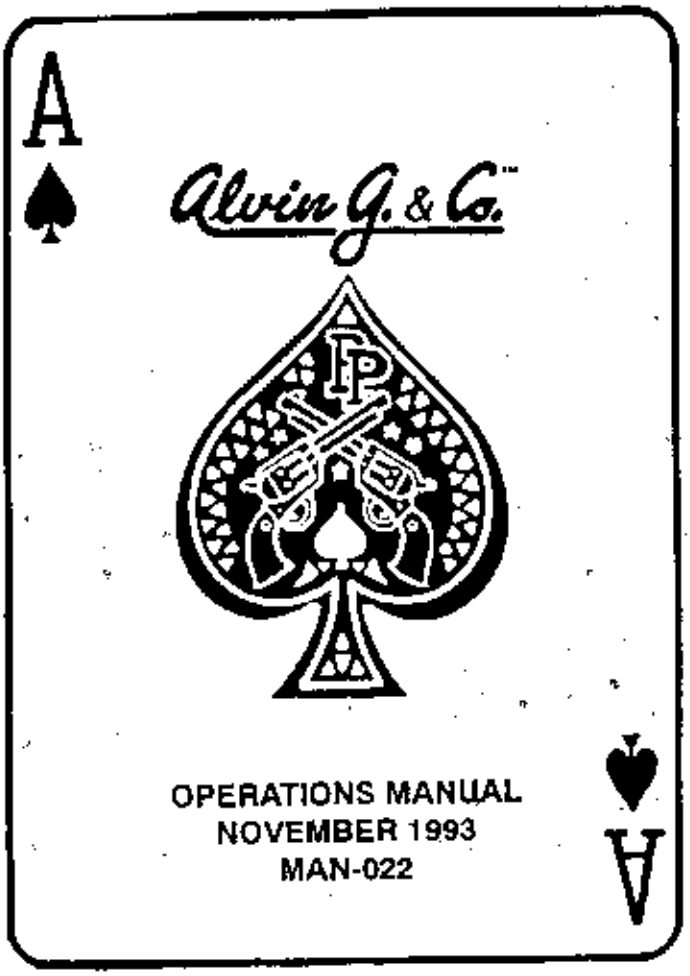
Alvin G. & Co.™

PISTOL POWER



COIL WINDINGS TABLE

Part No.	AWG	Turns	Diode	DCR	AWG	Turns	Diode	DCR	Color	Purpose
CLL-004	28	1750	1N4004	24Ω					White	Med power
CLL-006	26	1305	1N4004	11.8Ω					White	Med power
CLL-007	25	1075	1N4004	7.95Ω					White	High power
CLL-015	22	700	1N4004	2.7Ω	30	2600	1N4004	87Ω	Red	Flipper coil

FUSE IDENTIFICATION TABLE

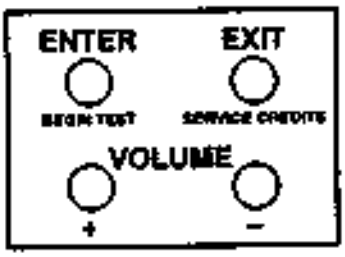
The Numbers in the first column are the fuse identification numbers. The second column lists specific coil numbers, voltages, playfield, and backbox areas. The third column shows the proper fuse that should be installed. The fourth column shows the wire color connected to that fuse. Fuses F1 through F12 are located on the power supply. F2 = not used.

Fuse	Protects	Rating	Wire color
F1	Line Fuse	5A Slo-Blo	
F3	4.5 VAC	1A Slo-Blo	
F4	4.5 VAC	1A Slo-Blo	
F5	30 VAC	1A Slo-Blo	
F6	9 VAC	3A Slo-Blo	
F7	16 VAC	8A Slo-Blo	
F8	51 VAC	8A Slo-Blo	
F9	6 VAC	8A Slo-Blo	
F10	6 VAC	8A Slo-Blo	
F11	13.5 VAC	3A Slo-Blo	
F12	13.5 VAC	3A Slo-Blo	
F13	48V Coils	1 1/2A Slo-Blo	Vio / Grn
F14	48V Coils	2A Slo-Blo	Vio / Yel
F15	48V Coils	2A Slo-Blo	Vio / Blk
F16	Left & Right Flipper	4A Slo-Blo	Vio / Org
F17	20V Coils	1/4A Slo-Blo	Red / Grn
F18	20V Flashers	4A Slo-Blo	Red / Vio
F19	6VAC GI's	4A Slo-Blo	Wht / Blu
F20	6VAC GI's	4A Slo-Blo	Wht / Vio
F21	6VAC GI's-Coin Door	4A Slo-Blo	Wht / Vio
F22	Insert GIs'	4A Slo-Blo	Wht / Brn
F23	Insert GIs'	4A Slo-Blo	Wht / Gry
F24	20VAC (Flashers)	8A Slo-Blo	Yel / Wht

GAME ROM SUMMARY

Board Identificatgion	Socket #	Type	Part#
CPU / driver board	U2 (program)	27C512	EPC-101
Sound board	U27 (program)	27C512	EPS-101
	AROM0 (samples)	27C020	EPS-102
	AROM1 (samples)	27C020	EPS-103
	AROM2 (samples)	27C020	EPS-104
	AROM3 (samples)	27C020	EPS-105
Dot Matrix Controller	U4 (program)	27C512	EPD-101
	U5 (graphics)	27C020	EPD-102
	U6 (graphics)	27C020	EPD-103

COIN DOOR SWITCHES



Normal function

Begin test - This switch changes the function of the coin door switch from normal to test and starts the operator control menu system.
Service Credits - This switch adds a credit to the game. This will be recorded as a service credit and not be recorded as a player credit.
Volume + - This switch raises the sound level of the game.
Volume – - This switch lowers the sound level of the game.
For each closure of the corresponding volume button the volume will increase or decrease accordingly one volume unit.

Test function

Enter - This switch allows the operator to go to a sub-menu or lock in an adjustment choice.
Exit - This switch allows the operator to go back one sub-menu or exit the test function.
Volume + - This switch allows the operator to cycle forward through the menu selection or adjustment.
Volume – - This switch allows the operator to cycle backward through the menu selection or adjustment.

MENU SYSTEM

The menu is divided into three main categories, Adjustments, Bookkeeping, and Testing. the first category is Adjustments. Adjustments allow the operator to conform the operation of the game with the location. The second category is Bookkeeping. Bookkeeping allows the operator to get vital information such as earnings, player statistics, and high score information. The last category is Tests. Tests allow the operator to troubleshoot the game if a problem occurs.

To start the menu press Enter and "MAIN MENU A ADJUSTMENTS" will appear on the Display. press The + or – button to cycle forward or backward through the main categories. Once the category is displayed on the display press Enter to select that sub-menu. If the wrong Sub-menu has been selected press Exit to go back to the Main menu. Use the + or - button to cycle forward or backward through the sub-menu. Once the correct choice is displayed, press Enter to "Adjust" or "Test" the choice depending on the Sub-menu that was selected before. Bookkeeping is information that cannot be set. The adjustments may be reset to factory by using, A506 FACTORY RESET which will reset everything to manufacturers suggested setting.

ADJUSTMENTS

Note: the pointer ☞ by each adjustment denotes the factory setting for redemption mode. The pointer , by each adjustment denotes the setting for regular play mode. If A506 FACTORY RESET is enabled the setting will equal the item to the right of the pointer ☞. The factory settings are listed on page #.

A ADJUSTMENTS

1 STANDARD

01 REPLAY LEVELS - The operator can adjust the number of scores that will award replays when reached. The range of this setting is 0 to 4 in steps of 1.

☞ 1

02 1ST REPLAY AT - The operator can set the score for the first replay to be awarded. The range of this setting is O to 9,990,000,000 in steps of 10,000,000.

☞ 300,000,000

03 2ND REPLAY AT - The operator can set the score for the second replay to be awarded. This setting is only enabled when A101 REPLAY LEVELS is set at 2 or more. The range of this setting is 0 to 9,990,000,000 in steps of 10,000,000.

☞ 600,000,000

04 3RD REPLAY AT - The operator can set the score for the third replay to be awarded. This setting is only enabled when A101 REPLAY LEVELS is set at 3 or more. The range of this setting is O to 9,990,000,000 in steps of 10,000,000.

☞ 900,000,000

05 4TH REPLAY AT - The operator can set the score for the fourth replay to be awarded. This setting is only enabled when A101 REPLAY LEVELS is set at 4. The range of this setting is O to 9,990,000,000 in steps of 10,000,000.

☞ 1,200,000,000

06 AWARD TYPE - The operator can designate what is to be awarded when a replay level is achieved. The choices are:

☞ Credit
None
Extra Ball

07 REPLAY PERCENT - By setting the replay percentage, the operator can approximate how often replays will be awarded based on variances in player skills and scores. The range of this setting is fixed or 1 to 50 in steps of 1.

☞ 10

08 REPLAY BOOST - The operator can set the auto boost™ which will temporarily increase the replay scores each time a replay level is achieved or exceeded. The range of this setting is 0 or 10% to 50% in steps of 10%.

☞ 20%

09 GAME OVER ATTRACT - The operator may set the game to attempt to attract a person to play the game every time the setting has been reached. The choices are:

10 Minutes
20 Minutes
☞ 30 Minutes
Off

A 1 10 MAX FREE GAMES - The operator can set the number of credits that a player can receive in a single game. The range of this setting is 0 - 9 in steps of 1.

☞ 6 games

11 BALLS PER GAME - The operator can adjust the number of balls given per game. The range of this setting is 1 to 5 in steps of 1.

☞ 3

12 MAX XBALLS / GAME - The operator can set the maximum number of extra balls winable over the course of one game. The range of this setting is 0 - 9 in steps of 1.

☞ 3 extra balls.

13 MATCH PERCENT - The operator can set the percentage of all games played that will award matches. *Note: match% is only active when* A104 REPLAY TYPE *is set to credit.* The range of this setting is 0 to 10 in steps of 1.

☞ 10%

14 TILT WARNINGS - The operator can set the number of warnings a player receives before the game is tilted. The range of this setting is 0 to 3 in steps of 1.

☞ 2 Warnings.

15 TOURNAMENT MODE - The operator can set the game and rules to tournament mode. This will not allow the player to get a replay, extra ball, or special. ALL RANDOM VALUES ARE FIXED.

Yes - Tournament mode.

☞ No - Regular gameplay

A 2 FEATURE

01 ROUNDS TIMER - The operator can adjust the length of time that the game remains in a mode once entered by a player. The choices are Ex Easy, Easy, Medium, Hard, and Ex Hard.

☞ Medium

02 RAMP/LOOPS TIMER - The operator can adjust the length of time a player has to shoot a loop or ramp in succession in order to increase its point value. The choices are Ex Easy, Easy, Medium, Hard, and Ex Hard.

☞ Medium

03 BALL BACK TIMER - The operator can adjust the length of time a player will have to receive another ball if the one put play drains immediately. The choices are Ex Easy, Easy, Medium, Hard, and Ex Hard (equivalent to off).

☞ Medium

04 RECALL TOP LANES - The operator can adjust whether or not the lit lanes will be carried over from one ball to the next.

☞ Yes - Carry lit lanes over from ball to ball

No - Clear lit lanes after each ball

05 RECALL MULTIPLIERS - The operator can adjust whether or not the point and bonus multipliers are carried over from one ball to the next.

☞ Yes - Carry multipliers over from ball to ball

No - Erase multipliers after each ball

A 2 06 READY AIM FIRE - The operator can adjust the difficulty of advancing the "Ready - Aim - Fire" lights in order to qualify the backbox deck. The choices are Ex Easy, Easy, Medium, Hard, and Ex Hard.

☞ Medium

07 COLLECT HANDS LIT - The operator can adjust the difficulty of collecting hands once one is completed. Adjusting this feature affects the number and location of lit "collect hand" shots once a hand is completed. The choices are Ex Easy, Easy, Medium, Hard and Ex Hard.

☞ Medium

A 3 PRICING

01 GAME PRICING - The operator can set the cost of a game from a standard pricing menu or by installing custom pricing. The choices are:

Antilles	Finland	Greece	Sweden
Argentina	FR 5/10 FR	Hungary	Swiss
Australia	FR 7/10 FR	Italy	Taiwan
Austria	FR 7/20 FR	Japan	U Kingdom
Belgium	FR 9/20 FR	Korea	USA 4/$1
Canada 1	FR 11/20 FR	Netherland	USA 3/$1
Canada 2	FR 3/10 FR	N Zealand	☞ USA 2/$1
Chile	GER 6/5 DM	Norway	† Custom
Denmark	GER 7/5 DM	Spain	Pricing table is on (page 30)

† - *The custom setting requires a value of coin units in the left, center, right, and extra coin chutes.*

Items 01a - 01f can only be made if custom is selected in the pricing menu. THE ENTER BUTTON IN THIS MENU SAVES THE CURRENT INFORMATION DISPLAYED. THE EXIT BUTTON WILL EXIT OUT OF THE SUBMENU AND USE ALL CURRENTLY SAVED INFORMATION. CHANGES TO PREVIOUS ITEMS MAY ONLY BE MADE BY EXITING BACK TO CUSTOM AND PRESSING ENTER TO EDIT CHOICES.

01A LEFT COIN UNITS - The operator can designate the number of units purchased when a coin passes through the left coin slot. The range of this setting is 0 to 99 in steps of 1.

01B CENTER COIN UNITS - The operator can designate the number of units purchased when a coin passes through the center coin slot. The range of this setting is 0 to 99 in steps of 1.

01C RIGHT COIN UNITS - The operator can designate the number of units purchased when a coin passes through the right coin slot. The range of this setting is 0 to 99 in steps of 1.

01D EXTRA COIN UNITS - The operator can designate the number of units purchased when a coin passes through the extra coin slot. The range of this setting is 0 to 99 in steps of 1.

01E COIN UNITS / CREDITS - The operator can designate the number of units required to award one credit. The range of this setting is 0 - 99 in steps of 1.

A 3 01F COIN UNITS / BONUS - The operator can designate the number of units awarded when the bonus is reached. The range of this setting is 0 - 99 in steps of 1.

02 MAXIMUM CREDITS - The operator can adjust the credit ceiling to allow for the maximum number of credits on the machine at one time . The range of this setting is 4 - 40 in steps of 1.

☞ 20 Credits

03 FREE PLAY - The operator can designate whether gameplay is free or money is required for a credit. The choices are:

Yes - Game play is free

☞ No - The purchase of a credit(s) is required

04 DISPLAY CREDITS - The operator can adjust whether the machine displays credits or not. The choices are:

☞Yes - The credits on the machine are displayed

No - The player is not shown the amount of credits

05 METER COUNTS - The operator can set the game meter to count coins or earnings. The choices are:

☞ Coins - The game meter counts the total number of coins through the coin chutes

Earnings - The game meter counts the total earnings through the coin chutes

A 4 HIGH SCORES

01 HSTD ALLOWED - The operator designates whether the game records and stores High Scores. The choices are:

☞ Yes - Game records and stores High Scores

No - High Scores are not recorded

02 CREDITS FOR TOP HSTD - The operator can adjust the number of credits awarded when the Highest Sore to Date is achieved or exceeded. The range of this setting is 0 - 3 in steps of 1.

☞ 3

03 CREDITS FOR 2ND HSTD - The operator can adjust the number of credits awarded when the second Highest Score to Date has been achieved or exceeded. The range of this setting is 0 - 2 in steps of 1.

☞ 2

04 RESET HSTD EVERY - The operator can designate the number of games to be played before the High Scores will reset. The range of this setting is OFF (disabled) or 00 to 5000 in steps of 100.

☞ 700

05 BACKUP TO HISCORES - The operator can install backup high scores when the A404 RESET HSTD EVERY is enabled. The range of this setting is 300,000,000 to 9,990,000,000 in steps of 1,000,000.

☞ 400,000,000

A 5 UTILITY

01 CLEAR AUDITS - The operator can erase the recently collected audits by pressing the enter button. The choices are:

Yes - Clear audits (Note: This will not clear B102 GRAND TOTAL COINS or B2 EARNING AUDITS.)

☞ No - Leave audits as collected

02 CLEAR COIN AUDITS - The operator can erase the recently collected coin totals by pressing the enter button. *NOTE: ENABLING THIS CHOICE WILL NOT RESET GRAND TOTAL COINS.* The choices are:

Yes - Clear earning audits

☞ No - Do not change audits

03 SET BACKUP HISCORES - The operator can erase the currently displayed high scores and revert to the custom high scores by pressing the enter button. The choices are:

Yes - Reset high scores to date

☞ No - Do not change displayed high scores

04 CLEAR CREDITS - The operator can remove the credits from the machine by pressing the enter button. The choices are:

Yes - Erase credits

☞ No - Leave credits on machine

05 CUSTOM MESSAGE - The operator can alter the message displayed during the game over mode. The choices are:

Off - Factory message displayed

☞ On - Custom message displayed and start new display

Change - Edit the old display

Press the enter button when "Change" appears in the display to start the custom message processor. Use the "+" or "-" buttons to cycle through the letters. The ">" represents a space. The "<" represents a backspace. Press the enter button to lock in the desired letters. When finished push enter at the last space; this will lock in the completed message. If at any time the exit key is pressed the last message that was saved will be displayed.

06 FACTORY RESET - The operator can reset the machine to its original factory settings by pressing enter. The factory reset settings are located on page 30. The choices are:

Yes - Revert to factory settings

☞ No - Leave settings as they are

07 GAME DIFFICULTY - The operator can adjust the overall game difficulty. The choices are Ex Easy, Easy, Medium, Hard, and Ex Hard.

☞ Medium

08 INSTALL COUNTRY - The operator can adjust the machine to respond to its geographical location. This adjusts A109 LANGUAGE, and A301 GAME PRICING. The choices are:

☞ U.S.A.

Germany

France

U.K.

A 5 09 FLASHER INTENSITY - The operator can set the level of brightness at which the flashers operate during gameplay and in the attract mode. The choices are:

Off
Dimmer
Dim
☞ Normal

10 COIL STRENGTH - This setting adjusts how much force each coil exerts on the ball. This affects all the coils in the game. The Choices are:

Softer
☞ Normal
Harder

BOOKKEEPING

B BOOKKEEPING

B 1 MAIN

01 RECENT COINS - The total amount of coins through each slot since last A502 CLEAR COIN AUDITS, or A506 FACTORY RESET.
02 GRAND TOTAL COINS - The total amount of coins through each slot. May be reset by using A506 FACTORY RESET.
03 FREE PERCENT - The percent of the amount of free games over total games played.
04 AV GAME TIME - The average time of one game.
05 AV BALL TIME - The average time of one ball.
06 REPLAY PERCENT - The percent of the total amount of replays awarded over total games played.

B 2 EARNING

01 COINS LEFT SLOT - The total amount of coins that passed through the left coin slot.
02 COINS CENTER SLOT - The total amount of coins that passed through the center coin slot.
03 COINS RIGHT SLOT - The total amount of coins that passed through the right coin slot.
04 COINS EXTRA SLOT - The total amount of coins that passed through the extra coin slot.
05 COIN NO CREDIT - The total amount of coins that did not receive a credit. No credit means "The purchase of a 1/2 credit" not "A coin that the coin acceptor would not accept."
06 PAID CREDITS - The total amount of credits given out.
07 SERVICE CREDITS - The total amount of service credits.

B 3 STANDARD

01 TOTAL GAMES - The total number of games played.
02 FREE GAMES - The total number of free games awarded.
03 FREE PERCENT - The percent of the total amount of free games played over total games played.
04 REPLAY AWARDS - The total number of replays awarded.

B 3 05 REPLAY PERCENT - The percent of the total amount of replays awarded over total games played.
06 SPECIAL AWARDS - The total amount of specials awarded.
07 SPECIAL PERCENT - The percent of the total amount of specials awarded over total games played.
08 HSTD AWARDS - The total number of high scores achieved.
09 HSTD PERCENT - The percent of the total amount of high scores awarded over total games played.
10 MATCH AWARDS - The total number of matches awarded.
11 MATCH PERCENT - The percent of the total amount of matches played over total games played.
12 BALLS PLAYED - The total number of balls played.
13 EXTRA BALLS - The total amount of extra balls awarded.
14 XBALL PERCENT - The percent of the total amount of extra balls awarded over total balls played.
15 1 PLAYER GAME - The total number of 1 player games.
16 2 PLAYER GAME - The total number of 2 player games.
17 3 PLAYER GAME - The total number of 3 player games.
18 4 PLAYER GAME - The total number of 4 player games.
19 TIMES HSTD RESET - The total amount of times the high score to date has been reset.
20 BURNIN CYCLES - The total amount of burnin cycles.

B 4 FEATURE
01 2 BALL MEGAMODE - The number of times two ball megamode has been played.
02 3 BALL MEGAMODE - The number of times three ball megamode has been played.
03 TIMES BALL BACK - The number of times a player has been awarded a ball while the 'Deal Again' light was lit.
04 LEFT DRAINS - The number of times the ball drained through the left outlane.
05 RIGHT DRAINS - The number of times the ball drained through the right outlane.
06 PAIR - The number of times a pair has been achieved.
07 2 PAIRS - The number of times two pairs have been achieved.
08 3 OF A KIND - The number of times three of a kind has been achieved.
09 STRAIGHT - The number of times a straight has been achieved.
10 FULL HOUSE - The number of times a full house has been achieved.
11 4 OF A KIND - The number of times four of a kind has been achieved.
12 ROYAL FLUSH - The number of times a royal flush has been achieved.
13 MAX BONUS - The number of times the maximum bonus has been chosen.
14 20 MILLION - The number of times 20 million points has been chosen.
15 SPADE ACE ROUND - The number of times the Ace of Spades round has been chosen.
16 JOKER POKER ROUND - The number of times the Joker Poker round has been chosen.
17 RICOCHET ROUND - The number of times the Ricochet Round has been chosen.

B 4 18 ROYAL LOOPS ROUND - The number of times the Royal Loops Round has been chosen.
19 BLACK JACK ROUND - The number of times the Black Jack Round has been chosen.
20 SHOOT OUT ROUND - The number of times the Shoot Out Round has been chosen.
21 ACE WILD ROUND - The number of times the Wild Ace Round has been chosen.
22 SUPER SHOT ROUND - The number of times the Super Shot Round has been chosen.
23 COLLECT BONUS - The number of times Collect Bonus was chosen.
24 TOP LOOPS - The number of times the top loop on the upper playfield was made.
25 CENTER LOOPS - The number of times the loop on the bottom playfield was made.
26 RAMP SHOTS - The number of times the ramp was successfully shot.
27 TOP LANES MADE - The number of top lanes completed.
28 SKILL ADV. MULT. - The number of times that the flashing rollover was completed as the first shot of all balls played.
29 JOKER SKILL SHOT - The number of times that the plunger skill shot was completed for the first shot of all balls played.
30 BACK ROWS MADE - The number of times a row was completed in the backbox deck.
31 BACK COLUMNS MADE - The number of times a column was completed in the backbox deck.
32 BACK 0-5 LIGHTS - The number of times 0 to 5 lights were completed in the backbox deck.
33 BACK 6-10 LIGHTS - The number of times 6 to 10 lights were completed in the backbox deck.
34 BACK 11-15 LIGHTS - The number of times 11 to 15 lights were completed in the backbox deck.
35 BACK 16-20 LIGHTS - The number of times 16 to 20 lights were completed in the backbox deck.
36 BACK OVER 20 LIGHTS - The number of times more than 20 lights were completed in the backbox deck.

B 5 HISTORIOGRAPHY
01 GAMES UNDER 100 MIL. - The total number of scores under 10,000,000.
02 100-190MIL. - The total number of scores between 100,000,000 and 199,999,990.
03 SCORES 200 - 299MIL. - The total number of scores between 200,000,000 and 299,999,990.
04 SCORES 300 - 399MIL. - The total number of scores between 300,000,000 and 399,999,990.
05 SCORES 400 - 499MIL. - The total number of scores between 400,000,000 and 499,999,990.
06 GAMES OVER 500MIL. - The total number of scores over 500,000,000.

TESTS

T TESTS

01 SERVICE PHONE - A contiguous United States toll free number is displayed. If there is a game problem or question give our service department a call. We are here to work with you to solve technical problems in any Alvin G. & Co. product. We will also be able to answer any general game question you may have.

02 INFORMATION - This test aids in diagnosing problems by indicating a stuck switch or missing pinball. If the test finds no problems "ALL OK" will be displayed.

03 MATRIX LAMPS - This test causes all the controlled lamps to flash simultaneously. The display will read "ON" and "OFF" alternatively. All controlled lamps should flash. If any other result is indicated the system has detected a problem.

04 SINGLE LAMP - This tests each lamp circuit individually. Press the "+" or "-" button to cycle through this test. The display will tell the operator which lamp should be lit. Refer to page 16 on "Understanding the matrices."

05 DISPLAY TEST - This test will cycle through all display circuits. Each segment will light in sequence, followed by a fully lit digit. If a segment or digit did not light or stays lit all the time, the system has detected a problem. Press the "+" or "-" button to display the next segment.

06 STUCK SWITCHES - This test finds all switches that are detected closed. The name, number, and wire color of each switch that is stuck will be displayed and for each closure a beep will be heard. If there are no switches closed the display will flash "NONE".

07 INACTIVE SWITCH - This displays each switch on the game that has not been activated within the past 25 games.

08 SWITCH TEST - This test isolates a particular switch by blocking signals from all other switches. When a switch is closed it will show on the display the name, number, and wire color for approximately 2 seconds.

09 CYCLE FLASHERS - This tests the flashlamp circuitry. The test will cycle through all the flashlamp circuits one at a time. To end flashlamp test press the enter button, all flashlamps should be off. If a flashlamp is on the system has detected an error.

10 CYCLE SOLENOIDS - This tests the solenoid circuitry. The test will cycle through all the solenoid circuits one at a time.

11 SINGLE COILS - This tests each coil in the coil table. Use the "+" or "-" button to select the coil you wish to check. Press the enter button to check. For each closure of the enter button a flashlamp or solenoid should activate.

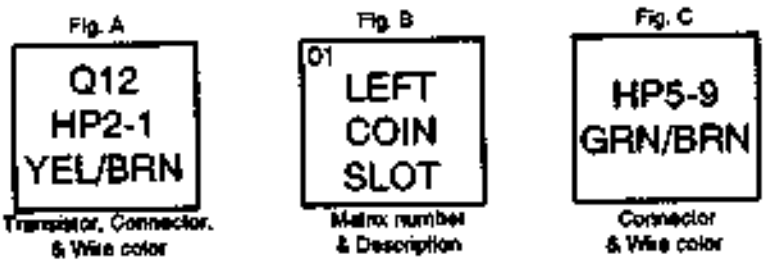
12 SOUND TEST - This tests the sound board. Use the "+" or "-" button to select the sound you wish to check. The choices are: Music, Voice, Sound.

13 BURNIN CYCLE - This tests the life of all the working parts in the game. This helps in finding intermittent problems. The burnin cycle alternates on and off of: all lamps, solenoids, G.I.s', dot matrix display, flashers, and sounds. If one of the preceding items does not work the system has detected a problem.

UNDERSTANDING THE MATRICES

The matrixes on the following pages are written for maximum understanding. Most of the words have been abbrieviated inorder to allow space for all the necessary component identifications. Each matrix, playfield location diagram, schematic drawing, and dot matrix display uses the exact same wording so there is no confusion on a given part. For example "catapult" is used in the coil matrix, playfield location diagram, schematic diagram and displayed on the dot matrix display. All of these when displayed or read will be seen exactly the same (spelling, word usage, and order.)

In the matrix row and column boxes there are various abbreviations displayed (see illustration below.) Each abbreviation stands for one part of the description of that block.



Information that is centered or is in the upper left hand corner of the box will be displayed on the dot matrix display. Information that is not in one of those positions will not appear on the dot matrix display.

The MOSFET (transistor) number is abbrievleated by a Q21, which equals MOSFET (transistor) number 21 on the C.P.U. / driver board.

The connector identification number is abbreviated into two numbers the first being a connector number and the second being a pin number. For example in Fig. A, 2-1 (as shown above) is connector HP2 pin 1. Notice all connectors in the coil, lamps, & switch matrices use the HP prefix which is only used to identify the C.P.U. / driver board connectors.

