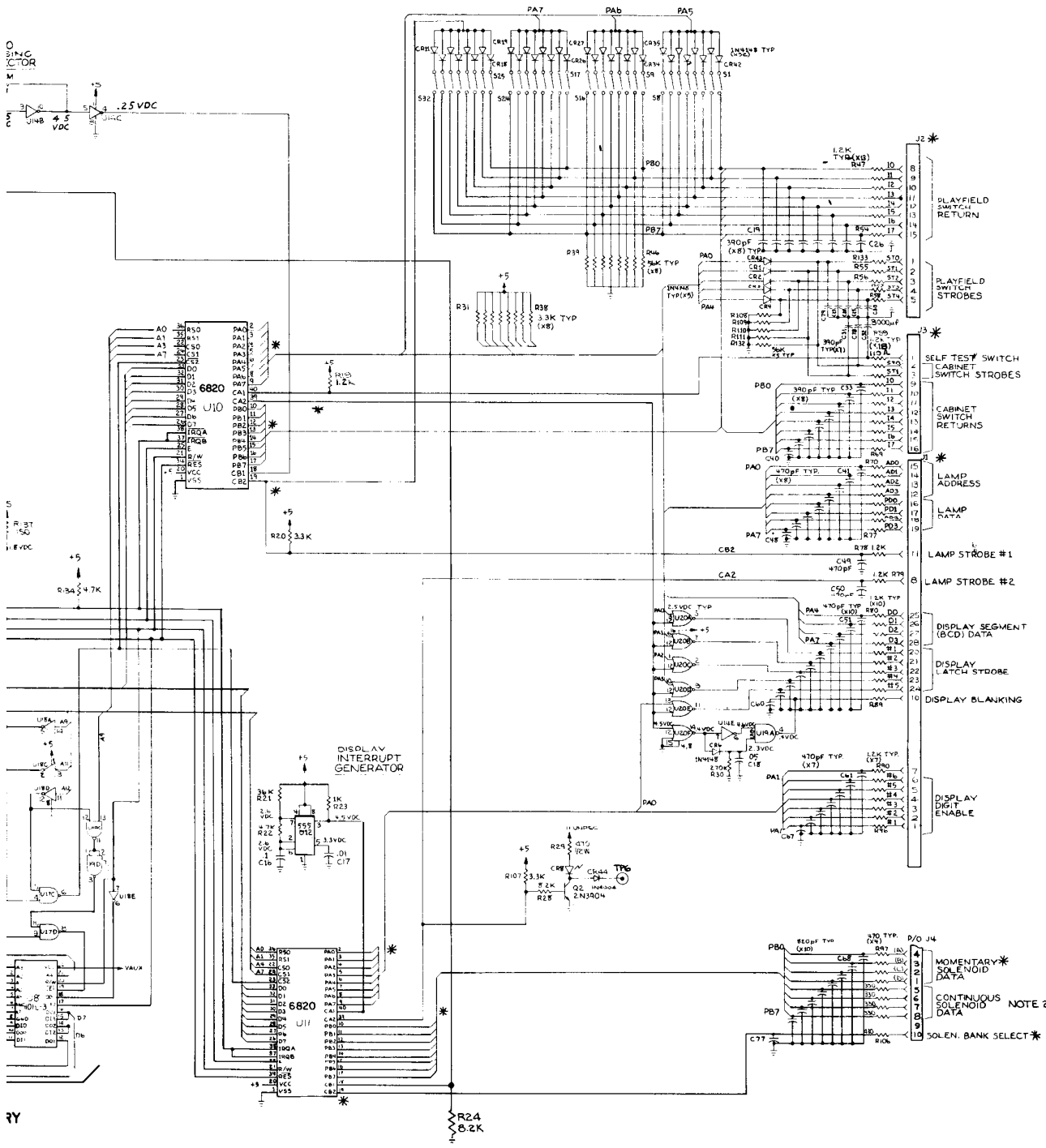


- NOTES:
- 1 * INDICATES "AID" TEST POINT.
 - 2 REMOVE A3J4 BEFORE USING AS AID TEST POINT
 - 3 PREFIX ALL REFERENCE DESIGNATIONS WITH "A4".

READ ONLY MEMORY

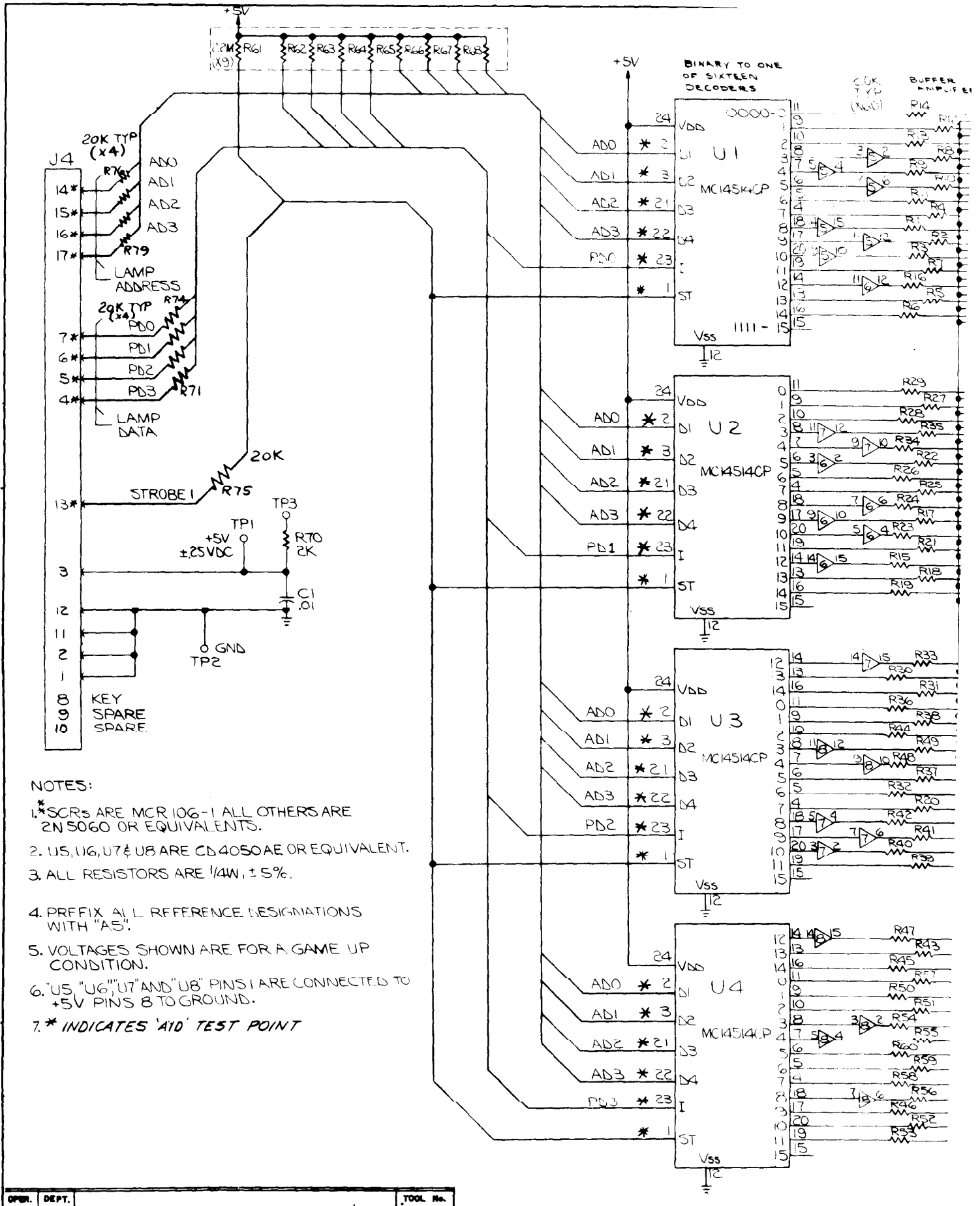
READ / WRITE MEMORY



RY

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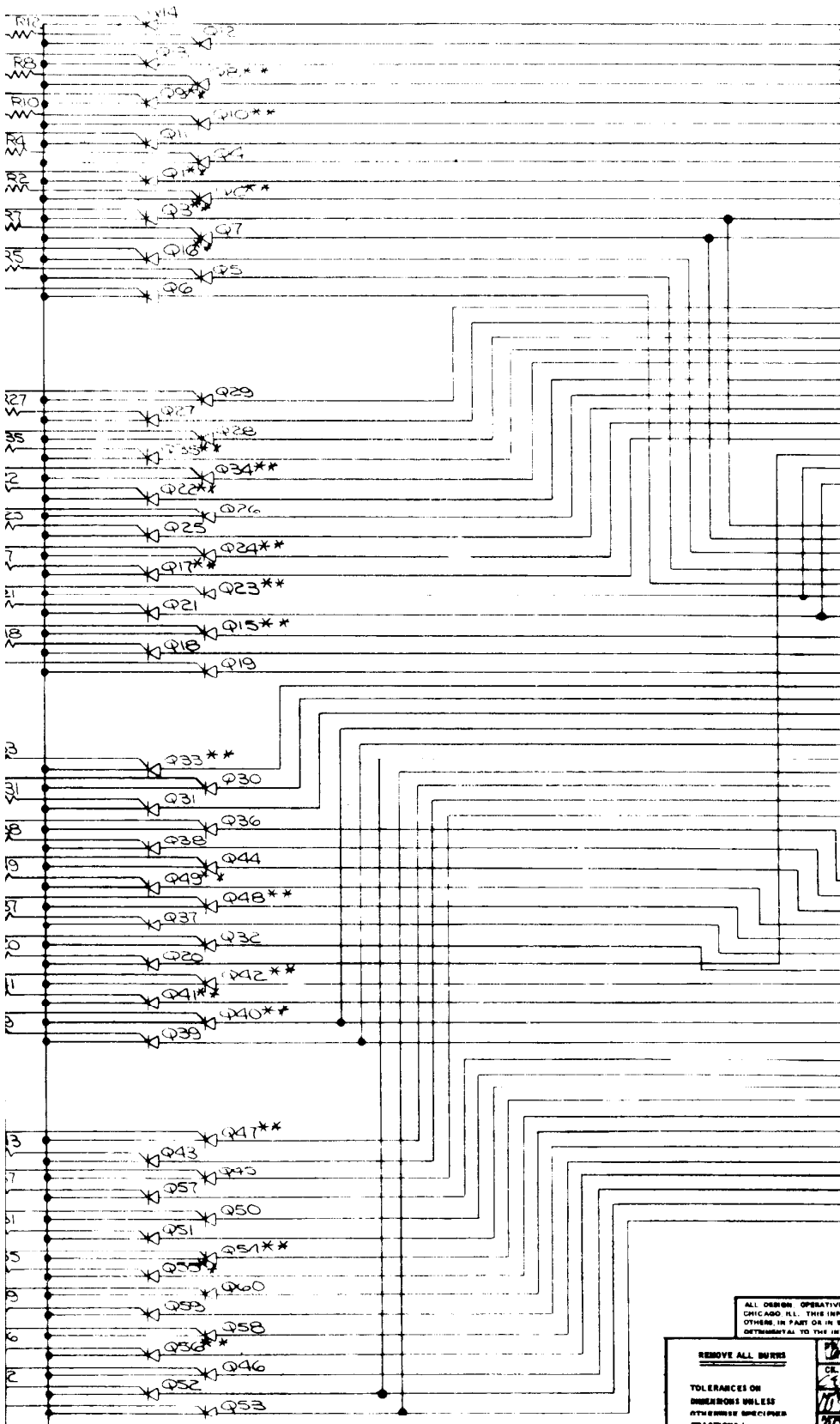
REMOVE ALL BURS TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1° DO NOT SCALE DRAWING						DR BY DATE CK BY DATE 2-77 3-77		Bally MANUFACTURING CORP. 1094-E 2640 BELMONT AVENUE CHICAGO, ILLINOIS 118-E					
						AP'D BY DATE 2-77 DATE 2-77		PRINT CONTROL 2801 2807 2808 2809 2810 2811 2812 2813 2814		NAME (A4) MPU CONTROL BOARD SCHEMATIC		ASSEM. NO. USED ON/W	
						FINISH: <u> X </u> HARDENING: <u> X </u>		MATERIAL		PART NO. W-1181-2c			
						NO.	LET.	CHANGE	DATE	BY	CK.		



