST POINT.

WIRE COLOR CODE

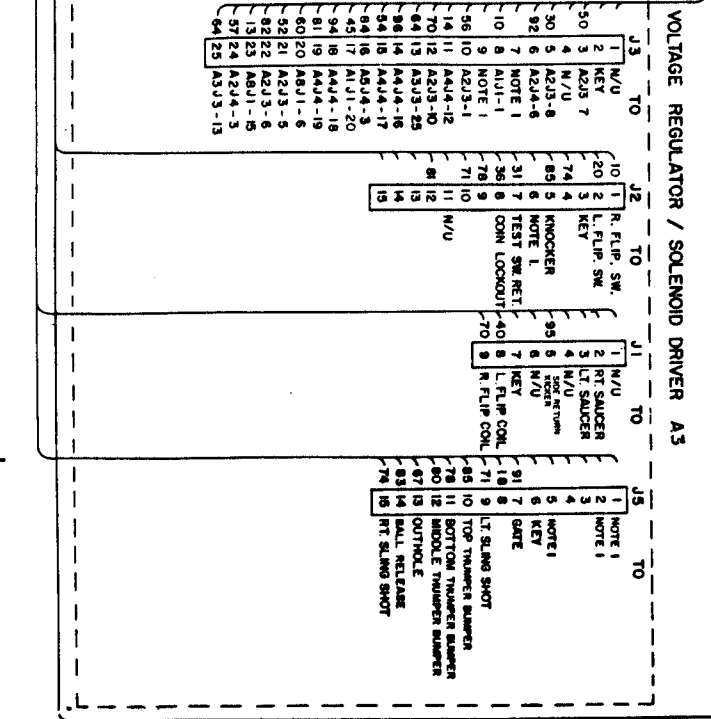
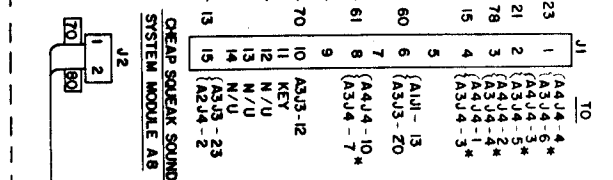
EXAMPLE:

SO WHITE

51 WHITE RED

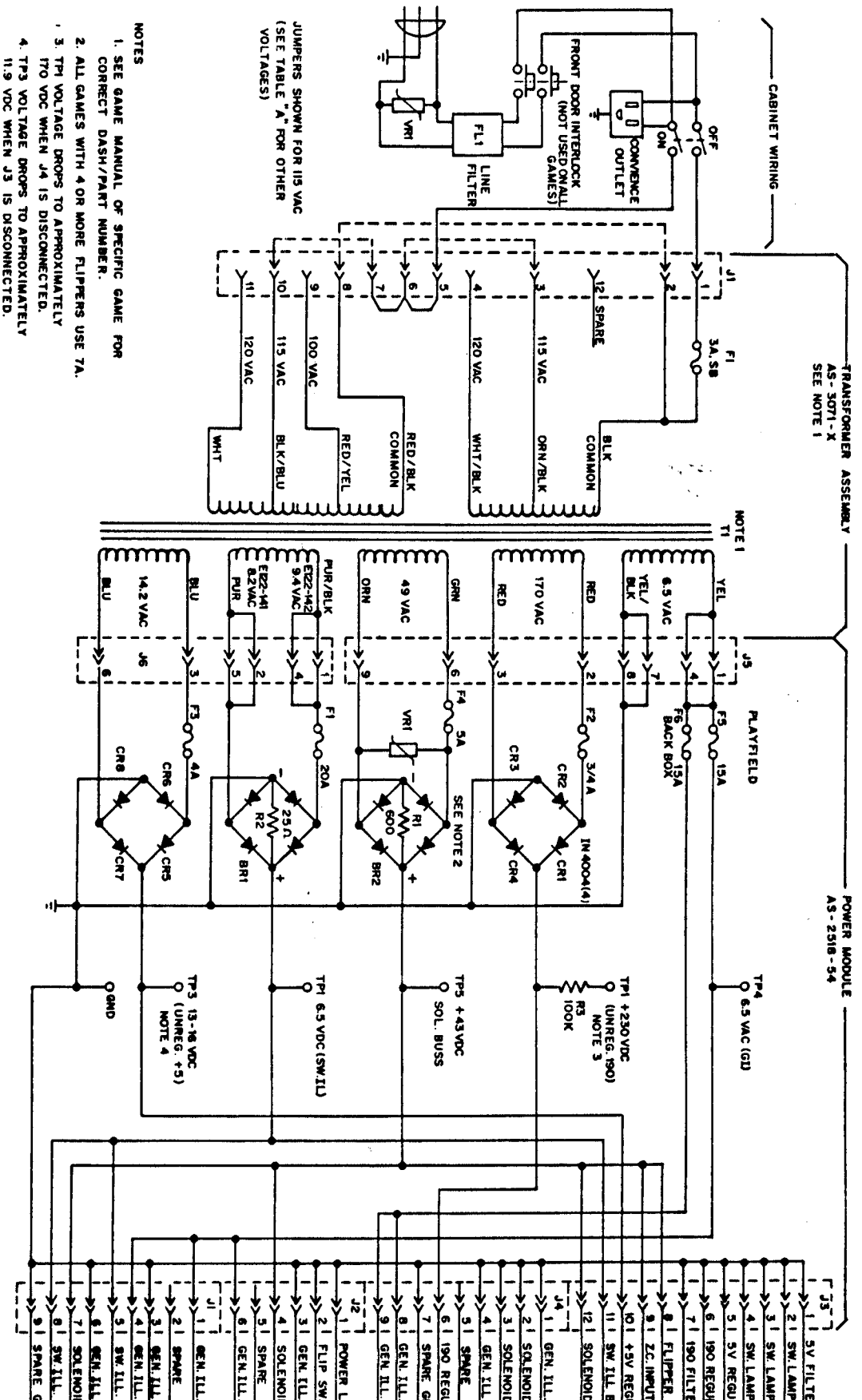
PROJECT FILE

PROJECT FILE

[illegible]

