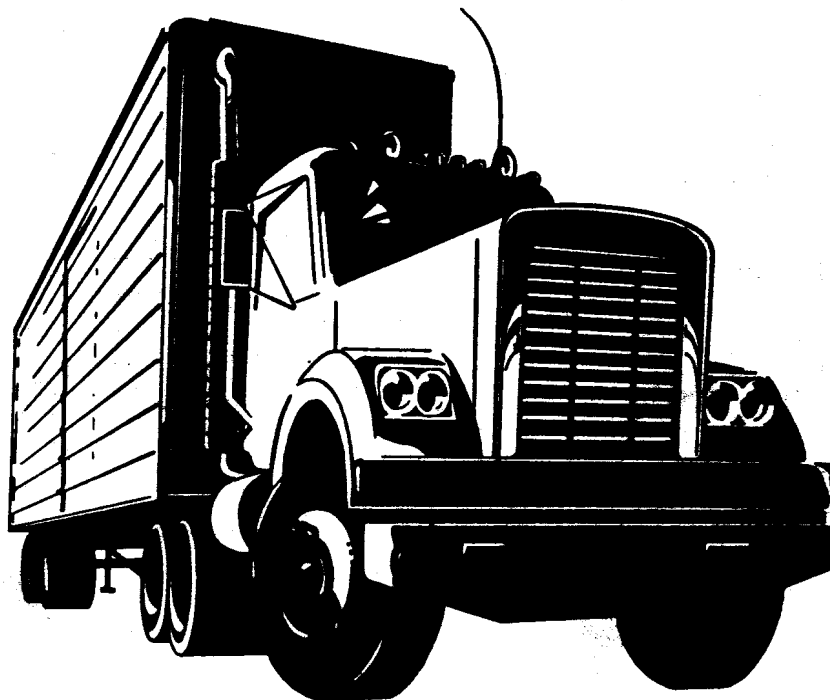


16-2001-101P  
October 21, 1988



## Operating Manual



**MIDWAY MANUFACTURING CO.**  
Manufacturers of **BALLY** Amusement Games  
3401 N. California Avenue  
Chicago, IL 60618  
(312) 267-2240

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## ROM Summary

6803 CPU A084-91786-G000 Memory & Jumper Combinations

| Game Name              | Game No. | Released | U2              | U3              | Jumpers    |
|------------------------|----------|----------|-----------------|-----------------|------------|
| Eight Ball Champ       | 0B38     | Aug 1985 | Not Used        | 0838-00803-0005 | 2,4,6,8,10 |
| Beat The Clock         | 0C70     | Nov 1985 | Not Used        | 0C70-00803-0005 | 2,4,6,9,10 |
| Lady Luck              | 0E34     | Feb 1986 | Not Used        | 0E34-00803-0005 | 2,4,6,8,10 |
| Motor Dome             | 0E14     | May 1986 | E14A-42AAE-BX40 | E14A-42AAE-CX4D | 2,4,6,8,10 |
| Black Belt             | 0E52     | Jul 1986 | 0E52-00803-0001 | 0E52-00803-0002 | 2,4,6,8,10 |
| Special Force          | 0E47     | Sep 1986 | 0E47-00803-0004 | 0E47-00803-0005 | 2,4,6,9,10 |
| Strange Science        | 0E35     | Dec 1986 | 0E35-00803-0001 | 0E35-00803-0002 | 2,4,6,9,10 |
| City Slicker           | 0E79     | Feb 1987 | 0E79-00803-0002 | 0E79-00803-0003 | 2,4,6,9,10 |
| Hard Body              | 0E94     | Mar 1987 | E94A-12601-0000 | E94A-12602-0000 | 2,4,6,9,10 |
| Party Animal           | 0H01     | May 1987 | H01A-12601-0000 | H01A-12602-0000 | 2,4,6,9,10 |
| Heavy Metal            | 0H03     | Jun 1987 | H03A-12601-0000 | H03A-12602-0000 | 2,4,6,9,10 |
| Dungeons & Dragons     | 0H06     | Oct 1987 | H06A-12601-0000 | H06A-12602-0000 | 2,4,6,9,10 |
| Escape From Lost World | 0H05     | Jan 1988 | H05A-12601-0000 | H05A-12602-0000 | 2,4,6,8,10 |
| Blackwater 100         | 0H07     | Mar 1988 | H07A-12601-0000 | H07A-12602-0000 | 2,4,6,9,10 |
| Truck Stop             | 2001     | Oct 1988 | H08A-12601-0000 | H08A-12602-0000 | 2,4,6,9,10 |

Note: See BALLY-MIDWAY Service Bulletin dated December 26, 1985, summarized below...

Subject: BEAT THE CLOCK and subsequent pinball games.

Symptom: LED flashes eight times, but game fails to power up.

Cause: Starting with BEAT THE CLOCK, game 300, the U3 program was modified for internal testing.

Cure: Current boards include a 100K ohm, 1/4-watt pullup resistor. This runs between the +5-volt bus and pin 12 of microprocessor U1.

### Coil Table including Flipper Coils

| Sol. No.             | Solenoid Description     | Solenoid Type                           | Wire Color    | Connections   |                   | Solenoid Part No. |
|----------------------|--------------------------|---|---------------|---------------|-------------------|-------------------|
|                      |                          |   |               | Control Board | Driver Transistor |                   |
| 01                   | Left Kicker (Truck Stop) | Momentary                               | White-Red     | CJ9-1         | Q18               | A365-00067-0029   |
| 02                   | Right Saucer             | Momentary                               | Yellow-White  | CJ6-4         | Q14               | A365-00067-0010   |
| 03                   | Right Kicker (Dock)      | Momentary                               | Yellow-Blue   | CJ6-2         | Q12               | A360-00211-0000   |
| 04                   | Inline Target Reset      | Momentary                               | Blue-White    | CJ8-6         | Q15               | A365-00067-0019   |
| 05                   | Left, Top Slingshot      | Momentary                               | Blue-Orange   | CJ8-7         | Q16               | A365-00067-0029   |
| 06                   | Right, Top Slingshot     | Momentary                               | Yellow-Brown  | CJ6-5         | Q17               | A365-00067-0029   |
| 07                   | Left, Bottom Slingshot   | Momentary                               | Yellow-Red    | CJ6-1         | Q11               | A365-00067-0029   |
| 08                   | Right, Bottom Slingshot  | Momentary                               | Yellow-Green  | CJ6-3         | Q13               | A365-00067-0029   |
| 09                   | Ball Eject               | Momentary                               | White-Brown   | CJ9-6         | Q22               | A360-00211-0000   |
| 10                   | Outhole                  | Momentary                               | White-Black   | CJ9-8         | Q39               | A360-00044-0000   |
| 11                   | Knocker                  | Continuous                              | White-Gray    | CJ9-11        | Q40               | A360-00046-0000   |
| 12                   | Lane Steering*           | Continuous                              | Yellow-Violet | CJ6-7         | Q10               | A365-00067-0027   |
| 13                   | SS Relay Bd (Backbox)*   | Continuous                              | Blue-Green    | CJ9-10        | Q8                | A080-91786-G000   |
| 14                   | Flipper-Enabling Relay*  | Continuous                              | Gray-White    | --            | Q7                | 114E-00001-0011   |
| 15                   | Not Used                 | Momentary                               | White-Blue    | CJ9-2         | Q19               | --                |
| 16                   | Not Used                 | Momentary                               | White-Yellow  | CJ9-3         | Q20               | --                |
| 17                   | Not Used                 | Momentary                               | White-Green   | CJ9-4         | Q21               | --                |
| 18                   | Not Used                 | Momentary                               | White-Orange  | CJ9-7         | Q38               | --                |
| 19                   | Not Used*                | Continuous                              | Brown-Violet  | CJ9-9         | Q9                | --                |
| Flipper Description  |                          | Wire Colors and Connectors              |               |               |                   | Part Number       |
| Top Left Flipper     |                          | Orn-Gry: CJ6-8, CBJ7-2; Blk-Grn: CBJ7-6 |               |               |                   | A365-00067-0021   |
| Bottom Left Flipper  |                          | Orn-Gry: CJ6-8, CBJ7-2; Blu-Gry: CBJ7-4 |               |               |                   | FL11630/50VDC     |
| Top Right Flipper    |                          | Orn-Vio: CJ6-9, CBJ7-1; Blk-Yel: CBJ7-5 |               |               |                   | A365-00067-0021   |
| Bottom Right Flipper |                          | Orn-Vio: CJ6-9, CBJ7-1; Blu-Vio: CBJ7-3 |               |               |                   | FL11630/50VDC     |

#### NOTES:

- To use continuous solenoid 12, install jumper JW10. Remove jumper JW11.
- To use continuous solenoid 19, install jumper JW8. Remove jumper J9.
- To use switch strobe at CJ4-01, install jumper JW9. Remove jumper JW8.
- To use extra display at CJ2-19, install jumper JW11. Remove jumper JW10.
- Coils marked with an asterisk (\*) are on the playfield backboard or in the backbox.
- Apply heatsink 112-00001-0047 and compound 0017-00009-0204 to drivers Q11, Q13, Q16, Q17 and Q18. Spread the thermal compound on the back and upper tab area of each transistor.

# TRUCK STOP Operating Manual

## Sound Board Summary SOUND MODULES USED WITH 6803 CPU MEMORY & JUMPER COMBINATIONS

| SQUAWK & TALK A084-91625-A000 (Unprogrammed) |     |     |            |            |            |     |                                      |
|--|-----|-----|------------|------------|------------|-----|--------------------------------------|
| GAME NAME                                    | U1  | U2  | U3         | U4         | U5         | U6  | JUMPERS                              |
| Eight Ball Champ                             | N/U | N/U | 0B38-803-2 | 0B38-803-3 | 0B38-803-4 | N/U | C,D,E,G,H,L,N,Q,<br>S,U,W,Y,AA,DD,FF |
| Beat The Clock                               | N/U | N/U | 0C70-803-2 | 0C70-803-3 | 0C70-804-4 | N/U | Same as Eight<br>Ball Champ          |

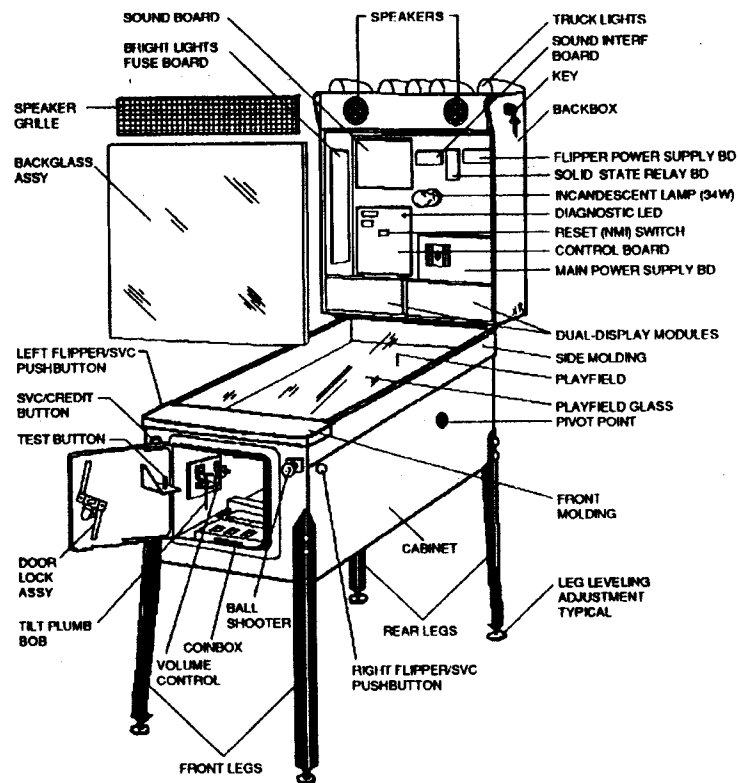
| CHEAP SQUEAK A084-91603-C000 (Unprogrammed) |     |     |            |            |            |     |                                      |
|---|-----|-----|------------|------------|------------|-----|--------------------------------------|
| GAME NAME                                   | U1  | U2  | U3         | U4         | U5         | U6  | JUMPERS                              |
| Lady Luck                                   | N/U | N/U | 0B38-803-2 | 0B38-803-3 | 0B38-803-4 | N/U | C,D,E,G,H,L,N,Q,<br>S,U,W,Y,AA,DD,FF |

| TURBO CHEAP SQUEAK FOR PINBALL A084-91855-C000 (Unprogrammed) |                 |                    |
|---|-----------------|--------------------|
| GAME NAME   | U7              | JUMPERS            |
| Motor Dome  | E14A-47AAE-AX4D | 2,3,4,5,6,7,8      |
| Black Belt  | 0E52-00803-0003 | 2,3,4,5,6,7,8      |
| Strange Science   | 0E35-00803-0003 | 2,3,4,5,6,7,8      |
| City Sliker   | 0E79-00803-0004 | 2,3,4,5,6,7,8,9,11 |
| Hard Body   | E94A-12603-0000 | 2,3,4,5,6,7,8,9,11 |

| SOUNDS DELUXE A084-91864-C000 (Unprogrammed) |                 |                 |                 |                 |            |
|--|-----------------|-----------------|-----------------|-----------------|------------|
| GAME NAME                                    | U11             | U12             | U13             | U14             | JUMPERS    |
| Special Force                                | 0E47-803-10     | 0E47-803-11     | 0E47-803-12     | 0E47-803-13     | 1,2,4,7-12 |
| Party Animal                                 | H10A-12603-0000 | H01A-12604-0000 | H01A-12606-0000 | H01A-12606-0000 | 1,2,4,7-12 |
| Heavy Metal                                  | H03A-12603-0000 | H03A-12604-0000 | N/U             | N/U             | 1,2,4,7,8  |
| Dungeons & Drags                             | H06A-12603-0000 | H06A-12604-0000 | H06A-12605-0000 | H06A-12606-0000 | 1,2,4,7-12 |
| Lost World                                   | H05A-12603-0000 | H05A-12604-0000 | H05A-80605-0000 | H05A-12606-0000 | 1,2,4,7-12 |
| Blackwater 100                               | H07A-12603-0000 | H07A-12605-0000 | H07A-12605-0000 | H07A-12606-0000 | 1,2,4,7-12 |

| WILLIAMS D-11581 Board (Unprogrammed) |               |               |               |         |
|---------------------------------------|---------------|---------------|---------------|---------|
| GAME NAME                             | U4            | U19           | U20           | JUMPERS |
| Truck Stop                            | A-5343-2001-1 | A-5343-2001-2 | A-5343-2001-3 | W1, W9  |

# PINBALL GAME PARTS LOCATION



# **CHAPTER 1: INSTALLATION AND GAMEPLAY**

Connector Identification  
Circuitboards  
Control Locations

Installation Procedure  
Game Operation  
Buy-In Feature

Select Initials Feature  
Game Theme  
Game Rules

Game Features

## CONNECTOR IDENTIFICATION

*BALLY* games use a special technique to identify connectors. Each connector receives a prefix letter, followed by "J" (for jack) and a number. Connector pins are expressed by a suffix number.

- The prefix letter identifies the circuitboard where the connector resides.
- J-designations refer to a connector.
- The number identifies which connector we're referring to.
- The suffix number (-1, -15, etc.) refers to a pin number on the connector.

For example, CJ1 designates connector 1 on the Control Board. PJ6-1 designates the first pin of connector 6 on the Power Supply Board. Prefix letters for your game are listed below.

|                          |                             |
|--------------------------|-----------------------------|
| C - 6803 Control Board   | PL - Playfield              |
| P - Main Power Supply    | S - Sound Board             |
| D1 - Left Display Board  | SI - Sound Interface Board  |
| D2 - Right Display Board | L - Lamp Fuse Board         |
| BB - Backbox             | R - Solid State Relay Board |
| CB - Cabinet             | F - Flipper Power Supply    |

## CIRCUITBOARDS

Most circuitboards are in the backbox. To access the boards, remove the backbox glass.

**CONTROL BOARD.** The Control Board is part number A080-91786-G000. It contains the 6803 microprocessor. The Control Board must be equipped with ROMs and jumpers specified in the ROM Summary.

**SOUND BOARD.** The D-11581-2001 Sound Board is supplied with ROMs and microprocessor. This is a stereo board with speech capabilities and Yamaha organ circuitry. The Sound Board must be equipped with ROMs and jumpers specified in the Sound Board Summary.

**DISPLAY BOARDS.** There are two, 14-digit display tubes. Each tube is attached to its own printed circuit board. Either tube and its board comprises a Dual Display Module, part number B084-91851-H000.

**MAIN POWER SUPPLY BOARD.** The Power Supply Board is part number A080-91785-D000. This board incorporates rectifier and regulator circuitry. Each power supply is fused on the board. The power transformer (part MT00-00163-A000) is in the lower cabinet. Power Supply DC voltages include...

- Positive five-volt, logic power
- Positive 190V for displays
- 6.3VAC for general illumination
- 11VAC for feature lamps
- 14VDC for controlled lamps

**FLIPPER POWER SUPPLY BOARD.** The 50VDC Flipper Power Supply is part number C-9939-2001. This board incorporates rectifier and passive filter circuitry. The power supply includes a 4ASB fuse. The Flipper Power Supply derives AC voltage from an auxiliary power transformer. This flipper power transformer (part 5610-10355-00) is in the lower cabinet.

**SOUND INTERFACE BOARD.** The Sound Interface Board is part number C-12417. This board includes a regulator for the -12VDC sound power amplifier. Also present is a reset circuit for the Sound Board.

**BRIGHT LIGHT FUSE BOARD.** The Bright Light Fuse Board is part number A080-91901-B000. This board includes 16 fuses. The fuses protect SCRs in the phase C and phase D lamp drive circuits.

**SOLID STATE RELAY BOARD.** The Solid State Relay Board is part number A080-91902-A000. This board controls the large, incandescent, backbox-illumination bulb.

### **BOARDS NOT IN THE BACKBOX**

Two other boards are located on the playfield. Emitter Board A084-91895-B000 and Detector Board A084-91894-B000 are under the bottom arch. They optically detect balls on the ball ramp.

## **CONTROL LOCATIONS**

**THE ON-OFF SWITCH** is on the bottom of the cabinet, near the right, front leg.

**THE VOLUME CONTROL** is inside the coin door. Look at the left, inner wall of the cabinet, on the tilt mechanism board.

**THE CREDIT BUTTON** is left of the coin door on the front of the cabinet.

**GAME ADJUSTMENT/DIAGNOSTIC SWITCHES.** The SELF TEST button switch is inside the coin door. This switch assists you during game adjustments, bookkeeping, and problem diagnosis. Details appear in Chapter 2.

## **INSTALLATION PROCEDURE**

[ ] 1. Open the shipping container. Remove cartons, parts and other items. Set them aside.

[ ] 2. Leg levellers and bolts are provided in the cashbox. Install levellers on the game's rear legs. Set the game on a flat surface or dolly. Bolt the rear legs to the game.

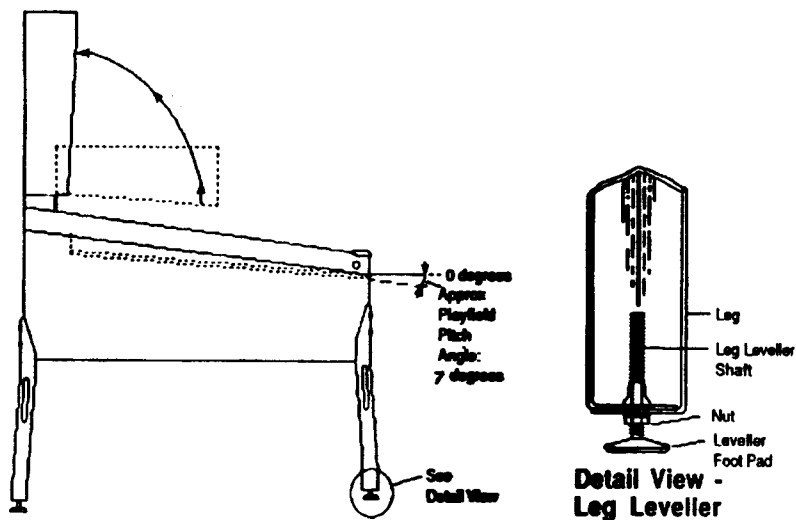


[ ] 3. Install leg levellers on the front legs. Bolt the front legs to the game.

[ ] 4. Reach into the cabinet and backbox. Check that cable connectors are properly seated on their printed circuit boards. Check the mating of interconnecting cables. Match several wire colors at each connector. Assure that connections are secure.

### CAUTION

Assure that cables are free to move (not kinked or pinched). During assembly, be careful not to damage wires.



Pinball Assembly, Playfield Pitch Angle, and Leg Leveller Details

[ ] 5.Raise the hinged backbox upright. Latch the clamp on the back of the cabinet and backbox.

[ ] 6.Unlock the backbox. Remove the backbox glass. To avoid scratches, carefully store the glass. Install mounting bolts and flat washers through the bottom holes of the backbox. The bolts mate with threaded fasteners in the cabinet and secure the backbox.

### **WARNING**

**NEVER** transport a pinball game with the hinged backbox erect. Prevent equipment damage and personal injury! When you lower the backbox, insert a layer of protective material between cabinet and backbox.

[ ] 7.Extend each leg leveller slightly below the leg bottom. All four foot pads should be extended about the same distance. Remove the cabinet from its support and place it on the floor.

[ ] 8.Raise the playfield and examine the following areas...

- Are cables clear of moving parts?
- Have wires come loose during shipment?
- Is there loose solder or other foreign material in switches or sockets? Such material may come loose in shipment. It could short switches or lamp sockets.
- Is the power transformer jumpered for local line conditions? Transformer plug wiring must correspond to location voltage. See the table below. Also examine the BACKBOX WIRING SCHEMATIC.
- Are coils properly soldered? Vibration in shipment may cause loss of contact.

### Transformer Wiring for USA/Europe

Use Main Transformer MT00-00163-A000  
& Flipper Transformer 5610-10355-00

| Local Line Voltage | Install Main Transformer Wiring                      | Install Flipper Transformer Wiring                    |
|--------------------|--|---|
| 115 VAC            | Xfmr Inputs 1 & 5 at CBJ1;<br>2-8, 3-6, 7-10 at CBJ1 | Xfmr Inputs 1 & 3; jumpers<br>1-5, 3-7 at transformer |
| 230 VAC            | Xfmr Inputs 1 & 5; jumpers<br>3-8, 7-10 at CBJ1      | Xfmr Inputs 1 & 7; jumpers<br>3-5 at transformer      |

### Transformer Wiring for Japan

Use Main Transformer MT00-00164-A000  
& Flipper Transformer 5610-10355-00

| Local Line Voltage | Install Main Transformer Wiring          | Install Flipper Transformer Wiring                    |
|--------------------|--|---|
| 103.5 VAC          | Xfmr Inputs 1 & 3 at CBJ1;<br>no jumpers | Xfmr Inputs 1 & 2; jumpers<br>1-5, 2-6 at transformer |

[ ] 8. Lower the playfield. Adjust leg levellers for proper playfield level (side-to-side). Rest your level on the playfield, not the cabinet nor the playfield cover glass.

[ ] 9. Adjust leg levellers for a playfield pitch (incline) of seven degrees. Rest your level on the playfield, not the cabinet nor the playfield cover glass. To maintain step 7 and 8 settings, tighten the nut on each leg leveller shaft.

### CAUTION

Playfield pitch adjustments can affect the operation of the plumb bob tilt. The plumb bob tilt is inside the cabinet. After completing playfield pitch adjustments, set this mechanism for desired operation.

[ ] 10. Move the game into the desired location. Recheck the level and pitch angle of the playfield.

[ ] 11. Check that the required number of balls are installed in the game. *TRUCK STOP* uses three balls.

[ ] 12. Clean and reinstall playfield glass. Prepare the game for play.

## GAME OPERATION

**STUCK SWITCH INDICATION.** Turn on the power switch (at the bottom, right front corner of the cabinet). The game resets its drop targets. When the game powers up, names of the closed switches are briefly displayed. Then the phrase GAME OVER appears, indicating that the game is ready for play.

**CREDITS.** The game should accept coins and display the appropriate number of credits. Pressing the CREDIT button causes the Multi-Ball™ Kicker to kick out the first ball. This ball enters the shooter lane. Initially, the game holds its three balls in the ball trough.

Each time a player presses the CREDIT button, the game posts one player. Remaining credits are reduced by one. The game awards points earned by the players.

**BONUS SCORE.** The Multi-Ball kicker serves the first ball to the shooter lane. This serve initiates play. Eventually each player's last ball enters the outhole. Then the top-mounted kicker sends the ball to the Multi-Ball™ kicker. Sensors in the ball trough pick up the ball. Reacting, the game computer adds the bonus score to the total game score. Meanwhile the game advances the player-up or current ball indication by one position.

**MATCH.** After each player completes his game, a random matching number appears in the display. This number may equal the last two digits in a player's score. If so, the player earns another game.

**EXTRA BALLS** are played immediately after the player's third and last ball enters the outhole. The player-up and current ball aren't advanced before the game serves the extra ball.

**BONUS GAME.** At the end of the game, the game computer reads the Hiscore Award register. According to the setting of this register, free games may be awarded. Free games result when a player beats the score (or the score exceeds) 10 million.

**TILT.** Tilting the game results in loss of the ball in play. Bonus points are not awarded, the flippers go dead, and none of the playfield switches score. The purpose of the tilt penalty is to discourage the player from jostling the game in an attempt to prolong gameplay. Game action returns to normal after the kicker serves the ball. Then the Multi-Ball kicker kicks the ball to the shooter lane. At this point, a new turn commences.

## SELECT INITIALS FEATURE

The player can use the right flipper button to advance through displayed letters. Or he can use the left flipper button to back up through displayed letters. A player enters each of his three letters by pressing the CREDIT button. The player is given a certain period of time to enter a letter. Otherwise the game enters the default letter "A."

During Attract Mode, initials and scores appear on the display. To view scores and initials, players press the lower left button.

## GAME THEME

*TRUCK STOP* captures America at its most manic, and spins it on eighteen big rubber wheels... The player (truck driver) is pitted against the Interstate System and other gearjammers. The truck route winds between five proud cities of the sun belt and rust belt: LA, Denver, Dallas, Chicago and New York. Each has its own spirit and its own adventure. The player must show his true grit over long stretches of open road. A long tank of gasoline is a job. And it's power, light and the way back home.