NOTES:

1. *SCRs ARE MCR 106-1 ALL OTHERS ARE 2N 5060 OR EQUIVALENTS.
2. U5, U6, U7 & U8 ARE CD 4050AE OR EQUIVALENT.
3. ALL RESISTORS ARE 1/4W, ± 5%.
4. PREFIX ALL REFERENCE DESIGNATIONS WITH "AS".
5. VOLTAGES SHOWN ARE FOR A GAME UP CONDITION.
6. "U5," "U6," "U7" AND "U8" PINS 1 ARE CONNECTED TO +5V PINS 8 TO GROUND.
7. * INDICATES 'A10' TEST POINT

FER PLIFFERS SCR'S



- J1
- 22 N/U
 - 21 N/U
 - 20 KEY
 - 18 1 BALL
 - 13 5 BALL
 - 17 9 BALL
 - 23 13 BALL
 - 14 ALLEY 1
 - 15 ALLEY 5
 - 16 Δ 1
 - 28 Δ 5
 - 24 Δ 9
 - 25 Δ 13
 - 26 NOTE 1
 - 27 SUPER BONUS
- 2 BALL
6 BALL
10 BALL
14 BALL
ALLEY 2
ALLEY 6
- Δ 2
 - Δ 6
 - Δ 10
 - Δ 14
 - Δ 7
 - N/U
 - 5X

- J2
- 21 S.P.S.A.
 - 13 BALL IN PLAY
 - 22 1 PLAYER
 - 16 10 PLAYER UP
 - 14 MATCH
 - 10 N/U
 - 12 HIGH SCORE
 - 23 2 PLAYER
 - 20 2ND PLAYER UP
 - 15 GAME OVER
 - 11 3 PLAYER
 - 6 3RD PLAYER UP
 - 2 N/U
 - 4 N/U
 - 5 N/U
 - 3 N/U
 - 15 TILT
 - 7 4 PLAYER
 - 1 4TH PLAYER UP
 - 17 N/U
 - 18 KEY
 - 19 N/U

- J3
- 26 3 BALL
 - 25 7 BALL
 - 19 11 BALL
 - 17 15 BALL
 - 16 ALLEY 3
 - 23 OUTLANE SPECIAL
 - 27 Δ 3
 - 21 Δ 11
 - 28 Δ 11
 - 22 SPINNER & RETURN ARROW
 - 24 5X
 - 1 4 BALL
 - 12 8 BALL
 - 10 12 BALL
 - 11 LEFT ARROW
 - 9 ALLEY 4
 - 3 CREDIT IND.
 - 4 Δ 4
 - Δ 8
 - Δ 12
 - 100 RIGHT ARROW
 - 130 S.P.S.A.
 - 12 2X
 - 50 N/U
 - 107 N/U
 - 108 N/U
 - 58 N/U
 - KEY
 - N/U

TO PLAYFIELD

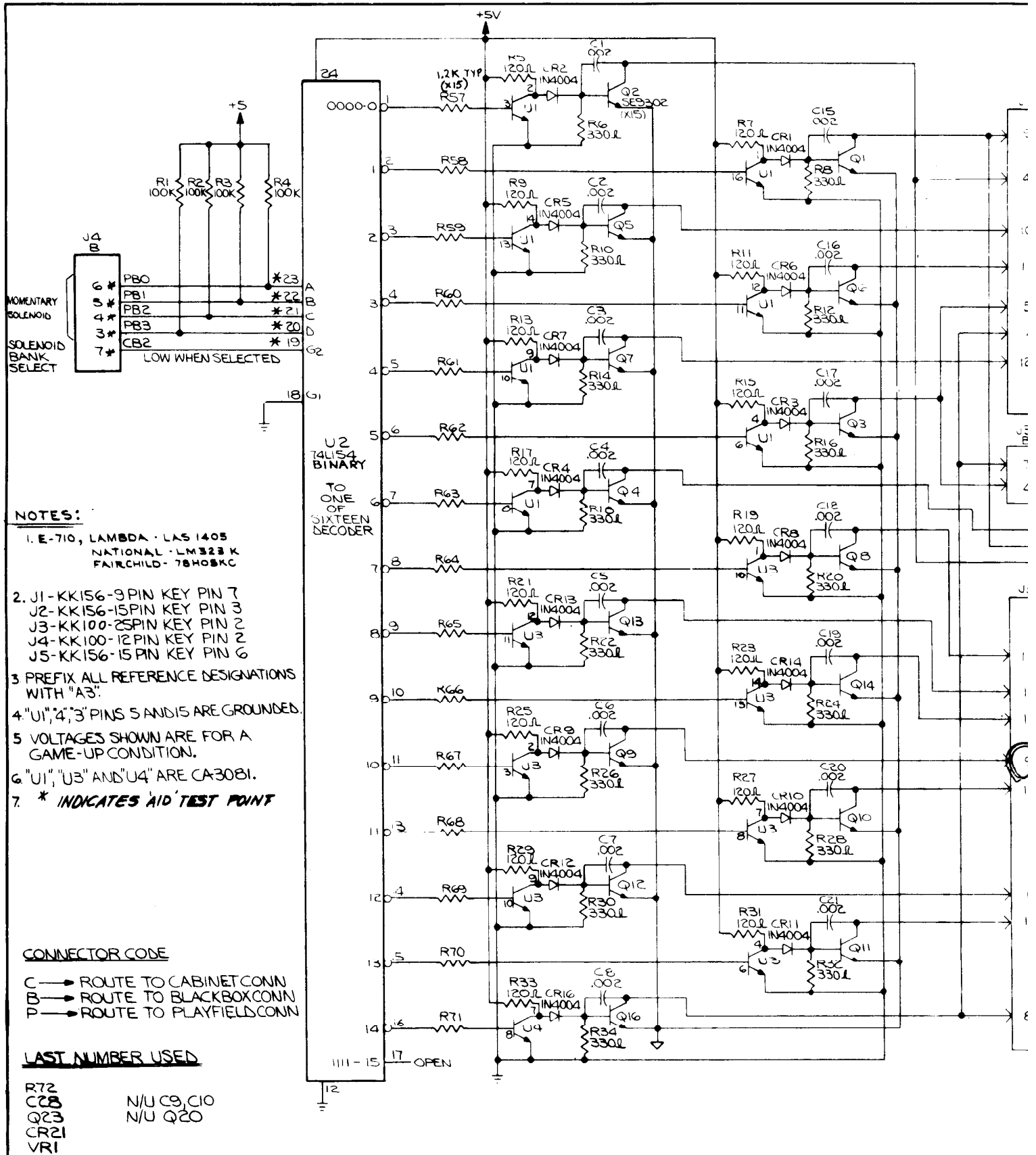
TO BACK BOX

TO PLAYFIELD

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REMOVE ALL BURRS		PART DATE BY 2/72		BALLY MANUFACTURING CORP. 2640 BELMONT AVENUE CHICAGO, ILLINOIS 60618-0118-E	
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED		FRST CONTROL	FRM	CH	FRY
FRACTIONS :		BASE AS 8-BALL		TOTAL SCALE	
DECIMALS :		LAMP DRIVER SCHEMATIC		ASSEMB. NO. USED ON/7	
ANGLES :		MATERIAL		PART NO.	
DO NOT SCALE DRAWING		HARDENING		W-1182-3c	

NO.	LET.	CHANGE	DATE	BY	CK.



NOTES:

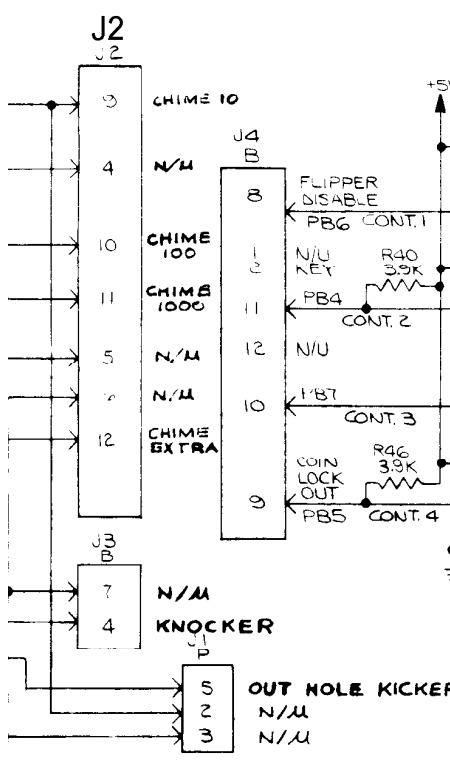
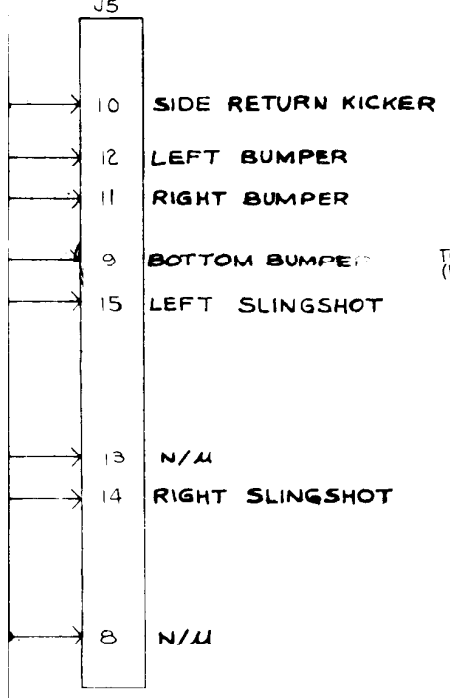
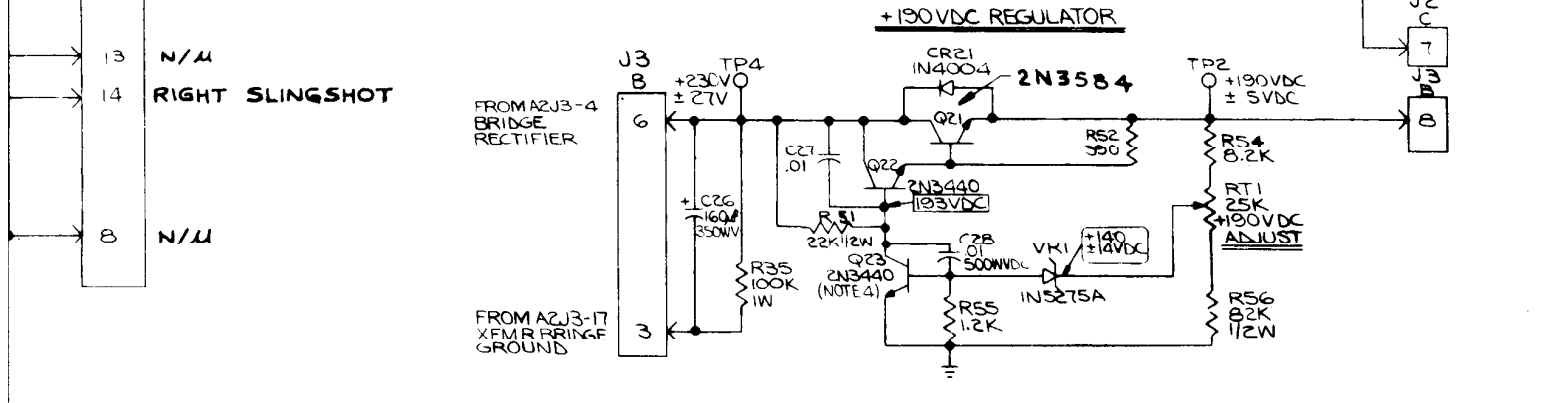
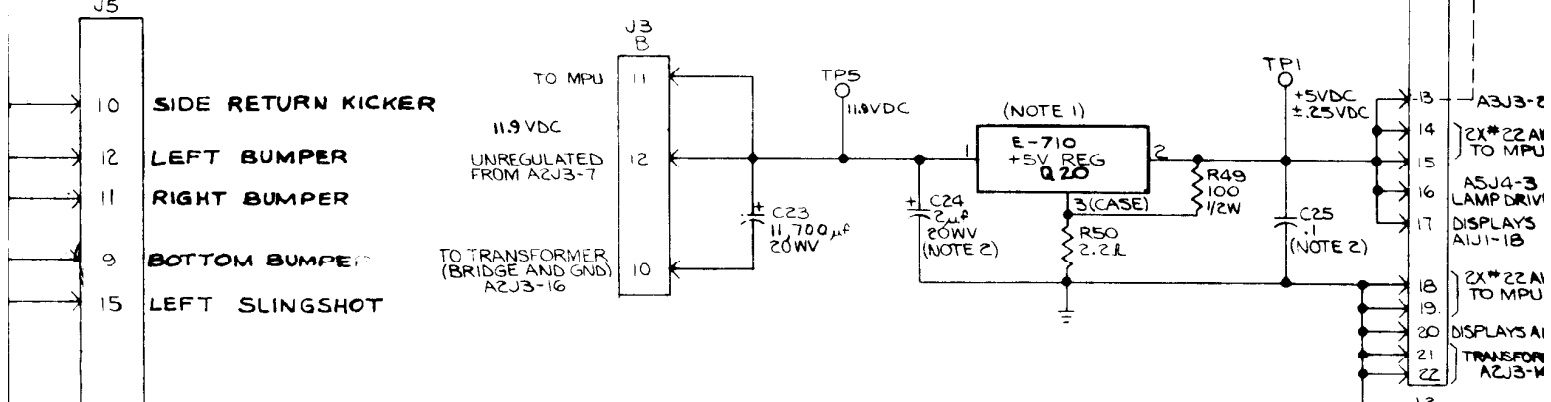
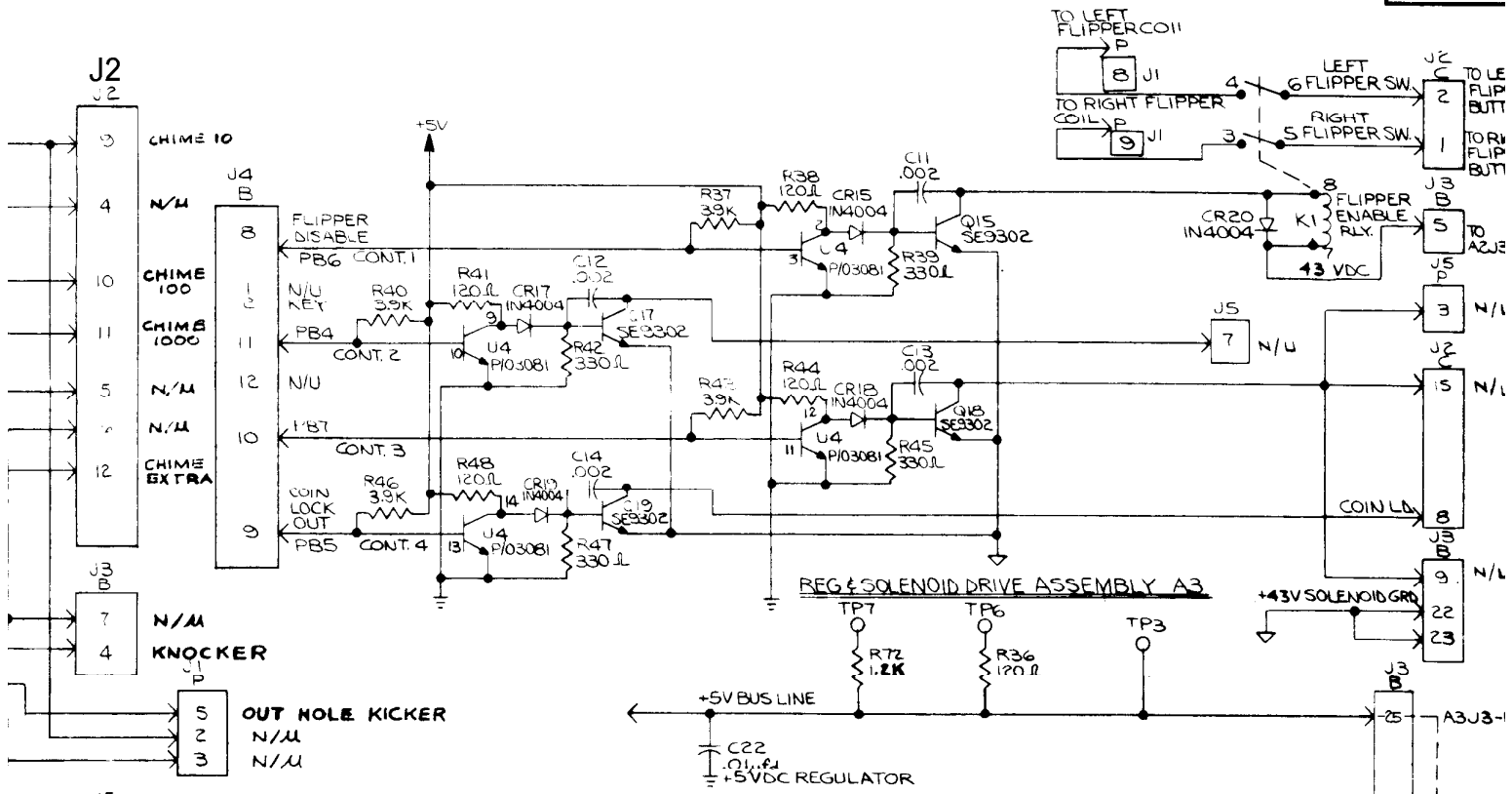
1. E-710, LAMBDA · LAS 1405
NATIONAL · LM323 K
FAIRCHILD · 78H08KC
2. J1-KK156-9 PIN KEY PIN 7
J2-KK156-15 PIN KEY PIN 3
J3-KK100-25 PIN KEY PIN 2
J4-KK100-12 PIN KEY PIN 2
J5-KK156-15 PIN KEY PIN 6
3. PREFIX ALL REFERENCE DESIGNATIONS WITH "A3".
4. "U1", "4", "3" PINS 5 AND 15 ARE GROUNDED.
5. VOLTAGES SHOWN ARE FOR A GAME-UP CONDITION.
6. "U1", "U3" AND "U4" ARE CA3081.
7. * INDICATES AID TEST POINT