The wire color is always displayed with the solid color and then the tracer. For example wht/blk is a white wire with a black tracer. a solid wire has the same color for the wire color and the tracer. For example, red/red is a solid red wire. Being that both of the colors are red it is impossible to identify the tracer which in turn makes it a solid red wire.

Numbers shown in the upper left hand corner are matrix numbers.

The abbreviations for the wire colors are as follows:

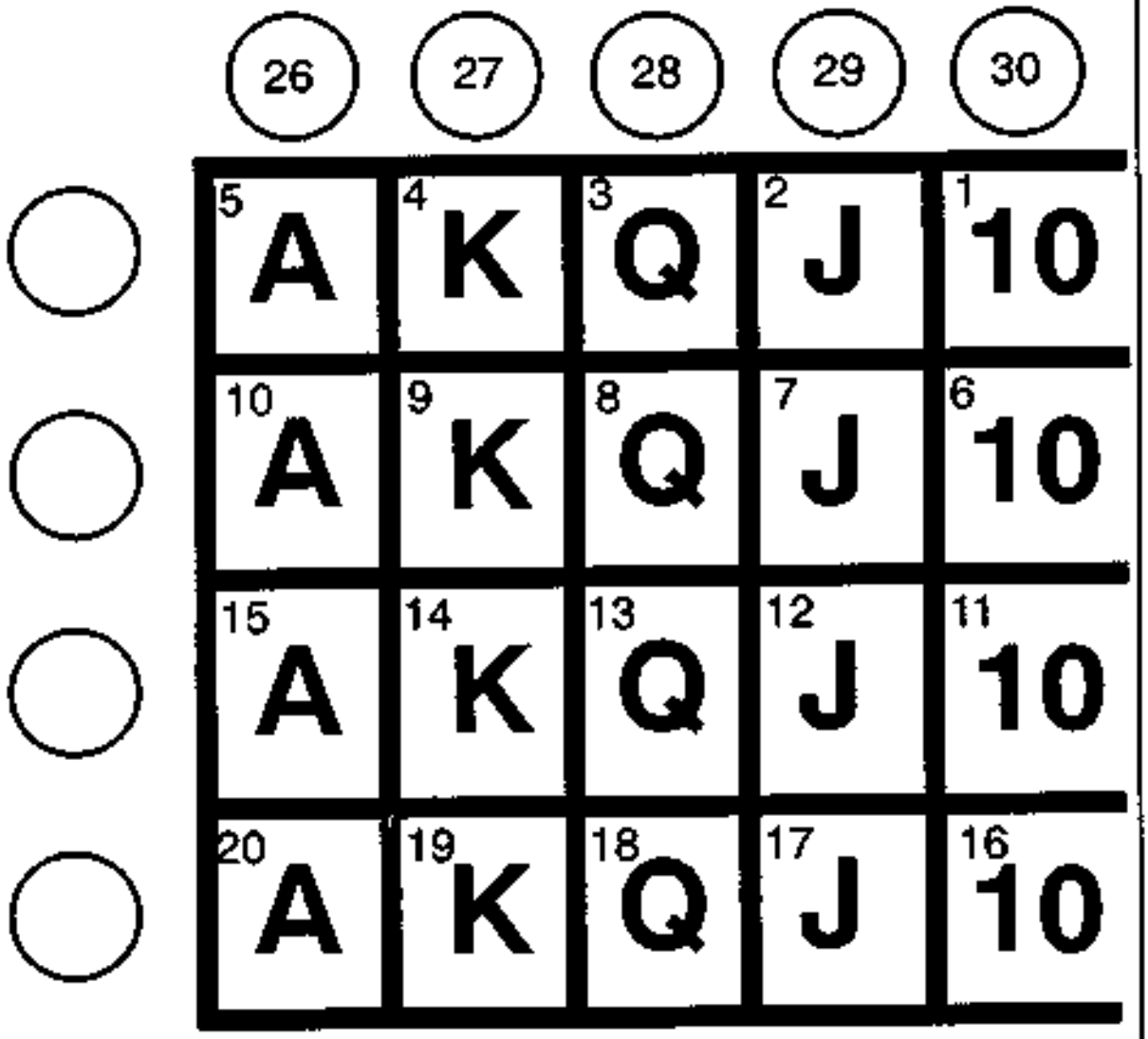
BRN = BROWN	BLU = BLUE
RED = RED	VIO = VIOLET
ORG = ORANGE	GRY = GRAY
YEL = YELLOW	WHT = WHITE
GRN = GREEN	BLK = BLACK

LAMP MATRIX

COLUMN / ROW	C13 HP2-1 YEL/BRN	C14 HP2-2 YEL/RED	C15 HP2-3 YEL/ORG	C16 HP2-4 YEL/BLK	C17 HP2-5 YEL/GRN	C18 HP2-6 YEL/BLU	C19 HP2-7 YEL/VIO	C20 HP2-8 YEL/GRY
C12 HP9-11 RED / BRN	01 BACK 10 SPADES	02 BACK J SPADES	03 BACK Q SPADES	04 BACK K SPADES	05 BACK A SPADES	06 BACK 10 HEARTS	07 BACK J HEARTS	08 BACK Q HEARTS
C11 HP9-11 RED / BLK	09 BACK K HEARTS	10 BACK A HEARTS	11 BACK 10 CLUBS	12 BACK J CLUBS	13 BACK Q CLUBS	14 BACK K CLUBS	15 BACK A CLUBS	16 BACK 10 DIAMONDS
C10 HP9-10 RED / ORG	17 BACK J DIAMONDS	18 BACK Q DIAMONDS	19 BACK K DIAMONDS	20 BACK A DIAMONDS	21	22	23	24
C9 HP9-9 RED / YEL	25	26 BACK COIN ACE	27 BACK COIN KING	28 BACK COIN QUEEN	29 BACK COIN JACK	30 BACK COIN 10	31	32 GAME START
C8 HP9-8 RED / GRN	33 WHITE CHIP	34 RED CHIP	35 BLUE CHIP	36 GOLD CHIP	37 B-BOARD $ JACKPOT	38 $-BOARD MEGA NODE	39 $-BRD SPADE JKPT	40 BILLBOARD JOKER
C7 HP9-7 RED / BLU	41 SPADES A	42 SPADES K	43 SPADES Q	44 SPADES J	45 SPADES 10	46 EXTRA BALL READY	47 UPPER P/F COLLECT	48 BILLBOARD ACE
C6 HP9-6 RED / VIO	49 READY	50 AIM	51 FIRE	52 4 OF A KIND	53 CHIP 7	54 DEAL AGAIN	55 LEFT BUMPER	56 RIGHT BUMPER
C5 HP9-5 RED / GRY	57 HEARTS 10	58 HEARTS J	59 HEARTS Q	60 HEARTS K	61 HEARTS A	62 SPOT 'P'	63 SPOT 'S'	64 EXTRA BALL
C4 HP9-4 GRY / RED	65 CLUBS 10	66 CLUBS Q	67 CLUBS A	68 CLUBS K	69 CLUBS J	70 BANK COLLECT HAND	71 DIAMOND JKPT	72 CENTER COLLECT HAND
C3 HP9-3 GRY / BLK	73 DIAMONDS 10	74 DIAMONDS J	75 DIAMONDS Q	76 DIAMONDS K	77 DIAMONDS A	78 SPOT 'O'	79 SPOT 'T'	80 CLUB JACKPOT
C2 HP9-2 GRY / YEL	81 PAIR	82 2 PAIRS	83 CHIP 1	84 CHIP 2	85 3 OF A KIND	86 CHIP 5	87 JOKER	88 COIL CHIP VALUE
C1 HP9-1 GRY / ORG	89 CHIP 3	90 STRAIGHT	91 ROYAL FLUSH	92 CHIP 4	93 FULL HOUSE	94 CHIP 6	95 LEFT COLLECT HAND	96 HEART JACKPOT

(EMPTY SQUARES REPRESENT UNUSED MATRIX POSITIONS)

BACKBOX DECK LAMPS



	Description
1	Back 10 Spades
2	Back J Spades
3	Back Q Spades
4	Back K Spades
5	Back A Spades
6	Back 10 Hearts
7	Back J Hearts
8	Back Q Hearts
9	Back K Hearts
10	Back A Hearts
11	Back 10 Clubs
12	Back J Clubs
13	Back Q Clubs
14	Back K Clubs

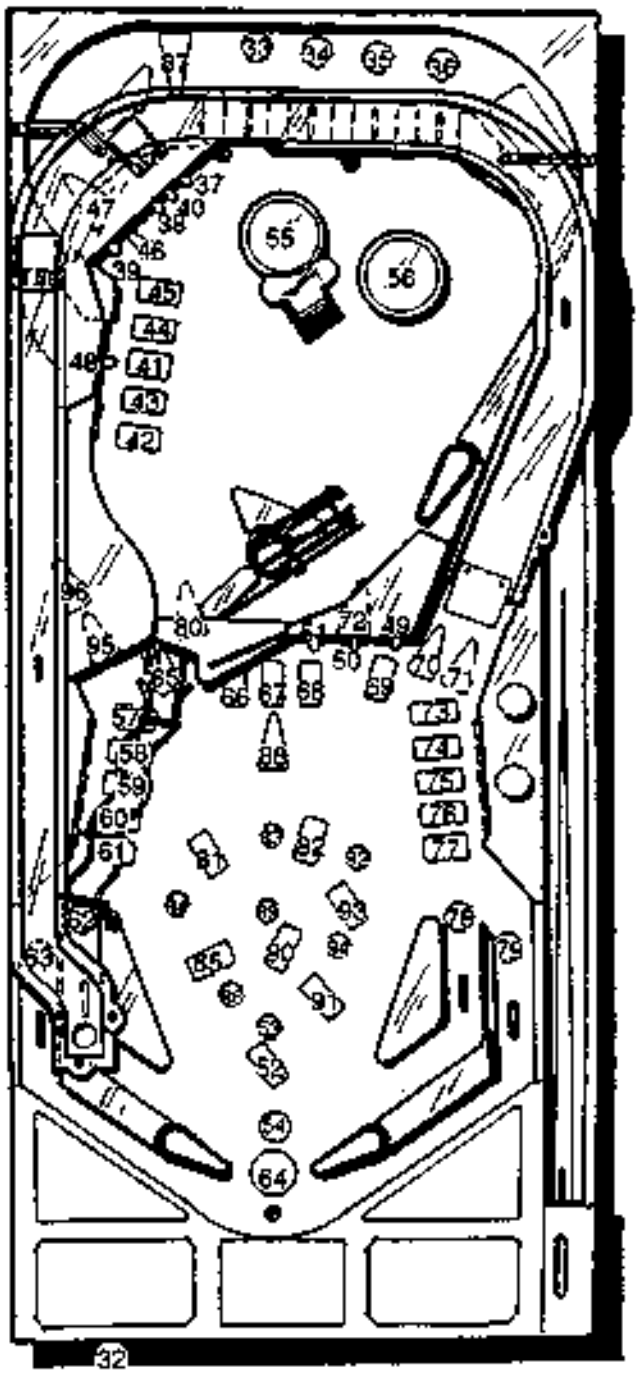
	Description
15	Back A Clubs
16	Back 10 Diamonds
17	Back J Diamonds
18	Back Q Diamonds
19	Back K Diamonds
20	Back A Diamonds
21	*Not used*
	through
25	*Not used*
26	Back coin Ace
27	Back coin King
28	Back coin Queen
29	Back coin Jack
30	Back coin 10

ALL LAMPS IN THE BACKBOX DECK USE #44 BULBS

ALL SOCKETS IN THE BACKBOX DECK ARE PART NO. LBK-016

LAMP LOCATIONS

	Description	Lamp No.	Socket Part No.
32	Game start	#555	
33	White chip	#44	LBK-010
34	Red chip	#44	LBK-010
35	Blue chip	#44	LBK-010
36	Gold chip	#44	LBK-010
37	B-board S. jackpot	#44	LBK-016
38	B-board megamode	#44	LBK-016
39	B-brd spade jkpt	#44	LBK-016
40	Billboard joker	#44	LBK-016
41	Spade A	#555	LBK-011
42	Spades K	#555	LBK-011
43	Spades Q	#555	LBK-011
44	Spades J	#555	LBK-011
45	Spades 10	#555	LBK-011
46	Extra ball ready	#555	LBK-004
47	Upper P/F collect	#44	LBK-004
48	Billboard Ace	#44	LBK-016
49	Ready	#555	LBK-011
50	Aim	#555	LBK-011
51	Fire	#555	LBK-011
52	4 of a kind	#555	LBK-011
53	Chip 7	#555	LBK-011
54	Deal again	#555	LBK-011
55	Left bumper	#555	
56	Right bumper	#555	
57	Hearts 10	#555	LBK-011
58	Hearts J	#555	LBK-011
59	Hearts Q	#555	LBK-011
60	Hearts K	#555	LBK-011
61	Hearts A	#555	LBK-011
62	Spot "P"	#555	LBK-011
63	Spot "S"	#44	LBK-010
64	Extra Ball	#44	LBK-010
65	Clubs 10	#44	LBK-010
66	Clubs Q	#555	LBK-011
67	Clubs A	#555	LBK-011
68	Clubs K	#555	LBK-011
69	Clubs J	#555	LBK-011
70	Ramp collect hand	#555	LBK-011
71	Diamond Jkpt	#555	LBK-011
72	Center collect	#44	LBK-010
73	Diamonds 10	#555	LBK-011
74	Diamonds J	#555	LBK-011
75	Diamonds Q	#555	LBK-011
76	Diamonds K	#555	LBK-011
77	Diamonds A	#555	LBK-011
78	Spot "O"	#555	LBK-011
79	Spot "T"	#44	LBK-010
80	Club jackpot	#44	LBK-010
81	Pair	#555	LBK-011
82	2 Pairs	#555	LBK-011
83	Chip 1	#555	LBK-011
84	Chip 2	#555	LBK-011
85	3 of a kind	#555	LBK-011
86	Chip 5	#555	LBK-011
87	Joker	#44	LBK-010
88	Coil chip value	#44	LBK-010
89	Chip 3	#555	LBK-011
90	Straight	#555	LBK-011
91	Royal Flush	#555	LBK-011
92	Chip 4	#555	LBK-011
93	Full house	#555	LBK-011
94	Chip 6	#555	LBK-011
95	Left collect hand	#44	LBK-010
96	Heart jackpot	#44	LBK-010



(Lamps 1-20 & 26-30 are located in the backbox)

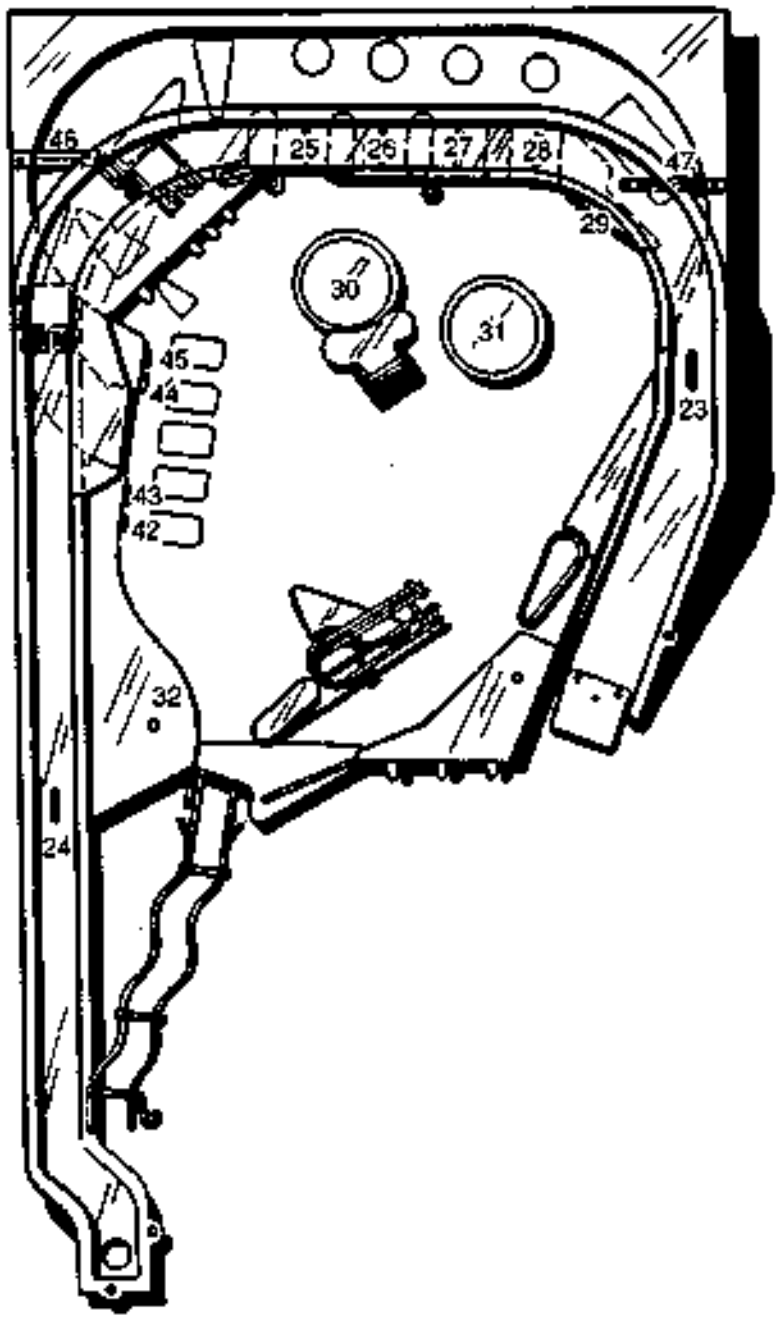
	Lamp Part No.
#44 Lamp, bayonet base	LMP-002
#555 Lamp, wedge base	LMP-003

SWITCH MATRIX

COLUMN / ROW	HPS-8 GRN / BRN	HPS-7 GRN / RED	HPS-6 GRN / ORG	HPS-5 GRN / YEL	HPS-4 GRN / BLK	HPS-3 GRN / BLU	HPS-2 GRN / VIO	HPS-1 GRN / GRY
HP4-1 WHT / BRN	01 LEFT COIN CHUTE	02 RIGHT COIN CHUTE	03 CENTER COIN CHUTE	04 EXTRA COIN CHUTE	05 SLAM	06	07 L FLIPPER BUTTON	08 R FLIPPER BUTTON
HP4-2 WHT / RED	09 GAME START	10 TILT	11	12	13	14	15 TEST PLUS	16 TEST MINUS
HP4-3 WHT / ORG	17 OUTHOLE	18 BALL TROUGH	19	20	21 SHOOTER LANE	22	23 RAMP ENTER	24 RAMP EXIT
HP4-4 WHT / YEL	25 WHITE CHIP	26 RED CHIP	27 BLUE CHIP	28 GOLD CHIP	29 REBOUNDERS	30 LEFT BUMPER	31 RIGHT BUMPER	32 TOP SLING
HP4-5 WHT / GRN	33	34	35	36	37	38	39	40
HP4-6 WHT / BLU	41	42 SPADES K	43 SPADES Q	44 SPADES J	45 SPADES 10	46 TOP LOOP LEFT	47 TOP LOOP RIGHT	48
HP4-7 WHT / VIO	49 LEFT SLING	50 RIGHT SLING	51 ACE OF CLUBS	52 JOKER TOP	53 JOKER BOTTOM	54	55	56 CNTR COIL
HP4-8 WHT / GRY	57 HEARTS 10	58 HEARTS J	59 HEARTS Q	60 HEARTS K	61 HEARTS A	62 SPOT P	63 SPOT S	64
HP4-9 ORG / RED	65 CLUBS 10	66 CLUBS Q	67	68 CLUBS K	69 CLUBS J	70 CLUB JACKPOT	71 HEART JKPT TOP	72 HEART JKPT BOTTOM
HP4-10 ORG / BLK	73 DIAMONDS 10	74 DIAMONDS J	75 DIAMONDS Q	76 DIAMONDS K	77 DIAMONDS A	78 SPOT T	79 SPOT O	80 CNTR COIL TOP
HP4-11 ORG / YEL	81	82	83	84	85	86	87	88
HP4-12 ORG / GRN	89	90	91	92	93	94	95	96

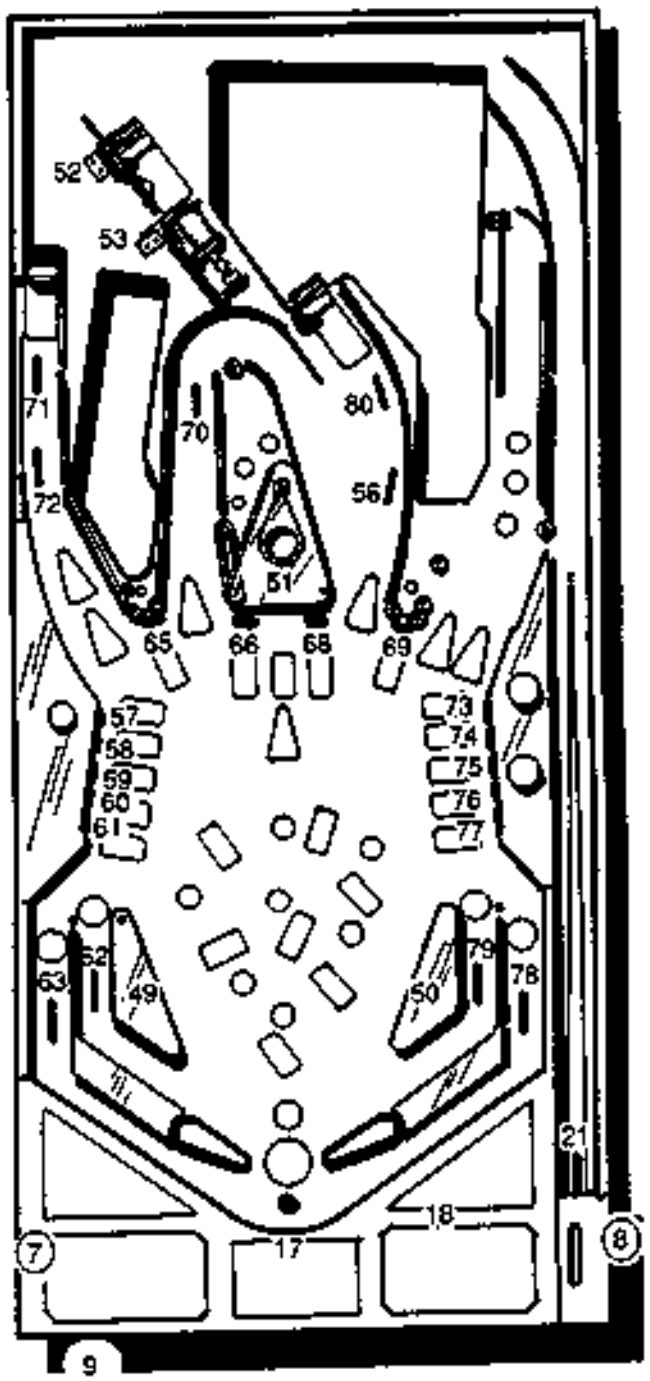
(EMPTY SQUARES REPRESENT UNUSED MATRIX POSITIONS)

UPPER PLAYFIELD SWITCH LOCATIONS



Description	Part No.
- Switches 1-5, 15, and 16 are located on the coin door	
- Switch 10 is located in the cabinet	
23 Ramp enter	MSW-009
24 Ramp exit	MSW-009
25 White chip	MSA-005
26 Red chip	MSA-005
27 Blue chip	MSA-005
28 Gold chip	MSA-005
29 Rebounders	STS-001
30 Left Bumper	STS-001
31 Right Bumper	STS-001
32 Top sling	STS-001
33 *Not used Through*	
41 *Not used*	
42 Spades K	STS-003
43 Spades Q	STS-003
44 Spades J	STS-003
45 Spades 10	STS-003
46 Top loop left	MSA-015
47 Top loop right	MSA-014
48 *Not used*	

LOWER PLAYFIELD SWITCH LOCATIONS

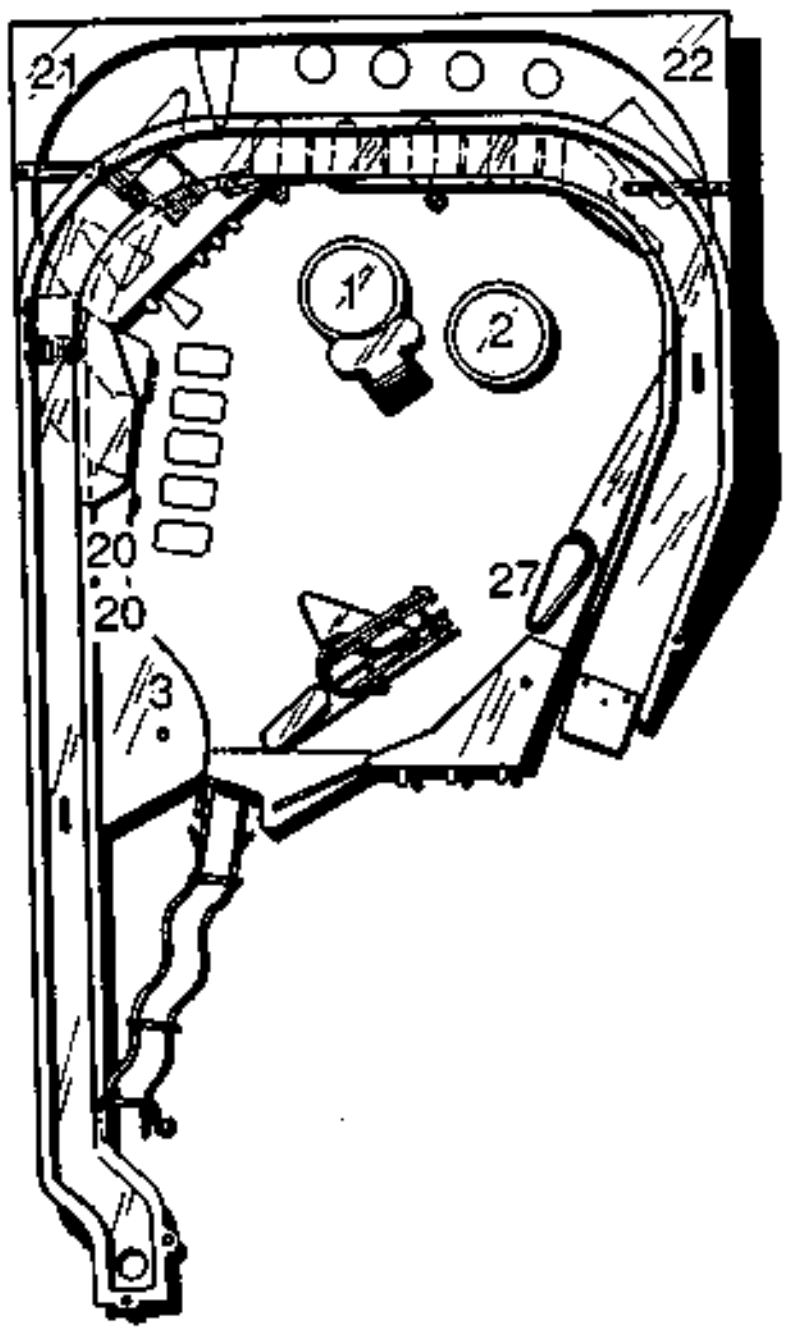


	Description	Part No.
7	L flipper button	LSW-001
8	R flipper button	LSW-001
9	Game start	CBB-001
10	Tilt	PLM-001
49	Left sling	STS-001
50	Right sling	STS-001
51	Ace of clubs	MSA-009
52	Joker top	MSA-013
53	Joker bottom	MSA-010
54	*Not used*	
55	*Not used*	
56	Cntr coil bottom	MSA-005
57	Hearts 10	STS-003
58	Hearts J	STS-003
59	Hearts Q	STS-003
60	Hearts K	STS-003
61	Hearts A	STS-003
62	Spot 'P'	MSA-005
63	Spot 'S'	MSA-005
64	*Not used*	
65	Clubs 10	STS-003
66	Clubs Q	STS-003
67	*Not used*	
68	Clubs K	STS-003
69	Clubs J	STS-003
70	Club jackpot	MSA-005
71	Heart JKPT top	MSA-005
72	Heart JKPT bottom	MSA-005
73	Diamonds 10	STS-003
74	Diamonds J	STS-003
75	Diamonds Q	STS-003
76	Diamonds K	STS-003
77	Diamonds A	STS-003
78	Spot 'T'	MSA-005
79	Spot 'O'	MSA-005
80	Cntr coil top	MSA-005
81 through 96	*Not used*	