TRANSFORMER POWER ASSEMBLY
AS-2877-X
SEE NOTE 1

POWER MODULE
AS-2918-94



PRODUCT ENG: A. AARSTAD

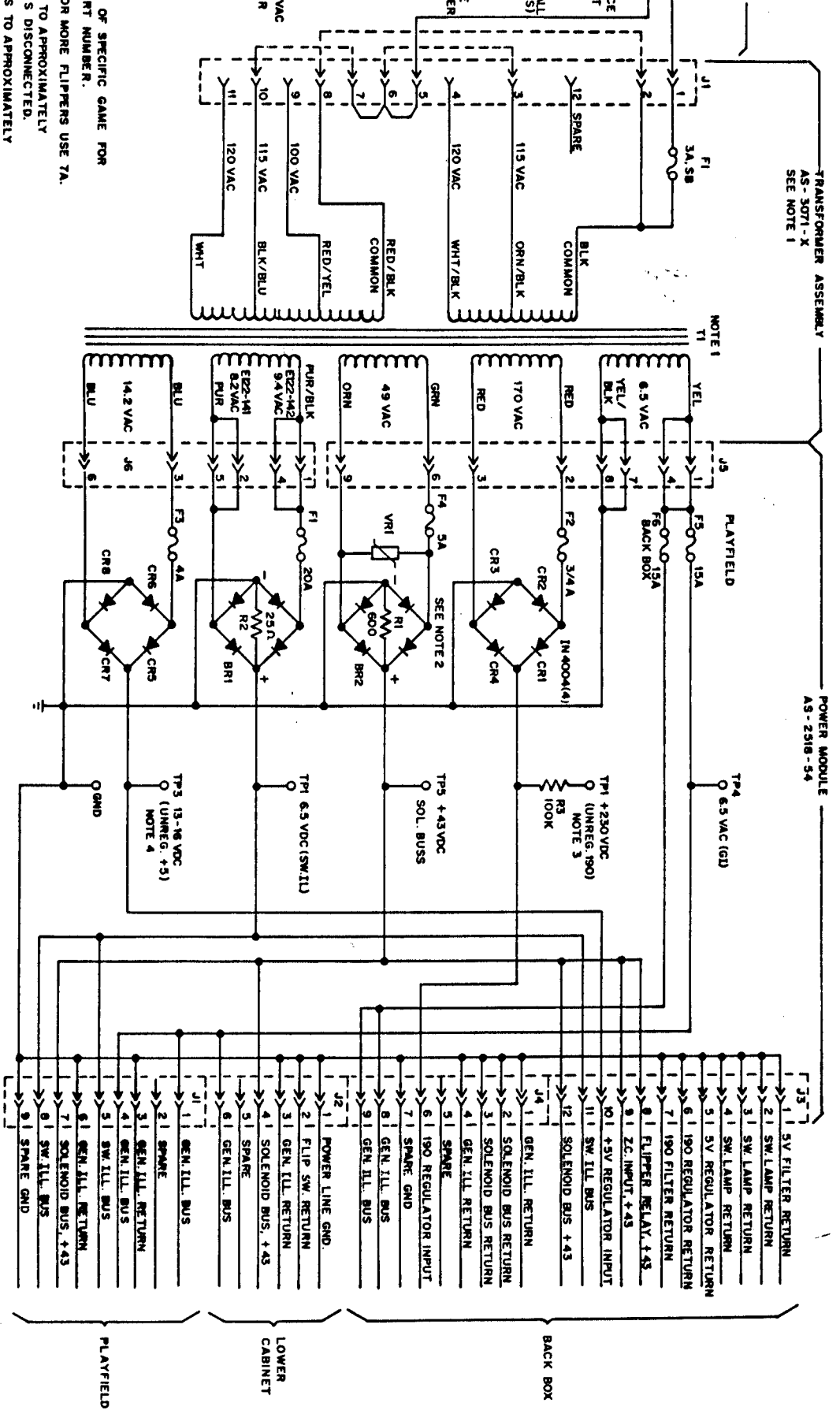
DO NOT SCALE DRAWING

DATE: 5/5/84

SCHEMATIC DWG
POWER MODULE
A080-91616-A000

TRANSFORMER POWER ASSEMBLY
AS-2877-X
SEE NOTE 1

POWER MODULE
AS-2518-54

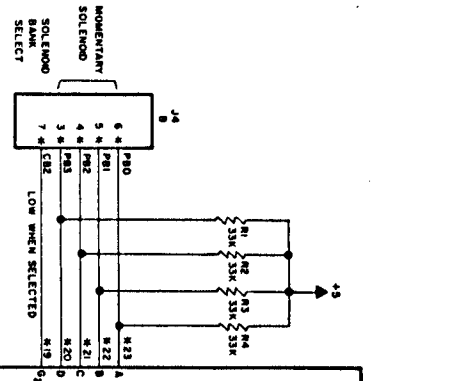


OF SPECIFIC GAME FOR
RT NUMBER.
FOR MORE FLIPPERS USE 7A.
TO APPROXIMATELY
S DISCONNECTED.
S TO APPROXIMATELY
IS DISCONNECTED.