CONNECTOR CODE

- C → ROUTE TO CABINET CONN
- B → ROUTE TO BLACKBOX CONN
- P → ROUTE TO PLAYFIELD CONN

LAST NUMBER USED

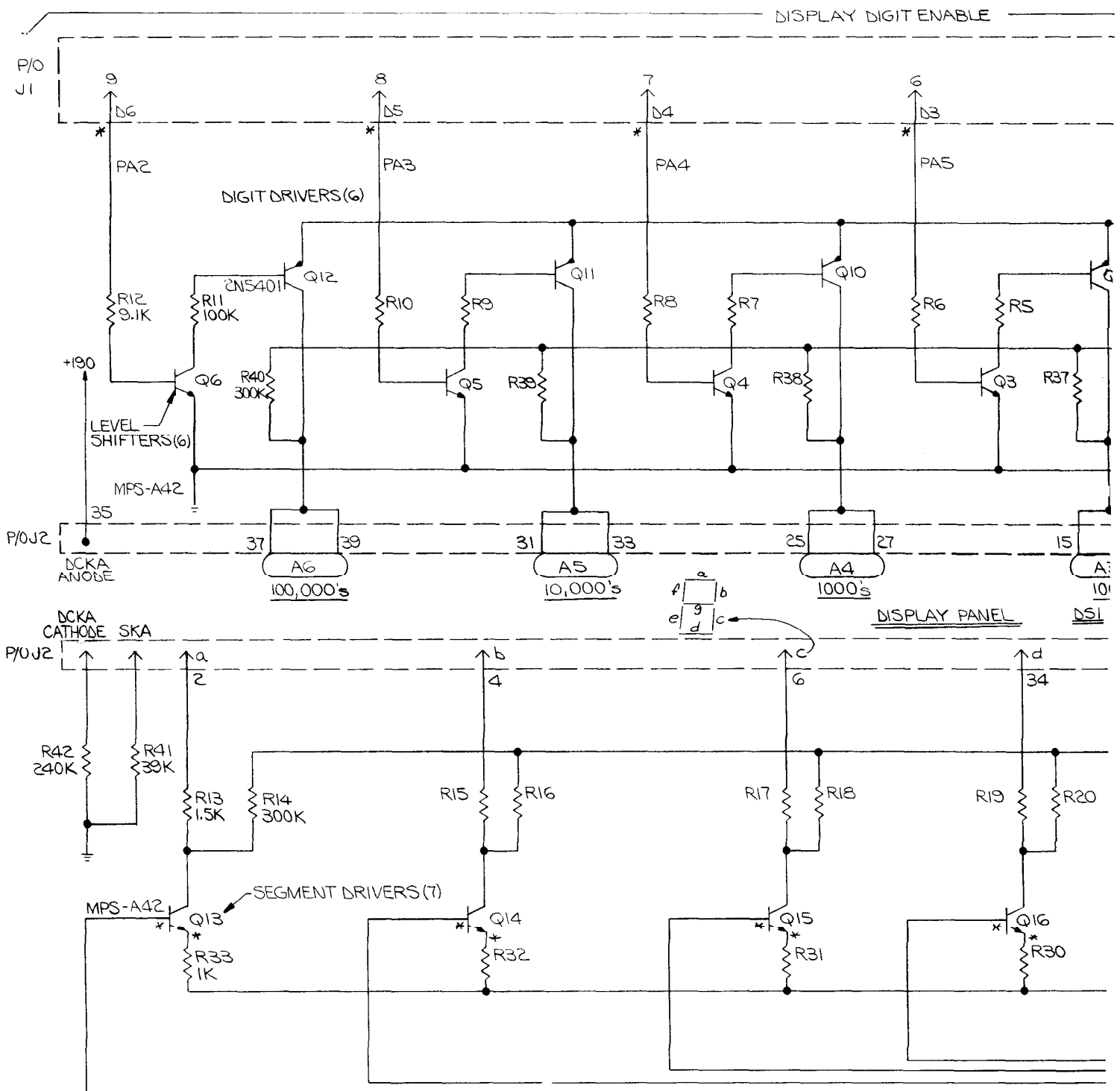
- R72 N/U C9, C10
- C23 N/U Q20
- Q23
- CR21
- VRI



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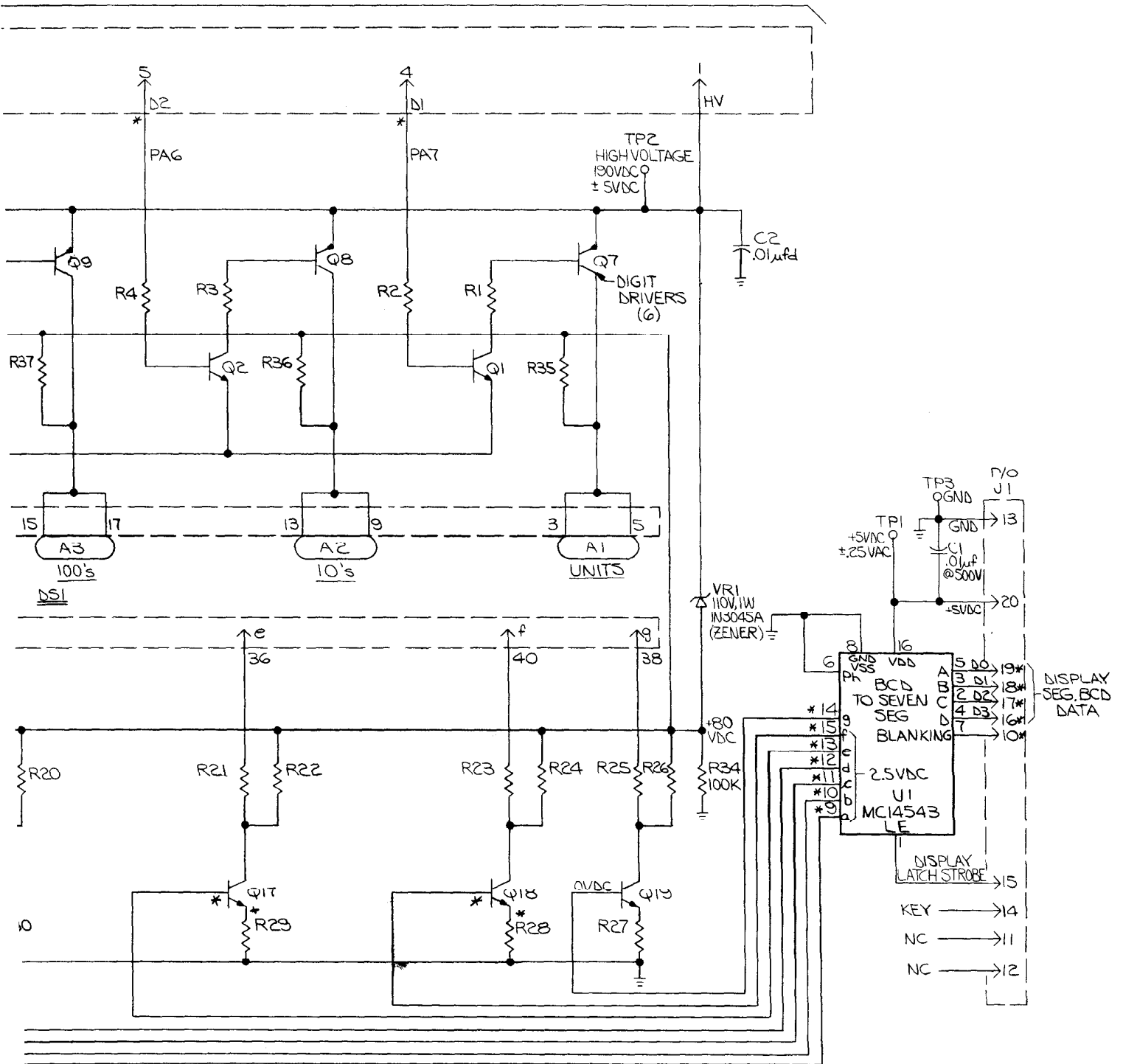
REMOVE ALL DIMS	DR BY: [Signature]	DATE: 2-77	Bally MANUFACTURING CORP. 2440 BELMONT AVENUE CHICAGO, ILLINOIS 60618																		
TOLERANCES UNLESS OTHERWISE SPECIFIED	CHK BY: [Signature]	DATE: 1-77	REV.	APP.	DES.	DRG.	REL.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	TRK.	
FRACTIONS:	1/2	3/4	1/8	1/16	1/32	1/64	1/128	1/256	1/512	1/1024	1/2048	1/4096	1/8192	1/16384	1/32768	1/65536	1/131072	1/262144	1/524288	1/1048576	
DECIMALS:	0.1	0.01	0.001	0.0001	0.00001	0.000001	0.0000001	0.00000001	0.000000001	0.0000000001	0.00000000001	0.000000000001	0.0000000000001	0.00000000000001	0.000000000000001	0.0000000000000001	0.00000000000000001	0.000000000000000001	0.0000000000000000001	0.00000000000000000001	
ANGLES:	1°	5'	10'	15'	30'	45'	60'	75'	90'	105'	120'	135'	150'	165'	180'	195'	210'	225'	240'	255'	270'
DO NOT SCALE DRAWING	DATE: 2-77	BY: [Signature]	PART B - BALLY SOLENOID DRIVER VOLTAGE REGULATOR SCHEMATIC																		
			PART NO. W-1183																		

NO.	LET.	CHANGE	DATE	BY	CL.



NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE $\pm 5\%$, 1/4W.
2. PREFIX ALL REFERENCE DESIG. WITH ASSEMBLY REFERENCE DESIG. "A"
3. * INDICATES 'AID' TEST POINT.