COIL TABLE

Fuse	No.	Description	Transistor	Power	Return	Connector	Coil no.
F14	1	Left bumper	Q21	Vio/Grn	Vio/Gry	HP6-9	CLL-006
F14	2	Right bumper	Q22	Vio/Grn	Vio/Red	HP6-8	CLL-006
F14	3	Top sling	Q23	Vio/Yel	Vio/Org	HP6-7	CLL-007
F15	4	Left sling	Q24	Vio/Blk	Vio/Yel	HP6-5	CLL-007
F15	5	Right sling	Q25	Vio/Blk	Vio/Grn	HP6-4	CLL-007
F13	6	Joker kicker	Q26	Vio/Yel	Vio/Blu	HP6-3	CLL-007
	7	*(Not used)*	*Q27*				
	8	*(Not used)*	*Q28*				
	9	*(Not used)*	*Q29*				
	10	*(Not used)*	*Q30*				
	11	*(Not used)*	*Q31*				
	12	*(Not used)*	*Q32*				
F16	13	Outhole	Q33	Vio/Blk	Brn/Grn	HP6-13	CLL-006
F15	14	Knocker	Q34	Vio/Blk	Brn/Blu	HP6-12	CLL-007
F18	15	Flasher relay	Q35	Red/Vio	Brn/Vio	HP6-11	PCA-007
F17	16	Playfield relay	Q36	Red/Grn	Brn/Gry	HP6-10	REL-001
F18	17	Hearts (3)	Q37	Vio/Wht	Blk/Brn	HP7-8	#67
F18	18	Diamonds (3)	Q38	Vio/Wht	Blk/Red	HP7-7	#67
F18	19	Clubs (3)	Q39	Vio/Wht	Blk/Org	HP7-6	#67
F18	20	Spades (3)	Q40	Vio/Wht	Blk/Yel	HP7-5	#67
F18	21	Top left (4)	Q41	Vio/Wht	Blk/Grn	HP7-4	#67
F18	22	Top right (2)	Q42	Vio/Wht	Blk/Blu	HP7-3	#67
F18	23	Flasher ramp (3)	Q43	Vio/Wht	Blk/Vio	HP7-2	#67
F18	24	Flasher backbox (3)	Q44	Vio/Wht	Blk/Gry	HP7-1	#67
	25	Ace clubs popper	Q45	Vio/Yel	Blu/Grn	HP7-17	CLL-007
	26	*(Not used)*	*Q46*				
F17	27	Flipper relay	Q47	Red/Grn	Blu/Vio	HP7-15	REL-003
	28	*(Not used)*	Q48				
F17	29	Backbox relay	Q49	Red/Grn	Blu/Brn	HP7-12	REL-001
	30	Eject 2 playfield	Q50	Red/Grn	Blu/Red	HP7-11	CLL-004
F19	31	*(Not used)*	Q51				
	32	*(Not used)*	*Q52*				
		These coils are not directly controlled by the CPU.					
F16		Left Fliper		Vio/Org	Blu/Gry		CLL-015
F16		Right Flipper		Vio/Org	Blu/Grn		CLL-015
F16		Top flipper		Vio/Org	Blu/Grn		CLL-015

UPPER PLAYFIELD COIL LOCATIONS

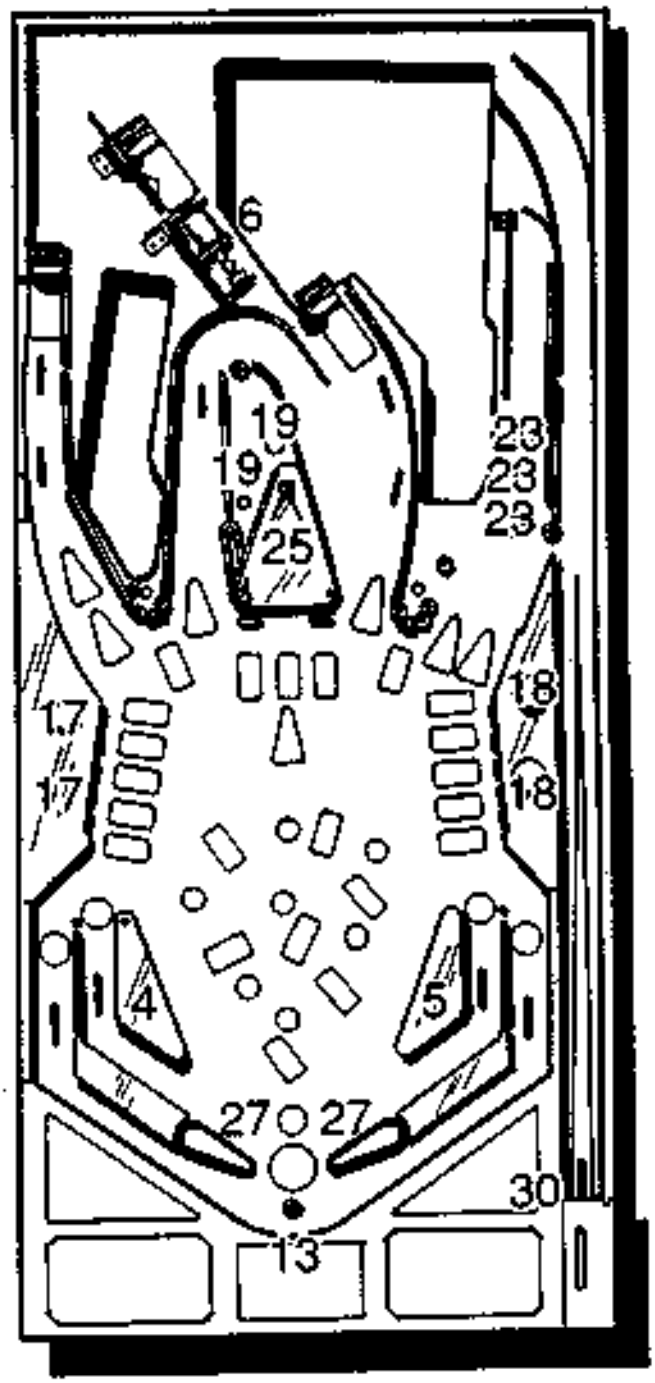


	Description	Assembly Part No.
1	Bumper left	ABM-004
2	Bumper right	ABM-004
3	Top sling	ABK-008
20	Spades (2)	LBK-014
21	Top left (2)	LBK-015
22	Top right (2)	LBK-015
27	Flipper relay	REL-003

This coil is not directly controlled by the CPU.

	Top flipper	AFF-R03

LOWER PLAYFIELD COIL LOCATIONS

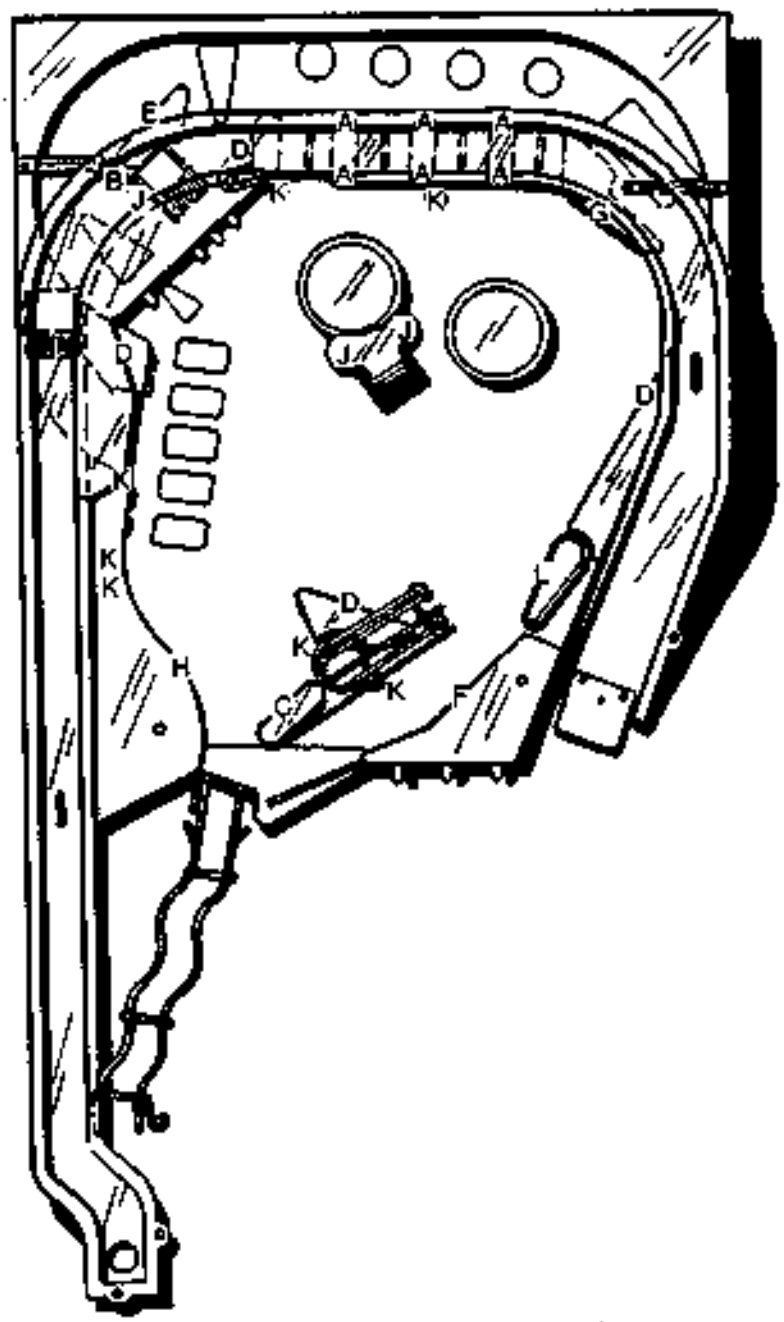


	Description	Assembly Part No.
4	Sling left	ABK-006
5	Sling right	ABK-006
6	Joker kicker	CKA-001-7
7	*Not used*	
	through	
12	*Not used*	
13	Outhole	ABK-007
14	Knocker	AKN-001
15	Flasher relay	PCA-007
16	Playfield GI relay	REL-001
17	Hearts (2)	LBK-009
18	Diamonds (2)	LBK-009
19	Clubs (2)	LBK-006
23	Flasher ramp (3)	LBK-006
24	Flasher backbox (3)	
25	Ace clubs popper	AVK-003-7
26	*Not used*	
27	Flipper relay	REL-003
28	*Not used*	
29	Backbox relay	REL-001
30	Eject 2 playfield	ABR-002
31	*Not used*	
32	*Not used*	

These coils are not directly controlled by the CPU.

Left flipper	AFF-L02
Right flipper	AFF-R05

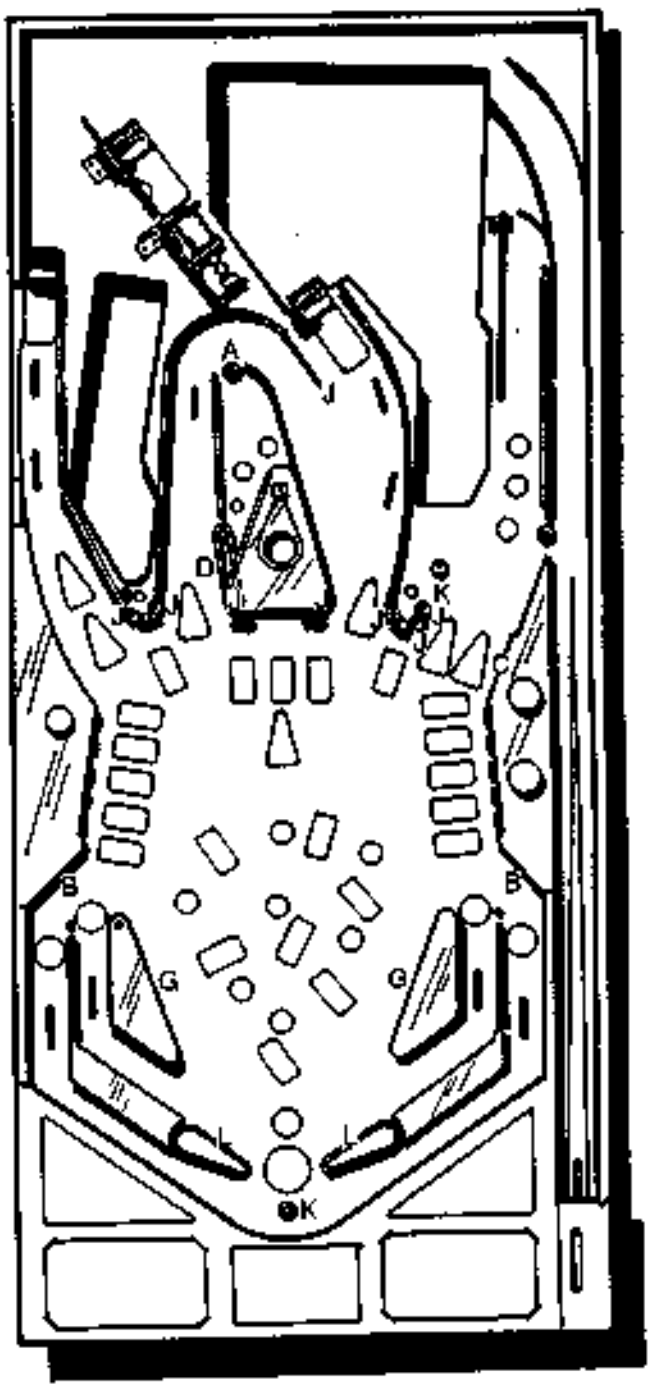
UPPER PLAYFIELD RUBBER RING LOCATIONS



	Description	Part No.
A	5/16" Rubber ring (6)	RBR-025
B	3/4" Rubber ring	RBR-019
C	1" Rubber ring	RBR-020
D	1 1/4" Rubber ring (4)	RBR-021
E	1 1/2" Rubber ring	RBR-022
F	2" Rubber ring	RBR-023
G	2 1/2" Rubber ring	RBR-024
H	3" Rubber ring	RBR-027
J	Post Rubber (3)	RBR-012
K	Mini Post Rubber (7)	RBR-017
L	Flipper rubber (2)	RBR-016

NOTE: ALL GAME RUBBERS ARE BLACK

LOWER PLAYFIELD RUBBER RING LOCATIONS & MISCELLANEOUS PARTS



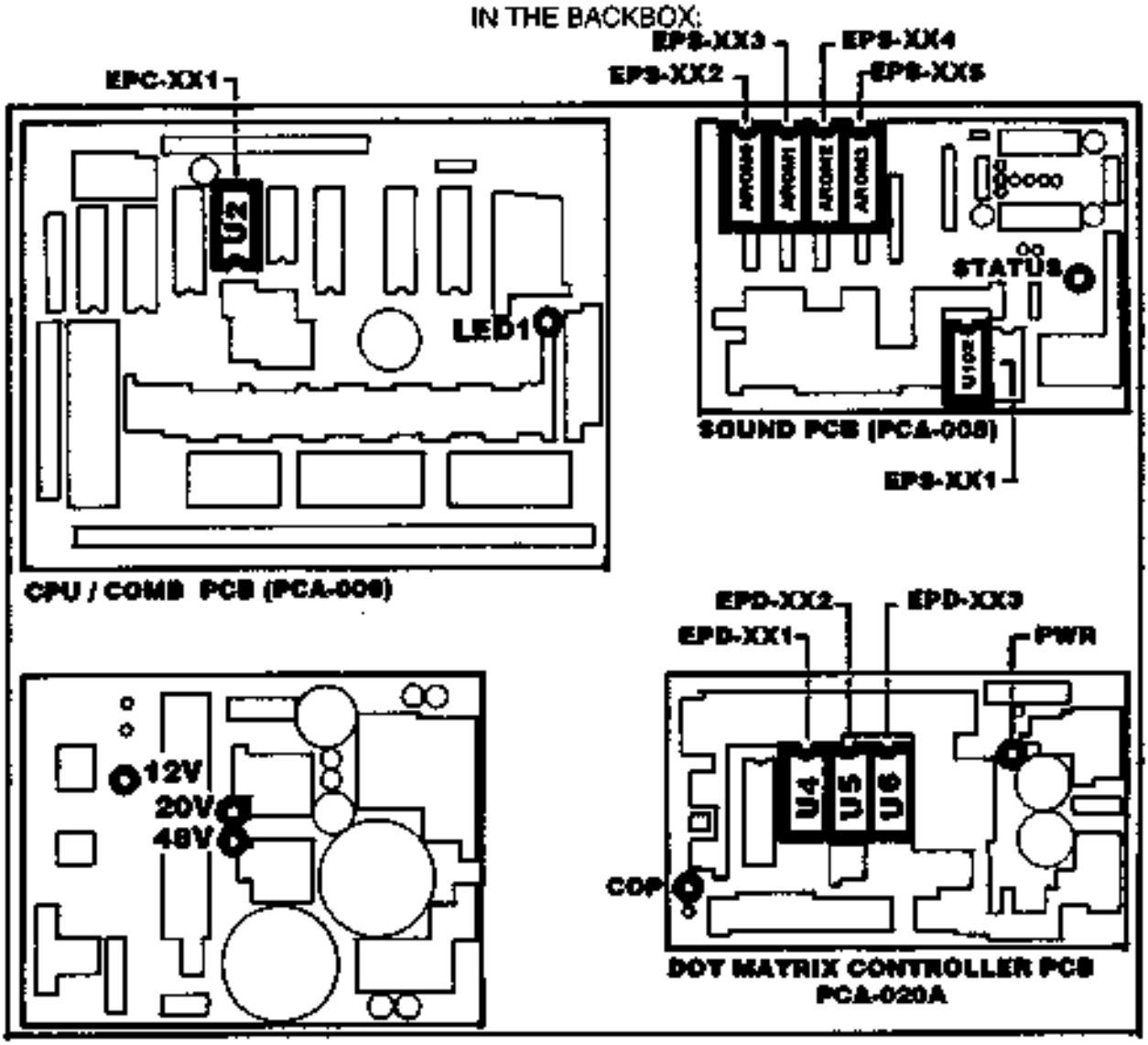
	Description	Part No.
A	5/16" Rubber ring	RBR-025
B	3/4" Rubber ring (2)	RBR-019
C	1" Rubber ring	RBR-020
D	1 1/4" Rubber ring	RBR-021
G	2 1/2" Rubber ring (2)	RBR-024
J	Post Rubber (black)(8)	RBR-012
K	Mini Post Rubber (black)(2)	RBR-017
L	Flipper rubber (black)	RBR-016

NOTE: ALL GAME RUBBERS ARE BLACK

Pistol Poker plastic set, screened	BUT-010
Pistol Poker plastic set, clear	BUT-010B
Pistol Poker decal set	DCL-010
Playfield mylar set	PMS-002
Instruction card	GDC-010
Back glass	GTD-010
Playfield Glass (21 X 43 X 3/16)	GLC-004
WARNING: REPLACEMENT GLASS MUST BE TEMPERED!	
6" Speaker - 8 ohm	SPK-004
4" Speaker - 4 ohm	SPK-003
On / off switch	TOG-001
Cash Box	CAS-001
Tilt bob	PLM-001
Start button	CBB-001
Pinball 1 1/16"	BAL-001
Cabinet legs (4)	LEG-001
Leg levellers (4)	LEV-001
Leg bolts 3/8-16x2 1/2(8)	HCB-007
Coin door lock (not keyed alike)	LCK-002
Backbox lock (not keyed alike)	LCK-001
Transformer	TRN-003
Flipper cabinet buttons	FBT-005
Flipper cabinet switches	LSW-001

BOARD & EPROM LOCATIONS

IN THE BACKBOX:



NORMAL L.E.D. OPERATION

C.P.U.	LED1 = 1 flash / second
SOUND BOARD	STATUS LED = 1 flash / second
POWER SUPPLY BOARD	12V LED (& 5V) = on continuosly
	20V LED = on continuosly
	48V LED = on continuosly
DOT MATRIX CONTROLLER	PWR LED = on continuosly
	COP LED = 1 flash / second

C.P.U. L.E.D. ERROR FLASHES

The L.E.D. flashes at a normal rate of 1 flash per second. Any other flash sequence indicates a problem in the C.P.U. or its associated circuitry. For example:

2 quick flashes and stops - R.O.M. error
3 quick flashes and stops - Switch returns or U7, 6522
4 quick flashes and stops - 4 direct switches or U7, 6522
5 quick flashes and stops - U8, 6522
On continuosly - EPROM missing or defective

PRICING TABLE

Country	Left	Center	Right	Extra	Games / Coin	Display	a	b	c	d	e	f
Antilles	25¢		1G		1/25c, 4/1 Guilder	ANTILLES	01	01	04	00	01	00
Argentina	10¢	10¢	10¢		1/1 token	ARGENTINA	01	01	01	00	01	00
Australia	$2.00	$1.00	20¢		1/$1, 3/$2	AUSTRALIA	10	05	01	00	05	10
Austria	10S		10S		1/10S	AUSTRIA	01	00	01	00	01	00
Belgium	20Fr		50Fr		1/20, 3/50 Franc	BELGIUM	06	00	15	00	05	00
Canada 1	25¢		25¢		1/25c, 4/$1	CANADA 1	01	04	01	00	01	00
Canada 2	25¢		25¢		1/50c, 2/75¢, 3/$1	CANADA 2	03	12	03	00	04	00
Chile	Token		Token		1/1 Token	CHILE	01	04	01	00	01	00
Denmark	1Kr	5Kr	10Kr		1/2X1Kr, 3/5Kr, 7/10Kr	DENMARK	03	15	30	00	05	30
Finland	1Mk		5Mk		1/2X1Mka, 3/5Markka	FINLAND	03	00	15	00	05	00
France 1	1Fr	5Fr	10Fr		1/3X1Fr, 2/5Fr, 5/10Fr	FR 5/10 FR	02	10	20	00	05	20
France 2	1Fr	5Fr	10Fr		1/2Fr, 3/5Fr, 7/10Fr	FR 7/10 FR	03	15	30	00	05	30
France 3	5Fr	10Fr	10Fr		1/5Fr, 3/10Fr, 7/2X10Fr	FR 7/20 FR	03	06	12	00	02	12
France 4	5Fr	10Fr	10Fr		2/5Fr, 4/10Fr, 9/2X10Fr	FR 9/20 FR	02	04	04	00	01	08
France 5	5Fr	10Fr	10Fr		2/5Fr, 5/10Fr, 11/2X10Fr	FR 11/20 FR	05	10	20	00	02	20
France 6	5Fr	10Fr	20Fr		1/5Fr, 3/10Fr, 7/20Fr	FR 3/10 FR	01	03	07	00	01	00
Germany 1	1DM	2DM	5DM		1/1 DM, 2/2 DM, 6/5 DM	GER 6/5 DM	06	12	30	00	05	00
Germany 2	1DM	2DM	5DM		1/1 DM, 2/2 DM, 7/5 DM	GER 7/5 DM	06	12	30	00	05	30
Greece	10D	20D	50D		1/2X10D, 1/20D, 3/50 1/1	GREECE	03	06	15	00	05	00
Hungary	20F		20F		1/1X20F	HUNGARY	01	00	01	00	01	00
Italy	500L		500L		1/500 Lire	ITALY	01	00	01	00	01	00
Japan	100Y		100Y		1/100Y	JAPAN	01	00	01	00	01	00
Korea	100w		100w		1/100won	KOREA	01	00	01	00	01	00
Netherlands	1Gl		2.5Gl		1/1Gl, 3/2.5 Gl[Holland]	NETHERLAND	01	00	03	00	01	00
New Zealand	$1		$2		1/$1, 3/2X$1, 3/$2	N ZEALAND	01	00	02	00	01	02
Norway	5Kr		10Kr		1/1X5, 2/1X10 Kroner	NORWAY	01	00	02	00	01	00
Spain	100Pts		500Pts		1/100, 5/500 Pesets	SPAIN	01	00	05	00	01	00
Sweden	5Kr	5Kr	5Kr		1/5 Krona	SWEDEN	01	01	01	00	01	00
Swiss	1SFr	2Sfr	5Sfr		1/1 Fr, 3/2 Fr, 7/5 Fr	SWISS	01	02	05	00	01	02
Taiwan	25¢		25¢		1/50c, 2/75¢, 3/$1	TAIWAN	03	12	03	00	04	00
United Kingdom	10P	50P	£1	20P	1/5 X 10P, 1/50P, 3/£1	U Kingdom	01	05	10	02	05	10
United States 1	25¢		25¢		1/25, 4/$1	USA 4/$1	01	04	01	00	01	00
United States 2	25¢		25¢		1/50¢, 2/75cc, 3/$1	USA 3/$1	03	12	03	00	04	00
United States 3	25¢		25¢		1/50¢, 2/$1	USA 2/$1	01	04	01	00	02	00
Custom						CUSTOM	01	01	01	00	01	00

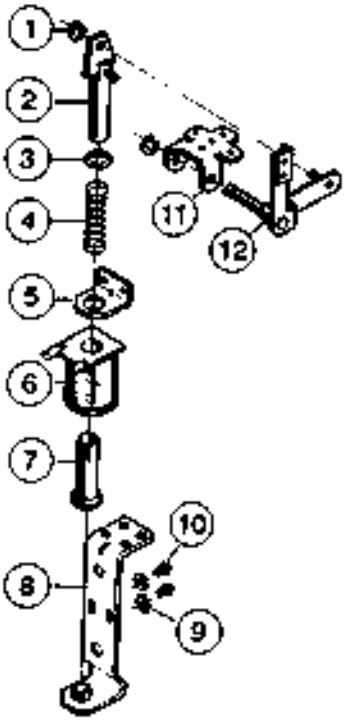
Columns marked a, b, c, d, e, & f represent the settings for the particular selection. These can be used as a reference to set the custom pricing menu choice. Each lettered column has a full description on page 10.

FACTORY SETTINGS

Using A506 FACTORY RESET will reset all the adjustments to the settings shown below.
Note: this also resets all the Bookkeeping features to 0 including B2 EARNINGS and B102 GRAND TOTAL COINS.

