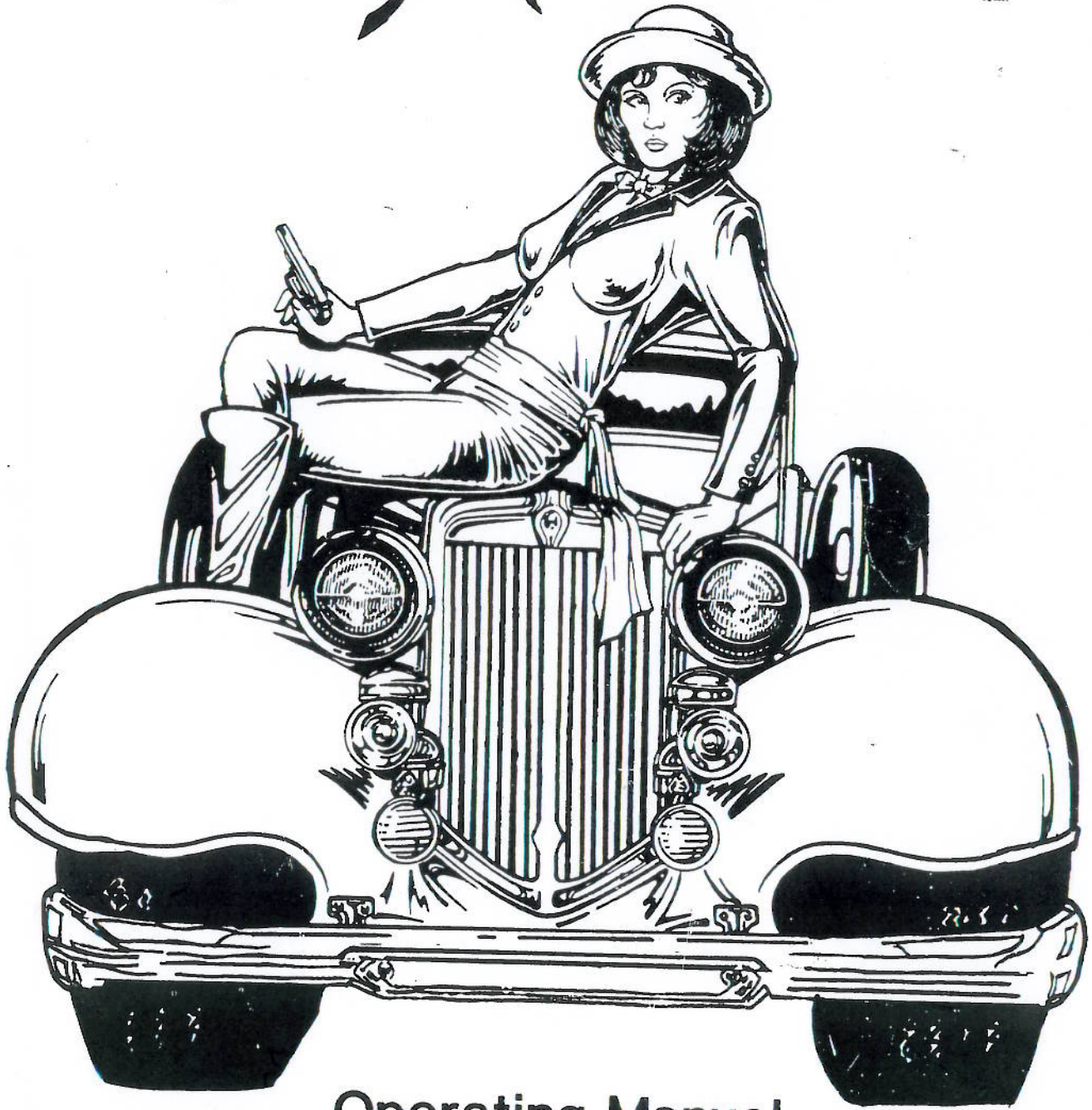


GAME NO. 0E79

FORM NO. 0E79-00300-0100

City Slicker

T.M.



Operating Manual

Bally | **MIDWAY** MFG. CO.

10601 W. Belmont Ave. Franklin Park, Illinois 60131
Telephone (312) 451-0200



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 installed and used in accordance with the instruction 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**
T.M.

Invites You To Use

**OUR TOLL FREE NUMBER 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 or Pinball - Continental U.S. 800-323-7182

***Bally* | MIDWAY**
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Printed in U.S.A.

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BLOCK DIAGRAM—ELECTRONIC PINBALL GAME

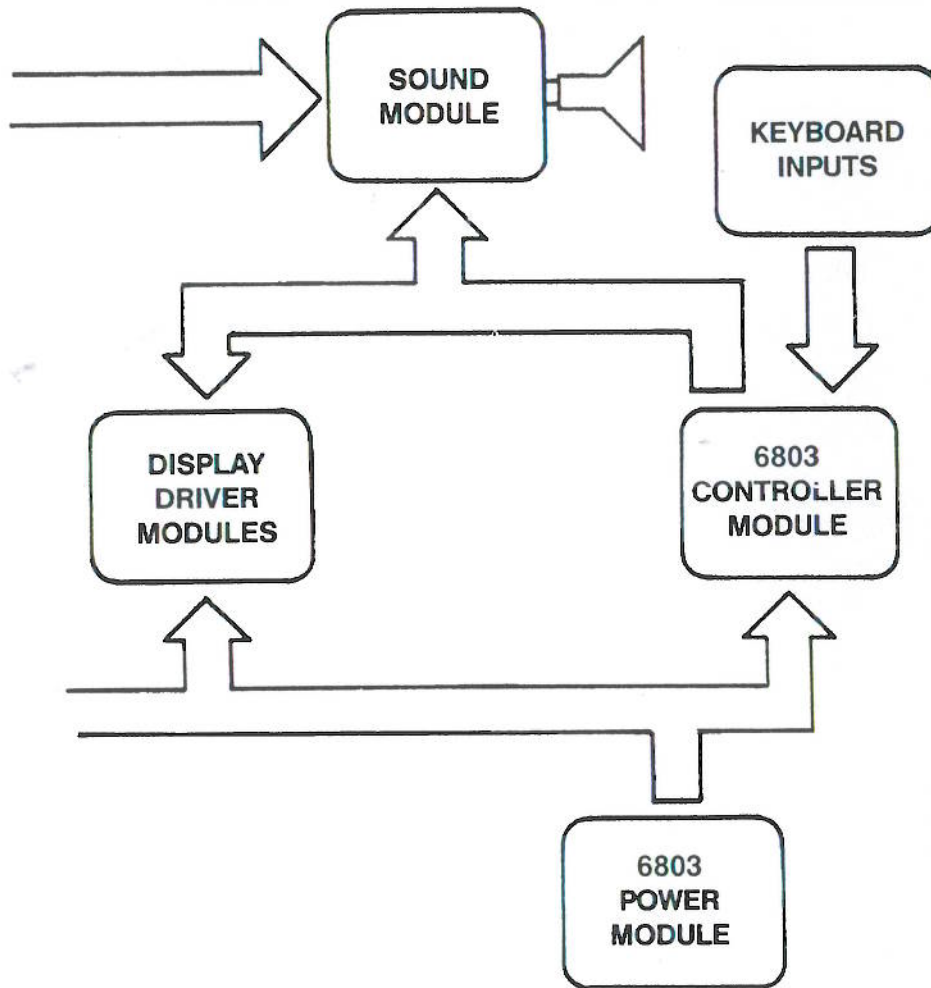


FIGURE I.

DETACHING OF PIN-GAME BACK BOX

When the back box is in an up-right position and the 3/8" hold-down bolts are removed, the back box can be removed from the main cabinet by lifting the right corner of the back box (about 3/4") and pulling it slightly towards you. Now both hinges are disengaged and the back box can be removed.

**"IMPORTANT NOTICE - 4 BALLS IN PLAY"
TWO PLAYFIELD BALLS MUST BE INSERTED
IN THE OUTHOLE TROUGH.**

**TWO SMALLER BALLS ARE ENCLOSED
IN A PLASTIC "SHOOT-OUT" TROUGH
(WHICH CONTAINS 3 "UPTOWN" TARGETS).**

M051-00E79-A022

SECTION 1

I. INSTALLATION

First, bolt legs to cabinet. Second, feed line cord between back box and cabinet then lift the back box and secure with bolts. Insert the smaller ball (15/16" dia.) into the ball tilt assembly, and adjust the bracket so the ball will roll free to the contact switch blade, if the front of the cabinet is raised.

On all games these are certain items that should be checked after shipment.

1. Check that all cable connectors are completely seated on printed circuit assemblies.
2. Check that all cables are clear of moving parts.
3. Check for wires that may have been disconnected.
4. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of contacts.
5. Check coils for proper soldering. Cold solder connections may not show up in factory inspection, but vibration in shipment may break contact.
6. Check that fuses are firmly seated and making good contact.
7. Check and adjust the plumb bob tilt on the left side of the cabinet.
8. Check wiring of the plug on the transformer to correspond to location voltage.
 - 115 VAC 2-8, 3-6, 7-10
 - 120 VAC 2-8, 4-6, 7-11
 - 220 VAC 4-8, 7-9
 - 240 VAC 4-8, 7-11
9. Place ball into playfield by outhole (or balls if the game requires more than one ball).
10. Plug in line cord.

II. GENERAL GAME OPERATION

Move the ON/OFF switch at the bottom right front corner of the cabinet to "ON" position. The game will play a power-up sequence and reset the drop targets. If any switches are stuck they will be displayed at this time. After a short delay "1-4 can play" will indicate that the game is ready to play. The game should accept the coin and post the appropriate credits. Pressing the credit button on the cabinet will cause the outhole kicker to serve the ball to the shooter alley. A game-up sequence is played to announce play-readiness.

Each time the credit button is pressed it posts one player and the credits are reduced by one.

Shooting the ball initiates play.

The game awards all points earned by the player. If a spinner is turned and scoring when the ball hits a target, the spinner and the target scores are awarded.

When the ball enters the outhole, the bonus score is added to the total score. The player-up and/or ball in play is advanced one position. The outhole kicker serves the ball to the shooter alley and play is resumed. This continues until each player has played the allowable number of balls per game. At this time a random Match number appears. If the number is the same as the last two digits in a player's score, a free game is awarded.

Extra balls won during the course of the game are played immediately after the player's regular ball enters the outhole. The player-up and/or ball in play are not advanced for extra score before the game serves the extra ball for play.

Slamming the machine results in loss of the game. This causes all feature lights to go out, the game goes "dead" and a time delay occurs. This occurs anytime either one of the slam switches make contact. This is to discourage unnecessary abuse to the game. After the delay, "1 to 4 can play" is displayed followed by the power-up sound sequence.

Any number of slam switches could be installed by the operator, to meet his individual requirement. The switch should be adjusted to have approximately 1/16" gap between the contacts. The weighted blade should be adjusted to attain the desired sensitivity. Decreasing the gap between contacts will make the switch more sensitive. Opening the gap will reduce sensitivity.

If at the end of the game either the "High Score to Date" is beaten or if the score is over 10,000,000 free games will be awarded according to the "High Score to Date" register setting.

Tilting the game results in loss of a ball. Bonus points are not scored. The flippers, thumper bumpers, etc. go 'dead'. The purpose of the tilt penalty is to discourage the player from jostling the machine in an attempt to prolong play. Game action becomes normal after the ball kicker assembly serves the ball to the shooter alley.

NOTE: These are general instructions. Therefore, if a spinner or Drop Target is not used on your specific pinball game, please disregard any operating instructions related to these devices.

III. TAILORING & TESTING THE GAME

INTRODUCTION

We at Bally/Midway are very proud to introduce our new system which not only provides more information to operator but it also communicates with the player thru the use of alphanumeric.

It was our aim to design a system which could be used without a manual. This will come to light the moment you press the Self-test button and the displays come to life with their messages of assistance. This allows you to change game features, awards and threshold settings and monitor specific special awards, game percent and income just by reading what is displayed. The registers are now described with useful titles such as "Book-keeping Data" or "Self-Testing."

If you've ever changed the replay thresholds on a machine and you forgot to change the replay card because you were distracted by a customer, listen to this: "It will never happen again!" For when you change this replay threshold to 2,000,000 in "Percent Options" the corresponding message; "First Replay at 2,000,000" will be displayed on Game Over.

OPERATION

The keyboard is located on the right inside wall of the game near the front door. The cable is long enough, so that once the keyboard is removed, it may be operated from outside the machine. **Note:** The keypad is mounted with a 1/4" Hex screw for shipping purposes.

1. Press the Test button located on the front door. This tells the processor to do the following;
 - A. It checks the switches wired in parallel with the keypad. If any switches are closed the game automatically jumps to Stuck Switch Test and displays a stuck switch message.
 - B. If there were no stuck switches you will be welcomed with "Bally's Testing Is Easy As ABC."
2. When appropriate heading appears on backglass display, press "Enter" on keypad once. Within each heading, there are categories which are operator selectable. When the appropriate category appears on the backglass display, press "Enter" once to access that category.
3. Set your registers with keypad.
4. Press "Enter" again to advance to next category setting. Press "CLR" to re-start Self-Test. Press "Game" to lock-in option settings.

STEPPING THROUGH

Choose a category quickly once the Test Mode has been selected just use the "A" button to step to the desired category. If you pass by the category you desired, use the "B" button to back-up to the appropriate position. Once you read the category desired, press the "ENTER" button to select that topic. The display will now show the first item in that category.

Again, use the "A" and "B" buttons to quickly step to the item you wish to look at or change. The "A" button allows you to step to the end of a category and then out to the next category. The "B" button allows you to step backwards in the same manner. **Please note:** When in the Self-Test category, the display will cycle automatically from one test to the next. Because the "A", "B", and "C" buttons are used for different functions in this category. They cannot be used to step from one test to another properly. To exit a test in this category just press the ENTER button & step to the next test.

SELF-PERCENTAGING

1. The term Self-Percentaging refers to the game's ability to automatically adjust the score level of Threshold 1 to attain a desired replay percentage, also known as the TARGET PERCENT. (see article #8)
2. Self-Percentaging also applies to extra balls, when used instead of replays.
3. Initially, a minimum of 200 games must be played before the Self-Percentaging Process goes into effect. It then monitors the current replay percentage of Threshold 1 ONLY and makes an adjustment, if necessary, every 50 games.
4. The Self-Percentaging Process will automatically adjust the score level of Threshold 1 ONLY. It makes NO adjustments to OTHER "Award" features in the game.
5. Located within the "PERCENT OPTIONS" category of your game's test mode are the following registers:
 - THRESHOLD 1
 - SELF PERCENT
 - TARGET PERCENT
 - THRESHOLD 1 PERCENT

Each of these registers are explained in detail further in this text.

6. To set or check the current score level of Threshold 1:

- A. "Step through" your game's test mode, using the "A" or "B" button on the keypad, until you reach a category titled: "PERCENT OPTIONS."
- B. Press the "ENTER" button to select this category.
- C. The first register displayed will be THRESHOLD 1.

THRESHOLD 1—This register displays the current score level of the 1st Replay Threshold. Enter any value from 0 to 9,999,999 to set the desired score level.

7. To activate the Self-Percentaging Process:

- A. "Step through" your game's test mode, using the "A" or "B" button on the keypad, until you reach a category titled "PERCENT OPTIONS."
- B. Press the "ENTER" button to select this category.
- C. Again, use the "A" button to "step through" until you reach a register titled: "SELF PERCENT."

SELF PERCENT—This register displays whether the Self-Percentaging Process is OFF or ON. Enter "0" to turn OFF or "1" to turn ON.

8. To adjust the desired Replay Percentage for Threshold 1:

- A. "Step through" your game's test mode, using the "A" or "B" button on the keypad, until you reach a category titled "PERCENT OPTIONS."
- B. Press the "ENTER" button to select this category.
- C. Again, use the "A" button to "step through" until you reach a register titled: "TARGET PERCENT."

TARGET PERCENT—This register displays the desired percentage of replays to be awarded for reaching Threshold 1. For example, if you want Threshold 1 to award a replay in 15% of the games played, you would press keys "1," "5" and then "ENTER." This register will then display "15%" as your goal or "TARGET PERCENT."

NOTE: This register automatically defaults to a factory setting of "10%," when the "FACTORY RESET" register is enabled.

9. The TOTAL Replay Percentage will be 10% or 15% higher with the addition of Match, Special and High Score to Date credits.

10. To manually check the current replay percentage of Threshold 1 ONLY:

- A. "Step through" your game's test mode, using the "A" or "B" button on the keypad, until you reach a category titled "PERCENT OPTIONS."
- B. Press the "ENTER" button to select this category.
- C. Again, use the "A" button to "step through" until you reach a register titled: "THRESHOLD 1 PERCENT."

THRESHOLD 1 PERCENT—The figure displayed in this register is the actual percentage of replays awarded for reaching Threshold 1. Progress of the Self-Percentaging Process may be monitored by comparing the current value displayed in this register with the "TARGET PERCENT."

11. The size of adjustment, made by the Self-Percentaging Process to the score level of Threshold 1, is determined by the current difference between the "TARGET PERCENT" (entered by the operator) and the actual percentage of replays awarded for reaching Threshold 1.

- A difference of 10% or more will result in a 10% adjustment.
- A difference equal to or greater than 5%, but less than 10%, will result in a 5% adjustment.
- A difference less than 5% will result in a 1% adjustment.

12. To check the current score level of Threshold 1, refer to article #6.

13. When the "CLEAR BOOKKEEPING" register is enabled, the Self-Percentaging Process is reinitiated.

CITY SLICKER
IV. GAME REGISTERS & OPTIONS

BOOKKEEPING DATA

Total Coins	Number of coins thru chutes 1, 2, & 3
Game Percent	Percentage of replays
Coins Chute 1	# of coins thru chute 1
Coins Chute 2	# of coins thru chute 2
Coins Chute 3	# of coins thru chute 3
Bonus Credits	Number of Bonus Credits Given
Total Plays	Number of plays both paid and replays
Total Replays	Number of awarded games
Service Meter	Total # of service credits
Game Credits	Current game credits - Enter 0 thru 5 Added to Service Meter Not added to current Game Credits.
Special Meter	Total # of Playfield Specials awarded
Clear Booking	To clear bookkeeping press "65" then "Enter"

SELF-TESTING

Single Lamp	Steps one lamp at a time, and Connector I.D. Press "A" to advance, "B" to backup, and "C" to cycle
All Lamps	All lamps light alternately, 1st "A" phase then "B"
Display	Steps thru alphanumeric character set
Solenoid	Fires one driver at a time, and Displays Driver and Connector I.D.
Single Solenoid	Fires one driver at a time. Press A for same solenoid B for next
Sound	Plays game sounds
Game Rom I.D.	Displays your Rom or Roms I.D.
Switch Test	Displays stuck switch by description PRESS TEST BUTTON ON DOOR TO EXIT SWITCH TEST

PERCENT DATA VALUES

Game Percent	Percentage of replays
Total Plays	Number of play both paid and replays
Game Time	Total number of minutes
Total Replays	Total number of replays
Threshold 1	# of times the first threshold was beaten
Threshold 2	# of times the second threshold was beaten
Threshold 3	# of times the third threshold was beaten
Hiscore Beaten	Total number of times the high score was beaten
Free Balls	# of non-timed extra balls that were awarded
Shoot Special	# of Specials awarded by completing all "\$" lights (adjustable)
Center Special	# of Specials awarded by completing "C-I-T-Y S-L-I-C-K-E-R" (adjustable)

PERCENT OPTIONS

FACTORY SETTINGS

Threshold 1	Enter 0 thru 9,999,999; sets award level and display	2,500,000	
Self Percent	Enter 0 or 1; 0 disables Self-Percentaging Process, 1 enables Self-Percentaging Process	1	A
Target Percent	Enter desired percentage of replays awarded for reaching Threshold 1.	10	A
Threshold 1 Percent	Displays actual percentage of replays awarded reaching Threshold 1.	Unchanged	
Threshold 2	Enter 0 thru 9,999,999; sets award level and display	4,500,000	
Threshold 3	Enter 0 thru 9,999,999; sets award level and display	00	
Highest Score	Enter 0 thru 9,999,999; sets the HiScore replay level	5,999,999	

BASIC OPTION VALUES

Credit Limit	Enter 1 thru 40	10	
Balls per Game	Enter 1 thru 5	3	
Threshold Mode	Enter 0 thru 3;0=0,1=Points,2=Extra Ball,3=Replay	3	
Special Mode	Enter 0 thru 3;0=0,1=Points,2=Extra Ball,3=Replay	3	
HiScore Mode	Enter 0 thru 3;0=0,1=1 Replay,2=2 Replays,3=3 Replay	3	
Sound Mode	Enter 0 thru 3;0=Chimes w/o background, 2=Sounds w/o background 1=Chimes with background, 3=Sounds with back- ground	3	
German Prize	German Meter	0	
Match Option	Enter 0 or 1;0 disables match, 1 enables match	1	
Credit Display	Enter 0 or 1;0=No credits displayed, 1=Displayed credits	1	
No Limit Replays	Enter 0 or 1;0=Only 1 award per game, 1=More than 1 per game	1	
Free Play	Enter 0 or 65;0=Coins,65=Free Play	0	1
Slingshot	Enter 0 or 1;0=No slingshots, 1=slingshots	1	1
Tilt Warning	Enter 0 thru 3;0=No warning, 1=1,2=2,3=3	1	

UR. OPTIONS

et Factory

Enter 65 for factory selected scores and features

all C-I-T-Y

Enter 0 or (1*); This entry recalls "C-I-T-Y" lights.
0 = No Memory 1 = Memory.

t Timer

Enter 0 thru (3); This entry controls the length of time allowed to earn increased spotting potential of "C-I-T-Y S-L-I-C-K-E-R" by making Spot Gate.
0=5 sec. 1*=10 sec. 2=15 sec. (3)=20 sec.

y Timer

Enter 0 thru (7); This entry controls the length of time allowed to play "UPTOWN" which depends upon Play Type Option Selection:
Type A = # of seconds per letter times # of "C-I-T-Y S-L-I-C-K-E-R" letters lit.
Type B = Set length of time.

ENTER	TYPE A	TYPE B
0	1 sec/letter	2.5 sec.
1	2 sec/letter	5.0 sec.
2 *	3 sec/letter	7.5 sec.
3	4 sec/letter	10.0 sec.
4	5 sec/letter	12.5 sec.
5	6 sec/letter	15.0 sec.
6	7 sec/letter	17.5 sec.
(7)	8 sec/letter	20.0 sec.

11 Option

Enter 0 thru 7; This entry controls number of completions of "C-I-T-Y S-L-I-C-K-E-R" required to activate Extra Ball light, award Extra Ball, activate Special light and award Special.

ENTER	EXTRA BALL LIGHT	EXTRA BALL	SPECIAL LIGHT	SPECIAL
0	7 completions	8 completions	8 completions	9 completions
1	6 completions	7 completions	7 completions	8 completions
2	5 completions	6 completions	6 completions	7 completions
3	4 completions	5 completions	5 completions	6 completions
4*	3 completions	4 completions	4 completions	5 completions
5	2 completions	3 completions	3 completions	4 completions
6	1 completions	2 completions	2 completions	3 completions
7	0 completions	1 completion	1 completion	2 completions

FEATURE OPTIONS, CONT'D

Shoot Special

Enter 0 thru 7; This entry controls number of completions of all six "\$" lights (during UPTOWN play) required to award Special.

ENTER	ALL SIX "\$" LIGHTS
0	8 completions
1	7 completions
2	6 completions
3	5 completions
4	4 completions
5*	3 completions
6	2 completions
7	1 completion

City Tg Spt All

Enter 0 or 1*; This entry controls whether letters are spotted in "C-I-T-Y" or in "C-I-T-Y S-L-I-C-K-E-R" each time all three Upper Playfield ("City") Targets are made.
0=Spot "C-I-T-Y" 1=Spot "C-I-T-Y S-L-I-C-K-E-R"

Side Targets

Enter 0 or 1* ; This entry controls the method of completion of Side ("Slicker") Targets (left side or right side) required to spot letters in "C-I-T-Y S-L-I-C-K-E-R" or "S-L-I-C-K-E-R" (adjustable).
0 = Conservative (All 3 targets)
1* = Liberal (Build-up from 1 to 3 targets)

Saucers Qualify

Enter 0 or 1* ; This entry controls which Saucers are qualified for UPTOWN play upon completion of "C-I-T-Y S-L-I-C-K-E-R" or "C-I-T-Y" (adjustable).
0 = Top Saucer qualifies for UPTOWN.
1 = Both Saucers qualify for UPTOWN.

Play Type

Enter 0* or 1 ; This entry controls which type of time system is used in accumulating UPTOWN playing time (refer to Play Timer Option).
0 = Set length of time (Type B)
1 = Per "C-I-T-Y S-L-I-C-K-E-R" lit letters (Type A)

Slicker Spt All

Enter 0 or 1* ; This entry controls whether letters are spotted in "S-L-I-C-K-E-R" or "C-I-T-Y S-L-I-C-K-E-R" each time all of the required left or right Side ("Slicker") targets are made.
0 = Spot "S-L-I-C-K-E-R"
1 = Spot "C-I-T-Y S-L-I-C-K-E-R"

Recall 3 UPTOWN

Enter 0 or 1* ; This entry recalls 3 UPTOWN Targets.
0 = No Memory 1 = Memory

Attract Sound

Enter 0 or 1* ; When game is over, this entry enables or disables Attract Sound Mode while displaying hi scores and instructions.
0 = No Sound 1 = Sound

*Factory Setting

PRICING OPTIONS

- Chute 1 Options
XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Then credits (yy) will flash. Enter 1 thru credit limit. Then coins will flash again. Either press Enter if the values are correct or repeat the data entry.
- Chute 1 Bonus; Enter 0 thru 40; 0=No Bonus Credit
1 thru 40 sets the number of credits at which 1 Bonus Credit will be awarded.
- Chute 2 Options
XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Then credits (yy) will flash. Enter 1 thru credit limit. Then coins will flash again. Either press Enter if the values are correct or repeat the data entry.
- Chute 2 Bonus; Enter 0 thru 40; 0=No Bonus Credit
1 thru 40 sets the number of credits at which 1 Bonus Credit will be awarded.
- Chute 3 Options
XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Then credits (yy) will flash. Enter 1 thru credit limit. Then coins will flash again. Either press Enter if the values are correct or repeat the data entry.
- Chute 3 Bonus; Enter 0 thru 40; 0=No Bonus Credit
1 thru 40 sets the number of credits at which 1 Bonus Credit will be awarded.

Example:

set Coin Chute 1 for 3 credits/2 Coins with no credits on the first coin;
Enter 02 Coin for 03 Credit Chute
Chute 1 Bonus 00

To set it for 3 Credits/2 Coins with one credit delivered on the 1st coin and 2 credits delivered on the second.
Enter 01 Coin for 01 Credit
Chute 1 Bonus 02

If all 3 Chute Options and Bonus Registers are set the same, then all Chutes will work "together".

V. RECOMMENDED 3 & 5 BALL OPTION SETTINGS

	3-BALL	5-BALL
REPLAYS		
Special Mode	3	3
Match Option	1	1
High Score Mode	3	3
1st replay at	2,500,000	3,500,000
2nd replay at	4,500,000	5,500,000
X-BALL		
Special Mode	2	2
Match Option	0	0
High Score Mode	0	0
1st Extra Ball at	2,500,000	3,500,000
2nd Extra Ball at	4,500,000	5,500,000
NOVELTY		
Special Mode	1	1
Match Option	0	0
High Score Mode	0	0
HIGH GAME TO DATE (reset periodically)		
3-BALL	5,999,999	5-BALL 6,999,999

CITY SLICKER OPTION SETTINGS

FEATURE OPTIONS	3-BALL	5-BALL
REGISTER		
RECALL C-I-T-Y	1	0
SPOT TIMER	1	0
PLAY TIMER	2	2
X-BALL OPTION	4	3
SHOOT SPECIAL	5	4
CITY TARGETS SPOT ALL	1	0
SIDE TARGETS	1	0
SAUCER QUALIFY	1	0
PLAY TYPE	0	0
SLICKER SPOT ALL	1	0
RECALL 3 OPTION	1	1
GAME OVER ATTRACT SOUND	1	1
In Basic Options:		
SLINGSHOT	1	1
TILT WARNING	1	1

VI. TROUBLESHOOTING ON LOCATION

SYMPTOM: WON'T POWER UP

Game does not play power-up tune when power is turned on. General illumination is present.