## GAME RULES

- The ramp shot **scores** city letters.
- To qualify for **locking a ball**, spot flashing city lights.
- To reach the **destination** city and qualify for release, spell C-I-T-Y **five times**.

- When "Multi-Ball" is lit, the Gas Station releases Multi-Ball.
- When the ball lock is lit, the Gas Station locks the ball.
- Center drop targets qualify the center target to advance the bonus multiplier.
- When lit, mushrooms spot city letters.

## GAME FEATURES

### CITY BONUS FEATURE

The "City" bonus is a grid of five lamp columns. (Sometimes we refer to this grid as a "card.") Each column contains four "City" letter indicators and one "City" indicator. There are also three "Destination Log" lamps.

A turn is one ball of the game, played by one individual. After each turn, players collect the "City" bonus at the out-hole. The value of this bonus is affected by the bonus multiplier. The maximum multiplier value is seven.

The "City" indicator reads from left to right as follows: LA, Denver, Dallas, Chicago, New York.

Players can light "City" indicators by lighting C-I-T-Y in the column above the city. Another way to light a "City" indicator is to collect a "Spot City" feature.

A completed grid lamp advances when two conditions occur: (1) All lamps in the grid are complete. (2) The "Jackpot" bonus is either completed or the timer runs out.

The points awarded are...

- 5,000 for each lit "City" letter.
- 100,000 for the first lit "Destination Log" indicator.
- 200,000 for the second lit "Destination Log" indicator and 300,000 for the third.

## **BONUS MULTIPLIER FEATURE**

The Bonus Multiplier has three parts: (1) Four green indicator lights, (2) three inline drop targets and (3) one green stationary target. Bonus Multiplier values are from one to seven times the base score. Knocking down all three inline drop targets starts the timer.

While the timer is running, the inline drop targets remain down. The center, green target advances the multiplier.

When a player hits the center target, the multiplier advances and the inlines reset.

The earned multiplier level determines how long the timer runs.

*Example:* The timer runs longer for a 3X multiplier than it does for 2X. Likewise, it runs longer for 4X than for 3X; etc.

## **JACKPOT FEATURE**

Players who complete a "City" indicator grid qualify for the Jackpot feature. This award is controlled by a timer.

The object of this feature is to collect the Jackpot before the timer runs out. While the timer runs, the player must make all four ramp shots (C-I-T-Y).

Turning on the Load Lamp increments the Jackpot value by 100,000. A player sets the Jackpot value when he collects the Jackpot. Once set, the Jackpot value applies to all players. That is, after one player receives the Jackpot, his opponents qualify for that same value. They may each try for the Jackpot. However, once a player sets the Jackpot value, no player can raise it. After the game is over, Jackpot reverts to one million. The maximum jackpot is six million.

## **MULTI-BALL CHALLENGE**

Locking both balls back into the timer-controlled "Truck Stop" awards the following:

- First, the player wins all the unlit "City" grid (card) indicators.
- After the entire card lights, the game animates card lamps as a player reward. When the animation effect is completed, the game enters Jackpot Mode, releasing both balls.

### **CAPTIVE BALL FEATURE**

When the "Truck Stop" is lit, a player can lock balls there. After the player lights a number of cities, the "Truck Stop" lights for ball capture. (The required number of cities is operator adjustable. See Chapter 2.)

To lock a ball, a player must shoot the ball into the "Truck Stop." The game transports the locked ball to the "Dock Storage Area" on the right. Then the game serves the next ball to the shooter.

At this time, "Truck Stop" lights indicate readiness for ball release. If the player misses the opening "Truck Stop" shot, the Release Light goes out. To relight Release, the player must make a city.

### **EXTRA BALL FEATURE**

This feature consists of two orange targets. When activated and hit, these targets light the "Dock" Saucer, indicating a potential extra ball. When lit, the "Dock" awards the extra ball. The player earns this extra ball by activating the "Dock."

To activate the "Dock," the player makes both targets within a certain amount of time. (Adjustable feature. See Chapter 2.)

### **BLUE TARGET FEATURE**

There are six blue targets. Completing the six targets lights the ramp for "Spots City."



# **CHAPTER 2: TAILORING THE GAME TO YOUR PLAYERS**

**Making Game Adjustments**

**Game Adjustments: Register Access And Modification  
Registers & Options Table**

**Coin Setup Procedure**

**Pricing Table**

**Game Checkup Registers**

**Self-Percentaging**

# **MAKING GAME ADJUSTMENTS**

## **INTRODUCTION**

The game system is designed to be user friendly. Your game provides you with a wealth of easily accessible information. Press the TEST button and the displays light up with assistance messages. Just by reading the displays and using three cabinet buttons, you can make numerous adjustments...

- Alter difficulty levels
- Change awards
- Modify threshold level settings
- Check special awards
- Monitor replay percent
- Keep track of income

## **GAME ADJUSTMENTS**

### **REGISTER ACCESS AND MODIFICATION**

- [ ] 1. Enter Test Mode by pressing the TEST button inside the front door.
- [ ] 2. Change the category by pressing either flipper button.
- [ ] 3. Select the category and open its directory by pressing the CREDIT button.
- [ ] 4. Change the directory by pressing either flipper button.
- [ ] 5. Select and open a register in the directory by pressing the CREDIT button.
- [ ] 6. Change register values by pressing either flipper button.
- [ ] 7. Lock in selected register values by pressing CREDIT.
- [ ] 8. For more register changes or changes in the same category, repeat steps 4 through 7. To exit Test Mode, press the TEST button.

## Registers and Options Table

| Category                  | Register Directory        |                           |              |  |
|---------------------------|---------------------------|---------------------------|--------------|--|
|                           | Player #1 & 2<br>Displays | Player #3 & 4<br>Displays | See<br>Notes | Register Description   |
| <b>Game<br/>Status</b>    | Total coins               | XXXXXXX                   | 1            | Total, all chutes  |
|                           | Games played              | XXXXXXX                   | 1            | Number of games  |
|                           | Replays awarded           | XXXXXXX                   | 1            | Number of replays  |
|                           | Replays percent           | XX                        | 1            | Percent of replays   |
|                           | Avg game time             | XX XX                     | 1            | Minutes: seconds   |
|                           | Balls played              | XXXXXXX                   | 1            | Number of heats  |
|                           | X-balls awarded           | XXXXXXX                   | 1            | Number of extra balls  |
|                           | X-ball percent            | XX                        | 1            | Percent extra balls awarded  |
|                           | Avg ball time             | XX XX                     | 1            | Minutes: seconds   |
|                           | Clear account             | NO**                      | 2            | Clear account time   |
| <b>Replay<br/>Status</b>  | Level 1 special           | XXXXXXX                   | 1            | No. of 1st Threshold specials awarded                              |
|                           | Level 2 special           | XXXXXXX                   | 1            | No. of 2nd Threshold specials awarded                              |
|                           | Level 3 special           | XXXXXXX                   | 1            | No. of 3rd Threshold specials awarded                              |
|                           | High score spcl           | XXXXXXX                   | 1            | No. of high score specials awarded                                 |
|                           | Playfield special         | XXXXXXX                   | 1            | No. of playfield specials awarded                                  |
|                           | Match special             | XXXXXXX                   | 1            | No. of match feature specials awarded                              |
| <b>Scoring<br/>Status</b> | Level 1 score             | XXXXXXX                   | 3            | Set and display first award level                                  |
|                           | Level 2 score             | XXXXXXX                   | 3            | Set and display second award level                                 |
|                           | Level 3 score             | XXXXXXX                   | 3            | Set and display third award level                                  |
|                           | High score =              | XXXXXXX                   | 3            | Set high score replay level  |
|                           | Times HS beaten           | XXXXXXX                   | 1            | Times point total exceeded high score                              |
|                           | Level 1 percent           | XX                        | 1            | % of first level replays awarded                                   |
|                           | Level 2 percent           | XX                        | 1            | % of second level replays awarded                                  |
|                           | Level 3 percent           | XX                        | 1            | % of third level replays awarded                                   |
|                           | Target percent            | XX                        | 4            | Enter desired % replays awarded for reaching first threshold level |
| <b>Coin<br/>Status</b>    | Left coins =              | XXXXXXX                   | 1            | No. of coins through left coin chute                               |
|                           | Middle coins =            | XXXXXXX                   | 1            | No. of coins through middle coin chute                             |
|                           | Right coins =             | XXXXXXX                   | 1            | No. of coins through right coin chute                              |
|                           | Total coins =             | XXXXXXX                   | 1            | Total coins through all chutes                                     |
|                           | Bonus credits             | XXXXXXX                   | 1            | No. of bonus credits awarded                                       |
| <b>Coin<br/>Setup***</b>  | Left XX Coin              | YY CRDT, ZZ<br>BONS       | 10           | Left coin chute setup  |
|                           | Middle XX Coin            | YY CRDT, ZZ<br>BONS       | 10           | Middle coin chute setup  |
|                           | Right XX Coin             | YY CRDT, ZZ<br>BONS       | 10           | Right coin chute setup   |

\*Player # 3 and 4 indicate a variable range of values. The XXXXXXXX represents the number value. XX represents the % value. Player #4 shows values that can be selected to replace the value shown in Player #3.

\*\*Factory Setting.

\*\*\*See Coin Setup Procedure examples

| Category          | Register Directory     |                        |           |  |
|-------------------|------------------------|------------------------|-----------|--|
|                   | Player #1 & 2 Displays | Player #3 & 4 Displays | See Notes | Register Description   |
| Misc. Information | Total Time =           | XXXXXXX                | 1         | Time (in minutes) that the game is powered up. Starts when the game is ready for play.   |
| Game Setup        | Factory setting        | No**                   | 2         | Reset to factory selected options  |
|                   | Credit limit =         | 10**                   | 5         | Set credit limit from 1 through 4  |
|                   | Balls allowed          | 03**                   | 5         | Number of balls allowed (1-5)  |
|                   | Levels award           | Replay**               | 6         | Set award for exceeding thresholds   |
|                   | Special award          | Replay**               | 6         | Set award for lighting Special lights  |
|                   | Hiscore award          | 3 Replay**             | 7         | Set award for exceeding high score   |
|                   | Bkground sound         | On**                   | 8         | Provide background music   |
|                   | Match percent          | 10**                   | 5         | Set allowed match percent, 00-10%  |
|                   | Display credits        | Yes**                  | 2         | Display credits when game is over  |
|                   | No limit replay        | Yes**                  | 2         | Allow more than 1 special per player   |
|                   | Free play              | No**                   | 2         | NO = coins, or YES = Free Play Mode  |
|                   | Tilt warning           | 01**                   | 5         | Number of tilt warnings  |
|                   | Attract sounds         | On**                   | 8         | Attract sound in Game-Over Mode  |
| Game Checkup      | Slingshots             | On**                   | 8         | Activate slingshots  |
|                   | Game options           | Medium**               | 9         | Set difficulty level   |
|                   | Maximum players        | 04**                   | 5         | Number of players allowed (1-4)  |
|                   | Buy-in balls           | 02**                   | 5         | Number of buy-in turns (0-3)   |
|                   | All lamps              |                        |           | Flashes playfield lamps.   |
|                   | Single lamps           |                        |           | Lamps flash sequentially until you press either lower cabinet button. Advance to next lamp in test by pressing lower right cabinet button. Press lower left cabinet button to back up to previous test.                          |
|                   | Display Test           |                        |           | Continuously cycles through all segments of a selected digit in either display module. Press the lower right cabinet button to advance to the next digit to the right. Press the lower left cabinet button to back up one digit. |
|                   | Coil Test              |                        |           | To advance to the next solenoid, press the lower right cabinet button. To test the same solenoid, press the lower left cabinet button.   |
|                   | Program version        |                        |           | Program version of U2 and U3   |
|                   | Switch Test            |                        |           | Game displays name of stuck switch   |

**NOTES:**

1. Feature can only be reset to 00.
2. Feature can only be changed to YES (enabled) or NO (disabled).
3. Feature can be changed in 100,000 point steps.
4. Feature has a value from 00 through 20. If this setting is 00, self-percentaging feature is off (disabled).
5. Feature can be changed in unit steps.
6. Feature can be changed to REPLAY, XBALL, POINTS or NOTHING.
7. Feature can be changed to 3 REPLAYS, 2 REPLAYS, 1 REPLAY or NOTHING.
8. Feature can be changed to ON (enabled) or OFF (disabled).
9. Feature can be changed to XX-EASY, X-EASY, MEDIUM, HARD, X-HARD or XX-HARD.
10. Coin value XX buys YY credits. The game awards bonus credits when the player buys ZZ credits.

| Category                | Register Directory            |   |
|-------------------------|-------------------------------|---|
|                         | Player #1, 2, 3 & 4 Displays  | Register Description  |
| Help<br>Read Me<br>Help | AV BALL TIME IS HIGH XX YY    | If average ball time is more than 60 seconds.   |
|                         | AV BALL TIME IS LOW XX YY     | If average ball time is less than 30 seconds.   |
|                         | RAISE LEVEL 1 TO X,X00,000    | The next adjustable threshold appears as X,X00,000 when both of these conditions occur: (1) "Threshold #1 Percent" exceeds "Target Percent." (2) At least 100 games have been played. |
|                         | LOWER LEVEL 1 TO X,X00,000    | Adjustable threshold appears as X,X00,000 when both of these conditions occur: (1) "Threshold #1 Percent" is less than "Target Percent." (2) At least 100 games have been played.     |
|                         | CHECK SWITCHS IN GAME CHECKUP | One or more playfield switches remain closed.   |
|                         | SWITCH XX MAY BE OPEN         | During at least five minutes of play, one switch hasn't closed.   |
|                         | CHECK LEFT COINS CHUTE        | Left coin switch is stuck.  |
|                         | CHECK MIDDLE COINS CHUTE      | Middle coin switch is stuck.  |
|                         | CHECK RIGHT COINS CHUTE       | Right coin switch is stuck.   |
|                         | All OK                        | Game is okay. If the game detects a problem, assistance information appears on game displays.   |

## COIN SETUP PROCEDURE

You may use factory settings for convenience, or price a game of pinball as you desire. Coin Setup is a simple procedure involving three settings for each coin chute. (U.S. games have two coin chutes.) Suggested settings are provided in the Pricing Table, later in this chapter.

Your coin settings alter values in the Coin Setup Category of game registers. (See the Registers and Options Table.) First you select the left or right coin chute. Then you set the cost of a game. You do this by adjusting the ratio, number of coins per number of credits (games). Finally you set the

bonus value. We'll define "bonus" in a moment. But first, let's get the hang of coin setup with a few examples...

### EXAMPLE 1

You want to set the right coin chute at three credits for two coins. Also, you don't want to award any credits for the first coin.

[ ] 1. Enter the Coin Setup category.

[ ] 2. Enter the directory

[ ] 3. Set the directory to RIGHT, 02 COIN, 03 CREDIT and 00 BONS.

| See Example | Step | Player 1 Display | Player 2 Display | Player 3 Display | Player 4 Display |
|-------------|------|------------------|------------------|------------------|------------------|
| 1           | 1    | RIGHT            | XX COIN          | YYCREDIT         | XX BONS          |
| 1           | 2    | RIGHT            | 02 COIN          | 03 CREDIT        | 00 BONS          |
| 2           | 1    | RIGHT            | XX COIN          | YY CREDIT        | XX BONS          |
| 2           | 2    | RIGHT            | 01 COIN          | 01 CREDIT        | 02 BONS          |

### EXAMPLE 2

You want to set the right coin chute at three credits for two coins. The game must award one credit for the first coin. You also desire the game to award two credits on the second coin.

**BONUS CONCEPT.** To achieve the Example 2 coin setting, you must specify bonus credits (XX BONS). You may specify any two-digit number. Select the number of coins that enter a coin chute before bonus is awarded. No more than one bonus credit can be awarded.

[ ] 1. Enter the Coin Setup category.

[ ] 2. Enter the directory.

[ ] 3. Set the directory to RIGHT, 01 COIN, 01 CREDIT and 02 BONS.

## Pricing Table

\*Indicates recommended setting

| Country      | Coin Chute    |        |       | Games/Coin          | Player 1<br>Display | Player 2<br>Display | Player 3<br>Display | Player 4<br>Display |
|--------------|---------------|--------|-------|---------------------|---------------------|---------------------|---------------------|---------------------|
|              | Left          | Center | Right |                     |                     |                     |                     |                     |
| USA          | 25c           | -      | 25c   | 1/25, 4/\$1* (1)    | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       | 1/50, 2/75, 3/\$1   | LEFT                | 02 COIN             | 01 CREDIT           | 03 BONS             |
|              |               |        |       |                     | RIGHT               | 02 COIN             | 01 CREDIT           | 03 BONS             |
|              |               |        |       | 1/50, 2/\$1         | LEFT                | 02 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 02 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       | 1/25, 3/50, 6/\$1   | LEFT                | 01 COIN             | 01 CREDIT           | 02 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 01 CREDIT           | 02 BONS             |
|              |               |        |       | 2/25, 8/\$1         | LEFT                | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       | 1/25, 5/\$1*        | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 04 CREDIT           | 04 BONS             |
| West Germany | 1DM, 2DM, 5DM |        |       | 1/1, 2/2, 7/5 DM    | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 07 CREDIT           | 00 BONS             |
|              |               |        |       | 1/1, 2/2, 6/5 DM*   | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 06 CREDIT           | 00 BONS             |
|              |               |        |       | 1/1, 3/2, 9/5 DM    | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 02 CREDIT           | 01 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 09 CREDIT           | 00 BONS             |
|              |               |        |       | 1/2x1DM, 1/2, 3/5DM | LEFT                | 02 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 05 CREDIT           | 00 BONS             |
|              |               |        |       | 2/1, 5/2, 14/5DM    | LEFT                | 01 COIN             | 02 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 05 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 14 CREDIT           | 00 BONS             |
| France       | 1F, 5F, 10F   |        |       | 1/1, 3/5, 7/10F*    | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | MIDDLE              | 01 COIN             | 03 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 07 CREDIT           | 00 BONS             |
| Belgium      | 20F - 20F     |        |       | 1/20, 1/20*         | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 01 CREDIT           | 00 BONS             |
| Switzerland  | 1F - 2F       |        |       | 1/1, 7/2*           | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 07 CREDIT           | 00 BONS             |
| Japan        | 100Y - 100Y   |        |       | 1/100*              | LEFT                | 01 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 01 COIN             | 01 CREDIT           | 00 BONS             |
| Italy        | 200L - 500L   |        |       | 1/2x200, 3/2x500*   | LEFT                | 02 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 02 COIN             | 03 CREDIT           | 00 BONS             |
| Australia    | 20c - 20c     |        |       | 1/3x20, 1/3x20*     | LEFT                | 03 COIN             | 01 CREDIT           | 00 BONS             |
|              |               |        |       |                     | RIGHT               | 03 COIN             | 01 CREDIT           | 00 BONS             |

## Pricing Table, Continued

\*Indicates recommended setting

| Country        | Coin Chute        |        |       | Games/Coin          | Player 1<br>Display | Player 2<br>Display | Player 3<br>Display    | Player 4<br>Display |
|----------------|-------------------|--------|-------|---------------------|---------------------|---------------------|------------------------|---------------------|
|                | Left              | Center | Right |                     |                     |                     |                        |                     |
| United Kingdom | 10 Pence-1 Pound  |        |       | 1/2x10P, 6/1L*      | LEFT<br>RIGHT       | 02 COIN<br>01 COIN  | 01 CREDIT<br>06 CREDIT | 00 BONS<br>00 BONS  |
| Denmark        | 1Kroner-10Kroner  |        |       | 1/2x1Kr, 7/10 Kr*   | LEFT<br>RIGHT       | 02 COIN<br>01 COIN  | 01 CREDIT<br>07 CREDIT | 00 BONS<br>00 BONS  |
| Finland        | 1Markka-5 Mka     |        |       | 1/2x1 Mka, 3/5 Mka* | LEFT<br>RIGHT       | 02 COIN<br>01 COIN  | 01 CREDIT<br>03 CREDIT | 00 BONS<br>00 BONS  |
| Norway         | 1Kroner-5 Kroner  |        |       | 1/3x1 Kr, 2/5 Kr*   | LEFT<br>RIGHT       | 03 COIN<br>01 COIN  | 01 CREDIT<br>02 CREDIT | 00 BONS<br>00 BONS  |
| Sweden         | 5 Kroner-5 Kroner |        |       | 2/5 Kr*             | LEFT<br>RIGHT       | 01 COIN<br>01 COIN  | 02 CREDIT<br>02 CREDIT | 00 BONS<br>00 BONS  |
| Holland        | 1 Guilder - 1 G   |        |       | 1/1 G*              | LEFT<br>RIGHT       | 01 COIN<br>01 COIN  | 01 CREDIT<br>01 CREDIT | 00 BONS<br>00 BONS  |

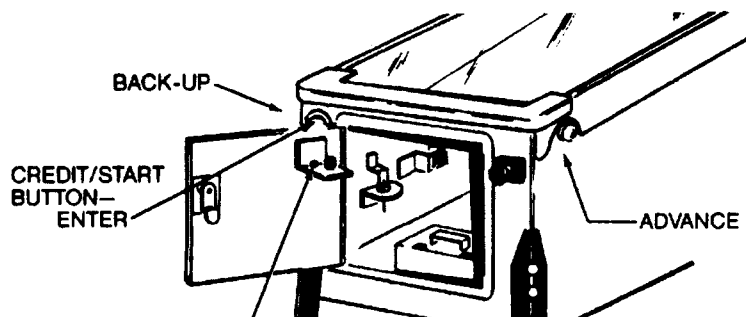
## GAME CHECKUP REGISTERS

The following registers are located in the Game Checkup category of Test Mode...

- Lamps
- Single lamps
- Display Test
- Coil Test
- Program version
- Switch Test

Except the Program Version register, these are Diagnostic Test registers. The Program Version register displays EPROM program version information. The application of each Diagnostic Test register is explained in Chapter 4. An abbreviated description of these registers is given in the Game Checkup category of the *Registers & Options Table*.





## DIAGNOSTIC TESTS

Operate Diagnostic Tests as follows:

### NOTICE

At any time, you can exit from Test Mode by pressing the TEST button.

[ ] 1. Enter the Game Checkup category's directory. Select a register by using the CREDIT button and either of the flipper buttons. The procedure is described at Steps 1 through 4 of Game Adjustments.

[ ] 2. When the selected register appears in the display, press the CREDIT button. Pressing CREDIT opens the register and begins tests. Until you exit the directory, flipper buttons are used in sequencing through register tests.

[ ] 3. When the test is completed, (except Switch Test), press the CREDIT button again. Pressing CREDIT causes the game to enter the next register. Repeating this procedure advances you to the end of the directory. The last register in the directory is Switch Test.

[ ] 4. After completing Switch Test, exit from the register and the directory. Do this by holding in the CREDIT button for one full second. Or exit from Test Mode by pressing the TEST button.

## **NOTICE**

**SINGLE LAMPS TEST OR COIL TEST.** Holding in the right flipper button advances the display from driver to driver. Holding in the left flipper button displays drivers in reverse.

*Chapter 4, Troubleshooting* contains Diagnostic Test procedures for the following test registers...

- All Lamps
- Single Lamps
- Display Test
- Coil Test
- Switch Test

## **SELF-PERCENTAGING**

Self-Percentaging is the game's ability to automatically adjust the First Replay Threshold score. This score is adjusted to attain a desired replay percentage known as Target Percent.

Self-Percentaging also applies to extra balls, when used instead of replays.

Self-Percentaging only adjusts the score level of the First Replay Threshold. Other award features aren't adjusted. The Second Replay Threshold Level and the Third Threshold Level aren't affected by Self-Percentaging.

The Self-Percentaging routine goes into effect after 200 games are played. Then the game program monitors the current replay percentage of the First Replay Threshold. If necessary, the program makes an adjustment after every 50 games.

The following registers are located in the Scoring Status category of your game's Test Mode...

- |                           |                   |
|---------------------------|-------------------|
| A.Level 1 Score           | F.Level 1 Percent |
| B.Level 2 Score           | G.Level 2 Percent |
| C.Level 3 Score           | H.Level 3 Percent |
| D.Highest Score           | I.TARGET Percent  |
| E.Times High Score Beaten |                   |

These registers are described in this section.

**FIRST, SECOND OR THIRD REPLAY THRESHOLD.** To set or check the current score level of a replay threshold:

[ ] 1.Step through the Test Mode categories until you reach SCORING STATUS.

[ ] 2.To select SCORING STATUS and enter its directory, press the CREDIT button.

[ ] 3.The first register displayed is LEVEL 1 SCORE. You'll find similar registers entitled LEVEL 2 SCORE and LEVEL 3 SCORE. These registers display the current score levels of the first, second and replay thresholds. Choose the desired register.

[ ] 4.Use either flipper button to select any value from zero to 9,900,000. This value can only be changed in steps of 100,000 points.

[ ] 5.To set the desired score level, press the CREDIT button.

[ ] 6.Use either flipper button to exit the directory. Or press the TEST button and exit the Test Mode.

**REPLAY PERCENTAGE.** To adjust replay percentage for the First Replay Threshold...

[ ] 1.Step through the game's Test Mode until you reach the category titled SCORING STATUS.

[ ] 2.To select this category, press the CREDIT button and enter the category's directory.

[ ] 3. Select the Target Percent register in the directory with either flipper button. This register displays the desired percentage of replays to be awarded for reaching the First Replay Threshold Level.

[ ] 4. Suppose that you want to award a replay in 15 percent of games. Use either flipper button to select 15 percent. Then press the CREDIT button to set the percentage. The register will then display 15 percent as your goal or Target Percent.

[ ] 5. To exit the directory, use either flipper button. To exit Test Mode, press the TEST button.

## **NOTICE**

When the Target Percent register is set at zero, the Self-Percentaging feature is disabled. This register defaults to 10 percent when the Factory Setting register is disabled. The Factory Setting register appears in the Game Setup category.

**TOTAL REPLAY PERCENTAGE** will be 10 or 15 percent higher with the addition of Match, Special and High Score credits.

**FIRST, SECOND AND THIRD REPLAY THRESHOLD.** To manually check the replay percentage of the three replay threshold levels...

[ ] 1. Step through Test Mode until you reach the category titled Scoring Status.

[ ] 2. Select Scoring Status and enter its directory by pressing the CREDIT button.

[ ] 3. Use either flipper button to select the register in the desired directory. (That is, Level 1 Percent, Level 2 Percent or Level 3 Percent.) This register displays the replay percentage awarded for reaching the desired replay threshold

level. Monitor self-percentaging progress by comparing the displayed value with Target Percent.