TABLE "A"

2-8, 3-8, 7-10
2-8, 4-8, 7-11
4-8, 7-9
4-8, 7-11

PRODUCT ENG: A. AARSTAD		DATE: 5/3/84		SCHEMATIC DWG		PART NO.	
DO NOT SCALE Dwg		FULL		POWER MODULE		MO51 - 00114 - A055	
TIME TO COMPLETE:		5/3/84		A080-91615-A000		GAL / MIDWAY MFG. CO.	
UNLESS OTHERWISE SPECIFIED:		5/3/84		A080-91615-A000		FRANKLIN, PA. ILL.	
DRAWN BY: J. J. J.		5/3/84		A080-91615-A000		MO51 - 00114 - A055	
CHECKED BY: J. J. J.		5/3/84		A080-91615-A000		MO51 - 00114 - A055	
APPROVED BY: J. J. J.		5/3/84		A080-91615-A000		MO51 - 00114 - A055	



NOTES:

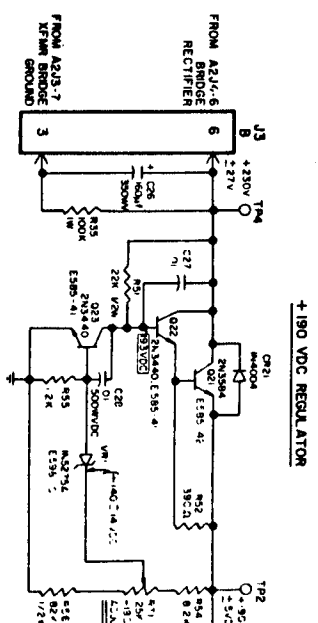
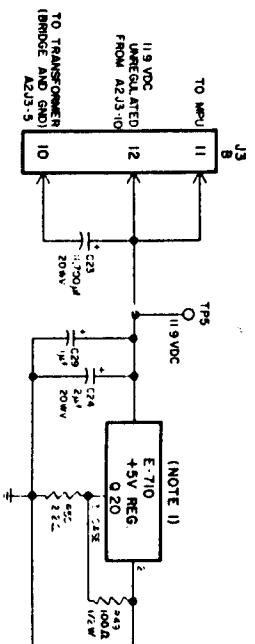
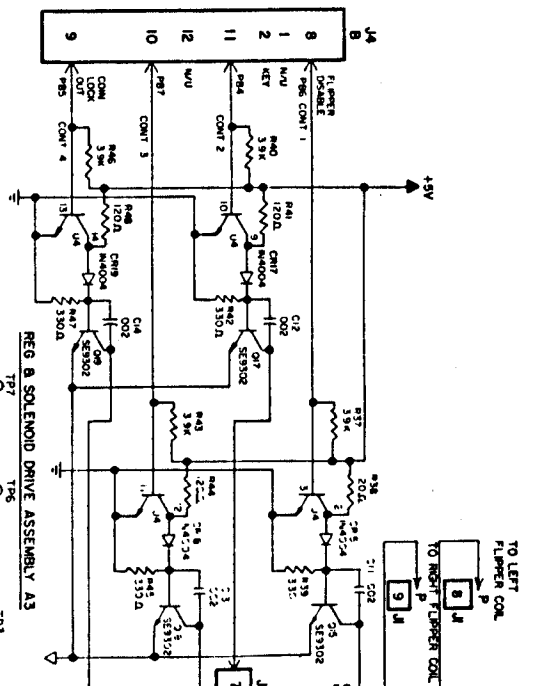
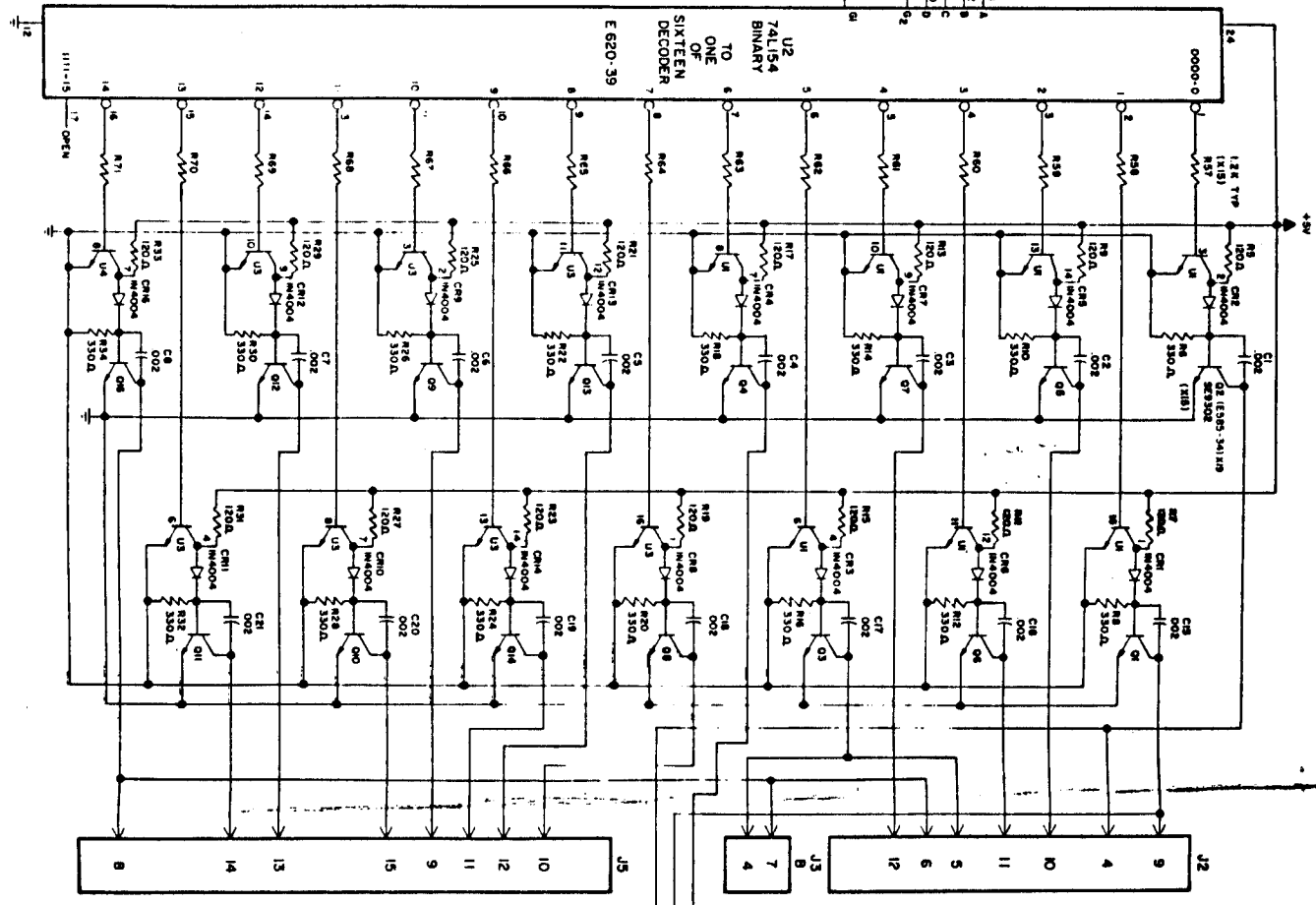
- 1 E 710, LAMBDA-1.65 1405
NATIONAL, LM-323 K
FARCHILD 7BHO50K
- 2 J1-KK156-9 PIN KEY PIN 7
J2-KK156-15 PIN KEY PIN 3
J3-KK100-25 PIN KEY PIN 2
J4-KK100-12 PIN KEY PIN 2
J5-KK150-15 PIN KEY PIN 6
- 3 PREP. ALL REFERENCE DESIGNATIONS
WITH "A3"
- 4 "U1", "A3", "3" PINS 5 AND 15 ARE
GROUNDED
- 5 VOLTAGES SHOWN ARE FOR A GAME UP
CONDITION
- 6 "U1", "U3" AND "U4" ARE CA-3081(1681)
- 7 * INDICATES "AID" TEST POINT.