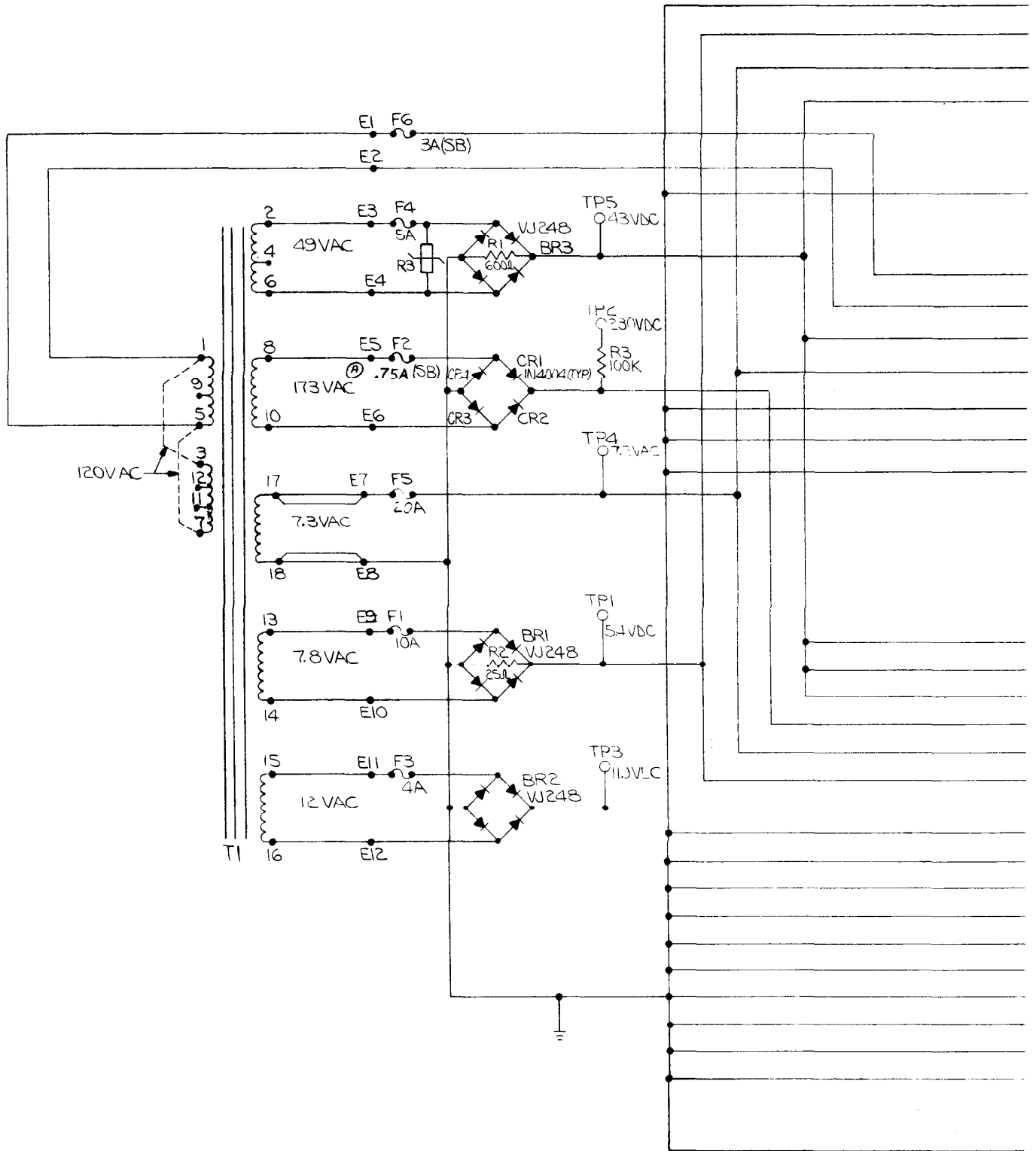


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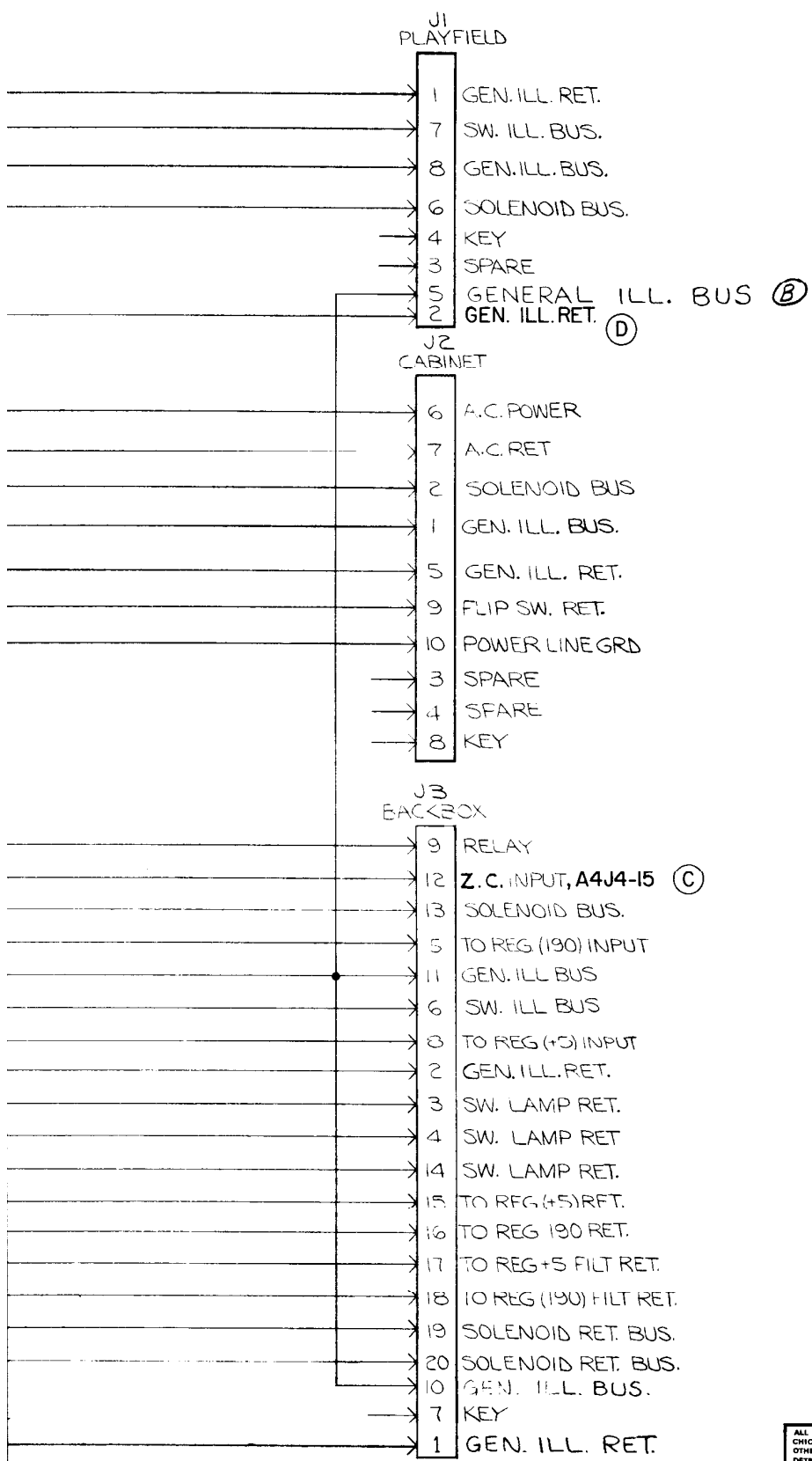
REMOVE ALL BURRS		DR. BY: <i>[Signature]</i> DATE: 9-76	Bally MANUFACTURING CORP #1094-E	
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED		CR. BY: DATE	OCT 6 1978 2640 BELMONT AVENUE CHICAGO, ILLINOIS #1074-E #1006-E	
FRACTIONS ±	DECIMALS ±	APPROVED BY: DATE: 9-27-78	PRINT CONTROL	TOTAL SCALE
ANGLES ±	FINISH: <i>[Signature]</i>	NAME: DISPLAY BOARD SCHEMATIC A1	ASSEMBLY NO. USED ON/W	1118-E
DO NOT SCALE DRAWING	HARDENING: <i>[Signature]</i>	MATERIAL:	PART NO.	W-1184C

1	-	ADDED NOTE 3 #ASTROSKS	11-8-78	5.7	W/E
NO.	LET.	CHANGE	DATE	BY	CR.

TRANSFORMER ASSEMBLY A2



OPER.	DEPT.	DESCRIPTION	TOOL No.



NOTES:
 1. WIRE A.C. POWER AND TERMINALS PER TABLE 1.
 2. VOLTAGES SHOWN ARE FOR GAME IN POWER-UP CONDITION.
 3. PREFIX ALL REFERENCE DESIGNATIONS WITH A2.

TABLE 1
POWER LINE CONNECTIONS

LINE VOLTAGE VRMS A.C.	STRAP TERMINALS	APPLY POWER TO TERMINALS
115	1T03 AND 9T011	1 AND 9
120	1T03 AND 5T07	1 AND 5
220	3T05	1 AND 12
240	3T05	1 AND 7

1118-F
LBS. PER M -

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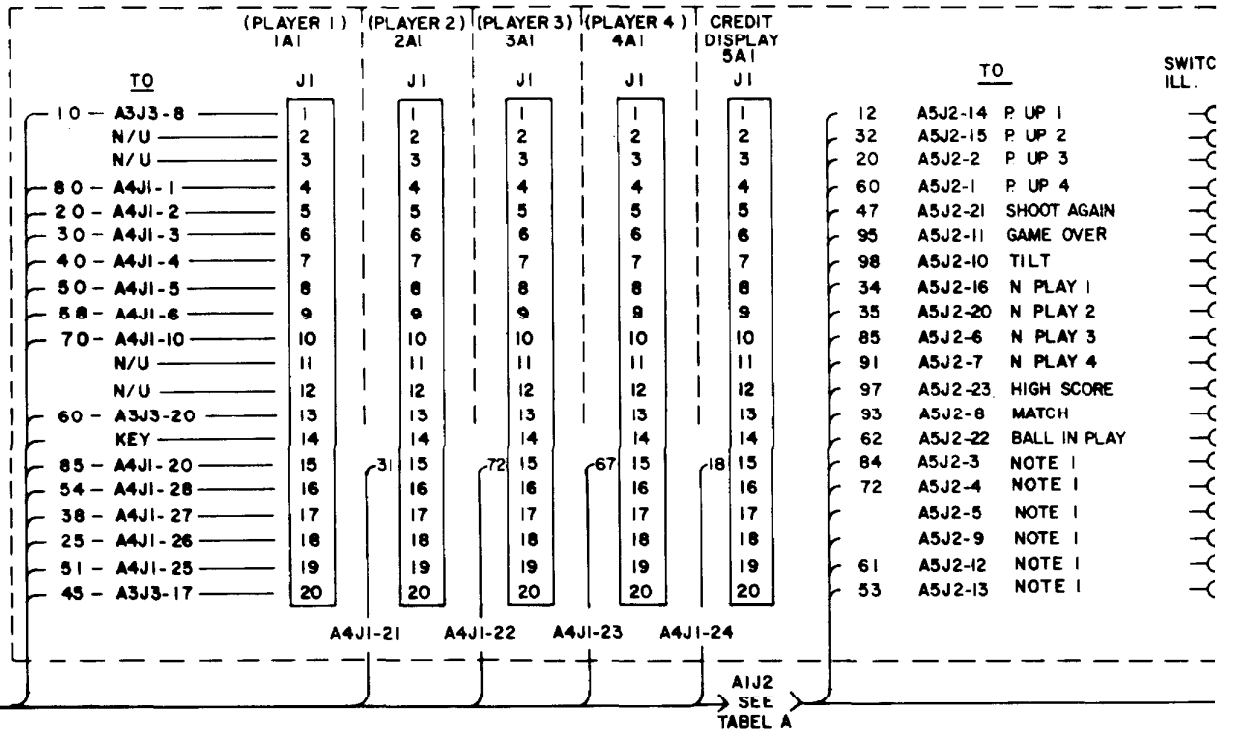
NO.	LET.	CHANGE	DATE	BY	CHK.
2	D	J1-2 READ "GND"	5-20-77	SCG	WSE
2	C	J3-12 READ "Z.C. INPUT"	5-20-77	SCG	WSE
1	B	Added JUMPER J1-5 To J3-11	5-2-77	SCG	WSE
1	A	F2 WAS 5.0A	5-2-77	SCG	WSE

REMOVE ALL BURRS		DR BY: <i>CS</i> DATE: <i>2-21-77</i> CR BY: <i>CS</i> DATE: <i>2-11-77</i>		Bally MANUFACTURING CORP. #1094- FEB 21 1977 2640 BELMONT AVENUE CHICAGO, ILLINOIS 1074-E	
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED: FRACTIONS ± DECIMALS ± ANGLES ±		APD BY: <i>WSE</i> DATE: <i>2/21/77</i> FINISH: <i>W</i> HARDENING: <i>W</i>	PRINT CONTROL: <input type="checkbox"/> ENG: <input type="checkbox"/> FILE: <input type="checkbox"/> DESK: <input type="checkbox"/> SUP: <input type="checkbox"/> TSS: <input type="checkbox"/> TECH: <input type="checkbox"/>	NAME: POWER TRANSFORMER MODULE SCHEMATIC ASSEM. NO. USED ON: <i>W</i>	
DO NOT SCALE DRAWING		MATERIAL:		PART NO. W-1185-	