[ ] 4.To exit the directory, use either flipper button. Or press the TEST button and exit Test Mode.

**ADJUSTMENT SIZE.** You can determine the size of Self-Percentaging adjustments to the First Replay Threshold score. Check the difference between Target Percent and replay percentage awarded for reaching First Replay Threshold. (Target Percent is an operator entry.)

- A 10 percent or greater difference results in a 10 percent adjustment.
- A five to 10 percent difference results in a five percent adjustment.
- A difference less than five percent results in a one percent adjustment.

**CLEAR ACCOUNT REGISTER.** To reinitiate the Self-Percentaging process, enable the Clear Account register (enter YES).

**HIGH SCORE LEVEL.** To adjust the high score level at which a replay (or replays) is awarded...

[ ] 1.Step through the game's Test Mode until you reach the category titled Scoring Status.

[ ] 2.Press the CREDIT button to select Scoring Status and enter its directory.

[ ] 3.Use either flipper button to select the Highest Score register in the directory. This register displays the high score for which the replay level is set. High score is also known as High Score to Date, HS and HSTD.

[ ] 4. Use either flipper button to select any value from zero to 990,000. The Highest Score register value can only be changed in steps of 100,000 points.

[ ] 5. Set the desired score level by pressing the CREDIT button.

[ ] 6. Use either flipper button to exit the directory. Or exit Test Mode by pressing the TEST button.

**HIGH SCORE LEVEL.** To check the number of times the high score was exceeded...

[ ] 1. Step through the game's Test Mode until you reach the category Scoring Status.

[ ] 2. Press the CREDIT button to select this category and enter its directory.

[ ] 3. Use either flipper button to select the Times HS Beaten register in the directory. This register displays the number of times the high score was exceeded. This information aids you in deciding what point level the Highest Score register will contain.

[ ] 4. Use either flipper button to select any value from zero to 9,900,000. The Highest Score register value can be changed only in steps of 100,000 points.

[ ] 5. Press the CREDIT button to set the desired score level.

[ ] 6. Use either flipper button to exit the directory. Exit Test Mode by pressing the TEST button.

# **CHAPTER 5: UNIQUE PARTS**

## **ELECTRICAL PARTS**

Cables  
Electronics

Electromechanical Parts

## **HARDWARE**

Backbox, Cabinet and Playfield Parts  
Ballguides, Plates, Ramps, Rails and Wireforms

Brackets With Switches  
Brackets Without Switches  
Bumpers, Posts and Studs

Glass and Plastic Parts  
Miscellaneous Hardware

## **ELECTRICAL PARTS**

### **CABLES**

|                          |                 |
|--------------------------|-----------------|
| Cabinet Cable            | H-12411         |
| City Switches Cable      | A365-00H08-0032 |
| Display/Cont Cable       | H-12410         |
| Marquee Cable Assembly   | A365-00H08-0031 |
| Playfield Cable Assembly | A365-00H08-0005 |
| Playfield Lamp Cable     | H-12416         |
| Playfield Solenoid Cable | H-12417         |
| Playfield Switch Cable   | H-12415         |
| Top Light Cable          | H-12412         |

### **ELECTRONICS**

|                            |                 |
|----------------------------|-----------------|
| Electro Cap, 11,000 uF/20V | 0175-323D8-FXBX |
| Electro Cap, 160 uF/250V   | 0175-242NA-EXJX |
| General Illum PCB          | A365-07260-0002 |
| Power Module               | A365-00H08-0013 |
| Sound Board                | D-1158-2001     |
| Sound Interface Assembly   | C-12417         |
| Sound Interface PCB        | 5768-12345-00   |

### **ELECTROMECHANICAL PARTS**

|                              |                 |
|------------------------------|-----------------|
| Ball Kicker Assembly         | A365-05250-0001 |
| Ball-Scoop Assembly          | A365-06400-0002 |
| Ball-Scoop Assembly: Notched | A365-06400-0003 |
| Flipper with Shaft           | 0365-04800-0005 |
| Lane-Change™ Mech            | A365-07500-0011 |
| Left Ejector                 | A365-05320-0013 |
| Mushroom Assembly, red       | A365-05750-0001 |
| Mushroom Assembly, yellow    | A365-05750-0003 |
| Right Ejector, S/L           | A365-05310-0013 |



Right Ejector, S/L, U/A  
Vertical Kicker Assembly

A365-05310-0023  
A365-05250-0003

## **HARDWARE**

### **BACKBOX, CABINET AND PLAYFIELD PARTS**

|                     |                 |
|---------------------|-----------------|
| Backboard Assembly  | A365-00H08-0009 |
| Backboard, Screened | 0365-00H08-1005 |
| Backbox Assembly    | 2001-BB         |

|                       |                 |
|-----------------------|-----------------|
| Bottom Arch, Screened | 31-1008-2001    |
| Cabinet Assembly      | 2001-CAB        |
| Logo Nameplate        | 0365-17009-0001 |

|                         |              |
|-------------------------|--------------|
| Pinball Cabinet         | 11-881       |
| Pinball Backbox         | 11-882       |
| Playfield & Insert Assy | A-11-2001-PL |

|                        |              |
|------------------------|--------------|
| Playfield Assembly     | 2001-PL      |
| Playfield, Screened    | 31-1002-2001 |
| Screened Shooter Gauge | 31-1009-2001 |

|                       |                 |
|-----------------------|-----------------|
| Side Molding Assembly | A-12359-1       |
| Speaker Grille        | 01-8996         |
| Speaker Panel         | 0365-04200-0011 |

|                         |             |
|-------------------------|-------------|
| U.S.A. Cashbox Assembly | A-8567-2001 |
| Vent Grille             | 01-8998     |

### **BALLGUIDES, PLATES, RAMPS, RAILS AND WIREFORMS**

|                           |                 |
|---------------------------|-----------------|
| Ballguide Plate w/3 holes | 0365-04750-0008 |
| Ballguide Plate w/5 holes | 0365-04750-0009 |
| Channel Ballguide         | 0365-03760-0001 |

|                             |                 |
|-----------------------------|-----------------|
| Channel Ballguide-Left      | 0365-03760-0002 |
| Channel Ballguide, Overhead | 0365-03760-0003 |
| Flat Plate                  | 0365-04700-0019 |

|                            |                 |
|----------------------------|-----------------|
| L. Flipper Return Frame    | 01-6794-L-2     |
| Lock Mounting Plate        | 0365-04700-0016 |
| Main Ramp Assembly         | A365-00H08-0023 |
| Rail, 1/2 x 33-1/2"        | 0365-04200-0113 |
| Ramp Entry Plate, Top      | 0365-04600-0005 |
| Ramp Entry Plate, Bottom   | 0365-04600-0006 |
| Ramp Entry Plate, Shooter  | 0365-04600-0007 |
| R. Flipper Return Frame    | 01-6794-R-2     |
| Right Outrail              | 0365-00H08-1017 |
| Wireform Ballguide, 1-1/8" | 0365-00151-1125 |
| Wireform Ballguide, 2-1/4" | 0365-00151-2250 |
| Wireform Ballguide, 1-5/8" | 0365-00157-1625 |
| Wireform for Microswitch   | 0365-02160-0102 |
| Vacuformed, Main Ramp      | 0365-00H08-1015 |

### **BRACKETS WITH SWITCHES**

|                                  |                 |
|----------------------------------|-----------------|
| Switch Assembly, Eject hole      | A365-06900-0012 |
| Switch Assembly Lane-select      | A365-06900-0022 |
| Switch Assy, Spinner Microsw     | A365-06900-0026 |
| Switch Assembly, Mushroom        | A365-06900-0016 |
| Switch Assembly, Slingshot       | A365-06901-0001 |
| Switch Assembly, Right Spinner   | A365-06900-0020 |
| Switch Assembly, 3-inline target | A365-06900-0025 |
| Switch Assembly, sling, w/Diode  | A365-06901-0002 |

### **BRACKETS WITHOUT SWITCHES**

|                         |                 |
|-------------------------|-----------------|
| Back Panel Bracket      | 0365-00172-0001 |
| Backbox-mtg Bracket, R  | 0365-02700-0054 |
| Ballstop Bracket        | 0365-02700-0056 |
| Backboard Bracket       | 0365-02700-0042 |
| Gusset Bracket          | 0365-03000-0013 |
| Hanger Bracket Assembly | A-12360         |
| Hinge Backup Bracket    | 01-8992         |

|                      |                 |
|----------------------|-----------------|
| Hold-Down Bracket    | 0365-02800-0007 |
| Lamp Bkt, Vacuformed | 0365-02950-0010 |
| 1" L, Scoop Bracket  | 0365-02700-0005 |

|                      |                 |
|----------------------|-----------------|
| PCB-Mounting Bracket | 0365-02860-0001 |
| Ramp Bracket         | 0365-02700-0055 |
| Ramp Support Bracket | 0365-02700-0040 |

|                            |                 |
|----------------------------|-----------------|
| 3" L, Scoop Bracket        | 0365-02700-0006 |
| Vacuformed Support "C" Bkt | 0365-02950-0011 |

### **BUMPERS, POSTS AND STUDS**

|                                 |                 |
|---------------------------------|-----------------|
| Hex, #6-20 x 1 Stud, 1-1/16" L  | 0365-04400-0003 |
| Hex, #6-20 x 1 Stud, 1-1/2" L   | 0365-04400-0004 |
| Hex, #6-32 x 1 Stud, 1-11/16" L | 0365-04400-0005 |

|                     |                 |
|---------------------|-----------------|
| Mini Post, 1-3/4" L | 0365-04400-0013 |
| Post, 2-1/4" L      | 0365-04400-0011 |
| Post, 2-3/32" L     | 0365-04400-0012 |

|                              |                 |
|------------------------------|-----------------|
| Rubber Bumper 7/16" diameter | 0365-17041-0011 |
| Rubber Bumper 3/4" diameter  | 0365-17041-0013 |
| 3/8" x 1" Post               | 0365-17042-2201 |

|                                  |           |
|----------------------------------|-----------|
| Willy Post, Transpnt Red Plastic | 03-8044-9 |
|----------------------------------|-----------|

### **GLASS AND PLASTIC PARTS**

|                     |                 |
|---------------------|-----------------|
| Actuator Button     | 0365-17042-5015 |
| Backbox Glass       | 08-7463         |
| Backglass, Screened | 31-1357-2001    |

|                 |                 |
|-----------------|-----------------|
| Game Decals     | 0365-00H08-1021 |
| Glass Assembly  | A-12361         |
| Mylar Insulator | 0365-03050-0002 |

|                         |                 |
|-------------------------|-----------------|
| Nylon, PCB Spacer, 1/4" | 0365-17042-2003 |
| Nylon, PCB Spacer, 3/8" | 0365-17042-2004 |
| Nylon Spacer, 1.095"    | 0365-17042-2002 |

|                   |                 |
|-------------------|-----------------|
| Playfield Mylar   | 0365-00H08-1009 |
| Screened Plastics | 31-1006-2001    |

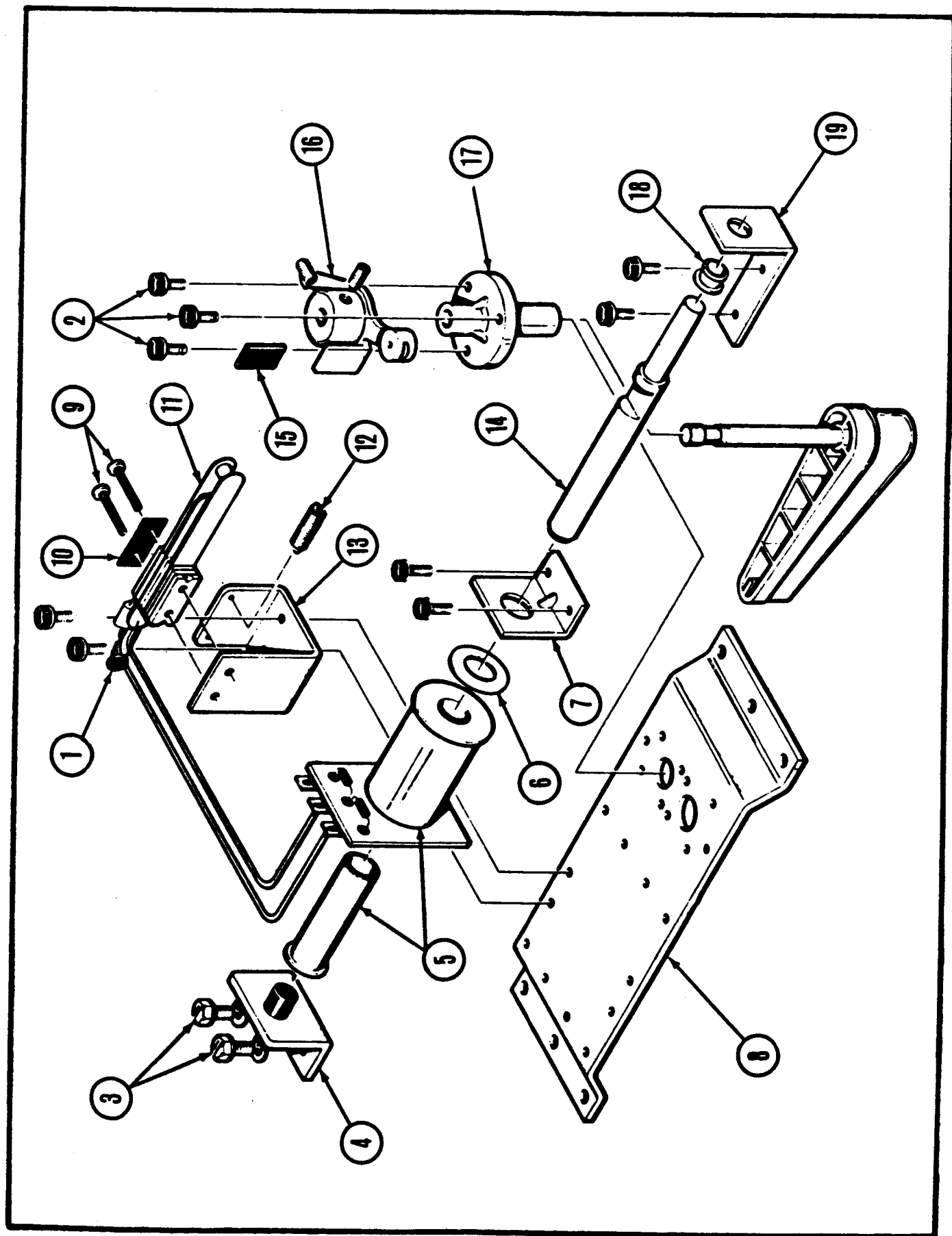
### **MISCELLANEOUS HARDWARE**

|                        |                 |
|------------------------|-----------------|
| Glass-Locking Cam      | 0365-04300-0020 |
| Lamp Arch Assembly     | A365-07500-0011 |
| Left Flipper Rtn Frame | A-8108-L-2      |

|                         |                 |
|-------------------------|-----------------|
| Marquee Support Bar     | A365-00H08-0033 |
| Right Flipper Rtn Frame | A-8108-R-2      |
| Shooter Gauge           | 0365-00H08-1010 |

|     |                 |
|-----|-----------------|
| Tag | M051-00H08-A007 |
|-----|-----------------|

## Top-Left Flipper: Parallel-Wired, Single Switch

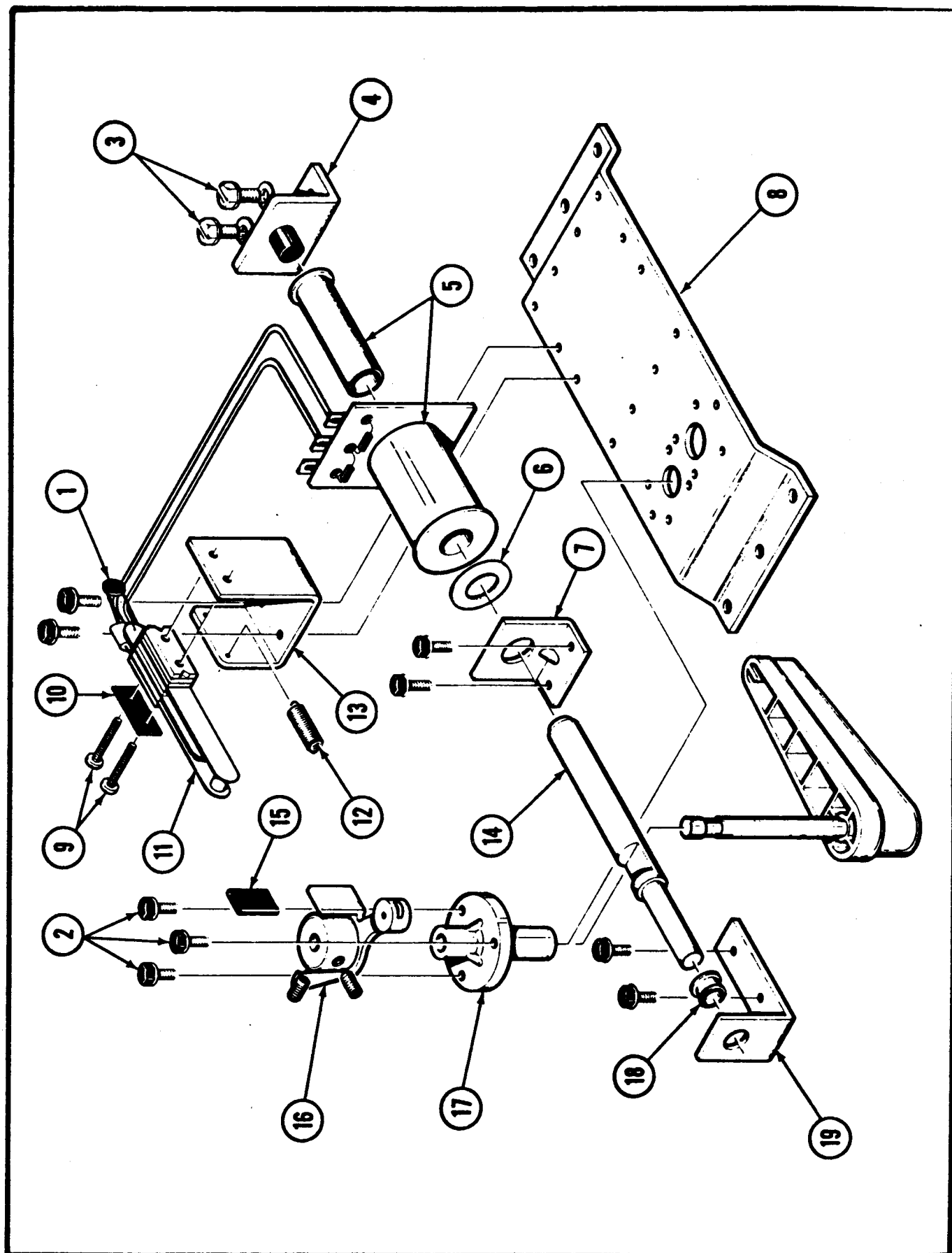


## Flipper Assembly Parts List--Single Switch, Top-Left Flipper

Part No. A365-05040-0001

| Item | Part Number     | Description                                     | Qty |
|------|-----------------|---|-----|
| 1    | 0171-097P6-AXPC | Capacitor: 0.01uF/500V ceramic disc             | 1   |
| 2    | 0017-00101-0184 | #8-32 x 3/8" hex head screw                     | 9   |
| 3    | 0017-00101-0816 | #10-32 x 3/8" slotted hex head screw            | 2   |
| 4    | A365-00024-0000 | Core plug and bracket assembly                  | 1   |
| 5    | AC70-00026-0000 | Coil and tubing assembly: 3-lug                 | 1   |
|      | A365-00067-0021 | Coil: 3-lug                                     | 1   |
|      | 0017-00041-0605 | Tubing: Coil, L = 1.686 x 5/8"                  | 1   |
|      | 5070-09054-00   | Diode, 1N4004GP, 400VAC, 1A                     | 2   |
| 6    | 0017-00104-0073 | Washer: Spring: 0.515" ID, 0.875" OD, 0.13" th. | 1   |
| 7    | 0360-00318-00XF | Coil bracket                                    | 1   |
| 8    | 0365-00101-00XF | Flipper mounting bracket                        | 1   |
| 9    | 4005-01016-07   | #5-40 x 7/16" Phillips round head screw         | 2   |
| 10   | 0020-00202-0000 | Switchplate                                     | 1   |
| 11   | A365-00315-0400 | Switch assembly for flipper mechanism           | 1   |
| 12   | 0010-00275-0353 | Extension spring                                | 1   |
| 13   | 0360-00145-00XF | Switch bracket                                  | 1   |
| 14   | 0360-00718-00XF | Plunger   | 1   |
| 15   | 0360-00945-0000 | Tubing: 5/16 x 1/2"                             | 1   |
| 16   | A360-00038-0000 | Lever arm hub and cap assembly: left            | 1   |
|      | 0017-00101-0186 | Set screw                                       | 2   |
| 17   | 0017-00042-0413 | Flipper bearing                                 | 1   |
| 18   | 0017-00042-0418 | Nyliner: snap-in coil type                      | 1   |
| 19   | 0360-00152-01XF | Left flipper stop bracket                       | 1   |

## Top-Right Flipper: Parallel-Wired, Single Switch

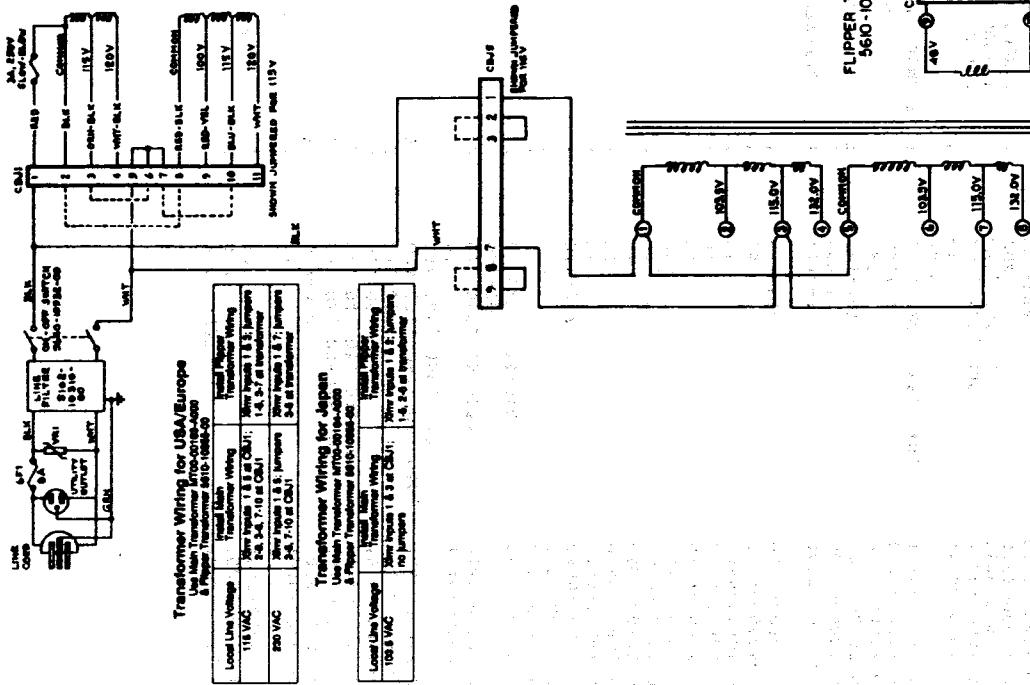


## Flipper Assembly Parts List--Single Switch, Top-Right Flipper

Part No. A365-05030-0001

| Item | Part Number     | Description                                     | Qty |
|------|-----------------|---|-----|
| 1    | 0171-097P6-AXPC | Capacitor: 0.01uF/500V ceramic disc             | 1   |
| 2    | 0017-00101-0184 | #8-32 x 3/8 hex head screw                      | 9   |
| 3    | 0017-00101-0816 | #10-32 x 3/8 slotted hex head screw             | 2   |
| 4    | A365-00024-0000 | Core plug and bracket assembly                  | 1   |
| 5    | AC70-00026-0000 | Coil and tubing assembly: 3-lug                 | 1   |
|      | A365-00067-0021 | Coil: 3-lug                                     | 1   |
|      | 0017-00041-0605 | Tubing: Coil, L = 1.686 x 5/8                   | 1   |
|      | 5070-09054-00   | Diode, 1N4004GP, 400VAC, 1A                     | 2   |
| 6    | 0017-00104-0073 | Washer: Spring: 0.515" ID, 0.875" OD, 0.13" th. | 1   |
| 7    | 0360-00318-00XF | Coil bracket                                    | 1   |
| 8    | 0365-00101-00XF | Flipper mounting bracket                        | 1   |
| 9    | 4005-01016-07   | #5-40 x 7/16 Phillips round head screw          | 2   |
| 10   | 0020-00202-0000 | Switchplate                                     | 1   |
| 11   | A365-00315-0400 | Switch assembly for flipper mechanism           | 1   |
| 12   | 0010-00275-0353 | Extension spring                                | 1   |
| 13   | 0360-00145-00XF | Switch bracket                                  | 1   |
| 14   | 0360-00718-00XF | Plunger   | 1   |
| 15   | 0360-00945-0000 | Tubing: 5/16 x 1/2                              | 1   |
| 16   | A360-00039-0000 | Lever arm hub and cap assembly: right           | 1   |
|      | 0017-00101-0186 | Set screw                                       | 2   |
| 17   | 0017-00042-0413 | Flipper bearing                                 | 1   |
| 18   | 0017-00042-0418 | Nylon: snap-in coil type                        | 1   |
| 19   | 0360-00152-02XF | Right flipper stop bracket                      | 1   |