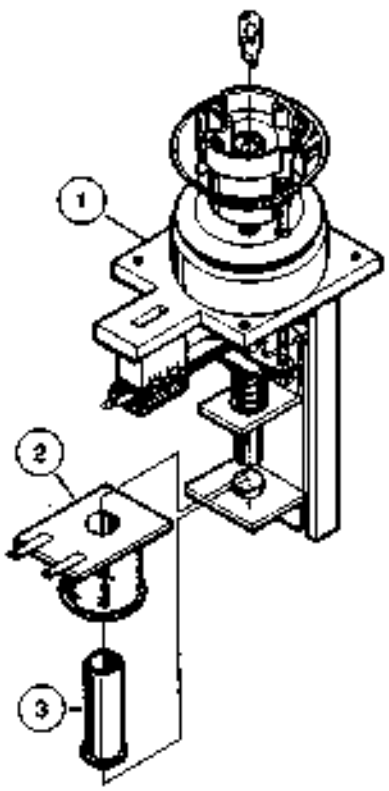
Menu #	Adjustment description	Setting
A101	REPLAY LEVELS	1
A102	1ST REPLAY AT	300,000,000
A106	AWARD TYPE	CREDIT
A107	REPLAY PERCENT	10%
A108	REPLAY BOOST	20%
A109	GAME OVER ATTRACT	30 MIN
A110	MAX FREE GAMES	20
A111	BALLS PER GAME	3
A112	MAX XBALLS / GAME	3
A113	MATCH PERCENT	10%
A114	TILT WARNINGS	2 WARNINGS
A115	TOURNAMENT MODE	NO
A301	GAME PRICING	USA 2 / $1
A302	MAXIMUM CREDITS	20
A303	FREE PLAY	NO
A304	DISPLAY CREDITS	YES
A305	METER COUNTS	COINS
A401	HSTD ALLOWED	YES
A402	CREDITS FOR TOP HSTD	3
A403	CREDITS FOR 2ND HSTD	2
A404	RESET HSTD EVERY	700
A405	BACKUP TO HISCORES	400,000,000
A501	CLEAR AUDITS	NO
A502	CLEAR COIN AUDITS	NO
A503	SET BACKUP HISCORES	NO
A504	CLEAR CREDITS	NO
A505	CUSTOM MESSAGE	ON
A506	FACTORY RESET	NO
A507	GAME DIFFICULTY	MEDIUM
A508	INSTALL COUNTRY	USA
A509	FLASHER INTENSITY	NORMAL
A510	COIL STRENGTH	NORMAL

ABK-007 KICKER ASSEMBLY



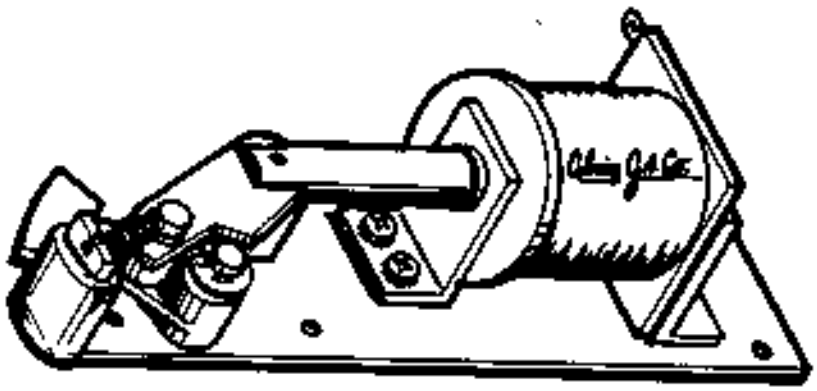
ITEM	DESCRIPTION	PART NO.
1	E-Ring 5144-21 (2)	HRG-002
2	Link and plunger assembly	LAP-002
3	Cup washer	CWH-001
4	Spring	SRG-002
5	Coil mounting bracket	BSL-031
6	Coil	CLL-005
7	Sleeve	SLC-002
8	Stop stud assembly	ASS-003
9	#8 Ext tooth lock washer (2)	HLW-006
10	#8-32 X 3/8 HWH (2)	HMS-019
11	Fulcrum	SLF-001
12	Kicker arm	SLA-006

ABM-004 POP BUMPER ASSEMBLY



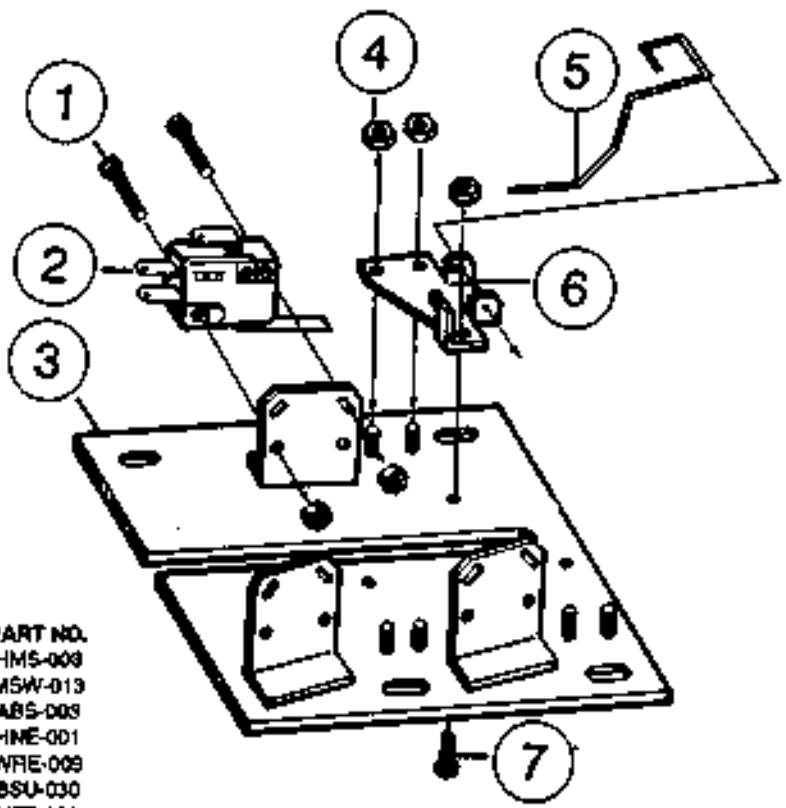
ITEM	DESCRIPTION	PART NO.
1	Pop bumper assembly	ABM-004
2	Coil	CLL-005
3	Sleeve	SLC-006
	Wedge base bulb #555	LMP-003

ABR-001 OUTHOLE KICKER ASSEMBLY



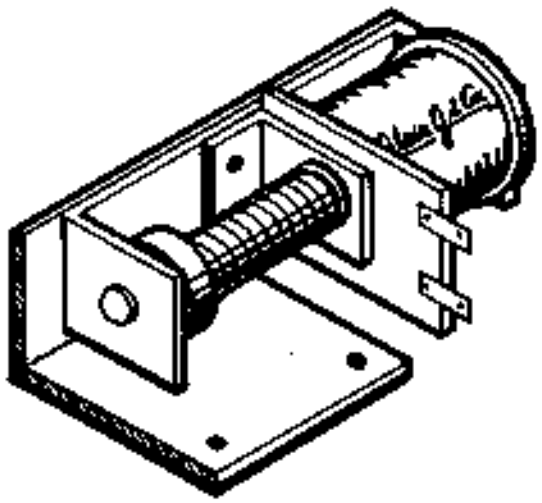
ITEM	DESCRIPTION	PART NO.
1	Outhole kicker assembly	ABR-001
2	Sleeve	SLC-006
3	Coil	CLL-006

AMS-001 TROUGH SWITCH ASSEMBLY



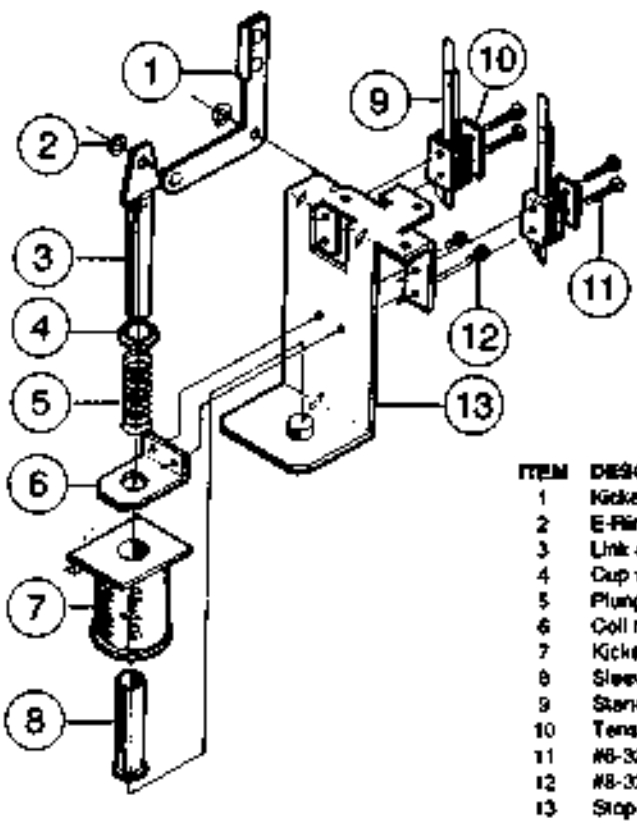
ITEM	DESCRIPTION	PART NO.
1	#4-40 X 5/8" PPH MS (2)	HMS-008
2	Micro switch	MSW-013
3	Playfield mounting bracket	ABS-008
4	#4-40 Elastic Stop Nut (ESN) (5)	HNE-001
5	Switch actuator wire	WRE-009
6	Wire tuborum	BSU-030
7	#4-40 X 1/4 PPH MS	HTT-002

KNR-001 KNOCKER ASSEMBLY



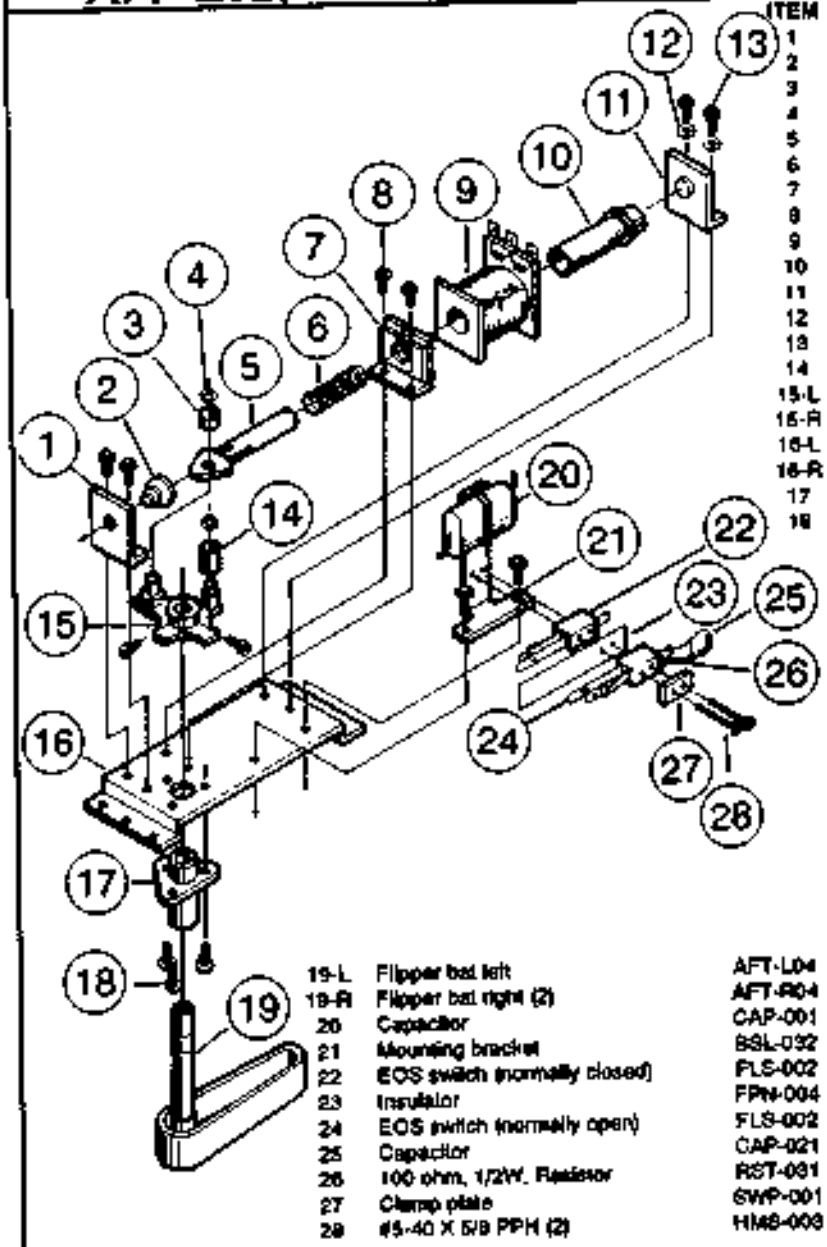
ITEM	DESCRIPTION	PART NO.
1	Knocker assembly	KNR-001
	Coil	CLL-006
	Sleeve	SLC-006

ABK-006 SLINGSHOT ASSEMBLY



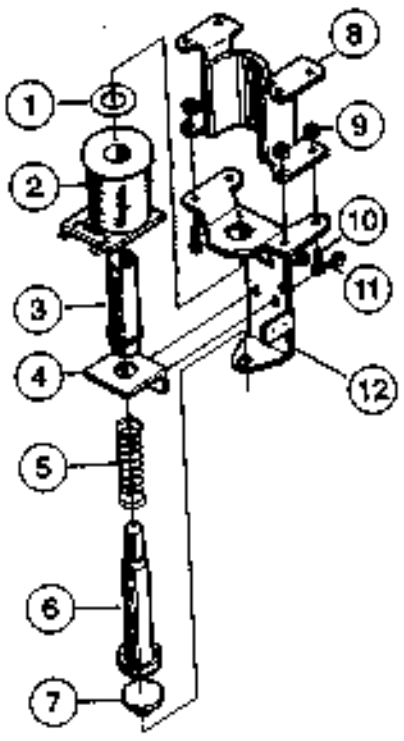
ITEM	DESCRIPTION	PART NO.
1	Kicker arm assembly	SLA-009
2	E-Ring 5144-18 (2)	HRG-001
3	Link and plunger assembly	LAP-002
4	Cup washer	CWH-001
5	Plunger spring	SRG-005
6	Coil mounting bracket	BSL-031
7	Kicker coil	CLL-006
8	Sleeve	SLC-006
9	Stand up switch (2)	STR-001
10	Tension plate (2)	SWP-001
11	#6-32 X 5/8 PPH (4)	HMS-026
12	#8-32 X 3/8 Hex (2)	HMS-019
13	Stop stud assembly	ASS-004

AFF-L02, AFF-R05, AFF-R03 FLIPPER ASSEMBLY



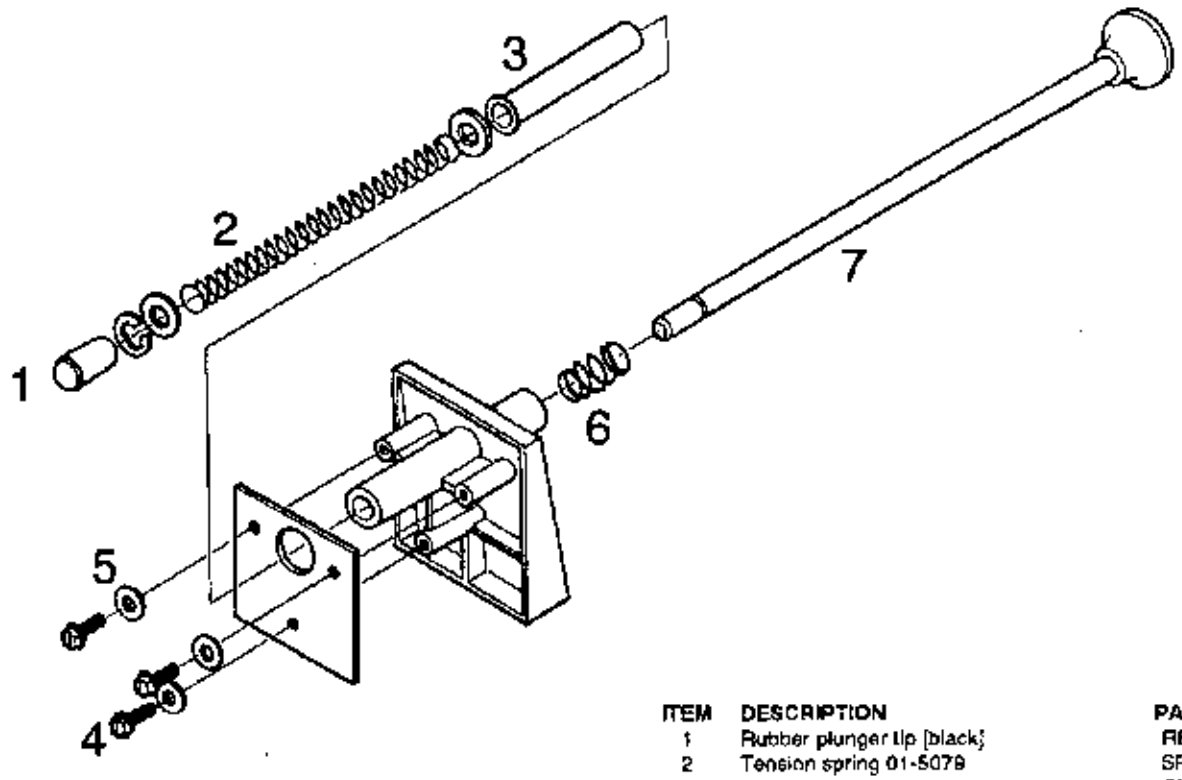
ITEM	DESCRIPTION	PART NO.
1	Plunger stop bracket	BSL-027
2	Bumper grommet	RBR-001
3	Bushing	BRG-001
4	E-Ring 5144-16 (2)	HRG-001
5	Link and plunger assembly	LAP-001
6	Spring	SRG-001
7	Coil mounting assembly	CBA-001
8	#8-32 X 3/8 HWH taptite (5)	HTT-005
9	Coil	CLL-015
10	Sleeve	SLC-001
11	Stop stud assembly	ASS-002
12	#10 SLW (2)	HLW-010
13	#10-32 X 3/8 Socket cap screw (4)	HSP-008
14	Actuator bearing	SLV-001
15-L	Pivot yoke assembly left	PYA-L01
15-R	Pivot yoke assembly right & top	PYA-R01
16-L	Flipper base assembly left	FBA-L01
16-R	Flipper base assembly right & top	FBA-R01
17	Flipper shaft	FSB-001
18	#6-32 X 3/8 WHW taptite (3)	HTT-004
19-L	Flipper bat left	AFT-L04
19-R	Flipper bat right (2)	AFT-R04
20	Capacitor	CAP-001
21	Mounting bracket	BSL-032
22	EOS switch (normally closed)	FLS-002
23	Insulator	FPN-004
24	EOS switch (normally open)	FLS-002
25	Capacitor	CAP-021
26	100 ohm, 1/2W. Resistor	RST-031
27	Clamp plate	SWP-001
28	#5-40 X 5/8 PPH (2)	HMS-008

AVK-003-7 VERTICAL UPKICKER ASSEMBLY



ITEM	DESCRIPTION	PART NO.
1	Spring washer	SPW-001
2	Coil	CLL-007
3	Sleeve	SLC-006
4	Coil mounting bracket	BSL-042
5	Spring	SRG-005
6	Plunger assembly	PLN-015
7	Bumper grommet	RBR-001
8	Support bracket	BSS-069
9	#8-32 ESN (4)	HNE-002
10	#8-32 X 1/2 HWH MS (4)	HMS-014
11	#8-32 X 5/16 HWH MS (2)	HSM-017
12	Playfield mounting bracket	BSL-043

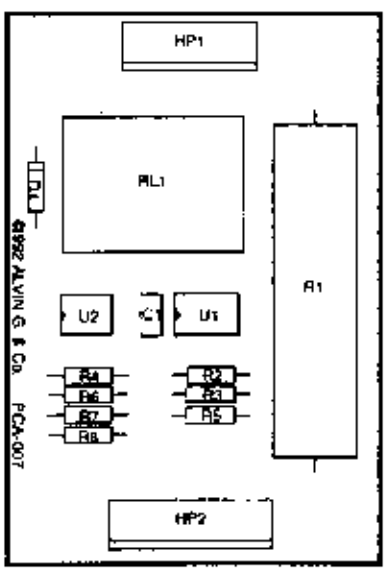
PLF-001 PLUNGER ASSEMBLY



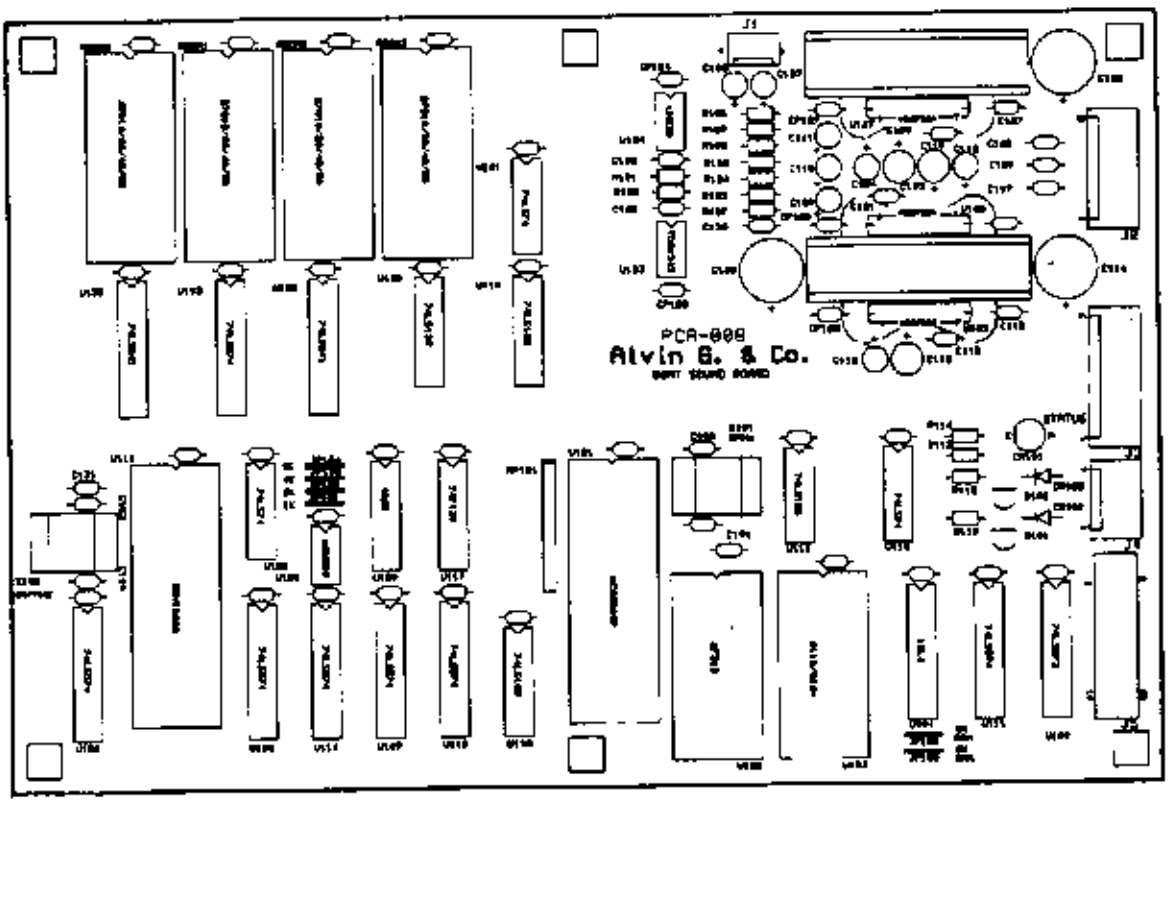
ITEM	DESCRIPTION	PART NO.
1	Rubber plunger tip (black)	RBR-034
2	Tension spring 01-5079	SRG-011
3	Sleeve	SLC-009
4	#10-32 x 1/2" HWH MS	HMS-021
5	1/4 x 3/4 flat washer	HWA-004
6	Plunger spring	SRG-008
7	Plunger shaft	PSA-001

PCA-007 FLASHER BOARD

ITEM	DESCRIPTION	PART NO.
C1	Capacitor, .1µF 50V	CAP-010
D1	Diode, 1N4004	DDS-001
HP1	Panduit header .156" 4 pin	CHP-001
HP2	Panduit header .156" 5 pin	CHP-002
R1	Resistor, .47Ω, 10W, 5%	RST-016
R2	Resistor, 681Ω, 1%	RST-021
R3	Resistor, 5.62kΩ, 1%	RST-020
R4	Resistor, 100kΩ, 5%	RST-018
R5	Resistor, 2.2kΩ, 5%	RST-010
R6	Resistor, 5.62kΩ, 1%	RST-020
R7	Resistor, 562, 1%	RST-019
R8	Resistor, 82.5, 1%	RST-017
RL1	Relay, 24V coil	REL-002
U1	LM358	EC-0031
U2	H11G3	EC-0032



PCA-008 SOUND BOARD



ITEM	DESCRIPTION	PART NO.
AROM0	2 Meg EPROM	EPS-102
AROM0	32 pin DIP socket	SKT-032
AROM1	2 Meg EPROM	EPS-103
AROM0	32pin DIP socket	SKT-032
AROM2	2 Meg EPROM	EPS-104
AROM2	32 pin DIP socket	SKT-032
AROM3	2 Meg EPROM	EPS-105
AROM3	32 pin DIP socket	SKT-032
C101	18PF, 50WVDC, Axial, Ceramic	CAP-015
C102	18PF, 50WVDC, Axial, Ceramic	CAP-015
C103	18PF, 50WVDC, Axial, Ceramic	CAP-015
C104	18PF, 50WVDC, Axial, Ceramic	CAP-015
C105	2200PF, 50WVDC, Axial, Ceramic	CAP-016
C106	2200PF, 50WVDC, Axial, Ceramic	CAP-016
C107	4.7µF, 25WVDC, Radial, Elect.	CAP-017
C108	4.7µF, 25WVDC, Radial, Elect.	CAP-017
C109	4.7µF, 25WVDC, Radial, Elect.	CAP-017
C110	4.7µF, 25WVDC, Radial, Elect.	CAP-017
C111	4.7µF, 25WVDC, Radial, Elect.	CAP-017
C112	22µF, 16WVDC, Radial, Elect.	CAP-018
C113	220µF, 10WVDC, Radial, Elect.	CAP-019
C114	1000µF, 25WVDC, Radial, Elect.	CAP-020
C115	0.1µF, 50WVDC, Axial, Ceramic	CAP-014

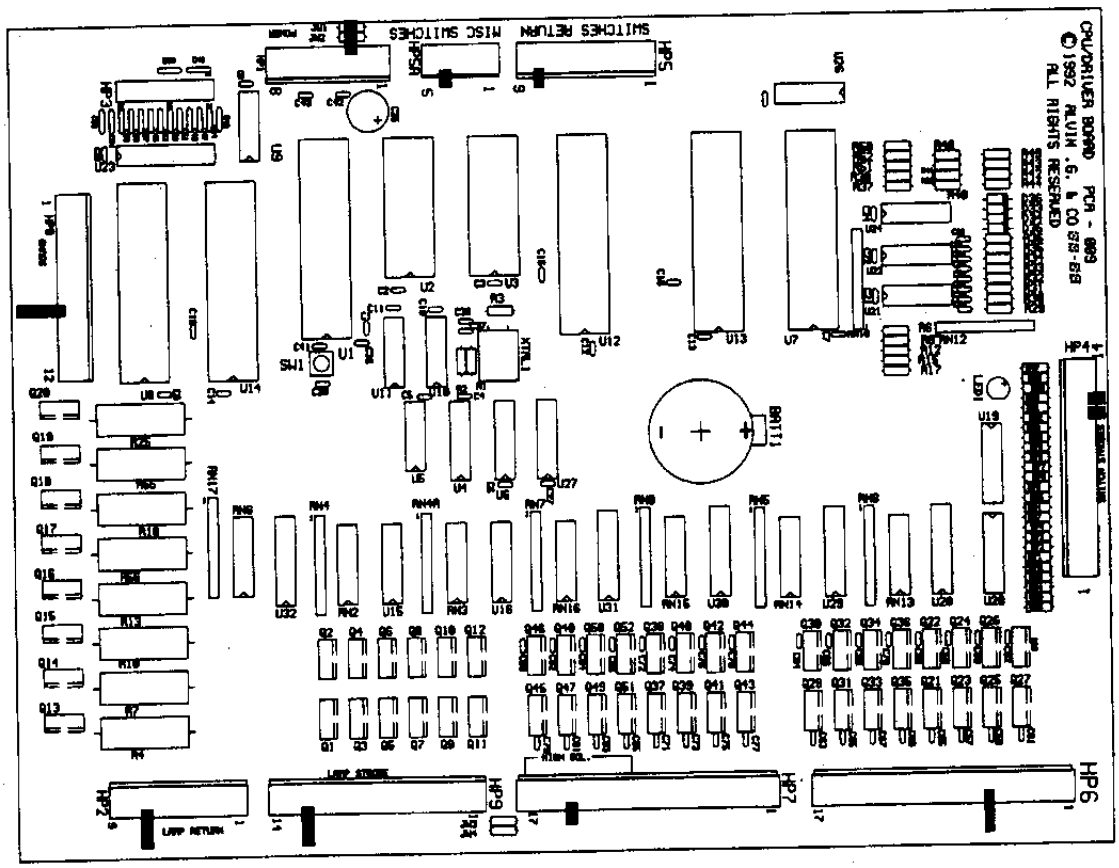
ITEM	DESCRIPTION	PART NO.
C116	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C117	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C118	22µF, 16WVDC, Radial, Elect.	CAP-018
C119	220µF, 10WVDC, Radial, Elect.	CAP-019
C120	1000µF, 25WVDC, Radial, Elect.	CAP-020
C121	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C122	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C123	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C124	22µF, 16WVDC, Radial, Elect.	CAP-018
C125	220µF, 10WVDC, Radial, Elect.	CAP-019
C126	1000µF, 25WVDC, Radial, Elect.	CAP-020
C127	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C128	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C129	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C130	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
C131	82pF, 50WVDC, Axial, Ceramic	CAP-021
CPAR0	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CPAR1	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CPAR2	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CPAR3	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CP101	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CP102	0.1µF, 50WVDC, Axial, Ceramic	CAP-014