ACTION:

- A. Check Fuses.
- B. Turn power OFF. Open back box. Locate light emitting diode (LED) on Control Board.
- C. Turn power ON. LED must flash 9X to indicate that the module is good. Correct sequence is flash-pause-flash and then seven more flashes and LED goes out.
- D. If LED does not come on or does not flash, or flashes, but less than 9X, turn off power. Check fuses. If fuses are good, replace Control Board.

CAUTION: Replacement Control Board must have same Part Number or incorrect operation will result! See Parts List for Control Board.

Turn power ON.

- E. If game is correct, it is now ready for play. If game is not correct, contact the Bally-Midway service department.

SYMPTOM: LAMPS

One or some switched lamps always ON or not all feature lamps light during play.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Lamp Tests with keyboard. If game is correct all feature lamps flash ON and OFF.
- B. Carefully raise playfield or open back box to gain access to lamps.
- C. Replace bulbs that do not flash.
- D. If game is correct, it is now ready for play.
- E. If game is not correct, turn power OFF. Replace Control Board. Turn power ON and repeat A.
- F. If game is correct, it is now ready for play. If game is not correct, contact Bally-Midway service department.

SYMPTOM: DISPLAYS

- I. Display digits improper on **one** or **several**, but less than all Display Driver Module(s). Improper: One or several segments always OFF, digits mottled or several segments or digit(s) always ON.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Display Test with keyboard. If the game is correct, each digit on each Display displays the count 0 through 9 and alphabet in all 7 digit positions. Note defective Display Driver modules.
- B. Turn power OFF.

WARNING: High Voltage is supplied to the Display Driver Modules, from the Power Module. Wait 30 seconds for High Voltage to Bleed Off.

- C. Replace Display Driver module(s). Turn power ON. Repeat A.
- D. If game is correct, it is now ready for play. If game is not correct contact Bally-Midway service department.

All displays improper. Improper: Digit(s) always on or off/segment(s) always on or off, all displays.

ACTION:

- I. With power ON, open front door. Select SELF TEST-Display Test with keyboard. If the game is correct, each digit on each Display displays the count 0 through 9 and alphabet in all 7 digit positions. Note defective Display Driver modules.
- J. Replace Control Board. Turn power ON. Repeat A.

CAUTION: Replacement Control Board must have same Part Number or incorrect operation will result! See Parts List for Control Board.

- K. If game is correct, it is now ready to play. If game is not correct, contact Bally-Midway service department.

One or several displays always off.

ACTION:

- L. With power ON, open front door. Select SELF TEST-Display Test with keyboard. If the game is correct, each digit on each Display displays the count 0 through 9 and alphabet in all 7 digit positions. Note defective Display Driver modules.

Turn power OFF.

- M. Replace Display Driver module(s). Turn power ON. Repeat A.

If game is correct, it is now ready for play. If game is not correct contact Bally-Midway service department.

SYMPTOM: SOLENOIDS

I. One or more solenoids do not pull-in during course of game.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Solenoid Test with keyboard.
- B. If game was correct, each solenoid would be energized. The Solenoid name appears with the Driver Q Number and connector jack and pin numbers. (**NOTE:** If most of the Playfield Solenoids DO NOT operate, check the Playfield Fuse to see if it is blown. It is generally found near the Flipper Assemblies.)
- C. Carefully lift the playfield (or open the back box) to gain access to the solenoid. Turn power OFF. Inspect the solenoid.
- D. If a lead is broken off, repair. Repeat A & B. If game is correct, it is now ready for play. If solenoid wiring was correct, turn power OFF.
- E. Replace Control board. See CAUTION NOTE.
- F. Repeat A & B. If game is correct, it is now ready to play. If game is not correct, turn power OFF.
- G. Replace Sound Module A8.
- H. Repeat A & B. If game is correct it is now ready to play. If game is not correct, contact the Bally-Midway service department.

II. Solenoid(s) are always energized. **NOTE:** If impulse solenoids (ball ejects, slingshots, thumper-bumpers, etc.) are energized continuously, they are subject to damage. Limit troubleshooting to one minute with power ON, followed by **five minutes with power OFF**. Repeat as necessary. Replace damaged solenoids. (**NOTE:** When troubleshooting Playfield Solenoid Circuits, be advised that a constantly energized Solenoid (i.e. Thumper-Bumper) will blow the Playfield Fuse in a few seconds. To avoid replacing the Fuse repeatedly, try to isolate the faulty Solenoid Circuit as soon as the game power switch is flipped ON.)

ACTION:

- A. With power ON, open front door. Select SELF TEST-Solenoid Test with keyboard.
- B. If game was correct, each solenoid would be energized. The Solenoid name appears with the Driver Q Number and connector jack and pin numbers. (**NOTE:** If most of the Playfield Solenoids DO NOT operate, check the Playfield Fuse to see if it is blown. It is generally found near the Flipper Assemblies.)
- C. Carefully lift the playfield (or open the back box) to gain access to the solenoid. Turn power OFF. Inspect the solenoid.
- D. If a lead is broken off, repair. Repeat A & B. If game is correct, it is now ready for play. If Solenoid wiring was correct, turn power OFF.
- E. Replace Control Board. See CAUTION NOTE.
- F. Repeat A & B. If game is correct, it is now ready to play. If game is not correct, turn power OFF.
- G. Replace Sound Module A8.
- H. Repeat A & B. If game is correct, it is now ready to play. If game is not correct contact the Bally-Midway service department.

SYMPTOM: NO SOUND

ACTION:

- A. With power ON, open front door. Select SELF TEST-Sound Test with the keyboard.
- B. Turn volume control clockwise to Max.
- C. If correct, sound will be heard. If incorrect, try seating speaker lead connector (J2) and input connector (J1).
- D. If correct, sound will be heard. If incorrect, contact the Bally-Midway service department.

SYMPTOM: SWITCHES

Feature (Drop Targets, Stand-up, etc.) does not score.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Switch Test with the keyboard.
- B. If game is correct, "All Switches Open" is displayed. Otherwise, the name of the switch(es) will be displayed with jack and pin numbers.
- C. Carefully lift the playfield. Locate the switch assembly identified from the display. Visually inspect the switch assembly. If the contacts are stuck, re-gap them to 1/16." Repeat A & B. If the game is correct, it is now ready to play. If the game is not correct, turn power OFF.
- D. Replace Control board. See CAUTION NOTE.
- E. Repeat A & B. If game is correct, it is now ready to play. If game is not correct, contact the Bally-Midway service department.

CAUTION: Replacement Control Board must have the same Part Number or incorrect operation will result! See Parts List for Control Board.

GAME: MOTORDOME PINBALL & FUTURE GAMES

SUBJECT: 6803 CONTROL BOARD POWER UP TEST SEQUENCE

The following is an abbreviated self-test routine for the 6803 Control Board used in Motordome and future pinballs:

- 1st Flash—(U1) Determine if the internal RAM is good. (6803)
- 2nd Flash—(U2) Checks to see if the program ROM is good. (27128)
- 3rd Flash—(U3) Checks to see if the program ROM is good. (27128)
- 4th Flash—(U4) Checks the C-MOS RAM. (6116P-3)
- 5th Flash—(U8) Tests PIA0. (6821)
- 6th Flash—(U7) Tests PIA1. (6821)
- 7th Flash—(U1) Checks the internal display interrupt generator. (6803)
- 8th Flash—(U12 & U8) Verifies operation of the phase B switched ill. voltage. NOTE: F5 fuse on the Power Module provides the phase B signal to the Control Board. (U12, 14584) (U8, 6821)
- 9th Flash—(U1, U11 & U12) Verifies operation of the Phase A switched ill. voltage. NOTE: F4 fuse on the Power Module provides the phase A signal to the Control Board. (U1, 6803) (U11, 4011) (U12, 14584)

The following is an abbreviated self-test routine for the 6809 Sound Board:

- 1st Flash—(U7) Determines if the ROM is good.
- 2nd Flash—(U6) Checks to see if the RAM is good.
- 3rd Flash—(U8) Checks the PIA. (68B21)

The following is an abbreviated self-test routine for the Sounds Deluxe Board:

- 1st Flash—Determines if the ROM (U11) is good.
- 2nd Flash—Determines if the ROM (U12) is good.
- 3rd Flash—Determines if the ROM (U13) is good.
- 4th Flash—Determines if the ROM (U14) is good.
- 5th Flash—Checks to see if the RAM (U9, U10) is good.
- 6th Flash—Checks the PIA (6821) (U7).

SOLENOID IDENTIFICATION TABLE

SELF
TEST #
SEQUENCE

SOLENOID IDENTIFICATION

- | | |
|----|-------------------------|
| 1 | LEFT BUMPER |
| 2 | RIGHT BUMPER |
| 3 | MIDDLE BUMPER |
| 4 | LEFT SLINGSHOT |
| 5 | RIGHT SLINGSHOT |
| 6 | TOP SAUCER |
| 7 | BUMPER TOP |
| 8 | OUTHOLE TO PLAYFIELD |
| 9 | MIDDLE SAUCER |
| 10 | CAPTIVE FLIPPER |
| 11 | OFFENSE FLIP MIDDLE |
| 12 | NOT USED |
| 13 | RESERVED FOR GERMAN USE |
| 14 | OUTHOLE |
| 15 | KNOCKER |
| 16 | NOT USED |
| 17 | NOT USED |
| 18 | BACKBOX LIGHT |
| 19 | FLIPPER (BACKBOX) |

SWITCH ASSEMBLY IDENTIFICATION TABLE

SWITCH
SELF
TEST #
SEQUENCE

DESCRIPTION

- | | |
|----|---------------------|
| 1 | ROLLOVER BUTTON #1 |
| 2 | ROLLOVER BUTTON #2 |
| 3 | ROLLOVER BUTTON #3 |
| 4 | ROLLOVER BUTTON #4 |
| 5 | FLIPPER LEFT |
| 6 | CREDIT |
| 7 | FLIPPER RIGHT |
| 8 | OUTHOLE 1 LEFT |
| 9 | COINS RIGHT |
| 10 | COINS LEFT |
| 11 | COINS MIDDLE |
| 12 | RETURN LANE LEFT |
| 13 | RETURN LANE RIGHT |
| 14 | SLAM |
| 15 | TILT (CABINET) |
| 16 | SAUCER TOP |
| 17 | TOP TARGET LEFT |
| 18 | TOP TARGET MIDDLE |
| 19 | TOP TARGET RIGHT |
| 20 | GATE LEFT |
| 21 | GATE RIGHT |
| 22 | UPTOWN '1' |
| 23 | UPTOWN '2' |
| 24 | UPTOWN '3' |
| 25 | BUMPER LEFT |
| 26 | BUMPER RIGHT |
| 27 | BUMPER MIDDLE |
| 28 | SLINGSHOT LEFT |
| 29 | SLINGSHOT RIGHT |
| 30 | BUMPER TOP |
| 31 | OUTHOLE 3 RIGHT |
| 32 | SAUCER MIDDLE |
| 33 | TARGET LEFT BOTTOM |
| 34 | TARGET LEFT MIDDLE |
| 35 | TARGET LEFT TOP |
| 36 | TARGET RIGHT BOTTOM |
| 37 | TARGET RIGHT MIDDLE |
| 38 | TARGET RIGHT TOP |
| 39 | OUTHOLE 2 MIDDLE |
| 40 | OUTLANES |
| 41 | NOT USED |
| 42 | NOT USED |
| 43 | NOT USED |
| 44 | NOT USED |
| 45 | NOT USED |
| 46 | NOT USED |
| 47 | NOT USED |
| 48 | NOT USED |

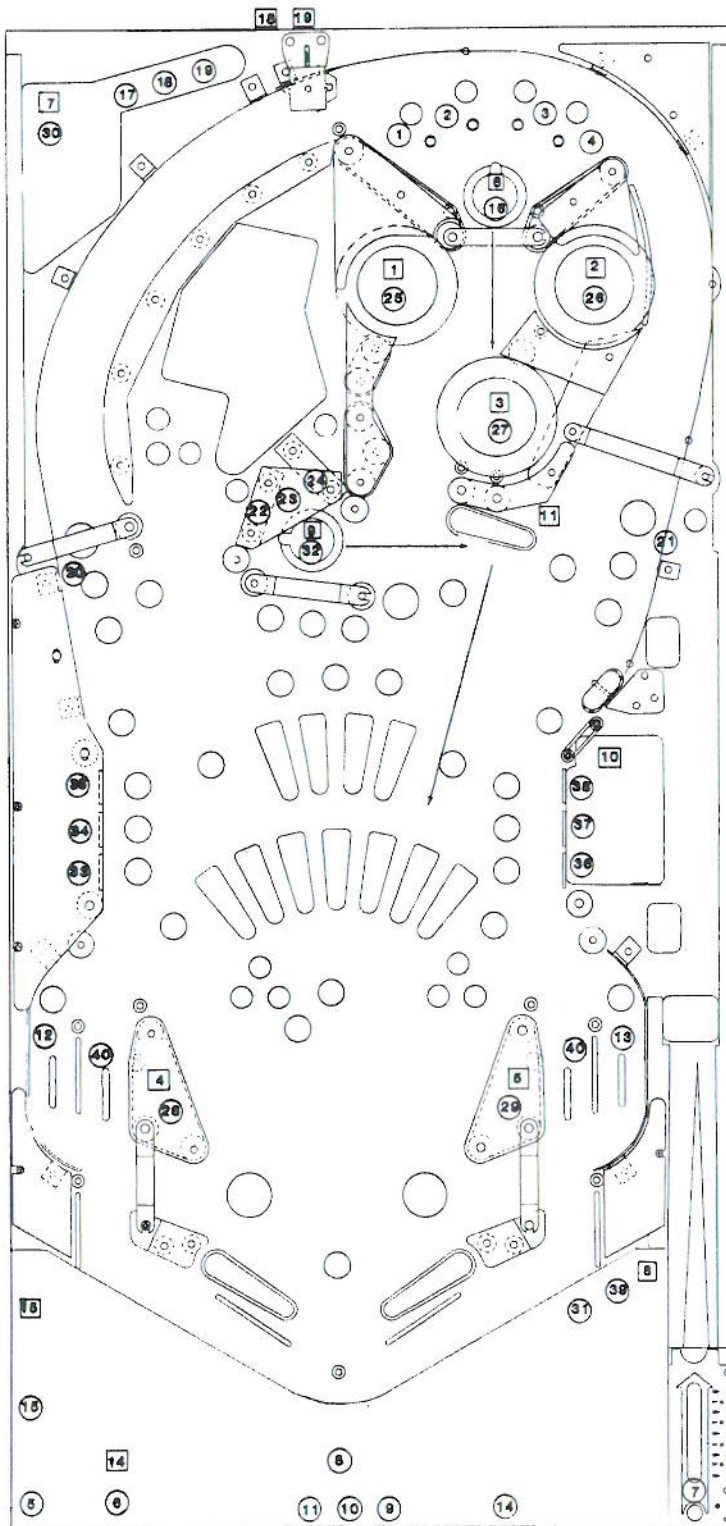


FIGURE II a

*NOTE: SEQUENCE NUMBERS SHOWN HERE
ARE USED AS AN AID IN LOCATING
FAULTY SOLENOID OR SWITCH USING
DRAWING SHOWN.
VECTOR SHOWING FOR EJECT SAUCER BALL
SHOULD EXIT AS SHOWN.

VIII. ROUTINE MAINTENANCE ON LOCATION:

After successful completion of the Self Diagnostic Test Procedure, set the game up for play. Exercise each roller, bumper, thumper bumper, slingshot, etc., by hand until each switch assembly on the playfield has been checked for proper operation. If actuating a switch assembly results in intermittent or no response, clean contacts by gently closing them on a clean business card or piece of paper and wiping until they wipe clean. Re-gap, if necessary, to 1/16". Do not burnish or file Gold Plated Switch Contacts.

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IX. SWITCH ASSEMBLY ADJUSTMENTS:

GENERAL:

All switch assemblies consist of leaf springs, contacts, separators, plastic tubing and screws to hold them to the mounting surface. Before attempting to adjust a switch assembly, make sure that these screws are tight. If not, tighten screw closest to the contact end of the leaf spring first. This will prevent the assembly from being secured in such a manner that the leaf springs tend to fan out. In general, all leaf springs are adjusted for a 1/16" gap in the open position and .010" over-travel or wipe in the closed position. All contacts should be in good condition. Unless otherwise instructed, they should be dry or non-lubricated. All contacts should be free of dust and dirt. Contacts, with the exception of the flipper button switch assemblies are plated to resist corrosion. Filing or burnishing breaks the finish and encourages corrosion. Clean by closing the contacts over a clean piece of paper (e.g. a lint free business card) and wiping gently until the contacts are clean. For the flipper button switch assemblies **ONLY**: Tarnish can be removed with a contact file followed by burnishing tool. Severely pitted contacts must be placed and adjusted only when they are found to be a source of game malfunction.

X. SERVICE HINTS:

The Bally playfield has an improved tuff-coat finish with excellent wearing properties. Life expectancy of the playfield as well as play appeal, can be extended by periodic cleaning.

DO: Bally recommends you clean your playfield with Wildcat #125 (Wildcat Chemical Co. 1349 East Seminary Drive; Fort Worth, Texas 76115; Phone 1-817/924-8321). Wildcat #125 is a combination cleaner and polish. Bally has tried and tested this product and found it to be very effective. If Wildcat #125 is not available, Bally suggests you ask your distributor to order it. Inspect and hand polish the ball in a clean cloth. A chipped ball must be replaced. It can ruin the finish on the playfield in a short period of time.

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DON'T: Use water in large quantities, highly caustic cleaners, abrasive cleaners and cleaning pads on the playfield, or allow a wax or polish build up. Waxes yellow with age and spoil appeal.

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XI
QE79 CITY SLICKER
PANEL TOP PARTS (WITHOUT RAMPS)

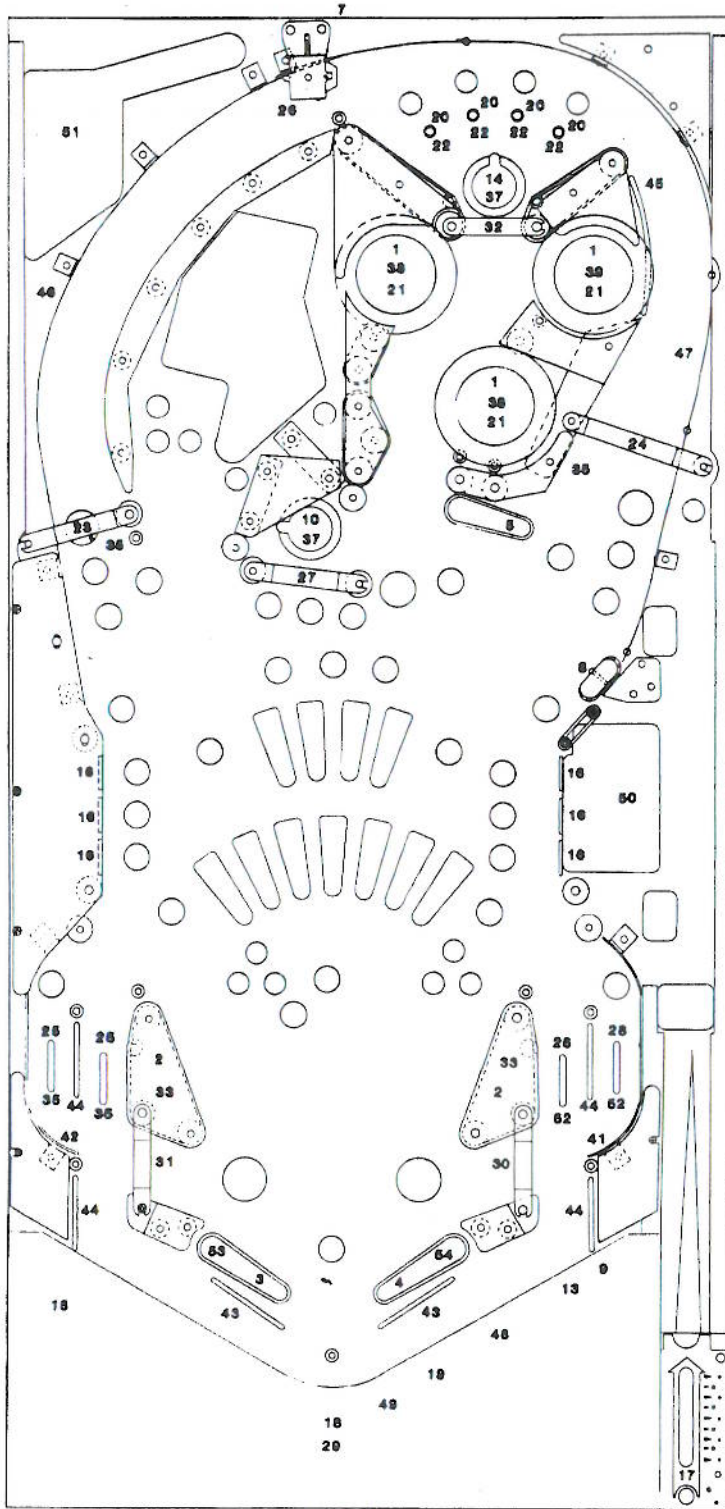


FIGURE II b

- | | |
|--|------------|
| 1. THUMPER BUMPER | A967-00053 |
| 2. SLINGSHOT KICKER ASSY. | A967-00054 |
| 3. FLIPPER ASSY. SINGLE SW. LT. | AC70-00022 |
| 4. FLIPPER ASSY. DOUBLE SW. RT. | AC70-00023 |
| 5. FLIPPER ASSY. RIGHT W/O SW. | AE79-00036 |
| 6. FLIPPER & SHAFT ASSY. LT. BLACK | A391-00052 |
| 7. BACKBOARD ASSY. | AE79-00025 |
| 8. BALL REBOUND ASSY. | AA17-00023 |
| 9. BALL GATE ASSY. | AA40-00019 |
| 10. EJECT-HOLE ASSY.: | AE79-00027 |
| 11. BALL STOP ASSY.: RT. SIDE | AE79-00031 |
| 12. BALL STOP ASSY.: LT. SIDE | AE79-00031 |
| 13. BALL CHANNEL ASSY. | AA40-00027 |
| 14. EJECT-HOLE ASSY.: | AE79-00039 |
| 15. TOP MOUNTED KICKER ASSY. | A360-00234 |
| 16. TARGET, SWITCH, BRKT. DIODE & CAP (YELLOW) | A365-R0307 |
| 17. SHOOTER GAUGE | QE79-00117 |
| 18. BOTTOM ARCH | QE79-00912 |
| 19. BOTTOM ARCH: EXTENSION | 0370-00918 |
| 20. ROLL-OVER BUTTON | 0390-00906 |
| 21. COLLAR: THUMPER BUMPER (BLUE) | 0017-00042 |
| 22. SWITCH W/DIODE & PLATE ASSY. | A365-00051 |
| 23. GATE-BRKT. & WIRE-FORM ASSY. | AE14-00013 |
| 24. GATE-BRKT. & WIRE-FORM ASSY. | AE79-00028 |
| 25. BRKT. W/WIRE FORM ASSY.: ROLLOVER LT. | A331-00042 |
| 26. BALL GATE ASSY.: LT. | A360-00022 |
| 27. GATE-BRKT. & WIRE-FORM ASSY. | A360-00213 |
| 28. BRKT. W/WIRE-FORM ASSY.: ROLLOVER RT. | A360-00216 |
| 29. BRKT. W/WIRE-FORM ASSY.: ROLLOVER LT. | A360-00217 |
| 30. GATE-BRKT. & WIRE-FORM ASSY. | A360-00297 |
| 31. GATE-BRKT. & WIRE-FORM ASSY. | A371-00040 |
| 32. GATE-BRKT. & WIRE-FORM ASSY. | A967-00058 |
| 33. SWITCH W/BRKT. & DIODE ASSY. | A360-00239 |
| 34. SWITCH W/BRKT. & DIODE ASSY. | A360-00241 |
| 35. SWITCH W/DIODE & PLATE ASSY. | A360-00245 |
| 36. SWITCH W/DIODE & PLATE ASSY. | A365-00035 |
| 37. SWITCH W/DIODE & PLATE ASSY. | A365-00036 |
| 38. THUMPER BUMPER W/HOT STAMP (VERT.) | AE79-00033 |
| 39. THUMPER BUMPER W/HOT STAMP (45°) | AE79-00033 |
| 40. SWITCH ASSY.: FLIPPER-BUTTON | A365-00310 |
| 41. BALL GUIDE ASSY.: RT. | AE79-00013 |
| 42. BALL GUIDE ASSY. | A390-00018 |
| 43. WIRE-FORM: BALL GUIDE | 0360-00175 |
| 44. WIRE-FORM: BALL GUIDE | 0365-00151 |
| 45. WIRE-FORM: BALL GUIDE | 0365-00175 |
| 46. BALL SCOOP ASSY. (UPPER LT.) | AE79-00021 |
| 47. BALL SCOOP ASSY. (UPPER RT.) | AE79-00022 |
| 48. FRONT-BALL CHANNEL ASSY. | AE35-00016 |
| 49. REAR-BALL CHANNEL ASSY. | AE35-00044 |
| 50. FLIPPER PLATFORM ASSY. | AE79-00023 |
| 51. TOP-REAR PLATFORM ASSY. | AE79-00024 |
| 52. SWITCH W/DIODE & PLATE ASSY. | A967-00067 |
| 53. MOLDED FLIPPER-CAP ASSY.(WHT) LT. | A365-00312 |
| 54. MOLDED FLIPPER-CAP ASSY.(WHT) RT. | A365-00312 |

OE79 CITY SLICKER
XII
PLATFORM & RAMP PARTS

- | | |
|--|-----------------|
| 1. PLATFORM ASSY.: FLIPPER
(NOT SHOWN) | AE79-00023-0000 |
| 2. PLATFORM ASSY.: TOP REAR
(NOT SHOWN) | AE79-00024-0000 |
| 3. ENTRANCE RAMP ASSY.
(NOT SHOWN) | AE79-00030-0000 |
| 4. RAMP: UPTOWN
(NOT SHOWN) | OE79-00914-0000 |

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RUBBER RINGS

- | | |
|--------------------------|-----------------|
| A. RING: 5 | 0017-00041-0633 |
| B. RING: 5/16" - 10 | 0017-00041-0637 |
| C. RING: 3/4" - 2 | 0017-00041-0642 |
| D. RING: 1" - 2 | 0017-00041-0643 |
| E. RING: 2" - 2 | 0017-00041-0645 |
| F. RING: 2-1/2" - 2 | 0017-00041-0646 |
| G. RING: (YELLOW) 3" - 2 | 0017-00041-0653 |

POSTS

- | | |
|--|-----------------|
| H. POST (RED PLASTIC) 1" | 0017-00042-0588 |
| J. POST (RED PLASTIC) 1-3/16" | 0017-00042-0596 |
| K. METAL MINI-POST
(W/THREADS FOR WOOD) | 0360-00732-00XF |
| L. NICKEL POST
(NO THREADS) | 0360-00733-00XF |

RUBBER BUMPER FOR

- | | |
|------------------------|-----------------|
| K. - METAL MINI-POST | 0017-00041-0633 |
| H. & J. - PLASTIC POST | 0017-00041-0637 |
| L. - NICKEL POST | 0017-00041-0642 |