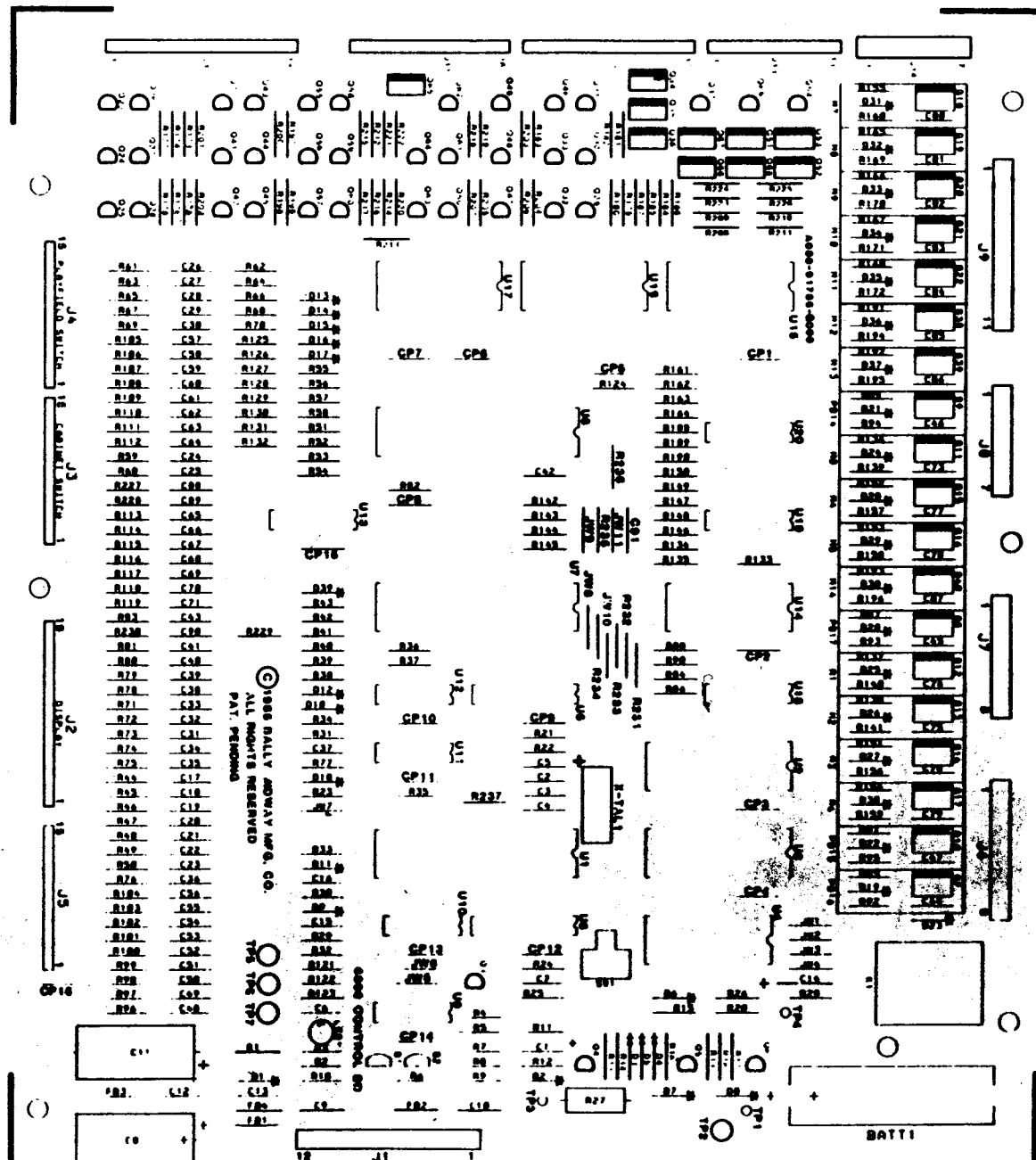


6803 CONTROL BOARD  
A084-91786-6000  
M051-00C53-6003

CROSS REFERENCE LIST

CROSS REFERENCE LIST

| DESCRIPTION     | QTY. | DESIGNATION NO.  | PART NOS.       | DESCRIPTION          | QTY. | DESIGNATION NO.                          | PART NOS.       |
|-----------------|------|--|-----------------|----------------------|------|--|-----------------|
| 27P 50V CER.    | 2    | C2, C3   | 0360-00800-0052 | 7.5 1/4W 5%          | 1    | R5                                       | 100E-00005-0085 |
| 47P 50V CER.    | 1    | C7   | 0360-00800-0027 | 9.1 1/4W 5%          | 1    | R4                                       | 100E-00005-0087 |
| 390P 50V CER.   | 25   | C24-C30, C57-C71   | 0360-00800-0001 | 10K 1/4W 5%          | 4    | R12, R13, R30, R33                       | 100E-00005-0088 |
| 470P 1KV CER.   | 27   | C88-C90  | 0307-00800-0008 | 15K 1/4W 5%          | 2    | R31, R34                                 | 100E-00005-0092 |
| .002uF 1KV CER. | 19   | C17-C23, C31-C36, C38-C41, C48-C56, C91  | 0360-00800-0012 | 39K 1/4W 5%          | 1    | R7                                       | 100E-00005-0102 |
| .003uF 1KV CER. | 1    | C44-C47, C73-C87   | 0360-00800-0025 | 47K 1/4W 5%          | 2    | R10, R11                                 | 100E-00005-0104 |
| .01uF 50V CER.  | 24   | C6, C9, C10, C12, C13  | 0365-00800-0014 | 56K 1/4W 5%          | 14   | R62, R64, R66, R68                       | 100E-00005-0106 |
| .05uF 16V CER.  | 1    | C15, C16, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100 | 0360-00800-0006 | 62K 1/4W 5%          | 1    | R70, R125-R132, R229                     | 100E-00005-0107 |
| .1uF 50V CER.   | 1    | C37  | 0360-00800-0058 | 82K 1/4W 5%          | 1    | R15                                      | 100E-00005-0112 |
| 4.7uF 25V TANT  | 2    | C4   | 0360-00800-0058 | 100K 1/4W 5%         | 2    | R26, R237                                | 100E-00005-0115 |
| 6.8uF 25V TANT  | 1    | C5, C14  | 0360-00800-0008 | 270K 1/4W 5%         | 1    | R77                                      | 100E-00005-0126 |
| 470uF 16V ELEC  | 1    | C1   | 0360-00800-0048 | 82 OHM 1W 10%        | 1    | R27                                      | 100E-00007-0014 |
| 470uF 25V ELEC  | 1    | C8   | 0360-00800-0048 |                      |      |  |                 |
| R2 OHM 1/4W 5%  | 1    | C11  | 0360-00800-0022 | IN58B ZENER          | 1    | D1                                       | 103E-00001-0002 |
| 100 OHM 1/4W 5% | 1    | R9   | 0360-00800-0024 | IN4004               | 20   | D19-D38                                  | 103E-00003-0005 |
| 110 OHM 1/4W 5% | 1    | R8   | 100E-00005-0031 | IN4148               | 13   | D5, D6, D9-D18, D39                      | 103E-00002-0005 |
| 120 OHM 1/4W 5% | 1    | R83  | 100E-00005-0033 | IN4606               | 5    | D2, D4, D5, D7, D8                       | 103E-00002-0006 |
|                 |      | R9   | 100E-00005-0034 | 2N3904               | 3    | D2, D4, D5, D6                           | 104E-00001-0006 |
|                 |      | R24, R85, R87, R89   | 100E-00005-0035 | 2N4403               | 2    | D3, D5                                   | 104E-00002-0006 |
|                 |      | R91, R121, R136-R138, R151-R155, R165-R168, R191-R193  |                 | 2N5060               | 35   | D23-D33, D37, D41-D50, D54-D64, D69, D70 | 104E-00015-0001 |
|                 |      | R28  |                 | 2N5305               | 1    | D1                                       | 104E-00007-0003 |
|                 |      | R92-R95, R139-R141, R156-R160, R169-R172, R194-R196, R231-R234   | 100E-00005-0044 | MCRI106-1            | 10   | D34-D36, D51-D53                         | 0360-00802-0009 |
|                 |      | R96-R104   | 100E-00005-0047 |                      |      |  |                 |
| 470 OHM 1/4W 5% | 9    | R1   | 100E-00005-0051 | SE9302               | 19   | D55-D68                                  | 0360-00802-0008 |
| 560 OHM 1/4W 5% | 1    | R25  | 100E-00005-0054 | 4011                 | 1    | D69-D72, D38-D40                         | 0360-00803-0010 |
| 680 OHM 1/4W 5% | 1    | R25  | 100E-00005-0056 | 4502                 | 1    | D73                                      | 0360-00803-0013 |
| 750 OHM 1/4W 5% | 1    | R19  | 100E-00005-0057 | 4514B                | 3    | D74-D77                                  | 0360-00803-0015 |
| 910 OHM 1/4W 5% | 1    | R18  | 100E-00005-0059 | 4584                 | 1    | D78-D81                                  | 0360-00803-0017 |
| 1K 1/4W 5%      | 3    | R3   | 100E-00005-0061 | 6116 RAM             | 1    | D82-D85                                  | 0360-00803-0019 |
| 1.2K 1/4W 5%    | 60   | R3, R29, R32   | 100E-00005-0063 | 6803 MPU             | 1    | D86-D89                                  | 0360-00803-0021 |
|                 |      | R44-R50, R59-R61, R63, R65, R67, R69, R71-R76  |                 | 6821 PIA             | 2    | D90-D93                                  | 0360-00803-0023 |
|                 |      | R78-R82, R105-R119, R122   |                 | 74LS04               | 1    | D94-D97                                  | 0360-00803-0025 |
|                 |      | R133-R135, R146-R150, R161-R164, R188-R190, R227, R228, R230, R236   |                 | 74LS154              | 1    | D98-D101                                 | 0360-00803-0027 |
|                 |      | R20  |                 | 74HCT245             | 1    | D102-D105                                | 0360-00803-0029 |
| 1.5K 1/4W 5%    | 1    | R123, R173-R187  | 100E-00005-0065 | 74LS373              | 1    | D106-D109                                | 0360-00803-0031 |
| 2K 1/4W 5%      | 46   | R197-R226  | 100E-00005-0068 | CA3081               | 3    | D110-D113                                | 0360-00803-0033 |
| 2.7K 1/4W 5%    | 2    | R2, R6   | 100E-00005-0071 | 3.580 MHZ CRYSTAL    | 1    | D114-D117                                | 0360-00803-0035 |
| 3K 1/4W 5%      | 1    | R17  | 100E-00005-0073 | LED GREEN            | 1    | D118-D121                                | 0360-00803-0037 |
| 3.3K 1/4W 5%    | 18   | R21-R23, R35, R51-R58, R124, R142-R145, R235   | 100E-00005-0074 | TEST POINTS          | 7    | D122-D125                                | 0360-00803-0039 |
| 3.9K 1/4W 5%    | 4    | R84, R86, R88, R90   | 100E-00005-0077 | SWITCH P.R.          | 1    | D126-D129                                | 0360-00803-0041 |
| 4.7K 1/4W 5%    | 8    | R36-R43  | 100E-00005-0079 | BATTERY 3.6V         | 1    | D130-D133                                | 0360-00803-0043 |
| 5.6 1/4W 5%     | 1    | R16  | 100E-00005-0082 | ZERO OHM RES. JUMPER | 5    | D134-D137                                | 0360-00803-0045 |
|                 |      |  |                 | RELAY 48VDC          | 1    | D138-D141                                | 0360-00803-0047 |
|                 |      |  |                 | 40 PIN I.C. SOCKET   | 3    | D142-D145                                | 0360-00803-0049 |
|                 |      |  |                 | 28 PIN I.C. SOCKET   | 2    | D146-D149                                | 0360-00803-0051 |
|                 |      |  |                 | 24 PIN I.C. SOCKET   | 1    | D150-D153                                | 0360-00803-0053 |
|                 |      |  |                 | FERRITE BEAD         | 4    | D154-D157                                | 0360-00803-0055 |



|   |  |   |  |
|---|--|---|--|
| DIM TOLERANCES<br>UNLESS OTHERWISE SPEC.<br>DECIMAL FRACTIONS<br>HOLE DIA<br>ANGLE<br>DO NOT SCALE DIMS |  | DATE<br>04/08/86<br>BY<br>6803 CONTROL BD.<br>A084-91786-6000 |  |
| MIDWAY MFG. CO.<br>FRANKLIN, N.C. 28731<br>A BALLY CO.  |  | ASSY DRAWING<br>6803 CONTROL BD.<br>A084-91786-6000           |  |
| PART NO<br>M0-5-1-0-0-C-5-3-G-0-0-3   |  | REVISIONS   |  |

THIS DIM. IS CONFIDENTIAL & PROPERTY OF MIDWAY MFG CO.

6803 CONTROL BOARD  
A084-9176-0000  
M031-00C53-0003

DESIGNATION LIST

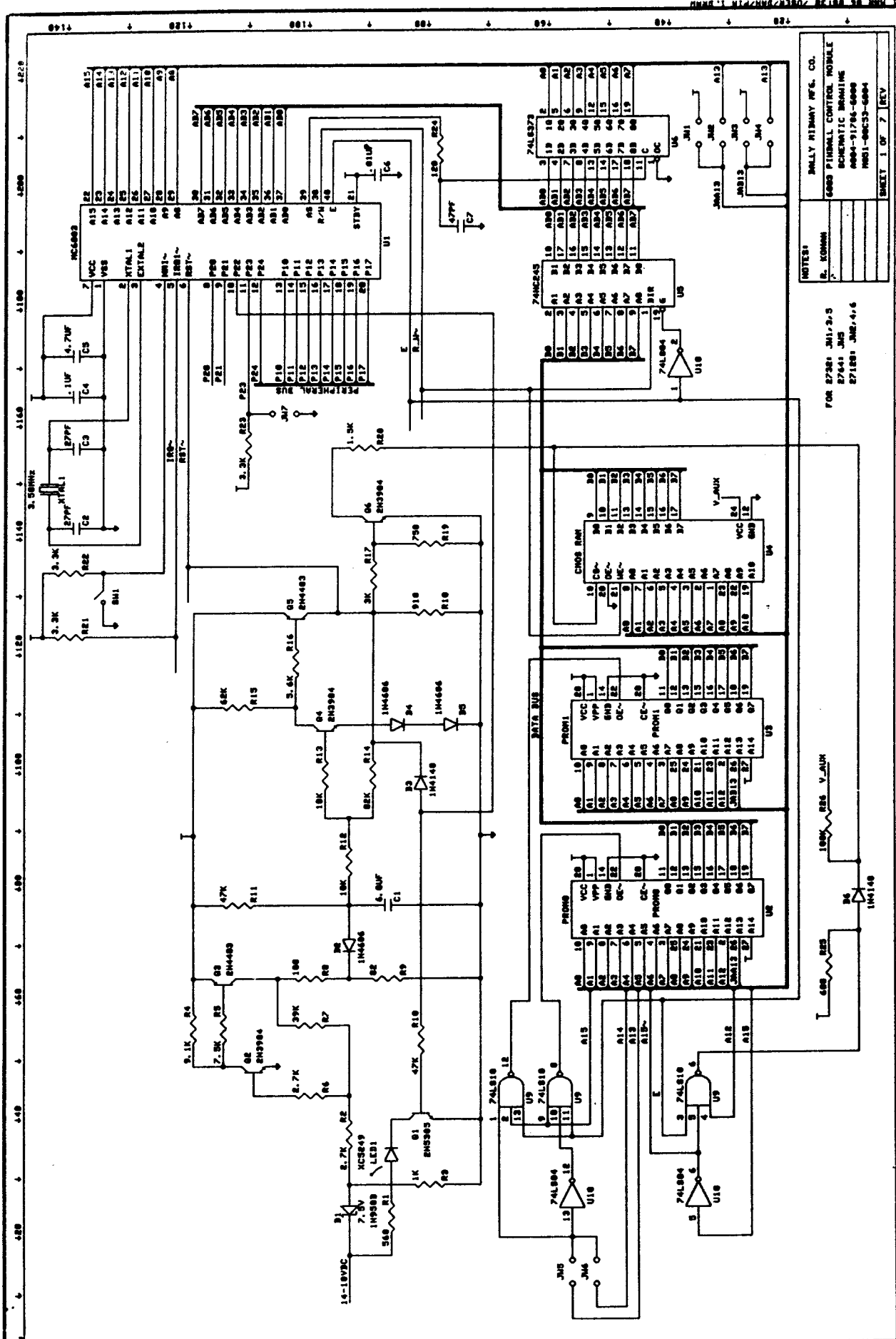
| DESIGNATION | DESCRIPTION     | DESIGNATION | DESCRIPTION     | DESIGNATION | DESCRIPTION      | DESIGNATION      | DESCRIPTION        |
|-------------|-----------------|-------------|-----------------|-------------|------------------|------------------|--------------------|
| C1          | 6.8UF 25V TANT. | R28         | 270 OHM 1/4W 5% | R165 - R168 | 120 OHM 1/4W 5%  | U15 - U17        | 4514B              |
| C2,C3       | 27PF 50V CER.   | R29         | 1K 1/4W 5%      | R169 - R172 | 330 OHM 1/4W 5%  | U18 - U20        | CA3081             |
| C4          | .01UF 50V CER.  | R30         | 10K 1/4W 5%     | R173 - R187 | 2K 1/4W 5%       | LED 1            | 3.580 MHZ CRYSTAL  |
| C5          | 4.7UF 25V TANT. | R31         | 15K 1/4W 5%     | R188 - R190 | 1.2K 1/4W 5%     | TEST POINTS      | LED GREEN          |
| C6          | .01UF 50V CER.  | R32         | 1K 1/4W 5%      | R191 - R193 | 120 OHM 1/4W 5%  | TP1 - TP7        | TEST POINTS        |
| C7          | 47PF 50V CER.   | R33         | 10K 1/4W 5%     | R194 - R196 | 330 OHM 1/4W 5%  | SW1              | SWITCH P.R.        |
| C8          | 470UF 16V FLEC. | R34         | 15K 1/4W 5%     | R197 - R226 | 2K 1/4W 5%       | RATT-1           | BATTERY 3.6V       |
| C9,C10      | .01UF 50V CER.  | R35         | 3.3K 1/4W 5%    | R227,R228   | 1.2K 1/4W 5%     | JW2              | 1.2K 1/4W 5%       |
| C11         | 470UF 25V FLEC. | R36 - R43   | 4.7K 1/4W 5%    | R229        | 56K 1/4W 5%      | JW4              | 56K 1/4W 5%        |
| C12,C13     | .01UF 50V CER.  | R44 - R50   | 1.2K 1/4W 5%    | R230        | 1.2K 1/4W 5%     | JW6              | 1.2K 1/4W 5%       |
| C14         | 4.7UF 25V TANT. | R51 - R58   | 3.3K 1/4W 5%    | R231 - R234 | 330 OHM 1/4W 5%  | JW8              | 330 OHM 1/4W 5%    |
| C15,C16     | .01UF 50V CER.  | R59 - R61   | 1.2K 1/4W 5%    | R235        | 3.3K 1/4W 5%     | JW10             | 3.3K 1/4W 5%       |
| C17 - C23   | 470PF 1KV CER.  | R62         | 56K 1/4W 5%     | R236        | 1.2K 1/4W 5%     | K1               | 1.2K 1/4W 5%       |
| C24 - C30   | 390PF 50V CER.  | R63         | 1.2K 1/4W 5%    | R237        | 100K OHM 1/4W 5% | XU1,XU7,XU8      | 40 PIN IC SOCKET   |
| C31 - C36   | 470PF 1KV CER.  | R64         | 56K 1/4W 5%     | D1          | 1N958B           | XU2, XU3         | 28 PIN IC SOCKET   |
| C37         | .05UF 16V CER.  | R65         | 1.2K 1/4W 5%    | D2          | 1N4606           | XU4              | 24 PIN IC SOCKET   |
| C38 - C41   | 470PF 1KV CER.  | R66         | 56K 1/4W 5%     | D3          | 1N4148           | FBI - FB4        | FERRITE BEAD       |
| C42         | .01UF 50V CER.  | R67         | 1.2K 1/4W 5%    | D4,D5       | 1N4606           | J1               | 11 - .045 SO. PINS |
| C43         | .002UF 1KV CER. | R68         | 56K 1/4W 5%     | D6          | 1N4148           | J2               | 18 - .025 SO. PINS |
| C44 - C47   | 470PF 1KV CER.  | R69         | 1.2K 1/4W 5%    | D7,D8       | 1N4606           | J3               | 14 - .025 SO. PINS |
| C48 - C56   | 390PF 50V CER.  | R70         | 56K 1/4W 5%     | D9 - D18    | 1N4148           | J4               | 14 - .025 SO. PINS |
| C57 - C71   | .002 1KV CER.   | R71 - R76   | 1.2K 1/4W 5%    | D19 - D38   | 1N4004           | J5               | 14 - .025 SO. PINS |
| C72 - C87   | 390PF 50V CER.  | R77         | 270K 1/4W 5%    | D39         | 1N4148           | J6               | 8 - .045 SO. PINS  |
| C88 - C90   | 470PF 1KV CER.  | R78 - R82   | 1.2K 1/4W 5%    | D40         | 2N5305           | J7               | 7 - .045 SO. PINS  |
| C91         | .01 50V CER.    | R83         | 110 OHM 1/4W 5% | D41         | 2N5904           | J8               | 6 - .045 SO. PINS  |
| R1          | 560 OHM 1/4W 5% | R84         | 3.9K 1/4W 5%    | D42         | 2N4403           | J9               | 10 - .045 SO. PINS |
| R2          | 2.7K 1/4W 5%    | R85         | 120 OHM 1/4W 5% | D43         | 2N3904           | J10              | 18 - .025 SO. PINS |
| R3          | 1K 1/4W 5%      | R86         | 3.9K 1/4W 5%    | D44         | 2N4403           | J11              | 17 - .025 SO. PINS |
| R4          | 9.1K 1/4W 5%    | R87         | 120 OHM 1/4W 5% | D45         | 2N3904           | J12              | 16 - .025 SO. PINS |
| R5          | 7.5K 1/4W 5%    | R88         | 3.9K 1/4W 5%    | D46         | 2N5904           | J13              | 12 - .025 SO. PINS |
| R6          | 2.7K 1/4W 5%    | R89         | 120 OHM 1/4W 5% | D47         | 2N5305           | J14              | 5 - .045 SO. PINS  |
| R7          | 39K 1/4W 5%     | R90         | 120 OHM 1/4W 5% | D48         | 2N4403           | P/O RATT-1       | TY-WRAP            |
| R8          | 100 OHM 1/4W 5% | R91         | 330 OHM 1/4W 5% | D49         | 2N5904           | 6803 CONTROL RD. | P.C. BOARD         |
| R9          | 47K 1/4W 5%     | R92 - R95   | 470 OHM 1/4W 5% | D50         | 2N5305           |                  |                    |
| R10,R11     | 10K 1/4W 5%     | R96 - R104  | 1.2K 1/4W 5%    | D51         | 2N5904           |                  |                    |
| R12,R13     | 82K 1/4W 5%     | R105 - R119 | 120 OHM 1/4W 5% | D52         | 2N5305           |                  |                    |
| R14         | 62K 1/4W 5%     | R120        | 1.2K 1/4W 5%    | D53         | 2N5904           |                  |                    |
| R15         | 5.6K 1/4W 5%    | R121        | 2K 1/4W 5%      | D54         | 2N5305           |                  |                    |
| R16         | 3K 1/4W 5%      | R122        | 3.3K 1/4W 5%    | D55 - D68   | 2N5904           |                  |                    |
| R17         | 910 OHM 1/4W 5% | R123        | 56K 1/4W 5%     | D69,D70     | 2N5904           |                  |                    |
| R18         | 750 OHM 1/4W 5% | R124        | 1.2K 1/4W 5%    | D71         | 2N5305           |                  |                    |
| R19         | 1.5K 1/4W 5%    | R125 - R132 | 120 OHM 1/4W 5% | D72         | 2N5904           |                  |                    |
| R20         | 3.3K 1/4W 5%    | R133 - R135 | 330 OHM 1/4W 5% | D73         | 2N5305           |                  |                    |
| R21 - R23   | 120 OHM 1/4W 5% | R136 - R138 | 3.3K 1/4W 5%    | D74         | 2N5904           |                  |                    |
| R24         | 680 OHM 1/4W 5% | R139 - R141 | 1.2K 1/4W 5%    | D75         | 2N5305           |                  |                    |
| R25         | 100K 1/4W 5%    | R142 - R145 | 1.2K 1/4W 5%    | D76         | 2N5904           |                  |                    |
| R26         | 82 OHM 1W 10%   | R146 - R150 | 1.2K 1/4W 5%    | D77         | 2N5305           |                  |                    |
| R27         |                 | R151 - R155 | 330 OHM 1/4W 5% | D78         | 2N5904           |                  |                    |
|             |                 | R156 - R160 | 1.2K 1/4W 5%    | D79         | 2N5305           |                  |                    |
|             |                 | R161 - R164 | 1.2K 1/4W 5%    | D80         | 2N5904           |                  |                    |

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

CROSS REFERENCE LIST

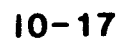
| <u>DESCRIPTION</u> | <u>QTY.</u> | <u>DESIGNATION NO.</u>                | <u>PART NOS.</u> |
|--------------------|-------------|---------------------------------------|------------------|
| .025 SO. PINS      | 123         | J2, J3, J4, J5, J10,<br>J11, J12, J13 | 0304-00804-0009  |
| .045 SO. PINS      | 47          | J1, J6, J7, J8, J9, J14               | 0304-00804-0010  |
| TY-WRAP            | 1           | P/O BATT-1                            | 0017-00042-0622  |
| P.C. BOARD         | 1           | 6803 CONTROL BOARD                    | A080-91786-G000  |

4-23-86 REV. 1.0 Fixed Part Number for 470PF Cap.