PCA-008 SOUND BOARD

ITEM	DESCRIPTION	PART NO.
CP103 through CP130	0.1µF, 50WVDC, Axial, Ceramic	CAP-014
CR101	LED, T1-3/4", Red	LED-001
CR102	Diode, 1N4001	DDS-001
CR103	Diode, 1N4001	DDS-001
JP103	Jumper, zero Ω	JMP-001
JP106	Jumper, zero Ω	JMP-001
J1	4 Position header .100" ctr.	HDR-012
J2	6 Position header .156" ctr.	HDR-002
J3	7 Position header .156" ctr.	HDR-014
J4	4 position header .156" ctr.	HDR-016
J5	2 X 10 header .100" ctr.	HDR-013
Q101	Transistor, NPN, 2N3904	NPN-001
Q102	Transistor, NPN, 2N3904	NPN-001
R101	1.2K, 5%, 1/4W, Carbon film	CRF-001
R102	1.2K, 5%, 1/4W, Carbon film	CRF-001
R103	1K, 5%, 1/4W, Carbon film	RST-026
R104	100, 5%, 1/4W, Carbon film	CRF-002
R105	1K, 5%, 1/4W, Carbon film	RST-026
R106	100, 5%, 1/4W, Carbon film	CRF-002
R107	2.2K, 5%, 1/4W, Carbon film	RST-010
R108	2.2K, 5%, 1/4W, Carbon film	RST-010
R109	100, 5%, 1/4W, Carbon film	CRF-002
R113	220, 5%, 1/4W, Carbon film	RST-002
R114	220, 5%, 1/4W, Carbon film	RST-002
R115	1K, 5%, 1/4W, Carbon film	RST-026
R116	1K, 5%, 1/4W, Carbon film	RST-026
RP101	RPAK89, 4.7K	RPA-001
U101	40 pin DIP socket	SKT-040
U101	MC68B09P	MCV-001
U102	28 pin DIP socket	SKT-028
U102	27512	EPS-101
U103	28 pin DIP socket	SKT-028
U103	6164	EC-0008
U104	16L8 (programmed PAL)	ECP-025
U105	74LS574 / 74ALS574	EC-0026
U106	74LS574 / 74ALS574	EC-0026
U107	74LS574 / 74ALS574	EC-0026
U108	74LS541 / 75ALS541	EC-0027
U109	74LS273 / 74HCT273	EC-0002
U110	74LS74 / 74HCT74	EC-0017
U111	74LS541 / 75ALS541	EC-0027
U112	74LS125 / 74HCT125	EC-0028
U113	40 pin DIP socket	SKT-040
U113	BSMT2000	EC-0029
U114	74LS574 / 74ALS574	EC-0026
U115	74LS574 / 74ALS574	EC-0026
U116	74LS574 / 74ALS574	EC-0026
U117	74F139	EC-0030
U118	74LS165 / 74HCT165	EC-0031
U119	74LS165 / 74HCT165	EC-0031
U120	74LS139 / 74HCT139	EC-0032
U121	74LS74 / 74HCT74	EC-0017
U122	74LS74 / 74HCT74	EC-0017
U123	TDA1543	EC-0033
U124	LM833	EC-0034
U125	Heat sink, Double mount	HSB-004
U125	MB3730A	EC-0035
U126	Heat sink, Double mount	HSB-004
U126	MB3730A	EC-0035
U127	Heat sink, Double mount	HSB-004
U127	MB3730A	EC-0035

ITEM	DESCRIPTION	PART NO.
U128	MAX699	MAX-001
U129	4020	EC-0036
U130	74LS541 / 75ALS541	EC-0027
X101	Crystal, 8MHz	CRY-002
X102	Crystal, 24FMHz	CRY-003
	Mounting hardware for heatsink	
	#4-40 X 1/4" PPH w/ ext. sems MS(4)	

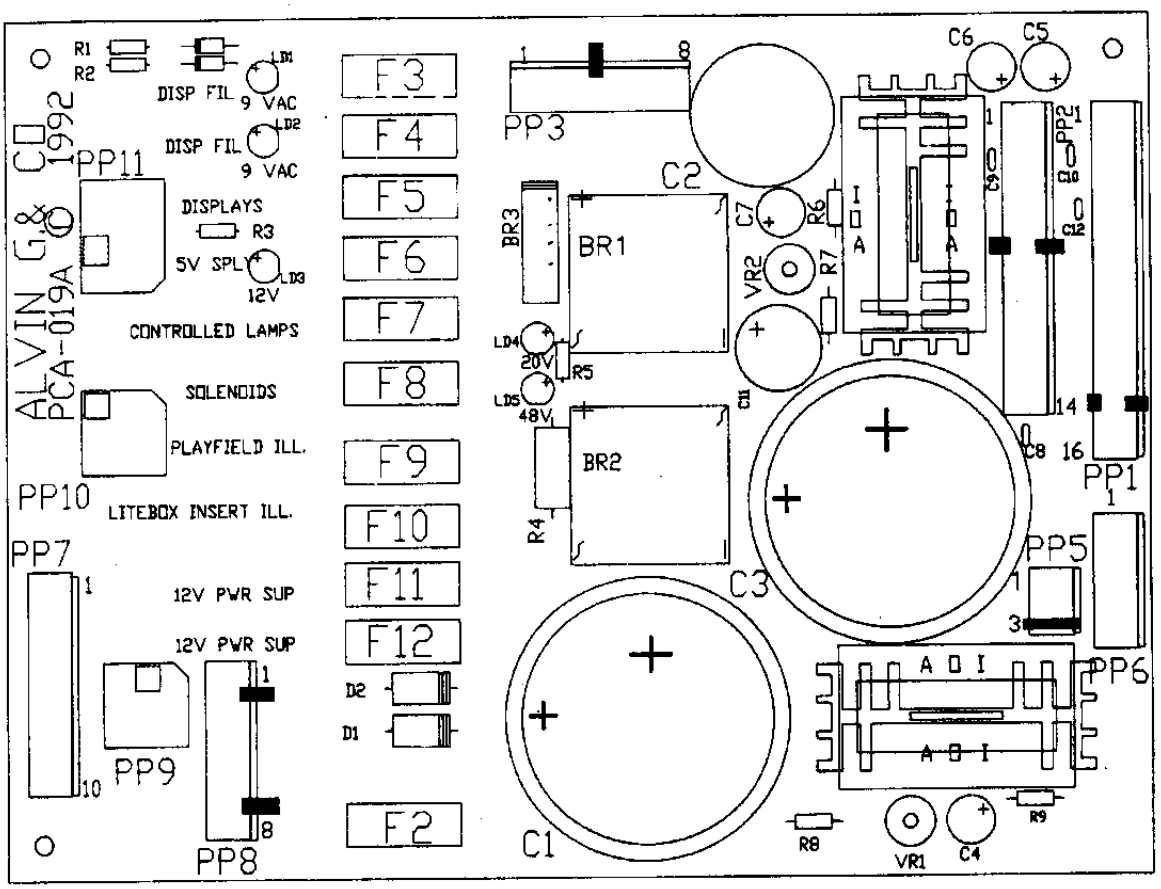
PCA-009 CPU/COMB BOARD



PCA-009 CPU/COMB BOARD

ITEM	DESCRIPTION	PART NO.
BATT1	Battery Lithium 3V	BAT-001
C1-C24	0.1µF, 50V, 10%, Radial	CAP-010
C25	100µF, 25V, Elect., Radial	CAP-003
C26-C28	0.1µF, 50V, 10%, Radial	CAP-010
C29-C36	470pF, 50V, 10%, Radial	CAP-009
C37-C38	33pF, 50V, 10%, Radial	CAP-012
C39,C41	100pF, 50V, 10%, Radial	CAP-015
C42-C43	0.1µF, 50V, 10%, Radial	CAP-010
C44-C54	470pF, 50V, 10%, Radial	CAP-009
C55-C86	0.01µF, 50V, 10%, Radial	CAP-011
C87-C90	470pF, 50V, 10%, Radial	CAP-009
D33-D36	1N4154	DDS-007
HP1	8 position header locking	HDR-003
HP2	9 position header locking	HDR-010
HP3	20 position shrouded header	RBC-001
HP4	14 position header locking	HDR-005
HP5	9 position header locking	HDR-010
HP5A	5 position header locking	HDR-009
HP6-HP7	17 position header locking	HDR-008
HP8	12 position header locking	HDR-011
HP9	14 position header locking	HDR-005
LED1	Light emitting diode	DDS-003
Q1-Q12	9530	TRZ-003
Q13-Q20	IRF530	TRZ-001
Q21	IRF540	TRZ-002
Q22-Q28	IRF530	TRZ-001
Q29	IRF540	TRZ-002
Q30-Q44	IRF530	TRZ-001
Q45	IRF540	TRZ-002
Q46-Q47	IRF530	TRZ-001
Q48	IRF540	TRZ-002
Q49-Q52	IRF530	TRZ-001
R1	1.5KΩ, 1/4W, 5%, Resistor	RST-001
R2	3.3KΩ, 1/4W, 5%, Resistor	RST-014
R3	15KΩ, 1/4W, 5%, Resistor	RST-008
R4	3Ω, 5W, 5%, Resistor	RST-013
R6	4.7K, 1/4W, 5%, Resistor	RST-005
R7	3Ω, 5W, 5%, Resistor	RST-013
R9	4.7K, 1/4W, 5%, Resistor	RST-005
R10	3Ω, 5W, 5%, Resistor	RST-013
R12	4.7K, 1/4W, 5%, Resistor	RST-005
R13	3Ω, 5W, 5%, Resistor	RST-013
R15,R17	4.7K, 1/4W, 5%, Resistor	RST-005
R18,R25	3Ω, 5W, 5%, Resistor	RST-013
R26	2.2KΩ, 1/4W, 5%, Resistor	RST-010
R29-R38	4.7K, 1/4W, 5%, Resistor	RST-005
R39-R41	2.2KΩ, 1/4W, 5%, Resistor	RST-010
R42-R44	3.9KΩ, 1/4W, 5%, Resistor	RST-015
R47-R48	2.2KΩ, 1/4W, 5%, Resistor	RST-010
R49	3.9KΩ, 1/4W, 5%, Resistor	RST-015
R50-R51	4.7K, 1/4W, 5%, Resistor	RST-005
R52	3.3KΩ, 1/4W, 5%, Resistor	RST-014
R53-R54	2.2KΩ, 1/4W, 5%, Resistor	RST-010
R55-R56	3Ω, 5W, 5%, Resistor	RST-013
R60-R68	2.2KΩ, 1/4W, 5%, Resistor	RST-010
R69-R80	560Ω, 1/4W, 5%, Resistor	RST-025
RN2-RN3	2KΩ, Resistor, Dip package	SSR-003
RN4-RN5	2.7KΩ, Resistor, Dip package	SSR-002
RN4A	2.7KΩ, Resistor, Dip package	SSR-002
RN6	2KΩ, Resistor, Dip package	SSR-003
RN7-RN9	2.7KΩ, Resistor, Dip package	SSR-002
RN10-RN12	4.7KΩ, Resistor, Dip package	SSR-004
RN13-RN16	2KΩ, Resistor, Dip package	SSR-003
RN17	2.7KΩ, Resistor, Dip package	SSR-002
SW1	Switch, SPST	RST-000
U1	40 pin socket	SKT-040
U1	65C02	EC-0009
U2	28 pin socket	SKT-028
U2	27C512	EPC-101
U3	28 pin socket	SKT-028
U3	6164	EC-0008
U4	74LS138 / 74HCT138	EC-0014
U5	74LS30 / 74HCT30	EC-0016
U6	74LS138 / 74HCT138	EC-0014
U7	40 pin socket	SKT-040
U7	65C22	EC-0010
U8	40 pin socket	SKT-040
U8	65C22	EC-0010
U9	74LS14	EC-0001
U10	74HCT04	EC-0025
U11	74LS74 / 74HCT74	EC-0017
U12	40 pin socket	SKT-040
U12	8255	EC-0018
U13	40 pin socket	SKT-040
U13	8255	EC-0018
U14	40 pin socket	SKT-040
U14	8255	EC-0018
U15-U16	ULN2003A	EC-0021
U19-U20	ULN2003A	EC-0021
U21-U22	LM339	EC-0019
U23	74LS373 / 74HCT373	EC-0023
U24	LM339	EC-0019
U26	74LS00	EC-0024
U27	MAX691	EC-0022
U28-U32	UDN6118	EC-0020
XTAL1	4MHz	CRY-001
BATT1	Battery Holder	BHD-001
JW1-JW4	Zero ohm jumper	JMP-001

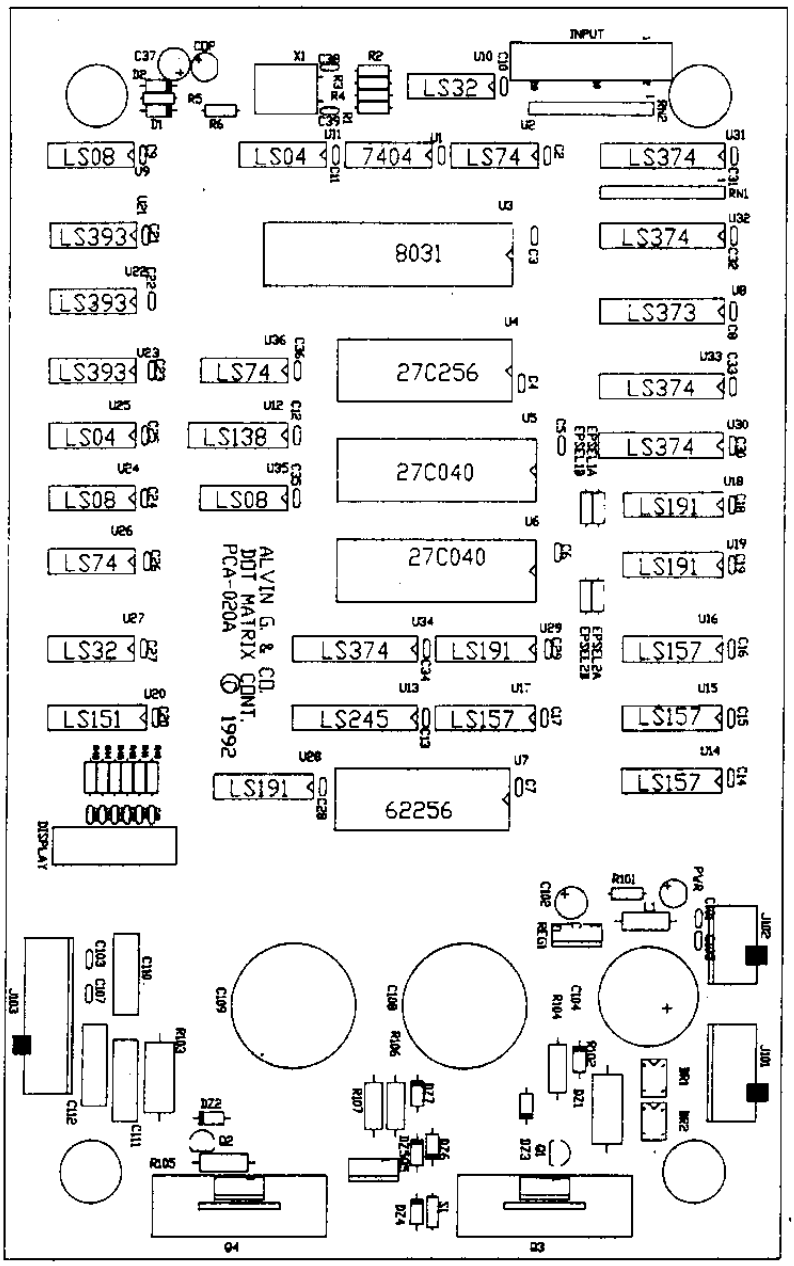
PCA-019A POWER SUPPLY BOARD



ITEM	DESCRIPTION	PART NO.
BR1-BR2	25A, Bridge rectifier	REC-001
BR3	4A, Bridge rectifier	REC-004
C1	33,000µF, Capacitor	CAP-005
C2	15,000µF, Capacitor	CAP-024
C3	33,000µF, Capacitor	CAP-005
C4	22µF, Capacitor	CAP-002
C5-C6	100µF, Capacitor	CAP-003
C7	22µF, Capacitor	CAP-002
C8-C10	0.1µF, Capacitor	CAP-010
C11	330µF, Capacitor	CAP-025
C12	0.1µF, Capacitor	CAP-010
D1-D2	1N5404, Diode	DDS-002
D3-D4	1N4004, Diode	DDS-001
F3-F4	1A, Slo-Blo	FUS-004
F5	3A, Slo-Blo	FUS-008
F6-F10	8A, Slo-Blo	FUS-002
F11-F12	3A, Slo-Blo	FUS-008
LD1-LD5	Light emitting diode	DDS-003
REG1	LM350, Voltage regulator	PVR-001
REG2	LM350, Voltage regulator	PVR-001

ITEM	DESCRIPTION	PART NO.
PP1	16 position header .156"	HDR-006
PP2	14 position header .156"	HDR-005
PP3	8 position header .156"	HDR-003
PP5	3 position header .156"	HDR-001
PP6	6 position header .156"	HDR-002
PP10	9 position Molex connector	CNN-M05
PP11	12 position	CNN-M04
R1	330Ω, Resistor	RST-003
R2	8.2KΩ, Resistor	RST-034
R3	820Ω, Resistor	RST-006
R4	12KΩ, 1W, Resistor	RST-022
R5	1.5KΩ, Resistor	RST-001
R6	220Ω, Resistor	RST-002
R7	390Ω, Resistor	RST-004
R8	1.5KΩ, Resistor	RST-001
R9	220Ω, Resistor	RST-002
R10	0.47Ω, 3W, Resistor	RST-035
VR1	1KΩ, Potentiometer	PTM-001
VR2	1KΩ, Potentiometer	PTM-001

PCA-020A DOT MATRIX CONTROLLER



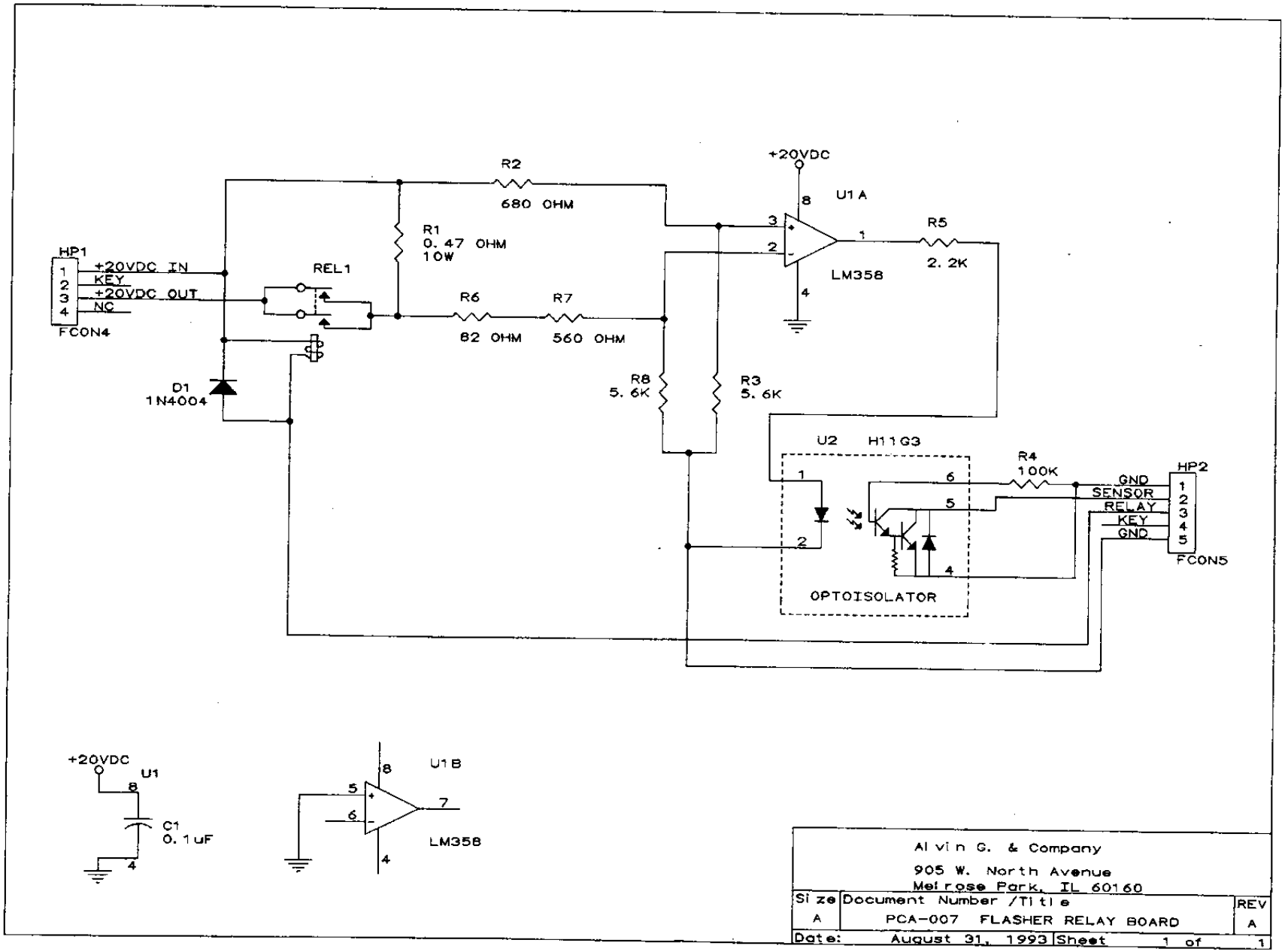
ITEM	DESCRIPTION	PART NO.
BR1	200V, 1A, Bridge rectifier	REC-002
BR2	200V, 1A, Bridge rectifier	REC-002
C1	0.1µF, Capacitor	CAP-010
C2	0.1µF, Capacitor	CAP-010
C3	0.1µF, Capacitor	CAP-010
C4	0.1µF, Capacitor	CAP-010
C5	0.1µF, Capacitor	CAP-010
C6	0.1µF, Capacitor	CAP-010
C7	0.1µF, Capacitor	CAP-010
C8	0.1µF, Capacitor	CAP-010
C9	0.1µF, Capacitor	CAP-010

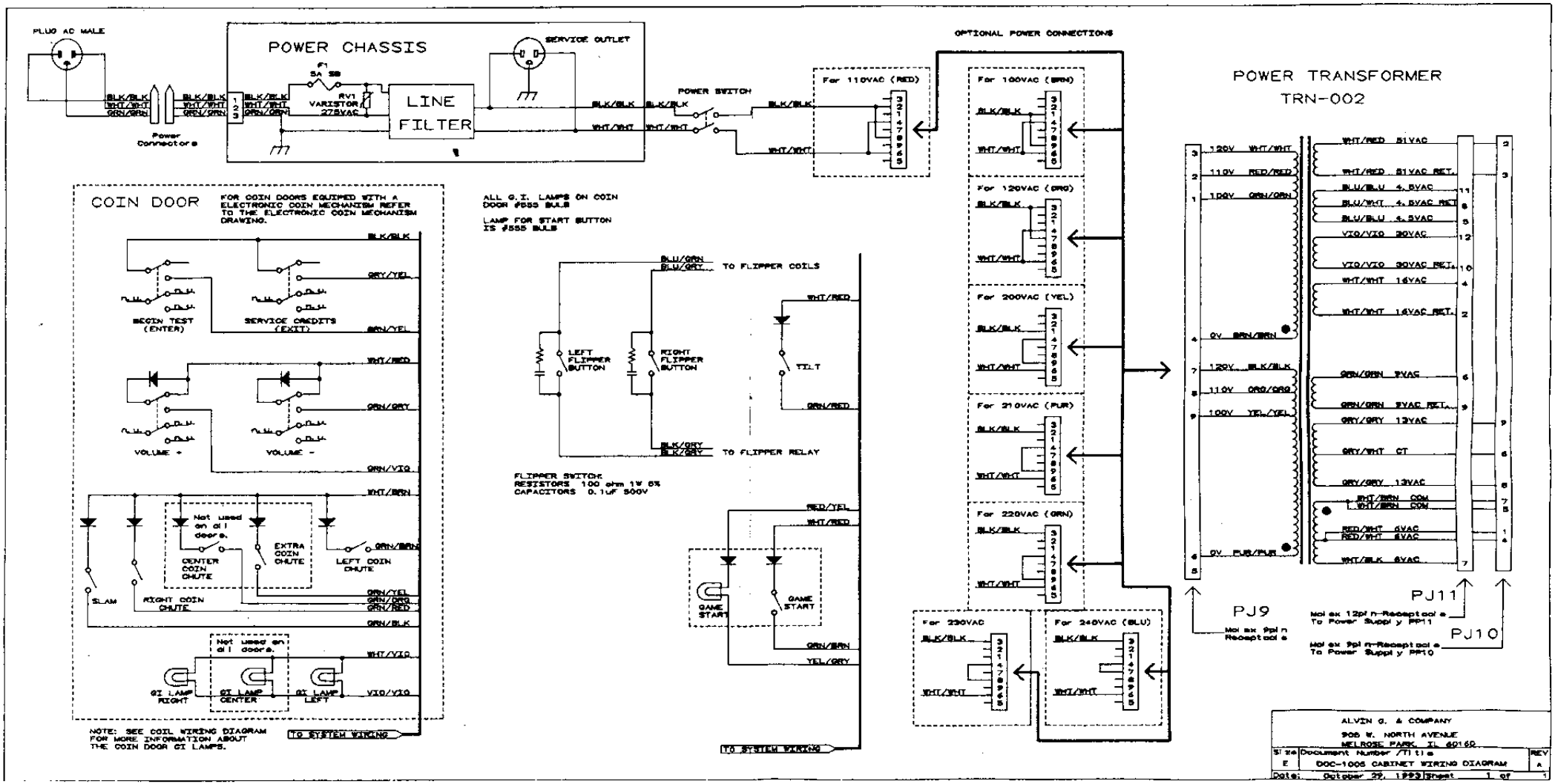
ITEM	DESCRIPTION	PART NO.
C10	0.1µF, Capacitor	CAP-010
C11	0.1µF, Capacitor	CAP-010
C12	0.1µF, Capacitor	CAP-010
C13	0.1µF, Capacitor	CAP-010
C14	0.1µF, Capacitor	CAP-010
C15	0.1µF, Capacitor	CAP-010
C16	0.1µF, Capacitor	CAP-010
C17	0.1µF, Capacitor	CAP-010
C18	0.1µF, Capacitor	CAP-010
C19	0.1µF, Capacitor	CAP-010
C20	0.1µF, Capacitor	CAP-010