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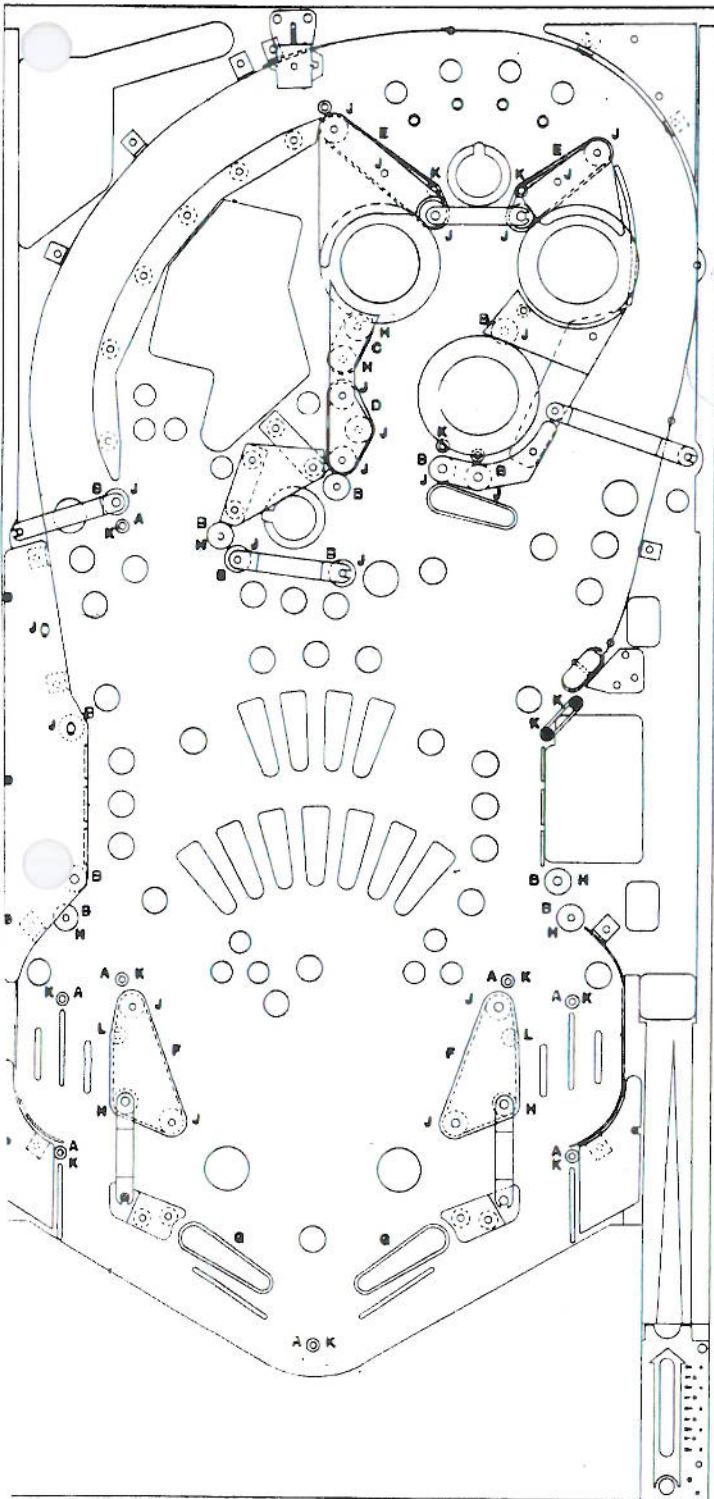


FIGURE II c

XIII.
OE79 CITY SLICKER
PLATFORM PARTS

TOP REAR PLATFORM ASSY. PARTS

- | | |
|--|-----------------|
| 1. THUMPER BUMPER | A967-00053-0100 |
| 2. FLIPPER ASSY. RT. SINGLE SWITCH | AE79-00037-0000 |
| 3. TARGET, SWITCH, BRKT., DIODE & CAP (RED) | A365-R0307-F111 |
| 4. TARGET, SWITCH, BRKT., DIODE & CAP (YELLOW) | A365-R0307-F113 |
| 5. FLIPPER & SHAFT ASSY. RT. BLACK | A391-00050-0100 |
| 6. THUMPER-CAP W/HOT-STAMP (HORIZ.) | AE79-00033-0100 |
| 7. COLLAR: THUMPER BUMPER (BLUE) | 0017-00042-0567 |
| 8. WIRE-FORM: BALL GUIDE | 0365-00151-2000 |
| 9. GATE, BRKT. & WIRE FORM ASSY. | 0967-00058-0000 |
| 10. BUMPER: WHITE RUBBER | 0017-00041-0633 |
| 11. BUMPER: WHITE RUBBER | 0017-00041-0637 |
| 12. POST: L = 1" RED | 0017-00042-0588 |
| 13. POST: L = 1-3/16" RED | 0017-00042-0596 |
| 14. RUBBER RING: 1" | 0017-00041-0643 |
| 15. POST: BUMPER #10 X 7/16" WOOD SCREW | 0360-00732-00XF |
| 16. GUSSET PLATE | OE14-00103-00XF |

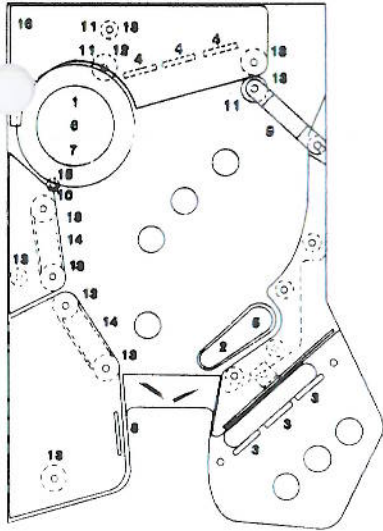


FIGURE II d

FLIPPER PLATFORM ASSY. PARTS

- | | |
|--|-----------------|
| 1. FLIPPER ASSY. RT W/O SWITCH | AE79-00036-0000 |
| 2. BALL SCOOP ASSY. TOP | AE79-00029-0000 |
| 3. FLIPPER & SHAFT ASSY. RT. BLACK | A391-00050-0100 |
| 4. FLIPPER PLATFORM | OE79-00505-0000 |
| 5. TROUGH: SHOOT-OUT | OE79-00905-0000 |
| 6. COWL: FLIPPER PLATFORM | OE79-00915-0000 |
| 7. RUBBER RING: 5/16" | 0017-00041-0637 |
| 8. NICKEL POST (NO THREADS) | 0360-00733-00XF |
| 9. TROUGH COVER (NOT PART OF PLATFORM ASSY.) | OE79-00911-0000 |
| 10. TARGET HOOD (NOT PART OF PLATFORM ASSY.) | OE79-00120-0000 |

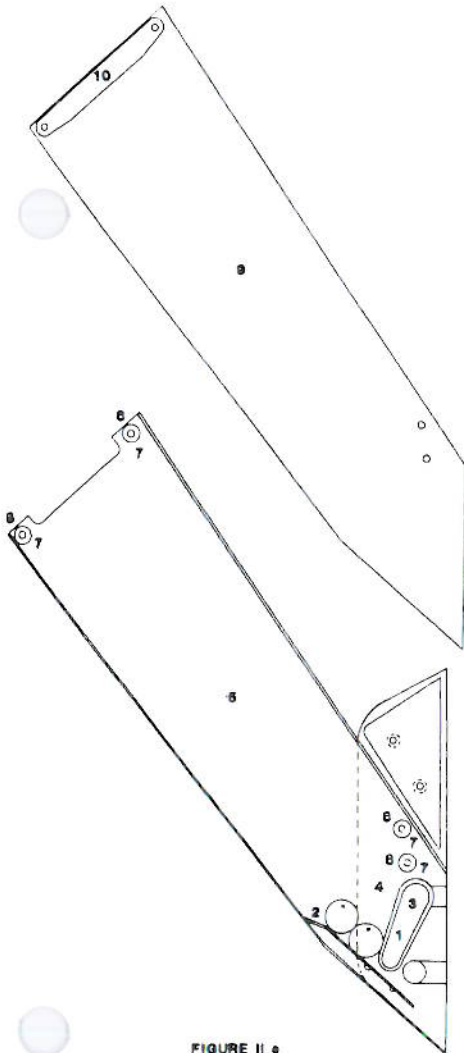
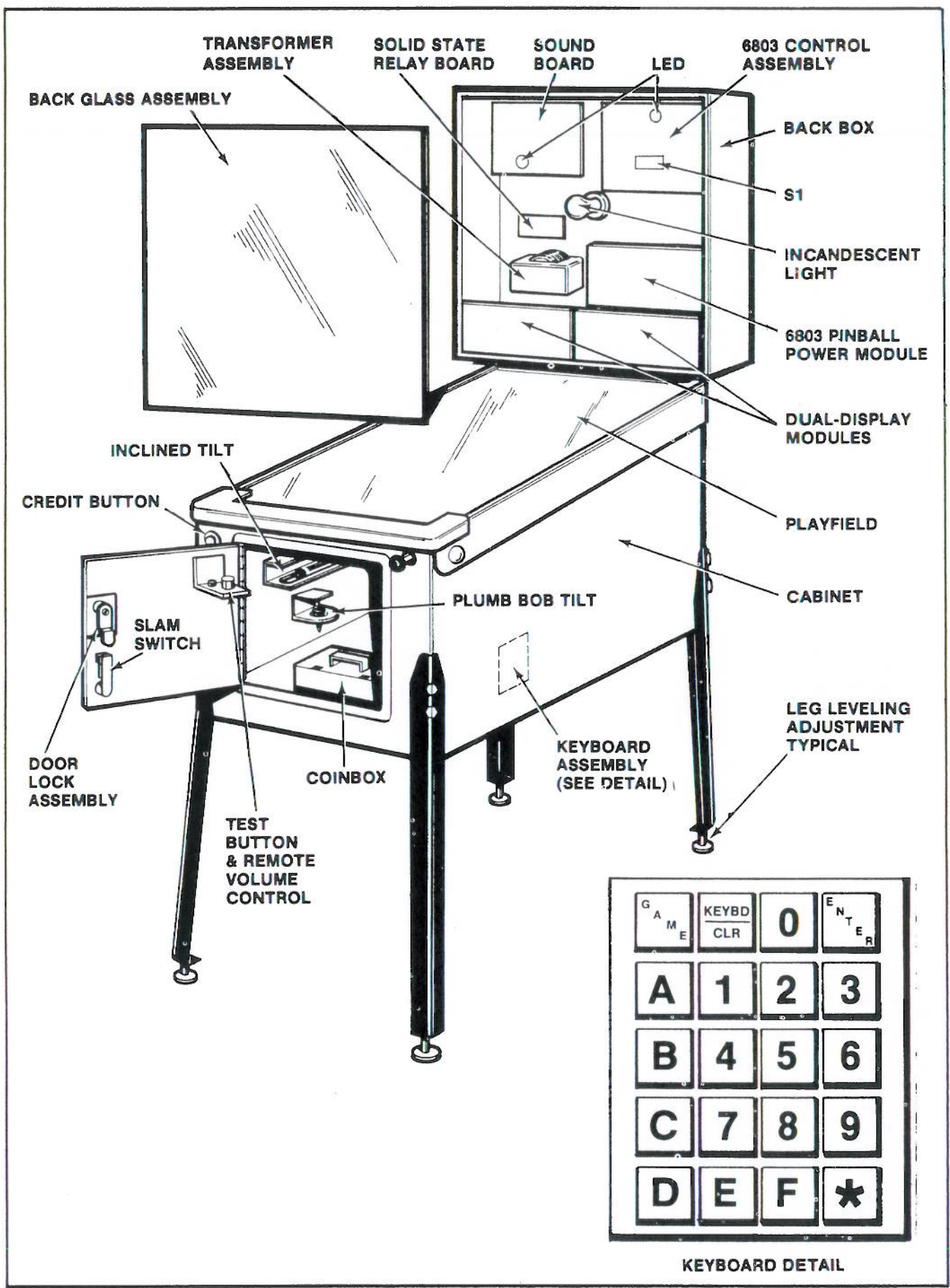


FIGURE II e

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FIGURE III. ELECTRONIC PIN BALL MACHINE

SECTION 2
Component Layouts,
Schematics & Wiring Diagrams

iNAT

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2
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6803 PINBALL POWER MODULE
 A084-91785-D000
 M051-00C53-D001

LIST

<u>QTY</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>
	11,000uf 20V ELEC.	JW1 - JW16	ZERO OHM RES. JUMPER
	TY-WRAP	TP1 - TP10	TEST POINTS
	SOLDER LUG	F1*	5 AMP 3AG FUSE
	WIRE 20AWG	F2	3/4 AMP 3AG FUSE
	160uf 350V ELEC.	F3	6 AMP 3AG FUSE
	TY-WRAP	F4, F5	8 AMP 3AG FUSE
	2uf 25V ELEC.	F6, F7	15 AMP 3AG FUSE
	.1uf 25V CER.	F8	3/16 AMP 8AG FUSE
	.01uf 500V CER.	FC1A - FC3B, FC8A	FUSE CLIPS
	600 OHM 10W	FC8B	
	100K 1W 5%	FC4A - FC7B	FUSE CLIPS
	2.2 OHM 1/4W 5%	J1	12 PIN M-N-L CONN. FEMALE
	100 OHM 1/2W 5%	J2	6 PIN M-N-L CONN. MALE
	22K 1/2W 5%	J3	15 PIN M-N-L CONN. MALE
	100K 1/4W 5%	J4	9 PIN M-N-L CONN. MALE
	390 OHM 1/4W 5%	J5	12 PIN M-N-L CONN. MALE
	1.2K 1/4W 5%	J6	2 PIN M-N-L CONN. MALE
	82K 1/2W 5%	6803 POWER MODULE	P.C. BOARD
	8.2K 1/4W 5%		
	0 - 25K 1/4W POT.	4-23-86 REV. 1.0 FIXED R2, R6	
	MR751		
	IN4004		
	IN5275A ZENER		
	KRPC-35-02-W		
	BRIDGE SPACER		
	2N3584		
	SHIELD		
	HEX SPACER		
	6-32 X 5 SCREW		
	6-32 X 12 SCREW		
	LOCKWASHER EXT.		
	LOCKWASHER INT.		
	FLAT WASHER		
	6-32 HEX NUT		
	LABEL - CAUTION HIGH VOLT.		
	HEATSINK 2		
	INSULATOR T0-66		
	2N3440		
	INSULATOR T0-5		
	HEATSINK 3		
	78H05C REG.		
	6-32 X 12 SCREW		
	6-32 HEX NUT		
	LOCKWASHER EXT.		
	FLAT WASHER		
	HEATSINK 1		
	INSULATOR T0-3		
	VARIATOR		

* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC

6803 PINBALL POWER MODULE
A084-91785-D000
M051-00C53-D001

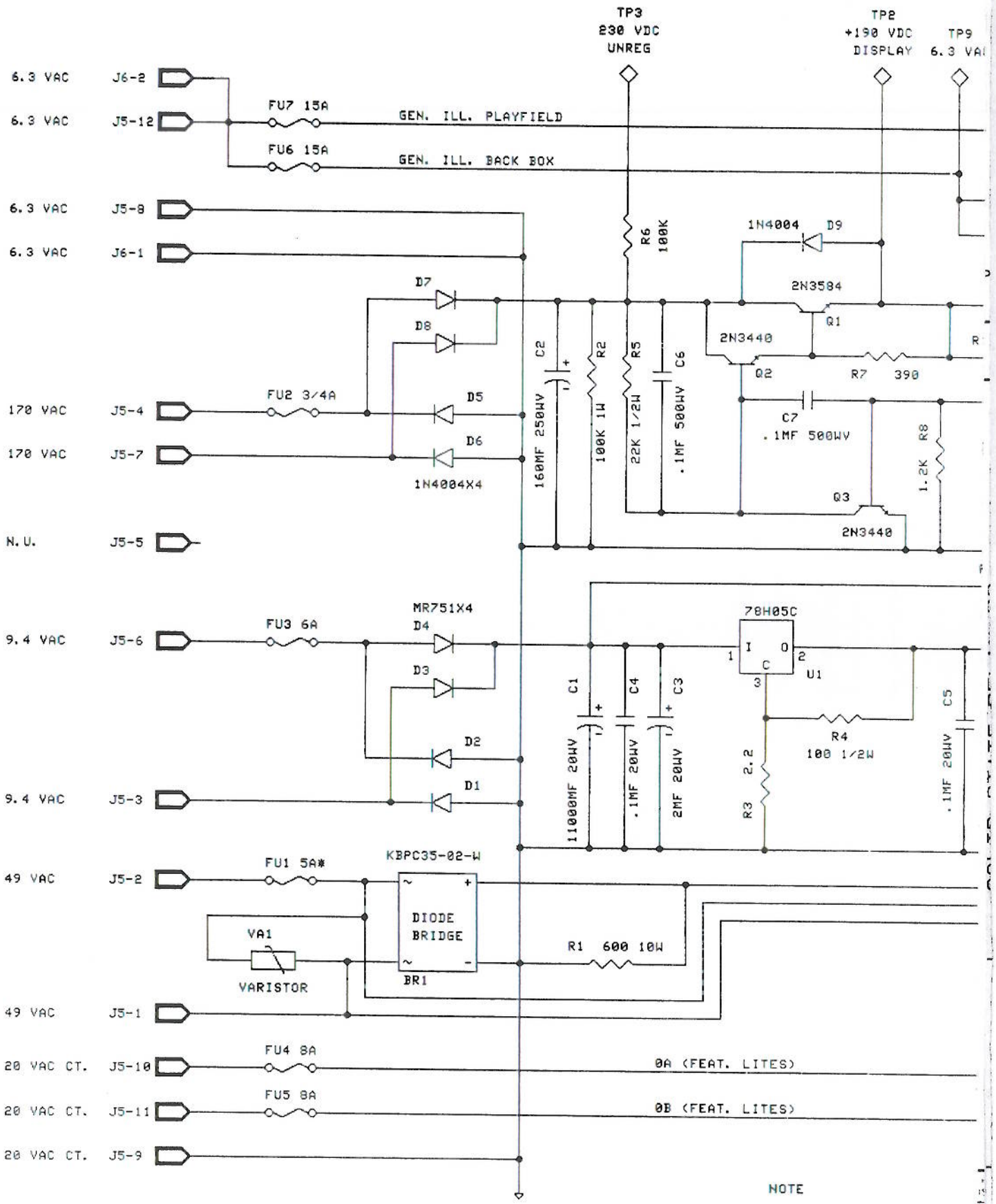
CROSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
.01UF 500V CER.	2	C6,C7	0360-00800-0013
.1UF 25V CER.	2	C4,C5	0360-00800-0026
2UF 25V ELEC.	1	C3	0360-00800-0019
160UF 350V ELEC.	1	C2	0360-00800-0020
11,000UF 20V ELEC.	1	C1	0360-00800-0024
2.2 OHM 1/4W 5%	1	R3	100E-00005-0003
100 OHM 1/2W 5%	1	R4	100E-00006-0021
390 OHM 1/4W 5%	1	R7	100E-00005-0049
600 OHM 10W 10%	1	R1	100E-00002-0049
1.2K 1/4W 5%	1	R8	100E-00005-0063
8.2K 1/4W 5%	1	R10	100E-00005-0086
22K 1/2W 5%	1	R5	100E-00006-0065
82K 1/2W 5%	1	R9	100E-00006-0072
100K 1/4W 5%	1	R6	100E-00005-0115
100K 1W 5%	1	R2	100E-00007-0037
0-25K 1/4W POT	1	VR1	0360-00804-0004
MR 751	4	D1-D4	103E-00003-0016
1N4004	5	D5-D9	103E-00003-0005
1N5275	1	D10	103E-00001-0027
KBPC-35-02-W	1	BR1	103E-00005-0005
2N3440	2	Q2,Q3	104E-00003-0002
2N3584	1	Q1	104E-00005-0002
78H05C REG	1	U1	0360-00803-0021
VARISTOR METAL OXIDE 60V	1	VA1	115E-00001-0002
TY-WRAP	4	P/O C1,C2	0017-00042-0048
ZERO OHM RES. JUMPER	16	JW1-JW16	117E-00001-0001
TEST POINTS	10	TP1-TP10	0017-00007-0131
SOLDER LUG	2	P/O C1	0017-00021-0257
JUMPER WIRE 20AWG	2	P/O C1	0017-00033-0448
INSULATOR T0-3	1	P/O U1	0017-00042-0119
INSULATOR T0-5	2	P/O Q2,Q3	0017-00042-0151
INSULATOR T0-66	1	P/O Q1	0017-00042-0158
HEX SPACER	2	P/O Q1	0017-00042-0248
SHIELD	1	P/O Q1	0365-00952-0000
HEATSINK 1	1	P/O U1	112E-00001-0003
HEATSINK 2	1	P/O Q1	112E-00001-0002
HEATSINK 3	1	P/O Q3	112E-00001-0004
BRIDGE SPACER	1	P/O BR1	118E-00001-0001
6-32 X 12 SCREW	4	P/O Q1,U1	0017-00101-0132
6-32 X 5 SCREW	2	P/O Q1	0017-00101-0555
6-32 HEX NUT	4	P/O Q1,U1	0017-00103-0005
LOCKWASHER INT.	4	P/O Q1,	0017-00104-0008
LOCKWASHER EXT.	4	P/O Q1,U1	0017-00104-0009
FLAT WASHER	4	P/O Q1,U1	0017-00104-0106
FUSE CLIP	8	FC1A-FC3B, FC8A,FC8B	0017-00071-0033
FUSE CLIP	8	FC4A-FC7A	0017-00071-0034
3/16 AMP 8AG FUSE	1	F8	0017-00003-0206
3/4 AMP 3AG FUSE	1	F2	0017-00003-0010
5 AMP 3AG FUSE	1	F1*	0017-00003-0175
6 AMP 3AG FUSE	1	F3	0017-00003-0008

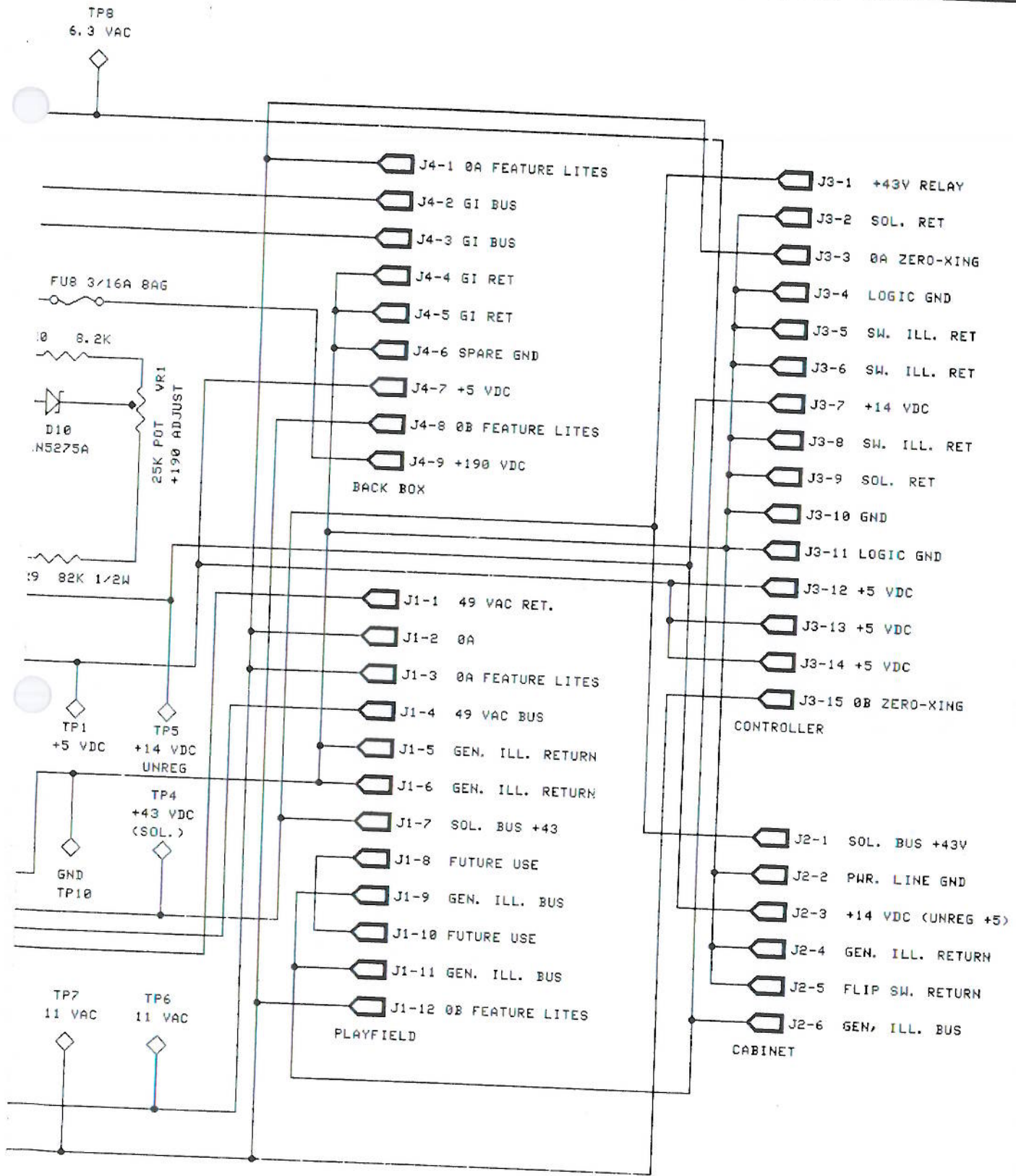
CROSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
8 AMP 3AG FUSE	2	F4, F5	0017-00003-0387
15 AMP 3AG FUSE	2	F6, F7	0017-00003-0011
12 PIN M-N-L CONN. FEMALE	1	J1	0017-00021-0532
6 PIN M-N-L CONN. MALE	1	J2	0017-00021-0424
15 PIN M-N-L CONN. MALE	1	J3	0017-00021-0434
9 PIN M-N-L CONN. MALE	1	J4	0017-00021-0425
12 PIN M-N-L CONN. MALE	1	J5	0017-00021-0426
2 PIN M-N-L CONN. MALE	1	J6	0017-00021-0488
6803 POWER MODULE P.C.B.	1		A080-91785-D000

* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC



NOTE
 * WHEN 3FLIPPERS ARE USE
 WHEN 4FLIPPERS ARE USED



D FUI SHOULD BE 6AMP
 FUI SHOULD BE 7AMP

NOTES:	BALLY MIDWAY MFG. CO.
R. KOHAN	
1PER	6803 PINBALL PWR MODULE
03/11/86	SCHEMATIC DRAWING
	A084-91785-D000
	M051-00C53-D002
	SHEET 1 OF 1 REV

22 APR 86 10:47 USER/CHUN/AAA 8. DRAW

DESIGNATION

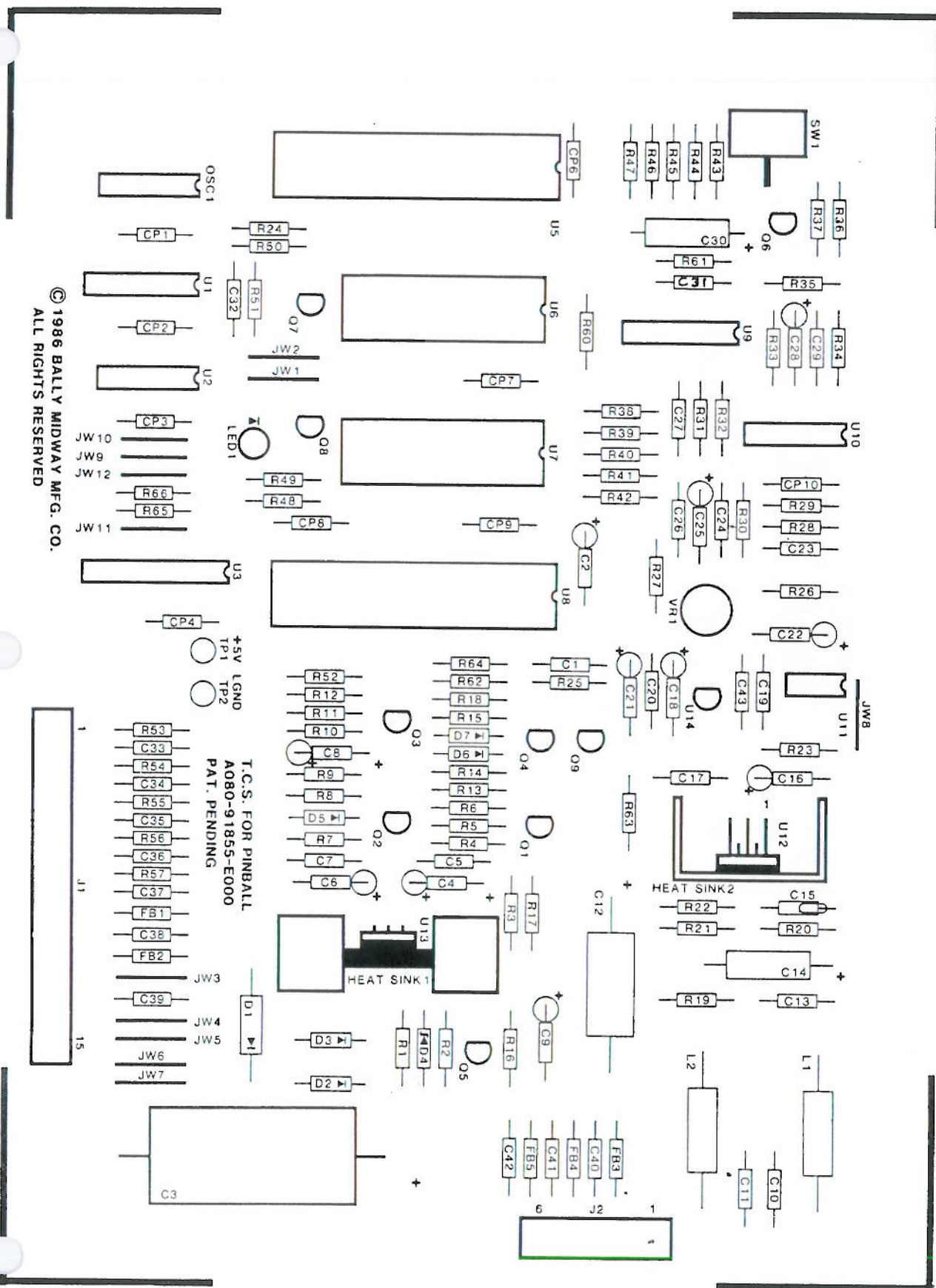
DESIGNATION

- C1
- C2
- C3
- C4
- C5
- C6
- C7
- C8
- C9
- C10, C11
- C12
- C13
- C14
- C15
- C16
- C17
- C18-C22
- C23
- C24
- C25
- C26
- C27
- C28
- C29
- C30
- C31
- C32
- C33-C36
- C37
- C38, C39
- C40-C43
- CP1-CP4, CP6
- R1
- R2, R3
- R4
- R5
- R6
- R7
- R8
- R9
- R10, R11
- R12
- R13
- R14
- R15

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T.C.S. FOR PINBALL
A080-91855-E000
PAT. PENDING

A084-91855-E000
M051-00114-E146



.IST

DESIGNATION LIST

10.