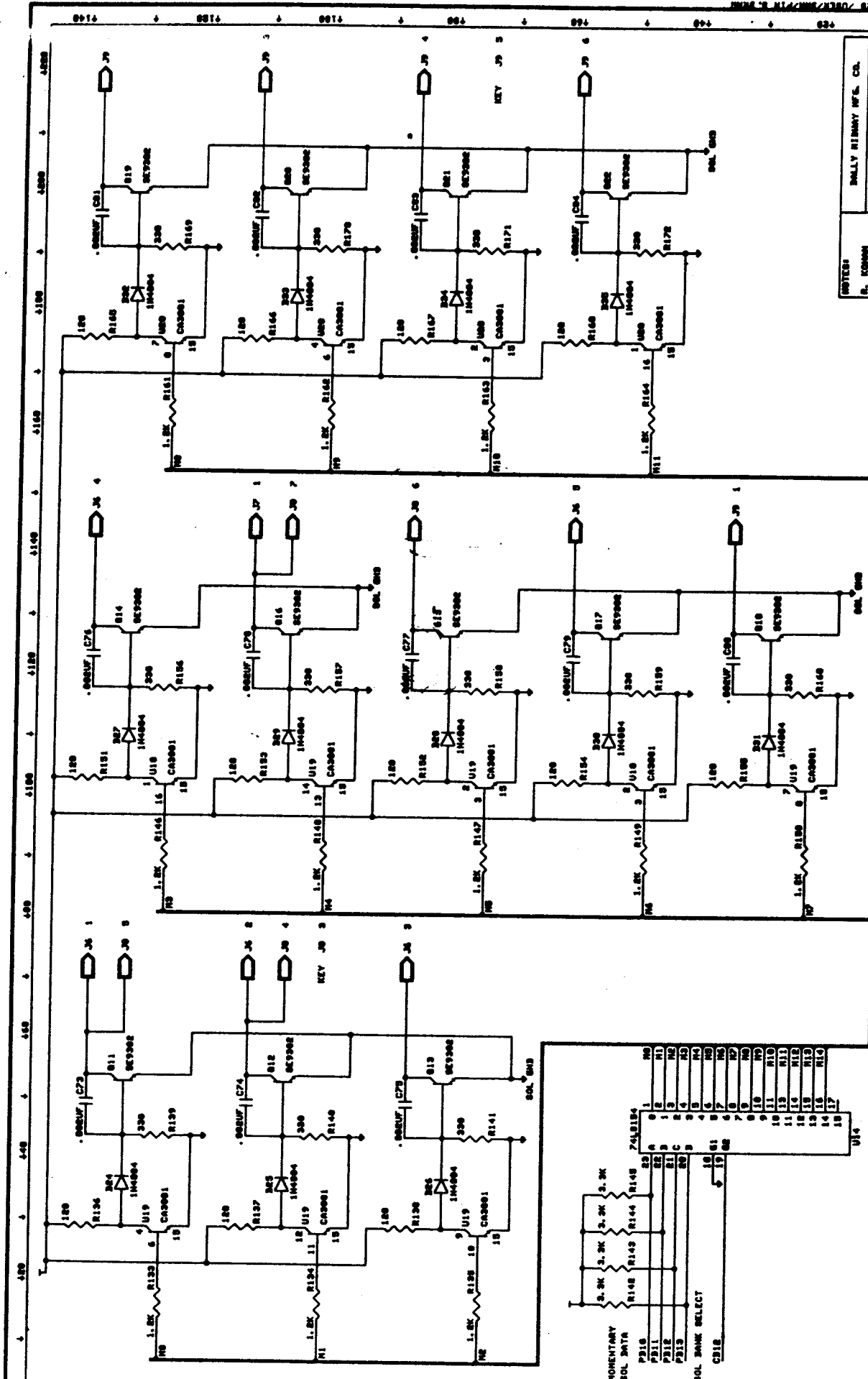


NOTES:  
1. COMMON  
2. 6800 PINBALL CONTROL MODULE  
3. SCHEMATIC DRAWING  
4. 6800-91786-0000  
5. 6801-00033-0004  
6. SHEET 1 OF 7 REV

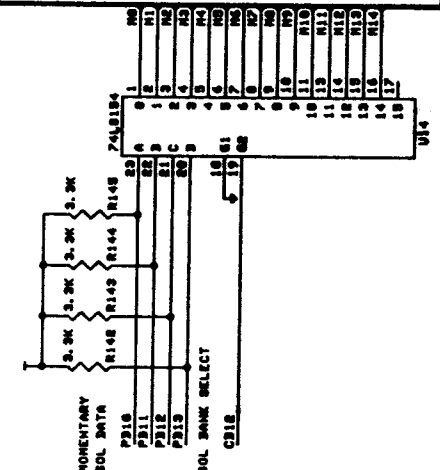
FOR 2728: J31, 2, 3  
2744: J35  
27188: J32, 4, 5



|          |                             |
|----------|-----------------------------|
| NOTES:   | DAILY HIGHWAY MFG. CO.      |
| R. KOWAN | 6003 PINBALL CONTROL MODULE |
|          | SCHEMATIC DRAWING           |
|          | A004-91786-6000             |
|          | M051-00C53-6004             |
|          | SHEET 2 OF 7 REV            |

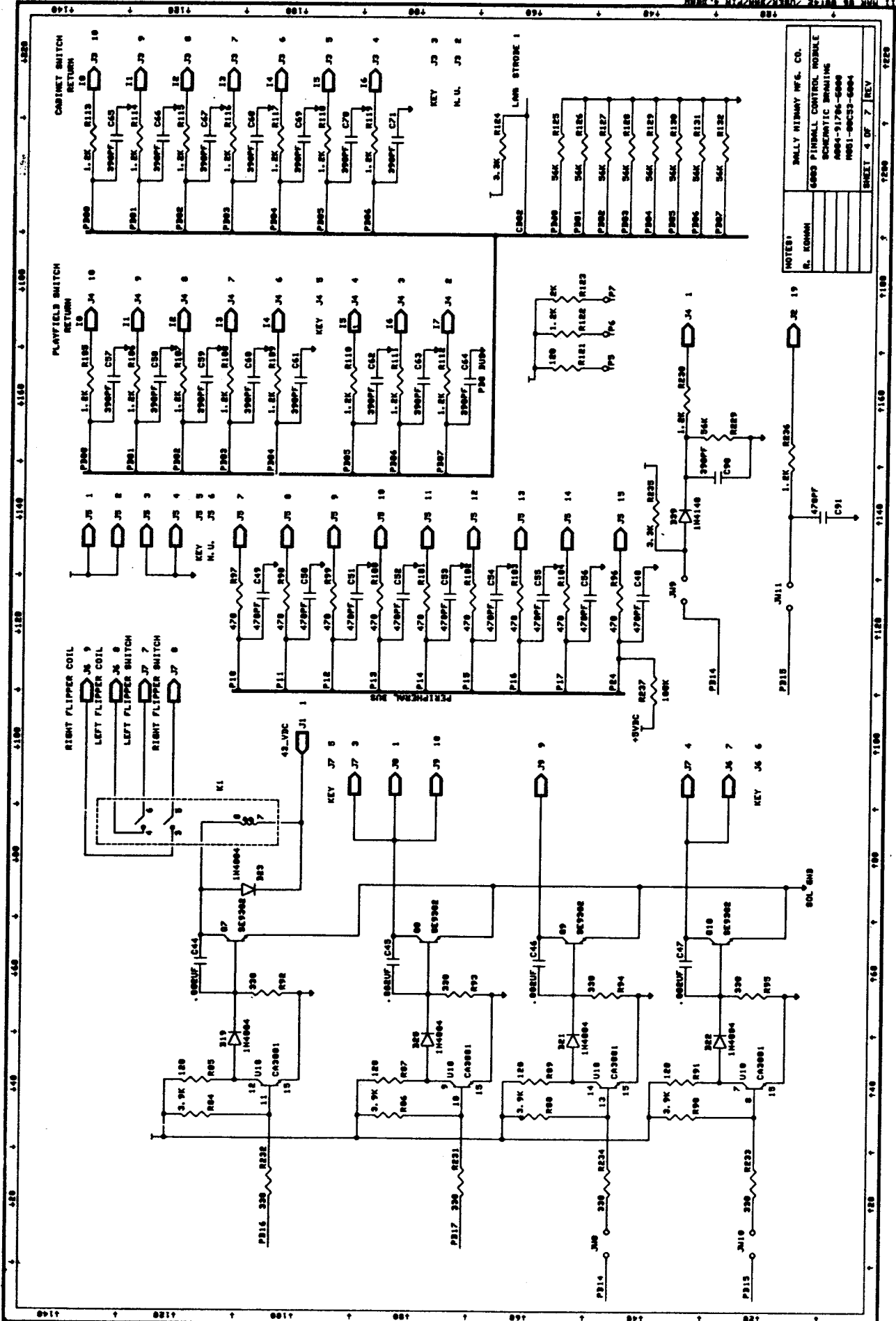


NOTES:  
1. COMMON  
2. 6000 PINBALL CONTROL MODULE  
3. SCHEMATIC DRAWING  
4. 6000-21700-0000  
5. 6000-21700-0000  
6. 6000-21700-0000  
7. REV



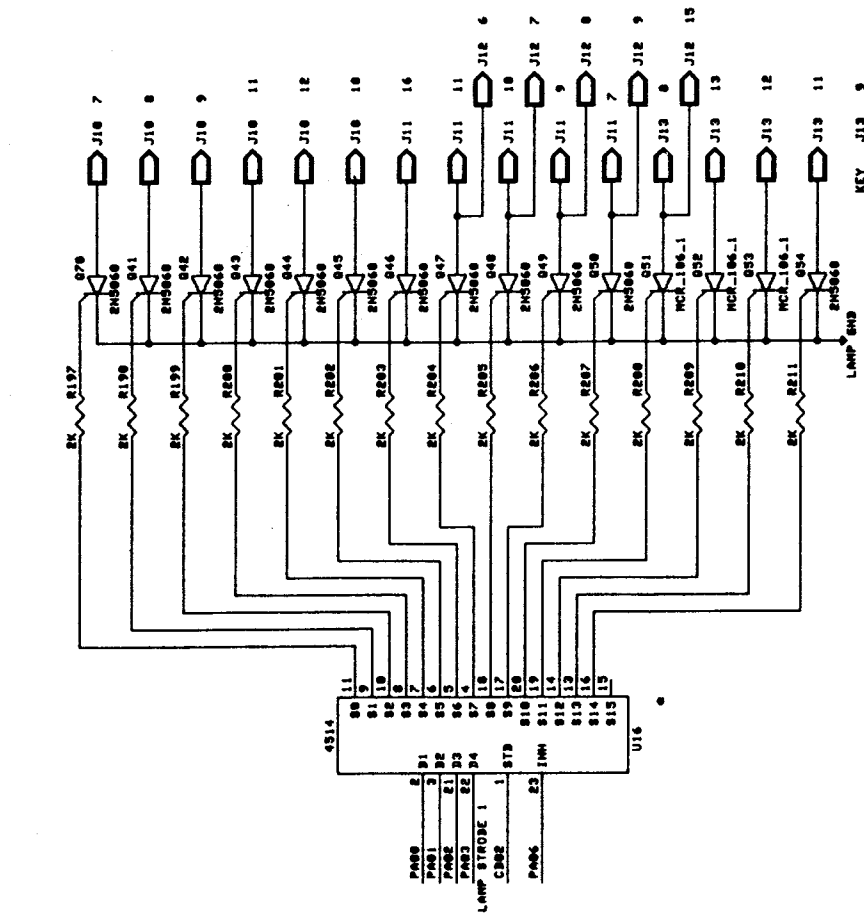




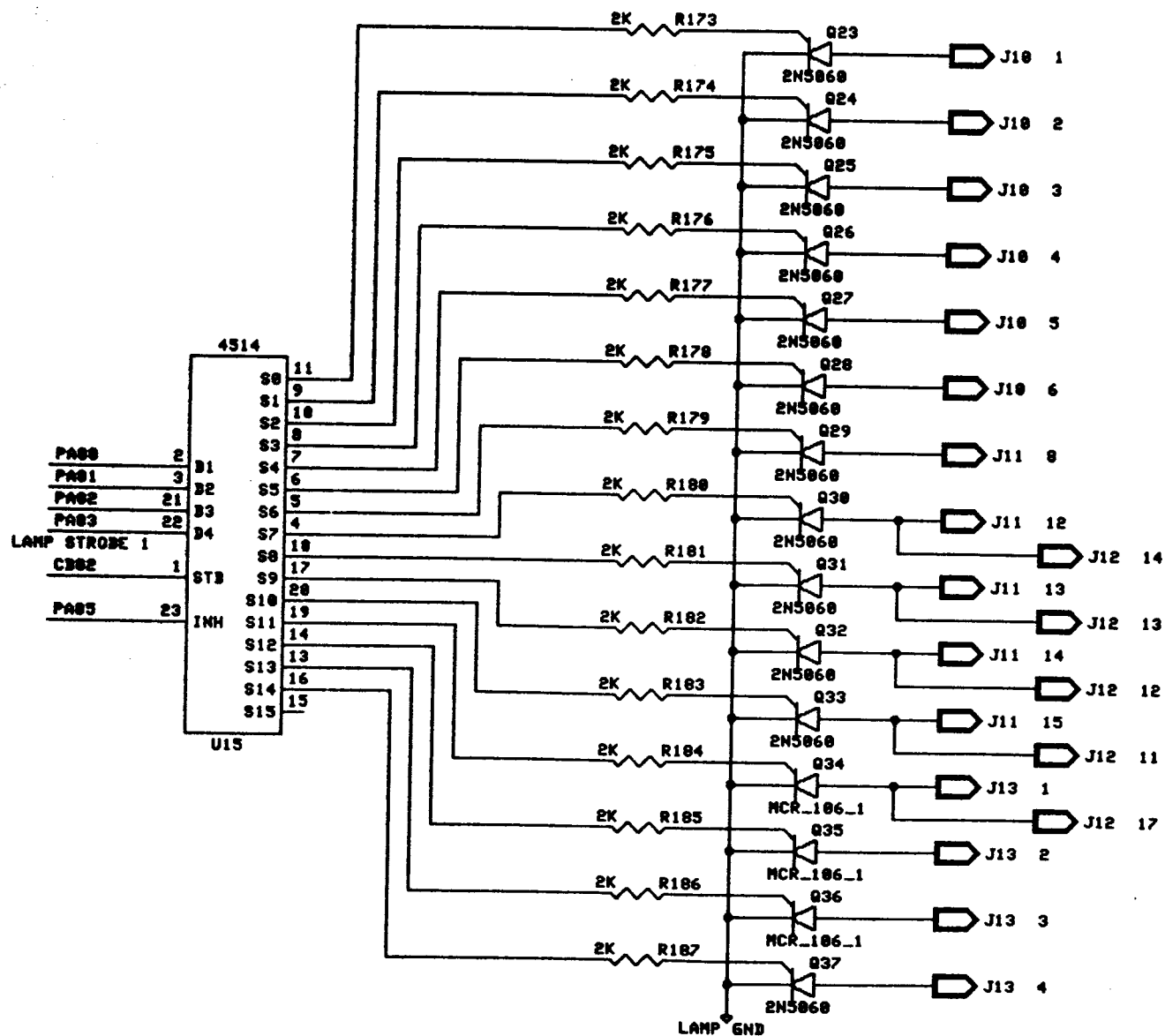


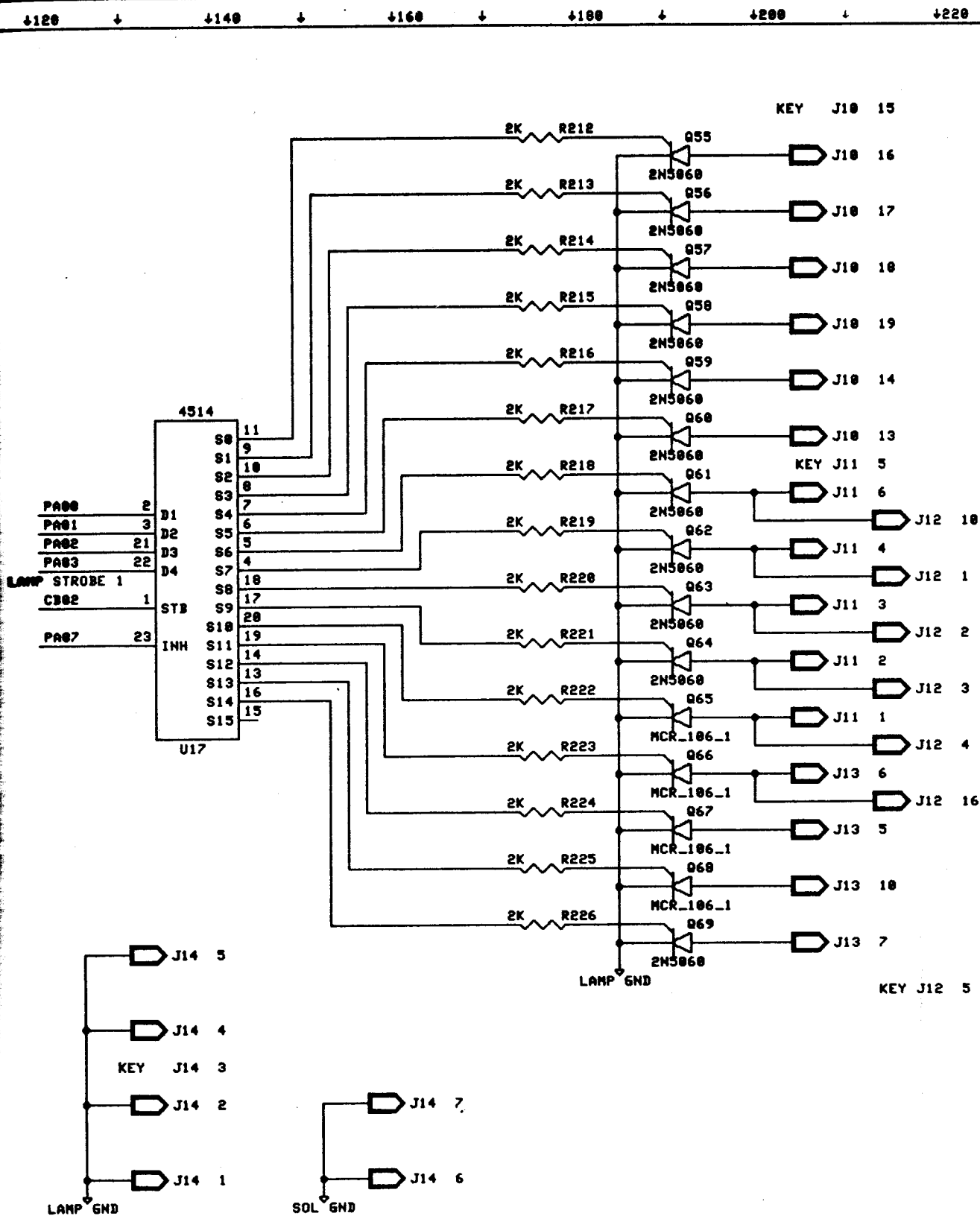
|               |                             |
|---------------|-----------------------------|
| NOTES:        |                             |
| 1. KODAK      | DAILY HAWAII WFL CO.        |
| 2. S. KODAK   | 6000 PINDALL CONTROL MOBILE |
| 3. S. KODAK   | SCHEMATIC DRAWING           |
| 4. S. KODAK   | 4004-91785-0000             |
| 5. S. KODAK   | 4004-91785-0000             |
| 6. S. KODAK   | 4004-91785-0000             |
| 7. S. KODAK   | 4004-91785-0000             |
| 8. S. KODAK   | 4004-91785-0000             |
| 9. S. KODAK   | 4004-91785-0000             |
| 10. S. KODAK  | 4004-91785-0000             |
| 11. S. KODAK  | 4004-91785-0000             |
| 12. S. KODAK  | 4004-91785-0000             |
| 13. S. KODAK  | 4004-91785-0000             |
| 14. S. KODAK  | 4004-91785-0000             |
| 15. S. KODAK  | 4004-91785-0000             |
| 16. S. KODAK  | 4004-91785-0000             |
| 17. S. KODAK  | 4004-91785-0000             |
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| 94. S. KODAK  | 4004-91785-0000             |
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| 97. S. KODAK  | 4004-91785-0000             |
| 98. S. KODAK  | 4004-91785-0000             |
| 99. S. KODAK  | 4004-91785-0000             |
| 100. S. KODAK | 4004-91785-0000             |

SHEET 4 OF 7 REV



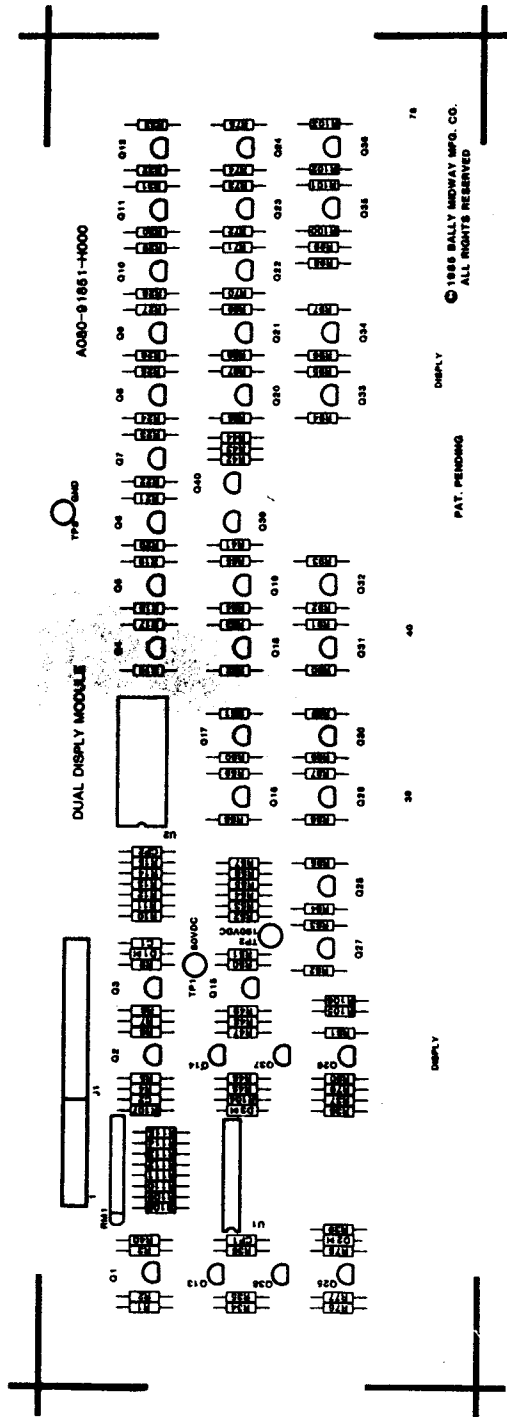
**SHEET 6 OF 7 REV**





|        |                             |     |
|--------|-----------------------------|-----|
| NOTES: | BALLY MIDWAY MFG. CO.       |     |
|        | 6803 PINBALL CONTROL MODULE |     |
|        | SCHEMATIC DRAWING           |     |
|        | A084-91786-6000             |     |
|        | M051-00C53-6004             |     |
|        | SHEET 7 OF 7                | REV |

11 MAR 86 08146 USER/JAN/PIN 7.DRAW



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

|   |  |                                    |  |  |  |
|---|--|------------------------------------|--|--|--|
| DIM. TOLERANCES<br>UNLESS OTHERWISE SPEC.<br>DECIMALS ..... ± .002<br>FRACTIONAL ..... ± .005<br>HOLE DIA. .... + .002 - .000<br>ANGLE ..... ± 12°<br>DO NOT SCALE DWG. |  | DATE<br>5/15/87                    |  | FULL   |  |
| USED ON<br>028  |  | PIN BALL                           |  | BALLY/MIDWAY MFG. CO.<br>FORMULAR PAGE 1 OF 1              |  |
| DESIGNED BY<br>028  |  | DRAWN BY<br>028                    |  | ASSEMBLY DRAWING<br>DUAL DISPLAY MODULE<br>A084-91851-H000 |  |
| CHECKED BY<br>028   |  | PART NO.<br>MO-51-0-0-3-6-5-H0-3-3 |  | REVISIONS<br>REL. FOR PRODUCTION 5/15/87                   |  |

DUAL DISPLAY MODULE  
A084-91851-H000  
M051-00365-H042 (Page 3 of 5) REV. 1

DESIGNATION LIST

| DESIGNATION NO. | DESCRIPTION                               |
|-----------------|---|
| C1              | .01UF 500V CER.                           |
| C2              | .01UF 50V AX. CER.                        |
| CP1, CP2        | .01UF 50V CER.                            |
| D1              | 1M10Z510 110V ZENER DIODE                 |
| D2-D3           | 1M4148 DIODE                              |
| Q1 - Q4         | MPS-A-42 MPN 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                        |
| J1              | 14 DIGIT, 9 SEGMENT GAS DISCHARGE DISPLAY |
| TP1, TP2, TP3   | TEST POINTS                               |
|                 | FLAME TAPE                                |
|                 | BUMPER                                    |
|                 | DISPLAY MTG. CLIPS                        |
|                 | SCREWS                                    |
|                 | DISPLAY MTG. PROCEDURE                    |
|                 | DUAL DISPLAY MODULE P.C.B.                |

DUAL DISPLAY MODULE  
A084-91851-H000  
M051-00365-H042 (Page 2 of 5) REV. 1

DESIGNATION LIST

| DESIGNATION NO. | DESCRIPTION             |
|-----------------|-------------------------|
| R59             | 100K 1/4W 1% METAL FILM |
| R60             | 100K 1/4W 1% METAL FILM |
| R61             | 9.1K 1/4W 5% CARBON     |
| R62             | 9.1K 1/4W 5% CARBON     |
| R63             | 100K 1/4W 1% METAL FILM |
| R64             | 9.1K 1/4W 5% CARBON     |
| R65             | 9.1K 1/4W 5% METAL FILM |
| R66             | 100K 1/4W 5% CARBON     |
| R67             | 100K 1/4W 1% METAL FILM |
| R68             | 9.1K 1/4W 5% CARBON     |
| R69             | 100K 1/4W 1% 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 1% 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             | 1M 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 1% 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      |
| R108-R115       | 20K 1/4W 5% CARBON      |
| R11             | 100K 10 PIN SIP         |

DUAL DISPLAY MODULE  
A084-91851-H000  
M051-00365-H042 (Page 1 of 5) REV. 1

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 1% 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 1% 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 1% 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 1% METAL FILM |
| R30             | 9.1K 1/4W 5% CARBON     |
| R31             | 100K 1/4W 1% METAL FILM |
| R32             | 9.1K 1/4W 5% CARBON     |
| R33             | 100K 1/4W 1% 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             | 820 OHM 1/4W 5% CARBON  |
| R46             | 300K 1/4W 5% CARBON     |
| R47             | 1.5K 1/4W 5% CARBON     |
| R48             | 820 OHM 1/4W 5% CARBON  |
| R49             | 300K 1/4W 5% CARBON     |
| R50             | 100K 1/4W 1% METAL FILM |
| R51             | 2.2M 1/4W 5% CARBON     |
| R52 - R57       | 9.1K 1/4W 5% CARBON     |
| R58             |                         |