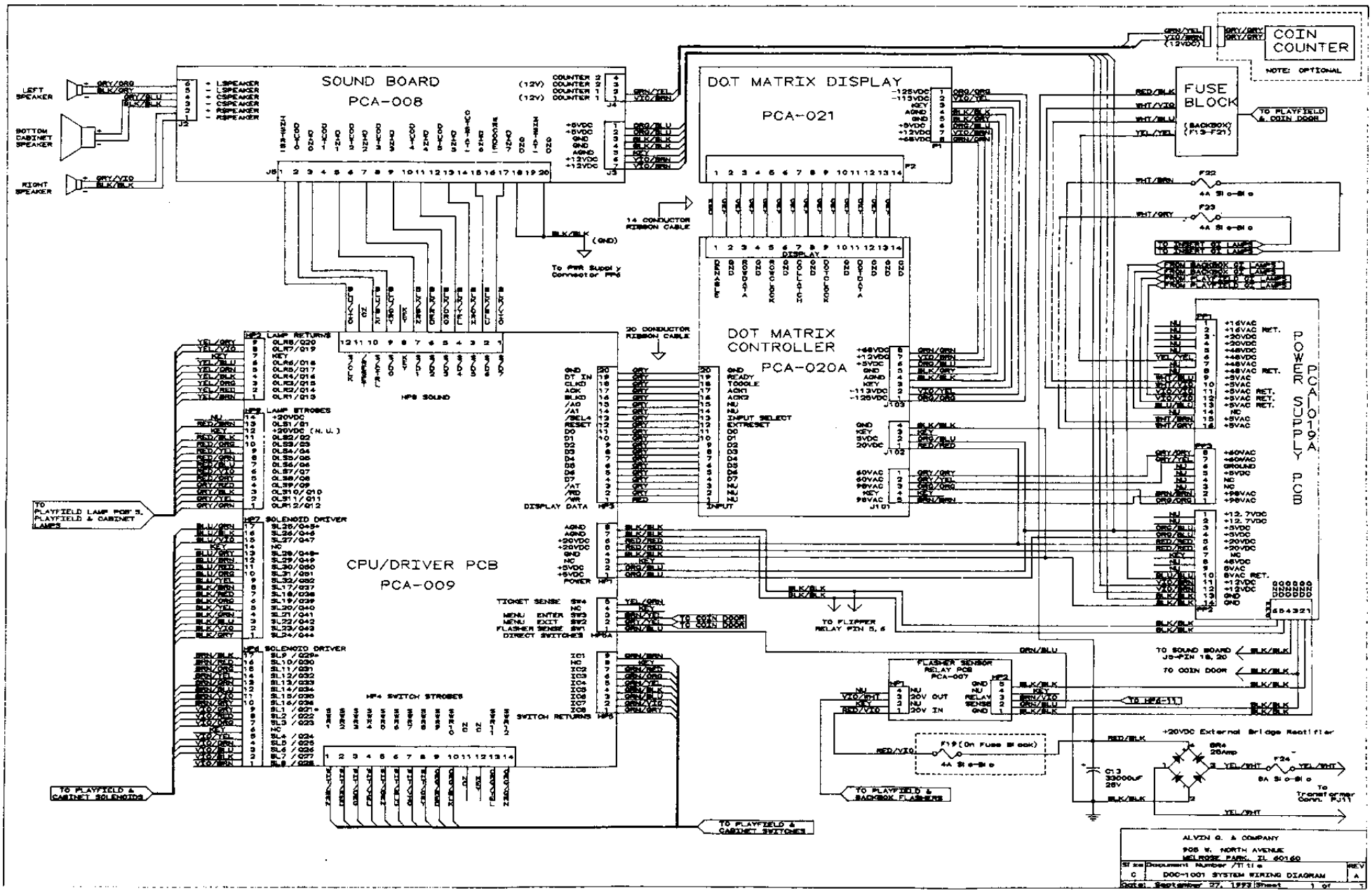
PCA-020A DOT MATRIX CONTROLLER

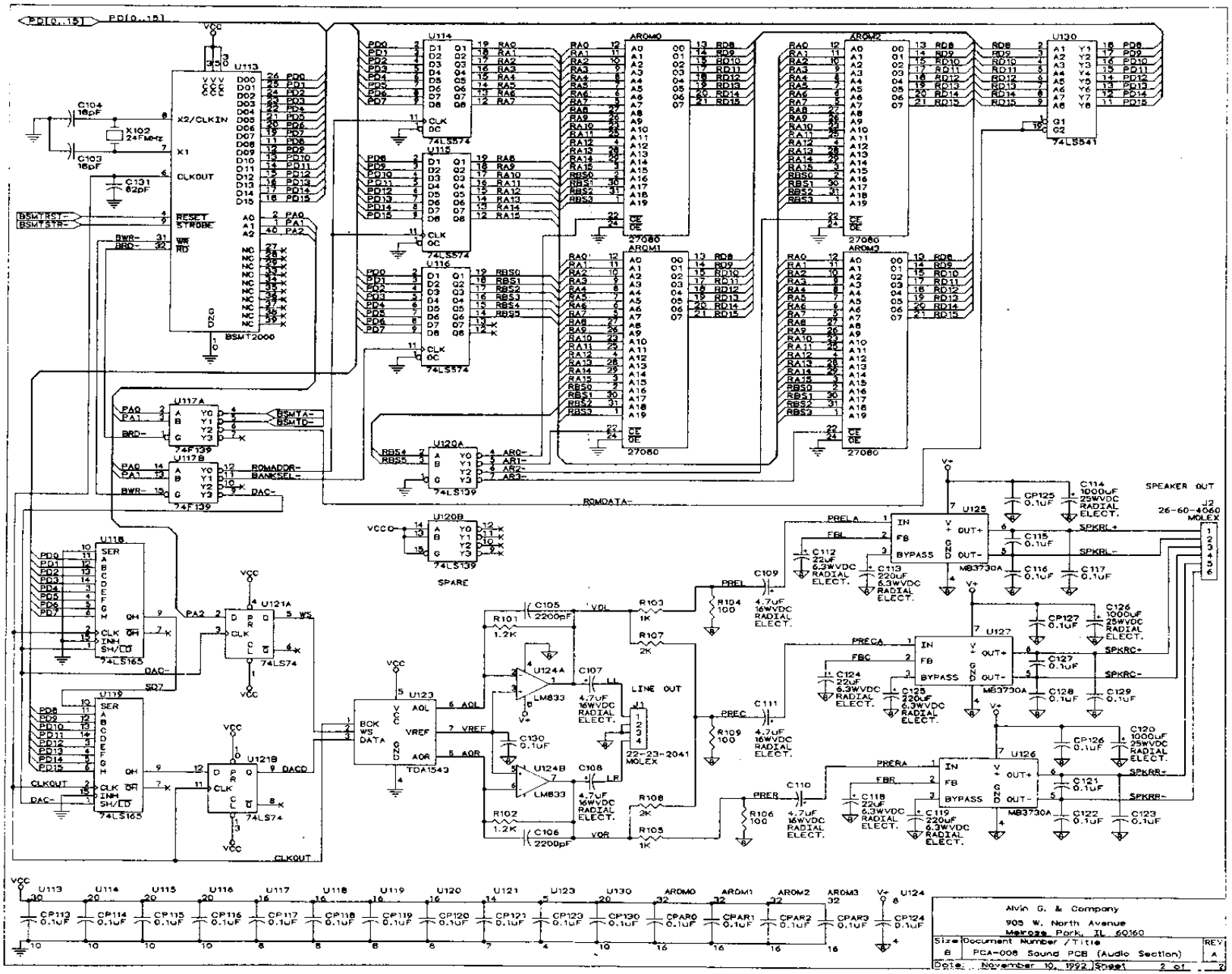
ITEM	DESCRIPTION	PART NO.
C21 through C36	0.1μF, Capacitor	CAP-010
C37	10μF, Capacitor	CAP-007
C38	33pF, Capacitor	CAP-012
C39	33pF, Capacitor	CAP-012
C40	200pF, Capacitor	CAP-015
C41	220pF, Capacitor	CAP-022
C42	220pF, Capacitor	CAP-022
C43	220pF, Capacitor	CAP-022
C44	220pF, Capacitor	CAP-022
C45	220pF, Capacitor	CAP-022
C101	0.1μF, Capacitor	CAP-010
C102	22μF, Capacitor	CAP-002
C103	0.1μF, Capacitor	CAP-010
C104	1000μF, Capacitor	CAP-023
C105	0.1μF, Capacitor	CAP-010
C106	0.1μF, Capacitor	CAP-010
C108	150μF, Capacitor	CAP-018
C109	150μF, Capacitor	CAP-018
C110	0.22μF, Capacitor	CAP-019
C111	0.22μF, Capacitor	CAP-019
C112	0.22μF, Capacitor	CAP-019
COP	MV5752, Red LED	DDS-003
D1	1N4154, Diode	DDS-007
D2	1N4154, Diode	DDS-007
DZ1	3.9V Zener diode	ZEN-004
DZ2	3.9V Zener diode	ZEN-004
DZ3	68V Zener diode	ZEN-005
DZ4	13V Zener diode	ZEN-003
DZ5	100V Zener diode	ZEN-006
DZ6	13V Zener diode	ZEN-003
DZ7	13V Zener diode	ZEN-003
HED14	Header, 2X7	RBC-002
INPUT	Header, 2X10	RBC-001
J101	Header, 5 pin, .156"	HDR-009
J102	Header, 4 pin, .156"	HDR-012
J103	Header, 8 pin, .156"	HDR-003
PWR	MV5752 Red LED	DDS-003
Q1	2N5401	TRZ-009
Q2	2N5551	TRZ-006
Q3	MJE15030	TRZ-012
Q4	MJE15031	TRZ-010
Q5	MJE15030	TRZ-012
REG1	7812, 12 Volt regulator	PVR-012
R1	220Ω, Resistor	RST-002
R2	220Ω, Resistor	RST-002
R3	560Ω, Resistor	RST-025
R4	1KΩ, Resistor	RST-026
R5	4.7KΩ, Resistor	RST-005
R6	470Ω, Resistor	RST-029
R40	0Ω, Resistor (Jumper)	RST-032
R41	0Ω, Resistor (Jumper)	RST-032
R42	0Ω, Resistor (Jumper)	RST-032
R43	0Ω, Resistor (Jumper)	RST-032
R44	0Ω, Resistor (Jumper)	RST-032
R45	0Ω, Resistor (Jumper)	RST-032
R101	470Ω, Resistor	RST-029
R102	47KΩ, 1W, Resistor	RST-027
R103	47KΩ, 1W, Resistor	RST-027
R104	1.5K, 1/2W, Resistor	RST-030
R104	1.5K, 1/2W, Resistor	RST-030

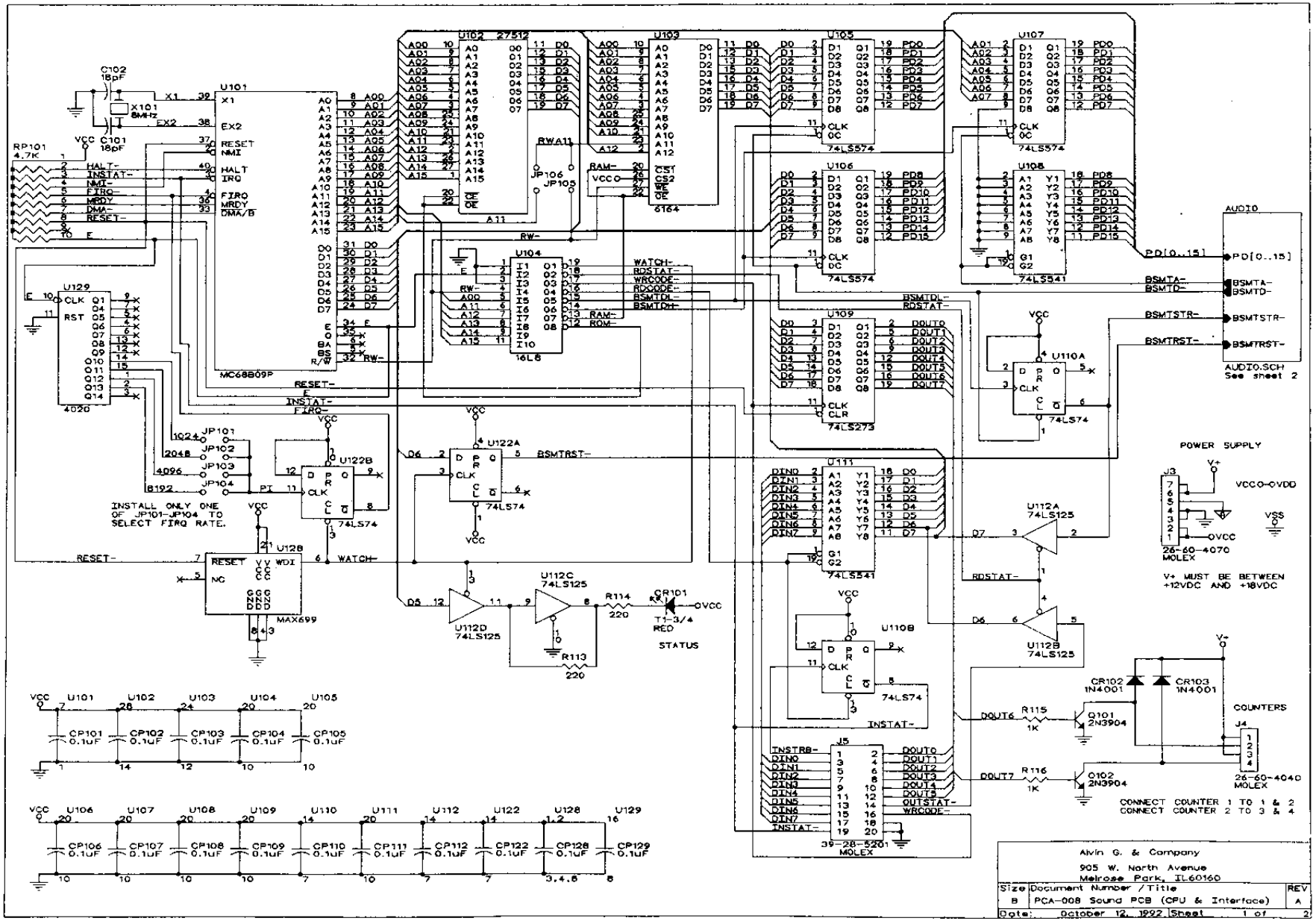
ITEM	DESCRIPTION	PART NO.
R106	47K, 1/2W, Resistor	RST-033
R107	10K, 1/2W, Resistor	RST-034
RN1	10K, SIP, 9 pack, Resistor	SSR-006
RN2	10K, SIP, 9 pack, Resistor	SSR-006
U1	7404	EC-0011
U2	74LS74	EC-0017
U3	8031 Microprocessor	EC-0036
U4	27C512	EPD-101
U5	27C020	EPD-102
U6	27C020	EPD-103
U7	62256	EC-0026
U8	74LS373	EC-0023
U9	74LS08	EC-0013
U10	74LS32	EC-0034
U11	74LS04	EC-0012
U12	74LS138	EC-0014
U13	74LS245	EC-0015
U14	74LS157	EC-0028
U15	74LS157	EC-0028
U16	74LS157	EC-0028
U17	74LS157	EC-0028
U18	74LS191	EC-0029
U19	74LS191	EC-0029
U20	74LS151	EC-0027
U21	74LS393	EC-0035
U22	74LS393	EC-0035
U23	74LS393	EC-0035
U24	74LS08	EC-0013
U25	74LS04	EC-0012
U26	74LS74	EC-0017
U27	74LS32	EC-0034
U28	74LS191	EC-0029
U29	74LS191	EC-0029
U30	74LS374	EC-0030
U31	74LS374	EC-0030
U32	74LS374	EC-0030
U33	74LS374	EC-0030
U34	74LS374	EC-0030
U35	74LS08	EC-0013
U36	74LS74	EC-0017
X1	12Mhz, Crystal	CRY-002

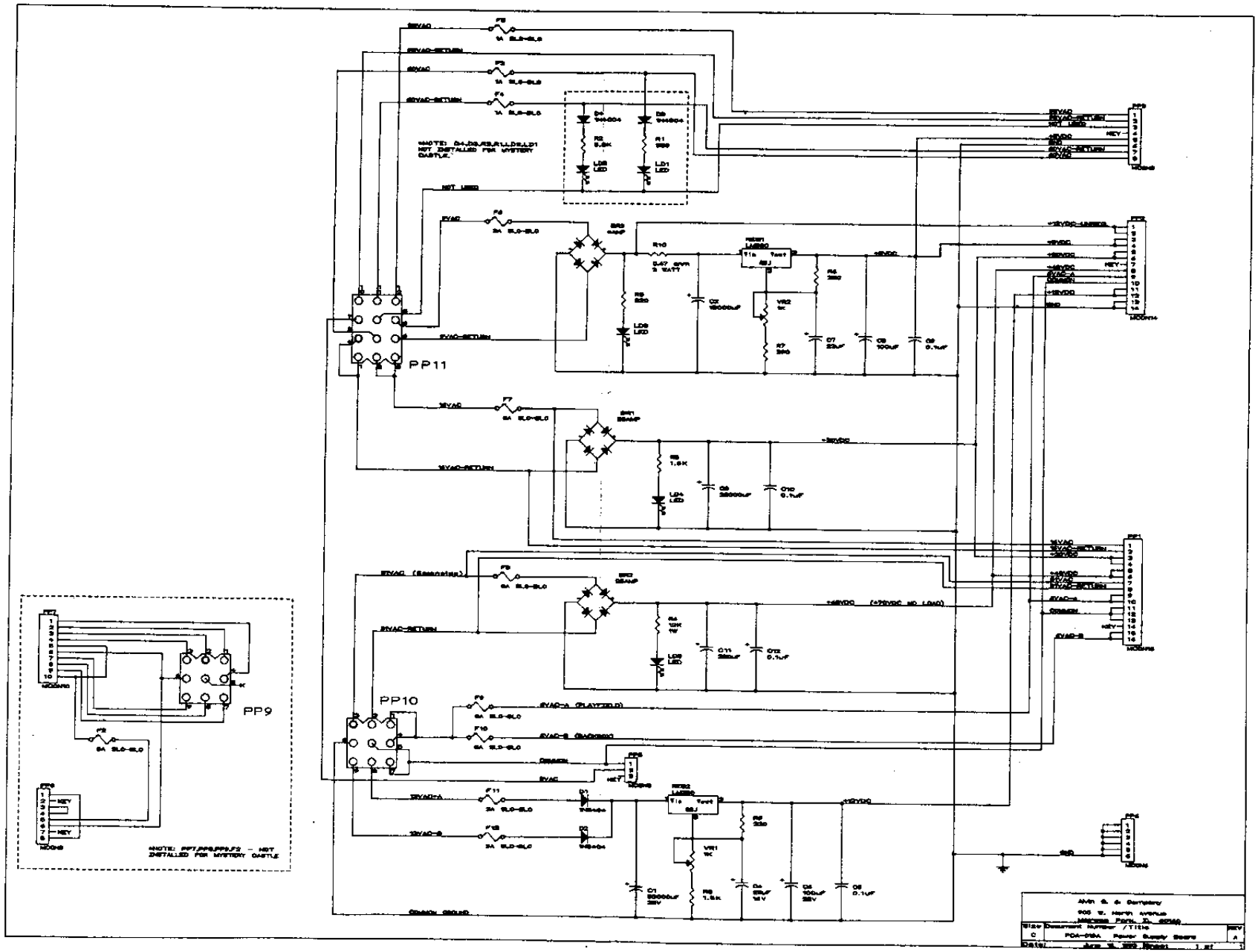

HP1
+20VDC IN
KEY
+20VDC OUT
NC
FCON4
REL1
D1
1N4004
R1
0.47 OHM
10W
R2
680 OHM
R6
82 OHM
R7
560 OHM
R8
5.6K
R3
5.6K
+20VDC
U1A
LM358
R5
2.2K
U2 H11G3
OPTOISOLATOR
R4
100K
HP2
GND
SENSOR
RELAY
KEY
GND
FCON5
+20VDC
U1
C1
0.1uF
U1B
LM358
Alvin G. & Company
905 W. North Avenue
Melrose Park, IL 60160
Size
A
Document Number /Title
PCA-007 FLASHER RELAY BOARD
REV
A
Date: August 31, 1993
Sheet 1 of 1

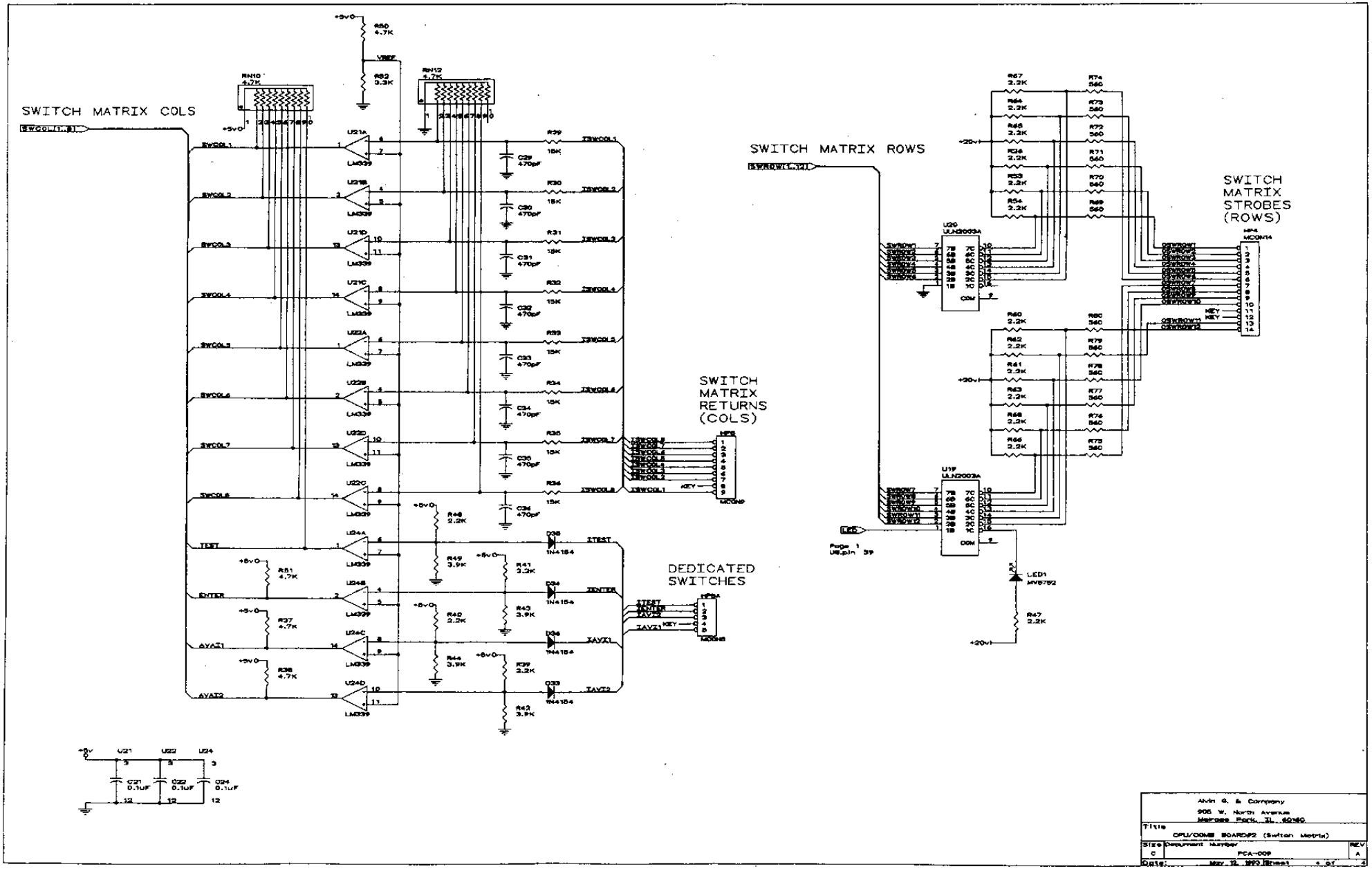

PLUG AC MALE
POWER CHASSIS
SERVICE OUTLET
F1
5A SB
RV1
VARISTOR
275VAC
LINE
FILTER
POWER SWITCH
Power
Connectors
OPTIONAL POWER CONNECTIONS
For 110VAC (RED)
For 100VAC (BRN)
For 120VAC (ORG)
For 200VAC (YEL)
For 210VAC (PUR)
For 220VAC (GRN)
For 230VAC
For 240VAC (BLU)
POWER TRANSFORMER
TRN-002
PJ9
PJ10
PJ11
Molex 9pin Receptacle
Molex 12pin-Receptacle To Power Supply PP11
Molex 9pin-Receptacle To Power Supply PP10
COIN DOOR
FOR COIN DOORS EQUIPPED WITH A ELECTRONIC COIN MECHANISM REFER TO THE ELECTRONIC COIN MECHANISM DRAWING.
BEGIN TEST (ENTER)
SERVICE CREDITS (EXIT)
VOLUME +
VOLUME -
Not used on all doors.
CENTER COIN CHUTE
EXTRA COIN CHUTE
LEFT COIN CHUTE
RIGHT COIN CHUTE
SLAM
GI LAMP RIGHT
GI LAMP CENTER
GI LAMP LEFT
NOTE: SEE COIL WIRING DIAGRAM FOR MORE INFORMATION ABOUT THE COIN DOOR GI LAMPS.
TO SYSTEM WIRING
ALL G.I. LAMPS ON COIN DOOR #555 BULB
LAMP FOR START BUTTON IS #555 BULB
TO FLIPPER COILS
LEFT FLIPPER BUTTON
RIGHT FLIPPER BUTTON
TILT
TO FLIPPER RELAY
FLIPPER SWITCH:
RESISTORS 100 ohm 1W 5%
CAPACITORS 0.1uF 500V
GAME START
ALVIN G. & COMPANY
905 W. NORTH AVENUE
MELROSE PARK, IL 60160
Size E
Document Number /Title
DOC-1005 CABINET WIRING DIAGRAM
REV A
Date: October 29, 1993
Sheet 1 of 1

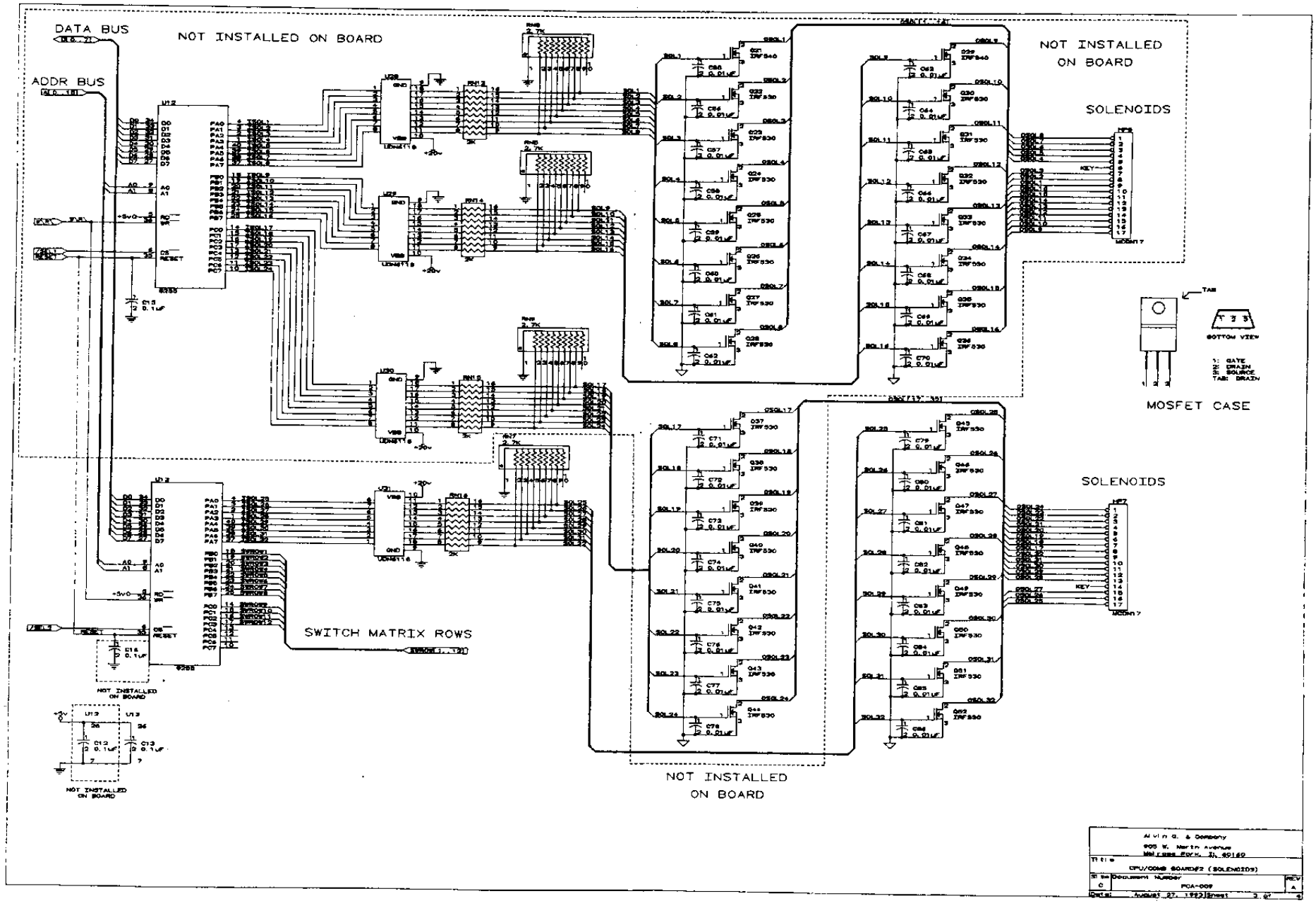

SOUND BOARD
PCA-008
DOT MATRIX DISPLAY
PCA-021
COIN COUNTER
NOTE: OPTIONAL
FUSE BLOCK
(BACKBOX) (F19-F21)
TO PLAYFIELD & COIN DOOR
LEFT SPEAKER
BOTTOM CABINET SPEAKER
RIGHT SPEAKER
14 CONDUCTOR RIBBON CABLE
20 CONDUCTOR RIBBON CABLE
DOT MATRIX CONTROLLER
PCA-020A
CPU/DRIVER PCB
PCA-009
POWER SUPPLY PCB
PCA-019A
F22
4A Slo-Blo
F23
4A Slo-Blo
F24
8A Slo-Blo
TO PLAYFIELD LAMP POS 3, PLAYFIELD & CABINET LAMPS
TO PLAYFIELD & CABINET SOLENOIDS
TO PLAYFIELD & CABINET SWITCHES
TO FLIPPER RELAY PIN 5, 6
TO SOUND BOARD J5-PIN 19, 20
TO COIN DOOR
FLASHER SENSOR RELAY PCB PCA-007
F19 (On Fuse Block)
4A Slo-Blo
TO PLAYFIELD & BACKBOX FLASHERS
+20VDC External Bridge Rectifier
BR4 20Amp
C13 33000uF 25V
To Transformer Cont. PJ1
ALVIN G. & COMPANY
905 W. NORTH AVENUE
MELROSE PARK, IL 60160
DOC-1001 SYSTEM WIRING DIAGRAM
Date: September 27, 1993 Sheet 1 of 1