<u>DESCRIPTION</u>	<u>DESIGNATION NO.</u>	<u>DESCRIPTION</u>
NOT INSERTED	R16-R18	NOT INSERTED
10 UF 20V TANT	R19	1 OHM 1/4W 5% CRBN.
4700 UF 25V AX ELEC	R20	430 OHM 1/4W 5% CRBN.
4.7 UF 25V TANT	R21	2.2 OHM 1/4W 5% CRBN.
.01 UF 50V AX CER	R22	220 OHM 1/4W 5% CRBN.
4.7 UF 25V TANT	R23	NOT INSERTED
.01 UF 50V AX CER	R24	4.7K OHM 1/4W 5% CRBN.
6.8 UF 25V TANT	R25	NOT INSERTED
NOT INSERTED	R26	33K OHM 1/4W 5% CRBN.
.22 UF 50V AX CER	R27	0 OHM RESISTOR (JUMPER W
1000 UF 16V AX ELEC	R28	150K OHM 1/4W 5% CRBN.
.1 UF 50V AX CER	R29	82K OHM 1/4W 5% CRBN.
470 UF 6V AX ELEC	R30	150K OHM 1/4W 5% CRBN.
.05 UF CER	R31	33K OHM 1/4W 5% CRBN.
1 UF 20V TANT	R32	18K OHM 1/4W 5% CRBN.
.1 UF 50V AX CER	R33	33K OHM 1/4W 5% CRBN.
NOT INSERTED	R34	120K OHM 1/4W 5% CRBN.
82 PF AX CER 5%	R35	62K OHM 1/4W 5% CRBN.
68 PF AX CER 5%	R36	68 OHM 1/4W 5% CRBN.
1 UF 20V TANT	R37	180 OHM 1/4W 5% CRBN.
.001 UF AX CER 10%	R38	75K OHM 1/4W 5% CRBN.
.01 UF AX CER 10%	R39	47K OHM 1/4W 5% CRBN.
1 UF 20V TANT	R40	200K OHM 1/4W 5% CRBN.
470 PF AX CER 10%	R41-R47	4.7K OHM 1/4W 5% CRBN.
47 UF 16V AX ELEC	R48	47K OHM 1/4W 5% CRBN.
.01 UF 50V AX CER	R49	100 OHM 1/4W 5% CRBN.
18 PF 50V AX CER	R50	150 OHM 1/4W 5% CRBN.
100 PF 50V AX CER	R51	3.3K OHM 1/4W 5% CRBN.
470 PF 50V AX CER	R52	100K OHM 1/4W 5% CRBN.
.1 UF 50V AX CER	R53-R57	10K OHM 1/4W 5% CRBN.
NOT INSERTED	R58,R59	NOT USED
.01 UF 50V AX CER	R60	1K OHM 1/4W 5% CRBN.
	R61	2.7K OHM 1/4W 5% CRBN.
1K OHM 1/4W 5% CRBN.	R62-R64,R66	NOT INSERTED
2.7K OHM 1/4W 5% CRBN.	R65	4.7K 1/4W 5% CRBN.
7.5K OHM 1/4W 5% CRBN.	VR1	10K OHM POT
39K OHM 1/4W 5% CRBN.		
9.1K OHM 1/4W 5% CRBN.	L1,L2	10 UH INDUCTOR
82 OHM 1/4W 5% CRBN.		
100 OHM 1/4W 5% CRBN.	D1	VR330 DIODE
47K OHM 1/4W 5% CRBN.	D2,D3	1N4004 DIODE
10K OHM 1/4W 5% CRBN.	D4	1N958B DIODE
82K OHM 1/4W 5% CRBN.	D5-D7	1N4606 DIODE
62K OHM 1/4W 5% CRBN.		
5.6K OHM 1/4W 5% CRBN.	LED 1	GREEN LED
910 OHM 1/4W 5% CRBN.		

CP10

DESIGNATION LIST

<u>DESIGNATION NO.</u>	<u>DESCRIPTION</u>	<u>DE:</u>
Q1	2N3904 XSTR.	18
Q2	2N4403 XSTR.	10
Q3	2N3904 XSTR.	82
Q4	2N4403 XSTR.	68
Q5	NOT INSERTED	47
Q6	2N5305 XSTR.	.01
Q7	MPS3646 XSTR.	.0
Q8	2N5305 XSTR.	.0
Q9	NOT INSERTED	.0
OSC1	8 MHZ COSC	.1
IC U1	74LS76	.2
IC U2	74LS00	1
IC U3	16L8A-2 PAL	4.
IC U5	MC68B09E	6.
IC U6	6116 2KX8 RAM 200NS.	10
IC U7	PROG EPROM 512K 250NS.	47
IC U8	MC68B21	47
IC U9	AD7533	10
IC U10	LM3900	47
IC U11	NOT INSERTED	1
IC U12	TDA2002	2.
IC U13	MC7805	68
IC U14	NOT INSERTED	82
ICS U5	40 PIN IC SOCKET (.600)	10
ICS U6,U7	28 PIN IC SOCKET (.600)	15
ICS U8	40 PIN IC SOCKET (.600)	18
ICS U9	16 PIN IC SOCKET (.300)	22
HS U12	6030B-TT HEAT SINK	43
HS U13	6100B HEAT SINK	91
MH U12	1 SCREW, 1 WASHER, 1 NUT	1K
MH U13	1 SCREW, 1 WASHER, 1 NUT	2.
INS U12, U13	SIL PAD THERMAL WASHER, TO 220	3.
FB1,FB2	FERRITE BEAD	4.
FB3-FB5	NOT INSERTED	5.
SW1	SWITCH PC. MTG.	7.
JW1-JW11	JUMPER	9.
JW12	NOT INSERTED	10
J1,J2	AUTO INSERT PINS TIN .045 SQ. PIN	18
TP1,TP2	TEST POINTS	33

BALL
000
176

REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
50V AX CER.	1	C32	0365-00800-0026
F 50V AX CER.	4	C33-C36	0360-00800-0046
50V AX CER.	1	C23	0E47-00800-0002
50V AX CER.	1	C24	0360-00800-0028
F 50V AX CER.	2	C29,C37	0307-00800-0008
AX. CER. 10%	1	C26	0E47-00800-0003
IF 50V AX CER.	1	C27	0E47-00800-0001
F 50V AX CER.	12	C5,C7,C31,CP1-CP4, CP6-CP10	0360-00800-0005
IF CER.	1	C15	0360-00800-0006
50V AX CER.	4	C13,C17,C38,C39	0360-00800-0058
IF 50V AX CER.	2	C10,C11	0360-00800-0057
20V TANT.	3	C16,C25,C28	0986-00800-1400
IF 25V TANT.	2	C4,C6	0360-00800-0008
IF 25V TANT.	1	C8	0360-00800-0048
20V TANT.	1	C2	0986-00800-0700
16V AX ELEC.	1	C30	0360-00800-0042
IF 6V AX ELEC.	1	C14	0360-00800-0021
UF 16V AX ELEC.	1	C12	0360-00800-0044
UF 25V AX ELEC.	1	C3	0360-00800-0023
1/4W 5% CRBN.	1	R19	100E-00005-0002
OHM 1/4W 5% CRBN.	1	R21	100E-00005-0003
HM 1/4W 5% CRBN.	1	R36	100E-00005-0029
HM 1/4W 5% CRBN.	1	R7	100E-00005-0031
OHM 1/4W 5% CRBN.	2	R8,R49	100E-00005-0033
OHM 1/4W 5% CRBN.	1	R50	100E-00005-0037
OHM 1/4W 5% CRBN.	1	R37	100E-00005-0039
OHM 1/4W 5% CRBN.	1	R22	100E-00005-0041
OHM 1/4W 5% CRBN.	1	R20	100E-00005-0050
OHM 1/4W 5% CRBN.	1	R15	100E-00005-0059
HM 1/4W 5% CRBN.	2	R1,R60	100E-00005-0061
OHM 1/4W 5% CRBN.	3	R2,R3,R61	100E-00005-0071
OHM 1/4W 5% CRBN.	1	R51	100E-00005-0074
OHM 1/4W 5% CRBN.	9	R24,R41-R47,R65	100E-00005-0079
OHM 1/4W 5% CRBN.	1	R14	100E-00005-0082
OHM 1/4W 5% CRBN.	1	R4	100E-00005-0085
OHM 1/4W 5% CRBN.	1	R6	100E-00005-0087
OHM 1/4W 5% CRBN.	7	R10,R11,R53-R57	100E-00005-0088
OHM 1/4W 5% CRBN.	1	R32	100E-00005-0093
OHM 1/4W 5% CRBN.	3	R31,R33,R26	100E-00005-0100
OHM 1/4W 5% CRBN.	1	R5	100E-00005-0102
OHM 1/4W 5% CRBN.	3	R9,R39,R48	100E-00005-0104
OHM 1/4W 5% CRBN.	2	R13,R35	100E-00005-0107
OHM 1/4W 5% CRBN.	1	R38	100E-00005-0110
OHM 1/4W 5% CRBN.	2	R12,R29	100E-00005-0112
OHM 1/4W 5% CRBN.	1	R52	100E-00005-0115
OHM 1/4W 5% CRBN.	1	R34	100E-00005-0118
OHM 1/4W 5% CRBN.	2	R28,R30	100E-00005-0120
OHM 1/4W 5% CRBN.	1	R40	100E-00005-0123

CROSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
10K OHM POT	1	VR1	0360-00804-0024
10 UH INDUCTOR	2	L1,L2	0360-00804-0031
1N958B DIODE	1	D4	103E-00001-0002
1N4004 DIODE	2	D2,D3	103E-00003-0005
1N4606 DIODE	3	D5-D7	103E-00002-0006
VR330 DIODE	1	D1	0360-00801-0007
LED, GREEN	1	LED1	119E-00001-0001
2N3904	2	Q1,Q3	104E-00001-0006
2N4403	2	Q2,Q4	104E-00002-0006
2N5305	2	Q6,Q8	0360-00802-0012
MPS3646	1	Q7	104E-00001-0019
COSC, 8 MHZ	1	OSC1	119E-00002-0009
16L8A-2 PAL	1	IC U3	0E79-00803-0001
6116 2KX8 RAM 200NS.	1	IC U6	0304-00803-0057
74LS00	1	IC U2	0A15-00803-0046
74LS76	1	IC U1	0A15-00803-0072
AD7533	1	IC U9	0304-00803-0055
LM3900	1	IC U10	0360-00803-0002
MC68B09E	1	IC U5	0C48-00803-0001
MC68B21	1	IC U8	0A15-00803-0074
MC7805	1	IC U13	0360-00803-0050
PROG EPROM	1	U7	SEE ROM/EPROM SHEET
TDA2002	1	IC U12	0360-00803-0009
16 PIN I.C. SOCKET	1	ICS U9	110E-00001-0003
28 PIN I.C. SOCKET	2	ICS U6,U7	110E-00001-0010
40 PIN I.C. SOCKET	2	ICS U5,U8	110E-00001-0011
6030B-TT HEAT SINK	1	HS U12	112E-00001-0011
6100B HEAT SINK	1	HS U13	0360-00804-0032
SCREW, 6-32	1	MH U12	0017-00101-0339
NUT, 6-32	1	MH U12	0017-00103-0005
WASHER, #6 STAR	1	MH U12	0017-00104-0009
SCREW, 4-40	1	MH U13	0017-00101-0731
NUT, 4-40	1	MH U13	0017-00103-0002
WASHER, #4 STAR	1	MH U13	0017-00104-0071
SIL PAD THERMAL WASHER	2	INS U12,U13	0017-00042-0319
FERRITE BEAD	2	FB1,FB2	0316-00804-0002
SWITCH, PC. MTG.	1	SW1	0986-00804-3100

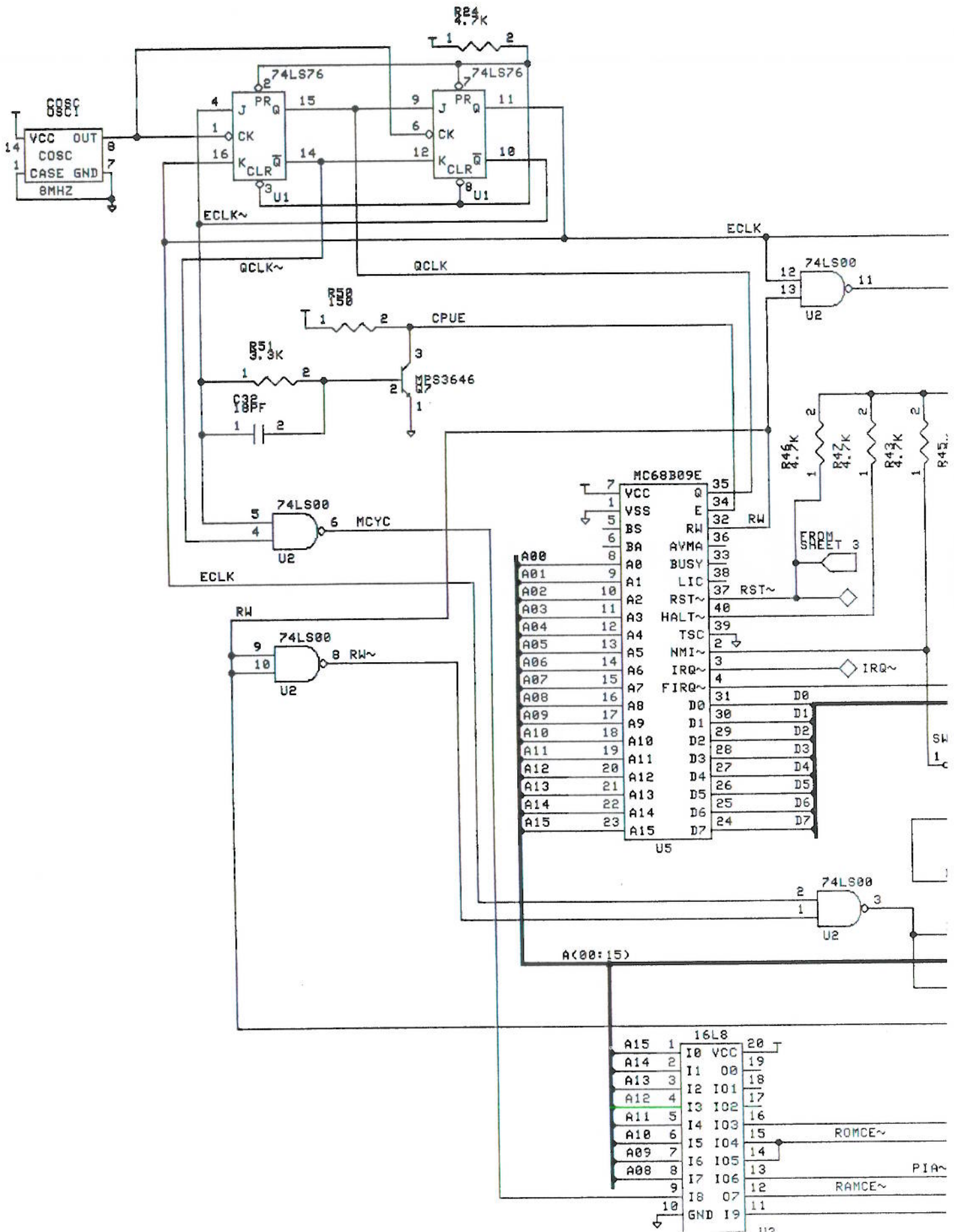
OR PINBALL
1855-E000
0114-E176

CROSS REFERENCE LIST

10.

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
JUMPER (0 OHM RESISTOR)	12	JW1-JW11,R27	117E-00001-0003
AUTO INSERT PINS TIN .045 SQ. PIN	14	J1	0304-00804-0010
AUTO INSERT PINS TIN .045 SQ. PIN	5	J2	0304-00804-0010
TEST POINTS	2	TP1 TP2	0017-00007-0131
P.C. BOARD			A080-91855-E000

REV. 1 - 25 NOV. 1986 - CHANGED C24 QTY. TO 1 ON PAGE 5. RK/CMM
REV. 2 - 15 JAN. 1987 - CHANGED CP1-CP10 to CP1-CP4, CP6-CP10 on page 1
and page 5. .01uf cap. qty. changed to 12 on page 5. RK/CMM



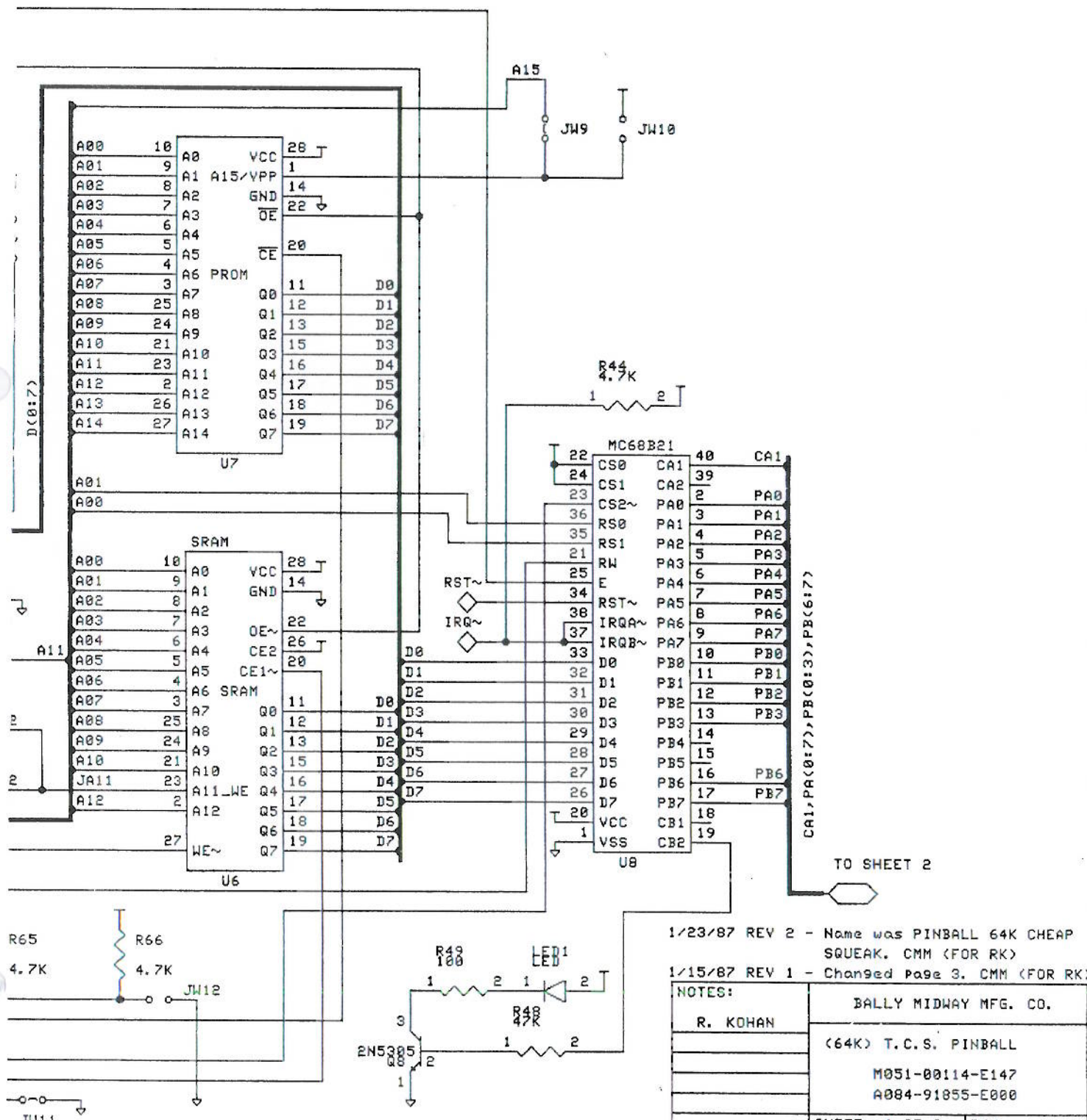
MC68B09E	
7	VCC
1	VSS
5	BS
6	BA
8	A0
A01	9 A1
A02	10 A2
A03	11 A3
A04	12 A4
A05	13 A5
A06	14 A6
A07	15 A7
A08	16 A8
A09	17 A9
A10	18 A10
A11	19 A11
A12	20 A12
A13	21 A13
A14	22 A14
A15	23 A15
35	Q
34	E
32	RW
36	AVMA
33	BUSY
38	LIC
37	RST~
40	HALT~
39	TSC
2	↓
3	NMI~
4	IRQ~
31	D0
30	D1
29	D2
28	D3
27	D4
26	D5
25	D6
24	D7

16L8					
A15	1	I0	VCC	20	T
A14	2	I1	00	19	
A13	3	I2	I01	18	
A12	4	I3	I02	17	
A11	5	I4	I03	16	
A10	6	I5	I04	15	ROMCE~
A09	7	I6	I05	14	
A08	8	I7	I06	13	PIA~
	9	I8	07	12	RAMCE~
	10	GND	19	11	

01
18
01

15

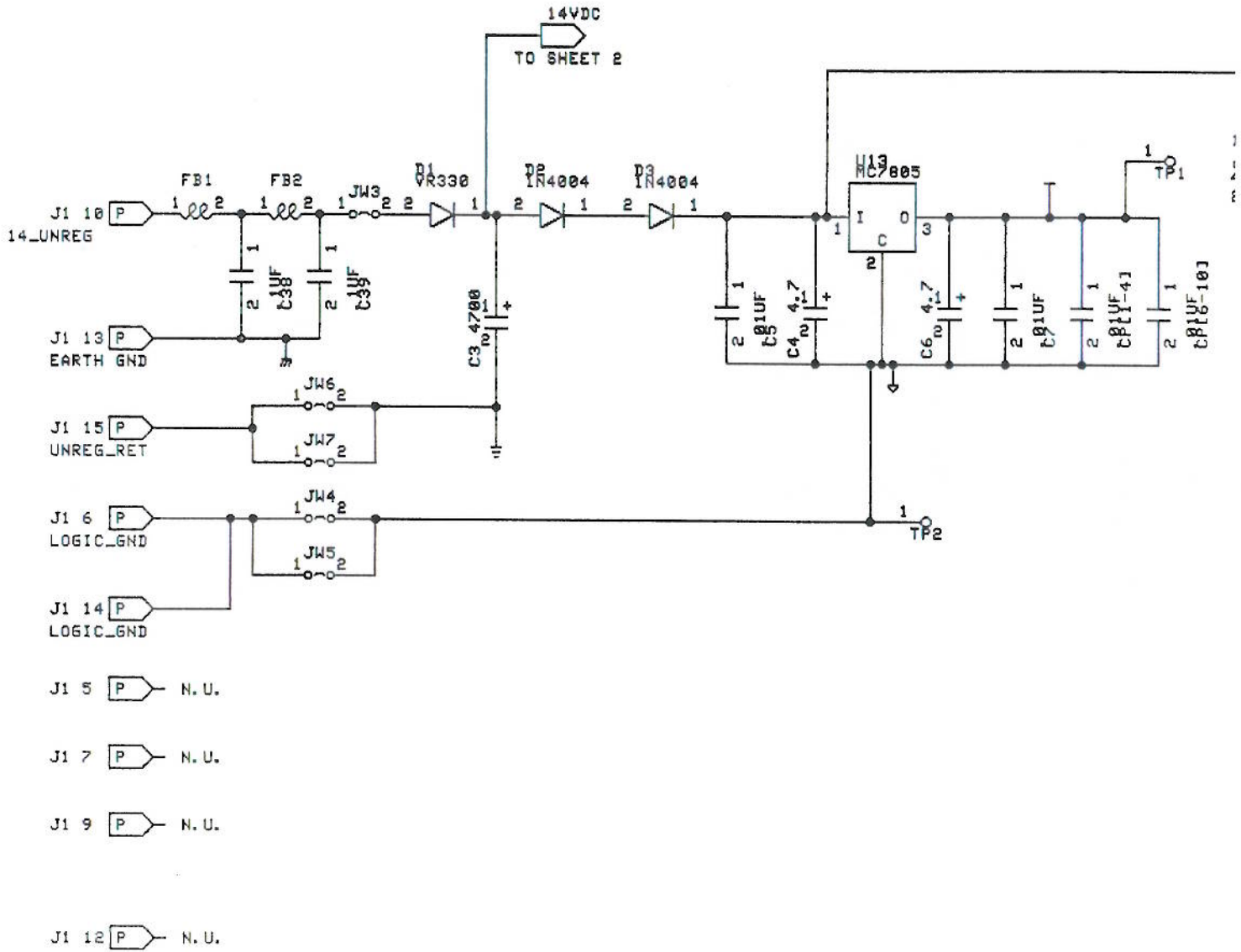
10.