DUAL DISPLAY MODULE  
A084-91851-H000  
M051-00365-H042 (Page 4 of 5) REV. 1

**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<br>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<br>R43,R45,R48<br>R76,R79   | 100E-00005-0065 |
| 2.2K 1/4W 5% CARBON                          | 14   | R18,R22,R26,R71<br>R73,R75,R83,R87<br>R88,R91,R93,R95<br>R97,R101  | 100E-00005-0069 |
| 9.1K 1/4W 5% CARBON                          | 14   | R16,R20,R24,R28<br>R30,R32,R58,R61<br>R62,R64,R66,R68<br>R85,R103  | 100E-00005-0087 |
| 10K 1/4W 5% CARBON                           | 1    | R107   | 100E-00005-0088 |
| 20K 1/4W 5% CARBON                           | 14   | R10-R15,R108-R115  | 100E-00005-0095 |
| 100K 1/4W 5% CARBON                          | 2    | R40,R41  | 100E-00005-0115 |
| 100K 1/4W 1% METAL FILM                      | 15   | R17,R21,R25,R29<br>R31,R33,R51,R59<br>R60,R63,R65,R67<br>R69,R84,R102  | 100E-00001-0046 |
| 150K 1/4W 5% CARBON                          | 1    | R104   | 100E-00005-0120 |
| 300K 1/4W 5% CARBON                          | 24   | R3,R6,R9,R19,R23<br>R27,R36,R37,R44,<br>R47,R50,R70,R72,<br>R74,R78,R81,R82,<br>R86,R89,R90,R92,<br>R94,R96,R100<br>R99,R106 | 100E-00005-0127 |
| 1.0M OHM 1/4W 5% CARBON                      | 2    | R52 - R57  | 100E-00005-0140 |
| 2.2M OHM 1/4W 5% CARBON                      | 6    | RM1  | 100E-00005-0147 |
| 100K 10 PIN SIP                              | 1    | R98,R105   | 102E-00004-0045 |
| 10.0M OHM 1/4W 5% CARBON                     | 2    | C2   | 100E-00005-0162 |
| 100PF AX. CER.                               | 1    | CP1,CP2  | 0639-00800-0003 |
| .01UF  | 2    | C1   | 0360-00800-0005 |
| .01UF 500V                                   | 1    | D2,D3  | 0360-00800-0013 |
| 1N4148                                       | 2    | D1   | 103E-00002-0005 |
| 1M110ZS10 110V ZENER DIODE                   | 1    | Q5,Q7,Q9,Q22,Q23<br>Q24,Q27,Q29,Q30<br>Q31,Q32,Q33,Q34<br>Q35  | 103E-00001-0028 |
| 2N5401 PNP XSTR                              | 14   | Q1-Q4,Q6,Q8,Q10-<br>Q21,Q25,Q26,Q28<br>Q36-Q40   | 0360-00802-0006 |
| MPS-A-42 NPN XSTR                            | 26   | U2   | 0360-00802-0007 |
| 14514 1-16 DECODER                           | 1    | U1   | 0360-00803-0013 |
| 74HC373 OCTAL LATCH                          | 1    | J1   | 0365-00803-0015 |
| .025SQ. PINS                                 | 23   | DISPLAY 1  | 0304-00804-0009 |
| 14 DIGIT, 9 SEGMENT<br>GAS DISCHARGE DISPLAY | 1    | TP1 - TP3  | 119E-00002-0006 |
| TEST LOOPS                                   | 3    |  | 0017-00007-0131 |



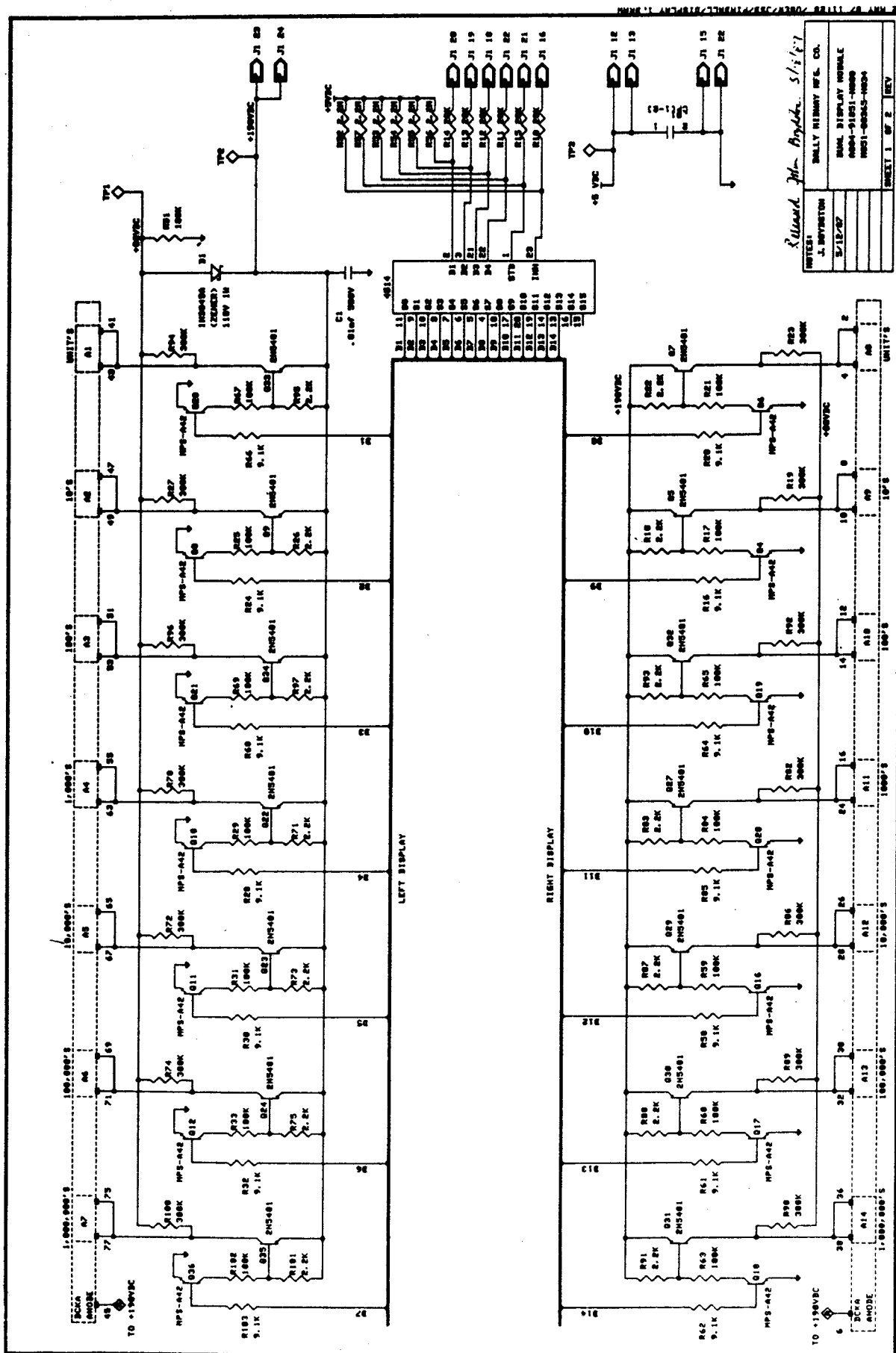
DUAL DISPLAY MODULE  
A084-91851-H000  
M051-00365-H042 (Page 5 of 5) REV. 1

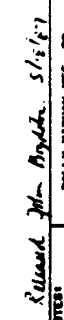
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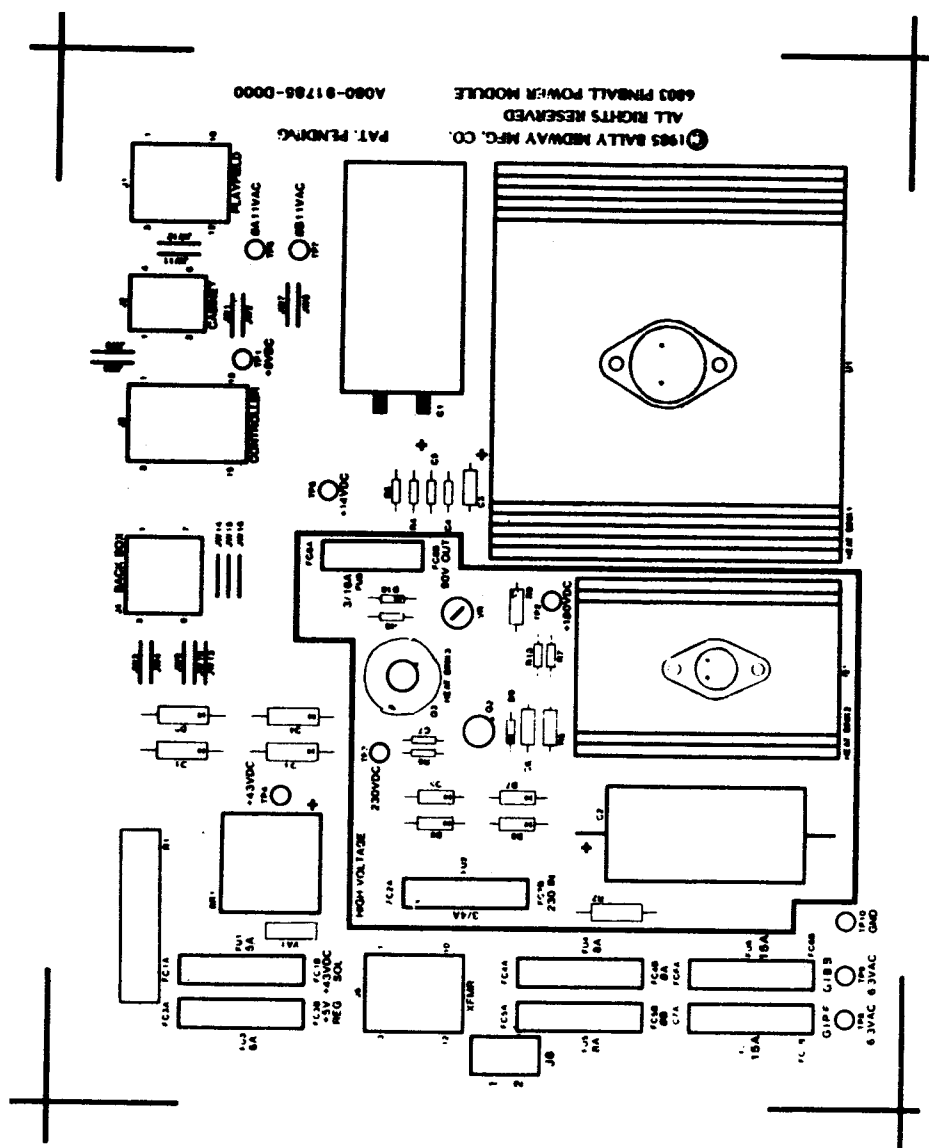
| <u>DESCRIPTION</u>      | <u>QTY.</u> | <u>DESIGNATION NO.</u> | <u>PART NOS.</u> |
|-------------------------|-------------|------------------------|------------------|
| FOAM TAPE               | 2           |                        | 0017-00081-0289  |
| BUMPER                  | 1           |                        | 0017-00041-0598  |
| DISPLAY MTG. CLIP       | 2           |                        | 0365-00174-00XF  |
| SCREW                   | 2           |                        | 0017-00101-0175  |
| DISPLAY MTG. PROCEDURE  | 1           |                        | M051-00365-A041  |
| DUAL DISPLAY MODULE PCB | 1           |                        | A080-91851-H000  |

5/20/87 REV. 1 - CORRECTION TO DISPLAY MTG. PROCEDURE PART NO. *955*









**THIS INFO IS CONFIDENTIAL & PROPERTY OF MIDWAY MFG CO**

**MIDWAY MFG. CO.**  
CHICAGO, ILL. 60641  
A DAILY CO.

ASSY DRAWING  
6803 PINBALL PWR MODULE  
A084 - 91785 - 0000

10-8

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

DESIGNATION LIST

DESIGNATION

DESCRIPTION

|            |                            |
|------------|----------------------------|
| C1         | 11.000uf 20V ELEC.         |
| P/O C1     | TY-WRAP                    |
| P/O C1     | SOLDER LUG                 |
| P/O C1     | WIRE 20AWG                 |
| C2         | 160uf 350V ELEC.           |
| P/O C2     | TY-WRAP                    |
| C3         | 2uf 25V ELEC.              |
| C4, C5     | .1uf 25V CER.              |
| C6, C7     | .01uf 500V CER.            |
| R1         | 600 OHM 10W                |
| R2         | 100K 1W 5%                 |
| R3         | 2.2 OHM 1/4W 5%            |
| R4         | 100 OHM 1/2W 5%            |
| R5         | 22K 1/2W 5%                |
| R6         | 100K 1/4W 5%               |
| R7         | 390 OHM 1/4W 5%            |
| R8         | 1.2K 1/4W 5%               |
| R9         | 82K 1/2W 5%                |
| R10        | 8.2K 1/4W 5%               |
| VR1        | 0 - 25K 1/4W POT.          |
| D1 - D4    | MR751                      |
| D5 - D9    | IN4004                     |
| D10        | IN5275A ZENER              |
| RR1        | KRPG-35-02-W               |
| P/O RR1    | BRIDGE SPACER              |
| O1         | 2N3584                     |
| P/O O1     | SHIELD                     |
| P/O O1     | HEX SPACER                 |
| P/O O1     | 6-32 X 5 SCREW             |
| P/O O1     | 6-32 X 12 SCREW            |
| P/O O1     | LOCKWASHER EXT.            |
| P/O O1     | LOCKWASHER INT.            |
| P/O O1     | FLAT WASHER                |
| P/O O1     | 6-32 HEX NUT               |
| P/O O1     | LABEL - CAUTION HIGH VOLT. |
| P/O O1     | HEATSINK 2                 |
| P/O O1     | INSULATOR T0-66            |
| O2, O3     | 2N3440                     |
| P/O O2, O3 | INSULATOR T0-5             |
| P/O O3     | HEATSINK 3                 |
| U1         | 78H05C REG.                |
| P/O U1     | 6-32 X 12 SCREW            |
| P/O U1     | 6-32 HEX NUT               |
| P/O U1     | LOCKWASHER EXT.            |
| P/O U1     | FLAT WASHER                |
| P/O U1     | HEATSINK 1                 |
| P/O U1     | INSULATOR T0-3             |
| VA1        | VARISTOR                   |

DESIGNATION

DESCRIPTION

|                   |                           |
|-------------------|---------------------------|
| JW1 - JW16        | ZERO OHM RES. JUMPER      |
| TP1 - TP10        | TEST POINTS               |
| F1*               | 5 AMP 3AG FUSE            |
| F2                | 3/4 AMP 3AG FUSE          |
| F3                | 6 AMP 3AG FUSE            |
| F4, F5            | 8 AMP 3AG FUSE            |
| F6, F7            | 15 AMP 3AG FUSE           |
| F8                | 3/16 AMP 8AG FUSE         |
| FC1A - FC3B, FC8A | FUSE CLIPS                |
| FC8B              | FUSE CLIPS                |
| FC4A - FC7B       | 12 PIN M-N-L CONN. FEMALE |
| J1                | 6 PIN M-N-L CONN. MALE    |
| J2                | 15 PIN M-N-L CONN. MALE   |
| J3                | 9 PIN M-N-L CONN. MALE    |
| J4                | 12 PIN M-N-L CONN. MALE   |
| J5                | 2 PIN M-N-L CONN. MALE    |
| J6                | P.C. BOARD                |
| 6803 POWER MODULE |                           |
| 4-23-86 REV. 1.0  | FIXED R2, R6              |

\* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC

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

CROSS REFERENCE LIST

DESCRIPTION

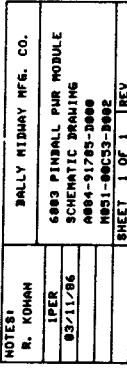
| QTY. | DESIGNATION NO.       | PART NOS.       |
|------|-----------------------|-----------------|
| 2    | C6, C7                | 0360-00800-0013 |
| 2    | C4, C5                | 0360-00800-0026 |
| 1    | C3                    | 0360-00800-0019 |
| 1    | C2                    | 0360-00800-0020 |
| 1    | C1                    | 0360-00800-0024 |
| 1    | R3                    | 100E-00005-0003 |
| 1    | R4                    | 100E-00006-0021 |
| 1    | R7                    | 100E-00005-0049 |
| 1    | R1                    | 100E-00002-0049 |
| 1    | R8                    | 100E-00005-0063 |
| 1    | R10                   | 100E-00005-0086 |
| 1    | R5                    | 100E-00006-0065 |
| 1    | R9                    | 100E-00006-0072 |
| 1    | R6                    | 100E-00005-0115 |
| 1    | R2                    | 100E-00007-0037 |
| 1    | VR1                   | 0360-00804-0004 |
| 4    | D1-D4                 | 103E-00003-0016 |
| 5    | D5-D9                 | 103E-00003-0005 |
| 1    | D10                   | 103E-00001-0027 |
| 1    | RR1                   | 103E-00005-0005 |
| 2    | O2, O3                | 104E-00003-0002 |
| 1    | O1                    | 104E-00005-0002 |
| 1    | U1                    | 0360-00803-0021 |
| 1    | VA1                   | 112E-00001-0002 |
| 4    | P/O C1, C2            | 0017-00042-0048 |
| 16   | JW1-JW16              | 117E-00001-0001 |
| 10   | TP1-TP10              | 0017-00007-0131 |
| 2    | P/O C1                | 0017-00021-0257 |
| 2    | P/O C1                | 0017-00033-0448 |
| 1    | P/O U1                | 0017-00042-0119 |
| 2    | P/O O2, O3            | 0017-00042-0151 |
| 1    | P/O O1                | 0017-00042-0158 |
| 2    | P/O O1                | 0365-00952-0000 |
| 1    | P/O O1                | 112E-00001-0002 |
| 1    | P/O O1                | 112E-00001-0004 |
| 1    | P/O O3                | 118E-00001-0001 |
| 4    | P/O O1, U1            | 0017-00101-0132 |
| 2    | P/O O1                | 0017-00101-0595 |
| 4    | P/O O1, U1            | 0017-00103-0005 |
| 4    | P/O O1                | 0017-00104-0008 |
| 4    | P/O O1, U1            | 0017-00104-0009 |
| 4    | P/O O1, U1            | 0017-00104-0106 |
| 8    | FC1A-FC38, FC8A, FC8B | 0017-00071-0033 |
| 8    | FC4A-FC7A             | 0017-00071-0034 |
| 1    | F8                    | 0017-00003-0206 |
| 1    | F2                    | 0017-00003-0010 |
| 1    | F1*                   | 0017-00003-0175 |
| 1    | F3                    | 0017-00003-0008 |

CROSS REFERENCE LIST

DESCRIPTION

| QTY. | DESIGNATION NO.           | PART NOS.       |
|------|---------------------------|-----------------|
| 2    | 8 AMP 3AG FUSE            | 0017-00003-0387 |
| 2    | 15 AMP 3AG FUSE           | 0017-00003-0011 |
| 1    | 12 PIN M-N-L CONN. FEMALE | 0017-00021-0532 |
| 1    | 6 PIN M-N-L CONN. MALE    | 0017-00021-0424 |
| 1    | 15 PIN M-N-L CONN. MALE   | 0017-00021-0434 |
| 1    | 9 PIN M-N-L CONN. MALE    | 0017-00021-0425 |
| 1    | 12 PIN M-N-L CONN. MALE   | 0017-00021-0426 |
| 1    | 2 PIN M-N-L CONN. MALE    | 0017-00021-0488 |
| 1    | 6803 POWER MODULE P.C.B.  | A080-91785-D000 |

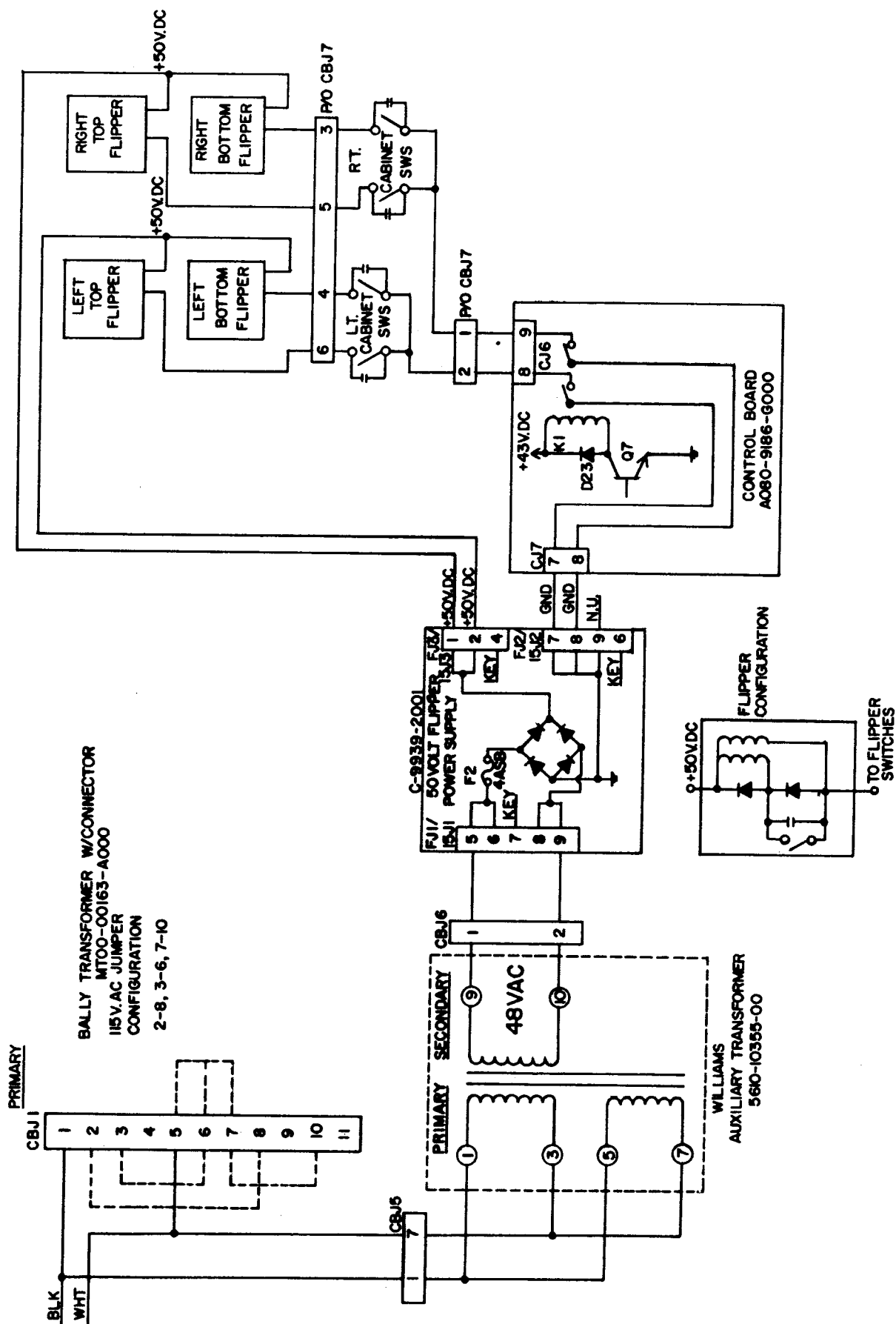
\* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC



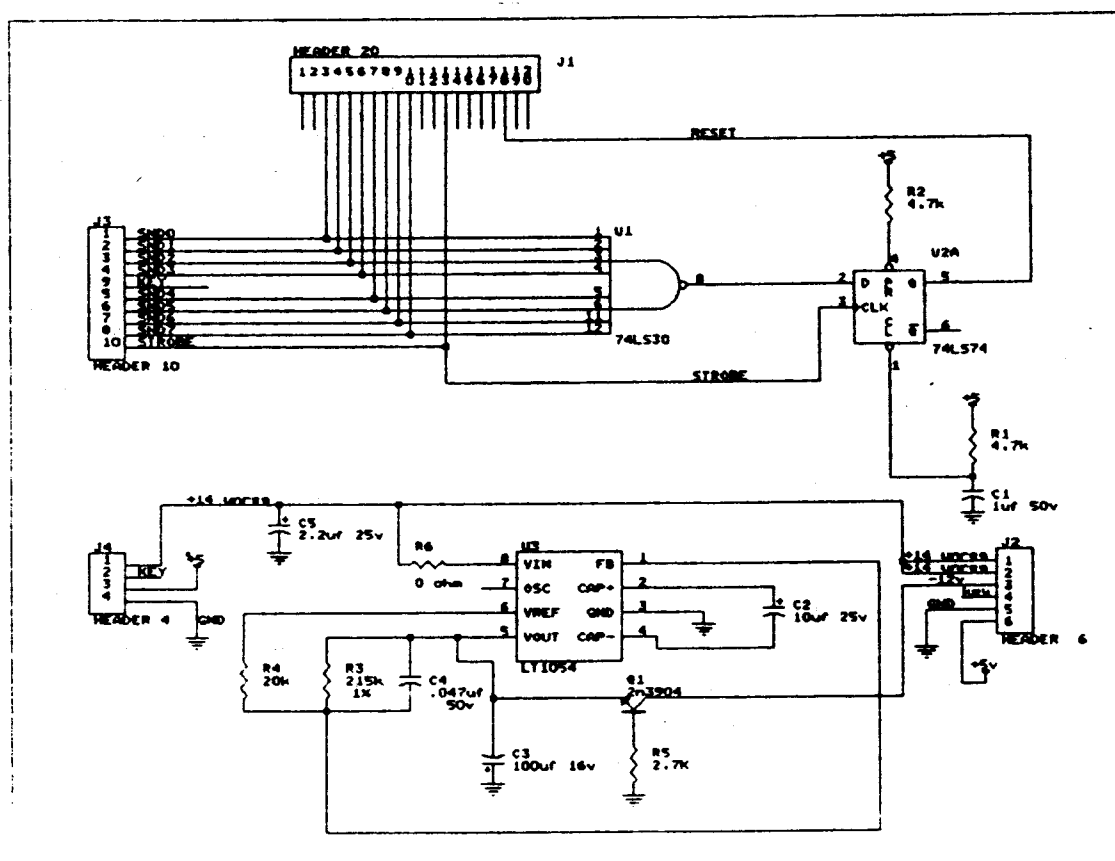
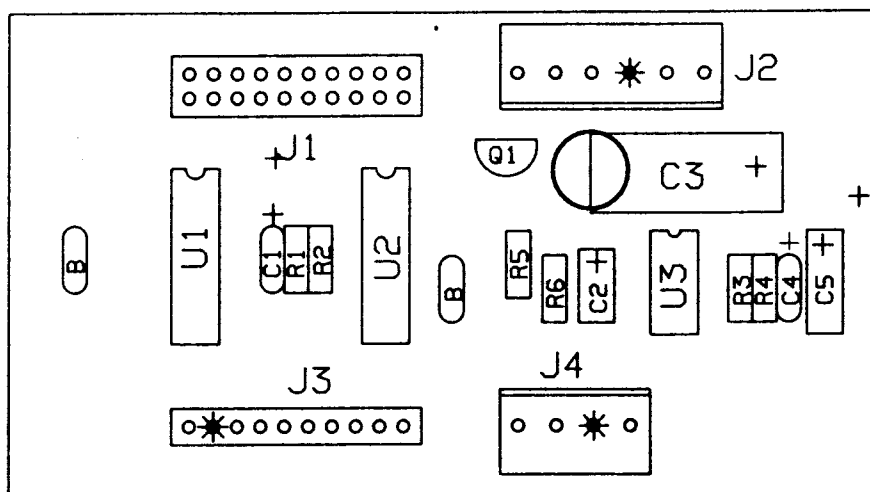
NOTE