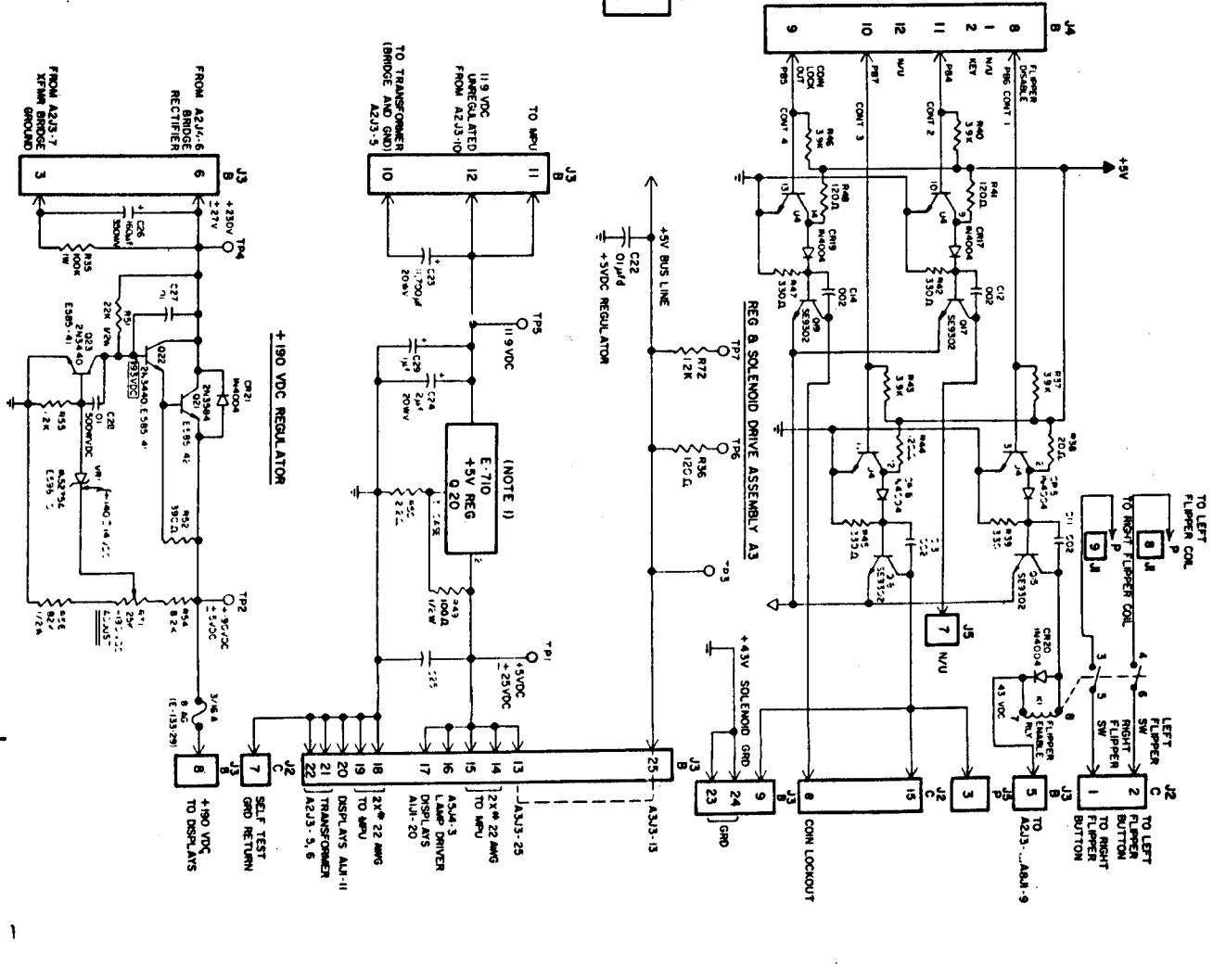
CONNECTOR CODE

C — ROUTE TO CABINET CONN
B — ROUTE TO 'RACK BOX CONN
P — ROUTE TO PLAYFIELD CONN

LAST NUMBER USED

R72	N/U C9,C10
C29	N/U Q20
Q23	
CR21	
VRI	

[illegible]



SOLENOID DRIVER VOLTAGE
REGULATOR SCHEMATIC

24 / MIDWAY MFG. CO.