1/23/87 REV 2 - Name was PINBALL 64K CHEAP
 SGUEAK. CMM (FOR RK)
 1/15/87 REV 1 - Changed Page 3. CMM (FOR RK)

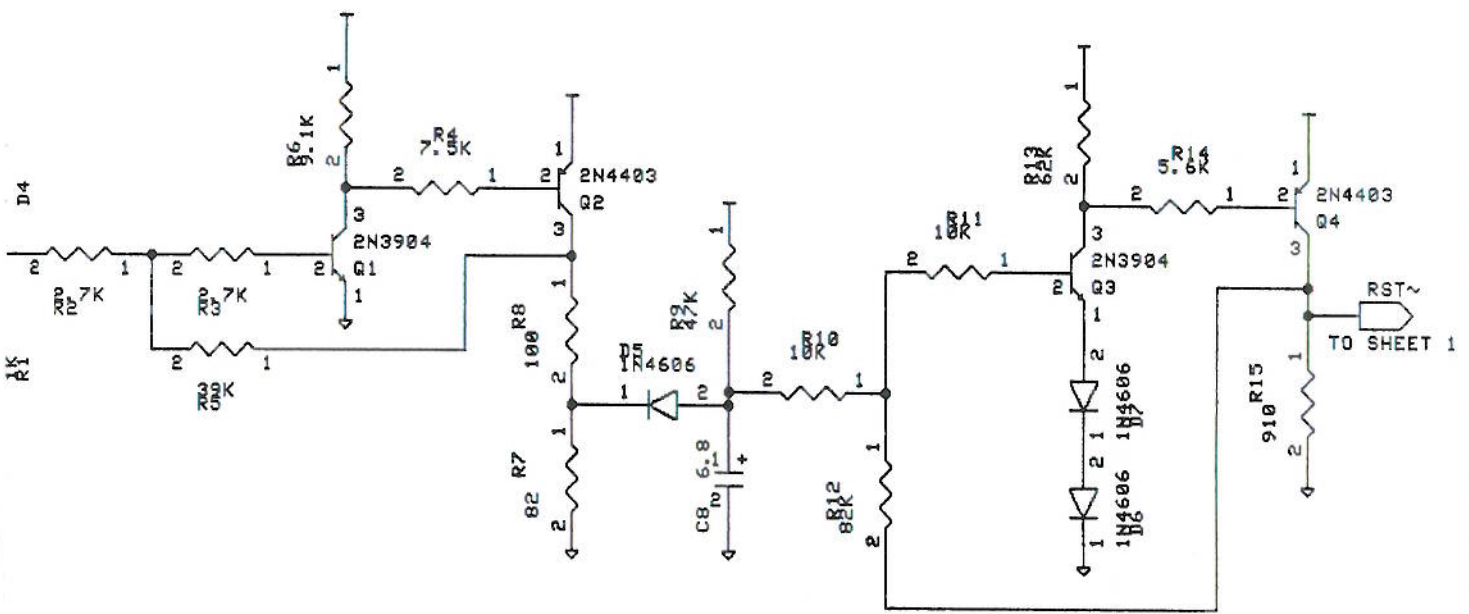
NOTES:	
R. KOHAN	BALLY MIDWAY MFG. CO.
	(64K) T.C.S. PINBALL
	M051-00114-E147
	A084-91855-E000
SHEET 1 OF 3 REV	

JAN 87 14:11 USER/RK/64KURBO 1. DRAM



LAST USED: C43, CP10
 NOT INSERTED: C1, C9
 NOT USED: C25, D20, C

0
1
0
IS
VDC
4
0



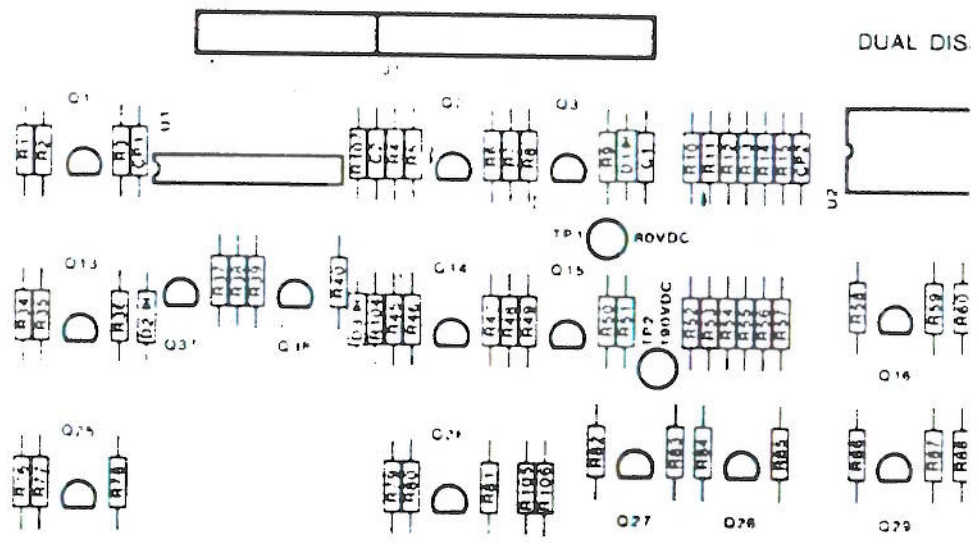
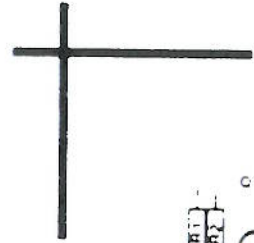
1/23/87 REV 2 - Name was PINBALL 64K CHEAP SQUEAK. CMM (FOR RK)

1/15/87 REV 1 - Removed CP5. CMM (FOR RK)

NOTES:	BALLY MIDWAY MFG. CO.
R. KOHAN	(64K) T. C. S. PINBALL
	M051-00114-E147
	A004-91855-E000
	SHEET 2 OF 2 REV

FB5, J2, JW12, L2, LED1, OSC1, Q9, R66, SW1, TP2, U14, VR1
 B8-C22, C40-C43, FB3-FB5, Q5, Q9, R16-R18, R23, R25, R62-R64, R66, JW12, U11, U14

JAN 87 14:23 USER/RK/64KTORBO 3. DRAH



DUAL DIS

DIM. TOLERANCES	
UNLESS OTHERWISE SPEC	
CONCENTRICITY TIR	0.02
FRACTIONAL	1/64
DECIMAL	0.005
HOLE DIA	+ 0.02 - 0.00
ANGLE	1/2°
DO NOT SCALE DWG	

DUAL DISPLAY MODULE
A084-91851-F000
M051-00365-F042 (Page 1 of 4)

DESIGNATION LIST

DESIGNATION NO.

DESCRIPTION

R1	1.5K 1/4W 5% CARBON
R2	820 OHM 1/4W 5% CARBON
R3	300K 1/4W 5% CARBON
R4	1.5K 1/4W 5% CARBON
R5	510 OHM 1/4W 5% CARBON
R6	300K 1/4W 5% CARBON
R7	1.5K 1/4W 5% CARBON
R8	820 OHM 1/4W 5% CARBON
R9	300K 1/4W 5% CARBON
R10 - R15	20K 1/4W 5% CARBON
R16	9.1K 1/4W 5% CARBON
R17	100K 1/4W 5% METAL FILM
R18	2.2K 1/4W 5% CARBON
R19	300K 1/4W 5% CARBON
R20	9.1K 1/4W 5% CARBON
R21	100K 1/4W 5% METAL FILM
R22	2.2K 1/4W 5% CARBON
R23	300K 1/4W 5% CARBON
R24	9.1K 1/4W 5% CARBON
R25	100K 1/4W 5% METAL FILM
R26	2.2K 1/4W 5% CARBON
R27	300K 1/4W 5% CARBON
R28	9.1K 1/4W 5% CARBON
R29	100K 1/4W 5% METAL FILM
R30	9.1K 1/4W 5% CARBON
R31	100K 1/4W 5% METAL FILM
R32	9.1K 1/4W 5% CARBON
R33	100K 1/4W 5% METAL FILM
R34	1.5K 1/4W 5% CARBON
R35	820 OHM 1/4W 5% CARBON
R36	300K 1/4W 5% CARBON
R37	300K 1/4W 5% CARBON
R38	1.5K 1/4W 5% CARBON
R39	1K 1/4W 5% CARBON
R40	100K 1/4W 5% CARBON
R41	100K 1/4W 5% CARBON
R42	1K 1/4W 5% CARBON
R43	1.5K 1/4W 5% CARBON
R44	300K 1/4W 5% CARBON
R45	1.5K 1/4W 5% CARBON
R46	820 OHM 1/4W 5% CARBON
R47	300K 1/4W 5% CARBON
R48	1.5K 1/4W 5% CARBON
R49	820 OHM 1/4W 5% CARBON
R50	300K 1/4W 5% CARBON
R51	100K 1/4W 5% METAL FILM
R52 - R57	2.2M 1/4W 5% CARBON
R58	9.1K 1/4W 5% CARBON

DUAL DISPLAY MODULE
A084-91851-F000
M051-00365-F042 (Page 2 of 4)

DESIGNATION LIST

<u>DESIGNATION NO.</u>	<u>DESCRIPTION</u>
R59	100K 1/4W 5% METAL FILM
R60	100K 1/4W 5% METAL FILM
R61	9.1K 1/4W 5% CARBON
R62	9.1K 1/4W 5% CARBON
R63	100K 1/4W 5% METAL FILM
R64	9.1K 1/4W 5% CARBON
R65	100K 1/4W 5% METAL FILM
R66	9.1K 1/4W 5% CARBON
R67	100K 1/4W 5% METAL FILM
R68	9.1K 1/4W 5% CARBON
R69	100K 1/4W 5% METAL FILM
R70	300K 1/4W 5% CARBON
R71	2.2K 1/4W 5% CARBON
R72	300K 1/4W 5% CARBON
R73	2.2K 1/4W 5% CARBON
R74	300K 1/4W 5% CARBON
R75	2.2K 1/4W 5% CARBON
R76	1.5K 1/4W 5% CARBON
R77	820 OHM 1/4W 5% CARBON
R78	300K 1/4W 5% CARBON
R79	1.5K 1/4W 5% CARBON
R80	820 OHM 1/4W 5% CARBON
R81	300K 1/4W 5% CARBON
R82	300K 1/4W 5% CARBON
R83	2.2K 1/4W 5% CARBON
R84	100K 1/4W 5% METAL FILM
R85	9.1K 1/4W 5% CARBON
R86	300K 1/4W 5% CARBON
R87	2.2K 1/4W 5% CARBON
R88	2.2K 1/4W 5% CARBON
R89	300K 1/4W 5% CARBON
R90	300K 1/4W 5% CARBON
R91	2.2K 1/4W 5% CARBON
R92	300K 1/4W 5% CARBON
R93	2.2K 1/4W 5% CARBON
R94	300K 1/4W 5% CARBON
R95	2.2K 1/4W 5% CARBON
R96	300K 1/4W 5% CARBON
R97	2.2K 1/4W 5% CARBON
R98	10M 1/4W 5% CARBON
R99	1M 1/4W 5% CARBON
R100	300K 1/4W 5% CARBON
R101	2.2K 1/4W 5% CARBON
R102	100K 1/4W 5% METAL FILM
R103	9.1K 1/4W 5% CARBON
R104	150K 1/4W 5% CARBON
R105	10M 1/4W 5% CARBON
R106	1M 1/4W 5% CARBON
R107	10K 1/4W 5% CARBON

DESIGNATION LIST

DESIGNATION NO.

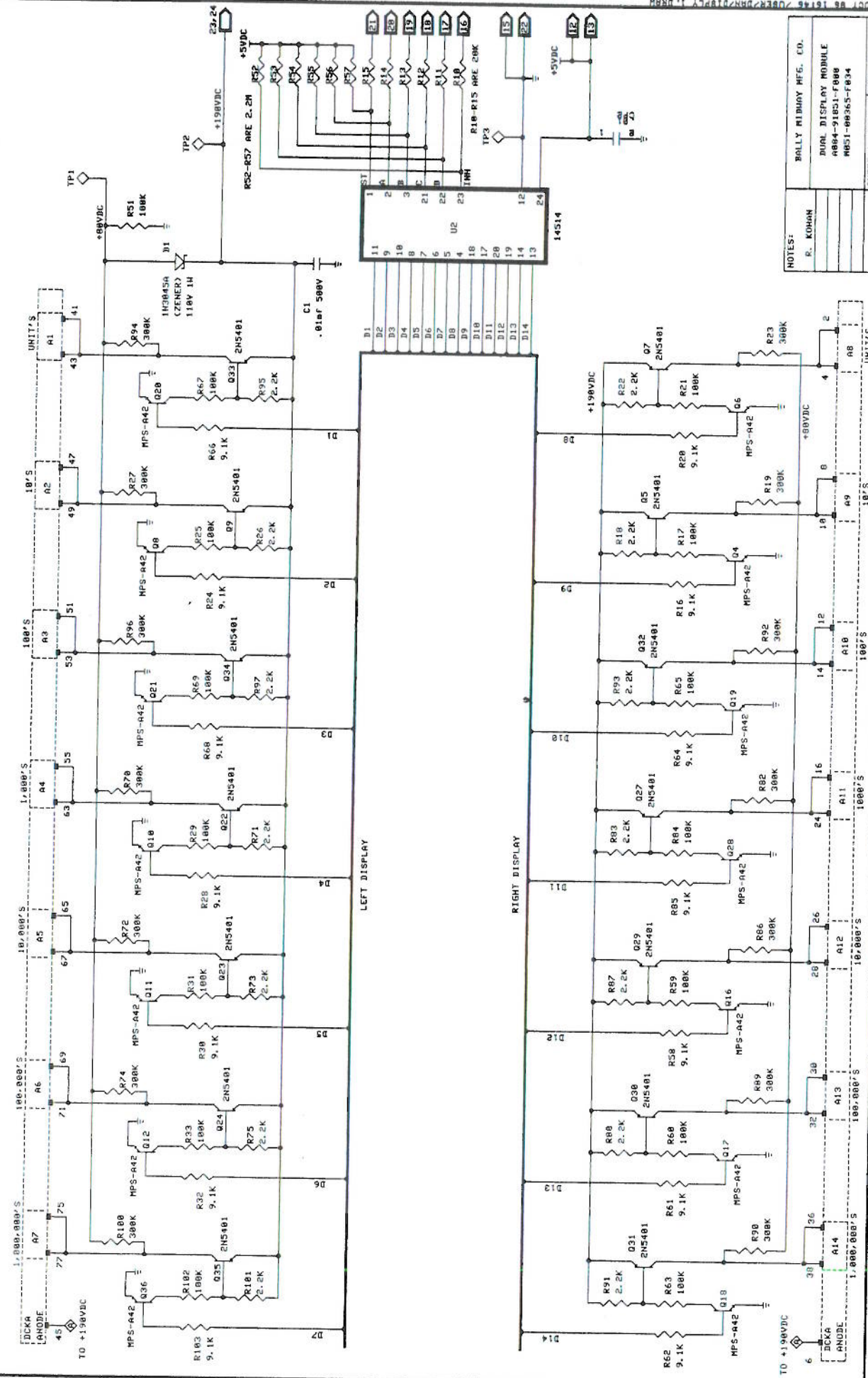
DESCRIPTION

C1	.01UF 500V CER.
C2	100PF 50V AX. CER.
CP1, CP2	.01UF 50V CER.
D1	1M110ZS10 110V ZENER DIODE
D2, D3	1N4148 DIODE
Q1 - Q4	MPS-A-42 NPN XSTR
Q5	2N5401 PNP XSTR
Q6	MPS-A-42
Q7	2N5401
Q8	MPS-A-42
Q9	2N5401
Q10 - Q21	MPS-A-42
Q22 - Q24	2N5401
Q25	MPS-A-42
Q26	MPS-A-42
Q27	2N5401
Q28	MPS-A-42
Q29 - Q35	2N5401
Q36 - Q40	MPS-A-42
U1	74HC373 CMOS OCTAL LATCH
U2	14514 1-16 DECODER
DISPLAY 1	14 DIGIT, 9 SEGMENT GAS DISCHARGE DISI
J1	.025 SQ. PINS
TP1, TP2, TP3	TEST LOOPS
	FOAM TAPE
	BUMPER
	DISPLAY MTG. CLIPS
	SCREWS
	DISPLAY MTG. PROCEDURE
	DUAL DISPLAY MODULE P.C.B.
M051-00365- A014	
A080-91851-F000	

DUAL DISPLAY MODULE
A084-91851-F000
M051-00365-F042 (Page 4 of 4)

CROSS REFERENCE LIST

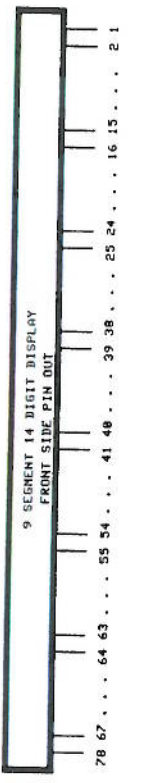
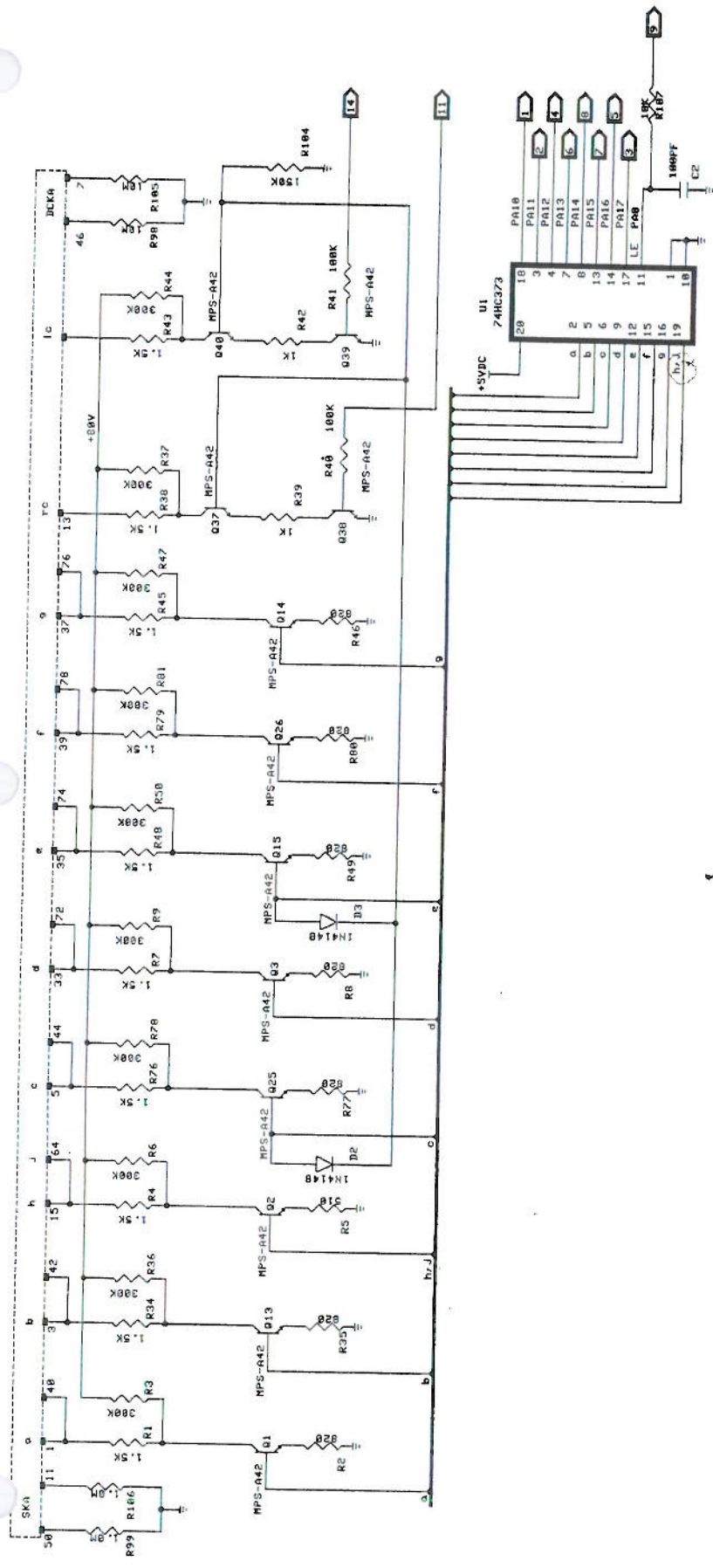
DESCRIPTION	QTY.	DESIGNATION NO.	PART NOS.
510 OHM 1/4W 5% CARBON	1	R5	100E-00005-0053
820 OHM 1/4W 5% CARBON	7	R2, R8, R35, R46 R49, R77, R80	100E-00005-0058
1K 1/4W 5% CARBON	2	R39, R42	100E-00005-0061
1.5K 1/4W 5% CARBON	10	R1, R4, R7, R34, R38 R43, R45, R48 R76, R79	100E-00005-0065
2.2K 1/4W 5% CARBON	14	R18, R22, R26, R71 R73, R75, R83, R87 R88, R91, R93, R95 R97, R101	100E-00005-0069
9.1K 1/4W 5% CARBON	14	R16, R20, R24, R28 R30, R32, R58, R61 R62, R64, R66, R68 R85, R103	100E-00005-0087
10K 1/4W 5% CARBON	1	R107	100E-00005-0088
20K 1/4W 5% CARBON	6	R10 - R15	100E-00005-0095
100K 1/4W 5% CARBON	2	R40, R41	100E-00005-0115
100K 1/4W 5% METAL FILM	15	R17, R21, R25, R29 R31, R33, R51, R59 R60, R63, R65, R67 R69, R84, R102	100E-00001-0011
150K 1/4W 5% CARBON	1	R104	100E-00005-0120
300K 1/4W 5% CARBON	24	R3, R6, R9, R19, R23 R27, R36, R37, R44, R47, R50, R70, R72, R74, R78, R81, R82, R86, R89, R90, R92, R94, R96, R100	100E-00005-0127
1.0M OHM 1/4W 5% CARBON	2	R99, R106	100E-00005-0140
2.2M OHM 1/4W 5% CARBON	6	R52 - R57	100E-00005-0147
10.0M OHM 1/4W 5% CARBON	2	R98, R105	100E-00005-0162
100PF AX. CER.	1	C2	0639-00800-0003
.01UF	2	CP1, CP2	0360-00800-0005
.01UF 500V	1	C1	0360-00800-0013
1N4148	2	D2, D3	103E-00002-0005
1M110ZS10 110V ZENER DIODE	1	D1	103E-00001-0028
2N5401 PNP XSTR	14	Q5, Q7, Q9, Q22, Q23 Q24, Q27, Q29, Q30 Q31, Q32, Q33, Q34 Q35	0360-00802-0006
MPS-A-42 NPN XSTR	26	Q1-Q4, Q6, Q8, Q10- Q21, Q25, Q26, Q28 Q36-Q40	0360-00802-0007
14514 1-16 DECODER	1	U2	0360-00803-0013
74HC373 OCTAL LATCH	1	U1	0365-00803-0015
.025SQ. PINS	23	J1	0304-00804-0009
14 DIGIT, 9 SEGMENT GAS DISCHARGE DISPLAY	1	DISPLAY 1	119E-00002-0006
TEST LOOPS	3	TP1 - TP3	0017-00007-0131
FOAM TAPE	2		0017-00081-0289
BUMPER	1		0017-00041-0598
DISPLAY MTG. CLIP	2		0365-00174-00X
SCREW	2		0017-00101-017
DISPLAY MTG. PROCEDURE	1		M051-00365-A014



NOTES:	
R. KOHMAN	BALLY MIDWAY MFG. CO.
	DUAL DISPLAY MODULE
	AB84-91831-F888
	M851-88363-F834
SHEET 1 OF 2 REV F	

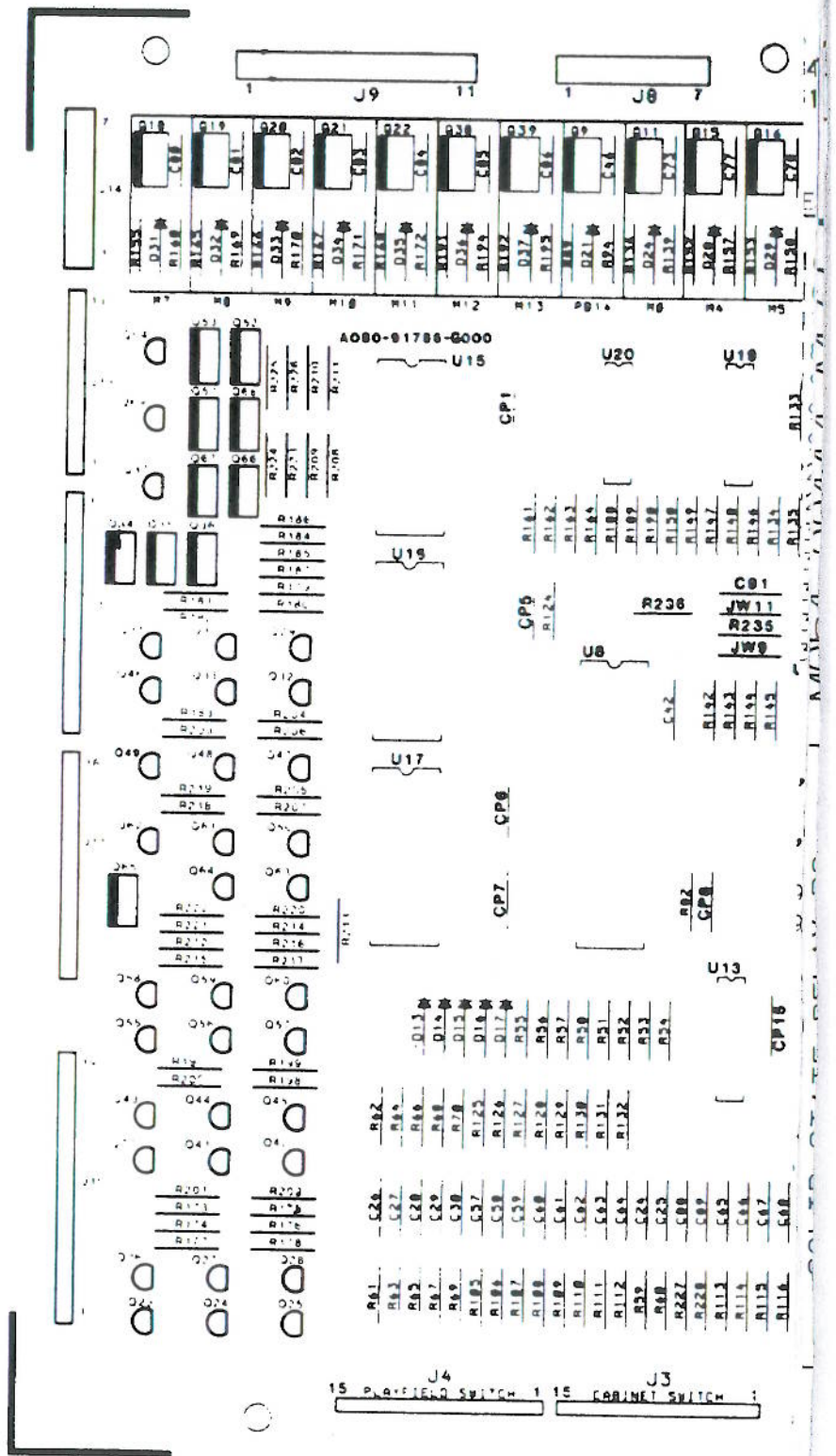
LEFT DISPLAY

RIGHT DISPLAY



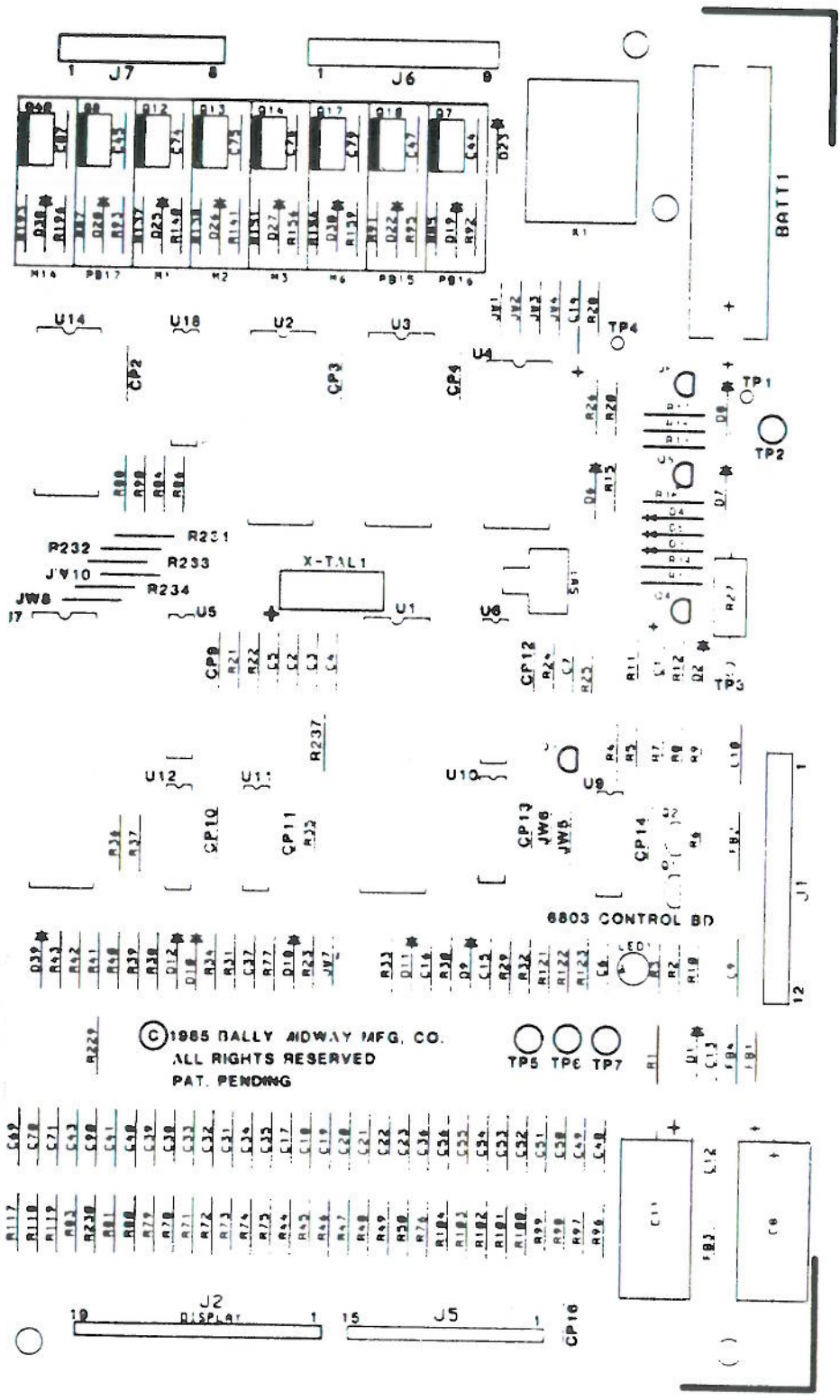
NOTES:

R. KOHAK	BALLY MIDWAY MFG. CO.
	DUAL DISPLAY MODULE
	AB84-91831-F000
	MS1-88365-F034
	SHEET 2 OF 2 REV F



THIS DWG

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		DATE		SCALE	
	DRN		04/08/86			
	MECH. CHK		MATT			
	ELEC. CHK		FINISH			



IS CONFIDENTIAL & PROPERTY OF MIDWAY MFG CO



ASSY DRAWING
6803 CONTROL BD.
A084-91786-G000

REVISIONS	
PART NO	M0-5-1-0-0-C-5-3-G-0-0-3

CROSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
27pf 50V CER.	2	C2, C3	0360-00800-0052
47pf 50V CER.	1	C7	0360-00800-0027
390pf 50V CER.	25	C24-C30, C57-C71 C88-C90	0360-00800-0001
470pf 1KV CER.	27	C17-C23, C31-C36, C38-C41, C48-C56, C91	0307-00800-0008
.002uf 1KV CER.	19	C44-C47, C73-C87	0360-00800-0012
.003uf 1KV CER.	1	C43	0360-00800-0025
.01uf 50V CER.	24	C6, C9, C10, C12, C13 C15, C16, C42, CP1-CP16	0365-00800-0014
.05uf 16V CER.	1	C37	0360-00800-0006
.1uf 50V CER.	1	C4	0360-00800-0058
4.7uf 25V TANT	2	C5, C14	0360-00800-0008
6.8uf 25V TANT	1	C1	0360-00800-0048
470uf 16V ELEC	1	C8	0360-00800-0022
470uf 25V ELEC	1	C11	0360-00800-0024
82 OHM 1/4W 5%	1	R9	100E-00005-0031
100 OHM 1/4W 5%	1	R8	100E-00005-0033
110 OHM 1/4W 5%	1	R83	100E-00005-0034
120 OHM 1/4W 5%	21	R24, R85, R87, R89, R91, R121, R136-R138, R151-R155, R165-R168, R191-R193	100E-00005-0035
270 OHM 1/4W 5%	1	R28	100E-00005-0044
330 OHM 1/4W 5%	23	R92-R95, R139-R141, R156-R160, R169-R172, R194-R196, R231-R234	100E-00005-0047
470 OHM 1/4W 5%	9	R96-R104	100E-00005-0051
560 OHM 1/4W 5%	1	R1	100E-00005-0054
680 OHM 1/4W 5%	1	R25	100E-00005-0056
750 OHM 1/4W 5%	1	R19	100E-00005-0057
910 OHM 1/4W 5%	1	R18	100E-00005-0059
1K 1/4W 5%	3	R3, R29, R32	100E-00005-0061
1.2K 1/4W 5%	60	R44-R50, R59-R61, R63, R65, R67, R69, R71-R76 R78-R82, R105-R119, R122 R133-R135, R146-R150, R161-R164, R188-R190, R227, R228, R230, R236	100E-00005-0063
1.5K 1/4W 5%	1	R20	100E-00005-0065
2K 1/4W 5%	46	R123, R173-R187 R197-R226	100E-00005-0068
2.7K 1/4W 5%	2	R2, R6	100E-00005-0071
3K 1/4W 5%	1	R17	100E-00005-0073
3.3K 1/4W 5%	18	R21-R23, P35, R51-R58, R124, R142-R145, R235	100E-00005-0074
3.9K 1/4W 5%	4	R84, R86, R88, R90	100E-00005-0077
.7K 1/4W 5%	8	R36-R43	100E-00005-0079
5.6 1/4W 5%	1	R16	100E-00005-0082

WARD
100
103

BSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
5 1/4W 5%	1	R5	100E-00005-0085
1 1/4W 5%	1	R4	100E-00005-0087
4 1/4W 5%	4	R12, R13, R30, R33	100E-00005-0088
2 1/4W 5%	2	R31, R34	100E-00005-0092
1 1/4W 5%	1	R7	100E-00005-0102
2 1/4W 5%	2	R10, R11	100E-00005-0104
14 1/4W 5%	14	R62, R64, R66, R68 R70, R125-R132, R229	100E-00005-0106
1 1/4W 5%	1	R15	100E-00005-0107
1 1/4W 5%	1	R14	100E-00005-0112
2K 1/4W 5%	2	R26, R237	100E-00005-0115
1K 1/4W 5%	1	R77	100E-00005-0126
1 OHM 1W 10%	1	R27	100E-00007-0014
158B ZENER	1	D1	103E-00001-0002
004	20	D19-D38	103E-00003-0005
148	13	D3, D6, D9-D18, D39	103E-00002-0005
606	5	D2, D4, D5, D7, D8	103E-00002-0006
904	3	Q2, Q4, Q6	104E-00001-0006
403	2	Q3, Q5	104E-00002-0006
060	35	Q23-Q33, Q37, Q41-Q50, Q54-Q64, Q69, Q70	104E-00015-0001
305	1	Q1	104E-00007-0003
1001	10	Q34-Q36, Q51-Q53 Q65-Q68	0360-00802-0009
302	19	Q7-Q22, Q38-Q40	0360-00802-0008
1	1	U11	0360-00803-0010
2	1	U13	0360-00803-0005
4B	3	U15-U17	0360-00803-0013
4	1	U12	0066-090RX-XXDX
6 RAM	1	U4	0365-00803-0013
3 MPU	1	U1	0360-00803-0048
1 PIA	2	U7, U8	0360-00803-0017
S04	1	U10	0A15-00803-0010
S10	1	U9	0A89-00803-0007
S154	1	U14	0360-00803-0024
CT245	1	U5	0365-00803-0014
S373	1	U6	0A89-00803-0006
081	3	U18-U20	0360-00803-0007
80 MHz CRYSTAL	1	XTAL-1	109E-00001-0003
GREEN	1	LED 1	0017-00007-0131
T POINTS	7	TP1-TP7	0017-00007-0131
TCH P.B.	1	SW1	0017-00032-0038
TERY 3.6V	1	BATT-1	0017-00003-0172
0 OHM RES. JUMPER	5	JW2, JW4, JW6, JW8, JW10	117E-00001-0001
AY 48VDC	1	K1	114E-00001-0011
PIN I.C. SOCKET	3	XU1, XU7, XU8	110E-00001-0011
PIN I.C. SOCKET	2	XU2, XU3	110E-00001-0010
PIN I.C. SOCKET	1	XU4	110E-00001-0007
RITE BEAD	4	FR1-FR4	0316-00804-0002

DESIGNATION LIST

<u>DESIGNATION</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>	<u>DE</u>
C1	6.8UF 25V TANT.	R28	270 OHM 1/4W 5%	R1
C2,C3	27PF 50V CER.	R29	1K 1/4W 5%	R1
C4	.1UF 50V CER.	R30	10K 1/4W 5%	R1
C5	4.7UF 25V TANT.	R31	15K 1/4W 5%	R1
C6	.01UF 50V CER.	R32	1K 1/4W 5%	R1
C7	47PF 50V CER.	R33	10K 1/4W 5%	R1
C8	470UF 16V FLEC.	R34	15K 1/4W 5%	R1
C9,C10	.01UF 50V CER.	R35	3.3K 1/4W 5%	R2
C11	470UF 25V FLEC.	R36 - R43	4.7K 1/4W 5%	R2
C12,C13	.01UF 50V CER.	R44 - R50	1.2K 1/4W 5%	R2
C14	4.7UF 25V TANT.	R51 - R58	3.3K 1/4W 5%	R2
C15,C16	.01UF 50V CER.	R59 - R61	1.2K 1/4W 5%	R2
C17 - C23	470PF 1KV CER.	R62	56K 1/4W 5%	R2
C24 - C30	390PF 50V CER.	R63	1.2K 1/4W 5%	R2
C31 - C36	470PF 1KV CER.	R64	56K 1/4W 5%	D1
C37	.05UF 16V CER.	R65	1.2K 1/4W 5%	D2
C38 - C41	470PF 1KV CER.	R66	56K 1/4W 5%	D3
C42	.01UF 50V CER.	R67	1.2K 1/4W 5%	D4,
C43	.003UF 1KV CER.	R68	56K 1/4W 5%	D6
C44 - C47	.002UF 1KV CER.	R69	1.2K 1/4W 5%	D7,
C48 - C56	470PF 1KV CER.	R70	56K 1/4W 5%	D9
C57 - C71	390PF 50V CER.	R71 - R76	1.2K 1/4W 5%	D19
C73 - C87	.002 1KV CER.	R77	270K 1/4W 5%	D39
C88 - C90	390PF 50V CER.	R78 - R82	1.2K 1/4W 5%	01
C91	470PF 1KV CER.	R83	110 OHM 1/4W 5%	02
CP1 - CP16	.01 50V CER.	R84	3.9K 1/4W 5%	03
R1	560 OHM 1/4W 5%	R85	120 OHM 1/4W 5%	04
R2	2.7K 1/4W 5%	R86	3.9K 1/4W 5%	05
R3	1K 1/4W 5%	R87	120 OHM 1/4W 5%	06
R4	9.1K 1/4W 5%	R88	3.9K 1/4W 5%	07
R5	7.5K 1/4W 5%	R89	120 OHM 1/4W 5%	023
R6	2.7K 1/4W 5%	R90	3.9K 1/4W 5%	034
R7	39K 1/4W 5%	R91	120 OHM 1/4W 5%	037
R8	100 OHM 1/4W 5%	R92 - R95	330 OHM 1/4W 5%	038
R9	82 OHM 1/4W 5%	R96 - R104	470 OHM 1/4W 5%	041
R10,R11	47K 1/4W 5%	R105 - R119	1.2K 1/4W 5%	051
R12,R13	10K 1/4W 5%	R121	120 OHM 1/4W 5%	054
R14	82K 1/4W 5%	R122	1.2K 1/4W 5%	065
R15	62K 1/4W 5%	R123	2K 1/4W 5%	069
R16	5.6K 1/4W 5%	R124	3.3K 1/4W 5%	U1
R17	3K 1/4W 5%	R125 - R132	56K 1/4W 5%	U4
R18	910 OHM 1/4W 5%	R133 - R135	1.2K 1/4W 5%	U5
R19	750 OHM 1/4W 5%	R136 - R138	120 OHM 1/4W 5%	U6
R20	1.5K 1/4W 5%	R139 - R141	330 OHM 1/4W 5%	U7,U
R21 - R23	3.3K 1/4W 5%	R142 - R145	3.3K 1/4W 5%	U9
R24	120 OHM 1/4W 5%	R146 - R150	1.2K 1/4W 5%	U10
R25	680 OHM 1/4W 5%	R151 - R155	120 OHM 1/4W 5%	U11
R26	100K 1/4W 5%	R156 - R160	330 OHM 1/4W 5%	U12
R27	82 OHM 1W 10%	R161 - R164	1.2K OHM 1/4W 5%	U13
				U14

CONTROL BOARD

-91786-G000

-00C53-G003

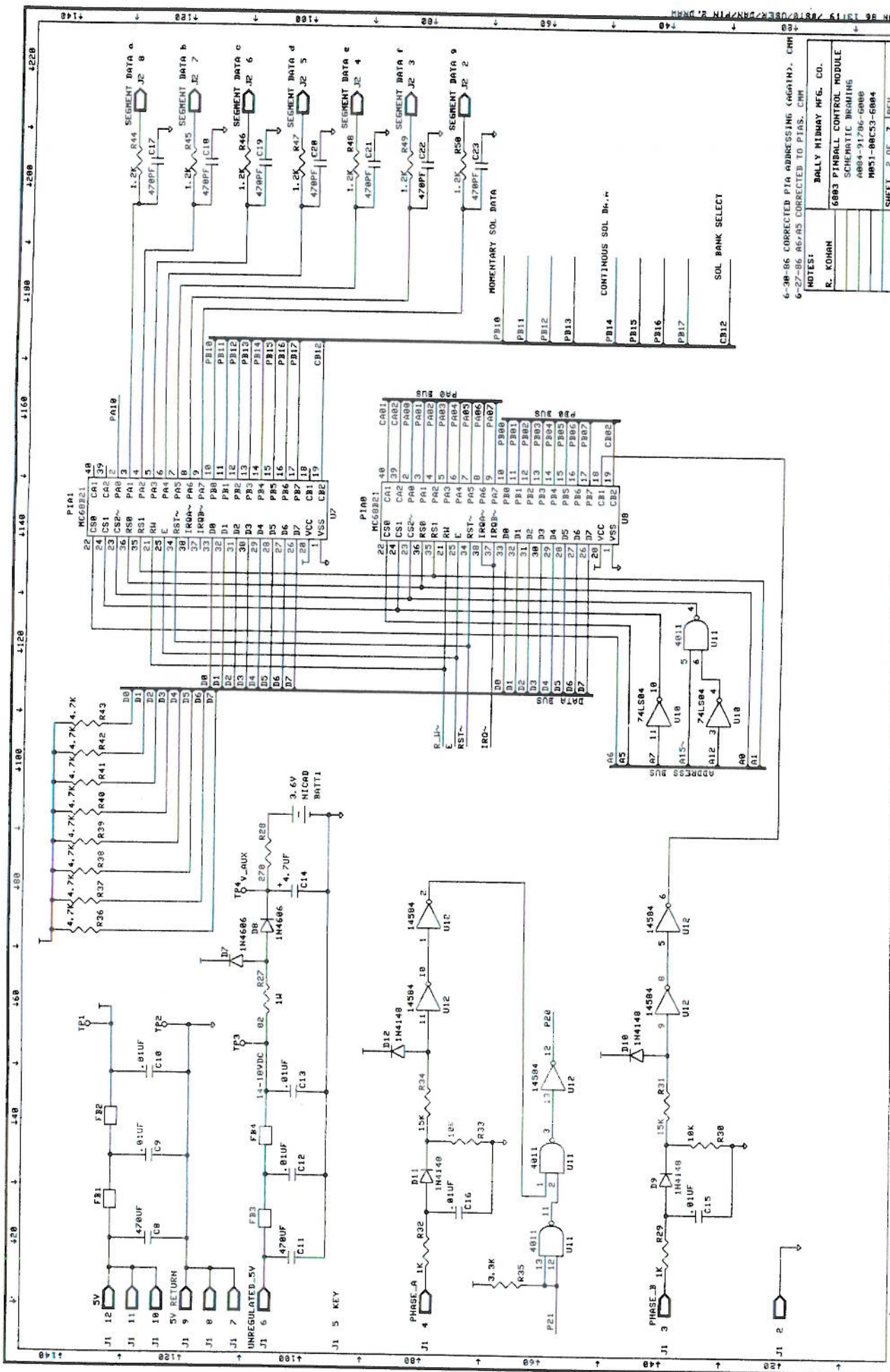
<u>SIGNATION</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>
55 - R168	120 OHM 1/4W 5%	U15 - U17	4514B
59 - R172	330 OHM 1/4W 5%	U18 - U20	CA3081
73 - R187	2K 1/4W 5%	XTAL-1	3.580 MHZ CRYSTAL
88 - R190	1.2K 1/4W 5%	LED 1	LED GREEN
91 - R193	120 OHM 1/4W 5%	TP1 - TP7	TEST POINTS
94 - R196	330 OHM 1/4W 5%	SW1	SWITCH P.B.
97 - R226	2K 1/4W 5%	BATT-1	BATTERY 3.6V
97, R228	1.2K 1/4W 5%	JW2	ZERO OHM RES. JUMPER
99	56K 1/4W 5%	JW4	ZERO OHM RES. JUMPER
90	1.2K 1/4W 5%	JW6	ZERO OHM RES. JUMPER
91 - R234	330 OHM 1/4W 5%	JW8	ZERO OHM RES. JUMPER
95	3.3K 1/4W 5%	JW10	ZERO OHM RES. JUMPER
96	1.2K 1/4W 5%	K1	RELAY 48V DC
97	100K OHM 1/4W 5%	XU1, XU7, XU8	40 PIN IC SOCKET
	1N958B	XU2, XU3	28 PIN IC SOCKET
	1N4606	XU4	24 PIN IC SOCKET
	1N4148	FB1 - FB4	FERRITE BEAD
D5	1N4606	J1	11 - .045 SQ. PINS
	1N4148	J2	18 - .025 SQ. PINS
D8	1N4606	J3	14 - .025 SQ. PINS
- D18	1N4148	J4	14 - .025 SQ. PINS
- D38	1N4004	J5	14 - .025 SQ. PINS
	1N4148	J6	8 - .045 SQ. PINS
	2N5305	J7	7 - .045 SQ. PINS
	2N3904	J8	6 - .045 SQ. PINS
	2N4403	J9	10 - .045 SQ. PINS
	2N3904	J10	18 - .025 SQ. PINS
	2N4403	J11	17 - .025 SQ. PINS
	2N3904	J12	16 - .025 SQ. PINS
- Q22	SF9302	J13	12 - .025 SQ. PINS
- Q33	2N5060	J14	5 - .045 SQ. PINS
- Q36	MCR 106-1	P/O BATT-1	TY-WRAP
	2N5060	6803 CONTROL BD.	P.C. BOARD
- Q40	SF9302		
- Q50	2N5060		
- Q53	MCR 106-1		
- Q64	2N5060		
- Q68	MCR 106-1		
Q70	2N5060		
	6803		
	6116 RAM		
	74HCT245		
	74LS373		
18	6821		
	74LS10		
	74LS04		
	4011		
	4584		
	4502		
	74LS154		

COI
-9
-01

6803 CONTROL BOARD
A084-91786-G000
M051-000C53-G003

CROSS REFERENCE LIST

<u>SIC</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
55	.025 SO. PINS	123	J2, J3, J4, J5, J10,	0304-00804-0009
59			J11, J12, J13	
73	.045 SO. PINS	47	J1, J6, J7, J8, J9, J14	0304-00804-0010
88	TY-WRAP	1	P/O BATT-1	0017-00042-0622
91	P.C. BOARD	1	6803 CONTROL BOARD	A080-91786-G000
94				
97	4-23-86 REV. 1.0 Fixed Part Number for 470PF Cap.			
97,				
99				
0				
1				
5				
6				
7				

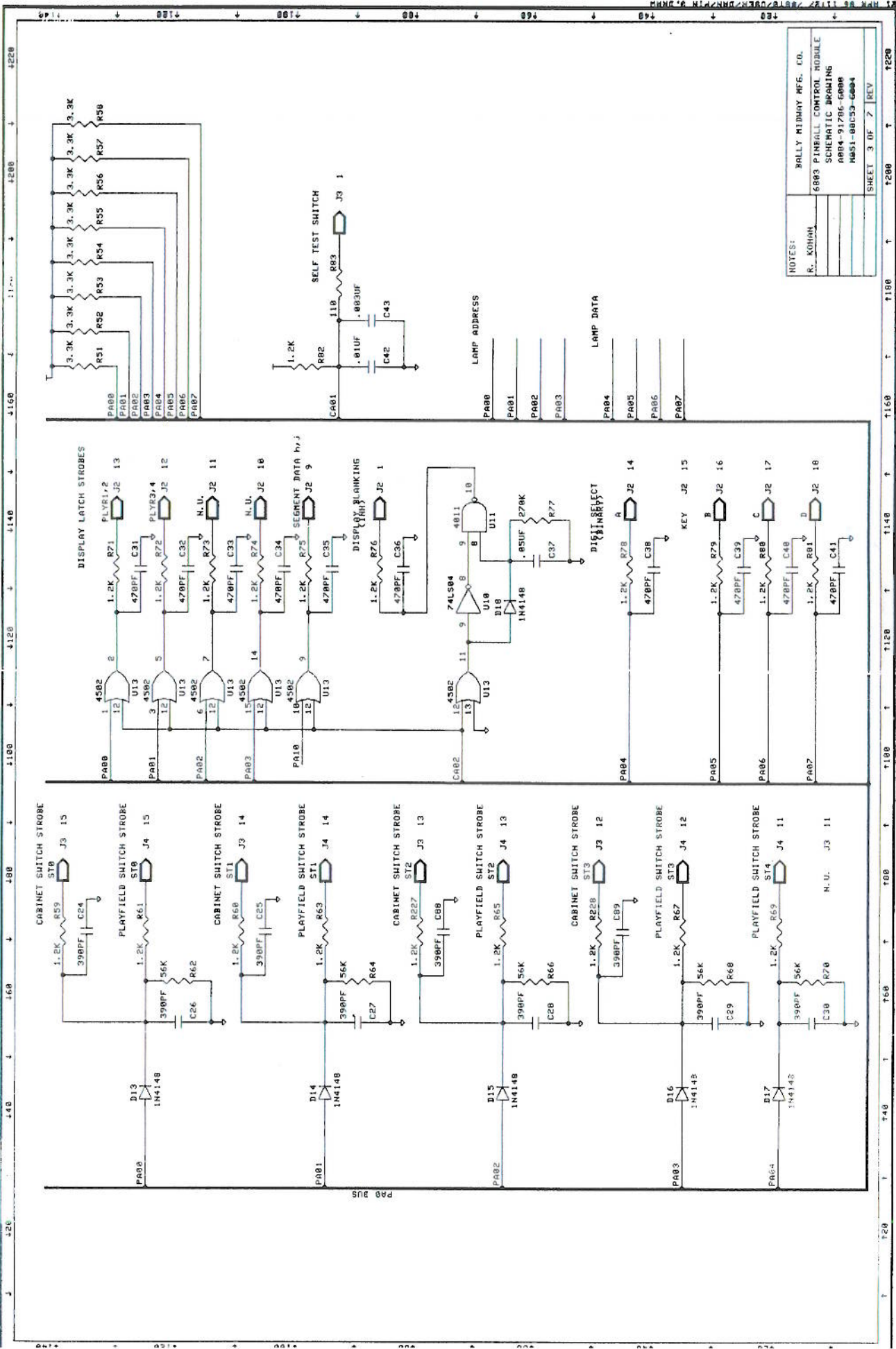


6-28-86 CORRECTED PIA ADDRESSING (AGAIN). CMM
 6-27-86 A6/A5 CORRECTED TO P1A5. CMM

NOTES:

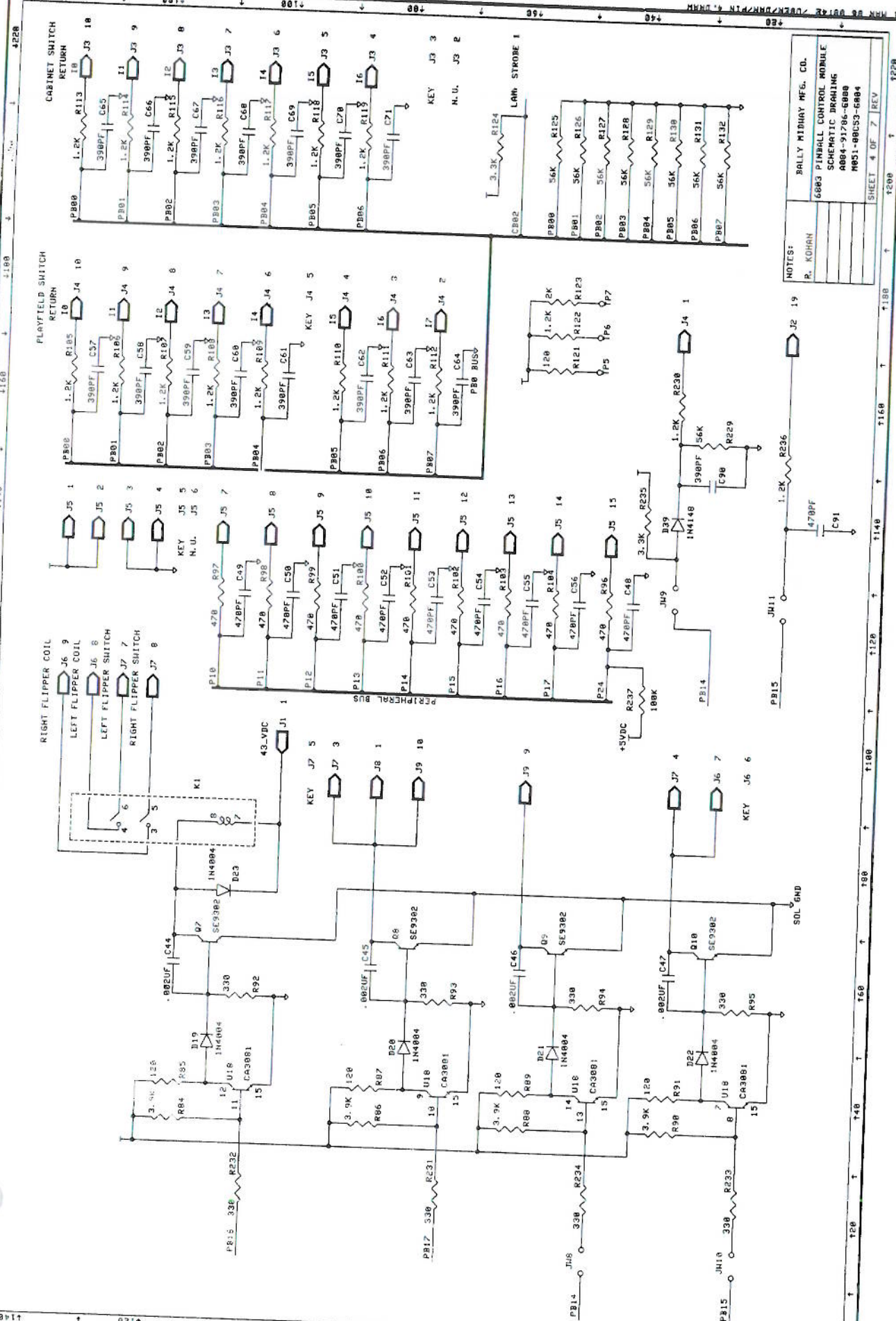
R. KOHRN
6803 PTHBALL CONTROL MODULE
SCHEMATIC DRAWING
4884-9196-0008
M051-88C53-6084
SHEET 2 OF 7 REV

422B 420B 418B 416B 414B 412B 410B 408B 406B 404B 402B 400B 398B 396B 394B 392B 390B 388B 386B 384B 382B 380B 378B 376B 374B 372B 370B 368B 366B 364B 362B 360B 358B 356B 354B 352B 350B 348B 346B 344B 342B 340B 338B 336B 334B 332B 330B 328B 326B 324B 322B 320B 318B 316B 314B 312B 310B 308B 306B 304B 302B 300B 298B 296B 294B 292B 290B 288B 286B 284B 282B 280B 278B 276B 274B 272B 270B 268B 266B 264B 262B 260B 258B 256B 254B 252B 250B 248B 246B 244B 242B 240B 238B 236B 234B 232B 230B 228B 226B 224B 222B 220B 218B 216B 214B 212B 210B 208B 206B 204B 202B 200B 198B 196B 194B 192B 190B 188B 186B 184B 182B 180B 178B 176B 174B 172B 170B 168B 166B 164B 162B 160B 158B 156B 154B 152B 150B 148B 146B 144B 142B 140B 138B 136B 134B 132B 130B 128B 126B 124B 122B 120B 118B 116B 114B 112B 110B 108B 106B 104B 102B 100B 98B 96B 94B 92B 90B 88B 86B 84B 82B 80B 78B 76B 74B 72B 70B 68B 66B 64B 62B 60B 58B 56B 54B 52B 50B 48B 46B 44B 42B 40B 38B 36B 34B 32B 30B 28B 26B 24B 22B 20B 18B 16B 14B 12B 10B 8B 6B 4B 2B