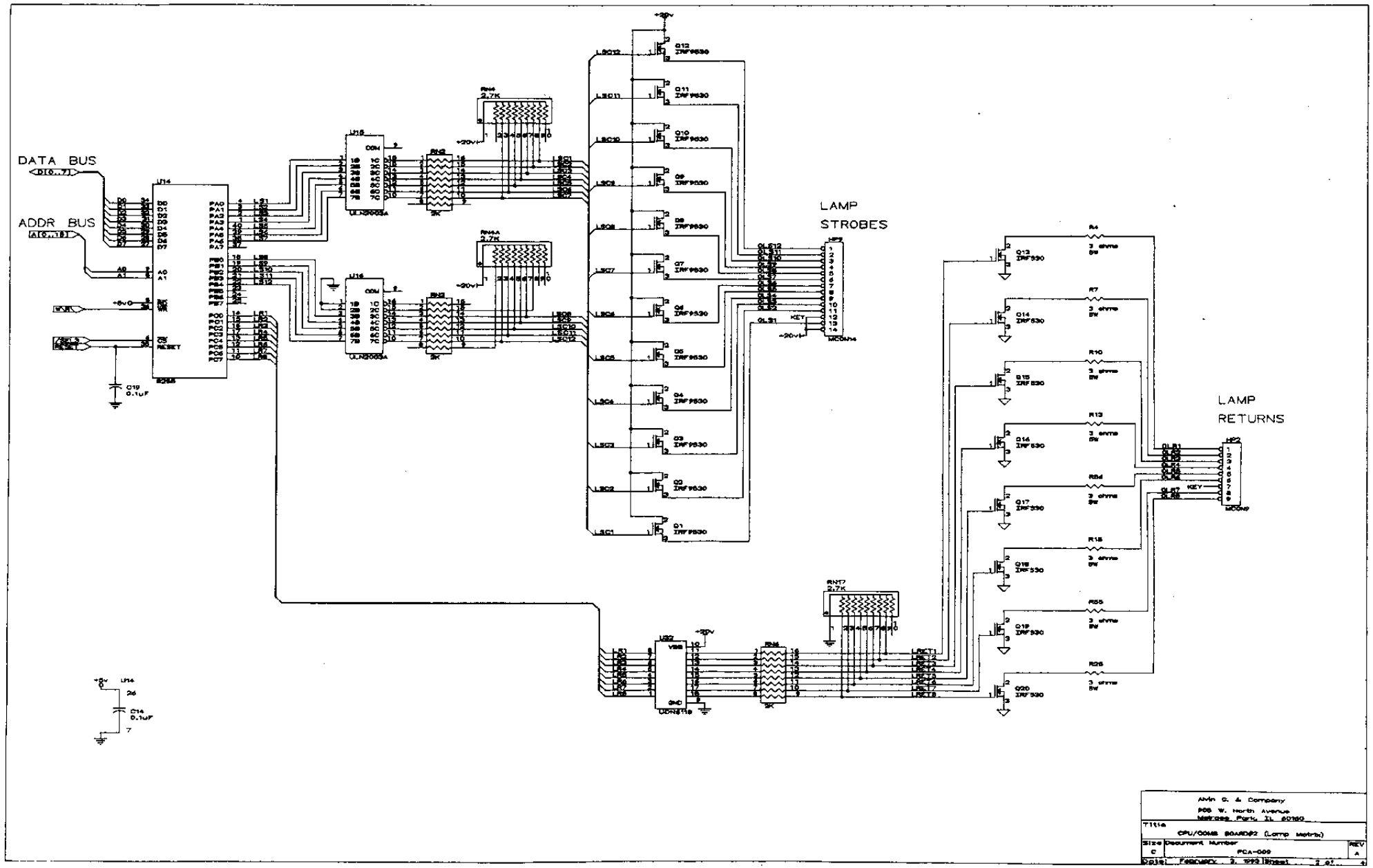

PD[0..15]
BSMTRST-
BSMTSTR-
BWR-
BRD-
BSMT2000
74LS574
74LS541
27080
74F139
74LS139
74LS165
74LS74
ROMDATA-
ROMADDR-
BANKSEL-
DAC-
SPARE
LINE OUT
22-23-2041 MOLEX
TDA1543
LM833
MB3730A
SPEAKER OUT
26-60-4060 MOLEX
SPKRL+
SPKRL-
SPKRC+
SPKRC-
SPKRR+
SPKRR-
CLKOUT
Alvin G. & Company
905 W. North Avenue
Melrose Park, IL 60160
PCA-008 Sound PCB (Audio Section)
November 10, 1992
Sheet 2 of 2

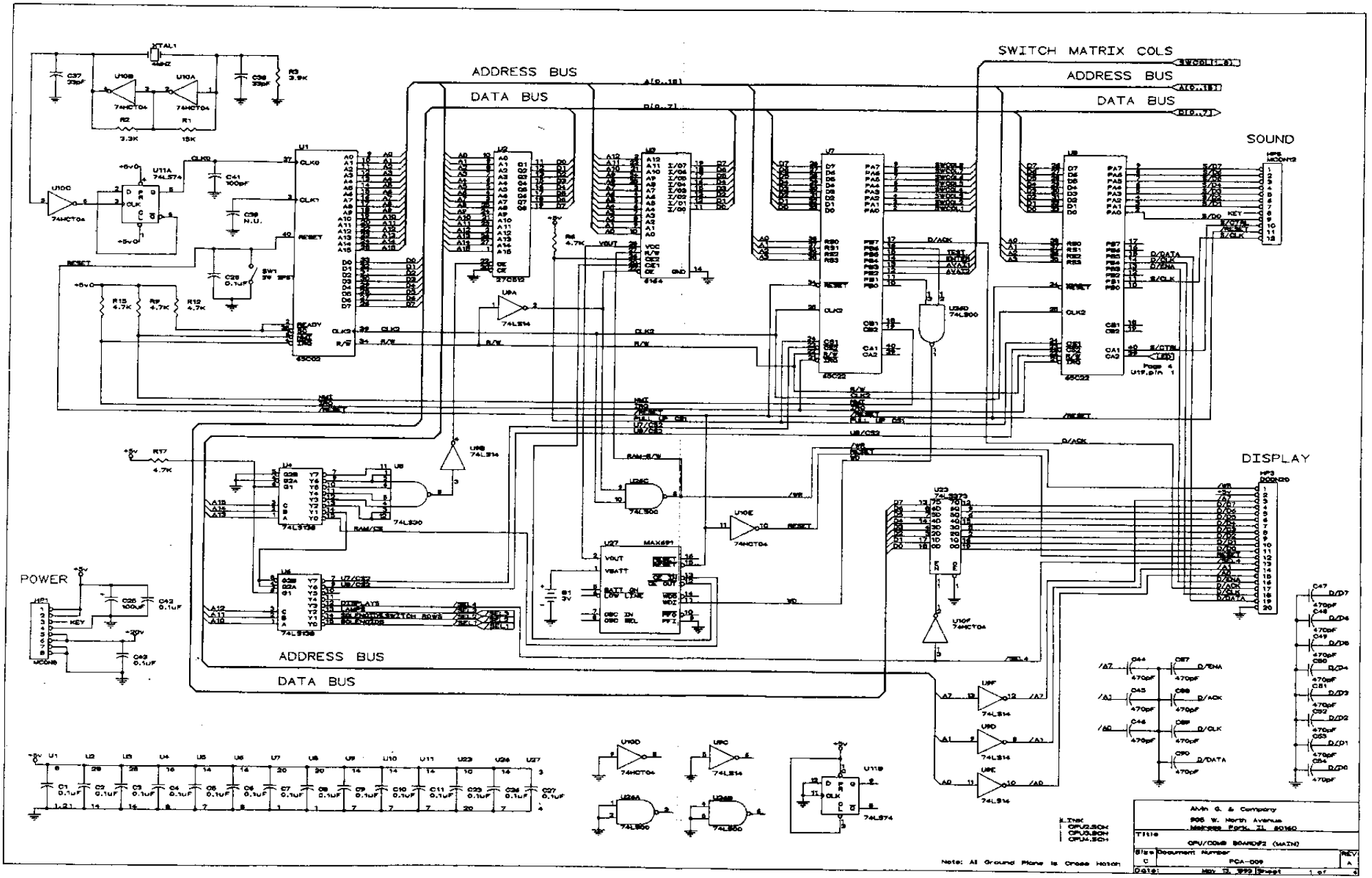

U101
MC68B09P
U102 27512
U103
6164
U104
16L8
U105
74LS574
U106
74LS574
U107
74LS574
U108
74LS541
U109
74LS273
U110A
74LS74
U110B
74LS74
U111
74LS541
U112A 74LS125
U112B 74LS125
U112C 74LS125
U112D 74LS125
U122A
74LS74
U122B
74LS74
U126
MAX699
U129
4020
X101 8MHz
C102 18pF
C101 18pF
RP101 4.7K
JP101
JP102
JP103
JP104
JP105
JP106
INSTALL ONLY ONE OF JP101-JP104 TO SELECT FIRQ RATE.
1024
2048
4096
8192
R114 220
R113 220
CR101 T1-3/4 RED
STATUS
AUDIO
AUDIO.SCH
See sheet 2
PD[0..15]
BSMTA-
BSMTD-
BSMTSTR-
BSMTRST-
POWER SUPPLY
VCC=OVDD
VSS
OVCC
26-60-4070 MOLEX
V+ MUST BE BETWEEN +12VDC AND +18VDC
CR102 1N4001
CR103 1N4001
COUNTERS
Q101 2N3904
Q102 2N3904
R115 1K
R116 1K
J4
26-60-4040 MOLEX
CONNECT COUNTER 1 TO 1 & 2
CONNECT COUNTER 2 TO 3 & 4
J5
39-28-5201 MOLEX
CP101 0.1uF
CP102 0.1uF
CP103 0.1uF
CP104 0.1uF
CP105 0.1uF
CP106 0.1uF
CP107 0.1uF
CP108 0.1uF
CP109 0.1uF
CP110 0.1uF
CP111 0.1uF
CP112 0.1uF
CP122 0.1uF
CP128 0.1uF
CP129 0.1uF
Alvin G. & Company
905 W. North Avenue
Melrose Park, IL60160
Size B
Document Number / Title
PCA-008 Sound PCB (CPU & Interface)
REV A
Date: October 12, 1992 Sheet 1 of 2

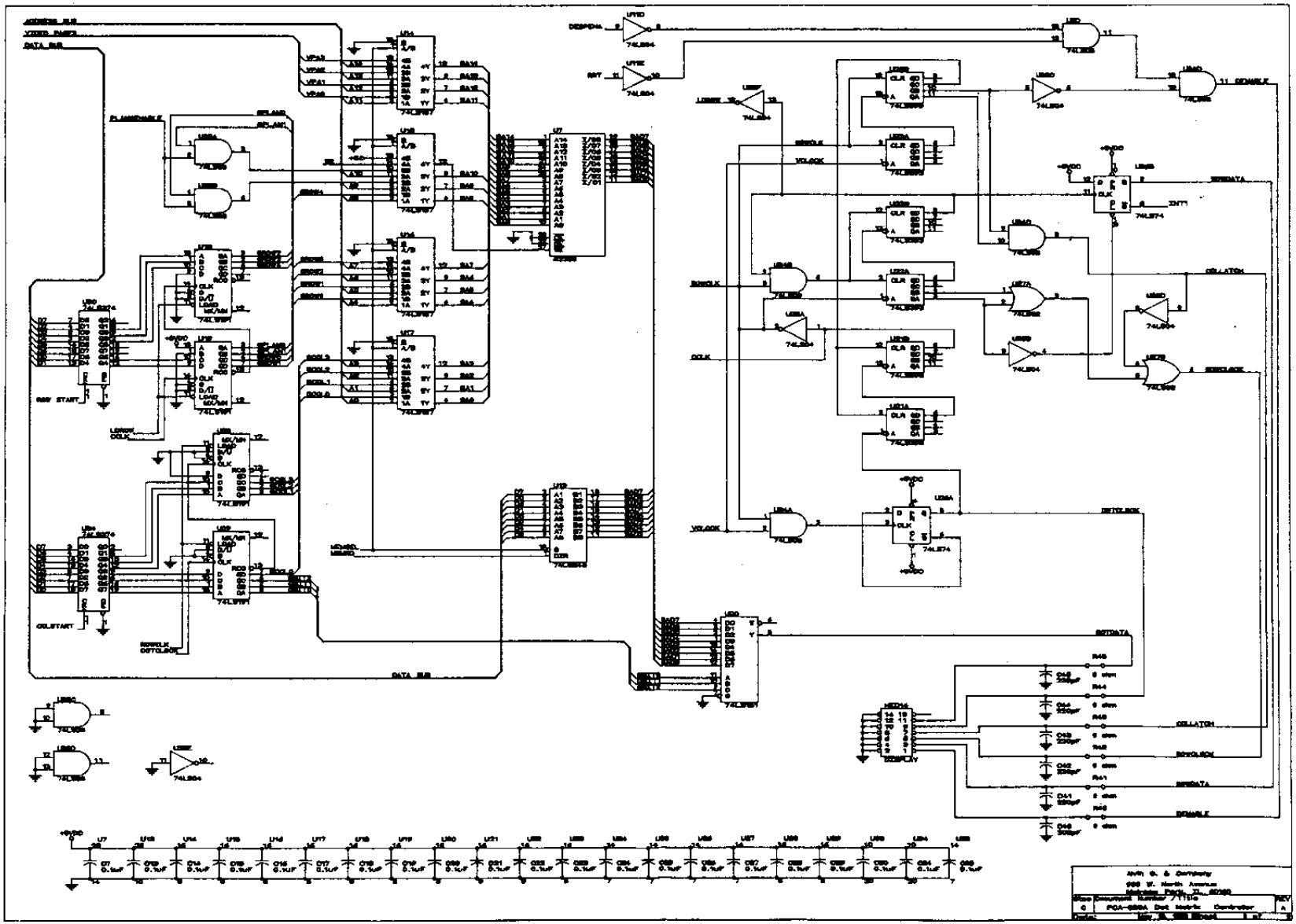

PP11
PP10
PP9

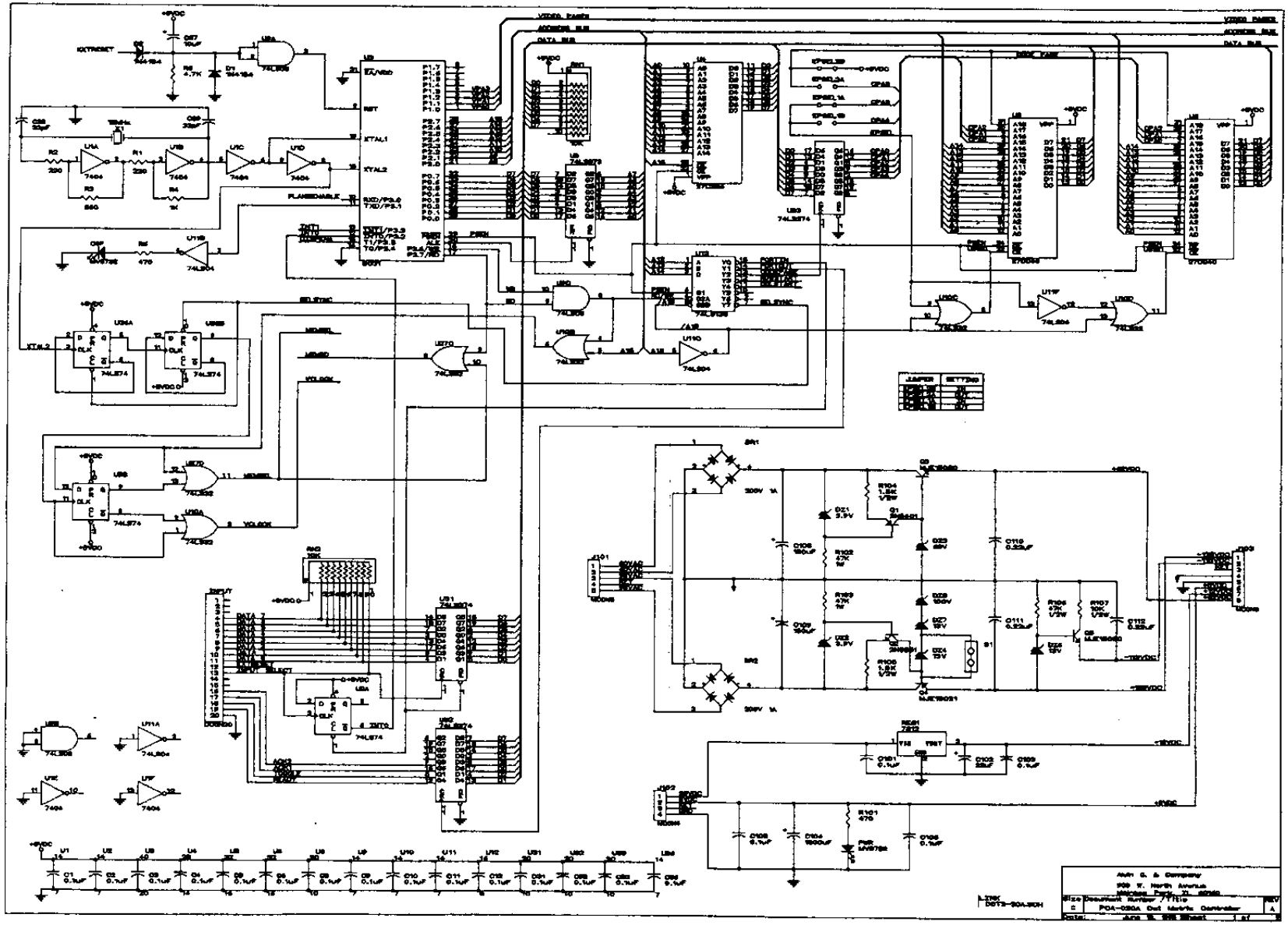

SWITCH MATRIX COLS
SWCOL[1..8]
SWITCH MATRIX ROWS
SWROW[1..12]
SWITCH MATRIX STROBES (ROWS)
SWITCH MATRIX RETURNS (COLS)
DEDICATED SWITCHES
+5V0
VREF
R50 4.7K
R52 3.3K
RN10 4.7K
RN12 4.7K
U21A
U21B
U21D
U21C
U22A
U22B
U22D
U22C
U24A
U24B
U24C
U24D
LM339
R39 15K
R30 15K
R31 15K
R32 15K
R33 15K
R34 15K
R35 15K
R36 15K
C29 470pF
C30 470pF
C31 470pF
C32 470pF
C33 470pF
C34 470pF
C35 470pF
C36 470pF
R48 2.2K
R49 3.9K
R41 2.2K
R40 2.2K
R43 3.9K
R44 3.9K
R39 2.2K
R42 3.9K
R51 4.7K
R37 4.7K
R38 4.7K
D35 1N4154
D34 1N4154
D36 1N4154
D33 1N4154
ITEST
IENTER
IAVZ1
IAVZ2
TEST
ENTER
AVAZ1
AVAZ2
KEY
R67 2.2K
R64 2.2K
R65 2.2K
R56 2.2K
R53 2.2K
R54 2.2K
R74 560
R73 560
R72 560
R71 560
R70 560
R69 560
R60 2.2K
R62 2.2K
R61 2.2K
R63 2.2K
R68 2.2K
R66 2.2K
R80 560
R79 560
R78 560
R77 560
R76 560
R75 560
U20 ULN2003A
U19 ULN2003A
COM
MP4 MCON14
LED
LED1 MV5752
R47 2.2K
+20v1
Page 1 U8.pin 39
C21 0.1UF
C22 0.1UF
C24 0.1UF
U21
U22
U24
Alvin G. & Company
905 W. North Avenue
Melrose Park, IL 60160
Title
CPU/COMB BOARD#2 (Switch Matrix)
Size C
Document Number
PCA-009
REV A
Date: May 12, 1990 Sheet 4 of 4

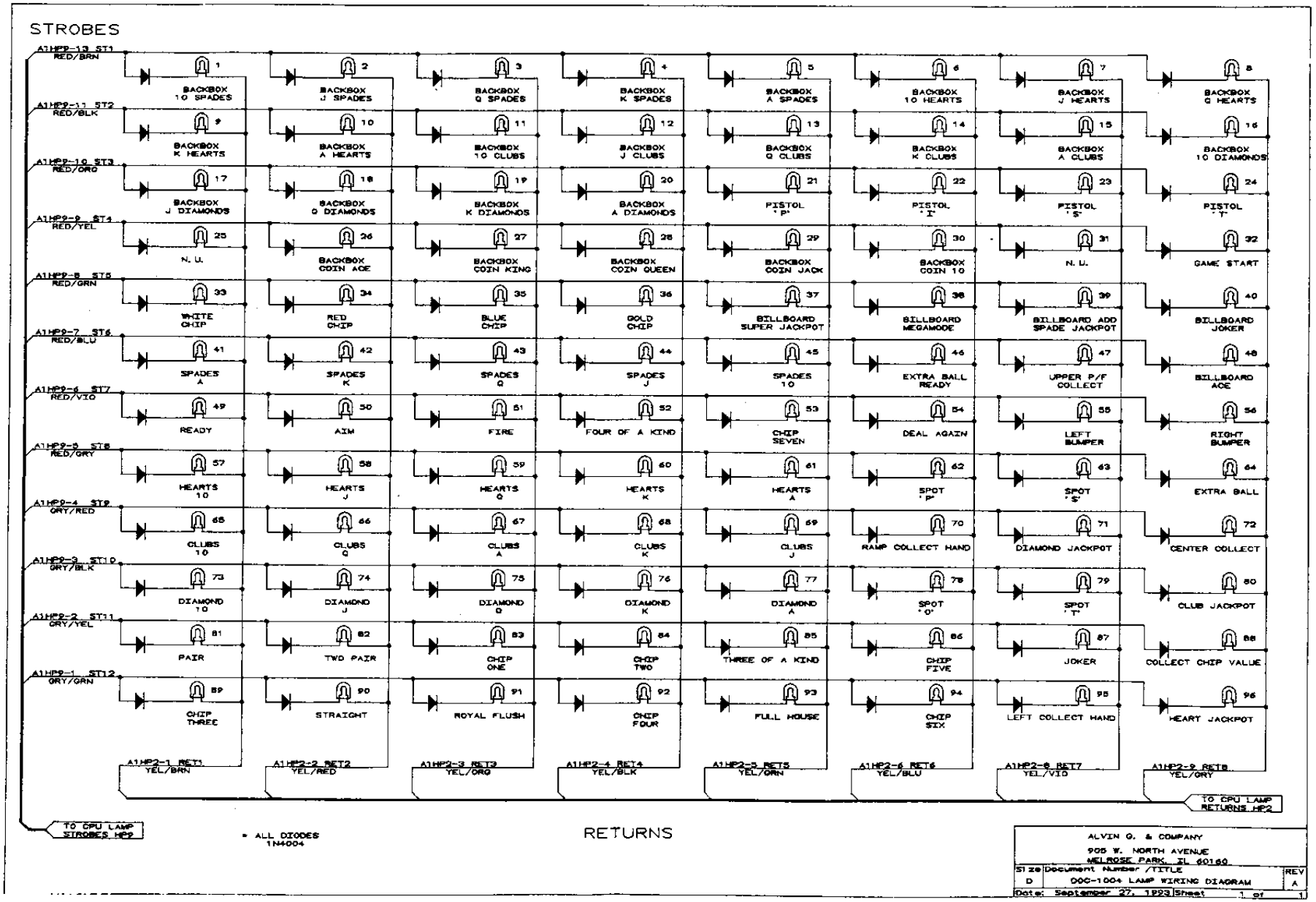

DATA BUS
NOT INSTALLED ON BOARD
ADDR BUS
NOT INSTALLED ON BOARD
SOLENOIDS
MOSFET CASE
SOLENOIDS
SWITCH MATRIX ROWS
NOT INSTALLED ON BOARD
NOT INSTALLED ON BOARD
NOT INSTALLED ON BOARD
Alvin G. & Company
905 W. Main Avenue
Wal Lake, Ill. 60192
CPU/COMB BOARD#2 (SOLENOIDS)
PCA-009
August 27, 1992

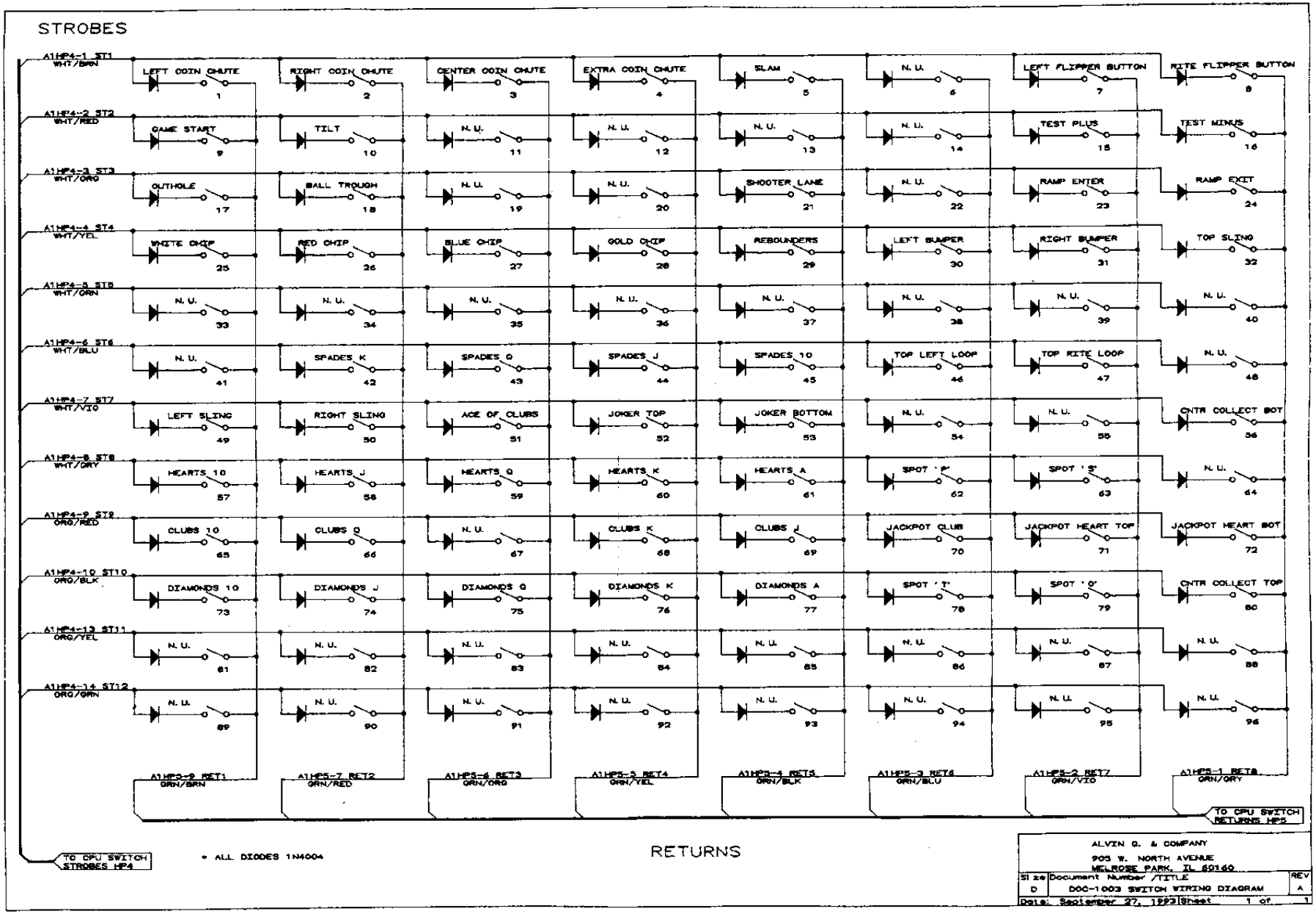

DATA BUS
D[0..7]
ADDR BUS
A[0..18]
LAMP
STROBES
LAMP
RETURNS
KEY
KEY
Amin S. & Company
808 W. North Avenue
Melrose Park, IL 60160
Title
CPU/COMB BOARD#2 (Lamp Matrix)
Size
C
Document Number
PCA-009
REV
A
Date: February 9, 1990 Sheet 2 of 4