PAINTS 500

FIREBALL CLASSIC 0M40

SCR	DESCRIPTION	JACK	PIN	WIRE COLOR
058058	RT. ARROW SPTL.	J3	2	95
016**	BALL IN PLAY	J2	22	62
024	BALL RELEASE	J1	5	48
08**	BONDS 2K	J1	23	12
035**	BONDS 4K	J1	3	45
049**	BONDS 6K	J3	17	13
054**	BONDS 8K	J3	11	93
09**	BONDS 10K	J1	14	67
034**	BONDS 12K	J1	52	52
048**	BONDS 14K	J3	16	25
055**	BONDS 16K	J3	9	15
010	BONDS 18K	J1	15	31
011	BONDS 20K	J1	16	15
026	BONDS 40K	J3	7	34
032	BONDS 60K	J3	27	40
053	BONDS SPTL.	J3	4	14
052	CREDIT INDICATOR	J3	13	35
033	GAME OVER BACK BOX	J2	11	95
015	HIGH SCORE BACK BOX	J2	23	97
037	LT. KICKER ARROW	J3	23	98
023	LT. KICKER ARROW	J2	8	82
037	WITCH	J3	3	81
060	MOTOR CONTROL	J3	10	91
056	RT. MISSROOM ARROW	J3	21	64
042	LT. MISSROOM ARROW	J1	18	58
014	SAUCER LT. 10K	J1	1	41
029	SAUCER LT. 20K	J3	26	43
036	SAUCER LT. 30K	J1	1	10
057	SAUCER LT. 40K	J1	19	60
012	SAUCER LT. 50K	J1	9	43
027	SAUCER RT. BOT. 30K	J3	25	36
038	SAUCER RT. MID. 30K	J3	12	21
050	SAUCER RT. TOP 30K	J2	21	47
	SPEA BACK BOX	J2	26	91
	SPEA PLAYFIELD	J1	24	50
01	SPTL. RT. LITE	J1	10	32
022**	THREE RUMPER TOP & MID.	J2	10	35
047	TILT	J1	17	57
013	2K	J1	8	51
028	3K	J1	19	67
044	4K	J3	15	53
051	5K	J3	20	78
046	VALUE DOUBLE	J3	18	56
	VALUE TRIPLE	J3		

NOTE: ** INDICATES MCR 106-1 ALL OTHERS ARE -2N5060 OR EQUIVALENT.

FIREBALL CLASSIC SOLAROID DRIVER LOCATIONS A5

TRANSISTOR	DESCRIPTION	JACK	PIN	WIRE COLOR
014	BUMPER BOTTOM	J5	11	78
013	BUMPER MIDDLE	J5	12	80
08	BUMPER TOP	J5	10	85
019	COIN BOX LOCKOUT	J2	8	36
	FLIPPERS			
017	GATE	J5	7	91
016	SIDE RETURN KICKER	J1	5	95
012	KICKER	J2	5	85
011	OUTSOLE	J5	13	67
02	BALL PYLENSE	J5	14	83
01	SAUCER LT.	J1	3	
09	SAUCER RT.	J1	2	
010	SLINGSHOT LT.	J5	9	71
	SLINGSHOT RT.	J5	15	74

NOTE: TRANSISTORS ARE SE9302 OR EQUIVALENT.

WIRE COLOR CODE	
1 - RED -R-	6 - BROWN -BR-
2 - BLUE -BL-	7 - ORANGE -O-
3 - YELLOW -Y-	8 - BLACK -B-
4 - GREEN	9 - GRAY
5 - WHITE -W-	0 - NO TRACER
1 - JUMPER	
2 - FIRST NUMBER-BODY COLOR	
3 - SECOND NUMBER-TRACER COLOR	
EXAMPLE: 50 - WHITE	
51 - WHITE-RED	