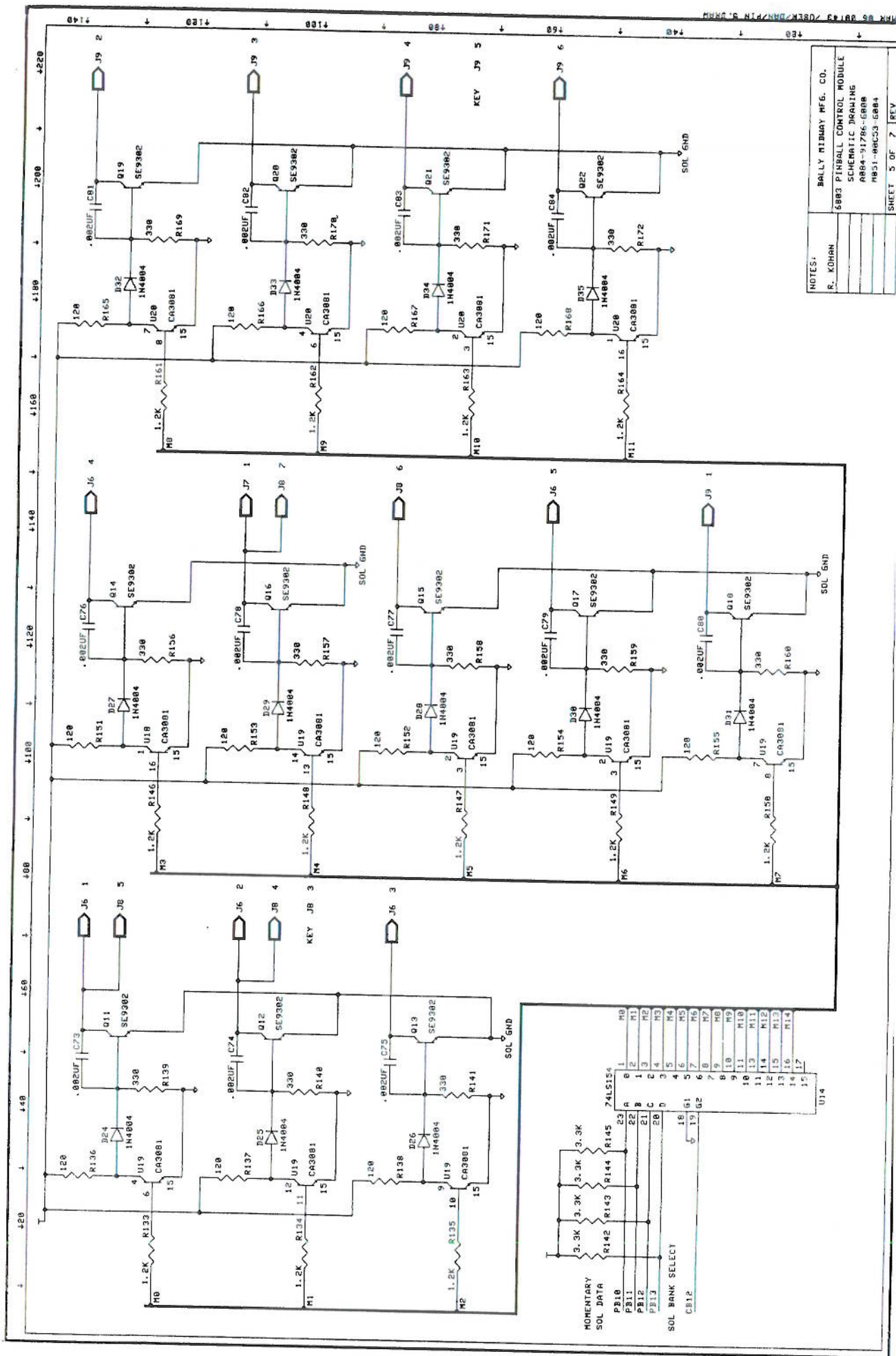


NOTES:
 R. KOHAN
 BALLY MIDWAY MFG. CO.
 6883 PINEALL CONTROL MODULE
 SCHEMATIC DRAWING
 8884-91786-6888
 8851-8853-6884
 SHEET 3 OF 7 REV

MOE 00111 A70



NOTES:	BALLY MIDWAY MFG. CO.
	R. KOHRN
	6883 PINBALL CONTROL MODULE
	SCHEMATIC DRAWING
	8884-91786-6888
	M851-88C53-6884
	SHEET 4 OF 7 REV



NOTES:
 BALLY RIBWAY MFG. CO.
 6883 PINBALL CONTROL MODULE
 SCHEMATIC DRAWING
 A864-91796-6888
 M851-86653 6884
 SHEET 5 OF 7 REV

LAMP DRIVER LOCATIONS

LAMP

WIRE	CONNECTOR	PIN	PHASE	WIRE	DESCRIPTION	DRIVER	CONNECTOR	PIN	PHAS
3	J13	12	B	96	50K	Q68	J13	10	A
3	J13	10	B	94	100K	Q37	J13	4	A
7	J13	4	B	85	150K	Q54	J13	11	A
3	J10	1	A	12	CITY "C"	Q51	J13	8	A
3	J10	1	B	12	CITY "C"	Q62	J11	4	B
0	J10	7	B	24	CITY "I"	Q45	J10	10	B
0	J10	7	A	24	CITY "I"	Q60	J10	13	B
5	J10	16	A	38	CITY "T"	Q67	J13	5	B
5	J10	16	B	38	CITY "T"	Q25	J10	3	A
4	J10	2	A	13	CITY "Y"	Q42	J10	9	A
4	J10	2	B	13	CITY "Y"	Q45	J10	10	A
9	J13	7	A	91	DOUBLE LEFT 2X	Q60	J10	13	A
6	J13	6	B	87	FLIPPER LIGHT	Q29	J11	8	A
1	J11	13	A	73	LEFT BOTTOM TARGET	Q46	J11	16	A
6	J13	6	A	87	LEFT GATE	Q61	J11	6	A
3	J11	3	B	59	LEFT KICKER	Q30	J11	12	A
8	J11	10	A	68	LEFT MIDDLE TARGET	Q47	J11	11	A
0	J11	7	A	63	LEFT RETURN 2X	Q62	J11	4	A
2	J11	14	A	74	LEFT SPOT	Q58	J10	19	B
9	J11	9	A	67	LEFT SPOT 1	Q58	J10	19	A
4	J11	2	A	58	LEFT SPOT 2	Q44	J10	12	A
3	J11	15	A	75	LEFT SPOT 3	Q44	J10	12	B
2	J13	13	B	97	LEFT THUMPER BUMPER	Q43	J10	11	A
3	J11	3	A	59	LEFT TOP TARGET	Q43	J10	11	B
4	J13	1	B	81	LEFT BACKBOX	Q27	J10	5	A
4	J13	1	A	81	LEFT HEADLIGHT	Q27	J10	5	B
1	J10	8	B	25	LEFT MIDDLE SAUCER 5K	Q26	J10	4	A
1	J10	8	A	25	LEFT TOP TARGET LEFT	Q26	J10	4	B
4	J11	2	B	58	MIDDLE SAUCER QUALIFY	Q59	J10	14	B
8	J11	10	B	68	MIDDLE FLIPPER LIGHT	Q59	J10	14	A
5	J11	1	B	48	MIDDLE SAUCER	Q57	J10	18	B
6	J10	17	B	41	MIDDLE SAUCER SPOT	Q57	J10	18	A
6	J13	3	B	84	MIDDLE THUMPER BUMPER	Q69	J13	7	B
6	J10	17	A	41	MIDDLE TOP TARGET LEFT	Q61	J11	6	B
1	J13	8	B	93	RIGHT BACKBOX	Q31	J11	13	B
0	J11	7	B	63	RIGHT DOUBLE	Q65	J11	1	A
5	J13	2	A	83	RIGHT GATE	Q33	J11	15	B
2	J11	14	B	74	RIGHT KICKER	Q35	J13	2	B
5	J10	3	B	14	RIGHT MIDDLE SAUCER	Q52	J13	13	A
6	J11	16	B	78	RIGHT SPOT	Q67	J13	5	A
0	J11	12	B	72	RIGHT SPOT 2	Q36	J13	3	A
7	J11	11	B	71	RIGHT SPOT 3	Q49	J11	9	B
9	J11	8	B	64	RIGHT TOP TARGET	Q54	J13	11	B
3	J13	12	A	96	ROLLOVER 1				

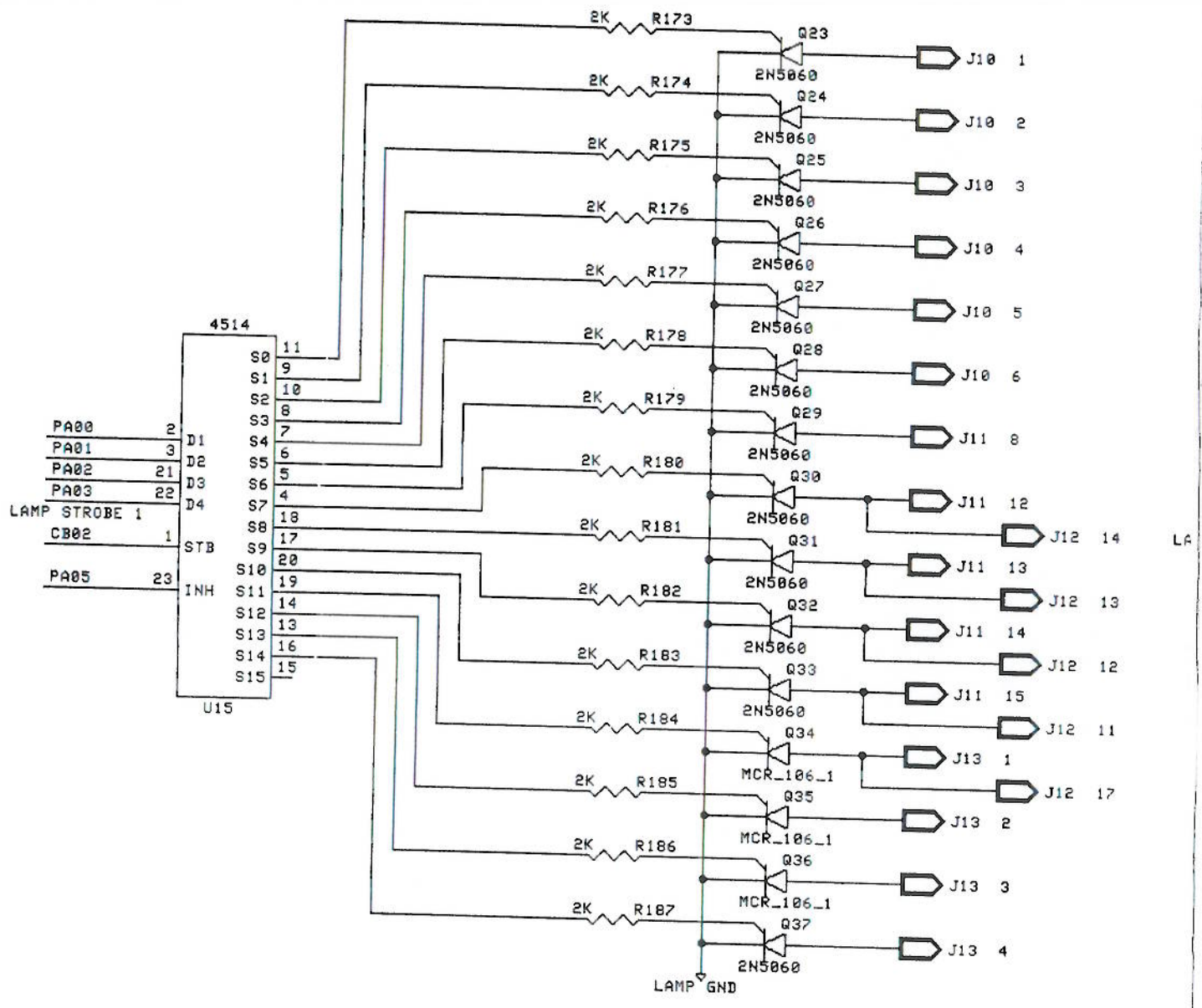
DRIVER LOCATIONS

SOLENOID DRIVER LOCATIONS

<u>E</u>	<u>WIRE</u>	<u>DESCRIPTION</u>	<u>TRANSISTOR</u>	<u>CONNECTOR PIN</u>	<u>DESCRIPTION</u>	<u>WIRE C</u>
94		ROLLOVER 2	Q11	J6-1	LEFT THUMPER BUMPER	31
85		ROLLOVER 3	Q12	J6-2	RIGHT THUMPER BUMPER	32
95		ROLLOVER 4	Q13	J6-3	MIDDLE THUMPER BUMPER	34
93		RIGHT HEADLIGHT	Q14	J6-4	LEFT SLING SHOT	35
61		RIGHT RETURN LANE	Q16	J7-1	RIGHT SLING SHOT	27
28		RIGHT TARGET BOTTOM	Q15	J8-6	TOP SAUCER	25
36		RIGHT TARGET MIDDLE	Q17	J6-5	TOP THUMPER BUMPER	36
86		RIGHT THUMPER BUMPER	Q18	J9-1	KICK TO PLAYFIELD	51
14		RIGHT TOP TARGET LEFT	Q19	J9-2	MIDDLE SAUCER	52
26		SHOOT AGAIN	Q20	J9-3	CAPTIVE FLIPPER	53
28		SHOOTOUT 1	Q21	J9-4	MIDDLE FLIPPER	54
36		SHOOTOUT 2	Q38	J9-7	RESERVED FOR GERMAN	57
64		SHOOTOUT 3	Q39	J9-8	OUTHOLE	58
78		SHOOTOUT 4	Q40	J9-11	KNOCKER	59
62		SHOOTOUT 5	Q8	J7-3	BACK LIGHT	24
72		SHOOTOUT 6	Q7	J6-9	* RIGHT FLIPPER	95
71		SHOOTOUT 100K	Q7	J6-8	* LEFT FLIPPER	90
61		SHOOTOUT SPECIAL				
45		SLICKER "C"				
45		SLICKER "C"				
32		SLICKER "E"				
32		SLICKER "E"				
31		SLICKER "I"				
31		SLICKER "I"				
18		SLICKER "K"				
18		SLICKER "K"				
15		SLICKER "L"				
15		SLICKER "L"				
37		SLICKER "R"				
37		SLICKER "R"				
43		SLICKER "S"				
43		SLICKER "S"				
91		SPECIAL				
62		RIGHT SPOT 1				
73		TOP FLIPPER LIGHT				
48		TOP SAUCER				
75		TOP SPOT LETTER				
83		TOP TARGET				
97		UPTOWN 1				
86		UPTOWN 2				
84		UPTOWN 3				
67		UPTOWN QUALIFIER				
95		XBALL				

* FLIPPERS CONNECTED THROUGH K1, THE FLIPPER RELAY.

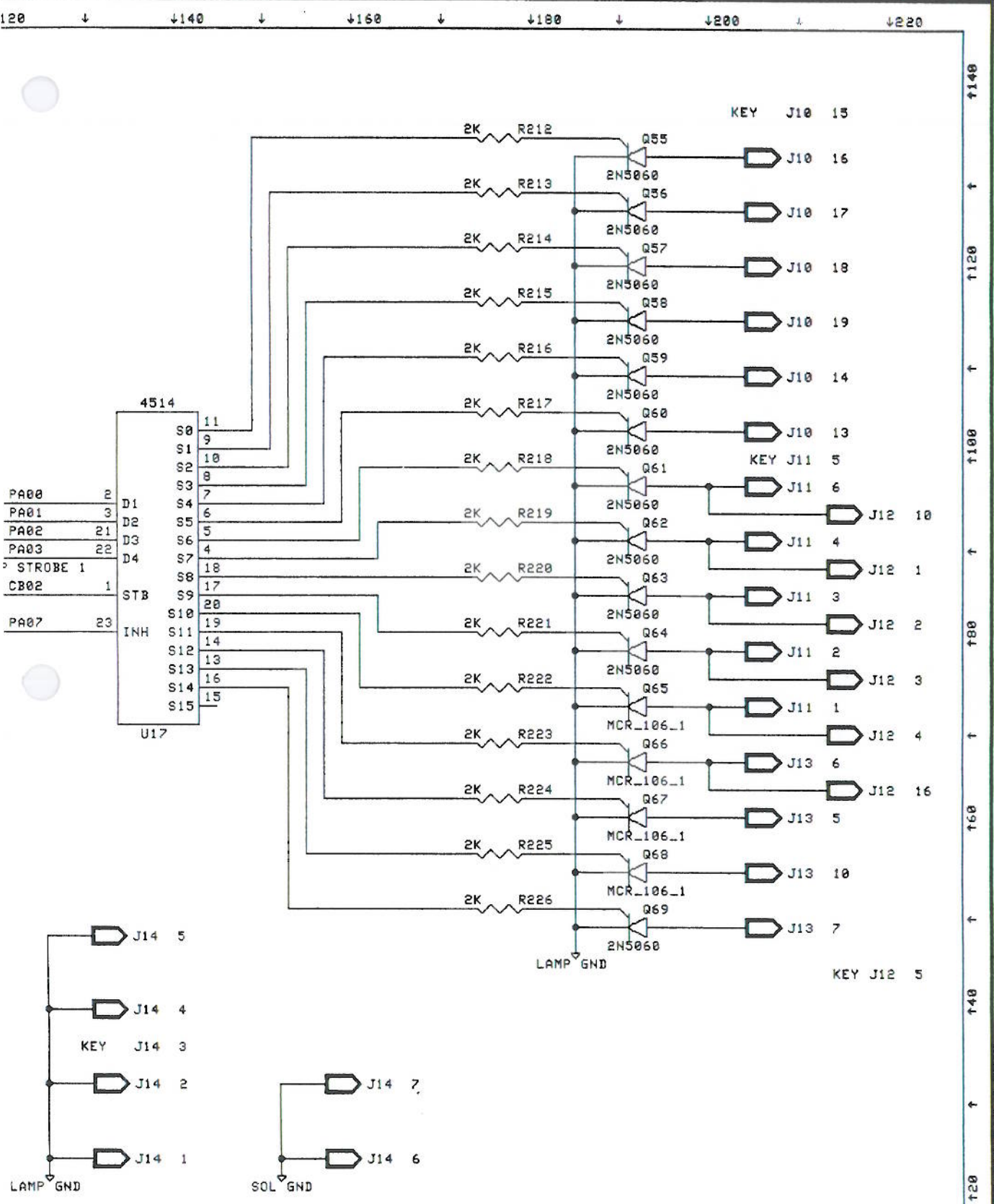
WIRE COLOR CODE	
1-RED -R-	6-BROWN -BR-
2-BLUE -BLU-	7-ORANGE -O-
3-YELLOW -Y-	8-BLACK -B-
4-GREEN	9-GRAY
5-WHITE -W-	0-NO TRACER
J-JUMPER	11-VIOLET
1-FIRST NUMBER-BODY COLOR	
2-SECOND NUMBER-TRACER COLOR	
EXAMPLE: 50-WHITE	
51-WHITE-RED	



- PA00 2
- PA01 3
- PA02 21
- PA03 22
- LAMP STROBE 1 D4
- CB02 1
- PA05 23

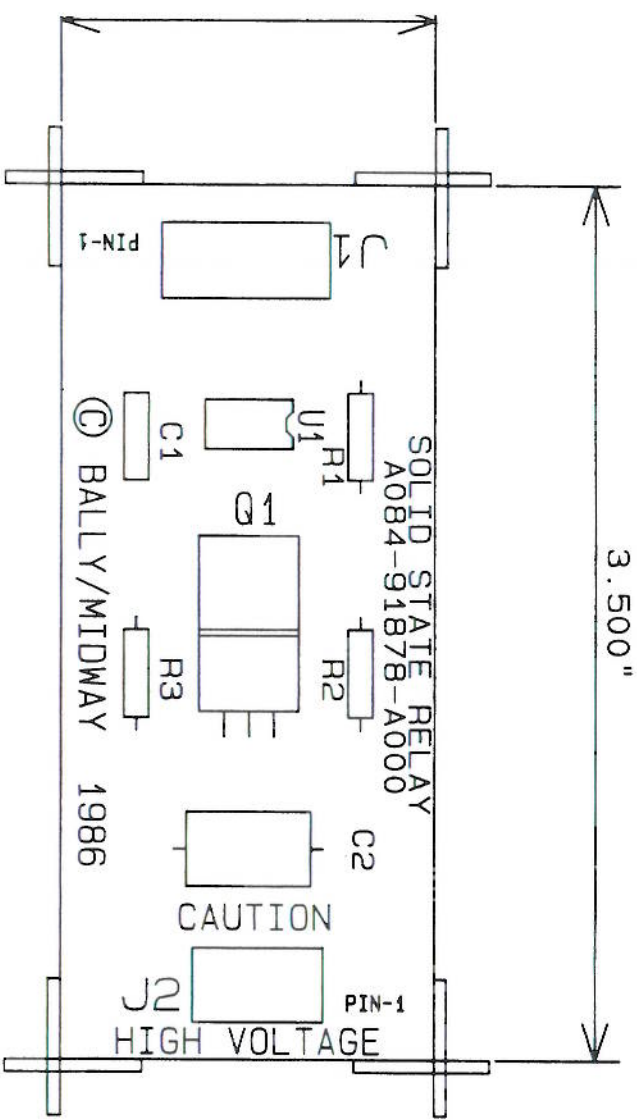
- 4514
- S0 11
 - S1 9
 - S2 10
 - S3 8
 - S4 7
 - S5 6
 - S6 5
 - S7 4
 - S8 18
 - S9 17
 - S10 20
 - S11 19
 - S12 14
 - S13 13
 - S14 16
 - S15 15
- U15

LAMP GND



NOTES:	BALLY MIDWAY MFG. CO.
R. KOHAN	6803 PINBALL CONTROL MODULE
	SCHEMATIC DRAWING
	A084-91786-G000
	M051-00053-G004
	SHEET 7 OF 7
	REV

11 MAR 86 08:46 USER/DAN/PIN 7.DRAW



DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION
C1	.1UF 50V AX. CER. CAP
C2	.1UF 400V POLYESTER CAP
R1	100 OHM 1/4W 5%
R2	180 OHM 1/4W 5%
R3	1.8K 1/4W 5%
Q1	T2322 TRIAC
U1	MOC3031 OPTO COUPLER
J1	KK156 MACHINE INSERT PINS
J2	CABLE CONNECTION
PCMH1-PCMH4	P.C. MTG. HARDWARE
A080-91878-A000	P.C. BOARD

CROSS REFERENCE LIST

DESCRIPTION	QTY.	DESIGNATION NO.	PART NOS.
.1UF 50V AX. CER.	1	C1	0C68-00800-0005
.1UF 400V POLYESTER	1	C2	0E35-00800-0001
100 OHM 1/4W 5%	1	R1	100E-00005-0033
180 OHM 1/4W 5%	1	R2	100E-00005-0039
1.8K 1/4W 5%	1	R3	100E-00005-0067
T2322 TRIAC	1	Q1	0365-00804-0019
MOC3031 OPTO COUPLER	1	U1	120E-00002-0002
KK156 PLUS	3	J1	0304-00804-0010
CABLE CONNECTION	1	J2	A639-00024-0000
P.C. MTG. HDR W	4	J2	0017-00042-0320
P.C. BOARD	1	PCMH1-PCMH4	A080-91878-A000

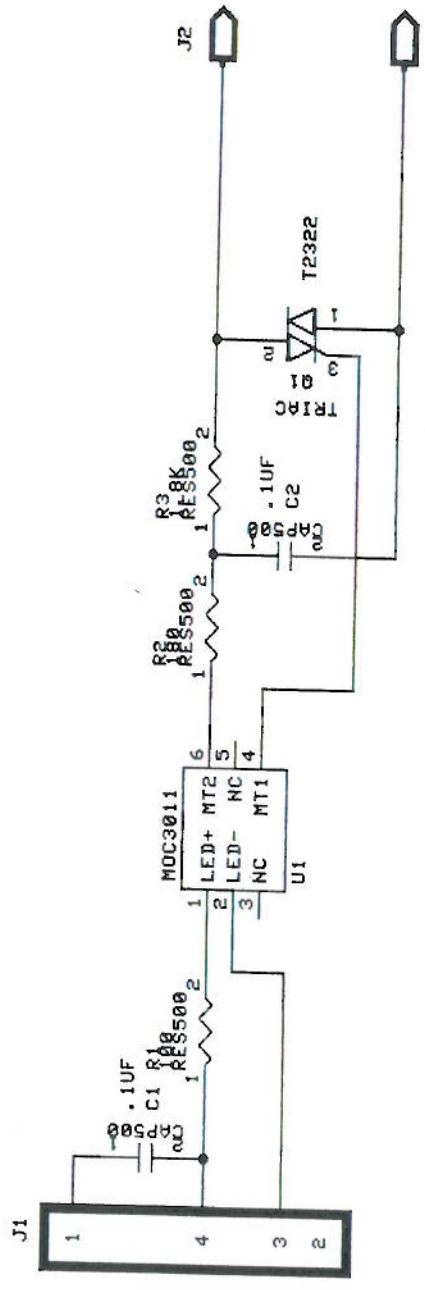
SOLID STATE RELAY
A084-91878-A000
M051-00114-A174

Revised 12-2-86 RK

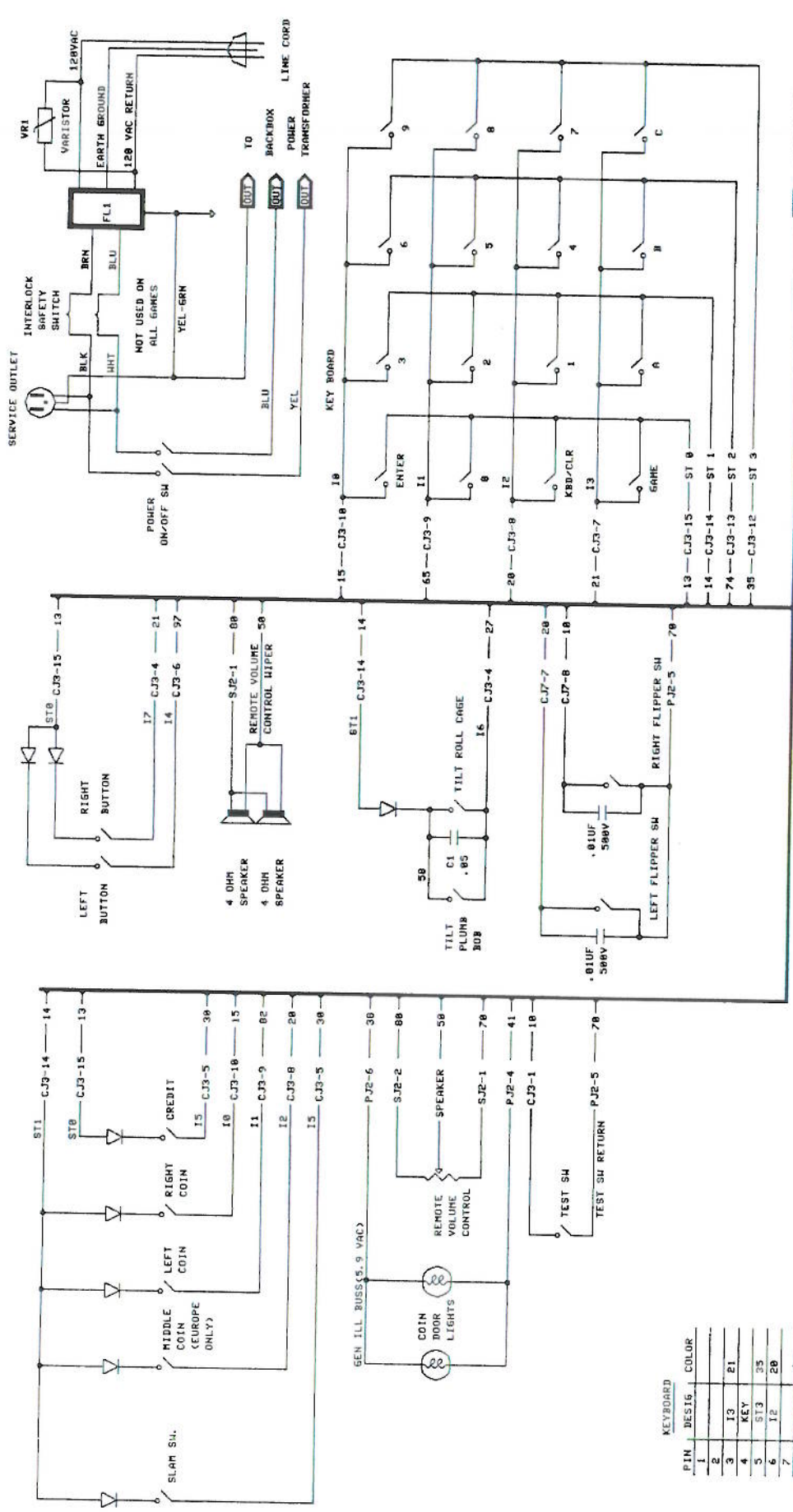
BALLY MIDWAY MFG. CO.