① WHEN 2FLIPPERS ARE USED FUI SHOULD BE 6AMP  
WHEN 4FLIPPERS ARE USED FUI SHOULD BE 7AMP









| ITEM       | PART NUMBER | DESCRIPTION                                    | QTY | ITEM                                    | PART NUMBER | DESCRIPTION | QTY |
|------------|-------------|--|-----|---|-------------|-------------|-----|
| PROJ ENGR  |             | DO NOT SCALE<br>WORK TO<br>DIMENSIONS<br>SHOWN |     | WILLIAMS ELECTRONICS, INC.              |             |             |     |
| OWN BY     | DATE        | REMOVE BURRS - BREAK SHARP CORNERS & EDGES     |     | 3401 N. CALIFORNIA AVE CHICAGO IL 60618 |             |             |     |
| CHECKED BY | DATE        | TOLERANCES<br>UNLESS OTHERWISE SPECIFIED       |     | NAME                                    |             |             |     |
| APPROVAL   | DATE        | DECIMAL .X ± .030 ANGULAR .1/2°                |     | SOUND INTERFACE ASSY                    |             |             |     |
|            |             | XXX ± .005 FRACTIONAL ± 1/64                   |     | SCALE                                   |             |             |     |
|            |             | MATERIAL                                       |     | SHT OF                                  |             |             |     |
|            |             |  |     | PART NO                                 |             |             |     |
|            |             |  |     | REV                                     |             |             |     |

| REV | DESCRIPTION OF CHANGE | ESN NO<br>DATE |
|-----|-----------------------|----------------|
|-----|-----------------------|----------------|

D

C

B

A

BRUNING 40 51003 310724

| 20                       | 5010-09534-00 | R6               | 0 OHM 1/4W          | 1   |
|--------------------------|---------------|------------------|---------------------|-----|
| 19                       | 5010-08997-00 | R5               | 2.7K OHM 1/4W       | 1   |
| 18                       | 5160-10269-00 | Q1               | 2N3904              | 1   |
| 17                       | 5043-08980-00 | B                | CAP .01MF 50V axial | 2   |
| 16                       | 5768-12345-00 | PCB              | SMD INTERFACE PCB   | 1   |
| 15                       | 5041-12360-00 | C4               | CAP .047MF 50V      | 1   |
| 14                       | 5041-12358-00 | C2               | CAP 10MF 25V        | 1   |
| 13                       | 5010-08991-00 | R1, R2           | RES 4.7K 1/4W       | 2   |
| 12                       | 5013-12359-00 | R3               | RES 215K 1/4W 1%    | 1   |
| 11                       | 5010-10985-00 | R4               | RES 20K 1/4W        | 1   |
| 10                       | 5041-12361-00 | C5               | CAP 2.2MF 25V       | 1   |
| 9                        | 5041-12357-00 | C3               | CAP 100MF 15V       | 1   |
| 8                        | 5791-10862-06 | J2               | HEADER 6 PIN        | 1   |
| 7                        | 5370-12356-00 | U3               | LT1054              | 1   |
| 6                        | 5791-10862-04 | J4               | HEADER 4 PIN        | 1   |
| 5                        | 5791-09437-00 | J1               | HEADER 20 PIN       | 1   |
| 4                        | 5791-12362-00 | J3               | HEADER 10 PIN       | 1   |
| 3                        | 5041-09031-00 | C1               | CAP 1MF 25V axial   | 1   |
| 2                        | 5281-09487-00 | U2               | IC 74LS74           | 1   |
| 1                        | 5281-10033-00 | U1               | IC 74LS30           | 1   |
| ITEM                     | PART NO.      | PART DESIGNATION | DESCRIPTION         | QTY |
| <b>BILL OF MATERIALS</b> |               |                  |                     |     |

MIDWAY MFG. CO.  
01901-B000

J1

NOTICE  
NO. 3/4 AMP  
FUSES ONLY



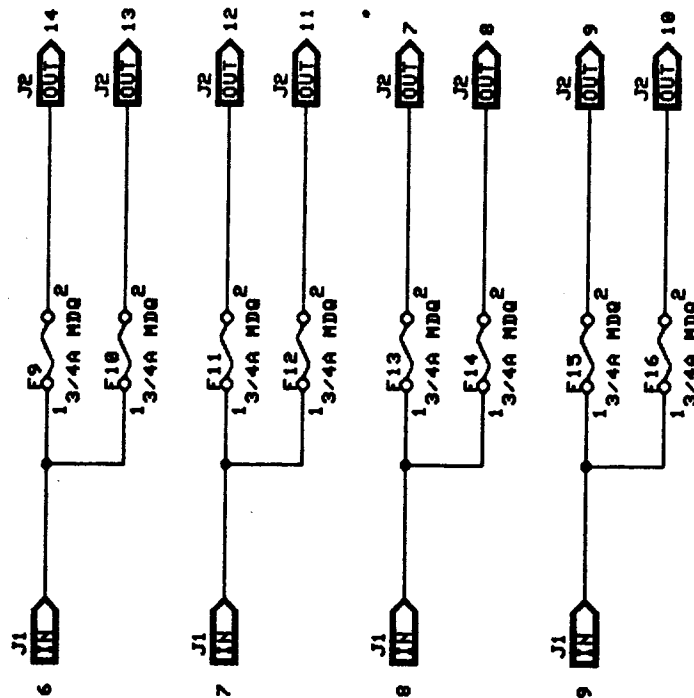
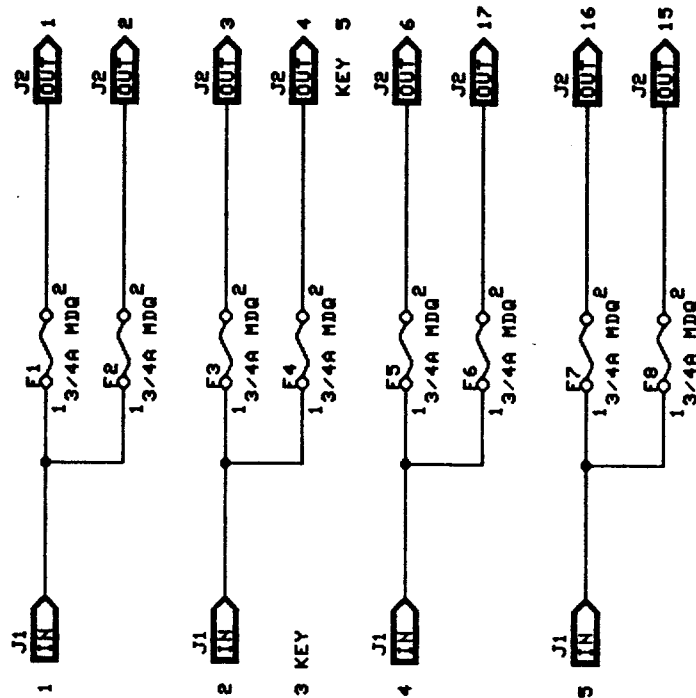
BRIGHT LIGHT FUSE BOARD  
A084-91901-B000  
M051-00114-B211

CROSS REFERENCE/DESIGNATION LIST

| DESCRIPTION             | QTY | DESIGNATION | PART NUMBER     |
|-------------------------|-----|-------------|-----------------|
| AUTO INSERT PINS .025   | 8   | J1          | 0304-00804-B000 |
| AUTO INSERT PINS .025   | 16  | J2          | 0304-00804-B000 |
| PCB FUSE CLIPS          | 32  | F1-F16      | 0017-00071-0034 |
| BRIGHT LIGHT FUSE BOARD | 1   | PCB         | A084-91901-B000 |

*Released for Production*  
988 2/4/88

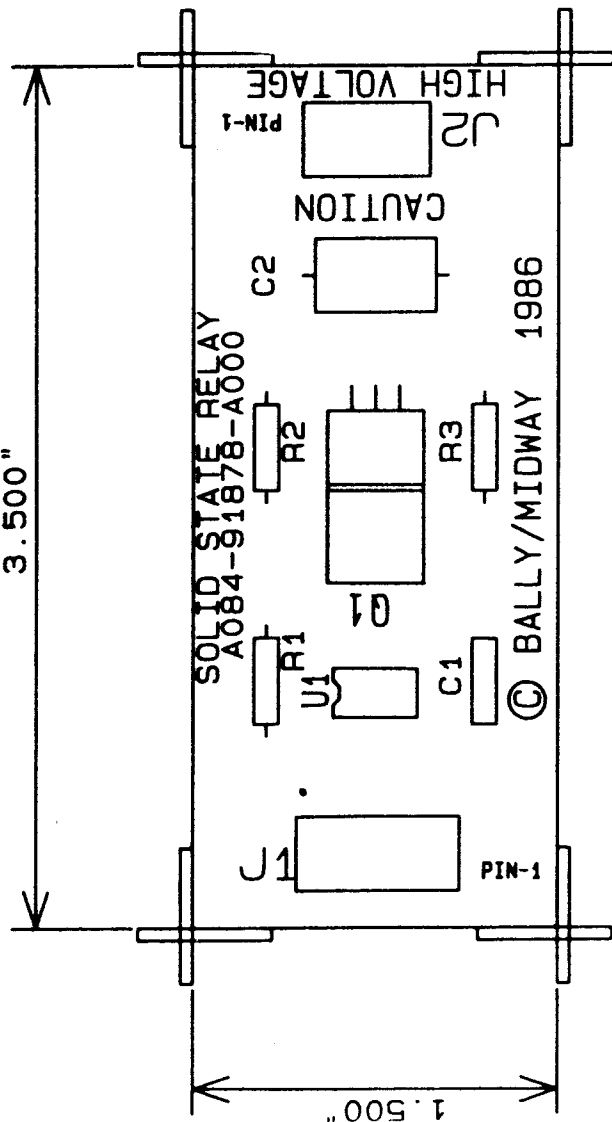
|                          |  |               |  |  |                    |  |
|--------------------------|--|---------------|--|--|--------------------|--|
| PROJECT ENG: J. BOYDSTON |  |               | USED ON 0365                               |  | BALLY/MIDWAY MFG   |  |
| DO NOT SCALE DIMS.       |  |               | SCALE FULL                                 |  | FRANKLIN PARK ILL. |  |
| TOLERANCES               |  | DRW. D.B.S.   | MATERIAL .062" FR-4                        |  | PART NO.           |  |
| DECIMAL +/- .005         |  | CHD.          | FINISH                                     |  | M051-00114-B       |  |
| HOLE DIA. +.002-.004     |  | DATE 01/18/88 | ASSEMBLY DRAWING<br>BRIGHT LIGHTS FUSE PCB |  |                    |  |



10-33

Released for Production JBB 2/1/88

|             |                        |
|-------------|------------------------|
| NOTES:      | BALLY MIDWAY MFG. CO.  |
| J. BOYDSTON | BRIGHT LIGHTS FUSE PCB |
| 02-04-88    | A084-91901-3000        |
|             | M051-00114-3212        |
|             | SHEET 1 OF 1 REV       |



DESIGNATION LIST

DESIGNATION NO.

C1  
C2  
R1  
R2  
R3  
Q1  
Q1  
U1  
U1  
J1  
J2  
PCMH1-PCMH4  
A080-91878-A000

CROSS REFERENCE LIST

DESCRIPTION

.1UF 50V AX. CER.  
.1UF 400V POLYESTER  
100 OHM 1/4W 5%  
180 OHM 1/4W 5%  
1.8K 1/4W 5%  
T2322 TRIAC  
MOC3031 OPTO COUPLER  
KK156 PLUS  
CABLE CONNECTION  
P.C. MTG. HDR W  
P.C. BOARD

DESCRIPTION

.1UF 50V AX. CER. CAP  
.1UF 400V POLYESTER CAP  
100 OHM 1/4W 5%  
180 OHM 1/4W 5%  
1.8K 1/4W 5%  
T2322 TRIAC  
MOC3031 OPTO COUPLER  
KK156 MACHINE INSERT PINS  
CABLE CONNECTION  
P.C. MTG. HARDWARE  
P.C. BOARD

QTY.

1  
1  
1  
1  
1  
1  
1  
1  
3  
1  
4  
1

DESIGNATION NO.

C1  
C2  
R1  
R2  
R3  
Q1  
Q1  
U1  
J1  
J2  
PCMH1-PCMH4  
-

PART NOS.

0C68-00800-0005  
0E35-00800-0001  
100E-00005-0033  
100E-00005-0039  
100E-00005-0067  
0365-00804-0019  
120E-00002-0002  
0304-00804-0010  
A639-00024-0000  
0017-00042-0320  
A080-91878-A000

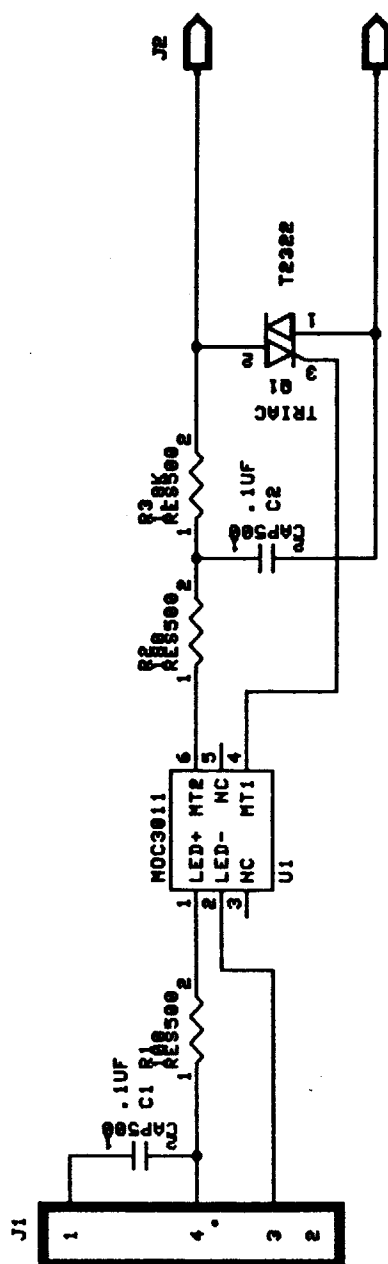
SOLID STATE RELAY  
A084-91878-A000  
M051-00114-A174

Revised 12-2-86 RK

BALLY MIDWAY MFG. CO.

.062" J.S.  
FR-400 10/17/86  
ASSEMBLY DRAWING  
SOLID STATE RELAY PC  
A084-01878-A000

M051-00114-A173



## NOTES:

**R. KOHAN**

**Prayer**

**12-3-86**

**DALLY MIDWAY MFG. CO.**

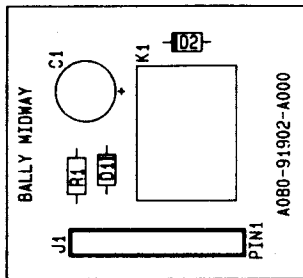
**SOLID STATE RELAY**

**A084-91278-A000**

**M051-00114-A175**

SHEET 1 OF 1 REV





# CROSS REFERENCE LIST

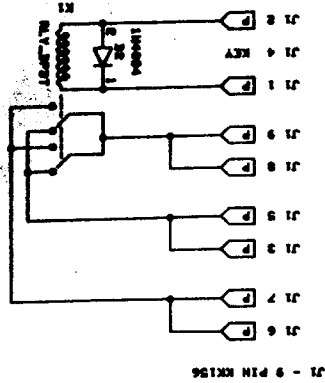
| DESCRIPTION         | QTY. | DESIGNATION NO. | PART NO.        |
|---------------------|------|-----------------|-----------------|
| 1N4004 DIODE        | 1    | D2              | 103E-00003-0005 |
| .045 SQ. PIN        | 8    | J1              | 0304-00804-0010 |
| RELAY               | 1    | K1              | 114E-00001-0011 |
| NOT INSERTED        | 3    | C1, D1, R1      |                 |
| AUX COIL DRIVER PCB | 1    |                 | A080-91902-A000 |

6/4/87 - Released for Production. CMH

AUX COIL DRIVE  
A080-91902-A000  
M051-00114-A213

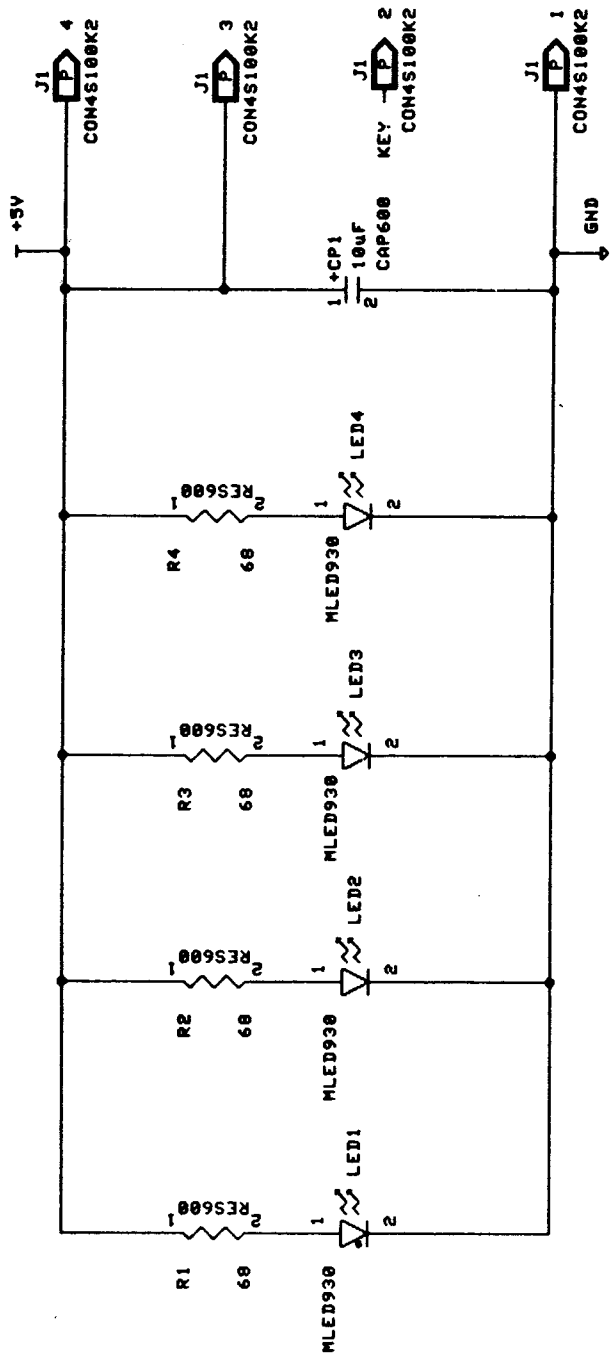
|                       |                 |
|-----------------------|-----------------|
| NOTES:                | C. MEDNICK      |
| BALLY MIDWAY MFG. CO. | 6/4/87          |
| AUX COIL DRIVER       | A080-91902-A000 |
| M051-00114-A213       |                 |
| SHEET 1 OF 1 REV      |                 |

NOT INSERTED: C1, D1, R1



|                       |          |                      |
|-----------------------|----------|----------------------|
| BALLY MIDWAY MFG. CO. |          |                      |
| PROJECT ENG.          | D.B.S.   | ASSEMBLY DRAWING     |
| C. MEDNICK            | 05/28/87 | AUX. COIL DRIVER BD. |
|                       |          | M051-00114-A213      |



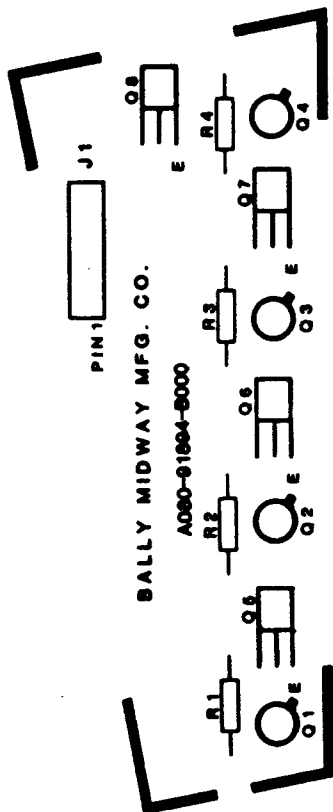


Handwritten text: *Handwritten text, possibly a signature or name, written vertically.*

|             |                        |          |
|-------------|------------------------|----------|
| NOTES:      | BALLY MIDWAY MFG. CO.  |          |
| 8/3/87      | 4 POSITION EMITTER PCB |          |
| J. BOYDSTON | A084-91895-2000        |          |
|             | M051-00114-2206        |          |
|             | SHEET 1                | OF 1 REV |

4-POS. DETECTOR  
A084-91894-B000  
M051-00114-B202 (REV. 1)

### CROSS REFERENCE LIST



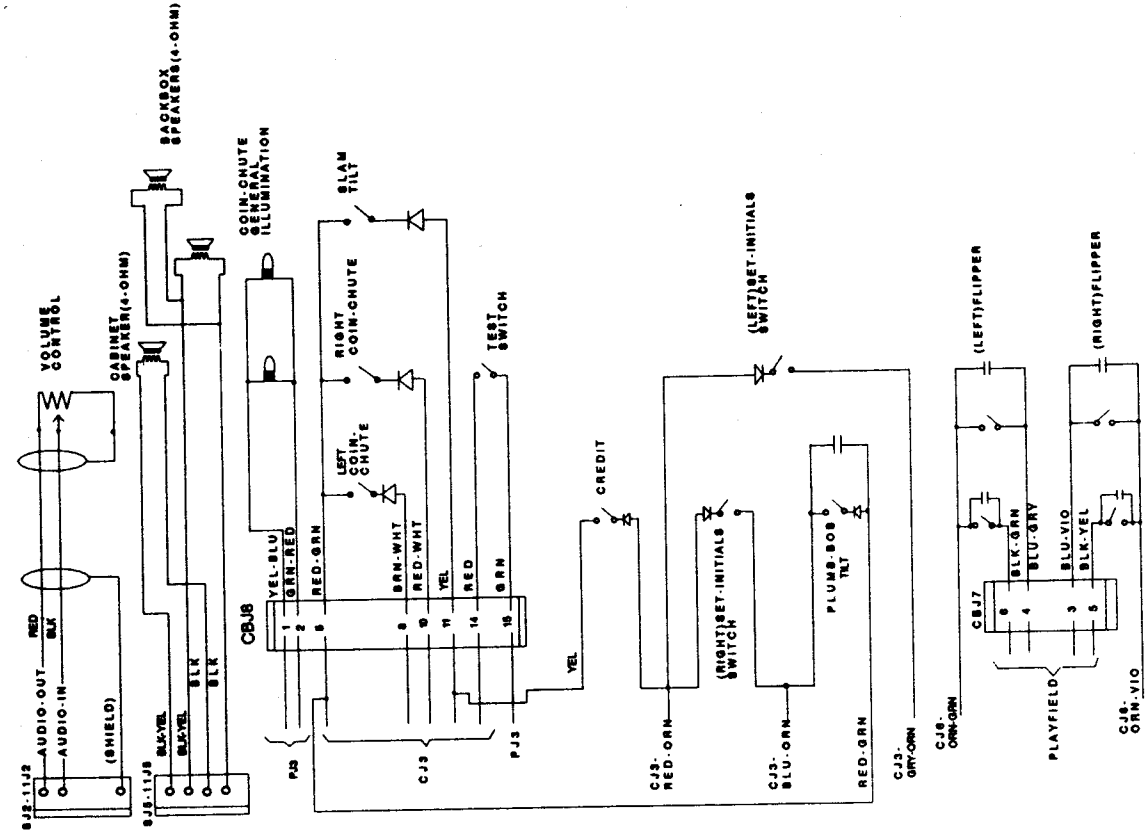
| DESCRIPTION                | QTY. | DESIGNATION | PART NOS.        |
|----------------------------|------|-------------|------------------|
| 390K OHM 1/4W 5%           | 4    | R1-R4       | 100E-00005-0130  |
| 2N3904 MPN XSTR            | 4    | Q5-Q8       | 104E-00001-0006  |
| WRD370 PHOTO XSTR          | 4    | Q1-Q4       | 119E-00003-0001  |
| HEADER KK100 6 PIN OMIT #4 | 1    | J1          | 0017-000021-1848 |
| 4-POS. DETECTOR PCB        | 1    |             | A080-91894-8000  |

8/3/87 - RELEASED FOR PRODUCTION JBB  
068 8/6/87 - REV. 1 Conn. Chng. JBB

|                                  |  |                     |  |                         |  |
|----------------------------------|--|---------------------|--|-------------------------|--|
| PROJECT ENG: J. BOYDSTON         |  | USED ON OH06        |  | Bally / MIDWAY MFG. CO. |  |
| DO NOT SCALE DWG.                |  | SCALE FULL          |  | PART NO.                |  |
| DIM. TOLERANCES UNLESS SPECIFIED |  | ASSEMBLY DRAWING    |  | M051-00114-B201         |  |
| CONCENTRICITY T.R. 0.03          |  | 4-POS. DETECTOR PCB |  |                         |  |
| FRACTIONAL ..... 1/64            |  | (A084-91894-B000)   |  |                         |  |
| DECIMAL ..... 1.000              |  |                     |  |                         |  |
| HOLE DIA. + .002 - .000          |  |                     |  |                         |  |
| DATE 8/13/87                     |  |                     |  |                         |  |
| SHEET DBS                        |  | HOLE TEMP           |  | REVISIONS               |  |
| PART.                            |  | NO. REQD 1 PER      |  | New Release JAB         |  |
| FINISH                           |  |                     |  | 9/3/87                  |  |