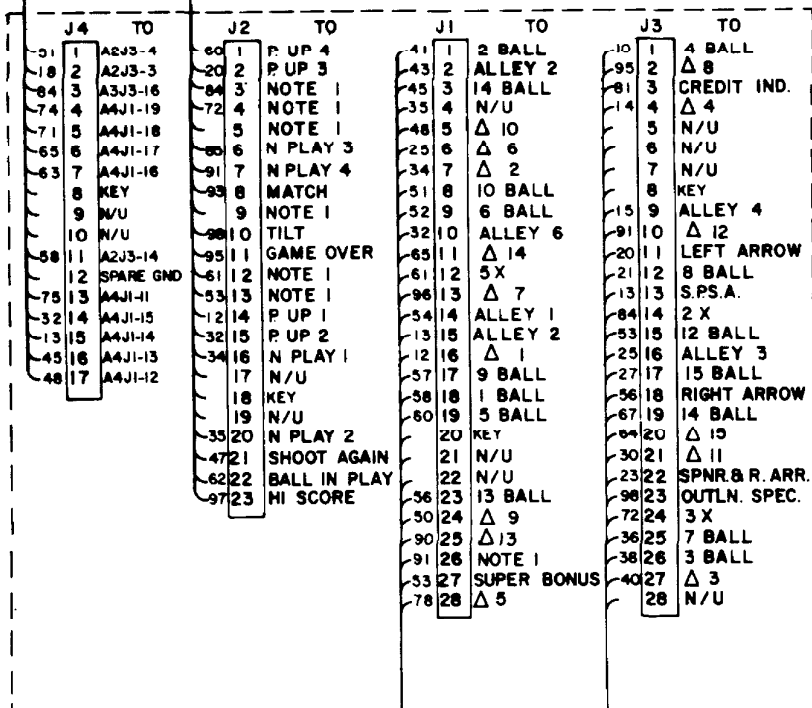
TABEL A AIJ2

FROM	PIN	WIRE
A5J3-8	1	20
A5J2-14	2	12
A2J3-2	3	50
A2J3-1	4	10
A5J2-23	5	97
A5J2-15	6	32
A5J2-22	7	62
A5J2-8	8	93
A5J2-1	9	60
A5J2-2	10	20
A5J2-11	11	95
A5J2-21	12	47
A5J2-10	13	98
A5J2-7	14	91
A5J2-6	15	85
A5J2-20	16	35
A5J2-16	17	34
A2J3-10	18	40
A2J3-1	19	70
A5J2-13	20	53
A5J2-12	21	61
A5J2-4	22	72
A5J2-13	23	84
	24	

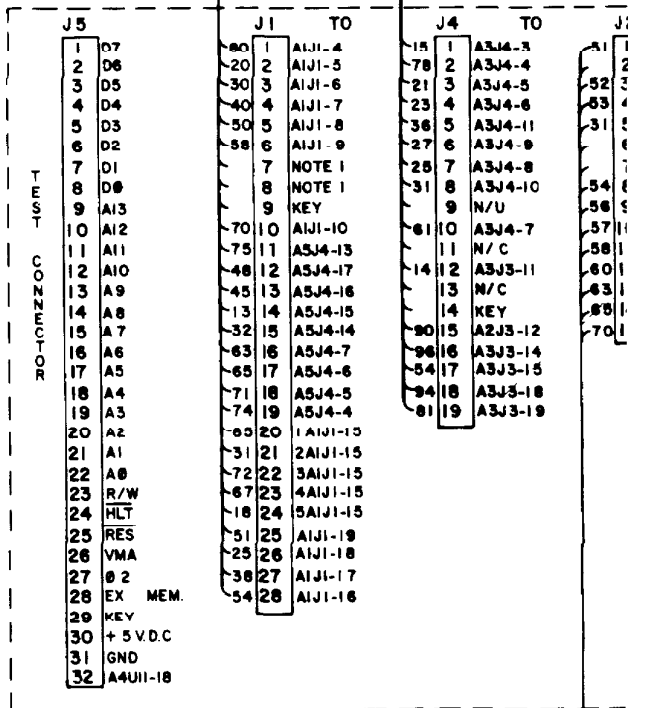
AI INSERT



LAMP DRIVER A5



MPU A4

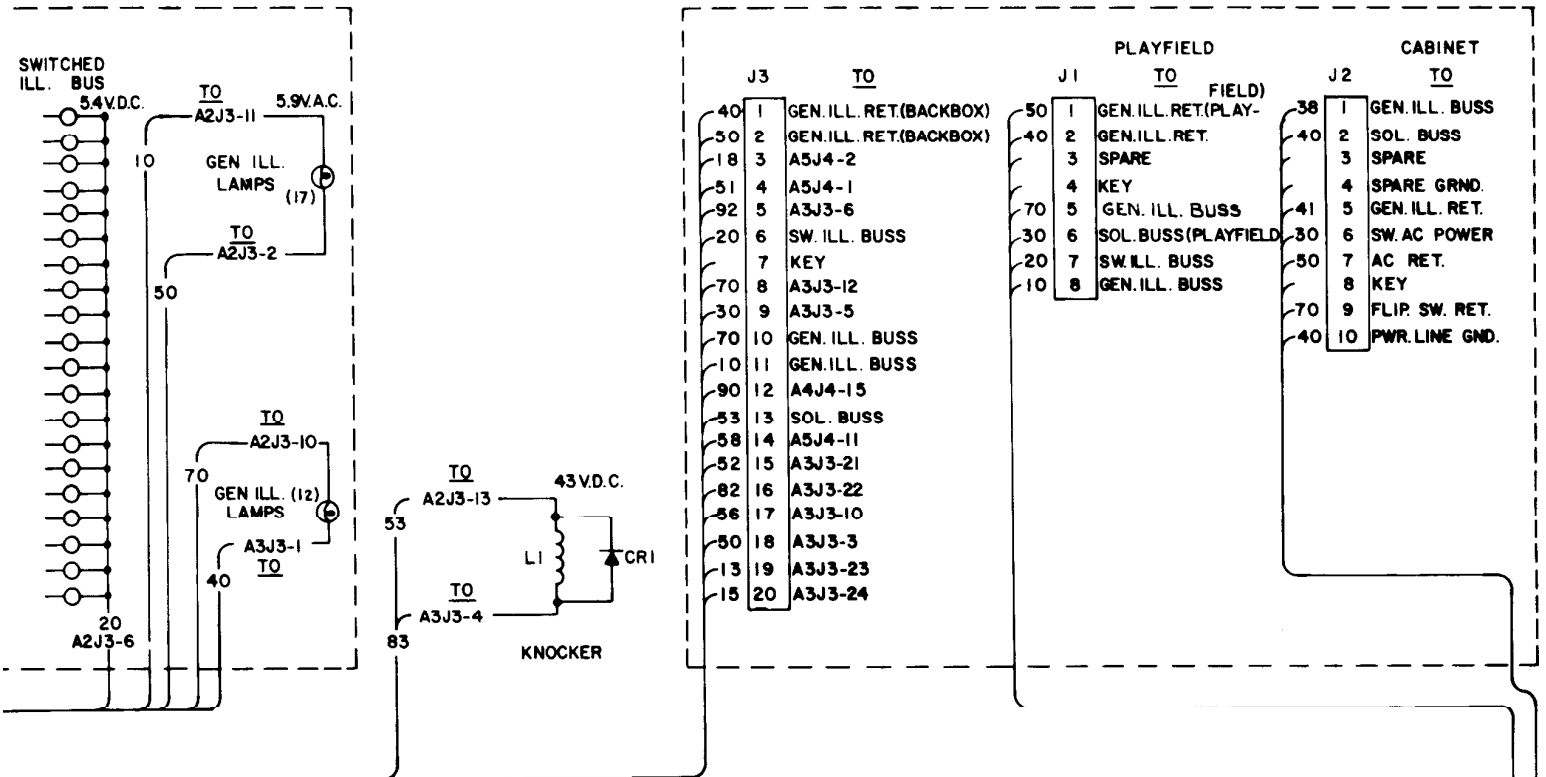


TO CABINET

NOTES

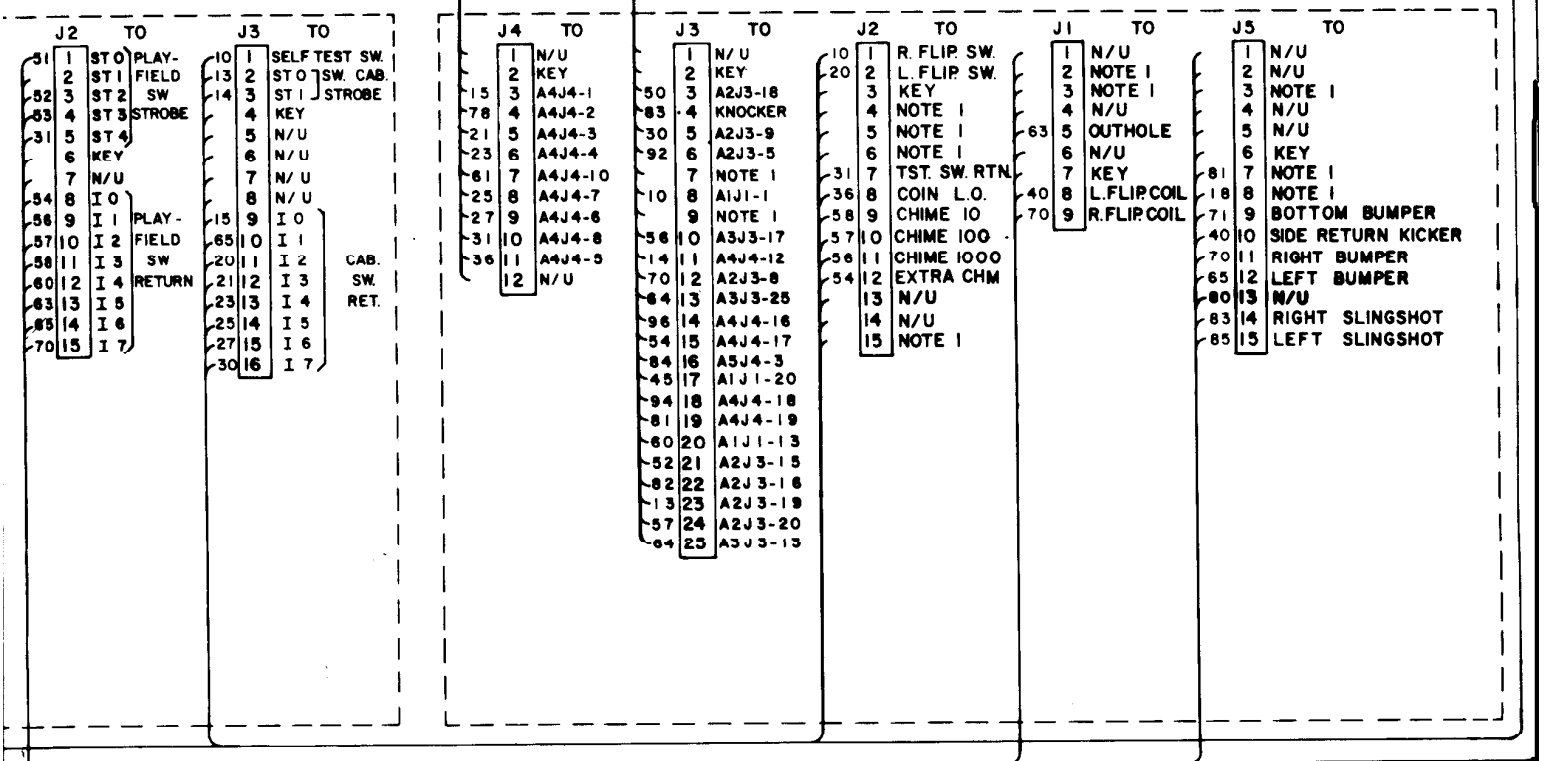
- 1 THESE PINS ARE RESERVED FOR FUTURE USE
- 2 WIRE COLORS ARE SHOWN FOR ALL CONNECTOR PINS, SOME WIRES MAY NOT BE USED IN ALL GAMES.
- 3 * INDICATES AID TEST POINT.