062 J.S. ASSEMBLY DRAWING

06 OCT 86 1018 / USER/KAP/STRANGE/SSK I.DRAW



NOTES:	BALLY MIDWAY MFG. CO.
R. KOHAN	SOLID STATE RELAY
Released	A084-51278-A008
12-2-86	M051-00114-A175
	SHEET 1 OF 1
	REV



NOTES:
 D. STERN
 12/17/71

BALLY HIGHWAY MFG. CO.
 CITY SLICKER
 CABINET DIAGRAM
 M051-80E79-A003

SHEET 1 OF 1 REV

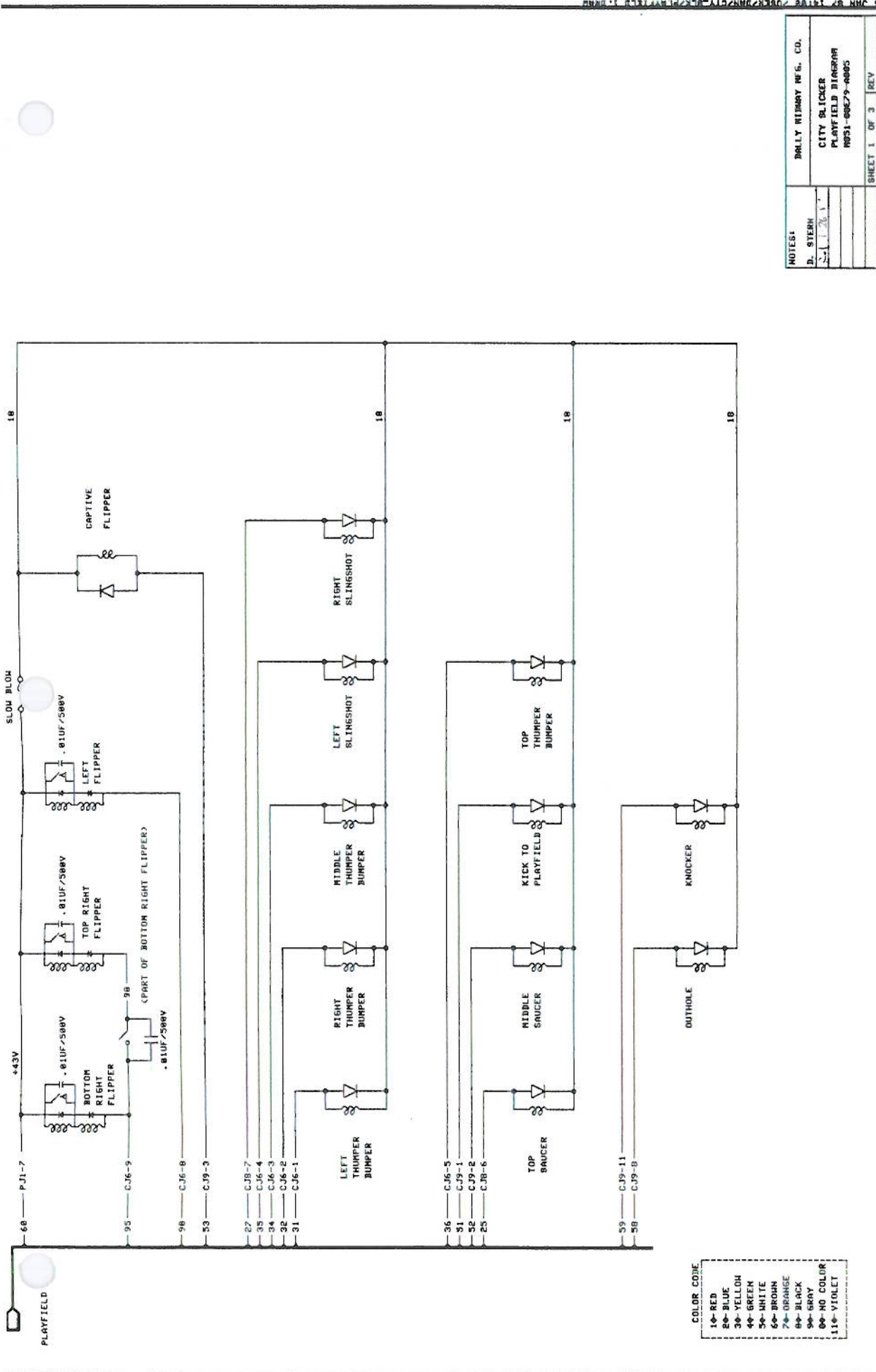
COLOR CODE

1=RED	7=ORANGE
2=BLUE	8=BLACK
3=YELLOW	9=GRAY
4=GREEN	0=NO TRACE
5=WHITE	11=VIOLET
6=BRONN	

KEYBOARD

PIN	DESIG	COLOR
1		
2		
3	I3	21
4	KEY	
5	ST3	35
6	I2	20
7		
8	ST2	74
9		
10	I1	65
11	ST1	14
12		
13	I8	15
14		
15	ST0	13

TO BACK BOX



NOTES:
 D. STERN
 2-1-26-1
 BALLY WIMBAY MFG. CO.
 CITY SLICKER
 PLAYFIELD BLOWER
 M051-00279-0005
 SHEET 1 OF 3 REV

COLOR CODE
 10- RED
 20- BLUE
 30- YELLOW
 40- GREEN
 50- WHITE
 60- BROWN
 70- ORANGE
 80- BLACK
 90- GRAY
 00- NO COLOR
 110- VIOLET

TO PLAYFIELD LIGHTS SHEET

10 — CJ4-18

20 — CJ4-9

30 — CJ4-8

40 — CJ4-7

50 — CJ4-6

60 — CJ4-4

70 — CJ4-3

80 — CJ4-2

31 — CJ4-15

32 — CJ4-14

33 — CJ4-13

34 — CJ4-12

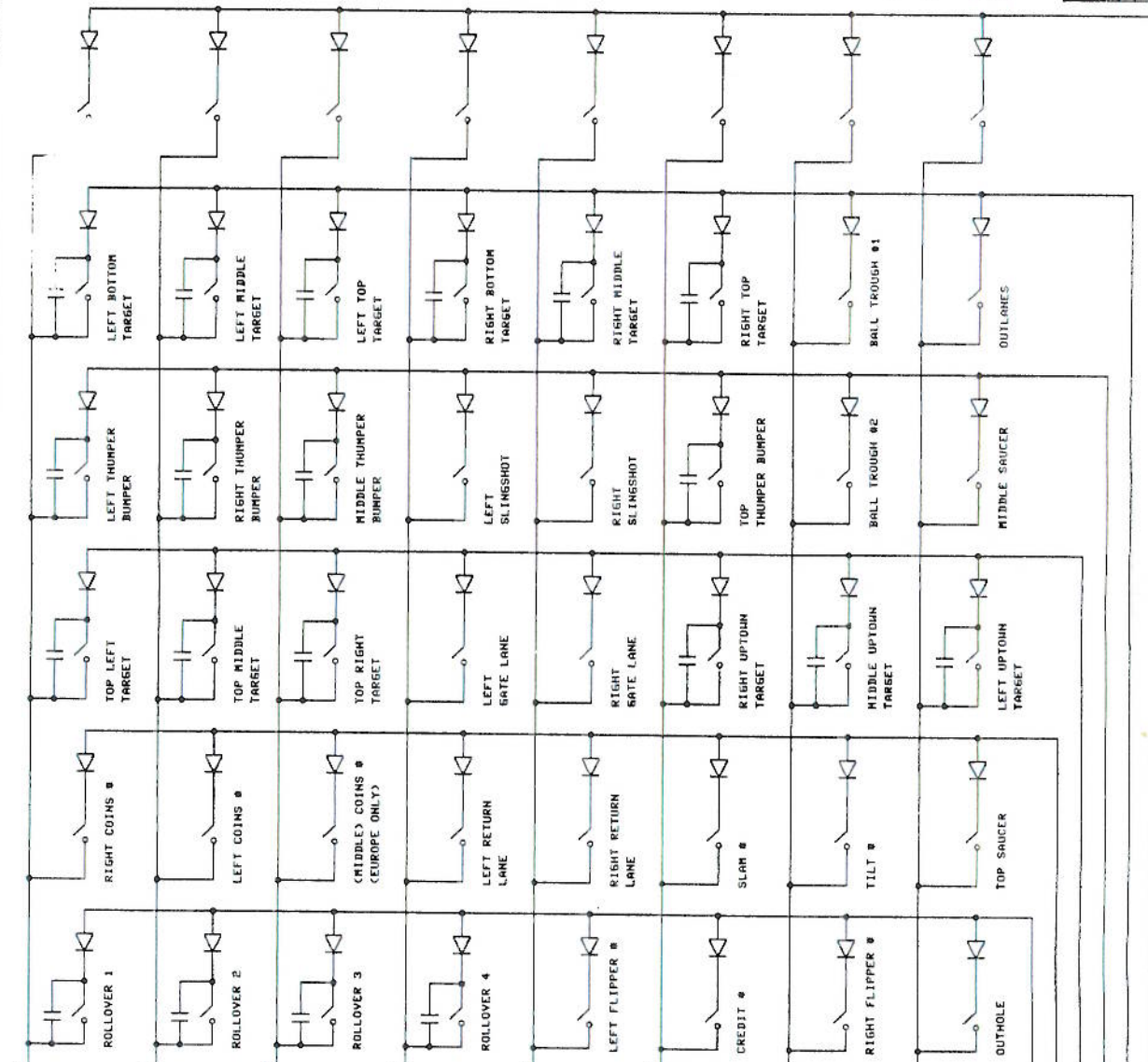
35 — CJ4-11

36 — CJ4-10

37 — CJ4-9

38 — CJ4-8

39 — CJ4-7



COLOR CODE	
1-RED	6-BRONN
2-BLUE	7-ORANGE
3-YELLOW	8-BLACK
4-GREEN	9-GRAY
5-WHITE	10-NO TRACE
	11-VIOLET

NOTE 1. ALL SWITCH BIDDERS ARE 1N4148

NOTE 2. ALL CAPACITORS ARE .05 MF

NOTE 3. * INDICATES NOT USED ON PLAYFIELD. DRAWING ONLY TO SHOW RESPECTIVE CABINET SWITCH POSITION IN SWITCH MATRIX.

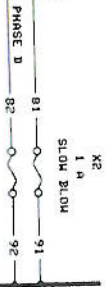
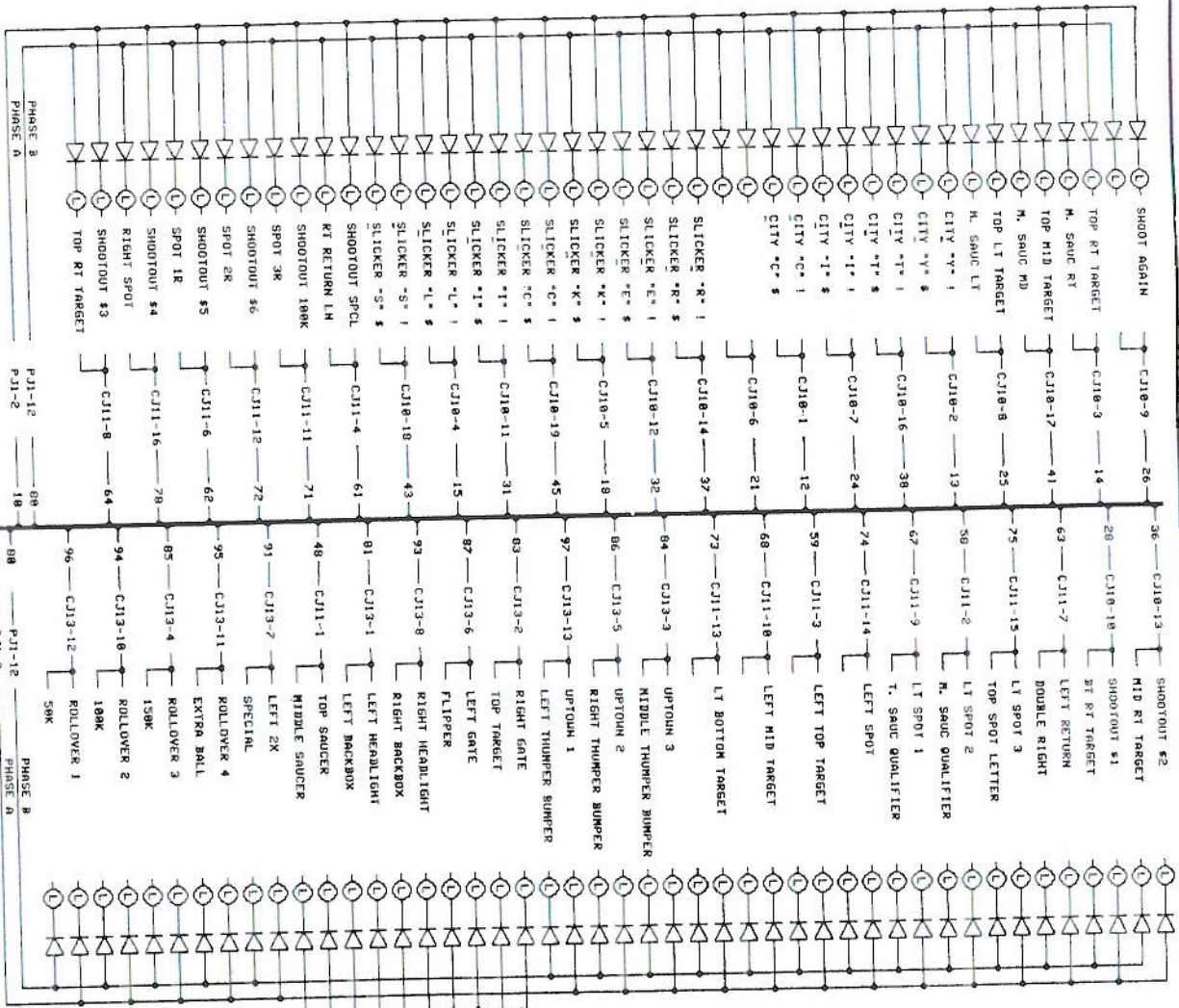
NOTES:
D. STEIN
1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100
BALLY MIDWAY MFG. CO.
CITY SLICKER
PLAYFIELD DRAWING
M051-00E79-00M5

COLOR CODE

1- RED	64- BROWN
2- BLUE	74- ORANGE
3- YELLOW	84- BLACK
4- GREEN	94- GRAY
5- WHITE	04- NO COLOR
	114- VIOLET

NOTE: DIODES ARE 1N4004

NOTE:
1- LOWER LIGHT IN
CITY SLICKER
2- UPPER LIGHT IN
CITY SLICKER



NOTES:

B. STERN	BILLY WIDMAY MFG. CO.
	CITY SLICKER
	PLAYFIELD DIAGRAM
	NR51-00E79-0005
	SHEET 3 OF 3
	REV

BALLY/MIDWAY'S CITY SLICKER

#E79

ROM/EPROM PART NUMBERS

UNPROGRAMMED CONTROL BOARD A084-91786-G000

PROGRAMMED CONTROL BOARD A084-91786-AE79

POS.	MIDWAY PART NUMBER
U2	0E79-00803-0002
U3	0E79-00803-0003

JUMPERS	IN	OUT
JW1		**
JW2	**	
JW3		**
JW4	**	
JW5		**
JW6	**	
JW7		**
JW8		**
JW9	**	
JW10	**	
JW11		**

UNPROGRAMMED TURBO CHEAP SQUEAK FOR PINBALL A084-91855-E000

PROGRAMMED TURBO CHEAP SQUEAK FOR PINBALL A084-91855-AE79

POS.	MIDWAY PART NUMBER
U7	0E79-00803-0004

JUMPERS	IN	OUT
JW1		**
JW2	**	
JW3	**	
JW4	**	
JW5	**	
JW6	**	
JW7	**	
JW8	**	
JW9	**	
JW10		**
JW11	**	
JW12		**

M051-00E79-A008	REVISIONS
01-20-87	RELEASE FOR PRODUCTION



DISPLAYS-D

PLYR 1&2

PLYR 3&4

DIJ1

DRJ1

12	— CJ2-9	1
13	— CJ2-8	2
14	— CJ2-2	3
15	— CJ2-7	4
18	— CJ2-3	5
20	— CJ2-6	6
21	— CJ2-4	7
23	— CJ2-5	8
24	— CJ2-13	9
KEY	— KEY	10
18	— CJ2-3	11
28	— PJ4-7	12
N/U	— N/U	13
14	— CJ2-2	14
N/U	— N/U	15
30	— CJ2-1	16
31	— CJ2-18	17
32	— CJ2-17	18
34	— CJ2-16	19
35	— CJ2-14	20
24	— CJ2-13	21
40	— PJ4-6	22
10	— PJ4-9	23
	— N/U	24

12	— CJ2-9	1
13	— CJ2-8	2
14	— CJ2-2	3
15	— CJ2-7	4
18	— CJ2-3	5
20	— CJ2-6	6
21	— CJ2-4	7
23	— CJ2-5	8
30	— CJ2-12	9
KEY	— KEY	10
23	— CJ2-5	11
28	— PJ4-7	12
N/U	— N/U	13
21	— CJ2-4	14
N/U	— N/U	15
30	— CJ2-1	16
31	— CJ2-18	17
32	— CJ2-17	18
34	— CJ2-16	19
35	— CJ2-14	20
24	— CJ2-13	21
40	— PJ4-6	22
10	— PJ4-9	23
	— N/U	24

UPPER LIGHT IN CITY SLICKER

CJ-1	12	1	PHASE	PHASE
	13	2	CITY "C" *	CITY "C" *
	14	3	CITY "V" *	CITY "V" *
	15	4	RT TOP TARG LT	RT TOP TARG LT
	16	5	SLICKER "L" *	SLICKER "L" *
	17	6	SLICKER "K" *	SLICKER "K" *
	18	7	CITY "I" *	CITY "I" *
	19	8	LT TOP TARG LT	LT TOP TARG LT
	20	9	SHOOT AGAIN	SHOOT AGAIN
	21	10	RT TARGET BOTTOM	RT TARGET BOTTOM
	22	11	SLICKER "I" *	SLICKER "I" *
	23	12	SLICKER "E" *	SLICKER "E" *
	24	13	SHOOTOUT 2	SHOOTOUT 2
	25	14	SLICKER "R" *	SLICKER "R" *
	26	15	KEY	KEY
	27	16	CITY "T" *	CITY "T" *
	28	17	MID TOP TARG LT	MID SAUCER SPOT
	29	18	SLICKER "S" *	SLICKER "S" *
	30	19	SLICKER "C" *	SLICKER "C" *

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
 "K" PHASE
 "L" PHASE
 "M" PHASE
 "N" PHASE
 "O" PHASE
 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

LAMP OUTPUTS

COLOR CODE	DESCRIPTION
1-RED	6-BROWN
2-BLUE	7-ORANGE
3-YELLOW	8-BLACK
4-GREEN	9-GRAY
5-WHITE	10-NO TRACE
	11-VIOLET

NOTES
 CJ-12 NOT USED
 BRIGHT LIGHTS TYPE 912 BULBS (C&D PHASE)
 OTHER LIGHTS TYPE 555 BULBS (A&B PHASE)
 CJ1 THROUGH CJ14 LOCATED ON CONTROLLER BOARD

CJ-12	1	PHASE	PHASE
	2	PHASE	PHASE
	3	PHASE	PHASE
	4	PHASE	PHASE
	5	PHASE	PHASE
	6	PHASE	PHASE
	7	PHASE	PHASE
	8	PHASE	PHASE
	9	PHASE	PHASE
	10	PHASE	PHASE
	11	PHASE	PHASE
	12	PHASE	PHASE
	13	PHASE	PHASE
	14	PHASE	PHASE
	15	PHASE	PHASE
	16	PHASE	PHASE
	17	PHASE	PHASE

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
 "K" PHASE
 "L" PHASE
 "M" PHASE
 "N" PHASE
 "O" PHASE
 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-6	31	1	THUMPER BUMPER
	32	2	RIGHT THUMPER BUMPER
	33	3	MID THUMPER BUMPER
	34	4	LEFT SLINGSHOT
	35	5	TOP THUMPER BUMPER
	36	6	KEY
	37	7	SJ1-1
	38	8	LEFT FLIPPER
	39	9	RIGHT FLIPPER
	40	10	RELAY BOARDS
	41	11	BACKBOX LIGHT
	42	12	KEY
	43	13	TOP SAUCER
	44	14	RIGHT SLINGSHOT

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
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 "M" PHASE
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 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-5	1	TEST BUTTON
	2	KEY
	3	KEY
	4	KEY
	5	KEY
	6	KEY
	7	SJ1-1
	8	SJ1-2
	9	SJ1-3
	10	SJ1-4
	11	ST3
	12	ST2
	13	ST1
	14	ST0
	15	ST0

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
 "K" PHASE
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 "M" PHASE
 "N" PHASE
 "O" PHASE
 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-4	511	1	ST5
	80	2	17
	78	3	16
	68	4	15
	5	5	KEY
	58	6	14
	48	7	13
	38	8	12
	28	9	11
	18	10	10
	56	11	ST4
	54	12	ST3
	53	13	ST2
	52	14	ST1
	51	15	ST0

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
 "K" PHASE
 "L" PHASE
 "M" PHASE
 "N" PHASE
 "O" PHASE
 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-3	10	1	TEST BUTTON
	11	2	KEY
	12	3	KEY
	13	4	KEY
	14	5	KEY
	15	6	KEY
	16	7	SJ1-1
	17	8	SJ1-2
	18	9	SJ1-3
	19	10	SJ1-4
	20	11	ST3
	21	12	ST2
	22	13	ST1
	23	14	ST0
	24	15	ST0

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
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 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-2	38	1	B1J1-16 + D2J1-16
	14	2	B1J1-3, D1J1-14, D2J1-3
	18	3	B1J1-5, D2J1-5, D1J1-11
	21	4	B1J1-7, D2J1-7, D2J1-14
	23	5	B1J1-8, D2J1-8, D2J1-11
	28	6	B1J1-6, D2J1-6
	13	7	B1J1-4, D2J1-4
	13	8	B1J1-2, D2J1-2
	12	9	B1J1-1, D2J1-1
	10	10	N/U
	11	11	N/U
	11	12	D2J1-9
	24	13	D1J1-9, D1J1-21, D2J1-21
	35	14	D1J1-20, D2J1-20
	15	15	KEY
	34	16	D1J1-19, D2J1-19
	32	17	D1J1-18, D2J1-18
	31	18	D1J1-17, D2J1-17
	19	19	N/U

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
 "K" PHASE
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 "O" PHASE
 "P" PHASE
 "Q" PHASE
 "R" PHASE
 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

CJ-1	38	1	KEY
	20	2	PJ3-5
	25	3	PJ3-8
	13	4	PJ3-9
	13	5	PJ3-2

PHASE DENOTES
 * "A" PHASE
 # DENOTES
 "C" PHASE
 "D" PHASE
 "E" PHASE
 "F" PHASE
 "G" PHASE
 "H" PHASE
 "I" PHASE
 "J" PHASE
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 "S" PHASE
 "T" PHASE
 "U" PHASE
 "V" PHASE
 "W" PHASE
 "X" PHASE
 "Y" PHASE
 "Z" PHASE

NOTES:
 D. STERN
 1-2-3-7-8-1

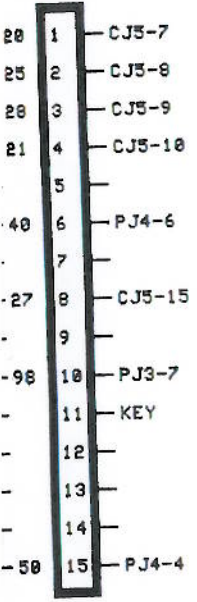
DIGITAL DISPLAY OUTPUTS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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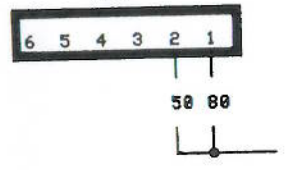
DALLY MIDWAY MFG. CO.
 CITY SLICKER
 BACKBOX
 M051-00E79-A006
 SHEET 2 OF 3 REV

BOUND MODULE

SJ1



SJ2



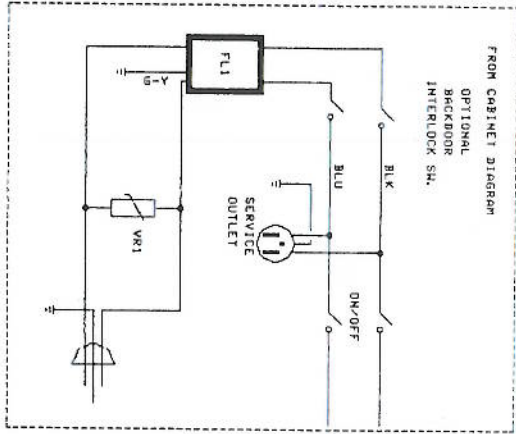
TO CABINET
(SPEAKERS & VOLUME CONTROL)

PAGE 3 OF 3 (BACKBOX)

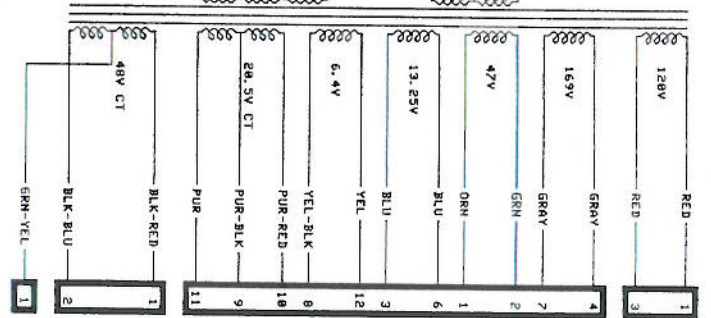
COLOR CODE	
1 - RED	6 - BROWN
2 - BLUE	7 - ORANGE
3 - YELLOW	8 - BLACK
4 - GREEN	9 - GRAY
5 - WHITE	0 - NO TRACE
	11 - VOILET

NOTES:	BALLY MIDWAY MFG. CO.
D. STERN	CITY SLICKER
-26-87 dl	BACKBOX
	M051-00E79-A006
	SHEET 3 OF 3
	REV

26 JAN 87 14187 USER/JAN/CITY_BOX/BACKBOX 3. DRAM



SHOWN JUMPED FOR 115V
NOTE: SEE TABLE "A" FOR JUMPER OPTIONS.



NOTE: P11-P14 ARE PART OF POWER MODULE.

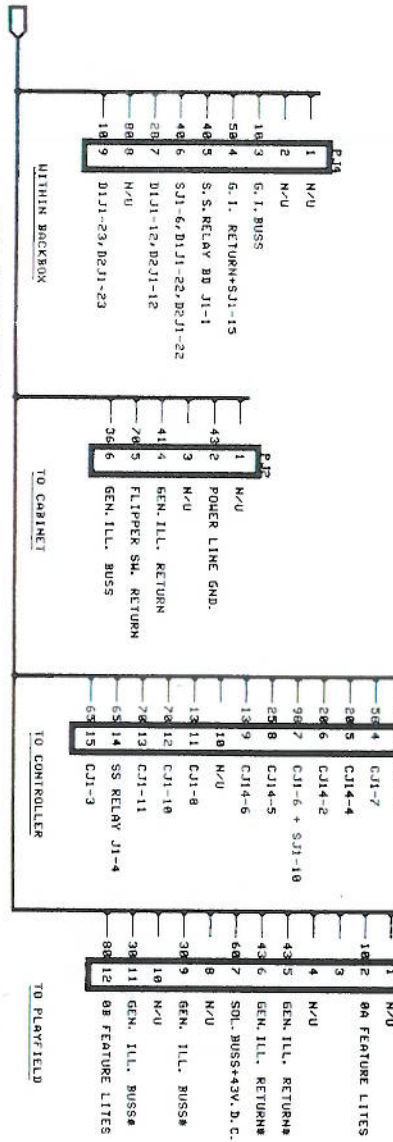


TABLE "A"
115VAC-2-8/3-6/7-10
120VAC-2-8/4-6/7-11
250VAC-4-8/7-9
240VAC-4-8/7-11

COLOR CODE

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

NOTES:
D. STEIN
BALLY MIDWAY MFG. CO.
CITY SLICKER
BACKBOX
M051-0827-0886