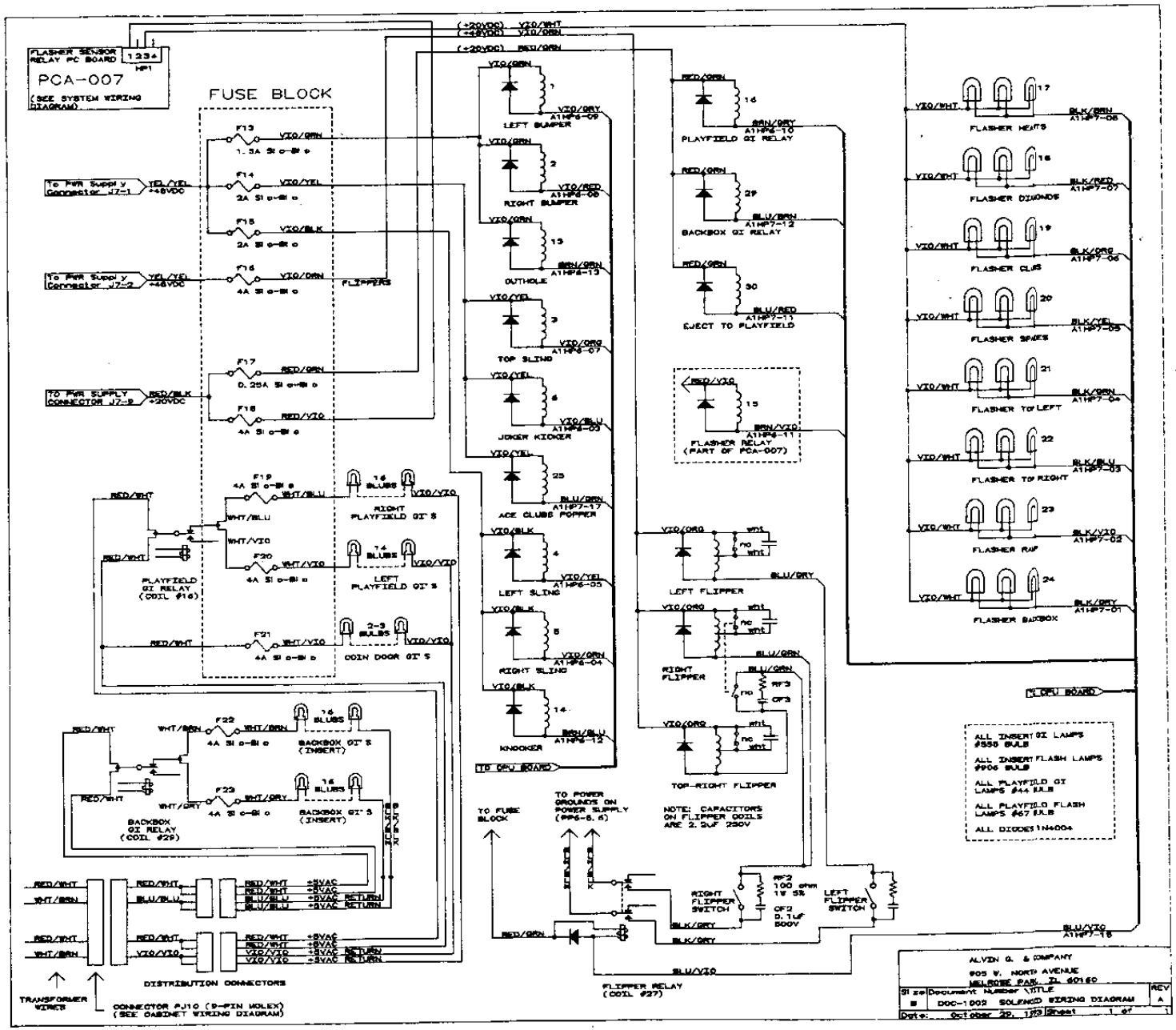

SWITCH MATRIX COLS
ADDRESS BUS
DATA BUS
SOUND
DISPLAY
POWER
ADDRESS BUS
DATA BUS
Alvin G. & Company
905 W. North Avenue
Melrose Park, IL 60160
CPU/COMB BOARD#2 (MAIN)
PCA-009
Note: All Ground Plane is Cross Hatch

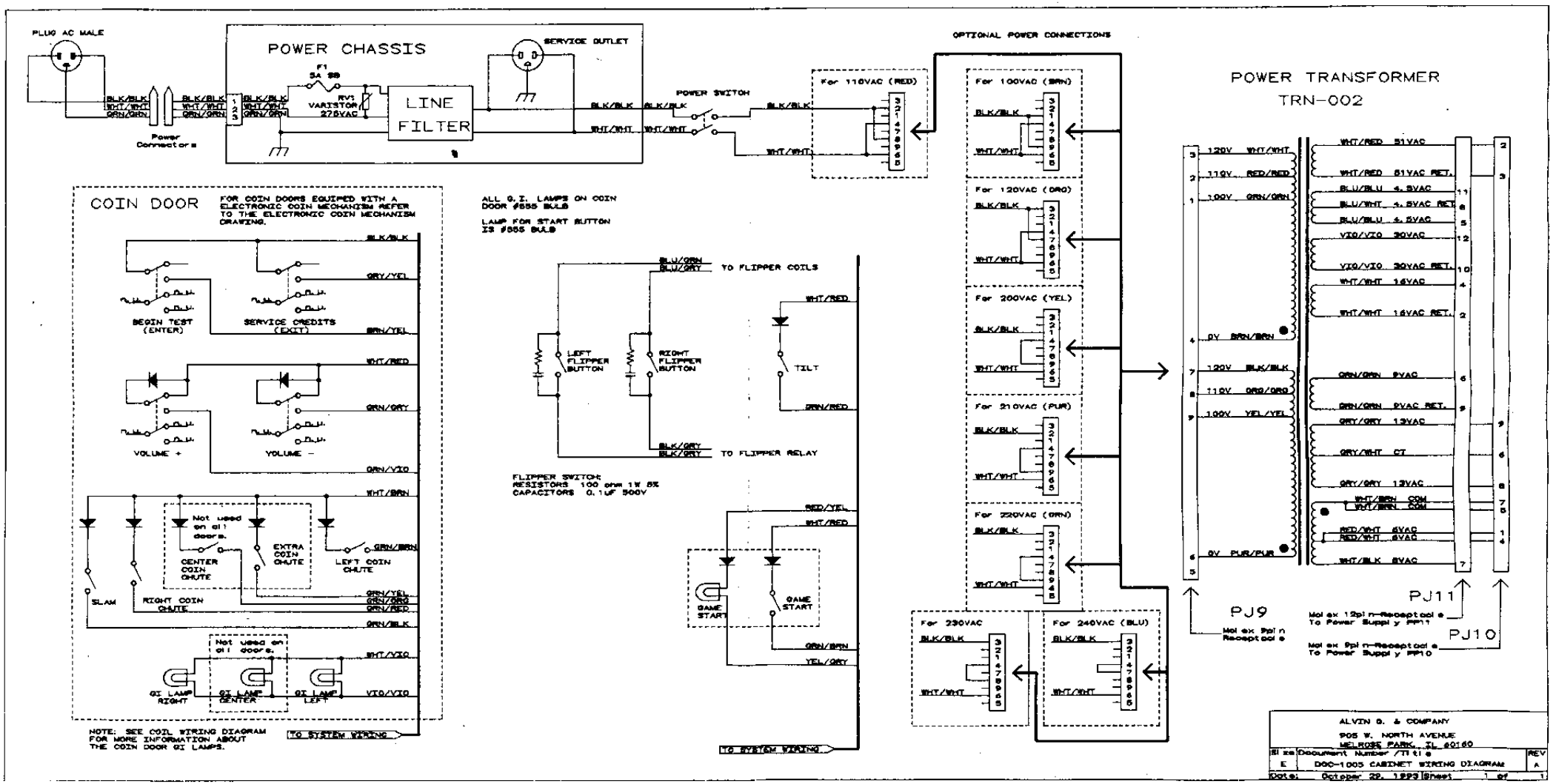


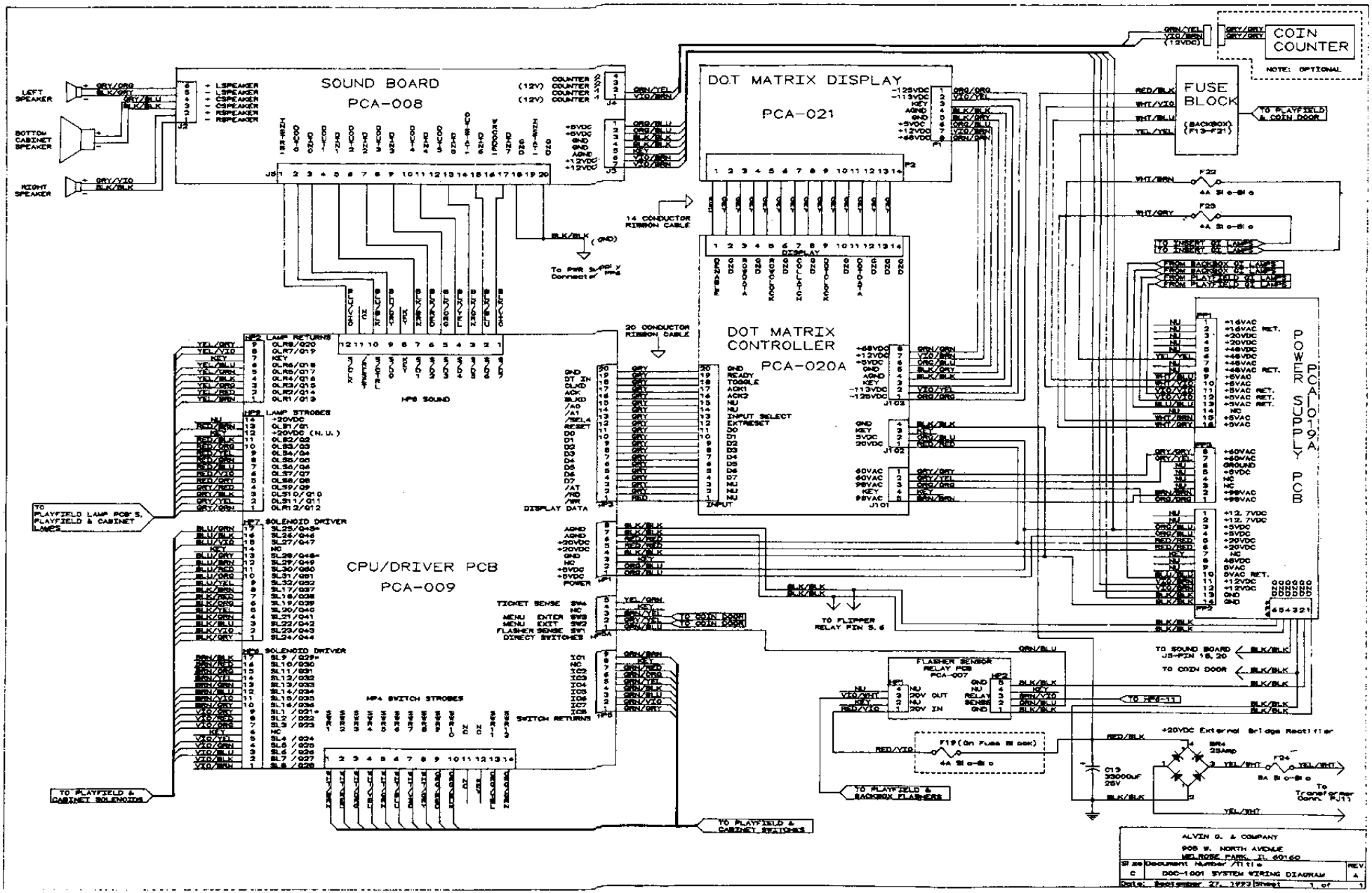



STROBES
A1HP9-13 ST1 RED/BRN
A1HP9-11 ST2 RED/BLK
A1HP9-10 ST3 RED/ORG
A1HP9-9 ST4 RED/YEL
A1HP9-8 ST5 RED/GRN
A1HP9-7 ST6 RED/BLU
A1HP9-6 ST7 RED/VIO
A1HP9-5 ST8 RED/GRY
A1HP9-4 ST9 GRY/RED
A1HP9-3 ST10 GRY/BLK
A1HP9-2 ST11 GRY/YEL
A1HP9-1 ST12 GRY/GRN
1 BACKBOX 10 SPADES
2 BACKBOX J SPADES
3 BACKBOX Q SPADES
4 BACKBOX K SPADES
5 BACKBOX A SPADES
6 BACKBOX 10 HEARTS
7 BACKBOX J HEARTS
8 BACKBOX Q HEARTS
9 BACKBOX K HEARTS
10 BACKBOX A HEARTS
11 BACKBOX 10 CLUBS
12 BACKBOX J CLUBS
13 BACKBOX Q CLUBS
14 BACKBOX K CLUBS
15 BACKBOX A CLUBS
16 BACKBOX 10 DIAMONDS
17 BACKBOX J DIAMONDS
18 BACKBOX Q DIAMONDS
19 BACKBOX K DIAMONDS
20 BACKBOX A DIAMONDS
21 PISTOL 'P'
22 PISTOL 'I'
23 PISTOL 'S'
24 PISTOL 'T'
25 N. U.
26 BACKBOX COIN ACE
27 BACKBOX COIN KING
28 BACKBOX COIN QUEEN
29 BACKBOX COIN JACK
30 BACKBOX COIN 10
31 N. U.
32 GAME START
33 WHITE CHIP
34 RED CHIP
35 BLUE CHIP
36 GOLD CHIP
37 BILLBOARD SUPER JACKPOT
38 BILLBOARD MEGAMODE
39 BILLBOARD ADD SPADE JACKPOT
40 BILLBOARD JOKER
41 SPADES A
42 SPADES K
43 SPADES Q
44 SPADES J
45 SPADES 10
46 EXTRA BALL READY
47 UPPER P/F COLLECT
48 BILLBOARD ACE
49 READY
50 AIM
51 FIRE
52 FOUR OF A KIND
53 CHIP SEVEN
54 DEAL AGAIN
55 LEFT BUMPER
56 RIGHT BUMPER
57 HEARTS 10
58 HEARTS J
59 HEARTS Q
60 HEARTS K
61 HEARTS A
62 SPOT 'P'
63 SPOT 'S'
64 EXTRA BALL
65 CLUBS 10
66 CLUBS Q
67 CLUBS A
68 CLUBS K
69 CLUBS J
70 RAMP COLLECT HAND
71 DIAMOND JACKPOT
72 CENTER COLLECT
73 DIAMOND 10
74 DIAMOND J
75 DIAMOND Q
76 DIAMOND K
77 DIAMOND A
78 SPOT 'O'
79 SPOT 'T'
80 CLUB JACKPOT
81 PAIR
82 TWO PAIR
83 CHIP ONE
84 CHIP TWO
85 THREE OF A KIND
86 CHIP FIVE
87 JOKER
88 COLLECT CHIP VALUE
89 CHIP THREE
90 STRAIGHT
91 ROYAL FLUSH
92 CHIP FOUR
93 FULL HOUSE
94 CHIP SIX
95 LEFT COLLECT HAND
96 HEART JACKPOT
A1HP2-1 RET1 YEL/BRN
A1HP2-2 RET2 YEL/RED
A1HP2-3 RET3 YEL/ORG
A1HP2-4 RET4 YEL/BLK
A1HP2-5 RET5 YEL/GRN
A1HP2-6 RET6 YEL/BLU
A1HP2-8 RET7 YEL/VIO
A1HP2-9 RET8 YEL/GRY
TO CPU LAMP RETURNS HP2
TO CPU LAMP STROBES HP9
* ALL DIODES 1N4004
RETURNS
ALVIN G. & COMPANY
905 W. NORTH AVENUE
MELROSE PARK, IL 60160
Size D
Document Number /TITLE
DOC-1004 LAMP WIRING DIAGRAM
REV A
Date: September 27, 1993
Sheet 1 of 1


STROBES
A1HP4-1 ST1 WHT/BRN
LEFT COIN CHUTE 1
RIGHT COIN CHUTE 2
CENTER COIN CHUTE 3
EXTRA COIN CHUTE 4
SLAM 5
N. U. 6
LEFT FLIPPER BUTTON 7
RITE FLIPPER BUTTON 8
A1HP4-2 ST2 WHT/RED
GAME START 9
TILT 10
N. U. 11
N. U. 12
N. U. 13
N. U. 14
TEST PLUS 15
TEST MINUS 16
A1HP4-3 ST3 WHT/ORG
OUTHOLE 17
BALL TROUGH 18
N. U. 19
N. U. 20
SHOOTER LANE 21
N. U. 22
RAMP ENTER 23
RAMP EXIT 24
A1HP4-4 ST4 WHT/YEL
WHITE CHIP 25
RED CHIP 26
BLUE CHIP 27
GOLD CHIP 28
REBOUNDERS 29
LEFT BUMPER 30
RIGHT BUMPER 31
TOP SLING 32
A1HP4-5 ST5 WHT/GRN
N. U. 33
N. U. 34
N. U. 35
N. U. 36
N. U. 37
N. U. 38
N. U. 39
N. U. 40
A1HP4-6 ST6 WHT/BLU
N. U. 41
SPADES K 42
SPADES Q 43
SPADES J 44
SPADES 10 45
TOP LEFT LOOP 46
TOP RITE LOOP 47
N. U. 48
A1HP4-7 ST7 WHT/VIO
LEFT SLING 49
RIGHT SLING 50
ACE OF CLUBS 51
JOKER TOP 52
JOKER BOTTOM 53
N. U. 54
N. U. 55
CNTR COLLECT BOT 56
A1HP4-8 ST8 WHT/GRY
HEARTS 10 57
HEARTS J 58
HEARTS Q 59
HEARTS K 60
HEARTS A 61
SPOT 'P' 62
SPOT 'S' 63
N. U. 64
A1HP4-9 ST9 ORG/RED
CLUBS 10 65
CLUBS Q 66
N. U. 67
CLUBS K 68
CLUBS J 69
JACKPOT CLUB 70
JACKPOT HEART TOP 71
JACKPOT HEART BOT 72
A1HP4-10 ST10 ORG/BLK
DIAMONDS 10 73
DIAMONDS J 74
DIAMONDS Q 75
DIAMONDS K 76
DIAMONDS A 77
SPOT 'I' 78
SPOT 'O' 79
CNTR COLLECT TOP 80
A1HP4-13 ST11 ORG/YEL
N. U. 81
N. U. 82
N. U. 83
N. U. 84
N. U. 85
N. U. 86
N. U. 87
N. U. 88
A1HP4-14 ST12 ORG/GRN
N. U. 89
N. U. 90
N. U. 91
N. U. 92
N. U. 93
N. U. 94
N. U. 95
N. U. 96
A1HP5-8 RET1 ORN/BRN
A1HP5-7 RET2 ORN/RED
A1HP5-6 RET3 ORN/ORG
A1HP5-5 RET4 ORN/YEL
A1HP5-4 RET5 ORN/BLK
A1HP5-3 RET6 ORN/BLU
A1HP5-2 RET7 ORN/VIO
A1HP5-1 RET8 ORN/GRY
TO CPU SWITCH RETURNS HP5
TO CPU SWITCH STROBES HP4
* ALL DIODES 1N4004
RETURNS
ALVIN G. & COMPANY
903 W. NORTH AVENUE
MELROSE PARK, IL 60160
Size D
Document Number /TITLE
DOC-1003 SWITCH WIRING DIAGRAM
REV A
Date: September 27, 1993 Sheet 1 of 1


FLASHER SENSOR RELAY PC BOARD 1334
PCA-007
(SEE SYSTEM WIRING DIAGRAM)
FUSE BLOCK
F13 1.5A SI o-Bl o
F14 2A SI o-Bl o
F15 2A SI o-Bl o
F16 4A SI o-Bl o
F17 0.25A SI o-Bl o
F18 4A SI o-Bl o
F19 4A SI o-Bl o
F20 4A SI o-Bl o
F21 4A SI o-Bl o
F22 4A SI o-Bl o
F23 4A SI o-Bl o
To PWR Supply Connector J7-1 +5VDC
To PWR Supply Connector J7-2 +5VDC
TO PWR SUPPLY CONNECTOR J7-9 +20VDC
FLIPPERS
LEFT BUMPER
RIGHT BUMPER
OUTHOLE
TOP SLING
JOKER KICKER
ACE CLUBS POPPER
LEFT SLING
RIGHT SLING
KNOCKER
TO CPU BOARD
PLAYFIELD GI RELAY
BACKBOX GI RELAY
EJECT TO PLAYFIELD
FLASHER RELAY (PART OF PCA-007)
LEFT FLIPPER
RIGHT FLIPPER
TOP-RIGHT FLIPPER
FLASHER HEARTS
FLASHER DIAMONDS
FLASHER CLUB
FLASHER SPADES
FLASHER TOP LEFT
FLASHER TOP RIGHT
FLASHER RAP
FLASHER BACKBOX
RIGHT PLAYFIELD GI'S
LEFT PLAYFIELD GI'S
COIN DOOR GI'S
BACKBOX GI'S (INSERT)
BACKBOX GI RELAY (COIL #29)
TO FUSE BLOCK
TO POWER GROUNDS ON POWER SUPPLY (PP6-6, 6)
NOTE: CAPACITORS ON FLIPPER COILS ARE 2.2uF 250V
RIGHT FLIPPER SWITCH
LEFT FLIPPER SWITCH
RF2 100 ohm 1W 5%
CF2 0.1uF 500V
FLIPPER RELAY (COIL #27)
DISTRIBUTION CONNECTORS
TRANSFORMER WIRES
CONNECTOR PJ10 (9-PIN MOLEX) (SEE CABINET WIRING DIAGRAM)
ALL INSERT GI LAMPS #555 BULB
ALL INSERT FLASH LAMPS #906 BULB
ALL PLAYFIELD GI LAMPS #44 BULB
ALL PLAYFIELD FLASH LAMPS #67 BULB
ALL DIODES 1N4004
ALVIN G. & COMPANY
905 N. NORTH AVENUE
MELROSE PARK, IL 60160
DOC-1002 SOLENOID WIRING DIAGRAM
Date: October 29, 1979


PLUG AC MALE
POWER CHASSIS
F1
5A 250
RV1
VARISTOR
275VAC
LINE
FILTER
SERVICE OUTLET
POWER SWITCH
Power
Connectors
BLK/BLK
WHT/WHT
GRN/GRN
OPTIONAL POWER CONNECTIONS
For 110VAC (RED)
For 100VAC (BRN)
For 120VAC (ORG)
For 200VAC (YEL)
For 210VAC (PUR)
For 220VAC (GRN)
For 230VAC
For 240VAC (BLU)
POWER TRANSFORMER
TRN-002
120V WHT/WHT
110V RED/RED
100V GRN/GRN
0V BRN/BRN
120V BLK/BLK
110V ORG/ORG
100V YEL/YEL
0V PUR/PUR
WHT/RED 51VAC
WHT/RED 51VAC RET.
BLU/BLU 6.5VAC
BLU/WHT 6.5VAC RET.
BLU/BLU 6.5VAC
VIO/VIO 30VAC
VIO/VIO 30VAC RET.
WHT/WHT 16VAC
WHT/WHT 16VAC RET.
GRN/GRN 9VAC
GRN/GRN 9VAC RET.
GRY/GRY 13VAC
GRY/WHT CT
GRY/GRY 13VAC
WHT/BRN COM
WHT/BRN COM
RED/WHT 6VAC
RED/WHT 6VAC
WHT/BLK 8VAC
PJ9
Molex 9pin
Receptacle
PJ11
Molex 12pin-Receptacle
To Power Supply PP11
PJ10
Molex 9pin-Receptacle
To Power Supply PP10
COIN DOOR
FOR COIN DOORS EQUIPED WITH A ELECTRONIC COIN MECHANISM REFER TO THE ELECTRONIC COIN MECHANISM DRAWING.
BEGIN TEST (ENTER)
SERVICE CREDITS (EXIT)
VOLUME +
VOLUME -
Not used on all doors.
CENTER COIN CHUTE
EXTRA COIN CHUTE
LEFT COIN CHUTE
SLAM
RIGHT COIN CHUTE
GRY/YEL
GRN/ORG
GRN/RED
GRN/BLK
WHT/VIO
VIO/VIO
GI LAMP RIGHT
GI LAMP CENTER
GI LAMP LEFT
NOTE: SEE COIL WIRING DIAGRAM FOR MORE INFORMATION ABOUT THE COIN DOOR GI LAMPS.
TO SYSTEM WIRING
ALL G.I. LAMPS ON COIN DOOR #555 BULB
LAMP FOR START BUTTON IS #555 BULB
TO FLIPPER COILS
LEFT FLIPPER BUTTON
RIGHT FLIPPER BUTTON
TILT
TO FLIPPER RELAY
FLIPPER SWITCH:
RESISTORS 100 ohm 1W 5%
CAPACITORS 0.1uF 500V
GAME START
RED/YEL
GRN/BRN
YEL/GRY
ALVIN G. & COMPANY
905 W. NORTH AVENUE
MELROSE PARK, IL 60160
Size E
Document Number / Title
DOC-1005 CABINET WIRING DIAGRAM
REV A
Date: October 22, 1993 Sheet 1 of 1


SOUND BOARD
PCA-008
DOT MATRIX DISPLAY
PCA-021
DOT MATRIX
CONTROLLER
PCA-020A
CPU/DRIVER PCB
PCA-009
POWER SUPPLY PCB
PCA-019A
COIN COUNTER
NOTE: OPTIONAL
FUSE BLOCK
(BACKBOX)
(F19-F21)
LEFT SPEAKER
BOTTOM CABINET SPEAKER
RIGHT SPEAKER
14 CONDUCTOR RIBBON CABLE
20 CONDUCTOR RIBBON CABLE
TO PLAYFIELD LAMP PCB'S, PLAYFIELD & CABINET LAMPS
TO PLAYFIELD & CABINET SOLENOIDS
TO PLAYFIELD & CABINET SWITCHES
TO FLIPPER RELAY PIN 5, 6
TO PLAYFIELD & BACKBOX FLASHERS
FLASHER SENSOR RELAY PCB PCA-007
+20VDC External Bridge Rectifier
ALVIN G. & COMPANY
905 W. NORTH AVENUE
MELROSE PARK, IL 60160
Document Number /Title
DOC-1001 SYSTEM WIRING DIAGRAM
REV A
Date: September 27, 1993
Sheet 1 of 1