TO PLAYFIELD



14

VOLTAGE REGULATOR / SOLENOID DRIVER A3



SHEET 1 OF 3

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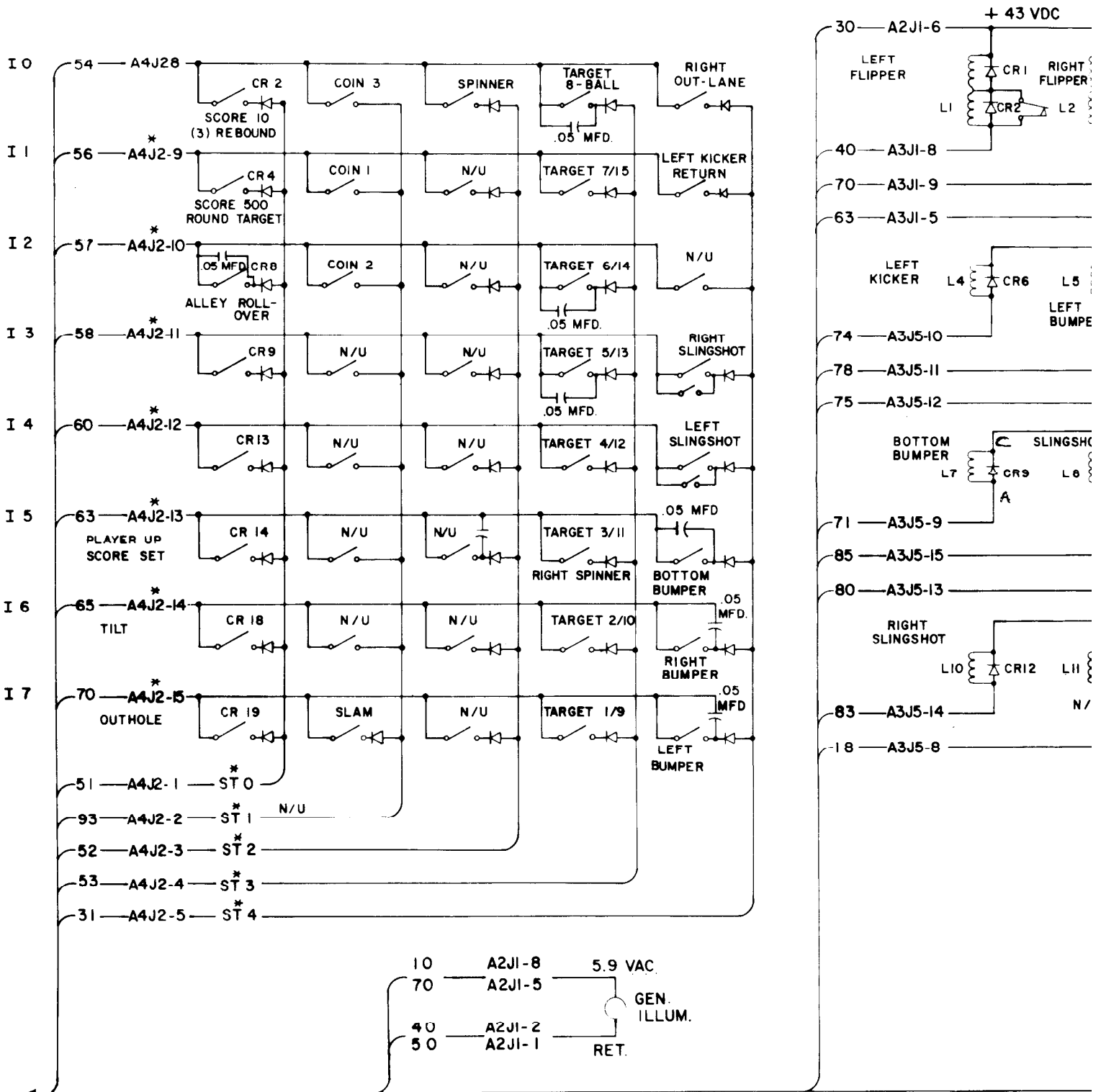
WIRE COLOR CODE

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

REMOVE ALL BURRS				
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED				
FRACTIONS 1/64				
DECIMALS .001				
ANGLES 1				
DO NOT SCALE DRAWING				
LET	CHANGE	DATE	BY	CK

Bally MANUFACTURING CORP. 8-BA
2640 BELMONT AVENUE
CHICAGO, ILLINOIS 1118-E

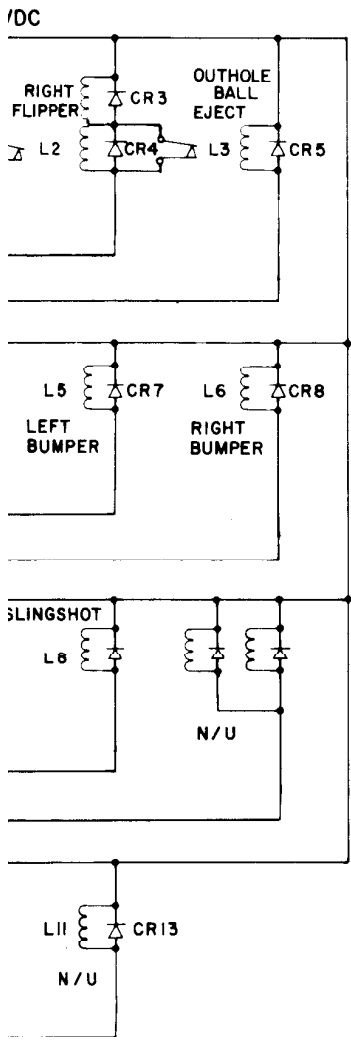
DR BY	DATE
50m	7-5-77
DATE	DATE
11/2/77	11/2/77
DATE	DATE
11/2/77	11/2/77
FINISH	NAME
	BACKBOX DIAGRAM
HARDENING	MATERIAL
	PART NO
	W-1186-3c