# Truck Stop Cabinet Wiring

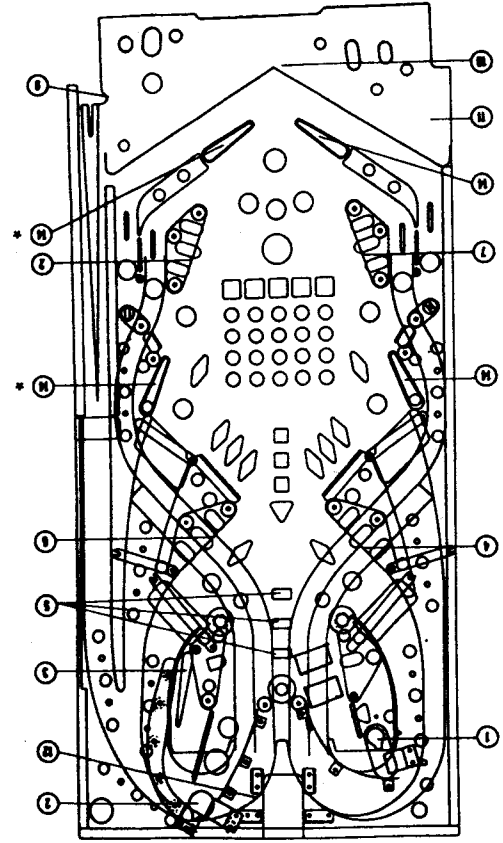


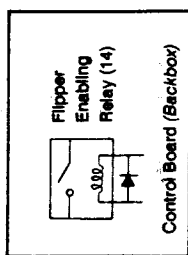
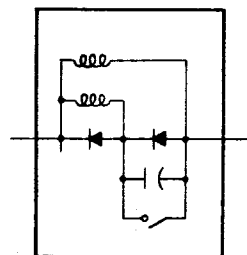
# Playfield Coils

Coil Table  
including Flipper Coils

| Coil No. | Solenoid Description     | Solenoid Type | Wire Color   | Connections | Solenoid Part No. |
|----------|--------------------------|---------------|--------------|-------------|-------------------|
| 01       | Left Kicker (Truck Stop) | Momentary     | White-Red    | CJB-1       | A365-00097-0026   |
| 02       | Right Kicker             | Momentary     | Yellow-White | CJB-4       | A365-00097-0010   |
| 03       | Right Sauer              | Momentary     | Yellow-Blue  | CJB-2       | A365-00097-0018   |
| 04       | Right Target Reset       | Momentary     | Blue-White   | CJB-6       | A365-00097-0018   |
| 05       | Right Target Reset       | Momentary     | Blue-Orange  | CJB-7       | A365-00097-0026   |
| 06       | Left, Top Slingshot      | Momentary     | Yellow-Brown | CJB-5       | A365-00097-0026   |
| 07       | Left, Top Slingshot      | Momentary     | Yellow-Red   | CJB-1       | A365-00097-0026   |
| 08       | Left, Bottom Slingshot   | Momentary     | Yellow-Green | CJB-3       | A365-00097-0026   |
| 09       | Right, Bottom Slingshot  | Momentary     | White-Brown  | CJB-8       | A365-00097-0027   |
| 10       | Ball Eject               | Momentary     | White-Black  | CJB-11      | A365-00097-0027   |
| 11       | Knocker                  | Continuous    | White-Gray   | CJB-10      | A365-00097-0027   |
| 12       | Lane Steering*           | Continuous    | Yellow-Gray  | CJB-7       | A365-00097-0027   |
| 13       | 88 Relay Bd (Backbox)*   | Continuous    | Blue-Gray    | CJB-11      | A365-00097-0027   |
| 14       | Flipper-Enabling Relay*  | Continuous    | Blue-White   | CJB-10      | A365-00097-0027   |
| 15       | Not Used                 | Momentary     | White-Blue   | CJB-2       | A365-00097-0027   |
| 16       | Not Used                 | Momentary     | White-Yellow | CJB-3       | A365-00097-0027   |
| 17       | Not Used                 | Momentary     | White-Green  | CJB-4       | A365-00097-0027   |
| 18       | Not Used                 | Momentary     | White-Orange | CJB-7       | A365-00097-0027   |
| 19       | Not Used*                | Continuous    | Brown-Violet | CJB-9       | A365-00097-0027   |

NOTES:  
 -To use continuous solenoid 12, install jumper JW10. Remove jumper JW11.  
 -To use continuous solenoid 19, install jumper JW8. Remove jumper JW9.  
 -To use switch solenoid at CJB-10, install jumper JW8. Remove jumper JW9.  
 -To use switch solenoid at CJB-11, install jumper JW11. Remove jumper JW10.  
 -Coil marked with asterisk (\*) are on the playfield backboard or in the backbox.  
 -Apply heatshrink 112-0001-0047 and compound 0017-00039-0204 to drivers O11, O13, O16, O17 and O18. Spread the thermal compound on the back and upper tab area of each translator.





| 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  |

**COLLENOIDS**

**NOTES:**

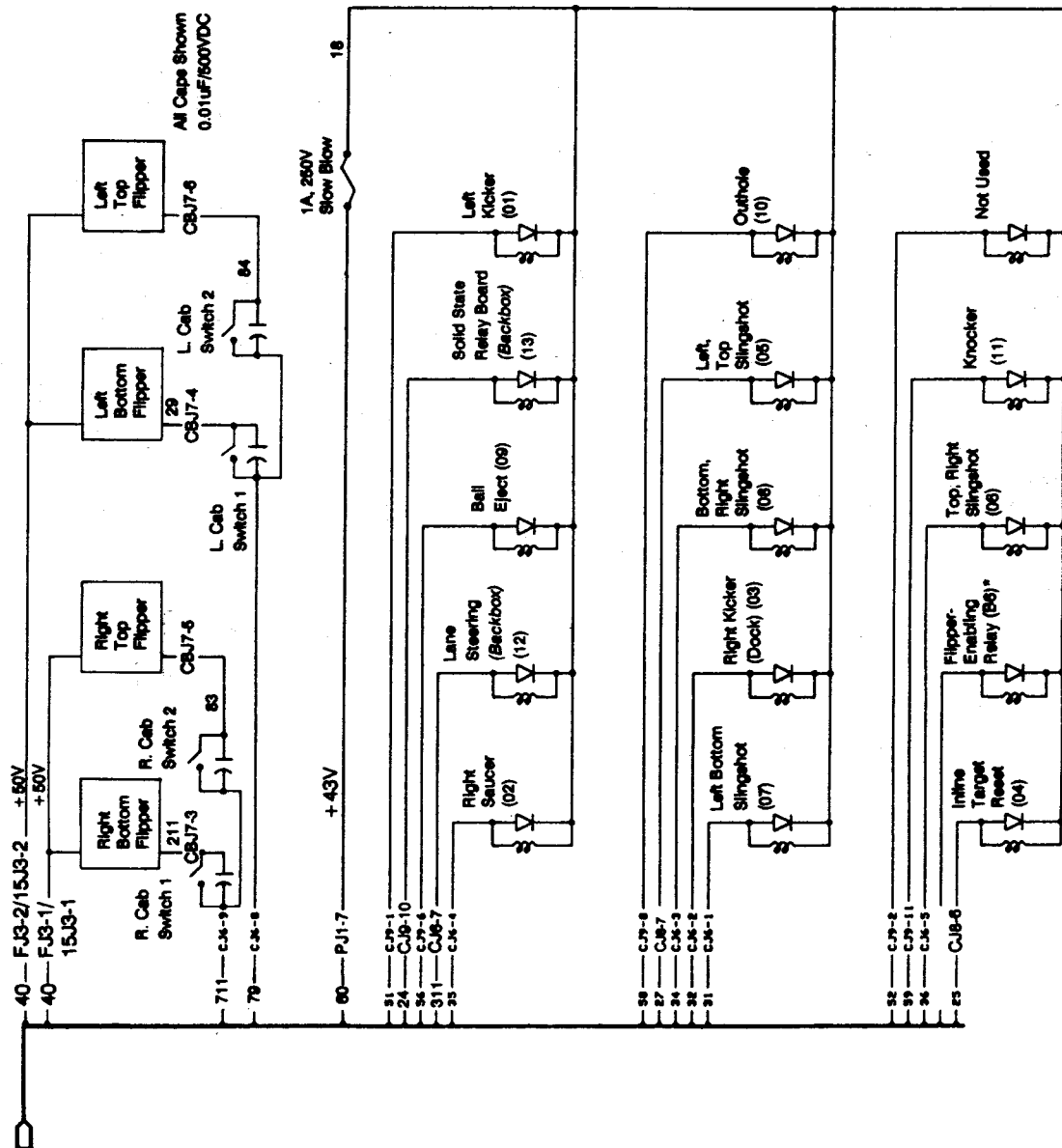
007104

#### 4. STONE

## TRUCK STOP

## COIL WIRING

0 30 1 23ms







Phase "A" and "C" Lamp Table

|  |   |  |   |  |   |
|--|---|--|---|--|---|
| CJ10-01<br>Red-Blue<br>Left C-1 (1)        | CJ10-16<br>Green-Yellow<br>Left L-1 (9)   | CJ10-10<br>Blue-Black<br>Left T-1 (17)   | CJ11-13<br>Orange-Yellow<br>Left Y-1 (25) | CJ12-01<br>Green-Black<br>Bright #1* (33)  | CJ13-12<br>Green-Red<br>Left L-1 (41)   |
| CJ10-07<br>Blue-Green<br>C-2 (2)           | CJ10-04<br>Red-White<br>Left L-2 (10)     | CJ10-13<br>Yellow-Brown<br>Left T-2 (18) | CJ11-10<br>Brown-Black<br>Left Y-2 (26)   | CJ12-02<br>Black-Red<br>Bright #2* (34)    | CJ13-10<br>Gray-Green<br>Left L-2 (42)  |
| CJ10-18<br>Yellow-Black<br>C-3 (3)         | CJ11-08<br>Brown-Green<br>Left L-3 (11)   | CJ11-03<br>White-Gray<br>Left Y-3 (19)   | CJ11-03<br>Gray-Yellow<br>Left Y-3 (27)   | CJ12-03<br>Black-Gray<br>Bright #3* (35)   | CJ13-04<br>Black-White<br>Left L-3 (43) |
| CJ10-02<br>Red-Yellow<br>C-4 (4)           | CJ10-19<br>Green-White<br>Left L-4 (12)   | CJ11-18<br>Orange-Black<br>Left T-4 (20) | CJ11-14<br>Orange-Green<br>Left Y-4 (28)  | CJ12-04<br>Black-Orange<br>Bright #4* (36) | CJ13-11<br>Gray-White<br>Left L-4 (44)  |
| CJ10-08<br>Blue-White<br>R. C-5 (5)        | CJ10-05<br>Red-Black<br>Left L-5 (13)     | CJ11-08<br>Brown-Blue<br>Left T-5 (21)   | CJ11-08<br>Brown-Orange<br>Left Y-5 (29)  | CJ12-05<br>Black-White<br>Bright #5* (37)  | CJ13-07<br>Gray-Red<br>Left L-5 (45)    |
| CJ10-17<br>Green-Red<br>Diamond<br>C-6 (6) | CJ10-12<br>Yellow-Orange<br>Left L-6 (14) | CJ11-12<br>White-Black<br>Left T-6 (22)  | CJ11-12<br>White-Black<br>Left Y-6 (30)   | CJ12-06<br>Gray-Orange<br>Bright #6* (38)  |   |
| CJ10-03<br>Red-Green<br>C-Ramp Lr (7)      | CJ10-11<br>Yellow-Blue<br>Left L-7 (15)   | CJ11-11<br>Orange-Red<br>Left T-7 (23)   | CJ11-11<br>Orange-Red<br>Left Y-7 (31)    | CJ12-07<br>Black-Brown<br>Bright #7* (39)  |   |
| CJ10-09<br>Blue-Brown<br>SPSA (8)          | CJ10-06<br>Blue-Red<br>Left L-8 (16)      | CJ11-04<br>Brown-Yellow<br>Left T-8 (24) | CJ11-04<br>Brown-Yellow<br>Left Y-8 (32)  | CJ12-08<br>Black-Green<br>Bright #8* (40)  |   |

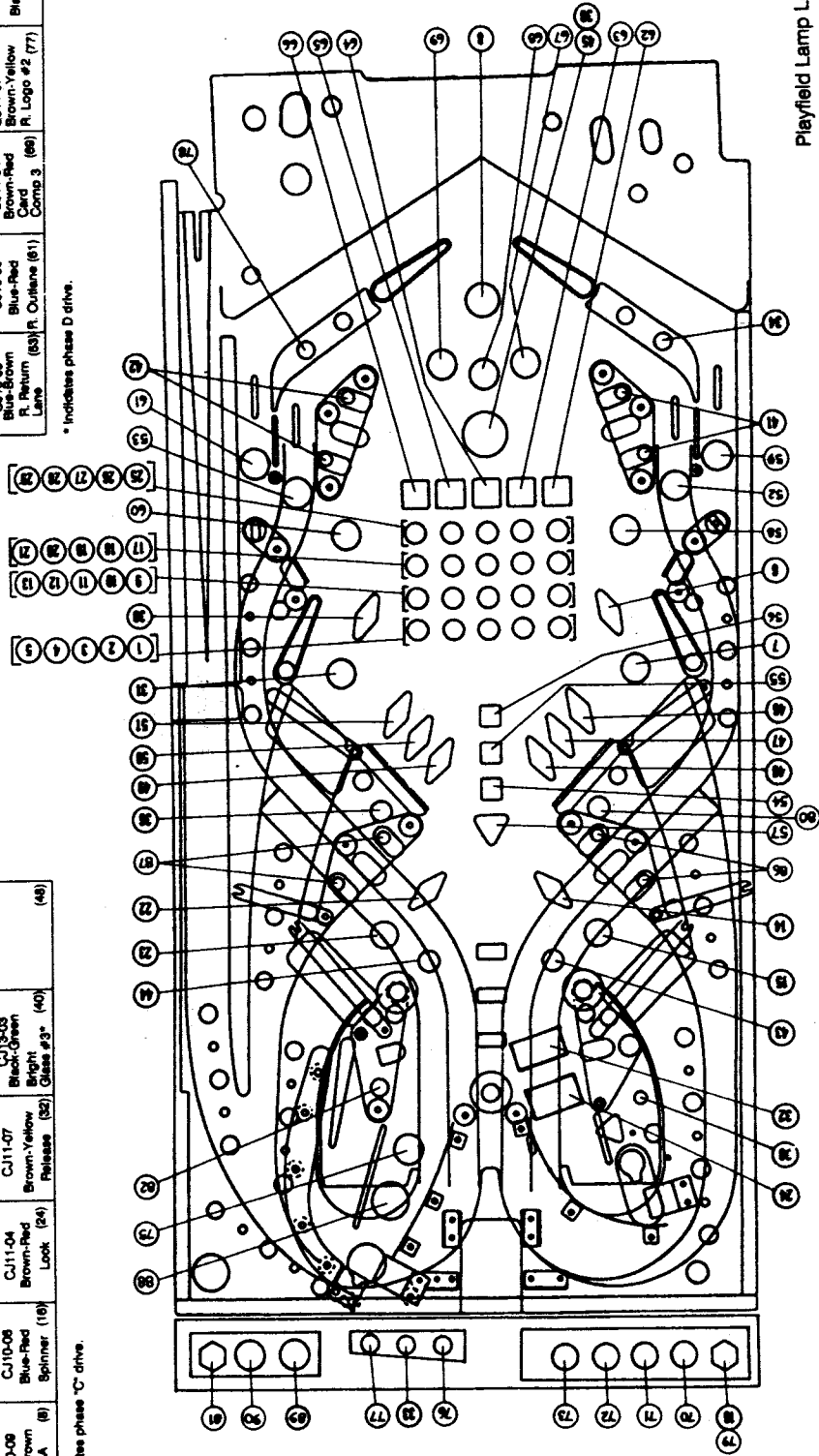
\* Indicates phase "C" drive.

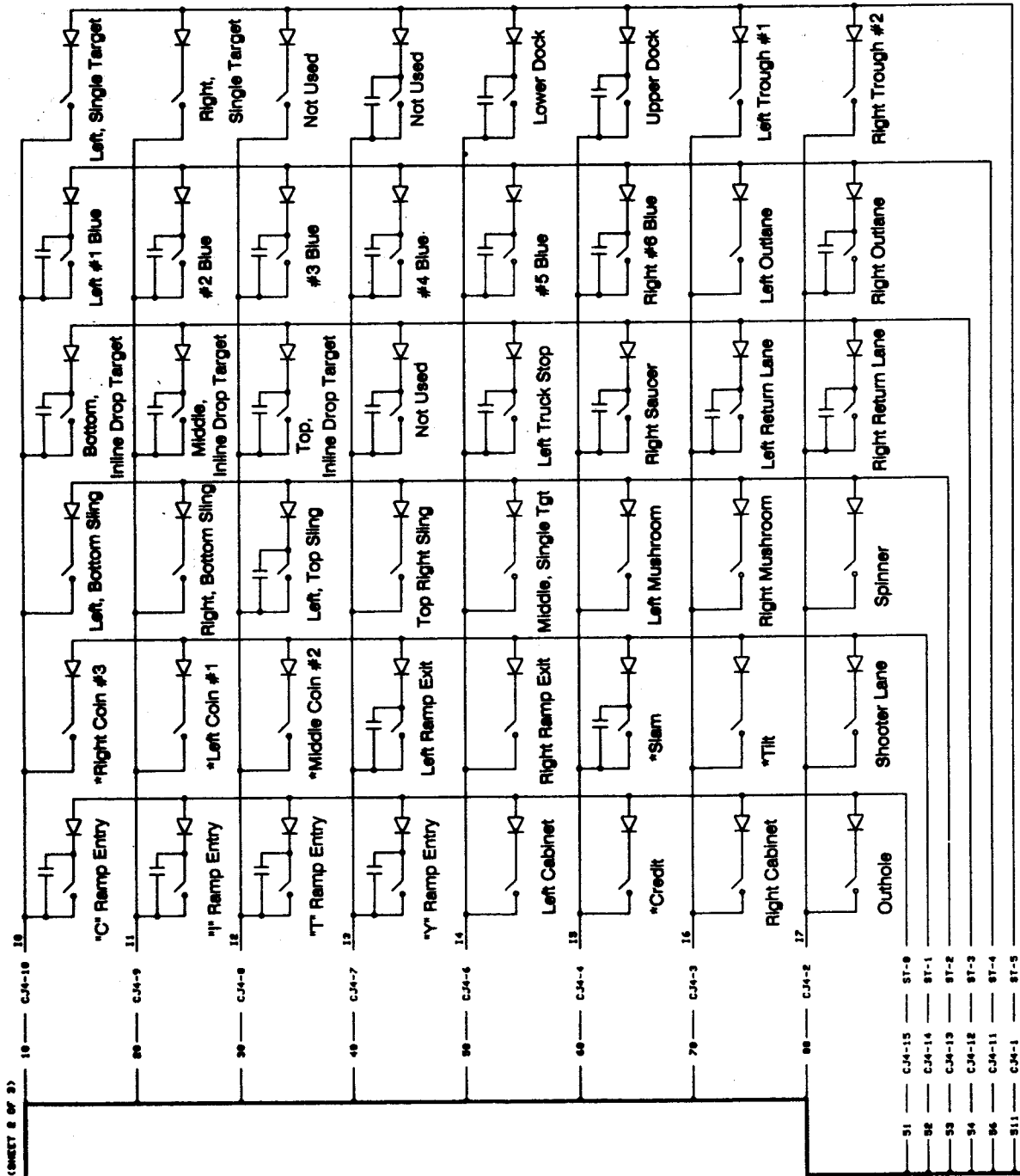
Phase "B" and "D" Lamp Table

|  |  |   |   |   |  |
|--|--|---|---|---|--|
| CJ10-01<br>Red-Blue<br>L. Blue #1 (46)   | CJ10-18<br>Green-Yellow<br>L. Blue #2 (47)   | CJ10-10<br>Blue-Black<br>L. Blue #3 (48)    | CJ11-13<br>Orange-Yellow<br>L. Blue #4 (49) | CJ12-01<br>Green-Black<br>L. Blue #5 (50)   | CJ13-12<br>Green-Red<br>L. Blue #6 (51)    |
| CJ10-07<br>Blue-Green<br>Blue #2 (47)    | CJ10-04<br>Red-White<br>L. Blue #7 (52)      | CJ10-13<br>Yellow-Brown<br>L. Blue #8 (53)  | CJ11-10<br>Brown-Black<br>L. Blue #9 (54)   | CJ12-02<br>Black-Red<br>L. Blue #10 (55)    | CJ13-10<br>Gray-Green<br>L. Blue #11 (56)  |
| CJ10-18<br>Yellow-Black<br>Blue #3 (48)  | CJ11-08<br>Brown-Green<br>L. Blue #12 (57)   | CJ11-03<br>White-Gray<br>L. Blue #13 (58)   | CJ11-03<br>Gray-Yellow<br>L. Blue #14 (59)  | CJ12-03<br>Black-Gray<br>L. Blue #15 (60)   | CJ13-04<br>Black-White<br>L. Blue #16 (61) |
| CJ10-02<br>Red-Yellow<br>Blue #4 (49)    | CJ10-19<br>Green-White<br>L. Blue #17 (62)   | CJ11-18<br>Orange-Black<br>L. Blue #18 (63) | CJ11-14<br>Orange-Green<br>L. Blue #19 (64) | CJ12-04<br>Black-Orange<br>L. Blue #20 (65) | CJ13-11<br>Gray-White<br>L. Blue #21 (66)  |
| CJ10-08<br>Blue-White<br>Blue #5 (50)    | CJ10-05<br>Red-Black<br>L. Blue #22 (67)     | CJ11-08<br>Brown-Blue<br>L. Blue #23 (68)   | CJ11-08<br>Brown-Orange<br>L. Blue #24 (69) | CJ12-05<br>Black-White<br>L. Blue #25 (70)  | CJ13-07<br>Gray-Red<br>L. Blue #26 (71)    |
| CJ10-17<br>Green-Red<br>R. Blue #6 (51)  | CJ10-12<br>Yellow-Orange<br>L. Blue #27 (72) | CJ11-12<br>White-Black<br>L. Blue #28 (73)  | CJ11-12<br>White-Black<br>L. Blue #29 (74)  | CJ12-06<br>Gray-Orange<br>L. Blue #30 (75)  |  |
| CJ10-03<br>Red-Green<br>L. Blue #7 (52)  | CJ10-11<br>Orange-Red<br>L. Blue #31 (76)    | CJ11-11<br>Orange-Red<br>L. Blue #32 (77)   | CJ11-11<br>Orange-Red<br>L. Blue #33 (78)   | CJ12-07<br>Black-Brown<br>L. Blue #34 (79)  |  |
| CJ10-09<br>Blue-Brown<br>L. Blue #8 (53) | CJ10-06<br>Blue-Red<br>L. Blue #35 (80)      | CJ11-04<br>Brown-Yellow<br>L. Blue #36 (81) | CJ11-04<br>Brown-Yellow<br>L. Blue #37 (82) | CJ12-08<br>Black-Green<br>L. Blue #38 (83)  |  |

\* Indicates phase D drive.

## Playfield Lamps





TO J5 PIN 3 BLK 1 GND  
 TO J5 PIN 1 RED 4 +5V  
 4004-91695-30000  
 4 POS. EMITTER PCB  
 3 N/U

TO J4 PIN 1 WHT-VIO 1 STROBE  
 TO J4 PIN 8 YEL 3 TROUGH 1 (LEFT)  
 TO J4 PIN 9 BLU 5 TROUGH 2 (MIDDLE)  
 TO J4 PIN 10 RED 5 TROUGH 3 (RIGHT)

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

NOTE 1. ALL SWITCH BIDDERS ARE 1M4149  
 NOTE 2. 9 INDICATES NOT USED ON PLAYFIELD.  
 BRAMING ONLY TO SHOW RESPECTIVE CABINET  
 SWITCH POSITION IN SWITCH MATRIX.  
 NOTE 3. ALL CAPACITORS ARE .05MFD/25V

PLAYFIELD SWITCHES

NOTES:  
 M. STONE  
 3/23/88  
 RIMWAY MFG. CO.  
**TRUCK STOP  
 SWITCH WIRING**  
 SHEET 2 OF 3 REV 3



# WARNINGS & NOTICES

## WARNING

**FOR SAFETY AND RELIABILITY**, substitute parts and equipment modifications are not recommended.

**USE OF NON-BALLY PARTS** or circuit modifications may cause injuries or equipment damage.

**SUBSTITUTE PARTS OR MODIFICATIONS** may void FCC Type Acceptance.

**THIS GAME IS PROTECTED** by Federal copyright, trademark and patent laws. Unauthorized software or hardware modifications may be illegal under Federal law.

**THIS "MODIFICATION" PRINCIPLE ALSO APPLIES** to unauthorized facsimiles of **BALLY** logos, designs, publications and assemblies. Moreover, facsimiles of **BALLY** equipment (or any feature thereof) may be illegal under Federal law. Whether or not such facsimiles are manufactured with **BALLY** components, this rule applies.

## WARNING

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

## WARNING

Transport this game **ONLY** with hinged backbox down!

## WARNING

**FCC STICKER.** Check the back of your game for an FCC sticker. When **BALLY** ships a game, the game has been found to comply with FCC Rules. The sticker is proof. If the sticker is missing, legal repercussions to the owner and distributor of the game may result. If your game (manufactured after December 1982) has no FCC sticker, call **BALLY** for advice. Or write us a note on your game-registration card. Be sure the card bears your game's serial number.

## WARNING

**THREE-WIRE PLUG.** Prevent shock hazard and assure proper game operation! Only plug this game into a properly grounded outlet. **DO NOT** use a "cheater" plug to defeat the power cord's ground pin. **DO NOT** cut off the ground pin.

## RF-INTERFERENCE NOTICE

**YOUR GAME'S CABLE-HARNESS PLACEMENT** and ground-strap routing are very important. They are designed to keep RF radiation and conduction within levels accepted by FCC Regulations.

**MAINTAIN THESE LEVELS.** Servicing may require that you disconnect harnesses or ground straps. When you're finished, reposition and reconnect them as they were.

## NOTICE

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