PLAYFIELD A6

NOTES

1. INDICATES NOT USED
2. N/U = NOT USED ON PLAYFIELD
3. * INDICATES AID TEST POINT
4. Δ INDICATES RACKED BALL



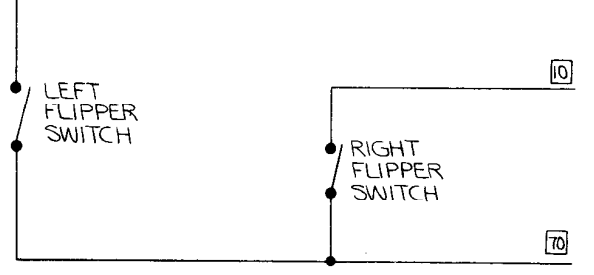
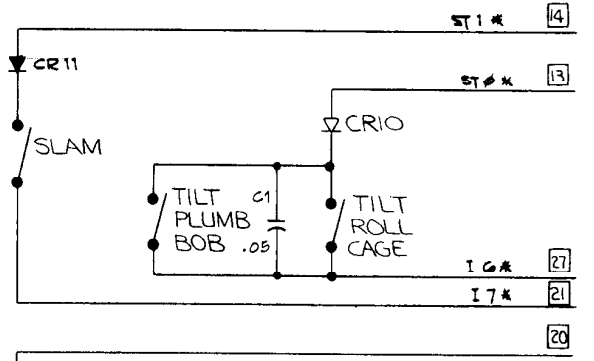
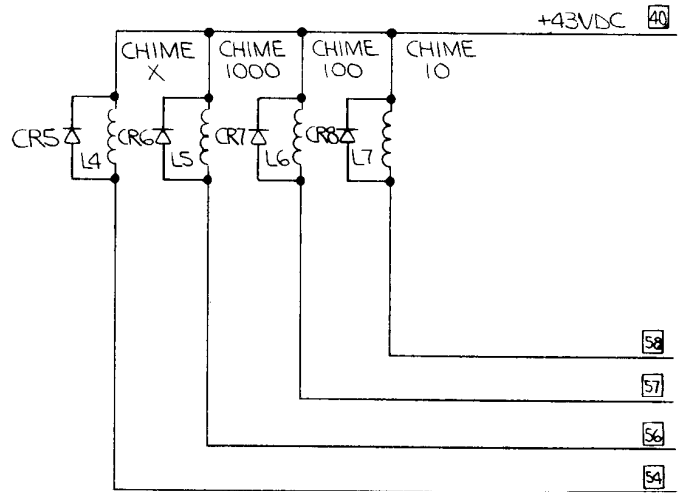
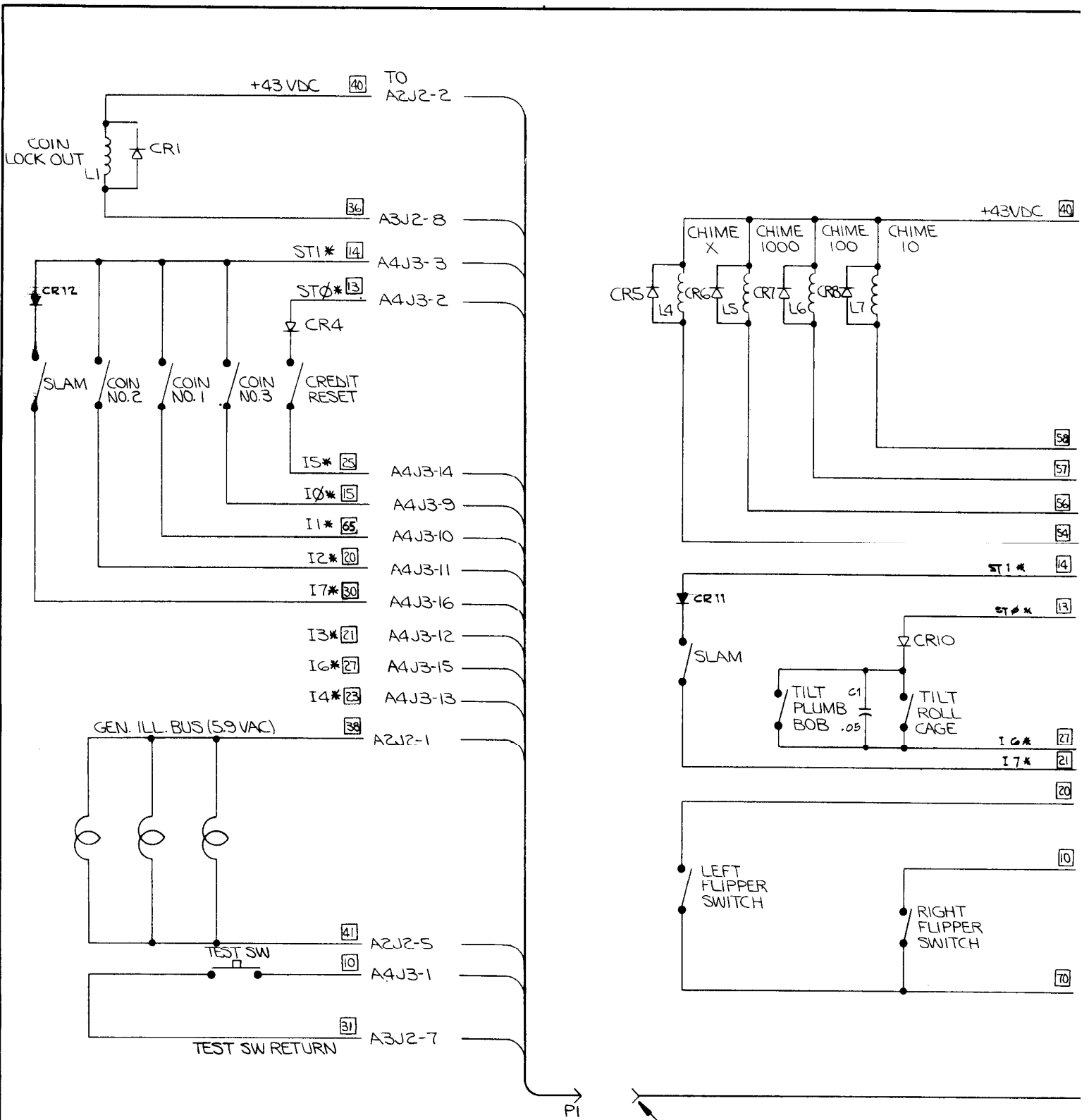
58	A5J1-18	1 BALL	
60	A5J1-19	5 BALL	
57	A5J1-17	9 BALL	
56	A5J1-23	13 BALL	
54	A5J1-14	ALLEY 1	
13	A5J1-15	ALLEY 5	
12	A5J1-16	Δ 1	
78	A5J1-28	Δ 5	
50	A5J1-24	Δ 9	
90	A5J1-25	Δ 13	
91	A5J1-26	NOTE 1	
53	A5J1-27	SUPER BONUS	
41	A5J1-1	2 BALL	
52	A5J1-9	6 BALL	
51	A5J1-8	10 BALL	
45	A5J1-3	14 BALL	
43	A5J1-2	ALLEY 2	
32	A5J1-10	ALLEY 6	
34	A5J1-7	Δ 2	
25	A5J1-6	Δ 6	
48	A5J1-5	Δ 10	
65	A5J1-11	Δ 14	
35	A5J1-4	NOTE 1	
61	A5J1-12	5X	
96	A5J1-13	Δ 7	
	A5J1-20	KEY	
38	A5J3-26	3 BALL	
36	A5J3-25	7 BALL	
67	A5J3-19	11 BALL	
27	A5J3-17	15 BALL	
25	A5J3-16	ALLEY 3	
98	A5J3-23	OUTLANE SPECIAL	
40	A5J3-27	Δ 3	
30	A5J3-21	Δ 11	
64	A5J3-20	Δ 15	
23	A5J3-22	SPNR & RETRN. ARRW	
72	A5J3-24	3X	
10	A5J3-1	4 BALL	
21	A5J3-12	8 BALL	
53	A5J3-15	12 BALL	
20	A5J3-11	LEFT ARROW	
15	A5J3-9	ALLEY 4	
13	A5J3-13	CREDIT IND	
14	A5J3-4	Δ 4	
95	A5J3-2	Δ 8	
91	A5J3-10	Δ 12	
56	A5J3-18	RIGHT ARROW	
81	A5J3-3	S.P.S.A	
84	A5J3-14	2X	
20	A2J1-7	FEATURE LAMP BUS	

5.4 VDC

SHEET 2 OF 3

ALL DESIGN OPERATIVE AND PROCESS DATA PERTAINING TO THE ARTICLE SHOWN ON THIS SHEET IS THE PROPERTY OF BALLY MFG. CORP. (THIS AND ALL THIS INFORMATION IS DISCLOSED IN CONFIDENCE AND IS NOT TO BE COPIED, REPRODUCED, REVEALED TO OR APPROPRIATED BY OTHERS IN PART OR IN WHOLE WITHOUT THE EXPRESS CONSENT OF THE DRAWER. THE PRINT IS LOANED AND MUST NOT BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF THE OWNERS AND MUST BE RETURNED ON DEMAND.)

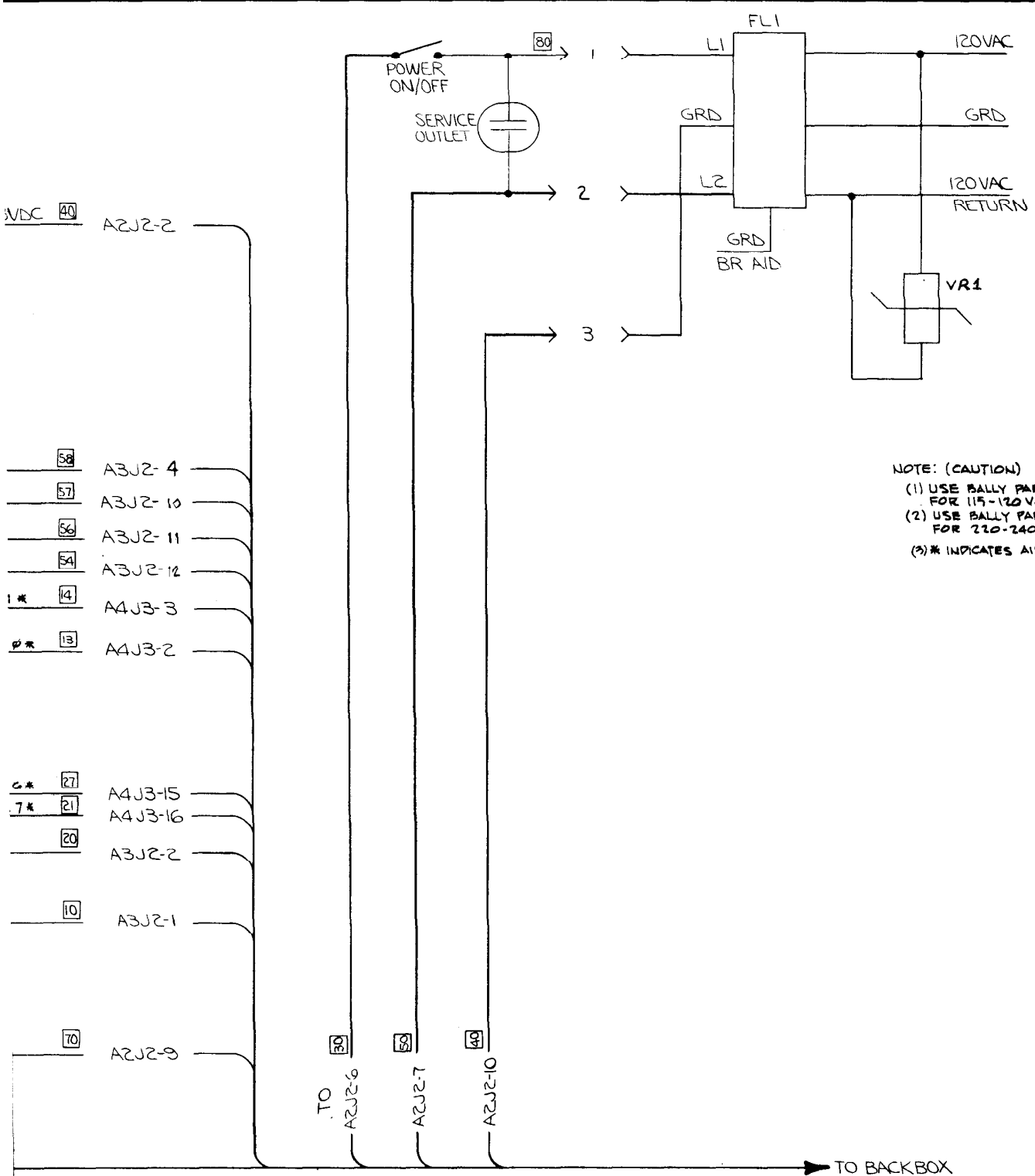
REMOVE ALL BURRS	DR BY	DATE	Bally MANUFACTURING CORP 2640 BELMONT AVENUE CHICAGO, ILLINOIS										8-BALL 1118-E
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED	CR BY	DATE											
FRACTIONS 1/64	APP BY	DATE											
DECIMALS .005	DR BY	DATE											
ANGLES 1	FINISH												
DO NOT SCALE DRAWING	HARDENING		PLAYFIELD DIAGRAM										ASSEM NO USED ON W
			MATERIAL										PART NO W-1186-3c



J1

TO	J1 PIN	TO	J1 PIN
A4J3-9	1	A4J3-3	11
A4J3-10	2	A2J2-2	15
A4J3-11	3	A3J2-8	16
A4J3-12	4	A2J2-1	17
A4J3-13	5	A2J2-5	18
A4J3-14	6	A4J3-1	19
A4J3-15	7	A3J2-7	20
A4J3-16	8		
A4J3-2	10		

A7 CABINET



NOTE: (CAUTION)
 (1) USE BALLY PART NO E-713 FOR 115-120 VAC.
 (2) USE BALLY PART NO E-713-1 FOR 220-240 VAC.
 (3) * INDICATES AID TEST POINT

ABINET ASSY. WIRING

SHEET 3 OF 3 SHEETS

DIE SIZE — C.C. — FT. PER M — LBS. PER M —

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REMOVE ALL BURRS		DATE 3-18-58		Bally MANUFACTURING CORP. E.C.		2640 BELMONT AVENUE CHICAGO, ILLINOIS		TOTAL 3		SCALE 2	
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE SPECIFIED FRACTIONS ± DECIMALS ± ANGLES ±		APD BY	DATE	PRINT CONTROL	COR.	CHK.	REL.	ISSD.	APP.	DES.	TRD.
DO NOT SCALE DRAWING		APD BY	DATE	NAME WIRING DIAGRAM ELECTRONIC				ASSEM. NO. USED ON/V		1118-E	
		PRINTED		MATERIAL				PART NO.		W-1186-1	

NO.	LET.	CHANGE	DATE	BY	CK.
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